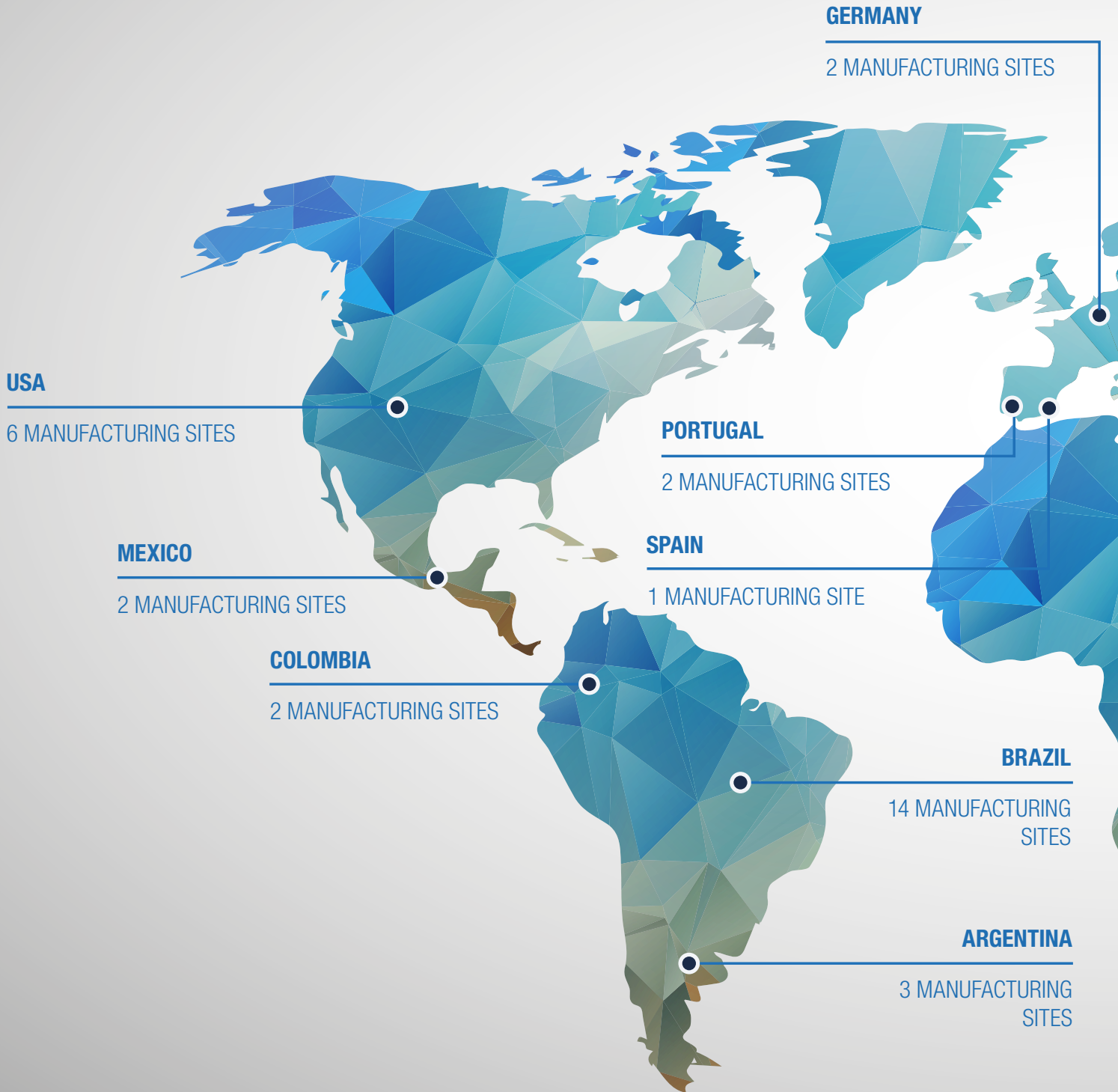


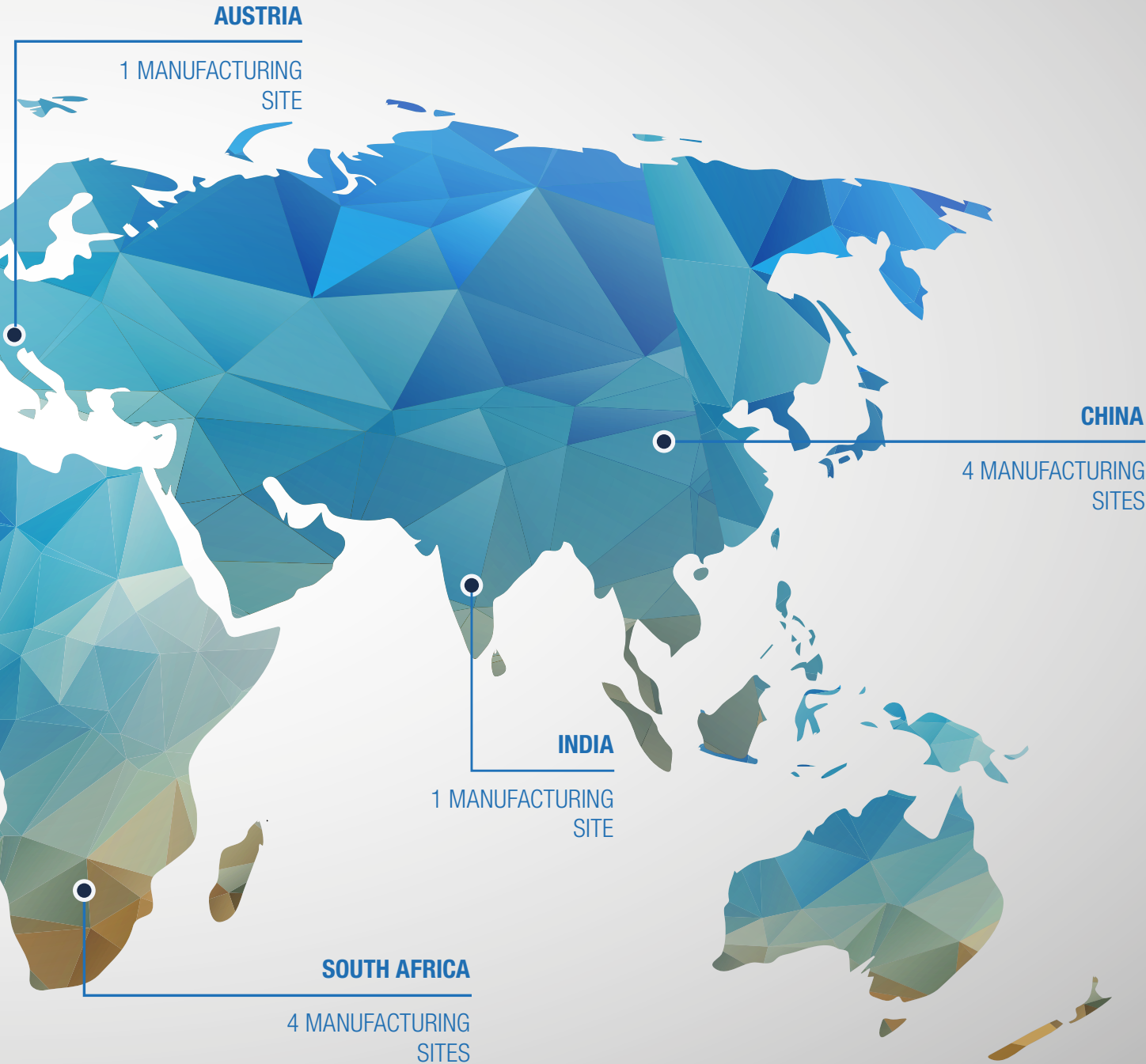
# Automation

## Low Voltage Switch & Control Gear

The image is a composite graphic. At the top, it features a technical schematic of a low-voltage switchgear, showing a central square symbol with a diagonal line and wavy lines, flanked by two identical switchgear symbols. Below this is a photograph of a blue industrial switchgear, showing a close-up of the internal components and a blue metal frame. To the right of the photograph is a color calibration chart consisting of a grid of colored squares. At the bottom, there is a technical schematic showing two three-phase motor symbols (circles with 'M' and '3' and a wavy line) connected to a central switchgear symbol. The WEG logo is located in the bottom right corner.

# MANUFACTURING SITES







## WEG Automation Manufacturing Sites

Founded in 1961, WEG currently has over 30 thousand employees and is one of the largest world manufacturers of electric equipments, having five main businesses: Motors, Energy, Transmission and Distribution, Automation and Coatings.

### Brazil



Jaraguá do Sul/SC - Headquarters (Industrial Park II)



Jaraguá do Sul/SC (Industrial Park I)



Itajaí/SC



## Colombia



Bogota



## Mexico



Huehuetoca



## USA



Atlanta



## Spain



València (ALTRIAL)



## Portugal



Maia



## Argentina



San Francisco



## South Africa



Cape Town (IMS)



Johannesburg (Zest WEG Group Headquarters)





## WEG Automation - Controls

# Manufacturing **Know How**

Committed to growth on a global scale, **WEG continually invests** in state-of-the-art manufacturing facilities and processes and on the development of reliable components. We understand that production facilities need to be **robust, reliable, innovative** and **environmentally sustainable**.

## Quality Control

WEG's motor control and protection components are produced in facilities that work according to **the most demanding quality and process control standards** like IEC and NEMA. Our **ISO 9001, ISO 14001** and **ISO 50001** certifications further illustrate our commitment to standards of international quality.



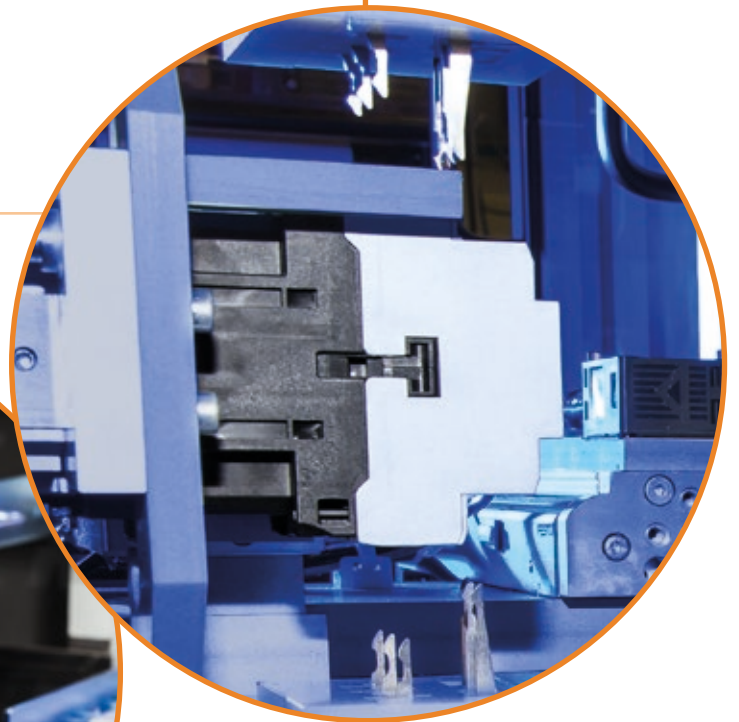
### A **Vertically Integrated** Company

WEG is a vertically integrated company. Our facilities, renowned for their capacity, efficiency, quality control, safety and flexibility have all kinds of industrialization processes internally such as, plastic injection molding, metal stamping and machining centers, assuring increased quality control throughout the production chain.

New area in the plastic injection center.



Detail of the final test on the assembly line of contactors: 100% of components are automatically tested for more than 15 different parameters such as operating limits, coil consumption, insulation voltage levels, vibration and noise among others and then individually identified for tracking purposes.



Magnetic core of contactors: precise, temperature-controlled, fully-automatic production assures a high-end product.



**Laborat  
de Ensa  
Certifica**





# Certifications



Prüf- und Zertifizierungsinstitut



## Test Lab & Certification

ISO 17025, one of the most significant certifications in the WEG Automation Laboratory testing, is awarded to laboratories which demonstrate technical competence in all testing activities. We continually invest in technology in order to obtain the most reliable test results.



**WEG IE3-conform** control and protection components: **the right choice** for **premium efficiency** motors.



The most recent change of the European directive 640/2009/EC, which came into force in January 2015, affects manufacturers and users of electric motors and switching and protection components. According to the new regulation, motors with rated outputs from 7.5 to 375 kW must not be less efficient than the IE3 efficiency level or may still be IE2 efficiency level if equipped with variable speed drives.

Lowering energy consumption and caring for the environment has always been a priority for WEG. It has been producing premium and super premium efficiency electric (IE3 and IE4 standard or equivalent) motors for over fifteen years. **The new regulation shows how innovative WEG has always been.** The company is aware that the design improvements in the electric motors to achieve the efficiencies will have possible impact on the switching and protection components.

Company experts list the use of cores with thinner silicon steel laminations, greater silicon concentration and windings with increased copper mass as the main optimizations. Improvements also include reduced air-gaps and a more efficient cooling system.

With the higher efficiency, it is common for IE3 motors to present higher inrush and starting currents in

comparison to IE2 motors. Therefore, **is it necessary to use a derating factor when WEG switching and protection components are sized for IE3 motors?**

The answer to this is simple and objective: WEG's line of components has been developed and improved alongside IE3 motors, therefore, it is suitable for such purpose and no derating factor is necessary, **WEG components are IE3-conform.**

There is still some uncertainty in the market about the effect of the changes in standards and directives. This statement seeks to inform and reassure customers. All new motors placed on the market, include within the scope of directive, have to be IE3 efficiency or above IE2 efficiency rated when equipped with a variable speed drive. If on one hand the use of premium efficiency motors is mandatory, **the choice of switching and protection components for IE3 motors is the users decision.**



# Automation

## Low Voltage Switch & Control Gear

### Contactors and Control Relays

Compact Contactors CWC0 .....  
Contactors - CWB Line .....  
Contactors - CWM Line .....  
Contactors for Switching of Capacitors.....

# A

A1  
A2  
A3  
A4

### Thermal and Solid-State Overload Relays

Thermal Overload Relays RW Line .....  
Solid-State Overload Relays RW\_E .....

# B

B1  
B2

### Motor Protective Circuit Breaker

# C

### Enclosed Starters

# D

### SRW01 Smart Relay

# E

### Electronic Relays - Timing, Monitoring and Level Relays

Electronic Relays .....  
Electronic Relays - Modular Line .....

# F

F1  
F2

### Pushbuttons and Pilot Lights - CSW Line

# G

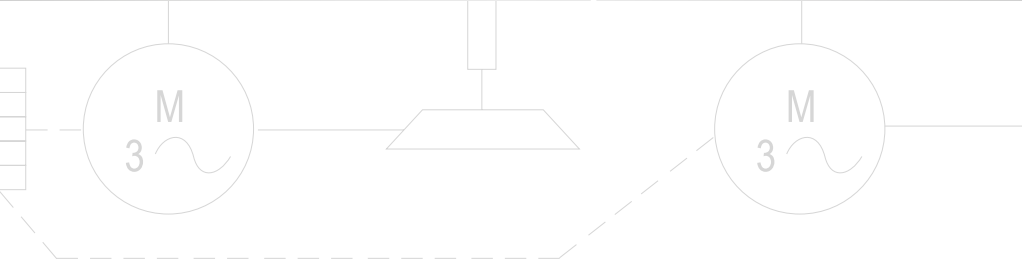
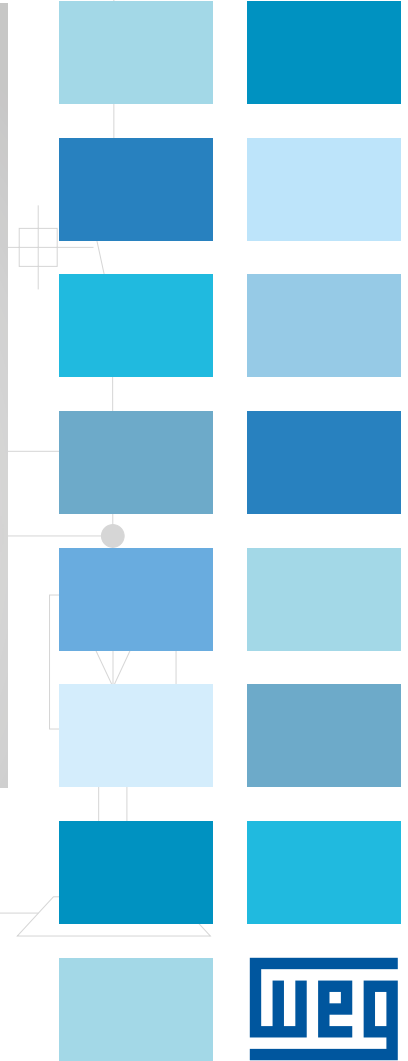
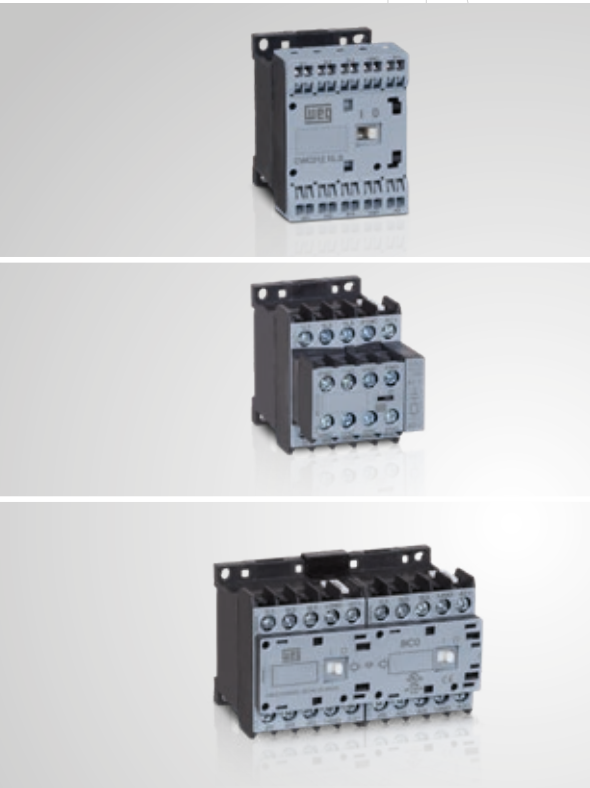
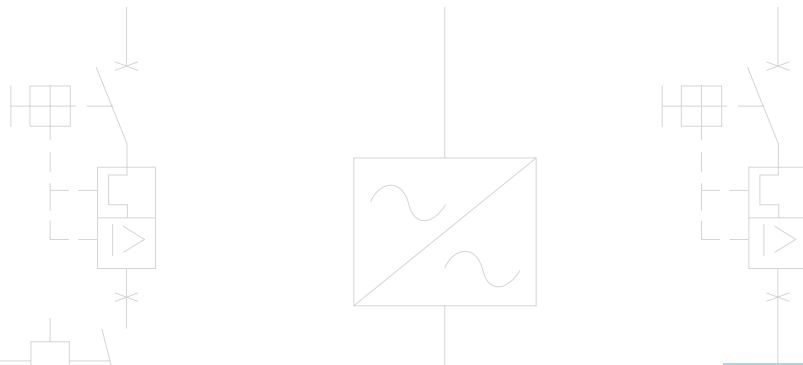
### Terminal Blocks - BTW Series

# H



# Automation

## Compact Contactors CWC0



1L1

3L2

5L3

13NO

CWC016



10

CWC016.10E

14NO

A2

V#1

2T1



# Compact Contactors CWC0

## Summary

Presentation	A-4
Accessories Overview	A-11
Selection Table	A-12
Accessories	A-18
Technical Data	A-21
Dimensions	A-32

# Your best solution for Electrical Switching Operations



## Compact Contactors - CWC0

Developed according to international standards IEC/EN 60947 (CE) and UL 508 (USA), they meet the requirements of a wide range of applications around the world. Ideal for applications where conventional contactors are too large for the space available and where streamlined projects are necessary. Although small, they are able to switch loads up to 690 V. They present high performance in electrical switching operations, reaching over one million operations.

### Versions

- Three-pole (3NA) up to 22 A @ AC-3
- Four-pole (4NO or 2NO+2NC) up to 16 A @ AC-3
- Auxiliary (4NO, 3 NO+1NC, 3NC+1NO, 2NO+2NC) up to 10 A @ AC-15
- Contactors with AC and DC coil with the same size up to 16 A (CWC07...16) and a wide range of coil voltages available





A  
A1

B

C

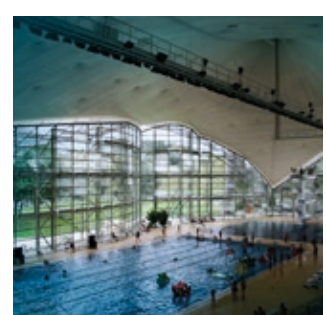
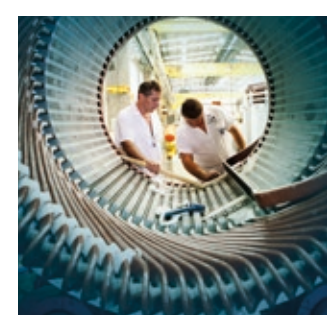
### Applications

The characteristics of the contactors make them suitable for applications in different segments:

- Wood
- Food
- Refrigeration
- Pumping systems
- Machines and processes in general
- Irrigation systems
- Buildings
- Illumination
- Vehicle barriers and automatic gates



D



E

F

### Main Certifications



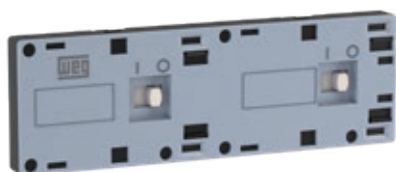
G



H

### Mechanical Interlock

Mechanical interlock without addition of side space. It allows the CWC07...16 contactors to be mounted side by side, providing better use of space in panels for reversing and star-delta starters. This accessory is mounted in the front, and no tools are required for the installation. Its use does not prevent the addition of auxiliary contact blocks, surge suppressor blocks, and other accessories connected to the power terminals.



### Safety in Installation

All the contactors have degree of protection IP20 to prevent inadvertent contacts with the live parts without requiring additional accessories.



### Surge Suppressor Blocks

Designed to prevent current or voltage surges on the command circuit, the suppressor blocks of the CWC0 line were developed with the clip fastening system without using cables. The assembly and disassembly do not require any tools. Available in the versions: varistor, resistor-capacitor, diode and Zener diode.



### Efficiency in the Mounting

The mounting on DIN rail 35 mm (EN 50022-35) provides fast and efficient installations. Its mounting base allows up to four fastening points, making the installation flexible and totally compatible with most existing contactors, simplifying its replacement by the CWC0 lines.



### Indication of Position or State

Front identification of the state of the contactor by means of indicator in the place marked with "I" (ON) and "O" (OFF). Contactors, even installed with accessories, allow the view of their state.



### Connection Busbars

Developed for customers that need to save time, avoid errors and standardize operations in the assembly of motor starters on electrical panels. Available in the reversing and star-delta versions, they also allow to add protections (MPW motor-protective circuit breakers or RW17 overload relays) together with these contactors.



### Mirror and Mechanically Linked Contacts

In order to meet the requirements of the safest and most demanding machine and equipment applications, the contactors were developed according to IEC/EN 60947-4-1 - Annex F, about "Mirror Contacts", and IEC/EN 60947-5-1 - Annex L, about "Mechanically Linked Contacts".



IEC/EN 60947-5-1 Symbol  
Mechanically Linked  
Contacts



IEC/EN 60947-4-1  
Symbol Mirror Contacts

### Built-In Auxiliary Contacts - 1NO or 1NC

They meet the needs of most applications without requiring any additional contacts, reducing items in the inventory. They have self-cleaning characteristics by means of sliding contacts, providing high reliability in low voltage and current (17 V / 5 mA) switching operations.



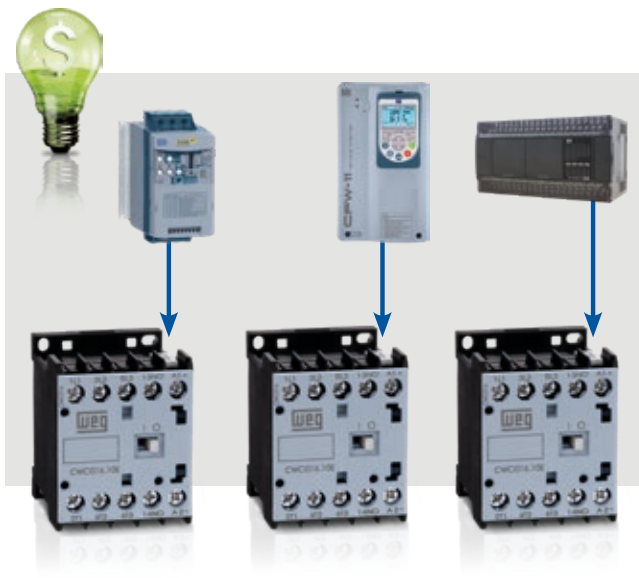
### Additional Contact Blocks

Available in the frontal version, they allow the expansion of 4 or 2 auxiliary contacts per contactor. Assembly and disassembly without tools. They have self-cleaning characteristics by means of sliding contacts, providing high reliability in low voltage and current (17 V / 5 mA) switching operations. Numbering according to EN 50005 and EN 50012.



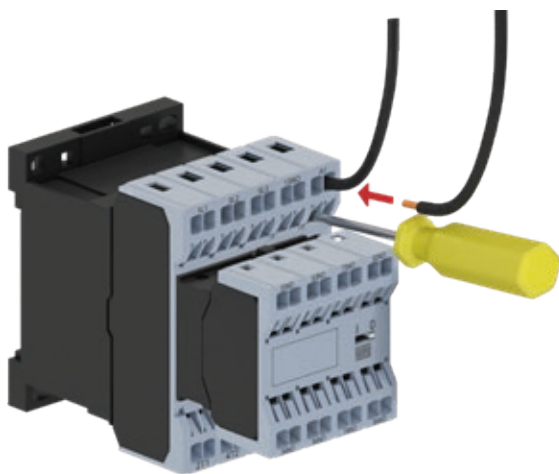
### Drive Control

Low-consumption, direct current coils (5.8 W) enable the direct drive of the contactors via PLCs, inverter outputs or soft-starter, without using relay interfaces. Low and extremely low-consumption coils allow to reduce power supplies and command transformers, ensuring better use of the energy resources and lower costs on your electrical panel.



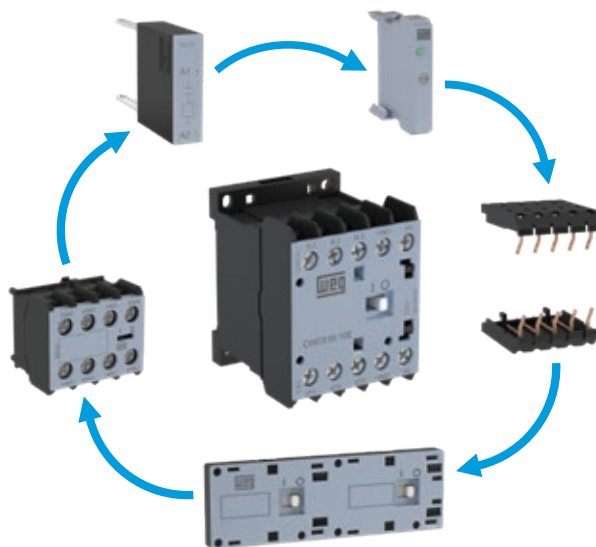
### Faster and Securer Connections

The cage clamp connections of the CWC07...16 contactors provide faster installation of power cables and accessories. Using a screwdriver, it is possible to make the connections in a shorter time in comparison to screw terminals. Due to special springs on the connection terminals, retightening is not necessary, because the connection system ensures constant pressure on the cables.



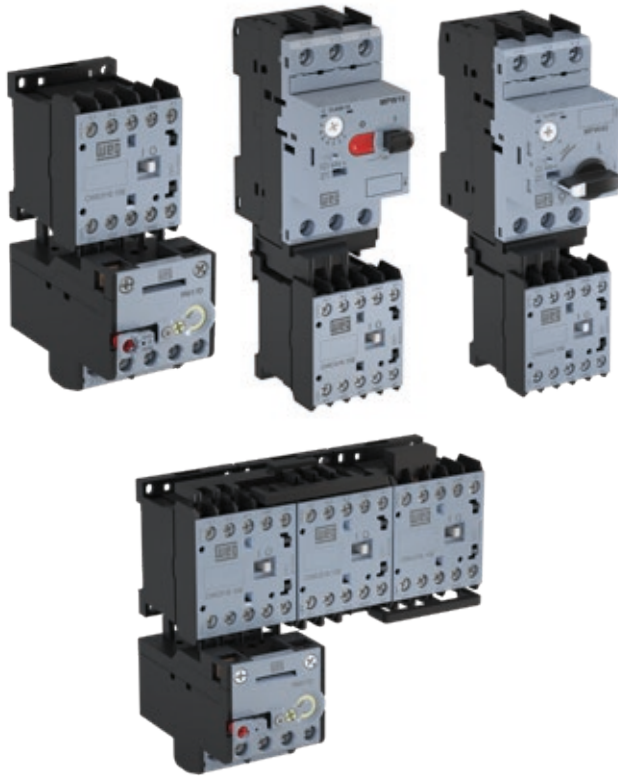
### Wide Range of Accessories

All the accessories are interchangeable between the CWC07...16 and CWCA0 models, enabling the optimization of items and greater flexibility of their applications. Example: the same front contact block, suppressor blocks, interlock and mechanical retention may be installed in different models of contactors.



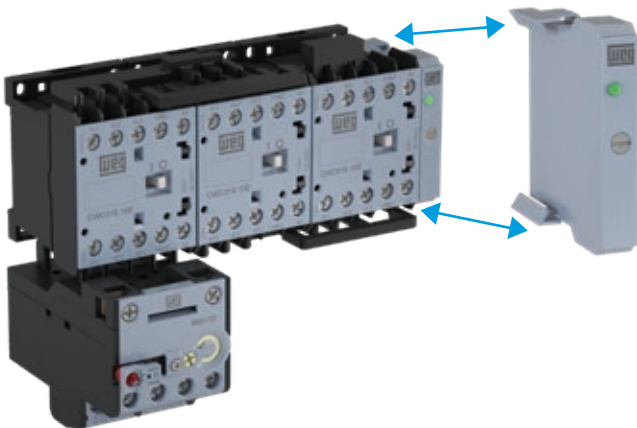
### Compact Starters

The most compact starters on the market up to 25 A. Contactors fully compatible with the RW17 overload relays and MPW18 e MPW40 motor-protective circuit breakers, enabling the installation of direct on-line starters up to 9.2 kW / 12.5 cv @ 380 V and star-delta starters up to 22 kW / 30 cv @ 380 V.



### Timer Blocks

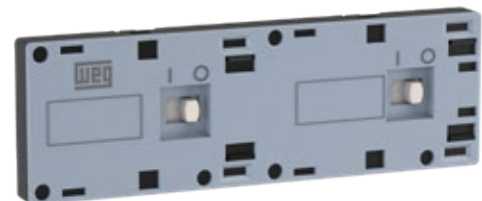
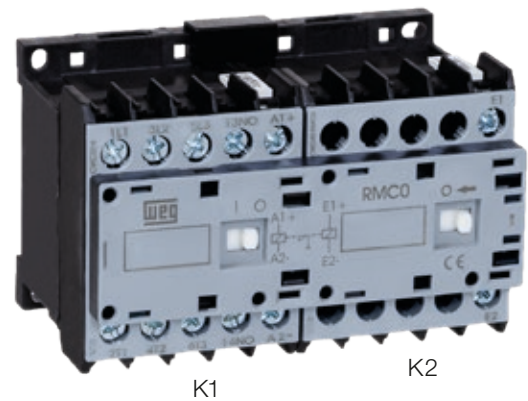
Extremely compact electronic timers only 9 mm wide. They are installed on the side of the CWC07...25 contactors without tools, allowing timing between 0.3s and 1,800s (30min) at voltages of 24...240 V AC/V DC. Models with Power up Delay (TEC0), Power down Delay (TDC0) and for star-delta starters (TETC0).



### RMC0 Mechanical Retention Block

It allows to keep the electrical contacts of the contactors operated without continuous supply of its coil. Ideal for circuits with a low number of switching operations, such as: ventilation systems, illumination, etc. The front mounting of this accessory on two contactors mounted side by side allows the mechanical retention of one contactor (K1).

After a command pulse on the coil of contactor K1 (minimum duration of 100ms), this accessory will keep its contacts retained. For contactor K1 to return to its initial state, it is necessary a command pulse on the coil of contactor K2 (RESET), releasing the mechanical retention of contactor K1. If the coil of contactor K2 keeps energized, the RMC0 accessory will not actuate on contactor K1. Accessory compatible with CWC07...16 and CWCA contactors, front contact blocks, suppressor blocks and timers.



A

A1

B

C

D

E

F

G

H

### Environmentally Friendly

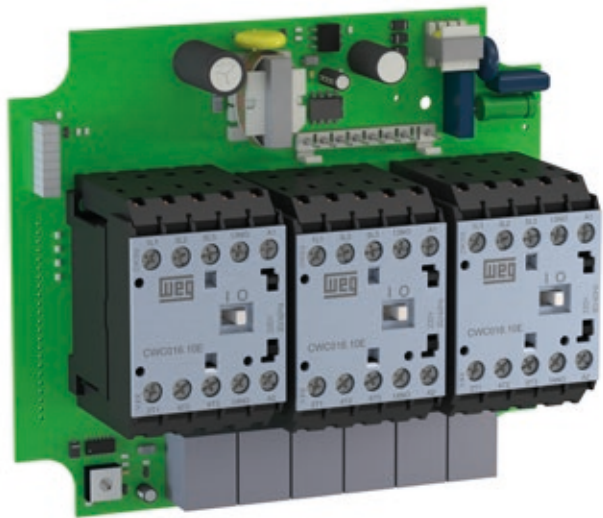
Manufactured with materials of low impact on the environment and according to the RoHS international requirements.



Issued by the Parliament and by the European Council, the RoHS restricts the use of hazardous substances on electronic products traded in the countries members of the EU, prohibiting the ingress of new products on the market in case they contain lead, cadmium, hexavalent chromium, mercury, polybrominated biphenyl (PBB) and polybrominated diphenyl ethers (PBDE). The CWC0 line complies with the RoHS requirements.

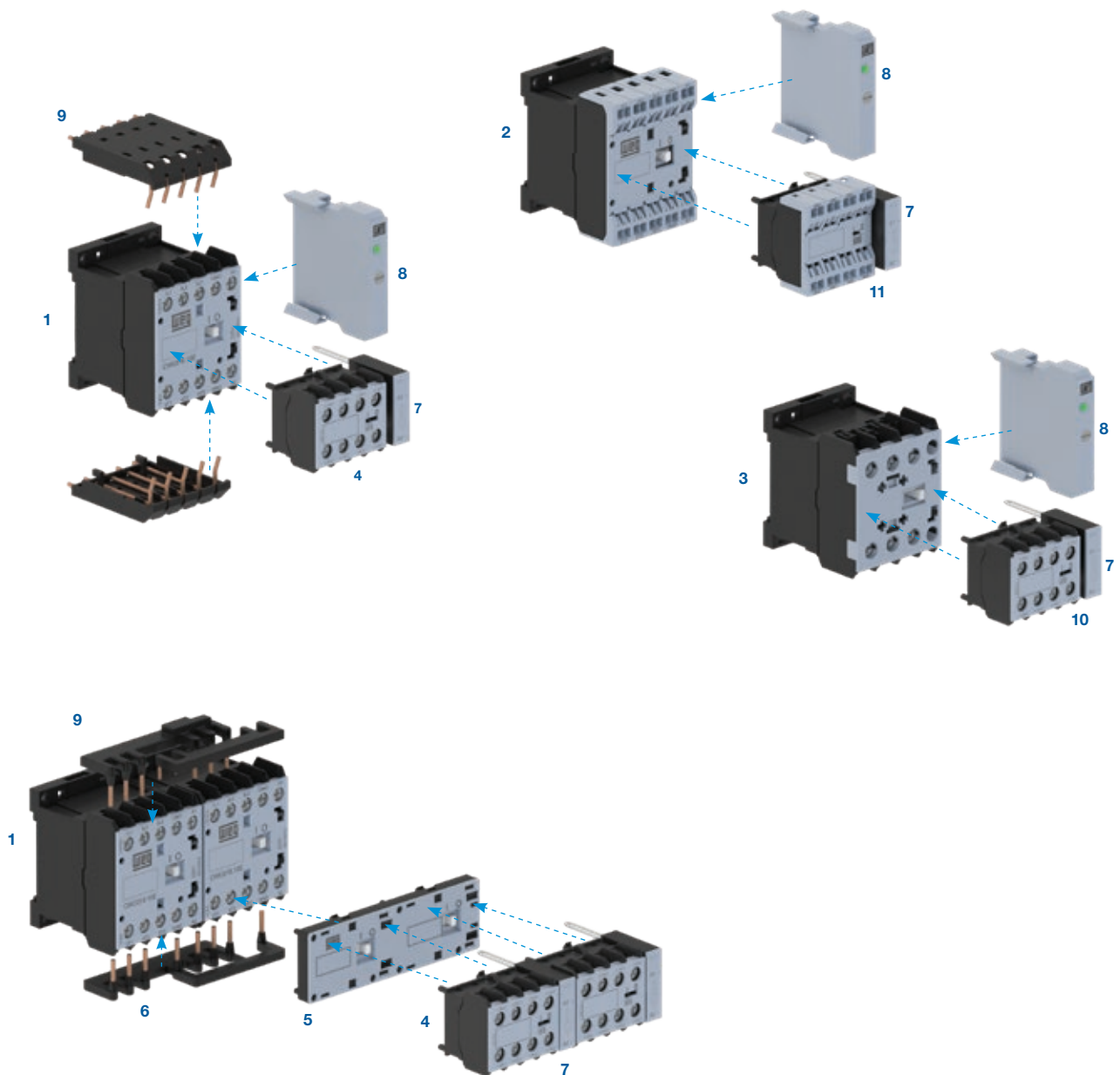
### Connectors for CIC0 Printed Circuit Boards

The accessory allows mounting the CWC07...16 and CWCA contactors with screw terminal on printed circuit boards. Ideal for OEMs (automatization of vehicle barriers, automatic gates, fans, etc.) that require operations with robust components developed for specific applications, such as the switching of electric motors. Connectors manufactured with metallic terminals with special coating for better adherence of the weld and support in plastic flame resistant material.





## CWC0 Compact Contactors - Accessories Overview



- 1** - Compact contactors CWC07...16 and CWCA0 (screw terminal)
- 2** - Compact contactors CWC07...12\_S and CWCA0\_S (spring terminal)
- 3** - Compact contactor CWC025 (screw terminal)
- 4** - Auxiliary contact block BFC (screw terminal)
- 5** - Mechanical interlock block BICO or latch block RMC0
- 6** - Easy connection busbars
- 7** - Surge suppressor blocks RCC0 (RC), VRC0 (varistor), DIC0 (diode), RCAC0 (RC), DIZC0 (diode+zener)
- 8** - Electronic timers TEC0, TDC0 and TETC0
- 9** - Block module for printed circuit board CIC0
- 10** - Auxiliary contact block BFC025 (screw terminal)
- 11** - Auxiliary contact block BFC\_S (spring terminal)

## CWC0 Compact Contactors - Selection Table



### Three-Pole - 7 A to 22 A (AC-3)<sup>4)</sup>

Rated operational current $I_n$ AC-3 ( $U_e \leq 440$ V)	Conv. thermal current $I_{th} = I_n$ AC-1	Maximum rated operational power of three-phase motors 50/60 Hz <sup>1)</sup>						Built-in auxiliary contacts		Reference to complete with control voltage code		AC coil	DC coil
		220 V 230 V	380 V	400 V 415 V	440 V	500 V	660 V 690 V	*3 NO	*1 NC	Screw terminal	Spring terminal	Weight kg	
7 A	18 A	1.5 / 2	3 / 4	3 / 4	3.7 / 5	3.7 / 5	3 / 4	1 0	0 1	CWC07-10-30♦ CWC07-01-30♦	CWC07-10-30♦S CWC07-01-30♦S	0.195	0.230
9 A	20 A	2.2 / 3	4 / 5	4 / 5	4.5 / 6	4.5 / 6	4 / 5	1 0	0 1	CWC09-10-30♦ CWC09-01-30♦	CWC09-10-30♦S CWC09-01-30♦S		
12 A	22 A	3 / 4	5.5 / 7.5	5.5 / 7.5	5.5 / 7.5	5.5 / 7.5	5.5 / 7.5	1 0	0 1	CWC012-10-30♦ CWC012-01-30♦	CWC012-10-30♦S CWC012-01-30♦S		
16 A	22 A	4 / 5	7.5 / 10	7.5 / 10	7.5 / 10	7.5 / 10	7.5 / 10	1 0	0 1	CWC016-10-30♦ CWC016-01-30♦	- -		
22 A	32 A	5.5 / 7.5	11 / 15	11 / 15	11 / 15	11 / 15	11 / 15	0 0	0 0	CWC025-00-30♦	-		

Replace “♦” with the appropriate coil voltage code<sup>2)</sup>.

AC coil - 50/60 Hz												
Applicable for CWC07...CWC025 models												
Coil voltage codes	D02	D07	D13	D23	D24	D25	D33	D34	D35	D36	D39	
V ac - 50/60 Hz	24	48	110	220	230	240	380	400	415	440	480	

DC coil - Standard consumption coil					
Applicable for CWC07...CWC016 models					
Coil voltage codes	C03	C06	C07	C12	C15
V dc	24	42	48	110	220

DC coil - Low consumption coil <sup>3)</sup>					
Applicable for CWC07...CWC016 models					
Coil voltage codes	L03	L06	L07	L12	L15
V dc	24	42	48	110	220

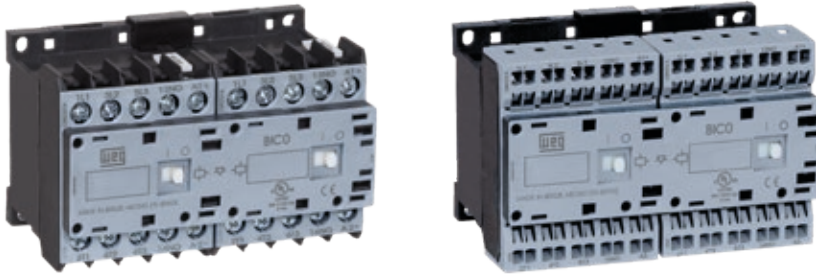
Notes: 1) For 50/60 Hz three-phase, 4 poles WEG standard motors. These values are only for reference and may change on the number of poles and motor design;

2) Other voltages available;

3) The compact contactor CWC0 with low consumption coil allows only 2 additional auxiliary contacts;

4) For selection of accessories, check page A-18.

## CWC0 Compact Contactors - Selection Table



### Three-Pole Reversing Starter with Mechanical Interlock - 7 A to 16 A (AC-3)<sup>3)</sup>

Rated operational current $I_e$ AC-3 ( $U_e \leq 440$ V)	Conv. thermal current $I_{th} = I_e$ AC-1	Maximum rated operational power of three-phase motors 50/60 Hz <sup>1)</sup>						Built-in auxiliary contacts		Reference to complete with control voltage code		AC coil	DC coil
		220 V 230 V	380 V	400 V 415 V	440 V	500 V	660 V 690 V	*3 NO	*1 NC	Screw terminal	Spring terminal	Weight kg	
7	18	1.5 / 2	3 / 4	3 / 4	3.7 / 5	3.7 / 5	3 / 4	1 0	0 1	CWCI07-10-30◆ CWCI07-01-30◆	CWCI07-10-30◆S CWCI07-01-30◆S	0.395	0.480
9	20	2.2 / 3	4 / 5	4 / 5	4.5 / 6	4.5 / 6	4 / 5	1 0	0 1	CWCI09-10-30◆ CWCI09-01-30◆	CWCI09-10-30◆S CWCI09-01-30◆S		
12	22	3 / 4	5.5 / 7.5	5.5 / 7.5	5.5 / 7.5	5.5 / 7.5	5.5 / 7.5	1 0	0 1	CWCI12-10-30◆ CWCI12-01-30◆	CWCI12-10-30◆S CWCI12-01-30◆S		
16	22	4 / 5	7.5 / 10	7.5 / 10	7.5 / 10	7.5 / 10	7.5 / 10	1 0	0 1	CWCI16-10-30◆ CWCI16-01-30◆	- -		

Replace “◆” with the appropriate coil voltage code<sup>2)</sup>.

AC coil - 50/60 Hz												
Applicable for CWC07...CWC025 models												
Coil voltage codes	D02	D07	D13	D23	D24	D25	D33	D34	D35	D36	D39	
V ac - 50/60 Hz	24	48	110	220	230	240	380	400	415	440	480	

DC coil - Standard consumption coil					
Applicable for CWCI07...CWCI016 models					
Coil voltage codes	C03	C06	C07	C12	C15
V dc	24	42	48	110	220

Notes: 1) For 50/60 Hz three-phase, 4 poles WEG standard motors. These values are only for reference and may change on the number of poles and motor design;  
 2) Other voltages available;  
 3) For selection of accessories, check page A-18.

## CWC0 Compact Contactors - Selection Table



### Three-Pole for Printed Circuit Boards - 7 A to 16 A (AC-3)<sup>4)</sup>

Rated operational current $I_e$ AC-3 ( $U_e \leq 440$ V)	Conv. thermal current $I_{th} = I_e$ AC-1	Maximum rated operational power of three-phase motors 50/60 Hz <sup>1)</sup>						Built-in auxiliary contacts		Reference to complete with control voltage code	AC coil	DC coil
		220 V 230 V	380 V	400 V 415 V	440 V	500 V	660 V 690 V	*3 NO	*1 NC		Weight kg	
7	18	1.5 / 2	3 / 4	3 / 4	3.7 / 5	3.7 / 5	3 / 4	1 0	0 1	CWC07-10-30♦ CWC07-01-30♦	0.395	0.480
9	20	2.2 / 3	4 / 5	4 / 5	4.5 / 6	4.5 / 6	4 / 5	1 0	0 1	CWC09-10-30♦ CWC09-01-30♦		
12	22	3 / 4	5.5 / 7.5	5.5 / 7.5	5.5 / 7.5	5.5 / 7.5	5.5 / 7.5	1 0	0 1	CWC12-10-30♦ CWC12-01-30♦		
16	22	4 / 5	7.5 / 10	7.5 / 10	7.5 / 10	7.5 / 10	7.5 / 10	1 0	0 1	CWC16-10-30♦ CWC16-01-30♦		

Replace “♦” with the appropriate coil voltage code<sup>2)</sup>.

AC coil - 50/60 Hz												
Applicable for CWC07...CWC025 models												
Coil voltage codes	D02	D07	D13	D23	D24	D25	D33	D34	D35	D36	D39	
V ac - 50/60 Hz	24	48	110	220	230	240	380	400	415	440	480	

DC coil - Standard consumption coil					
Applicable for CWC07...CWC016 models					
Coil voltage codes	C03	C06	C07	C12	C15
V dc	24	42	48	110	220

DC coil - Low consumption coil <sup>3)</sup>					
Applicable for CWC07...CWC016 models					
Coil voltage codes	L03	L06	L07	L12	L15
V dc	24	42	48	110	220

Notes: 1) For 50/60 Hz three-phase, 4 poles WEG standard motors. These values are only for reference and may change on the number of poles and motor design;

2) Other voltages available;

3) The compact contactor CWC0 with low consumption coil allows only 2 additional auxiliary contacts;

4) For selection of accessories, check page A-18.

# CWC0 Compact Contactors - Selection Table



## Control Relay<sup>3)</sup>

Rated thermal current $I_{th}$ AC-1 A	Rated current $I_n$ AC-15 A					Reference to complete with control voltage code		AC coil	DC coil
	220 V 230 V	380 V 400 V	415 V 440 V	500 V	660 V 690 V	Screw terminal	Spring terminal	Weight kg	
10	10	6	5	4	2	CWCA0-22-00 ♦	CWCA0-22-00 ♦ S	0.180	0.200
						CWCA0-31-00 ♦	CWCA0-31-00 ♦ S		
						CWCA0-40-00 ♦	CWCA0-40-00 ♦ S		
						CWCA0-13-00 ♦	CWCA0-13-00 ♦ S		
						CWCA0-04-00 ♦	CWCA0-04-00 ♦ S		

Replace “♦” with the appropriate coil voltage code<sup>1)</sup>.

AC coil - 50/60 Hz												
Applicable for CWC07...CWC025 models												
Coil voltage codes	D02	D07	D13	D23	D24	D25	D33	D34	D35	D36	D39	
V ac - 50/60 Hz	24	48	110	220	230	240	380	400	415	440	480	

DC Coil - Standard consumption							
Applicable for CWCA0 models							
Coil voltage codes	C03		C07	C09		C12	C15
V dc	24		48	60		110	220

DC Coil - Low consumption <sup>2)</sup>							
Applicable for CWCA0 models							
Coil voltage codes	L03		L06	L07		L12	L15
V dc	24		42	48		110	220

Notes: 1) Other voltages available;  
 2) The compact contactor CWC0 with low consumption coil allows only 2 additional auxiliary contacts;  
 3) For selection of accessories, check page A-18.

## CWC0 Compact Contactors - Selection Table



### Four-Pole (4P and 2P/2R) up to 22 A (AC-1)<sup>3)</sup>

Conventional thermal current $I_e=I_{th}$ AC-1 A	Main contacts		Reference to complete with control voltage code		AC coil	DC coil
	NO	NC	Screw terminal	Spring terminal	Weight kg	
18	4	0	CWC07-00-40 ♦	CWC07-00-40 ♦ S	0.195	0.230
20			CWC09-00-40 ♦	CWC09-00-40 ♦ S		
22			CWC012-00-40 ♦	CWC012-00-40 ♦ S		
22			CWC016-00-40 ♦	-		
18	2	2	CWC07-00-22 ♦	CWC07-00-22 ♦ S		
20			CWC09-00-22 ♦	CWC09-00-22 ♦ S		
22			CWC012-00-22 ♦	CWC012-00-22 ♦ S		
22			CWC016-00-22 ♦	-		

Replace “♦” with the appropriate coil voltage code<sup>1)</sup>.

AC coil - 50/60 Hz											
Applicable for CWC07...CWC025 models											
Coil voltage codes	D02	D07	D13	D23	D24	D25	D33	D34	D35	D36	D39
V ac - 50/60 Hz	24	48	110	220	230	240	380	400	415	440	480

DC Coil - Standard consumption						
Applicable for CWC07...CWC016 four-pole (4NO) models						
Coil voltage codes	C03		C07		C15	
V dc	24		48		220	

DC Coil - Low consumption <sup>2)</sup>						
Applicable for CWC07...CWC016 four-pole (4NO) models						
Coil voltage codes	L03		L06		L15	
V dc	24		42		220	

DC Coil (0.75 x Uc)						
Applicable for CWC07...CWC016 four-pole 2P/2R (2NO+2NC) models						
Coil voltage codes	R03		R06		R15	
V dc	24		42		220	

Notes: 1) Other voltages available;

2) The compact contactor CWC0 with low consumption coil allows only 2 additional auxiliary contacts;

3) For selection of accessories, check page A-18.

## CWC0 Compact Contactors - Selection Table



### Three-Pole with Latch Block - 5.6 A to 12.8 A (AC-3)<sup>3)4)</sup>

Rated operational current $I_e$ AC-3 ( $U_e \leq 440$ V) <b>A</b>	Conv. thermal current $I_m = I_e$ AC-1 <b>A</b>	Maximum rated operational power of three-phase motors 50/60 Hz <sup>1)</sup>						Built-in auxiliary contacts		Reference to complete with control voltage code		AC coil	DC coil
		220 V 230 V kW / HP	380 V kW / HP	400 V 415 V kW / HP	440 V kW / HP	500 V kW / HP	660 V 690 V kW / HP	*3 NO	*1 NC	Screw terminal	Spring terminal	Weight kg	
5.6	14.4	1.1 / 1.5	2.2 / 3	2.2 / 3	2.2 / 3	2.2 / 3	3 / 4	1 0	0 1	CWCH7-10-30♦ CWCH7-01-30♦	CWCH7-10-30♦S CWCH7-01-30♦S	0.395	0.480
7.2	16	1.5 / 2	3 / 4	3 / 4	3.7 / 5	3.7 / 5	3.7 / 5	1 0	0 1	CWCH09-10-30♦ CWCH09-01-30♦	CWCH09-10-30♦S CWCH09-01-30♦S		
9.6	17.6	2.2 / 3	4.5 / 6	4.5 / 6	4.5 / 6	5.5 / 7.5	5.5 / 7.5	1 0	0 1	CWCH012-10-30♦ CWCH012-01-30♦	CWCH012-10-30♦S CWCH012-01-30♦S		
12.8	17.6	3 / 4	5.5 / 7.5	5.5 / 7.5	5.5 / 7.5	7.5 / 10	7.5 / 10	1 0	0 1	CWCH016-10-30♦ CWCH016-01-30♦	CWCH016-10-30♦S CWCH016-01-30♦S		

### Control Relay with Latch Block

Rated operational current $I_e$		Number of auxiliary contacts		Reference code to complete with voltage code		AC coil	DC coil
AC-14 / AC-15 ( $U_e \leq 230$ V) <b>A</b>	DC-13 ( $U_e \leq 24$ V) <b>A</b>	*3 NO	*1 NC	Screw terminal	Spring terminal	Weight kg	
8	4.8	2	2	CWCHA0-22-00♦	CWCHA0-22-00♦S	0.377	0.444
8	4.8	3	1	CWCHA0-31-00♦	CWCHA0-31-00♦S		
8	4.8	4	-	CWCHA0-40-00♦	CWCHA0-40-00♦S		
8	4.8	1	3	CWCHA0-13-00♦	CWCHA0-13-00♦S		
8	4.8	-	4	CWCHA0-04-00♦	CWCHA0-04-00♦S		

Replace "♦" with the appropriate coil voltage code<sup>2)</sup>.

AC coil - 50/60 Hz											
Applicable for CWC07...CWC025 models											
Coil voltage codes	D02	D07	D13	D23	D24	D25	D33	D34	D35	D36	D39
V ac - 50/60 Hz	24	48	110	220	230	240	380	400	415	440	480

DC coil - Standard consumption coil					
Applicable for CWCH07...CWCH016 models					
Coil voltage codes	C03	C06	C07	C12	C15
V dc	24	42	48	110	220

Notes: 1) For 50/60 Hz three-phase, 4 poles WEG standard motors. These values are only for reference and may change depending on the number of poles and motor design;

2) Other voltages available;

3) For selection of accessories, check page A-18;

4) For further information about CWCH0 an its operation, check page A-30.

## Accessories

### Auxiliary Contact Blocks

Illustrative picture	For use with	Max. number of contacts/compact contactor	Auxiliary contacts		For use with CWC0 (3 pole)		For use with CWC0 (4 pole)		For use with CWCA0		Weight kg
			NO	NC	Reference code		Reference code		Reference code		
					Screw terminal	Spring terminal	Screw terminal	Spring terminal	Screw terminal	Spring terminal	
	CWC07...16 CWCA0	2	2	0	BFC0-20	BFC0-20S	BFC4-20	BFC4-20S	BFCA-20	BFCA-20S	0.03
			1	1	BFC0-11	BFC0-11S	BFC4-11	BFC4-11S	BFCA-11	BFCA-11S	
			0	2	BFC0-02	BFC0-02S	BFC4-02	BFC4-02S	BFCA-02	BFCA-02S	
		4	4	0	BFC0-40 <sup>1)</sup>	BFC0-40S <sup>1)</sup>	BFC4-40 <sup>1)</sup>	BFC4-40S <sup>1)</sup>	BFCA-40 <sup>1)</sup>	BFCA-40S <sup>1)</sup>	
			2	2	BFC0-22 <sup>1)</sup>	BFC0-22S <sup>1)</sup>	BFC4-22 <sup>1)</sup>	BFC4-22S <sup>1)</sup>	BFCA-22 <sup>1)</sup>	BFCA-22S <sup>1)</sup>	
			0	4	BFC0-04 <sup>2)</sup>	BFC0-04S <sup>2)</sup>	BFC4-04 <sup>2)</sup>	BFC4-04S <sup>2)</sup>	BFCA-04 <sup>2)</sup>	BFCA-04S <sup>2)</sup>	
	3		1	BFC0-31 <sup>1)</sup>	BFC0-31S <sup>1)</sup>	BFC4-31 <sup>1)</sup>	BFC4-31S <sup>1)</sup>	BFCA-31 <sup>1)</sup>	BFCA-31S <sup>1)</sup>		
	1	3	BFC0-13 <sup>2)</sup>	BFC0-13S <sup>2)</sup>	BFC4-13 <sup>2)</sup>	BFC4-13S <sup>2)</sup>	BFCA-13 <sup>2)</sup>	BFCA-13S <sup>2)</sup>			
	CWC025	2	2	0	BFC025-20	-	-	-	-	-	
			1	1	BFC025-11	-	-	-	-	-	
		4	0	2	BFC025-02	-	-	-	-	-	
			2	2	BFC025-22	-	-	-	-	-	

### Mechanical Interlock<sup>2)</sup>

Illustrative picture	For use with	Description	Reference code	Weight kg
	CWC07...16 CWCA0	<ul style="list-style-type: none"> <li>- Front mounting;</li> <li>- For the mechanical interlock using 2 compact contactors (AC or DC coil);</li> <li>- Can be mounted with the following accessories: auxiliary contact block, surge suppressor and timers.</li> </ul>	BICO	0.014

### Mechanical Latch Block<sup>2)</sup>

Illustrative picture	For use with	Description	Reference code	Weight kg
	CWC07...16 CWCA0	<ul style="list-style-type: none"> <li>- Front mounting;</li> <li>- For the mechanical interlock using 2 compact contactors (AC or DC coil);</li> <li>- Can be mounted with the following accessories: auxiliary contact block, surge suppressor and timers.</li> </ul>	RMC0	0.014

Notes: 1) The compact contactors CWC0 with DC low consumption coils allows only 2 additional auxiliary contacts. For applications that use 4 auxiliary contacts use CWC0 with standard DC coils.

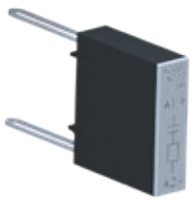
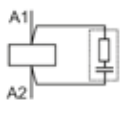
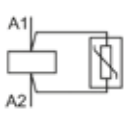
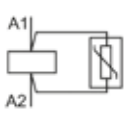
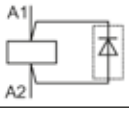
2) Not suitable to be used with CWC0 compact contactors or CWCA0 control relays with DC Low Consumption coils (coil voltage code "L").



## Accessories

### Surge Suppressors


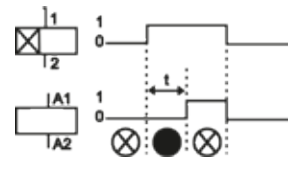
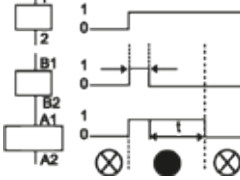
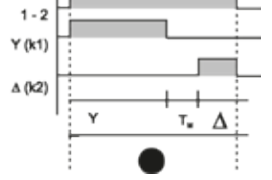
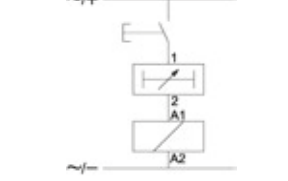
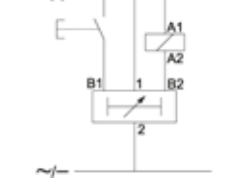
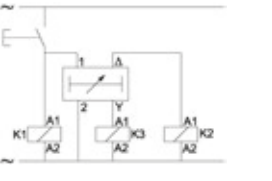
- Fast front mounting (clip on)
- Can be mounted with all the accessories

Illustrative picture	For use with	Circuit diagram	Voltages	Reference code	Weight kg	
	CWC07...25 CWCA0		12-24 V 50/60 Hz	RCC0-1 D49	0.008	
			24-48 V 50/60 Hz	RCC0-2 D53		
			50-127 V 50/60 Hz	RCC0-3 D55		
			130-250 V 50/60 Hz	RCC0-4 D63		
			275-380 V 50/60 Hz	RCC0-5 D84		
			400-510 V 50/60 Hz	RCC0-6 D73		
	CWC07...16 CWCA0		180...230 V 50/60 Hz	RCAC0 D87 <sup>1)</sup>		
	CWC07...25 CWCA0			12-48 V 50/60 Hz / 12-60 V dc		VRC0-1 E49
				50-127 V 50/60 Hz / 60-180 V dc		VRC0-2 E34
				130-250 V 50/60 Hz / 180-300 V dc		VRC0-3 E50
				277-380 V 50/60 Hz / 300-510 V dc		VRC0-4 E41
				400-510 V 50/60 Hz		VRC0-5 D73
CWC07...16 CWCA0		12-600 V dc	DIC0-1 C33			
		12...250 V dc	DIZC0 C26			

Note: 1) To protect snubbers against overvoltage peaks caused by the switching off of the contactors with AC coils. It is recommended to use in circuits with residual current over than  $(U_s/230 \text{ V}) \times 1.4 \text{ mA}$ . ( $U_s$  = Rated voltage).


### Electronic Timing Relay

- Right-side fast mounting
- Up to 30 minutes timing
- LED status indication

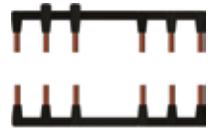
Illustrative picture	Function	Timing	Voltages	Reference code	Weight kg	
	On-Delay (TECO)	3 - 0.3 to 3 seconds	24-240 V 50/60 Hz - DC	TECO-U003S-E05	0.02	
		10 - 1 to 10 seconds		TECO-U010S-E05		
		30 - 3 to 30 seconds		TECO-U030S-E05		
		60 - 6 to 60 seconds		TECO-U060S-E05		
		100 - 10 to 100 seconds		TECO-U100S-E05		
		300 - 30 to 300 seconds		TECO-U300S-E05		
		1,800 - 180 to 1,800 seconds		TECO-U030M-E05		
	Off-Delay (TDCO)	-	24-60 V 50/60 Hz - DC 100-240 V 50/60 Hz - DC	24-60 V ac/dc		100-240 V ac/dc
		3 - 0.3 to 3 seconds		TDCO-U010S-E04		TDCO-U003S-E09
		10 - 1 to 10 seconds		TDCO-U003S-E04		TDCO-U010S-E09
		30 - 3 to 30 seconds		TDCO-U030S-E04		TDCO-U030S-E09
		60 - 6 to 60 seconds		TDCO-U060S-E04		TDCO-U060S-E09
		100 - 10 to 100 seconds		TDCO-U100S-E04		TDCO-U100S-E09
		300 - 30 to 300 seconds		TDCO-U300S-E04		TDCO-U300S-E09
	1,800 - 180 to 1,800 seconds	TDCO-U030M-E04	TDCO-U030M-E09			
Start-Delta (TETCO)	30 - 3 to 30 seconds	24-28 V 50/60 Hz 110-130 V 50/60 Hz 220-240 V 50/60 Hz	TETCO-U030S-D52			
			TETCO-U030S-D61			
			TETCO-U030S-D66			
Functions	On-Delay TECO	Off-Delay TDCO	Start-Delta TETCO			
Functionals diagrams						
Diagrams						

## Accessories

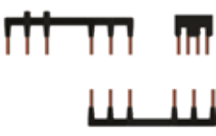
### Printed Circuit Board Link Module

Illustrative picture	For use with	Description	Reference code	Weight kg
	CWC07...16 CWCA0	<ul style="list-style-type: none"> <li>- Direct mounting on the terminals</li> <li>- Allows direct mounting on printed circuit board</li> <li>- Same current capacity (up to 16 A in AC-3 and 22 A in AC-1)</li> </ul>	CICO	0.130

### Reversing Wiring Kits

	Rated operational current I <sub>n</sub> AC - 3 (U <sub>e</sub> ≤ 440 V) A	Max. rated operational power of three-phase motors 50/60 Hz						Compact contactors K1 = K2	Reference code	Weight kg
		220 V 230 V kW / HP	380 V kW / HP	400 V 415 V kW / HP	440 V kW / HP	500 V kW / HP	660 V 690 V kW / HP			
	7	1.5 / 2	3 / 4	3 / 4	3.7 / 5	3.7 / 5	3 / 4	CWC07	ECCO-R (with electrical interlock)	0.13
	9	2.2 / 3	4 / 5	4 / 5	4.5 / 6	4.5 / 6	4 / 5	CWC09	ECCO-RNI (without electrical interlock)	
	12	3 / 4	5.5 / 7.5	5.5 / 7.5	5.5 / 7.5	5.5 / 7.5	5.5 / 7.5	CWC012		
	16	4 / 5	7.5 / 10	7.5 / 10	7.5 / 10	7.5 / 10	7.5 / 10	CWC016		

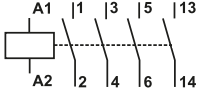
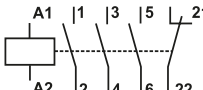

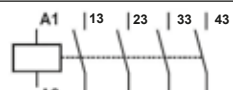
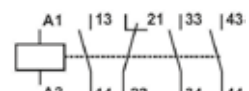
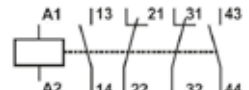
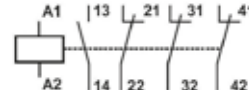
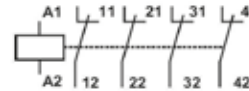
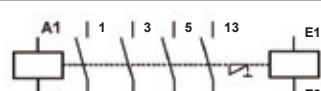
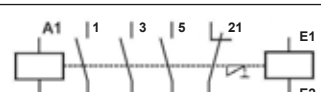
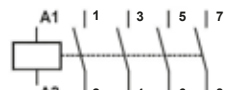
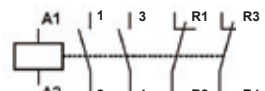
### Star-Delta Wiring

	Rated operational current I <sub>n</sub> AC - 3 (U <sub>e</sub> ≤ 440 V) A	Max. rated operational power of three-phase motors 50/60 Hz			Compact contactors		Reference code	Weight kg
		220-230 V kW / HP	400-415 V kW / HP	660-690 V kW / HP	K1 = K2	K3		
			12	3.7 / 5				
	18	3.7 / 5	7.5 / 10	9.2 / 12.5	CWC012			
	25	5.5 / 7.5	11 / 15	15 / 20	CWC016	CWC09		



# Technical Data

## Terminal Markings

Circuit diagram	Auxiliary contacts configuration	Auxiliary contacts		Contactor base reference
		NO	NC	
<b>Three-pole compact contactors with built-in auxiliary contact</b>				
	10	1	0	CWC07-10-30 ♦ CWC09-10-30 ♦ CWC012-10-30 ♦ CWC016-10-30 ♦
	01	0	1	CWC07-01-30 ♦ CWC09-01-30 ♦ CWC012-01-30 ♦ CWC016-01-30 ♦
<b>Three-pole compact contactors without built-in auxiliary contact</b>				
	00	0	0	CWC025-00-30 ♦
<b>Control relay</b>				
	40	4	0	CWCA0-40-00 ♦
	31	3	1	CWCA0-31-00 ♦
	22	2	2	CWCA0-40-00 ♦
	13	1	3	CWCA0-13-00 ♦
	04	0	4	CWCA0-04-00 ♦
<b>Three-pole compact contactors with built-in auxiliary contact and latch block</b>				
	10	1	0	CWCH07-10-30 ♦ CWCH09-10-30 ♦ CWCH012-10-30 ♦ CWCH016-10-30 ♦
	01	0	1	CWCH07-01-30 ♦ CWCH09-01-30 ♦ CWCH012-01-30 ♦ CWCH016-01-30 ♦
Circuit diagram	Main contacts configuration	Main contacts		Contactor base reference
		NO	NC	
<b>Four-pole compact contactors</b>				
	40	4	0	CWC07-00-40 ♦ CWC09-00-40 ♦ CWC012-00-40 ♦ CWC016-00-40 ♦
	22	2	2	CWC07-00-22 ♦ CWC09-00-22 ♦ CWC012-00-22 ♦ CWC016-00-22 ♦

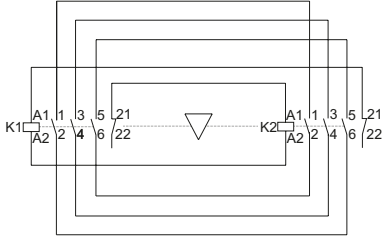
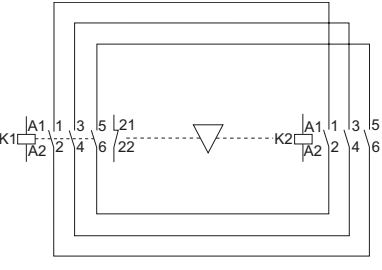
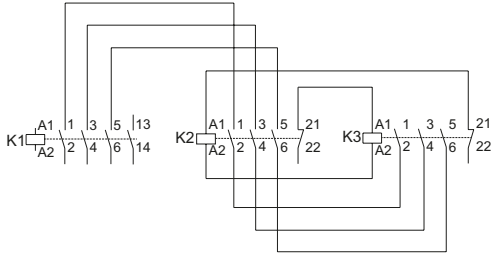
# Technical Data

## Terminal Markings

Circuit diagram	Auxiliary contacts configuration	Auxiliary contacts		Contactor base reference
		NO	NC	
Control relay with latch block				
	40	4	0	CWCHA0-40-00 ♦
	31	3	1	CWCHA0-31-00 ♦
	22	2	2	CWCHA0-22-00 ♦
	04	0	4	CWCHA0-04-00 ♦
	13	1	3	CWCHA0-13-00 ♦

Auxiliary contacts configuration	Auxiliary contacts		For use with (3-pole)		For use with CWCO (4-pole)		For use with CWCA0	
	NO	NC	Circuit diagram	Reference	Circuit diagram	Reference	Circuit diagram	Reference
Frontal auxiliary contact block								
20	2	0		BFC0-20 ♦ BFC025-20		BFC4-20 ♦		BFCA-20 ♦
11	1	1		BFC0-11 ♦ BFC025-11		BFC4-11 ♦		BFCA-11 ♦
02	0	2		BFC0-02 ♦ BFC025-02		BFC4-02 ♦		BFCA-02 ♦
40	4	0		BFC0-40 ♦		BFC4-40 ♦		BFCA-40 ♦
22	2	2		BFC0-22 ♦ BFC025-22		BFC4-22 ♦		BFCA-22 ♦
04	0	4		BFC0-04 ♦		BFC4-04 ♦		BFCA-04 ♦
31	3	1		BFC0-31 ♦		BFC4-31 ♦		BFCA-31 ♦
13	1	3		BFC0-13 ♦		BFC4-13 ♦		BFCA-13 ♦

# Technical Data

Diagram	Components
	<p>CWC07...16 + BICO + ECCO-R</p>
	<p>CWC07...16 + BICO + ECCO-RNI</p>
	<p>CWC07...16 + ECCO-SD</p>



## Technical Data

### General Data

Reference code		CWCA0	CWC07	CWC09	CWC012	CWC016	CWC025
Standards		IEC/EN 60947 / UL 508					
Rated insulation voltage $U_i$ (pollution degree 3)	IEC/EN 60947-4-1, VDE 0660 (V)	690					
	UL, CSA (V)	600					
Rated impulse withstand voltage $U_{imp}$ (IEC/EN 60947-1)	(kV)	4					
Rated operational frequency	(Hz)	25...400					
Mechanical lifespan	AC coil Ops x 10 <sup>6</sup>	10					3
	DC coil Ops x 10 <sup>6</sup>	12					-
Electrical lifespan	$I_e$ AC-3 Ops x 10 <sup>6</sup>	-	1.4	1.3	1.2	1.1	0.6
Degree of protection (VDE 0160)	Main circuits	IP20					
	Control circuits and auxiliary contacts	IP20					
Mounting		Screw or DIN rail 35 mm					
Coil terminals		2					
Vibration resistance	Contactors open (g)	2					
	Contactors closed (g)	4					
Mechanical shock resistance (½ sinusoid = 11ms)	Contactors open (g)	6					
	Contactors closed (g)	10					
Ambient temperature	Operation	-25 °C ... +55 °C					
	Storage	-55 °C ... +80 °C					
Normal values		Up to 3,000 m					
Altitude	90% $I_e$ / 80% $U_e$	3,000 to 4,000 m					
	80% $I_e$ / 75% $U_e$	4,000 to 5,000 m					

### Control Circuit - Alternating Current (AC)

Reference code		CWCA0, CWC07...16		CWC025
Rated insulation voltage $U_i$ (pollution degree 3)	IEC/EN 60947-4-1, VDE 0660 (V)	1,000		1,000
	UL, CSA (V)	600		600
Coils rated voltage 50 Hz	(V)	10...550		10...550
Coils rated voltage 60 Hz	(V)	12...660		12...660
Coils rated voltage 50/60 Hz	(V)	12...660		12...660
Coils rated voltage				
Coil operating limits	(xUs)	0.85...1.1		
Coil 60 Hz	Pick up (xUs)	0.4...0.76		0.4...0.76
	Drop out (xUs)	0.25...0.65		0.25...0.65
Coil 50/60 Hz	Pick up (xUs)	0.5...0.8		0.5...0.8
	Drop out (xUs)	0.2...0.6		0.2...0.6
Average consumption		1.0 x $U_s$ coil cold state		
Coil 60 Hz	Magnetic circuit closed (VA)	2.5...3.5		10.8...13.2
	Power factor (cos φ)	0.28		0.32
	Power dissipation per pole (W)	2.6		-
	Magnetic circuit closing (VA)	35		72
	Power factor (cos φ)	0.85		0.93
Coil 50/60 Hz	Magnetic circuit closed (VA)	2...3		4.56...5.8
	Magnetic circuit closing (VA)	30		58
Average time	Closing NO contacts (ms)	8...20		13...16
	Opening NO contacts (ms)	6...13		13.5...17

### Control Circuit - Direct Current (DC)

Reference code		CWCA0, CWC07...16		CWC07...16
Coil type		Conventional	Low consumption	4P (2P/2R)
Rated insulation voltage $U_i$ (pollution degree 3)	IEC/EN 60947-4-1, VDE 0660 (V)	1,000		
	UL, CSA (V)	600		
Standard voltages	(V)	12...440		
Coil operating limits	(xUs)	0.85...1.1		
	Pick up (xUs)	0.4...0.7		
	Drop out (xUs)	0.15...0.4		
Power consumption		1.0 x $U_s$ coil cold state		
	Magnetic circuit closed (W)	2.6...3.7	1.7...2.7	2.9...4
	Magnetic circuit closing (W)	2.6...3.7	1.7...2.7	2.9...4
Operation time	Closing NO contacts (ms)	35...45		
	Opening NO contacts (ms)	7...12		

# Technical Data

## Power Circuit

Reference code		CWC07	CWC09	CWC012	CWC016	CWC025
Rated operational current $I_e$	AC-3 ( $U_e \leq 440$ V)	(A) 7	9	12	16	22
	AC-4 ( $U_e \leq 440$ V)	(A) 2.8	3.5	4.5	5	9
	AC-1 ( $\theta \leq 55$ °C, $U_e \leq 690$ V)	(A) 18	20	22	22	32
Rated operational voltage $U_e$	IEC/EN 60947-4-1, VDE 0660	(V) 690				
	UL, CSA <sup>1)</sup>	(V) 600				
Rated thermal current $I_{th}$ ( $\theta \leq 55$ °C)	(A)	18	20	22	22	32
Making capacity - IEC/EN 60947	(A)	70	90	120	160	250
Breaking capacity IEC/EN 60947	( $U_e \leq 400$ V)	(A) 50	72	96	128	200
	( $U_e = 500$ V)	(A) 50	72	96	128	200
	( $U_e = 690$ V)	(A) 35	54	72	96	150
Short-time current (no current flowing during recovery time of 10 min and $\theta \leq 40$ °C)	1 seg	(A) 250	250	250	250	-
	5 seg	(A) 125	125	125	125	-
	10 seg	(A) 95	95	95	95	-
	30 seg	(A) 70	70	70	70	-
	1 min	(A) 50	50	50	50	-
	3 min	(A) 40	40	40	40	-
Protection against short-circuits with fuses (gL/gG)	@600 V - UL/CSA <sup>1)</sup>	(kA)	5			
	Coordination type 1	(A) 35	35	35	35	50
	Coordination type 2	(A) 20	20	25	25	35
Average impedance per pole	(mΩ)	6	6	5	5	6
Average power dissipation per pole	AC-1	(W) 1.9	2.4	2.4	2.4	6.1
	AC-3	(W) 0.3	0.5	0.7	1.3	3.8
<b>Utilization category AC-3</b>						
Rated operational current $I_e$ ( $\theta \leq 55$ °C)	$U_e \leq 440$ V	(A) 7	9	12	16	22
	$U_e \leq 500$ V	(A) 6.2	7.5	8.8	13	16
	$U_e \leq 690$ V	(A) 4.5	5.5	6.6	10	13
	$U_e \leq 1,000$ V	(A)	Not available			
Rated operational power <sup>1)</sup>	220 / 230 V	(kW) 1.5	2.2	3	3.7	5.5
		(cv) 2	3	4	5	7.5
	380 / V	(kW) 3	3.7	5.5	7.5	11
		(cv) 4	5	7.5	10	15
	400 / 415 V	(kW) 3	3.7	5.5	7.5	11
		(cv) 4	5	7.5	10	15
	440 V	(kW) 3.7	4.5	5.5	7.5	11
		(cv) 5	6	7.5	10	15
	500 V	(kW) 3.7	4.5	5.5	7.5	11
		(cv) 5	6	7.5	10	15
	660 / 690 V	(kW) 3	3.7	5.5	7.5	11
		(cv) 4	5	7.5	10	15
Max. electrical operational per hour	600 ops./h	(%) 100	100	100	100	100
	1,200 ops./h	(%) 75	75	75	75	75
	3,000 ops./h	(%) 50	50	50	50	50
<b>Utilization category AC-4</b>						
Rated operational current $I_e$ AC-4 ( $U_e \leq 440$ V)	(A)	2.8	3.5	4.5	5	9
Rated operational power <sup>1)</sup> (200,000 operations)	220 / 230 V	(kW) 0.55	0.75	0.75	1.1	2.2
		(cv) 0.7	1	1	1.5	2.9
	380 / 400 V	(kW) 1.1	1.1	1.8	2.2	4
		(cv) 1.5	1.5	2.4	2.9	5.4
	415 V	(kW) 1.1	1.5	2.2	2.2	4.5
		(cv) 1.5	2	2.9	2.9	6
	440 V	(kW) 1.1	1.5	2.2	2.2	4.5
		(cv) 1.5	2	2.9	2.9	6
	500 V	(kW) 1.1	1.5	2.2	2.2	4.5
		(cv) 1.5	2	2.9	2.9	6
	660 / 690 V	(kW) 1.1	1.5	2.2	2.2	4.5
		(cv) 1.5	2	2.9	2.9	6

Note: 1) For 50/60 Hz three-phase, 4 poles WEG standard motors. These values are only for reference and may change on the number of poles and motor design.

## Technical Data

### Power Circuit

Reference code			CWC07	CWC09	CWC012	CWC016	CWC025
	Utilization category AC-1						
	3P (NO) or 4P (4NO)						3P (NO)
Rated thermal current $I_{th}$ ( $\theta \leq 55^\circ\text{C}$ )	(A)		18	20	22	22	32
Maximum operational current (up to 690 V)	$\theta \leq 40^\circ\text{C}$	(A)	18	20	22	22	32
	$\theta \leq 55^\circ\text{C}$	(A)	18	20	22	22	32
	$\theta \leq 70^\circ\text{C}$	(A)	14.4	16	17.6	17.6	25.6
Maximum operational power $\theta \leq 55^\circ\text{C}$ 3-phase resistors	220 / 230 V	(kW)	6.8	7.5	8.3	8.3	12
	380 / 400 V	(kW)	11.5	13	14.5	14.5	21
	415 / 440 V	(kW)	13	14.5	16	16	23
	500 V	(kW)	14.8	16.5	18	18	26
	660 / 690 V	(kW)	20	22	25	25	36
Current values for connection of	2 poles in parallel		$I_e \times 1.7$				
	3 poles in parallel		$I_e \times 2.4$				
	4 poles in parallel		$I_e \times 3.2$				
Percentage of the max. operational current at	600 ops./h	(%)	100				
	1,200 ops./h	(%)	100				
	3,000 ops./h	(%)	100				
			2P (NO/NC) or 4P (2NO + 2NC)				2P (NO/NC)
Maximum operational power $\theta \leq 55^\circ\text{C}$ (resistive load)	220 / 230 V	(kW)	3.9	4.4	4.8	4.8	6.6
	380 / 400 V	(kW)	6.8	7.6	8.4	8.4	11.4
	415 / 440 V	(kW)	7.5	8.4	9.2	9.2	12.5
	500 V	(kW)	8.6	9.5	10.5	10.5	14.5
	660 / 690 V	(kW)	11.8	13.1	14.4	14.4	19.5

### UL Power Ratings

Reference code			CWC07	CWC09	CWC012	CWC016	CWC025
General purpose current	(600 V)	(A)	18	20	22	22	30
1-phase	110 / 120 V	(HP)	1/3	1/3	1/2	1	1 1/2
	208 V	(HP)	3/4	1/2	1/2	2	3
	220 / 240 V	(HP)	3/4	1/2	2	2	3
3-phase	110 / 120 V	(HP)	3/4	1	1 1/2	2	3
	200 V	(HP)	1 1/2	2	3	3	5
	220 / 240 V	(HP)	1 1/2	3	3	5	7 1/2
	440 / 480 V	(HP)	5	5	7 1/2	10	15
	550 / 600 V	(HP)	5	7 1/2	7 1/2	10	15

### Built-In Auxiliary Contacts

Reference code			CWC07...16	CWCA0
Standards	IEC/EN 60947-5-1, IEC/EN 60947-4-1			
Rated insulation voltage $U_i$ (pollution degree 3)	IEC/EN, VDE 0660	(V)	690	
	UL, CSA	(V)	600	
Rated operational voltage $U_o$	IEC/EN, VDE 0660	(V)	690	
	UL, CSA	(V)	600	
Rated thermal current $I_{th}$ ( $\theta \leq 55^\circ\text{C}$ )	(A)		10	
Rated operational current $I_e$				
	$U_o \leq 240\text{ V}$	(A)	10	
	380-400 V	(A)	6	
AC-15 (IEC/EN 60947-5-1)	415-440 V	(A)	5	
	500 V	(A)	4	
	660-690 V	(A)	2	
UL, CSA			A600	
DC-13 (IEC/EN 60947-5-1)	24 V	(A)	6	
	48 V	(A)	4	
	110 V	(A)	2	
	220 V	(A)	0.7	
UL, CSA			Q600	
Making capacity (rms)	$U_o \leq 400\text{ V } 50/60\text{ Hz - AC-15}$	(A)	$10 \times I_e$ (AC-15)	
Breaking capacity (rms)	$U_o \leq 400\text{ V } 50/60\text{ Hz - AC-15}$	(A)	$10 \times I_e$ (AC-15)	
Max.fuse class gL-gG without welding (short-circuit protection) gL/gG	(A)		10	
Control circuit reliability	(V / mA)		17 / 5	
Electrical endurance	(millions operations)		1	
Mechanical endurance	(millions operations)		10	



## Technical Data

### Auxiliary Contacts

Reference code		BFC0 / BFC025	
Standards		IEC/EN 60947-5-1, IEC/EN 60947-4-1	
Rated insulation voltage $U_i$ (pollution degree 3)	IEC/EN, VDE 0660 (V)	1,000	
	UL, CSA <sup>1)</sup> (V)	600	
Rated operational voltage $U_o$	IEC/EN, VDE 0660 (V)	690	
	UL, CSA <sup>1)</sup> (V)	600	
Rated thermal current $I_{th}$ ( $\theta \leq 55$ °C)		(A)	10
Rated operational current $I_o$			
AC-15 (IEC/EN 60947-5-1)	$U_o \leq 240$ V	(A)	10
	380-400 V	(A)	6
	415-440 V	(A)	6
	500 V	(A)	4
	660-690 V	(A)	-
UL, CSA <sup>1)</sup>		A600	
DC-13 (IEC/EN 60947-5-1)	24 V	(A)	1.5
	60 V	(A)	0.5
	110 V	(A)	0.4
	220-240 V	(A)	0.4
UL, CSA <sup>1)</sup>		Q600	
Making capacity (rms)	$U_o \leq 400$ V 50/60 Hz - AC-15	(A)	30
Breaking capacity (rms)	$U_o \leq 400$ V 50/60 Hz - AC-15	(A)	3
Max.fuse class gL-gG without welding (short-circuit protection)		(A)	10
Control circuit reliability		(V / mA)	17 / 5
Electrical endurance		(millions operations)	1
Mechanical endurance		(millions operations)	10

### Electronic Timer Relays

Reference code		TECO, TDC0, TETCO	
Rated insulation voltage ( $U_i$ )		V	300
Supply voltage ( $U_o$ )	1 - 2 terminals	24...240 V dc/ V ac 50/60 Hz (TECO)	
		24...60 V dc/ V ac 50/60 Hz (TDC0)	
		100...240 V dc/ V ac 50/60 Hz (TDC0)	
		220-240 V ac 50/60 Hz (TETCO)	
		110-130 V ac 50/60 Hz (TETCO)	
		24-28 V ac 50/60 Hz (TETCO)	
Control voltage ( $U_c$ ) only TDC0	2 - B1 terminals	24...60 V dc/ V ac 50/60 Hz (TDC0)	
		100...240 V dc/ V ac 50/60 Hz (TDC0)	
Voltage operational limits		0.85...1.1 x $U_c$ (V ac)	
		0.8...1.25 x $U_c$ (V dc)	
Consumption	mA	$\leq 5$	
Minimum time for reset (recovery time)	ms	650	
Minimum control time (only TDC0)	ms	50	
Setting accuracy (% of the full scale value)	%	+/-5	
Repeat accuracy	%	+/-1	
Changeover time $\gamma - \Delta$	ms	50	



## Technical Data

### Terminal Capacity and Tightening Torque - Power and Built-In Auxiliary Terminals

Reference code	CWC07...CWC016 / CWCA0			CWC025		
Screw type	M3x 8 Flat / Phillips			M3.5x 9 Flat / Phillips		
Power terminal and built-in auxiliary terminal <sup>1)</sup>	Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid	Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid
mm <sup>2</sup>	1x 0.5...2.5 2x 0.5...1.5	1x 0.75...2.5 2x 0.75...2.5	1x 0.5...2.5 2x 0.5...2.5	1x 1...6 2x 1...2.5 2x 2.5...4	1x 1...6 2x 1...2.5 2x 2.5...6	1x 1...6 2x 1...2.5 2x 2.5...6
AWG (UL)	18...12			18...10		
Tightening torque (N.m)	1.1			1.5		
Tightening torque (lb.in) (UL)	10			13		

Note: 1) Built-in auxiliary terminals not available for CWC025.

### Terminal Capacity and Tightening Torque - Coil Terminals

Reference code	CWC07...CWC025 / CWCA0		
Screw type	M3.5x 8 Flat / Phillips		
Coil terminals	Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid
mm <sup>2</sup>	1x 0.5...2.5 2x 0.5...1.5	1x 0.75...2.5 2x 0.75...2.5	1x 0.5...2.5 2x 0.5...2.5
AWG (UL)	22...12		
Tightening torque (N.m)	1.1		
Tightening torque (lb.in) (UL)	10		

### Terminal Capacity and Tightening Torque - Auxiliary Contact Blocks

Reference code	BFC0 / BFCA / BFC4 / BFC025		
Screw type	M3.5x9 Flat / Phillips		
Auxiliary contact block	Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid
mm <sup>2</sup>	1x 0.5...2.5 2x 0.5...1.5	1x 0.75...4 2x 0.75...2.5	1x 0.5...4 2x 0.5...2.5
AWG (UL)	22...14		
Tightening torque (N.m)	1.1		
Tightening torque (lb.in) (UL)	10		

### Terminal Capacity - Power, Coil and Auxiliary Contact Blocks

Reference code	CWC07_S... CWC012_S / CWCA0_S		BFC0_S / BFCA_S / BFC4_S
Terminal type	Spring terminal		
Power terminal	Finely stranded with end sleeve	Solid	
mm <sup>2</sup>	2x 1...1.5	2x 1...1.5	
Auxiliary contact block / built-in auxiliary terminal / or coil terminal	Finely stranded with end sleeve	Solid	Solid or finely stranded with end sleeve
mm <sup>2</sup>	2x 0.5...1.5	2x 0.5...1.5	2x 0.5...1.5
AWG	18...12		22...16

# Technical Data

## Utilization Category DC-1, DC-3 and DC-5

### DC-1(L/R ≤ 1ms)

U <sub>e</sub>	Reference	CWC07	CWC09	CWC012	CWC016	CWC025
	Serie poles	Rated operational current I <sub>e</sub> (A)				
≤ 24 V	1	10	10	16	16	18
	2	15	15	20	20	25
	3	15	15	22	22	25
	4	15	15	22	22	-
≤ 48 V	1	10	10	13	13	16
	2	15	15	20	20	25
	3	15	15	22	22	25
	4	15	15	22	22	-
≤ 60 V	1	8	8	10	10	13
	2	15	15	18	18	25
	3	15	15	22	22	25
	4	15	15	22	22	-
≤ 125 V	1	4	4	5	5	6
	2	8	8	10	10	13
	3	12	12	16	16	18
	4	15	15	19	19	-
≤ 220 V	1	0.6	0.6	0.7	0.7	1
	2	5	5	6	6	8
	3	9	9	10	10	14
	4	12	12	15	15	-
≤ 440 V	1	0.2	0.2	0.3	0.3	0.4
	2	0.6	0.6	0.7	0.7	1.5
	3	3.5	3.5	4	4	5
	4	8	8	9	9	-
≤ 600 V	1	-	-	-	-	-
	2	0.2	0.2	0.3	0.3	0.6
	3	1	1	1.5	1.5	2
	4	2	2	4	4	-

### DC-3(L/R ≤ 2.5ms)

U <sub>e</sub>	Reference	CWC07	CWC09	CWC012	CWC016	CWC025
	Serie poles	Rated operational current I <sub>e</sub> (A)				
≤ 24 V	1	9	9	9	9	10
	2	12	12	12	12	15
	3	15	15	15	15	18
	4	15	15	15	15	-
≤ 48 V	1	8	8	8	8	10
	2	12	12	12	12	15
	3	15	15	15	15	18
	4	15	15	15	15	-
≤ 60 V	1	5	5	5	5	8
	2	10	10	10	10	13
	3	14	14	14	14	18
	4	15	15	15	15	-
≤ 125 V	1	1.5	1.5	1.5	1.5	2
	2	5.5	5.5	5.5	5.5	7
	3	10	10	10	10	13
	4	14	14	14	14	-
≤ 220 V	1	0.4	0.4	0.4	0.4	0.6
	2	1.5	1.5	1.5	1.5	2
	3	7	7	7	7	8
	4	11	11	11	11	-
≤ 440 V	1	-	-	-	-	-
	2	0.2	0.2	0.2	0.2	0.3
	3	1	1	1	1	1.5
	4	3	3	3	3	-
≤ 600 V	1	-	-	-	-	-
	2	-	-	-	-	-
	3	0.6	0.6	0.6	0.6	0.8
	4	1.5	1.5	1.5	1.5	-

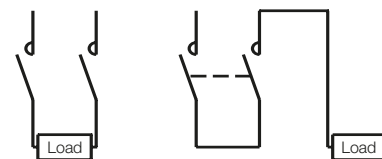
### DC-5(L/R ≤ 15ms)

U <sub>e</sub>	Reference	CWC07	CWC09	CWC012	CWC016	CWC025
	Serie poles	Rated operational current I <sub>e</sub> (A)				
≤ 24 V	1	8	8	8	8	10
	2	12	12	12	12	14
	3	15	15	15	15	18
	4	15	15	15	15	-
≤ 48 V	1	8	8	8	8	9
	2	12	12	12	12	14
	3	15	15	15	15	18
	4	15	15	15	15	-
≤ 60 V	1	5	5	5	5	7
	2	10	10	10	10	12
	3	14	14	14	14	18
	4	15	15	15	15	-
≤ 125 V	1	1.5	1.5	1.5	1.5	0.8
	2	5.5	5.5	5.5	5.5	5
	3	9	9	9	9	12
	4	14	14	14	14	-
≤ 220 V	1	0.4	0.4	0.4	0.4	-
	2	0.7	0.7	0.7	0.7	0.8
	3	2.5	2.5	3	3	3
	4	9	9	9	9	-
≤ 440 V	1	-	-	-	-	-
	2	-	-	-	-	-
	3	0.3	0.3	0.3	0.3	0.5
	4	0.7	0.7	0.7	0.7	-
≤ 600 V	1	-	-	-	-	-
	2	-	-	-	-	-
	3	-	-	-	-	-
	4	0.2	0.2	0.2	0.2	-

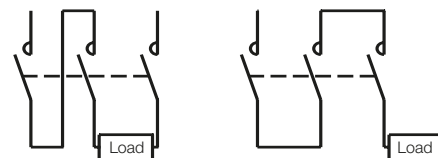
#### 1 Serie Pole



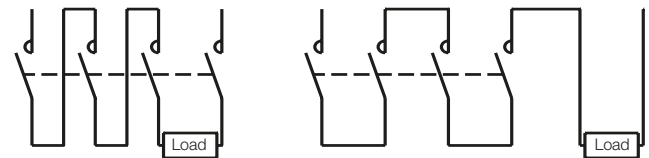
#### 2 Serie Poles



#### 3 Serie Poles

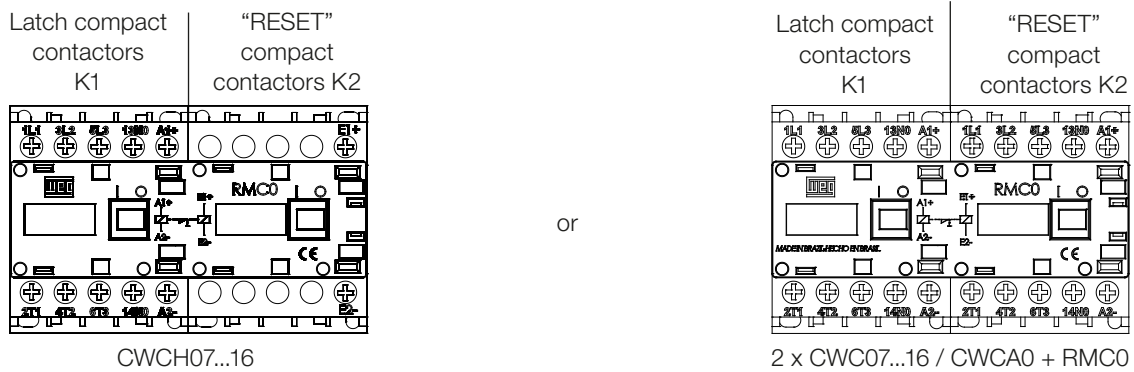


#### 4 Serie Poles

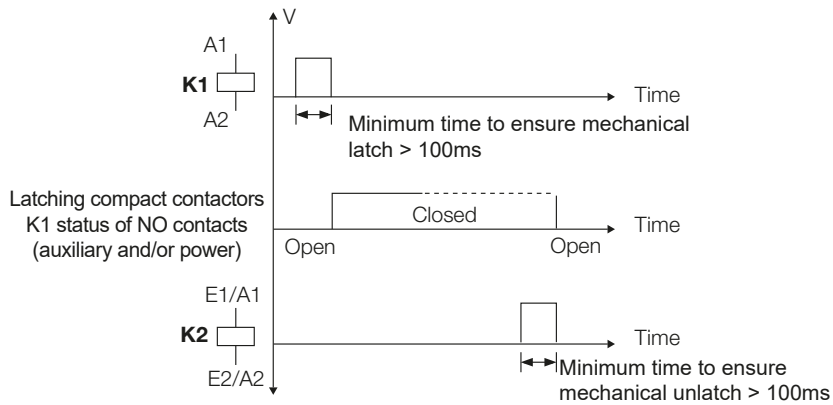


# Technical Data

## Operation Description of Latch Block RMC0 or CWCH0



## Functional Diagram



- After a minimum pulse of 100ms on compact contactors coil (K1), the RMC0 will keep K1 contacts switched on.
- The compact contactors K1 will only return to rest position after compact contactors coil (K2) be energized by a releasing pulse.
- The mechanical latch will always and only happen on compact contactors (K1).

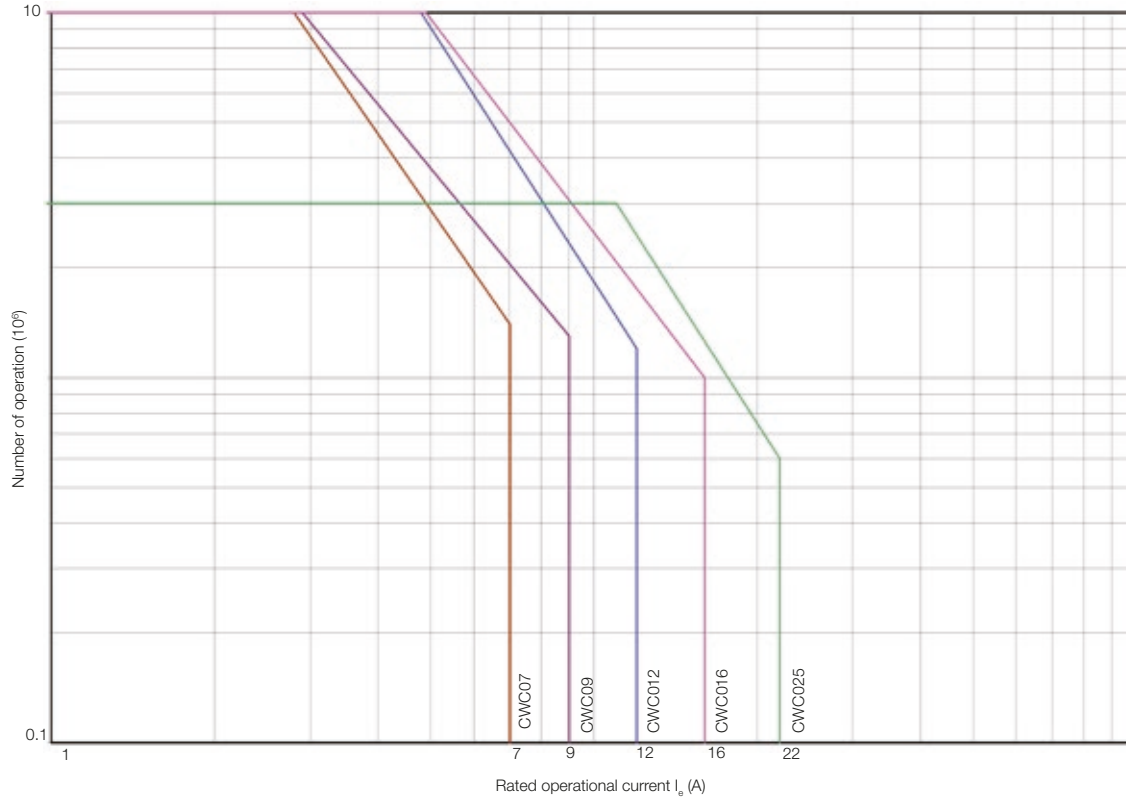
*Note: if RESET compact contactors coil (K2) remains energized, the latching of compact contactors (K1) is not enabled.*



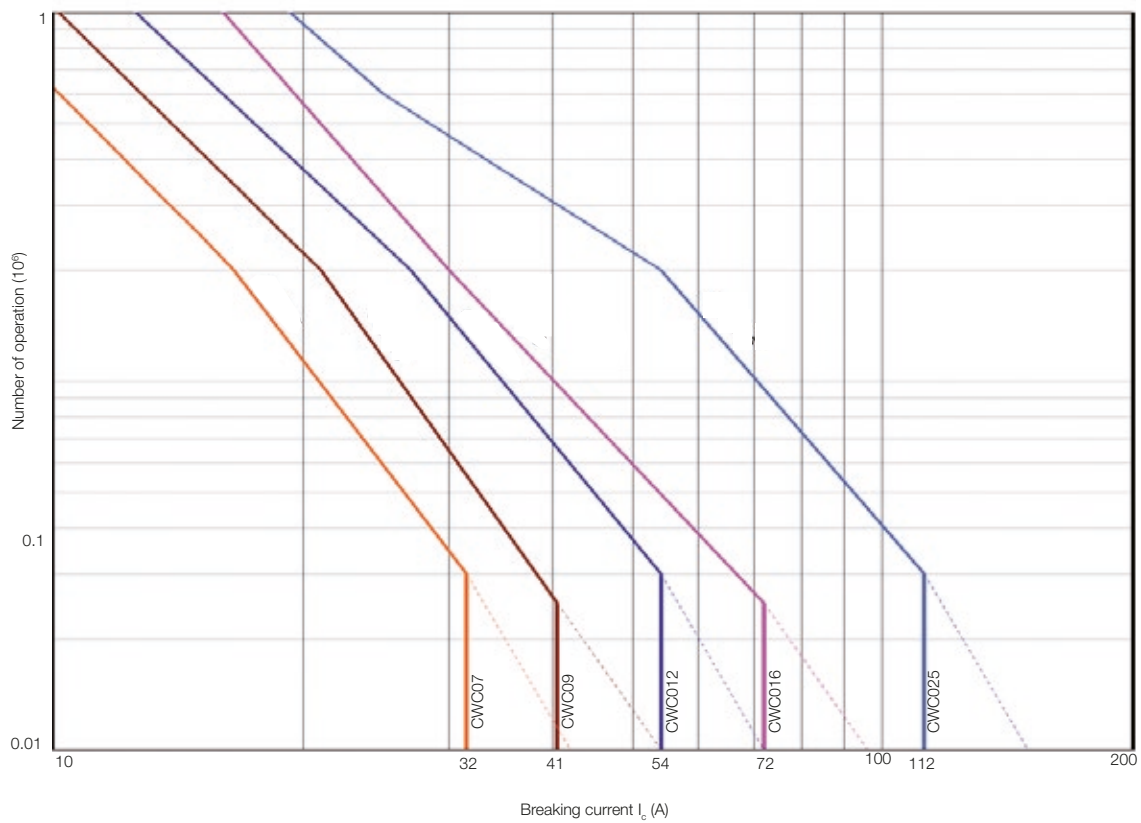
# Technical Data

## Electrical Lifespan

### AC-3 ( $U_e \leq 440 \text{ V ac}$ )

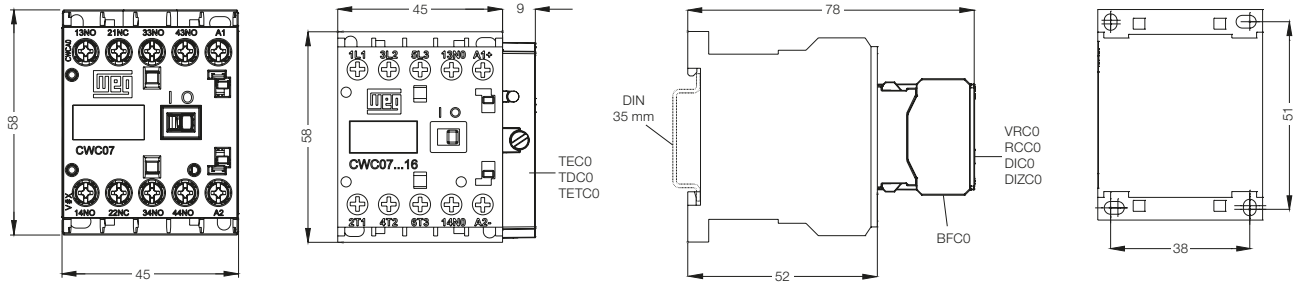


### AC-4 ( $U_e \leq 440 \text{ V ac}$ )

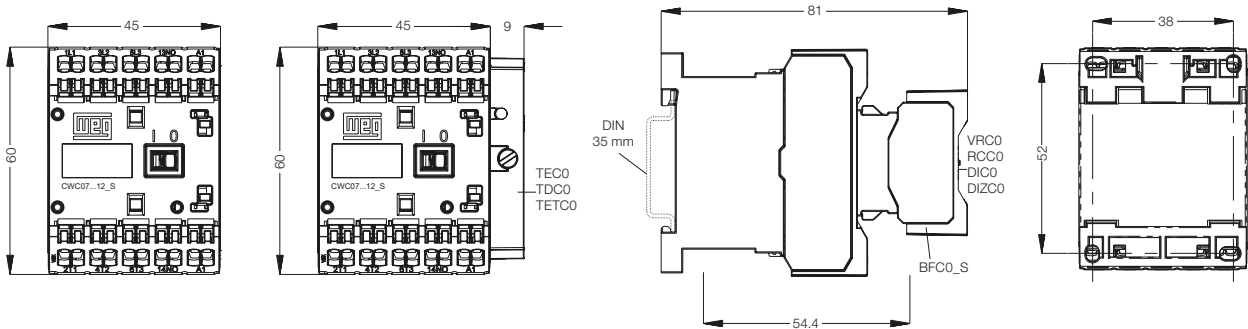


## Dimensions (mm)

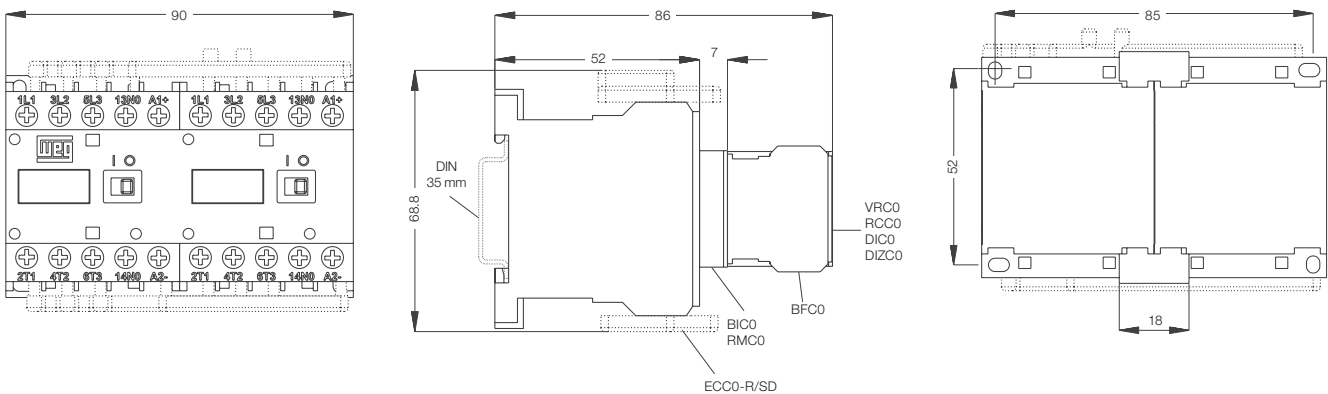
### CWC07...16 and CWCA0 - (AC and DC Coil) - Screw Terminal



### CWC07...012\_S and CWCA0\_S - (AC and DC Coil) - Spring Terminal



### CWC107...16<sup>1)</sup> + ECC0-R and CWCH07...16<sup>2)</sup> - Screw Terminal



Notes: 1) Same dimensional of 2 x CWC07...16 + BIC0.  
2) Same dimensional of 2 x (CWC07...16/CWCA0) + RMC0.

## Dimensions (mm)

A

A1

B

C

D

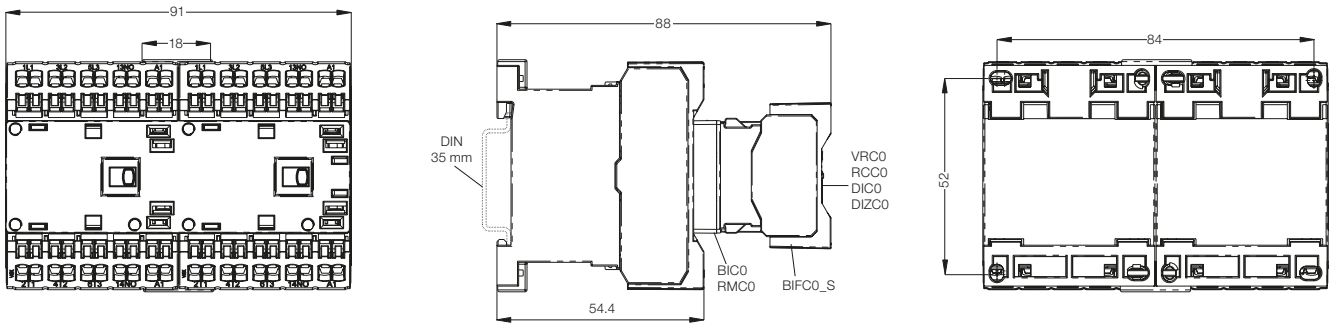
E

F

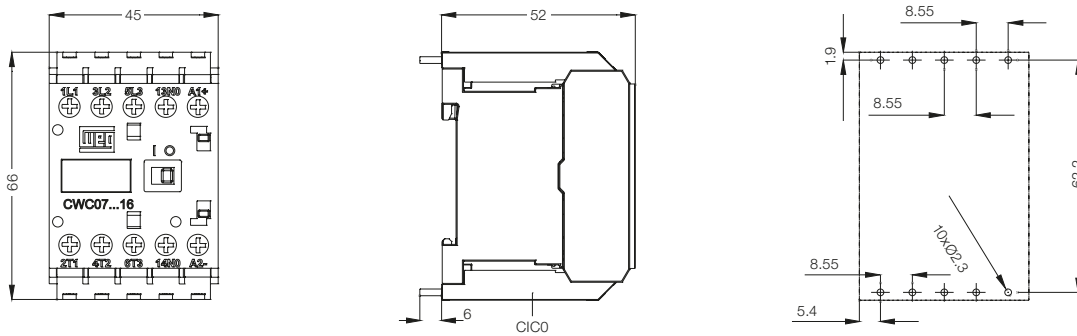
G

H

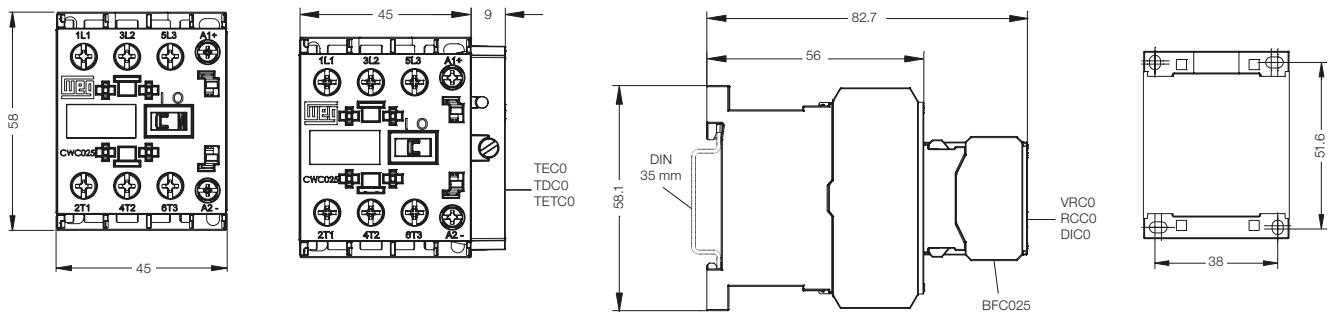
### CWCI07...12<sup>1)</sup> or CWCH07...12/CWCHA0<sup>2)</sup> - Spring Terminal



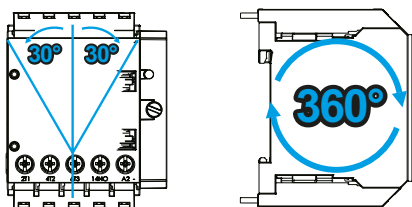
### CWC07...16<sup>3)</sup> - Printed Circuit Boards



### CWC025



### Mounting Position of All Compact Contactors



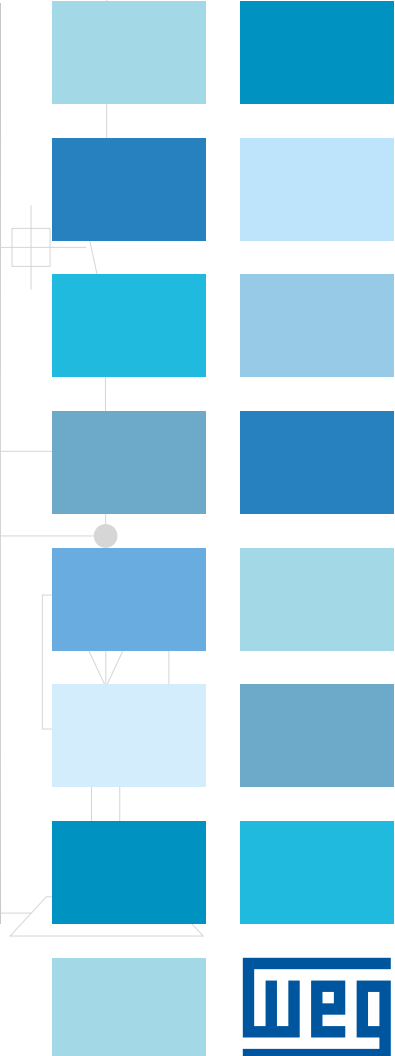
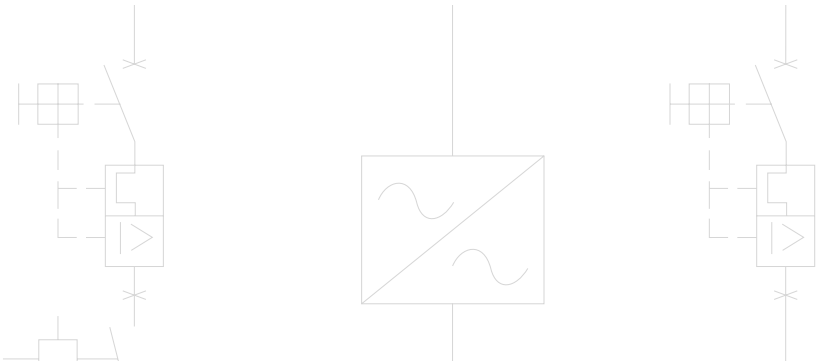
- Notes: 1) Same dimensional of 2 x CWCI07...16\_S + BICO.  
 2) Same dimensional of 2 x (CWC07...16\_S/CWCA0\_S) + RMC0.  
 3) Same dimensional CWC07...16 + CICO.





# Automation

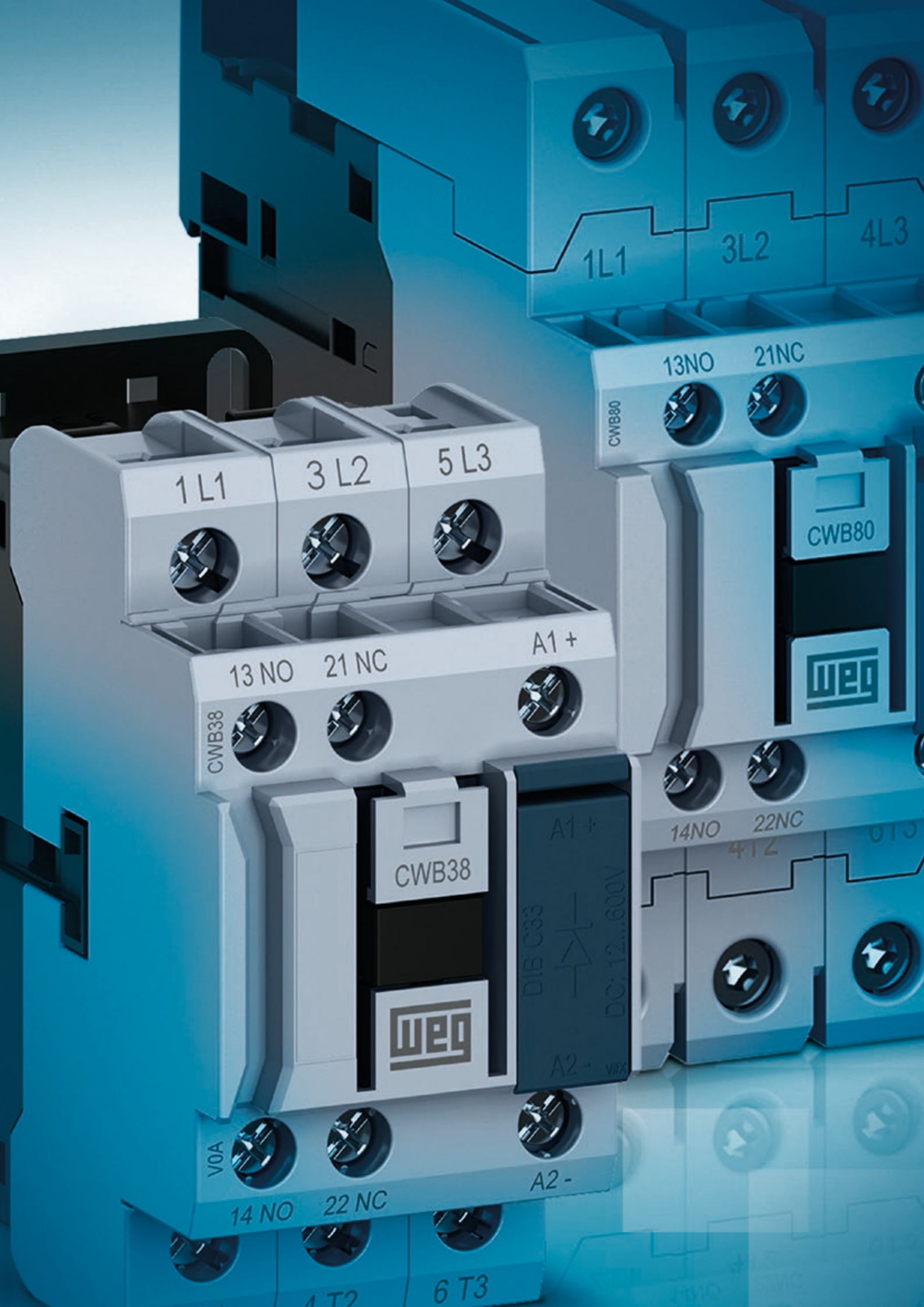
## Contactors - CWB Line



3

3





1 L1

3 L2

5 L3

13 NO

21 NC

A1 +

CWB38

CWB38



DIB C33

DC: 12...600V

A2 -

V0A

14 NO

22 NC

A2 -

1 T2

6 T3

1 L1

3 L2

4 L3

13 NO

21 NC

CWB80

CWB80



14 NO

22 NC

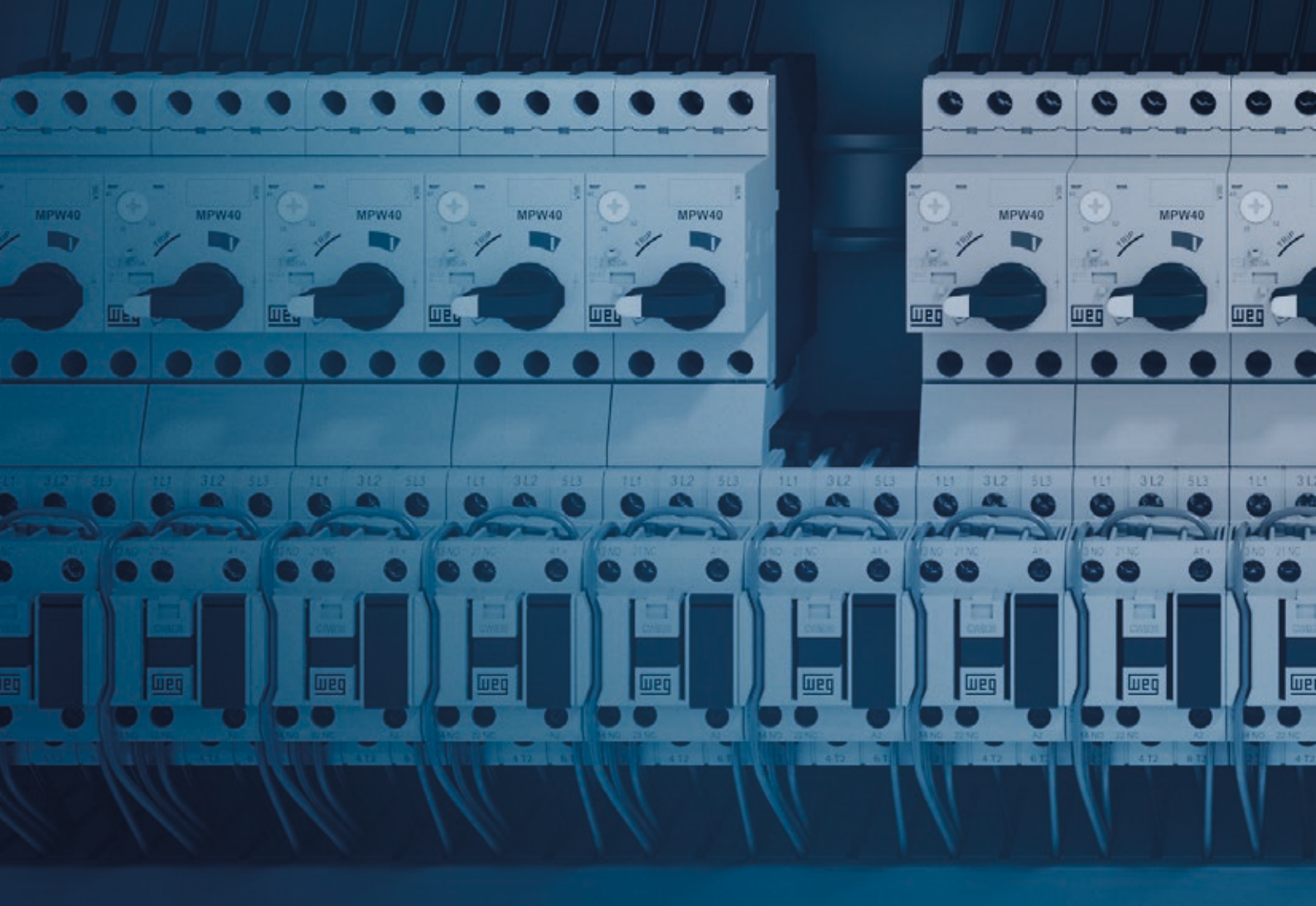
4 T2

6 T3

# Contactors - CWB Line

## Summary

Presentation	A-38
Reliability and Safety	A-48
Power Contactors	A-48
Accessories	A-52
Application Forms	A-55
Technical Data	A-68
Dimensions	A-76

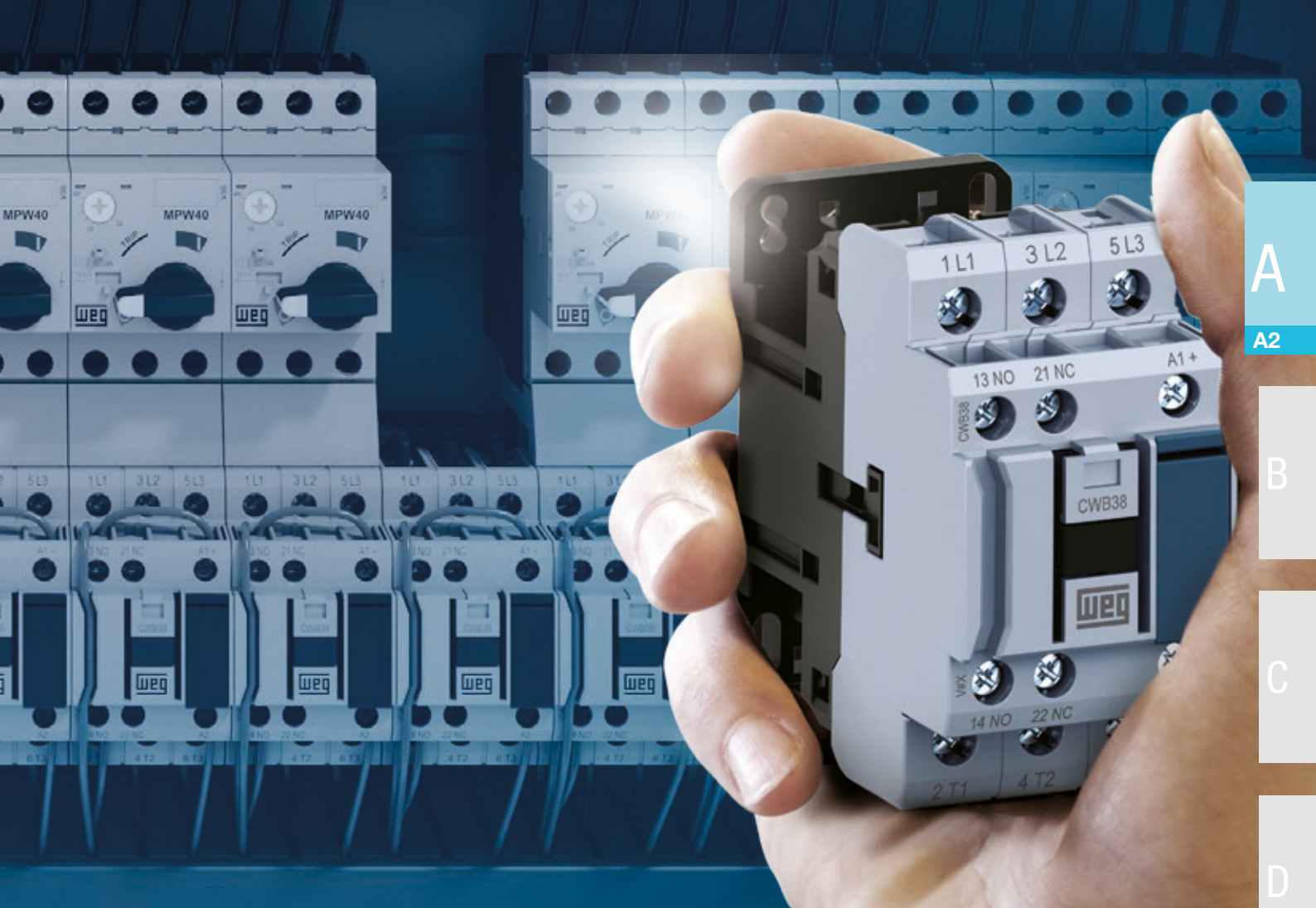


# COMPACT IN SIZE. GIANT IN TECHNOLOGY.

Developed according to IEC/EN 60947 and UL 508 international standards, the CWB and CAWB line of contactors complies with the global requirements of a wide range of industrial applications.

## Characteristics

- Currents from 9 to 80 A (AC-3);
- Power supply from 24 V to 690 V ac/dc;
- Low-consumption coils, 5.8 W at 24 V dc;
- Compact, 18% smaller than the CWM line;
- Built-in auxiliary contacts 1 NO and 1 NC;
- Enclosure for surge suppressors;
- Easy identification of the control voltage;
- "Zero-width" mechanical interlock;
- Easy connection busbars for quick assembly of more compact reversing and star-delta starters;
- Allows the assembly of compact starters with the MPW18, MPW40 and MPW80 motor protective circuit breakers and RW27-2D and RW67-5D thermal relays;
- Choice of up to six auxiliary contacts on the power contactors;
- Compatible with accessories of the whole CWB line;
- 45 mm wide auxiliary contactors and five built-in contacts;
- Quick mounting on DIN rail 35mm or with screw.



A

A2

B

C

D

E

F

G

H

## Benefits



Modular and compact



Highly reliable



Suitable for different applications



Internationally-recognized quality



Simplified installation



Energy saving

## Certifications



European Union



Canada and USA



Argentina



SABS - South Africa  
South Africa



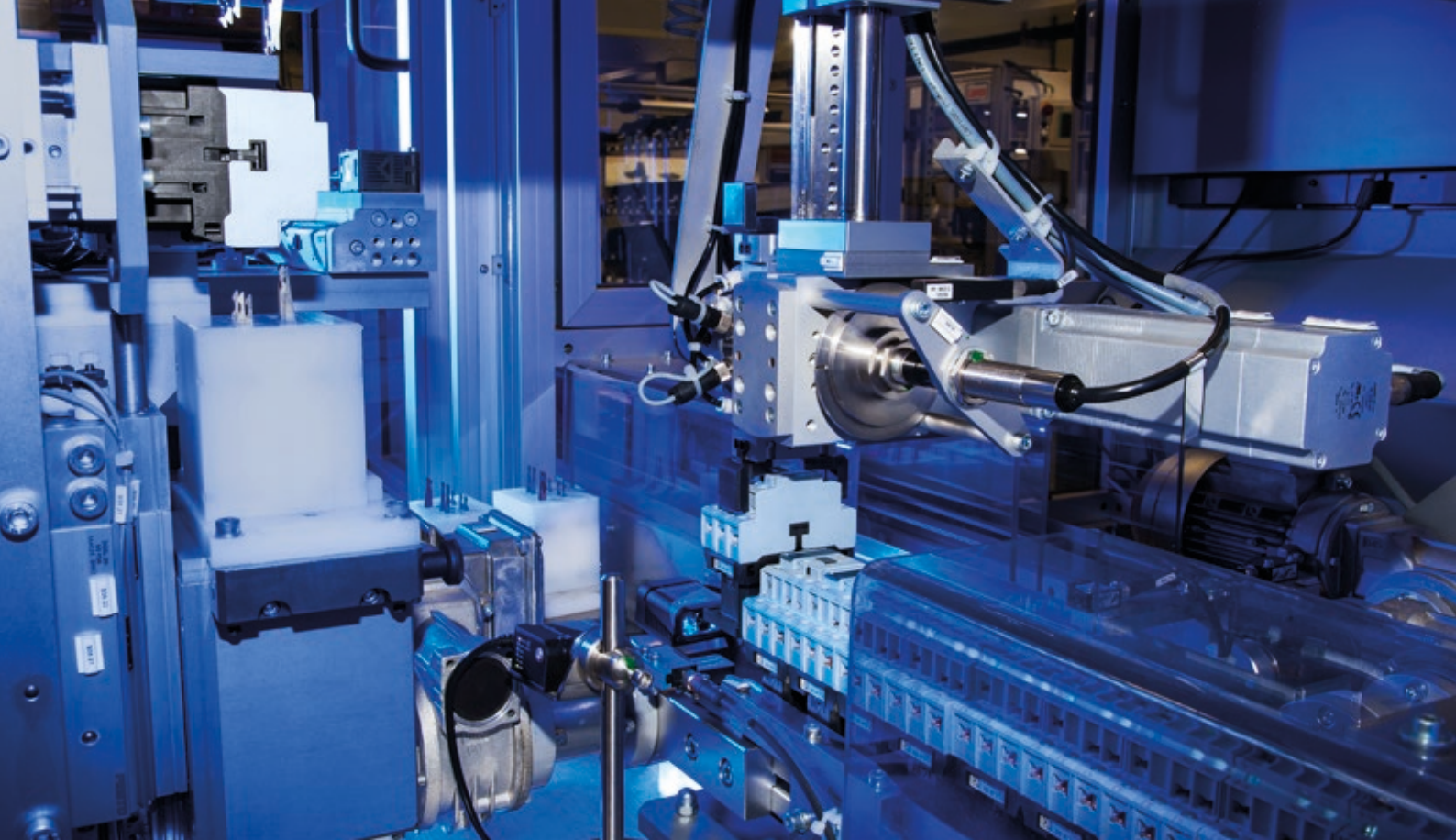
Colombia



Russia

Notes: 1) Not available for CAWB.

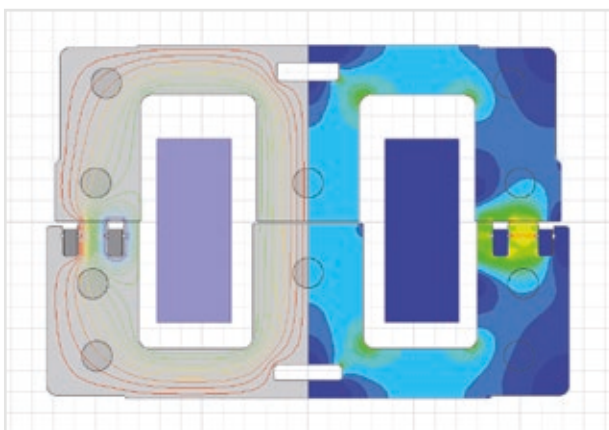
2) Not available for CAWB/certification for CWB40-80 in progress.



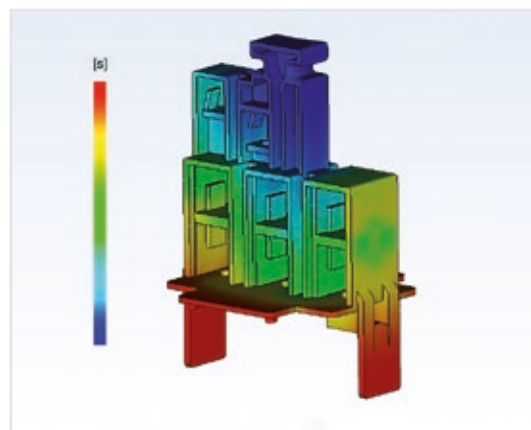
## Technology within your Reach

The use of finite-element analysis and state-of-the-art modeling softwares for simulation of electromagnetic and electromechanical systems provide WEG CWB contactors with an improved project with reduced contact bouncing. The outcome reached by WEG's R&D team ensures a product with long mechanical and electrical lifespan in a reduced size and with lower energy consumption.

The electric contacts of CWB contactors are manufactured with special silver alloys which ensure excellent electric conductivity and high contact reliability. During operation, the double-break contacts and arc chutes ensure fast arc quenching and provide high resistance against the wear effects of the electric arc and, consequently, a long electrical lifespan.



*Analysis of CWB electromagnetic system*



*Process manufacturing simulation to ensure high quality of the injected parts*

Manufactured with the best raw materials and high-quality parts, the CWB line uses high-precision injection molds and metal stamping tools, ensuring very reliable products with the best cost-benefit on the market.

## Energy Savings

### Low Consumption Coils

The low-consumption coils of the CWB contactors enable safe operation with minimum energy consumption of up to 5.8 W in direct current, and up to 7.5 VA in alternating current (for power contactors up to 38 A and auxiliary contactors). In addition to the energy saving, the low consumption of the contactor coils allows reducing the supply of control transformers. When well dimensioned and properly applied, the traditional electric motor starting methods, such as direct (reversing and non-reversing) and star-delta starters that use contactors, are the safest and the best cost-benefit options to start and protect low-voltage electric motors. Up to at least 55 kW, direct starters and star-delta starters that use contactors are still the best and most common starting method in all kinds of industry in the whole world. Even when electronic methods are used to start and control motors, such as frequency inverters and soft-starters, contactors are still necessary in combination with the electronic devices.

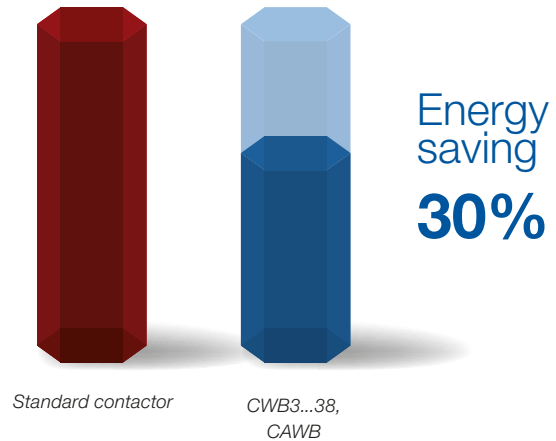
Consequently, we can imagine the huge number of contactors installed and in operation, consuming energy in the whole world.

Therefore, the CWB contactors were designed to operate safe and reliably with the **lowest energy consumption**.

### DC Coils

In addition to the low energy consumption, the DC coils enable direct control of the CWB (up to 38 A) and CAWB contactors via PLC or digital outputs of devices such as frequency inverters or soft-starters without requiring relay interfaces.

### Coil Consumption DC Operated Contactor



## Green



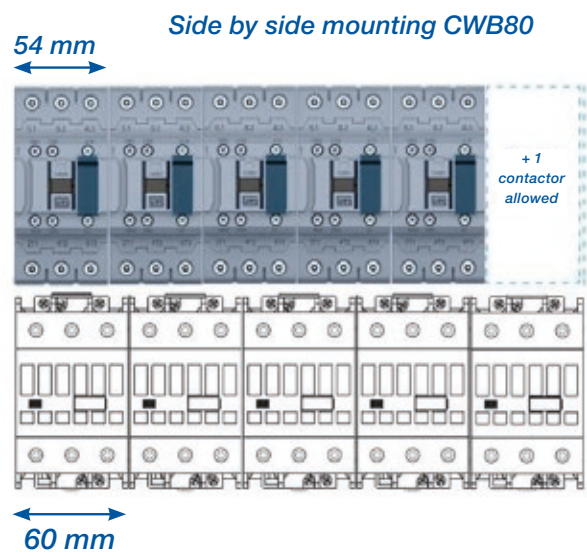
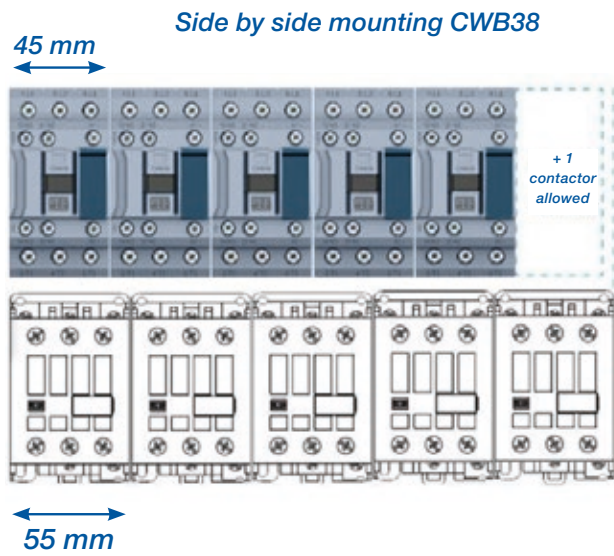
Manufactured with nontoxic and low-impact materials, the CWB line of contactors is safe and sustainable, complying with the RoHS international requirements.

## Easy Panel Optimization

### Compact Solution

As they are compact, 45 mm wide available in up to 38 A (18.5 kW at 380 V AC-3 three-phase), and 54 mm wide available from 40 to 80 A (37 kW at 380 V AC-3 three-phase), the CWB contactors provide a general reduction in size of electrical panels in comparison to traditional solutions with contactors of the same specification.

**18% <**



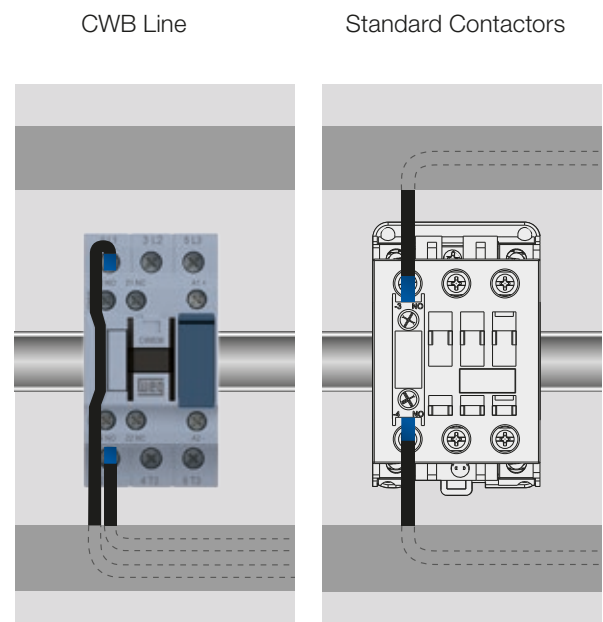
### Built-In Auxiliary Contacts 1NO + 1NC

The configuration of two built-in auxiliary contacts (1NO + 1NC) makes the application of CWB contactors more flexible in most automation systems, contributing to the optimization of internal space of electrical panels.



### More Simple and Organized Control Circuits

In order to optimize the space in electrical panels even more, the CWB line of contactors has a front slot for passing control cables. That can reduce or eliminate the necessity of routing control cables through the side or front part of the contactors, providing a "cleaner" and more organized assembly of the control circuit.





## Easy Panel Optimization

### Simple and Compact Mounting of Surge Suppressor Blocks

The coils of CWB contactors operate smoothly with a low level of disturbance in the control circuits. However, in order to reduce voltage surges due to the coil switching even further, WEG has developed surge suppressor blocks especially for the CWB line of contactors, which ensure limitation or even completely eliminate the undesired interferences that may be caused on opening the contactor coil. Surge suppressor blocks are easily mounted on CWB contactors without the need of any kind of tools and also without increasing volume.



A

A2

B

### Contactor Coil Operated on AC or DC

A wide range of voltages available in only two coil versions (one for AC and another for DC) for the whole line of contactors from 9 to 80 A. With easy replacement of the AC coil in currents from 9 to 80 A and DC coils in currents from 40 to 80 A with visual indication of the coil voltage.



CWB9...38 A  
AC coil



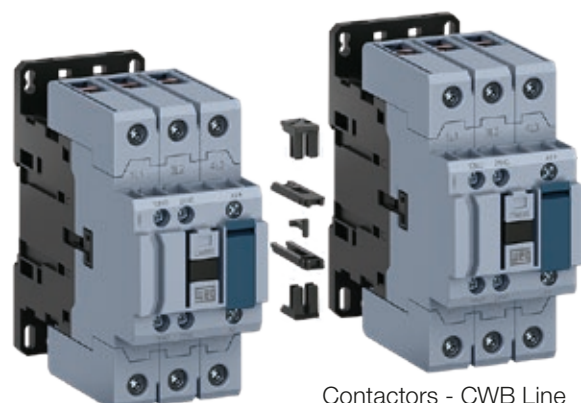
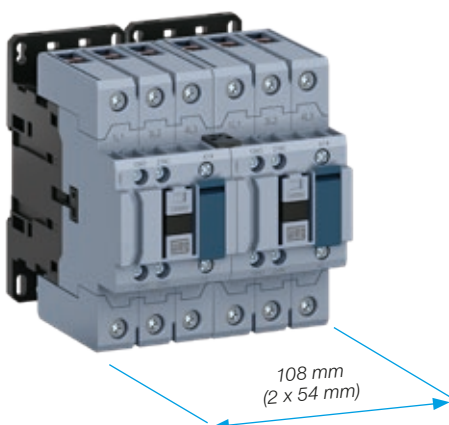
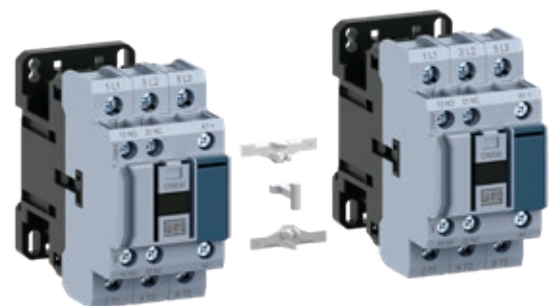
CWB9...80 A DC coil  
CWB40...80 A AC coil

C

D

### “Zero-Width” Mechanical Interlock

For applications which require a mechanical interlock between contactors WEG developed a new mechanical system that ensures compact and safe mounting without any tools. The new WEG mechanical interlocking system enables the mechanical interlock between the contactors of the CWB line without adding side space, and it is possible to mount reversing starters of up to 80 A.



E

F

G

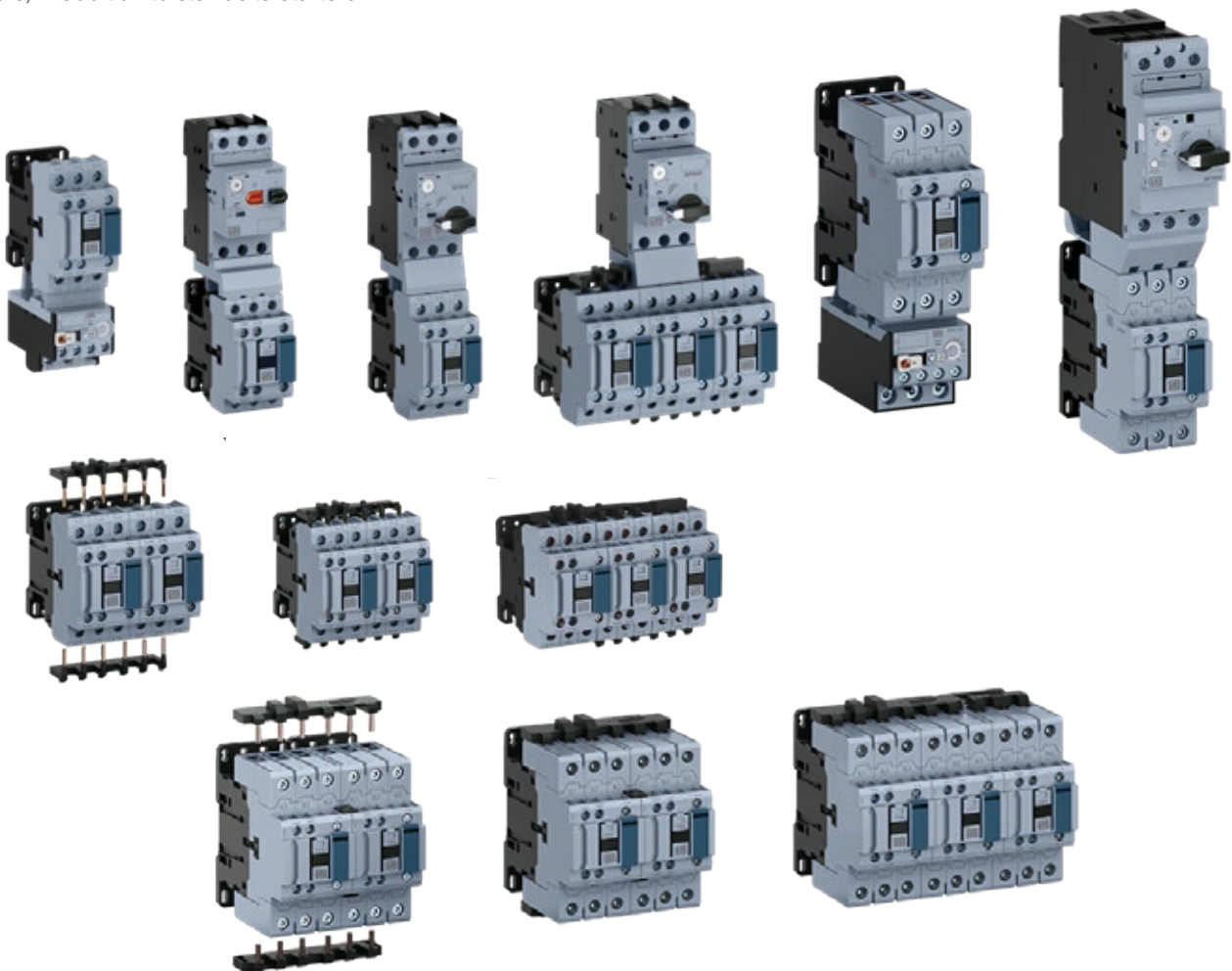
H



## Flexibility and Modularity in Assembly of Electric Panels

### Easy-Connection Busbars and Connectors

The smooth integration between the CWB contactor line, overload relays and manual motor protectors enables simple and quick mounting of compact starters, besides protection sets for low-voltage electric motors with excellent cost effectiveness. The modularity and flexibility of the easy-connection busbars and connectors reduce the mounting time, also preventing possible errors. Available for the whole CWB line, the easy-connection system allows the mounting combined with WEG manual motor protectors and overload relays, forming compact and robust direct starters, reversing and non-reversing starters, in addition to star-delta starters.





A

A2

B

C

D

E

F

G

H

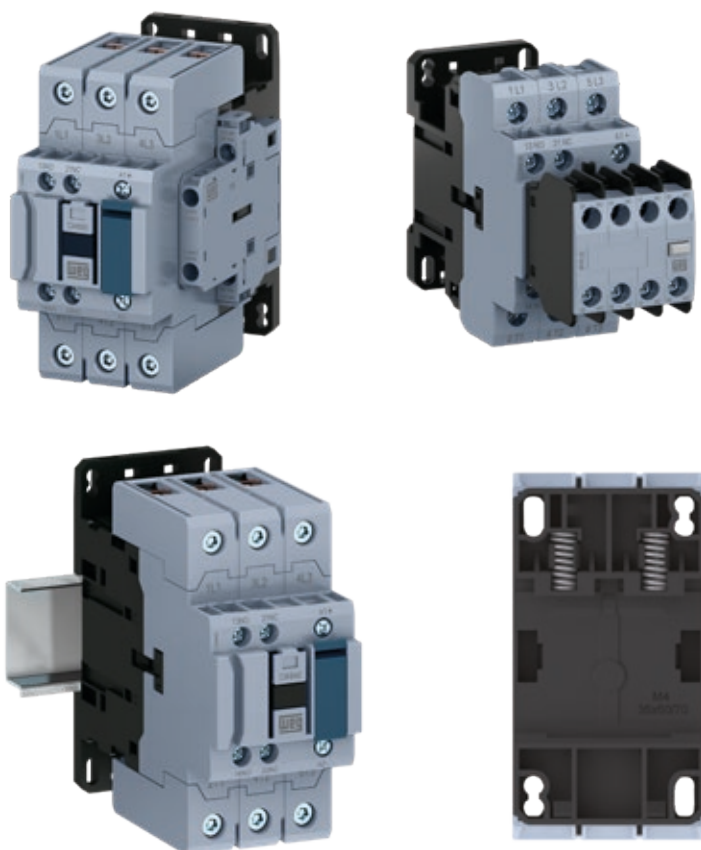
### Easy Access Power and Control Terminals

All power terminals, auxiliary contacts and coils provide users with fast front access, facilitating installation, measurements and interventions for preventive and corrective maintenance of starters.

### Additional Contact Blocks

Besides the 1NO + 1NC built-in auxiliary contacts, in order to meet the most complex control needs, WEG has also developed auxiliary high performance contact blocks which can be easily mounted on the front or side of CWB contactors, allowing the combination of up to six auxiliary contacts per contactor up to 80 A.

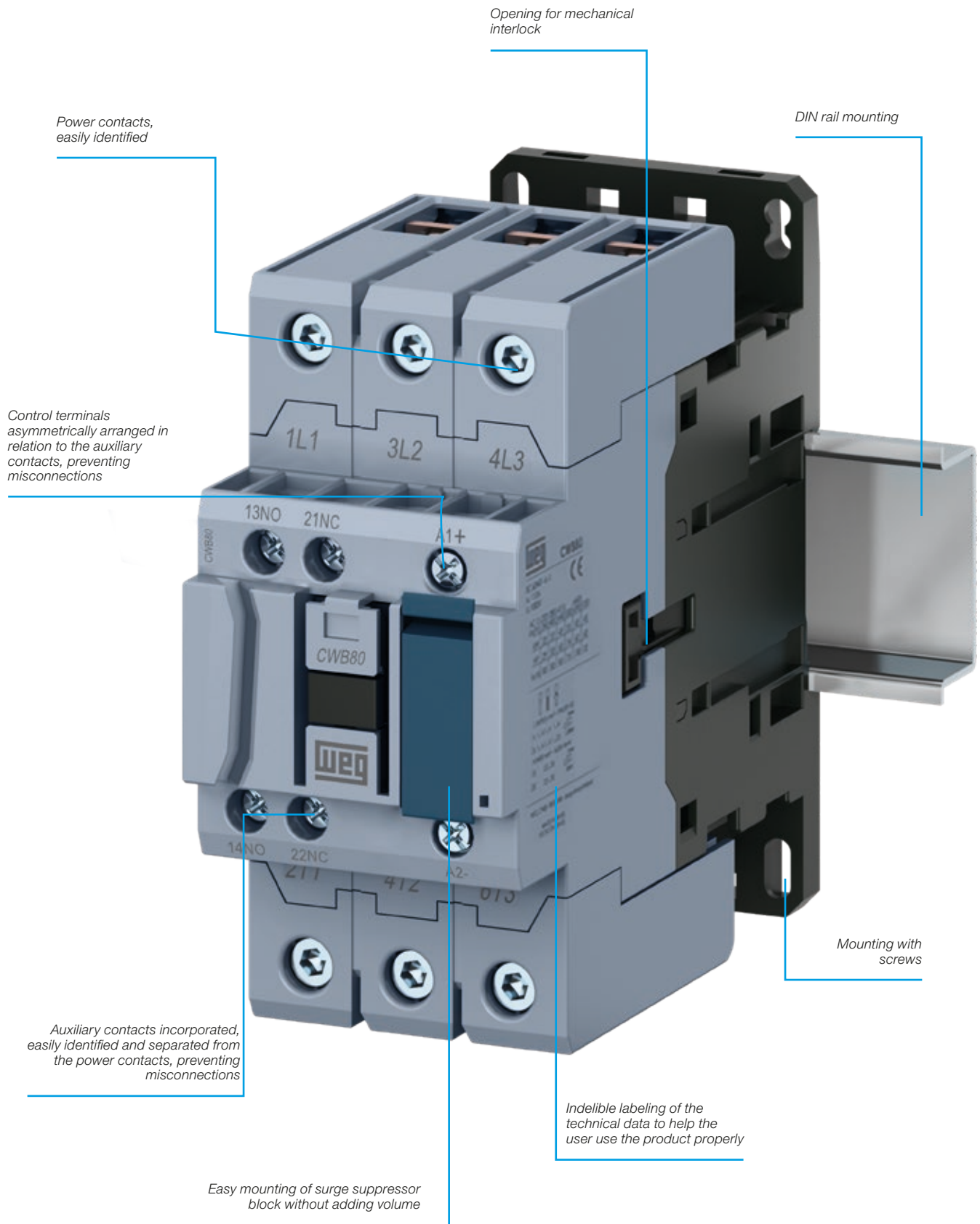
An important characteristic of the side auxiliary contact blocks of the CWB line is the small dimension (only 9 mm wide) which meets the requirements of modularity, allowing more compact combinations of motor starters with motor protective circuit breakers when easy-connection busbars are used.



### Panel Assembly Flexibility

CWB contactors can be easily assembled on panels using 35 mm DIN rails or screws because their oblong holes are compatible with the old and traditional lines of contactors on the market.

# Construction Characteristics



# Applications

The characteristics of the CWB contactors make them suitable for applications in many different segments.



Paper & Cellulose



Wood



Cement



Chemical and Petrochemical



Mining



Steel



Oil & Gas



Irrigation and Pumping Systems



Sugar & Alcohol



Fans



Civil Construction



Refrigeration



Machines and Processes in General



Load Lifting



Automation





## Reliability and Safety

### Safety Against Accidental Contact

All the power and control terminals of the CWB contactors have degree of protection that ensure total safety against accidental front contacts.

### Safety-Related Applications

In automation systems of machines and equipment, it is common to use special contactors in combination with specific safety relays. The CWB line allows such combination due to the arrangement of the contacts, which comply with the requirements of IEC/EN 60947-4-1 Annex F (Mirror Contacts) and IEC/EN 60947-5-1 Annex L (Mechanically Linked Contacts and NR12 regulatory standard).



IEC/EN 60947-5-1  
Mechanically linked  
contacts



IEC/EN 60947-4-1  
Mirror contacts

## Selection Table

### Three-Pole Power Contactors from 9 A to 38 A (AC-3)

$I_e$ máx. ( $U_e \leq 440$ V)	$I_e = I_m$ ( $U_e \leq 690$ V) $\theta \leq 55$ °C	Orientative rated operational power in AC-3 <sup>1)</sup> Three-phase motor - IV poles - 60 Hz - 1,800 rpm					Auxiliary contacts per contactor		Reference to fill the control voltage in	Weight <sup>2)</sup> kg
		220 V 230 V	380 V 400 V	415 V 440 V	500 V	660 V 690 V	•3 •4 NA	•1 •2 NF		
AC-3	AC-1									
A	A	kW / cv	kW / cv	kW / cv	kW / cv	kW / cv				
9	25	2.2 / 3	4 / 5.5	4.5 / 6	5.5 / 7.5	5.5 / 7.5	1	1	CWB9-11-30♦	0.372
12	25	3 / 4	5.5 / 7.5	6.5 / 8.7	7.5 / 10	7.5 / 10	1	1	CWB12-11-30♦	0.372
18	32	4.5 / 6	7.5 / 10	9.2 / 12.5	10 / 13.4	11 / 15	1	1	CWB18-11-30♦	0.372
25	40	6.5 / 8.7	12.5 / 16.8	12.5 / 16.8	15 / 20	15 / 20	1	1	CWB25-11-30♦	0.408
32	50	7.5 / 10	15 / 20	15 / 20	18.5 / 25	18.5 / 25	1	1	CWB32-11-30♦	0.408
38	50	9.2 / 12.5	18.5 / 25	18.5 / 25	18.5 / 25	18.5 / 25	1	1	CWB38-11-30♦	0.408



A  
A2

B

C

D

E

F

G

H

### Three-Pole Power Contactors from 10 A to 80 A (AC-3)

$I_e$ máx. ( $U_e \leq 440$ V)	$I_e = I_{th}$ ( $U_e \leq 690$ V) $\theta \leq 55$ °C	Orientative rated operational power in AC-3 <sup>1)</sup> Three-phase motor - IV poles - 60 Hz - 1,800 rpm					Auxiliary contacts per contactor		Reference to fill the control voltage in	Weight <sup>2)</sup> kg
		220 V 230 V	380 V 400 V	415 V 440 V	500 V	660 V 690 V	*3   *4 NA	*1 *2 NF		
AC-3	AC-1									
A	A	kW / cv	kW / cv	kW / cv	kW / cv	kW / cv				
40	60	11 / 15	18.5 / 25	22 / 29	22 / 29	30 / 40	1	1	CWB40-11-30♦	0.91
50	90	15 / 20	22 / 29	30 / 40	30 / 40	33 / 44	1	1	CWB50-11-30♦	0.91
65	110	18.5 / 25	30 / 40	37 / 50	37 / 50	37 / 50	1	1	CWB65-11-30♦	0.91
80	110	22 / 29	37 / 50	45 / 60	55 / 74	45 / 60	1	1	CWB80-11-30♦	0.91

### Auxiliary Contactors

$I_e$ máx. (A)  ( $U_e \leq 230$ V) AC-14 / AC-15	$I_e$ máx. (A)  ( $U_e \leq 24$ V) DC-13	Auxiliary contacts		Reference	Weight (kg)
		*3   *4 NA	*1 *2 NF		
10	4	1	4	CAWB-14-00♦	0.372
10	4	2	3	CAWB-23-00♦	0.372
10	4	3	2	CAWB-32-00♦	0.372
10	4	4	1	CAWB-41-00♦	0.372

NEW

Replace "♦" by the appropriate coil voltage code<sup>3)</sup>.

### Alternating Current

Code	D02	D07	D13	D23	D24	D25	D33	D34	D35	D36	D39
V (50/60 Hz)	24	48	110	220	230	240	380	400	415	440	480

### Direct Current

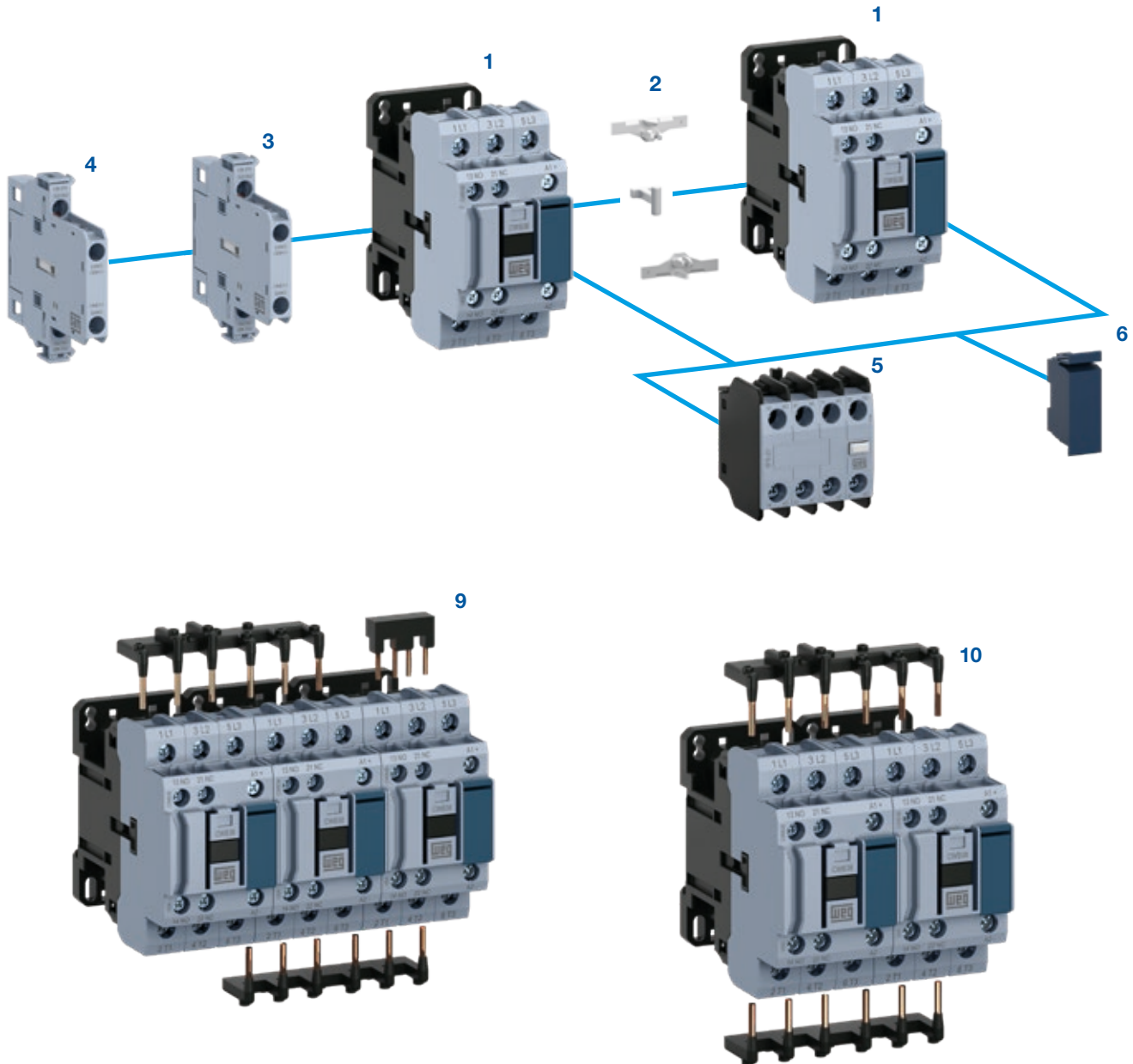
Code	C03	C07	C09	C12	C13	C15
V dc	24	48	60	110	125	220

Notes: 1) Orientative values.

2) Weight for contactors with control circuit in alternate current. For control circuit in direct current, add 0.121 kg to the alternating-current models.

3) Other voltages on request.

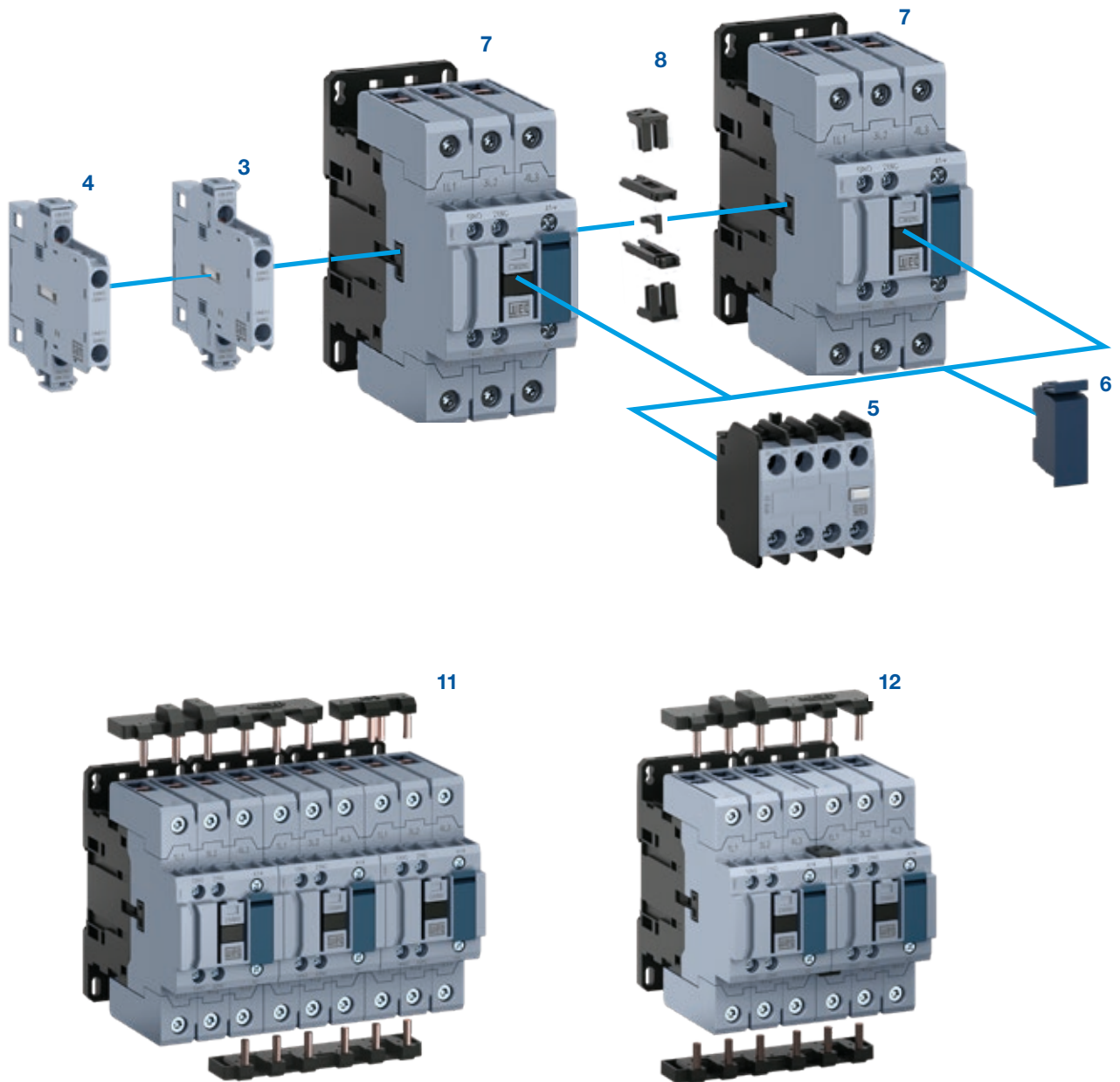
## Accessory Overview



- 1** - CWB9 ... 38 or CAWB contactors
- 2** - "Zero" mechanical interlocking set (IM1)
- 3** - BLB side mounting auxiliary contact block
- 4** - BLRB side mounting laterais auxiliary contact block
- 5** - BFB front auxiliary contact blocks
- 6** - Surge suppressor block




## Accessory Overview




- 7** - CWB40...80 contactors
- 8** - "Zero" mechanical interlocking set (IM2)
- 9** - Busbar for quick connections for star-delta starters (EC-SD-1)
- 10** - Busbar for quick connections for reversing starters (EC-R-1)
- 11** - Busbar for quick connections for star-delta starters (EC-SD-2)
- 12** - Busbar for quick connections for reversing starters (EC-R-2)

## Accessories

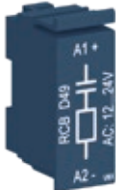
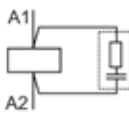
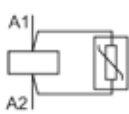
### Front Mounted Auxiliary Contact Blocks

Illustrative picture	For use with	Max. n° of additional contacts / contactor	Auxiliary contacts		Reference	Code	Weight kg	
			NO	NC				
	CWB9...38 CWB40...80 CAWB	4 / CWB9...38 4 / CWB80...80 4 / CAWB	Auxiliary contact blocks according to IEC/EN 60947					0.063
			1	1	BFB-11 <sup>1)</sup>	12123053		
			2	0	BFB-20	12122434		
			0	2	BFB-02 <sup>1)</sup>	12122946		
			2	2	BFB-22 <sup>1)</sup>	12123051		
			2 <sup>2)</sup>	2 <sup>2)</sup>	BFB-22 EL <sup>2)</sup>	12771537		
			4	0	BFB-40	12122947		
			0	4	BFB-04 <sup>1)</sup>	12123048		
			3	1	BFB-31 <sup>1)</sup>	12123049		
			1	3	BFB-13 <sup>1)</sup>	12123052		
			Auxiliary contact blocks according to EN 50012					0.063
			1	1	BFB-11 EN <sup>1)</sup>	12979242		
			2	0	BFB-20 EN	12979240		
			0	2	BFB-02 EN <sup>1)</sup>	12979241		
			2	2	BFB-22 EN <sup>1)</sup>	12979246		
			4	0	BFB-40 EN	12979243		
			0	4	BFB-04 EN <sup>1)</sup>	12979244		
			3	1	BFB-31 EN <sup>1)</sup>	12979245		
			1	3	BFB-13 EN <sup>1)</sup>	12979247		

### Side Mounted Auxiliary Contact Block

Illustrative picture	For use with	Max. n° of additional contacts / contactor	Auxiliary contacts		Reference	Code	Weight kg
			NO	NC			
	CWB9...38 CWB40...80 CAWB	2 / CWB9...38 2 / CWB40...80 2 / CAWB	1	1	BLB-11 <sup>1)</sup>	12187899	0.034
			2	0	BLB-20	12187334	
			0	2	BLB-02 <sup>1)</sup>	12187898	
			1	1	BLRB-11 <sup>1)3)</sup>	12230321	
			2	0	BLRB-20 <sup>3)</sup>	12230319	
			0	2	BLRB-02 <sup>1)3)</sup>	12230320	

### Plug-In Surge Suppressors

Illustrative picture	For use with	Voltage	Diagram	Reference	Code	Weight kg
	CWB9...38 CWB40...80 CAWB	24...48 V 50/60 Hz		RCBD53	12242511	0.008
		50...127 V 50/60 Hz		RCBD55	12242512	
		130...250 V 50/60 Hz		RCBD63	12242513	
		12...48 V 50/60 Hz / 12...60 V dc		VRBE49	12242514	
		50...127 V 50/60 Hz / 60...180 V dc		VRBE34	12242515	
		130...250 V 50/60 Hz / 180...300 V dc		VRBE50	12242516	
		277...380 V 50/60 Hz / 300...510 V dc		VRBE41	12242517	
		400...510 V 50/60 Hz		VRBD73	12242558	
		12...600 V dc		DIBC33 <sup>4)</sup>	12242560	
		12...250 V dc		DIZBC26 <sup>5)</sup>	12242561	

Notes: 1) They comply with the requirements of IEC/EN 60947-4-1 about mirror contacts and the requirements of IEC/EN 60947-5-1 about mechanically linked contacts.

2) BFB-22-EL: besides the regular contacts NO and NC, there are two special contacts: early make and late break.



3) For side mounting of two side-auxiliary contact blocks on the same contactor side.

4) Contactors assembled with surge suppressor DIB will increase in 6 times the opening time. Do not use in with BFB or BLB auxiliary contact blocks which contain NC contacts.

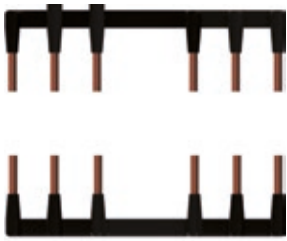
5) Contactors assembled with surge suppressor DIZB will increase in 4 times the opening time.


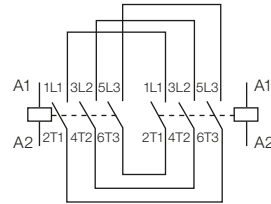
## Accessories

### Mechanical Interlock

Illustrative picture	For use with	Description	Reference	Code	Weight kg
	CWB9...38 CAWB	Mounting set for interlocking two contactors with the same frame type. Fitting through snaps without tools.	IM1	12244300	0.004
	CWB40...80		IM2	13765620	

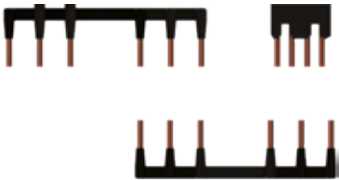
### Easy-Connection Setting of the Power Terminals for Reversing Starters

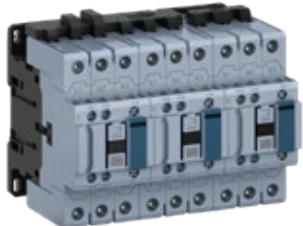
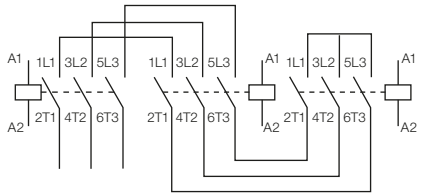
Illustrative picture	For use with		Orientative rated operational power for reversing starters (AC-4 duty) for three-phase 4-pole motors - 60 Hz - 1,800 rpm		Reference	Code	Weight kg
	K1=K2		230 V kW / cv	400 V kW / cv			
	CWB9		1.5 / 2.0	2.2 / 2.9	EC-R-1	12241229	0.042
	CWB12		1.5 / 2.0	3.7 / 5.0			
	CWB18		2.2 / 2.9	4 / 5.4			
	CWB25		3 / 4.0	5.5 / 7.4			
	CWB32		4 / 5.4	7.5 / 10.1			
	CWB38		4 / 5.4	7.5 / 10.1			
	CWB40		4.5 / 6.0	9.2 / 12.3	EC-R-2	13619637	0.073
	CWB50		5.5 / 7.4	11 / 14.7			
	CWB65		7.5 / 10.1	15 / 20.1			
	CWB80		11 / 14.7	18.5 / 24.8			

*Electric diagram*

### Power Terminal Easy-Connection Set for Star-Delta Starters

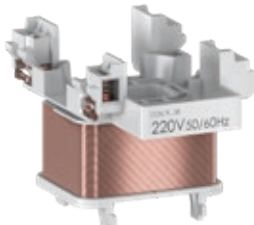

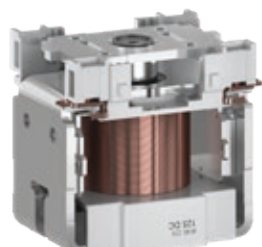
Illustrative picture	For use with		Orientative rated operational power in AC-3 Three-phase motor - IV poles - 1,800 rpm		Reference	Code	Weight kg
	K1=K2	K3	230 V kW / cv	400 V kW / cv			
	CWB9	CWB9	4 / 5.4	7.5 / 10	EC-SD-1	12241230	0.046
	CWB12	CWB9	5.5 / 7.5	11 / 15			
	CWB18	CWB12	9.2 / 12.5	15 / 20			
	CWB25	CWB18	11 / 15	22 / 30			
	CWB32	CWB18	15 / 20	-			
	CWB38	CWB25	18.5 / 25	30 / 40			
	CWB50	CWB40	22 / 30	45 / 61	EC-SD-2	13619635	0.036
	CWB65	CWB40	30 / 40	55 / 75			
	CWB80	CWB50	45 / 61	75 / 102			

*Electric diagram*

## Accessories

### Spare Coils for Contactors<sup>1)</sup>

Illustrative picture	For use with	Control type	Reference to fill in with the control voltage	Code	Weight kg
	CWB9...38 CAWB	AC	BRB-38 ♦	On request	0.8
	CWB40...80	AC	BRB-80 ♦	On request	0.09
	CWB40...80	DC	BRB-80 ♦	On request	0.40

Replace “♦” by the appropriate coil voltage code.

#### Alternating Current

Code	D02	D07	D13	D23	D24	D25	D33	D34	D35	D36	D39
V (50/60 Hz)	24	48	110	220	230	240	380	400	415	440	480

#### Direct Current

Code	C03	C07	C09	C12	C13	C15
V dc	24	48	60	110	125	220

Note: 1) Spare coil in direct current (DC) only for CWB40...80 A.

## Application Forms

### Motor Starters

With the CWB contactors, the MPW manual motor protectors and the RW overload relays, WEG offers a complete line of compact starters that stand out on the market.

### Easy Installation

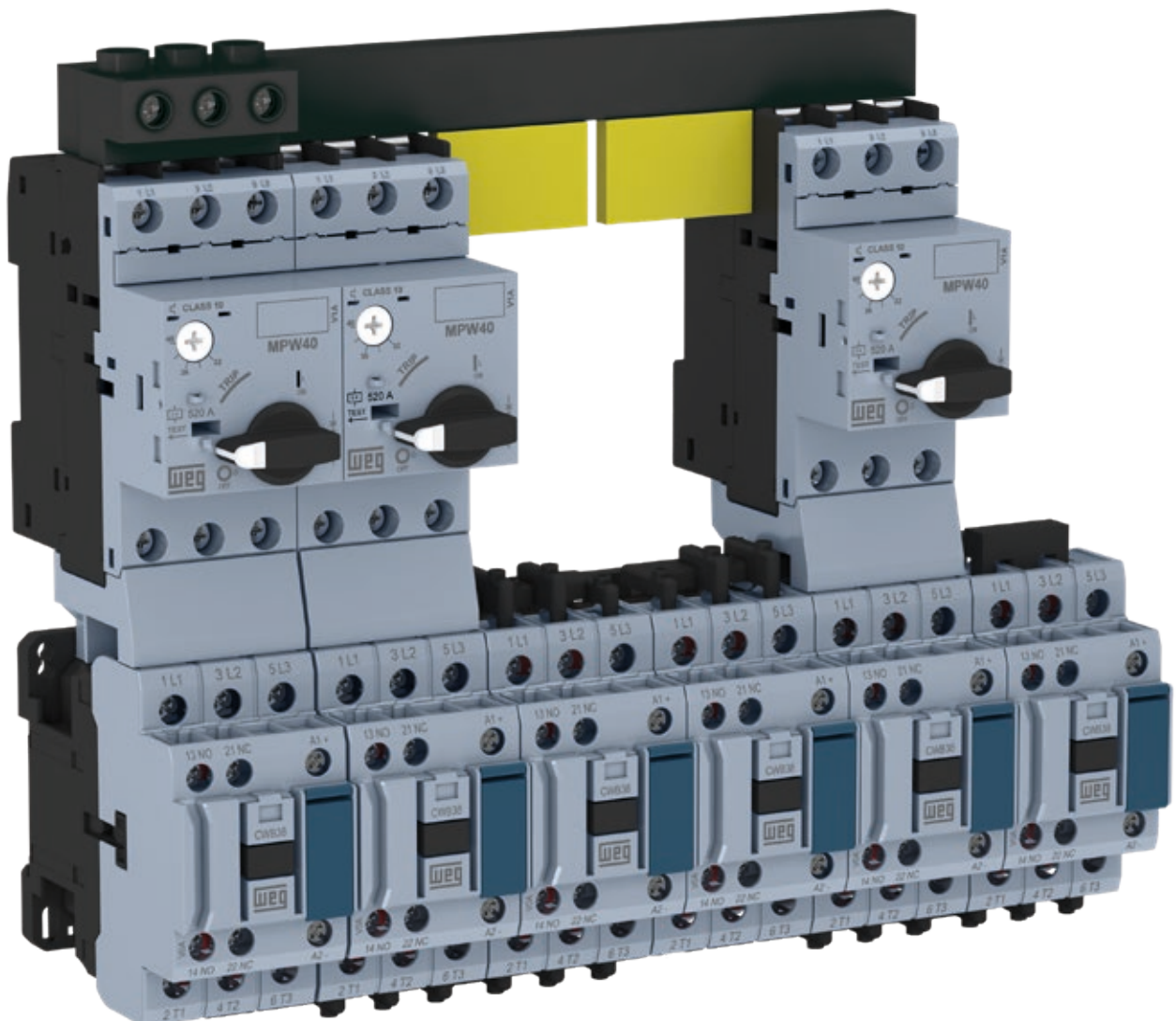
- Contactors, overload relays and manual motor protectors with a compact design up to 80 A (37 kW @ 380/415 V)
- Easy-connection bars for direct on-line, reversing and star-delta starters, saving mounting time
- Easy combination of all the starter parts
- Contactors with built-in auxiliary contacts 1NO + 1NC

### Panel Optimization

- 45 mm wide up to 38 A
- 54 mm wide from 40 to 80 A
- 9 mm wide side contact blocks
- Compact starters
- “Zero” mechanical interlock without adding side space
- Simple and reliable parts

### Easy Operation

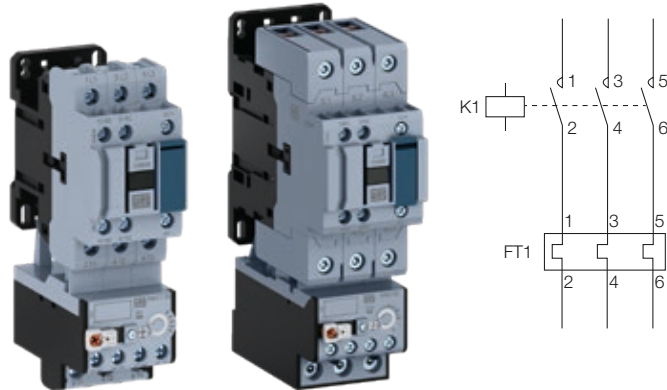
- High performance and reliability for a wide range of applications
- Energy savings
- Without peak currents for contactors with DC coil
- Built-in overload and short circuit protections (when MPW is used)



## Direct On-Line Starters

### CWB Contactor + RW27-2D/RW67-5D Thermal Overload Relay

- Remote load handling
- Overload protection
- Phase-loss sensitive
- Trip class 10
- Temperature compensation
- DIN rail mounting by fixing only one part
- Manual/local or automatic reset



Motor current (A)	AC-3 contactor		Overload relay		CWB + RW27-2D / CWB + RW67-5D	Total weight (kg)
	Reference	Maximum rated current AC-3 (A)	Reference	Current I adjustment range (A)	Maximum fuse (gL/gG) (coordination type 1) (A)	
0.28...0.4	CWB9-11-30◆	9	RW27-2D3-D004	0.28...0.4	2	0.54
0.43...0.63	CWB9-11-30◆	9	RW27-2D3-C063	0.43...0.63	2	0.54
0.56...0.8	CWB9-11-30◆	9	RW27-2D3-D008	0.56...0.8	2	0.54
0.8...1.2	CWB9-11-30◆	9	RW27-2D3-D012	0.8...1.2	4	0.54
1.2...1.8	CWB9-11-30◆	9	RW27-2D3-D018	1.2...1.8	6	0.54
1.8...2.8	CWB9-11-30◆	9	RW27-2D3-D028	1.8...2.8	6	0.54
2.8...4	CWB9-11-30◆	9	RW27-2D3-U004	2.8...4	10	0.54
4...6.3	CWB9-11-30◆	9	RW27-2D3-D063	4...6.3	16	0.54
5.6...8	CWB9-11-30◆	9	RW27-2D3-U008	5.6...8	20	0.54
7...9	CWB9-11-30◆	9	RW27-2D3-U010	7...10	25	0.54
8...12	CWB12-11-30◆	12	RW27-2D3-D125	8...12.5	25	0.54
10...15	CWB18-11-30◆	18	RW27-2D3-U015	10...15	35	0.54
11...17	CWB18-11-30◆	18	RW27-2D3-U017	11...17	40	0.54
15...23	CWB25-11-30◆	25	RW27-2D3-U023	15...23	50	0.57
22...32	CWB32-11-30◆	32	RW27-2D3-U032	22...32	63	0.57
32...40	CWB38-11-30◆	38	RW27-2D3-U040	32...40	90	0.57
25...40	CWB40-11-30◆	40	RW67-5D3-U040	25...40	80	1.25
32...50	CWB50-11-30◆	50	RW67-5D3-U050	32...50	100	1.25
40...57	CWB65-11-30◆	65	RW67-5D3-U057	40...57	100	1.25
50...63	CWB65-11-30◆	65	RW67-5D3-U063	50...63	100	1.25
57...70	CWB80-11-30◆	80	RW67-5D3-U070	57...70	125	1.25
63...80	CWB80-11-30◆	80	RW67-5D3-U080	63...80	125	1.25

Notes: Reference values valid for operating voltages up to 440 V, altitude up to 2,000 m, ambient temperature range from -20 °C to +55 °C, and maximum switching frequency up to 15 operations/hour.  
For other conditions, check the technical data of each part.

#### To complete the reference code, replace “◆” by the appropriate coil voltage code

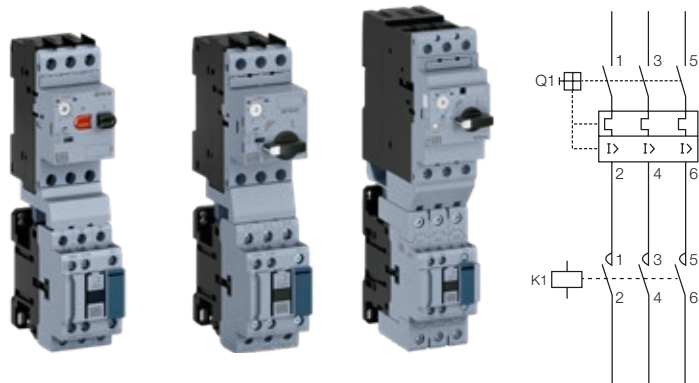
Coil voltage codes	D02	D07	D13	D15	D17	D77	D23	D24	D25	D33	D34	D35	D36
V (50/60 Hz)	24	48	110	120	127	208	220	230	240	380	400	415	440

Coil voltage codes	C03	C07	C09	C12	C13	C15
V dc	24	48	60	110	125	220

# Direct On-Line Starters

## CWB Contactor + MPW18/MPW40/MPW80 Manual Motor Protectors

- Remote load handling
- Overload protection
- Phase-loss sensitive
- Temperature compensation
- DIN rail mounting by fixing only one part
- Manual/local reset
- Isolation and disconnection functions
- Protection against short circuit
- High short-circuit interrupting capacity
- Short circuit tripping device fixed at 13 x lu



Motor current (A)	AC-3 contactor		Motor-protective circuit breaker			Accessories	Total weight (kg)
	Reference	Maximum rated current AC-3 (A)	Reference	Current I adjustment range (A)	Instantaneous magnetic trip (Im) (A)	Connector	
0.1...0.16	CWB9-11-30 ◆	9	MPW18-3-C016	0.1...0.16	2.0	ECCMP-18B38 (CWB - AC Coil)	0.66
0.16...0.25	CWB9-11-30 ◆	9	MPW18-3-C025	0.16...0.25	3.2		0.66
0.25...0.4	CWB9-11-30 ◆	9	MPW18-3-D004	0.25...0.4	5.2		0.66
0.4...0.63	CWB9-11-30 ◆	9	MPW18-3-C063	0.4...0.63	8.1		0.66
0.63...1	CWB9-11-30 ◆	9	MPW18-3-U001	0.63...1	13		0.66
1...1.6	CWB9-11-30 ◆	9	MPW18-3-D016	1...1.6	20.8		0.66
1.6...2.5	CWB9-11-30 ◆	9	MPW18-3-D025	1.6...2.5	32.5		0.66
2.5...4	CWB9-11-30 ◆	9	MPW18-3-U004	2.5...4	52		0.66
4...6.3	CWB9-11-30 ◆	9	MPW18-3-D063	4...6.3	81.9		0.66
6.3...10	CWB12-11-30 ◆	12	MPW18-3-U010	6.3...10	130		0.66
10...16	CWB18-11-30 ◆	18	MPW18-3-U016	10...16	208	0.66	
16...18	CWB18-11-30 ◆	18	MPW18-3-U020	16...20	260	0.66	
0.1...0.16	CWB9-11-30 ◆	9	MPW40-3-C016	0.1...0.16	2	ECCMP-40B38 (CWB - AC Coil) ECCMP-40B38DC (CWB - DC Coil)	0.73
0.16...0.25	CWB9-11-30 ◆	9	MPW40-3-C025	0.16...0.25	3.2		0.73
0.25...0.4	CWB9-11-30 ◆	9	MPW40-3-D004	0.25...0.4	5.2		0.73
0.4...0.63	CWB9-11-30 ◆	9	MPW40-3-C063	0.4...0.63	8.1		0.73
0.63...1	CWB9-11-30 ◆	9	MPW40-3-U001	0.63...1	13		0.73
1...1.6	CWB9-11-30 ◆	9	MPW40-3-D016	1...1.6	20.8		0.73
1.6...2.5	CWB9-11-30 ◆	9	MPW40-3-D025	1.6...2.5	32.5		0.73
2.5...4	CWB9-11-30 ◆	9	MPW40-3-U004	2.5...4	52		0.73
4...6.3	CWB9-11-30 ◆	9	MPW40-3-D063	4...6.3	81.9		0.73
6.3...10	CWB12-11-30 ◆	12	MPW40-3-U010	6.3...10	130		0.73
10...16	CWB18-11-30 ◆	18	MPW40-3-U016	10...16	208	0.73	
16...20	CWB25-11-30 ◆	25	MPW40-3-U020	16...20	260	0.77	
20...25	CWB25-11-30 ◆	25	MPW40-3-U025	20...25	325	0.77	
25...32	CWB32-11-30 ◆	32	MPW40-3-U032	25...32	416	0.77	
32...40	CWB38-11-30 ◆	38	MPW40-3-U040	32...40	520	0.77	
32...40	CWB40-11-30 ◆	40	MPW80-3-U040	32...40	520	2	
45...50	CWB50-11-30 ◆	50	MPW80-3-U050	45...50	650	2	
55...65	CWB65-11-30 ◆	65	MPW80-3-U065	55...65	845	2	
65...80	CWB80-11-30 ◆	80	MPW80-3-U080	65...80	1,040	2	

Notes: Reference values valid for operating voltages up to 440 V, altitude up to 2,000 m, ambient temperature range from -20 °C to +55 °C, and maximum switching frequency up to 15 operations/hour.  
For other conditions, check the technical data of each part.

To complete the reference code, replace “◆” by the appropriate coil voltage code

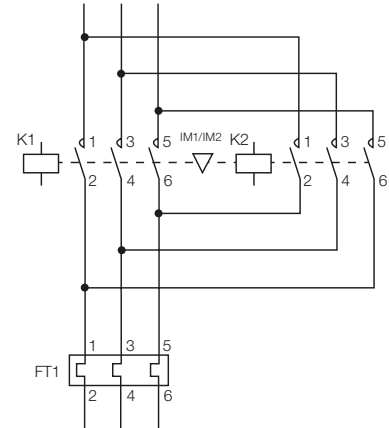
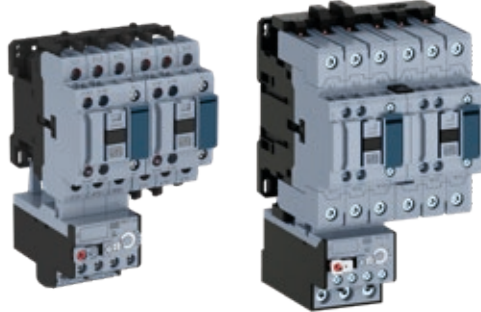
Coil voltage codes	D02	D07	D13	D15	D17	D77	D23	D24	D25	D33	D34	D35	D36
V (50/60 Hz)	24	48	110	120	127	208	220	230	240	380	400	415	440

Coil voltage codes	C03	C07	C09	C12	C13	C15
V dc	24	48	60	110	125	220

# Reversing Starters

## CWB Contactor + RW27-2D/RW67-5D Thermal Overload Relay

- Remote load handling
- Overload protection
- Phase-loss sensitive
- Trip class 10
- Temperature compensation
- DIN rail mounting by fixing the contactors
- Manual/local or automatic reset



Motor current (A)	AC-3 contactor		Overload relay		Accessories		CWB + RW27-2D / CWB + RW27-5D3 Maximum fuse (gL/gG) (coordination type 1) (A)	Total weight (kg)
	Reference	Maximum rated current AC-3 (A)	Reference	Current I adjustment range (A)	Mechanical interlock kit	Easy-connection busbar		
0.28...0.4	CWB9-11-30 ♦	9	RW27-2D3-D004	0.28...0.4	IM1	EC-R1	2	0.91
0.43...0.63	CWB9-11-30 ♦	9	RW27-2D3-C063	0.43...0.63			2	0.91
0.56...0.8	CWB9-11-30 ♦	9	RW27-2D3-D008	0.56...0.8			2	0.91
0.8...1.2	CWB9-11-30 ♦	9	RW27-2D3-D012	0.8...1.2			4	0.91
1.2...1.8	CWB9-11-30 ♦	9	RW27-2D3-D018	1.2...1.8			6	0.91
1.8...2.8	CWB9-11-30 ♦	9	RW27-2D3-D028	1.8...2.8			6	0.91
2.8...4	CWB9-11-30 ♦	9	RW27-2D3-U004	2.8...4			10	0.91
4...6.3	CWB9-11-30 ♦	9	RW27-2D3-D063	4...6.3			16	0.91
5.6...8	CWB9-11-30 ♦	9	RW27-2D3-U008	5.6...8			20	0.91
7...9	CWB12-11-30 ♦	12	RW27-2D3-U010	7...10			25	0.91
8...12	CWB25-11-30 ♦	25	RW27-2D3-D125	8...12.5			25	0.98
10...15	CWB25-11-30 ♦	25	RW27-2D3-U015	10...15			35	0.98
11...17	CWB25-11-30 ♦	25	RW27-2D3-U017	11...17			40	0.98
15...23	CWB25-11-30 ♦	25	RW27-2D3-U023	15...23			50	0.98
22...32	CWB32-11-30 ♦	32	RW27-2D3-U032	22...32	63	0.98		
32...38	CWB38-11-30 ♦	38	RW27-2D3-U040	32...40	90	0.98		
25...40	CWB40-11-30 ♦	40	RW67-5D3-U040	25...40	80	2.3		
32...50	CWB50-11-30 ♦	50	RW67-5D3-U050	32...50	100	2.3		
40...57	CWB65-11-30 ♦	65	RW67-5D3-U057	40...57	100	2.3		
50...63	CWB65-11-30 ♦	65	RW67-5D3-U063	50...63	100	2.3		
57...70	CWB80-11-30 ♦	80	RW67-5D3-U070	57...70	125	2.3		
63...80	CWB80-11-30 ♦	80	RW67-5D3-U080	63...80	125	2.3		

Notes: Reference values valid for operating voltages up to 440 V, altitude up to 2,000 m, ambient temperature range from -20 °C to +55 °C, and maximum switching frequency up to 15 operations/hour.  
For other conditions, check the technical data of each part.

### To complete the reference code, replace “♦” by the appropriate coil voltage code

Coil voltage codes	D02	D07	D13	D15	D17	D77	D23	D24	D25	D33	D34	D35	D36
V (50/60 Hz)	24	48	110	120	127	208	220	230	240	380	400	415	440

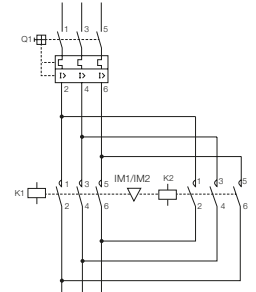
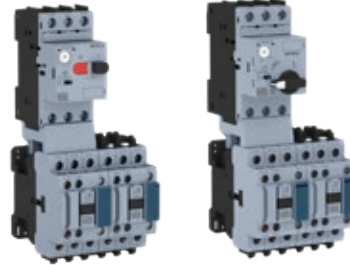
Coil voltage codes	C03	C07	C09	C12	C13	C15
V dc	24	48	60	110	125	220



# Reversing Starters

## CWB Contactor + MPW18/MPW40/MPW80 Manual Motor Protectors

- Remote load handling
- Overload protection
- Phase-loss sensitive
- Temperature compensation
- DIN rail mounting by fixing only one part<sup>1)</sup>
- Manual/local or automatic reset
- Isolation and disconnection functions
- Protection against short circuit
- High short-circuit interrupting capacity
- Short circuit tripping device fixed at 13 x lu



Note: 1) For reversing or star-delta starters, mount the contactors with screws.

Motor current (A)	AC-3 contactor		Motor-protective circuit breaker			Accessories			Total weight (kg)
	Reference	Maximum rated current AC-3 (A)	Reference	Current I adjustment range (A)	Instantaneous magnetic trip (Im) (A)	Connector	Easy-connection busbar	Mechanical interlock kit	
0.1...0.16	CWB9-11-30◆	9	MPW18-3-C016	0.1...0.16	2.0	ECCMP-18B38 (CWB - AC Coil)	EC-R1	IM1	1
0.16...0.25	CWB9-11-30◆	9	MPW18-3-C025	0.16...0.25	3.2				1
0.25...0.4	CWB9-11-30◆	9	MPW18-3-D004	0.25...0.4	5.2				1
0.4...0.63	CWB9-11-30◆	9	MPW18-3-C063	0.4...0.63	8.1				1
0.63...1	CWB9-11-30◆	9	MPW18-3-U001	0.63...1	13				1
1...1.6	CWB9-11-30◆	9	MPW18-3-D016	1...1.6	20.8				1
1.6...2.5	CWB9-11-30◆	9	MPW18-3-D025	1.6...2.5	32.5				1
2.5...4	CWB9-11-30◆	9	MPW18-3-U004	2.5...4	52				1
4...6.3	CWB9-11-30◆	9	MPW18-3-D063	4...6.3	81.9				1
6.3...10	CWB12-11-30◆	12	MPW18-3-U010	6.3...10	130				1
10...16	CWB18-11-30◆	18	MPW18-3-U016	10...16	208				1
16...20	CWB25-11-30◆	25	MPW18-3-U020	16...20	260				1.1
0.1...0.16	CWB9-11-30◆	9	MPW40-3-C016	0.1...0.16	2	ECCMP-40B38 (CWB - AC Coil) ECCMP-40B38DC (CWB - DC Coil)	EC-R1	IM1	1.1
0.16...0.25	CWB9-11-30◆	9	MPW40-3-C025	0.16...0.25	3.2				1.1
0.25...0.4	CWB9-11-30◆	9	MPW40-3-D004	0.25...0.4	5.2				1.1
0.4...0.63	CWB9-11-30◆	9	MPW40-3-C063	0.4...0.63	8.1				1.1
0.63...1	CWB9-11-30◆	9	MPW40-3-U001	0.63...1	13				1.1
1...1.6	CWB9-11-30◆	9	MPW40-3-D016	1...1.6	20.8				1.1
1.6...2.5	CWB9-11-30◆	9	MPW40-3-D025	1.6...2.5	32.5				1.1
2.5...4	CWB9-11-30◆	9	MPW40-3-U004	2.5...4	52				1.1
20...25	CWB25-11-30◆	25	MPW40-3-U025	20...25	325				1.18
25...32	CWB32-11-30◆	32	MPW40-3-U032	25...32	416				1.18
32...40	CWB38-11-30◆	38	MPW40-3-U040	32...40	520				1.18
32...40	CWB40-11-30◆	40	MPW80-3-U040	32...40	520				2.9
40...50	CWB50-11-30◆	50	MPW80-3-U050	40...50	650	2.9			
50...65	CWB65-11-30◆	65	MPW80-3-U065	50...65	845	2.9			
65...80	CWB80-11-30◆	80	MPW80-3-U080	65...80	1,040	2.9			

Notes: Reference values valid for operating voltages up to 440 V, altitude up to 2,000 m, ambient temperature range from -20 °C to +55 °C, and maximum switching frequency up to 15 operations/hour.  
For other conditions, check the technical data of each part.

### To complete the reference code, replace “◆” by the appropriate coil voltage code

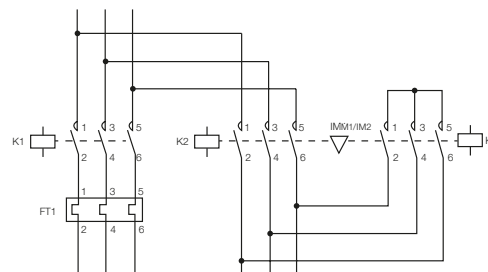
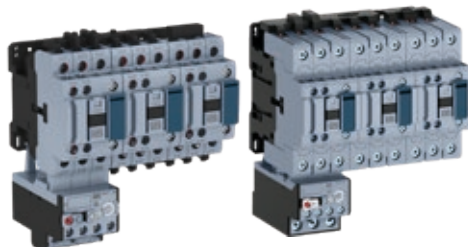
Coil voltage codes	D02	D07	D13	D15	D17	D77	D23	D24	D25	D33	D34	D35	D36
V (50/60 Hz)	24	48	110	120	127	208	220	230	240	380	400	415	440

Coil voltage codes	C03	C07	C09	C12	C13	C15
V dc	24	48	60	110	125	220

## Star-Delta Starters

### CWB Contactor + RW27-2D/RW67-5D Thermal Overload Relay

- Remote load handling
- Overload protection
- Phase-loss sensitive
- Trip class 10
- Temperature compensation
- DIN rail mounting by fixing the contactors
- Manual/local or automatic reset



Motor current (A)	AC-3 contactor		Overload relay		Accessories			CWB + RW27-2D / CWB + RW27-5D Maximum fuse (gL/gG) Coordination type 1	Total weight (kg)
	Contactor Δ (K1 and K2)	Contactor Y (K3)	Reference	Current I adjustment range (A)	Mechanical interlock kit	Easy-connection busbar	Timing relay Y-Δ		
0.5...0.7	CWB9-11-30♦	CWB9-11-30♦	RW27-2D3-D004	0.28...0.4	IM1	EC-SD1	RTW17-G02	2	1.3
0.7...1.1	CWB9-11-30♦	CWB9-11-30♦	RW27-2D3-C063	0.4...0.63				2	1.3
1.1...1.4	CWB9-11-30♦	CWB9-11-30♦	RW27-2D3-D008	0.63...0.8				2	1.3
1.4...2.1	CWB9-11-30♦	CWB9-11-30♦	RW27-2D3-D012	0.8...1.2				4	1.3
2.1...3.1	CWB9-11-30♦	CWB9-11-30♦	RW27-2D3-D018	1.2...1.8				6	1.3
3.1...4.8	CWB9-11-30♦	CWB9-11-30♦	RW27-2D3-D028	1.8...2.8				6	1.3
4.8...6.9	CWB9-11-30♦	CWB9-11-30♦	RW27-2D3-U004	2.8...4				10	1.3
6.9...10.9	CWB9-11-30♦	CWB9-11-30♦	RW27-2D3-D063	4...6.3				16	1.3
9.6...13.8	CWB9-11-30♦	CWB9-11-30♦	RW27-2D3-U008	5.6...8				20	1.3
12.1...17.2	CWB12-11-30♦	CWB9-11-30♦	RW27-2D3-U010	7...10				25	1.3
13.8...21.6	CWB18-11-30♦	CWB9-11-30♦	RW27-2D3-D125	8...12.5				25	1.3
17.2...25.9	CWB18-11-30♦	CWB9-11-30♦	RW27-2D3-U015	10...15				35	1.3
19...29.3	CWB18-11-30♦	CWB12-11-30♦	RW27-2D3-U017	11...17				40	1.3
25.9...39.7	CWB25-11-30♦	CWB18-11-30♦	RW27-2D3-U023	15...23				50	1.35
37.9...55.2	CWB32-11-30♦	CWB25-11-30♦	RW27-2D3-U032	22...32				63	1.4
43.1...65.5	CWB38-11-30♦	CWB25-11-30♦	RW27-2D3-U040	32...40				90	1.4
43.1...69	CWB40-11-30♦	CWB40-11-30♦	RW67-5D3-U040	25...40	80	3.1			
55.2...86.2	CWB50-11-30♦	CWB40-11-30♦	RW67-5D3-U050	32...50	100	3.1			
69...98.3	CWB65-11-30♦	CWB40-11-30♦	RW67-5D3-U057	40...57	100	3.1			
86.2...108.6	CWB65-11-30♦	CWB40-11-30♦	RW67-5D3-U063	50...63	100	3.1			
98.3...120.7	CWB80-11-30♦	CWB40-11-30♦	RW67-5D3-U070	57...70	125	3.1			
108.6...137.9	CWB80-11-30♦	CWB40-11-30♦	RW67-5D3-U080	63...80	125	3.1			

Notes: Reference values valid for operating voltages up to 440 V, altitude up to 2,000 m, ambient temperature range from -20 °C to +55 °C, and maximum switching frequency up to 15 operations/hour.  
For other conditions, check the technical data of each part.  
The electronic timer is not shown in the figure.

### To complete the reference code, replace “♦” by the appropriate coil voltage code

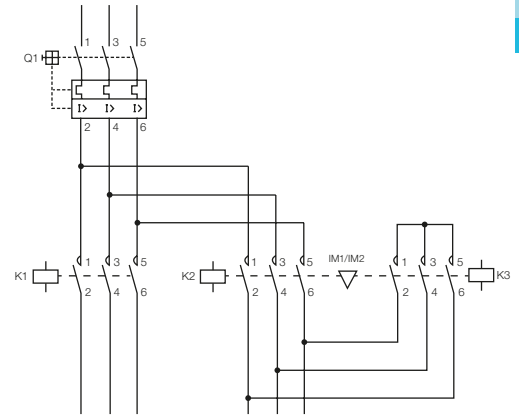
Coil voltage codes	D02	D07	D13	D15	D17	D77	D23	D24	D25	D33	D34	D35	D36
V (50/60 Hz)	24	48	110	120	127	208	220	230	240	380	400	415	440

Coil voltage codes	C03	C07	C09	C12	C13	C15
V dc	24	48	60	110	125	220

# Star-Delta Starters

## CWB Contactor + MPW18 Manual Motor Protectors

- Remote load handling
- Protection against overload
- Phase-loss sensitive
- Temperature compensation
- DIN rail mounting by fixing only one part<sup>1)</sup>
- Manual/local reset
- Isolation and disconnection functions
- Protection against short circuit
- High short circuit interrupting capacity
- Short circuit tripping device fixed at 13 x lu



Note: 1) For reversing or star-delta starters, mount the contactors with screws.

Motor current (A)	AC-3 contactor		Motor-protective circuit breaker			Accessories				Total weight (kg)
	Contactor Δ (K1 and K2)	Contactor Y (K3)	Reference	Current I adjustment range (A)	Instantaneous magnetic trip I <sub>m</sub> (A)	Connector	Mechanical interlock kit	Easy-connection busbar	Timing relay Y-Δ	
0.1...0.16	CWB9-11-30◆	CWB9-11-30◆	MPW18-3-C016	0.1...0.16	2.0	ECCMP-18B38 (CWB - AC Coil)	IM1	EC-SD1	RTW17-G02	1.4
0.16...0.25	CWB9-11-30◆	CWB9-11-30◆	MPW18-3-C025	0.16...0.25	3.2					1.4
0.25...0.4	CWB9-11-30◆	CWB9-11-30◆	MPW18-3-D004	0.25...0.4	5.2					1.4
0.4...0.63	CWB9-11-30◆	CWB9-11-30◆	MPW18-3-C063	0.4...0.63	8.1					1.4
0.63...1	CWB9-11-30◆	CWB9-11-30◆	MPW18-3-U001	0.63...1	13					1.4
1...1.6	CWB9-11-30◆	CWB9-11-30◆	MPW18-3-D016	1...1.6	20.8					1.4
1.6...2.5	CWB9-11-30◆	CWB9-11-30◆	MPW18-3-D025	1.6...2.5	32.5					1.4
2.5...4	CWB9-11-30◆	CWB9-11-30◆	MPW18-3-U004	2.5...4	52					1.4
4...6.3	CWB9-11-30◆	CWB9-11-30◆	MPW18-3-D063	4...6.3	81.9					1.4
6.3...10	CWB9-11-30◆	CWB9-11-30◆	MPW18-3-U010	6.3...10	130					1.4
10...16	CWB12-11-30◆	CWB9-11-30◆	MPW18-3-U016	10...16	208					1.4
12...18	CWB12-11-30◆	CWB9-11-30◆	MPW18-3-U018	12...18	260					1.4

Notes: Reference values valid for operating voltages up to 440 V, altitude up to 2,000 m, ambient temperature range from -20 °C to +55 °C, and maximum switching frequency up to 15 operations/hour. For other conditions, check the technical data of each part. The electronic timer is not shown in the figure.

### To complete the reference code, replace “◆” by the appropriate coil voltage code

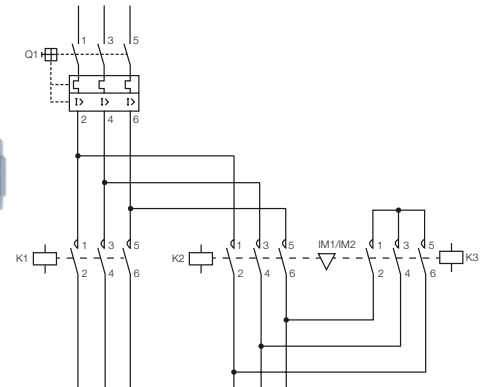
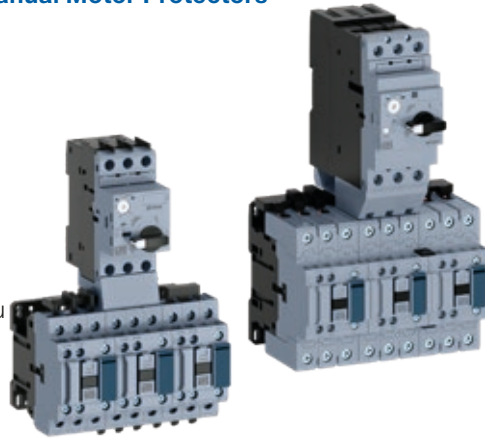
Coil voltage codes	D02	D07	D13	D15	D17	D77	D23	D24	D25	D33	D34	D35	D36
V (50/60 Hz)	24	48	110	120	127	208	220	230	240	380	400	415	440

Coil voltage codes	C03	C07	C09	C12	C13	C15
V dc	24	48	60	110	125	220

# Star-Delta Starters

## CWB Contactor + MPW40/MPW80 Manual Motor Protectors

- Remote load handling
- Protection against overload
- Phase-loss sensitive
- Temperature compensation
- DIN rail mounting by fixing only one part<sup>1)</sup>
- Manual/local or automatic reset
- Isolation and disconnection functions
- Protection against short circuit
- High short circuit interrupting capacity
- Short circuit tripping device fixed at 13 x lu



Note: 1) For reversing or star-delta starters, mount the contactors with screws.

Motor current (A)	AC-3 contactor		Motor-protective circuit breaker			Accessories				Total weight (kg)
	Contactor Δ (K1 and K2)	Contactor Y (K3)	Reference	Current I adjustment range (A)	Instantaneous magnetic trip Im (A)	Connector	Mechanical interlock kit	Easy-connection busbar	Timing relay Y-Δ	
0.1...0.16	CWB9-11-30 ♦	CWB9-11-30 ♦	MPW40-3-C016	0.1...0.16	2.0	ECCMP-40B38 (CWB - AC Coil) ECCMP-40B38DC (CWB - DC Coil)	IM1	EC-SD1	RTW17-G02	1.48
0.16...0.25	CWB9-11-30 ♦	CWB9-11-30 ♦	MPW40-3-C025	0.16...0.25	3.2					1.48
0.25...0.4	CWB9-11-30 ♦	CWB9-11-30 ♦	MPW40-3-D004	0.25...0.4	5.2					1.48
0.4...0.63	CWB9-11-30 ♦	CWB9-11-30 ♦	MPW40-3-C063	0.4...0.63	8.1					1.48
0.63...1	CWB9-11-30 ♦	CWB9-11-30 ♦	MPW40-3-U001	0.63...1	13					1.48
1...1.6	CWB9-11-30 ♦	CWB9-11-30 ♦	MPW40-3-D016	1...1.6	20.8					1.48
1.6...2.5	CWB9-11-30 ♦	CWB9-11-30 ♦	MPW40-3-D025	1.6...2.5	32.5					1.48
2.5...4	CWB9-11-30 ♦	CWB9-11-30 ♦	MPW40-3-U004	2.5...4	52					1.48
4...6.3	CWB9-11-30 ♦	CWB9-11-30 ♦	MPW40-3-D063	4...6.3	81.9					1.48
6.3...10	CWB9-11-30 ♦	CWB9-11-30 ♦	MPW40-3-U010	6.3...10	130					1.48
10...16	CWB12-11-30 ♦	CWB9-11-30 ♦	MPW40-3-U016	10...16	208					1.48
16...20	CWB12-11-30 ♦	CWB9-11-30 ♦	MPW40-3-U020	16...20	260					1.48
20...25	CWB18-11-30 ♦	CWB9-11-30 ♦	MPW40-3-U025	20...25	325					1.48
25...32	CWB25-11-30 ♦	CWB9-11-30 ♦	MPW40-3-U032	25...32	416					1.55
32...40	CWB25-11-30 ♦	CWB18-11-30 ♦	MPW40-3-U040	32...40	520	1.55				
32...40	CWB40-11-30 ♦	CWB40-11-30 ♦	MPW80-3-U040	32...40	520	3.83				
40...50	CWB50-11-30 ♦	CWB40-11-30 ♦	MPW80-3-U050	40...50	650	3.83				
50...65	CWB65-11-30 ♦	CWB40-11-30 ♦	MPW80-3-U065	50...65	845	3.83				
65...80	CWB80-11-30 ♦	CWB40-11-30 ♦	MPW80-3-U080	65...80	1,040	3.83				

Notes: Reference values valid for operating voltages up to 440 V, altitude up to 2,000 m, ambient temperature range from -20 °C to +55 °C, and maximum switching frequency up to 15 operations/hour.

For other conditions, check the technical data of each part.

The electronic timer is not shown in the figure.

### To complete the reference code, replace “♦” by the appropriate coil voltage code

Coil voltage codes	D02	D07	D13	D15	D17	D77	D23	D24	D25	D33	D34	D35	D36
V (50/60 Hz)	24	48	110	120	127	208	220	230	240	380	400	415	440

Coil voltage codes	C03	C07	C09	C12	C13	C15
V dc	24	48	60	110	125	220

## Contactors for Lighting Circuits

### ■ Single-Phase Circuit

Total number of light bulbs shown in the next figure.

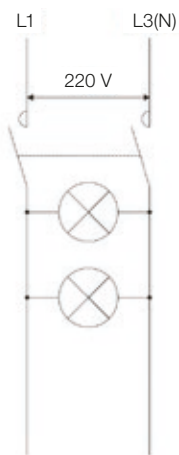
### ■ Three-Phase Circuit Connected in Delta

Total number of light bulbs shown in the next figure, multiplied by 1.73 and distributed in three equal quantities.

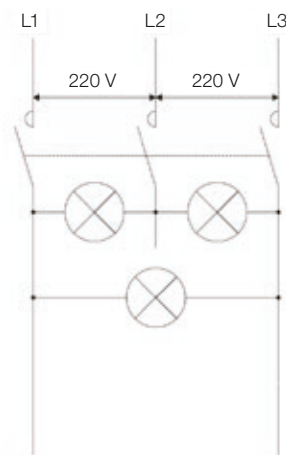
### ■ Three-Phase Circuit Connected in Delta

Total number of light bulbs shown in the next figure, multiplied by 3 and distributed in three equal quantities.

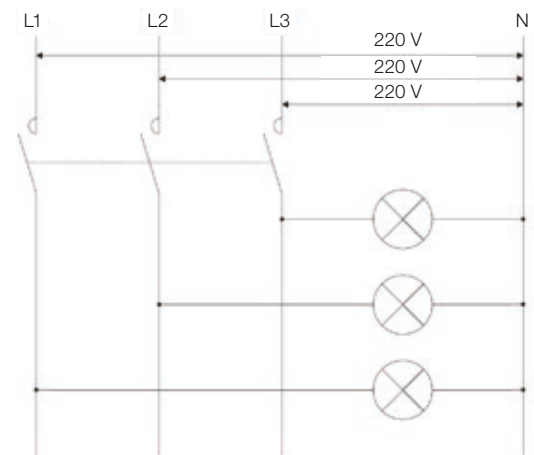
### Diagrams



Single-phase circuit



Three-phase circuit connected in delta



Three-phase circuit connected in star

### Most Common Characteristics of the Illumination Systems

#### ■ Incandescent Light Bulbs

High inrush current ( $\approx 15 \times I_n$ ). Despite the short duration, it must be taken into account so that this current will not be greater than the making capacity of the contactor. Power factor is always 1.

#### ■ Fluorescent Lamps

Current slightly above the rated inrush current. Power factor is normally 0.5, and it can be improved up to 0.9 by using capacitors. In some cases, the connection of capacitors must be taken into consideration, as they may cause some damages to smaller contactors.

#### ■ High-Pressure Mercury-Vapor and Metal-Halide Lamps

Inrush current varies according to the lamp type, around  $1.6 \dots 2 \times I_n$  and it remains for 3 to 5 minutes. The power factor is around 0.6 and may be improved up to 1 by using capacitors. In some cases, the connection of capacitors must be taken into consideration, as they may cause some damages to smaller contactors.

#### ■ High-Pressure Sodium Lamps

Inrush current varies according to the lamp type, around  $1.3 \dots 1.6 \times I_n$  e se mantém por 3 a 5 minutos. and it remains for 3 to 5 minutes. The power factor is around 0.45 and may be improved up to 1 using capacitors. In some cases, the connection of capacitors must be taken into consideration, as they may cause some damages to smaller contactors.

# Contactors for Lighting Circuits

				Maximum number of lamps per phase at 220 V									
Lamp type	W	A <sup>2)</sup>	μF	CWB9	CWB12	CWB18	CWB25	CWB32	CWB38	CWB40	CWB50	CWB65	CWB80
Incandescent and halogen	60	0.27	-	56	56	67	101	118	135	148	185	241	296
	100	0.45	-	33	33	40	60	71	81	89	111	144	178
	150	0.68	-	22	22	26	40	47	53	59	74	96	118
	200	0.91	-	16	16	19	29	35	40	44	55	71	88
	300	1.4	-	10	10	12	19	22	26	29	36	46	54
	500	2.3	-	6	6	7	11	13	15	17	22	28	35
	750	3.4	-	4	4	5	8	9	10	12	15	19	24
	1,000	4.6	-	3	3	3	5	6	7	9	11	14	17
AC-5b <sup>1)</sup> (A)				15	15	18	28	32	36	40	50	65	80
Fluorescent lamps with electronic starter													
Single arrangement													
Without compensation	20	0.39	-	41	41	53	66	89	112	115	144	187	230
	40	0.45	-	35	35	46	57	77	97	100	124	162	199
	65	0.7	-	22	22	30	37	50	62	64	80	104	128
	80	0.8	-	20	20	26	32	43	55	56	70	91	112
	110	1.2	-	13	13	17	21	29	36	37	47	61	75
With paralel compensation	20	0.17	5	94	94	123	152	205	258	264	329	428	527
	40	0.26	5	61	61	80	100	134	169	172	215	280	345
	65	0.42	7	38	38	50	61	83	104	107	133	173	213
	80	0.52	7	30	30	40	50	67	84	86	108	140	172
	110	0.72	16	22	22	29	36	48	61	62	78	101	124
Dual mounting													
Without compensation	2x20	2x0.22	-	2x36	2x36	2x46	2x58	2x78	2x100	2x102	2x127	2x165	2x204
	2x40	2x0.41	-	2x18	2x18	2x24	2x30	2x42	2x52	2x55	2x68	2x89	2x109
	2x65	2x0.67	-	2x10	2x10	2x14	2x18	2x26	2x32	2x33	2x42	2x54	2x67
	2x80	2x0.82	-	2x8	2x8	2x12	2x14	2x20	2x26	2x27	2x34	2x44	2x55
	2x110	2x1.10	-	2x6	2x6	2x8	2x10	2x14	2x18	2x20	2x25	2x33	2x41
With series compensation	2x20	2x0.13	-	2x60	2x60	2x80	2x100	2x134	2x168	2x172	2x215	2x280	2x345
	2x40	2x0.24	-	2x32	2x32	2x42	2x54	2x72	2x90	2x93	2x117	2x152	2x187
	2x65	2x0.39	-	2x20	2x20	2x26	2x32	2x44	2x56	2x57	2x72	2x93	2x115
	2x80	2x0.48	-	2x16	2x16	2x20	2x26	2x36	2x44	2x47	2x58	2x76	2x93
	2x110	2x0.65	-	2x12	2x12	2x16	2x20	2x26	2x32	2x34	2x43	2x56	2x69
Fluorescent lamps without electronic starter													
Single mounting													
Without compensation	20	0.43	-	37	37	48	60	97	102	104	130	169	208
	40	0.55	-	29	29	38	47	63	80	81	102	132	163
	65	0.8	-	20	20	26	32	43	55	56	70	91	112
	80	0.95	-	16	16	22	27	36	46	47	59	77	94
	110	1.4	-	11	11	15	18	25	31	32	40	52	64
With paralel compensation	20	0.19	5	84	84	110	136	184	231	236	295	383	472
	40	0.29	5	55	55	72	89	101	151	154	193	251	309
	65	0.46	7	34	34	45	56	76	95	97	122	158	195
	80	0.57	7	28	28	36	45	61	77	79	98	128	157
	110	0.79	16	20	20	26	32	44	55	57	71	92	113
Dual mounting													
Without compensation	2x20	2x0.25	-	2x32	2x32	2x42	2x52	2x70	2x88	2x90	2x112	2x146	2x179
	2x40	2x0.47	-	2x16	2x16	2x22	2x26	2x36	2x46	2x48	2x60	2x77	2x95
	2x65	2x0.76	-	2x10	2x10	2x12	2x16	2x22	2x28	2x29	2x37	2x48	2x59
	2x80	2x0.93	-	2x8	2x8	2x10	2x12	2x18	2x22	2x24	2x30	2x39	2x48
	2x110	2x1.3	-	2x6	2x6	2x8	2x10	2x12	2x16	2x17	2x22	2x28	2x34
With paralel compensation	2x20	2x0.14	-	2x56	2x56	2x74	2x92	2x124	2x156	2x16	2x200	2x260	2x320
	2x40	2x0.26	-	2x30	2x30	2x40	2x50	2x66	2x84	2x86	2x108	2x140	2x172
	2x65	2x0.43	-	2x18	2x18	2x24	2x30	2x40	2x50	2x52	2x65	2x85	2x104
	2x80	2x0.53	-	2x14	2x14	2x18	2x24	2x32	2x40	2x42	2x53	2x69	2x51
	2x110	2x0.72	-	2x10	2x10	2x14	2x18	2x24	2x30	2x31	2x39	2x51	2x62

Notes: 1) Indicative values - It's highly recommended to take into consideration the values of making capacity and rated AC-1 current when dimensioning the contactor for AC-5b utilization category (switching of incandescent lamps).  
 2) Rated current for each lamp at rated voltage.

## Contactors for Lighting Circuits

Lamp type	W	A	µF	Maximum number of lamps per phase at 220 V									
				CWB9	CWB12	CWB18	CWB25	CWB32	CWB38	CWB40	CWB50	CWB65	CWB80
<b>Low pressure sodium vapor</b>													
Without compensation	35	1.2	-	10	10	12	15	21	27	37	46	60	73
	55	1.6	-	7	7	9	11	16	20	28	34	45	55
	90	2.4	-	5	5	6	7	10	13	18	23	30	37
	135	3.1	-	3	3	4	6	8	10	14	18	23	28
	150	3.2	-	3	3	4	5	8	10	14	17	22	28
	180	3.3	-	3	3	4	5	7	10	14	17	22	27
	200	3.4	-	3	3	4	5	7	9	13	16	21	26
With paralel compensation	35	0.3	17	40	40	50	63	86	110	149	187	243	299
	55	0.4	17	30	30	37	47	65	82	112	140	182	224
	90	0.6	25	-	-	25	31	43	55	75	93	121	149
	135	0.9	36	-	-	-	21	28	36	50	62	81	100
	150	1	36	-	-	-	19	26	33	45	56	73	90
	180	1.2	36	-	-	-	15	21	27				
	200	1.3	36	-	-	-	14	20	25				
<b>High pressure sodium vapor</b>													
Without compensation	150	1.9	-	6	6	7	10	13	17	21	26	34	42
	250	3.2	-	3	3	4	5	8	10	13	16	20	25
	400	5	-	2	2	3	3	5	6	8	10	13	16
	700	8.8	-	1	1	1	2	2	3	5	6	7	9
	1,000	12.4	-	-	-	1	1	2	2	3	4	5	6
With paralel compensation	150	0.84	20	-	-	17	22	30	39	48	60	77	95
	250	1.4	32	-	-	-	13	18	23	29	36	46	57
	400	2.2	48	-	-	-	8	11	15	18	23	30	36
	700	3.9	96	-	-	-	-	6	8	10	13	17	21
	1,000	5.5	120	-	-	-	-	-	6	7	9	12	15
<b>High pressure mercury vapor</b>													
Without compensation	50	0.54	-	22	22	27	35	48	61	74	93	120	148
	80	0.81	-	14	14	18	23	32	40	49	62	80	99
	125	1.2	-	9	9	12	15	21	27	33	42	54	67
	250	2.3	-	5	5	6	8	11	14	17	22	28	35
	400	4.1	-	2	2	3	4	6	8	10	12	16	20
	700	6.8	-	1	1	2	2	3	4	6	7	10	12
	1,000	9.9	-	1	1	1	1	2	3	4	5	7	8
With paralel compensation	50	0.3	10	40	40	50	63	86	110	133	167	217	267
	80	0.45	10	26	26	33	42	57	73	89	111	144	178
	125	0.67	10	17	17	22	28	38	49	60	75	97	119
	250	1.3	18	9	9	11	14	20	25	31	38	50	62
	400	2.3	25	-	-	6	8	11	14	17	22	28	35
	700	3.8	40	-	-	-	5	6	8				
	1,000	5.5	60	-	-	-	3	4	6				
<b>Metal iodide</b>													
Without compensation	250	2.5	-	4	4	6	7	10	12	16	20	26	32
	400	3.6	-	3	3	4	5	7	8	11	14	18	22
	1,000	9.5	-	1	1	1	2	2	3	4	5	7	8
	2,000	20	-	-	-	-	-	1	1	2	3	3	4
With paralel compensation	250	1.4	32	-	-	-	13	18	21	29	36	46	57
	400	2	32	-	-	-	9	13	15	20	25	33	40
	1,000	5.3	64	-	-	-	-	4	6	8	9	12	15
	2,000	11.2	140	-	-	-	-	-	-	4	4	6	7

## Contactors for DC Switching

### Utilization Category DC-1 (L/R ≤1ms)

Reference code		CWB9	CWB12	CWB18	CWB25	CWB32	CWB38	CWB40	CWB50	CWB65	CWB80
U <sub>e</sub>	Poles in series	Rated operational current I <sub>e</sub> (A)									
≤24 V	1	18	18	18	25	32	40	40	50	65	65
	2	25	25	32	45	60	60	40	50	65	65
	3	25	25	32	45	60	60	40	50	65	65
≤48 V	1	15	15	15	20	25	35	40	50	65	65
	2	25	25	32	45	60	60	40	50	65	65
	3	25	25	32	45	60	60	40	50	65	65
≤60 V	1	12	12	12	18	18	32	40	50	65	65
	2	25	25	32	45	60	60	40	50	65	65
	3	25	25	32	45	60	60	40	50	65	65
≤125 V	1	6	6	6	8	8	8	10	10	10	10
	2	18	18	18	25	45	45	40	50	60	60
	3	25	25	25	32	60	60	40	60	65	65
≤220 V	1	0.8	0.8	0.8	0.8	1	1	2	2	2	2
	2	7.5	7.5	7.5	8	8	8	10	10	10	10
	3	25	25	25	32	50	50	40	50	60	60
≤440 V	1	0.4	0.4	0.4	0.4	0.5	0.5	1	1	1	1
	2	0.8	0.8	0.8	0.8	1	1	2	2	2	2
	3	8	8	8	10	10	10	10	10	10	10
≤600 V	1	-	-	-	-	-	-	-	-	-	-
	2	0.4	0.4	0.4	0.4	0.5	0.5	1	1	1	1
	3	4	4	4	5	5	5	2	2	2	2

### Utilization Category DC-3 (L/R ≤2.5ms)

Reference code		CWB9	CWB12	CWB18	CWB25	CWB32	CWB38	CWB40	CWB50	CWB65	CWB80
U <sub>e</sub>	Poles in series	Rated operational current I <sub>e</sub> (A)									
≤24 V	1	12	12	12	18	25	32	36	45	55	55
	2	18	18	18	25	40	40	36	45	55	55
	3	18	18	18	25	40	40	36	45	55	55
≤48 V	1	9	9	9	12	18	20	36	45	55	55
	2	18	18	18	25	40	40	36	45	55	55
	3	18	18	18	25	40	40	36	45	55	55
≤60 V	1	7.5	7.5	7.5	10	15	15	36	45	55	55
	2	18	18	18	25	40	40	36	45	55	55
	3	18	18	18	25	40	40	36	45	55	55
≤125 V	1	2	2	2	2	3	3	5	5	5	5
	2	10	10	12	18	25	32	36	45	50	50
	3	15	15	18	25	32	40	36	54	55	55
≤220 V	1	0.6	0.6	0.6	0.6	0.6	0.6	1	1	1	1
	2	2	2	2	2	2	2	5	5	5	5
	3	12	12	12	18	25	32	36	45	50	50
≤440 V	1	-	-	-	-	-	-	-	-	-	-
	2	0.3	0.3	0.3	0.3	0.5	0.5	1	1	1	1
	3	1.5	1.5	1.5	1.5	3	3	5	5	5	5
≤600 V	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	1	1	1	1
	3	0.8	0.8	0.8	0.8	1.5	1.5	-	-	-	-

Note: 1) Operating duty according to IEC/EN 60947-4-1:

DC-1 (non-inductive or slightly inductive loads, resistive furnaces);

DC-3 (shunt-motors: starting, plugging and inching, Dynamic braking of DC motors);

DC-5 (series-motors: starting, plugging and inching, dynamic braking of DC motors).



# Contactors for DC Switching

## Utilization Category DC-5 (L/R ≤15ms)

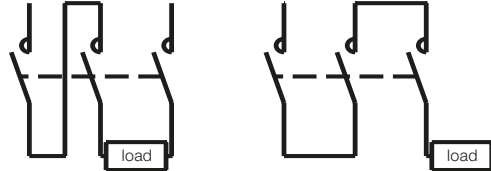
Reference code	CWB9	CWB12	CWB18	CWB25	CWB32	CWB38	CWB40	CWB50	CWB65	CWB80	
$U_e$	Rated operational current $I_e$ (A)										
$U_e$	Poles in series										
≤24 V	1	12	12	12	18	25	32	36	45	55	55
	2	18	18	18	25	40	40	36	45	55	55
	3	18	18	18	25	40	40	36	45	55	55
≤48 V	1	9	9	9	12	18	20	36	45	55	55
	2	18	18	18	25	40	40	36	45	55	55
	3	18	18	18	25	40	40	36	45	55	55
≤60 V	1	7.5	7.5	7.5	10	15	15	36	45	55	55
	2	18	18	18	25	40	40	36	45	55	55
	3	18	18	18	25	40	40	36	45	55	55
≤125 V	1	0.8	0.8	0.8	0.8	1.2	1.2	5	5	5	5
	2	5	5	5	5	5	5	36	45	50	50
	3	15	15	15	20	25	32	36	54	55	55
≤220 V	1	-	-	-	-	-	-	1	1	1	1
	2	0.8	0.8	0.8	0.8	0.8	0.8	5	5	5	5
	3	3	3	3	3	3	3	36	45	50	50
≤440 V	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	1	1	1	1
	3	0.4	0.5	0.5	0.5	0.7	0.7	5	5	5	5
≤600 V	1	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-

## Wiring Diagrams

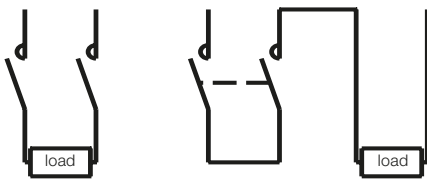
### 1 Pole in Series



### 3 Poles in Series



### 2 Poles in Series



Note: 1) Operating duty according to IEC/EN 60947-4-1:  
 DC-1 (non-inductive or slightly inductive loads, resistive furnaces);  
 DC-3 (shunt-motors: starting, plugging and inching, Dynamic braking of DC motors);  
 DC-5 (series-motors: starting, plugging and inching, dynamic braking of DC motors).







# Technical Data

## Terminal Markings According to IEC/EN 60947









Diagram	Configuration	Auxiliary contacts		Reference code
		NO	NC	
<b>3-poles contactors with built-in auxiliary contacts</b>				
	11	1	1	CWB9...80 A CWB9-11-30◆ CWB12-11-30◆ CWB18-11-30◆ CWB25-11-30◆ CWB32-11-30◆ CWB38-11-30◆ CWB40-11-30◆ CWB50-11-30◆ CWB65-11-30◆ CWB80-11-30◆
<b>Auxiliary contactors</b>				
	14	1	4	CAWB-14-00◆
	23	2	3	CAWB-23-00◆
	32	3	2	CAWB-32-00◆
	41	4	1	CAWB-41-00◆
<b>Front mounted auxiliary contact blocks</b>				
	20	2	0	BFB-20
	11	1	1	BFB-11
	02	0	2	BFB-02
	40	4	0	BFB-40
	22	2	2	BFB-22
	22	2	2	BFB-22 EL
	04	0	4	BFB-04
	31	3	1	BFB-31
	13	1	3	BFB-13

## Technical Data

### Terminal Markings According to IEC/EN 60947

Side mounted auxiliary contact blocks				
	11	1	1	BLB11
	20	2	0	BLB20
	02	0	2	BLB02
	11	1	1	BLRB11
	20	2	0	BLRB20
	02	0	2	BLRB02

### Terminal Markings According to EN 50012

Diagram	Configuration	Auxiliary contacts		Reference code
		NO	NC	
Front mounting auxiliary contact blocks				
	20	2	0	BFB-20 EN
	11	1	1	BFB-11 EN
	02	0	2	BFB-02 EN
	40	4	0	BFB-40 EN
	22	2	2	BFB-22 EN
	04	0	4	BFB-04 EN
	31	3	1	BFB-31 EN
	13	1	3	BFB-13 EN

# Technical Data

## General Data

Reference code	CAWB	CWB9	CWB12	CWB18	CWB25	CWB32	CWB38	CWB40	CWB50	CWB65	CWB80		
Compliance with the standards	IEC/EN 60947-1, IEC/EN 60947-4-1, IEC/EN 60947-5-1, UL 508												
Rated insulation voltage $U_i$ (pollution degree 3)	IEC/EN 60947-4-1 UL, CSA			690 V				1000 V					
Rated impulse-withstand voltage $U_{imp}$	IEC/EN 60947-1			6 kV									
Frequency limits	25...400 (Hz)												
Mechanical lifespan	AC coil (million cycles)		10					6					
	DC coil (million cycles)		10					6					
Electrical lifespan	$I_g$ AC-3 (million cycles)		-	2.0	2.0	1.8	1.6	1.6	1.2	1.6	1.6	1.6	1.2
Degree of protection (IEC/EN 60529)	Main terminals		IP10 (front)										
	Coil and auxiliary contacts		IP20 (front)										
Mounting	By screws or DIN 35 mm rail (EN 50022)												
Coil connection points	Contactors with AC coil		2										
	Contactors with DC coil		2										
Vibration resistance (IEC/EN 60068-2-6)	Open contactor (g)		4										
	Closed contactor (g)		4										
Resistance to mechanical shocks (½ sine wave = 11ms - IEC/EN 60068-2-27)	Open contactor (g)		10										
	Closed contactor (g)		15										
Ambient temperature	Operating		-25 °C...+55 °C										
	Storage		-55 °C...+80 °C										
Maximum operation altitude without modification in the rated values <sup>1)</sup>	3,000 m												

## Control Circuit - Alternating Current (AC)

Reference code	CWB9...38, CAWB				CWB40...80					
Rated insulation voltage $U_i$ (pollution degree 3)	IEC/EN 60947-4-1 (V)		690				1,000			
	UL, CSA (V)		600				600			
Standard voltages at 50/60 Hz	(V)		12...600				24...600			
Coil operating limits	(xUs)		0.8...1.1				0.8...1.1			
Coil 50/60 Hz	Pick up (xUs)		0.5...0.8				0.5...0.8			
	Drop out (xUs)		0.2...0.6				0.2...0.6			
Average consumption			Operating at 60 Hz		Operating at 50 Hz		Operating at 60 Hz		Operating at 50 Hz	
Coil 50/60 Hz	Magnetic circuit closed (VA)		7.5		9		17.2		27	
	Power factor switching on (cos $\varphi$ )		0.7		0.8		0.55		0.56	
	Power factor switched on		0.27		0.24		0.28		0.25	
	Thermal power dissipation (W)		5...7		5...7		3.7...6.3		3.7...6.3	
	Closing of the magnetic circuit (VA)		75		90		185		202	
Operation average time	Closing of the NO contacts (ms)		15...25				10...15			
	Opening of the NO contacts (ms)		8...12							

## Control Circuit - Direct Current (DC)

Reference code	CWB9...38, CAWB				CWB40...80					
Rated insulation voltage $U_i$ (pollution degree 3)	IEC/EN 60947-4-1 (V)		690				1,000			
	UL, CSA (V)		600				600			
Standard voltages	(V)		12...500				12...500			
Coil operating limits	(xUs)		0.8...1.1				0.8...1.1			
	Pick up (xUs)		0.5...0.8				0.5...0.8			
	Drop out (xUs)		0.1...0.4				0.1...0.4			
Average consumption			1.0 x use the coil cold				1.0 x use the coil cold			
	Magnetic circuit closed (W)		5.8				14.5			
	Closing of the magnetic circuit (W)		5.8				105			
Operation average time	Closing of the NO contacts (ms)		35...45				20...30			
	Opening of the NO contacts (ms)		8...12				4...8			
Thermal power dissipation	(W)		5...7				12...16			

Note: 1) For altitudes of 3,000...4,000 m ( $0.90 \times I_g$  and  $0.80 \times U_i$ ) and of 4,000...5,000 m ( $0.80 \times I_g$  and  $0.75 \times U_i$ ).

# Technical Data

## Main Contacts

Reference code		CWB9	CWB12	CWB18	CWB25	CWB32	CWB38	CWB40	CWB50	CWB65	CWB80	
Rated operational current $I_e$	AC-3 ( $U_e \leq 440$ V) (A)	9	12	18	25	32	38	40	50	65	80	
	AC-4 ( $U_e \leq 440$ V) (A)	4.4	5.8	8.5	10.4	13.7	13.7	18.5	18.5	26	32	
	AC-1 ( $\theta \leq 55$ °C, $U_e \leq 690$ V) (A)	25	25	32	40	50	50	60	90	110	110	
Rated operational voltage $U_e$	IEC/EN 60947-4-1 (V)	690 V						1,000 V				
	UL, CSA (V)	600 V										
Conventional thermal current $I_m$ ( $\theta \leq 55$ °C)	(A)	25	25	32	40	50	50	60	90	110	110	
Making capacity - IEC/EN 60947	(A)	250	250	300	450	550	550	550	1,000	1,000	1,000	
Breaking capacity IEC/EN 60947	( $U_e \leq 400$ V) (A)	250	250	300	450	550	550	550	1,000	1,000	1,000	
	( $U_e = 500$ V) (A)	220	220	250	350	450	450	480	880	880	880	
	( $U_e = 690$ V) (A)	150	150	180	250	350	350	350	640	640	640	
Acceptable short-time current (no current flowing during recovery time of 15min and $\theta \leq 40$ °C)	1s (A)	210	210	240	380	400	430	720	820	900	900	
	10s (A)	105	105	145	240	260	310	320	400	520	640	
	1min (A)	60	60	80	120	130	150	165	230	340	360	
	10min (A)	30	30	40	50	60	60	85	110	130	130	
Short circuit protection of the main contacts	@600 V - UL/CSA (kA)	5										
	Coordination type 1 (A)	25	40	50	63	63	63	80	100	125	160	
Fuse (gL/gG)	Coordination type 2 (A)	20	20	25	35	50	50	63	80	100	125	
	(mΩ)	2.5	2.5	2.5	2	2	2	1.6	1.6	1.6	1.6	
Average power dissipation per pole	AC-1 (W)	1.5	1.5	2.5	3.2	5	5	6	13	19	19	
	AC-3 (W)	0.2	0.4	0.8	1.2	2	3	3	4	7	10	
Control circuit reliability <sup>1)</sup>	(V/mA)	50/100										
<b>Utilization category AC-3</b>												
Rated operational current $I_e$ ( $\theta \leq 55$ °C)	$U_e \leq 440$ V (A)	9	12	18	25	32	38	40	50	65	80	
	$U_e \leq 500$ V (A)	9	12	15.8	23	28.5	28.5	35	45	55	75	
	$U_e \leq 690$ V (A)	7	9	12.8	16.5	21	21	32	35	40	50	
Orientative rated operational power Three-phase induction motors (50/60 Hz) IV poles - 1,800 rpm	220/240 V (kW)	2.2	3	4.5	6.5	7.5	9.2	11	15	18.5	22	
		(cv)	3	4	6	8.7	10	12.5	15	20	25	29
	380/400 V (kW)	4	5.5	7.5	12.5	15	18.5	18.5	22	30	37	
		(cv)	5.5	7.5	10	16.8	20	25	25	29	40	50
	415/440 V (kW)	4.5	6.5	9.2	12.5	15	18.5	22	30	37	45	
		(cv)	6	8.7	12.5	16.8	20	25	29	40	50	60
	500 V (kW)	5.5	7.5	10	15	18.5	18.5	22	30	37	55	
		(cv)	7.5	10	13.4	20	25	25	29	40	50	74
	660/690 V (kW)	5.5	7.5	11	15	18.5	18.5	30	33	37	45	
		(cv)	7.5	10	15	20	25	25	40	44	50	60
	Maximum percentage	600 ops./h (%)	100	100	100	100	100	100	100	100	100	100
	<b>Utilization category AC-4</b>											
Rated operational current $I_e$	( $U_e \leq 440$ V) (A)	4.4	5.8	8.5	10.4	13.7	13.7	18.5	18.5	26	32	
	( $U_e \leq 500$ V) (A)	3.9	5.1	7.5	12	13.9	13.9	17.5	23.5	28.5	33	
	( $U_e \leq 690$ V) (A)	2.8	3.7	5.4	12	12.8	12.8	14	18	22	26	
Orientative rated operational power Three-phase induction motors (50/60 Hz) IV poles - 1,800 rpm (200,000 operations)	220/240 V (kW)	1.5	1.5	2.2	3	4	4	4.5	5.5	7.5	11	
		(cv)	2.0	2.0	2.9	4.0	5.4	5.4	6.0	7.4	10.1	14.7
	380/400 V (kW)	2.2	3.7	4	5.5	7.5	7.5	9.2	11	15	18.5	
		(cv)	2.9	5.0	5.4	7.4	10.1	10.1	12.3	14.7	20.1	24.8
	415/440 V (kW)	2.2	3	3.7	5.5	7.5	7.5	11	11	15	22	
		(cv)	2.9	4.0	5.0	7.4	10.1	10.1	14.7	14.7	20.1	29.5
	500 V (kW)	2.2	3	5	7.5	9	9	11	15	18.5	22	
		(cv)	2.9	4.0	6.7	10.1	12.1	12.1	14.7	20.1	24.8	29.5
	660/690 V (kW)	2.2	3	5	10	11	11	12.5	15	20	25	
		(cv)	2.9	4.0	6.7	13.4	14.7	14.7	16.8	20.1	26.8	33.5

Note: 1) In order to achieve acceptable reliability for application and/or continuity test on the power contacts, a minimum voltage and current of 50 V and 100 mA, respectively, must be used. For lower values, the auxiliary contacts must be used.

## Technical Data

### Main Contacts

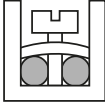
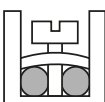
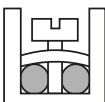
Reference code		CWB9	CWB12	CWB18	CWB25	CWB32	CWB38	CWB40	CWB50	CWB65	CWB80	
		Utilization category AC-1										
		3P (NO)										
Conventional thermal current I <sub>th</sub> (θ ≤55 °C)	(A)	25	25	32	40	50	50	60	90	110	110	
Maximum orientative operational current according to the ambient temperature	θ ≤60 °C (U <sub>e</sub> ≤690 V) (A)	25	25	32	40	50	50	60	90	110	110	
Max. operational power θ ≤55 °C (three-phase resistors)	220/230 V	(kW)	9.5	9.5	12	15	19	19	22.5	34	42	42
	380/400 V	(kW)	16.5	16.5	21	26	33	33	39.5	59	72.5	72.5
	415/440 V	(kW)	19	19	24.5	30.5	38	38	45.5	68.5	84	84
	500 V	(kW)	21.5	21.5	27.5	34.5	43	43	52	77	95	95
	660/690 V	(kW)	28.5	28.5	36.5	45.5	57	57	66	100	125	125
Current values for connection	2 poles in parallel	I <sub>e</sub> x 1.7										
	3 poles in parallel	I <sub>e</sub> x 2.4										
	4 poles in parallel	-										
Percentage of maximum operational current	600 ops./h (%)	100	100	100	100	100	100	100	100	100	100	

### Auxiliary Contacts

Reference code		CWB9...38, CAWB (built-in)	BFB (front mounted)	BLB (side mounted)
Compliance with the standards		IEC/EN 60947-5-1		
Rated insulation voltage U <sub>i</sub> (pollution degree 3)	IEC/EN 60947-4-1, VDE 0660	(V)	690	
	UL, CSA	(V)	600	
Rated operational voltage U <sub>e</sub>	IEC/EN 60947-4-1, VDE 0660	(V)	690	
	UL, CSA	(V)	600	
Conventional thermal current I <sub>th</sub> (θ ≤55 °C)	(A)	10		
Rated operational current I <sub>e</sub>				
AC-15 (IEC/EN 60947-5-1)	220/230 V	(A)	10	
	380/440 V	(A)	4	
	500 V	(A)	2.5	
	660/690 V	(A)	1.5	
DC-13 (IEC/EN 60947-5-1)	24 V	(A)	4	
	48 V	(A)	2	
	110 V	(A)	0.7	
	220 V	(A)	0.3	
	440 V	(A)	0.15	
Making capacity	U <sub>e</sub> ≤690 V 50/60 Hz - AC-15	(A)	10 x I <sub>e</sub>	
Breaking capacity	U <sub>e</sub> ≤400 V 50/60 Hz - AC-15	(A)	1 x I <sub>e</sub>	
Short circuit protection with fuse (gL/gG)	(A)	10		
Control circuit reliability	(V / mA)	17 / 5		
Electrical lifespan	(million cycles)	1		
Mechanical lifespan	(million cycles)	10		
Non-overlapping time between NO and NC contacts	(ms)	1.5		
Impedance of the contacts	(mΩ)	2.5		

# Technical Data

## Terminal Capacity and Tightening Torque

		Conductor cross-section		
<b>Power circuit</b>				
Model		CWB9...18, CAWB	CWB25...38	CWB40...80
Mounting system screw type		Phillips number 2	Phillips number 2	ALLEN 4 mm
Flexible conductor without terminal (mm <sup>2</sup> )		1 x 1...6 2 x 1...6	1 x 2.5...10 2 x 2.5...10	1 x 2.5...30 2 x 2.5...30
Flexible conductor with terminal (mm <sup>2</sup> )		1 x 1...6 2 x 1...4	1 x 1.5...10 2 x 1.5...6	1 x 2.5...30 2 x 2.5...30
Solid wire (mm <sup>2</sup> )		1 x 1...6 2 x 1...6	1 x 2.5...10 2 x 2.5...10	1 x 2.5...30 2 x 2.5...30
Tightening torque (Nm)		1.7	2.5	5.0
<b>Control and auxiliary circuit</b>				
Models		CWB9...38, CAWB		CWB40...80
Mounting system screw type		Phillips number 2		Phillips number 2
Flexible conductor without terminal (mm <sup>2</sup> )		1 x 1...4 2 x 1...4		1 x 1...4 2 x 1...4
Flexible conductor with terminal (mm <sup>2</sup> )		1 x 1...4 2 x 1...2.5		1 x 1...4 2 x 1...2.5
Solid wire (mm <sup>2</sup> )		1 x 1...4 2 x 1...4		1 x 1...4 2 x 1...4
Tightening torque (Nm)		1.0		1.0
<b>Auxiliary contact blocks</b>				
Models		BFB (front)	BLB (side)	
Mounting system screw type		Phillips number 2		
<b>Conductor cross-section</b>				
Flexible conductor without terminal (mm <sup>2</sup> )		1 x 1...2.5 2 x 1...2.5		
Flexible conductor with terminal (mm <sup>2</sup> )		1 x 1...2.5 2 x 1...2.5		
Solid wire (mm <sup>2</sup> )		1 x 1...2.5 2 x 1...2.5		
Tightening torque (Nm)		1.0		



A

A2

B

C

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F

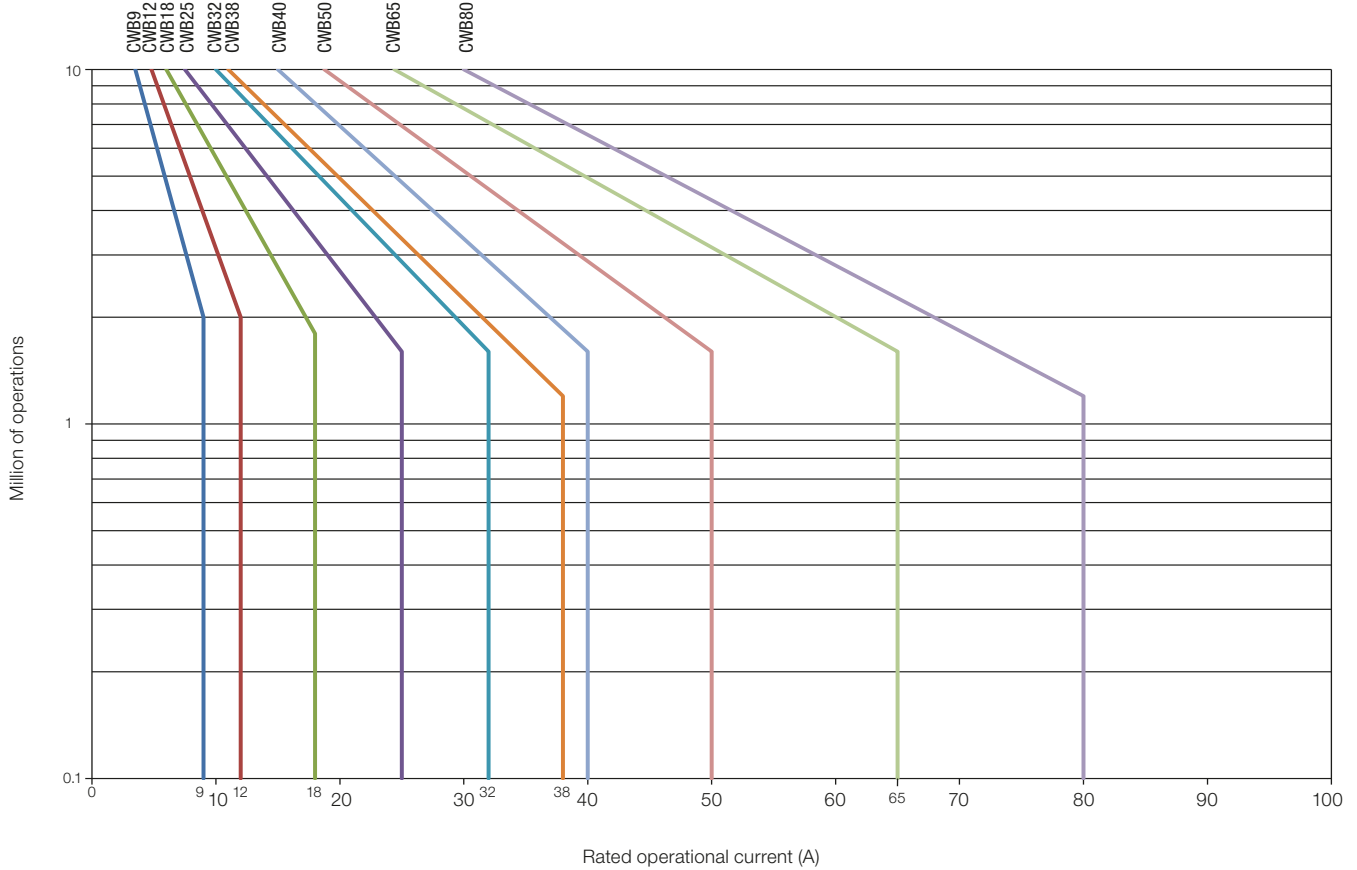
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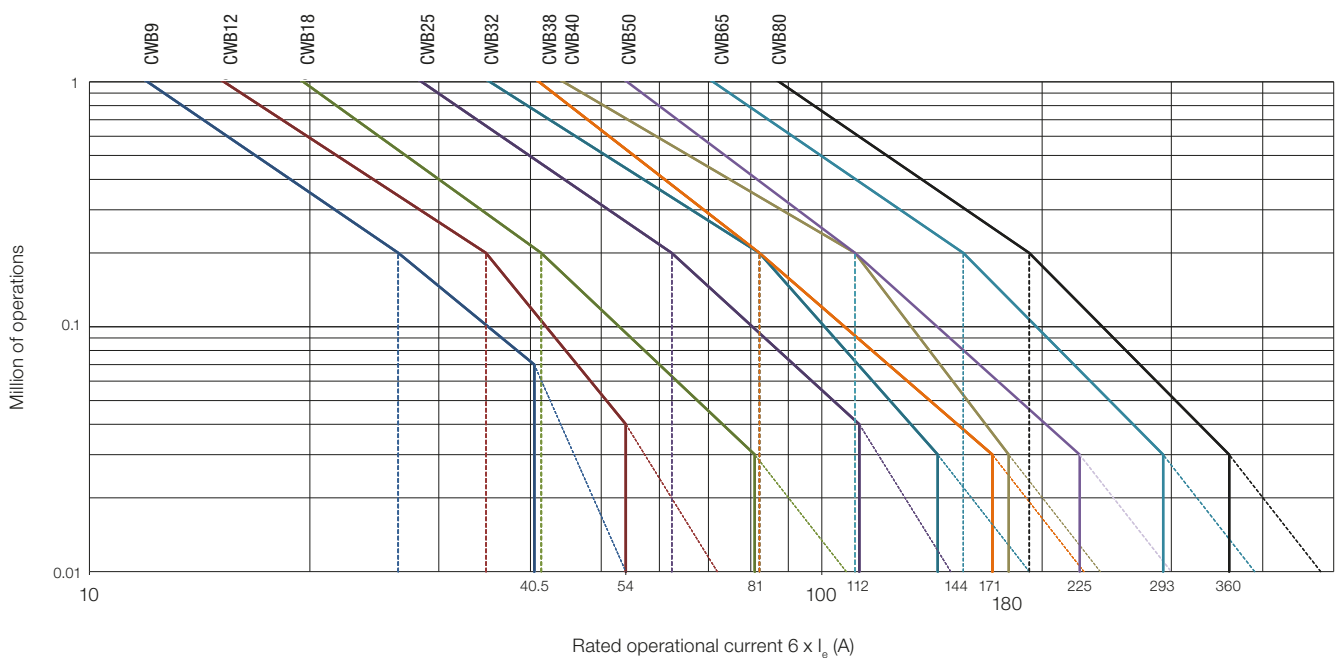
# Technical Data

## Electrical Lifespan Curves

### Utilization Category AC-3 ( $U_e \leq 440 \text{ V ac}$ )



### Utilization Category AC-4 ( $U_e \leq 440 \text{ V ac}$ )

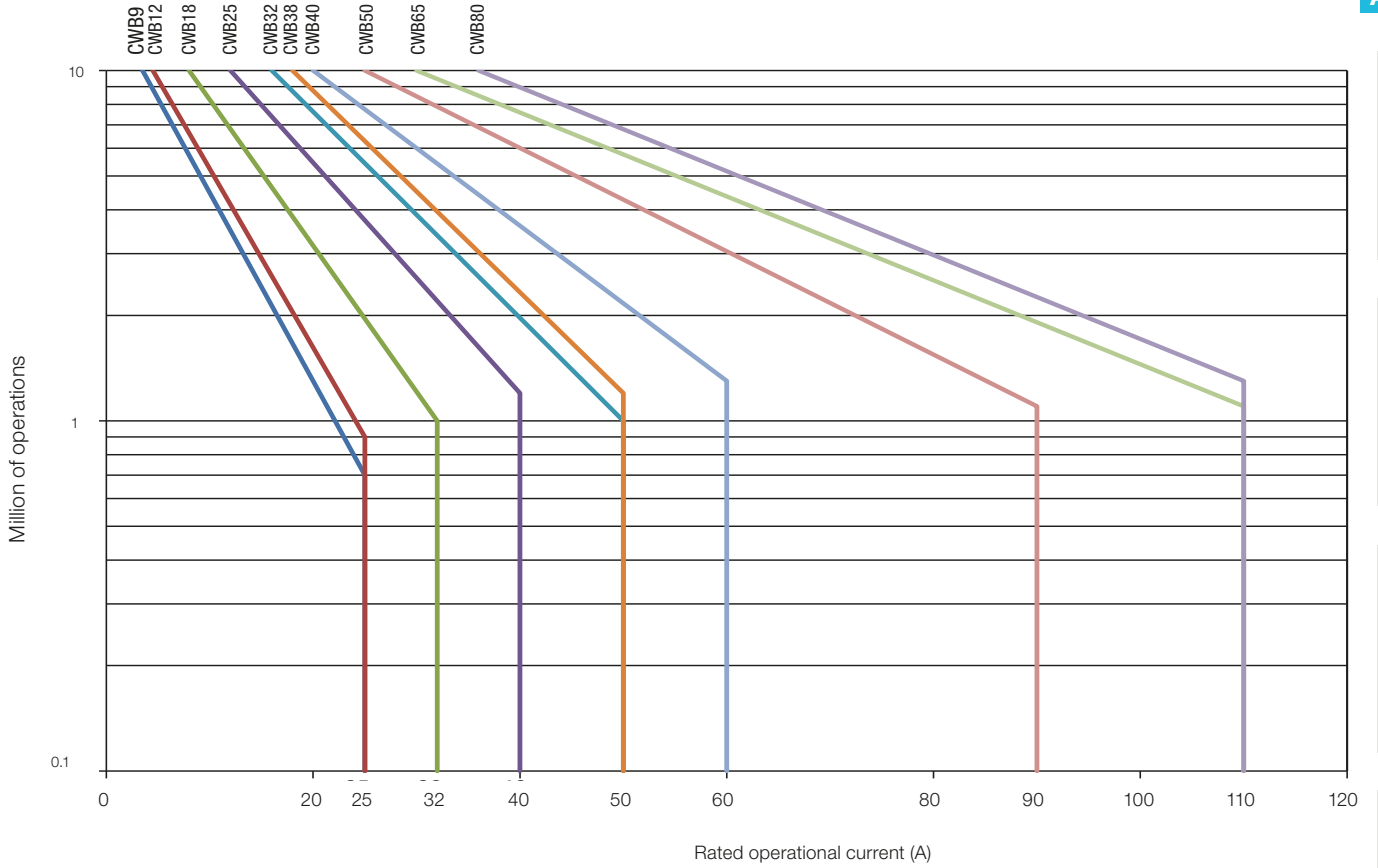




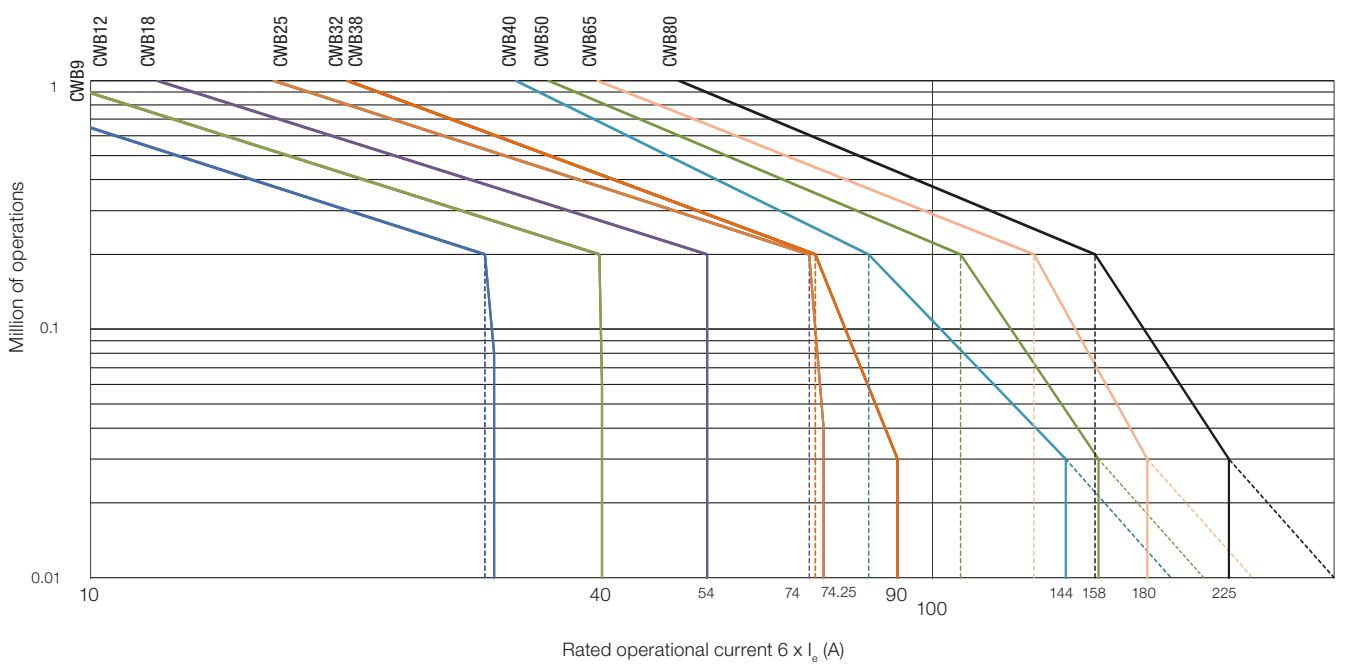
# Technical Data

## Electrical Lifespan Curves

### Utilization Category AC-1 ( $U_e \leq 690$ V ac)

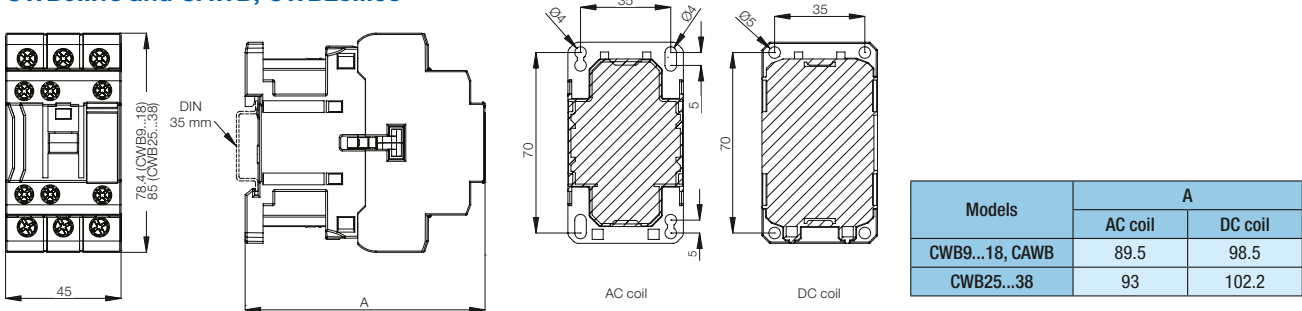


### Utilization Category AC-4 ( $U_e \leq 660 / 690$ V)

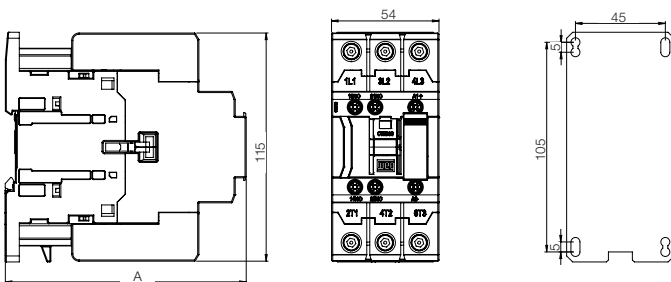


## Dimensions (mm)

### CWB9...18 and CAWB, CWB25...38



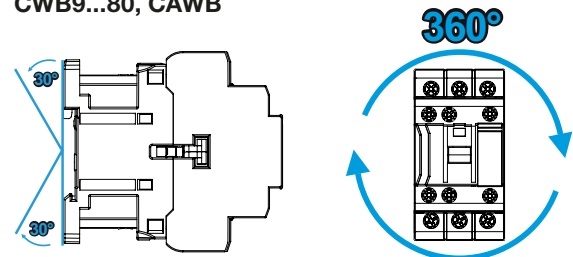
### CWB40...80



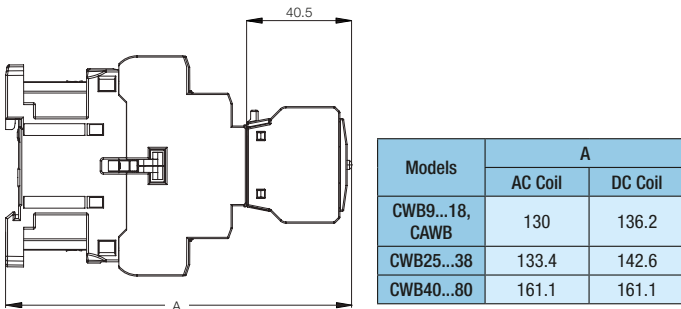
Models	A	
	AC coil	DC coil
CWB40...80	120.6	120.6

### Mounting Position

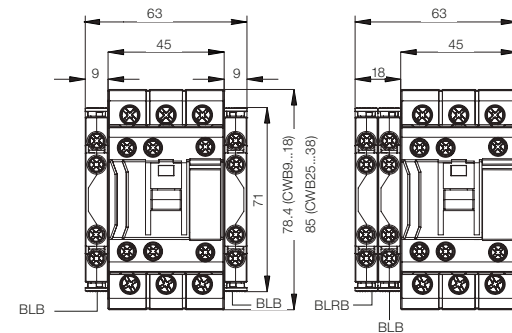
#### CWB9...80, CAWB



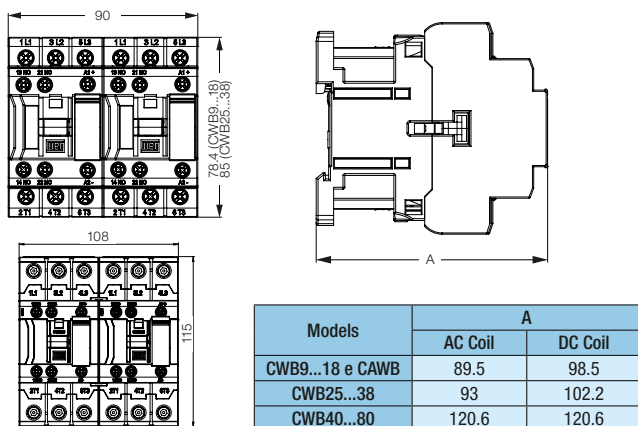
### CWB9...18, CAWB, CWB25...38, CWB40...80 + BFB (Front-Mounted Contact Block)



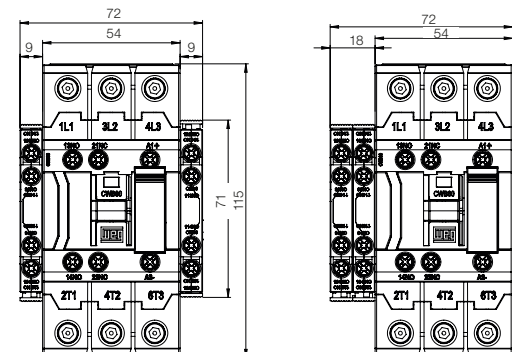
### CWB9...18 and CAWB, CWB25...38 + BLB (Side-Mounted Contact Block)



### 2 x CWB9...38, CAWB + IM1 (Mechanical Interlock) 2 x CWB40...80 + IM2 (Mechanical Interlock)

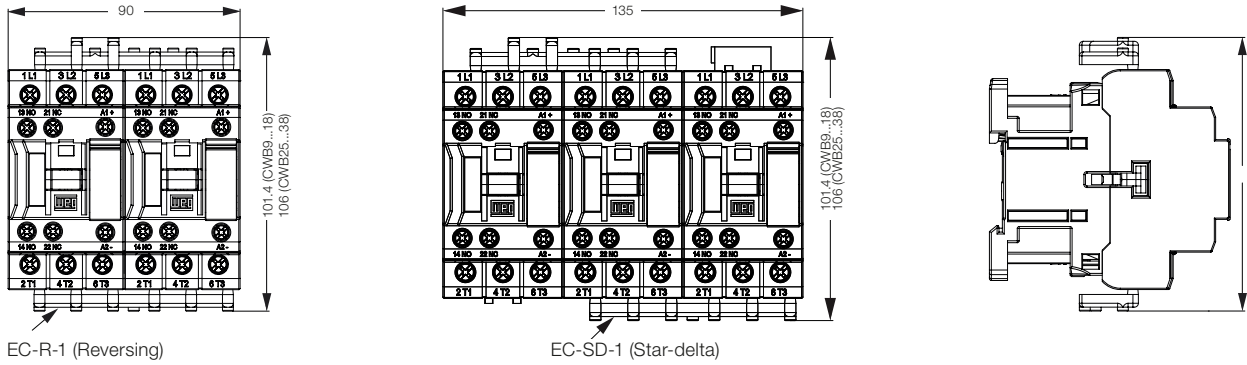


### CWB40...80 + BLB (Side-Mounted Contact Block)

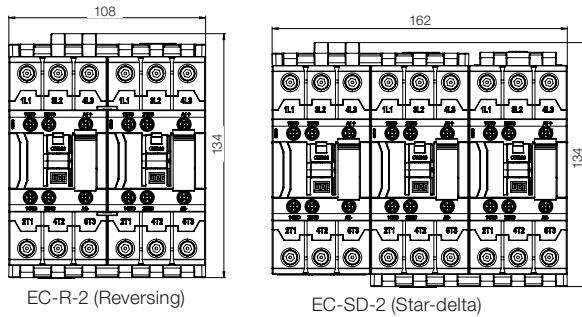


# Dimensions (mm)

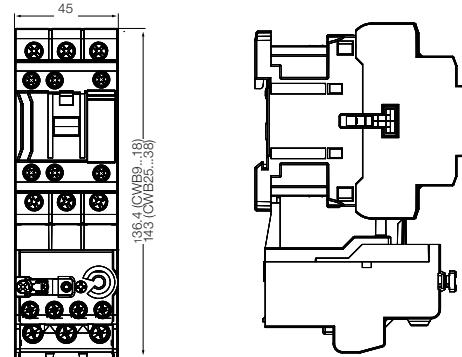
## CWB9...38 + Easy Connection Busbars



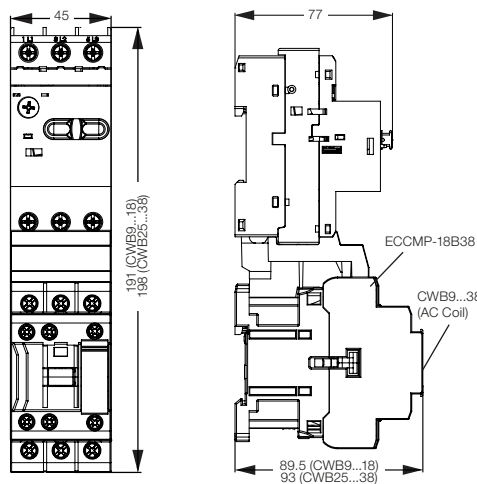
## CWB40...80 + Easy Connection Busbars



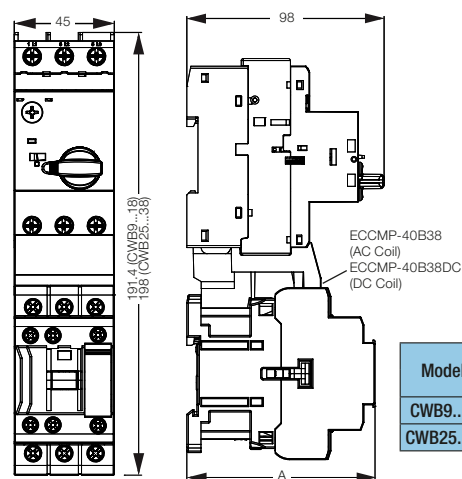
## CWB9...38 + RW27-2D (Overload Relay)



## CWB9...38 + MPW16/18 (Manual Motor Protector)

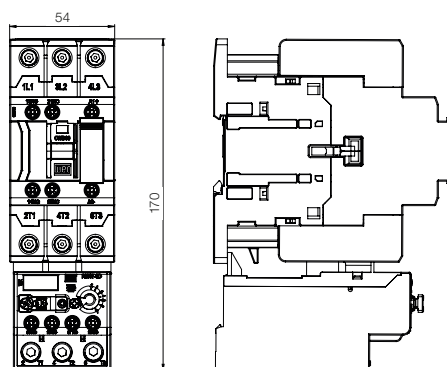


## CWB9...38 + MPW25/40 (Manual Motor Protector)

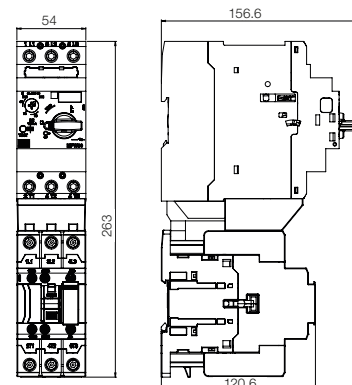


Models	A	
	AC coil	DC coil
CWB9...18	89.5	98.5
CWB25...38	93	102.2

## CWB40 + RW67-5D (Overload Relay)



## CWB40...80 + MPW80 (Manual Motor Protector)



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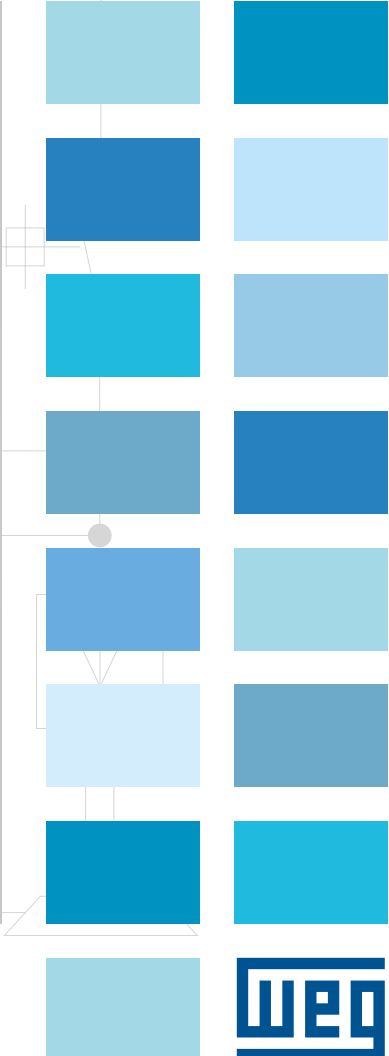
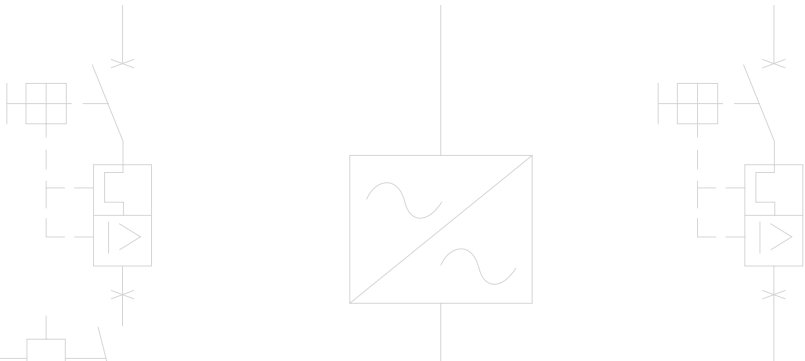
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# Automation

## Contactors - CWM Line





**WEG** CWM40  
EC 90 VDE 60364-41  
R1-2EA  
COP/AGL/IN - 11A  
TOMPA LAM - 10  
AC3

V	220	230	415	500	690
IN	11	10	22	25	30
IP	15	25	30	34	40

**UL** LISTED  
INDUSTRIAL  
CONTROL SYSTEMS  
ELECTRICAL  
EQUIPMENT  
FOR USE IN  
INDUSTRIAL  
CONTROL SYSTEMS  
ELECTRICAL  
EQUIPMENT  
FOR USE IN  
INDUSTRIAL  
CONTROL SYSTEMS  
ELECTRICAL  
EQUIPMENT

IP	1	3	6	10	15	20	25
170V	3	3	3	3	3	3	3
230V	3	3	3	3	3	3	3
415V	3	3	3	3	3	3	3
500V	3	3	3	3	3	3	3
690V	3	3	3	3	3	3	3

**RAM**  
EC 90 VDE 60364-41  
R1-2EA  
COP/AGL/IN - 11A  
TOMPA LAM - 10  
AC3  
MADE IN BRAZIL

**WEG** CWM105  
EC 90 VDE 60364-41  
R1-2EA  
COP/AGL/IN - 11A  
TOMPA LAM - 10  
AC3

V	220	230	415	500	690
IN	11	10	22	25	30
IP	15	25	30	34	40

**UL** LISTED  
INDUSTRIAL  
CONTROL SYSTEMS  
ELECTRICAL  
EQUIPMENT  
FOR USE IN  
INDUSTRIAL  
CONTROL SYSTEMS  
ELECTRICAL  
EQUIPMENT

IP	1	3	6	10	15	20	25
170V	3	3	3	3	3	3	3
230V	3	3	3	3	3	3	3
415V	3	3	3	3	3	3	3
500V	3	3	3	3	3	3	3
690V	3	3	3	3	3	3	3

**RAM**  
EC 90 VDE 60364-41  
R1-2EA  
COP/AGL/IN - 11A  
TOMPA LAM - 10  
AC3  
MADE IN BRAZIL

**WEG** CWM18  
EC 90 VDE 60364-41  
R1-2EA  
COP/AGL/IN - 11A  
TOMPA LAM - 10  
AC3

V	220	230	415	500	690
IN	11	10	22	25	30
IP	15	25	30	34	40

**UL** LISTED  
INDUSTRIAL  
CONTROL SYSTEMS  
ELECTRICAL  
EQUIPMENT  
FOR USE IN  
INDUSTRIAL  
CONTROL SYSTEMS  
ELECTRICAL  
EQUIPMENT

IP	1	3	6	10	15	20	25
170V	3	3	3	3	3	3	3
230V	3	3	3	3	3	3	3
415V	3	3	3	3	3	3	3
500V	3	3	3	3	3	3	3
690V	3	3	3	3	3	3	3

**RAM**  
EC 90 VDE 60364-41  
R1-2EA  
COP/AGL/IN - 11A  
TOMPA LAM - 10  
AC3  
MADE IN BRAZIL

**WEG** CWM250  
EC 90 VDE 60364-41  
R1-2EA  
COP/AGL/IN - 11A  
TOMPA LAM - 10  
AC3

V	220	230	415	500	690
IN	11	10	22	25	30
IP	15	25	30	34	40

**UL** LISTED  
INDUSTRIAL  
CONTROL SYSTEMS  
ELECTRICAL  
EQUIPMENT  
FOR USE IN  
INDUSTRIAL  
CONTROL SYSTEMS  
ELECTRICAL  
EQUIPMENT

IP	1	3	6	10	15	20	25
170V	3	3	3	3	3	3	3
230V	3	3	3	3	3	3	3
415V	3	3	3	3	3	3	3
500V	3	3	3	3	3	3	3
690V	3	3	3	3	3	3	3

**RAM**  
EC 90 VDE 60364-41  
R1-2EA  
COP/AGL/IN - 11A  
TOMPA LAM - 10  
AC3  
MADE IN BRAZIL

# Contactors - CWM Line

## Summary

Presentation	A-82
Accessories Overview	A-83
Three-Pole Contactors from 9 up to 250 A (AC-3) - AC Coil	A-87
Three-Pole Contactors from 40 up to 105 A (AC-3) - DC Coil	A-88
Three-Pole Contactors from 112 up to 800 A (AC-3) - Coil with Electronic Module AC/DC	A-89
Four-Pole Contactors - AC Coil or Coil with Electronic Module AC/DC	A-90
Accessories	A-91
Reversing Starters	A-94
Star-Delta Starters	A-95
Spare Parts	A-96
Technical Data	A-97
Dimensions (mm)	A-117

## CWM Contactors - Presentation

The CWM general-purpose contactor line has been designed taking into consideration industrial duty and reliability.

Rated for inductive loads up to 800 A or 440 kW @ 380/400 V, WEG can offer the most suitable contactor for your application.

CWM contactors allow total panel space optimization, with only a few compact frame sizes from 4 to 440 kW @ 400/415 V. Reducing inventory is simple with CWM common accessories. For example, side-mounted auxiliary contact blocks are the same from 9 to 300 A (AC-3) @ 440 V.

Designed for extended mechanical and electrical life, dependable switching in even the most heavy-duty applications can be achieved. No matter how demanding the application, all WEG contactors are tested and approved to be used under Type 1 and Type 2 short-circuit coordination.

Ensuring global acceptance, all components conform to UL 508 (USA and Canada), IEC 60947 and CE.

All WEG contactors are manufactured to assure the highest quality manufacturing processes and component materials.

This way, WEG offers reliable solutions for low-voltage applications in electric panel assemblers, OEMs, distributors and end users.





## CWM Contactors from 9 up to 40 A (AC-3) - Accessories Overview

A

A3

B

C

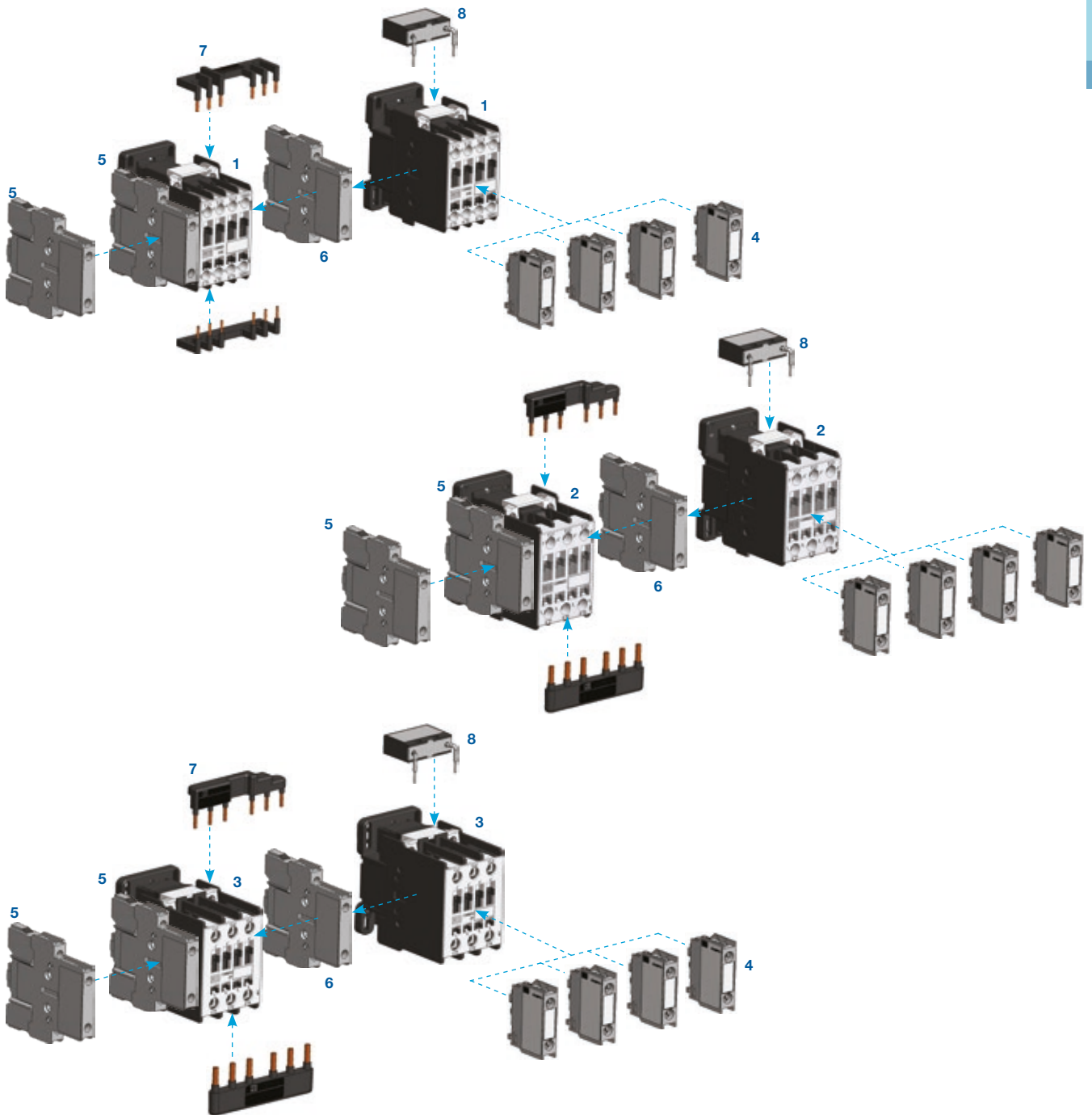
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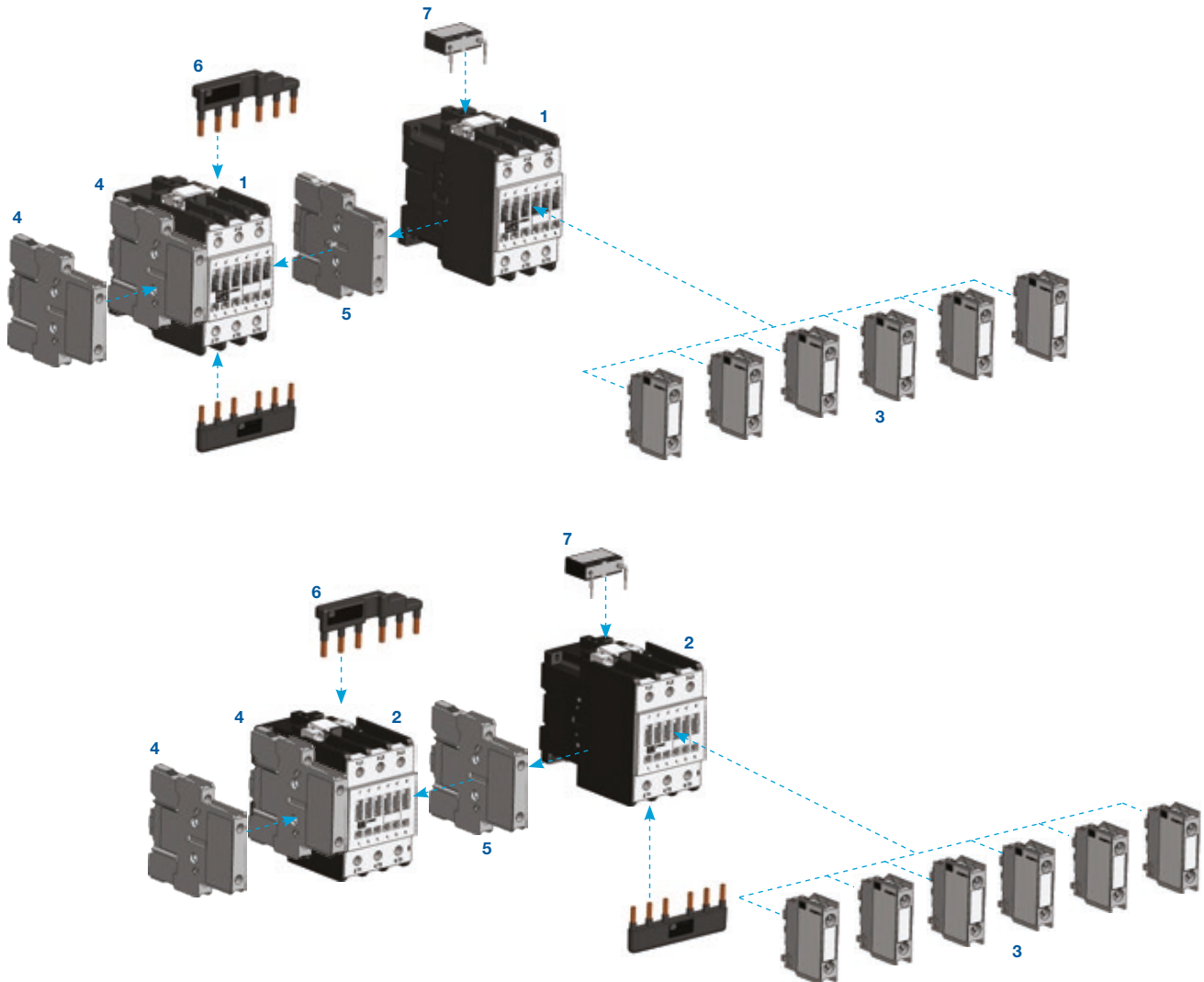
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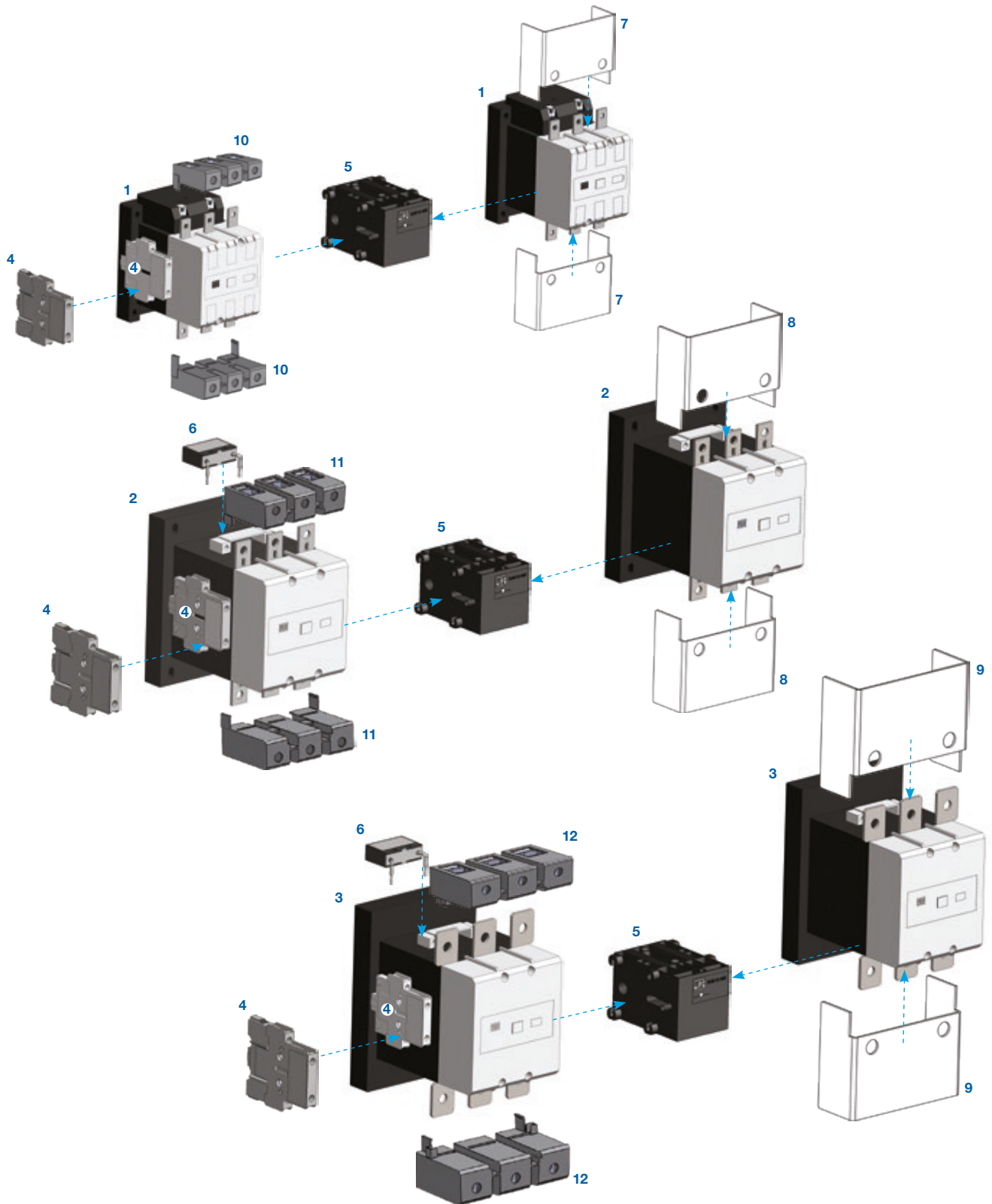
- 1 - Contactors CWM9...18
- 2 - Contactors CWM25
- 3 - Contactors CWM32/40
- 4 - Front mounting auxiliary contact block BCXMF
- 5 - Side mounting auxiliary contact block BCXML
- 6 - Mechanical interlock block BLIM
- 7 - Easy connection busbar
- 8 - Surge suppressor blocks BAM

## CWM Contactors from 50 up to 105 A (AC-3) - Accessories Overview



- 1 - Contactors CWM50...80
- 2 - Contactors CWM95/105
- 3 - Front mounting auxiliary contact block BCXMF
- 4 - Side mounting auxiliary contact block BCXML
- 5 - Mechanical interlock block BLIM
- 6 - Easy connection busbar
- 7 - Surge suppressor blocks BAM

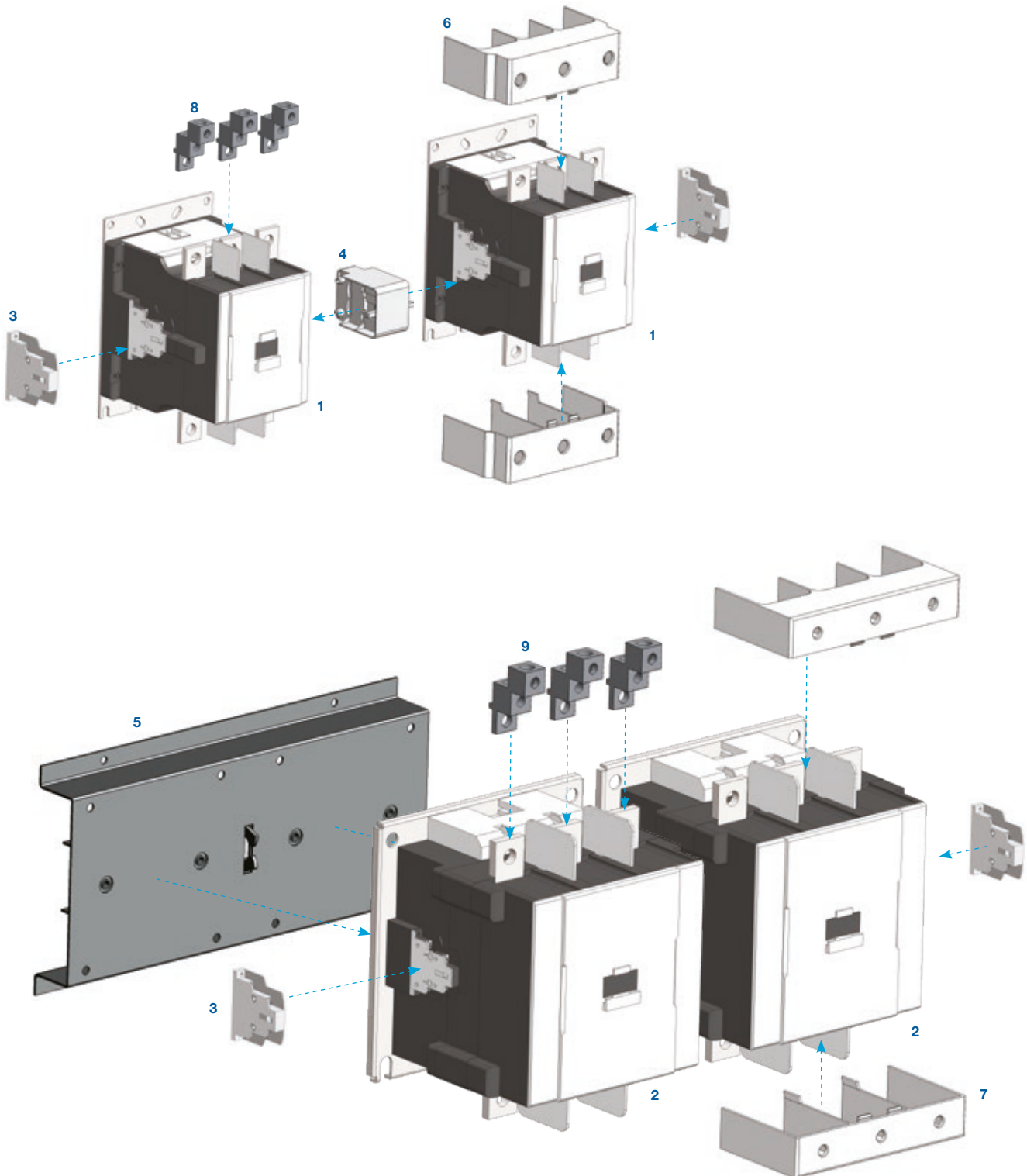
## CWM Contactors from 112 up to 300 A (AC-3) - Accessories Overview



- 1 - Contactors CWM112/150
- 2 - Contactors CWM180
- 3 - Contactors CWM250/300
- 4 - Side mounting auxiliary contact block BCXML
- 5 - Mechanical interlock BLIM112-300
- 6 - Surge suppressor block BAMV

- 7 - Terminal cover BMP CWM150
- 8 - Terminal cover BMP CWM180
- 9 - Terminal cover BMP CWM300
- 10 - TB150 terminal block for CWM112-150
- 11 - TB180 terminal block for CWM180
- 12 - TB300 terminal block for CWM250-300

## CWM Contactors from 400 up to 800 A (AC-3) - Accessories Overview



- 1 - Contactor CWM400
- 2 - Contactors CWM500...800
- 3 - Auxiliary contacts block BCXMRL CWM800
- 4 - Mechanical interlock BLIM CWM400
- 5 - Mechanical interlock BLIM CWM800
- 6 - Terminal cover BMP CWM400
- 7 - Terminal cover BMP CWM800
- 8 - Lugs BMJ CWM400
- 9 - Lugs BMJ CWM800

# CWM Contactors - Selection Table



A  
A3

## Three-Pole Contactors from 9 up to 250 A (AC-3) - AC Coil<sup>3)</sup>

Rated operational current $I_b$ AC-3 ( $U_e \leq 440$ V)	Conv. thermal current $I_{th} = I_b$ AC-1	Max. rated operational power of three-phase motors 50/60 Hz <sup>1)</sup>						Auxiliary contacts per contactor		Auxiliary contact blocks separately delivered		Reference code to complete with voltage code	Weight kg
		220 V 230 V	380 V	400 V 415 V	440 V	500 V	660 V 690 V	NO	NC	BCXMF10 NO	BCXMF01 NC		
9	25	2.2 / 3	4 / 5	4 / 5	4.5 / 6	4.5 / 6	5.5 / 7.5	1	0	Built-in	-	CWM9-10-30♦	0.360
								0	1	-	Built-in	CWM9-01-30♦	
								1	1	Built-in	1	cWM9-11-30♦	
								2	2	1	2	CWM9-22-30♦	
12	25	3 / 4	5.5 / 7.5	5.5 / 7.5	5.5 / 7.5	5.5 / 7.5	7.5 / 10	1	0	Built-in	-	CWM12-10-30♦	0.360
								0	1	-	Built-in	CWM12-01-30♦	
								1	1	Built-in	1	CWM12-11-30♦	
								2	2	1	2	CWM12-22-30♦	
18	32	4.5 / 6	7.5 / 10	7.5 / 10	9.2 / 12.5	9.2 / 12.5	11 / 15	1	0	Built-in	-	CWM18-10-30♦	0.360
								0	1	-	Built-in	CWM18-01-30♦	
								1	1	Built-in	1	CWM18-11-30♦	
								2	2	1	2	CWM18-22-30♦	
25	45	5.5 / 7.5	11 / 15	11 / 15	11 / 15	11 / 15	11 / 15	0	0	-	-	CWM25-00-30♦	0.390
								1	0	1	-	CWM25-10-30♦	
								0	1	-	1	CWM25-01-30♦	
								1	1	1	1	CWM25-11-30♦	
32	60	9.2 / 12.5	15 / 20	15 / 20	15 / 20	15 / 20	18.5 / 25	2	2	2	2	CWM25-55-30♦	0.620
								0	0	-	-	CWM32-00-30♦	
								1	0	1	-	CWM32-10-30♦	
								0	1	-	1	CWM32-01-30♦	
40	60	11 / 15	18.5 / 25	18.5 / 25	22 / 30	22 / 30	22 / 30	1	1	1	1	CWM32-11-30♦	0.650
								2	2	2	2	CWM32-22-30♦	
								0	0	-	-	CWM40-00-30♦	
								1	1	1	1	CWM40-11-30♦	
50	90	15 / 20	22 / 30	22 / 30	30 / 40	30 / 40	30 / 40	2	2	2	2	CWM40-22-30♦	1.205
								0	0	-	-	CWM50-00-30♦	
								1	1	1	1	CWM50-11-30♦	
								2	2	2	2	CWM50-22-30♦	
65	110	18.5 / 25	30 / 40	30 / 40	37 / 50	37 / 50	37 / 50	0	0	-	-	CWM65-00-30♦	1.215
								1	1	1	1	CWM65-11-30♦	
								2	2	2	2	CWM65-22-30♦	
								0	0	-	-	CWM80-00-30♦	
80	110	22 / 30	37 / 50	45 / 60	45 / 60	45 / 60	45 / 60	1	1	1	1	CWM80-11-30♦	1.220
								2	2	2	2	CWM80-22-30♦	
								0	0	-	-	CWM95-00-30♦	
								1	1	1	1	CWM95-11-30♦	
95	140	22 / 30	45 / 60	55 / 75	55 / 75	55 / 75	55 / 75	2	2	2	2	CWM95-22-30♦	1.525
								0	0	-	-	CWM105-00-30♦	
								1	1	1	1	CWM105-11-30♦	
								2	2	2	2	CWM105-22-30♦	
105	140	30 / 40	55 / 75	55 / 75	55 / 75	55 / 75	55 / 75	0	0	-	-	CWM112-22-30♦	1.505
								1	1	1	1	CWM105-11-30♦	
								2	2	2	2	CWM105-22-30♦	
								2	2	-	-	CWM112-22-30♦	
112	180	30 / 40	55 / 75	55 / 75	55 / 75	55 / 75	75 / 100	2	2	-	-	CWM112-22-30♦	3.1
180	225	55 / 75	90 / 125	90 / 125	110 / 150	110 / 150	110 / 150	2	2	-	-	CWM180-22-30♦	51.0
250	350	75 / 100	132 / 175	132 / 175	150 / 200	160 / 220	160 / 220	2	2	-	-	CWM250-22-30♦	6.66

### Replace "♦" with the Appropriate Coil Voltage Code<sup>2)</sup>

AC coil - 50/60 Hz												
Coil voltage codes	D02	D07	D13	D23	D24	D25	D33	D34	D35	D36	D39	
V ac - 50/60 Hz	24	48	110	220	230	240	380	400	415	440	480	

Notes: 1) For 50/60 Hz three-phase, 4 poles WEG standard motors. These values are only for reference and may change on the number of poles and motor design.  
 2) Other voltages available.  
 3) For selection of accessories, check page A-91.

B  
C  
D  
E  
F  
G

## CWM Contactors - Selection Table



### Three-Pole Contactors from 40 up to 105 A (AC-3) - DC Coil<sup>4)5)</sup>

Rated operational current $I_e$ AC-3 ( $U_e \leq 440$ V)	Conv. thermal current $I_{th} = I_e$ AC-1	Max. rated operational power of three-phase motors 50/60 Hz <sup>1)</sup>						Auxiliary contacts per contactor		Auxiliary contact blocks separately delivered		Reference code to complete with voltage code	Weight kg
		220 V 230 V	380 V	400 V 415 V	440 V	500 V	660 V 690 V	NO	NC	BCXMF10	BCXMF01		
40	60	11 / 15	18.5 / 25	18.5 / 25	22 / 30	22 / 30	22 / 30	0	0	-	-	CWM40-00-30♦	0.640
								1	1	1	1	CWM40-11-30♦	
								2	2	2	2	CWM40-22-30♦	
50	90	15 / 20	22 / 30	22 / 30	30 / 40	30 / 40	30 / 40	0	0	-	-	CWM50-00-30♦	1.463
								1	1	1	1	CWM50-11-30♦	
								2	2	2	2	CWM50-22-30♦	
65	110	18.5 / 25	30 / 40	30 / 40	37 / 50	37 / 50	37 / 50	0	0	-	-	CWM65-00-30♦	1.463
								1	1	1	1	CWM65-11-30♦	
								2	2	2	2	CWM65-22-30♦	
80	110	22 / 30	37 / 50	45 / 60	45 / 60	45 / 60	45 / 60	0	0	-	-	CWM80-00-30♦	1.463
								1	1	1	1	CWM80-11-30♦	
								2	2	2	2	CWM80-22-30♦	
95	140	22 / 30	45 / 60	55 / 75	55 / 75	55 / 75	55 / 75	0	0	-	-	CWM95-00-30♦	1.463
								1	1	1	1	CWM95-11-30♦	
								2	2	2	2	CWM95-22-30♦	
105	140	30 / 40	55 / 75	55 / 75	55 / 75	55 / 75	55 / 75	0	0	-	-	CWM105-00-30♦	1.463
								1	1	1	1	CWM105-11-30♦	
								2	2	2	2	CWM105-22-30♦	

### Replace “♦” with the Appropriate Coil Voltage Code<sup>2)3)</sup>

Coil voltage codes (CWM40...105)	C34	C37	C40	C44
V dc	24-28	42-50	110-130	208-240

Notes: 1) For 50/60 Hz three-phase, 4 poles WEG standard motors. These values are only for reference and may change on the number of poles and motor design.  
 2) Other voltages available.  
 3) Contactors CWM40-105 with DC coils do not need surge suppressor blocks. The surge suppressor is already integrated in this coil.  
 4) For selection of accessories, check page A-91.  
 5) For lower currents than 40 A (AC-3) use the new line CWB9...38.

## CWM Contactors - Selection Table



### Three-Pole Contactors from 112 up to 300 A (AC-3) - Coil with Electronic Module AC/DC

Rated operational current $I_c$ AC-3 ( $U_c \leq 440$ V)	Conv. thermal current $I_{th} = I_c$ AC-1	Max. rated operational power of three-phase motors 50/60 Hz <sup>1)</sup>						Auxiliary contacts per contactor (BCXML)		Reference code to complete with voltage code	Weight kg
		220 V 230 V	380 V	400 V 415 V	440 V	500 V	690 V	3 4 NO	1 2 NC		
112	180	30 / 40	55 / 75	55 / 75	55 / 75	55 / 75	75 / 100	2	2	CWM112-22-30♦	3.12
150	225	45 / 60	75 / 100	75 / 100	90 / 125	90 / 125	110 / 150	2	2	CWM150-22-30♦	3.20
180	225	50 / 75	90 / 125	90 / 125	110 / 150	110 / 150	110 / 150	2	2	CWM180-22-30♦	5.01
250	350	75 / 100	132 / 175	132 / 175	150 / 200	160 / 220	160 / 200	2	2	CWM250-22-30♦	6.86
300	410	90 / 125	150 / 200	160 / 220	185 / 250	200 / 270	200 / 270	2	2	CWM300-22-30♦	6.73

#### Replace "♦" with the Appropriate Coil Voltage Code<sup>2)</sup>

Coil voltage codes	E02	E06	E07	E10	E13	E16	E21
50/60 Hz / DC <sup>3)</sup>	24-28 V	42-50 V	60-72 V	110-130 V	208-250 V	360-415 V	430-500 V



### Three-Pole Contactors from 400 up to 800 A (AC-3) - Coil with Electronic Module AC/DC

Rated operational current $I_c$ AC-3 ( $U_c \leq 440$ V)	Conv. thermal current $I_{th} = I_c$ AC-1	Max. rated operational power of three-phase motors 50/60 Hz <sup>1)</sup>						Auxiliary contacts per contactor (BCXML)		Reference code to complete with voltage code	Weight kg
		220 V 230 V	380 V	400 V 415 V	440 V	500 V	690 V	3 4 NO	1 2 NC		
400	450	125 / 150	220 / 300	220 / 300	220 / 300	220 / 300	250 / 330	2	2	CWM400-22-30♦	9.2
500	580	150 / 200	265 / 355	265 / 355	265 / 355	265 / 355	300 / 400	2	2	CWM500-22-30♦	22.4
630	660	190 / 250	330 / 450	330 / 450	330 / 450	330 / 450	330 / 450	2	2	CWM630-22-30♦	23.2
800	900	220 / 300	440 / 600	440 / 600	440 / 600	500 / 700	500 / 700	2	2	CWM800-22-30♦	23.3

#### Replace "♦" with the Appropriate Coil Voltage Code<sup>2)</sup>

Coil voltage codes (CWM400)	E36	D80	D81	D82
50/60 Hz / DC <sup>3)</sup>	100-240 V ac / 100-220 V dc	-	-	-
50/60 Hz <sup>3)</sup>	-	265-347 V	380-450 V	440-575 V

Coil voltage codes (CWM500/630/800)	E35	E39	D80	D81	D82
50/60 Hz / DC <sup>3)</sup>	100-127 V ac / 100-110 V dc	200-240 V ac / 200-220 V dc	-	-	-
50/60 Hz <sup>3)</sup>	-	-	265-347 V	380-450 V	440-575 V

Notes: 1) For 50/60 Hz three-phase, 4 poles WEG standard motors. These values are only for reference and may change on the number of poles and motor design.  
2) Other voltages available.  
3) Surge suppressor is already integrated.

## CWM Contactors - Selection Table



### Four-Pole Contactors from 25 to 32 A (AC-1)

$I_e = I_n$ $(U_e \leq 690 \text{ V})$ $\theta \leq 55 \text{ }^\circ\text{C}$ AC-1 A	Number of poles		Reference code to complete with voltage code	Weight kg
	$\begin{matrix} \cdot 3 \\   \\ \cdot 4 \\ \text{NO} \end{matrix}$	$\begin{matrix} \cdot 1 \\   \\ \cdot 2 \\ \text{NC} \end{matrix}$		
25	2	2	CWM9-00-22♦	0.360
	4	-	CWM9-00-40♦	
25	2	2	CWM12-00-22♦	0.360
	4	-	CWM12-00-40♦	
32	2	2	CWM18-00-22♦	0.360
	4	-	CWM18-00-40♦	

### Replace “♦” with the Appropriate Coil Voltage Code<sup>1)</sup>

AC coil - 50/60 Hz											
Applicable for CWC07...CWC025 models											
Coil voltage codes	D02	D07	D13	D23	D24	D25	D33	D34	D35	D36	D39
V ac - 50/60 Hz	24	48	110	220	230	240	380	400	415	440	480

### Four-Pole Contactors from 420 up to 800 A AC-1 - Coil with Electronic Module AC/DC

Conv. thermal current $I_m$ (55°C)	AC-1 current A	AC-1 power				Auxiliary contacts per contactor (BCXML)		Reference code to complete with voltage code	Weight kg
		220 V 240 V kW	380 V 400 V kW	500 V 550 V kW	690 V kW	$\begin{matrix} \cdot 3 \\   \\ \cdot 4 \\ \text{NO} \end{matrix}$	$\begin{matrix} \cdot 1 \\   \\ \cdot 2 \\ \text{NC} \end{matrix}$		
500	420	160	300	375	470	2	2	CWM400-22-40♦	9.9
630	630	245	450	560	710	2	2	CWM500-22-40♦	26.3
750	660	255	470	590	740	2	2	CWM630-22-40♦	26.3
900	800	310	570	710	900	2	2	CWM800-22-40♦	26.3

### Replace “♦” with the Appropriate Coil Voltage Code<sup>2)</sup>

Coil voltage codes (CWM400)	E36	D80	D81	D82
50/60 Hz / DC <sup>3)</sup>	100-240 V ac / 100-220 V dc	-	-	-
50/60 Hz <sup>3)</sup>	-	265-347 V	380-450 V	440-575 V



Coil voltage codes (CWM500/630/800)	E35	E39	D80	D81	D82
50/60 Hz / DC <sup>3)</sup>	100-127 V ac / 100-110 V dc	200-240 V ac / 200-220 V dc	-	-	-
50/60 Hz <sup>3)</sup>	-	-	265-347 V	380-450 V	440-575 V







## CWM Contactors - Accessories

### Auxiliary Contact Blocks

- Terminal markings to EN 50 005 and EN 50 012
- Positive driven contacts in accordance with IEC 60947-4-1 resp. IEC 60947-5-1

Illustrative picture	For use with	Max. number of contacts/ contactor	Auxiliary contacts		Reference code	Weight kg
			NO	NC		
	CWM9...105	4 / CWM9...25	1	0	BCXMF10	0.015
			0	1	BCXMF01	
			1 <sup>1)</sup>	0	BCXMF10	
			0	1 <sup>2)</sup>	BCXMF01	
			1 <sup>6)</sup>	0	BCXMF10AU	
			0	1 <sup>6)</sup>	BCXMF01AU	
	CWM9...300	8 / CWM112...300	2	0	BCXML20	0.050
			1	1	BCXML11	
			2	0	BCXMRL20 <sup>3)</sup>	
			1	1	BCXMRL11 <sup>3)</sup>	
	CWM 400...800	8 / CWM400...800	1	1	BCXML11 CWM800	0.045
BCXMRL11 CWM800 <sup>3)</sup>						

### Mechanical Interlock for Contactors<sup>5)</sup>



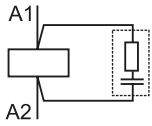
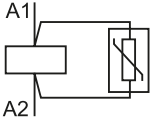
Illustrative picture	For use with	Reference code	Weight kg
	CWM9...CWM105 - 3 or 4-pole	BLIM9-105	0.050
		BLIM.02 <sup>4)</sup>	
	CWM112...CWM300 - 3-pole	BLIM112-300	0.150
	CWM400 - 3 or 4-pole	BLIM CWM400	0.100
	CWM500...800 - 3-pole	BLIM CWM800	15.0
	CWM500...800 - 4-pole	BLIM CWM800-4P	16.0

- Notes: 1) Early-make contact.  
 2) Late-break contact.  
 3) For combination of more than 2 side-mounted auxiliary contacts.  
 4) This accessory allows mechanical and electrical interlock.  
 5) Can only be used with 2 contactors of the same frame.  
 6) Auxiliary contact block for low current levels (1 mA / 17 V).

## CWM Contactors - Accessories




### Surge Suppressors

- Connect directly to coil terminals A1 - A2


Illustrative picture	For use with	Voltage	Circuit diagram	Reference code	Weight kg	
 	CWM9...40	24 - 48 V 50/60 Hz		BAMRC4 D53	0.014	
		50 - 127 V 50/60 Hz		BAMRC5 D55		
		130 - 250 V 50/60 Hz		BAMRC6 D63		
	CWM50...105	24 - 48 V 50/60 Hz		BAMRC7 D53		
		50 - 127 V 50/60 Hz		BAMRC8 D55		
		130 - 250 V 50/60 Hz		BAMRC9 D63		
	CWM112...250	24 - 48 V 50/60 Hz		BAMRC13 D53		
		50 - 250 V 50/60 Hz		BAMRC14 D56		
	CWM9...105	270 - 380 V 50/60 Hz				BAMV1 D68
		400 - 510 V 50/60 Hz				BAMV2 D73
CWM112...250	270 - 380 V 50/60 Hz	BAMV3 D68				
	400 - 510 V 50/60 Hz	BAMV4 D73				

### Terminal Cover


- Protection against touching in accordance with relating installation rules

Illustrative picture	For use with	Description	Reference code	Weight kg
	CWM112/150	1 kit with 2 parts <sup>1)</sup>	BMP CWM150	0.10
	CWM180		BMP CWM180	0.15
	CWM250/300		BMP CWM300	0.20
	CWM112/150	1 kit with 1 part <sup>1)</sup>	BMP1 CWM150	0.05
	CWM180		BMP1 CWM180	0.08
	CWM250/300		BMP1 CWM300	0.10
	CWM400 (3-pole)	1 kit with 2 parts <sup>1)</sup>	BMP CWM400	0.12
	CWM500...800 (3-pole)		BMP CWM800	0.28
	CWM400 (4-pole)		BMP CWM400-4P	0.16
	CWM500...800 (4-pole)		BMP CWM800-4P	0.37

### Terminal Blocks<sup>2)</sup>

Illustrative picture	For use with	Flexible cable	Tightening torque	Description	Reference code	Weight kg
	CWM112/150	25...70 mm <sup>2</sup> 3...2/0 AWG	14 N.m	1 unit (3-pole)	TB150	0.29
	CWM180	50...120 mm <sup>2</sup> 1/0...250 kcmil AWG	14 N.m		TB180	0.35
	CWM250/300	50...150 mm <sup>2</sup> 1/0...300 kcmil AWG	20 N.m		TB300	0.45

### Lug Terminals

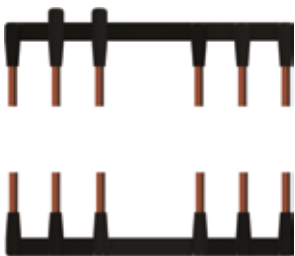
Illustrative picture	For use with	Description	Reference code	Weight kg
	CWM400	1 kit with 3 pieces	BMJ CWM400	0.495
	CWM500...800	1 kit with 3 pieces	BMJ CWM400	1.0

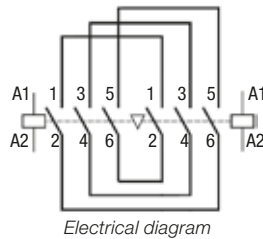
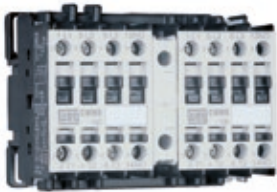
Notes: 1) Every part is a 3-phase protector.

2) For IP20 protection degree on front.

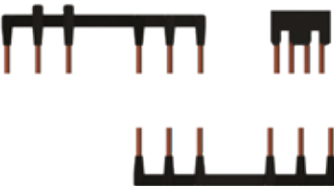
## CWM Contactors - Accessories

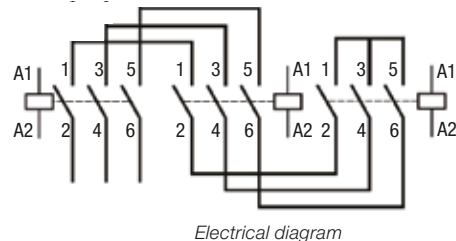
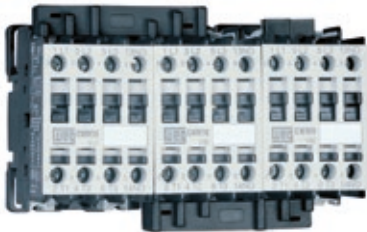
### Reversing Wiring Kits<sup>1)</sup>

Illustrative picture	Rated operational current Ie AC - 3 (U <sub>e</sub> ≤ 440 V) A	Maximum rated operational power of three-phase motors 50/60 Hz			Contactors K1 = K2	Reference code	Weight kg
		220-230 V kW / HP	400-415 V kW / HP	660-690 V kW / HP			
	9	2.2 / 3	4 / 5	5.5 / 7.5	CWM9	EC-R-7.5	0.033
	12	3 / 4	5.5 / 7.5	7.5 / 10	CWM12		
	18	4.5 / 6	7.5 / 10	11 / 15	CWM18		
	25	5.5 / 7.5	11 / 15	11 / 15	CWM25	EC-RC-11	0.5
	32	9.2 / 12.5	15 / 20	18.5 / 25	CWM32	EC-RC-18.5	
	40	11 / 15	18.5 / 25	22 / 30	CWM40		
	50	15 / 20	22 / 30	30 / 40	CWM50	EC-RC-37	
	65	18.5 / 25	30 / 40	37 / 50	CWM65		
	80	22 / 30	45 / 60	45 / 60	CWM80		




### Star-Delta Wiring Kits<sup>1)</sup>

Illustrative picture	Rated operational current Ie AC - 3 (U <sub>e</sub> ≤ 440 V) A	Maximum rated operational power of three-phase motors 50/60 Hz			Contactors		Reference code	Weight kg
		220-230 V kW / HP	400-415 V kW / HP	660-690 V kW / HP	K1 = K2	K3		
	25	5.5 / 7.5	11 / 15	18.5 / 25	CWM18	CWM9	EC-SD-15	0.051
	32	7.5 / 10	15 / 20	18.5 / 25	CWM18	CWM12		
	40	7.5 / 10	18.5 / 25	22 / 30	CWM25	CWM18	EC-SD-22	0.5
	50	11 / 15	22 / 30	22 / 30	CWM25	CWM18		
	54	15 / 20	22 / 30	30 / 40	CWM32	CWM18	EC-SD-25	
	60	15 / 20	30 / 40	37 / 50	CWM40	CWM25	EC-SD-30	
	80	18.5 / 25	37 / 50	45 / 60	CWM50	CWM25	EC-SD-37	
	85	22 / 30	45 / 60	55 / 75	CWM50	CWM32	EC-SD-55	
	105	30 / 40	55 / 75	55 / 75	CWM65	CWM40		
	138	37 / 50	75 / 100	75 / 100	CWM80	CWM50	EC-SD-75	
	140	37 / 50	75 / 100	90 / 125	CWM95	CWM50	EC-SD-90	
	175	45 / 60	90 / 125	110 / 150	CWM105	CWM65		



### 3-Pole Jumper (k3) for Star-Delta Starters

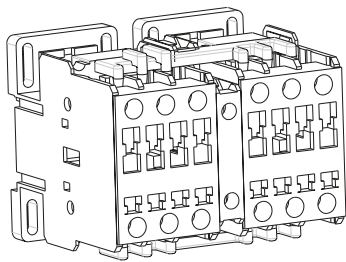
Illustrative picture	For use with	Description	Reference code	Weight kg
	CWM9...18	3-pole jumper to connect in parallel L1-L2-L3 k3 contactor terminals in a star-delta starter	SBCM9-18	0.006
	CWM25		SBCM25	0.006
	CWM32/40		SBCM32-40	0.015
	CWM50/65		SBCM50-65	0.031

Note: 1) Contactors and mechanical interlock are sold separately.

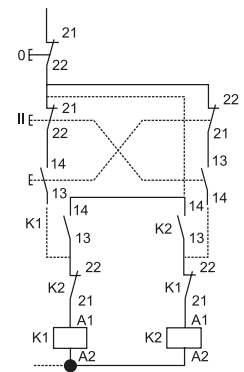
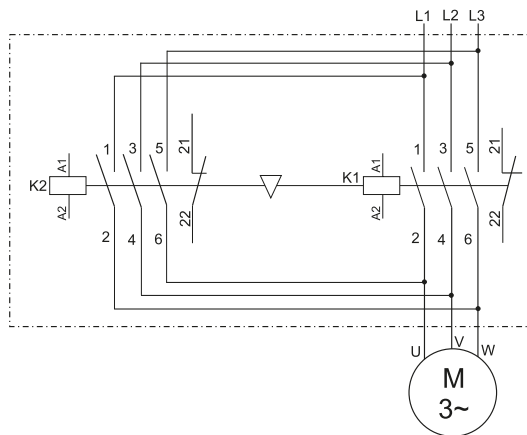
# CWM Contactors - Reversing Starters

## Individual Components for Reversing Starters

Maximum rated operational power of three-phase motors 50/60 Hz				Individual components for reversing starters					
220-230 V kW / HP	400-415 V kW / HP	500 V kW / HP	660-690 V kW / HP	Contactor K1	Contactor K2	Spare auxiliary contacts		Mechanical interlock	Wiring kit
				Type	Type	K1	K2		
2.2 / 3	4 / 5	4.5 / 6	5.5 / 7.5	CWM9-11	CWM9-11	-	-	BLIM9-105	EC-SD...
3 / 4	5.5 / 7.5	5.5 / 7.5	7.5 / 10	CWM12-11	CWM12-11	-	-		
4.5 / 6	7.5 / 10	9.2 / 12.5	11 / 15	CWM18-11	CWM18-11	-	-		
5.5 / 7.5	11 / 15	11 / 15	11 / 15	CWM25-11	CWM25-11	-	-		
9.2 / 12.5	15 / 20	15 / 20	18.5 / 25	CWM32-11	CWM32-11	-	-		
11 / 15	18.5 / 25	22 / 30	22 / 30	CWM40-11	CWM40-11	-	-		
15 / 20	22 / 30	30 / 40	30 / 40	CWM50-11	CWM50-11	-	-		
18.5 / 25	30 / 40	37 / 50	37 / 50	CWM65-11	CWM65-11	-	-		
22 / 30	45 / 60	45 / 60	45 / 60	CWM80-11	CWM80-11	-	-		
22 / 30	55 / 75	55 / 75	55 / 75	CWM95-11	CWM95-11	-	-		
30 / 40	55 / 75	55 / 75	55 / 75	CWM105-11	CWM105-11	-	-		
30 / 40	55 / 75	55 / 75	75 / 100	CWM112-22	CWM112-22	1NO/1NC	1NO/1NC	BLIM112-300	-
45 / 60	75 / 100	90 / 125	110 / 150	CWM150-22	CWM150-22	1NO/1NC	1NO/1NC		
55 / 75	90 / 125	110 / 150	110 / 150	CWM180-22	CWM180-22	1NO/1NC	1NO/1NC		
75 / 100	132 / 175	160 / 220	160 / 220	CWM250-22	CWM250-22	1NO/1NC	1NO/1NC		
90 / 125	160 / 220	200 / 270	200 / 270	CWM300-22	CWM300-22	1NO/1NC	1NO/1NC		



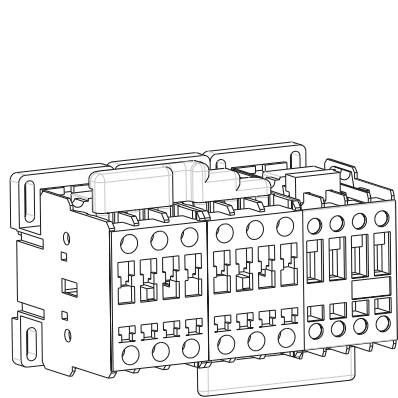
Reversing starters



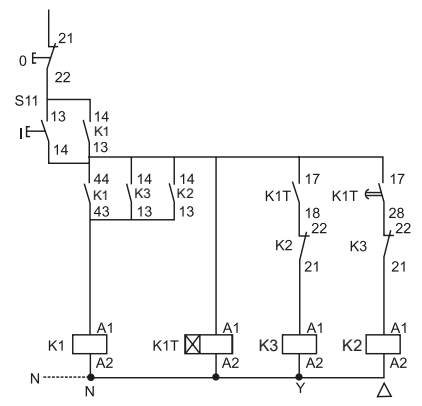
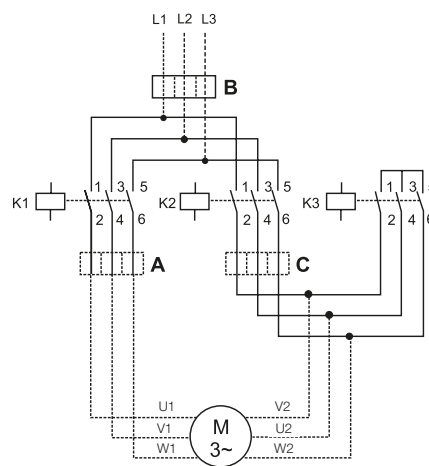
# CWM Contactors - Star-Delta Starters

## Individual Components for Star-Delta Starters

Maximum rated operational power of three-phase motors 50/60 Hz				Individual components for star-delta starters							
220-230 V kW / HP	400-415 V kW / HP	500 V kW / HP	660-690 V kW / HP	Main contactor K1	Delta contactor K2	Star contactor K3	Timer	Spare auxiliary contacts			Wiring kit
				Type	Type	Type		K1	K2	K3	
5.5 / 7.5	11 / 15	15 / 20	18.5 / 25	CWM18-10 + BCXMF10	CWM18-11	CWM9-11	RTW-E1...	-	-	-	EC-SD...
7.5 / 10	15 / 20	15 / 20	18.5 / 25	CWM18-10 + BCXMF10	CWM18-11	CWM12-11		-	-	-	
7.5 / 10	18.5 / 25	22 / 30	22 / 30	CWM25-00 + 2 x BCXMF10	CWM25-11	CWM18-11		-	-	-	
11 / 15	22 / 30	22 / 30	22 / 30	CWM25-00 + 2 x BCXMF10	CWM25-11	CWM18-11		-	-	-	
15 / 20	30 / 40	37 / 50	37 / 50	CWM40-00 + 2 x BCXMF10	CWM40-11	CWM25-11		-	-	-	
18.5 / 25	37 / 50	37 / 50	45 / 60	CWM50-00 + 2 x BCXMF10	CWM50-11	CWM25-11		-	-	-	
22 / 30	45 / 60	45 / 60	55 / 75	CWM50-00 + 2 x BCXMF10	CWM50-11	CWM32-11		-	-	-	
30 / 40	55 / 75	55 / 75	55 / 75	CWM65-00 + 2 x BCXMF10	CWM65-11	CWM40-11		-	-	-	
37 / 50	75 / 100	75 / 100	90 / 125	CWM95-00 + 2 x BCXMF10	CWM95-11	CWM50-11		-	-	-	
45 / 60	90 / 125	110 / 150	110 / 150	CWM105-00 + 2 x BCXMF10	CWM105-11	CWM65-11		-	-	-	
55 / 75	110 / 150	110 / 150	132 / 175	CWM150-22	CWM150-22	CWM65-11		2NC	1NO/NC	-	
75 / 100	132 / 175	132 / 175	132 / 175	CWM180-22	CWM180-22	CWM80-11		2NC	1NO/NC	-	
90 / 125	160 / 220	160 / 220	200 / 300	CWM250-22	CWM250-22	CWM105-11		2NC	1NO/NC	-	
110 / 150	200 / 270	250 / 330	-	CWM300-22	CWM300-22	CWM150-22		2NC	1NO/NC	1NO/NC	



Star-Delta Starters



A:  $0.58 \times I_r$ , motor protection at star and delta position  
 B:  $1 \times I_r$ , only partial motor protection at star position  
 C:  $0.58 \times I_r$ , motor not protected at star position

## CWM Contactors - Spare Parts

### Individual Spare Coils

Illustrative picture	Description	For use with	Reference code to complete with voltage code	Weight kg
	AC coil	CWM9...25	BCA4-25♦	0.065
		CWM32...40	BCA4-40♦	0.110
		CWM50...105	BCA-105♦	0.140
		CWM112	BCA-112♦	0.235
		CWM180	BCA-180♦	0.400
		CWM250	BCA-250♦	0.675
	DC coil	CWM40	BECC4-40♦	0.180
		CWM50...105	BECC-105♦	0.220
	Dual-voltage coils AC/DC (contactors with electronic module)	CWM112...150	BCE-150♦	1.0
		CWM180	BCE-215♦	
		CWM250...300	BCE-300♦	
		CWM400	BCE400♦ <sup>1)</sup>	
CWM500...800	BCE800♦ <sup>1)</sup>			

### Electronic Module

Illustrative picture	Control type	For use with	Reference code	Weight kg
	AC/DC	CWM112...300	ME-300♦ <sup>3)</sup>	0.140

### Replace “♦” with the Appropriate Coil Voltage Code<sup>2)</sup>

#### Contactors CWM9...300

Coil voltage codes (CWM9...250)	D02	D07	D13	D24	D25	D34	D35
50/60 Hz	24 V	48 V	110 V	230 V	240 V	400 V	415 V

Coil voltage codes (CWM40...105)	C34	C37	C40	C44
V dc	24-28 V	42-50 V	110-130 V	208-240 V

Coil voltage codes (CWM112...300)	E02	E06	E07	E10	E13	E16	E21
50/60 Hz / DC <sup>4)</sup>	24-28 V	42-50 V	60-72 V	110-130 V	208-250 V	360-415 V	430-500 V

#### Contactors CWM400...800

Coil voltage codes (CWM400)	E36	D80	D81	D82
50/60 Hz / DC <sup>4)</sup>	100-240 V ac / 100-220 V dc	-	-	-
50/60 Hz <sup>4)</sup>	-	265-347 V	380-450 V	440-575 V

Coil voltage codes (CWM500...800)	E35	E39	D80	D81	D82
50/60 Hz / DC <sup>4)</sup>	100-127 V ac / 100-110 V dc	200-240 V ac / 200-220 V dc	-	-	-
50/60 Hz <sup>4)</sup>	-	-	265-347 V	380-450 V	440-575 V

Notes: 1) Integrated coil with electronic module.

2) Other voltages on request.

3) The coil voltage code must be the same of BCE coil voltage code selected.

4) Surge suppressor is already integrated.

# CWM Contactors - Technical Data

## General Data

Reference code	CWM9	CWM12	CWM18	CWM25	CWM32	CWM40	CWM50	CWM65	CWM80	CWM95	CWM105	CWM112	CWM150	CWM180	CWM250	CWM300
Standards	IEC 60947 / UL 508															
Rated insulation voltage $U_i$ IEC 60947 UL / CSA	1,000 V 600 V															
Rated impulse withstand voltage $U_{imp}$	6 kV								8 kV							
Rated operational frequency	25 - 400 Hz															
Degree of protection	Protection against direct contact from the front when operated by a perpendicular test finger (IEC 536)															
Main circuits	IP20				IP10								IP00			
Control circuits and auxiliary contacts	IP20															
Ambient temperature	-25 °C to +55 °C															
Operating temperature	-55 °C to +80 °C															
Storage temperature	-55 °C to +80 °C															
Altitude	Up to 3,000 m															
Normal values	3,000 to 4,000 m															
90% $I_e$ / 80% $U_e$	4,000 to 5,000 m															
80% $I_e$ / 75% $U_e$																
Overvoltage category / Pollution degree	III / 3															
Climatic proofing	Acc. IEC 60680-2															
Pole numbers of main circuits	3															
Rated operation voltage $U_e$	690 V								1,000 V							
Mechanical lifespan	Ops x 10 <sup>6</sup> 10															
Electrical lifespan (AC - 3)	Ops x 10 <sup>6</sup> 1.5				1.2				1.1				1.0			
Mounting	Screw or 35 mm DIN Rail												Screw			

## Control Circuit

Reference code	CWM9	CWM12	CWM18	CWM25	CWM32	CWM40	CWM50	CWM65	CWM80	CWM95	CWM105	CWM112	CWM150	CWM180	CWM250	CWM300				
Rated insulation voltage $U_i$	IEC 1,000 V																			
	UL, CSA 600 V																			
Rated voltages (standard coil)	Us 50/60 Hz 12...660 V								12...550 V		-		24...690		-					
Rated voltages (electronic module)	Us 50/60 Hz -								24...500 V											
Rated voltages	Us dc - 24...240 V 24...500 V																			
Operation time <sup>1)</sup>	Closing/Opening (AC) ms		8...20 / 6...13				10...19 / 5...25				15...30 / 9...15				60...70 / 13...17					
	Closing/Opening (DC) ms		-				50...60 / 55...60				60...70 / 13...17				60...70 / 15...25					
Power consumption of the AC coil 50/60 Hz <sup>1)</sup>																				
Pick-up	(VA)		69.5				98				255				590		759		1,104	
	cos φ		0.85				0.69				0.32				0.43		0.14		0.16	
Sealing	(VA)		4...7.2				6.6...12.3				13.1...19.1				28...41		37...52		70...105	
	cos φ		0.28				0.34				0.54				0.31		0.39		0.36	
Coil operation limits 50/60 Hz <sup>1)</sup>																				
0.85...1.1 x $U_s$ 0.65...1.1 x $U_s$																				
Bifrequency coils <sup>1)</sup>	Pick-up		0.5...0.8				0.5...0.8				0.5...0.8				0.7...0.85		0.7...0.85		0.7...0.85	
	Sealing		0.2...0.6				0.2...0.6				0.25...0.6				0.4...0.6		0.4...0.6		0.4...0.6	
Power consumption of the coil - DC coils																				
Pick-up	(W)		-				240				340				403		529		644	
Sealing	(W)		-				6				6.5				11		14.3		24.2	
Number of terminals	AC coil		4				4				3				2					
	DC coil		-				4				3				2					

Note: 1) Values applicable for contactors CWM112...300 with electronic module. For contactors with standard coil only on request.

# CWM Contactors - Technical Data

## Main Contacts

Reference code			CWM9	CWM12	CWM18	CWM25	CWM32	CWM40	CWM50	CWM65	CWM80	CWM95	CWM105	CWM112	CWM150	CWM180	CWM250	CWM300		
Rated operational current I <sub>e</sub>	AC-3 (U <sub>e</sub> ≤ 440 V)	(A)	9	12	18	25	32	40	50	65	80	95	105	112	150	180	250	300		
	AC-4 (U <sub>e</sub> ≤ 440 V)	(A)	5	7	8	12	16	18.5	23	30	37	44	50	63	69	73	110	145		
	AC-1 (θ ≤ 55 °C, U <sub>e</sub> ≤ 690 V)	(A)	25	25	32	45	60	60	90	110	110	140	140	180	225	225	350	410		
Rated operational voltage U <sub>e</sub>	IEC/EN 60947-4-1, VDE 0660	(V)	690						1,000											
	UL, CSA	(V)	600																	
Rated thermal current I <sub>m</sub> (θ ≤ 55 °C)		(A)	25	25	32	45	60	60	90	110	110	140	140	180	225	225	350	410		
Making capacity - IEC/EN 60947		(A)	300	300	300	450	550	550	1,000	1,000	1,000	1,280	1,280	1,430	1,820	2,100	2,600	3,000		
Breaking capacity IEC/EN 60947	(U <sub>e</sub> ≤ 400 V)	(A)	250	250	250	350	450	450	920	920	920	1,050	1,050	1,290	1,350	1,400	2,000	-		
	(U <sub>e</sub> = 500 V)	(A)	250	250	250	320	450	450	920	920	920	1,050	1,050	1,290	1,350	1,400	2,000	-		
	(U <sub>e</sub> = 690 V)	(A)	130	130	130	170	205	205	780	780	780	950	950	-	-	-	-	-		
Short-time current No current flowing during recovery time	1 sec	(A)	455	455	570	630	1,010	1,265	1,580	2,530	2,530	3,300	3,300	3,165	3,763	4,649	4,427	-		
	5 sec	(A)	205	205	254	280	450	450	710	1,130	1,130	1,485	1,485	1,820	2,164	2,673	2,546	-		
	10 sec	(A)	144	144	180	200	320	400	500	800	800	1,050	1,050	1,430	1,700	2,100	2,000	-		
	30 sec	(A)	85	85	104	115	185	230	290	460	460	600	600	826	980	1,212	1,155	-		
	10 min. and θ ≤ 40 °C)	1 min	(A)	60	60	74	80	130	165	205	325	325	430	430	584	694	857	816	-	
		3 min	(A)	35	35	46	50	90	100	120	185	185	250	250	337	401	495	471	-	
			(A)	35	35	46	50	90	100	120	185	185	250	250	337	401	495	471	-	
Protection against short-circuits with fuses(gL/gG)	@600 V - UL/CSA	(kA)	5						10						18					
	Coordination type 1	(A)	50	50	63	63	100	125	200	200	200	250	250	-	355	355	500	630		
	Coordination type 2	(A)	25	35	35	50	63	80	100	125	125	160	200	224	250	250	400	500		
Impedance per pole		(mΩ)	2.4	2.4	2.4	1.7	1.3	1.0	0.9	0.9	0.9	0.8	0.8	0.5	0.5	0.45	0.3	0.3		
Power dissipation per pole	AC-1	(W)	1.5	1.5	2.5	3.3	4.6	3.4	6.7	10.4	10.4	14.9	14.9	16	25	21.6	35	45.7		
	AC-3	(W)	0.2	0.3	0.8	1.0	1.3	1.5	2.1	3.6	5.5	6.9	8.4	6.2	11.1	13.8	17.9	25.7		
Utilization category AC-3																				
Rated operational current I <sub>e</sub> (θ ≤ 55 °C)	U <sub>e</sub> ≤ 440 V	(A)	9	12	18	25	32	40	50	65	80	95	105	112	150	180	250	300		
	U <sub>e</sub> ≤ 500 V	(A)	7.5	10.5	14	19	24	32	38	55	63	79	85	95	130	155	220	265		
	U <sub>e</sub> ≤ 690 V	(A)	7	9	13	15	22	25	34	44	48	60	67	82	110	135	185	220		
	U <sub>e</sub> ≤ 1,000 V	(A)	Not available						19	25	30	37	40	42	48	68	103	126		
Rated operational power	220 / 230 V	(kW)	2.2	3	4.5	5.5	9.2	11	15	18.5	22	22	30	30	45	55	75	90		
		(HP)	3	4	6	7.5	12.5	15	20	25	30	30	40	40	60	75	100	125		
	380 / V	(kW)	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	55	75	90	132	150		
		(HP)	5	7.5	10	15	20	25	30	40	50	60	75	75	100	125	175	200		
	400 / 415 V	(kW)	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	55	75	110	132	150		
		(HP)	5	7.5	10	15	20	25	30	40	50	60	75	75	100	150	175	200		
	440 V	(kW)	4.5	5.5	9.2	11	15	22	30	37	45	55	55	55	90	110	150	185		
		(HP)	6	7.5	12.5	15	20	30	40	50	60	75	75	75	125	150	200	250		
	500 V	(kW)	4.5	5.5	9.2	11	15	22	30	37	45	55	55	55	90	110	150	185		
		(HP)	6	7.5	12.5	15	20	30	40	50	60	75	75	75	125	150	200	250		
	660 / 690 V	(kW)	5.5	7.5	11	11	18.5	22	30	37	45	55	55	75	110	110	150	185		
		(HP)	7.5	10	15	15	25	30	40	50	60	75	75	100	150	150	200	250		
Percentage of the maximum operational current at	600 ops./h	(%)	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100		
	1,200 ops./h	(%)	100	100	100	100	100	100	100	100	100	75	75	75	75	75	75	75		
	3,000 ops./h	(%)	35	35	35	35	35	35	35	35	35	25	25	25	25	25	25	25		
Utilization category AC-4																				
Rated operational current I <sub>e</sub> AC-4 (U <sub>e</sub> ≤ 690 V)		(A)	5	7	8	12	16	18.5	23	30	37	44	50	50	55	58	88	116		
Rated operational power	220 / 230 V	(kW)	1.1	1.5	1.5	3	3.7	4.5	55	7.5	9.2	11	11	18.5	18.5	22	37	45		
		(HP)	1.5	2	2	4	5	6	7.5	10	12.5	15	15	25	25	30	50	60		
	380 / 400 V	(kW)	2.2	3	3.7	5.5	7.5	9.2	11	15	18.5	22	22	30	30	37	55	75		
		(HP)	3	4	5	7.5	10	12.5	15	20	25	30	30	40	40	50	75	100		
	415 V	(kW)	2.2	3.7	4.5	5.5	9.2	11	11	15	22	22	30	37	37	45	55	75		
		(HP)	3	5	6	7.5	12.5	15	15	20	30	30	40	50	50	60	75	100		
	440 V	(kW)	2.2	3.7	4.5	5.5	9.2	11	11	15	22	22	30	37	37	45	55	75		
		(HP)	3	5	6	7.5	12.5	15	15	20	30	30	40	50	50	60	75	100		
	500 V	(kW)	3	3.7	5.5	7.5	9.2	11	15	18.5	22	22	30	37	45	45	75	90		
		(cv)	4	5	7.5	10	12.5	15	20	25	30	30	40	50	60	60	100	125		
	660 / 690 V	(kW)	3	4.5	5.5	7.5	11	11	15	18.5	22	30	30	40	45	45	90	90		
		(cv)	4	6	7.5	10	15	15	20	25	30	40	40	60	60	75	125	125		



# CWM Contactors - Technical Data

## Main Contacts

Reference code		CWM9	CWM12	CWM18	CWM25	CWM32	CWM40	CWM50	CWM65	CWM80	CWM95	CWM105	CWM112	CWM150	CWM180	CWM300	
Utilization category AC-1																	
		3P (NO) or 4P (4NO)				3P (NO)						3P (NO)					
Rated thermal current $I_{th}$ ( $\theta \leq 55^\circ\text{C}$ )	(A)	25	25	32	45	60	60	90	110	110	140	140	180	225	225	410	
Max. operational current at ambient temperature of (up to 690 V)	$\theta \leq 55^\circ\text{C}$	(A)	25	25	32	45	60	60	90	110	110	140	140	160	190	200	350
	$\theta \leq 70^\circ\text{C}$	(A)	20	20	25	32	48	48	72	88	88	110	110	120	145	145	250
	$\theta \leq 75^\circ\text{C}$	(A)	17	17	22	26	42	42	63	77	77	95	95	101	124	120	206
Max. operational power $\theta \leq 55^\circ\text{C}$ (Three-phase resistors)	220 / 230 V	(kW)	9.5	9.5	12	17	22.5	22.5	34	42	42	53	53	68	85	85	156
	380 / 400 V	(kW)	16.5	16.5	21	29.5	39.5	39.5	59	72.5	72.5	92	92	118	145	145	270
	415 / 440 V	(kW)	19	19	24	34	45.5	45.5	68.5	84	84	106.5	106.5	130	160	160	295
	500 V	(kW)	21.5	21.5	27.5	39	52	52	77	95	95	121	121	155	190	190	355
	575 / 600 V	(kW)	24.1	24.1	30.9	43.4	57.9	57.9	86.8	106.1	106.1	135.1	135.1	180	225	225	400
660 / 690 V	(kW)	28.5	28.5	38	51	68.5	68.5	100	125	125	160	160	205	255	255	470	
Cable size	(mm <sup>2</sup> )	4	4	6	10	16	16	35	35	35	50	50	120	120	120	2 x 150	
Current values for connection of	2 poles in parallel	$I_s \times 1.7$															
	3 poles in parallel	$I_s \times 2.4$															
	4 poles in parallel	$I_s \times 3.2$															
Percentage of the maximum operational current at	600 ops./h	(%)	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	1,200 ops./h	(%)	100	100	100	100	100	100	100	100	100	80	80	80	80	80	80
	3,000 ops./h	(%)	50	50	50	50	50	50	50	50	50	40	40	40	40	40	40
Max. operational power $\theta \leq 55^\circ\text{C}$ (Resistive loads)	220 / 230 V	(kW)	5.5	5.5	7.04	9.9	13.2	14.9	22.2	27.5	27.5	34.1	34.1	-	-	-	-
	380 / 400 V	(kW)	9.5	9.5	12.1	17.1	22.8	25.8	38.6	47.5	47.5	58.9	58.9	-	-	-	-
	415 / 440 V	(kW)	10.3	10.3	13.2	18.6	24.9	28.2	42.3	51.8	51.8	64.3	64.3	-	-	-	-
	500 V	(kW)	12.5	12.5	16	22.5	30	34	50.6	62.5	62.5	77.5	77.5	-	-	-	-
	660 / 690 V	(kW)	16.5	16.5	21.1	29.7	39.6	44.8	66	82.5	82.5	102.3	102.3	-	-	-	-

## UL Power

Reference code		CWM9	CWM12	CWM18	CWM25	CWM32	CWM40	CWM50	CWM65	CWM80	CWM95	CWM105	CWM112	CWM150	CWM180	CWM250	CWM300	
General purpose current	(600 V)	(A)	25	25	32	32	60	60	90	110	110	140	140	170	200	200	300	400
1-phase	110 / 120 V	(HP)	0.75	0.75	1	2	3	3	5	5	7.5	7.5	10	-	-	-	-	-
	220 / 240 V	(HP)	1.5	2	3	5	5	7.5	10	10	15	15	20	-	-	-	-	-
3-phase	200 V	(HP)	3	3	5	7.5	10	10	15	20	20	25	30	40	50	60	75	100
	220 / 240 V	(HP)	3	3	5	7.5	10	15	15	20	25	30	40	50	60	75	100	125
	440 / 480 V	(HP)	5	7.5	10	15	20	30	40	50	50	60	75	100	125	150	200	250
	550 / 600 V	(HP)	7.5	10	15	15	25	25	40	50	60	75	75	100	150	200	250	350



## CWM Contactors - Technical Data

### General Data and Main Contacts

Reference code	CWM400	CWM500	CWM630	CWM800
Standards	IEC 60947 / UL 508			
Rated insulation voltage $U_i$ IEC 60947 UL	1,000 V 600 V			
Rated impulse withstand voltage $U_{imp}$	6 kV			
Rated operational frequency	25 - 400 Hz			
Degree of protection Main circuits Control circuits and auxiliary contacts	IP00 IP20			
Ambient temperature Operating temperature Storage temperature	-25 °C to + 55 °C -55 °C to + 80 °C			
Altitude Normal values 90% $I_g$ / 80% $U_g$ 80% $I_g$ / 75% $U_g$	Up to 3,000 m 3,000 to 4,000 m 4,000 to 5,000 m			
Overvoltage category / Pollution degree	III / 3			
Climatic proofing	Acc. to IEC 60680-2			
Pole numbers of main circuits	3			
Rated operation voltage $U_g$	690 V			
Conv. thermal current $I_{th}$ at < 55 °C rated operational current le/AC-1 (A)	520	700	900	1.050
Rated operational current $I_g$ AC-4 ( $U_g \leq 440$ V) (A)	300	350	400	630
AC-3 utilization category Rated operational power 220-230 V (kW)	125	150	190	220
400-415 V (kW)	220	265	330	440
440 V (kW)	220	265	330	440
500 V (kW)	225	265	330	500
690 V (kW)	250	300	330	500
Short-circuit rating max. fuse gL-gG (A)	630	800	800	1,000
Max. electrical operational per hour AC-1 Ops/h	300	300	300	300
AC-3 Ops/h	1,200	1,200	1,200	1,200
AC-4 Ops/h	150	150	150	150
No load Ops/h	1,200	1,200	1,200	1,200
Mechanical lifespan Ops x 10 <sup>6</sup>	5			
Electrical lifespan (AC-3) Ops x 10 <sup>6</sup>	0.5			0.6

### UL Power Ratings

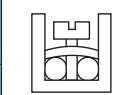
Reference code	CWM400	CWM500	CWM630	CWM800
General purpose current (600 V) (A)	450	580	660	900
3-phase	200 V (HP)	125	150	200
	220 / 240 V (HP)	150	200	300
	440 / 480 V (HP)	300	400	500
	550 / 600 V (HP)	300	400	500

### Control Circuit

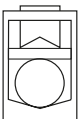
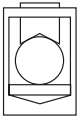


Reference code (3 pole and 4 pole contactors)	CWM400	CWM500	CWM630	CWM800
Coil operation limit	0.85...1.1 x $U_g$			
Pick-up (xUs)	0.78		0.75	
Drop-out (xUs)	0.30...0.60		0.30...0.60	
Coil consumption	Closing (VA)	571	1,000	
	Closed (VA)	14	29	
	Dissipation (W)	5	7.8	
Number of terminals	2			


# CWM Contactors - Technical Data

## Terminal Capacity and Tightening Torque - Power Terminals

Reference code		CWM9 / CWM12 / CWM18			CWM25		
Screw type		M3.5x 9 Flat / Phillips			M4x 12 Flat / Phillips		
Power terminal capacity <sup>1)</sup>		Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid	Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid
mm <sup>2</sup>		1x 0.5...4 2x 0.5...2.5	1x 1...6 2x 1...2.5 2x 2.5...6	1x 0.5...6 2x 0.5...2.5 2x 2.5...6	1x 1...10 2x 1...2.5 2x 2.5...6	1x 2.5...10 2x 2.5...10	1x 1...10 2x 1...2.5 2x 2.5...10
AWG (UL)		14...10			14...8		
Tightening torque (N.m)		1...1.5			1.6...2.5		
Tightening torque (lb.in) (UL)		15			16		

Note: this information is also valid for built-in auxiliary terminals for CWM9 to CWM18.

Reference code		CWM32 / CWM40			CWM50 / CWM65 / CWM80			CWM95 / CWM105		
Screw type		M4x 16.5 Flat / Phillips			M8 Allen 4mm			M10 Allen 4mm		
Power terminal capacity		Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid	Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid	Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid
<b>One conductor on bottom</b>										
mm <sup>2</sup>		1...16	1.5...16	1...16	2.5...35	6...35	2.5...35	4...35	6...35	4...35
AWG (UL)		14...8			14...1/0			10...1/0		
<b>One conductor on top</b>										
mm <sup>2</sup>		0.75...16	1...16	0.75...16	1...35	1.5...35	1...35	1.5...50	2.5...50	1.5...50
AWG (UL)		14...8			14...1/0			10...1/0		
<b>Two conductors at the same time - bottom conductor</b>										
mm <sup>2</sup>		1...16	1.5...16	1...16	2.5...25	6...35	2.5...35	4...35	6...35	4...35
AWG (UL)		14...8			14...1/0			10...1/0		
<b>Two conductors at the same time - top conductor</b>										
mm <sup>2</sup>		0.75...16	1...16	0.75...16	1...25	1.5...35	1...35	1.5...50	2.5...50	1.5...50
AWG (UL)		14...8			14...1/0			10...1/0		
Tightening torque (N.m)		2...2.5			4...6			5...6.5		
Tightening torque (lb.in) (UL)		22			40			60		

Reference code		CWM112 / CWM150		CWM180		CWM250 / CWM300		CWM400		CWM500 / CWM630		CWM800	
Screw type		M6 Hexagon head		M8 Hexagon head		M10 Hexagon head		M12 Hexagon head		M16 Hexagon head		M16 Hexagon head	
Main terminal capacity		Solid and stranded with end sleeve	Busbars	Solid and stranded with end sleeve	Busbars	Solid and stranded with end sleeve	Busbars	Solid and stranded with end sleeve	Busbars	Solid and stranded with end sleeve	Busbars	Solid and stranded with end sleeve	Busbars
mm <sup>2</sup>		2x 25...70	2 x (15 x 3)	2x 50...120	2 x (20 x 3)	2x 50...150	2 x (30 x 5)	2x 120...185	2x (30x5)	2x 185...300	2x (50x5)	2x 185...300	2x (60x5)
AWG (UL)		2x 2...3/0	-	2x 1/0...250	-	2x 1/0...300	-	2x 250...400	-	2x 400...600	-	2x 400...600	-
Tightening torque (N.m)		5.4...6		14...16		23...26		23...26		54...60			

## CWM Contactors - Technical Data

### Terminal Capacity and Tightening Torque - Coil Terminals

Reference code	CWM9...105			CWM112...300		
Screw type	M3.5x 10 Flat / Phillips			M3.5x 10 Flat / Phillips		
Coil terminal	Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid	Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid
mm <sup>2</sup>	1x 0.5...4 2x 0.5...1.5 2x 1...2.5	1x 1...4 2x 1...2.5	1x 0.5...4 2x 0.5...1.5 2x 1...2.5	1x 0.5...4 2x 0.5...1.5 2x 1...2.5	1x 1...4 2x 1...2.5	1x 0.5...4 2x 0.5...1.5 2x 1...2.5
AWG (UL)	1x 20...10 2x 20...14 2x 16...12	1x 16...10 2x 16...12	1x 20...10 2x 20...14 2x 16...12	1x 20...10 2x 20...14 2x 16...12	1x 16...10 2x 16...12	1x 20...10 2x 20...14 2x 16...12
Tightening torque (N.m)	0.8...1.1			0.8...1.1		
Tightening torque (lb.in) (UL)	10			10		

Reference code	CWM400...CWM800		
Screw type	M4 Flat / Phillips		
Coil terminal	Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid
mm <sup>2</sup>	1x 1.25...5.5 or 2x 1.25...5.5		
AWG (UL)	16...10		
Tightening torque (N.m)	2...2.3		
Tightening torque (lb.in) (UL)	17.7...20.3		

### Terminal Capacity and Tightening Torque - Auxiliary Contact Blocks

Reference code	BCXMF BCXML		
Screw type	M3.5x9 Fenda / Philips		
Auxiliary contact block	Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid
mm <sup>2</sup>	1x 0.5...4 2x 0.5...2.5	1x 0.75...2.5 2x 0.75...2.5	1x 0.5...4 2x 0.5...2.5
AWG (UL)	22...12		
Tightening torque (N.m)	0.8...1.1		
Tightening torque (lb.in) (UL)	10		

## CWM Contactors - Technical Data

### Auxiliary Contacts

Reference code	Built-in auxiliary contacts of contactors			Auxiliary contact blocks		
	CWM9	CWM12	CWM18	BCXMF...	BCXML...	BCXMF_AU
Rated insulation voltage $U_i$ IEC/EN 60 947 UL/CSA	(V)	1,000 600			1,000 600	
Rated operational voltage $U_e$	(V)	690			690	
Conv. thermal current $I_{th}$	(A)	16			10	
Rated operational current $I_c$						
AC-15	220 - 240 V 380 - 400 V 415 V 500 V	(A)	10 6 5 4		10 4 3.5 2.5	4 3 - 2
UL/CSA			A600		A600	A600
DC-13	24 V 48 V 110 V 220 V	(A)	6 4 2 0.7		4 2 0.7 0.3	4 2 0.55 0.3
UL/CSA			P600		Q600	Q600
Making capacity $I_m$						
AC-15	$U_e \leq 400$ V 50/60 Hz	(A)	250		90	90
DC-13	$U_e \leq 220$ V dc	(A)	250		90	90
Breaking capacity $I_c$						
AC-15	$U_e \leq 400$ V 50/60 Hz	(A)	250		60	60
DC-13	$U_e \leq 220$ V dc	(A)	2		0.95	0.95
Short-circuit protection max. fuse gL/gG	(A)		10		10	
Control circuit reliability				$I_c$ min = 5 mA $U_e$ min = 17 V		$I_c$ min = 1 mA $U_e$ min = 17 V
Electrical lifespan	Ops			$10^6$		
Mechanical lifespan	Ops			$10 \times 10^6$		

Reference code	BCXML11 CWM800 / BCXMRL11 CWM800	
Conv. thermal current $I_{th}$	(A)	16
Rated operational current $I_c$		
AC category (A600)	110 V (A) 220 V (A) 440 V (A) 600 V (A)	AC-15 6 5 3 3
DC category (P600)	24 V (A) 48 V (A) 110 V (A) 220 V (A)	DC-13 6 3 1.2 0.2
Mechanical lifespan	Ops x $10^6$	10
Electrical lifespan Operations x $10^6$	AC-15 AC-12 DC-13 / DC-12	0.5 0.25 0.5
Max. electrical operational per hour		1,800

# CWM Contactors - Technical Data

## Contactors for Lighting Circuits

Lamp type	W	A	μF	Maximum number of lamps per phase at 220 V										
				CWM9	CWM12	CWM18	CWM25	CWM32	CWM40	CWM50	CWM65	CWM80	CWM95	CWM105
Incandescent	60	0.27	-	62	62	70	77	85	122	156	191	222	264	284
	100	0.45	-	40	40	50	60	66	73	95	116	133	160	170
	200	0.91	-	20	20	25	30	33	36	47	58	66	79	84
	300	1.36	-	13	13	17	20	22	24	31	38	44	53	56
	500	2.27	-	8	8	10	12	12	14	19	23	26	31	33
	1,000	4.50	-	4	4	5	6	6	7	9	11	13	16	16
	2,000	9.1	-	1	1	2	3	3	3	4	5	6	8	8
		AC-5b <sup>1)</sup>		(A)	18	18	23	27	30	33	43	52	60	73
Fluorescent Single arrangement Without compensation	15	0.23	-	88	98	126	155	224	237	355	390	434	496	553
	20	0.37	-	57	61	78	110	139	147	221	243	270	309	344
	40	0.44	-	48	51	66	93	118	124	186	204	227	260	289
	65	0.7	-	30	32	41	58	74	78	116	127	142	163	181
Fluorescent Single arrangement With compensation	15	0.23	3.5	61	77	94	111	134	149	191	232	273	312	347
	20	0.25	4.5	48	61	74	87	103	115	148	180	212	243	270
	40	0.3	4.5	48	61	74	87	103	115	148	180	212	243	270
	65	0.45	7	31	39	47	56	66	74	95	115	136	155	173
High pressure Mercury vapour Without compensation	100	1.5	-	14	16	19	27	34	36	54	59	66	76	85
	250	2.13	-	6	8	10	12	15	18	27	30	33	36	42
	400	3.25	-	4	5	6	8	10	12	18	20	22	24	28
	700	5.4	-	2	3	4	5	6	7	11	12	13	14	17
High pressure Mercury vapour With compensation	1,000	7.5	-	2	2	3	3	4	5	8	9	9	10	12
	250	1.3	20	11	14	18	22	27	33	49	55	60	66	77
	400	2.1	25	7	9	11	14	17	20	31	34	37	41	48
	700	3.6	40	4	5	6	8	10	12	18	20	22	24	28
High pressure Sodium vapour Without compensation	1,000	5.3	60	3	3	4	5	7	8	12	13	15	16	19
	250	3	-	4	5	7	9	11	13	19	21	24	26	30
	400	4.4	-	3	4	5	6	7	9	13	15	16	18	20
High pressure Sodium vapour With compensation	1,000	10.3	-	1	2	2	2	3	4	6	6	7	7	9
	250	1.45	40	10	12	16	20	25	30	44	49	54	59	69
	400	2.5	45	6	7	9	11	14	17	26	29	31	34	40
Metal iodide Without compensation	1,000	5.5	100	3	3	4	5	6	8	12	13	14	16	18
	250	2.17	-	4	5	7	9	12	12	19	21	23	25	29
	400	3.48	-	3	3	4	6	8	8	12	13	14	16	18
	700	6.09	-	1	2	2	3	4	4	7	7	8	9	10
	2,000	17.39	-	1	1	1	1	2	2	2	3	3	3	4
Metal iodide With compensation	1,000	8.7	-	1	1	2	2	3	3	5	5	6	6	7
	250	1.4	32	7	9	11	16	21	21	32	36	39	43	50
	400	2	45	5	6	8	11	15	15	23	25	28	30	35
	700	3.6	65	3	3	4	6	8	8	13	14	15	17	19
	2,000	10.6	100	1	1	2	2	3	3	4	5	5	6	7

Note: indicative values - It's highly recommended to take into consideration the values of making capacity and rated AC-1 current when dimensioning the contactor for AC-5b utilization category (AC-5b - Switching of incandescent lamps).

# CWM Contactors - Technical Data

## Contactors for Lighting Circuits

Lamp type	W	A	μF	Maximum number of lamps per phase at 220 V				
				CWM112	CWM150	CWM180	CWM250	CWM300
Incandescent	60	0.27	-	318	404	467	578	667
	100	0.45	-	193	245	283	350	404
	200	0.91	-	95	121	140	173	200
	300	1.36	-	64	81	93	116	133
	500	2.27	-	38	49	56	69	80
	1,000	4.50	-	19	24	28	35	40
	2,000	9.1	-	10	12	14	17	20
		AC-5b <sup>1)</sup> (A)			87	110	127	158
Fluorescent Single arrangement Without compensation	15	0.23	-	652	815	978	1,522	1,783
	20	0.37	-	405	507	608	946	1,108
	40	0.44	-	341	426	511	795	932
	65	0.7	-	214	268	321	500	586
	100	1.5	-	100	125	150	233	273
Fluorescent Single arrangement With compensation	15	0.23	3.5	409	520	600	743	857
	20	0.25	4.5	318	404	467	578	667
	40	0.3	4.5	318	404	467	578	667
	65	0.45	7	204	260	300	371	429
	100	0.7	18	79	101	117	144	167
High pressure Mercury vapour Without compensation	250	2.13	-	54	62	68	106	124
	400	3.25	-	36	40	45	69	81
	700	5.4	-	21	24	27	42	49
	1,000	7.5	-	15	18	19	30	35
High pressure Mercury vapour With compensation	250	1.3	20	79	100	116	143	165
	400	2.1	25	63	80	92	114	132
	700	3.6	40	39	50	58	72	83
	1,000	5.30	60	26	33	39	48	55
High pressure Sodium vapour Without compensation	250	3.0	-	39	44	48	75	88
	400	4.4	-	26	30	33	51	60
	1,000	10.3	-	11	13	14	22	26
High pressure Sodium vapour With compensation	250	1.45	40	45	57	66	81	94
	400	2.5	45	40	51	58	72	83
	1,000	5.5	100	18	23	26	33	38
Metal iodide Without compensation	250	2.17	-	37	42	47	73	85
	400	3.48	-	23	26	29	45	53
	700	6.09	-	13	15	17	26	30
	1,000	8.7	-	9	11	12	18	21
	2,000	17.39	-	5	5	6	9	11
Metal iodide With compensation	250	1.4	32	56	71	82	102	117
	400	2	45	40	51	58	72	83
	700	3.6	65	28	35	40	50	58
	1,000	5.3	85	21	27	31	38	44
	2,000	10.6	100	18	23	26	33	38

Note: indicative values - It's highly recommended to take into consideration the values of making capacity and rated AC-1 current when dimensioning the contactor for AC-5b utilization category (AC-5b - Switching of incandescent lamps).

# CWM Contactors - Technical Data

## DC - Utilization Category

### Utilization Category DC-1 (L/R ≤ 1ms)

Reference code	CWM9	CWM12	CWM18	CWM25	CWM32	CWM40	CWM50	CWM65	CWM80	CWM95	CWM105	
U <sub>e</sub>	Poles in series	Maximum operational current I <sub>e</sub> (A)										
≤ 24 V	1	18	18	18	25	32	40	50	65	65	80	80
	2	25	25	32	45	60	60	90	110	110	140	140
	3	25	25	32	45	60	60	90	110	110	140	140
	4	25	25	32	-							
≤ 48 V	1	15	15	15	20	25	35	45	55	55	70	70
	2	25	25	32	45	60	60	90	110	110	140	140
	3	25	25	32	45	60	60	90	110	110	140	140
	4	25	25	32	-							
≤ 60 V	1	12	12	12	18	18	32	40	50	50	65	65
	2	25	25	32	45	60	60	90	110	110	140	140
	3	25	25	32	45	60	60	90	110	110	140	140
	4	25	25	32	-							
≤ 125 V	1	6	6	6	8	8	8	16	16	16	16	16
	2	18	18	18	25	45	45	80	90	90	110	110
	3	25	25	25	32	60	60	90	110	110	140	140
	4	25	25	32	-							
≤ 220 V	1	0.8	0.8	0.8	0.8	1	1	2	2	2	2	2
	2	7.5	7.5	7.5	8	8	8	20	20	20	20	20
	3	25	25	25	32	50	50	90	110	110	140	140
	4	25	25	32	-							
≤ 440 V	1	0.4	0.4	0.4	0.4	0.5	0.5	0.8	0.8	0.8	0.8	0.8
	2	0.8	0.8	0.8	0.8	1	1	2	2	2	2	2
	3	8	8	8	10	10	10	15	15	15	15	15
	4	15	15	15	-							
≤ 600 V	1	-	-	-	-	-	-	-	-	-	-	-
	2	0.4	0.4	0.4	0.4	0.5	0.5	1	1	1	1	1
	3	4	4	4	5	5	5	7.5	7.5	7.5	7.5	7.5
	4	8	8	10	-							

### Utilization Category DC-3 (L/R ≤ 2.5ms)

Reference code	CWM9	CWM12	CWM18	CWM25	CWM32	CWM40	CWM50	CWM65	CWM80	CWM95	CWM105	
U <sub>e</sub>	Poles in series	Maximum operational current I <sub>e</sub> (A)										
≤ 24 V	1	12	12	12	18	25	32	40	50	50	65	65
	2	18	18	18	25	40	40	65	80	80	105	105
	3	18	18	18	25	40	40	65	80	80	105	105
	4	18	18	18	-							
≤ 48 V	1	9	9	9	12	18	20	30	35	35	45	45
	2	18	18	18	25	40	40	65	80	80	105	105
	3	18	18	18	25	40	40	65	80	80	105	105
	4	18	18	18	-							
≤ 60 V	1	7.5	7.5	7.5	10	15	15	25	30	30	35	35
	2	18	18	18	25	40	40	65	80	80	105	105
	3	18	18	18	25	40	40	65	80	80	105	105
	4	18	18	18	-							
≤ 125 V	1	2	2	2	2	3	3	3	3	3	3	3
	2	10	10	12	18	25	32	50	60	60	85	85
	3	15	15	18	25	32	40	65	80	80	105	105
	4	15	15	18	-							
≤ 220 V	1	0.6	0.6	0.6	0.6	0.6	0.6	0.8	0.8	0.8	0.8	0.8
	2	2	2	2	2	2	2	7	7	7	7	7
	3	12	12	12	18	25	32	50	65	65	95	95
	4	12	15	18	-							
≤ 440 V	1	-	-	-	-	-	-	-	-	-	-	-
	2	0.3	0.3	0.3	0.3	0.5	0.5	1	1	1	1	1
	3	1.5	1.5	1.5	1.5	3	3	3	3	3	3	3
	4	1.5	6	6	-							
≤ 600 V	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	0.8	0.8	0.8	0.8	1.5	1.5	1.5	1.5	1.5	1.5	1.5
	4	1	2.5	2.5	-							



# CWM Contactors - Technical Data

## DC - Utilization Category

### Utilization Category DC-5 (L/R ≤ 15ms)

Reference code	CWM9	CWM12	CWM18	CWM25	CWM32	CWM40	CWM50	CWM65	CWM80	CWM95	CWM105	
$U_e$	Poles in series											
	Maximum operational current $I_e$ (A)											
≤ 24 V	1	12	12	12	18	25	32	40	50	50	65	65
	2	18	18	18	25	40	40	65	80	80	105	105
	3	18	18	18	25	40	40	65	80	80	105	105
	4	18	18	18	-							
≤ 48 V	1	9	9	9	12	18	20	30	35	35	45	45
	2	18	18	18	25	40	40	65	80	80	105	105
	3	18	18	18	25	40	40	65	80	80	105	105
	4	18	18	18	-							
≤ 60 V	1	7.5	7.5	7.5	10	15	15	25	30	30	35	35
	2	18	18	18	25	40	40	65	80	80	105	105
	3	18	18	18	25	40	40	65	80	80	105	105
	4	18	18	18	-							
≤ 125 V	1	0.8	0.8	0.8	0.8	1.2	1.2	1.2	1.2	1.2	1.2	1.2
	2	5	5	5	5	5	5	50	60	60	80	80
	3	15	15	15	20	25	32	60	70	70	95	95
	4	15	15	18	-							
≤ 220 V	1	-	-	-	-	-	-	0.5	0.5	0.5	0.5	0.5
	2	0.8	0.8	0.8	0.8	0.8	0.8	3	3	3	4	4
	3	3	3	3	3	3	3	7	7	7	7	7
	4	10	10	10	-							
≤ 440 V	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	0.4	0.5	0.5	0.5	0.7	0.7	1	1	1	1	1
	4	1.5	2	2	-							
≤ 600 V	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	0.5	0.75	0.75	-							

### Utilization Category DC-1 (L/R ≤ 1ms)

Reference code	CWM112	CWM150	CWM180	CWM250	CWM300
$U_e$	Poles in series				
	Maximum operational current $I_e$ (A)				
≤ 24 V	1	160	160	200	300
	2	180	225	225	350
	3	180	225	225	350
≤ 110 V	1	18	18	18	33
	2	112	150	170	250
	3	180	225	225	350
≤ 220 V	1	-	-	-	-
	2	90	120	140	200
	3	180	225	225	350
≤ 440 V	1	-	-	-	-
	2	-	-	-	-
	3	85	105	105	165



# CWM Contactors - Technical Data

## DC - Utilization Category

### Utilization Category DC-3 / DC-5 (L/R ≤ 15ms)

Reference code		CWM112	CWM150	CWM180	CWM250	CWM300
U <sub>e</sub>	Poles in series	Maximum operational current I <sub>e</sub> (A)				
≤ 24 V	1	112	112	180	250	250
	2	112	150	180	250	300
	3	112	150	180	250	300
≤ 110 V	1	18	18	18	33	33
	2	80	95	105	185	205
	3	112	150	180	250	300
≤ 220 V	1	-	-	-	-	-
	2	55	55	65	70	80
	3	80	120	150	200	200
≤ 440 V	1	-	-	-	-	-
	2	-	-	-	-	-
	3	27	40	50	67	67

### Utilization Category DC-1 (L/R ≤ 1ms)

Reference code		CWM400	CWM500	CWM630	CWM800
U <sub>e</sub>	Poles in series	Maximum operational current I <sub>e</sub> (A)			
≤ 24 V	2	400	580	630	800
	3	400	580	630	800
≤ 48 V	2	240	580	630	800
	3	400	580	630	800
≤ 110 V	2	200	520	630	630
	3	400	580	630	800
≤ 220 V	2	200	450	630	630
	3	300	580	630	800

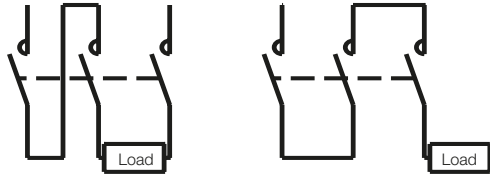
### Utilization Category DC-2 / DC-4 (L/R ≤ 15ms)

Utilisation category		CWM400	CWM500	CWM630	CWM800
U <sub>e</sub>	Poles in series	Maximum operational current I <sub>e</sub> (A)			
≤ 24 V	2	400	580	630	800
	3	400	580	630	800
≤ 48 V	2	200	580	630	630
	3	280	580	630	630
≤ 110 V	2	150	500	630	630
	3	200	550	630	630
≤ 220 V	2	90	480	630	630
	3	150	500	630	630

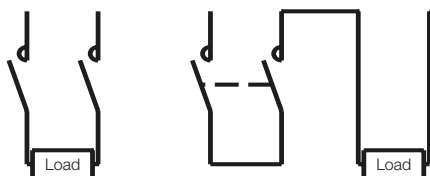
#### 1 Poles in Series



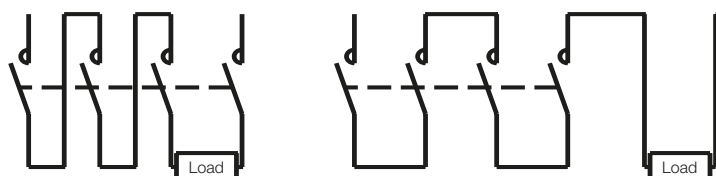
#### 3 Poles in Series



#### 2 Poles in Series

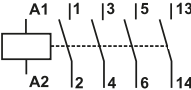
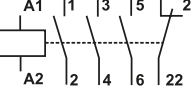
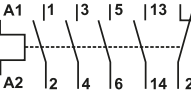
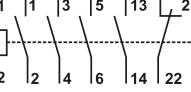
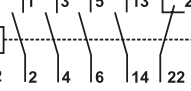
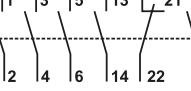
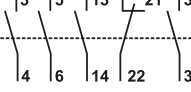


#### 4 Poles in Series



# CWM Contactors - Technical Data

## Terminal Markings to EN 50012

Diagram	Distinctive number and version of combination	NO	NC	Reference code	Additional auxiliary contact blocks
Without auxiliary contact blocks					
	10E	1	0	CWM9-10 CWM12-10 CWM18-10	-
	01E	0	1	CWM9-01 CWM12-01 CWM18-01	-
Front mounting auxiliary contact blocks BCXMF10 or BCXMF01					
	11E	1	1	CWM9-10 CWM12-10 CWM18-10	+ BCXMF01
	21E	2	1	CWM9-10 CWM12-10 CWM18-10	+ BCXMF10 + BCXMF01
	12E	1	2	CWM9-10 CWM12-10 CWM18-10	+ 2 BCXMF01
	31E	3	1	CWM9-10 CWM12-10 CWM18-10	+ 2 BCXMF10 + BCXMF01
	41E	4	1	CWM9-10 CWM12-10 CWM18-10	+ 3 BCXMF10 + BCXMF01



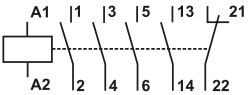
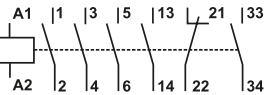
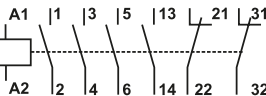
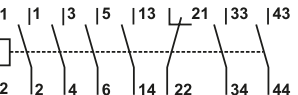
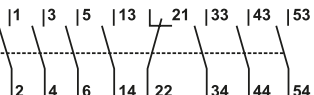
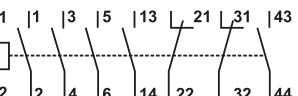
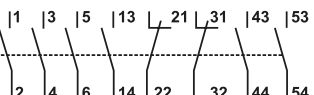
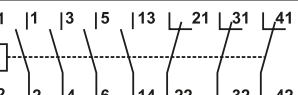
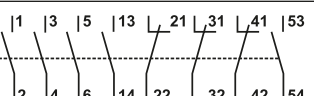
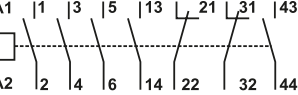
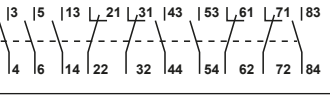
# CWM Contactors - Technical Data

## Terminal Markings to EN 50012

Diagram	Distinctive number and version of combination	NO	NC	Reference code	Additional auxiliary contact blocks
Front mounting auxiliary contact blocks BCXMF10 or BCXMF01					
	22E	2	2	CWM9-10 CWM12-10 CWM18-10	+ 2 BCXMF01 + BCXMF10
	32E	3	2	CWM9-10 CWM12-10 CWM18-10	+ 2 BCXMF01 + 2 BCXMF10
	13E	1	3	CWM9-10 CWM12-10 CWM18-10	+ 3 BCXMF01
	23E	2	3	CWM9-10 CWM12-10 CWM18-10	+ 3 BCXMF01 + BCXMF10
Side mounting auxiliary contact blocks each with two contacts					
	11E	1	1	CWM25-00 to CWM105-00	+ BCXML11
	31E	3	1	CWM25-00 to CWM105-00	+ BCXML11 + BCXML20
	22E	2	2	CWM25-00 to CWM105-00	+ 1 BCXML11 + 1 BCXMRL11
Without auxiliary contact blocks					
	-	0	0	CWM25-00 to CWM105-00	-
Front mounting auxiliary contact blocks BCXMF10 or BCXMF01					
	10E	1	0	CWM25-00 to CWM105-00	+ BCXMF10
	01E	0	1	CWM25-00 to CWM105-00	+ BCXMF01

# CWM Contactors - Technical Data

## Terminal Markings to EN 50012

Diagram	Distinctive number and version of combination	NO	NC	Reference code	Additional auxiliary contact blocks
<b>Front mounting auxiliary contact blocks BCXMF10 or BCXMF01</b>					
	11E	1	1	CWM25-00 to CWM105-00	+ BCXMF10 + BCXMF01
	21E	2	1	CWM25-00 to CWM105-00	+ 2 BCXMF10 + BCXMF01
	12E	1	2	CWM25-00 to CWM105-00	+ BCXMF10 + 2 BCXMF01
	31E	3	1	CWM25-00 to CWM105-00	+ 3 BCXMF10 + BCXMF01
	41E	4	1	CWM50-00 to CWM105-00	+ 4 BCXMF10 + BCXMF01
	22E	2	2	CWM25-00 to CWM105-00	+ 2 BCXMF01 + 2 BCXMF10
	32E	3	2	CWM50-00 to CWM105-00	+ 2 BCXMF01 + 3 BCXMF10
	13E	1	3	CWM25-00 to CWM105-00	+ BCXMF10 + 3 BCXMF01
	23E	2	3	CWM50-00 to CWM105-00	+ 3 BCXMF01 + 2 BCXMF10
<b>Contactors without auxiliary contact blocks + Side mounting auxiliary contact blocks each with two contacts</b>					
	22	2	2	CWM112 to CWM800	+ 2 BCXML11
	44	4	4	CWM112 to CWM800	+ 2 BCXML11 + 2 BCXMR11

A

A3

B

C

D

E

F

G

H

## CWM Contactors - Technical Data

### Terminal Markings to EN 50012

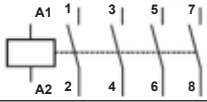
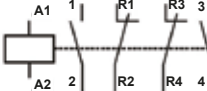
Diagram	Configuration	Power contacts		Reference code
		NO	NC	
4 pole contactors				
	-	4	0	CWM9-00-40♦ CWM12-00-40♦ CWM18-00-40♦
	-	2	2	CWM9-00-22♦ CWM12-00-22♦ CWM18-00-22♦

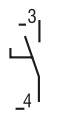
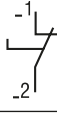
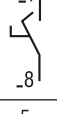
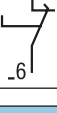

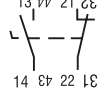
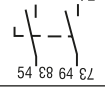
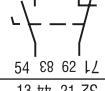
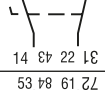
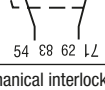

Diagram	Configuration	Auxiliary contacts		Reference code
		NO	NC	
Front mounting auxiliary contact blocks BCXMF10 or BCXMF01				
	10	1	0	BCXMF10
	01	0	1	BCXMF01
	10	1	0	BCXMF10
	01	0	1	BCXMF01

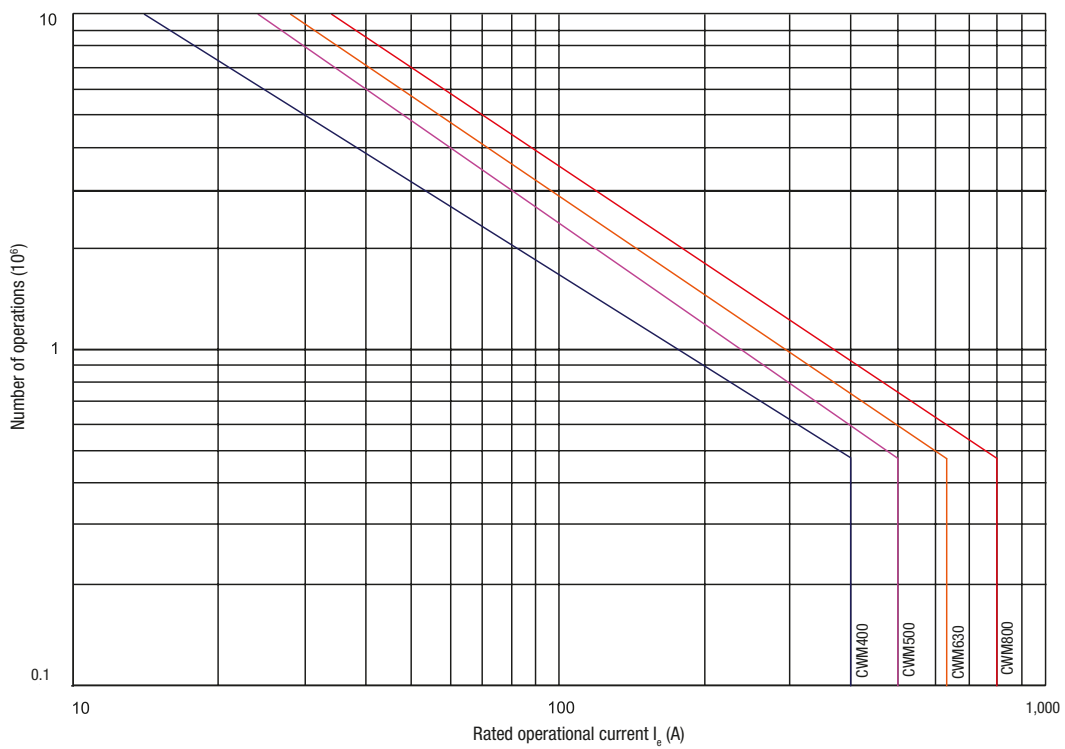
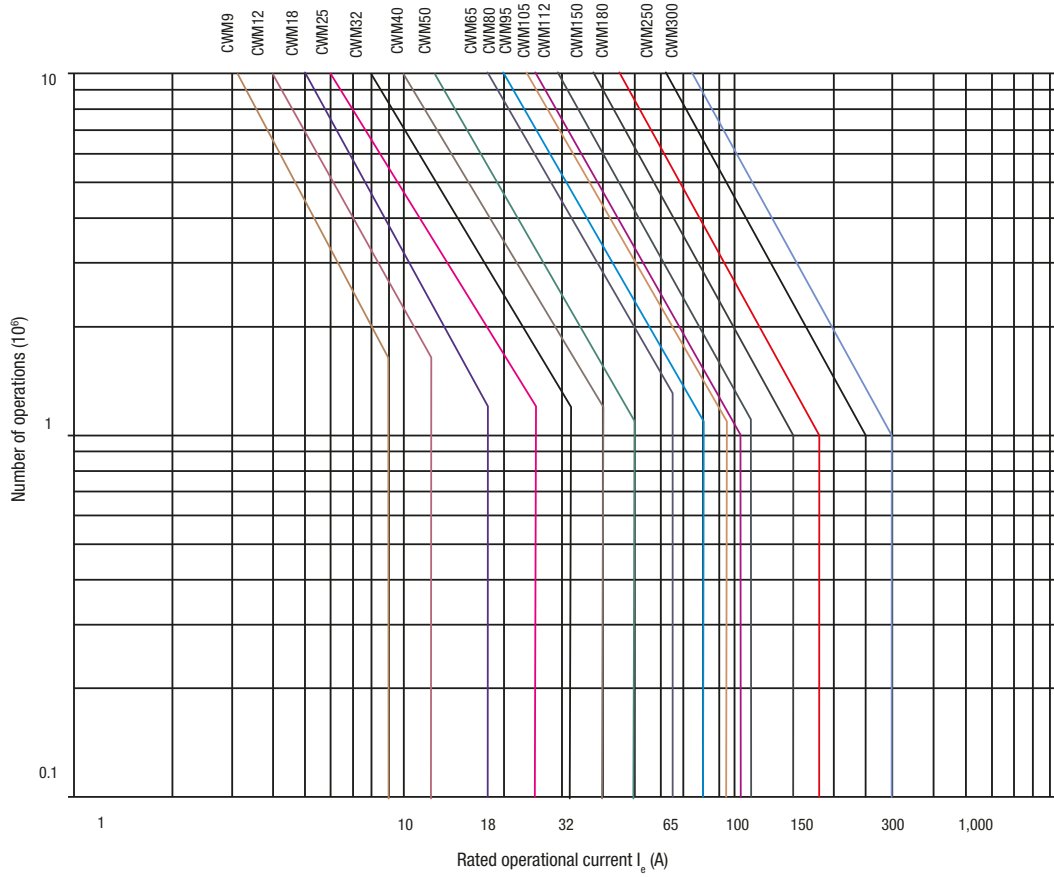
Diagram	Configuration	Auxiliary contacts		Reference code
		NO	NC	
Side mounting auxiliary contact blocks each with two contacts				
	20	2	0	BCXML20
	11	1	1	BCXML11
	20	2	0	BCXMR20
	11	1	1	BCXMR11
	11	1	1	BCXML11 CWM800
	11	1	1	BCXMR11 CWM800

Electrical and mechanical interlock for contactors				
	02	0	2	BLIM.02

# CWM Contactors - Technical Data

## Electrical Lifespan

AC-3 ( $U_e \leq 440 \text{ V ac}$ )



A

A3

B

C

D

E

F

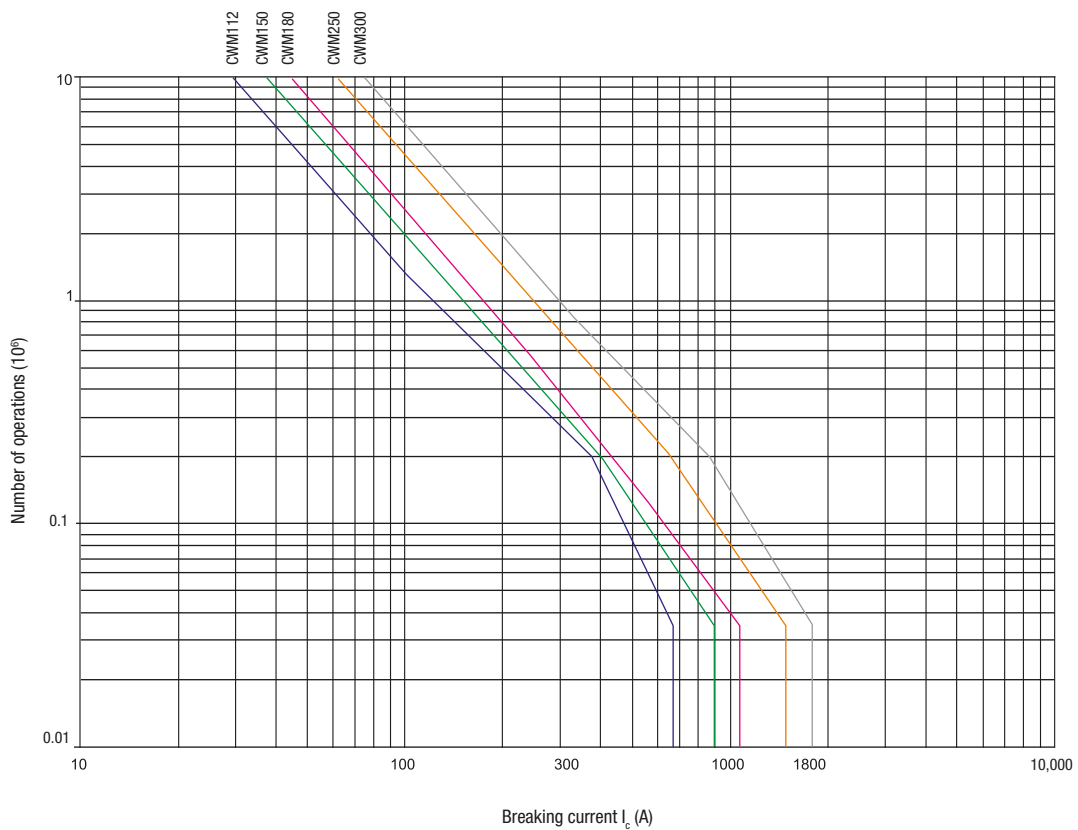
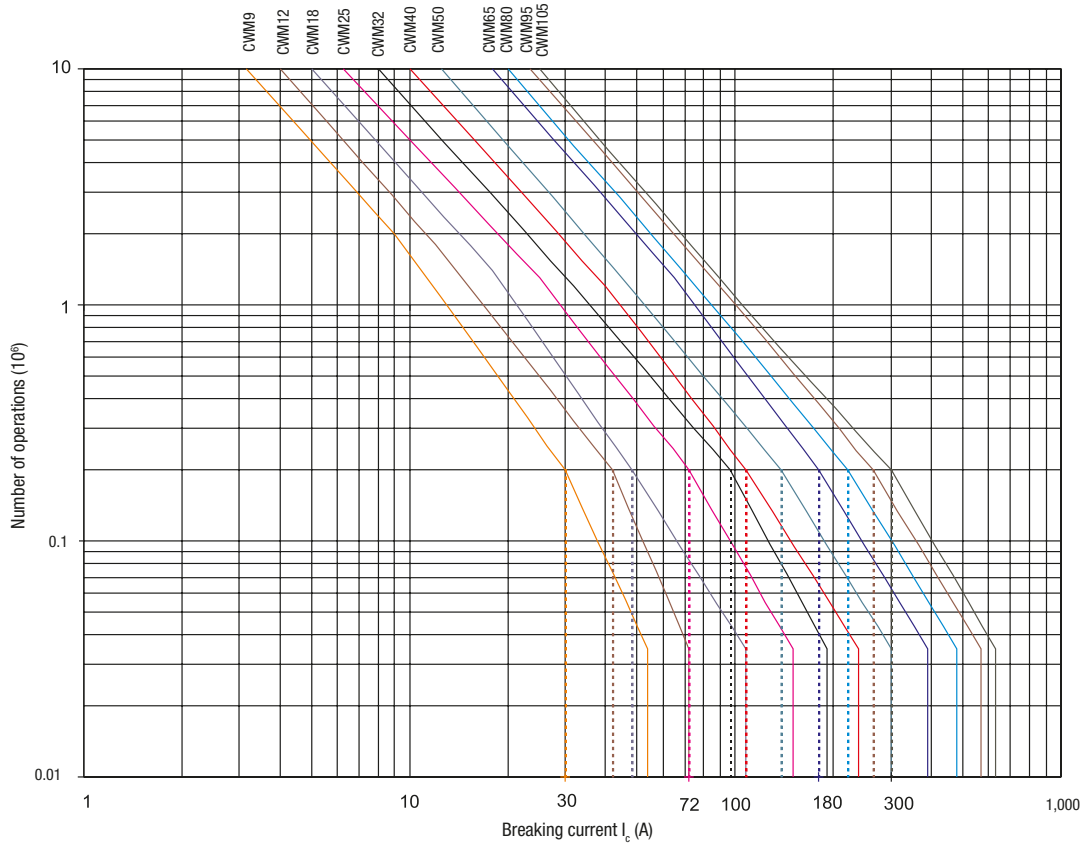
G

H

# CWM Contactors - Technical Data

## Electrical Lifespan

AC-4 ( $U_e \leq 440 \text{ V ac}$ )

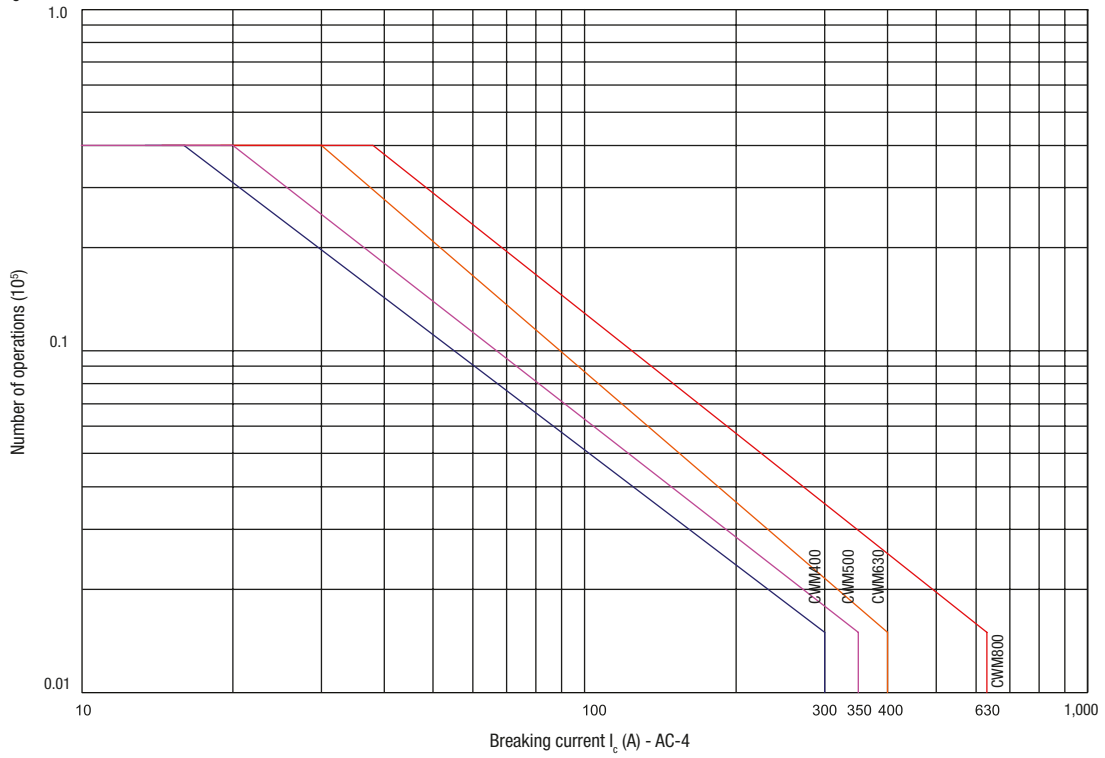




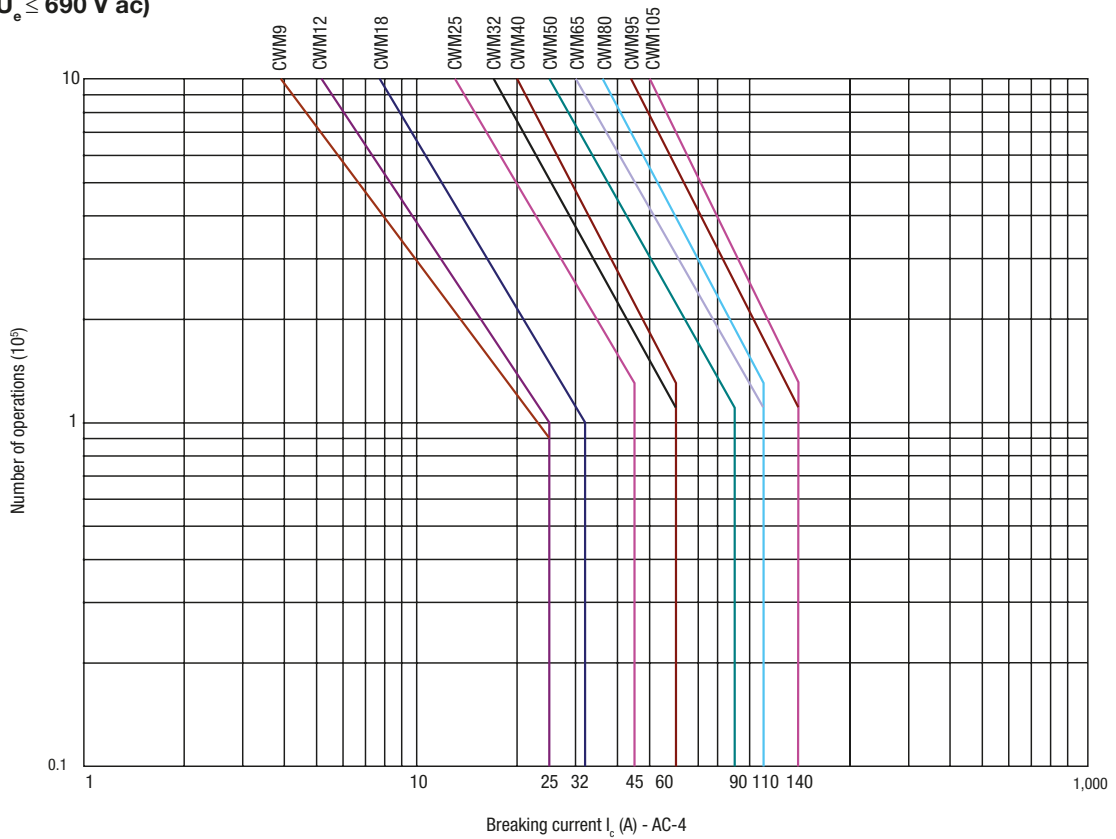
# CWM Contactors - Technical Data

## Electrical Lifespan

AC-4 ( $U_e \leq 440 \text{ V ac}$ )



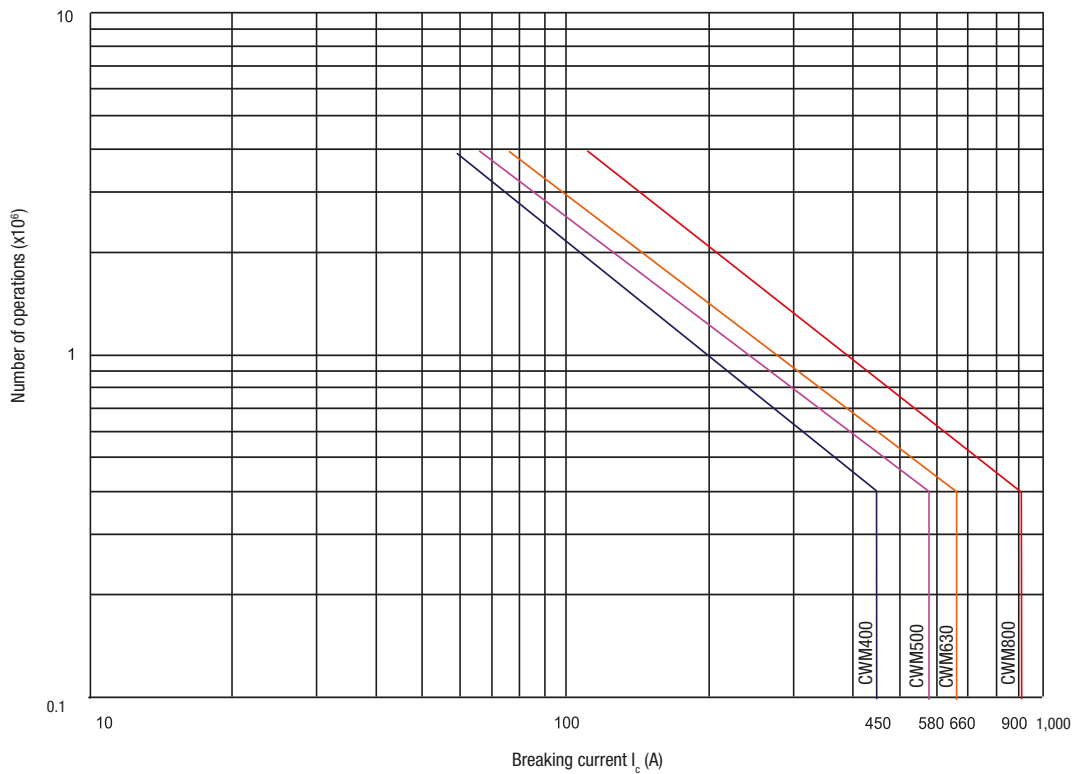
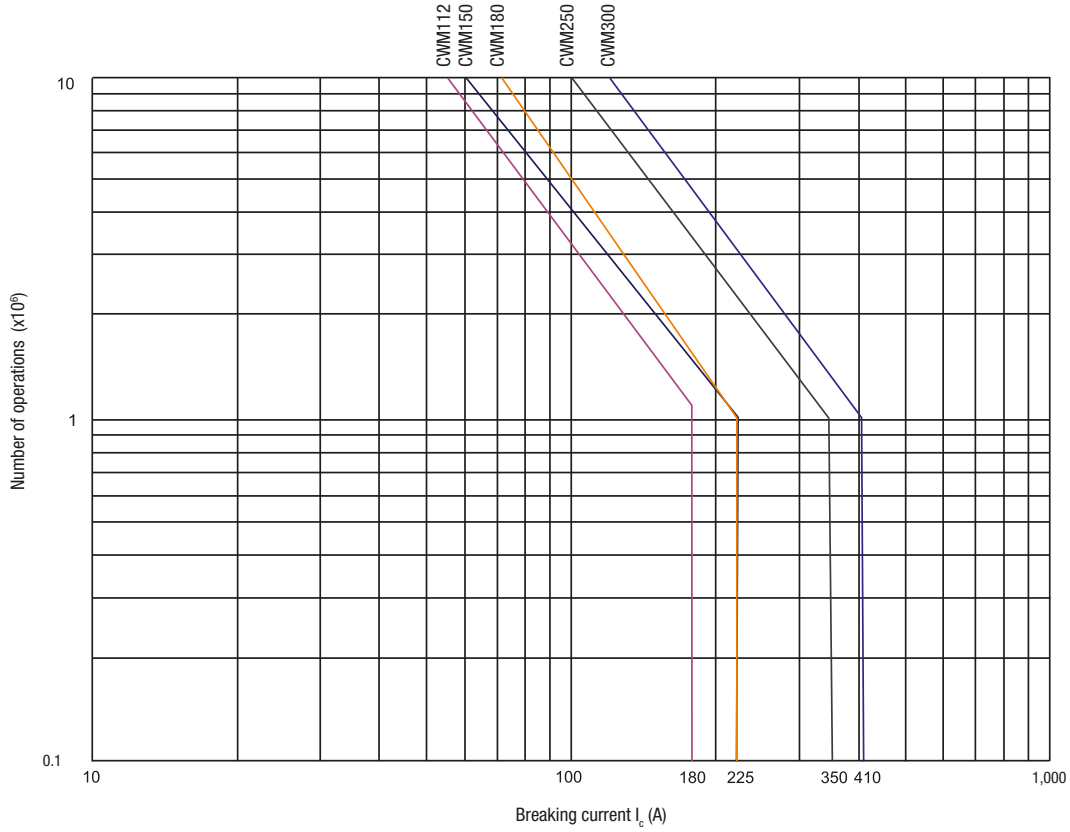
AC-1 ( $U_e \leq 690 \text{ V ac}$ )



# CWM Contactors - Technical Data

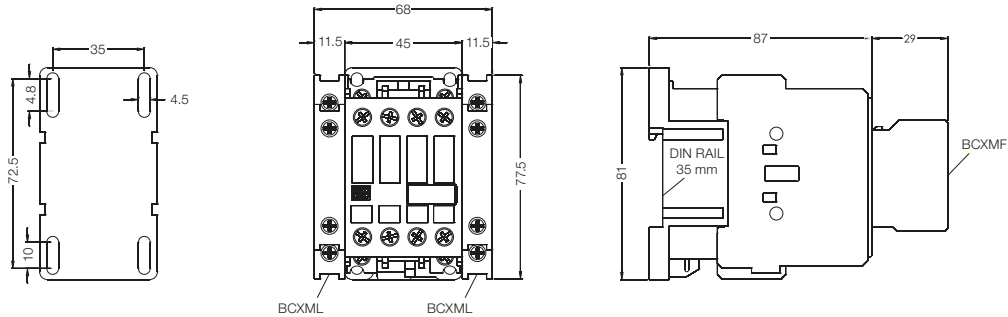
## Electrical Lifespan

AC-1 ( $U_e \leq 690 \text{ V ac}$ )

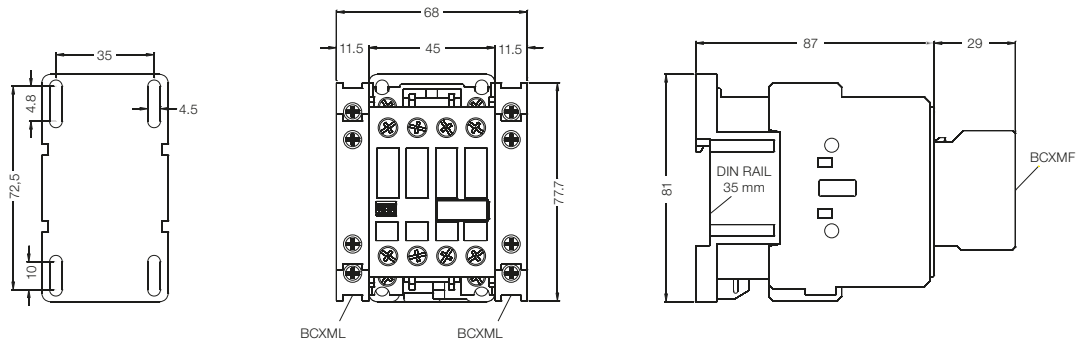


# CWM Contactors - Dimensions (mm)

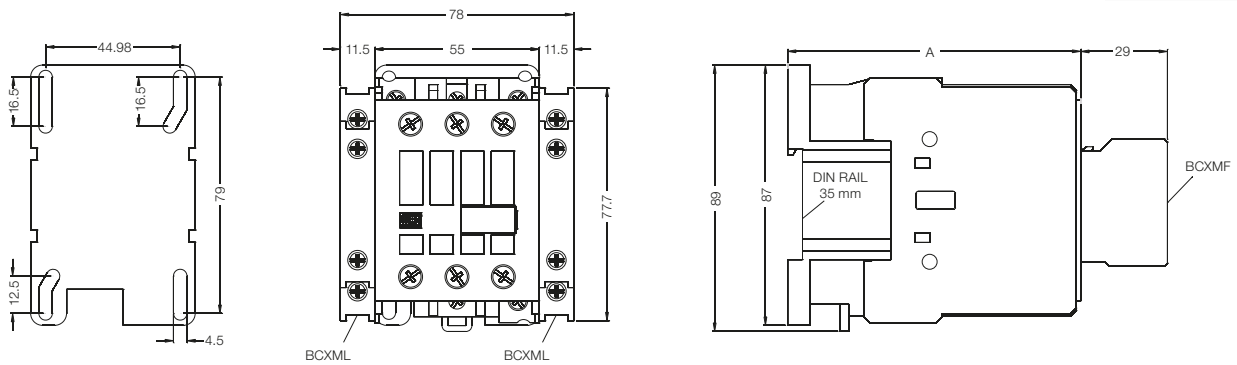
## CWM9, CWM12 and CWM18



## CWM25

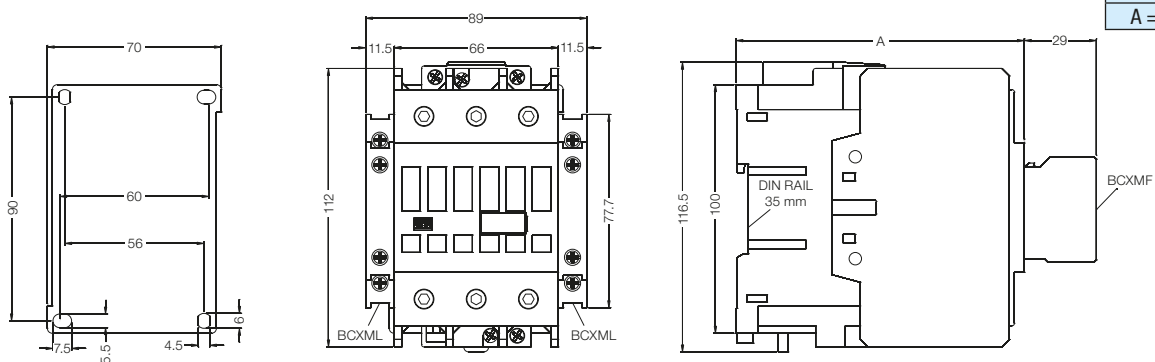


## CWM32 and CWM40



Coil	
AC	DC
A = 98	A = 118

## CWM50, CWM65 and CWM80

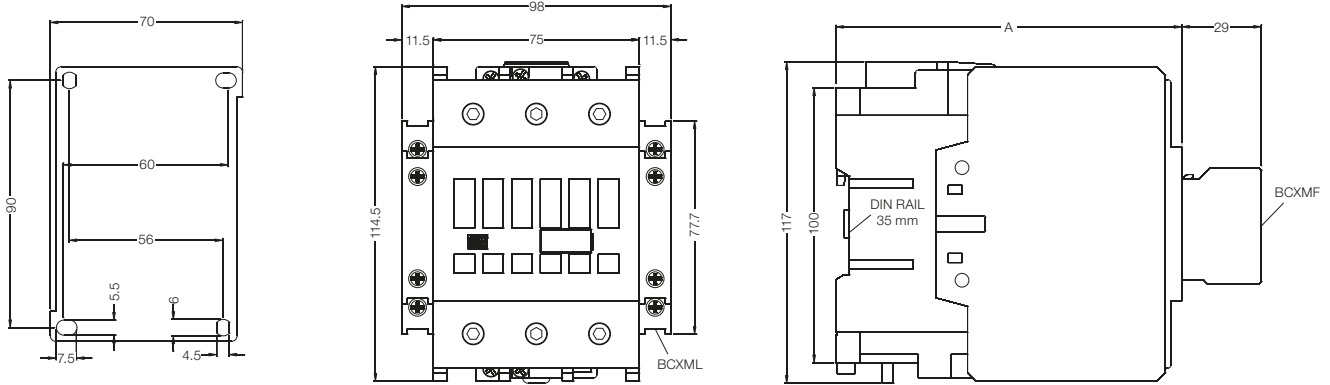


Coil	
AC	DC
A = 116	A = 116

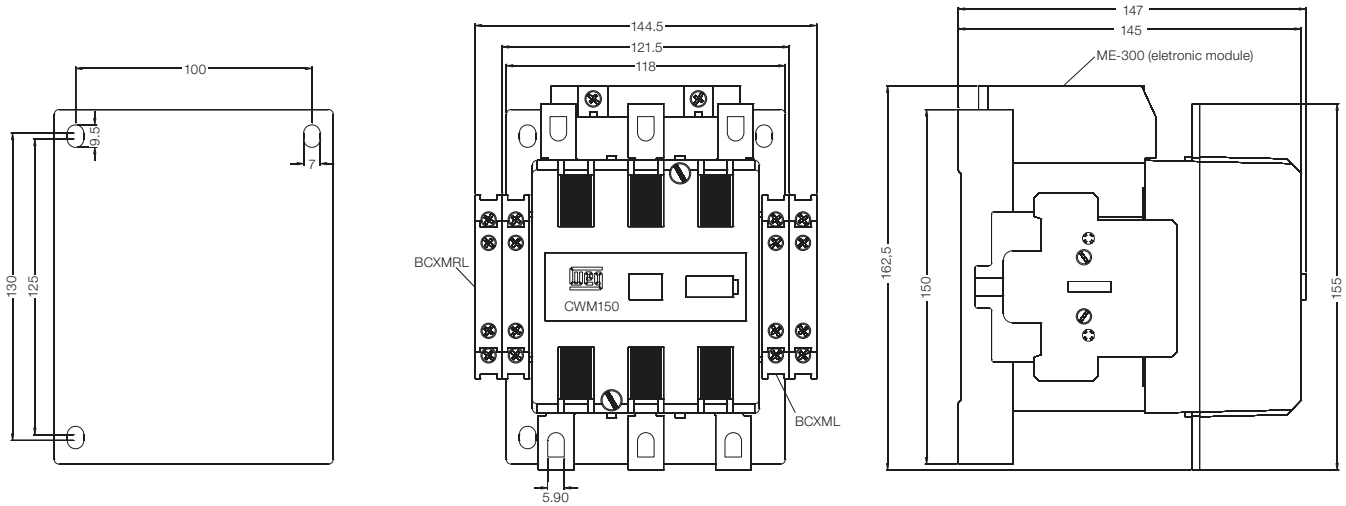
# CWM Contactors - Dimensions (mm)

## CWM95 and CWM105

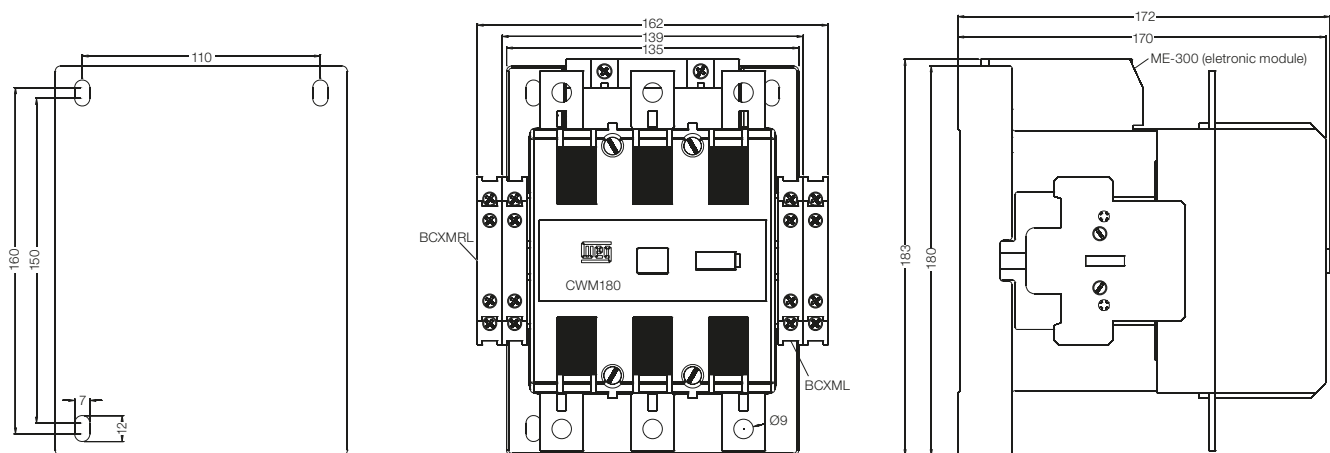
Coil	
AC	DC
A = 126	A = 126



## CWM112 and CWM150

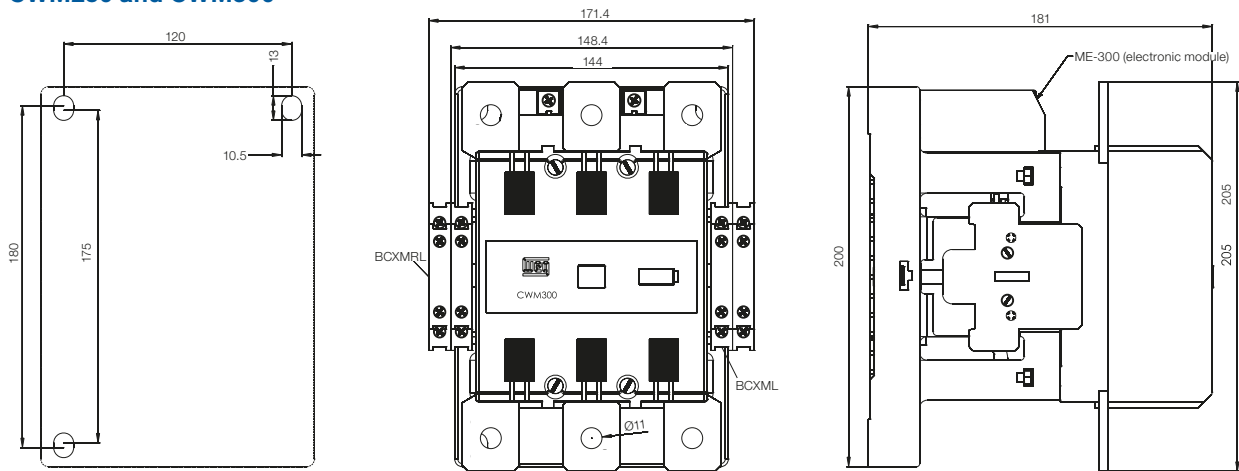


## CWM180

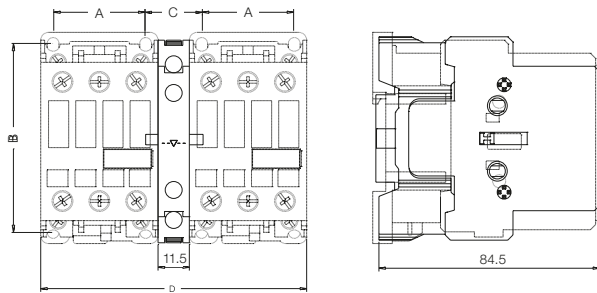


# CWM Contactors - Dimensions (mm)

## CWM250 and CWM300

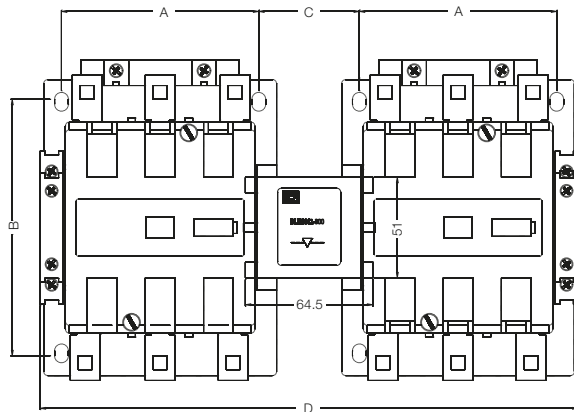


## BLIM9-105 and BLIM.02



Models	A	B	C	D
CWM9...25	35	72.5	22	102
CWM32...40	45	79	22	122
CWM50...80	57	90	21	144
CWM95...105	57	90	29.8	153

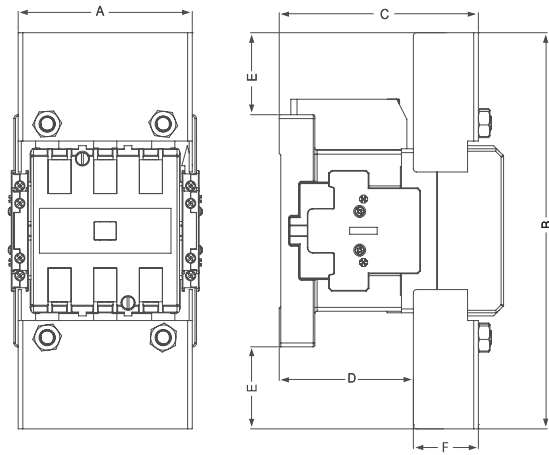
## BLIM112-300



Models	A	B	C	D
CWM112...150	100	130	51	272.5
CWM180	110	160	58.5	303.5
CWM250...300	120	180	57	325.4

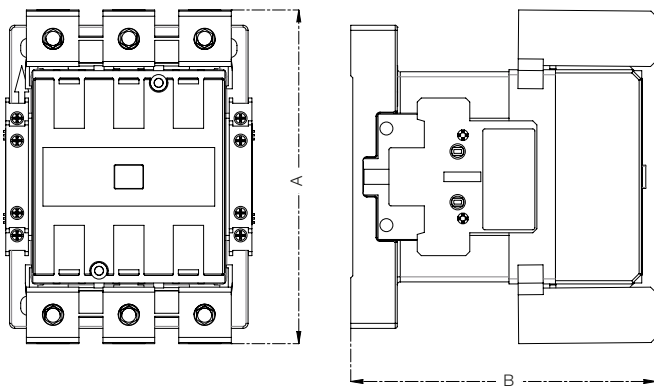
## CWM Contactors - Dimensions (mm)

### BMP CWM112...300



	BMP CWM150 + CWM112/150	BMP CWM180 + CWM180	BMP CWM300 + CWM250/300
A	112.5	127.5	148.5
B	256	290.4	320.8
C	128	137.7	146
D	86	90.7	84
E	53	55.2	60.5
F	42	47	62

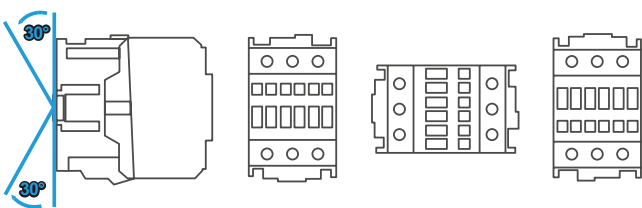
### TB... + CWM112...300



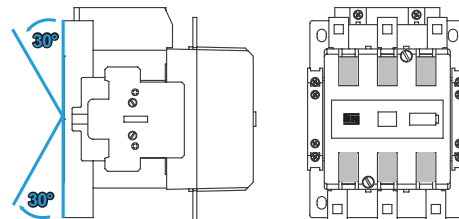
	TB150 + CWM112/150	TB180 + CWM180	TB300 + CWM250/300
A	167.6	190.3	218.6
B	151.1	176	193.8

### Mounting Position

#### CWM9...105

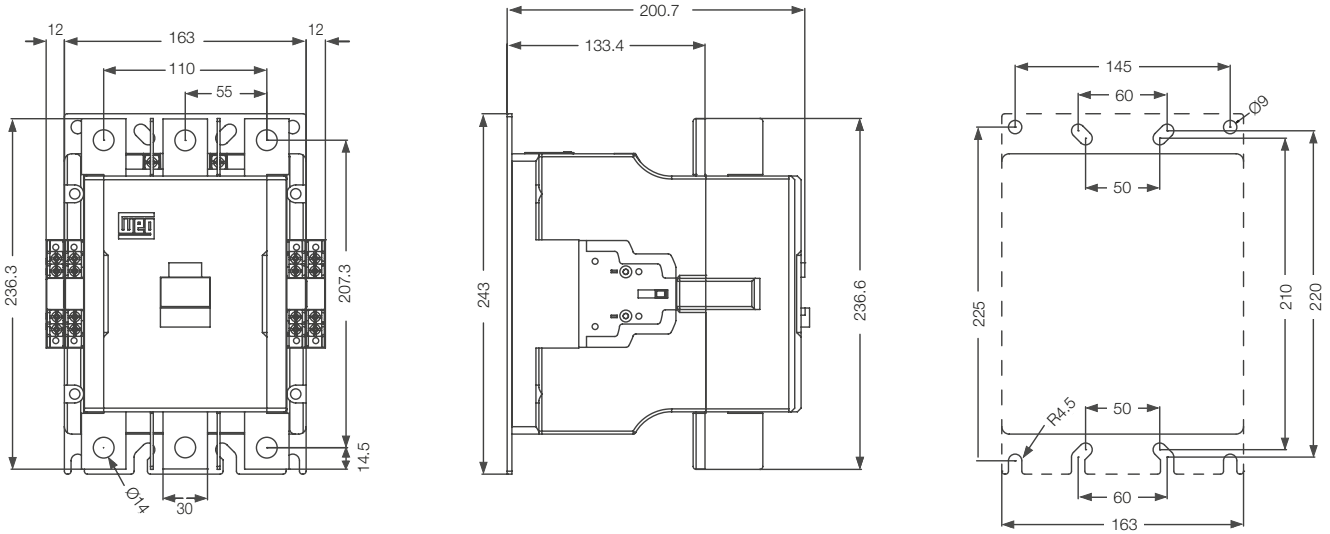


#### CWM112...300

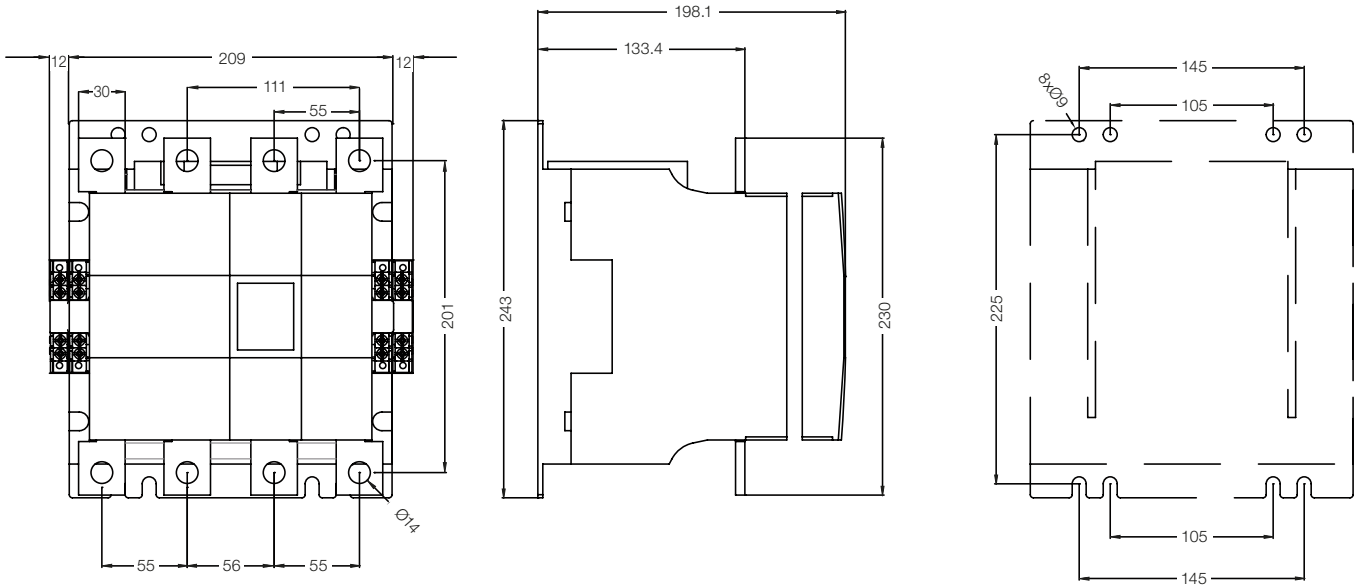


# CWM Contactors - Dimensions (mm)

## CWM400 - 3-Pole



## CWM400 - 4-Pole



A

A3

B

C

D

E

F

G

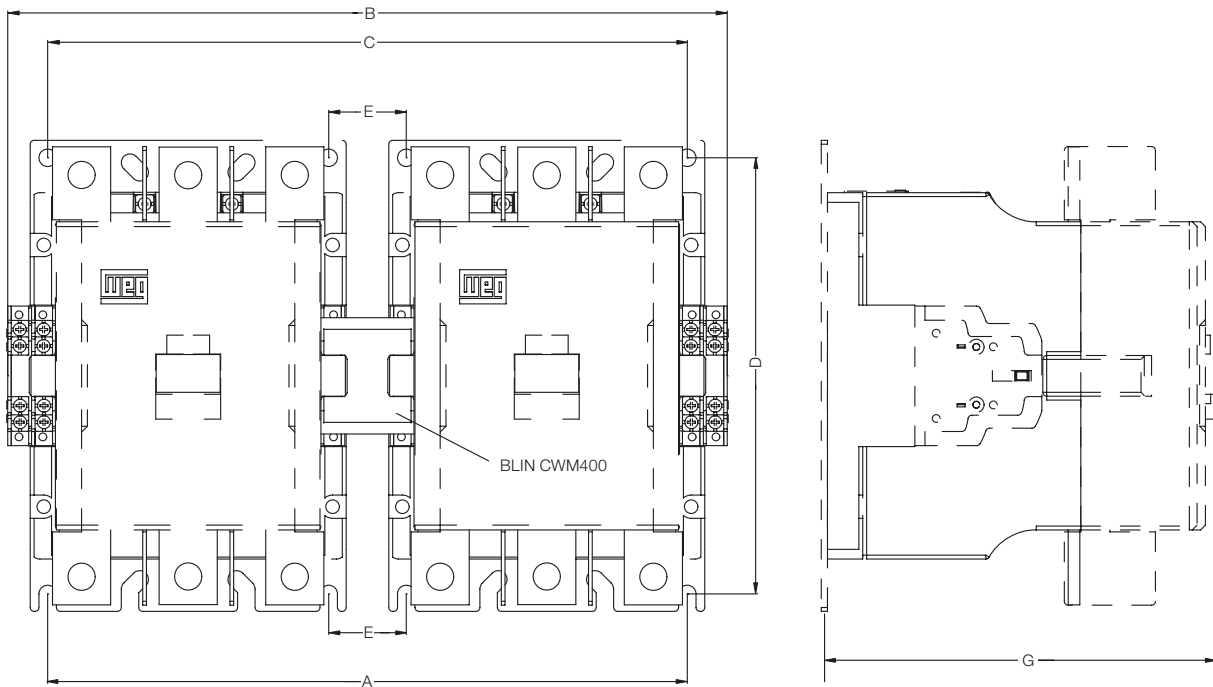
H



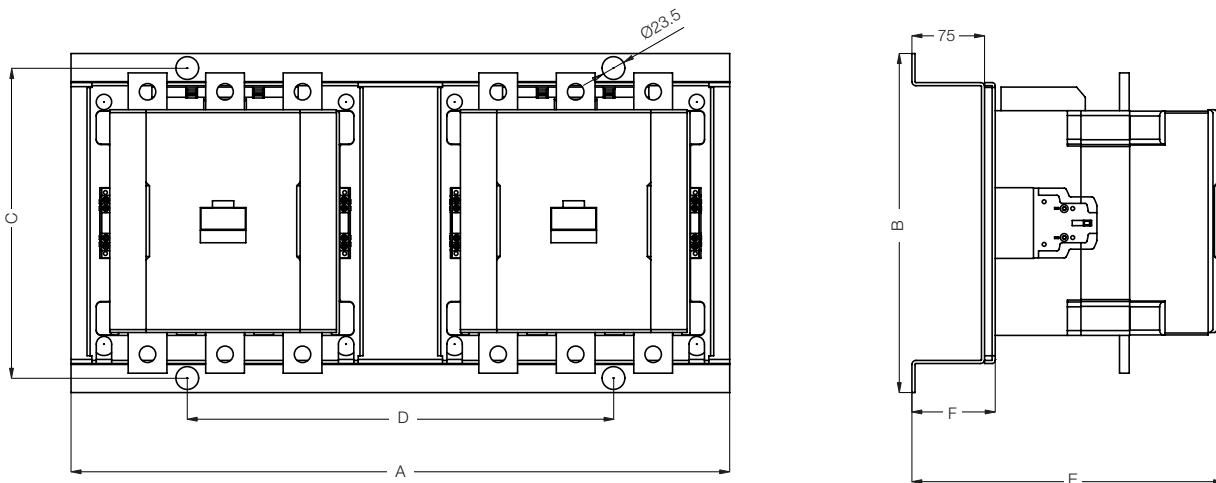


# CWM Contactors - Dimensions (mm)

## BLIM CWM400



## BLIM CWM800

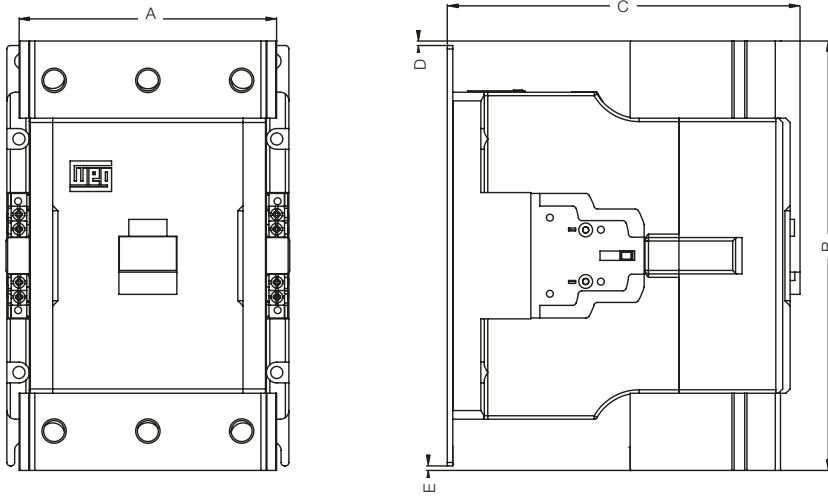


	BLIM CWM400 + CWM400	
	3-pole	4-pole
A	330	375
B	371.2	464
C	330	375
D	225	225
E	40	85
F	40	85
G	203.9	198.2

	BLIM CWM800 + CWM500...800	
	3-pole	4-pole
A	680	740
B	351	370
C	321	340
D	440	440
E	321	316.3
F	86	86
G	75	75

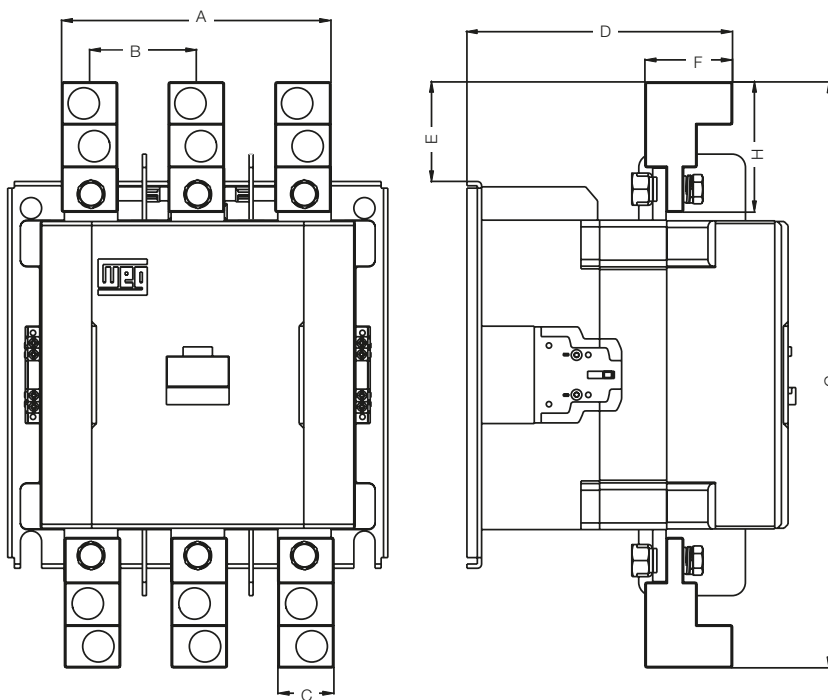
## CWM Contactors - Dimensions (mm)

### BMP CWM400...800



	BMP CWM400 + CWM400		BMP CWM800 + CWM500...800	
	3-pole	4-pole	3-pole	4-pole
A	148.8	214	234	314
B	248.2	250.8	320.2	350.5
C	200.7	198.2	246.5	241.3
D	2.6	1.76	111.6	20.25
E	2.6	7.76	15.1	20.25

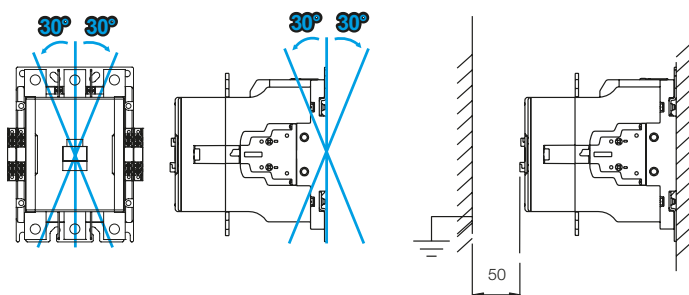
### BMJ CWM400...800



	BMJ CWM400 + CWM400	BMJ CWM800 + CWM500...800
	A	140.2
B	55	80
C	30.2	42
D	187.4	199.15
E	53.6	74.65
F	59.5	65.7
G	350.2	439.3

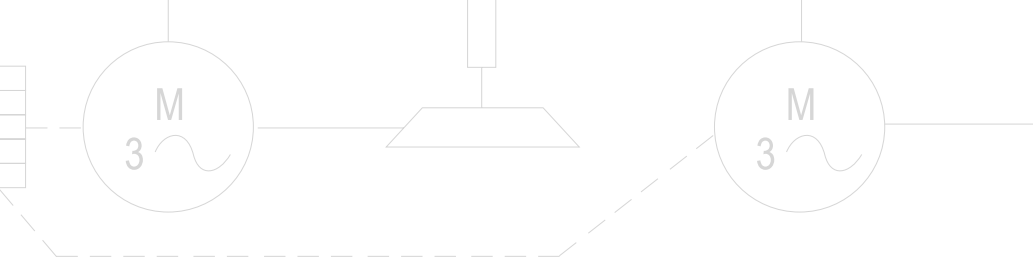
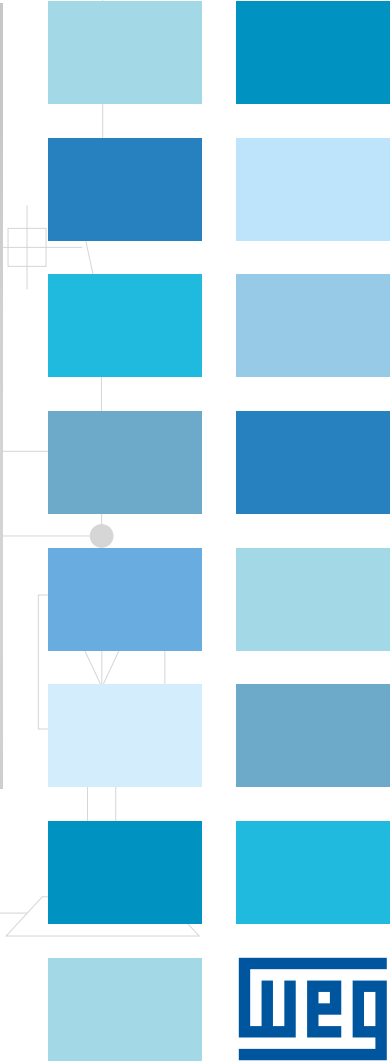
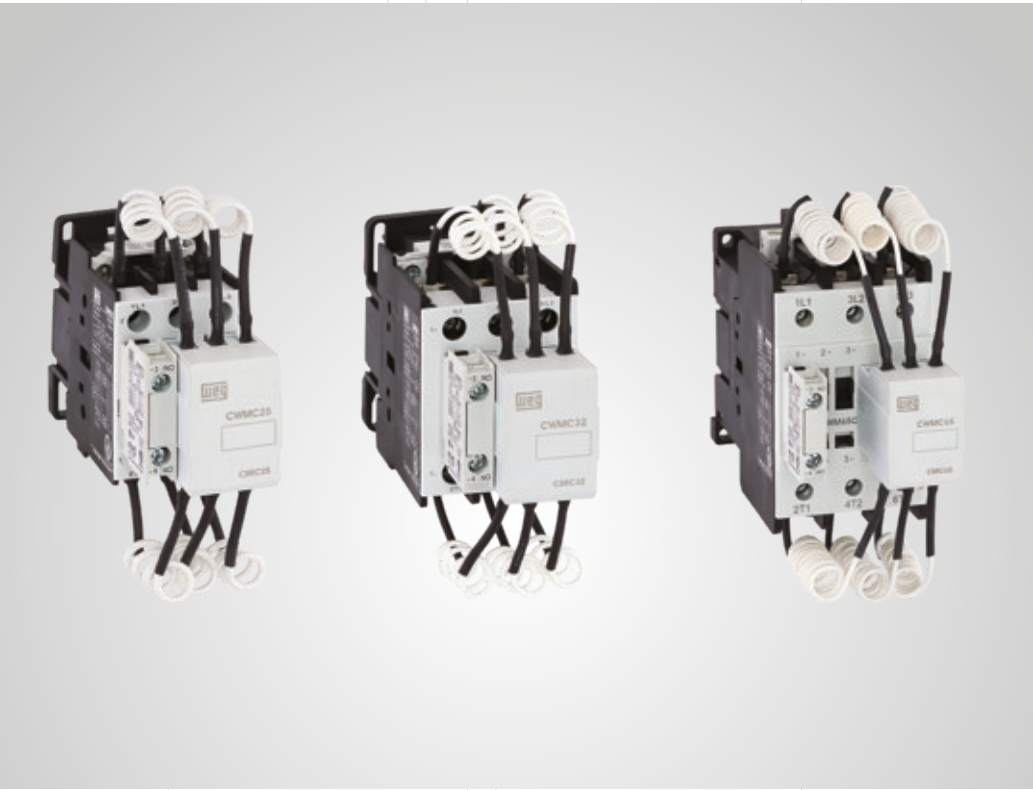
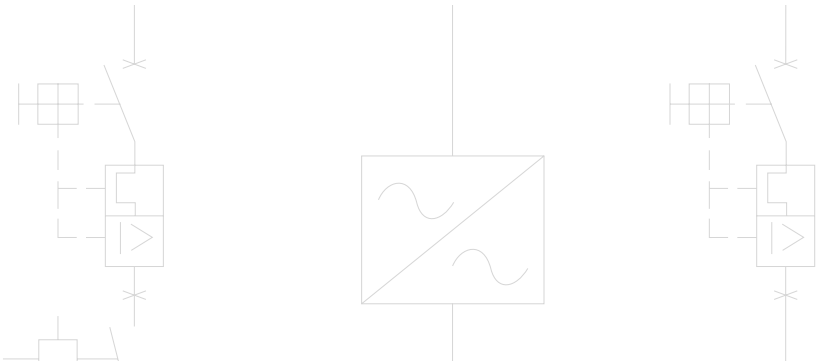
### Mounting Position

#### CWM400...800



# Automation

## Contactors for Switching of Capacitors CWMC



**-3 NO**



**CWMC**

**-4 NO**

**CBRC**



**BCXMF10**

ECCO (ECCO-A) 1000VAC	
W-10 1000VAC 10A	
ADD	ADD
AC-15	AC-15
W-10	W-10
24	24
2000VAC	2000VAC
4000VAC	4000VAC
6000VAC	6000VAC
8000VAC	8000VAC
10000VAC	10000VAC



**2T1**

# Contactors for Switching of Capacitors CWMC

## Index

Characteristics	A-128
Contactors for Switching of Capacitors - Selection Table	A-130
Accessories	A-131
Technical Data	A-132
Dimensions (mm)	A-135

# Contactors for Switching of Capacitors

## Switching of Power Factor Correction Capacitors

WEG's special CWMC contactors series for switching of capacitors is designed according to IEC 60947-1 and UL, and provides the best solution for the switching of power factor correction capacitors.

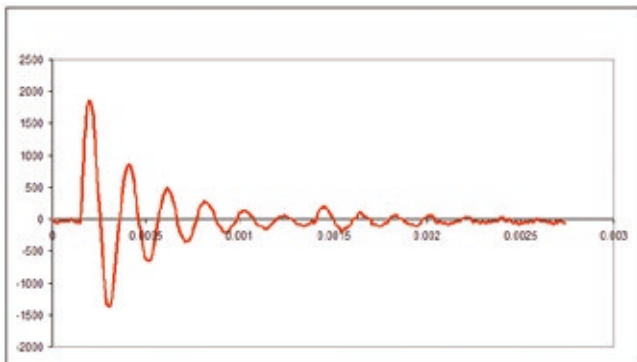
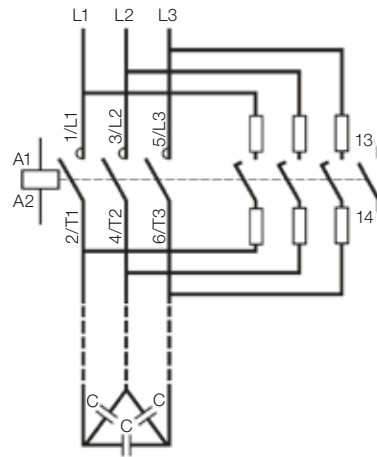
## No More In-Rush

When switching on a capacitor bank, the capacitors are uncharged and the system sees them as a short circuit for a quick period of time.

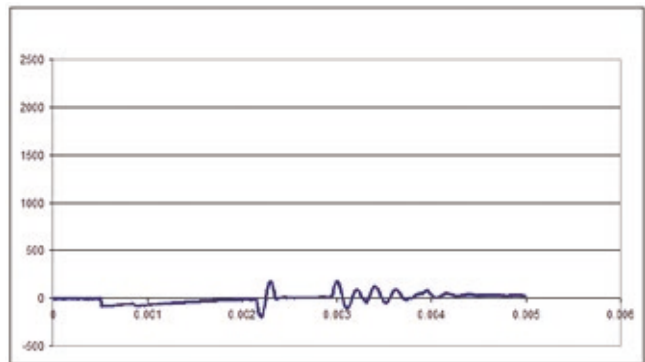
The in-rush current is the result of this little short circuit and usually lasts for some milliseconds. It may reach 100 times the rated current which one of the main reasons for the short life of a capacitor.

The CWMC contactor is assembled with damping resistors which limit the high in-rush current when the capacitors are switched on. They are assembled with an early-make contact block which is switched on before the main contacts thus, limiting the in-rush current.

However, the damping resistors don't influence the final load, since they are switched off after 5 milliseconds leaving only the capacitors in parallel with their inductive load providing the proper power factor correction. This process increases the lifetime of the capacitors and also prevents net distortions.



*Iu (A) with standard contactors*



*Iu (A) with WEG CWMC contactor*



# Contactors for Switching of Capacitors

## Modular Design

For 35 mm DIN rail or screw fixing

## Contactor Data and Certifications

Shows all necessary information of CWMC

## Auxiliary Contact

CWMC allows use of standard contact blocks, the same used in CWM line, being either NO or NC



**Damping Resistors**  
Avoids high in-rush current

**Early Make Contact Block**  
Connects damping resistors and switches off after 5ms

## Certifications



A

A4

B

C

D

E

F

G

H

## Contactors for Switching of Capacitors - Selection Table



I <sub>e</sub> AC-6b (T <sub>amb.</sub> = 55 °C)	Reactive power for capacitors banks AC-6b (T <sub>amb.</sub> = @ 55 °C)					Auxiliary contact per contactor		Auxiliary block supplied separately		Reference to complete with voltage code	AC coil	DC coil
	220 V 230 V	380 V 415 V	440 V	480 V	660 V 690 V	*3  *4  NO	L*1 *2 NC	BCXMF10	BCXMF01		Weight kg	
A	kvar	kvar	kvar	kvar	kvar							
16	6	10	12	12.5	17.5	1	-	-	-	CWMC9-10-30♦	0.395	-
						-	1	-	-			
22	8	15	16	17	25	1	-	-	-	CWMC18-10-30♦	0.395	-
						-	1	-	-			
30	11	20	23	25	34	1	-	1	-	CWMC25-10-30♦	0.440	-
						-	1	-	1			
40	15	26	30	33	45	1	-	1	-	CWMC32-10-30♦	0.670	0.69
						-	1	-	1			
60	25	40	45	50	65	1	-	1	-	CWMC50-10-30♦	1.370	1.42
						-	1	-	1			
77	30	50	60	65	87	1	-	1	-	CWMC65-10-30♦	1.370	1.42
						-	1	-	1			
93	35	61	71	77	106	1	-	1	-	CWMC80-10-30♦	1.595	1.595
						-	1	-	1			

I <sub>e</sub> AC-6b (T <sub>amb.</sub> = 70 °C)	Reactive power for capacitors banks AC-6b (T <sub>amb.</sub> = @ 70 °C)					Auxiliary contact per contactor		Auxiliary block supplied separately		Reference to complete with voltage code	AC coil	DC coil
	220 V 230 V	380 V 415 V	440 V	480 V	660 V 690 V	*3  *4  NO	L*1 *2 NC	BCXMF10	BCXMF01		Weight kg	
A	kvar	kvar	kvar	kvar	kvar							
10	3	5.5	6.5	7.5	10	1	-	-	-	CWMC9-10-30♦	0.395	-
						-	1	-	-			
16	4.5	7.5	9.5	10	13	1	-	-	-	CWMC18-10-30♦	0.395	-
						-	1	-	-			
22	5	10	10	12	16	1	-	1	-	CWMC25-10-30♦	0.440	-
						-	1	-	1			
34	10	17	21	23	30	1	-	1	-	CWMC32-10-30♦	0.670	0.69
						-	1	-	1			
50	17	30	35	38	50	1	-	1	-	CWMC50-10-30♦	1.370	1.42
						-	1	-	1			
62	20	36	42	45	62	1	-	1	-	CWMC65-10-30♦	1.370	1.42
						-	1	-	1			
67	22	40	56	49	68	1	-	1	-	CWMC80-10-30♦	1.595	1.595
						-	1	-	1			

Replace “♦” with the appropriate coil voltage code<sup>1)</sup>.

### Alternate Current (0.75 x U<sub>e</sub>)

Coil voltage codes	X06	X18	X32	X37	X42	X47	X50	X56
50 Hz	24 V	110 V	220 V	230-240 V	380 V	400-415 V	440 V	500 V

Coil voltage codes	X04	X15	X26	X28	X30	X41	X42	X47
60 Hz	24 V	110 V	220 V	230 V	240 V	380 V	440 V	480 V

### Direct Current


Coil voltage codes (CWMC32...80)	C34	C37	C40	C44
V dc	24...28	42...50	110...130	208...240

Note: 1) Other voltages on request.


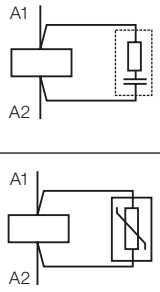


## Accessories


### Auxiliary Contact Blocks

Illustrative picture	For use with	Max. number of contacts / contactor	Auxiliary contacts		Reference	Weight kg
			NO	NC		
	CWMC9/18 CWMC50...80	1 / CWMC9/18 1 / CWMC50...80	1	0	BCXMF10	0.016
			0	1	BCXMF01	

### Surge Suppressors - Connect Directly to Coil Terminals A1 - A2<sup>2)</sup>

Illustrative picture	For use with	Voltage	Circuit diagram	Reference	Weight kg
	CWMC9...32	24...48 V 50/60 Hz		BAMRC4 D53	0.014
		50...127 V 50/60 Hz		BAMRC5 D55	
		130...250 V 50/60 Hz		BAMRC6 D63	
	CWMC50...80	24...48 V 50/60 Hz		BAMRC7 D53	
		50...127 V 50/60 Hz		BAMRC8 D55	
		130...250 V 50/60 Hz		BAMRC9 D63	
	CWMC9...80	270...380 V 50/60 Hz		BAMV1 D68	
		400...510 V 50/60 Hz		BAMV2 D73	

### Spare Coils

Illustrative picture	Control voltage	For use with	Reference to complete with voltage code	Weight kg
	AC	CWMC9...25	BCA4-25♦	0.065
		CWMC32	BCA4-40♦	0.110
		CWMC50...80	BCA-105♦	0.140
	DC <sup>2)</sup>	CWMC32	BECC4-40♦	0.240
		CWMC50...80	BECC-105♦	0.300

Replace "♦" with the appropriate coil voltage code<sup>1)</sup>.

### Alternate Current (0.75 x U<sub>c</sub>)

Coil voltage codes	X06	X18	X32	X37	X42	X47	X50	X56
50 Hz	24 V	110 V	220 V	230-240 V	380 V	400-415 V	440 V	500 V

Coil voltage codes	X04	X15	X26	X28	X30	X41	X42	X47
60 Hz	24 V	110 V	220 V	230 V	240 V	380 V	440 V	480 V

### Direct Current

Coil voltage codes (CWMC32...80)	C34	C37	C40	C44
V dc	24...28	42...50	110...130	208...240

Notes: 1) Other voltages on request.

2) Surge suppressor is already integrated in DC coils for models CWMC32...80.

# Technical Data

## General Data

Reference code	CWMC9	CWMC18	CWMC25	CWMC32	CWMC50	CWMC65	CWMC80
Standards	IEC 60947 / UL 508						
Rated insulation voltage U <sub>i</sub> IEC 60947 UL / CSA	1,000 V 600 V						
Rated impulse withstand voltage U <sub>imp</sub>	6 kV				8 kV		
Rated operational frequency	25 - 400 Hz						
Degree of protection	Protection against direct contact from the front when operated by a perpendicular test finger (IEC 536)						
Main circuits	IP20			IP10			
Control circuits and auxiliary contacts	IP20						
Ambient temperature							
Operating temperature	-25 °C to +55 °C						
Storage temperature	-55 °C to +80 °C						
Altitude							
Normal values	Up to 3,000 m						
90% I <sub>e</sub> / 80% U <sub>e</sub>	3,000 to 4,000 m						
80% I <sub>e</sub> / 75% U <sub>e</sub>	4,000 to 5,000 m						
Overvoltage category / Pollution degree	III / 3						
Climatic proofing	Acc. IEC 60680-2						
Pole numbers of main circuits	3						
Rated operation voltage U <sub>e</sub>	690 V				1,000 V		
Mechanical lifespan	Ops x 10 <sup>6</sup>		10				
Electrical lifespan I <sub>e</sub> (AC-6b)	Ops x 10 <sup>6</sup>		0.1				
Maximum operation per hour	120 (1 operation for each 30 seconds)						
Mounting	Screw or 35 mm DIN Rail						

## Control Circuit

Reference code	CWMC9	CWMC18	CWMC25	CWMC32	CWMC50	CWMC65	CWMC80
Rated insulation voltage U <sub>i</sub>	IEC			1,000 V			
	UL, CSA			600 V			
Rated voltages (standard coil)	Us 60 Hz			12...660 V			
	Us 50 Hz			12...550 V			
Rated voltages	Us dc			24...240 V			
Operation time <sup>1)</sup>	Closing/Opening (AC) ms		8...20 / 6...13		10...19 / 5...25		15...30 / 9...15
	Closing/Opening (DC) ms		-		50...60 / 55...60		
Power consumption of the AC coil (50 Hz and 60 Hz)							
Pick-up	(VA)		120.36		177		307
	cos φ		0.85		0.69		0.32
Sealing	(VA)		6.1...10.2		11.4...15		16.8...26
	cos φ		0.28		0.34		0.54
Power consumption of the coil - DC coils							
Pick-up	(W)		-		240		340
Sealing	(W)		-		6		6.5
Number of terminals	AC coil		4		4		3
	DC coil		-		4		3

## Terminal Capacity and Tightening Torque - Coil Terminals

Reference code	CWMC9...80		
Screw type	M3.5x 10 Flat / Phillips		
Coil terminal	Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid
mm <sup>2</sup>	1x 0.5...4 2x 0.5...1.5 2x 1...2.5	1x 1...4 2x 1...2.5	1x 0.5...4 2x 0.5...1.5 2x 1...2.5
AWG (UL)	1x 20...10 2x 20...14 2x 16...12	1x 16...10 2x 16...12	1x 20...10 2x 20...14 2x 16...12
Tightening torque (N.m)	0.8...1.1		
Tightening torque (lb.in) (UL)	10		

## Technical Data

### Terminal Capacity and Tightening Torque - Auxiliary Contact Blocks

Reference code	BCXMF		
Screw type	M3.5x9 Fenda / Philips		
Auxiliary contact block	Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid
mm <sup>2</sup>	1x 0.5...4 2x 0.5...2.5	1x 0.75...2.5 2x 0.75...2.5	1x 0.5...4 2x 0.5...2.5
AWG (UL)	22...12		
Tightening torque (N.m)	0.8...1.1		
Tightening torque (lb.in) (UL)	10		


### Auxiliary Contacts

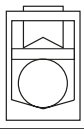
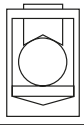
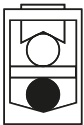
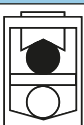
Reference code	Built-in auxiliary contacts of contactors		Auxiliary contact blocks	
	CWMC9..18		BCXMF...	
Rated insulation voltage U <sub>i</sub> IEC/EN 60 947 (V)		1000		1000
UL/CSA (V)		600		600
Rated operational voltage U <sub>e</sub> (V)		690		690
Conv. thermal current I <sub>th</sub> (A)		16		10
Rated operational current I <sub>e</sub> AC-15	220 - 240 V (A)	10		6
	380 - 400 V (A)	6		4
	415 V (A)	5		3.5
	500 V (A)	4		2.5
UL/CSA		A600		A600
DC-13	24 V (A)	6		6
	48 V (A)	4		4
	110 V (A)	2		2
	220 V (A)	0.7		0.7
UL/CSA		P600		Q600
Making capacity I <sub>m</sub> AC-15/AC-11	U <sub>e</sub> ≤ 400 V 50/60 Hz (A)	250		90
AC-13/DC-11	U <sub>e</sub> ≤ 220 V dc (A)	250		90
Breaking capacity I <sub>c</sub> AC-15/AC-11	U <sub>e</sub> ≤ 400 V 50/60 Hz (A)	250		60
AC-13/DC-11	U <sub>e</sub> ≤ 220 V dc (A)	2		0.95
Short circuit protection max. fuse gL/gG (A)		10		10
Control circuit reliability		I <sub>e</sub> min = 5 mA. U <sub>e</sub> min = 17 V		
Electrical lifespan (Ops)		10 <sup>6</sup>		
Mechanical lifespan (Ops)		15 x 10 <sup>6</sup>		



## Technical Data

### Terminal Capacity and Tightening Torque - Power Terminals

Reference code		CMMC9/18 <sup>1)</sup>			CMMC25		
Screw type		M3.5x 9 Flat / Phillips			M4x 12 Flat / Phillips		
Power terminal capacity <sup>1)</sup>		Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid	Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid
mm <sup>2</sup>		1x 0.5...4 2x 0.5...2.5	1x 1...6 2x 1...2.5 2x 2.5...6	1x 0.5...6 2x 0.5...2.5 2x 2.5...6	1x 1...10 2x 1...2.5 2x 2.5...6	1x 2.5...10 2x 2.5...10	1x 1...10 2x 1...2.5 2x 2.5...10
AWG (UL)		14...10			14...8		
Tightening torque (N.m)		1...1.5			1.6...2.5		
Tightening torque (lb.in) (UL)		15			16		

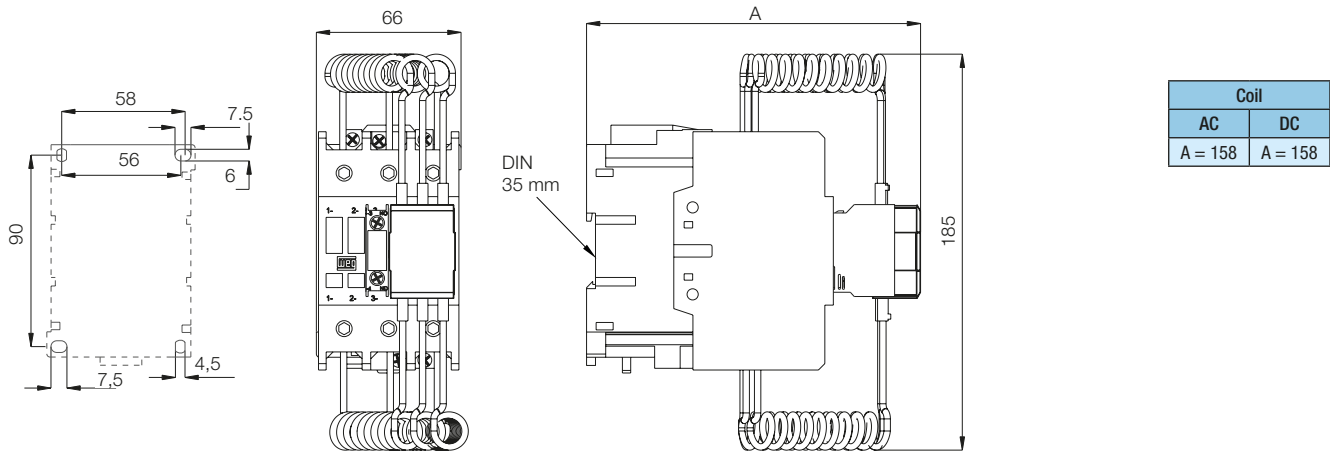
Reference code		CMMC32			CMMC50/65			CMMC80		
Screw type		M4x 16.5 Flat / Phillips			M8 Allen 4 mm			M10 Allen 4 mm		
Power terminal capacity		Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid	Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid	Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid
<b>One conductor on bottom</b>										
mm <sup>2</sup>		1...16	1.5...16	1...16	2.5...35	6...35	2.5...35	4...35	6...35	4...35
AWG (UL)		14...8			14...1/0			10...1/0		
<b>One conductor on top</b>										
mm <sup>2</sup>		0.75...16	1...16	0.75...16	1...35	1.5...35	1...35	1.5...50	2.5...50	1.5...50
AWG (UL)		14...8			14...1/0			10...1/0		
<b>Two conductors at the same time - bottom conductor</b>										
mm <sup>2</sup>		1...16	1.5...16	1...16	2.5...25	6...35	2.5...35	4...35	6...35	4...35
AWG (UL)		14...8			14...1/0			10...1/0		
<b>Two conductors at the same time - top conductor</b>										
mm <sup>2</sup>		0.75...16	1...16	0.75...16	1...25	1.5...35	1...35	1.5...50	2.5...50	1.5...50
AWG (UL)		14...8			14...1/0			10...1/0		
Tightening torque (N.m)		2...2.5			4...6			5...6.5		
Tightening torque (lb.in) (UL)		22			40			60		

Note: 1) This information is also valid for built-in auxiliary terminals for CMMC9/18.

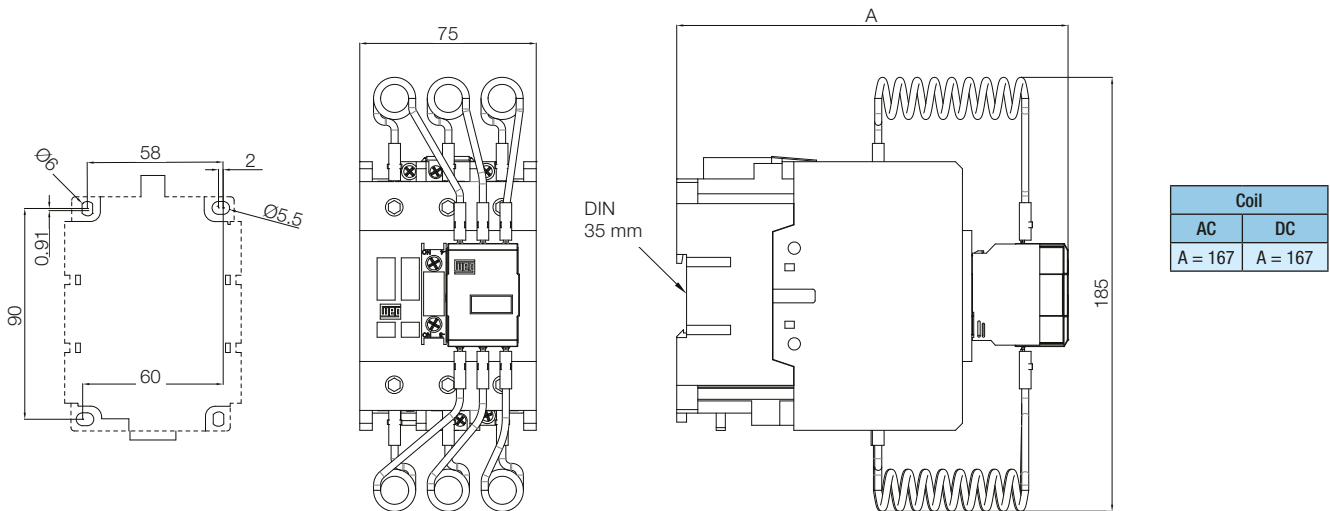


## Dimensions (mm)

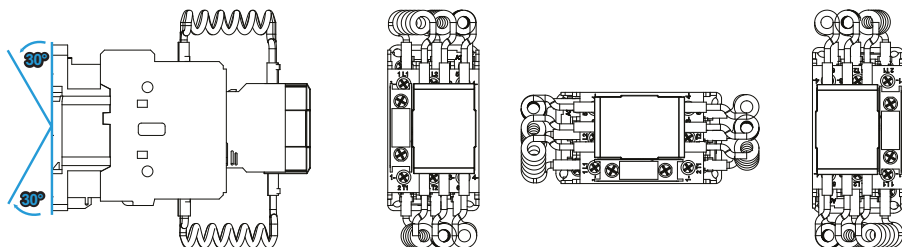
### CWMC50 e CWMC65



### CWMC80

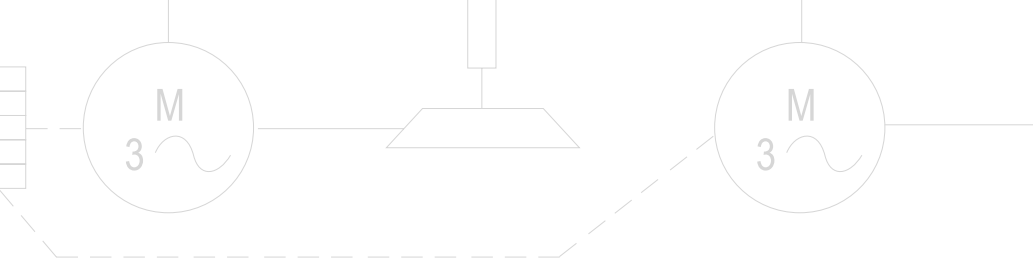
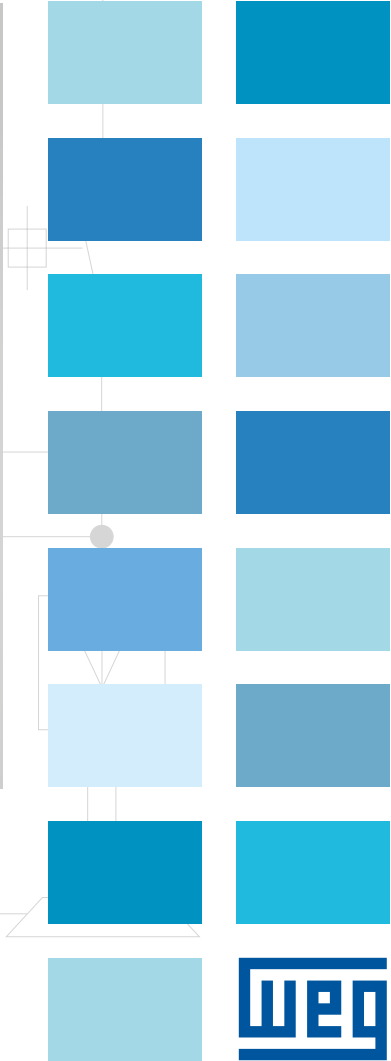
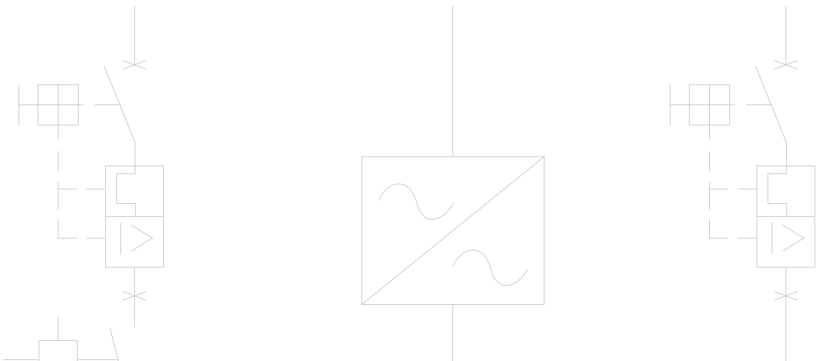


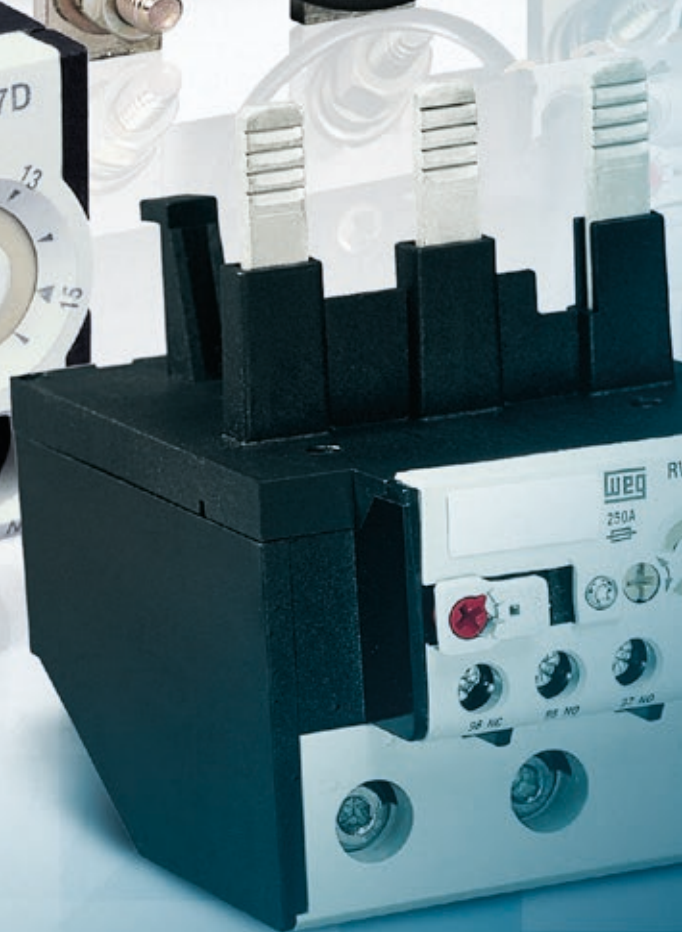
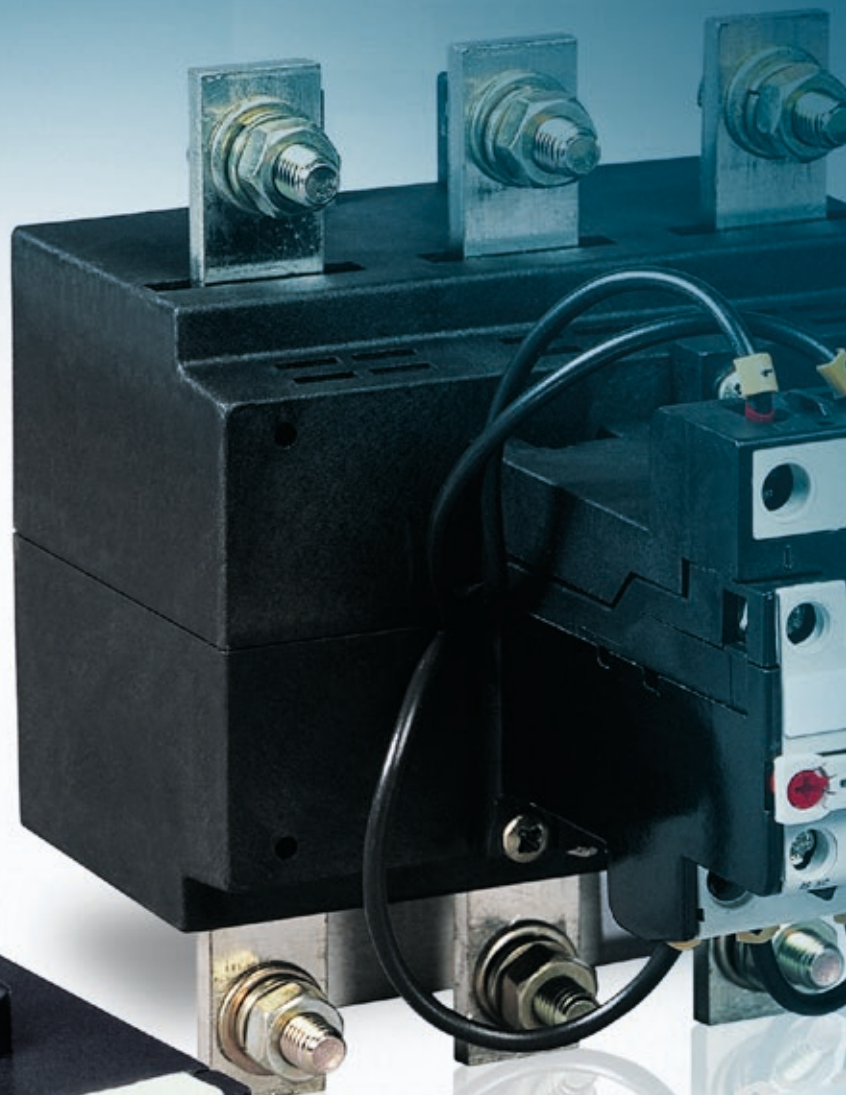
### Mounting Position



# Automation

## Thermal Overload Relays RW Line







# Thermal Overload Relays RW Line

## Summary

Presentation	B-04
Thermal Overload Relays RW17...407 - Overview	B- 07
Thermal Overload Relays - From 0.28 to 840 A	B- 08
Accessories	B-10
Technical Data	B-11
Diagrams	B-12
Dimensions (mm)	B-13

# Thermal Overload Relays RW

## Description

RW thermal overload relays are designed to be combined with contactors to assemble motor starters.

Thermal overload relays are very reliable devices intended to protect motors, controllers and branch-circuit conductors against phase failures and overloads that cause excessive heating.

The thermal overload relay has no power contacts and cannot disconnect the motor by itself. Motor overloads or phase failures increase the motor current. This current increase trips the mechanism and switches the auxiliary contacts.

The auxiliary contacts, when properly wired in series with the coil of the contactor will de-energize the contactor when an overload occurs. Thus, the contactor disconnects the power to the motor and stops its operation. The bimetallic thermal overload relays have thermal memory. Once tripped, the relay will not reset until it has cooled down, allowing the motor to cool before it can be re-started.



## Applications

RW thermal overload relays have been designed to protect three-phase and single-phase AC motors and direct current motors<sup>1)</sup>. When the RW thermal overload relays are intended to protect single-phase AC loads or DC loads, the connection should be made as shown in the diagrams on page B-10.

### RW Thermal Overload Relays in Contactor Assemblies for Wye-Delta Starters

When using thermal overload relays in conjunction with contactor assemblies for wye-delta starters, it should be taken into consideration that only  $0.58 (\sqrt{3} / 3) \times$  the motor current flows through the main contactor. An overload relay mounted on the main contactor must be set to the same multiple of the motor current.

A second overload relay may be mounted on the wye contactor if it is desired the load to be optimally protected in wye operation. The wye current is 1/3 of the rated motor current. The relay must then be set to this current.

### Protection Against Short-Circuit

The RW thermal overload relays must be protected against short-circuits by fuses or circuit breakers.

### Ambient Air Temperature Compensation

RW thermal overload relays are temperature compensated. Its trip point is not affected by temperature, and it performs consistently at the same value of current. The time-current characteristics of RWs refer to a stated value of ambient air temperature within the range of -20 °C to +60 °C and are based on no previous loading of the overload relay (i.e. from an initial cold state). For ambient air temperature within the range of +60 °C up +80 °C (maximum ambient air temperature), the current correction factor shown in the table below should be applied:

Ambient air temperature	Current correction factor
65 °C	0.94
70 °C	0.87
75 °C	0.81
80 °C	0.73

*Note: models RW317 and RW407 should be used only with electric motors in alternating current.*

### Site Altitude Compensation

The site altitude and hence the air density play a role with respect to the cooling conditions and dielectric withstand voltage. A site altitude of up to 2,000 m is considered as normal in accordance with IEC/EN 60947. For higher altitudes, the current settings on the thermal overload relay should be higher than the motor rated current. On the other hand, the operational voltage must be reduced.

For site altitudes higher than 2,000 m, the values for the current and voltage shown in the table below should be applied:

Altitude above sea level (m)	Adjustment factor on the current setting	Maximum operational voltage Ue (V)
2,000	$1.00 \times I_n$	690
3,000	$1.05 \times I_n$	550
4,000	$1.08 \times I_n$	480
5,000	$1.12 \times I_n$	420

### Characteristic Tripping Curve

Thermal overload relays are designed to mimic the heat actually generated in the motor. As the motor temperature increases, so does the temperature of the overload relay thermal unit.

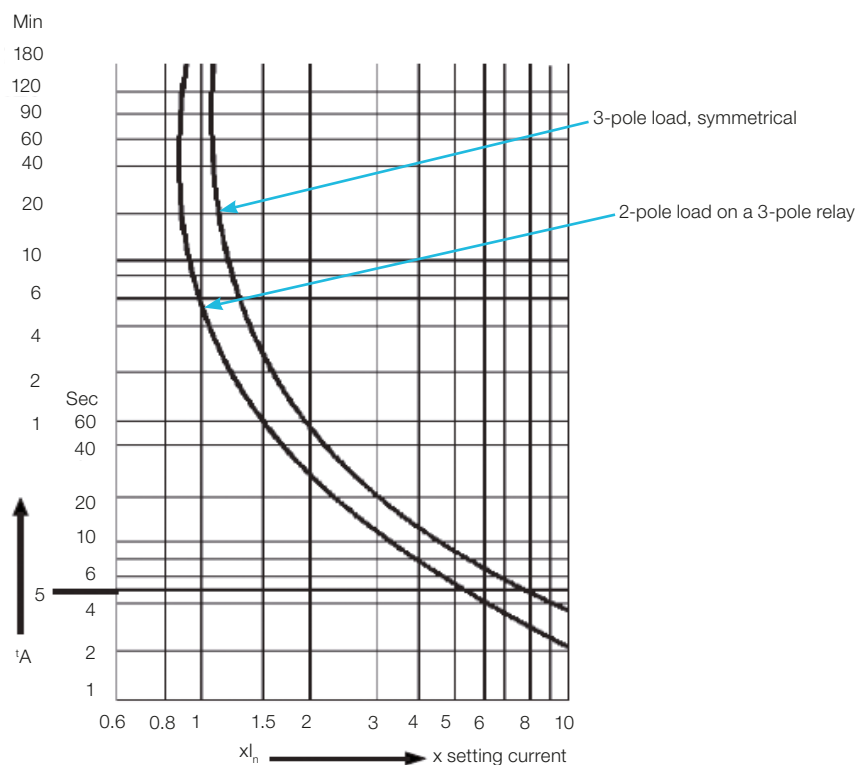
The motor and relay heating curves have a strong relationship. No matter how high the current drawn by the motor, the thermal overload relay provides protection and yet, does not trip unnecessarily.

Thus, the characteristic tripping curves indicate how the tripping time, starting from the cold state, varies with the current for multiples of the full-load current for three-pole symmetrical loads.

### Phase Failure Sensitivity

In order to ensure fast tripping in case of phase loss, protecting the motor and avoiding expensive repairs / corrective maintenance services, RW27-2D thermal overload relays include phase failure sensitivity protection as standard. For this purpose, they have a differential release mechanism that, in the case of phase failure, ensures the de-energized cooled down bimetal strip to generate an additional tripping displacement (simulating an overcurrent that actually doesn't exist). This way, in the event of phase failure, the differential release ensures tripping at a lower current than with a three-phase load (characteristic curve below).

However, for more effective protection against phase failure, specific protective products should be evaluated ensuring that such failure is detected much faster. The curve below shows the tripping time in relation to the rated current. It is also considered average values of the tolerance range and at ambient temperature of 20 °C starting from the cold state.



### Multifunction Reset / Test Button

The thermal overload relay has a multifunction **RESET / TEST** button that can be set in four different positions:

- A** - Automatic **RESET** only;
- AUTO** - Automatic **RESET / TEST**;
- HAND** - Manual **RESET / TEST**;
- H** - Manual **RESET** only.

In **HAND** and **AUTO** positions, when **RESET** button is pressed, both NO (97-98) and NC (95-96) contacts change states.



Operation description:

In H (manual RESET only) or A (automatic RESET only) position, the test function is blocked. However in the positions HAND (manual RESET / TEST) or AUTO (automatic RESET / TEST) it is possible to simulate the test and the trip functions by pressing the RESET button.

When set in the H or HAND position the RESET button must be pressed manually to reset the overload relay after a tripping event. On the other hand, when set in A or AUTO position, the overload relay will reset automatically after a tripping event.

The H, HAND, AUTO and A function setting is carried out by rotating without pressing the red button and placing it on the desired position of the RESET button.

When changing from HAND to AUTO, the RESET button must be slightly pressed while the red button is rotated.

Functions	H	HAND	AUTO	A
Relay reset	Manual <sup>1)</sup>	Manual <sup>1)</sup>	Automatic	Automatic
Auxiliary contact trip test 95-96 (NC)	Function is disabled	Test is allowed	Test is allowed	Function is disabled
Auxiliary contact trip test 97-98 (NO)	Function is disabled	Test is allowed	Test is allowed	Function is disabled

Note: 1) A recovery time of a few minutes is necessary before resetting the thermal overload relay.

### Recovery Time

The RW thermal overload relays have thermal memory.

After tripping due to an overload, the relay requires a certain period of time for the bimetal strips to cool down. This period of time is so-called recovery time. The relay can only be reset once it has cooled down. The recovery time depends on the characteristic tripping curves and the level of the tripping current. After tripping due to overload, the recovery time allows the load to cool down.

### Operation in the Output Side of Frequency Inverters

The RW27-2D thermal overload relays are designed for operation on 50/60 Hz up to 400 Hz and the tripping values are related to the heating by currents within this frequency range. Depending on the design of the frequency inverter, the switching frequency can reach several kHz and generate harmonic currents at the output that result in additional temperature rise in the bimetal

strips. In such applications, the temperature rise not only depends on the rms value of the current, but on the induction effects of the higher frequency currents in the metal parts of the device (skin effect caused by eddy currents).

Due to these effects, the current settings on the overload relay should be higher than the motor rated current.

### Certifications



## Thermal Overload Relays RW17...RW407 - Overview

A

B

B1

C

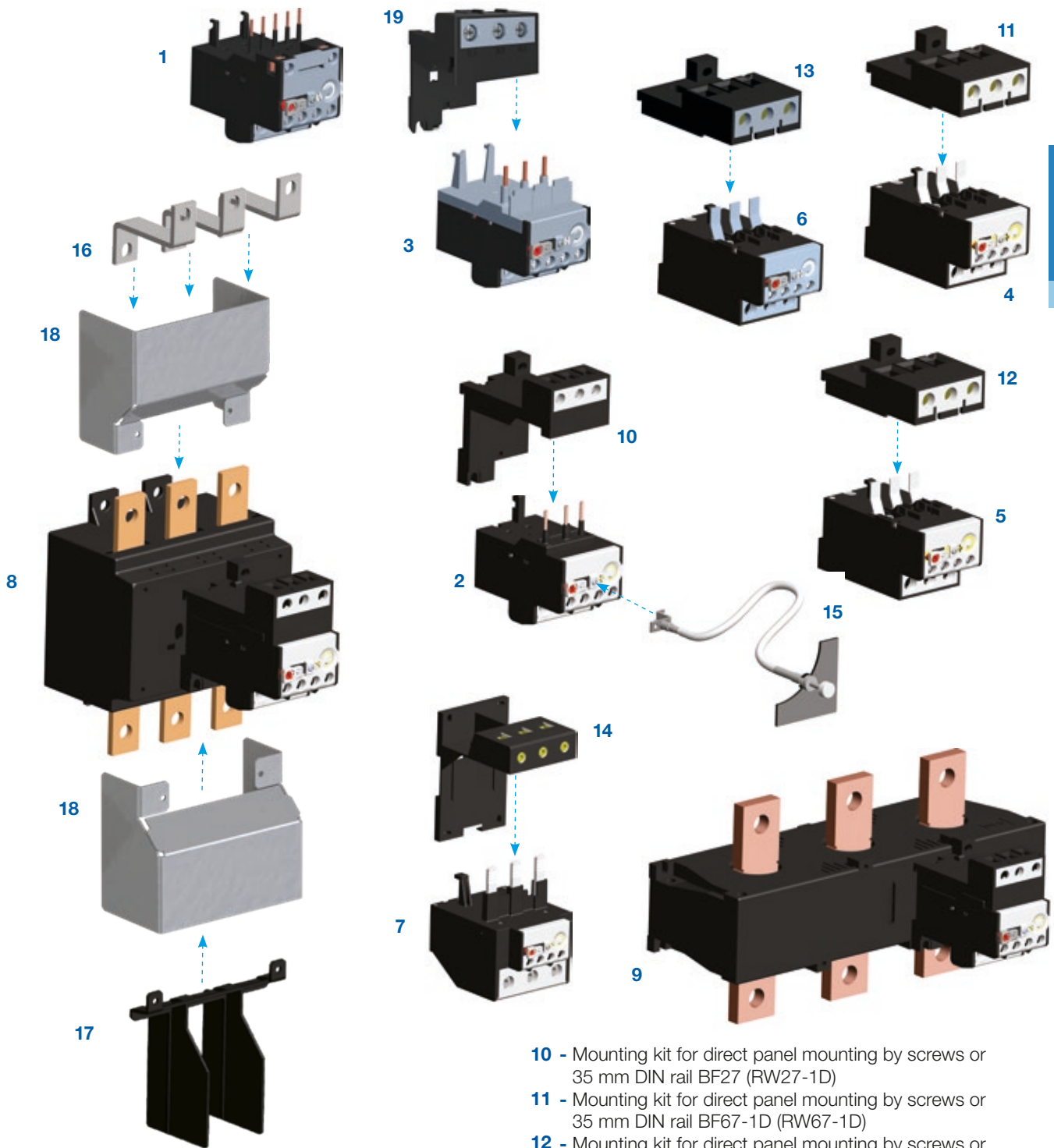
D

E

F

G

H



- 1 - RW17-1D (direct mounting on CW07/CWC07...16 compact contactors) and RW17-2D (direct mounting on CWC025 compact contactor)
- 2 - RW27-1D (direct mounting on CWM9...40 contactors)
- 3 - RW27-2D (direct mounting on CWB9...38 contactors)
- 4 - RW67-1D (direct mounting on WM32...40 contactors)
- 5 - RW67-2D (direct mounting on WM50...80 contactors)
- 6 - RW67-5D (direct mounting on CWB40...80 contactors)
- 7 - RW117 (direct mounting on CWM95/105 contactors)
- 8 - RW317 (CWM112...300/CWM400 contactors)
- 9 - RW407 (CWM500...800 contactors)

- 10 - Mounting kit for direct panel mounting by screws or 35 mm DIN rail BF27 (RW27-1D)
- 11 - Mounting kit for direct panel mounting by screws or 35 mm DIN rail BF67-1D (RW67-1D)
- 12 - Mounting kit for direct panel mounting by screws or 35 mm DIN rail BF67-2D (RW67-2D)
- 13 - Mounting kit for direct panel mounting by screws or 35 mm DIN rail BF67-5D (RW67-5D)
- 14 - Mounting kit for direct panel mounting by screws or 35 mm DIN rail BF117D (RW117)
- 15 - ERC\_RW cable for external reset (RW17...407)
- 16 - GA Connector Links for direct mounting of overload relay on contactor
- 17 - IBRW317 phase barrier (RW317)
- 18 - Protection covers for the BMP terminals (RW317)
- 19 - BF27-2D mounting kit for direct panel mounting by screws or 35 mm DIN rail (RW27-2D)

# Thermal Overload Relays - From 0.28 A to 840 A

- Thermal overload relays
- Phase-failure sensitivity according to IEC/EN 60947-4-1
- Tripping class 10
- Auxiliary contacts 1NO + 1NC
- Temperature compensation
- Hand/Auto/Reset button



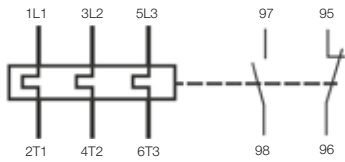
For direct mounting on contactor	Setting range of overload release (A)	Circuit diagram	Fuse (gL-gG) <sup>1)</sup> A	Reference code	Weight kg	
CW07, CWC07...16	0.28...0.4		2	RW17-1D3-D004	0.155	
CW07, CWC07...16	0.4...0.63		2	RW17-1D3-C063		
CW07, CWC07...16	0.56...0.8		2	RW17-1D3-D008		
CW07, CWC07...16	0.8...1.2		4	RW17-1D3-D012		
CW07, CWC07...16	1.2...1.8		6	RW17-1D3-D018		
CW07, CWC07...16	1.8...2.8		6	RW17-1D3-D028		
CW07, CWC07...16	2.8...4		10	RW17-1D3-U004		
CW07, CWC07...16	4...6.3		16	RW17-1D3-D063		
CW07, CWC07...16	5.6...8		20	RW17-1D3-U008		
CW07, CWC07...16	7...10		25	RW17-1D3-U010		
CW07, CWC07...16	8...12.5		25	RW17-1D3-D125		
CW07, CWC07...16	10...15		35	RW17-1D3-U015		
CW07, CWC07...16	11...17		40	RW17-1D3-U017		
CWC025	7...10		25	RW17-2D3-U010	0.155	
CWC025	8...12.5		25	RW17-2D3-D125		
CWC025	10...15		35	RW17-2D3-U015		
CWC025	11...17		40	RW17-2D3-U017		
CWC025	15...23		50	RW17-2D3-U023		
CWC025	22...32		63	RW17-2D3-U032		
CWB9...38	0.28...0.4			2	RW27-2D3-D004	0.165
CWB9...38	0.43...0.63			2	RW27-2D3-C063	
CWB9...38	0.56...0.8			2	RW27-2D3-D008	
CWB9...38	0.8...1.2			4	RW27-2D3-D012	
CWB9...38	1.2...1.8			6	RW27-2D3-D018	
CWB9...38	1.8...2.8			6	RW27-2D3-D028	
CWB9...38	2.8...4			10	RW27-2D3-U004	
CWB9...38	4...6.3			16	RW27-2D3-D063	
CWB9...38	5.6...8			20	RW27-2D3-U008	
CWB9...38	7...10			25	RW27-2D3-U010	
CWB9...38	8...12.5			25	RW27-2D3-D125	
CWB9...38	10...15			35	RW27-2D3-U015	
CWB9...38	11...17			40	RW27-2D3-U017	
CWB9...38	15...23	50		RW27-2D3-U023		
CWB9...38	22...32	63		RW27-2D3-U032		
CWB9...38	32...40	90		RW27-2D3-U040		
CWB40...80	25...40	80		RW67-5D3-U040	0.320	
CWB40...80	32...50	80		RW67-5D3-U050		
CWB40...80	40...57	100		RW67-5D3-U057		
CWB40...80	50...63	100		RW67-5D3-U063		
CWB40...80	57...70	125	RW67-5D3-U070			
CWB40...80	63...80	125	RW67-5D3-U080			

Note: 1) Maximum fuse.

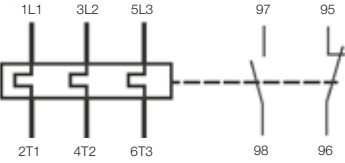
# Thermal Overload Relays - From 0.28 A to 840 A

- Thermal overload relays
- Phase-failure sensitivity according to IEC/EN 60947-4-1
- Tripping class 10
- Auxiliary contacts 1NO + 1NC
- Temperature compensation
- Hand/Auto/Reset button



For direct mounting on contactor	Setting range of overload release (A)	Circuit diagram	Fuse (gL-gG) <sup>1)</sup> A	Reference code	Weight kg
CWM9...40	0.28...0.4		2	RW27-1D3-D004	0.165
CWM9...40	0.43...0.63		2	RW27-1D3-C063	
CWM9...40	0.56...0.8		2	RW27-1D3-D008	
CWM9...40	0.8...1.2		4	RW27-1D3-D012	
CWM9...40	1.2...1.8		6	RW27-1D3-D018	
CWM9...40	1.8...2.8		6	RW27-1D3-D028	
CWM9...40	2.8...4		10	RW27-1D3-U004	
CWM9...40	4...6.3		16	RW27-1D3-D063	
CWM9...40	5.6...8		20	RW27-1D3-U008	
CWM9...40	7...10		25	RW27-1D3-U010	
CWM9...40	8...12.5		25	RW27-1D3-D125	
CWM9...40	10...15		35	RW27-1D3-U015	
CWM9...40	11...17		40	RW27-1D3-U017	
CWM9...40	15...23		50	RW27-1D3-U023	
CWM9...40	22...32		63	RW27-1D3-U032	
CWM32...40	25...40		90	RW67-1D3-U040	0.320
CWM32...40	32...50		125	RW67-1D3-U050	
CWM50...80	25...40		90	RW67-2D3-U040	0.320
CWM50...80	32...50		125	RW67-2D3-U050	
CWM50...80	40...57	150	RW67-2D3-U057		
CWM50...80	50...63	150	RW67-2D3-U063		
CWM50...80	57...70	175	RW67-2D3-U070		
CWM50...80	63...80	200	RW67-2D3-U080	0.490	
CWM95...105	63...80	200	RW117-1D3-U080		
CWM95...105	75...97	225	RW117-1D3-U097		
CWM95...105	90...112	250	RW117-1D3-U112		



For use with contactor	Setting range of overload release (A)	Circuit diagram	Fuse (gL-gG) <sup>1)</sup> A	Reference code	Weight kg
CWM112 <sup>2)</sup>	63...80		200	RW117-2D3-U080	0.750
	75...97		225	RW117-2D3-U097	
	90...112		250	RW117-2D3-U112	
CWM112...300 <sup>3)</sup> , CWM400 <sup>3)</sup>	100...150		315	RW317-1D3-U150	1.985
	140...215		355	RW317-1D3-U215	
	200...310		500	RW317-1D3-U310	
	275...420		710	RW317-1D3-U420	
CWM500...800	400...600		1,000	RW407-1D3-U600 <sup>3)</sup>	3.435
	560...840		1,250	RW407-1D3-U840 <sup>3)</sup>	

Notes: 1) Maximum fuse;

2) Allows assembly with contactor using connector links GA;

3) It is possible to connect contactors to RW407 overload relay by using GA407-1D connector links or routing contactor-to-motor cables through the Ø32 mm window available in the overload relay.

## Accessories

### Base for Separate Mounting

Illustrative picture	Description	For use with	Reference code	Weight (kg)
	Enables overload to be mounted directly to a panel via screws or DIN rail 35 mm	RW27-1D	BF27D	0.050
		RW27-2D	BF27-2D	
		RW67-1D	BF67-1D	0.095
		RW67-2D	BF67-2D	
		RW67-5D	BF67-5D	
		RW117-1D	BF117D	0.110

### Connector Links for Connection

Illustrative picture	Overload relay	Contactors	Reference code	Weight (kg)
	RW117-2D	CWM112	GA117D	0.135
	RW317	CWM112/150	GA317-1D	0.250
	RW317	CWM180	GA317-2D	0.270
	RW317	CWM250/300	GA317-3D	0.630
	RW317	CWM400	GA317-10D	0.500
	RW67-1D or RW67-2D	CWB40...80	GA67-B80	0.030
	RW67-1D	CWM32/40	GA67-1D	0.030
	RW67-2D	CWM50...80	GA67-2D	0.030

### External Reset

Illustrative picture	Description	Flexible cable size	Reference code	Weight (kg)
	Metallic cable for external reset suitable to all models of RW overload relays. Remarks: - Required hole on panel door: $\varnothing 6.5...7$ mm - Required thickness of panel door: 2 mm...4.25 mm	250 mm	ERC250RW	0.034
		375 mm	ERC375RW	0.036
		500 mm	ERC500RW	0.041

### Insulator Barrier

Illustrative picture	Description	For use with	Reference code	Weight (kg)
	One plastic phase barrier + screws, to be used on the overload relay line or load side. The distance between busbars of RW317 overload relays are the minimum required in order to comply with $U_n=1,000$ V, pollution degree 3. When the distance between cables or busbars connected to the overload relay are smaller than that, phase barriers IBRW317 should be used.	RW317	IBRW317	0.044

### Reset Pushbutton with Shaft

Illustrative picture	Description	For use with O/L relays	Reference code	Weight kg
	Flush RESET pushbutton with shaft / Blue color Shaft size: Min: 22.5 mm / Max: 250 mm	RW	CSW-BHF437	0.032
	Extended RESET pushbutton with shaft / Blue color Shaft size: Min: 22.5 mm / Max: 250 mm		CSW-BHS437	0.032

### Cover Protection

Illustrative picture	Description	Number of parts	Use with	Reference code	Weight (kg)
	Terminal cover against accidental touches on upper and lower power terminals. Material in polycarbonate not inflammable. This accessory assure frontal degree of protection IP20 in overload relay.	2	RW317	BMPRW317	0.18
		1	RW317	BMP1RW317	0.09
	Terminal cover against accidental touch on upper power terminals of overload relay when used with connector link GA317-10D. Material in polycarbonate not inflammable. This accessory assure frontal degree of protection IP20 in overload relay.	1	CWM400 + GA317-10D + RW317	BMP1RW317-CWM400	0.18



# Technical Data

## General Data and Main Contacts

Reference code	RW17	RW27	RW67	RW117	RW317	RW407
Standards	IEC/EN 60947 / UL 508 / UL 60947					
Setting current (A)	0.28...17	0.28...32	25...80	75...112	100...420	400...840
Tripping class	10					
Temperature compensation	Continuous					
Rated insulation voltage $U_i$ (pollution degree 3)	IEC/EN 60947 (V) UL/CSA (V)		690		1,000	
Rated impulse withstand voltage $U_{imp}$ (kV)			6		8	
Rated operational frequency (Hz)			0...400		50/60	
Degree of protection Protection against direct contact from the front when actuated by a perpendicular test finger (IEC/EN 60536)	IP20 Finger and back-of-hand proof					
Ambient temperature Operating temperature Storage temperature	-25 °C to +60 °C -40 °C to +70 °C					
Climating proof IEC/EN 60 068-2-3 IEC/EN 60 068-2-30	Damp heat, constant Damp heat, constant					
Current heat loss Lower value of setting range (W) Higher value of setting range (W)	0.9 1.4	0.9 1.7	1.5 4.7	2.3 4.7	1 1.9	

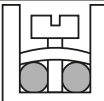
## Auxiliary Contacts

Models	RW17	RW27	RW67	RW117	RW317	RW407
Standards	IEC/EN 60 947-4-1 and UL 508					
Rated insulation voltage $U_i$ (pollution degree 3)	IEC/EN (V) UL, CSA (V)		690		600	
Rated operational voltage $U_e$	IEC/EN (V) UL, CSA (V)		690		600	
Rated thermal current $I_{th}$ ( $\theta \leq 55$ °C)			6			
Rated operational current $I_e$						
AC-14 / AC-15 (IEC/EN 60947-5-1)	24 V (A)			4		
	60 V (A)			3.5		
	125 V (A)			3		
	230 V (A)			2		
	400 V (A)			1.5		
	500 V (A)			0.5		
UL, CSA			C600			
	690 V (A)			0.3		
DC-13 / DC-14 (IEC/EN 60947-5-1)	24 V (A)			1		
	60 V (A)			0.5		
	110 V (A)			0.25		
	220 V (A)			0.1		
UL, CSA			R300			
Short-circuit protection with fuse (gL/gG)			6			
Minimum voltage / admissible current (IEC/EN 60947-5-4)			17 V / 5 mA			

## Terminal Capacity and Tightening Torque - Main Contacts

Reference	RW17	RW27	RW67	RW117	RW317	RW407
Current setting (A)	0.28...17	0.28...32	25...80	75...112	100...215	200...420
Cable size (75 °C / Cu cable)						
Flexible cable	1 cable (mm <sup>2</sup> )	1,5...10	6,0...35	25...35	35...120	95...150
	2 cables (mm <sup>2</sup> )		-	-		
Cable with terminal or rigid cable	1 cable (mm <sup>2</sup> )	1,5...6,0	6,0...35	25...35	35...120	95...150
	2 cables (mm <sup>2</sup> )		-	-		
Busbar			-		Max 2x (25x5)	
Tightening torque (N.m)	2,3		4,0	6,0	16,0	26,0
UL cable size (75 °C - Cu cable)	AWG 16...8		10...3	6...1/0	3-300 kcmil	3/0 - 600 kcmil
Tightening torque (UL)	(lb.in)		20	35	53	141
					230	230

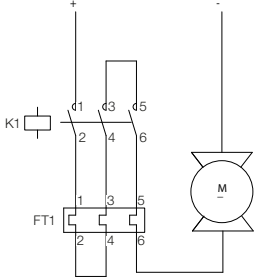
## Terminal Capacity and Tightening Torque - Auxiliary Contacts

Models	RW17	RW27	RW67	RW117	RW317	RW407
Type of screws	M3.5 x 10 Phillips					
Cable size (75 °C / Cu cable)						
Cable size with or without terminal (mm <sup>2</sup> )			2 x 1...2.5			
AWG-wire			16...12			
Tightening torque (N.m / lb.in)			1.5 / 13			

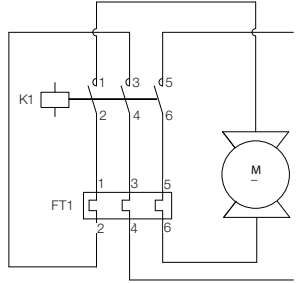
# Diagrams

## Motor Protection - Direct Current

### 1-Pole

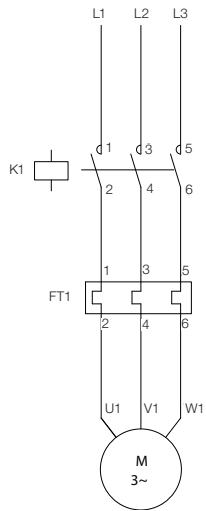


### 2-Pole

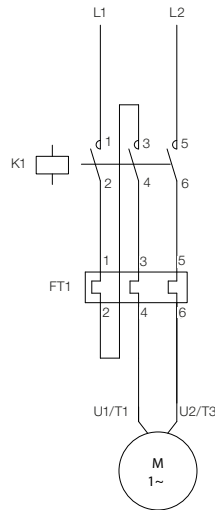


## Motor Protection - Alternating Current

### 3-Pole

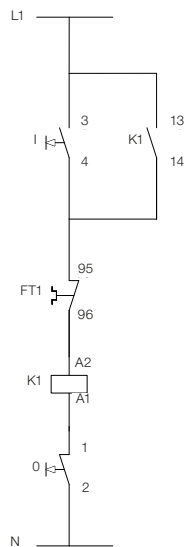


### 2-Pole

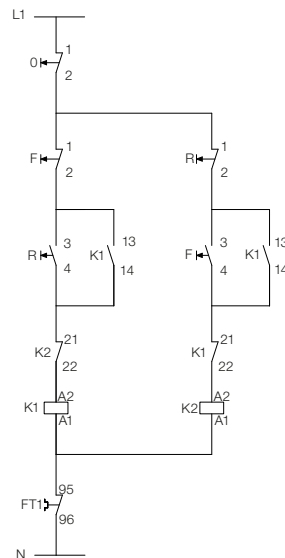


## Connection Suggestion - Contactor + Overload Relay

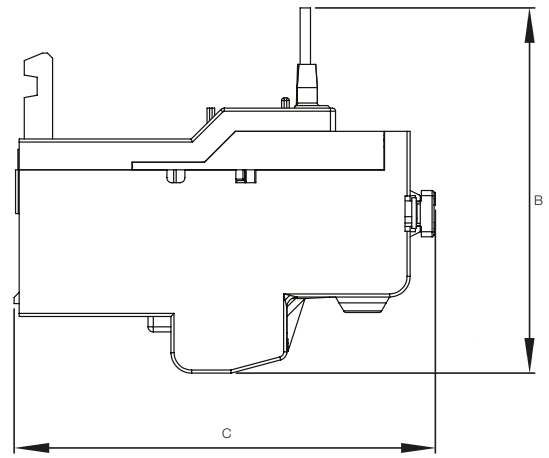
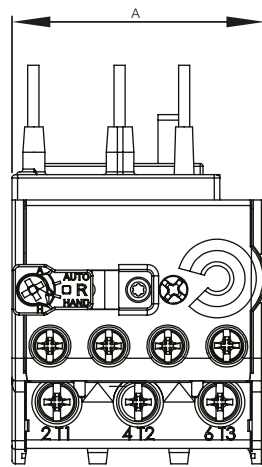
### Direct On Line Starter (1 Direction of Rotation)



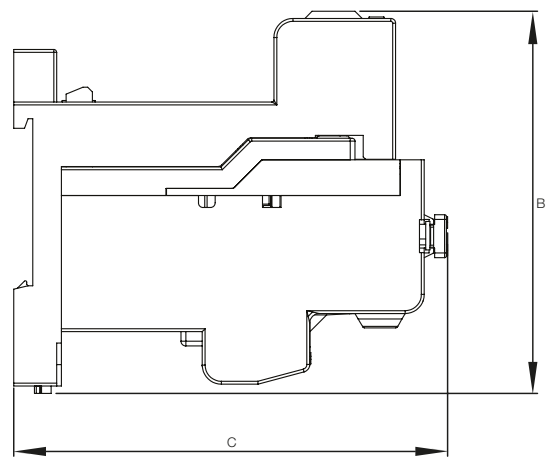
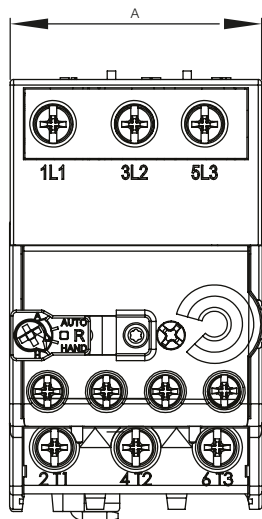
### Direct On Line Starter (2 Directions of Rotation)



## Dimensions (mm)

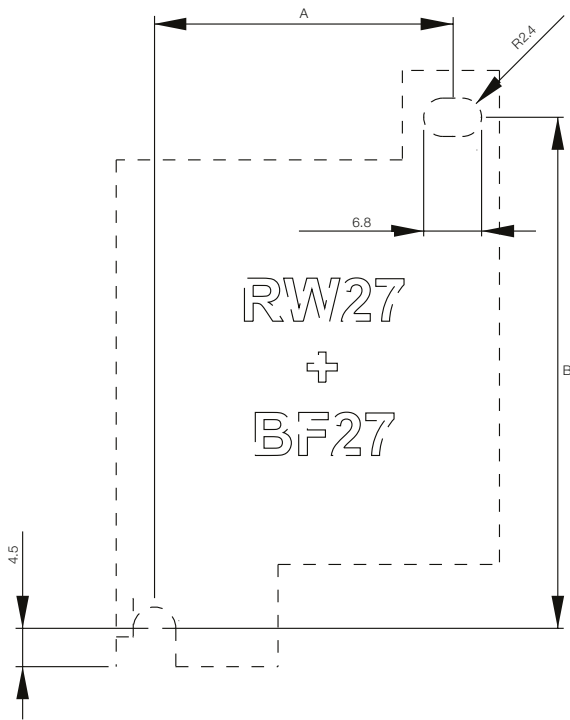


	RW17-1D RW17-2D RW27-1D RW27-2D	RW67-1D	RW67-2D	RW67-5D	RW117-1D
A	45.0	50.0	50.0	50.0	75.0
B	71.5	76.5	81.5	71.5	99.5
C	83.5	106.5	106.5	106.5	98.8

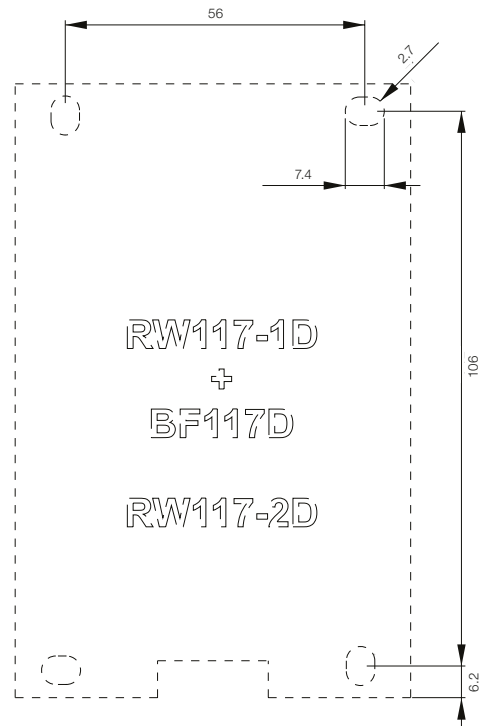
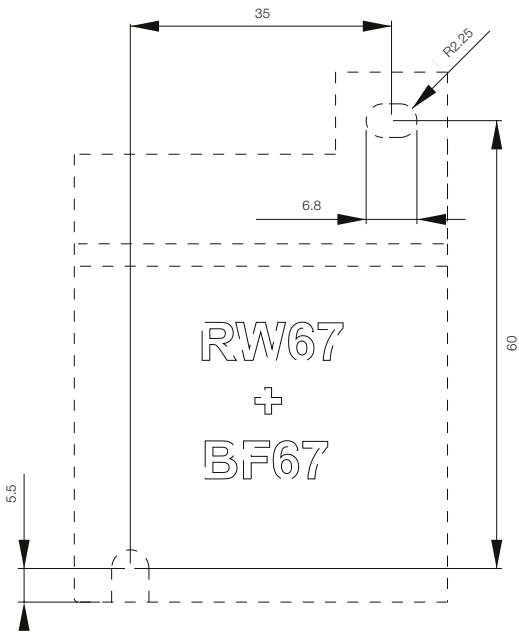


	BF27D + RW27-1D BF27-2D + RW27-2D	BF67-1D + RW67-1D BF67-2D + RW67-2D BF67-5D + RW67-5D	BF117D + RW117-1D RW117-2D
A	45.0	50.0	75.0
B	80.0	71.0	116.4
C	92.5	106.0	106.2

## Dimensions (mm)

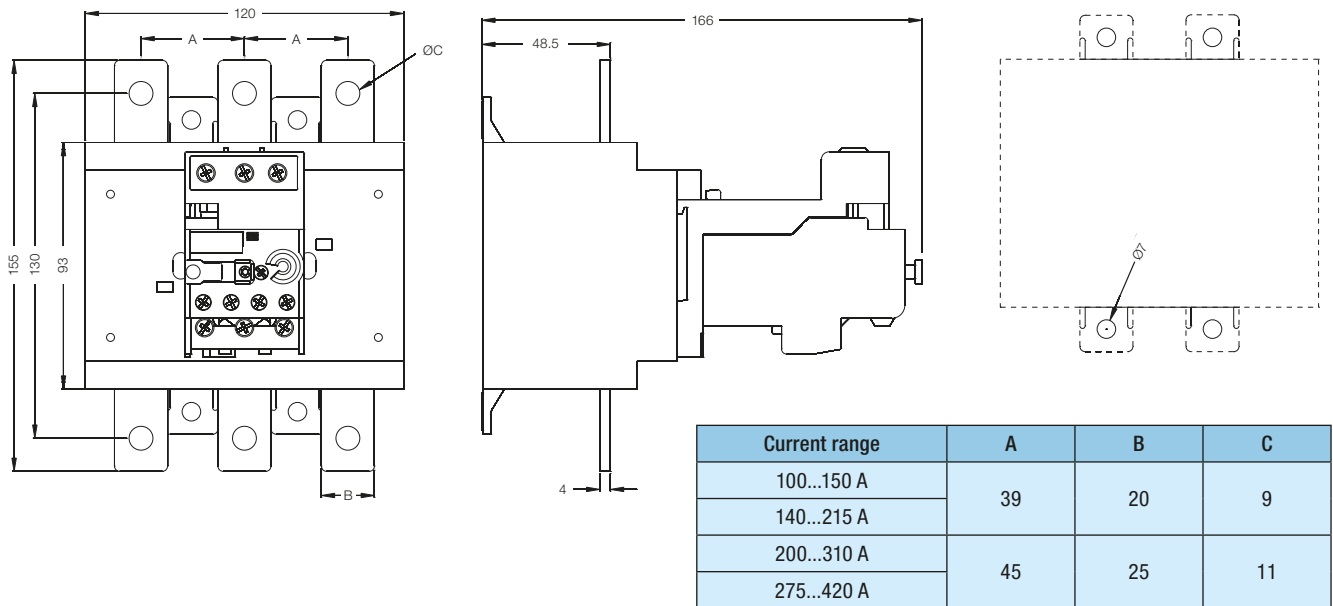


	BF27D	BF27-2D
A	34	34
B	60	65

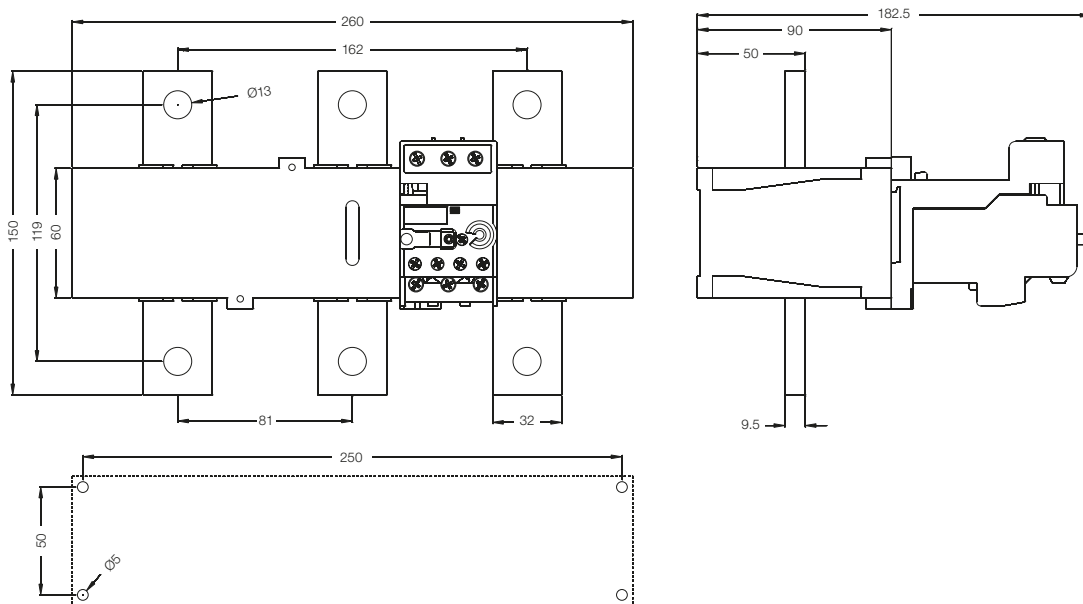


## Dimensions (mm)

### RW317

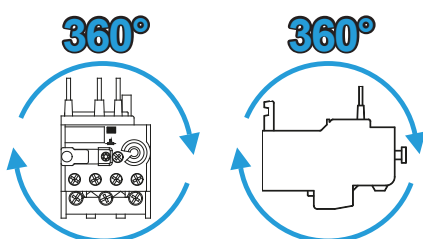


### RW407



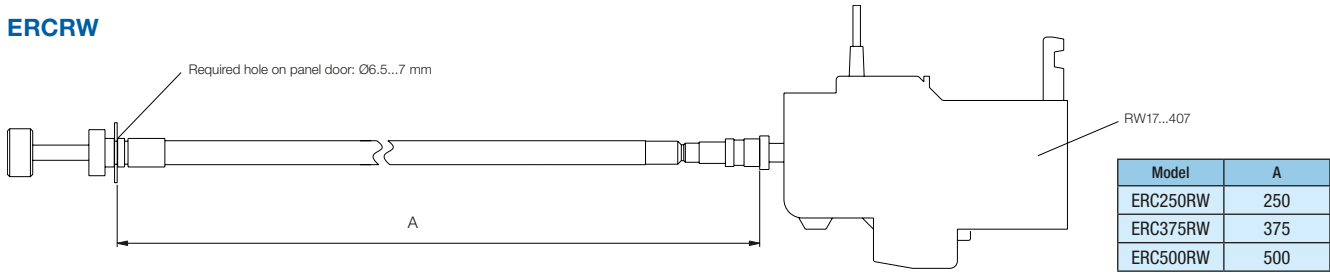
## Installation

### RW17...407

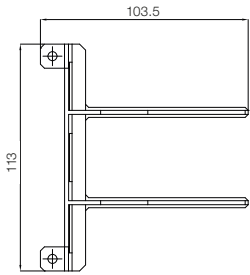


## Dimensions (mm)

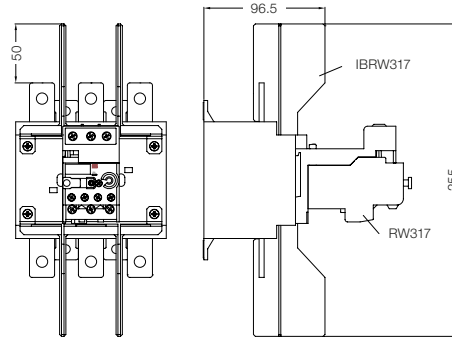
### ERCRW



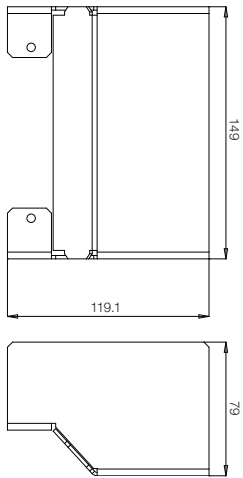
### IBRW317



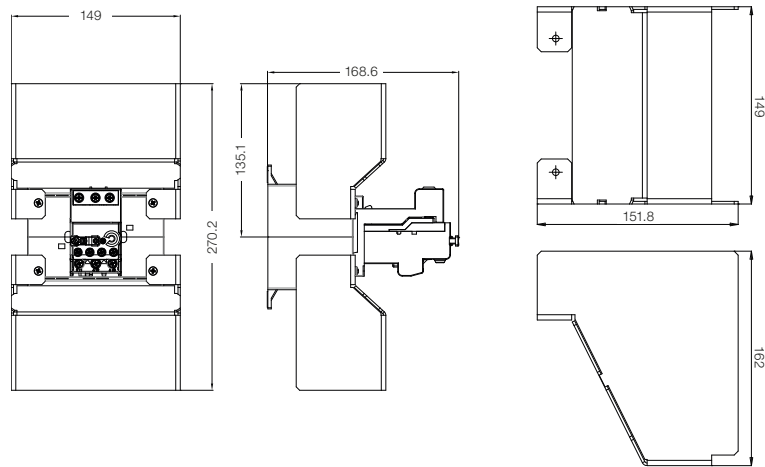
### RW317+IBRW317



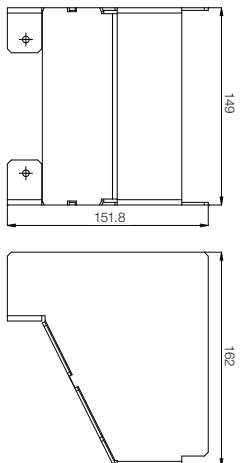
### BMPRW317



### RW317+ BMPRW317

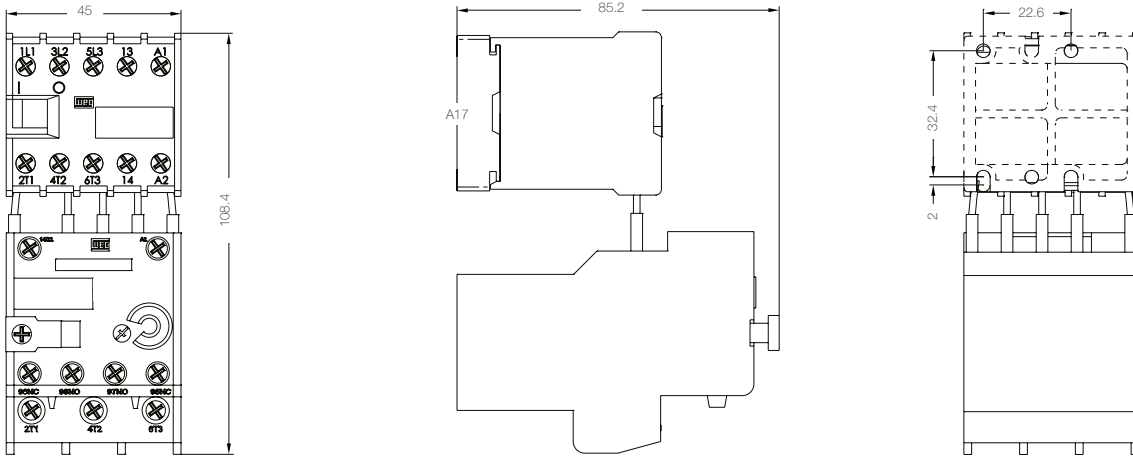


### BMP1RW317-CWM400

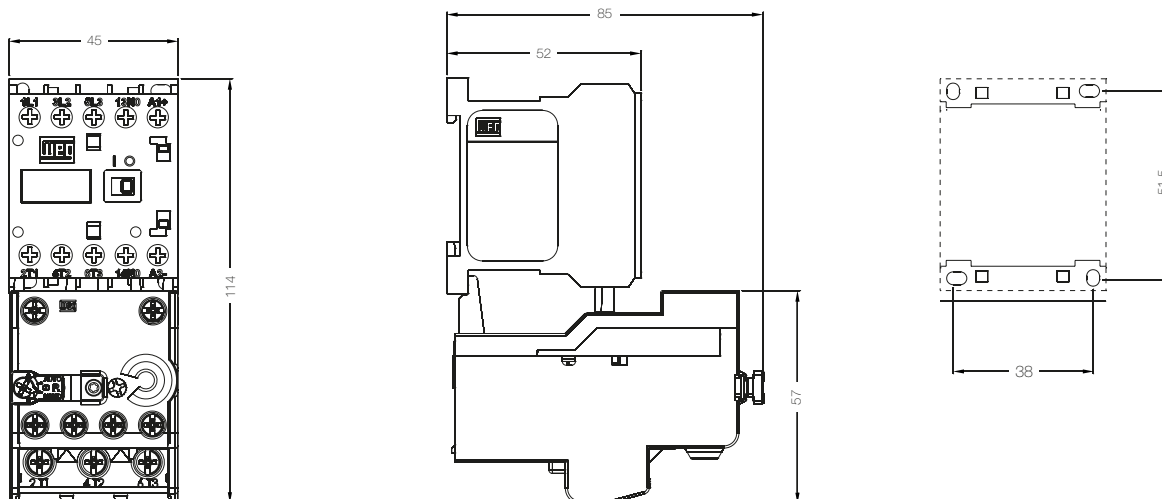


## Dimensions (mm)

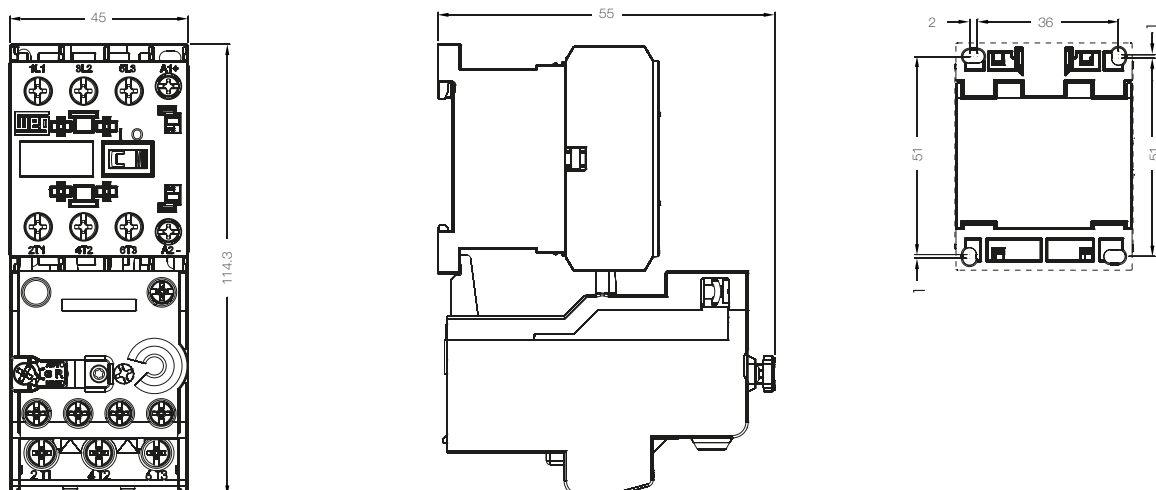
### CW07 + RW17-1D



### CWC07...16 + RW17-1D



### CWC025 + RW17-2D



A

B

B1

C

D

E

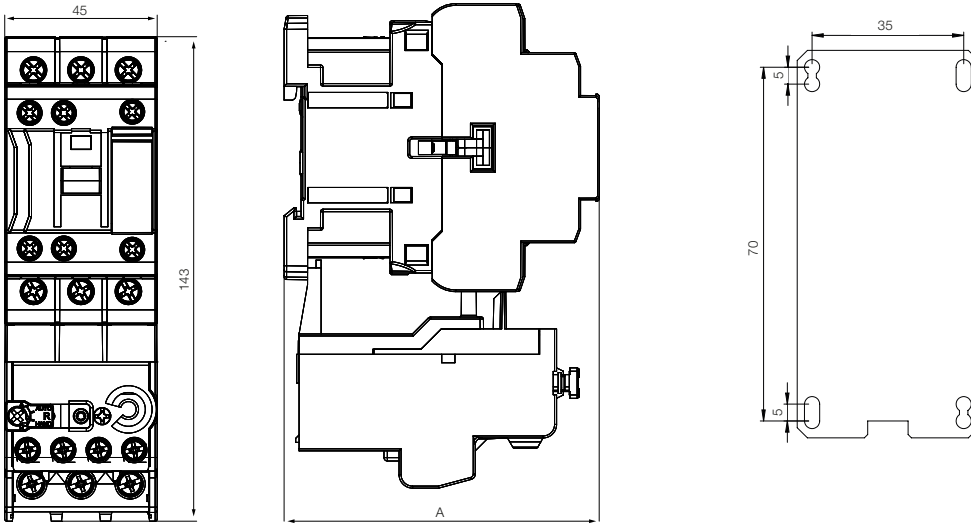
F

G

H

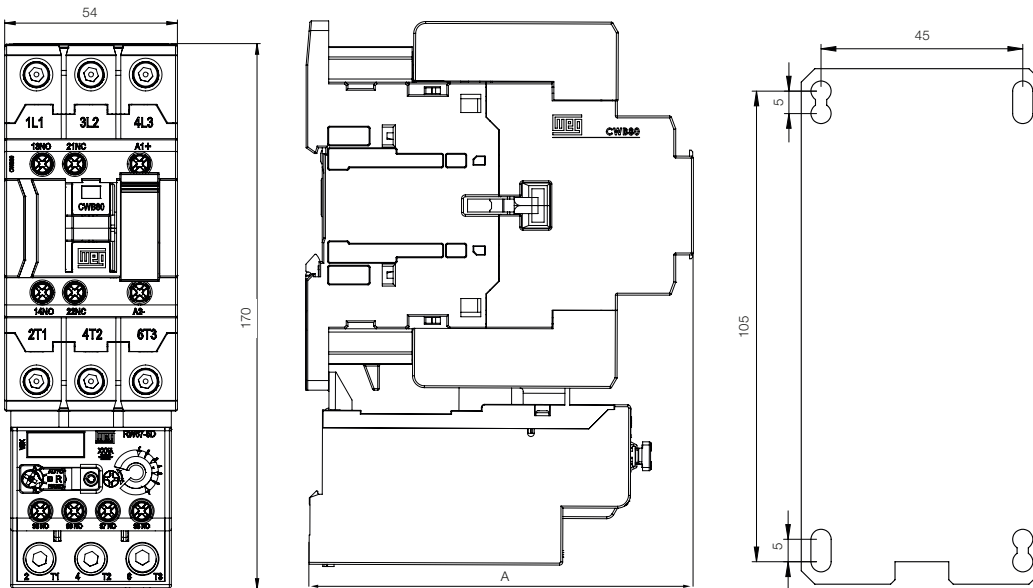
## Dimensions (mm)

### CWB9...38 + RW27-2D



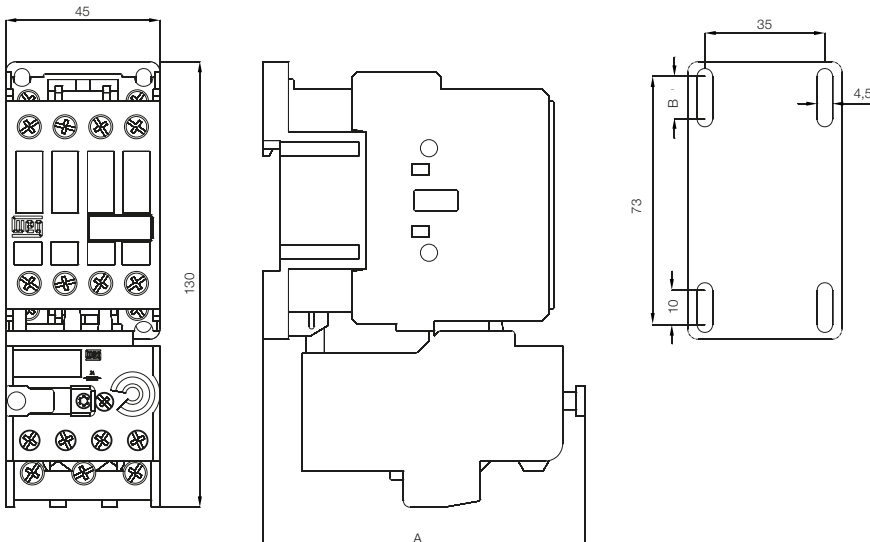
CWB9...38	A
AC coil	93
DC coil	102.2

### CWB40...80 + RW67-5D



CWB40...80	A
AC coil	120.6
DC coil	120.6

### CWM9...25 + RW27-1D

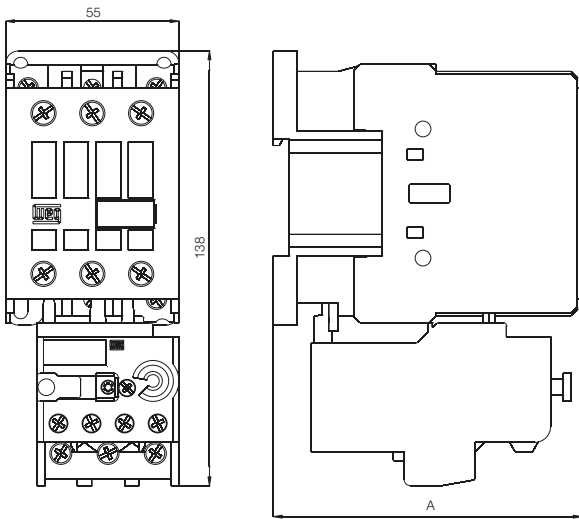


CWM9...25	A	B
AC coil	94	4.8
DC coil	124	13



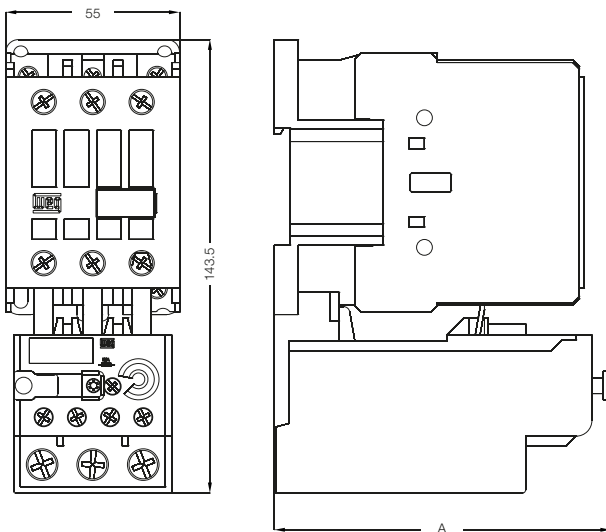
## Dimensions (mm)

### CWM32 + RW27-1D



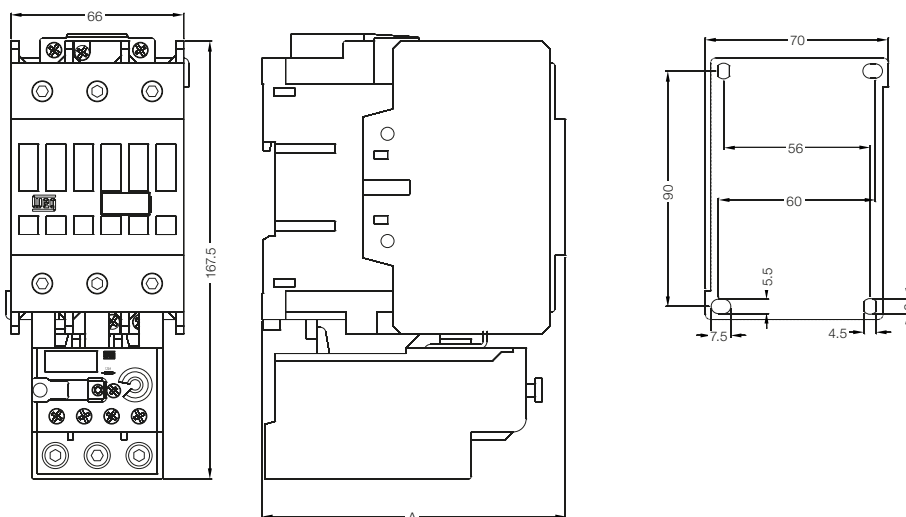
CWM32	A
AC coil	98
DC coil	118

### CWM32/40 + RW67-1D



CWM32/40	A
AC coil	106.5
DC coil	126.5

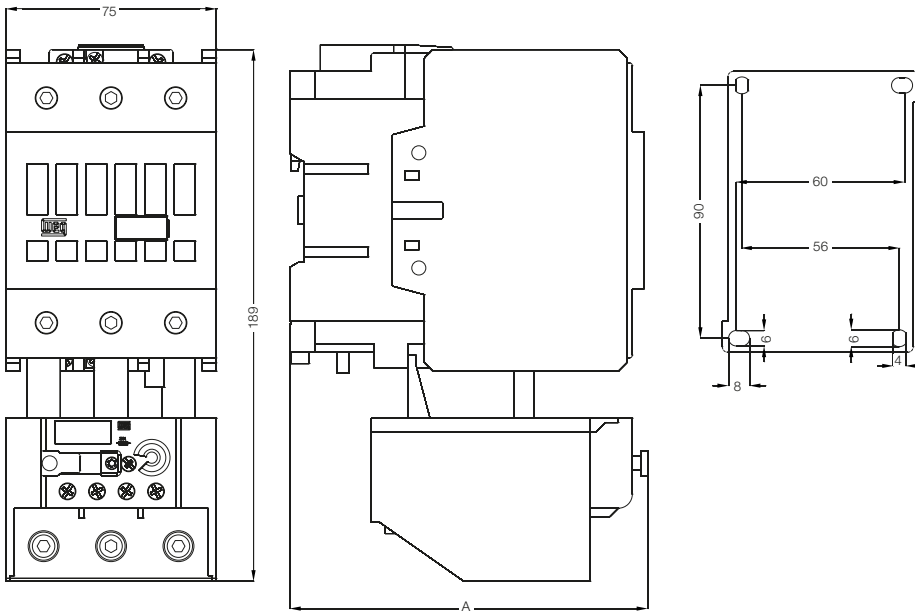
### CWM50...80 + RW67-2D



CWM50...80	A
AC coil	116
DC coil	116

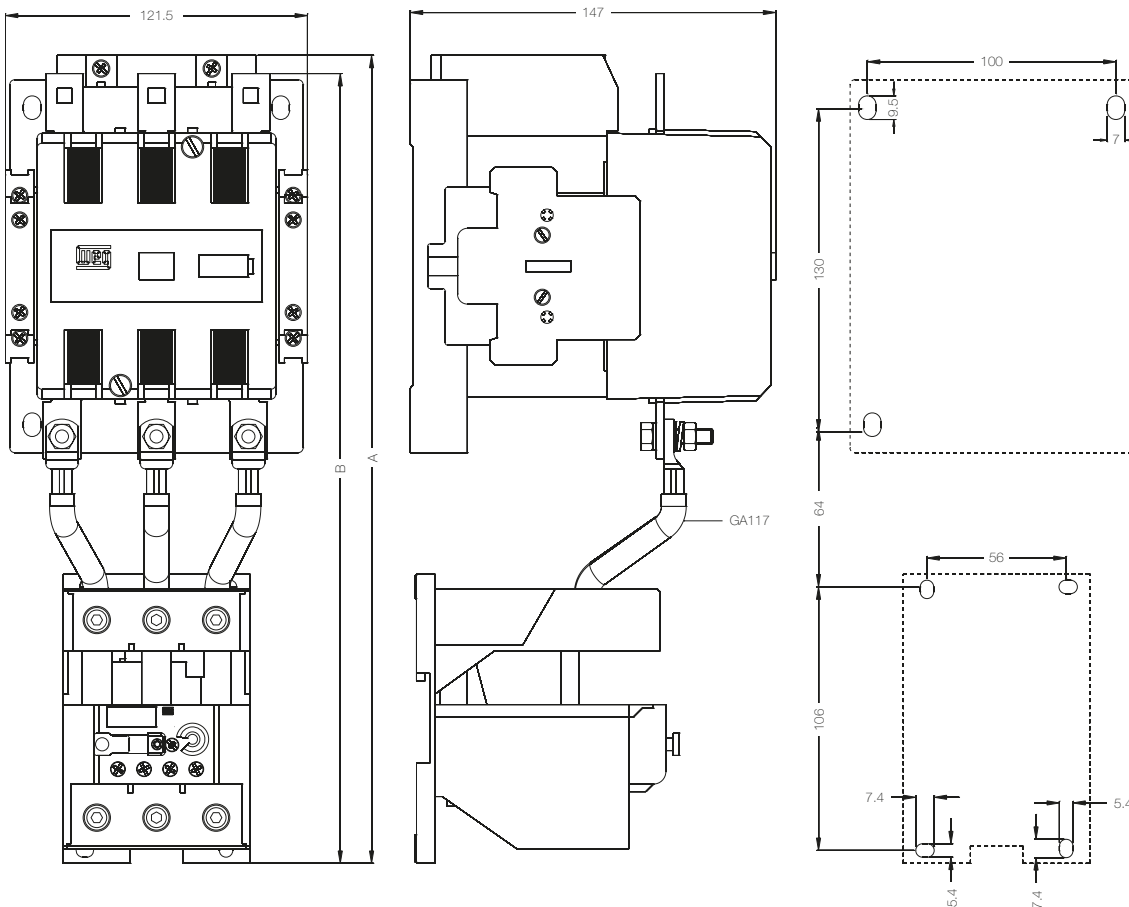
## Dimensions (mm)

### CWM95/105 + RW117-1D



CWM95/105	A
AC coil	127.5
DC coil	127.5

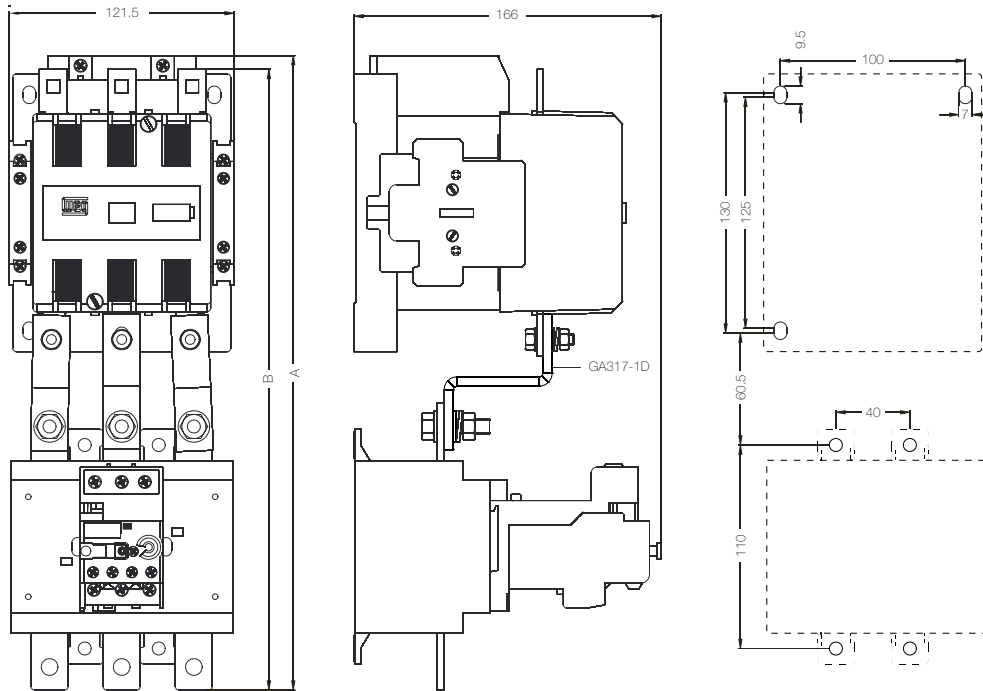
### CWM112 + RW117-2D



CWM112	A	B
Standard coil	-	317.7
Electronic module	325	317.7

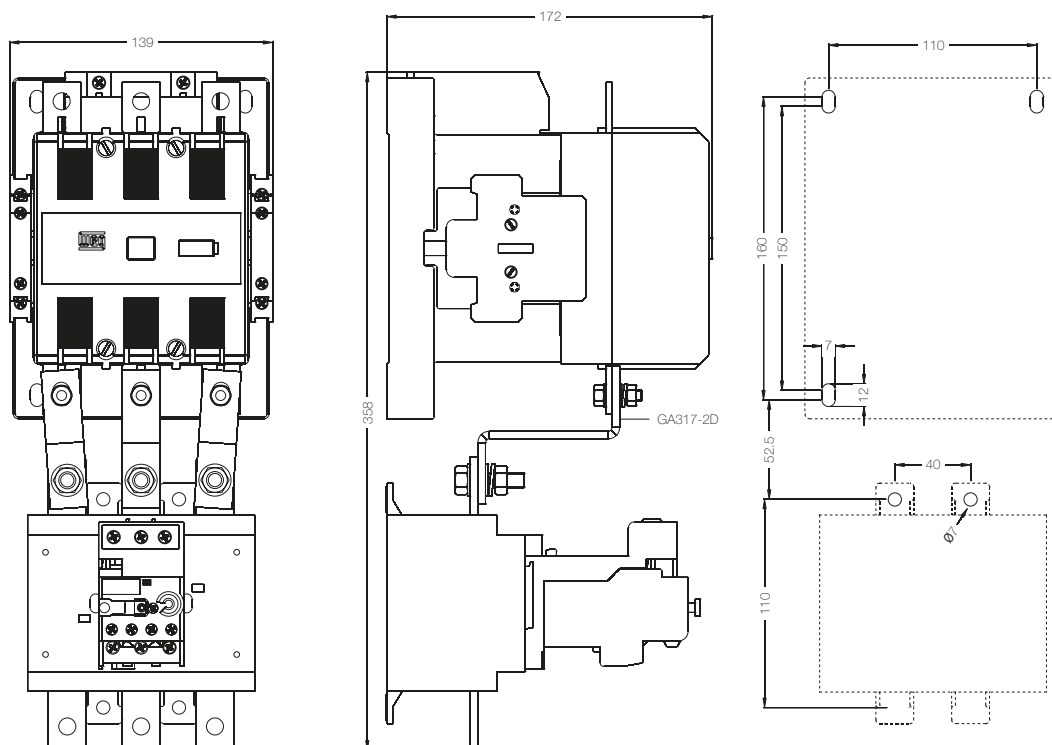
## Dimensions (mm)

### CWM112/150 + RW317



	A	B
CWM112 (standard coil)	-	335.5
CWM112/150 (electronic module)	343	335.5

### CWM180 + RW317



A

B

B1

C

D

E

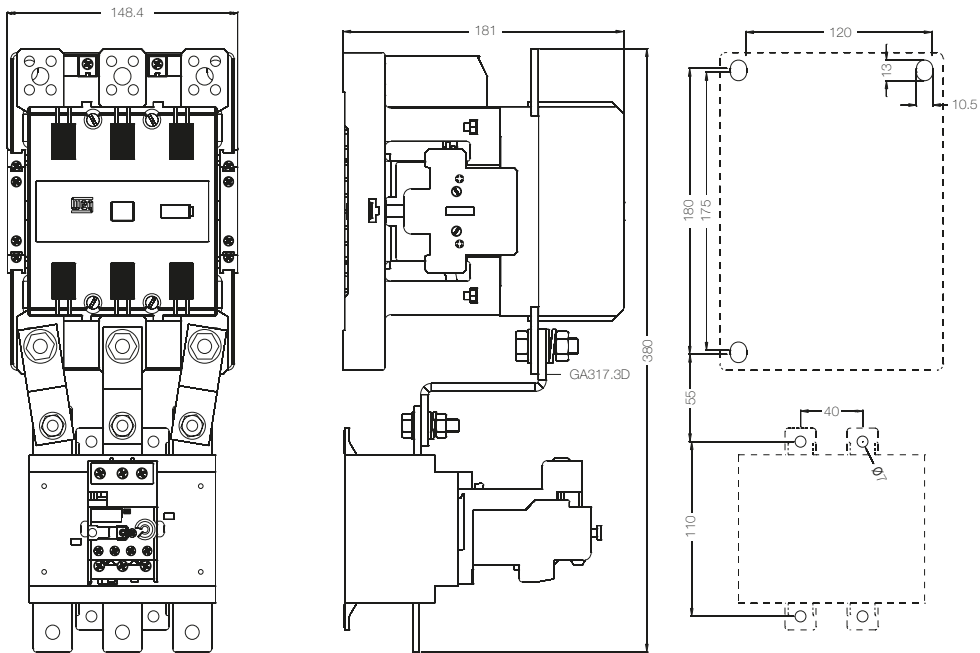
F

G

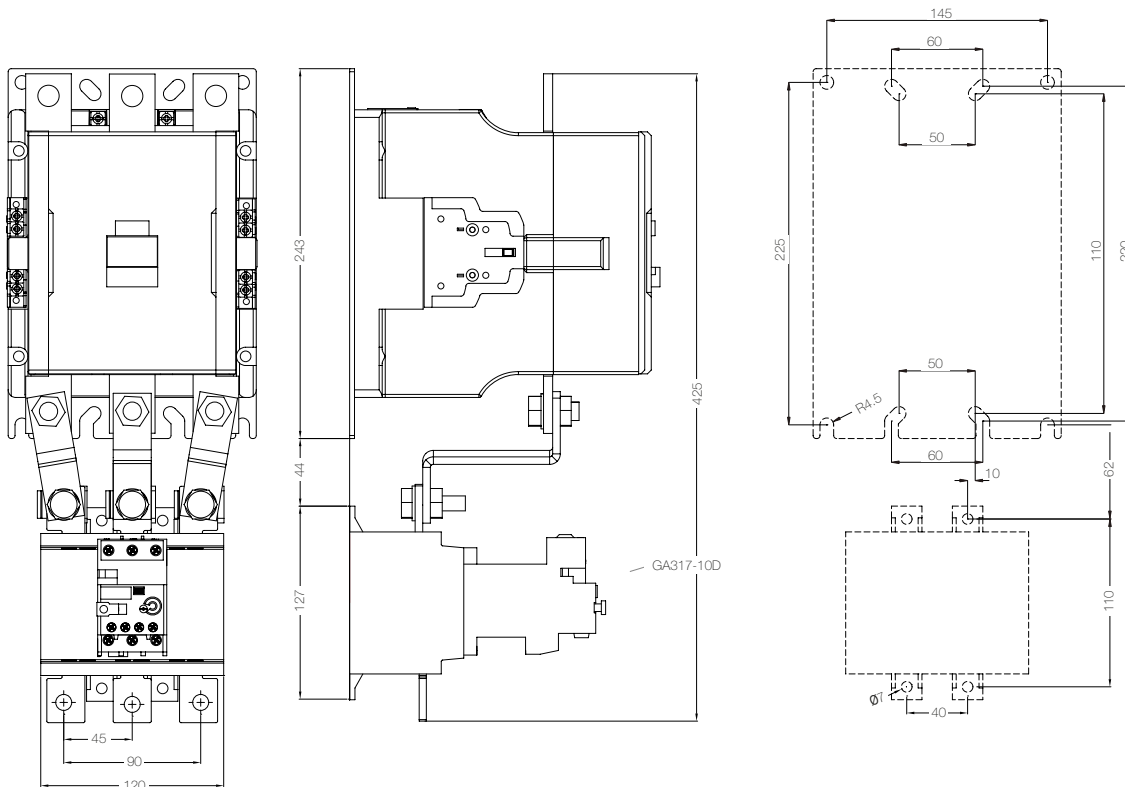
H

## Dimensions (mm)

### CWM250/300 + RW317

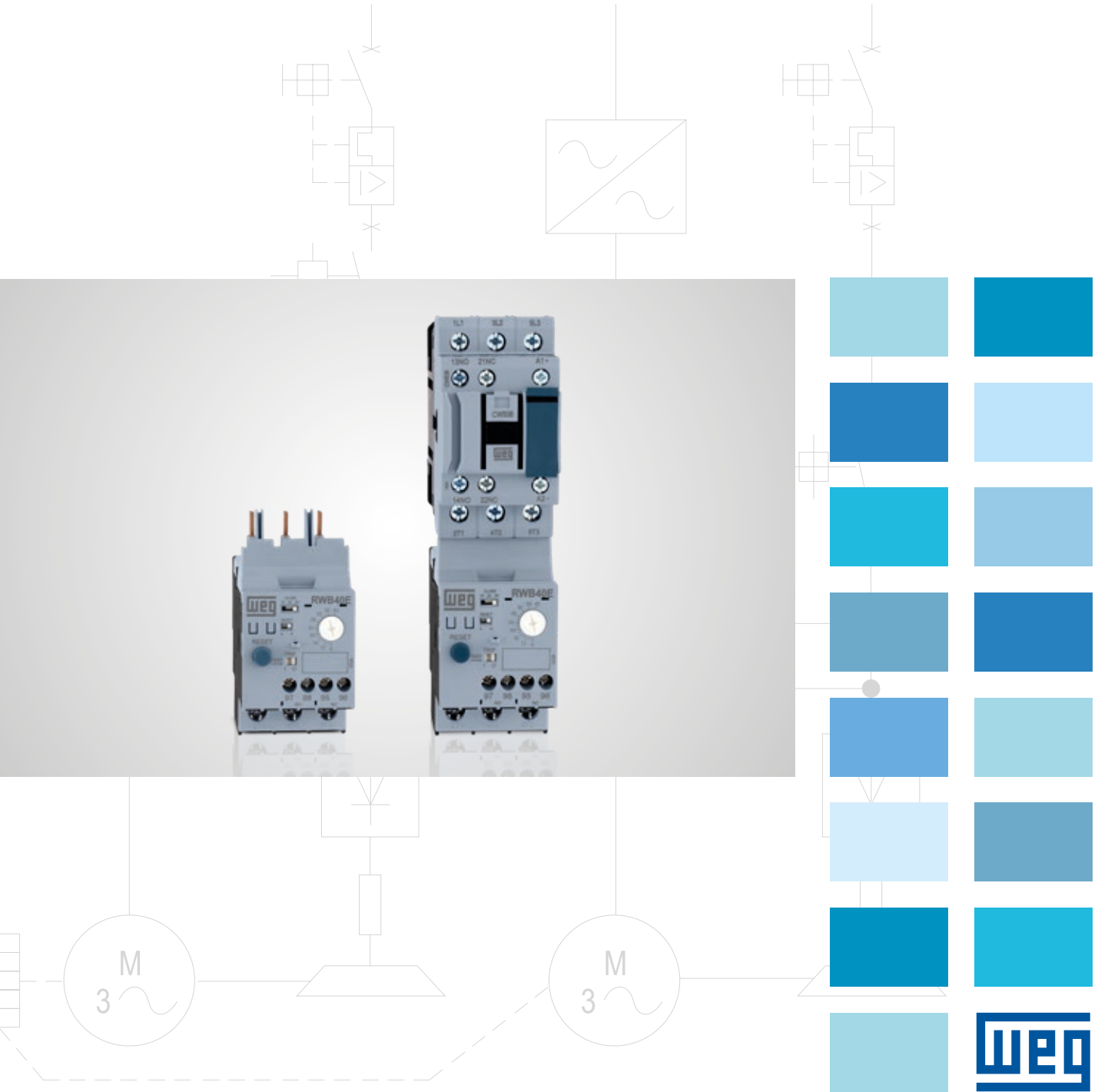


### CWM400 + RW317



# Automation

## Solid-State Overload Relays RW\_E





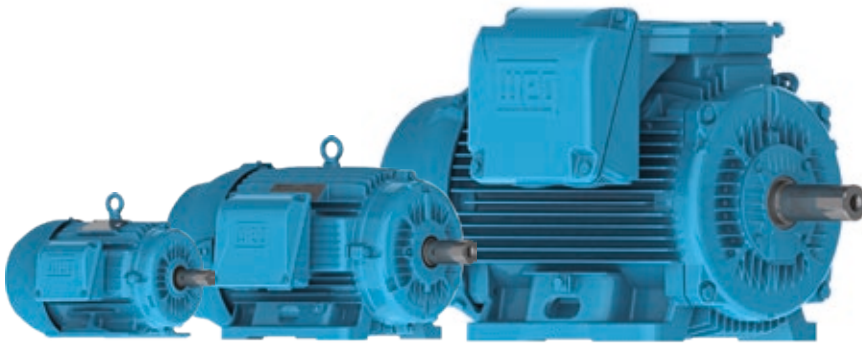
www.weg.net

## Solid-State Overload Relays - RW\_E

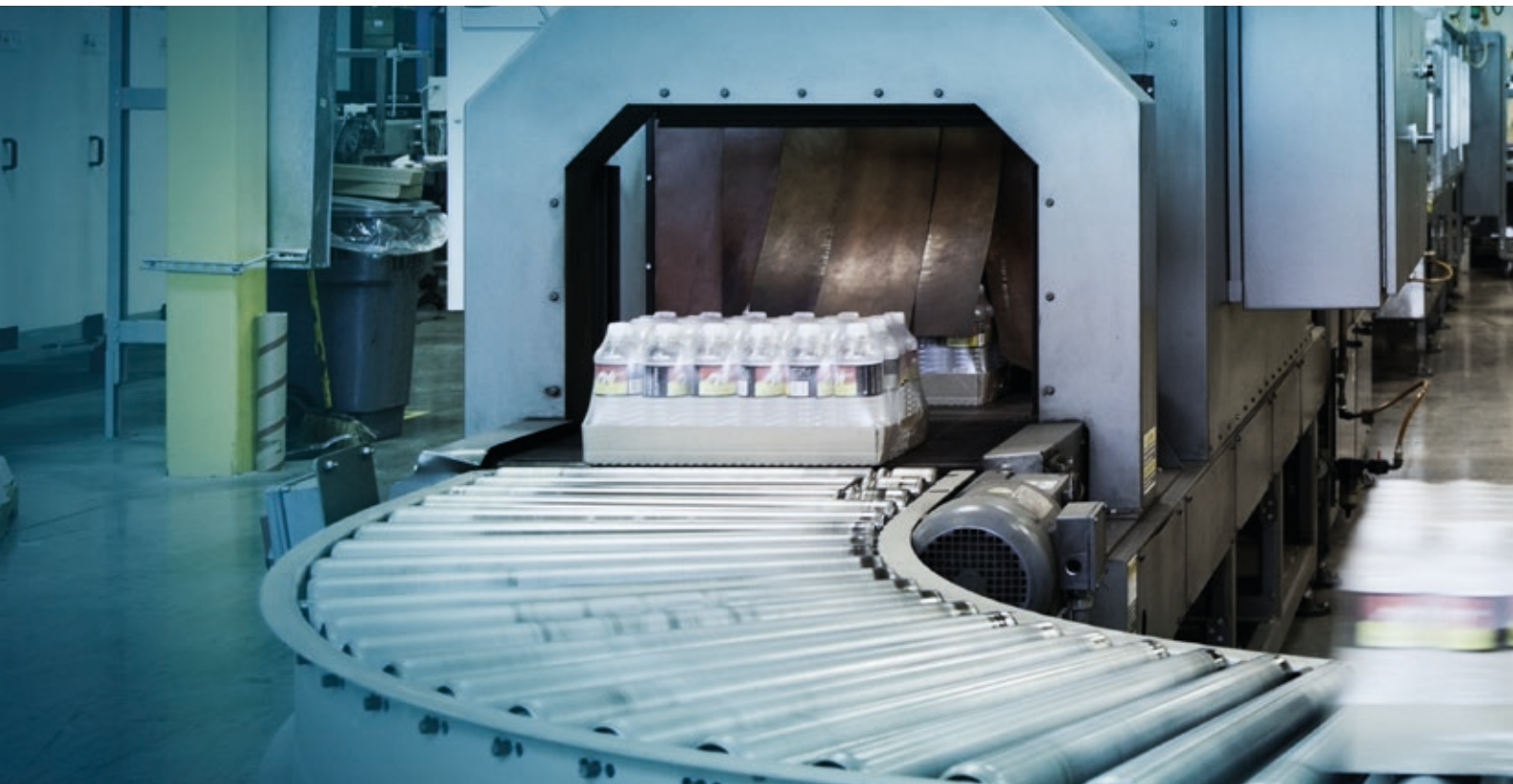
### Versatility and Accuracy for Electric Motor Protection

The continuous pursuit for improvement and cost reduction in production in industry have taken the electric motor control and protection systems to a level where low losses, precision and versatility are imperative. In order to better meet industry needs, WEG launches the RW\_E solid-state overload relays for motor protection.

The RW\_E is meant to assure increased reliability for protection of low voltage three-phase electric motors in sinusoidal 50/60 Hz networks where reliability, low power dissipation and ease maintenance management are mandatory.



The new RW\_E solid-state overload relays are developed with cutting edge technology, according to the most demanding standards worldwide such as IEC 60947-4-1 and UL 60947-4-1A (UL 508) and produced with environmentally friendly and reusable materials.



## Solid-State Overload Relays - RW\_E

### Solid-State x Thermal (Bimetallic) Overload Relays

Thermal overload relays are designed to mimic the heat actually generated in the motor. They simulate the motor heating by passing motor current directly or indirectly through bimetal strips. As the motor temperature increases, so does the temperature of the overload relay thermal unit. The heat bends the bimetal strips and, depending on the current setting of the relay, a trip mechanism is activated.

Continuous duty and low number of motor start-ups are common in most usual applications. In such situations, the motor and relay heating curves have a strong relationship. No matter how high the current drawn by the motor, the thermal overload relay provides protection and does not trip unnecessarily.

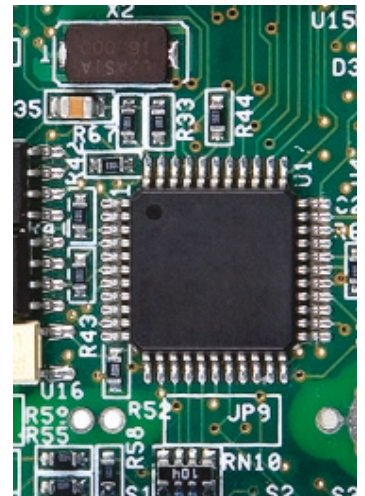
On the other hand, in applications where frequent motor start-ups (intermittent duty) take place, the increase of heating behaves slightly different in the bimetal strips than in the motor windings and undesired early trippings are common. In such situations, the thermal capacity of the motor is not properly utilized and thermal overload relays are not the most suitable solution.

In solid-state overload relays, the motor current is measured by current transformers and then converted into an electronic signal. Thus, different from thermal overload relays where a significant amount of energy is wasted in the bimetal strips, in solid-state overload relays the low heat losses of the electronic circuits result in less energy consumption and lead to reduced need of ventilation of cabinets.

In addition, due to this technology, the microprocessed signal allows increased precision providing better motor overload protection.

And yet, maybe the most important advantage of solid-state overload relays is the wide current range with the 5:1 ratio between maximum and minimum setting.

When compared to the usual 1.5:1 ratio of the thermal overload relays, this wide range leads to a tremendously reduced number of different items to cover all current ranges up to 840 A. In a few words, it leads to great reduction in inventory and flexibility on planning.

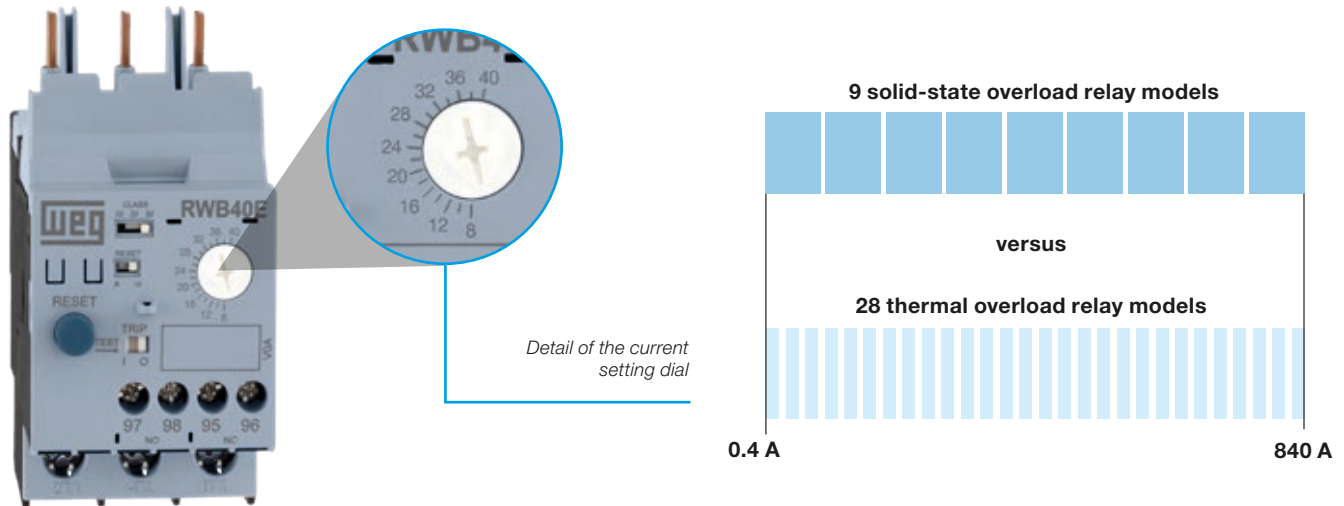


## Solid-State Overload Relays - RW\_E

### Flexibility and Versatility

In an increasingly globalized and competitive market it is common that machine manufacturers provide their customers with a wide choice of electric motors with a huge number of different models and output powers.

With its wide range current setting (5:1 ratio between maximum and minimum setting), the same RW\_E relay can be used for protection of electric motors of different power ratings or for protection of the same motor when applied on networks of different voltages and frequencies. The benefit is versatility and flexibility for machine manufacturers due to the possibility of standardization of control panels.



The RW\_E can be directly mounted on WEG contactors (CWB and CWM lines) providing very reliable and flexible motor starter units.

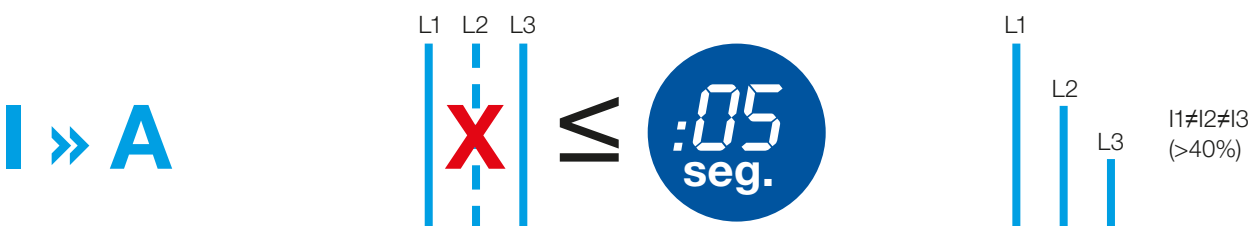
An additional advantage is that the solid-state overload relays RW\_E are self-powered, that is, no additional external power is required for operation thus it can be applied directly to the contactor in the same way the thermal overload relays are applied. This feature also allows easy replacement of thermal relays for solid-state ones without the need of rearranging the control circuit wiring or changing the contactor.

*Note: overload relays must be protected against short-circuits by fuses or circuit breakers.*



### Available Protections

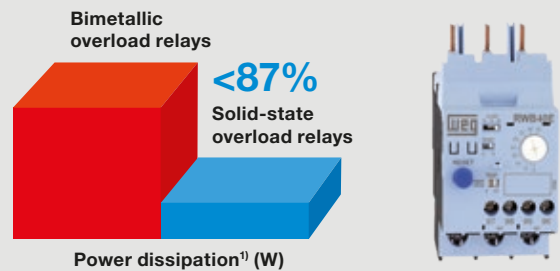
- Overload
- Phase loss
- Phase unbalance





## Solid-State Overload Relays - RW\_E

Due to their design and technology, the electronic circuits of RW\_E relays lead to very low power dissipation (less than 0.38 W up to 25 A) and consequently may contribute to the reduction of need for ventilation of control cabinets.

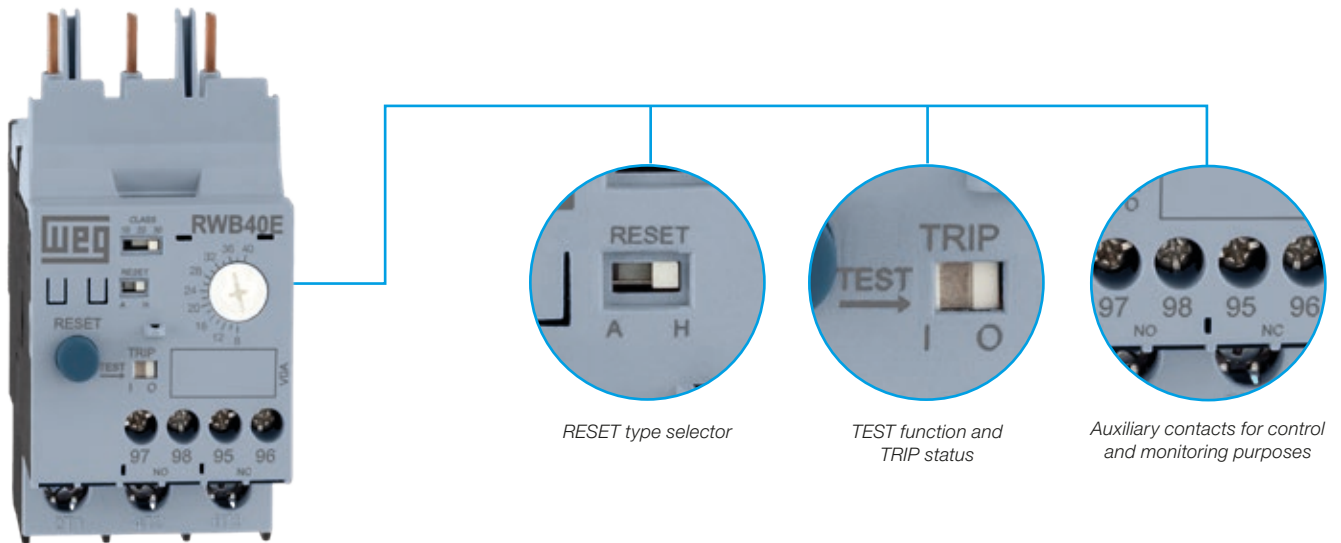


Note: 1) Average values of power dissipation per pole for RW\_E of current ranges up to 25 A.

### Basic Features

The RW\_E counts on two independent and highly reliable built-in auxiliary contacts (12 V, 10 mA) that, when properly wired in series with the coil of the contactor, assure the motor is switched off when a failure occurs and can also be used for monitoring purposes.

On its front side the RW\_E has a RESET pushbutton and a TEST switch. Both functions allow checking proper wiring and the status of the auxiliary contacts. The status window (TRIP) that displays the current operation status is also located on the front side.



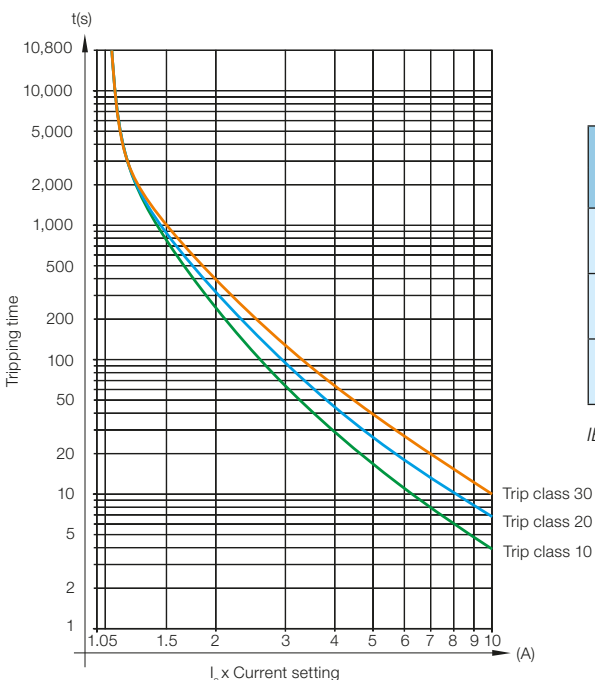
## Solid-State Overload Relays - RW\_E

### Suitable for Great Variety of Applications

The solid-state overload relays RW\_E are suitable to protect motors in a wide range of industrial applications including those where long starting time is required. This way, motors on low, medium or heavy duty applications can be properly protected just by selecting the proper trip class (10, 20 or 30 according to IEC 60947-4-1) in the DIP-switches.

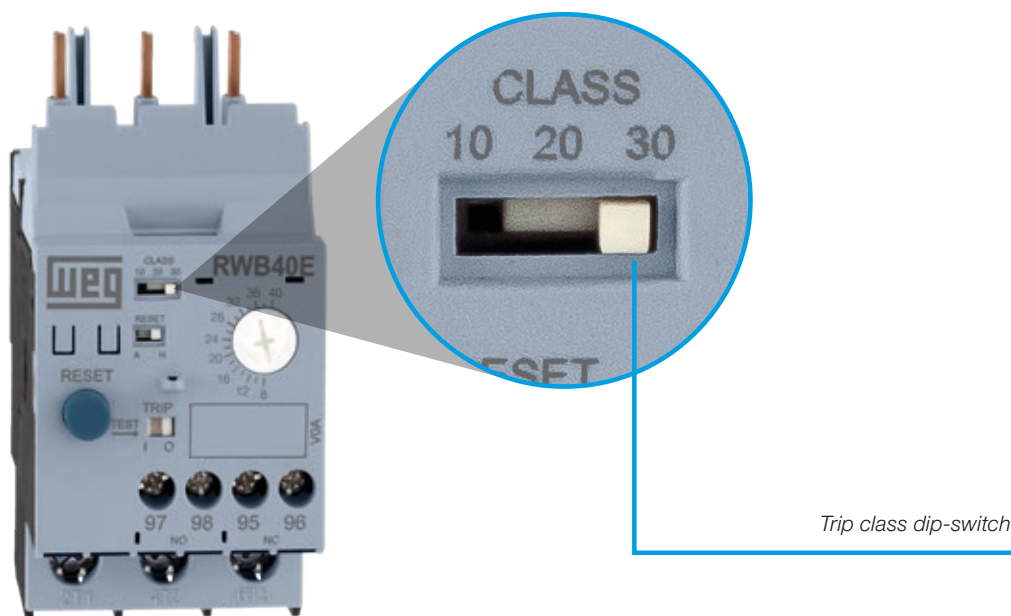
Additionally, the microprocessed electronic circuits of RW\_E are temperature compensated according to IEC 60947-4-1, which means that throughout the temperature range of -20 °C up to +60 °C, the tripping point is not affected and it performs consistently without undesirable tripping.

The RW\_E also features thermal memory which assures that the heating and cooling effects of motors are modeled and proper protection is guaranteed even after downtime periods.



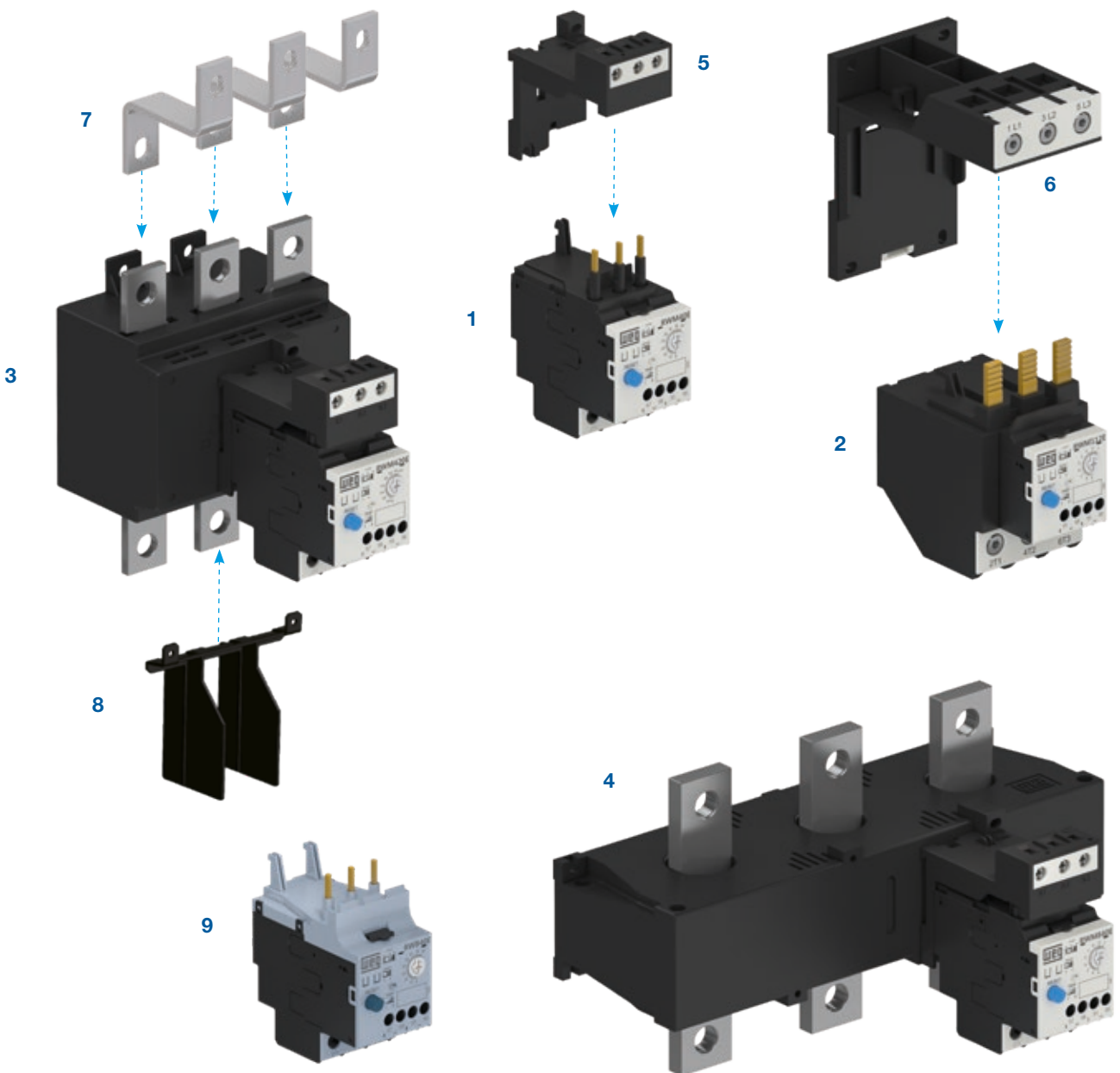
Trip class	Multiples of current setting			
	1.05 x I <sub>r</sub>	1.2 x I <sub>r</sub>	1.5 x I <sub>r</sub>	7.2 x I <sub>r</sub>
10	-	Tp < 2h	Tp < 4min	4 < Tp ≤ 10s
20	-	Tp < 2h	Tp < 8min	6 < Tp ≤ 20s
30	-	Tp < 2h	Tp < 12min	9 < Tp ≤ 30s

IEC 60947-4-1



Trip class dip-switch

## Solid-State Overload Relays RW\_40...840E - Overview



- 1 - RWM40E solid-state overload relay (direct mounting on CWM9...40 contactors)
- 2 - RWM112E solid-state overload relay (direct mounting on CWM50...105 contactors)
- 3 - RWM420E solid-state overload relay (for use with CWM112...500 contactors)
- 4 - RWM840E solid-state overload relay (for use with CWM400...800 contactors)
- 5 - BF27 mounting kit for direct panel mounting by screws or 35 mm DIN rail (for RWM40E)
- 6 - BF112 mounting kit for direct panel mounting by screws or 35 mm DIN rail (for RWM112E)
- 7 - GA Connector Links for direct mounting of overload relay on contactor
- 8 - IBRW317 phase barriers (for RWM420E)
- 9 - RWB40E solid-state overload relay (direct mounting on CWB9...38 contactors)

## RW\_E Solid-State Overload Relays from 0.4 up to 840 A

- 3-pole solid state overload relays with adjustable trip class: 10, 20 and 30
- Self-powered
- Wide adjustment range (5:1)
- Thermal memory
- Phase loss protection (less than 5 seconds)
- Phase unbalance protection (>40% between phases)
- Temperature compensated (-20 °C up to +60 °C)
- Manual or automatic reset modes
- Direct mounting on CWB9...38 and CWM9...105 contactors
- Separate mounting is possible with accessories
- 1NO + 1NC built in auxiliary contacts



For direct mounting on contactors	Current range A	Diagram	Max fuse (gL/gG) A	Reference code	Weight kg
CWB9...38	0.4...2		16	RWB40E-3-A4U002	0.250
CWB9...38	1.6...8		32	RWB40E-3-A4U008	
CWB9...38	5...25		63	RWB40E-3-A4U025	
CWB9...38	8...40		125	RWB40E-3-A4U040	
CWM9...40	0.4...2		16	RWM40E-3-A4U002	0.250
CWM9...40	1.6...8		32	RWM40E-3-A4U008	
CWM9...40	5...25		63	RWM40E-3-A4U025	
CWM9...40	8...40		125	RWM40E-3-A4U040	
CWM50...105	14...56		160	RWM112E-3-A4U056	0.918
CWM50...105	28...112		250	RWM112E-3-A4U112	





For separate mounting or by connector links <sup>1)</sup>	Current range A	Diagram	Max fuse (gL/gG) A	Reference code	Weight kg
CWM112...500	50...250		500	RWM420E-3-A4U250	2,520
	85...420		710	RWM420E-3-A4U420	
CWM150...800	170...840		1,250	RWM840E-3-A4U840	4,150


Note: 1) RWM840E model allows two different types of connection to contactor:  
 a) By connecting the contactor cables to relay busbars;  
 b) By removing the relay busbars and using the Ø32 mm window for the passage of the contactor cables.

## Accessories


### Mounting Kit

Illustrative picture	For use with relays	Description	Reference code	Weight kg
	RWM40E	Enables the overload relay to be mounted directly to a panel via screws or 35 mm DIN rail	BF27D	0.050
	RWM112E		BF112	0.230


### Connector Links for Direct Mounting of Overload Relay on Contactor

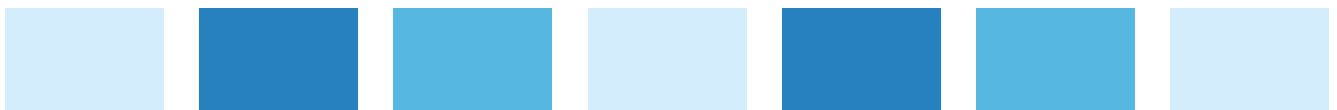
Illustrative picture	For use with relays	For use with contactors	Reference code	Weight kg
	RWM112E	CWM112/150	GA117D	0.135
	RWM420E	CWM150	GA317-1D	0.250
		CWM180	GA317-2D	0.270
		CWM250/300	GA317-3D	0.630
		CWM400	GA317-10D	0.500

### Phase Barriers

Illustrative picture	For use with relays	Description	Reference code	Weight kg
	RWM420E	Contains 1 set of plastic insulators (top / bottom) and fixing screws to be used where the overload relay power terminals external dimension exceed the busbar external dimension	IBRW317	0.044

### Reset Pushbutton with Shaft

Illustrative picture	For use with relays	Description	Reference code	Weight kg
	RW_E	Blue Flush pushbutton - Engraved Reset - with shaft. Length: max. 250 mm and min. 22.5 mm	CSW-BHF437	0.032
		Blue extended pushbutton - Engraved Reset - with shaft. Length: max. 250 mm and min. 22.5 mm	CSW-BHS437	0.032



## Technical Data

### General Data

Product model		RWM40E / RWB40E	RWM112E	RWM420E	RWM840E
Standards		IEC 60947-4-1, IEC 60947-5-1, IEC 60947-1, UL 60947-1, UL 60947-4-1A and UL 508			
Rated insulation voltage $U_i$ (pollution degree 3)	IEC 60947-4-1	(V)	690	100	
	UL, CSA	(V)	600		
Rated impulse withstand voltage $U_{imp}$ (IEC 60947-1)		(kV)	6	8	
Rated operational frequency (sinusoidal networks)		(Hz)	50/60		
Suitable for use	Three phase loads		Yes		
	Single phase / two phase loads		No		
	DC current loads		No		
Trip class (IEC 60947-4-1)			10, 20 or 30 - selectable		
Additional featured protections	Phase loss		Yes / less than <5s		
	Phase unbalance		Yes / >40%		
Reset	Manual / minimum downtime for reset		Yes / instantaneous		
	Automatic / minimum downtime for reset		Yes / $\geq 90s$		
Maximum operation per hour		(ops./h)	30		
Protection degree (IEC 60529)	Main contacts		IP10	IP00	
	Auxiliary contacts		IP20		
Mounting			1)	2)	
Mechanical shock resistance - 1/2 sinusoid			15 g / 11ms		
Vibration resistance (IEC 60068-2-6)			6 g / 30...300 Hz		
Ambient temperature	Transport and storage		-50 °C...+80 °C		
	Operating		-20 °C...+60 °C		
	Temperature compensation		-20 °C...+60 °C		
Altitude			2,000 m		

Notes: 1) Direct mounting on contactor or directly on the panel via screws or 35 mm DIN rail when using the mounting kit accessory (BF27D and BF112);  
2) Direct mounting on contactor when using the Connector Link GA117 / GA317 accessory or directly on the panel via screws.

### Main Contacts

Product model		RWM40E / RWB40E	RWM112E	RWM420E	RWM840E	
Rated operational voltage $U_e$	IEC 60947-4-1	(V)	690	100		
	UL, CSA	(V)	600			
Current setting / max fuse (gL/gG)		(A)	0.4...2 / 16 1.6...8 / 32 5...25 / 63 8...40 / 125	14...56 / 160 28...112 / 250	50...250 / 500 85...420 / 710	170...840 / 1,250
Setting current / average power dissipation per pole		(W)	0.4...2 / 0.07 1.6...8 / 0.06 5...25 / 0.38 8...40 / 1.5	14...56 / 2 28...112 / 2.6	50...250 / 12 85...420 / 12	170...840 / 14.5

Notes: 1) Direct mounting on contactor or directly on the panel via screws or 35 mm DIN rail when using the mounting kit accessory (BF27D and BF112);  
2) Direct mounting on contactor when using the Connector Link GA117 / GA317 accessory or directly on the panel via screws.

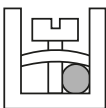
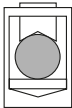



# Technical Data

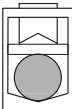
## Auxiliary Contacts

Product model			RWM40...840E / RWB40E
Rated insulation voltage $U_i$ (pollution degree 3)	IEC 60947-4-1	(V)	250
	UL, CSA	(V)	600
Rated impulse withstand voltage $U_{imp}$ (IEC 60947-1)		(kV)	4
Rated operational voltage $U_o$	IEC 60947-4-1	(V)	250
	UL, CSA	(V)	600
Rated thermal current $I_{th}$ ( $\theta \leq 60$ °C)		(A)	5
Rated operational current $I_o$	24 V	(A)	3
	120 V	(A)	3
	250 V	(A)	1.5
	24 V	(A)	2
AC-14/AC-15 (IEC 60947-5-1)	60 V	(A)	0.4
	110 V	(A)	0.22
	125 V	(A)	0.22
	250 V	(A)	0.1
	NEMA control circuit ratings	UL, CSA	
Short-circuit protection with fuse		(A)	6
Minimum voltage / admissible current (IEC 60947-5-4)			12 V / 10 mA

## Terminal Capacity and Tightening Torque - Main Contacts

Product model		BF27D	RWM40E / RWB40E	RW112E	BF112
Type of screw		M4 Flat / Phillips #2	M3.5 Flat / Phillips #2	M10 Allen #4	M10 Allen #4
<b>Cable size</b>					
Flexible cable	(mm <sup>2</sup> )		1.5...10	-	-
Cable with terminal / rigid cable	(mm <sup>2</sup> )		1.5...6	-	-
AWG wire			16...10	-	-
Tightening torque	(Nm)		2.3	-	-
Flexible cable	(mm <sup>2</sup> )		-	1...10	2.5...35
Cable with terminal / rigid cable	(mm <sup>2</sup> )		-	1...10	2.5...35
AWG wire			-	16...8	14...2
Tightening torque	(Nm)		-	1.7	6
Product model			RWM420E	RWM840E	
Type of screw			M10 Hexagon Head		M12 Hexagon Head
Cable with terminal	(mm <sup>2</sup> )		2 x (25...150)		2 x (60 x 10)
Busbar (A x B x C)	(mm)		25 x 18.5 x 12.5		31.7 x 28.3 x 15
Tightening torque	(Nm)		26		26

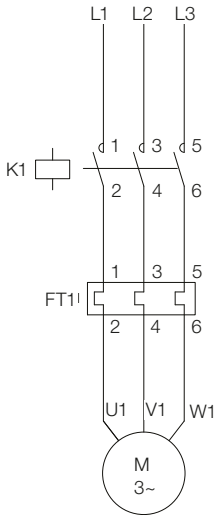
## Terminal Capacity and Tightening Torque - Auxiliary Contacts

Product model		RWM40...840E / RWB40E	
Type of screw		Flat / Phillips #1	
<b>Cable size</b>			
Cable with or without terminal	(mm <sup>2</sup> )		
AWG wire			1 x 1...2.5
Tightening torque	(Nm)		16...12
		0.8	

# Technical Data

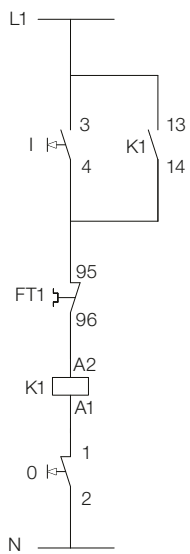
## Motor Protection - Alternating Current

### 3-pole

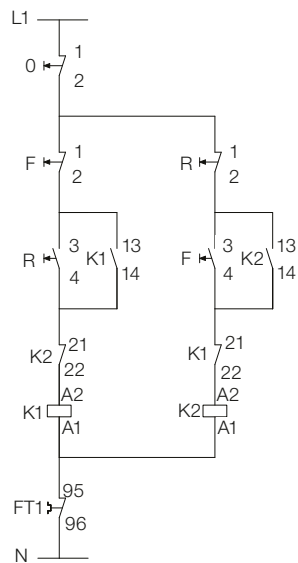


## Typical Connection - Contactor + Overload Relay

### Direct On Line Starter (1 Direction of Rotation)



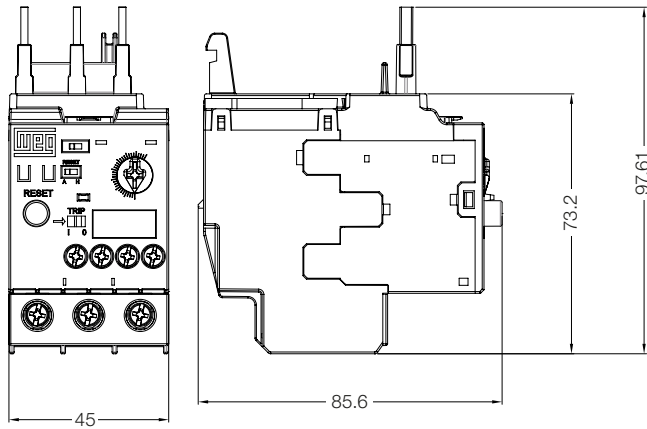
### Direct On Line Starter (2 Directions of Rotation)



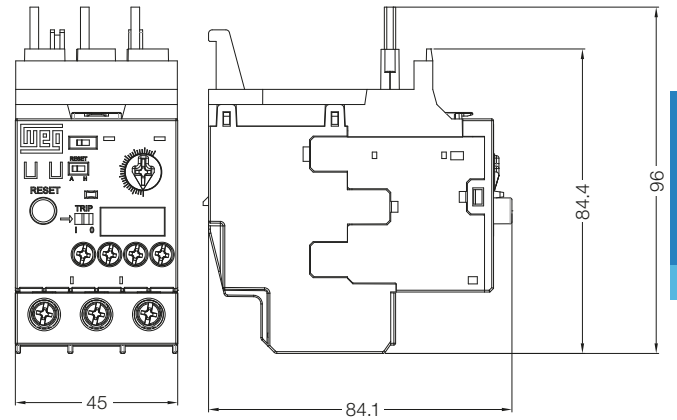


## Dimensions (mm)

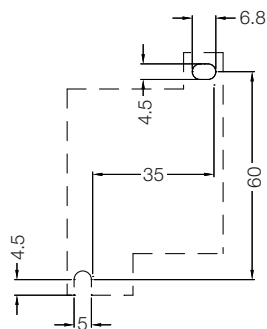
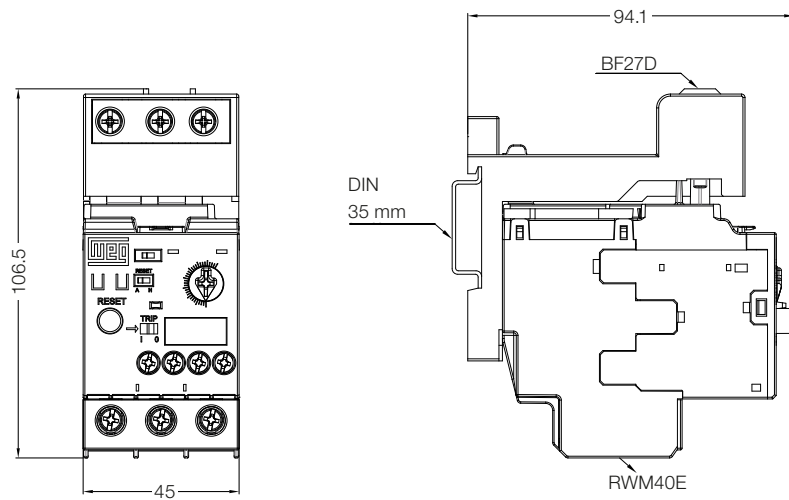
### RWM40E



### RWB40E

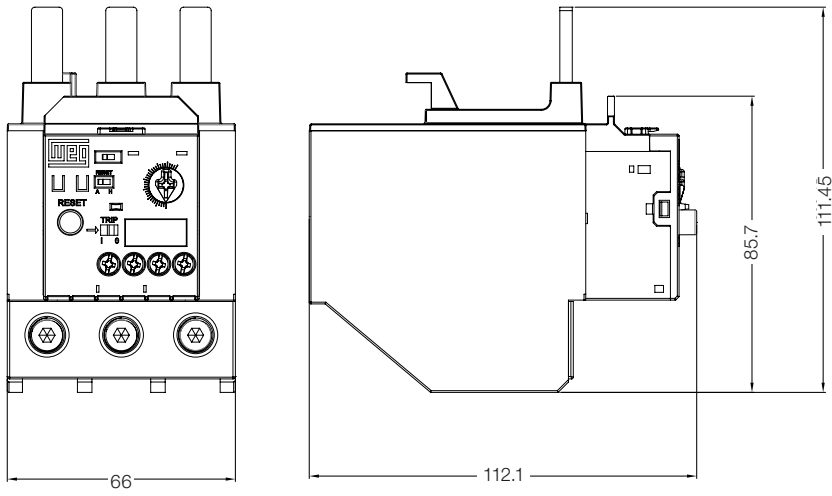


### RWM40E + BF27

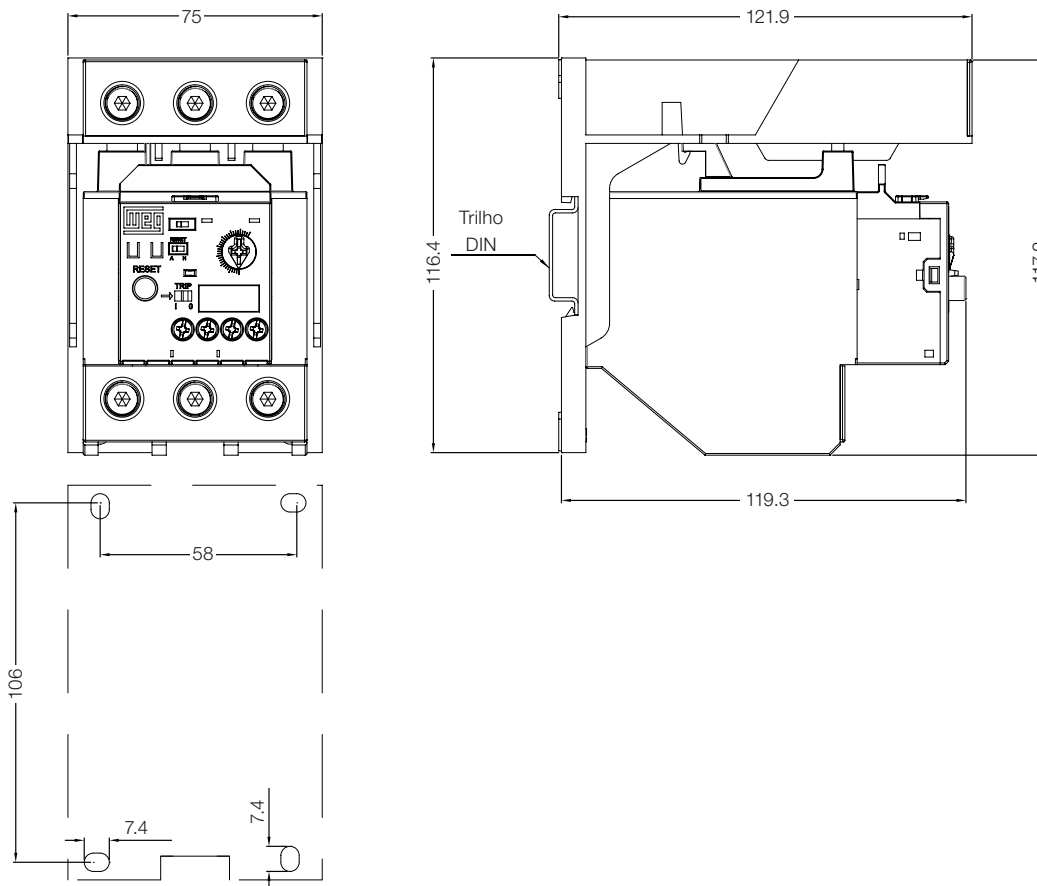


## Dimensions (mm)

### RWM112E

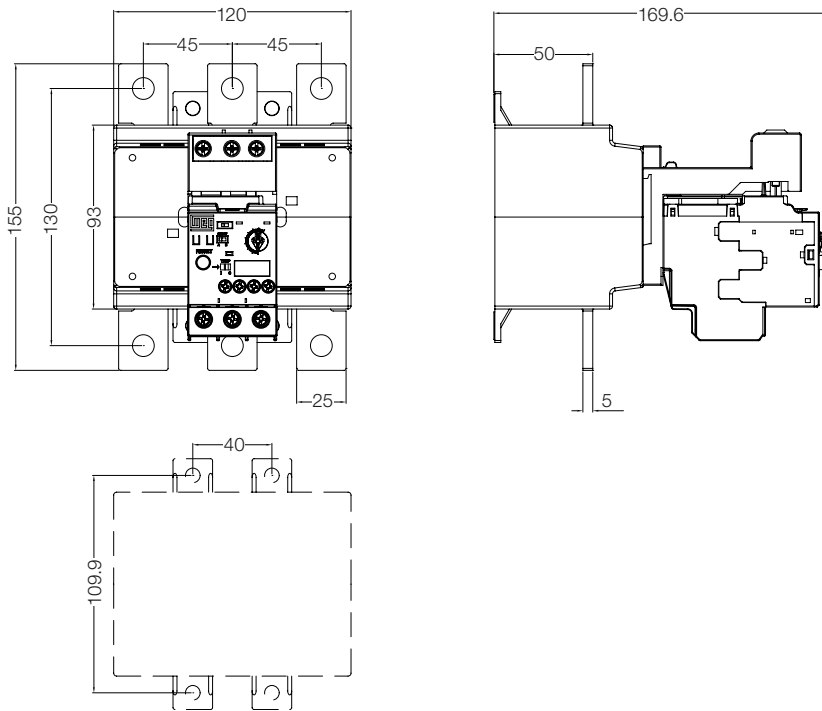


### RWM112E + BF112

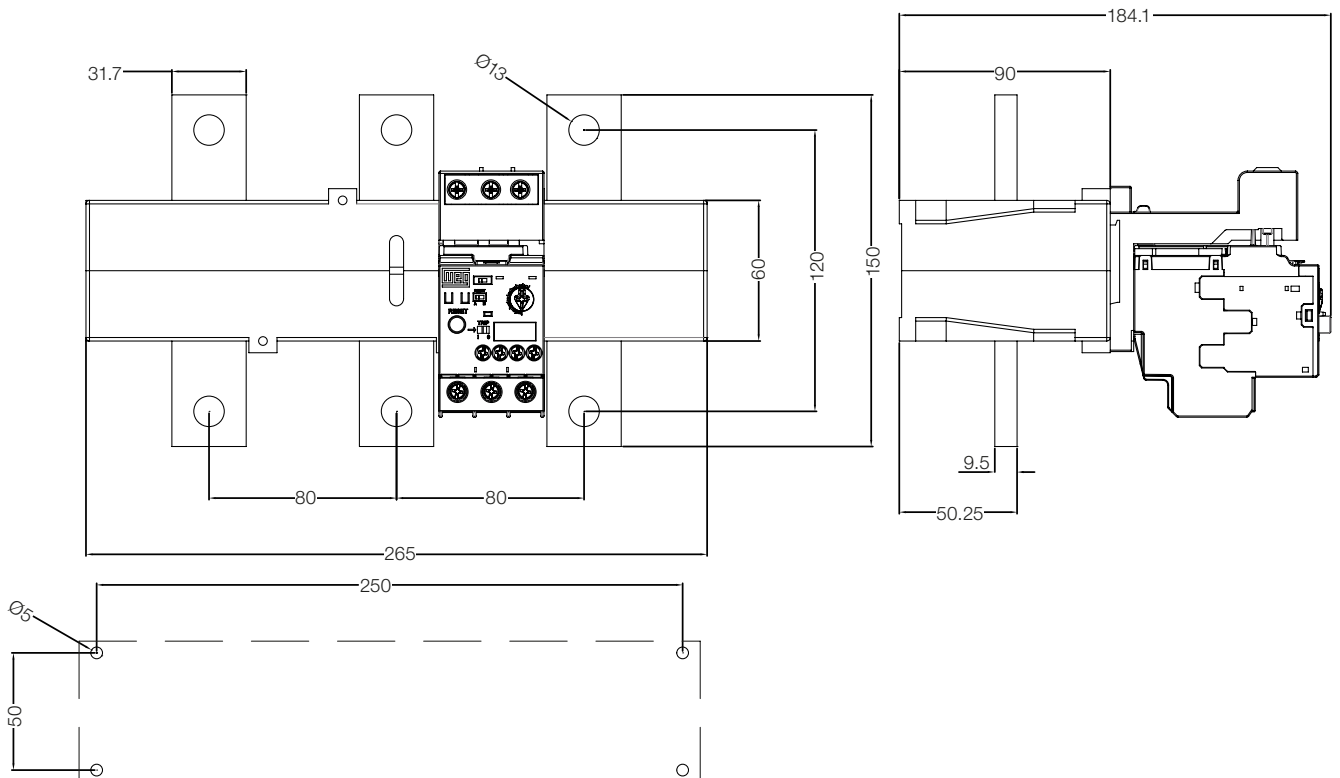


# Dimensions (mm)

## RWM420E



## RWM840E



A

B

B2

C

D

E

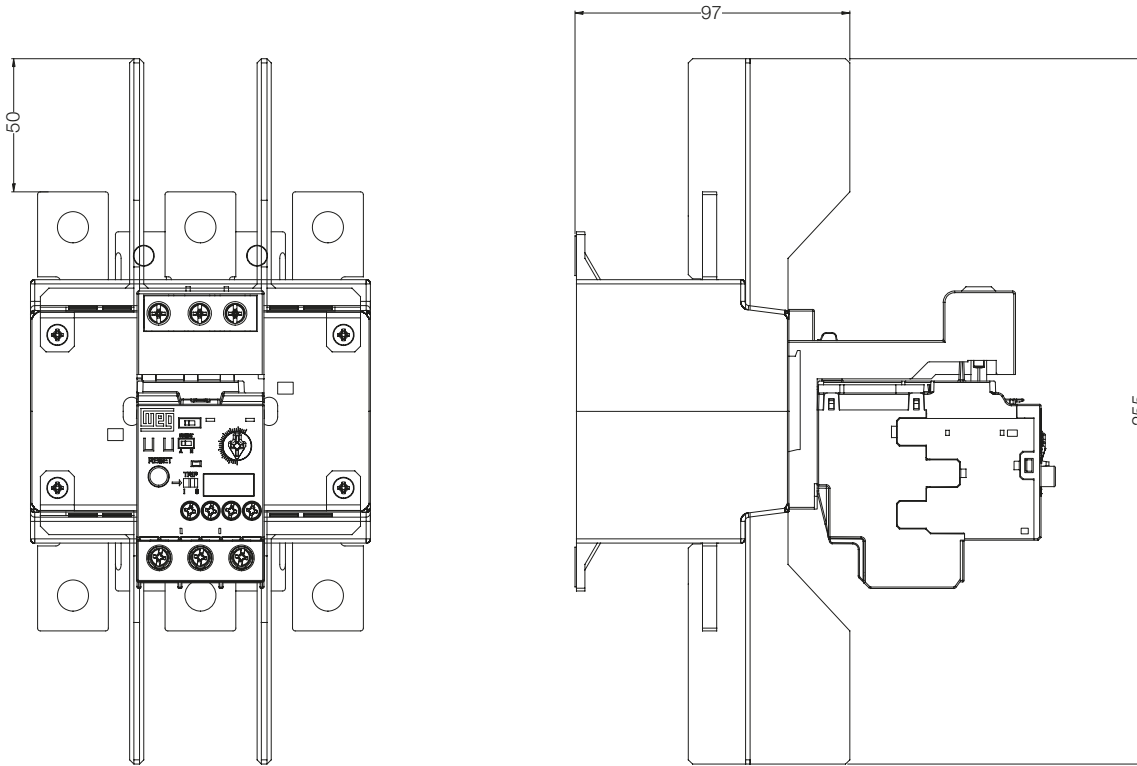
F

G

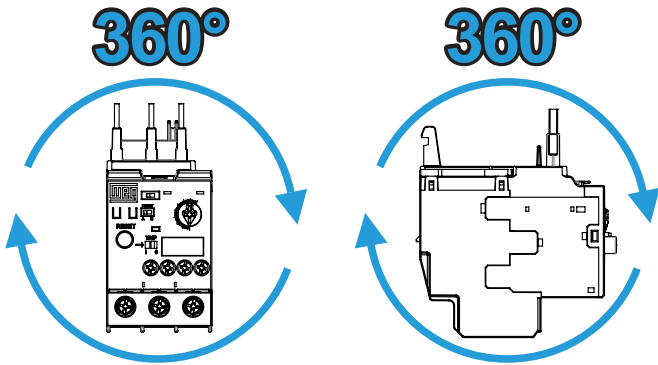
H

## Dimensions (mm)

### RWM420E + IBRW317



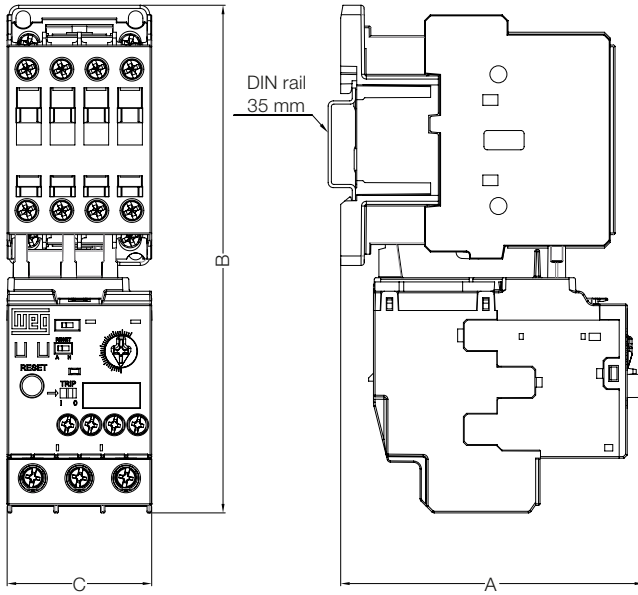
### RWM40...840E / RWB40E



Mounting Position

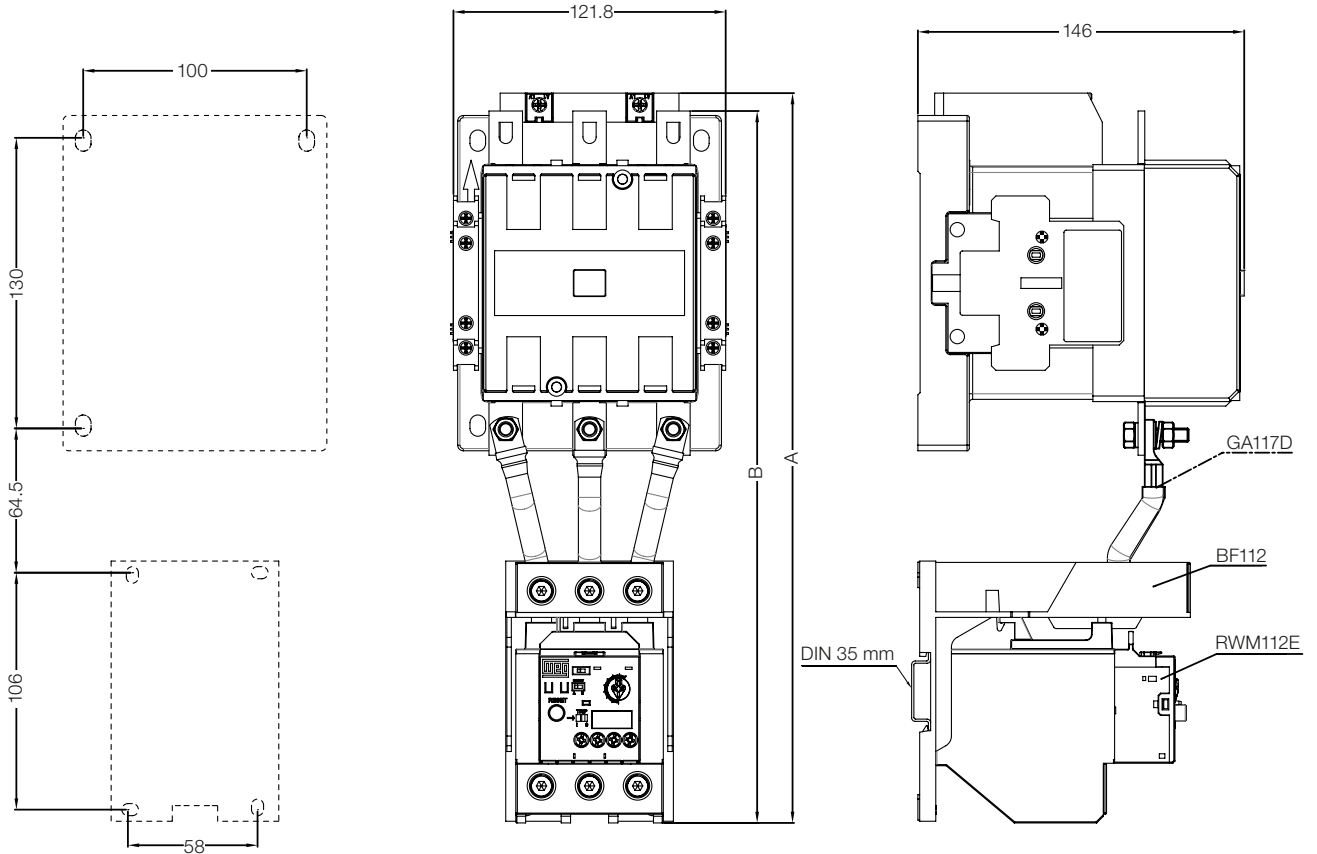
## Dimensions (mm)

### CWM9...105 + RWM40...112E and CWB9...38 + RWB40E



Contactor	Type of contactor coil	A	B	C
CWM9...18	CA	94.3	158	45
	CC	125.1		
CWM25	CA	94.9	159.3	45
	CC	124.8		
CWM32/40	CA	98.6	166.5	55
	CC	118.6		
CWM50...80	CA	122.6	202.7	66
	CC	126		
CWM95/105	CA	126	201.1	75.4
	CC	126		
CWB9...18	CA	89.5	163.1	45
	CC	98.7		
CWB25...38	CA	93	166.5	
	CC	102.2		

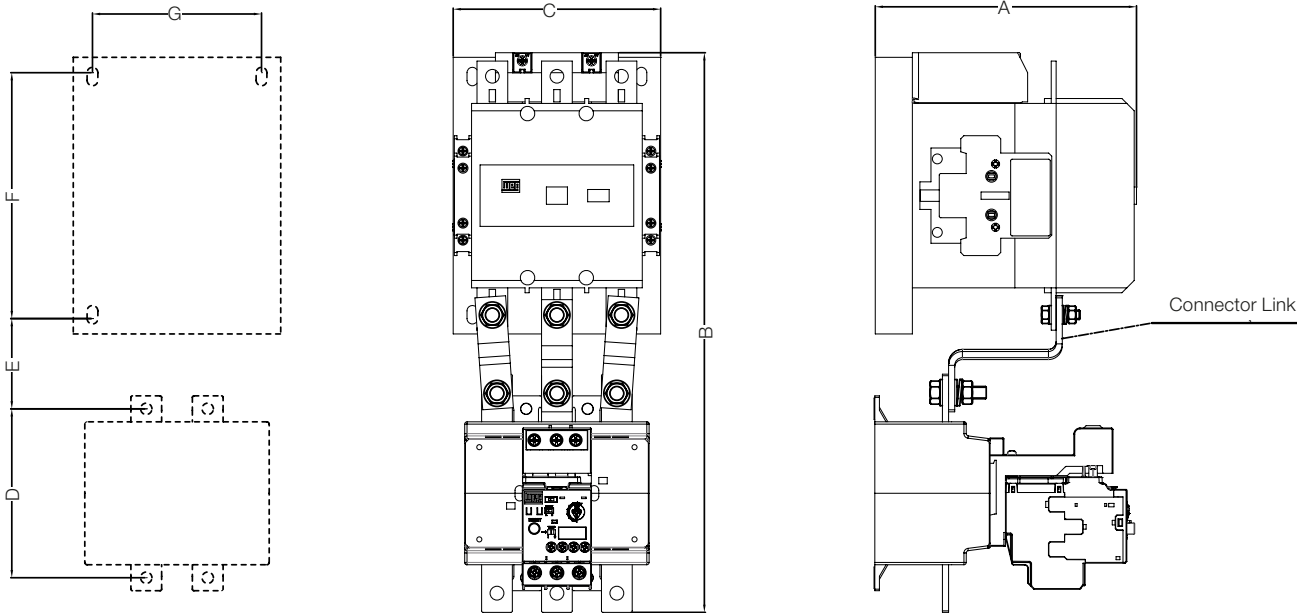
### CWM112 + RWM112E + BF112



CWM112	A	B
AC conventional coil	-	318.5
Electronic coil	326.5	318.5

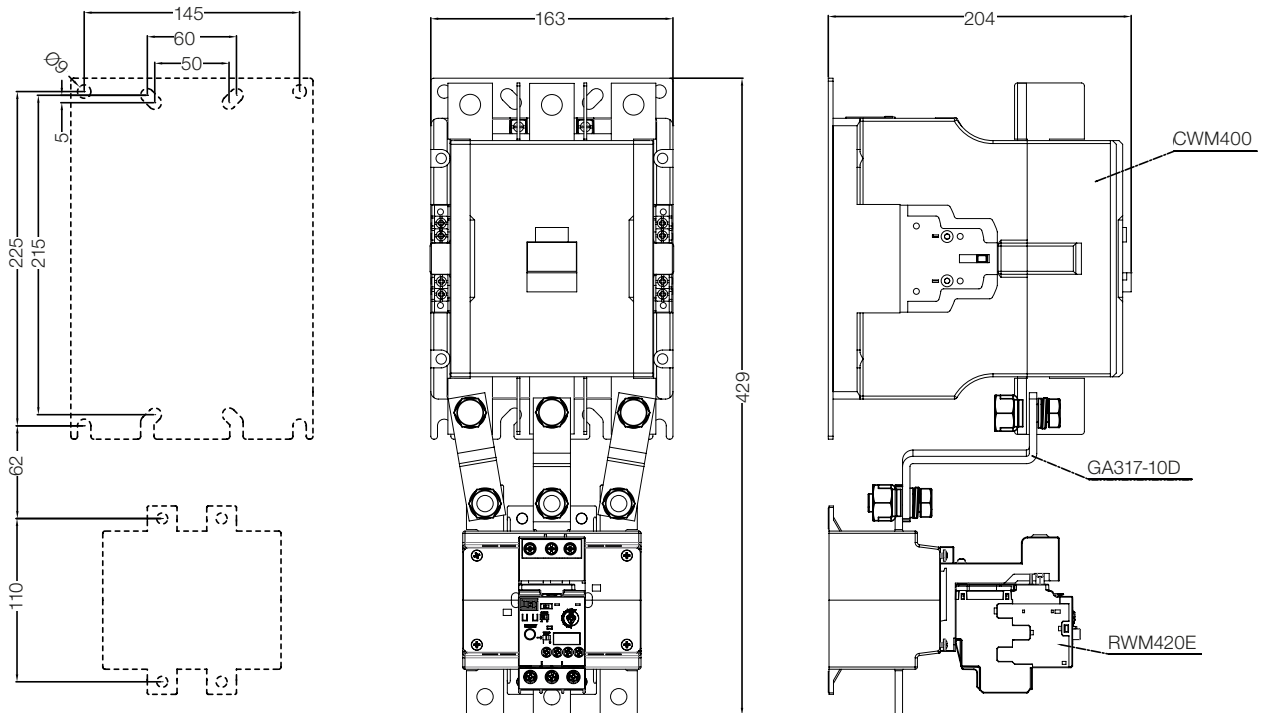
## Dimensions (mm)

### CWM112...300 + RWM112/420E



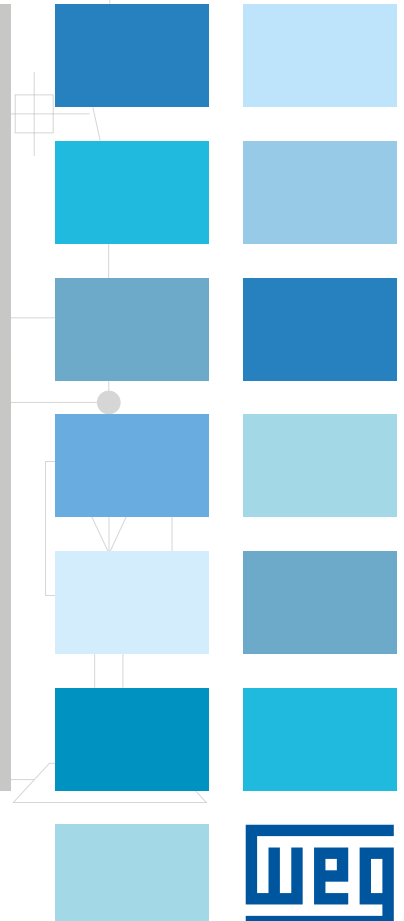
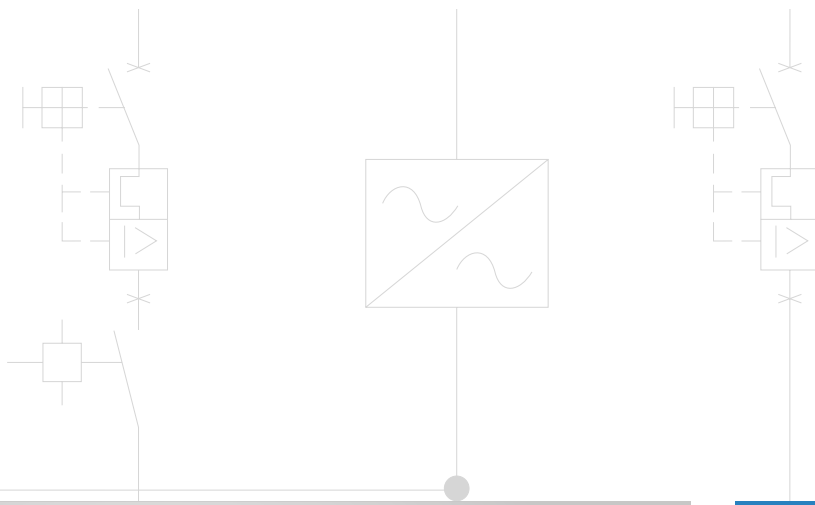
Contactor	Connector links	Overload relay	A	B	C	D	E	F	G
CWM112/150	GA117D	RWM112E	147	325	121.5	106	64	130	100
CWM112/150	GA317-1D	RW420E	166	343		110	60.5		
CWM180	GA317-2D	RW420E	172	358	52.5		160	110	
CWM250/300	GA317-3D	RW420E	181	380	148.4		55	180	120

### CWM400 + RWM420E



# MPW

## Motor Protective Circuit Breakers



CLASS 10



V1A

MPW40



32

36

TRIP

L  
ON



520 A



TEST

520 A



TEST

OFF





# MPW Motor Protective Circuit Breakers

## Summary

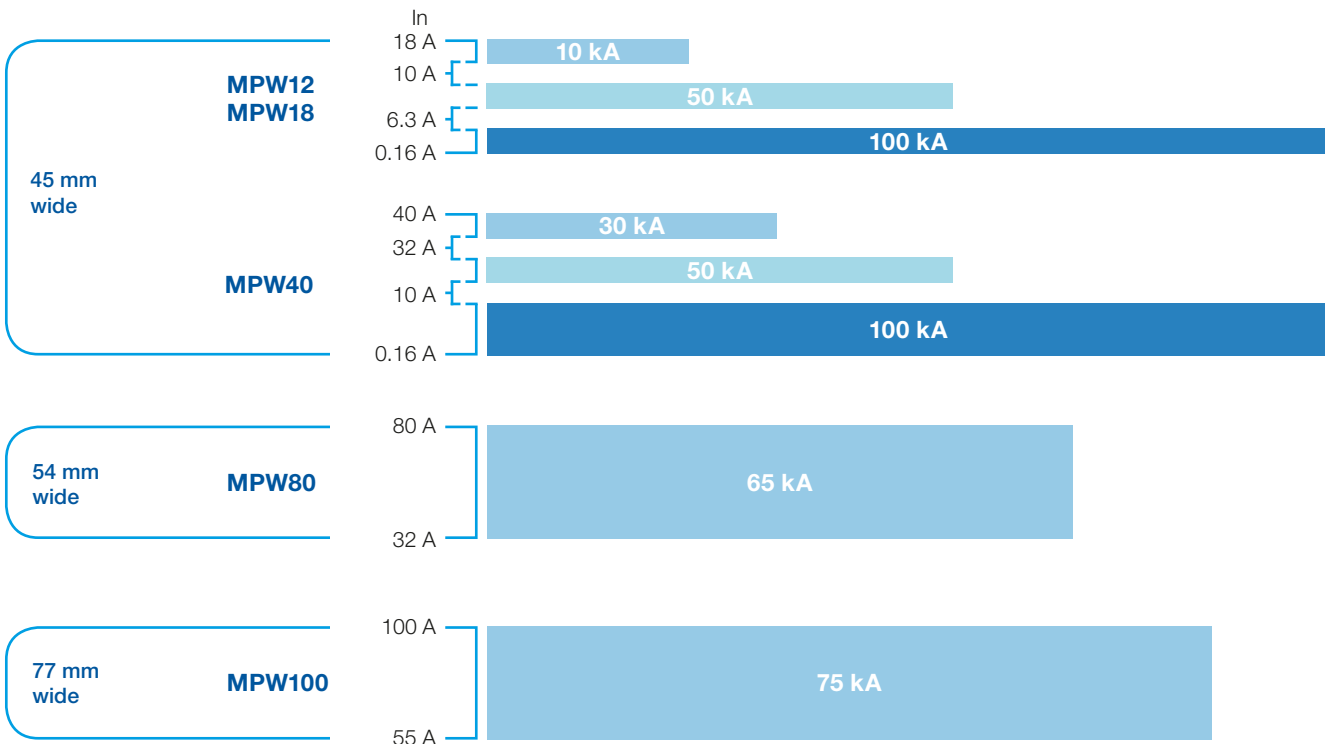
Introduction	C-04
Main Characteristics	C-06
MPW12 Motor Protective Circuit Breaker	C-12
MPW18 Motor Protective Circuit Breaker	C-14
MPW40 Motor Protective Circuit Breaker	C-16
MPW80 Motor Protective Circuit Breaker	C-18
MPW100 Motor Protective Circuit Breaker	C-19
MPW40t Motor Protective Circuit Breaker	C-20
Accessories	C-21
Technical Data	C-29

# The best solution for **switching** and **protecting** your **electric motor**.



Developed according to IEC 60947 and UL 508, the MPW line of motor protective circuit breakers provides superior performance and high short-circuit interrupting capacity for your applications.

## High Short Circuit Capacity (@380 V)





A

B

C

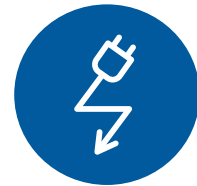
The MPW motor protective circuit breakers perform the switching and protect against overloads and short circuits, and their trip attachments may be calibrated up to nineteen times the maximum rated current of the circuit breaker.



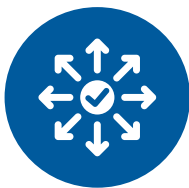
High durability:  
up to 100,000  
operation cycles



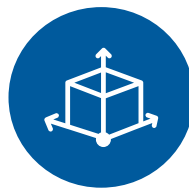
Versions with pushbuttons or  
rotary knob, screw and spring  
terminals



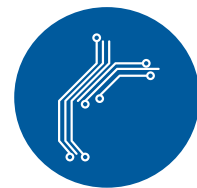
Sensitive to phase  
loss according to  
IEC 60947-4-1



Wide range of  
interchangeable  
accessories



Compact combined starter sets  
(direct on-line, reversing and delta-star)  
with the CWB9...80 contactors and  
CWC07...25 miniature contactors



Function of molded-case circuit  
breaker/fuse and overload relay  
in a single product

D

E

F

## Main Certifications



Mexico



Marine



European  
Union



Russia



Argentina



Canada and USA

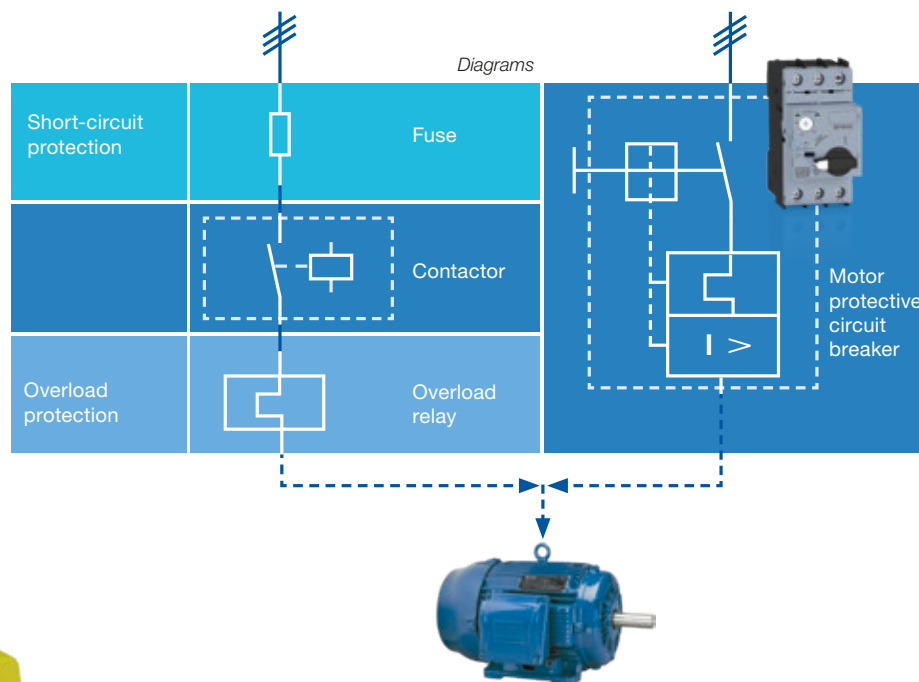
G

H

## Main Characteristics

### Three Functions in a Single Product

Its main function is the protection against short circuits and overloads in electric motor applications. In addition, they allow switching operations (15 operations/hour) directly with their handle or buttons.



### Handles for Thermogram

The models of MRX handles coupled to the circuit breaker allow to open panels even with the handle in the ON position. This kind of function is commonly used on electrical panels where a thermographic analysis is necessary in preventive maintenance events. As default, this function comes disabled from the factory.

### Position and State Indication

Front identification of the operating status of the circuit breaker by means of its rotary handle (MPW40...100) or key (MPW18). On the motor protective circuit breakers with rotary drive, it is possible to indicate the TRIP with their handle, and their marking indicates the position of the electrical circuit switching devices.



ON



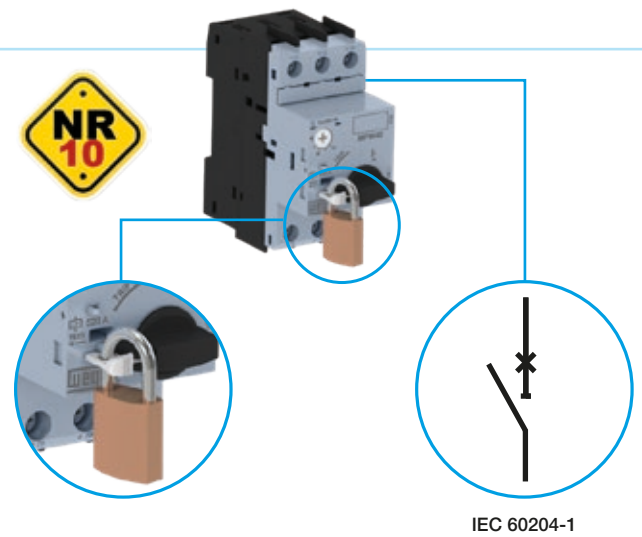
TRIP



OFF

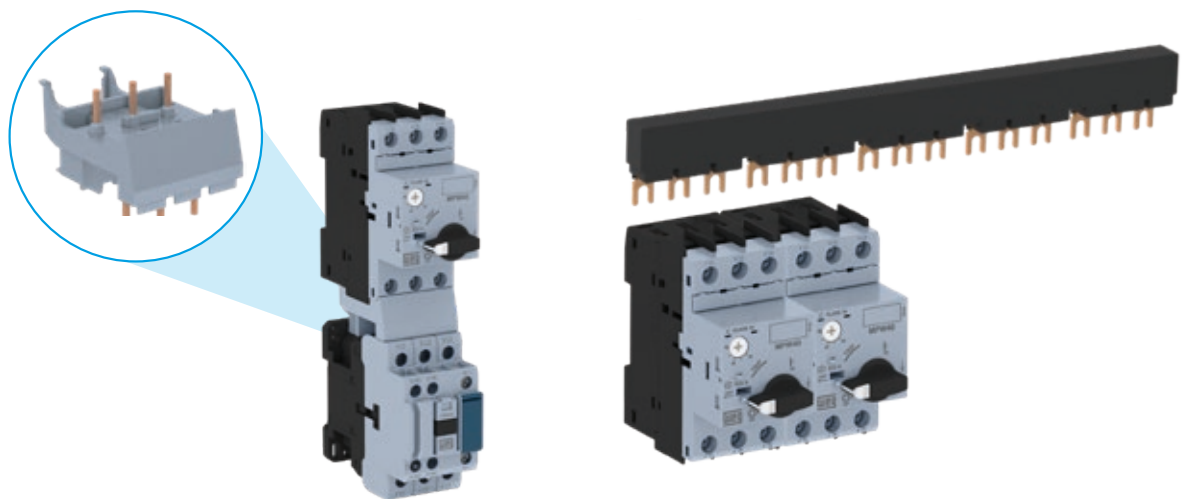
### Lock out, Isolation and Main Switch

All the MPW circuit breakers can be locked by means of seals or padlocks installed on the handle or front button, ensuring greater safety in stoppages for maintenance of panels and electric motors. In addition to this function, the circuit breakers comply with the isolation conditions of IEC 60947-3 and IEC 60947-2, that is, they may be used as an isolation device of electrical parts of a panel. They can also be used as main switches and emergency stop according to IEC 60204-1.



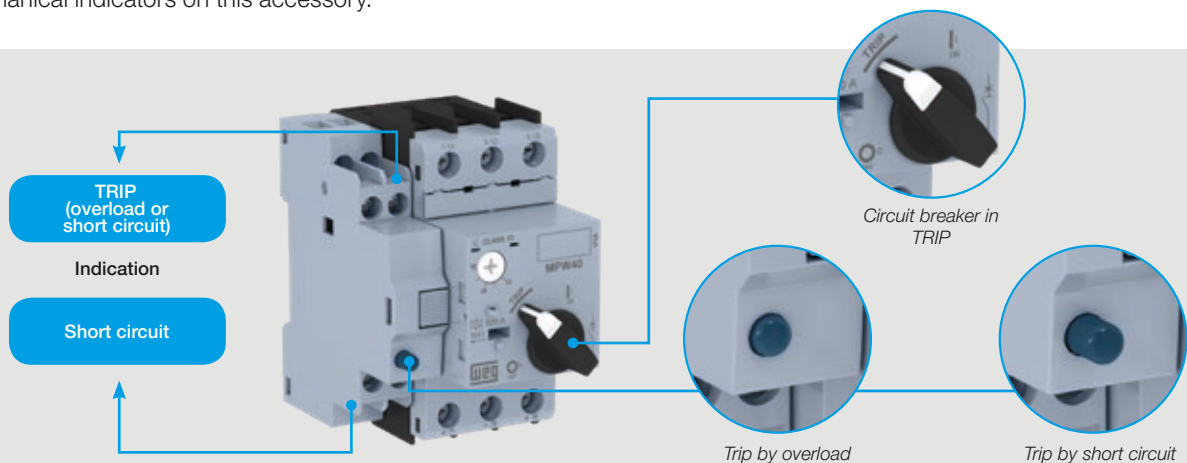
### Connectors and Busbars

Connection busbars (easy connection) developed to save time and avoid assembly errors by panel installers and original equipment manufacturers (OEMs).



### TSB Block for Trip Indication

The TSB accessory installed on the circuit breakers allow to signal the trip occurred by means of auxiliary contacts or mechanical indicators on this accessory.

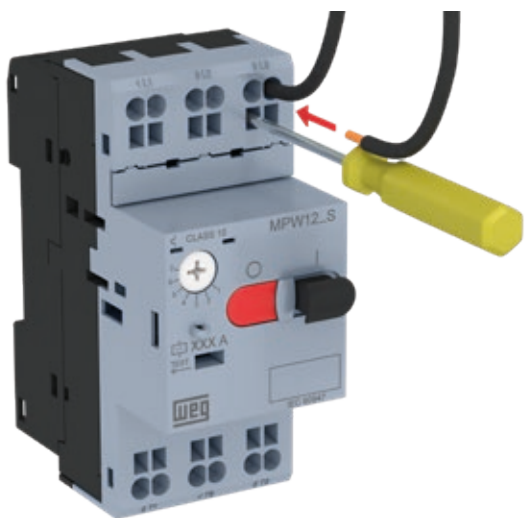
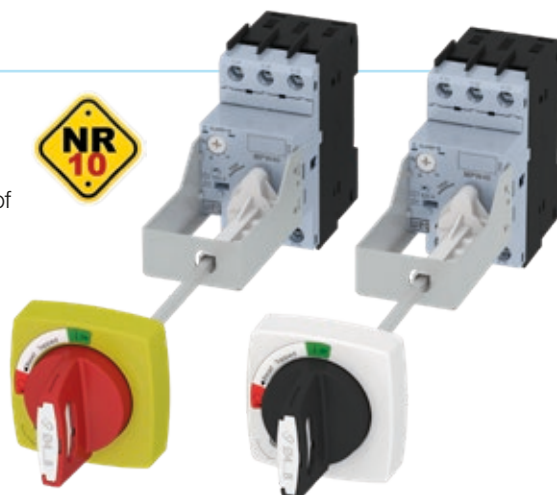


Note: using the TSB accessory, it is possible to use only one of the auxiliary contacts, the front (ACBF) or side (ACBS) contact.

## Main Characteristics

### Handles for External Drive

Additional handles installed on the MPW circuit breakers allow external drive of the circuit breakers on panels, ensuring safe operations and full isolation of the live parts from the users. Versions available with degree of protection IP55, IP65 and NEMA4X (UL), in yellow/red and grey/black.

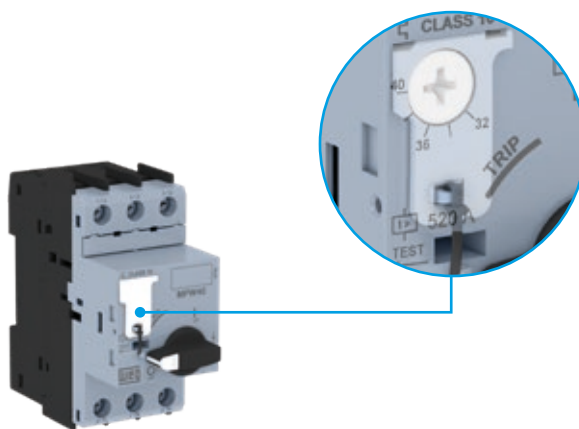


### Faster and Securer Connections

The cage clamp connections of the MPW12 motor protective circuit breakers provide faster installation of power cables and accessories. With a screwdriver suitable for the fitting, it is possible to make the connections in a shorter time in comparison to screw terminals. Due to special springs on the connection terminals, retightening is not necessary, because the connection system ensures constant pressure on the cables.

### Protection of the Current Setting Dial

It allows to lock the current setting dial on the thermomagnetic circuit breakers. By using a seal together with this accessory, it is possible to ensure the reliability of the current setting on the circuit breakers installed in the field on electrical panels and machines. Supplied as accessory on the MPW12...80 circuit breakers and as standard on the MPW100 circuit breakers.

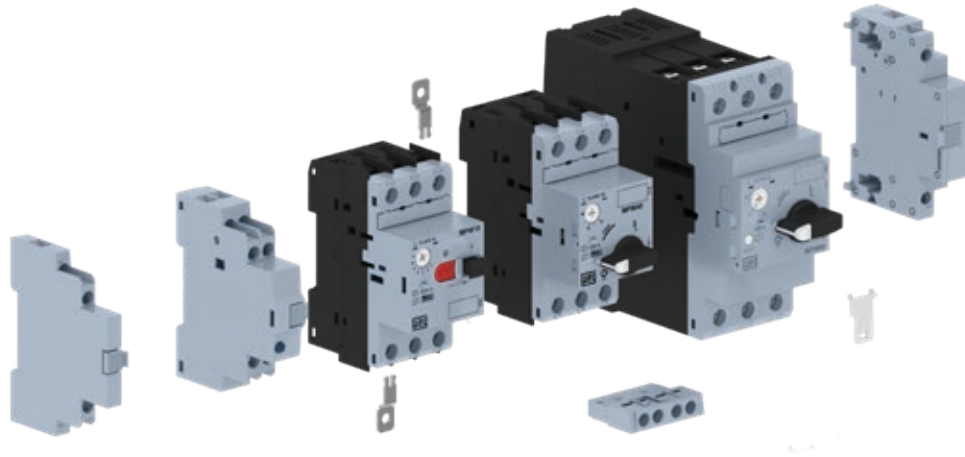


### Insulated Enclosures

In applications with a reduced number of starts (15 starts/hour), it is possible to use surface-mount boxes IP41/IP66 for MPW12 and MPW18, and IP55 for boxes with MPW40, with direct drive on the circuit breakers very close to the electric motor. The rotary handle of the surface-mount boxes enables the lock out with up to three padlocks. On the surface-mount boxes for models MPW12 and MPW18, versions with keyed emergency pushbuttons enable the lock out of their operation. ACBS, ACBF, URMP/SRMP are accessories that can be installed within the box.

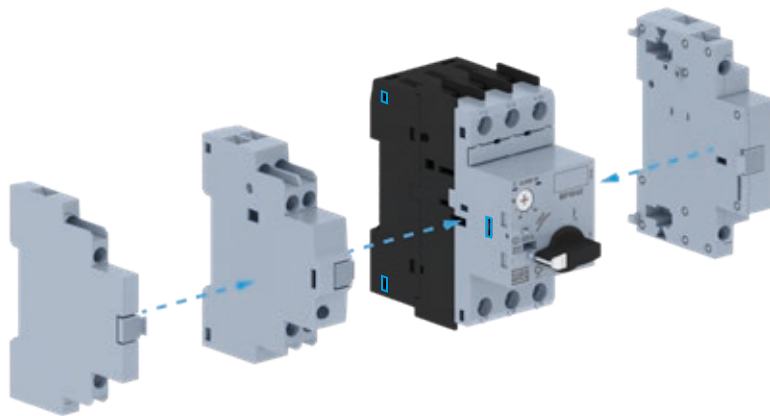
### Interchangeable Accessories

All the main accessories are interchangeable among the models MPW18...80, allowing the optimization of items and greater flexibility of their applications. Example: the front contact block can be installed on up to three different models.



### Easy Assembly

Assembly and disassembly of the side contact blocks, trip indication blocks and undervoltage coils without tools, just by means of fittings on the side of the circuit breaker.



### Safety in Installation

All the motor protective circuit breakers have degree of protection **IP20** on the front to prevent inadvertent contacts with the live parts without requiring additional accessories.





## Benefits of Using **Motor Protective Circuit Breakers** on Electrical Panels



### Inventory Optimization

Conventional panels that use fuses for protection against short circuit require replacement after they trip. The spare fuses for panels with such conception require physical space in the maintenance area and inventory item control. Using motor protective circuit breakers, that is not necessary, because they allow reset even after a trip by short circuit.



### Shorter Downtime

Stoppages because of an overload trip may be common in some applications with this kind of characteristic in case of some anomaly. In some operations, the downtime of machines may represent huge losses and damages to industrial processes. The use of motor-protective circuit breakers provides shorter reset time of a machine/equipment, because the circuit breaker allows its reset even after a trip by short circuit.



### Design Simplification

In order to size fuses on electrical panels for motor start, it is necessary to pay attention to the time of each start: direct on-line (5s), delta-star (10s), reduced voltage (15s). Also, in the sizing of components to protect delta-star starters using fuses, we often find applications that require six fuses and thus additional wiring. Using motor protective circuit breakers, your project is simplified down to a single component.



### Cable Connection

The circuit breakers allow direct connection of cables to them without the need for terminals at the end of the connection cables.

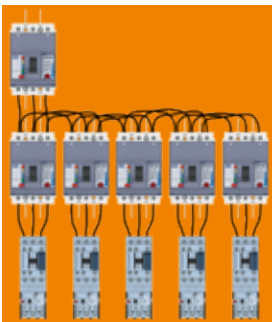


### Cost Reduction

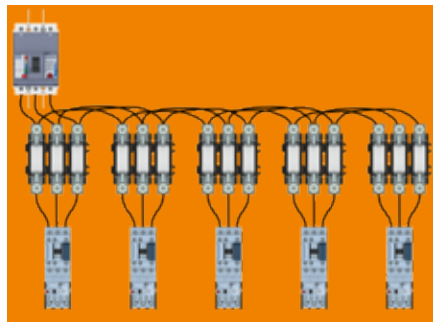
The designs with motor protective circuit breakers are smaller than those with protection by molded-case circuit breakers or fuses. They allow the assembly on DIN rail 35 mm, avoiding unnecessary expenses with fastening by screws. Over 50% of reduction of assembly space.

### Conventional panels with:

Molded-case circuit breakers

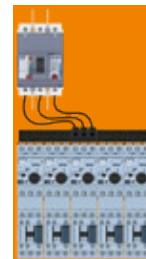


Fuses



### Compact panel with:

Motor protective circuit breakers





# ENVIRONMENTALLY FRIENDLY

Manufactured with materials of low impact on the environment and according to the RoHS international requirements.



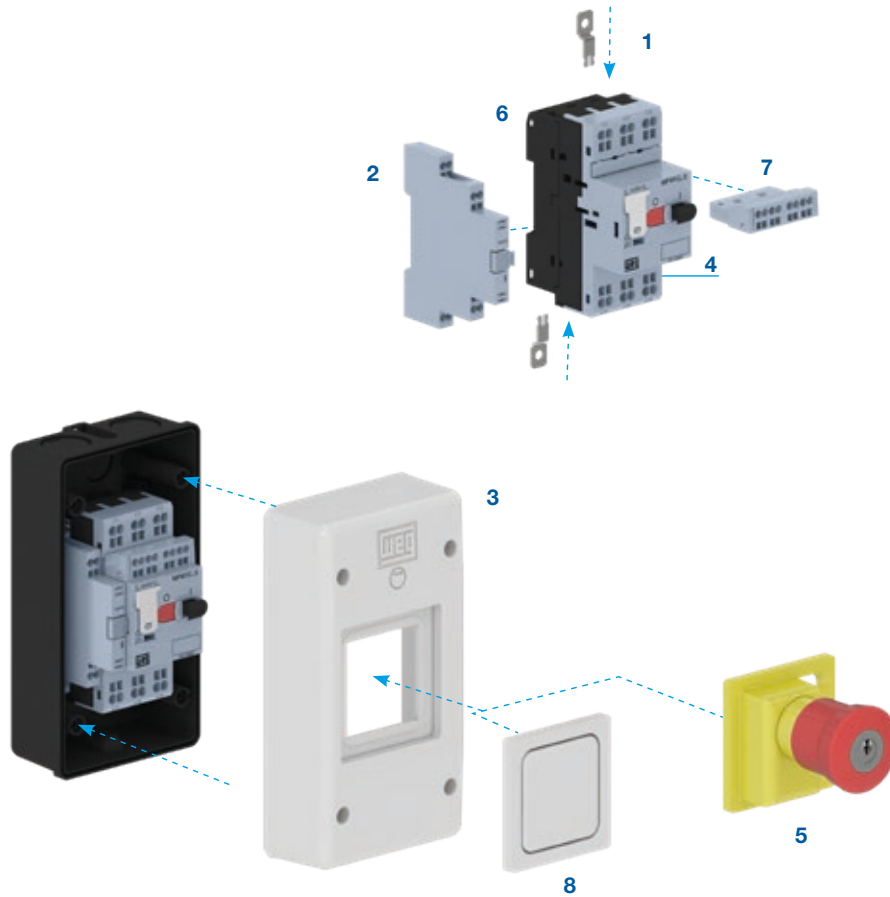
Issued by the Parliament and by the European Council, the RoHS restricts the use of hazardous substances on electronic products traded in the countries members of the EU, **prohibiting the ingress of new products on the market** in case they contain lead, cadmium, hexavalent chromium, mercury, polybrominated biphenyl (PBB) and polybrominated diphenyl ethers (PBDE).

The MPW line complies with the RoHS requirements.



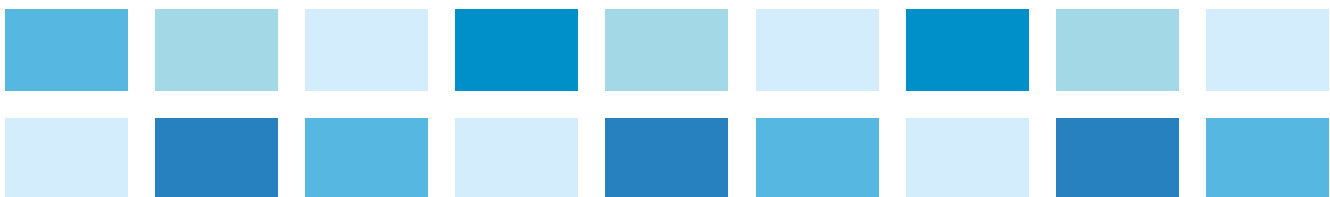
# MPW12 Motor Protective Circuit Breaker

## Overview



- 1 - Push-in-lugs PLMP
- 2 - Side-mounted auxiliary contact block ACBS\_S (spring terminal)
- 3 - Insulated enclosures
- 4 - Scale cover SCMP

- 5 - Emergency pushbutton for insulated enclosure
- 6 - MPW12 motor protective circuit breaker (spring terminal)
- 7 - Front mounted auxiliary contact block ACBF\_S (spring terminal)
- 8 - MPE41 cover for PE66



**Selection Table**

**MPW12 Motor Protective Circuit Breaker up to 12 A - Thermomagnetic or Magnetic Only**

- Spring terminal
- With overload and short-circuit protection
- Fixed short-circuit release 13 times the maximum circuit breaker rated current
- With phase-failure sensitivity according to IEC 60947-4-1
- With temperature compensation
- For use as main switch (IEC 60947-2)
- Self-protected against short circuit up to 6.3 A at 500 V ac
- Thermomagnetic Motor Protective Circuit Breaker with overload protection (class 10)



**MPW12 Motor Protective Circuit Breaker - Thermomagnetic - Overload and Short-Circuit Protection**

Reference values for selecting protection of three-phase electric motors 60 Hz - 4 poles <sup>1)</sup>			Rated current  In (A)	Overload release setting  In (A)	Instantaneous magnetic trip 13x In  Im (A)	Spring terminal		Weight  kg
220-240 V  cv / kW	380-415 V  cv / kW	440-480 V  cv / kW				Reference	Code	
-	-	-	0.16	0.1...0.16	2.08	MPW12-3-C016S	12500989	0.28
-	-	-	0.25	0.16...0.25	3.25	MPW12-3-C025S	12500990	
-	-	0.16 / 0.12	0.4	0.25...0.4	5.2	MPW12-3-D004S	12500992	
-	0.16 / 0.12	0.25 / 0.18	0.63	0.4...0.63	8.2	MPW12-3-C063S	12500991	
0.16 / 0.12	0.33 / 0.25	0.33 / 0.25	1	0.63...1	13	MPW12-3-U001S	12500996	
0.33 / 0.25	0.5 / 0.37	1 / 0.75	1.6	1...1.6	20.8	MPW12-3-D016S	12500993	
0.5 / 0.37	1 / 0.75	1.5 / 1.1	2.5	1.6...2.5	32.5	MPW12-3-D025S	12500994	
1 / 0.75	2 / 1.5	2 / 1.5	4	2.5...4	52	MPW12-3-U004S	12500997	
1.5 / 1.1	3 / 2.2	4 / 3	6.3	4...6.3	82	MPW12-3-D063S	12500995	
3 / 2.2	6 / 4.5	7.5 / 5.5	10	6.3...10	130	MPW12-3-U010S	12501028	
4 / 3	7.5 / 5.5	7.5 / 5.5	12	8...12	156	MPW12-3-U012S	12501029	

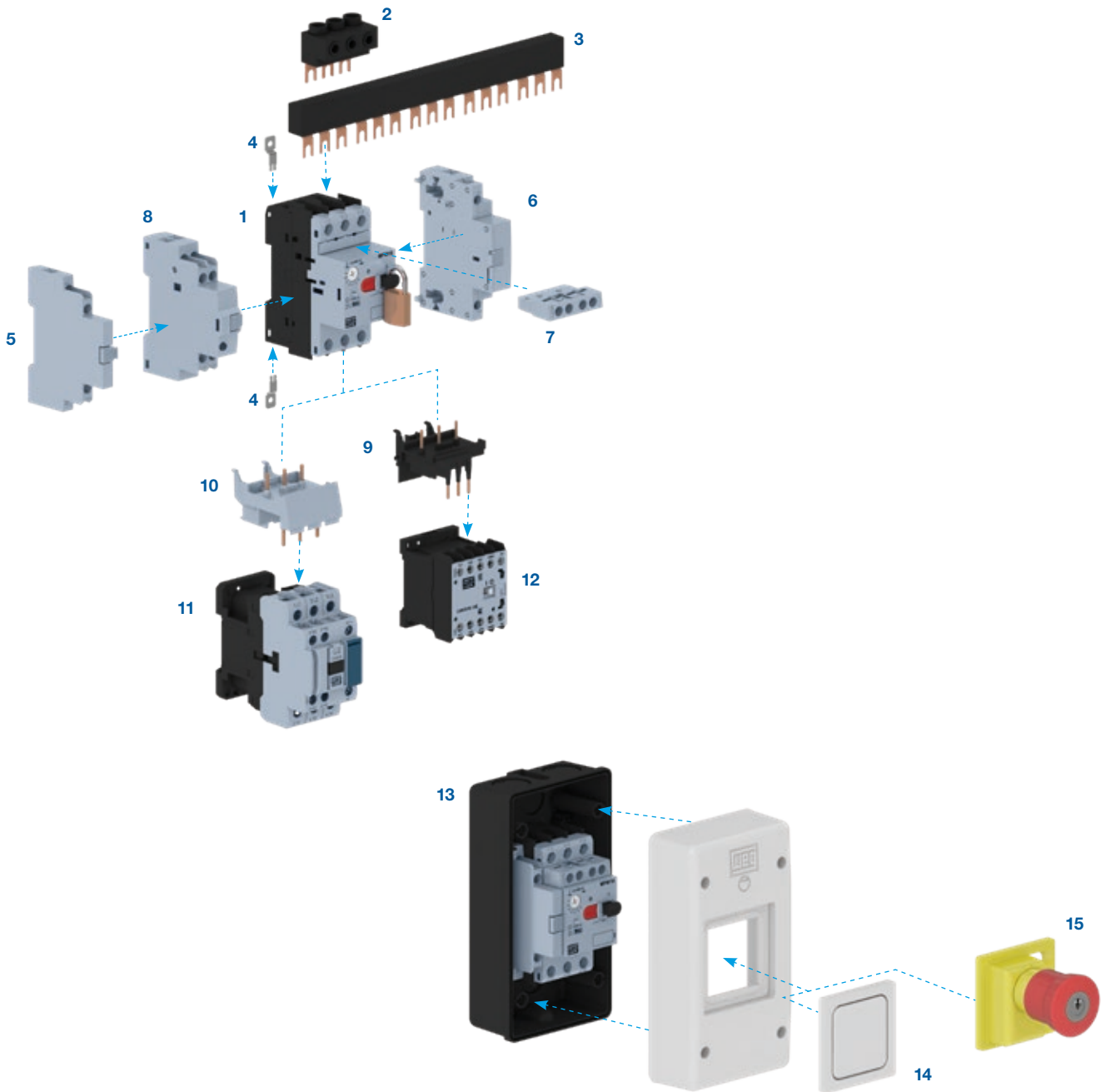
**MPW12i Motor Protective Circuit Breaker - Magnetic - Short Circuit Protection<sup>2)</sup>**

Reference values for selecting protection of three-phase electric motors 60 Hz - 4 poles <sup>1)</sup>			Rated current  In (A)	Instantaneous magnetic trip 13x In  Im (A)	Spring terminal		Weight  kg
220-240 V  cv / kW	380-415 V  cv / kW	440-480 V  cv / kW			Reference	Code	
-	-	-	0.16	2.08	MPW12i-3-C016S	12501032	0.28
-	-	-	0.25	3.25	MPW12i-3-C025S	12501033	
-	-	0.16 / 0.12	0.4	5.2	MPW12i-3-D004S	12501035	
-	0.16 / 0.12	0.25 / 0.18	0.63	8.2	MPW12i-3-C063S	12501034	
0.16 / 0.12	0.33 / 0.25	0.33 / 0.25	1	13	MPW12i-3-U001S	12501059	
0.33 / 0.25	0.5 / 0.37	1 / 0.75	1.6	20.8	MPW12i-3-D016S	12501036	
0.5 / 0.37	1 / 0.75	1.5 / 1.1	2.5	32.5	MPW12i-3-D025S	12501037	
1 / 0.75	2 / 1.5	2 / 1.5	4	52	MPW12i-3-U004S	12501060	
1.5 / 1.1	3 / 2.2	4 / 3	6.3	82	MPW12i-3-D063S	12501058	
3 / 2.2	6 / 4.5	7.5 / 5.5	10	130	MPW12i-3-U010S	12501061	
4 / 3	7.5 / 5.5	7.5 / 5.5	12	156	MPW12i-3-U012S	12501062	

Notes: 1) The values are only valid for WEG W22 motors at S1 duty and service factor equal to 1.  
2) For magnetic Motor Protective Circuit Breakers (MPW12i), it is necessary to use an overload protection device class 10.

# MPW18 Motor Protective Circuit Breaker

## Overview



- 1 - MPWD18 Motor Protective Circuit Breaker (screw terminal)
- 2 - Feeder terminal FTBBS
- 3 - Three-phase busbar BBS
- 4 - Push-in-lugs PLMP
- 5 - Side-mounted auxiliary contact block ACBS (screw terminal)
- 6 - Undervoltage release URMP or shunt release SRMP (screw terminal)
- 7 - Front mounted auxiliary contact block ACBF (screw terminal)

- 8 - Trip signaling block TSB
- 9 - Link module manual motor protector + CWC miniature contactor
- 10 - Link module manual motor protector + CWC contactors
- 11 - Contactors CWB9...38
- 12 - Miniature contactors CWC07...16
- 13 - Insulated enclosure
- 14 - Cover for PE66
- 15 - Emergency pushbutton for insulated enclosure

### Selection Table

#### MPW18 Motor Protective Circuit Breaker up to 18 A - Thermomagnetic or Magnetic Only

- Allows the operation and overload and short circuit protection of electric motor
- Fixed short-circuit release 13 times the maximum circuit breaker rated current
- With phase-failure sensitivity according to IEC 60947-4-1
- With temperature compensation
- For use as main switch (IEC 60947-2)
- Self-protected against short circuit up to 6.3 A at 500 V ac
- Thermomagnetic Motor Protective Circuit Breaker with overload protection (class 10)



#### MPW18 Motor Protective Circuit Breaker - Thermomagnetic - Overload and Short-Circuit Protection

Reference values for selecting protection of three-phase electric motors 60 Hz - 4 poles <sup>1)</sup>			Rated current  In (A)	Overload release setting  In (A)	Instantaneous magnetic trip 13x In  Im (A)	Spring terminal		Weight  kg
220-240 V  cv / kW	380-415 V  cv / kW	440-480 V  cv / kW				Reference	Code	
-	-	-	0.16	0.1...0.16	2.08	MPW18-3-C016	12429311	0.28
-	-	-	0.25	0.16...0.25	3.25	MPW18-3-C025	12429312	
-	-	0.16 / 0.12	0.4	0.25...0.4	5.2	MPW18-3-D004	12429313	
-	0.16 / 0.12	0.25 / 0.18	0.63	0.4...0.63	8.2	MPW18-3-C063	12429315	
0.16 / 0.12	0.33 / 0.25	0.33 / 0.25	1	0.63...1	13	MPW18-3-U001	12429317	
0.33 / 0.25	0.5 / 0.37	1 / 0.75	1.6	1...1.6	20.8	MPW18-3-D016	12429368	
0.5 / 0.37	1 / 0.75	1.5 / 1.1	2.5	1.6...2.5	32.5	MPW18-3-D025	12429369	
1 / 0.75	2 / 1.5	2 / 1.5	4	2.5...4	52	MPW18-3-U004	12429370	
1.5 / 1.1	3 / 2.2	4 / 3	6.3	4...6.3	82	MPW18-3-D063	12429371	
3 / 2.2	6 / 4.5	7.5 / 5.5	10	6.3...10	130	MPW18-3-U010	12429372	
5 / 3.7	10 / 7.5	12.5 / 9.2	16	10...16	208	MPW18-3-U016	12429373	
6 / 4.5	10 / 7.5	12.5 / 9.2	18	12...18	234	MPW18-3-U018	12429374	

#### MPW18i Motor Protective Circuit Breaker - Magnetic - Short Circuit Protection<sup>2)</sup>

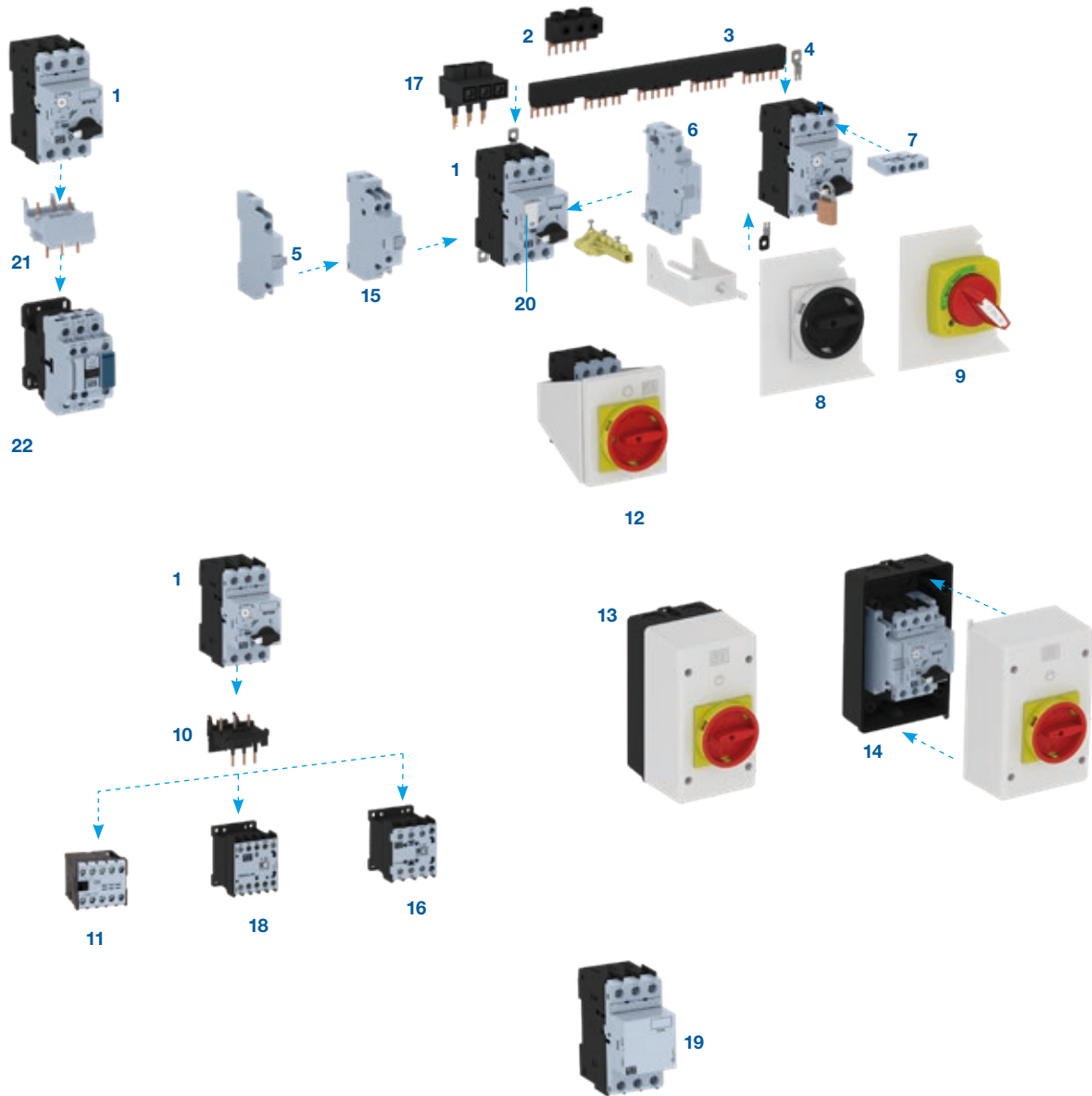
Reference values for selecting protection of three-phase electric motors 60 Hz - 4 poles <sup>1)</sup>			Rated current  In (A)	Instantaneous magnetic trip 13x In  Im (A)	Spring terminal		Weight  kg
220-240 V  cv / kW	380-415 V  cv / kW	440-480 V  cv / kW			Reference	Code	
-	-	-	0.16	2.08	MPW18i-3-C016	12429375	0.28
-	-	-	0.25	3.25	MPW18i-3-C025	12429376	
-	-	0.16 / 0.12	0.4	5.2	MPW18i-3-D004	12429377	
-	0.16 / 0.12	0.25 / 0.18	0.63	8.2	MPW18i-3-C063	12429388	
0.16 / 0.12	0.33 / 0.25	0.33 / 0.25	1	13	MPW18i-3-U001	12429389	
0.33 / 0.25	0.5 / 0.37	1 / 0.75	1.6	20.8	MPW18i-3-D016	12429391	
0.5 / 0.37	1 / 0.75	1.5 / 1.1	2.5	32.5	MPW18i-3-D025	12429392	
1 / 0.75	2 / 1.5	2 / 1.5	4	52	MPW18i-3-U004	12429393	
1.5 / 1.1	3 / 2.2	4 / 3	6.3	82	MPW18i-3-D063	12429394	
3 / 2.2	6 / 4.5	7.5 / 5.5	10	130	MPW18i-3-U010	12429395	
5 / 3.7	10 / 7.5	12.5 / 9.2	16	208	MPW18i-3-U016	12429396	
6 / 4.5	10 / 7.5	12.5 / 9.2	18	234	MPW18i-3-U018	12429397	

Notes: 1) The values are only valid for WEG W22 motors at S1 duty and service factor equal to 1.

2) For magnetic Motor Protective Circuit Breakers (MPW12i), it is necessary to use an overload protection device class 10.

# MPW40 Motor Protective Circuit Breaker

## Overview



- |  |   |
|--|---|
| 1 - MPW40 Motor Protective Circuit Breaker                                     | 12 - Front plate FME55  |
| 2 - Feeder terminal FTBBS  | 13 - Insulated enclosure PE55   |
| 3 - Three-phase busbar BBS   | 14 - Insulated enclosure LPE55  |
| 4 - Push-in-lugs PLMP  | 15 - Trip signaling block TSB   |
| 5 - Side-mounted auxiliary contact block ACBS                                  | 16 - Miniature contactor CWC025   |
| 6 - Undervoltage release URMP or shunt release SRMP                            | 17 - LST25 - Feeder terminal for "Type E" motor starter according to UL |
| 7 - Front mounted auxiliary contact block ACBF                                 | 18 - Miniature contactors CWC07...16                                    |
| 8 - Door coupling rotary handle RMMP   | 19 - Current limiter  |
| 9 - Door coupling rotary handle MRX  | 20 - Scale cover SCMP   |
| 10 - Link modules motor protective circuit breaker + contactor (CW07/CWC0/CWM) | 21 - Link module manual motor protector + CWB contactors                |
| 11 - Miniature contactor CW07  | 22 - Contactors CWB9...38   |

**Selection Table**

**MPW40 Motor Protective Circuit Breaker up to 40 A - Thermomagnetic or Magnetic Only**

- Allows the operation and overload and short circuit protection of electric motor
- Fixed short-circuit release 13 times the maximum circuit breaker rated current
- With phase-failure sensitivity according to IEC 60947-4-1
- With temperature compensation
- For use as main switch (IEC 60947-2)
- Self-protected against short circuit up to 6.3 A at 500 V ac
- Thermomagnetic Motor Protective Circuit Breaker with overload protection (class 10)



**MPW40 Motor Protective Circuit Breaker - Thermomagnetic - Overload and Short-Circuit Protection**

Reference values for selecting protection of three-phase electric motors 60 Hz - 4 poles <sup>1)</sup>			Rated current  In (A)	Overload release setting  In (A)	Instantaneous magnetic trip 13x In  Im (A)	Spring terminal		Weight  kg
220-240 V  cv / kW	380-415 V  cv / kW	440-480 V  cv / kW				Reference	Code	
-	-	-	0.16	0.1...0.16	2.08	MPW40-3-C016	12428084	0.36
-	-	-	0.25	0.16...0.25	3.25	MPW40-3-C025	12428085	
-	-	0.16 / 0.12	0.4	0.25...0.4	5.2	MPW40-3-D004	12428086	
-	0.16 / 0.12	0.25 / 0.18	0.63	0.4...0.63	8.2	MPW40-3-C063	12428087	
0.16 / 0.12	0.33 / 0.25	0.33 / 0.25	1	0.63...1	13	MPW40-3-U001	12429239	
0.33 / 0.25	0.5 / 0.37	1 / 0.75	1.6	1...1.6	20.8	MPW40-3-D016	12428108	
0.5 / 0.37	1 / 0.75	1.5 / 1.1	2.5	1.6...2.5	32.5	MPW40-3-D025	12428110	
1 / 0.75	2 / 1.5	2 / 1.5	4	2.5...4	52	MPW40-3-U004	12428112	
1.5 / 1.1	3 / 2.2	4 / 3	6.3	4...6.3	82	MPW40-3-D063	12428115	
3 / 2.2	6 / 4.5	7.5 / 5.5	10	6.3...10	130	MPW40-3-U010	12428117	
5 / 3.7	10 / 7.5	12.5 / 9.2	16	10...16	208	MPW40-3-U016	12428128	
7.5 / 5.5	12.5 / 9.2	15 / 11	20	16...20	260	MPW40-3-U020	12428129	
-	15 / 11	-	25	20...25	325	MPW40-3-U025	12428133	
12.5 / 9.2	20 / 15	20 / 15	32	25...32	416	MPW40-3-U032	12428131	
15 / 11	25 / 18.5	25 / 18.5	40	32...40	520	MPW40-3-U040	12382551	

**MPW40i Motor Protective Circuit Breaker - Magnetic - Short Circuit Protection<sup>2)</sup>**

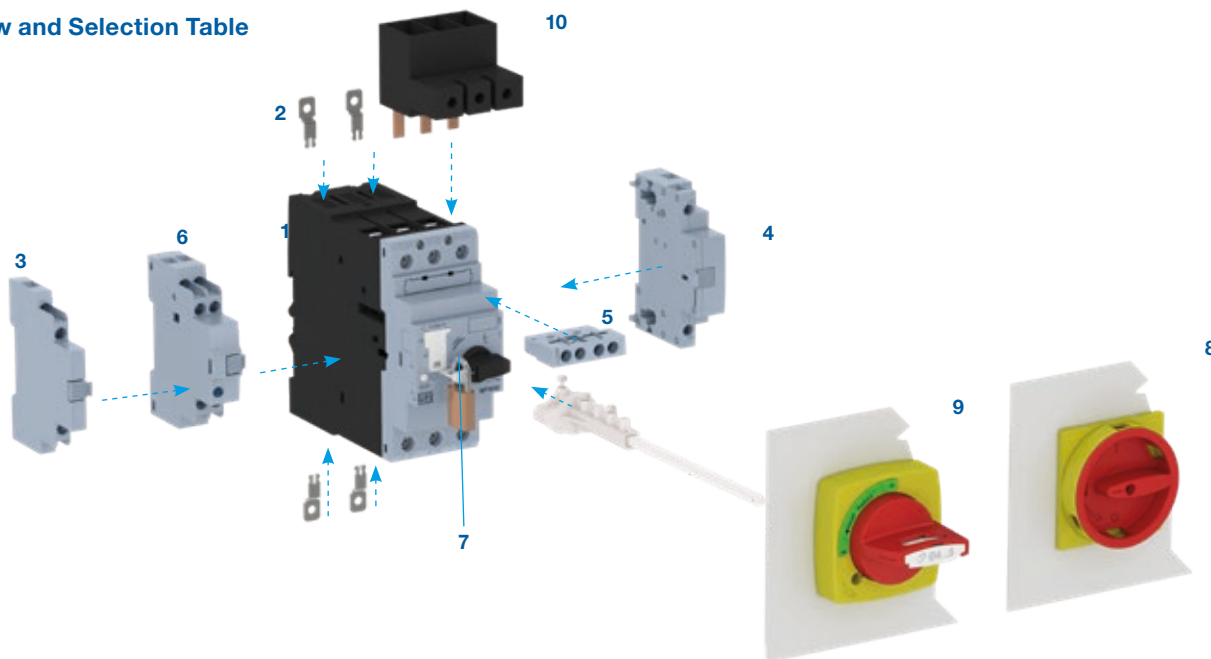
Reference values for selecting protection of three-phase electric motors 60 Hz - 4 poles <sup>1)</sup>			Rated current  In (A)	Instantaneous magnetic trip 13x In  Im (A)	Spring terminal		Weight  kg
220-240 V  cv / kW	380-415 V  cv / kW	440-480 V  cv / kW			Reference	Code	
-	-	-	0.16	2.08	MPW40i-3-C016	12428137	0.36
-	-	-	0.25	3.25	MPW40i-3-C025	12428148	
-	-	0.16 / 0.12	0.4	5.2	MPW40i-3-D004	12428149	
-	0.16 / 0.12	0.25 / 0.18	0.63	8.2	MPW40i-3-C063	12428150	
0.16 / 0.12	0.33 / 0.25	0.33 / 0.25	1	13	MPW40i-3-U001	12428153	
0.33 / 0.25	0.5 / 0.37	1 / 0.75	1.6	20.8	MPW40i-3-D016	12428154	
0.5 / 0.37	1 / 0.75	1.5 / 1.1	2.5	32.5	MPW40i-3-D025	12428156	
1 / 0.75	2 / 1.5	2 / 1.5	4	52	MPW40i-3-U004	12428157	
1.5 / 1.1	3 / 2.2	4 / 3	6.3	82	MPW40i-3-D063	12428178	
3 / 2.2	6 / 4.5	7.5 / 5.5	10	130	MPW40i-3-U010	12428179	
5 / 3.7	10 / 7.5	12.5 / 9.2	16	208	MPW40i-3-U016	12428180	
7.5 / 5.5	12.5 / 9.2	15 / 11	20	260	MPW40i-3-U020	12428181	
-	15 / 11	-	25	325	MPW40i-3-U025	12428182	
12.5 / 9.2	20 / 15	20 / 15	32	416	MPW40i-3-U032	12428183	
15 / 11	25 / 18.5	25 / 18.5	40	520	MPW40i-3-U040	12382552	

Notes: 1) The values are only valid for WEG W22 motors at S1 duty and service factor equal to 1.

2) For magnetic Motor Protective Circuit Breakers (MPW40i), it is necessary to use an overload protection device class 10.

# MPW80 Motor Protective Circuit Breaker

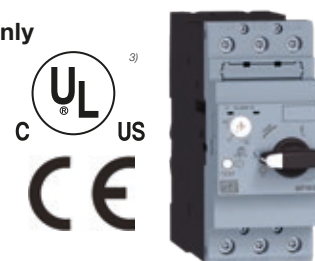
## Overview and Selection Table



- 1 - MPW80 Motor Protective Circuit Breaker
- 2 - Push-in-lugs PLMP
- 3 - Side mounting auxiliary contact block ACBS
- 4 - Undervoltage release URMP or shunt release SRMP
- 5 - Front mounted auxiliary contact block ACBF
- 6 - Trip signaling block TSB
- 7 - Scale cover SCMP
- 8 - Door coupling rotary handle RMMP65
- 9 - Door coupling rotary handle MRX65
- 10 - LST25 - Feeder terminal for "Type E" motor starter according to UL

### MPW80 Motor Protective Circuit Breaker up to 80 A - Thermomagnetic or Magnetic Only

- Allows the operation and overload and short circuit protection of electric motor
- Fixed short-circuit release 13 times the maximum circuit breaker rated current
- With phase-failure sensitivity according to IEC 60947-4-1
- With temperature compensation
- For use as main switch (IEC 60947-2)
- Short-circuit breaking capacity from 65 kA up to 80 A at 380 V ac according to IEC 60947-2
- Thermomagnetic Motor Protective Circuit Breaker with overload protection (class 10)



### MPW80 Motor Protective Circuit Breaker - Thermomagnetic - Overload and Short-Circuit Protection

Reference values for selecting protection of three-phase electric motors 60 Hz - 4 poles <sup>1)</sup>			Rated current  In (A)	Overload release setting  	Instantaneous magnetic trip 13x In  	"Box" terminal		Weight  kg
220-240 V  cv / kW	380-415 V  cv / kW	440-480 V  cv / kW				Reference	Code	
15 / 11	25 / 18.5	30 / 22	40	32...40	520	MPW80-3-U040	12425347	1.07
-	30 / 22	40 / 30	50	40...50	650	MPW80-3-U050	12425428	
25 / 18.5	40 / 30	50 / 37	65	50...65	845	MPW80-3-U065	12425429	
30 / 22	50 / 37	60 / 45	80	65...80	1,040	MPW80-3-U080	12501063	

### MPW80i Motor Protective Circuit Breaker - Magnetic - Short Circuit Protection<sup>2)</sup>

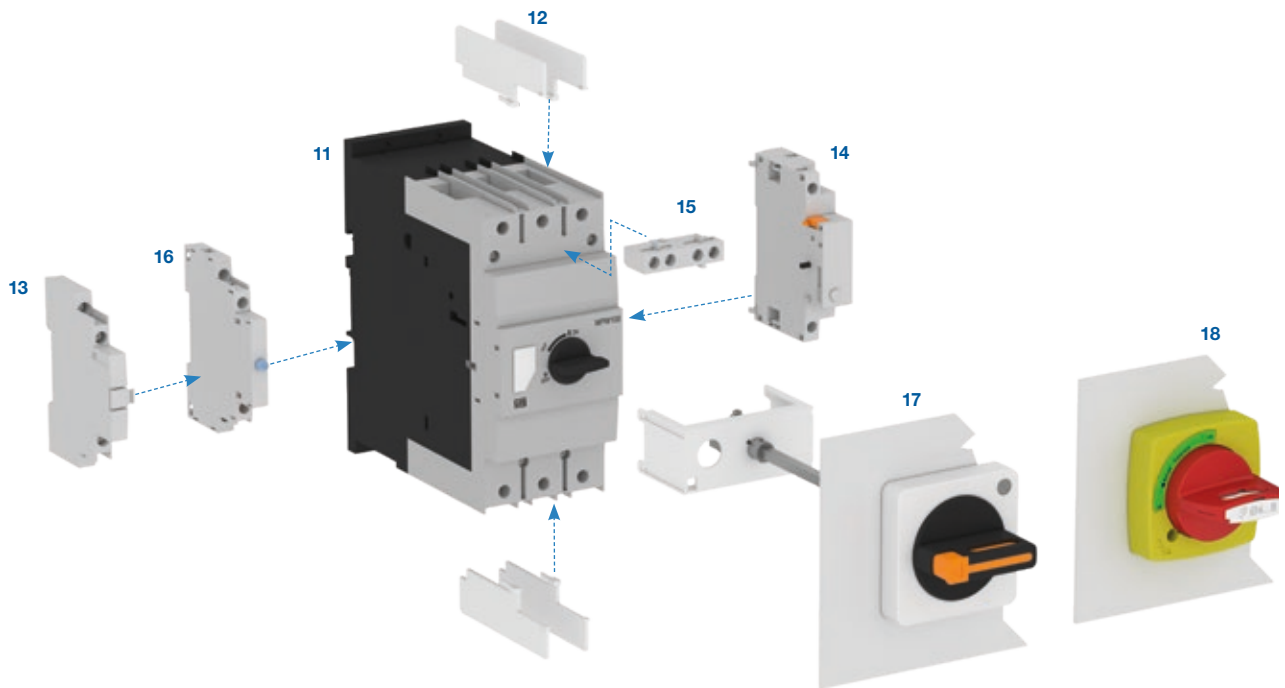
Reference values for selecting protection of three-phase electric motors 60 Hz - 4 poles <sup>1)</sup>			Rated current  In (A)	Instantaneous magnetic trip 13x In  Im (A)	"Box" terminal		Weight  kg
220-240 V  cv / kW	380-415 V  cv / kW	440-480 V  cv / kW			Reference	Code	
15 / 11	25 / 18.5	30 / 22	40	520	MPW80i-3-U040	12425431	1.07
-	30 / 22	40 / 30	50	650	MPW80i-3-U050	12425432	
25 / 18.5	40 / 30	50 / 37	65	845	MPW80i-3-U065	12425434	
30 / 22	50 / 37	60 / 45	80	1,040	MPW80i-3-U080	12501066	

Notes: 1) The values are only valid for WEG W22 motors at S1 duty and service factor equal to 1.  
 2) For magnetic Motor Protective Circuit Breakers (MPW80i), it is necessary to use an overload protection device class 10.  
 3) Under process.



# MPW100 Motor Protective Circuit Breaker

## Overview and Selection Table



- 11 - MPW100 Motor Protective Circuit Breaker
- 12 - IB insulators MPW100
- 13 - Side-mounted auxiliary contact block ACBS
- 14 - Undervoltage release URMP or shunt release SRMP\_ MPW100

- 15 - Front mounted auxiliary contact block ACBF MPW100
- 16 - Trip signaling block TSB\_ MPW100
- 17 - Door coupling rotary handle MR MPW100
- 18 - Door coupling rotary handle MRX100

### MPW100 Motor Protective Circuit Breaker - Thermomagnetic

- Allows the operation and overload and short circuit protection of electric motor
- Fixed short-circuit release 13 times the maximum circuit breaker rated current
- With phase-failure sensitivity according to IEC 60947-4-1
- With temperature compensation
- For use as main switch (IEC 60947-2)
- Self-protected against short circuit up to 100 A at 220/240 V ac
- Short-circuit breaking capacity of 50 kA ( $I_{cu}$ ) at 440 V ac according to IEC 60947-2
- UL/CSA certifications
- Thermomagnetic Motor Protective Circuit Breaker with overload protection (class 10)



### MPW100 Motor Protective Circuit Breaker - Thermomagnetic - Overload and Short-Circuit Protection

Reference values for selecting protection of three-phase electric motors 60 Hz - 4 poles <sup>1)</sup>			Rated current  $I_n$ (A)	Overload release setting  $I_n$ (A)	Instantaneous magnetic trip $13 \times I_n$  $I_m$ (A)	"Box" terminal		Weight  kg
220-240 V  cv / kW	380-415 V  cv / kW	440-480 V  cv / kW				Reference	Code	
25 / 18.5	50 / 37	60 / 45	75	55...75	975	MPW100-3-U075	10076551	2.2
30 / 22	60 / 45	75 / 55	90	70...90	1,170	MPW100-3-U090	10076552	
40 / 30	60 / 45	75 / 55	100	80...100	1,300	MPW100-3-U100	10047295	

Notes: 1) The values are only valid for WEG W22 motors at S1 duty and service factor equal to 1.  
2) For overload protection, it is suggested the use of overload relays.

# MPW40t Motor Protective Circuit Breaker

## Selection Table

- Allows the operation and overload and short circuit protection of inductive loads
- Used in the protection of transformers and electric motors with high starting currents
- Fixed short-circuit release 19 times the maximum circuit breaker rated current
- Breaking capacity up to 100 kA at 380-415 V ac up to 10 A
- With phase-failure sensitivity according to IEC 60947-4-1
- With temperature compensation
- Thermomagnetic Motor Protective Circuit Breaker with overload protection (class 10)



## MPW40t Motor Protective Circuit Breaker - Thermomagnetic - Overload and Short-Circuit Protection



Reference values for selecting protection of three-phase electric motors 60 Hz - 4 poles <sup>1)</sup>			Rated current $I_n$ (A)	Overload release setting $I_n$ (A)	Instantaneous magnetic trip $13 \times I_n$ $I_m$ (A)	Maximum breaking current at 415 V ac $I_{cu}$ (kA)	Screw terminal		Weight kg
220-240 V cv / kW	380-415 V cv / kW	440-480 V cv / kW					Reference	Code	
-	-	-	0.16	0.1...0.16	3.0	100	MPW40t-3-C016	12428358	0.36
-	-	-	0.25	0.16...0.25	4.8	100	MPW40t-3-C025	12428359	
-	-	0.16 / 0.12	0.4	0.25...0.4	7.6	100	MPW40t-3-D004	12428360	
-	0.16 / 0.12	0.25 / 0.18	0.63	0.4...0.63	12.0	100	MPW40t-3-C063	12428361	
0.16 / 0.12	0.33 / 0.25	0.33 / 0.25	1	0.63...1	19.0	100	MPW40t-3-U001	12429308	
0.33 / 0.25	0.5 / 0.37	1 / 0.75	1.6	1...1.6	30.4	100	MPW40t-3-D016	12428362	
0.5 / 0.37	1 / 0.75	1.5 / 1.1	2.5	1.6...2.5	47.5	100	MPW40t-3-D025	12428363	
1 / 0.75	2 / 1.5	2 / 1.5	4	2.5...4	76.0	100	MPW40t-3-U004	12428364	
1.5 / 1.1	3 / 2.2	4 / 3	6.3	4...6.3	119.7	100	MPW40t-3-D063	12428365	
3 / 2.2	6 / 4.5	7.5 / 5.5	10	6.3...10	190.0	100	MPW40t-3-U010	12428366	
5 / 3.7	10 / 7.5	12.5 / 9.2	16	10...16	304.0	50	MPW40t-3-U016	12428367	
7.5 / 5.5	12.5 / 9.2	15 / 11	20	16...20	380.0	50	MPW40t-3-U020	12428378	

Note: 1) The values are only valid for WEG W22 motors at S1 duty and service factor equal to 1.






## Accessories


### Front Auxiliary Contact Blocks - ACBF<sup>1)3)</sup>

For use with	Illustrative picture	Auxiliary contacts		Reference	Code	Weight kg
		NO	NC			
MPW12		1	1	ACBF-11S	12463910	0.024
MPW18 MPW40 MPW80	ACBF-11			12463886		
MPW100				ACBF-11 MPW100	10047296	0.018

### Left Side Auxiliary Contact Block - ACBS<sup>1)3)</sup>

For use with	Illustrative picture	Auxiliary contacts		Reference	Code	Weight kg
		NO	NC			
MPW12		1	1	ACBS-11S	12463908	0.045
		2	-	ACBS-20S	12463913	
		-	2	ACBS-02S	12463915	
MPW18 MPW40 MPW80		1	1	ACBS-11	12463909	0.045
		2	-	ACBS-20	12463912	
		-	2	ACBS-02	12463914	
MPW100		1	1	ACBS-11 MPW100	10047297	0.030
		2	-	ACBS-20 MPW100	10076555	
		-	2	ACBS-02 MPW100	10076556	

### Trip Signaling Block - TSB<sup>1)3)</sup>

For use with	Illustrative picture	Description	Reference	Code	Weight kg
MPW18 MPW40 MPW80		- Equipped with 2 contacts (1NO+1NC) for trip signaling and other 2 contacts (1NO+1NC) for short-circuit trip signaling; - To reset the circuit breaker after a short-circuit, the flag must be manually reset after the cause of the failure has been solved; - Lateral auxiliary contacts can be assembled together with the trip signaling block; - Left side assembly only.	TSB	12463916	0.130
MPW100		- Equipped with 2 contacts (1NO+1NC) for overload or short-circuit trip signaling; - Left side assembly only.	TSB AT-11 MPW100 <sup>2)</sup>	10047298	0.040
		- Equipped with 2 contacts (1NO+1NC) for short-circuit trip signaling only; - Left side assembly only.	TSB SC-11 MPW100 <sup>2)</sup>	10076559	


Notes: 1) The combination of ACBF+ACBS+TSB accessories cannot be assembled at the same time in the MPW line.

2) It is not possible to use the TSB AT-11 MPW100 and TSB SC-11 MPW100 at the same time.


3) The accessories of the MPW100 are not compatible with the line of MPW18...MPW80.

## Accessories

### Undervoltage Release - URMP<sup>1)2)3)</sup>

For use with	Illustrative picture	Description	Voltages and frequencies <sup>3)</sup>	Reference	Code	Weight kg
MPW12 MPW18 MPW40 MPW80		<ul style="list-style-type: none"> <li>- Operating voltage: <math>&gt;0.85...1.1 \times U_{e}</math></li> <li>- Non-operating voltage: <math>&lt;0.35...0.7 \times U_{e}</math></li> <li>- Right side assembly only.</li> </ul>	220 V 50 / 60 Hz	URMP D23	12463885	0.130
			24 V 50 / 60 Hz	URMP D02	12463884	
			110 V 50 Hz / 120 V 60 Hz	URMP V18	12463874	
			110-115 V 50 Hz / 127 V 60 Hz	URMP V19	12463875	
			180 V 50 Hz / 208 V 60 Hz	URMP V23	12463876	
			190 V 50 Hz / 220 V 60 Hz	URMP V26	12463877	
			208 V 50 Hz / 240 V 60 Hz	URMP V30	12463879	
			220 V 50 Hz / 255 V 60 Hz	URMP V32	12463878	
			230-240 V 50 Hz / 277 V 60 Hz	URMP V37	12463880	
			325 V 50 Hz / 380 V 60 Hz	URMP V41	12463881	
			380 V 50 Hz / 440 V 60 Hz	URMP V42	12463882	
400-415 V 50 Hz / 480 V 60 Hz	URMP V47	12463883				
MPW100		<ul style="list-style-type: none"> <li>- Operating voltage: <math>&gt;0.85...1.1 \times U_{e}</math></li> <li>- Non-operating voltage: <math>&lt;0.35...0.7 \times U_{e}</math></li> <li>- Right side assembly only.</li> </ul>	110 V 50 Hz / 120 V 60 Hz	URMP V18 MPW100	10186875	0.018
			220-230 V 50 Hz / 240-260 V 60 Hz	URMP V33 MPW100	10186876	
			380-400 V 50 Hz / 440-460 V 60 Hz	URMP V43 MPW100	10186877	
			200 V 50 Hz / 200-220 V 60 Hz	URMP VD1 MPW100	11028882	

### Shunt Release - SRMP<sup>1)2)3)</sup>

For use with	Illustrative picture	Description	Voltages and frequencies <sup>3)</sup>	Reference	Code	Weight kg
MPW12 MPW18 MPW40 MPW80		<ul style="list-style-type: none"> <li>- Operating voltage: <math>0.7...1.1 \times U_{e}</math></li> <li>- Right side assembly only.</li> </ul>	20-24 V 50/60 Hz	SRMP D51	12463869	0.130
			40-48 V 50/60 Hz	SRMP D54	12463870	
			100-127 V 50/60 Hz	SRMP D59	12463871	
			200-240 V 50/60 Hz	SRMP D65	12463872	
			365-440 V 50/60 Hz	SRMP D69	12463873	
MPW100			110 V 50 Hz / 120 V 60 Hz	SRMP V18 MPW100	10186872	0.040
			220-230 V 50 Hz / 240-260 V 60 Hz	SRMP V33 MPW100	10186873	
			380-400 V 50 Hz / 440-460 V 60 Hz	SRMP V43 MPW100	10186874	
			200 V 50 Hz / 200-220 V 60 Hz	SRMP VD1 MPW100	11028884	


Notes: 1) The combination of ACBF+ACBS+TSB accessories cannot be assembled at the same time in the MPW line.

2) Available with screw terminal only.

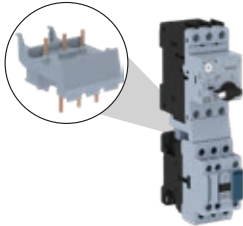
3) The accessories of the MPW100 are not compatible with the line of MPW18...MPW80.

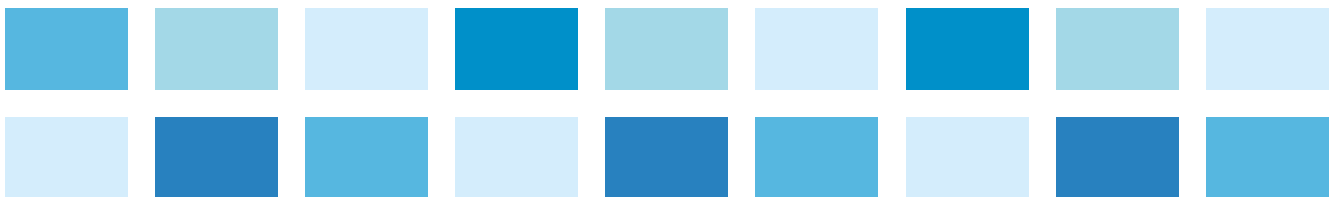
4) Other voltages on request.

### Insulators for UL - IB

For use with	Illustrative picture	Description	Reference	Code	Weight kg
MPW100		Insulators for increasing the creepage distance and clearances according to UL requirements. Package with 4 pieces.	IB MPW100	10213096	0.010

### Block Modules for Motor Protective Circuit Breaker Assembly + Contactors - ECCMP

For use with	Illustrative picture	Description	Contactors	Reference	Code	Weight kg
MPW18		For direct connection (electrical and mechanical) of motor protective circuit breakers to screw terminal.	CWC07...16 (AC/DC coil)	ECCMP-C016	10867179	0.025
			CWB9...38 (AC coil)	ECCMP-18B38	12462672	
MPW40			CW07 (AC coil)	ECCMP-07	10046506	
			CWC07...16 (AC/DC coil)	ECCMP-C0	10047217	
			CWC025 (AC coil)	ECCMP-C025	10689937	
			CWM9...25 (AC coil)	ECCMP-25	10409822	
			CWM32/40 (AC coil)	ECCMP-32	10075736	
			CWB9...38 (AC coil)	ECCMP-40B38	12462673	
			CWB9...38 (DC coil)	ECCMP-40B38DC	12462674	








## Accessories


### Door Coupling Rotary Handle - RMMP and MR

For use with	Illustrative picture	Description	Handle color	Reference	Code	Weight kg	
MPW40		<ul style="list-style-type: none"> <li>- Degree of protection IP55;</li> <li>- Shows circuit breaker position "I" (ON), "O" (OFF) and TRIP (Tripped);</li> <li>- Panel door can only be opened in OFF position;</li> <li>- Adjustable shaft length. There are two standard shaft sizes: 130 mm (Model 130) and 330 mm (Model 330);</li> <li>- Up to three padlocks can be used in the OFF;</li> <li>- This blocks the circuit breaker operation and opens the panel door;</li> <li>- Handle can be mounted on panels with a thickness of 1 to 5 mm;</li> <li>- Handle can be mounted even with circuit breaker in the position rotating 90°.</li> </ul>	Black	RMMP-130	10185921	0.140	
				RMMP-330	10185922	0.175	
			Red	RMMP-130E	10185923	0.140	
				RMMP-330E	10185924	0.175	
MPW80				Black	RMMP65-130	11068497	0.139
					RMMP65-330	11068519	0.175
				Red	RMMP65-130E	11068518	0.139
					RMMP65-330E	11068520	0.175
MPW40				Black	MRX-130	11051796	0.185
					MRX-330	11051797	0.220
				Red	MRX-130E	10857691	0.185
					MRX-330E	10857692	0.220
MPW80				Black	MRX65-130	11068521	0.250
					MRX65-330	11068523	0.280
				Red	MRX65-130E	11068522	0.250
					MRX65-330E	11068525	0.280
MPW100				Black	MRX100-130	11152799	0.151
					Red	MRX100-130E	11152800
				Gray	MR MPW100-115	10609710	0.170
					MR MPW100-315	10609711	0.200


### Insulated Enclosures - PE

For use with	Illustrative picture	Description	Terminals	Handle color	Reference	Code	Weight kg	
MPW12 MPW18		<ul style="list-style-type: none"> <li>- Empty plastic enclosure;</li> <li>- Degree of protection IP41;</li> <li>- 2 inputs/outputs PG16 for cable glands on top and bottom, and 2 inputs/outputs ØM20 in the back;</li> <li>- Allows installing: MPW + ACBF11/Lamps PL+ ACBS;</li> <li>- Color: cover (gray RAL 7035) and base (black RAL 7021).</li> </ul>	-	-	PE41	10831536	0.41	
			Ground	-	PE41G	10831606	0.41	
			Ground and Neutral	-	PE41GN	10831607	0.41	
		<ul style="list-style-type: none"> <li>- Empty plastic enclosure;</li> <li>- Degree of protection IP66;</li> <li>- 2 inputs/outputs PG16 for cable glands on top and bottom, and 2 inputs/outputs ØM20 in the back;</li> <li>- Allows installing: MPW + ACBF11/Lamp PL + ACBS;</li> <li>- Color: cover (gray RAL 7035) and base (black RAL 7021).</li> </ul>	-	-	PE66	10831535	0.41	
			Ground	-	PE66G	10831643	0.41	
			Ground and Neutral	-	PE66GN	10831700	0.41	
		- Allows raising the degree of protection of the insulated enclosure PE41 (IP41) to IP66	-	-	KIT66PE	10853867	0.016	
		- Emergency stop button - twist to release	Assembled in enclosures model PE41 or PE66.	-	Red	FESTPE	11659180	0.060
		- Emergency stop button - push to release				FESPPE	11941110	0.060
		- Emergency stop button - key to release				FESYPE	11659178	0.125
MPW40		<ul style="list-style-type: none"> <li>- Empty plastic enclosure;</li> <li>- Degree of protection IP55;</li> <li>- Allows installing: MPW + ACBF11/Lamp PL + ACBS;</li> <li>- 2 inputs/outputs for cable gland ØPG16 on top/bottom, and 2 inputs/outputs ØM20 in the back;</li> <li>- Rotary handle on the cover connected to the MPW handle;</li> <li>- Handle can be locked with up to 3 padlocks in the "OFF" position;</li> <li>- Color: cover (gray RAL 7035) and base (black RAL 7021).</li> </ul>	-	Black	PE55	10185915	0.44	
			-	Red	PE55E	10185916	0.44	
			Ground	Black	PE55G	10185917	0.54	
				Red	PE55G-E	10185918	0.54	
			Ground and Neutral	Black	PE55GN	10185919	0.45	
				Red	PE55GN-E	10185920	0.45	

### Insulated Enclosures - LPE


For use with	Illustrative picture	Description	Terminals	Handle color	Reference	Code	Weight kg
MPW40		<ul style="list-style-type: none"> <li>- Front plate for electrical panel door or side mounting;</li> <li>- Front degree of protection IP55;</li> <li>- Rotary handle on the cover connected to the MPW handle;</li> <li>- Handle can be locked with up to 3 padlocks in the "OFF" position;</li> <li>- Allows installing: MPW + ACBF11/Lamp PL + ACBS + URMP/SRMP;</li> <li>- Can be mounted on panels with a thickness of 1...8 mm;</li> <li>- Color: cover (gray RAL 7035).</li> </ul>	-	Black	LPE55	10211364	0.44
			-	Red	LPE55E	10666515	0.44
			Ground	Black	LPE55G	10651171	0.54
				Red	LPE55G-E	10666538	0.54
			Ground and Neutral	Black	LPE55GN	10211368	0.45
				Red	LPE55GN-E	10666540	0.45

### Front Plate - FME55




For use with	Illustrative picture	Description	Handle color	Reference	Code	Weight kg
MPW40		<ul style="list-style-type: none"> <li>- Front plate for electrical panel door or side mounting;</li> <li>- Front degree of protection IP55;</li> <li>- Rotary handle on the cover connected to the MPW handle;</li> <li>- Handle can be locked with up to 3 padlocks in the "OFF" position;</li> <li>- Allows installing: MPW + ACBF11/Lamp PL + ACBS + URMP/SRMP;</li> <li>- Can be mounted on panels with a thickness of 1...8 mm;</li> <li>- Color: cover (gray RAL 7035).</li> </ul>	Black	FME55	10186425	0.41
			Red	FME55E	10186426	0.41

## Accessories

### Pilot Light - PL


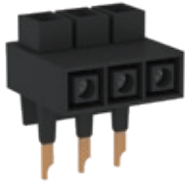
For use with	Illustrative picture	Lamp color	Voltages and frequencies	Reference	Code	Weight kg
All models		Red	24 V 50/60 Hz / DC	PL24 E26	10046226	0.005
			110...130 V 50/60 Hz	PL130 D61	10045246	
			210...230 V 50/60 Hz	PL230 D78	10045247	
			400...560 V 50/60 Hz	PL560 D79	10046227	
		Green	24 V 50/60 Hz / DC	PL24G E26	10046228	
			110...130 V 50/60 Hz	PL130G D61	10046229	
			210...230 V 50/60 Hz	PL230G D78	10186288	
			400...560 V 50/60 Hz	PL560G D79	10211180	
		White	24 V 50/60 Hz / DC	PL24W E26	10046230	
			110...130 V 50/60 Hz	PL130W D61	10046231	
			210...230 V 50/60 Hz	PL230W D78	10211181	
			400...560 V 50/60 Hz	PL560W D79	10046232	

### Motor Protective Circuit Breaker Mounting Adapter + Contactor - MA

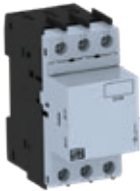
For use with	Illustrative picture	Description	Contactors	Reference	Code	Weight kg
MPW12 MPW18 MPW40		<ul style="list-style-type: none"> <li>- Used for direct on-line starters;</li> <li>- Adapter fixed by screws or DIN rail 35 mm;</li> <li>- 45 mm wide;</li> <li>- Motor protective circuit breaker + contactors: connection by cables.</li> </ul>	CW07	MA45DOL	10073629	0.025
			CWC07...25			
			CWM9...25			
			CWB9...38			
MPW12 MPW18 MPW40		<ul style="list-style-type: none"> <li>- Used for reversing starters;</li> <li>- Adapter fixed by screws or DIN rail 35 mm;</li> <li>- 90 mm wide;</li> <li>- Motor protective circuit breaker + contactors: connection by cables.</li> </ul>	2 x CW07	MA90RVS	10073628	0.025
			2 x CWC07...25			
			2 x CWM9...25			
			2 x CWB9...38			
MPW12 MPW18 MPW40		<ul style="list-style-type: none"> <li>- Used for star-delta starters;</li> <li>- Adapter fixed by screws or DIN rail 35 mm;</li> <li>- 90 mm wide;</li> <li>- Motor protective circuit breaker + contactors: connection by cables.</li> </ul>	CW07	MA90SDS	10073630	0.025
			CWC07...25			
			CWM9...25			
			CWB9...38			




### Three-Phase Feeder Terminal - FTBBS, LST25 and LST65

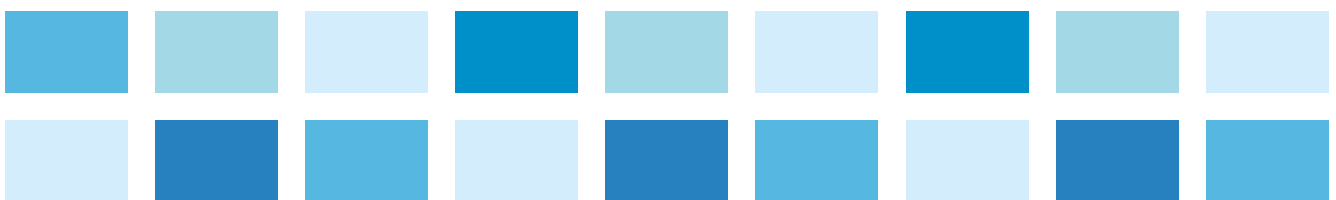
For use with	Illustrative picture	Description	Reference	Code	Weight kg
MPW18 MPW40		<ul style="list-style-type: none"> <li>- For feeding the busbar;</li> <li>- Rated insulation voltage: 690 V ac;</li> <li>- Rated operational current (<math>I_n</math>): 63 A;</li> <li>- Terminals: 6-25 mm<sup>2</sup> rigid wire and 6-16 mm<sup>2</sup> flexible wire with terminal.</li> </ul>	FTBBS	13451171	0.042
MPW40		<ul style="list-style-type: none"> <li>- Block module for "Type E" according to UL (LST25+MPW up to 32 A+TSB);</li> <li>- Rated insulation voltage: 690 V ac;</li> <li>- Rated operational current (<math>I_n</math>): 63 A;</li> <li>- Terminals: 8-20 AWG.</li> </ul>	LST25	10047102	0.055
MPW80		<ul style="list-style-type: none"> <li>- Block module for "Type E" according to UL (LST65+MPW up to 65 A+TSB);</li> <li>- Rated insulation voltage: 690 V ac;</li> <li>- Rated operational current (<math>I_n</math>): 120 A;</li> <li>- Terminals: 4-8 AWG.</li> </ul>	LST65	11112690	0.179

### Current Limiter - CLT32

For use with	Illustrative picture	Description	Reference	Code	Weight kg
MPW40		<ul style="list-style-type: none"> <li>- For protecting electrical circuits where high short-circuit breaking capacity is required: 100 kA at 500 V ac.</li> </ul> <p><i>Note: this accessory must be used together with a motor protective circuit breaker up to 32 A.</i></p>	CLT32	12462918	0.310

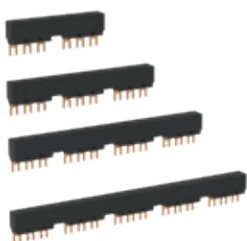
### Three-Phase Busbars for Circuit Breakers without Side Fitted Auxiliary Contacts - BBS45

For use with	Illustrative picture	Description	Number of circuit breakers	Reference	Code	Weight kg
MPW18 MPW40		<ul style="list-style-type: none"> <li>- For parallel blocking of side-by-side mounted circuit breakers with screw terminal of the same model without side auxiliary contacts;</li> <li>- Enables the use of frontal auxiliary contact block ACBF-11;</li> <li>- Rated insulation voltage: 690 V ac;</li> <li>- Rated operational current (<math>I_n</math>): 63 A.</li> </ul>	2	BBS45-2	13451023	0.044
			3	BBS45-3	13451024	0.071
			4	BBS45-4	13451025	0.102
			5	BBS45-5	13451026	0.122




## Accessories


### Three-Phase Busbars for Motor Protective Circuit Breakers with Side Fitted Auxiliary Contacts - BBS54

For use with	Illustrative picture	Description	Number of circuit breakers	Reference	Code	Weight kg
MPW18 MPW40		<ul style="list-style-type: none"> <li>- For parallel connection of circuit breakers with screw terminals of the same model mounted side-by-side;</li> <li>- Enables the use of side auxiliary contact block ACBS and ACBF mounted on each motor protective circuit breaker;</li> <li>- Rated insulation voltage: 690 V ac;</li> <li>- Rated operational current (<math>I_o</math>): 63 A.</li> </ul>	2	BBS54-2	13451027	0.047
			3	BBS54-3	13451168	0.077
			4	BBS54-4	13451169	0.102
			5	BBS54-5	13451170	0.134


### Shrouded for Unused Terminals - CSD

For use with	Illustrative picture	Description	Reference	Code	Weight kg
BBS45 e BBS54		Protection against direct contact with energized terminals without the use on the busbars BBS.	CSD	10073627	0.020

### Scale Cover - SCMP

For use with	Illustrative picture	Description	Reference	Code	Weight kg
MPW12 MPW18 MPW40 MPW80		Protects the current adjustment dial of thermomagnetic motor protective circuit breaker against direct contact and prevents changes in the adjusted current by means of a seal installed by the user.	SCMP	10186290	0.005

### Push-In-Lugs - PLMP

For use with	Illustrative picture	Description	Reference	Code	Weight kg
MPW12 MPW18 MPW40 MPW80		<p>For direct assembly of motor protective circuit breaker into a surface with screws.</p> <p><i>Note: for the MPW80 motor protective circuit breaker, use 2 PLMP sets.</i></p>	PLMP	10185925	0.005

## Technical Data

Models	MPW12	MPW18	MPW12i <sup>4)</sup>	MPW18i <sup>4)</sup>
Maximum rated current $I_{nmax}$ (I <sub>e</sub> )	12 A	18 A	12 A	18 A
Number of poles	3			
Short-circuit release	13 x I <sub>n</sub> max.			
Rated operational voltage U <sub>e</sub>	690 V <sup>1)</sup>			
Rated frequency	50/60 Hz			
Rated insulation voltage U <sub>i</sub>	690 V			
Rated impulse withstand voltage U <sub>imp</sub>	6 kV			
Use category	IEC 60947-2 (circuit breaker)		A	
	IEC 60947-4-1 (motor starter)		AC-3	
Tripping test	Yes			
Overload protection	Yes			No
Phase failure sensitivity (IEC 60947-4-1)	Yes			No
Tripping indication	No			
Tripping class (IEC 60947-4-1)	10			-
Maximum operation per hour	Operations / hour		15	
Altitude (m)	2,000			
Degree of protection (IEC 60529)	IP20			
Mechanical life	Number of operations		100,000	
Electrical life	Number of operations		100,000	
Permissible ambient temperature				
Transport and storage	-50...+80 °C			
Operation <sup>2)</sup>	-20...+70 °C			
Temperature compensation (IEC 60947-4-1)	-20...+60 °C			-
Power dissipation per circuit breaker				
Maximum rated currents I <sub>n</sub>	≤4 A	7 W		
	≤10 A	8 W		
	≤12 A <sup>3)</sup>	10 W	-	10 W
	≤16 A	-	14 W	-
	≤18 A	-	12 W	-
Resistance to impact (IEC 60068-2-27)	15 g			15 g
Standards				
IEC 60947-1	Yes			
IEC 60947-2	Yes			
IEC 60947-4-1	Yes			
Connection				
Terminal type	Spring	Screws phillips (N° 2)	Spring	Screws phillips (N° 2)
Tightening torque	N.m	-	1.2...1.7	-
	lb.in	-	11...16	-
Dimensions				
Width (mm)	45			
Height (mm)	100	97	100	97
Depth (mm)	77			

### Altitudes - Correction Factors

The MPW motor protective circuit breakers do not undergo any changes to their specified performance when applied at an altitude of up to 2,000 meters above sea level.

However, as the altitude increases, the atmospheric properties vary in terms of dielectric rigidity and pressure.

Therefore, current and voltage correction factors must be applied according to the table on the right:

Altitude (above sea level) - h	Rated operational voltage U <sub>e</sub>	Current correction factor L <sub>u</sub>
h ≤ 2,000 m	690 V	1 x I <sub>n</sub>
2,000 < h ≤ 3,000 m	550 V	0.96 x I <sub>n</sub>
3,000 < h ≤ 4,000 m	480 V	0.93 x I <sub>n</sub>
4,000 < h ≤ 5,000 m	420 V	0.90 x I <sub>n</sub>

Notes: 1) 500 V with plastic enclosures.

2) Reduce current for temperatures exceeding +60 °C (87% for 70 °C).

3) Only available with spring terminal.

4) For magnetic Motor Protective Circuit Breakers, it is necessary to use an overload protection device class 10.

## Technical Data

Models	MPW40	MPW40i <sup>3)</sup>	MPW40t
Maximum rated current $I_{nmax}$ (I <sub>n</sub> )	40 A		20 A
Number of poles	3		
Short-circuit release	13 x I <sub>n</sub> max.		19 x I <sub>n</sub> max.
Rated operational voltage U <sub>e</sub>	690 V <sup>1)</sup>		
Rated frequency	50/60 Hz		
Rated insulation voltage U <sub>i</sub>	690 V		
Rated impulse withstand voltage U <sub>imp</sub>	6 kV		
Use category	IEC 60947-2 (circuit breaker)		A
	IEC 60947-4-1 (motor starter)		AC-3
Tripping test	Yes		
Overload protection	Yes	No	Yes
Phase failure sensitivity (IEC 60947-4-1)	Yes	No	Yes
Tripping indication	Yes		
Tripping class (IEC 60947-4-1)	10	-	10
Maximum operation per hour	Operations / hour		15
Altitude (m)	2,000		
Degree of protection (IEC 60529)	IP20		
Mechanical life	Number of operations		100,000
Electrical life	Number of operations		100,000
Permissible ambient temperature			
Transport and storage	-50...+80 °C		
Operation <sup>2)</sup>	-20...+70 °C		
Temperature compensation (IEC 60947-4-1)	-20...+60 °C	-	-20...+60 °C
Power dissipation per circuit breaker			
Maximum rated currents I <sub>n</sub>	≤4 A	7 W	
	≤10 A	8 W	
	≤16 A	12 W	
	≤20 A	12 W	
	≤25 A	15 W	
	≤40 A	11 W	
Resistance to impact (IEC 60068-2-27)	15 g		
Standards			
IEC 60947-1	Yes		
IEC 60947-2	Yes		
IEC 60947-4-1	Yes		
Connection			
Terminal type	Screws phillips (N° 2)		
Tightening torque	N.m		2...2.5
	lb.in		18...22
Dimensions			
Width (mm)	45		
Height (mm)	97		
Depth (mm)	98		

### Altitudes - Current Correction Factor

The MPW motor protective circuit breakers do not undergo any changes to their specified performance when applied at an altitude of up to 2,000 meters above sea level.

However, as the altitude increases, the atmospheric properties vary in terms of dielectric rigidity and pressure.

Therefore, current and voltage correction factors must be applied according to the table on the right:

Altitude (above sea level) - h	Rated operational voltage U <sub>e</sub>	Current correction factor L <sub>u</sub>
h ≤ 2,000 m	690 V	1 x I <sub>n</sub>
2,000 < h ≤ 3,000 m	550 V	0.96 x I <sub>n</sub>
3,000 < h ≤ 4,000 m	480 V	0.93 x I <sub>n</sub>
4,000 < h ≤ 5,000 m	420 V	0.90 x I <sub>n</sub>

Notes: 1) 500 V with plastic enclosures.

2) Reduce current for temperatures exceeding +60 °C (87% for 70 °C).

3) For magnetic Motor Protective Circuit Breakers, it is necessary to use an overload protection device class 10.

Models	MPW80	MPW80 <sup>3)</sup>	MPW100
Maximum rated current $I_{max}$ ( $I_n$ )	80 A	80 A	100 A
Number of poles	3		
Short-circuit release	13 x $I_{n,max}$ .		
Rated operational voltage $U_g$	690 V		
Rated frequency	50/60 Hz		
Rated insulation voltage $U_i$	690 V		1,000 V
Rated impulse withstand voltage $U_{imp}$	6 kV		8 kV
Use category	IEC 60947-2 (circuit breaker)	A	
	IEC 60947-4-1 (motor starter)	AC-3	
Tripping test	Yes		
Overload protection	Yes	No	Yes
Phase failure sensitivity (IEC 60947-4-1)	Yes	No	Yes
Tripping indication	Yes		
Tripping class (IEC 60947-4-1)	10	-	10
Maximum operation per hour	Operations / hour	15	25
Altitude (m)	2,000		
Degree of protection (IEC 60529)	IP20 <sup>1)</sup>		
Mechanical life	Number of operations	50,000	
Electrical life	Number of operations	25,000	
Permissible ambient temperature			
Transport and storage	-50...+80 °C		
Operation <sup>2)</sup>	-20...+70 °C		
Temperature compensation (IEC 60947-4-1)	-20...+60 °C	-	-20...+60 °C
Power dissipation per circuit breaker			
Maximum rated currents $I_n$	≤40 A	12 W	-
	≤50 A	13 W	-
	≤65 A	13 W	-
	≤75 A	-	25 W
	≤80 A	18 W	-
	≤90 A	-	29 W
	≤100 A	-	29 W
Resistance to impact (IEC 60068-2-27)	15 g		25 g
Standards			
IEC 60947-1	Yes		
IEC 60947-2	Yes		
IEC 60947-4-1	Yes		
Connection			
Terminal type	Box		
Tightening torque	N.m	6	
	lb.in	53	55
Terminal type	Allen (4 mm)		
Dimensions			
Width (mm)	54		70
Height (mm)	125		165
Depth (mm)	157		171

Notes: 1) Main terminals.






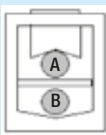
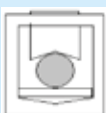

2) Reduce current for temperatures exceeding +60 °C (87% for 70 °C).

3) For magnetic Motor Protective Circuit Breakers (MPW80i), it is necessary to use an overload protection device class 10.



# Technical Data

## Main Terminal Capacity

Models	Type	Number of conductors	Cross-section
MPW12	Rigid cable	 1 or 2	1...1.5 mm <sup>2</sup> 18...16 AWG
	Rigid or flexible cable <sup>1)</sup>		
MPW18	Rigid or flexible cable	 1 or 2	1...4 mm <sup>2</sup> 18...12 AWG
MPW40	Rigid or flexible cable	 1 or 2	1...2.5 mm <sup>2</sup> 2.5...6 mm <sup>2</sup> 14...10 AWG <sup>2)</sup>
MPW80	<b>Type</b>	<b>1 conductor connection on top only</b>	<b>Cross-section</b>
	Rigid cable		1...35 mm <sup>2</sup>
	Cable without terminal		1.5...35 mm <sup>2</sup>
	Cable with terminal		1...35 mm <sup>2</sup>
	Flexible cable		1.5...35 mm <sup>2</sup>
			12...2 AWG
	<b>Type</b>	<b>1 conductor connection on bottom only</b>	<b>Cross-section</b>
	Rigid cable		2.5...35 mm <sup>2</sup>
	Cable without terminal		6...35 mm <sup>2</sup>
	Cable with terminal		2.5...35 mm <sup>2</sup>
	Flexible cable		6...35 mm <sup>2</sup>
			12...2 AWG
	<b>Type</b>	<b>Connection of 2 conductors</b>	<b>Cross-section</b>
	Rigid cable		(A) 1...35 mm <sup>2</sup>
	Cable without terminal		(B) 2.5...35 mm <sup>2</sup>
			(A) 1.5...35 mm <sup>2</sup>
Cable with terminal	(B) 6...35 mm <sup>2</sup>		
	(A) 1...35 mm <sup>2</sup>		
Flexible cable	(B) 2.5...35 mm <sup>2</sup>		
	(A) 1.5...35 mm <sup>2</sup>		
	(B) 6...35 mm <sup>2</sup>		
		12...2 AWG	
		(B) 6...35 mm <sup>2</sup>	
		12...2 AWG	
MPW100	<b>Type</b>	<b>1 conductor connection on top only</b>	<b>Cross-section</b>
	Rigid cable		2.5...70 mm <sup>2</sup> 12...2/0 AWG
	Flexible cable		2.5...50 mm <sup>2</sup> 12...1/0 AWG
	<b>Type</b>	<b>Connection of 2 conductors</b>	<b>Cross-section</b>
	Rigid cable		2.5...50 mm <sup>2</sup>
Flexible cable	12...1/0 AWG		

Notes: 1) Mandatory use.  
2) 8 AWG for flexible cable only.



## Auxiliary Contact Block

References	ACBF-11 (S)			ACBS- __ (S), TSB			
For use with	MPW12...80						
Rated insulation voltage $U_i$	250 V			690 V			
Utilization category	24 V ac	220-230 V ac		24 V ac	230 V ac	400 V ac	690 V ac
AC-15	2 A	0.5 A		6 A	4 A	3 A	1 A
AC-12	2.5 A		2.5 A	10 A	10 A	10 A	10 A
DC-13	24 V dc	48 V dc	60 V dc	24 V dc	110 V dc	220 V dc	440 V dc
	1 A	0.3 A	0.15 A	2 A	0.5 A	0.25 A	0.1 A
Terminal type	Flat		Spring	Flat			Spring
Screw type	Phillips (N° 2)		-	Phillips (N° 2)			-
Tightening torque	1 N.m (8.8 lb.in)		-	1 N.m (8.8 lb.in)			-
Rigid cable	1 or 2 x (0.5...1.5 mm <sup>2</sup> )		1 or 2 x (1...1.5 mm <sup>2</sup> ) 1 or 2 x (18...16 AWG)	1 or 2 x (0.5...1.5 mm <sup>2</sup> )			1 or 2 x (1...1.5 mm <sup>2</sup> ) 1 or 2 x (18...16 AWG)
Flexible cable	1 or 2 x (0.75...2.5 mm <sup>2</sup> )		-	1 or 2 x (0.75...2.5 mm <sup>2</sup> )			-
Cable without terminal <sup>1)</sup>	1 or 2 x (18...14 AWG)		1 or 2 x (1 mm <sup>2</sup> ) 1 or 2 x (18 AWG)	1 or 2 x (18...14 AWG)			1 or 2 x (1 mm <sup>2</sup> ) 1 or 2 x (18 AWG)
Back-up fuses gL/gG	10 A						

Note: 1) Mandatory use for ACBS(s) and ACSF-11(S).

References	ACBF-11 MPW100		ACBS- __ MPW100/TSB __ MPW100	
For use with	MPW100			
Rated insulation voltage $U_i$	250 V		690 V	
Regime:	240 V ac		24 V ac	240 V ac
AC-15	3 A		6 A	4 A
DC-13	24 V dc	220 V dc	24 V dc	220 V dc
	1 A	0.1 A	2 A	0.25 A
Terminal type	Flat			
Screw type	Phillips (N° 2)			
Tightening torque	0.8...1.2 N.m (7...10 lb.in)			
Rigid cable	1 (0.5...2.5 mm <sup>2</sup> / 20...14 AWG)		1 or 2 x (0.5...2.5 mm <sup>2</sup> / 20...14 AWG)	
Flexible cable	1 (0.5...4 mm <sup>2</sup> / 20...10 AWG) or 2 (0.75...2.5 mm <sup>2</sup> / 18...14 AWG)			
Back-up fuses gL/gG	16 A			

## Undervoltage Release

References	URMP	URMP __ MPW100
For use with	MPW12...80	MPW100
Rated insulation voltage $U_i$	690 V	
Operating voltage (enable to switch on circuit breaker)	0.85...1.1x $U_e$	
Non-operating voltage (guarantees circuit breaker switch OFF)	0.7...0.35x $U_e$	
Energization consumption	20.2 VA / 13 W	8.5 VA / 6 W
Consumption	7.2 VA / 2.4 W	3 VA / 1.2 W
Maximum opening time	20ms	
Terminal type	Flat	
Screw type	Phillips (N° 2)	
Tightening torque	1 N.m (8.8 lb.in)	0.8...1.2 N.m (7...10 lb.in)
Rigid cable	1 or 2 x (0.5...1.5 mm <sup>2</sup> ). 1 or 2 x (0.75...2.5 mm <sup>2</sup> )	
Flexible cable	1 (0.5...4 mm <sup>2</sup> / 20...10 AWG) or 2 x (0.75...2.5 mm <sup>2</sup> / 18...14 AWG)	
Back-up fuses gL/gG	10 A	

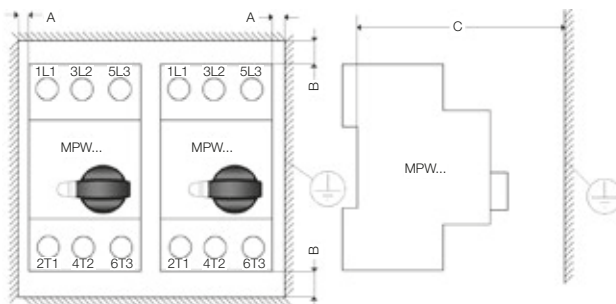
## Technical Data

### Shunt Release

References	SRMP	SRMP_ _ MPW100
For use with	MPW12...80	MPW100
Rated insulation voltage $U_i$	690 V	
Operating voltage (guarantees circuit breaker switch OFF)	0.7...1.1 $U_e$	
Energization consumption	20.2 VA / 13 W	8.5 VA / 6 W
Maximum opening time	20ms	
Terminal type	Flat	
Screw type	Phillips (N° 2)	
Tightening torque	1 N.m (8.8 lb.in)	0.8...1.2 N.m (7...10 lb.in)
Rigid cable	1 or 2 x (0.5...1.5 mm <sup>2</sup> ), 1 or 2 x (0.75...2.5 mm <sup>2</sup> )	1 or 2 x (0.5...2.5 mm <sup>2</sup> / 20...14 AWG)
Flexible cable	1 or 2 x (18...14 AWG)	1 (0.5...4 mm <sup>2</sup> / 20...10 AWG) or 2 x (0.75...2.5 mm <sup>2</sup> / 18...14 AWG)
Back-up fuses gL/gG	10 A	

## Mounting Configurations

Live or grounded parts distance to the circuit breaker				
Model	$U_e$	Minimum distance between the circuit breaker and live or grounded parts (mm)		
		B	C	A
MPW12/18	Up to 690 V	20	75	9
MPW40	Up to 500 V	30	95	9
	Up to 690 V	50	95	30
MPW80	Up to 690 V	50	150	10
MPW100	Up to 690 V	150	167	30



The motor protective circuit breaker can be mounted in any position, but according to IEC 60447 standard, the "On - I" indicator must be to the right or up.

## DC Operation

The MPW12...MPW100 can also be used for operating continuous current loads. For such operation it is necessary to connect 2 or 3 poles in series.

See recommended circuits and their voltage limits in the table on the right.

Short-circuit breaking capacity  $I_{cu} = 10$  kA for all configurations.

Circuits	Maximum direct current	Notes
	150 V dc	System not grounded; 2 poles in series.
	300 V dc	System grounded; 2 poles in series.
	450 V dc	System grounded; 3 poles in series.





## Coordination Tables

### Type 1 Coordination - 380 V ac/60 Hz - I<sub>q</sub> = 50 kA<sup>1)</sup>

Reference values 4-pole motor power		Motor current	Motor protective circuit breaker	Setting range	Contactor	
0.16 cv	0.12 kW	0.51 A	MPW40	0.40...0.63 A	CW07 / CWM9	
0.25 cv	0.18 kW	0.66 A		0.63...1.0 A		
0.33 cv	0.25 kW	0.83 A		1.0...1.6 A		
0.50 cv	0.37 kW	1.20 A		1.6...2.5 A		
0.75 cv	0.55 kW	1.67 A		2.5...4.0 A		
1.0 cv	0.75 kW	1.74 A		4.0...6.3 A		
1.5 cv	1.1 kW	2.56 A		6.3...10 A		CWM9
2.0 cv	1.5 kW	3.53 A				
3.0 cv	2.2 kW	5.02 A		10...16 A		CWM12
4.0 cv	3.0 kW	6.81 A				
5.0 cv	3.7 kW	8.08 A		16...20 A	CWM18	
6.0 cv	4.5 kW	9.64 A				
7.5 cv	5.5 kW	11.55 A		20...25 A	CWM25	
10 cv	7.5 kW	15.36 A				
12.5 cv	9.2 kW	19.23 A		25...32 A	CWM32	
15 cv	11 kW	22.69 A				
20 cv	15 kW	30.37 A				

### Type 2 Coordination - 380 V ac/60 Hz - I<sub>q</sub> = 50 kA and 65 kA<sup>1)</sup>

Reference values 4-pole motor power		Motor current	Motor protective circuit breaker	Setting range	I <sub>q</sub> = 50 kA Contactor	I <sub>q</sub> = 65 kA Contactor		
0.16 cv	0.12 kW	0.51 A	MPW40	0.40...0.63 A	CWM9	CWM9		
0.25 cv	0.18 kW	0.66 A		0.63...1.0 A				
0.33 cv	0.25 kW	0.83 A		1.0...1.6 A				
0.50 cv	0.37 kW	1.20 A		1.6...2.5 A				
0.75 cv	0.55 kW	1.67 A		2.5...4.0 A				
1.0 cv	0.75 kW	1.74 A		4.0...6.3 A				
1.5 cv	1.1 kW	2.56 A		6.3...10 A			CWM9	CWM25
2.0 cv	1.5 kW	3.53 A						
3.0 cv	2.2 kW	5.02 A		10...16 A			CWM12	CWM32
4.0 cv	3.0 kW	6.81 A						
5.0 cv	3.7 kW	8.08 A		16...20 A	CWM18	CWM32		
6.0 cv	4.5 kW	9.64 A						
7.5 cv	5.5 kW	11.55 A		20...25 A	CWM40	CWM40		
10 cv	7.5 kW	15.36 A						
12.5 cv	9.2 kW	19.23 A		25...32 A	CWM50	CWM50		
15 cv	11 kW	22.69 A						
20 cv	15 kW	30.37 A						

### Type 2 Coordination - 440 V ac/60 Hz - I<sub>q</sub> = 50 kA and 65 kA<sup>1)</sup>

Reference values 4-pole motor power		Motor current	Motor protective circuit breaker	Setting range	I <sub>q</sub> = 50 kA Contactor	I <sub>q</sub> = 65 kA Contactor		
0.16 cv	0.12 kW	0.45 A	MPW40	0.40...0.63 A	CWM9	CWM9		
0.25 cv	0.18 kW	0.57 A		0.63...1.0 A				
0.33 cv	0.25 kW	0.72 A		1.0...1.6 A				
0.50 cv	0.37 kW	1.04 A		1.6...2.5 A				
0.75 cv	0.55 kW	1.45 A		2.5...4.0 A				
1.0 cv	0.75 kW	1.51 A		4.0...6.3 A				
1.5 cv	1.1 kW	2.22 A		6.3...10 A			CWM9	CWM25
2.0 cv	1.5 kW	3.06 A						
3.0 cv	2.2 kW	4.35 A		10...16 A			CWM12	CWM25
4.0 cv	3.0 kW	5.95 A						
5.0 cv	3.7 kW	7.00 A		16...20 A	CWM18	CWM25		
6.0 cv	4.5 kW	8.20 A						
7.5 cv	5.5 kW	10.00 A		20...25 A	CWM25	CWM40		
10 cv	7.5 kW	13.3 A						
12.5 cv	9.2 kW	16.7 A		25...32 A	CWM50	CWM50		
15 cv	11 kW	19.7 A						
20 cv	15 kW	26.3 A						

Note: 1) Coordination tables in other voltages only on request.

# Breaking Capacity (IEC 60947-2)

## MPW12...100

Models	Maximum current (A)	220-230 V ac			380-415 V ac			440 V ac			460-500 V ac			630-690 V ac		
		$I_{cu}$	$I_{cs}$	Max. fuse (gL/gG)	$I_{cu}$	$I_{cs}$	Max. fuse (gL/gG) <sup>1)</sup>	$I_{cu}$	$I_{cs}$	Max. fuse (gL/gG) <sup>1)</sup>	$I_{cu}$	$I_{cs}$	Max. fuse (gL/gG) <sup>1)</sup>	$I_{cu}$	$I_{cs}$	Max. fuse (gL/gG) <sup>1)</sup>
		kA	kA	A	kA	kA	A	kA	kA	A	kA	kA	A	kA	kA	A
MPW12/18	0.16	100	100	-	100	100	-	100	100	-	100	100	-	10	10	-
	0.25	100	100	-	100	100	-	100	100	-	100	100	-	10	10	-
	0.4	100	100	-	100	100	-	100	100	-	100	100	-	10	10	-
	0.63	100	100	-	100	100	-	100	100	-	100	100	-	10	10	-
	1	100	100	-	100	100	-	100	100	-	100	100	-	10	10	-
	1.6	100	100	-	100	100	-	100	100	-	100	100	-	10	10	-
	2.5	100	100	-	100	100	-	100	100	-	100	100	-	8	8	25
	4	100	100	-	100	100	-	100	100	-	100	100	-	8	8	35
	6.3	100	100	-	100	100	-	100	100	-	100	100	-	8	8	50
	10	100	100	-	50	10	100	50	10	80	10	10	63	5	5	50
	12 <sup>2)</sup>	100	100	-	10	10	100	10	10	80	10	8	80	4	3	63
16	100	100	-	10	10	100	10	10	80	10	8	80	4	3	63	
18	100	100	-	10	10	100	10	10	80	10	8	80	4	3	63	
MPW40	0.16	100	100	-	100	100	-	100	100	-	100	100	-	100	100	-
	0.25	100	100	-	100	100	-	100	100	-	100	100	-	100	100	-
	0.4	100	100	-	100	100	-	100	100	-	100	100	-	100	100	-
	0.63	100	100	-	100	100	-	100	100	-	100	100	-	100	100	-
	1	100	100	-	100	100	-	100	100	-	100	100	-	100	100	-
	1.6	100	100	-	100	100	-	100	100	-	100	100	-	100	100	-
	2.5	100	100	-	100	100	-	100	100	-	100	100	-	8	8	25
	4	100	100	-	100	100	-	100	100	-	100	100	-	8	8	35
	6.3	100	100	-	100	100	-	100	100	-	100	100	-	8	8	50
	10	100	100	-	100	100	-	50	25	80	42	21	63	8	8	50
	16	100	100	-	50	25	100	50	15	80	10	8	80	5	5	63
20	100	100	-	50	25	125	50	15	80	10	8	80	5	5	63	
25	100	100	-	50	25	125	50	15	100	10	8	80	5	5	80	
32	100	100	-	50	25	125	25	15	100	10	8	100	5	5	100	
40	100	100	-	30	15	125	20	10	125	10	5	125	5	2	125	
MPW80	40	100	100	-	65	65	160	65	65	125	35	35	125	8	8	125
	50	100	100	-	65	65	160	65	65	160	35	35	160	8	8	160
	65	100	100	-	65	65	200	65	65	200	35	35	200	8	8	200
	80	65	65	224	65 <sup>3)/10<sup>4)</sup></sup>	25 <sup>3)/10<sup>4)</sup></sup>	224	10	10	224	10	10	224	6	6	224
MPW100	75	100	100	-	75	50	-	50	38	200	12	9	160	6	6	125
	90	100	100	-	75	50	-	50	38	200	12	9	160	6	6	160
	100	100	100	-	75	50	-	50	38	200	12	9	160	6	6	160

Self-protected against short circuit up to 100 kA.

- No backup fuses required.
- 1) In cases where prospective short-circuit current >  $I_{cu}$ , backup fuses are required.
- 2) Available with spring terminal only.
- 3)  $U_p \leq 380$  V.
- 4)  $U_b = 400/415$  V.

## Breaking Capacity (IEC 60947-2) Limiter Function

### MPW40+CLT32

Model	Maximum current (A)	380-415 V ac			440 V ac			460-500 V ac			630-690 V ac		
		$I_{cu}$	$I_{cs}$	Max. fuse (gL/gG) <sup>1)</sup>	$I_{cu}$	$I_{cs}$	Max. fuse (gL/gG) <sup>1)</sup>	$I_{cu}$	$I_{cs}$	Max. fuse (gL/gG) <sup>1)</sup>	$I_{cu}$	$I_{cs}$	Max. fuse (gL/gG) <sup>1)</sup>
		kA	kA	A	kA	kA	A	kA	kA	A	kA	kA	A
MPW40 + CLT32	0.16	◆	◆	-	◆	◆	-	◆	◆	-	◆	◆	-
	0.25	◆	◆	-	◆	◆	-	◆	◆	-	◆	◆	-
	0.4	◆	◆	-	◆	◆	-	◆	◆	-	◆	◆	-
	0.63	◆	◆	-	◆	◆	-	◆	◆	-	◆	◆	-
	1	◆	◆	-	◆	◆	-	◆	◆	-	◆	◆	-
	1.6	◆	◆	-	◆	◆	-	◆	◆	-	◆	◆	-
	2.5	◆	◆	-	◆	◆	-	◆	◆	-	50	50	-
	4	◆	◆	-	◆	◆	-	◆	◆	-	50	50	-
	6.3	◆	◆	-	◆	◆	-	◆	◆	-	50	50	-
	10	◆	◆	-	100	100	-	100	100	-	50	50	-
	16	100	100	-	100	100	-	100	100	-	50	50	-
	20	100	100	-	100	100	-	100	100	-	50	50	-
25	100	100	-	100	100	-	100	100	-	10	10	-	
32	100	100	-	100	100	-	100	100	-	10	10	-	

### MPW80+MPW80i

Type	Maximum current (A)	460-500 V ac			630-690 V ac		
		$I_{cu}$	$I_{cs}$	Max. fuse (gL/gG) <sup>1)</sup>	$I_{cu}$	$I_{cs}$	Max. fuse (gL/gG) <sup>1)</sup>
		kA	kA	A	kA	kA	A
MPW80 + MPW80i-3-U080	40	65	65	-	25	25	-
	50	65	65	-	25	25	-
	65	65	65	-	25	25	-
	80	80	80	-	25	25	-

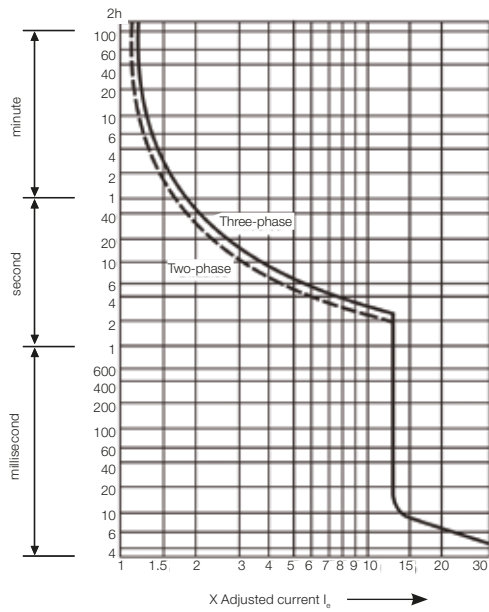
- Self-protected against short circuit up to 100 kA.
- No backup fuses required.
- 1) In cases where prospective short-circuit current  $> I_{cu}$ , backup fuses are required.
- ◆ Not applicable as the MPW40 and MPW80 motor protective circuit breakers already have 100 kA  $I_{cu} / I_{cs}$  in related ranges.

## Characteristic Curves

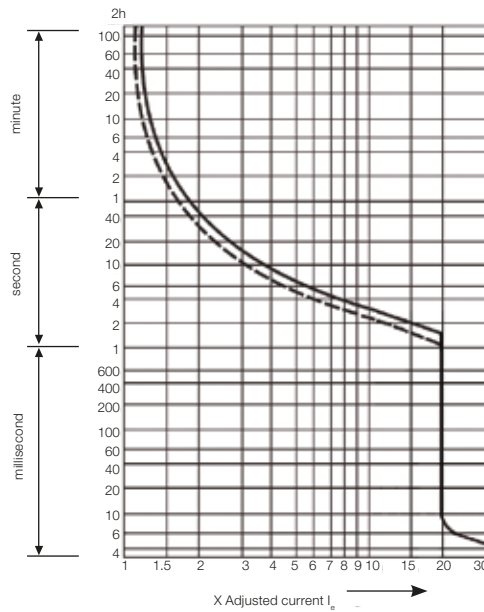
The tripping characteristic shows the motor circuit breaker trip time in relation to the rated current. The curves show average tolerance range values for an ambient temperature of 20 °C, starting in cold state.

Thermal trip time when working in operating temperature is reduced to around 25% of the presented values. Under normal operating conditions, all 3 circuit breaker phases must be conducting.

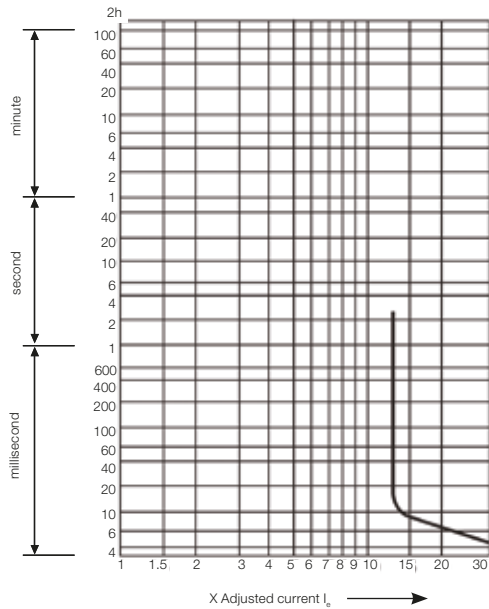
**MPW12...80**



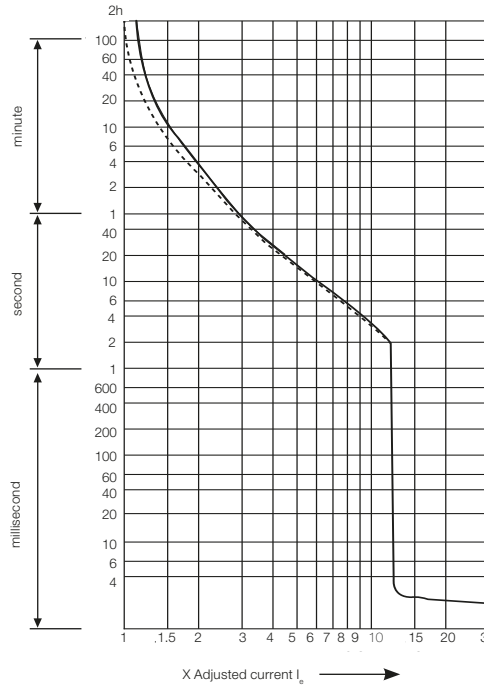
**MPW40t**



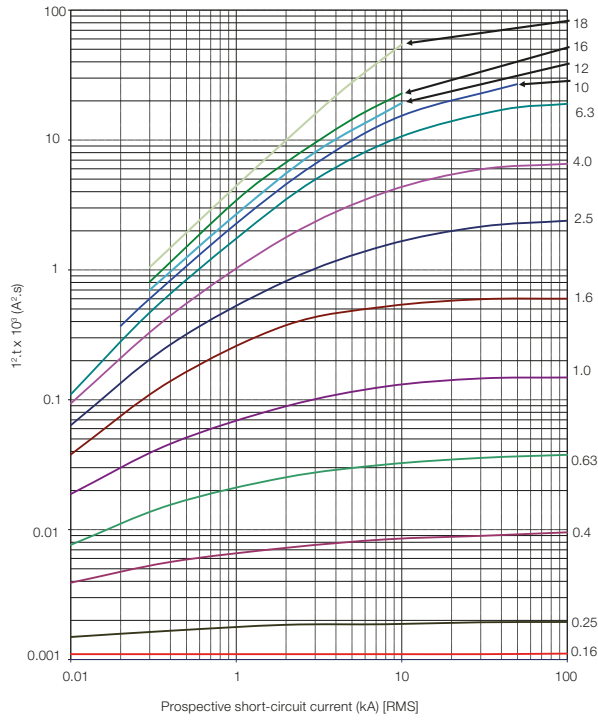
**MPW12i...80i**



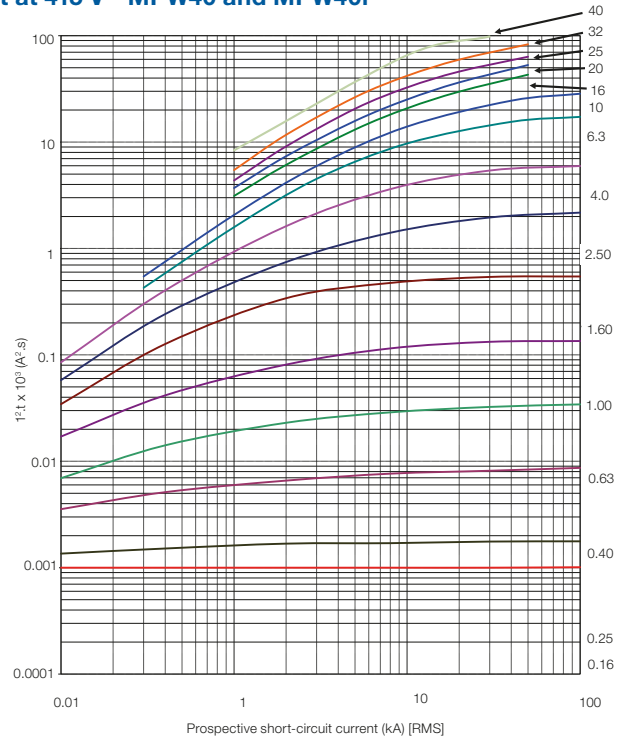
**MPW100**



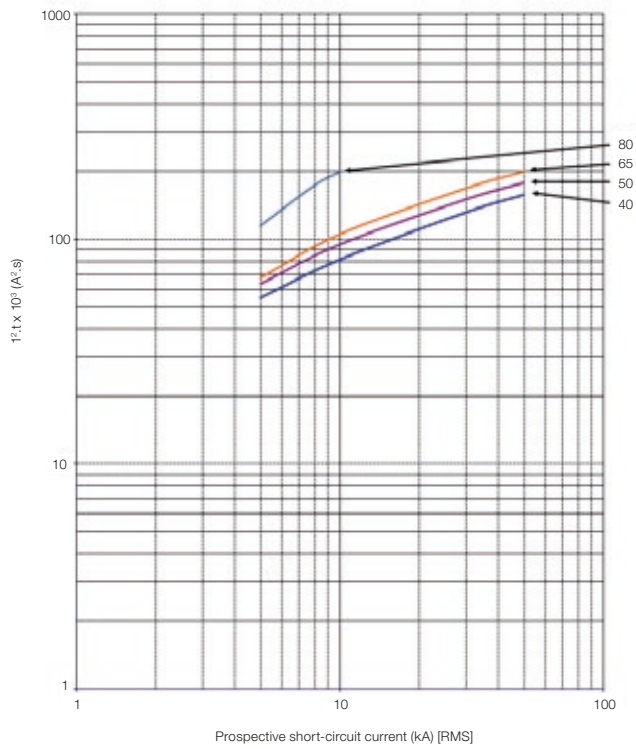
**I<sup>2</sup>t at 415 V - MPW12/18 and MPW18i**



**I<sup>2</sup>t at 415 V - MPW40 and MPW40i**



**I<sup>2</sup>t at 415 V - MPW80**



Note: MPW100 on request.

A

B

C

D

E

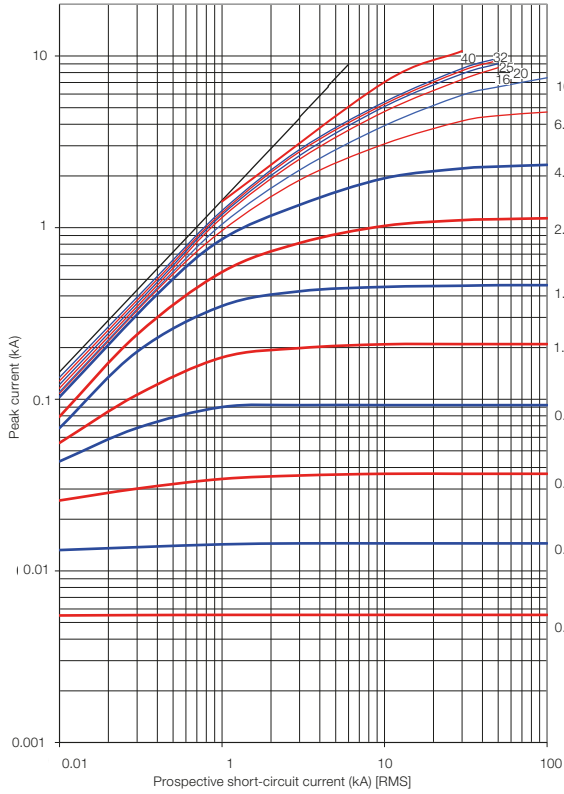
F

G

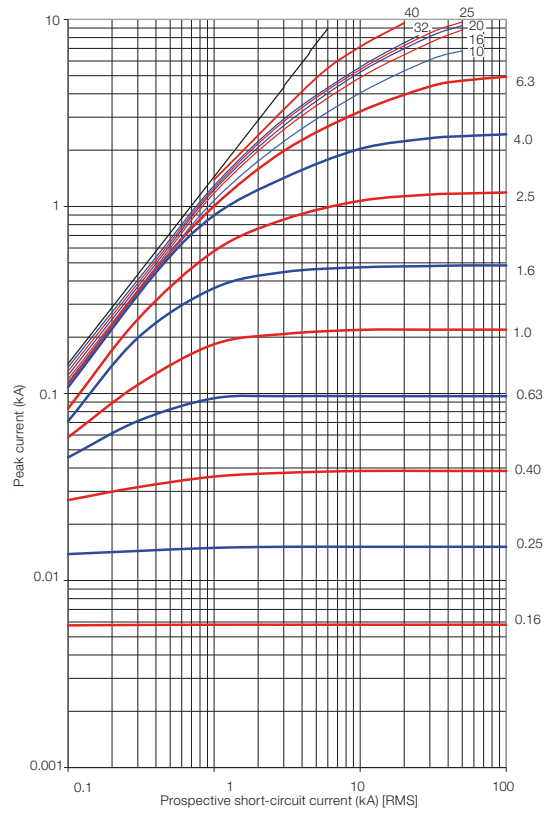
H

## Characteristic Curves

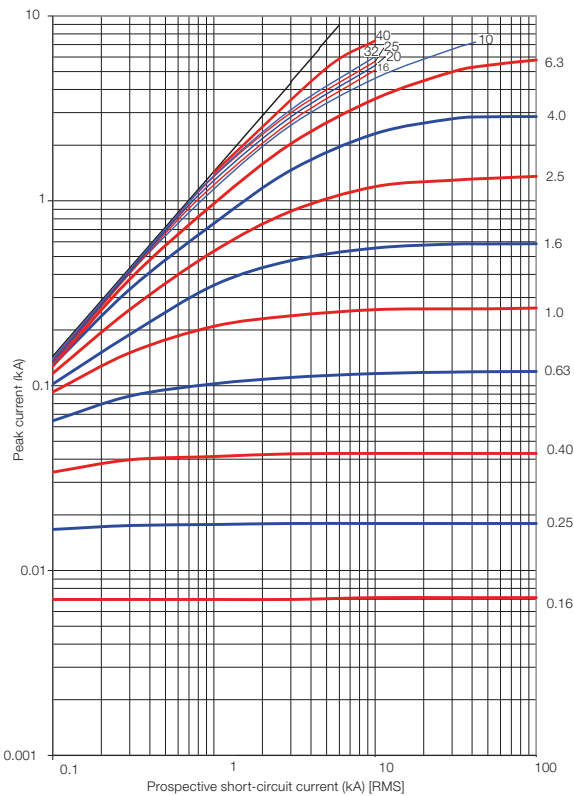
**Short-Circuit Current Limitation Curve at 400/415 V - MPW40**



**Short-Circuit Current Limitation Curve at 440 V - MPW40**

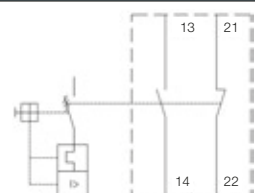
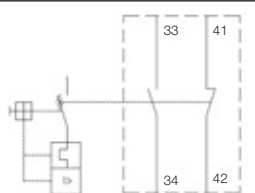
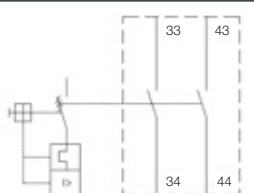
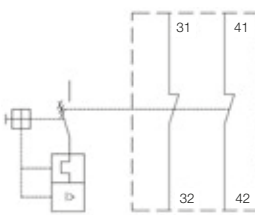
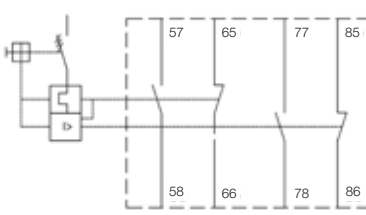
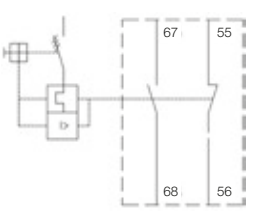
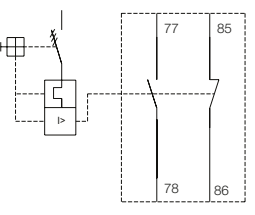
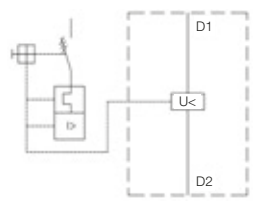
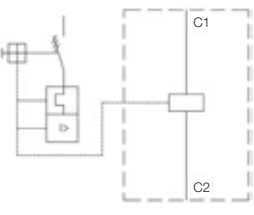
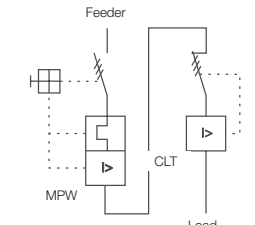
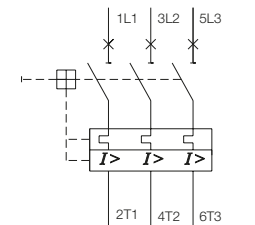
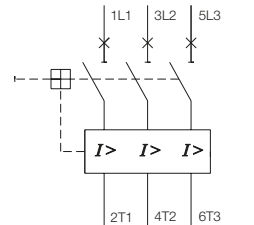


**Short-Circuit Current Limitation Curve at 500 V - MPW40**



# Diagrams and Typical Circuits

## Diagrams

<p><b>ACBF-11 and ACBF 11 MPW100</b></p> 	<p><b>ACBS-11 and ACBS-11-MPW100</b></p> 	<p><b>ACBS-20 and ACBS-20-MPW100</b></p> 
<p><b>ACBS-02 and ACBS-02 MPW100</b></p> 	<p><b>TSB</b></p> 	<p><b>TSB AT11 MPW100</b></p> 
<p><b>TSB SC-11 MPW100</b></p> 	<p><b>URMP</b></p> 	<p><b>SRMP</b></p> 
<p><b>MPW40 + CLT32</b></p> 	<p><b>MPW12...100</b></p> 	<p><b>MPW12i...80i</b></p> 

A

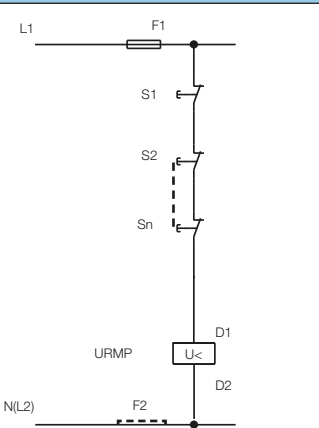
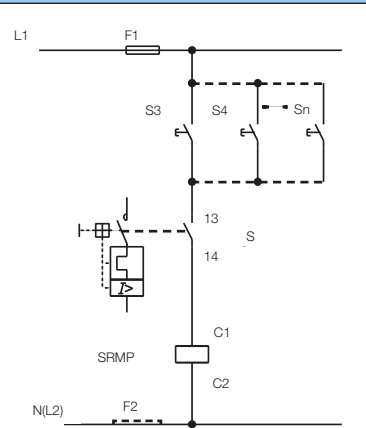
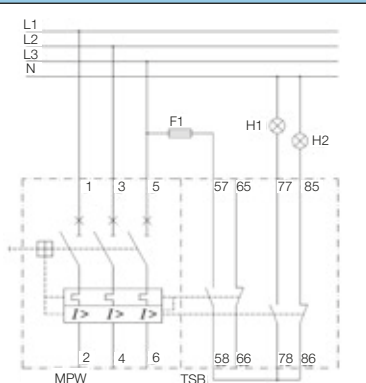
B

C

D

E

## Typical Circuits

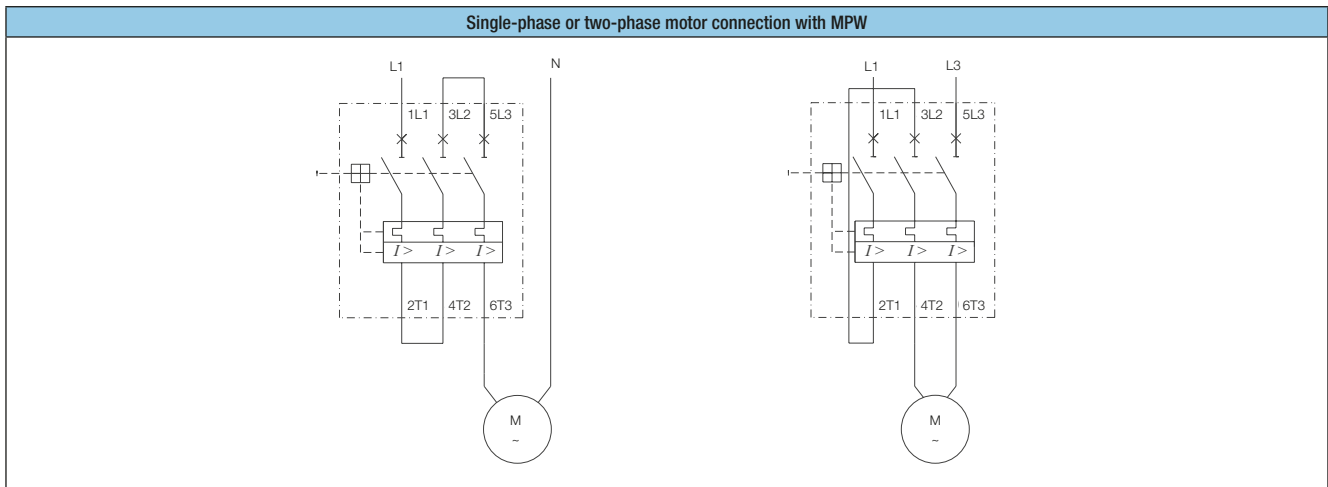
<p><b>Undervoltage release URMP</b></p>  <p><math>S_0...S_n</math> - Buttons in the plant (NC) URMP - Undervoltage release</p>	<p><b>Shunt release SRMP</b></p>  <p><math>S_0...S_n</math> - Buttons in the plant (NO) S - MPW auxiliary contact</p>	<p><b>Trip signaling block TSB</b></p>  <p><math>H_1</math> - Short-circuit trip signaling <math>H_2</math> - Overcurrent trip signaling MPW - Motor protective circuit breaker - thermomagnetic (MPW12...80)</p>
---	---	--

F

G

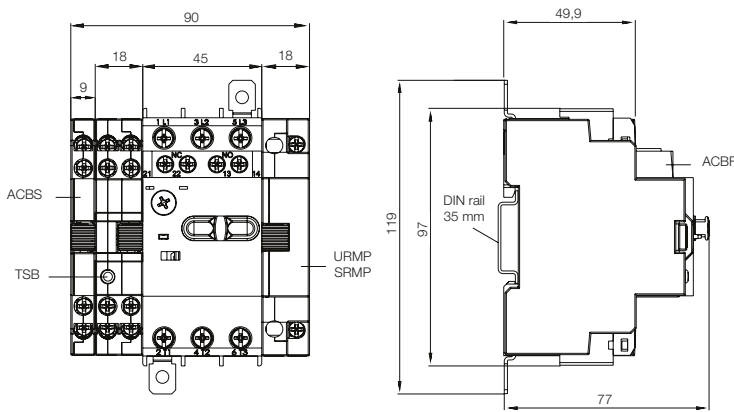
H

## Diagrams and Typical Circuits

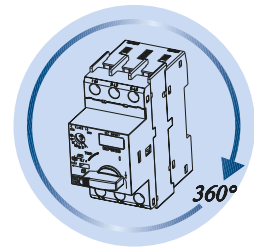


## Dimensions (mm)

### MPW18 + Accessories - Screw Terminal



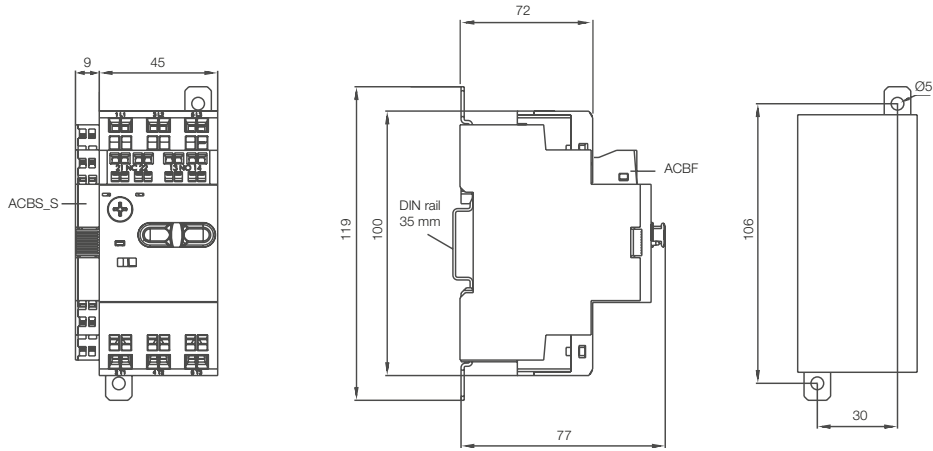
### Mounting Position



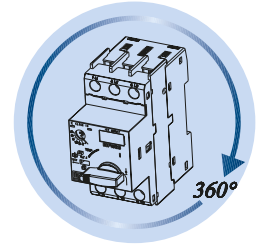


## Dimensions (mm)

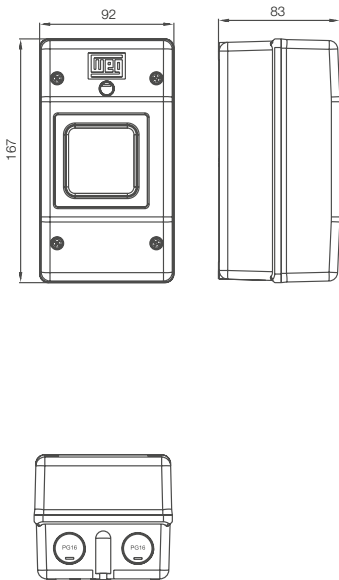
### MPW12 + Accessories - Spring Terminal



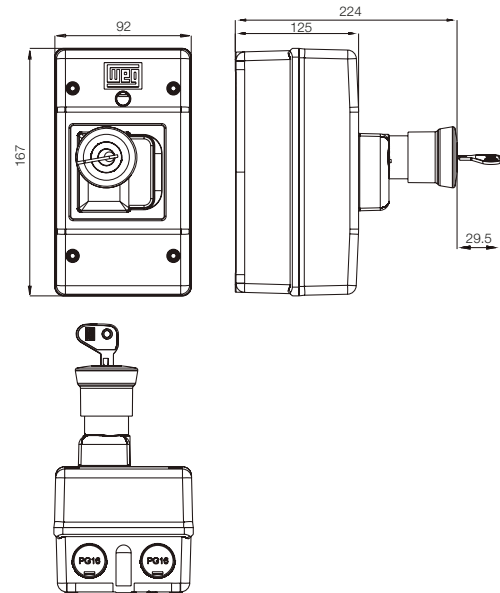
### Mounting Position



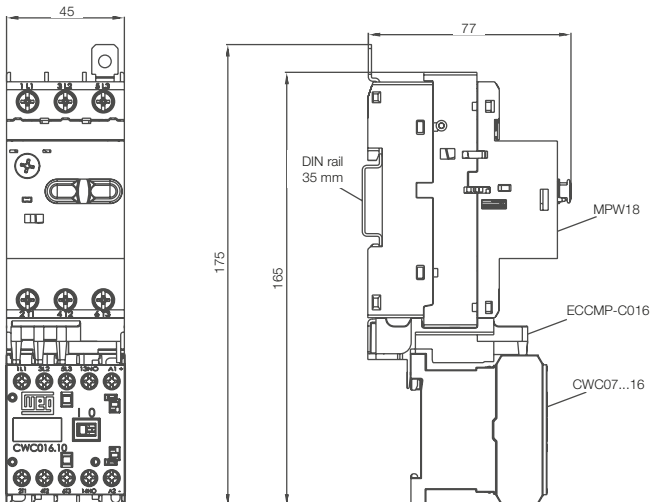
### Insulated Enclosures PE41/66



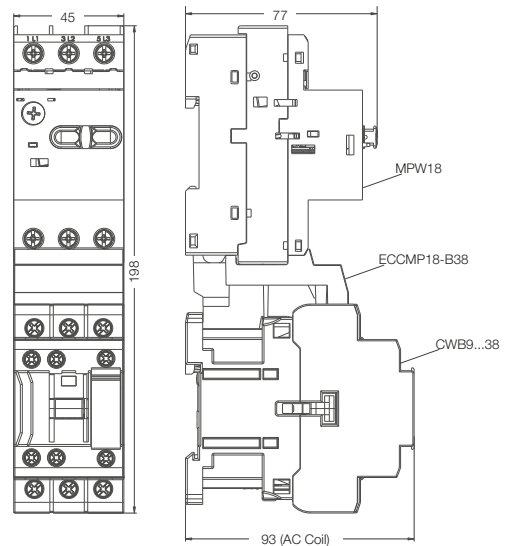
### Insulated Enclosure PE41/66 + Emergency Stop Buttons



### MPW18 + CWC07...16

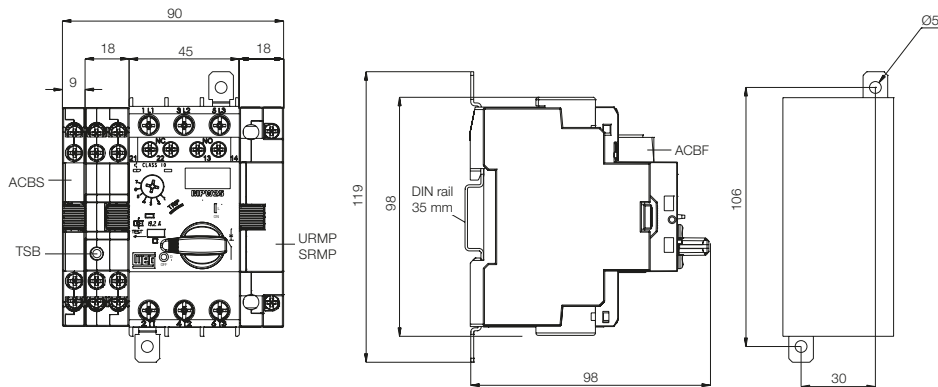


### MPW18+CWB9...38

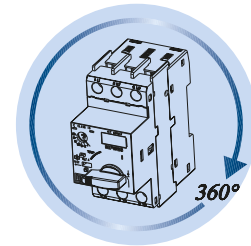


## Dimensions (mm)

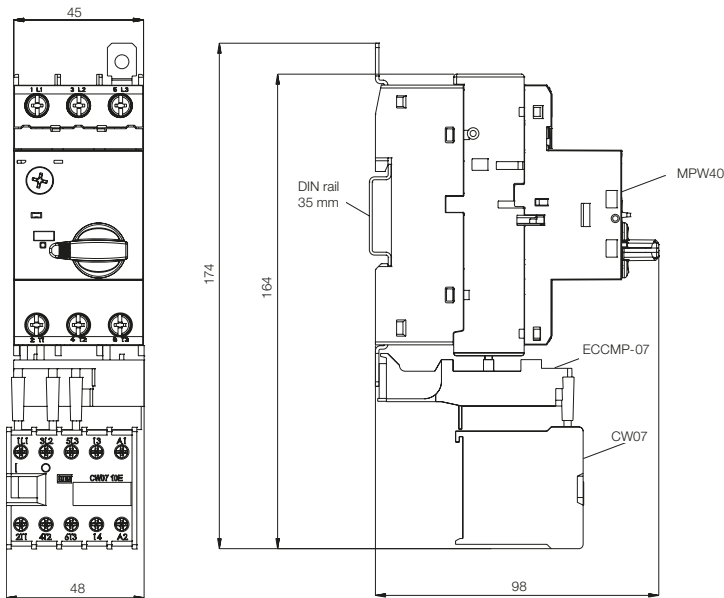
### MPW40 + Accessories



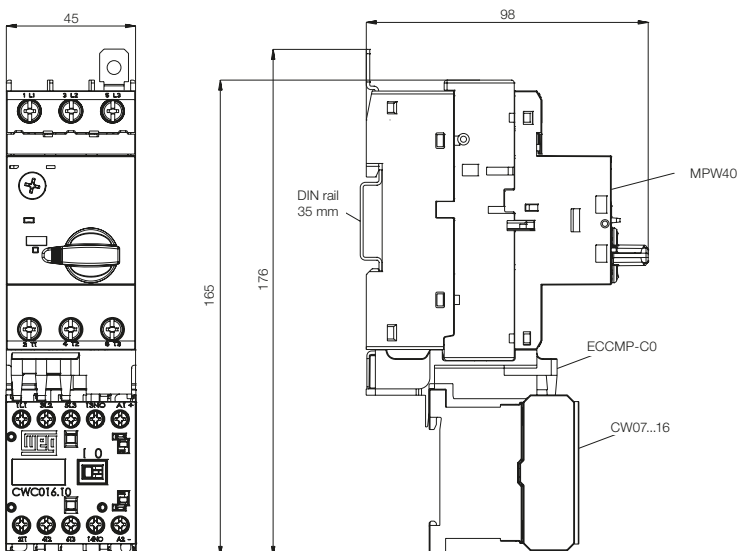
### Mounting Position



### MPW40 + CW07



### MPW40 + CWC07...16



A

B

C

D

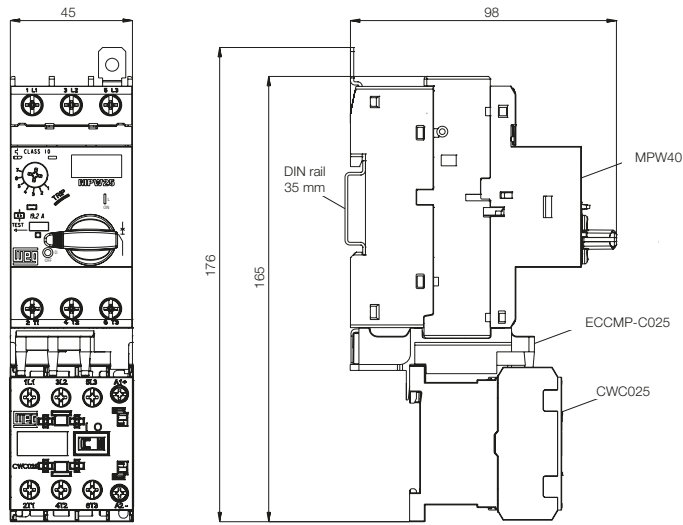
E

F

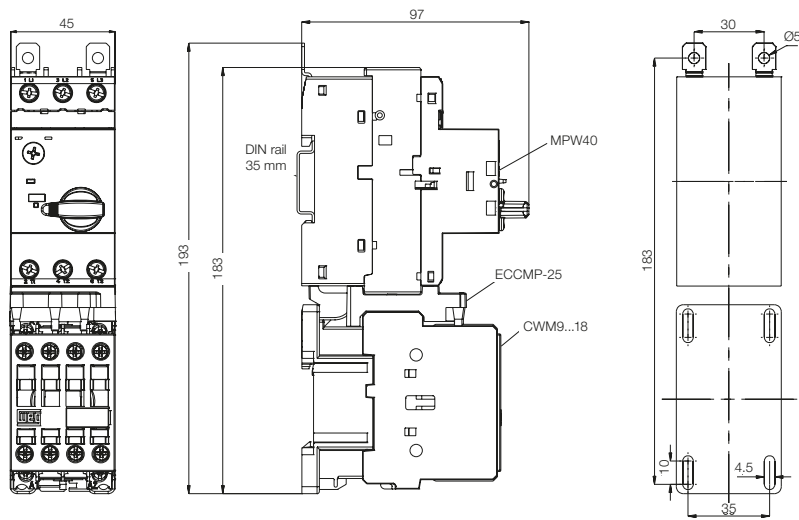
G

H

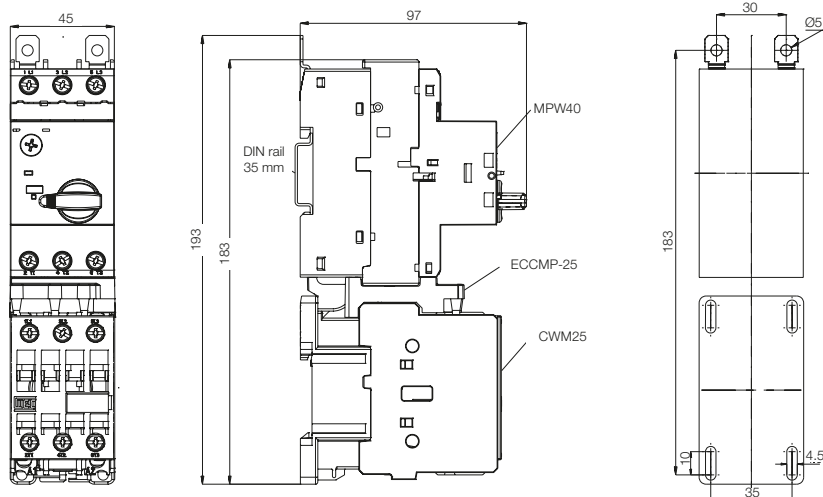
**MPW40 + CWC025**



**MPW40 + CWM9...18**

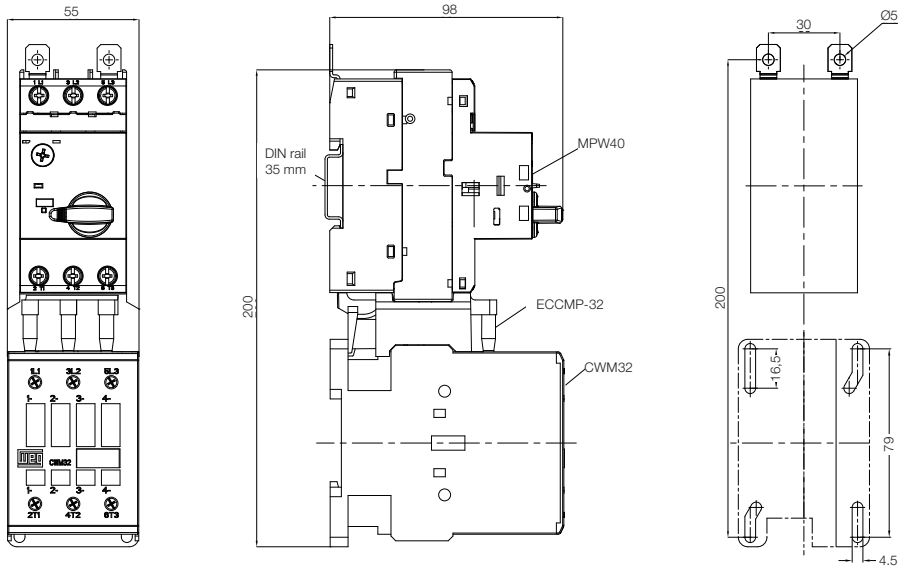


**MPW40 + CWM25**

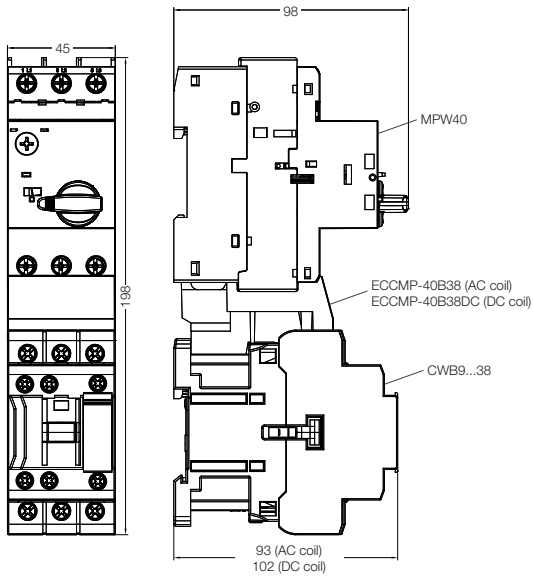


## Dimensions (mm)

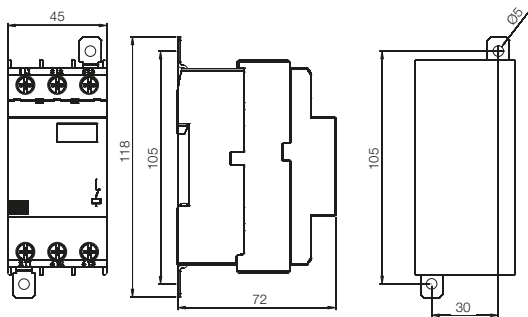
### MPW40 + CWM32



### MPW40 + CWB9...38



### Current Limiter - CLT32



A

B

C

D

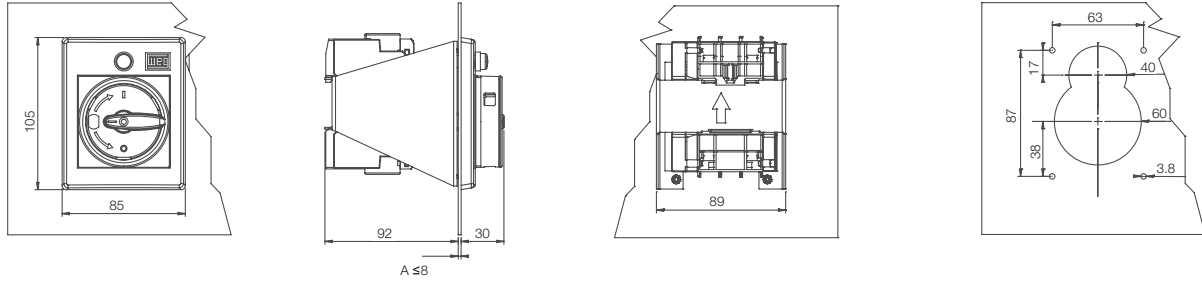
E

F

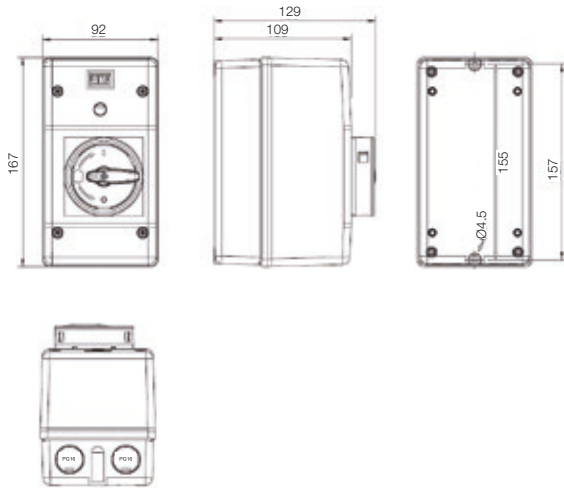
G

H

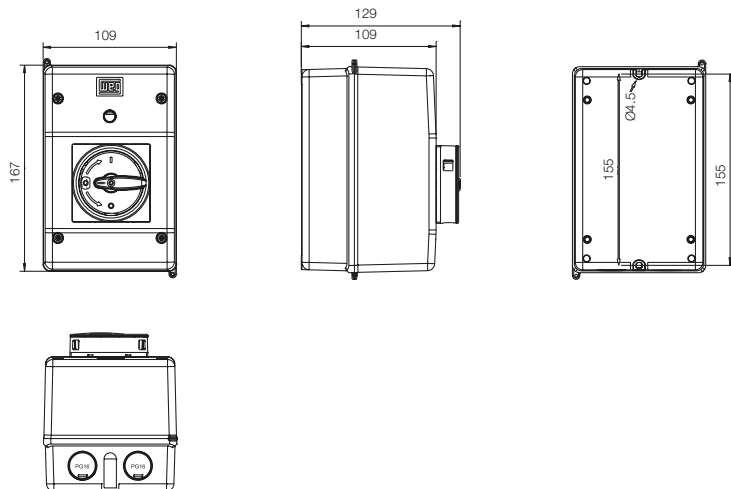
**Front Plate - FME55**



**Insulated Enclosure - PE55**



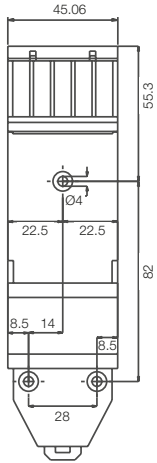
**Insulated Enclosure - LPE55**



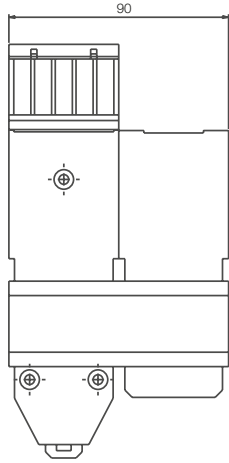
## Dimensions (mm)

### Motor Protective Circuit Breaker Mounting Adapters + Contactor - MA

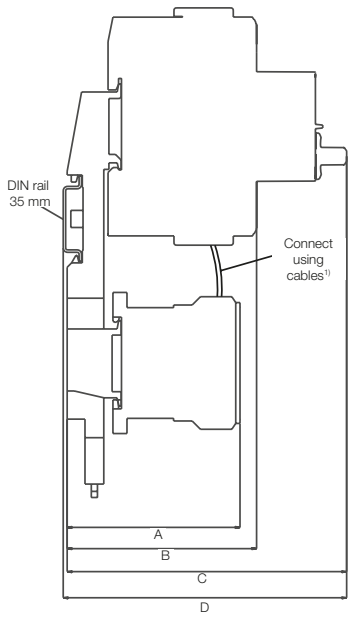
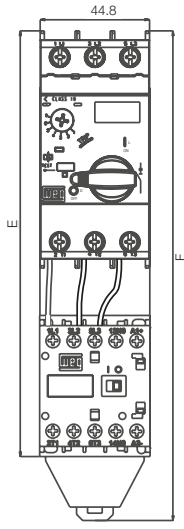
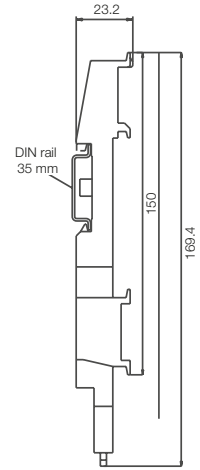
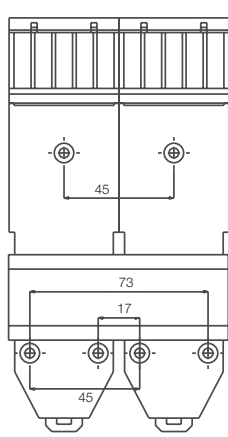
**MA45DOL**



**MA90RVS**



**MA90SDS**

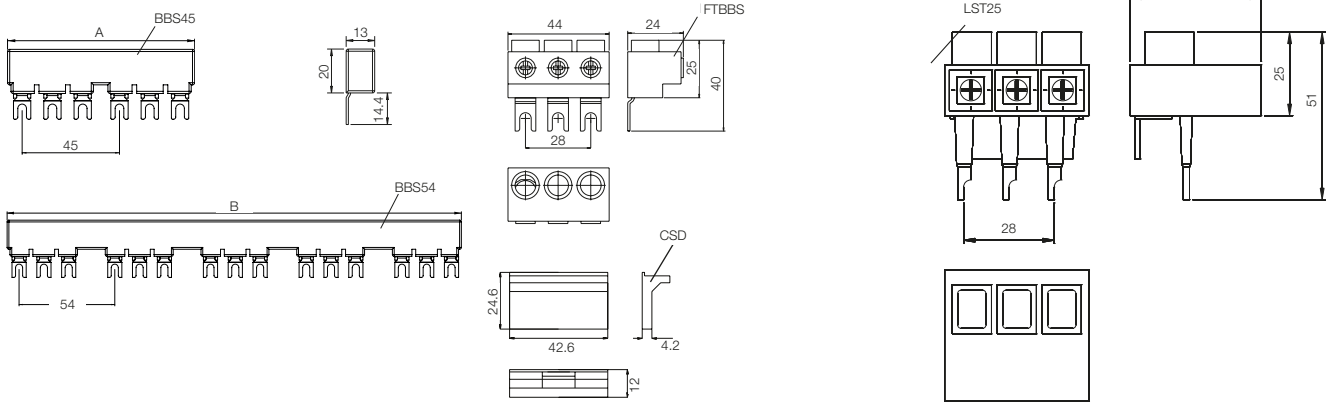


Note: 1) Except when mounted with the CWB9...38 line, which allows the use of link modules ECCMP.

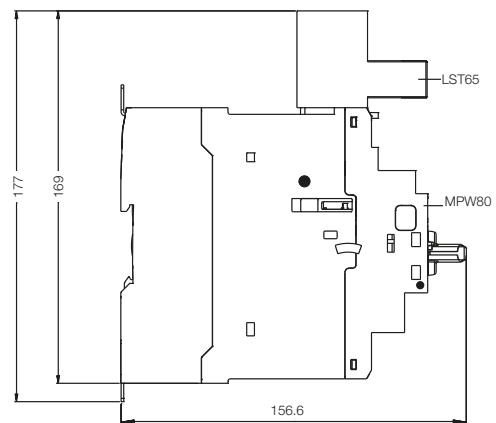
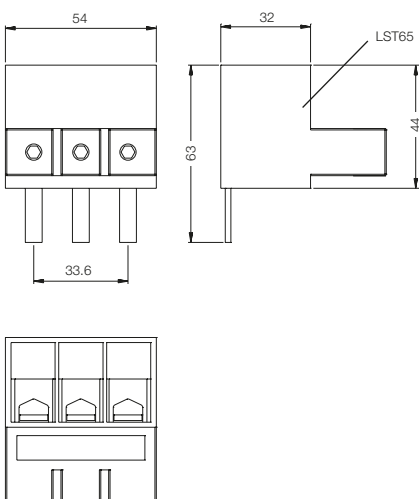
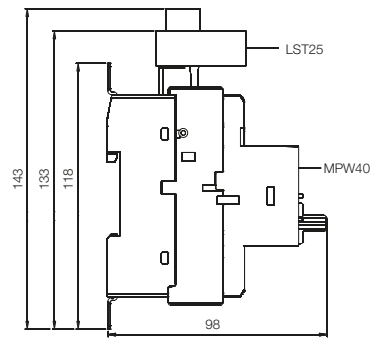
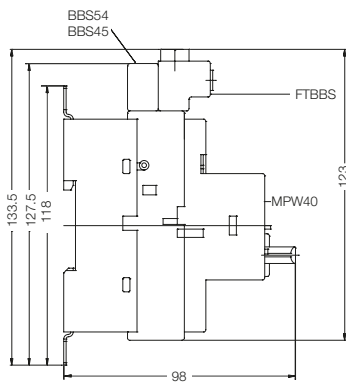
MPW12/18	Contactors								
	CW07	CWC07...016 (AC/DC coil)	CWC025	CWM9...18 (AC coil)	CWM9...18 (DC coil)	CWM25 (AC coil)	CWM25 (DC coil)	CWB9...38 (AC coil)	CWB9...38 (DC coil)
A	63.8	70.8	74.37	102.9	133	104.5	134.6	110.5	120
B	66.7	-	-	-	-	-	-	-	-
C	93.8	93.8	93.8	-	-	-	-	-	-
D	95.4	95.4	95.4	-	-	-	-	-	-
E	178.41	192.81	192.81	203.64	203.64	203.64	203.64	203.64	203.64
F	200.55	200.55	200.55	210.8	210.8	210.8	210.8	210.8	210.8

MPW40	Contactors								
	CW07	CWC07...016 (AC/DC coil)	CWC025	CWM9...18 (AC coil)	CWM9...18 (DC coil)	CWM25 (AC coil)	CWM25 (DC coil)	CWB9...38 (AC coil)	CWB9...38 (DC coil)
A	63.8	70.8	74.37	102.9	133	104.5	134.6	110.5	120
B	77.06	77.06	77.06	-	-	-	-	-	-
C	114.5	114.5	114.5	114.5	-	114.5	-	-	-
D	116.1	116.1	116.1	116.1	-	116.1	-	-	-
E	178.41	192.81	192.81	203.64	203.64	203.64	203.64	187	187
F	200.55	200.55	200.55	210.8	210.8	210.8	210.8	210.8	210.8

**Accessories: BBS45, BBS54, FTBBS, CSD, LST25, LST65**

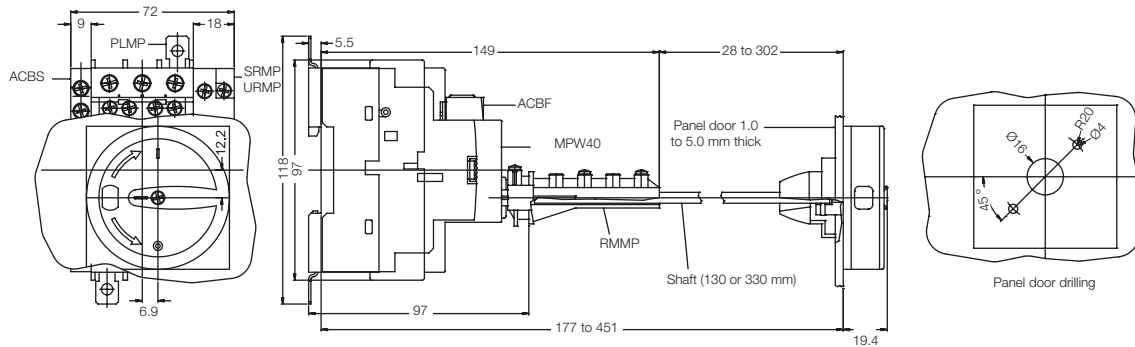


Model	BBS45-2	BBS45-3	BBS45-4	BBS45-5
A	85	130	175	220
Model	BBS54-2	BBS54-3	BBS54-4	BBS54-5
B	94	149	202	256

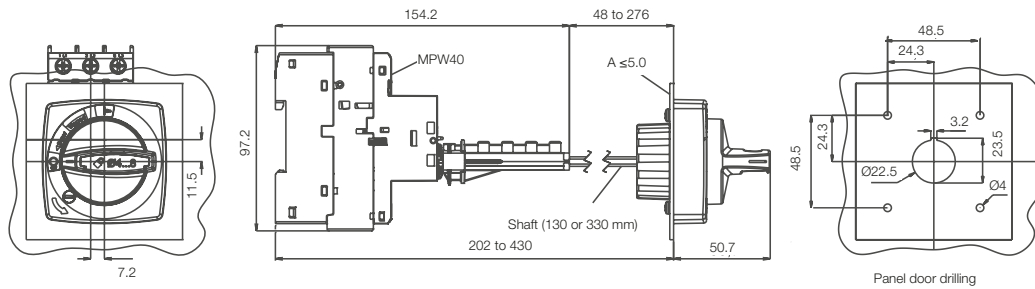


## Dimensions (mm)

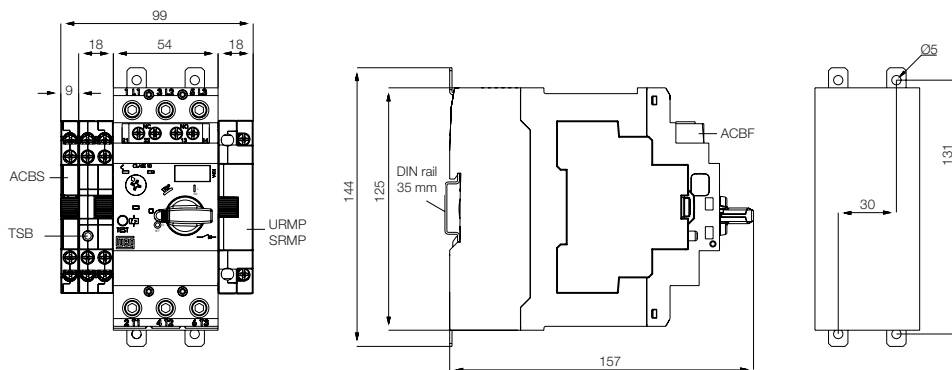
### Door Coupling Rotary Handle - RMMP



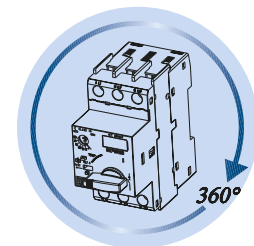
### Door Coupling Rotary Handle - MRX



### MPW80 + Accessories

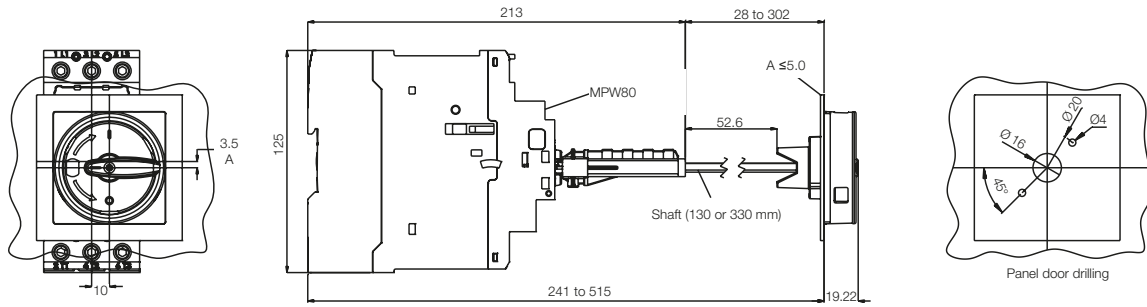


### Mounting Position

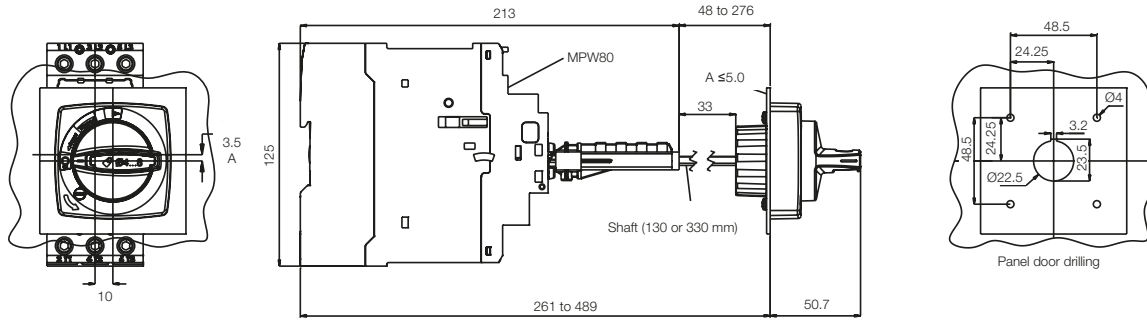




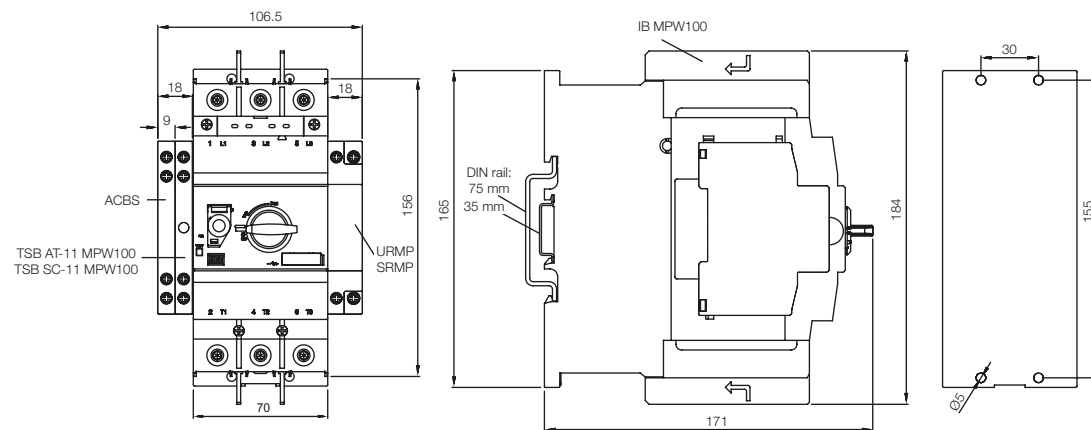
### Door Coupling Rotary Handle - RMMP65



### Door Coupling Rotary Handle - MRX65

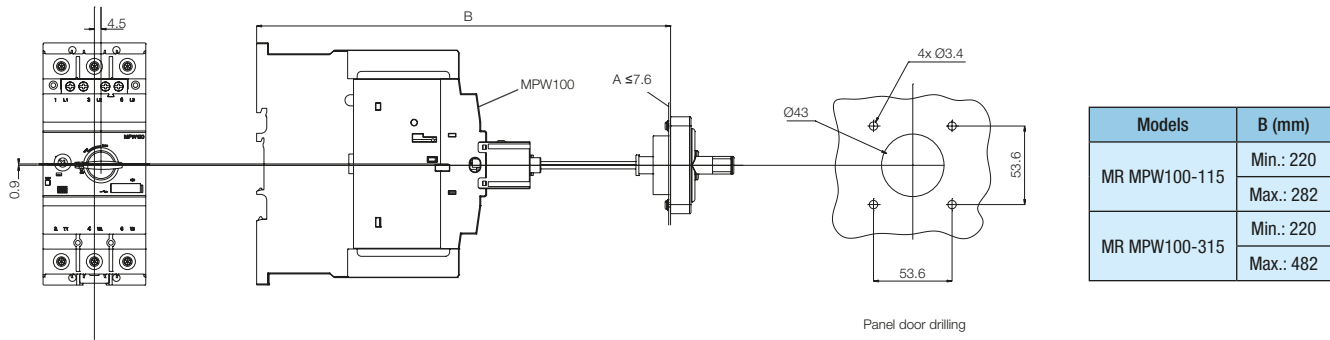


### MPW100 + Accessories

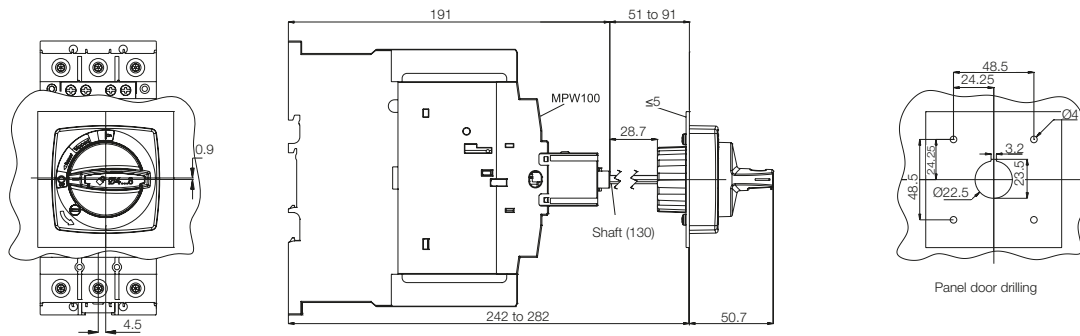


## Dimensions (mm)

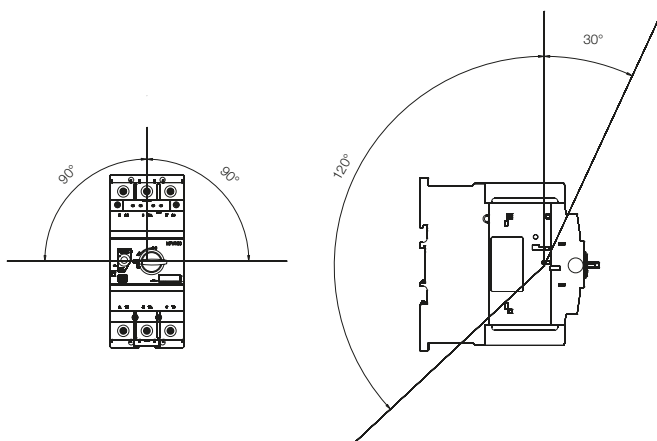
### Door Coupling Rotary Handle - MR MPW100



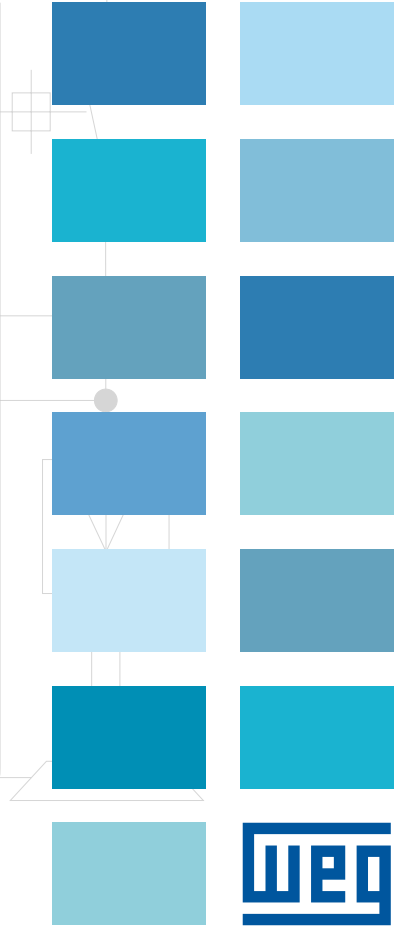
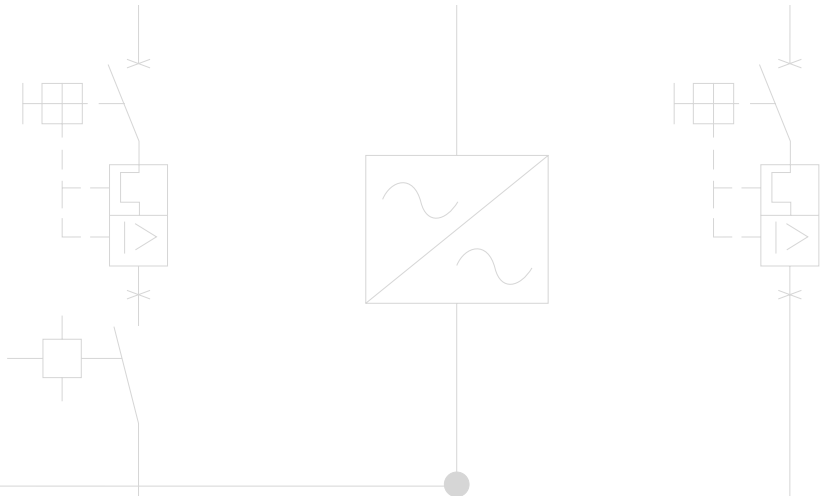
### Door Coupling Rotary Handle - MRX100



### Mounting Position



# Enclosed Starters





# Enclosed Starters

## Summary

Enclosed Starters	D-4
DLW - Enclosed Direct-On-Line Starters for Three-Phase Electric Motors	D-7
DLWM - Enclosed Direct-On-Line Starters for Single-Phase Electric Motors	D-9
Accessories	D-10
Wiring Diagram	D-11
Dimensions (mm)	D-13
Technical Data	D-13



## Enclosed Starters

Enclosed starters developed for switching and protecting three-phase and single-phase electric motors. Four thermoplastic sizes comprising most possible applications.

### Versions



*Start + Stop/Reset operation (Standard)*



*Remote control (without buttons)*



*Stop/Reset operation (without Start button)*

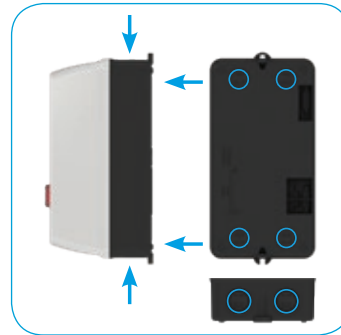


*Hand/OFF/Auto + Start + Stop/Reset operation (Hand = Local control, OFF, Auto = Remote control)*

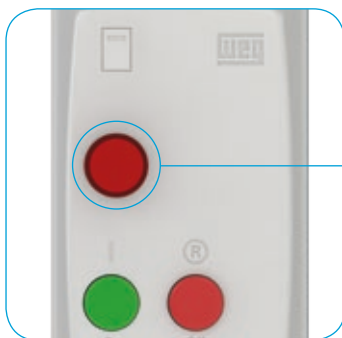
## Main Characteristics



Thermal overload relay reset button integrated to the Stop button (sizes 02 up to 05)



Allows cable connection in many different places



Compatible with CSW pushbuttons, switches and pilot lights (size 05 and 08)



Fast and easy installation of cable glands



Degree of protection IP65 to sizes: 02, 04 and 08 and IP66 (insulated of energized parts) to size: 05. Protected against dust and water jetting. Excellent insulating properties.



Enclosed size 05 allows installation of WEG electronic timers (RTW) or monitoring relays (RPW).



UV protection for outdoor use.



Robust and high impact resistance.

### Main Certifications



## Applications

### Water Pumps and Irrigations Systems



### Industries



### Industrial and Residential Buildings



### Machines and Equipments



### Fans and Exhausters



### Swimming Pools






# DLW - Enclosed Direct-On-Line Starter

Three-phase starters

- Composition: contactor and thermal overload relay
- Degree of protection: IP65 or IP66<sup>4)</sup>
- Operational voltage up to 690 V and wide control voltage available
- Enclosure with UV protection and high mechanical shock resistance
- Short circuit protection has to be ensured by a separate short circuit protection facility



Orientative motor rated power 50/60 Hz <sup>1)</sup>					Setting range of overload relay  I <sub>r</sub> (A)	Max. rated operational (A)	Reference to complete with control voltage code	Contactor	Thermal overload relay	Weight (kg)
230 V 240 V kW/hp	380 V kW/hp	400 V 415 V kW/hp	440 V kW/hp	690 V kW/hp						

**Size 02**

-	-	0.12/0.16	-	-	0.28...0.4	0.4	DLW-7■P65-R01	CW07	RW17-1D3-D004	0.53
-	0.12/0.16	0.18/0.25	-	-	0.4...0.63	0.63	DLW-7■P65-R02	CW07	RW17-1D3-C063	
0.12/0.16	0.18/0.25	0.25/0.33	-	-	0.56...0.8	0.8	DLW-7■P65-R03	CW07	RW17-1D3-D008	
0.18/0.25	0.25/0.33 0.37/0.5	0.37/0.5	-	-	0.8...1.2	1.2	DLW-7■P65-R04	CW07	RW17-1D3-D012	
0.25/0.33	0.55/0.75 0.75/1.0	0.55/0.75 0.75/1.0	-	-	1.2...1.8	1.8	DLW-7■P65-R05	CW07	RW17-1D3-D018	
0.37/0.5 0.55/0.75	0.75/1.0 1.1/1.5	1.1/1.5	-	-	1.8...2.8	2.8	DLW-7■P65-R06	CW07	RW17-1D3-D028	
0.75/1.0	1.5/2.0	1.5/2.0	-	-	2.8...4	4	DLW-7■P65-R07	CW07	RW17-1D3-U004	
1.1/1.5	2.2/3.0	2.2/3.0	-	-	4.0...6.3	6.3	DLW-7■P65-R08	CW07	RW17-1D3-D063	
1.5/2.0	3.0/4.0	3.0/4.0	-	-	5.6...8	7	DLW-7■P65-R09	CW07	RW17-1D3-U008	

**Size 04**

-	-	0.12/0.16	0.12/0.16	0.18/0.25	0.28...0.4	0.4	DLW-07■P65-R01	CWC07	RW17-1D3-D004	0.675
-	0.12/0.16	0.18/0.25	0.18/0.25	0.25/0.33	0.4...0.63	0.63	DLW-07■P65-R02	CWC07	RW17-1D3-C063	
0.12/0.16	0.18/0.25	0.25/0.33	0.25/0.33	0.37/0.5	0.56...0.8	0.8	DLW-07■P65-R03	CWC07	RW17-1D3-D008	
0.18/0.25	0.25/0.33 0.37/0.5	0.37/0.5	0.37/0.5	0.55/0.75 0.75/1	0.8...1.2	1.2	DLW-07■P65-R04	CWC07	RW17-1D3-D012	
0.25/0.33	0.55/0.75 0.75/1.0	0.55/0.75 0.75/1.0	0.55/0.75 0.75/1.0	1.1/1.5	1.2...1.8	1.8	DLW-07■P65-R05	CWC07	RW17-1D3-D018	
0.37/0.5 0.55/0.75	0.75/1.0 1.1/1.5	1.1/1.5	1.1/1.5	1.5/2 2.2/3	1.8...2.8	2.8	DLW-07■P65-R06	CWC07	RW17-1D3-D028	
0.75/1.0	1.5/2.0	1.5/2.0	1.5/2.0 2.2/3.0	3/4	2.8...4	4	DLW-07■P65-R07	CWC07	RW17-1D3-U004	
1.1/1.5	2.2/3.0	2.2/3.0	3.0/4.0	-	4.0...6.3	6.3	DLW-07■P65-R08	CWC07	RW17-1D3-D063	
1.5/2.0	3.0/4.0	3.0/4.0	4/5.5	-	5.6...8	7	DLW-07■P65-R09	CWC07	RW17-1D3-U008	
2.2/3.0	4/5.5	4/5.5	-	4.5/6	7...10	9	DLW-09■P65-R10	CWC09	RW17-1D3-U010	
3.0/4.0	5.5/7.5	5.5/7.5	5.5/7.5	5.5/7.5	8...12.5	12	DLW-012■P65-R11	CWC012	RW17-1D3-D125	
4/5.5	-	7.5/10	7.5/10	7.5/10	10...15	15	DLW-016■P65-R12	CWC016	RW17-1D3-U015	
-	7.5/10	-	9.2/12.5	-	11...17	16	DLW-016■P65-R13	CWC016	RW17-1D3-U017	

Control voltage (add suffix code)



Degree of protection: 65 (IP65)

Versions (add suffix code)

50/60 Hz <sup>2)</sup>	220 V	230 V	240 V	400 V	415 V	500 V
■ Codes	D23	D24	D25	D34	D35	D40

Type of operation	Code
Start - Stop/Reset operation (standard)	P
Remote control (without buttons)	I
Stop/Reset operation (without ON button)	D
Hand/OFF/Auto operation (Hand = local control / Auto = remote control) + Start + Stop/Reset	B


Notes: 1) Some motors characteristics may vary according to each manufacturer;  
 2) Other voltages available;  
 3) For enclosed starters with others configurations only under request, consult your WEG local distributor;  
 4) IP66 only for size 05.

# DLW - Enclosed Direct-On-Line Starter

## Three-phase starters

- Composition: contactor and thermal overload relay
- Degree of protection: IP65 or IP66<sup>3)</sup>
- Operational voltage up to 690 V and wide control voltage available
- Enclosure with UV protection and high mechanical shock resistance
- Short circuit protection has to be ensured by a separate short circuit protection facility



Orientative motor rated power 50/60 Hz <sup>1)</sup>					Setting range of overload relay  I <sub>r</sub> (A)	Max. rated operational (A)	Reference to complete with control voltage code	Contactor	Thermal overload relay	Weight (kg)
230 V 240 V kW/hp	380 V kW/hp	400V 415V kW/hp	440 V kW/hp	690 V kW/hp						

Size 05										
-	-	-	0.12	0.18/0.26	0.28...0.4	0.4	DLW-B9■P66-R54	CWB9	RW27-2D3-D004	0.985
-	0.12/0.16	0.18/0.25	0.18/0.25	0.25/0.33	0.4...0.63	0.63	DLW-B9■P66-R55	CWB9	RW27-2D3-C063	
0.12/0.16	0.18/0.25	0.25/0.33	0.25/0.33	0.37/0.5	0.56...0.8	0.8	DLW-B9■P66-R56	CWB9	RW27-2D3-D008	
0.18/0.25	0.25/0.33 0.37/0.5	0.37/0.5	0.37/0.5	0.55/0.75 0.75/1	0.8...1.2	1.2	DLW-B9■P66-R57	CWB9	RW27-2D3-D012	
0.25/0.33	0.55/0.75	0.55/0.75 0.75/1	0.55/0.75 0.75/1	1.1/1.5	1.2...1.8	1.8	DLW-B9■P66-R58	CWB9	RW27-2D3-D018	
0.37/0.5 0.55/0.75	0.75/1 1.1/1.5	1.1/1.5	1.1/1.5	1.5/2 2.2/3	1.8...2.8	2.8	DLW-B9■P66-R59	CWB9	RW27-2D3-D028	
0.75/1	1.5/2	1.5/2.0	1.5/2 2.2/3	3/4	2.8...4.0	4.0	DLW-B9■P66-R60	CWB9	RW27-2D3-U004	
1.1/1.5	2.2/3	2.2/3.0	3/4	3.7/5	4.0...6.3	6.3	DLW-B9■P66-R61	CWB9	RW27-2D3-D063	
1.5/2	3/4	3/4	4/5.5	5.5/7.5	5.6...8.0	8.0	DLW-B9■P66-R62	CWB9	RW27-2D3-U008	
2.2/3	4/5.5	4/5.5	-	-	7.0...10	9.0	DLW-B9■P66-R63	CWB9	RW27-2D3-U010	
3/4	5.5/7.5	5.5/7.5	5.5/7.5	7.5/10	8.0...12.5	12	DLW-B12■P66-R64	CWB12	RW27-2D3-D125	
4/5.5	-	7.5/10	7.5/10	9.2/12.5 11/15	10...15	15	DLW-B18■P66-R65	CWB18	RW27-2D3-U015	
-	7.5/10	-	9.2/12.5	-	11...17	17	DLW-B18■P66-R66	CWB18	RW27-2D3-U017	
-	-	-	-	-	15...23	18	DLW-B18■P66-R67	CWB18	RW27-2D3-U023	
5.5/7.5	9.2/12.5 11/15	11/15	11/15	-	15...23	23	DLW-B25■P66-R67	CWB25	RW27-2D3-U023	
-	-	-	-	-	22...32	25	DLW-B25■P66-R68	CWB25	RW27-2D3-U032	
7.5/10	15/20	15/20	15/20	-	22...32	32	DLW-B32■P66-R68	CWB32	RW27-2D3-U032	
-	-	-	-	-	25...40	32	DLW-B32■P66-R69	CWB32	RW27-2D3-U040	
9.2/12.5 11/15	18.5/25	18.5/25	18.5/25 22/30	-	25...40	38	DLW-B38■P66-R69	CWB38	RW27-2D3-U040	

Size 08										
9.2/12.5 11/15	18.5/25	18.5/25	18.5/25 22/30	30/40	25...40	40	DLW-50■P65-R36	CWM50	RW67-2D3-U040	3.100
-	22/30	22/30	-	-	40...57	50	DLW-50■P65-R39	CWM50	RW67-2D3-U057	
15/20	-	30/40	30/40	37/50	40...57	57	DLW-65■P65-R39	CWM65	RW67-2D3-U057	
18.5/25	30/40	-	37/50	-	50...63	63	DLW-65■P65-R40	CWM65	RW67-2D3-U063	
-	-	37/50	-	-	57...70	70	DLW-80■P65-R41	CWM80	RW67-2D3-U070	
22/30	37/50	-	45/60	-	63...80	80	DLW-80■P65-R42	CWM80	RW67-2D3-U080	

Control voltage (add suffix code)



Degree of protection: 65 (IP65) or 66 (IP66)<sup>3)</sup>

Versions (add suffix code)

50/60 Hz <sup>2)</sup>	220 V	230 V	240 V	400 V	415 V	500 V
■ Codes	D23	D24	D25	D34	D35	D40

Type of operation	Code
Start - Stop/Reset operation (standard)	<b>P</b>
Remote control (without buttons)	<b>I</b>
Stop/Reset operation (without ON button)	<b>D</b>
Hand/OFF/Auto operation (Hand = local control / Auto = remote control) + Start + Stop/Reset	<b>B</b>

Notes: 1) Some motors characteristics may vary according to each manufacturer;

2) Other voltages available;

3) IP66 only for size 05;


4) For enclosed starters with others configurations only under request, consult your WEG local distributor.

# DLWM - Enclosed Direct-On-Line Starter




## Single-phase starters

- Composition: contactor and thermal overload relay
- Degree of protection: IP65 or IP66<sup>3)</sup>
- Wide control voltage available
- Enclosure with UV protection and high mechanical shock resistance
- Short circuit protection has to be ensured by a separate short circuit protection facility

Orientative motor rated power 50/60 Hz <sup>1)</sup>		Setting range of overload relay	Max. rated operational	Reference to complete with control voltage code	Contactor	Thermal overload relay	Weight
230 V kW/hp		 Ir (A)	(A)				(kg)

### Size 02

0.18/0.25	1.2...1.8	1.8	DLWM-7■P65-RM05	CW07	RW17-1D2-D018	0.530
0.25/0.33	1.8...2.8	2.8	DLWM-7■P65-RM06	CW07	RW17-1D2-D028	
0.37/0.5	2.8...4	4	DLWM-7■P65-RM07	CW07	RW17-1D2-U004	
0.75/1	4...6.3	6.3	DLWM-7■P65-RM08	CW07	RW17-1D2-D063	
1.1/1.5	5.6...8	7	DLWM-7■P65-RM09	CW07	RW17-1D2-U008	

Orientative motor rated power 50/60 Hz <sup>1)</sup>		Setting range of overload relay	Max. rated operational	Reference to complete with control voltage code	Contactor	Thermal overload relay	Weight
230 V kW/hp	460 V kW/hp	 Ir (A)	(A)				(kg)

### Size 05

-	0.25/0.33	0.8...1.2	1.2	DLWM-B9■P66-RM57	CWB9	RW27-2D2-D012	0.804
0.18/0.25	0.37/0.5	1.2...1.8	1.8	DLWM-B9■P66-RM58	CWB9	RW27-2D2-D018	
0.25/0.33	0.75/1	1.8...2.8	2.8	DLWM-B9■P66-RM59	CWB9	RW27-2D2-D028	
0.37/0.5	1.1/1.5	2.8...4	4	DLWM-B9■P66-RM60	CWB9	RW27-2D2-U004	
0.55/0.75	1.5/2	4...6.3	6.3	DLWM-B9■P66-RM61	CWB9	RW27-2D2-D063	
1.1/1.5	2.2/3	5.6...8	8	DLWM-B9■P66-RM62	CWB9	RW27-2D2-U008	0.815
-	3/4	7...10	9	DLWM-B9■P66-RM63	CWB9	RW27-2D2-U010	
1.5/2	3.7/5	8...12.5	12	DLWM-B12■P66-RM64	CWB12	RW27-2D2-D125	
2.2/3	-	10...15	15	DLWM-B18■P66-RM65	CWB18	RW27-2D2-U015	0.860
-	5.5/7.5	11...17	17	DLWM-B18■P66-RM66	CWB18	RW27-2D2-U017	
3/4	7.5/10	15...23	18	DLWM-B18■P66-RM67	CWB18	RW27-2D2-U023	1.270
3.7/5	-	15...23	23	DLWM-B25■P66-RM67	CWB25	RW27-2D2-U023	
-	-	22...32	25	DLWM-B25■P66-RM68	CWB25	RW27-2D2-U032	1.430
5.5/7.5	-	22...32	32	DLWM-B32■P66-RM68	CWB32	RW27-2D2-U032	
-	-	32...40	32	DLWM-B32■P66-RM69	CWB32	RW27-2D2-U040	1.430
-	-	32...40	38	DLWM-B38■P66-RM69	CWB38	RW27-2D2-U040	



Degree of protection: 65 (IP65) or 66 (IP66)<sup>3)</sup>

Control voltage (add suffix code)

Versions (add suffix code)

Control voltage 50/60 Hz <sup>2)</sup>	220 V	230 V	240 V	400 V	415 V	460 V
■ Codes	D23	D24	D25	D34	D35	D38

Type of operation	Code
Start - Stop/Reset operation (standard)	P
Remote control (without buttons)	I
Stop/Reset operation (without ON button)	D
Hand/OFF/Auto operation (Hand = local control / Auto = remote control) + Start + Stop/Reset	B

Notes: 1) Some motors characteristics may vary according to each manufacturer;

2) Other voltages available;

3) IP66 only for size 05;

4) For enclosed starters with others configurations only under request, consult your WEG local distributor.

## Accessories

### Empty Enclosures

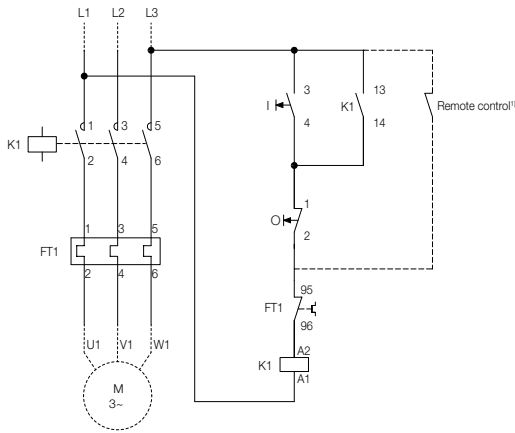
Illustrative pictures	Size	Degree of protection	Reference code	For use with	Weight (kg)
<p>Start + Stop/Reset operation</p>  <p>Design: 02 and 04      Design: 05</p>	02	IP65	EB02P-IP65	CW07 + RW17	0.200
	04	IP65	EB04CP-IP65	CWC07...16 + RW17	0.275
	05	IP66	EB05P-IP66	CWB9...38 + RW27-2D	0.210
	08	IP65	EB08P-IP65 <sup>1)</sup>	CWM50...80 + RW67-2D	1.305
<p>Remote control (without buttons) operation</p>  <p>Design: 02 and 04      Design: 05</p>	2	IP65	EB02I-IP65	CW07 + RW17	0.2
	4	IP65	EB04CI-IP65	CWC07...16 + RW17	0.275
	5	IP66	EB05I-IP66	CWB9...38 + RW27-2D	0.21
	8	IP65	EB08I-IP65 <sup>1)</sup>	CWM50...80 + RW67-2D	1.305
<p>Stop/Reset operation</p>  <p>Design: 02 and 04      Design: 05</p>	02	IP65	EB02D-IP65	CW07 + RW17	0.200
	04	IP65	EB04CD-IP65	CWC07...16 + RW17	0.275
	05	IP66	EB05D-IP66	CWB9...38 + RW27-2D	0.210
	08	IP65	EB08D-IP65 <sup>1)</sup>	CWM50...80 + RW67-2D	1.305
<p>Hand/OFF/Auto + Start + Stop/Reset operation</p>  <p>Design: 02 and 04      Design: 05</p>	02	IP52	EB02B-IP52	CW07 + RW17	0.210
	04	IP52	EB04CB-IP52	CWC07...16 + RW17	0.285
	05	IP52	EB05B-IP52	CWB9...38 + RW27-2D	0.210
	08	IP52	EB08P-IP52 <sup>1)</sup>	CWM50...80 + RW67-2D	1.305

Notes: 1) A metallic plate is supplied with this empty enclosed box.

# Wiring Diagram

## DLW (Three-Phase) Connected in Three-Phase Supply

Sizes: 02, 04 and 08



Size: 05

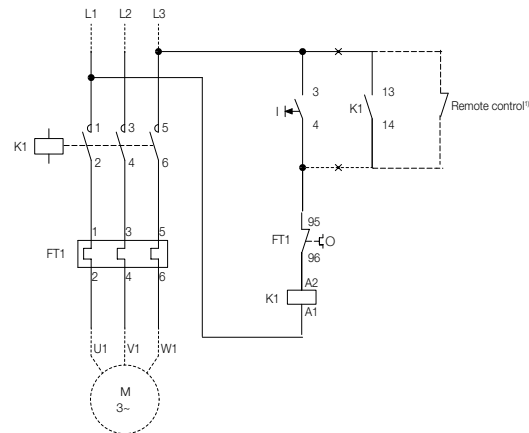
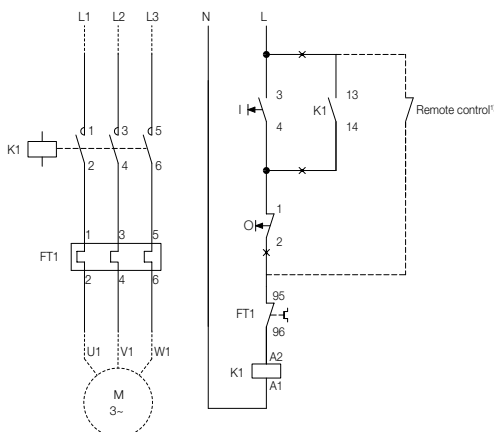


Figure 1 (phase to phase coil supply)

Sizes: 02, 04 and 08



Size: 05

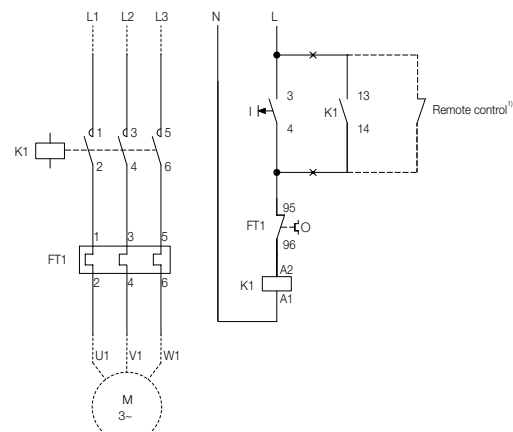


Figure 2 (control circuit connected through a separate coil supply)

--- Made by user

- Notes: 1) When using remote control, disconnect the circuit at the points marked with the "x" in figures 1 and 2 and connect the external devices (thermostat, pushbutton, etc.), as indicated with broken lines.  
 2) When using 230 V, 400 V, 500 V, on the reference code, starters will be factory-connected, as per wiring diagrams of figure 1, that is, with phase to phase coil supply.  
 3) When using 24 V, 48 V, 110 V, etc. on the reference code, starters will be factory-connected, as per wiring diagrams of figure 2, that is, with control circuit to be connected through a separate coil supply.

# Wiring Diagram

## DLWM (Single-Phase) Connected in Single-Phase Supply

Sizes: 02, 04 and 08

Size: 05

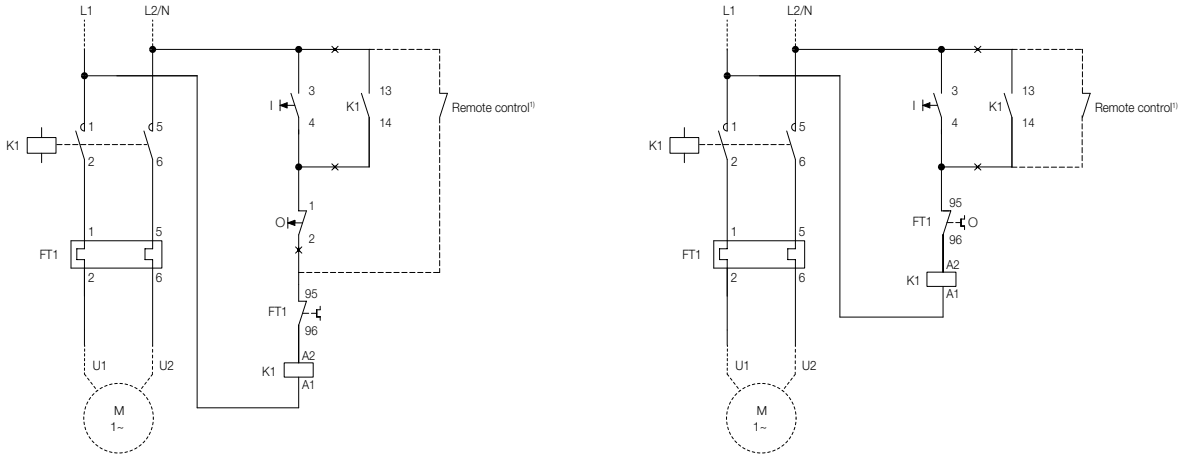


Figure 1 (phase to phase coil supply)

Sizes: 02, 04 and 08

Size: 05

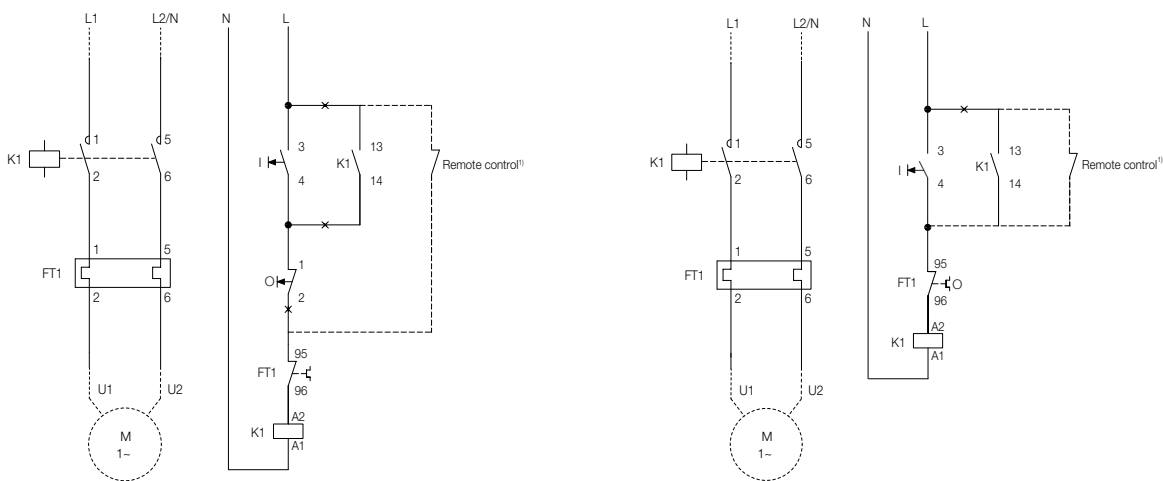
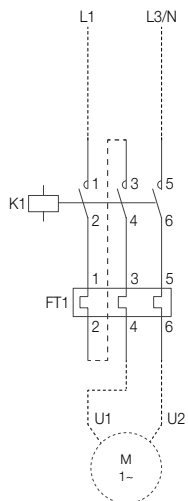


Figure 2 (control circuit connected through a separate coil supply)

## Mandatory Connection to DLW (Three-Phase) Connected in Single-Phase Supply

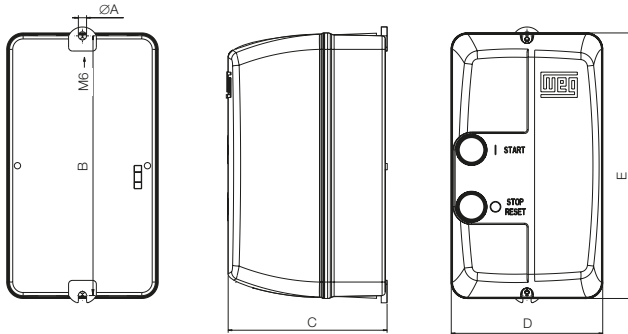


--- Made by user

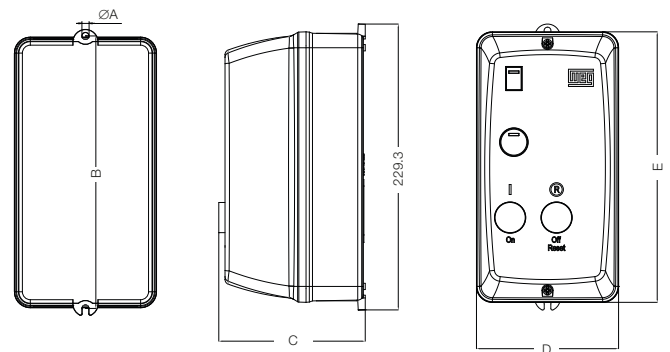
- Notes: 1) When using remote control, disconnect the circuit at the points marked with the "x" in figures 1 and 2 and connect the external devices (thermostat, pushbutton, etc.), as indicated with broken lines.  
 2) When using 230 V, 400 V, 500 V, on the reference code, starters will be factory-connected, as per wiring diagrams of figure 1, that is, with phase to phase coil supply.  
 3) When using 24 V, 48 V, 110 V, etc. on the reference code, starters will be factory-connected, as per wiring diagrams of figure 2, that is, with control circuit to be connected through a separate coil supply.

## Dimensions (mm)

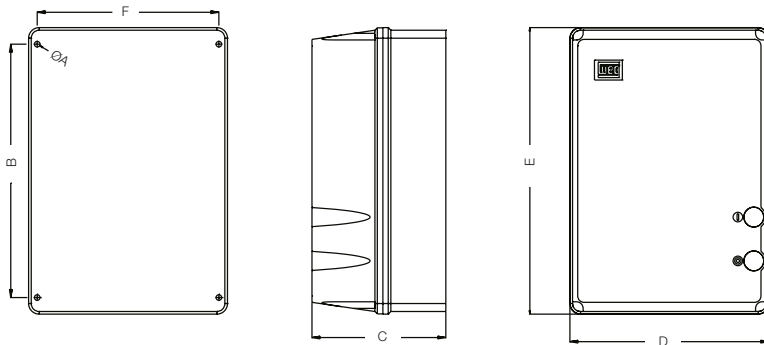
### Sizes 02 and 04



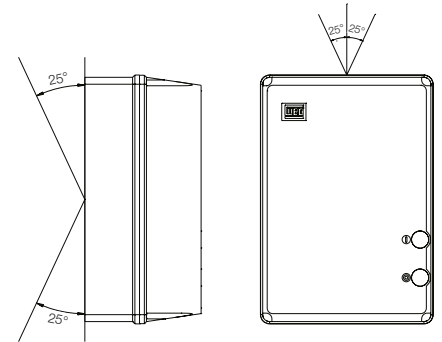
### Size 05



### Frame 08



### Mounting Installation



### Enclosure

Size	02	04	05	08
ØA	4.5	4.5	5.5	5
B	150	180	219	245
C	98	111	117.5	143
D	90	105	114	180
E	155	185	217	280
F	-	-	-	166

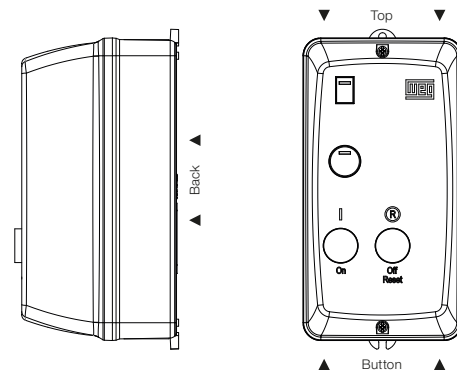
### Cable Knock-Outs

Size	02	04	05	08
Top	2xØPG16 or 2xØ20 mm		2xØPG13.5 or 2xØ20/25 mm	2xØPG21/29 or 2xØ25/32 mm
Button				
Back	2xØPG9 or 2xØ16 mm		2xØPG9 or 2xØ16 mm	-

## Technical Data

Standard	IEC/EN 60947
Operating temperature	-20 °C...55 °C
Storage temperature	-50 °C...80 °C
Degree of protection	IP65/66 <sup>2)</sup>
Mechanical lifespan (operation)	1 x 10 <sup>6</sup>
Electrical lifespan (operation)	1 x 10 <sup>5</sup>
Maximum number of operation per hour	15 <sup>1)</sup>
Certifications	CE, ANCE, EAC, ICONTEC, IRAM
Thermoplastic enclosed material (cover and base)	V0 (fire retardant)
UV protection	Yes (inside or outside use)

Notes: 1) Limited by the thermal overload relay;  
2) Only for size 05.

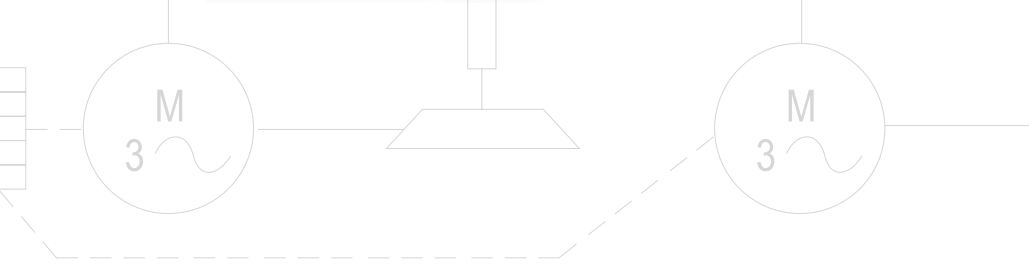
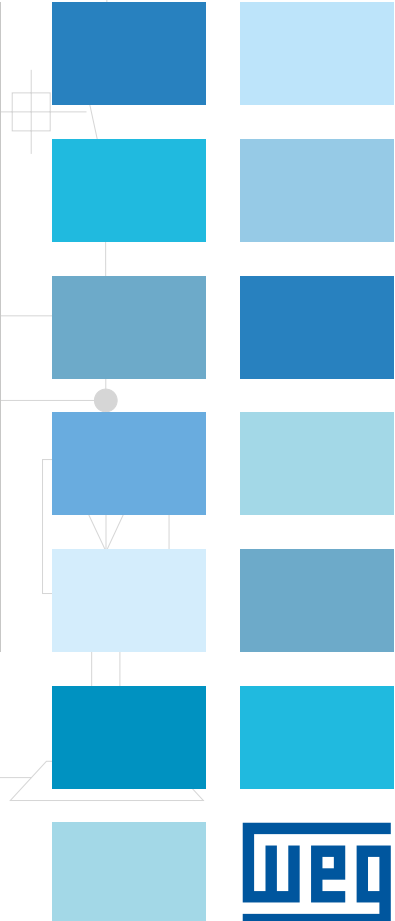
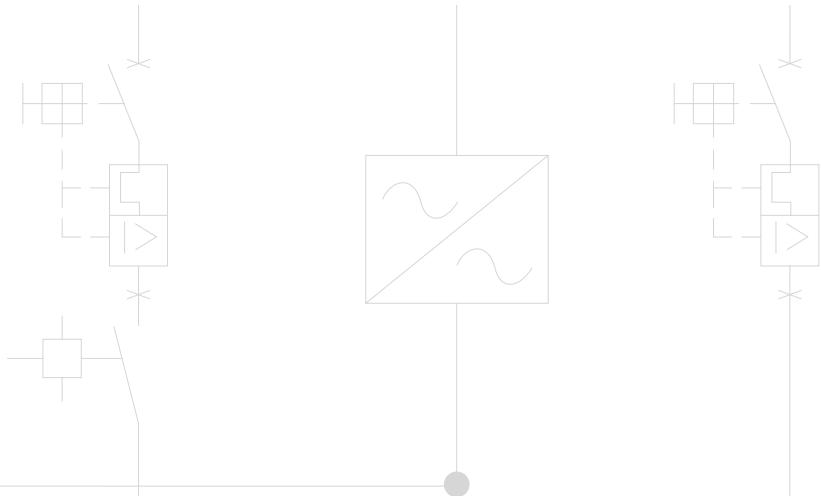






# SRW01

## Smart Relay





RESET

11 12 13 14 INPUT

Weq

NETWORK

NET TRIP STATUS

USB

SRW 01

01 02 03 04 OUTPUT

TEST/RESET

11 12 13 14

Weq

PORT 1

NET TRIP STATUS

PORT 2

A B C D E F 0 1 2 3 4 5 6 7 8 9

SRW 01

01 02 03 04

# SRW01

## Smart Relay

### Summary

<a href="#">Introduction</a>	E-04
<a href="#">Benefits</a>	E-05
<a href="#">Construction Characteristics</a>	E-06
<a href="#">Parameterization</a>	E-09
<a href="#">Technical Characteristics</a>	E-10
<a href="#">Connectivity</a>	E-11
<a href="#">Applications</a>	E-12
<a href="#">Selection Table</a>	E-14
<a href="#">Accessories</a>	E-15
<a href="#">Technical Data</a>	E-18
<a href="#">Wiring Diagrams</a>	E-20
<a href="#">Dimensions</a>	E-24



# CONNECTIVITY AND MANAGEMENT OF ELECTRIC MOTORS

The SRW01 Smart Relay is a versatile and flexible product, providing ***the protection, control, data management and diagnosis of low voltage electric motors***, with cutting edge technology and communication capacity in several industrial network protocols. Its modular design, which allows expanding its functionalities with more digital inputs and outputs, increases the application possibilities. It also has Plug & Play connectors, free WLP programming software and an USB communication port, which simplifies the operation in the user's application.

Available models with Modbus-RTU, Profibus and DeviceNet communication protocols, in addition to the Ethernet model, with the Modbus-TCP, PROFINET IO and EtherNet/IP communication protocols.



**NEW**  
Ethernet

## Benefits



USB Port



Status LED indicator that simplifies the identification of the operation



Reliable operating modes and command



User-friendly interface



Free programming software



Unique in the market with 6 digital inputs and 4 outputs

## Certifications



*Nota: 1) In process of certification for the models SRW01-UCE\_TE1E26.*

A

B

C

D

E

F

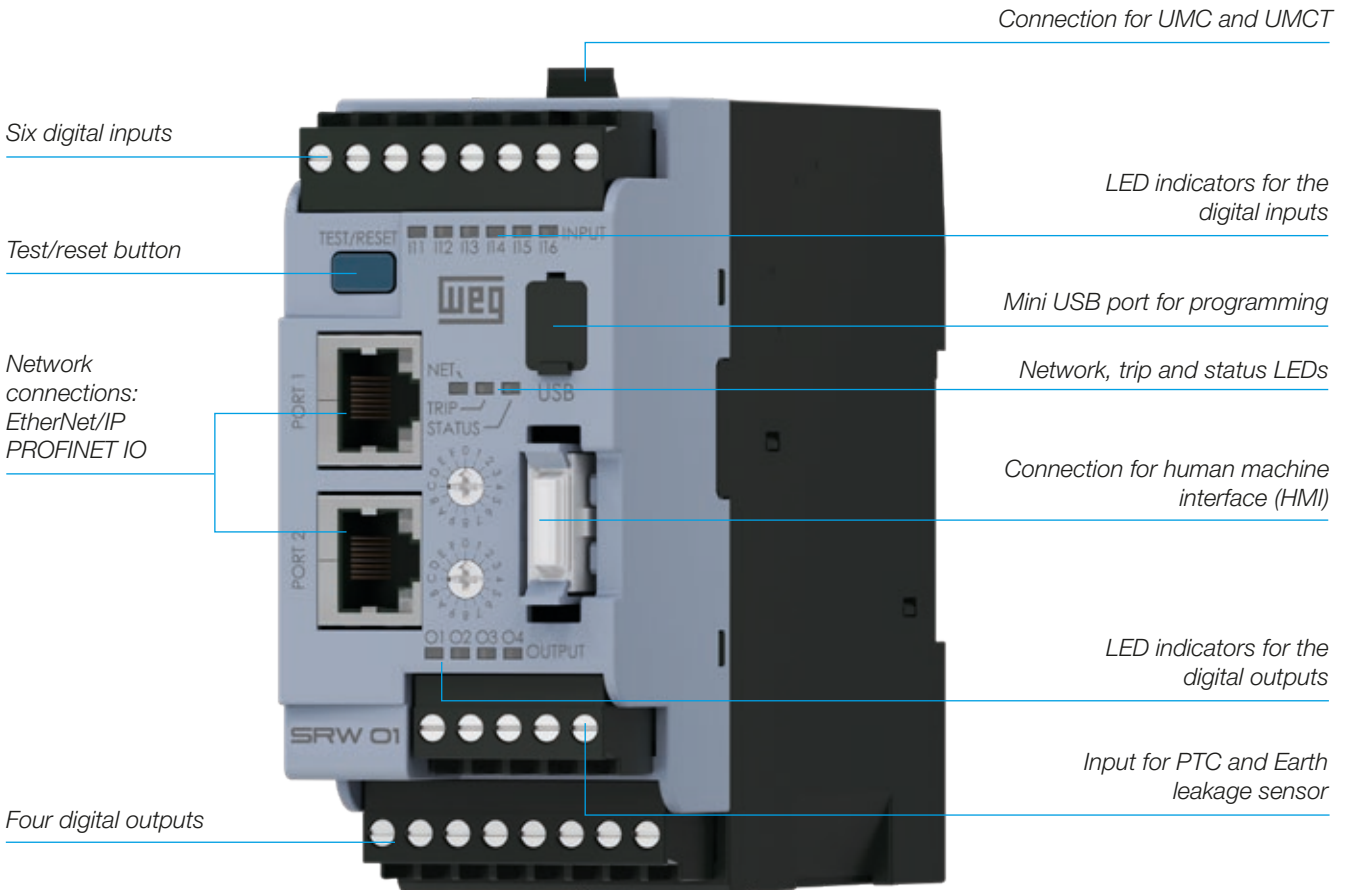
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H

# Construction Characteristics

## Control Unit - UC

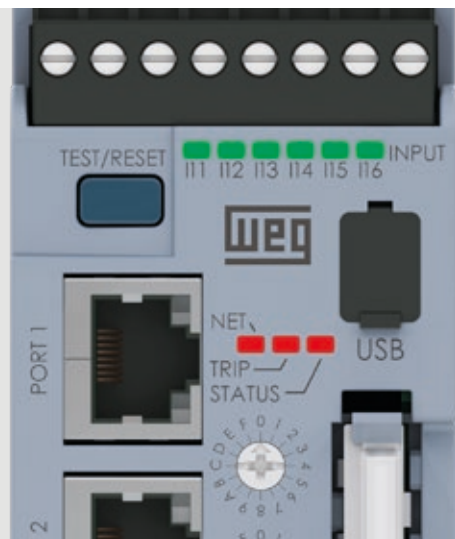
### EtherNet/IP, PROFINET IO, Modbus-TCP Models



The Control Unit (UC) provides LED indicators to monitor the activation of each digital input and output, showing their status. It also has LEDs that indicate the network status, operating condition and failure or alarm status.

In addition to the visual information via LEDs, the SRW01 can be parameterized, programmed and monitored in three different ways:

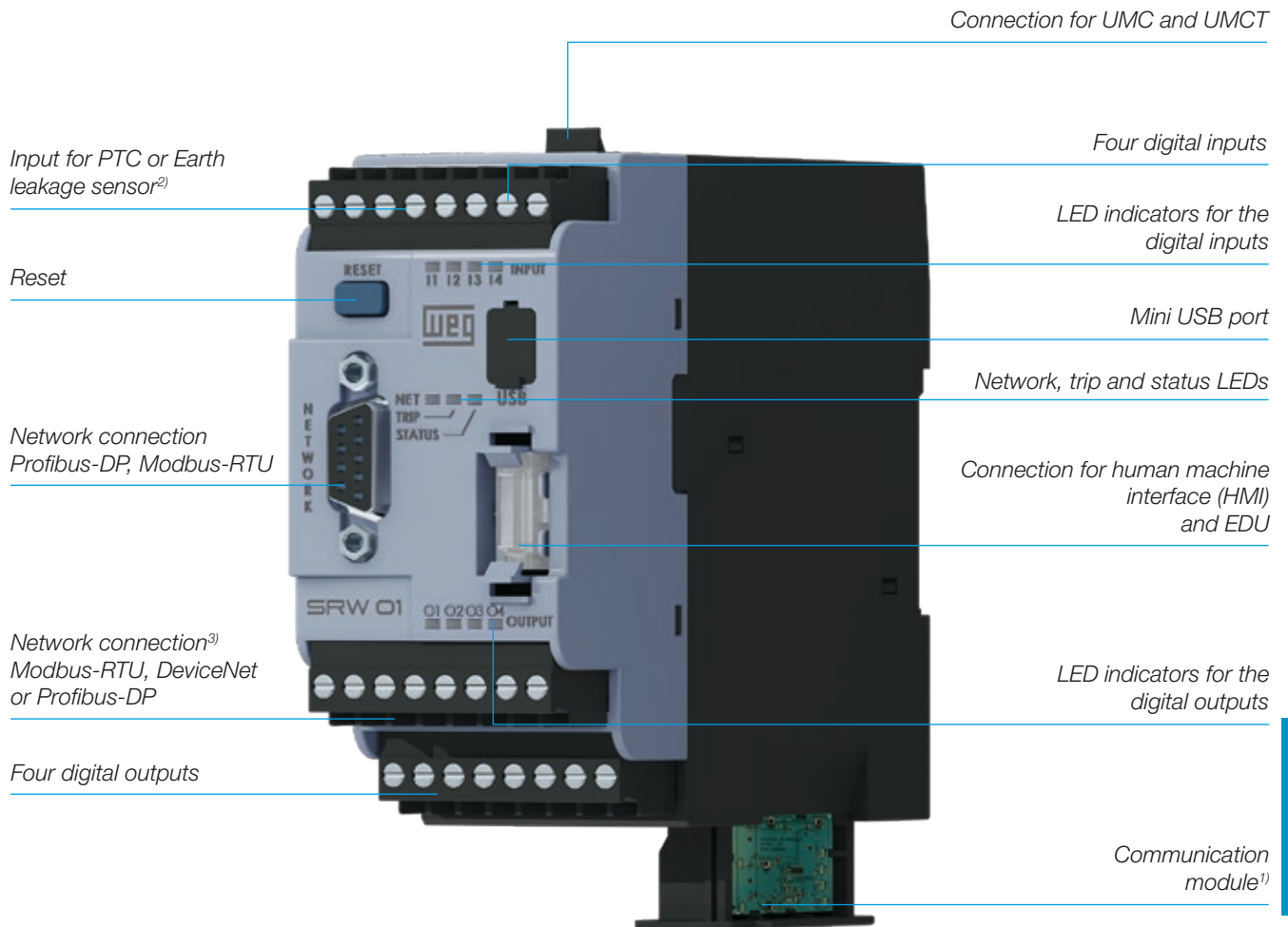
- Via networks (DeviceNet, Profibus-DP, Modbus-RTU, EtherNet/IP, Modbus-TCP and PROFINET IO)
- Via human machine interface - HMI (SRW01-HMI)
- Via USB with the free WLP software



## Construction Characteristics

### Control Unit - UC

#### Profibus-DP, DeviceNet, Modbus-RTU Models



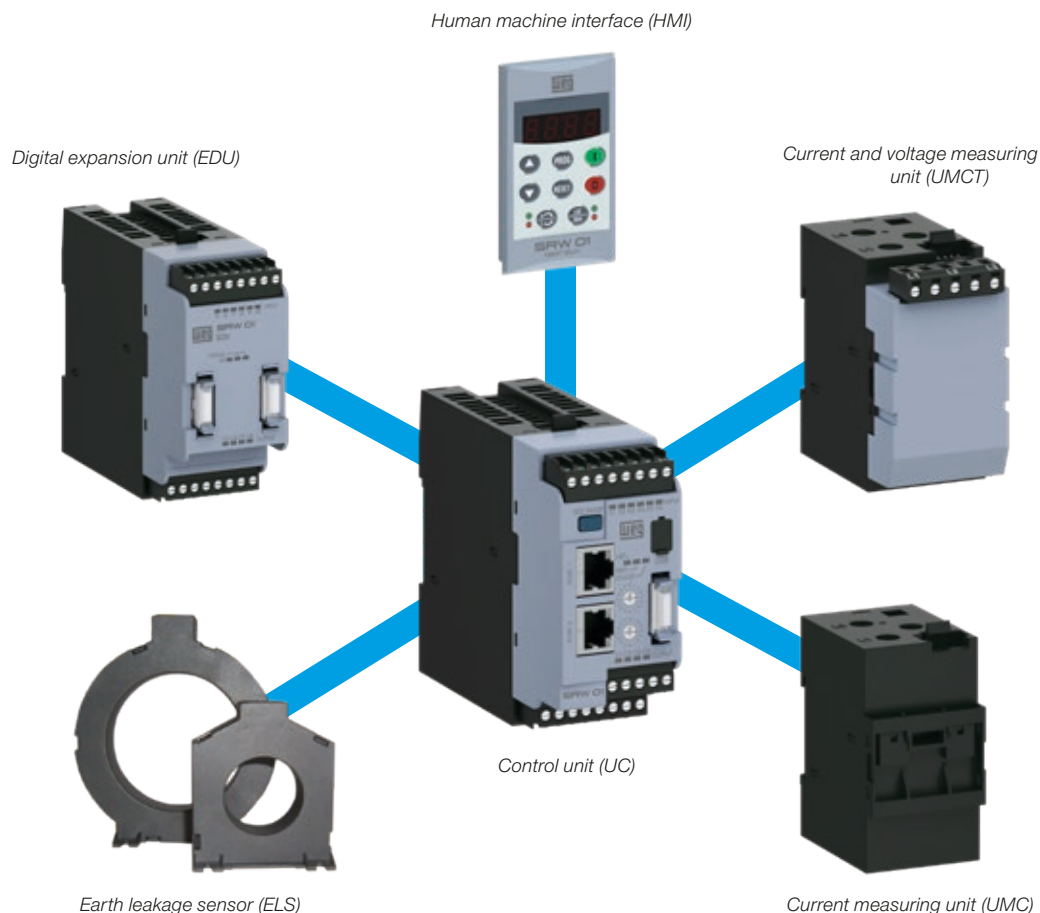
Notes: 1) Not available in Ethernet version.

2) Ethernet models have input for PTC and Earth leakage sensor.

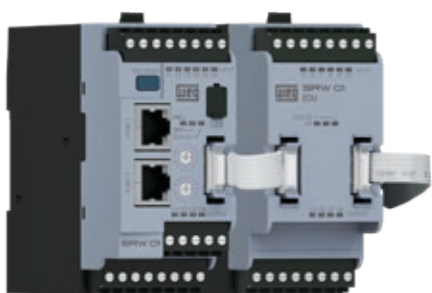
3) The connection via Fieldbus (Modbus-RTU or Profibus-DP) can be done in two ways: through the DB9 connector located in front of the Control Unit (UC) or via terminals (DeviceNet, Profibus-DP, Modbus-RTU).

## Construction Characteristics

Using the modular concept, SRW01 offers flexibility and easy configuration.



### Digital Expansion Unit (EDU)



The Digital Expansion Unit (EDU) increases the number of digital inputs and outputs present in the Control Unit (UC) of the SRW01. The EDU adds 6 digital inputs and 4 digital outputs, and can be used to monitor signals and to control external devices.

*Note: Limit of one Digital Expansion Unit (EDU) for each Control Unit (UC).*

### Current Measuring Unit (UMC) or Voltage and Current Measuring Unit (UMCT)



UMC

UMCT

The Current Measuring Unit (UMC) measures the current of the three phases of the motor.

Including a potential transformer, the Current and Voltage Measuring Unit (UMCT) also monitors voltages up to 690 V, allowing the smart relay to monitor phase sequence, power factor, motor power (active, reactive and apparent) and power consumption (kWh).

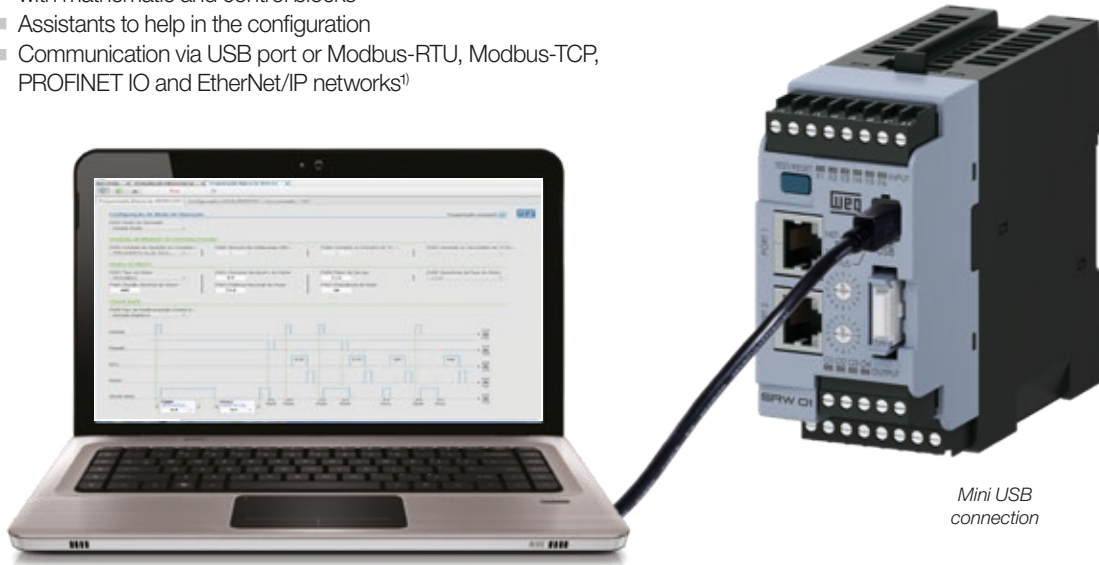
The data are digitally transmitted to the Control Unit (UC).



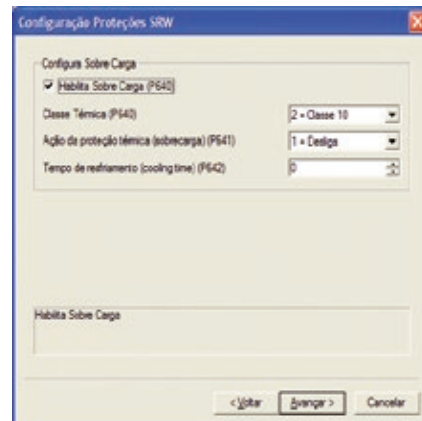
# Parameterization

## Free Programming Software - WLP (WEG Ladder Programmer)

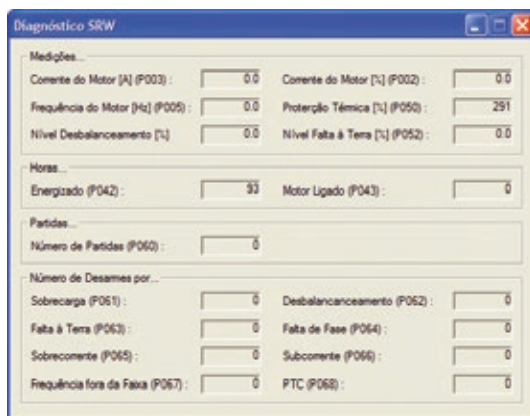
- Parameterization, programming, command and monitoring of the SRW01
- Configuration, parameter edition and programming in ladder language with mathematic and control blocks
- Assistants to help in the configuration
- Communication via USB port or Modbus-RTU, Modbus-TCP, PROFINET IO and EtherNet/IP networks<sup>1)</sup>



Mini USB connection



Configuration assistant



Monitoring diagnosis

Note: 1) It is not possible to load the WLP to the Profibus-DP and DeviceNet networks.

## Technical Characteristics

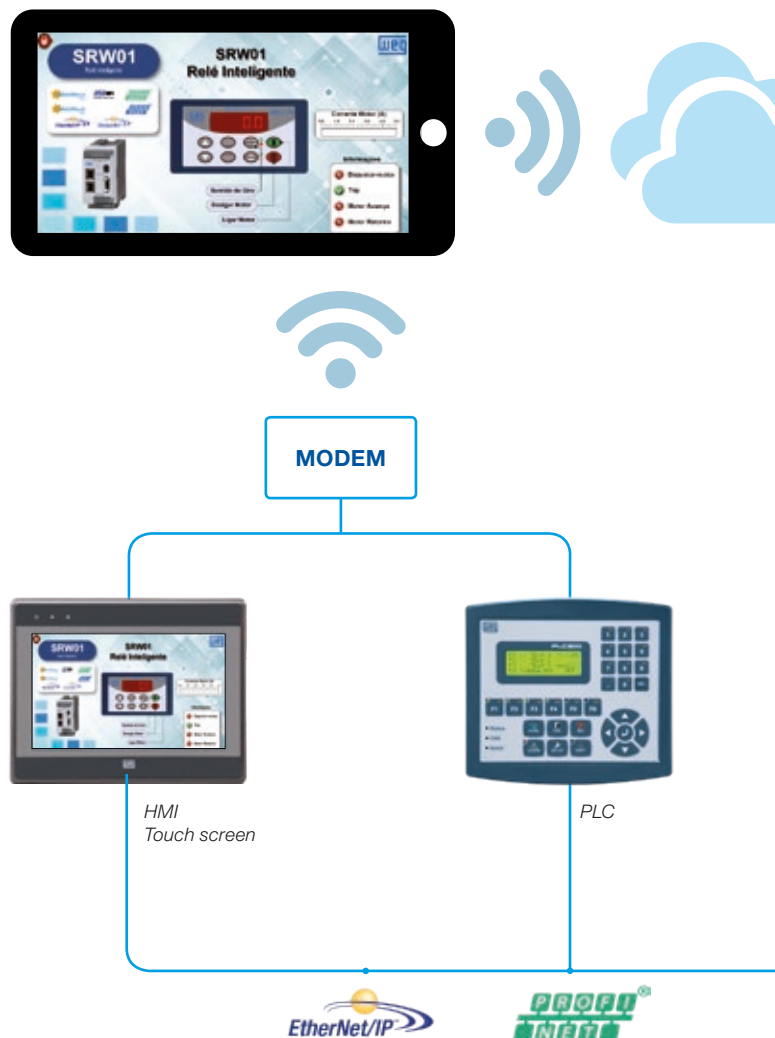
Its protection, command, diagnosis and data acquisition functions ensure safety and flexibility in the protection of electric motors.

### Protection and Command

- Overload protection (adjustable tripping class 5 to 45)
- Thermal protection via PTC
- Phase loss protection (current)
- Protection against current unbalance between phases
- Protection against overcurrent and locked rotor
- Protection against undercurrent
- Internal ground fault protection
- Protection against out of range frequency
- Earth leakage
- External fault
- Phase sequence
- Voltage unbalance
- Phase loss (voltage)
- Over and undervoltage
- Over and underpower
- Over and under power factor
- Electric energy consumption management - kWh and kvarh
- Digital input and output activation

### Diagnosis and Data Acquisition

- RMS current of each phase and average in amperes (A) or % of the adjusted current  $I_n$
- Line and average voltage in volts (V)
- Motor frequency
- Total trips
- Number of trips by fault type
- Number of starts
- Motor running hours
- Relay running hours
- Phase current unbalance level
- Voltage unbalance level
- Internal ground fault current
- Earth leakage current
- Power factor
- Active, reactive and apparent power
- PTC value
- Ground fault level



Easy parameterization with preprogrammed operations available on the programming menu.

### Operating Modes

- Transparent operation - the digital inputs and outputs can be configured according to the application requirements
- Operation as overload relay - similar to an overload relay
- Direct starter - direct-on-line starter for single and three-phase motors
- Reversing starter - reversing starter for three-phase motors
- Star-delta starter - star-delta starter for three-phase motors
- Dahlander starter - starter for Dahlander three-phase motors
- Two windings starter - starter for two windings three-phase motors
- PLC mode - similar to the running of a PLC; in this operation mode the UMC/UMCT is not used

A

B

C

D

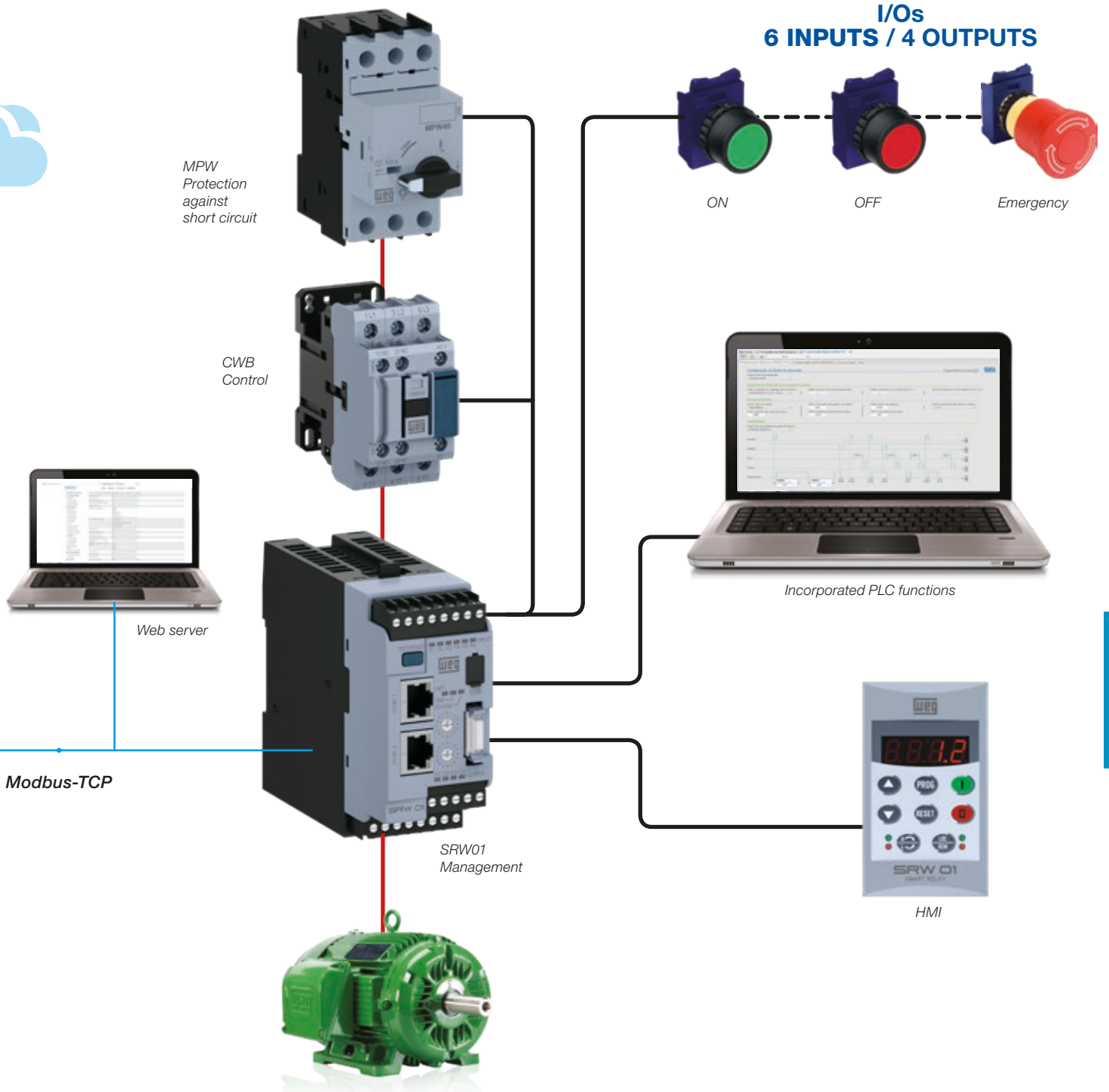
E

F

G

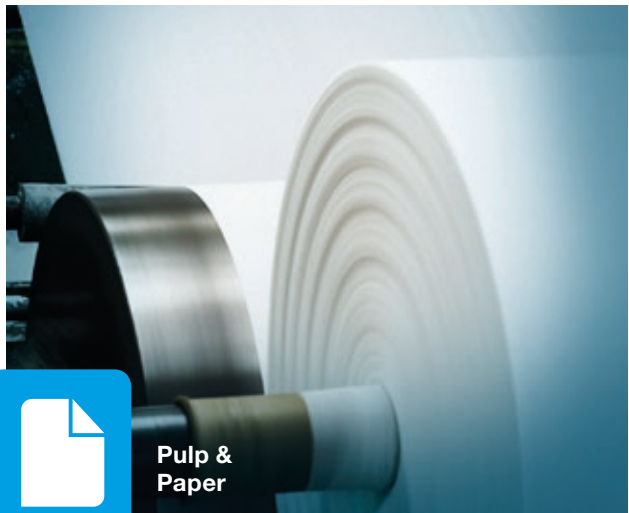
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# Connectivity



Its capacity of immediate diagnosis helps the preventive maintenance, avoiding undesirable machine breakdown, and also meeting the **IoT** requirements, which is one of the cornerstones of the **4.0 Industry**.

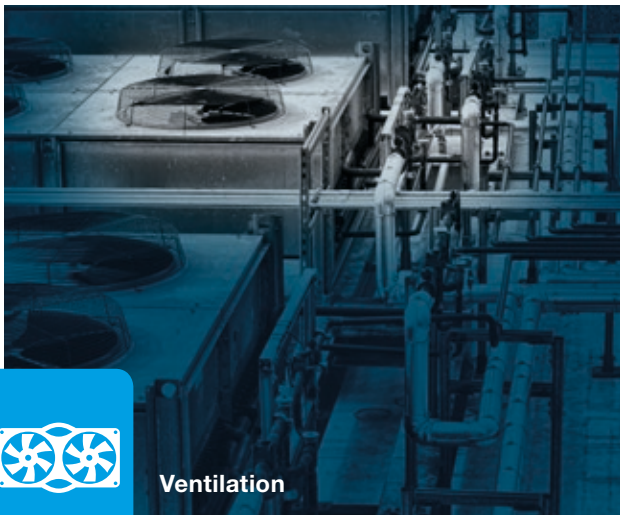
# Applications



# Applications



Chemicals & Petrochemical



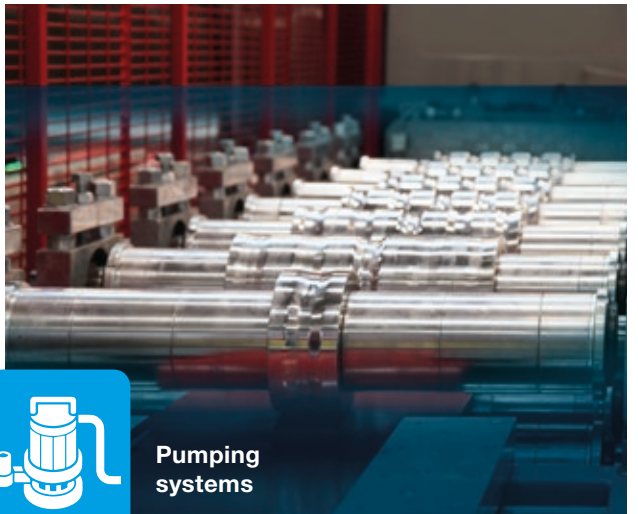
Ventilation



Cement



Buildings



Pumping systems

A

B

C

D

E

F

G

H

# Selection Table

## Control Unit - UC



Image for illustrative purposes  
Ethernet version.

**SRW01-U C P T 1 E47**

Communication protocols  
 B = Without communication  
 D = DeviceNet  
 M = Modbus-RTU  
 P = Profibus-DP  
 E1 = Ethernet Modbus-TCP  
 E2 = Ethernet PROFINET IO  
 E3 = EtherNet/IP

Protection  
 T = PTC  
 E = Earth leakage  
 TE = PTC and Earth leakage

Digital input operating voltage  
 1 = 24 V dc  
 2 = 110 V ac

Supply voltage  
 E26 = 24 V ac (50-60 Hz) / V dc  
 E47 = 110-240 V ac (50-60 Hz) / V dc

Reference	Protection	Supply voltage	Communication protocol	Digital input voltage
SRW01-UCBE1E47	Earth leakage	110-240 V ac (50-60 Hz) / V dc	Without communication	24 V dc
SRW01-UCBE1E26		24 V ac (50-60 Hz) / V dc		24 V dc
SRW01-UCBE2E47		110-240 V ac (50-60 Hz) / V dc		110 V ac
SRW01-UCBE2E26		24 V ac (50-60 Hz) / V dc		110 V ac
SRW01-UCBT1E47	PTC	110-240 V ac (50-60 Hz) / V dc		24 V dc
SRW01-UCBT1E26		24 V ac (50-60 Hz) / V dc		24 V dc
SRW01-UCBT2E47		110-240 V ac (50-60 Hz) / V dc		110 V ac
SRW01-UCBT2E26		24 V ac (50-60 Hz) / V dc		110 V ac
SRW01-UCDE1E47	Earth leakage	110-240 V ac (50-60 Hz) / V dc	DeviceNet	24 V dc
SRW01-UCDE1E26		24 V ac (50-60 Hz) / V dc		24 V dc
SRW01-UCDE2E47		110-240 V ac (50-60 Hz) / V dc		110 V ac
SRW01-UCDE2E26		24 V ac (50-60 Hz) / V dc		110 V ac
SRW01-UCDT1E47	PTC	110-240 V ac (50-60 Hz) / V dc		24 V dc
SRW01-UCDT1E26		24 V ac (50-60 Hz) / V dc		24 V dc
SRW01-UCDT2E47		110-240 V ac (50-60 Hz) / V dc		110 V ac
SRW01-UCDT2E26		24 V ac (50-60 Hz) / V dc		110 V ac
SRW01-UCPE1E47	Earth leakage	110-240 V ac (50-60 Hz) / V dc	Profibus-DP	24 V dc
SRW01-UCPE1E26		24 V ac (50-60 Hz) / V dc		24 V dc
SRW01-UCPE2E47		110-240 V ac (50-60 Hz) / V dc		110 V ac
SRW01-UCPE2E26		24 V ac (50-60 Hz) / V dc		110 V ac
SRW01-UCPT1E47	PTC	110-240 V ac (50-60 Hz) / V dc		24 V dc
SRW01-UCPT1E26		24 V ac (50-60 Hz) / V dc		24 V dc
SRW01-UCPT2E47		110-240 V ac (50-60 Hz) / V dc		110 V ac
SRW01-UCPT2E26		24 V ac (50-60 Hz) / V dc		110 V ac
SRW01-UCME1E47	Earth leakage	110-240 V ac (50-60 Hz) / V dc	Modbus-RTU	24 V dc
SRW01-UCME1E26		24 V ac (50-60 Hz) / V dc		24 V dc
SRW01-UCME2E47		110-240 V ac (50-60 Hz) / V dc		110 V ac
SRW01-UCME2E26		24 V ac (50-60 Hz) / V dc		110 V ac
SRW01-UCMT1E47	PTC	110-240 V ac (50-60 Hz) / V dc		24 V dc
SRW01-UCMT1E26		24 V ac (50-60 Hz) / V dc		24 V dc
SRW01-UCMT2E47		110-240 V ac (50-60 Hz) / V dc		110 V ac
SRW01-UCMT2E26		24 V ac (50-60 Hz) / V dc		110 V ac
SRW01-UCET1E1E47	PTC and Earth leakage	110-240 V ac (50-60Hz) / V dc	Modbus-TCP	24 V dc
SRW01-UCET1E1E26		24 V ac (50-60Hz) / V dc		24 V dc
SRW01-UCET2E1E47		PROFINET IO	110-240 V ac (50-60Hz) / V dc	24 V dc
SRW01-UCET2E1E26			24 V ac (50-60Hz) / V dc	24 V dc
SRW01-UCET3E1E47		EtherNet/IP	110-240 V ac (50-60Hz) / V dc	24 V dc
SRW01-UCET3E1E26			24 V ac (50-60Hz) / V dc	24 V dc

Notes: Ethernet model only for digital inputs @ 24 V dc.

## Accessories

### Current Measuring Unit (UMC) or Current and Voltage Measuring Unit (UMCT)

They must be selected according to the motor rated current.

Current range (A)	Current measuring (UMC)	Current and voltage measuring unit (UMCT) <sup>1)</sup>
0.5-5.0	SRW01-UMC1	SRW01-UMCT1
1.25-12.5	SRW01-UMC2	SRW01-UMCT2
2.5-25.0	SRW01-UMC3	SRW01-UMCT3
12.5-125.0	SRW01-UMC4	SRW01-UMCT4
42.0-420.0	SRW01-UMC5	SRW01-UMCT5
84.0-840.0	SRW01-UMC6	SRW01-UMCT6

Note: the Control Unit (UC) can be assembled with the Current Measuring Unit (UMC), creating a single unit, or detached (up to 2 meters). The Current and Voltage Measuring Unit (UMCT) can be exclusively assembled detached from the Control Unit (UC).



SRW01-UMC1, 2 and 3



SRW01-UMCT1, 2 and 3

Width (mm)	Current (A)	Power connection
45	0.25 - 2.5 <sup>2)</sup>	Cable through
	0.5 - 5	
	1.25 - 12.5	
	2.5 - 25	



SRW01-UMC4



SRW01-UMCT4

Width (mm)	Current (A)	Power connection
66	12.5 - 125	Cable through



SRW01-UMC5



SRW01-UMCT5

Width (mm)	Current (A)	Power connection
120	42 - 420	Busbar



SRW01-UMC6



SRW01-UMCT6

Width (mm)	Current (A)	Power connection
265	84 - 840	Cable through or busbar

Images for illustrative purposes

For applications at higher currents or out of the model range of the Current Measuring Unit (UMC) or Current and Voltage Measuring Unit (UMCT), it is possible to use external current transformers (CTs) supplied by the user.

### UC-UMC or UMCT / UC-EDU Connection Cable

The SRW01-CB cable makes the electrical connection of the Control Unit (UC) to the Current Measuring Unit (UMC) or Current and Voltage Measuring Unit (UMCT) or Digital Expansion Unit (EDU), allowing the detached assembly up to two meters away and simplifying the installation.



Reference	Length (mm)
SRW01-CB0	60
SRW01-CB1	120
SRW01-CB2	500
SRW01-CB3	2,000
SRW01-CB4	1,000

Notes: 1) Alternating supply voltage from 35 to 690 V.

2) For a current range from 0.25 to 2.5 A, use the SRW01-UMC1 or SRW01-UMCT1 with two turns in the primary winding. For further details, refer to the user's manual.

## Accessories

### Digital Expansion Unit - EDU



Reference	Digital inputs	Digital input (external) supply voltage	Digital outputs
SRW01-EDU1	6	24 V dc	4
SRW01-EDU2	6	110 V ac	4

### Human Machine Interface - HMI

The HMI is connected to the front part of the relay by means of a communication cable, making its operation and configuration easier and more convenient. It offers two mounting options: vertical and horizontal.



Reference	Description
SRW01-HMI	Standard human machine interface - HMI - vertical



Reference	Description
SRW01-HMI2	Human machine interface - HMI - horizontal

### Earth Leakage Sensor (EL)

The Earth leakage sensor must be installed detached from the Control Unit (UC).

It can be installed in any position and connected to the Control Unit (UC) by means of a twisted pair and/or shielded cable connected to the sensor terminals and S1 and S2 terminals, for the model with Profibus-DP, DeviceNet and Modbus-RTU, or to the other E1 and E2 terminals for the EtherNet/IP, PROFINET IO and Modbus-TCP models, with maximum recommended distance of 10 m.



Reference	Diameter (mm)	UMC/UMCT compatible
SRW01-EL1	35	SRW01-UMC/UMCT 1, 2, 3
SRW01-EL2	70	SRW01-UMC/UMCT 4
SRW01-EL3	120	SRW01-UMC/UMCT 5
SRW01-EL4	210	SRW01-UMC/UMCT 6

Specify the Earth leakage sensor according to the diameter of the cables that go through the window; choose the sensor with the smallest opening.

It is recommended to use the equivalence relation between the Current Measuring Unit (UMC) or Current and Voltage Measuring Unit (UMCT) and the ELS sensors for the installation, as shown on the table above.



## Accessories

### Connection Cable UC-HMI



Reference	Length (mm)
SRW01-CH1	500
SRW01-CH2	1,000
SRW01-CH3	1,500
SRW01-CH4	2,000

### USB Communication Cable



Reference	Length (mm)
SRW01-USB	2,000

### Communication Module



Reference	Communication protocol
SRW01-MCD	DeviceNet
SRW01-MCM	Modbus-RTU
SRW01-MCP	Profibus-DP

Note: - For replacement or for Control Unit (UC) without network module.  
- Not available in the Ethernet version.

### Fixing Adaptor



Reference	Description
PLMP	Adaptor for screw fixing (2 pieces per package/0.006 kg)

### Busbar for UMC and UMCT



Reference	Description
JBL-RW407D	Busbar for the Current Measuring Unit (UMC6) / Current and Voltage Measuring Unit (UMCT6)

### Protection Covers - Replacement



DB9

Reference	Description
SRW01-CDB <sup>1)</sup>	Plastic cover for DB9 connector protection

Note: 1) 10-unit pack.

### USB Adapter for Panel Door



Reference	Descrição
SRW01-AUSB1	USB adapter cable with protection cover IP68 and length of 25 cm
SRW01-AUSB1	USB adapter cable with protection cover IP68 and length of 50 cm

## Technical Data

General data	Mounting position	Any	
	Pollution degree (UL 508)	2	
	Degree of protection (IEC 60529)	Control Unit (UC): IP20 Current Measurement Unit (UMC): - Without busbar: IP20 - With busbar: IP00 Current and Voltage Measuring Unit (UMCT): - Without busbar: IP20 - With busbar: IP00 Digital Expansion Unit (EDU) IP20 Human Machine Interface (HMI): IP54 Earth Leakage Sensor (ELS): IP20	
	Ambient temperature	Operation: - According to IEC: 0...+55 °C - According to UL: 0...+40 °C Storage and transport: -25...+80 °C	
	Shor circuit ratings (UL) <sup>1)</sup>	Control Unit (UC): refer to the user's manual Current Measuring Unit (UMC/UMCT): refer to the user's manual	
	Tripping class (UL)	Control Unit (UC): classes 10/20/30 Current Measuring Unit (UMC/UMCT): classes 10/20/30	
Control Unit (UC)	Rated insulation voltage $U_i$	300 V	
	Rated supply voltage $U^s$	110 - 240 V ac/V dc @ 50/60 Hz	24 V ac/V dc @ 50/60 Hz
	Operation range	$0.85 U_s - 1.10 U_s$	$0.85 U_s - 1.10 U_s$
	Consumption (typical) <sup>2)</sup>	6 W	5 W
	Number of digital inputs	4 optically isolated inputs (24 V dc or 110 V ac) 6 optically isolated inputs (24 V dc) for the Ethernet model	
	Digital input power supply	24 V dc	110 V ac
	Digital input power source	Internal 24 V dc isolated power source or external	External 110 V ac power source
	Digital input current	11 mA @ 24 V dc 6 mA @ 24 V dc (Ethernet)	5 mA @ 110 V ac
	Digital input isolation	3 kV	
	Number of digital outputs	4 relay outputs	
	Contact grouping	2 SPST outputs 2 common shared SPST outputs	
	Maximum operation voltage	250 V dc, 240 V ac	
	Smallest operation power	1 W or 1 VA	
	Switching capacity per relay contact	UL 508: C300 Pilot Duty AC-15 (IEC 60947-5-1): 1.5 A AC / 120 V ac 0.75 A AC / 240 V ac DC-13 (IEC 60947-5-1): 0.22 A DC / 125 V dc 0.1 A DC / 250 V dc	
	Contacts capacity (resistive load)	2.5 A, 30 V dc / 250 V ac	
	External protection against short circuit	6 A gL/gG fuse	
	Motor protection via PTC	TRIP value: >3.4 kΩ; Reset value <1.6 kΩ	
	Terminals (connectors)	Torque: 0.5 Nm - 4.5 lb.in Conductor section: - Solid and bare: 1 x (0.2 - 2.5 mm <sup>2</sup> ); 1 x (26 - 12 AWG) - Flexible with/without terminals: 1 x (0.2 - 2.5 mm <sup>2</sup> ); 1 x (26 - 12 AWG) Screws: M3	
	Reset button	Error or fault reset - system TRIP or alarm reset - protections TRIP test	

Notes: 1) See the user's manual.

2) Considering the consumption of the Control Unit (UC) and of the Current Measuring Unit (UMC).



## Technical Data

Current Measurement Unit (UMC)	Current range	0.25 to 840 A AC	
	Insulation degree U <sup>i</sup>	690 V ac	
	Rated operating voltage U <sub>e</sub>	IEC 60947-4-1: 690 V ac UL 508: 600 V ac	
	Impulse voltage U <sub>imp</sub>	6 kV	
	Frequency range	50/60 Hz	
	Application	Single-phase and three-phase	
	Cable hole diameter	UMC 1, 2 and 3: 8 mm UMC 4: 15 mm UMC 5: busbar UMC 6: 32 mm or busbar	
Current and Voltage Measuring Unit (UMCT)	Current range	0.25 - 840 A AC	
	Voltage range	35 - 690 V ac	
	Insulation degree U <sub>i</sub>	690 V ac	
	Rated operating voltage U <sub>e</sub>	IEC 60947-4-1: 690 V ac UL 508: 600 V ac	
	Impulse voltage U <sub>imp</sub>	6 kV	
	Frequency range	50/60 Hz	
	Application	Single-phase and three-phase	
	Cable hole diameter	UMCT 1, 2 and 3: 8 mm UMCT 4: 15 mm UMCT 5: busbar UMCT 6: 32 mm or busbar	
Terminals (connectors)	Torque: 0.5 Nm - 4.5 lb.in Conductor section: - Solid and bare: 1 x (0.2 - 2.5 mm <sup>2</sup> ); 1 x (26 - 12 AWG) - Flexible with/without terminals: 1 x (0.2 - 2.5 mm <sup>2</sup> ); 1 x (26 - 12 AWG) Screws: M3		
Digital Expansion Unit (EDU)	Rated insulation voltage U <sub>i</sub>	300 V	
	Number of digital inputs	6 optically isolated inputs (24 V dc or 110 V ac)	
	Digital input power source	24 V dc	110 V ac
	Digital input power source	External 24 V dc power source	External 110 V ac power source
	Digital input current	11 mA @ 24 V dc	5 mA @ 110 V ac
	Digital input isolation	3 kV	
	Number of digital outputs	4 relay outputs	
	Contact grouping	4 SPST outputs	
	Maximum operation voltage	250 V dc, 240 V ac	
	Smallest operation power	1 W or 1 VA	
	Switching capacity per relay contact	UL 508: Pilot Duty C300 AC-15 (IEC 60947-5-1): 1.5 A AC / 120 V ac 0.75 A AC / 240 V ac DC-13 (IEC 60947-5-1): 0.22 A DC / 125 V dc 0.1 A DC / 250 V dc	
	Contacts capacity (resistive load)	2.5 A, 30 V dc / 250 V ac	
	External protection against short circuit	6 A gL/gG fuse	
Terminals (connectors)	Torque: 0.5 Nm - 4.5 lb.in Conductor section: - Solid and bare: 1 x (0.2 - 2.5 mm <sup>2</sup> ); 1 x (26 - 12 AWG) - Flexible with/without terminals: 1 x (0.2 - 2.5 mm <sup>2</sup> ); 1 x (26 - 12 AWG) Screws: M3		
Earth Leakage Sensor (ELS)	Current range	0.3 - 5 A AC	
	Insulation degree U <sub>i</sub>	690 V ac	
	Rated operating voltage U <sub>e</sub>	IEC 60947-4-1: 690 V ac UL 508: 600 V ac	
	Impulse voltage U <sub>imp</sub>	6 kV	
	Frequency range	50/60 Hz	
	Application	Single-phase and three-phase	
	Window internal diameter	EL1: 35 mm EL2: 70 mm EL3: 120 mm EL4: 210 mm	
	Terminals (connectors)	Torque: 0.29 Nm - 2.6 lb.in Maximum conductor section: - Solid and bare: 1 x (0.2 - 2.5 mm <sup>2</sup> ); 1 x (22 - 14 AWG) - Flexible with/without terminals: 1 x (0.2 - 1.5 mm <sup>2</sup> ); 1 x (22 - 14 AWG) Screws: M3	

A

B

C

D

E

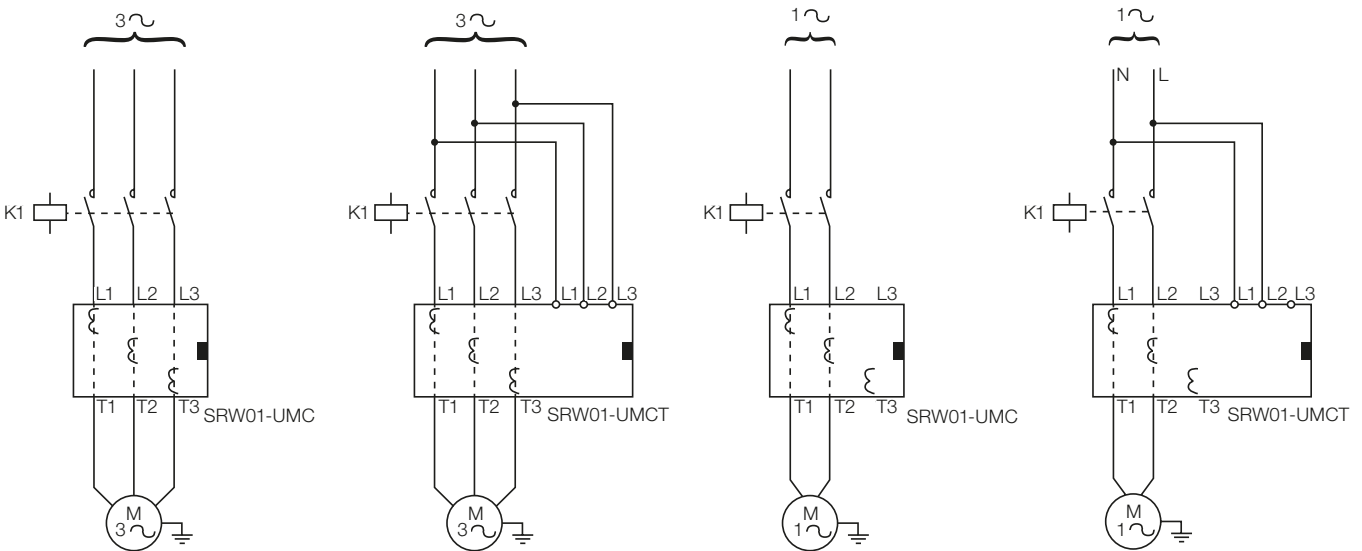
F

G

H

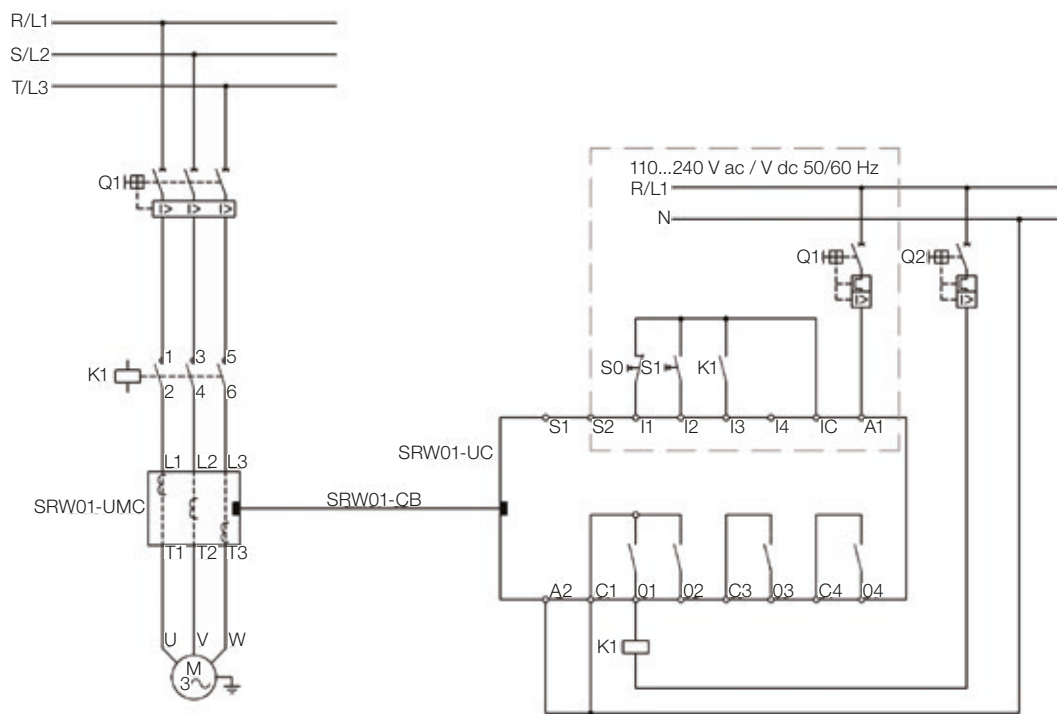
# Wiring Diagram

## Power Cables



Note: three-phase and single-phase connection of the Current Measurement Unit (UMC) and Current and Voltage Measurement Unit (UMCT).

## Direct Starter Operating Mode

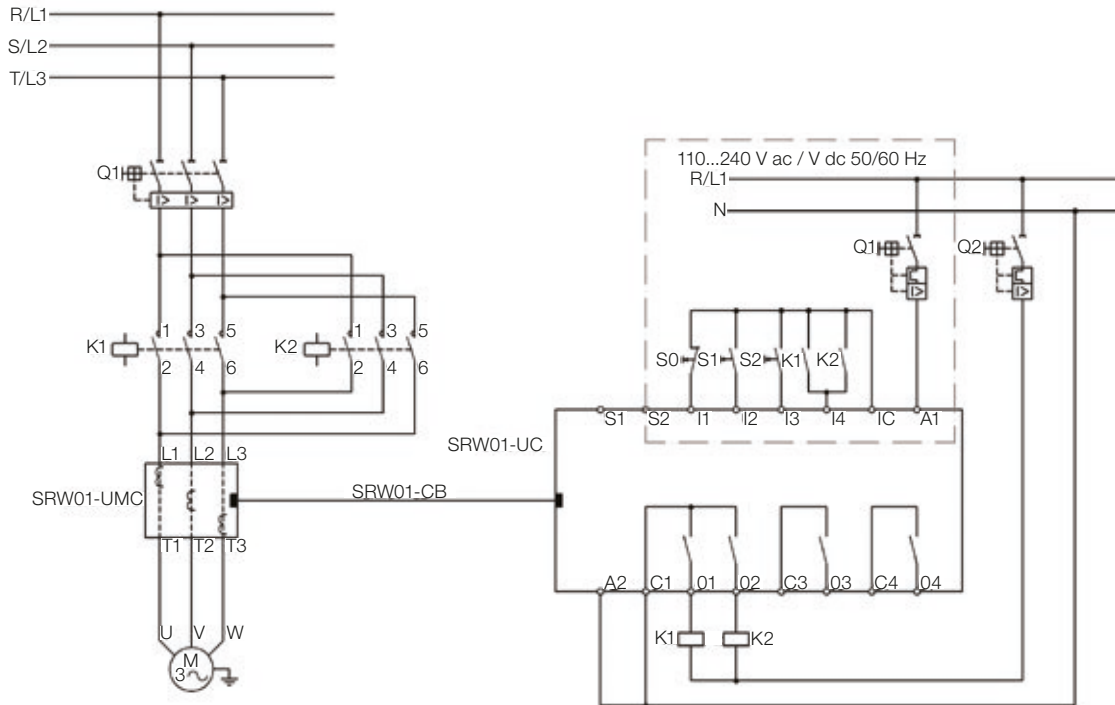


Notes: - Connection diagram for the direct starter operating mode using digital inputs at 24 V dc and activation by pushbuttons (P230 = 1).  
 - For further details, refer to the user's manual of the SRW01.



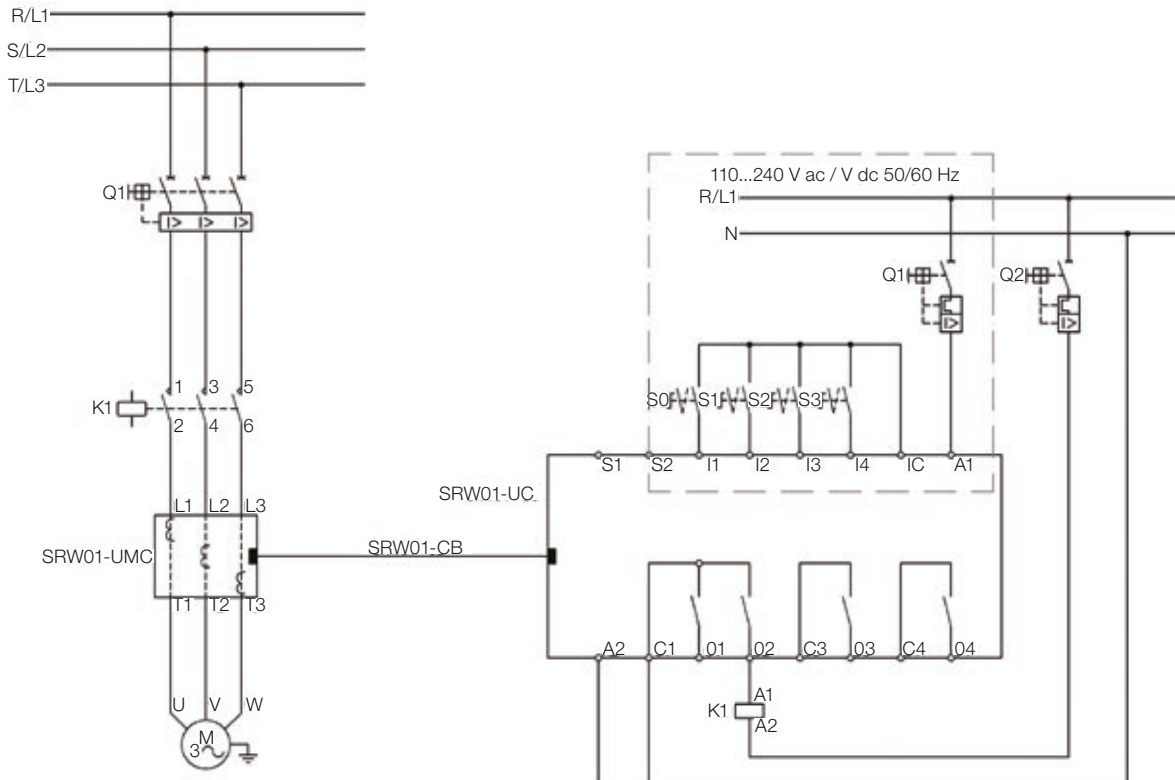
# Wiring Diagram

## Reversing Starter Operating Mode



Notes: - Connection diagram for the reversing starter operating mode using digital inputs at 24 V dc and activation by pushbuttons (P230 = 1).  
 - For further details, refer to the user's manual of the SRW01.

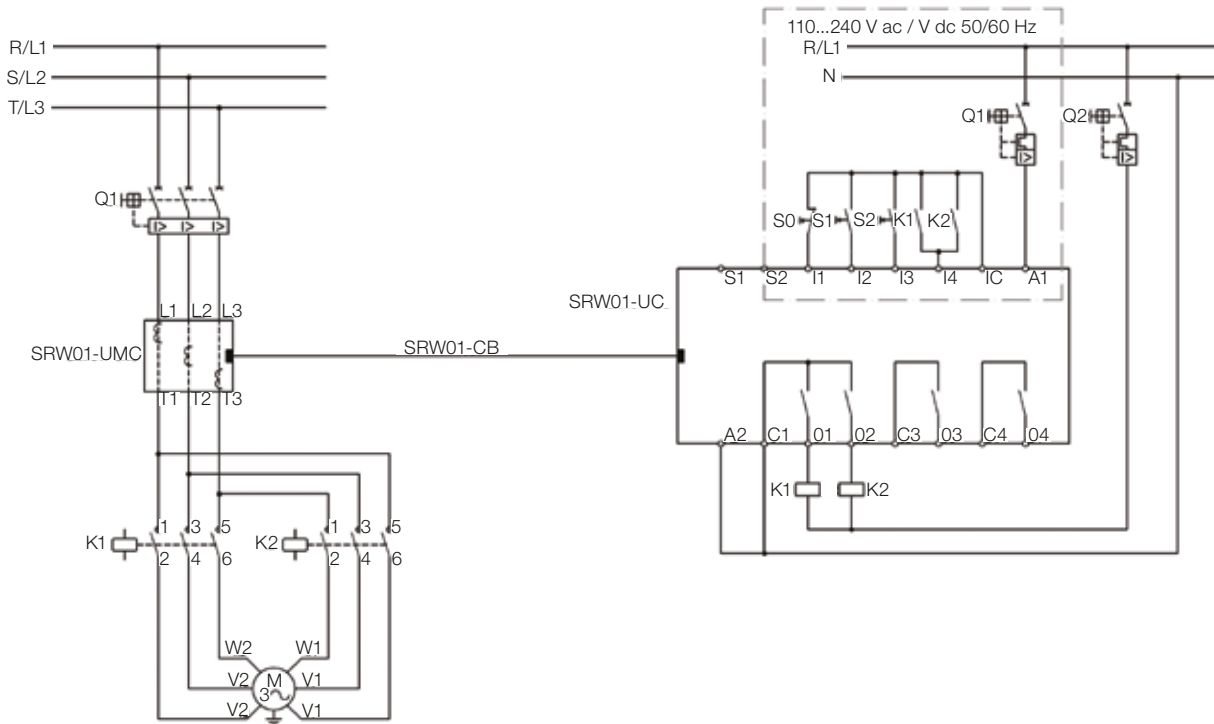
## Overload Relay Operating Mode



Notes: - Wiring diagram for the overload relay operating mode using digital inputs at 24 V dc.  
 - For further details, refer to the user's manual of the SRW01.

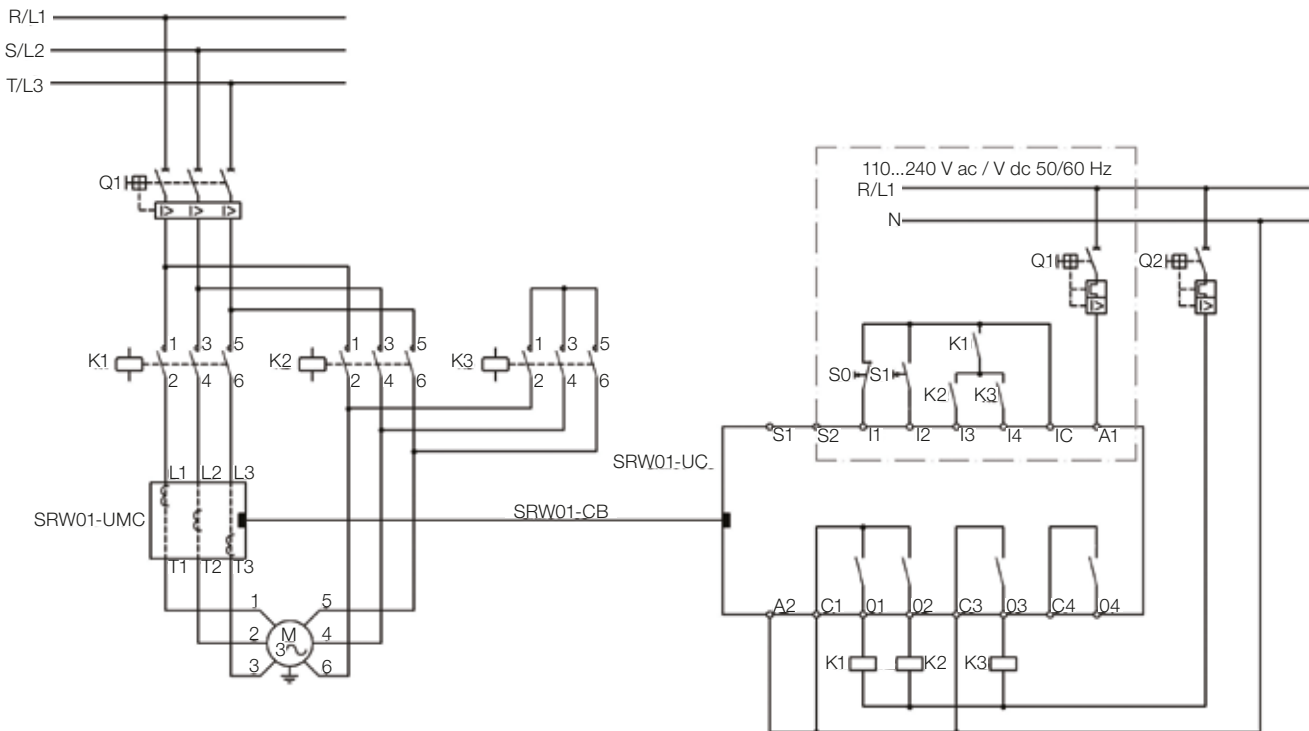
# Wiring Diagram

## Two Winding Starter Operating Mode



Notes: - Connection diagram for the two winding starter operating mode using digital inputs at 24 V dc and activation by pushbuttons (P230 = 1).  
 - For further details, refer to the user's manual of the SRW01.

## Star-Delta Starter Operating Mode

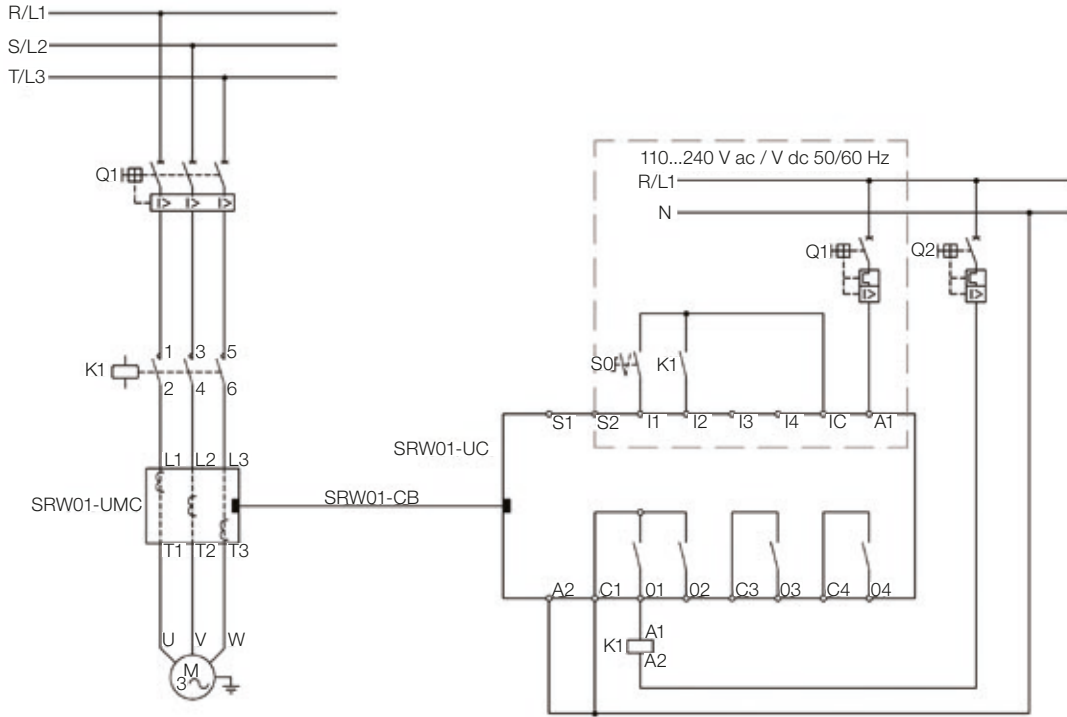


Notes: - Connection diagram for the star-delta starter operating mode using digital inputs at 24 V dc and activation by pushbuttons (P230 = 1) and current measurement in delta.  
 - For further details, refer to the user's manual of the SRW01.

# Wiring Diagram

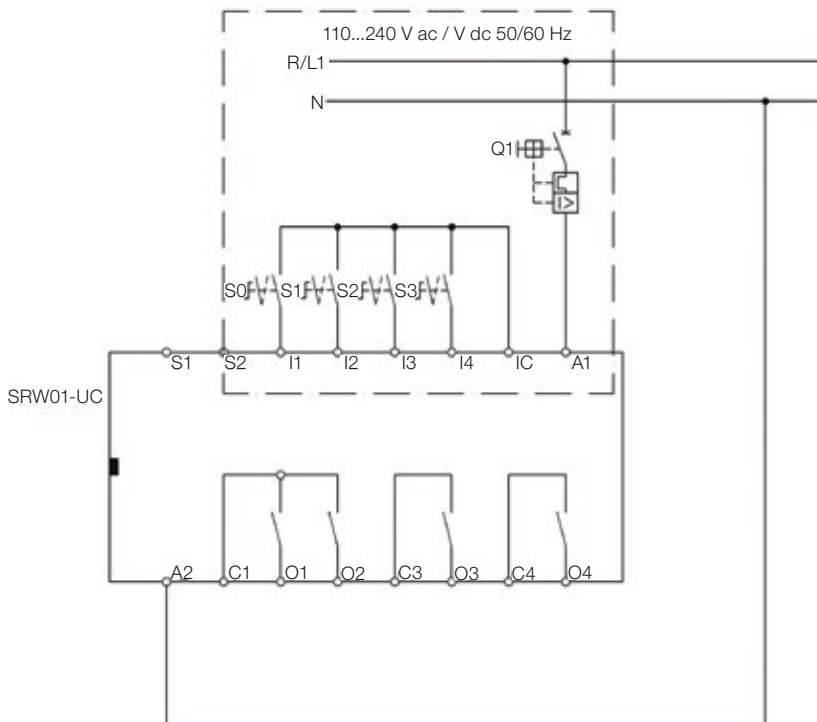
## Transparent Operating Mode

It allows the users to develop their application using ladder language through the free WLP software.



Notes: - Wiring diagram for the transparent operating mode using digital inputs at 24 V dc.  
 - For further details, refer to the user's manual of the SRW01.

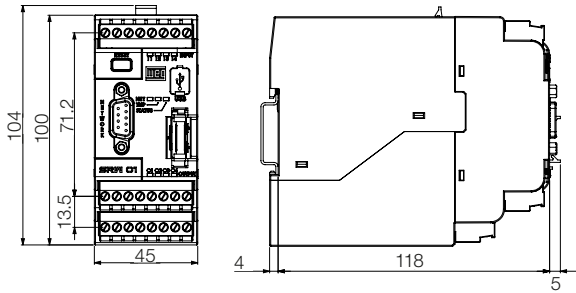
## PLC Operating Mode



Notes: - Wiring diagram for the PLC operating mode using digital inputs at 24 V dc.  
 - For further details, refer to the user's manual of the SRW01.

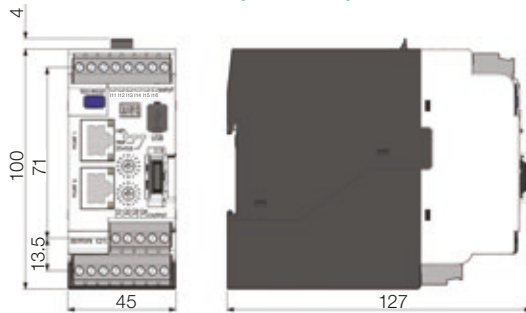
## Dimensions

### Control Unit - UC



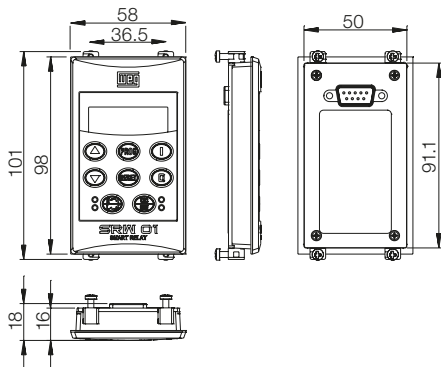
SRW01-UC

### Control Unit - UC (Ethernet)

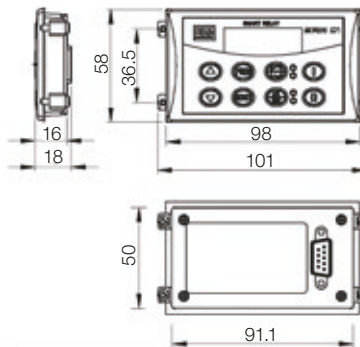


Control Unit - UC (mm)

### Human Machine Interface - HMI

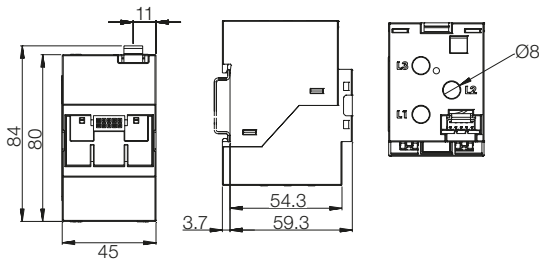


SRW01-HMI

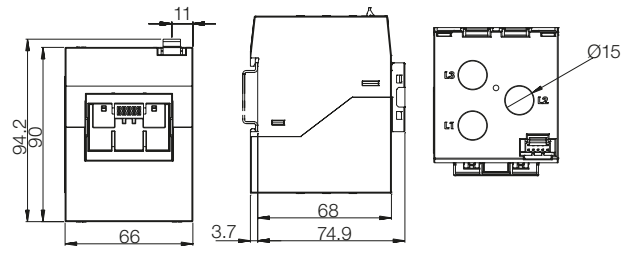


SRW01-HMI2

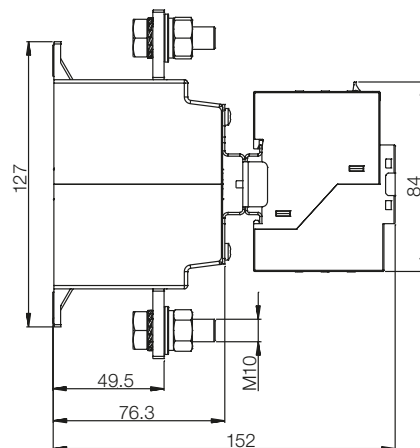
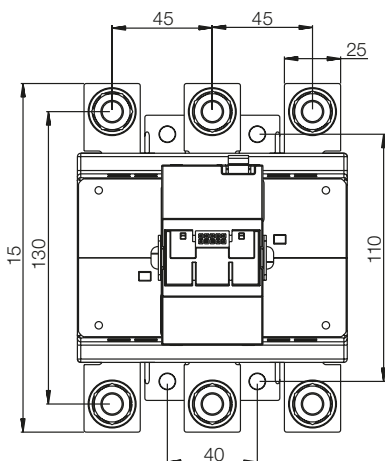
### Current Measurement Unit - UMC



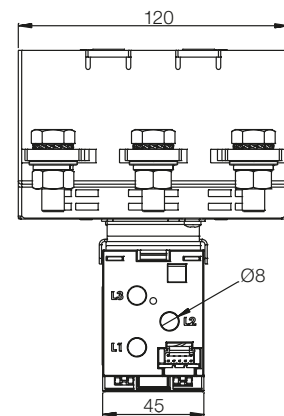
SRW01-UMC1/UMC2/UMC3



SRW01-UMC4



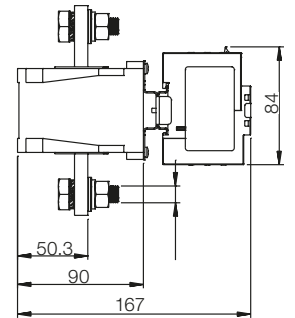
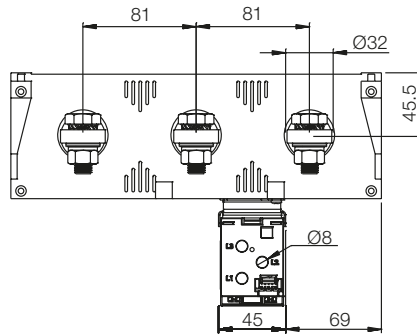
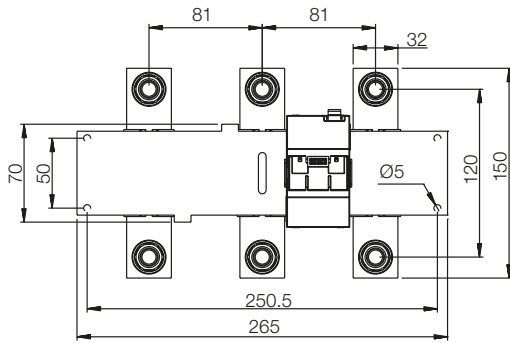
SRW01-UMC5



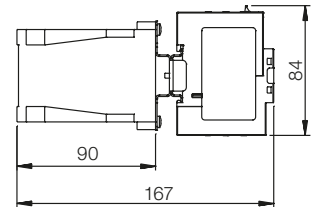
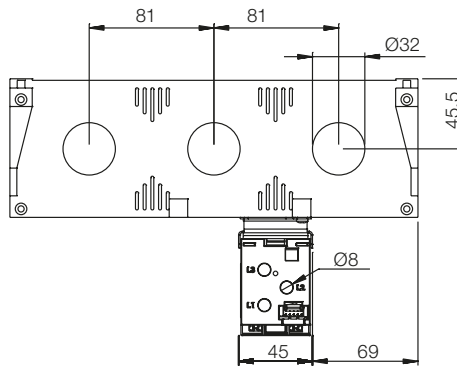
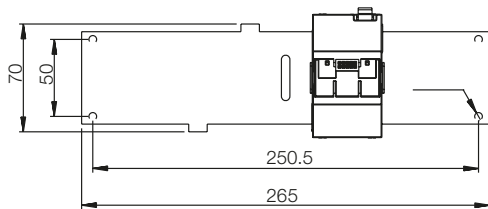


# Dimensions

## Current Measurement Unit - UMC

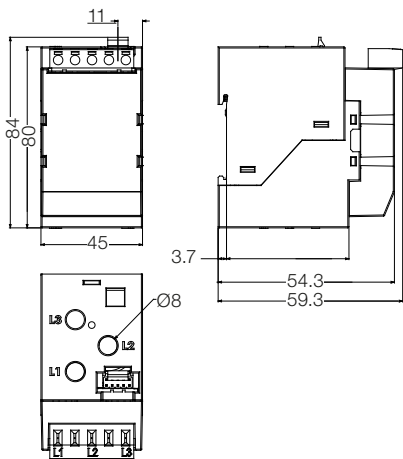


SRW01-UMC6  
(with busbar)



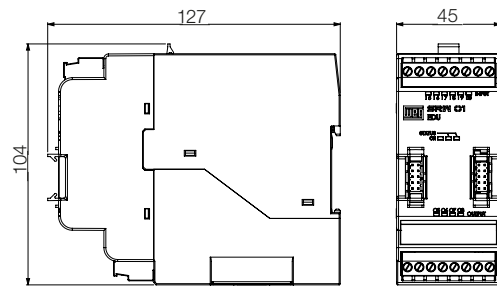
SRW01-UMC6  
(without busbar)

## Current and Voltage Measuring Unit - UMCT



SRW01-UMCT1/UMCT2/UMCT3

## Digital Expansion Unit - EDU



SRW01-EDU



A

B

C

D

E

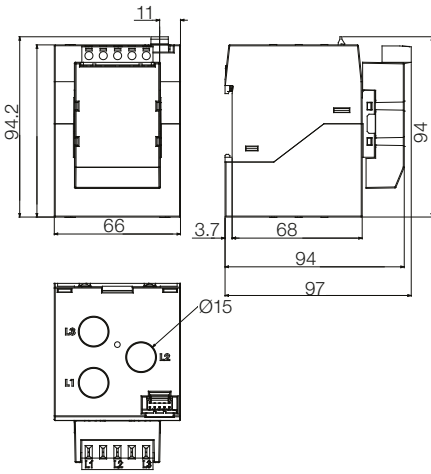
F

G

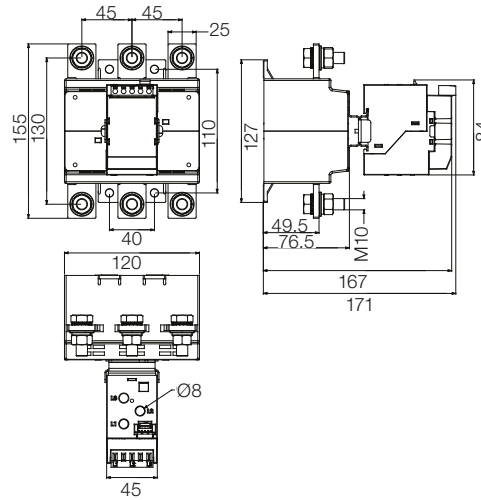
H

## Dimensions

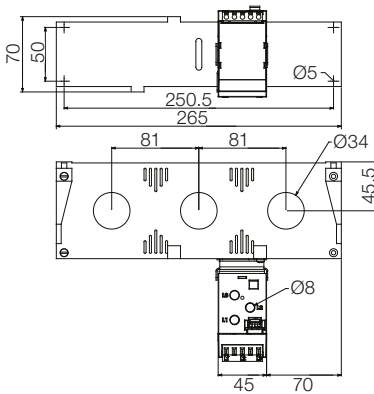
### Current and Voltage Measuring Unit - UMCT



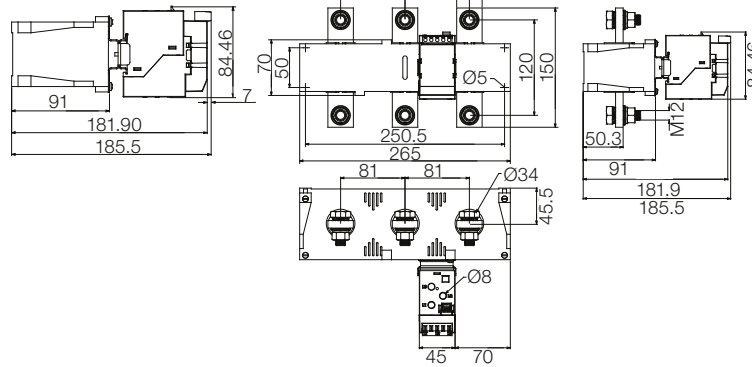
SRW01-UMCT4



SRW01-UMCT5

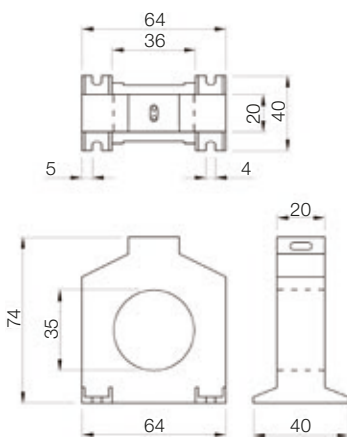


SRW01-UMCT6  
(without busbar)

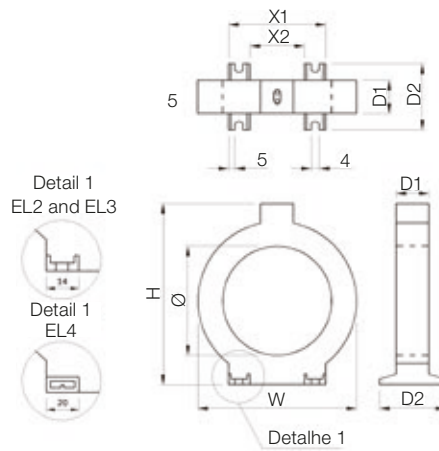


SRW01-UMCT6  
(with busbar)

### Earth Leakage Sensor (ELS)



SRW01-EL1



SRW01-EL2 / EL3 / EL4

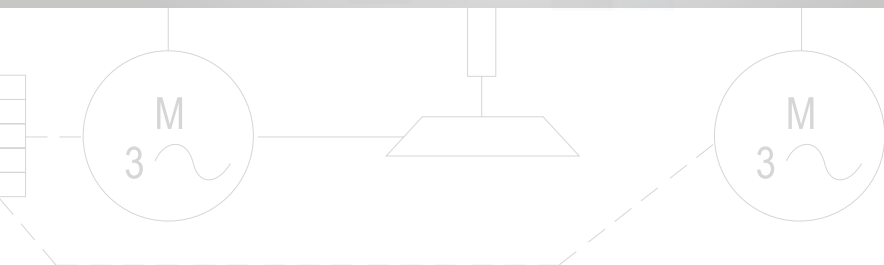
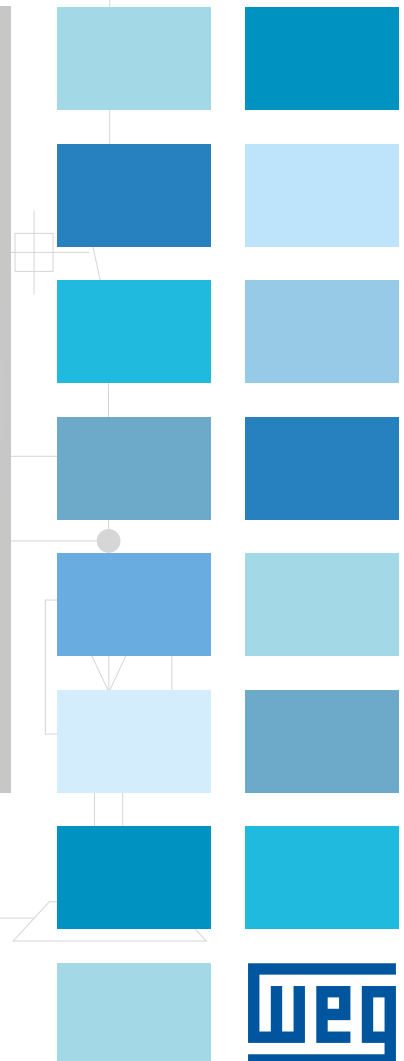
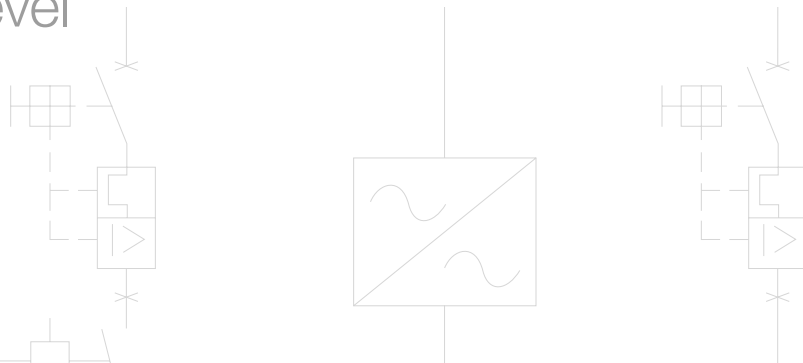
Model	Ø	H	W	X1	X2	D1	D2
EL2	70	116	104	64	36	20	40
EL3	120	169	154	94	66	20	40
EL4	210	304	290	150	110	33	90 <sup>1)</sup>

Note: 1) With base metallic support.

# Automation

## Electronic Relays

- Timing
- Monitoring
- Level



**weg** ERWT-MF1

Function  
U/T   
R1   
R2 




  
T  
10m 100m  
100s 10h  
10s 100h  
1s 10d

0,4 0,6  
0,2 0,8  
x 0,1 1,0

U=24...240V $\approx$

$\pm$ A1  $\approx$ A2 B1

**weg** ERWT-MF1

Function  
U/T   
R1   
R2 




  
T  
10m 100m  
100s 10h  
10s 100h  
1s 10d


0,4 0,6  
0,2 0,8  
x 0,1 1,0

U=24...240V $\approx$

$\pm$ A1  $\approx$ A2 B1

**weg** ERWT-MF1

Function  
U/T   
R1   
R2 

  
T  
10m 100m  
100s 10h  
10s 100h  
1s 10d

0,4 0,6  
0,2 0,8  
x 0,1 1,0

U=24...240V $\approx$

16 18 5

15 16 18 5

15 16 18

# Electronic Relays

## Summary

Introduction	F-04
Timing Relays	F-06
Selection	F-06
Time Range Adjustment	F-07
Functions	F-08
Wiring Diagrams	F-11
Specifications	F-12
Technical Data	F-17
Dimensions (mm)	F-19
Voltage Monitors	F-20
RPW-FF - Phase Loss Function	F-20
RPW-SF - Phase Sequence Function	F-21
RPW-FSF - Phase Loss and Phase Sequence Function	F-22
RPW-SS - Undervoltage and Overvoltage Function	F-23
RPW-PTC - Temperature Variation Monitoring via PTC Function	F-24
ERWM-VM1 / VM2	F-25
Functions	F-26
Technical Data	F-27
Dimensions (mm)	F-28
Level Relay	F-29
Applications	F-29
Operating Modes	F-29
Selection	F-30
Specification	F-30
Accessories	F-30
Installation	F-31
Application Example	F-31
Operation	F-32
Sensitivity Adjustment	F-32
Technical Data	F-33
Dimensions (mm)	F-34



# ELECTRONIC RELAYS

The Electronic Relays were designed according to international standards, being a compact solution for industrial, commercial and residential applications.

## Characteristics

- LEDs for status indication
- Simple configuration and operation
- Adjustments via dial
- High-reliability contacts
- Excellent precision and repeatability
- 22.5 mm compact housing
- Direct mounting on DIN rail or fixed with screws and PLMP accessory

## Timing Relays

- RTW - Wide range of functions, timing options and voltages
- RTW-MAT / MBT - Multiple timing with time setting from 0.1s to 150h and a wide voltage range 24-240 V ac/dc (50/60 Hz)
- ERWT-MF1 / MF2 - Multifunction with eight configurable functions, multiple timing with setting from 0.1s to 10 days and a voltage range of 24-240 V ac/dc (50/60 Hz)
- Models with 1 or 2 NOC outputs

## Monitoring

### RPW - Single Function Models

- SF - Phase sequence
- FF - Phase loss
- FSF - Phase sequence and phase loss
- SS - Undervoltage and overvoltage
- PTC - Overheating
- Wide supply voltage range

### ERWT - Multifunction Models

- ERWT-VM1 / VM2 - Up to 6 monitoring functions
- Supply voltage from 208 to 480 V ac
- 01 relay output with reversible contact

## Level

- Monitoring and automatic level adjustment of electric current liquid conductors
- Filling (EN) and draining (ES) function
- Sensitivity adjustment by means of dials
- 2 electrode types (accessories)



**COMPACT**



**HIGH  
RELIABILITY**



**EASY  
INSTALLATION**

**Standards** IEC / EN 1812-1  
IEC / EN 60947-1  
IEC / EN 60947-5-1  
UL 508 CAN/CSA C22.2

**Certifications**



# TIMING RELAYS



Electronic devices that allow switching an output signal according to the timing range function and selected time. Designed according to international standards, they are available in 22.5 mm wide housings and can be mounted on DIN rails 35 mm or fixed with screws (PLMP accessory required) - available with one or two NOC outputs. They can be used in various types of industrial applications, such as electric motor starters, control panels, industrial furnaces and die casting machines. They can also be used in residential and commercial applications.

## Selection

ERWT - MF1 02 - MT1 - E05

RTW	Single or multiple timing relay
ERWT	Multifunction timing relay

Selection of the function	
RE	Delay and impulse
PE	Impulse ON
CI	Flasher 2 settings, start ON <sup>1)</sup>
CIR	Flasher 2 settings, start OFF <sup>1)</sup>
CIL	Flasher 1 setting, start ON
CID	Flasher 1 setting, start OFF
RD	OFF-delay with control signal
RDI	OFF-delay <sup>1)</sup>
ET	Star-delta <sup>2)</sup>
<b>MF1</b>	<b>8 configurable functions<sup>3)</sup></b>
A	ON-delay
Ba	ON-delay with control signal
Ca	ON-delay and OFF-delay with control signal
Da	Symmetric flasher, start ON
Db	Asymmetric flasher, start OFF
E	Impulse ON with control signal
G	Star-delta
<b>MF2</b>	<b>8 configurable functions<sup>3)</sup></b>
Dc	Asymmetric flasher, start ON
Dd	Asymmetric flasher, start OFF
De	Percentage flasher, start ON
Df	Percentage flasher, start OFF
Dg	Flasher for motor reversing
Cb	ON-delay and OFF-delay with control signal and independent settings
Ia	Delayed adjustable-length pulse
J	Bistable

Power supply selection		
Alternating (50/60 Hz) / Direct		
Code	Description	Applicable RTW
E26	24 V ac / 24 V dc	RE, PE, CI, CIR, CIL, CID, ET
E33	48 V ac / 24 V dc	RE, PE, CI, CIR, CIL, CID, ET
E37	110-130 V ac / 24 V dc	RE, PE, CI, CIR, CIL, CID, ET
E40	220-240 V ac / 24 V dc	RE, PE, CI, CIR, CIL, CID, ET
E05 <sup>9)</sup>	24-240 V ac / 24-240 V dc	RE, PE, CI, CIR, CIL, CID, ET, RD, RDI
Alternating current (50/60 Hz)		
Code	Description	Applicable RTW <sup>10)</sup>
D02	24 V ac	RD
D07	48 V ac	RD
D61	110-130 V ac	RD
D66	220-240 V ac	RD
D71	380-440 V ac	RE, PE, ET
Continuous voltage		
Code	Description	Applicable RTW
C03	24 V dc	RD

Timing		
U001S		0.1 - 1s <sup>5)</sup>
U003S		0.3 - 3s
U010S		1 - 10s
U030S		3 - 30s
U060S		6 - 60s
U100S		10 - 100s
U300S		30 - 300s
U010M		1 - 10min <sup>6)</sup>
U030M		3 - 30min <sup>6)</sup>
MAT		0.1s - 10min <sup>7)</sup>
MBT		0.2s - 150h <sup>7)</sup>
MT1		0.1s - 10 dias <sup>8)</sup>

Number of output contacts	
01	1 NOC contact <sup>4)</sup>
02	2 NOC contacts

- Notes: 1) Not available for multiple timing relays (RTW-M);  
 2) For single timing RTW-ET relays, only the 3 - 30 s timing range selection is available (U030S).  
 For multiple timing RTW-ET relays, only the 0.1s - 10min timing selection is available (MAT);  
 3) MF1 and MF2 available only for ERWT multifunction relays;  
 4) Not available for the star-delta relays (RTW-ET) and multifunction relays (ERWT-MF1, MF2);  
 5) Timing range U001S (0.1 - 1s) not available for the RTW-CI, CIR, RD and RDI relays;  
 6) Timing range U010M (60 - 600s) and U030M available only for the RTW-RDI relays;  
 7) Timing ranges MAT/MBT available only for the RTW-RE, PE, RD, CIL, CID or ET relays;  
 8) Timing range MT1 available only for ERWT-MF1 and MF multifunction relays;  
 9) For all single timing relays: RTW-CI, CIR and RDI.  
 For the multiple timing relays (MAT/MBT): RE, PE, CI, CIL, CIR, CID, RD and ET.  
 For multifunction relays: MF1 and MF2;  
 10) Only single timing relays.

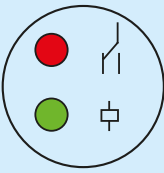
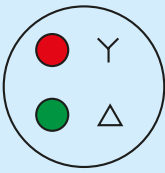
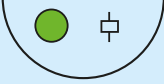

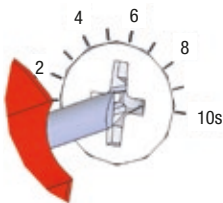


# Time Range Adjustment

## Single Timing

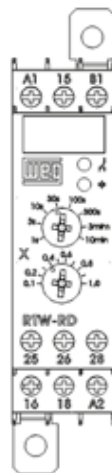


Example: RTW-ET

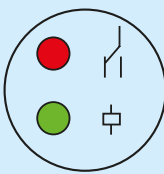
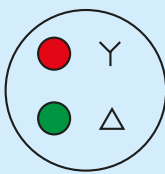
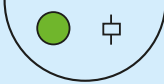

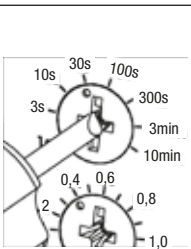
	RTW - RE / PE / CI / CIR / CIL / CID / RD			RTW - ET	
Red LED	Output ON		Time Y		
Green LED	Supply voltage		Time Δ		
	RE / PE / CIL / CID	RD / CI / CIR	RDI	ET	
	0.1 - 1s <sup>1)</sup>	0.3 - 3s	0.3 - 3s	3 - 30s	
	0.3 - 3s	1 - 10s	1 - 10s		
	1 - 10s	3 - 30s	3 - 30s		
	3 - 30s	6 - 60s	6 - 60s		
	6 - 60s	10 - 100s	10 - 100		
	10 - 100s	30 - 300s	30 - 300s		
	30 - 300s	3 - 30min	1 - 10min		
	3 - 30min	-	-		

Note: 1) Not available in the version with supply voltage of 380-440 V ac.

## Multiple Timing



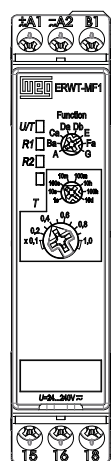
Example: RTW-RD

	RTW - RE / PE / CI / CIR / CIL / CID / RD			RTW - ET	
Red LED	Output ON		Time Y		
Green LED	Supply voltage		Time Δ		
	RE / PE / CID / CIL / RD	ET			
	0.1s - 10min	0.1s - 10min			
	0.2s - 150h				



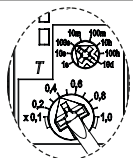
The RTW multiple timing relay has two adjustments via dials that must be combined to define the desired timing. First you should select the time range in the upper dial and then the multiplier in the lower dial; thus the result of the multiplication of the selected values will be the time to be counted.

Notes: The RTW with multiple timing function must be reset at each new time range adjustment. Changing the time range during the timing will have no effect.

## Multifunction



Example: ERWT-MF1

	ERWT-MF1 / MF2	
Red LED	Output ON	
Green LED	Supply voltage	
		U/T
		R1
	0.1s - 10 days	

The ERWT multifunction relay has dials, enabling the adjustment of the desired MF1 or MF2 function and the timing range (0.1s - 10 days).

See the content of the MF1 and MF2 function in the specification table.

Notes: The function must be selected before energizing the timing relay; changes in operation will have no effect. Changes made to the time configuration during the timing will be effected.

## Functions

### Single Timing (RTW) or Multiple Timing (RTW-MAT/MBT) Relays

Operating mode	Timing diagram
<p><b>RTW RE (ON-delay)</b> – After the relay is energized, the time (T) set on the dial begins. After the end of the delay time, the output contacts switch on and remain energized until the supply voltage is removed.</p>	
<p><b>RTW PE (impulse ON)</b> – After the relay is energized, the output contacts switch on without delay and remain energized for the time (T) set on the dial.</p>	
<p><b>RTW RD (OFF-delay)</b> – With the relay energized, the output contacts switch on without delay when the command contact is energized. When the control supply voltage is removed, the output contacts return to their original condition after the time (T), set on the dial, elapses.</p>	
<p><b>RTW RDI (OFF-delay with no control)</b> – After the relay is energized, the output contacts switch on without delay. If the supply voltage is removed, the selected time delay begins, and, when such is completed, the output contacts switch OFF.</p>	
<p><b>RTW CI (flasher 2 adjustments start ON)</b> – After the relay is energized, the output contacts switch ON and OFF in cycles with the first cycle ON. The upper dial sets the time (T<sub>ON</sub>) the contacts remain energized, while the lower dial selects the time (T<sub>OFF</sub>) the contacts remain de-energized.</p>	
<p><b>RTW CIR (flasher 2 adjustments start OFF)</b> – After the relay is energized, the output contacts switch ON and OFF in cycles with the first cycle OFF. The upper dial sets the time (T<sub>ON</sub>) the contacts remain energized, while the lower dial (T<sub>OFF</sub>) selects the time the contacts remain de-energized.</p>	
<p><b>RTW CIL (flasher 1 adjustment ON)</b> – After the relay is energized, the output contacts switch ON and OFF in cycles with the first cycle ON. A single selection determines the relay ON and OFF time.</p>	
<p><b>RTW CID (flasher 1 adjustment OFF)</b> – After the relay is energized, the output contacts remain OFF. After the time selected on the dial elapses, the contacts switch on, such behavior will continue in cycles. A single selection determines the relay ON and OFF time.</p>	
<p><b>RTW ET (star-delta)</b> – After the relay is energized, the star output contacts switch on without delay and remain energized for the time (T) set on the dial. After the fixed time t<sub>m</sub>, the delta terminals switch on and will remain energized until the supply voltage is disconnected.</p>	

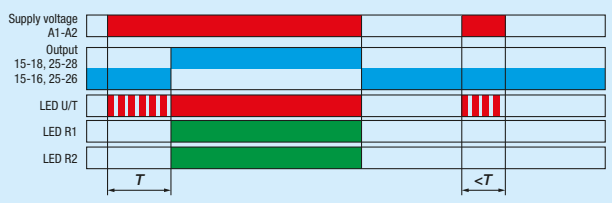
# Functions

## Multifunction Models (ERWT-MF1)

**Operating mode**

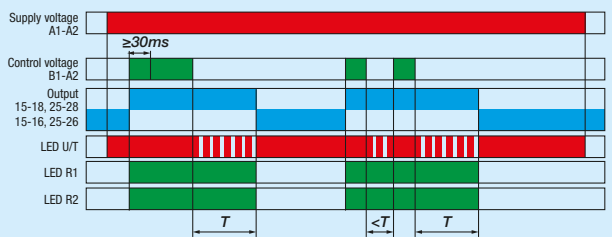
**A (ON-delay) –** Timing begins when the supply voltage is applied. When the time delay (T) is completed, the output relay is energized. If the supply voltage is interrupted, the output relay is de-energized in case it is energized (after the time delay). If the relay supply voltage is interrupted before the time is completed, the time delay is reset and the output relay won't be energized. This function requires the continuous application of supply voltage.

**Timing diagram**



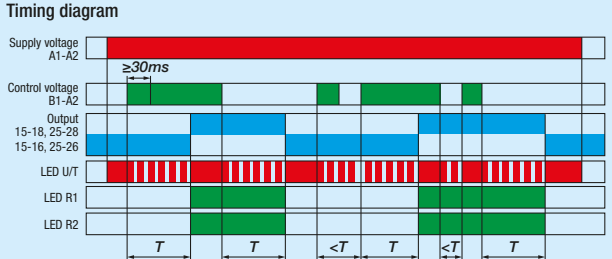
**Ba (OFF-delay with control signal) –** Timing begins when the supply voltage is applied. When the selected time delay (T) is completed the output relay is de-energized. If the supply voltage is interrupted, the output relay is de-energized in case it is energized (after the time delay). If the relay supply voltage is interrupted before the time is completed, the time delay is reset and the output relay won't be energized. This function requires the continuous application of supply voltage.

**Timing diagram**




**Ca (ON and OFF-delay with control signal) –** Timing begins when the supply voltage is applied. When the selected time delay (T) is completed, the output relay is energized and/or de-energized, depending on the current situation. If the supply voltage is interrupted, the output relay is de-energized in case it is energized (after the time delay). If the relay supply voltage is interrupted before the time is completed, the time delay is reset and the output relay won't be energized. This function requires the continuous application of supply voltage.

**Timing diagram**



**Da (symmetric flasher, start ON) –** Applying the supply voltage, timing begins with times given by T1 (output ON) and T2 (output OFF). The cycle starts with the output relay energized. The times of full scale range T1 and T2 are the same. The total cycle is given by T = T1+T2. Interrupting the supply voltage with the output energized resets the time delay and de-energizes the output relay. This function requires the continuous application of supply voltage.

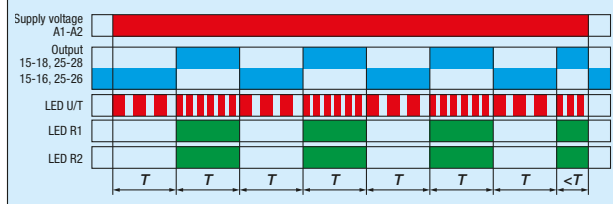
**Timing diagram**



**Operating mode**

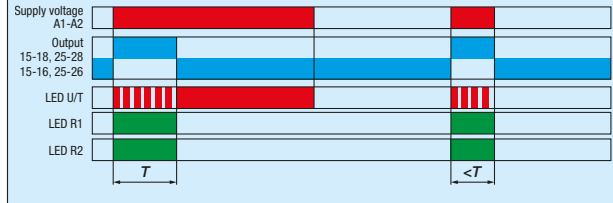
**Db (symmetric flasher, start OFF) –** Applying the supply voltage, timing begins with times given by T1 (output ON) and T2 (output OFF). The cycle starts with the output relay de-energized. The times of full scale range T1 and T2 are the same. The total cycle is given by T = T1+T2. Interrupting the supply voltage with the output energized resets the time delay and de-energizes the output relay. This function requires the continuous application of supply voltage.

**Timing diagram**



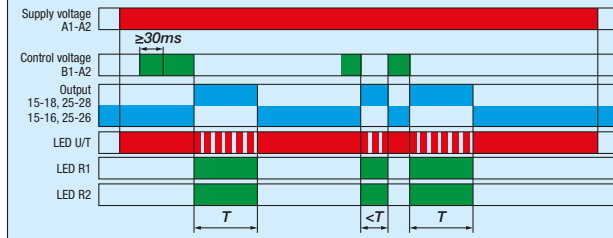
**E (Impulse ON) –** The output relay is immediately energized when the supply voltage is applied and de-energized when the selected time (T) is completed. If the supply voltage is interrupted before the time delay is completed, the relay is de-energized and the time delay is reset. This function requires the continuous application of supply voltage.

**Timing diagram**



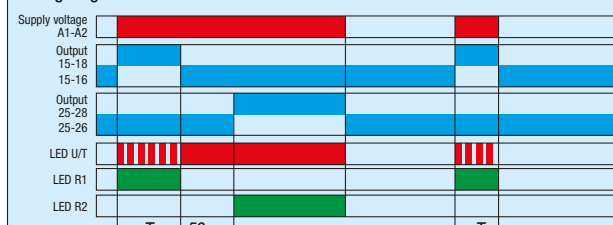
**Fa (Impulse ON with control signal) –** The output relay is energized after the control supply voltage is applied and de-energized when the time delay (T) is completed. If the supply voltage is interrupted before the time delay is completed, the relay is de-energized and the time delay is reset. This function requires the continuous application of supply voltage.

**Timing diagram**



**G (star-delta) –** Applying the supply voltage, the star output relay is energized, and the selected time begins. When the time (T) is completed, the star output relay is de-energized, and the fixed transition time (approximately 100 ms) begins. When the transition time is completed, the delta output relay is energized and remains energized while the relay is supplied. This function requires the continuous application of supply voltage.

**Timing diagram**



A  
B  
C  
D  
E  
F  
F1  
G  
H

# Functions

## Multifunction Models (ERWT-MF2)

**Operating mode**

Cb (ON and OFF-delay with control signal) – Timing begins when the supply voltage is applied. When the selected time delay (T) is completed, the output relay is energized and/or de-energized, depending on the current situation. If the supply voltage is interrupted, the output relay is de-energized in case it is energized (after the time delay). If the relay supply voltage is interrupted before the time is completed, the time delay is reset and the output relay won't be energized. This function requires the continuous application of supply voltage.

**Timing diagram**

Dd (symmetric flasher, start OFF) – Applying the supply voltage, timing begins with times given by T1 (output ON) and T2 (output OFF). The cycle starts with the output relay de-energized. The times of full scale range T1 and T2 are different. The total cycle is given by  $T = T1 + T2$ . Interrupting the supply voltage with the output energized resets the time delay and de-energizes the output relay. This function requires the continuous application of supply voltage.

**Timing diagram**

Df (percentage flasher, start OFF) – Applying the supply voltage, the output relay is cyclically activated for a percentage of the cycle time (T). The time the output remains activated is given by  $t = D.T$ , where D corresponds to the adjustment percentage (0...100%). The cycle starts with the output relay de-energized. If the supply voltage is interrupted before the time delay is completed with the output activated, the relay is de-energized and the time delay is reset. This function requires the continuous application of supply voltage.

**Timing diagram**

Ia (delayed adjustable-length pulse) – The output relay is energized after the time T1 is completed, and it remains activated while time T2 is applied. If the supply voltage is interrupted before the time delay is completed, the relay is de-energized and the time delay is reset, restarting the timing. This function requires the continuous application of supply voltage.

**Timing diagram**

**Operating mode**

Dc (symmetric flasher, start ON) – Applying the supply voltage, timing begins with times given by T1 (output ON) and T2 (output OFF). The cycle starts with the output relay energized. The times of full scale range T1 and T2 are different. If the supply voltage is interrupted before the time delay is completed, the relay is de-energized and the time delay is reset. The total cycle is given by  $T = T1 + T2$ . Interrupting the supply voltage with the output energized resets the time delay and de-energizes the output relay. This function requires the continuous application of supply voltage.

**Timing diagram**

De (percentage flasher, start ON) – Applying the supply voltage, the output relay is cyclically activated for a percentage of the cycle time (T). The time the output remains activated is given by  $t = D.T$ , where D corresponds to the adjustment percentage (0...100%). The cycle starts with the output relay energized. If the supply voltage is interrupted before the time delay is completed with the output activated, the relay is de-energized and the time delay is reset. This function requires the continuous application of supply voltage.

**Timing diagram**

Dg (flasher for motor reversing) – Applying the supply voltage, timing begins with times given by T1 (output ON) and T2 (output OFF), toggling between the R1 and R2 relays each time T1. The cycle begins with the output relay R1 energized and R2 de-energized. The times of full scale range T1 and T2 are different. If the supply voltage is interrupted with the output activated, the output relay R1 is energized, R2 is de-energized, and timing is restarted by T1. This function requires the continuous application of supply voltage.







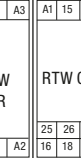
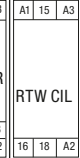






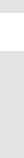
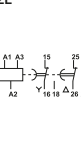
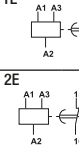

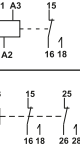

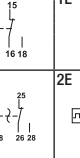


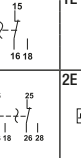
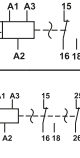
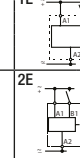
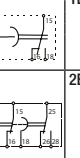
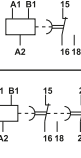

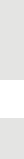
**Timing diagram**

J (bistable) – The relay switches its output contacts between normally open (NO) and normally closed (NC) and vice versa every pulse of the control signal. If the supply voltage is interrupted with the output activated, the output relay is de-energized. This function is not timed. This function requires the continuous application of supply voltage.


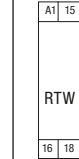
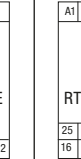

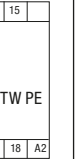
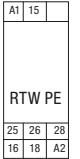
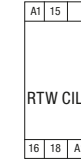


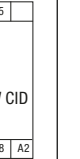
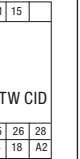
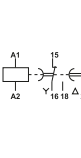
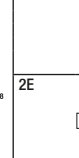
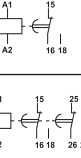

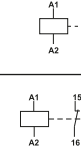
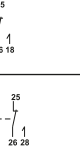
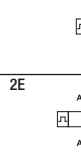
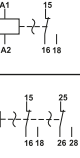

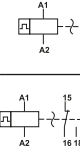
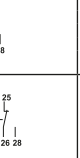
**Timing diagram**

# Wiring Diagram

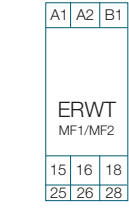
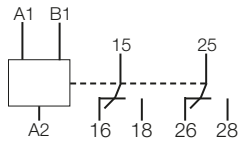
## Single Timing Models

Functions	RTW-ET	RTW-RE		RTW-PE		RTW-CI		RTW-CIR		RTW-CIL		RTW-CID		RTW-RD		RTW-RDI		
	2E	1E	2E	1E	2E	1E	2E	1E	2E	1E	2E	1E	2E	1E	2E	1E	2E	
																		
																		
Terminals	Supply voltage <sup>1)</sup>		Supply voltage <sup>1)</sup>		Supply voltage <sup>1)</sup>		Supply voltage <sup>1)</sup>		Supply voltage <sup>1)</sup>		Supply voltage		Control voltage <sup>2)</sup>		Supply voltage			
	A1 - A2		A3 - A2		A1 - A2		A3 - A2		A1 - A2		A3 - A2		A1(+) - A2(-)		B1(+) - A2(-)		A1 - A2	
	24 V ac		24 V dc		24 V ac		24 V dc		24 V ac		24 V dc		24 V ac		24 V dc		24-240 V ac/V dc	
	48 V ac		24 V dc		48 V ac		24 V dc		48 V ac		24 V dc		24 V ac		24 V dc		-	
	110-130 V ac		24 V dc		110-130 V ac		24 V dc		110-130 V ac		24 V dc		48 V ac		48 V dc		-	
	220-240 V ac		24 V dc		220-240 V ac		24 V dc		220-240 V ac		24 V dc		110-130 V ac		110-130 V dc		-	
380-440 V ac		-		24-240 V ac/V dc		-		-		-		220-240 V ac		220-240 V dc		-		
15 - 16 / 18 - output 1																		
25 - 26 / 28 - output 2																		

## Multifunction Models (MAT / MBT)

Functions	RTW-ET	RTW-RE		RTW-PE		RTW-CIL		RTW-CID		RTW-RD							
	2E	1E	2E	1E	2E	1E	2E	1E	2E	1E	2E						
																	
																	
Terminals	Supply voltage										Supply voltage		Control voltage <sup>1)</sup>				
	A1-A2										A1(+) - A2(-)		B1(+) - A2(-)				
	24-240 V ac/V dc										24-240 V ac/V dc		24-240 V ac/V dc				
	15 - 16 / 18 - output 1																
25 - 26 / 28 - output 2																	

## Multifunction Models ERWT (MF1-MF2)

Functions	ERWT-MF1 / MF2	Supply voltage	Wiring diagram	Control voltage
		A1-A2 24-240 V ac / cc		B1-A2 24-240 V ac / cc
15 - 16 / 18 - output contact 1				
25 - 26 / 28 - output contact 2				

Notes: 1) In models with two supply voltages, only one must be connected;  
2) The same potential must be applied to A1 and B1, polarized.

# Specification

## Single Timing, Voltage and Function Relay

### Function: ON-Delay (RE)

Model	Function	Contacts	Timing	Reference (complete with the supply voltage)
RTW	RE	1NOC	0.1s - 1s	RTW-RE01-U001S-◆
			0.3s - 3s	RTW-RE01-U003S-◆
			1s - 10s	RTW-RE01-U010S-◆
			3s - 30s	RTW-RE01-U030S-◆
			6s - 60s	RTW-RE01-U060S-◆
			10s - 100s	RTW-RE01-U100S-◆
			30s - 300s	RTW-RE01-U300S-◆
		3 - 30min	RTW-RE01-U030M-◆	
		2NOC	0.1s - 1s	RTW-RE02-U001S-◆
			0.3s - 3s	RTW-RE02-U003S-◆
			1s - 10s	RTW-RE02-U010S-◆
			3s - 30s	RTW-RE02-U030S-◆
			6s - 60s	RTW-RE02-U060S-◆
			10s - 100s	RTW-RE02-U100S-◆
30s - 300s	RTW-RE02-U300S-◆			
3 - 30min	RTW-RE02-U030M-◆			



#### Certifications



◆ Supply voltage		
Code	Terminals (V ac=50/60 Hz)	
	A1-A2	A3-A2
E26	24 V ac	24 V dc
E33	48 V ac	24 V dc
E37	110-130 V ac	24 V dc
E40	220-240 V ac	24 V dc
D71 <sup>1)</sup>	380-440 V ac	-

Note: 1) Timing range from 0.1 to 1s not available for this voltage.

### Function: Impulse ON (PE)

Model	Function	Contacts	Timing	Reference (complete with the supply voltage)
RTW	CIR	1NOC	0.1s - 1s	RTW-PE01-U001S-◆
			0.3s - 3s	RTW-PE01-U003S-◆
			1s - 10s	RTW-PE01-U010S-◆
			3s - 30s	RTW-PE01-U030S-◆
			6s - 60s	RTW-PE01-U060S-◆
			10s - 100s	RTW-PE01-U100S-◆
			30s - 300s	RTW-PE01-U300S-◆
		3 - 30min	RTW-PE01-U030M-◆	
		2NOC	0.1s - 1s	RTW-PE02-U001S-◆
			0.3s - 3s	RTW-PE02-U003S-◆
			1s - 10s	RTW-PE02-U010S-◆
			3s - 30s	RTW-PE02-U030S-◆
			6s - 60s	RTW-PE02-U060S-◆
			10s - 100s	RTW-PE02-U100S-◆
30s - 300s	RTW-PE02-U300S-◆			
3 - 30min	RTW-PE02-U030M-◆			



#### Certifications



◆ Supply voltage		
Code	Terminals (V ac=50/60 Hz)	
	A1-A2	A3-A2
E26	24 V ac	24 V dc
E33	48 V ac	24 V dc
E37	110-130 V ac	24 V dc
E40	220-240 V ac	24 V dc

### Function: OFF-Delay with Control Signal (RD)

Model	Function	Contacts	Timing	Reference (complete with the supply voltage)
RTW	RD	1NOC	0.1s - 1s	-
			0.3s - 3s	RTW-RD01-U003S-◆
			1s - 10s	RTW-RD01-U010S-◆
			3s - 30s	RTW-RD01-U030S-◆
			6s - 60s	RTW-RD01-U060S-◆
			10s - 100s	RTW-RD01-U100S-◆
			30s - 300s	RTW-RD01-U300S-◆
		3 - 30min	RTW-RD01-U030M-◆	
		2NOC	0.1s - 1s	-
			0.3s - 3s	RTW-RD02-U003S-◆
			1s - 10s	RTW-RD02-U010S-◆
			3s - 30s	RTW-RD02-U030S-◆
			6s - 60s	RTW-RD02-U060S-◆
			10s - 100s	RTW-RD02-U100S-◆
30s - 300s	RTW-RD02-U300S-◆			
3 - 30min	RTW-RD02-U030M-◆			



#### Certifications



◆ Supply voltage		
Code	Terminals (V ac=50/60 Hz)	
	A1-A2	A3-A2
D02	24 V ac	-
D07	48 V ac	-
D61	110-130 V ac	-
D66	220-240 V ac	-
C03	24 V dc	-

Note: for application in generator sets, frequency inverters with 12-pulse or regenerative rectifiers, electronic power controllers (dimmers or the like) or where a high level of harmonic currents may be present (above the recommendation of IEEE519), we recommend the ERWT, MAT or MBT relay.

# Specification

## Single Timing Relays

### Function: OFF-Delay (RDI)

Model	Function	Contacts	Timing	Reference (complete with the supply voltage)
RTW	RDI	1NOC	0.1s - 1s	-
			0.3s - 3s	RTW-RDI01-U003S-◆
			1s - 10s	RTW-RDI01-U010S-◆
			3s - 30s	RTW-RDI01-U030S-◆
			6s - 60s	RTW-RDI01-U060S-◆
			10s - 100s	RTW-RDI01-U100S-◆
			30s - 300s	RTW-RDI01-U300S-◆
		1 - 10min	RTW-RDI01-U010M-◆	
		2NOC	0.1s - 1s	-
			0.3s - 3s	RTW-RD02-U003S-◆
			1s - 10s	RTW-RD02-U010S-◆
			3s - 30s	RTW-RD02-U030S-◆
			6s - 60s	RTW-RD02-U060S-◆
			10s - 100s	RTW-RD02-U100S-◆
30s - 300s	RTW-RD02-U300S-◆			
1 - 10min	RTW-RD02-U010M-◆			



Certifications



◆ Supply voltage		
Code	Terminals (V ac=50/60 Hz)	
	A1-A2	A3-A2
E05	24-240 V ac / V dc	-

### Function: Flasher with Two Settings and Start ON (CI)

Model	Function	Contacts	Timing	Reference (complete with the supply voltage)
RTW	CI	1NOC	0.1s - 1s	-
			0.3s - 3s	RTW-CI01-U003S-◆
			1s - 10s	RTW-CI01-U010S-◆
			3s - 30s	RTW-CI01-U030S-◆
			6s - 60s	RTW-CI01-U060S-◆
			10s - 100s	RTW-CI01-U100S-◆
			30s - 300s	RTW-CI01-U300S-◆
		3 - 30min	RTW-CI01-U030M-◆	
		2NOC	0.1s - 1s	-
			0.3s - 3s	RTW-CI02-U003S-◆
			1s - 10s	RTW-CI02-U010S-◆
			3s - 30s	RTW-CI02-U030S-◆
			6s - 60s	RTW-CI02-U060S-◆
			10s - 100s	RTW-CI02-U100S-◆
30s - 300s	RTW-CI02-U300S-◆			
3 - 30min	RTW-CI02-U030M-◆			



Certifications



◆ Supply voltage		
Code	Terminals (V ac=50/60 Hz)	
	A1-A2	A3-A2
E26	24 V ac	24 V dc
E33	48 V ac	24 V dc
E37	110-130 V ac	24 V dc
E40	220-240 V ac	24 V dc

### Function: Flasher with Two Settings and Start OFF (CIR)

Model	Function	Contacts	Timing	Reference (complete with the supply voltage)
RTW	CIR	1NOC	0.1s - 1s	-
			0.3s - 3s	RTW-CIR01-U003S-◆
			1s - 10s	RTW-CIR01-U010S-◆
			3s - 30s	RTW-CIR01-U030S-◆
			6s - 60s	RTW-CIR01-U060S-◆
			10s - 100s	RTW-CIR01-U100S-◆
			30s - 300s	RTW-CIR01-U300S-◆
		180s - 1,800s	RTW-CIR01-U030M-◆	
		2NOC	0.1s - 1s	-
			0.3s - 3s	RTW-CIR02-U003S-◆
			1s - 10s	RTW-CIR02-U010S-◆
			3s - 30s	RTW-CIR02-U030S-◆
			6s - 60s	RTW-CIR02-U060S-◆
			10s - 100s	RTW-CIR02-U100S-◆
30s - 300s	RTW-CIR02-U300S-◆			
180s - 1,800s	RTW-CIR02-U030M-◆			



Certifications



◆ Supply voltage		
Code	Terminals (V ac=50/60 Hz)	
	A1-A2	A3-A2
E26	24 V ac	24 V dc
E33	48 V ac	24 V dc
E37	110-130 V ac	24 V dc
E40	220-240 V ac	24 V dc

Note: for application in generator sets, frequency inverters with 12-pulse or regenerative rectifiers, electronic power controllers (dimmers or the like) or where a high level of harmonic currents may be present (above the recommendation of IEEE519), we recommend the ERWT, MAT or MBT relay.

# Specification

## Single Timing Relays

### Function: Flasher with One Setting and Start ON (CIL)

Model	Function	Contacts	Timing	Reference (complete with the supply voltage)
RTW	CIL	1NOC	0.1s - 1s	RTW-CIL01-U001S-◆
			0.3s - 3s	RTW-CIL01-U003S-◆
			1s - 10s	RTW-CIL01-U010S-◆
			3s - 30s	RTW-CIL01-U030S-◆
			6s - 60s	RTW-CIL01-U060S-◆
			10s - 100s	RTW-CIL01-U100S-◆
			30s - 300s	RTW-CIL01-U300S-◆
		3 - 30min	RTW-CIL01-U030M-◆	
		2NOC	0.1s - 1s	RTW-CIL02-U001S-◆
			0.3s - 3s	RTW-CIL02-U003S-◆
			1s - 10s	RTW-CIL02-U010S-◆
			3s - 30s	RTW-CIL02-U030S-◆
			6s - 60s	RTW-CIL02-U060S-◆
			10s - 100s	RTW-CIL02-U100S-◆
30s - 300s	RTW-CIL02-U300S-◆			
3 - 30min	RTW-CIL02-U030M-◆			



Certifications



Code	◆ Supply voltage Terminals (V ac=50/60 Hz)	
	A1-A2	A3-A2
E26	24 V ac	24 V dc
E33	48 V ac	24 V dc
E37	110-130 V ac	24 V dc
E40	220-240 V ac	24 V dc

### Function: Flasher with One Setting and Start OFF (CID)

Model	Function	Contacts	Timing	Reference (complete with the supply voltage)
RTW	CID	1NOC	0.1s - 1s	RTW-CID01-U001S-◆
			0.3s - 3s	RTW-CID01-U003S-◆
			1s - 10s	RTW-CID01-U010S-◆
			3s - 30s	RTW-CID01-U030S-◆
			6s - 60s	RTW-CID01-U060S-◆
			10s - 100s	RTW-CID01-U100S-◆
			30s - 300s	RTW-CID01-U300S-◆
		3 - 30min	RTW-CID01-U030M-◆	
		2NOC	0.1s - 1s	RTW-CID02-U001S-◆
			0.3s - 3s	RTW-CID02-U003S-◆
			1s - 10s	RTW-CID02-U010S-◆
			3s - 30s	RTW-CID02-U030S-◆
			6s - 60s	RTW-CID02-U060S-◆
			10s - 100s	RTW-CID02-U100S-◆
30s - 300s	RTW-CID02-U300S-◆			
3 - 30min	RTW-CID02-U030M-◆			



Certifications



Code	◆ Supply voltage Terminals (V ac=50/60 Hz)	
	A1-A2	A3-A2
E26	24 V ac	24 V dc
E33	48 V ac	24 V dc
E37	110-130 V ac	24 V dc
E40	220-240 V ac	24 V dc

Note: for application in generator sets, frequency inverters with 12-pulse or regenerative rectifiers, electronic power controllers (dimmers or the like) or where a high level of harmonic currents may be present (above the recommendation of IEEE519), we recommend the ERWT, MAT or MBT relay.





# Specification

## Single Timing Relays

### Function: Star-Delta (ET)

Model	Function	Contacts	Timing	Reference (complete with the supply voltage)
RTW	ET	2NOC	3s - 30s	RTW-ET02-U030S-◆

◆ Supply voltage		
Code	Terminals (V ac=50/60 Hz)	
	A1-A2	A3-A2
E26	24 V ac	24 V dc
E33	48 V ac	24 V dc
E37	110-130 V ac	24 V dc
E40	220-240 V ac	24 V dc
E05	24-240 V ac / V dc	-



#### Certifications



Note: for application in generator sets, frequency inverters with 12-pulse or regenerative rectifiers, electronic power controllers (dimmers or the like) or where a high level of harmonic currents may be present (above the recommendation of IEEE519), we recommend the ERWT, MAT or MBT relay.

## Multiple Timing Relays

### Models: MAT or MBT (Multiple Timing), Multi Voltage and Single Function

Model	Function	Contacts	Timing	Reference
RTW	ON-delay (RE)	1NOC	0.1 - 10min	RTW-RE01-MATE05
			0.2 - 150h	RTW-RE01-MBTE05
		2NOC	0.1 - 10min	RTW-RE02-MATE05
			0.2 - 150h	RTW-RE02-MBTE05
	Impulse ON (PE)	1NOC	0.1 - 10min	RTW-PE01-MATE05
			0.2 - 150h	RTW-PE01-MBTE05
		2NOC	0.1 - 10min	RTW-PE02-MATE05
			0.2 - 150h	RTW-PE02-MBTE05
	OFF-delay with control signal (RD)	1NOC	0.1 - 10min	RTW-RD01-MATE05
			0.2 - 150h	RTW-RD01-MBTE05
		2NOC	0.1 - 10min	RTW-RD02-MATE05
			0.2 - 150h	RTW-RD02-MBTE05
	Flasher with one setting and start ON (CIL)	1NOC	0.1 - 10min	RTW-CIL01-MATE05
			0.2 - 150h	RTW-CIL01-MBTE05
		2NOC	0.1 - 10min	RTW-CIL02-MATE05
			0.2 - 150h	RTW-CIL02-MBTE05
	Flasher with one setting and start OFF (CID)	1NOC	0.1 - 10min	RTW-CID01-MATE05
			0.2 - 150h	RTW-CID01-MBTE05
		2NOC	0.1 - 10min	RTW-CID02-MATE05
			0.2 - 150h	RTW-CID02-MBTE05
	Star-delta (ET)	2NOC	0.1 - 10min	RTW-ET02-MATE05



#### Certifications



Supply voltages		
Code	RE, PE, CIL, CID, ET Models	
	A1-A2	A3-A2
E05	24-240 V ac / V dc	-
Supply voltages		
Code	RD Model	
	A1-A2	A3-A2
E05	24-240 V ac / V dc	-

# Specification

## Multifunction Relays

### Models: MF1 / MF2 (Multifunction), Multiple Voltage and Multiple Timing

Reference	Supply voltage	Contacts	Timing
ERWT-MF1-02MT1E05	24-240 V ac/ V dc	2NOC	0.1s - 10 days
ERWT-MF2-02MT1E05			

Notes: The MF1 model has 8 configurable functions:

- A - On-delay
- Ba - ON-delay with control signal
- Ca - ON and OFF-delay with control signal
- Da - Symmetric flasher, start ON
- Db - Symmetric flasher, start OFF
- E - Impulse ON
- Fa - Impulse ON with control signal
- G - Star-delta

The MF2 model has 8 configurable functions:

- Cb - ON and OFF-delay with control signal
- Dc - Symmetric flasher, start ON
- Dd - Asymmetric flasher, start OFF
- De - Percentage flasher, start ON
- Df - Percentage flasher, start OFF
- Dg - Flasher for motor reversing
- J - Bistable
- Ja - Delayed adjustable-length pulse



Certifications



# Technical Data

A  
B  
C  
D  
E  
F  
F1  
G  
H

			Model									
			RTW-xxx0x-UxxxxE26	RTW-xxx0x-UxxxxD02	RTW-xxx0x-UxxxxE33	RTW-xx0x-UxxxxD07	RTW-xxx0x-UxxxxE37	RTW-xxx0x-UxxxxD61	RTW-xxx0x-UxxxxE40	ERWT-MF1-02MT1E05	ERWT-MF2-02MT1E05	
Inputs	Supply voltage (Us) <sup>1)</sup>	A1-A2	24 V ac		48 V ac		110 to 130 V ac		220 to 240 V ac		24 to 240 V ac / V dc	
		A3-A2	24 V dc	-	24 V dc	-	24 V dc	-	24 V dc	-	-	
	Rated supply voltage tolerance		0.85 to 1.10 x Us									
	Rated frequency		50 / 60 Hz									
	Maximum consumption		70 mA at 240 V ac (Us)								80 mA at 240 V ac (Us)	
	Control supply voltage (RD function) <sup>2)</sup>	B1-A2	Voltage-related triggering (Us)									
	Rated insulation voltage (U)		300 V									
Time adjustment	Minimum time for reset		100ms									
	Minimum ON time		50ms									
	Scale accuracy (full scale)		±5% <sup>1)</sup>									
	Repeatability accuracy (full scale)		±2%									
	Changeover time Y - Δ (star-delta function)		100ms ±20%									
Outputs	Capacity of the output contacts (I <sub>a</sub> )		AC-12 (resistive) at 250 V ac: 5 A AC-15 at 230 V ac: 3 A DC-13 at 24 V dc: 1 A DC-13 at 48 V dc: 0.45 A DC-13 at 60 V dc: 0.35 A DC-13 at 125 V dc: 0.2 A DC-13 at 250 V dc: 0.1 A						AC-12 (resistive) at 250 V ac: 5 A AC-15 at 230 V ac: 3 A DC-13 at 24 V dc: 1 A DC-13 at 48 V dc: 0.45 A DC-13 at 60 V dc: 0.35 A DC-13 at 125 V dc: 0.2 A DC-13 at 250 V dc: 0.1 A B300 R300			
	Rated thermal current (I <sub>b</sub> )		10 A for AC 1 A for DC									
	Fuse (class gL/gG)		4 A									
	Mechanical lifespan		30 x 10 <sup>6</sup> switching cycles									
Characteristics	Ambient temperature		-5 °C to +60 °C									
	-Operation		-5 °C to +60 °C									
	-Storage		-40 °C to +85 °C									
	Degree of protection		Enclosure: IP20 Terminals: IP20									
	Connection section (min. to max.)		1 x (0.5 to 2.5) mm <sup>2</sup>									
	- Cable without end sleeve		2 x (0.5 to 1.5) mm <sup>2</sup>									
	- Cable with end sleeves		1 x (0.5 to 1.5) mm <sup>2</sup>									
	- AWG-Rigid Wire		2 x (20 to 14) AWG									
	Tightening torque		0.8 to 1.2 N.m									
	Terminal screw		7 to 10.6 Lb.in									
	Assembly position		Any									
	Shock resistance		15 g / 11ms									
	Vibration resistance		10 to 55 Hz / 0.35 mm									
Weight		0.08 kg - models with 1NOC 0.095 kg - models with 2NOC										
Pollution degree		2										
Overvoltage category		II										

Note: 1) For the ERWT models, under extreme voltage and temperature conditions, the scale accuracy may vary up to +/- 10% (full scale).

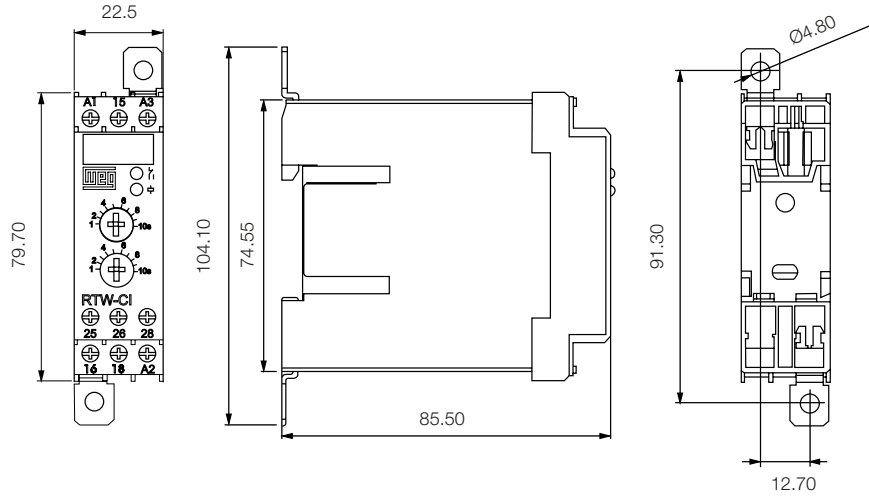
# Technical Data

			Model					
			RTW-xxx0X-UxxxxD66	RTW-xxx0X-UxxxxC03	RTW-RDIOX-UxxxxE05	RTW-xxx0X-MxxTE05	RTW-xxx0X-UxxxxD71	
Inputs	Supply voltage (Us) <sup>1)</sup>	A1-A2	220 to 240 V ac	24 V dc	24 to 240 V ac / V dc	24 to 240 V ac / V dc	380 to 440 V ac	
		A3-A2	-	-	-	-	-	
	Rated supply voltage tolerance		0.85 to 1.1 x Us					
	Frequency		50 / 60 Hz					
	Maximum consumption		70 mA at 240 V ac (Us)		25 mA at 240 V ac (Us)	15 mA at 240 V ac (Us)	70 mA at 440 V ac (Us)	
	Control supply voltage (RD function) <sup>2)</sup>	B1-A2	Voltage-related triggering (Us)		-	Voltage-related triggering (Us)		-
Rated insulation voltage (U)		300 V					600 V	
Time adjustment	Minimum time for reset		100ms		200ms	500ms	100ms	
	Minimum ON time		50ms		1s for Us = 220 V ac / V dc 1.6s for Us = 24 V ac / V dc	100ms	-	
	Scale accuracy (full scale)		±5%					
	Repeatability accuracy (full scale)		±2%					
	Changeover time Y - Δ (star-delta function)		100ms ±20%		-	50ms ±20%	100ms ±20%	
Outputs	Capacity of the output contacts (I <sub>c</sub> )		AC-12 (resistive) at 250 V ac: 5 A AC-15 at 230 V ac: 3 A DC-13 at 24 V dc: 1 A DC-13 at 48 V dc: 0.45 A DC-13 at 60 V dc: 0.35 A DC-13 at 125 V dc: 0.2 A DC-13 at 250 V dc: 0.1 A A300 R300				AC-12 (resistive) at 250 V ac: 10 A AC-15 at 120 V ac: 6 A AC-15 at 240 V ac: 3 A AC-15 at 380 V ac: 1.9 A AC-15 at 480 V ac: 1.5 A DC-13 at 125 V dc: 0.2 A DC-13 at 125 V dc: 0.1 A A600 R300	
	Rated thermal current (I <sub>n</sub> )		10 A for AC 1 A for DC					
	Fuse (class gL/gG)		4 A					
	Mechanical lifespan		30 x 10 <sup>6</sup> switching cycles					
Characteristics	Ambient temperature		-5 °C to +60 °C					
	-Operation		-40 °C to +85 °C					
	-Storage							
	Degree of protection		Enclosure: IP20 Terminals: IP20					
	Connection section (min. to max.)		1 x (0.5 to 2.5) mm <sup>2</sup>					
	- Cable without end sleeve		2 x (0.5 to 1.5) mm <sup>2</sup>					
	- Cable with end sleeves		1 x (0.5 to 1.5) mm <sup>2</sup>					
	- AWG-Rigid Wire		2 x (20 to 14) AWG					
	Tightening torque		0.8 to 1.2 N.m					
	Terminal screw		7 to 10.6 Lb.in					
	Assembly position		Any					
	Shock resistance		15 g / 11ms					
	Vibration resistance		10 to 55 Hz / 0.35 mm					
Weight		0.08 kg - models with 1NOC 0.095 kg - models with 2NOC						
Pollution degree		2						
Overvoltage category		II						

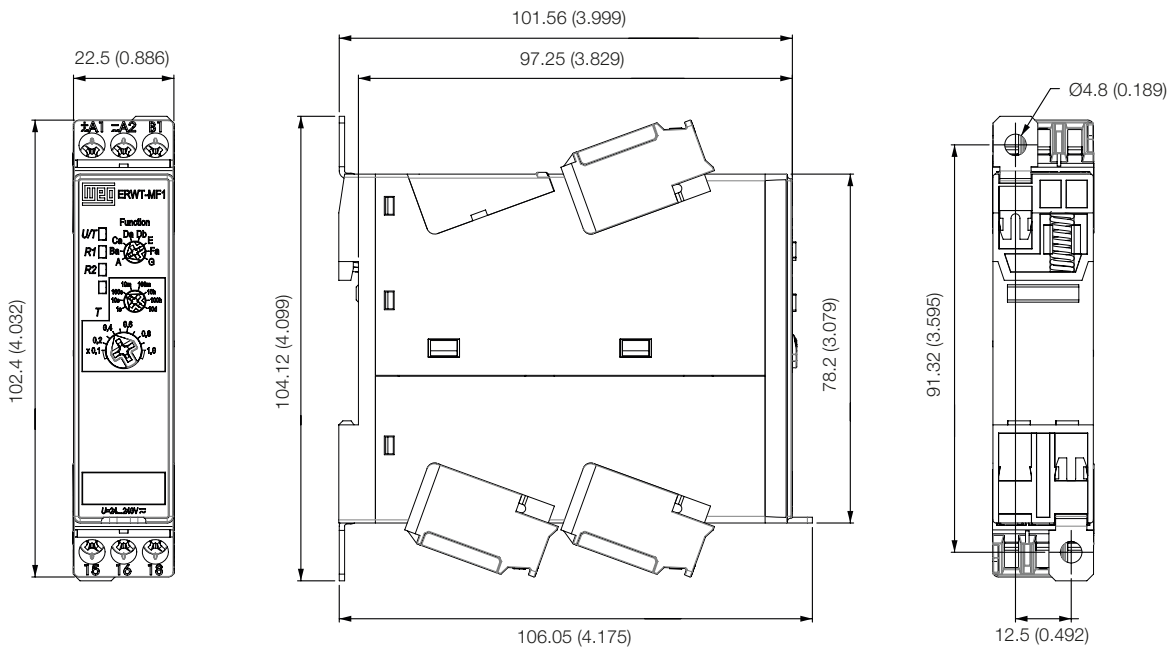
Notes: 1) In the versions with two operational voltages, only one must be connected;  
2) The same potential must be applied to A1 and B1, polarized.

## Dimensions (mm)

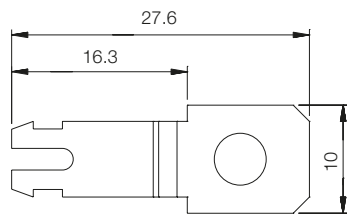
### Single Timing or Multiple Timing Models



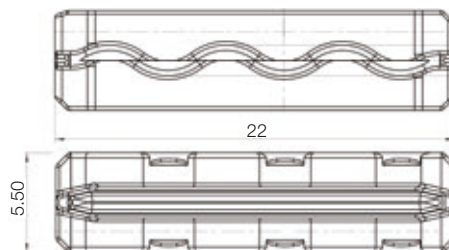
### Multifunction Models (MF1 / MF2)



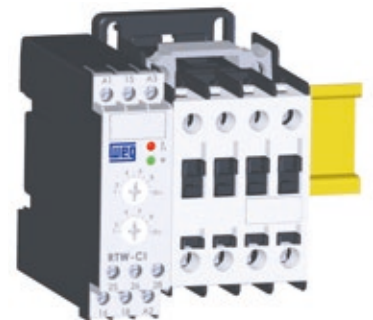
### Accessories



PLMP Adapter



MARC adapter for direct mounting on WEG contactors



# VOLTAGE MONITORS

They are electronic devices intended to monitor three-phase systems and interrupt the process operation whenever a failure occurs. Designed according to international standards, they are available in 22.5 mm wide housings and can be mounted on DIN rails 35 mm or fixed with screws (PLMP accessory required), being a compact and safe solution.



## RPW-FF - Phase Loss Function

It is intended to protect three-phase systems against the loss of one phase (without neutral). For monitoring the neutral, a bridge must be provided between terminals A and B; thus the RPW-FF will monitor the phase loss and also the neutral voltage (terminal N).

### Installation

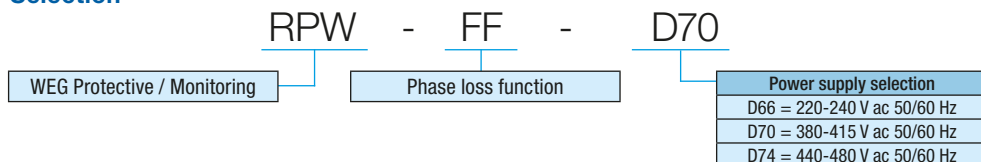
It is directly connected to the three phases (terminals L1, L2 and L3) of the power grid to be monitored (connect the neutral if applicable).

### Operation

The output relay switches the contacts to the operation position (closing terminals 15-18), and the red LED (relay) and green LED (supply voltage) will switch on. Adjust the sensitivity of the line voltage. If one of the phases drops below the percentage limit set on the dials, the coil output contacts will be de-energized, opening contacts 15-18, and the red LED will turn OFF.

*Note: The RPW-FF protects against ghost phase - In the monitoring of an electric motor, the phase loss makes the remaining phases induce a ghost phase on the winding coil of the respective phase, raising the current of the other two phase and overheating the motor. The winding with induced voltage works as a voltage generator (ghost phase).*

### Selection



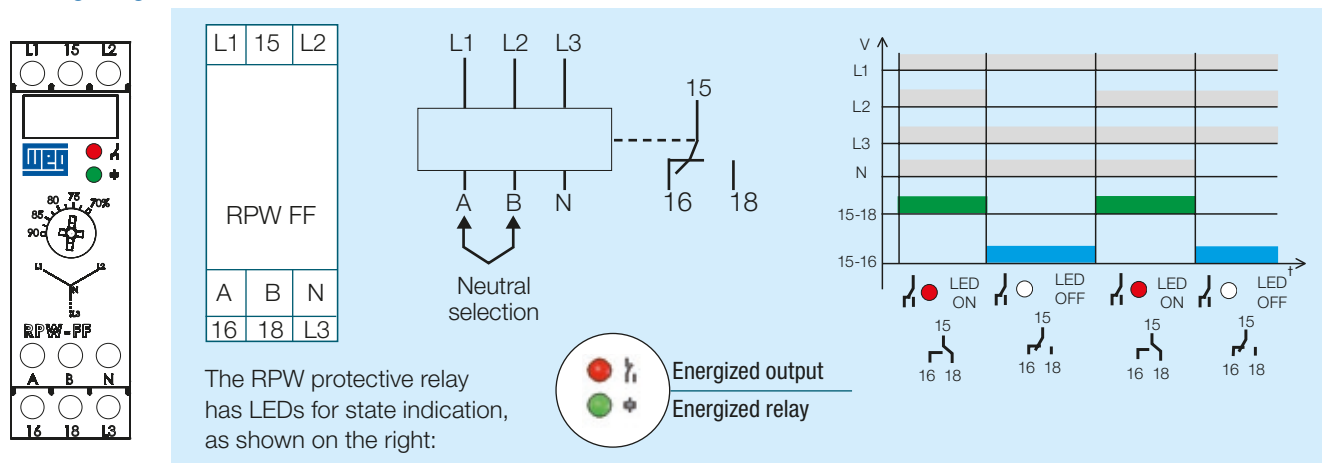
### Certifications



### Specification

Supply voltage (L1-L3) 50/60 Hz	Reference
220-240 V ac	RPW-FF-D66
380-415 V ac	RPW-FF-D70
440-480 V ac	RPW-FF-D74

### Wiring Diagram



*Note: for application in generator sets, frequency inverters with 12-pulse or regenerative rectifiers, electronic power controllers (dimmers or the like) or where a high level of harmonic currents may be present (above the recommendation of IEEE519), we recommend the ERWM relay.*

# RPW-SF - Phase Sequence Function

It is intended to protect three-phase systems against the inversion of the phase sequence (L1-L2-L3).

### Installation

It is directly connected to the three phases (terminals L1, L2 and L3) of the power grid to be monitored.

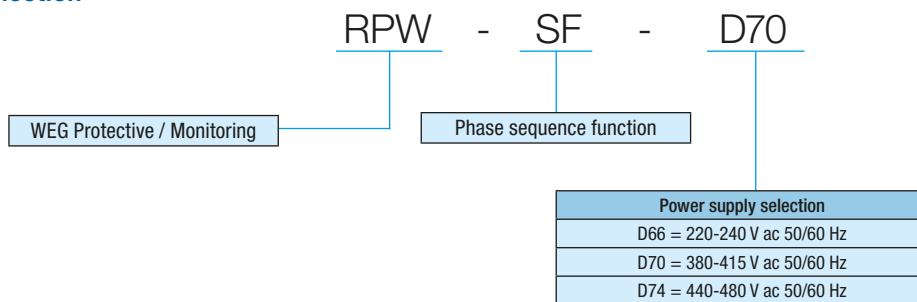
### Operation

If the phase sequence is correct, the output relay switches the contacts to the operation position (closing terminals 15-18), and the red LED (relay) and green LED (power supply) will switch on.

### Certifications



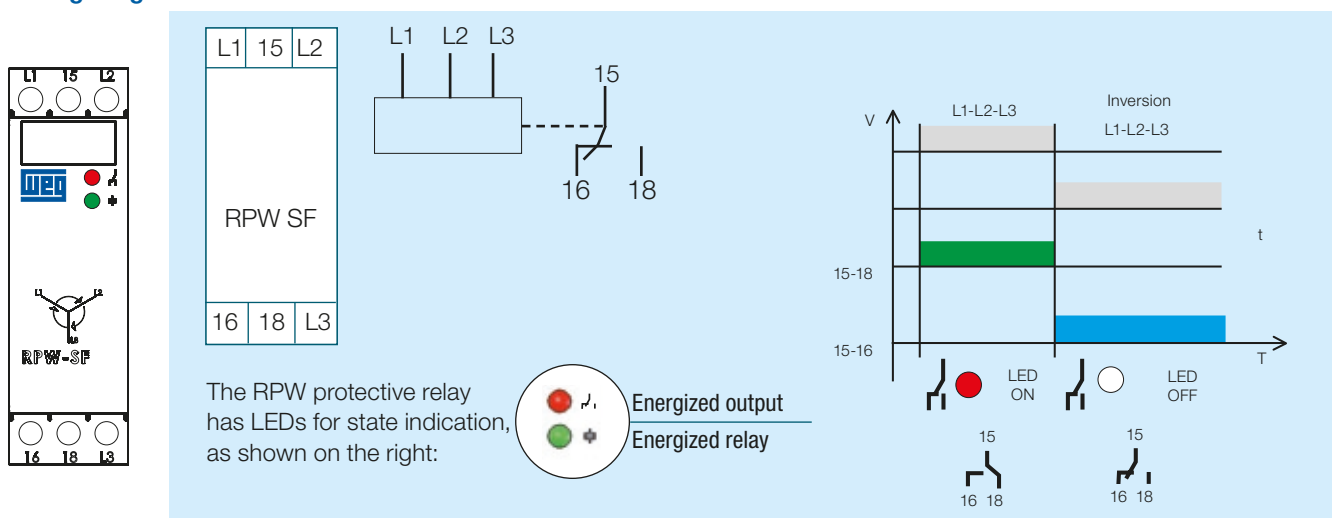
### Selection



### Specification

Supply voltage (L1-L2-L3) 50/60 Hz	Reference
220-240 V ac	RPW-SF-D66
380-415 V ac	RPW-SF-D70
440-480 V ac	RPW-SF-D74

### Wiring Diagram



Note: for application in generator sets, frequency inverters with 12-pulse or regenerative rectifiers, electronic power controllers (dimmers or the like) or where a high level of harmonic currents may be present (above the recommendation of IEEE519), we recommend the ERWM relay.

## RPW-FSF - Phase Loss and Phase Sequence Function

It is intended to protect three-phase systems against phase loss and phase inversion. For applications with neutral, a bridge must be provided between terminals A and B. The RPW-FSF will monitor against phase loss and also the voltage on the neutral, which must be connected.

### Installation

It is directly connected to the three phases (terminals L1, L2 and L3) of the power grid to be monitored (connect the neutral if applicable).

### Operation

Energize the relay and observe if the green LED (power supply) and the red LED (relay) turn on. If they do not switch on, check for voltage between phases L1, L2 and L3 (including in relation to the neutral if applicable), and if they are in the correct sequence.



### Certifications



### Selection

RPW - FSF - D70

WEG Protective / Monitoring

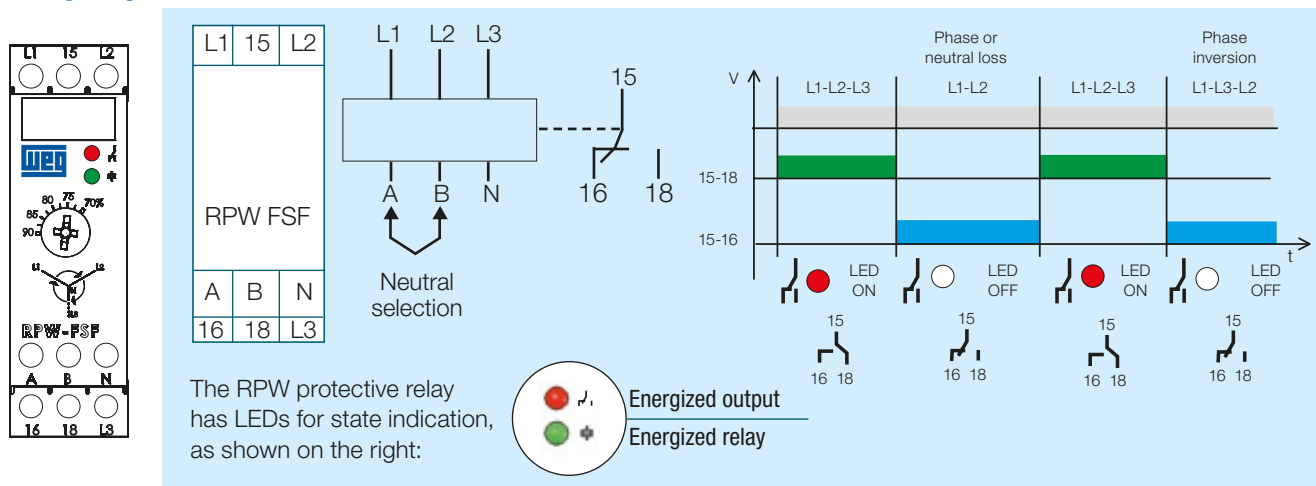
Phase loss and phase

Power supply selection
D66 = 220-240 V ac 50/60 Hz
D70 = 380-415 V ac 50/60 Hz
D74 = 440-480 V ac 50/60 Hz

### Specification

Supply voltage (L1-L2-L3) 50/60 Hz	Reference
220-240 V ac	RPW-FSF-D66
380-415 V ac	RPW-FSF-D70
440-480 V ac	RPW-FSF-D74

### Wiring Diagram



Note: for application in generator sets, frequency inverters with 12-pulse or regenerative rectifiers, electronic power controllers (dimmers or the like) or where a high level of harmonic currents may be present (above the recommendation of IEEE519), we recommend the ERWM relay.



# RPW-SS - Undervoltage and Overvoltage Function

With this function, the RPW monitors the minimum and maximum voltage variations within which a three-phase power supply can operate. Whenever an under or overvoltage condition is present, the relay will switch its output in order to interrupt the operation of the monitored motor or process.

Note: the RPW SS is suitable for line frequencies of 50/60 Hz.



## Installation

It is directly connected to the three phases (terminals L1, L2 and L3) of the power grid to be monitored.

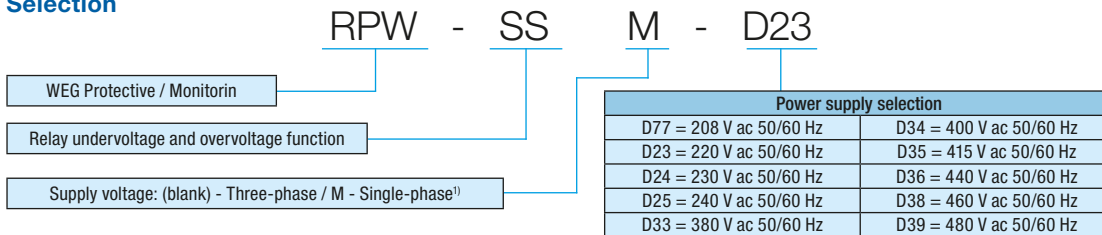
## Operation

If the voltage on terminals A1 and A2 is correct, the output relay is energized (contacts 15-18 close). If the monitored voltage (supply voltage) is below or above the adjusted limits for undervoltage and overvoltage, respectively, the output relay is de-energized (contacts 15-18 open). The output relay is energized again when the voltage returns to an acceptable value.

## Certifications



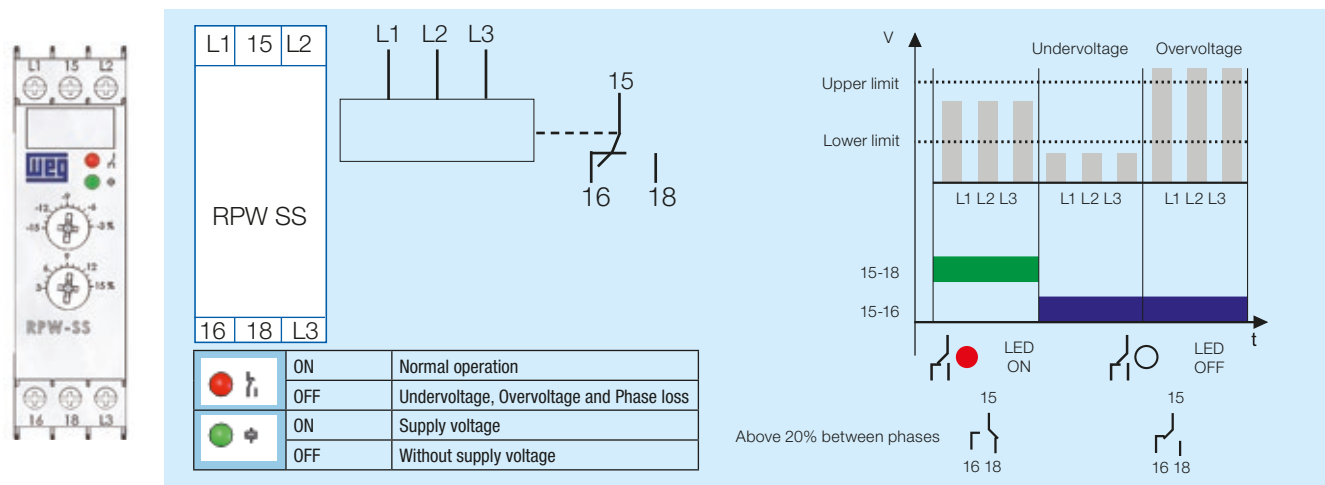
## Selection



## Specification

Supply voltage (L1-L2-L3) 50/60 Hz	Reference	Supply voltage (L1-L2-L3) 50/60 Hz	Reference
208 V ac	RPW-SS-D77	400 V ac	RPW-SS-D34
220 V ac	RPW-SS-D23	415 V ac	RPW-SS-D35
230 V ac	RPW-SS-D24	440 V ac	RPW-SS-D36
240 V ac	RPW-SS-D25	460 V ac	RPW-SS-D38
380 V ac	RPW-SS-D33	480 V ac	RPW-SS-D39
		220 V ac (single-phase)	RPW-SSM-D23

## Wiring Diagram



Notes: 1) Available only for voltage D23 (220 V ac - 50/60 Hz). Pending certifications.

For application in generator sets, frequency inverters with 12-pulse or regenerative rectifiers, electronic power controllers (dimmers or the like) or where a high level of harmonic currents may be present (above the recommendation of IEEE519), we recommend the ERWM relay.

# RPW-PTC - Temperature Variation Monitoring via PTC Function

It is intended to monitor the temperature variation in motors or generators in machines in general equipped with PTC temperature sensors. It has digital electronics, which provides high accuracy and noise immunity.

## Installation

It must be connected in series to PTC sensors (maximum 3). The RPW has a test device for the PTC sensor. In case it is not connected or it is in a fault state, the LED will indicate (LED will flash).

## Operation

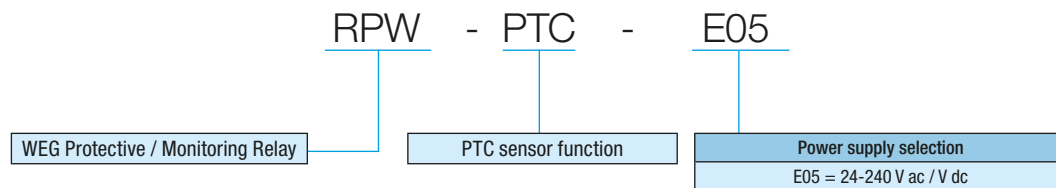
When it is energized, if the temperature is below the tripping value, the output relay will switch (energize) without delay, switching ON the red LED. In case the temperature rises above the limit, a sudden variation will occur in the PTC resistance, and the output relay will de-energize (red LED switches OFF). The relay will be energized again as soon as the temperature returns to the normal values.



## Certifications



## Selection



## Specification

Power supply (L1-L2-L3)	Reference
24-240 V ac 50/60 Hz or 24-240 V dc	RPW-PTC-E05

Note: PTC sensor not included.

## Wiring Diagram

A1	15
RPW PTC	
S1	S2
16	18 A3

Terminal	Function	Indicator
A1 - A2	Supply voltage	Red LED ON
S1 - S2	PTC sensor input	Green LED ON / Flashing
15 - 16 - 18	Output	Relay contacts

	ON	Normal operation
	OFF	Undervoltage, Overvoltage and Phase loss
	ON	Supply voltage
	OFF	Without supply voltage
	Flashing	Fault in the PTC sensor

Notes: It is recommended the use of three PTC sensors in series, according to IEC 60947-8. The tripping temperature depends on the used PTC curve.

## ERWM-VM1 / VM2

The ERWM controls the faults in the voltage monitoring within which a three-phase supply voltage can operate. Whenever a failure in the power grid occurs, the relay will switch its output in order to interrupt the operation of the monitored motor or process.

### Installation

It is directly connected to the three phases (L1, L2 and L3) of the power grid to be monitored (connect the neutral if applicable).

### Operation

If the voltage on terminals L1, L2 and L3 is correct, the output relay is energized (contacts 15-18 close). If the monitored supply voltage is in the adjusted operating range, the output relay is de-energized (contacts 15-18 open). The output relay is energized again when the voltage returns to an acceptable value.



### Certifications



### Selection



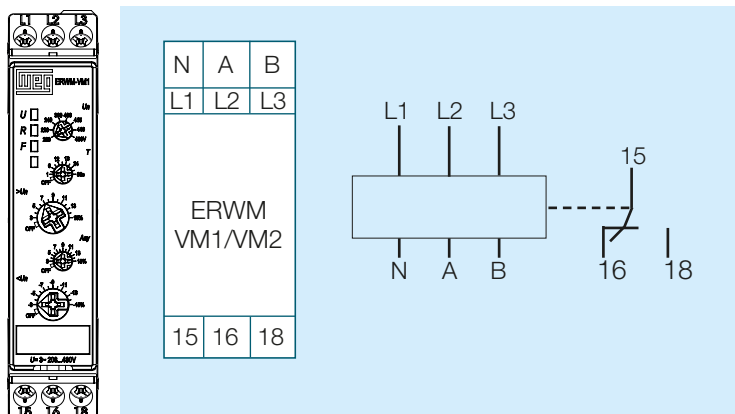
#### Models:

VM1: PF-Phase loss, PS-Phase sequence, >Un-Overvoltage/<Un-Undervoltage, Asy-Unbalance, ND-Neutral Detection  
 VM2: PF-Phase loss, Un-Overvoltage/Undervoltage, Asy-Unbalance, ND-Neutral Detection

### Specification

Reference	Supply voltage
ERWM-VM1-01D90	208-480 V ac 50/0 Hz (L1-L2-L3)
ERWM-VM2-01D90	

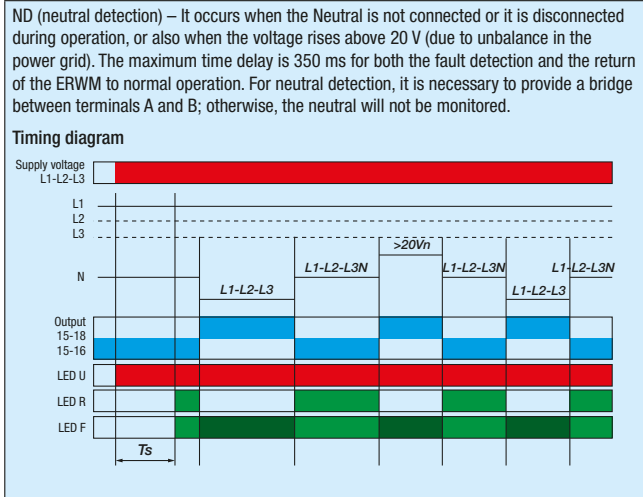
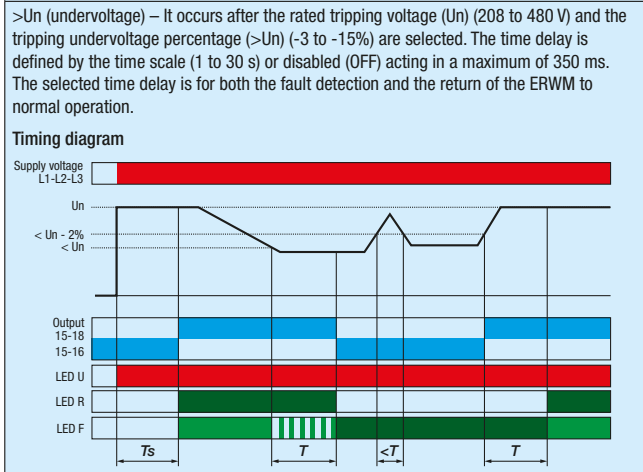
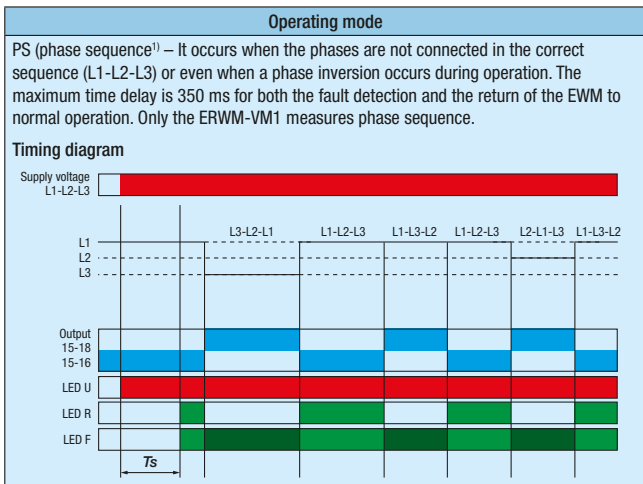
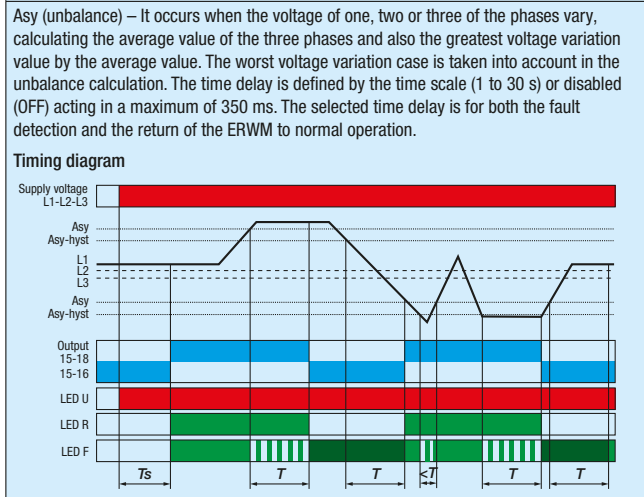
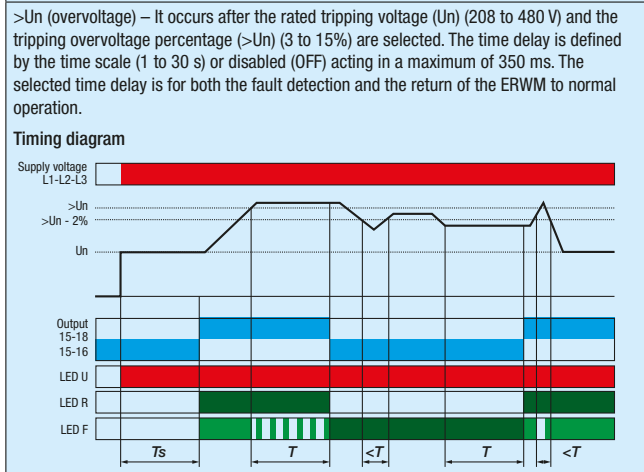
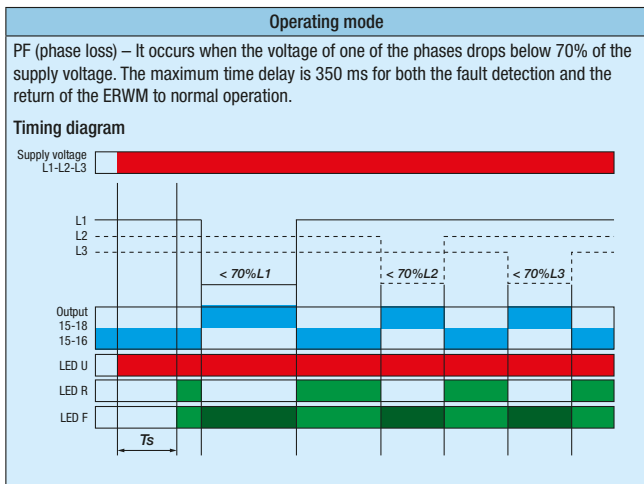
### Wiring Diagram



Electrical connection (VM1 / VM2)	
L1 - L2 - L3	Supply voltage
N - A - B	Voltage and neutral detection
15 - 16 / 18	Output contact

# Functions

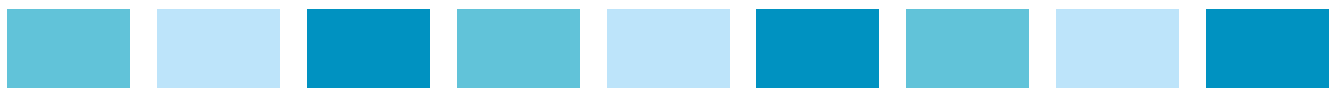
## Multiple Protection Models (ERWM-VM1 / VM2)



## Technical Data

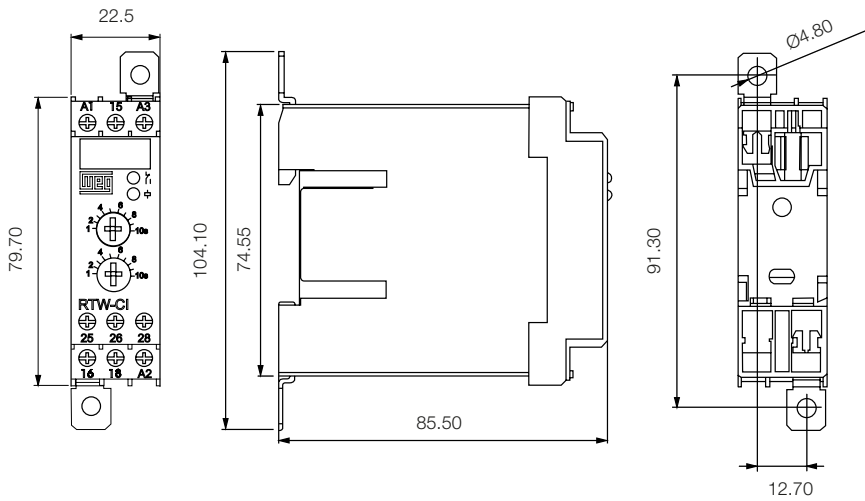
	Product	RPW FF	RPW SF	RPW FSF	RPW SS	RPW PTC	ERWM-VM1	ERWM-VM2
Inputs	Supply voltage (Us) L1 - L2 - L3	220, 380, 440 or 480 V ac (select)				24-240 V ac/V dc	208-480 V ac	
	Frequency	50/60 Hz						
	Sensitivity adjustment	70 to 90%	-	70 to 90%	+/- 3 to 15%	-	+/- 3 to 15%	
	Rated supply voltage tolerance	0.85 to 1.1 x Us for V ac						
	Maximum consumption	80 mA						
	Maximum voltage allowed on neutral	20 V ac	-	20 V ac	-	-	20 V ac	
	Scale accuracy (full scale)	+/- 20%			-	-	+/- 5%	
	Insulation voltage $U_i$	600 V						
	Outputs	Repeatability precision	+/- 1%			-	-	+/- 1%
Maximum output contact capacity ( $I_c$ )		5 A (resistive load)						
		3 A (AC-15)						
Fuse (class gL/gG)		4 A						
Characteristics	Mechanical lifespan	30 x 10 <sup>6</sup> switching cycles						
	Electrical lifespan	10 x 10 <sup>6</sup> switching cycles						
	Ambient temperature allowed	-						
	Operation	-5 a +60 °C						
	Storage	-40 a +85 °C						
	Degree of protection	Enclosure IP20 / Terminals IP20						
	Connection section (min. to max.)	-						
	Cable without end sleeves	1 x (0.5 to 2.5) mm <sup>2</sup>						
		2 x (0.5 to 1.5) mm <sup>2</sup>						
	Cable with end sleeves	1 x (0.5 to 1.5) mm <sup>2</sup>						
		2 x (0.5 to 1.5) mm <sup>2</sup>						
	AWG-Rigid Wire	2 x (20 to 14) mm <sup>2</sup>						
	Tightening torque	0.8 to 1.2 N.m						
		7 to 10.6 Lb.in						
	Terminal screw	M3						
	Assembly position	Any						
	Shock resistance	15g / 11ms						
	Vibration resistance	10 to 55 Hz / 0.35 mm						
	Weight	0.1 kg						
	Pollution degree	2						
Overvoltage category	III							
Certifications	European Union	All models						
	Russia	RPW-FSF/SF/SS/PTC				-	-	
	Argentina	All models				-	-	
	Canada and USA	All models						

Note: the RPW-SSM-D23 (single-phase) certifications are pending.

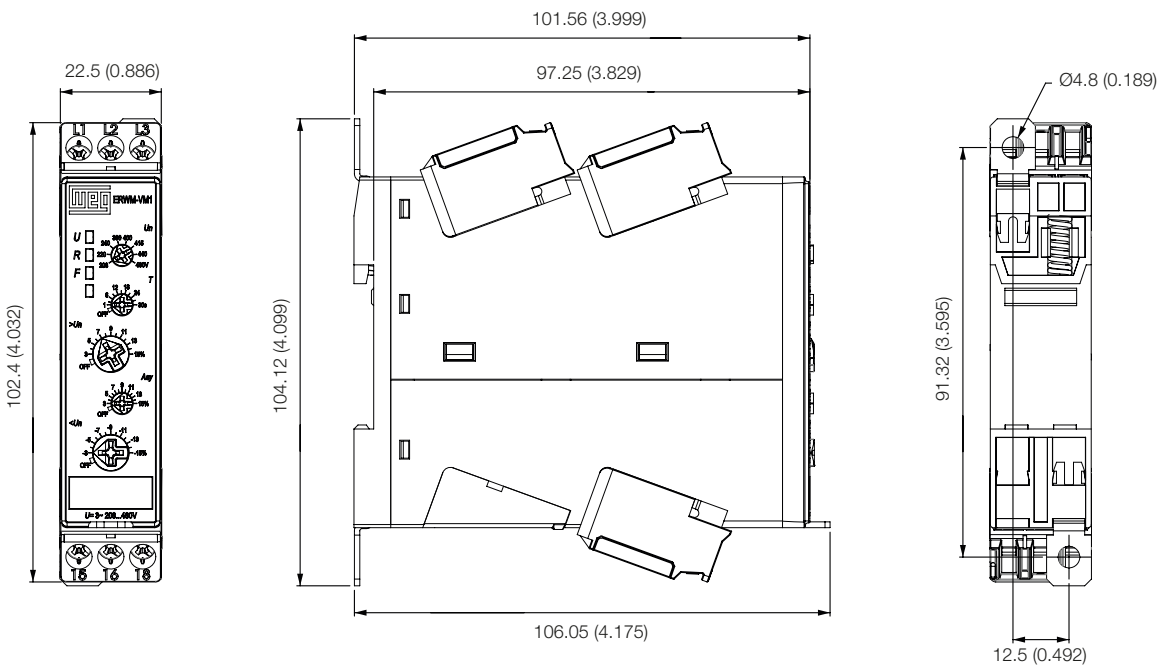


## Dimensions (mm)

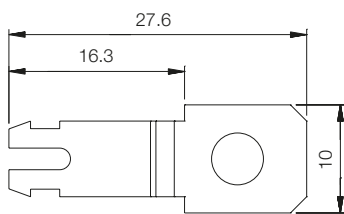
### Single Timing or Multiple Timing Models



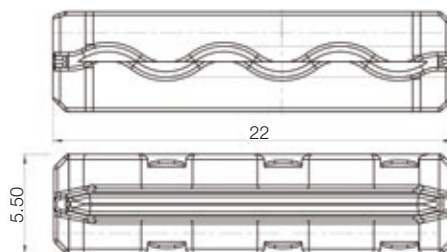
### Multifunction Models (VM1 / VM2)



### Accessories



PLMP Adapter



MARC adapter for direct mounting on WEG contactors



# LEVEL RELAY

It is an electronic control device that enables monitoring and automatically setting the level of conductive (non-explosive) liquids by means of submerged electrodes. It has a dial that allows adjusting the electronic circuit to the liquid resistance.

## Applications

- Protection against dry run of pumps
- Protection against tank overflow
- Activation of solenoids, sound or light alarms
- Process automation in general

## Certifications



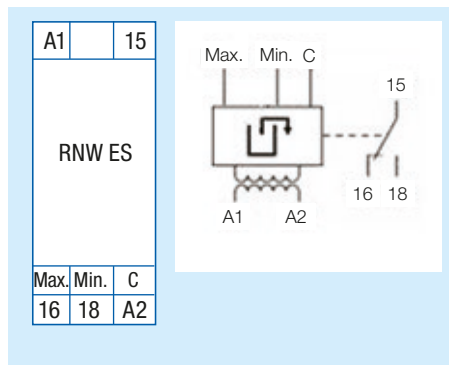
## Operating Modes

### Draining Function

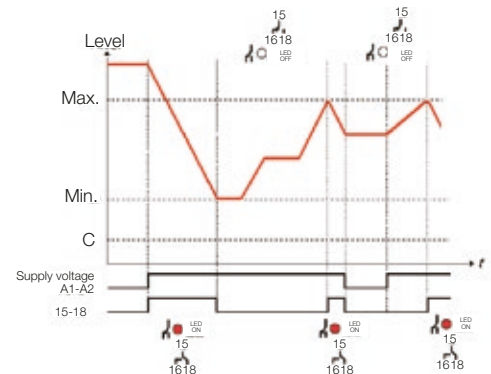
The output relay energizes (contacts 15-18 close) when the liquid reaches the maximum level electrode and de-energizes (contacts 15-18 open) when the minimum level electrode is no longer covered by the liquid.



RNW-ES



Wiring diagram



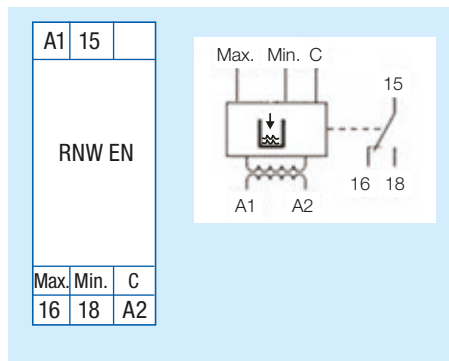
Function diagram

### Filling Function

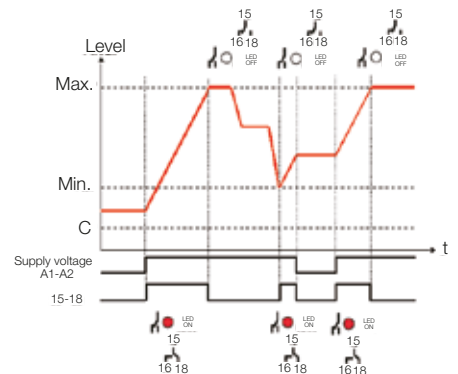
The output relay energizes (contacts 15-18 close) when the minimum level electrode is not covered and de-energizes (contacts 15-18 open) when the liquid reaches the maximum level electrode.



RNW-EN



Wiring diagram



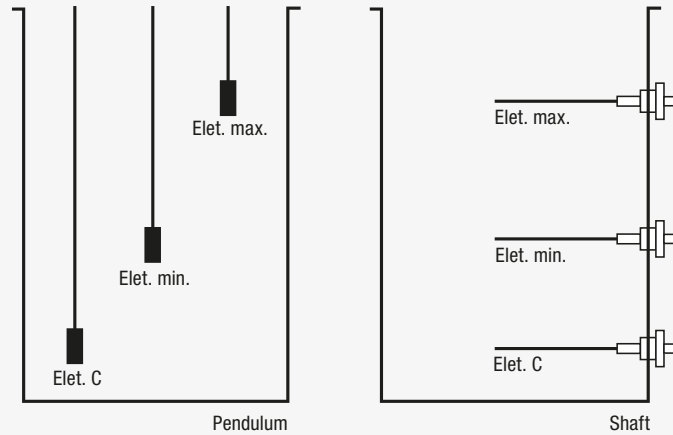
Function diagram





## Installation

The electrodes must be installed on the RNW and fixed in the tank according to desired levels, minimum or maximum, and the reference electrode must be positioned in the lower part, below the other electrodes. The electrodes are available in 2 models, shaft (EHW) or pendulum (EPW). When a metallic tank is used, it can replace the reference electrode.



*The shaft model (EHW) can be installed in the horizontal and vertical position*

## Application Example



## Operation

It is based on the measurement of the electric current of the liquid in the tank by means of a set of submerged electrodes, which work as liquid presence/absence sensors.

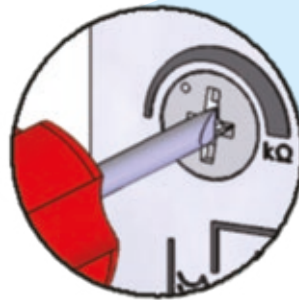
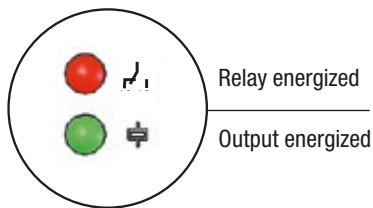
When the system is energized, an alternating current<sup>1)</sup> is applied to the reference electrode. Once the liquid comes into contact with the electrodes, a path is established for the circulation of electric current between them. An electronic circuit compares the current and, according to the chosen model, executes the logic that switches the output contacts.

*Note: 1) The AC current minimizes the electrolysis and increases the lifespan of the electrodes.*

## Sensitivity Adjustment

The resistance may vary according to the liquid and the position of the electrodes. In order to adapt the RNW electronic circuit to the liquid, the sensitivity must be adjusted through the front dial, which has a graded scale (kΩ).

To perform the sensitivity adjustment, all electrodes must be submerged in the liquid of the tank, and the dial must be positioned at its anti-clockwise limit (smallest resistance). With the relay energized, the dial must be turned clockwise (increasing the resistance) until the relay output switches its contacts and the red LED changes its status. To confirm the adjustment, the reference electrode must be disconnected and immediately reconnected. The RNW must return to its previous status of de-energization, and thus the ideal sensitivity point will be adjusted. If that does not happen, a new adjustment procedure must be performed.



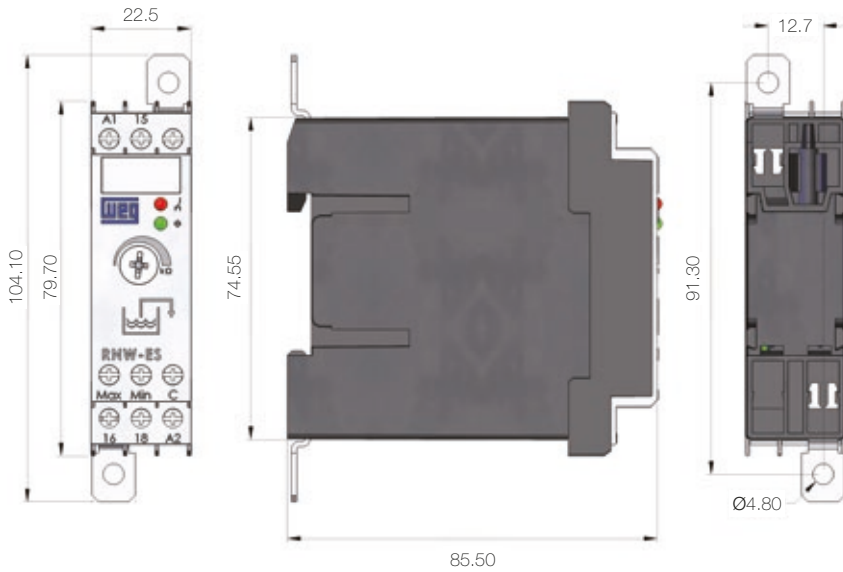
## Technical Data

Product		RNW ES / RNW EN		
Inputs	Supply voltage (1h)	A1-A2	100-240 V ac (50/60 Hz) / V dc	
	Rated supply voltage tolerance		0.85 to 1.1 x Us	
	Isolated rated voltage (U <sub>i</sub> )		300 V	
	Frequency		50/60 Hz	
	Maximum consumption		2 / 1 VA/W	
Outputs	Contacts	15 - 16 / 18	1 SPDT	
	Capacity of the output contacts (I <sub>e</sub> )		AC-12 (resistive) at 250 V ac - 5 A	
	AC-15 at 230 V ac		3 A	
	DC-13 at 24 V dc		1 A	
	DC-13 at 48 V dc		0.45 A	
	DC-13 at 60 V dc		0.35 A	
	DC-13 at 125 V dc		0.2 A	
	DC-13 at 205 V dc		0.1 A	
	A300		AC-15	
	R300		DC-13	
	Rated thermal current (I <sub>th</sub> )		10 A for AC 1 A for DC	
	Fuse (class gL/gG)		4 A	
Mechanical lifespan		30 x 10 <sup>6</sup> switching cycles		
Characteristics	Ambient temperature allowed			
	Operation		-5 to +60 °C	
	Storage		-40 to +85 °C	
	Degree of protection		Enclosure IP20 / Terminals IP20	
	Connection section (min. to max.)		1 x (0.5 to 2.5) mm <sup>2</sup>	
	- Cable without end sleeve		2 x (0.5 to 1.5) mm <sup>2</sup>	
	Cable with end sleeves		1 x (0.5 to 2.5) mm <sup>2</sup> 2 x (0.5 to 1.5) mm <sup>2</sup>	
	AWG-Rigid Wire		2 x (30 to 14) AWG	
	Tightening torque		0.8 to 1.2 N.m 7 to 10.6 lb.in	
	Terminal screws		M3	
	Assembly position		Any	
	Shock resistance		15g / 11ms	
	Vibration resistance		10 to 55 Hz / 0.35 mm	
	Weight		0.08 kg	
	Pollution degree		2	
Overvoltage category		II		
Sensitivity adjustment		0 to 100 kΩ		
Sensors	Electrode voltage		7 V ac	
	Electrode current		0.05 mA	
	Maximum sensor cable length		100 m (maximum cable capacitance 2.2 nF) <sup>1)</sup>	
	Sensor operating temperature	Shaft		0 to + 260 °C
		Pendulum		0 to + 60 °C
	Acceptable sensor pressure	Shaft		3 kgf / cm <sup>2</sup>
		Pendulum		-
Sensor weight	Shaft		0.230 kg	
	Pendulum		0.012 kg	
Certifications	European Union		All models	
	Canada and USA			
	Argentina			

Notes: 1) Avoid running electrode cables close to power cables.  
In order to connect the cables, it is recommended to use single-pole cables.

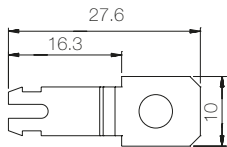
## Dimensions (mm)

### Model RNW-EN or RNW-ES



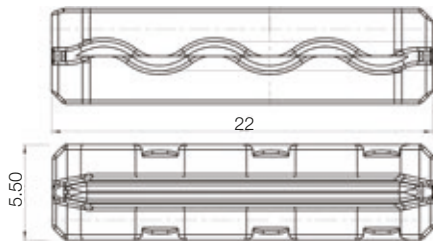
### Accessories

#### Adapter for Screw Fixing



PLMP Adapter

#### Adapter for Direct Mounting on WEG Contactors



MARC Adapter

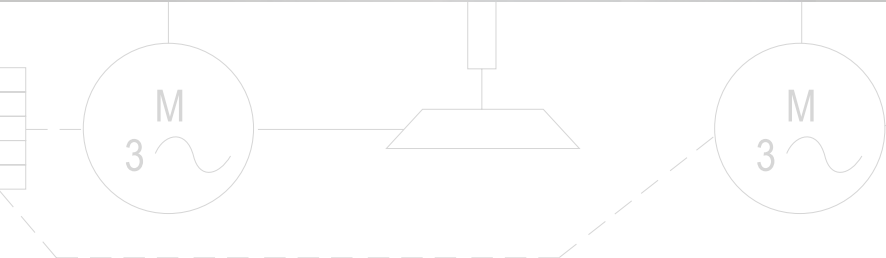
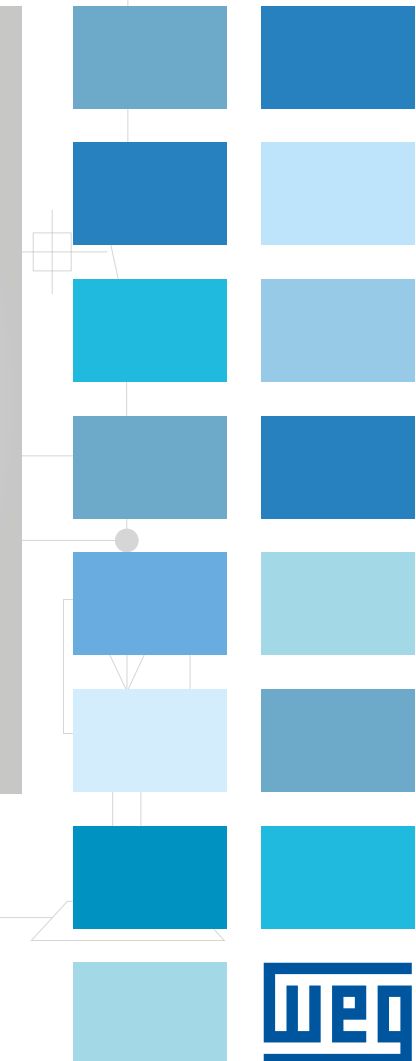
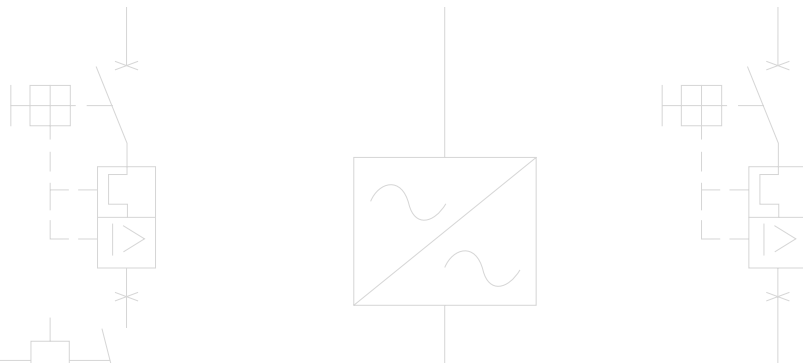


Note: the PLMP and MARC accessories can be used in any electronic relay (RTW, RPW or RNW).

# Automation

## Electronic Relays

### Modular Line





A1 A2 A3

A2 A3

B1 B2 B3

**weg** RTW17-A

U 0,1 0,2 0,4 0,6 0,8 1s T

R1

R2

U= 220-240 V~ / 24 V-

28 25 26

18 15 16

**weg**

RIEW17

U

R

U= 220-240 V~ / 24 V-

18 15

15 16

# Electronic Relays Modular Line

## Summary

Introduction	F-38
Applications	F-40
Construction Characteristics	F-41
Timing Relays - RTW17	F-42
Time Range Adjustment	F-43
Functions	F-44
Selection	F-46
Wiring Diagrams	F-50
Technical Data	F-52
Voltage Monitoring Relays - RMW17	F-53
Selection	F-53
Technical Data	F-56
Impulse Relay - RIEW17	F-57
Selection	F-57
Operation	F-57
Technical Data	F-58
Wiring Diagram	F-59
Dimensions	F-60
Altitudes - Ratio-Corrector Factor	F-60

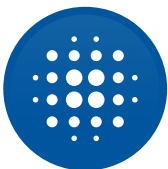


# VERSATILITY AND ECONOMY

The 17.5 mm wide Electronic Relays of the Modular Line were designed according to international standards, being a compact, effective and safe solution for industrial, commercial and residential applications.

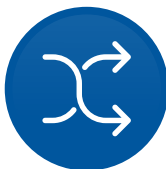
The line offers many timing options for applications of motor control and starting, industrial and commercial automation, as well as specific functions for lighting system control and voltage monitoring. Its reduced size also allows the installation in distribution boards, electrical panels or motor starters, simplifying even more its application.

## Benefits



### COMPACT

Compact size,  
17.5 mm wide



### MODULAR

Suitable for installation in distribution  
boards, industrial panels and motor  
starters



### EASY INSTALLATION

- Direct mounting on DIN rail  
35 mm or fixed with screws
- Application in industrial or  
residential environments





**ENERGY SAVINGS**

Low energy consumption due to highly precise electronic circuit



**INTERNATIONAL CERTIFICATIONS**

Designed according to the following standards:

- IEC / EN 60947-1
- IEC / EN 61812
- IEC / EN 60947-5-1
- UL 508 CAN / CSA C22.2<sup>1)</sup>

Note: 1) UL certification in progress.

# Applications



Industries in general



Panel installers



Residential and commercial buildings



Hospital installations



Agribusiness

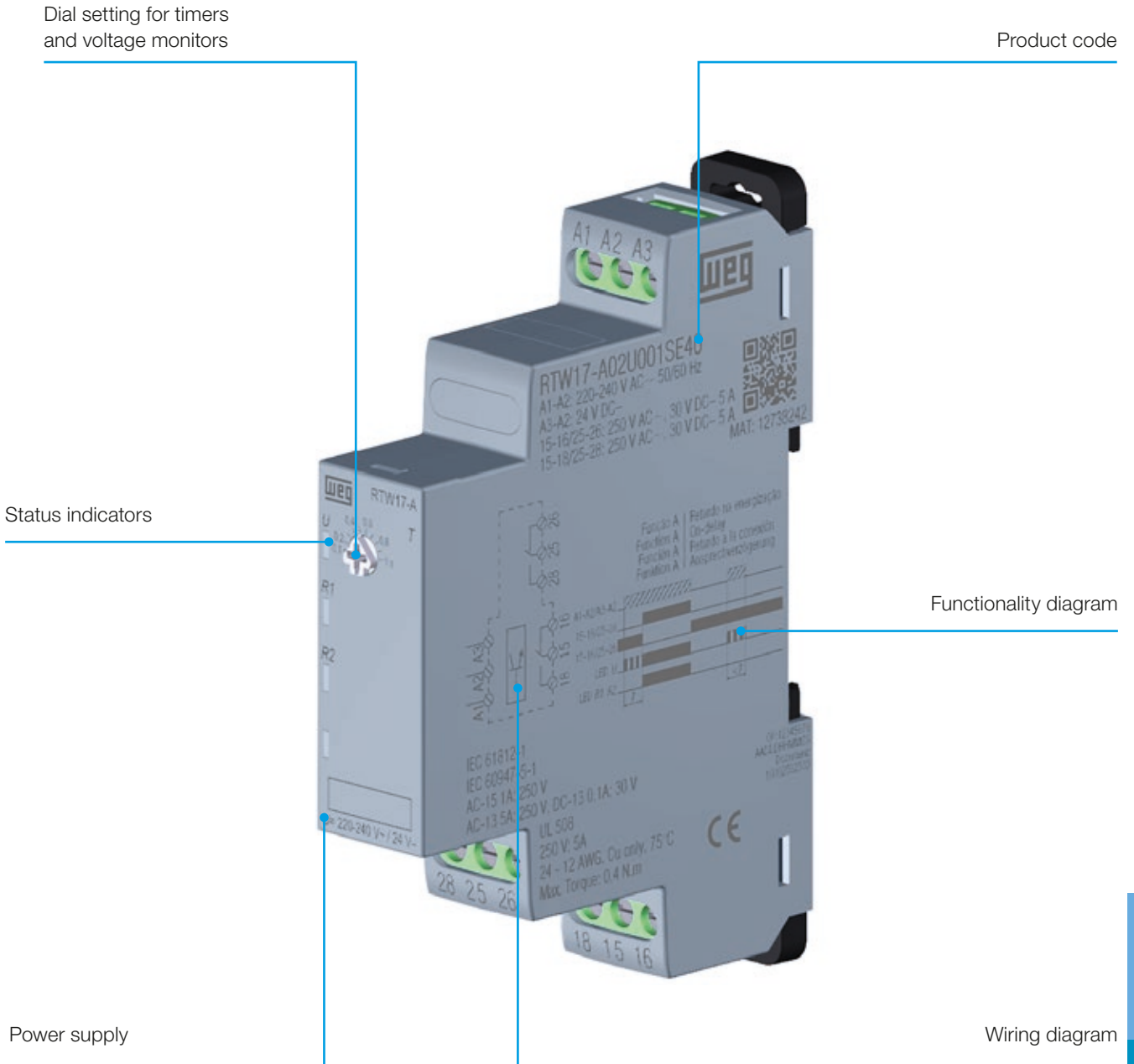


Shopping malls



Food equipment

## Construction Characteristics



A

B

C

D

E

F

F2

G

H



# TIMING RELAYS

## RTW17

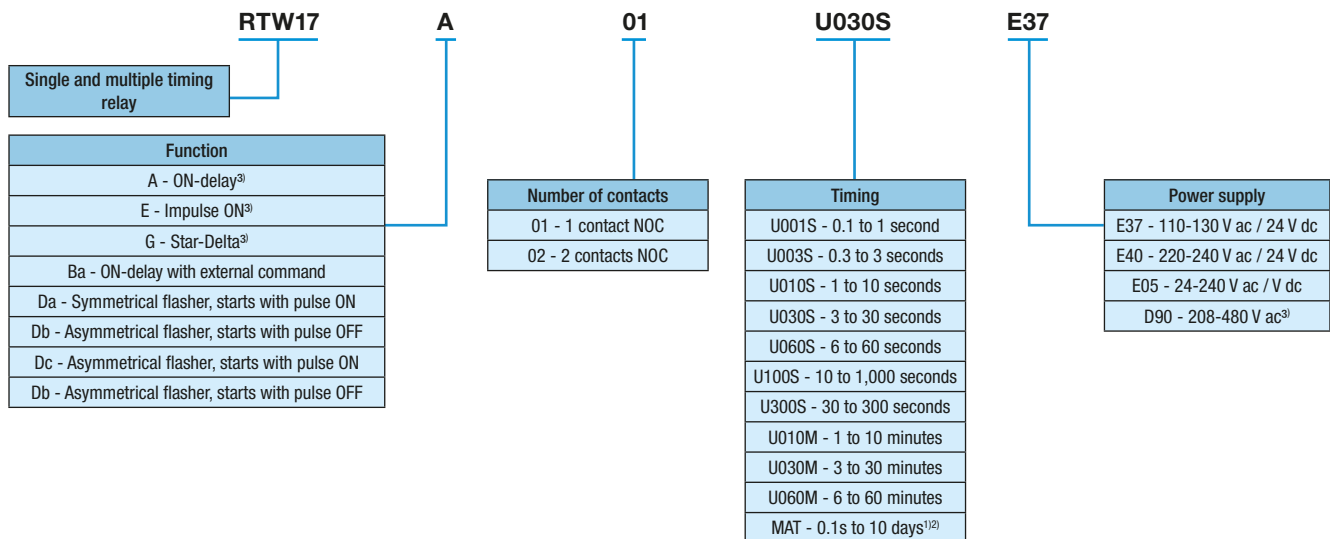
Electronic devices that allow switching an output signal according to the timing function and selected time. They are available in 17.5 mm wide boxes and can be mounted on DIN rails 35 mm or fixed by screws, available with one or two NOC outputs.

They can be used in different types of industrial applications, such as electric motor starters, control panels, industrial furnaces, die casting machines, among others. They can also be used in residential and commercial applications.

### RTW17 - Timing Functions

- RTW17-A - ON-delay
- RTW17-E - Impulse ON
- RTW17-G - Star-Delta
- RTW17-Ba - ON-delay with external command
- RTW17-Da - Symmetrical flasher, starts with pulse ON
- RTW17-Db - Symmetrical flasher, starts with pulse OFF
- RTW17-Dc - Asymmetrical flasher, starts with pulse ON
- RTW17-Dd - Asymmetrical flasher, starts with pulse OFF

### Coding



Note: 1) MAT multiple timing models available only for RTW17-A, E, G, Ba, Da, Db models.

2) Multiple timing models only at voltage E05 - 24-240 V ac / V dc.

3) D90 - 208-480 V ac only for functions RTW17-A, E and G.

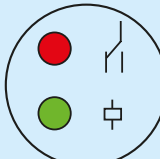
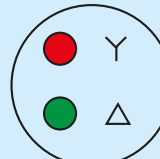
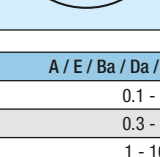
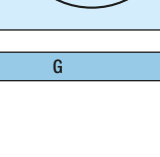
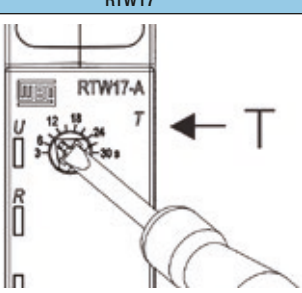
A  
B  
C  
D  
E  
F  
F2  
G  
H

# Time Range Adjustment

## Single Timing



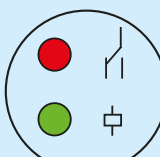
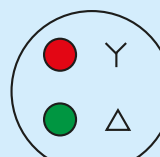
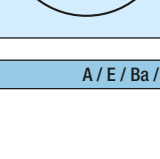
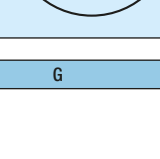
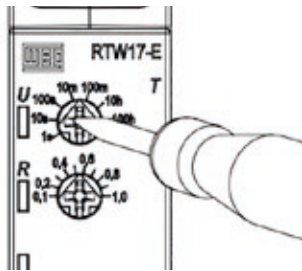
Example: RTW17-A

		RTW17 - A / E / Ba / Da / Db / Dc / Dd		RTW17 - G	
Red LED	Output on		Time Y		
Green LED	Power supply		Time Δ		
RTW17		A / E / Ba / Da / Db / Dc / Dd		G	
		0.1 - 1s		3 - 30s	
		0.3 - 3s			
		1 - 10s			
		3 - 30s			
		6 - 60s			
		10 - 100s			
		30 - 300s			
		1 - 10min			
3 - 30min					
6 - 60min					

## Multiple Timing



Example: RTW17-E

		RTW17 - A / E / Ba / Da / Db		RTW17 - G	
Red LED	Output on		Time Y		
Green LED	Power supply		Time Δ		
RTW17		A / E / Ba / Da / Db		G	
		0.1s - 10 days		0.1s - 10 days	

# Functions

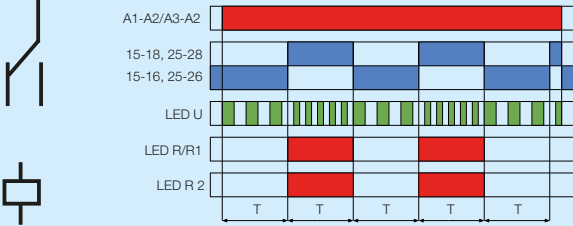
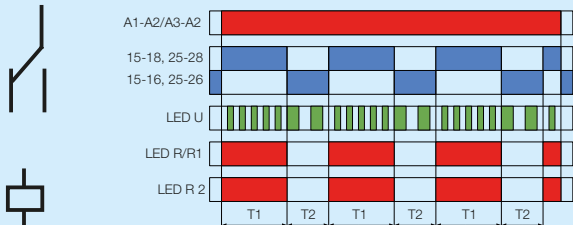
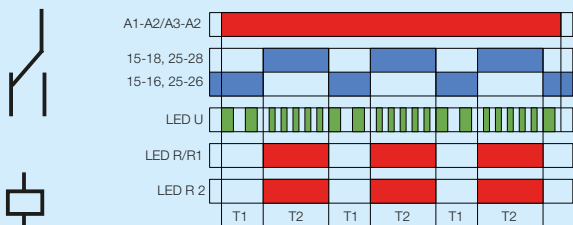
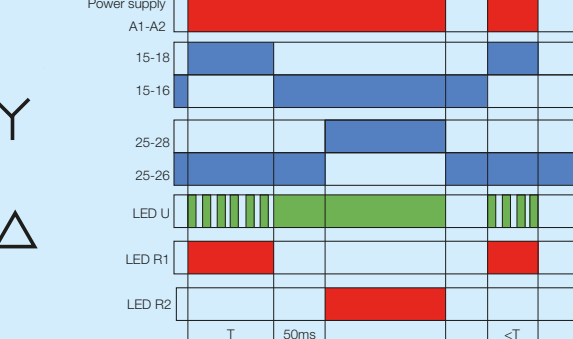
## Single Timing Models (RTW17) or Multiple Timing (RTW17-MAT)

Operating mode	Timing diagram
<p><b>RTW17-A (ON-delay)</b>                      After the relay is energized, the time (T) set on the selector starts counting. After such time has elapsed, the output contacts will switch, remaining in that state until the power supply is interrupted.</p>	
<p><b>RTW17-E (impulse ON)</b>                      After the relay is energized, the output contacts are instantly switched and remain activated for the time (T) set on the selector.</p>	
<p><b>RTW17-Ba (ON-delay with external command)</b>                      With the relay energized, from the energization of the command terminal, the output contacts switch instantly. When the command is removed, the output contacts return to the original condition after the time (T), set on the selector switch, has elapsed.</p>	
<p><b>RTW17-Da (symmetrical flasher, starts with pulse ON)</b>                      After the relay is energized, the output contacts are activated; after the time set in the selector switch has elapsed, the contacts are deactivated; such behavior will continue cyclically. A single selection determines the relay time ON and time OFF.</p>	



# Functions

## Single Timing Models (RTW17) or Multiple Timing (RTW17-MAT)

Operating mode	Timing diagram
<p><b>RTW17-Db (symmetrical flasher, starts with pulse OFF)</b>                      After the relay is energized, the output contacts remain deactivated; after the time set in the selector switch has elapsed, the contacts are activated; such behavior will continue cyclically. A single selection determines the relay time ON and time OFF.</p>	 <p>The diagram shows a red bar for A1-A2/A3-A2 contacts, blue bars for 15-18, 25-28 and 15-16, 25-26 contacts, and green bars for LED U. Red bars for LED R/R1 and LED R 2 are shown. The timing is marked with 'T' for both ON and OFF periods.</p>
<p><b>RTW17-Dc (asymmetrical flasher, starts with pulse ON)</b>                      After the relay is energized, the output contacts are activated and deactivated cyclically with the first cycle ON.                      The upper selector switch determines the time (T1) the contacts remain activated, while the lower selector switch determines the time (T2) the contacts remain deactivated.</p>	 <p>The diagram shows a red bar for A1-A2/A3-A2 contacts, blue bars for 15-18, 25-28 and 15-16, 25-26 contacts, and green bars for LED U. Red bars for LED R/R1 and LED R 2 are shown. The timing is marked with T1 and T2 intervals.</p>
<p><b>RTW17-Dd (asymmetrical flasher, starts with pulse ON)</b>                      After the relay is energized, the output contacts are activated and deactivated cyclically with the first cycle OFF.                      The upper selector switch determines the time (T1) the contacts remain activated, while the lower selector switch (T2) determines the time the contacts remain deactivated.</p>	 <p>The diagram shows a red bar for A1-A2/A3-A2 contacts, blue bars for 15-18, 25-28 and 15-16, 25-26 contacts, and green bars for LED U. Red bars for LED R/R1 and LED R 2 are shown. The timing is marked with T1 and T2 intervals.</p>
<p><b>RTW17-G (star-delta)</b>                      After the relay is energized, the star output contacts instantly switch and remain activated for the time (T) set on the selector switch. After 50 ms, the delta terminals are activated and remain in that state until the power supply is interrupted.</p>	 <p>The diagram shows Power supply, A1-A2, 15-18, 15-16, 25-28, 25-26, LED U, LED R1, and LED R2. The timing is marked with T, 50ms, and &lt;T intervals.</p>

Note: MAT multiple timing functions available only for RTW17-A, E, Ba, Da, Db, G models.

A

B

C

D

E

F

F2

G

H

# Selection

## Single Timing Relays - RTW17

### Function: ON-delay

Model	Function	Contacts	Timing	Reference
RTW17	A	1NC	T: 0.1-1s	RTW17-A01U001S•
			T: 0.3-3s	RTW17-A01U003S•
			T: 1-10s	RTW17-A01U010S•
			T: 3-30s	RTW17-A01U030S•
			T: 6-60s	RTW17-A01U060S•
			T: 10-100s	RTW17-A01U100S•
			T: 30-300s	RTW17-A01U300S•
			T: 1-10min	RTW17-A01U010M•
			T: 3-30min	RTW17-A01U030M•
		T: 6-60min	RTW17-A01U060M•	
		2NC	T: 0.1-1s	RTW17-A02U001S•
			T: 0.3-3s	RTW17-A02U003S•
			T: 1-10s	RTW17-A02U010S•
			T: 3-30s	RTW17-A02U030S•
			T: 6-60s	RTW17-A02U060S•
			T: 10-100s	RTW17-A02U100S•
			T: 30-300s	RTW17-A02U300S•
			T: 1-10min	RTW17-A02U010M•
T: 3-30min	RTW17-A02U030M•			
T: 6-60min	RTW17-A02U060M•			



• Power supply		
Code	Supply terminals 1	Supply terminals 2
E37	A1-A2: 110-130 V ac	A3-A2: 24 V dc
E40	A1-A2: 220-240 V ac	
E05	A1-A2: 24-240 V ac / V dc	-
D90	A1-A2: 208-480 V ac	

### Function: Impulse ON (E)

Model	Function	Contacts	Timing	Reference
RTW17	E	1NC	T: 0.1-1s	RTW17-E01U001S•
			T: 0.3-3s	RTW17-E01U003S•
			T: 1-10s	RTW17-E01U010S•
			T: 3-30s	RTW17-E01U030S•
			T: 6-60s	RTW17-E01U060S•
			T: 10-100s	RTW17-E01U100S•
			T: 30-300s	RTW17-E01U300S•
			T: 1-10min	RTW17-E01U010M•
			T: 3-30min	RTW17-E01U030M•
		T: 6-60min	RTW17-E01U060M•	
		2NC	T: 0.1-1s	RTW17-E02U001S•
			T: 0.3-3s	RTW17-E02U003S•
			T: 1-10s	RTW17-E02U010S•
			T: 3-30s	RTW17-E02U030S•
			T: 6-60s	RTW17-E02U060S•
			T: 10-100s	RTW17-E02U100S•
			T: 30-300s	RTW17-E02U300S•
			T: 1-10min	RTW17-E02U010M•
T: 3-30min	RTW17-E02U030M•			
T: 6-60min	RTW17-E02U060M•			



• Power supply		
Code	Supply terminals 1	Supply terminals 2
E37	A1-A2: 110-130 V ac	A3-A2: 24 V dc
E40	A1-A2: 220-240 V ac	
E05	A1-A2: 24-240 V ac / V dc	-
D90	A1-A2: 208-480 V ac	



# Selection

## Single Timing Relays - RTW17

### Function: ON-delay with External Command (Ba)

Model	Function	Contacts	Timing	Reference
RTW17	Ba	1NC	T: 0.1-1s	RTW17-Ba01U001S•
			T: 0.3-3s	RTW17-Ba01U003S•
			T: 1-10s	RTW17-Ba01U010S•
			T: 3-30s	RTW17-Ba01U030S•
			T: 6-60s	RTW17-Ba01U060S•
			T: 10-100s	RTW17-Ba01U100S•
			T: 30-300s	RTW17-Ba01U300S•
			T: 1-10min	RTW17-Ba01U010M•
			T: 3-30min	RTW17-Ba01U030M•
		T: 6-60min	RTW17-Ba01U060M•	
		2NC	T: 0.1-1s	RTW17-Ba02U001S•
			T: 0.3-3s	RTW17-Ba02U003S•
			T: 1-10s	RTW17-Ba02U010S•
			T: 3-30s	RTW17-Ba02U030S•
			T: 6-60s	RTW17-Ba02U060S•
			T: 10-100s	RTW17-Ba02U100S•
			T: 30-300s	RTW17-Ba02U300S•
			T: 1-10min	RTW17-Ba02U010M•
T: 3-30min	RTW17-Ba02U030M•			
T: 6-60min	RTW17-Ba02U060M•			



• Power supply		
Code	Supply terminals 1	Supply terminals 2
E37	A1-A2: 110-130 V ac	A3-A2: 24 V dc
E40	A1-A2: 220-240 V ac	
E05	A1-A2: 24-240 V ac / V dc	-

### Function: Symmetrical Flasher, Starts with Pulse ON (Da)

Model	Function	Contacts	Timing	Reference
RTW17	Da	1NC	T: 0.1-1s	RTW17-Da01U001S•
			T: 0.3-3s	RTW17-Da01U003S•
			T: 1-10s	RTW17-Da01U010S•
			T: 3-30s	RTW17-Da01U030S•
			T: 6-60s	RTW17-Da01U060S•
			T: 10-100s	RTW17-Da01U100S•
			T: 30-300s	RTW17-Da01U300S•
			T: 1-10min	RTW17-Da01U010M•
			T: 3-30min	RTW17-Da01U030M•
		T: 6-60min	RTW17-Da01U060M•	
		2NC	T: 0.1-1s	RTW17-Da02U001S•
			T: 0.3-3s	RTW17-Da02U003S•
			T: 1-10s	RTW17-Da02U010S•
			T: 3-30s	RTW17-Da02U030S•
			T: 6-60s	RTW17-Da02U060S•
			T: 10-100s	RTW17-Da02U100S•
			T: 30-300s	RTW17-Da02U300S•
			T: 1-10min	RTW17-Da02U010M•
T: 3-30min	RTW17-Da02U030M•			
T: 6-60min	RTW17-Da02U060M•			



• Power supply		
Code	Supply terminals 1	Supply terminals 2
E37	A1-A2: 110-130 V ac	A3-A2: 24 V dc
E40	A1-A2: 220-240 V ac	
E05	A1-A2: 24-240 V ac / V dc	-

A  
B  
C  
D  
E  
F  
F2  
G  
H

## Selection

### Single Timing Relays - RTW17

#### Function: Symmetrical Flasher, Starts with Pulse OFF (Db)

Model	Function	Contacts	Timing	Reference
RTW17	Db	1NC	T: 0.1-1s	RTW17-Db01U001S•
			T: 0.3-3s	RTW17-Db01U003S•
			T: 1-10s	RTW17-Db01U010S•
			T: 3-30s	RTW17-Db01U030S•
			T: 6-60s	RTW17-Db01U060S•
			T: 10-100s	RTW17-Db01U100S•
			T: 30-300s	RTW17-Db01U300S•
			T: 1-10min	RTW17-Db01U010M•
			T: 3-30min	RTW17-Db01U030M•
		T: 6-60min	RTW17-Db01U060M•	
		2NC	T: 0.1-1s	RTW17-Db02U001S•
			T: 0.3-3s	RTW17-Db02U003S•
			T: 1-10s	RTW17-Db02U010S•
			T: 3-30s	RTW17-Db02U030S•
			T: 6-60s	RTW17-Db02U060S•
			T: 10-100s	RTW17-Db02U100S•
			T: 30-300s	RTW17-Db02U300S•
			T: 1-10min	RTW17-Db02U010M•
T: 3-30min	RTW17-Db02U030M•			
T: 6-60min	RTW17-Db02U060M•			



• Power supply		
Code	Supply terminals 1	Supply terminals 2
E37	A1-A2: 110-130 V ac	A3-A2: 24 V dc
E40	A1-A2: 220-240 V ac	
E05	A1-A2: 24-240 V ac / V dc	-

#### Function: Asymmetrical Flasher, Starts with Pulse ON (Dc)

Model	Function	Contacts	Timing	Reference
RTW17	Dc	1NC	T: 0.1-1s	RTW17-Dc01U001S•
			T: 0.3-3s	RTW17-Dc01U003S•
			T: 1-10s	RTW17-Dc01U010S•
			T: 3-30s	RTW17-Dc01U030S•
			T: 6-60s	RTW17-Dc01U060S•
			T: 10-100s	RTW17-Dc01U100S•
			T: 30-300s	RTW17-Dc01U300S•
			T: 1-10min	RTW17-Dc01U010M•
			T: 3-30min	RTW17-Dc01U030M•
		T: 6-60min	RTW17-Dc01U060M•	
		2NC	T: 0.1-1s	RTW17-Dc02U001S•
			T: 0.3-3s	RTW17-Dc02U003S•
			T: 1-10s	RTW17-Dc02U010S•
			T: 3-30s	RTW17-Dc02U030S•
			T: 6-60s	RTW17-Dc02U060S•
			T: 10-100s	RTW17-Dc02U100S•
			T: 30-300s	RTW17-Dc02U300S•
			T: 1-10min	RTW17-Dc02U010M•
T: 3-30min	RTW17-Dc02U030M•			
T: 6-60min	RTW17-Dc02U060M•			



• Power supply		
Code	Supply terminals 1	Supply terminals 2
E37	A1-A2: 110-130 V ac	A3-A2: 24 V dc
E40	A1-A2: 220-240 V ac	
E05	A1-A2: 24-240 V ac / V dc	-

## Selection

### Single Timing Relays - RTW17

Function: Cyclical Asymmetrical, Start ON (Dd)

Model	Function	Contacts	Timing	Reference
RTW17	Dd	1NC	T: 0.1-1s	RTW17-Dd01U001S•
			T: 0.3-3s	RTW17-Dd01U003S•
			T: 1-10s	RTW17-Dd01U010S•
			T: 3-30s	RTW17-Dd01U030S•
			T: 6-60s	RTW17-Dd01U060S•
			T: 10-100s	RTW17-Dd01U100S•
			T: 30-300s	RTW17-Dd01U300S•
			T: 1-10min	RTW17-Dd01U010M•
			T: 3-30min	RTW17-Dd01U030M•
		T: 6-60min	RTW17-Dd01U060M•	
		2NC	T: 0.1-1s	RTW17-Dd02U001S•
			T: 0.3-3s	RTW17-Dd02U003S•
			T: 1-10s	RTW17-Dd02U010S•
			T: 3-30s	RTW17-Dd02U030S•
			T: 6-60s	RTW17-Dd02U060S•
			T: 10-100s	RTW17-Dd02U100S•
			T: 30-300s	RTW17-Dd02U300S•
			T: 1-10min	RTW17-Dd02U010M•
T: 3-30min	RTW17-Dd02U030M•			
T: 6-60min	RTW17-Dd02U060M•			



• Power supply		
Code	Supply terminals 1	Supply terminals 2
E37	A1-A2: 110-130 V ac	A3-A2: 24 V dc
E40	A1-A2: 220-240 V ac	
E05	A1-A2: 24-240 V ac / V dc	-

### Star-Delta Function (G)

Model	Function	Contacts	Timing	Reference
RTW17	G	2NC	T: 3-30s	RTW17-G02U030S•

• Power supply		
Code	Supply terminals 1	Supply terminals 2
E37	A1-A2: 110-130 V ac	A3-A2: 24 V dc
E40	A1-A2: 220-240 V ac	
E05	A1-A2: 24-240 V ac / V dc	-
D90	A1-A2: 208-480 V ac	



### RTW17 Timing Relays - MAT Multiple Timing

Model	Function	Supply voltage	Contacts	Timing	Reference
RTW17	On-delay (A)	24-240 V ac / V dc	1NAF	T: 0.1 s to 10 days	RTW17-A01MATE05
			2NAF		RTW17-A02MATE05
	Impulse ON (E)	24-240 V ac / V dc	1NAF	T: 0.1 s to 10 days	RTW17-E01MATE05
			2NAF		RTW17-E02MATE05
	OFF-delay with control signal (Ba)	24-240 V ac / V dc	1NAF	T: 0.1 s to 10 days	RTW17-Ba01MATE05
			2NAF		RTW17-Ba02MATE05
	Symmetrical flasher, starts with pulse ON (Da)	24-240 V ac / V dc	1NAF	T: 0.1 s to 10 days	RTW17-Da01MATE05
			2NAF		RTW17-Da02MATE05
	Symmetrical flasher, starts with pulse OFF (Db)	24-240 V ac / V dc	1NAF	T: 0.1 s to 10 days	RTW17-Db01MATE05
			2NAF		RTW17-Db02MATE05
	Star-delta (G)	24-240 V ac / V dc	2NAF	T: 0.1 s to 10 days	RTW17-G02MATE05



Power Supply	
Code	Supply terminals 1
E05	24-240V ac / V dc

A  
B  
C  
D  
E  
F  
G  
H

# Wiring Diagram

## Timing Relays RTW17 - Single Timing and Multiple Timing

Reference		RTW17-A					
Contacts		1NOC	2NOC	1NOC	2NOC	1NOC	2NOC
Terminal position							
Wiring diagram							
Circuit		110-130 V ac / 24 V dc		24-240 V ac / V dc		208-480 V ac	
		220-240 V ac / 24 V dc		-		-	
		24 V dc		-		-	
Terminals	15-16-18	Output 1	Output 1	Output 1	Output 1	Output 1	Output 1
	25-26-28	-	Output 2	-	Output 2	-	Output 2

Reference		RTW17-Da				RTW17-Db	
Contacts		1NOC	2NOC	1NOC	2NOC	1NOC	2NOC
Terminal position							
Wiring diagram							
Circuit		110-130 V ac / 24 V dc		24-240 V ac / V dc		110-130 V ac / 24 V dc	
		220-240 V ac / 24 V dc		-		220-240 V ac / 24 V dc	
		24 V dc		-		24 V dc	
Terminals	15-16-18	Output 1	Output 1	Output 1	Output 1	Output 1	Output 1
	25-26-28	-	Output 2	-	Output 2	-	Output 2

Reference		RTW17-Dd				RTW17-G	
Contacts		1NOC	2NOC	1NOC	2NOC	2NOC	2NOC
Terminal position							
Wiring diagram							
Circuit		110-130 V ac / 24 V dc		24-240 V ac / V dc		110-130 V ac / 24 V dc	24-240 V ac / V dc
		220-240 V ac / 24 V dc		-		220-240 V ac / 24 V dc	-
		24 V dc		-		-	-
Terminals	15-16-18	Output 1	Output 1	Output 1	Output 1	Output 1	Output 1
	25-26-28	-	Output 2	-	Output 2	Output 2	Output 2

# Wiring Diagram

## Timing Relays RTW17 - Single Timing and Multiple Timing

RTW17-E					
1NOC	2NOC	1NOC	2NOC	1NOC	2NOC
110-130 V ac / 24 V dc		24-240 V ac / V dc		208-480 V ac	
220-240 V ac / 24 V dc		-		-	
24 V dc		-		-	
Output 1	Output 1	Output 1	Output 1	Output 1	Output 1
-	Output 2	-	Output 2	-	Output 2

RTW17-Db		RTW17-Dc			
1NOC	2NOC	1NOC	2NOC	1NOC	2NOC
24-240 V ac / V dc		110-130 V ac / 24 V dc		24-240 V ac / V dc	
-		220-240 V ac / 24 V dc		-	
-		24 V dc		-	
Output 1	Output 1	Output 1	Output 1	Output 1	Output 1
-	Output 2	-	Output 2	-	Output 2

RTW17-G	RTW17-Ba				
2NOC	1NOC	2NOC	1NOC	2NOC	
208-480 V ac		110-130 V ac / 24 V dc		24-240 V ac / V dc	
-		220-240 V ac / 24 V dc		-	
-		24 V dc		-	
Output 1	Output 1	Output 1	Output 1	Output 1	Output 1
Output 2	-	Output 2	-	Output 2	-

## Technical Data

			Model				
			RTW17-xxx-UxxxxE37	RTW17-xxx-UxxxxE40	RTW17-xxx-UxxxxE05	RTW17-XXXX-MATE05	RTW17-xxx-UxxxxD90
Input	Power supply (U <sub>s</sub> ) <sup>1)</sup>	A1-A2	110-130 V ac	220-240 V ac	24-240 V ac / V dc	24-240 V ac / V dc	208-480 V ac
		A3-A2	24 V dc	24 V dc	-	-	-
	Operation range		0.85 to 1.10 x U <sub>s</sub>				
	Frequency		50/60 Hz				
	Maximum consumption (U <sub>s</sub> )		70 mA at 130 V ac	70 mA at 240 V ac	70 mA at 240 V ac	70 mA at 240 V ac	70 mA at 240 V ac
	Rated insulation voltage (U <sub>i</sub> )		300 V	300 V	300 V	300 V	600 V
Time adjustment	Minimum time for reset		100ms				
	Minimum period of the command pulse		50ms				
	Scale precision (full scale)		±5%				
	Repeatability precision (full scale)		±2%				
	Switching time Y - Δ (star-delta function)		50ms ±20%				
Output	Capacity of the output contacts (I <sub>e</sub> )		AC-13 (resistive) at 250 V ac: 5 A AC-15 at 230 V ac: 1 A DC-13 at 24 V dc: 1 A DC-13 at 48 V dc: 0.45 A DC-13 at 60 V dc: 0.35 A DC-13 at 125 V dc: 0.2 A DC-13 at 250 V dc: 0.1 A				
	Rated thermal current (I <sub>th</sub> )		5 A for AC				
	Fuse (class gL/gG)		4 A				
	Mechanical life		30 x 10 <sup>6</sup> switching cycles				
Characteristics	Ambient temperature	Operation	-5 °C to +60 °C				
		Storage	-40 °C to +85 °C				
	Protection rating		Enclosure: IP20 Terminals: IP20				
	Connection section (min. to max.)	Cable without end sleeves	2 x 0.5 mm <sup>2</sup> 2 x 1 mm <sup>2</sup>				
		Cable with terminal	1 x (0.5 to 1.5) mm <sup>2</sup> 2 x (0.5 to 0.75) mm <sup>2</sup>				
		Wire AWG <sup>2)</sup>	2 x (28 to 18) AWG				
	Tightening torque		0.4 N.m				
	Terminal screw		3.5 Lb.in				
	Mounting position		Any position				
	Shock resistance		15 g / 11ms				
	Vibration resistance		10 a 55 Hz / 0.35 mm				
	Weight		0.08 kg - models with 1NOC 0.095 kg - models with 2NOC				
	Pollution degree		2				
Overvoltage category		III					

Note: 1) In the versions with two power supplies, only one must be connected.

2) For solid conductors, use gauges of the same diameter.

A

B

C

D

E

F

G

H

# VOLTAGE MONITORING RELAYS

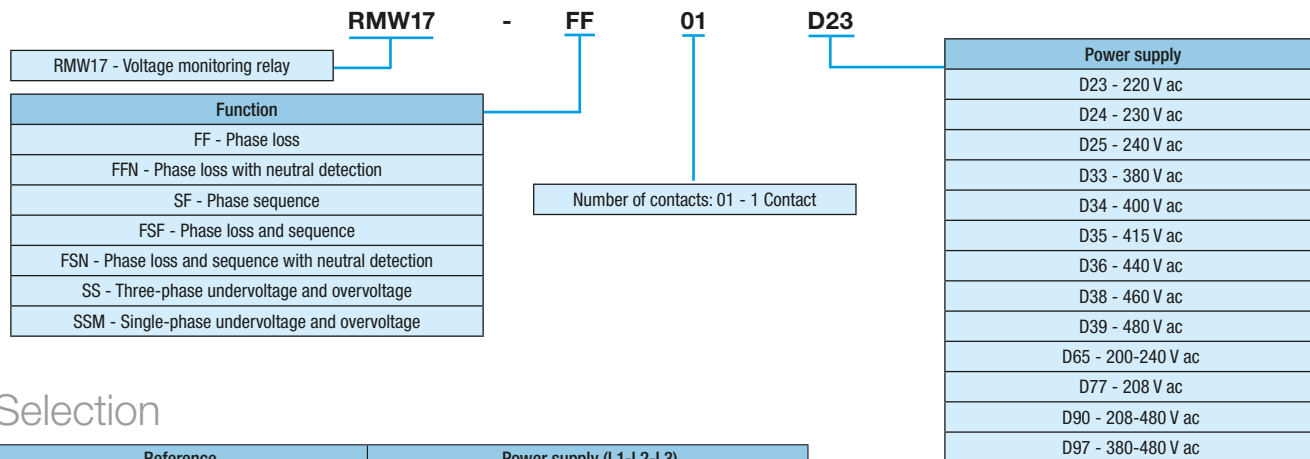
## RMW17

They are electronic devices designed to supervise and monitor three-phase and single-phase power supplies, interrupting the process operation whenever an anomaly occurs. They can switch off circuits and activate safety devices and alarms in order to protect machines and equipment against faults on the power supply according to the settings.

### RMW17 - Voltage Monitoring Functions

- RMW17-FF - Phase loss
- RMW17-FFN - Phase loss with neutral detection
- RMW17-SF - Phase sequence
- RMW17-FSF - Phase loss and sequence
- RMW17-FSN - Phase loss and sequence with neutral detection
- RWM17-SS - Three-phase undervoltage and overvoltage
- RMW17-SSM - Single-phase undervoltage and overvoltage

### Configuration



### Selection

Reference	Power supply (L1-L2-L3)
RMW17-FF01D65	200-240 V ac
RMW17-FFN01D65	200-240 V ac
RMW17-FF01D97	380-480 V ac
RMW17-FFN01D97	380-480 V ac
RMW17-FSF01D65	200-240 V ac
RMW17-FSN01D65	200-240 V ac
RMW17-FSF01D97	380-480 V ac
RMW17-FSN01D97	380-480 V ac
RMW17-SF01D65	200-240 V ac
RMW17-SF01D90	208-480 V ac
RMW17-SS01D77	208 V ac
RMW17-SS01D23	220 V ac
RMW17-SS01D24	230 V ac
RMW17-SS01D25	240 V ac
RMW17-SS01D33	380 V ac
RMW17-SS01D34	400 V ac
RMW17-SS01D35	415 V ac
RMW17-SS01D36	440 V ac
RMW17-SS01D38	460 V ac
RMW17-SS01D39	480 V ac
RMW17-SSM01D23	220 V ac



## Selection

### RMW17-FF/FFN - Phase Loss/Phase Loss with Neutral Function

It is designed to monitor three-phase systems against the loss of one phase (without neutral). In order to monitor the neutral, the FFN model should be used; thus, the RMW-FF will monitor the phase loss and also the neutral voltage (terminal N).

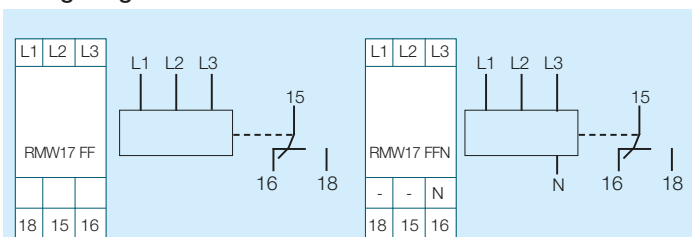
#### Installation

It is directly connected to the three phases, terminals L1, L2 and L3, on the power line to be monitored (connect the neutral to the FFN model if applicable).

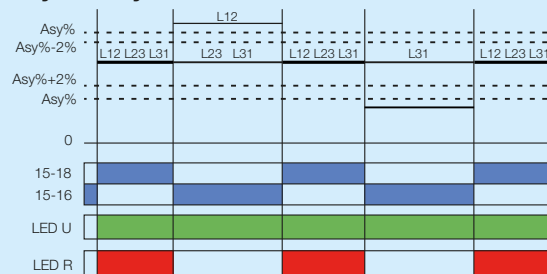
#### Operation

The output relay switches the contacts to the operation position (closing terminals 15-18), and the red LED (relay) and green LED (power supply) will turn on. Adjust the sensitivity of the line voltage. If one of the phases drops down below the percentage limit set on the selector switches, the coil output contacts will be powered down, opening contacts 15-18, and the red LED will turn OFF.

#### Wiring Diagram



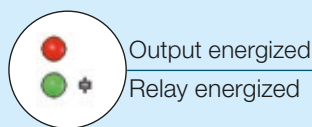
#### Asymmetry Function



#### Phase Loss Function



The RMW17 protector relay has state indication LEDs, as shown below:



### RWM17-SF - Phase Sequence Function

It is designed to monitor three-phase systems against the inversion of phase sequence (L1-L2-L3).

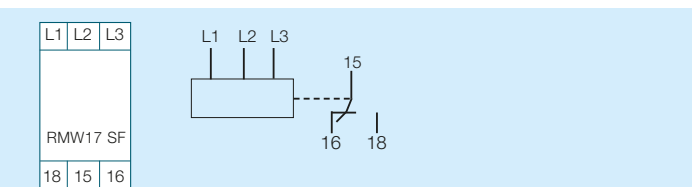
#### Installation

It is directly connected to the three phases, on terminals L1, L2 and L3, on the power line to be monitored.

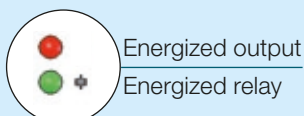
#### Operation

If the phase sequence is correct, the output relay switches the contacts to the operation position (closing terminals 15-18), and the red LED (relay) and green LED (power supply) will turn on.

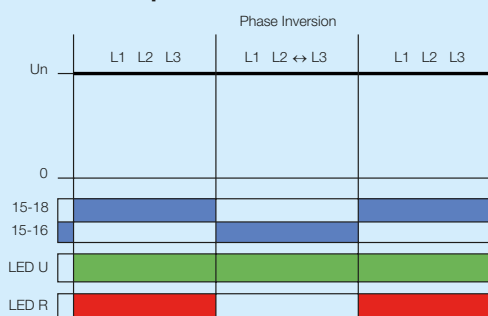
#### Wiring Diagram



The RMW17 protector relay has state indication LEDs, as shown below:



#### Phase Sequence Function





## Selection

### RWM17-FSF/FSN - Phase Loss and Sequence/Phase Loss and Sequence with Neutral

It is designed to monitor three-phase systems against phase loss and inversion. For applications with neutral, the FSN model should be used. The RWM17-FSF will monitor the phase loss and also the voltage on the neutral, which must be connected.



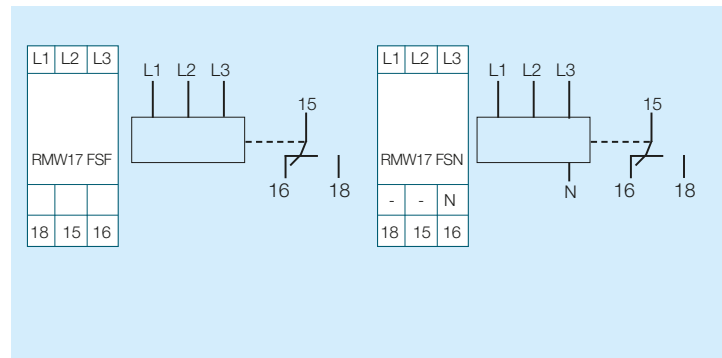
### Installation

It is directly connected to the three phases, on terminals L1, L2 and L3, on the power line to be monitored (connect the neutral to the FSN model if applicable).

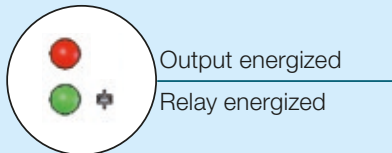
### Operation

Energize the relay and observe if the green LED (power supply) and the red LED (relay) turn on. If they do not turn on, check for voltage between phases L1, L2 and L3 (including in relation to the neutral to be used).

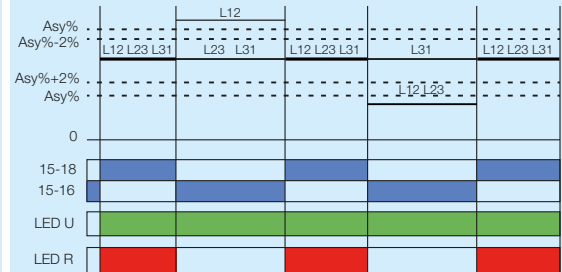
### Wiring Diagram



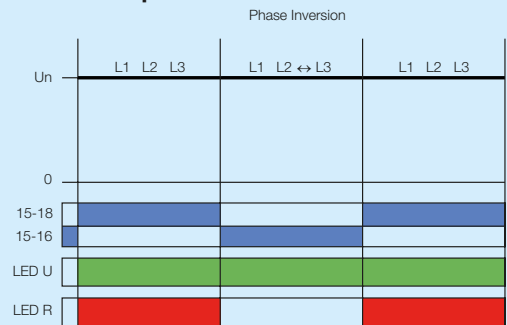
The RWM17 protector relay has state indication LEDs, as shown below:



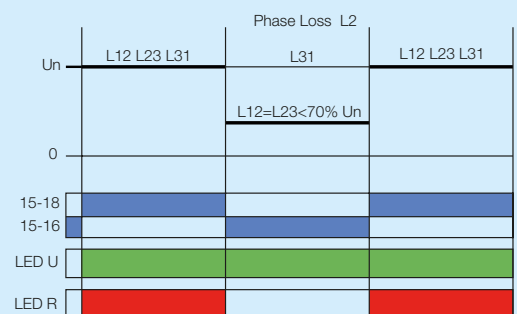
### Asymmetry Function



### Phase Sequence Function



### Phase Loss Function



## Selection

### RMW17-SS/SSM - Three-Phase and Single-Phase Undervoltage and Overvoltage Function

With this function, the RMW17 monitors the minimum and maximum voltage variations within which a three-phase or single-phase power supply can operate. Whenever an under or overvoltage condition is present, the relay will switch its output in order to interrupt the operation of the monitored motor or process.



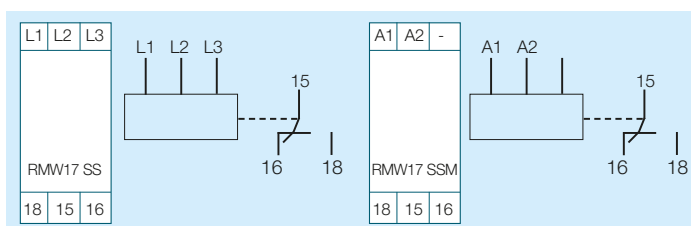
#### Installation

It is directly connected to the three phases, on terminals L1, L2 and L3 or contacts A1-A2 (for single-phase models), on the power line to be monitored.

#### Operation

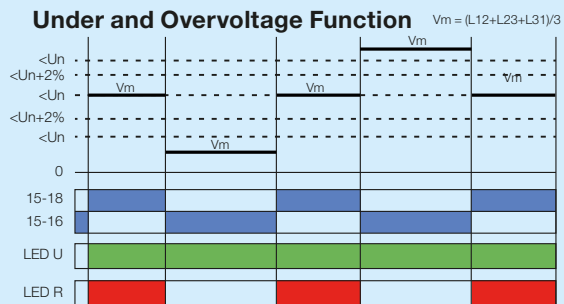
If the voltage applied to terminals A1 and A2 (for the single-phase version) and terminals L1-L2-L3 (for the three-phase version) is correct, the output relay is energized (contacts 15-18 close). If the monitored voltage (power supply) is below or above the adjusted limits for undervoltage and overvoltage, respectively, the output relay is powered down (contacts 15-18 open). The output relay is powered up again when the voltage returns to the acceptable value.

#### Wiring Diagram



	ON	Normal operation
	OFF	Under, overvoltage and phase loss
	ON	Fed
	OFF	Not fed

#### Under and Overvoltage Function



## Technical Data

Product		RMW17
Inputs	Power supply (Us) L1 - L2 - L3 /A1-A2	208 V / 220-240 V/220 V / 230 V / 240 V / 208-480 V / 380 V / 380-480 V / 400 V / 415 V / 440 V / 460 V / 480 V
	Frequency	50/60 Hz
	Sensitivity setting	+ / - 3 to 15%
	Operation range	0.85 to 1.1 x Us for V ac
	Maximum consumption	80 mA
	Maximum voltage allowed on the neutral	20 V ac
	Scale precision (full scale)	+ / - 5%
Outputs	Repeatability precision	+ / - 1%
	Maximum output contact capacity (I <sub>c</sub> )	5 A (resistive load) 3 A (AC-15)
	Fuse (class gL/gG)	4 A
	Mechanical lifespan	30 x 10 <sup>6</sup> operating cycles
Characteristics	Electrical lifespan	10 x 10 <sup>6</sup> operating cycles
	Ambient temperature allowed	-
	- In operation	-5 to +60 °C
	- Stored	-40 to +85 °C
	Degree of protection	Enclosure IP20 / Terminals IP20
	Connection section (min. to max.)	-
	- Wire	1 x (0.5 to 2.5) mm <sup>2</sup> 2 x (0.5 to 1) mm <sup>2</sup>
	- Cable with end sleeves	1 x (0.5 to 1.5) mm <sup>2</sup> 2 x (0.5 to 0.75) mm <sup>2</sup>
	- AWG-wire <sup>1)</sup>	2 x (28 to 18) mm <sup>2</sup>
	Tightening torque	0.4 N.m 3.5 Lb.in
	Terminal screw	M3
	Mounting position	Any
	Shock resistance	15g / 11ms
	Vibration resistance	10 to 55 Hz / 0.35 mm
	Weight	0.1 kg
	Pollution grade	2
Overvoltage category	III	

Note: 1) For wires, use gauges of the same diameter.

# IMPULSE RELAY RIEW17

The RIEW17 impulse relay was designed to be used in the control of automation systems in homes, hotels and commercial or residential buildings. 17.5 mm wide, its compact size allows installation in switchboard panels.

The commands of the automation system can be executed from one or more points, replacing conventional switches by pushbuttons, thus allowing multiple commands in a flexible, simple and quick way, providing greater effectiveness and electric energy savings. It may also be used in the command of illumination systems and other residential automation systems, ensuring safety and reliability. Furthermore, it has incorporated reset (master-off) and alternate current (AC) or direct current (DC) power supply.

## Selection

Reference	Description	Power supply	Contacts	Width
RIEW17-01E40	Impulse relay	220-240 V ac / 24 V dc	1 NO	17.5 mm



## Operation

### Operating Mode

The U LED indicates the RIEW17 is energized (green LED On).

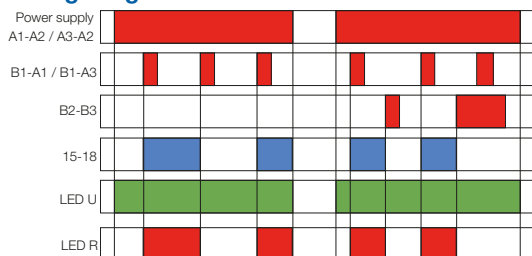
With the RIEW17 energized, when a command pulse is emitted, the output relays picks up, the NO contact closes, thus activating the connected devices.

The R red LED turns on, indicating the output is closed.

After one more command pulse, the output returns to the regular state (NO contact). The R LED turns off.

The reset function (master-off) disables the output relay, regardless of the output contact state. If several RIEW17 relays with reset (master-off) are present in a network and they can be enabled, all of them will be turned off (contacts 15-18 will remain open).

### Timing Diagram



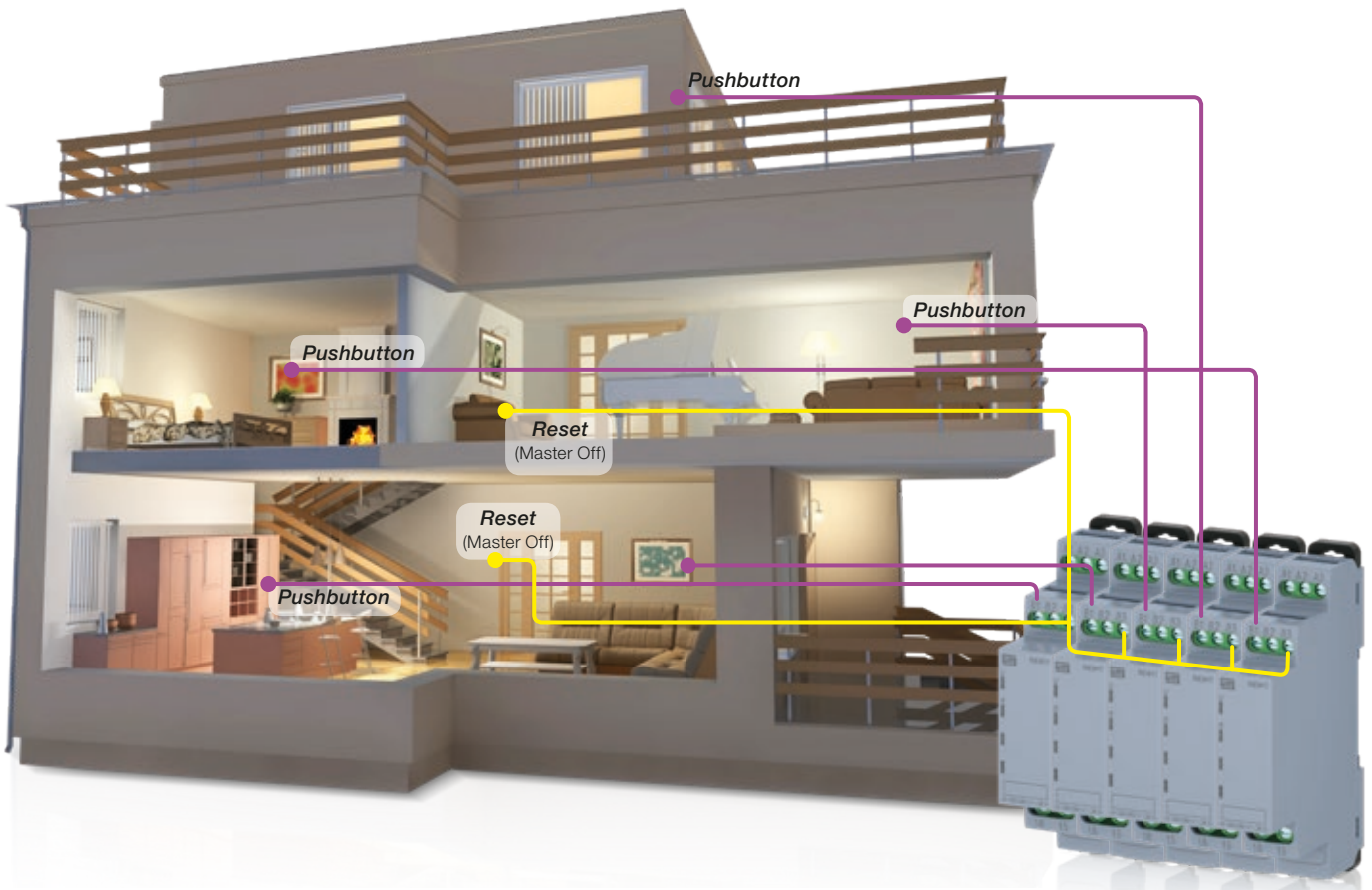
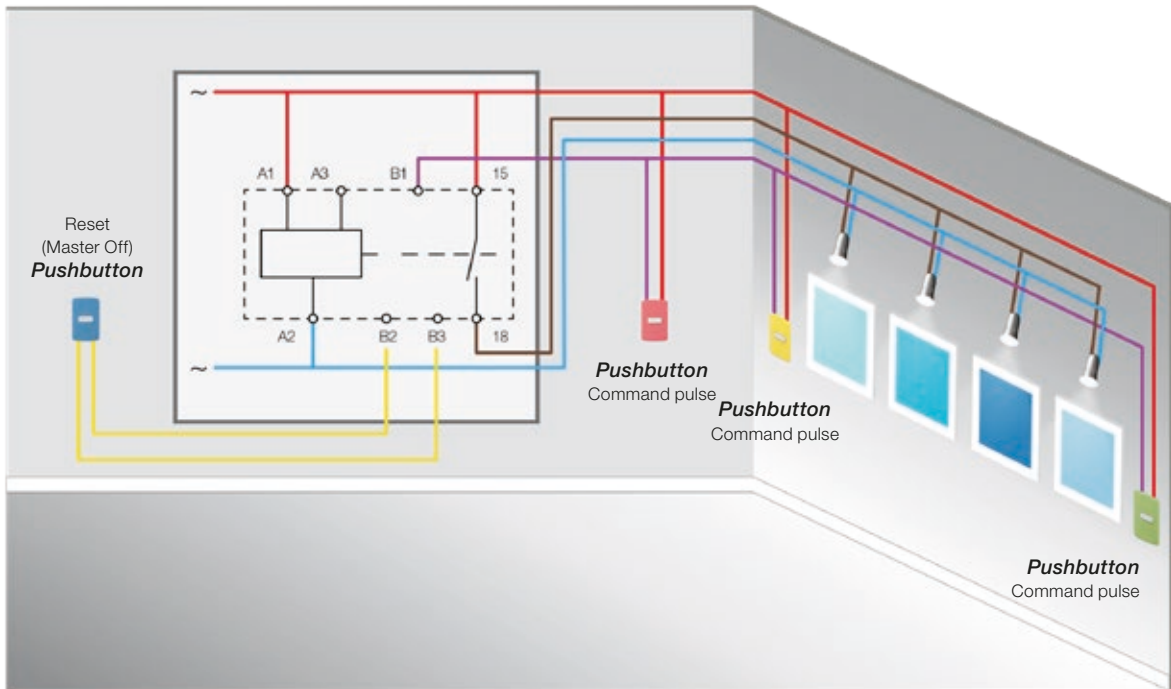
Note: A1-A2/A3-A2: Power supply  
B1-A1/B1-A3: Command pulse  
B2-B3: Reset (Master off)  
15-18: Output contacts  
LED U: Power status indication  
R LED: Output contact status indication

## Technical Data

<b>Product</b>		RIEW17
<b>Power supply (Us)</b>		220-240 V ac / (50/60 Hz) / 24 V dc
<b>Operation range</b>		AC: 0.85 to 1.1 Us
		DC: 0.80 to 1.2 Us
<b>Isolated rated voltage (U)</b>		300 V ac
<b>Switching current</b>	Nominal	16 A
	Maximum instant	30 A
<b>Rated load at AC1</b>		4,000 VA
<b>Rated load at AC15 (230 V ac)</b>		750 VA
<b>Maximum lamp loads</b>		Incandescent/halogen: 3,000 W
		Fluorescent with electronic reactor: 1,500 W
		Fluorescent with electromagnetic reactor: 1,000 W
		CFL: 600 W
		LED (230 V ac): 600 W
		Halogen or LED with electronic reactor: 600 W
		Halogen or LED with electromagnetic reactor: 1,500 W
<b>Output contact</b>		1 NO contact
<b>Characteristics</b>	<b>Electrical lifespan</b>	10 x 10 <sup>6</sup> operating cycles
	<b>Ambient temperature allowed</b>	-
	- In operation	-5 to +60 °C
	- Stored	-40 to +85 °C
	<b>Degree of protection</b>	Enclosure IP20 / Terminals IP20
	<b>Connection section (min. to max.)</b>	-
	- Wire	1 x (0.5 to 2.5) mm <sup>2</sup>
		2 x (0.5 to 1) mm <sup>2</sup>
	- Cable with end sleeves	1 x (0.5 to 1.5) mm <sup>2</sup>
		2 x (0.5 to 0.75) mm <sup>2</sup>
	- AWG-wire <sup>1)</sup>	2 x (28 to 18) mm <sup>2</sup>
	<b>Tightening torque</b>	0.4 N.m
		3.5 Lb.in
	<b>Terminal screw</b>	M3
	<b>Mounting position</b>	Any
	<b>Shock resistance</b>	15g / 11ms
	<b>Vibration resistance</b>	10 to 55 Hz / 0.35 mm
<b>Weight</b>	0.1 kg	
<b>Pollution grade</b>	2	
<b>Overvoltage category</b>	III	

Note: 1) For wires, use gauges of the same diameter.

# Wiring Diagram

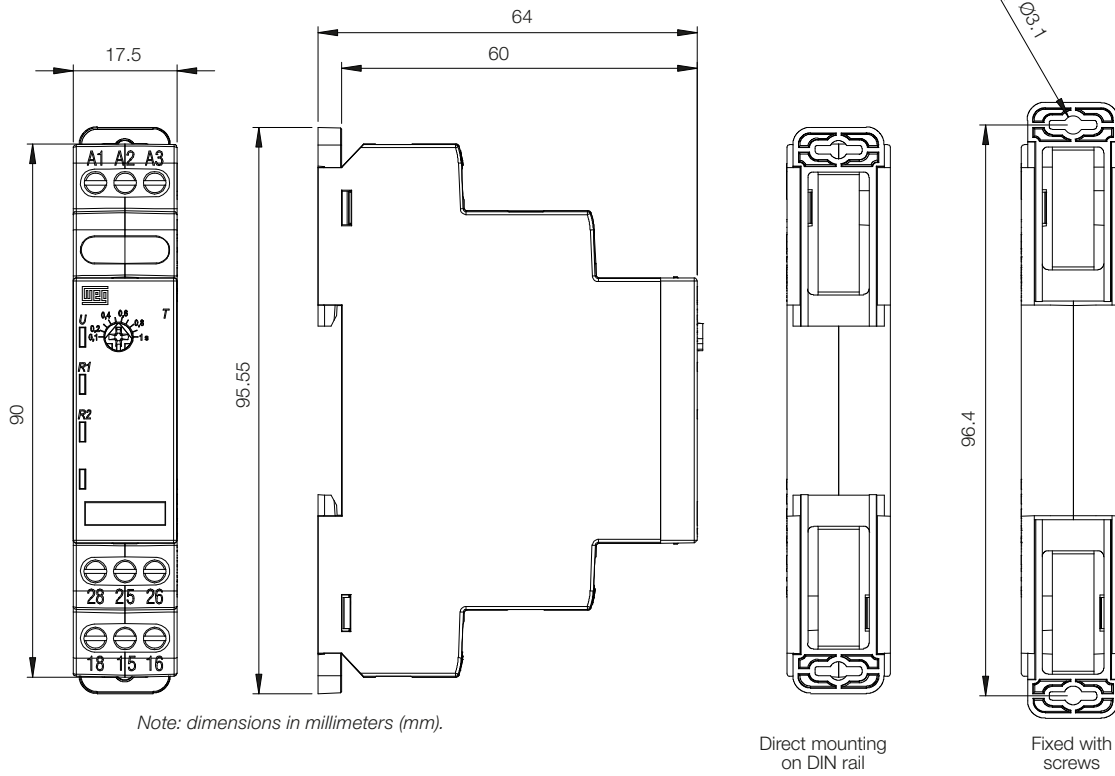


Note: for 24 V dc power supply, see the wiring diagram on the product data sheet.

- A
- B
- C
- D
- E
- F
- G
- H

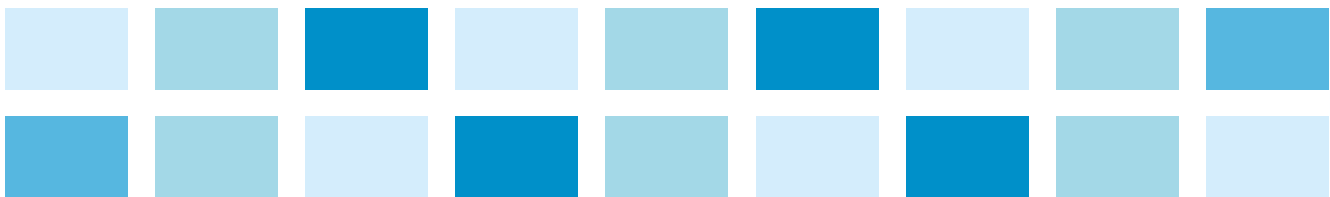
## Dimensions

### RTW17 / RIEW17 / RMW17



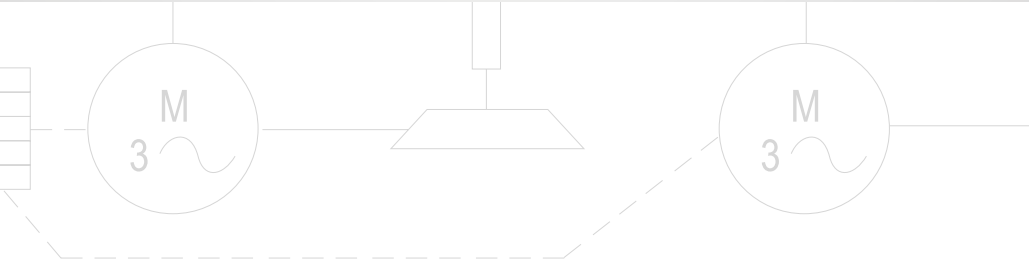
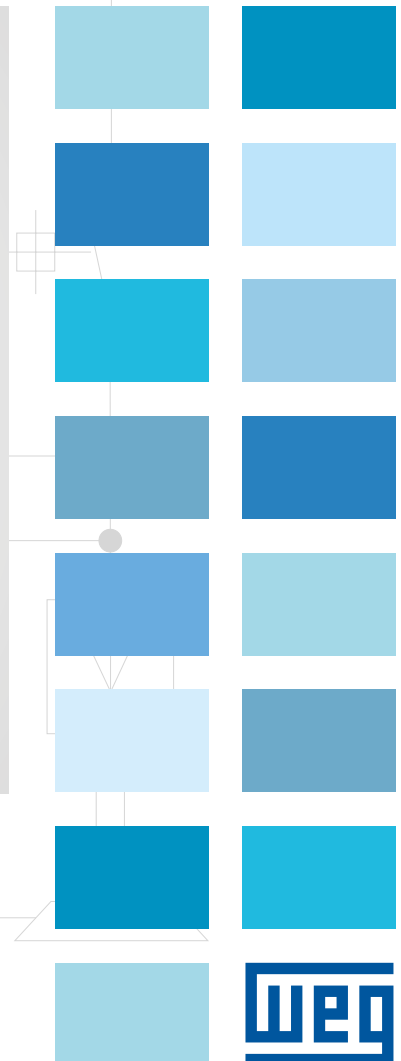
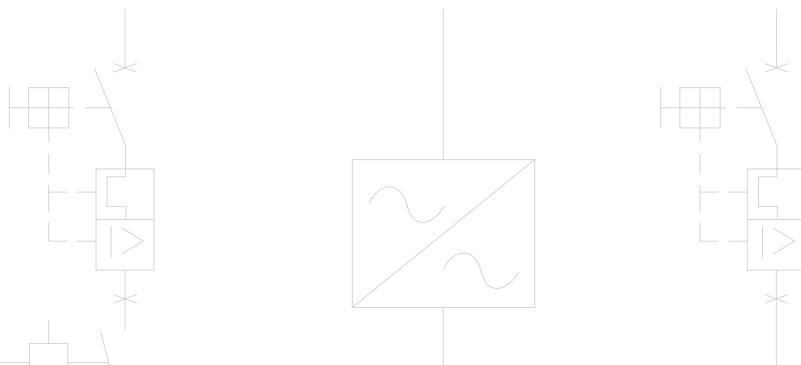
## Altitudes - Ratio-Corrector Factor

Altitude above sea level - h	Voltage ratio-corrector factor ( $U_p$ ) / V	Current ratio-corrector factor ( $I_{cp}$ ) / A
$h \leq 2,000$ m	1	$1 \times I_n$
$2,000 < h \leq 3,000$ m	0.87	$0.95 \times I_n$
$3,000 < h \leq 4,000$ m	0.77	$0.90 \times I_n$
$4,000 < h \leq 5,000$ m	0.67	$0.85 \times I_n$



# Automation

## Pushbuttons and Pilot Lights - CSW Line







# CSW Pushbuttons and Pilot Lights Line

## Index

Introduction	G-4
Pushbuttons and Pilot Lights - CSW Line (Ø22 mm) - IP66	G-6
Overview	G-12
Pushbuttons - Ø22 mm - IP66	G-14
Pushbuttons with Latch - Ø22 mm - IP66	G-20
Illuminated Pushbuttons - Ø22 mm - IP66	G-23
Illuminated Pushbuttons - Ø22 mm - IP40	G-26
Pilot Lights - Ø22 mm - IP66	G-26
2 Positions Selectors - Ø22 mm - IP66	G-27
3 Positions Selectors - Ø22 mm - IP66	G-28
Illuminated Selectors - Ø22 mm - IP66	G-29
Accessories - Mounting in Flanges - Blue	G-30
Accessories - Mounting in Flanges	G-33
Decentralized Control Stations and Accessories	G-35
Accessories - Mounting in Control Stations	G-35
Common Accessories - Mounting in Flanges or Control Stations	G-37
Assembled Units - Ø22 mm	G-40
Coding	G-42
Technical Data	G-44
Assembly Configurations	G-46
Installation and Mounting	G-47
Dimensions	G-49

## Variety and functionality in pushbuttons and pilot lights



Line of Pushbuttons and Pilot Lights was **carefully developed** to meet the **operation and signaling** requirements in a wide range of industrial applications.

All items of the line have been designed and present performance **according to the IEC 60947-5-1** and **UL 508** standards, allowing their **application on machines** and **electrical panels**, intended for **the most demanding markets of the world**.



A

B

C

D

E

F

**G**

H



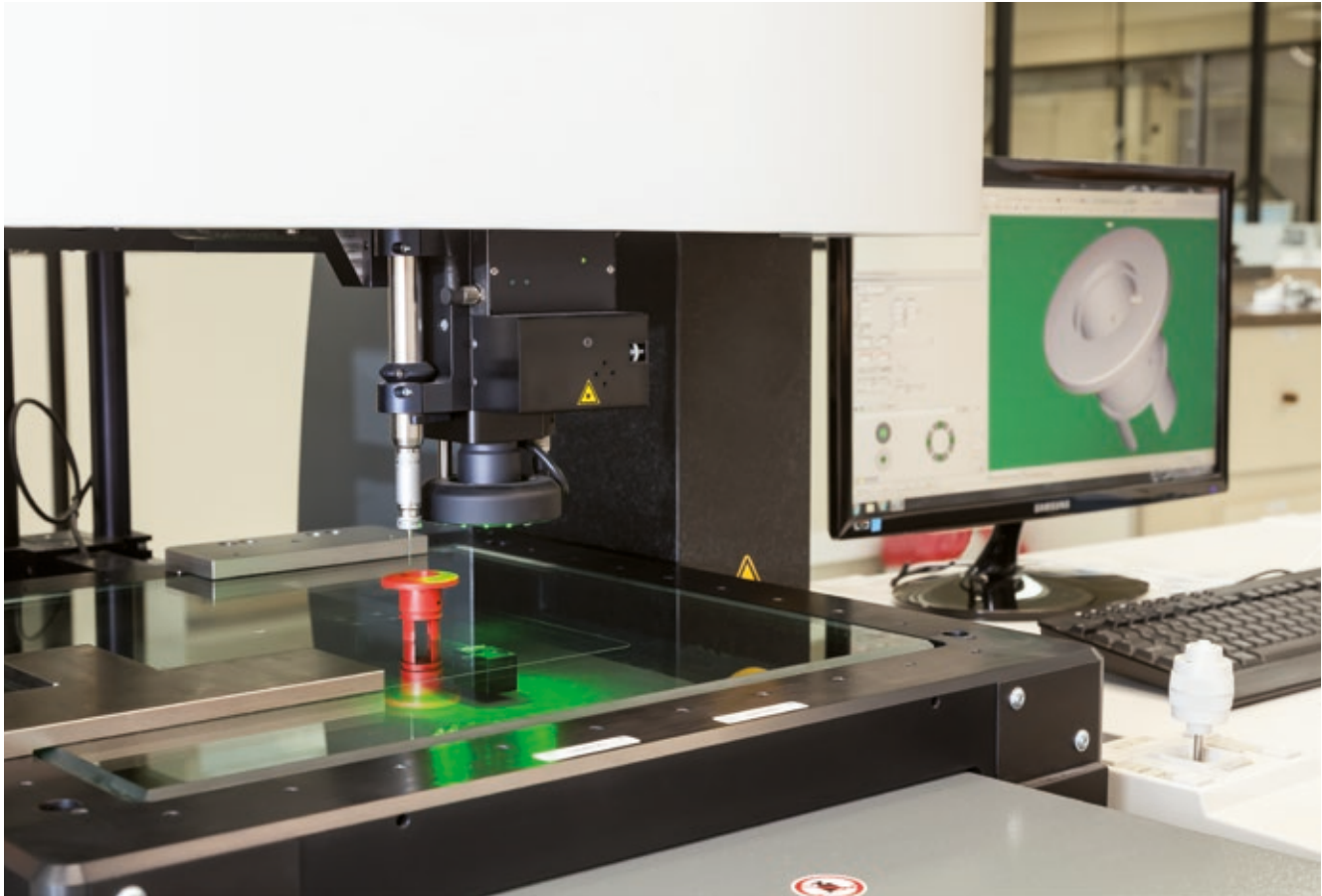
## Pushbuttons and Pilot Lights - CSW Line (Ø22 mm) - IP66

### Design and Construction

In order to ensure a high quality standard and provide reliable performance for the control and signaling circuits, the products of the CSW line are made with high-end materials.

Their anatomical design allows easy understanding and operation.

The CSW line is also characterized by the robustness, reliability and excellent cost effectiveness. 100% produced in Brazil, the CSW line is a world-class WEG product available for its customers worldwide.



### Safety and Reliability

The CSW line offers IP66 protection rating, according to IEC 60529 and Type 4X as per UL 50, providing proper performance even in environments where contaminants such as dust and humidity are present.

All the CSW line is manufactured with non-flammable and UV-ray-protected materials to ensure safety and reliability in applications outdoors and in aggressive environments.



Non-flammable



UV protected

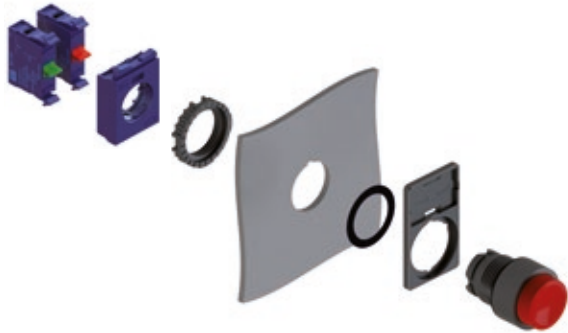
IP66  
(Type 4X)

Protected against  
dust and water jets



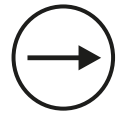
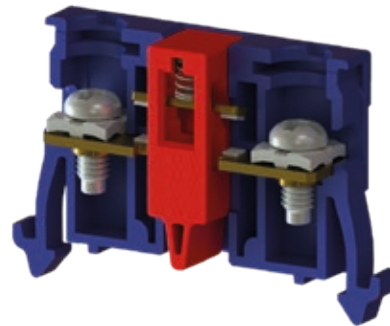
### Easy Assembly

The coupling system of WEG contact or illumination blocks to frontal parts (pushbuttons, selector switches or pilot lights) is made by quick assembly using a dedicated mounting flange with 3 or 5 positions, without requiring any tools. The quick-connecting flanges are installed on the frontal parts with just a click, and they can also be uninstalled from the frontal parts without any tools.



### Self-Cleaning and High-Performance Contact Blocks

The contacts of the CSW line are manufactured with special silver alloys, ensuring high reliability and performance to the control circuits, with low current and voltage levels (5 mA / 17 V dc). WEG contact blocks are self-cleaning, which prevents the internal oxidation of the contacts and ensures better electric conductivity to the circuit. In compliance with the requirements of international occupational safety standards, the NC contact blocks feature positive opening, which ensures the opening of the contact by means of direct action, regardless of any event, such as contact welding.



*Positive opening*

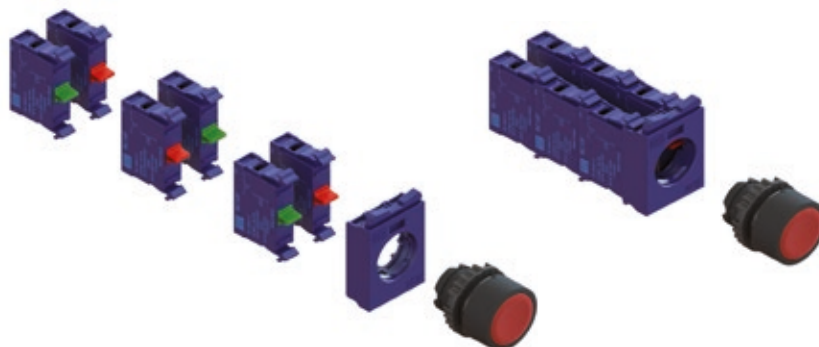
### Different Applications

WEG has a full line of solutions in order to solve challenging industrial applications. The Pushbuttons and Pilot Lights portfolio includes different types of buttons: double, triple and illuminated (LED technology) pushbuttons, emergency-stop pushbuttons and many other options, together with a wide range of accessories. There are several function and options.



### Front-Back Assembly Systems and the New Contact Blocks

By means of special snap fits, the contact blocks can be front-back assembled. This new mounting system allows greater flexibility on contact combination resulting in inventory reduction, since the old double contact blocks are no longer necessary. The AF3F or AF5F flange models must be used for the front-back assembly of contact blocks. The new contact blocks that allow front-back assembly are easily distinguished from traditional blocks due to their new shape and blue color. The AF3F and AF5F flanges are distinguished by the blue color.



## Pushbuttons and Pilot Lights - CSW Line (Ø22 mm) - IP66

### Decentralized Control Stations - PBW

With a modern design, the PBW control stations are compact and solve a great variety of challenging applications. Manufactured with high-end materials, ensure excellent performance to applications that require great resistance against impact and bad weather. Their use with frontal parts of the CSW pushbuttons and pilot lights line allows different functions, such as: emergency stop, signaling, starts, stops, among others.



### Main Features and Benefits

- IP66/Type 4X degree of protection: accurate design combined with a special sealing gasket assures the degree of protection throughout product life cycle
- Several cable entries: knock-out type entries on the top, base and side, meeting different cable glands with different threads
- Exclusive ID plate holding system: integrated to the construction, allows for standard CSW legend
- Anti-loosing fixing screws: ensures safe and easy operations
- Robustness: manufactured in high-performance, non-flammable and UV-protected polycarbonate. Due to their mechanical construction, they offer outstanding resistance to aggressive environments and impacts
- Special base-mount contact and illumination blocks provide easy installation
- Safety against electric shocks: manufactured with materials that provide full insulation of live parts, they ensure greater safety to the user without the risk of electric shocks



Anti-loosing fixing screw



Exclusive ID plate holding system



**IP66** Protected against **dust**  
(Type 4X) **and water jets**



UV-protected



Resistant to impacts



Totally insulated

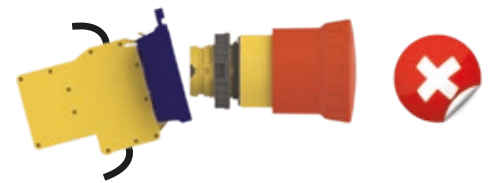


Non-flammable

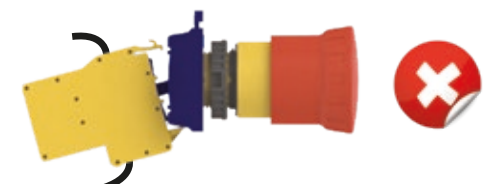
## Pushbuttons and Pilot Lights - CSW Line (Ø22 mm) - IP66

### Self-Monitoring of Emergency-Stop Buttons

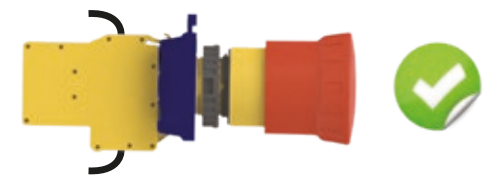
- Emergency-stop pushbuttons are one of the most common and important devices to actuate the emergency stop and indicate dangerous situations on machine and equipment panels. However, if this device is not properly installed, its function will be compromised, and it may put users at risk.
- The BCM01F-CSW monitoring block was developed so as to ensure greater safety to those applications. Its application with the emergency-stop pushbuttons of the BESG/P/Y line ensures proper installation and provides greater reliability for emergency stop systems. When properly fit, WEG emergency-stop pushbutton prevents inadvertent start or stop.
- Developed according to the international IEC 60947-5-5 and UL 508 standards and the Brazilian NR12 standard.



Flange **NOT** properly assembled on the pushbutton.



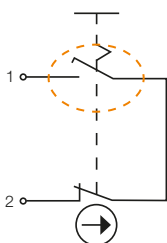
Block **NOT** properly assembled on the flange.



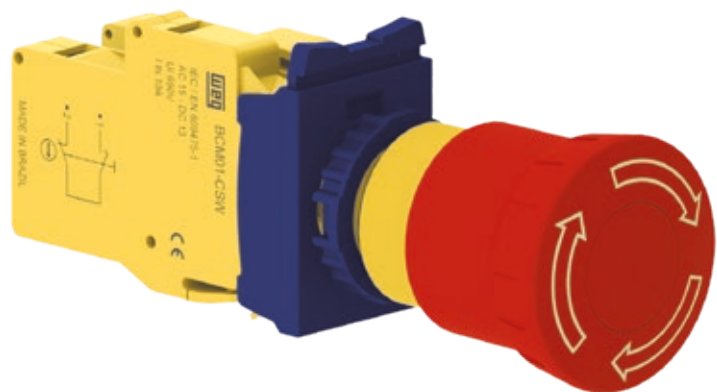
Correct assembly.



### Electric Diagram



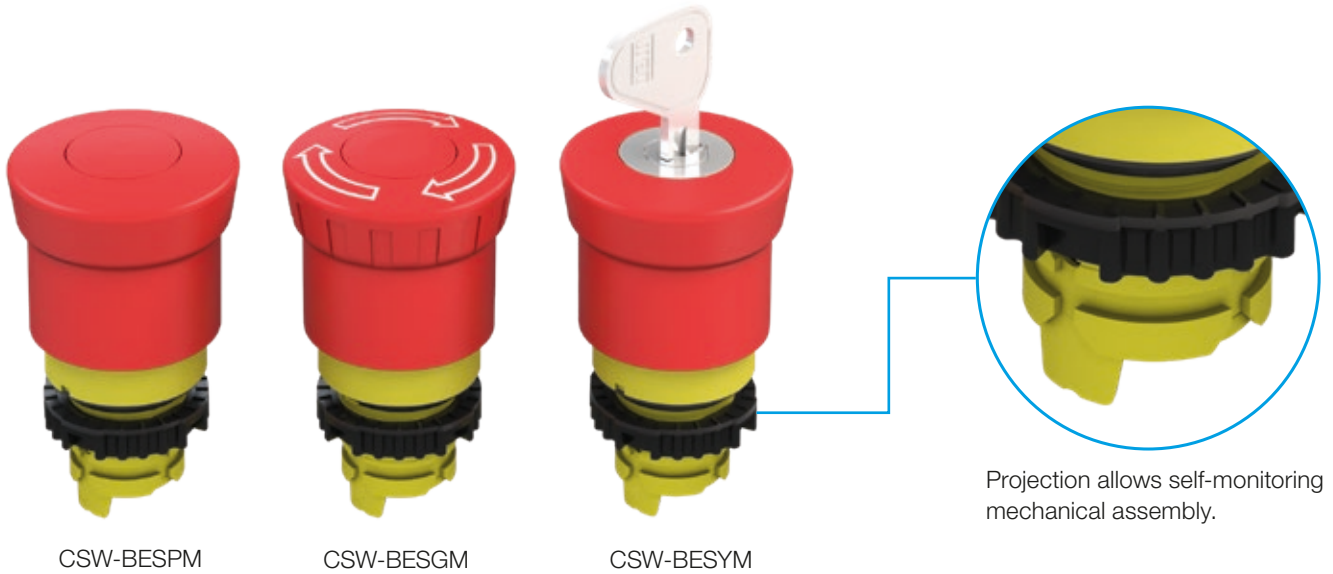
When the button is actuated or removed from its position, the NO contact opens and interrupts the electric circuit.



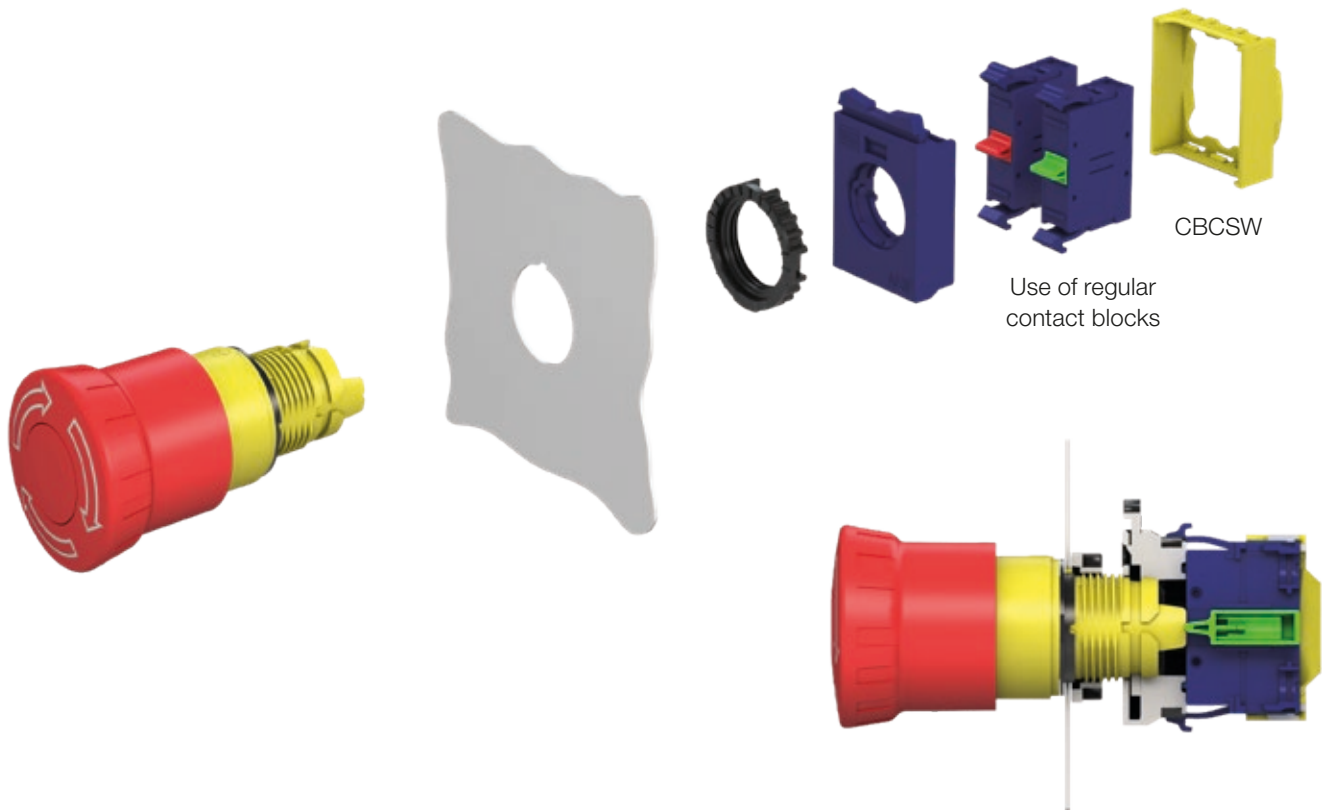
## Pushbuttons and Pilot Lights - CSW Line (Ø22 mm) - IP66

### Self-Monitoring of Emergency-Stop Buttons

BESGM, BESPM and BESYM emergency-stop pushbuttons allow monitoring the mechanical assembly using single contact blocks in flange or PBW control station mounting. The CBCSW contact block tie enables turning all the items into a single set, ensuring greater safety and reducing the possibility of operation fault. The only national manufacturer with emergency-stop pushbutton monitoring system mounted in plastic control stations with base-mount contact blocks, ensuring more compact and efficient solutions to your application.



### Mounting of the Self-Monitoring System in Flange with Front-Back System





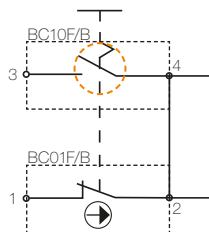
## Pushbuttons and Pilot Lights - CSW Line (Ø22 mm) - IP66

### Mounting of the Self-Monitoring System in PBW Control Stations



#### Electric Diagram

NO contact closes when the mechanical mounting is correct

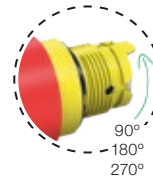


#### Assembly

Monitored



Non-monitored



According to the installation of the emergency-stop pushbutton, it allows choosing the monitoring of the mechanical assembly

### High Performance Illumination Blocks

High brightness LEDs ensure illumination and efficiency (lumens/Watt), with low heat dissipation and energy consumption. Its integrated construction provides high mechanical resistance to vibrations and maintenance-free operation. Its useful life is much longer than illumination by Ba9s-type conventional incandescent lamps.

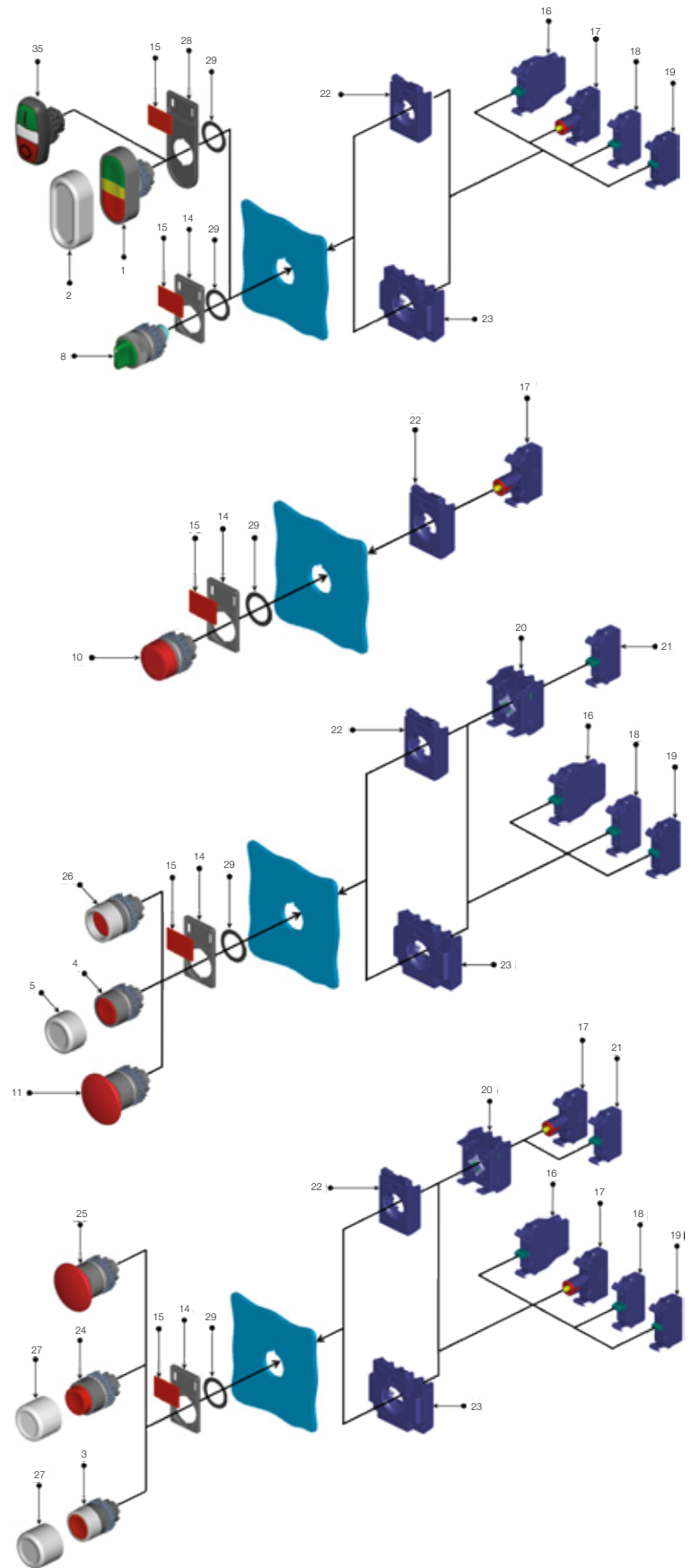


### Certifications

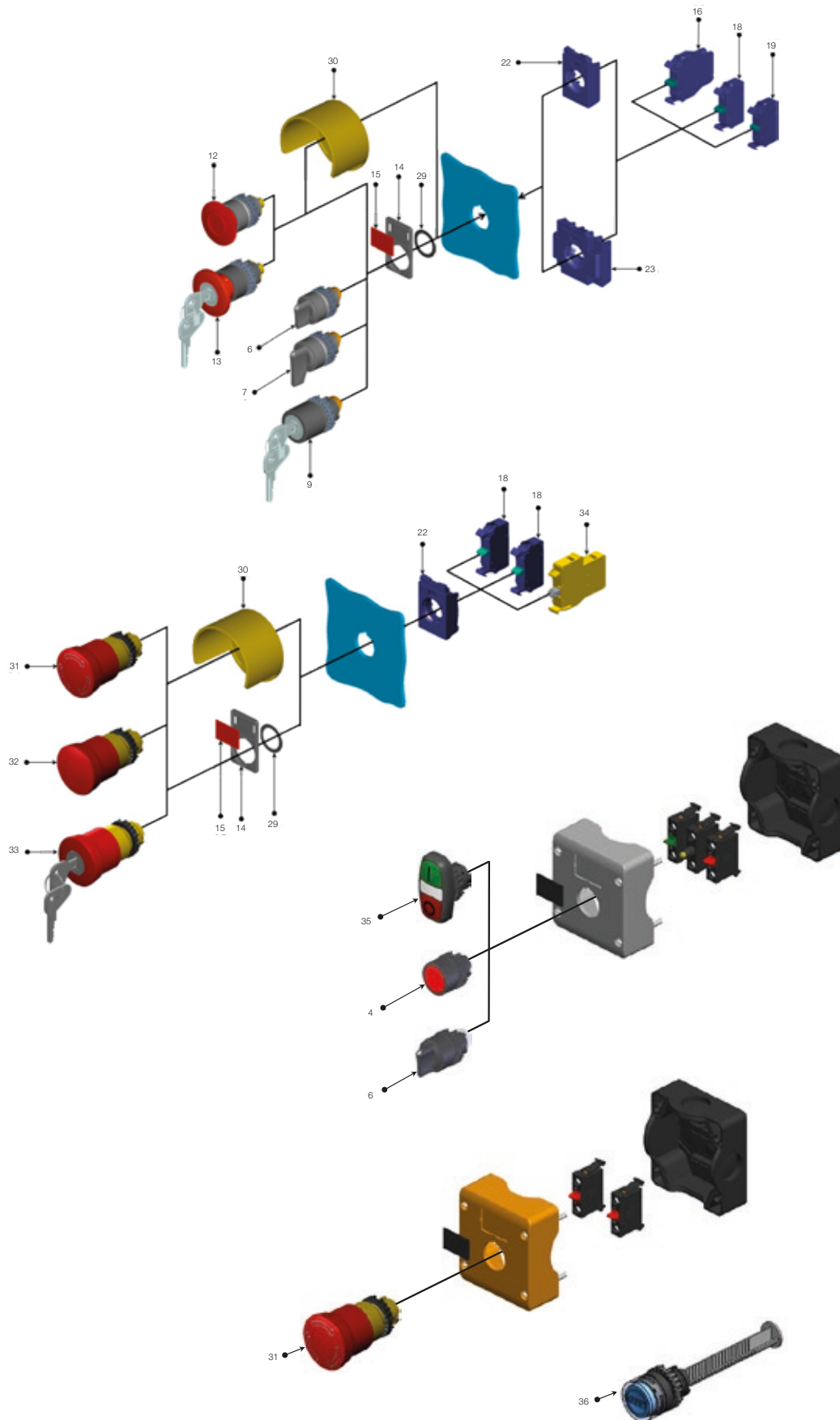
- The products of the CSW line bear several certifications for a great variety of markets and applications.

# Overview

N°	Description
1	Double pushbutton
2	Protection cover for double pushbutton
3	Illuminated single pushbutton
4	Single pushbutton
5	Protection cover for single pushbutton
6	Selector switch knob
7	Lever selector switch
8	Illuminated selector switch
9	Selector switch - key release
10	Pilot light
11	Mushroom selector switch
12	Emergency - stop button - twist release
13	Emergency - stop button - key release
14	Plate holder
15	Plate
16	Double contact block
17	Illumination block
18	Single contact block
19	NC late - break single contact block
20	Push-on/push-off block
21	NO early - make single contact block
22	3 - position flange
23	5 - position flange
24	Illuminated extended pushbutton
25	Illuminated mushroom selector switch
26	Guarded pushbutton
27	Protection cover for the single pushbutton illumination and extended
28	Plate holder double pushbutton
29	Sealing ring
30	Protection
31	Emergency- stop - twist release (BESG)
32	Emergency - stop pull release (BESP)
33	Emergency - stop key release (BESY)
34	Self - monitoring block
35	Double pushbutton IP66
36	Reset pushbutton with shaft BH



# Overview



- A
- B
- C
- D
- E
- F
- G**
- H

## Pushbuttons - Ø22 mm - IP66

### Flush

Illustrative image	Color	Reference	Code	Weight (kg)
		White	CSW-BF0 WH	12880559
		Red	CSW-BF1 WH	12881927
		Green	CSW-BF2 WH	12882149
		Yellow	CSW-BF3 WH	12882150
		Blue	CSW-BF4 WH	12882151
		Black	CSW-BF5 WH	12882152

### Guarded

Illustrative image	Color	Reference	Code	Weight (kg)
		White	CSW-BGA0 WH	12882154
		Red	CSW-BGA1 WH	12882155
		Green	CSW-BGA2 WH	12882156
		Yellow	CSW-BGA3 WH	12882157
		Blue	CSW-BGA4 WH	12882158
		Black	CSW-BGA5 WH	12882159

### Extended<sup>1)</sup>

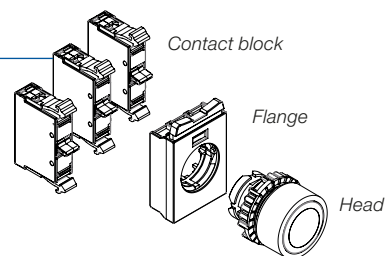
Illustrative image	Color	Reference	Code	Weight (kg)
		White	CSW-BS0 WH	12882167
		Red	CSW-BS1 WH	12882208
		Green	CSW-BS2 WH	12882210
		Yellow	CSW-BS3 WH	12882211
		Blue	CSW-BS4 WH	12882212
		Black	CSW-BS5 WH	12882213

### Mushroom - External Diameter: Ø40 mm<sup>1)</sup>

Illustrative image	Color	Reference	Code	Weight (kg)
		White	CSW-BC0 WH	12882160
		Red	CSW-BC1 WH	12882161
		Green	CSW-BC2 WH	12882162
		Yellow	CSW-BC3 WH	12882163
		Blue	CSW-BC4 WH	12882164
		Black	CSW-BC5 WH	12882166

### How to order<sup>2)</sup>


















- Head
- + Flange
- + Contact block
















Notes: 1) Does not allow the use of contact blocks in the central position of the mounting flanges;  
2) Check the maximum of recommended blocks for each head on page G-46.

## Pushbuttons - Ø22 mm - IP66

### Double Pushbutton<sup>1)</sup>

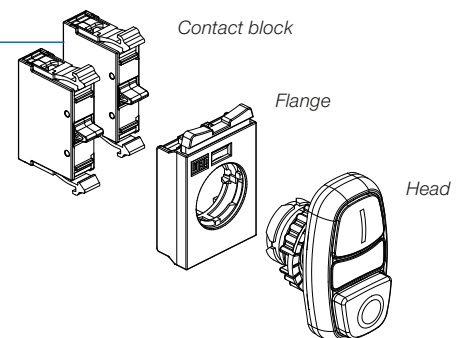
Illustrative image	Frontal part	Color	Engraving	Reference	Code	Weight (kg)
	Flush		Green	I	CSW2-BDF21IO WH	12724261
	Flush		Red	0		
	Flush		Green	START	CSW2-BDF21SS WH	12905152
	Flush		Red	STOP		
	Flush		Green	Without engraved	CSW2-BDF21 WH	12905153
	Flush		Red	Without engraved		
	Flush		White	I	CSW2-BDF05IO WH	12905154
	Flush		Black	0		
	Flush		White	START	CSW2-BDF05SS WH	12905156
	Flush		Black	STOP		
	Flush		White	Without engraved	CSW2-BDF05 WH	12905157
	Flush		Black	Without engraved		
	Flush		Black	+	CSW2-BDF55PN WH	12905179
	Flush		Black	-		
	Flush		Black	↑	CSW2-BDF55FR WH	12905181
	Flush		Black	↓		

### Extended Double Pushbutton<sup>1)</sup>

Illustrative image	Frontal part	Color	Engraving	Reference	Code	Weight (kg)
	Flush		Green	I	CSW2-BDS21IO WH	12724178
	Extended		Red	0		
	Flush		Green	START	CSW2-BDS21SS WH	12905187
	Extended		Red	STOP		
	Flush		Green	Without engraved	CSW2-BDS21 WH	12905208
	Extended		Red	Without engraved		
	Flush		White	I	CSW2-BDS05IO WH	12905209
	Extended		Black	0		
	Flush		White	START	CSW2-BDS05SS WH	12905210
	Extended		Black	STOP		
	Flush		White	Without engraved	CSW2-BDS05 WH	12905211
	Extended		Black	Without engraved		

### How to order<sup>2)</sup>

- Head
- + Flange
- + Contact block



Notes: 1) Does not allow the use of contact blocks in the central position of the mounting flanges;  
2) Check the maximum of recommended blocks for each head on page G-46.

## Pushbuttons - Ø22 mm - IP66

### Flush Double with Metallic Appearance<sup>1)</sup>

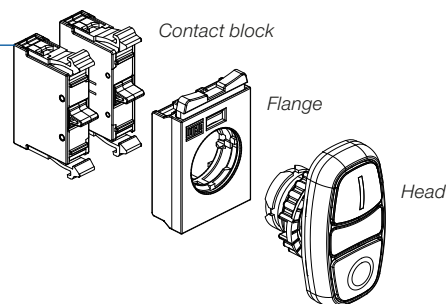
Illustrative image	Frontal part	Color	Engraving	Reference	Code	Weight (kg)
	Flush		Green	I	CSW2-BDFC2110 WH	13184929
	Flush		Red	O		
	Flush		Green	START	CSW2-BDFC21SS WH	13184932
	Flush		Red	STOP		
	Flush		Green	Without engraved	CSW2-BDFC21 WH	13184933
	Flush		Red	Without engraved		
	Flush		White	I	CSW2-BDFC0510 WH	13184934
	Flush		Black	O		
	Flush		White	START	CSW2-BDFC05SS WH	13184936
	Flush		Black	STOP		
	Flush		White	Without engraved	CSW2-BDFC05 WH	13184937
	Flush		Black	Without engraved		
	Flush		Black	+	CSW2-BDFC55PN WH	13184988
	Flush		Black	-		
	Flush		Black	↑	CSW2-BDFC55FR WH	13184989
	Flush		Black	↓		

### Double Extended with Metal-Coated Frame<sup>1)</sup>

Illustrative image	Frontal part	Color	Engraving	Reference	Code	Weight (kg)
	Flush		Green	I	CSW2-BDSC21 WH	13184993
	Extended		Red	O		
	Flush		Green	START	CSW2-BDSC2110 WH	13184990
	Extended		Red	STOP		
	Flush		Green	Without engraved	CSW2-BDSC21 WH	13184993
	Extended		Red	Without engraved		
	Flush		White	I	CSW2-BDSC0510 WH	13184994
	Extended		Black	O		
	Flush		White	START	CSW2-BDSC05SS WH	13184995
	Extended		Black	STOP		
	Flush		White	Without engraved	CSW2-BDSC05 WH	13184996
	Extended		Black	Without engraved		

### How to order<sup>2)</sup>


























- Head
- + Flange
- + Contact block



Notes: 1) Does not allow the use of contact blocks in the central position of the mounting flanges;  
 2) Check the maximum of recommended blocks for each head on page G-46.

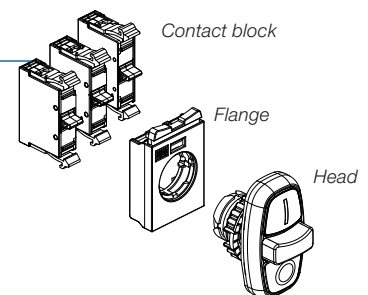
# Pushbuttons - Ø22 mm - IP66

## Triple Pushbutton

Illustrative image	Frontal part	Color	Engraving	Reference	Code	Weight (kg)
	Flush		Green		CSW2-BTF212IIS WH	13120276
	Extended		Red	STOP		
	Flush		Green	0	CSW2-BTF212RSL WH	13120358
	Extended		Red	STOP		
	Flush		Green	→	CSW2-BTF212FRS WH	13120359
	Extended		Red	STOP		
	Flush		Green	←	CSW2-BTF515FRS WH	13120360
	Extended		Red	STOP		
	Flush		Green	↑	CSW2-BTF015FRS WH	13120362
	Extended		Red	STOP		
	Flush		Green	↓	CSW2-BTF015RSL WH	13120365
	Extended		Red	STOP		
	Flush		Black	↑	CSW2-BTF515PNS WH	13120367
	Extended		Red	STOP		
	Flush		Black	↓	CSW2-BTF241IORM WH	13120411
	Extended		Red	STOP		
	Flush		White	↑	CSW2-BTF241IOR WH	13120530
	Extended		Red	STOP		
	Flush		White	↓	CSW2-BTF045IOR WH	13120531
	Extended		Red	STOP		
	Flush		White	→	CSW2-BTF045SSR WH	13120532
	Extended		Red	STOP		
	Flush		Black	←		
	Flush			Green	+	
	Extended			Red	STOP	
	Flush			Black	+	
	Extended			Red	STOP	
	Flush			Black	-	
	Extended			Green		
	Flush			Blue	REARME	
	Extended			Red	0	
	Flush			Green		
Extended		Blue		RESET		
Flush			Red	0		
Extended			White			
Flush			Blue	RESET		
Extended			Black	0		
Flush			White	START		
Extended			Blue	RESET		
Flush			Black	STOP		

### How to order<sup>1)</sup>




















- Head
- + Flange
- + Contact block



Notes: 1) Check the maximum of recommended blocks for each head on page G-46.

## Pushbuttons - Ø22 mm - IP66

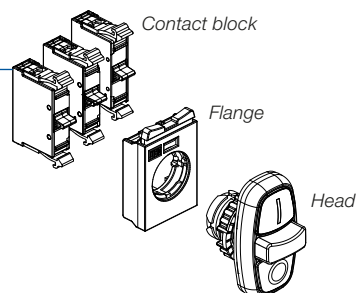
### Triple Pushbuttons with Metallic Appearance<sup>1)</sup>

Illustrative image	Frontal part	Color	Engraving	Reference	Code	Weight (kg)
	Flush		Green	I	CSW2-BTFC212IIS WH	13185098
	Extended		Red	STOP		
	Flush		Green	II	CSW2-BTFC212RLS WH	13185099
	Flush		Green	→		
	Extended		Red	STOP	CSW2-BTFC212FRS WH	13185100
	Flush		Green	←		
	Flush		Green	↑	CSW2-BTFC212FRS WH	13185102
	Extended		Red	STOP		
	Flush		Green	↓	CSW2-BTFC015FRS WH	13185107
	Flush		Black	↑		
	Extended		Red	STOP	CSW2-BTFC015RLS WH	13185158
	Flush		Black	↓		
	Flush		White	↑	CSW2-BTFC015FRS WH	13185107
	Extended		Red	STOP		
	Flush		Black	↓	CSW2-BTFC015RLS WH	13185158
	Flush		White	→		
	Extended		Red	STOP	CSW2-BTFC212PNS WH	13185160
	Flush		Black	←		
	Flush		Green	+	CSW2-BTFC212PNS WH	13185160
	Extended		Red	STOP		
	Flush		Green	-	CSW2-BTFC515PNS WH	13185162
	Flush		Black	+		
	Extended		Red	STOP	CSW2-BTFC241IORM WH	13185164
	Flush		Black	-		
	Flush		Green	I	CSW2-BTFC241IORM WH	13185164
	Extended		Blue	REARME		
	Flush		Red	0	CSW2-BTFC241IOR WH	13185165
	Flush		Green	I		
	Extended		Blue	RESET	CSW2-BTFC241IOR WH	13185165
	Flush		Red	0		
	Flush		White	I	CSW2-BTFC045IOR WH	13185167
	Extended		Blue	RESET		
Flush		Black	0	CSW2-BTFC045SSR WH	13185239	
Flush		White	START			
Extended		Blue	RESET	CSW2-BTFC045SSR WH	13185239	
Flush		Black	STOP			

0.034

### How to order<sup>2)</sup>

- Head
- + Flange
- + Contact block



Notes: 1) Other colors and function are available under request;  
2) Check the maximum of recommended blocks for each head on page G-46.



## Pushbuttons - Ø22 mm - IP66

### Extended Triple Pushbuttons<sup>1)</sup>

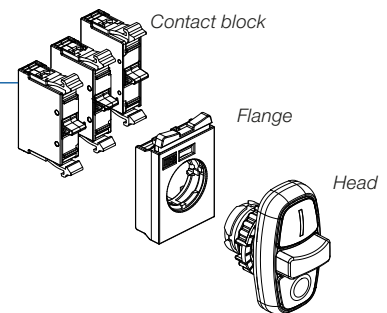
Illustrative image	Frontal part	Color		Engraving	Reference	Code	Weight (kg)
	Flush		Green	I	CSW2-BTSC2411ORM WH	13120536	0.034
	Extended		Blue	REARME			
	Extended		Red	0			
	Flush		Green	I	CSW2-BTS2411OR WH	13120537	
	Extended		Blue	RESET			
	Extended		Red	0			
	Flush		Green	LIGA	CSW2-BTS241LDRM WH	13120559	
	Extended		Blue	REARME			
	Extended		Red	DESLIGA			
	Flush		Green	LIGA	CSW2-BTS241LDR WH	13120561	
	Extended		Blue	RESET			
	Extended		Red	DESLIGA			

### Extended Triple with Metallic Appearance<sup>1)</sup>

Illustrative image	Frontal part	Color		Engraving	Reference	Code	Weight (kg)
	Flush		Green	I	CSW2-BTSC2411ORM WH	13185244	0.034
	Extended		Blue	REARME			
	Extended		Red	0			
	Flush		Green	I	CSW2-BTSC2411OR WH	13185245	
	Extended		Blue	RESET			
	Extended		Red	0			

### How to order<sup>2)</sup>

- Head
- + Flange
- + Contact block



Notes: 1) Other colors and function are available under request;  
2) Check the maximum of recommended blocks for each head on page G-46.

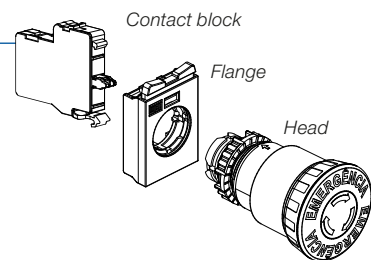
## Pushbuttons with Latch - Ø22 mm - IP66

### Emergency Pushbuttons With Latch (EN 419 and IEC 60947-5-5) - External Diameter: 42 mm

Illustrative image	Description	Signalling	Color		Reference	Code	Weight (kg)
	Pull to release	-		Red	CSW-BESP WH	12882459	0.049
	Twist to release	-		Red	CSW-BESG WH	12882447	
	Key to release <sup>1)</sup>	-		Red	CSW-BESY WH	12882461	0.114
	Pull to release	Side		Red	CSW-BESPS WH	12882463	0.049
	Twist to release	Side		Red	CSW-BESGS WH	12882462	
	Key to release <sup>1)</sup>	Side		Red	CSW-BESYS WH	12882464	0.114

#### How to order<sup>2)</sup>

- Head
- + Flange
- + Contact block



Notes: 1) Keys with different codes are available under request;  
 2) Check the maximum of recommended blocks for each head on page G-46.

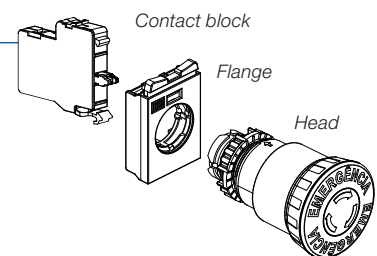
## Pushbuttons with Latch - Ø22 mm - IP66

### Emergency Pushbuttons With Latch (EN 419 and IEC 60947-5-5) - External Diameter: 42 mm - Self-Monitoring

Illustrative image	Description	Signalling	Color		Reference	Code	Weight (kg)
	Pull to release	-		Red	CSW-BESPM WH	13268409	0.049
	Twist to release	-		Red	CSW-BESGM WH	13268381	
	Key to release <sup>1)</sup>	-		Red	CSW-BESYM WH	13274097	0.114
	Pull to release	Side		Red	CSW-BESPSM WH	13277427	0.049
	Twist to release	Side		Red	CSW-BESGSM WH	13277423	
	Key to release <sup>1)</sup>	Side		Red	CSW-BESYSM WH	13277425	0.114

#### How to order<sup>2)</sup>


- Head
- + Flange
- + Contact block




Notes: 1) Keys with different codes are available under request;  
2) Check the maximum of recommended blocks for each head on page G-46.

## Pushbuttons with Latch - Ø22 mm - IP66

### Mushroom Twist Release - External Diameter: Ø40 mm<sup>1)</sup>

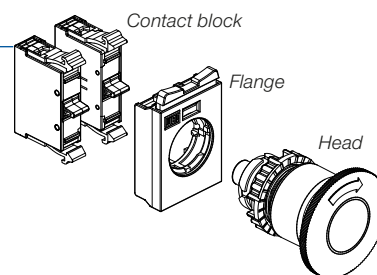
Illustrative image	Color	Reference	Code	Weight (kg)
	○	White	CSW-BCT0 WH	12882214
	●	Red	CSW-BCT1 WH	12882215
	●	Green	CSW-BCT2 WH	12882216
	●	Yellow	CSW-BCT3 WH	12882217
	●	Blue	CSW-BCT4 WH	12882249
	●	Black	CSW-BCT5 WH	12882250
				0.027

### Mushroom Key to Release - External Diameter: Ø40 mm<sup>1)</sup>

Illustrative image	Color	Reference	Code	Weight (kg)
	○	White	CSW-BCY0 WH	12882251
	●	Red	CSW-BCY1 WH	12882252
	●	Green	CSW-BCY2 WH	12882253
	●	Yellow	CSW-BCY3 WH	12882255
	●	Blue	CSW-BCY4 WH	12882256
	●	Black	CSW-BCY5 WH	12882257
				0.090

### How to order<sup>2)</sup>

- Head
- + Flange
- + Contact block




Notes: 1) Does not allow the use of contact blocks in the central position of the mounting flanges;  
 2) Check the maximum of recommended blocks for each head on page G-46.

## Illuminated Pushbuttons - Ø22 mm - IP66








### Flush<sup>1)2)</sup>

Illustrative image	Color		Reference	Code	Weight (kg)
		White	CSW-BF10 WH	12882258	0.021
		Red	CSW-BF11 WH	12882259	
		Green	CSW-BF12 WH	12882260	
		Yellow	CSW-BF13 WH	12882261	
		Blue	CSW-BF14 WH	12882262	
		Orange	CSW-BF16 WH <sup>4)</sup>	12882264	

### Extended<sup>1)2)</sup>

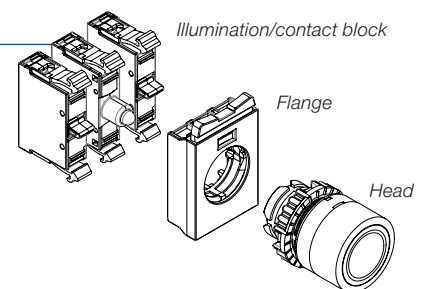
Illustrative image	Color		Reference	Code	Weight (kg)
		White	CSW-BS10 WH	12882265	0.021
		Red	CSW-BS11 WH	12882266	
		Green	CSW-BS12 WH	12882267	
		Yellow	CSW-BS13 WH	12882298	
		Blue	CSW-BS14 WH	12882299	
		Orange	CSW-BS16 WH <sup>4)</sup>	12882300	

### Mushroom - External Diameter: Ø40 mm<sup>1)2)</sup>

Illustrative image	Color		Reference	Code	Weight (kg)
		White	CSW-BC10 WH	12882301	0.026
		Red	CSW-BC11 WH	12882302	
		Green	CSW-BC12 WH	12882303	
		Yellow	CSW-BC13 WH	12882304	
		Blue	CSW-BC14 WH	12882305	
		Orange	CSW-BC16 WH <sup>4)</sup>	12882306	

### How to order<sup>3)</sup>

- Head
- + Flange
- + Contact block
- + Illumination block



- Notes: 1) Does not allow the use of contact blocks in the central position of the mounting flanges;  
 2) It allows the use of illumination contact block in the center of the flange;  
 3) Check the maximum of recommended blocks for each head on page G-46;  
 4) For a better lighting performance, it is recommended the use of yellow LED blocks.

## Illuminated Pushbuttons - Ø22 mm - IP66

### Flush Double Pushbutton<sup>1)2)</sup>

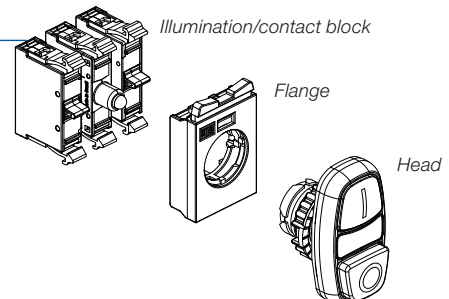
Illustrative image	Frontal part	Color	Engraving	Reference	Code	Weight (kg)
	Flush		Green	I	CSW2-BDFI2110 WH	12756258
	Flush		Red	O		
	Flush		Green	START	CSW2-BDFI21SS WH	12904803
	Flush		Red	STOP		
	Flush		Green	Without engraved	CSW2-BDFI21 WH	12904818
	Flush		Red	Without engraved		
	Flush		White	I	CSW2-BDFI0510 WH	12904819
	Flush		Black	O		
	Flush		White	START	CSW2-BDFI05SS WH	12904822
	Flush		Black	STOP		
	Flush		White	Without engraved	CSW2-BDFI05 WH	12904824
	Flush		Black	Without engraved		
	Flush		Black	+	CSW2-BDFI55PN WH	12904825
	Flush		Black	-		
	Flush		Black	↑	CSW2-BDFI55FR WH	12904827
	Flush		Black	↓		

### Extended Double Pushbutton<sup>1)2)</sup>

Illustrative image	Frontal part	Color	Engraving	Reference	Code	Weight (kg)
	Flush		Green	I	CSW2-BDSI2110 WH	12904828
	Extended		Red	O		
	Flush		Green	START	CSW2-BDSI21SS WH	12904831
	Extended		Red	STOP		
	Flush		Green	Without engraved	CSW2-BDSI21 WH	12904834
	Extended		Red	Without engraved		
	Flush		White	I	CSW2-BDSI0510 WH	12904837
	Extended		Black	O		
	Flush		White	START	CSW2-BDSI05SS WH	12904848
	Extended		Black	STOP		

### How to order<sup>3)</sup>


















- Head
- + Flange
- + Contact block
- + Illumination block
















Notes: 1) Does not allow the use of contact blocks in the central position of the mounting flanges;  
 2) It allows the use of illumination contact block in the center of the flange;  
 3) Check the maximum of recommended blocks for each head on page G-46.

## Illuminated Pushbuttons - Ø22 mm - IP66

### Flush Double with Metal-Coated Frame<sup>1)2)</sup>

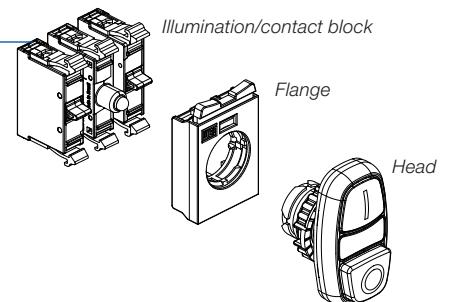
Illustrative image	Frontal part	Color	Engraving	Reference	Code	Weight (kg)
	Flush		Green	I	CSW2-BDFIC2110 WH	13185008
	Flush		Red	0		
	Flush		Green	START	CSW2-BDFIC21SS WH	13185011
	Flush		Red	STOP		
	Flush		Green	Without engraved	CSW2-BDFIC21 WH	13185012
	Flush		Red	Without engraved		
	Flush		White	I	CSW2-BDFIC0510 WH	13185013
	Flush		Black	0		
	Flush		White	START	CSW2-BDFIC05SS WH	13185014
	Flush		Black	STOP		
	Flush		White	Without engraved	CSW2-BDFIC05 WH	13185015
	Flush		Black	Without engraved		
	Flush		Black	+	CSW2-BDFIC55PN WH	13185016
	Flush		Black	-		
	Flush		Black	↑	CSW2-BDFIC55FR WH	13185017
	Flush		Black	↓		

### Double Extended with Metal-Coated Frame<sup>1)2)</sup>

Illustrative image	Frontal part	Color	Engraving	Reference	Code	Weight (kg)
	Flush		Green	I	CSW2-BDSIC2110 WH	13185059
	Extended		Red	0		
	Flush		Green	START	CSW2-BDSIC21SS WH	13185061
	Extended		Red	STOP		
	Flush		Green	Without engraved	CSW2-BDSIC21 WH	13185062
	Extended		Red	Without engraved		
	Flush		White	I	CSW2-BDSIC0510 WH	13185063
	Extended		Black	0		
	Flush		White	START	CSW2-BDSIC05SS WH	13185065
	Extended		Black	STOP		
	Flush		White	Without engraved	CSW2-BDSIC05 WH	13185067
	Extended		Black	Without engraved		

### How to order<sup>3)</sup>

- Head
- + Flange
- + Contact block
- + Illumination block



Notes: 1) Does not allow the use of contact blocks in the central position of the mounting flanges;  
 2) It allows the use of illumination contact block in the center of the flange;  
 3) Check the maximum of recommended blocks for each head on page G-46.

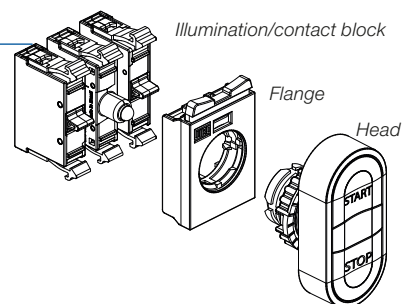
## Illuminated Pushbuttons - Ø22 mm - IP40

### Flush Double Pushbutton - Degree of Protection IP40<sup>1)2)3)</sup>

Illustrative image	Color	Engraving	Reference	Code	Weight (kg)
		Green	I	CSW-BD WH	12884105
		Red	O		
		Green	START	CSW-BD21SS WH	12884106
		Red	STOP		
		Green	Without engraved	CSW-BD21 WH	12884108
		Red	Without engraved		
		White	I	CSW-BD05IO WH	12884109
		Black	O		
		White	START	CSW-BD05SS WH	12884110
		Black	STOP		
		White	Without engraved	CSW-BD05 WH	12884112
		Black	Without engraved		
		Black	+	CSW-BD55PN WH	12884114
		Black	-		
	Black	↑	CSW-BD55FR WH	12884115	
	Black	↓			

#### How to order

- Head
- + Flange
- + Contact block
- + Illumination block



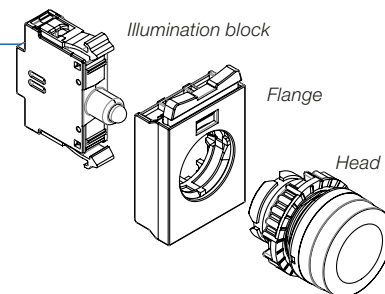
## Pilot Lights - Ø22 mm - IP66

### Pilot Lights<sup>1)2)</sup>

Illustrative image	Color	Reference	Code	Weight (kg)
		White	CSW-SD0 WH	0.016
		Red	CSW-SD1 WH	
		Green	CSW-SD2 WH	
		Yellow	CSW-SD3 WH	
		Blue	CSW-SD4 WH	
		Orange	CSW-SD6 WH <sup>5)</sup>	

#### How to order<sup>4)</sup>

- Head
- + Flange
- + Illumination block








- Notes: 1) It allows illumination by means of lamp block and LED block;  
 2) Does not allow the use of contact blocks in the central position of the mounting flanges;  
 3) To increase the protection rating to IP66, use the APBD accessory;  
 4) Check the maximum of recommended blocks for each head on page G-46;  
 5) For a better lighting performance, it is recommended the use of yellow LED blocks.








## 2 Positions Selectors - Ø22 mm - IP66

### Knob<sup>1)</sup>

Illustrative image	Position	Diagram	Selector angle	Color <sup>1)</sup>		Reference	Code	Weight (kg)	
		Fixed	1	45°	●	Black	CSW-CK2F45 WH	12882307	0.025
		Return	1	45°	●	Black	CSW-CK2R45 WH	12882309	
		Fixed	1	90°	●	Black	CSW-CK2F90 WH	12882308	
			2	90°	●	Black	CSW-CK2F90W WH	12904656	
		Return	1	90°	●	Black	CSW-CK2R90 WH	12882310	

### Lever<sup>1)</sup>

Illustrative image	Position	Diagram	Selector angle	Color <sup>1)</sup>		Reference	Code	Weight (kg)	
		Fixed	1	45°	●	Black	CSW-CA2F45 WH	12882316	0.025
		Return	1	45°	●	Black	CSW-CA2R45 WH	12882338	
		Fixed	1	90°	●	Black	CSW-CA2F90 WH	12882317	
			2	90°	●	Black	CSW-CA2F90W WH	12904688	
		Return	1	90°	●	Black	CSW-CA2R90 WH	12882339	

### Key Release<sup>2)3)</sup>








Illustrative image	Position	Diagram	Selector angle	Color <sup>1)</sup>		Reference	Code	Weight (kg)	
		Fixed	1	45°	●	Black	CSW-CY2F45 WH	12882344	0.087
		Return	1	45°	●	Black	CSW-CY2R45 WH	12882346	
		Fixed	1	90°	●	Black	CSW-CY2F90 WH	12882369	
			2	90°	●	Black	CSW-CY2F90W WH	12904689	
		Return	1	90°	●	Black	CSW-CY2R90 WH	12882370	

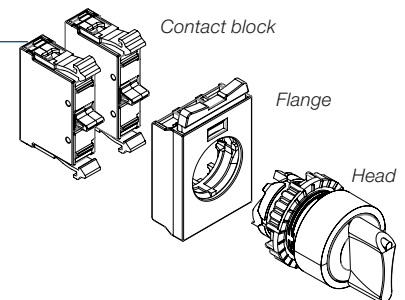
Diagram 1						Diagram 2						Flanges		
	Handle position	Mounting position in the flange						Handle position	Mounting position in the flange					
		0		-	2	3			1	-	0		-	2
I		4	2	5	1	3	I		4	2	5	1	3	5P
0		□	□		□	□	0		■	■		□	□	
I		■	■		■	■	I		□	□		■	■	

### Legend

- Contacts in the rest position.
- Contacts operated.

### How to order<sup>4)</sup>




- Head
- + Flange
- + Contact block








- Notes: 1) Selector switches in other colors are available under request;  
 2) Keys with different codes are available under request;  
 3) Key is released in any position. For key release in specific positions, replace CY by: CYD (only from the right), CYE (only from the left) and CYC (only from the center);  
 4) Check the maximum of recommended blocks for each head on page G-46.

## 3 Positions Selectors - Ø22 mm - IP66

### Knob<sup>1)</sup>

Illustrative image	Position	Diagram	Selector angle	Color <sup>1)</sup>		Reference	Code	Weight (kg)
	 Fixed	1	45°	●	Black	CSW-CK3F45 WH	12882311	0.025
	 Return	1	45°	●	Black	CSW-CK3R45 WH	12882312	
	 Return from the right	1	45°	●	Black	CSW-CK3RD45 WH	12882315	
	 Return from the left	1	45°	●	Black	CSW-CK3RE45 WH	12882314	

### Lever<sup>1)</sup>

Illustrative image	Position	Diagram	Selector angle	Color <sup>1)</sup>		Reference	Code	Weight (kg)
	 Fixed	1	45°	●	Black	CSW-CA3F45 WH	12882340	0.025
	 Return	1	45°	●	Black	CSW-CA3R45 WH	12882341	
	 Return from the right	1	45°	●	Black	CSW-CA3RD45 WH	12882343	
	 Return from the left	1	45°	●	Black	CSW-CA3RE45 WH	12882342	

### With Key<sup>2)3)</sup>










Illustrative image	Position	Diagram	Selector angle	Color <sup>1)</sup>		Reference	Code	Weight (kg)
	 Fixed	1	45°	●	Black	CSW-CY3F45 WH	12882347	0.087
	 Return	1	45°	●	Black	CSW-CY3R45 WH	12882368	
	 Return from the right	1	45°	●	Black	CSW-CY3RD45 WH	12882373	
	 Return from the left	1	45°	●	Black	CSW-CY3RE45 WH	12882372	

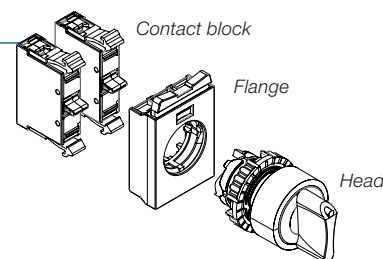
Diagram 1		Mounting position in the flange					Flanges
	Handle position	-	2	3	1	-	3P
		4	2	5	1	3	5P
	I	■	■		□	□	
	0	□	□	-	□	□	
	II	□	□		■	■	

### Legend

- Contacts in the rest position.
- Contacts operated.









### How to order<sup>4)</sup>

- Head
- + Flange
- + Contact block



Notes: 1) Selector switches in other colors are available under request;  
 2) Keys with different codes are available under request;  
 3) Key is released in any position. For key release in specific positions, replace CY by: CYD (only from the right),  
 CYE (only from the left) and CYC (only from the center);  
 4) Check the maximum of recommended blocks for each head on page G-46.

## Illuminated Selectors - Ø22 mm - IP66

Illustrative image	Position		Diagram	Selector angle	Color		Reference	Code	Weight (kg)
		Fixed	1	90°	 White	CSW-CKI2F900 WH	12882374	0.020	
					 Red	CSW-CKI2F901 WH	12882375		
					 Green	CSW-CKI2F902 WH	12882376		
					 Yellow	CSW-CKI2F903 WH	12882377		
					 Blue	CSW-CKI2F904 WH	12882388		
					 Orange	CSW-CKI2F906 WH <sup>2)</sup>	12882389		

### 3 Positions Illuminated Selectors





































Illustrative image	Position		Diagram	Selector angle	Color		Reference	Code	Weight (kg)
		Fixed	2	45°	 White	CSW-CKI3F450 WH	12882391	0.020	
					 Red	CSW-CKI3F451 WH	12882392		
					 Green	CSW-CKI3F452 WH	12882393		
					 Yellow	CSW-CKI3F453 WH	12882394		
					 Blue	CSW-CKI3F454 WH	12882395		
					 Orange	CSW-CKI3F456 WH <sup>2)</sup>	12882396		
		Return	2	45°	 White	CSW-CKI3R450 WH	12882397	0.020	
					 Red	CSW-CKI3R451 WH	12882408		
					 Green	CSW-CKI3R452 WH	12882409		
					 Yellow	CSW-CKI3R453 WH	12882410		
					 Blue	CSW-CKI3R454 WH	12882411		
					 Orange	CSW-CKI3R456 WH <sup>2)</sup>	12882412		
		Return from the right	2	45°	 White	CSW-CKI3RD450 WH	12882413	0.020	
					 Red	CSW-CKI3RD451 WH	12882414		
					 Green	CSW-CKI3RD452 WH	12882415		
					 Yellow	CSW-CKI3RD453 WH	12882416		
					 Blue	CSW-CKI3RD454 WH	12882417		
					 Orange	CSW-CKI3RD456 WH <sup>2)</sup>	12882438		
		Return from the left	2	45°	 White	CSW-CKI3RE450 WH	12882439	0.020	
					 Red	CSW-CKI3RE451 WH	12882440		
 Green					CSW-CKI3RE452 WH	12882441			
 Yellow					CSW-CKI3RE453 WH	12882442			
 Blue					CSW-CKI3RE454 WH	12882443			
 Orange					CSW-CKI3RE456 WH <sup>2)</sup>	12882444			

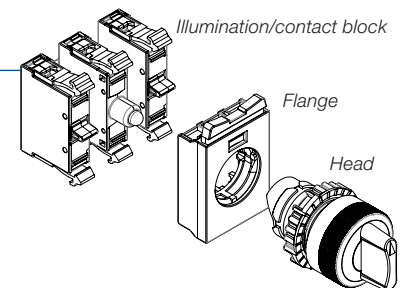
Diagram 1					Diagram 2					Flanges				
	Handle position	Mounting position in the flange						Handle position	Mounting position in the flange					
				-	2	3			1	-			-	2
		4	2	5	1	3			4	2	5	1	3	5P
	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	I	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		I	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

### Legend

- Contacts in the rest position.
- Contacts operated.
-  Mounting position for LED blocks in illuminated switches.

### How to order<sup>1)</sup>



- Head
- + Flange
- + Contact block
- + Illumination block



Note: 1) Check the maximum of recommended contact blocks for each head on page G-46.  
2) For a better lighting performance, it is recommended the use of yellow LED blocks.




## Accessories - Mounting in Flanges - Blue

### Blue Flange<sup>1)</sup>


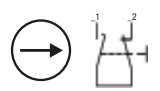
Illustrative image	Description	Standard packing	Reference	Code
 0.010 kg	3 position mounting flange for blue contact blocks Front-back assembly system	1 piece	AF3F	12670264
		10 pieces	AF3FX10 <sup>2)</sup>	12918902
 0.015 kg	5 position mounting flange for blue contact blocks Front-back assembly system	1 piece	AF5F	13268324
		5 pieces	AF5FX5 <sup>2)</sup>	13275324

Front-back  
system

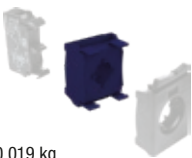
### Contact Blocks<sup>1)</sup>

Illustrative image	Contacts	Diagram	Standard packing	Compatible flange	Reference	Code
 0.015	1NO		1 piece	AF3F AF5F	BC10F-CSW	12891184
			10 pieces		BC10F-CSWX10 <sup>2)</sup>	12174912
	1NC		1 piece		BC01F-CSW	12891186
			10 pieces		BC01F-CSWX10 <sup>2)</sup>	12174913

### Self-Monitoring Contact Block for CSW-BES Emergency Pushbuttons<sup>1)3)4)</sup>

Illustrative image	Contacts	Diagram	Standard packing	Compatible flange	Reference	Code
 0.015 kg	1NC		1 piece	AF3F	BCM01F-CSW	13262011

### Push-On/Push-Off Block<sup>1)3)</sup>

Illustrative image	Description	Standard packing	Compatible flange	Reference	Code
 0.019 kg	Mechanical push-on/push-off block for contact blocks mounted on buttons: CSW-BF, CSW-BFI, CSW-BS, CSW-BSI, CSW-BGA, CSW-BC, CSW-BCI Note: use only with the following contact blocks: - BC01F (1NC) - BCA10F (1NOa - advanced)	1 piece	AF3F	BR-3PF-CSW	13270966

Notes: 1) Not compatible with the PBW control stations line. For control stations, please refer to the page G-36 and G-37 of this catalogue;




























2) Unitary weights;

3) It does not allow front-back assembly;



4) The NO contact close when assembled correctly in the flange.

## Accessories - Mounting in Flanges - Blue


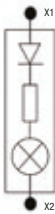
### Illumination Blocks with Integrated LED<sup>1)2)</sup>

Illustrative image	Voltage	Color	Diagram	Standard packing	Compatible flange	Reference	Code	
 0.016 kg	12 V ac/dc		Colorless		1 piece	AF3F AF5F	CSW-BIDLF-0E25	12640012
			Red				CSW-BIDLF-1E25	12640013
			Green				CSW-BIDLF-2E25	12640014
			Yellow				CSW-BIDLF-3E25	12640015
			Blue				CSW-BIDLF-4E25	12640016
	24 V ac/dc		Colorless				CSW-BIDLF-0E26	12640017
			Red				CSW-BIDLF-1E26	12640038
			Green				CSW-BIDLF-2E26	12640039
			Yellow				CSW-BIDLF-3E26	12640040
			Blue				CSW-BIDLF-4E26	12640041
	48 V ac/dc		Colorless				CSW-BIDLF-0E27	12640042
			Red				CSW-BIDLF-1E27	12640043
			Green				CSW-BIDLF-2E27	12640044
			Yellow				CSW-BIDLF-3E27	12640046
			Blue				CSW-BIDLF-4E27	12640047
	110-130 V ac/cc		Colorless				CSW-BIDLF-0E10	13899138
			Red				CSW-BIDLF-1E10	13899139
			Green				CSW-BIDLF-2E10	13899140
			Yellow				CSW-BIDLF-3E10	13899141
			Blue				CSW-BIDLF-4E10	13899142
220-240 V ac		Colorless	CSW-BIDLF-0D66	12640053				
		Red	CSW-BIDLF-1D66	12640054				
		Green	CSW-BIDLF-2D66	12640055				
		Yellow	CSW-BIDLF-3D66	12640056				
		Blue	CSW-BIDLF-4D66	12640057				

### Ba9s Socket Lamp Block<sup>1)2)</sup>

Illustrative image	Description	Diagram	Standard packing	Compatible flange	Reference	Code
 0.013 kg	<ul style="list-style-type: none"> <li>- For lamps with Ba9s socket</li> <li>- Maximum voltage 380 V (2 W)</li> <li>- Direct power supply V ac/V dc</li> <li>- Lamp not included</li> </ul> <p>Note: Not compatible with CSW double pushbutton2-BD.</p>		1 piece	AF3F AF5F	CSW-BIDF	13262009


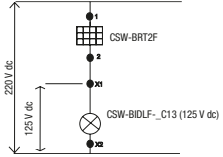
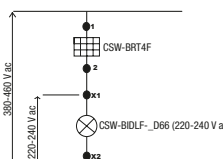
### Illumination Block with Lamp + Resistor + Diode<sup>1)2)</sup>

Illustrative image	Description	Diagram	Standard packing	Compatible flange	Reference	Code
 0.016 kg	<ul style="list-style-type: none"> <li>- Block voltage: 220 - 240 Vac</li> <li>- Includes 120/130 V incandescent lamp</li> <li>- Ba9s Socket</li> </ul> <p>Note: Not compatible with double pushbutton CSW2-BD.</p>		1 piece	AF3F AF5F	CSW-BIRDF-D66	13262010


Notes: 1) Not compatible with the PBW control stations. Accessories for base or control stations, see pages G-36 and G-37 of this catalog;  
2) It does not allow front-back assembly.

## Accessories - Mounting in Flanges - Blue

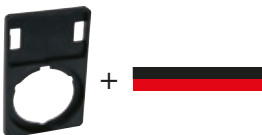


### Voltage Reduction Blocks<sup>1)3)</sup>

Illustrative image	Description	U <sub>e</sub>	Diagram	Standard packing	Compatible flange	Reference	Code
 0.016 kg	For use with integrated LED blocks models: CSW-BIDL-F_C13 (125 V dc)	220 V dc		1 piece	AF3F AF5F	CSW-BRT2F	13275624
	For use with integrated LED blocks models: CSW-BIDL-F_D66 (220-240 V ac)	380-460 V ac				CSW-BRT4F	13275625


### Lamps Ba9s

Illustrative image	Voltage	Standard packing	Reference	Code
 0.005 kg	6 V ac/dc	25 pieces	L6VI-E48-0.6 W <sup>2)</sup>	10045241
	12 V ac/dc	25 pieces	L12VI-E25-1.8 W <sup>2)</sup>	10046387
	24 V ac/dc	25 pieces	L24VI-E26-2 W <sup>2)</sup>	10045243
	48 V ac/dc	25 pieces	L48VI-E27-2 W <sup>2)</sup>	10046462
	60 V ac/dc	25 pieces	L60VI-E28-1.2 W <sup>2)</sup>	10045244
	130 V ac/dc	25 pieces	L130VI-E30-2 W <sup>2)</sup>	10409537
	220 V ac/dc	25 pieces	L220VI-E31-2 W <sup>2)</sup>	10409538

### Plate Holder and Plastic Legend Plate Set<sup>1)</sup>

Illustrative image	Description	Standard packing	Reference	Code
 0.004 kg	Plate holder and plastic legend plate set 27 x 18 mm, no engraved, in black and red for pilot lights, single pushbuttons and selector switches.	5 pieces	APP30 <sup>2)</sup>	10185880
	Plate holder and plastic legend plate set 27 x 18 mm, no engraved, in black and red for double pushbuttons CSW-BD.	5 pieces	APP60 <sup>2)</sup>	10643837
 0.004 kg	Plate holder and plastic legend plate set 27 x 18 mm, no engraved, colorless for pilot lights, single pushbuttons and selector switches.	5 pieces	APP30T <sup>2)</sup>	10185886
	Plate holder and plastic legend plate set 27 x 18 mm, no engraved, colorless for double pushbuttons CSW-BD.	5 pieces	APP60T <sup>2)</sup>	10583832
 0.004 kg	Plate holder 27 x 18 mm for pilot lights, single pushbuttons and selector switches.	5 pieces	PP30-CSW <sup>2)</sup>	11427388
	Plate holder 27 x 18 mm for double pushbutton CSW-BD and CSW2-BD/BT.	5 pieces	PP60-CSW <sup>2)</sup>	11427391

### DIN Rail Adaptor

Illustrative image	Description	Standard packing	Reference	Code
 0.033 kg	Allows 1 pushbutton/pilot light/selector switch to be mounted in a 35 mm DIN Rail. Note: does not allow the use of the following accessories: - Self-monitored contact block (BCM01F-CSW); - Push-on/push-off block (CSW-BRF-3P); - 5 positions mounting flange.	1 piece	DRCSWA	12846896


Notes: 1) Not compatible with the PBW control stations. Accessories for base or control stations, see pages G-36 and G-37 of this catalog;

2) Unitary weights;


3) It allow front-back assembly.

## Accessories - Mounting in Flanges


### Emergency - Stop Plate<sup>1)</sup>

Illustrative image	Description	Standard packing	Reference	Code
 0.009 kg	Legend plate for emergency pushbutton: portuguese	5 pieces	APE <sup>2)</sup>	10045238
	Legend plate for emergency pushbutton: english	5 pieces	APE-02 <sup>2)</sup>	11315980
	Legend plate for emergency pushbutton: spanish	5 pieces	APE-03 <sup>2)</sup>	10077414


### Reduction Ring<sup>1)</sup>

Illustrative image	Description	Standard packing	Reference	Code
 0.030 kg	Reduction ring from Ø30 mm to Ø22 mm	1 piece	AR30	10187807


### Lamp Extraction Tool<sup>1)</sup>

Illustrative image	Description	Standard packing	Reference	Code
 0.008 kg	Ba9s Lamp Extraction Tool	1 piece	ACEF	10046256

### Plastic Shaft<sup>1)</sup>

Illustrative image	Description	Standard packing	Reference	Code
 0.018 kg	Plastic shaft with length of 250 mm	1 piece	SH250	12470467

### Silicone Cover<sup>1)</sup>

Illustrative image	Description	Standard packing	Reference	Code
 0.010 kg	Additional protection cover for CSW-BD double pushbuttons (IP40) so as to ensure IP66	5 pieces	APBD <sup>2)</sup>	10046217
	Additional protection cover against solid particles for CSW2-BD double pushbuttons		AP2BD <sup>2)</sup>	13253639
	Additional protection cover against solid particles for triple CSW2-BT pushbuttons		AP2BT <sup>2)</sup>	13253640

Notes: 1) Not compatible with the PBW control stations. Accessories for base or control stations, see pages G-36 and G-37 of this catalog;  
2) Unitary weights.

A

B

C

D

E

F

G

H

## Accessories - Mounting in Flanges

### APP30 Plate Holder and 27 x 18 mm Engraved Plastic Legend Plate Set<sup>1)2)3)</sup>

For use with single pushbuttons, pilot lights and selector switches



+



Standard packing 5 pieces

0.015 kg

Single pushbuttons and pilot lights											
Reference	Code	Engraving	Reference	Code	Engraving	Reference	Code	Engraving	Reference	Code	Engraving
APP30-204	11654290	HAND	APP30-208	11654721	RIGHT	APP30-215	11654738	AVANÇO	APP30-229	11654747	SUBIR
APP30-205	11654292	AUTO	APP30-209	11654722	LEFT	APP30-216	11654739	RECUO	APP30-230	11654746	BAJAR
APP30-18 <sup>3)</sup>	10186656	STOP	APP30-210	11654724	INCH	APP30-125	10212524	LIGA	APP30-231	11654745	ADELANTE
APP30-11	10211995	OPEN	APP30-03 <sup>3)</sup>	10186652	EMERGENCY STOP	APP30-120	10212519	DESLIGA	APP30-232	11654744	REGRESO
APP30-01	10211988	CLOSE	APP30-05	10186653	JOG	APP30-123	10212522	EM OPERAÇÃO	APP30-233	11654743	PARO
APP30-19	10211999	UP	APP30-06	10211991	JOG FORWARD	APP30-217	11654740	INICIAR	APP30-234	11654742	MARCHA
APP30-02	10211989	DOWN	APP30-07	10211992	JOG REVERSE	APP30-218	11654748	RÁPIDO	APP30-218	11654748	RÁPIDO
APP30-04	10211990	FORWARD	APP30-08	10211993	LOWER	APP30-219	11654751	DEVAGAR	APP30-235	11654741	DESPACIO
APP30-15	10186654	REVERSE	APP30-13	10211997	RAISE	APP30-220	11654755	DIREITA	APP30-236	11654758	DERECHA
APP30-10	10212532	ON	APP30-147	10186991	FAULT	APP30-221	11654757	ESQUERDA	APP30-237	11654760	IZQUIERDA
APP30-132	10212531	OFF	APP30-129	10212528	MANUAL	APP30-222	11654756	PARADA DE EMERGENCIA	APP30-238	11654761	BAJADA
APP30-12	10211996	POWER ON	APP30-52	10652903	AUTOMÁTICO	APP30-223	11654754	ABAIXAR	APP30-239	11654762	SUBIDA
APP30-14	10212533	RESET	APP30-134	10186620	PARADA	APP30-224	11654753	LEVANTAR	APP30-240	11654765	FALLA
APP30-17	10186655	START	APP30-211	11654725	ABRIR	APP30-225	11654752	FALHA	APP30-201	11654226	O
APP30-16	10211998	RUN	APP30-212	11654723	FECHAR	APP30-226	11654750	AUTOMÁTICA	APP30-202	11654227	I
APP30-206	11654293	FAST	APP30-213	11654726	ACIMA	APP30-211	11654725	ABRIR	APP30-203	11654289	II
APP30-207	11654294	SLOW	APP30-214	11654759	ABAIXO	APP30-228	11654749	CERRAR			

2 - position selector switch											
Reference	Code	Engraving	Reference	Code	Engraving	Reference	Code	Engraving	Reference	Code	Engraving
APP30-21	10212001	HAND AUTO	APP30-24	10212004	OFF ON	APP30-28	10212006	UP DOWN	APP30-244	11654909	AVANÇO RECUO
APP30-27	10186658	START STOP	APP30-25	10186657	OPEN CLOSE	APP30-23	10212003	MAN AUTO	APP30-39	10212589	DES LIG
APP30-20	10212000	FOR REV	APP30-26	10212005	RUN JOG	APP30-243	11654908	LIGA DESLIGA	APP30-250	11654914	PARO ARRANQUE
APP30-22	10212002	JOG RUN									

3 - position selector switch											
Reference	Code	Engraving	Reference	Code	Engraving	Reference	Code	Engraving	Reference	Code	Engraving
APP30-30	10186660	FOR OFF REV	APP30-35	10212010	UP OFF DOWN	APP30-257	11654901	ABERTO 0 AUTO	APP30-261	11654903	SUBIR 0 REGRESSO
APP30-32	10212007	MAN OFF AUTO	APP30-149	10647576	AUTO 0 REV	APP30-258	11654902	ABERTO 0 FECHADO	APP30-262	11654917	AUTO 0 REGRESSO
APP30-33	10212008	OPEN OFF AUTO	APP30-255	11654864	AVANÇO 0 RECUO	APP30-190	10289211	SOBE 0 DESCE	APP30-253	11654898	I 0 II
APP30-34	10212009	OPEN OFF CLOSE	APP30-256	11654865	MANUAL 0 AUTO	APP30-260	11654916	AUTO 0 REVERSO			







Pushbuttons with double											
Reference	Code	Engraving	Reference	Code	Engraving	Reference	Code	Engraving	Reference	Code	Engraving
APP30-36	10186554	ON/OFF	APP30-38	10212012	UP/DOWN	APP30-247	11654911	ACIMA/ABAIXO	APP30-251	11654899	ABRIR/CERRAR
APP30-37	10212011	OPEN/CLOSE	APP30-246	11654863	ABRIR/FECHAR	APP30-248	11654912	LIGA/PARO	APP30-252	11654900	SUBIR/BAJAR

Notes: 1) Other engraving and colors on request. APP60 legend plates are also available under request;  
 2) Not compatible with the PBW control stations. Accessories for base or control stations, see pages G-36 and G-37 of this catalog;  
 3) Unitary weights.






## Decentralized Control Stations and Accessories - IP66

### Decentralized Control Stations - Hole Ø22 mm<sup>1)</sup>

Illustrative image	Number of holes	Color		Standard packing	Reference	Code
		Cover	Base			
 0.114 kg	1	Yellow	Black	1 piece	PBW-1Y	12204334
 0.114 kg					PBW-1	12204335
 0.152 kg	2	Gray			PBW-2	12204336
 0.185 kg	3				PBW-3	12204337
 0.215 kg	4				PBW-4	12204388
 0.276 kg	6				PBW-6	12204389

## Accessories - Mounting in Control Stations

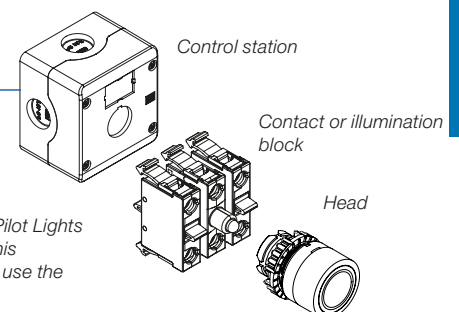
### Contact Blocks<sup>2)</sup>

Illustrative image	Description	Contacts	Diagram	Standard packing	Reference	Code
 0.015 kg	Base or DIN rail 35mm mounted single contact blocks	1NC		1 piece	BC01B-CSW	12174857
				10 pieces	BC01B-CSWX10 <sup>3)</sup>	13163056
		1NO		1 piece	BC10B-CSW	12174856
				10 pieces	BC10B-CSWX10 <sup>3)</sup>	13163057

### How to order




























- Head
- + Contact or illumination blocks
- + Control station

Notes: 1) Compatible with all single pushbuttons, selector switches and pilot lights of the Pushbuttons and Pilot Lights line. It does not allow mounting mushroom pushbuttons side by side with other frontal parts. For this mounting, close hole next to the mushroom button using the ATR accessory. It is not necessary to use the mounting flange for the proper mounting of the frontal parts in the PBW control stations;  
2) Specific blocks for base mounting or mounting in PBW control stations or DIN rail 35 mm;  
3) Unitary weights.



## Accessories - Mounting in Control Stations



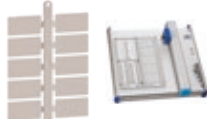

### Illumination Blocks with Integrated LED<sup>1)</sup>

Illustrative image	Voltage	Color	Diagram	Standard packing	Reference	Code	
 0.016 kg	12 V ac/dc		White		1 piece	CSW-BIDLB-0E25	12195732
			Red			CSW-BIDLB-1E25	12195737
			Green			CSW-BIDLB-2E25	12195839
			Yellow			CSW-BIDLB-3E25	12195840
			Blue			CSW-BIDLB-4E25	12195842
	24 V ac/dc		White			CSW-BIDLB-0E26	12195847
			Red			CSW-BIDLB-1E26	12195918
			Green			CSW-BIDLB-2E26	12195919
			Yellow			CSW-BIDLB-3E26	12195920
			Blue			CSW-BIDLB-4E26	12195921
	48 V ac/dc		White			CSW-BIDLB-0E27	12195922
			Red			CSW-BIDLB-1E27	12195923
			Green			CSW-BIDLB-2E27	12195924
			Yellow			CSW-BIDLB-3E27	12195926
			Blue			CSW-BIDLB-4E27	12195948
	110-130 V ac/cc		White			CSW-BIDLB-0E10	13899143
			Red			CSW-BIDLB-1E10	13899144
			Green			CSW-BIDLB-2E10	13899146
			Yellow			CSW-BIDLB-3E10	13899147
			Blue			CSW-BIDLB-4E10	13899190
	220-240 V ac		White			CSW-BIDLB-0D66	12196008
			Red			CSW-BIDLB-1D66	12196009
			Green			CSW-BIDLB-2D66	12196010
			Yellow			CSW-BIDLB-3D66	12196011
		Blue	CSW-BIDLB-4D66	12196012			


Note: 1) Blocks specific for mounting in base or PBW control stations.

## Common Accessories - Mounting in Flanges or Control Stations








### Plastic Legend Plates

Illustrative image	Description	Standard packing	Reference	Code
 0.006 kg	Black and red legend plates 27 x 18 mm, without engraved	5 pieces	AP30 <sup>2)</sup>	10045237
 0.006 kg	Translucent legend plates 27 x 18 mm without engraved	5 pieces	AP30T <sup>2)</sup>	10045240
 0.081 kg	White legend plates 27x18 mm, mounted on APP30/60 plate holders or on PBW control stations. It allows engraving by means of WEG plotter. Note: Compatible edition software from version: SB-PW_setup5.0.0056_121012.	15 charts with 10 plates	CAP30 <sup>2)</sup>	12439346
 0.009 kg	Legend plate for emergency pushbutton Text: portuguese	5 pieces	APEC <sup>2)</sup>	13050396
	Legend plate for emergency pushbutton Text: english	5 pieces	APEC-02 <sup>2)</sup>	13050413
	Legend plate for emergency pushbutton Text: spanish	5 pieces	APEC-03 <sup>2)</sup>	13050408








### Fixing Ring Tool

Illustrative image	Description	Standard packing	Reference	Code
 0.017 kg	Fixing ring tool of the fastening ring of the CSW line	1 piece	CAF22	13218642


### Lenses for Diffuse Pilot Lights

Illustrative image	Color	Description	Standard packing	Reference	Code
 0.004 kg		Lens to replace the pilot lights color	5 pieces	ALSD0 <sup>2)</sup>	10185885
				ALSD1 <sup>2)</sup>	10185881
				ALSD2 <sup>2)</sup>	10185882
				ALSD3 <sup>2)</sup>	10185883
				ALSD4 <sup>2)</sup>	10185884
				ALSD6 <sup>2)</sup>	12916460

### Engraved Illuminated Pushbutton Caps<sup>1)</sup>

Illustrative image	Description	Function	Standard packing	Reference	Code
 0.006 kg	Engraved internal caps for flush illuminated and extended illuminated pushbutton	 Stop	5 pieces	ALBI30 <sup>2)</sup>	10211962
		 Start		ALBI31 <sup>2)</sup>	10211963
		 Rectilinear movement		ALBI32 <sup>2)</sup>	10211964
		 Clockwise rotation		ALBI33 <sup>2)</sup>	10211965
		 Counterclockwise rotation		ALBI34 <sup>2)</sup>	10211966
		 Feed		ALBI35 <sup>2)</sup>	10211967


### Round Plug

Illustrative image	Description	Standard packing	Reference	Code
 0.010 kg	Round plug for unused Ø22 mm holes	5 pieces	ATR <sup>2)</sup>	10185878








Notes: 1) Other engraving options under request.  
2) Unitary weights.

## Common Accessories - Mounting in Flanges or Control Stations

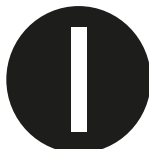








### Single Pushbutton Protection

Illustrative image	Description	Standard packing	Reference	Code
 0.010 kg	Silicon additional protective cover for flush pushbuttons (BF) and pilot lights (SD)	5 pieces	APBF <sup>2)</sup>	10185879
	Silicon additional protective cover for illuminated flush pushbuttons (BFI), illuminated extended pushbuttons (BSI) and extended pushbuttons (BS)		APBI <sup>2)</sup>	10075605


### Pushbutton Caps

Illustrative image	Description	Color	Standard packing	Reference	Code
 0.005 kg	Caps to replace the flush pushbuttons colors		5 pieces	ACB0 <sup>2)</sup>	10071881
				ACB1 <sup>2)</sup>	10045227
				ACB2 <sup>2)</sup>	10045228
				ACB3 <sup>2)</sup>	10045229
				ACB4 <sup>2)</sup>	10045230
				ACB5 <sup>2)</sup>	10045226
		All 6 colors	6 pieces	ACB <sup>2)</sup>	12916461


### Engraved Pushbutton Caps<sup>1)</sup>

Illustrative image	Description	Function	Standard packing	Reference	Code
 0.005 kg	Engraved caps for flush and guarded pushbuttons <sup>1)</sup>		5 pieces	ACB1-30 <sup>2)</sup>	10045231
				ACB5-31 <sup>2)</sup>	10045232
				ACB5-32 <sup>2)</sup>	10045233
				ACB5-33 <sup>2)</sup>	10045234
				ACB5-34 <sup>2)</sup>	10045235
				ACB5-35 <sup>2)</sup>	10045236
				ACB4-37 <sup>2)</sup>	13526353
				ACB4-47 <sup>2)</sup>	13526354

### Contact Blocks Tie

Illustrative image	Description	Standard packing	Compatible blocks	Reference	Code
 0.002 kg	Contact blocks tie to monitor the mechanical assembly together with the CSW-BESGM, CSW-BESPM and CSW-BESYM buttons. Maximum number of contact blocks: 3 BC_F/BC_B blocks Note: - In does not allow overlapping the contacts	1 piece	BC10F BC01F BC10B BC01B	CBCSW	13275381

### Emergency Pushbutton Protection<sup>3)</sup>

Illustrative image	Description	Standard packing	Reference	Code
 0,025 kg	Guard to avoid inadvertent touch on the emergency-stop pushbutton moldes CSW-BES <sup>4)</sup> . Mounting in flanges or control stations. WITHOUT engraving	GBES	1	13263711
	Guard to avoid inadvertent touch on the emergency-stop pushbutton moldes CSW-BES <sup>4)</sup> . Mounting in flanges or control stations. With engraving: EMERGÊNCIA-DESLIGA	GBES-01	1	13888126
	Guard to avoid inadvertent touch on the emergency-stop pushbutton moldes CSW-BES <sup>4)</sup> . Mounting in flanges or control stations. With engraving: EMERGENCY - STOP	GBES-02	1	13888127
	Guard to avoid inadvertent touch on the emergency-stop pushbutton moldes CSW-BES <sup>4)</sup> . Mounting in flanges or control stations. With engraving: EMERGENCIA-PARO	GBES-03	1	13888199

Notas: 1) Other engraving on request;

2) Unitary weights;

3) Don't use the emergency pushbutton protection with emergency-stop plate;

4) Compatible with emergency buttons only models CSW-BES\* (buttons of emergency-stop).

# Common Accessories - Mounting in Flanges or Control Stations

## Plastic Plates 27x18 mm Already Engraved for Use in Empty Control Stations or Plate Holders<sup>1)2)</sup>

**START**

**MANUAL**

**AUTO**

Standard packing 5 piece

0.020 kg

Single pushbuttons and pilot lights											
Reference	Code	Engraving	Reference	Code	Engraving	Reference	Code	Engraving	Reference	Code	Engraving
AP30-204	On request	HAND	AP30-208	On request	RIGHT	AP30-215	On request	AVANÇO	AP30-229	On request	SUBIR
AP30-205	On request	AUTO	AP30-209	On request	LEFT	AP30-216	On request	RECUO	AP30-230	On request	BAJAR
AP30-18 <sup>2)</sup>	On request	STOP	AP30-210	On request	INCH	AP30-125	12642939	LIGA	AP30-231	On request	ADELANTE
AP30-11	On request	OPEN	AP30-03 <sup>2)</sup>	On request	EMERGENCY STOP	AP30-120	12642429	DESLIGA	AP30-232	On request	REGRESO
AP30-01	On request	CLOSE	AP30-05	On request	JOG	AP30-123	On request	EM OPERAÇÃO	AP30-233	On request	PARO
AP30-19	On request	UP	AP30-06	On request	JOG FORWARD	AP30-217	On request	INICIAR	AP30-234	On request	MARCHA
AP30-02	On request	DOWN	AP30-07	On request	JOG REVERSE	AP30-218	On request	RÁPIDO	AP30-218	On request	RÁPIDO
AP30-04	On request	FORWARD	AP30-08	On request	LOWER	AP30-219	On request	DEVAGAR	AP30-235	On request	DESPACIO
AP30-15	On request	REVERSE	AP30-13	On request	RAISE	AP30-220	On request	DIREITA	AP30-236	On request	DERECHA
AP30-10	On request	ON	AP30-147	On request	FAULT	AP30-221	On request	ESQUERDA	AP30-237	On request	IZQUIERDA
AP30-132	13724248	OFF	AP30-129	On request	MANUAL	AP30-222	12622820	PARADA DE EMERGENCIA	AP30-238	On request	BAJADA
AP30-12	On request	POWER ON	AP30-52	On request	AUTOMÁTICO	AP30-223	13733881	ABAIXAR	AP30-239	On request	SUBIDA
AP30-14	On request	RESET	AP30-134	On request	PARADA	AP30-224	13733882	LEVANTAR	AP30-240	On request	FALLA
AP30-17	On request	START	AP30-211	13718112	ABRIR	AP30-225	On request	FALHA	AP30-201	On request	0
AP30-16	On request	RUN	AP30-212	On request	FECHAR	AP30-226	On request	AUTOMÁTICA	AP30-202	On request	I
AP30-206	On request	FAST	AP30-213	On request	ACIMA	AP30-211	On request	ABRIR	AP30-203	On request	II
AP30-207	On request	SLOW	AP30-214	On request	ABAIXO	AP30-228	On request	CERRAR			


2 - position selector switch											
Reference	Code	Engraving	Reference	Code	Engraving	Reference	Code	Engraving	Reference	Code	Engraving
AP30-21	13724250	HAND AUTO	AP30-24	On request	OFF ON	AP30-28	On request	UP DOWN	AP30-244	14346189	AVANÇO RECUO
AP30-27	On request	START STOP	AP30-25	On request	OPEN CLOSE	AP30-23	On request	MAN AUTO	AP30-39	On request	DES LIG
AP30-20	On request	FOR REV	AP30-26	On request	RUN JOG	AP30-243	12720641	LIGA DESLIGA	AP30-250	On request	PARO ARRANQUE
AP30-22	On request	JOG RUN									

3 - position selector switch											
Reference	Code	Engraving	Reference	Code	Engraving	Reference	Code	Engraving	Reference	Code	Engraving
AP30-30	On request	FOR OFF REV	AP30-35	On request	UP OFF DOWN	AP30-257	On request	ABERTO 0 AUTO	AP30-261	On request	SUBIR 0 REGRESSO
AP30-32	On request	MAN OFF AUTO	AP30-149	On request	AUTO 0 REV	AP30-258	On request	ABERTO 0 FECHADO	AP30-262	On request	AUTO 0 REGRESSO
AP30-33	On request	OPEN OFF AUTO	AP30-255	On request	AVANÇO 0 RECUO	AP30-190	13855859	SOBE 0 DESCE	AP30-253	On request	I 0 II
AP30-34	On request	OPEN OFF CLOSE	AP30-256	On request	MANUAL 0 AUTO	AP30-260	On request	AUTO 0 REVERSO			


Notes: 1) Other engraving on request;  
2) Unitary weights.

## Assembled Units - Ø22 mm


### Button with Shaft

Illustrative image	Description	Reference	Code	Weight (kg)
	Flush pushbutton - Blue - "RESET" Engraved - With 22.5 mm to 250 mm long shaft	CSW-BHF437	12471376	0.045


### Non-Illuminated Pushbuttons

Illustrative image	Description	Reference	Code	Weight (kg)
	Flush pushbutton - Black - 1 NO	CSW-BF5-10000000-3VF	12923176	0.041
	Flush pushbutton - Blue - Engraving: "RESET" - 1 NO	CSW-BF437-10000000-3VF	12922280	
	Flush pushbutton - Blue - 1 NO	CSW-BF4-10000000-3VF	12923199	
	Flush pushbutton - Yellow - 1 NO	CSW-BF3-10000000-3VF	12930986	
	Flush pushbutton - Green - 1 NO	CSW-BF2-10000000-3VF	12923177	
	Flush pushbutton - Red - 1 NC	CSW-BF1-01000000-3VF	12922955	
	Mushroom pushbutton - Green - 1 NO	CSW-BC2-10000000-3VF	12930987	0.044
	Mushroom pushbutton - Red - 1 NO	CSW-BC1-01000000-3VF	12931019	
	Emergency-stop pushbutton - Twist release - 3 NC monitored	CSW-BESG-00000003-3VF	13312574	0.277
	Emergency-stop pushbutton - Twist release - 2 NC monitored	CSW-BESG-00000002-3VF	13312575	0.204
	Emergency-stop pushbutton - Twist release - 1 NC monitored	CSW-BESG-00000001-3VF	13278311	0.077
	Emergency-stop pushbutton - Pull release - 3 NC monitored	CSW-BESP-00000001-3VF	13278309	
	Emergency-stop with latch - Pull to release - 2 NC monitored	CSW-BESP-02000000-3VF	12922949	0.079
	Emergency-stop with latch - Turn to release 1 NC (BC01F)	CSW-BESG-01000000-3VF	12922954	0,07
	Emergency-stop with latch - Pull to release - 1 NC (BC01F)	CSW-BESP-01000000-3VF	12931118	0,068
	Emergency-stop with latch - Turn to release with actuation signaling - 1 NC monitored	CSW-BESGS-00000001-3VF	13278312	0,131
	Emergency-stop with latch - Pull to release - Monitoring in decentralized control stations - 1 NC (BC01F) E 1 NA (BC10F)	CSW-BESPM-11000000-3VF	13307985	0,082
Emergency with key - 1 NC monitored	CSW-BESY-01000000-3VF	13770800	0,134	
Flush Double pushbutton IP40 - Green (Engraved:"I") and Red (Engraved:"O") - 1 NO + 1 NC	CSW-BD-11000000-3VF	12923175	0.055	
Flush Double pushbutton IP66 - Green (Engraved:"I") and Red (Engraved:"O") - 1 NO + 1 NC	CSW2-BDF210-11000000-3VF	12756198		

### Illuminated Pushbuttons


Illustrative image	Description	Reference	Code	Weight (kg)
	Illuminated flush double pushbutton IP40 - Green (Engraved:"I") and Red (Engraved:"O") - 220-240 V ac - 1 NO + 1 NC	CSW-BD-11000000-FD661-3VF	12923174	0.055
	Illuminated flush double pushbutton IP40 - Green (Engraved:"I") and Red (Engraved:"O") - 110-130 V ac/dc - 1 NO + 1 NC	CSW-BD-11000000-FE101-3VF	12931024	
	Illuminated flush double pushbutton IP40 - Green (Engraved:"I") and Red (Engraved:"O") - 24 V ac/dc - 1 NO + 1 NC	CSW-BD-11000000-FE261-3VF	12931058	
	Illuminated flush double pushbutton IP66 - Green (Engraved:"I") and Red (Engraved:"O") - 220-240 V ac - 1 NO + 1 NC	CSW2-BDF210-11000000-FD661-3VF	12931201	
	Illuminated flush pushbutton - Red - 220-240 V ac - 1 NC	CSW-BF1-01000000-FD66-3VF	12931064	0.054
	Illuminated flush pushbutton - Red - 24 V ac/dc - 1 NC	CSW-BF1-01000000-FE26-3VF	12931066	
	Illuminated flush pushbutton - Green - 220-240 V ac - 1 NO	CSW-BF2-10000000-FD66-3VF	12931067	
	Illuminated flush pushbutton - Green - 24 V ac/dc - 1 NO	CSW-BF2-10000000-FE26-3VF	12931090	
	Illuminated flush pushbutton - Yellow - 24 V ac/dc - 1 NO	CSW-BF3-10000000-FE26-3VF	12931092	
	Illuminated flush pushbutton - Blue - 24 V ac/dc - 1 NO	CSW-BF4-10000000-FE26-3VF	12931093	
	Extended flush pushbutton - Green - 220-240 V ac - 1 NO	CSW-BSI2-10000000-FD66-3VF	12931094	

### Non-Illuminated Selector Switch

Illustrative image	Description	Reference	Code	Weight (kg)
	Selector switch knob - Black - 2 fixed positions - 45° - 1 NO	CSW-CK2F45-10000000-3VF	12923170	0.046
	Selector switch knob - Black - 2 fixed positions - 90° - 1 NO + 1 NC	CSW-CK2F90-11000000-3VF	12923198	0.057
	Selector switch knob - Black - 2 fixed positions - 90° - 1 NO	CSW-CK2F90-10000000-3VF	12923253	0.046
	Selector switch knob - Black - 2 fixed positions - 90° - 2 NO	CSW-CK2F90-20000000-3VF	12931095	0.057
	Selector switch knob - Black - 2 fixed positions - 45° - 1 NO + 1 NC	CSW-CK2F45-11000000-3VF	12931096	
	Selector switch knob - Black - 3 positions return - 45° - 2 NO	CSW-CK3R45-20000000-3VF	12923020	
	Selector switch knob - Black - 3 fixed positions - 45° - 2 NO	CSW-CK3F45-20000000-3VF	12923168	

## Assembled Units - Ø22 mm


### Illuminated Selector Switch

Illustrative image	Description	Reference	Code	Weight (kg)
	Illuminated selector switch - Red - 2 fixed positions - 90° - 1 NO - 220-240 V ac	CSW-CKI2F901-10000000-FD66-3VF	12930906	0.053
	Illuminated selector switch - Green - 2 fixed positions - 90° - 1 NO - 220-240 V ac	CSW-CKI2F902-10000000-FD66-3VF	12930907	
	Illuminated selector switch - Green - 2 fixed positions - 90° - 1 NO - 110-130 V ac/dc	CSW-CKI2F902-10000000-FDE10-3VF	12930958	
	Illuminated selector switch - Red - 2 fixed positions - 90° - 1 NO - 110-130 V ac/dc	CSW-CKI2F901-10000000-FE10-3VF	12930960	
	Illuminated selector switch - Red - 2 fixed positions - 90° - 2 NO - 220-240 V ac	CSW-CKI2F901-20000000-FD66-3VF	12930961	0.063
	Illuminated selector switch - Red - 2 fixed positions - 90° - 1 NO - 24 V ac/dc	CSW-CKI2F901-10000000-FE26-3VF	12930962	0.053
	Illuminated selector switch - Red - 2 fixed positions - 90° - 1 NC - 220-240 V ac	CSW-CKI2F901-10000000-FD66-3VF	12930906	
	Illuminated selector switch - Green - 2 fixed positions - 90° - 1 NO - 24 V ac/dc	CSW-CKI2F902-10000000-FE26-3VF	12930965	
	Illuminated selector switch - Red - 3 fixed positions - 45° - 2 NO - 110-130 V ac/dc	CSW-CKI3F451-20000000-FE10-3VF	12930980	0.063
	Illuminated selector switch - Green - 3 fixed positions - 45° - 2 NO - 110-130 V ac/dc	CSW-CKI3F452-20000000-FE10-3VF	12930981	
	Illuminated selector switch - Green - 3 fixed positions - 45° - 2 NO - 24 V ac/dc	CSW-CKI3F452-20000000-FE26-3VF	12930982	
	Illuminated selector switch - Red - 3 positions return - 45° - 1 NO + 1 NC - 220-240 V ac	CSW-CKI3R451-11000000-FD66-3VF	12930983	
	Illuminated selector switch - Red - 3 fixed positions - 45° - 2 NO - 220-240 V ac	CSW-CKI3F451-20000000-FD66-3VF	12930984	
	Illuminated selector switch - Green - 3 fixed positions - 45° - 2 NO - 220-240 V ac	CSW-CKI3F452-20000000-FD66-3VF	12930985	

### Modular Pilot Lights with LED Blocks

Illustrative image	Description	Reference	Code	Weight (kg)
	White diffuse pilot light - LED Block 24 V ac/dc - White	CSW-SD0-FE26-3VF	12930828	0.039
	Red diffuse pilot light - LED Block 24 V ac/dc - Red	CSW-SD1-FE26-3VF	12930829	
	Green diffuse pilot light - LED Block 24 V ac/dc - Green	CSW-SD2-FE26-3VF	12930830	
	Yellow diffuse pilot light - LED Block 24 V ac/dc - Yellow	CSW-SD3-FE26-3VF	12930831	
	Blue diffuse pilot light - LED Block 24 V ac/dc - Blue	CSW-SD4-FE26-3VF	12930832	
	Orange diffuse pilot light - LED Block 24 V ac/dc - Orange	CSW-SD6-FE26-3VF	12930833	
	White diffuse pilot light - LED Block 48 V ac/dc - White	CSW-SD0-FE27-3VF	12930834	
	Red diffuse pilot light - LED Block 48 V ac/dc - Red	CSW-SD1-FE27-3VF	12930835	
	Green diffuse pilot light - LED Block 48 V ac/dc - Green	CSW-SD2-FE27-3VF	12930836	
	Yellow diffuse pilot light - LED Block 48 V ac/dc - Yellow	CSW-SD3-FE27-3VF	12930837	
	Blue diffuse pilot light - LED Block 48 V ac/dc - Blue	CSW-SD4-FE27-3VF	12930878	
	Orange diffuse pilot light - LED Block 48 V ac/dc - Orange	CSW-SD6-FE27-3VF	12930879	
	White diffuse pilot light - LED Block 110-130 V ac/dc - White	CSW-SD0-FE10-3VF	12930880	
	Red diffuse pilot light - LED Block 110-130 V ac/dc - Red	CSW-SD1-FDE10-3VF	12930881	
	Green diffuse pilot light - LED Block 110-130 V ac/dc - Green	CSW-SD2-FE10-3VF	12930882	
	Yellow diffuse pilot light - LED Block 110-130 V ac/dc - Yellow	CSW-SD3-FE10-3VF	12930883	
	Blue diffuse pilot light - LED Block 110-130 V ac/dc - Blue	CSW-SD4-FE10-3VF	12930884	
	Orange diffuse pilot light - LED Block 110-130 V ac/dc - Orange	CSW-SD6-FE10-3VF	12930885	
	White diffuse pilot light - LED Block 220-240 V ac - White	CSW-SD0-FD66-3VF	12930902	
	Red diffuse pilot light - LED Block 220-240 V ac - Red	CSW-SD1-FD66-3VF	12923060	
	Green diffuse pilot light - LED Block 220-240 V ac - Green	CSW-SD2-FD66-3VF	12923059	
	Yellow diffuse pilot light - LED Block 220-240 V ac - Yellow	CSW-SD3-FD66-3VF	12930903	
	Blue diffuse pilot light - LED Block 220-240 V ac - Blue	CSW-SD4-FD66-3VF	12930904	
	Orange diffuse pilot light - LED Block 220-240 V ac - Orange	CSW-SD6-FD66-3VF	12930905	

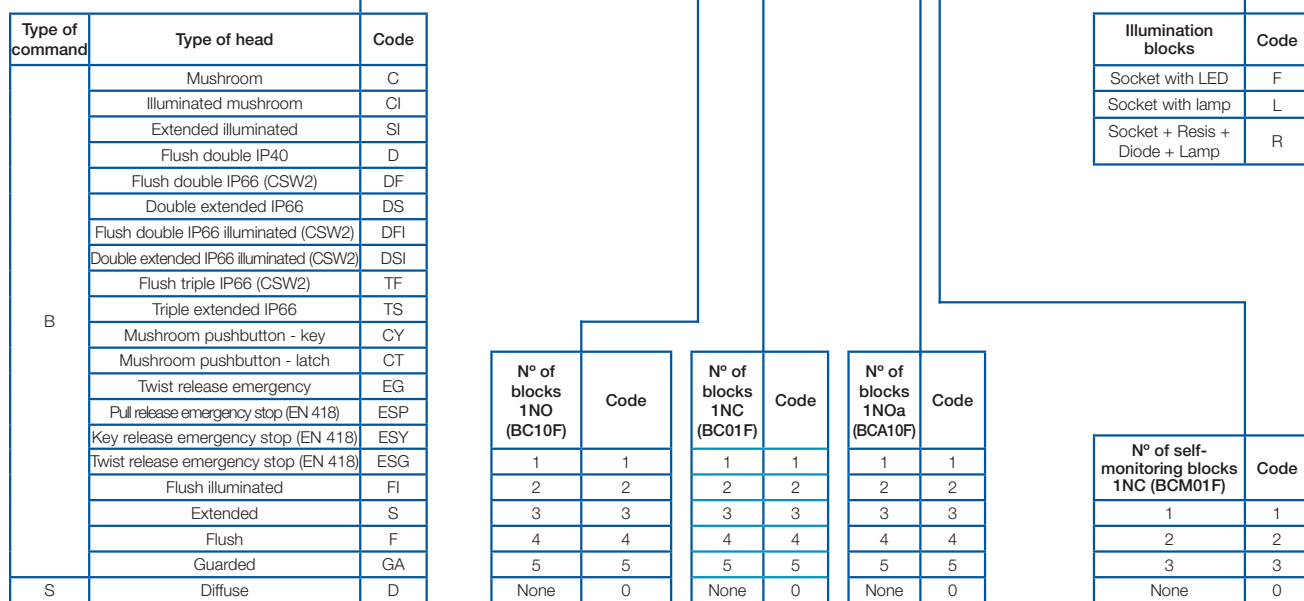
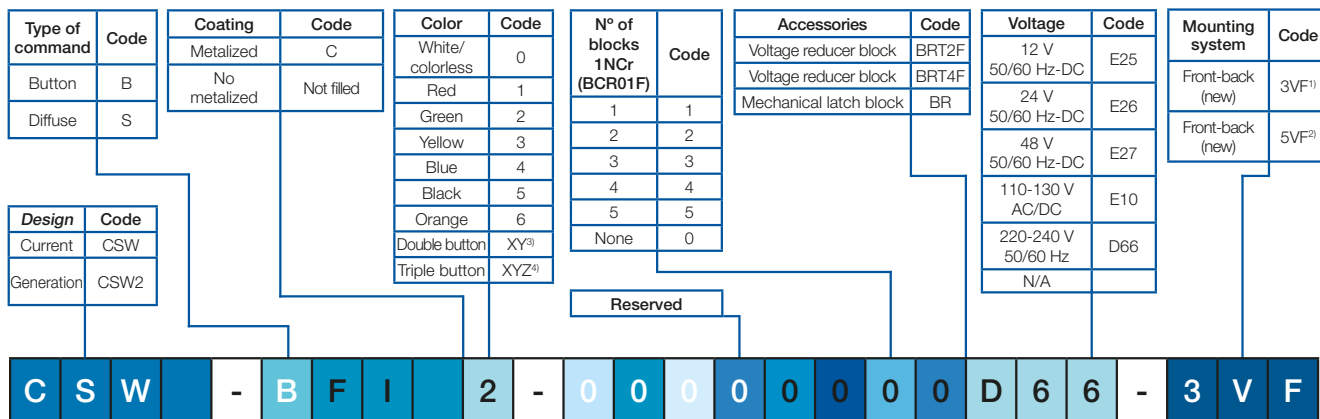
### Emergency-Stop Pushbuttons on Decentralized Control Station<sup>1)</sup>

Illustrative image	Control station	Emergency-stop pushbutton	Contact blocks	Engraved plate	Reference	Code	Weight
	PBW-1Y	CSW-BESGM	1NA + 1NF	"EMERGENCY STOP"	PBW1Y-GM11P03	13232101	0.212
	PBW-1Y	CSW-BESGM	1NA + 2NF	"EMERGENCY STOP"	PBW1Y-GM12P03	13232498	0.212

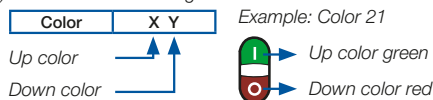
Note: 1) Other configurations on request.

# Coding

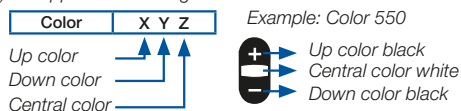
## Set With Head Type Button or Diffuse



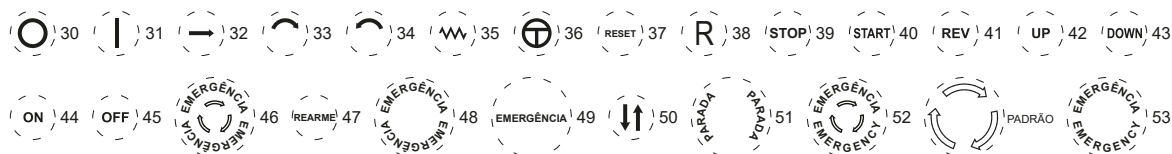
- Notes: 1) Flange AF3F (3 positions).  
 2) Flange AF5F (5 positions).  
 3) To double button using the code with 2 numbers:



- 4) To tripple button using the code with 3 numbers:



- 5) Use numbering according to record table:

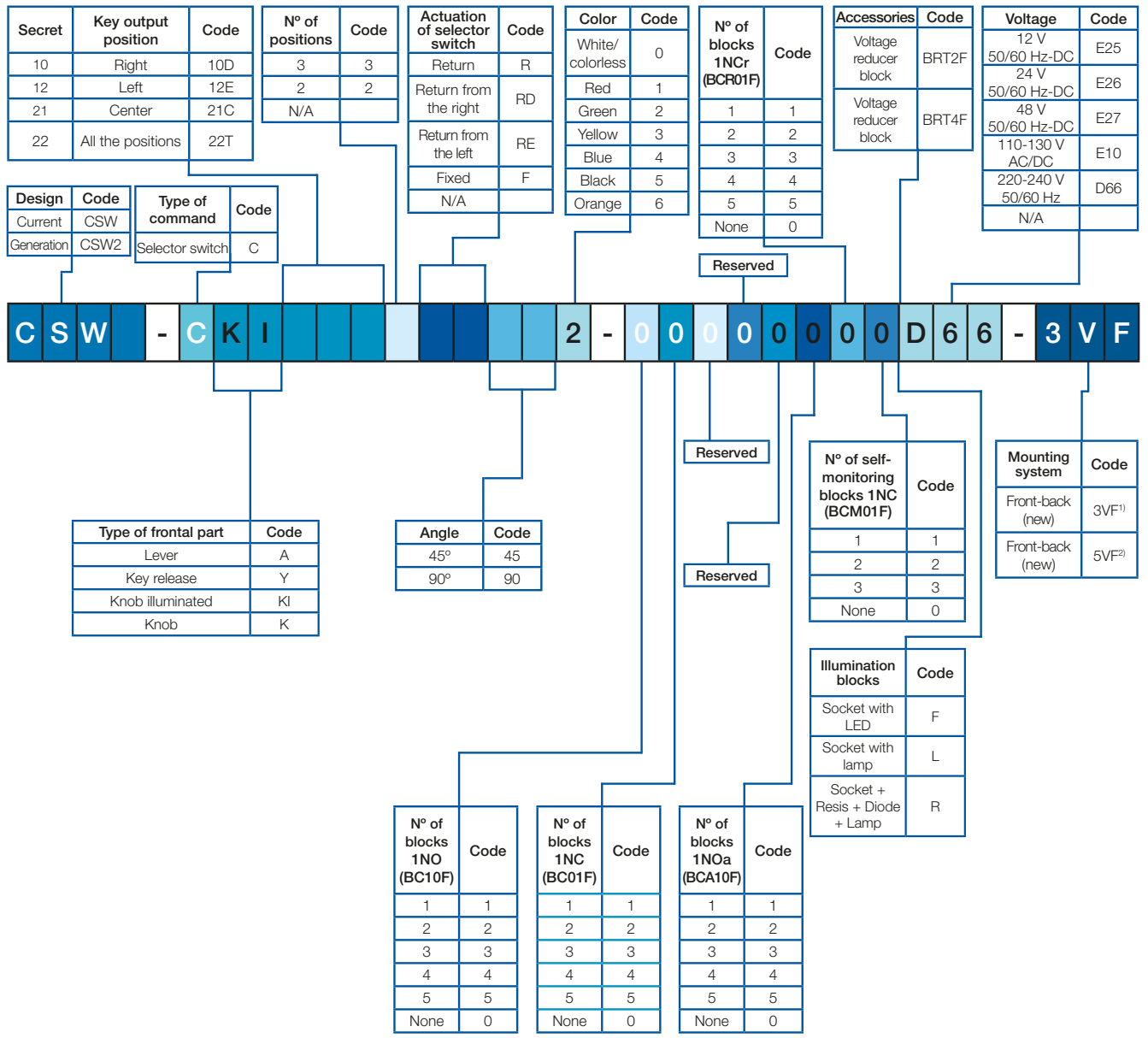


This coding is not allow to head type selector.



# Coding

## Set With Head Type Selector



Notes: 1) Flange AF3F (3 positions).  
2) Flange AF5F (5 positions).

## Technical Data

### Buttons, Commutators and Signal Lights

Applicable standards	IEC 60947-5-1, VDE 0660, UL 508, CENELEC EN 50007, ISO 13850 (EN 418), IEC 60947-5-5
Certifications	CE, cULus, BV, IRAM, PCT, RCC, ICONTEC
Degree of protection	IP66 and IP40 (CSW-BD) according to IEC 60529 NEMA1, 2, 3, 3R, 3S, 4, 4X, 5, 12, 12K and 13 according to UL 508
Materials of the frontal parts	Polyamide (PA66) or Polycarbonate (PC)
<b>Mechanical life</b>	
Pushbuttons	3 x 10 <sup>6</sup> operations
CSW2-BD e CSW2-BT pushbuttons	2 x 10 <sup>6</sup> operations
CSW-BEG/EY/CT/CY pushbuttons	3 x 10 <sup>5</sup> operations
CSW-BESG/P/Y emergency-stop pushbuttons	1 x 10 <sup>5</sup> operations
Selector switches	1 x 10 <sup>6</sup> operations
Use in environments	Outdoors (UV rays) or indoors
Operating temperature range	5 °C ... 40 °C

### Contact Blocks

Applicable standards	IEC 60947-5-1, VDE 0660, UL 508, CENELEC EN 50007, ISO 13850 (EN 418), IEC 60947-5-5			
Certifications	CE, cULus, BV, IRAM, PCT, RCC, ICONTEC			
Rated insulation voltage U <sub>i</sub>	690 V			
Rated impulse withstand voltage U <sub>imp</sub>	4 kV			
Degree of protection (IEC 60529)	IP20			
Conventional thermal current I <sub>th</sub>	10 A			
<b>Electrical performance according to IEC 60947-5-1</b>				
Utilization category AC-15	BC...-CSW		BCM01-CSW	
	U <sub>e</sub> (V ac)	I <sub>e</sub> (A)	U <sub>e</sub> (V ac)	I <sub>e</sub> (A)
	24	10	24	6
	48	10	48	6
	60	10	60	6
	110	6	110	6
	220	3	220	3
	380	2	380	2
Utilization category DC-13	BC...-CSW		BCM01-CSW	
	U <sub>e</sub> (V dc)	I <sub>e</sub> (A)	U <sub>e</sub> (V dc)	I <sub>e</sub> (A)
	24	2.5	24	2.5
	48	1.4	48	1.4
	60	1	60	1
	110	0.55	110	0.55
	220	0.27	220	0.27
	300	0.2	300	0.2
600	0.1	600	0.1	
Performance according to UL and CSA	AC / Heavy Duty (A600) e DC / Standard Duty (Q600)		-	
Resistance of the contacts (IEC 60255)	≤ 25m Ω			
Protection against short circuit (IEC 60269-1 / IEC 60269-3)	BC...-CSW: Fuse of 16 A / 690 V gL/gG (1 kA) Mini-circuit breaker of 16 A (MDW-B16)		Fuse of 6 A / 500 V gL/gG (0.5 kA) Mini-circuit breaker of 6 A (MDW-B6)	
Protection against electric shock (IEC 61140)	Class II			
Section of the conductors (wire/cable with or without terminal)	Minimum (1 x 0.5 mm <sup>2</sup> ) and maximum (2 x 2.5 mm <sup>2</sup> )			
Tightening torque	0.8 N.m			
Working temperature range	-25 °C...+70 °C			
Resistance to mechanical shock	Without damages or disassembly 100 g (1/2 sinusoidal 11ms, according to MIL 202 B method 202 A)			
Resistance to vibration (IEC 60068-2-6)	16 g for a frequency range from 40 to 500 Hz. Maximum displacement 0.75 mm (peak to peak)			
Mechanical endurance of contact blocks BC10F / BC01F / BCA10F / BCR01F	1 x 10 <sup>6</sup> operating cycles			

## Technical Data

### Illumination Blocks with Integrated LED BIDLf

Applicable standards	IEC 60947-5-1, UL 508
Voltage range for operation	0.85...1.10 x U <sub>e</sub>
Degree of protection (IEC 60529)	IP20
Consumption (V ac/V dc)	10 mA
Rated impulse withstand voltage U <sub>i</sub> (IEC 60947-1)	2.5 kV
Working temperature range	- 25 °C...+70 °C
Average useful life	100.000 hours
Brightness	Red 70 mcd
	Yellow 115 mcd
	White 275 mcd
	Blue 64 mcd
	Green 150 mcd
Section of the conductors (wire/cable with or without terminal)	Minimum (1 x 0.5 mm <sup>2</sup> ) and maximum (2 x 2.5 mm <sup>2</sup> )
Tightening torque	0.8 N.m

### Special Blocks (Illumination, Sockets, Voltage Reduction)

Applicable standards	IEC 60947-5-1, UL 508
Degree of protection (IEC 60529)	IP20
Rated impulse withstand voltage U <sub>i</sub> (IEC 60947-1)	4 kV
Working temperature range	- 25 °C...+70 °C
Section of the conductors (wire/cable with or without terminal)	Minimum (1 x 0.5 mm <sup>2</sup> ) and maximum (2 x 2.5 mm <sup>2</sup> )
Tightening torque	0.8 N.m

### Empty Plastic Control Station

Applicable standards	IEC 60947-5-1, IEC 50102, IEC 60529, UL 508, UL 50
Certifications	CE
Degree of protection (IEC 60529)	IP66 (NEMA 4X)
Working temperature range	-25 °C...+70 °C
Material	Polycarbonate (cover and base)
Color of the cover	Grey (RAL 7035) or yellow (RAL 1003)
Color of the base	Black (RAL 9005)
Cable gland inputs	ØM20 / PG13.5 / 1/2" e ØM16 / 3/8"
Use in environments	Outdoors (UV rays) or indoors



# Assembly Configurations

## Maximum Recommended Configuration of Contact Blocks for Each Type of Head and Flange

Type of head	Illuminated selector	Selectors	Illuminated pushbuttons	
Reference	CSW-CKI	CSW-CK, CSW-CA, CSW-CY	CSW2-BDFI, CSW2-BDSI	CSW-BCI, CSW-BD, CSW-BFI, CSW-BSI
Maximum number of contacts	Max 4	Max 6	Max 4	Max 6
AF3F flange (3 positions)				
Maximum number of contacts	Max	Max 8	Max 4	Max 6
AF5 flange (5 positions) <sup>1)</sup>				

Type of head	Non-illuminated						
Reference	CSW-BESGM, CSW-BESPM, CSW-BESYM	CSW-BESG, CSW-BESP, CSW-BESY	CSW2-BDF, CSW2-BDS	CSW-BF, CSW-BGA	CSW-BC, CSW-BS	CSW-BEG, CSW-BEY, CSW-BCT, CSW-BCY	CSW2-BT
Maximum number of contacts	Max 3	Max 4	Max 4	Max 6	Max 6	Max 6	Max 7
AF3F flange (3 positions)							
Maximum number of contacts	-	Max 4	Max 4	Max 6	Max 6	Max 6	-
AF5 flange (5 positions) <sup>2)</sup>	-	-					-

Contact blocks BC10F-CSW  
 Contact blocks BC01F-CSW

Self-monitoring contact blocks BCM01-CSW

Location not permitted

Illumination blocks BIDL

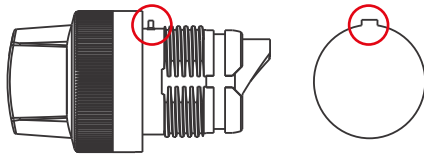
CBCSW contact blocks tie

Notes: 1) In the central position of flange AF5F use only illumination block;  
 2) Not use self-monitoring contact block with flange AF5F;  
 Not use emergency pushbuttons with flange AF5F.

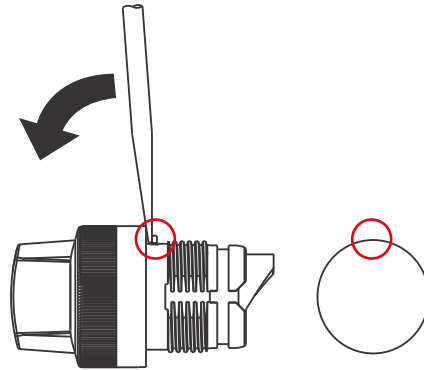
## Installation and Mounting

### Installation on Flange

#### Fitting and Positioning

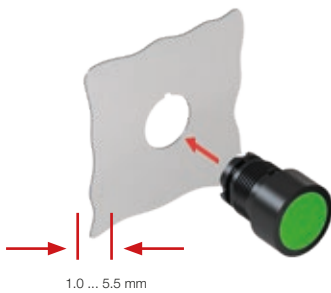


Latch on the body of the frontal part and holes with slot will prevent the rotation of the frontal part during its mounting or operation.



Latch on the body of the frontal part can be removed for installation in round hole, but it may rotate.

### Mounting



Install the frontal part without fastening nut.



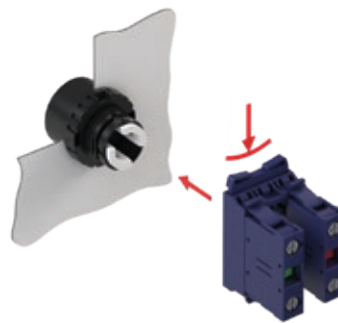
Screw the fastening nut.



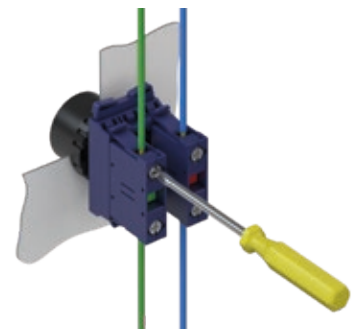
Tighten with the fastening wrench.



Fit the blocks onto the flange.



Press the snap fit to connect the flange to the frontal part.



Make electric wiring.

### Disassembly



Place the screwdriver at the ends of the block so as to disconnect it from the flange.



Press the snap fit to remove the flange from the frontal part.

A

B

C

D

E

F

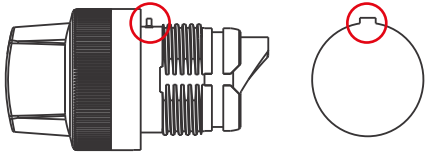
G

H

## Installation and Mounting

### Installation in PBW Control Stations

#### Fitting and Positioning



Latch on the body of the frontal part and slot on the holes of the PBW control stations will prevent the rotation of the frontal part during its mounting or operation.

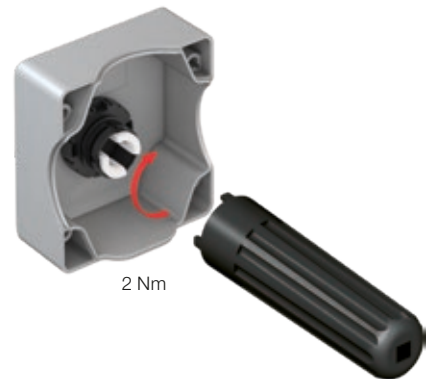
#### Mounting



Install the frontal part without fastening nut.



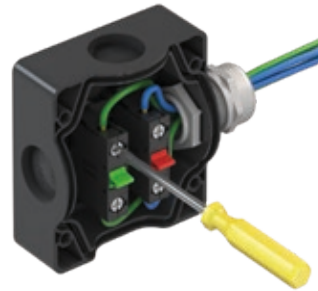
Screw the fastening nut.



Tighten with the fastening wrench.



Fit the blocks on the control station base.



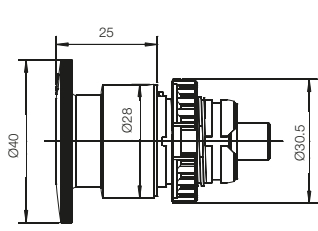
Make electric wiring.

#### Disassembly

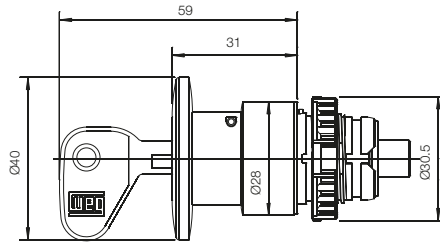


Place the screwdriver at the ends of the block so as to disconnect it from the flange.

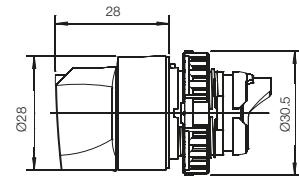
## Dimensions (mm)



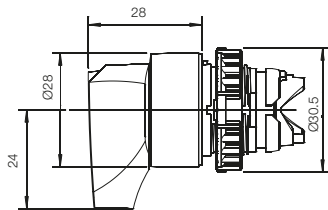
BEG  
BCT



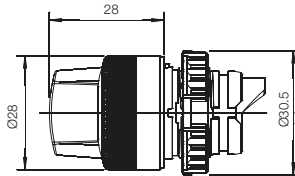
BEY  
BCY



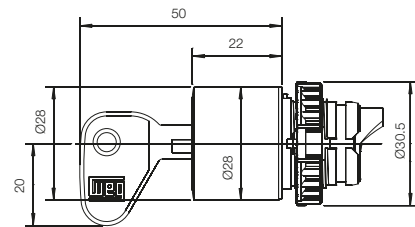
CK



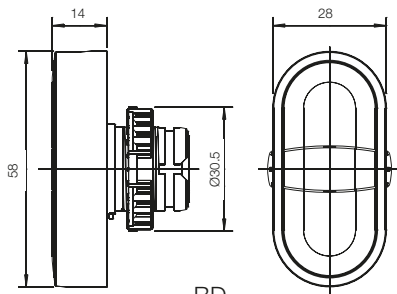
CA



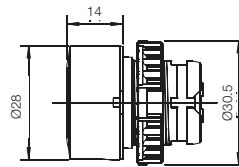
CKI



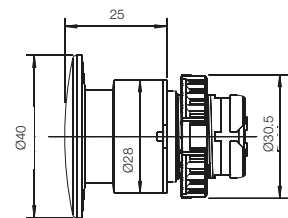
CY



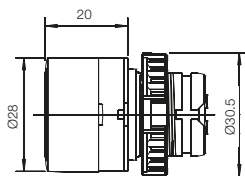
BD



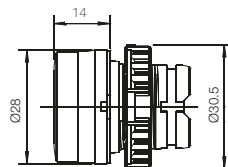
BF



BC  
BCI



BFI  
BGA



SD

A

B

C

D

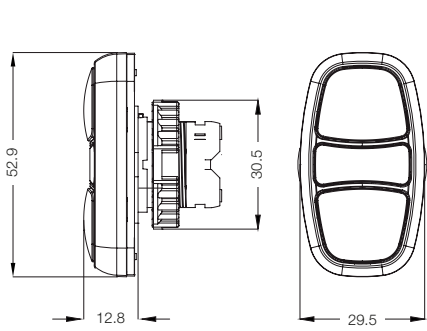
E

F

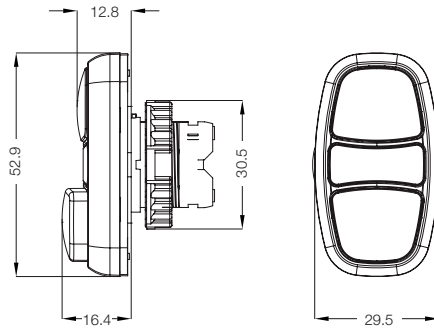
G

H

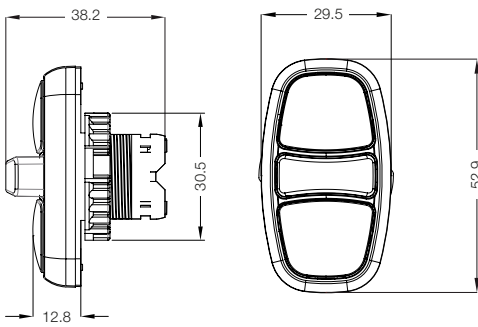
## Dimensions (mm)



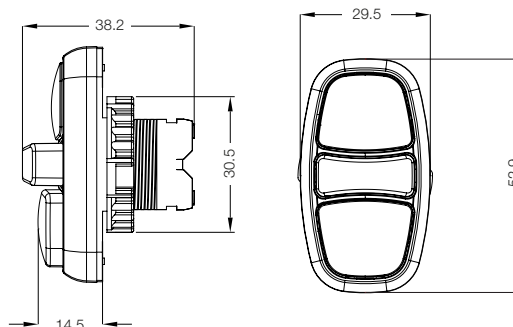
CSW2-BDF



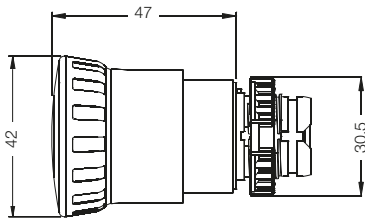
CSW2-BDS



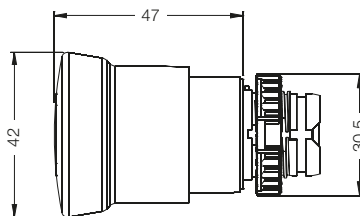
CSW2-BTF



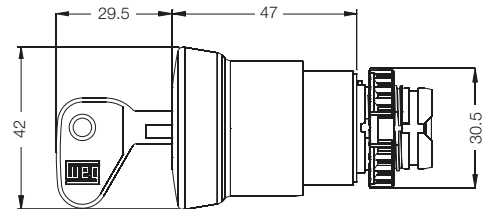
CSW2-BTS



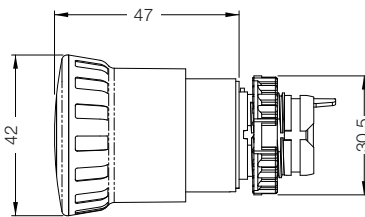
BESG



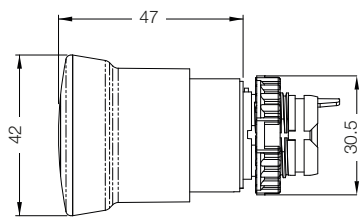
BESP



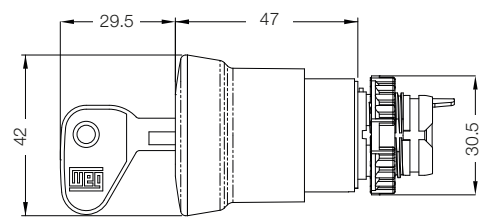
BESY



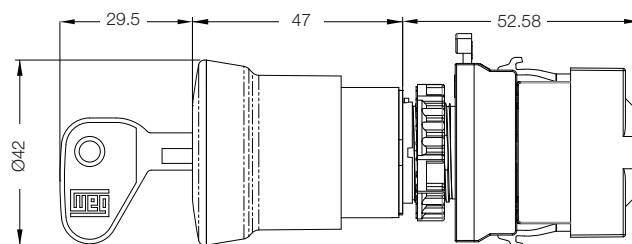
BESGM



BESPM



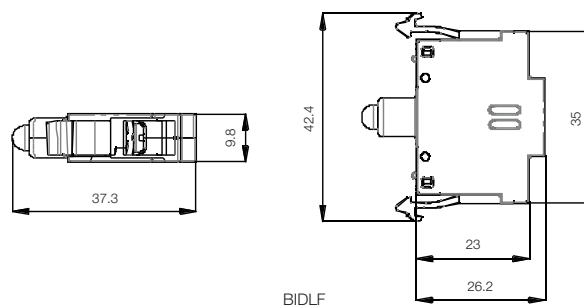
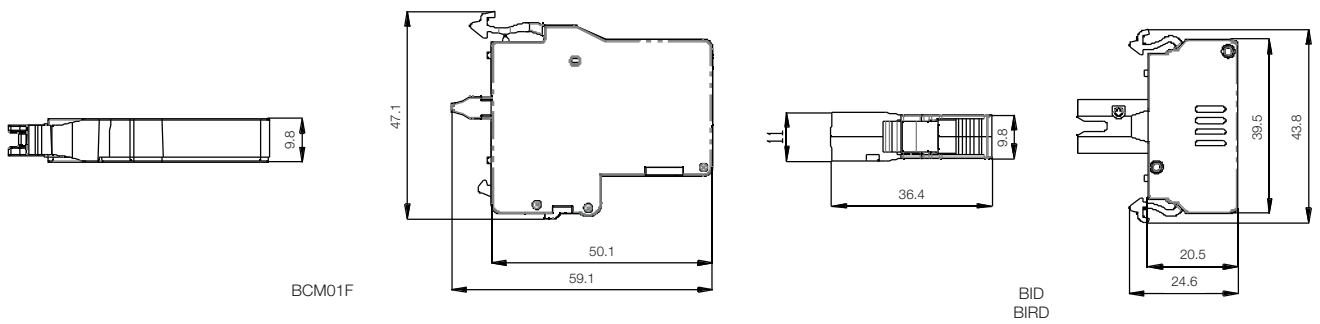
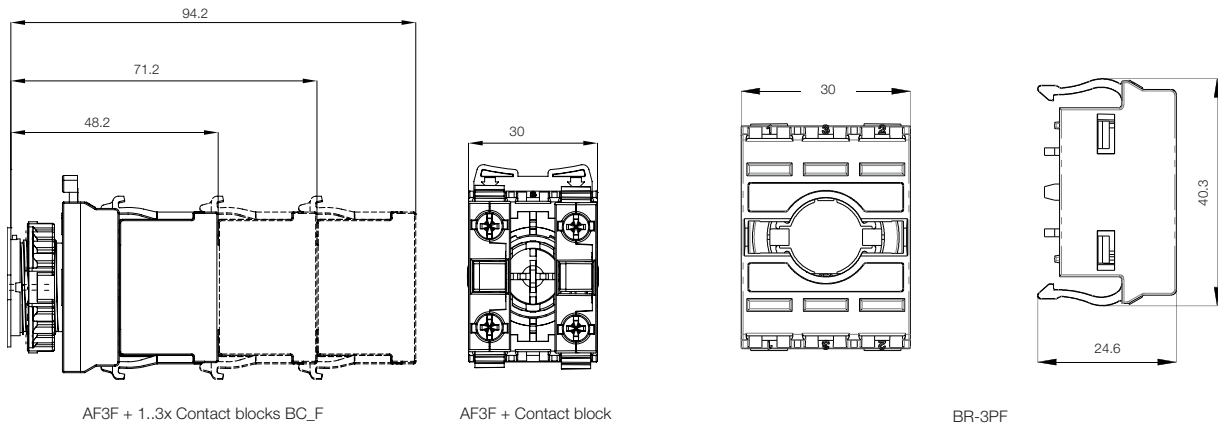
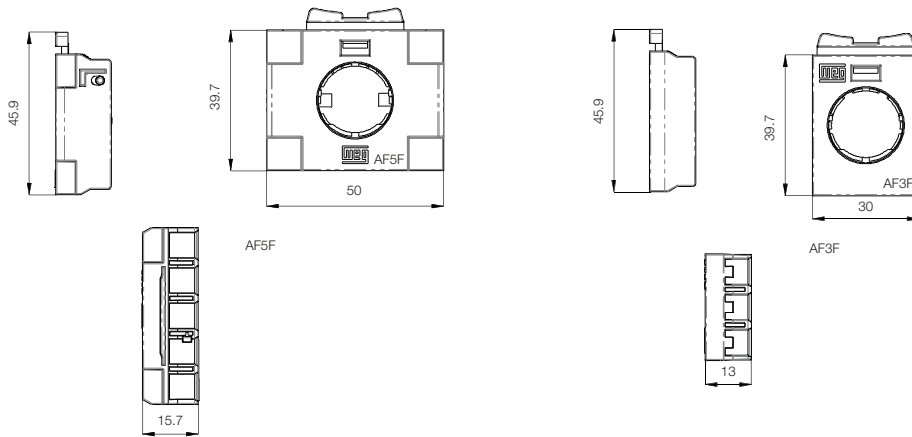
BESYM



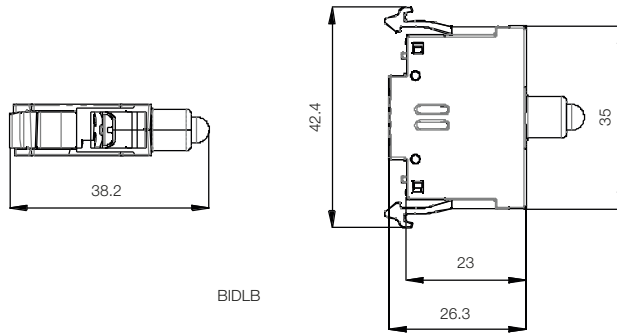
ES\_M + Contact blocks BC10F/BC01F + CBCSW Tie



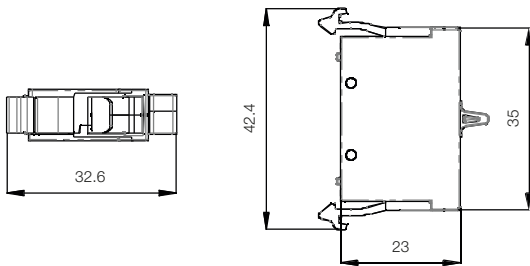
## Dimensions (mm)



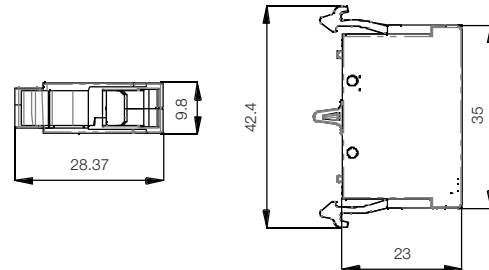
## Dimensions (mm)



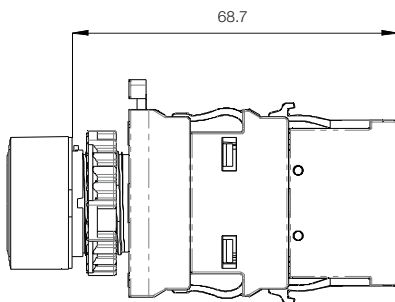
BIDL B



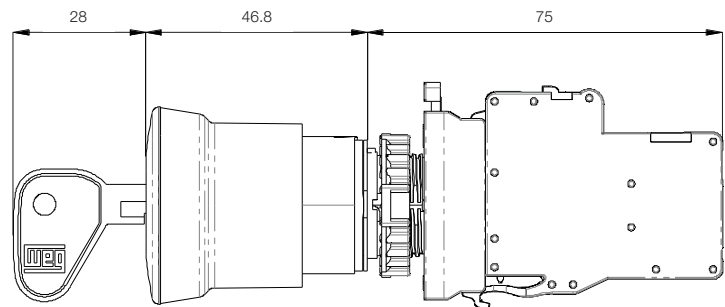
BC10 B  
BC01 B



BC10 F  
BC01 F

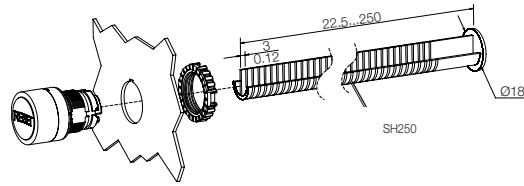


AF3 F + BR - 3PF + BIDLF + BCA10 F

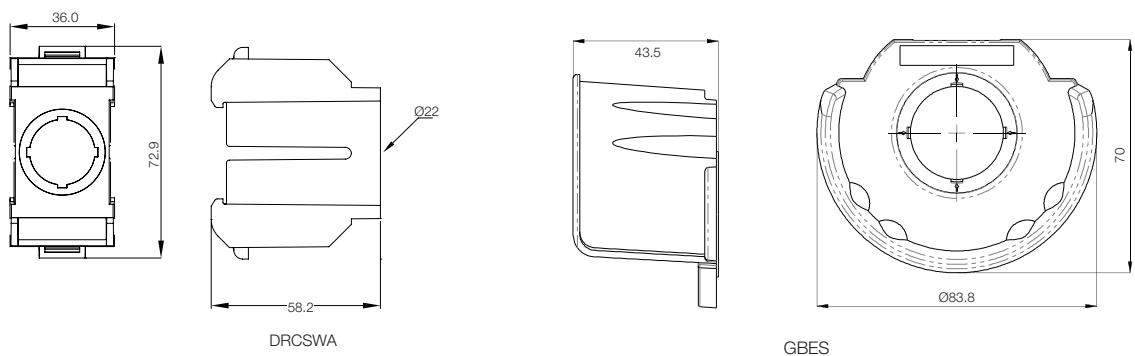
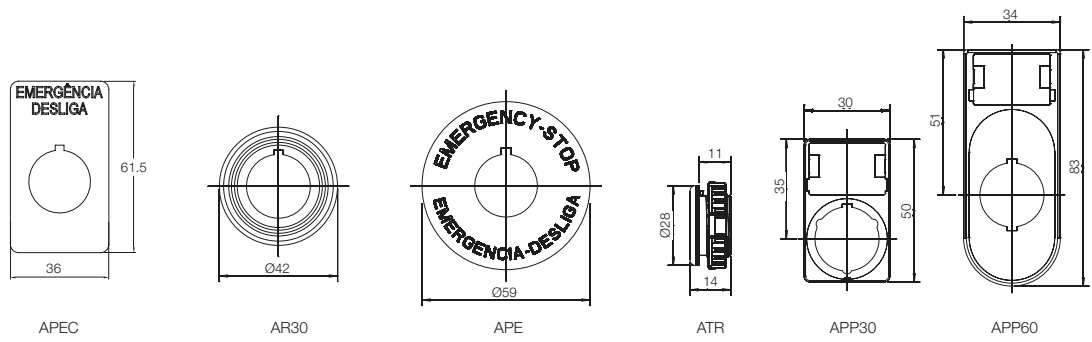
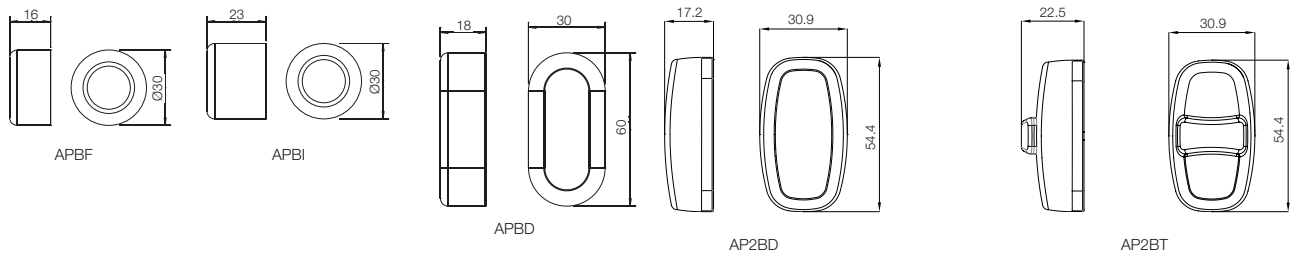


BESY + BCM01 - CSW

# Dimensions (mm)



CSW-BHF437



A

B

C

D

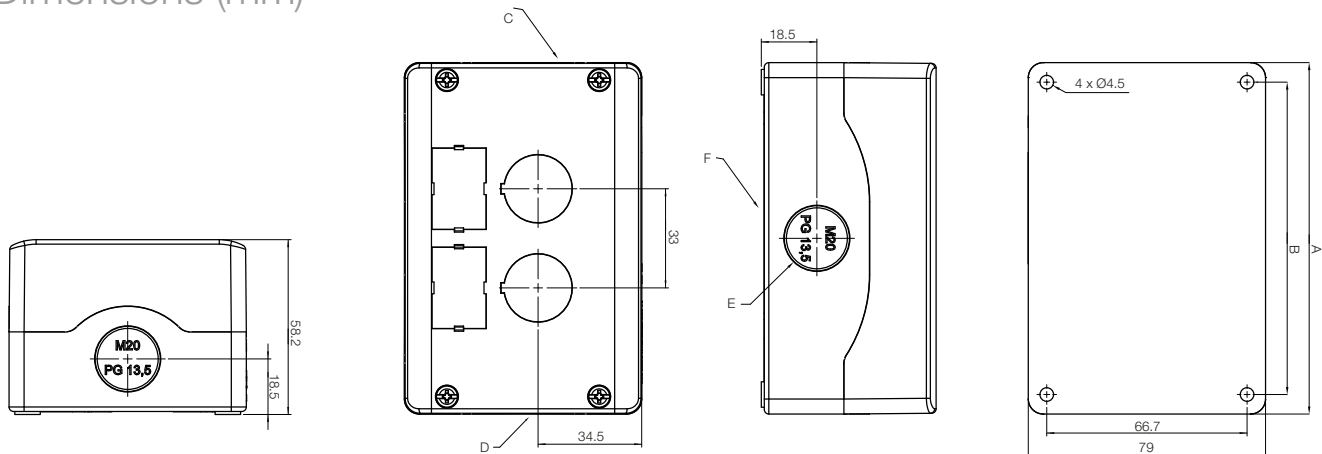
E

F

G

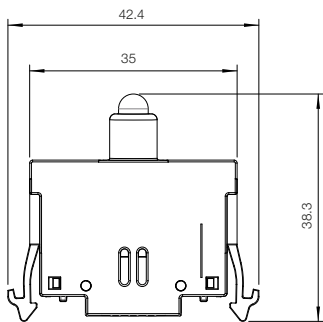
H

## Dimensions (mm)

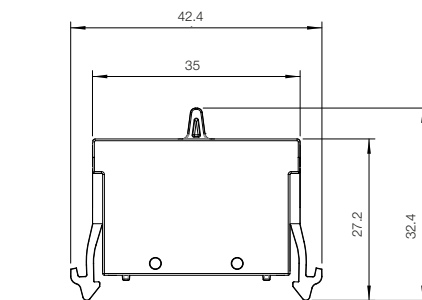


PBW empty control stations

Number of holes	A	B	Cable gland input			
			C (lower)	D (upper)	E (side)	F (base)
1	74	66.7	1x ØM20/PG13.5	1x ØM20/PG13.5	1x ØM20/PG13.5	2x ØM16
2	117	104	1x ØM20/PG13.5	1x ØM20/PG13.5	1x ØM20/PG13.5	2x ØM16
3	150	137	1x ØM20/PG13.5	1x ØM20/PG13.5	2x ØM20/PG13.5	2x ØM16
4	183	170	1x ØM20/PG13.5	1x ØM20/PG13.5	2x ØM20/PG13.5	2x ØM16
6	249	236	1x ØM20/PG13.5	1x ØM20/PG13.5	2x ØM20/PG13.5	2x ØM16

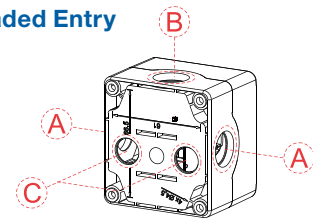


BIDLB - CSW



BC\*\*B - CSW

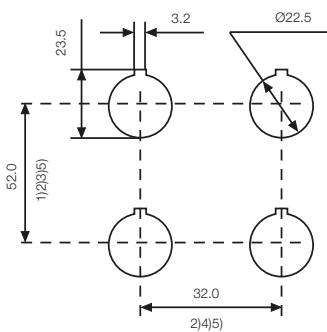
### Threaded Entry



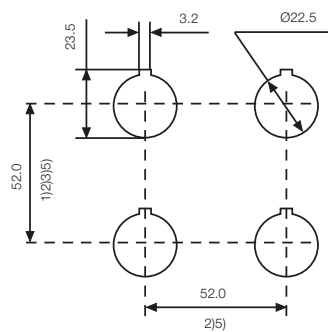
	A	B	C
PBW-1 PBW-1Y		1 x M20 PG13.5	
PBW-2	2 x M20	1/2"	2 x M16 "PG9"
PBW-3	PG13.5		
PBW-4	1/2"	2 x M20 PG13.5	
PBW-6		1/2"	

## Installation Distances (mm)

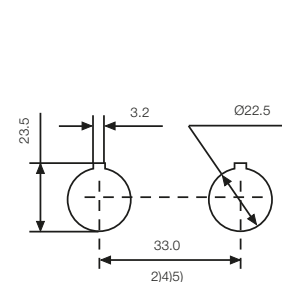
### AF3F 3-Position Flange



### AF5F 5-Position Flange



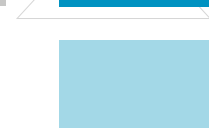
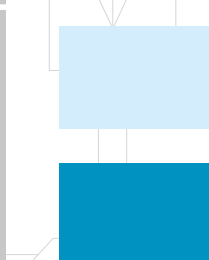
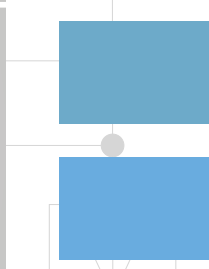
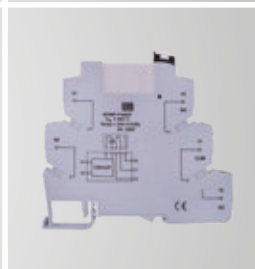
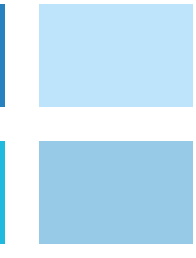
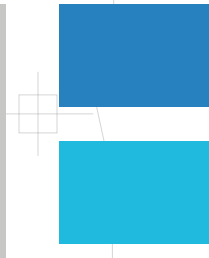
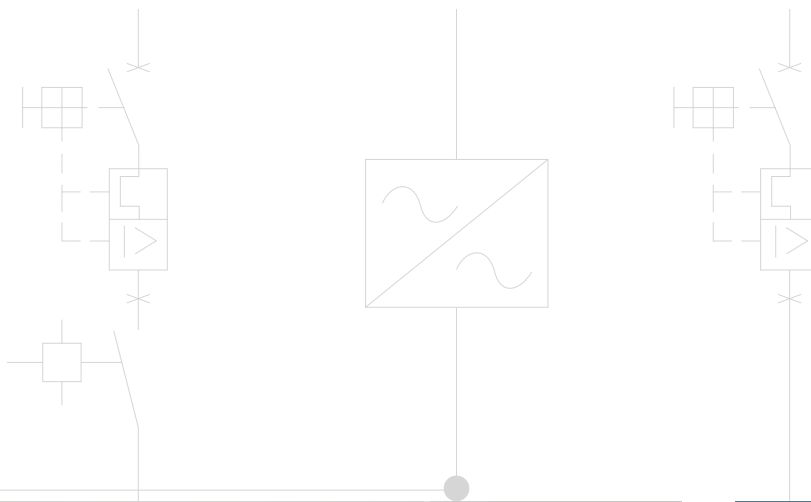
### PBW Control Stations



- Notes: 1) 60.0 - BD  
 2) 100.0 - BESG/BESP/BESY/GBES  
 3) 85.0  
 4) 35.0 - APPT60  
 5) 60.0 - APE

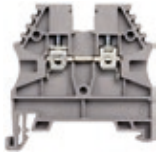
# Terminal Blocks

## BTW Series



# Index - BTWP/ BTWD/ BTWT/ BTWS/BTWA Screw Type Connection

## Terminal Blocks



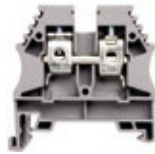
*BTWP 2.5*  
page H-11



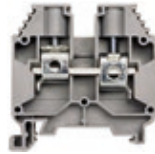
*BTWP 4*  
page H-11



*BTWP 6*  
page H-11



*BTWP 10*  
page H-12



*BTWP 16*  
page H-12



*BTWP 35*  
page H-12

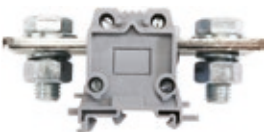


*BTWP 70*  
page H-12

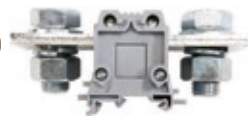
## Power Terminal Blocks



*BTWP 95B*  
page H-13



*BTWP 150B*  
page H-13



*BTWP 240B*  
page H-13

## Ground Terminal Blocks



*BTWP 2.5/4T*  
page H-14



*BTWP 6/10T*  
page H-14

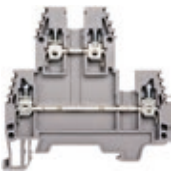


*BTWP 16T*  
page H-14

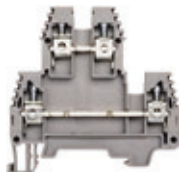


*BTWP 35T*  
page H-14

## Double Terminal Blocks



*BTWD 2.5N*  
page H-15



*BTWD 4N*  
page H-15



*BTWD 4NK*  
page H-15

## Triple Terminal Block



*BTWT 3*  
page H-15

## Double Terminal Block + Ground

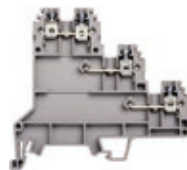


*BTWT 2T*  
page H-16



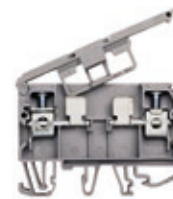
*BTWT 3T*  
page H-16

## Terminal Block for Sensors



*BTWT 3S*  
page H-16

## Terminal Blocks for Fuses



*BTWS 2S*  
page H-17

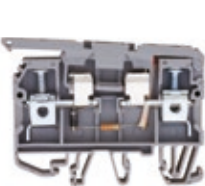


*BTWS 4S*  
page H-17

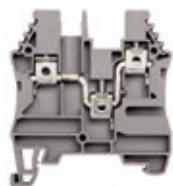


*BTWS 3M*  
page H-17

## 1In-2Out Terminal Block



*BTWS 2LD*  
page H-18



*BTWP 4C*  
page H-18

## Disconnect Terminal Block



*BTWS 3A*  
page H-19

## Disconnect / Test Terminal Block



*BTWA 3*  
page H-19

## Diode Terminal Block



*BTWD 4D*  
page H-19

# Index - BTWI

## Spring Clamp Type Connection (Push-In)

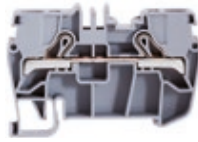
### Terminal Blocks



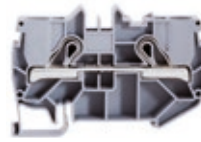
*BTWI 2.5*  
page H-21



*BTWI 4*  
page H-21



*BTWI 6*  
page H-21



*BTWI 10*  
page H-21

### Ground Terminal Blocks



*BTWI 2.5T*  
page H-22



*BTWI 4T*  
page H-22



*BTWI 6T*  
page H-22



*BTWI 10T*  
page H-22

### Double Terminal Blocks



*BTWI 2.5-2F*  
page H-23



*BTWI 4-2F*  
page H-23



*BTWI 4-2FK*  
page H-23

### Triple Terminal Blocks



*BTWI 2.5-3F*  
page H-23

### Double Terminal Block + Ground



*BTWI 2.5-2FT*  
page H-24

### Triple Terminal Block + Ground



*BTWI 2.5-3FT*  
page H-24

### Terminal Block for Sensors



*BTWI 3S*  
page H-24

### Disconnect Terminal Block



*BTWI 2.5A*  
page H-25

### Terminal Blocks for Fuses



*BTWI S*  
page H-25



*BTWI SLD*  
page H-25



*BTWI I*  
page H-25

### 1In-2Out Terminal Block



*BTWI 2.5E*  
page H-26

### 2In-2Out Terminal Block



*BTWI 2.5C*  
page H-26

### Double Ground Terminal Block



*BTWI 2.5CT*  
page H-26

# Index - BTWM - Spring Clamp Type Connection

## Terminal Blocks



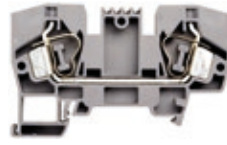
*BTWM 2.5*  
page H-28



*BTWM 4*  
page H-28



*BTWM 6*  
page H-28



*BTWM 10*  
page H-28

## Ground Terminal Blocks



*BTWM 2.5T*  
page H-29



*BTWM 4T*  
page H-29

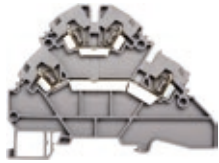


*BTWM 6T*  
page H-29



*BTWM 10T*  
page H-29

## Double Terminal Blocks



*BTWM 2.5-2F*  
page H-30



*BTWM 4-2F*  
page H-30



*BTWM 4-2FK*  
page H-30

## Triple Terminal Blocks



*BTWM 2.5-3F*  
page H-30

## Double Terminal Block + Ground



*BTWM 2.5-2FT*  
page H-31

## Triple Terminal Block + Ground



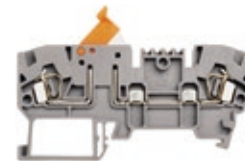
*BTWM 2.5-3FT*  
page H-31

## Terminal Block for Sensors



*BTWM 3S*  
page H-31

## Disconnect Terminal Block

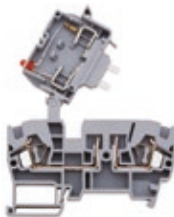


*BTWM 2.5A*  
page H-32

## Terminal Blocks for Fuses



*BTWM S*  
page H-32

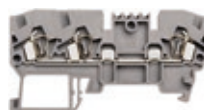


*BTWM SLD*  
page H-32



*BTWM I*  
page H-32

## 1In-2Out Terminal Block



*BTWM 2.5E*  
page H-33

## 2In-2Out Terminal Block



*BTWM 2.5C*  
page H-33

## Double Ground Terminal Block



*BTWM 2.5CT*  
page H-33



## Index - BTWO - Screw Type for Ring and Fork Connectors

### Terminal Blocks



*BTWO 6IT*  
page H-35



*BTWO 6G*  
page H-35



*BTWO 6I*  
page H-35



*BTWO 6*  
page H-36



*BTWO 10*  
page H-36

## Index - BTWR

### Interface Relay



*BTWR P16E26*  
page H-38



*BTWR P16E27*  
page H-38



*BTWR P16E28*  
page H-38



*BTWR P16E29*  
page H-39



*BTWR P16E31*  
page H-39

## Index - BTWK

### Mini Terminal Blocks with Screw Type Connection



*BTWK 2.5*  
page H-42



*BTWK 4*  
page H-42



*BTWK 2.5T*  
page H-42



*BTWK 4T*  
page H-42

## Index - BTWY

### Mini Terminal Blocks with Spring Clamp Type Connection



*BTWY 2.5*  
page H-43



*BTWY 2.5P*  
page H-43



*BTWY 2.5S*  
page H-43



*BTWY 2.5T*  
page H-43

# Terminal Blocks

Terminal blocks are devices designed to provide a safe means of electrical and mechanical connection to the majority of the electrical conductors. Among all available connectors, terminal blocks are the most commonly used due to their specific characteristics:

### Modularity

All models of terminal blocks are designed to side by side assembly, ensuring the best use of space within the panels.

### Easy Installation

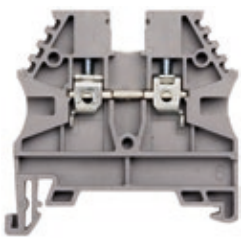
They can be quickly and easily assembled on DIN rail reducing panel assembly time.



### Available in versions

- Type of terminals:
  - Screw
  - Spring clamp (push-in)
- Spring clamp
- Screw for cable with ring connector
- Screw for cable with fork connector

### Screw Type



BTWP Series

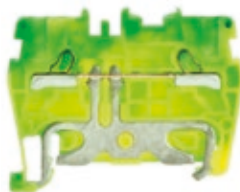


BTWR Series



BTWK Series

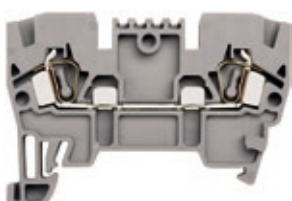
### Spring Clamp Type (Push-In)



BTWI Series

### Spring Clamp Type

### Screw Type for Ring and Fork Connectors



BTWM Series



BTWY Series



BTWO Series

# Terminal Blocks

## Wide Range of Accessories

- Connecting bridges, identifiers, DIN rail, end plate and end brackets.



PC-BTWP  
PC-BTWT  
PC-BTWO



PC - BTWM/BTWI



PC-BTWO\_I



PC - BTWR



Rail support



End plate



DIN rail



DIN mini rail



Identifiers



PF2



PF3



PF4



PF5

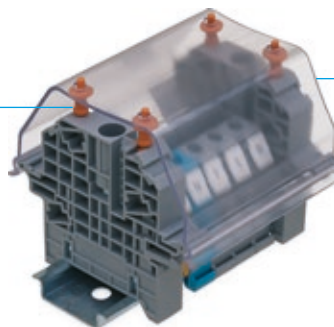


STT-BTW

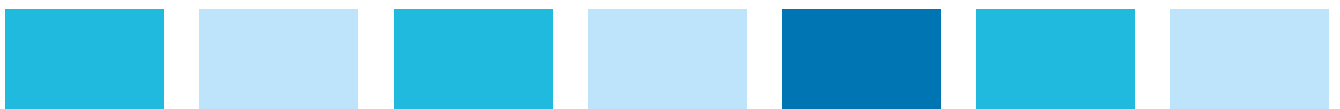
End brackets



Sealing pin  
PF5-BTW PE



Protection cover  
TT-BTW



A

B

C

D

E

F

G

H

# Terminal Blocks

## Conductors

Copper and aluminum conductors are used for the connection of terminals, however copper connectors are used more frequently. These conductors are divided into two main categories:

- 1 - Rigid conductors
- 2 - Flexible conductors

Conductors cross sections are distinguished into two standards: metric and AWG.

Metric mm <sup>2</sup>	AWG / kcmil	Equivalent cross-sectional area mm <sup>2</sup>
0.2	24	0.205
0.34	22	0.324
0.5	20	0.519
0.75	18	0.82
1	-	-
1.5	16	1.3
2.5	14	2.1
4	12	3.3
6	10	5.3
10	8	8.4
16	6	13.3
25	4	21.2
35	2	33.6
50	0	53.5
70	00	67.4
95	000	85
-	0000	107.2
120	250 kcmil	127
150	300 kcmil	152
185	350 kcmil	177
240	500 kcmil	253
300	600 kcmil	304

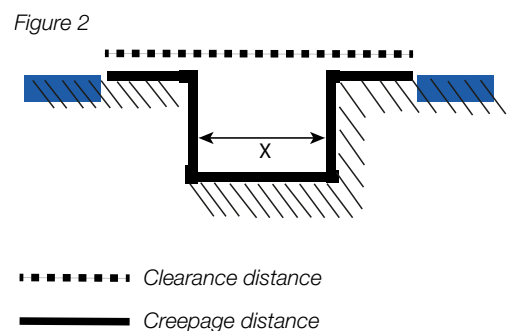
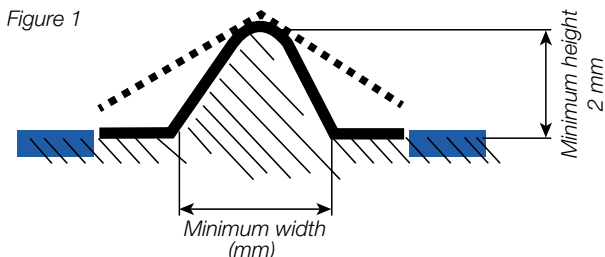
AWG: (American Wire Gauge) U.S. standard;  
 1 kcmil: 1,000 cmils;  
 1 cmil: (1 circular mil);  
 1 mil: 1/1,000 inch.

## Clearance and Creepage Distances

If the clearance distance is less than 3 mm, the smallest width of the groove can be reduced to 1/3 the distance of clearance.

The methods of measurement of clearance and creepage distances are specified in standard IEC 60947-1. Projections decrease creepage distances sharply, so the creepage distance has a projection greater than 2 mm which can be reduced by 80% (figure 1). WEG terminals have pollution degree level 3, according to standard IEC 60947-1.

Level of Pollution	Minimum width "x" in mm
1	0.25
2	1.0
3	1.5
4	2.5



# Terminal Blocks

## Tightening Torques

For screw type terminals torque values are important. If the connector is tightened less than the required value, resistance and heating may appear. On the contrary, when extreme force is applied during fastening, the molecular structure of the metal would distort and heating could appear in conclusion. Therefore, if the nominal torque values according to IEC are applied, the probable risks would be eliminated.

Torques specified in table 4 of IEC 60947-1	Torque (Nm)		
	I	II	III
Screw diameters (mm)			
Screws with diameters less than 1.6 mm	0.005	0.1	0.1
1.6 - 2	0.1	0.2	0.2
2 - 2.8	0.2	0.4	0.4
2.8 - 3	0.25	0.5	0.5
3 - 3.2	0.3	0.6	0.6
3.2 - 3.6	0.4	0.8	0.8
3.6 - 4.1	0.7	1.2	1.2
4.1 - 4.7	0.8	1.8	1.8
4.4 - 5.3	1.2	2	2
5.3 - 6	2.5	2.5	3
6 - 8	-	3.5	6
8 - 10	-	4	10
10 - 12	-	-	14
12 - 15	-	-	19
15 - 20	-	-	25
20 - 24	-	-	36
Screws with diameters greater than 24 mm	-	-	50

Column I: applied for headless screws and other cavity-mounted screws - cannot be tightened with screwdrivers.

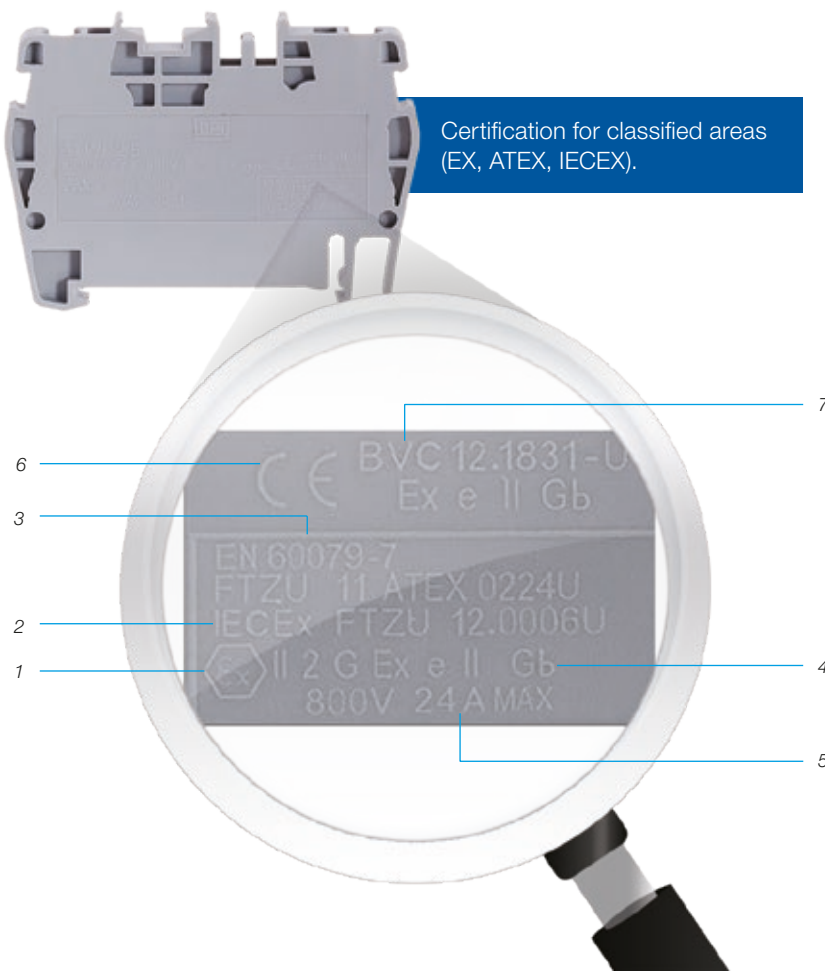
Column II: applied to all screws that can be tightened with screwdrivers.

Column III: applied to nuts and bolts that can be tightened by other devices.

Ref.: IEC 60947-1 / IEC 60999-1

WEG applies tests to their screw terminals with twice the tightening torque specified in IEC.

## Certification



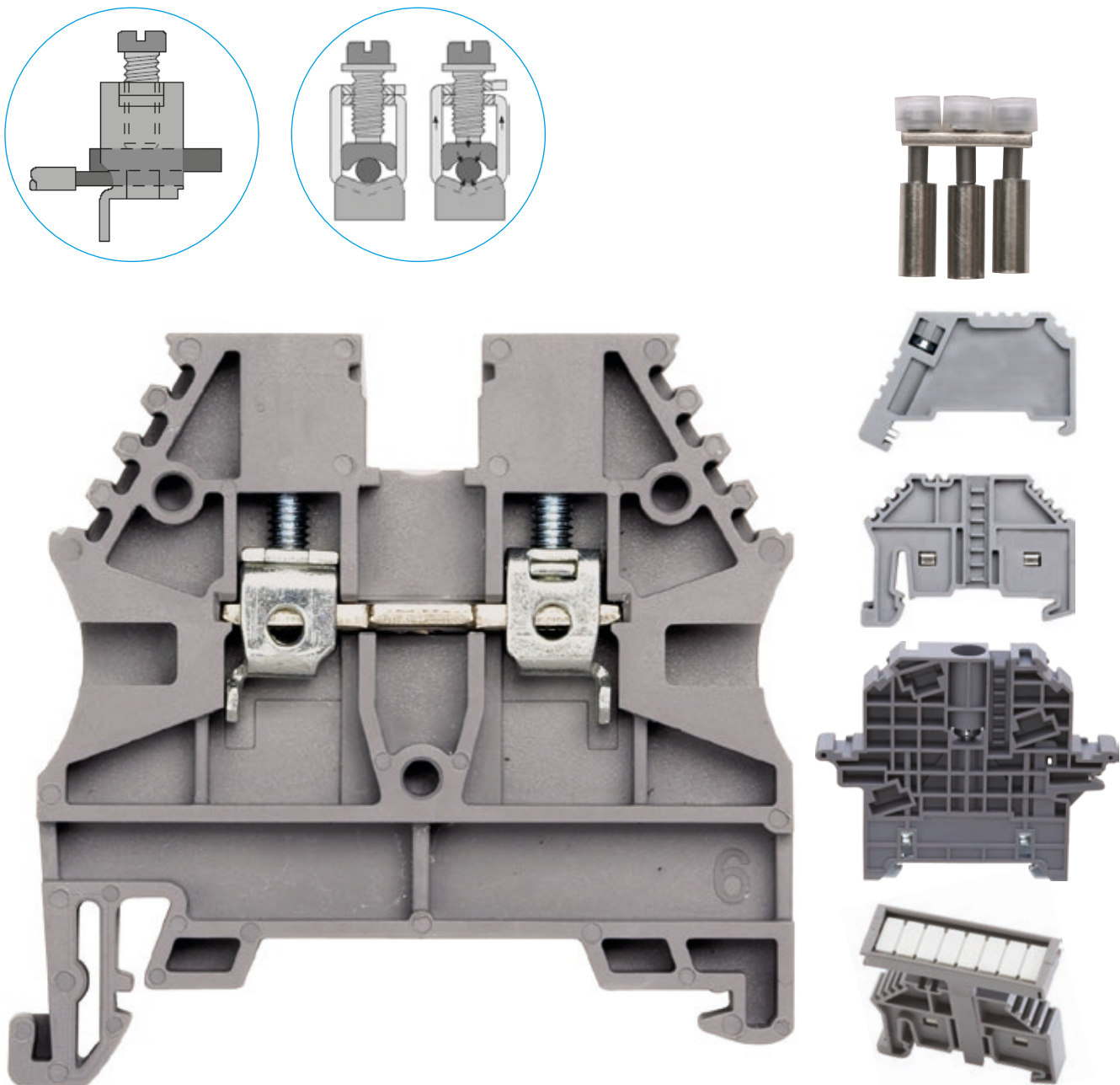
- 1 - Protection Symbol - Ex
- 2 - International certification number against explosion
- 3 - Reference standard
- 4 - a - Equipment group II  
b - Product category 2 - for use in zone I and/or II  
c - Approval for applications in gas (G) and dust (D) containing environments  
d - Class "e" as it has a higher safety category
- 5 - Nominal voltage and current values
- 6 - Name of certifying entity
- 7 - BV/INMETRO certification

## BTWP Series - Screw Type Terminal Block

The BTWP series terminal blocks use a screw type connection technique. It is simple to use: remove the isolation from the conductor, insert the conductor into the terminal block and tighten the screw with a properly screwdriver. The length of the isolation to be removed and the tightening torque for each terminal block model is shown in the selection guides. When the screw is tightened, the resulting pressure causes a deformation in the terminal which locks the screw preventing it from loosening. This system ensures connection and quality with minimum electrical losses.




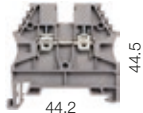
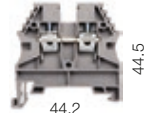
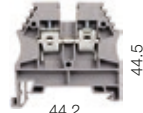




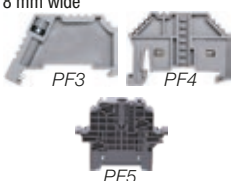


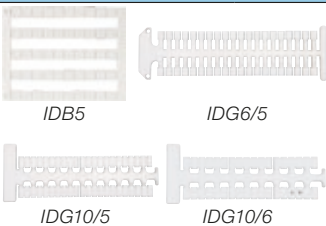
### Main Features of BTWP Series

- Terminal block body in PA66 polyamide, with excellent dielectric properties and high mechanical resistance
- Internal conductor element with high current conduction capacity
- Conical-shaped cable entry to facilitate insertion
- Unlosable screw
- Certification for classified areas (EX, ATEX, IECEX)



# Selection Guide - Screw Type Connection

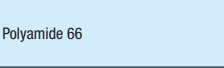

## BTWP Series - Terminal Blocks

		BTWP 2.5 5 mm wide 		BTWP 4 6 mm wide 		BTWP 6 8 mm wide 	
							
		44.2		44.2		44.5	
<b>Technical data</b>		<b>Voltage / Current / Cross section</b>					
IEC 60947-7-1		750 V~ / 24 A / 2.5 mm <sup>2</sup>		750 V~ / 32 A / 4 mm <sup>2</sup>		630 V~ / 41 A / 6 mm <sup>2</sup>	
UL / CSA		600 V~ / 20 A / AWG 26...12		600 V~ / 30 A / AWG 26...10		600 V~ / 50 A / AWG 26...8	
Cable stripping		10 mm		10 mm		12 mm	
Tightening torque		0.4 Nm		0.5 Nm		0.8 Nm	
<b>Connection capacity</b>							
Rigid wire		0.5...4 mm <sup>2</sup>		0.5...6 mm <sup>2</sup>		0.5...10 mm <sup>2</sup>	
Flexible cable		1.5...2.5 mm <sup>2</sup>		1.5...4 mm <sup>2</sup>		1.5...6 mm <sup>2</sup>	
AWG conductor		26...12		26...10		26...8	
<b>Raw material - plastic body</b>		<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>
		Grey	BTWP 2.5	100	BTWP 4	100	BTWP 6
		Blue	BTWP 2.5-AZ	100	BTWP 4-AZ	100	BTWP 6-AZ
		Green	BTWP 2.5-VD	100	BTWP 4-VD	100	BTWP 6-VD
		Red	BTWP 2.5-VM	100	BTWP 4-VM	100	BTWP 6-VM
<b>End plate / partition board</b>		<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>
		Grey	TF-BTWP 2.5-10	100	TF-BTWP 2.5-10	100	TF-BTWP 2.5-10
		Blue	TF-BTWP 2.5-10-AZ	100	TF-BTWP 2.5-10-AZ	100	TF-BTWP 2.5-10-AZ
		Green	TF-BTWP 2.5-10-VD	100	TF-BTWP 2.5-10-VD	100	TF-BTWP 2.5-10-VD
		Grey	PD-BTWP 2.5-10	25	PD-BTWP 2.5-10	25	PD-BTWP 2.5-10
<b>Separation plate</b>		<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>
		Grey	PS1-BTWP	100	PS1-BTWP	100	PS1-BTWP
<b>Connecting bridge</b>		<b>Nr. poles</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>
		2	PC-BTWP 2.5/2	25	PC-BTWP 4/2	25	PC-BTWP 6/2
		3	PC-BTWP 2.5/3	20	PC-BTWP 4/3	20	PC-BTWP 6/3
		4	PC-BTWP 2.5/4	15	PC-BTWP 4/4	15	PC-BTWP 6/4
		10	PC-BTWP 2.5/10	5	PC-BTWP 4/10	5	PC-BTWP 6/10
<b>End bracket</b>		<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>
		Grey	PF3-BTW	100	PF3-BTW	100	PF3-BTW
		Grey	PF4-BTW	100	PF4-BTW	100	PF4-BTW
		Grey	PF5-BTW	100	PF5-BTW	100	PF5-BTW
<b>Rail / support</b>		<b>Type</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>
		Rail	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars	MR 35x7.5
		Support	ST-BTW	25	ST-BTW	25	ST-BTW
<b>Group identifier</b>		<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>
		Grey	IG-BTW	50	IG-BTW	50	IG-BTW
		Clear	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>
<b>Identifier<sup>2)</sup></b>			<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>
			IDB5-BTW	500	IDB5-BTW	500	IDB5-BTW
			IDG6/5-BTW	400	IDG6/5-BTW	400	IDG6/5-BTW
			IDG10/5-BTW	440	IDG10/5-BTW	440	IDG10/5-BTW
			-	-	IDG10/6-BTW	360	IDG10/6-BTW

Notes: 1) For assembly on PF4-BTW end bracket.  
2) Further details about identifiers on page H-48.

# Selection Guide - Screw Type Connection

## BTWP Series - Terminal Blocks

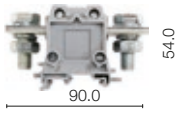
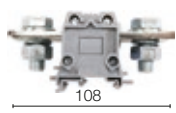
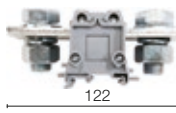

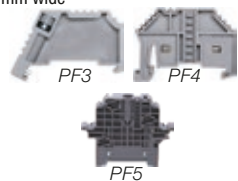


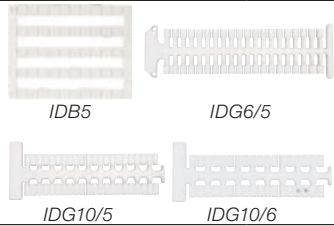
		BTWP 10 10 mm wide	BTWP 16 12 mm wide	BTWP 35 16 mm wide	BTWP 70 22 mm wide					
										
		44.2	50.0	50.0	74.0					
		44.5	55.5	55.5	67.5					
		CE, cRU, US, ATEX, IECEx	CE, cRU, US, ATEX, IECEx	CE, cRU, US, ATEX, IECEx	CE, cRU, US, ATEX, IECEx					
Technical data		Voltage / Current / Cross section								
IEC 60947-7-1		630 V~ / 57 A / 10 mm <sup>2</sup>	750 V~ / 76 A / 16 mm <sup>2</sup>	750 V~ / 125 A / 35 mm <sup>2</sup>	750 V~ / 192 A / 70 mm <sup>2</sup>					
UL / CSA		600 V~ / 65 A / AWG 16...6	600 V~ / 85 A / AWG 12...4	600 V~ / 115 A / AWG 10...2	600 V~ / 175 A / AWG 6...2/0					
Cable stripping		12 mm	16 mm	18 mm	20 mm					
Tightening torque		1.2 Nm	1.2 Nm	2.5 Nm	6 Nm					
Connection capacity										
Rigid wire		1.5...16 mm <sup>2</sup>	1.5...16 mm <sup>2</sup>	6...16 mm <sup>2</sup>	10...16 mm <sup>2</sup>					
Flexible cable		1.5...10 mm <sup>2</sup>	1.5...16 mm <sup>2</sup>	10...35 mm <sup>2</sup>	10...70 mm <sup>2</sup>					
AWG conductor		16...6	12...4	10...2	6...2/0					
Raw material - plastic body		Color	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
		Grey	BTWP 10	100	BTWP 16	50	BTWP 35	50	BTWP 70	10
		Blue	BTWP 10-AZ	100	BTWP 16-AZ	50	BTWP 35-AZ	50	BTWP 70-AZ	10
		Green	BTWP 10-VD	100	BTWP 16-VD	50	BTWP 35-VD	50	BTWP 70-VD	10
End plate / partition board		Color	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
		Grey	TF-BTWP 2.5-10	100	TF-BTWP 16	100	PD-BTW 35 CZ			
		Blue	TF-BTWP 2.5-10-AZ	100	TF-BTWP 16-AZ	100				
		Green	TF-BTWP 2.5-10-VD	100	TF-BTWP 16-VD	100				
		Red	TF-BTWP 2.5-10-VM	100	TF-BTWP 16-VM	100				
		Grey	PD-BTWP 2.5-10	25	PD-BTWP 16	25				
Separation plate		Color	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
		Grey	PS1-BTWP	100	-	-	-	-	-	-
Connecting bridge		Nr. poles	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
		2	PC-BTWP 10/2	25	PC-BTWP 16/2	25	PC-BTWP 35/2	25		
		3	PC-BTWP 10/3	20	PC-BTWP 16/3	20	PC-BTWP 35/3	20		
		4	PC-BTWP 10/4	15	PC-BTWP 16/4	15	PC-BTWP 35/4	15		
		10	PC-BTWP 10/10	5	PC-BTWP 16/10	5	PC-BTWP 35/10	5		
End bracket		Color	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
		Grey	PF3-BTW	100	PF3-BTW	100	PF3-BTW	100	PF3-BTW	100
		Grey	PF4-BTW	100	PF4-BTW	100	PF4-BTW	100	PF4-BTW	100
		Grey	PF5-BTW	100	PF5-BTW	100	PF5-BTW	100	PF5-BTW	100
Rail / support		Type	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
		Rail	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars
		Support	ST-BTW	25	ST-BTW	25	ST-BTW	25	ST-BTW	25
Group identifier		Color	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
		Grey	IG-BTW	50	IG-BTW	50	IG-BTW	50	IG-BTW	50
		Clear	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25
Identifier <sup>2)</sup>			Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
		IDB5	IDB5-BTW	500	IDB5-BTW	500	IDB5-BTW	500	IDB5-BTW	500
		IDG6/5	IDG6/5-BTW	400	IDG6/5-BTW	400	IDG6/5-BTW	400	IDG6/5-BTW	400
		IDG10/5	IDG10/5-BTW	440	IDG10/5-BTW	440	IDG10/5-BTW	440	IDG10/5-BTW	440
		IDG10/6	IDG10/6-BTW	360	IDG10/6-BTW	360	IDG10/6-BTW	360	IDG10/6-BTW	360

Notes: 1) For assembly on PF4-BTW end bracket.  
2) Further details about identifiers on page H-48.

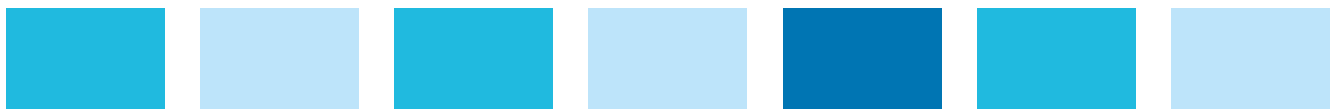


# Selection Guide - Screw Type Connection

## BTWP Series - Power Terminal Blocks

		BTWP 95B 40 mm wide 		BTWP 150B 48 mm wide 		BTWP 240B 53 mm wide 	
<b>Technical data</b>		<b>Voltage / Current / Cross section</b>					
IEC 60947-7-1		1,000 V~ / 232 A / 95 mm <sup>2</sup>		1,000 V~ / 309 A / 150 mm <sup>2</sup>		1,000 V~ / 415 A / 240 mm <sup>2</sup>	
Screw		M10x30		M12x30		M16x35	
Tightening torque		6 Nm		8 Nm		10 Nm	
<b>Raw material - plastic body</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
Polyamide 66	Grey	BTWP 95B	4	BTWP 150B	4	BTWP 240B	4
<b>Clearance cover</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
	Grey	TI-BTWP 95	4	TI-BTWP 150	4	TI-BTWP 240	4
<b>End bracket</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
8 mm wide 	Grey	PF3-BTW	100	PF3-BTW	100	PF3-BTW	100
	Grey	PF4-BTW	100	PF4-BTW	100	PF4-BTW	100
	Grey	PF5-BTW	100	PF5-BTW	100	PF5-BTW	100
<b>Rail / support</b>	<b>Type</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
DIN EN 50022 	Rail	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars
	Support	ST-BTW	25	ST-BTW	25	ST-BTW	25
<b>Group identifier</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
	Grey	IG-BTW	50	IG-BTW	50	IG-BTW	50
	Clear	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25
<b>Identifier<sup>2)</sup></b>		<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
		IDB5-BTW	500	IDB5-BTW	500	IDB5-BTW	500
		IDG6/5-BTW	400	IDG6/5-BTW	400	IDG6/5-BTW	400
		IDG10/5-BTW	440	IDG10/5-BTW	440	IDG10/5-BTW	440
		IDG10/6-BTW	360	IDG10/6-BTW	360	IDG10/6-BTW	360

Notes: 1) For assembly on PF4-BTW end bracket.  
2) Further details about identifiers on page H-48.



A

B

C

D

E

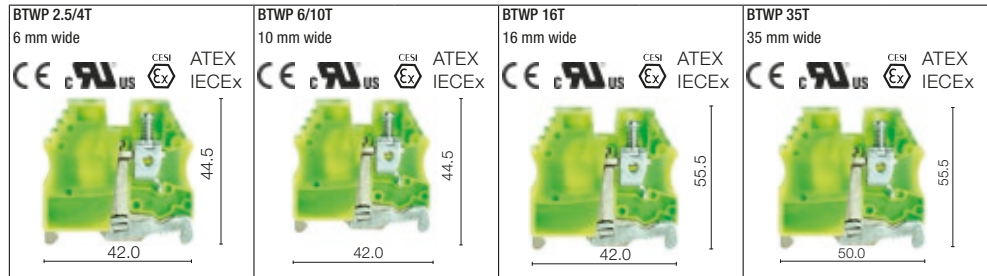
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G

H

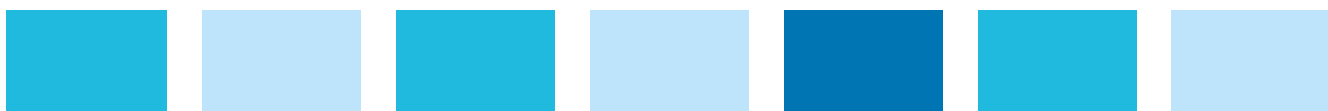
# Selection Guide - Screw Type Connection

## BTWP Series - Ground Terminal Blocks



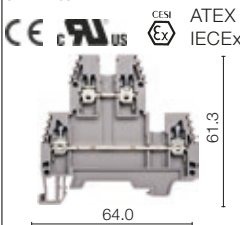
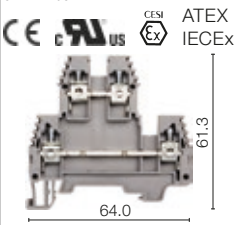
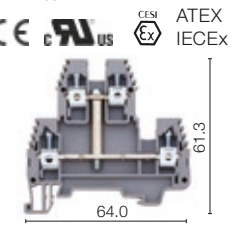
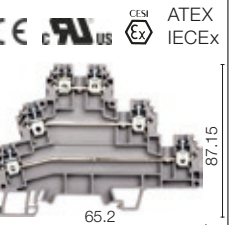
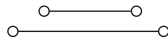
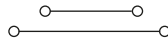
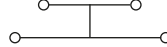




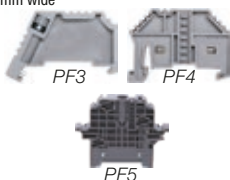


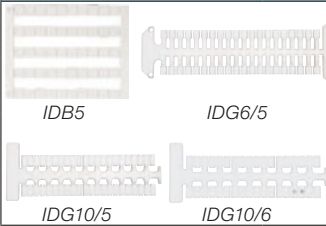
Technical data		Cross section								
IEC 60947-7-1		4 mm <sup>2</sup>		10 mm <sup>2</sup>		16 mm <sup>2</sup>		35 mm <sup>2</sup>		
UL / CSA		AWG 26...10		AWG 16...8		AWG 12...4		AWG 12...2		
Cable stripping		10 mm		12 mm		18 mm		18 mm		
Tightening torque		0.5 Nm		1.2 Nm		2.5 Nm		2.5 Nm		
Connection capacity										
Rigid wire		0.5...6 mm <sup>2</sup>		1.5...16 mm <sup>2</sup>		6...16 mm <sup>2</sup>		6...16 mm <sup>2</sup>		
Flexible cable		1.5...4 mm <sup>2</sup>		1.5...10 mm <sup>2</sup>		10...35 mm <sup>2</sup>		10...35 mm <sup>2</sup>		
AWG conductor		26...10		16...8		10...2		10...2		
Raw material - plastic body		Color	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
Polyamide 66		Green/yellow	BTWP 2.5/4T-VD/AM	50	BTWP 6/10T-VD/AM	25	BTWP 16/35T-VD/AM	25	BTWP 16/35T-VD/AM	25
End bracket		Color	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
		Grey	PF3-BTW	100	PF3-BTW	100	PF3-BTW	100	PF3-BTW	100
		Grey	PF4-BTW	100	PF4-BTW	100	PF4-BTW	100	PF4-BTW	100
		Grey	PF5-BTW	100	PF5-BTW	100	PF5-BTW	100	PF5-BTW	100
Rail / support		Type	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
		Rail	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars	MR 35x7,5m	2 m busbars
		Support	ST-BTW	25	ST-BTW	25	ST-BTW	25	ST-BTW	25
Group identifier		Color	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
		Grey	IG-BTW	50	IG-BTW	50	IG-BTW	50	IG-BTW	50
		Clear	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25
Identifier <sup>2)</sup>		Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	
		IDB5-BTW	500	IDB5-BTW	500	IDB5-BTW	500	IDB5-BTW	500	
		IDG6/5-BTW	400	IDG6/5-BTW	400	IDG6/5-BTW	400	IDG6/5-BTW	400	
		IDG10/5-BTW	440	IDG10/5-BTW	440	IDG10/5-BTW	440	IDG10/5-BTW	440	
		IDG10/6-BTW	360	IDG10/6-BTW	360	IDG10/6-BTW	360	IDG10/6-BTW	360	

Notes: 1) For assembly on PF4-BTW end bracket.  
2) Further details about identifiers on page H-48.



# Selection Guide - Screw Type Connection

## BTWD / BTWT Series - Double and Triple Terminal Blocks

		BTWD 2.5N 5 mm wide 	BTWD 4N 6 mm wide 	BTWD 4NK 6 mm wide 	BTWT 3 6 mm wide 
<b>Technical data</b>					
	<b>Voltage / Current / Cross section</b>				
IEC 60947-7-1		500 V~ / 24 A / 2.5 mm <sup>2</sup>	500 V~ / 32 A / 4 mm <sup>2</sup>	500 V~ / 32 A / 4 mm <sup>2</sup>	440 V~ / 24 A / 2.5 mm <sup>2</sup>
UL / CSA		300 V~ / 20 A / AWG 26...12	300 V~ / 30 A / AWG 26...10	300 V~ / 30 A / AWG 26...10	300 V~ / 24 A / AWG 24...12
Cable stripping		9 mm	9 mm	9 mm	9 mm
Tightening torque		0.4 Nm	0.5 Nm	0.5 Nm	0.4 Nm
<b>Connection capacity</b>	<b>Connection capacity</b>				
Rigid wire		0.5...4 mm <sup>2</sup>	0.5...6 mm <sup>2</sup>	0.5...6 mm <sup>2</sup>	0.5...4 mm <sup>2</sup>
Flexible cable		1.5...2.5 mm <sup>2</sup>	1.5...4 mm <sup>2</sup>	1.5...4 mm <sup>2</sup>	1.5...2.5 mm <sup>2</sup>
AWG conductor		26...12	26...10	26...10	24...12
<b>Raw material - plastic body</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
Polyamide 66	Grey	BTWD 2.5N	100	BTWD 4N	100
				BTWD 4NK	20
				BTWT 3	25
<b>End plate</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
1.5 mm wide 	Grey	TF-BTWD 2.5-4N	25	TF-BTWD 2.5-4N	25
				TF-BTWD 2.5-4N	25
				TF-BTWT 3	10
<b>Separation plate</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
	Grey	-	-	-	PS1-BTWP
					100
<b>Connecting bridge</b>	<b>Nr. poles</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
	2	PC-BTWP 2.5/2	25	PC-BTWP 4/2	25
	3	PC-BTWP 2.5/3	20	PC-BTWP 4/3	20
	4	PC-BTWP 2.5/4	15	PC-BTWP 4/4	15
	10	PC-BTWP 2.5/10	5	PC-BTWP 4/10	5
				PC-BTWP 2.5/10	5
				PC-BTWP 2.5/10	5
<b>End bracket</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
8 mm wide 	Grey	PF3-BTW	100	PF3-BTW	100
	Grey	PF4-BTW	100	PF4-BTW	100
	Grey	PF5-BTW	100	PF5-BTW	100
<b>Rail / support</b>	<b>Type</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
DIN EN 50022 	Rail	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars
	Support	ST-BTW	25	ST-BTW	25
				ST-BTW	25
				ST-BTW	25
<b>Group identifier</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
	Grey	IG-BTW	50	IG-BTW	50
	Clear	IG22-BTW <sup>2)</sup>	25	IG22-BTW <sup>2)</sup>	25
				IG22-BTW <sup>2)</sup>	25
<b>Identifier<sup>2)</sup></b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>
	IDB5-BTW	500	IDB5-BTW	500	IDB5-BTW
	IDG6/5-BTW	400	IDG6/5-BTW	400	IDG6/5-BTW
	IDG10/5-BTW	440	IDG10/5-BTW	440	IDG10/5-BTW
	-	-	IDG10/6-BTW	360	IDG10/6-BTW
				360	-

Notes: 1) For assembly on PF4-BTW end bracket.  
2) Further details about identifiers on page H-48.

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# Selection Guide - Screw Type Connection




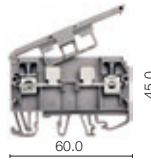
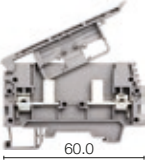
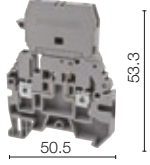




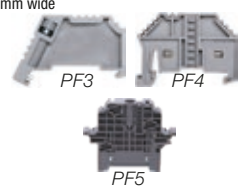


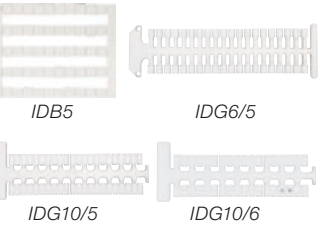
## BTWT Series - Double Ground Terminal Block - Triple Ground Terminal Block - Terminal Block for Sensors

		BTWT 2T 6 mm wide		BTWT 3T 6 mm wide		BTWT 3S 6 mm wide	
Technical data							
		<b>Voltage / Current / Cross section</b>					
IEC 60947-7-1		440 V~ / 24 A / 2.5 mm <sup>2</sup>		440 V~ / 24 A / 2.5 mm <sup>2</sup>		500 V~ / 24 A / 2.5 mm <sup>2</sup>	
UL / CSA		300 V~ / 24 A / AWG 24...12		300 V~ / 24 A / AWG 24...12		300 V~ / 20 A / AWG 24...12	
Cable stripping		9 mm		9 mm		9 mm	
Tightening torque		0.4 Nm		0.4 Nm		0.4 Nm	
<b>Connection capacity</b>							
Rigid wire		0.5...4 mm <sup>2</sup>		0.5...4 mm <sup>2</sup>		0.5...4 mm <sup>2</sup>	
Flexible cable		1.5...2.5 mm <sup>2</sup>		1.5...2.5 mm <sup>2</sup>		1.5...2.5 mm <sup>2</sup>	
AWG conductor		24...12		24...12		24...12	
Raw material - plastic body	Color	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
Polyamide 66	Grey	BTWT 2T	25	BTWT 3T	25	BTWT 3S	20
End plate / partition board	Color	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
1.5 mm wide	Grey	TF-BTWT 2T	10	TF-BTWT 3T	10	TF-BTWT 3S	10
Separation plate	Color	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
	Grey	PS1-BTWP	100	PS1-BTWP	100	PS1-BTWP	100
Connecting bridge	Nr. poles	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
	2	PC-BTWT 2.5/2	25	PC-BTWT 2.5/2	25	PC-BTWT 2.5/2	25
	3	PC-BTWT 2.5/3	20	PC-BTWT 2.5/3	20	PC-BTWT 2.5/3	20
	4	PC-BTWT 2.5/4	15	PC-BTWT 2.5/4	15	PC-BTWT 2.5/4	15
	10	PC-BTWT 2.5/10	5	PC-BTWT 2.5/10	5	PC-BTWT 2.5/10	5
End bracket	Color	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
8 mm wide	Grey	PF3-BTW	100	PF3-BTW	100	PF3-BTW	100
	Grey	PF4-BTW	100	PF4-BTW	100	PF4-BTW	100
	Grey	PF5-BTW	100	PF5-BTW	100	PF5-BTW	100
Rail / support	Type	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
DIN EN 50022	Rail	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars
	Support	ST-BTW	25	ST-BTW	25	ST-BTW	25
Group identifier	Color	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
	Grey	IG-BTW	50	IG-BTW	50	IG-BTW	50
	Clear	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25
Identifier <sup>2)</sup>		Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
		IDB5-BTW	500	IDB5-BTW	500	IDB5-BTW	500

Notes: 1) For assembly on PF4-BTW end bracket.  
2) Further details about identifiers on page H-48.

# Selection Guide - Screw Type Connection

## BTWS Series - Terminal Blocks for Fuses

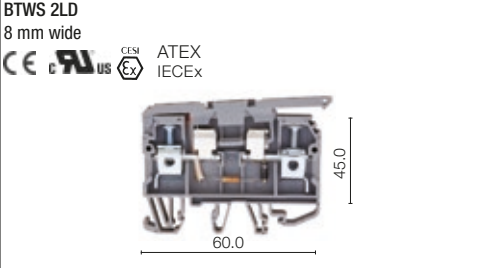
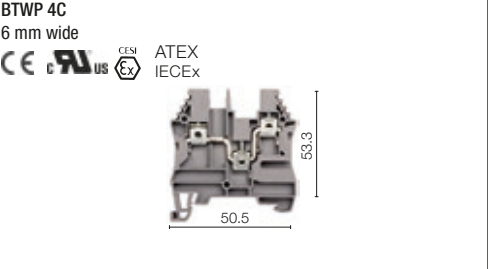
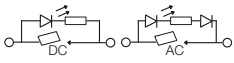
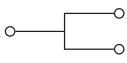

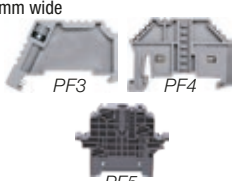


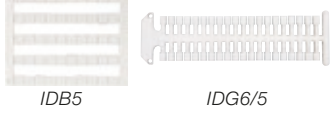

	BTWS 2S 8 mm wide 		BTWS 4S 10 mm wide 		BTWS 3M 6 mm wide 		
							
<b>Technical data</b>							
	<b>Voltage / Current / Cross section</b>						
IEC 60947-7-1	500 V~ / 6.3 A / 6 mm <sup>2</sup>		750 V~ / 6.3 A / 6 mm <sup>2</sup>		750 V~ / 6.3 A / 4 mm <sup>2</sup>		
UL / CSA	300 V~ / 6.3 A / AWG 26...8		600 V~ / 6.3 A / AWG 22...8		600 V~ / 6.3 A / AWG 22...8		
Fuse dimensions	5x20 or 5x25 mm		6,35x31,75 mm (1/4"x1 1/4")		5x20 or 5x25 mm		
Cable stripping	12 mm		12 mm		12 mm		
Tightening torque	0.8 Nm		0.8 Nm		0.8 Nm		
<b>Connection capacity</b>							
Rigid wire	0.5...10 mm <sup>2</sup>		0.5...10 mm <sup>2</sup>		0.5...6 mm <sup>2</sup>		
Flexible cable	1.5...6 mm <sup>2</sup>		1.5...6 mm <sup>2</sup>		1.5...4 mm <sup>2</sup>		
AWG conductor	26...8		22...8		22...8		
<b>Raw material - plastic body</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b> <b>Qty/pack</b>	
Polyamide 66	Grey	BTWS 2S	50	BTWS 4S	20	BTWS 3M	20
				Note: houses a spare fuse.		Note: houses a spare fuse.	
<b>End plate</b> 1.5 mm wide 	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b> <b>Qty/pack</b>	
	Grey	TF-BTWS 2	10	Supplied with end plate		TF-BTWS 3	10
<b>End bracket</b> 8 mm wide 	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b> <b>Qty/pack</b>	
	Grey	PF3-BTW	100	PF3-BTW	100	PF3-BTW	100
	Grey	PF4-BTW	100	PF4-BTW	100	PF4-BTW	100
	Grey	PF5-BTW	100	PF5-BTW	100	PF5-BTW	100
<b>Rail / support</b> DIN EN 50022 	<b>Type</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b> <b>Qty/pack</b>	
	Rail	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars
	Support	ST-BTW	25	ST-BTW	25	ST-BTW	25
<b>Group identifier</b> 	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b> <b>Qty/pack</b>	
	Grey	IG-BTW	50	IG-BTW	50	IG-BTW	50
	Clear	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25
<b>Identifier<sup>2)</sup></b> 		<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b> <b>Qty/pack</b>	
		IDB5-BTW	500	IDB5-BTW	500	IDB5-BTW	500
		-		IDG6/5-BTW	400	IDG6/5-BTW	400
		-		IDG10/5-BTW	440	IDG10/5-BTW	440
		-		IDG10/6-BTW	360	IDG10/6-BTW	360

Notes: 1) For assembly on PF4-BTW end bracket.  
2) Further details about identifiers on page H-48.

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## Selection Guide - Screw Type Connection

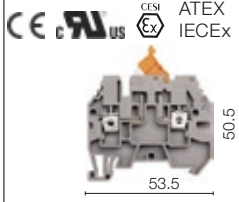
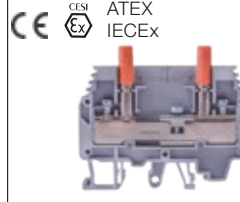
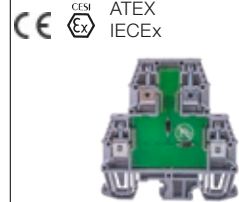
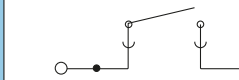
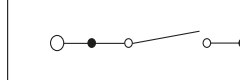
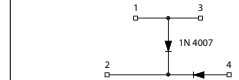

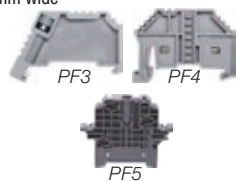

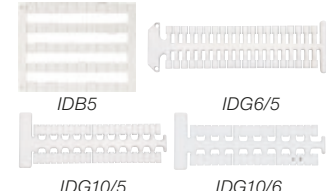
### BTWS / BTWP Series - Terminal Blocks for Fuses - 1In-2Out Terminal Block

		BTWS 2LD 8 mm wide	BTWP 4C 6 mm wide		
					
<b>Technical data</b>					
		<b>Voltage / Current / Cross section</b>			
IEC 60947-7-1		- V~ / 6.3 A / 6 mm <sup>2</sup>	750 V~ / 32 A / 4 mm <sup>2</sup>		
UL / CSA		- V~ / 6.3 A / AWG 26...8	600 V~ / 29 A / AWG 22...10		
Fuse dimensions		5x20 or 5x25 mm	-		
Cable stripping		12 mm	10 mm		
Tightening torque		0.8 Nm	0.5 Nm		
<b>Connection capacity</b>					
Rigid wire		0.5...10 mm <sup>2</sup>	0.5...6 mm <sup>2</sup>		
Flexible cable		1.5...6 mm <sup>2</sup>	1.5...4 mm <sup>2</sup>		
AWG conductor		26...8	26...10		
<b>Raw material - plastic body</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
Polyamide 66	Grey	BTWS 2LD C03 - 24 V dc BTWS 2LD D13 - 110 V ac BTWS 2LD D23 - 220 V ac	25	BTWP 4C	50
<b>End plate</b> 1.5 mm wide	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
	Grey	TF-BTWS 2	10	TF-BTWP 4C	10
<b>End bracket</b> 8 mm wide	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
	Grey	PF3-BTW	100	PF3-BTW	100
	Grey	PF4-BTW	100	PF4-BTW	100
	Grey	PF5-BTW	100	PF5-BTW	100
<b>Rail / support</b> DIN EN 50022	<b>Type</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
	Rail	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars
	Support	ST-BTW	25	ST-BTW	25
<b>Group identifier</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
	Grey	IG-BTW	50	IG-BTW	50
	Clear	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25
<b>Identifier<sup>2)</sup></b>		<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
		IDB5-BTW	500	IDB5-BTW	500
		IDG6/5-BTW	400	IDG6/5-BTW	400
		IDG10/5-BTW	440	IDG10/5-BTW	440
		IDG10/6-BTW	360	IDG10/6-BTW	360

Notes: 1) For assembly on PF4-BTW end bracket.  
2) Further details about identifiers on page H-48.

# Selection Guide - Screw Type Connection

## BTWS / BTWA / BTWD Series - Disconnect Terminal Block - Diode Terminal Block

		BTWS 3A - Disconnect Terminal 6 mm wide		BTWA 3 - Disconnect/Test Terminal 8 mm wide		BTWD 4D 8 mm wide	
							
<b>Technical data</b>							
		<b>Voltage / Current / Cross section</b>					
IEC 60947-7-1		500 V~ / 16 A / 4 mm <sup>2</sup>		400 V / 41 A / 6 mm <sup>2</sup>		1,000 V / 10 A / 6 mm <sup>2</sup>	
UL / CSA		600 V~ / 16 A / AWG 26...10		-		-	
Cable stripping		10 mm		10 mm		10 mm	
Tightening torque		0.5 Nm		1.5 Nm		1.5 Nm	
<b>Connection capacity</b>							
Rigid wire		0.5...6 mm <sup>2</sup>		1.5 - 6 mm <sup>2</sup>		0.5 - 6 mm <sup>2</sup>	
Flexible cable		1.5...4 mm <sup>2</sup>		1.5 - 6 mm <sup>2</sup>		0.5 - 2.5 mm <sup>2</sup>	
AWG conductor		26...10		16...8		22...12	
<b>Raw material - plastic body</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
Polyamide 66	Grey	BTWS 3A	20	BTWA 3	50	BTWD 4D	50
<b>End plate / partition board</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
1.5 mm wide	Grey	TF-BTWS 3	10	TF-BTWA 10/1A	25	TF-BTWD 4D 2.5-4	25
<b>Separation plate</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
	Grey	PS1-BTWP	100	PS1-BTWP	100	PS1-BTWP	100
<b>Connecting bridge</b>	<b>Nr. poles</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
	2	-	-	PC-BTWA 6/2	25	-	-
	3	-	-	PC-BTWA 6/3	20	-	-
	4	-	-	PC-BTWA 6/4	15	-	-
	10	-	-	PC-BTWA 6/10	5	-	-
<b>End bracket</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
8 mm wide	Grey	PF3-BTW	100	PF3-BTW	100	PF3-BTW	100
	Grey	PF4-BTW	100	PF4-BTW	100	PF4-BTW	100
	Grey	PF5-BTW	100	PF5-BTW	100	PF5-BTW	100
<b>Rail / support</b>	<b>Type</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
DIN EN 50022	Rail	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars
	Support	ST-BTW	25	ST-BTW	25	ST-BTW	25
<b>Group identifier</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
	Grey	IG-BTW	50	IG-BTW	50	IG-BTW	50
	Clear	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25
<b>Identifier<sup>2)</sup></b>		<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
		IDB5-BTW	500	-	-	IDB5-BTW	500
		IDG6/5-BTW	400	IDG6/5-BTW	400	-	-
		IDG10/5-BTW	440	IDG10/5-BTW	440	-	-
		IDG10/6-BTW	360	IDG10/6-BTW	360	-	-

Notes: 1) For assembly on PF4-BTW end bracket.  
2) Further details about identifiers on page H-48.

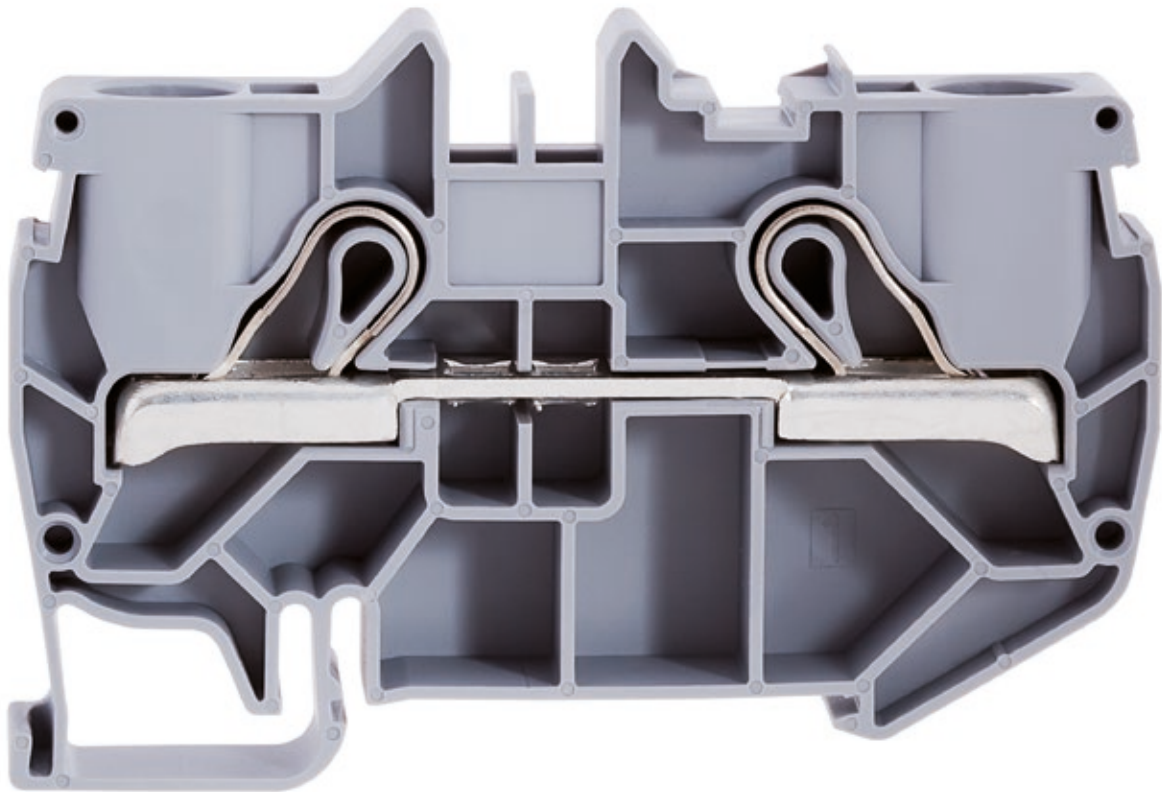
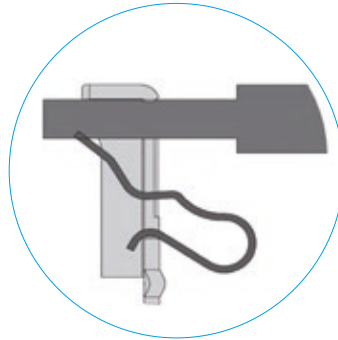
## BTWI Series - Spring Clamp Type Terminal Blocks (Push-In)

BTWI series terminal blocks allow direct connection of flexible cables and rigid wires without the use of tools.

The special format of the terminal spring allows the safe fitting of conductors. The contact spring is opened automatically during the insertion of the conductor and ensures the necessary force to clamp the conductor against the current conductor bar. The spring body structure also ensures progressive locking and anti-vibration of the conductor. The opening of the spring to release the conductor is made through a screwdriver.

### Main Benefits of BTWI Series

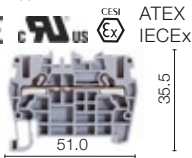

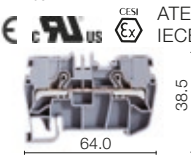

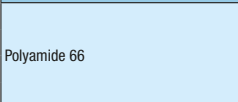


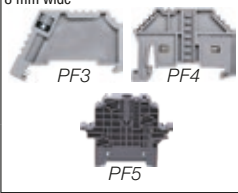


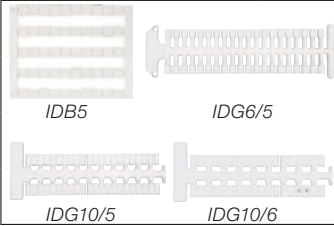
- Terminal block body in PA66 polyamide, with excellent dielectric properties and high mechanical resistance
- Safe and reliable connection
- Does not require a tool for connection
- Savings in assembly time
- Gains throughout the process
- Complete range of accessories
- Anti-vibration system
- CE, UL, ATEX & IECEx certification





# Selection Guide - Spring Clamp Type Connection (Push-In)

## BTWI Series - Terminal Blocks

		BTWI 2.5 5 mm wide		BTWI 4 6 mm wide		BTWI 6 8 mm wide		BTWI 10 10 mm wide		
										
		35.5		37.0		38.5		43.0		
		51.0		55.0		64.0		70.0		
<b>Technical data</b>		<b>Voltage / Current / Cross section</b>								
IEC 60947-7-1		750 V~ / 24 A / 2.5 mm <sup>2</sup>		750 V~ / 32 A / 4 mm <sup>2</sup>		750 V~ / 41 A / 6 mm <sup>2</sup>		750 V~ / 57 A / 10 mm <sup>2</sup>		
UL / CSA		600 V~ / 20 A / AWG 22...12		600 V~ / 26 A / AWG 22...10		600 V~ / 35 A / AWG 22...8		600 V~ / 55 A / AWG 20...6		
Cable stripping		10 mm		12 mm		12 mm		13 mm		
<b>Connection capacity</b>										
Rigid wire		0.5...4 mm <sup>2</sup>		0.5...6 mm <sup>2</sup>		0.5...10 mm <sup>2</sup>		0.5...16 mm <sup>2</sup>		
Flexible cable		0.5...2.5 mm <sup>2</sup>		0.5...4 mm <sup>2</sup>		0.5...6 mm <sup>2</sup>		0.5...10 mm <sup>2</sup>		
AWG conductor		22...12		22...10		22...8		20...6		
<b>Raw material - plastic body</b>		<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
		Grey	BTWI 2.5	100	BTWI 4	100	BTWI 6	100	BTWI 10	100
		Blue	BTWI 2.5-AZ	100	BTWI 4-AZ	100	BTWI 6-AZ	100	BTWI 10-AZ	100
		Green	BTWI 2.5-VD	100	BTWI 4-VD	100	BTWI 6-VD	100	BTWI 10-VD	100
		Red	BTWI 2.5-VM	100	BTWI 4-VM	100	BTWI 6-VM	100	BTWI 10-VM	100
<b>End plate</b>		<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
		Grey	TF-BTWI 2.5	100	TF-BTWI 4	100	TF-BTWI 6	100	TF-BTWI 10	100
		Blue	TF-BTWI 2.5-AZ	100	TF-BTWI 4-AZ	100	TF-BTWI 6-AZ	100	TF-BTWI 10-AZ	100
		Green	TF-BTWI 2.5-VD	100	TF-BTWI 4-VD	100	TF-BTWI 6-VD	100	TF-BTWI 10-VD	100
		Red	TF-BTWI 2.5-VM	100	TF-BTWI 4-VM	100	TF-BTWI 6-VM	100	TF-BTWI 10-VM	100
<b>Connecting bridgew</b>		<b>Nr. poles</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
		2	PC-BTWM 2.5/2	25	PC-BTWM 4/2	25	PC-BTWM 6/2	25	PC-BTWM 10/2	25
		3	PC-BTWM 2.5/3	20	PC-BTWM 4/3	20	PC-BTWM 6/3	20	PC-BTWM 10/3	20
		4	PC-BTWM 2.5/4	15	PC-BTWM 4/4	15	PC-BTWM 6/4	15	PC-BTWM 10/4	15
		10	PC-BTWM 2.5/10	5	PC-BTWM 4/10	5	PC-BTWM 6/10	5	PC-BTWM 10/10	5
<b>End bracket</b>		<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
		Grey	PF3-BTW	100	PF3-BTW	100	PF3-BTW	100	PF3-BTW	100
		Grey	PF4-BTW	100	PF4-BTW	100	PF4-BTW	100	PF4-BTW	100
		Grey	PF5-BTW	100	PF5-BTW	100	PF5-BTW	100	PF5-BTW	100
<b>Rail / support</b>		<b>Type</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
		Rail	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars
		Support	ST-BTW	25	ST-BTW	25	ST-BTW	25	ST-BTW	25
<b>Group identifier</b>		<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
		Grey	IG-BTW	50	IG-BTW	50	IG-BTW	50	IG-BTW	50
		Clear	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25
<b>Identifier<sup>2)</sup></b>			<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
			IDB5-BTW	500	IDB5-BTW	500	IDB5-BTW	500	IDB5-BTW	500
			IDG6/5-BTW	400	IDG6/5-BTW	400	IDG6/5-BTW	400	IDG6/5-BTW	400
			IDG10/5-BTW	440	IDG10/5-BTW	440	IDG10/5-BTW	440	IDG10/5-BTW	440
			-	-	IDG10/6-BTW	360	IDG10/6-BTW	360	IDG10/6-BTW	360

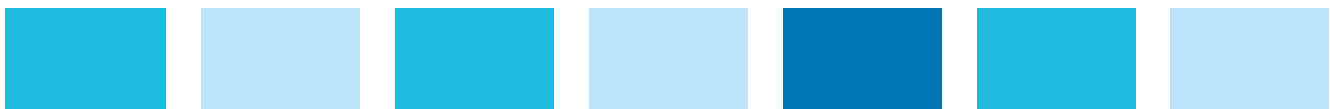
Notes: 1) For assembly on PF4-BTW end bracket.  
2) Further details about identifiers on page H-48.

## Selection Guide - Spring Clamp Type Connection (Push-In)

### BTWI Series - Ground Terminal Blocks

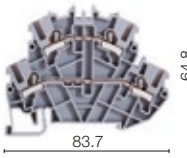
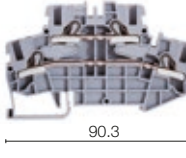
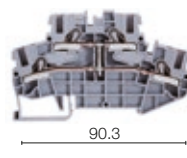
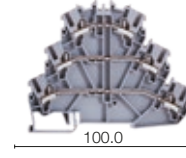
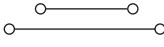
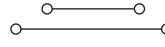
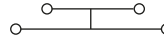
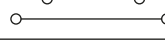

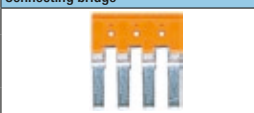
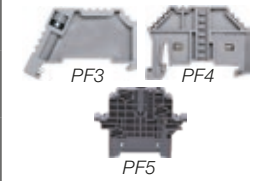


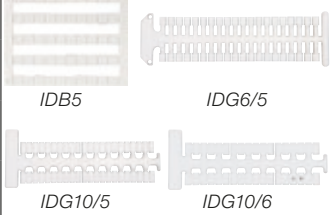
		BTWI 2.5T 5 mm wide		BTWI 4T 6 mm wide		BTWI 6T 8 mm wide		BTWI 10T 10 mm wide		
<b>Technical data</b>		<b>Cross section</b>								
IEC 60947-7-1		2.5 mm <sup>2</sup>		4 mm <sup>2</sup>		6 mm <sup>2</sup>		10 mm <sup>2</sup>		
UL / CSA		AWG 22...12		AWG 22...10		AWG 22...8		AWG 20...6		
Cable stripping		10 mm		12 mm		12 mm		13 mm		
<b>Connection capacity</b>										
Rigid wire		0.5...4 mm <sup>2</sup>		0.5...6 mm <sup>2</sup>		0.5...10 mm <sup>2</sup>		0.5...16 mm <sup>2</sup>		
Flexible cable		0.5...2.5 mm <sup>2</sup>		0.5...4 mm <sup>2</sup>		0.5...6 mm <sup>2</sup>		0.5...10 mm <sup>2</sup>		
AWG conductor		22...12		22...10		22...8		20...6		
<b>Raw material - plastic body</b>		<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
Polyamide 66		Green	BTWI 2.5T-VD/AM	50	BTWI 4T-VD/AM	50	BTWI 6T-VD/AM	40	BTWI 10T-VD/AM	30
<b>End plate</b>		<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
1.2 mm wide		Green	TF-BTWI 2.5 T	10	TF-BTWI 4 T	10	TF-BTWI 6 T	10	TF-BTWI 10 T	10
<b>End bracket</b>		<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
8 mm wide		Grey	PF3-BTW	100	PF3-BTW	100	PF3-BTW	100	PF3-BTW	100
		Grey	PF4-BTW	100	PF4-BTW	100	PF4-BTW	100	PF4-BTW	100
		Grey	PF5-BTW	100	PF5-BTW	100	PF5-BTW	100	PF5-BTW	100
<b>Rail / support</b>		<b>Type</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
DIN EN 50022		Rail	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars
		Support	ST-BTW	25	ST-BTW	25	ST-BTW	25	ST-BTW	25
<b>Group identifier</b>		<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
		Grey	IG-BTW	50	IG-BTW	50	IG-BTW	50	IG-BTW	50
		Clear	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25
<b>Identifier<sup>2)</sup></b>		<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	
		IDB5-BTW	500	IDB5-BTW	500	IDB5-BTW	500	IDB5-BTW	500	
		IDG6/5-BTW	400	IDG6/5-BTW	400	IDG6/5-BTW	400	IDG6/5-BTW	400	
		IDG10/5-BTW	440	IDG10/5-BTW	440	IDG10/5-BTW	440	IDG10/5-BTW	440	
		-		IDG10/6-BTW	360	IDG10/6-BTW	360	IDG10/6-BTW	360	

Notes: 1) For assembly on PF4-BTW end bracket.  
2) Further details about identifiers on page H-48.



# Selection Guide - Spring Clamp Type Connection (Push-In)

## BTWI Series - Double Terminal Blocks - Triple Terminal Blocks



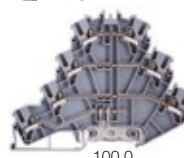

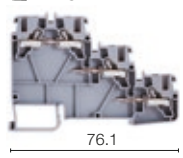

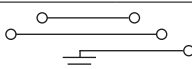

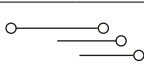
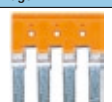
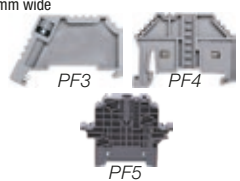


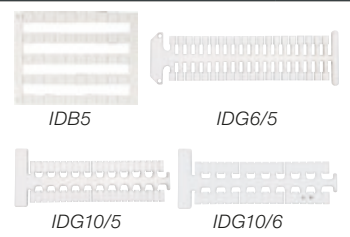
	BTWI 2.5-2F 5 mm wide 	BTWI 4-2F 6 mm wide 	BTWI 4-2FK 6 mm wide 	BTWI 2.5-3F 5 mm wide 					
<b>Technical data</b>									
<b>Voltage / Current / Cross section</b>									
IEC 60947-7-1	500 V~ / 24 A / 2.5 mm <sup>2</sup>	750 V~ / 30 A / 4 mm <sup>2</sup>	750 V~ / 30 A / 4 mm <sup>2</sup>	500 V~ / 24 A / 2.5 mm <sup>2</sup>					
UL / CSA	600 V~ / 20 A / AWG 22...12	600 V~ / 26 A / AWG 22...10	600 V~ / 26 A / AWG 22...12	600 V~ / 20 A / AWG 22...12					
Cable stripping	10 mm	12 mm	10 mm	10 mm					
<b>Connection capacity</b>									
Rigid wire	0.5...4 mm <sup>2</sup>	0.5...6 mm <sup>2</sup>	0.5...6 mm <sup>2</sup>	0.5...4 mm <sup>2</sup>					
Flexible cable	0.5...2.5 mm <sup>2</sup>	0.5...4 mm <sup>2</sup>	0.5...4 mm <sup>2</sup>	0.5...2.5 mm <sup>2</sup>					
AWG conductor	22...12	22...10	22...10	22...12					
<b>Raw material - plastic body</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
Polyamide 66	Grey	BTWI 2.5-2F	50	BTWI 4-2F	50	BTWI 4-2K	50	BTWI 2.5-3F	20
<b>End plate</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
1.5 mm wide 	Grey	TF-BTWI 2.5-2F	50	TF-BTWI 4-2F	25	TF-BTWI 4-2F	50	TF-BTWI 2.5-3F	10
<b>Connecting bridge</b>	<b>Nr. poles</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
	2	PC-BTWM 2.5/2	25	PC-BTWM 4/2	25	PC-BTWM 4/2	25	PC-BTWM 2.5/2	25
	3	PC-BTWM 2.5/3	20	PC-BTWM 4/3	20	PC-BTWM 4/3	20	PC-BTWM 2.5/3	20
	4	PC-BTWM 2.5/4	15	PC-BTWM 4/4	15	PC-BTWM 4/4	15	PC-BTWM 2.5/4	15
	10	PC-BTWM 2.5/10	5	PC-BTWM 4/10	5	PC-BTWM 4/10	5	PC-BTWM 2.5/10	5
<b>End bracket</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
8 mm wide 	Grey	PF3-BTW	100	PF3-BTW	100	PF3-BTW	100	PF3-BTW	100
	Grey	PF4-BTW	100	PF4-BTW	100	PF4-BTW	100	PF4-BTW	100
	Grey	PF5-BTW	100	PF5-BTW	100	PF5-BTW	100	PF5-BTW	100
<b>Rail / support</b>	<b>Type</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
DIN EN 50022 	Rail	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars
	Support	ST-BTW	25	ST-BTW	25	ST-BTW	25	ST-BTW	25
<b>Group identifier</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
	Grey	IG-BTW	50	IG-BTW	50	IG-BTW	50	IG-BTW	50
	Clear	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25
<b>Identifier<sup>2)</sup></b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	
	IDB5-BTW	500	IDB5-BTW	500	IDB5-BTW	500	IDB5-BTW	500	
	-	-	IDG6/5-BTW	400	IDG6/5-BTW	400	-	-	
	IDG10/5-BTW	440	IDG10/5-BTW	440	IDG10/5-BTW	440	IDG10/5-BTW	440	
	-	-	IDG10/6-BTW	360	IDG10/6-BTW	360	-	-	

Notes: 1) For assembly on PF4-BTW end bracket.  
2) Further details about identifiers on page H-48.

A  
B  
C  
D  
E  
F  
G  
H

## Selection Guide - Spring Clamp Type Connection (Push-In)


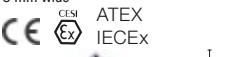
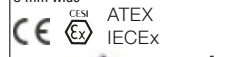
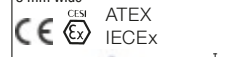
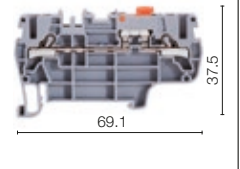
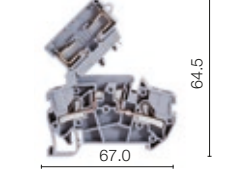
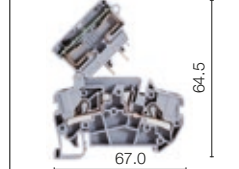
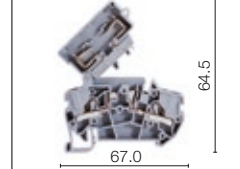
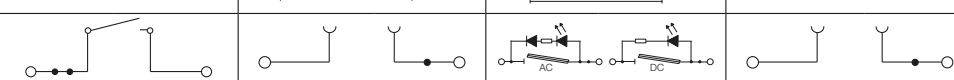

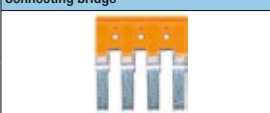
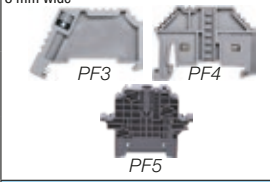


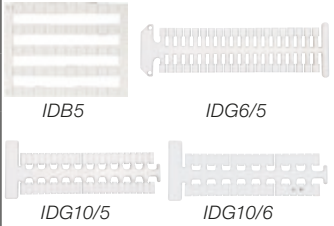
### BTWI Series - Double Terminal Block + Ground - Triple Terminal Block + Ground - Terminal Block for Sensors

		BTWI 2.5-2FT 5 mm wide  CE  ATEX IECEX	BTWI 2.5-3FT 5 mm wide  CE  ATEX IECEX	BTWI 3S 5 mm wide  CE  ATEX IECEX				
		64.8 83.7	74.5 100.0	75.0 76.1				
Technical data								
		Voltage / Current / Cross section						
IEC 60947-7-1		500 V~ / 24 A / 2.5 mm <sup>2</sup>	500 V~ / 24 A / 2.5 mm <sup>2</sup>	500 V~ / 24 A / 2.5 mm <sup>2</sup>				
UL / CSA		600 V~ / 20 A / AWG 22...12	600 V~ / 20 A / AWG 22...12	-				
Cable stripping		10 mm	10 mm	10 mm				
Connection capacity								
Rigid wire		0.5...4 mm <sup>2</sup>	0.5...4 mm <sup>2</sup>	0.5...4 mm <sup>2</sup>				
Flexible cable		0.5...2.5 mm <sup>2</sup>	0.5...2.5 mm <sup>2</sup>	0.5...2.5 mm <sup>2</sup>				
AWG conductor		22...12	22...12	22...12				
Raw material - plastic body	Color	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	
Polyamide 66	Grey	BTWI 2.5-2FT	20	BTWI 2.5-3FT	20	BTWI 3S	20	
End plate	Color	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	
1.5 mm wide	Grey	TF-BTWI 2.5-2F	10	TF-BTWI 2.5-3FT	10	TF-BTWI 3S	10	
Connecting bridge		Nr. poles	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
		2	PC-BTWM 2.5/2	25		PC-BTWM 2.5/2	25	
		3	PC-BTWM 2.5/3	20		PC-BTWM 2.5/3	20	
		4	PC-BTWM 2.5/4	15		PC-BTWM 2.5/4	15	
		10	PC-BTWM 2.5/10	5		PC-BTWM 2.5/10	5	
End bracket		Color	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
8 mm wide		Grey	PF3-BTW	100	PF3-BTW	100	PF3-BTW	100
		Grey	PF4-BTW	100	PF4-BTW	100	PF4-BTW	100
		Grey	PF5-BTW	100	PF5-BTW	100	PF5-BTW	100
Rail / support		Type	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
DIN EN 50022		Rail	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars
		Support	ST-BTW	25	ST-BTW	25	ST-BTW	25
Group identifier		Color	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
		Grey	IG-BTW	50	IG-BTW	50	IG-BTW	50
		Clear	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25
Identifier <sup>2)</sup>		Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	
		IDB5-BTW	500	IDB5-BTW	500	IDB5-BTW	500	
		IDG10/5-BTW	440	IDG10/5-BTW	440	IDG10/5-BTW	440	

Notes: 1) For assembly on PF4-BTW end bracket.  
2) Further details about identifiers on page H-48.

# Selection Guide - Spring Clamp Type Connection (Push-In)

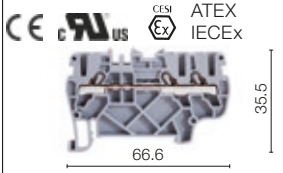
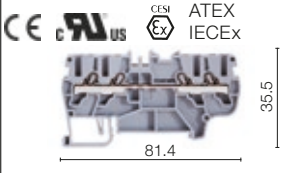
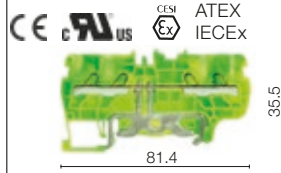
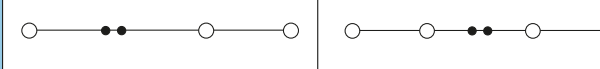


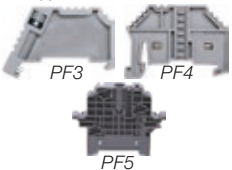


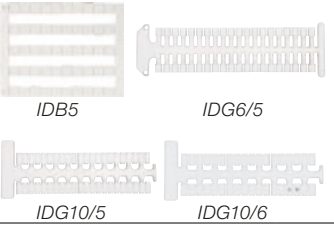
## BTWI Series - Disconnect Terminal Block - Terminal Blocks for Fuses

		BTWI 2.5A 5 mm wide 	BTWI S 8 mm wide 	BTWI SLD 8 mm wide 	BTWI I 8 mm wide 		
							
<b>Technical data</b>							
		<b>Voltage / Current / Cross section</b>					
IEC 60947-1		750 V~ / 16 A / 2.5 mm <sup>2</sup>	500 V~ / 10 A / 4 mm <sup>2</sup>	750 V~ / 30 A / 4 mm <sup>2</sup>	500 V~ / 10 A / 4 mm <sup>2</sup>		
UL / CSA		600 V~ / 10 A / AWG 22...12	600 V~ / 10 A / AWG 22...10	600 V~ / 26 A / AWG 22...12	600 V~ / 10 A / AWG 22...10		
Fuse dimensions		-	5x20 or 5x25 mm	5x20 or 5x25 mm	6,35x31,75 mm (1/4"x1 1/4")		
Cable stripping		10 mm	12 mm	10 mm	12 mm		
<b>Connection capacity</b>							
Rigid wire		0.5...4 mm <sup>2</sup>	0.5...6 mm <sup>2</sup>	0.5...6 mm <sup>2</sup>	0.5...6 mm <sup>2</sup>		
Flexible cable		0.5...2.5 mm <sup>2</sup>	0.5...4 mm <sup>2</sup>	0.5...4 mm <sup>2</sup>	0.5...4 mm <sup>2</sup>		
AWG conductor		22...12	22...10	22...10	22...10		
<b>Raw material - plastic body</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>		
Polyamide 66	Grey	BTWI 2.5A	50	BTWI S Note: spare fuse included.	20		
				BTWI SLD C03 - 24 V dc BTWI SLD D13 - 110 V ac BTWI SLD D23 - 220 V ac	20		
				Note: spare fuse included.	20		
<b>End plate</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>		
1.5 mm wide 	Grey	TF-BTWI 2.5A	10	Built-in	Built-in		
				Built-in	Built-in		
				Built-in	Built-in		
<b>Connecting bridge</b>	<b>Nr. poles</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>		
	2	PC-BTWM 2.5/2	25	PC-BTWM 6/2	25		
	3	PC-BTWM 2.5/3	20	PC-BTWM 6/3	20		
	4	PC-BTWM 2.5/4	15	PC-BTWM 6/4	15		
	10	PC-BTWM 2.5/10	5	PC-BTWM 6/10	5		
<b>End bracket</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>		
8 mm wide 	Grey	PF3-BTW	100	PF3-BTW	100		
	Grey	PF4-BTW	100	PF4-BTW	100		
	Grey	PF5-BTW	100	PF5-BTW	100		
<b>Rail / support</b>	<b>Type</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>		
DIN EN 50022 	Rail	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars		
	Support	ST-BTW	25	ST-BTW	25		
<b>Group identifier</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>		
	Grey	IG-BTW	50	IG-BTW	50		
	Clear	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25		
<b>Identifier<sup>2)</sup></b>		<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>		
		IDB5-BTW	500	IDB5-BTW	500		
		IDG6/5-BTW	400	-	IDG6/5-BTW	400	
		IDG10/5-BTW	440	IDG10/5-BTW	440	IDG10/5-BTW	440
		-	IDG10/6-BTW	360	IDG10/6-BTW	360	

Notes: 1) For assembly on PF4-BTW end bracket.  
2) Further details about identifiers on page H-48.

## Selection Guide - Spring Clamp Type Connection (Push-In)

### BTWI Series - 1In-2Out Terminal Block - 2In-2Out Terminal Block - Double Ground Terminal Block

		BTWI 2.5E 5 mm wide	BTWI 2.5C 5 mm wide	BTWI 2.5CT 5 mm wide			
		 66.6 x 35.5 mm	 81.4 x 35.5 mm	 81.4 x 35.5 mm			
<b>Technical data</b>							
		<b>Voltage / Current / Cross section</b>		<b>Cross section</b>			
IEC 60947-7-1		750 V~ / 24 A / 2.5 mm <sup>2</sup>		2.5 mm <sup>2</sup>			
UL / CSA		600 V~ / 20 A / AWG 22...12		AWG 22...12			
Cable stripping		13 mm		13 mm			
<b>Connection capacity</b>							
Rigid wire		0.5...4 mm <sup>2</sup>		0.5...4 mm <sup>2</sup>			
Flexible cable		0.5...2.5 mm <sup>2</sup>		0.5...2.5 mm <sup>2</sup>			
AWG conductor		22...12		22...12			
<b>Raw material - plastic body</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
Polyamide 66	Grey	BTWI 2.5E	50	BTWI 2.5C	50	-	-
	Green	-	-	-	-	BTWI 2.5CT	50
<b>End plate</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
1.2 mm wide 	Grey	TF-BTWI 2.5E	10	TF-BTWI 2.5C	10	-	-
	Green	-	-	-	-	TF-BTWI 2.5CT	10
<b>Connecting bridge</b>	<b>Nr. poles</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
	2	PC-BTWM 2.5/2	25	PC-BTWM 2.5/2	25	-	-
	3	PC-BTWM 2.5/3	20	PC-BTWM 2.5/3	20	-	-
	4	PC-BTWM 2.5/4	15	PC-BTWM 2.5/4	15	-	-
	10	PC-BTWM 2.5/10	5	PC-BTWM 2.5/10	5	-	-
<b>End bracket</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
8 mm wide 	Grey	PF3-BTW	100	PF3-BTW	100	PF3-BTW	100
	Grey	PF4-BTW	100	PF4-BTW	100	PF4-BTW	100
	Grey	PF5-BTW	100	PF5-BTW	100	PF5-BTW	100
<b>Rail / support</b>	<b>Type</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
DIN EN 50022 	Rail	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars
	Support	ST-BTW	25	ST-BTW	25	ST-BTW	25
<b>Group identifier</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
	Grey	IG-BTW	50	IG-BTW	50	IG-BTW	50
	Clear	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25
<b>Identifier<sup>2)</sup></b>		<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
		IDB5-BTW	500	IDB5-BTW	500	IDB5-BTW	500
		IDG6/5-BTW	400	IDG6/5-BTW	400	IDG6/5-BTW	400
		IDG10/5-BTW	440	IDG10/5-BTW	440	IDG10/5-BTW	440

Notes: 1) For assembly on PF4-BTW end bracket.

2) Further details about identifiers on page H-48.

## BTWM Series - Spring Clamp Type Terminal Blocks

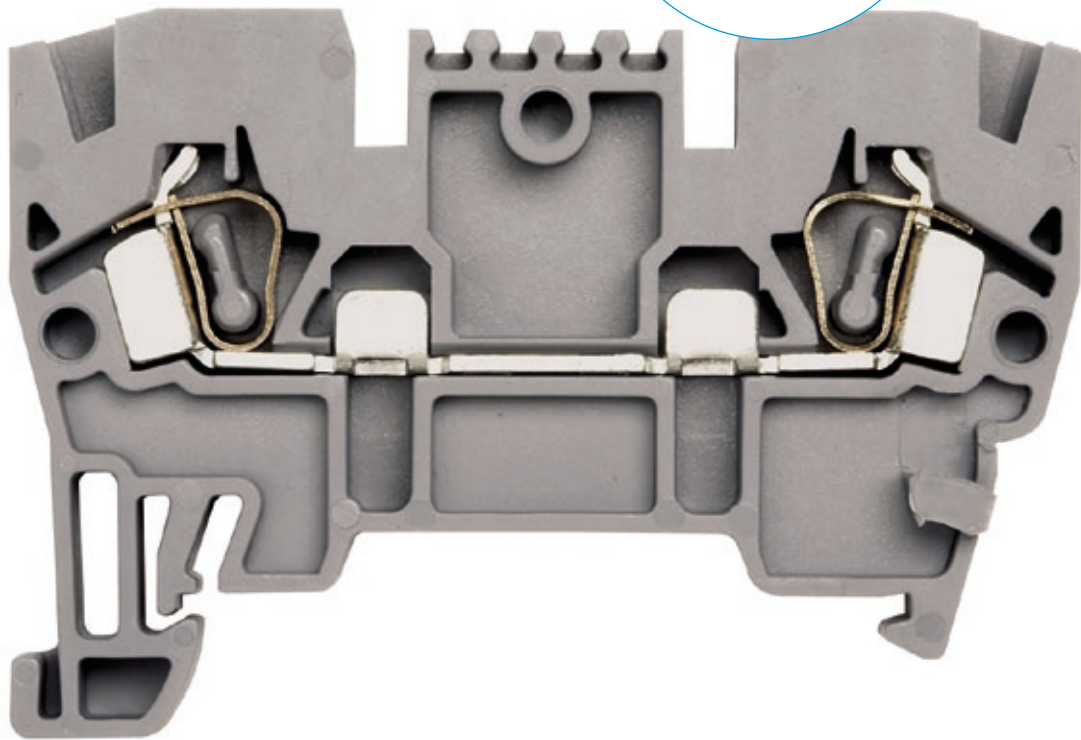
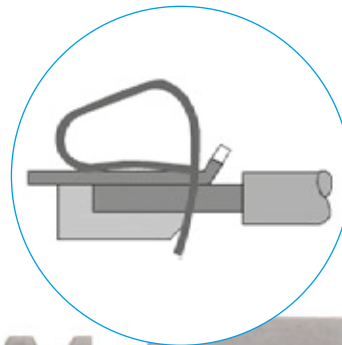
The BTWM terminal blocks series use spring connection technique products. The connection is maintained through a stainless steel spring which keeps constant pressure on the conductor against the internal copper part.

The connection procedure is simple: remove conductor isolation, insert a screwdriver into the square opening in the terminal block to compress the spring, releasing the access and then insert the conductor into the terminal block.

When removing the screwdriver, the connection becomes effective. The contact pressure in this connection system is uniform and independent of user/operator, as it is provided by the spring.

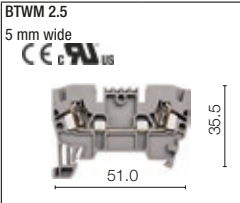
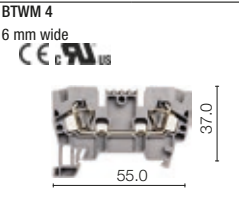
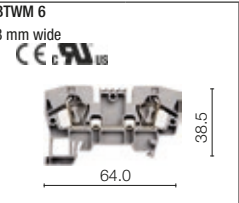
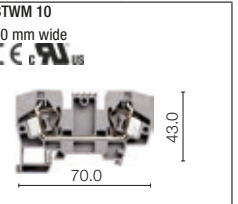
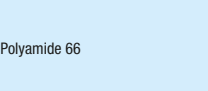


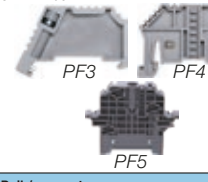


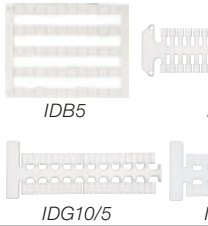
### Main Features of BTWM Series

- Terminal block body in polyamide PA66, with excellent dielectric properties and high mechanical resistance
- Internal conductor element of high current conduction
- Stainless steel spring
- Uniform contact pressure



## Selection Guide - Spring Clamp Type Connection

### BTWM Series - Terminal Blocks

		BTWM 2.5 5 mm wide		BTWM 4 6 mm wide		BTWM 6 8 mm wide		BTWM 10 10 mm wide		
										
<b>Technical data</b>		<b>Voltage / Current / Cross section</b>								
IEC 60947-7-1		750 V~ / 24 A / 2.5 mm <sup>2</sup>		750 V~ / 32 A / 4 mm <sup>2</sup>		750 V~ / 41 A / 6 mm <sup>2</sup>		750 V~ / 57 A / 10 mm <sup>2</sup>		
UL / CSA		600 V~ / 20 A / AWG 22...12		600 V~ / 26 A / AWG 22...10		600 V~ / 35 A / AWG 22...8		600 V~ / 55 A / AWG 20...6		
Cable stripping		10 mm		12 mm		12 mm		13 mm		
<b>Connection capacity</b>										
Rigid wire		0.5...4 mm <sup>2</sup>		0.5...6 mm <sup>2</sup>		0.5...10 mm <sup>2</sup>		0.5...16 mm <sup>2</sup>		
Flexible cable		0.5...2.5 mm <sup>2</sup>		0.5...4 mm <sup>2</sup>		0.5...6 mm <sup>2</sup>		0.5...10 mm <sup>2</sup>		
AWG conductor		22...12		22...10		22...8		20...6		
<b>Raw material - plastic body</b>		<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
		Grey	BTWM 2.5	100	BTWM 4	100	BTWM 6	100	BTWM 10	100
		Blue	BTWM 2.5-AZ	100	BTWM 4-AZ	100	BTWM 6-AZ	100	BTWM 10-AZ	100
		Green	BTWM 2.5-VD	100	BTWM 4-VD	100	BTWM 6-VD	100	BTWM 10-VD	100
		Red	BTWM 2.5-VM	100	BTWM 4-VM	100	BTWM 6-VM	100	BTWM 10-VM	100
<b>End plate</b>		<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
		Grey	TF-BTWM 2.5	100	TF-BTWM 4	100	TF-BTWM 6	100	TF-BTWM 10	100
		Blue	TF-BTWM 2.5-AZ	100	TF-BTWM 4-AZ	100	TF-BTWM 6-AZ	100	TF-BTWM 10-AZ	100
		Green	TF-BTWM 2.5-VD	100	TF-BTWM 4-VD	100	TF-BTWM 6-VD	100	TF-BTWM 10-VD	100
		Red	TF-BTWM 2.5-VM	100	TF-BTWM 4-VM	100	TF-BTWM 6-VM	100	TF-BTWM 10-VM	100
<b>Connecting bridge</b>		<b>Nr. poles</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
		2	PC-BTWM 2.5/2	25	PC-BTWM 4/2	25	PC-BTWM 6/2	25	PC-BTWM 10/2	25
		3	PC-BTWM 2.5/3	20	PC-BTWM 4/3	20	PC-BTWM 6/3	20	PC-BTWM 10/3	20
		4	PC-BTWM 2.5/4	15	PC-BTWM 4/4	15	PC-BTWM 6/4	15	PC-BTWM 10/4	15
		10	PC-BTWM 2.5/10	5	PC-BTWM 4/10	5	PC-BTWM 6/10	5	PC-BTWM 10/10	5
<b>End bracket</b>		<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
		Grey	PF3-BTW	100	PF3-BTW	100	PF3-BTW	100	PF3-BTW	100
		Grey	PF4-BTW	100	PF4-BTW	100	PF4-BTW	100	PF4-BTW	100
		Grey	PF5-BTW	100	PF5-BTW	100	PF5-BTW	100	PF5-BTW	100
<b>Rail / support</b>		<b>Type</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
		Rail	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars
		Support	ST-BTW	25	ST-BTW	25	ST-BTW	25	ST-BTW	25
<b>Group identifier</b>		<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
		Grey	IG-BTW	50	IG-BTW	50	IG-BTW	50	IG-BTW	50
		Clear	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25
<b>Identifier<sup>2)</sup></b>			<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
			IDB5-BTW	500	IDB5-BTW	500	IDB5-BTW	500	IDB5-BTW	500
			IDG6/5-BTW	400	IDG6/5-BTW	400	IDG6/5-BTW	400	IDG6/5-BTW	400
			IDG10/5-BTW	440	IDG10/5-BTW	440	IDG10/5-BTW	440	IDG10/5-BTW	440
			-	-	IDG10/6-BTW	360	IDG10/6-BTW	360	IDG10/6-BTW	360

Notes: 1) For assembly on PF4-BTW end bracket.  
2) Further details about identifiers on page H-48.



# Selection Guide - Spring Clamp Type Connection





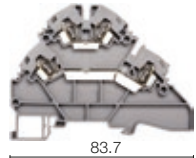



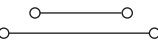
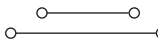

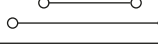


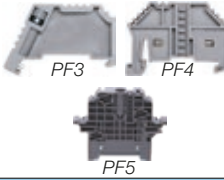


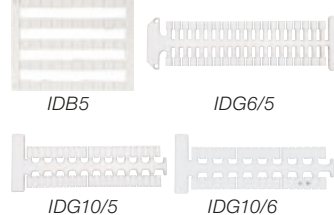
## BTWM Series - Ground Terminal Blocks

		BTWM 2.5T 5 mm wide	BTWM 4T 6 mm wide	BTWM 6T 8 mm wide	BTWM 10T 10 mm wide				
									
		51.0	55.0	64.0	70.0				
		35.5	37.0	38.5	43.0				
Technical data		Cross section							
IEC 60947-7-1		2.5 mm <sup>2</sup>		4 mm <sup>2</sup>		6 mm <sup>2</sup>		10 mm <sup>2</sup>	
UL / CSA		AWG 22...12		AWG 22...10		AWG 22...8		AWG 20...6	
Cable stripping		10 mm		12 mm		12 mm		13 mm	
Connection capacity									
Rigid wire		0.5...4 mm <sup>2</sup>		0.5...6 mm <sup>2</sup>		0.5...10 mm <sup>2</sup>		0.5...16 mm <sup>2</sup>	
Flexible cable		0.5...2.5 mm <sup>2</sup>		0.5...4 mm <sup>2</sup>		0.5...6 mm <sup>2</sup>		0.5...10 mm <sup>2</sup>	
AWG conductor		22...12		22...10		22...8		20...6	
Raw material - plastic body	Color	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
Polyamide 66	Green	BTWM 2.5T-VD/AM	50	BTWM 4T-VD/AM	50	BTWM 6T-VD/AM	40	BTWM 10T-VD/AM	30
End plate	Color	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
1.2 mm wide	Green	TF-BTWM 2.5 T	10	TF-BTWM 4 T	10	TF-BTWM 6 T	10	TF-BTWM 10 T	10
End bracket	Color	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
8 mm wide	Grey	PF3-BTW	100	PF3-BTW	100	PF3-BTW	100	PF3-BTW	100
	Rail	PF4-BTW	100	PF4-BTW	100	PF4-BTW	100	PF4-BTW	100
	Rail	PF5-BTW	100	PF5-BTW	100	PF5-BTW	100	PF5-BTW	100
Rail / support	Type	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
DIN EN 50022	Rail	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars
	Support	ST-BTW	25	ST-BTW	25	ST-BTW	25	ST-BTW	25
Group identifier	Color	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
	Grey	IG-BTW	50	IG-BTW	50	IG-BTW	50	IG-BTW	50
	Clear	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25
Identifier <sup>2)</sup>		Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
	IDB5	IDB5-BTW	500	IDB5-BTW	500	IDB5-BTW	500	IDB5-BTW	500
	IDG6/5	IDG6/5-BTW	400	IDG6/5-BTW	400	IDG6/5-BTW	400	IDG6/5-BTW	400
	IDG10/5	IDG10/5-BTW	440	IDG10/5-BTW	440	IDG10/5-BTW	440	IDG10/5-BTW	440
	IDG10/6	-		IDG10/6-BTW	360	IDG10/6-BTW	360	IDG10/6-BTW	360

Notes: 1) For assembly on PF4-BTW end bracket.  
2) Further details about identifiers on page H-48.

## Selection Guide - Spring Clamp Type Connection

### BTWM Series - Double Terminal Blocks - Triple Terminal Blocks

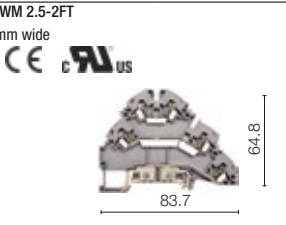
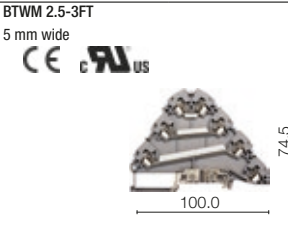
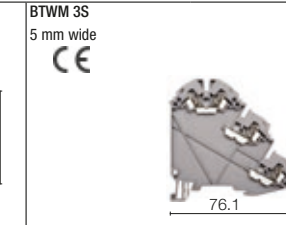
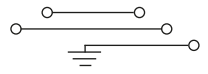
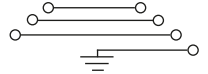
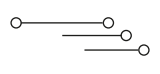


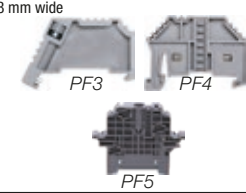


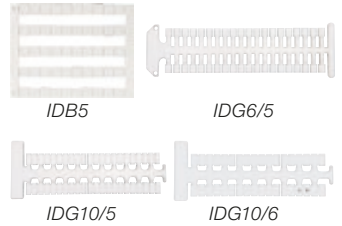
		BTWM 2.5-2F 5 mm wide 		BTWM 4-2F 6 mm wide 		BTWM 4-2FK 6 mm wide 		BTWM 2.5-3F 5 mm wide 		
			64.8		55.5		55.5		75.0	
		83.7		90.3		90.3		100.0		
Technical data										
Voltage / Current / Cross section										
IEC 60947-7-1		500 V~ / 24 A / 2.5 mm <sup>2</sup>		750 V~ / 30 A / 4 mm <sup>2</sup>		750 V~ / 30 A / 4 mm <sup>2</sup>		500 V~ / 24 A / 2.5 mm <sup>2</sup>		
UL / CSA		600 V~ / 20 A / AWG 22...12		600 V~ / 26 A / AWG 22...10		-		600 V~ / 20 A / AWG 22...12		
Cable stripping		10 mm		12 mm		10 mm		10 mm		
Connection capacity										
Rigid wire		0.5...4 mm <sup>2</sup>		0.5...6 mm <sup>2</sup>		0.5...6 mm <sup>2</sup>		0.5...4 mm <sup>2</sup>		
Flexible cable		0.5...2.5 mm <sup>2</sup>		0.5...4 mm <sup>2</sup>		0.5...4 mm <sup>2</sup>		0.5...2.5 mm <sup>2</sup>		
AWG conductor		22...12		22...10		22...10		22...12		
Raw material - plastic body		Color	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
Polyamide 66		Grey	BTWM 2.5-2F	50	BTWM 4-2F	50	BTWM 4-2K	50	BTWM 2.5-3F	20
End plate 1.5 mm wide		Color	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
		Grey	TF-BTWM 2.5-2F	50	TF-BTWM 4-2F	25	TF-BTWM 4-2F	50	TF-BTWM 4-2F	10
Connecting bridge		Nr. poles	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
		2	PC-BTWM 2.5/2	25	PC-BTWM 4/2	25	PC-BTWM 4/2	25	PC-BTWM 2.5/2	25
		3	PC-BTWM 2.5/3	20	PC-BTWM 4/3	20	PC-BTWM 4/3	20	PC-BTWM 2.5/3	20
		4	PC-BTWM 2.5/4	15	PC-BTWM 4/4	15	PC-BTWM 4/4	15	PC-BTWM 2.5/4	15
		10	PC-BTWM 2.5/10	5	PC-BTWM 4/10	5	PC-BTWM 4/10	5	PC-BTWM 2.5/10	5
End bracket 8 mm wide		Color	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
		Grey	PF3-BTW	100	PF3-BTW	100	PF3-BTW	100	PF3-BTW	100
		Grey	PF4-BTW	100	PF4-BTW	100	PF4-BTW	100	PF4-BTW	100
		Grey	PF5-BTW	100	PF5-BTW	100	PF5-BTW	100	PF5-BTW	100
Rail / support DIN EN 50022		Type	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
		Rail	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars
		Support	ST-BTW	25	ST-BTW	25	ST-BTW	25	ST-BTW	25
Group identifier		Color	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
		Grey	IG-BTW	50	IG-BTW	50	IG-BTW	50	IG-BTW	50
		Clear	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25
Identifier <sup>2)</sup>		Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	
		IDB5-BTW	500	IDB5-BTW	500	IDB5-BTW	500	IDB5-BTW	500	
		-		IDG6/5-BTW	400	IDG6/5-BTW	400	-		
		-		IDG10/5-BTW	440	IDG10/5-BTW	440	-		
		-		IDG10/6-BTW	360	IDG10/6-BTW	360	-		

Notes: 1) For assembly on PF4-BTW end bracket.

2) Further details about identifiers on page H-48.

# Selection Guide - Spring Clamp Type Connection

## BTWM Series - Double Terminal Block + Ground - Triple Terminal Block + Ground - Terminal Block for Sensors

		BTWM 2.5-2FT 5 mm wide 	BTWM 2.5-3FT 5 mm wide 	BTWM 3S 5 mm wide 			
Technical data							
	Voltage / Current / Cross section	500 V~ / 24 A / 2.5 mm <sup>2</sup>	500 V~ / 24 A / 2.5 mm <sup>2</sup>	500 V~ / 24 A / 2.5 mm <sup>2</sup>			
IEC 60947-7-1		500 V~ / 24 A / 2.5 mm <sup>2</sup>	500 V~ / 24 A / 2.5 mm <sup>2</sup>	500 V~ / 24 A / 2.5 mm <sup>2</sup>			
UL / CSA		600 V~ / 20 A / AWG 22...12	600 V~ / 20 A / AWG 22...12	-			
Cable stripping		10 mm	10 mm	10 mm			
<b>Connection capacity</b>							
Rigid wire		0.5...4 mm <sup>2</sup>	0.5...4 mm <sup>2</sup>	0.5...4 mm <sup>2</sup>			
Flexible cable		0.5...2.5 mm <sup>2</sup>	0.5...2.5 mm <sup>2</sup>	0.5...2.5 mm <sup>2</sup>			
AWG conductor		22...12	22...12	22...12			
<b>Raw material - plastic body</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
Polyamide 66	Grey	BTWM 2.5-2FT	20	BTWM 2.5-3FT	20	BTWM 3S	20
<b>End plate</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
1.5 mm wide 	Grey	TF-BTWM 2.5-2F	10	TF-BTWM 2.5-3FT	10	TF-BTWM 3S	10
<b>Connecting bridge</b>	<b>Nr. poles</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
	2	PC-BTWM 2.5/2	25	PC-BTWM 2.5/2	25	PC-BTWM 2.5/2	25
	3	PC-BTWM 2.5/3	20	PC-BTWM 2.5/3	20	PC-BTWM 2.5/3	20
	4	PC-BTWM 2.5/4	15	PC-BTWM 2.5/4	15	PC-BTWM 2.5/4	15
	10	PC-BTWM 2.5/10	5	PC-BTWM 2.5/10	5	PC-BTWM 2.5/10	5
<b>End bracket</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
8 mm wide 	Grey	PF3-BTW	100	PF3-BTW	100	PF3-BTW	100
	Grey	PF4-BTW	100	PF4-BTW	100	PF4-BTW	100
	Grey	PF5-BTW	100	PF5-BTW	100	PF5-BTW	100
<b>Rail / support</b>	<b>Type</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
DIN EN 50022 	Rail	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars
	Support	ST-BTW	25	ST-BTW	25	ST-BTW	25
<b>Group identifier</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
	Grey	IG-BTW	50	IG-BTW	50	IG-BTW	50
	Clear	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25
<b>Identifier<sup>2)</sup></b>		<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
		IDB5-BTW	500	IDB5-BTW	500	IDB5-BTW	500

Notes: 1) For assembly on PF4-BTW end bracket.  
2) Further details about identifiers on page H-48.

A

B

C

D

E





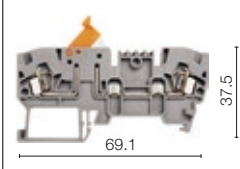
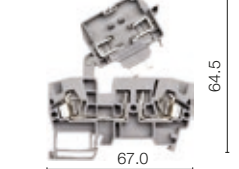
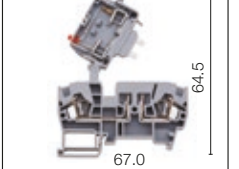
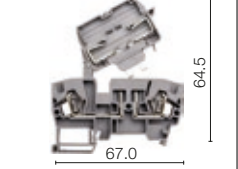
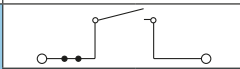
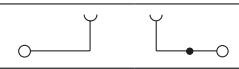
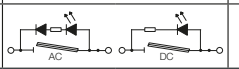
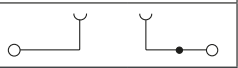


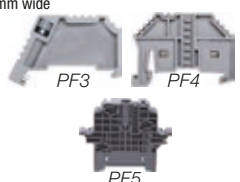


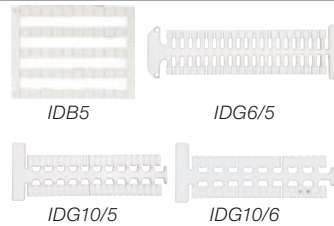
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## Selection Guide - Spring Clamp Type Connection

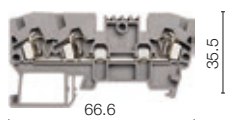
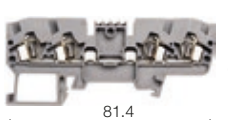


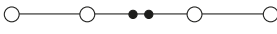


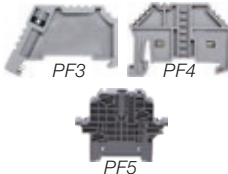


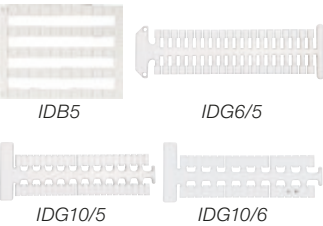
### BTWM Series - Disconnect Terminal Block - Terminal Blocks for Fuses

		BTWM 2.5A 5 mm wide 		BTWM S 8 mm wide 		BTWM SLD 8 mm wide 		BTWM I 8 mm wide 		
										
Technical data										
		Voltage / Current / Cross section								
IEC 60947-7-1		750 V~ / 16 A / 2.5 mm <sup>2</sup>		500 V~ / 10 A / 4 mm <sup>2</sup>		750 V~ / 30 A / 4 mm <sup>2</sup>		500 V~ / 10 A / 4 mm <sup>2</sup>		
UL / CSA		600 V~ / 10 A / AWG 22...12		600 V~ / 10 A / AWG 22...10		AWG 22...12		600 V~ / 10 A / AWG 22...10		
Fuse dimensions		-		5x20 or 5x25 mm		5x20 or 5x25 mm		6,35x31,75 mm (1/4"x1 1/4")		
Cable stripping		10 mm		12 mm		10 mm		12 mm		
Connection capacity										
Rigid wire		0.5...4 mm <sup>2</sup>		0.5...6 mm <sup>2</sup>		0.5...6 mm <sup>2</sup>		0.5...6 mm <sup>2</sup>		
Flexible cable		0.5...2.5 mm <sup>2</sup>		0.5...4 mm <sup>2</sup>		0.5...4 mm <sup>2</sup>		0.5...4 mm <sup>2</sup>		
AWG conductor		22...12		22...10		22...10		22...10		
Raw material - plastic body		Color	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
Polyamide 66		Grey	BTWM 2.5A	50	BTWM S	20	BTWM S	20	BTWM I	20
		-	-	-	Note: houses a spare fuse.	-	BTWM SLD C03 - 24 V dc BTWM SLD D13 - 110 V ac BTWM SLD D23 - 220 V ac	-	Note: houses a spare fuse.	-
End plate 1.5 mm wide		Color	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
		Grey	TF-BTWM 2.5A	10	TF-BTWM S-I	10	TF-BTWM S-I	50	TF-BTWM S-I	10
Connecting bridge		Nr. poles	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
		2	PC-BTWM 2.5/2	25	PC-BTWM 6/2	25	PC-BTWM 4/2	25	PC-BTWM 6/2	25
		3	PC-BTWM 2.5/3	20	PC-BTWM 6/3	20	PC-BTWM 4/3	20	PC-BTWM 6/3	20
		4	PC-BTWM 2.5/4	15	PC-BTWM 6/4	15	PC-BTWM 4/4	15	PC-BTWM 6/4	15
		10	PC-BTWM 2.5/10	5	PC-BTWM 6/10	5	PC-BTWM 4/10	5	PC-BTWM 6/10	5
End bracket 8 mm wide		Color	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
		Grey	PF3-BTW	100	PF3-BTW	100	PF3-BTW	100	PF3-BTW	100
		Grey	PF4-BTW	100	PF4-BTW	100	PF4-BTW	100	PF4-BTW	100
		Grey	PF5-BTW	100	PF5-BTW	100	PF5-BTW	100	PF5-BTW	100
Rail / support DIN EN 50022		Type	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
		Rail	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars
		Support	ST-BTW	25	ST-BTW	25	ST-BTW	25	ST-BTW	25
Group identifier		Color	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
		Grey	IG-BTW	50	IG-BTW	50	IG-BTW	50	IG-BTW	50
		Clear	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25
Identifier <sup>2)</sup>			Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack	Reference code	Qty/pack
			IDB5-BTW	500	IDB5-BTW	500	IDB5-BTW	500	IDB5-BTW	500
			IDG6/5-BTW	400	-	-	IDG6/5-BTW	400	-	-
			IDG10/5-BTW	440	-	-	IDG10/5-BTW	440	-	-
			-	-	-	-	IDG10/6-BTW	360	-	-

Notes: 1) For assembly on PF4-BTW end bracket.  
2) Further details about identifiers on page H-48.

# Selection Guide - Spring Clamp Type Connection

## BTWM Series - 1In-2Out Terminal Block - 2In-2Out Terminal Block - Double Ground Terminal Block

		BTWM 2.5E 5 mm wide 	BTWM 2.5C 5 mm wide 	BTWM 2.5CT 5 mm wide 			
<b>Technical data</b>							
		<b>Voltage / Current / Cross section</b>		<b>Cross section</b>			
IEC 60947-7-1		750 V~ / 24 A / 2.5 mm <sup>2</sup>		2.5 mm <sup>2</sup>			
UL / CSA		600 V~ / 20 A / AWG 22...12		AWG 22...12			
Cable stripping		13 mm		13 mm			
<b>Connection capacity</b>							
Rigid wire		0.5...4 mm <sup>2</sup>		0.5...4 mm <sup>2</sup>			
Flexible cable		0.5...2.5 mm <sup>2</sup>		0.5...2.5 mm <sup>2</sup>			
AWG conductor		22...12		22...12			
<b>Raw material - plastic body</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
Polyamide 66	Grey	BTWM 2.5E	50	BTWM 2.5C	50	-	-
	Green	-	-	-	-	BTWM 2.5CT	50
<b>End plate</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
1.2 mm wide 	Grey	TF-BTWM 2.5E	10	TF-BTWM 2.5C	10	-	-
	Green	-	-	-	-	TF-BTWM 2.5CT	10
<b>Connecting bridge</b>	<b>Nr. poles</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
	2	PC-BTWM 2.5/2	25	PC-BTWM 2.5/2	25	-	-
	3	PC-BTWM 2.5/3	20	PC-BTWM 2.5/3	20	-	-
	4	PC-BTWM 2.5/4	15	PC-BTWM 2.5/4	15	-	-
	10	PC-BTWM 2.5/10	5	PC-BTWM 2.5/10	5	-	-
<b>End bracket</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
8 mm wide 	Grey	PF3-BTW	100	PF3-BTW	100	PF3-BTW	100
	Grey	PF4-BTW	100	PF4-BTW	100	PF4-BTW	100
	Grey	PF5-BTW	100	PF5-BTW	100	PF5-BTW	100
<b>Rail / support</b>	<b>Type</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
DIN EN 50022 	Rail	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars
	Support	ST-BTW	25	ST-BTW	25	ST-BTW	25
<b>Group identifier</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
	Grey	IG-BTW	50	IG-BTW	50	IG-BTW	50
	Clear	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25
<b>Identifier<sup>2)</sup></b>		<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
		IDB5-BTW	500	IDB5-BTW	500	IDB5-BTW	500
		IDG6/5-BTW	400	IDG6/5-BTW	400	IDG6/5-BTW	400
		IDG10/5-BTW	440	IDG10/5-BTW	440	IDG10/5-BTW	440

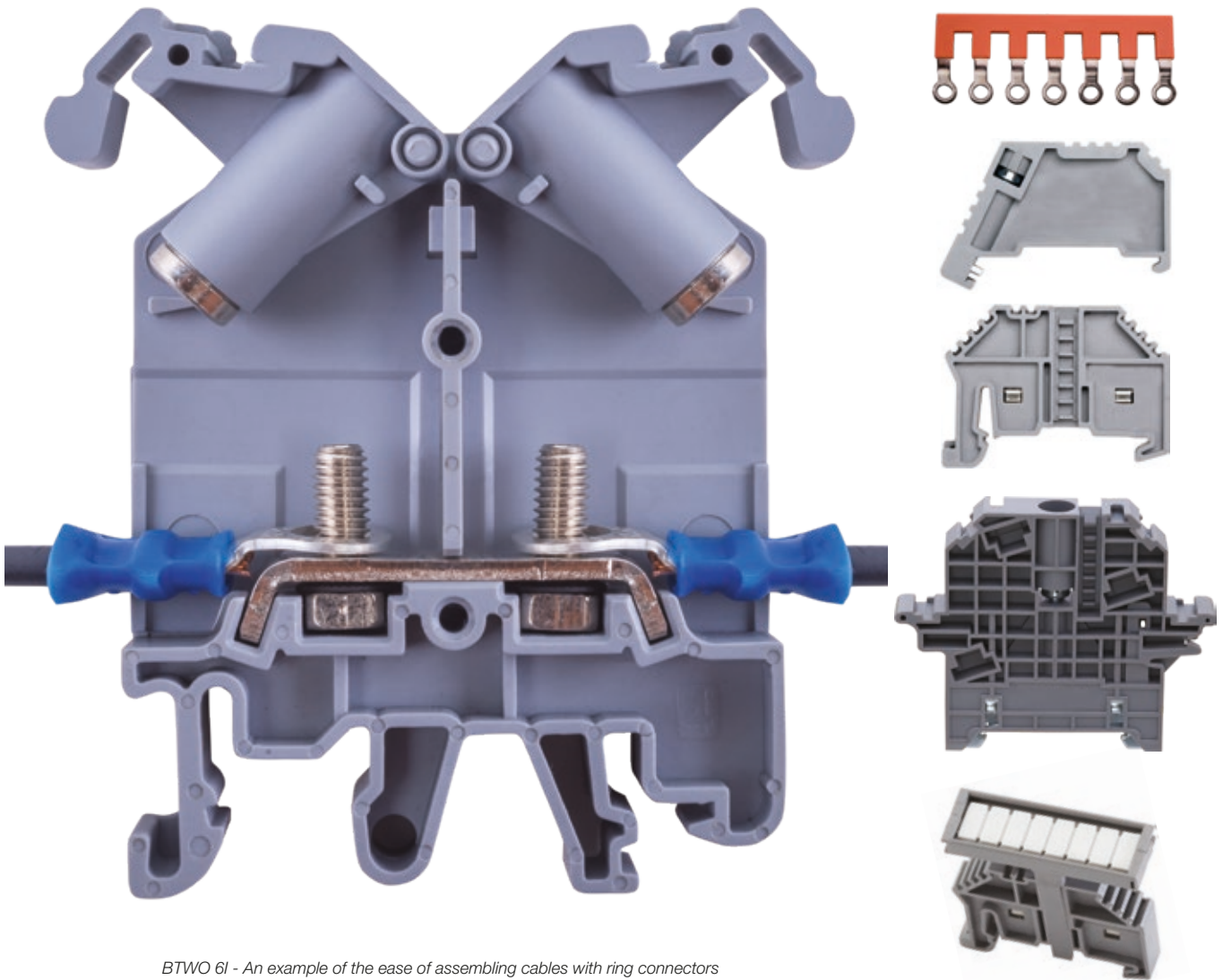
Notes: 1) For assembly on PF4-BTW end bracket.  
2) Further details about identifiers on page H-48.

## BTWO Series - Screw Type for Ring and Fork Connectors

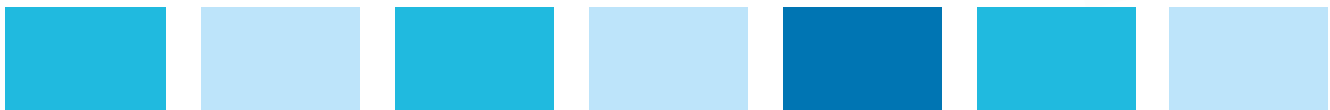
Suitable for industrial use, providing safety and practicality in the connection of electrical cables. The assembly is made easily and fast since the terminal blocks are prepared to receive cables with ring and fork connectors. This resource allows the terminal blocks to be used in the steel industry, mining, energy utilities and medium-voltage cubicles.

### Main Advantages of BTWO Series

- Cross-section cables
- 2 models: standard and with unlosable screw
- Application in environments with vibrations
- Complete range of accessories
- CE certification

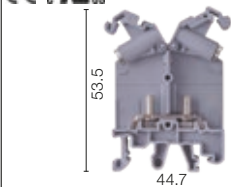
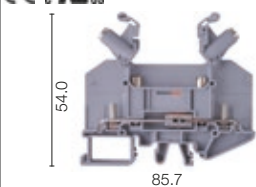
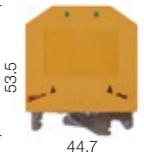


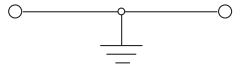


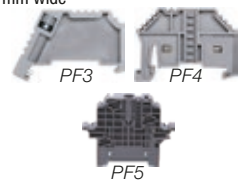


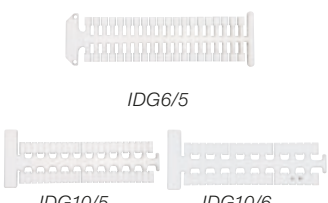


*BTWO 61 - An example of the ease of assembling cables with ring connectors*



## Selection Guide - Screw Type for Ring Connectors

### BTWO Series - Terminal Blocks

		BTWO 6I 11 mm wide 	BTWO 6G - Disconnect/Test Terminal Block 11 mm wide 	BTWO 6 IT-VD/AM 11 mm wide 				
<b>Technical data</b>								
		<b>Voltage / Current / Cross section</b>						
IEC 60947-1		800 V / 41 A / 6 mm <sup>2</sup>	500 V / 41 A / 6 mm <sup>2</sup>	6 mm <sup>2</sup>				
Type of connector		Ring	Ring	Ring				
Tightening torque		0.8 Nm	0.8 Nm	0.8 Nm				
<b>Connection capacity</b>								
Rigid wire		0.5 - 6 mm <sup>2</sup>	0.5 - 6 mm <sup>2</sup>	0.5 - 6 mm <sup>2</sup>				
Flexible cable		0.5 - 6 mm <sup>2</sup>	0.5 - 6 mm <sup>2</sup>	0.5 - 6 mm <sup>2</sup>				
AWG conductor		20...10	26...10	20...10				
<b>Raw material - plastic body</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	
Polyamide 66	Grey	BTWO 6I	100	BTWO 6G	100	BTWO 6 IT-VD/AM	100	
<b>End plate</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	
	Grey	TF-BTWO 6I	25	TF-BTWO 6G	25	-	25	
<b>Connecting bridge</b>	<b>Nr. poles</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	
	2	PC-BTWO 6I/2	25	PC-BTWO 6I/2	25	-	-	
	3	PC-BTWO 6I/3	20	PC-BTWO 6I/3	20	-	-	
	4	PC-BTWO 6I/4	15	PC-BTWO 6I/4	15	-	-	
	7	PC-BTWO 6I/7	5	PC-BTWO 6I/7	5	-	-	
	10	PC-BTWO 6I/10	5	PC-BTWO 6I/10	5	-	-	
<b>End bracket</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	
	8 mm wide	Grey	PF3-BTW	100	PF3-BTW	100	PF3-BTW	100
		Grey	PF4-BTW	100	PF4-BTW	100	PF4-BTW	100
		Grey	PF5-BTW	100	PF5-BTW	100	PF5-BTW	100
<b>Rail / support</b>	<b>Type</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	
	DIN EN 50022	Rail	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars
		Support	ST-BTW	25	ST-BTW	25	ST-BTW	25
<b>Group identifier</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	
	Grey	IG-BTW	50	IG-BTW	50	IG-BTW	50	
	Clear	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25	
<b>Identifier<sup>2)</sup></b>		<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	
		IDG6/5-BTW	400	IDG6/5-BTW	400	IDG6/5-BTW	400	
		IDG10/5-BTW	440	IDG10/5-BTW	440	IDG10/5-BTW	440	
		IDG 10/6-BTW	360	IDG 10/6-BTW	360	IDG 10/6-BTW	360	

Notes: 1) For assembly on PF4-BTW end bracket.  
2) Further details about identifiers on page H-48.

## Selection Guide - Screw Type for Fork Connectors

### BTWO Series - Terminal Blocks

		BTWO 6 9.5 mm wide		BTWO 10 13 mm wide	
Technical data		Voltage / Current / Cross section			
IEC 60947-7-1		800 V / 41 A / 6 mm <sup>2</sup>		800 V / 57 A / 10 mm <sup>2</sup>	
Type of connector		Fork		Fork	
Tightening torque		1.2 Nm		1.5 Nm	
Connection capacity					
Rigid wire		0.5 - 6 mm <sup>2</sup>		0.5 - 10 mm <sup>2</sup>	
Flexible cable		0.5 - 6 mm <sup>2</sup>		0.5 - 10 mm <sup>2</sup>	
AWG conductor		20...10		20...8	
Raw material - plastic body	Color	Reference code	Qty/pack	Reference code	Qty/pack
Polyamide 66	Grey	BTWO 6	100	BTWO 10	100
End plate	Color	Reference code	Qty/pack	Reference code	Qty/pack
	Grey	TF-BTWO 6	25	TF-BTWO 10	25
Connecting bridge	Nr. poles	Reference code	Qty/pack	Reference code	Qty/pack
	2	PC-BTWO 6/2	25	PC-BTWO 10/2	25
	3	PC-BTWO 6/3	20	PC-BTWO 10/3	20
	4	PC-BTWO 6/4	15	PC-BTWO 10/4	15
	7	PC-BTWO 6/7	5	PC-BTWO 10/7	5
	10	PC-BTWO 6/10	5	PC-BTWO 10/10	5
End bracket	Color	Reference code	Qty/pack	Reference code	Qty/pack
	Grey	PF3-BTW	100	PF3-BTW	100
	Grey	PF4-BTW	100	PF4-BTW	100
	Grey	PF5-BTW	100	PF5-BTW	100
	Grey	PF5-BTW	100	PF5-BTW	100
Rail / support	Type	Reference code	Qty/pack	Reference code	Qty/pack
	Rail	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars
	Support	ST-BTW	25	ST-BTW	25
Group identifier	Color	Reference code	Qty/pack	Reference code	Qty/pack
	Grey	IG-BTW	50	IG-BTW	50
	Clear	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25
Identifier <sup>2)</sup>		Reference code	Qty/pack	Reference code	Qty/pack
		IDG6/5-BTW	400	IDG6/5-BTW	400
		IDG10/5-BTW	440	IDG10/5-BTW	440
		IDG 10/6-BTW	360	IDG 10/6-BTW	360

Notes: 1) For assembly on PF4-BTW end bracket.  
2) Further details about identifiers on page H-48.

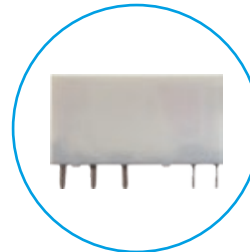
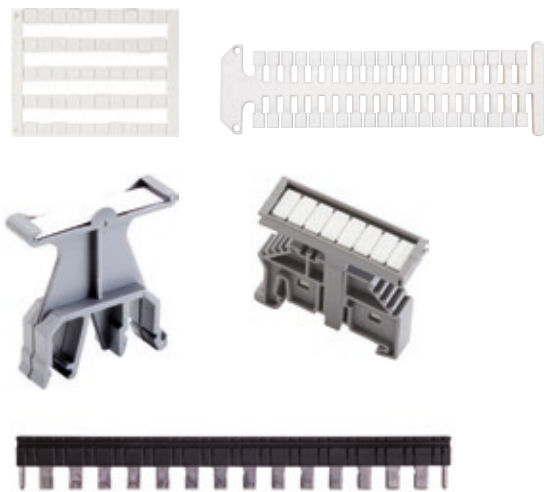


## BTWR Series - Terminal Blocks Relays

The BTWR interface relay receives an AC or DC signal from the controller (mA) and switch its output (with higher current-carrying capacity) that will be sent to the field (actuators and sensors). In this way, the interface relay has the functions of switching, amplification, isolation and protection of the controller's output.

### Main Advantages of BTWR Series

- Available in voltages of 24/48/60/110/230 V ac/dc
- Quick installation
- 6.2 mm thickness
- 1 reversible contact
- LED indicator
- Easy relay connection
- Anti-vibration system
- CE certification






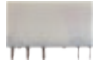








Easy fitting and release



## Selection Guide - Terminal Blocks Relays















### BTWR Series - Terminal Blocks

		BTWR P16E26 6.2 mm wide	CE	BTWR P16E27 6.2 mm wide	CE	BTWR P16E28 6.2 mm wide	CE
							
<b>Technical data</b>		<b>Voltage / Current / Cross section</b>					
Coil voltage		24 V ac/dc / 6 A		48 V ac/dc / 6 A		60 V ac/dc / 6 A	
Cable stripping		8 mm		8 mm		8 mm	
Tightening torque		0.4 Nm		0.4 Nm		0.4 Nm	
Contact band		6 A 250 V ac / 30 V dc					
Maximum switching voltage		400 V ac (3.7 A) / 125 V dc (1.4 A)					
Maximum switching current		6 A					
Maximum switching power		1,500 VA / 180 W					
Mechanical lifecycle		1x10 <sup>7</sup> operations					
Electrical lifecycle		(NO) 3x10 <sup>4</sup> operations (85 °C) (NC) 1x10 <sup>4</sup> operations (85 °C)					
Clearance resistance		1,000 MΩ (500 V dc)					
Operation time		10ms máx.					
Relay indication		LED green					
<b>Connection capacity</b>		2.5 mm <sup>2</sup>					
Flexible cable		2.5 mm <sup>2</sup>					
<b>Raw material - plastic body</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
Polyamide 66	Grey	BTWR P16E26	10	BTWR P16E27	10	BTWR P16E28	10
<b>Connecting bridge</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
	Grey	PC-BTWR 2.5/16R	50	PC-BTWR 2.5/16R	50	PC-BTWR 2.5/16R	50
<b>Relay base</b>		<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
		BR-BTWR 2.5/1R E26	1	BR-BTWR 2.5/1R E27	1	BR-BTWR 2.5/1R E28	1
<b>Relay module</b>		<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
		RE-BTWR 4 C03	1	RE-BTWR 2.5R C03	1	RE-BTWR 2.5R C09	1
<b>End bracket</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
8 mm wide	Grey	PF3-BTW	100	PF3-BTW	100	PF3-BTW	100
	Grey	PF4-BTW	100	PF4-BTW	100	PF4-BTW	100
	Grey	PF5-BTW	100	PF5-BTW	100	PF5-BTW	100
<b>Rail / support</b>	<b>Type</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
DIN EN 50022	Rail	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars
	Support	ST-BTW	25	ST-BTW	25	ST-BTW	25
<b>Group identifier</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
	Grey	IG-BTW	50	IG-BTW	50	IG-BTW	50
	Clear	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25
<b>Identifier<sup>2)</sup></b>		<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
		IDB5-BTW	500	IDB5-BTW	500	IDB5-BTW	500
		IDG10/5-BTW	440	IDG10/5-BTW	440	IDG10/5-BTW	440
		IDG 10/6-BTW	360	IDG 10/6-BTW	360	IDG 10/6-BTW	360

Notes: 1) For assembly on PF4-BTW end bracket.  
2) Further details about identifiers on page H-48.

# Selection Guide - Terminal Block Relays

## BTWR Series - Terminal Blocks

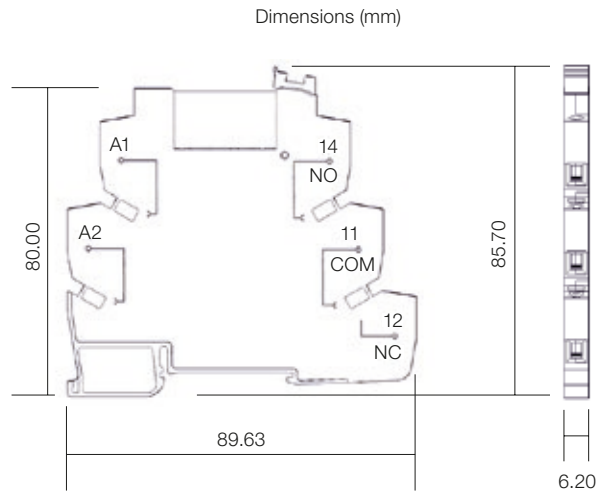
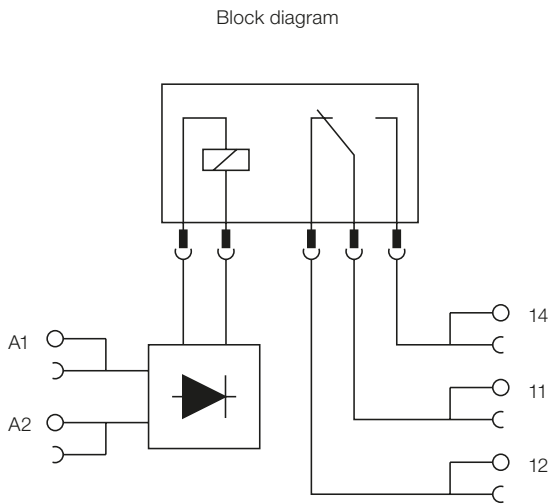
		<b>BTWR P16E29</b> 6.2 mm wide 		<b>BTWR P16E31</b> 6.2 mm wide 	
<b>Technical data</b>		<b>Voltage / Current / Cross section</b>			
Coil voltage		110 V ac/dc / 6 A		230 V ac/dc / 6 A	
Cable stripping		8 mm		8 mm	
Tightening torque		0.4 Nm		0.4 Nm	
Contact band		6 A 250 V ac / 30 V dc			
Maximum switching voltage		400 V ac (3.7 A) / 125 V dc (1.4 A)			
Maximum switching current		6 A			
Maximum switching power		1,500 VA / 180 W			
Mechanical lifecycle		1x10 <sup>7</sup> operations			
Electrical lifecycle		(NO) 3x10 <sup>4</sup> operations (85 °C) (NC) 1x10 <sup>4</sup> operations (85 °C)			
Clearance resistance		1,000 MΩ (500 V dc)			
Operation time		10ms máx.			
Relay indication		LED green			
<b>Connection capacity</b>					
Flexible cable		2.5 mm <sup>2</sup>			
<b>Raw material - plastic body</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
Polyamide 66	Grey	BTWR P16E29	10	BTWR P16E31	10
<b>Connecting bridge</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
	Grey	PC-BTWR 2.5/16R	50	PC-BTWR 2.5/16R	50
<b>Relay base</b>		<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
		BR-BTWR 2.5/1R E29	1	BR-BTWR 2.5/1R E31	1
<b>Relay module</b>		<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
		RE-BTWR 2.5R C09	1	RE-BTWR 2.5R C09	1
<b>End bracket</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
8 mm wide	Grey	PF3-BTW	100	PF3-BTW	100
	Grey	PF4-BTW	100	PF4-BTW	100
	Grey	PF5-BTW	100	PF5-BTW	100
					
<b>Rail / support</b>	<b>Type</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
DIN EN 50022	Rail	MR 35x7.5	2 m busbars	MR 35x7.5	2 m busbars
	Support	ST-BTW	25	ST-BTW	25
					
<b>Group identifier</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
	Grey	IG-BTW	50	IG-BTW	50
	Clear	IG22-BTW <sup>1)</sup>	25	IG22-BTW <sup>1)</sup>	25
<b>Identifier<sup>2)</sup></b>		<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
		IDB5-BTW	500	IDB5-BTW	500
		IDG10/5-BTW	440	IDG10/5-BTW	440
		IDG 10/6-BTW	360	IDG 10/6-BTW	360

Notes: 1) For assembly on PF4-BTW end bracket.  
2) Further details about identifiers on page H-48.

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# BTWR Series

## Block Diagram and Dimensions



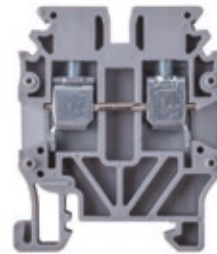
## BTWK/BTWY Series - Mini Terminal Blocks

Ideal solution for projects with limited space in panels, junction boxes and terminal box of motors, such as manufacturers of small machines.

Can be assembled on a miniature DIN rail on a flat surface and assembly boards.

### Main Advantages of BTWK / BTWY Series

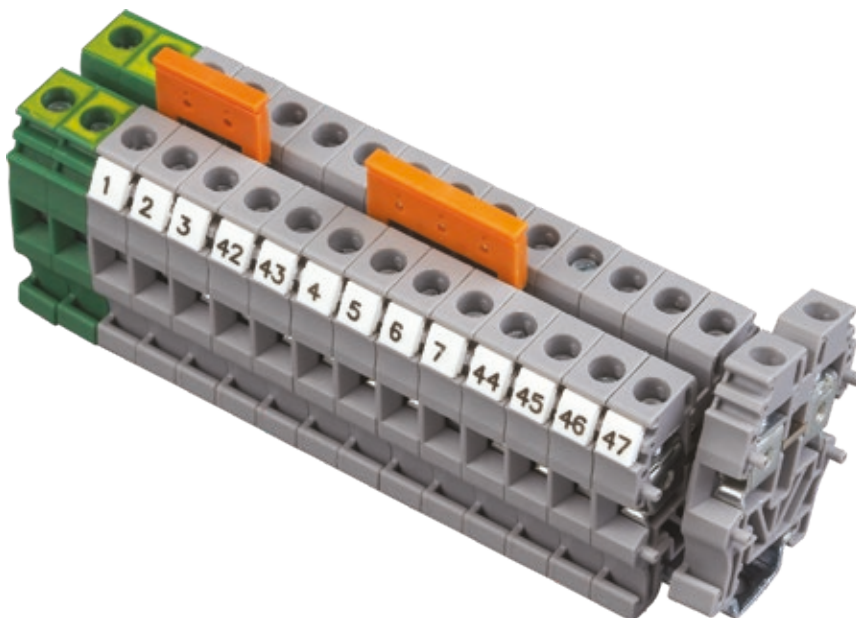
- Cross-section cables from 0.5 to 4 mm<sup>2</sup>
- Available in two connection versions:
  - Screw type
  - Spring clamp type
- Application in space-constrained environments
- Complete range of accessories
- CE certification



BTWK



BTWY



### Surface Mounting Option



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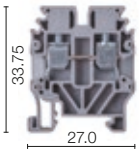
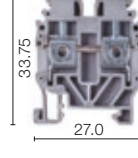
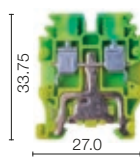
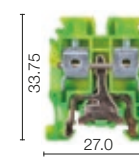
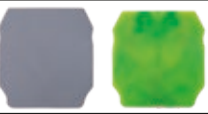



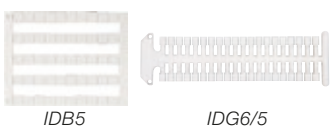
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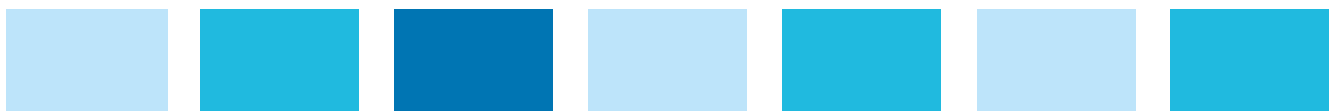
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# Selection Guide - Mini Terminal Blocks with Screw Type Connection

## BTWK Series - Mini Terminal Blocks with Screw Type Connection



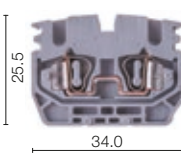
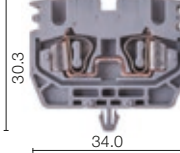
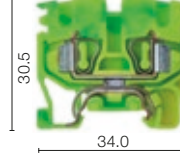
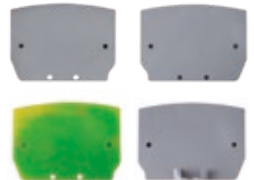


		BTWK 2.5 5 mm wide		BTWK 4 6 mm wide		BTWK 2.5T 5 mm wide		BTWK 4T 6 mm wide		
										
		33.75 27.0		33.75 27.0		33.75 27.0		33.75 27.0		
<b>Technical data</b>		<b>Voltage / Current / Cross section</b>								
IEC 60947-7-1		400 V~ / 24 A / 2.5 mm <sup>2</sup>		400 V~ / 32 A / 4 mm <sup>2</sup>		2.5 mm <sup>2</sup>		4 mm <sup>2</sup>		
UL / CSA		300 V~ / 20 A / AWG 26 - 12		300 V~ / 30 A / AWG 24 - 10		AWG 26 - 12		AWG 24 - 10		
Cable stripping		12 mm		10 mm		10 mm		10 mm		
Tightening torque		1.2 Nm		0.5 Nm		0.4 Nm		0.5 Nm		
<b>Connection capacity</b>										
Rigid wire		0.5 - 4 mm <sup>2</sup>		0.5 - 6 mm <sup>2</sup>		0.5 - 4 mm <sup>2</sup>		0.5 - 6 mm <sup>2</sup>		
Flexible cable		0.5 - 4 mm <sup>2</sup>		0.5 - 6 mm <sup>2</sup>		0.5 - 4 mm <sup>2</sup>		0.5 - 6 mm <sup>2</sup>		
AWG conductor		16...8		26...10		26...12		26...10		
<b>Raw material - plastic body</b>		<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
Polyamide 66		Grey	BTWK 2.5	100	BTWK 4	100	-	-	-	-
		Green	-	-	-	-	BTWK 2.5T	10	BTWK 4T	10
<b>End plate</b>		<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
		Grey	TF-BTWK 2.5-4	100	TF-BTWK 2.5-4	100	TF-BTWK 2.5-4T	100	TF-BTWK 2.5-4T	100
<b>Connecting bridge</b>		<b>Nr. poles</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
		2	PC-BTWM 2.5/2	25	PC-BTWM 4/2	25	PC-BTWM 2.5/2	25	PC-BTWM 4/2	25
		3	PC-BTWM 2.5/3	20	PC-BTWM 4/3	20	PC-BTWM 2.5/3	20	PC-BTWM 4/3	20
		4	PC-BTWM 2.5/4	15	PC-BTWM 4/4	15	PC-BTWM 2.5/4	15	PC-BTWM 4/4	15
		10	PC-BTWM 2.5/10	5	PC-BTWM 4/10	5	PC-BTWM 2.5/10	5	PC-BTWM 4/10	5
<b>End bracket</b>		<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
		Grey	PF2-BTW-3	100	PF2-BTW-3	100	PF2-BTW-3	100	PF2-BTW-3	100
<b>Rail / support</b>		<b>Type</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
		Rail	MR 15x5.5	Busbars 1 m	MR 15x5.5	Busbars 1 m	MR 15x5.5	Busbars 1 m	MR 15x5.5	Busbars 1 m
		Support	ST-BTW	25	ST-BTW	25	ST-BTW	25	ST-BTW	25
<b>Identifier<sup>2)</sup></b>			<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
			IDB5-BTW	500	IDB5-BTW	500	IDB5-BTW	500	IDB5-BTW	500
			IDG6/5-BTW	400	IDG6/5-BTW	400	IDG6/5-BTW	400	IDG6/5-BTW	400

Notes: 1) For assembly on PF4-BTW end bracket.  
2) Further details about identifiers on page H-48.



# Selection Guide - Mini Terminal Blocks with Spring Clamp Type Connection

## BTWY Series - Mini Terminal Blocks with Spring Clamp Connection

		BTWY 2.5 5 mm wide 		BTWY 2.5P 5 mm wide 		BTWY 2.5S 5 mm wide 		BTWY 2.5T 5 mm wide 	
									
<b>Technical data</b>		<b>Voltage / Current / Cross section</b>							
IEC 60947-7-1		750 V~ / 24 A / 2.5 mm <sup>2</sup>		750 V~ / 24 A / 2.5 mm <sup>2</sup>		750 V~ / 24 A / 2.5 mm <sup>2</sup>		2.5 mm <sup>2</sup>	
UL / CSA		600 V~ / 20 A / AWG 22 - 12		600 V~ / 20 A / AWG 22 - 12		600 V~ / 20 A / AWG 22 - 12		AWG 22 - 12	
Cable stripping		10 mm		10 mm		10 mm		10 mm	
<b>Connection capacity</b>									
Rigid wire		0.5 - 4 mm <sup>2</sup>		0.5 - 4 mm <sup>2</sup>		0.5 - 4 mm <sup>2</sup>		0.5 - 4 mm <sup>2</sup>	
Flexible cable		0.5 - 2.5 mm <sup>2</sup>		0.5 - 2.5 mm <sup>2</sup>		0.5 - 2.5 mm <sup>2</sup>		0.5 - 2.5 mm <sup>2</sup>	
AWG conductor		22...12		22...12		22...12		22...12	
<b>Raw material - plastic body</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
Polyamide 66	Grey	BTWY 2.5	50	BTWY 2.5P	100	BTWY 2.5S	100	-	-
	Green	-	-	-	-	-	-	BTWY 2.5T	50
<b>End plate</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
	Grey	TF-BTWY	100	TFF-BTWY 2.5E <sup>3)</sup>	100	TF-BTWY 2.5E <sup>3)</sup>	100	-	-
				TFF-BTWY 2.5D <sup>3)</sup>	100	TF-BTWY 2.5D <sup>3)</sup>	100	-	-
	Green	-	-	-	-	-	-	TF-BTWY 2.5T	10
<b>Connecting bridge</b>	<b>Nr. poles</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
	2	PC-BTWM 2.5/2	25	PC-BTWM 2.5/2	25	PC-BTWM 2.5/2	25	PC-BTWM 2.5/2	25
	3	PC-BTWM 2.5/3	20	PC-BTWM 2.5/3	20	PC-BTWM 2.5/3	20	PC-BTWM 2.5/3	20
	4	PC-BTWM 2.5/4	15	PC-BTWM 2.5/4	15	PC-BTWM 2.5/4	15	PC-BTWM 2.5/4	15
	10	PC-BTWM 2.5/10	5	PC-BTWM 2.5/10	5	PC-BTWM 2.5/10	5	PC-BTWM 2.5/10	5
<b>End bracket</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
	Grey	PF2-BTW-3	100	Onboard fitting		Onboard fitting		PF2-BTW-3	100
<b>Rail / support</b>	<b>Type</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
DIN EN 50022 	Rail	MR 15x5.5	Busbars 1 m	Surface mounting		Surface mounting		MR 15x5.5	Busbars 1 m
	Support	ST-BTW	25					ST-BTW	25
<b>Identifier<sup>2)</sup></b>		<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
	IDB5      IDG6/5	IDB5-BTW	500	IDB5-BTW	500	IDB5-BTW	500	IDB5-BTW	500
		IDG6/5-BTW	400	IDG6/5-BTW	400	IDG6/5-BTW	400	IDG6/5-BTW	400

Notes: 1) For assembly on PF4-BTW end bracket.

2) Further details about identifiers on page H-48.

3) TF-BTWY 2.5E & TFF-BTWY 2.5E refer to closing plates for the left side of terminal block. TF-BTWY 2.5D & TFF-BTWY 2.5D refer to closing plates for the right side of the terminal block.

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# Busbar Connectors

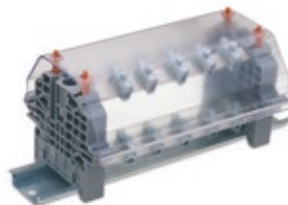
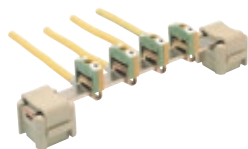
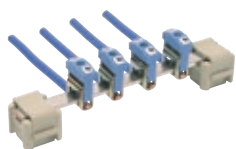
## CB Series

CB series busbar connectors		CB4		CB10		CB35	
<b>Technical data</b>							
Cross section		4 mm <sup>2</sup>		10 mm <sup>2</sup>		35 mm <sup>2</sup>	
Screw		M3		M4		M6	
Busbar dimensions		10x3 mm		10x3 mm		10x3 mm	
Cable stripping		16 mm		19 mm		19 mm	
Tightening torque		0.5 Nm		1.2 Nm		2.8 Nm	
<b>Connection capacity</b>							
Rigid wire		0.5...6 mm <sup>2</sup>		1.5...10 mm <sup>2</sup>		16...50 mm <sup>2</sup>	
Flexible cable		0.5...4 mm <sup>2</sup>		2.5...10 mm <sup>2</sup>		16...35 mm <sup>2</sup>	
<b>Color</b>		<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
-		CB4-BTW	200	CB10-BTW	100	CB35-BTW	50
Blue		CB4N-BTW	100	CB10N-BTW	100	CB35N-BTW	50
Green/yellow		CB4PE-BTW	100	CB10PE-BTW	100	CB35PE-BTW	50
<b>Busbar support</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
	Beige	SB-BTW <sup>1)</sup>	50	SB-BTW <sup>1)</sup>	50	SB-BTW <sup>1)</sup>	50
<b>Busbar support / End bracket</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
	Grey	PF5-BTW <sup>2)</sup>	100	PF5-BTW <sup>2)</sup>	100	PF5-BTW <sup>2)</sup>	100
<b>Protection cover<sup>3)</sup></b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
	Clear	TT-BTW	1 m x 10	TT-BTW	1 m x 10	TT-BTW	1 m x 10
<b>Sealing pin (PF5-BTW + TT-BTW)</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
	Orange	PF5-BTW PE	4	PF5-BTW PE	4	PF5-BTW PE	4
<b>Holding plate for cover</b>	<b>Color</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
	Grey	STT-BTW	2	STT-BTW	2	STT-BTW	2
<b>Copper busbar 10x3 mm</b>		<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>	<b>Reference code</b>	<b>Qty/pack</b>
Tinned		BR10x3	Busbars 1 m	BR10x3	Busbars 1 m	BR10x3	Busbars 1 m

Note: 1) Also fits busbars of the following dimensions: 15x2 mm, 15x3 mm, 12x2 mm and 6x6 mm.

2) It's possible to assembly up to 3 bars of 10x3 mm on PF5-BTW.

3) The protection cover TT-BTW can be assembled using: PF5-BTW + PF5-BTW PE or just with STT-BTW.



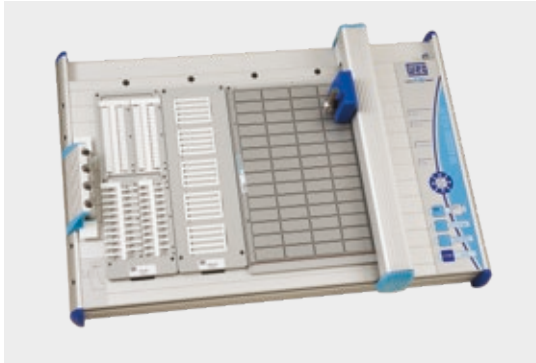
Illustrative images only.

The assembly shown above can be used as a busbar for circuits of distribution and control in electrical panels.



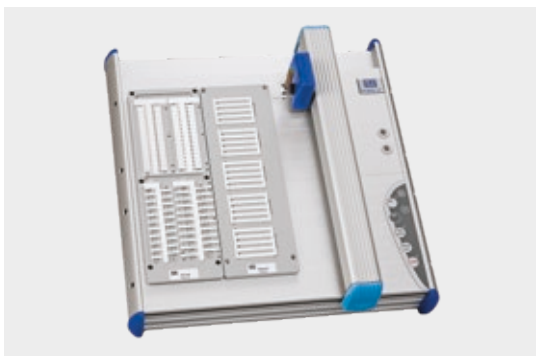
## PWA3 & PWA4 Plotting Systems

PWA3 and PWA4 are the most flexible identification plotters for industrial applications, allowing to record all identification material like terminal blocks identifiers, self-adhesive plates and cable identifier plates with the use of only one plotter. The control is made by software in a clear and quick way and the plotter is connected to a computer via USB connection. The operation is possible with only few clicks, making recording a simple operation.



### Items Included with the PWA3 Plotter

- A3 Plotter - PWA3 (297x420)
- Two support trays for terminal block identifiers IDG-BTW / IDB5-BTW
- Two plotter pens 0.25 mm C025-PW
- Five refill inks for the plotter pen
- (5x1 ml) CT-PW
- One permanent pen (test) 0.30 mm CP030-PW
- One refill ink 30 ml RT-PW
- One cleaning kit KL-PW
- One plotter protection cover CP-PW
- One plate set for pen cleaning with 25 pieces



### Items Included with the PWA4 Plotter

- A4 Plotter - PWA4 (210x297)
- Support tray for terminal block identifier IDG-BTW
- Support tray for terminal block identifier IDB5-BTW
- Plotter pen 0.25 mm C025PD
- One plate set for pen cleaning with 25 pieces

### Accessories for PWA3 & PWA4 Plotting Systems

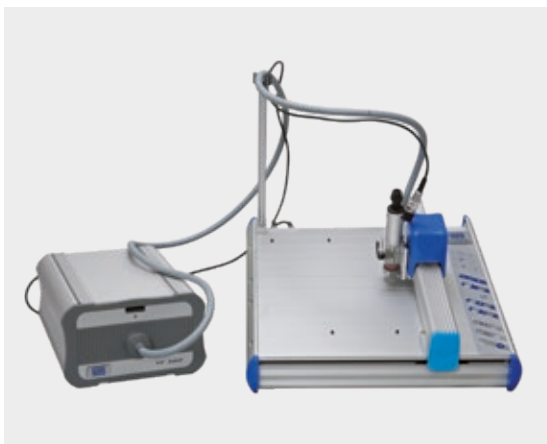
WEG has a full range of replacement accessories for the PWA3 & PWA4 plotting systems.

Description	Quantity	Reference code
Plotter ink replacement 30 ml	1	RT2-PW
Plotter ink replacement 5x1 ml	1	CT2-PW
Plotter ink replacement 30 ml	1	RT-PW
Plotter ink replacement 5x1 ml	5	CT-PW
Cleaning fluid 1x30 ml	1	FL-PW
Disposable plotter pen 0.18 mm	1	C018-PD
Disposable plotter pen 0.25 mm	1	C025-PD
Disposable plotter pen 0.35 mm	1	C035-PD
Disposable plotter pen 0.50 mm	1	C050-PD
Disposable plotter pen 0.70 mm	1	C070-PD
Disposable plotter pen 1.00 mm	1	C100-PD
Rechargeable plotter pen 0.18 mm	1	C018-PW
Rechargeable plotter pen 0.25 mm	1	C025-PW
Rechargeable plotter pen 0.35 mm	1	C035-PW
Rechargeable plotter pen 0.50 mm	1	C050-PW
Rechargeable plotter pen 0.70 mm	1	C070-PW
Rechargeable plotter pen 1.00 m	1	C100-PW
Permanent pen (test) 0.30 mm	1	CP030-PW
Cleaning kit	1	KL-PW
Plotting tray for identifiers	1	IDG-PW
Plotting tray for identifiers	1	IDB5-PW
Plotting tray for plates	1	KLM-PW
Suction device	1	BS-PW
Pen holder - plotter	1	CPC-PW

## PWEA4 Engraving System

The PWEA4 system records on multilayer surfaces of plastic, brass, aluminium and various materials. The lettering is controlled quickly and easily through WEG software.

WEG has also available the PWE kit. It is used to adapt a plotting system PWA3/PWA4 into a PWEA4 engraving system.



### Items Included with the PWEA4 Engraving System

- USB cable
- Cutter head
- Support for cables and suction hoses
- Engraving needle with tip width of 0.50 mm - EN15-50 EN15-50

### Items Included with the PWE Engraving System

- USB cable
- Cutter head
- Support for cables and suction hoses
- Engraving needle with tip width of 0.50 mm - EN15-50
- Support for cutter head
- CNC controller
- Vacuum cleaner
- Board for alignment calibration

### Accessories for PWEA4 Plotting System

Description	Quantity	Reference code
Vacuum cleaner	1	VC-PWEA4
Vacuum cleaner bag	1	VCB-PWEA4
Engraving needle 15 degrees 0.20 mm	1	EN15-20
Engraving needle 15 degrees 0.30 mm	1	EN15-30
Engraving needle 15 degrees 0.40 mm	1	EN15-40
Engraving needle 15 degrees 0.50 mm	1	EN15-50
Engraving needle 15 degrees 0.70 mm	1	EN15-70
Engraving needle 15 degrees 1.00 mm	1	EN15-100
SET of engraving needles 15 degrees	1	EN15-SET
Double tooth cutter with tip width of 0.50 mm	1	FT-50
Double tooth cutter with tip width of 0.60 mm	1	FT-60
Double tooth cutter with tip width of 0.80 mm	1	FT-80
Double tooth cutter with tip width of 1.00 mm	1	FT-100
Double tooth cutter with tip width of 1.20 mm	1	FT-120
Double tooth cutter with tip width of 1.40 mm	1	FT-140
Double tooth cutter with tip width of 1.60 mm	1	FT-160
Double tooth cutter with tip width of 2.00 mm	1	FT-200
Double tooth cutter with tip width of 2.40 mm	1	FT-240
Double tooth cutter with tip width of 3.00 mm	1	FT-300

## Identifiers

### KIP/KBEP Identification Charts for Conductors

The clear identification of all conductors and cables contribute greatly to improved visualization in control panels and installations. Standardized and permanent identification of conductors is not luxury, but standard of quality required by the client for modern high quality investments.

We offer the following items for identification of conductors:

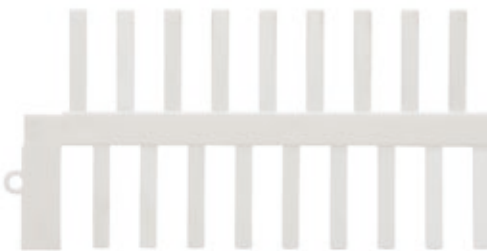
- Identification chart for conductors in dimension 15x4 mm (ref. KIP 15 W / Box with 480 units)
- Available in yellow and white colors



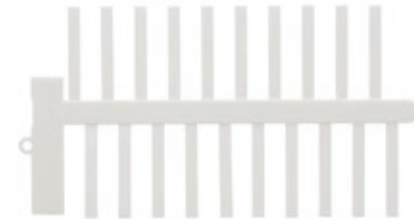
- Identification chart for conductors in dimension 18x4 mm (ref. KIP 18 W / Box with 240 units)
- Available in yellow and white colors



- Identification chart for conductors in dimension 23x4 mm (ref. KIP 23 W / Box with 240 units)
- Available in yellow and white colors



- Identification chart for conductors in dimension 30x4 mm (ref. KIP 30 W / Box with 240 units)
- Available in yellow and white colors



- Identification chart for conductors in dimension 20x9 mm (ref. KBEP209W / Box with 240 units)
- Available in white



A

B

C

D

E





F

G

H

# Identifiers

## Identifiers for Terminal Blocks

Identifiers	IDB5	IDG6/5	IDG10/5	IDG10/6
				
<b>Technical data</b>				
Identifier dimensions (height x width)	5x5 mm	6x5 mm	10x5 mm	10x6 mm
Identifier color	White	White	White	White
Color of lettering	Black	Black	Black	Black
Number of identifiers per box	500	400	440	360
<b>Lettering</b>				
Without lettering	Reference code			
Alphanumeric code upon request	IDB5-BTW	IDG6/5-BTW	IDG10/5T-BTW	IDG10/6T-BTW

Notes: - The identifiers are supplied only in complete packs.  
 - Custom lettering upon request.  
 - Supplied in boxes.

## KKS/KBE Transparent Covers for Cable Identifiers

These cable identification systems are composed by covers and identification plates. The KKS covers are available from 1.5 up to 25 mm diameter.

For larger cables use KBE-3 covers fixed with cable ties.



## Models Available

Cable diameter		Cover length	Pack (units)	Reference code
mm <sup>2</sup>	AWG			
0.5...1.5	20...16	15 mm	2000	KKS 15/0.5-1.5
0.5...1.5	20...16	18 mm	2000	KKS 18/0.5-1.5
0.5...2.5	20...16	23 mm	2000	KKS 23/0.5-2.5
0.5...1.5	20...16	30 mm	1200	KKS 30/0.5-1.5
1.5...2.5	16...14	15 mm	500	KKS 15/1.5-2.5
1.5...2.5	16...14	18 mm	500	KKS18/1.5-2.5
1.5...2.5	16...14	23 mm	500	KKS 23/1.5-2.5
1.5...2.5	16...14	30 mm	500	KKS 30/1.5-2.5
2.5...4	14...12	15 mm	500	KKS 15/2.5-4
2.5...4	14...12	18 mm	500	KKS18/2.5-4
2.5...4	14...12	23 mm	500	KKS 23/2.5-4
2.5...4	14...12	30 mm	500	KKS 30/2.5-4
6...10	10...8	15 mm	500	KKS 15/6-10
6...10	10...8	18 mm	500	KKS18/6-10
6...10	10...8	23 mm	500	KKS 23/6-10
6...10	10...8	30 mm	200	KKS 30/6-10
16...25	6..4	15 mm	500	KKS 15/16-25
16...25	6..4	18 mm	500	KKS18/16-25
16...25	6..4	23 mm	200	KKS 23/16-25
16...25	6..4	30 mm	200	KKS 30/16-25
> 20	> 4	20 mm	120	KBE-3

## Identifiers

### KLM Self-Adhesive Plate Sheets

The identification of electric components and control panels is a requirement for fast and objective task completion. WEG offers excellent self-adhesive plates in several sizes. This type of identification is economical and has highly resistant characteristics. WEG currently provides nine distinct sizes of self-adhesive plates, according to the information below



- 27x12.5 mm self-adhesive plates kit with 120 plates (ref. KLM 27x12.5)



- 45x14 mm self-adhesive plates kit with 80 plates (ref. KLM 45x14)



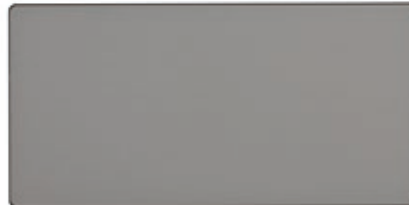
- 45x19 mm self-adhesive plates kit with 56 plates (ref. KLM 45x19)



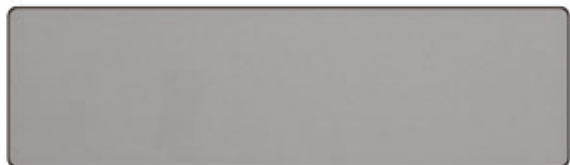
- 27x18 mm self-adhesive plates kit with 90 plates (ref. KLM 27x18)



- 70x35 mm self-adhesive plates kit with 20 plates (ref. KLM 70x35)



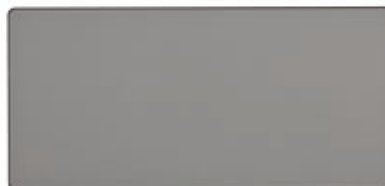
- 120x35 mm self-adhesive plates kit with 10 plates (ref. KLM 120x35)



- 20x8 mm self-adhesive plates kit with 306 plates (ref. KLM 20x8)



- 60x30 mm self-adhesive plates kit with 24 plates (ref. KLM 60x30)



- 52x26 mm self-adhesive plates kit with 35 plates (ref. KLM 52x26)



A

B

C

D

E

F

G

H



Each chapter of this brochure is also available as an individual book at WEG website [www.weg.net](http://www.weg.net) as shown in the following table:

Brochure title	Code	Chapter	Description	Catalogue code	Version	
Low Voltage Switch & Control Gear	50019086	A	A.1	Compact Contactors CWCO	50069462	01
			A.2	Contactors - CWB Line	50041278	10
			A.3	Contactors - CWM Line	50070163	02
			A.4	Contactors for Switching of Capacitors - CMMC	50065084	00
		B	B.1	Thermal Overload Relays - RW Line	50070227	02
			B.2	Solid-State Overload Relays - RW_E	50052278	01
		C	Motor Protective Circuit Breakers	50053062	02	
		D	Enclosed Starters	50058083	02	
		E	Smart Relay - SRW01	50022690	08	
		F	F.1	Electronic Relays - 22.5 mm Line	50058082	09
			F.2	Electronic Relays - 17.5 mm Line	50069233	02
		G	Pushbuttons and Pilot Lights - CSW Line	50057066	04	
		H	Terminal Blocks - BTW Series	50052682	00	



A  
B  
C  
D  
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F  
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# WEG Worldwide Operations

## ARGENTINA

San Francisco - Cordoba  
Phone: +54 3564 421484  
[info-ar@weg.net](mailto:info-ar@weg.net)

Cordoba - Cordoba  
Phone: +54 3514 641366  
[weg-morbe@weg.com.ar](mailto:weg-morbe@weg.com.ar)

Buenos Aires  
Phone: +54 1142 998000  
[ventas@pulverlux.com.ar](mailto:ventas@pulverlux.com.ar)

## AUSTRALIA

Scoresby - Victoria  
Phone: +61 3 97654600  
[info-au@weg.net](mailto:info-au@weg.net)

## AUSTRIA

Markt Piesting - Wiener  
Neustadt-Land  
Phone: +43 2 633 4040  
[watt@wattdrive.com](mailto:watt@wattdrive.com)

Vienna  
Phone: +43 1 796 2048  
[wtr@weg.net](mailto:wtr@weg.net)

## BELGIUM

Nivelles - Belgium  
Phone: +32 67 888420  
[info-be@weg.net](mailto:info-be@weg.net)

## BRAZIL

Jaraguá do Sul - Santa Catarina  
Phone: +55 47 32764000  
[info-br@weg.net](mailto:info-br@weg.net)

## CHILE

La Reina - Santiago  
Phone: +56 2 27848900  
[info-cl@weg.net](mailto:info-cl@weg.net)

## CHINA

Nantong - Jiangsu  
Phone: +86 513 85989333  
[info-cn@weg.net](mailto:info-cn@weg.net)

Changzhou - Jiangsu  
Phone: +86 519 88067692  
[info-cn@weg.net](mailto:info-cn@weg.net)

Rugao - Jiangsu  
Phone: +86 513 80672011  
[zhuhua@weg.net](mailto:zhuhua@weg.net)

## COLOMBIA

San Cayetano - Bogota  
Phone: +57 1 4160166  
[info-co@weg.net](mailto:info-co@weg.net)

Sabaneta - Antioquia  
Phone: +57 4 4449277  
[info-co@weg.net](mailto:info-co@weg.net)

## ECUADOR

Pradera - Quito  
Phone: +593 2 3 922 129  
[wegecuador@weg.net](mailto:wegecuador@weg.net)

## FRANCE

Saint-Quentin-Fallavier - Isère  
Phone: +33 4 74991135  
[info-fr@weg.net](mailto:info-fr@weg.net)

## GERMANY

Türnich - Kerpen  
Phone: +49 2237 92910  
[info-de@weg.net](mailto:info-de@weg.net)

Balingen - Baden-Württemberg  
Phone: +49 7433 90410  
[info@weg-antriebe.de](mailto:info@weg-antriebe.de)

Nuremberg  
Phone: +49 911 239568 -700  
[info@tgmkanis.com](mailto:info@tgmkanis.com)

Homberg (Efze) - Hesse  
Phone: +49 5681 99520  
[info@akh-antriebstechnik.de](mailto:info@akh-antriebstechnik.de)

## GHANA

Accra  
Phone: +233 30 2766490  
[ghana@zestweg.com](mailto:ghana@zestweg.com)

## INDIA

Bangalore - Karnataka  
Phone: +91 080 46437450  
[info-in@weg.net](mailto:info-in@weg.net)

Hosur - Tamil Nadu  
Phone: +91 4344 301577  
[info-in@weg.net](mailto:info-in@weg.net)

## ITALY

Cinisello Balsamo - Milano  
Phone: +39 2 61293535  
[info-it@weg.net](mailto:info-it@weg.net)

## JAPAN

Yokohama - Kanagawa  
Phone: +81 45 5503030  
[info-jp@weg.net](mailto:info-jp@weg.net)

## MALAYSIA

Shah Alam - Selangor  
Phone: +60 3 78591626  
[info@wattdrive.com.my](mailto:info@wattdrive.com.my)

## MEXICO

Huehuetoca - Mexico  
Phone: +52 55 53214275  
[info-mx@weg.net](mailto:info-mx@weg.net)

Tizayuca - Hidalgo  
Phone: +52 77 97963790  
[info-mx@weg.net](mailto:info-mx@weg.net)

## NETHERLANDS

Oldenzaal - Overijssel  
Phone: +31 541 571080  
[info-nl@weg.net](mailto:info-nl@weg.net)

## PERU

La Victoria - Lima  
Phone: +51 1 2097600  
[info-pe@weg.net](mailto:info-pe@weg.net)

## PORTUGAL

Maia - Porto  
Phone: +351 22 9477700  
[info-pt@weg.net](mailto:info-pt@weg.net)

## RUSSIA and CIS

Saint Petersburg  
Phone: +7 812 363 2172  
[sales-wes@weg.net](mailto:sales-wes@weg.net)

## SOUTH AFRICA

Johannesburg  
Phone: +27 (0) 11 7236000  
[info@zestweg.com](mailto:info@zestweg.com)

Cape Town  
Phone: +27 (0) 21 507 7200  
[gentsets@zestweg.com](mailto:gentsets@zestweg.com)

Heidelberg  
Phone: +27 (0) 16 349 2683/4/5  
[wta@zestweg.com](mailto:wta@zestweg.com)

## SPAIN

Coslada - Madrid  
Phone: +34 91 6553008  
[info-es@weg.net](mailto:info-es@weg.net)

Valencia  
Phone: +34 96 1379296  
[info@autrial.es](mailto:info@autrial.es)

## SINGAPORE

Singapore  
Phone: +65 68589081  
[info-sg@weg.net](mailto:info-sg@weg.net)

Singapore  
Phone: +65 68622220  
[info-sg@weg.net](mailto:info-sg@weg.net)

## SCANDINAVIA

Mölnlycke - Sweden  
Phone: +46 31 888000  
[info-se@weg.net](mailto:info-se@weg.net)

## UK

Redditch - Worcestershire  
Phone: +44 1527 513800  
[info-uk@weg.net](mailto:info-uk@weg.net)

## UNITED ARAB EMIRATES

Jebel Ali - Dubai  
Phone: +971 4 8130800  
[info-ae@weg.net](mailto:info-ae@weg.net)

## USA

Duluth - Georgia  
Phone: +1 678 2492000  
[info-us@weg.net](mailto:info-us@weg.net)

Bluffton - Indiana  
Phone: +1 800 5798527  
[info-us@weg.net](mailto:info-us@weg.net)

Minneapolis - Minnesota  
Phone: +1 612 3788000  
[info-us@weg.net](mailto:info-us@weg.net)

Washington - Missouri  
Phone: +1 636-239-9300  
[wegwill@weg.net](mailto:wegwill@weg.net)

## VENEZUELA

Valencia - Carabobo  
Phone: +58 241 8210582  
[info-ve@weg.net](mailto:info-ve@weg.net)

For those countries where there is not a WEG own operation, find our local distributor at [www.weg.net](http://www.weg.net).



WEG Group - Automation Business Unit  
Jaraguá do Sul - SC - Brazil  
Phone: +55 47 3276 4000  
[automacao@weg.net](mailto:automacao@weg.net)  
[www.weg.net](http://www.weg.net)

