2020/2021

Motors | Automation | Energy | Transmission & Distribution | Coatings

WEG Automation Catalog

Power and Control Products

Controls.9.2020.US300

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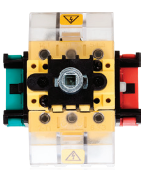

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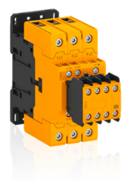
IEC Contactors - CWB and CWBN Series



CWBS Safety Contactors

IEC Contactors – CWM and CWM-N Series

Thermal Overload Relays – RW Series

Solid-State Overload Relays - RW-E Series

Smart Relays - SSW01

Enclosed Starters

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Timing Relays RTW Series – Protection Relays RPW Series
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Pushbuttons and Pilot Lights – CSW Series

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Power Factor Correction

Appendix A

Appendix B

DWB - UL489 Listed

Introducing the New WEG DWB Series Molded Case Circuit Breakers. With its compact frame the DWB provides an economical circuit protection solution for Commercial & Industrial machinery applications. The DWB Series ranges from 20 to 600Amps and is available in 80% Standard and 100% Premium ratings.

C UL US

UL File No. E310239

Standard Features:

- Compact Size
- Thermal- Magnetic trip unit
- Complete line of field installable accessories
- Rotary Handle and Mechanism
- Suitable for reverse feed applications
- Lugs included

DWB Catalog Number Sequence

DWB	100	J	E	100	-3	DX

Frame Size

100= 20-100A
250= 80-250A
400= 160-400A
600= 228-600A

Short Circuit Rating @ 480VAC

C = 10 kA
J = 14 kA
P = 35 kA

Application Rating

E = 80% Standard
H = 100% Rated

Amperage

DWB100
20,25,30,40,50,60,70,80,90,100
DWB250
100, 125, 150, 200, 250
DWB400
200, 225, 250, 275, 300, 325, 350, 400
DWB600
325, 350, 400, 450, 500, 550, 600

Number of Poles

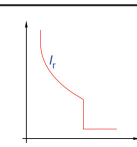
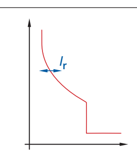
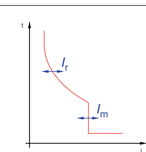
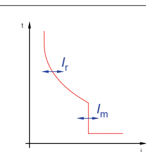
3

Trip Unit

DX= Fixed Thermal & Fixed Magnetic
DF= Adjustable Thermal & Fixed Magnetic
DA= Adjustable Thermal & Magnetic

Chart intended as reference only and not to create part numbers.

Current Ratings and Trip Units

Reference code	Rated current I_n (A)	Trip unit		Curve
DWB100	20, 25, 30, 40, 50, 60, 70, 80, 90, 100	Fixed thermal	Fixed magnetic[1] (10 x I_n)	
DWB250	80-100, 100-125, 120-150, 160-200, 200-250	Adjustable thermal (0.8...1 x I_n)	Fixed magnetic (10 x I_n)	
DWB400	160-200, 180-225, 200-250, 220-275, 240-300, 260-325, 280-350, 320-400	Adjustable thermal (0.8...1 x I_n)	Adjustable magnetic (5...10 x I_n)	
DWB600	228-325, 245-350, 280-400, 315-450, 350-500, 385-550, 420-600	Adjustable thermal (0,7...1 x I_n)	Adjustable magnetic (5...10 x I_n)	

Note: 1) Circuit breakers with rated currents of 20 and 25 A, the magnetic trip point is 300 A.

Circuit Protection

DWB

Selection Guide

DWB100 for Distribution - Standard 80% Rated - Fixed Thermal and Fixed Magnetic Trip Unit						
Rated current (A)	Magnetic trip point (A)	Interrupting ratings (kA)		Catalog Number	List Price	Multiplier
		240 V ac	480Y/277 V ac	3 poles		
DWB100CE						
20	300	25	10	DWB100CE20-3DX	$495	Z10
25	300	25	10	DWB100CE25-3DX	$495	
30	300	25	10	DWB100CE30-3DX	$495	
40	400	25	10	DWB100CE40-3DX	$495	
50	500	25	10	DWB100CE50-3DX	$495	
60	600	25	10	DWB100CE60-3DX	$495	
70	700	25	10	DWB100CE70-3DX	$495	
80	800	25	10	DWB100CE80-3DX	$511	
90	900	25	10	DWB100CE90-3DX	$511	
100	1000	25	10	DWB100CE100-3DX	$511	
DWB100JE						
20	300	50	14	DWB100JE20-3DX	$558	Z10
25	300	50	14	DWB100JE25-3DX	$558	
30	300	50	14	DWB100JE30-3DX	$558	
40	400	50	14	DWB100JE40-3DX	$558	
50	500	50	14	DWB100JE50-3DX	$558	
60	600	50	14	DWB100JE60-3DX	$558	
70	700	50	14	DWB100JE70-3DX	$558	
80	800	50	14	DWB100JE80-3DX	$579	
90	900	50	14	DWB100JE90-3DX	$579	
100	1000	50	14	DWB100JE100-3DX	$579	

DWB250 for Distribution - Standard 80% Rated - Adjustable Thermal and Fixed Magnetic Trip Unit						
Current range (A)	Magnetic trip point (A)	Interrupting ratings (kA)		Catalog Number	List Price	Multiplier
		240 V ac	480Y/277 V ac	3 poles		
DWB250JE						
80-100	1000	50	14	DWB250JE100-3DF	$1170	Z10
100-125	1250	50	14	DWB250JE125-3DF	$1170	
120-150	1500	50	14	DWB250JE150-3DF	$1170	
160-200	2000	50	14	DWB250JE200-3DF	$1170	
200-250	2500	50	14	DWB250JE250-3DF	$1170	
DWB250PE						
80-100	1000	80	35	DWB250PE100-3DF	$1490	Z10
100-125	1250	80	35	DWB250PE125-3DF	$1490	
120-150	1500	80	35	DWB250PE150-3DF	$1490	
160-200	2000	80	35	DWB250PE200-3DF	$1490	
200-250	2500	80	35	DWB250PE250-3DF	$1490	

Current range (A)	Magnetic trip point (A)	Interrupting ratings (kA)		Catalog Number	List Price	Multiplier
DWB400 for Distribution - Standard 80% Rated - Adjustable Thermal and Magnetic Trip Unit						
		240 V ac	480 V ac	3 poles		
DWB400JE						
160-200	1600-2000	50	18	DWB400JE200-3DA	$2350	Z10
180-225	1800-2250	50	18	DWB400JE225-3DA	$2350	
200-250	2000-2500	50	18	DWB400JE250-3DA	$2350	
220-275	2200-2750	50	18	DWB400JE275-3DA	$2350	
240-300	2400-3000	50	18	DWB400JE300-3DA	$2350	
260-325	2600-3250	50	18	DWB400JE325-3DA	$2350	
280-350	2800-3500	50	18	DWB400JE350-3DA	$2350	
320-400	3200-4000	50	18	DWB400JE400-3DA	$2350	
DWB400PE						
160-200	1600-2000	80	35	DWB400PE200-3DA	$2610	Z10
180-225	1800-2250	80	35	DWB400PE225-3DA	$2610	
200-250	2000-2500	80	35	DWB400PE250-3DA	$2610	
220-275	2200-2750	80	35	DWB400PE275-3DA	$2610	
240-300	2400-3000	80	35	DWB400PE300-3DA	$2610	
260-325	2600-3250	80	35	DWB400PE325-3DA	$2610	
280-350	2800-3500	80	35	DWB400PE350-3DA	$2610	
320-400	3200-4000	80	35	DWB400PE400-3DA	$2610	

Current range (A)	Magnetic trip point (A)	Interrupting ratings (kA)		Catalog Number	List Price	Multiplier
DWB600 for Distribution - Standard 80% Rated - Adjustable Thermal and Magnetic Trip Unit						
		240 V ac	480 V ac	3 poles		
DWB600PE						
227.5-325	1625-3250	80	35	DWB600PE325-3DA	$4350	Z10
245-350	1750-3500	80	35	DWB600PE350-3DA	$4350	
280-400	2000-4000	80	35	DWB600PE400-3DA	$4350	
315-450	2250-4500	80	35	DWB600PE450-3DA	$4350	
350-500	2500-5000	80	35	DWB600PE500-3DA	$4350	
385-550	2750-5500	80	35	DWB600PE550-3DA	$4350	
420-600	3000-6000	80	35	DWB600PE600-3DA	$4350	

Notes: Wiring terminals (lugs) built-in for DWB100 and supplied as standard with DWB250, DWB400 and DWB600. Lugs are also available as an accessory for DWB250, DWB400 and DWB600, see the section Accessories.

Circuit Protection

DWB

Selection Guide

DWB100 for Distribution - Premium 100% Rated - Fixed Thermal and Fixed Magnetic Trip Unit						
Rated current (A)	Magnetic trip point (A)	Interrupting ratings (kA)		Reference code	List Price	Multiplier
		240 V ac	480Y/277 V ac	3 poles		
DWB100CH						
20	300	25	10	DWB100CH20-3DX	$591	Z10
25	300	25	10	DWB100CH25-3DX	$591	
30	300	25	10	DWB100CH30-3DX	$591	
40	400	25	10	DWB100CH40-3DX	$591	
50	500	25	10	DWB100CH50-3DX	$591	
60	600	25	10	DWB100CH60-3DX	$591	
70	700	25	10	DWB100CH70-3DX	$591	
80	800	25	10	DWB100CH80-3DX	$622	
90	900	25	10	DWB100CH90-3DX	$622	
100	1000	25	10	DWB100CH100-3DX	$622	
DWB100JH						
20	300	50	14	DWB100JH20-3DX	$640	Z10
25	300	50	14	DWB100JH25-3DX	$640	
30	300	50	14	DWB100JH30-3DX	$640	
40	400	50	14	DWB100JH40-3DX	$640	
50	500	50	14	DWB100JH50-3DX	$640	
60	600	50	14	DWB100JH60-3DX	$640	
70	700	50	14	DWB100JH70-3DX	$640	
80	800	50	14	DWB100JH80-3DX	$697	
90	900	50	14	DWB100JH90-3DX	$697	
100	1000	50	14	DWB100JH100-3DX	$697	

DWB250 for Distribution - Premium 100% Rated - Adjustable Thermal and Fixed Magnetic Trip Unit						
Current range (A)	Magnetic trip point (A)	Interrupting ratings (kA)		Reference code	List Price	Multiplier
		240 V ac	480Y/277 V ac	3 poles		
DWB250JH						
80-100	1000	50	14	DWB250JH100-3DF	$1402	Z10
100-125	1250	50	14	DWB250JH125-3DF	$1402	
120-150	1500	50	14	DWB250JH150-3DF	$1402	
160-200	2000	50	14	DWB250JH200-3DF	$1402	
200-250	2500	50	14	DWB250JH250-3DF	$1402	
DWB250PH						
80-100	1000	80	35	DWB250PH100-3DF	$1598	Z10
100-125	1250	80	35	DWB250PH125-3DF	$1598	
120-150	1500	80	35	DWB250PH150-3DF	$1598	
160-200	2000	80	35	DWB250PH200-3DF	$1598	
200-250	2500	80	35	DWB250PH250-3DF	$1598	

DWB400 for Distribution - Premium 100% Rated - Adjustable Thermal and Magnetic Trip Unit						
Current range (A)	Magnetic trip point (A)	Interrupting ratings (kA)		Reference code	List Price	Multiplier
		240 V ac	480 V ac	3 poles		
DWB400JH						
160-200	1600-2000	50	18	DWB400JH200-3DA	$2585	Z10
180-225	1800-2250	50	18	DWB400JH225-3DA	$2585	
200-250	2000-2500	50	18	DWB400JH250-3DA	$2585	
220-275	2200-2750	50	18	DWB400JH275-3DA	$2585	
240-300	2400-3000	50	18	DWB400JH300-3DA	$2585	
260-325	2600-3250	50	18	DWB400JH325-3DA	$2585	
280-350	2800-3500	50	18	DWB400JH350-3DA	$2585	
320-400	3200-4000	50	18	DWB400JH400-3DA	$2585	
DWB400PH						
160-200	1600-2000	80	35	DWB400PH200-3DA	$2870	Z10
180-225	1800-2250	80	35	DWB400PH225-3DA	$2870	
200-250	2000-2500	80	35	DWB400PH250-3DA	$2870	
220-275	2200-2750	80	35	DWB400PH275-3DA	$2870	
240-300	2400-3000	80	35	DWB400PH300-3DA	$2870	
260-325	2600-3250	80	35	DWB400PH325-3DA	$2870	
280-350	2800-3500	80	35	DWB400PH350-3DA	$2870	
320-400	3200-4000	80	35	DWB400PH400-3DA	$2870	

DWB600 for Distribution - Standard 100% Rated - Adjustable Thermal and Magnetic Trip Unit						
Current range (A)	Magnetic trip point (A)	Interrupting ratings (kA)		Reference code	List Price	Multiplier
		240 V ac	480 V ac	3 poles		
DWB600PH						
227.5-325	1625-3250	80	35	DWB600PH325-3DA	$4785	Z10
245-350	1750-3500	80	35	DWB600PH350-3DA	$4785	
280-400	2000-4000	80	35	DWB600PH400-3DA	$4785	
315-450	2250-4500	80	35	DWB600PH450-3DA	$4785	
350-500	2500-5000	80	35	DWB600PH500-3DA	$4785	
385-550	2750-5500	80	35	DWB600PH550-3DA	$4785	
420-600	3000-6000	80	35	DWB600PH600-3DA	$4785	

Notes: Wiring terminals (lugs) built-in for DWB100 and supplied as standard with DWB250, DWB400 and DWB600. Lugs are also available as an accessory for DWB250, DWB400 and DWB600, see the section Accessories.

DWB - Internal Accessories

Auxiliary and Alarm Switches

Frame Size	Internal Accessory	Number of Contacts	Catalog Number	List Price	Multiplier
DWB100 - 600	Aux Switch BC	1	BC-1 DWB	$98	Z10
		2	BC-2 DWB	$160	
	Alarm Switch AL	1	AL-1 DWB	$98	
	Aux Switch & Alarm Switch BCAL	1BC + 1AL	BCAL-2 DWB	$160	

Electrical Characteristics

Rated Voltage	Type of Load	Switching Capacity (Amp)
125 VAC	Resistive	6
250 VAC	Resistive	6

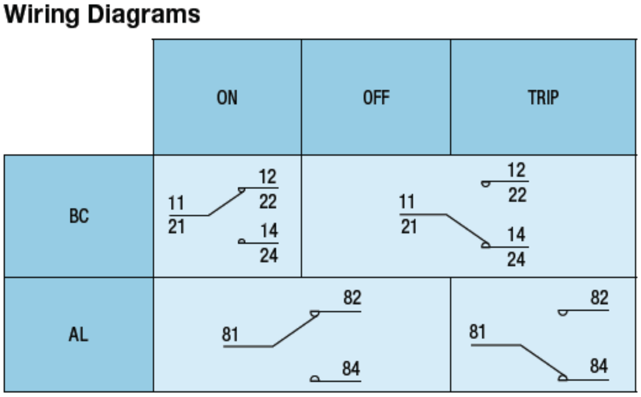
BC Auxiliary Switch
- Indicates remote circuit breaker status “open” (OFF) or “closed” (ON) through SPDT form C contacts.

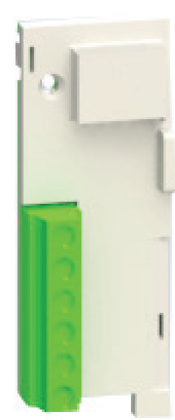
AL Alarm Switch
- Indicates circuit breaker has tripped due to overload, short-circuit, shunt trip or undervoltage-trip release conditions through SPDT form C contact.
- Contact opens when circuit breaker is reset
- Offers provision for audio and visual indication of tripped breaker due to conditions described above

BCAL Auxiliary and Alarm Switch
- Auxiliary and alarm switch incorprated into one unit

BC, AL & BCAL
- All come with built-in terminal blocks. These terminal blocks will accept 20 to 16 AWG (0.5 to 1.5MM2) Tightening torque of 6.9 lb.in. (0.8 N. m.).

Wiring Diagrams





DWB - Internal Accessories

Shunt and Undervoltage Release

Frame Size	Internal Accessory	Rated Voltage Ue	Catalog Number	List Price	Multiplier
DWB100 DWB250	Undervoltage Release BS	24/48/60/110-130/220-250V ac/dc	BS DWB160-250 *	$220	Z10
	Shunt Release BD		BD DWB160-250 *	$198	
DWB400	Undervoltage release BS		BS DWB400*	300	
	Shunt release BD		BD DWB400*	300	
DWB600	Under voltage release BD		BS DWB600*	375	
	Shunt release BD		BD DWB600*	375	

**Complete Catalog Number, Replace * with Appropriate Voltage Code*

Voltage Codes

E26	E27	E10	E15
24V ac/dc	48V ac/dc	110-130V ac/dc	220-250V ac/dc

BD Shunt Release

- When energized by a pulse or maintained signal of voltage, the shunt release trips breaker (trip position). Shunt release works from 70 to 110% of rated voltage (0.70 x Un<Ue<1.1xUn).
- Features a device to keep unenergized after tripping pulse.

BS Undervoltage Release

- Trips breaker when the voltage drops below 35% of the rated voltage (Ue<0.35 x Un)
- When voltage is between 35 to 70% of rated voltage, it may open the circuit breaker (0.35 x Un <Ue <0.7 x Un)
- After the operation of BS release, circuit breaker can only be closed if supply voltage is above 85% of the rated voltage (Ue>0.85 x Un)
- The BS undervoltage release along with an emergency stop push button makes possible for fail-safe operation of the circuit breaker

BD & BS Release

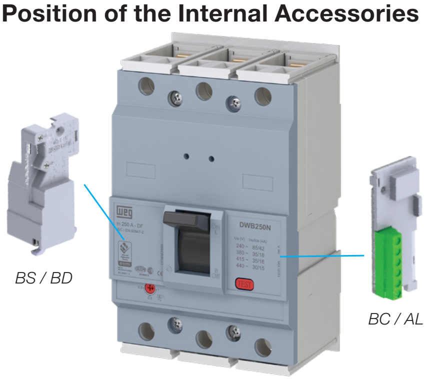
- All come with built-in terminal blocks. These terminal blocks will accept 20 to 16 AWG (0.5 to 1.5MM2). Tightening torque of 6.9 lb.in. (0.8 N. m.). After BD or BS operation the circuit breaker has to be reset before being closed again.

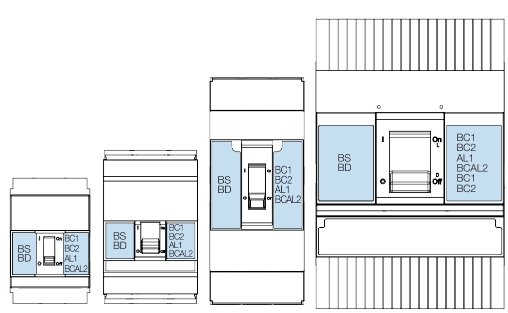
Maximum Combinations of Internal Accessories

Model	DWB160 1)				DWB250 1)				DWB400 1)				DWB600			
	3P				3P				3P				3P			
Auxiliary contacts BC 2)	2	1	2	1	2	1	2	1	2	1	2	1	4	3	4	3
Alarm contact AL 2)	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
Shunt trip BD	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0
Undervoltage release BS	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1

Notes: 1) Sold separately only. It is not sold assembled on the circuit breaker.
2) For combination of BC + AL, always consider the BC/AL block. It is not possible to assemble individual blocks on the circuit breaker. BC1 + AL1, replace this combination by the BC/AL2 block.

Assembly Position of the Internal Accessories





DWB100 DWB250 DWB400 DWB600

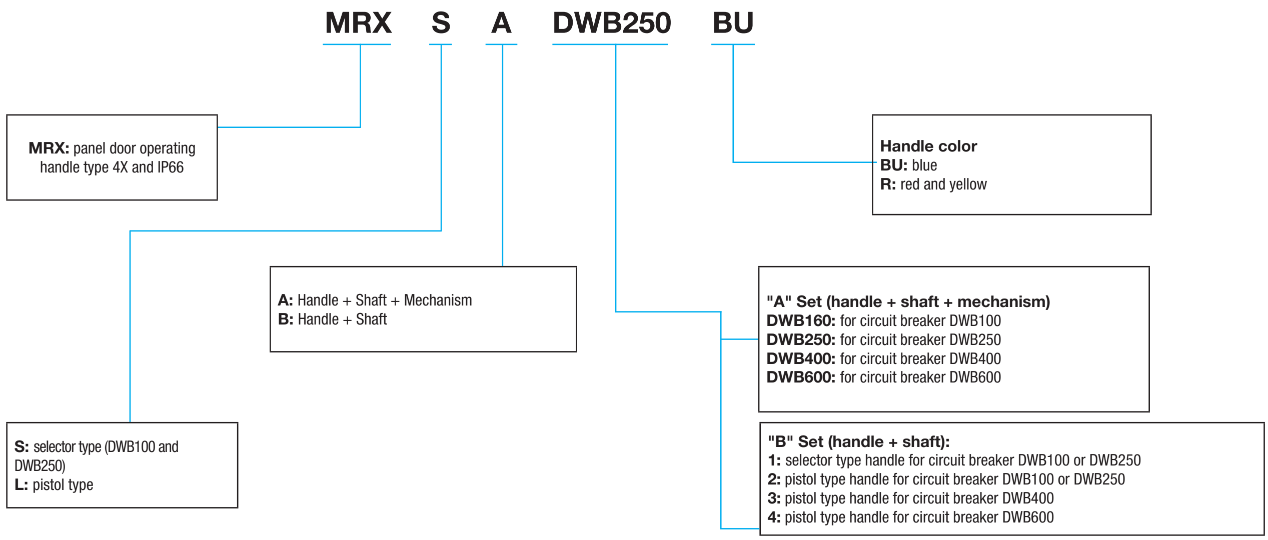
External Accessories

Panel Door Operating Handles

Handle (IP66)

- When in ON position, panel door cannot be opened, unless a tool is used to bypass the panel door locking system, allowing thermometry of the panel.
- Circuit breaker and panel door padlocking in OFF position using 1 to 3 padlocks.

Coding



Panel Door Operating Handles (IP66)

"A" Set: Handle + Shaft + Mechanism[1) 2)]


MRXS


MRXL


MRXL

Description	Circuit breaker	Shaft (mm)	Length of handle (mm)	Handle color	List Price	Multiplier
MRXS-A-DWB160-R	DWB100	460	-	Red and yellow	$310	Z10
MRXS-A-DWB250-R	DWB250	460	-	Red and yellow	$310	
MRXL-A-DWB160-R	DWB100	460	105	Red and yellow	$350	
MRXL-A-DWB250-R	DWB250	460	105	Red and yellow	$350	
MRXL-A-DWB400-R	DWB400	460	105	Red and yellow	$420	
MRXL-A-DWB1000-R	DWB600	460	158	Red and yellow	$525	
MRXS-A-DWB160-BU	DWB100	460	-	Blue	$310	
MRXS-A-DWB250-BU	DWB250	460	-	Blue	$310	
MRXL-A-DWB160-BU	DWB100	460	105	Blue	$350	
MRXL-A-DWB250-BU	DWB250	460	105	Blue	$350	
MRXL-A-DWB400-BU	DWB400	460	105	Blue	$420	
MRXL-A-DWB1000-BU	DWB600	460	158	Blue	$525	


MRXS


MRXL


MRXL

Notes: 1) Padlocks 4 up to 8 mm may be fit to the handles.
2) Sold separately only. It is not sold assembled on the circuit breaker.

External Accessories

Panel Door Operating Handles (IP66)

"B" Set: Handle + Shaft [1)] [2)]

Part Number	Circuit breaker	Shaft (mm)	Length of handle (mm)	Handle color	List Price	Multiplier
MRXS-B-1-R	DWB100 / DWB250	460	-	Red and yellow	**$175**	Z10
MRXL-B-2-R	DWB100 / DWB250	460	105	Red and yellow	**$200**	
MRXL-B-3-R	DWB400	460	105	Red and yellow	**$240**	
MRXL-B-4-R	DWB600	460	158	Red and yellow	**$275**	
MRXS-B-1-BU	DWB100 / DWB250	460	-	Blue	**$175**	
MRXL-B-2-BU	DWB100 / DWB250	460	105	Blue	**$200**	
MRXL-B-3-BU	DWB400	460	105	Blue	**$240**	
MRXL-B-4-BU	DWB600	460	158	Blue	**$275**	

Notes: 1) Padlocks 4 up to 8 mm may be fit to the handles.
2) Sold separately only. It is not sold assembled on the circuit breaker.

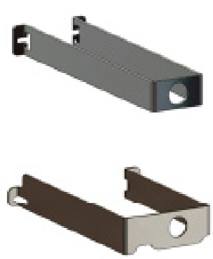
Only Mechanism

Description	Circuit breaker	List Price	Multiplier
MRH DWB160	DWB100	$150	Z10
MRH DWB250	DWB250	$160	
MRH DWB400	DWB400	$200	
MRH DWB1000E	DWB600	$250	

Note: 1) Sold separately only. It is not sold assembled on the circuit breaker.

Shaft Support

- Recommended when the shaft length is more than indicated in next table.



Description	Circuit breaker	Shaft length to use of support	List Price	Multiplier
MR DWB400	DWB400	> 380 mm	**$45**	Z10
MR DWB800-1600	DWB600	> 320 mm	**$50**	

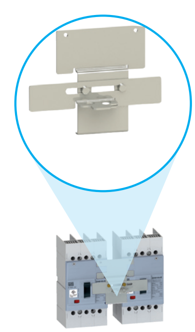
Note: sold separately only. It is not sold assembled on the circuit breaker. Accessory may be used on frames 3P and 4P.

Changeover Device

Manual-operated changeovers are used to make safe switching of two different circuits.

BLIM Mechanical Interlock

- Provides safe operation in a manual-operated changeover system
- Makes the mechanical interlock of 2 circuit breakers of the same frame size, preventing both MCCBs to be in ON position
- Interlock is assembled directly to the front cover of the circuit breakers
- It can be padlocked in 2 positions: MCCB1 ON and MCCB2 OFF, MCCB1 OFF and MCCB2 ON
- BLIM allows padlocks with diameters of Ø0.16...0.31 inches (4...8 mm)
- It is possible to interlock 3 MCCBs side-by-side using 2 BLIMs
- Padlocks are not supplied



External accessory	MCCB	Reference code	List Price	Multiplier
Mechanical interlock BLIM	DWB160	BLIM DWB160 3P	**$338**	Z10
	DWB250	BLIM DWB250 3P	**$377**	
	DWB400	BLIM DWB400 3P	**$425**	
	DWB600	BLIM DWB800-1600 3P	**$425**	

DWB

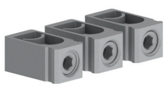
External Accessories

Accessory for Connection and Installation

Depending on the application and local standards, the MCCB may be installed and connected through bus bars or cables. Given these requirements, the DWB range of circuit breakers have the specific connection accessory to comply with.

PC Wiring Terminals (Lugs)

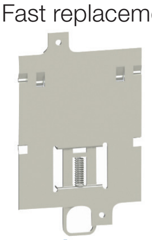
- Provides the means for connecting the circuit breaker to the power source and the load
- PC is supplied with 3 pieces that are suitable for either line or load terminals
- Built-in on DWB100 in the 6 terminals
- Lugs are supplied with 6 units for DWB250, DWB400 and DWB600 (supplied as standard)
- Pack with 3 units for spare parts



External accessory	Spare part (units)	MCCB	Minimum cross-section (AWG / mm²)	Maximum cross-section (AWG / mm²)	Tightening torque (lb.in / N.m)	Reference code	List Price	Multiplier
Wiring terminal PC	3	DWB250	4 / 25 (1 cable)	250 kcmil / 120 (1 cable)	**220 / 25**	PC DWB250 3P	**$87**	Z10
		DWB400	3/0 / 95 (1 cable)	**500 kcmil / 240 (1 cable)**	**265 / 35**	PC DWB400 3P	**$140**	
		DWB600	400 kcmil / 240 (1 cable) or 3/0 / 95 (2 cables)	**350 kcmil / 185 (2 cables)**	**310 / 55**	PC DWB800-1000 3P	**$250**	

DIN Rail Base

- Quick assembly of DWB100 on 35 mm DIN rails
- Fast replacement when panel is under maintenance

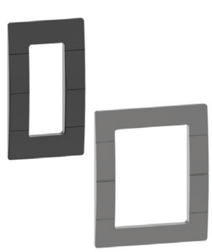


External accessory	MCCB	Reference code	List Price	Multiplier
DIN rail base	DWB100	BFR DWB160 3P UL	**$25**	Z10

Escutcheons and Lock-OFF Devices

MP Escutcheons

- Escutcheons are frames for cutouts in panel doors
- It makes possible the external switching of the MCCB through the front door when the circuit breakers is installed close to the panel door, maintaining the degree of protection
- Degree of protection IP40
- See section Dimensions for cutout details



External accessory	MCCB	Reference code	List Price	Multiplier
Escutcheon MP	DWB100	MP DWB160	**$12**	Z10
	DWB250	MP DWB250	**$14**	
	DWB400	MP DWB400	**$15**	
	DWB600	MP DWB800-1600	**$15**	

Note: degree of protection rating (IP) according to IEC 60529.

PLW Lock-OFF Devices

- The PLW is a fixed-type device that is installed on the front of the MCCB ensuring the MCCB locking in OFF position
- It can be padlocked using 1 to 3 padlocks. PLW allows padlocks with diameters of Ø0.16...0.31 inches (4...8 mm)
- Padlocks are not supplied

External accessory	MCCB	Reference code	List Price	Multiplier
Lock-OFF device PLW	DWB100	PL DWB160 3P	$65	Z10
	DWB250	PL DWB250	$71	
	DWB400	PL DWB400	$150	
	DWB600	PL DWB800-1600	$150	

Technical Data

Reference code			DWB100	DWB250	DWB400	DWB600
Frame size			100	250	400	600
Electrical characteristics according to UL 489						
Rated operational voltage - E_u		V ac (60 Hz)	480Y/277	480Y/277	480	480
Maximum rated continuous current - I_n (40 °C)		A	100	250	400	600
MCCB rating design			80%, 100%[1)]			
Rated current - I_n (40 °C)		A	20, 25, 30, 40, 50, 60, 70, 80, 90, 100	80-100, 100-125, 120-150,160-200, 200-250	160-200, 180-225, 200-250, 220-275, 240-300, 260-325, 280-350, 320-400	227.5-325, 245-350, 280-400, 315-450, 350-500, 385-550, 420-600
Number of poles			3	3	3	3
Short-circuit breaking capacity levels			C / J	J / P	J / P	P
UL interrupting rating - max RMS symmetrical		kA rms	-	-	-	-
		240 V ac	35 / 50	50 / 80	50 / 80	80
		480Y/277 V ac	10 / 14	14 / 35	-	-
		480 V ac	-	-	18 / 35	35
Mechanical lifespan (C-O)		Number of operations	10,000	6,000	6,000	6,000
		Operations per hour	360	240	240	240
Electrical lifespan (C-O) @ 480 V ac		Number of operations	6,000	1,000	1,000	1,000
		Operations per hour	360	240	240	240
Protection						
Against short-circuit & overload (fixed thermomagnetic)			Yes	No	No	No
Against short-circuit & overload (adjustable thermal and fixed magnetic)			No	Yes	No	No
Against short-circuit & overload (adjustable thermal and magnetic)			No	No	Yes	Yes
Accessories						
Internal	Auxiliary switch BC		Yes	Yes	Yes	Yes
	Alarm switch AL		Yes	Yes	Yes	Yes
	Auxiliary and alarm switches BCAL		Yes	Yes	Yes	Yes
	Shunt trip release BD		Yes	Yes	Yes	Yes
	Undervoltage-trip release BS		Yes	Yes	Yes	Yes
External	Mechanical interlock BLIM		Yes	Yes	Yes	Yes
	Lock-OFF device PLW		Yes	Yes	Yes	Yes
	Escutcheons MP		Yes	Yes	Yes	Yes
	Wiring terminal (lug) PC		Built-in	Standard	Standard	Standard
Handles	Panel door rotary operating handle		Yes	Yes	Yes	Yes
Installation and connections						
Suitable for reverse connection			Yes	Yes	Yes	Yes
Cables - Cu[2)]	Maximum cross-section		3 AWG	250 kcmil	500 kcmil	400 kcmil
	Minimum cross-section		10 AWG	4 AWG	3/0 AWG	3/0 AWG
	Tightening torque	lb.in (N.m)	57.5 (6.5)	220 (25)	265 (35)	310 (55)
Busbar	Tightening torque	lb.in (N.m)	-	70 (8)	175 (20)	175 (20)
Dimensions (W x D x H)		Inches (mm)	3.07 x 2.87 x 6.30 (78 x 73 x 160)	4.13 x 3.15 x 7.87 (105 x 80 x 200)	4.22 x 3.9 x 12.72 (107 x 99 x 323)	8.27 x 3.9 x 12.72 (210 x 99 x 323)
Weight	3 poles	Pounds (kg)	2.09 (0.95)	3.97 (1.8)	7.85 (3.56)	16.31 (7.4)

Notes: 1) For DWB100: suitable for continuous operation at 100 percent of rating only if used in a circuit breaker enclosure in a cubicle space 23.6 by 15.7 by 7.9 inches (600 by 400 by 200 mm) or equivalent.
For DWB250: suitable for continuous operation at 100 percent of rating only if used in a circuit breaker enclosure in a cubicle space 31.5 by 23.6 by 11.8 inches (800 by 600 by 300 mm) or equivalent.
For DWB400 and DWB600: suitable for continuous operation at 100 percent of rating only if used in a circuit breaker enclosure in a cubicle space 47.2 by 23.6 by 15.8 inches (1,200 by 600 by 400 mm) or equivalent.
2) Use only 90 °C rated wire with ampacity based on 75 °C rated conductors.

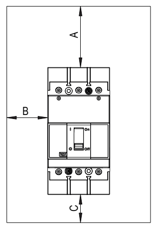
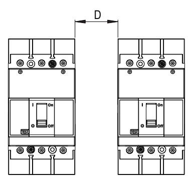
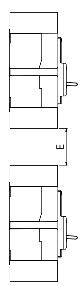
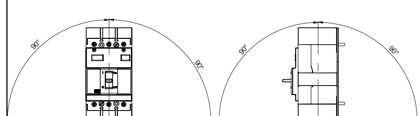
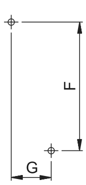
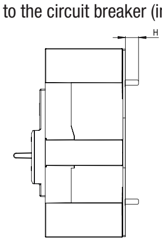
Circuit Protection

DWB

Installation and Connections

Minimum Mounting Distances: DWB

in/mm

Recommended mounting distances (inch / mm) 	A	1.97 / 50
	B	0.79 / 20
	C	0.79 / 20
Recommended distances between circuit breakers for side by side assembly (inch / mm) 	D	0.394 / 10
Recommended distances between circuit breakers for vertical assembly (inch / mm) 	E	3.54 / 90
Mounting position		
Drilling for fixing the circuit breakers (inch / mm)  DWB160		See section dimensions
Dimensions of fixing screw to the plate (inch / mm)		M4 x 2.99 / 76 (2 pieces)
Surpass of the fixing screw in relation to the circuit breaker (inch / mm) 	H	0.315 / 8
Tightening torque - fixing screw (lb.in / N.m)		35.2 / 4

Installation and Connections

Thermal Dissipation

Distribution MCCB											
Rated current - In	A	20	25	30	40	50	60	70	80	90	100
Power loss	Watts/pole										
	DWB160	1	2	4	4	5	8	4	5	6	7

Deratings

Temperature derating	50 °F 10 °C	59 °F 15 °C	68 °F 20 °C	77 °F 25 °C	86 °F 30 °C	95 °F 35 °C	104 °F 40 °C	113 °F 45 °C	122 °F 50 °C	131 °F 55 °C	140 °F 60 °C
DWB(x In)	1.16	1.12	1.09	1.07	1.02	1.02	1	0.97	0.95	0.91	0.88

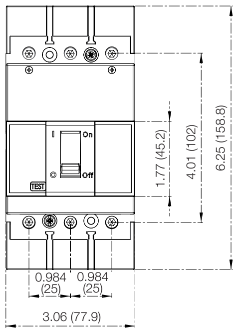
Altitude derating		6500 ft / 2000 m	9800 ft / 3000 m	13100 ft / 4000 m	16400 ft / 5000 m
Rated current - In	%	100	98	93	90
Rated operational voltage - Ue	V ac	480Y/277	480Y/277	480Y/277	400Y/230

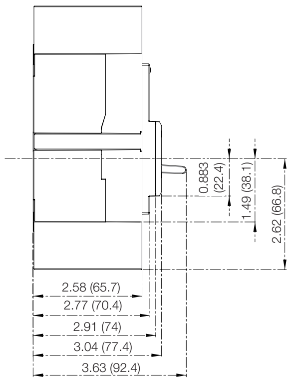
DWB

Dimensions - Inch (mm)

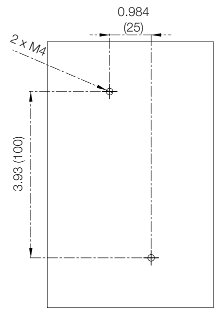
Circuit Breakers

DWB100

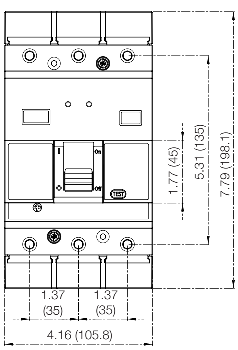


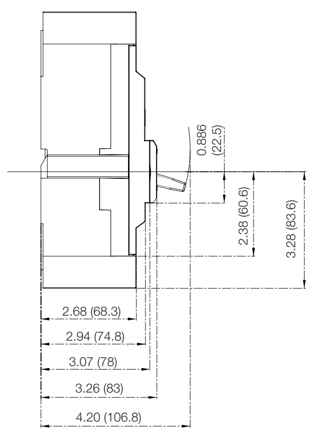


Drilling for Fixing

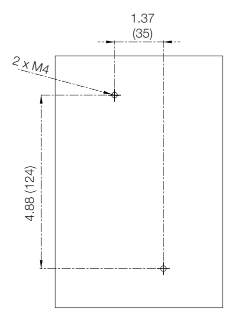


DWB250

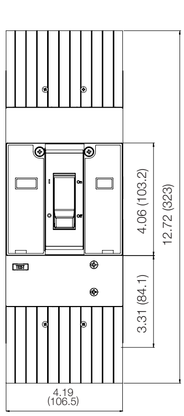


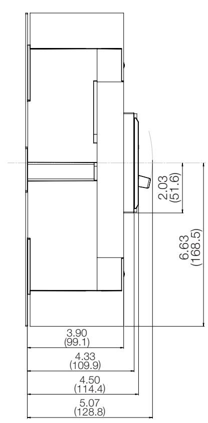


Drilling for Fixing

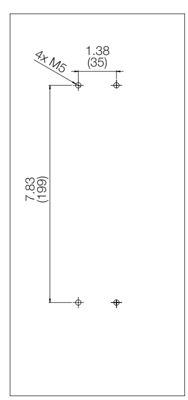


DWB400

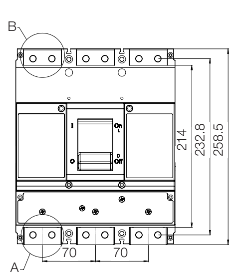


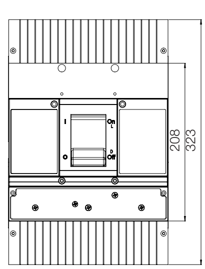


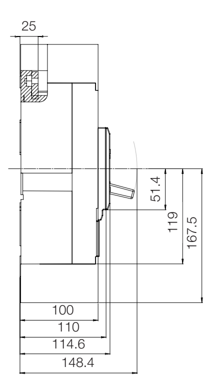
Drilling for Fixing

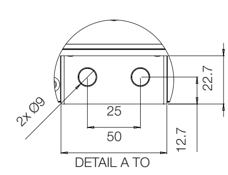


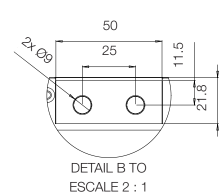
DWB600

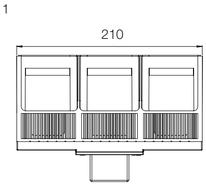










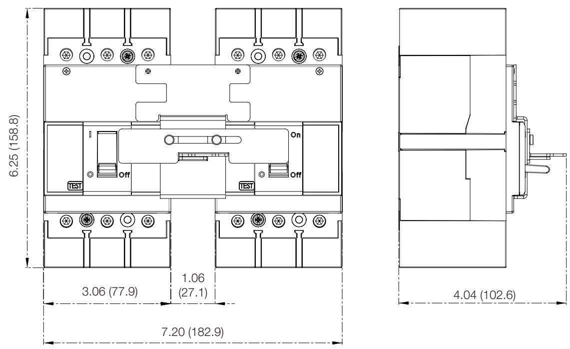


Dimensions - Inch (mm)

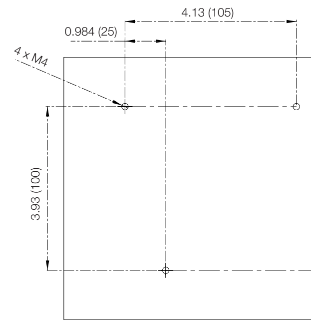
Accessories

BLIM - Mechanical Interlock

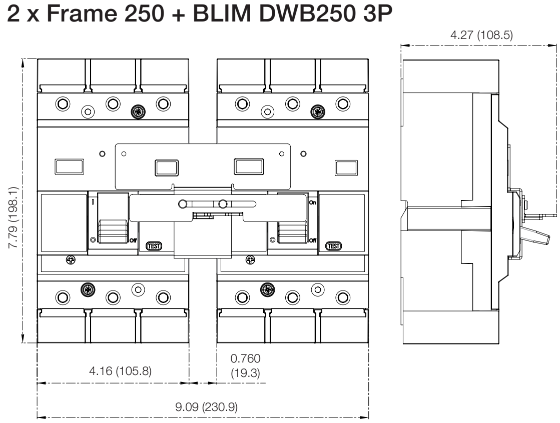
2 x Frame 100 + BLIM DWB100 3P



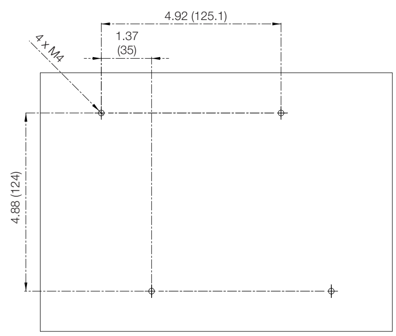
Drilling for Fixing



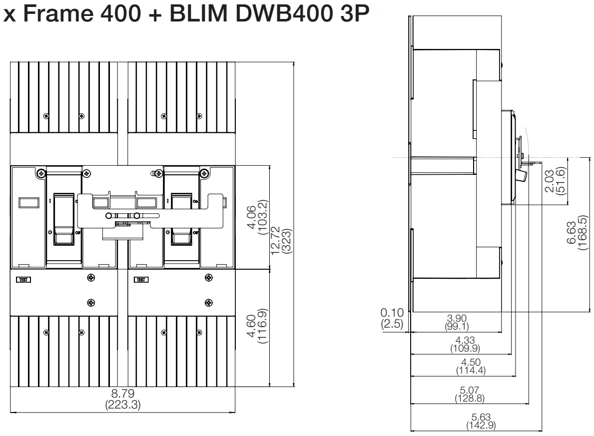
2 x Frame 250 + BLIM DWB250 3P



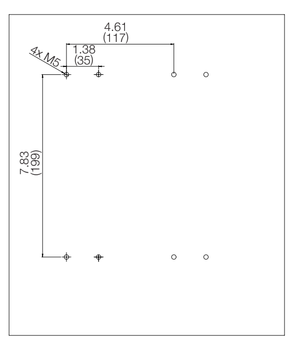
Drilling for Fixing



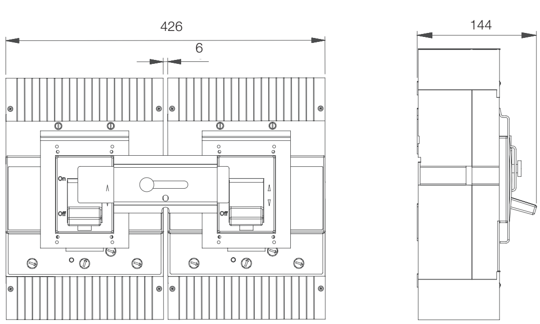
2 x Frame 400 + BLIM DWB400 3P



Drilling for Fixing



2 x Frame 600 + BLIM DWB600 3P



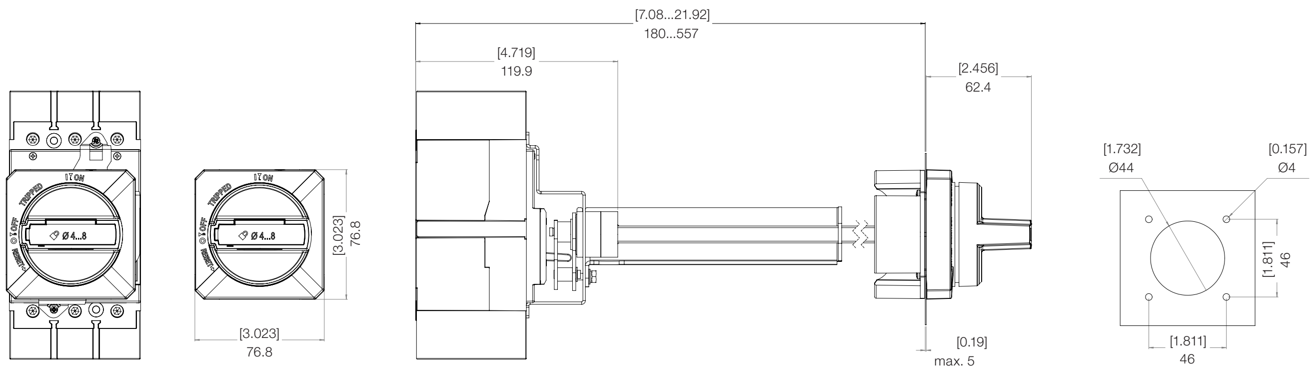
DWB

Dimensions - Inch (mm)

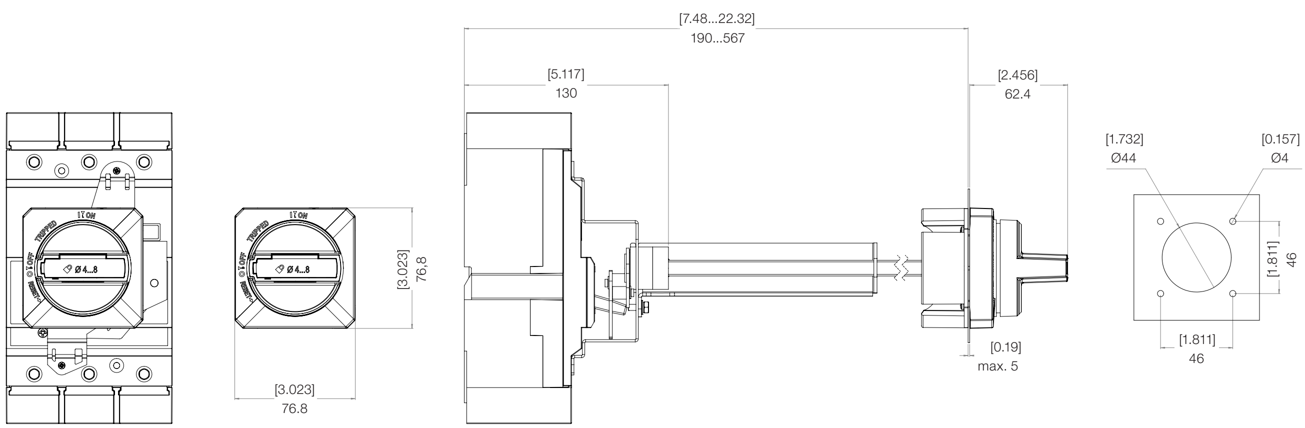
Accessories

MRX - Panel Door Rotary Operating Handles

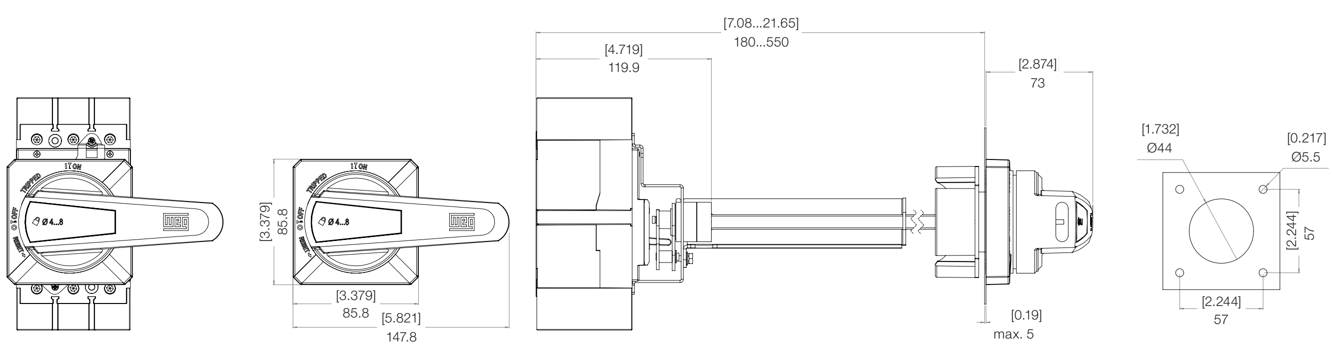
Frame 100 + MRXS DWB100



Frame 250 + MRXS DWB250



Frame 100 + MRXL DWB100

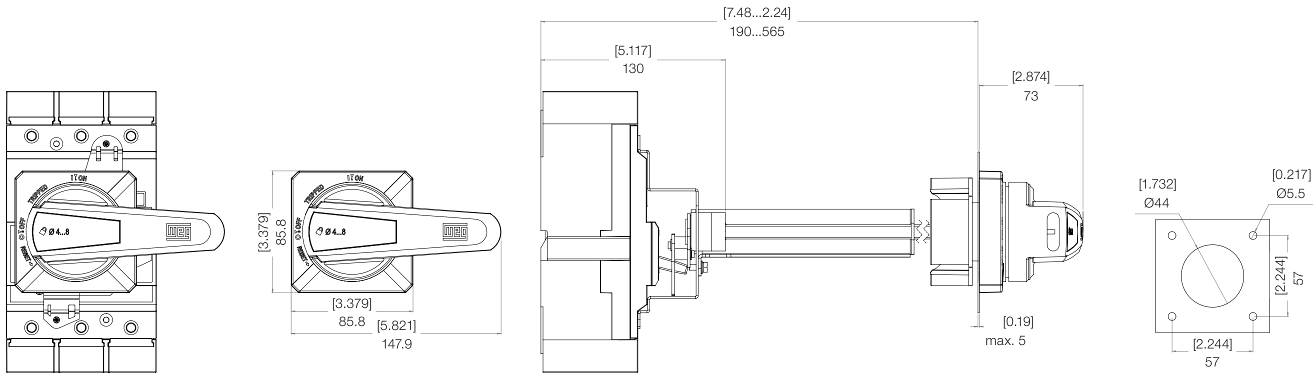


Dimensions - Inch (mm)

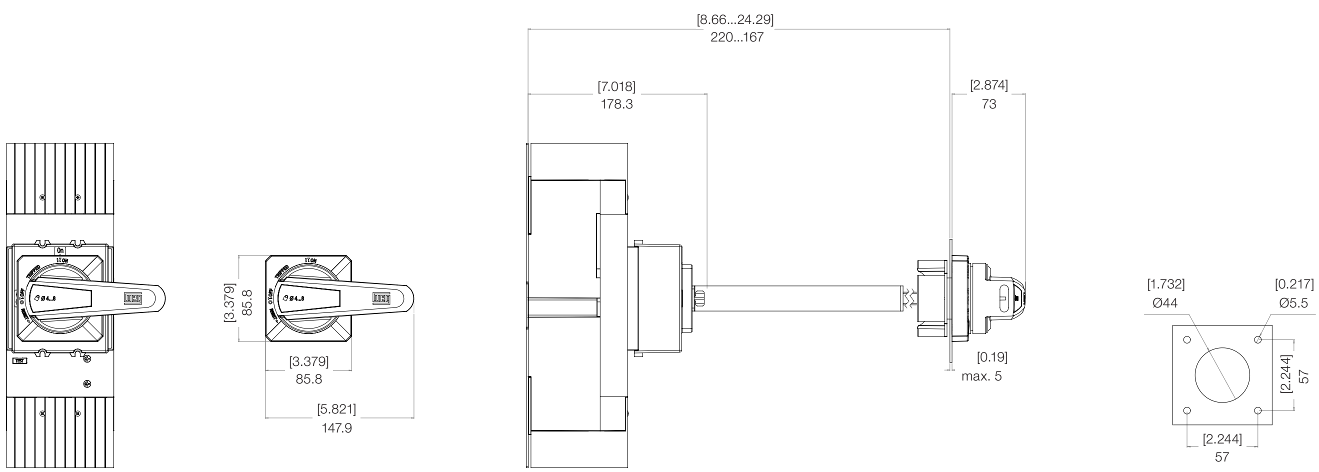
Accessories

MRX - Panel Door Rotary Operating Handles

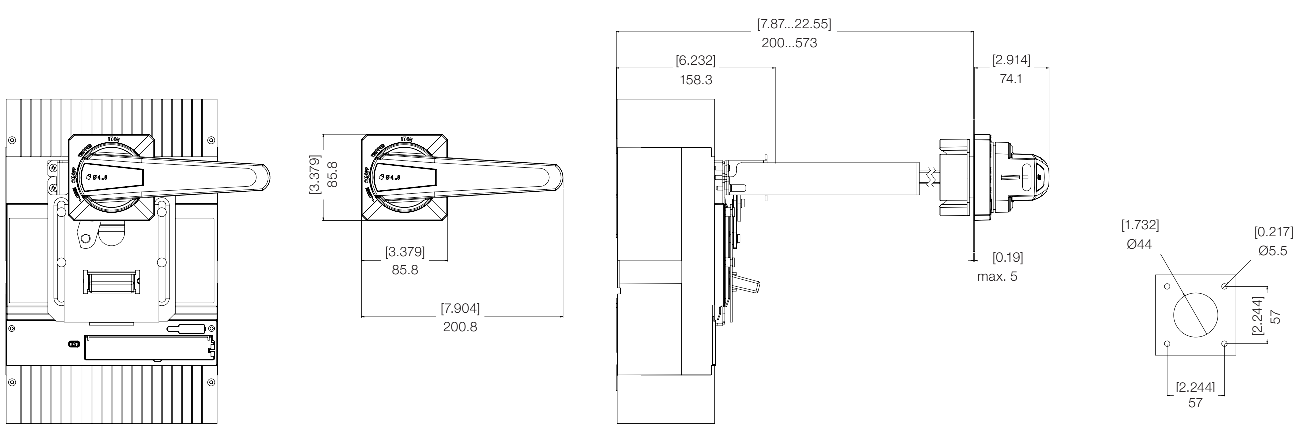
Frame 250 + MRXL DWB250



Frame 400 + MRXL DWB400



Frame 600 + MRXL DWB600



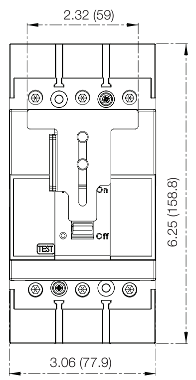
DWB

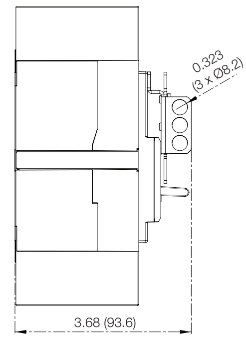
Dimensions - Inch (mm)

Accessories

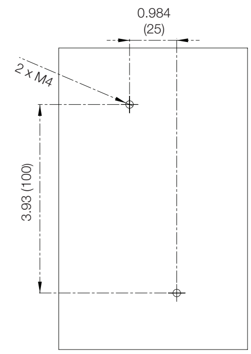
PLW - Lock-OFF Devices

Frame 100 + PLW DWB100 3P

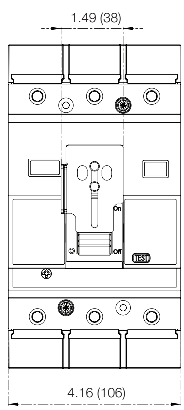


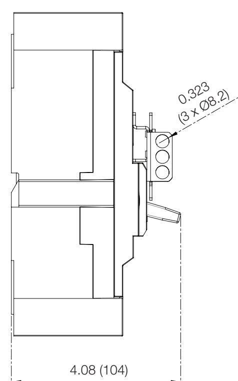


Panel Door Cutout

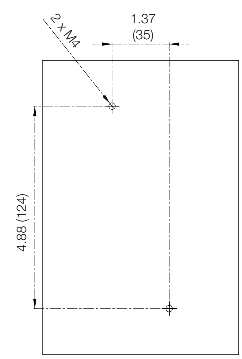


Frame 250 + PLW DWB250

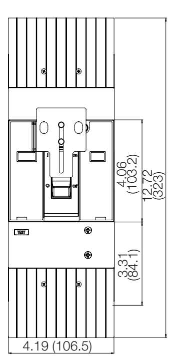


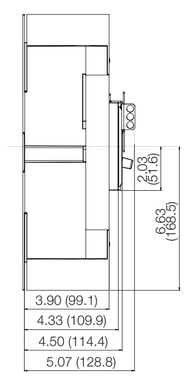


Panel Door Cutout

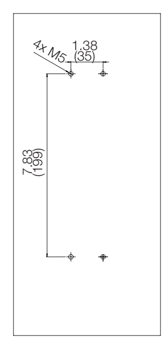


Frame 400 + PLW DWB400

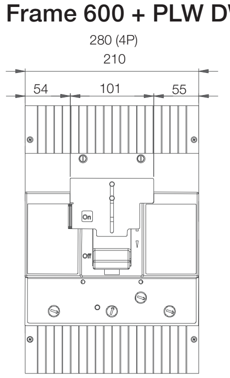


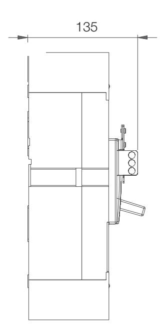


Panel Door Cutout



Frame 600 + PLW DWB600



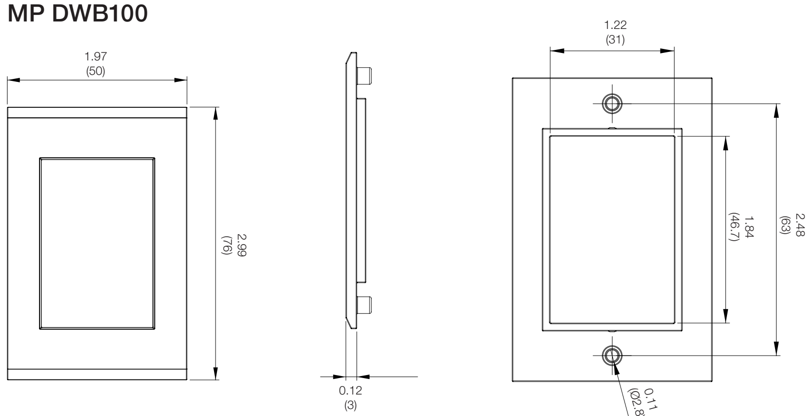


Dimensions - Inch (mm)

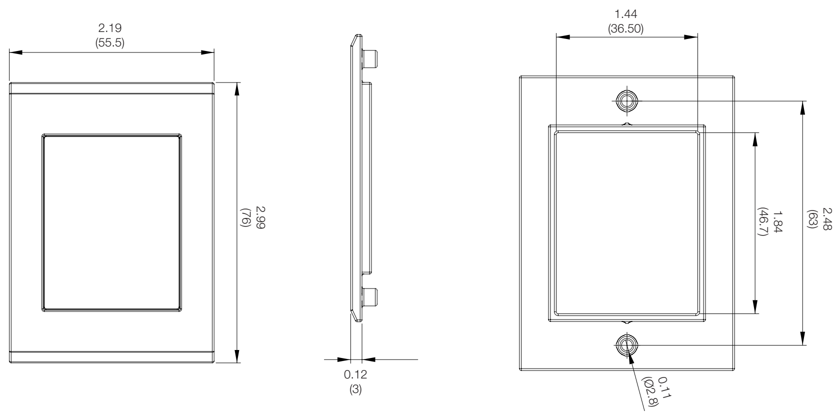
Accessories

MP - Escutcheons

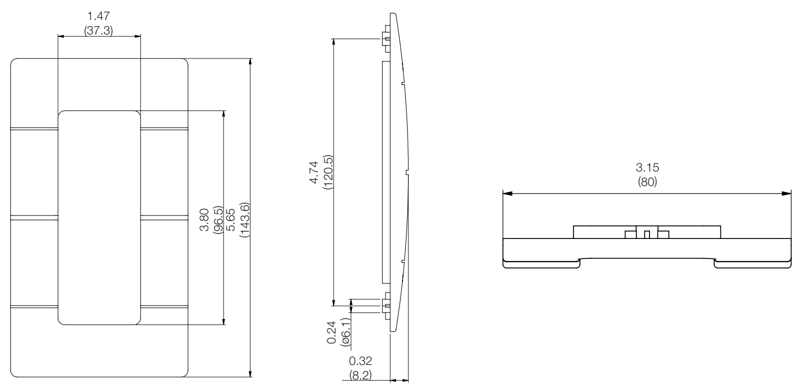
MP DWB100



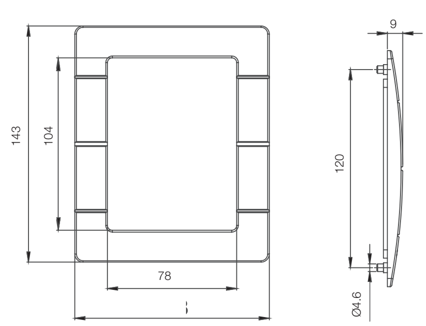
MP DWB250



MP DWB400



MP DWB600



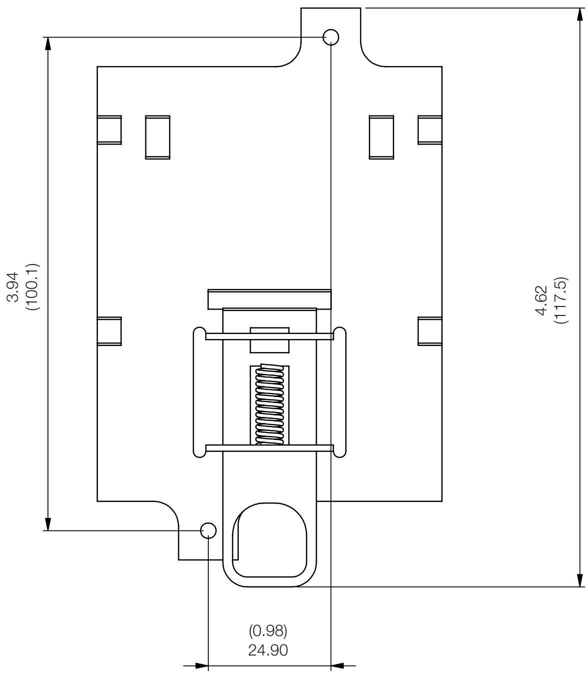
DWB

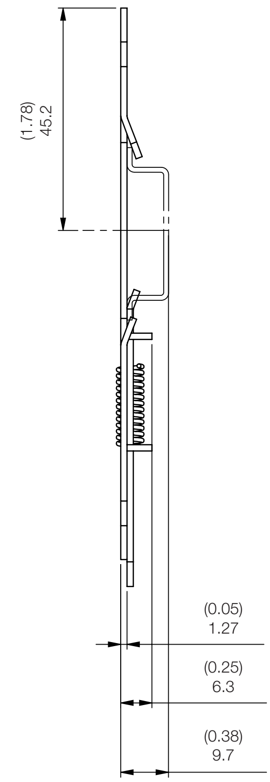
Dimensions - Inch (mm)

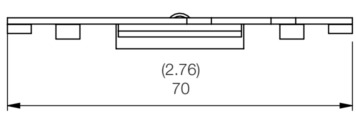
Accessories

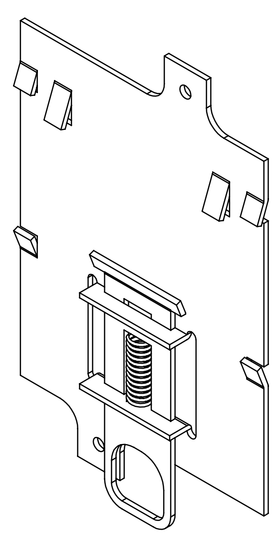
BFR - DIN Rail Base

BFR DWB100 3P UL









UBW

Molded-Case Circuit Breaker
UL 489 Listed

UL File No. E310239

The WEG UBW Series of Molded Case Circuit Breakers are designed to provide short circuit and thermal protection for industrial electrical equipment. The UBW product line ranges from 15A to 2500A and SCCR ratings for 35-100 KAIC to meet more of your application requirements. The UBW line offers the quality, realiablity and uncompromising protection that you have come to expect from WEG.

Standard Features:

- Broad product offering up to 2500 Amps
- Multiple SCCR Ratings up to 100 KIAC Ratings
- 80%rated for standard UL application
- Maintenance mode for superior Arc Flash Protection
- Field or Factory installed options
- Optional multi-conductor load side lugs

U B W 2 2 5 N - F T U 1 5 3 A

UBW	WEG UBW Breaker Series
225	Frame Size 225, 250, 400, 600, 800, 1200, 2500
N	KAIC@480V: N=35 KAIC, S=50 KAIC, H=65 KAIC, L=100 KAIC (Call for other ratings)
FTU	FTU Thermal and Magnetic or ELS Electronic Trip or ELSI Electronic Trip with Maintenance Mode
15	Breaker Amps (Max) 15, 20, 30, 40, 50, 60, 70, 80,100, 125, 200, 225, 250, 400, 600, 800, 1200, 1600, 2000, 2500 (Amps subject to frame size)
3A	3 Pole/ Amp

**If ordering with factory installed options replace 3A with alpha numeric option code sequence*

Data is subject to change without notice.

UBW

225 Frame- - Line and load side lugs included





UBW225 Frame - Fixed Thermal / Fixed Magnetic

Thermal Setting	Short Circuit Intrupting Capacity		Catalog Number	List Price	Multiplier
(A)	480VAC	600VAC			
15			UBW225N-FTU15-3A	$665	Z10
20			UBW225N-FTU20-3A	$665	Z10
30			UBW225N-FTU30-3A	$665	Z10
40			UBW225N-FTU40-3A	$665	Z10
50			UBW225N-FTU50-3A	$665	Z10
60			UBW225N-FTU60-3A	$665	Z10
70	35kA	18kA	UBW225N-FTU70-3A	$665	Z10
80			UBW225N-FTU80-3A	$728	Z10
100			UBW225N-FTU100-3A	$728	Z10
125			UBW225N-FTU125-3A	$1,100	Z10
150			UBW225N-FTU150-3A	$1,550	Z10
200			UBW225N-FTU200-3A	$1,550	Z10
225			UBW225N-FTU225-3A	$1,550	Z10
15			UBW225H-FTU15-3A	$965	Z10
20			UBW225H-FTU20-3A	$965	Z10
30			UBW225H-FTU30-3A	$965	Z10
40			UBW225H-FTU40-3A	$965	Z10
50			UBW225H-FTU50-3A	$965	Z10
60			UBW225H-FTU60-3A	$965	Z10
70	65kA	25kA	UBW225H-FTU70-3A	$965	Z10
80			UBW225H-FTU80-3A	$1,055	Z10
100			UBW225H-FTU100-3A	$1,055	Z10
125			UBW225H-FTU125-3A	$1,450	Z10
150			UBW225H-FTU150-3A	$2,050	Z10
200			UBW225H-FTU200-3A	$2,050	Z10
225			UBW225H-FTU225-3A	$2,050	Z10
15			UBW225L-FTU15-3A	$1,200	Z10
20			UBW225L-FTU20-3A	$1,200	Z10
30			UBW225L-FTU30-3A	$1,200	Z10
40			UBW225L-FTU40-3A	$1,200	Z10
50			UBW225L-FTU50-3A	$1,200	Z10
60			UBW225L-FTU60-3A	$1,200	Z10
70	100kA	35kA	UBW225L-FTU70-3A	$1,200	Z10
80			UBW225L-FTU80-3A	$1,200	Z10
100			UBW225L-FTU100-3A	$1,350	Z10
125			UBW225L-FTU125-3A	$1,350	Z10
150			UBW225L-FTU150-3A	$2,800	Z10
200			UBW225L-FTU200-3A	$2,400	Z10
225			UBW225L-FTU225-3A	$2,400	Z10

UBW 250 400 600 800 Frame- - Line and load side lugs included

Thermal Setting	KA Rating at 480VAC	Catalog Number	List Price	Multiplier
Frame 250 - Fixed Thermal / Adjustable Magnetic				
250	35	UBW250N-FTU250-3A	$1,550	Z10
250	65	UBW250H-FTU250-3A	$2,050	Z10
250	100	UBW250L-FTU250-3A	$2,400	Z10
Frame 400 - Fixed Thermal / Adjustable Magnetic				
300	35	UBW400N-FTU300-3A	$3,000	Z10
400	35	UBW400N-FTU400-3A	$3,000	Z10
300	65	UBW400H-FTU300-3A	$3,700	Z10
400	65	UBW400H-FTU400-3A	$3,700	Z10
300	100	UBW400L-FTU300-3A	$4,700	Z10
400	100	UBW400L-FTU400-3A	$4,700	Z10
Frame 600 - Fixed Thermal / Adjustable Magnetic				
500	35	UBW600N-FTU500-3A	$5,000	Z10
600	35	UBW600N-FTU600-3A	$5,000	Z10
500	65	UBW500H-FTU500-3A	$7,000	Z10
600	65	UBW600H-FTU600-3A	$7,000	Z10
500	100	UBW500L-FTU500-3A	$8,300	Z10
600	100	UBW600L-FTU600-3A	$8,300	Z10
Frame 800 - Fixed Thermal / Adjustable Magnetic				
800	50	UBW800S-FTU800-3A	$6,000	Z10
800	65	UBW800H-FTU800-3A	$8,000	Z10
Frame 1200 with Electronic Trip - Not supplied with lugs				
800	50	UBW1200S-ELS800-3A	$14,000.00	Z10
800	65	UBW1200H-ELS800-3A	$17,950.00	Z10
800	100	UBW1200L-ELS800-3A	$21,950.00	Z10
1200	50	UBW1200S-ELS1200-3A	$21,300.00	Z10
1200	65	UBW1200H-ELS1200-3A	$22,200.00	Z10
1200	100	UBW1200L-ELS1200-3A	$23,500.00	Z10
Frame 1200 with Electronic Trip and Maintenance Mode - Not supplied with lugs				
800	50	UBW1200S-ELSI800-3A	$21,950.00	Z10
800	65	UBW1200H-ELSI800-3A	$21,950.00	Z10
800	100	UBW1200L-ELSI800-3A	$24,600.00	Z10
1200	50	UBW1200S-ELSI1200-3A	$22,000.00	Z10
1200	65	UBW1200H-ELSI1200-3A	$24,500.00	Z10
1200	100	UBW1200L-ELSI1200-3A	$25,800.00	Z10

UBW 2500 Frame

Frame 2500 with Electronic Trip - not supplied with lugs

Thermal Setting	KA Raing 480vac	Catalog Number	List	Multiplier
1600	65	UBW2500H-ELS1600-3A	**$29,600**	Z10
1600	100	UBW2500L-ELS1600-3A	**$32,200**	Z10
2000	65	UBW2500H-ELS2000-3A	**$30,700**	Z10
2000	100	UBW2500L-ELS2000-3A	**$33,300**	Z10
2500	65	UBW2500H-ELS2500-3A	**$32,400**	Z10
2500	100	UBW2500L-ELS2500-3A	**$35,200**	Z10

Frame 2500 with Electronic Trip and Maintenance Mode

Thermal Setting	KA Raing 480vac	Catalog Number	List	Multiplier
1600	65	UBW2500H-ELSI1600-3A	**$32,300**	Z10
1600	100	UBW2500L-ELSI1600-3A	**$34,900**	Z10
2000	65	UBW2500H-ELSI2000-3A	**$33,300**	Z10
2000	100	UBW2500L-ELSI2000-3A	**$36,000**	Z10
2500	65	UBW2500H-ELSI2500-3A	**$35,000**	Z10
2500	100	UBW2500L-ELSI2500-3A	**$37,900**	Z10

Note:
WEG's position currently, is that for voltage and interrupting capacity MCCB operation should be de-rated 2.5% for every 1000 ft. increase in elevation above 3000 ft. De-rating for current carrying capacity at increased altitude should be calculated in a manner equivalent to a 3°C increase in ambient temperature for each 1000 ft. increase in elevation above 3000 ft. This is in addition to any thermal de-rating that may apply at altitude.

UBW Breaker Accessories

225 Frame Factory Installed only

How to order - Example

 UBW225H-FTU25-3A List $965.00	Ex: UBW225N-FTU15-3A-A1 $965 + $699.50 = $1664.50	Use Z10 Multiplier

Suffix for Factory Installation	Description	List	Multiplier
A1	AUXILIARY SWITCH	$699.05	Z10
A2	ALARM SWITCH	$699.05	
A3	AUX/ALARM SWTICH	$782.00	
S	SHUNT TRIP 12-24AC/DC	$787.14	
SS	SHUNT TRIP 48-120AC/48-60DC	$787.14	
S0	SHUNT TRIP 208-380AC/110-127DC	$787.14	
11	UNDERVOLTAGE RELEASE 24DC	$787.14	
12	UNDERVOLTAGE RELEASE 110-125AC	$787.14	
13	UNDERVOLTAGE RELEASE 208-240AC	$787.14	

250-2500 Frame with Options

How to order - Example

 UBW250 - 2500 Frame List $	 AX-UBW250 - 2500 List $	 Installation Charge List $ (optional)	List Prices Totalled	Apply Z10 Multiplier for Final Price

UBW250 Frame Options

Suffix for Factory Installation	WEG Catalog Number	Description	List	Install List	Multiplier
A1	AX-UBW250	AUXILIARY SWITCH	$445.71	$350.00	Z10
A2	AL-UBW250	ALARM SWITCH	$445.71	$350.00	
A3	AXAL-UBW250	AUX/ALARM SWTICH	$527.14	$350.00	
S1	SHT-UBW250-E59	SHUNT TRIP 12-24AC/DC	$587.14	$350.00	
S2	SHT-UBW250-E61	SHUNT TRIP 100-240AC/110-125DC	$587.14	$350.00	
21	UVT-UBW250-C03	UNDERVOLTAGE RELEASE 24DC	$587.14	$350.00	
22	UVT-UBW250-D60	UNDERVOLTAGE RELEASE 110-125AC	$587.14	$350.00	
23	UVT-UBW250-D96	UNDERVOLTAGE RELEASE 208-240AC	$587.14	$350.00	

UBW400 Frame Options - See above for How to Order

Suffix for Factory Installation	WEG Catalog Number	Description	List	Install List	Multiplier
A1	AX-UBW400	AUXILIARY SWITCH	$557.41	$350.00	Z10
A2	AL-UBW400	ALARM SWITCH	$557.41	$350.00	
A3	AXAL-UBW400	AUX/ALARM SWTICH	$628.29	$350.00	
S1	SHT-UBW400-E59	SHUNT TRIP 12-24AC/DC	$627.43	$350.00	
S2	SHT-UBW400-E61	SHUNT TRIP 100-240AC/110-125DC	$627.43	$350.00	
21	UVT-UBW400-C03	UNDERVOLTAGE RELEASE 24DC	$627.43	$350.00	
22	UVT-UBW400-D60	UNDERVOLTAGE RELEASE 110-125AC	$627.43	$350.00	
23	UVT-UBW400-D96	UNDERVOLTAGE RELEASE 208-240AC	$627.43	$350.00	

Example of factory installed catalog number : UBW225N-FTU20-3A-A1

Circuit Protection

UBW

UBW800 Frame Options - See Previous Page for How to Order					
Suffix for Factory Installation	**WEG Catalog Number**	**Description**	**List**	**Install List**	**Multiplier**
A1	AX-UBW800^	AUXILIARY SWITCH	$698.67	$450.00	Z10
A2	AL-UBW800^	ALARM SWITCH	$698.67	$450.00	
A3	AXAL-UBW800^	AUX/ALARM SWTICH	$772.29	$450.00	
S5	SHT-UBW800-E60^	SHUNT TRIP 9-24AC/12-24DC	$873.24	$450.00	
S6	SHT-UBW8000-D95^	SHUNT TRIP 100-240AC	$873.24	$450.00	
41	UVT-UBW800-C03^	UNDERVOLTAGE RELEASE 24DC	$873.24	$450.00	
42	UVT-UBW80-D60^	UNDERVOLTAGE RELEASE 110-127AC	$873.24	$450.00	
43	UVT-UBW800-D96^	UNDERVOLTAGE RELEASE 208-240AC	$873.24	$450.00	

UBW1200 Frame Options - See Previous Page for How to Order					
Suffix for Factory Installation	**WEG Catalog Number**	**Description**	**List**	**Install List**	**Multiplier**
A1	AX-UBW1200	AUXILIARY SWITCH	$771.43	$650.00	Z10
A2	AL-UBW1200	ALARM SWITCH	$771.43	$650.00	
A3	AXAL-UBW1200	AUX/ALARM SWTICH	$865.71	$650.00	
S7	SHT-UBW1200-E60	SHUNT TRIP 9-24AC/12-24DC	$964.29	$650.00	
S8	SHT-UBW1200-D95	SHUNT TRIP 100-240AC	$964.29	$650.00	
51	UVT-UBW1200-C03	UNDERVOLTAGE RELEASE 24DC	$964.29	$650.00	
52	UVT-UBW1200-D60	UNDERVOLTAGE RELEASE 110-127AC	$964.29	$650.00	
53	UVT-UBW1200-D96	UNDERVOLTAGE RELEASE 208-240AC	$964.29	$650.00	

UBW2500 Frame Options - See Previous Page for How to Order					
Suffix for Factory Installation	**WEG Catalog Number**	**Description**	**List**	**Install List**	**Multiplier**
A1	AX-UBW2500	AUXILIARY SWITCH	$1,034.19	$650.00	Z10
A2	AL-UBW2500	ALARM SWITCH	$1,034.19	$650.00	
S9	SHT-UBW2500-E26	SHUNT TRIP 24AC/DC	$1,157.14	$650.00	
S10	SHT-UBW2500-D95	SHUNT TRIP 100-240AC	$1,157.14	$650.00	
61	UVT-UBW2500-C03	UNDERVOLTAGE RELEASE 24DC	$1,157.14	$650.00	
62	UVT-UBW2500-D60	UNDERVOLTAGE RELEASE 110-127AC	$1,157.14	$650.00	
63	UVT-UBW2500-D96	UNDERVOLTAGE RELEASE 208-240AC	$1,157.14	$650.00	

Example of factory installed catalog number : UBW225N-FTU20-3A-A1

Note: Only one tripping accessory per Breaker regardless of frame size.
UBW800 options good for UBW600 frame

Data is subject to change without notice.

Lugs

UBW Circuit Breaker supplied with Line/Load Lugs up to 800 amp frame

	FRAME	PART NUMBER	CONDUCTOR PER PHASE	WIRE SIZE RANGE	PACKAGE COUNT	LIST PRICE	MULTIPLIER
Standard Lugs Included	225	LT3-UBW225	1	14-1/0*	3	$274.29	Z10
		(3/16 SOCKET HEAD)	1	4-4/0	3	$274.29	Z10
	250	LT1-UBW250	1	4-350	1	$73.09	Z10
	400 (300A)	LT1-UBW400	1	250-500	1	$65.52	Z10
	400 (400A)	LT3-UBW400	2	3/0-250	3	$196.57	Z10
	600 (500A)	LT3D-UBW500	2	3/0-350	3	$310.86	Z10
	600 (600A)	LT3D-UBW600	2	400-500	3	$310.86	Z10
	800	LT1A2-UBW800	3	3/0-400	1	$172.19	Z10
Load Side Only	225	WT3-UBW225	3	14-2	3	$212.10	Z10
	225	WT6-UBW225	6	14-6	3	$212.10	Z10
	250	WT3-UBW250	3	14-2	3	$370.76	Z10
	250	WT6-UBW250	6	14-6	3	$370.76	Z10
	400	WT3-UBW400	3	12-2/0	1	$382.29	Z10
	400	WT6-UBW400	6	14-3	1	$382.29	Z10
Optional Lugs Line and Load Side	600	LT3D-UBW400	1	4/0-600	3	$252.95	Z10
	600	LT1D-UBW450	2	4-4/0	1	$156.95	Z10
	800	LT1A1-UBW700	2	1-500	1	$126.48	Z10
	800	LT1A-UBW800	2	500-750	1	$219.63	Z10
	1200	LT1B2-UBW700	2	1-500	1	$121.50	Z10
	1200	LT1B3-UBW1000	3	3/0-400	1	$163.79	Z10
	1200	LT1B4-UBW1200	4	4/0-500	1	$230.14	Z10
	1200	LT1B3-UBW1200	3	500-750	1	$243.00	Z10
	2500	LT1A-UBW1600	4	500-1000	1	$333.71	Z10
	2500	LT1C-UBW1600	4	1-600	1	$530.29	Z10
	2500	LT3-UBW2000	6	2-600	9	$3,771.43	Z10
	2500	RT1-UBW2000	4	1-600	1	$299.57	Z10
	2500	RT1-UBW2500	6	2-600	1	$641.14	Z10

Note:
1) Power Distribution lugs for installation on load side only
**For Conductor size on UBW225 100AMP Lug and below contact WEG*

Circuit Protection

UBW

Handle/Mechanism/Shafts NEMA 1/3R/12

Part Number	Description	List	Multiplier
EHC6-UBW225	Handle + Mechanism + Shaft 6"	$372.86	Z10
EHC12-UBW225	Handle + Mechanism + Shaft 12"	$384.29	Z10
EHC16-UBW225	Handle + Mechanism + Shaft 16"	$410.00	Z10
EHC24-UBW225	Handle + Mechanism + Shaft 24"	$437.33	Z10
EHC6-UBW250	Handle + Mechanism + Shaft 6"	$285.71	Z10
EHC12-UBW250	Handle + Mechanism + Shaft 12"	$397.24	Z10
EHC16-UBW250	Handle + Mechanism + Shaft 16"	$497.90	Z10
EHC24-UBW250	Handle + Mechanism + Shaft 24"	$517.43	Z10
EHC6-UBW400	Handle + Mechanism + Shaft 6"	$393.33	Z10
EHC12-UBW400	Handle + Mechanism + Shaft 12"	$407.71	Z10
EHC16-UBW400	Handle + Mechanism + Shaft 16"	$482.29	Z10
EHC24-UBW400	Handle + Mechanism + Shaft 24"	$530.95	Z10
EHC6-UBW800^	Handle + Mechanism + Shaft 6"	$544.76	Z10
EHC12-UBW800^	Handle + Mechanism + Shaft 12"	$557.05	Z10
EHC16-UBW800^	Handle + Mechanism + Shaft 16"	$650.19	Z10
EHC24-UBW800^	Handle + Mechanism + Shaft 24"	$679.43	Z10
EHG6-UBW1200	Handle + Mechanism + Shaft 6"	$656.33	Z10
EHG12-UBW1200	Handle + Mechanism + Shaft 12"	$573.05	Z10
EHG16-UBW1200	Handle + Mechanism + Shaft 16"	$679.43	Z10
EHG24-UBW1200	Handle + Mechanism + Shaft 24"	$709.76	Z10

^ For both UBW600 and UBW800 products

Note: UBW 2500 utilizes flange mount mechanism only. Rotary handle is not available.

Handle/Mechanism/Shafts NEMA 4/4X

Part Number	Description	List	Multiplier
EHC6X-UBW225	Handle + Mechanism + Shaft 6"	$468.57	Z10
EHC12X-UBW225	Handle + Mechanism + Shaft 12"	$482.29	Z10
EHC16X-UBW225	Handle + Mechanism + Shaft 16"	$536.95	Z10
EHC24X-UBW225	Handle + Mechanism + Shaft 24"	$548.67	Z10
EHC6X-UBW250	Handle + Mechanism + Shaft 6"	$548.67	Z10
EHC12X-UBW250	Handle + Mechanism + Shaft 12"	$577.90	Z10
EHC16X-UBW250	Handle + Mechanism + Shaft 16"	$613.05	Z10
EHC24X-UBW250	Handle + Mechanism + Shaft 24"	$634.57	Z10
EHC6X-UBW400	Handle + Mechanism + Shaft 6"	$549.67	Z10
EHC12X-UBW400	Handle + Mechanism + Shaft 12"	$587.43	Z10
EHC16X-UBW400	Handle + Mechanism + Shaft 16"	$622.57	Z10
EHC24X-UBW400	Handle + Mechanism + Shaft 24"	$644.10	Z10
EHC6X-UBW800^	Handle + Mechanism + Shaft 6"	$736.10	Z10
EHC12X-UBW800^	Handle + Mechanism + Shaft 12"	$765.33	Z10
EHC16X-UBW800^	Handle + Mechanism + Shaft 16"	$804.38	Z10
EHC24X-UBW800^	Handle + Mechanism + Shaft 24"	$804.38	Z10
EHG6X-UBW1200	Handle + Mechanism + Shaft 6"	$765.33	Z10
EHG12X-UBW1200	Handle + Mechanism + Shaft 12"	$784.86	Z10
EHG16X-UBW1200	Handle + Mechanism + Shaft 16"	$833.71	Z10
EHG24X-UBW1200	Handle + Mechanism + Shaft 24"	$833.71	Z10

Note: UBW 2500 utilizes flange mount mechanism only. Rotary handle is not available.
^ For both UBW600 and UBW800 products

Circuit Protection

UBW

Flange Handle 1/3R/12

Part Number	Description	List	Multiplier
FHP3-UBW225	Flexible Shaft 3' Cable	$871.11	Z10
FHP5-UBW225	Flexible Shaft 5' Cable	$906.67	Z10
FHP6-UBW225	Flexible Shaft 6' Cable	$933.33	Z10
FHP3-UBW250	Flexible Shaft 3' Cable	$1,022.22	Z10
FHP5-UBW250	Flexible Shaft 5' Cable	$1,056.00	Z10
FHP6-UBW250	Flexible Shaft 6' Cable	$1,073.60	Z10
FHP3-UBW400	Flexible Shaft 3' Cable	$1,102.22	Z10
FHP5-UBW400	Flexible Shaft 5' Cable	$1,144.00	Z10
FHP6-UBW400	Flexible Shaft 6' Cable	$1,160.44	Z10
FHP5-UBW800^	Flexible Shaft 5' Cable	$1,379.92	Z10
FHP6-UBW800^	Flexible Shaft 6' Cable	$1,442.04	Z10
FHP5-UBW1200	Flexible Shaft 5' Cable	$1,426.76	Z10
FHP6-UBW1200	Flexible Shaft 6' Cable	$1,591.11	Z10
FHP5-UBW2500	Flexible Shaft 5' Cable	$1,608.62	Z10
FHP6-UBW2500	Flexible Shaft 6' Cable	$1,648.71	Z10

^ *For both UBW600 and UBW800 products*

Flange Handle 4/4X

Part Number	Description	List	Multiplier
FHP3X-UBW225	Flexible Shaft 3' Cable	$945.78	Z10
FHP5X-UBW225	Flexible Shaft 5' Cable	$1,057.76	Z10
FHP6X-UBW225	Flexible Shaft 6' Cable	$1,070.22	Z10
FHP3X-UBW250	Flexible Shaft 3' Cable	$1,141.07	Z10
FHP5X-UBW250	Flexible Shaft 5' Cable	$1,186.04	Z10
FHP6X-UBW250	Flexible Shaft 6' Cable	$1,191.47	Z10
FHP3X-UBW400	Flexible Shaft 3' Cable	$1,228.71	Z10
FHP5X-UBW400	Flexible Shaft 5' Cable	$1,259.28	Z10
FHP6X-UBW400	Flexible Shaft 6' Cable	$1,264.89	Z10
FHP5X-UBW800^	Flexible Shaft 5' Cable	$1,508.00	Z10
FHP6X-UBW800^	Flexible Shaft 6' Cable	$1,536.44	Z10
FHP5X-UBW1200	Flexible Shaft 5' Cable	$1,608.71	Z10
FHP6X-UBW1200	Flexible Shaft 6' Cable	$1,626.22	Z10
FHP5X-UBW2500	Flexible Shaft 5' Cable	$1,720.44	Z10
FHP6X-UBW2500	Flexible Shaft 6' Cable	$1,763.11	Z10

^ *For both UBW600 and UBW800 products*

WEG – On/Off Locking Mechanisms

Frame	Part Number	Padlock Style	List	Multiplier
225	HL-UBW225	HASP	$106.76	Z10
250/400	HL-UBW400	HASP	$118.19	
600	PL-UBW600	HASP	$173.24	
800	PL-UBW800	HASP	$188.43	
1200	HL-UBW1200	HASP	$229.00	
2500	PL-UBW2500	HASP	$314.10	

WEG Padlock - PL and HL

Direct Mount Handle

Frame	Part Number	List(	Multiplier
225	DHI-UBW225	$321.43	Z10
250	DHI-UBW250	$321.43	
400	DHI-UBW400	$347.14	
600 (500/600AMP)	DHI-UBW800	$330.00	
600/800AMP	DHI-UBW600	$330.00	
600/800AMP	EDHI-UBW800	$53.81	
1200	EDHI-UBW1200	$78.10	
2500	EDHI-UBW2500	$104.10	

DHI Style

EDHI Style

Circuit Protection

UBW

Frame Size	225	250	400	600	800	1200	2500
Rated Current - In 40° C	15,20,30,40,50,60,70,80, 100,125,200,225	250	300,400	500,600	800	800,1200	1600,2000,2500
No.Of Poles	3	3	3	3	3	3	3
Rated operational Voltage-Ue	600	600	600	600	600	600	600
Max Options	2*	2**	2**	2**	2**	2**	3***
Reference standard	UL489	UL489	UL489	UL489	UL489	UL489	UL489

Factory Installed Only ** 1 Option-Right, 1 Option Left * All Options Right Side Only*

UL interupting rating- Icu		N	H	L
Frame 225	120VAC	65kA	100kA	200kA
	240VAC	65kA	100kA	200kA
	480VAC	35kA	65kA	100kA
	600VAC	18kA	25kA	35kA
Frame 250	120VAC	65kA	100kA	200kA
	240VAC	65kA	100kA	200kA
	480VAC	35kA	65kA	100kA
	600VAC	18kA	25kA	35kA
Frame 400	120VAC	65kA	100kA	200kA
	240VAC	65kA	100kA	200kA
	480VAC	35ka	65kA	100kA
	600VAC	25kA	35kA	65kA
Frame 600	120VAC	65kA	100kA	200kA
	240VAC	65kA	100kA	200kA
	480VAC	35kA	65kA	100kA
	600VAC	25kA	35kA	50kA
Frame 800		S	H	
	120VAC	65kA	100kA	
	240VAC	65kA	100kA	
	480VAC	50kA	65kA	
	600VAC	25kA	35kA	
Frame 1200		S	H	L
	120VAC	85kA	100kA	200kA
	240VAC	85kA	100kA	200kA
	480VAC	50kA	65kA	100kA
	600VAC	25kA	35kA	45Ka
Frame 2500		N/A	H	L
	120VAC	N/A	125kA	200kA
	240VAC	N/A	125kA	200kA
	480VAC	N/A	65kA	100kA
	600VAC	N/A	50kA	65Ka

Options available for all :

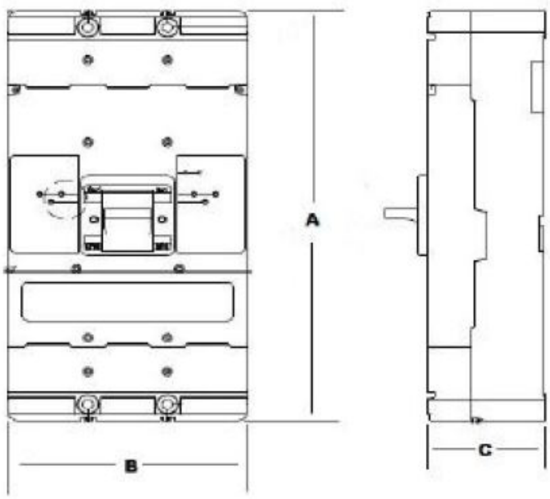
Frame Sizes:
Auxiliary Contacts*
Alarm Contacts*
Shunt Trip Units *
Undervoltage Trip Units*

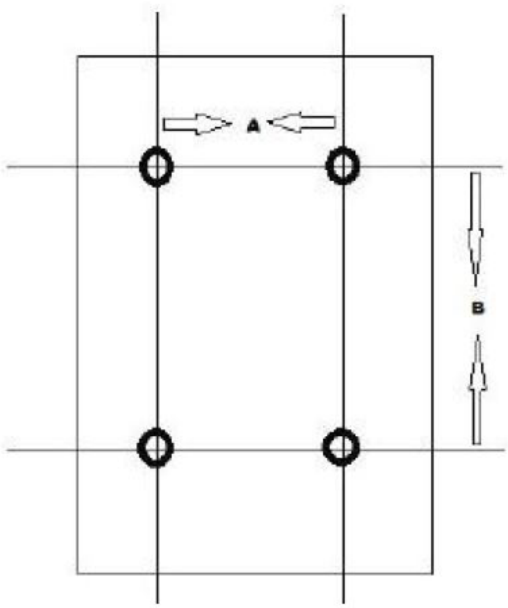
* 225 Frame must be Factory Installed

UL File No. E310239 for all frame sizes

UBW Quick View Dimensions

Outside Dimensions
Frames 225, 250, 400, 600, 800, 1200, 2500





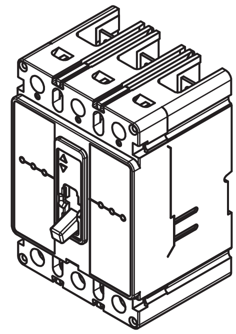
Mounting Hole Dimensions		
Frame	Dimensions	
	inches/mm	inches/mm
225	1.375/34.93	4.3/114.30
250	1.375/34.37	7.25/184.15
400	1.71/43.66	8.438/214.12
600	8.75/222.25	9.53/242.09
800	2.75/69.85	14.75/374.65
1200	2.75/69.85	18.43/374.65
2500	14.50/368.30	15.00/381.22

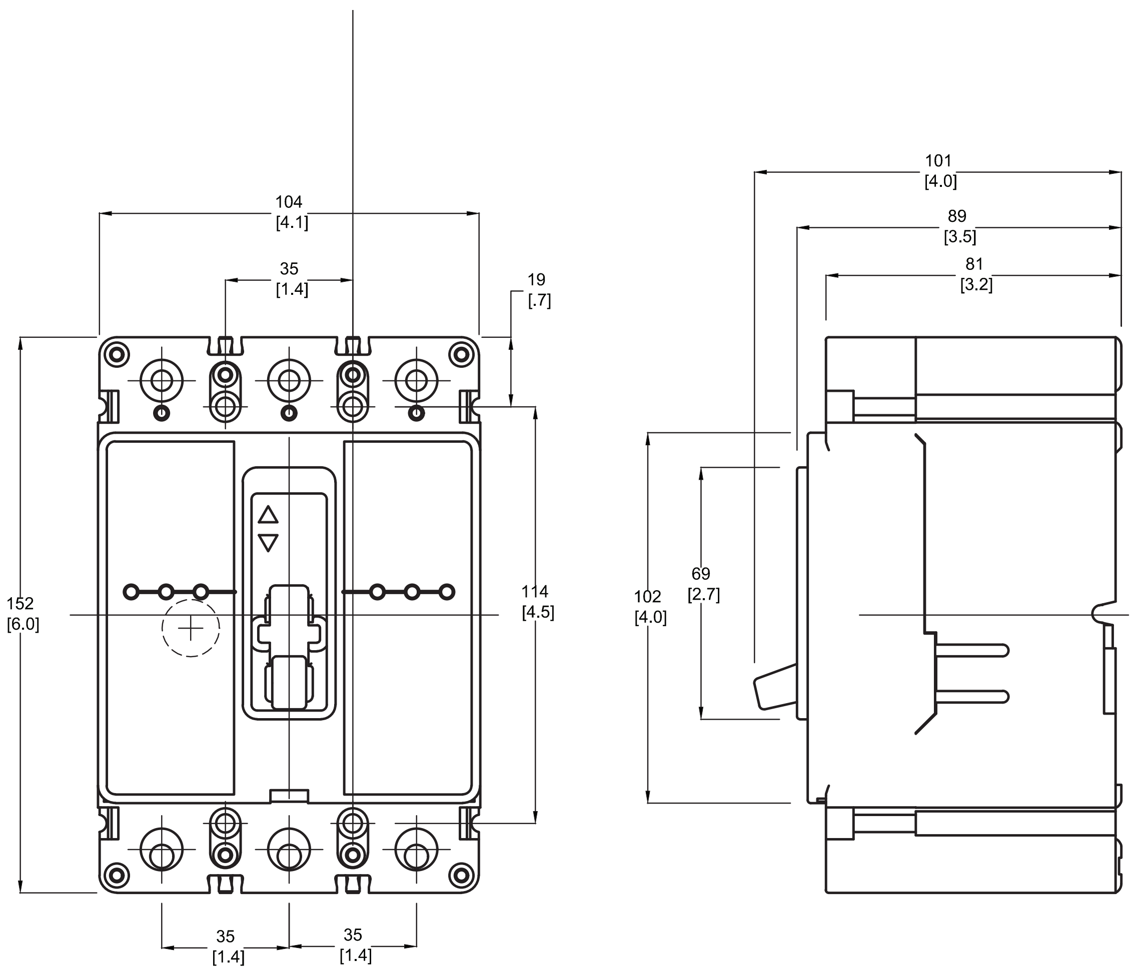
Frame Size	Overall Dimensions		
	A	B	C
	inches/mm	inches/mm	inches/mm
225	6/152	4.1/104	3.5/89
250	10/254	4.1/104	4.3/110
400	10.12/257	5.49/139	4.3/110
600	10.75/253.05	8.25/209.6	4/110
800	16/406.4	8.22/208.74	4.06/103.18
1200	16/406.4	8.25/209.55	5.5/139.7
2500	16/406.4	15.5/393.7	9/228.6

Mounting Hardware			
Frame	Qty.	Std Bolt Size	metric
225	4	5/32-32	M4-0.70
250	4	1/4-20	M6-1.0
400	4	1/4-20	M6-1.0
600	4	1/4-20	M6-1.0
800	4	1/4-20	M6-1.0
1200*	4	5/16-18	M8-1.25
2500*	4	3/8-16	M11-150

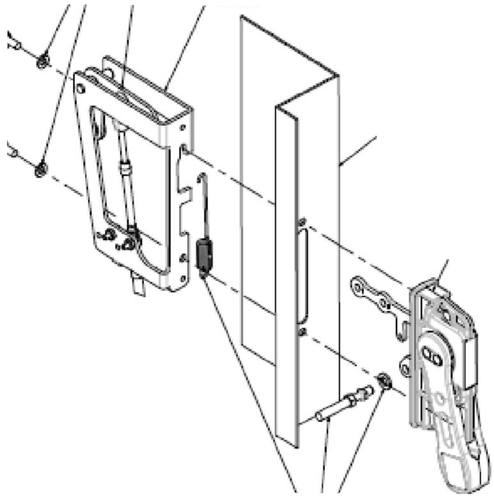
** Supplied with Breakers*

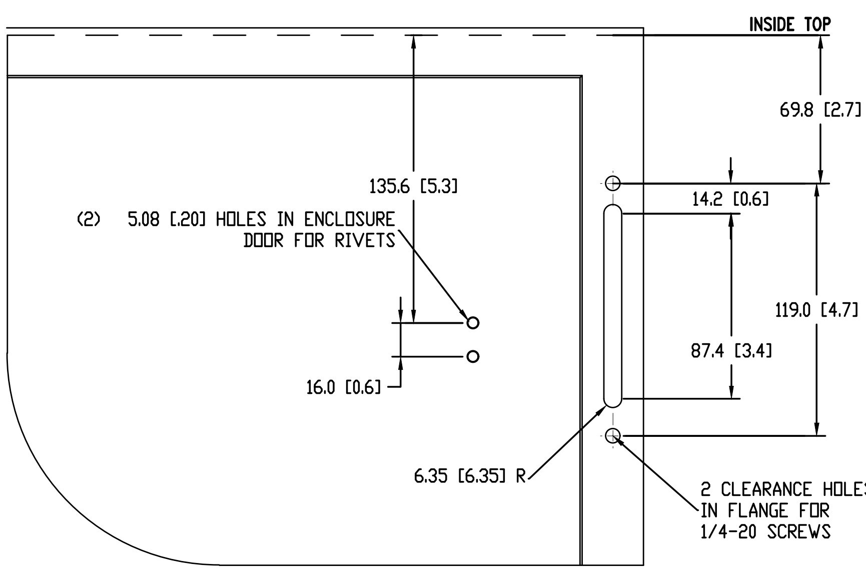
Dimensions Frame 225





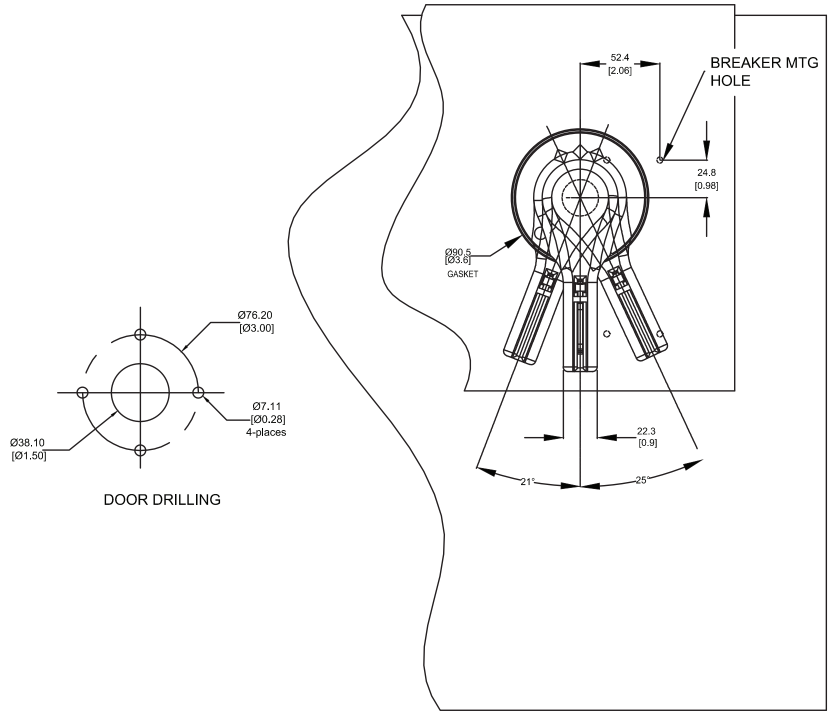
Dimensions Frame 225 - Flange Handle

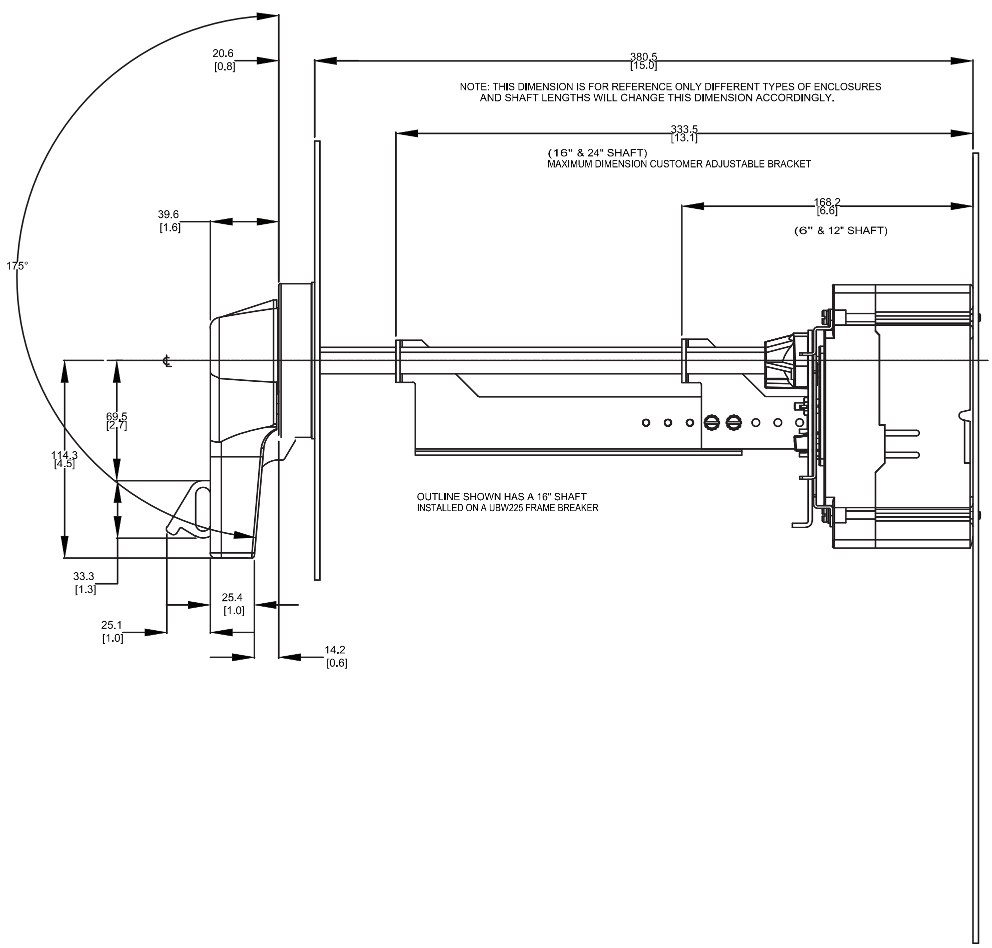




UBW

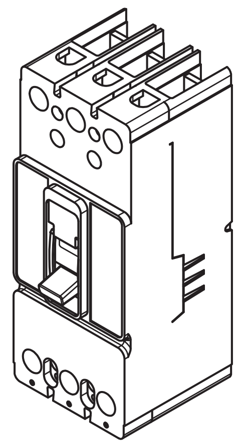
Dimensions Frame 225 - Rotary Handle

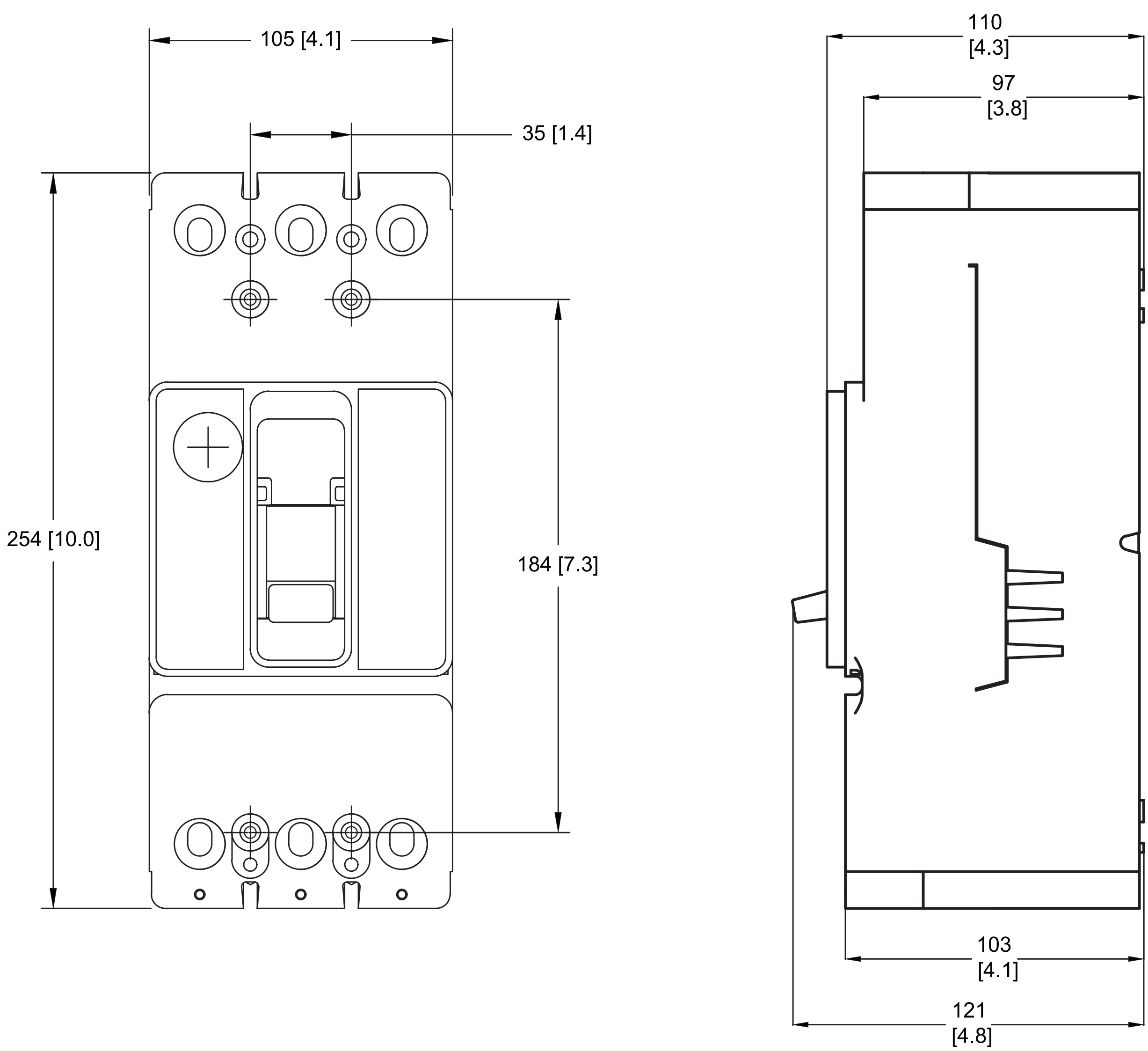




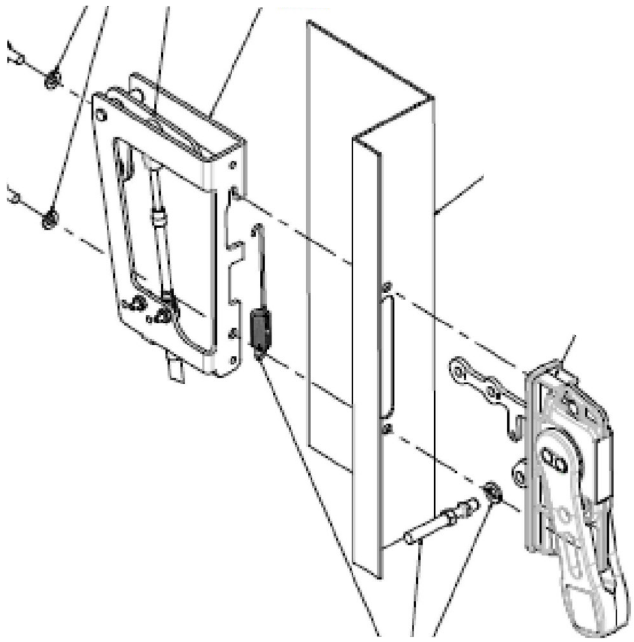
General Information
Circuit Protection
Disconnect Switches
Motor Protectors
Contactors
Overloads
Enclosed Starters
Relays
Pushbuttons and Pilot Lights
Terminal Blocks
Power Factor Correction
Appendix A
Appendix B

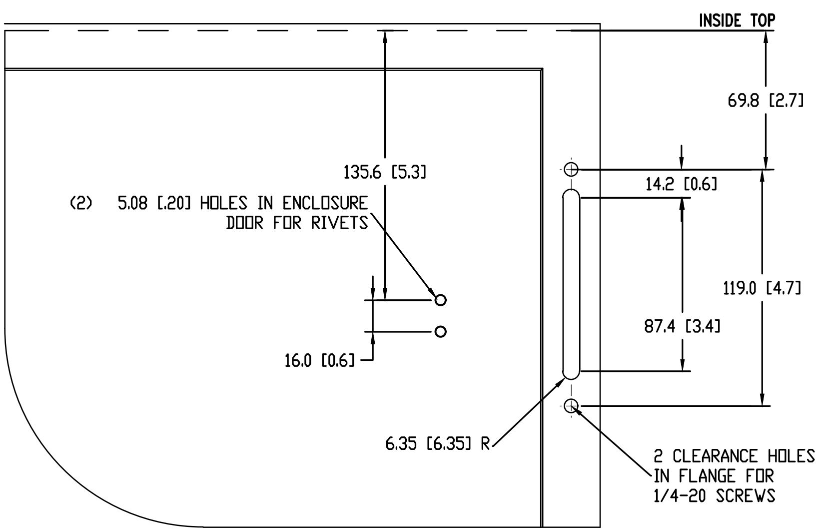
Dimensions Frame 250



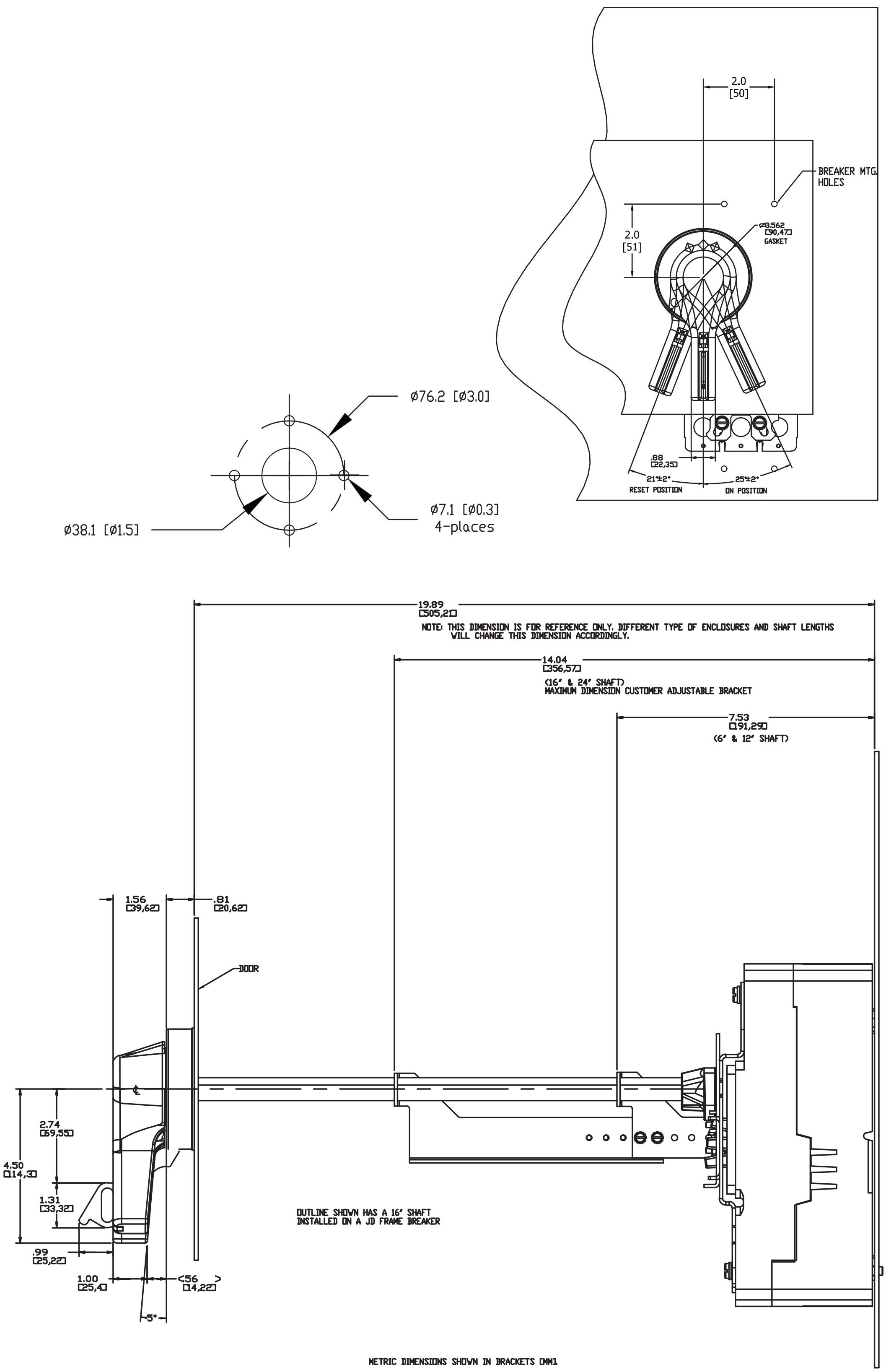


Dimensions Frame 250 - Flange Handle



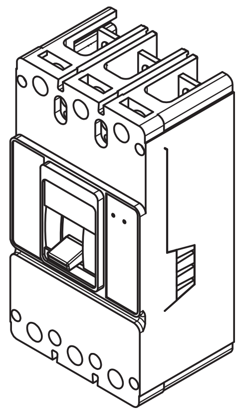


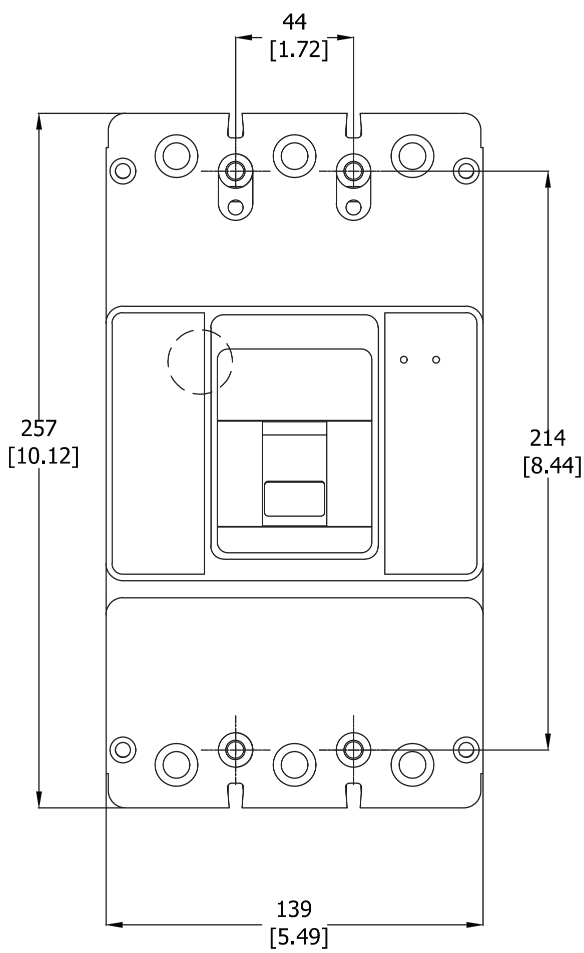
Dimensions Frame 250 - Rotary Handle

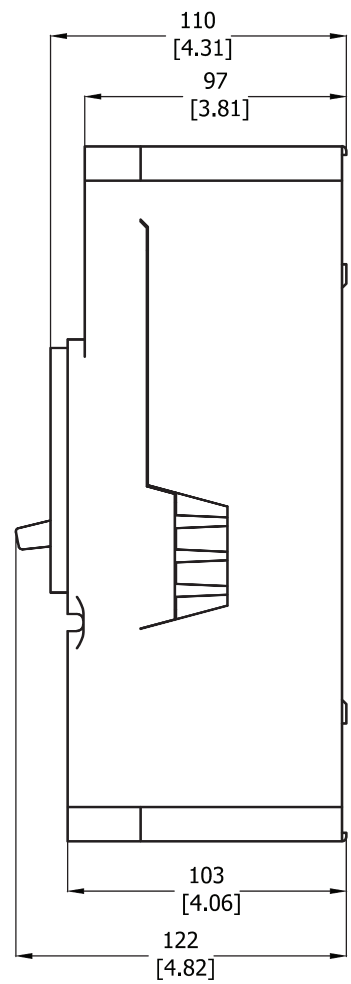


UBW

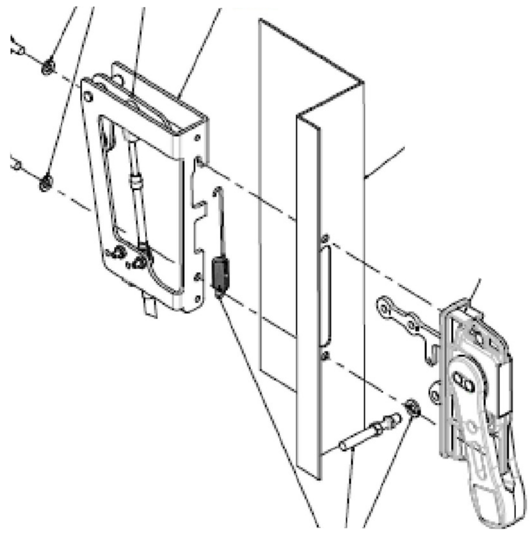
Dimensions Frame 400

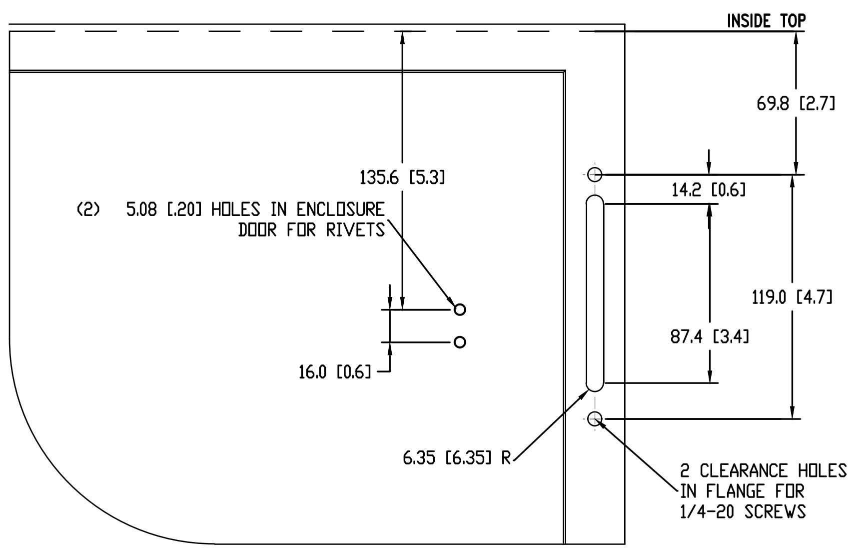






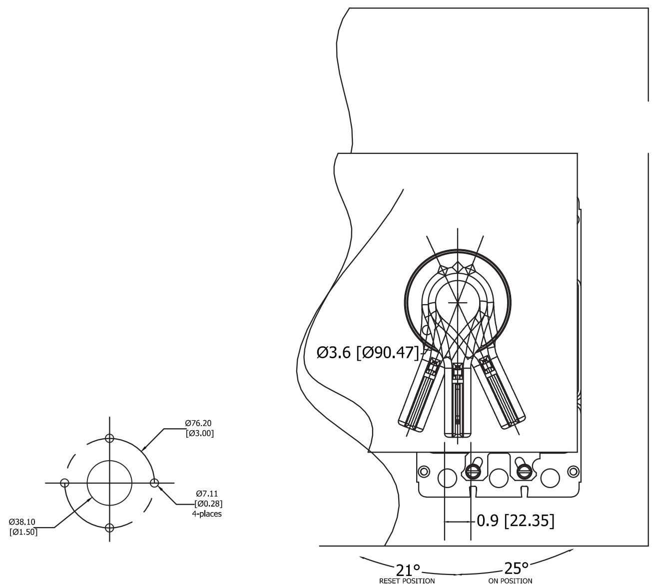
Dimensions Frame 400 - Flange Handle

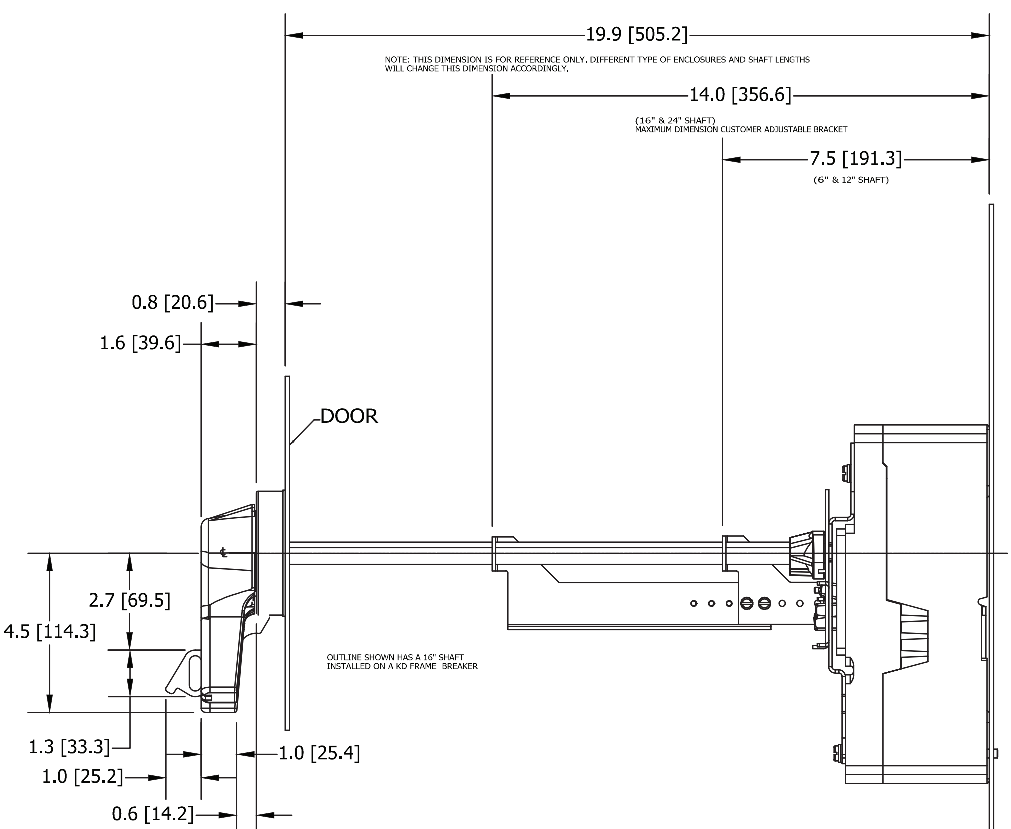




UBW

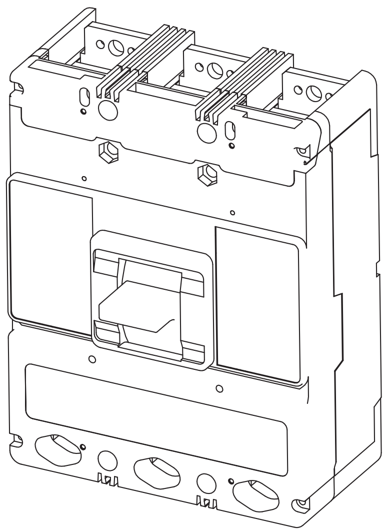
Dimensions Frame 400 - Rotary Handle

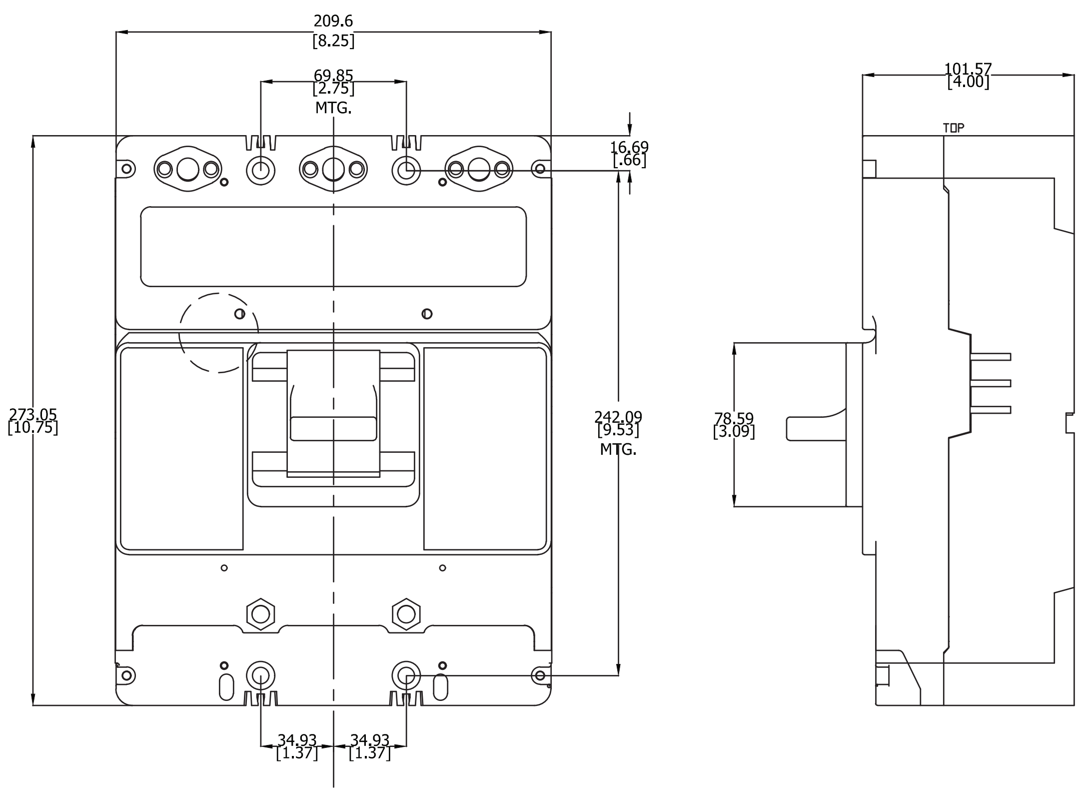




METRIC DIMENSIONS SHOWN IN BRACKETS [MM].

Dimensions Frame 600

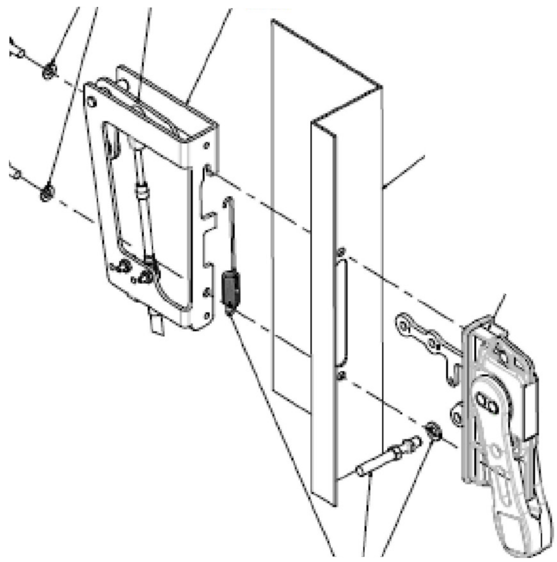


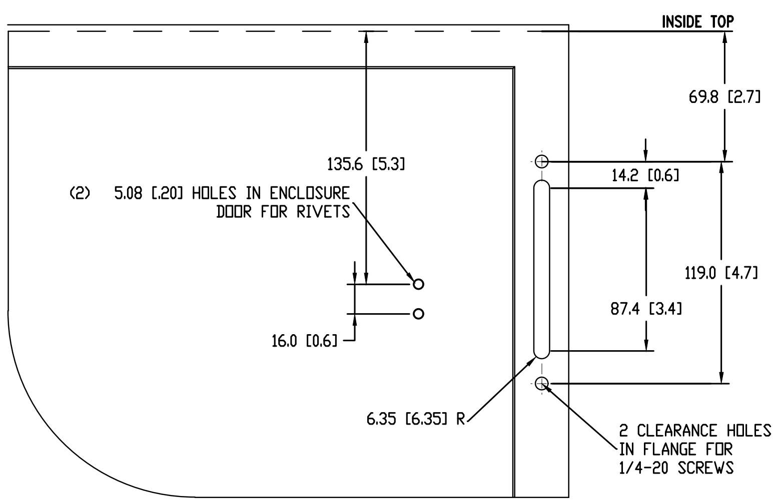


Circuit Protection

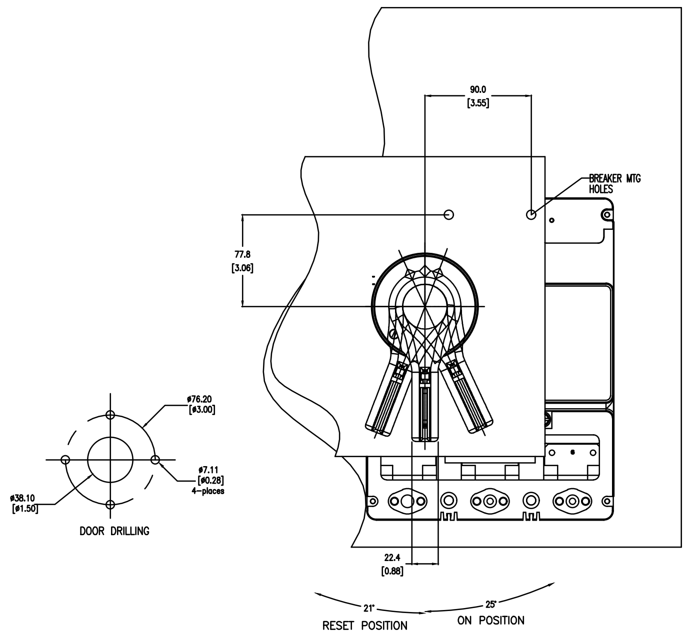
UBW

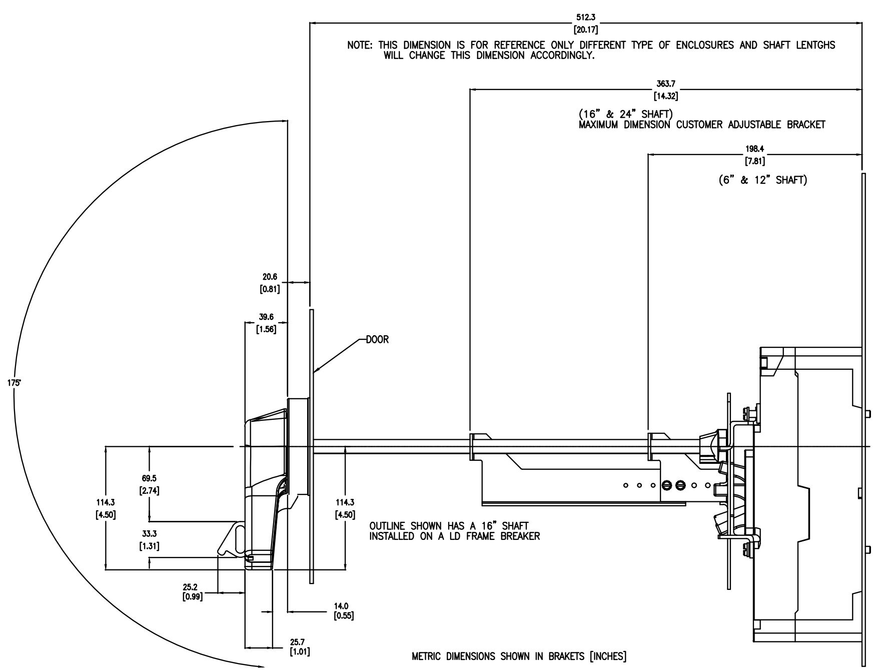
Dimensions Frame 600 - Flange Handle





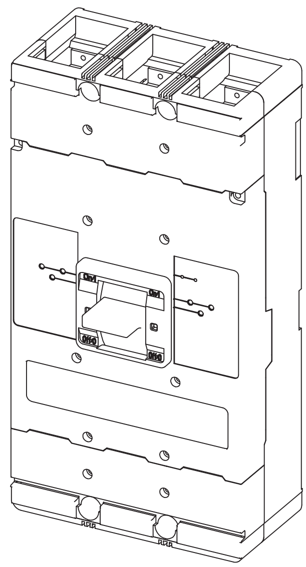
Dimensions Frame 600 - Rotary Handle

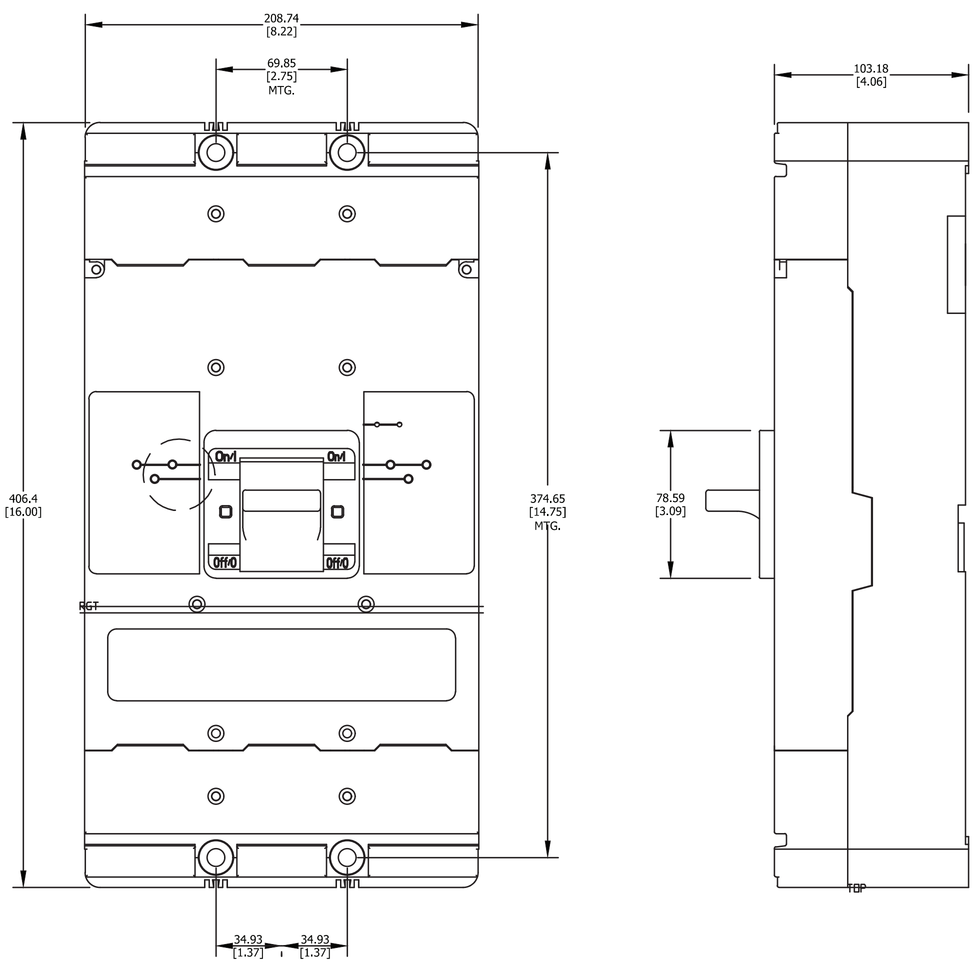




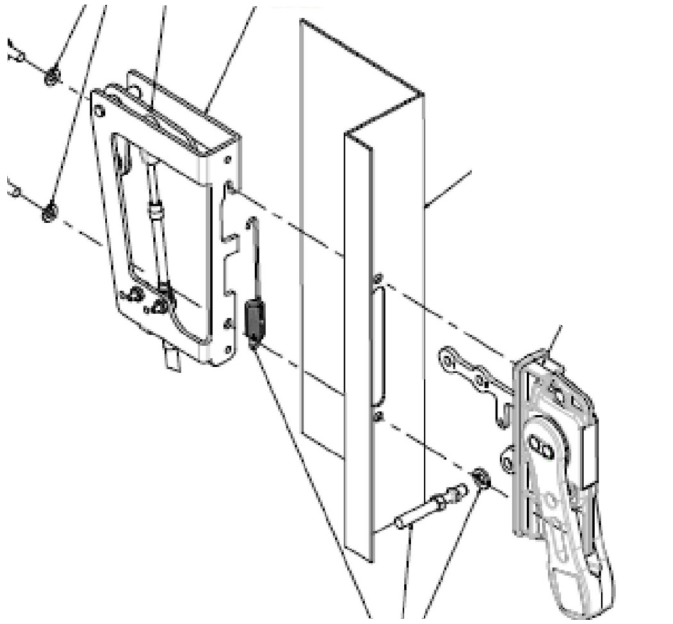
UBW

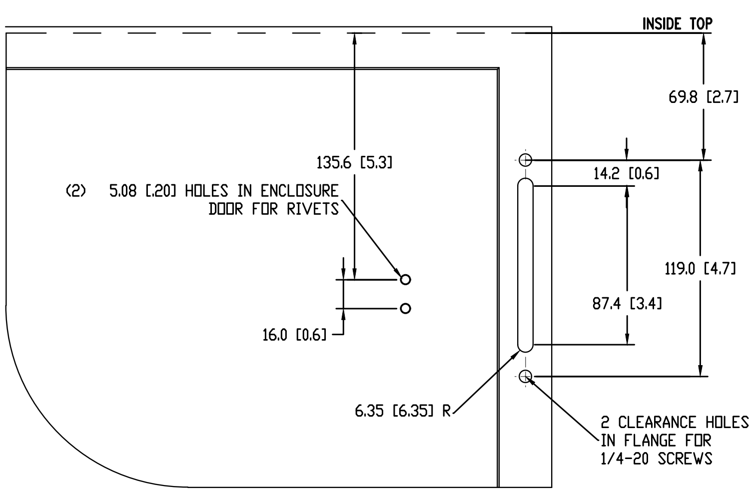
Dimensions Frame 800





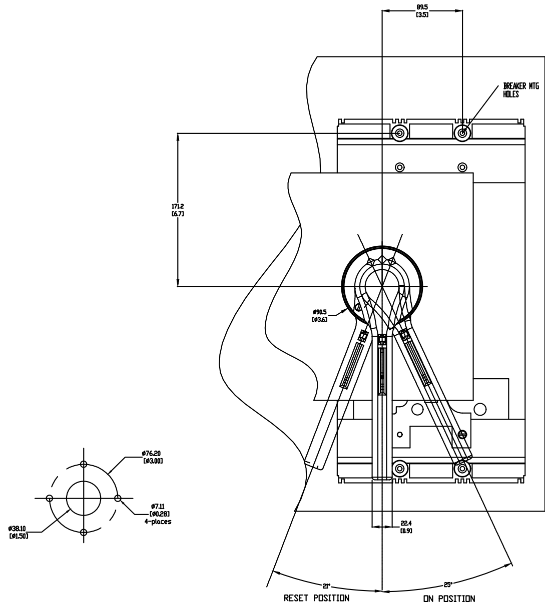
Dimensions Frame 800 - Flange Handle

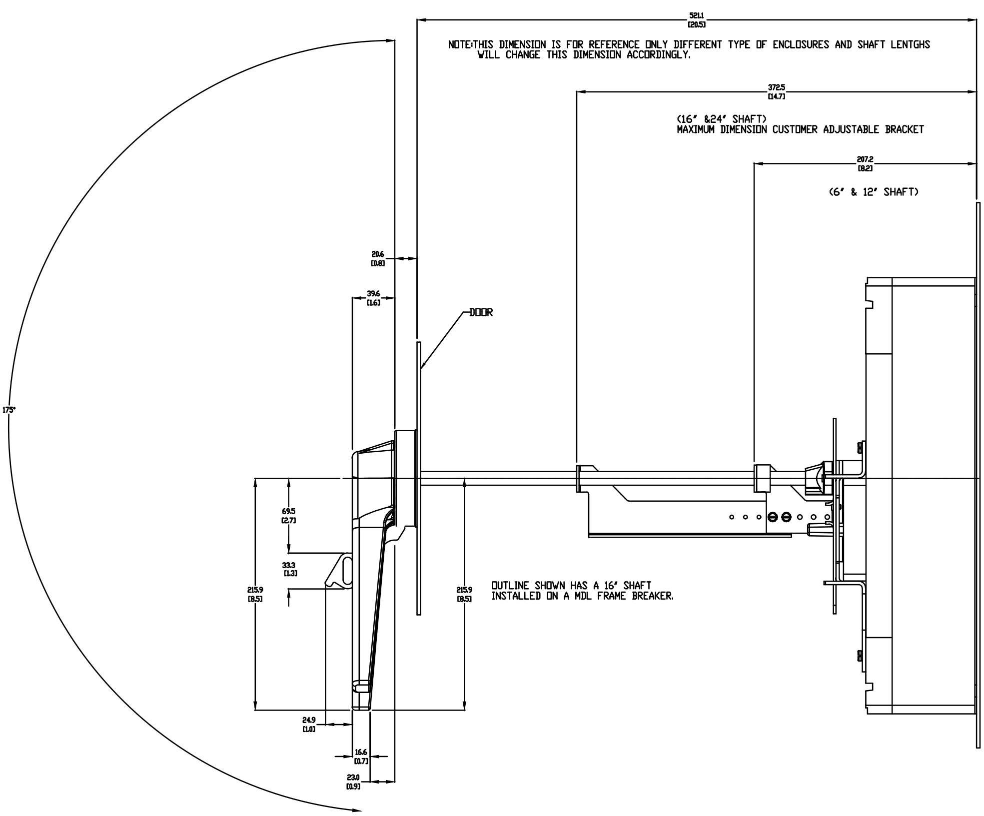




UBW

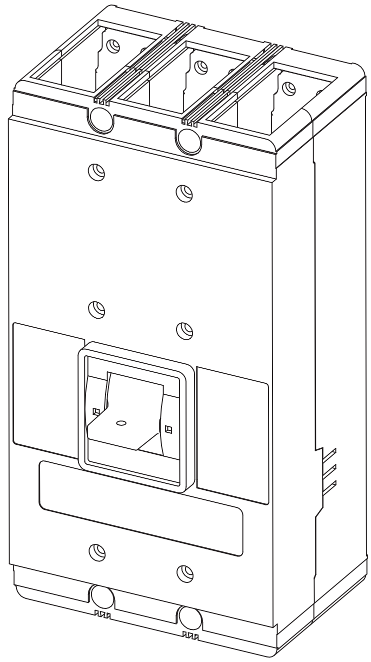
Dimensions Frame 800 - Rotary Handle

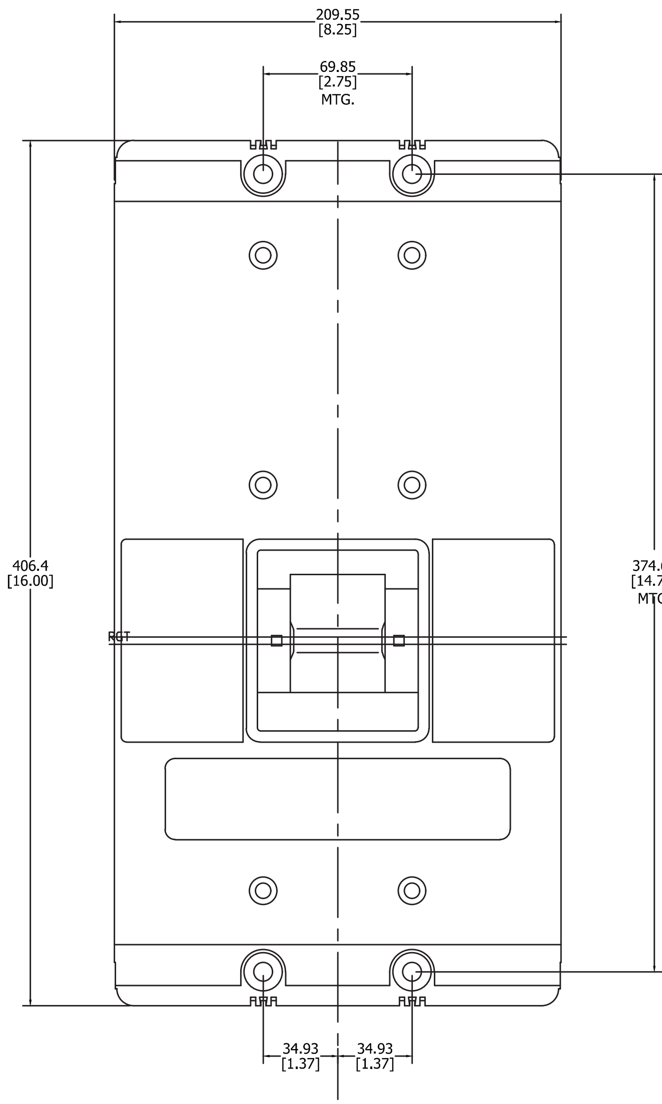


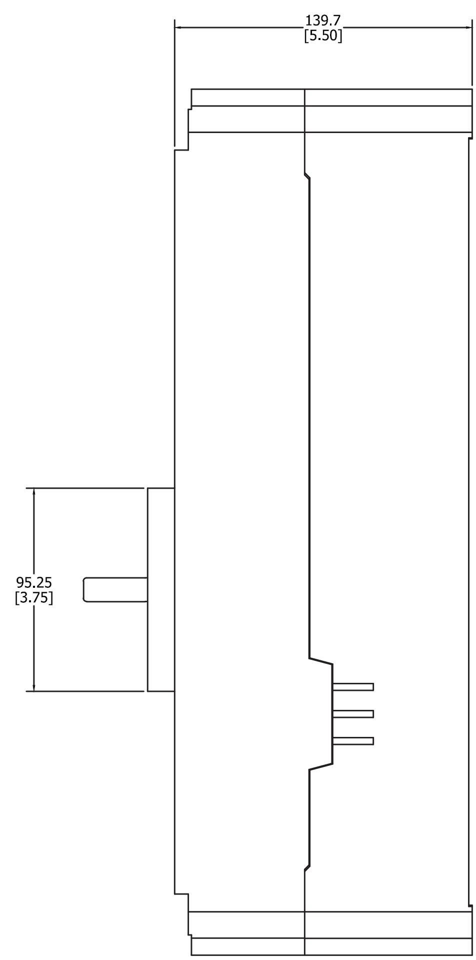


METRIC DIMENSIONS SHOWN IN BRAKETS [MM].

Dimensions Frame 1200

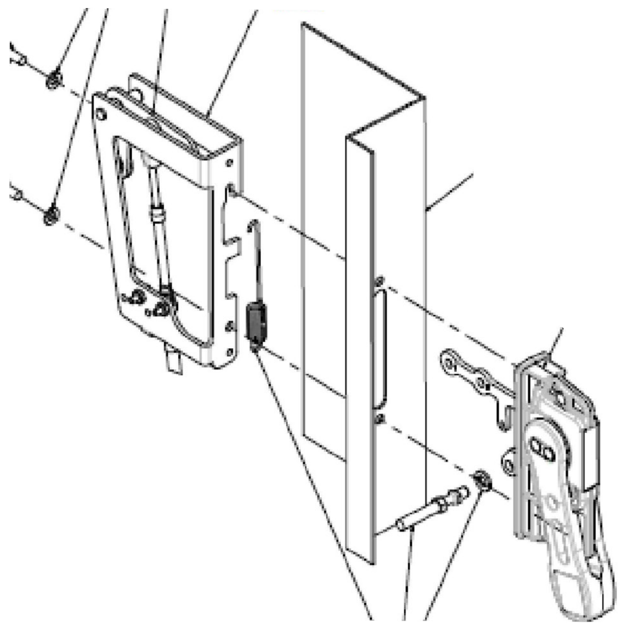


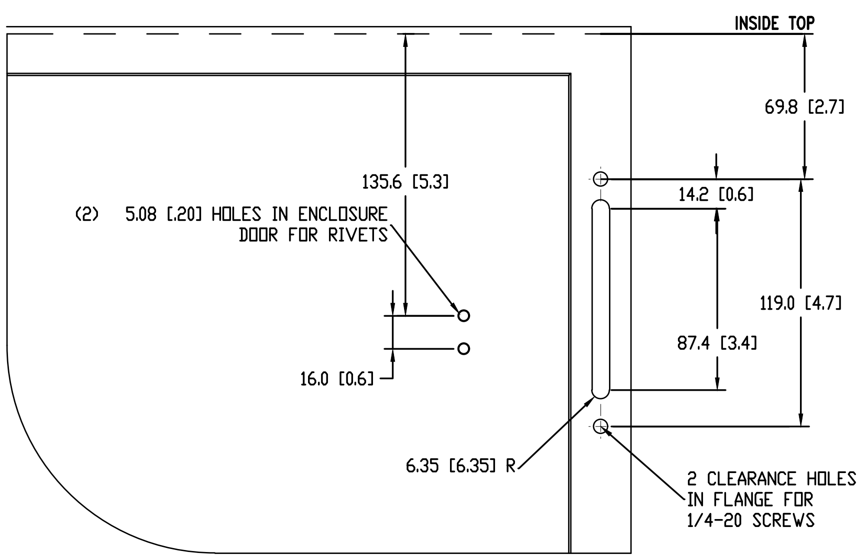




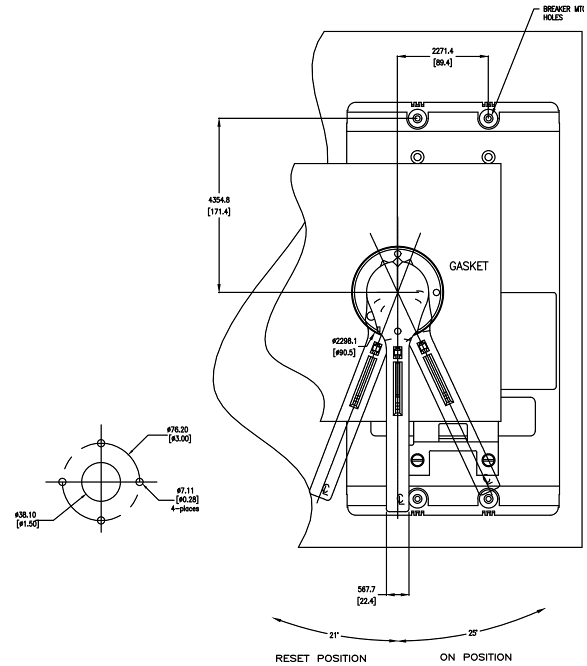
General Information | Circuit Protection | Disconnect Switches | Motor Protectors | Contactors | Overloads | Enclosed Starters | Relays | Pushbuttons and Pilot Lights | Terminal Blocks | Power Factor Correction | Appendix A | Appendix B

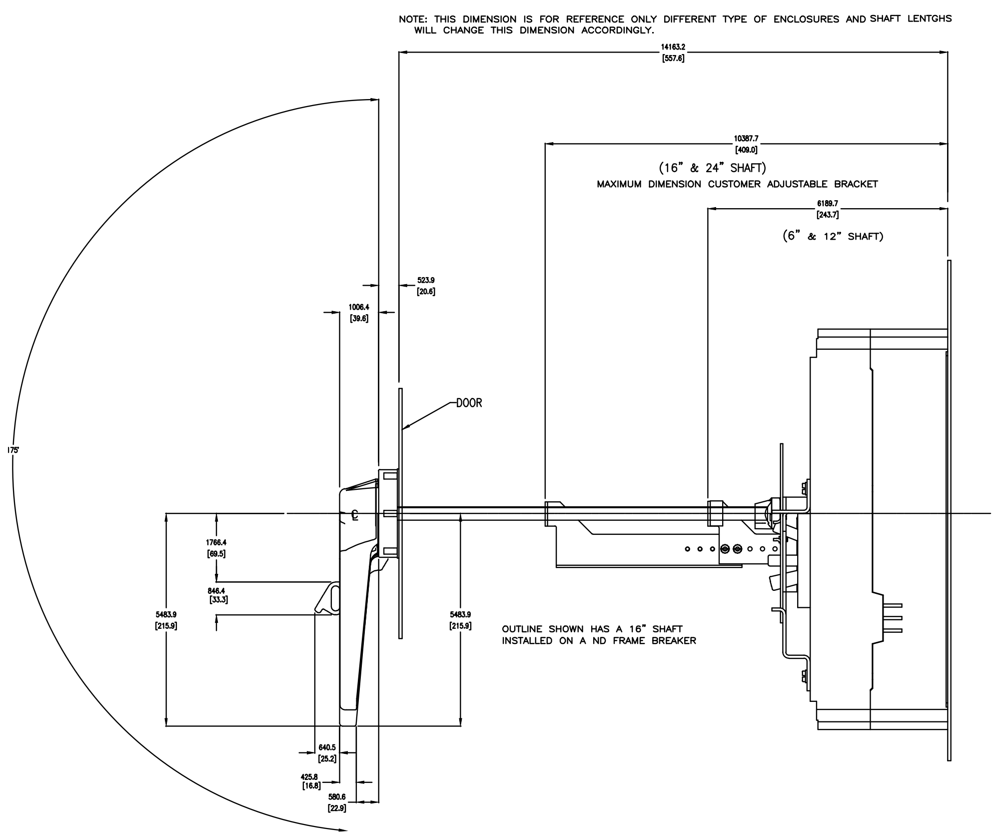
Dimensions Frame 1200 - Flange Handle





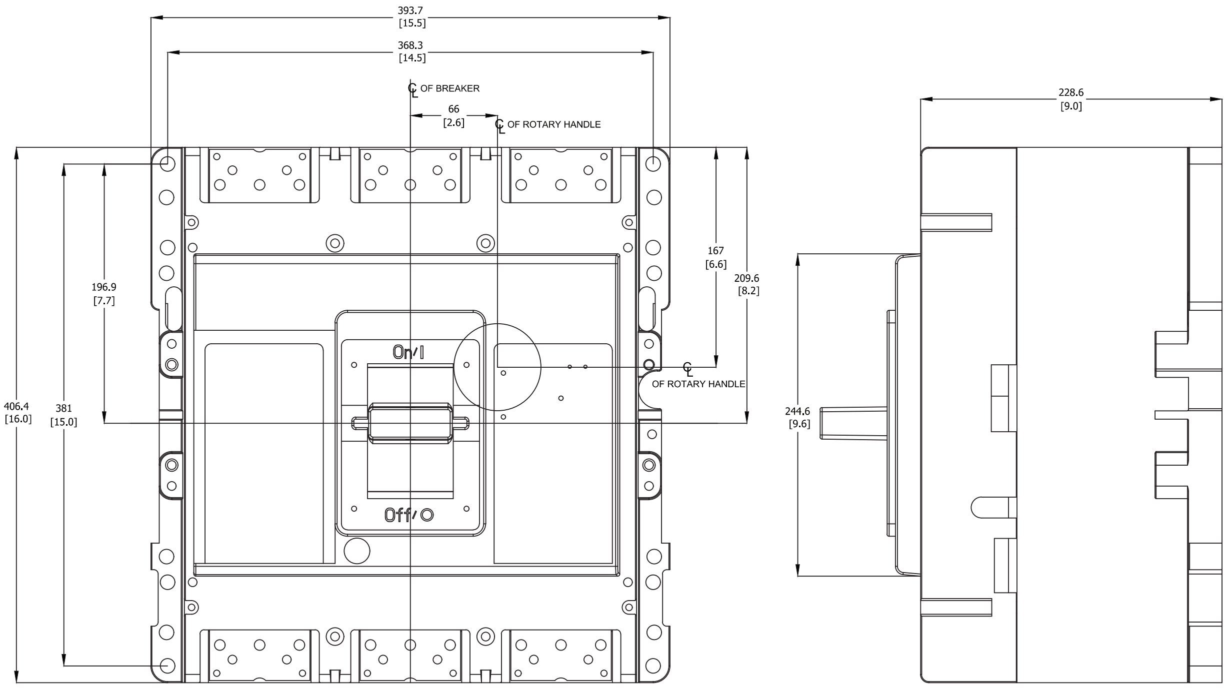
Dimensions Frame 1200 - Rotary Handle



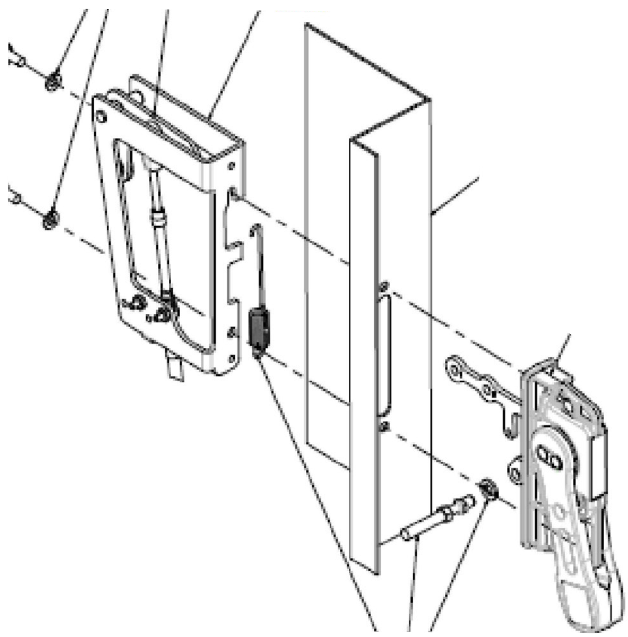


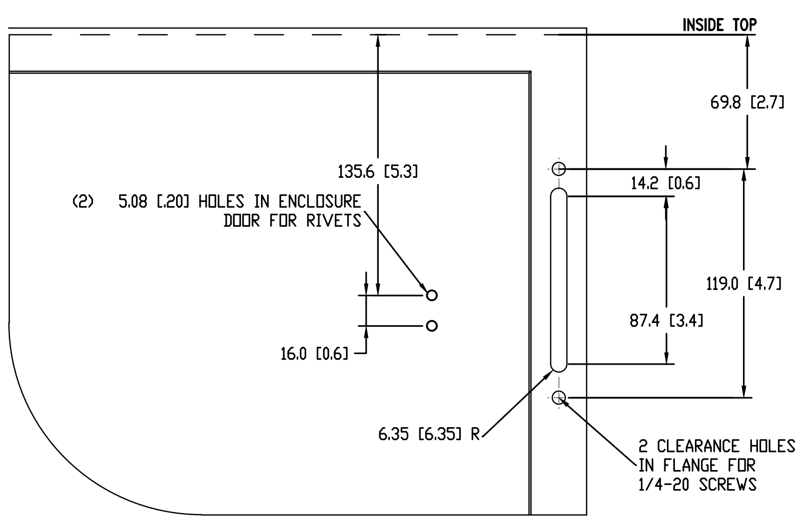
INCHES DIMENSIONS SHOWN IN BRAKETS

Dimensions Frame 2500



Dimensions Frame 2500 - Flange Handle





UBW

Internal Locations for Breaker Options

Frame 225			
	Left	Center	Right
Auxiliary Alarm			
Alarm			
Auxiliary/Alarm			
Shunt Trip			
Undervoltage Release			
	Applicable in indicated pole position		
	May be mounted lefrt or right (not both)		

Frame 250			
	Left	Center	Right
Auxiliary Alarm			
Alarm			
Auxiliary/Alarm			
Shunt Trip			
Undervoltage Release			
	Applicable in indicated pole position		
	May be mounted lefrt or right (not both)		

Frame 400			
	Left	Center	Right
Auxiliary Alarm			
Alarm			
Auxiliary/Alarm			
Shunt Trip			
Undervoltage Release			
	Applicable in indicated pole position		
	May be mounted lefrt or right (not both)		

Frame 600			
	Left	Center	Right
Auxiliary Alarm			
Alarm			
Auxiliary/Alarm			
Shunt Trip			
Undervoltage Release			
	Applicable in indicated pole position		
	May be mounted lefrt or right (not both)		

Frame 600			
	Left	Center	Right
Auxiliary Alarm			
Alarm			
Auxiliary/Alarm			
Shunt Trip			
Undervoltage Release			
	Applicable in indicated pole position		
	May be mounted lefrt or right (not both)		

Frame 1200			
	Left	Center	Right
Auxiliary Alarm			
Alarm			
Auxiliary/Alarm			
Shunt Trip			
Undervoltage Release			
	Applicable in indicated pole position		
	May be mounted lefrt or right (not both)		

Frame 2500			
	Left	Center	Right
Auxiliary Alarm			
Alarm			
Auxiliary/Alarm	N/A	N/A	N/A
Shunt Trip			
Undervoltage Release			
	Applicable in indicated pole position		
	May be mounted lefrt or right (not both)		

UMBW-UL489 and UL1077 Listed

Introducing the New WEG UMBW Series Thermal-Magnetic Miniature Circuit Breakers. This new offering includes both UL489 and UL1077 approvals to provide a solution for circuit & equipment protection in Industrial Electrical equipment. The UMBW has a range from 1 to 63Amps, available in 1,2, 3 poles, and B, C, D trip curves.

Standard Features:

- AC & DC voltages available in one Series
- UL489 Branch Circuit protective device
- UL1077 Equipment protection
- 17.5mm width per pole
- Visual status indication
- Positive trip-free snap action mechanism to ensure reliable switching
- Cuttable Bus Bar connecting system

C UL US CE

UL 489 UL File No. E468810
UL 1077 UL File No. E468808

UMBW Catalog Number Sequence

UMBW	-1	C	1	-1

UL Approval
- -1= UL1077
- -4= UL489

Number of Poles
- 1,2,3

Current Rating
- UL1077-1 to 60
- UL489-1 to 60

Trip Curve
- B= 4xIn (+/-20%) Magnetic TripCurrent
- C= 8xIn (+/-20%) Magnetic TripCurrent
- D= 12xIn (+/-20%) Magnetic Trip Current

Table intended as reference only and not to create part numbers.






Circuit Protection

UMBW - UL1077

# Poles	Ampacity	Catalog Number			Max Voltage	List Price	Multiplier
		B CURVE	C CURVE	D CURVE			
1 POLE	1	UMBW-1B1-1	UMBW-1C1-1	UMBW-1D1-1	277 VAC / 60VDC (1-pole)	$25	Z12
	1	UMBW-1B1-1.2	UMBW-1C1-1.2	UMBW-1D1-1.2			
	1.5	UMBW-1B1-1.5	UMBW-1C1-1.5	UMBW-1D1-1.5			
	1.6	UMBW-1B1-1.6	UMBW-1C1-1.6	UMBW-1D1-1.6			
	2	UMBW-1B1-2	UMBW-1C1-2	UMBW-1D1-2			
	3	UMBW-1B1-3	UMBW-1C1-3	UMBW-1D1-3			
	4	UMBW-1B1-4	UMBW-1C1-4	UMBW-1D1-4			
	5	UMBW-1B1-5	UMBW-1C1-5	UMBW-1D1-5			
	6	UMBW-1B1-6	UMBW-1C1-6	UMBW-1D1-6			
	8	UMBW-1B1-8	UMBW-1C1-8	UMBW-1D1-8			
	10	UMBW-1B1-10	UMBW-1C1-10	UMBW-1D1-10			
	13	UMBW-1B1-13	UMBW-1C1-13	UMBW-1D1-13			
	15	UMBW-1B1-15	UMBW-1C1-15	UMBW-1D1-15			
	20	UMBW-1B1-20	UMBW-1C1-20	UMBW-1D1-20			
	25	UMBW-1B1-25	UMBW-1C1-25	UMBW-1D1-25			
	30	UMBW-1B1-30	UMBW-1C1-30	UMBW-1D1-30			
	35	UMBW-1B1-35	UMBW-1C1-35	UMBW-1D1-35			
	40	UMBW-1B1-40	UMBW-1C1-40	UMBW-1D1-40			
	50	UMBW-1B1-50	UMBW-1C1-50	UMBW-1D1-50			
	60	UMBW-1B1-60	UMBW-1C1-60	UMBW-1D1-60			
2 POLE	1	--	UMBW-1C2-1	UMBW-1D2-1	480Y/277 VAC / 125 VDC (2-poles in series)	$48	Z12
	1.2	--	UMBW-1C2-1.2	UMBW-1D2-1.2			
	1.5	--	UMBW-1C2-1.5	UMBW-1D2-1.5			
	1.6	--	UMBW-1C2-1.6	UMBW-1D2-1.6			
	2	--	UMBW-1C2-2	UMBW-1D2-2			
	3	--	UMBW-1C2-3	UMBW-1D2-3			
	4	--	UMBW-1C2-4	UMBW-1D2-4			
	5	--	UMBW-1C2-5	UMBW-1D2-5			
	6	--	UMBW-1C2-6	UMBW-1D2-6			
	8	--	UMBW-1C2-8	UMBW-1D2-8			
	10	--	UMBW-1C2-10	UMBW-1D2-10			
	13	--	UMBW-1C2-13	UMBW-1D2-13			
	15	--	UMBW-1C2-15	UMBW-1D2-15			
	20	--	UMBW-1C2-20	UMBW-1D2-20			
	25	--	UMBW-1C2-25	UMBW-1D2-25			
	30	--	UMBW-1C2-30	UMBW-1D2-30			
	35	--	UMBW-1C2-35	UMBW-1D2-35			
	40	--	UMBW-1C2-40	UMBW-1D2-40			
	50	--	UMBW-1C2-50	UMBW-1D2-50			
	60	--	UMBW-1C2-60	UMBW-1D2-60			

# Poles	Ampacity	Catalog Number		Max Voltage	List Price	Multiplier
		C CURVE	D CURVE			
3 POLE	1	UMBW-1C3-1	UMBW-1D3-1	480Y/277 VAC / 125 VDC (2-poles in series)	$65	Z12
	1.2	UMBW-1C3-1.2	UMBW-1D3-1.2			
	1.5	UMBW-1C3-1.5	UMBW-1D3-1.5			
	1.6	UMBW-1C3-1.6	UMBW-1C3-1.6			
	2	UMBW-1C3-2	UMBW-1D3-2			
	3	UMBW-1C3-3	UMBW-1D3-3			
	4	UMBW-1C3-4	UMBW-1D3-4			
	5	UMBW-1C3-5	UMBW-1D3-5			
	6	UMBW-1C3-6	UMBW-1D3-6			
	8	UMBW-1C3-8	UMBW-1D3-8			
	10	UMBW-1C3-10	UMBW-1D3-10			
	13	UMBW-1C3-13	UMBW-1D3-13			
	15	UMBW-1C3-15	UMBW-1D3-15			
	20	UMBW-1C3-20	UMBW-1D3-20			
	25	UMBW-1C3-25	UMBW-1D3-25			
	30	UMBW-1C3-30	UMBW-1D3-30			
	35	UMBW-1C3-35	UMBW-1D3-35			
	40	UMBW-1C3-40	UMBW-1D3-40			
	50	UMBW-1C3-50	UMBW-1D3-50			
	60	UMBW-1C3-60	UMBW-1D3-60			

Circuit Protection

UMBW - UL489

# Poles	Ampacity	Catalog Number		Max Voltage	List Price	Multiplier
		C CURVE	D CURVE			
1 POLE 	1	UMBW-4C1-1	UMBW-4D1-1	277 VAC /60 VDC (1-pole)	$53	Z12
	1.2	UMBW-4C1-1.2	UMBW-4D1-1.2			
	1.5	UMBW-4C1-1.5	UMBW-4D1-1.5			
	1.6	UMBW-4C1-1.6	UMBW-4D1-1.6			
	2	UMBW-4C1-2	UMBW-4D1-2			
	3	UMBW-4C1-3	UMBW-4D1-3			
	4	UMBW-4C1-4	UMBW-4D1-4			
	5	UMBW-4C1-5	UMBW-4D1-5			
	6	UMBW-4C1-6	UMBW-4D1-6			
	8	UMBW-4C1-8	UMBW-4D1-8			
	10	UMBW-4C1-10	UMBW-4D1-10			
	13	UMBW-4C1-13	UMBW-4D1-13			
	15	UMBW-4C1-15	UMBW-4D1-15			
	20	UMBW-4C1-20	UMBW-4D1-20			
	25	UMBW-4C1-25	UMBW-4D1-25			
	30	UMBW-4C1-30	UMBW-4D1-30			
	35	UMBW-4C1-35	UMBW-4D1-35	240 VAC /60 VDC (1-pole)	$53	Z12
	40	UMBW-4C1-40	UMBW-4D1-40			
	50	UMBW-4C1-50	UMBW-4D1-50			
	60	UMBW-4C1-60	UMBW-4D1-60			
2 POLE 	1	UMBW-4C2-1	UMBW-4D2-1	480 Y/277 VAC / 125 VDC (2-poles in series)	$107	Z12
	1.2	UMBW-4C2-1.2	UMBW-4D2-1.2			
	1.5	UMBW-4C2-1.5	UMBW-4D2-1.5			
	1.6	UMBW-4C2-1.6	UMBW-4C2-1.6			
	2	UMBW-4C2-2	UMBW-4D2-2			
	3	UMBW-4C2-3	UMBW-4D2-3			
	4	UMBW-4C2-4	UMBW-4D2-4			
	5	UMBW-4C2-5	UMBW-4D2-5			
	6	UMBW-4C2-6	UMBW-4D2-6			
	8	UMBW-4C2-8	UMBW-4D2-8			
	10	UMBW-4C2-10	UMBW-4D2-10			
	13	UMBW-4C2-13	UMBW-4D2-13			
	15	UMBW-4C2-15	UMBW-4D2-15			
	20	UMBW-4C2-20	UMBW-4D2-20			
	25	UMBW-4C2-25	UMBW-4D2-25			
	30	UMBW-4C2-30	UMBW-4D2-30			
	35	UMBW-4C2-35	UMBW-4D2-35	240 VAC /125 VDC (2-poles in series)	$107	Z12
	40	UMBW-4C2-40	UMBW-4D2-40			
	50	UMBW-4C2-50	UMBW-4D2-50			
	60	UMBW-4C2-60	UMBW-4D2-60			

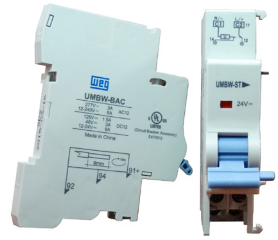
UL489 - UMBW

# Poles	Ampacity	Catalog Number		Max Voltage	List Price	Multiplier
		C CURVE	D CURVE			
3 POLE	1	UMBW-4C3-1	UMBW-4D3-1	480 Y/277 VAC / 125 VDC (2-poles in series)	$158	Z12
	1.2	UMBW-4C3-1.2	UMBW-4D3-1.2			
	1.5	UMBW-4C3-1.5	UMBW-4D3-1.5			
	1.6	UMBW-4C3-1.6	UMBW-4D3-1.6			
	2	UMBW-4C3-2	UMBW-4D3-2			
	3	UMBW-4C3-3	UMBW-4D3-3			
	4	UMBW-4C3-4	UMBW-4D3-4			
	5	UMBW-4C3-5	UMBW-4D3-5			
	6	UMBW-4C3-6	UMBW-4D3-6			
	8	UMBW-4C3-8	UMBW-4D3-8			
	10	UMBW-4C3-10	UMBW-4D3-10			
	13	UMBW-4C3-13	UMBW-4D3-13			
	15	UMBW-4C3-15	UMBW-4D3-15			
	20	UMBW-4C3-20	UMBW-4D3-20			
	25	UMBW-4C3-25	UMBW-4D3-25			
	30	UMBW-4C3-30	UMBW-4D3-30			
	35	UMBW-4C3-35	UMBW-4D3-35	240 VAC / 125 VDC (2-poles in series)	$158	Z12
	40	UMBW-4C3-40	UMBW-4D3-40			
	50	UMBW-4C3-50	UMBW-4D3-50			
	60	UMBW-4C3-60	UMBW-4D3-60			

UMBW

Miniature Circuit Breakers

Accessories



Auxiliary Contacts

Signaling contacts that open and close with the breaker. Provide remote status indicating ON and OFF only.

For Use With	Catalog Number	Operating Voltage	Operating Amperage	Contacts	Mounting/Dims (mm)	Mechanical Operations	Torque	Mass	QTY	List Price	Multiplier
UMBW-1 UMBW-4	**UMBW-AUX**	12-240VAC	6A	1NO/1NC	Field Mountable..Left Side/ 9mm	20,000	1 Nm .74 Ft. lbs.	29g	1	**$55**	Z12
		277VAC	3A								
		12-24VDC	6A								
		48VDC	3A								
		110-220VDC	1.5A								

Bell Alarm

Provides provisions for visual and alarm indication when the breaker in the Tripped status, due to Short Circuit, Overload or Undervoltage. Breaker must be re-set to open contacts.

For Use With	Catalog Number	Operating Voltage	Operating Amperage	Contacts	Mounting/Dims (mm)	Mechanical Operations	Torque	Mass	QTY	List Price	Multiplier
UMBW-1 UMBW-4	**UMBW-BAC**	12-240VAC	6A	1NO/1NC	Field Mountable..Left Side/ 9mm	10,000	1 Nm .74 Ft. lbs.	29g	1	**$68**	Z12
		277VAC	3A								
		12-24VDC	6A								
		48VDC	3A								
		110-220VDC	1.5A								

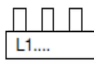
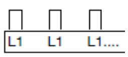
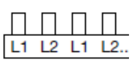
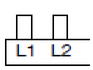
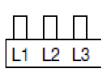
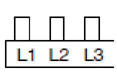
Shunt Trip

Provides ability to trip breaker from remote location when power is applied.

For Use With	Catalog Number	Voltage/Min Trip Voltage	Amperage/ Power Consuption	Contacts	Mounting/Dims (mm)	Mechanical Operations	Torque	Mass	QTY	List Price	Multiplier
UMBW-1 UMBW-4	**UMBW-ST12DC**	12 VDC/ 8VDC	6A/ 200W	1NO/1NC	Field Mountable..Left Side/18mm	20,000	1Nm, .74ft lbs	60g	1	**$95**	Z12
	UMBW-ST24DC	24 VDC/ 16VDC	6A/ 200W							**$95**	
	UMBW-ST48DC	48 VDC/ 24VDC	2A/ 200W							**$95**	
	UMBW-ST125DC	125 VDC/ 80VDC	1.5A/ 200W							**$95**	
	UMBW-ST120AC	120 VAC/ 80VAC	6A/ 200W							**$95**	
	UMBW-ST240AC	240 VAC/ 160VAC	6A/ 200W							**$95**	
	UMBW-ST277AC	277 VAC/ 160VAC	3A/ 200W							**$95**	

Minature Circuit Breakers

Bus Bar Accessories

For Use With	Catalog Number	AMP Rating End/ Center	Number of Poles	Max Voltage	Length (mm)	QTY	List Price	End Cap Catalog Number (Sold as Seprate Item)	QTY	List Price	Multiplier
1 Pole											
UMBW-1	**UMBW-BB-1-1** 	80A/160A	57	600 AC /1000 DC	1009	1	$125	**UMBW-BB-1-1P-END CAP**	10 (Sets of 2pcs)	**$30**	Z12
UMBW-4	**UMBW-BB-4-1**	80A/160A	57	1000 AC/DC	1031	1	$500	**UMBW-BB-4-END CAP**	10	**$35**	
1 Pole with Auxiliary											
UMBW-1	**UMBW-BB-1-1A** 	80A/160A	37	600 AC /1000 DC	985	1	$135	**UMBW-BB-1-1P-END CAP**	10 (Sets of 2pcs)	**$30**	Z12
UMBW-4	**UMBW-BB-4-1A**	80A/160A	37	1000 AC/DC	972	1	$570	**UMBW-BB-4-END CAP**	10	**$35**	
2 POLE											
UMBW-1	**UMBW-BB-1-2** 	80A/160A	56	600 AC/DC	991	1	$285	**UMBW-BB-1-2/3P-E CAP**	10 (Sets of 2pcs)	**$30**	Z12
UMBW-4	**UMBW-BB-4-2**	80A/160A	56	600 AC/DC	979	1	$575	**UMBW-BB-4-END CAP**	10	**$35**	
2 Pole with Auxiliary											
UMBW-1	**UMBW-BB-1-2A** 	80A/160A	46	600 AC/DC	1009	1	$295	**UMBW-BB-1-2/3P-E CAP**	10 (Sets of 2pcs)	**$30**	Z12
UMBW-4	**UMBW-BB-4-2A**	80A/160A	46	600 AC/DC	981	1	$645	**UMBW-BB-4-END CAP**	10	**$35**	
3 Pole											
UMBW-1	**UMBW-BB-1-3** 	80A/160A	57	600 AC/DC	1009	1	$340	**UMBW-BB-1-2/3P-E CAP**	10 (Sets of 2pcs)	**$30**	Z12
UMBW-4	**UMBW-BB-4-3**	80A/160A	57	600 AC/DC	997	1	$650	**UMBW-BB-4-END CAP**	10	**$35**	
3 Pole with Auxiliary											
UMBW-1	**UMBW-BB-1-3A** 	80A/160A	48	600 AC/DC	982	1	$345	**UMBW-BB-1-2/3P-E CAP**	10 (Sets of 2pcs)	**$30**	Z12
UMBW-4	**UMBW-BB-4-3A**	80A/160A		600 AC/DC	936	1	$720	**UMBW-BB-4-END CAP**	10	**$35**	

Note: Bus Bars May Be Center Fed to Increase Ampacity to Double Rated Value

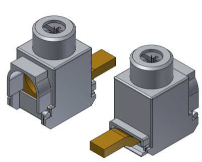
General Information
Circuit Protection
Disconnect Switches
Motor Protectors
Contactors
Overloads
Enclosed Starters
Relays
Pushbuttons and Pilot Lights
Terminal Blocks
Power Factor Correction
Appendix A
Appendix B

Miniature Circuit Breakers

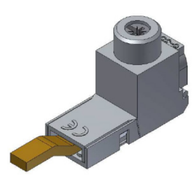
Bus Bar Accessories

For Use With	Catalog Number	AMP Rating	Number of Poles	Max Voltage	Conductor Range Min/Max	Tightening Torque	QTY	List Price	Multiplier
UMBW-1	UMBW-BB-1-1P-END CAP	N/A	1	N/A	N/A	N/A	10	**$30**	Z12
UMBW-1	UMBW-BB-1-2/3-E-CAP	N/A	2 or 3	N/A	N/A	N/A	10 (Sets of 2pcs)	**$35**	Z12
UMBW-1	UMBW-BB-1-1P-TERM	115A	1	1000 AC/DC	10AWG/1AWG	50 lb.in	10	**$320**	Z12
UMBW-1	UMBW-BB-1-2/3P-TERM	115A	2 or 3	1000 AC/DC	10AWG/1AWG	50 lb.in	10	**$330**	Z12
UMBW-1	UMBW-BB-1-BUS CAP-Y	N/A	5	N/A	N/A	N/A	10 (Sets of 5pcs)	**$115**	Z12

For Use With	Catalog Number	AMP Rating	Number of Poles	Max Voltage	Conductor Range Min/Max	Tightening Torque	QTY	List Price	Multiplier
UMBW-4	UMBW-BB-4-END CAP	N/A		N/A	N/A	N/A	10	**$40**	Z12
UMBW-4	UMBW-BB-4-1P-TERM	115A	1	1000 AC/DC	14AWG/2AWG	50 lb.in	10	**$350**	Z12
UMBW-4	UMBW-BB-4-BUS CAP-Y	N/A	3	N/A	N/A	N/A	10 (Sets of 3pcs)	**$45**	Z12

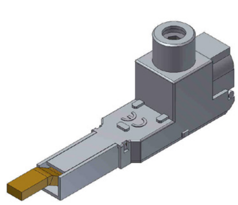


UMBW-BB-1-1-TERM



UMBW-BB-1-2/3P-TERM

UMBW-BB-1-BUS CAP-Y



UMBW-BB-4-1P-TERM

UMBW-BB-4-BUS CAP-Y

Breaker Technical Data

Electrical Ratings

Approval	Poles	Voltage	Ampacity	Interrupting
UL1077 E468808	1 Pole	240VAC	1A - 60A	7.5kA
	1 Pole	277VAC	1A - 60A	5kA
	2,3 Pole	240VAC	1A - 60A	5kA
	2, 3 Pole	277/480Y VAC	1A - 60A	5kA
	1 Pole	60VDC	1A - 60A	7.5kA
	2 Pole	125VDC	1A - 60A	7.5kA
UL489 E468810	1 Pole	120VAC	1A - 60A	10kA
	2, 3 Pole	240VAC	1A - 60A	10kA
	1 Pole	277VAC	1A - 32A	10kA
	2, 3 Pole	277/480Y VAC	1A - 32A	10kA
	1 Pole	60VDC	1A - 60A	10kA
	2 Pole	125VDC	1A - 60A	10kA
IEC 60947-2	1 Pole	230VAC	1A - 60A	10kA
	2, 3 Pole	400VAC	1A - 60A	10kA

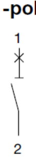
Mechanical Ratings

Tripping Curves	B,C,D
Number of Poles	1,2,3
Mounting Position	Vertical, Horizontal
Torque	2 Nm, 1.48 ft lbs Maximum
Cable Cross Section	35mm sq, 2 Awg Maximum
Ambient Temperature	-35 deg C to +70 deg C
Mass	UL1077 - 116 grams per pole
	UL489 - 131 grams per pole
Protection Class	IP20
Mechanical Operations	10,000
Vibration (sinusoidal)	+/- .38mm (10-57HZ), 5g
Test to IEC 60060-2-6	(57-500HZ)
Test to Fc	10 frequency cycles per axis
Shock Test to IEC60068-2-27, Test Ea	30g (11ms)
Corrosion Test to IEC60068-2-11 Test Ka	96hrs in 5% salt mist
Humidity Test to IEC60068-2-78 Test Cab	48hrs at 95% RH, Temp +40 deg C
Terminals	Screw with Bus Bar Connections

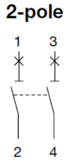
Schematic Diagrams

AC Application

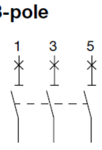
1-pole



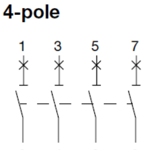
2-pole



3-pole



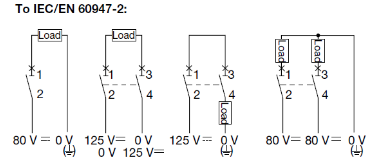
4-pole



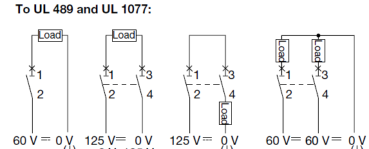
DC Application

When using the 4230-T in DC application, polarity does not have to be observed. Max. acceptable voltage between the conductors depends on the number of poles, circuitry and relevant standard / approval.

To IEC/EN 60947-2:



To UL 489 and UL 1077:



UMBW

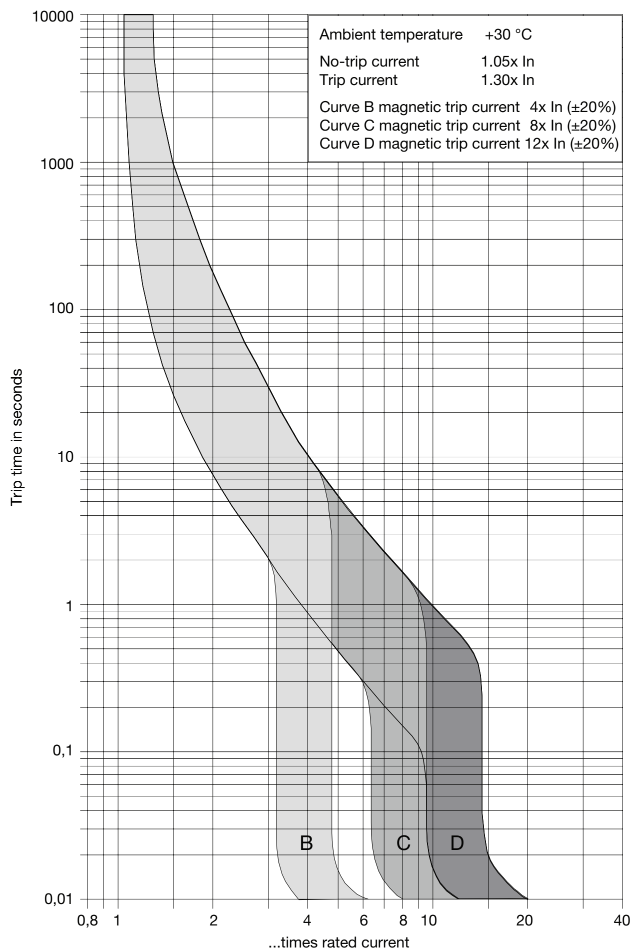
Operating Ampacity Based on Ambient Temperature (Degree C)

Amps	-35°C	-30°C	-25°C	-20°C	-15°C	-10°C	-5°C	0°C	+5°C	+10°C	+15°C
1	1.27	1.25	1.23	1.21	1.19	1.17	1.15	1.13	1.10	1.08	1.06
2	2.87	2.81	2.74	2.68	2.62	2.55	2.48	2.42	2.35	2.28	2.20
3	3.89	3.83	3.76	3.70	3.64	3.57	3.50	3.44	3.37	3.30	3.22
4	4.91	4.83	4.76	4.70	4.64	4.57	4.50	4.44	4.37	4.30	4.22
5	6.68	6.56	6.44	6.32	6.19	6.07	5.94	5.81	5.68	5.54	5.40
6	7.70	7.58	7.46	7.34	7.21	7.09	6.96	6.83	6.70	6.56	6.42
8	9.80	9.68	9.56	9.44	9.31	9.19	9.06	8.93	9.80	8.66	8.52
10	13.89	13.62	13.35	13.07	12.81	12.53	12.23	11.93	11.63	11.33	11.01
13	16.92	16.65	16.38	16.10	15.84	15.56	15.26	14.96	14.66	14.36	14.04
15	19.77	19.42	19.07	18.74	18.39	18.04	17.69	17.32	16.95	16.57	16.19
20	25.67	25.28	24.88	24.47	24.06	23.64	23.22	22.78	22.34	21.89	21.43
25	32.21	31.72	31.22	30.70	30.18	29.65	29.10	28.55	27.98	27.41	26.82
30	39.00	38.42	37.78	37.13	36.47	35.80	35.11	34.43	33.71	32.99	32.26
35	44.08	43.50	42.86	42.21	41.55	40.88	40.19	39.51	38.79	38.07	37.34
40	51.63	50.86	50.04	49.21	48.37	47.51	46.63	45.74	44.83	43.90	42.95
50	64.92	63.97	62.92	61.86	60.77	59.67	58.54	57.40	56.23	55.05	53.81
60	80.45	79.03	77.61	76.16	74.69	73.19	71.67	70.11	68.51	66.88	65.21

Operating Ampacity Based on Ambient Temperature (Degree C)

Amps	+20°C	+25°C	+30°C	+35°C	+40°C	+45°C	+50°C	+55°C	+60°C	+65°C	+70°C
1	1.05	1.02	1.00	0.97	0.94	0.91	0.89	0.86	0.83	0.80	0.77
2	2.12	2.04	2.00	1.90	1.82	1.74	1.65	1.56	1.47	1.36	1.25
3	3.14	3.06	3.00	2.92	2.84	2.76	2.67	2.58	2.49	2.38	2.27
4	4.14	4.06	4.00	3.92	3.84	3.76	3.67	3.58	3.49	3.38	3.27
5	5.25	5.12	5.00	4.82	4.66	4.50	4.34	4.17	3.99	3.81	3.62
6	6.27	6.14	6.00	5.84	5.68	5.52	5.36	5.19	5.01	4.83	4.64
8	8.37	8.24	8.00	7.94	7.78	7.62	7.46	7.29	7.11	6.93	6.74
10	10.67	10.34	10.00	9.63	9.24	8.85	8.45	8.01	7.55	7.06	6.55
13	13.70	13.37	13.00	12.66	12.27	11.61	11.48	11.04	10.58	10.09	9.58
15	15.79	15.39	15.00	14.54	14.10	13.65	13.19	12.70	12.20	11.69	11.64
20	20.96	20.47	20.00	19.47	18.95	18.42	17.87	17.30	16.71	16.10	15.47
25	26.22	25.61	25.00	24.33	23.67	23.00	22.28	21.56	20.80	20.02	19.21
30	31.50	30.73	30.00	29.13	28.30	27.44	26.56	25.65	24.71	23.74	22.73
35	36.58	35.81	35.00	34.21	33.38	32.52	31.64	30.73	29.79	28.82	27.81
40	41.98	40.99	40.00	38.93	37.85	36.75	35.61	34.43	33.21	31.95	30.63
50	52.56	51.28	50.00	47.82	46.24	44.81	43.33	41.81	40.23	38.58	35.77
60	63.50	61.75	60.00	57.08	55.16	53.18	51.13	49.00	46.78	44.47	40.47

Curves Data



Magnetic tripping currents are increased by 30 % on DC supplies.

B CURVE - Tripping Characteristics:
Calibrated for resistive or non/low inductive loads.
Applications: Lighting, Control Circuits

C CURVE - Tripping Characteristics:
Calibrated for general purpose inductive loads.
Applications: Fluorecent lighting, midrange inductive motors

D CURVE - Tripping Characteristics:
Calibrated for inductive loads with high inrush currents

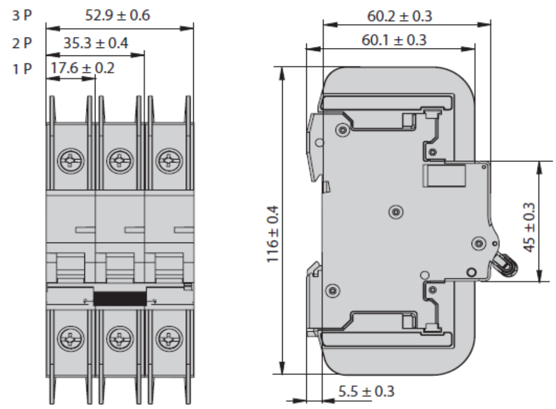
Applications: Motors, Transformers

Note:
When mounted side by side, the breakers can only carry up to 80% of their rated current or a higher rating has to be selected (see technical data information).

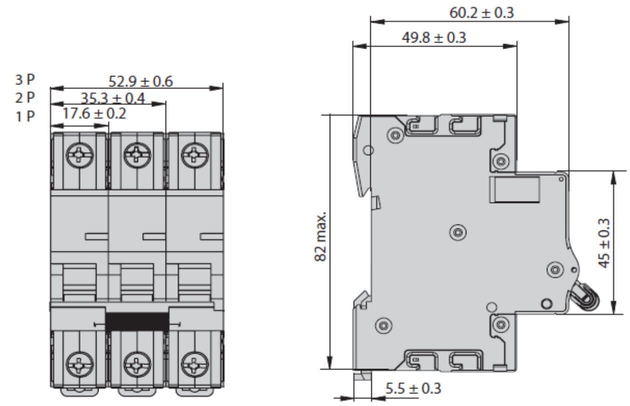
UMBW

Dimensions (mm)

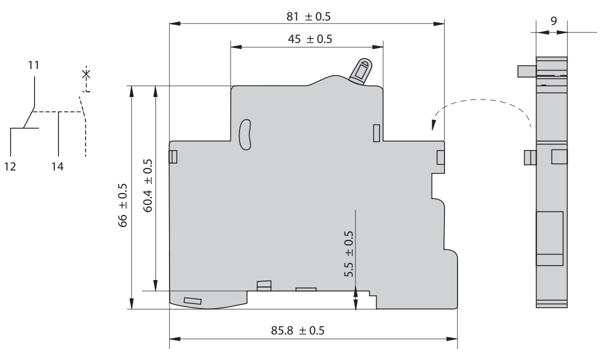
UMBW-4 (UL489)



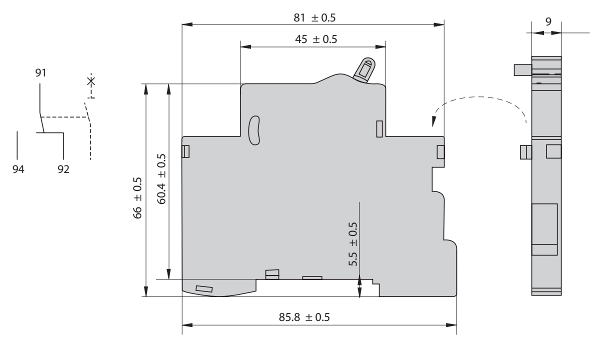
UMBW - 1 (UL1077)



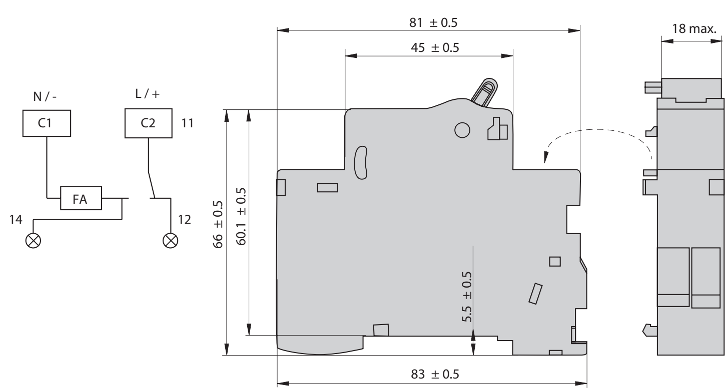
UMBW - AUX



UMBW - BAC



UMBW - AUX



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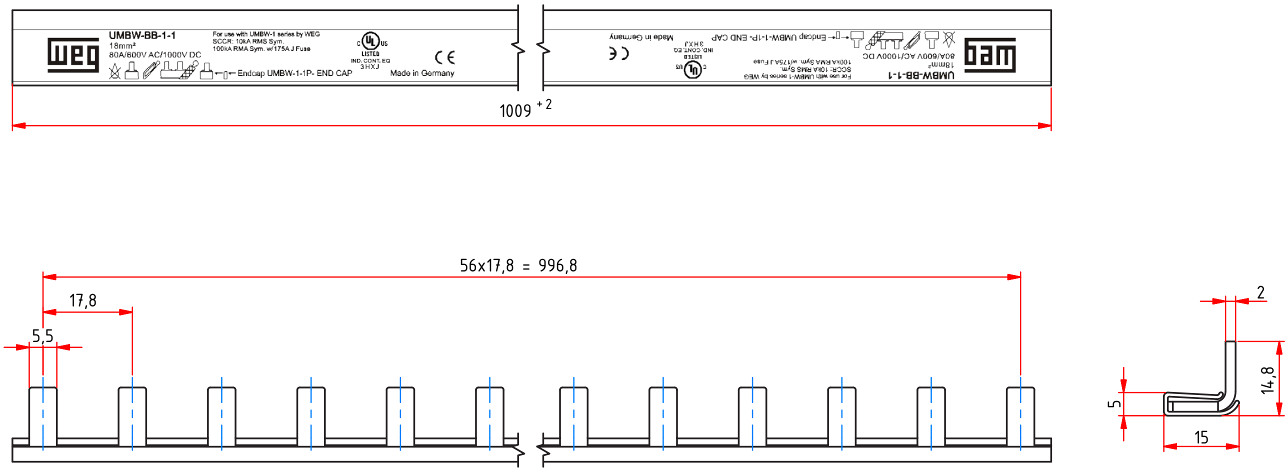

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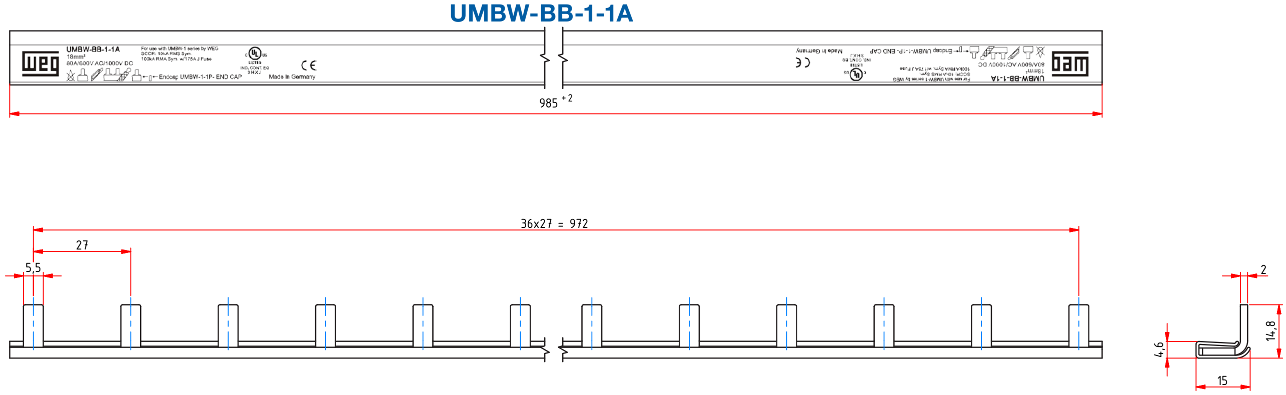

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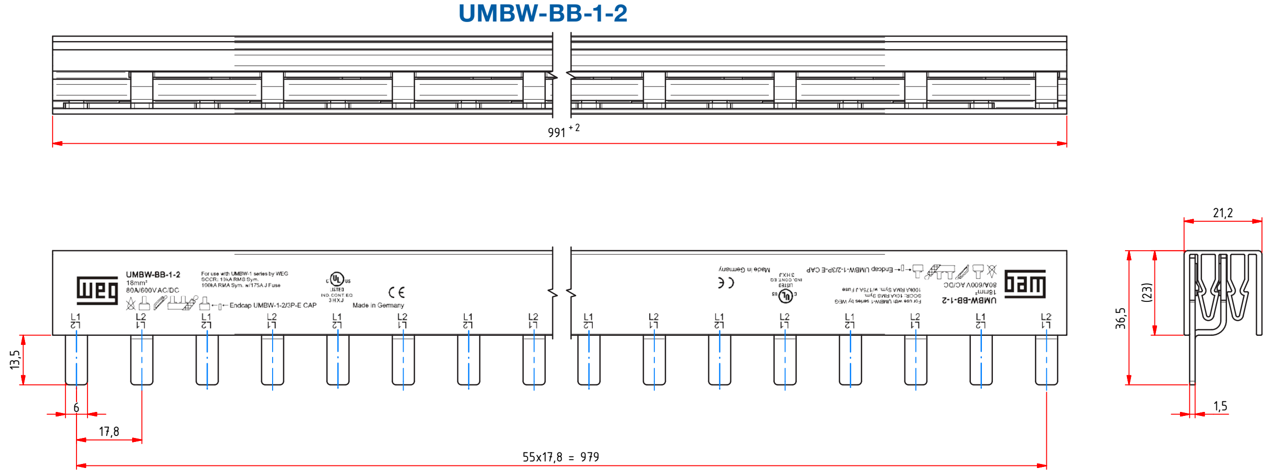

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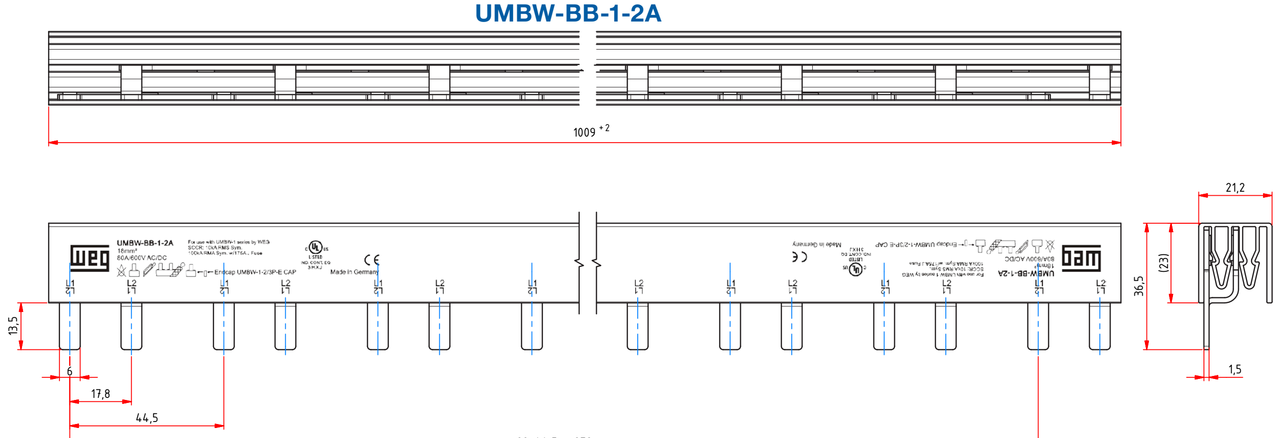
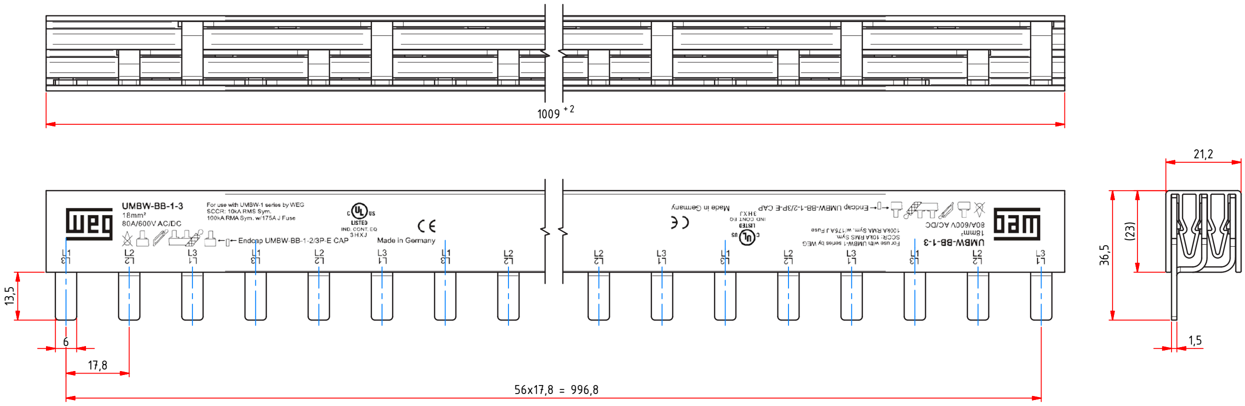


UMBW

UMBW-BB-1-3



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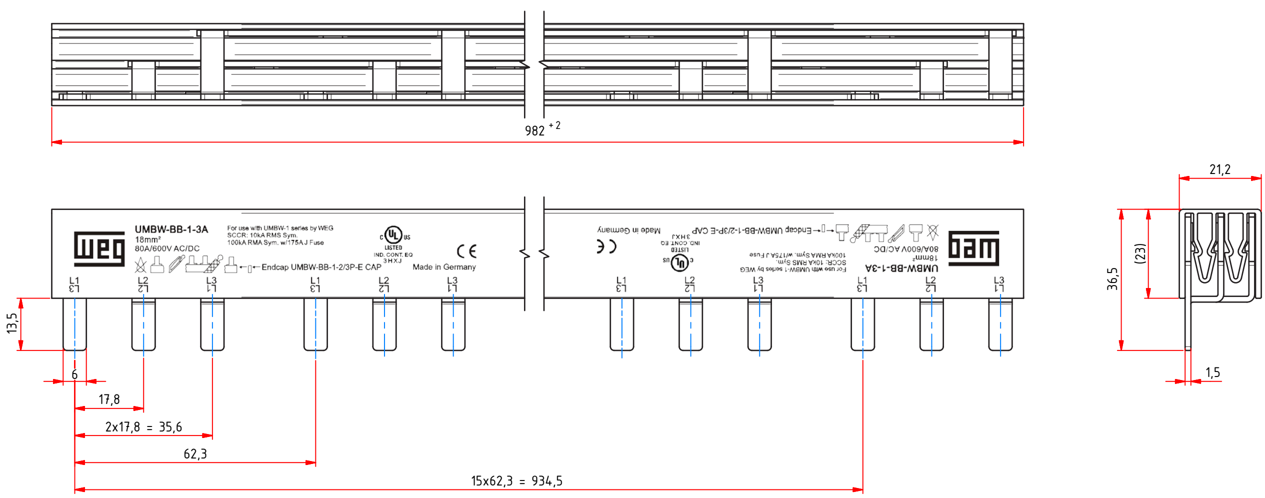
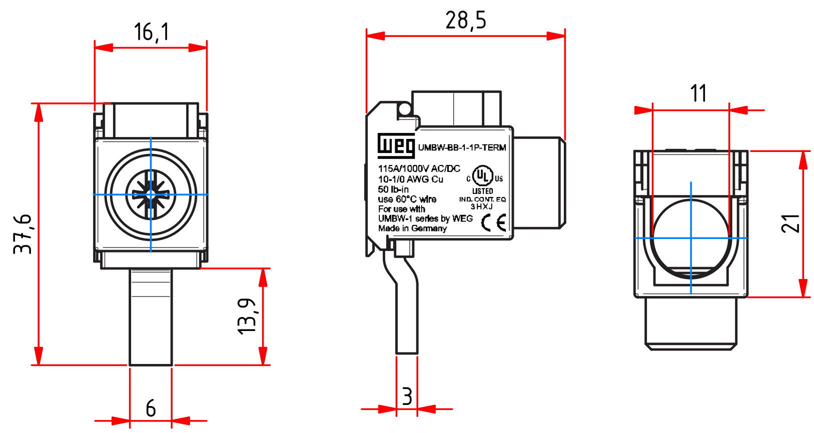


UMBW-BB-1-1P-TERM



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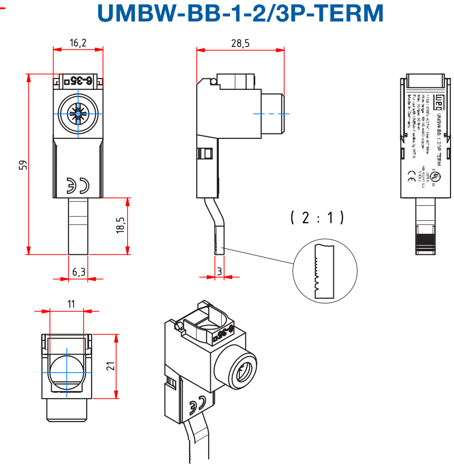

Data is subject to change without notice.

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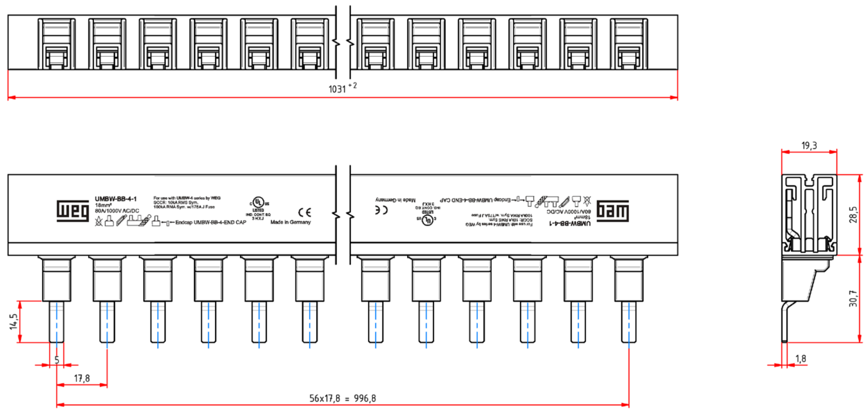
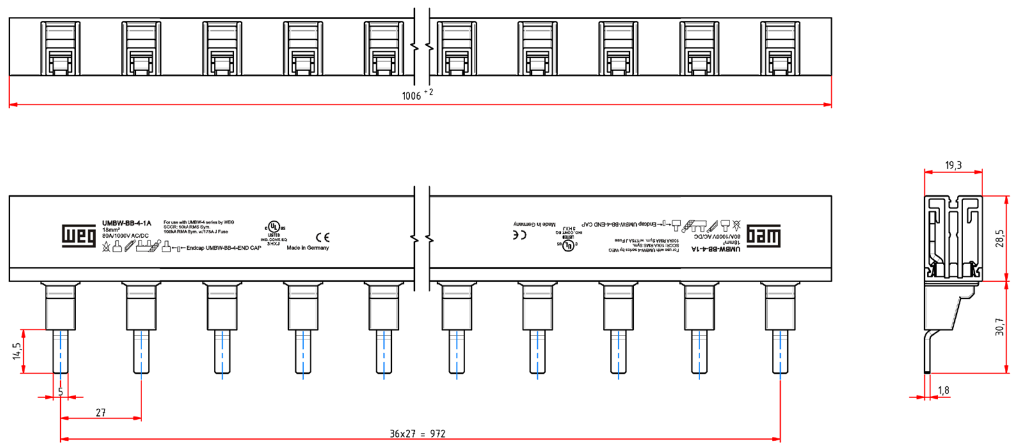


UMBW-BB-4-1A



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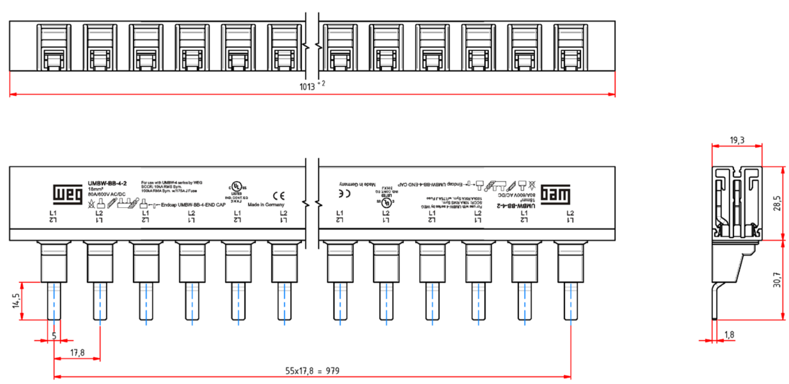

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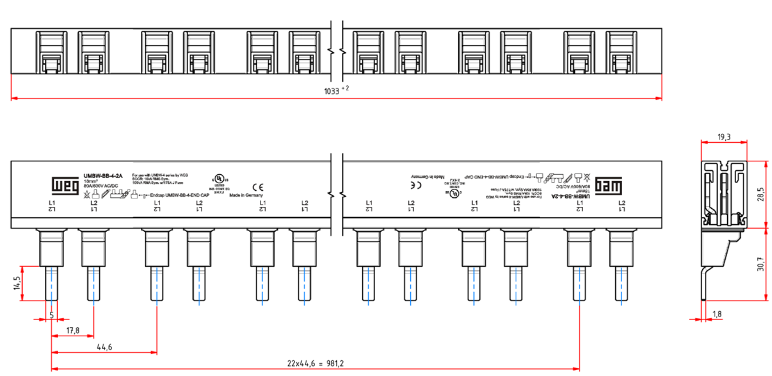

UMBW

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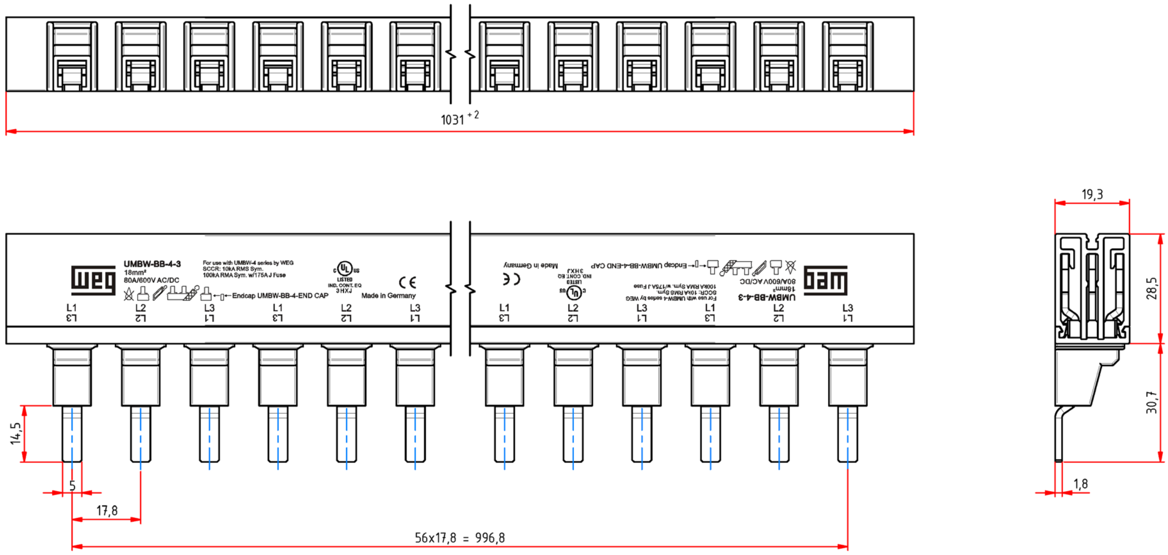
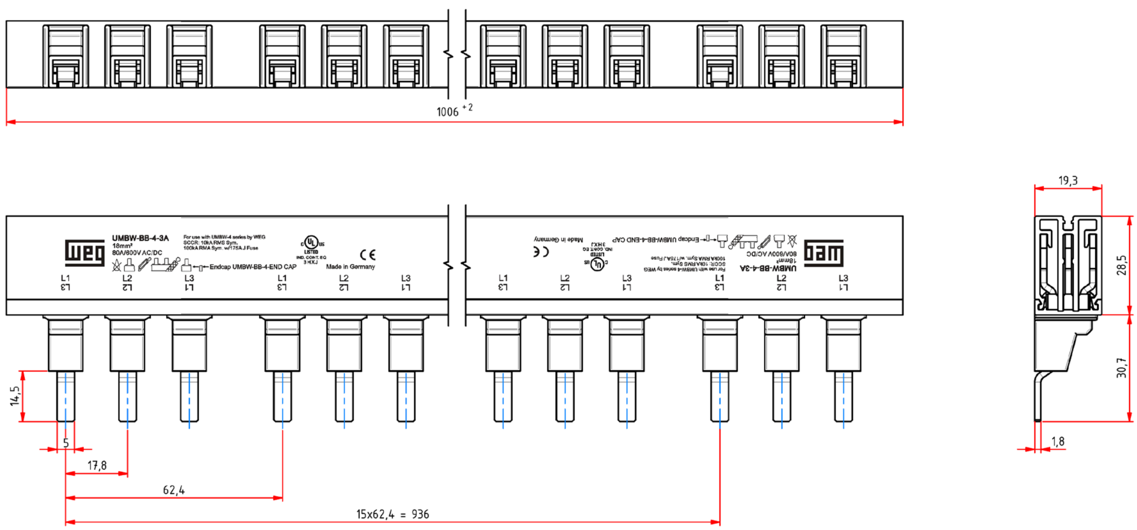


UMBW-BB-4-3A



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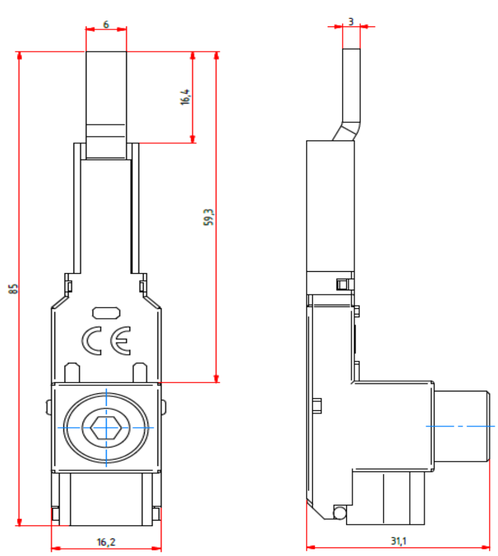
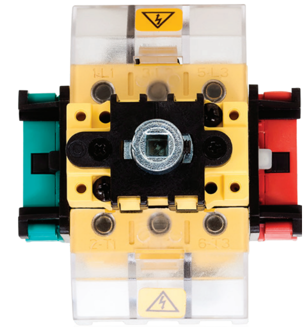


Data is subject to change without notice.

MSW

Introducing the New WEG MSW Series Disconnect Switches. The MSW was developed according to IEC 60947-3 & UL508. The compact, reliable design of the MSW allows the operator to safely disconnect power and isolate the circuit within the panel. The MSW has a range of 25 to 160Amps, panel or door mount options, and offers a variety of accessories.



UL File No. E189202

Standard Features

- Suitable as Motor Disconnect
- Base or Door mounting options
- DIN or base mounted
- Through the door or direct mount handles
- Touch Safe IP20

MSW Catalog Number Sequence

MSW	25	B	3	H

Amperage Ratings/ Accessories

Door Mount- 25A, 40A, 63A, 80A, 100A,
Panel Mount- 25A, 40A, 63A, 80A, 125A, 160A

AP- Neutral Pole
AC- Auxiliary Contact
TS- Terminal Cover

Mounting

P- Panel Door Mount
B- Base Mount

Number of Poles

Poles- 3

Accessories

H- Red/Yellow Handle, + Shaft (Base Mount)
B- Black/Grey Handle, + Shaft (Base Mount)
NA- Neutral Pole
1NO- Auxiliary Contact
1NC - Auxiliary Contact

Overview

Mounting	Current (A)	Handle		Shaft (mm)			Neutral pole	Auxiliary contact			Terminal cover
		Red/yellow	Black/gray	85	185	300		1NO	1NC	1NO/1NC	
Panel door	32	●	■				■	■	■		■
	40	●	■				■	■	■		■
	63	●	■				■	■	■		■
	80	●	■				■	■	■		■
	100	●									■
Base	32	●	■	♦	■	■	■	■	■		■
	40	●	■	♦	■	■	■	■	■		■
	63	●	■	♦	■	■	■	■	■		■
	80	●	■	♦	■	■	■	■	■		■
	125	●			■	●				■	■
	160	●			■	●				■	■

Notes: ♦ - Only available as part of the standard configuration.
● - Available as part of the standard configuration or it can be supplied separately.
■ - Only available to be supplied separately.

Disconnect Switches

MSW

Disconnect Switches for Panel Door Mounting

Standard Configuration (Disconnect Switch + Handle Red/Yellow)

Catalog Number	Ith (A)	Ie (A)			Poles	List Price	Multiplier
		AC21 (690 V)	AC22 (690 V)	AC23 (690 V)			
MSW 25 P-3 H	32	32	25	16	3	$80	Z13
MSW 40 P-3 H	40	40	32	20		$85	
MSW 63 P-3 H	63	63	63	26		$137	
MSW 80 P-3 H	80	80	80	32		$148	
MSW 100 P-3 H	100	100	86	38		$185	

Disconnect Switches and Accessories

Disconnect Switch

Catalog Number	Ith (A)	Ie (A)			Poles	List Price	Multiplier
		AC21 (690 V)	AC22 (690 V)	AC23 (690 V)			
MSW 25 P-3	32	32	25	16	3	$53	Z13
MSW 40 P-3	40	40	32	20		$58	
MSW 63 P-3	63	63	63	26		$110	
MSW 80 P-3	80	80	80	32		$122	
MSW 100 P-3	100	100	86	38		$158	

Rotary Handle

Catalog Number	Disconnect Switch	Color	List Price	Multiplier
MSW H 40 P	MSW25/MSW40	Red/Yellow	$27	Z13
MSW H 100 P	MSW63/MSW80/MSW100	Red/Yellow	$30	
MSW H 40-P-B	MSW25/MSW40	Black/Gray	$27	
MSW H 100-P-B	MSW63/MSW80/MSW100	Black/Gray	$30	

Neutral Pole

Catalog Number	Disconnect Switch	Contact	List Price	Multiplier
MSW AP 25-P-1 NA	MSW25	1 NO early make	$42	Z13
MSW AP 40-P-1 NA	MSW40	1 NO early make	$42	
MSW AP 63-P-1 NA	MSW63	1 NO early make	$49	
MSW AP 80-P-1 NA	MSW80	1 NO early make	$49	

Auxiliary Contact

Catalog Number	Disconnect Switch	Contact	List Price	Multiplier
MSW AC-40 P 1NC	MSW25/MSW40	1NC	$35	Z13
MSW AC-40 P 1NO	MSW25/MSW40	1NO	$35	
MSW AC-80 P 1NC	MSW63/MSW80	1NC	$37	
MSW AC-80 P 1NO	MSW63/MSW80	1NO	$37	

Terminal Cover

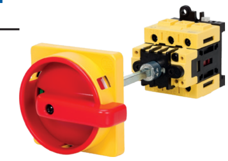
Catalog Number	Disconnect Switch	Poles	List Price	Multiplier
MSW TS-40 P	MSW25/MSW40	3	$14	Z13
MSW TS-80 B/P	MSW63/MSW80		$28	
MSW TS-100 P [1]	MSW100	2	$70	

Note: 1) Necessary 2 pieces of MSW TS-100P to cover 3 poles.
Terminal cover to line or load side (1 piece supplied).

Disconnect Switch for Base Mounting (Screw or Din Rail)

Standard Configuration (Disconnect Switch + Handle Red/Yellow + Shaft)

Catalog Number	Ith (A)	Ie (A)			Shaft length (mm)	Poles	List Price	Multiplier
		AC21 (690 V)	AC22 (690 V)	AC23 (690 V)				
MSW 25 B-3 H	32	32	25	16	85	3	$96	Z13
MSW 40 B-3 H	40	40	32	20	85		$102	
MSW 63 B-3 H	63	63	63	26	85		$156	
MSW 80 B-3 H	80	80	80	32	85		$167	
MSW 125 B-3 H	125	125	125	80	300		$352	
MSW 160 B-3 H	160	160	160	100	300		$490	



Disconnect Switches and Accessories

Catalog Number	Ith (A)	Ie (A)			Poles	List Price	Multiplier
		AC21 (690 V)	AC22 (690 V)	AC23 (690 V)			
MSW 25 B-3	32	32	25	16	3	$53	Z13
MSW 40 B-3	40	40	32	20		$59	
MSW 63 B-3	63	63	63	26		$112	
MSW 80 B-3	80	80	80	32		$124	
MSW 125 B-3	125	125	125	80		$286	
MSW 160 B-3	160	160	160	100		$435	

Rotary Handle + Shaft

Catalog Number	Disconnect Switch	Color	Shaft (mm)	List Price	Mulitplier
MSW H 40 B	MSW25/MSW40	Red/Yellow	85	$42	Z13
MSW H 80 B	MSW63/MSW80	Red/Yellow	85	$45	
MSW H 160 B	MSW125/MSW160	Red/Yellow	300	$65	
MSW H 40-B-B	MSW25/MSW40	Black/Gray	85	$42	
MSW H 80-B-B	MSW63/MSW80	Black/Gray	85	$45	
MSW H 160-B-B	MSW125/MSW160	Black/Gray	300	$65	

Shaft

Catalog Number	Disconnect Switch	Length (mm)	List Price	Multiplier
MSW HS 185-40	MSW25/MSW40	185	$12	Z13
MSW HS 300-40	MSW25/MSW40	300	$17	
MSW HS 185-160	MSW63/MSW80/ MSW125/MSW160	185	$20	
MSW HS 300-160	MSW63/MSW80/ MSW125/MSW160	300	$26	

Neutral Pole

Catalog Number	Disconnect Switch	Contact	List Price	Multiplier
MSW AP 25-B-1-NA	MSW25	1 NO early make	$42	Z13
MSW AP 40-B-1-NA	MSW40	1 NO early make	$42	
MSW AP 63-B-1-NA	MSW63	1 NO early make	$49	
MSW AP 80-B-1-NA	MSW80	1 NO early make	$49	
MSW AP 160-B-1-NA	MSW125 MSW160	1 NO early make	$49	

Auxiliary Contact

Catalog Number	Disconnect Switch	Contact	List Price	Multiplier
MSW AC-40 B 1NC	MSW25/MSW40	1NC	$35	Z13
MSW AC-40 B 1NO	MSW25/MSW40	1NO	$35	
MSW AC-80 B 1NC	MSW63/MSW80	1NC	$37	
MSW AC-80 B 1NO	MSW63/MSW80	1NO	$37	
MSW AC-160 B 1NC	MSW125/MSW160	1NC	$70	
MSW AC-160 B 1NO	MSW125/MSW160	1NO	$70	

Terminal Cover

Catalog Number	Disconnect Switch	Poles	List Price	Multiplier
MSW TS-40 B	MSW25/MSW40	3	$16	Z13
MSW TS-80 B/P	MSW63/MSW80		$32	
MSW TS-160 B	MSW125/MSW160		$78	

Note: Terminal cover to line or load side (1 piece supplied).

Disconnect Switches

MSW

Technical Data

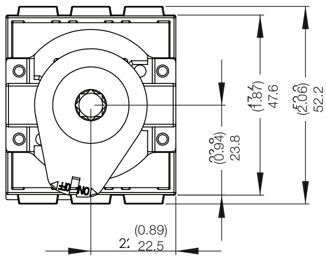
IEC 60947-3 characteristics				Units	MSW 25	MSW 40	MSW 63	MSW 80	MSW 100	MSW 125	MSW 160	Auxiliary contact
Rated operating voltage U_e				V	690							
Rated insulation voltage U_i				V	690	690	690	690	690	800	800	690
Rated impulse withstand voltage U_{imp} (sectionable)				kV	8	8	8	8	8	8	8	4
Rated thermal current Ith				A	32	40	63	80	100	125	160	16
Rated thermal current in enclosed I_{the}				A	32	40	63	80	86	125	160	10
Frequency				Hz	50/60							
Rated operating current I_e: alternate current												
AC-21A switching resistive loads			690 V	A	32	40	63	80	100	125	160	AC-15 240 V-5 A
AC-22A switching mixed resistive and inductive loads			500 V	A	-	-	-	-	100	125	160	DC-13 250 V-0.44 A
			690 V	A	25	32	63	80	86	125	160	-
AC-23A periodic switching of motors	3 phase 3 poles		230 V	A/kW	25/7.5	32/10	63/20	80/25	70/22	125/30	160/45	-
			400 V	A/kW	25/15	32/18.5	50/28	75/42	67/37	125/55	160/75	-
			500 V	A/kW	22/15	27/18.5	50/35	75/52	67/45	100/63	125/80	-
			690 V	A/kW	16/15	20/18.5	26/25	32/31	38/37	80/75	100/90	-
AC3 starting of cage motors (interruption while running)	3 phase 3 poles		230 V	A/kW	22/5.5	27/7.5	45/14	60/19	60/18.5	-	-	-
			400 V	A/kW	22/11	27/15	40/22	55/30	55/30	-	-	-
			500 V	A/kW	22/11	22/15	35/24	45/31	55/37	-	-	-
			690 V	A/kW	16/11	16/15	22/21	25/24	32/30	-	-	-
Rated interruption current AC-23A (cosfi 0.45)			230 V	A	200	256	360	600	560	-	-	-
			400 V	A	200	256	320	536	536	1,000	1,280	-
			500 V	A	176	216	280	536	536	-	-	-
			690 V	A	128	160	176	256	304	800	800	-
Short circuit characteristics												
Rated short-time short circuit withstand current Icw (1s)				A	800	800	1,200	1,500	1,500	3,000	3,000	-
Rated short circuit making capacity Icm				A	1,500	1,500	2,200	2,800	2,840	4,500	4,500	-
Conditional rated short circuit withstand current				kA	10	10	10/5	10/5	10	15	15	1
Fuse rating gG			500 V	A	-	-	-	-	100	125	125	10
			690 V	A	40	40	63/80	63/80	-	-	-	-
UL 508 characteristics - UL File E189202												
General use			600 V ac	A	32	40	60	80	100	125	160	HD A600 ac Q600 dc
Standard motors load	Single phase 2 poles		120 V ac	HP (FLA)	1.5 (20)	2 (24)	2	3	3 (34)	-	-	-
			240 V ac	HP (FLA)	3 (17)	5 (28)	5	7.5	10 (50)	-	-	-
	3 phase 3 poles		240 V ac	HP (FLA)	7.5 (22)	10 (28)	10	15	10 (28)	40 (104)	40 (104)	-
			480 V ac	HP (FLA)	10 (14)	15 (21)	25	30	25 (34)	100 (124)	100 (124)	-
			600 V ac	HP (FLA)	15 (17)	20 (22)	30	40	30 (32)	125 (125)	125 (125)	-
General characteristics												
Protection degree			Handle	EN 60529/UL 50	IP65 / Type 1-4-4X-NEMA 4X							-
			Terminals	EN 60529	IP20							
Material group			EN 60947-1	-	II					IIIa	IIIa	II
Pollution grade			EN 60947-1	-	3							
Flammability			UL 94	-	V0							
Ambient temperature			Operation	°C	-25 +55							
			Storage	°C	-30 +70							
Climate withstand			IEC 68 part 2-3	-	Hot damp							
			IEC 68 part 2-30	-	Unsetted hot damp							
Switching force (3 poles)			-	-	0.8 Nm (7.1 lb.in.)		1 Nm (8.85 lb.in.)		1.5 Nm	2.6 (23 lb.in.)		-
Connections			EN 60947-1	-	-		-			-	-	-
Terminal block caliber			-	-	A6		A8			-	-	A2
Terminal screw			-	-	M4		M5			M8	M8	M3.5
Tightening torque			EN 60947-1	-	1.2 Nm		3 Nm			6 Nm	6 Nm	0.8 Nm
			UL 508	-	10.6 lb.in. (1.2 Nm)		32 lb.in. (3.6 Nm)			53 lb.in. (6Nm)		7.1 lb.in.
Main terminal capacity			-	mm²	1.5-10		6-25			10-70	10-70	1-2.5
Flexible conductors			-	AWG	12-6		10-2			3/0-6	3/0-6	18-12
			-	mm²	1.5-16		10-35			10-70	10-70	1-2.5
Solid conductors			-	AWG	12-6		10-2			3/0-6	3/0-6	18-12
Opening angles					90°							-

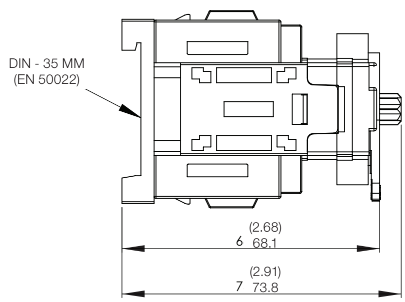
Data is subject to change without notice.

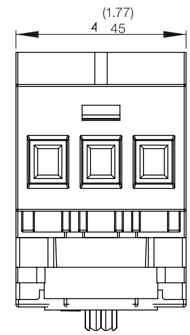
Dimensions

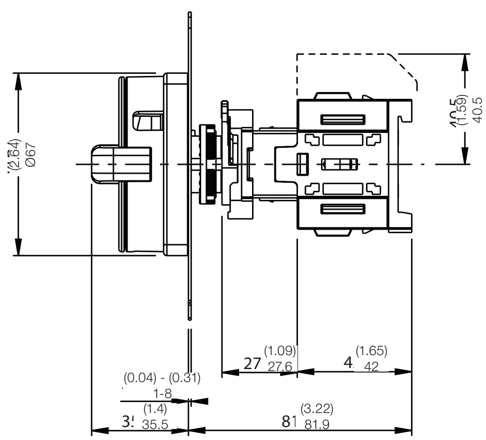
Disconnect Switches for Panel Door Mounting

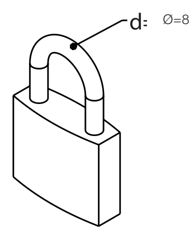
MSW25...40P-3

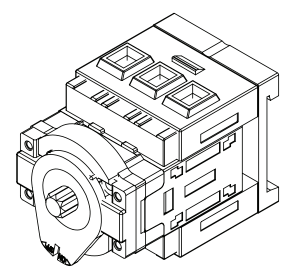


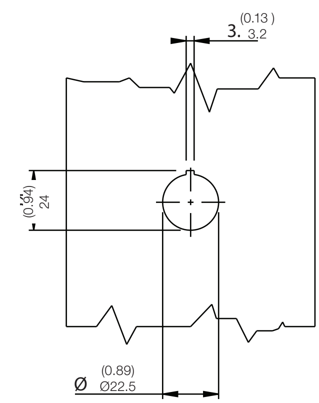


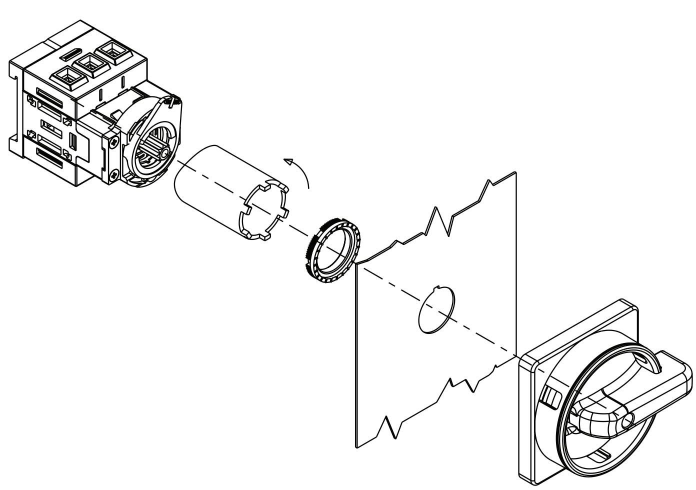










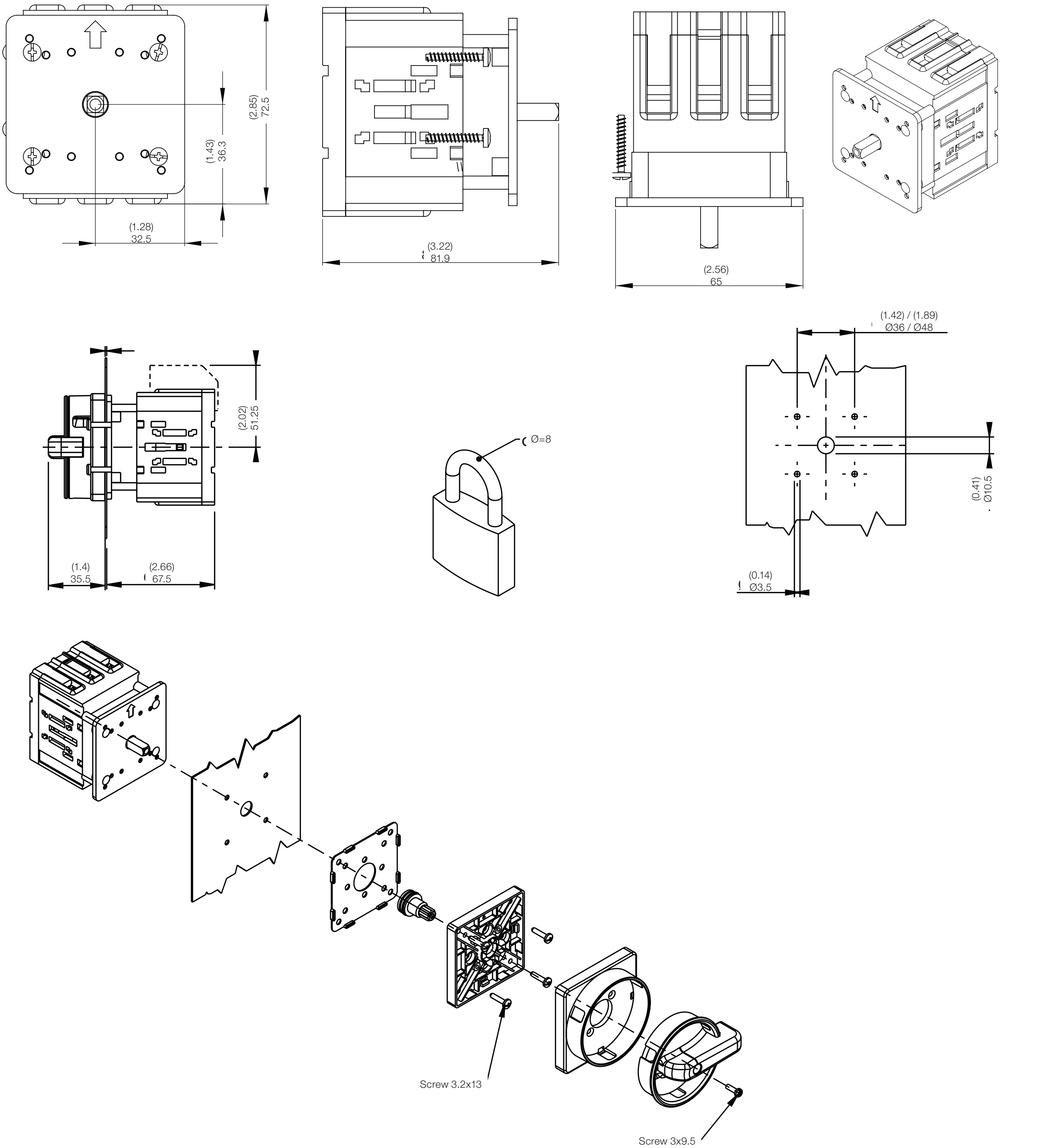


Note: Dimensions mm (in).

MSW

Dimensions

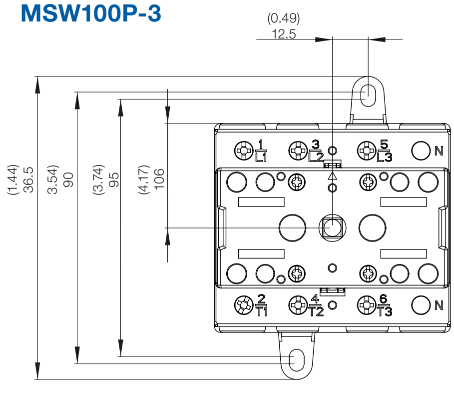
MSW63...80P-3

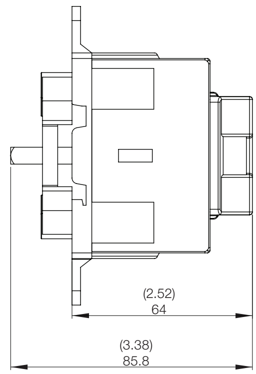


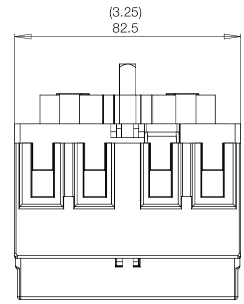
Note: Dimensions mm (in).

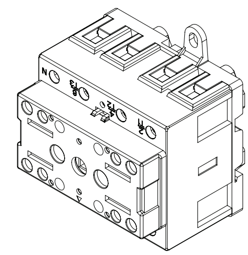
Dimensions

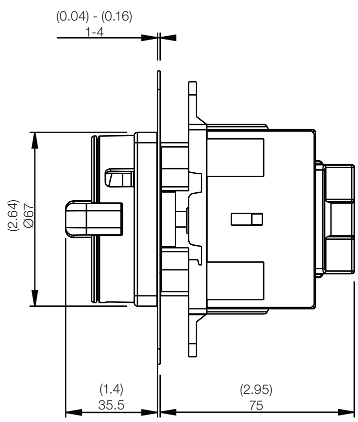
MSW100P-3

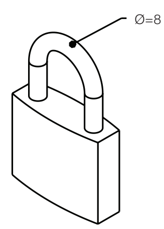


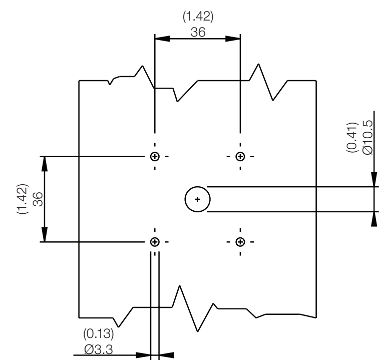


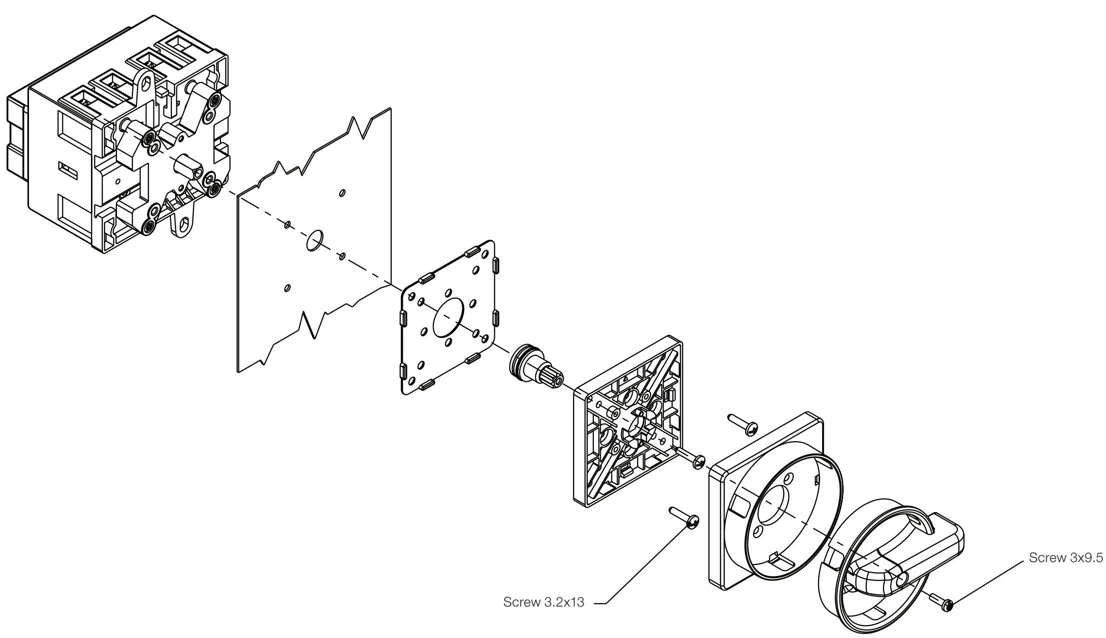












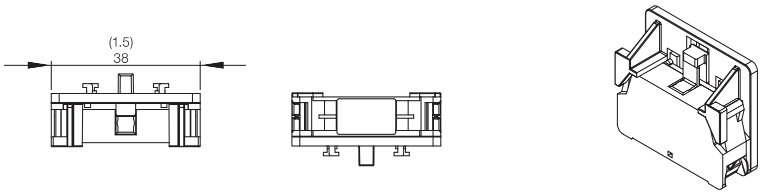
Note: Dimensions mm (in).

MSW

Dimensions

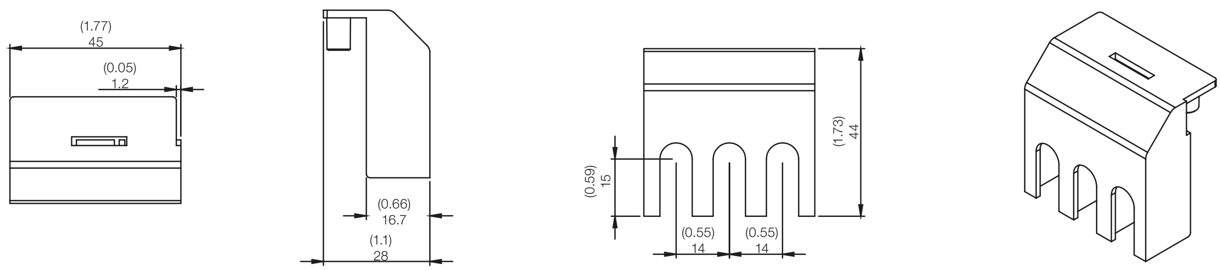
Auxiliary Contact

MSWAC-40...80P1NC / MSWAC-40...80P1NO

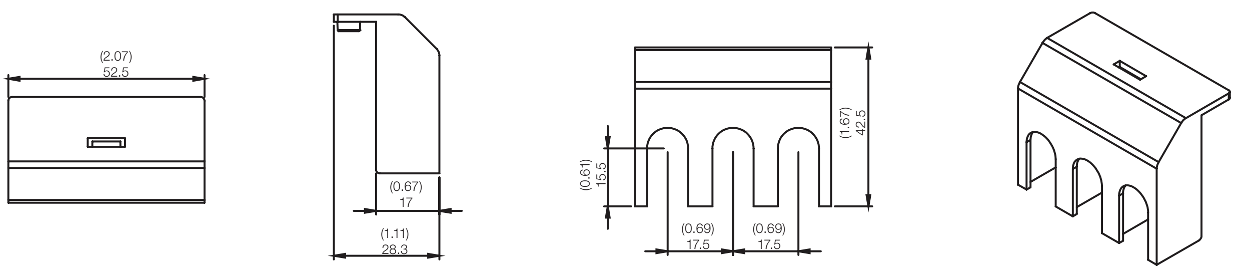


Terminal Cover

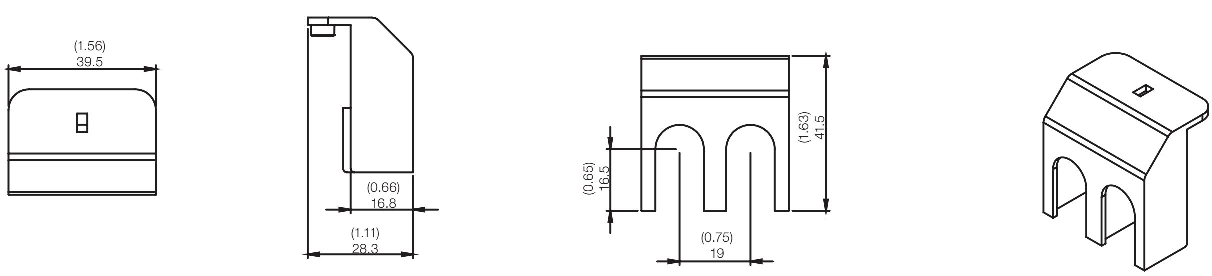
MSWTS-40P



MSWTS-80B-P



MSWTS-100P

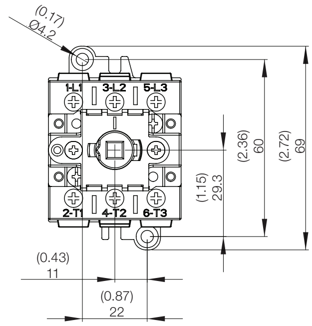


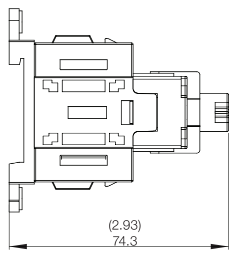
Note: Dimensions mm (in).

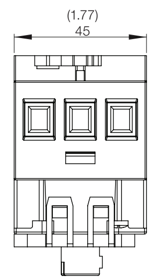
Dimensions

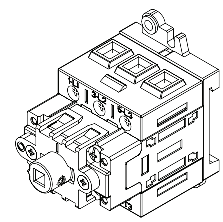
Disconnect Switches for Base Mounting

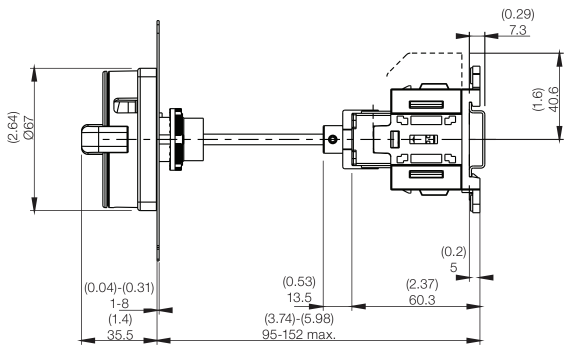
MSW25...40B-3

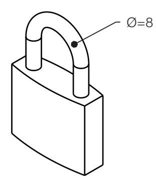


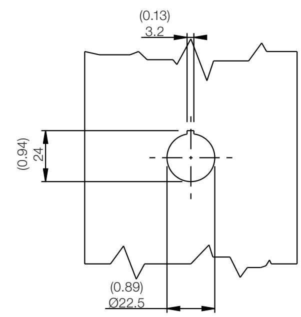


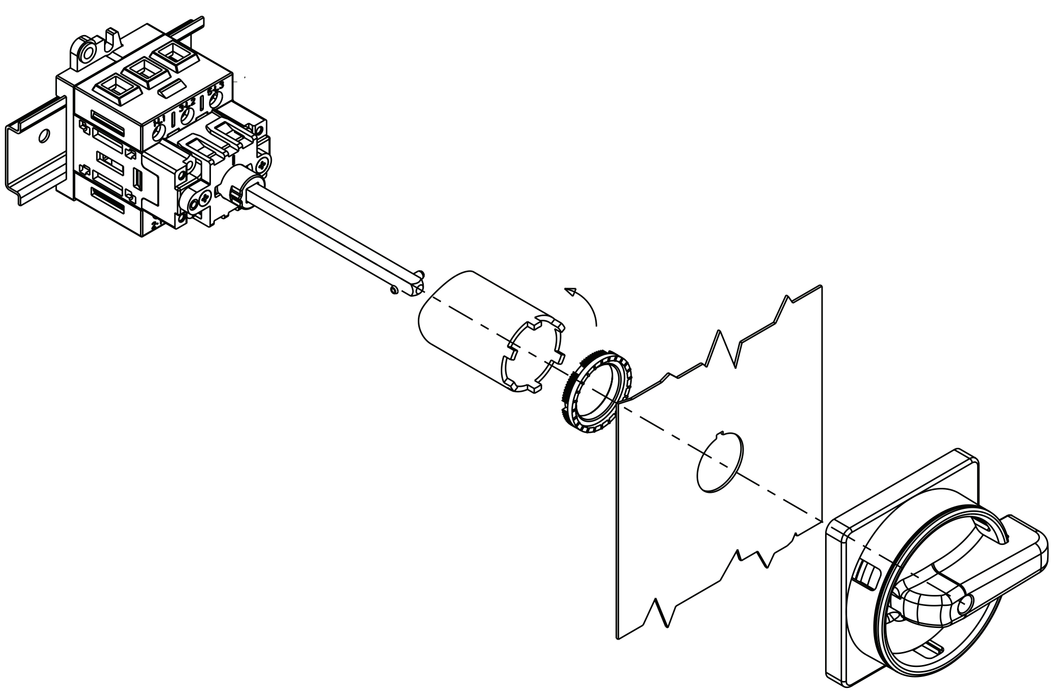












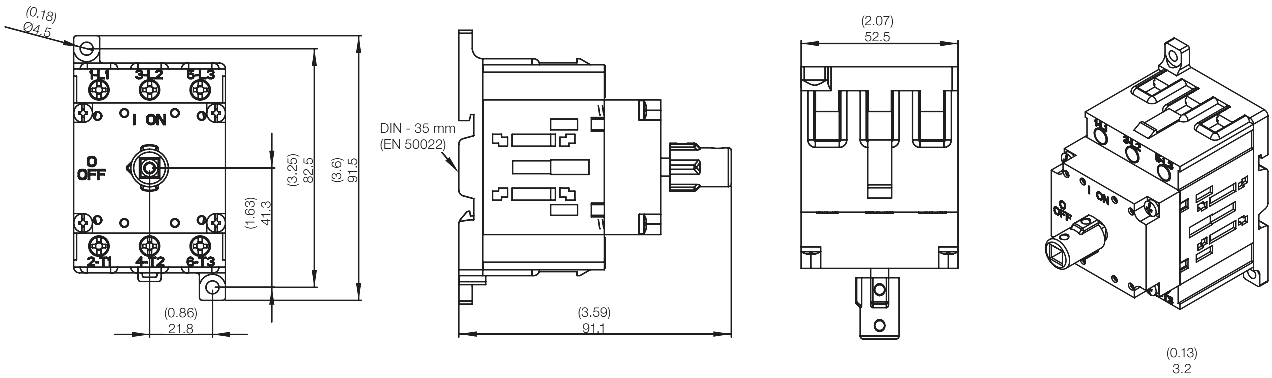
Note: Dimensions mm (in).

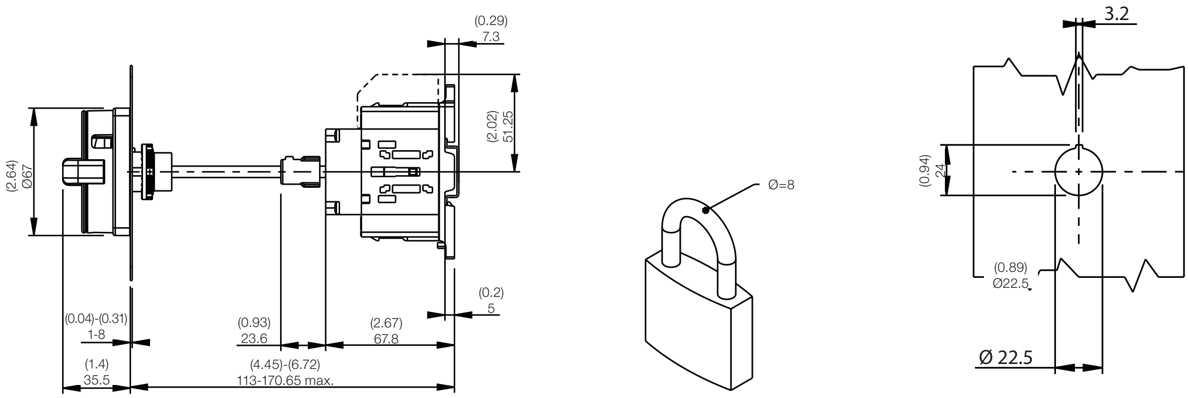
Disconnect Switches

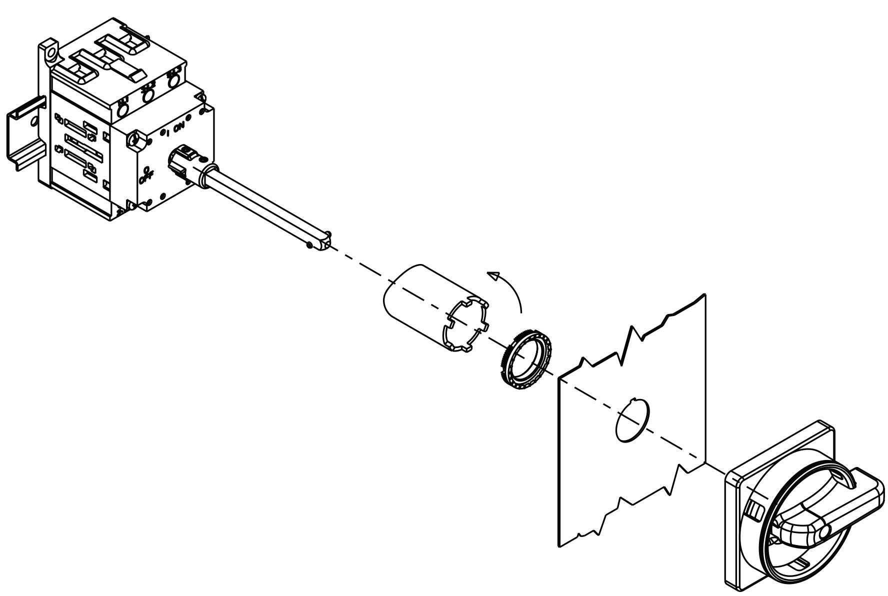
MSW

Dimensions

MSW63...80B-3



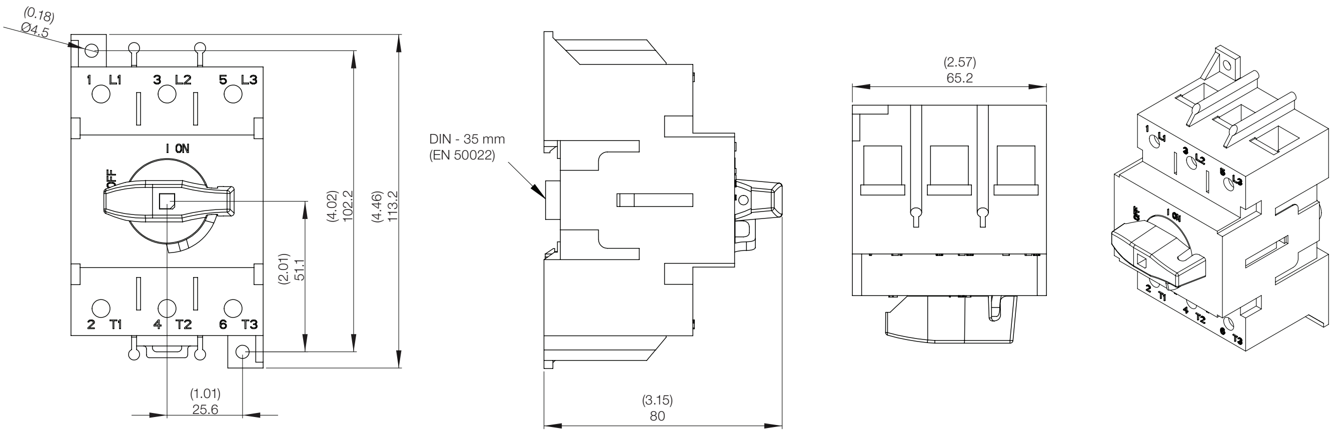


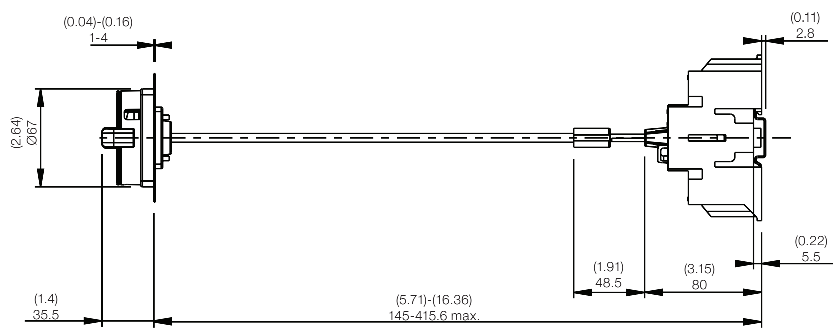


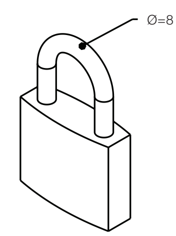
Note: Dimensions mm (in).

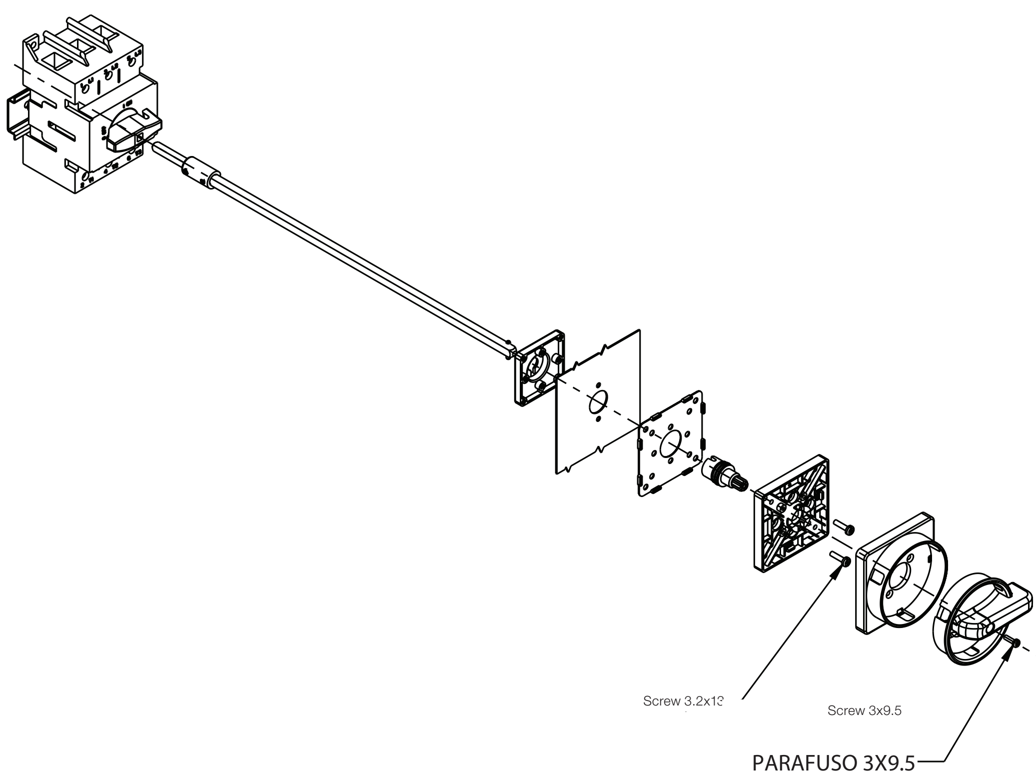
Dimensions

MSW125...160B-3









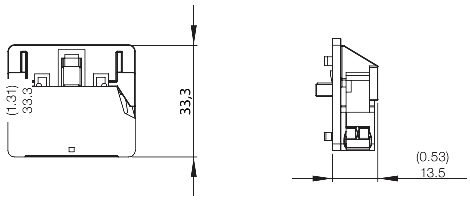
Note: Dimensions mm (in).

MSW

Dimensions

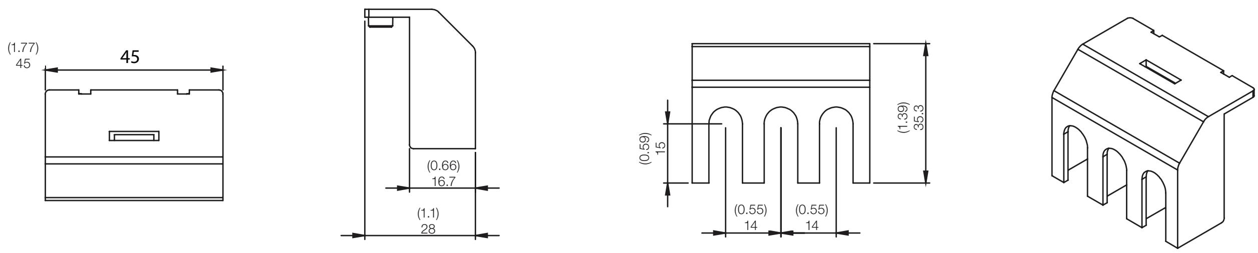
Auxiliary Contact

MSWAC-40...80B1NC / MSWAC-40...80B1NO

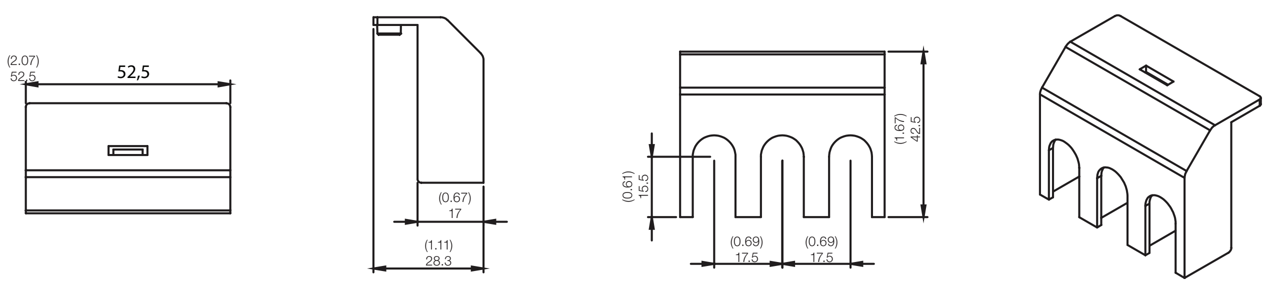


Terminal Cover

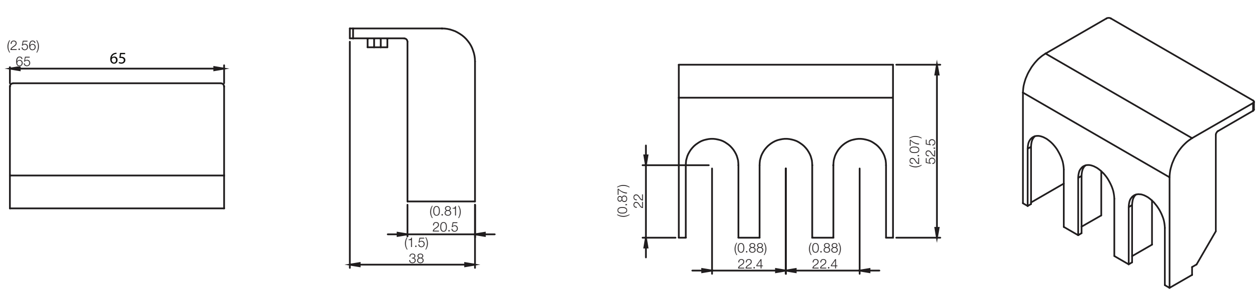
MSWTS-40B



MSWTS-80B-P



MSWTS-160B



Note: Dimensions mm (in).

MPW Series

The WEG MPW Series Manual Motor Protectors provide a very compact solution for operation and protection in motor control applications. The NEC requires four functions to be considered a combination motor starter: Motor Disconnect, Branch Circuit Protection, Motor Controller and Motor Overload Protection. The WEG MPW meets all of these requirements, and the requirements of UL for Self-Protected Motor Controllers to be used in Type-E & F applications. With worldwide approvals the WEG MPW can be used in a variety of applications all over the world.

UL File No. E172121

Standard Features

- High short-circuit interrupting ratings- Up to 65kA @480V
- Phase Loss sensitivity protection
- UL Type-E self-protected combination starter
- Suitable for Motor Disconnect applications
- Group motor installations (per NEC Article 430)
- Wide variety of Accessories
- Rated for DC applications

MPW Catalog Number Sequence

MPW	18	-	3	-	U004

Manual Motor Protector Series:

MPW:Manual Motor Protectors

Frame Size

18: to use with CWC07…025 & CWM9…CWM18
40: to use with CWC07…025 & CWM9…40
80: to use with CWM50…80
100: to use with CWM95…105

Poles

3 = 3

Overload Setting Current

MPW18	MPW80
CO16: 1.10…0.16A	UO16:10…16A
UO16: 10…18A	UO65: 50…65A
MPW40	MPW100
CO16: 1.10…0.16A	UO75: 55…75A
U032: 25…40A	U100: 80…100A

For more details refer to selection table for each frame size

Table intended as reference only and not to create part numbers

MPW

MPW18 - Product Selection

- Suitable for manual motor controller and group installation
- Built-in protection: disconnect means, short circuit protection, motor control and overload protection
- Short circuit interrupting capacity up to 50kA@480Vac (10kA@600Vac)
- Fixed short circuit release 13 x Iu
- Phase loss sensivity
- Ambient temperature compensation -40...+1400F (-20...+600C)

Maximum UL Horsepower						Thermal Setting	Short-Circuit interruption capacity		Catalog Number	List Price	Multiplier
Single Phase		Three Phase									
115V	230V	200V	230V	460V	575V	[A]	480V	600V			
-	-	-	-	-	-	0.10 - 0.16	50kA	10kA	MPW18-3-C016	$97	Z4
-	-	-	-	-	-	0.16 - 0.25	50kA	10kA	MPW18-3-C025	$97	
-	-	-		-	-	0.25 - 0.40	50kA	10kA	MPW18-3-D004	$97	
-	-	-	-	-	-	0.40 - 0.63	50kA	10kA	MPW18-3-C063	$105	
-	-	-	-	-	1/2	0.63 - 1.0	50kA	10kA	MPW18-3-U001	$105	
-	1/10	-	-	3/4	3/4	1.0 - 1.6	50kA	10kA	MPW18-3-D016	$105	
-	1/6	1/2	1/2	1	1 1/2	1.6 - 2.5	50kA	10kA	MPW18-3-D025	$105	
1/8	1/3	3/4	3/4	2	3	2.5 - 4.0	50kA	10kA	MPW18-3-U004	$105	
1/4	1/2	1	1 1/2	3	5	4.0 - 6.3	50kA	10kA	MPW18-3-D063	$105	
1/2	1 1/2	2	3	5	7 1/2	6.3 - 10	50kA	5kA	MPW18-3-U010	$125	
1	2	3	5	10	10	10 - 16	30kA	5kA	MPW18-3-U016	$125	
1	3	5	5	10	15	12-18	30kA	5kA	MPW18-3-U018	$145	

Note: Horsepower ratings shown in the table are for reference only.
Please refer to the Full Load Amps of the Motor for final selection.

Accessories for MPW18 - Summary

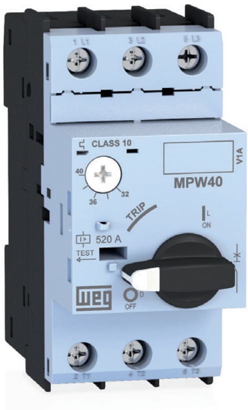
Description	Catalog Number	List Price	Multiplier
Auxiliary Contact Blocks			
1NO&1NC auxiliary contact block front mounting - 250Vmax.	ACBF-11	$20	Z4
1NO&1NC auxiliary contact block left side mounting - 600Vmax.	ACBS-11	$22	
2NO Auxiliary contact block left side mounting - 600Vmax.	ACBS-20	$22	
2NC Auxiliary contact block left side mounting - 600Vmax.	ACBS-02	$22	
Link Modules			
Mechanical and electrical link module for CWB9...38 AC coil	ECCMP-18B38	$20	Z4
Mechanical and electrical link module for CWC07...16 AC coil	ECCMP-C016	$20	
Mechanical and electrical link module for CWC025 miniature contactor series	ECCMP-C025	$20	
Accessories for Group Motor Installation [1]			
Three Phase Line Side Feeder Terminal	FTBBS	$35	Z4
Bus bar system 45mm (for 2 MPW without side mounting auxiliary contacts)	BBS45-2	$32	
Bus bar system 45mm (for 3 MPW without side mounting auxiliary contacts)	BBS45-3	$35	
Bus bar system 45mm (for 4 MPW without side mounting auxiliary contacts)	BBS45-4	$45	
Bus bar system 45mm (for 5 MPW without side mounting auxiliary contacts)	BBS45-5	$60	
Bus bar system 54mm (for 2 MPW with side mounting auxiliary contacts)	BBS54-2	$32	
Bus bar system 54mm (for 3 MPW with side mounting auxiliary contacts)	BBS54-3	$35	
Bus bar system 54mm (for 4 MPW with side mounting auxiliary contacts)	BBS54-4	$45	
Bus bar system 54mm (for 5 MPW with side mounting auxiliary contacts)	BBS54-5	$60	
Shroud for unused terminals of BBS bars	CSD	$10 [2]	
Under Voltage and Shunt Block Releases			
Shunt release block right side mounting - 20-24V 50/60Hz	SRMP D51	$56	Z4
Shunt release block right side mounting - 100-127V 50/60Hz	SRMP D59	$56	
Shunt release block right side mounting - 200-240V 50/60Hz	SRMP D65	$56	
Under voltage release block right side mounting - 24V 60Hz	URMP V05	$56	
Under voltage release block right side mounting - 120V 60Hz	URMP V18	$56	
Under voltage release block right side mounting - 208V 60Hz	URMP V23	$56	
Under voltage release block right side mounting - 240V 60Hz	URMP V30	$56	
Under voltage release block right side mounting - 480V 60Hz	URMP V47	$56	
IEC Enclosures			
IEC IP66 enclosure (non-UL)	PE66GN	$45	Z4
Other Accessories			
Scale cover protection for the current range adjustment - package with 5 units	SCMP	$5	Z4
Lugs for panel mounting - package with 2 pieces (one MPW mounting)	PLMP	$0.50	

Notes: [1] Maximum Amps of each Bus bar system (BBS) must not be exceeded by adding multiple MPW. Bus bar capacity is 63Amps.
[2] Unit list price. Product sold in multiples of 5 units.

Motor Protectors

MPW

MPW40 - Product Selection



- Suitable for manual motor controller, group installation, tap conductor and combination starters* Type E & Type F
- Built-in protection: disconnect means, short-circuit protection, motor control and overload protection
- Short-circuit interrupting capacity up to 50kA@480Vac (25kA@600Vac)
- Fixed short-circuit release 13 x Iu
- Phase loss sensitivity
- Ambient temperature compensation -4…+140°F (-20…+60°C)

** When associated with line side terminal LST25 and trip indicator TSB-22*

Maximum UL Horsepower						Thermal Setting	Short-Circuit Ratings for Group Installation		Catalog Number	List Price	Multiplier
Single Phase		Three Phase									
115V	230V	200V	230V	460V	575V	[A]	480V	600V			
-	-	-	-	-	-	0.10 - 0.16	50kA	25kA	MPW40-3-C016	$116	
-	-	-	-	-	-	0.16 - 0.25	50kA	25kA	MPW40-3-C025	$116	
-	-	-	-	-	-	0.25 - 0.40	50kA	25kA	MPW40-3-D004	$116	
-	-	-	-	-	1/4	0.40 - 0.63	50kA	25kA	MPW40-3-C063	$137	
-	-	-	-	1/2	1/2	0.63 - 1.0	50kA	25kA	MPW40-3-U001	$137	
-	1/10	1/4	1/3	3/4	1	1.0 - 1.6	50kA	25kA	MPW40-3-D016	$137	
-	1/6	1/2	1/2	1 1/2	1 1/2	1.6 - 2.5	50kA	25kA	MPW40-3-D025	$137	
1/8	1/3	3/4	1	2	3	2.5 - 4.0	50kA	25kA	MPW40-3-U004	$137	Z4
-	3/4	1 1/2	1 1/2	5	5	4.0 - 6.3	50kA	25kA	MPW40-3-D063	$137	
1/2	1 1/2	3	3	7 1/2	10	6.3 - 10	50kA	25kA	MPW40-3-U010	$137	
1	3	5	5	10	15	10 - 16	50kA	25kA	MPW40-3-U016	$150	
1 1/2	3	5	7 1/2	15	20	16 - 20	50kA	25kA	MPW40-3-U020	$165	
2	3	7 1/2	7 1/2	15	20	20 - 25	50kA	25kA	MPW40-3-U025	$195	
-	5	10	10	20	25	25 - 32	42kA	25kA	MPW40-3-U032	$210	
-	5	10	10	25	30	32 - 40	20kA	--	MPW40-3-U040	$250	

Note: Horsepower ratings shown in the table are for reference only. Please refer to the Full Load Amps of the Motor for final selection.

Data is subject to change without notice.

MPW40 with current Limiter - Product Selection

- Suitable for manual motor controller, group installation, tap conductor and combination starters* type E & type F
- Built-in protection: disconnect means, short-circuit protection, motor control and overload protection
- Short-circuit interrupting capacity up to 100kA@480Vac (50kA@600Vac)
- Fixed short-circuit release 13 x Iu
- Phase loss sensitivity
- Ambient temperature compensation -4…+140°F (-20…+60°C)

** When associated with line side terminal LST25 and trip indicator TSB-22*

1) Individual Component Catalog Numbers are ordered separately.

Maximum UL Horsepower						Thermal Setting	Short-Circuit interruption capacity		Individual Component Catalog Number[1]				Multiplier
Single Phase		Three Phase							Catalog Number	List Price	Catalog Number	List Price	
115V	230V	200V	230V	460V	575V	[A]	480V	600V					
-	-	-	-	-	-	0.10 - 0.16	100kA	50kA	MPW40-3-C016	$116	CLT32 MPW40	$100	
-	-	-	-	-	-	0.16 - 0.25	100kA	50kA	MPW40-3-C025	$116	CLT32 MPW40	$100	
-	-	-	-	-	-	0.25 - 0.40	100kA	50kA	MPW40-3-D004	$116	CLT32 MPW40	$100	
-	-	-	-	-	1/4	0.40 - 0.63	100kA	50kA	MPW40-3-C063	$137	CLT32 MPW40	$100	
-	-	-	-	1/2	1/2	0.63 - 1.0	100kA	50kA	MPW40-3-U001	$137	CLT32 MPW40	$100	
-	1/10	1/4	1/3	3/4	1	1.0 - 1.6	100kA	50kA	MPW40-3-D016	$137	CLT32 MPW40	$100	
-	1/6	1/2	1/2	1 1/2	1 1/2	1.6 - 2.5	100kA	50kA	MPW40-3-D025	$137	CLT32 MPW40	$100	
1/8	1/3	3/4	1	2	3	2.5 - 4.0	100kA	50kA	MPW40-3-U004	$137	CLT32 MPW40	$100	Z4
1/4	3/4	1 1/2	1 1/2	5	5	4.0 - 6.3	100kA	50kA	MPW40-3-D063	$137	CLT32 MPW40	$100	
1/2	1 1/2	3	3	7 1/2	10	6.3 - 10	100kA	50kA	MPW40-3-U010	$137	CLT32 MPW40	$100	
1	3	5	5	10	15	10 - 16	100kA	50kA	MPW40-3-U016	$150	CLT32 MPW40	$100	
1 1/2	3	5	7 1/2	15	20	16 - 20	100kA	50kA	MPW40-3-U020	$165	CLT32 MPW40	$100	
2	3	7 1/2	7 1/2	15	20	20 - 25	100kA	50kA	MPW40-3-U025	$195	CLT32 MPW40	$100	
-	5	10	10	20	25	25 - 32	100kA	50kA	MPW40-3-U032	$210	CLT32 MPW40	$100	

Note: Horsepower ratings shown in the table are for reference only. Please refer to the Full Load Amps of the Motor for final selection.
For components for an E or F style starter see pages 97 and 98.

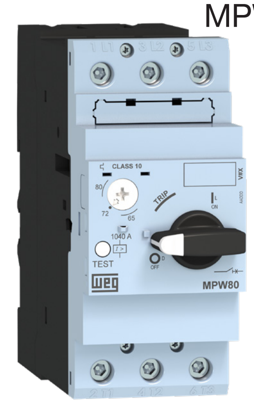
Motor Protectors

MPW

Accessories for MPW40 - Summary

Description	Catalog Number	List Price	Multiplier
Auxiliary Contact Blocks			
1NO&1NC auxiliary contact block front mounting - 250Vmax.	ACBF-11	$20	Z4
1NO&1NC auxiliary contact block left side mounting - 600Vmax.	ACBS-11	$22	
2NO Auxiliary contact block left side mounting - 600Vmax.	ACBS-20	$22	
2NC Auxiliary contact block left side mounting - 600Vmax.	ACBS-02	$22	
Accessories for Combination Type-E Construction			
Line power terminal	LST25	$42	Z4
Trip Signaling and Alarm Contact Block (1NO&1NC for Short-circuit and 1NO&1NC for Overload)	TSB	$38	
Current Limiter			
Current Limiter	CLT32 MPW40	$100	Z4
Link Modules			
Mechanical and electrical link module for CWC07... CWC016 miniature contactor series	ECCMP-C0	$20	Z4
Mechanical and electrical link module for CWM9…CWM25 contactor series	ECCMP-25	$20	
Mechanical and electrical link module for CWM32…CWM40 contactor series	ECCMP-32	$25	
Mechanical and electrical link module for CWB9…CWB38 contactor series	ECCMP-40B38	$25	
Mechanical and electrical link module for CWB9…CWB38 DC coil contactor series	ECCMP-40B38DC	$25	
Accessories for Group Motor Installation [1]			
Income power terminal for bus bar system	FTBBS	$35	Z4
Bus bar system 45mm (for 2 MPW without side mounting auxiliary contacts)	BBS45-2	$32	
Bus bar system 45mm (for 3 MPW without side mounting auxiliary contacts)	BBS45-3	$35	
Bus bar system 45mm (for 4 MPW without side mounting auxiliary contacts)	BBS45-4	$45	
Bus bar system 45mm (for 5 MPW without side mounting auxiliary contacts)	BBS45-5	$60	
Bus bar system 54mm (for 2 MPW with side mounting auxiliary contacts)	BBS54-2	$32	
Bus bar system 54mm (for 3 MPW with side mounting auxiliary contacts)	BBS54-3	$40	
Bus bar system 54mm (for 4 MPW with side mounting auxiliary contacts)	BBS54-4	$45	
Bus bar system 54mm (for 5 MPW with side mounting auxiliary contacts)	BBS54-5	$60	
Shroud for unused terminals of BBS bars	CSD	$10[2]	
Through-the-door Rotary Mechanisms			
Rotary NEMA 1 Through the Door Mechanism - gray/black handle with 130mm shaft	RMMP-130	$70	Z4
Rotary NEMA 1 Through the Door Mechanism - yellow/red handle with 130mm shaft	RMMP-130E	$70	
Rotary NEMA 1 Through the Door Mechanism - gray/black handle with 330mm shaft	RMMP-330	$85	
Rotary NEMA 1 Through the Door Mechanism - yellow/red handle with 330mm shaft	RMMP-330E	$85	
Rotary NEMA 4X Through the Door Mechanism - gray/black handle with 130mm shaft	MRX-130	$105	
Rotary NEMA 4X Through the Door Mechanism - yellow/red handle with 130mm shaft	MRX-130E	$105	
Rotary NEMA 4X Through the Door Mechanism - gray/black handle with 330mm shaft	MRX-330	$115	
Rotary NEMA 4X Through the Door Mechanism - yellow/red handle with 330mm shaft	MRX-330E	$115	
Under Voltage and Shunt Block Releases			
Shunt release block right side mounting - 20-24V 50/60Hz	SRMP D51	$56	Z4
Shunt release block right side mounting - 100-127V 50/60Hz	SRMP D59	$56	
Shunt release block right side mounting - 200-240V 50/60Hz	SRMP D65	$56	
Under voltage release block right side mounting - 24V 60Hz	URMP V05	$56	
Under voltage release block right side mounting - 120V 60Hz	URMP V18	$56	
Under voltage release block right side mounting - 208V 60Hz	URMP V23	$56	
Under voltage release block right side mounting - 240V 60Hz	URMP V30	$56	
Under voltage release block right side mounting - 480V 60Hz	URMP V47	$56	
Mounting adapter			
Mounting adapter for a D.O.L. assembly with MPW40 and CWM contactors series	MA45DOL	$40	Z4
Mounting adapter for a REVERSING assembly with MPW40 and CWM contactors series	MA90RVS	$50	
Mounting adapter for a STAR-DELTA assembly with MPW40 and CWM contactors series	MA90SDS	$85	
IEC Enclosures			
IEC IP55 enclosure yellow/red handle (non-UL)	PE55GN-E	$45	Z4
IEC IP55 enclosure + lateral auxiliary device yellow/red handle (non-UL)	LPE55GN-E	$55	
IEC IP55 enclosure gray/black handle (non-UL)	PE55GN	$45	
IEC IP55 enclosure + lateral auxiliary device gray/black handle (non-UL)	LPE55GN	$55	
Other Accessories			
Scale cover protection for the current range adjustment - package with 5 units	SCMP	$5	Z4
Lugs for panel mounting - package with 2 pieces (one MPW mounting)	PLMP	$0.50	

Notes: [1] Maximum Amps of each Bus bar system (BBS) must not be exceeded by adding multiple MPW. Bus bar capacity is 63Amps.
[2] Unit list price. Product sold in multiples of 5 units.



MPW80 - Product Selection

- Suitable for manual motor controller, group installation, tap conductor and combination starters[1] Type E & Type F
- Built-in protection: disconnect means, short-circuit protection, motor control and overload protection
- Short-circuit interrupting capacity up to 35kA@480Vac (10kA@600Vac)
- Fixed short-circuit release 13 x Iu
- Phase loss sensitivity
- Ambient temperature compensation -4…+140°F (-20…+60°C)

1) When associated with line side terminal (LST65) and Trip indicator (TSB-22)

Maximum UL Horsepower						Thermal Setting	Short-Circuit interruption capacity		Catalog Number	List Price	Multiplier
Single Phase		Three Phase									
115V	230V	200V	230V	460V	575V	[A]	480V	600V			
3	7 1/2	-	15	25	30	32 ... 40	35kA	10kA	MPW80-3-U040	$380	Z4
-	10	15	15	30	40	40 ... 50	35kA	10kA	MPW80-3-U050	$380	
5	10	20	20	50	60	50 ... 65	35kA	10kA	MPW80-3-U065	$380	

Note: Horsepower ratings shown in the table are for reference only. Please refer to the Full Load Amps of the Motor for final selection

MPW100 - Product Selection

- Suitable for manual motor controller, group installation, tap conductor and combination starters[2] type E& type F
- Built-in protection: disconnect means, short-circuit protection, motor control and overload protection
- Short-circuit interrupting capacity up to 50kA@480Vac (10kA@600Vac)
- Fixed short-circuit release 13 x Iu
- Phase loss sensitivity
- Ambient temperature compensation -4…+140°F (-20…+60°C)

[2] When associated with line side terminal (IB MPW100) and Trip indicator (TSB SC-11 MPW100)

Maximum UL Horsepower						Thermal Setting	Short-Circuit interruption capacity		Catalog Number	List Price	Multiplier
Single Phase		Three Phase									
115V	230V	200V	230V	460V	575V	[A]	480V	600V			
5	15	20	25	50	60	55 ... 75	50kA	10kA	MPW100-3-U075	$665	Z4
7 1/2	20	25	30	60	75	70 ... 90	50kA	10kA	MPW100-3-U090	$720	
10	20	30	30	75	100	80 ... 100	50kA	10kA	MPW100-3-U100	$720	

Note: Horsepower ratings shown in the table are for reference only. Please refer to the Full Load Amps of the Motor for final selection.
For components for an E or F style starter see pages 97 and 98.

Motor Protectors

MPW

Accessories for MPW80 - Summary

Description	Catalog Number	List Price	Multiplier
Auxiliary Contact Blocks			
1NO&1NC auxiliary contact block front mounting - 250Vmax.	ACBF-11	$20	Z4
1NO&1NC auxiliary contact block left side mounting - 600Vmax.	ACBS-11	$22	
2NO Auxiliary contact block left side mounting - 600Vmax.	ACBS-20	$22	
2NC Auxiliary contact block left side mounting - 600Vmax.	ACBS-02	$22	
Accessories for Combination Type-E Construction			
Line power terminal (for MPW65-3-U040 to MPW65-3-U065)	LST65	$85	Z4
Trip Signaling and Alarm Contact Block (1NO&1NC for Short-circuit and 1NO&1NC for Overload)	TSB	$38	
Through-the-door Rotary Mechanisms			
Rotary NEMA 1 Through the Door Mechanism - gray/black handle with 130mm shaft	RMMP65-130	$80	Z4
Rotary NEMA 1 Through the Door Mechanism - yellow/red handle with 130mm shaft	RMMP65-130E	$80	
Rotary NEMA 1 Through the Door Mechanism - gray/black handle with 330mm shaft	RMMP65-330	$90	
Rotary NEMA 1 Through the Door Mechanism - yellow/red handle with 330mm shaft	RMMP65-330E	$90	
Rotary NEMA 4X Through the Door Mechanism - black/red handle with 130mm shaft	MRX65-130	$120	
Rotary NEMA 4X Through the Door Mechanism - yellow/red handle with 130mm shaft	MRX65-130E	$120	
Rotary NEMA 4X Through the Door Mechanism - black/red handle with 330mm shaft	MRX65-330	$130	
Rotary NEMA 4X Through the Door Mechanism - yellow/red handle with 330mm shaft	MRX65-330E	$130	
Under Voltage and Shunt Block Releases			
Shunt release block right side mounting - 20-24V 50/60Hz	SRMP D51	$56	Z4
Shunt release block right side mounting - 100-127V 50/60Hz	SRMP D59	$56	
Shunt release block right side mounting - 200-240V 50/60Hz	SRMP D65	$56	
Under voltage release block right side mounting - 24V 60Hz	URMP V05	$56	
Under voltage release block right side mounting - 120V 60Hz	URMP V18	$56	
Under voltage release block right side mounting - 208V 60Hz	URMP V23	$56	
Under voltage release block right side mounting - 240V 60Hz	URMP V30	$56	
Under voltage release block right side mounting - 480V 60Hz	URMP V47	$56	
Other Accessories			
Scale cover protection for the current range adjustment - package with 5 units	SCMP	$5	Z4
Lugs for panel mounting - package with 2 pieces (one MPW mounting)	PLMP	$0.50	

Accessories for MPW100 - Summary

Description	Catalog Number	List Price	Multiplier
Auxiliary Contact Blocks			
1NO&1NC auxiliary contact block front mounting - 250Vmax.	ACBF-11 MPW100	$35	Z4
1NO&1NC auxiliary contact block left side mounting - 600Vmax.	ACBS-11 MPW100	$27[1]	
2NO Auxiliary contact block left side mounting - 600Vmax.	ACBS-20 MPW100	$27[1]	
2NC Auxiliary contact block left side mounting - 600Vmax.	ACBS-02 MPW100	$27[1]	
Accessories for Combination Type-E Construction			
Insulators	IB MPW100	$30	Z4
Trip Signaling and Alarm Contact Block (1NO&1NC for Short-circuit and Overload)	TSB-SC-11 MPW100	$38[1]	
Through-the-door Rotary Mechanisms			
Rotary NEMA 1 Through the Door Mechanism - gray/black handle with 115mm shaft	MR MPW100-115	$100	Z4
Rotary NEMA 1 Through the Door Mechanism - gray/black handle with 315mm shaft	MR MPW100-315	$115	
Rotary NEMA 4X Through the Door Mechanism - gray/black handle with 130mm shaft	MRX100-130	$130	
Rotary NEMA 4X Through the Door Mechanism - yellow/red handle with 130mm shaft	MRX100-130E	$130	
Under Voltage and Shunt Block Releases			
Shunt release block right side mounting - 120V 50/60Hz	SRMP V18 MPW100	$56	Z4
Shunt release block right side mounting - 240-260V 60Hz	SRMP V33 MPW100	$56	
Under voltage release block right side mounting - 120V 60Hz	URMP V18 MPW100	$56	
Under voltage release block right side mounting - 240V 60Hz	URMP V33 MPW100	$56	
Under voltage release block right side mounting - 460V 60Hz	URMP V43 MPW100	$56	

Notes: [1] Unit list price. Product sold in multiples of 2 units.

WEG's Self Protected Combination Type-E Motor Controller with Unmatched Features and Benefits

Combination starters are the most common type of packaged motor controllers. They are called combination because of their construction and combined functions required by the US National Electric Code (NEC): Motor Disconnect, Motor Branch Circuit Protection, Motor Controller and Motor Overload Protection. UL1 currently recognizes six different types of combination starters that meet the requirements of a motor branch circuit.

Constructions Types A through D are traditional starters that use either a listed disconnect switch and fuses or a listed circuit breakers as the disconnect means and for short circuit protection. Each type uses a separate UL 508 listed motor controller and overload relay. Recently revisions on UL508 introduced the Type E and Type F starters.

UL Combination Starter Type	Device Used for Component Function			
	Disconnected	Branch Circuit Protection	Motor Controller	Motor OL Relay
A	UL 98 Manual Disconnect	UL 248 Fuses	UL 508 Magnetic or Solid State Controller	UL 508 Motor Overload Relay
B		UL 508 Motor Short Circuit Protector		
C	UL 489 Inverse Time Circuit Breaker			
D	UL 489 Instantaneous Trip Circuit Breaker			
E	UL 508 Self-protected Combination Controller			
F	UL 508 Manual Self-protected Combination Controller		UL 508 Magnetic or Solid State Controller	UL 508 Manual Self-Protected Combination Controller

Type E starter is a self-protected combination motor controller that combines in a single device all the required functions of a combination starter and eliminates any additional requirements for upstream fuses or circuit breakers. These starters clear faults within their rating without sustaining damage to themselves or the rest of the system, being able to get back into operation. There are two arrangements for a Type E starter: manual (as stand-alone) and associated with a contactor. Both are submitted to the same tests sequences.

Type F starter consists of a listed manual Type E combined with a UL508 listed contactor. The difference between the two types is related to the absence of self-protected characteristic; hence, Type F has softened tests sequences allowing damages on the contactor after a fault.

Tests performed in order to fulfill the Type E requirements are considered the hardest in UL508, including short-circuit and endurance tests on the same sample. As a comparison, UL Type E exceeds the requirements for Type F and IEC60947-4-1 Coordination type 2.

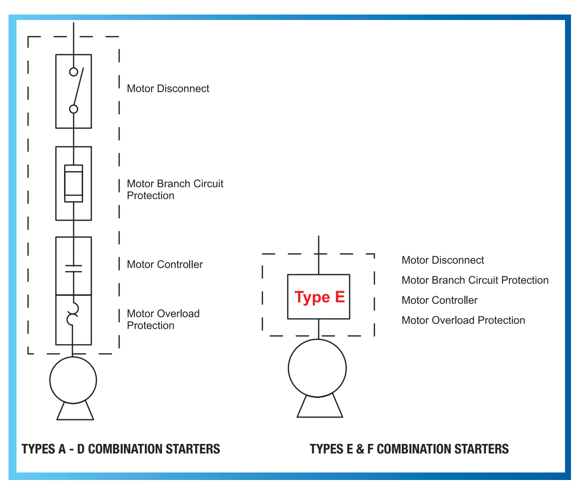
WEG's self-protected combination Type E combines all of these functions within a single product for a manual operation or within a set of two products (with a listed contactor) for a remote operation. Both options must be associated with the accessories Line Side Terminal (LST25) and Tripping Signaling Block (TSB-22) to accomplish UL508/UL489 requirements for spacing (clearance and creepage) and short-circuit indication.

They are recommended for a wide range of applications where full voltage combination starters are required. Some examples are: Pumps, Industrial Washing Machines, Compressors, Blowers, Cutting Machines, Conveyors, Lumber Processing and many others.

The Manual Type E Starter is a stand-alone product – MPW series – that ranges from fractional up to 75Hp@460V motors (0.16 to 100A) with up to 100KA@480V and 50KA@600V interrupting short-circuit capability. Together with some accessories that complete this product line, the MPW series are a compact and reliable solution for starting and protecting motors.

WEG also offers an option for a remote Type E & F Starter, combining the MPW series (as a manual type E) together with a contactor from CWM Series. As this version undergoes the same tests, it has the same horse power ratings and short-circuit capabilities as the manual Type E. However, it provides remote operation and controlling of the application through the contactor's coil.

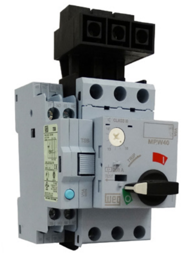
In addition to its popular line of UL enclosed starters, WEG is also providing a NEMA 4X (IP65) enclosed Type E & F Starter – ESWE & ESWF – featuring as standard a handle for disconnect means through the door and a contactor for remote operation. Provisions for control circuit transformer installation as well as pilot lights are also included.



Motor Protectors

MPW

Manual Self-Protected Combination Motor Controller Type-E



- No need of upstream protective devices such as UL489 MCCB or UL248 fuses
- Built-in protections: disconnect means, short-circuit protection, motor control and over load protection
- Short-circuit interrupting capacity up to 100kA@480Vac (50kA@600Vac)
- Compact combination starter
- Phase loss sensitivity
- Ambient temperature compensation -4…+140ºF (-20…+60ºC)

High Interruption Capacity

Maximum UL Horsepower						Thermal Setting	Short-Circuit Interruption Capacity	Individual Component Catalog Number[1]				
Single Phase		Three Phase						Manual Motor Protector	Line Side Terminal	Tripping Indicator	List Price	Multiplier
115V	230V	200V	230V	460V	575V	[A]	480V					
-	-	-	-	-	-	0.10 - 0.16	65kA	MPW40-3-C016	LST25	TSB	$192	Z4
-	-	-	-	-	-	0.16 - 0.25	65kA	MPW40-3-C025	LST25	TSB		
-	-	-	-	-	-	0.25 - 0.40	65kA	MPW40-3-D004	LST25	TSB		
-	-	-	-	-	1/4	0.40 - 0.63	65kA	MPW40-3-C063	LST25	TSB	$213	
-	-	-	-	1/2	1/2	0.63 - 1.0	65kA	MPW40-3-U001	LST25	TSB		
-	1/10	1/4	1/3	3/4	1	1.0 - 1.6	65kA	MPW40-3-D016	LST25	TSB		
-	1/6	1/2	1/2	1 1/2	1 1/2	1.6 - 2.5	65kA	MPW40-3-D025	LST25	TSB		
1/8	1/3	3/4	1	2	3	2.5 - 4.0	65kA	MPW40-3-U004	LST25	TSB		
1/4	3/4	1 1/2	1 1/2	5	5	4.0 - 6.3	65kA	MPW40-3-D063	LST25	TSB		
1/2	1 1/2	3	3	7 1/2	10	6.3 - 10	65kA	MPW40-3-U010	LST25	TSB		
1	3	5	5	10	15	10 - 16	65kA	MPW40-3-U016	LST25	TSB	$245	
1 1/2	3	5	7 1/2	15	20	16 - 20	50kA	MPW40-3-U020	LST25	TSB		
2	3	7 1/2	7 1/2	15	20	20 - 25	50kA	MPW40-3-U025	LST25	TSB	$275	
-	5	10	10	20	25	25 - 32	42kA	MPW40-3-U032	LST25	TSB	$290	
3	7 1/2	-	15	25	30	32 - 40	30kA	MPW80-3-U040	LST65	TSB	$503	
-	10	15	15	30	40	40 - 50	30kA	MPW80-3-U050	LST65	TSB		
5	10	20	20	50	60	50 - 65	30kA	MPW80-3-U065	LST65	TSB		
5	15	20	25	50	60	55 - 75	50kA	MPW100-3-U075	IB MPW100	TSB SC-11 MPW100	$733	
7 1/2	20	25	30	60	75	70 - 90	50kA	MPW100-3-U090	IB MPW100	TSB SC-11 MPW100	$788	
10	20	30	30	75	100	80 - 100	50kA	MPW100-3-U100	IB MPW100	TSB SC-11 MPW100		

Note: Horsepower ratings shown in the table are for reference only. Please refer to the Full Load Amps of the Motor for final selection.
[1] Individual Component Catalog Numbers are ordered separately. Multiplier Z4.

Extra High Interruption Capacity

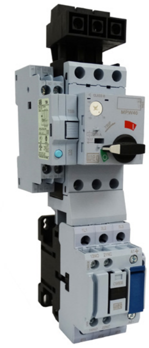
Maximum UL Horsepower						Thermal Setting	Short-Circuit Interruption Capacity	Individual Component Catalog Number1					
Single Phase		Three Phase						Manual Motor Protector	Current Limiter	Line Side Terminal	Tripping Indicator	List Price	Multiplier
115V	230V	200V	230V	460V	575V	[A]	480V						
-	-	-	-	-	-	0.10 - 0.16	100kA	MPW40-3-C016	CLT32 MPW40	LST25	TSB	$292	Z4
-	-	-	-	-	-	0.16 - 0.25	100kA	MPW40-3-C025	CLT32 MPW40	LST25	TSB		
-	-	-	-	-	-	0.25 - 0.40	100kA	MPW40-3-D004	CLT32 MPW40	LST25	TSB		
-	-	-	-	-	1/4	0.40 - 0.63	100kA	MPW40-3-C063	CLT32 MPW40	LST25	TSB	$313	
-	-	-	-	1/2	1/2	0.63 - 1.0	100kA	MPW40-3-U001	CLT32 MPW40	LST25	TSB		
-	1/10	1/4	1/3	3/4	1	1.0 - 1.6	100kA	MPW40-3-D016	CLT32 MPW40	LST25	TSB		
-	1/6	1/2	1/2	1 1/2	1 1/2	1.6 - 2.5	100kA	MPW40-3-D025	CLT32 MPW40	LST25	TSB		
1/8	1/3	3/4	1	2	3	2.5 - 4.0	100kA	MPW40-3-U004	CLT32 MPW40	LST25	TSB		
1/4	3/4	1 1/2	1 1/2	5	5	4.0 - 6.3	100kA	MPW40-3-D063	CLT32 MPW40	LST25	TSB		
1/2	1 1/2	3	3	7 1/2	10	6.3 - 10	100kA	MPW40-3-U010	CLT32 MPW40	LST25	TSB		
1	3	5	5	10	15	10 - 16	100kA	MPW40-3-U016	CLT32 MPW40	LST25	TSB	$345	
1 1/2	3	5	7 1/2	15	20	16 - 20	100kA	MPW40-3-U020	CLT32 MPW40	LST25	TSB		
2	3	7 1/2	7 1/2	15	20	20 - 25	100kA	MPW40-3-U025	CLT32 MPW40	LST25	TSB	$375	
-	5	10	10	20	25	25 - 32	100kA	MPW40-3-U032	CLT32 MPW40	LST25	TSB	$390	

Note: Horsepower ratings shown in the table are for reference only. Please refer to the Full Load Amps of the Motor for final selection.
[1] Individual Component Catalog Numbers are ordered separately. Multiplier Symbol Z4.

Data is subject to change without notice.

Combination Motor Controller Type-F

- No need of upstream protective devices such as UL489 MCCB or UL248 fuses
- Built-in protections: disconnect means, short-circuit protection, motor control and overload protection
- Short-circuit interrupting capacity up to 100kA@480Vac (50kA@600Vac)
- Compact combination starter
- Phase loss sensitivity
- Ambient temperature compensation -4…+140°F (-20…+60°C)
- Remote operation



(4)

High interruption capacity

Maximum UL Horsepower						Thermal Setting	Short-Circuit Interruption Capacity	Individual Component Catalog Number[1]						
Single Phase		Three Phase						Manual Motor Protector	Line Side Terminal	Tripping Indicator	Link Module	List Price[2]	Contactor[3]	List Price[3]
115V	230V	200V	230V	460V	575V	[A]	480V							
-	-	-	-	-	-	0.10 -0.16	65kA	MPW40-3-C016	LST25	TSB	ECCMP-40B38		CWB9	
-	-	-	-	-	-	0.16 - 0.25	65kA	MPW40-3-C025	LST25	TSB	ECCMP-40B38	$221	CWB9	
-	-	-	-	-	-	0.25 - 0.40	65kA	MPW40-3-D004	LST25	TSB	ECCMP-40B38		CWB9	
-	-	-	-	-	1/4	0.40 - 0.63	65kA	MPW40-3-C063	LST25	TSB	ECCMP-40B38		CWB9	
-	-	-	-	1/2	1/2	0.63 - 1.0	65kA	MPW40-3-U001	LST25	TSB	ECCMP-40B38		CWB9	
-	1/10	1/4	1/3	3/4	1	1.0 - 1.6	65kA	MPW40-3-D016	LST25	TSB	ECCMP-40B38		CWB9	$72
-	1/6	1/2	1/2	1 1/2	1 1/2	1.6 - 2.5	65kA	MPW40-3-D025	LST25	TSB	ECCMP-40B38	$242	CWB9	
1/8	1/3	3/4	1	2	3	2.5 - 4.0	65kA	MPW40-3-U004	LST25	TSB	ECCMP-40B38		CWB9	
1/4	3/4	1 1/2	1 1/2	5	5	4.0 - 6.3	65kA	MPW40-3-D063	LST25	TSB	ECCMP-40B38		CWB9	
1/2	1 1/2	3	3	7 1/2	10	6.3 - 10	65kA	MPW40-3-U010	LST25	TSB	ECCMP-40B38		CWB9	
1	3	5	5	10	15	10 - 16	65kA	MPW40-3-U016	LST25	TSB	ECCMP-40B38	$255	CWB18	$103
1 1/2	3	5	7 1/2	15	20	16 - 20	50kA	MPW40-3-U020	LST25	TSB	ECCMP-40B38	$270	CWB18	
2	3	7 1/2	7 1/2	15	20	20 - 25	42kA	MPW40-3-U025	LST25	TSB	ECCMP-40B38	$300	CWB25	$140
-	5	10	10	20	25	25 - 32	42kA	MPW40-3-U032	LST25	TSB	------	$315	CWB32	$164
3	7 1/2	-	15	25	30	32 - 50	30KA	MPW80-3-U040	LST65	TSB	-----	$355	CWM50	$174
-	10	15	15	30	40	40 - 50	30kA	MPW80-3-U050	LST65	TSB	------	$503	CWM65	$215
5	10	20	20	50	60	50 - 65	30kA	MPW80-3-U065	LST65	TSB	------		CWM80	$261
5	15	20	25	50	60	55 - 75	50kA	MPW100-3-U075	IB MPW100	TSB SC-11 MPW100	------	$733	CWM95	$294
7 1/2	20	25	30	60	75	70 - 90	50kA	MPW100-3-U090	IB MPW100	TSB SC-11 MPW100	------	$708	CWM95	
10	20	30	30	75	100	80 - 100	50kA	MPW100-3-U100	IB MPW100	TSB SC-11 MPW100	------		CWM105	$393

Note: Horsepower ratings shown in the table are for reference only. Please refer to the Full Load Amps of the Motor for final selection.
[1] Individual Component Catalog Numbers are ordered separately.
[2] Multiplier Symbol Z4
[3] Multiplier Symbol Z1
[4] For Link Module, see accessories

Extra-High interruption capacity

Maximum UL Horsepower						Thermal Setting	Short-Circuit Interruption Capacity	Individual Component Catalog Number[1]							
Single Phase		Three Phase						Manual Motor Protector	Current Limiter	Line Side Terminal	Link Module	Tripping Indicator	List Price[2]	Contactor[3]	List Price[3]
115V	230V	200V	230V	460V	575V	[A]	480V								
-	-	-	-	-	-	0.10 - 0.16	100kA	MPW40-3-C016	CLT32 MPW40	LST25	ECCMP-40B38	TSB		CWB9	
-	-	-	-	-	-	0.16 - 0.25	100kA	MPW40-3-C025	CLT32 MPW40	LST25	ECCMP-40B38	TSB	$321	CWB9	
-	-	-	-	-	-	0.25 - 0.40	100kA	MPW40-3-D004	CLT32 MPW40	LST25	ECCMP-40B38	TSB		CWB9	
-	-	-	-	-	1/4	0.40 - 0.63	100kA	MPW40-3-C063	CLT32 MPW40	LST25	ECCMP-40B38	TSB		CWB9	
-	-	-	-	1/2	1/2	0.63 - 1.0	100kA	MPW40-3-U001	CLT32 MPW40	LST25	ECCMP-40B38	TSB		CWB9	
-	1/10	1/4	1/3	3/4	1	1.0 - 1.6	100kA	MPW40-3-D016	CLT32 MPW40	LST25	ECCMP-40B38	TSB		CWB9	$72
-	1/6	1/2	1/2	1 1/2	1 1/2	1.6 - 2.5	100kA	MPW40-3-D025	CLT32 MPW40	LST25	ECCMP-40B38	TSB	$342	CWB9	
1/8	1/3	3/4	1	2	3	2.5 - 4.0	100kA	MPW40-3-U004	CLT32 MPW40	LST25	ECCMP-40B38	TSB		CWB9	
1/4	3/4	1 1/2	1 1/2	5	5	4.0 - 6.3	100kA	MPW40-3-D063	CLT32 MPW40	LST25	ECCMP-40B38	TSB		CWB9	
1/2	1 1/2	3	3	7 1/2	10	6.3 - 10	100kA	MPW40-3-U010	CLT32 MPW40	LST25	ECCMP-40B38	TSB		CWB9	
1	3	5	5	10	15	10 - 16	100kA	MPW40-3-U016	CLT32 MPW40	LST25	ECCMP-40B38	TSB	$355	CWB18	
1 1/2	3	5	7 1/2	15	20	10 - 16	100kA	MPW40-3-U020	CLT32 MPW40	LST25	ECCMP-40B38	TSB	$370	CWB18	$103
2	3	7-1/2	7-1/2	15	20	20 - 25	100kA	MPW40-3-U025	CLT32 MPW40	LST25	ECCMP-40B38	TSB	$400	CWB25	$118
-	5	10	10	20	25	25 - 32	100kA	MPW40-3-U032	CLT32 MPW40	LST25	ECCMP-40B38	TSB	$415	CWB32	$140

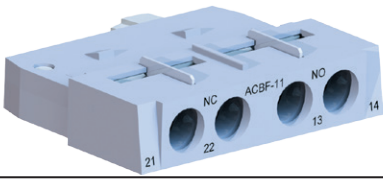
Note: Horsepower ratings shown in the table are for reference only. Please refer to the Full Load Amps of the Motor for final selection.
[1] Individual Component Catalog Numbers are ordered separately.
[2] Multiplier Symbol Z4
[3] Multiplier Symbol Z1

Motor Protectors

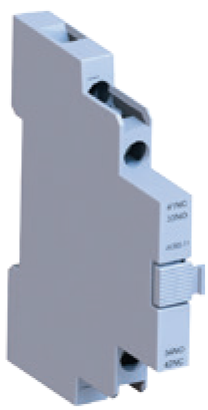
MPW

Accessories

Front Mounting Auxiliary Contact Block - ACBF

For use with		Auxiliary Contacts NO	Auxiliary Contacts NC	Catalog Number	List Price	Multiplier
MPW18 MPW40[1] MPW80		1	1	ACBF-11	$20	Z4
MPW100				ACBF-11 MPW100	$35	Z4

Left side Auxiliary Contact Block - ACBS

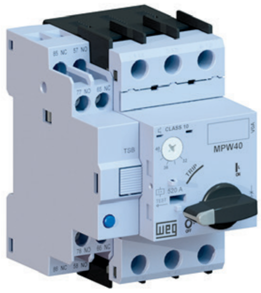
For use with		Auxiliary Contacts NO	Auxiliary Contacts NC	Catalog Number	List Price	Multiplier
MPW18 MPW40[1] MPW80[1]		1	1	ACBS-11	$22	Z4
		2	-	ACBS-20		
		-	2	ACBS-02		
MPW100		1	1	ACBS-11 MPW100	$27[2]	Z4
		2	-	ACBS-20 MPW100		
		-	2	ACBS-02 MPW100		

Note:

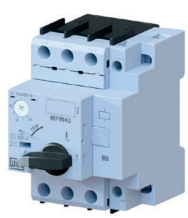
[1] The following accessories can be assembled at the same time: 1 ACBF + 1 URMP/SRMP + 1 TSB or 1 ACBS + 1 URMP/SRMP + 1 TSB
[2] Unit list price. Product sold in multiples of 2 units

Accessories

Trip Signalling Block - TSB

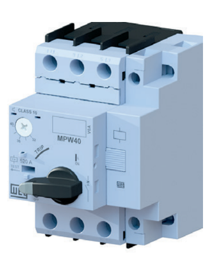
For use with		Description	Catalog Number	List Price	Multiplier
MPW40 [1] MPW80 [1]		- Equipped with 2 auxiliary contacts (1NO + 1NC) for overload trip signalling and 2 other auxiliary contacts (1NO + 1NC) for short-circuit trip signalling. - To reset the MPW after a short-circuit, the blue flag must be manually reset after the cause of the failure has been solved. - Left side auxiliary contacts can be assembled together with the trip signalling block. - Left side assembly only	TSB	$38	Z4
MPW100		- Equipped with 2 auxiliary contacts (1NO + 1NC) for short-circuit trip signalling. - Left side assembly only	TSB SC-11 MPW100	$38 [2]	Z4

Undervoltage Release - URMP

For use with		Voltage	Catalog Number	List Price	Multiplier
MPW18 [1] MPW40 [1] MPW80 [1]		208V 60Hz 24V 50/60Hz 400-415V 50Hz / 480V 60Hz 110V 50Hz / 120V 60Hz 240V 60Hz	URMP V23 URMP D02 URMP V47 URMP V18 URMP V30	$56	Z4
MPW100	Note: - Operating voltage > 0,85 x Ue - Non operating voltage 0,35...0,7 x Ue	110V 50Hz / 120V 60Hz 220-230V 50Hz / 240V 60Hz 380-400V 50Hz / 460V 60Hz	URMP V18 MPW100 URMP V33 MPW100 URMP V43 MPW100	$56	Z4

Note: [1] The following accessories can be assembled at the same time: 1 ACBF + 1 URMP/SRMP + 1 TSB or 1 ACBS + 1 URMP/SRMP + 1 TSB
[2] Unit list price. Product sold in multiples of 2 units

Shunt Release - SRMP

For use with		Voltage	Catalog Number	List Price	Multiplier
MPW18 [1] MPW40 [1] MPW80 [1]		20-24V 50/60Hz 100-127V 50/60Hz 200-240V 50/60Hz	SRMP D51 SRMP D59 SRMP D65	$56	Z4
MPW100	Note: - Operating voltage > 0.7 x Ue	110V 50Hz / 120V 60Hz 220-230V 50Hz / 240-260V 60Hz	SRMP V18 MPW100 SRMP V33 MPW100	$56	Z4

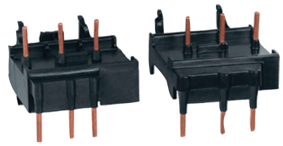
Note: [1] The following accessories can be coupled at the same time:
1 ACBF + 1 URMP/SRMP + 1 TSB or 1 ACBS + 1 URMP/SRMP + 1 TSB

Motor Protectors

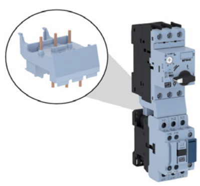
MPW

Accessories

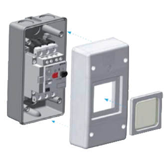
Link modules for manual motor protector assembly + contactors – ECCMP

For use with		Description	Contactors	Catalog Number	List Price	Multiplier
MPW18		- For direct connection (electrical and mechanical) of motor circuit breakers to contactors. Note: - Not applicable to CWM contactors with DC coils.	CWC07…16 CWC025	**ECCMP-C016** **ECCMP-C025**	**$20**	Z4
MPW40			CWC07…16 CWM9…25 CWM32...40	**ECCMP-C0** **ECCMP-25** **ECCMP-32**		

Connector Links for MPW18/40 & CWB Contactors

For use with		Description	Contactors	Catalog Number	List Price	Multiplier
MPW18		For direct connection (electrical and mechanical) of motor circuit breakers to contactors.	CWB9...38 AC coil	**ECCMP-18B38**	**$20**	Z4
MPW40			CWB9...38 AC coil	**ECCMP-40B38**	**$25**	
			CWB9...38 DC coil	**ECCMP-40B38DC**		
MPW80			CWB40...80 AC/DC coil	**ECCMP-80B80**	**$95**	

Standard IEC Enclosure - CE only (not UL)

For use with		Description	Terminals	Handle color	Catalog Number	List Price	Multiplier
MPW18		- Degree of protection: IP66 - Two cable entry knockouts, top and bottom - Allows installing: MPW18 + ACBF11/PL lamps + ACBS	With neutral and ground terminals	-	**PE66GN**	**$45**	Z4
MPW40	 	- Degree of protection: IP55 - Allows installing: MPW40 + ACBF11/PL lamps + ACBS - Two cable entry knockouts, top and bottom - Handle can be locked with up to 3 padlocks at OFF position.	With neutral and ground terminals	Black	**PE55GN**	**$45**	
				Red with yellow background	**PE55GNE**	**$45**	Z4

Data is subject to change without notice.

Accessories

Through-the-door Rotary Handle - RMMP and MRX

For use with		Description	Handle color	Catalog Number	Price List	Multiplier
MPW40		- Degree of protection IP55/NEMA1; - Shows MPW position “I”(ON) or “O”(OFF); - Panel door can only be opened in OFF position; - Adjustable shaft length. There are 2 standard shaft sizes: 130-155mm (Model 130) and 330-355mm (Model 330). To assemble the handle on the MPW the shaft must have a length of at least 80mm; - Up to 3 padlocks can be used in the OFF position. This blocks MPW operation and panel door opening; - Handle can be mounted on panels with thickness of 1 to 5mm; - Handle can be assembled even with MPW turned in 90º position	Gray/ Black	RMMP-130	$70	Z4
				RMMP-330	$85	
			Red/ Yellow	RMMP-130E	$70	
				RMMP-330E	$85	
MPW80			Gray/ Black	RMMP65-130	$60	
				RMMP65-330	$70	
			Red/ Yellow	RMMP65-130E	$60	
				RMMP65-330E	$70	
MPW100		- Degree of protection NEMA1; - Shows MPW position “I”(ON) or “O”(OFF); - Panel door can be opened at ON position (thermometry) by defeating mechanism; - Adjustable shaft length. There are 2 standard shaft sizes: 115mm (Model 115) and 315mm (Model 315). To assemble the handle to the MPW, the shaft must have a min. length of at least 80mm; - Up to 3 padlocks can be used in the OFF position. This blocks the MPW operation and opens panel door.	Gray/ Black	MR MPW100-115	$100	
			Gray/ Black	MR MPW100-315	$115	
MPW40		- Panel door can be opened in ON position (thermometry) by defeating mechanism. - Degree of protection: IP65/NEMA 4X - Shows MPW position “I”(ON) or “O”(OFF) - Adjustable shaft length. There are 2 standard shaft sizes: 130-155mm (Model 130) and 330-355mm (Model 330). To assemble the handle ON the MPW the shaft must have a length of at least 80mm - Up to 3 padlocks can be used in the OFF position. This blocks MPW operation and opens panel door. Handle can be mounted on panels with thickness of 1 to 5mm	Gray/ Black	MRX-130	$105	
				MRX-330	$115	
			Red/ Yellow	MRX-130E	$105	
				MRX-330E	$115	
MPW80			Gray/ Black	MRX65-130	$120	
				MRX65-330	$130	
			Red/ Yellow	MRX65-130E	$120	
				MRX65-330E	$130	
MPW100			Gray/ Black	MRX100-130-E	$130	
			Red/ Yellow	MRX100-130-E	$130	

Motor Protectors

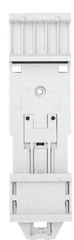
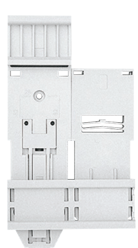
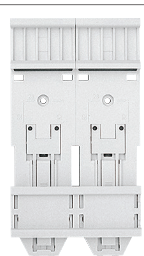
MPW

Accessories

Large IEC Enclosure - LPE55

For use with		Description	Terminals	Handle color	Catalog Number	List Price	Multiplier
MPW40	 	- Degree of protection: IP55 - For use with MPW40 + URMP/SRMP + ACBF11 + ACBS + PL lamps - Two cable entry knockouts. top and bottom - Handle can be locked with up to 3 padlocks at OFF position.	With neutral and ground terminals	Black	LPE55GN	$55	Z4
				Red with yellow background	LPE55GN-E		

Manual Motor Protector mounting adapter - MA

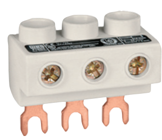
For use with	MPW40	Description	Contactors	Catalog Number	List Price	Multiplier
MPW40		Used for direct on line starters 45mm width	CWC07...25 CWM9…CWM25	MA45DOL	$40	Z4
MPW40		Used for reversing starters 90mm width	2 x CWC07...25 2x CWM9...CWM25	MA90RVS	$50	
MPW40		Used for star-delta motor starters 90mm width	2 x CWC07...25 2x CWM9…CWM25	MA90SDS	$85	

Accessories

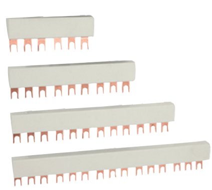
Insulators - IB

For use with		Description	Catalog Number	List Price	Multiplier
MPW100		Insulators for increasing creepage distance and clearances according to UL requirements.	**IB MPW100**	**$30**	Z4

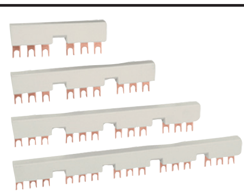
Three-phase feeder terminal – FTBBS and LST25

For use with		Description	Catalog Number	List Price	Multiplier
MPW18 MPW40		- For feeding the feeder terminals; - Rated insulation voltage: 690VAC; - I_e: 63A; - Terminals: 6-25mm² rigid wire and 6-16mm² flexible wire with terminal.	**FTBBS**	**$35**	Z4
MPW40		- Block module for " Type E" Combination motor Controller" in accordance with UL (LST25+MPW+TSB-22-B); - Rated insulation voltage: 690VAC; - I_e: 63A. - Terminals: 8-20AWG.	**LST25**	**$42**	

Three-phase feeder terminals for MPW without side auxiliary contacts – BBS45

For use with		Description	Numbers of MPW	Catalog Number	List Price	Multiplier
MPW18 MPW40		- For parallel blocking of side-by-side mounted MPW, without side auxiliary contacts; - Enables the use of frontal auxiliary contact block ACBF-11; - U_e: 690VAC - I_e: 63A	2	**BBS45-2**	**$32**	Z4
			3	**BBS45-3**	**$35**	
			4	**BBS45-4**	**$45**	
			5	**BBS45-5**	**$60**	

Three-phase feeder terminals for MPW with side auxiliary contacts – BBS54

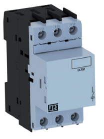
For use with		Description	Numbers of MPW	Catalog Number	List Price	Multiplier
MPW18 MPW40		- For parallel blocking of side-by-side mounted MPW; - Enables the use of frontal auxiliary contact block ACBF-11 and side auxiliary contact block ACBS; - U_e: 690VAC; - I_e: 63A.	2	**BBS54-2**	**$32**	Z4
			3	**BBS54-3**	**$35**	
			4	**BBS54-4**	**$45**	
			5	**BBS54-5**	**$60**	

Motor Protectors

MPW

Accessories

Current Limiter - CLT32

For use with		Description	Catalog Number	List Price	Multiplier
MPW40		- For protecting electrical circuits where extra high short-circuit breaking capacity is required: 100kA @ 480VAC Note: This accessory must be used together with a MPW motor protector.	CLT32 MPW40	$100	Z4

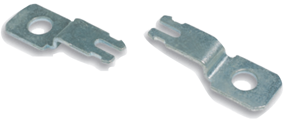
Shround for unused terminals – CSD

For use with		Description	Catalog Number	List Price	Multiplier
BBS45 BBS54		Protection against direct contact on unused terminals on energized BBS45 and BBS54 three-phase feeder terminals.	CSD	$10[1]	Z4

Scale Cover - SCMP

For use with		Description	Catalog Number	List Price	Multiplier
MPW18 MPW40 MPW80		Protects the current adjustment dial against direct contact while enabling the set current to be viewed.	SCMP	$5	Z4

Push-in-lugs - PLMP

For use with		Description	Catalog Number	List Price	Multiplier
MPW18 MPW40 MPW90		For direct assembly of motor protective circuit breaker onto any surface using screws.	PLMP	$0.50	Z4

Notes: [1] Unit list price. Product sold in multiples of 5 units.

MPW18 Technical Data

General Ratings

Model	Units	MPW18-3-C016	MPW18-3-C025	MPW18-3-D004	MPW18-3-C063	MPW18-3-U001	MPW18-3-D016	MPW18-3-D025
Standards		Devices according to International Standards IEC 60947-1 / 60947-4-1, European Standards EN 60947-1 / 60947-4-1, Underwriters Laboratories - UL 508; CSA C.22.2/14; VDE 0660/102						
Current Setting Range	[A]	0.10 - 0.16	0.16 - 0.25	0.25 - 0.40	0.40 - 0.63	0.63 - 1.0	1.0 - 1.6	1.6 - 2.5
Rated Thermal Current Ith	[A]	0.16	0.25	0.40	0.63	1.0	1.6	2.5
Rated Insulation Voltage Ui								
Acc. IEC; VDE 0660	[V]	690						
Acc. UL; CSA	[V]	600						
Rated Operating Voltage Ue								
Acc. IEC; VDE 0660	[V]	690						
Acc. UL; CSA	[V]	600						
Rated Impulse Voltage Uimp								
Acc. IEC60947-1	[kV]	6						
Rated Operating Frequency	[Hz]	50/60						
Overvoltage Category		III						
Pollution Degree		3						
Utilization Category								
IEC 60947-2 (Motor Protector)		A						
IEC 60947-4-1 (Motor Starter)		AC-3						
Lifespan								
Mechanical	[ops.]	100,000						
Electrical (Ie max.)	[ops.]	100,000						
Switching Rate (motor starts)	AC-3 [ops/hr]	15						
Ambient Temperature								
Storage	[°C (°F)]	-50 to +80 (-58 to +176)						
Operating	[°C (°F)]	-20 to +60 (-4 to +140)						
Ambient Temperature Compensation	[°C (°F)]	-20 to +60 (-4 to +140)						
Climatic Proofing		IEC 60068-2-3 / IEC 60068-2-30						
Altitude								
Up to 2,000m (6,600ft)		Nominal Values (for higher altitudes refer to page 122						
Degree of protection		IP20						
Resistance to Shock								
Acc. IEC 60068-2-27	[g]	15						
Resistance to Vibration		IEC 68-2						
Protection against direct contact								
Acc. IEC 536; DIN VDE 0106 Part 100		Finger and back of hand proof						
Phase Failure Sensitivity Protection		Yes						
Overload Protection Characteristics	x Iu [A]	0.6 - 1						
Magnetic Release	x Iu [A]	13						
Overload Trip Class		10						
Total Power Loss Pv								
At rated load operating temperature	[W]	6	6	6	6	6	6	6
Weight	[kg]	0.30						
	[lb]	0.70						
Type of Terminal		Flat Type						
Screw Driver		Philips #2						
Terminal Capacity								
Solid - Stranded	[mm2] [AWG]	Refer to table on page 121						
Tightening Torque	N.m) lb.in	1.2 - 1.7 (11 - 16)						
Mounting Position		Any Position						

UL File No. E172121

Motor Protectors

MPW

MPW18 Technical Data

General Ratings

TYPE	Units		MPW18-3-U004	MPW18-3-D063	MPW18-3-U010	MPW18-3-U016	MPW18-3-U018
Standards			Devices according to International Standards IEC 60947-1 / 60947-4-1, European Standards EN 60947-1 / 60947-4-1, Underwriters Laboratories - UL 508; CSA C.22.2/14; VDE 0660/102				
Current Setting Range		[A]	2.5 - 4.0	4.0 - 6.3	6.3 - 10	10 - 16	12-18
Rated Thermal Current Ith		[A]	4.0	6.3	10	16	18
Rated Insulation Voltage Ui							
Acc. IEC; VDE 0660		[V]	690				
Acc. UL; CSA		[V]	600				
Rated Operating Voltage Ue							
Acc. IEC; VDE 0660		[V]	690				
Acc. UL; CSA		[V]	600				
Rated Impulse Voltage Uimp							
Acc. IEC60947-1		[kV]	6				
Rated Operating Frequency		[Hz]	50/60				
Overvoltage Category			III				
Pollution Degree			3				
Utilization Category							
IEC 60947-2 (Motor Protector)			A				
IEC 60947-4-1 (Motor Starter)			AC-3				
Lifespan							
Mechanical		[ops.]	100,000				
Electrical (Ie max.)		[ops.]	100,000				
Switching Rate (motor starts)	AC-3	[ops/hr]	15				
Ambient Temperature							
Storage		[oC (oF)]	-50 to +80 (-58 to +176)				
Operating		[oC (oF)]	-20 to +60 (-4 to +140)				
Ambient Temperature Compensation		[oC (oF)]	-20 to +60 (-4 to +140)				
Climatic Proofing			IEC 60068-2-3 / IEC 60068-2-30				
Altitude							
Up to 2,000m (6,600ft)			Nominal Values (for higher altitudes refer to page 122				
Degree of protection			IP20				
Resistance to Shock							
Acc. IEC 60068-2-27		[g]	15				
Resistance to Vibration			IEC 68-2				
Protection against direct contact							
Acc. IEC 536; DIN VDE 0106 Part 100			Finger and back of hand proof				
Phase Failure Sensitivity Protection			Yes				
Overload Protection Characteristics	x Iu	[A]	0.6 - 1				
Magnetic Release	x Iu	[A]	12				
Overload Trip Class			10				
Total Power Loss Pv							
At rated load operating temperature		[W]	6	6	6	6	6
Weight		[kg]	0.3				
		[lb]	0.7				
Type of Terminal			Flat Type				
Screw Driver			Philips #2				
Terminal Capacity							
Solid - Stranded	[mm2]	[AWG]	Refer to table on page 121				
Tightening Torque	N.m)	lb.in	1.2 - 1.7 (11 - 16)				
Mounting Position			Any Position				

MPW18 Technical Data

Power Contact Ratings

TYPE UL/CSA DATA	Voltage	Units	MPW18-3-C016	MPW18-3-C025	MPW18-3-D004	MPW18-3-C063	MPW18-3-U001	MPW18-3-D016	MPW18-3-D025
Rated Operational Current Ie		[A]	0.16	0.25	0.40	0.63	1.0	1.6	2.5
Magnetic Release Current		[A]	2	3	5	8	13	21	33
Max. Short Circuit Current									
	480V	[kA]	50						
	600V	[kA]	10						
Motor Load, 1-phase									
	115V	[HP]	-	-	-	-	-	-	-
	230V	[HP]	-	-	-	-	-	1/10	1/6
Motor Load, 3-phase									
	200V	[HP]	-	-	-	-	-	1/4	1/2
	230V	[HP]	-	-	-	-	-	1/3	1/2
	460V	[HP]	-	-	-	-	1/2	3/4	1 1/2
	575V	[HP]	-	-	-	1/4	1/2	1	1 1/2
Max. Rated Current of Protection Device for Group Installation									
	Fuse or MCCB	[A]	125	125	125	125	125	125	125

Motor Protectors

MPW

MPW18 Technical Data

Power Contact Ratings

TYPE UL/CSA DATA	Voltage	Units	MPW18-3-U004	MPW18-3-D063	MPW18-3-U010	MPW18-3-U016	MPW18-3-U018
Rated Operational Current Ie		[A]	4.0	6.3	10	16	18
Magnetic Release Current		[A]	52	82	130	208	-
Max. Short Circuit Current							
	480V	[kA]	50	50	50	30	30
	600V	[kA]	10	10	5	5	5
Motor Load, 1-phase							
	115V	[HP]	1/8	1/4	1/2	1	1
	230V	[HP]	1/3	3/4	1 1/2	3	3
Motor Load, 3-phase							
	200V	[HP]	3/4	1 1/2	3	3	5
	230V	[HP]	1	1 1/2	3	5	5
	460V	[HP]	2	5	7 1/2	10	10
	575V	[HP]	3	5	10	15	15
Max. Rated Current of Protection Device for Group Installation							
	Fuse or MCCB	[A]	125	125	125	160	160

MPW40 Technical Data

General Ratings

TYPE	Units		MPW40-3-C016	MPW40-3-C025	MPW40-3-D004	MPW40-3-C063	MPW40-3-U001	MPW40-3-D016	MPW40-3-D025
Standards			Devices according to International Standards IEC 60947-1 / 60947-4-1, European Standards EN 60947-1 / 60947-4-1, Underwriters Laboratories - UL 508; CSA C.22.2/14; VDE 0660/102						
Current Setting Range		[A]	0.10 - 0.16	0.16 - 0.25	0.25 - 0.40	0.40 - 0.63	0.63 - 1.0	1.0 - 1.6	1.6 - 2.5
Rated Thermal Current Ith		[A]	0.16	0.25	0.40	0.63	1.0	1.6	2.5
Rated Insulation Voltage Ui									
Acc. IEC; VDE 0660		[V]	690						
Acc. UL; CSA		[V]	600						
Rated Operating Voltage Ue									
Acc. IEC; VDE 0660		[V]	690						
Acc. UL; CSA		[V]	600						
Rated Impulse Voltage Uimp									
Acc. IEC60947-1		[kV]	6						
Rated Operating Frequency		[Hz]	50/60						
Overvoltage Category			III						
Pollution Degree			3						
Utilization Category									
IEC 60947-2 (Motor Protector)			A						
IEC 60947-4-1 (Motor Starter)			AC-3						
Lifespan									
Mechanical		[ops.]	100,000						
Electrical (Ie max.)		[ops.]	100,000						
Switching Rate (motor starts)	AC-3	[ops/hr]	15						
Ambient Temperature									
Storage		[°C (°F)]	-50 to +80 (-58 to +176)						
Operating		[°C (°F)]	-20 to +60 (-4 to +140)						
Ambient Temperature Compensation		[°C (°F)]	-20 to +60 (-4 to +140)						
Climatic Proofing			IEC 60068-2-3 / IEC 60068-2-30						
Altitude									
Up to 2,000m (6,600ft)			Nominal Values (for higher altitudes refer to page 122						
Degree of protection			IP20						
Resistance to Shock									
Acc. IEC 60068-2-27		[g]	15						
Resistance to Vibration			IEC 68-2						
Protection against direct contact									
Acc. IEC 536; DIN VDE 0106 Part 100			Finger and back of hand proof						
Phase Failure Sensitivity Protection			Yes						
Overload Protection Characteristics	x Iu	[A]	0.6 - 1						
Magnetic Release	x Iu	[A]	13						
Overload Trip Class			10						
Total Power Loss Pv									
At rated load operating temperature		[W]	6	6	6	6	6	6	6
Weight		[kg]	0.32						
		[lb]	0.71						
Type of Terminal			Flat Type						
Screw Driver			Philips #2						
Terminal Capacity									
Solid - Stranded	[mm2]	[AWG]	Refer to table on page 121						
Tightening Torque	N.m)	lb.in	1.2 - 1.7 (11 - 16)						
Mounting Position			Any Position						

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MPW40 Technical Data

General Ratings

TYPE	Units	MPW40-3-U004	MPW40-3-D063	MPW40-3-U010	MPW40-3-U016	MPW40-3-U020	MPW40-3-U025	MPW40-3-U032	MPW40-3-U040
Standards		Devices according to International Standards IEC 60947-1 / 60947-4-1, European Standards EN 60947-1 / 60947-4-1, Underwriters Laboratories - UL 508; CSA C.22.2/14; VDE 0660/102							
Current Setting Range	[A]	2.5 - 4.0	4.0 - 6.3	6.3 - 10	10 - 16	16 - 20	20 - 25	25 - 32	32 - 40
Rated Thermal Current Ith	[A]	4.0	6.3	10	16	20	25	32	40
Rated Insulation Voltage Ui									
Acc. IEC; VDE 0660	[V]	690							
Acc. UL; CSA	[V]	600							
Rated Operating Voltage Ue									
Acc. IEC; VDE 0660	[V]	690							
Acc. UL; CSA	[V]	600							
Rated Impulse Voltage Uimp									
Acc. IEC60947-1	[kV]	6							
Rated Operating Frequency	[Hz]	50/60							
Overvoltage Category		III							
Pollution Degree		3							
Utilization Category									
IEC 60947-2 (Motor Protector)		A							
IEC 60947-4-1 (Motor Starter)		AC-3							
Lifespan									
Mechanical	[ops.]	100,000							
Electrical (Ie max.)	[ops.]	100,000							
Switching Rate (motor starts)	AC-3 [ops/hr]	15							
Ambient Temperature									
Storage	[oC (oF)]	-50 to +80 (-58 to +176)							
Operating	[oC (oF)]	-20 to +60 (-4 to +140)							
Ambient Temperature Compensation	[oC (oF)]	-20 to +60 (-4 to +140)							
Climatic Proofing		IEC 60068-2-3 / IEC 60068-2-30							
Altitude									
Up to 2,000m (6,600ft)		Nominal Values (for higher altitudes refer to page 122							
Degree of protection		IP20							
Resistance to Shock									
Acc. IEC 60068-2-27	[g]	15							
Resistance to Vibration		IEC 68-2							
Protection against direct contact									
Acc. IEC 536; DIN VDE 0106 Part 100		Finger and back of hand proof							
Phase Failure Sensitivity Protection		Yes							
Overload Protection Characteristics	x Iu [A]	0.6 - 1							
Magnetic Release	x Iu [A]	13							
Overload Trip Class		10							
Total Power Loss Pv									
At rated load operating temperature	[W]	6	6	6	6	8	8	8	8
Weight	[kg]	0.32							
	[lb]	0.71							
Type of Terminal		Flat Type							
Screw Driver		Philips #2							
Terminal Capacity									
Solid - Stranded	[mm2] [AWG]	Refer to table on page 121							
Tightening Torque	N.m) lb.in	1.2 - 1.7 (11 - 16)							
Mounting Position		Any Position							

MPW40 Technical Data

Power Contact Ratings

TYPE	Voltage	Units	MPW40-3-C016	MPW40-3-C025	MPW40-3-C040	MPW40-3-C063	MPW40-3-U001	MPW40-3-D016	MPW40-3-D025
UL/CSA DATA									
Rated Operational Current Ie		[A]	0.16	0.25	0.40	0.63	1.0	1.6	2.5
Magnetic Release Current		[A]	2	3	5	8	13	21	33
Max. Short Circuit Current									
without CLT25									
	480V	[kA]	65						
	600V	[kA]	25						
with CLT25									
	480V	[kA]	100						
	600V	[kA]	50						
Motor Load, 1-phase									
	115V	[HP]	-	-	-	-	-	-	-
	230V	[HP]	-	-	-	-	-	1/10	1/6
Motor Load, 3-phase									
	200V	[HP]	-	-	-	-	-	1/4	1/2
	230V	[HP]	-	-	-	-	-	1/3	1/2
	460V	[HP]	-	-	-	-	1/2	3/4	1 1/2
	575V	[HP]	-	-	-	1/4	1/2	1	1 1/2
Max. Rated Current of Protection Device for Group Installation									
	Fuse or MCCB	[A]	125	125	125	125	125	125	125

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MPW40 Technical Data

Power Contact Ratings

TYPE	Voltage	Units	MPW40-3-U004	MPW40-3-D063	MPW40-3-U010	MPW40-3-U016	MPW40-3-U020	MPW40-3-U025	MPW40-3-U032	MPW40-3-U040
UL/CSA DATA										
Rated Operational Current Ie		[A]	4.0	6.3	10	16	20	25	32	40
Magnetic Release Current		[A]	52	82	130	208	260	325	416	520
Max. Short Circuit Current										
without CLT25										
	480V	[kA]	65			50				20
	600V	[kA]	25						25	5
with CLT25										
	480V	[kA]	100							
	600V	[kA]	50							
Motor Load, 1-phase										
	115V	[HP]	1/8	1/4	1/2	1	1 1/2	2	-	-
	230V	[HP]	1/3	3/4	1 1/2	3	3	3	5	5
Motor Load, 3-phase										
	200V	[HP]	3/4	1 1/2	3	5	5	7 1/2	10	10
	230V	[HP]	1	1 1/2	3	5	7 1/2	7 1/2	10	10
	460V	[HP]	2	5	7 1/2	10	15	15	20	25
	575V	[HP]	3	5	10	15	20	20	25	30
Max. Rated Current of Protection Device for Group Installation										
	Fuse or MCCB	[A]	125	125	125	160	250	250	300	300

MPW80 Technical Data

General Rating

TYPE	Units		MPW80-3-U040	MPW80-3-U050	MPW80-3-U065
Standards			Devices according to International Standards IEC 60947-1 / 60947-4-1, European Standards EN 60947-1 / 60947-4-1, Underwriters Laboratories - UL 508; CSA C.22.2/14; VDE 0660/102		
Current Setting Range		[A]	32 - 40	40 - 50	50 - 65
Rated Thermal Current Ith		[A]	40	50	65
Rated Insulation Voltage Ui					
Acc. IEC; VDE 0660		[V]	690		
Acc. UL; CSA		[V]	600		
Rated Operating Voltage Ue					
Acc. IEC; VDE 0660		[V]	690		
Acc. UL; CSA		[V]	600		
Rated Impulse Voltage Uimp					
Acc. IEC60947-1		[kV]	6		
Rated Operating Frequency		[Hz]	50/60		
Overvoltage Category			III		
Pollution Degree			3		
Utilization Category					
IEC 60947-2 (Motor Protector)			A		
IEC 60947-4-1 (Motor Starter)			AC-3		
Lifespan					
Mechanical		[ops.]	50,000		
Electrical (Ie max.)		[ops.]	25,000		
Switching Rate (motor starts)	AC-3	[ops/hr]	15		
Ambient Temperature					
Storage		[°C (°F)]	-50 to +80 (-58 to +176)		
Operating		[°C (°F)]	-20 to +60 (-4 to +140)		
Ambient Temperature Compensation		[°C (°F)]	-20 to +60 (-4 to +140)		
Climatic Proofing			IEC 60068-2-3 / IEC 60068-2-30		
Altitude					
Up to 2,000m (6,600ft)			Nominal Values (for higher altitudes refer to page 122		
Degree of protection			IP20		
Resistance to Shock					
Acc. IEC 60068-2-27		[g]	15		
Resistance to Vibration			IEC 68-2		
Protection against direct contact					
Acc. IEC 536; DIN VDE 0106 Part 100			Finger and back of hand proof		
Phase Failure Sensitivity Protection			Yes		
Overload Protection Characteristics	x Iu	[A]	0.6 - 1		
Magnetic Release	x Iu	[A]	13		
Overload Trip Class			10		
Total Power Loss Pv					
At rated load operating temperature		[W]	13		
Weight		[kg]	0.60		
		[lb]	1.42		
Type of Terminal			Flat Type		
Screw Driver			Allen #4		
Terminal Capacity					
Solid - Stranded	[mm2]	[AWG]	Refer to table on page 122		
Tightening Torque	N.m)	lb.in	1.2 - 1.7 (11 - 16)		
Mounting Position			Any Position		

UL File No. E172121

Motor Protectors

MPW

MPW Technical Data

Power Contact Ratings

TYPE	Voltage	Units	MPW65-3-U040	MPW65-3-U050	MPW65-3-U065
Max. Short Circuit Current					
	480V	[kA]	35		
	600V	[kA]	8		
Motor Load, 1-phase					
	115V	[HP]	3	-	- 5
	230V	[HP]	7 1/2	10	10
Motor Load, 3-phase					
	200V	[HP]	10	15	20
	230V	[HP]	-	15	20
	460V	[HP]	30	30	50
	575V	[HP]	30	40	60

MPW100 Technical Data

General Contact Ratings

TYPE	Units		MPW100-3-U075	MPW100-3-U090	MPW100-3-U100
Standards			Devices according to International Standards IEC 60947-1 / 60947-4-1, European Standards EN 60947-1 / 60947-4-1, Underwriters Laboratories - UL 508; CSA C.22.2/14; VDE 0660/102		
Current Setting Range		[A]	55 - 75	70 - 90	80 - 100
Rated Thermal Current Ith		[A]	75	90	100.00
Rated Insulation Voltage Ui					
Acc. IEC; VDE 0660		[V]	690		
Acc. UL; CSA		[V]	600		
Rated Operating Voltage Ue					
Acc. IEC; VDE 0660		[V]	690		
Acc. UL; CSA		[V]	600		
Rated Impulse Voltage Uimp					
Acc. IEC60947-1		[kV]	6		
Rated Operating Frequency		[Hz]	50/60		
Overvoltage Category			III		
Pollution Degree			3		
Utilization Category					
IEC 60947-2 (Motor Protector)			A		
IEC 60947-4-1 (Motor Starter)			AC-3		
Lifespan					
Mechanical		[ops.]	50,000		
Electrical (le max.)		[ops.]	25,000		
Switching Rate (motor starts)	AC-3	[ops/hr]	15		
Ambient Temperature					
Storage		[°C (°F)]	-50 to +80 (-58 to +176)		
Operating		[°C (°F)]	-20 to +60 (-4 to +140)		
Ambient Temperature Compensation		[°C (°F)]	-20 to +60 (-4 to +140)		
Climatic Proofing			IEC 60068-2-3 / IEC 60068-2-30		
Altitude					
Up to 2,000m (6,600ft)			Nominal Values (for higher altitudes refer to page 122		
Degree of protection			IP20		
Resistance to Shock					
Acc. IEC 60068-2-27		[g]	15		
Resistance to Vibration			IEC 68-2		
Protection against direct contact					
Acc. IEC 536; DIN VDE 0106 Part 100			Finger and back of hand proof		
Phase Failure Sensitivity Protection			Yes		
Overload Protection Characteristics	x Iu	[A]	0.6 - 1		
Magnetic Release	x Iu	[A]	13		
Overload Trip Class			10		
Total Power Loss Pv					
At rated load operating temperature		[W]	10		
Weight		[kg]	1.20		
		[lb]	3.00		
Type of Terminal			Flat Type		
Screw Driver			Allen #4		
Terminal Capacity					
Solid		[mm2]	Refer to table on page 121		
Stranded		[mm2]			
Solid or Stranded		[AWG]			
Tightening Torque		[N.m (lb.in)]	4.0 - 4.6 (35 - 55)		
Mounting Position			Any Position		

UL File No. E172121

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MPW100 Technical Data

Power Contact Ratings

TYPE	Voltage	Units	MPW100-3-U075	MPW100-3-U090	MPW100-3-U100
UL/CSA DATA					
Rated Operational Current Ie		[A]	75	90	100
Magnetic Release Current		[A]	975	1170	1300
Max. Short Circuit Current					
	480V	[kA]	50		
	600V	[kA]	10		
Motor Load, 1-phase					
	115V	[HP]	5	71/2	10
	230V	[HP]	15	20	20
Motor Load, 3-phase					
	200V	[HP]	20	25	30
	230V	[HP]	25	30	30
	460V	[HP]	50	60	75
	575V	[HP]	60	75	100
Max. Rated Current of Protection Device for Group Installation					
	Fuse or MCCB	[A]			

MPW Technical Data

Auxiliary Contact Block Ratings

TYPE	Voltage	Units	ACBF-11	ACBF-11 MPW100	ACBS-11	ACBS-20	ACBS-02	ACBS-11 MPW100	ACBS-20 MPW100	ACBS-02 MPW100
Rated Insulation Voltage Ui										
Acc. IEC; VDE 0660		[V]	300		690					
Acc. UL; CSA		[V]	240		600					
Rated Operating Voltage Ue										
Acc. IEC; VDE 0660		[V]	250		690					
Acc. UL; CSA		[V]	240		600					
Rated Impulse Voltage Uimp										
Acc. IEC60947-1		[kV]	4		6					
Overvoltage Category			III							
Pollution Degree			3							
Life Span										
Mechanical		[ops.]			100,000					
Electrical (le max.)		[ops.]			100,000					
Rated Thermal Current Ith		[A]	2.5		10					
Rated Operating Current Ie										
Acc. IEC 60947-5-1 / AC-15	24V	[A]	2		6					
	110-127V	[A]	0.5		6					
	220-240V	[A]	0.5		6					
	380-400V	[A]	-		3					
	415-450V	[A]	-		1					
	500V	[A]	-		1					
	660-690V	[A]	-		1					
Acc. UL; CSA			C300		A600					
Rated Operating Current Ie										
Acc. IEC 60947-5-1 / DC-13	24V	[A]	1		2					
	48V	[A]	0.3		0.8					
	60V	[A]	0.15		0.5					
	110V	[A]	-		0.5					
	220V	[A]	-		0.25 0.25					
	440V	[A]	-		0.1 0.1					
Acc. UL; CSA			R300		Q600					
Short Circuit rating without welding										
gL/gG		[A]	10							
MCB		[A]	6							
Type of Terminal			Screwdriver; Philips #2							
Terminal Capacity										
Solid or Stranded		[mm2]	1 or 2 x (0.5 to 2.5)							
Solid or Stranded		[AWG]	1 or 2 x (18 to 14)							
Tightening Torque		[N.m (lb.in)]	1.0 - 1.25 (8.85 - 11.06)							

MPW Technical Data

Trip Signalling Block

TYPE	Voltage	Units	TSB-22	TSB-11 MPW100
Rated Insulation Voltage Ui				
Acc. IEC; VDE 0660		[V]	690	
Acc. UL; CSA		[V]	600	
Rated Operating Voltage Ue				
Acc. IEC; VDE 0660		[V]	690	
Acc. UL; CSA		[V]	600	
Rated Impulse Voltage Uimp				
Acc. IEC60947-1		[kV]	6	
Overvoltage Category			III	
Pollution Degree			3	
Life Span				
Mechanical		[ops.]	100000	
Electrical (Ie max.)		[ops.]	100000	
Rated Thermal Current Ith		[A]	10	
Rated Operating Current Ie				
Acc. IEC 60947-5-1 / AC-15	24V	[A]	6	
	110-127V	[A]	6	
	220-240V	[A]	6	
	380-400V	[A]	3	
	415-450V	[A]	3	
	500V	[A]	2	
	660-690V	[A]	1	
Acc. UL; CSA			A600	
Rated Operating Current Ie				
Acc. IEC 60947-5-1 / DC-13	24V	[A]	2	
	48V	[A]	0.5	
	60V	[A]	0.5	
	110V	[A]	0.5	
	220V	[A]	0.25	
	440V	[A]	0.1	
Acc. UL; CSA			Q600	
Short Circuit rating without welding				
gL/gG		[A]	6	
MCB		[A]	6	
Type of Terminal	Screw Driver - Philips #2			
Terminal Capacity				
Solid or Stranded		[mm2]	1 or 2 x (0.5 to 2.5)	
Solid or Stranded		AWG	1 or 2 x (18 to 14)	
Tightening Torque		N.m (lb.in)	1.0 - 1.25 8.85 - 11.06)	

MPW Technical Data

Shunt Release Block

TYPE	Units		SRMP	SRMP MPW100
Rated Insulation Voltage Ui				
Acc. IEC; VDE 0660		[V]	690	
Acc. UL; CSA		[V]	600	
Rated Operating Voltage Ue				
Acc. IEC; VDE 0660		[V]	690	
Acc. UL; CSA		[V]	600	
Rated Impulse Voltage Uimp				
Acc. IEC60947-1		[kV]	6	
Overvoltage Category			III	
Pollution Degree			3	
Life Span				
Mechanical		[ops.]	100000	
Electrical (Ie max.)		[ops.]	100000	
Actuating Voltage	x Us	[V]	0.7 - 1.1	
Power Consumption				
Pull-In		[VA (W)]	20.2 (13)	8.5 (6)
Hold		[VA (W)]	7.2 (2.4)	3 (1.2)
Maximum Opening Time		[ms]	20	
Short Circuit Rating without Welding				
Fuse gL/gG		[A]	10	
MCB		[A]	6	
Type of Terminal			Screw Driver - Philips #2	
Terminal Capacity				
Solid or Stranded		[mm2]	1 or 2 x (0.5 to 2.5)	
Solid or Stranded		AWG	1 or 2 x (18 to 14)	
Tightening Torque		[N.m (lb.in)]	1.0 - 1.25 (8.85 - 11.06)	

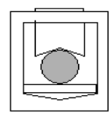
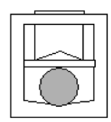
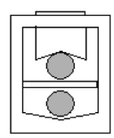
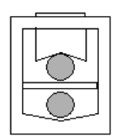
Under Voltage Release Block

TYPE	Units		URMP	URMP MPW100
Rated Insulation Voltage Ui				
Acc. IEC; VDE 0660		[V]	690	
Acc. UL; CSA		[V]	600	
Rated Operating Voltage Ue				
Acc. IEC; VDE 0660		[V]	690	
Acc. UL; CSA		[V]	600	
Rated Impulse Voltage Uimp				
Acc. IEC60947-1		[kV]	6	
Overvoltage Category			III	
Pollution Degree			3	
Life Span				
Mechanical		[ops.]	100000	
Electrical (Ie max.)		[ops.]	100000	
Pick-Up Voltage	x Us	[V]	0.85 - 1.1	
Drop-Out Voltage	x Us	[V]	0.7 - 0.35	
Power Consumption				
Pull-In		[VA (W)]	20.2 (13)	8.5 (6)
Hold		[VA (W)]	7.2 (2.4)	3 (1.2)
Maximum Opening Time		[ms]	20	
Short Circuit Rating without Welding				
Fuse gL/gG		[A]	10	
MCB		[A]	6	
Type of Terminal	Screw Driver - Philips #2			
Terminal Capacity				
Solid or Stranded		[mm2]	1 or 2 x (0.5 to 2.5)	
Solid or Stranded		AWG	1 or 2 x (18 to 14)	
Tightening Torque		[lb. in]	1.0 - 1.25 (8.85 - 11.06)	

General Information | Circuit Protection | Disconnect Switches | Motor Protectors | Contactors | Overloads | Enclosed Starters | Relays | Pushbuttons and Pilot Lights | Terminal Blocks | Power Factor Correction | Appendix A | Appendix B

MPW Technical Data

Main Terminal Capacity

Catalog Number	Type	Number of conductors	Cross-Section
MPW18	Rigid or flexible cable	1 or 2	1...4 mm^2 18...12 AWG
MPW40	Rigid or flexible cable	1 or 2	1...2.5 mm^2 2.5...6 mm^2 14...8 AWG [1)]
MPW80	Type	1 conductor connection in upper part only	Cross-Section
	Rigid cable		1...35 mm^2
	Cable without terminal		1.5...35 mm^2
	Cable with terminal		1...35 mm^2
	Flexible cable		1.5...35 mm^2
			16...2 AWG
	Type	1 conductor connection in lower part only	Cross-Section
	Rigid cable		2.5...35mm^2
	Cable without terminal		6...35mm^2
	Cable with terminal		2.5...35mm^2
	Flexible cable		6...35mm^2
			12...2 AWG
	Type	Connection of 2 condutors - Conductor in upper part	Cross-Section
	Rigid cable		1...35mm^2
	Cable without terminal		1.5...35mm^2
	Cable with terminal		1...35mm^2
	Flexible cable		1.5...35mm^2
			16...2 AWG
	Type	Conductor in lower part	Cross-Section
	Rigid cable		2.5...35mm^2
	Cable without terminal		6...35mm^2
	Cable with terminal		2.5...35mm^2
	Flexible cable		6...35mm^2
			12...2 AWG
MPW100	Type	Number of conductors	Cross-Section
	Rigid cable	1	2.5...70 mm^2
			12...2/0 AWG
		2	2.5...50 mm^2
			12...1/0 AWG
	Flexible cable	1	2.5...50 mm^2
			12...1/0 AWG
		2	2.5...35 mm^2
			10...2 AWG

Note: 1) 8 AWG for flexible cable only

MPW Technical Data

Altitude - Correction factor

The MPW manual motor protectors do not undergo any change to their specified performance when applied at an altitude of up to 2000 meters above sea level. However, as the altitude increases, the reduced atmospheric pressure produces decreasing dielectric properties. Therefore, current and voltage correction factors must be applied for altitudes exceeding 2000 meters, as shown in the table on the right.

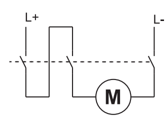
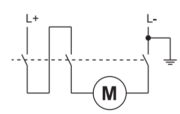
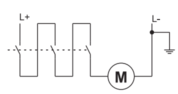
Altitude (above sea level) - h	Rated operational voltage U_e	Current correction factor I_u
$h \leq 2000$ m	690 V	1 x I_u
$2000 < h \leq 3000$ m	550 V	0,96 x I_u
$3000 < h \leq 4000$ m	480 V	0,93 x I_u
$4000 < h \leq 5000$ m	420 V	0,90 x I_u

DC operation

The MPW18, MPW40 and MPW65 motor protective circuit breakers can also be used for operating DC 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.

Time constant t = 5 ms

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

Circuits	Max. VDC	Notes
	150 VDC	System not grounded 2 pole series connected
	300 VDC	System grounded 2 pole series connected
	450 VDC	System grounded 3 pole series connected

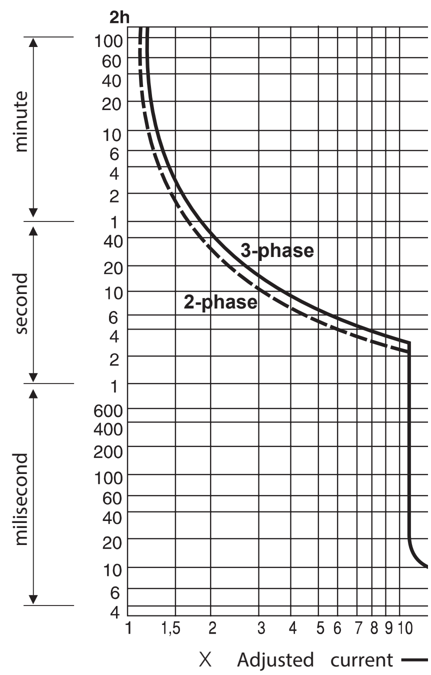
Characteristic Curves

Time Current Characteristic MPW40 Class 10

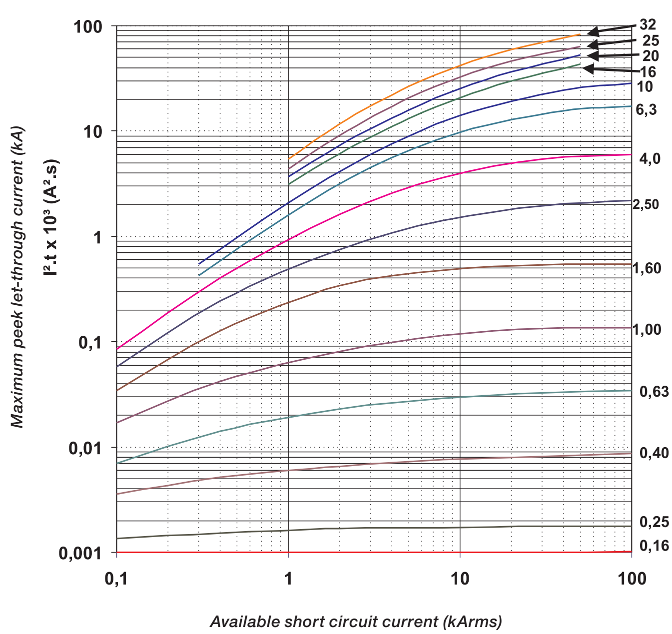
The tripping characteristic indicates the manual motor protector trip time in relation to the rated current.

The curves show average tolerance range values for an ambient temperature of 20°C (68°F), starting in cold state. Thermal trip time when working in operating temperature is reduced to around 25% of the listed values. Under normal operating conditions, all 3 manual motor protector phases must be conducting.

MPW18/40/80

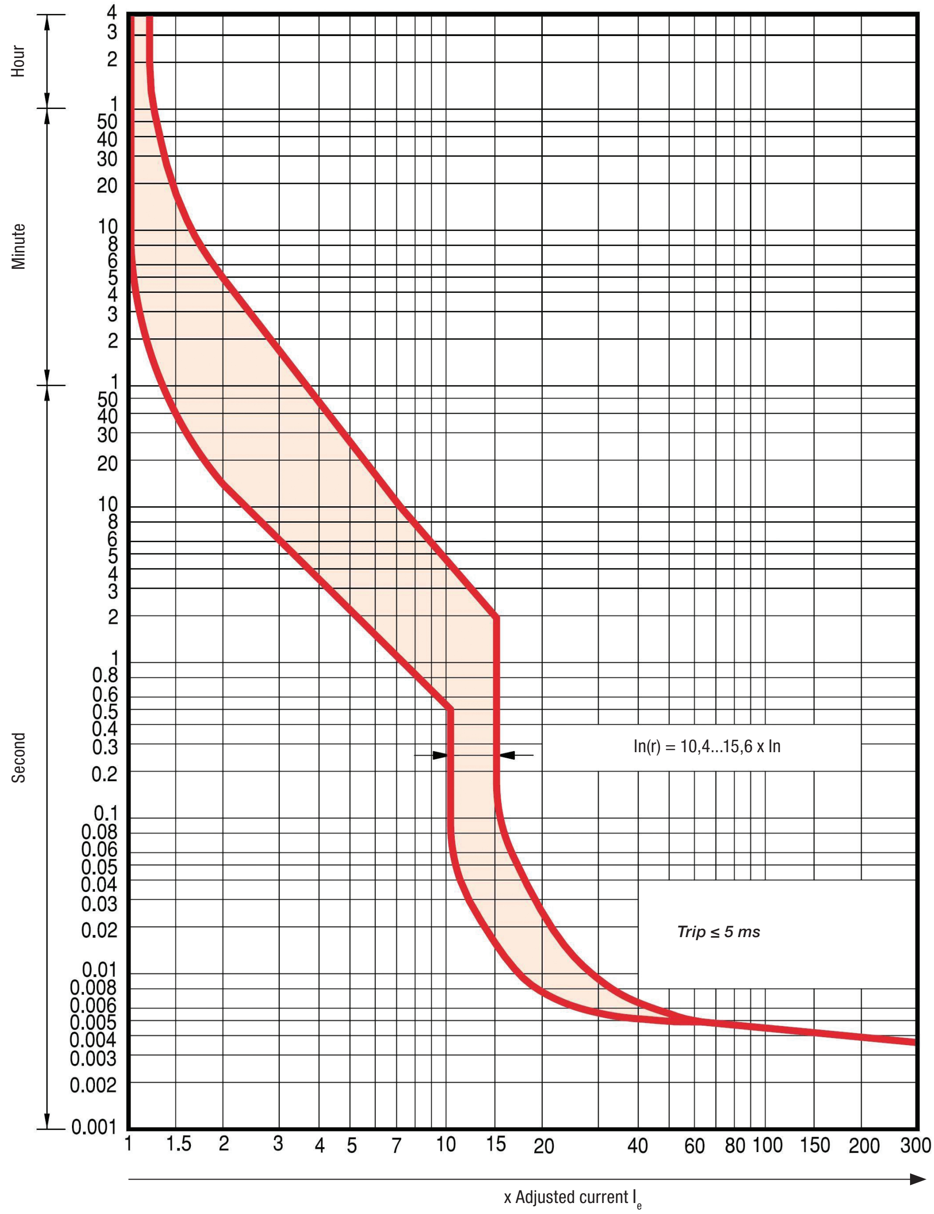


Characteristic I²t at 460V - MPW40



Characteristics Curves

MPW100



Notes: 1) Thermal Tripping current: Curve presented for an ambient temperature of 20°C(68°F) starting from cold state.

Technical Data

Short Circuit Interruption Capacity UL/CSA for MPW18, MPW40, MPW80, MPW100

		Manual Motor Controller High Capacity				Combination Motor Controller (Type E/F) High Capacity				Combination Motor Controller (Type E/F) Extra High Capacity			
Catalog Number	Setting Overload Release (A)	240VAC	480VAC Y/277VAC	600VAC Y/347VAC	Max. Fuse or MCCB	240VAC	480VAC Y/277VAC	600VAC Y/347VAC	Max. Fuse or MCCB	240VAC	480VAC Y/277VAC	600VAC Y/347VAC	Max. Fuse or MCCB
		kA	kA	kA	A	kA	kA	kA	A	kA	kA	kA	A
MPW18	0.10 - 0.16	50	50	10	125	-	-	-	-	-	-	-	-
	0.16 - 0.25	50	50	10	125	-	-	-	-	-	-	-	-
	0.25 - 0.40	50	50	10	125	-	-	-	-	-	-	-	-
	0.40 - 0.63	50	50	10	125	-	-	-	-	-	-	-	-
	0.63 - 1.0	50	50	10	125	-	-	-	-	-	-	-	-
	1.0 - 1.6	50	50	10	125	-	-	-	-	-	-	-	-
	1.6 - 2.5	50	50	10	125	-	-	-	-	-	-	-	-
	2.5 - 4.0	50	50	10	125	-	-	-	-	-	-	-	-
	4.0 - 6.3	50	50	10	125	-	-	-	-	-	-	-	-
	6.3 - 10	50	50	5	125	-	-	-	-	-	-	-	-
	10 - 16	30	30	5	160	-	-	-	-	-	-	-	-
	12 - 18	30	30	5	160	-	-	-	-	-	-	-	-
MPW40	0.10 - 0.16	50	65	25	125	50	50	25	-	100	100	50	-
	0.16 - 0.25	50	65	25	125	50	50	25	-	100	100	50	-
	0.25 - 0.40	50	65	25	125	50	50	25	-	100	100	50	-
	0.40 - 0.63	50	65	25	125	50	50	25	-	100	100	50	-
	0.63 - 1.0	50	65	25	125	50	50	25	-	100	100	50	-
	1.0 - 1.6	50	65	25	125	50	50	25	-	100	100	50	-
	1.6 - 2.5	50	65	25	125	50	50	25	-	100	100	50	-
	2.5 - 4.0	50	65	25	125	50	50	25	-	100	100	50	-
	4.0 - 6.3	50	65	25	125	50	50	25	-	100	100	50	-
	6.3 - 10	50	65	25	125	50	50	25	-	100	100	50	-
	10 - 16	50	50	25	160	50	50	25	-	100	100	50	-
	16 - 20	50	50	25	250	50	50	25	-	100	100	50	-
	20 - 25	50	50	25	250	50	50	25	-	100	100	50	-
	25 - 32	42	50	25	500	42	42	25	-	100	100	50	-
	32 - 40	20	20	5	520	-	-	-	-	-	-	-	-
MPW80	10 ... 16	50	50	30	160	50	50	30	-	-	-	-	-
	16 ... 20	50	50	30	250	50	50	30	-	-	-	-	-
	20 ... 25	50	50	30	250	50	50	30	-	-	-	-	-
	25 ... 32	50	50	30	500	50	50	30	-	-	-	-	-
	32 ... 40	35	35	10	500	35	35	10	-	-	-	-	-
	40 ... 50	35	35	10	750	35	35	10	-	-	-	-	-
	50 ... 65	35	35	10	750	35	35	10	-	-	-	-	-
MPW100	55 ... 75	50	50	10	1250	50	50	10	-	-	-	-	-
	70 ... 90	50	50	10	1250	50	50	10	-	-	-	-	-
	80 ... 100	50	50	10	1250	50	50	10	-	-	-	-	-

Note: - Fuse or MCCB not required.

Technical Data

Short-Circuit Interruption Capacity (IEC 60947-2) for MPW18 , MPW40, MPW80, MPW100

Catalog Number	Setting Overload Release (A)	220-230VAC			380-415VAC			440VAC			460-500VAC			630-690VAC		
		I_{cu}	I_{cs}	Max. Fuse (gL/gG)	I_{cu}	I_{cs}	Max. Fuse (gL/gG) 1)	I_{cu}	I_{cs}	Max. Fuse (gL/gG) 1)	I_{cu}	I_{cs}	Max. Fuse (gL/gG) 1)	I_{cu}	I_{cs}	Max. Fuse (gL/gG) 1)
		kA	kA	A	kA	kA	A	kA	kA	A	kA	kA	A	kA	kA	A
MPW18	0.10...0.16	100	100	-	100	100	-	100	100	-	100	100	-	10	10	-
	0.16...0.25	100	100	-	100	100	-	100	100	-	100	100	-	10	10	-
	0.25...0.4	100	100	-	100	100	-	100	100	-	100	100	-	10	10	-
	0.4...0.63	100	100	-	100	100	-	100	100	-	100	100	-	10	10	-
	0.63...1	100	100	-	100	100	-	100	100	-	100	100	-	10	10	-
	1...1.6	100	100	-	100	100	-	100	100	-	100	100	-	10	10	-
	1.6...2.5	100	100	-	100	100	-	100	100	-	100	100	-	8	8	25
	2.5...4	100	100	-	100	100	-	100	100	-	100	100	-	8	8	35
	4...6.3	100	100	-	100	100	-	100	100	-	100	100	-	8	8	50
	6.3...10	100	100	-	50	10	100	50	10	80	10	10	63	5	5	50
	10...16	100	100	-	10	10	100	10	10	80	10	10	80	4	3	63
	12...18	100	100	-	10	10	100	10	10	80	10	10	80	10	10	80
MPW40	0.10...0.16	100	100	-	100	100	-	100	100	-	100	100	-	100	100	-
	0.16...0.25	100	100	-	100	100	-	100	100	-	100	100	-	100	100	-
	0.25...0.4	100	100	-	100	100	-	100	100	-	100	100	-	100	100	-
	0.4...0.63	100	100	-	100	100	-	100	100	-	100	100	-	100	100	-
	0.63...1	100	100	-	100	100	-	100	100	-	100	100	-	100	100	-
	1...1.6	100	100	-	100	100	-	100	100	-	100	100	-	100	100	-
	1.6...2.5	100	100	-	100	100	-	100	100	-	100	100	-	8	8	25
	2.5...4	100	100	-	100	100	-	100	100	-	100	100	-	8	8	32
	4...6.3	100	100	-	100	100	-	100	100	-	100	100	-	8	8	50
	6.3...10	100	100	-	100	100	-	50	25	80	42	21	63	8	8	50
	10...16	100	100	-	50	25	100	50	15	80	10	8	80	5	5	63
	16...20	100	100	-	50	25	125	50	15	80	10	8	80	5	5	63
	20...25	100	100	-	50	25	125	50	15	100	10	8	80	5	5	63
	25...32	100	100	-	50	25	125	25	15	100	10	8	80	5	5	63
	32...40	100	100	-	50	25	125	25	15	100	10	8	80	5	2	63
MPW80	10...16	100	100	-	50	50	100	50	50	80	15	15	80	8	8	63
	16...20	100	100	-	50	50	125	50	50	80	15	15	80	8	8	63
	20...25	100	100	-	50	50	125	50	50	100	15	15	80	8	8	63
	25...32	100	100	-	50	50	125	50	50	100	15	15	80	5	5	63
	32...40	100	100	-	50	50	160	50	50	125	15	10	100	5	5	63
	40...50	100	100	-	50	50	160	50	50	125	15	10	100	5	5	80
	50...65	100	100	-	50	50	160	50	50	125	15	10	100	5	5	80
MPW100	55...75	100	100	-	75	50	-	50	38	200	12	9	160	6	6	125
	70...90	100	100	-	75	50	-	50	38	200	12	9	160	6	6	160
	80...100	100	100	-	75	50	-	50	38	200	12	9	160	6	6	160

Self protected against short-circuits up to 100kA

\- *Back-up fuse not required*

1) *Fuse required for greater short-circuit currents.*

Motor Protectors

MPW

Technical Data

Short-Circuit Interruption Capacity (IEC 60947-2) Limiter Function MPW40 + CLT25

Catalog Number	Setting Overload Release (A)	380-415VAC			440VAC			460-500VAC			630-690VAC		
		I_{cu}	I_{cs}	Max. Fuse (gL/gG)	I_{cu}	I_{cs}	Max. Fuse (gL/gG)	I_{cu}	I_{cs}	Max. Fuse (gL/gG)	I_{cu}	I_{cs}	Max. Fuse (gL/gG)
		kA	kA	A	kA	kA	A	kA	kA	A	kA	kA	A
MPW40 + CLT32 MPW40	0.10...0.16	♦	♦	-	♦	♦	-	♦	♦	-	♦	♦	-
	0.16...0.25	♦	♦	-	♦	♦	-	♦	♦	-	♦	♦	-
	0.25...0.4	♦	♦	-	♦	♦	-	♦	♦	-	♦	♦	-
	0.4...0.63	♦	♦	-	♦	♦	-	♦	♦	-	♦	♦	-
	0.63...1	♦	♦	-	♦	♦	-	♦	♦	-	♦	♦	-
	1...1.6	♦	♦	-	♦	♦	-	♦	♦	-	♦	♦	-
	1.6...2.5	♦	♦	-	♦	♦	-	♦	♦	-	50	50	-
	2.5...4	♦	♦	-	♦	♦	-	♦	♦	-	50	50	-
	4...6.3	♦	♦	-	♦	♦	-	♦	♦	-	50	50	-
	6.3...10	♦	♦	-	100	100	-	100	100	-	50	50	-
	10...16	100	100	-	100	100	-	100	100	-	50	50	-
	16...20	100	100	-	100	100	-	100	100	-	50	50	-
	20...25	100	100	-	100	100	-	100	100	-	10	10	-
	25...32	100	100	-	100	100	-	100	100	-	10	10	-

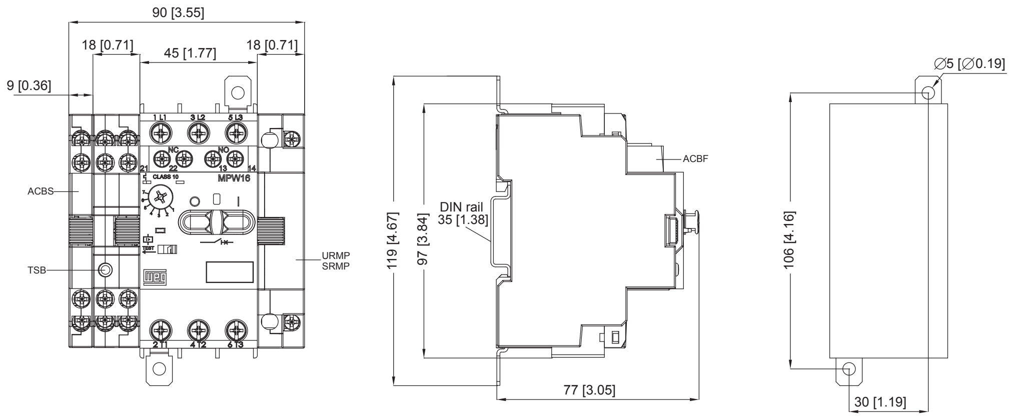
Notes: *Self protected against short-circuits up to 100kA*

\- *Back-up fuse not required*

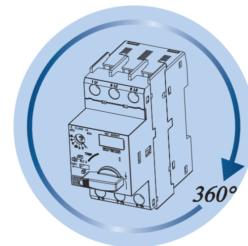
♦ *Not applicable due to MPW40 already having 100 kA of I_{cu} / I_{cs} in referred ranges.*

Dimensions mm (in)

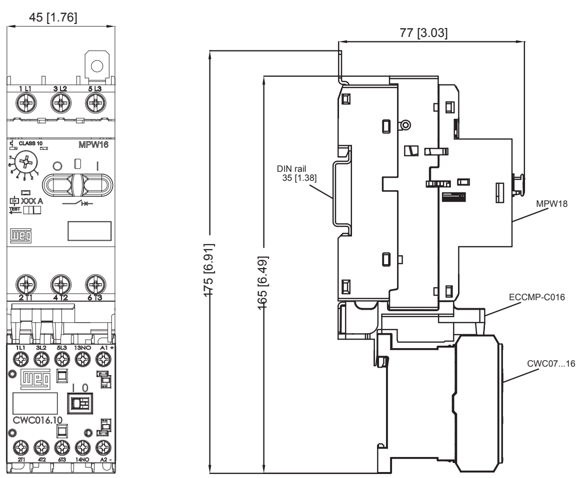
MPW18 + Accessories



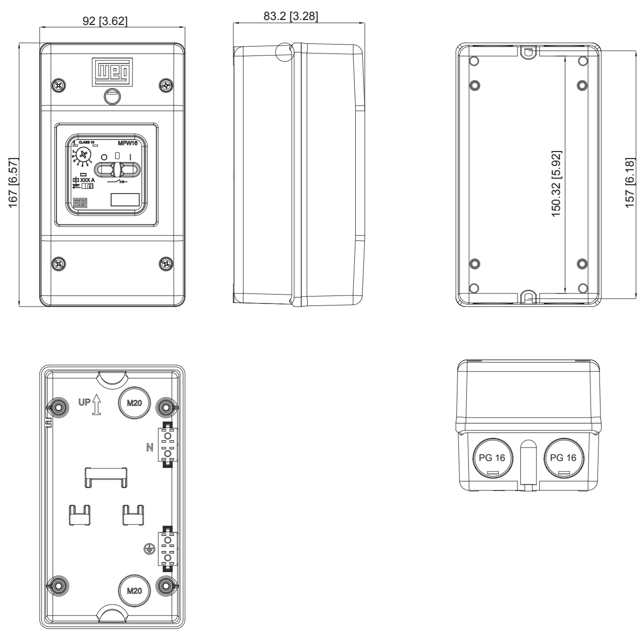
Mounting Position



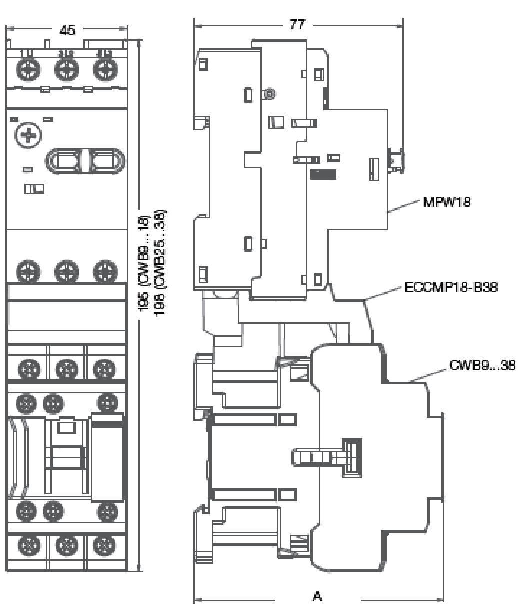
MPW18 + CWC07...16



Insulated Enclosure - PE66 (IP66)



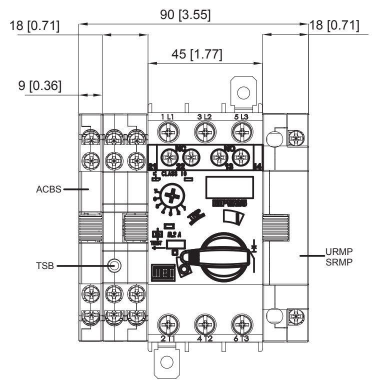
MPW18 + CWB9...18 / CWB25...38

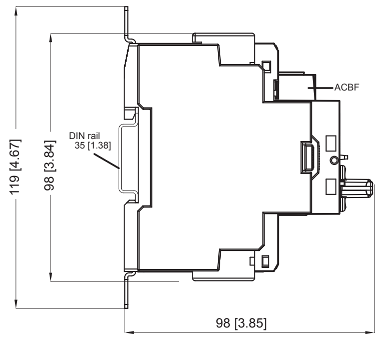


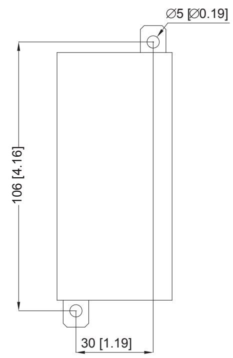
A	CWB9...18	CWB25...38
AC coil	89.5	93

Dimensions mm (in)

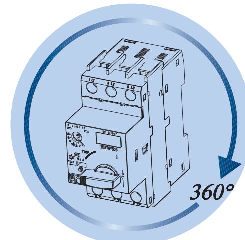
MPW40 + Accessories



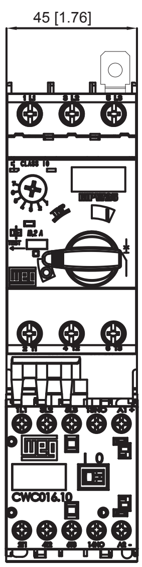


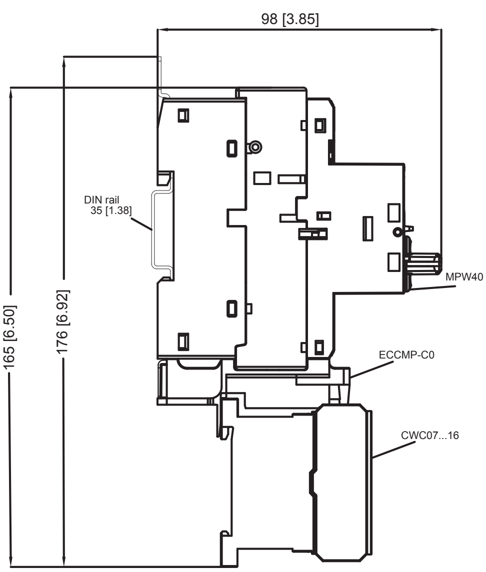


Mounting Position

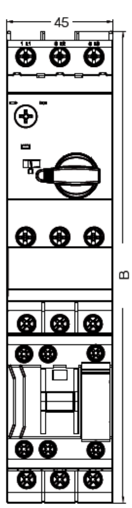


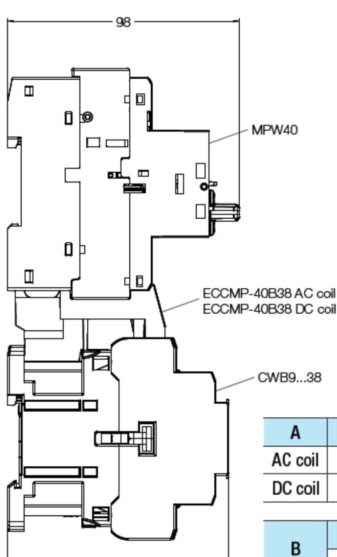
MPW40 + CWC07...16





MPW40 + CWB9...18 / CWB25...38



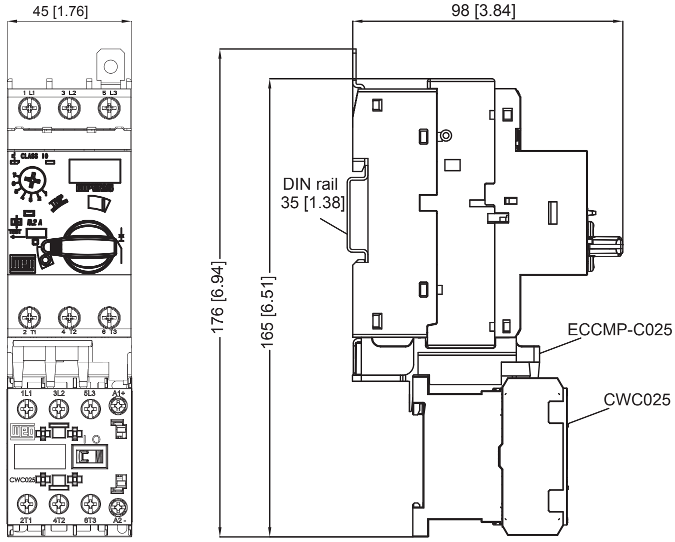


A	CWB9...18	CWB25...38
AC coil	89.5	93
DC coil	95.7	102.2

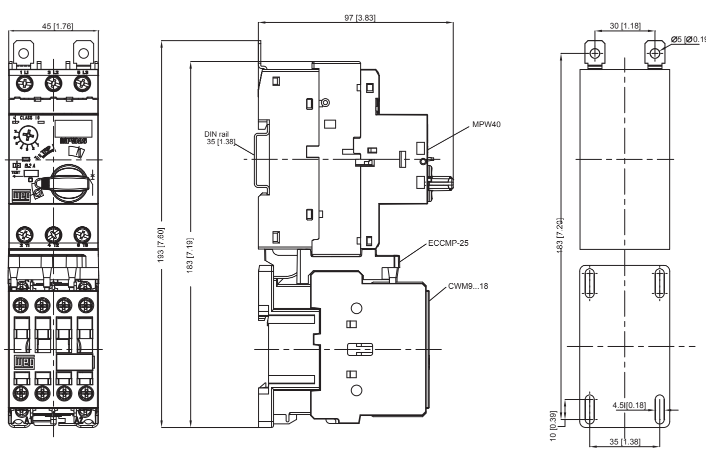
B	CWB9...18	CWB25...38
	196	199

Dimensions mm (in)

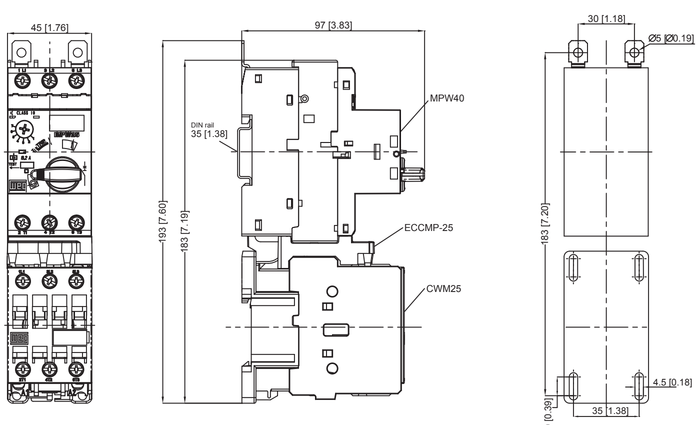
MPW40 + CWC025



MPW40 + CWM9...18



MPW40 + CWM25

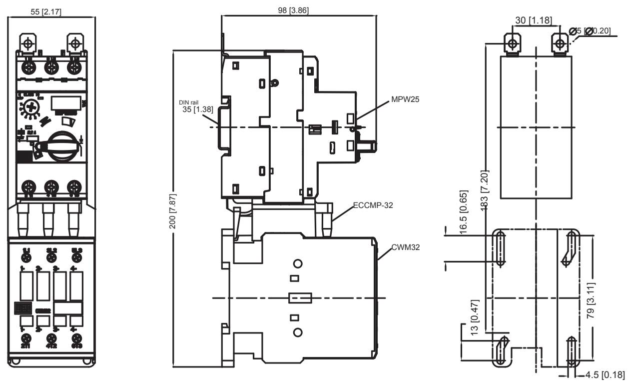


Motor Protectors

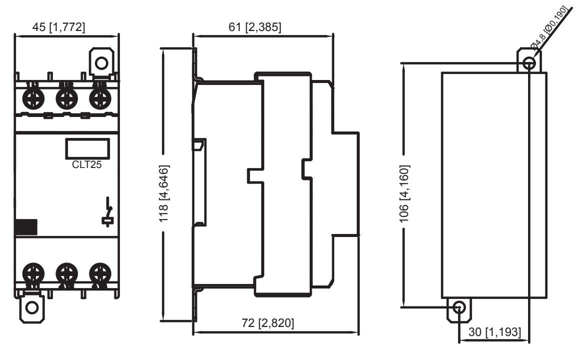
MPW

Dimensions mm (in)

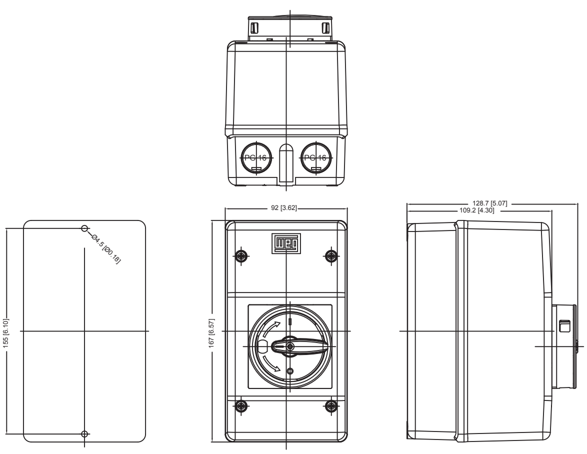
MPW40 + CWM32



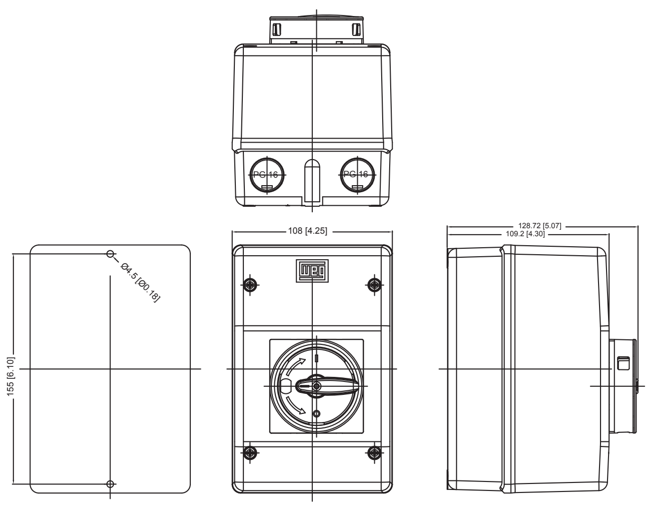
Current limiter - CLT32 MPW40



Insulated Enclosure - PE55 (IP55)

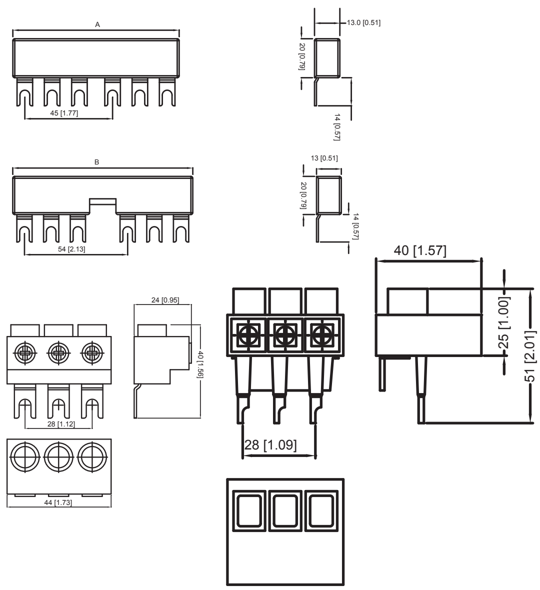


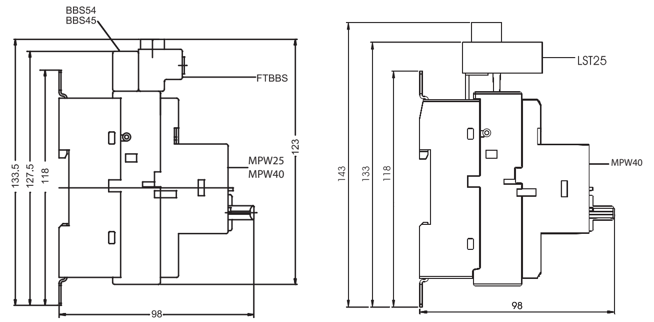
Insulated Enclosure - LPE55 (IP55)



Dimensions mm (in)

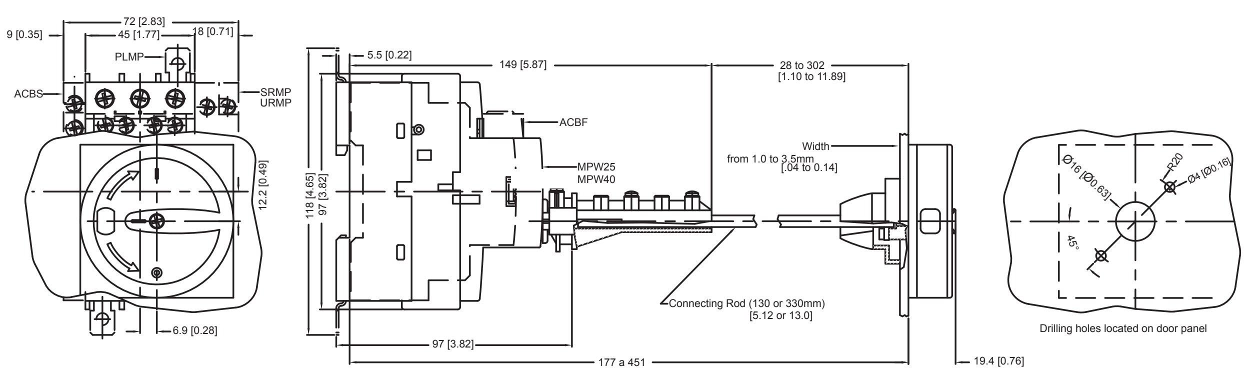
Accessories: BBS45, BBS54, FTBBS, LST25



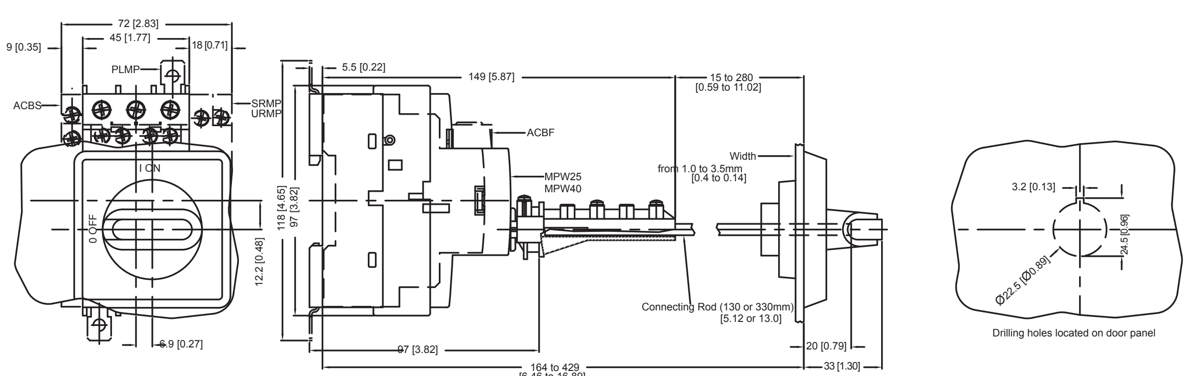


Catalog Number	BBS45-2	BBS45-3	BBS45-2	BBS45-5
A	85	130	175	220
Catalog Number	**BBS54-2**	**BBS54-3**	**BBS54-2**	**BBS54-5**
B	94	149	202	256

Through the Door Rotary Handle - RMMP



Through the Door Rotary Handle - MR MPW40

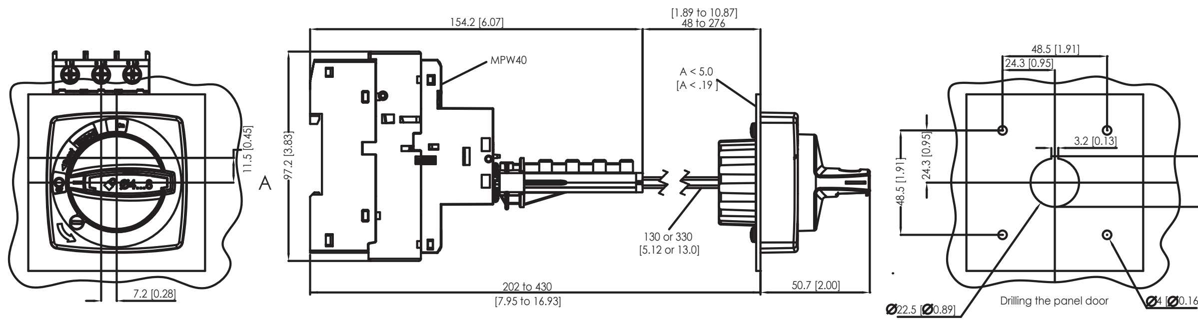


Motor Protectors

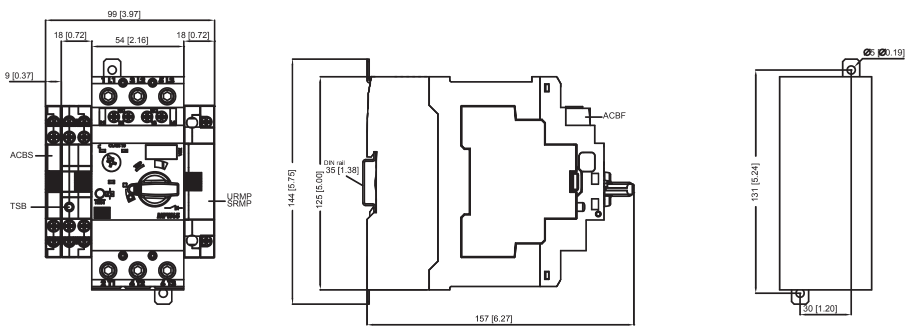
MPW

Dimensions mm (in)

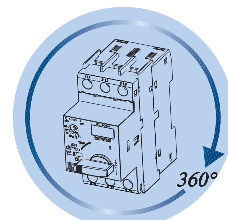
Through the Door Rotary Handle - MRX



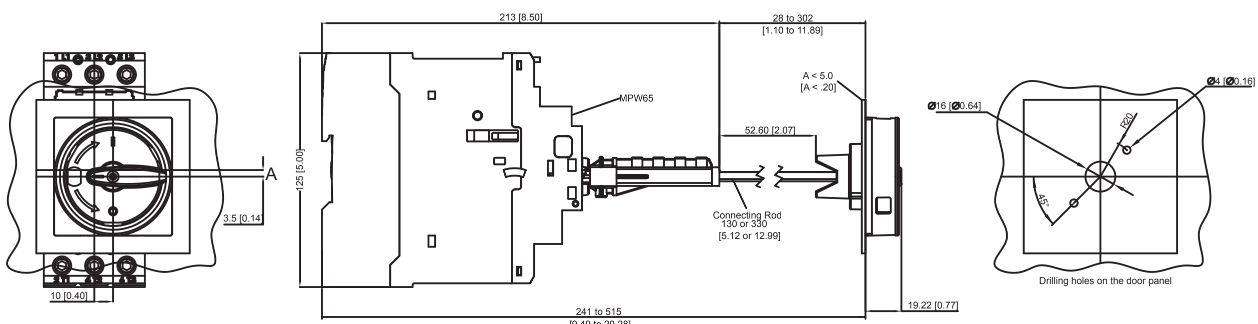
MPW80 + Accessories



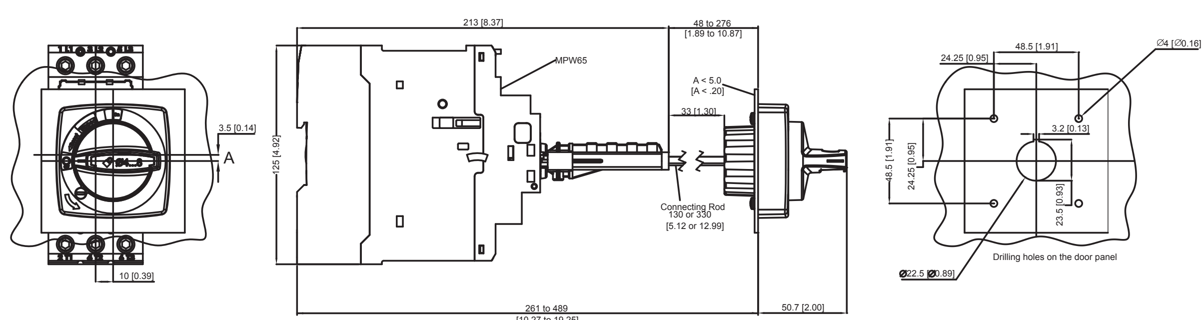
Mounting Position



Through the Door Rotary Handle - RMMP65



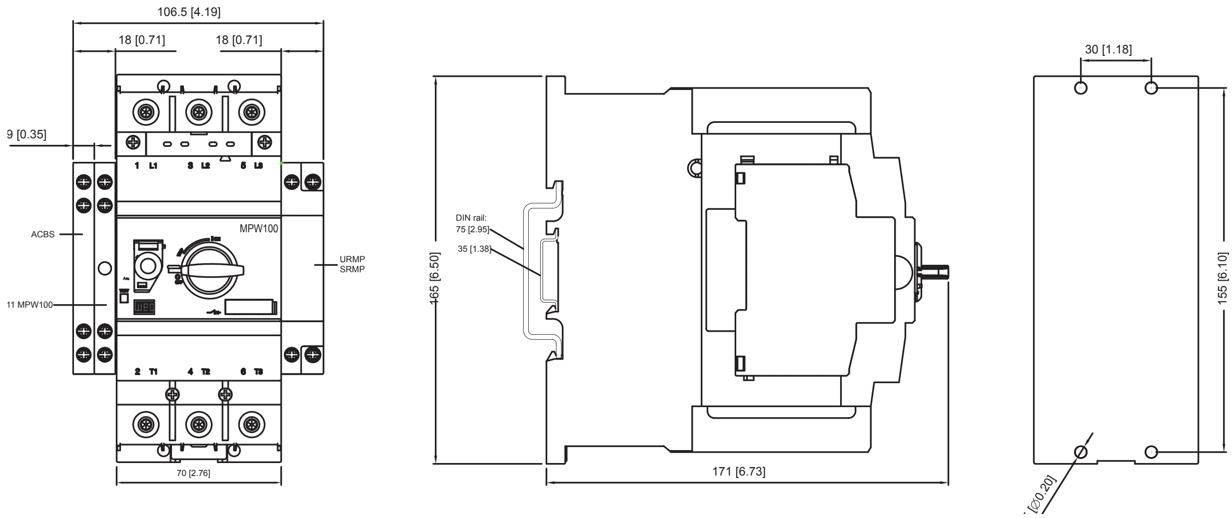
Through the Door Rotary Handle - MRX65



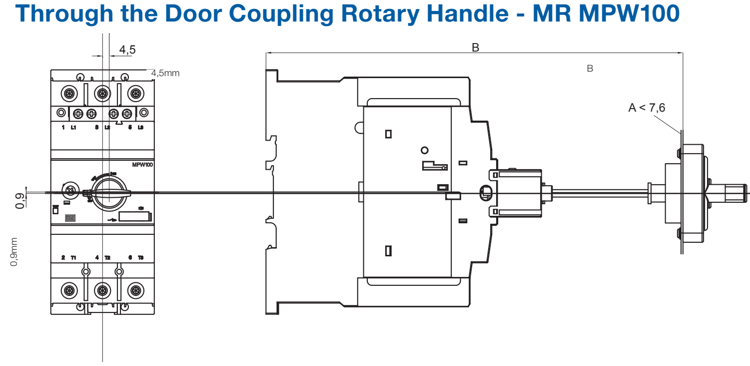
Data is subject to change without notice.

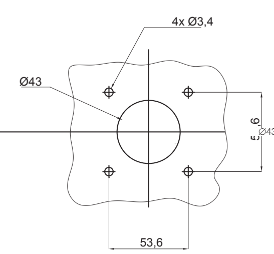
Dimensions mm (in)

MPW100



Through the Door Coupling Rotary Handle - MR MPW100

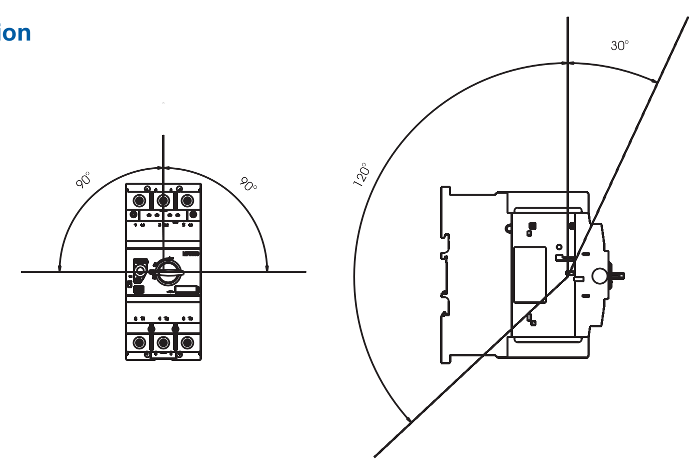




Drilling the panel door

Part Number	B (mm)
MR MPW100-115	min: 220
	max: 282
MR MPW100-315	min: 220
	max: 482

Mounting position



Miniature Contactors - CWC Series

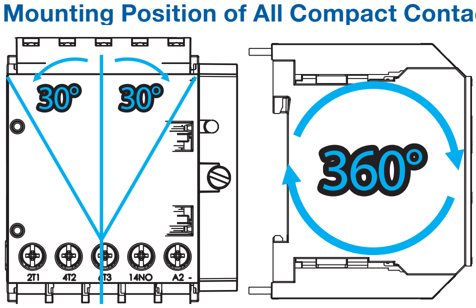
The CWC Series Mini Contactor Line is a Compact Solution for the Control and Operation of Circuits. Its extensive lineup of modular and tool-free accessories makes this series the most flexible mini-contactor available today. The CWC Series miniature contactor features more horsepower for its size than any other miniature contactor on the market.

Standard Features:

- Direct Mounting to RW17D Series Thermal Overload Relays
- Direct Mounting to MPW18 and MPW40 Series Manual Motor Protectors
- Low Consumption DC Coils
- Tool Free DIN Rail Mountable
- Frame size remains the same for AC and DC coil contactors up to 16A
- Complete line of snap-on accessories

UL File No. E202315

Mounting Position of All Compact Contactors



CWC Catalog Number Sequence

CWC	16	-	10	-	30	V18

Miniature Contactor Series
CWC0: Miniature Power Contactor CWCA0: Control Relay

Frame Rating
Blank: Control Relay (1th=10Amps)
7:07Amps
9:09Amps
12:012Amps
16:016Amps
25:022Amps

Auxiliary Contacts
For CWC0
00: None
10: 1 NO
01: 1 NC
For CWCA0
22:2 NO + 2 NC
31:3 NO + 1 NC
13:1 NO + 3 NC
40:4 NO
04: 4 NC

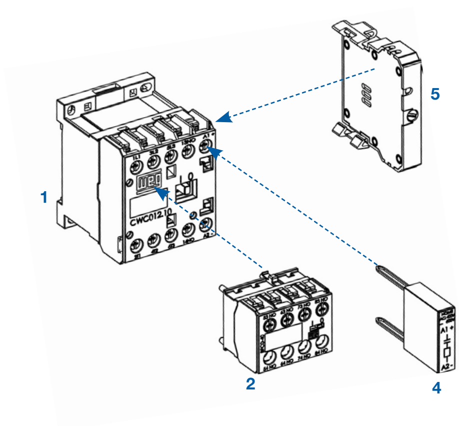
Power Pole
00: Control Relay (4 auxiliary terminals)
30: CWCO with 3 NO Power Poles
22: CWCO with 2 NO + 2 NC Power Poles
40: CWCO with 4 NO Power Poles

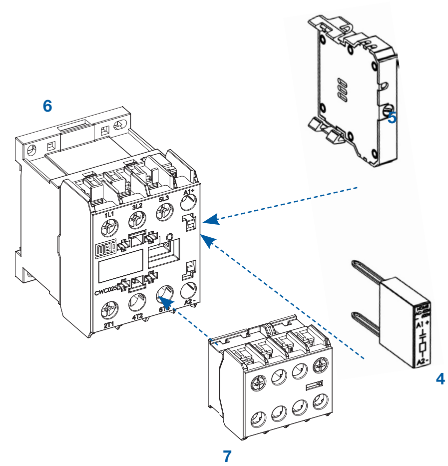
Coil Voltage
VAC COIL
V04: 24Vac 60Hz
V18: 120Vac 60 Hz
V24: 208-240Vac 60 Hz
V47: 480Vac 60Hz

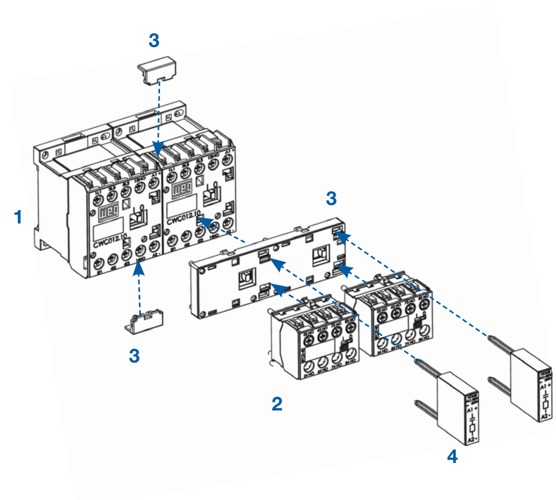
VDC Coil (Standard Consumption)
C03: 24Vdc
C12: 110Vdc

VDC COIL (Low Consumption)
L03:24Vdc

Chart intended for reference only and not to create part numbers

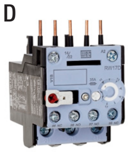
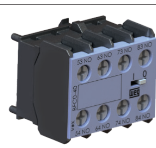
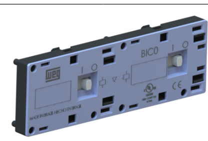
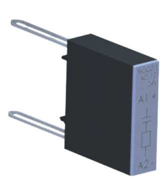






1 - Miniature contactors CWC07...16
2 - Front auxiliary contact block BFC0
3 - Mechanical interlock block BIC0
4 - Surge supressor blocks RCC0 (RC), VRC0 (Varistor), DIC0 (Diode)
5 - Electronic timers TEC0, TDC0 and TETC0
6 - Mini contactor CWC025
7 - Front auxiliary contact block BFC025

CWC Series - Miniature Contactors


Type	3 poles	CWC07	CWC09	CWC012	CWC016	CWC025
Rated operational power [1]						
Single-phase						
115Vac	Hp	1/3	1/3	1/2	1	1 1/2
230Vac	Hp	3/4	1	2	2	3
Three-phase						
230Vac	Hp	1 1/2	3	3	5	7 1/2
460Vac	Hp	5	5	7 1/2	10	15
575Vac	Hp	5	7 1/2	7 1/2	10	15
General Purpose Rating (AC-1)	A	18	20	22	22	32
Inductive Motor Switching (AC-3)		7	9	12	16	25
Overload relay	A	RW17-1D 		0.28. . .0.4 0.4. . .0.63 0.56. . .0.8 0.8. . .1.2 1.2. . .1.8 1.8. . .2.8	2.8. . .4 4. . .6.3 5.6. . .8 7. . .10 8. . .12.5 10. . .15 11. . .17	RW17-2D  7…10 8…12.5 10…15 11…17 15…23 22…32
Auxiliary contact blocks				BFC0-20 (2NO) BFC0-22 (2NO + 2NC) BFC0-11 (1NO + 1NC) BFC0-04 (4NC) BFC0-02 (2NC) BFC0-31 (2NO + 1NC) BFC0-40 (4NO) BFC0-13 (1NO + 3NC)		 BFC025-11 (1NO+1NC) BFC025-20 (2NO) BFC025-02 (2NC)
Mechanical interlock				BICO		–
Timer					ON-Delay (TECO) OFF-Delay (TDCO) Star-Delta (TETCO)	
Surge suppressor					RC block: RCC0-1 D49 12-24V 50/60Hz RCC0-2 D53 24-48V 50/60Hz RCC0-3 D55 50-127V 50/60Hz RCC0-4 D63 130-250V 50/60Hz RCC0-5 D84 275-380V 50/60Hz RCC0-6 D73 400-510V 50/60Hz Varistor block: VRC0-1 E49 12-48VAC / 12-60VDC VRC0-2 E34 50-127VAC / 60-180VDC VRC0-3 E38 130-275VAC / 180-300VDC VRC0-4 E41 277-380VAC / 300-510VDC VRC0-5 D73 400-510V 50/60Hz Diode block(CWC07-16): DIC0-1 C33 12-600VDC	

Notes: 1) Some motor characteristics may vary according to each manufacturer.

Three Pole Miniature Contactor with AC Coil

Maximum UL Horsepower						Auxiliary Contacts		Current Rating Amps	Catalog Number	List Price	Multiplier
Single Phase		Three Phase									
115V	230V	200V	230V	460V	575V	N.O.	N.C.				
1/3	3/4	1-1/2	1-1/2	5	5	1	0	7	CWC07-10-30*	$48	Z6
						0	1		CWC07-01-30*	$48	
1/3	1	2	3	5	7-1/2	1	0	9	CWC09-10-30*	$52	
						0	1		CWC09-01-30*	$52	
1/2	2	3	3	7-1/2	7-1/2	1	0	12	CWC012-10-30*	$64	
						0	1		CWC012-01-30*	$64	
1	2	3	5	10	10	1	0	16	CWC016-10-30*	$70	
						0	1		CWC016-01-30*	$70	
1-1/2	3	5	7 -1/2	15	15	0	0	22	CWC025-00-30*	$80	

To complete the selection
- Replace "*" with desired coil voltage from Coil Voltage Code Table

*AC COIL VOLTAGE CODE SELECTION				
60 Hz	24V	120V	208-240V	480V
CODE	V04	V18	V24	V47
50 Hz	20V	110V	180-208V	400-415V

Note: Other voltages available upon request.

Three Pole Miniature Contactors with DC Coil

Maximum UL Horsepower						Auxiliary Contacts		Current Rating Amps	Catalog Number	List Price	Multiplier
Single Phase		Three Phase									
115V	230V	200V	230V	460V	575V	N.O.	N.C.				
1/3	3/4	1-1/2	1-1/2	5	5	1	0	7	CWC07-10-30+	$62	Z6
						0	1		CWC07-01-30+	$62	
1/3	1	2	3	5	7-1/2	1	0	9	CWC09-10-30+	$68	
						0	1		CWC09-01-30+	$68	
1/2	2	3	3	7-1/2	7-1/2	1	0	12	CWC012-10-30+	$74	
						0	1		CWC012-01-30+	$74	
1	2	3	5	10	10	1	0	16	CWC016-10-30+	$79	
						0	1		CWC016-01-30+	$79	

To complete the selection
- Replace "+" with desired coil voltage from Coil Voltage Code Table

+DC COIL VOLTAGE CODE SELECTION			
Vdc	24V	110V	24V LOW CONSUMPTION*
CODE	C03	C12	L03

CWC Series - Miniature Contactors

Four Pole Contactors with AC Coil

Horse Power @460V	Main Contacts N.O.	Main Contacts N.C.	Catalog Number	List Price	Multiplier
5	4	0	CWC07-00-40*	$48	Z6
	2	2	CWC07-00-22*		
5	4	0	CWC09-00-40*	$52	
	2	2	CWC09-00-22*		
10	4	0	CWC016-00-40*	$70	
	2	2	CWC016-00-22*		

To complete the selection
- Replace "*" with desired coil voltage from Coil Voltage Code Table

*AC COIL VOLTAGE SELECTION				
60 Hz	24V	120V	208-240V	480V
CODE	V04	V18	V24	V47
50 Hz	20V	110V	180-208V	400-415V

Four Pole Contactors with DC Coil

Horse Power @460V	Main Contacts N.O.	Main Contacts N.C.	Catalog Number	List Price	Multiplier
5	4	0	CWC07-00-40+	$62	Z6
	2	2	CWC07-00-22+		
5	4	0	CWC09-00-40+	$68	
	2	2	CWC09-00-22+		
10	4	0	CWC016-00-40+	$79	
	2	2	CWC016-00-22+		

To complete the selection
- Replace "+" with desired coil voltage from Coil Voltage Code Table

+DC COIL VOLTAGE CODE SELECTION FOR CWC0_-00-40+		
60 Hz	24V	110V
CODE	C03	C12

+DC COIL VOLTAGE SELECTION FOR CWC0_-00-22+		
60 Hz	24V	110V
CODE	R03	R12

Miniature Control Relay with AC Coil

Current Rating Amps	Rating	Auxiliary Contacts			Catalog Number	List Price	Multiplier
		N.O.		N.C.			
10	A600, Q600	2	22 E	2	CWCA0-22-00*	$45	Z6
		3	31 E	1	CWCA0-31-00*	$45	
		4	40 E	0	CWCA0-40-00*	$45	
		1	13 E	3	CWCA0-13-00*	$45	
		0	04 E	4	CWCA0-04-00*	$45	

To complete the selection
- Replace “*” with desired coil voltage from Coil Voltage Code Table

*AC COIL VOLTAGE SELECTION				
60 Hz	24V	120V	208-240V	480V
CODE	V04	V18	V24	V47
50 Hz	20V	110V	180-208V	400-415V

Note: Other voltages available upon request.

Miniature Control Relay with DC Coil

Current Rating Amps	Rating	Auxiliary Contacts			Catalog Number	List Price	Multiplier
		N.O.		N.C.			
10	A600, Q600	2	22 E	2	CWCA0-22-00+	$59	Z6
		3	31 E	1	CWCA0-31-00+	$59	
		4	40 E	0	CWCA0-40-00+	$59	
		1	13 E	3	CWCA0-13-00+	$59	
		0	04 E	4	CWCA0-04-00+	$59	

To complete the selection
- Replace “+” with desired coil voltage from Coil Voltage Code Table

+DC COIL VOLTAGE CODE SELECTION			
Vdc	24V	110V	24V LOW CONSUMPTION*
CODE	C03	C12	L03

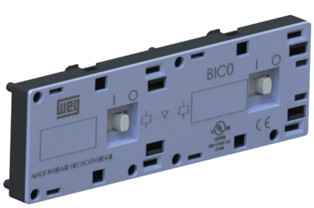
CWC Series - Miniature Contactors

Front Auxiliary Contact Block

	For use with	Max. number of contacts/ mini contactor	Auxiliary contacts		For use with CWC0 (3 pole)		For use with CWC0 (4 pole)		For use with CWCA0		List Price	Multiplier
			NO	NC	Terminal Markings	Catalog Number	Terminal markings	Catalog Number	Terminal markings	Catalog Number		
	CWC07...16 CWCA0	2	2	0		BFC0-20		BFC4-20		BFCA-20	$15	Z6
			1	1		BFC0-11		BFC4-11		BFCA-11		
			0	2		BFC0-02		BFC4-02		BFCA-02		
		4	4	0		BFC0-40*		BFC4-40*		BFCA-40*	$26	
			2	2		BFC0-22*		BFC4-22*		BFCA-22*		
			0	4		BFC0-04*		BFC4-04*		BFCA-04*		
			3	1		BFC0-31*		BFC4-31*		BFCA-31*		
			1	3		BFC0-13*		BFC4-13*		BFCA-13*		
	CWC025	2	2	0		BFC025-20	-	-	-	-	$15	
			1	1		BFC025-11	-	-	-	-		
			0	2		BFC025-02	-	-	-	-		

*Low consumption 24Vdc contactors can only use 2 pole auxiliary contact blocks

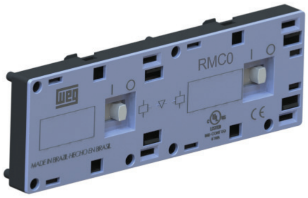
Mechanical Interlock Block

		For use with	Catalog Number	List Price	Multiplier
	• Front Mounting • Mechanical interlock without width increase • Allows assembly of auxiliary contact blocks, surge suppressor and timing relay	CWC07...16 CWCA0	BICO	$10	Z6

General Information
Circuit Protection
Disconnect Switches
Motor Protectors
Contactors
Overloads
Enclosed Starters
Relays
Pushbuttons and Pilot Lights
Terminal Blocks
Power Factor Correction
Appendix A
Appendix B

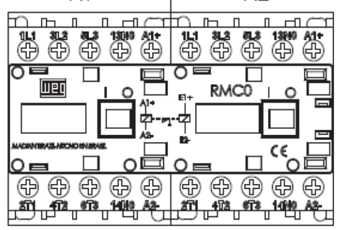
Data is subject to change without notice.

RMCO Latch Block

		For use with	Catalog Number	List Price	Multiplier
	• Front Mounting • Mechanical interlock using 2 minicontactors (AC or DC coil) • Can be mounted with the following accessories: auxiliary contact block, surge suppressor and timers.	CWC07...16 CWCA0	**RMCO**	**$12**	Z6

Operation Description of Latch Block RMCO

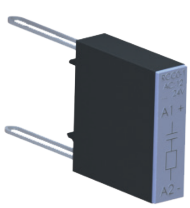
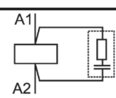
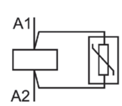
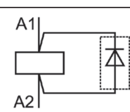
Latch mini contator K1	"RESET" mini contator K2



2 x CWC07...16 / CWCA0 + RMC0

Surge suppressors

- Fast front mounting (clip on).
- Allows mounting with all the accessories.

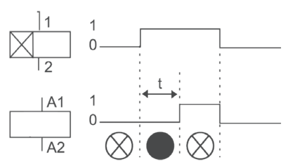
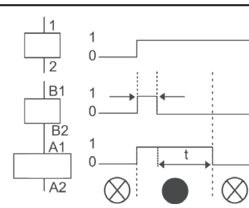
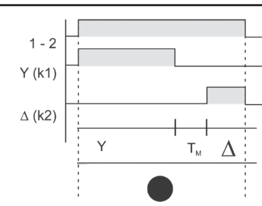
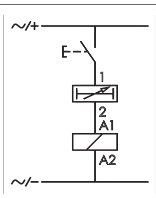
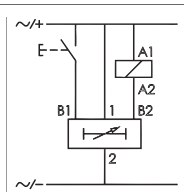
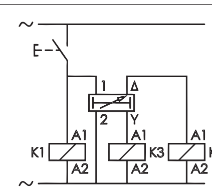
	For use with	Circuit diagram	Voltage	Catalog Number	List Price	Multiplier
	CWC07...25 CWCA0		24-48V 50/60Hz	**RCCO-2 D53**	**$18**	Z6
			50-127V 50/60Hz	**RCCO-3 D55**		
			130-250V 50/60Hz	**RCCO-4 D63**		
			400-510V 50/60Hz	**RCCO-6 D73**		
			12-48VAC / 12-60VDC	**VRCO-1 E49**		
			50-127VAC / 60-180VDC	**VRCO-2 E34**		
			130-275VAC / 180-300VDC	**VRCO-3 E38**		
			400-510V 50/60Hz	**VRCO-5 D73**		
	CWC07...16 CWCA0		12-600VDC	**DICO-1 C33**		

CWC Series - Miniature Contactors

Electonic timing relay

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

Function	Time	Voltages	Catalog Number		List Price	Multiplier
On-Delay (TECO)	3 - 0,3 to 3 seconds	24-240V 50/60Hz - DC	TECO-U003S-E05		$150	Z6
	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			
	1800 - 180 to 1800 seconds		TECO-U030M-E05			
Off-Delay (TDCO)	-	24-60V 50/60Hz - DC 100-240V 50/60Hz - DC	24-60V AC/DC	100-240V AC/DC	$150	
	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		
	1800 - 180 to 1800 seconds		TDCO-U030M-E04	TDCO-U030M-E09		
Start-Delta (TETCO)	30 - 3 to 30 seconds	24-28V 50/60Hz - DC	TETCO-U030S-D52		$130	
		110-130V 50/60Hz - DC	TETCO-U030S-D61			
		220-240V 50/60Hz - DC	TETCO-U030S-D66			

Functions	On-Delay TECO	Off-Delay TDCO	Start-Delta TETCO
Functional Diagram Led On Led Off			
Diagrams			

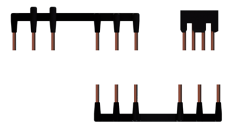
Data is subject to change without notice.

Easy-Connection Busbar

- Quick and easy assembly for wye-delta and reversing starters
- Allows assemble of overload relay RW17D, manual motor protectors MPW18 & MPW40 and timer

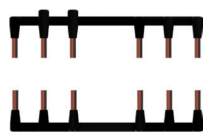
Wye-Delta

Rating (HP)			Contactor	
230V	460V	575V	K1=K2	K3
3	7-1/2	7-1/2	CWC07	CWC07
5	7-1/2	10	CWC09	CWC07
5	10	10	CWC012	CWC07
7-1/2	15	15	CWC016	CWC09



Reversing

Rating (HP)			Contactor
230V	460V	575V	K1=K2
1-1/2	5	5	CWC07
3	5	7-1/2	CWC09
3	7-1/2	7-1/2	CWC012
5	10	10	CWC016



	For use with	Catalog Number	List Price	Multiplier
Wye-Delta	CWC07...16 CWCA0	ECCO-SD	$34	Z6
Reversing		ECCO-R	$34	

Contactors

CWC Series - Miniature Contactors

Technical Data

General Data

Catalog Number				CWCA0	CWC07	CWC09	CWC012	CWC016	CWC025
Standards				IEC 60947 / UL 508					
Rated insulation voltage Ui (pollution degree 3)	IEC/EN 60947-4-1, VDE 0660		(V)	690					
	UL, CSA		(V)	600					
Rated impuse withstand voltage Uimp (IEC/EN 60947-1)			(kV)	4					
Rated operational frequency			(Hz)	25...400					
Mechanical lifespan	AC coil	Ops x 10”6”		10					3
	DC coil	Ops x 10”6”		12					-
Electrical lifespan	Ie AC-3	Ops x 10”6”		-	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	Contactor open		(g)	2					
	Contactor closed		(g)	4					
Mechanical shock resistance (½ sinusoid = 11ms)	Contactor open		(g)	6					
	Contactor closed		(g)	10					
Ambient temperature	Operation			-25 °C ...+55 °C					
	Storage			-55 °C ... +80 °C					
Normal values				Up to 3,000 m					
Altitude	90% Ie / 80% Ue			3,000 to 4,000 m					
	80% Ie / 75% Ue			4,000 to 5,000 m					

Control Circuit - Alternating Current (AC)

Catalog Number			CWCA0, CWC07...16	CWC025
Rated insulation voltage Ui (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 Us 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)

Catalog Number			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 Us 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		

Data is subject to change without notice.

Technical Data

Power Circuit

Catalog Number			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[1)]	(V)	600				
Rated thermal current Ith ($\theta \leq$ 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[1)]	(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
Utilization category							
Rated operational current Ie ($\theta \leq$ 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[1)]	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
Utilization category AC-4							
Rated operational current I_e AC-4 ($U_e \leq$ 440 V)		(A)	2.8	3.5	4.5	5	9
Rated operational power[1)] (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.

CWC Series - Miniature Contactors

Technical Data

Power Circuit

Catalog Number			CWC07	CWC09	CWC012	CWC016	CWC025
			Utilization category AC-1				
			3P (NO) or 4P (4NO)				3P (NO)
Rated thermal current I_{th} ($\theta \leq 55$ °C)		(A)	18	20	22	22	32
Maximum operational current (up to 690 V)	$\theta \leq 40$ °C	(A)	18	20	22	22	32
	$\theta \leq 55$ °C	(A)	18	20	22	22	32
	$\theta \leq 70$ °C	(A)	14.4	16	17.6	17.6	25.6
Maximum operational power $\theta \leq 55$ °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 x 1.7				
	3 poles in parallel		I_e x 2.4				
	4 poles in parallel		I_e x 3.2				
Percentage of the max. operational current at	600 ops./h	(%)	100				
	1,200 ops./h	(%)					
	3,000 ops./h	(%)					
			2P (NO/NC) or 4P (2NO + 2NC)				2P (NO/NC)
Maximum operational power $\theta \leq 55$ °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

Catalog Number			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

Catalog Number			CWC07...16	CWCA0
Standards			IEC 60947-5-1, IEC 60947-4-1	
Rated insulation voltage U_i (pollution degree 3)	IEC, VDE 0660	(V)	690	
	UL, CSA	(V)	600	
Rated operational voltage U_e	IEC, VDE 0660	(V)	690	
	UL, CSA	(V)	600	
Rated thermal current I_{th} ($\theta \leq 55$ °C)		(A)	10	
Rated operational current I_e				
AC-15 (IEC 60947-5-1)	$U_e \leq 240$ V	(A)	10	
	380-400 V	(A)	6	
	415-440 V	(A)	5	
	500 V	(A)	4	
	660-690 V	(A)	2	
UL, CSA			A600	
DC-13 (IEC 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)	$U_e \leq 400$ V 50/60 Hz - AC-15	(A)	10 x I_e (AC-15)	
Breaking capacity (rms)	$U_e \leq 400$ V 50/60 Hz - AC-15	(A)	10 x 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	

Data is subject to change without notice.

Technical Data

Auxiliary Contacts

Catalog Number			BFC0 / BFC025
Standards			IEC 60947-5-1, IEC 60947-4-1
Rated insulation voltage U_i (pollution degree 3)	IEC, VDE 0660	(V)	1,000
	UL, CSA[1]	(V)	600
Rated operational voltage U_e	IEC, VDE 0660	(V)	690
	UL, CSA[1]	(V)	600
Rated thermal current I_{th} ($\theta \leq 55$ °C)		(A)	10
Rated operational current I_e			
AC-15 (IEC 60947-5-1)	$U_e \leq 240$ V	(A)	10
	380-400 V	(A)	6
	415-440 V	(A)	6
	500 V	(A)	4
	660-690 V	(A)	-
UL, CSA[1]			A600
DC-13 (IEC 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[1]			Q600
Making capacity (rms)	$U_e \leq 400$ V 50/60 Hz - AC-15	(A)	30
Breaking capacity (rms)	$U_e \leq 400$ 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

Timing relay

Rated insulation voltage (U_i)	V	300
Supply voltage (U_e)	1 - 2 terminals	24...240 V dc/ V ac 50/60 Hz (TEC0)
		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 (TETC0)
		110-130 V ac 50/60 Hz (TETC0)
		24-28 V ac 50/60 Hz (TETC0)
Control voltage (U_c) only TDC0 - pag A25	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 Uc (V ac)
		0.8...1.25 x Uc (V dc)
Consumption	mA	≤ 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 Y - Δ	ms	50

CWC Series - Miniature Contactors

Technical Data

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

Catalog Number	CWC07...CWC016 / CWCA0			CWC025		
Screw type	M3x 8 Flat / Phillips			M3.5x 9 Flat / Phillips		
Power terminal and built-in auxiliary terminal[1)]	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
mm²	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

Catalog Number	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
mm²	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

Catalog Number	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
mm²	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

Catalog Number	CWC07_S... CWC012_S / CWCA0_S		BFC0_S / BFCA_S / BFC4_S
Terminal type	Spring terminal		
Power terminal	Finely stranded with end sleeve	Solid	
mm²	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
mm²	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)

	Catalog Number	CWC07	CWC09	CWC012	CWC016	CWC025
Ue	Serie poles	Rated operational current Ie (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	-

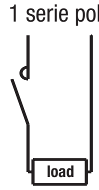
DC-3(L/R ≤ 2.5ms)

	Catalog Number	CWC07	CWC09	CWC012	CWC016	CWC025
Ue	Serie poles	Rated operational current Ie (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	-

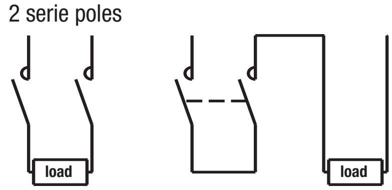
DC-5(L/R ≤ 15ms)

	Catalog Number	CW07	CWC07	CWC09	CWC012	CWC016	CWC025
U_e	Serie poles	Rated operational current I_e (A)					
≤ 24 V	1	1.5	8	8	8	8	10
	2	2.5	12	12	12	12	14
	3	3	15	15	15	15	18
	4	3	15	15	15	15	-
≤ 48 V	1	1.5	8	8	8	8	9
	2	2.5	12	12	12	12	14
	3	3	15	15	15	15	18
	4	3	15	15	15	15	-
≤ 60 V	1	1.2	5	5	5	5	7
	2	2.5	10	10	10	10	12
	3	3	14	14	14	14	18
	4	3	15	15	15	15	-
≤ 125 V	1	0.7	1.5	1.5	1.5	1.5	0.8
	2	1.5	5.5	5.5	5.5	5.5	5
	3	2.5	9	9	9	9	12
	4	3	14	14	14	14	-
≤ 220 V	1	0.1	0.4	0.4	0.4	0.4	-
	2	0.5	0.7	0.7	0.7	0.7	0.8
	3	1.5	2.5	2.5	3	3	3
	4	2.2	9	9	9	9	-
≤ 440 V	1	-	-	-	-	-	-
	2	-	-	-	-	-	-
	3	0.1	0.3	0.3	0.3	0.3	0.5
	4	0.3	0.7	0.7	0.7	0.7	-
≤ 600 V	1	-	-	-	-	-	-
	2	-	-	-	-	-	-
	3	-	-	-	-	-	-
	4	-	0.2	0.2	0.2	0.2	-

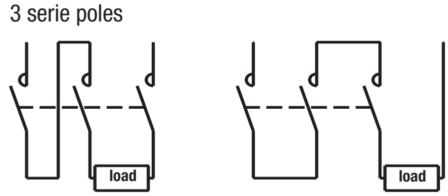
1 serie pole



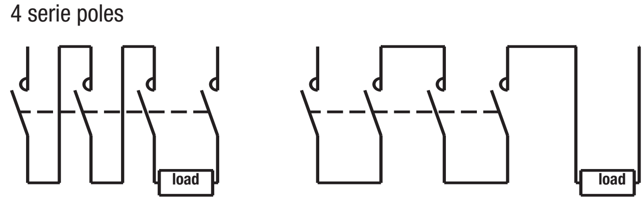
2 serie poles



3 serie poles



4 serie poles

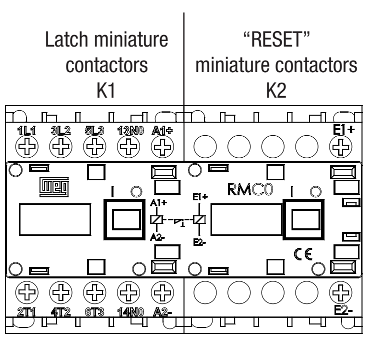


CWC Series - Miniature Contactors

Technical Data

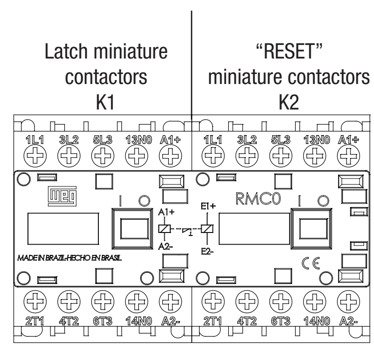
Timing relay		
Rated insulation voltage (U_i)	V	300
Supply voltage (U_e)	1 - 2 terminals	24...240 V dc/ V ac 50/60 Hz (TECO)
		24...60 V dc/ V ac 50/60 Hz (TDCO)
		100...240 V dc/ V ac 50/60 Hz (TDCO)
		220-240 V ac 50/60 Hz (TETCO)
		110-130 V ac 50/60 Hz (TETCO)
		24-28 V ac 50/60 Hz (TETCO)
Control voltage (U_c) only TDCO - pg A25	2 - B1 terminals	24...60 V dc/ V ac 50/60 Hz (TDCO)
		100...240 V dc/ V ac 50/60 Hz (TDCO)
Voltage operational limits		0.85...1.1 x Uc (V ac)
		0.8...1.25 x Uc (V dc)
Consumption	mA	≤ 5
Minimum time for reset (recovery time)	ms	650
Minimum control time (only TDCO)	ms	50
Setting accuracy (% of the full scale value)	%	+/-5
Repeat accuracy	%	+/-1
Changeover time Y - Δ	ms	50

Operation Description of Latch Block RMC0 or Miniature Contactors CWCH0



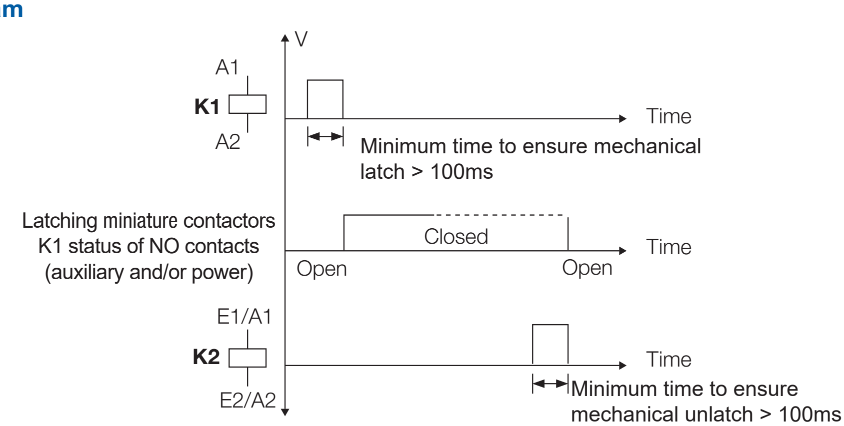
CWCH07...16

or



2 x CWC07...16 / CWCA0 + RMC0

Functional Diagram



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

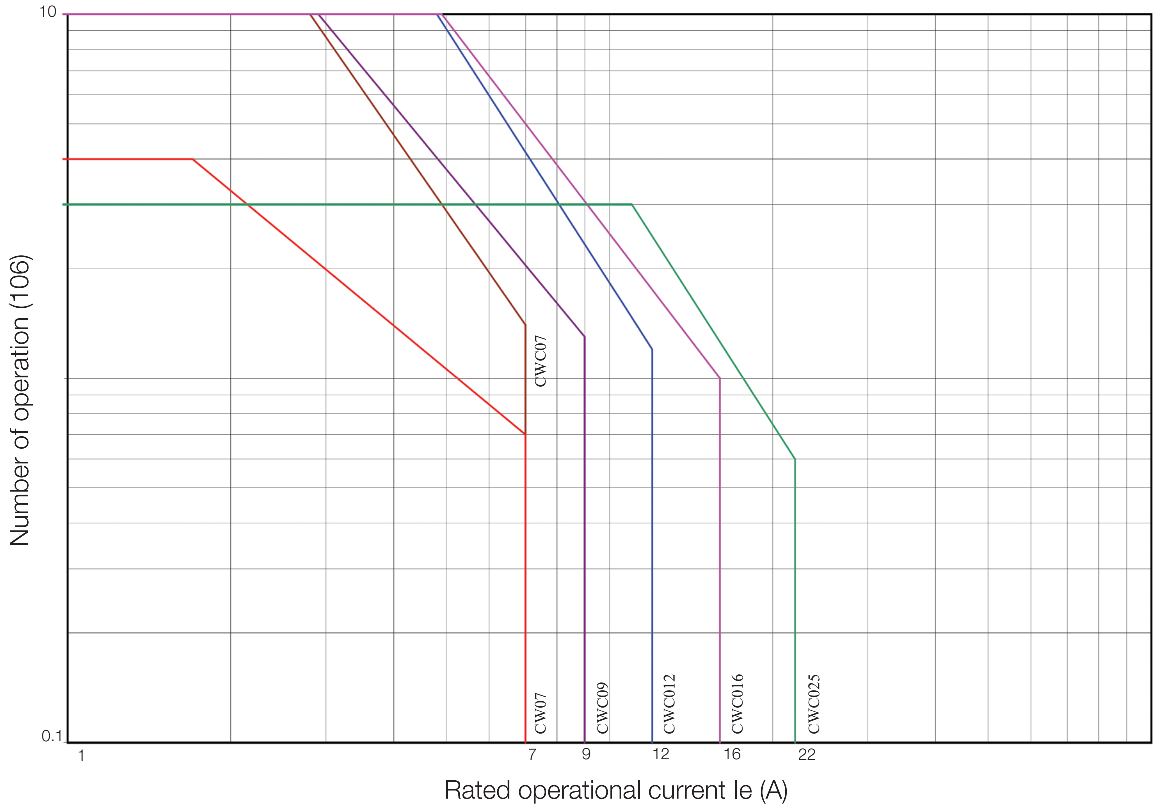
Note: if RESET miniature contactors coil (K2) remains energized, the latching of miniature contactors (K1) is not enabled.

General Information
Circuit Protection
Disconnect Switches
Motor Protectors
Contactors
Overloads
Enclosed Starters
Relays
Pushbuttons and Pilot Lights
Terminal Blocks
Power Factor Correction
Appendix A
Appendix B

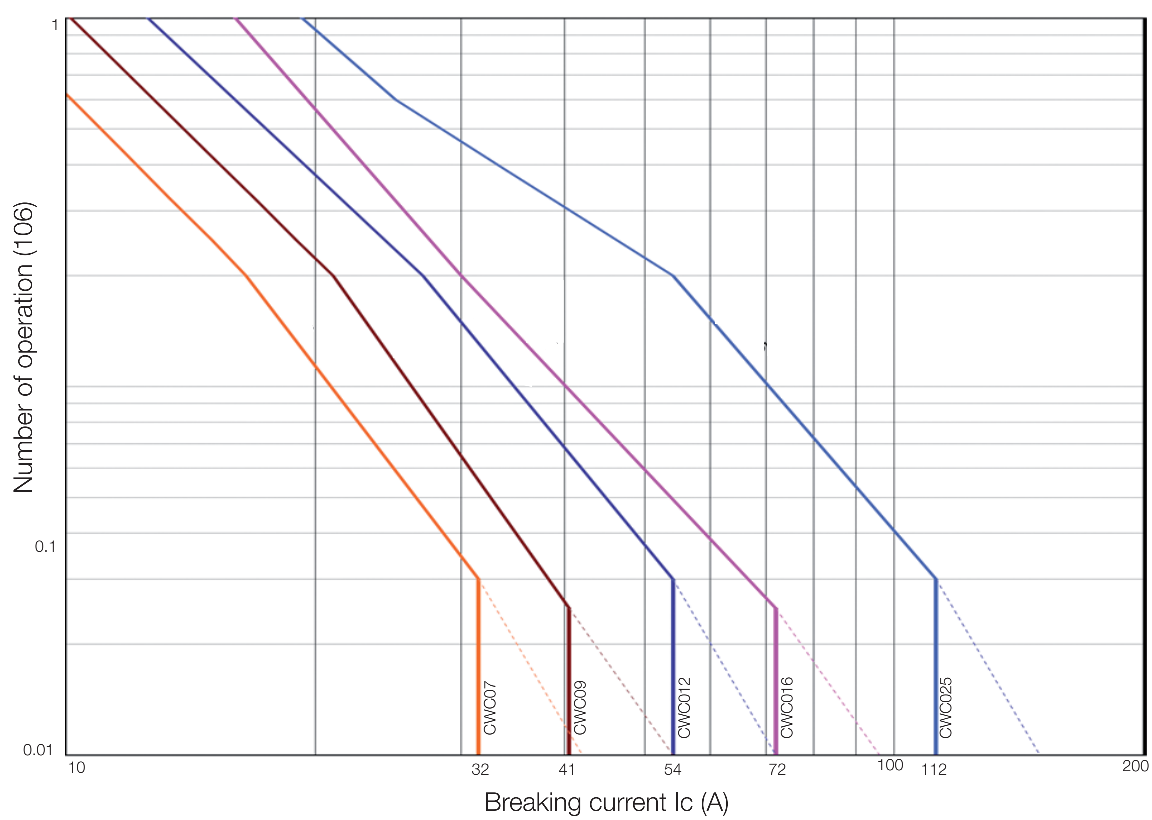
Technical Data

Electrical Lifespan

AC-3 ($U_e \leq 415$ V ac e $U_e \leq 440$ V ac)



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



General Information
Circuit Protection
Disconnect Switches
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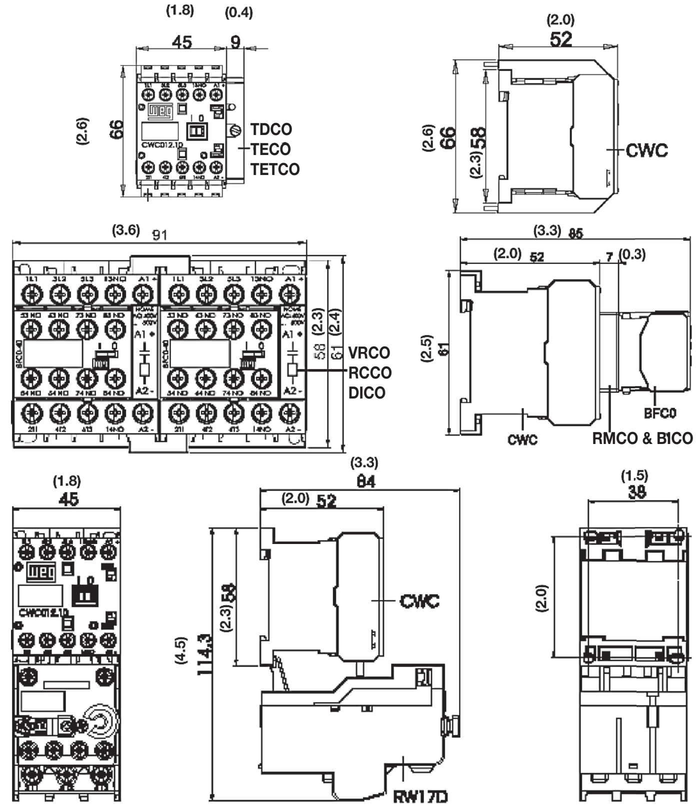
Contactors
Overloads
Enclosed Starters
Relays
Pushbuttons and Pilot Lights
Terminal Blocks
Power Factor Correction
Appendix A
Appendix B

Contactors

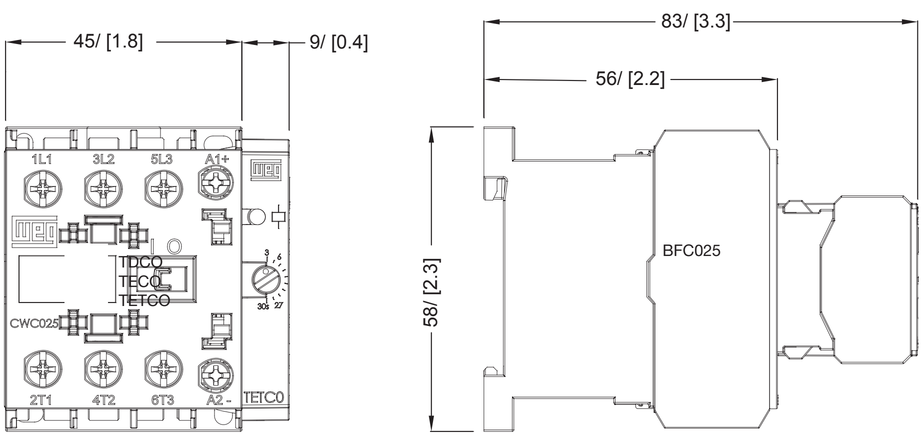
CWC Series - Miniature Contactors

Dimensions mm (in)

CWC07...016 AND CWCA0



CWC025



CWB Line

Developed according to IEC 60947 and UL 508 international standards, the new WEG CWB line of contactors meets the requirements of a wide range of industrial applications. The CWBs are designed with the visual pattern and identity of WEG, a brand recognized worldwide for its quality.

Standard Features:

- "Zero-Width" Mechanical Interlock
- Simple and Compact Mounting of Surge Suppressor Blocks
- Contactor Coil Operated on AC or DC
- Simple and Organized Control Circuits
- Additional Contact Blocks
- Easy Access Power and Control Terminals

UL File No. E202315

CWB Contactor Catalog Number Sequence

CWB	12	-	11	-	30	D15
Contactor Series	Current Rating		Auxiliary Contacts		Power Poles	Voltage Code

Contactor Series

CWB - IEC
CWBN - NEMA

Current Rating

IEC	9: 9 Amps
	12: 12 Amps
	18: 18 Amps
	25: 25 Amps
	32: 32 Amps
	38: 38 Amps
	40: 40 Amps
	50: 50 Amps
	65: 65 Amps
	80: 80 Amps
NEMA	00: 9 Amps
	0: 18 Amps
	1: 25 Amps
	2: 50 Amps

Auxiliary Contacts

11: 1NO + 1NC

Power Poles

30: 3 NO Power Poles

Voltage Code

AC Voltage	DC Voltage
D02: 24V	C03: 24V
D15: 120V	C13: 125V
V24: 208 - 240V	
D39: 480V	
D45: 600V	
D98: 277V	

Table intended as reference only and not to create part numbers.

Contactors

CWB Series

Selection Table

Three-Pole CWB Contactors from 9 A to 80 A (AC-3)

Ie máx. (Ue ≤440 V)	Maximum UL Horsepower						Built-in auxiliary contacts per contactor		Catalog Number	List Price AC Coil	List Price DC Coil	Multiplier
AC-3 A	Single Phase		Three Phase				3 4 NO	1 2 NC				
	115V	230V	200V	230V	480V	575V						
9	3/4	1.5	3	3	5	7 1/2	1	1	CWB9-11-30*	$72	$118	Z1
12	3/4	2	3	3	7 1/2	10	1	1	CWB12-11-30*	$89	$123	
18	1	3	5	5	10	15	1	1	CWB18-11-30*	$103	$150	
25	2	5	7 1/2	7 1/2	15	15	1	1	CWB25-11-30*	$118	$177	
32	3	5	10	10	20	25	1	1	CWB32-11-30*	$140	$220	
38	3	7.5	10	10	25	25	1	1	CWB38-11-30*	$164	$282	
40	3	7 1/2	10	15	30	30	1	1	CWB40-11-30*	$164	$282	
50	3	10	15	15	40	40	1	1	CWB50-11-30*	$225	$310	
65	5	10	20	20	50	50	1	1	CWB65-11-30*	$255	$350	
80	7 1/2	15	20	25	50	60	1	1	CWB80-11-30*	$270	$417	

Three-Pole CWB NEMA Rated Sizes 00 - 2

NEMA Size	Maximum UL Horsepower						Built-in auxiliary contacts per contactor		Catalog Number	List Price AC Coil	List Price DC Coil	Multiplier
	Single Phase		Three Phase				3 4 NO	1 2 NC				
	115V	230V	200V	230V	480V	575V						
00	1/3	1	1.5	1.5	2	2	1	1	CWBN00-11-30*	$103	$150	Z1
0	1	2	3	3	5	5	1	1	CWBN0-11-30*	$118	$177	
1	2	3	7 1/2	7 1/2	10	10	1	1	CWBN1-11-30*	$164	$220	
2	3	7.5	10	15	25	25	1	1	CWBN2-11-30*	$233	$330	

Replace "*" by the appropriate coil voltage code.

Alternating Current

Code	D02	D15	V24	D39	D45	D98
V (50/60 Hz)	24	120	180-208V 50Hz 208-240V 60Hz	480	600	277

Direct Current

Code	C03	C07	C13
V dc	24	48	125

Notes:
1) Other voltages on request

Data is subject to change without notice.

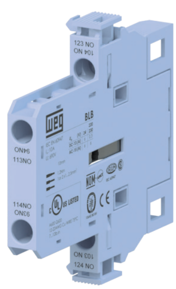
Accessories and Spare Parts

Front Mounted Auxiliary Contact Blocks[4]

.063 kg

For use with	Max. nº of additional contacts / contactor	Auxiliary contacts NO	Auxiliary contacts NC	Catalog Number	List Price	Multiplier
CWB9...80 CWBN00-2	4 / CWB9...38 4 / CWB40...80 4 / CWBN00...2	1	1	BFB-11[1]	$20	Z1
		2	0	BFB-20	$20	
		0	2	BFB-02[1]	$20	
		2	2	BFB-22[1]	$32	
		2	2	BFB-22 EL[3]	$32	
		4	0	BFB-40	$32	
		0	4	BFB-04[1]	$32	
		3	1	BFB-31[1]	$32	
		1	3	BFB-13[1]	$32	

Side Mounted Auxiliary Contact Blocks[4]

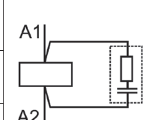
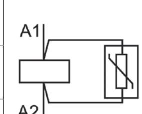
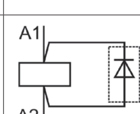
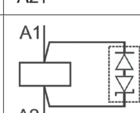


.034 kg

For use with	Max. nº of additional contacts / contactor	Auxiliary contacts NO	Auxiliary contacts NC	Catalog Number	List Price	Multiplier
CWB9...80 CWBN00-2	4 / CWB9...38 4 / CWB40...80 4 / CWBN00...2	1	1	BLB-11[1]	$22	Z1
		2	0	BLB-20		
		0	2	BLB-02[1]		
		1	1	BLRB-11[1)2]		
		2	0	BLRB-20[2]		
		0	2	BLRB-02[1)2]		

Plug-In Surge Suppressors

.008 kg

For use with	Voltage	Diagram	Catalog Number	List Pice	Multiplier
CWB9...80 CWBN00...2	24...48 V 50/60 Hz		RCB D53	$30	Z1
	50...127 V 50/60 Hz		RCB D55		
	130...250 V 50/60 Hz		RCB D63		
	12-48VAC / 12-60VDC		VRB E49		
	50-127VAC / 60-180VDC		VRB E34		
	130-250VAC / 180-300VDC		VRB E50		
	277-380VAC / 300-510VDC		VRB E41		
	400...510 V 50/60 Hz		VRB D73		
	12...600 V dc		DIB C33		
	12...250 V dc		DIZB C26		

Notes: 1) The arrangement of the contacts meets IEC 60947-4-1 Annex F (Mirror Contact) and IEC 60947-5-1 Annex L (Mechanically Linked Contact) requirements.
2) For combination of 2 side-mounted auxiliary contact blocks at the same side of the contactor.
3) BFB-22-EL: besides the regular contacts NO and NC, there are two special contacts: early make and late break.
4) The maximum number of auxiliary contacts assembled on the contactor are 4.

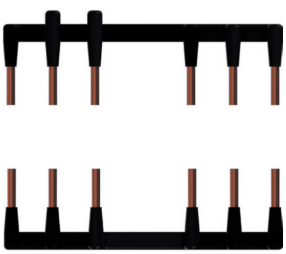
CWB Series

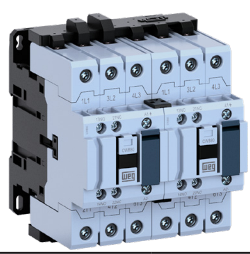
Accessories and Spare Parts

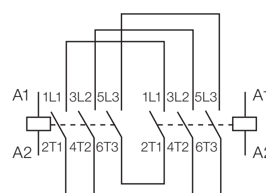
Mechanical Interlock

Image	For use with	Description	Catalog Number	List Price	Multiplier
	CWB9...38 CWBN00...1	Mounting set for interlocking two contactors with the same frame type. Fitting through snaps without tools.	IM1	$12	Z1
	CWB40...80 CWBN2		IM2	$15	

Easy-Connection Setting of the Power Terminals for Reversing Starters

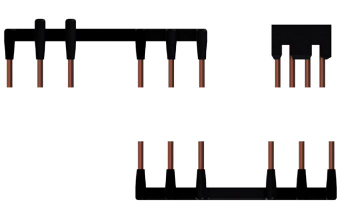
Image	For use with	Orientative rated operational power for reversing starters (AC-4 duty) for three-phase 4-pole motors - 60 Hz - 1,800 rpm		Catalog Number	List Price	Multiplier
	K1=K2	230 V kW / cv	400 V kW / cv			
	CWB9/CWBN00	1.5 / 2.0	2.2 / 2.9	EC-R1	$60	Z1
	CWB12	1.5 / 2.0	3.7 / 5.0			
	CWB18/CWBN0	2.2 / 2.9	4 / 5.4			
	CWB25/CWBN1	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-R2	$75	
	CWB50/CWBN2	5.5 / 7.4	11 / 14.7			
	CWB65	7.5 / 10.1	15 / 20.1			
	CWB80	11 / 14.7	18.5 / 24.8			

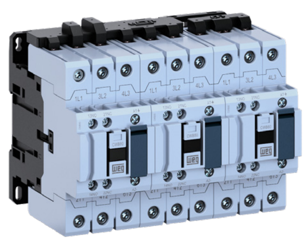


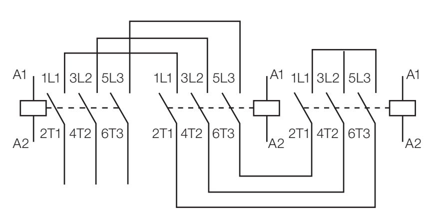


Electric diagram

Power Terminal Easy-Connection Set for Star-Delta Starters

Image	For use with		Orientative rated operational power in AC-3 Three-phase motor - IV poles - 1,800 rpm		Catalog Number	List Price	Multiplier
	K1=K2	K3	230 V kW / cv	400 V kW / cv			
	CWB9	CWB9	4 / 5.4	7.5 / 10	EC-SD1	$75	Z1
	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-SD2	$90	
	CWB65	CWB40	30 / 40	55 / 75			
	CWB80	CWB50	45 / 61	75 / 102			

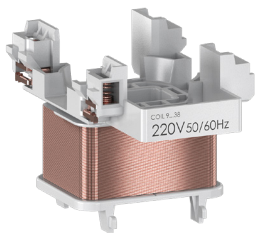
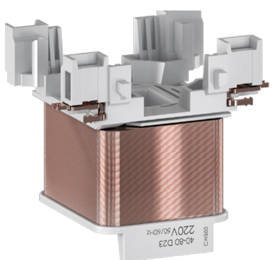
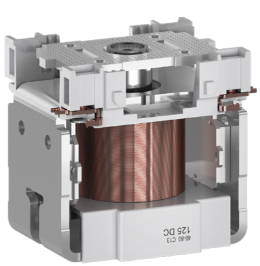




Electric diagram

Accessories and Spare Parts

Spare Coils for Contactors[1)]

Image	For use with	Control type	Reference to fill in with the control voltage	List Price	Multiplier
	CWB9...38 CWBN00...1	AC	BRB-38♦	$22	
	CWB40...80 CWBN2	AC	BRB-80♦	$40	Z1
	CWB40...80 CWBN2	DC	BRB-80♦	$110	

Replace "♦" by the appropriate coil voltage code.

To complete the Part Number, replace "♦" by the appropriate coil voltage code.

Alternating Current

Coil voltage code	D02	D15	V24	D39	D45	D98
V (50/60 Hz)	24	120	180-208V 50Hz / 208-240V 60Hz	480	600	277

Note: other coil voltages available upon request.

Direct Current

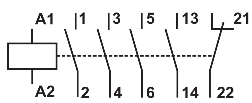
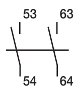
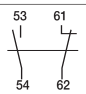
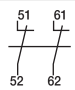
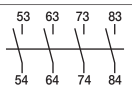
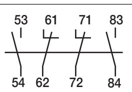
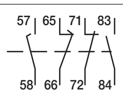
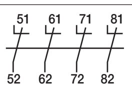
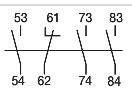
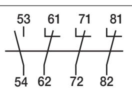
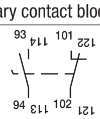
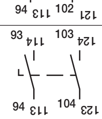
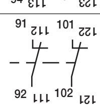
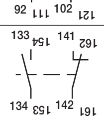
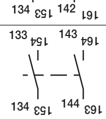
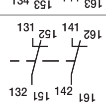
Code	C03	C13
V dc	24	125

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

CWB Series

Technical Data

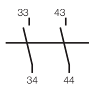
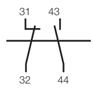
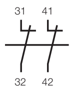
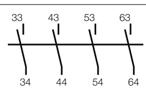
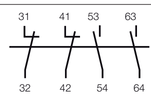
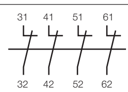
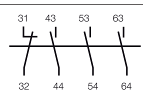
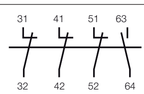
Terminal Markings According to IEC/EN 60947

Diagram	Configuration	Auxiliary contacts NO	Auxiliary contacts NC	Reference code
3-poles contactors with built-in auxiliary contacts				
	11	1	1	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♦
Front mounted auxiliary contact blocks				
	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
Side mounted auxiliary contact blocks				
	11	1	1	BLB11
	20	2	0	BLB20
	02	2	0	BLB02
	11	1	1	BLRB11
	20	2	0	BLRB20
	02	2	0	BLRB02

Data is subject to change without notice.

Technical Data

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-31EN
	13	1	3	BFB-13 EN

CWB Series

Technical Data

General Data

Reference code			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	(V)	690 V					1,000 V				
	UL, CSA	(V)	600 V									
Rated impulse-withstand voltage U_{imp}	IEC/EN 60947-1	(kV)	6 kV									
Frequency limits		(Hz)	25...400									
Mechanical lifespan	AC coil (million cycles)		10					6				
	DC coil (million cycles)		10					6				
Electrical lifespan	I_e 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 ºC...+55 ºC									
	Storage		-55 ºC...+80 ºC									
Maximum operation altitude without modification in the rated values[1]			3,000 m									

Control Circuit - Alternating Current (AC)

Reference code			CWB9...38		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 φ)	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	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 operationg 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 x I_e and 0.80 x U_i) and of 4,000...5,000 m (0.80 x I_e and 0.75 x 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 ≤440 V)	(A)	9	12	18	25	32	38	40	50	65	80
	AC-4 (U_e ≤440 V)	(A)	4.4	5.8	8.5	10.4	13.7	13.7	18.5	18.5	26	32
	AC-1 (θ ≤55 ºC, Ue ≤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_{th} (θ ≤55 ºC)		(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 ≤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 re-covery time of 15min and θ ≤40 ºC)	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 Fuse (gL/gG)	@600 V - UL/CSA	(kA)	5									
	Coordination type 1	(A)	25	40	50	63	63	63	80	100	125	160
	Coordination type 2	(A)	20	20	25	35	50	50	63	80	100	125
Impedance per pole		(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
Utilization category AC-3												
Rated operational current I_e (θ ≤55 ºC)	U_e ≤440 V	(A)	9	12	18	25	32	38	40	50	65	80
	U_e ≤500 V	(A)	9	12	15.8	23	28.5	28.5	35	45	55	75
	U_e ≤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
Utilization category AC-4												
Rated operational current I_e	(U_e ≤440 V)	(A)	4.4	5.8	8.5	10.4	13.7	13.7	18.5	18.5	26	32
	(U_e ≤500 V)	(A)	3.9	5.1	7.5	12	13.9	13.9	17.5	23.5	28.5	33
	(U_e ≤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

Contactors

CWB Series

Technical Data

Main Contacts

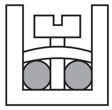
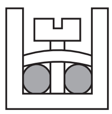
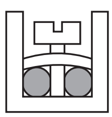
Reference code			CWB9	CWB12	CWB18	CWB25	CWB32	CWB38	CWB40	CWB50	CWB65	CWB80
			Utilization category AC-1									
			3P (NO)									
Conventional thermal current Ith (θ ≤55 ºC)		(A)	25	25	32	40	50	50	60	90	110	110
Maximum orientative operational current according to the ambient temperature	θ ≤60 ºC (Ue ≤690 V)	(A)	25	25	32	40	50	50	60	90	110	110
Max. operational power θ ≤55 ºC (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_e x 1.7									
	3 poles in parallel		I_e 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 (built-in)	BFB (front mounted)	BLB (side mounted)
Compliance with the standards			IEC/EN 60947-5-1		
Rated insulation voltage U_i (pollution degree 3)	IEC/EN 60947-4-1, VDE 0660	(V)	690		
	UL, CSA	(V)	600		
Rated operational voltage U_e	IEC/EN 60947-4-1, VDE 0660	(V)	690		
	UL, CSA	(V)	600		
Conventional thermal current I_{th} (θ ≤55 ºC)		(A)	10		
Rated operational current I_e					
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_e ≤690 V 50/60 Hz - AC-15	(A)	10 x I_e		
Breaking capacity	U_e ≤400 V 50/60 Hz - AC-15	(A)	1 x I_e		
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		
Power circuit					
Model			**CWB9...18**	**CWB25...38**	**CWB40...80**
Mounting system screw type			Phillips number 2	Phillips number 2	ALLEN 4 mm
Flexible conductor without terminal	AWG		1 x 16-10 2 x 16-10	1 x 16-10 2 x 16-10	1 x 14-3 2 x 14-3
Flexible conductor with terminal	AWG		1 x 16-10 2 x 16-12	1 x 16-8 2 x 16-10	1 x 14-3 2 x 14-3
Solid wire	AWG		1 x 16-10 2 x 16-10	1 x 14-18 2 x 14-18	1 x 14-3 2 x 14-3
Tightening torque	(Nm)		1.7	2.5	5.0
Control and auxiliary circuit					
Models			**CWB9...38**		**CWB40...80**
Mounting system screw type			Phillips number 2		Phillips number 2
Flexible conductor without terminal	AWG		1 x 16-12 2 x 16-12		1 x 16-12 2 x 16-12
Flexible conductor with terminal	AWG		1 x 16-12 2 x 16-14		1 x 16-12 2 x 16-14
Solid wire	AWG		1 x 16-12 2 x 16-12		1 x 16-12 2 x 16-12
Tightening torque	(Nm)		1.0		1.0
Auxiliary contact blocks					
Models			**BFB (front)**	**BLB (side)**	
Mounting system screw type			Phillips number 2		
Conductor cross-section					
Flexible conductor without terminal	AWG		1 x 16-14 2 x 16-14		
Flexible conductor with terminal	AWG		1 x 16-14 2 x 16-14		
Solid wire	AWG		1 x 16-14 2 x 16-14		
Tightening torque	(Nm)		1.0		

CWBN
Technical Data

Reference code			CWBN00	CWBN0	CWBN1	CWBN2
Compliance with the standards			IEC/EN 60947-1, IEC/EN 60947-4-1, IEC/EN 60947-5-1, UL 508			
Rated insulation voltage Ui (pollution degree 3)	IEC/EN 60947-4-1	(V)	690 V			1,000 V
	UL, CSA	(V)	600 V			
Rated impulse-withstand voltage Uimp	IEC/EN 60947-1	(kV)	6 kV			
Frequency limits		(Hz)	25...400			
Mechanical lifespan	AC coil	(million cycles)	10			6
	DC coil	(million cycles)	10			6
Electrical lifespan	Ie AC-3	(million cycles)	2.0	1.8	1.6	1.6
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 ºC...+55 ºC			
	Storage		-55 ºC...+80 ºC			
Maximum operation altitude without modification in the rated values1)			3,000 m			

Control Circuit - Alternating Current (AC)

Reference code			CWBN00...1		CWBN2	
Rated insulation voltage Ui (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 ϕ)	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			CWBN00...1	CWBN2
Rated insulation voltage Ui (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 operationg 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 x Ie and 0.80 x Ui) and of 4,000...5,000 m (0.80 x Ie and 0.75 x Ui).

Technical Data
Main Contacts

Reference code			CWBN00	CWBN0	CWBN1	CWBN2
Rated operational current Ie	AC-3 (Ue ≤440 V)	(A)	9	18	25	50
	AC-4 (Ue ≤440 V)	(A)	4.4	8.5	10.4	18.5
	AC-1 (0 ≤55 ºC, Ue ≤690 V)	(A)	25	32	40	90
Rated operational voltage Ue	IEC/EN 60947-4-1	(V)	690 V			1,000 V
	UL, CSA	(V)	600 V			
Conventional thermal current Ith (0≤55 ºC)		(A)	25	32	40	90
Making capacity - IEC/EN 60947		(A)	250	300	450	1,000
Breaking capacity IEC/EN 60947	(Ue ≤400 V)	(A)	250	300	450	1,000
	(Ue = 500 V)	(A)	220	250	350	880
	(Ue = 690 V)	(A)	150	180	250	640
Acceptable short-time current (no current flowing during recovery time of 15min and 0 ≤40 ºC)	1s	(A)	210	240	380	820
	10s	(A)	105	145	240	400
	1min	(A)	60	80	120	230
	10min	(A)	30	40	50	110
Short circuit protection of the main contacts Fuse (gL/gG)	@600 V - UL/CSA	(kA)	5			
	Coordination type 1	(A)	25	50	63	100
	Coordination type 2	(A)	20	25	35	80
Impedance per pole		(m)	2.5	2.5	2	1.6
Average power dissipation per pole	AC-1	(W)	1.5	2.5	3.2	13
	AC-3	(W)	0.2	0.8	1.2	4
Utilization category AC-3						
Rated operational current Ie (0 ≤55 ºC)	Ue ≤440 V	(A)	9	18	25	50
	Ue ≤500 V	(A)	9	15.8	23	45
	Ue ≤690 V	(A)	7	12.8	16.5	35
Orientative rated operational power Three-phase induction motors (50/60 Hz) IV poles - 1,800 rpm	220/240 V	(kW)	2.2	4.5	6.5	15
		(cv)	3	6	8.7	20
	380/400 V	(kW)	4	7.5	12.5	22
		(cv)	5.5	10	16.8	29
	415/440 V	(kW)	4.5	9.2	12.5	30
		(cv)	6	12.5	16.8	40
	500 V	(kW)	5.5	10	15	30
		(cv)	7.5	13.4	20	40
	660/690 V	(kW)	5.5	11	15	33
		(cv)	7.5	15	20	44
Maximum percentage	600 ops./h	(%)	100	100	100	100
Utilization category AC-4						
Rated operational current Ie	(Ue ≤440 V)	(A)	4.4	8.5	10.4	18.5
	(Ue ≤500 V)	(A)	3.9	7.5	12	23.5
	(Ue ≤690 V)	(A)	2.8	5.4	12	18
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	2.2	3	5.5
		(cv)	2.0	2.9	4.0	7.4
	380/400 V	(kW)	2.2	4	5.5	11
		(cv)	2.9	5.4	7.4	14.7
	415/440 V	(kW)	2.2	3.7	5.5	11
		(cv)	2.9	5.0	7.4	14.7
	500 V	(kW)	2.2	5	7.5	15
		(cv)	2.9	6.7	10.1	20.1
	660/690 V	(kW)	2.2	5	10	15
		(cv)	2.9	6.7	13.4	20.1

Contactors

CWBN

Technical Data

Main Contacts

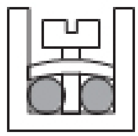
Reference code			CWBN00	CWBN0	CWBN1	CWBN2
			Utilization category AC-1			
			3P (NO)			
Conventional thermal current Ith (0 ≤55 °C)		(A)	25	32	40	90
Maximum orientative operational current according to the ambient temperature	0≤60 °C (Ue ≤690 V)	(A)	25	32	40	90
Max. operational power 0 ≤55 °C (three-phase resistors)	220/230 V	(kW)	9.5	12	15	34
	380/400 V	(kW)	16.5	21	26	59
	415/440 V	(kW)	19	24.5	30.5	68.5
	500 V	(kW)	21.5	27.5	34.5	77
	660/690 V	(kW)	28.5	36.5	45.5	100
Current values for connection	2 poles in parallel		Ie x 1.7			
	3 poles in parallel		Ie x 2.4			
	4 poles in parallel		-			
Percentage of maximum current	600 ops./h operational	(%)	100	100	100	100

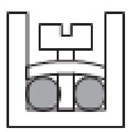
Auxiliary Contacts

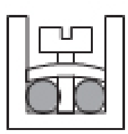
Reference code			CWBN00 (built-in)	BFB (front mounted)	BLB (side mounted)
Compliance with the standards			IEC/EN 60947-5-1		
Rated insulation voltage Ui (pollution degree 3)	IEC/EN 60947-4-1, VDE 0660	(V)	690		
	UL, CSA	(V)	600		
Rated operational voltage Ue	IEC/EN 60947-4-1, VDE 0660	(V)	690		
	UL, CSA	(V)	600		
Conventional thermal current Ith (0≤55 °C)		(A)	10		
Rated operational current Ie					
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	Ue ≤690 V 50/60 Hz - AC-15	(A)	10 x Ie		
Breaking capacity	Ue ≤400 V 50/60 Hz - AC-15	(A)	1 x Ie		
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		
Power circuit				
Model		**CWBN00/CWBN0**	**CWBN1**	**CWBN2**
Mounting system screw type		Phillips number 2	Phillips number 2	ALLEN 4 mm
Flexible conductor without terminal		1 x 1...6 mm2 / 16...10 AWG 2 x 1...6 mm2 / 16...10 AWG	1 x 2.5...10 mm2 / 14...8 AWG 2 x 2.5...10 mm2 / 14...8 AWG	1 x 2.5...35 mm2 / 14...2 AWG 2 x 2.5...35 mm2 / 14...2 AWG
Flexible conductor with terminal		1 x 1...6 mm2 / 16...10 AWG 2 x 1...4 mm2 / 16...12 AWG	1 x 1.5...10 mm2 / 16...8 AWG 2 x 1.5...6 mm2 / 16...10 AWG	1 x 2.5...35 mm2 / 14...2 AWG 2 x 2.5...35 mm2 / 14...2 AWG
Solid wire		1 x 1...6 mm2 / 16...10 AWG 2 x 1...6 mm2 / 16...10 AWG	1 x 2.5...10 mm2 / 14...8 AWG 2 x 2.5...10 mm2 / 14...8 AWG	1 x 2.5...35 mm2 / 14...2 AWG 2 x 2.5...35 mm2 / 14...2 AWG
Tightening torque		1.7 Nm / 15 lb.in	2.5 Nm / 22 lb.in	5.0 Nm / 60 lb.in

Control and auxiliary circuit			
Models		**CWBN00..1**	**CWBN2**
Mounting system screw typr		Phillips number 2	Phillips number 2
Flexible conductor without terminal		1 x 1...4 mm2 / 16....12 AWG 2 x 1...4 mm2 / 16....12 AWG	1 x 1...4 mm2 / 16...12 AWG 2 x 1...4 mm2 / 16...12 AWG
Flexible conductor with terminal		1 x 1...4 mm2 / 16....12 AWG 2 x 1...2.5 mm2 / 16....14 AWG	1 x 1...4 mm2 / 16...12 AWG 2 x 1...2.5 mm2 / 16...14 AWG
Solid wire		1 x 1...4 mm2 / 16...12 AWG 2 x 1...4 mm2 / 16...12 AWG	1 x 1...4 mm2 / 16...12 AWG 2 x 1...4 mm2 / 16...12 AWG
Tightening torque		1.0 Nm / 8.8 lb.in	1.0 Nm / 8.8 lb.in

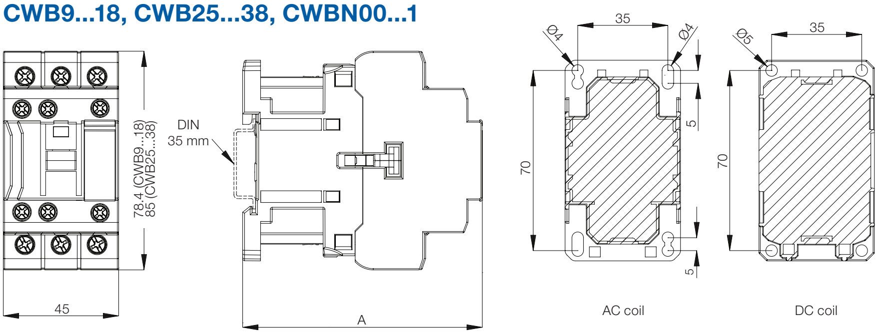
Auxiliary contact blocks			
Models		**BFB (front)**	**BLB (side)**
Mounting system screw type		Phillips number 2	
		Conductor cross-section	
Flexible conductor without terminal		1 x 1...2.5 mm2 / 16...14 AWG 2 x 1...2.5 mm2 / 16...14 AWG	1 x 1...2.5 mm2 / 16...14 AWG 2 x 1...2.5 mm2 / 16...14 AWG
Flexible conductor with terminal		1 x 1...2.5 mm2 / 16...14 AWG 2 x 1...2.5 mm2 / 16...14 AWG	1 x 1...2.5 mm2 / 16...14 AWG 2 x 1...2.5 mm2 / 16...14 AWG
Solid wire		1 x 1...2.5 mm2 / 16...14 AWG 2 x 1...2.5 mm2 / 16...14 AWG	1 x 1...2.5 mm2 / 16...14 AWG 2 x 1...2.5 mm2 / 1...1.5/16 AWG
Tightening torque		1.0 Nm / 8.8 lb.in	

Contactors

CWB Series

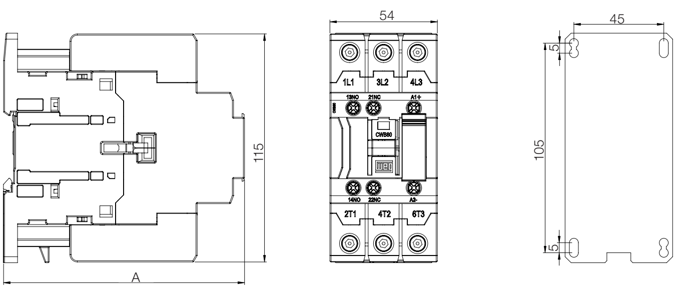
Dimensions (mm)

CWB9...18, CWB25...38, CWBN00...1



Models	A	
	AC coil	DC coil
CWB9...18 CWBN00...0	89.5	98.5
CWB25...38 CWBN1	93	102.2

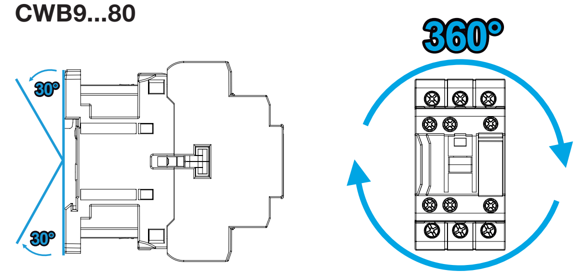
CWB40...80, CWBN2



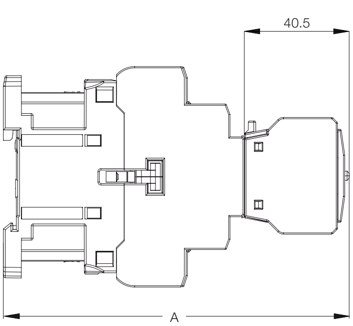
Models	A	
	AC coil	DC coil
CWB40...80 CWBN2	120.6	120.6

Mounting Position

CWB9...80

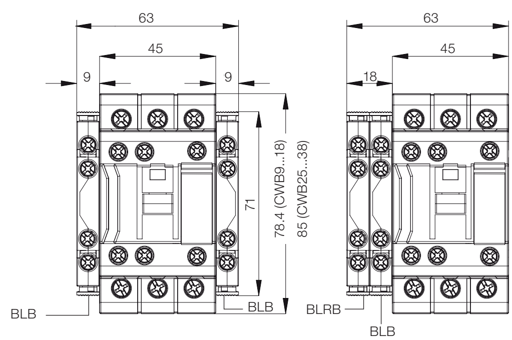


CWB9...18, CWB25...38, CWB40...80 + BFB
(Front Mounted Auxiliary Contact Block)

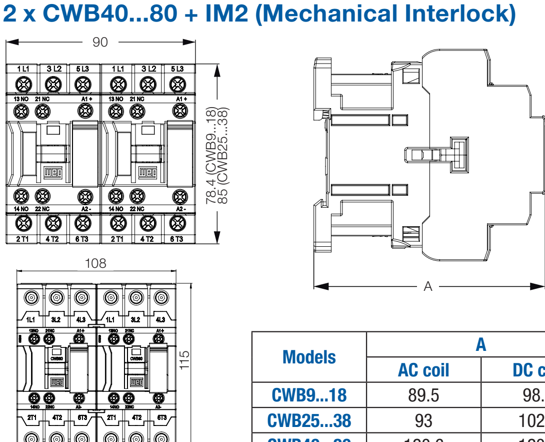


Models	A	
	AC coil	DC coil
CWB9...18	130	136.2
CWB25...38	133.4	142.6
CWB40...80	161.1	161.1

CWB9...18, CWB25...38 + BLB
(Side Mounted Auxiliary Contact Block)

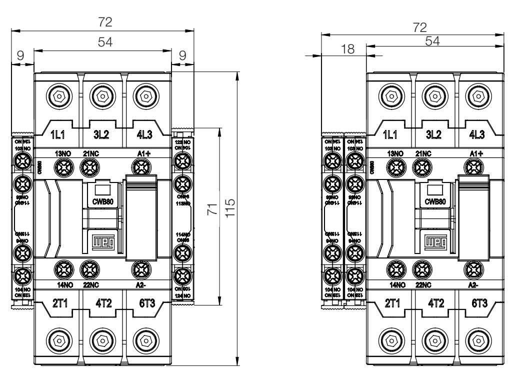


2 x CWB9...38 + IM1 (Mechanical Interlock)
2 x CWB40...80 + IM2 (Mechanical Interlock)



Models	A	
	AC coil	DC coil
CWB9...18	89.5	98.5
CWB25...38	93	102.2
CWB40...80	120.6	120.6

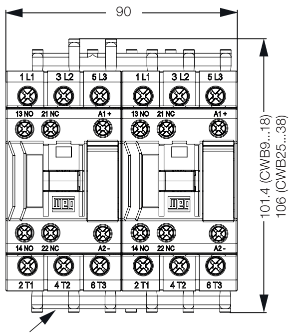
CWB40...80 + BLB
(Side-Mounted Contact Block)



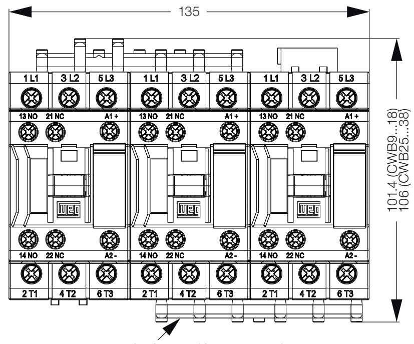
Data is subject to change without notice.

Dimensions (mm)

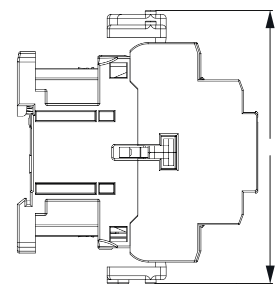
CWB9...38 + Easy Connection Busbars



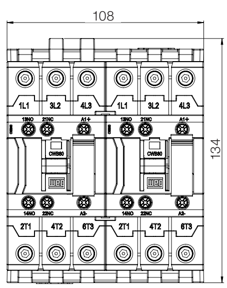
EC-R-1 (Reversing)



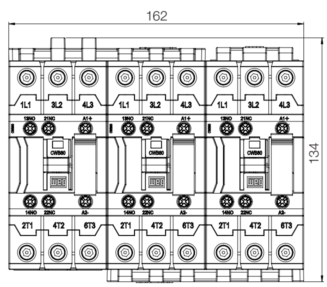
EC-SD-1 (Star-delta)



CWB40...80 + Easy Connection Busbars

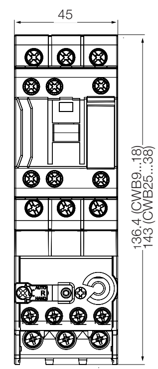


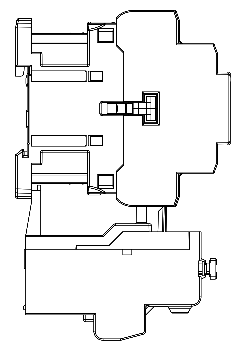
EC-R-2 (Reversing)



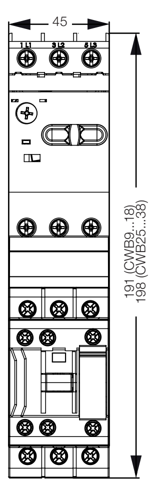
EC-SD-2 (Star-delta)

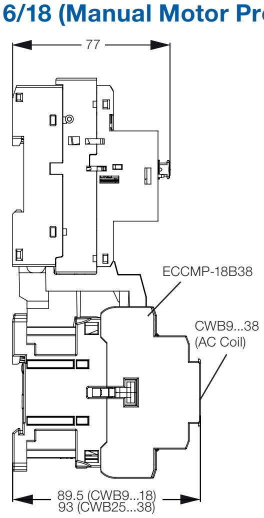
CWB9...38 + RW27-2D (Overload Relay)



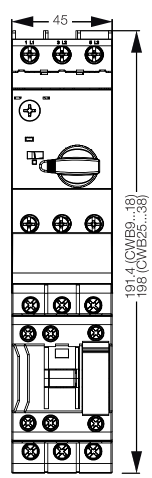


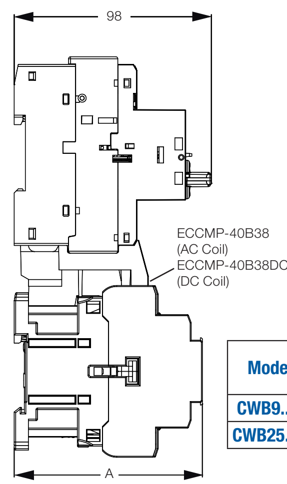
CWB9...38 + MPW16/18 (Manual Motor Protector)





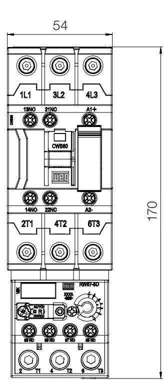
CWB9...38 + MPW25/40 (Manual Motor Protector)

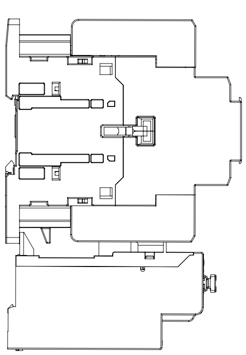




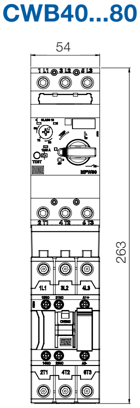
Models	A	
	AC coil	DC coil
CWB9...18	89.5	98.5
CWB25...38	93	102.2

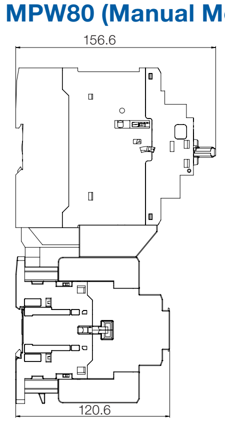
CWB40 + RW67-5D (Overload Relay)





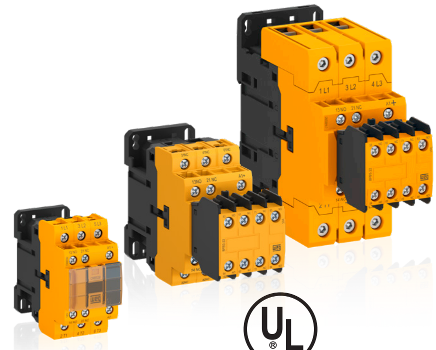
CWB40...80 + MPW80 (Manual Motor Protector)





CWBS Safety Contactors

CWBS line of contactors for safety applications (from 9 A to 80 A in AC-3) was developed in compliance with IEC and UL standards, featuring mechanically linked contacts (IEC/EN 60947-5-1) and mirror contacts (IEC/EN 60947-4-1), which provide proper operation of safety circuits of machines and equipment that must operate in compliance with international safety standards.



E202315

Standard Features:

- Mechanically linked Contact and Mirror Contacts
- Easy Access Power and Control Terminals
- Protection against inadvertent operation
- High Visibility Color (Safety Yellow)
- Surface or Din Rail Mount

CWBS Contactor Catalog Number Sequence

CWBS	12	-	33	-	30	D15

Contactor Series
- CWBS Safety Contactor

Current Rating
- 9: 9 Amps
- 12: 12 Amps
- 18: 18 Amps
- 25: 25 Amps
- 32: 32 Amps
- 38: 38 Amps
- 40: 40 Amps
- 50: 50 Amps
- 65: 65 Amps
- 80: 80 Amps

Auxiliary Contacts NO/NO
- 33: 3no 3nc

Power Poles
- 30: 3 NO Power Poles

Voltage Code
- AC Voltage:
  - D02: 24V 50/60Hz
  - D15: 120V 50/60Hz
- DC Voltage:
  - C03: 24VDC

Power Contactors for Safety Applications

Three-Pole from 9 A to 80 A (AC-3)

Selection Table

Three-Pole CWBS Contactors from 9 A to 80 A (AC-3)

Ie máx. (Ue ≤440 V)	Maximum UL Horsepower						Built-in auxiliary contacts per contactor		Catalog Number	List Price AC Coil	List Price DC Coil	Multiplier
AC-3 A	Single Phase		Three Phase				3 / 4	1 / 2				
	115V	230V	200V	230V	480V	575V	NO	NC				
9	3/4	1.5	3	3	5	7 1/2	3	3	CWBS9-33-30*	$205	$232	Z1
12	3/4	2	3	3	7 1/2	10	3	3	CWBS12-33-30*	$227	$259	
18	1	3	5	5	10	15	3	3	CWBS18-33-30*	$259	$296	
25	2	5	7 1/2	7 1/2	15	15	3	3	CWBS25-33-30*	$290	$329	
32	3	5	10	10	20	25	3	3	CWBS32-33-30*	$338	$387	
38	3	7.5	10	10	25	25	3	3	CWBS38-33-30*	$378	$434	
40	3	7 1/2	10	15	30	30	3	3	CWBS40-33-30*	$425	$506	
50	3	10	15	15	40	40	3	3	CWBS50-33-30*	$478	$550	
65	5	10	20	20	50	50	3	3	CWBS65-33-30*	$577	$641	
80	7 1/2	15	20	25	50	60	3	3	CWBS80-33-30*	$652	$713	

Replace "*" by the appropriate coil voltage code.

Alternating Current

Code	D02	D15
V (50/60 Hz)	24	120

Direct Current

Code	C03
V dc	24

Notes:
1) Other voltages on request

General Information
Circuit Protection
Disconnect Switches
Motor Protectors
Contactors
Overloads
Enclosed Starters
Relays
Pushbuttons and Pilot Lights
Terminal Blocks
Power Factor Correction
Appendix A
Appendix B

CWBS

Technical Data

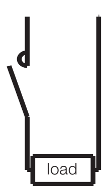
Use of Contactors in Direct Current Circuits[1]

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

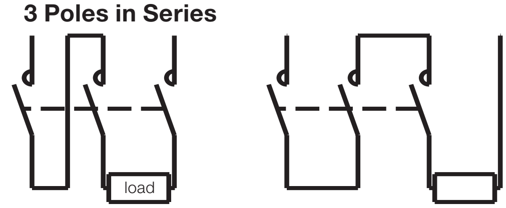
Models		CWBS9	CWBS12	CWBS18	CWBS25	CWBS32	CWBS38	CWBS40	CWBS50	CWBS65	CWBS80
U_e	Poles in series	Rated operational current I_e (A)									
≤24 V	1	12	12	12	18	25	32	36	45	55	55
	2	18	18	18	25	40	40	36	45	55	55
	3	18	18	18	25	40	40	36	45	55	55
≤48 V	1	9	9	9	12	18	20	36	45	55	55
	2	18	18	18	25	40	40	36	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	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

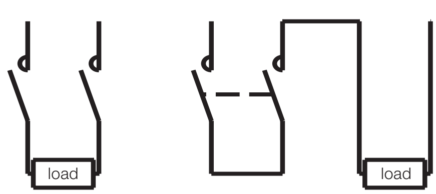
1 Pole in Series



3 Poles in Series

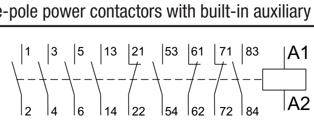


2 Poles in Series



Notes: 1) Service 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).

Contact Numbering According to IEC/EN 60947

Diagram	Configuration	Auxiliary contacts		Reference
		NO	NC	
Three-pole power contactors with built-in auxiliary contact				CWBS9...80 A
	33	3	3	CWBSxx.33.30

Basic Data

Models			CAWBS	CWBS9	CWBS12	CWBS18	CWBS25	CWBS32	CWBS38	CWBS40	CWBS50	CWBS65	CWBS80
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	(V)	690 V							1,000 V			
	UL, CSA	(V)	600 V										
Rated impulse withstand voltage U_{imp}	IEC/EN 60947-1	(kV)	6 kV										
Frequency limits		(Hz)	25...400										
Mechanical life	AC coil	(millions of operations)	10							6			
	DC coil	(millions of operations)	10							6			
Electrical life	I_e AC-3	(millions of operations)	-	2.0	2.0	1.8	1.6	1.6	1.2	1.6	1.6	1.6	1.2
Degree of protection (IEC 60529)	Main terminals		IP10 (front)										
	Coil and auxiliary contacts		IP20 (front)										
Mounting			Screws or DIN rail 35 mm (EN 50022)										
Coil connection points	Contactors with AC coil		2										
	Contactors with DC coil		2										
Resistance to vibrations (IEC 60068-2-6)	Open contactor	(g)	4										
	Closed contactor	(g)	4										
Resistance to mechanical shocks (½ sine wave = 11ms - IEC 60068-2-27)	Open contactor	(g)	10										
	Closed contactor	(g)	15										
Ambient temperature	Operation		-25 ºC...+55 ºC										
	Storage		-55 ºC...+80 ºC										
Maximum operation altitude without modification in the rated values[1]			3,000 m										

Control Circuit - Alternating Current (AC)

Models			CWBS9...38, CAWBS	CWBS40...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 operation 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 coil consumption 50/60 Hz	Closed magnetic circuit	(VA)	7.5	17.5
	Power factor switched on	(cos φ)	0.27	0.28
	Thermal power dissipation	(W)	1.5...2.5	4...5.5
	Closing of the magnetic circuit	(VA)	75	185
	Power factor switching on	(cos φ)	0.7	0.55
Average commute time	Closing of the NO contacts	(ms)	15...25	10...15
	Opening of the NO contacts	(ms)	8...12	8...12

Control Circuit - Direct Current (DC)

Models			CWBS9...38	CWBS40...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 operation 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 DC coil consumption	Closed magnetic circuit	(W)	5.8	10.6
	Closing of the magnetic circuit	(W)	5.8	105.5
Average commute time	Closing of the NO contacts	(ms)	35...45	20...30
	Opening of the NO contacts	(ms)	8...12	4...8

Note: 1) For altitudes of 3,000...4,000 m ($0.90xI_e$ and $0.80xU_i$) and of 4,000...5,000 m ($0.80xI_e$ and $0.75xU_i$).

CWBS

Technical Data

Main Contacts

Models			CWBS9	CWBS12	CWBS18	CWBS25	CWBS32	CWBS38	CWBS40	CWBS50	CWBS65	CWBS80
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 ($\theta \leq 55$ ºC, $U_e \leq 690$ V)	(A)	25	25	32	40	50	50	60	90	110	110
Rated operational voltage U_e	IEC/EN 60947-4-1	(V)	690						1,000 V			
	UL, CSA	(V)	600									
Conventional thermal current I_{th}	($\theta \leq 55$ ºC)	(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 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 $\theta \leq 40$ ºC)	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)	61	61	84	120	138	150	165	230	340	360
	10min	(A)	30	30	40	50	60	60	85	110	130	130
Short circuit protection of the main contacts Fuse (gL/gG)	@600 V - UL/CSA	(kA)	5									
	Coordination type 1	(A)	25	40	50	63	63	63	80	100	125	160
	Coordination type 2	(A)	20	25	35	40	63	63	63	80	100	125
Average impedance per pole		(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
Reliability[1]	(V/mA)		50/100									
Utilization category AC-3												
Rated operational current I_e ($\theta \leq 55$ ºC)	$U_e \leq 440$ 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	220/230 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
Utilization category AC-4												
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.

Main Contacts

Models			CWBS9	CWBS12	CWBS18	CWBS25	CWBS32	CWBS38	CWBS40	CWBS50	CWBS65	CWBS80
			Utilization category AC-1									
			3P (NO)									
Conventional thermal current I_{th} ($\theta \leq 55$ °C)		(A)	25	25	32	40	50	50	60	90	110	110
Maximum orientative operational current according to the ambient temperature	$\theta \leq 60$ °C ($U_e \leq 690$ V)	(A)	25	25	32	40	50	50	60	90	110	110
Maximum operational power $\theta \leq 55$ °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
Actual values for connections	2 poles in parallel		I_e x 1.7									
	3 poles in parallel		I_e x 2.4									
Percentage of maximum operational current	600 ops./h	(%)	100	100	100	100	100	100	100	100	100	100

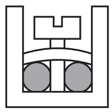
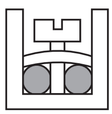
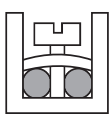
Auxiliary Contacts

Models			CWBS9...80 (built-in)	BFBS (Front mounted blocks)
Compliance with the standards			IEC 60947-5-1	
Rated insulation voltage U_i (pollution degree 3)	IEC/EN 60947-4-1, VDE 0660	(V)	690	
	UL, CSA	(V)	600	
Rated operational voltage U_e	IEC/EN 60947-4-1, VDE 0660	(V)	690	
	UL, CSA	(V)	600	
Conventional thermal current I_{th} ($\theta \leq 55$ °C)		(A)	10	
Rated operational current I_e				
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	$U_e \leq 690$ V 50/60 Hz - AC-15	(A)	10 x I_e	
Breaking capacity	$U_e \leq 400$ V 50/60 Hz - AC-15	(A)	1 x I_e	
Short circuit protection with fuse (gL/gG)		(A)	10	
Control circuit reliability		(V / mA)	17 / 5	
Electrical life		(millions of operations)	1	
Mechanical life		(millions of operations)	10	
Non-overlapping time between NO and NC contacts		(ms)	1.5	
Impedance of the contacts		(mΩ)	2.5	

CWBS

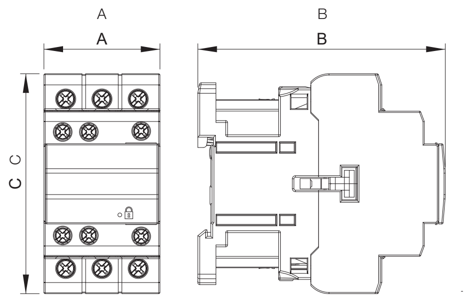
Technical Data

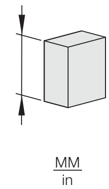
Terminal Capacity and Tightening Torque

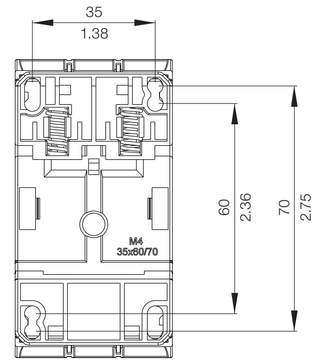
			Conductor cross-section		
Power circuit					
Model			**CWBS9...18**	**CWBS25...38**	**CWBS40...80**
Mounting system screw type			Phillips number 2	Phillips number 2	ALLEN 4 mm
Flexible conductor without terminal	AWG		1 x 16-10 2 x 16-10	1 x 16-10 2 x 16-10	1 x 14-3 2 x 14-3
Flexible conductor with terminal	AWG		1 x 16-10 2 x 16-12	1 x 16-8 2 x 16-10	1 x 14-3 2 x 14-3
Solid wire	AWG		1 x 16-10 2 x 16-10	1 x 14-18 2 x 14-18	1 x 14-3 2 x 14-3
Tightening torque	(Nm)		1.7	2.5	5.0
Control and auxiliary circuit					
Models			**CWBS9...38**		**CWBS40...80**
Mounting system screw type			Phillips number 2		Phillips number 2
Flexible conductor without terminal	AWG		1 x 16-12 2 x 16-12		1 x 16-12 2 x 16-12
Flexible conductor with terminal	AWG		1 x 16-12 2 x 16-14		1 x 16-12 2 x 16-14
Solid wire	AWG		1 x 16-12 2 x 16-12		1 x 16-12 2 x 16-12
Tightening torque	(Nm)		1.0		1.0
Auxiliary contact blocks					
Models			**BFB (front)**		**BLB (side)**
Mounting system screw type			Phillips number 2		
Conductor cross-section					
Flexible conductor without terminal	AWG		1 x 16-14 2 x 16-14		
Flexible conductor with terminal	AWG		1 x 16-14 2 x 16-14		
Solid wire	AWG		1 x 16-14 2 x 16-14		
Tightening torque	(Nm)		1.0		

Dimensions (mm)

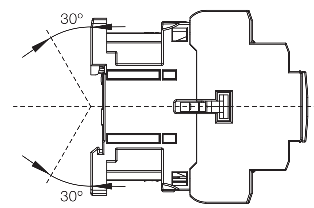
CWBS9...38 Safety Contactors

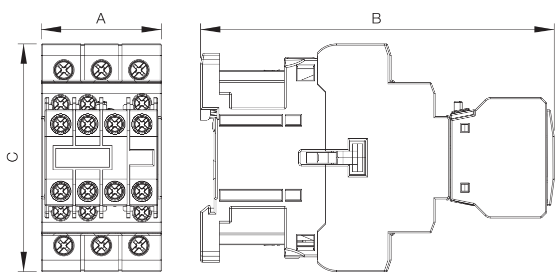




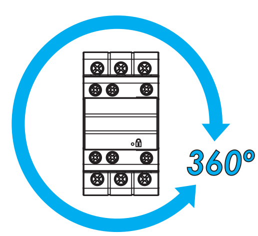


mm in	CWBS9-18 AC	CWBS9-18 DC	CWBS25-38 AC + cover	CWBS25-38 DC + cover
	AC (~)	DC (⎓)	AC (~)	DC (⎓)
A	45 1.772			
B	89.5 3,524	98.3 3,870	95.6 3,764	104.8 4,126
C	78.4 3,087		85 3,346	





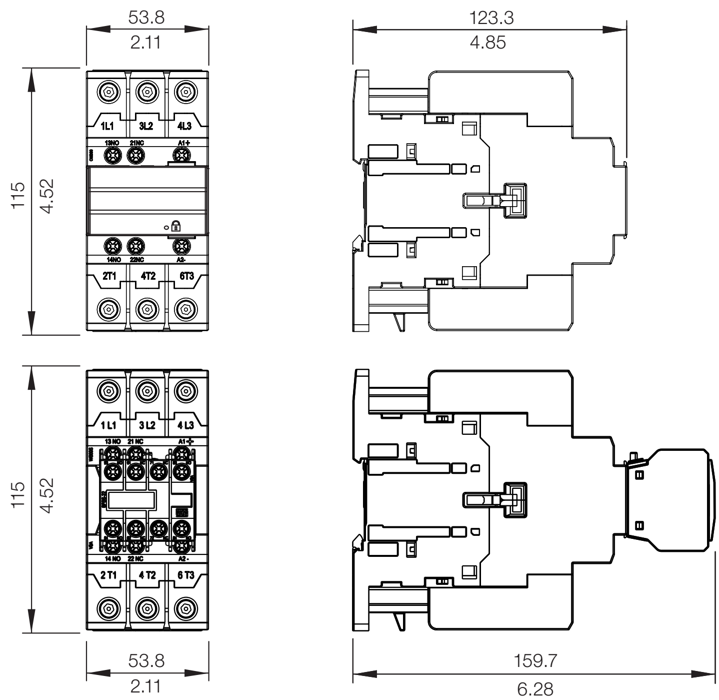
mm in	(CWBS9-18 AC) + BFBS	(CWBS9-18 DC) + BFBS	CWBS25-38 AC + BFBS	CWBS25-38 DC + BFBS
	AC (~)	DC (⎓)	AC (~)	DC (⎓)
A	45 1,772			
B	125.8 4,953	134.6 5,299	131.9 5,193	141.1 5,555
C	78.4 3,087		85 3,346	

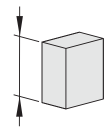


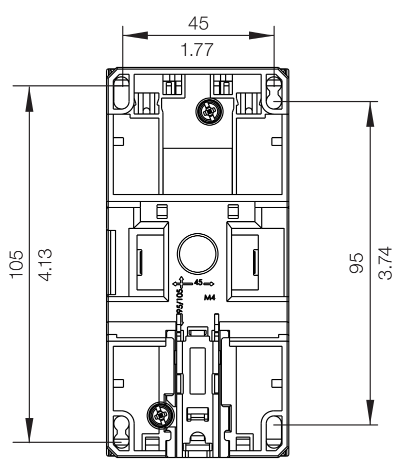
CWBS

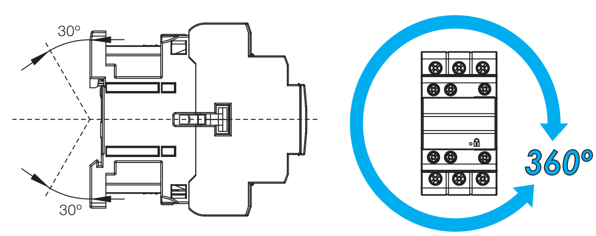
Dimensions (mm)

CWBS40...80 Safety Contactors









CWM Series

The CWM Series IEC Contactor was designed as a general purpose contactor taking into consideration the heavy demands and need for high reliability in modern industry. They are rated for inductive loads up to 800 AMPS @ 460V. CWM Contactors are compact in frame size allowing for optimization of valuable internal space within electrical enclosures. Reducing inventory is a “Snap” away with the CWM Series' common accessories.

Standard Features

- Panel mountable or 35mm DIN Rail up to the CWM105 Series
- Front and Side Mounting Auxiliary Contacts
- Finger-Touch IP20 Protection
- Wide Coil Voltage Protection AC or DC
- Mirror Contacts for “Safety-Related” Applications
- Mechanically linked Auxiliary Contacts

UL File No. E202315

CWM Catalog Number Sequence

CWM	18	-	10	-	30	V18

Standard Contactor Series

CWM: Standard IEC Contactors
CWM_N: Standard NEMA Contactor

Frame Rating

CWM (IEC)

9: 9 Amps	105: 105 Amps
12: 12 Amps	112: 112 Amps
18: 18 Amps	150: 150 Amps
25: 25 Amps	180:180 Amps
32: 32 Amps	250: 250 Amps
40: 40 Amps	300: 300 Amps
50: 50 Amps	400: 400 Amps
65: 65 Amps	500: 500 Amps
80: 80 Amps	630: 630 Amps
95: 95 Amps	800: 800 Amps

CWM_N (NEMA)

9N: 9 Amps	(SIZE 00)
18N: 18 Amps	(SIZE 0)
32N: 32 Amps	(SIZE 1)
50N: 50 Amps	(SIZE 2)
95N: 95 Amps	(SIZE 3)
150N: 150 Amps	(SIZE 4)
300N: 300 Amps	(SIZE 5)

Auxaliary Contacts

00: None
10: 1 NO
01: 1 NC
11: 1 NO + 1 NC
22: 2 NO + 2 NC

Power Pole

30: 3 NO Power Poles
20: 2 NO Power Poles

Coil Voltage

VAC COIL (9 to 105 Amps)
V04: 24Vac 60 Hz
V18: 120Vac 60Hz
V24: 208-240Vac 60Hz
V47: 480Vac 60Hz
V56: 500Vac 60Hz

VDC COIL (32 to 105 Amps)
C34: 24-28Vdc
C40: 110-130Vdc

VAC/VDC COIL (112 to 300 Amps)
E02: 24-28Vac/Vdc
E10: 110-130Vac/Vdc
E13: 208-250Vac/Vdc
E21: 430-500Vac/Vdc

VAC/VDC COIL (400Amps)
E36: 100-240Vac / 100-220VDC

VAC/VDC COIL (500 to 800 Amps)
E35: 100-127VAC / 100-110VDC (CWM500…CWM800)
E39: 200-240VAC / 200-220VDC (CWM500…CWM800)

VAC/VDC COIL (500 to 800 Amps)
D82:440-575V 50/60Hz (CWM400…CWM800)

CWM Series - IEC Standard Contactors

											
Catalog Number		**CWM9**	**CWM12**	**CWM18**	**CWM25**	**CWM32**	**CWM40**	**CWM50**	**CWM65**	**CWM80**	**CWM95**	**CWM105**
Rated operational power Single-phase												
115Vac	Hp	1/2	3/4	1	2	3	3	3	5	7 1/2	7 1/2	10
230Vac	Hp	1 1/2	2	3	5	5	5	7 1/2	10	15	15	20
Three-phase												
230Vac	Hp	3	3	5	7 1/2	10	15	15	20	25	30	40
460Vac	Hp	5	7 1/2	10	15	20	30	40	50	50	60	75
575Vac	Hp	7 1/2	10	15	15	25	25	40	50	60	75	75
General Purpose	A Rating (AC-1)	25	25	32	45	60	60	90	110	110	140	140
Inductive Motor Switching (AC-3)		9	12	18	25	32	40	50	65	80	95	105

Overload relays

RW27-1D

0.28. . .0.4
0.4. . .0.63
0.56. . .0.8
0.8. . .1.2
1.2. . .1.8
1.8. . .2.8
2.8. . .4
4. . .6.3

5.6. . .8
7. . .10
8. . .12.5
10. . .15
11. . .17
15...23
22...32

RW67-1D

25...40
32...50

RW67-2D

40...57
50...63
57...70
63...80

RW117-1D

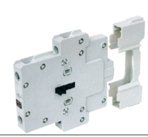
63...80
75...97
90...112

Auxillary contact blocks

BCXMF10 (1NO)
BCXMF01 (1NC)

BCXML 11 (1NO+1NC)
BCXML 20 (2NO)
BCXMRL 11 (1NO+1NC)
BCXMRL 20 (2NO)

Mechanical interlock



BLIM9-105
BLIM.02 9-105 (2NC)

Electronic Relays

Timing Relays - RTW Series
(Please refer to Electronic Relays Section)

Surge Suppressor

RC block:
BAMRC4 D53 24-48 V 50/60Hz
BAMRC5 D55 50-127 V 50/60Hz
BAMRC6 D63 130-250 V 50/60Hz

Varistor block:
BAMV1 D68 270-380 V 50/60Hz
BAMV2 D73 400-510 V 50/60Hz

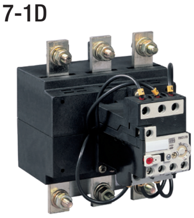
RC block:
BAMRC7 D53 24-48 V 50/60Hz
BAMRC8 D55 50-127 V 50/60Hz
BAMRC9 D63 130-250 V 50/60Hz

Varistor block:
BAMV1 D68 270-380 V 50/60Hz
BAMV2 D73 400-510 V 50/60Hz

Data is subject to change without notice.

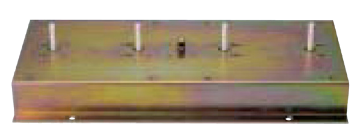
CWM Series - IEC Standard Contactors



Catalog Number	3 Poles	CWM112	CWM150	CWM180	CWM250	CWM300
Rated operational power						
Single-phase						
115Vac	Hp	-	-	-	-	-
230Vac	Hp	-	-	-	-	-
Three-phase						
230Vac	Hp	50	60	75	100	125
460Vac	Hp	100	125	150	200	250
575Vac	Hp	100	150	200	250	350
General Purpose Rating	A	180	225	225	350	410
Inductive/Motor Switching (AC3)		112	150	180	250	300
Overload relays		RW117-2D  75...97 90...112		RW317-1D  100...150 140...215 200...310 275...420		
Auxiliary contact blocks		 BCXML11 (1NO+1NC) BCXML20 (2NO) BCXMRL11 (1NO+1NC) BCXMRL20 (2NO)				
Mechanical interlock		 BLIM112-300				
Surge suppressor		built-in with electronic module				

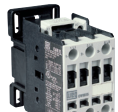
Contactors

CWM Series - IEC Standard Contactors

				
Catalog Number		**CWM400**	**CWM630**	**CWM800**
Rated Optional Power				
Single-phase				
220/230Vac	Hp	-	-	-
380Vac	Hp	-	-	-
Three-phase				
230Vac	Hp	150	250	300
460Vac	Hp	300	500	600
575Vac	Hp	300	500	600
General Purpose Rating	A	450	660	900
Inductive/Motor Switching AC-3		400	630	800
Overload relays	A	RW407-1D		400…600 560…840
Auxiliary contact blocks			BCXML11 CWM800 (1NO+1NC) BCXMRL11 CWM800 (1NO+1NC)	
Mechanical interlock		 BLIM CWM400		BLIM CWM800
Surge supporessor			(Built-in with electronic module)	

CWM Series - IEC Standard Contactors

3 pole contactors with AC coil


Maximum UL Horsepower						Auxiliary Contacts		Current Rating Amps	Catalog Number[1]	List Price	Multiplier
Single Phase		Three Phase									
115V	230V	200V	230V	460V	575V	N.O.	N.C.				
1/2	1 1/2	3	3	5	7 1/2	1	0	9	CWM9-10-30*	$72	Z1
						0	1		CWM9-01-30*		
3/4	2	3	3	7 1/2	10	1	0	12	CWM12-10-30*	$89	
						0	1		CWM12-01-30*		
1	3	5	5	10	15	1	0	18	CWM18-10-30*	$103	
						0	1		CWM18-01-30*		
2	5	7 1/2	7 1/2	15	15	0	0	25	CWM25-00-30*	$118	
3	5	10	10	20	25	0	0	32	CWM32-00-30*	$140	
3	7 1/2	10	15	30	25	0	0	40	CWM40-00-30*	$164	
3	10	15	15	40	40	0	0	50	CWM50-00-30*	$225	
5	10	20	20	50	50	0	0	65	CWM65-00-30*	$255	
7 1/2	15	20	25	50	60	0	0	80	CWM80-00-30*	$270	
7 1/2	15	25	30	60	75	0	0	95	CWM95-00-30*	$365	
10	20	30	40	75	75	0	0	105	CWM105-00-30*	$393	

Note:
1) For other auxiliary contact onfigurations, please refer to page 193.

To complete the selection
- Replace "*" with desired coil voltage from Coil Voltage Code Table

* AC COIL VOLTAGE CODE SELECTION FOR CONTACTORS CWM9...CWM105						
60 Hz	24V	48V	120V	208-240V	480V	600V
CODE	**V04**	**V10**	**V18**	**V24**	**V47**	**V56**
50 Hz	20V	42V	110V	180-208	400-415V	500V

- Other coil voltages available upon request

The Flexible Line from 5 to 75HP

The 5 to 75HP @ 460V range is differentiated by five frame sizes and only 4 varying widths, with the choice of either screw or DIN rail mounting. WEG offers one of the most compact 75HP @ 460V contactors in the market.

Coil Technology

WEG Contactor AC coils have 4 terminals up to 30HP @ 460V, which allows an easy connection no matter the complexity of the application and wiring. From 32A up to 105A the contactors are equipped with an electronic circuit that provides an unmatched space saving solution, making the 50A through 105A contactors depth the same size.

CWM Series - IEC Standard Contactors

3 pole contactors with DC coil





Maximum UL Horsepower						Auxiliary Contacts		Current Rating Amps	Catalog Number	List Price	Multiplier
Single Phase		Three Phase									
115V	230V	200V	230V	460V	575V	N.O.	N.C.				
3	5	10	10	20	25	0	0	32	CWM32-00-30+	$220	
3	7 1/2	10	15	30	25	0	0	40	CWM40-00-30+	$282	
3	10	15	15	40	40	0	0	50	CWM50-00-30+	$310	
5	10	20	20	50	50	0	0	65	CWM65-00-30+	$350	Z1
7 1/2	15	20	25	50	60	0	0	80	CWM80-00-30+	$417	
7 1/2	15	25	30	60	75	0	0	95	CWM95-00-30+	$450	
10	20	30	40	75	75	0	0	105	CWM105-00-30+	$540	

- For other auxiliary contact configurations please refer to page 193.

To complete the selection
- Replace "+" with desired coil voltage from Coil Voltage Code Table

+ DC COIL VOLTAGE CODE SELECTION FOR CONTACTORS CWM32...105		
FOR CONTACTORS CWM32...CWM105		
Voltage	24-28V	110-130V
CODE	C34	C40

CWM Series - IEC Standard Contactors

3 pole contactors with AC/DC electronic module coil





Maximum UL Horsepower						Auxiliary Contacts		Current Rating Amps	Catalog Number	List Price	Multiplier
Single Phase		Three Phase									
115V	230V	200V	230V	460V	575V	N.O.	N.C.				
-	-	40	50	100	100	2	2	112	CWM112-22-30#	$865	Z1
-	-	50	60	125	150	2	2	150	CWM150-22-30#	$960	
-	-	60	75	150	200	2	2	180	CWM180-22-30#	$1,350	
-	-	75	100	200	250	2	2	250	CWM250-22-30#	$1,920	
-	-	100	125	250	300	2	2	300	CWM300-22-30#	$2,150	
-	-	125	150	300	300	2	2	400	CWM400-22-30^	$2,950	
-	-	200	250	500	500	2	2	630	CWM630-22-30^	$4,460	
-	-	200	300	600	600	2	2	800	CWM800-22-30^	$6,530	

- For different auxiliary contact configurations please refer to page 193.

To complete the selection
- Replace "#" or "^"with desired coil voltage from Coil Voltage Code Table

AC/DC COIL VOLTAGE CODE SELECTION FOR CONTACTORS CWM112, 150, 180, 250, 300

Voltage (50/60Hz)	24-28Vac/Vdc	110-130Vac/Vdc	208-250Vac/Vdc	430-500Vac/Vdc
CODE	**E02**	**E10**	**E13**	**E21**
Mounting on	CWM112-CWM300	CWM112-CWM300	CWM112-CWM300	CWM112-CWM300

^ AC/DC COIL VOLTAGE CODE SELECTION FOR CONTACTORS CWM400...800

Voltage	100-240Vac/100-220Vdc	100-127Vac/100-110Vdc	200-240Vac/200-220Vdc	440-575V 50/60 Hz
CODE	**E36**	**E35**	**E39**	**D82**
Mounting on	CWM400	CWM630-CWM800	CWM630-CWM800	CWM400-CWM800

The Tough Line from 100 to 600HP

With reliability as our goal, WEG contactors are modern and very compact, but they are also one of the most rugged line of contactors in the range from 100 to 600HP, assuring an extended life under the most challenging conditions of today's industry.

Accessories

Side mounted auxiliary contact blocks are common for all CWM contactors, from 5 to 250HP @ 460V.

Electronic Module

From 100 to 600HP @ 460V, WEG offers contactors with electronic module for AC/DC Coil Applications. Such coils provide a smoother switching, therefiore enhancing contactor's performance. Built-in surge suppressor is also standard.

Contactors

CWM Series - IEC Standard Contactors

2 pole contactors with AC coil

Maximum UL Horsepower Single Phase		Auxiliary Contacts		Current Rating Amps	Catalog Number	List Price	Multiplier
115V	230V	N.O.	N.C.				
1/2	1 1/2	0	0	9	CWM9-00-20*	$65	Z1
3/4	2	0	0	12	CWM12-00-20*	$68	
1	3	0	0	18	CWM18-00-20*	$73	
2	5	0	0	25	CWM25-00-20*	$99	
3	5	0	0	32	CWM32-00-20*	$126	
3	7 1/2	0	0	40	CWM40-00-20*	$160	
3	10	0	0	50	CWM50-00-20*	$174	
5	10	0	0	65	CWM65-00-20*	$200	
7 1/2	15	0	0	80	CWM80-00-20*	$231	
7 1/2	15	0	0	95	CWM95-00-20*	$300	
10	20	0	0	105	CWM105-00-20*	$321	

- For other auxiliary contact configurations please refer to page 193
To complete the selection
- Replace "" with desired coil voltage from Coil Voltage Code Table*

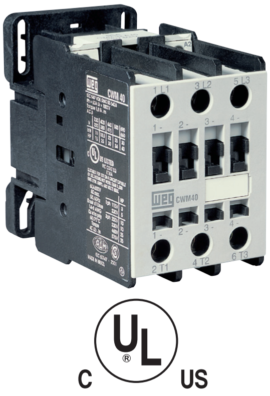
FOR CONTACTORS CWM9...CWM105

* AC COIL VOLTAGE CODE SELECTION			
60 Hz	24V	120V	208-240V
CODE	V04	V18	V24
50 Hz	20	110V	180-208

CWM-N Series - NEMA Rated Standard Contactor

The WEG CWM_N series NEMA rated contactor line has been designed for industrial duty and with reliability in mind. Rated for inductive loads up to 300 Amps or 200 Hp @ 460V, WEG can offer the suitable contactor for your application.

Customers who are used to specifying contactors (and starters), by a particular NEMA Size (size 00, 0, 1, 2, 3, 4, 5), now can use the WEG CWM_N series, NEMA rated contactors. Customers get the ease of choosing the product, the reliability of WEG quality, and still get the sophisticated arc quenching techniques to reduce excess heat on the contacts.



UL File No. E202315

Given their compact footprints, CWM_N contactors allow total panel space optimization, with only a few compact frame sizes from 5 to 200 Hp @ 460 V. Reducing inventory is a “snap” with CWM’s common accessories. For example, side mounted auxiliary contact blocks are the same from 5 to 200 Hp @ 460 V.

Standard Features:

- Ease of choosing product
- Compact footprint
- Arc Quenching technique
- Reduced inventory with common accessories
- Adjustable thermal overload relay for motor protection
- Reliable WEG Quality

NEMA Size	NEMA Continuous Amp rating	WEG Continuous Amp rating	HP @ 230 V	HP @ 460 V
00	9	9	1.5	2
0	18	18	3	5
1	27	32	7.5	10
2	45	50	15	25
3	90	95	30	50
4	135	150	50	100
5	270	300	100	200

CWM-N Series - NEMA Rated Standard Contactor



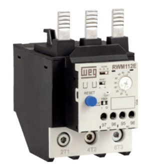

Catalog Number		CWM9N	CWM18N	CWM32N	CWM50N	CWM95N
NEMA Size		00	0	1	2	3
Rated operational power [1]						
Single-phase						
115Vac	Hp	1/3	1	3	3	7 1/2
230Vac	Hp	1	3	5	7 1/2	15
Three-phase						
230Vac	Hp	1 1/2	3	7 1/2	15	30
460Vac	Hp	2	5	10	25	50
575Vac	Hp	2	5	10	25	50
General Purpose	A Rating	25	32	60	90	140

Overload Relays

RWM40E

0.4 . . . 2.0
1.6 . . . 8.0
5 25
8 . . . 40

RWM112E



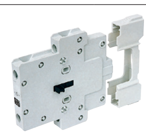
14 . . . 56
28 . . . 112

Auxillary contact blocks

BCXMF10 (1NO)
BCXMF01 (1NC)

BCXML 11 (1NO+1NC)
BCXML 20 (2NO)
BCXMRL 11 (1NO+1NC)
BCXMRL 20 (2NO)

Mechanical interlock



BLIM9-105
BLIM.02 9-105 (2NC)

Electronic Relays

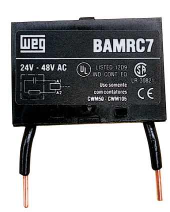
Timing Relays - RTW Series

(Please refer to page 264)

Surge suppressor

RC block:
BAMRC4 D53 24-48 V 50/60Hz
BAMRC5 D55 50-127 V 50/60Hz
BAMRC6 D63 130-250 V 50/60Hz

Varistor block:
BAMV1 D68 270-380 V 50/60Hz
BAMV2 D73 400-510 V 50/60Hz



RC block:
BAMRC7 D53 24-48 V 50/60Hz
BAMRC8 D55 50-127 V 50/60Hz
BAMRC9 D63 130-250 V 50/60Hz

Varistor block:
BAMV1 D68 270-380 V 50/60Hz
BAMV2 D73 400-510 V 50/60Hz

CWM-N Series - NEMA Rated Standard Contactor

			
Catalog Number	**3 Poles**	**CWM150N**	**CWM300N**
NEMA Sizes		4	5
Rated operational power 1)			
Single-phase			
115Vac	Hp	-	-
230Vac	Hp	-	-
Three Phase			
230Vac	Hp	50	100
460Vac	Hp	100	200
575Vac	Hp	100	200
General Purpose Rating	A	225	410
Solid State Overload relays	A	RWM420E  50. . . 250 85 . . . 420	
Auxiliary contact blocks		 BCXML11 (1NO+1NC) BCXML20 (2NO) BCXMRL11 (1NO+1NC) BCXMRL20 (2NO)	
Mechanical interlock		 BLIM112-300	
Surge suppressor		built-in with electronic module	

1) Note: Some motors characteristics may vary according to each manufacturer.

CWM-N Series - NEMA Rated Standard Contactor

3 POLE NEMA CONTACTORS WITH AC COIL






NEMA Size	Maximum UL Horsepower						Auxiliary Contacts		Current Rating Amps	Catalog Number	List Price	Multiplier
	Single Phase		Three Phase									
	115V	230V	200V	230V	460V	575V	N.O.	N.C.				
00	1/3	1	1.5	1.5	2	2	1	0	9	CWM9N-10-30*	$103	Z1
							0	1		CWM9N-01-30*		
0	1	2	3	3	5	5	1	0	18	CWM18N-10-30*	$118	
							0	1		CWM18N-01-30*		
1	2	3	7.5	7.5	10	10	0	0	32	CWM32N-00-30*	$164	
2	3	7.5	10	15	25	25	0	0	50	CWM50N-00-30*	$233	
3	7.5	15	25	30	50	50	0	0	95	CWM95N-00-30*	$384	
4	-	-	40	50	100	100	2	2	150	CWM150N-22-30#	$1,350	
5	-	-	75	100	200	200	2	2	300	CWM300N-22-30#	$2,300	

- For additional auxilliary contacts, see page 193.

* AC COIL VOLTAGE CODE SELECTION

FOR CONTACTORS CWM9N...CWM95N

60 Hz	24V	120V	208-240V	480V	600V
CODE	**V04**	**V18**	**V24**	**V47**	**V56**
50 Hz	20V	110V	180-208V	400-415V	500V

AC / DC COIL VOLTAGE CODE SELECTION

FOR CONTACTORS: CWM150N, CWM300N

Voltage (50/60Hz)	24-28 Vac/Vdc	110-130 Vac/Vdc	208-250 Vac/Vdc	430-500 VAC/VDC
CODE	**E02**	**E10**	**E13**	**E21**

Notes:
1) CWM_N Series - 9 to 95 A - AC COIL
2) CWM_N Series - 150 to 300 A - AC/DC Coil with Electronic Module

General Information
Circuit Protection
Disconnect Switches
Motor Protectors
Contactors
Overloads
Enclosed Starters
Relays
Pushbuttons and Pilot Lights
Terminal Blocks
Power Factor Correction
Appendix A
Appendix B

Accessories

Auxiliary Contacts Block

	Location/Description	Mounting on Contactors	AuxiliaryContacts N.O.	AuxiliaryContacts N.C.	Catalog Number	List Price	Multiplier
	Front Mounting	CWM9…105 CWM9N…95N	1	0	BCXMF10	$10	Z1
			0	1	BCXMF01	$10	
	Side Mounting	CWM9…CWM300 CWM9N…300N	1	1	BCXML11	$22	
			2	0	BCXML20	$22	
	Side Mounting, Second Block		1	1	BCXMRL11	$22	
			2	0	BCXMRL20	$22	
	Side Mounting	CWM400…CWM800	1	1	BCXML11 CWM800	$65	
	Side Mounting, Second Block		1	1	BCXMRL11 CWM800	$65	

Maximum # of added auxiliary contacts per contactor frame size: Note that side mountable version has 2 aux. contacts per block. CWM9…25 = 4 aux. contacts; CWM32…40 = 6 aux. contacts; CWM50…300E = 8 aux. contacts.

Mechanical Interlock Block

	Location/Description	Mounting on Contactors	AuxiliaryContacts N.O.	AuxiliaryContacts N.C.	Catalog Number	List Price	Multiplier
	Side mounted between two contactors	CWM9...105 CWM9N…95N	0	0	BLIM 9-105	$29	Z1
			0	2	BLIM.02 9-105	$40	
 		CWM112…300 1CWM150N CWM300N	0	0	BLIM 112-300	$77	
		CWM400	0	0	BLIM CWM400	$63	
	Bottom mounted	CWM630…CWM800	0	0	BLIM CWM800	$1,850	

Notes: For CWM9...CWM105 the mechanical interlock can be used to interlock different frame sizes. For CWM112...CWM300, the mechanical interlock has to be used with contactors that have the same mechanical frame size.

For BLIM CWM800, a metal mount base is provided with this accessory for an accurate assembling of the contactors.

Surge Suppressors

	Description	Mounting on Contactors	Voltage Range	Catalog Number	List Price	Multiplier
	Limits switching transients from contactor pick-up	CWM9...40 CWM9N . . .32N	24...48Vac	BAMRC4 D53	$30	Z1
			50...127Vac	BAMRC5 D55	$30	
			130...250Vac	BAMRC6 D63	$30	
		CWM50...105 CWM50N. . . 95N	24...48Vac	BAMRC7 D53	$30	
			50...127Vac	BAMRC8 D55	$30	
			130...250Vac	BAMRC9 D63	$30	
		CWM9...105 CWM9N . . .95N	270 - 380Vac	BAMV1 D68	$30	
			400 - 510Vac	BAMV2 D73	$30	

Note: CWM112...300 with Electronic Module and CWM400...800 already have the surge suppressor built-in on the electronic module

Contactors

CWM Series - IEC Standard Contactors

Accessories

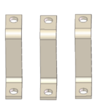
Terminal Cover for CWM_E Contactor Series

	Location/Description	Mounting on Contactors	Catalog Number	List Price	Multiplier
	Protection for contactor terminals (2 covers per package)	CWM150	BMP CWM150	$125	Z1
		CWM180	BMP CWM180	$125	
		CWM300	BMP CWM300	$125	
		CWM400	BMP CWM400	$60	
		CWM630…CWM800	BMP CWM800	$110	

Lugs for CWM Contactor Series (3 units per package)

	Description / Wire Range	Mounting on Contactors	Catalog Number	List Price	Multiplier
	300 MCM…6 AWG	CWM112...150	LW1-S300	$52	Z1
	300 MCM…6 AWG	CWM180	LW2-S300	$52	
	600 MCM…4 AWG	CWM250…CWM300	LW1-S600	$110	
	(2) 3-4/0 AWG	CWM400	BMJ CWM400	$98	
	(2) 3/0-600 MCM	CWM630…CWM800	BMJ CWM800	$158	

Connector links (3 per package)

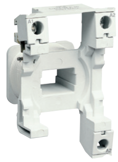
	Description	Contactor	Overload Relay	Catalog Number	List Price	Multiplier
	Link connectors for easier CWM contactors and RW overload relays assembly	CWM112	RW117-2D3	GA117D	$41	Z2
		CWM150	RW317-1D3	GA317-1D	$68	
		CWM180	RW317-1D3	GA317-2D	$70	
		CWM250 / CWM300	RW317-1D3	GA317-3D	$118	
		CWM400	RW317-1D3	GA317-10D	$118	

Contact Set

Description	Part Number	Mounting On	List Price	Multiplier
One set consists of all parts required to rebuild one 3 pole contactor.	JC CWM112-3P	CWM112	$335.00	Z1
	JC CWM150E-3P	CWM150	$376.00	
	JC CWM180-3P	CWM180	$525.00	
	JC CWM250-3P	CWM250	$1,120.00	
	JC CWM300E-3P	CWM300	$1,190.00	
	JC CWM400-3P	CWM400	$908.00	
	JC CWM630-3P	CWM630	$946.00	
	JC CWM800-3P	CWM800	$983.00	

Data is subject to change without notice.

Replacement Coil



Description	Mounting on Contactors	Catalog Number	List Price	Multiplier
Coil voltage code is required to complete part number	**AC COIL**			
	CWM9... 25 CWM9N... 18N	**BCA4-25***	**$28**	
	CWM32...40 CWM32N	**BCA4-40***	**$35**	Z1
	CWM50...105 CWM50N... 95N	**BCA-105***	**$44**	
	DC COIL[2]			
	CWM32...40	**BECC4-40+**	**$100**	Z1
	CWM50...105	**BECC-105+**	**$60**	
	AC/DC ELECTRONIC MODULE & COIL[1]			
	CWM112...150 CWM150N	**BCE-150#**	**$90**	
		ME-300#	**$215**	
	CWM180	**BCE-215#**	**$118**	
		ME-300#	**$260**	Z1
	CWM250…300 CWM300N	**BCE-300#**	**$146**	
		ME-300#	**$260**	
	CWM400	**BCE-400 ^**	**$700**	
	CWM630…800	**BCE-800 ^**	**$850**	

1) Module (ME-) & Coil (BCE-) must be used together for a proper contactor operation.
2) DC Option does not include NEMA Rated Contactors

*** AC COIL VOLTAGE CODE SELECTION FOR CONTACTORS CWM9...CWM105, CWM150N, CWM300N, CWM9N...95**

60 Hz	24V	48V	120V	208-240V	277V	480V	600V
CODE	**V04**	**V10**	**V18**	**V24**	**V37**	**V47**	**V56**
50 Hz	20V	42V	110V	180-208V	230-240V	400-415V	500V

+ DC COIL VOLTAGE CODE SELECTION [3]

FOR CONTACTORS CWM32...CWM105		
Voltage	24-28V	110-130V
CODE	**C34**	**C40**

 # AC/DC COIL VOLTAGE CODE SELECTION - Electronic Contactor Required

FOR CONTACTORS CWM112, 150, 180, 250, 300, CWM150N, CWM300N				
Voltage (50/60Hz)	**24-28Vac/Vdc**	**110-130Vac/Vdc**	**208-250Vac/Vdc**	**430-500Vac/Vdc**
CODE	**E02**	**E10**	**E13**	**E21**
Mounting on	CWM112-CWM300	CWM112-CWM300	CWM112-CWM300	CWM112-CWM300

^ AC/DC COIL VOLTAGE CODE SELECTION - Electronic Contactor Required

FOR CONTACTORS CWM400, 630, 800				
Voltage	100-240Vac/100-220Vdc	100-127Vac/100-110Vdc	200-240Vac/200-220Vdc	440-575V 50/60Hz
CODE	**E36**	**E35**	**E39**	**D82**
Mounting on	CWM400	CWM630-CWM800	CWM630-CWM800	CWM400-CWM800

3) DC coils cannot be used in AC coil contactors due to difference in size of coil housing.

Contactors for Capacitor Switching

Switching of power factor correction capacitors

WEG's special CWMC contactors series for switching of capacitors is designed according to UL 508 and IEC 60947-1, and provides the best solution for the switching of power factor correction capacitors.

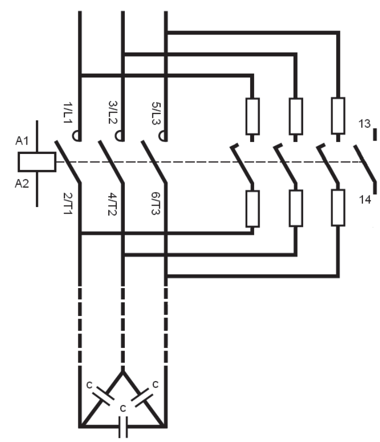
No more in-rush

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.

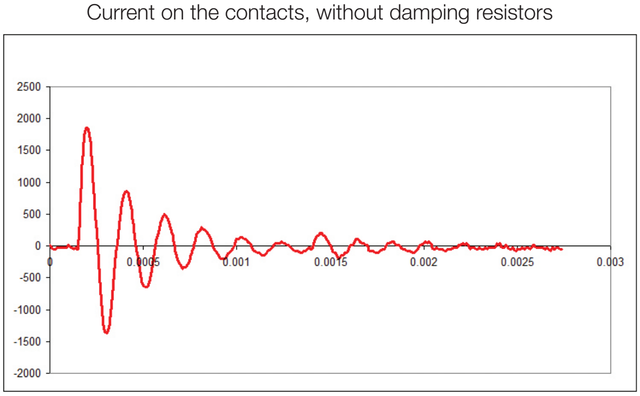
The in-rush current is the result of this little short circuit and usually lasts for some milliseconds. It may reach 100 times the rated current which one of the main reasons for the short life of a capacitor.

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 line distortions.

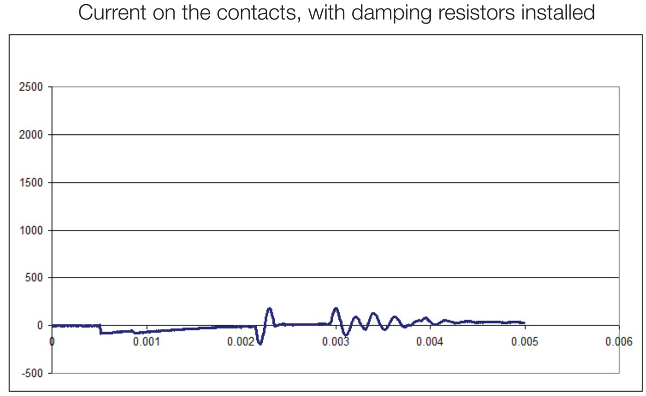


Current on the contacts, without damping resistors



Iu (A) with standard contactors

Current on the contacts, with damping resistors installed



Iu (A) with WEG CWMC contactor

Certifications

RCC
SABS - South Africa

Modular design
For 35 mm DIN rail or screw assembly.

Damping resistors
Avoids high in-rush current

Contactor data and certifications
Shows all necessary information of CWMC.

Early make contact block
Connects damping resistors and switches off after 5 ms

Auxiliary Contact
CWMC allows use of standard NO or NC contact blocks, the same used with WEG CWM contactors series

New models
CWMC contactors are available in 5 different models in 3 different frames. All contactors are available with AC coils with a large variety of voltage ranges for 50 or 60 Hz. For DC coils and further information, please contact a WEG representative.

CWMC contactor for switching of capacitors (AC-6b)

Catalog Number	Rated current AC-6b In (A)	Reactive power (kVAr)				
		220-230 Vac	480 Vac	660/690 Vac	List Price	Multiplier
CWMC25-10-30**	30	11	25	34	**$225**	Z1
CWMC32-10-30**	40	15	33	45	**$237**	Z1
CWMC50-10-30**	60	25	50	65	**$284**	Z1
CWMC65-10-30**	77	30	65	87	**$312**	Z1
CWMC80-10-30**	93	35	77	106	**$500**	Z1

To complete catalog number, replace ** with appropriate coil voltage code

** Complete with the voltage code			
X18	X23	X30	X47
120V60Hz	208V60Hz	240V60Hz	480V60Hz

Technical Characteristics

AC COIL			CWMC25	CWMC32	CWMC50	CWMC65
Reactive Power AC-6b @ 55 °C	220 - 230 V	kVAr	11	15	25	30
	380 - 415 V		20	25	40	50
	440 V		23	30	45	60
	480 V		25	33	50	65
	660 - 690 V		34	45	65	87
AC-6b Current (Ie)	(131°F)	A	30	40	60	77
Thermal Current (Ith)	(131°F)		45	60	90	110
AC-6b Current (Ie)	(158°F)		22	34	50	62
Max Fuse (gL/gG)			50	63	100	125
Max Fuse Acc. to UL/CSA (J Type)			45	60	100	125
Cable cross section		mm2	2 x 10	2 x 16	2 x 35	2 x 35
		AWG	2 x 8	2 x 6	2 x 2	2 x 2
Tightening torque		Lb-in	14…26	22…35	35…53	35…53
Max. operation per hour		ops/h.	120			
Max. Number of Auxiliary contacts			1	3	5	
Electrical Lifespan		Ops x 103	100	100	100	100
Coil consumption (AC) Pick-up/Sealing		VA	75/9.3	123/12.5	308/25	308/25

Contactors

CWM Series - IEC Standard Contactors

Control circuit ratings - AC Coil

TYPE		CWM9	CWM12	CWM18	CWM25	CWM32	CWM40	CWM50	CWM65	CWM80	CWM95	CWM105
Rated Insulation Voltage Ui												
Acc. IEC; VDE 0660	[V]	1000										
Acc. UL; CSA	[V]	600										
Rated Operating Voltage Ue												
Acc. IEC; VDE 0660	[V]	690										
Acc. UL; CSA	[V]	600										
Standard Voltages 60Hz	[V]	24...600										
Coil Operating limits												
Monofrequency coils xUc	[V]					0.85...1.1						-
Pick-up xUc	[V]	0.4...0.76				0.5...0.76		0.5...0.76				-
Drop-out xUc	[V]	0.25...0.65				0.3...0.65		0.25...0.6				-
Operating Time												
Coil energization - N.O.	[ms]	8...20				10...19		15...30				-
Coil de-energization - N.O.	[ms]	6...13				5...25		9...15				-
Coil Consumption												
Single coils												
Sealed	[VA]	4...7.2				6.6...12.5		13.1....19.1				-
Inrush	[VA]	70				98		255				-
Thermal Power Dissipation												
60Hz	[W]	2.6				4.3		8.0				-
Power Factor												
Closed	Cos phi	0.28				0.34		0.32				-
Opened	Cos phi	0.85				0.69		0.54				-
Stranded / Solid (UL / CSA)	[AWG]	2x12-10	2x12-10	2x12-10	2x12-10	2x12-10	2x12-10	2x12-10	2x12-10	2x12-10	2x12-10	2x12-10

Control circuit ratings - DC Coil

TYPE		CWM9	CWM12	CWM18	CWM25	CWM32	CWM40	CWM50	CWM65	CWM80	CWM95	CWM105
Rated Insulation Voltage Ui Acc. IEC; VDE 0660 Acc. UL; CSA	 [V] [V]	1000 600										
Standard Voltages	[V]	12...440				24...240		24...240				
Coil Operating limits Pick-up xUc Drop-out xUc	 [V] [V]	0.4...0.7 0.15...0.4				0.85...1.1 0.45...0.75 0.15...0.45		0.7...0.8 0.4...0.6				
Operating Time Coil energization - N.O. Coil de-energization - N.O.	 [ms] [ms]	35...45 7...12				40...55 30...65		50...60 55...60				
Coil Consumption Sealed Inrush	 [W] [W]	3.8...9.0 3.8...9.0				6 240		6.5 340				
Stranded / Solid (UL / CSA)	[AWG]	2x12-10	2x12-10	2x12-10	2x12-10	2x12-10	2x12-10	2x12-10	2x12-10	2x12-10	2x12-10	2x12-10

CWM Series - IEC Standard Contactors

IEC Contactors - CWM Series

TYPE		CWM112	CWM150	CWM180	CWM250	CWM300	CWM400	CWM630	CWM800
Rated Insulation Voltage Ui									
Acc. IEC; VDE 0660	[V]	1000							
Acc. UL; CSA	[V]	600							
Rated Operating Voltage Ue									
Acc. IEC; VDE 0660	[V]	690							
Acc. UL; CSA	[V]	600							
Standard Voltages 50Hz; 60Hz; DC	[V]	24…600							
Coil Operating limits									
xUc	[V]	0.8…1.1				0.85…1.1			
Pick-up xUc	[V]	0.6...0.75				0.77...0.83			
Drop-out xUc	[V]	0.40...0.60				0.48...0.53			
Operating Time									
Coil energization - N.O.	[ms]	60…70	60…70	60…70	60…70	60…70	64…68	66…70	66…70
Coil de-energization - N.O.	[ms]	13…17	13…17	13…17	13…17	13…17	43…47	45…49	45…49
Coil Consumption									
Sealed AC	[VA]	16.3	16.3	21.5	35.2	35.2	14	17	29
Inrush AC	[VA]	322	322	426	518	518	571	1000	1000
Sealed DC	[VA]	11.0	11.0	14.3	24.2	24.2	14	17	29
Inrush DC	[VA]	403	403	529	644	644	571	1000	1000
Thermal Power Dissipation									
AC	[W]	3.9	3.9	3.8	3.7	3.7	4.7	4.9	5.3
DC	[W]	2.4	2.4	2.4	2.5	2.5	5.0	6.3	7.8

Contactors

CWM Series - IEC Standard Contactors

Power Contacts

TYPE			CWM9	CWM12	CWM18	CWM25	CWM32	CWM40	CWM50	CWM65	CWM80	CWM95	CWM105
Standard UL/CSA Ratings													
Rated Operating Voltage		[V]	600										
AC-1 (General Purpose)		[A]	25	25	32	32	60	60	90	110	110	140	140
Switching Motor Loads													
Full Voltage - 50/60Hz													
1-phase	115V	[A]	9.8	13.8	16	24	34	34	56	56	80	80	100
	230V	[A]	10	12	17	28	28	28	40	50	68	68	88
	115V	[HP]	1/2	3/4	1	2	3	3	5	5	7-1/2	7-1/2	10
	230V	[HP]	1-1/2	2	3	5	5	7 1/2	10	10	15	15	20
3-phase	200V	[A]	11	11	17.5	25	32.2	32.2	48.3	62.1	62.1	78.2	92
	230V	[A]	9.6	9.6	15.2	22	28	42	42	54	68	80	104
	460V	[A]	7.6	11	14	21	27	40	52	65	65	77	96
	575V	[A]	9	11	17	17	27	27	41	52	62	77	77
	200V	[HP]	3	3	5	7-1/2	10	10	15	20	20	25	30
	230V	[HP]	3	3	5	7-1/2	10	15	15	20	25	30	40
	460V	[HP]	5	7-1/2	10	15	20	30	40	50	50	60	75
	575V	[HP]	7-1/2	10	15	15	25	25	40	50	60	75	75
Short Circuit Rating	600V	[kA]	5	5	5	5	5	5	10	10	10	10	10
Standard IEC Ratings (IEC EN 60947)													
Rated Operating Voltage		[V]	690						1000				
Rated Thermal Current Ith		[A]	25	25	32	45	60	60	90	110	110	140	140
Switching Motor Loads													
AC-3 - 50/60Hz													
3-phase	220-240V	[A]	9	12	18	25	32	40	50	65	80	95	105
	380-400V	[A]	9	12	18	25	32	40	50	65	80	95	105
	415-440V	[A]	9	12	18	25	32	40	50	65	80	95	105
	500V	[A]	7.5	10.5	14	19	24	32	38	55	63	79	85
	660-690V	[A]	7	9	13	15	22	25	34	44	48	60	80
	220-240V	[kW]	2.2	3	4	7.5	9	11	15	18.5	22	25	30
	380-400V	[kW]	4	5.5	7.5	11	15	18.5	22	30	37	45	55
	415-440V	[kW]	4	5.5	7.5	11	15	22	25	37	45	50	55
	500V	[kW]	5.5	7.5	10	15	18.5	25	30	40	45	55	65
	660-690V	[kW]	5.5	7.5	10	15	18.5	30	35	45	45	55	65
Maximum Switching Rate													
	AC-1	[ops/hr]	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
	AC-3	[ops/hr]	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	600	600
	no load	[ops/hr]	9,000	9,000	9,000	9,000	9,000	9,000	5,000	5,000	5,000	5,000	5,000
AC-4													
200,000 operations;	<= 690V	[A]	5	7	8	12	16	18.5	23	30	37	44	50
50/60Hz	220-230V	[kW]	1.1	1.5	1.5	3	4	4.5	5.5	7.5	9.2	11	12.5
		[HP]	1.5	2	2	4	5.4	6	7.5	10	12.5	15	17
	380-400V	[kW]	2.2	3	3.7	5.5	7.5	9.2	11	15	18.5	22	22
		[HP]	3	4	5	7.5	10	12.5	15	20	25	30	30
	415-440V	[kW]	2.2	3.7	4.5	5.5	9.2	11	11	15	22	22	30
		[HP]	3	5	6	7.5	12.5	15	15	20	30	30	40
	500V	[kW]	3	4	5.5	7.5	10	11	15	18.5	22	25	30
		[HP]	4	5.4	7.5	10	13	15	20	25	30	33	40
	660-690V	[kW]	3	4.5	5.5	7.5	11	12.5	15	20	25	30	33
		[HP]	4	6	7.5	10	15	17	20	27	33	40	45

Power Contacts continued

Power Contacts cont.

Type			CWM9	CWM12	CWM18	CWM25	CWM32	CWM40	CWM50	CWM65	CWM80	CWM95	CWM105
Breaking Capacity	Ue=400V	[A]	250	250	250	450	450	920	920	920	920	1050	1050
	Ue=500V	[A]	250	250	250	320	450	920	920	920	920	1050	1050
	Ue=690V	[A]	130	130	130	170	205	780	780	780	780	950	950
Impedance per Pole		[mW]	2.41	2.41	2.35	1.65	1.28	0.95	0.85	0.86	0.86	0.76	0.76
Power Dissipation per Pole													
	AC-1	[W]	1.47	1.47	2.46	3.34	4.6	3.42	6.86	10.40	10.40	14.89	14.89
	AC-3	[W]	0.19	0.34	0.78	1.03	1.31	1.52	2.12	3.63	5.5	6.86	8.37
Short Time Current Icw													
	1 sec.	[A]	455	455	570	630	1010	1265	1580	2530	2530	3300	3300
	5 sec.	[A]	205	205	254	280	450	450	710	1130	1130	1485	1485
	10 sec.	[A]	144	144	180	200	320	400	500	800	800	1050	1050
	30 sec.	[A]	85	85	104	115	185	230	290	460	460	600	600
	1 min.	[A]	60	60	74	80	130	165	205	325	325	430	430
	3 min.	[A]	35	35	46	50	90	100	120	185	185	250	250
	Rec. time	[min.]	10	10	10	10	10	10	10	10	10	10	10
Short Circuit Coordination													
Acc. to IEC													
Coordination Type "1"	gL/gG	[A]	50	50	63	63	100	125	200	200	200	250	250
Coordination Type "2"	gL/gG	[A]	25	35	35	50	63	80	100	125	125	160	200
Acc. to UL/CSA	J Type	[A]	25	35	40	45	60	70	100	125	125	150	200

Built-in Auxiliary Contacts

<table>
<tr><th colspan="3">TYPE</th><th>CWM9</th><th>CWM12</th><th>CWM18</th></tr>
<tr><td colspan="6">Rated Insulation Voltage Ui</td></tr>
<tr><td>Acc. IEC; VDE 0660</td><td></td><td>[V]</td><td colspan="3">1000</td></tr>
<tr><td>Acc. UL; CSA</td><td></td><td>[V]</td><td colspan="3">600</td></tr>
<tr><td colspan="6">Rated Operating Voltage Ue</td></tr>
<tr><td>Acc. IEC; VDE 0660</td><td></td><td>[V]</td><td colspan="3">690</td></tr>
<tr><td>Acc. UL; CSA</td><td></td><td>[V]</td><td colspan="3">600</td></tr>
<tr><td>Rated Thermal Current Ith <=55°C</td><td></td><td>[A]</td><td colspan="3">20</td></tr>
<tr><td colspan="6">Rated Operating Current Ie</td></tr>
<tr><td rowspan="6">Acc. IEC 60947-5-1 / AC-15</td><td>110-127V</td><td>[A]</td><td colspan="3">10</td></tr>
<tr><td>220-240V</td><td>[A]</td><td colspan="3">10</td></tr>
<tr><td>380-400V</td><td>[A]</td><td colspan="3">6</td></tr>
<tr><td>415-450V</td><td>[A]</td><td colspan="3">5</td></tr>
<tr><td>500V</td><td>[A]</td><td colspan="3">4</td></tr>
<tr><td>660-690V</td><td>[A]</td><td colspan="3">2</td></tr>
<tr><td colspan="3">Acc. UL; CSA</td><td colspan="3">A600</td></tr>
<tr><td colspan="6">Rated Operating Current Ie</td></tr>
<tr><td rowspan="5">Acc. IEC 60947-5-1 / DC-13</td><td>24V</td><td>[A]</td><td colspan="3">6</td></tr>
<tr><td>48V</td><td>[A]</td><td colspan="3">4</td></tr>
<tr><td>110V</td><td>[A]</td><td colspan="3">2</td></tr>
<tr><td>220V</td><td>[A]</td><td colspan="3">0.7</td></tr>
<tr><td>440V</td><td>[A]</td><td colspan="3">0.7</td></tr>
<tr><td colspan="3">Acc. UL; CSA</td><td colspan="3">P600</td></tr>
<tr><td colspan="6">Making Capacity Im</td></tr>
<tr><td>AC-15 / AC-11</td><td>Ue <= 690V 50/60Hz</td><td>[A]</td><td colspan="3">250</td></tr>
<tr><td>DC-13 / DC-11</td><td>Ue <= 440Vdc</td><td>[A]</td><td colspan="3">250</td></tr>
<tr><td colspan="6">Breaking Capacity Ic</td></tr>
<tr><td>AC-15 / AC-11</td><td>Ue <= 400V 50/60Hz</td><td>[A]</td><td colspan="3">250</td></tr>
<tr><td>DC-13 / DC-11</td><td>Ue <=220Vdc</td><td>[A]</td><td colspan="3">2</td></tr>
<tr><td colspan="6">Short Circuit Protection with Fuses</td></tr>
<tr><td colspan="2">Acc. IEC 60947-5-1 - gL/gG</td><td>[A]</td><td colspan="3">10</td></tr>
<tr><td colspan="2">Minimum Switching Capacity</td><td>[V/mA]</td><td colspan="3">17/5</td></tr>
<tr><td colspan="2">Electrical Endurance</td><td>Million ops.</td><td colspan="3">1</td></tr>
<tr><td colspan="2">Mechanical Endurance</td><td>Million ops.</td><td colspan="3">10</td></tr>
<tr><td colspan="2">Guaranteed Non-Overlap Time</td><td>[ms]</td><td colspan="3">1.5</td></tr>
<tr><td colspan="2">Insulation Resistance</td><td>[MOhm]</td><td colspan="3">>10</td></tr>
</table>

Contactors

CWM Series - IEC Standard Contactors

Power Contacts cont.

TYPE	Units		CWM112	CWM150	CWM180	CWM250	CWM300	CWM400	CWM630	CWM800
NEMA Ratings										
Rated Operating Voltage		[V]	600							
AC-1 (General Purpose)		[A]	170	170	200	300	400	450	660	900
Switching Motor Loads										
Full Voltage - 50/60Hz										
1-phase	115V	[A]	-	-	-	-	-	-	-	-
	230V	[A]	-	-	-	-	-	-	-	-
	115V	[HP]	-	-	-	-	-	-	-	-
	230V	[HP]	-	-	-	-	-	-	-	-
3-phase	200V	[A]	120	150	177	221	285	359	414	552
	230V	[A]	130	154	192	248	312	360	480	772
	460V	[A]	124	156	180	240	302	361	477	-
	575V	[A]	99	144	192	242	336	289	382	-
	200V	[HP]	40	50	60	75	100	125	150	200
	230V	[HP]	50	60	75	100	125	150	200	300
	460V	[HP]	100	125	150	200	250	300	400	600
	575V	[HP]	100	150	200	250	350	300	400	600
Short Circuit Rating	600V	[kA]	10	10	10	18	18	18	30	30
Standard IEC Ratings (IEC/EN 60947)										
Rated Operating Voltage		[V]	1000							
Rated Thermal Current Ith		[A]	180	225	225	350	350	450	660	900
Switching Motor Loads										
AC-3 - 50/60Hz										
3-phase	220-240V	[A]	112	150	180	250	300	400	630	800
	380-400V	[A]	112	150	180	250	300	400	630	800
	415-440V	[A]	112	150	180	250	300	400	630	800
	500V	[A]	95	130	155	220	265	350	500	720
	660-690V	[A]	82	110	135	185	220	300	420	630
	220-240V	[kW]	30	45	55	75	90	110	185	220
	380-400V	[kW]	55	75	90	132	160	220	330	450
	415-440V	[kW]	55	90	110	150	185	220	370	500
	500V	[kW]	55	90	110	160	200	220	330	500
	660-690V	[kW]	75	110	110	160	200	260	400	560
Maximum Switching Rate										
	AC-1	[ops/hr]	600	600	600	600	600	500	500	500
	AC-3	[ops/hr]	600	600	600	600	600	500	500	500
	no load	[ops/hr]	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000

Power Contact cont.

TYPE			CWM112	CWM150	CWM180	CWM250	CWM300	CWM400	CWM500	CWM630	CWM800
AC-4	**Voltage**	**Units**									
200,000 operations;	<= 690V	[A]	50	55	58	100	130	-	-	-	-
50/60Hz	220-230V	[kW]	18.5	20	22	37	45	90	-	110	185
		[HP]	25	27	30	50	60	125	-	150	250
	380-400V	[kW]	30	33	37	55	75	150	-	220	330
		[HP]	40	44	50	75	100	200	-	300	450
	415-440V	[kW]	37	40	45	63	80	185	-	220	370
		[HP]	50	54	60	84	107	250	-	300	500
	500V	[kW]	40	45	50	75	90	-	-	-	-
		[HP]	54	60	67	100	121	-	-	-	-
	660-690V	[kW]	45	50	55	90	100	-	-	-	-
Maximum Switching Rate		[HP]	600	67	75	121	133	-	-	-	-
		[ops/hr]	150	150	150	150	150	-	-	-	-
Making Capacity		[A]	1430	1820	2100	2600	3000	-	-	-	-
Breaking Capacity											
	Ue<=400V	[A]	1290	1350	1400	2000	-	4000	-	6300	8000
	Ue=500V	[A]	1290	1350	1400	2000	-	4000		6300	8000
Impedance per pole		[mW]	0.5	0.5	0.45	0.3	0.3	-	-	-	-
Power Dissipation per Pole											
	AC-1	[W]	16	25	21.6	35	45.7	-	-	-	-
	AC-3	[W]	6.2	11.1	13.8	17.9	25.7	-	-	-	-
Short Time Current Icw											
0°≤ 104°F	1 sec.	[A]	3165	3763	4649	4427	-	-	-	-	-
	5 sec.	[A]	1820	2164	2673	2546	-	-	-	-	-
	10 sec.	[A]	1430	1700	2100	2000	-	-	-	-	-
	30 sec.	[A]	826	980	1212	1155	-	-	-	-	-
	1 min.	[A]	584	694	857	816	-	-	-	-	-
	3 min.	[A]	337	401	495	471	-	-	-	-	-
	Recovery time	[min.]	10	10	10	10	10	-	-	-	-
Short Circuit Coordination											
Acc. to IEC											
Coordination type “1”	gL/gG	[A]	315	355	355	500	630	630	-	800	1000
Coordination type “2”	gL/gG	[A]	224	250	250	400	500	-	-	-	-
Acc. to UL/CSA	J Type	[A]	250	350	400	500	700	700	-	900	1100

CWM Series - IEC Standard Contactors

General Ratings

TYPE		CWM9	CWM12	CWM18	CWM25	CWM32	CWM40	CWM50	CWM65	CWM80	CWM95	CWM105
Standards	Units	Devices according to International Standards IEC 60947-1 / 60947-4-1, European Standards EN 60947-1 / 60947-4-1, Underwriters Laboratories - UL 508; CSA C.22.2/14; VDE 0660/102										
Rated Insulation Voltage Ui												
Acc. IEC; VDE 0660	[V]	1000										
Acc. UL; CSA	[V]	600										
Rated Impulse Voltage Uimp												
Acc. IEC60947-1	[kV]	6						8				
Rated Operating Frequency	[Hz]	25…400										
Degree of Protection		IP20			Protection against direct contact Acc. VDE 0160 - Part. 100							
Main terminals					IP10							
Coil terminals												
Auxiliary terminals												
Ambient Temperature												
Storage		-55 to +80oC (-67 to +176oF)										
Operating		-25 to +55oC (-13 to +131oF)										
Altitude												
Up to 1,500m		Nominal values										
		See graphic on page 194										
Pollution Degree		3										
Climatic Withstand		According to IEC 60680-2										
Mounting		35mm rail Acc. DIN EN 50 022										
Vibration Resistance (5 to 200 Hz)												
Contactor open	[g]	3	3	3	7.5	8	8	4.5	4.5	4.5	5	5
Contactor closed at Uc	[g]	6	6	6	8	12	12	9	9	9	7	7
Mechanical Endurance												
AC Coil	Million ops.	10										
Electrical Endurance AC-3	Million ops.	1.8	1.6	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1.1	1.1
Shock Resistance (1/2 sin wave = 11ms)												
Contactor open	[g]	8	8	8	8	7	7	6	6	6	6	6
Contactor closed at Uc	[g]	12	12	12	12	12	12	10	10	10	10	10
Weight	[kg]	0.30	0.30	0.30	0.30	0.52	0.54	1.11	1.12	1.13	1.45	1.47
AC Coil	[lb]	0.65	0.65	0.65	0.65	1.15	1.19	2.44	2.47	2.49	3.20	3.24
Terminal Capacity		**Cross/Slotted Combination**						**Allen Head**				
Fine - Stranded with sleeve	Top [mm2]	2x0.5-2.5	2x0.5-2.5	2x0.5-2.5	2x1-2.5	0.75-16	0.75-16	1-35	1-35	1-35	1.5-50	1.5-50
	Bottom [mm2]	or 2x2.5-6	or 2x2.5-6	or 2x2.5-6	or 2x2.5-10	1.0-16	1.0-16	2.5-35	2.5-35	2.5-35	4-35	4-35
Coarse - Stranded / Solid	Top [mm2]	2x1-2.5	2x1-2.5	2x1-2.5	2x1-2.5	1-16	1-16	1.5-35	1.5-35	1.5-35	2.5-50	2.5-50
	Bottom [mm2]	or 2x2.5-6	or 2x2.5-6	or 2x2.5-6	or 2x2.5-10	1.5-16	1.5-16	6-35	6-35	6-35	6-35	6-35
Stranded / Solid (UL / CSA)	Top [AWG]	2x20-12	2x20-12	2x20-12	2x18-12	18-6	18-6	16-2	16-2	16-2	16-1	16-1
	Bottom [AWG]	or 2x12-10	or 2x12-10	or 2x12-10	or 2x12-8	16-6	16-6	14-2	14-2	14-2	10-2	10-2
Drive Size		Screwdriver - Philips #2						5/32" (4mm.)				
Tightening Torque	lb-in (Nm)	8.9...15 (1...1.7)	8.9...15 (1...1.7)	8.9...15 (1...1.7)	14.2...26.6 (1.6...3)	22.1...35..4 (2.5...4)	22.1...35..4 (2.5...4)	35.4...53.1 (4...6)	35.4...53.1 (4...6)	35.4...53.1 (4...6)	44.3...57.5 (5...6.5)	44.3...57.5 (5...6.5)

General Ratings

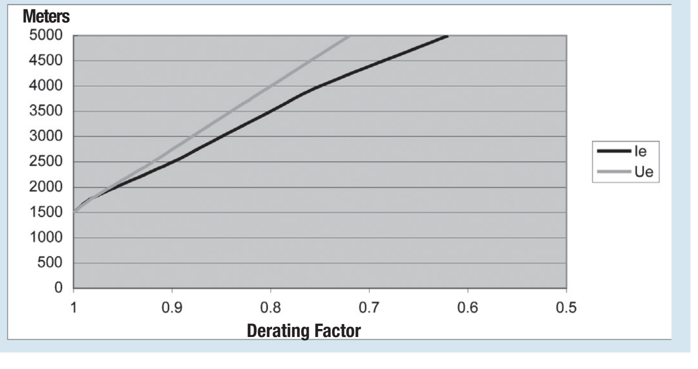
TYPE		CWM112	CWM150	CWM180	CWM250	CWM300	CWM400	CWM630	CWM800
Standards Units		Devices according to International Standards IEC 60947-1 / 60947-4-1, European Standards EN 60947-1 / 60947-4-1, Underwriters Laboratories - UL 508; CSA C.22.2/14; VDE 0660/102							
Rated Insulation Voltage Ui									
Acc. IEC; VDE 0660	[V]	1000							
Acc. UL; CSA	[V]	600							
Rated Impulse Voltage Uimp									
Acc. IEC60947-1	[kV]	8							
Rated Operating Frequency	[Hz]	25…400							
Degree of protection		Protection against direct contact acc. VDE 0160 - Part. 100							
Main terminals		IP00							
Coil terminals		IP20							
Auxiliary terminals		IP20							
Ambient Temperature									
Storage		-55 to +80ºC (-67 to +176ºF)							
Operating		-25 to +55ºC (-13 to +131ºF)							
Altitude									
Up to 1,500m		Nominal values							
Other altitudes		See graphic on page 194					up to 2000m		
Pollution Degree		3							
Climatic withstand		According to IEC 68-2							
Mounting		Screw to panel							
Vibration Resistance (5 to 200 Hz)									
Contactor open	[g]	4							
Contactor closed at Uc	[g]	4							
Mechanical Endurance									
AC Coil	Million ops.	10					5		
Electrical Endurance AC-3	Million ops.	1.1	1.1	1.0	1.0	1.0	0.5		
Shock Resistance (1/2 sin wave = 11ms)									
Contactor open	[g]	3							
Contactor closed at Uc	[g]	3							
Weight									
AC/DC Coil	[kg]	2.54	2.54	4.04	6.14	6.14	9.2	22.4	22.4
	[lb]	5.60	5.60	8.91	13.54	13.54	20	49	49
Terminal Capacity									
Fine - Stranded with sleeve	[mm2]	2 x (25-70)		2 x (50-120)	2 x (50-150)		1 x 150	1 x 240	1 x 240
AWG wires with end sleeve		1 x 300 or 2 x 107			1 x 500 or 2 x 300		Nº2 30×5	Nº2 50×5	Nº2 60×5
Busbars	[mm]	2 x (15 x 3)		2 x (20 x 3)	2 x (30 x 5)		-	-	-
Tightening Torque	lb-in (Nm)	47.8-53.1(5.4-6)		123.9-141.6 (14-16)	203.6-230.1 (23-26)		203.6 (23)	504.5 (57)	504.5 (57)

CWM Series - IEC Standard Contactors

Auxiliary contact block ratings

TYPE			BCXMF BCXML BCXMRL BLIM.02
Rated Insulation Voltage Ui			
Acc. IEC; VDE 0660		[V]	1000
Acc. UL; CSA		[V]	600
Rated Operating Voltage Ue			
Acc. IEC; VDE 0660		[V]	690
Acc. UL; CSA		[V]	600
Rated Thermal Current Ith <=55ºC		[A]	10
Rated Operating Current Ie			
Acc. IEC 60947-5-1 / AC-15	110-127V	[A]	6
	220-240V	[A]	6
	380-400V	[A]	4
	415-450V	[A]	3.5
	500V	[A]	2.5
	660-690V	[A]	1.5
Acc. UL; CSA			A600
Rated Operating Current Ie			
Acc. IEC 60947-5-1 / DC-13	24V	[A]	4
	48V	[A]	2
	110V	[A]	0.7
	220V	[A]	0.3
	440V	[A]	0.15
Acc. UL; CSA			Q600
Making Capacity Im			
AC-15 / AC-11	Ue <= 400V 50/60Hz	[A]	90
DC-13 / DC-11	Ue <= 220Vdc	[A]	90
Breaking Capacity Ic			
AC-15 / AC-11	Ue <= 400V 50/60Hz	[A]	60
DC-13 / DC-11	Ue <= 220Vdc	[A]	0.95
Short Circuit Protection with Fuses			
Acc. IEC 60947-5-1 - gL/gG		[A]	10
Minimum Switching Capacity		[V/mA]	17/5
Electrical Endurance		Million ops.	1
Mechanical Endurance		Million ops.	10
Guaranteed Non-Overlap Time		[ms]	1.5
Insulation Resistance		[MOhm]	>10

Graphic Altitude



NOTE:
Altitude compensation in CWM Series contactors, considers a factor according to which the rated power must be reduced.

The derating of the permissible operating power for installation altitudes above 1,500 m (5,000 ft) is calculated according to:

Total derating = $\text{Derating}_{current}$ x $\text{Derating}_{voltage}$

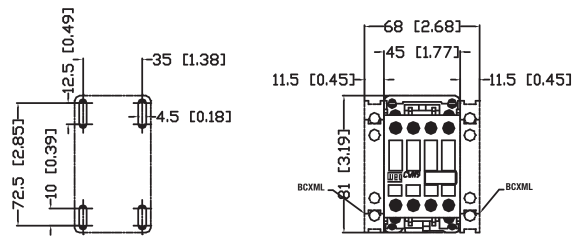
Example: Altitude: 3,000 m (10,000 ft):

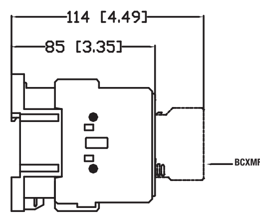
Derating current K1 = 0.85
Derating voltage K2 = 0.88

Total derating = 0.85 x 0.88 = 0.75 x HP

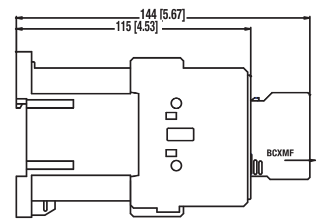
Mechanical Drawings mm (in)

CWM9, CWM9N, CWM12, CWM18, and CWM18N



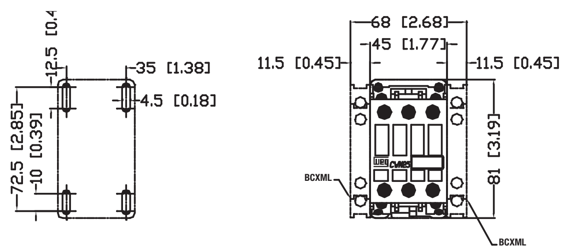


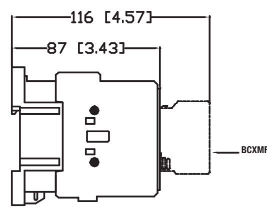
Vac Contactors



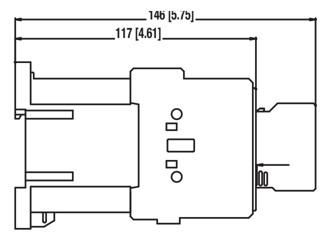
Vdc Contactors

CWM25



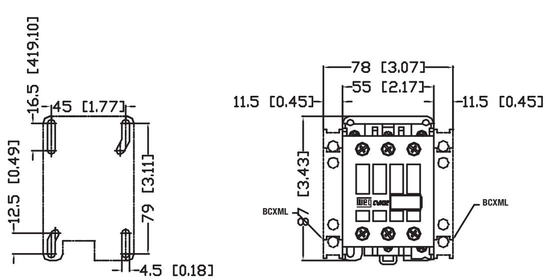


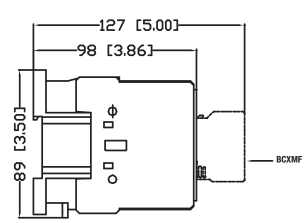
Vac Contactors



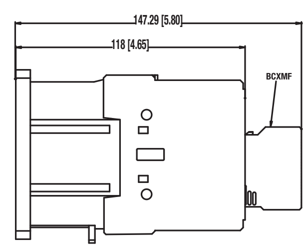
Vdc Contactors

CWM32, CWM32N and CWM40





Vac Contactors



Vdc Contactors

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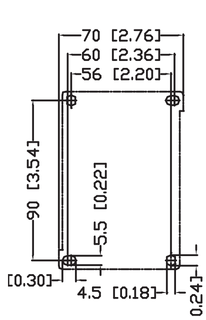
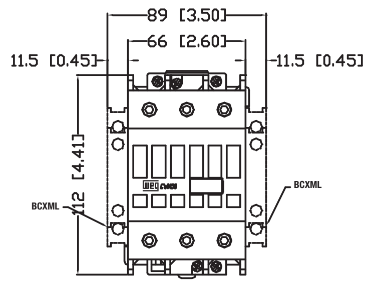
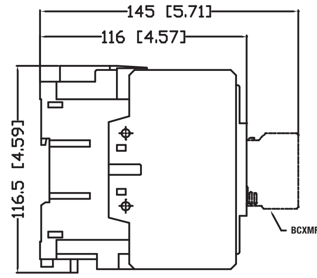
CWM-N Series - NEMA Rated Standard Contactor

Mechanical Drawings mm (in)

CWM50, CWM50N, CWM65 and CWM80

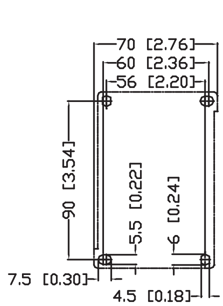


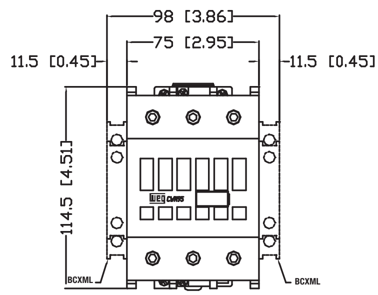


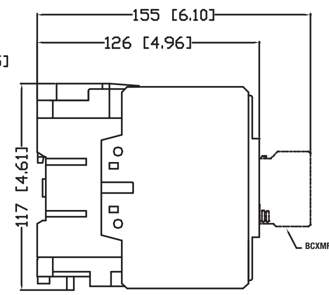


Vac / Vdc Contactors

CWM95, CWM95N, and CWM105



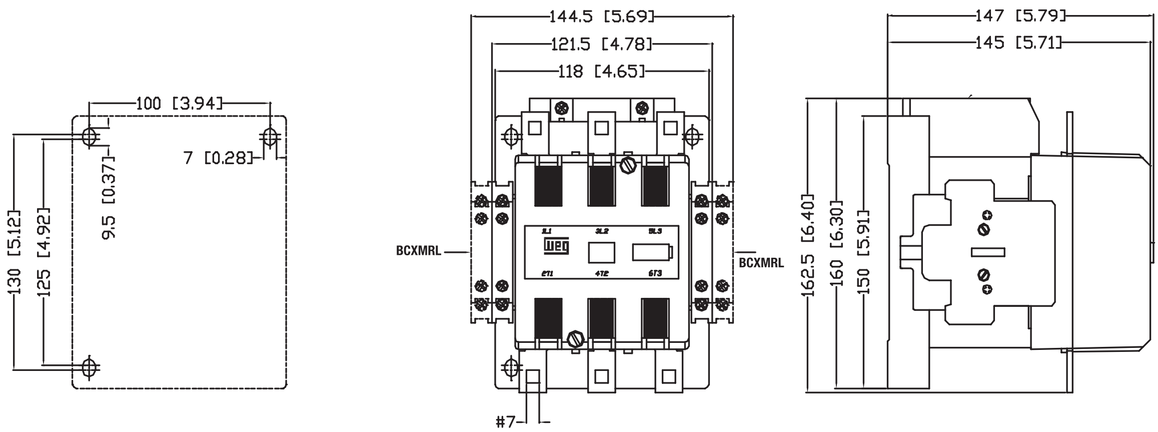




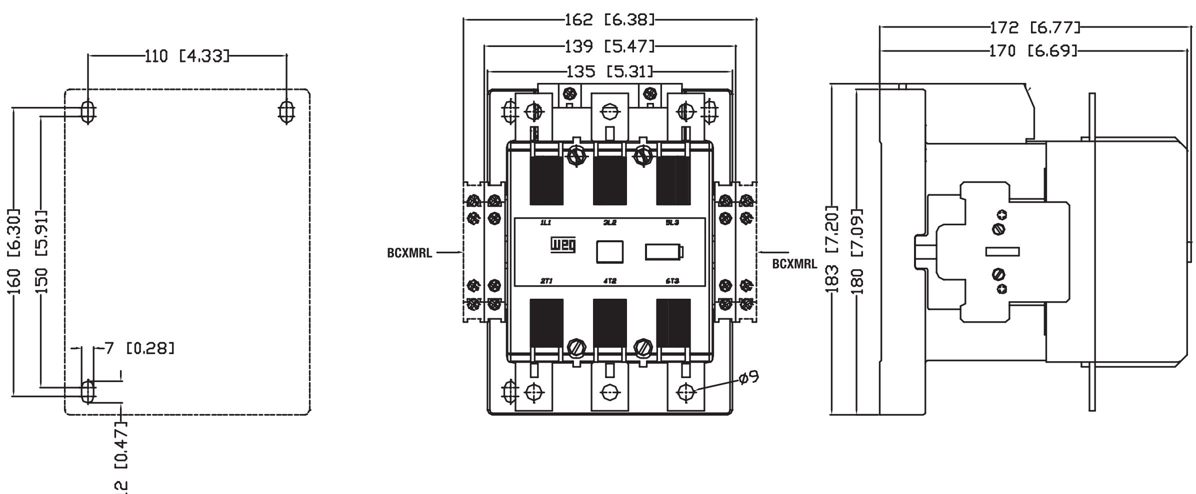
Vac / Vdc Contactors

Mechanical Drawings mm (in)

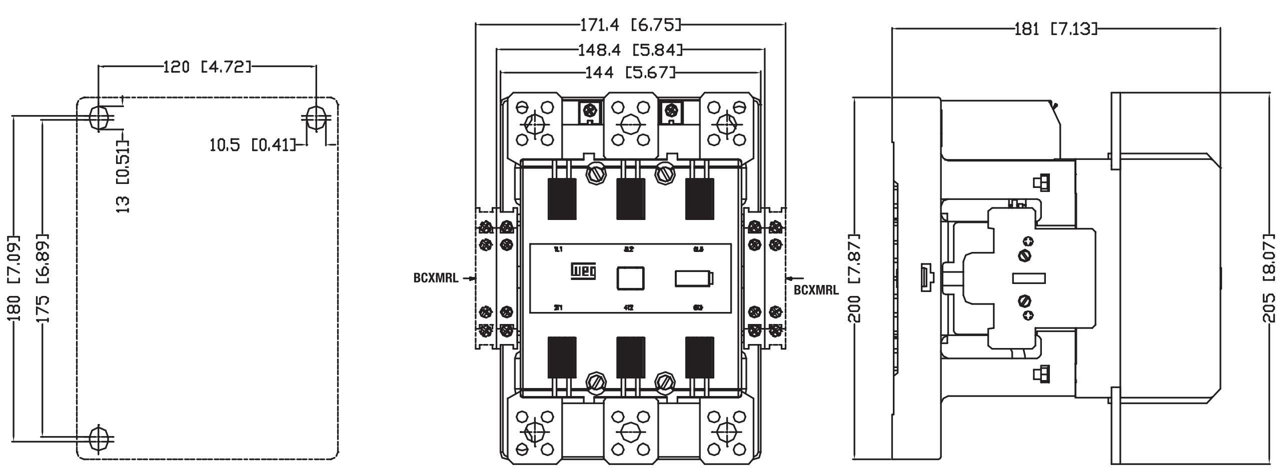
CWM112. CWM150 and CWM150N



CWM180



CWM250, CWM300 and CWM300N



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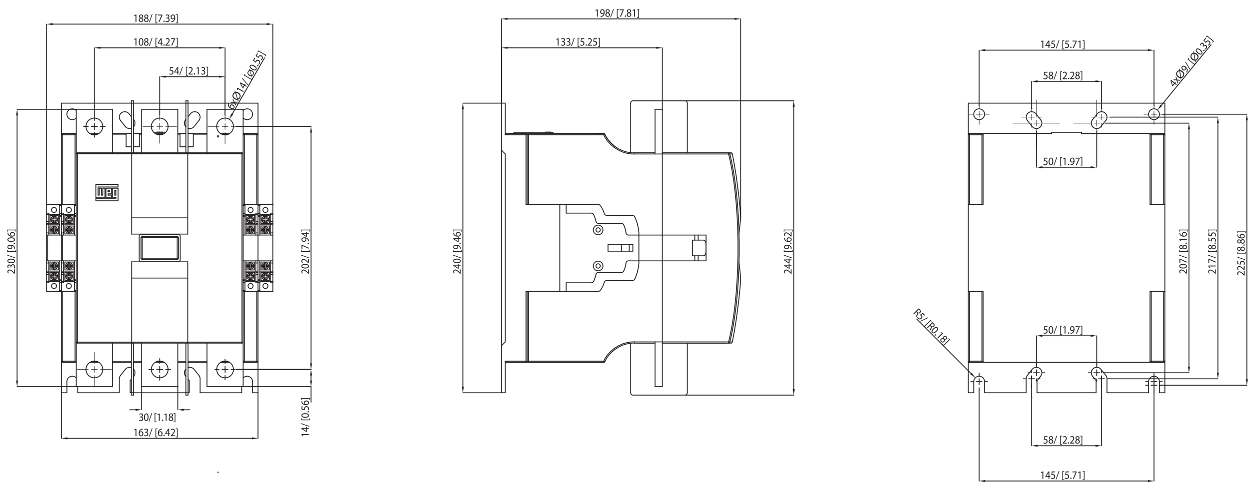
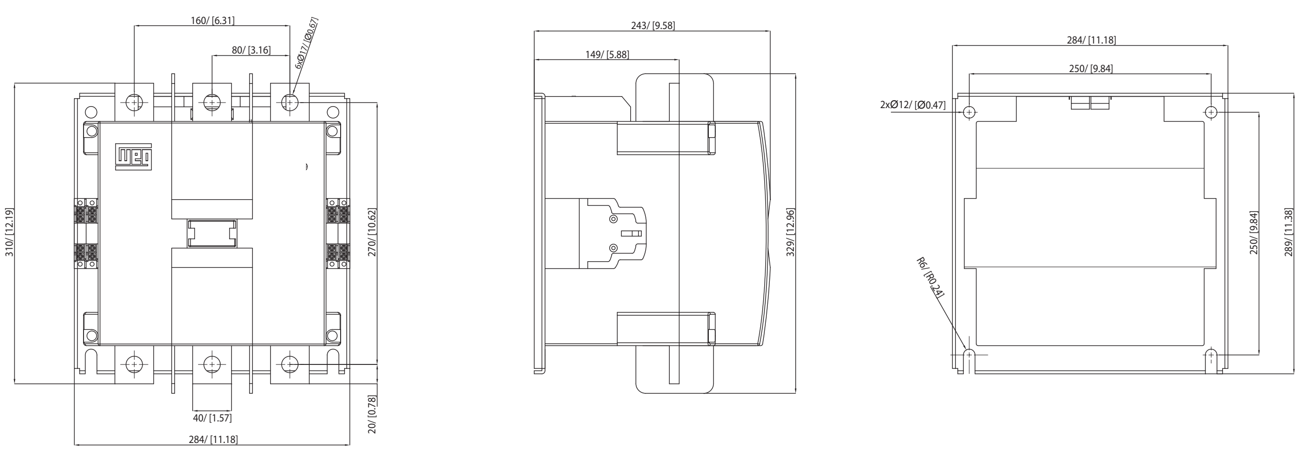
CWM Series - IEC Standard Contactors

Mechanical Drawings mm (in)

CWM400

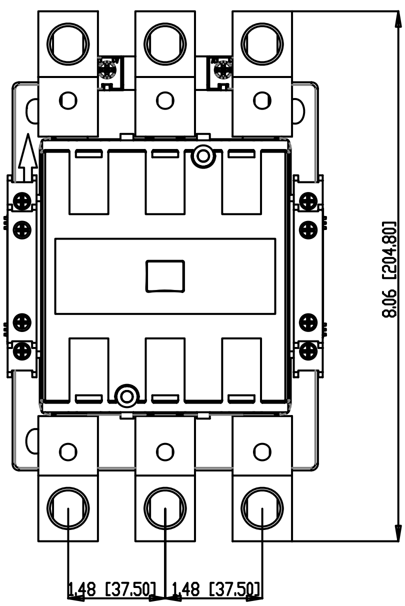


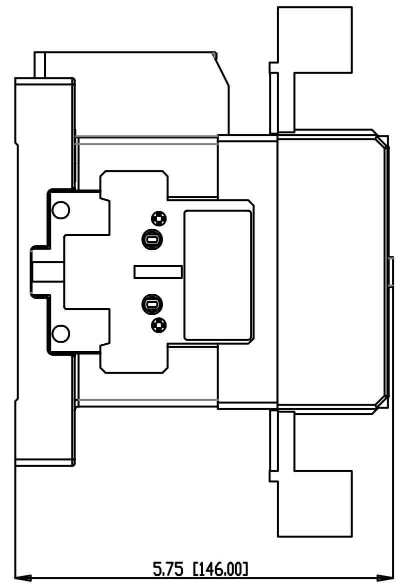
CWM630 and CWM800

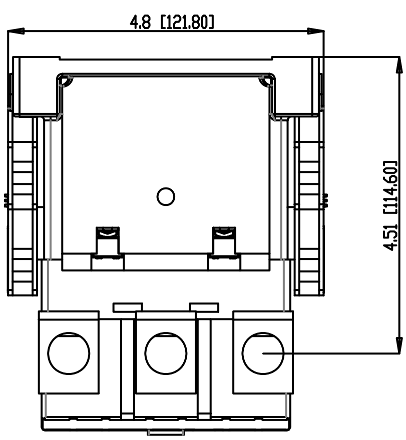


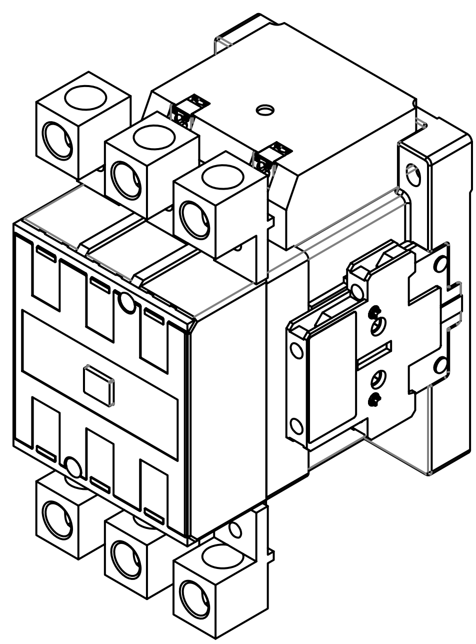
Mechanical Drawings mm (in)

CWM112 - CWM150 + LW1-S300 (contactor with lugs)





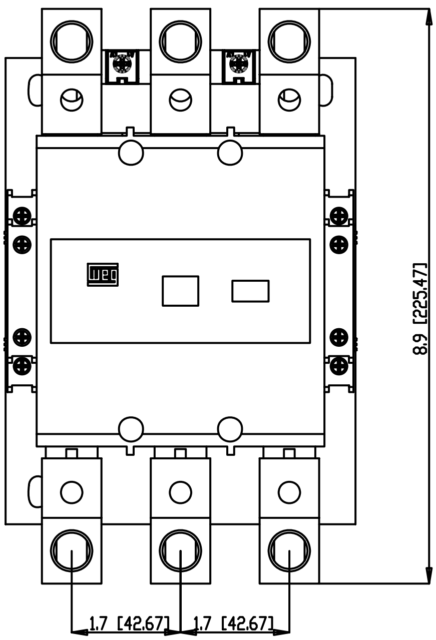


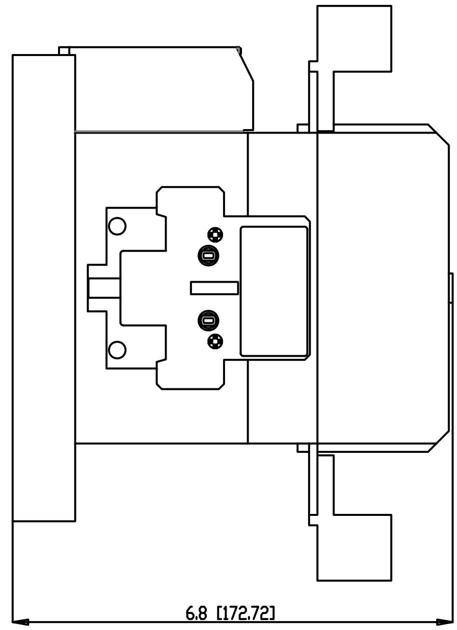


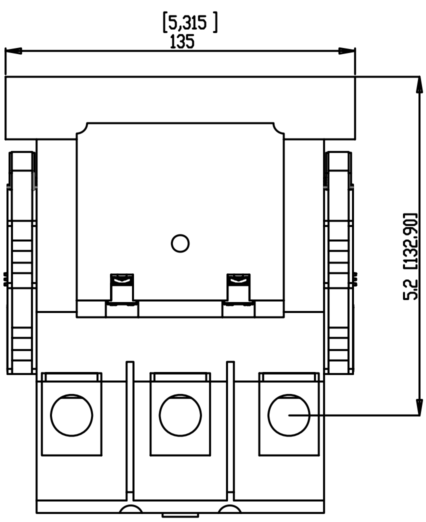
CWM Series - IEC Standard Contactors

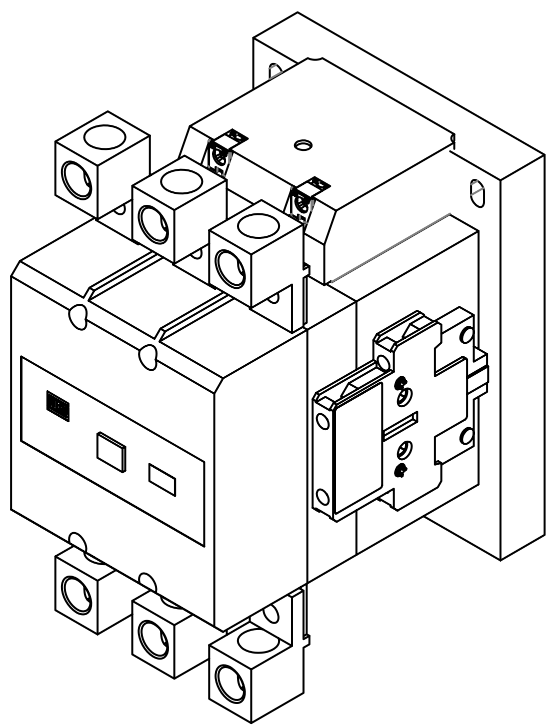
Mechanical Drawings mm (in)

CWM180 + LW2-S300 (contactor with lugs)





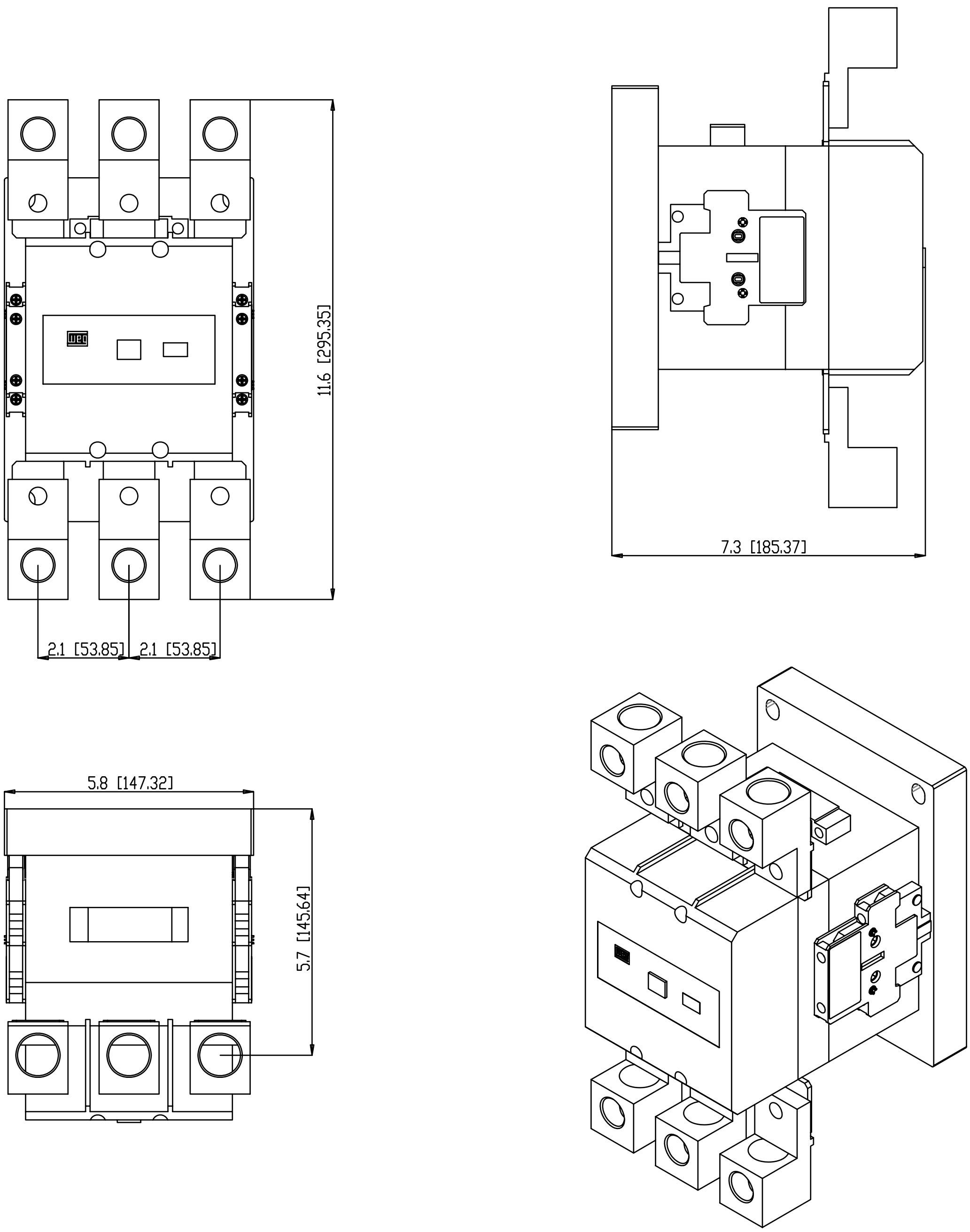




Data is subject to change without notice.

Mechanical Drawings mm (in)

CWM250 + LW1-S600 (contactor with lugs)



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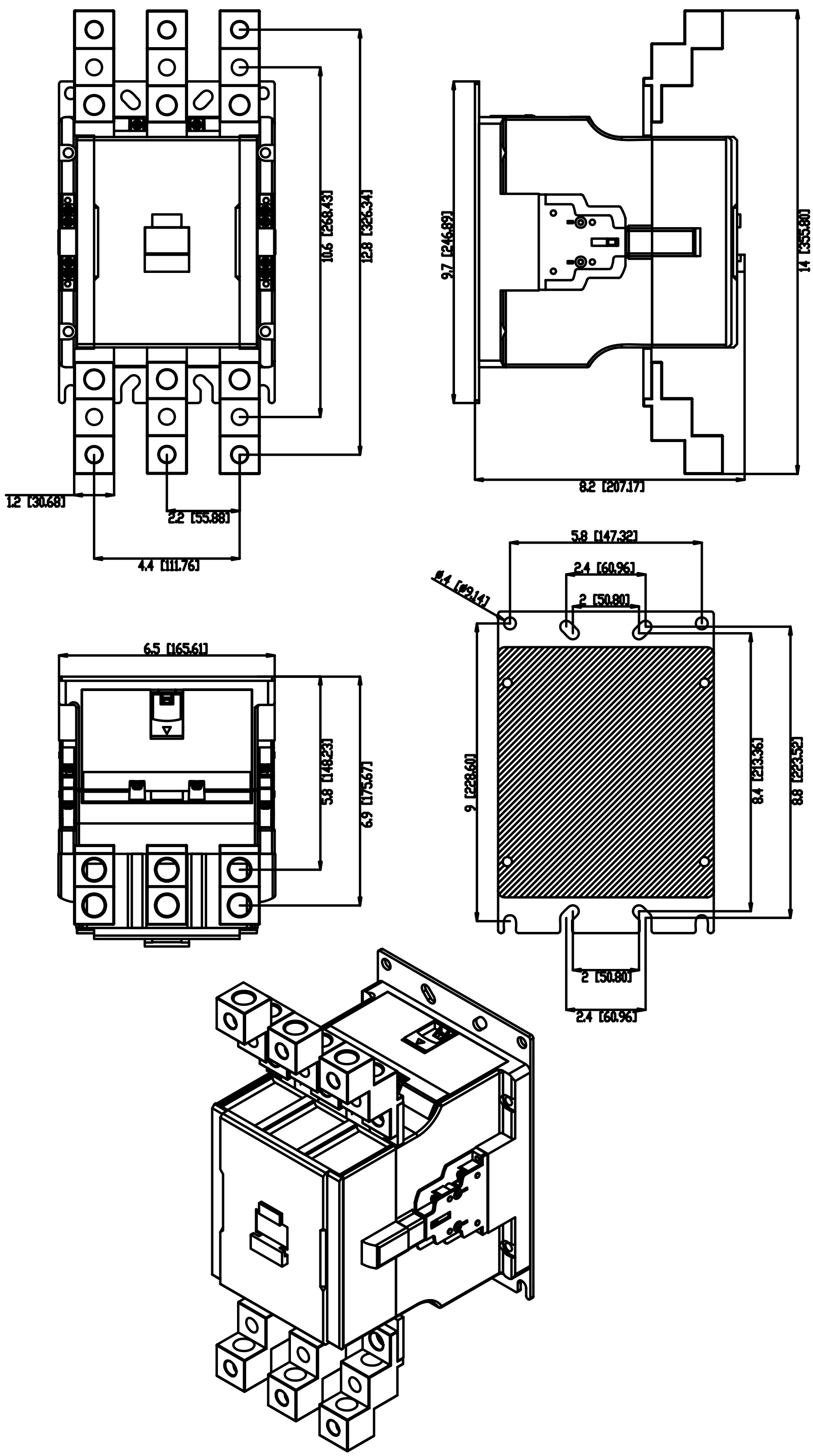
CWM Series - IEC Standard Contactors

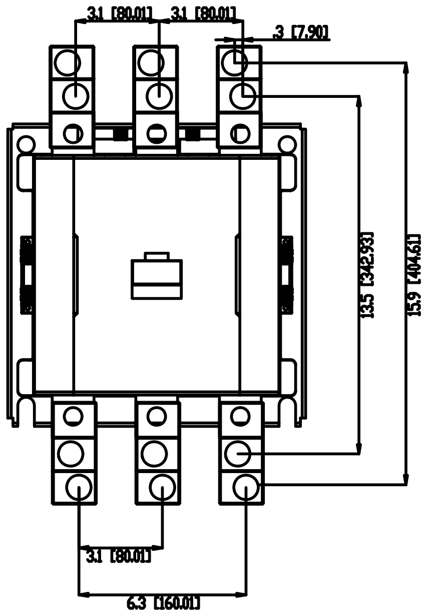
Mechanical Drawings mm (in)

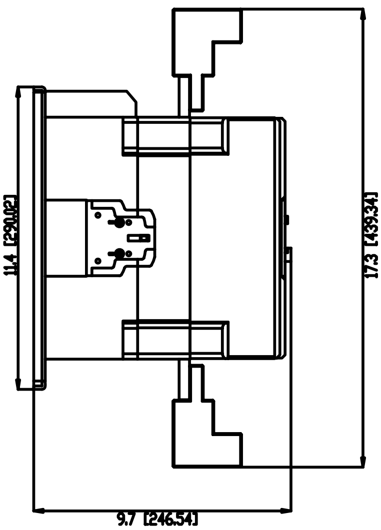
CWM400 + BMJ (contactor with lugs)

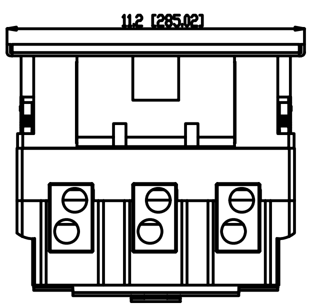


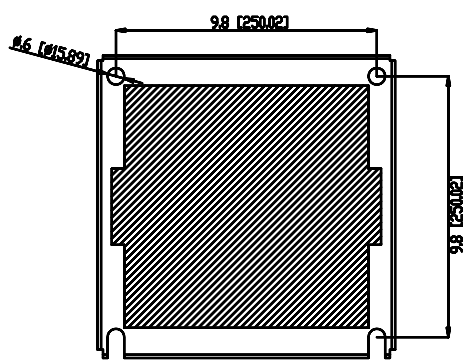
Mechanical Drawings mm (in)

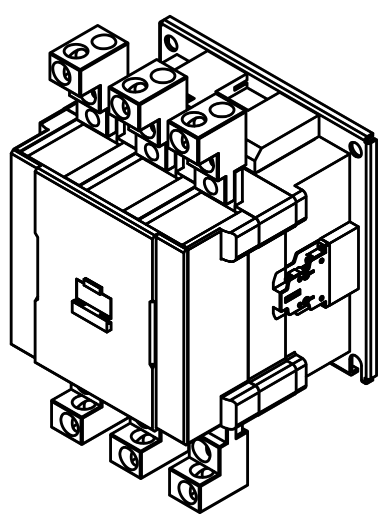
CWM630-CWM800 + BMJ (contactor with lugs)







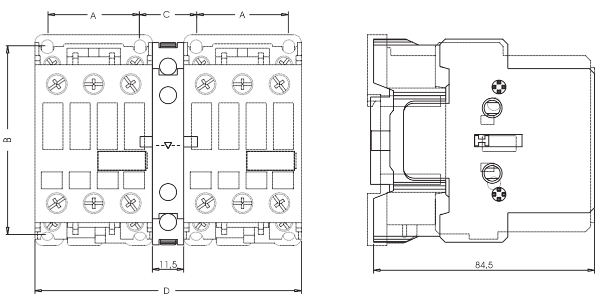




CWM Series - IEC Standard Contactors

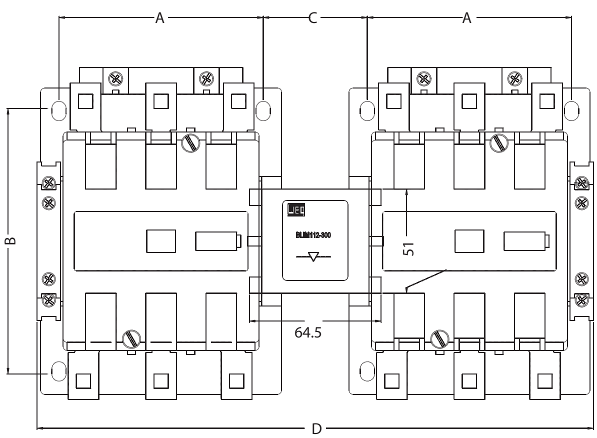
Reversing Contactors mm (in)

BLIM9-105



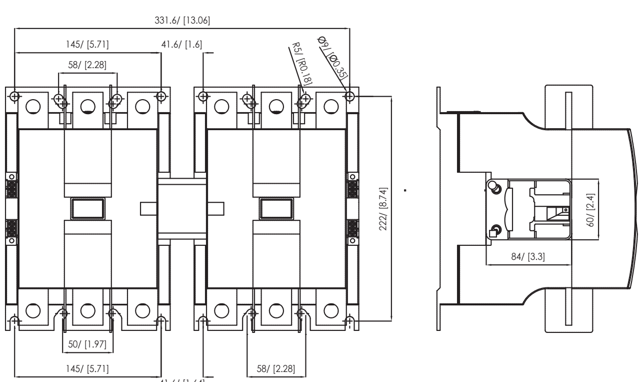
Models	A	B	C	D
CWM9…25	35 (1,4)	72,5 (2,9)	22 (0,9)	102 (4)
CWM32…40	45 (1,8)	79 (3,1)	22 (0,9)	122 (4,8)
CWM50…80	57 (2,2)	90 (3,5)	21 (0,8)	144 (5,7)
CWM95…105	57 (2,2)	90 (3,5)	29,8 (1,2)	153 (6)

BLIM112-300

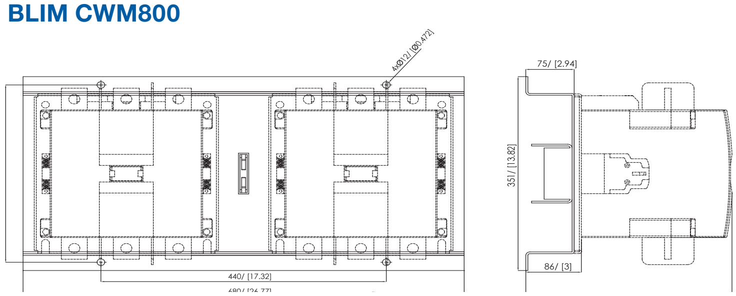


Models	A	B	C	D
CWM112…150	100 (3,9)	130 (5,1)	51 (2)	272,5 (10,7)
CWM180	110 (4,3)	160 (6,3)	58,5 (2,3)	303,5 (11,9)
CWM250…300	120 (4,7)	180 (7,1)	57 (2,2)	325,4 (12,8)

BLIM CWM400

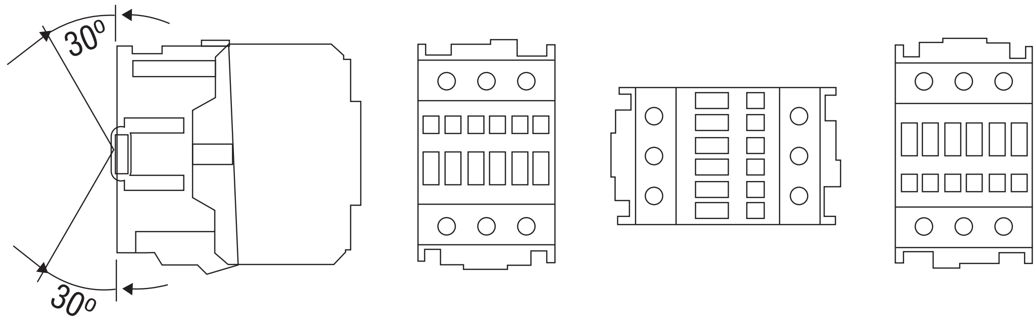


BLIM CWM800

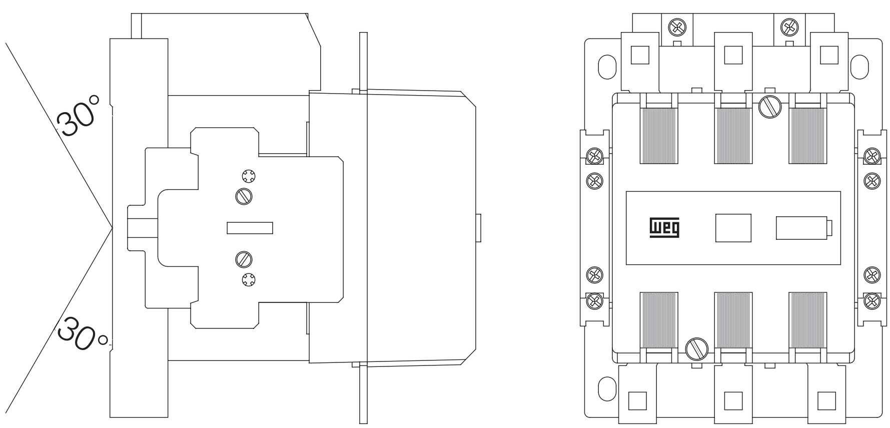


Mounting position[1]

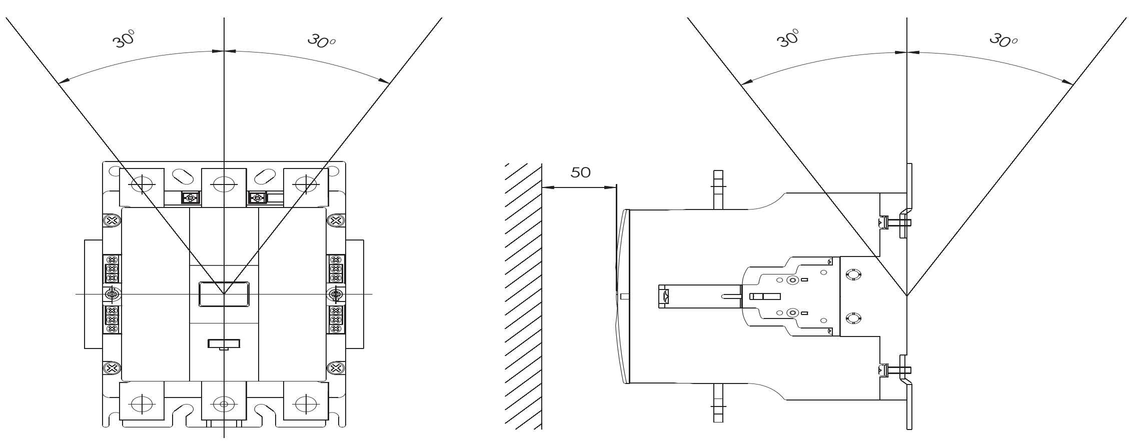
CWM9...105



CWM112...300



CWM400...800

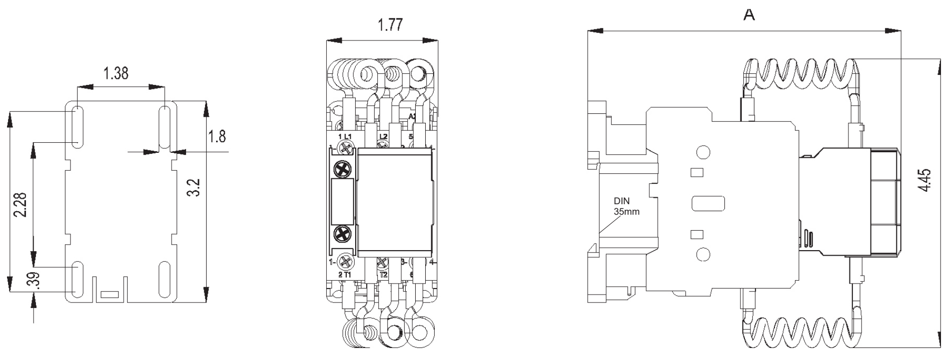


Note: 1) Consult WEG if application requires a different mounting position

Contactors for Capacitor Switching

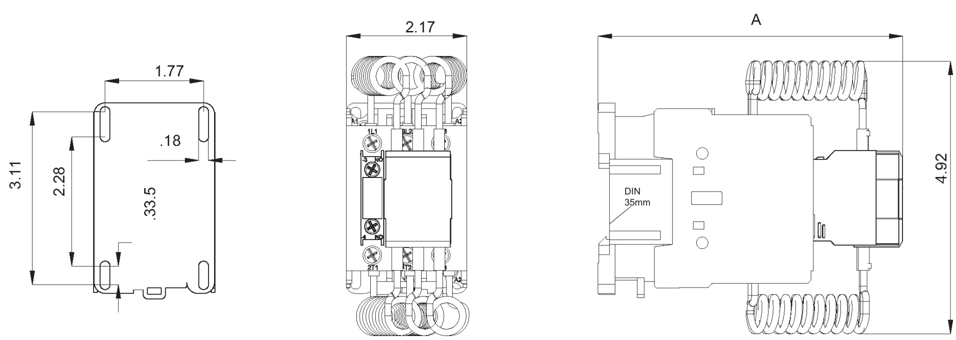
Contactors – Dimensions (in)

CWMC25



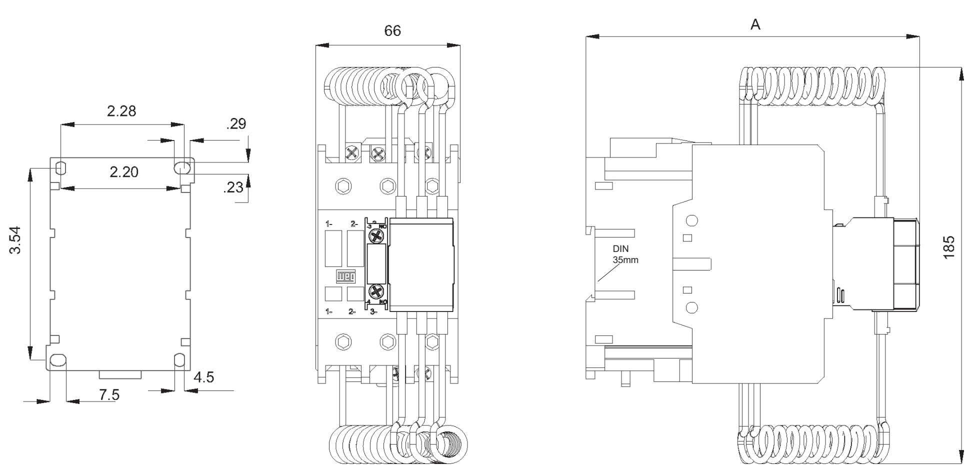
Coil	
AC	DC
A = 5.08	A = 6.26

CWMC32



Coil	
AC	DC
A = 5.5	A = 6.3

CWMC50 and CWMC65



Coil	
AC	DC
A = 6.22	A = 6.22

Thermal Overload Relays

An extended operational service life is one of the main features you can find in RW overload relays. WEG's RW Thermal Overload Relays are designed for use with, and as perfect complement to, WEG contactors. Effectively, RW overload relays can be mounted directly under WEG contactors, assuring electrical and mechanical operation as an open across-the-line starter. Accessories are also available for separate mounting.

UL File No. E189202

Standard Features:

- 2 and 3 pole versions available
- Direct mounting to WEG contactors with no accessory. (Accessories also available for separate mounting)
- Phase loss & current unbalance sensitivity protection
- Class 10 Trip characteristics
- Selectable RESET button (auto or manual)
- Isolated 1NO & 1NC auxiliary contacts

RW Series Catalog Number Sequence

RW	27-1D	3	-	U004

Overload Relay Series
RW: Thermal Overload Relay

Power Pole
3: 3NO Power Poles
2: 2NO Power Poles

Frame, Size and Terminal Type
17-1D: to use with CWC07…016
17-2D: to use with CWC025
27-1D: to use with CWM9…25
27-2D: to use with CWB9...38
27-2D: to use with CWB9...38
67-5D: to use with CWB40...80
67-1D: to use with CWM32…40
117-1D: to use with CWM95…105
117-2D: to use with CWM112…150
317-1D: to use with CWM112…300
407-1D: to use with CWM400…800

Overload Setting Current

RW17	RW117
D004: 0,28…0,40A	U080: 63…80A
U032: 11…32A	U112: 90…112A
RW27	**RW317**
DOO4: 0,28…0,40A	U150: 100…150A
U032: 11…32A	U420: 275…420A
RW67	**RW407**
U040: 25…40A	U600: 400…600A
U080: 63…80A	U840: 560…840A

For more details refer to selection table

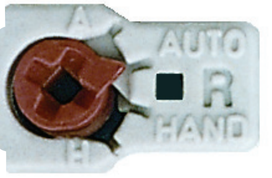
Chart intended for reference only and not to create part numbers

Overloads

RW Series - Bi-Metallic

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	Manual1)	Manual1)	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.

Dial FLA Setting

The trip-current is set via an infinitely adjustable dial designed with the motor‘s full load current (FLA) in mind.

Temperature Compensation

Because RW overload relays include a forth bimetallic strip in addition to the three that are directly heated by the motor current, ambient temperature variations in the range of -4°F to +140°F are no obstacle for accurate protection of your motors even in the toughest conditions.

Phase Failure Sensitivity

WEG overload relays include phase failure sensitivity protection as a standard. This feature ensures fast tripping in case of phase loss, protecting your motor and avoiding expensive repairs/corrective maintenance.

For use with CWC and CWM Contactors

Three-pole Thermal Overload Relay Class 10

- Adjustable tripping current
- Phase-loss sensitivity
- Tripping class 10
- Auxiliary contacts 1NO + 1NC
- Temperature compensation from -40F to +140F
- Hand/Auto/Reset button

Matching Contactor	Setting Range [A]		Max. Fuse [A]	Catalog Number	List Price	Multiplier
	Min.	Max.				
CWC07…CWC016 CWCA0 (Mini-contactor)	0.28	0.40	15	RW17-1D3-D004	$46	Z2
	0.40	0.63	15	RW17-1D3-C063	$46	
	0.56	0.80	15	RW17-1D3-D008	$46	
	0.80	1.20	15	RW17-1D3-D012	$46	
	1.20	1.80	15	RW17-1D3-D018	$46	
	1.80	2.80	15	RW17-1D3-D028	$46	
	2.80	4.00	15	RW17-1D3-U004	$46	
	4.00	6.30	25	RW17-1D3-D063	$46	
	5.60	8.00	30	RW17-1D3-U008	$46	
	7.00	10.0	40	RW17-1D3-U010	$46	
	8.00	12.5	50	RW17-1D3-D125	$46	
	10.0	15.0	60	RW17-1D3-U015	$46	
	11.0	17.0	60	RW17-1D3-U017	$46	
CWC025 (Mini-contactor)	15.0	23.0	90	RW17-2D3-U023	$46	
	22.0	32.0	100	RW17-2D3-U032	$46	
CWM9...CWM40 CWM9N...CWM32N	0.28	0.40	15	RW27-1D3-D004	$50	
	0.40	0.63	15	RW27-1D3-C063	$50	
	0.56	0.80	15	RW27-1D3-D008	$50	
	0.80	1.20	15	RW27-1D3-D012	$50	
	1.20	1.80	15	RW27-1D3-D018	$50	
	1.80	2.80	15	RW27-1D3-D028	$50	
	2.80	4.00	15	RW27-1D3-U004	$50	
	4.00	6.30	25	RW27-1D3-D063	$50	
	5.60	8.00	30	RW27-1D3-U008	$50	
	7.00	10.0	40	RW27-1D3-U010	$50	
	8.00	12.5	50	RW27-1D3-D125	$50	
	10.0	15.0	60	RW27-1D3-U015	$50	
	11.0	17.0	60	RW27-1D3-U017	$50	
	15.0	23.0	90	RW27-1D3-U023	$50	
	22.0	32.0	90	RW27-1D3-U032	$50	
CWM32...CWM40 CWM32N	25.0	40.0	90	RW67-1D3-U040	$87	
	32.0	50.0	125	RW67-1D3-U050	$94	
CWM50...CWM80 CWM50N	25.0	40.0	90	RW67-2D3-U040	$95	
	32.0	50.0	125	RW67-2D3-U050	$95	
	40.0	57.0	150	RW67-2D3-U057	$95	
	50.0	63.0	150	RW67-2D3-U063	$95	
	57.0	70.0	175	RW67-2D3-U070	$112	
	63.0	80.0	175	RW67-2D3-U080	$112	
CWM95...CWM105 CWM95N	63.0	80.0	200	RW117-1D3-U080	$150	
	75.0	97.0	225	RW117-1D3-U097	$192	
	90.0	112	250	RW117-1D3-U112	$192	
CWM112...CWM150 CWM150N	75.0	97	225	RW117-2D3-U097	$232	
	90.0	112	250	RW117-2D3-U112	$232	
CWM112…CWM300 CWM300N	100	150	300	RW317-1D3-U150	$285	
	140	215	350	RW317-1D3-U215	$285	
	200	310	500	RW317-1D3-U310	$320	
CWM400...CWM800	275	420	700	RW317-1D3-U420	$320	
	400	600	1000	RW407-1D3-U600	$690	
	560	840	1250	RW407-1D3-U840	$690	

Note: RW117-2D, RW317-1D and RW407-1D are for separate mounting -
Connector links for contactors CWM112…CWM300 are available as an accessory on page 225.

Overloads

RW Series - Bi-Metallic

For use with CWB Contactors

Three-pole Thermal Overload Relay Class 10

- Adjustable Trip Current
- Phase Loss Sensitivity
- Trip Class 10
- Built-In Auxiliary Contacts: 1NO + 1NC
- Ambient Temperature Compensation: -4ºF to +140ºF
- Multi-Function Button: Hand/Auto/Reset

Matching Contactor	Setting Range [A]		Max. Fuse [A]	Catalog Number	List Price	Multiplier
	Min.	Max.				
CWB9 - CWB38	0.28	0.40	15	RW27-2D3-D004	$50	Z2
	0.40	0.63	15	RW27-2D3-C063	$50	
	0.56	0.80	15	RW27-2D3-D008	$50	
	0.80	1.20	15	RW27-2D3-D012	$50	
	1.20	1.80	15	RW27-2D3-D018	$50	
	1.80	2.80	15	RW27-2D3-D028	$50	
	2.80	4.00	15	RW27-2D3-U004	$50	
	4.00	6.30	25	RW27-2D3-D063	$50	
	5.60	8.00	30	RW27-2D3-U008	$50	
	7.00	10.0	40	RW27-2D3-U010	$50	
	8.00	12.5	50	RW27-2D3-D125	$50	
	10.0	15.0	60	RW27-2D3-U015	$50	
	11.0	17.0	60	RW27-2D3-U017	$50	
	15.0	23.0	90	RW27-2D3-U023	$50	
	22.0	32.0	90	RW27-2D3-U032	$50	
	32.0	40.0	90	RW27-2D3-U040	$60	
CWB40-CWB80	25.0	40.0	90	RW67-5D3-U040	$95	Z2
	32.0	50.0	125	RW67-5D3-U050	$95	
	40.0	57.0	150	RW67-5D3-U057	$95	
	50.0	63.0	150	RW67-5D3-U063	$95	
	57.0	70.0	175	RW67-5D3-U070	$112	
	63.0	80.0	200	RW67-5D3-U080	$112	

For use with CWC and CWM Contactors

Two-pole Thermal Overload Relays Class 10 (used for single phase applications)

- Adjustable tripping current
- Phase-loss sensitivity
- Tripping class 10
- Auxiliary contacts 1NO + 1NC
- Temperature compensation from -40°F to +140°F
- Hand/Auto/Reset button

Matching Contactor	Setting Range [A]		Max. Fuse [A]	Catalog Number	List Price	Multiplier
	Min.	Max.				
CWM9...CWM40	0.28	0.40	15	RW27-1D2-D004	$40	Z2
	0.40	0.63	15	RW27-1D2-C063	$40	
	0.56	0.80	15	RW27-1D2-D008	$40	
	0.80	1.20	15	RW27-1D2-D012	$40	
	1.20	1.80	15	RW27-1D2-D018	$40	
	1.80	2.80	15	RW27-1D2-D028	$40	
	2.80	4.00	15	RW27-1D2-U004	$40	
	4.00	6.30	25	RW27-1D2-D063	$40	
	5.60	8.00	30	RW27-1D2-U008	$50	
	7.00	10.0	40	RW27-1D2-U010	$50	
	8.00	12.5	50	RW27-1D2-D125	$50	
	10.0	15.0	60	RW27-1D2-U015	$50	
	11.0	17.0	60	RW27-1D2-U017	$50	
	15.0	23.0	90	RW27-1D2-U023	$50	
	22.0	32.0	90	RW27-1D2-U032	$50	
CWM32...CWM40	25.0	40.0	90	RW67-1D2-U040	$81	
	32.0	50.0	125	RW67-1D2-U050	$88	
CWM50...CWM80	25.0	40.0	90	RW67-2D2-U040	$95	
	32.0	50.0	125	RW67-2D2-U050	$95	
	40.0	57.0	150	RW67-2D2-U057	$95	
	50.0	63.0	150	RW67-2D2-U063	$95	
	57.0	70.0	175	RW67-2D2-U070	$105	
	63.0	80.0	175	RW67-2D2-U080	$105	

Note: 1 Availability upon request.

Overloads

RW Series - Bi-Metallic

For use with CWB Contactors

Two-pole Thermal Overload Relays Class 10 (used for single phase applications)

- Adjustable tripping current
- Phase-loss sensitivity
- Tripping class 10
- Auxiliary contacts 1NO + 1NC
- Temperature compensation from -4°F to +140°F
- Hand/Auto/Reset button

2 POLE THERMAL OVERLOAD RELAYS - CLASS 10

Matching Contactor	Setting Range [A]		Max. Fuse [A]	Catalog Number	List Price	Multiplier
	Min.	Max.				
CWB9 - CWB38	0.28	0.40	15	RW27-2D2-D004	$50	Z2
	0.40	0.63	15	RW27-2D2-C063	$50	
	0.56	0.80	15	RW27-2D2-D008	$50	
	0.80	1.20	15	RW27-2D2-D012	$50	
	1.20	1.80	15	RW27-2D2-D018	$50	
	1.80	2.80	15	RW27-2D2-D028	$50	
	2.80	4	15	RW27-2D2-U004	$50	
	4	6.30	25	RW27-2D2-D063	$50	
	5.60	8.00	30	RW27-2D2-U008	$50	
	7.00	10.0	40	RW27-2D2-U010	$50	
	8.00	12.5	50	RW27-2D2-D125	$50	
	10.0	15.0	60	RW27-2D2-U015	$50	
	11.0	17.0	60	RW27-2D2-U017	$50	
	15.0	23.0	90	RW27-2D2-U023	$50	
	22.0	32.0	90	RW27-2D2-U032	$50	
	32.0	40.0	90	RW27-2D2-U040	$50	
CWB40-CWB80	25.0	40.0	90	RW67-5D2-U040	$95	
	32.0	50.0	125	RW67-5D2-U050	$95	
	40.0	57.0	150	RW67-5D2-U057	$95	
	50.0	63.0	150	RW67-5D2-U063	$95	
	57.0	70.0	175	RW67-5D2-U070	$105	
	63.0	80.0	200	RW67-5D2-U080	$105	

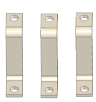
Separate Mounting Bracket

Description	Mounting on Overload Relays (2 or 3 pole)	Catalog Number	List Price	Multiplier
Enables overload relay to be directly mounted to a back panel via screws or DIN rail	RW27-1D	BF27D	$14	Z2
	RW27-2D	BF27-2D	$14	
	RW67-1D	BF67.1D	$23	
	RW67-2D	BF67-2D	$23	
	RW117-1D	BF117D	$30	
	RW67-5D	BF67-	$23	

Reset Pushbutton with Shaft

Description	Catalog Number	List Price	Multiplier
Flush pushbutton - blue - engraved reset - with shaft. Length: mox. 250 mm and min. 22.5 mm	CSW-BHF437	$12	Z5

Connector links (3 per package)



Description	Contactor	Overload Relay	Catalog Number	List Price	Multiplier
Link connectors for easier CWM contactors and RW overload relays assembly	CWM112 / CWM150	RW117-2D3	GA117D	$41	Z2
	CWM150	RW317-1D3	GA317-1D	$68	
	CWM180	RW317-1D3	GA317-2D	$70	
	CWM250 / CWM300	RW317-1D3	GA317-3D	$118	
	CWM400	RW317-1D3	GA317-10D	$118	

Lugs for RW Series (Overload Relay) (3 units per package)

Description / Wire Range	Mounting on Overloads	Catalog Number	List Price	Multiplier
(2) 600 MCM...2AWG	RW407-2D (400A-840A)	LW1-2S600-B	$230	Z2
600 MCM…4AWG	RW317-1D (200A-420A)	LW2-S600	$75	
300 MCM...6AWG	RW317-1D (100A-215A)	LW3-S300	$35	

RW Series - Bi-Metallic

General Data and Main Contacts

Catalog Number			RW17	RW27	RW67	RW117	RW317	RW407
Standards		Units	IEC 60947 / UL 508					
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 Ui (pollution degree 3)	IEC 60947	(V)	690				1,000	
	UL/CSA	(V)	600					
Rated impulse withstand voltage Uimp		(kV)	6				8	
Rated operational frequency		(Hz)	0...400					
Degree of protection Protection against direct contact from the front when actuated by a perpendicular test finger (IEC 536)			IP 20 Finger and back-of-hand proof					
Ambient temperature Operating temperature Storage temperature			-25 oC to +60 oC -40 oC to +70 oC					
Climating proof IEC 60 068-2-3 IEC 60 068-2-30			Damp heat. constant Damp heat. constant					
Current heat loss Lower value of setting range Higher value of setting range		(W) (W)	0.9 1.4	0.9 1.7	1.5 4.7	2.3 4.7	1 1.9	

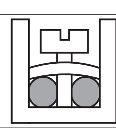
Auxiliary Contacts

Models			RW17	RW27	RW67	RW117	RW317	RW407
Standards			IEC 60 947-4-1 and UL 508					
Rated insulation voltage Ui (pollution degree 3)	IEC	(V)	690					
	UL, CSA	(V)	600					
Rated operational voltage Ue	IEC	(V)	690					
	UL, CSA	(V)	600					
Rated thermal current Ith (**θ** ≤55 ºC)		(A)	6					
Rated operational current Ie								
AC-14 / AC-15 (IEC 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					
	690 V	(A)	0.3					
UL, CSA			C600					
DC-13 / DC-14 (IEC 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)		(A)	6					
Minimum voltage / admissible current (IEC 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	400...840
Cable size (75 ºC / Cu cable)									
Flexible cable	1 cable	(mm^2)	1,5...10		6,0...35	25...35	35...120	95...150	-
	2 cables	(mm^2)			-	-			
Cable with terminal or rigid cable	1 cable	(mm^2)	1,5...6,0		6,0...35	25...35	35...120	95...150	-
	2 cables	(mm^2)			-	-			
Busbar		(mm^2)	-				Max 2x (25x5)		Max 2x (60x10)
Tightening torque		(N.m)	2,3		4,0	6,0	16,0	26,0	26,0
UL cable size (75 ºC - Cu cable)		AWG	16...8		10...3	6...1/0	3–300 kcmil	3/0 – 600 kcmil	2x 600 kcmil 2x (1/4"x2")
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 Philips					
Cable size (75 ºC / Cu cable)								
Cable with or without terminal	(mm^2)		2 x 1...2.5					
AWG-wire			16...12					
Tightening torque	(N.m / lb.in)		1.5 / 13					

Data is subject to change without notice.

Technical Data

Main Data

Models			RW27
Standards			IEC 60947-1 and UL 508
Rated insulation voltage Ui (pollution degree 3)	IEC 60947-4-1	(V)	690
	UL, CSA	(V)	600
Rated impulse withstand voltage Uimp (IEC 60947-1)		(kV)	6
Rated operational frequency		(Hz)	25...400
Use with direct current			Yes
Maximum operation per hour		(ops./h)	15
Protection degree (IEC 60529)	Main contacts		IP10
	Auxiliary contacts		IP20
	Frontal		IP20
Mounting			Direct on the contactor
Resistance to impact (IEC 60068-2-27 - 1/2 sinusoid)		(g/ms)	10/11
Ambient temperature	Transport and storage		-50 ºC...+80 ºC
	Operating		-20 ºC...+70 ºC
	Temperature compensation		-20 ºC...+60 ºC
Altitude		(m)	2000

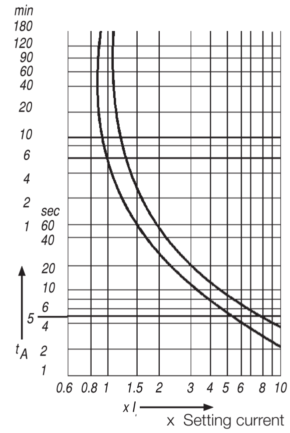
Main Contacts

Models			RW27
Rated operational voltage Ue	IEC 60947-4-1	(V)	690
	UL, CSA	(V)	600
Setting current / max fuse (gL/gG)1)		(A)	0.28...0.4 / 2
			0.43...0.63 /2
			0.56...0.8 / 2
			0.8...1.2 / 4
			1.2...1.8 / 6
			1.8...2.8 / 6
			2.8...4 / 10
			4...6.3 / 16
			5.6... 8 / 20
			7...10 / 25
			8...12.5 / 25
			10...15 / 35
			11...17 / 40
			15...23 / 50
			22...32 / 63
			32...40 / 90
Average power dissipation per pole		(W)	≤3

RW Series - Bi-Metallic

RW Tripping Characteristics

These tripping characteristics show the tripping of RW in relation to the current. They show the mean values of the tolerance ranges at on ambient temperature of 68°F (20°C), starting from cold stats. The tripping time of the overload releases at operational temperature is reduced to approximately 25% of the values shown. Under normal operational conditions, all three phases of the RWs should be loaded.



Altitude & Temperature Derating

The derating of a RW overload relay has two possible factors:

1) Ambient temperature

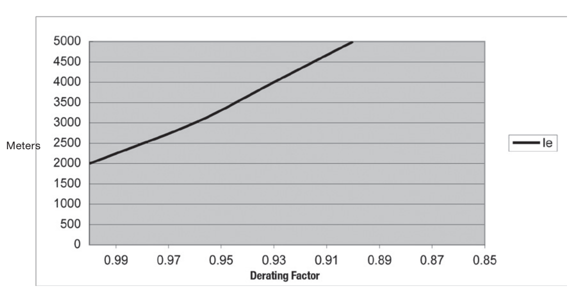
- Temperature compensation considers a factor according to which the rated current must be reduced when ambient temperature is higher than 60°C (140°F).

2) Altitude

- Altitude compensation involves both, rated current and voltage.
- Current compensation considers a factor according to the rated current must be reduced.
- For voltage, altitude limits the higher operating voltage the overload relay can be used.

Temperature Compensation		Current Correction ffactor
149°F	(65°C)	0.94
158°F	(70°C)	0.87
167°F	(75°C)	0.81
176°F	(80°C)	0.73

Altitude	Voltage Correction [Ue]
Up to 2,000m (6,667ft)	690
Up to 3,000m (10,000ft)	550
Up to 4,000m (13,333ft)	480
Up to 5,000m (16,667ft)	420



The derating of the permissible operating current for installation altitudes above 2,000m (6,667 ft) and ambient temperatures over 60°C (140°F) is calculated according to:

Total derating = Derating altitude x Derating ambient temperature

Example;
Altitude: 3,000 m (10,000 ft)
K1 = 0.96
Ambient temperature: 70°C (158°F)
K2 = 0.87

Total current derating = 0.96 x 0.87 = 0.84 x Ie
In this case, the maximum rated voltage we can connect to our RW overload relay is 550V.

In order to select the proper overload relay, you have to choose a device with a current range that accommodates:
Overload Setting Point = FLA motor / (K1 x K2)

As in the example above, K1 x K2 = 0.84
For a motor with FLA = 20Amps

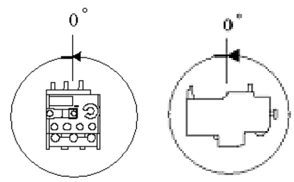
Overload Setting Point = 20 / 0.84 = 23.8Amps

Operating Positions[1]

RW17D, RW27D, RW67D, RW117D, RW317D, RW407D

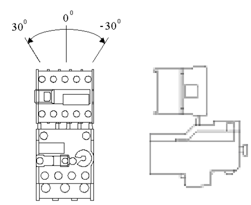
Mounting without contactor

The overload relays can be mounted at any position.



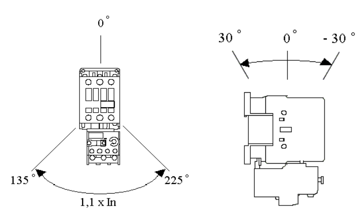
RW17D with CWC Series

As showed at the left figure below, the inclination can not exceed ± 30° degrees for a perfectly functioning of the contactor. Laterally, as showed at the right figure below, the mounting position is equivalent to 0° degrees - not requiring a correction factor on the dial of the relay. The assembly can work with mounting variations of 0° to 180°



RW27D, RW67D, RW117D, RW317D, RW407

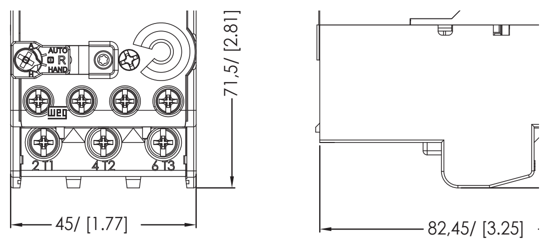
The mounting position showed at the left figure below is equivalent to 0° degrees - not requiring a correction factor on the dial of the relay. The assembly can work with mounting variations of 0° to 135° for each side, however the mounting with the relay above the contactor, position between 135° and 225°, is required a correction factor of +10% on the dial of the relay. Laterally, as showed at the right figure below, the inclination can not exceed ± 30° for a perfect functioning of the contactor. D with CWM/CWM Series



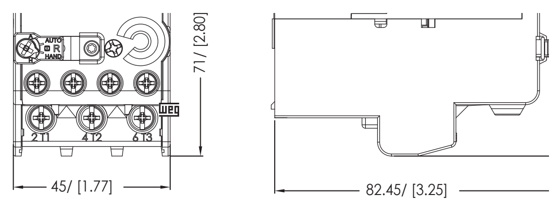
Note: 1)Please consult WEG for different mounting positions.

RW Series - Bi-Metallic

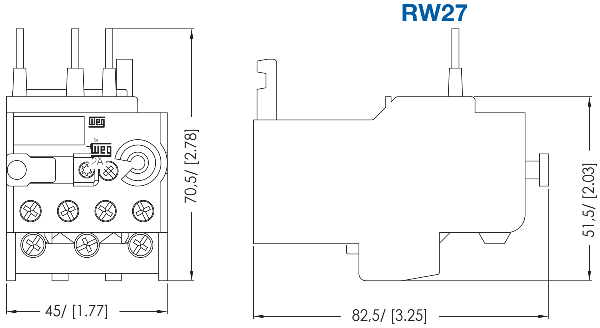
RW17-1D



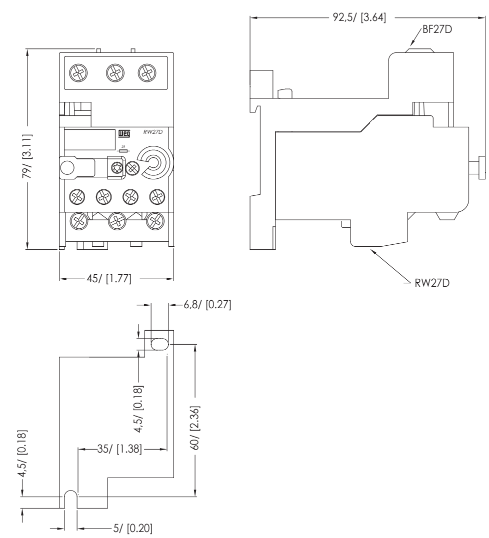
RW17-2D



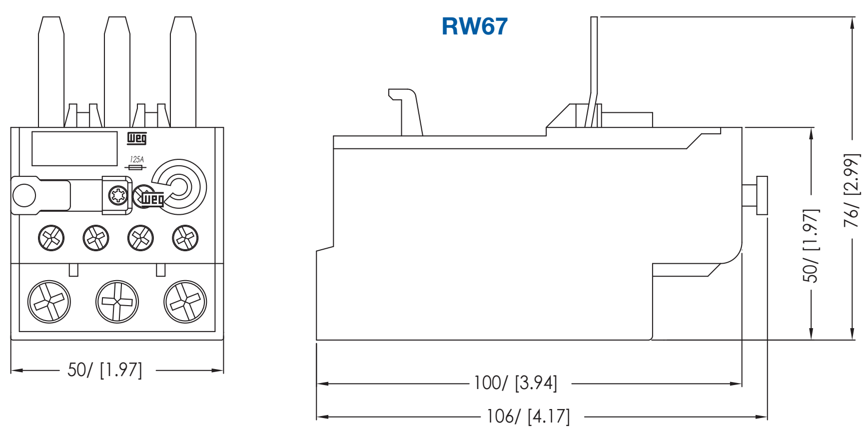
RW27



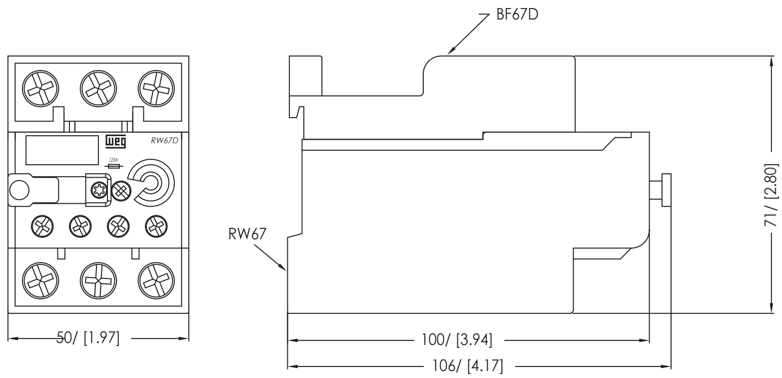
RW27 + BF27

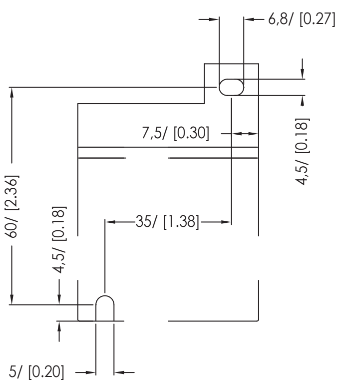


RW67

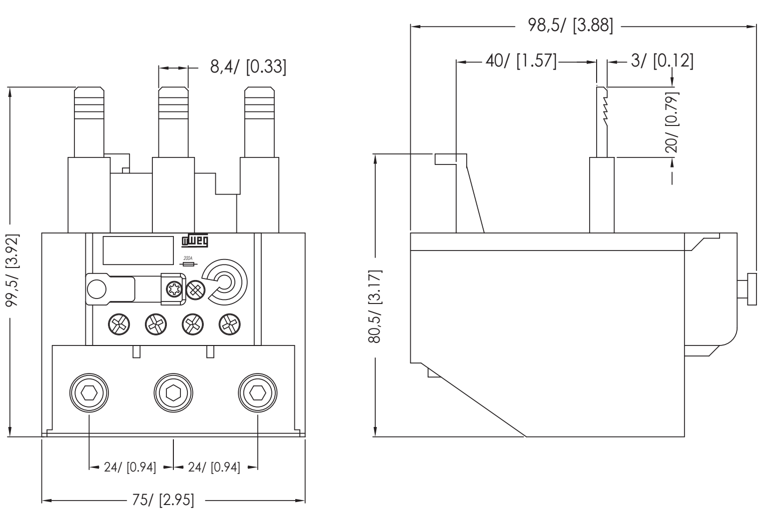


RW67 + BF67

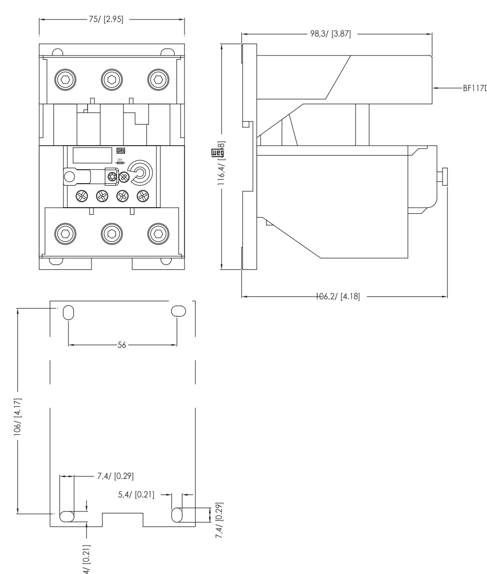




RW117-1D



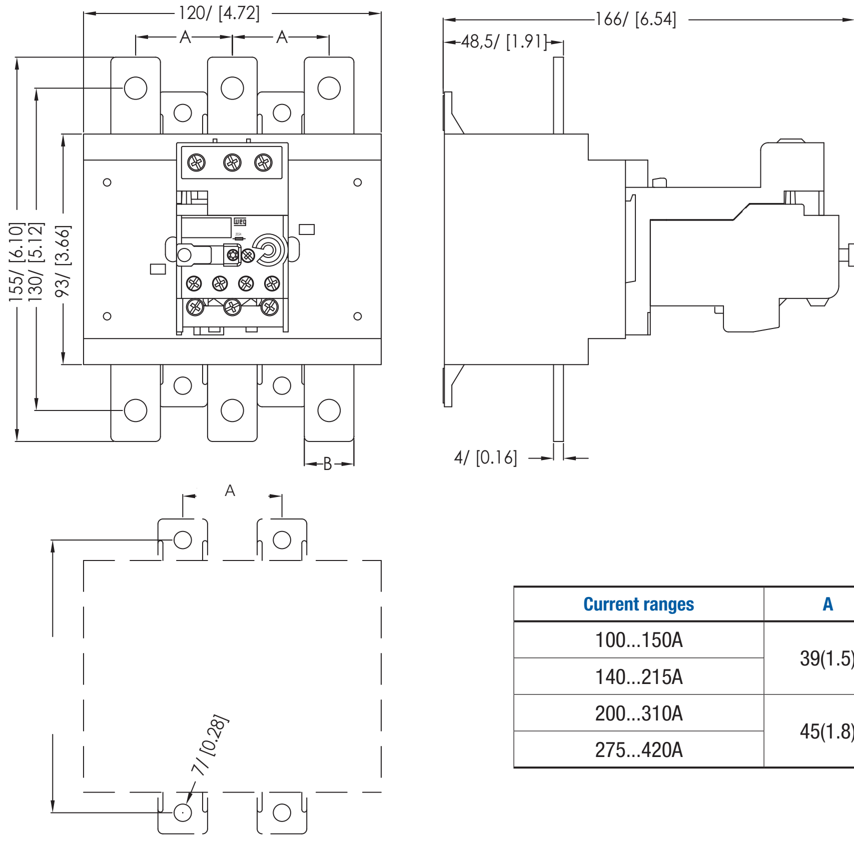
RW117-2D



Overloads

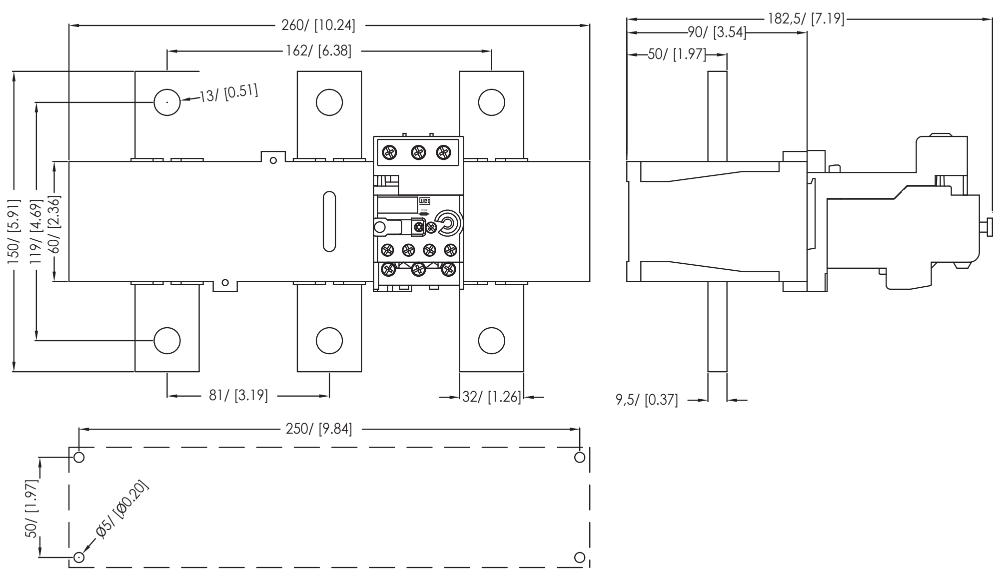
RW Series - Bi-Metallic

RW317



Current ranges	A	B
100...150A	39(1.5)	20(0.8)
140...215A		
200...310A	45(1.8)	25(1.0)
275...420A		

RW407



Solid-State Overload Relays

The new RW_E Solid State Overload relays are developed with cutting edge technology according to the most demanding standards worldwide. With its wide current/AMP setting; the RW_E OL Relay can be used for protection of electric motors of different power ratings. The benefit is versatility and flexibility for manufacturers due to the possibility of standardization of control panels. This Solid State Overload Relay can be directly mounted on WEG Contactors (CWM and CWB lines) providing very reliable and flexible motor starter units. The RW_E counts on two independent and highly reliable built in auxiliary contacts that assure the motor is switched off when a failure occurs.

UL File No. E189202

Standard Features:

- 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

Solid-State Overload Relay Catalog Number Sequence

RWB	40	E	-	3	-	A4U040

Contactor Series
RWM - Solid State OL for CWM
RWB - Solid State OL for CWB

Contactor Frame
40: 40A Contactor
112: 112A Contactor
420: 420A Contactor
840: 840A Contactor

OL Relay Type
E: Electronic OL

Power Poles
3: 3-Phase Relay

Overload Current Settings
A4U002: 0.4 - 2.0A
A4U008: 1.6 - 8.0A
A4U025: 5 - 25A
A4U040: 8 - 40A
A4U056: 14 - 56A
A4U112: 28 - 112A
A4U250: 50 - 250A
A4U420: 85 - 420A
A4U840: 170 - 840A

Chart intended as reference only and not to create part numbers.

General Information
Circuit Protection
Disconnect Switches
Motor Protectors
Contactors
Overloads
Enclosed Starters
Relays
Pushbuttons and Pilot Lights
Terminal Blocks
Power Factor Correction
Appendix A
Appendix B

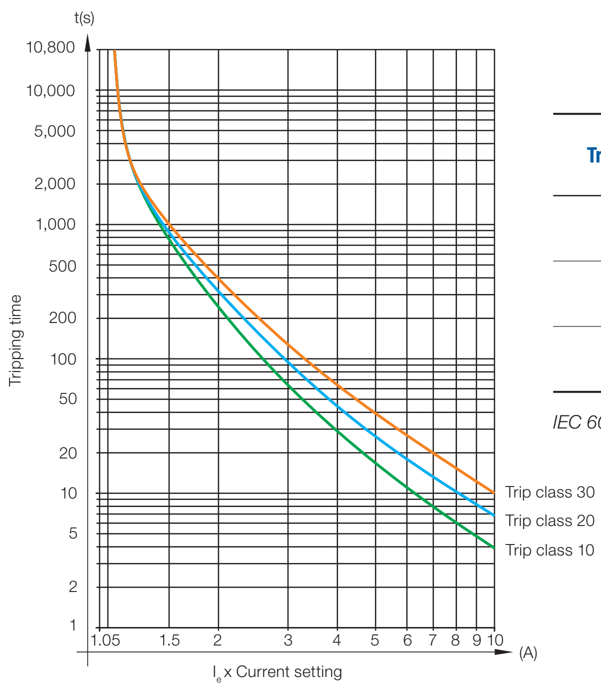
RW-E Series

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.

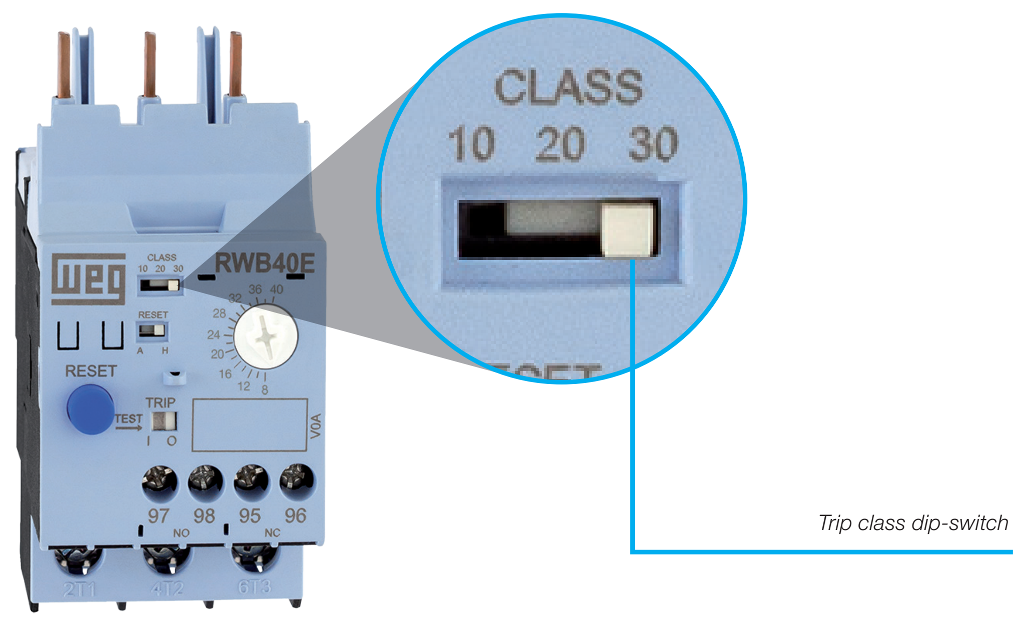
Additionally, the microprocessed electronic circuits of RW_E are temperature compensated according to IEC 60947-4-1, which means that throughout the temperature range of -20 °C up to +60 °C, the tripping point is not affected and it performs consistently without undesirable tripping.

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.



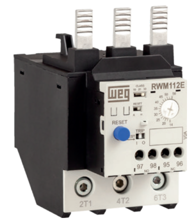
Trip class	Multiples of current setting			
	1.05 x Ir	1.2 x Ir	1.5 x Ir	7.2 x Ir
10	-	Tp <2h	Tp <4min	4 <Tp ≤10s
20	-	Tp <2h	Tp <8min	6 <Tp ≤20s
30	-	Tp <2h	Tp <12min	9 <Tp ≤30s

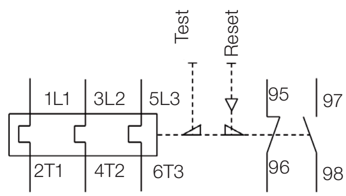
IEC 60947-4-1



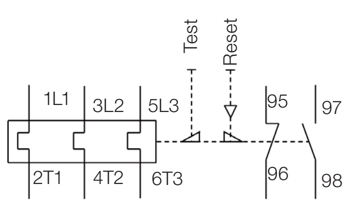
Trip class dip-switch

RW_E Solid-State Overload Relays from 0.4 up to 840 A



For direct mounting on contactors	Current range A	Diagram	Max fuse (gL/gG) A	Catalog Number	Weight kg	List Price	Multiplier
CWB9...38	0.4...2		16	RWB40E-3-A4U002	0.250		
CWB9...38	1.6...8		32	RWB40E-3-A4U008		$92	
CWB9...38	5...25		63	RWB40E-3-A4U025			
CWB9...38	8...40		125	RWB40E-3-A4U040	0.250	$145	
CWM9...40	0.4...2		16	RWM40E-3-A4U002			Z2
CWM9...40	1.6...8		32	RWM40E-3-A4U008	0.250	$92	
CWM9...40	5..25		63	RWM40E-3-A4U025			
CWM9...40	8...40		125	RWM40E-3-A4U040	0.918	$145	
CWM50...105	14...56		160	RWM112E-3-A4U056	0.918	$225	
CWM50...105	28...112		250	RWM112E-3-A4U112	0.918	$240	

Note: Not to be used in single-phase applications.

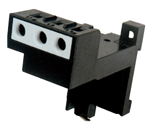
For separate mounting or by connector links[1]	Current range A	Diagram	Max fuse (gL/gG) A	Catalog Number	Weight kg	List Price	Multiplier
CWM112...500	50...250		500	RWM420E-3-A4U250	2,520	$490	
	85...420		710	RWM420E-3-A4U420		$580	Z2
CWM150...800	170....840		1,250	RWM840E-3-A4U840	4,150	$1,300	

Note: Not to be used in single-phase applications.
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.

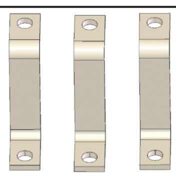
RW-E Series

Accessories

Mounting Kit

Image	For use with relays	Description	Catalog Number	Weight kg	List Price	Multiplier
	RWM40E	Enables the overload relay to be mounted directly to a panel via screws or 35 mm DIN rail	BF27D	0.050	**$14**	Z2
	RWB40E		BF27-2D			
	RWM112E		BF112	0.230	**$35**	

Connector Links for Direct Mounting of Overload Relay on Contactor

Image	For use with relays	For use with contactors	Catalog Number	Weight kg	List Price	Multiplier
	RWM112E	CWM112/150	GA117D	0.135	**$41**	Z2
	RWM420E	CWM150	GA317-1D	0.250	**$68**	
		CWM180	GA317-2D	0.270	**$70**	
		CWM250/300	GA317-3D	0.630	**$118**	
		CWM400	GA317-10D	0.500	**$118**	

Phase Barriers

Image	For use with relays	Description	Catalog Number	Weight kg	List Price	Multiplier
	RWM420E	Contains 1 plastic insulator and fixing screws to be used where the overload relay power terminals external dimension exceed the busbar external dimension	IBRW317	0.044	**$4**	Z2

Reset Pushbutton with Shaft

Image	For use with relays	Description	Catalog Number	Weight kg	List Price	Multiplier
	RW_E	Blue Flush pushbutton - Engraved Reset - with shaft. Length: max. 250 mm and min. 22.5 mm	CSW-BHF437	0.032	**$12**	Z2

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 / ≥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 ºC...+80 ºC			
	Operating		-20 ºC...+60 ºC			
	Temperature compensation		-20 ºC...+60 ºC			
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 Ue	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.

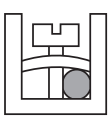
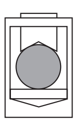
RW-E Series

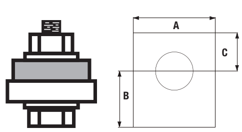
Technical Data

Auxiliary Contacts

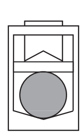
Product model			RWM40...840E / RWB40E
Rated insulation voltage Ui (pollution degree 3)	IEC 60947-4-1	(V)	250
	UL, CSA	(V)	600
Rated impulse withstand voltage Uimp (IEC 60947-1)		(kV)	4
Rated operational voltage Ue	IEC 60947-4-1	(V)	250
	UL, CSA	(V)	600
Rated thermal current Ith ≤ 60 °C)		(A)	5
Rated operational current Ie			
AC-14/AC-15 (IEC 60947-5-1)	24 V	(A)	3
	120 V	(A)	3
	250 V	(A)	1.5
DC-13 (IEC 60947-5-1)	24 V	(A)	2
	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		C300 / R300
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	M3.5	M10	M10
			Flat / Phillips #2	Flat / Phillips #2	Allen #4	Allen #4
Cable size						
Flexible cable	(mm²)		1.5...10	-	-	-
Cable with terminal / rigid cable	(mm²)		1.5...6	-	-	-
AWG wire			16...10	-	-	-
Tightening torque	(Nm)		2.3	-	-	-
Flexible cable	(mm²)		-	1...10	2.5...35	2.5...35
Cable with terminal / rigid cable	(mm²)		-	1...10	2.5...35	2.5...35
AWG wire			-	16...8	14...2	14...2
Tightening torque	(Nm)		-	1.7	6	6

Product model			RWM420E	RWM840E
Type of screw			M10 Hexagon Head	M12 Hexagon Head
Cable with terminal	(mm²)		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

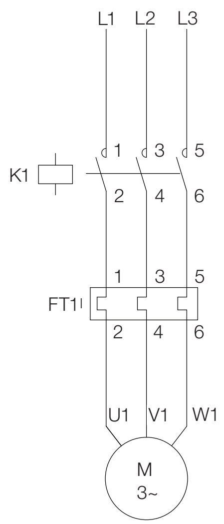
Product model			RWM40...840E / RWB40E
Type of screw			Flat / Phillips #1
Cable size			
Cable with or without terminal	(mm²)		1 x 1...2.5
AWG wire			16...12
Tightening torque	(Nm)		0.8

Data is subject to change without notice.

Technical Data

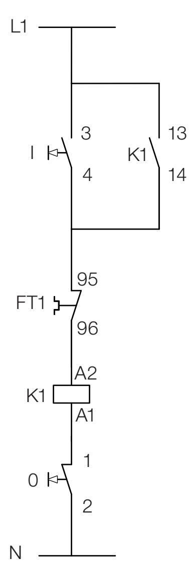
Motor Protection - Alternating Current

3-pole

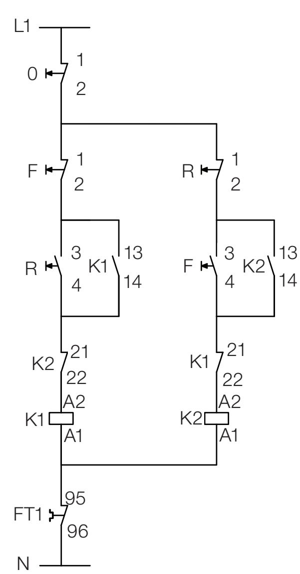


Typical Connection - Contactor + Overload Relay

Direct On Line Starter (1 Direction of Rotation)



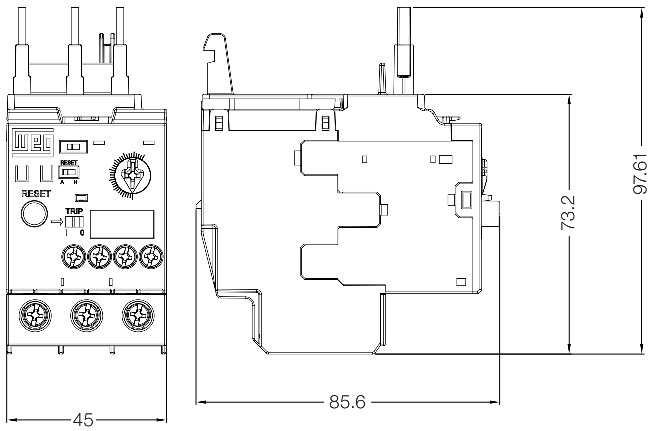
Direct On Line Starter (2 Directions of Rotation)



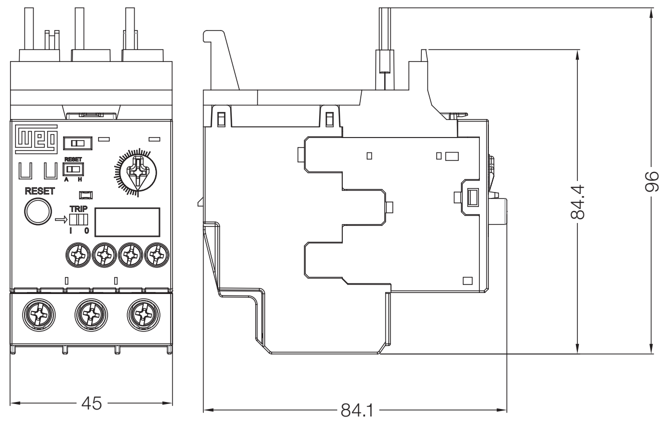
General Information
Circuit Protection
Disconnect Switches
Motor Protectors
Contactors
Overloads
Enclosed Starters
Relays
Pushbuttons and Pilot Lights
Terminal Blocks
Power Factor Correction
Appendix A
Appendix B

Dimensions (mm)

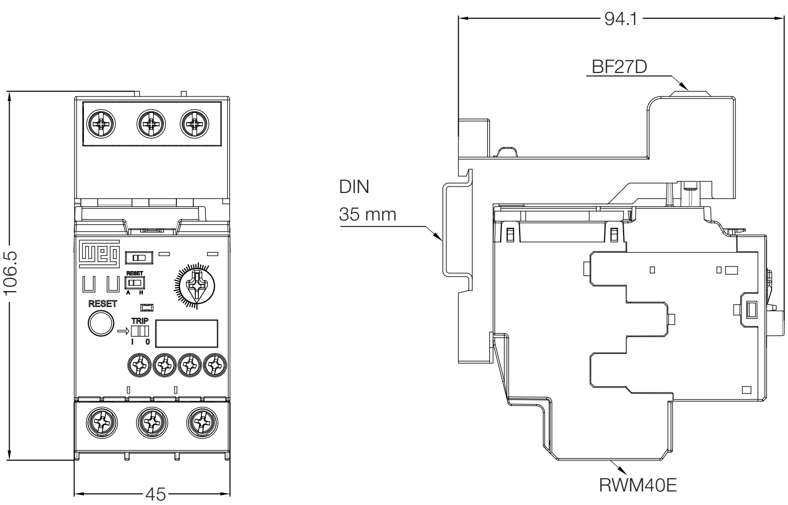
RWM40E

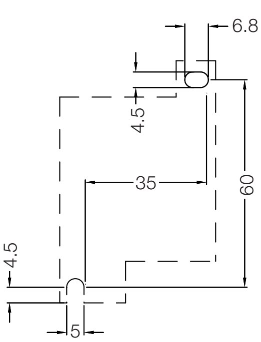


RWB40E



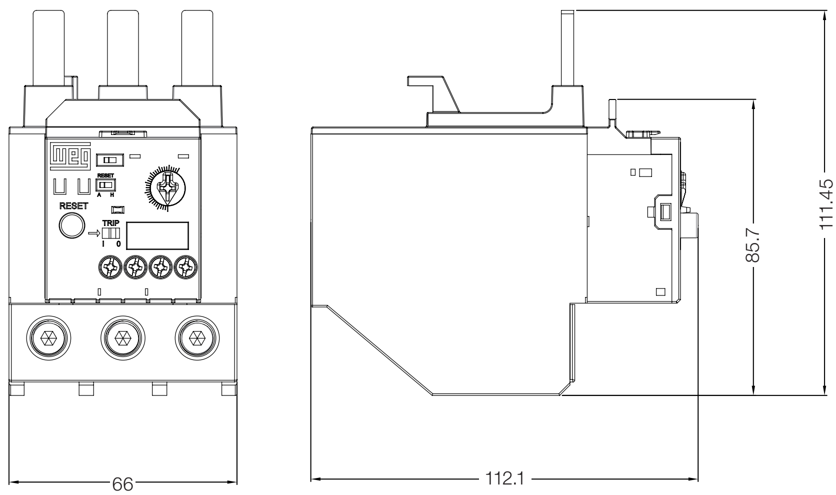
RWM40E + BF27



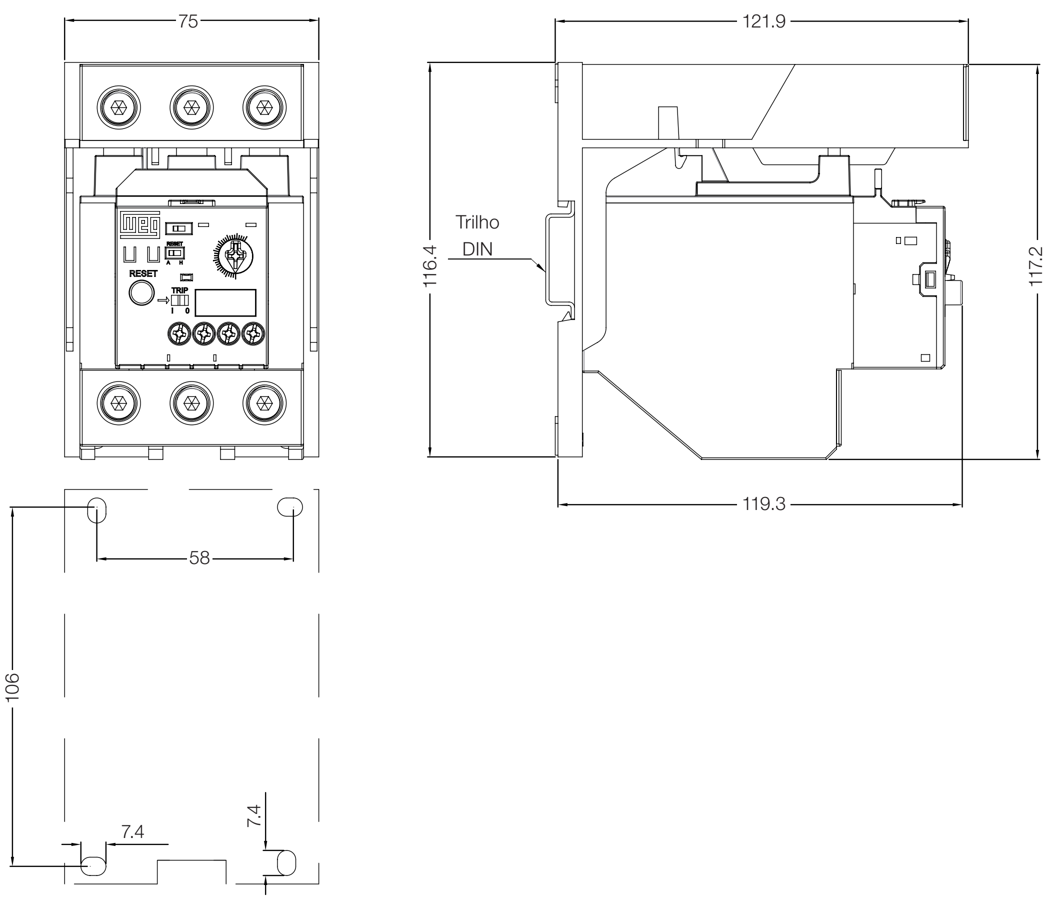


Dimensions (mm)

RWM112E

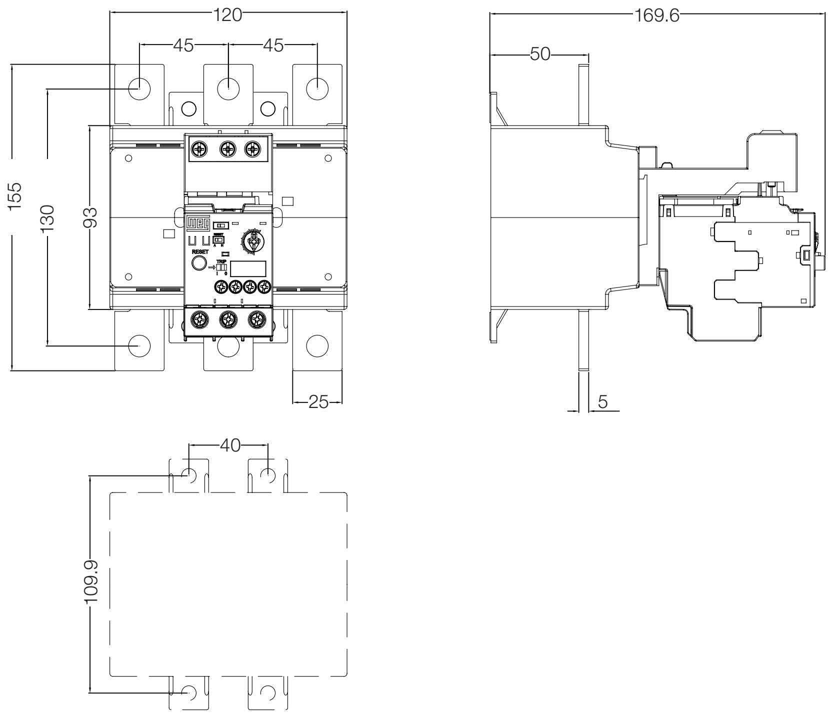


RWM112E + BF112

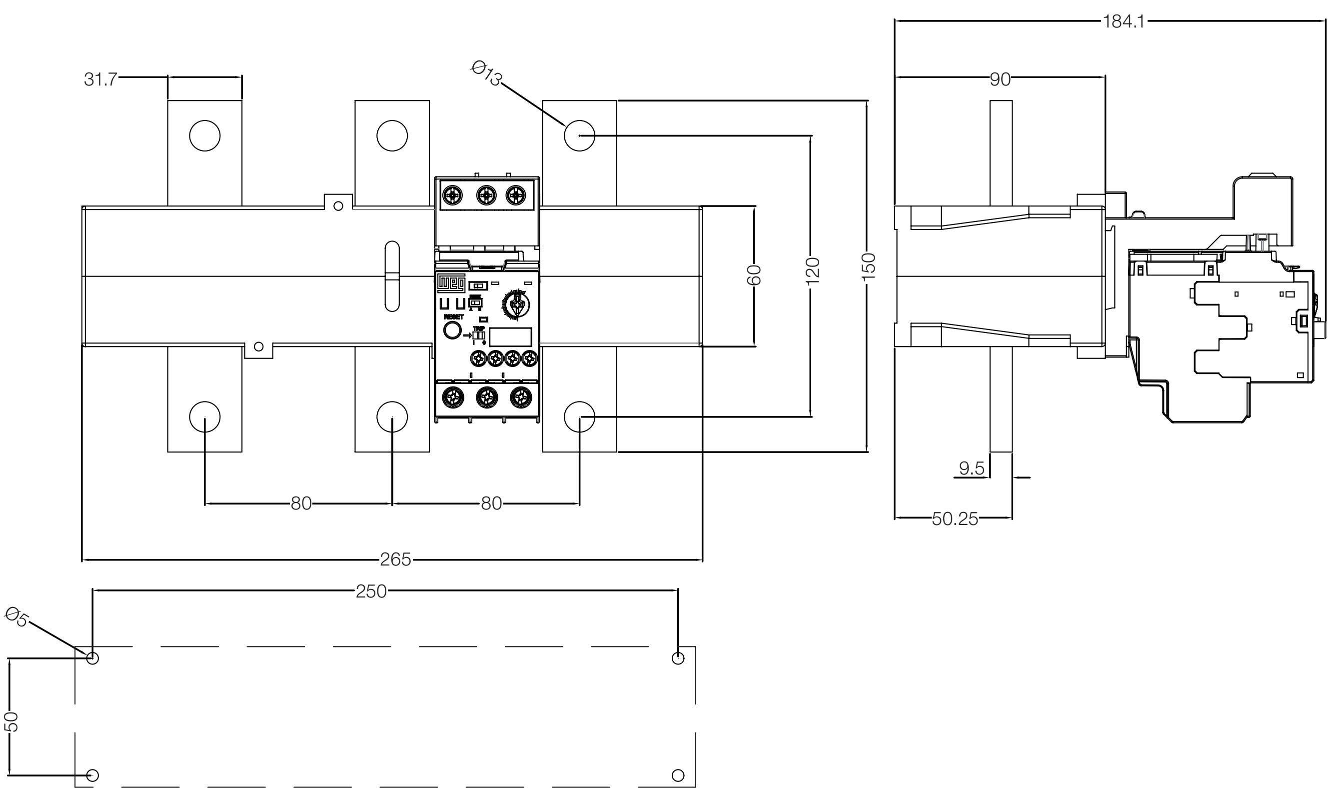


Dimensions (mm)

RWM420E

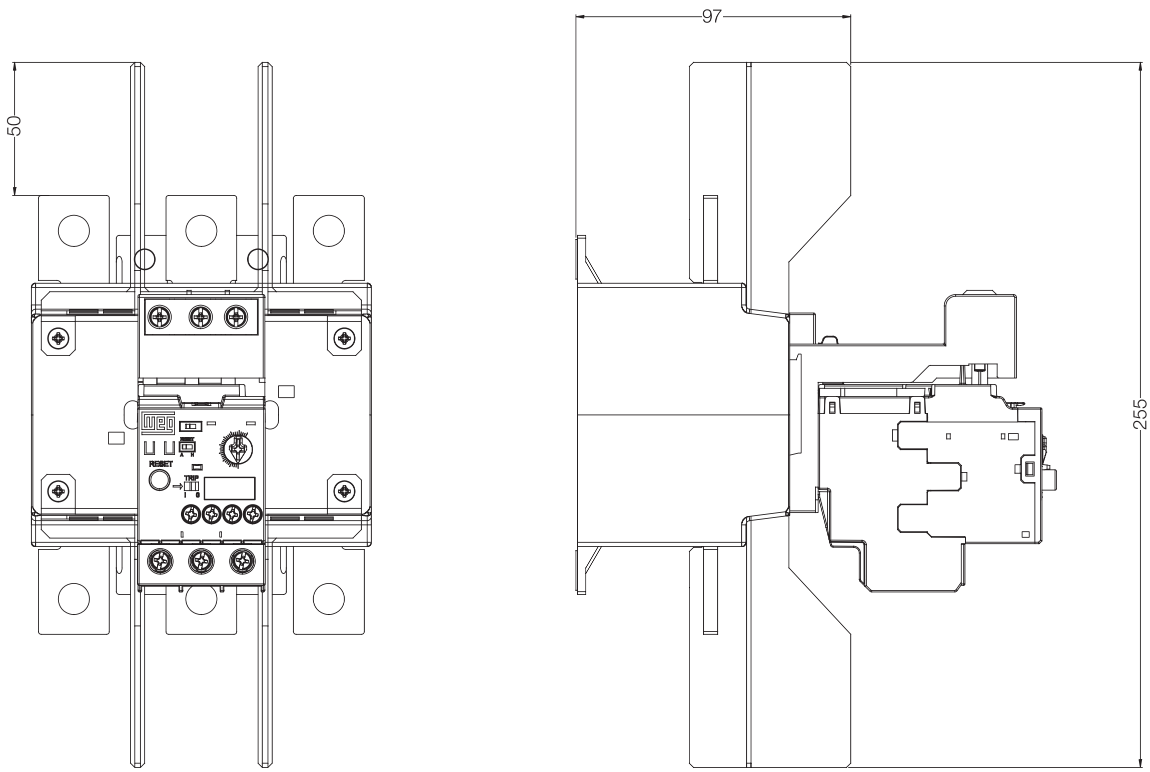


RWM840E

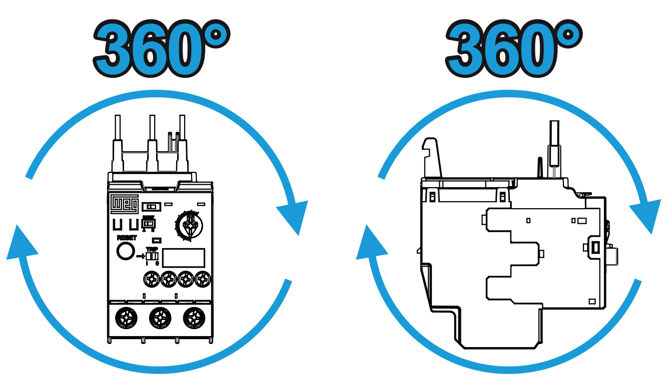


Dimensions (mm)

RWM420E + IBRW317



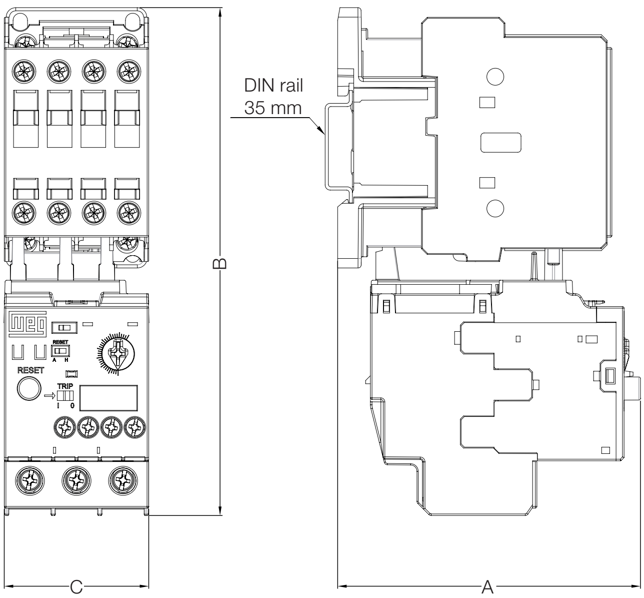
RWM40...840E / RWB40E



Mounting Position

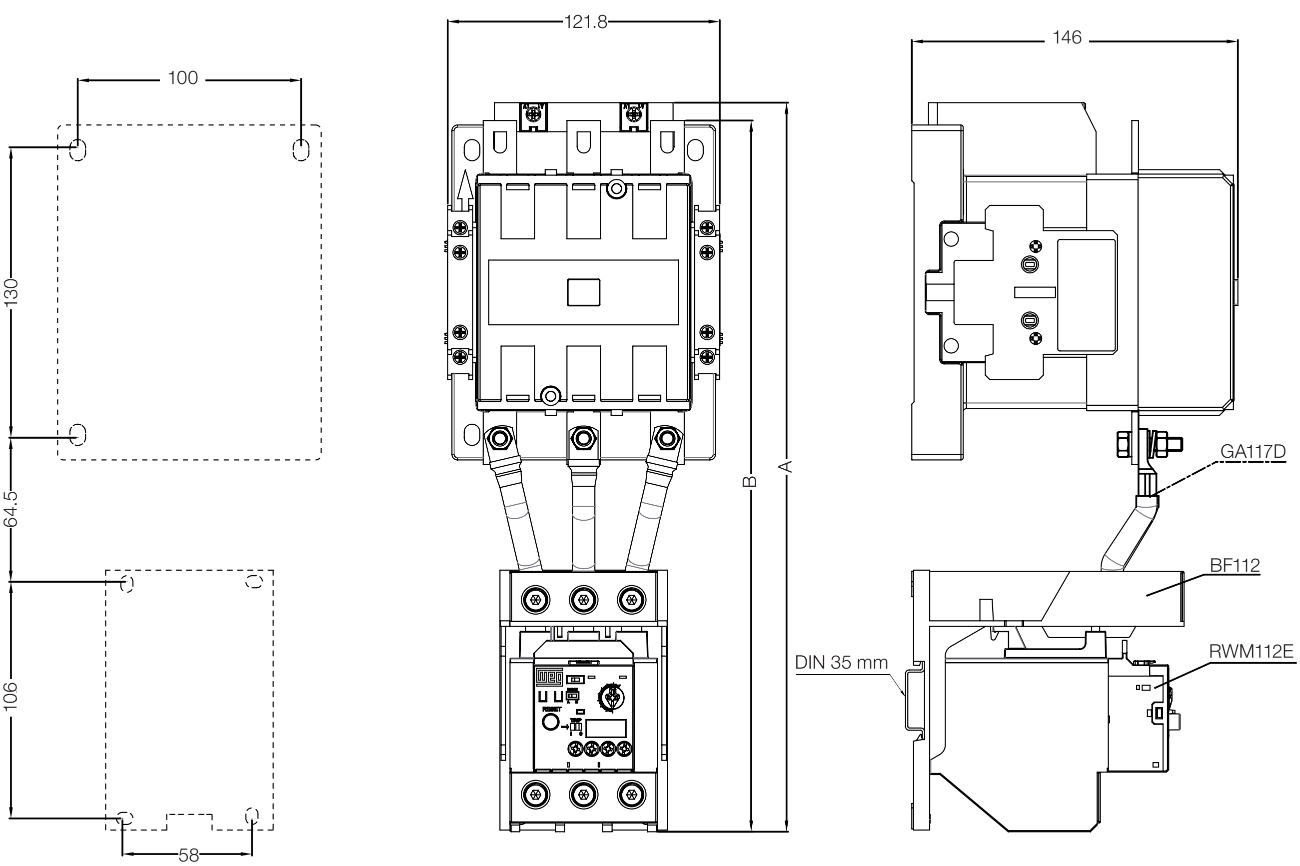
Dimensions (mm)

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			
CWM95/105	CA	126	201.1	75.4
	CC			
CWB9...18	CA	89.5	163.1	45
	CC	98.7		
CWB25...38	CA	93	166.5	
	CC	102.2		

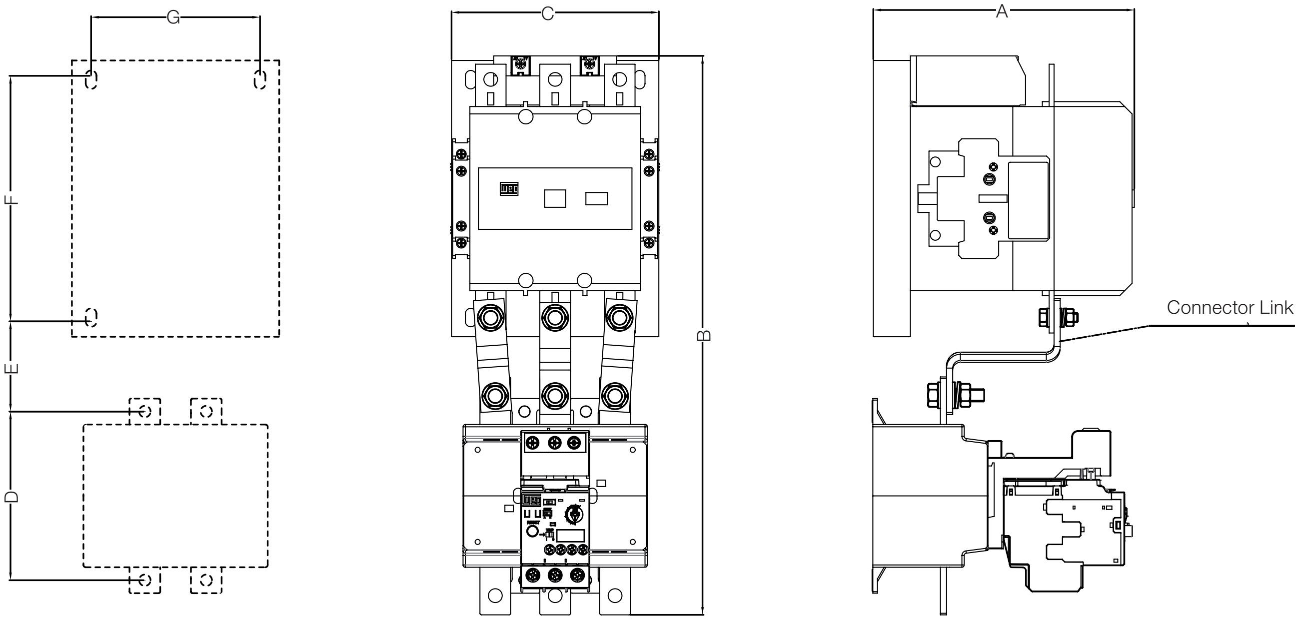
CWM112 + RWM112E + BF112



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

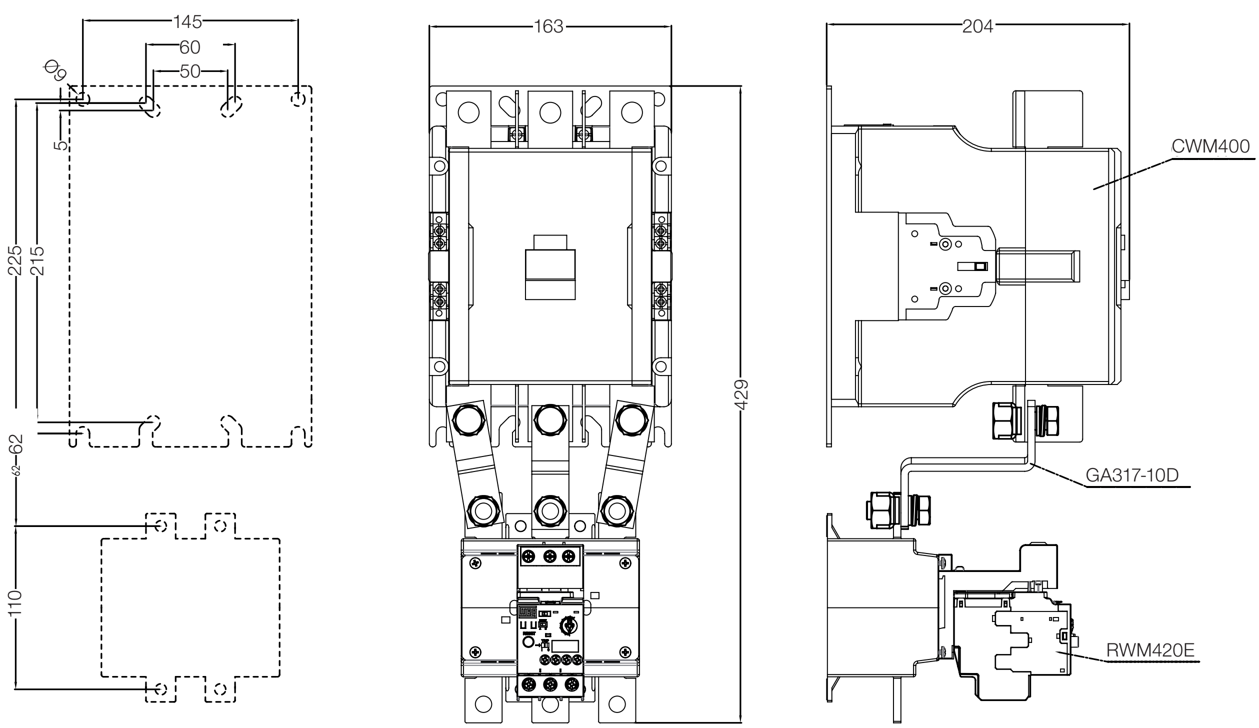
Dimensions (mm)

CWM112...300 + RWM112/420E



<table>
<tr><th>Contactor</th><th>Connector links</th><th>Overload relay</th><th>A</th><th>B</th><th>C</th><th>D</th><th>E</th><th>F</th><th>G</th></tr>
<tr><td>CWM112/150</td><td>GA117D</td><td>RWM112E</td><td>147</td><td>325</td><td rowspan="2">121.5</td><td>106</td><td>64</td><td rowspan="2">130</td><td rowspan="2">100</td></tr>
<tr><td>CWM112/150</td><td>GA317-1D</td><td>RW420E</td><td>166</td><td>343</td><td rowspan="3">110</td><td>60.5</td></tr>
<tr><td>CWM180</td><td>GA317-2D</td><td>RW420E</td><td>172</td><td>358</td><td>139</td><td>52.5</td><td>160</td><td>110</td></tr>
<tr><td>CWM250/300</td><td>GA317-3D</td><td>RW420E</td><td>181</td><td>380</td><td>148.4</td><td>55</td><td>180</td><td>120</td></tr>
</table>

CWM400 + RWM420E



Smart Relays

SRW01

UL File No. E189202

The main function of the SRW01 is to protect and control electric motors in their most diverse industrial applications. Due to its reduced size and modular design, the relay is frequently used when space for its assembly is a determining point. The on-line monitoring options, failure diagnosis, and failure statistics allow preventive maintenance to be more effective, thus reducing the number of downtimes. It covers wide applications for continuous process plants in a wide variety of market segments..

Standard Features

- Three ways to parameterize, program, and monitor:
  - Via network protocols
  - Via HMI (Human Machine Interface)
  - Via USB port with free WLP (WEG Ladder Programmer) software
- Standard 6 digital inputs and 4 digital outputs
- Status LED indicators for digital inputs, outputs, network, operating condition, failure, and alarm
- Digital Expansion Unit (EDU) for extra digital inputs and outputs
- Current Measuring Unit (UMC) for three-phase electric motors
- Current and Voltage Measuring Unit with Transformer (UMCT) for monitoring phase sequence, power factor, motor power, and power consumption

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

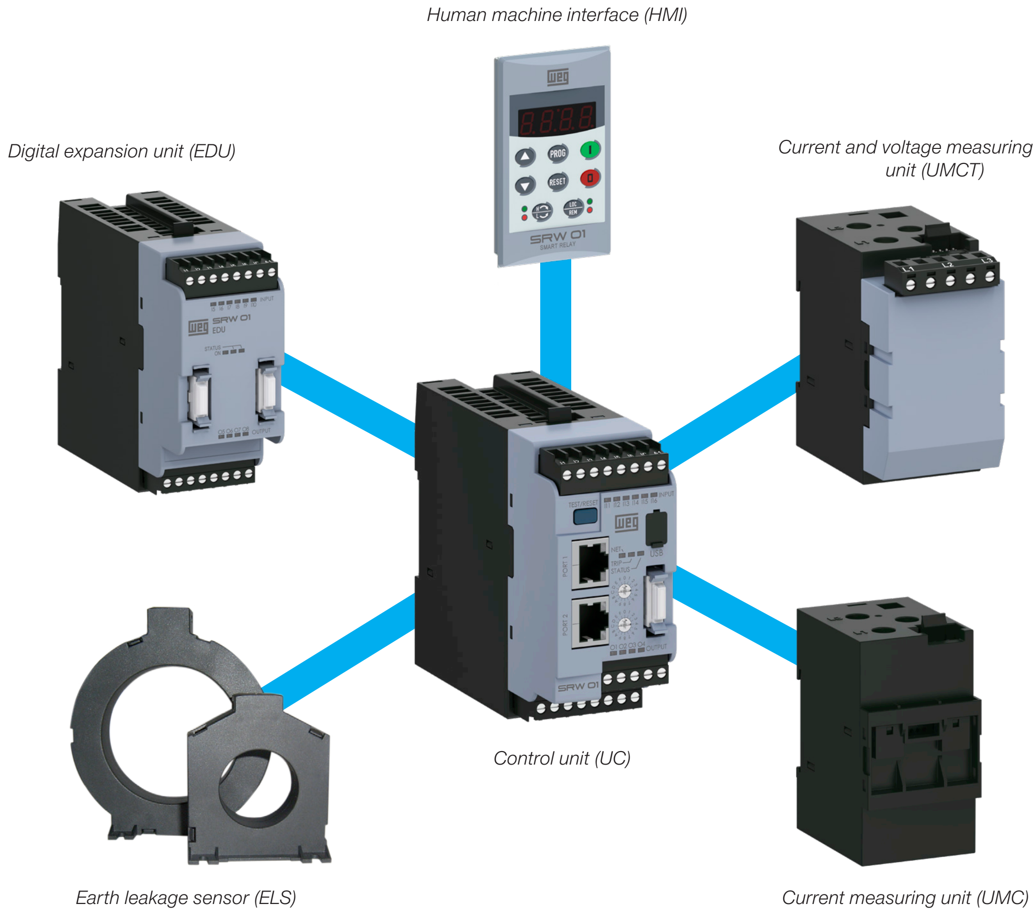
Protection
T = PTC
E = Earth leakage
TE = PTC and Earth leakage

Digital input operating voltage
1 = 24 V dc
2 = 110 V ac

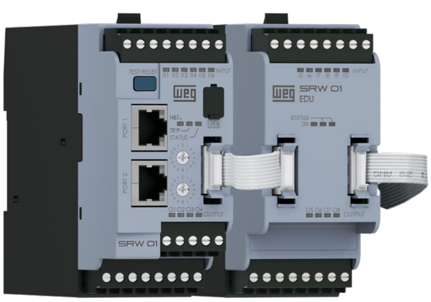
Supply voltage
E26 = 24 V ac (50-60 Hz) / V dc
E47 = 110-240 V ac (50-60 Hz) / V dc

Construction Characteristics

Using the modular concept, SRW01 offers flexibility and easy configuration.



Digital Expansion Unit (EDU)

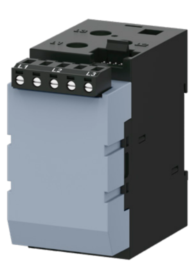


The Digital Expansion Unit (EDU) increases the number of digital inputs and outputs present in the Control Unit (UC) of the SRW01. The EDU adds 6 digital inputs and 4 digital outputs, and can be used to monitor signals and to control external devices.

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

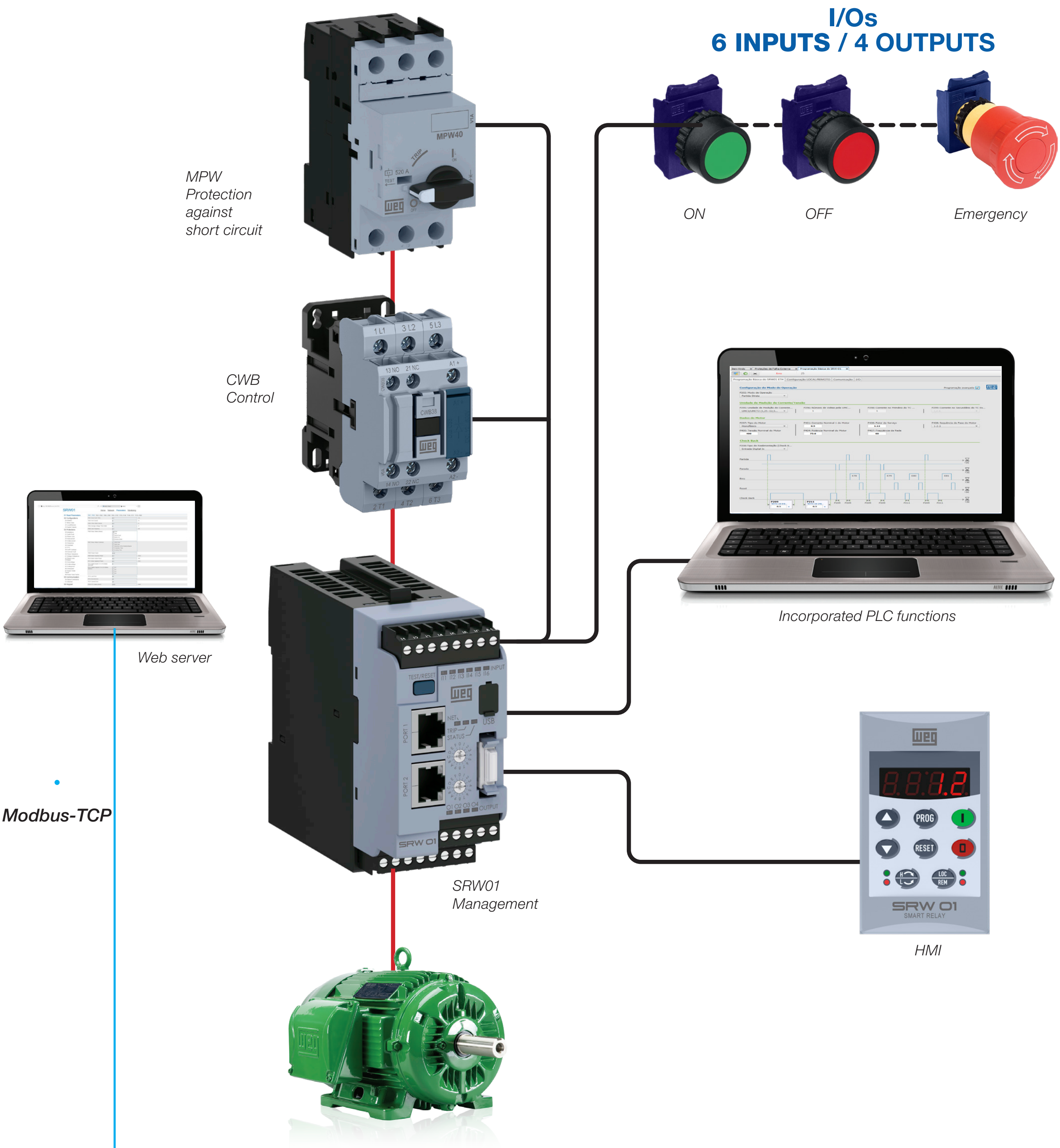
The Current Measuring Unit (UMC) measures the current of the three phases of the motor.

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).

Smart Relays

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.**

Selection Table
Control Unit - UC

SRW01-U C P T 1 E47

Image for illustrative purposes
Ethernet version.

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	List Price	Multiplier
SRW01-UCBE1E47	Earth leakage	110-240 V ac (50-60 Hz) / V dc	Without communication	24 V dc	$890	Z8
SRW01-UCBE1E26		24 V ac (50-60 Hz) / V dc		24 V dc	$1,000	
SRW01-UCBE2E47		110-240 V ac (50-60 Hz) / V dc		110 V ac	$890	
SRW01-UCBE2E26		24 V ac (50-60 Hz) / V dc		110 V ac	$1,000	
SRW01-UCBT1E47	PTC	110-240 V ac (50-60 Hz) / V dc		24 V dc	$810	
SRW01-UCBT1E26		24 V ac (50-60 Hz) / V dc		24 V dc	$810	
SRW01-UCBT2E47		110-240 V ac (50-60 Hz) / V dc		110 V ac	$810	
SRW01-UCBT2E26		24 V ac (50-60 Hz) / V dc		110 V ac	$910	
SRW01-UCDE1E47	Earth leakage	110-240 V ac (50-60 Hz) / V dc	DeviceNet	24 V dc	$995	
SRW01-UCDE1E26		24 V ac (50-60 Hz) / V dc		24 V dc	$ 1,110	
SRW01-UCDE2E47		110-240 V ac (50-60 Hz) / V dc		110 V ac	$995	
SRW01-UCDE2E26		24 V ac (50-60 Hz) / V dc		110 V ac	$1,110	
SRW01-UCDT1E47	PTC	110-240 V ac (50-60 Hz) / V dc		24 V dc	$910	
SRW01-UCDT1E26		24 V ac (50-60 Hz) / V dc		24 V dc	$1,020	
SRW01-UCDT2E47		110-240 V ac (50-60 Hz) / V dc		110 V ac	$910	
SRW01-UCDT2E26		24 V ac (50-60 Hz) / V dc		110 V ac	$1,020	
SRW01-UCPE1E47	Earth leakage	110-240 V ac (50-60 Hz) / V dc	Profibus-DP	24 V dc	$1,290	
SRW01-UCPE1E26		24 V ac (50-60 Hz) / V dc		24 V dc	$1,450	
SRW01-UCPE2E47		110-240 V ac (50-60 Hz) / V dc		110 V ac	$1,290	
SRW01-UCPE2E26		24 V ac (50-60 Hz) / V dc		110 V ac	$1,450	
SRW01-UCPT1E47	PTC	110-240 V ac (50-60 Hz) / V dc		24 V dc	$1,450	
SRW01-UCPT1E26		24 V ac (50-60 Hz) / V dc		24 V dc	$1,360	
SRW01-UCPT2E47		110-240 V ac (50-60 Hz) / V dc		110 V ac	$1,210	
SRW01-UCPT2E26		24 V ac (50-60 Hz) / V dc		110 V ac	$1,360	
SRW01-UCME1E47	Earth leakage	110-240 V ac (50-60 Hz) / V dc	Modbus-RTU	24 V dc	$1,110	
SRW01-UCME1E26		24 V ac (50-60 Hz) / V dc		24 V dc	$1,250	
SRW01-UCME2E47		110-240 V ac (50-60 Hz) / V dc		110 V ac	$1,110	
SRW01-UCME2E26		24 V ac (50-60 Hz) / V dc		110 V ac	$1,250	
SRW01-UCMT1E47	PTC	110-240 V ac (50-60 Hz) / V dc		24 V dc	$1,030	
SRW01-UCMT1E26		24 V ac (50-60 Hz) / V dc		24 V dc	$1,150	
SRW01-UCMT2E47		110-240 V ac (50-60 Hz) / V dc		110 V ac	$1,030	
SRW01-UCMT2E26		24 V ac (50-60 Hz) / V dc		110 V ac	$1,150	
SRW01-UCE1TE1E47	PTC and Earth leakage	110-240 V ac (50-60Hz) / V dc	Modbus-TCP	24 V dc	$1,660	
SRW01-UCE1TE1E26		24 V ac (50-60Hz) / V dc		24 V dc	$1,860	
SRW01-UCE2TE1E47		110-240 V ac (50-60Hz) / V dc	PROFINET IO	24 V dc	$1,650	
SRW01-UCE2TE1E26		24 V ac (50-60Hz) / V dc		24 V dc	$1,850	
SRW01-UCE3TE1E47		110-240 V ac (50-60Hz) / V dc	EtherNet/IP	24 V dc	$1,650	
SRW01-UCE3TE1E26		24 V ac (50-60Hz) / V dc		24 V dc	$1,850	

Tolerances for the SRW01 are 5% and above, Measurement Modules are only for reference

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Motor Protectors
Contactors
Overloads
Enclosed Starters
Relays
Pushbuttons and Pilot Lights
Terminal Blocks
Power Factor Correction
Appendix A
Appendix B

Smart Relays

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)	List Price	Current and voltage measuring unit (UMCT)[1]	List Price	Multiplier
0.5-5.0	SRW01-UMC1	$335	SRW01-UMCT1	$670	Z8
1.25-12.5	SRW01-UMC2	$345	SRW01-UMCT2	$685	
2.5-25.0	SRW01-UMC3	$360	SRW01-UMCT3	$700	
12.5-125.0	SRW01-UMC4	$525	SRW01-UMCT4	$860	
42.0-420.0	SRW01-UMC5	$715	SRW01-UMCT5	$1,050	
84.0-840.0	SRW01-UMC6	$955	SRW01-UMCT6	$1,290	

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).
Tolerances for the SRW01 are 5% and above, Measurement Modules are only for reference


SRW01-UMC1, 2 and 3


SRW01-UMCT1, 2 and 3

Width (mm)	Current (A)	Power connection
45	0.25 - 2.5[2]	Cable through
	0.5 - 5	
	1.25 - 12.5	
	2.5 - 25	


SRW01-UMC4

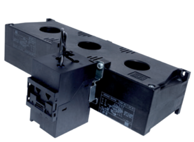

SRW01-UMCT4

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 (UMTC), 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)	List Price	Multiplier
SRW01-CB0	60	$13.50	Z8
SRW01-CB1	120	$13.50	
SRW01-CB2	500	$15.50	
SRW01-CB3	2,000	$17.50	
SRW01-CB4	1,000	$17.50	

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.
3) Tolerances for the SRW01 are 5% and above, Measurement Modules are only for reference

Data is subject to change without notice.

Accessories

Digital Expansion Unit - EDU

Reference	Digital inputs	Digital input (external) supply voltage	Digital outputs	List Price	Multiplier
SRW01-EDU1	6	24 V dc	4	**$440**	Z8
SRW01-EDU2	6	110 V ac	4	**$440**	

Human Machine Interface - HMI

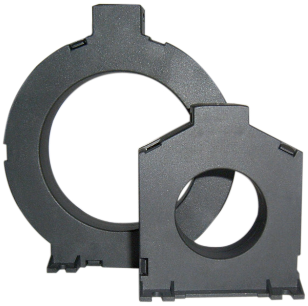
The HMI is connected to the front part of the relay by means of a communication cable, making its operation and configuration easier and more convenient. It offers two mounting options: vertical and horizontal.

Reference	Description	List Price	Multiplier
SRW01-HMI	Standard human machine interface - HMI - vertical	**$250**	Z8

Reference	Description	List Price	Multiplier
SRW01-HMI2	Human machine interface - HMI - horizontal	**$470**	Z8

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	List Price	Multiplier
SRW01-EL1	35	SRW01-UMC/UMCT 1, 2, 3	**$265**	Z8
SRW01-EL2	70	SRW01-UMC/UMCT 4	**$460**	
SRW01-EL3	120	SRW01-UMC/UMCT 5	**$825**	
SRW01-EL4	210	SRW01-UMC/UMCT 6	**$1,670**	

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.

Smart Relays

Accessories

Connection Cable UC-HMI

Reference	Length (mm)	List Price	Multiplier
SRW01-CH1	500	$35	Z8
SRW01-CH2	1,000	$35	
SRW01-CH3	1,500	$35	
SRW01-CH4	2,000	$45	

USB Communication Cable

Reference	Length (mm)	List Price	Multiplier
SRW01-USB	2,000	$45	Z8

Communication Module

Reference	Communication protocol	List Price	Multiplier
SRW01-MCD	DeviceNet	$100	Z8
SRW01-MCM	Modbus-RTU	$220	
SRW01-MCP	Profibus-DP	$400	

Note: - For replacement or for Control Unit (UC) without network module.
- Not available in the Ethernet version.

Fixing Adaptor

Reference	Description	List Price	Multiplier
PLMP	Adapter for screw fixing (2 pieces per package/0.006 kg)	$.050	Z8

Busbar for UMC and UMCT

Reference	Description	List Price	Multiplier
JBL-RW407D	Busbar for the Current Measuring Unit (UMC6) / Current and Voltage Measuring Unit (UMCT6)	$345	Z8

Protection Covers - Replacement

DB9

Reference	Description	List Price	Multiplier
SRW01-CDB[1)]	Plastic cover for DB9 connector protection	$7	Z8

Note: 1) 10-unit pack.

USB Adapter for Panel Door

Reference	Descrição	List Price	Multiplier
SRW01-AUSB1	USB adapter cable with protection cover IP68 and length of 25 cm	$160	Z8
SRW01-AUSB1	USB adapter cable with protection cover IP68 and length of 50 cm	$230	

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)[1]	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)[2]	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 mm²); 1 x (26 -12 AWG) - Flexible with/without terminals: 1 x (0.2 - 2.5 mm²); 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).

Overloads

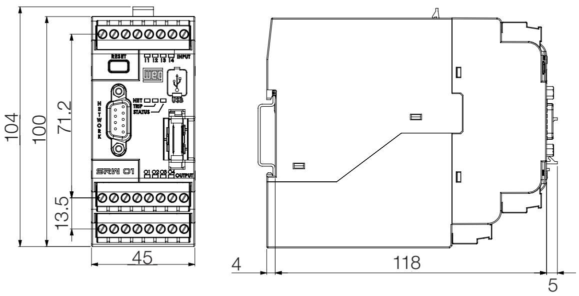
Smart Relays

Technical Data

Current Measurement Unit (UMC)	Current range	0.25 to 840 A AC	
	Insulation degree U^i	690 V ac	
	Rated operating voltage U_e	IEC 60947-4-1: 690 V ac UL 508: 600 V ac	
	Impulse voltage U_{imp}	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_i	690 V ac	
	Rated operating voltage U_e	IEC 60947-4-1: 690 V ac UL 508: 600 V ac	
	Impulse voltage U_{imp}	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 mm²); 1 x (26 - 12 AWG) - Flexible with/without terminals: 1 x (0.2 - 2.5 mm²); 1 x (26 - 12 AWG) Screws: M3	
Digital Expansion Unit (EDU)	Rated insulation voltage U_i	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: Piloty 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 mm²); 1 x (26 - 12 AWG) - Flexible with/without terminals: 1 x (0.2 - 2.5 mm²); 1 x (26 - 12 AWG) Screws: M3	
Earth Leakage Sensor (ELS)	Current range	0.3 - 5 A AC	
	Insulation degree U_i	690 V ac	
	Rated operating voltage U_e	IEC 60947-4-1: 690 V ac UL 508: 600 V ac	
	Impulse voltage U_{imp}	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 mm²); 1 x (22 - 14 AWG) - Flexible with/without terminals: 1 x (0.2 - 1.5 mm²); 1 x (22 - 14 AWG) Screws: M3	

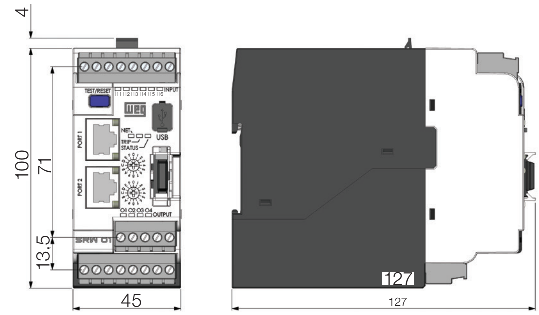
Dimensions

Control Unit - UC



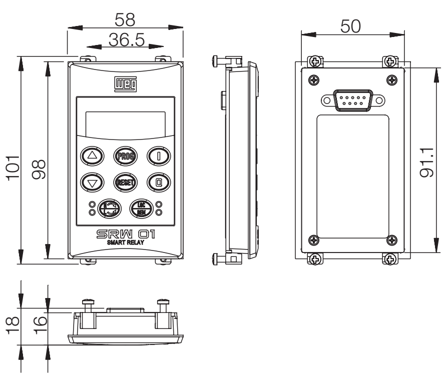
SRW01-UC

Control Unit - UC (Ethernet)

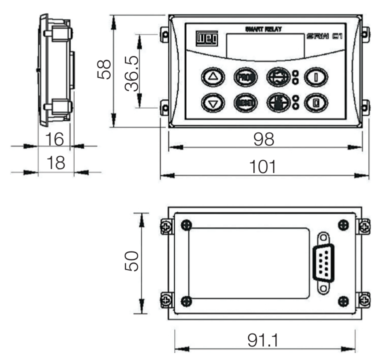


Control Unit – UC (mm)

Human Machine Interface - HMI

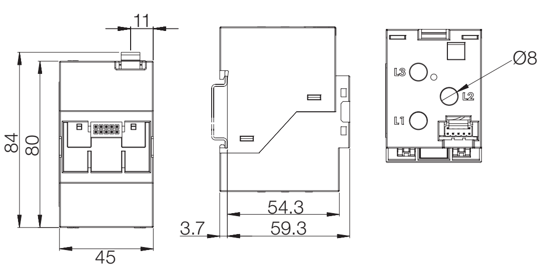


SRW01-HMI

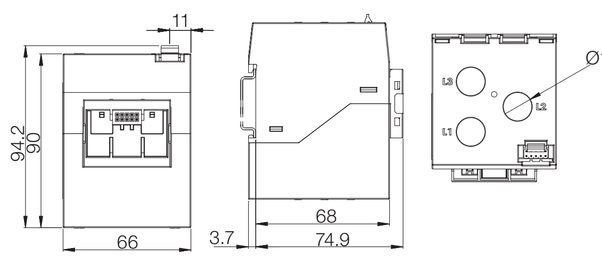


SRW01-HMI2

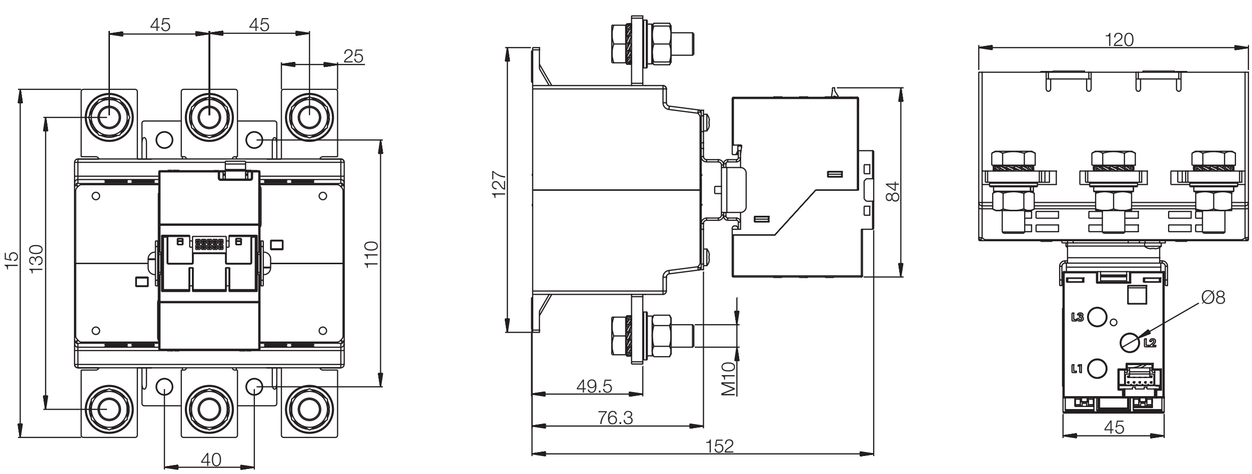
Current Measurement Unit - UMC



SRW01-UMC1/UMC2/UMC3



SRW01-UMC4



SRW01-UMC5

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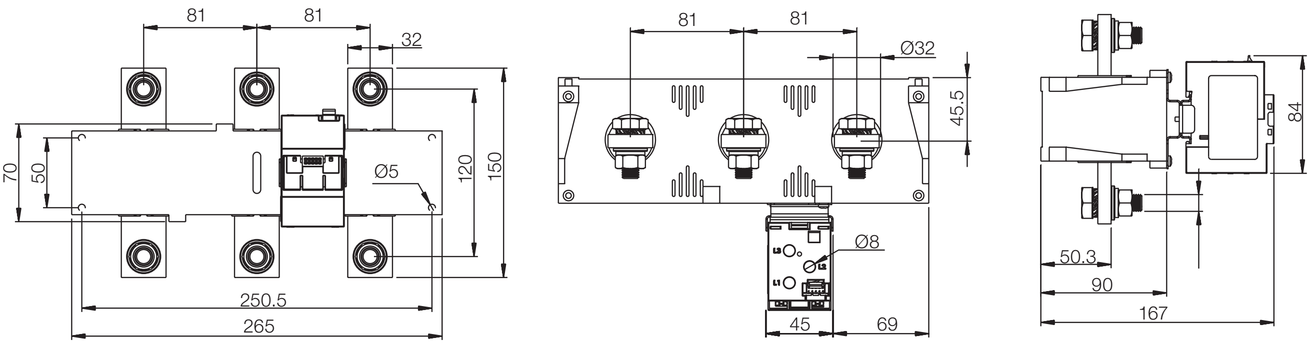
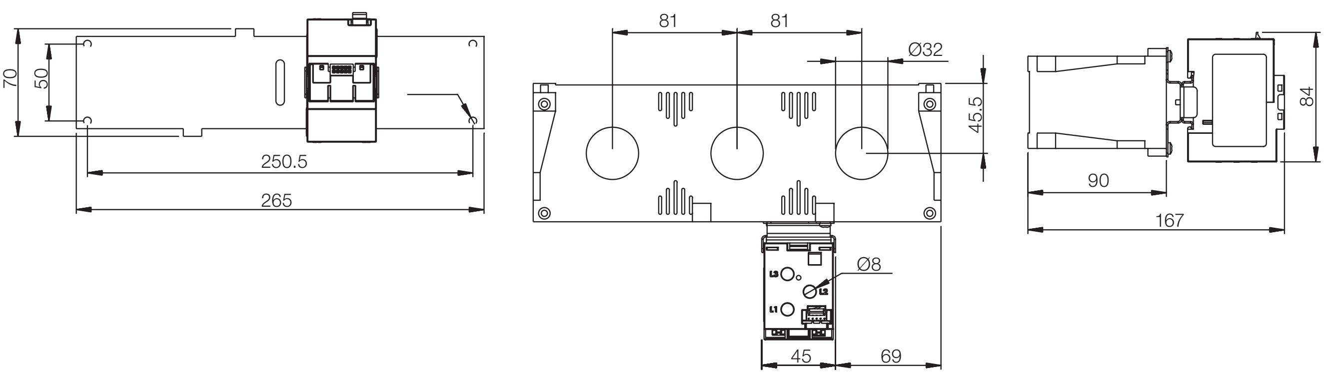
Smart Relays

Dimensions

Current Measurement Unit - UMC

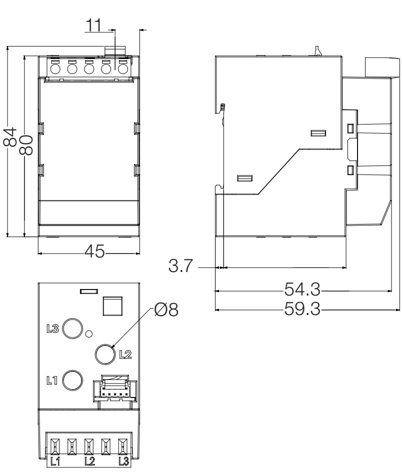


SRW01-UMC6
(with busbar)



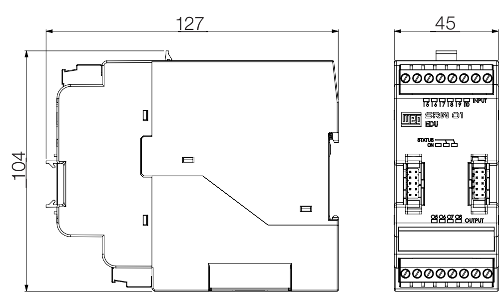
SRW01-UMC6
(without busbar)

Current and Voltage Measuring Unit - UMCT



SRW01-UMCT1/UMCT2/UMCT3

Digital Expansion Unit - EDU

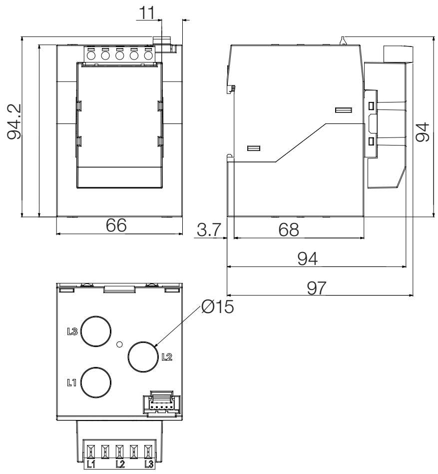


SRW01-EDU

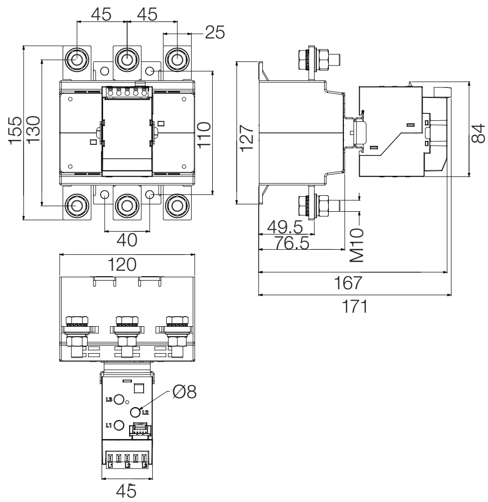
Data is subject to change without notice.

Dimensions

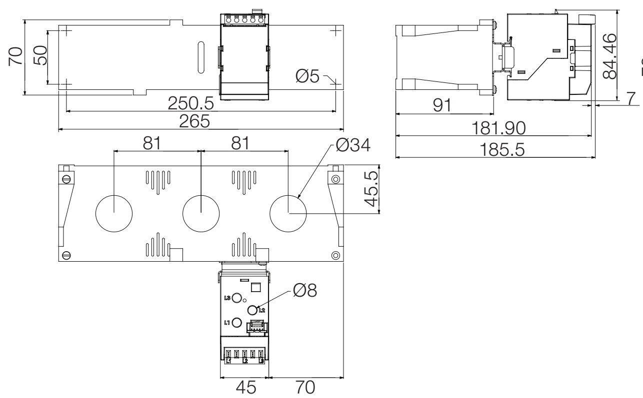
Current and Voltage Measuring Unit - UMCT



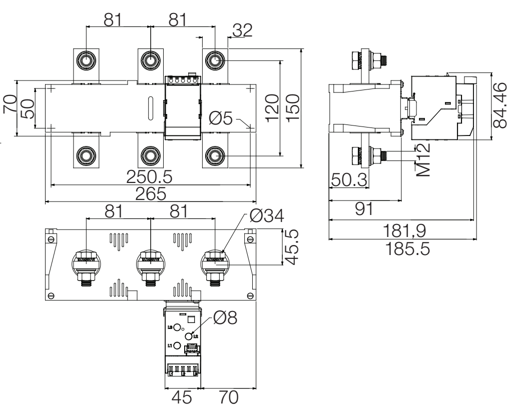
SRW01-UMCT4



SRW01-UMCT5

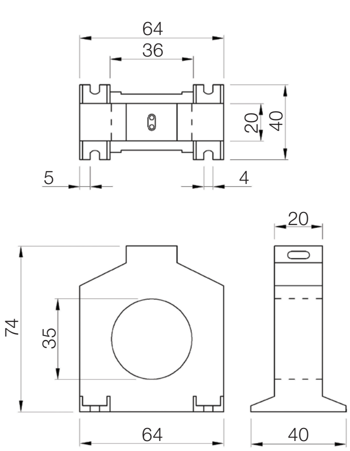


SRW01-UMCT6
(without busbar)

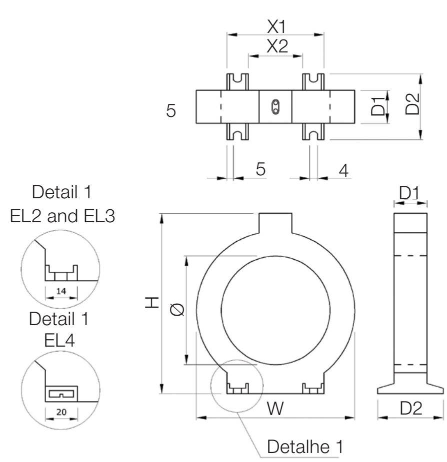


SRW01-UMCT6
(with busbar)

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[1]

Note: 1) With base metallic support.

Enclosed Starters

Operation and Protection of Motors up to 600Hp at 460Vac (800A)

WEG enclosed starters series were designed to meet the requirements and flexibility frequently demanded in industrial applications. Featuring components that meet IEC design standards and UL horsepower ratings, WEG enclosed starters are UL508A approved and cULus certified. This means your panels will fulfill the rigorous requirements of UL508A and will have the quality and performance as for all WEG products

Standard or Custom

By having most of the processes in WEG facilities we can manufacture not only the enclosed starters listed on this catalog, but also any other custom panel your application may require. Our Engineers will work together with you to provide the perfect solution for your application.

Perfect Solution

WEG offers options for both: Full Voltage Non-Reversing Non-Combination Starters and Full Voltage Non-Reversing Combination Starters up to 250Hp at 460Vac.

WEG's UL508A panel shops can manufacture any configuration of Non-Combination or Combination Starters for any low voltage horsepower ratings. Some examples are listed below:

- Enclosed Contactors
- Full Voltage Reversing Starters
- Reduced Voltage Magnetic Starters
  (Part-Winding, Wye-Delta)
- Reduced Voltage Solid-State Starters
- Multi-Speed Starters
- Explosion Proof Starters

Whenever you need a reliable product to control & protect your application, WEG field specialists can help you find the best solution.

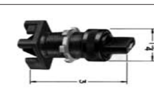
New Concepts

Smaller size components allow selection of smaller enclosures which translates to cost savings. A wide range of ratings and frames allow the components to be more closely matched to your application. Our overload relays provide phase loss sensitivity, ambient temperature compensated for -4F to +140F (eliminating the need for additional heaters), and automatic reset for remote applications.

A wide range of industrial applications are covered: Pumps, Industrial Washing Machines, Compressors, Blowers, Cutting Machines, Conveyors, Lumber Processing and many others.

Product Line Overview

NON-COMBINATION STARTERS

Type		ESW	PESW	ESWX-M	ESWX-M	ESWX
						
Maximum Horsepower Rating at 460Vac 60Hz	[Hp]	75	75	10	75	75
Maximum Rated Current Imax (Iu)	[A]	105	105	16	105	105
Rated Operational Voltage	[V]	600	600	600	600	600
Enclosure Type		Metallic Type 1	Non-Metallic Type 4X	Cast Aluminum NEMA 7/9 NEMA 4X	Cast Aluminum Type 7/9	Cast Aluminum Type 7/9
Protections provided						
Motor Disconnect				✓	✓	
Motor Branch Short Circuit				✓	✓	
Motor Controller		✓	✓	✓	✓	✓
Motor Overload		✓	✓	✓	✓	✓
Accessories						
Pushbuttons		N/A	N/A	N/A	N/A	
Pilot light		N/A	N/A	N/A	N/A	
Emergency Stop		N/A	N/A	N/A	N/A	
Selector Switch		N/A	N/A	N/A	N/A	
Control Transformer		N/A	N/A	N/A	N/A	(available as an option)
Timing Relays (RTW Series)		N/A	N/A	N/A	N/A	(available as an option)
Protector Relay (RPW Series)		N/A	N/A	N/A	N/A	(available as an option)
Level Relay (RNW Series)		N/A	N/A	N/A	N/A	(available as an option)

General Information
Circuit Protection
Disconnect Switches
Motor Protectors
Contactors
Overloads
Enclosed Starters
Relays
Pushbuttons and Pilot Lights
Terminal Blocks
Power Factor Correction
Appendix A
Appendix B

Enclosed Starters

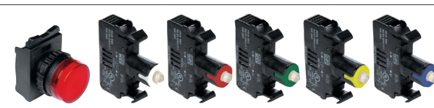
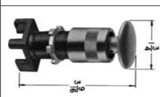
Combination Starters
Rotary Breaker Disconnect
5 - 250HP @ 480vac

Product Line Overview

COMBINATION STARTERS

Type		ESWC	ESWE	ESWF
				
Maximum Horsepower Rating at 460Vac 60Hz	[Hp]	250	20	75
Maximum Rated Current I_{max} (I_u)	[A]	300	32	105
Rated Operational Voltage	[V]	600	600	600
Enclosure Type		Metallic Type 1 Type 3R Type 4 / 12 Non-Metallic Type 4X	Non-Metallic Type 4X	Metallic Type 1 Type 3R Type 4 / 12 Non-Metallic Type 4X
Protections provided				
Motor Disconnect		✓	✓	✓
Motor Branch Short Circuit		✓	✓	✓
Motor Controller		✓	✓	✓
Motor Overload		✓	✓	✓

Accessories

Pushbuttons		
Pilot light		
Emergency Stop		
Selector Switch		
Control Transformer	(available as an option)	(available as an option)
Timing Relays (RTW Series)	(available as an option)	
Protector Relay (RPW Series)	(available as an option)	
Level Relay (RNW Series)	(available as an option)	

Data is subject to change without notice.

ESW/PESW

UL File No. E202315

WEG offers non-reversing and non-combination magnetic starters up to 75HP at 460Vac (105A). Featuring components that meet IEC design standards and UL horsepower ratings, incorporating WEG contactors and overload relays, the magnetic starters are ideal to protect and operate motors, ensuring smooth operation year-after year.

Three series are available:
- Metallic Type 1 – ESW Series
- Non-Metallic Type 4X – PESW Series
- Metallic Type NEMA 7/9 - ESWX Series

WEG ESW and PESW starters are pre-wired from the factory and recommended for all single and three phase applications where magnetic starters can be applied.

Standard Features
- High horsepower ratings in four compact sizes
- Fast acceleration and high initial torque
- Bimetallic Overload Relays – class 10
- Adjustable trip current
- Ambient temperature compensated
- Phase-loss sensitivity protection
- Selectable Manual or Automatic RESET
- Electrically isolated NO-NC auxiliary contacts
- Easy to install and setup

ESW Part Number Breakdown

ESW	(*)	-	B	18	D15	A	-	R32

ESW Enclosed Starter Non Combination NEMA1

Blank:3 Phase
S:1 Phase

Contactor Style

Blank:CWM
B:CWB

Contactor Amps

9:9 Amps
12:12 Amps
18:18 Amps
25:25 Amps
32:32 Amps
38:38 Amps
40:40 Amps
50:50 Amps
65:65 Amps
80:80 Amps
95:95 Amps
105:105 Amps

Coil Voltage

CWB:
D15:120VAC
V24:208-240VAC
D39:480VAC
CWM:
V18:120VAC
V24:208-240VAC
V47:480VAC

Control Devices

A: Start Stop+Reset
C:On Off Selector Switch+Reset
E: Reset Only
H: HOA+Reset
M:HOA+Selector Switch On Off+Reset

Contactor Amps

3 Phase	Range	1 Phase
R23:	0.8-1.2	RM23:
R24:	1.2-1.8	RM24:
R25:	1.8-2.8	RM25:
R26:	2.8-4	RM26:
R27:	4-6.3	RM27:
R28:	5.6-8	RM28:
R29:	7-10	RM29:
R30:	8-12.5	RM30:
R32:	11-17	RM32:
R33:	15-23	RM33:
R34:	22-32	RM34:
R35:	32-40	RM35:
R38	32-50	RM38
R39:	40-57	
R42:	57-70	
R43:	63-80	
R44:	75-97	
R45:	90-112	

Table Intended for reference and not to create part numbers.

PESW Part Number Breakdown

PESW	(*)	-	B	18	D15	AX	-	R32

PESW Enclosed Starter Non Combination NEMA4X

Blank:3 Phase	
S:1 Phase	

Contactor Style

Blank:CWM
B:CWB

Contactor Amps

9:9 Amps
12:12 Amps
18:18 Amps
25:25 Amps
32:32 Amps
38:38 Amps
40:40 Amps
50:50 Amps
65:65 Amps
80:80 Amps
95:95 Amps
105:105 Amps

Coil Voltage

CWB:
D15:120VAC
V24:208-240VAC
D39:480VAC
CWM:
V18:120VAC
V24:208-240VAC
V47:480VAC

Control Devices

AX: Start Stop
ACX:Start Stop+HOA
AB1X:Start Stop + Indicator
C:On Off Selector Switch+Reset
ECX: HOA +Reset
EX: Reset Only
EFX:On Off Selector+Reset
H: HOA+Reset
ICX:HOA No Reset
IFX:On Off Switch No Reset
M:HOA+Selector Switch On Off+Reset

Contactor Amps

3 Phase	Range	1 Phase
R57	0.8-1.2	RM57
R58	1.2-1.8	RM58
R59	1.8-2.8	RM59
R60	2.8-4	RM60
R61	4-6.3	RM61
R62	5.6-8	RM62
R63	7-10	RM63
R64	8-12.5	RM64
R66	11-17	RM66
R67	15-23	RM67
R68	22-32	RM68
R69	25-40	RM69
R35*	25-40*	RM35*
R38	32-50	RM38
R39	40-57	RM39
R42	57-70	RM41
R43	63-80	RM43
R44	75-97	RM44
R45	90-112	RM45

Table Intended for reference and not to create part numbers.

ESW

NEMA 1 Enclosure – Three Phase

ESW Series - Non-combination Across The Line Starter
Three -Phase - Enclosure Type-1

Max. UL Horsepower 200V	230V	460V	575V	Box	Setting Range	Coil Voltage	RESET only Catalog Number	RESET only List Price	START/STOP + RESET Catalog Number	START/STOP + RESET List Price	Multiplier
-	-	1/2	1/2	M04	0.8 - 1.2	120	ESW-B9D15E-R23	$157	ESW-B9D15A-R23	$210	Z3
						208-240	ESW-B9V24E-R23		ESW-B9V24A-R23		
						480	ESW-B9D39E-R23		ESW-B9D39A-R23		
-	-	3/4	1	M04	1.2 - 1.8	120	ESW-B9D15E-R24	$157	ESW-B9D15A-R24	$210	
						208-240	ESW-B9V24E-R24		ESW-B9V24A-R24		
						480	ESW-B9D39E-R24		ESW-B9D39A-R24		
1/2	1/2	1	2	M04	1.8 - 2.8	120	ESW-B9D15E-R25	$157	ESW-B9D15A-R25	$210	
						208-240	ESW-B9V24E-R25		ESW-B9V24A-R25		
						480	ESW-B9D39E-R25		ESW-B9D39A-R25		
3/4	3/4	2	3	M04	2.8 - 4.0	120	ESW-B9D15E-R26	$157	ESW-B9D15A-R26	$210	
						208-240	ESW-B9V24E-R26		ESW-B9V24A-R26		
						480	ESW-B9D39E-R26		ESW-B9D39A-R26		
1	1-1/2	3	5	M04	4.0 -6.3	120	ESW-B9D15E-R27	$157	ESW-B9D15A-R27	$210	
						208-240	ESW-B9V24E-R27		ESW-B9V24A-R27		
						480	ESW-B9D39E-R27		ESW-B9D39A-R27		
2	2	5	5	M04	5.6 - 8.0	120	ESW-B9D15E-R28	$157	ESW-B9D15A-R28	$210	
						208-240	ESW-B9V24E-R28		ESW-B9V24A-R28		
						480	ESW-B9D39E-R28		ESW-B9D39A-R28		
2	3	5	7-1/2	M04	7.0 - 10	120	ESW-B9D15E-R29	$157	ESW-B9D15A-R29	$210	
						208-240	ESW-B9V24E-R29		ESW-B9V24A-R29		
						480	ESW-B9D39E-R29		ESW-B9D39A-R29		
3	3	7-1/2	10	M04	8.0 - 12.5	120	ESW-B12D15E-R30	$174	ESW-B12D15A-R30	$227	
						208-240	ESW-B12V24E-R30		ESW-B12V24A-R30		
						480	ESW-B12D39E-R30		ESW-B12D39A-R30		
3	5	10	15	M04	11 - 17	120	ESW-B18D15E-R32	$188	ESW-B18D15A-R32	$241	
						208-240	ESW-B18V24E-R32		ESW-B18V24A-R32		
						480	ESW-B18D39E-R32		ESW-B18D39A-R32		
5	7-1/2	15	15	M04	15 -23	120	ESW-B25D15E-R33	$223	ESW-B25D15A-R33	$276	
						208-240	ESW-B25V24E-R33		ESW-B25V24A-R33		
						480	ESW-B25D39E-R33		ESW-B25D39A-R33		
10	10	20	25	M04	22 -32	120	ESW-B32D15E-R34	$245	ESW-B32D15A-R34	$298	
						208-240	ESW-B32V24E-R34		ESW-B32V24A-R34		
						480	ESW-B32D39E-R34		ESW-B32D39A-R34		
10	--	25	--	M04	32-40	120	ESW-B38D15E-R35	$292	ESW-B38D15A-R35	$345	
						208-240	ESW-B38V24E-R35		ESW-B38V24A-R35		
						480	ESW-B38D39E-R35		ESW-B38D39A-R35		
10	10	30	25	M06	25-40	120	ESW-40V18E-R35	$292	ESW-40V18A-R35	$345	
						208-240	ESW-40V24E-R35		ESW-40V24A-R35		
						480	ESW-40V47E-R35		ESW-40V47A-R35		
15	15	30	40	M06	32 - 50	120	ESW-50V18E-R38	$350	ESW-50V18A-R38	$403	
						208-240	ESW-50V24E-R38		ESW-50V24A-R38		
						480	ESW-50V47E-R38		ESW-50V47A-R38		
15	20	40	50	M06	40 - 57	120	ESW-65V18E-R39	$375	ESW-65V18A-R39	$428	
						208-240	ESW-65V24E-R39		ESW-65V24A-R39		
						480	ESW-65V47E-R39		ESW-65V47A-R39		
20	25	50	60	M06	57 - 70	120	ESW-80V18E-R41	$421	ESW-80V18A-R41	$474	
						208-240	ESW-80V24E-R41		ESW-80V24A-R41		
						480	ESW-80V47E-R41		ESW-80V47A-R41		
25	30	60	75	M08	63 - 80	120	ESW-95V18E-R43	$876	ESW-95V18A-R43	$929	
						208-240	ESW-95V24E-R43		ESW-95V24A-R43		
						480	ESW-95V47E-R43		ESW-95V47A-R43		
30	30	75	75	M08	75 - 97	120	ESW-105V18E-R44	$975	ESW-105V18A-R44	$1,028	
						208-240	ESW-105V24E-R44		ESW-105V24A-R44		
						480	ESW-105V47E-R44		ESW-105V47A-R44		
30	40	75	-	M08	90 - 112	120	ESW-105V18E-R45	$975	ESW-105V18A-R45	$1,028	
						208-240	ESW-105V24E-R45		ESW-105V24A-R45		
						480	ESW-105V47E-R45		ESW-105V47A-R45		

Notes:
1) Please contact your local WEG representative for starters with other control voltage.
2) 3-phase starters can be wired for single-phase applications (see page 267 for single phase conversion diagram)

General Information
Circuit Protection
Disconnect Switches
Motor Protectors
Contactors
Overloads
Enclosed Starters
Relays
Pushbuttons and Pilot Lights
Terminal Blocks
Power Factor Correction
Appendix A
Appendix B

NEMA 1 Enclosure – Single Phase

ESW Series - Non-combination Across The Line Starter - Non Reversing
Single Phase - Enclosure Type-1

Max. UL Horsepower		Box	Setting Range	Coil Voltage	RESET only		Start Stop Reset		Multiplier All Models
115V	230V				Catalog Number	List Price	Catalog Number	List Price	
_	_	M04	0.8-1.2	120	ESWS-B9D15E-RM23	$135	ESWS-B9D15A-RM23	$188	
				208-240	ESWS-B9V24E-RM23		ESWS-B9V24A-RM23		
_	1/10	M04	1.2-1.8	120	ESWS-B9D15E-RM24	$135	ESWS-B9D15A-RM24	$188	
				208-240	ESWS-B9V24E-RM24		ESWS-B9V24A-RM24		
_	1/6	M04	1.8-2.8	120	ESWS-B9D15E-RM25	$135	ESWS-B9D15A-RM25	$188	
				208-240	ESWS-B9V24E-RM25		ESWS-B9V24A-RM25		
1/8	1/3	M04	2.8 - 4.0	120	ESWS-B9D15E-RM26	$135	ESWS-B9D15A-RM26	$188	
				208-240	ESWS-B9V24E-RM26		ESWS-B9V24A-RM26		
1/4	1/2	M04	4.0 - 6.3	120	ESWS-B9D15E-RM27	$135	ESWS-B9D15A-RM27	$188	
				208-240	ESWS-B9V24E-RM27		ESWS-B9V24A-RM27		
1/3	1	M04	5.6 - 8.0	120	ESWS-B9D15E-RM28	$135	ESWS-B9D15A-RM28	$188	
				208-240	ESWS-B9V24E-RM28		ESWS-B9V24A-RM28		
1/2	1-1/2	M04	7.0 - 10	120	ESWS-B9D15E-RM29	$135	ESWS-B9D15A-RM29	$188	
				208-240	ESWS-B9V24E-RM29		ESWS-B9V24A-RM29		
1/2	2	M04	8.0 - 12.5	120	ESWS-B12D15E-RM30	$135	ESWS-B12D15A-RM30	$227	Z3
				208-240	ESWS-B12V24E-RM30		ESWS-B12V24A-RM30		
3/4	2	M04	10-15	120	ESWS-B18D15E-RM31	$161	ESWS-B18D15A-RM31	$241	
				208-240	ESWS-B18V24E-RM31		ESWS-B18V24A-RM31		
1	3	M04	11 - 17	120	ESWS-B18D15E-RM32	$170	ESWS-B18D15A-RM32	$241	
				208-240	ESWS-B18V24E-RM32		ESWS-B18V24A-RM32		
1-1/2	3	M04	15 -23	120	ESWS-B25D15E-RM33	$180	ESWS-B25D15A-RM33	$276	
				208-240	ESWS-B25V24E-RM33		ESWS-B25V24A-RM33		
2	5	M04	22 -32	120	ESWS-B32D15E-RM34	$230	ESWS-B32D15A-RM34	$276	
				208-240	ESWS-B32V24E-RM34		ESWS-B32V24A-RM34		
3	7-1/2	M04	32-40	120	ESWS-B38D15E-RM35	$274	ESWS-B38D15A-RM35	$327	
				208-240	ESWS-B38V24E-RM35		ESWS-B38V24A-RM35		
3	7-1/2	M06	25 - 40	120	ESWS-40V18E-RM35	$274	ESWS-40V18A-RM35	$351	
				208-240	ESWS-40V24E-RM35		ESWS-40V24A-RM35		
3	10	M06	32 - 50	120	ESWS-50V18E-RM38	$330	ESWS-50V18A-RM38	$423	
				208-240	ESWS-50V24E-RM38		ESWS-50V24A-RM38		

Notes: 1) OLR must be set at 115% of motor FLA
ESWS - Single-phase version - assembled with 2 pole contactor and 2 pole overload relays

ESWS

Field Mod Kits for ESW/ESWS Series

Accessories	Field Kit Modications				
Description	Structure		Catalog Number	List Price	Multiplier
	Top	Bottom			
No Pilot Device Metal Brackets - 2 x 22mm holes w/ plugs	PLUG	PLUG	KESWPP	$25	
Start / Stop Pushbutton	PLUG	START - STOP	KESWPS	$80	
Hand-Off-Auto Selector Switch	HAND - OFF - AUTO	PLUG	KESWHP	$80	Z3
Off-On Selector Switch	OFF - ON	PLUG	KESWFP	$80	
E-stop	PLUG	E-STOP	KESWPE	$80	


KESWPP

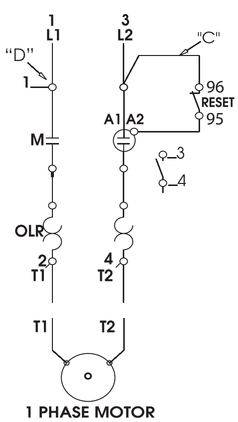

KESWPS

KESWHP

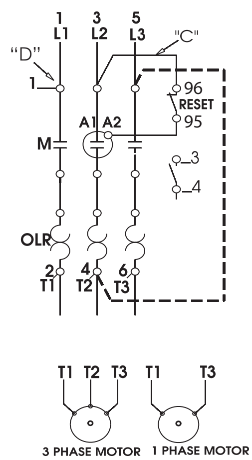
KESWFP

WIRING DIAGRAM

Single-phase Starter



Three-phase Starter



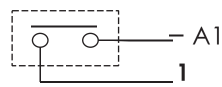
Conversion to single-phase, add jumper wire from L3 to T2 (follow dotted line connection above)

Separate Control

FOR SEPARATE CONTROL, REMOVE WIRES "C" AND "D" IF SUPPLIED AND CONNECT SEPARATE CONTROL LINES TO TERMINAL Nº 96 ON THE OVERLOAD RELAY AND TO TERMINAL Nº _3 ON THE AUX. CONTACT BLOCK (FOR 3 WIRE CONTROL) OR TO THE CONTACTOR COIL Nº A1 (FOR 2 WIRE CONTROL).

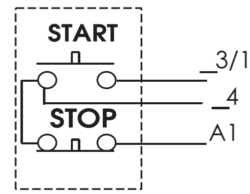
Pilot Devices

2 Wire Control

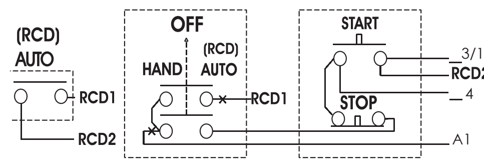


NOT FOR USE WITH AUTO RESET OL RELAYS.

3 Wire Control



Hand-Off Auto Wire Control (For ESW Series Only)



DIMENSIONS

Provision for cable gland fitting	Standard			
	Top	Bottom	Side	Back
Box M04	2x (½" or ¾")	2x (½" or ¾")	4x (½" or ¾")	2x (½" or ¾")
	1x (¾" or 1")	1x (¾" or 1")	-	-
Box M06	1x (½" or ¾")	1x (½" or ¾")	3x (½" or ¾")	-
	2x (1" or 1-1/4")	2x (1" or 1-1/4")	4x (1" or 1-1/4")	-
Box M08	1x (1")	1x (1")	1x (1")	1x (1")
	1x (1-1/2")	1x (1-1/2")	4x (¾")	-

Dimensions (approx. inches)				
Enclosed Starters	Enclosure Size			
	BOX	H	W	D
ESW(S) 9, 12, 18, 25, 32, 38	M04	9.5	5.5	5.0
ESW(S) 40, 50, 65, 80	M06	13.0	7.5	5.6
ESW 95, 105	M08	17.8	9.5	6.7

Enclosed Starters

PESW

PESW Series - Non-combination Across the line starter
Three-Phase Enclosure Type - 4X

Max. UL Horsepower				Box	Setting Range	Coil Voltage	RESET only		START/STOP + RESET		Multiplier
200V	230V	460V	575V				Catalog Number	List Price	Catalog Number	List Price	
-	-	1/2	1/2	05	0.8 - 1.2	120	PESW-B9D15EX-R57	$157	PESW-B9D15AX-R57	$210	Z3
						208-240	PESW-B9V24EX-R57		PESW-B9V24AX-R57		
						480	PESW-B9D39EX-R57		PESW-B9D39AX-R57		
-	-	3/4	1	05	1.2 - 1.8	120	PESW-B9D15EX-R58	$157	PESW-B9D15AX-R58	$210	
						208-240	PESW-B9V24EX-R58		PESW-B9V24AX-R58		
						480	PESW-B9D39EX-R58		PESW-B9D39AX-R58		
1/2	1/2	1	2	05	1.8 - 2.8	120	PESW-B9D15EX-R59	$157	PESW-B9D15AX-R59	$210	
						208-240	PESW-B9V24EX-R59		PESW-B9V24AX-R59		
						480	PESW-B9D39EX-R59		PESW-B9D39AX-R59		
3/4	3/4	2	3	05	2.8 - 4.0	120	PESW-B9D15EX-R60	$157	PESW-B9D15AX-R60	$210	
						208-240	PESW-B9V24EX-R60		PESW-B9V24AX-R60		
						480	PESW-B9D39EX-R60		PESW-B9D39AX-R60		
1	1-1/2	3	5	05	4.0 - 6.3	120	PESW-B9D15EX-R61	$157	PESW-B9D15AX-R61	$210	
						208-240	PESW-B9V24EX-R61		PESW-B9V24AX-R61		
						480	PESW-B9D39EX-R61		PESW-B9D39AX-R61		
2	2	5	5	05	5.6 - 8.0	120	PESW-B9D15EX-R62	$157	PESW-B9D15AX-R62	$210	
						208-240	PESW-B9V24EX-R62		PESW-B9V24AX-R62		
						480	PESW-B9D39EX-R62		PESW-B9D39AX-R62		
2	3	5	7-1/2	05	7.0 - 10	120	PESW-B9D15EX-R63	$157	PESW-B9D15AX-R63	$210	
						208-240	PESW-B9V24EX-R63		PESW-B9V24AX-R63		
						480	PESW-B9D39EX-R63		PESW-B9D39AX-R63		
3	3	7-1/2	10	05	8.0 - 12.5	120	PESW-B12D15EX-R64	$174	PESW-B12D15AX-R64	$227	
						208-240	PESW-B12V24EX-R64		PESW-B12V24AX-R64		
						480	PESW-B12D39EX-R64		PESW-B12D39AX-R64		
3	5	10	15	05	11 - 17	120	PESW-B18D15EX-R66	$188	PESW-B18D15AX-R66	$241	
						208-240	PESW-B18V24EX-R66		PESW-B18V24AX-R66		
						480	PESW-B18D39EX-R66		PESW-B18D39AX-R66		
5	7-1/2	15	15	05	15 - 23	120	PESW-B25D15EX-R67	$223	PESW-B25D15AX-R67	$276	
						208-240	PESW-B25V24EX-R67		PESW-B25V24AX-R67		
						480	PESW-B25D39EX-R67		PESW-B25D39AX-R67		
10	10	20	25	05	22 - 32	120	PESW-B32D15EX-R68	$262	PESW-B32D15AX-R68	$298	
						208-240	PESW-B32V24EX-R68		PESW-B32V24AX-R68		
						480	PESW-B32D39EX-R68		PESW-B32D39AX-R68		
10	--	25	--	05	32-40	120	PESW-B38D15EX-R69	$321	PESW-B38D15AX-R69	$345	
						208-240	PESW-B38V24EX-R69		PESW-B38V24AX-R69		
						480	PESW-B38D39EX-R69		PESW-B38D39AX-R69		

continued on next page

PESW Series - Non-combination Across the line starter - continued

Three-Phase Enclosure Type - 4X

Max. UL Horsepower				Box	Setting Range	Coil Voltage	RESET only		START/STOP + RESET		Multiplier
200V	230V	460V	575V				Catalog Number	List Price	Catalog Number	List Price	
10	10	25	20	06	25 - 40	120	PESW-40V18EX-R35	$321	PESW-40V18AX-R35	$345	Z3
						208-240	PESW-40V24EX-R35		PESW-40V24AX-R35		
						480	PESW-40V47EX-R35		PESW-40V47AX-R35		
15	15	30	40	08	32 - 50	120	PESW-50V18EX-R38	$564	PESW-50V18AX-R38	$579	
						208-240	PESW-50V24EX-R38		PESW-50V24AX-R38		
						480	PESW-50V47EX-R38		PESW-50V47AX-R38		
15	20	40	50	08	40 - 57	120	PESW-65V18EX-R39	$589	PESW-65V18AX-R39	$604	
						208-240	PESW-65V24EX-R39		PESW-65V24AX-R39		
						480	PESW-65V47EX-R39		PESW-65V47AX-R39		
20	25	50	60	08	57 -70	120	PESW-80V18EX-R41	$635	PESW-80V18AX-R41	$650	
						208-240	PESW-80V24EX-R41		PESW-80V24AX-R41		
						480	PESW-80V47EX-R41		PESW-80V47AX-R41		
25	30	60	75	10	63 - 80	120	PESW-95V18EX-R43	$1,085	PESW-95V18AX-R43	$1,100	
						208-240	PESW-95V24EX-R43		PESW-95V24AX-R43		
						480	PESW-95V47EX-R43		PESW-95V47AX-R43		
30	30	75	75	10	75 - 97	120	PESW-105V18EX-R44	$1,184	PESW-105V18AX-R44	$1,199	
						208-240	PESW-105V24EX-R44		PESW-105V24AX-R44		
						480	PESW-105V47EX-R44		PESW-105V47AX-R44		
30	40	75	-	10	90 -112	120	PESW-105V18EX-R45	$1,184	PESW-105V18AX-R45	$1,199	
						208-240	PESW-105V24EX-R45		PESW-105V24AX-R45		
						480	PESW-105V47EX-R45		PESW-105V47AX-R45		

Notes:
1) OLR must be set @115% of FLA
2) 3-phase starters with 120V coil are wired for separate control
3) 3-phase starters can be wired for single-phase applications (see diagram) on page 271

Enclosed Starters

PESW

PESW Series - Non-combination Across the line starter
Single Phase- Enclosure Type-4X

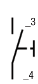
Max. UL Horsepower		Box	Setting Range	Coil Voltage	RESET only		START/STOP + RESET		Multiplier
115V	230V				Catalog Number	List Price	Catalog Number	List Price	
1/8	1/3	05	2.8 - 4.0	120	PESWS-B9D15EX-RM60	$140	PESWS-B9D15AX-RM60	$155	Z3
				208-240	PESWS-B9V24EX-RM60		PESWS-B9V24AX-RM60		
1/4	1/2	05	4.0 - 6.3	120	PESWS-B9D15EX-RM61	$140	PESWS-B9D15AX-RM61	$155	
				208-240	PESWS-B9V24EX-RM61		PESWS-B9V24AX-RM61		
1/3	1	05	5.6 - 8.0	120	PESWS-B9D15EX-RM62	$140	PESWS-B9D15AX-RM62	$155	
				208-240	PESWS-B9V24EX-RM62		PESWS-B9V24AX-RM62		
1/2	1-1/2	05	7.0 - 10	120	PESWS-B9D15EX-RM63	$140	PESWS-B9D15AX-RM63	$155	
				208-240	PESWS-B9V24EX-RM63		PESWS-B9V24AX-RM63		
1/2	2	05	8.0 - 12.5	120	PESWS-B12D15EX-RM64	$140	PESWS-B12D15AX-RM64	$155	
				208-240	PESWS-B12V24EX-RM64		PESWS-B12V24AX-RM64		
3/4	2	05	10 - 15	120	PESWS-B18D15EX-RM65	$161	PESWS-B18D15AX-RM65	$170	
				208-240	PESWS-B18V24EX-RM65		PESWS-B18V24AX-RM65		
1	3	05	11 - 17	120	PESWS-B18D15EX-RM66	$170	PESWS-B18D15AX-RM66	$182	
				208-240	PESWS-B18V24EX-RM66		PESWS-B18V24AX-RM66		
1-1/2	3	05	15 - 23	120	PESWS-B25D15EX-RM67	$180	PESWS-B25D15AX-RM67	$195	
				208-240	PESWS-B25V24EX-RM67		PESWS-B25V24AX-RM67		
2	5	05	22 - 32	120	PESWS-B32D15EX-RM68	$180	PESWS-B32D15AX-RM68	$195	
				208-240	PESWS-B32V24EX-RM68		PESWS-B32V24AX-RM68		
3	7-1/2	05	32-40	120	PESWS-B38D15EX-RM69	$274	PESWS-B38D15AX-RM69	$300	
				208-240	PESWS-B38V24EX-RM69		PESWS-B38V24AX-RM69		
3	7-1/2	06	25 - 40	120	PESWS-40V18EX-RM35	$274	PESWS-40V18AX-RM35	$300	
				208-240	PESWS-40V24EX-RM35		PESWS-40V24AX-RM35		
3	10	08	32 - 50	120	PESWS-50V18EX-RM38	$430	PESWS-50V18AX-RM38	$440	
				208-240	PESWS-50V24EX-RM38		PESWS-50V24AX-RM38		

Note: OLR must be set at 115% of motor FLA

Accessories - Mounting in Control Stations

Contact Block⁾

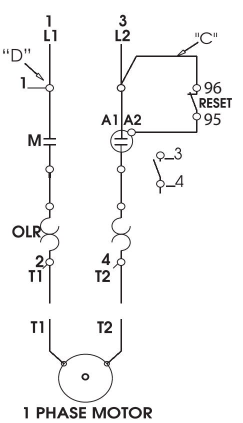
Replacement Base Mount Contact Blocks for PESWS(B) 9-38

	Description	Contacts	Diagram	Standard packing	Catalog Number	Price	Multiplier
 0.015 kg[3]	Single contact blocks to mounting in control stations or DIN rail 35 mm	1NO		1 piece	BC10B-CSW	$5.00	Z5

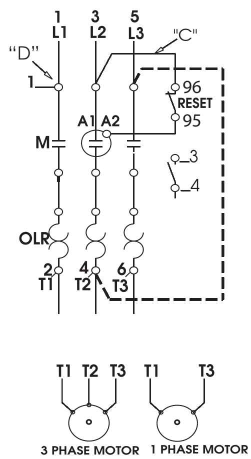
Data is subject to change without notice.

WIRING DIAGRAM

Single-phase Starter



Three-phase Starter



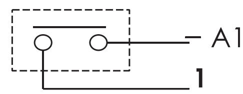
Conversion to single-phase, add jumper wire from L3 to T2 (follow dotted line connection above)

Separate Control

FOR SEPARATE CONTROL, REMOVE WIRES "C" AND "D" IF SUPPLIED AND CONNECT SEPARATE CONTROL LINES TO TERMINAL Nº 96 ON THE OVERLOAD RELAY AND TO TERMINAL Nº _3 ON THE AUX. CONTACT BLOCK (FOR 3 WIRE CONTROL) OR TO THE CONTACTOR COIL Nº A1 (FOR 2 WIRE CONTROL).

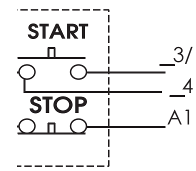
Pilot Devices

2 Wire Control



NOT FOR USE WITH AUTO RESET OL RELAYS.

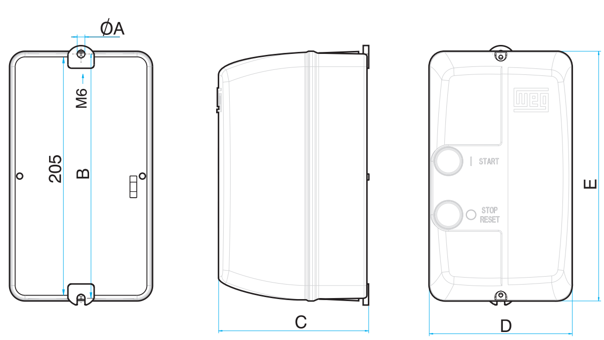
3 Wire Control



DIMENSIONS

SIZE 05 mm(in)	SIZE 06 mm (in)	SIZE 08 mm (in)	SIZE 10 mm (in)
øA = 5.5 (0.2165)	øA = 6.5 (0.3)	øA = 6.0 (0.2)	øA = 7.0 (0.3)
B = 219.0 (8.622)	B = 205 (8.1)	B = 275 (10.8)	B = 355 (14.0)
C = 112 (4.4331)	C = 126 (5.0)	C = 143 (5.6)	C = 167 (6.6)
D = 114.0 (4.4882)	D = 120 (4.7)	D = 180 (7.1)	D = 250 (9.9)
E = 217 (8.5433)	E = 210 (8.3)	E = 280 (11.0)	E = 360 (14.2)

Provision for cable gland fitting	Standard		
	Top	Bottom	Back
Size 05	2 x 1/2" - 3/4" PG13.5	2 x 1/2" - 3/4" PG13.5	4 X 1/2" PG13.5
Size 06	2 x 1/2" - 3/4"	2 x 1/2" - 3/4"	ø22mm (0.9in)
Size 08	2 x 3/4" and 1"	2 x 3/4" and 1"	-
Size 10	2 x 3/4" and 1"	2 x 3/4" and 1"	-
	1 x 1" and 1 1/4"	1 x 1" and 1 1/4"	-



For wall mounting on starters size 08 and 10, four screws with the following characteristics should be used:

- Pan, dome or rounded shaped head;
- Starter size 08:
  - Screws size 1/4 (or M6 – ISO Standard);
  - Dimensions: diameter thread shall be maximum 1/4 in and diameter head shall be maximum 15/64 in.
- Starter size 10:
  - Screws size 12 (or M5 – ISO Standard);
  - Dimensions: diameter thread shall be maximum 0.236 in and diameter head shall be maximum 0.394 in.

Enclosed Starters

Combination Starters
Rotary Breaker Disconnect
5 - 250HP @ 480vac

ESWC Series Combination Starters

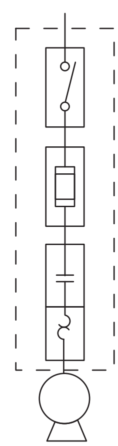
High performance and optimized solutions for motor starting and control. WEG offers full voltage non-reversing combination starters, ESWC series, up to 250 HP at 460VAC (300A) with control power transformers for three-phase applications.

Standard Features

- Multi-Rated Enclosure Type: 1/3R/4/12
- Multi-Voltage Transformer: primary 208V/230V/460V – secondary 120V
- Branch Disconnect: rotary through-the-door handle
- Short-Circuit Protection: molded case circuit breaker
- Motor Control: magnetic IEC contactor
- Overload Protection: solid-state overload relay
  - *Selectable trip class 10, 20, 30
  - *(5:1) ratio adjustable current setting
- Standard Control Devices: START, STOP and RESET pushbuttons
- Custom control options available upon request

ESWC PART NUMBER CODE STRING MATRIX

Product Code	-	Contactor Size	Control Power Transformer (Pri/Sec)[1]	Control Options	Enclosure Type	-	Electronic Overload Range
ESWC		9 = 9 Amp	TM1 = 208/230/460V-120V[1]	**A** = RESET, START, STOP	9 = 1/3R/4/12		RE1 = 0.4 - 2.0 Amps
		12 = 12 Amp	T5 = 600V-120V	**B** = RESET, START, STOP, HOA	0 = 4X SS		RE2 = 1.6 - 8.0 Amps
		18 = 18 Amp		**C** = RESET, START/STOP SELECTOR			RE3 = 5.0 - 25 Amps
		25 = 25 Amp		**D** = RESET, STOP			RE4 = 8.0 - 40 Amps
		38 = 38 Amp		**E** = RESET			RE5 = 14 - 56 Amps
		65 = 65 Amp		**I** = NONE			RE6 = 28 - 112 Amps
		105 = 105 Amp		**J** = RESET, START, STOP, RUN LIGHT			RE7 = 50 - 250 Amps
		112 = 112 Amp		**K** = RESET, START, STOP, HOA, RUN LIGHT			RE8 = 85 - 420 Amps
		150 = 150 Amp		**S** = RESET, START, HOA			RE9 = 170 - 840 Amps



Types A through D combination starters

[1]Wired for 480V primary from the factory. Instructions and fuses provided for 208V - 230V field conversion

ESWC Series – Full Voltage Non-Reversing Combination Starter
THREE-PHASE

- Branch Disconnect with Rotary Handle
- Start Stop Reset Control – Other Control Devices available as Options
- Magnetic Contactor and Solid State Overload
- Transformer 208,240 and 480vac Primary with120vac Secondary, 600vac version also available

ESWC Series – Full Voltage Non-Reversing Combination Starter

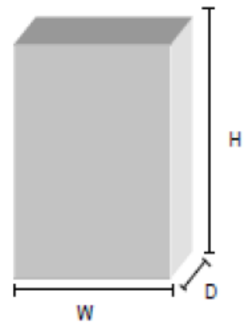
FEEDER VOLTAGE	Motor HP Range (HP)	Overload Range (A)	Metallic Enclosure Type 1/3R/4/12 Catalog Number	List Price	Box Size	Multiplier
208VAC	0.5 - 1.5	1.6-8.0	ESWC-9TM1A9-RE2	$2,020	B-1	Z3
240VAC	0.5 - 2					
480VAC	0.75 - 5					
600VAC	1 - 5		ESWC-9T5A9-RE2			
208VAC	1.5 - 3	5.0-25.0	ESWC-12TM1A9-RE3	$2,020	B-1	
240VAC	1.5 - 3					
480VAC	5 - 7.5					
600VAC	5 - 10		ESWC-12T5A9-RE3			
208VAC	3 - 5	5.0-25.0	ESWC-18TM1A9-RE3	$2,070	B-1	
240VAC	3 - 5					
480VAC	7.5 - 10					
600VAC	10 - 15		ESWC-18T5A9-RE3			
208VAC	5 - 7.5	8.0-40.0	ESWC-25TM1A9-RE4	$2,070	B-1	
240VAC	5 - 7.5					
480VAC	7.5 - 15					
600VAC	15 - 20		ESWC-25T5A9-RE4			
208VAC	7.5 - 10	8.0-40.0	ESWC-38TM1A9-RE4	$2,255	B-1	
240VAC	7.5 - 10					
480VAC	15 - 25					
600VAC	20 - 30		ESWC-38T5A9-RE4			
208VAC	10 - 20	28-112	ESWC-65TM1A9-RE6	$2,552	B-1	
240VAC	10 - 20					
480VAC	25 - 40					
600VAC	30 - 60		ESWC-65T5A9-RE6			
208VAC	20 - 30	28-112	ESWC-105TM1A9-RE6	$3,355	B-2	
240VAC	20 - 30					
480VAC	40 - 75					
600VAC	50 - 100		ESWC-105T5A9-RE6			
208VAC	30 - 50	50-250	ESWC-150TM1A9-RE7	$5,400	B-3	
240VAC	30 - 50					
480VAC	75 - 125					
600VAC	75 - 150		ESWC-150T5A9-RE7			
208VAC	50 - 60	50-250	ESWC-180TM1A9-RE7	$6,440	B-3	
240VAC	50 - 60					
480VAC	100 - 150					
600VAC	125 - 175		ESWC-180T5A9-RE7			
208VAC	60 - 100	85-420	ESWC-300TM1A9-RE8	$7,500	B-3	
240VAC	60 - 125					
480VAC	150 - 250					
600VAC	175 - 300		ESWC-300T5A9-RE8			

**Note: Alternate Control options are available. See catalog number breakdown on previous page*
**Note: Wired for 480V primary from the factory. Instructions and fuses provided for 208V - 230V field conversion*

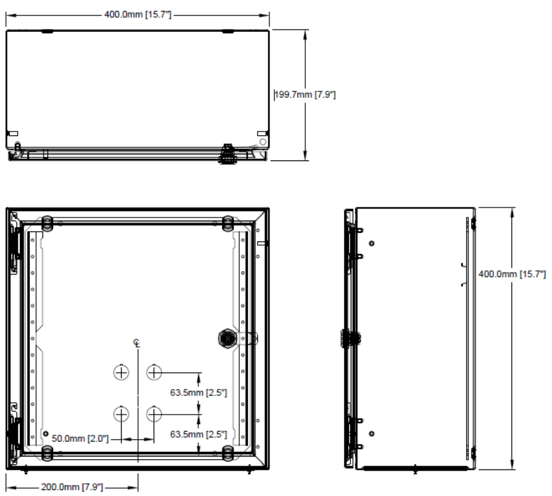
ESWC

Dimensions (in) - ESWC Series

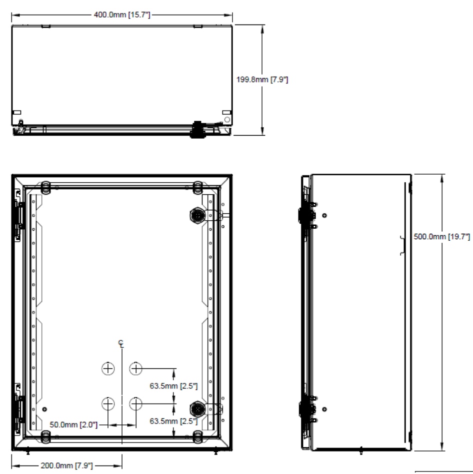
Enclosure Size	Dimensions (in/mm)		
	H	W	D
B1	15.75"/400mm	15.75"/400mm	7.87"/200mm
B2	19.69"/500mm	15.75"/400mm	7.87"/200mm
B3	31.5"/800mm	23.6"/600mm	11.8"/300mm



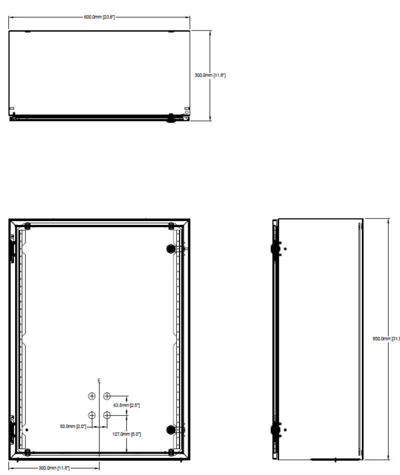
B1 Enclosure



B2 Enclosure



B3 Enclosure



ESWE Series Combination Starters Type E with/without CPT

High performance and optimized solutions for motor starting and control. WEG offers full voltage non-reversing combination starters, ESWE series, up to 20 HP at 460VAC (40A) with or without control power transformers for three-phase applications.

Standard Features

- Standard Enclosure Type: non-metallic 4X
- Control Power Transformer: with or without
  - *CPT primary 575V – secondary 120V
  - *CPT primary 480V/240V – secondary 120V
- Branch Disconnect: rotary through-the-door handle
- Short-Circuit Protection: manual motor protection
- Motor Control: magnetic IEC contactor
- Overload Protection: manual motor protection
- Standard Control Devices: HAND-OFF-AUTO switch, START and STOP pushbuttons, pilot lights
- Custom enclosure and control options available upon request

ESWE Part Number Breakdown

ESWE-	B	9	V24	K	X	D10

Contactor Type (B)

- B: CWB inside

Contactor Amps (9)

- 9:9 Amps
- 12:12 Amps
- 18:18 Amps
- 25:25 Amps
- 32:32 Amps
- 38:38 Amps
- 40:40 Amps

Without CPT (V24)

- D02: 24 VAC
- D15: 120 VAC V24: 208-240 VAC
- D39: 480 VAC
- D45: 600 VAC

With CPT

- T01: 208V / 120V
- T02: 240V / 120V
- T03: 277V / 120V
- T04: 480V / 120V
- T05: 600V / 120V
- T06: 208 / 24V
- T08: 240V / 24V
- T09: 277V / 24V
- TOA: 240V / 24V
- TOB: 600V / 24V

Control Devices (K)

- K: HOA Start Stop Reset Pilot Lights

Enclosure Type (X)

- N: NEMA 4X

Overload (D10)

- D01: 0.1-0.16
- D02: 0.16-0.25
- D03: 0.25-0.4
- D04: 0.4-0.63
- D05: 0.63-1
- D06: 1-1.6
- D07: 1.6-25
- D08: 2.5-4
- D09: 4-6.3
- D10: 6.3-10
- D11: 10-16
- D12: 16-20
- D13: 20-25
- D14: 25-32

Enclosed Starters

ESWE

Combination Type-E Across The Line Starter

- Branch Disconnect: Rotary through-the-door Handle
- Short-Circuit Protection: Manual Motor Protection
- Motor Control: Magnetic Contactor
- Overload Protection: Manual Motor Protection
- Control Devices: Hand-Off-Auto switch, Start-Stop pushbutton, pilot lights
- Other enclosue options available upon request

Three-Phase without CPT - Enclosure Type-4X

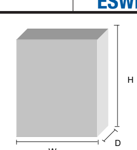
Combination Type-E Across The Line Starter

Max. 3-ph Hp Motors				Overload Setting Range (A)	Control Voltage (1) (Vac)	Non-Metallic Enclosure Type 4X			Multiplier
200V	230V	460V	575V			Catalog Number	List Price	Box Size	
-	-	1/2	1/2	0.63 - 1.0	120	ESWE-B9D15KX-D05	$855	E-1	Z3
					480	ESWE-B9D39KX-D05			
1/4	1/3	3/4	1	1.0 - 1.6	120	ESWE-B9D15KX-D06	$855	E-1	
					208-240	ESWE-B9V24KX-D06			
					480	ESWE-B9D39KX-D06			
1/2	1/2	1-1/2	1-1/2	1.6 - 2.5	120	ESWE-B9D15KX-D07	$855	E-1	
					208-240	ESWE-B9V24KX-D07			
					480	ESWE-B9D39KX-D07			
3/4	1	2	3	2.5 - 4.0	120	ESWE-B9D15KX-D08	$855	E-1	
					208-240	ESWE-B9V24KX-D08			
					480	ESWE-B9D39KX-D08			
1-1/2	1-1/2	3	5	4.0 - 6.3	120	ESWE-B9D15KX-D09	$855	E-1	
					208-240	ESWE-B9V24KX-D09			
					480	ESWE-B9D39KX-D09			
3	3	5	7-1/2	6.3 - 10	120	ESWE-B9D15KX-D10	$865	E-1	
					208-240	ESWE-B9V24KX-D10			
					480	ESWE-B9D39KX-D10			
5	5	10	15	10 - 16	120	ESWE-B18D15KX-D11	$875	E-1	
					208-240	ESWE-B18V24KX-D11			
					480	ESWE-B18D39KX-D11			
7-1/12	7-1/2	15	15	16 - 20	120	ESWE-B25D15KX-D12	$900	E-1	
					208-240	ESWE-B25V24KX-D12			
					480	ESWE-B25D39KX-D12			
10	10	20	25	25 - 32	120	ESWE-B40D15KX-D14	$990	E-1	
					208-240	ESWE-B40V24KX-D14			
					480	ESWE-B40D39KX-D14			

Three-Phase with CPT - Enclosure Type-4X

Max. 3-ph Hp Motors				Overload Setting Range (A)	Control Voltage (prim. / sec.) (Vac)	Non-Metallic Enclosure Type 4X			Multiplier
200V	230V	460V	575V			Catalog Number	List Price	Box Size	
-	-	1/2	1/2	0.63 - 1.0	480 / 120	ESWE-B9T04KX-D05	$1,140	E-1	Z3
					575 / 120	ESWE-B9T05KX-D05			
1/4	1/3	3/4	1	1.0 - 1.6	240 / 120	ESWE-B9T02KX-D06	$1,140	E-1	
					480 / 120	ESWE-B9T04KX-D06			
					575 / 120	ESWE-B9T05KX-D06			
1/2	1/2	1-1/2	1-1/2	1.6 - 2.5	240 / 120	ESWE-B9T02KX-D07	$1,140	E-1	
					480 / 120	ESWE-B9T04KX-D07			
					575 / 120	ESWE-B9T05KX-D07			
3/4	1	2	3	2.5 - 4.0	240 / 120	ESWE-B9T02KX-D08	$1,140	E-1	
					480 / 120	ESWE-B9T04KX-D08			
					575 / 120	ESWE-B9T05KX-D08			
1-1/2	1-1/2	3	5	4.0 - 6.3	240 / 120	ESWE-B9T02KX-D09	$1,140	E-1	
					480 / 120	ESWE-B9T04KX-D09			
					575 / 120	ESWE-B9T05KX-D09			
3	3	5	7-1/2	6.3 - 10	240 / 120	ESWE-B9T02KX-D10	$1,140	E-1	
					480 / 120	ESWE-B9T04KX-D10			
					575 / 120	ESWE-B9T05KX-D10			
5	5	10	15	10 - 16	240 / 120	ESWE-B18T02KX-D11	$1,155	E-1	
					480 / 120	ESWE-B18T04KX-D11			
					575 / 120	ESWE-B18T05KX-D11			
7-1/2	7-1/2	15	15	16 - 20	240 / 120	ESWE-B25T02KX-D12	$1,175	E-1	
					480 / 120	ESWE-B25T04KX-D12			
					575 / 120	ESWE-B25T05KX-D12			
10	10	20	25	25 - 32	240 / 120	ESWE-B40T02KX-D14	$1,260	E-1	
					480 / 120	ESWE-B40T04KX-D14			
					575 / 120	ESWE-B40T05KX-D14			

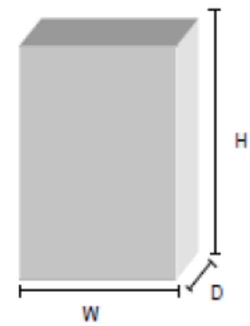
Notes:
(1) Please contact your local WEG representative for starters with 575V control voltage.
(2) 3-phase starters with 120V coil are pre-wired for separate control
(3) 3-phase starters can be wired for single-phase applications

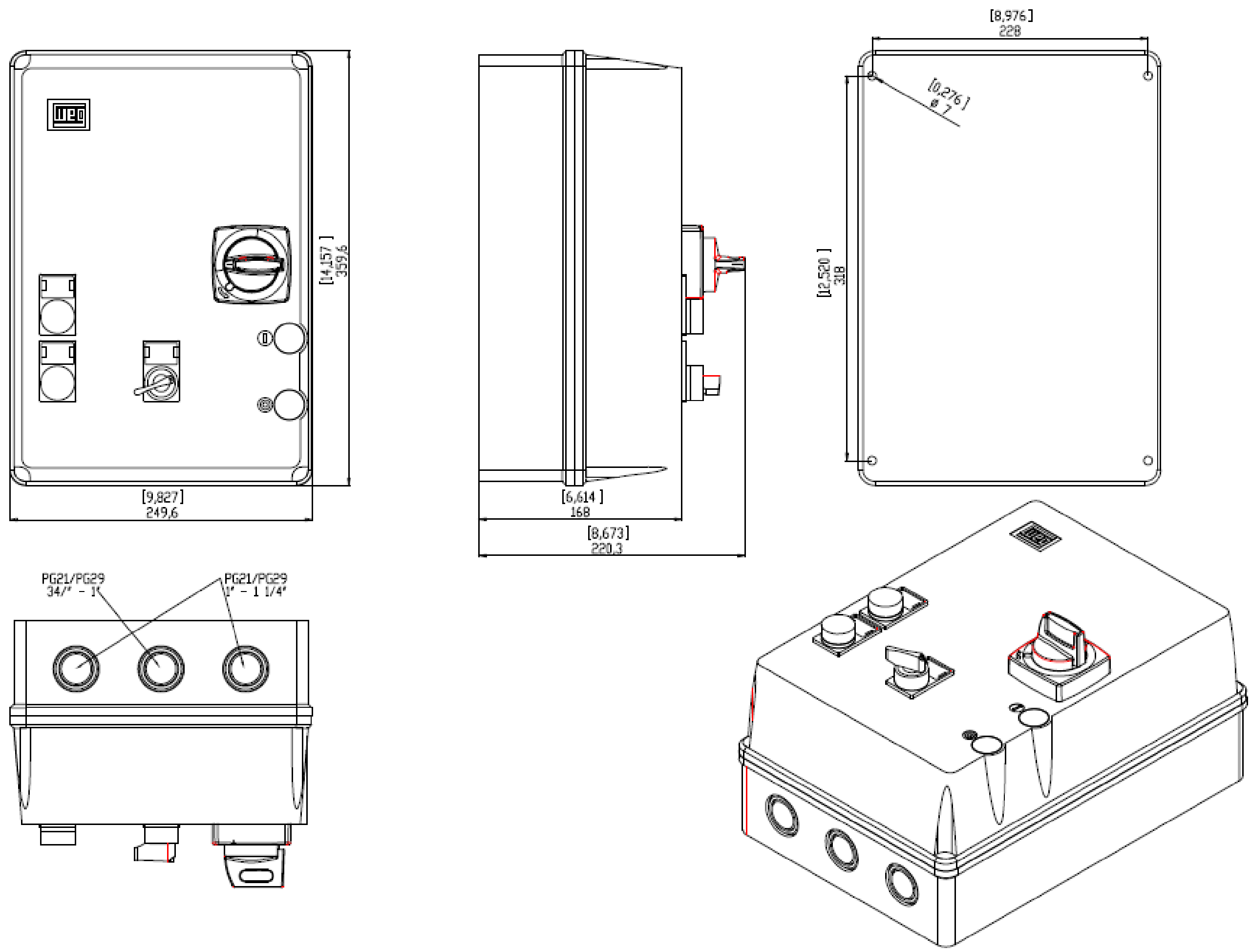


Dimensions (inches)			
Box Size	Enclosure Size		
	H	W	D
E-1	14.2	9.9	6.6

Dimensions (in) - ESWE Series

Enclosure Size	Dimensions (in/mm)		
	H	W	D
E-1	14.2	9.9	6.6





ESWF

ESWF Series Combination Starters Type F with/without CPT

High performance and optimized solutions for motor starting and control. WEG offers full voltage non-reversing combination starters, ESWF series, up to 75 HP at 460VAC (105A) with or without control power transformers for three-phase applications.

Standard Features

- Standard Enclosure Type: metallic type 4/12
- Control Power Transformer: with or without
  - *CPT primary 575V – secondary 120V
  - *CPT primary 480V/240V – secondary 120V
- Branch Disconnect: rotary through-the-door handle
- Short-Circuit Protection: manual motor protection
- Motor Control: magnetic IEC contactor
- Overload Protection: manual motor protection
- Standard Control Devices: HAND-OFF-AUTO switch, START and STOP pushbuttons
- Custom enclosure and control options available upon request

ESWF Part Number Breakdown

ESWF-	18	V24	N	4	D14

Starter Type "F"

NEMA 4
MPW
Contactor
Start-Stop-HOA

Contactor Rating

9
18
25
40
50
65
38
95
105

Coil Voltage

V18: 120 VAC
V24: 208-240 VAC
V47: 480 VAC
T02 = 230VAC to 120VAC
T04 = 480VAC to 120VAC
T05 = 600VAC to 120vac
T0A: 240V / 24V
T0B: 600V / 24V

Control Option

N: HOA, Start/Stop/Reset

Enclosure Rating

TYPE 4

Overload

D05: 0.63-1
D06: 1-1.6
D07: 1.6-25
D08: 2.5-4
D09: 4-6.3
D10: 6.3-10
D11: 10-16
D12: 16-20
D14: 25-32
D19: 32-40
D20: 40-50
D21: 50-65
D22: 55-75
D23: 70-90
D24: 80-100

Table Intended for reference and not to create part numbers.

Data is subject to change without notice.

Combination Type-F Across The Line Starter

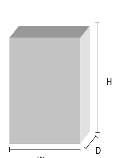
THREE-PHASE without Control Power Transformer

- Branch Disconnect: Rotary through-the-door Handle
- Short-Circuit Protection: Manual Motor Protection
- Motor Control: Magnetic Contactor
- Overload Protection: Manual Motor Protection
- Control Devices: Hand-Off-Auto switch, Start-Stop pushbutton
- Other enclosue options available upon request

Combination Type-F Across The Line Starter with no CPT

Max. 3-ph Hp Motors				Overload Setting Range (A)	Control Voltage (1) (Vac)	Metallic Enclosure Type 4/12			Multiplier
200V	230V	460V	575V			Catalog Number	List Price	Box Size	
-	-	1/2	1/2	0.63 - 1.0	120	ESWF-9V18N4-D05	$1,410	F-1	
					480	ESWF-9V47N4-D05			
1/4	1/3	3/4	1	1.0 - 1.6	120	ESWF-9V18N4-D06	$1,410	F-1	
					208-240	ESWF-9V24N4-D06			
					480	ESWF-9V47N4-D06			
1/2	1/2	1-1/2	1-1/2	1.6 - 2.5	120	ESWF-9V18N4-D07	$1,410	F-1	
					208-240	ESWF-9V24N4-D07			
					480	ESWF-9V47N4-D07			
3/4	1	2	3	2.5 - 4.0	120	ESWF-9V18N4-D08	$1,410	F-1	
					208-240	ESWF-9V24N4-D08			
					480	ESWF-9V47N4-D08			
1-1/2	1-1/2	3	5	4.0 - 6.3	120	ESWF-9V18N4-D09	$1,410	F-1	
					208-240	ESWF-9V24N4-D09			
					480	ESWF-9V47N4-D09			
3	3	5	7 1/2	6.3 - 10	120	ESWF-9V18N4-D10	$1,410	F-1	
					208-240	ESWF-9V24N4-D10			
					480	ESWF-9V47N4-D10			
5	5	10	15	10 - 16	120	ESWF-18V18N4-D11	$1,495	F-1	
					208-240	ESWF-18V24N4-D11			
					480	ESWF-18V47N4-D11			
7-1/2	7-1/2	15	15	16 - 20	120	ESWF-25V18N4-D12	$1,600	F-1	
					208-240	ESWF-25V24N4-D12			Z3
					480	ESWF-25V47N4-D12			
10	10	20	25	25 - 32	120	ESWF-40V18N4-D14	$1,690	F-2	
					208-240	ESWF-40V24N4-D14			
					480	ESWF-40V47N4-D14			
10	15	25	30	32 - 40	120	ESWF-50V18N4-D19	$2,115	F-3	
					208-240	ESWF-50V24N4-D19			
					480	ESWF-50V47N4-D19			
15	15	30	40	40 - 50	120	ESWF-65V18N4-D20	$2,210	F-3	
					208-240	ESWF-65V24N4-D20			
					480	ESWF-65V47N4-D20			
20	20	40	60	50 - 65	120	ESWF-80V18N4-D21	$2,310	F-3	
					208-240	ESWF-80V24N4-D21			
					480	ESWF-80V47N4-D21			
20	25	50	60	55 - 75	120	ESWF-95V18N4-D22	$2,475	F-3	
					208-240	ESWF-95V24N4-D22			
					480	ESWF-95V47N4-D22			
25	30	60	75	70 - 90	120	ESWF-95V18N4-D23	$2,600	F-3	
					208-240	ESWF-95V24N4-D23			
					480	ESWF-95V47N4-D23			
30	30	75	100	80 - 100	120	ESWF-105V18N4-D24	$2,800	F-3	
					208-240	ESWF-105V24N4-D24			
					480	ESWF-105V47N4-D24			

Notes:
(1) Please contact your local WEG representative for starters with 575V control voltage.
(2) 3-phase starters with 120V coil are pre-wired for separate control
(3) 3-phase starters can be wired for single-phase applications



Dimensions (inches)			
Box Size	Enclosure Size		
	H	W	D
F-1	12	12	8
F-2	16	16	8
F-3	20	20	12

General Information
Circuit Protection
Disconnect Switches
Motor Protectors
Contactors
Overloads
Enclosed Starters
Relays
Pushbuttons and Pilot Lights
Terminal Blocks
Power Factor Correction
Appendix A
Appendix B

Enclosed Starters

ESWF

Combination Type-F Across The Line Starter

THREE-PHASE with Control Power Transformer

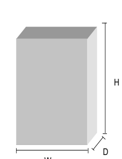
- Branch Disconnect: Rotary through-the-door Handle
- Short-Circuit Protection: Manual Motor Protection
- Motor Control: Magnetic Contactor
- Overload Protection: Manual Motor Protection
- Control Devices: Hand-Off-Auto switch, Start-Stop pushbutton, control transformer
- Other enclosure options available upon request

ESWF Series - Combination Type-F Across The Line Starter with CPT

Max. 3-ph Hp Motors				Overload Setting Range (A)	Control Voltage (Vac)	Metallic Enclosure Type 4/12			Multiplier
200V	230V	460V	575V			Catalog Number	List Price	Box Size	
-	-	1/2	1/2	0.63 - 1.0	480 / 120	ESWF-9T04N4-D05	$1,525	F-1	Z3
					575 / 120	ESWF-9T05N4-D05			
1/4	1/3	3/4	1	1.0 - 1.6	240 / 120	ESWF-9T02N4-D06	$1,525	F-1	
					480 / 120	ESWF-9T04N4-D06			
					575 / 120	ESWF-9T05N4-D06			
1/2	1/2	1-1/2	1-1/2	1.6 - 2.5	240 / 120	ESWF-9T02N4-D07	$1,525	F-1	
					480 / 120	ESWF-9T04N4-D07			
					575 / 120	ESWF-9T05N4-D07			
3/4	1	2	3	2.5 - 4.0	240 / 120	ESWF-9T02N4-D08	$1,525	F-1	
					480 / 120	ESWF-9T04N4-D08			
					575 / 120	ESWF-9T05N4-D08			
1 1/2	1 1/2	3	5	4.0 - 6.3	240 / 120	ESWF-9T02N4-D09	$1,525	F-1	
					480 / 120	ESWF-9T04N4-D09			
					575 / 120	ESWF-9T05N4-D09			
3	3	5	7 1/2	6.3 - 10	240 / 120	ESWF-9T02N4-D10	$1,525	F-1	
					480 / 120	ESWF-9T04N4-D10			
					575 / 120	ESWF-9T05N4-D10			
5	5	10	15	10 - 16	240 / 120	ESWF-18T02N4-D11	$1,610	F-1	
					480 / 120	ESWF-18T04N4-D11			
					575 / 120	ESWF-18T05N4-D11			
7 1/2	7 1/2	15	15	16 - 20	240 / 120	ESWF-25T02N4-D12	$1,715	F-1	
					480 / 120	ESWF-25T04N4-D12			
					575 / 120	ESWF-25T05N4-D12			
10	10	20	25	25 - 32	240 / 120	ESWF-40T02N4-D14	$1,865	F-2	
					480 / 120	ESWF-40T04N4-D14			
					575 / 120	ESWF-40T05N4-D14			
10	15	25	30	32 - 40	240 / 120	ESWF-50T02N4-D19	$2,290	F-3	
					480 / 120	ESWF-50T04N4-D19			
					575 / 120	ESWF-50T05N4-D19			
15	15	30	40	40 - 50	240 / 120	ESWF-65T02N4-D20	$2,440	F-3	
					480 / 120	ESWF-65T04N4-D20			
					575 / 120	ESWF-65T05N4-D20			
20	20	40	60	50 - 65	240 / 120	ESWF-80T02N4-D21	$2,540	F-3	
					480 / 120	ESWF-80T04N4-D21			
					575 / 120	ESWF-80T05N4-D21			
20	25	50	60	55 - 75	240 / 120	ESWF-95T02N4-D22	$2,700	F-3	
					480 / 120	ESWF-95T04N4-D22			
					575 / 120	ESWF-95T05N4-D22			
25	30	60	75	70 - 90	240 / 120	ESWF-95T02N4-D23	$2,840	F-3	
					480 / 120	ESWF-95T04N4-D23			
					575 / 120	ESWF-95T05N4-D23			
30	30	75	100	80 - 100	240 / 120	ESWF-105T02N4-D24	$3,030	F-3	
					480 / 120	ESWF-105T04N4-D24			
					575 / 120	ESWF-105T05N4-D24			

Notes:
(1) Please contact your local WEG representative for starters with other control voltage.
(2) 3-phase starters can be wired for single-phase applications

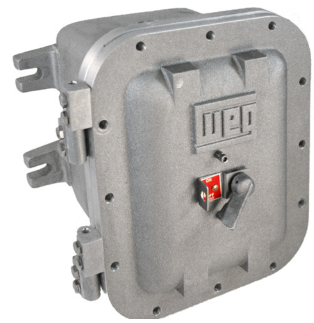
Dimensions (inches)			
Box Size	Enclosure Size		
	H	W	D
F-1	12	12	8
F-2	16	16	8
F-3	20	20	12



Data is subject to change without notice.

Motor Control for Hazardous Areas: Class I, Groups C & D - Class II, Groups E, F, G

WEG Explosion Proof Motors Starters are the perfect compliment for motor control in Hazardous and Industrial environments. Applications include Oil & Gas, Mining, and Chemical Processing industries.



ESWX-M Series - Enclosed Manual Motor Starters

- High short-circuit interrupting rating – up to 50kA @ 480V
- Thermal overload protection Class 10
- Phase loss sensitivity protection
- Ambient temperature compensation -4°F +140°F (-20°C +60°C)
- Lockable rotary handle mechanism for disconnect
- Snap-in accessories
- Finger safe protected terminals
- Test trip feature
- Manual Motor Starters
- Suitable for motor disconnect applications
- UL Type-E self protected combination starter (available on request)

ESWX Series - Enclosed Starters

- Copper free aluminum alloy body
- Bolted flange design
- Durable cast on lugs
- Watertight ‘O’ Rings for NEMA 4 applications
- Hinged door for easier access
- NEMA 7 / 9 housing
- Class I, Groups C & D - Class II, Groups E, F, G
- Starter includes contactor plus overload relay
- Start Stop Reset buttons (Standard)
- HOA or Pilot Light (optional)
- Available up to 75 hp @ 460 Vac – 100 amps
- NEMA rated starters available from size 00 to size 3 on request

Custom units also available on request.

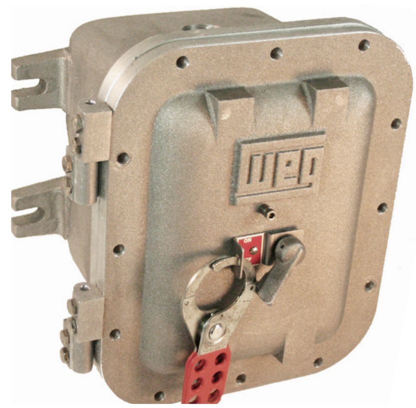
Enclosed Starters

ESWX

Motor Control for Hazardous Areas: Class I, Groups C & D - Class II, Groups E, F, G

WEG Explosion Proof Motors Starters are the perfect compliment for motor control in Hazardous and Industrial environments. Applications include Oil & Gas, Mining, and Chemical Processing industries.

Enclosure Specifications



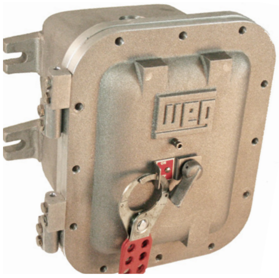
- Versatile mounting format
- Corrosion resistant, copper free aluminum alloy body
- Bolted flange design
- Durable cast on lugs
- Watertight ‘O’ Rings for NEMA 4X applications
- Lockout device on cover
- Rotary Handle units include hinged door for easier access
- NEMA 4X / 7 / 9 housing
- ON/OFF - Rotary Handle or Start/Stop - Push buttons
- Rotary Lockable handle
- Available up to 75 hp @ 460 Vac – 100 amps

Explosion Proof Manual Motor Starters ESWX-M16 Series

- Versatile mounting
- NEMA 4X / 7 / 9 housing
- Start & Stop /Reset pushbuttons
- Lockable in OFF position
- Available up to 10 hp @ 460 Vac – 16 amps

ESWX-M16 - PRODUCT SELECTION

Max 3 Phase UL HP			Thermal Setting	Short-Circuit interruption capacity		Catalog Number	List Price	Multiplier
Three Phase								
230V	460V	575V	[A]	480 Vac	600 Vac			
-	1/2	1/2	0.63 - 1.0	50kA	10kA	ESWX-M16A79-U001	$1,595	
-	3/4	3/4	1.0 - 1.6	50kA	10kA	ESWX-M16A79-D016	$1,595	
1/2	1	1 1/2	1.6 - 2.5	50kA	10kA	ESWX-M16A79-D025	$1,595	
3/4	2	3	2.5 - 4.0	50kA	10kA	ESWX-M16A79-U004	$1,595	Z33
1 1/2	3	5	4.0 - 6.3	50kA	10kA	ESWX-M16A79-D063	$1,595	
3	5	7 1/2	6.3 - 10	50kA	5kA	ESWX-M16A79-U010	$1,595	
5	10	10	10 - 16	30kA	5kA	ESWX-M16A79-U016	$1,595	



M25 Series

- NEMA 4X / 7 / 9 housing
- Hinged Cover for easy access
- ON / OFF – Rotary Handle
- Lockable in OFF position
- Available up to 20 hp @ 460 Vac– 32 amps

ESWX-M25 - PRODUCT SELECTION

Max 3 Phase UL HP Three Phase			Thermal Setting	Short-Circuit interruption capacity		Catalog Number	List Price	Multiplier
230V	460V	575V	[A]	480 Vac	600 Vac			
-	1/2	1/2	0.63 - 1.0	50kA	25kA	ESWX-M25R79-U001	$2,200	Z33
-	3/4	3/4	1.0 - 1.6	50kA	25kA	ESWX-M25R79-D016	$2,200	
1/2	1	1 1/2	1.6 - 2.5	50kA	25kA	ESWX-M25R79-D025	$2,200	
3/4	2	3	2.5 - 4.0	50kA	25kA	ESWX-M25R79-U004	$2,200	
1 1/2	3	5	4.0 - 6.3	50kA	25kA	ESWX-M25R79-D063	$2,200	
3	5	7 1/2	6.3 - 10	50kA	25kA	ESWX-M25R79-U010	$2,200	
5	10	15	10 - 16	50kA	25kA	ESWX-M25R79-U016	$2,200	
7 1/2	15	15	16 - 20	50kA	25kA	ESWX-M25R79-U020	$2,200	
7 1/2	15	20	20 - 25	50kA	25kA	ESWX-M25R79-U025	$2,200	
10	20	25	25 - 32	42kA	25kA	ESWX-M25R79-U032	$2,200	

ESWX-M65 Series

- NEMA 4X / 7 / 9 housing
- Hinged Cover for easy access
- ON / OFF – Rotary Handle
- Lockable in OFF position
- Available up to 50 hp @ 460 Vac – 65 amps

ESWX-M65 - PRODUCT SELECTION

Max 3 Phase UL HP Three Phase			Thermal Setting	Short-Circuit interruption capacity		Catalog Number	List Price	Multiplier
230V	460V	575V	[A]	480 Vac	600 Vac			
15	25	30	32 - 40	35kA	10kA	ESWX-M65R79-U040	$2,600	Z33
15	30	40	40 - 50	35kA	10kA	ESWX-M65R79-U050	$2,600	
20	50	60	50 - 65	35kA	10kA	ESWX-M65R79-U065	$2,600	

ESWX-M100 Series

- NEMA 4X / 7 / 9 housing
- Hinged Cover for easy access
- ON / OFF – Rotary Handle
- Lockable in OFF position
- Available up to 75 hp @ 460 Vac – 100 amps

ESWX-M100 - PRODUCT SELECTION

Max 3 Phase UL HP Three Phase			Thermal Setting	Short-Circuit interruption capacity		Catalog Number	List Price	Multiplier
230V	460V	575V	[A]	480 Vac	600 Vac			
25	50	60	55 - 75	50kA	10kA	ESWX-M100R79-U075	$3,350	Z33
30	60	75	70 - 90	50kA	10kA	ESWX-M100R79-U090	$3,350	
30	75	100	80 - 100	50kA	10kA	ESWX-M100R79-U100	$3,350	

ESWX

ACCESSORIES FOR MPW18 / 40 / 80 - Summary

Description	Catalog Number	List Price	Multiplier
Auxiliary Contact Blocks			
1NO&1NC auxiliary contact block front mounting - 250Vmax.	ACBF-11	$20	Z4
1NO&1NC auxiliary contact block left side mounting - 600Vmax.	ACBS-11	$22	
2NO Auxiliary contact block left side mounting - 600Vmax.	ACBS-20	$22	
2NC Auxiliary contact block left side mounting - 600Vmax.	ACBS-02	$22	
Under Voltage and Shunt Block Releases			
Shunt release block right side mounting - 20-24V 50/60Hz	SRMP D51	$56	Z4
Shunt release block right side mounting - 100-127V 50/60Hz	SRMP D59	$56	
Shunt release block right side mounting - 200-240V 50/60Hz	SRMP D65	$56	
Under voltage release block right side mounting - 24V 60Hz	URMP D02	$56	
Under voltage release block right side mounting - 120V 60Hz	URMP V18	$56	
Under voltage release block right side mounting - 208V 60Hz	URMP V23	$56	
Under voltage release block right side mounting - 240V 60Hz	URMP V30	$56	
Under voltage release block right side mounting - 480V 60Hz	URMP V47	$56	

ACCESSORIES FOR MPW100 - Summary

Description	Catalog Number	List Price	Multiplier
Auxiliary Contact Blocks			
1NO&1NC auxiliary contact block front mounting - 250Vmax.	ACBF-11 MPW100	$35	Z4
1NO&1NC auxiliary contact block left side mounting - 600Vmax.	ACBS-11 MPW100	$27	
2NO Auxiliary contact block left side mounting - 600Vmax.	ACBS-20 MPW100	$27	
2NC Auxiliary contact block left side mounting - 600Vmax.	ACBS-02 MPW100	$27	
Under Voltage and Shunt Block Releases			
Shunt release block right side mounting - 120V 50/60Hz	SRMP V18 MPW100	$56	Z4
Shunt release block right side mounting - 240-260V 60Hz	SRMP V33 MPW100	$56	
Under voltage release block right side mounting - 120V 60Hz	URMP V18 MPW100	$56	
Under voltage release block right side mounting - 240V 60Hz	URMP V33 MPW100	$56	
Under voltage release block right side mounting - 460V 60Hz	URMP V43 MPW100	$56	

NEMA 7/9 Enclosure – Three Phase

- Motor Control: Magnetic Contactor
- Overload Protection: Thermal Overload Relay
- Control Devices: START STOP RESET Pusbuttons
  – One additional Pilot evice available as modification; ex. I-HOA or I-Indicator Light
- Cast Aluminum NEMA 7/9 housing with NEMA 4 gasket
  – Breather & Drain available on request

ESWX Series - Non-combination Across The Line Starter for use in Hazardous Areas
ENCLOSURE TYPE NEMA 7/9

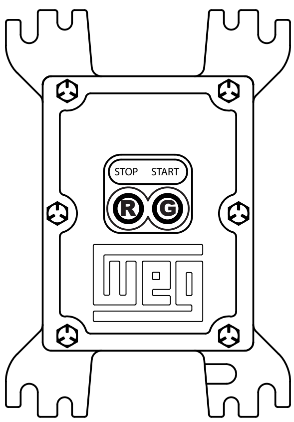
Max. UL 3 Phase Horsepower				Box	Setting Range	Coil Voltage	RESET only		START + STOP + RESET		Multiplier
200V	230V	460V	575V				Catalog Number	List Price	Catalog Number	List Price	
-	1/3	1/2	-	X04	0.8 - 1.2	120	ESWX-25V18E79-R23	$3,250	ESWX-25V18A79-R23	$3,850	Z33
						208-240	ESWX-25V24E79-R23		ESWX-25V24A79-R23		
						480	ESWX-25V47E79-R23		ESWX-25V47A79-R23		
-	-	1	1	X04	1.2 - 1.8	120	ESWX-25V18E79-R24	$3,250	ESWX-25V18A79-R24	$3,850	
						480	ESWX-25V47E79-R24		ESWX-25V47A79-R24		
1/2	3/4	1-1/2	2	X04	1.8 - 2.8	120	ESWX-25V18E79-R25	$3,250	ESWX-25V18A79-R25	$3,850	
						208-240	ESWX-25V24E79-R25		ESWX-25V24A79-R25		
						480	ESWX-25V47E79-R25		ESWX-25V47A79-R25		
1	1	2	3	X04	2.8 - 4.0	120	ESWX-25V18E79-R26	$3,250	ESWX-25V18A79-R26	$3,850	
						208-240	ESWX-25V24E79-R26		ESWX-25V24A79-R26		
						480	ESWX-25V47E79-R26		ESWX-25V47A79-R26		
1-1/2	1-1/2	3	5	X04	4.0 - 6.3	120	ESWX-25V18E79-R27	$3,250	ESWX-25V18A79-R27	$3,850	
						208-240	ESWX-25V24E79-R27		ESWX-25V24A79-R27		
						480	ESWX-25V47E79-R27		ESWX-25V47A79-R27		
2	2	5	-	X04	5.6 - 8.0	120	ESWX-25V18E79-R28	$3,250	ESWX-25V18A79-R28	$3,850	
						208-240	ESWX-25V24E79-R28		ESWX-25V24A79-R28		
						480	ESWX-25V47E79-R28		ESWX-25V47A79-R28		
3	3	-	7-1/2	X04	7.0 - 10	120	ESWX-25V18E79-R29	$3,250	ESWX-25V18A79-R29	$3,850	
						208-240	ESWX-25V24E79-R29		ESWX-25V24A79-R29		
-	-	7-1/2	10	X04	8.0 - 12.5	120	ESWX-25V18E79-R30	$3,250	ESWX-25V18A79-R30	$3,850	
						480	ESWX-25V47E79-R30		ESWX-25V47A79-R30		
5	5	10	15	X04	11 - 17	120	ESWX-25V18E79-R32	$3,250	ESWX-25V18A79-R32	$3,850	
						208-240	ESWX-25V24E79-R32		ESWX-25V24A79-R32		
						480	ESWX-25V47E79-R32		ESWX-25V47A79-R32		
7-1/2	7-1/2	15	-	X04	15 - 23	120	ESWX-25V18E79-R33	$3,250	ESWX-25V18A79-R33	$3,850	
						208-240	ESWX-25V24E79-R33		ESWX-25V24A79-R33		
						480	ESWX-25V47E79-R33		ESWX-25V47A79-R33		
10	10	20	25	X04	22 - 32	120	ESWX-40V18E79-R34	$3,300	ESWX-40V18A79-R34	$3,950	
						208-240	ESWX-40V24E79-R34		ESWX-40V24A79-R34		
						480	ESWX-40V47E79-R34		ESWX-40V47A79-R34		
10	15	30	-	X04	25 - 40	120	ESWX-40V18E79-R35	$3,300	ESWX-40V18A79-R35	$3,950	
						208-240	ESWX-40V24E79-R35		ESWX-40V24A79-R35		
						480	ESWX-40V47E79-R35		ESWX-40V47A79-R35		
15	15	30	40	X04	32 - 50	120	ESWX-80V18E79-R38	$3,400	ESWX-80V18A79-R38	$4,050	
						208-240	ESWX-80V24E79-R38		ESWX-80V24A79-R38		
						480	ESWX-80V47E79-R38		ESWX-80V47A79-R38		
20	20	40	50	X04	40 - 57	120	ESWX-80V18E79-R39	$3,400	ESWX-80V18A79-R39	$4,050	
						208-240	ESWX-80V24E79-R39		ESWX-80V24A79-R39		
						480	ESWX-80V47E79-R39		ESWX-80V47A79-R39		
-	25	50	60	X04	57 - 70	120	ESWX-80V18E79-R41	$3,420	ESWX-80V18A79-R41	$4,050	
						208-240	ESWX-80V24E79-R41		ESWX-80V24A79-R41		
						480	ESWX-80V47E79-R41		ESWX-80V47A79-R41		
25	30	60	75	X04	63 - 80	120	ESWX-105V18E79-R43	$3,870	ESWX-105V18A79-R43	$4,600	
						208-240	ESWX-105V24E79-R43		ESWX-105V24A79-R43		
						480	ESWX-105V47E79-R43		ESWX-105V47A79-R43		
30	-	75	-	X04	75 - 97	120	ESWX-105V18E79-R44	$3,870	ESWX-105V18A79-R44	$4,600	
						480	ESWX-105V47E79-R44		ESWX-105V47A79-R44		
-	40	-	-	X04	90 - 112	120	ESWX-105V18E79-R45	$3,870	ESWX-105V18A79-R45	$4,600	
						208-240	ESWX-105V24E79-R45		ESWX-105V24A79-R45		

Notes:
1) Overload Relay dial must be set with FLA of the motor
2) 3-phase starters with 120V coil are pre-wired for separate control
3) 3-phase starters can be wired for single-phase applications

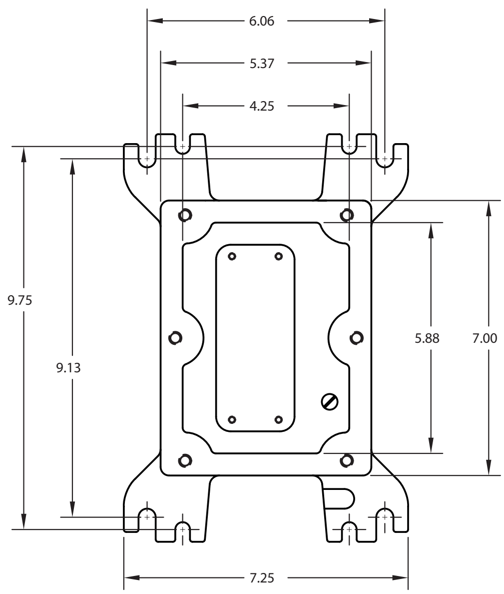
ESWX

Explosion Proof Manual Starters

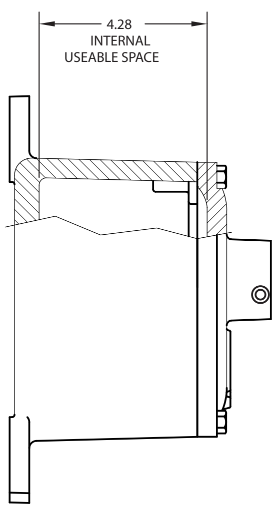
Dimensions (in) ESWX-M16

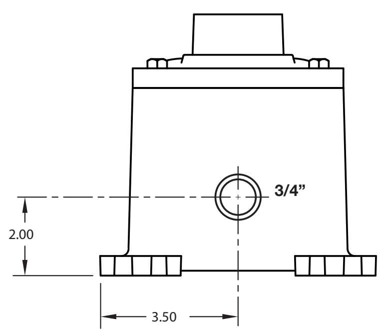


FRONT



FRONT
(w/DOOR REMOVED)



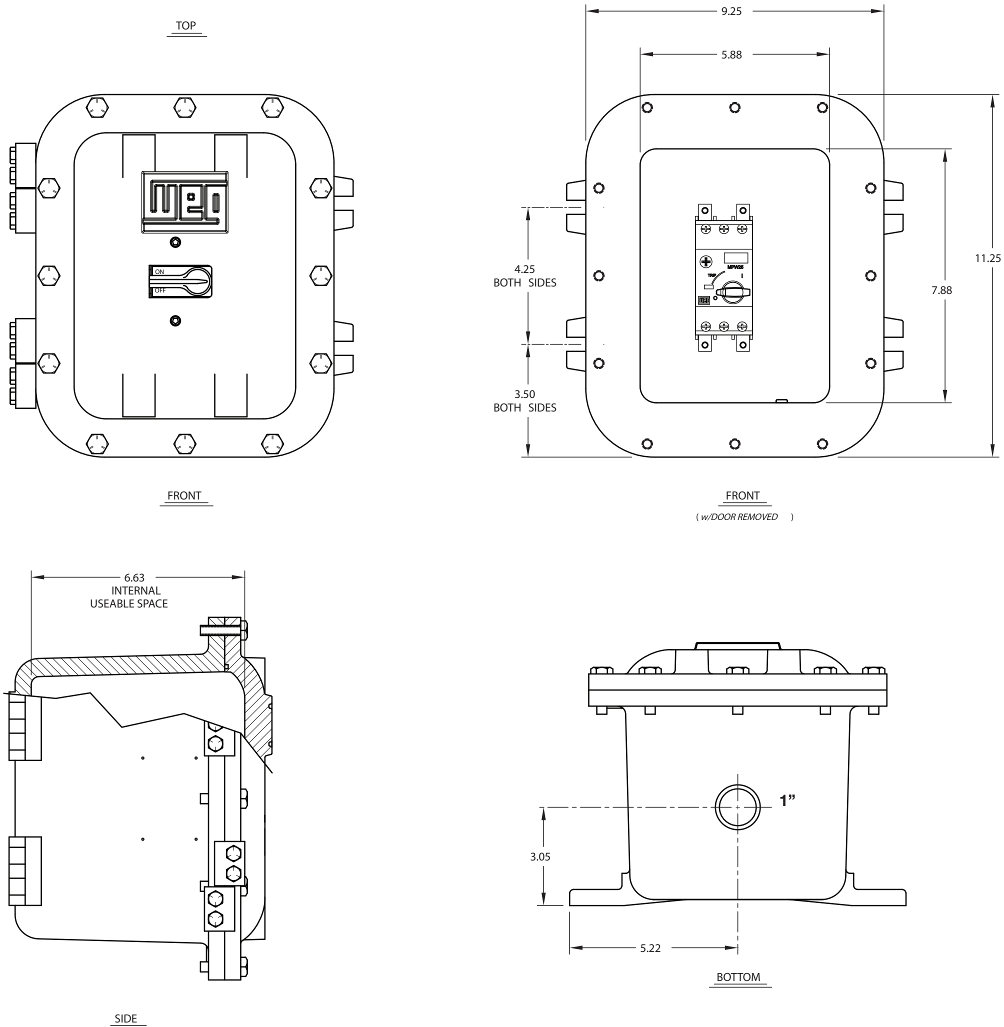


BOTTOM

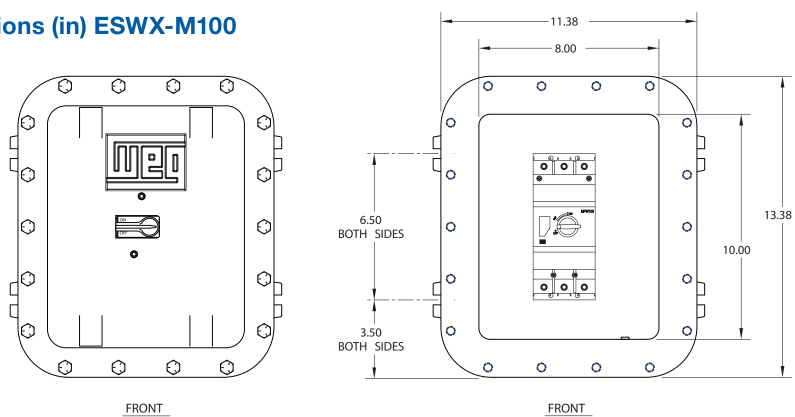
Certifications
Class I, Groups C & D
Class II, Groups E, F, & aG
UL Standard 1203 (Classified)
NEMA 7 (C&D), 9 (E, F, & G)

Explosion Proof Manual Starters

Dimensions (in) ESWX-M25 and ESWX-M65



Dimensions (in) ESWX-M100



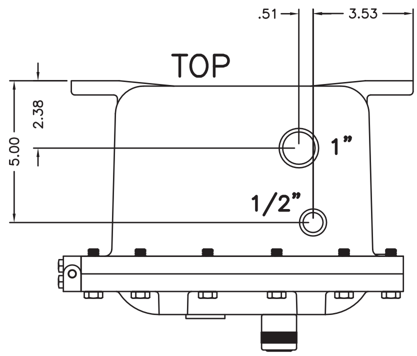
Certifications
Class I, Groups C & D
Class II, Groups E, F, & aG
UL Standard 1203 (Classified)
NEMA 7 (C&D), 9 (E, F, & G)

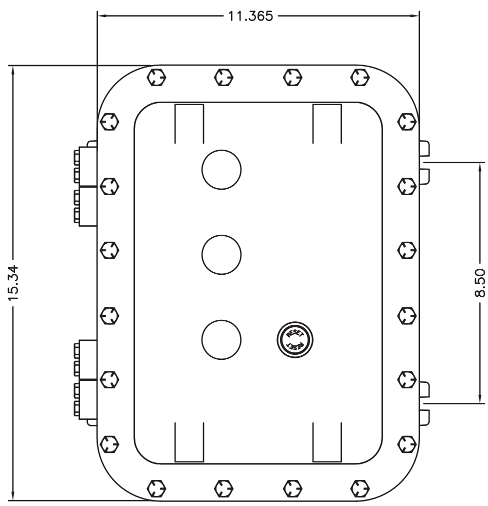
ESWX

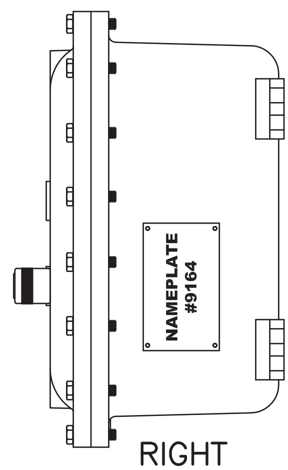
Explosion Proof Non-Combination Starters

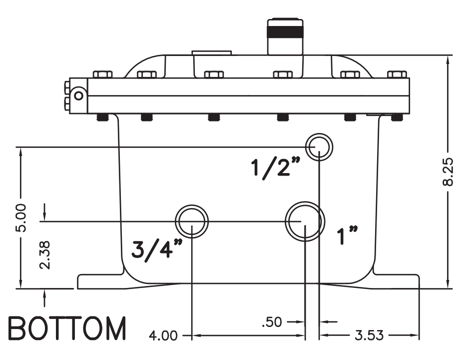
Dimensions (in) ESWX SERIES

Type-NEMA 7/9 - Cast Aluminum Enclosure









General Information
Circuit Protection
Disconnect Switches
Motor Protectors
Contactors
Overloads
Enclosed Starters
Relays
Pushbuttons and Pilot Lights
Terminal Blocks
Power Factor Correction
Appendix A
Appendix B

CUSTOM CONTROL PANELS

DATA WORKSHEET and REQUEST FOR QUOTE

REP ______________________ ASE ______________________ Need Quote By: _______________

CUSTOMER INFO:
Company Name: ____ Phone ______________________
Contact Name: __________________________End User Name______________________________

SUPPORTING PRODUCT INFO:
Product Info: ______________________________________Part Number ______________________

LOAD DATA:
Motor HP____________Motor FLA__________Service Factor__________ Other_____________

POWER AND WIRING:
Phase______Supporting Voltage______Frequency_____ Portable Generator Power?________

APPLICATION & ENVIRONMENT:
Starting Method: _________Enclosure type:_______Ambient ° if installed outdoors__________
Altitude if installed above 6,500 ft_________Replacing Standard NEMA size? ________
Maximum number of starts per hour________Other Information___________________________

CIRCUIT PROTECTION:
Protective Device______________________Other Protective Device______________________

CONTROL CIRCUIT:
Common control(same as voltage to motor)?________CPT required?_______
Transformer with extra VA capacity?__________

COVER MOUNTED 22mm DEVICES: (if yes, enter quantities)
22MM Reset Pbs are considered based on panel configuration. If Reset Pbs are not needed, please specify.
Start/Stop Push Buttons______H-O-A Selector Switch_______Off/On Selector Switch_______
Run Light_______Power On Light_______E-Stop Push Button_______
Other (specify)____

OTHER SPECIFICATIONS:
____
____
____
____

When completed, please contact your regional WEG sales specialist at 1-800-ASK-4WEG (275-4934) for directions on submittal for quotation. WEG can help you complete any further pertinent information to quote.

Electronic Relays

Protection Relays RPW and ERWM

Timing Relays RTW and ERWT

Level Relays RNW

UL File No. E02315

WEG comprises three different series under the category Electronic Relays:

- Protection/Monitoring Relays (RPW series)
- Timing Relays (RTW series); and
- Level Relays (RNW series)

These relays are manufactured in a compact frame (22.5mm) with 1 or 2 “form C” output contacts. All units utilize high precision electronic circuits with line noise immunity and are equipped with reliable LED bulbs for status indication. Units can be direct mounted in 35mm DIN rail or with screws.

Standard Features:

- High precision electronic circuit with noise immunity.
- Compact, with a 22.5mm width frame, direct mounting on
- DIN rail 35mm or fixed with screws
- Equipped with reliability LED for status indications
- Designed in accordance with international standards

Timing Relay RTW and ERWT

Ideal for applications such as industrial processes, automation and motor starters, RTW timing relays switch an output signal based on a selected time and function. Setting time ranges from 0.2s to 150h.

RTW is supplied with a 22.5 mm width frame as a competitive solution.

RTW Standard Features

- Direct mounting on DIN rail 35 mm or fixed with screws;
- 1 or 2 output contacts (C form);
- RTW-RE – On-Delay
- RTW-RD – Off-Delay
- RTW-RDI – Off-Delay without Control Voltage
- RTW-PE – Impulse On
- RTW-CI – Assymmetric Flasher Start ON
- RTW-CIL – Symmetric Flasher - Start ON
- RTW-CID – Symmetric Flasher - Start OFF
- RTW-ET – Wye - Delta

Multifunction Timer Features

- Multifunction Timers 2 Versions
- Up to 8 Functions in 1 Timer
- Multi-Voltage 24-24vac/vdc

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[1]
CIR	Flasher 2 settings, start OFF[1]
CIL	Flasher 1 setting, start ON
CID	Flasher 1 setting, start OFF
RD	OFF-delay with control signal
RDI	OFF-delay[1]
ET	Star-delta[2]
MF1	**8 configurable functions[3]**
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
MF2	**8 configurable functions[3]**
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[9]	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[10]**
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[5]
U003S	0.3 - 3s
U010S	1 - 10s
U030S	3 - 30s
U060S	6 - 60s
U100S	10 - 100s
U300S	30 - 300s
U010M	1 - 10min[6]
U030M	3 - 30min[6]
MAT	0.1s - 10min[7]
MBT	0.2s - 150h[7]
MT1	0.1s - 10 dias[8]

Number of output contacts	
01	1 NOC contact[4]
02	2 NOC contacts

Electronic Relays

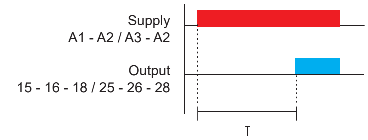
Timing Relays - Multi-Voltage & Multi-Timing

Function / Description	Output Contacts	Voltage	Timing	Catalog Number	List Price	Multiplier
On-Delay	DPDT (2NO/NC)	24-240 Vac 50Hz/60Hz 24-240 Vdc	0.2 sec - 150 hours	RTW-RE02-MBTE05	$90	Z7
Off-Delay (with control command)	DPDT (2NO/NC)	24-240 Vac 50Hz/60Hz 24-240 Vdc	0.2 sec - 150 hours	RTW-RD02-MBTE05	$90	Z7
Impulse ON	DPDT (2NO/NC)	24-240 Vac 50Hz/60Hz 24-240 Vdc	0.2 sec - 150 hours	RTW-PE02-MBTE05	$90	Z7
Symm Flasher - Pulse (Start ON)	DPDT (2NO/NC)	24-240 Vac 50Hz/60Hz 24-240 Vdc	0.2 sec - 150 hours	RTW-CIL02-MBTE05	$90	Z7
Symm Flasher - Pause (Start OFF)	DPDT (2NO/NC)	24-240 Vac 50Hz/60Hz 24-240 Vdc	0.2 sec - 150 hours	RTW-CID02-MBTE05	$90	Z7
Wye-Delta Timing Relay	DPDT (2NO/NC)	24-240 Vac 50Hz/60Hz 24-240 Vdc	0.1 sec - 10 min	RTW-ET02-MATE05	$90	Z7
Multifuction On Delay (A) On-Delay With Control Signal (Ba) On-Delay Off Delay with Control Signal (Ca) Symmetric Flasher, Start On (Da) Asymmetric Flasher, Start Off (Db) Impulse On with Control Signal (E) Start Delta (G)	DPDT (2NO/2NC	24-240 Vac 50Hz/60Hz	0.1sec - 10 days	ERWT-MF1-02MT1E05	$175	Z7
Multifuction Asymmetric Flasher Start On (Dc) Asymmetric Flasher Start Off (Dd) Percentage Timer Start On (De) Percentage Timer Start Off (Df) Flasher for Motor Reversing (Dg) On Delay and Off Delay with Control Signal and Independent Setting (Cb) Delayed Adjustable-Length Pulse (Ia) Bistable (J)	DPDT (2NO/2NC	24-240 Vac 50Hz/60Hz	0.1sec - 10 days	ERWT-MF2-02MT1E05	$175	Z7

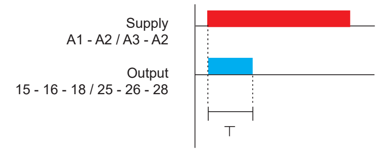
Timing Relays - RTW Series
Operation Modes

RTW RE **(ON - Delay)** – Connecting a supply voltage on terminals A1-A2 / A3-A2 the selected time delay begins and the green LED turns on. After the end of the delay time the output relay picks up (red LED turns on) and remains energized until the supply voltage is removed. This can be repeated as often as required.
Reset: Removing supply voltage resets the time delay and the output.

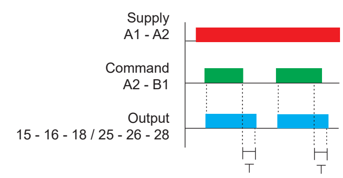
Function Diagram



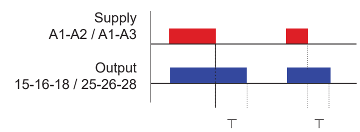
RTW PE **(Impulse On)** – Connecting a supply voltage on terminals A1-A2 / A3-A2 (green LED turns on) the output relay picks up without delay (red LED turns on) and remains energized until the selected pulse time elapse (red LED turns off). This can be repeated as often as required.Reset: Removing supply voltage resets the time delay and the output.



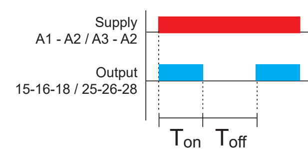
RTW RD **(OFF Delay)** – This function requires continuous supply voltage on terminals A1-A2 (green LED turns on) and timing is controlled by a command contact at terminals A2-B1. If the command contact is energized, the output relay picks up (red LED turns on) and after the command contact is removed the selected time delay begins. When the selected time elapse the output relay is de-energized (red LED turns off). This can be repeated as often as required.Reset: Removing supply voltage resets the time delay and the output.



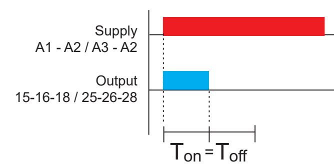
RTW RDI **(OFF Delay with no control command)** – Connecting a supply voltage on terminals A1-A2 / A3-A2, the green LED turns on and the output relay picks up without delay (red LED turns on). If the supply voltage is de-energized, the selected time delay begins and when this time elapse, the output relay is de-energized (red LED turns off). This can be repeated as often as required. Reset: Removing supply voltage resets the time delay and the output.



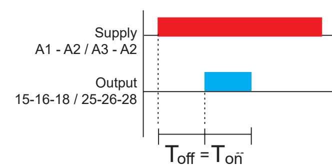
RTW CI **(Assymmetric Flasher-Pulse)** – Connecting a supply voltage on terminals A1-A2 / A3-A2 the green LED turns on and the timer starts to pulse with adjustable ON/OFF cycles. The upper dial presets the ON time (red LED turns ON and output relay picks up) and the lower select the OFF time when the output relay is de-energized.
Reset: Removing supply voltage resets the time delay and the output.



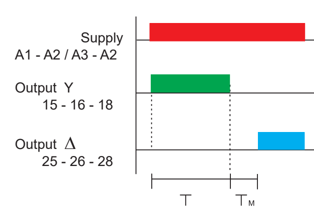
RTW CIL **(Symmetric Flasher - Pulse)** – Connecting a supply voltage on terminals A1-A2 / A3-A2 the green LED turns on and the timer starts to pulse with symmetric ON/OFF cycles.The dial presets a fixed ON time (red LED turns ON and output relay picks up) and OFF time. Reset: Removing supply voltage resets the time delay and the output.



RTW CID **(Symmetric Flasher - Pause)** – Connecting a supply voltage on terminals A1-A2 / A3-A2 the green LED turns on and the timer starts to pulse with symmetric OFF/ON cycles.The dial presets a fixed ON time (red LED turns ON and output relay picks up) and OFF time. Reset: Removing supply voltage resets the time delay and the output.



RTW ET **(Wye-Delta)** – Connecting a supply voltage on terminals A1-A2 / A3-A2 the output relay for the wye-connection picks up and the adjusted time starts (red LED turns ON). When the start-up time elapses, a fixed star-delta changeover time of 100 ms starts and after this star-delta changeover time elapses the output relay for the delta-connection picks up and stays energized until the supply is disconnected.
Reset: Removing supply voltage resets the time delay and the output.



Electronic Relays

Technical Data

<table>
<tr><th colspan="3"></th><th colspan="9">Model</th></tr>
<tr><th colspan="3"></th><th>RTW-xxx0x-UxxxxE26</th><th>RTW-xxx0x-UxxxxD02</th><th>RTW-xxx0x-UxxxxE33</th><th>RTW-xx0x-UxxxxD07</th><th>RTW-xxx0x-UxxxxE37</th><th>RTW-xxx0x-UxxxxD61</th><th>RTW-xxx0x-UxxxxE40</th><th>ERWT-MF1-02MT1E05</th><th>ERWT-MF2-02MT1E05</th></tr>
<tr><td rowspan="7">Inputs</td><td rowspan="2">Supply voltage (Us)1)</td><td>A1-A2</td><td colspan="2">24 V ac</td><td colspan="2">48 V ac</td><td colspan="2">110 to 130 V ac</td><td>220 to 240 V ac</td><td colspan="2">24 to 240 V ac / V dc</td></tr>
<tr><td>A3-A2</td><td>24 V dc</td><td>-</td><td>24 V dc</td><td>-</td><td>24 V dc</td><td>-</td><td>24 V dc</td><td>-</td><td>-</td></tr>
<tr><td colspan="2">Rated supply voltage tolerance</td><td colspan="9">0.85 to 1.10 x Us</td></tr>
<tr><td colspan="2">Rated frequency</td><td colspan="9">50 / 60 Hz</td></tr>
<tr><td colspan="2">Maximum consumption</td><td colspan="7">70 mA at 240 V ac (Us)</td><td colspan="2">80 mA at
240 V ac (Us)</td></tr>
<tr><td>Control supply voltage (RD function)2)</td><td>B1-A2</td><td colspan="9">Voltage-related triggering (Us)</td></tr>
<tr><td colspan="2">Rated insulation voltage (Ui)</td><td colspan="9">300 V</td></tr>
<tr><td rowspan="5">Time adjustment</td><td colspan="2">Minimum time for reset</td><td colspan="9">100ms</td></tr>
<tr><td colspan="2">Minimum ON time</td><td colspan="9">50ms</td></tr>
<tr><td colspan="2">Scale accuracy (full scale)</td><td colspan="9">±5%1)</td></tr>
<tr><td colspan="2">Repeatability accuracy (full scale)</td><td colspan="9">±2%</td></tr>
<tr><td colspan="2">Changeover time Y - Δ (star-delta function)</td><td colspan="9">100ms ±20%</td></tr>
<tr><td rowspan="4">Outputs</td><td colspan="2">Capacity of the output contacts (Ie)</td><td colspan="7">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</td><td colspan="2">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</td></tr>
<tr><td colspan="2">Rated thermal current (Ith)</td><td colspan="9">10 A for AC
1 A for DC</td></tr>
<tr><td colspan="2">Fuse (class gL/gG)</td><td colspan="9">4 A</td></tr>
<tr><td colspan="2">Mechanical lifespan</td><td colspan="9">30 x 106 switching cycles</td></tr>
<tr><td rowspan="13">Characteristics</td><td colspan="2">Ambient temperature
- Operation
- Storage</td><td colspan="9">-5 °C to +60 °C
-40 °C to +85 °C</td></tr>
<tr><td colspan="2">Degree of protection</td><td colspan="9">Enclosure: IP20
Terminals: IP20</td></tr>
<tr><td colspan="2">Connection section (min. to max.)
- Cable without end sleeve</td><td colspan="9">1 x (0.5 to 2.5) mm2
2 x (0.5 to 1.5) mm2</td></tr>
<tr><td colspan="2">- Cable with end sleeves</td><td colspan="9">1 x (0.5 to 1.5) mm2
2 x (0.5 to 1.5) mm2</td></tr>
<tr><td colspan="2">- AWG-Rigid Wire</td><td colspan="9">2 x (20 to 14) AWG</td></tr>
<tr><td colspan="2">Tightening torque</td><td colspan="9">0.8 to 1.2 N.m</td></tr>
<tr><td colspan="2">Terminal screw</td><td colspan="9">7 to 10.6 Lb.in</td></tr>
<tr><td colspan="2">Assembly position</td><td colspan="9">Any</td></tr>
<tr><td colspan="2">Shock resistance</td><td colspan="9">15 g / 11ms</td></tr>
<tr><td colspan="2">Vibration resistance</td><td colspan="9">10 to 55 Hz / 0.35 mm</td></tr>
<tr><td colspan="2">Weight</td><td colspan="9">0.08 kg - models with 1NOC
0.095 kg - models with 2NOC</td></tr>
<tr><td colspan="2">Pollution degree</td><td colspan="9">2</td></tr>
<tr><td colspan="2">Overvoltage category</td><td colspan="9">II</td></tr>
</table>

Note: 1) For the ERWT models, under extreme voltage and temperature conditions, the scale accuracy may vary up to +/- 10% (full scale).

Protection Relays RPW and ERWM

RPW protection relays are a competitive choice for monitoring voltage against the most common types of electrical failures. Monitoring voltages in electric installations are important for several reasons. Overvoltage, or phase loss can overheat machinery and motors, thus reducing their lifetime. Phase sequence inversion can cause machinery to run in a wrong way, then destroying the entire system; and undervoltage may occur causing machinery to run in an undefined range, which could cause some parts of a system to run properly while others cease operating.

With five different functions, the RPW series are ideal to be used in electric motor control panel applications.

- RPW SF – Phase Sequence Relay
- RPW FF – Phase Loss Relay
- RPW FSF – Phase Sequence and Phase Loss Relay
- RPW SS – Under and Overvoltage Relay
- RPW PTC – Thermistor Relay

RPW SF The Phase Sequence Relay RPW-SF - is used to monitor three-phase networks against incorrect phase sequence.

RPW FF (without neutral selection) The Phase Loss Relay - RPW FF - is used to monitor three-phase networks against phase failure.

RPW FF (with neutral selection) The Phase Loss Relay - RPW FF - is used to monitor three-phase networks and the neutral against phase failure.

RPW FSF (without neutral selection) The Phase Sequence and Phase Loss Relay - RPW FSF - is used to monitor three-phase networks against phase loss and incorrect phase sequence.

RPW FSF (with Neutral selection) The Phase Sequence and Phase Loss Relay - RPW FSF - is used to monitor three-phase networks and neutral against phase failure and incorrect phase sequence.

RPW SS The Under and Over-voltage Relay RPW SS is used to monitor maximum and minimum variations that three-phase power supplies are able to work. The RPW SS also protects the circuit against phase unbalance (asymmetry) of 20% or higher between phases.

RPW PTC The Thermistor Relay RPW PTC is used to measure the motor temperature by using PTC sensor inside of the motor. When the motor temperature rises above the PTC sensor class, the output relay is de-energized avoiding damages to the motor.


RPW-FF


RPW-FSF


RPW-SS


RPW-PTC


ERWM-VM1/VM2

Relays

Protection Relays

Protection Relay RPW-Series Catalog Number Sequence

RPW - SF D66

WEG Protection Relay

Phase Sequence and Phase Loss
SF - Phase Sequence Relay
FF - Phase Loss Relay
FSF - Phase Sequence and Phase Loss Relay
SS - Under and Overvoltage Relay
PTC - Thermistor Relay

Voltage Selection
Available Voltages
D66 - 220-240Vac 50/60Hz
D74 - 440-480Vac 50/60Hz
E05 - 24-240Vac 50/60Hz/Vdc

Table intended for reference only and not to create part numbers.

Selection Table

Function / Description	Output Contacts	Replace "#" by Voltage Code	Catalog Number	List Price	Multiplier
Thermistor Relay	SPDT (1NO/NC)	E05 = 24-240Vac/Vdc	**RPW-PTC#**	**$105**	Z7
Phase-loss Protection Relay	SPDT (1NO/NC)	D66 = 220-240Vac; D74 = 440-480Vac;	**RPW-FF#**	**$93**	
Phase Sequence Protection Relay	SPDT (1NO/NC)	D66 = 220-240Vac; D74 = 440-480Vac;	**RPW-SF#**	**$84**	
Phase-loss and Phase-sequence Relay	SPDT (1NO/NC)	D66 = 220-240Vac; D74 = 440-480Vac;	**RPW-FSF#**	**$94.50**	
Under and Overvoltage Relay	SPDT (1NO/NC)	D25 = 240Vac; D39 = 480Vac;	**RPW-SS#**	**$99.75**	

SPDT - Single Pole Double Throw = 1N.O./N.C. changeover contact set

ERWM - VM1 - 01 - D90

WEG electronic monitoring relay

Number of contacts

Supply voltage

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

Selection Table

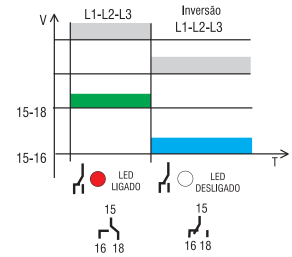
Function / Description	Output Contacts	Voltage Code	Catalog Number	List Price	Multiplier
Mutlifunction Protection Relay PF-Phase loss PS-Phase Sequence Un-Overvoltage/Undervoltage Asy-Unbalance ND-Neutral Detection	SPDT(1NO/1NC)	D90=208-480V 50/60Hz	**ERWM-VM1-01D90**	**$235**	Z7
Mutlifunction Protection Relay PF-Phase loss Un-Overvoltage/Undervoltage Asy-Unbalance ND-Neutral Detection	SPDT(1NO/1NC)	D90=208-480V 50/60Hz	**ERWM-VM2-01D90**	**$235**	Z7

RPW Series

Operation Guide

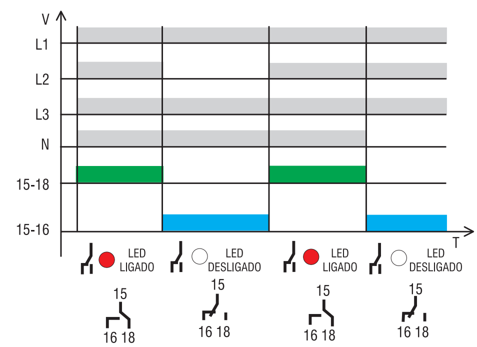
RPW-SF: If the phase sequence at the terminals L1-L2-L3 is correct, the output relay picks up (close the 15-18 terminals) and the red LED turns ON. In case of an incorrect phase sequence, the output relay remains in its rest position (close the 15-16 terminals) and the red LED is turns OFF.

Function Diagram



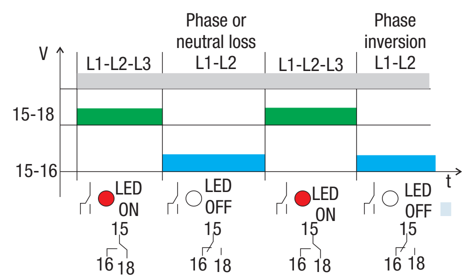
RPW FF: (without neutral selection): Connected directly to the supply voltage to be monitored, and connecting the three phases with values above than the selected on the dial, the output relay is energized (close the 15-18 terminals) and turns on the red LED indicating that the system is properly working. In case the voltage falls below the threshold value the output relay is de-energized (close the 15-16 terminals) and the red LED is turns OFF.

RPW FF: (with neutral selection): In the same product, the neutral protection is enabled jumpering the terminals A and B to monitor the neutral voltage (terminal N). The neutral must be connected to the protection relay for proper operation.

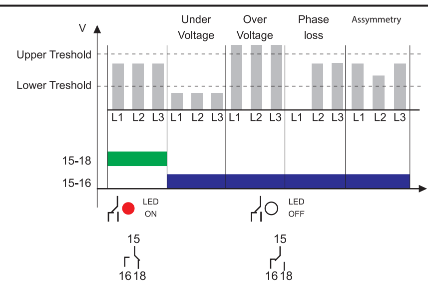


RPW FSF: (without Neutral selection) : If the phase sequence at the terminals L1-L2-L3 is correct and balanced with values higher than the selected on the dial, the output relay picks up (close the 15-18 terminals) and the red LED turns ON. In case of an incorrect phase sequence or a phase fails below the threshold value, the output relay remains in its rest position (close the 15-16 terminals) and the red LED turns OFF.

RPW FSF: (with Neutral selection): In the same product, the neutral protection is enabled jumpering the terminals A and B to monitor the neutral voltage (terminal N). The neutral must be connected to the protection relay for proper operation.

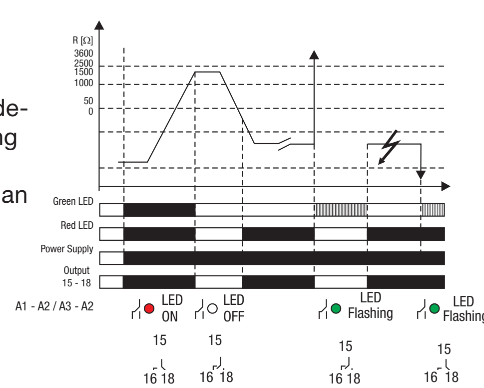


RPW-SS: Connecting the phases L1-L2-L3 with phase amplitudes within the selected values and assymmetry between them below the threshold (20%), the output relay picks up (close the 15-18 terminals) and the red LED turns ON. In case of a phase loss, assymmetry between phases higher than 20% or under and over-voltage, the output relay remains in its rest position (close the 15-16 terminals) and the red LED is turns OFF.



*Over 20% between phases

RPW-PTC: Connected directly to the supply voltage and in series to the PTC sensor (maximum of 3 sensors), the output relay is automatically energized (close the 15-18 terminals) and turns on the red LED indicating that the temperature is within acceptable values. If an over temperature occurs, the probe resistance is rapidly increased and the output relay is de-energized (close the 15-16 terminals) and the red LED turns OFF, remaining on this situation until the temperature decreases at a normal value. The RTW PTC is able to evaluate if the PTC sensor has a fault (not caused by an over temperature) or if is not connected (open circuit). In such situations, the green LED will start flashing.



General Information
Circuit Protection
Disconnect Switches
Motor Protectors
Contactors
Overloads
Enclosed Starters
Relays
Pushbuttons and Pilot Lights
Terminal Blocks
Power Factor Correction
Appendix A
Appendix B

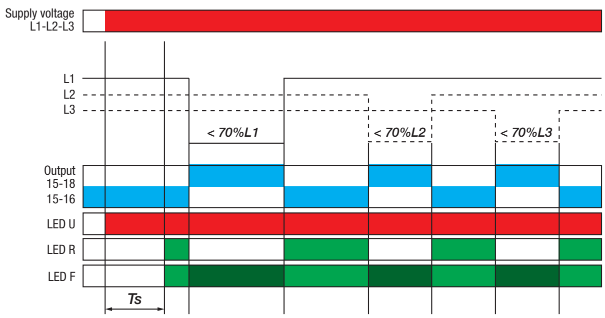
Functions

Multiple Protection Models (ERWM-VM1 / VM2)

Operating mode

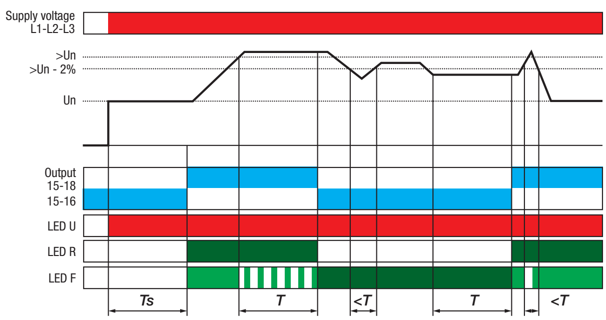
PF (phase loss) – It occurs when the voltage of one of the phases drops below 70% of the supply voltage. The maximum time delay is 350 ms for both the fault detection and the return of the ERWM to normal operation.

Timing diagram



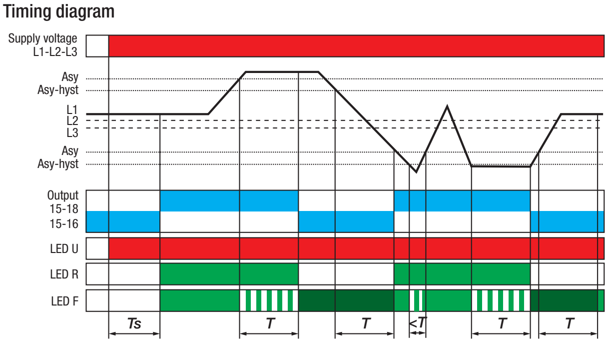
>Un (overvoltage) – It occurs after the rated tripping voltage (Un) (208 to 480 V) and the tripping overvoltage percentage (>Un) (3 to 15%) are selected. The time delay is defined by the time scale (1 to 30 s) or disabled (OFF) acting in a maximum of 350 ms. The selected time delay is for both the fault detection and the return of the ERWM to normal operation.

Timing diagram



Asy (unbalance) – It occurs when the voltage of one, two or three of the phases vary, calculating the average value of the three phases and also the greatest voltage variation value by the average value. The worst voltage variation case is taken into account in the unbalance calculation. The time delay is defined by the time scale (1 to 30 s) or disabled (OFF) acting in a maximum of 350 ms. The selected time delay is for both the fault detection and the return of the ERWM to normal operation.

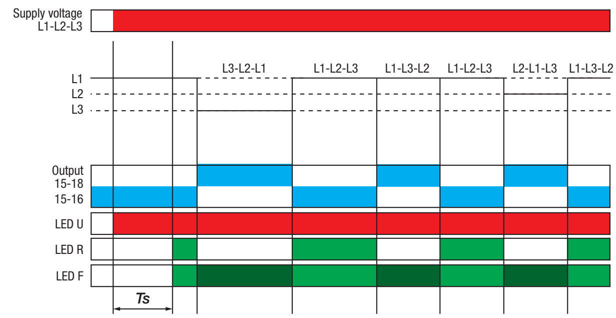
Timing diagram



Operating mode

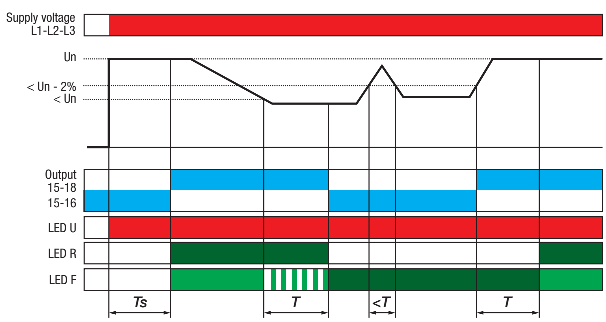
PS (phase sequence[1]) – It occurs when the phases are not connected in the correct sequence (L1-L2-L3) or even when a phase inversion occurs during operation. The maximum time delay is 350 ms for both the fault detection and the return of the EWM to normal operation. Only the ERWM-VM1 measures phase sequence.

Timing diagram



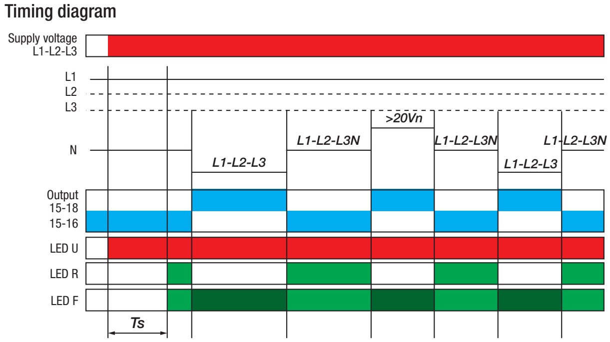
>Un (undervoltage) – It occurs after the rated tripping voltage (Un) (208 to 480 V) and the tripping undervoltage percentage (>Un) (-3 to -15%) are selected. The time delay is defined by the time scale (1 to 30 s) or disabled (OFF) acting in a maximum of 350 ms. The selected time delay is for both the fault detection and the return of the ERWM to normal operation.

Timing diagram



ND (neutral detection) – It occurs when the Neutral is not connected or it is disconnected during operation, or also when the voltage rises above 20 V (due to unbalance in the power grid). The maximum time delay is 350 ms for both the fault detection and the return of the ERWM to normal operation. For neutral detection, it is necessary to provide a bridge between terminals A and B; otherwise, the neutral will not be monitored.

Timing diagram



General Information
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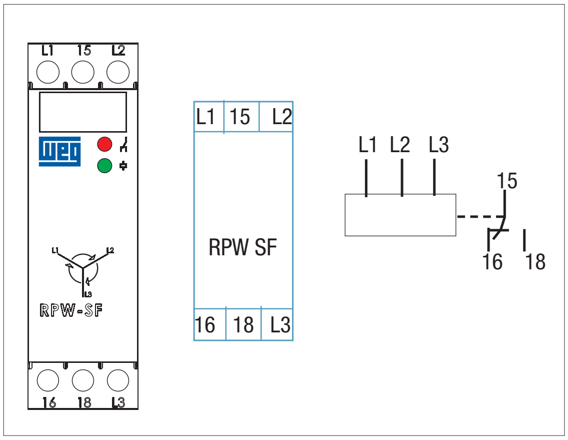
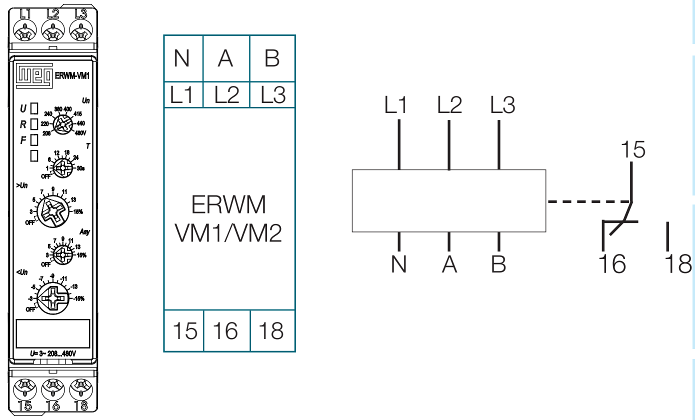
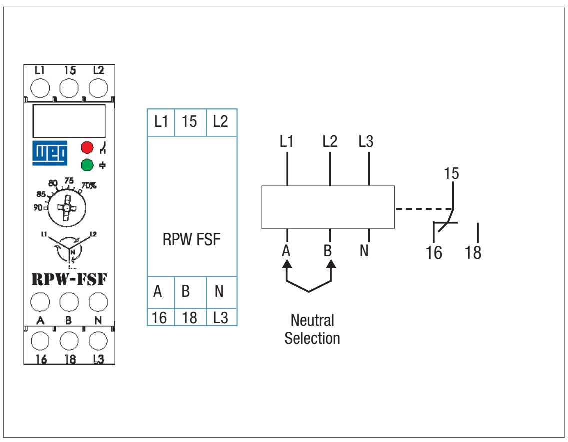
Enclosed Starters
Relays
Pushbuttons and Pilot Lights
Terminal Blocks
Power Factor Correction
Appendix A
Appendix B

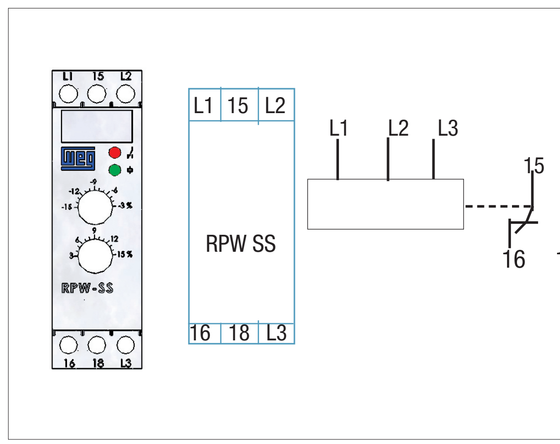
RPW and ERWM Series

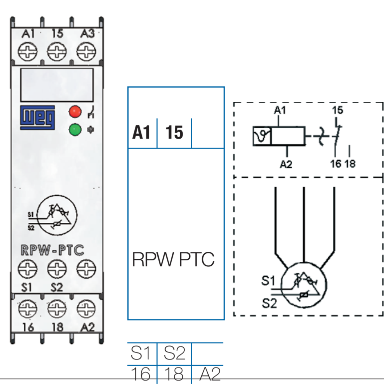
Connection Diagrams





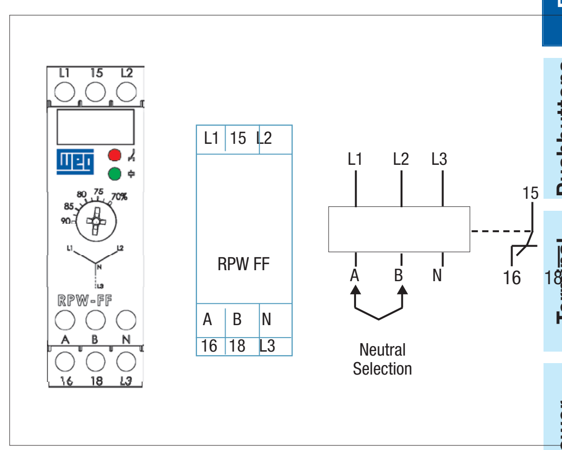






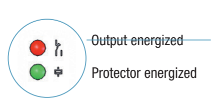
Terminals

A1 - A2	Voltage Supply 24...240 VCA / VDC
S1 - S2	PTC sensor input
15 - 16 - 18	Output

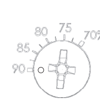


The RPW relay can be mounted directly on DIN rail 35mm or fixed with screws using the accessory PLMP.

Protection Relay RPW is provided with LED's for status indication.



The sensitivity adjustment (threshold) is made by the DIAL located on the front of the relay.
It ranges from 70% to 90%, which defines the balance for one phase related to the others.

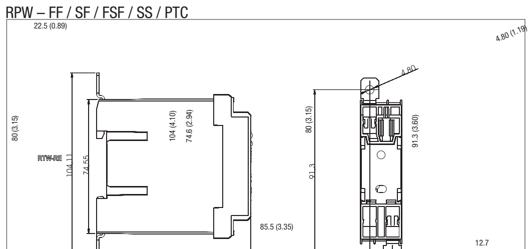


Protection Relays

	Product			RPW-FF	RPW-SF	RPW-FSF	RPW-SS	RPW-PTC
Inputs	Supply Voltage (Ue)	L1- L2 - L3	Vac	220-240 or 440-480			240 or 480	-
		A1 - A2	Vac/Vdc	-			-	24-240
	Frequency		Hz	50/60				
	Sensibility Adjustment%			70 to 90	-	70 to 90	-15 to -3 +3 to +15	-
	Operation Range		%xUe	0.85 up to 1.1				
	Maximum Consumption		mA	80				
	Maxium Neutral voltage		V	20	-	20	-	-
	Setting Accuracy (as % of the full scale value)		%	±5				
	Repeat Accuracy			±1				
Outputs	Output contacts capacity		(Ie)					
	Acc.IEC 60947-5-1	AC-15 on 230Vac	A	3				
		DC-13 on 24Vdc	A	1				
		DC-13 on 48Vdc	A	0.45				
		DC-13 on 60Vdc	A	0.35				
		DC-13 on 125Vdc	A	0.02				
		DC-13 on 250Vdc	A	0.1				
	Acc.UL; CSA			A300 R300				
	Fues (class gL/gG)		A	4				
	Mechanical Durability		operating cycles	30 x 10^6				
	Electrical Durability		operating cycles	10 x 10^6				
Mechanical Features	**Ambient Temperature**							
		-Operation	°C (F)	-5...+60 (23...140)				
		-Storage	°C (F)	-40...+85 (-40...185)				
	Protection Degree			Frame and Terminals IP20				
	Conductor cross-section							
		-Solid/Stranded without end sleeve	mm^2	1 x (0.5 to 2.5) 2 x (0.5 to 1.5)				
		- Stranded with end sleeve	mm^2	1 x (0.5 to 1.5) 2 x (0.5 to 1.5)				
		- AWG cables		2 x (20 to 16)				
	Tightening Torque		N.m (lb.in)	0.8 to 1.4 (7.1 to 12.3)				
	Terminal Screw			M3				
	Mounting Position			any position				
	Shock resistance		g/ms	15 / 11				
	Vibration resistance		Hz/mm	10 to 500/10				
	Weight		Kg (oz)	0.1 (35)				
	Pollution degree			2				
	Overvoltage Class			III				

DIMENSIONS mm (in)

RPW – FF / SF / FSF / SS / PTC



Data is subject to change without notice.

Technical Data

<table>
<tr><td rowspan="9">Inputs</td><td>Product</td><td>RPW FF</td><td>RPW SF</td><td>RPW FSF</td><td>RPW SS</td><td>RPW PTC</td><td>ERWM-VM1</td><td>ERWM-VM2</td></tr>
<tr><td>Supply voltage (Us) L1 - L2 - L3</td><td colspan="4">220, 380, 440 or 480 V ac (select)</td><td>24-240 V ac/V dc</td><td colspan="2">208-480 V ac</td></tr>
<tr><td>Frequency</td><td colspan="7">50/60 Hz</td></tr>
<tr><td>Sensitivity adjustment</td><td>70 to 90%</td><td>-</td><td>70 to 90%</td><td>+/- 3 to 15%</td><td>-</td><td colspan="2">+/- 3 to 15%</td></tr>
<tr><td>Rated supply voltage tolerance</td><td colspan="7">0.85 to 1.1 x Us for V ac</td></tr>
<tr><td>Maximum consumption</td><td colspan="7">80 mA</td></tr>
<tr><td>Maximum voltage allowed on neutral</td><td>20 V ac</td><td>-</td><td>20 V ac</td><td>-</td><td>-</td><td colspan="2">20 V ac</td></tr>
<tr><td>Scale accuracy (full scale)</td><td colspan="3">+/- 20%</td><td>-</td><td>-</td><td colspan="2">+/- 5%</td></tr>
<tr><td>Insulation voltage U_i</td><td colspan="7">600 V</td></tr>
<tr><td rowspan="5">Outputs</td><td>Repeatability precision</td><td colspan="3">+/- 1%</td><td>-</td><td>-</td><td colspan="2">+/- 1%</td></tr>
<tr><td rowspan="2">Maximum output contact capacity (I_e)</td><td colspan="7">5 A (resistive load)</td></tr>
<tr><td colspan="7">3 A (AC-15)</td></tr>
<tr><td>Fuse (class gL/gG)</td><td colspan="7">4 A</td></tr>
<tr><td>Mechanical lifespan</td><td colspan="7">30 x 10^6 switching cycles</td></tr>
<tr><td rowspan="20">Characteristics</td><td>Electrical lifespan</td><td colspan="7">10 x 10^5 switching cycles</td></tr>
<tr><td>Ambient temperature allowed</td><td colspan="7">-</td></tr>
<tr><td>Operation</td><td colspan="7">-5 a +60 °C</td></tr>
<tr><td>Storage</td><td colspan="7">-40 a +85 °C</td></tr>
<tr><td>Degree of protection</td><td colspan="7">Enclosure IP20 / Terminals IP20</td></tr>
<tr><td>Connection section (min. to max.)</td><td colspan="7">-</td></tr>
<tr><td rowspan="2">Cable without end sleeves</td><td colspan="7">1 x (0.5 to 2.5) mm^2</td></tr>
<tr><td colspan="7">2 x (0.5 to 1.5) mm^2</td></tr>
<tr><td rowspan="2">Cable with end sleeves</td><td colspan="7">1 x (0.5 to 1.5) mm^2</td></tr>
<tr><td colspan="7">2 x (0.5 to 1.5) mm^2</td></tr>
<tr><td>AWG-Rigid Wire</td><td colspan="7">2 x (20 to 14) mm^2</td></tr>
<tr><td rowspan="2">Tightening torque</td><td colspan="7">0.8 to 1.2 N.m</td></tr>
<tr><td colspan="7">7 to 10.6 Lb.in</td></tr>
<tr><td>Terminal screw</td><td colspan="7">M3</td></tr>
<tr><td>Assembly position</td><td colspan="7">Any</td></tr>
<tr><td>Shock resistance</td><td colspan="7">15g / 11ms</td></tr>
<tr><td>Vibration resistance</td><td colspan="7">10 to 55 Hz / 0.35 mm</td></tr>
<tr><td>Weight</td><td colspan="7">0.1 kg</td></tr>
<tr><td>Pollution degree</td><td colspan="7">2</td></tr>
<tr><td>Overvoltage category</td><td colspan="7">III</td></tr>
<tr><td rowspan="4">Certifications</td><td>European Union</td><td colspan="7">All models</td></tr>
<tr><td>Russia</td><td colspan="5">RPW-FSF/SF/SS/PTC</td><td>-</td><td>-</td></tr>
<tr><td>Argentina</td><td colspan="5">All models</td><td>-</td><td>-</td></tr>
<tr><td>Canada and USA</td><td colspan="7">All models</td></tr>
</table>

Note: the RPW-SSM-D23 (single-phase) certifications are pending.

General Information
Circuit Protection
Disconnect Switches
Motor Protectors
Contactors
Overloads
Enclosed Starters
Relays
Pushbuttons and Pilot Lights
Terminal Blocks
Power Factor Correction
Appendix A
Appendix B

Level Relay RNW

WEG Level Relays are electronic control devices that enable the monitoring and automatic adjustment of levels in electric current liquid conductors. Widely used in general reservoir automation, the RNW relays can also be utilized in several applications such as prevention of dry pump operation, monitoring against filling tank overflow, activation of solenoids or alarms / lighting.

The operating principle is based on measuring the electrical resistance of the reservoir liquid through electrodes that work as liquid presence / absence sensors. To optimize their performance, the relay has a sensitivity DIAL enabling the electronic circuit to be adjusted to the liquid resistance.
Available in 2 functions, RNW-EN filling and RNW-ES draining, the level relay offers digital electronics that provide high precision, repeatability and noise resistance. The supply system is isolated from the electronic circuit therefore ensuring greater user safety. Designed in accordance with international standards, the RNW offers a safe and compact solution, in 22,5mm wide housing for assembly on 35mm DIN rail, with 1 output reversable contact(C form) and voltage supply range of 100-240 VAC/VDC.

Available in the following functions:
- RNW EN -> Filling
- RNW ES -> Draining

Level Relay RPW-Series Catalog Number Sequence

RNW	-	EN	E09

WEG Level Relay

Type
EN - Filling
ES - Draining

Available Voltages
100-240 Vac/Vdc

Table intended for reference only and not to create part numbers.

Product Selection

Function / Description	Output Contacts	Voltage	Catalog Number	List Price	Multiplier
Draining Relay	SPDT (1NO/NC)	100-240 Vac 50Hz/60Hz 100-240 Vdc	RNW-ESE09	$125	Z7
Filling Relay	SPDT (1NO/NC)	100-240 Vac 50Hz/60Hz 100-240 Vdc	RNW-ENE09	$125	
Pendulum Type Electrode	-	-	EPW	$25	
Shaft Type Electrode	-	-	EHW	$92	
Push-in-Lugs	-	-	PLMP	$0.50	

SPDT - Single Pole Double Throw = 1N.O./N.C. changeover contact set

Sensitivity Adjustment

Liquid resistance can vary according to the liquid in question and the position of the electrodes. To adapt the electronic circuit to the liquid used, sensitivity must be adjusted through the DIAL located in the front part of the RNW, which has a graded scale without values.

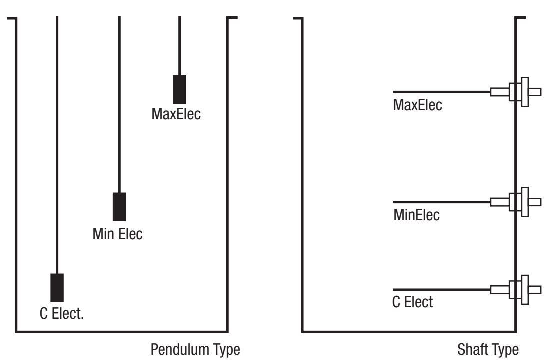
To perform the sensitivity adjustment, all electrodes must be submersed into the reservoir liquid and the DIAL positioned at its limit anti-clockwise (less resistance). With the relay energized, the DIAL must be turned clockwise (greater resistance) until the relay output switches its contacts (the red LED must change status). To confirm the adjustment, the reference electrode C must be disconnected and then quickly reconnected, the relay must return to its previous status. If this not happen, a new adjustment must be performed. By doing this, the RNW will be adjusted to the ideal sensitivity point.

Relay Light Indications

The RNW Level Relay is equipped with indicator LEDs as shown on the right:

Functional Diagram

The electrodes are fixed in the reservoir according to desired control levels, minimum or maximum. The reference electrode (C) must be positioned in the lower part, below the maximum and minimum level electrodes. When the system is energized, an alternating current is applied to the reference electrode and,once the liquid comes into contact with the level electrodes, a path is established for the circulation of electrical current between the electrodes. An electronic current compares the current and switches the relay output contacts according to the chosen model (RNW ES or RNW EN). The electrodes are available in 2 versions, shaft (EHW) or pendulum (EPW), the difference between them is the assembly type. The RNW is available in two distinct functions, draining and filling.



Note: The EHW shaft sensors can be fixed both horizontally and vertically

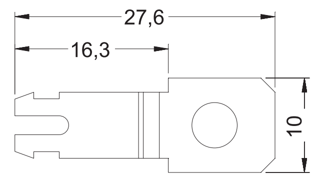
Level Relays

Level Relays-RNW Series

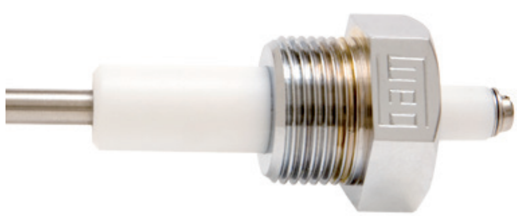
Accessories

Adaptor for screw fixing - PLMP

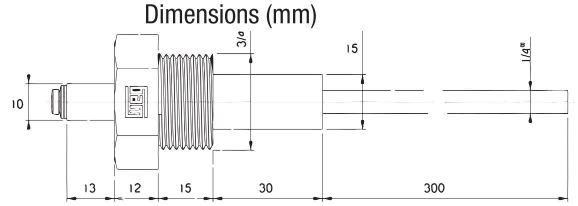
Dimensions (mm)



Shaft electrode - EHW



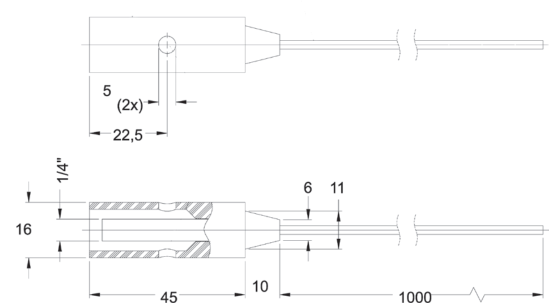
Dimensions (mm)



Teflon coated stainless steel shaft
11/4“ chrome hex screw
Length: 300 mm
Note: Other lengths upon request
Maximum sensor cable 100m (110yd)

Pendulum electrode - EPW

Dimensions (mm)



Body in natural black polypropylene
Stainless steel sensor shaft
1x10 mm2 gauge flexible connection cable
Cable length: 1000 mm
Note: Maximum sensor cable 100m (110yd)

RNW Series Technical Data

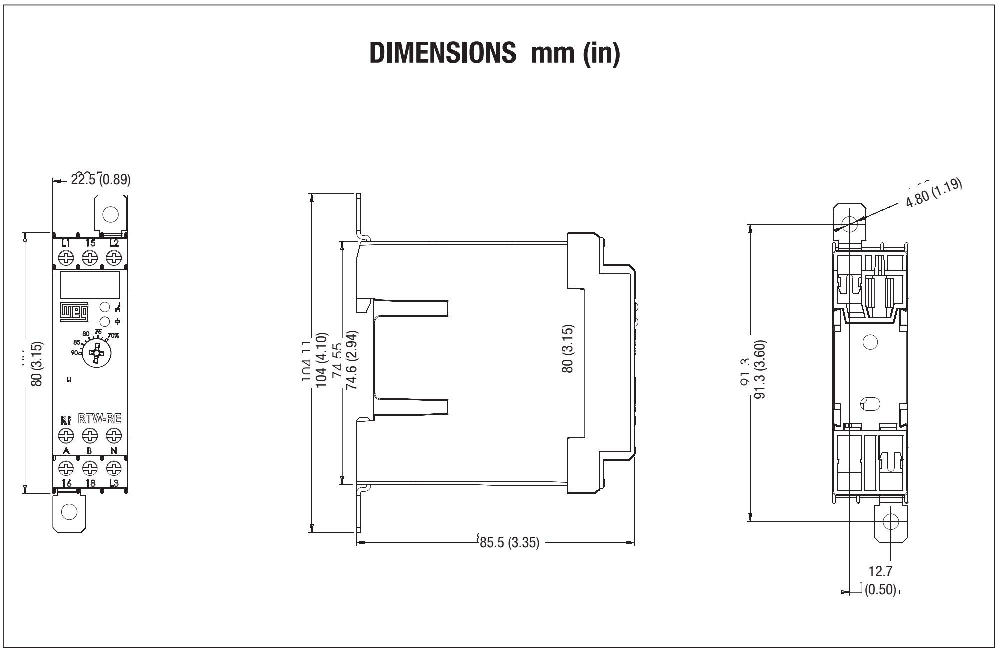
	Product			RNW ES/RNW EN
Inputs	Supply (Un)	A1	VAC	100-240 50 /60 Hz
		A2	VDC	100-240
	Isolated Rated Voltage (Ui)		V	300
	Operating Limits			0.85 to 1.1 x Ue
	Maximum Consumption		VA / W	2 / 1
Outputs	Contacts	15 - 16 / 18		1 SPDT
	Output Contact Capacity (le)		A	5 (resistive load)
	AC-15 in 230 Vca		A	3
	DC-13 in 24 VDC		A	1
	DC-13 in 48 VDC		A	0.45
	DC-13 in 60 VDC		A	0.35
	DC-13 in 125 VDC		A	0.2
	DC-13 in 250 VDC		A	0.1
	A300 : AC-15		A	
	R300 : DC-13		A	
	Rated thermal current (Ith)		A	10 (for AC)
				2.5 (for DC)
	Fuse (class gL / gG)		A	4
	Mechanical Lifespan		operations	30×10^6
Characteristics	Temperature	Operation	ºC (F)	-5 to +60 (23...140)
		Storage		-40 to +85 (-40...185)
	Degree of Protection			IP20
	Terminal Capacity	Rigid or fexible Cable	mm^2	1 x (0.5 to 2.5)
				2 x (0.5 to 1.5)
	Cable with Terminal	Rigid or fexible Cable/Terminal	mm^2	1 x (0.5 to 2.5)
				2 x (0.5 to 1.5)
		AWG Solid conductor	AWG	2 x (30 to 14)
	Tightening torque		N.m	0.8 to 1.2
			lb.in	7 to 10.6
	Terminal Screws			M3
	Assembly Position			Any
	Resistance to Impacts		g / ms	15 / 11
	Resistance to Vibration		Hz / mm	10 to 500 / 10
	Weight		kg	0.08
	Pollution			2
	Over voltage category			II
	Sensitivity Adjustment		kΩ	0 to 100
	Electrode Voltage		VCA	7
Electrodes	Electrode Current		mA	0.05
	Maximum length of sensor cable		m	100 (Maximum cable capacitance 2.2nF)
	Detector operating temperature	- Shaft	ºC (F)	0 to + 260 (32...500)
		- Pendulum		0 to + 60 (32...140)
	Allowable detector pressure	- Shaft	kgf / cm^2	3
		- Pendulum		-
	Detector Weight	- Shaft	kg	0.230
		- Pendulum		0.012

Level Relays

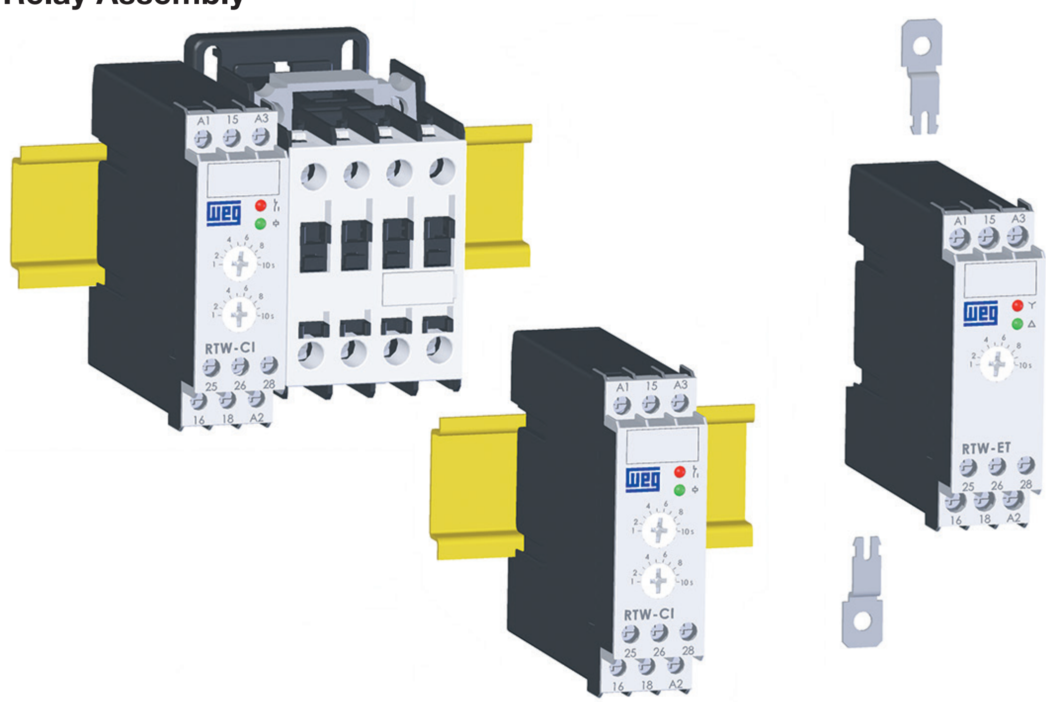
RNW Series

Electronic Relay Technical Data

Dimensions



Relay Assembly

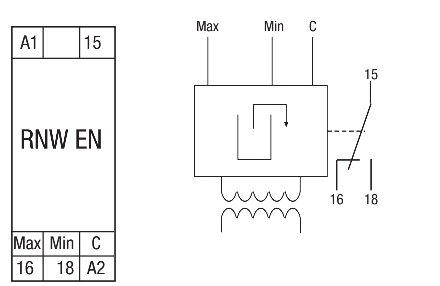


Level Relays-RNW Series

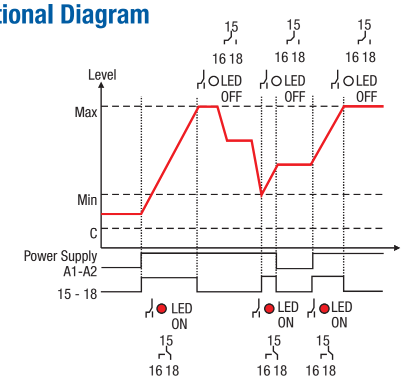
RNW EN (Filling)

Controls 2 levels using 3 electrodes: the reference electrode (C), the maximum level electrode (Max) and the minimum level electrode (Min). Once powered, the RNW EN start monitoring the liquid level in the reservoir. With the electrode being uncovered at minimum level Min, the output relay will energize (terminals 15-18 closed) causing the liquid level to rise. When the reservoir liquid covers the Max level electrode, the output realy de-energize (terminals 15-18 open) and remains de-energized until the Min level electrode is discovered again. If there is a supply failure, the RNW EN will restart its initial logic.

Connection Diagrams



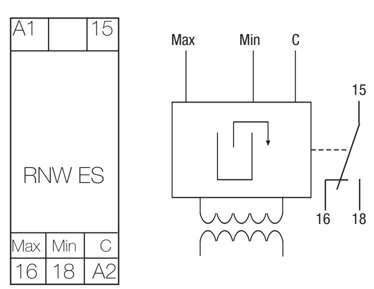
Functional Diagram



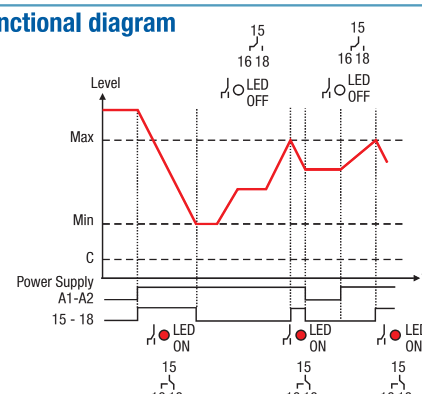
RNW ES (Draining)

Controls 2 levels using 3 electrodes: the reference electrode (C), the maximum level electrode (Max) and the minimum level electrode (Min). Once powered, the RNW ES start monitoring the liquid level in the reservoir. With the liquid being in contact with the Max level electrode, the relay will energize (terminals 15-18 closed), causing the reservoir liquid level begin to drop. Once the Min level electrode is uncovered by the liquid the relay will energize (terminals 15-18 open) and will remain energized until the liquid enters into contact again with the Max level electrode, restarting the process. If there is a supply failure, the RNW ES will restart its initial logic.

Connection Diagrams



Functional diagram



CSW Series - 22mm

The WEG 22mm Pushbuttons and Pilot Device line uses leading edge technology and development. These user friendly pilot devices are used in many different industrial applications and environments.

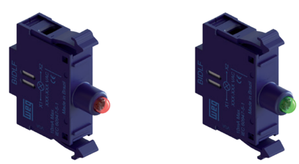
Standard Features:

- Fast and Easy Assembly of Pushbuttons and Contact Blocks
- High efficiency self-cleaning contact blocks
- Long life Expectancy
- High Luminosity and color with the LED Lights
- Full line of accessories

UL File No. E330817

High Performance Illuminated Blocks

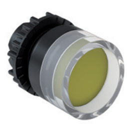
The CSW line features the BIDL (integrated LED illuminated blocks) which offer high efficiency - lumens/ Watt - with low thermal dissipation and energy consumption. The integrated construction guarantees high resistance against vibrations and maintenance-free operation.



Flush [1]

	Color	Catalog Number	List Price	Multiplier
	White	CSW-BF0 WH	$5	Z5
	Red	CSW-BF1 WH	$5	
	Green	CSW-BF2 WH	$5	
	Yellow	CSW-BF3 WH	$5	
	Blue	CSW-BF4 WH	$5	
0.021 kg	Black	CSW-BF5 WH	$5	

Guarded

Image	Color	Catalog Number	List Price	Multiplier
	White	CSW-BGA0 WH	$5.50	Z5
	Red	CSW-BGA1 WH	$5.50	
	Green	CSW-BGA2 WH	$5.50	
	Yellow	CSW-BGA3 WH	$5.50	
	Blue	CSW-BGA4 WH	$5.50	
0.022 kg	Black	CSW-BGA5 WH	$5.50	

Extended [1]

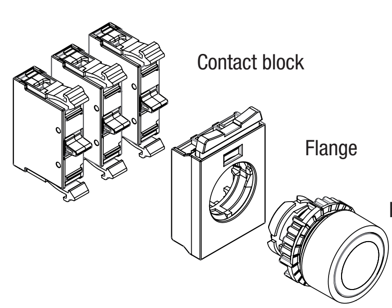
Image	Color	Catalog Number	List Price	Multiplier
	White	CSW-BS0 WH	$6.50	Z5
	Red	CSW-BS1 WH	$6.50	
	Green	CSW-BS2 WH	$6.50	
	Yellow	CSW-BS3 WH	$6.50	
	Blue	CSW-BS4 WH	$6.50	
0.021 kg	Black	CSW-BS5 WH	$6.50	

Mushroom - External Diameter: 40 mm [1]

Image	Color	Catalog Number	List Price	Multiplier
	Red	CSW-BC1 WH	$8.50	Z5
0.024 kg	Green	CSW-BC2 WH	$8.50	

How to order[2)]

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 contact blocks for each head on pages 330.

Pushbuttons with Latch - Ø22 mm - IP66

Emergency Pushbuttons with Latch (EN 418 and IEC 60947-5-5)

Emergency Pushbuttons with Latch - External Diameter: 42 mm[2)]

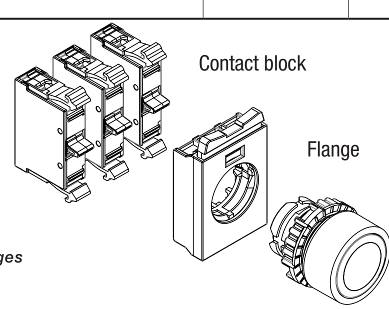
Image	Actuations	Signaling	Color	Catalog Number	List Price	Multiplier
 0.049 kg	Pull to release	-	Red	CSW-BESP WH	$15	Z5
 0.049 kg	Twist to release	-	Red	CSW-BESG WH	$15	
 0.114 kg	Key to release[1)]	-	Red	CSW-BESY WH	$45	
	GBES-02; Use with: CSW-PESP WH, CSW-BESG WH, CSW-BESY WH			GBES-02	$10	

Emergency Pushbuttons with Latch - External Diameter: 40 mm[2)]

Image	Actuations	Color	Catalog Number	List Price	Multiplier
 0.027 kg	Twist to release	Red	CSW-BCTI WH	$13	Z5
 0.091 kg	With key[1)]	Red	CSW-BCYI WH	$40	
	APEG-02; Use with: CSW-BCT1 WH, CSW-BCY1 WH		APEG-02	$10	

How to order[3)]

Head
+ Flange
+ Contact block



Notes:
1) Keys with different codes are available upon request.
2) Does not allow the use of contact blocks in the central position of the mounting flanges
3) Check the maximum of recommended contact blocks for each head on page 330.

Illuminated Pushbuttons - Ø22 mm - IP66

Flush[1]

Image	Color	Catalog Number	List Price	Multiplier
 0.021 kg	White	CSW-BFI0 WH	$8.50	Z5
	Red	CSW-BFI1 WH	$8.50	
	Green	CSW-BFI2 WH	$8.50	
	Yellow	CSW-BFI3 WH	$8.50	
	Blue	CSW-BFI4 WH	$8.50	
	Orange	CSW-BFI4 WH [3]	$8.50	

Extended[1]

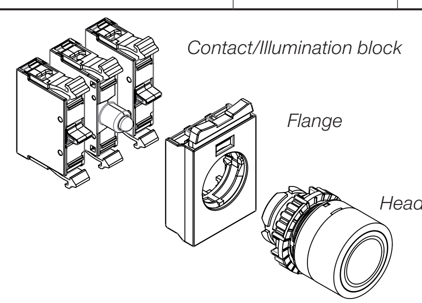
Image	Color	Catalog Number	List Price	Multiplier
 0.021 kg	White	CSW-BSI0 WH	$8.50	Z5
	Red	CSW-BSI1 WH	$8.50	
	Green	CSW-BSI2 WH	$8.50	
	Yellow	CSW-BSI3 WH	$8.50	
	Blue	CSW-BSI4 WH	$8.50	
	Orange	CSW-BSI6 WH [3]	$8.50	

Mushroom - External Diameter: Ø40 mm[1]

Image	Color	Catalog Number	List Price	Multiplier
 0.026 kg	White	CSW-BCI0 WH	$10	Z5
	Red	CSW-BCI1 WH	$10	
	Green	CSW-BCI2 WH	$10	
	Yellow	CSW-BCI3 WH	$10	
	Blue	CSW-BCI4 WH	$10	
	Orange	CSW-BCI6 WH [3]	$10	

How to order[2]

Head
+ Flange
+ Contact block
+ Illumination block

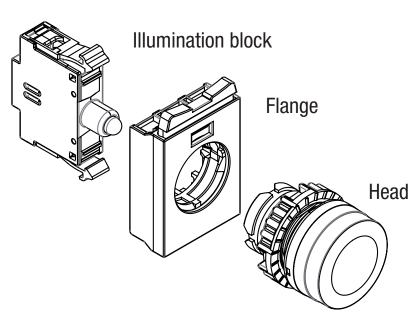


Pilot Lights[1]

Image	Color	Catalog Number	List Price	Multiplier
 0.016 kg	White	CSW-SD0 WH	$7.30	Z5
	Red	CSW-SD1 WH	$7.30	
	Green	CSW-SD2 WH	$7.30	
	Yellow	CSW-SD3 WH	$7.30	
	Blue	CSW-SD4 WH	$7.30	
	Orange	CSW-SD6 WH [3]	$7.30	

How to order

Head
+ Flange
+ Illumination block



Notes: 1) Allows illumination through LED or lamp block
2) Check the maximum of recommended contact blocks for each head
3) For better lighting performance use yellow LED block with this device

.

Pushbuttons and Pilot Lights

2 Positions Selectors - Ø22 mm - IP66

Knob

0.025 kg

Position		Diagram	Selector angle	Color[1]		Part Number	List Price	Multiplier
	Fixed	1	45°	●	Black	CSW-CK2F45 WH	$13	Z5
	With return	1	45°	●	Black	CSW-CK2R45 WH	$15	
	Fixed	1	90°	●	Black	CSW-CK2F90 WH	$13	
	With return	1	90°	●	Black	CSW-CK2R90 WH	$15	

Lever

0.025 kg

Position		Diagram	Selector angle	Color[1]		Part Number	List Price	Multiplier
	Fixed	1	45°	●	Black	CSW-CA2F45 WH	$14	Z5
	With return	1	45°	●	Black	CSW-CA2R45 WH	$16	Z5
	Fixed	1	90°	●	Black	CSW-CA2F90 WH	$14	Z5
	With return	1	90°	●	Black	CSW-CA2R90 WH	$16	Z5

With Key[2)3)]

0.087 kg

Position		Diagram	Selector angle	Color[1]		Part Number	List Price	Multiplier
	Fixed	1	45°	●	Black	CSW-CY2F45 WH	$41	Z5
	With return	1	45°	●	Black	CSW-CY2R45 WH	$43	Z5
	Fixed	1	90°	●	Black	CSW-CY2F90 WH	$41	Z5
	With return	1	90°	●	Black	CSW-CY2R90 WH	$43	Z5

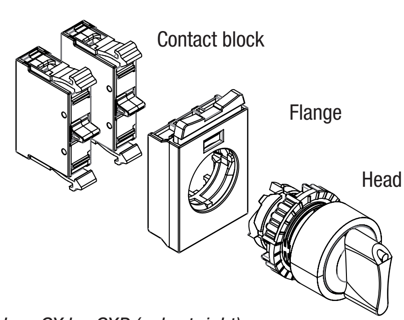
Diagram 1

Handle position	Mounting position in the flange				
	-	2	3	1	-
	4	2	5	1	3
0	☐	☐	-	☐	☐
I	■	■		■	■

Legend
☐ Contacts in the rest position.
■ Contacts operated.

How to order[4)]

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, please replace CY by: CYD (only at right), CYE (only at left) and CYC (only at center);
4) Check the maximum of recommended contact blocks for each head on page 302.

Data is subject to change without notice.

A3 Positions Selectors - Ø22 mm - IP66 CW

Knob

0.025 kg

Position		Diagram	Selector angle	Color[1]		Catalog Number	List Price	Multiplier
	Fixed	1	45º	●	Black	CSW-CK3F45 WH	$13	Z5
	With return	1	45º	●	Black	CSW-CK3R45 WH	$15	
	With return from the right	1	45º	●	Black	CSW-CK3RD45 WH	$15	
	With return from the left	1	45º	●	Black	CSW-CK3RE45 WH	$15	

Lever

0.025 kg

Position		Diagram	Selector angle	Color[1]		Catalog Number	List Price	Multiplier
	Fixed	1	45º	●	Black	CSW-CA3F45 WH	$14	Z5
	With return	1	45º	●	Black	CSW-CA3R45 WH	$16	
	With return from the right	1	45º	●	Black	CSW-CA3RD45 WH	$16	
	With return from the left	1	45º	●	Black	CSW-CA3RE45 WH	$16	

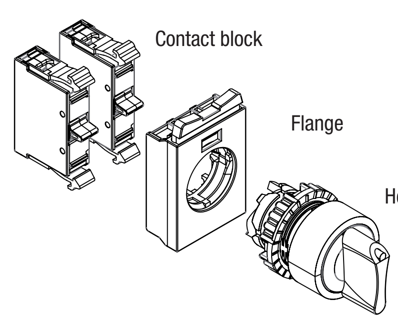
Diagram 1

	Handle position	Mounting position in the flange				
		-	2	3	1	-
		4	2	5	1	3
	I	■	■		□	□
	0	□	□	-	□	□
	II	□	□		■	■

Legend
□ Contacts in the rest position.
■ Contacts operated.

How to order

Head
\+ Flange
\+ Contact block



Notes: 1) Selector switches in other colors are available under request
2) Check the maximum of recommended contact blocks for each head on page 302.

Pushbuttons and Pilot Lights

A3 Positions Selectors - Ø22 mm - IP66 CW

With Key[2][3]

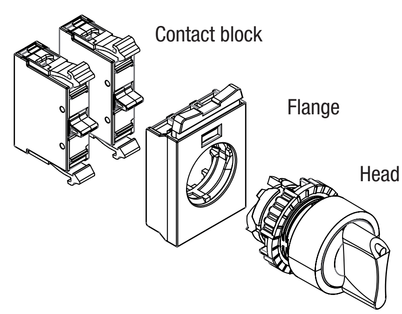
	Position	Diagram	Selector angle	Color[1]		Catalog Number	List Price	Multiplier
 0.087 kg	Fiixed	1	45º	●	Black	**CSW-CY3F45 WH**	**$41**	Z5
	With return	1	45º	●	Black	**CSW-CY3R45 WH**	**$43**	
	With return from the right	1	45º	●	Black	**CSW-CY3RD45 WH**	**$43**	
	With return from the left	1	45º	●	Black	**CSW-CY3RE45 WH**	**$43**	

Diagram 1						
	Handle position	Mounting position in the flange				
		-	2	3	1	-
		4	2	5	1	3
	I	■	■		□	□
	0	□	□	-	□	□
	II	□	□		■	■

Legend
□ Contacts in the rest position.
■ Contacts operated.

How to order[4]

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, please replace CY by: CYD (only at right), CYE (only at left) and CYC (only at center);
4) Check the maximum of recommended contact blocks for each head on page 302.

Reset Pushbutton with Shaft

Image	Description	Catalog Number	Weight (kg)	List Price	Multipler
	Flush pushbutton - blue - engraved reset - with shaft. Length: max. 250 mm and min. 22.5 mm	**CSW-BHF437**	0.045	**$12**	Z5

2 Positions Illuminated Selectors

Image	Position		Diagram	Selector angle	Color		Catalog Number	List Price	Multiplier
 0.020 kg	0 I	Fixed	1	90º	○	White	CSW-CKI2F900 WH	$8	Z5
					●	Red	CSW-CKI2F901 WH	$8	
					●	Green	CSW-CKI2F902 WH	$8	
					●	Yellow	CSW-CKI2F903 WH	$8	
					●	Blue	CSW-CKI2F904 WH	$8	
					●	Orange	CSW-CKI2F906 WH [1]	$8	

3 Positions Illuminated Selectors

Image	Position		Diagram	Selector angle	Color		Catalog Number	List Price	Multiplier
 0.020 kg	I 0 II	Fixed	2	45º	○	White	CSW-CKI3F450 WH	$8	Z5
					●	Red	CSW-CKI3F451 WH	$8	
					●	Green	CSW-CKI3F452 WH	$8	
					●	Yellow	CSW-CKI3F453 WH	$8	
					●	Blue	CSW-CKI3F454 WH	$8	
					●	Orange	CSW-CKI3F456 WH [1]	$8	
	I 0 II	With return	2	45º	○	White	CSW-CKI3R450 WH	$8.50	
					●	Red	CSW-CKI3R451 WH	$8.50	
					●	Green	CSW-CKI3R452 WH	$8.50	
					●	Yellow	CSW-CKI3R453 WH	$8.50	
					●	Blue	CSW-CKI3R454 WH	$8.50	
					●	Orange	CSW-CKI3R456 WH [1]	$8.50	
	I 0 II	With return from the right	2	45º	○	White	CSW-CKI3RD450 WH	$8.50	
					●	Red	CSW-CKI3RD451 WH	$8.50	
					●	Green	CSW-CKI3RD452 WH	$8.50	
					●	Yellow	CSW-CKI3RD453 WH	$8.50	
					●	Blue	CSW-CKI3RD454 WH	$8.50	
					●	Orange	CSW-CKI3RD456 WH [1]	$8.50	
	I 0 II	With return from the left	2	45º	○	White	CSW-CKI3RE450 WH	$8.50	
					●	Red	CSW-CKI3RE451 WH	$8.50	
					●	Green	CSW-CKI3RE452 WH	$8.50	
					●	Yellow	CSW-CKI3RE453 WH	$8.50	
					●	Blue	CSW-CKI3RE454 WH	$8.50	
					●	Orange	CSW-CKI3RE456 WH [1]	$8.50	

Diagram 1

	Handle position	Mounting position in the flange				
0 I / 0 I / 0 I / 0 I		-	2	3	1	-
		4	2	5	1	3
	0	□	□	☼	□	□
	I	■	■		■	■

Diagram 2

	Handle position	Mounting position in the flange				
I 0 II / I 0 II / I 0 II / I 0 II		-	2	3	1	-
		4	2	5	1	3
	I	■	■		□	□
	0	□	□	☼	□	□
	II	□	□		■	■

Flange
3P
5P

Legend
□ Contacts in the rest position.
■ Contacts operated.
☼ Mounting position for LED blocks in illuminated switches.

POTENTIOMETER

CSW-POT_W

LIST PRICE
$145

CSW-POT __ W

Resistance

0.5 - 0.5kΩ
1 - 1kΩ
2 - 2kΩ
5 - 5kΩ
10 - 10kΩ
50 - 50kΩ

Note:
1) For better lighting performance use yellow LED Block

General Information
Circuit Protection
Disconnect Switches
Motor Protectors
Contactors
Overloads
Enclosed Starters
Relays
Pushbuttons and Pilot Lights
Terminal Blocks
Power Factor Correction
Appendix A
Appendix B

Flush Double Pushbutton - Degree of Protection IP40[1)2)4)] - (refer to 1. How to order)

0.034 kg

Color		Engraving	Reference	List Price	Multiplier
	Green	I	CSW-BD WH	11.50	Z5
	Red	0			
	Green	START	CSW-BD21SS WH	11.50	
	Red	STOP			

Double Pushbutton - (refer to 1. How to order)

0.034 kg

Frontal	Color		Engraving	Reference	List Price	Multiplier
Flush		Green	I	CSW2-BDF21I0 WH	14.00	Z5
Flush		Red	0			
Flush		Green	START	CSW2-BDF21SS WH	14.00	
Flush		Red	STOP			

Extended Double Pushbutton - (refer to 1. How to order)

0.034 kg

Frontal	Color		Engraving	Reference	List Price	Multiplier
Flush		Green	I	CSW2-BDS21I0 WH	14.00	Z5
Extended		Red	0			
Flush		Green	START	CSW-BDS21SS WH	14.00	
Extended		Red	STOP			

Triple Pushbutton - (refer to 1. How to order)

0.034 kg

Frontal	Color		Engraving	Reference	List Price	Multiplier
Flush		Green	I	CSW2-BTF241I0R WH	16.00	Z5
Extended		Blue	RESET			
Flush		Red	0			

Extended Triple Pushbutton - (refer to 1. How to order)

0.034 kg

Frontal	Color		Engraving	Reference	List Price	Multiplier
Flush		Green	I	CSW2-BTS241I0R WH	16.00	Z5
Extended		Blue	RESET			
Extended		Red	0			

Flush Double Pushbutton w/ illumination - (refer to 2. How to order)[1]

0.025g

Frontal	Color		Engraving	Reference	List Price	Multiplier
Flush		Green	I	CSW2-BDFI21I0 WH	14.00	Z5
Flush		Red	0			
Flush		Green	START	CSW2-BDFI21SS WH	14.00	
Flush		Red	STOP			

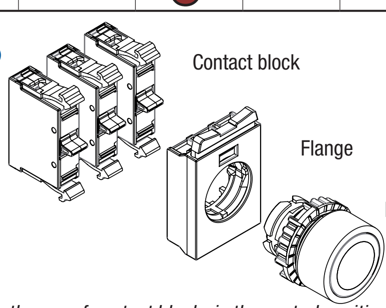
Extended Double Pushbutton w/ illumination - (refer to 2. How to order)[1]

0.025g

Frontal	Color		Engraving	Reference	List Price	Multiplier
Flush		Green	I	CSW2-BDSI21I0 WH	14.00	Z5
Extended		Red	0			
Flush		Green	START	CSW2-BDSI21SS WH	14.00	
Extended		Red	STOP			

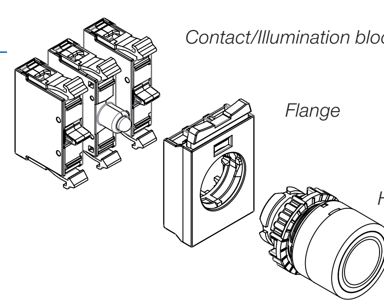
1. How to order[3)4)]

Head
+ Flange
+ Contact block



2. How to order[3)4)]

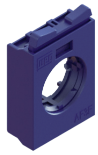
- Head
+ Flange
+ Contact block
+ Illumination block



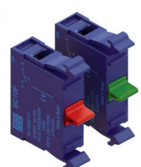
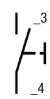
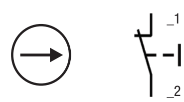
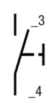
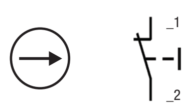
Notes: *1) Does not allow the use of contact blocks in the central position of the mounting flanges*
2) To increase the Degree of Protection, use the APBD silicon protective cover
3) Check the maximum of recommended contact blocks for each head on page 302.
4) Use blue flange and contact block components

Accessories for CSW (22mm)

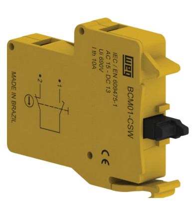
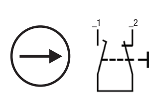
Flanges[1]

	Description	Standard packing	Catalog Number	List Price	Multiplier
 0.010 kg[2)]	3-position mounting flange for blue contact blocks Allows the mounting of extras contact blocks due to front-back system	1 piece	AF3F	$2.17	Z5
	5-position mounting flange for blue contact blocks Allows the mounting of extras contact blocks due to front-back system	1 piece	AF5F	$6.06	

Contact Blocks[1)]

	Contacts	Diagram	Standard packing	Compatible flange	Catalog Number	List Price	Multiplier
 0.015 kg[2)]	1NO		1 piece	AF3F	BC10F-CSW	$5.00	Z5
	1NC		1 piece		BC01F-CSW	$5.00	
	1NO EARLY MAKE		1 piece	AF3F	BCA10F-CSW	$5.55	
	1NC LATE BREAK		1 piece		BCR01F-CSW		

Self-Monitoring Contact Block for Emergency Pushbuttons[1)2)]

	Contacts	Diagram	Standard packing	Compatible flange	Catalog Number	List Price	Multiplier
 0.002 kg[2)]	1NC		1 piece	AF3F	BCM01F-CSW	$27.37	Z5

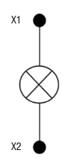
Notes:
1) Not compatible with the PBW control stations line. For control stations accessories, please refer to the page 323 to 327. of this catalog
2) The NO contact close when assembled correctly in the flange

Pushbuttons and Pilot Lights

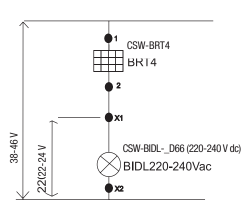
Accessories for CSW (22mm)

Illumination Blocks with Integrated LED[1)2)3)]

0.016 kg

Voltage	Color		Diagram	Standard packing	Compatible flange	Catalog Number	List Price	Multiplier
12 VAC/VDC 50/60Hz	○	White		1 piece	AF3F	CSW-BIDLF0E25	$16	Z5
	●	Red				CSW-BIDLF1E25	$16	
	●	Green				CSW-BIDLF2E25	$16	
	●	Yellow				CSW-BIDLF3E25	$16	
	●	Blue				CSW-BIDLF4E25	$16	
24 VAC/VDC 50/60Hz	○	White				CSW-BIDLF0E26	$16	
	●	Red				CSW-BIDLF1E26	$16	
	●	Green				CSW-BIDLF2E26	$16	
	●	Yellow				CSW-BIDLF3E26	$16	
	●	Blue				CSW-BIDLF4E26	$16	
48 VAC/VDC 50/60Hz	○	White				CSW-BIDLF0E27	$16	
	●	Red				CSW-BIDLF1E27	$16	
	●	Green				CSW-BIDLF2E27	$16	
	●	Yellow				CSW-BIDLF3E27	$16	
	●	Blue				CSW-BIDLF4E27	$16	
110-130 VAC/VDC 50/60Hz	○	White				CSW-BIDLF0E10	$16	
	●	Red				CSW-BIDLF1E10	$16	
	●	Green				CSW-BIDLF2E10	$16	
	●	Yellow				CSW-BIDLF3E10	$16	
	●	Blue				CSW-BIDLF4E10	$16	
220-240 VAC/VDC 50/60Hz	○	White				CSW-BIDLF0D66	$16	
	●	Red				CSW-BIDLF1D66	$16	
	●	Green				CSW-BIDLF2D66	$16	
	●	Yellow				CSW-BIDLF3D66	$16	
	●	Blue				CSW-BIDLF4D66	$16	

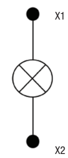
Voltage Reduction Blocks[1)2)3)]

	Description	U_e	Diagram	Standard packing	Compatible flange	Catalog Number	List Price	Multiplier
 0.016 kg	For use with Integrated LED blocks models: CSW-BIDL(F)_D66 (220-240 V ac)	380-460 V ac		1 piece	AF3 AF5	CSW-BRT4F	$8.88	Z5

Notes:
1) Not compatible with the PBW control stations line. For control stations accessories, please refer to the page 323 - 327. of this catalog
2) Unitary weight.
3) Not compatible with black flanges

Ba9s Socket Lamp Block[1)2)4)]

0.013 kg

Description	Diagram	Standard packing	Compatible flange	Catalog Number	List Price	Multiplier
- For lamps with Ba9s socket - Maximum voltage 380 V (2 W) - Direct V ac/dc - Lamp not included		1 piece	AF3 AF5	CSW-BIDF	$5.27	Z5

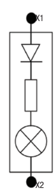
Lamps Ba9s[1)2)]

0.005 kg[3)]

Voltage	Standard packing	Catalog Number	List Price	Multiplier
6 V ac/dc	25 pieces	CSW-LI E48-0.6W	$242.50	Z5
12 V ac/dc	25 pieces	CSW-LI E25-1.8W	$242.50	
24 V ac/dc	25 pieces	CSW-LI E26-2W	$242.50	
48 V ac/dc	25 pieces	CSW-LI E27-2W	$242.50	
60 V ac/dc	25 pieces	CSW-LI E29-1.2W	$242.50	
130 V ac/dc	25 pieces	CSW-LI E30-2W	$242.50	
220 V ac/dc	25 pieces	CSW-LI E31-2W	$242.50	

Illumination Block with Lamp + Resistor + Diode[1)2)4)]

0.016 kg

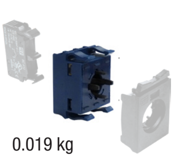
Descripction	Diagram	Standard packing	Compatible flange	Catalog Number	List Price	Multiplier
- Block voltage: 220 - 240 V ac Includes 120/130 V incandescent lamp - Ba9s socket		1 piece	AF3F AF5F	CSW-BIRDFD66	$25.34	Z5

Ba9s Lamps Extraction Tool[4)]

0.008 kg

Description	Standard packing	Catalog Number	List Price	Multiplier
Ba9s lamps extraction tool of illumination blocks	1 piece	ACEF	$5.60	Z5

Push-on/Push-off Block[1)2)4)]



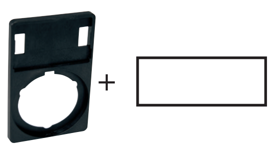
0.019 kg

Descripction	Standard packing	Compatible flange	Catalog Number	List Price	Multiplier
Push-on/Push-off block for: CSW-BF, CSW-BFI, CSW-BS, CSW-BSI, CSW-BGA, CSW-BC, CSW-BCI. Note: use only with the following contact blocks: - BC01-F (1NC); - BCA10-F (1NO early-make); - BC02-F (2NC).	1 piece	AF3	BR-3PF-CSW	$7.97	Z5

Notes: 1) Not compatible with the PBW control stations line. For control stations accessories, please refer to the page 323 - 327
2) Not compatible with double pushbuttons CSW2-BD;
3) Unitary weight.
4) Not compatible with black flanges

Accessories for CSW (22mm)

Plate Holder and Plastic Legend Plate Set[1)]

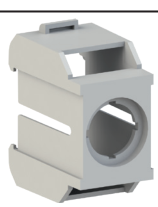
	Description	Standard packing	Catalog Number	List Price	Multiplier
 0.004 kg[2)]	Plate holder and plastic legend plate set (27 x 18 mm, no engraved, red and black colored) for pilot lights, single pushbuttons and selector switches.	5 pieces	APP30	$11.50	Z5
	Plate holder and plastic legend plate set (27 x 18 mm, no engraved, red and black colored) for double pushbuttons CSW-BD. Not compatible with CSW2-BD.	1 piece	APP60	$2.30	
 0.004 kg[2)]	Plate holder and plastic legend plate set (27 x 18 mm, no engraved, translucent) for pilot lights, single pushbuttons and selector switches.	5 pieces	APP30T	$11.50	
	Plate holder and plastic legend plate set (27 x 18 mm, no engraved, translucent) for double pushbuttons CSW-BD. Not compatible with CSW2-BD.	1 piece	APP60T	$3	

Reduction Ring[1)]

	Description	Standard packing	Catalog Number	List Price	Multiplier
 0.030 kg	Reduction ring from Ø30 mm to Ø22 mm	5 pieces	AR30	$21.25	Z5

Notes: 1) Not compatible with the PBW control stations line. For control stations accessories, please refer to the page 295 and 296 of this catalog
2) Unitary weight.

Emergency-Stop Plate[1)]

	Description	Standard packing	Catalog Number	List Price	Multiplier
 0.009 kg[2)]	Legend plate for emergency pushbutton. Text: English	1 piece	APE-02	$8.30	Z5
	DIN rail adaptor	1 piece	DRCSWA	$16.00	

APP30 Plate Holder and 27 x 18 mm Engraved Plastic Legend Plate Set[1)3)]

For use with single pushbuttons, pilot lights and selector switches

0.015 kg[4)]

+ **MANUAL**

Pushbuttons and Pilot Lights

Catalog Number	Message	List Price	Multiplier
APP30-01	CLOSE	$4.20	
APP30-02	DOWN	$4.20	
APP30-03	EMERGENCY STOP	$4.20	
APP30-04	FORWARD	$4.20	
APP30-05	JOG	$4.20	
APP30-06	JOG FORWARD	$4.20	
APP30-07	JOG REVERSE	$4.20	
APP30-08	LOWER	$4.20	
APP30-09	OFF	$4.20	
APP30-10	ON	$4.20	
APP30-11	OPEN	$4.20	
APP30-12	POWER ON	$4.20	
APP30-13	RAISE	$4.20	
APP30-14	RESET	$4.20	
APP30-147	FAULT	$4.20	
APP30-15	REVERSE	$4.20	
APP30-16	RUN	$4.20	
APP30-17	START	$4.20	
APP30-18	STOP	$4.20	
APP30-19	UP	$4.20	
APP30-20	FORWARD REVERSE	$4.20	
APP30-21	HAND AUTO	$4.20	
APP30-22	JOG RUN	$4.20	Z5
APP30-23	MANUAL AUTO	$4.20	
APP30-24	OFF ON	$4.20	
APP30-25	OPEN CLOSE	$4.20	
APP30-26	RUN JOG	$4.20	
APP30-27	START STOP	$4.20	
APP30-28	UP DOWN	$4.20	
APP30-30	FOR OFF REV	$4.20	
APP30-31	HAND OFF AUTO	$4.20	
APP30-32	MAN OFF AUTO	$4.20	
APP30-33	OPEN OFF AUTO	$4.20	
APP30-34	OPEN OFF CLOSE	$4.20	
APP30-35	UP OFF DOWN	$4.20	
APP30-36	ON/OFF	$4.20	
APP30-37	OPEN/CLOSE	$4.20	
APP30-38	UP/DOWN	$4.20	
APP30-P00	0-100	$6.00	
APP30-P01	0-10	$6	
APP30-P02	SPEED 0-10	$6	
APP30-P03	SPEED 0-100	$6	
APP30-149	AUTO OFF REV	$4.20	
APP30-198	LOW MED HIGH	$4.20	
APP30-199	LOW OFF HIGH	$4.20	

Notes: 1) Other engraving option available upon request.
2) Red plates are engraved in white
3) Not compatible with the PBW Control Stations Line. For control station accessories, please refer to the page 323 - 327.
4) Unitary weight

Decentralized Control Stations - PBW

Type 4x Protection

WEG control stations and emergency stop stations, also known as the PBW line, are available for a wide range of applications meeting the most demanding requirements of quality, robustness and modular design. The PBW line has been developed meeting the requirements of international standards such as IEC 60947-5-1, IEC 50102, IEC 60529 and UL 508 and can be used with WEG current pushbuttons and signaling units (CSW series).

Standard Features:

- 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 plates
- Captive screws: ensures safe and easy operations without loosing hardware
- Premium polycarbonate construction: non-flammable and UV ray protected, its oversized thickness offers high mechanical resistance
- The PWB line is very cost effective, and inventory is always readily available.

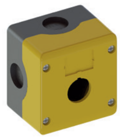
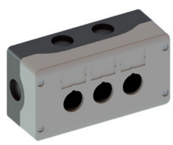
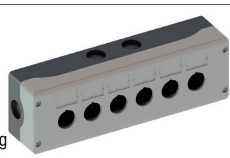
IP66 degree of protection

Exclusive ID plate holding system

UL File No. E330817

Data is subject to change without notice.

Type 4X Decentralized Control Stations [1)]

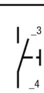
	Number of holes	Color – Cover	Color – Base	Standard packing	Catalog Number	Price	Multiplier
 0.114 kg	1	Yellow	Black	1 piece	PBW-1Y	$25	Z5
 0.114 kg		Gray			PBW-1	$25	
 0.152 kg	2				PBW-2	$30	
 0.185 kg	3				PBW-3	$34	
 0.215 kg	4				PBW-4	$41	
 0.276 kg	6				PBW-6	$59	

Emergency Pushbuttons with Decentralized Control Station

	PBW control station	Pushbuttons	Contact blocks	Plate	Catalog Number	Weight (kg)	List Price	Multiplier
	Yellow - 1 hole	Emergency stop CSW-BESG	1NO + 1NC	Red engraved "EMERGENCY STOP"	PBW1Y-G11 V03	0.212	$48.00	Z5

Accessories - Mounting in Control Stations

Contact Block[2)]

	Description	Contacts	Diagram	Standard packing	Catalog Number	Price	Multiplier
 0.015 kg[3)]	Single contact blocks to mounting in control stations or DIN rail 35 mm	1NO		1 piece	BC10B-CSW	$5.00	Z5
		1NC		1 piece	BC01B-CSW	$5.00	

Notes: 1) Compatible with all single of the CSW line pushbuttons, selector switches and pilot lights. To avoid interferences and ensure the performance when use a mushroom pushbutton beside another pushbutton, WEG recommend maintaining an empty hole between the pushbuttons. To close the hole use the ATR accessory;
2) Blocks specific for mounting in base or PBW plastic control stations or DIN rail 35mm;
3) Unitary weight.

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Circuit Protection
Disconnect Switches
Motor Protectors
Contactors
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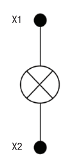
Enclosed Starters
Relays
Pushbuttons and Pilot Lights
Terminal Blocks
Power Factor Correction
Appendix A
Appendix B

Pushbuttons and Pilot Lights

Accessories for CSW (22mm)

Mounting in Control Stations

Illumination Blocks with Integrated LED[1)]

Image	Voltage	Color	Diagram	Standard packing	Catalog Number	Price	Multiplier
 0.016 kg	12 VAC/VDC 50/60Hz	White	 X1 X2	1 piece	CSW-BIDLB-0E25	$16.60	Z5
		Red			CSW-BIDLB-1E25	$16.60	
		Green			CSW-BIDLB-2E25	$16.60	
		Yellow			CSW-BIDLB-3E25	$16.60	
		Blue			CSW-BIDLB-4E25	$16.60	
	24 VAC/VDC 50/60Hz	White			CSW-BIDLB-0E26	$16.60	
		Red			CSW-BIDLB-1E26	$16.60	
		Green			CSW-BIDLB-2E26	$16.60	
		Yellow			CSW-BIDLB-3E26	$16.60	
		Blue			CSW-BIDLB-4E26	$16.60	
	48 VAC/VDC 50/60Hz	White			CSW-BIDLB-0E27	$16.60	
		Red			CSW-BIDLB-1E27	$16.60	
		Green			CSW-BIDLB-2E27	$16.60	
		Yellow			CSW-BIDLB-3E27	$16.60	
		Blue			CSW-BIDLB-4E27	$16.60	
	110-130 VAC/VDC 50/60Hz	White			CSW-BIDLB-0E10	$16.60	
		Red			CSW-BIDLB-1E10	$16.60	
		Green			CSW-BIDLB-2E10	$16.60	
		Yellow			CSW-BIDLB-3E10	$16.60	
		Blue			CSW-BIDLB-4E10	$16.60	
	220-240 VAC/VDC 50/60Hz	White			CSW-BIDLB-0D66	$16.60	
		Red			CSW-BIDLB-1D66	$16.60	
		Green			CSW-BIDLB-2D66	$16.60	
		Yellow			CSW-BIDLB-3D66	$16.60	
		Blue			CSW-BIDLB-4D66	$16.60	

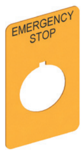
Note: 1) Blocks specific for mounting in base or PBW plastic control stations.

Mounting in Flanges or Control Stations

Plastic Legend Plates

Image	Description	Standard packing	Catalog Number	Price	Multiplier
 0.006 kg2)	Black and red legend plates 27 x 18 mm without engraving	5 pieces	AP30	$8.00	Z5
 0.006 kg2)	Translucent legend plates 27x18 mm without engraving	5 pieces	AP30T	$8.00	Z5

Emergency-Stop Plate

Image	Description	Standard packing	Catalog Number	Price	Multiplier
 0.009 kg	Legend plate for emergency pushbutton.	1 piece	APEC-02	$7.50	Z5

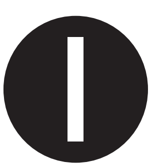
Fixing Ring Tool

Image	Description	Standard packing	Catalog Number	Price	Multiplier
 0.017 kg	Tool for the insertion/removal of the CSW pushbuttons, pilot lights and selector switches fixing ring	1 piece	CAF22	$5.60	Z5

Spare Lens for Pilot Lights

Image	Description	Color	Standard packing	Catalog Number	Price	Multiplier
 0.004 kg2	Lens to replace the pilot lights color	White	5 pieces	ALSD0	$10.50	Z5
		Red		ALSD1	$10.50	
		Green		ALSD2	$10.50	
		Yellow		ALSD3	$10.50	
		Blue		ALSD4	$10.50	

Engraved Pushbutton Caps1)

Image	Description	Function	Standard packing	Catalog Number	List Price	Multiplier
	Engraved caps for flush pushbuttons1)		5 pieces	ACB1-30	$1.50	Z5
				ACB5-31		
				ACB5-32		
				ACB5-33		
				ACB5-34		
				ACB5-35		
		RESET		ACB4-37		

Notes: *1) Other engraving options under request;*
2) Unitary weight.

Pushbuttons and Pilot Lights

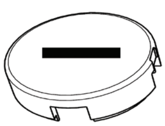
Accessories for CSW (22mm)

Common Accessories - Mounting in Flanges or Control Stations

Pushbutton Caps

Image	Description	Color	Standard packing	Catalog Number	Price	Multiplier
 0.005 kg[2]	Caps to replace the flush pushbuttons colors		5 pieces	ACB0	$.90	Z5
				ACB1	$.90	
				ACB2	$.90	
				ACB3	$.90	
				ACB4	$.90	
				ACB5	$.90	
		All six colors	6 pieces	ACB	$.90	

Engraved Illuminated Pushbutton Caps[1]

Image	Description	Color		Standard packing	Catalog Number	Price	Multiplier
	Engraved internal caps for flush illuminated and extended illuminated pushbutton[1]		Stop	5 pieces	ALBI-30	$2.00	Z5
			Start		ALBI-31		
			Rectilinear movement		ALBI-32		
			Clockwise rotation		ALBI-33		
			Counter-clockwise rotation		ALBI-34		
			Feed		ALBI-35		

Hole Plug

Image	Description	Standard packing	Catalog Number	Price	Multiplier
 0.010 kg[2]	Round plug for unused Ø22 mm holes	5 pieces	ATR	$24.50	Z5

Single Pushbutton Protection

Image	Description	Standard packing	Catalog Number	Price	Multiplier
 0.010 kg[2]	Silicon additional protective cover for flush pushbuttons (BF) and pilot lights (SD)	5 pieces	APBF	$38.50	Z5
	Silicon additional protective cover for illuminated flush pushbuttons (BFI), illuminated extended pushbuttons (BSI) and extended pushbuttons (BS)		APBI	$49.50	Z5

Double Pushbutton Protection[3]

Image	Description	Standard packing	Catalog Number	Price	Multiplier
0.010 kg[2]	Silicon protective cover for double pushbuttons CSW-BD (IP40) to ensure IP66 Degree of Protection	5 pieces	APBD	$78.00	Z5
	Silicon protective cover for double pushbuttons CSW2-BD to ensure IP66 Degree of Protection	5 pieces	AP2BD	$78.00	Z5
	Silicon protective cover for triple push-buttons CSW2-BT to ensure IP66 Degree of Protection	5 pieces	AP2BT	$78.00	Z5

Notes: 1) Other engraving options under request
2) Unitary weight
3) Not compatible with PBW Control Station.

Plastic Engraved 27 x 18 mm Legend Plates[1] for Control Stations

0.020 kg[3]

Single pushbuttons and pilot lights

Catalog Number	Engraving	Price	Multiplier
AP30-204	HAND	$1.75	Z5
AP30-205	AUTO	$1.75	
AP30-18[2]	STOP	$1.75	
AP30-11	OPEN	$1.75	
AP30-01	CLOSE	$1.75	
AP30-19	UP	$1.75	
AP30-02	DOWN	$1.75	
AP30-04	FORWARD	$1.75	
AP30-15	REVERSE	$1.75	
AP30-10	ON	$1.75	
AP30-132	OFF	$1.75	
AP30-12	POWER ON	$1.75	
AP30-14	RESET	$1.75	
AP30-17	START	$1.75	
AP30-16	RUN	$1.75	
AP30-206	FAST	$1.75	
AP30-207	SLOW	$1.75	
AP30-208	RIGHT	$1.75	
AP30-209	LEFT	$1.75	
AP30-210	INCH	$1.75	
AP30-03[2]	EMERGENCY STOP	$1.75	
AP30-05	JOG	$1.75	
AP30-06	JOG FORWARD	$1.75	
AP30-07	JOG REVERSE	$1.75	
AP30-08	LOWER	$1.75	
AP30-13	RAISE	$1.75	
AP30-147	FAULT	$1.75	
AP30-129	MANUAL	$1.75	

2-position selector switches

Catalog Number	Engraving		Price	Multiplier
AP30-21	HAND	AUTO	$1.75	Z5
AP30-27	START	STOP	$1.75	
AP30-20	FOR	REV	$1.75	
AP30-22	JOG	RUN	$1.75	

Catalog Number	Engraving		Price	Multiplier
AP30-24	OFF	ON	$1.75	Z5
AP30-25	OPEN	CLOSE	$1.75	
AP30-26	RUN	JOG	$1.75	

3-position selector switches

Catalog Number	Engraving			Price	Multiplier
AP30-30	FOR	OFF	REV	$1.75	Z5
AP30-32	MAN	OFF	AUTO	$1.75	
AP30-33	OPEN	OFF	AUTO	$1.75	
AP30-34	OPEN	OFF	CLOSE	$1.75	

Notes: 1) Other engraving options under request;
2) Red plate engraved in white;
3) Unitary weight.

Pushbuttons and Pilot Lights

CSW Series (22mm)

Technical Data

Pushbuttons, Selector Switches and Pilot 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 Type 1, 2, 3, 3R, 3S, 4, 4X, 5, 12, 12K y 13 according to UL 508
Mechanical lifespan	
Pushbuttons	3 x 10^6 operations
Pushbuttons CSW-BEG/EY/CT/CY	3 x 10^5 operations
Pushbuttons CSW2-BD/BT	2 x 10^6 operations
Emergency pushbuttons CSW-BESG/P/Y	1 x 10^5 operations
Selector switches	1 x 10^6 operations

Contact Block

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_i	690 V			
Rated impulse voltage U_{imp}	4 kV			
Degree of protection (IEC 60529)	IP20			
Conventional thermal current I_{th}	10 A			
Electrical performance according to IEC 60947-5-1				
	BC....-CSW		BCM01-CSW	
	Ue (V ac)	Ie (A)	Ue (V ac)	Ie (A)
Utilization category AC-15	24	10	24	6
	48	10	48	6
	60	10	60	6
	110	6	110	6
	220	3	220	3
	380	2	380	2
	500	1,5	500	1,5
	600	1,2	600	1,2
	Ue (V dc)	Ie (A)	Ue (V dc)	Ie (A)
Utilization category DC-13	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 (R300)		-	
Contact resistance (IEC 60255)	≤ 25m Ω			
Potection against short circuit (IEC 60269-1/IEC 60269-3)	6 A fuse / 690 V gL/gG (1 kA) 16 A Miniature Circuit Breaker (MDW-B16)		6 A fuse / 500 V gL/gG (0.5 kA) 6 A Miniature Circuit Breaker (MDW-B6)	
Electric shock protection (IEC 60536)	Class II			
Terminal capacity (wire/cable with or without terminal)	Minimum (1 x 0,5 mm²) and maximum (2 x 2,5 mm²)			
Tightening torque	0,8 N.m			
Ambient temperature allowed	-25 ºC...+70 ºC			
Mechanical shock resistance	No damage or disassembling up to 100 g (1/2 senoid 11 rms, according to MIL 202 B method 202 A)			
Vibration resistance (IEC 60068-2-6)	16 g for a frequency range of 40 to 500 Hz. Maximum displacement 0.75 mm (peak to peak)			

Technical Data

Illumination Blocks with Integrated LED

Applicable standards	IEC 60947-5-1, UL 508
Operation voltage range	0,85...1,10 x U_e
Degree of protection (IEC 60529)	IP20
Energy consumption (V ac/dc)	10 mA
Rated impulse voltage U_i (IEC 60947-1)	2,5 kV
Ambient temperature allowed	- 25 ºC...+70 ºC
Average lifespan	100,000 hours
Brightness	Red 70 mcd
	Yellow 115 mcd
	White 275 mcd
	Blue 64 mcd
	Green 150 mcd
Terminal capacity (wire/cable with or without terminal)	Minimum (1 x 0,5 mm^2) and maximum (2 x 2,5 mm^2)
Tightening torque	0,8 N.m

Special Blocks (Illumination, Sockets, Voltage Reduction)

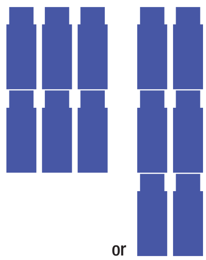
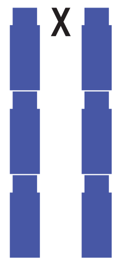
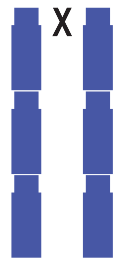
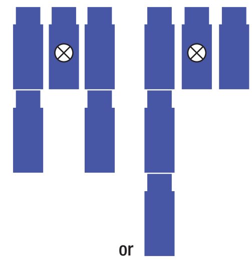
Applicable standards	IEC 60947-5-1, UL 508
Degree of protection (IEC 60529)	IP20
Rated impulse voltage U_i (IEC 60947-1)	4 kV
Ambient temperature allowed	- 25 ºC...+70 ºC
Terminal capacity (wire/cable with or without terminal)	Minimum (1 x 0,5 mm^2) y maximum (2 x 2,5 mm^2)
Tightening torque	0,8 N.m

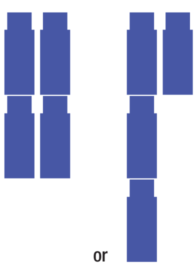
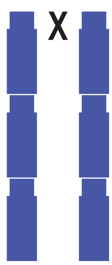
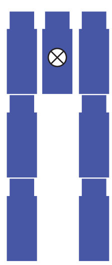
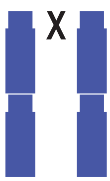
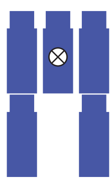
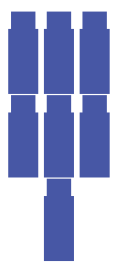
Decentralized Control Stations

Applicable standards	IEC 60947-5-1, IEC 50102, IEC 60529, UL 508, UL 50
Certifications	CE
Degree of protection (IEC 60529)	IP66 (NEMA 4X)
Ambient temperature allowed	-25 ºC...+70 ºC
Material	Polycarbonate (cover and base)
Cover color	Gray (RAL 7035) or Yellow (RAL 1003)
Base color	Black (RAL 9005)
Cable entry holes	ØM20 / PG13,5 / 1/2” and ØM16 / 3/8”
Use in ambient	External (UV rays) or internal

Assembly Configurations

Maximum Recommended Configuration of Contact Blocks for Each type of Head and Flange

Type of head	Pushbuttons	Pushbuttons	Selectors	Illuminated selectors
Reference	CSW-BF, CSW-BGA	CSW-BC, CSW-BS	CSW-CK, CSW-CA, CSW-CY	CSW-CKI
Maximum number of contact blocks	Max 6	Max 6	Max 6	Max 4
AF3F flange (3 positions)	 or	X 	X 	 or

Emergency pushbutton	Pushbutton	Illuminated pushbutton	Double pushbutton	Illuminated double pushbutton	Triple pushbutton
CSW-BESG, CSW-BESP, CSW-BESY	CSW-BEG, CSW-BEY, CSW-BCT, CSW-BCY	CSW-BCI, CSW-BD, CSW-BFI, CSW-BSI	CSW2-BDF, CSW2-BDS	CSW2-BDFI, CSW2-BDSI	CSW2-BTF, CSW2-BTS
Max 4	Max 6	Max 6	Max 4	Max 4	Max 7
 or	X 		X 		

Contact Block BC10F-CSW
Contact Block BC01F-CSW

Illumination Block BIDLF

X *Position not allowed*

General Information
Circuit Protection
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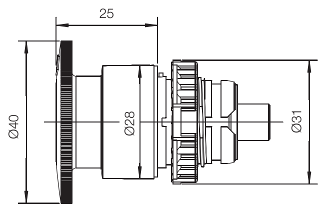
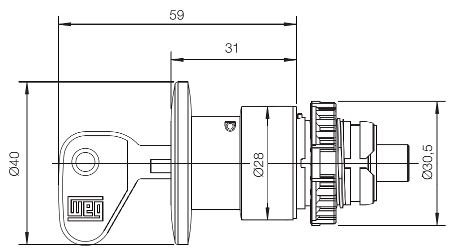
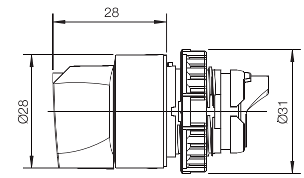
Dimensions (mm)



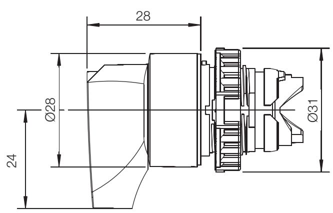
BEG
BCT



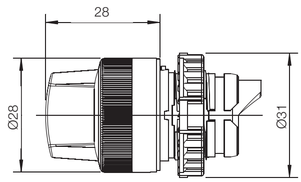
BEY
BCY



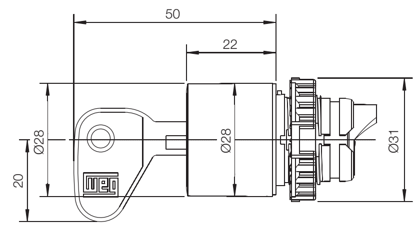
CK



CA



CKI



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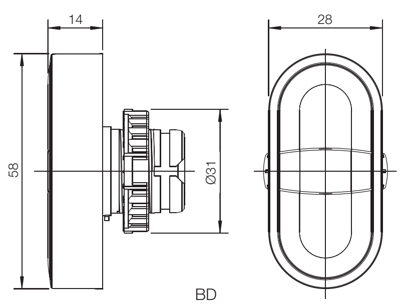
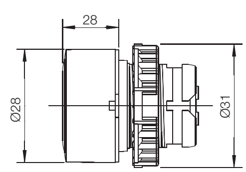
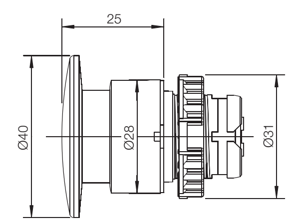


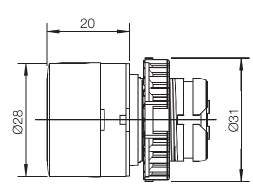
BD



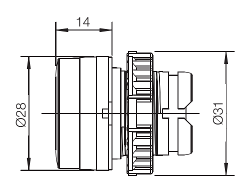
BF



BC
BCI



BFI
BGA

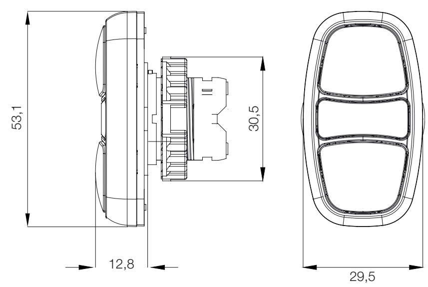


SD

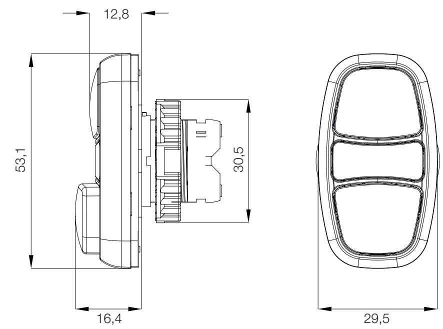
Pushbuttons and Pilot Lights

CSW Series (22mm)

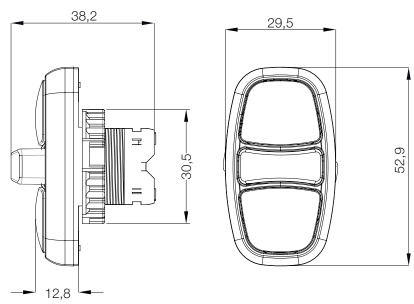
Dimensions (mm)



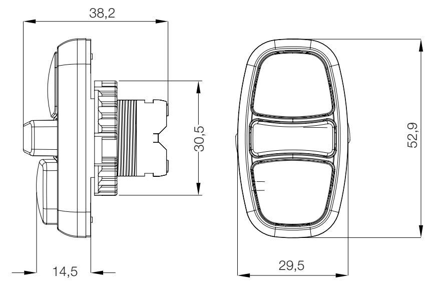
CSW2-BDF



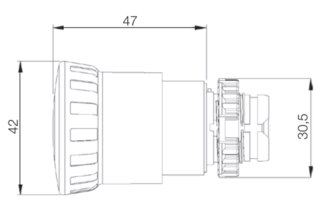
CSW2-BDS



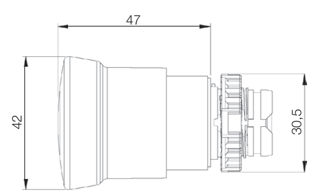
CSW2-BTF



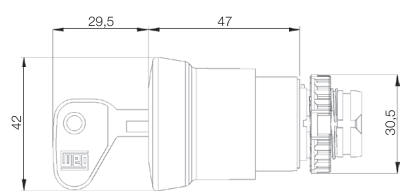
CSW2-BTS



BESG

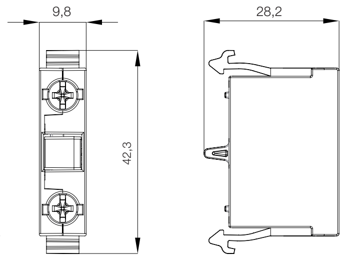


BESP

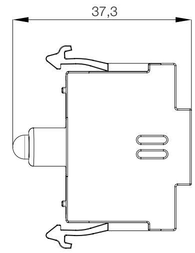


BESY

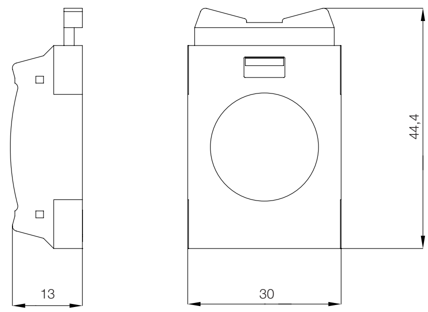
Dimensions (mm)



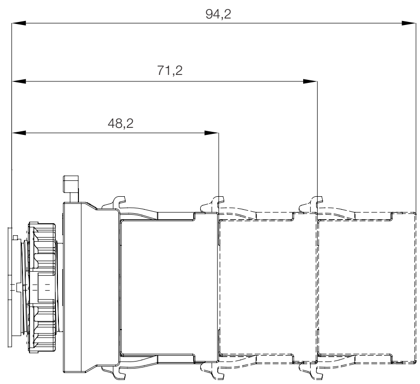
BC10F/BC01F



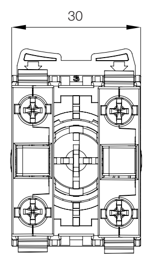
BIDLF-**CSW



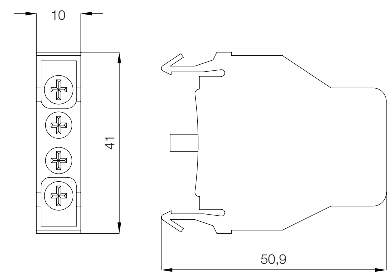
AF3F



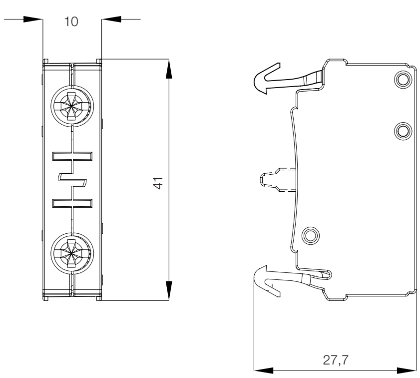
AF3F + 1..3x Contact Block BC_F



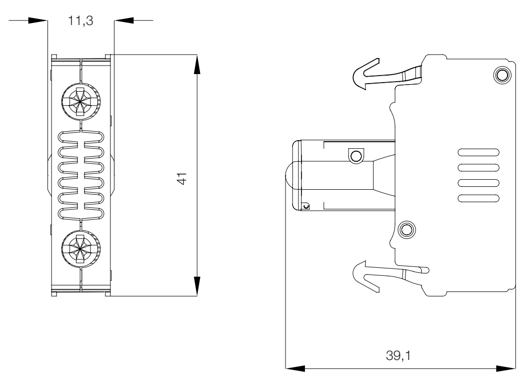
AF3F + Contact Block



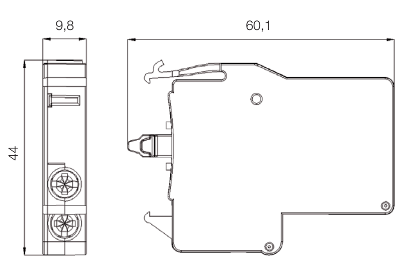
BC11/BC20/BC02



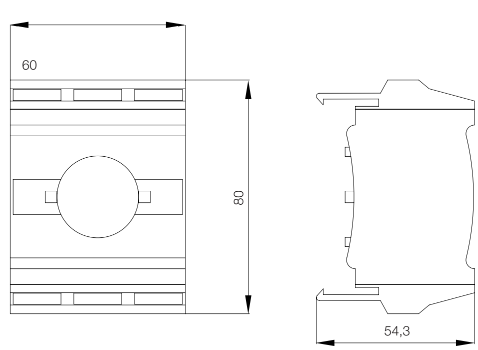
BC10/BC01/BCA10/BCR01



BIDL



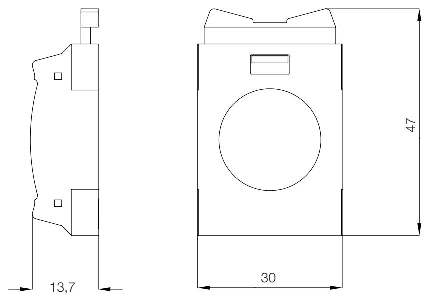
BCM01



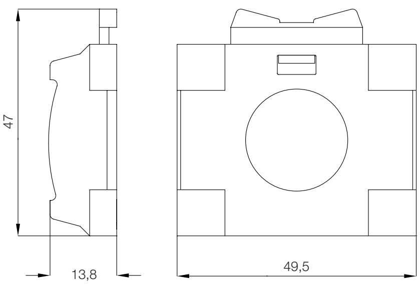
BR-3P

CSW Series (22mm)

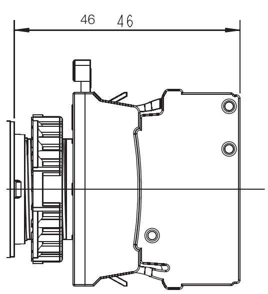
Dimensions (mm)



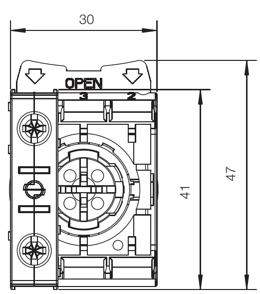
AF3



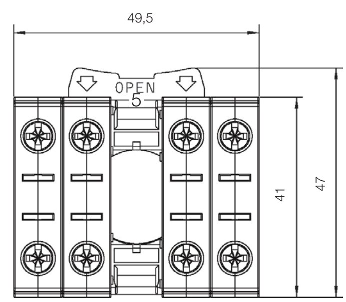
AF5



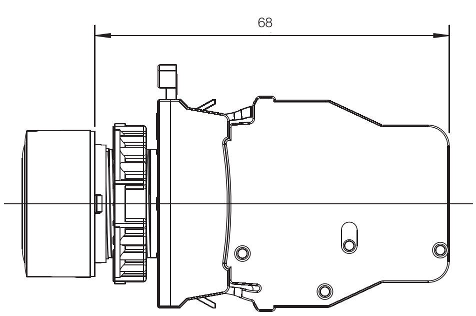
AF5 + BC01/10
BCA10
BCR01



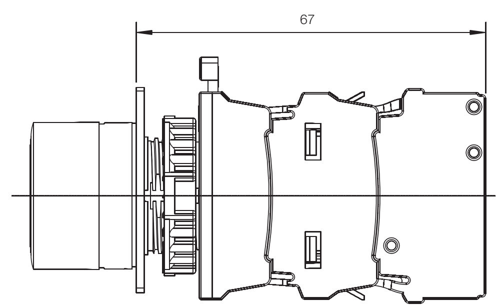
AF3 + BC01/10
BCA10
BCR01



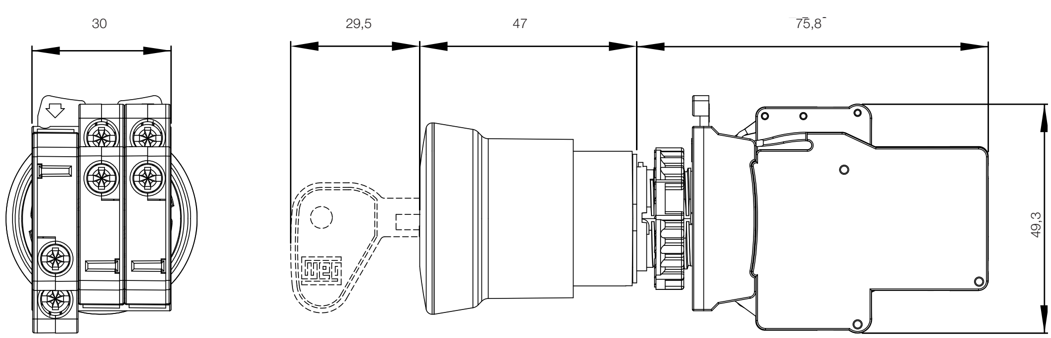
BF + AF5 + BC01/10
BCA10
BCR01



AF3/5 + BC11/20/02



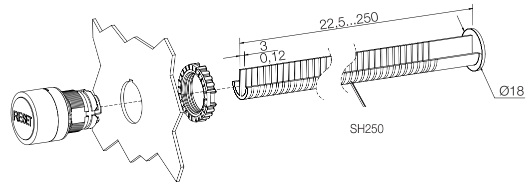
AF3 + BR-3P + BIDL



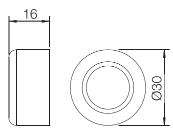
BES + BCM01-CSW

General Information
Circuit Protection
Disconnect Switches
Motor Protectors
Co
nclosed Starters
Relays
Pushbuttons and Pilot Lights
Terminal Blocks
Power Factor Correction
Appendix A
Appendix B

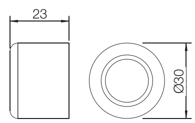
Dimensions (mm)



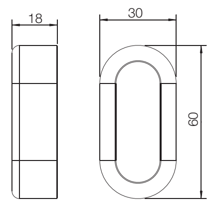
CSW-BHF437



APBF



APBI



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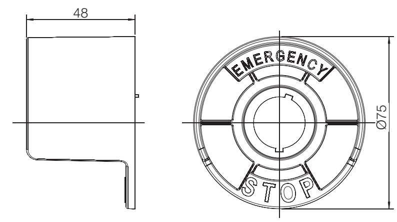
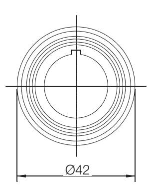
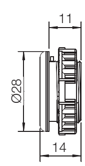


APEG

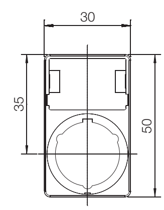


AR30

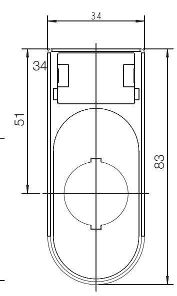
APE



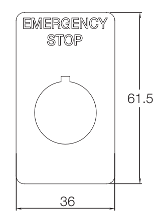
ATR



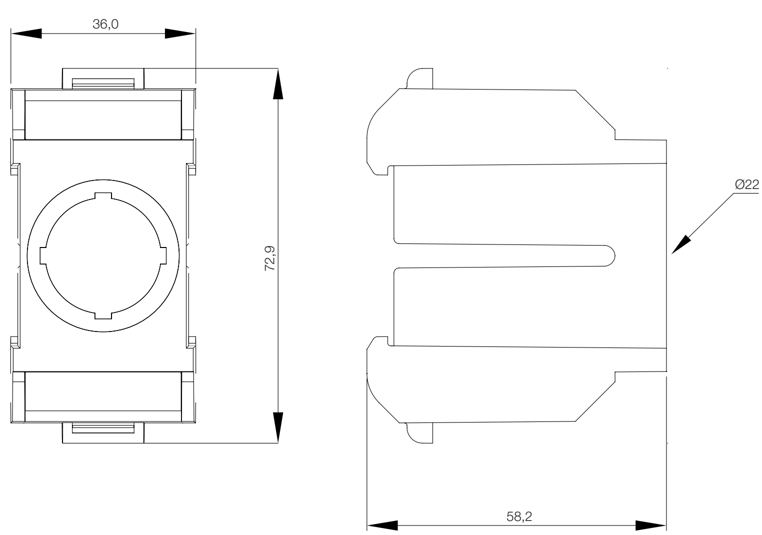
APP30



APP60



APEC



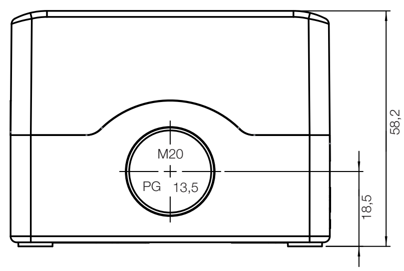
DRCSWA

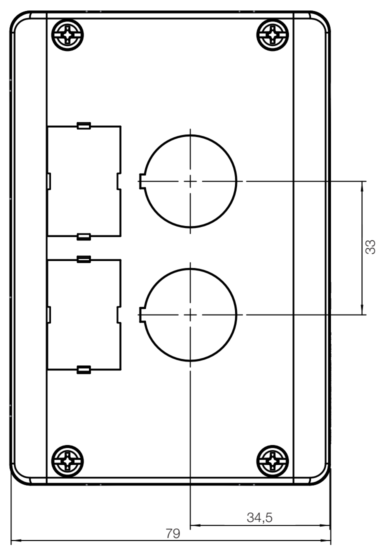
Pushbuttons and Pilot Lights

CSW Series (22mm)

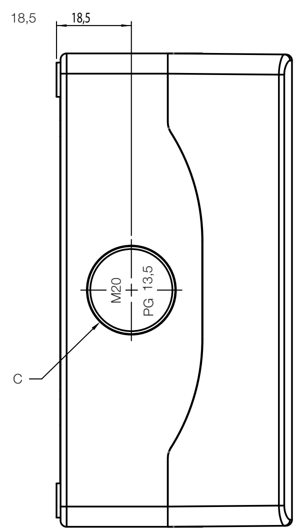
Dimensions (mm)

Bottom/Top

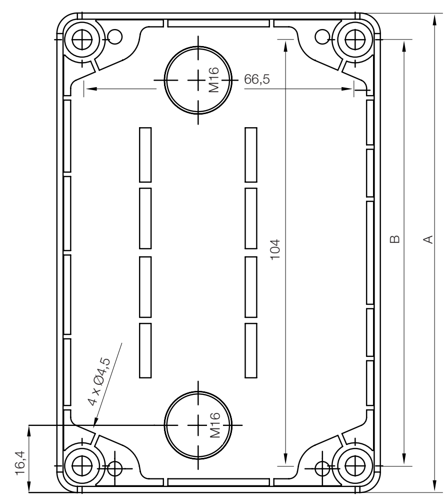




Side



Base

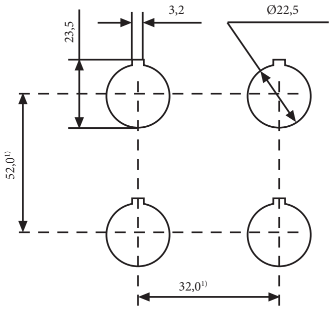


PBW decentralized control station

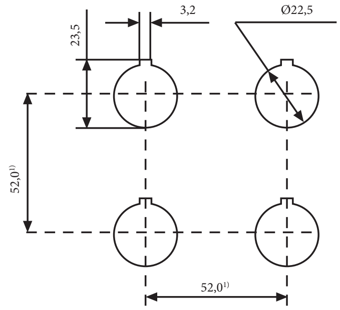
<table>
<tr><th rowspan="3">Number of holes</th><th rowspan="3">A</th><th rowspan="3">B</th><th colspan="12">Cable entry holes</th></tr>
<tr><th colspan="3">Bottom</th><th colspan="3">Top</th><th colspan="3">Side</th><th colspan="3">Base</th></tr>
<tr><th colspan="2">Size</th><th>Cable gland thread length</th><th colspan="2">Size</th><th>Cable gland thread length</th><th colspan="2">Size</th><th>Cable gland thread length</th><th colspan="2">Size</th><th>Cable gland thread length</th></tr>
<tr><td>1</td><td>74</td><td>66,7</td><td rowspan="5">1 x</td><td rowspan="5">ØM20
ØPG13,5
Ø½ NPT</td><td rowspan="5">9 to 16 mm</td><td rowspan="5">1 x</td><td rowspan="5">ØM20
ØPG13,5
Ø½NPT</td><td rowspan="5">9 to 16 mm</td><td rowspan="5">1 x
2 x</td><td rowspan="5">ØM20
ØPG13,5
Ø½NPT</td><td rowspan="5">9 to 16 mm</td><td rowspan="5">2 x</td><td rowspan="5">ØM16
ØPG9</td><td rowspan="5">7 to 10 mm</td></tr>
<tr><td>2</td><td>104</td><td>117</td></tr>
<tr><td>3</td><td>137</td><td>150</td></tr>
<tr><td>4</td><td>170</td><td>183</td></tr>
<tr><td>6</td><td>236</td><td>249</td></tr>
</table>

Installation Distances (mm)

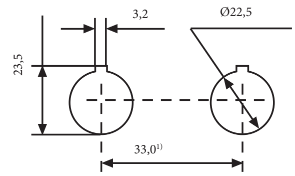
AF3/AF3F Flange



AF5 Flange



PBW Control Stations



Note: 1) Minimum distance to use Pushbuttons (Flush/Extended/Guarded) or Selectors (Knob). To use others Pushbuttons or Selectors is necessary to evaluate the head dimensions.

General Information
Circuit Protection
Disconnect Switches
Motor Protectors
Contactors
Overloads
Enclosed Starters
Relays
Pushbuttons and Pilot Lights
Terminal Blocks
Power Factor Correction
Appendix A
Appendix B

Pushbutton and Pilot Light - CSW30 Series (30mm)

The WEG 30mm pushbuttons, selector switches, and indicators have been designed to offer the ruggedness required for severe industrial applications and environments. These modular devices offer superior quality at an affordable price.

Our hazardous duty series CSW30H also offers a wide selection of operators and pilot devices for hazardous duty applications (Class 1, Division, 2 and Zone 2). This series offers a wide selection of hermetically sealed reed and factory sealed contact blocks for superior corrosion resistance.

UL File No. E330817

Standard Features

- NEMA 4, IP65 Rated;
- Fits 1-13/64 (30.5mm) hole without notch required
- Contact blocks snap-in (fast & easy assembly)
- Up to 8 contact blocks for non-illuminated operators and up to 4 contact blocks for illuminated operators
- LED lamps with built-in leakage protection
- Same simple part numbering system as 22mm series

Pushbuttons

Types
BF - Flush
BS - Extended
BC - Mushroom
BGA - Recessed
BGAI - Illuminated Recessed
BSI - Illuminated Extended
BCI - Illuminated Mushroom

MULTIPLIER FOR CSW-30 SERIES - Z55

CSW30-__ __ __

Voltage (see Voltage Code) **For illuminated only**
Color (see Color Code)

NON-ILLUMINATED FLUSH

CSW30 - __

- BF0
- BF1
- BF2
- BF3
- BF4
- BF5

LIST PRICE $26

NON-ILLUMINATED (Extended)

CSW30 - __

- BS0
- BS1
- BS2
- BS3
- BS4
- BS5

LIST PRICE $26

MUSHROOM (40mm HEAD)

CSW30 - __

- BC1
- BC2
- BC5

LIST PRICE $37

NON-ILLUMINATED RECESSED

CSW30 - __

- BGA0
- BGA1
- BGA2
- BGA3
- BGA4
- BGA5

LIST PRICE $32

* Illuminated operators are supplied with LED block. To complete selection, replace "*" with desired voltage: E26 (24Vac/Vdc), D61 (120Vac/Vdc) or D66 (240Vac/Vdc).

ILLUMINATED EXTENDED

CSW30 - __ *

- BSI0
- BSI1
- BSI2
- BSI3
- BSI4

LIST PRICE $93

ILLUMINATED MUSHROOM (40mm HEAD)

CSW30 - __ *

- BCI0
- BCI1
- BCI2
- BCI3
- BCI4

LIST PRICE $100

ILLUMINATED RECESSED

CSW30 - __ *

- BGAI0
- BGAI1
- BGAI2
- BGAI3
- BGAI4

LIST PRICE $100

Emergency-Stop Pushbuttons

Types

G - Twist release

CSW-__

E-STOP - TWIST RELEASE

- CSW30-BEG
- CSW30-BEG2

LIST PRICE $81

E-STOP - PUSH PULL

- CSW30-BEP
- CSW-30-BEP2

LIST PRICE $75

Note: Contact blocks ordered separately. See page 313.

Pilot Lights

CSW30- __ __

Voltage (see Voltage Code)
Color (see Color Code)

PILOT LIGHTS

CSW30 - __ *

- SD0
- SD1
- SD2
- SD3
- SD4

LIST PRICE $89

Code Chart

Color	Clear/White	Red	Green	Yellow	Blue	Black
Code	0	1	2	3	4	5
Symbol	○	●	●	●	●	●

LED Block Voltage	
E26	24Vac/Vdc
D61	120Vac/Vdc
D66	240Vac/Vdc

CSW Series (30mm)

Selector Switches

CSW30- __ __ __ __

Types
CK - Knob
CA - Lever
CY - Key

No. of Positions
2 - Two positions
3 - Three positions
4 - Four positions

Angle
45 - 45°
90 - 90°

Handle
F - Maintained
R - Spring return
RE - Spring return from left
RD - Spring return from right

KNOB	LEVER	with KEY[1]	POSITION	DIAGRAM
2)  LIST PRICE Maintained $39 Spring Return $57	2)  LIST PRICE Maintained $39 Spring Return $57	2)  LIST PRICE Maintained $110 Spring Return $128		
CSW30-CK2F90	CSW30-CA2F90	CSW30-CY2F90	II	1
CSW30-CK2R90	CSW30-CA2R90	CSW30-CY2R90	II	1
CSW30-CK3F45	CSW30-CA3F45	CSW30-CY3F45	0 II	2
CSW30-CK3R45	CSW30-CA3R45	CSW30-CY3R45	0 II	2
CSW30-CK3RE45	CSW30-CA3RE45	CSW30-CY3RE45	0 II	2
CSW30-CK3RD45	CSW30-CA3RD45	CSW30-CY3RD45	0 II	2
CSW30-CK4F18	CSW30-CA4F18	CSW30-CY4F18	II III I IV	3

1) Key is released on any position. Consult WEG for other configuration.
2) Contact blocks ordered seperately

DIAGRAM 1

HANDLE POSITION		Auxiliary Contact	Mouting Position
I	II		
0	X	NO	Either
X	0	NC	Either
0	X	early make	Either
X	0	late break	Either

X = CLOSED
O = OPEN

DIAGRAM 2

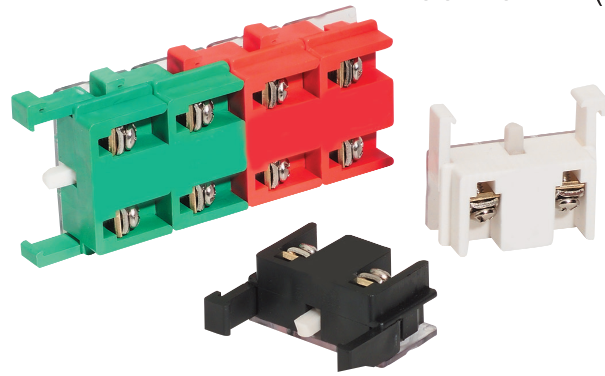
HANDLE POSITION			Auxiliary Contact	Mouting Position
I	0	II		
X	0	0	NO	Left
0	0	X	NO	Right
0	X	0	NC	Either
X	0	X	early make	Either
0	X	X	late break	Left
X	X	0	late break	Right

DIAGRAM 3

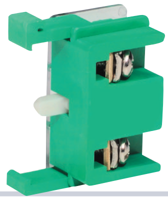
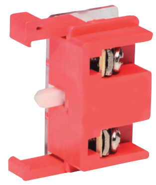
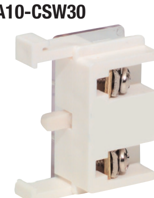
HANDLE POSITION				Auxiliary Contact	Mouting Position
I	II	III	IV		
X	0	0	0	NO	Left
0	0	0	X	NO	Right
0	0	X	0	NC	Left
0	X	0	0	NC	Right
X	X	0	X	early make	Left
X	0	X	X	early make	Right
0	X	X	X	late break	Left
X	X	X	0	late break	Right

Auxiliary Contacts

Our standard contact blocks are color coded for easy circuit identification to minimize wiring errors. WEG's contact blocks are stackable up to 4 deep (for a total of up to 8 circuits per operator) without the need of any additional accessory. Combining different contact blocks types enable several functions to be achieved.



CONTACT BLOCKS

Normally Open	Normally Closed	Early Make	Late Break
BC10-CSW30	BC01-CSW30	BCA10-CSW30	BCR01-CSW30
LIST PRICE $13	LIST PRICE $13	LIST PRICE $17	LIST PRICE $17
			

Accessories

CLAMP RING WRENCH

CPAW30

LIST PRICE
$30

Simplifies the tighening or loosening of polyester and aluminum 1-3/8" clamp rings.

30MM HOLE PLUG

ATR30

LIST PRICE
$25

NEMA 4X rated plug to seal up unwanted panel holes.

THRUST AND TRIM WASHER

CSW30-TTW

LIST PRICE
$4

Anti-rotation ring

GUARD & LOCK-OFF ATTACHMENT

Reference	WEG P/N	Description	List
1	CSW30-GAPB	30MM GUARD ATTACHMENT FOR MAINTAINED PUSH BUTTONS	$40
2	CSW30-L01	30MM LOCK OFF ATTACHMENT FOR STANDARD EXTENDED CAP	$32
2	CSW30-L02	30MM LOCK OFF ATTACHMENT FOR STANDARD MOMENTARY MUSHROOM CAP	$32
2	CSW30-L03	30MM LOCK OFF ATTACHMENT FOR PUSH-PULL MTD MUSHROOM CAP OR PUSH MTD EXTENDED CAP	$32
3	CSW30-L04	30MM LOCK OFF ATTACHMENT FOR MOST PUSH BUTTONS AND SELECTOR SWITCHES	$50

EMERGENCY PLATE

APE30-03

LIST PRICE
$8.30

PANEL GASKETS

CSW30-PG2 (1/16')
CSW30-PG6 (3/16')

LIST PRICE
$10

Pushbuttons and Pilot Lights

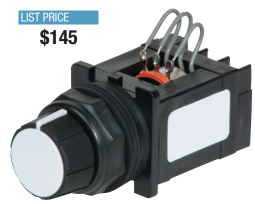
CSW Series (30mm)

Special Operators

POTENTIOMETER

CSW30-POT_W

LIST PRICE
$145



Resistance

CSW30-POT __ W

1	-	1kΩ	**10**	-	10kΩ
2	-	2kΩ	**50**	-	50kΩ
5	-	5kΩ			

RESET

CSW30-RSBW

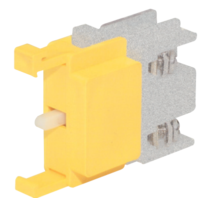
LIST PRICE
$22

Note: Plunger included as standard.

PUSH ON / PUSH OFF BLOCK

BR3P-CSW30

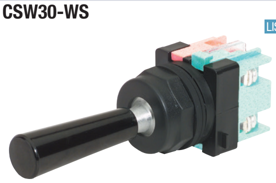
LIST PRICE
$37



WOBBLE STICK

CSW30-WS

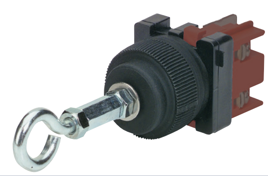
LIST PRICE
$65



BOOTED CABLE PULL

CSW30-CPBT

LIST PRICE
$130



LED Bulbs

Catalog Number	Description	List Price
CSW30-BIDL3E26	Yellow 24vac/24vdc	$28
CSW30-BIDL4E26	Blue 24vac/24vdc	$28
CSW30-BIDL2E26	Green 24vac/24vdc	$28
CSW30-BIDL1E26	Red 24vac/24vdc	$28
CSW30-BIDL0E26	White 24vac/24vdc	$28
CSW30-BIDL3D61	Yellow 120vac/120vdc	$28
CSW30-BIDL4D61	Blue 120vac/120vdc	$28
CSW30-BIDL2D61	Green 120vac/120vdc	$28
CSW30-BIDL1D61	Red 120vac/120vdc	$28
CSW30-BIDL0D61	White 120vac/120vdc	$28

Replacement LED bulbs for 240Vac/Vdc illuminated operators are the "E26" (24Vac/Vdc) bulbs. Please refer to the correct color when ordering.

Data is subject to change without notice.

Engraved Legend Plates

Catalog Number	Marking	Description	List Price Package with 1 unit
		For Pushbuttons & Indicating Lights	
APP30S-01	Close	30mm Legend Plate & Holder - Close	$6
APP30S-02	Down	30mm Legend Plate & Holder - Down	$6
APP30S-03	Emergency Stop	30mm Legend Plate & Holder - Emergency Stop	$6
APP30S-04	Forward	30mm Legend Plate & Holder - Forward	$6
APP30S-05	Jog	30mm Legend Plate & Holder - Jog	$6
APP30S-06	Jog Forward	30mm Legend Plate & Holder - Jog Forward	$6
APP30S-07	Jog Reverse	30mm Legend Plate & Holder - Jog Reverse	$6
APP30S-08	Lower	30mm Legend Plate & Holder - Lower	$6
APP30S-09	Off	30mm Legend Plate & Holder - Off	$6
APP30S-10	On	30mm Legend Plate & Holder - On	$6
APP30S-11	Open	30mm Legend Plate & Holder - Open	$6
APP30S-12	Power On	30mm Legend Plate & Holder - Power On	$6
APP30S-13	Raise	30mm Legend Plate & Holder - Raise	$6
APP30S-14	Reset	30mm Legend Plate & Holder - Reset	$6
APP30S-15	Reverse	30mm Legend Plate & Holder - Reverse	$6
APP30S-16	Run	30mm Legend Plate & Holder - Run	$6
APP30S-17	Start	30mm Legend Plate & Holder - Start	$6
APP30S-18	Stop	30mm Legend Plate & Holder - Stop	$6
APP30S-19	Up	30mm Legend Plate & Holder - Up	$6
APP30S-147	Fault	30mm Legend Plate & Holder - Fault	$6
APP30S-100	Auto	30mm Legend Plate & Holder - Auto	$6
APP30S-101	Fast	30mm Legend Plate & Holder - Fast	$6
APP30S-102	Hand	30mm Legend Plate & Holder - Hand	$6
APP30S-103	Low	30mm Legend Plate & Holder - Low	$6
APP30S-104	Manual	30mm Legend Plate & Holder - Manual	$6
APP30S-105	Out	30mm Legend Plate & Holder - Out	$6
APP30S-106	Overload	30mm Legend Plate & Holder - Overload	$6
APP30S-107	Push-to-Reset	30mm Legend Plate & Holder - Push-to-Reset	$6
APP30S-108	Slow	30mm Legend Plate & Holder - Slow	$6
APP30S-109	Trip	30mm Legend Plate & Holder - Trip	$6
APP30S-148	Motor Run	30mm Legend Plate & Holder - Motor Run	$6
APP30S-149	Power Off	30mm Legend Plate & Holder - Power Off	$6
APP30S-150	Push-to-Test	30mm Legend Plate & Holder - Push-to-Test	$6
APP30S-151	Test	30mm Legend Plate & Holder - Test	$6
		For two-position Selector Switch	
APP30S-20	Forward -Reverse	30mm Legend Plate & Holder - Forward Reverse	$6
APP30S-21	Hand - Auto	30mm Legend Plate & Holder - Hand Auto	$6
APP30S-22	Jog - Run	30mm Legend Plate & Holder - Jog Run	$6
APP30S-23	Manual - Auto	30mm Legend Plate & Holder - Manual Auto	$6
APP30S-24	Off - On	30mm Legend Plate & Holder - Off On	$6
APP30S-25	Open - Close	30mm Legend Plate & Holder - Open Close	$6
APP30S-26	Run - Jog	30mm Legend Plate & Holder - Run Jog	$6
APP30S-27	Start - Stop	30mm Legend Plate & Holder - Start Stop	$6
APP30S-28	Up - Down	30mm Legend Plate & Holder - Up Down	$6
APP30S-153	Down - Up	30mm Legend Plate & Holder - Down Up	$6
APP30S-154	Local - Remote	30mm Legend Plate & Holder - Local Remote	$6
APP30S-156	Reverse - Forward	30mm Legend Plate & Holder - Reverse Forward	$6
APP30S-157	Stop - Start	30mm Legend Plate & Holder - Stop Start	$6
APP30S-110	Auto - Hand	30mm Legend Plate & Holder - Auto Hand	$6

Pushbuttons and Pilot Lights

CSW Series (30mm)

Engraved Legend Plates

Catalog Number	Marking	Description	List Price Package with 1 unit
		For two-position Selector Switch	
APP30S-111	Auto -Manual	30mm Legend Plate & Holder - Auto Manual	$6
APP30S-112	Fast - Slow	30mm Legend Plate & Holder - Fast Slow	$6
APP30S-113	High - Low	30mm Legend Plate & Holder - High Low	$6
APP30S-114	Inch - Run	30mm Legend Plate & Holder - Inch Run	$6
APP30S-115	Left - Right	30mm Legend Plate & Holder - Left Right	$6
APP30S-116	On - Off	30mm Legend Plate & Holder - On Off	$6
APP30S-119	Raise - Lower	30mm Legend Plate & Holder - Raise Lower	$6
APP30S-120	Slow - Fast	30mm Legend Plate & Holder - Slow Fast	$6
APP30S-121	Summer - Winter	30mm Legend Plate & Holder - Summer Winter	$6
		For three-position Selector Switch	
APP30S-29	Auto - Off - Hand	30mm Legend Plate & Holder - Auto Off Hand	$6
APP30S-30	Forward - Off - Reverse	30mm Legend Plate & Holder - For Off Rev	$6
APP30S-31	Hand - Off - Auto	30mm Legend Plate & Holder - Hand Off Aut	$6
APP30S-32	Manual - Off - Auto	30mm Legend Plate & Holder - Man Off Auto	$6
APP30S-33	Open - Off - Auto	30mm Legend Plate & Holder - Open Off Auto	$6
APP30S-34	Open - Off - Close	30mm Legend Plate & Holder - Open Off Close	$6
APP30S-35	Up - Off - Down	30mm Legend Plate & Holder - Up Off Down	$6
APP30S-198	Low - Med - High	30mm Legend Plate & Holder - Low Med High	$6
APP30S-199	Low - Off - High	30mm Legend Plate & Holder - Low Off High	$6
APP30S-158	Down - Off - Up	30mm Legend Plate & Holder - Down Off Up	$6
APP30S-159	Jog - Off - Auto	30mm Legend Plate & Holder - Jog Off Auto	$6
APP30S-160	Raise - Off - Lower	30mm Legend Plate & Holder - Raise Off Lower	$6
APP30S-161	Local - Off - Remote	30mm Legend Plate & Holder - Local Off Remote	$6
APP30S-162	Forward - Auto - Rev	30mm Legend Plate & Holder - Fwd Auto Rev	$6
APP30S-122	Auto - Manual - Off	30mm Legend Plate & Holder - Auto Manual Off	$6
APP30S-123	High - Off - Low	30mm Legend Plate & Holder - High Off Low	$6
APP30S-124	Off - Run - Start	30mm Legend Plate & Holder - Off Run Start	$6
APP30S-125	Off - Start - Run	30mm Legend Plate & Holder - Off Start Run	$6
APP30S-126	Off - 1 - 2	30mm Legend Plate & Holder - Off 1 2	$6
APP30S-127	Slow - Off - Fast	30mm Legend Plate & Holder - Slow Off Fast	$6
APP30S-128	Summer - Off -Winter	30mm Legend Plate & Holder - Summer Off Winter	$6
APP30S-129	1 - Off - 2	30mm Legend Plate & Holder - 1 Off 2	$6
APP30S-130	1 - 2 - 3	30mm Legend Plate & Holder - 1 2 3	$6
		For Push/Pull units	
APP30S-36	On - Off	30mm Legend Plate & Holder - On / Off	$6
APP30S-37	Open - Close	30mm Legend Plate & Holder - Open / Close	$6
APP30S-38	Up - Down	30mm Legend Plate & Holder - Up / Down	$6
APP30S-152	Pull Start - Push Stop	30mm Legend Plate & Holder - Pull Start / Push Stop	$6
APP30S-155	Push to Stop - Pull to Start	30mm Legend Plate & Holder - Push to Stop / Pull to Start	$6
APP30S-117	Push Off - Pull On	30mm Legend Plate & Holder - Push Off / Pull On	$6
APP30S-118	Push On - Push Off	30mm Legend Plate & Holder - Push On / Push Off	$6
		For Potentiometers	
APP30S-P00	0 - 100	30mm Legend Plate & Holder - (Blank 0 - 100)	$6
APP30S-P01	0 - 10	30mm Legend Plate & Holder - (Blank 1 - 10)	$6
APP30S-P02	Speed 0 - 10	30mm Legend Plate & Holder - (Speed 1 - 10)	$6
APP30S-P03	Speed 0 - 100	30mm Legend Plate & Holder - (Speed 1 - 100)	$6

Technical Data

ELECTRICAL RATINGS - 30MM INDUSTRIAL PILOT DEVICES

Lamp	Industry Number	Rated Volts	Lumens (MSCD)	Design Life (Hrs.)	Current Draw (mA)	Lamp Type	Shock & Vibration	Leakage Protection
BIDL6	**	6V	Varies w/ Color	100,000	50	LED	Excellent	14 mA
BIDL12	**	12V	Varies w/ Color	100,000	<20	LED	Excellent	4 mA
BIDL24	**	24V	2000 mcd	100,000	<20	LED	Excellent	4 mA
BIDL130	**	120/130V	Typical	100,000	<10	LED	Excellent	2 mA
**Specify lamp color when ordering.*								
Dielectric Strength (Terminal to Ground) 2200V for 1 Minute								
Standard Contacts			**Utilization Category**					
			IEC	UL	Make Rating	Break Rating	Ith-Thermal Current	
		AC	AC-15	A600	7200VA	720VA	10A	
		DC	DC-13	P300	138VA	138VA	5A	

Note: For AC voltage below 72V AC the max. allowed switching current is 10A = Ith. For DC voltages below 28V DC the max. allowed switching current is 5A =Ith.
For switching applications below 24V/40mA - Hermetic REED contacts are recommended. Hermetic Reeds are also excellent in environments containing chemical vapors, oxidizing agents, and explosive gases. Please refer to the HAZARDOUS section of the 30mm devices for more information.

Environmental Ratings
Operating Temperature -40 to +131° F (-40 to +55° C)
Storage Temperature -40 to +185° F (-40 to +85° C)
Operating environments below freezing temperatures are assumed to be absent of freezing liquids or pollutants.

Terminal & Wiring Consideration
Wire - AWG 22-12 CU (Copper Only - Solid & Stranded [.5~4 mm²] One or Two wires permitted per termination
Recommended Tightening Torque 7 lb-in (+3.0/-0.0 lb-in – [.8 Nm]

Mechanical Design Life Cycles	
Push Buttons	
Momentary	5,000,000
Maintained	250,000
Selector Switches	500,000
All Other Devices	250,000
Standard Contact Blocks	10,000,000
Indicating Lights - Refer to the appropriate Lamp Data	

Materials
Thermoplastic Polyester and Polyester Blends (UV Stabilized for outdoor use)
Operator Housings
Operator Caps and Handles - Non-illuminated (Glass Reinforced Grades)
Mounting Rings and Nuts
Thrust Washer
Trim Washer
High Impact Polycarbonate (UV Stabilized for outdoor use)
Pilot Light Lens
Transparent Pushbutton and Mushroom Caps
Custom Polymers
Certain CAM and Bearing parts are Teflon, Silicone, & Moly-Disulfide Impregnated for improved wearability
Fluorosilicone and Thermoplastic Neoprene Boot Accessories
Seals
Neoprene Gaskets
Thermoplastic - Molded Neoprene and alloy derivities
BUNA N - Rubber - Teflon Coated
Thermoplastic - Elastomer Molded Seals
Fluorosilicone - Boots
Metal: Brass & Stainless Steel
Push Pull Bushings
Internal tubes for Maintained Devices
Detents for Maintained Devices
Springs (Stainless Steel throughout)
Aluminum
Optional Mounting Nut

Materials	
Pushbuttons (Operator Only)	
Momentary	1.3 lbs. [5.8N]
Illuminated Momentary	2.8 lbs. [12.4N]
Maintained	4 to 6 lbs [17.9~26.7 N]
Illuminated Maintained	4.6 lbs. [20.5 N]
Reset Push Button	1.5 lbs. [6.7 N]
Selector Switches	
Maintained	1.7 in-lbs [.19 Nm]
Momentary	1.7 in-lbs [.19 Nm]
Key Operated	1.7 in-lbs [.19 Nm]
Cable Pull	
Standard	4 to 6 lbs [17.9~26.7 N]
Heavy Duty	13 lbs. [57.8 N]
Push-Twist Release	4.7 lbs [20.9 N]
Potentiometer	
2 Watt "J" Series	3-12 in-oz [.11 Nm Max.] (300° Rotation)
Standard Contact Blocks	1 lb. [4.45 N]
Indicating Lights	Refer to the appropriate Lamp Data
Multi-Voltage Light	20-140 VAC/VDC (Burden .65W max.)
Transformer	2 VA

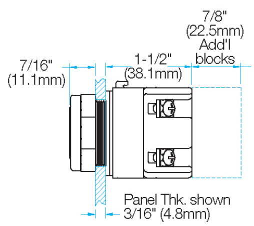
Pushbuttons and Pilot Lights

CSW Series (30mm)

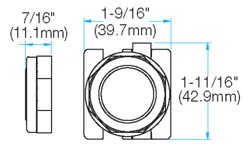
Momentary & Maintained Non-Illuminated Push Buttons

Fully-assembled operators come standard with one 3/16" (4.8mm) and three 1/16" (1.6mm) gaskets.

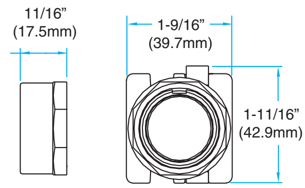
Non-Illuminated Operator (shown with Flush Cap)



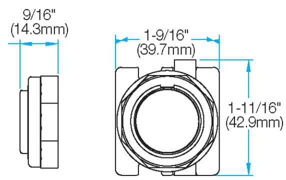
Momentary Flush Cap



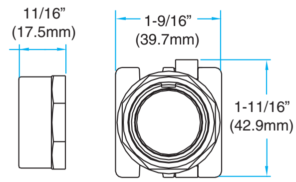
Momentary Guarded Flush Cap



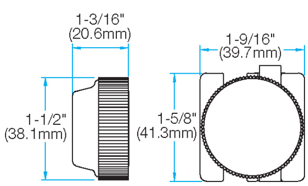
Momentary Extended Cap



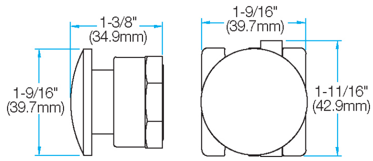
Momentary Guarded Extended Cap



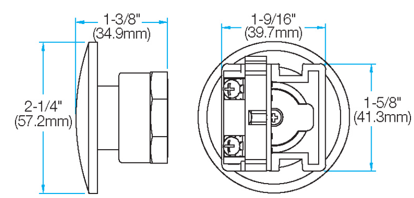
Momentary Standard Rubber Boot



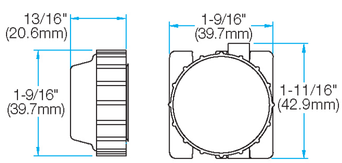
Momentary 1-1/2" (38mm) Mushroom Cap



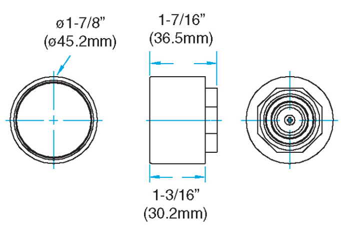
Momentary 2-1/4" (57.2mm) Jumbo Mushroom Cap



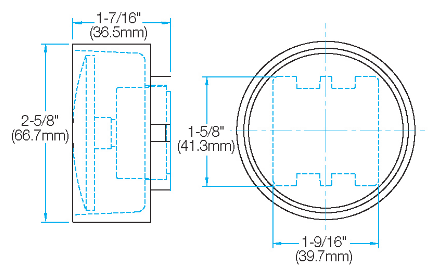
Momentary Fluorosilicone Rubber Boot



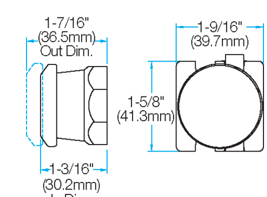
Momentary 1-1/2" (38mm) Shrouded Mushroom Cap



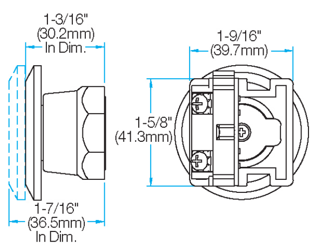
Momentary 2-1/4" (57.2mm) Shrouded Jumbo Mushroom Cap



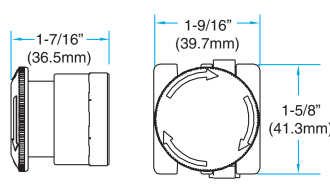
2-Position Push-Pull Maintained 1-1/2" (38mm) Mushroom Cap



2-Position Push-Pull Maintained 2-1/4" (57.2mm) Jumbo Mushroom Cap



2-Position Push-Twist Maintained 1-1/2" (38mm) Mushroom Cap

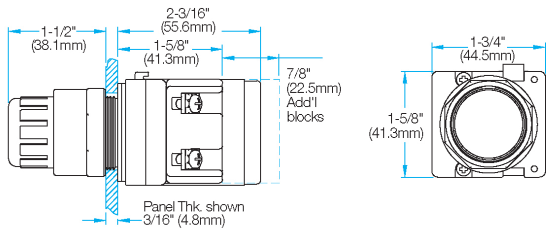


Data is subject to change without notice.

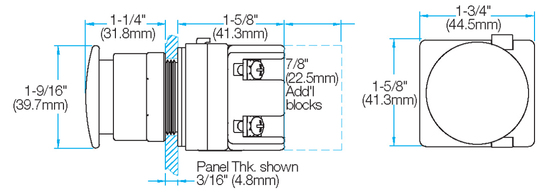
Momentary Illuminated Push Buttons

Fully-assembled operators come standard with one 3/16” (4.8mm) and three 1/16” (1.6mm) gaskets.

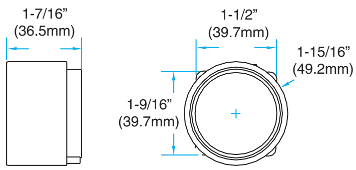
Illuminated Full Voltage, Resistor and Dual-Input Operators



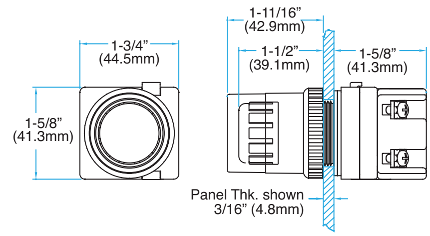
Illuminated Full Voltage Operators



Illuminated Shrouded Mushroom Lens



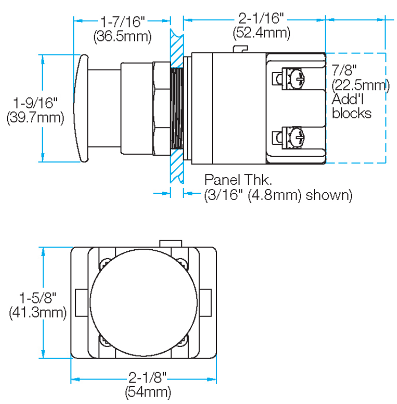
Illuminated Guarded Lens



2 & 3 Position Push-Pull Maintained Illuminated Push Buttons

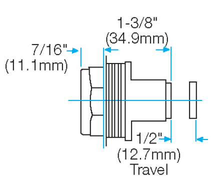
Fully-assembled operators come standard with one 3/16” (4.8mm) and three 1/16” (1.6mm) gaskets.

Illuminated Full Voltage Operator

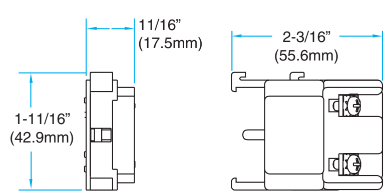


Reset Push Button

Fully-assembled operators come standard with one 3/16” (4.8mm) and three 1/16” (1.6mm) gaskets.



Alternate Action Block

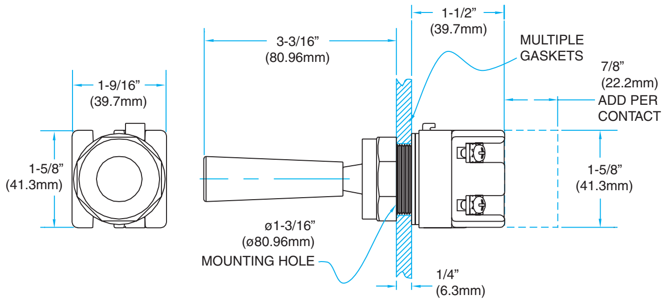


General Information
Circuit Protection
Disconnect Switches
Motor Protectors
Contactors
Overloads
Enclosed Starters
Relays
Pushbuttons and Pilot Lights
Terminal Blocks
Power Factor Correction
Appendix A
Appendix B

CSW Series (30mm)

Wobble stick

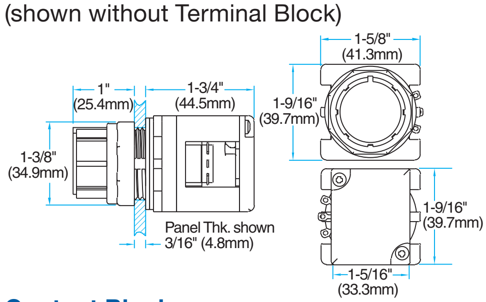
Fully-assembled operators come standard with one 3/16” (4.8mm) and three 1/16” (1.6mm) gaskets.



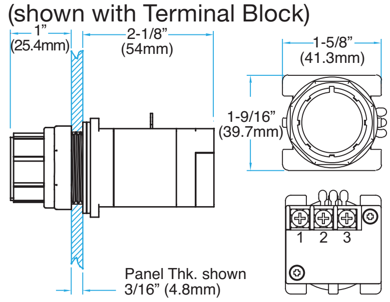
Potentiometer with & without Terminal Block

Fully-assembled operators come standard with one 3/16” (4.8mm) and three 1/16” (1.6mm) gaskets.

Potentiometer Operator
(shown without Terminal Block)

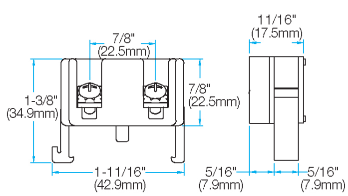


Potentiometer Operator
(shown with Terminal Block)

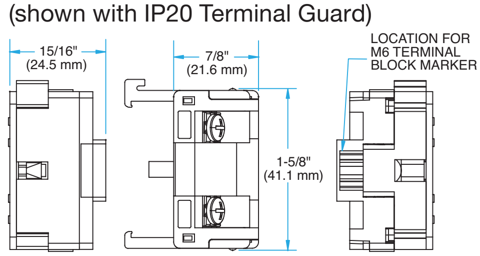


Contact Blocks

Contact Block



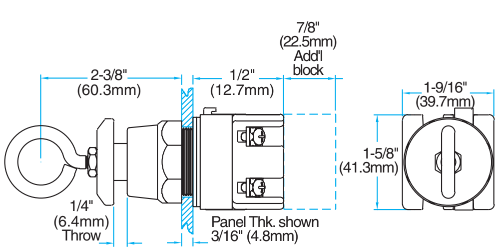
Contact Block
(shown with IP20 Terminal Guard)



Cable Pull Operators

Fully-assembled operators come standard with one 3/16” (4.8mm) and three 1/16” (1.6mm) gaskets.

Push-Pull Maintained Cable Pull Operator



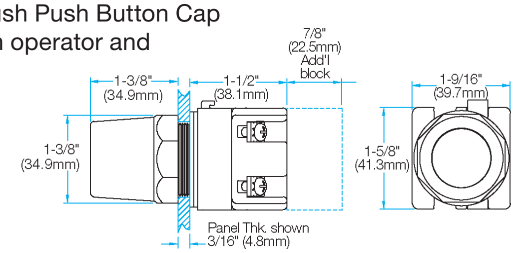
Momentary and Heavy Duty Cable Pull Operators

Momentary Booted Cable Pull Operator

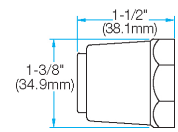
Maintained flush & extended push button caps

Fully-assembled operators come standard with one 3/16" (4.8mm) and three 1/16" (1.6mm) gaskets.

Maintained Flush Push Button Cap (shown with an operator and contact block)



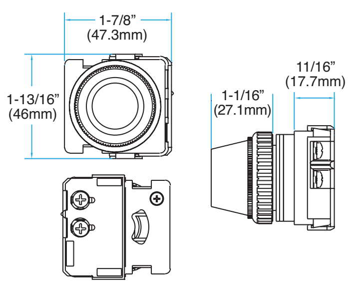
Maintained Extended Push Button Cap



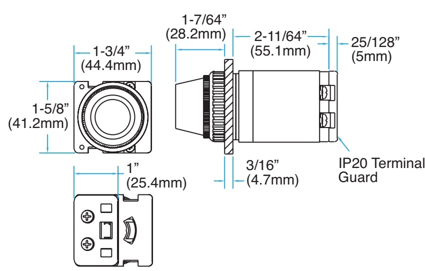
Pilot Lights

Fully-assembled operators come standard with one 3/16" (4.8mm) and two 1/16" (1.6mm) gaskets.

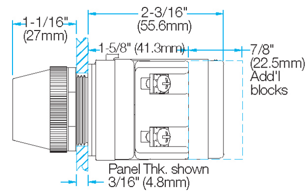
Full Voltage Pilot Light Operator



Resistor Pilot Light Operators



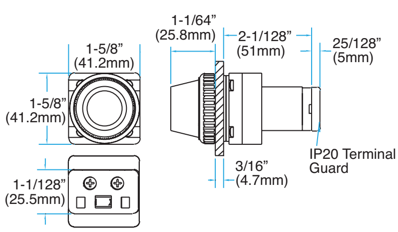
Dual Input Pilot Light Operator



Multi-Voltage Pilot Light

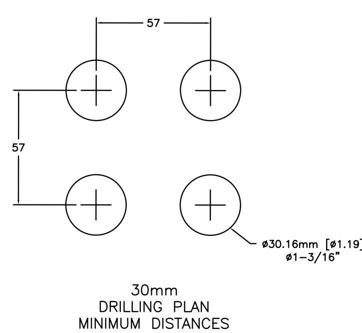
Fully-assembled operators come standard with four 1/16" (1.6mm) gaskets.

Multi-Voltage Pilot Light



Drilling

CSW30 Panel Cutout



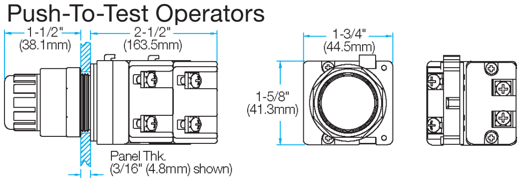
Pushbuttons and Pilot Lights

CSW Series (30mm)

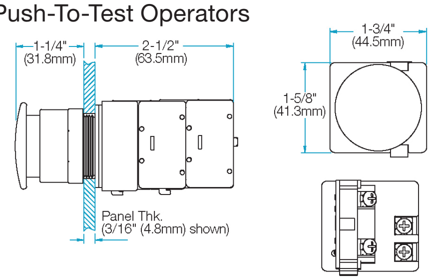
Push-To-Test Pilot Lights

Fully-assembled operators come standard with one 3/16” (4.8mm) and three 1/16” (1.6mm) gaskets.

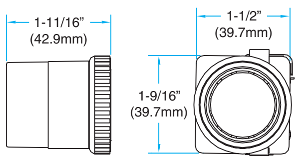
Full Voltage, Resistor Push-To-Test Operators



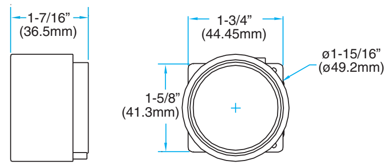
Full Voltage, Resistor Push-To-Test Operators



Guarded Lens



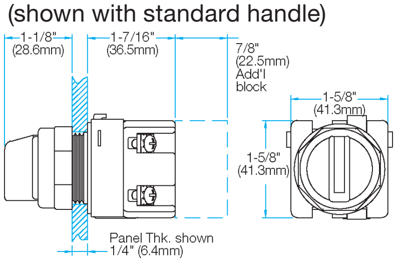
Shrouded Mushrooms Lens



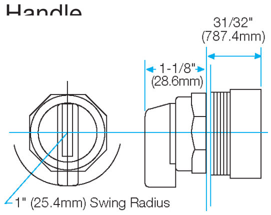
Selector switches

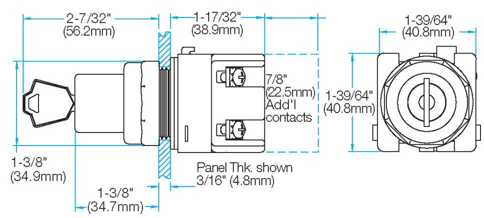
Fully-assembled operators come standard with one 3/16” (4.8mm) and three 1/16” (1.6mm) gaskets.

Selector Switch Operator (shown with standard handle)

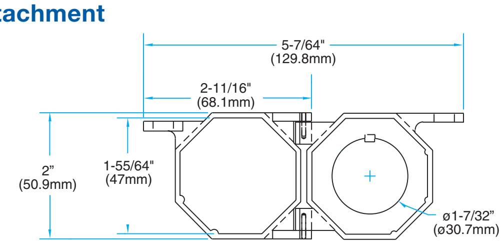


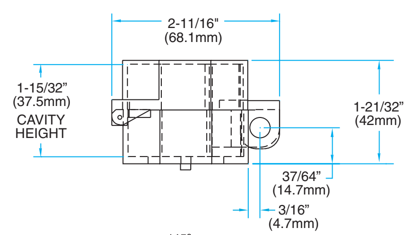
Selector Switch Lever Handle

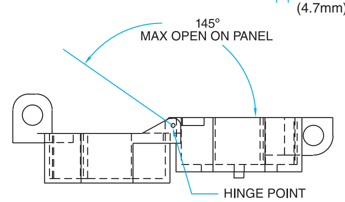




lock-off attachment







CSW30H Series (30mm) Hazardous Duty General Standards

WEG hazardous duty series CSW30H also offers a wide selection of operators and pilot devices for hazardous duty applications (Class 1, Division 2 and Zone 2). This series offers a wide selection of hermetically sealed reed and factory sealed contact blocks for superior corrosion resistance.

- NEMA 4, IP65 Rated[1]
- Fits 1-13/64 (30.5mm) hole without notch required
- Contact blocks snap-in (fast & easy assembly)
- Up to 8 contact blocks for non-illuminated operators and up to 4 contact blocks for illuminated operators
- LED lamps with built-in leakage protection
- Same simple part numbering system as 22mm series

WEG Hazardous duty Pilots Devices are specially engineered for Class 1, Division 2 and Zone 2.

Wide selection of hermetically sealed reed and factory sealed contact block.

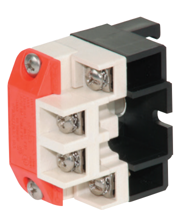
An all-polyester construction with nickel-plated or stainles steel metal parts for superior corrision resistance.

Logic Reeds are hermetically sealed, Providing needed dependability for harsh environments.

Logic Reeds provide great operation for low power level (resistive loads only), especially PLC inputs.

Added Security - Optional Features
Rubber Boots add an additional layer of protection from corrisive chemicals left behind from hands on operations or washdown environments.

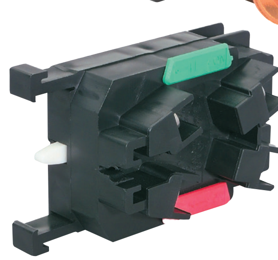
Added Security - Standard Features
All Hazardous duty Push Buttons comes standard with a screw tightening mounting bracket to ensure the contact blocks remain tight to the operator



C US

UL File No. E330817




Pushbuttons and Pilot Lights

CSW30H Series (30mm) Hazardous Duty

Pushbuttons

MULTIPLIER SYMBOL FOR CSW30H SERIES - Z55

Types
BF - Flush
BS - Extended
BC - Mushroom
BGA - Recessed
BGAI - Illuminated Recessed
BSI - Illuminated Extended
BCI - Illuminated Mushroom

CSW30H-__ __ __

Voltage (see Voltage Code)
Color (see Color Code)

NON-ILLUMINATED FLUSH

CSW30H - __

LIST PRICE $31

- BF0
- BF1
- BF2
- BF3
- BF4
- BF5

NON-ILLUMINATED (Extended)

CSW30H - __

LIST PRICE $31

- BS0
- BS1
- BS2
- BS3
- BS4
- BS5

NON-ILLUMINATED MUSHROOM (40mm HEAD)

CSW30H - __

LIST PRICE $42

- BC1
- BC2
- BC5

NON-ILLUMINATED RECESSED

CSW30H -__

LIST PRICE $37

- BGA0
- BGA1
- BGA2
- BGA3
- BGA4
- BGA5

* Illuminated operators are supplied with LED block. To complete selection, replace "*" with desired voltage:
E26 (24Vac/Vdc), D61 (120Vac/Vdc) or D66 (240Vac/Vdc).

Note: Contact blocks ordered separately. See page 326.

ILLUMINATED EXTENDED

CSW30H -__ *

LIST PRICE $110

- BSI0
- BSI1
- BSI2
- BSI3
- BSI4

ILLUMINATED MUSHROOM (40mm HEAD)

CSW30H - __ *

LIST PRICE $120

- BCI0
- BCI1
- BCI2
- BCI3
- BCI4

ILLUMINATED RECESSED

CSW30H -__ *

LIST PRICE $115

- BGAI0
- BGAI1
- BGAI2
- BGAI3
- BGAI4

Emergency-Stop Pushbuttons

CSW30H-__

Types
G - Twist release
P - Pull release

CSW30H- __ __

Voltage (see Voltage Code)
Color (see Color Code)

E-STOP - TWIST RELEASE

- CSW30H-BEG
- CSW30H-BEG2

LIST PRICE $86

E-STOP - PUSH PULL

- CSW30H-BEP
- CSW30H-BEP2

LIST PRICE $80

PILOT LIGHTS

CSW30H - __ *

- SD0
- SD1
- SD2
- SD3
- SD4

LIST PRICE $107

Code Chart

Color	Clear/White	Red	Green	Yellow	Blue	Black
Code	0	1	2	3	4	5
Symbol	○	●	●	●	●	●

LED Block Voltage	
E26	24Vac/Vdc
D61	120Vac/Vdc
D66	240Vac/Vdc

Note: Contact blocks ordered separately. See page 326

Selector Switches

CSW30H- __ __ __ __

Types
CK - Knob
CA - Lever

No. of Positions
2 - Two positions
3 - Three positions

Angle
45 - 45°
90 - 90°

Handle
F - Maintained
R - Spring return
RE - Spring return from left
RD - Spring return from right

KNOB	LEVER	POSITION	DIAGRAM
 LIST PRICE Maintained **$44** Spring Return **$62.00**	 LIST PRICE Maintained **$44** Spring Return **$62**		
CSW30H-CK2F90	CSW30H-CA2F90	I II	1
CSW30H-CK2R90	CSW30H-CA2R90	I II	1
CSW30H-CK3F45	CSW30H-CA3F45	I 0 II	2 & 3
CSW30H-CK3R45	CSW30H-CA3R45	I 0 II	2 & 3
CSW30H-CK3RE45	CSW30H-CA3RE45	I 0 II	2 & 3
CSW30H-CK3RD45	CSW30H-CA3RD45	I 0 II	2 & 3

Note: Contact blocks ordered separately. See page 326

Catalog Number	List Price	Multiplier
CSW30-FCR	**$15**	Z5
CSW30-ECR	**$15**	
CSW30-PLCR	**$15**	

DIAGRAM 1 - Hermetically & Factory Sealed Block

HANDLE POSITION		Auxiliary	Mouting
I	II	Contact	Position
0	X	NO	Either
X	0	NC	Either
0	X	NO & NC	Either
X	0		

DIAGRAM 2 - Factory Sealed Block

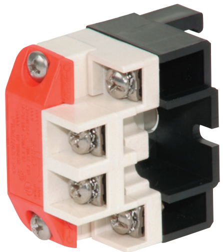
HANDLE POSITION			Auxiliary	Mouting
I	0	II	Contact	Position
X	0	0	NO & NC	Left
0	X	0		
0	0	X	NO & NC	Right
0	X	0		

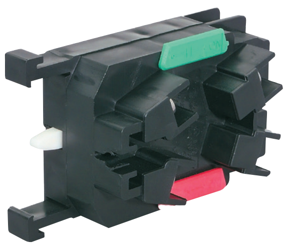
DIAGRAM 3 - Hermetically Sealed Block

HANDLE POSITION			Auxiliary	Mouting
I	0	II	Contact	Position
X	0	0	NO	Left
0	0	X	NO	Right
0	X	X	NC	Left
X	X	0	NC	Right
X	0	X	2NO	wired in parallel
0	X	0	2NC	wired in series
X	0	X	early make	Either
0	X	X	late break	Left
X	X	0	late break	Right

X = CLOSED
0 = OPEN

Factory Sealed / Hermetically Sealed Contact Blocks





Auxiliary Contact Blocks - Factory Sealed (720VA) Product Decsription	Catalog Number	List Price	Multiplier
Linear devices - 1NO & 1NC	BC11FS-CSW30H	$120	Z55
For rotary devices only - 1NO & 1NC	BC11FSR-CSW30H		
Auxiliary Contact Blocks - Hermetically Sealed (360VA inductive) Product Decsription			
Power reed - 1NO	BC10PR-CSW30H	$95	Z55
Power reed - 1NC	BC01PR-CSW30H		
Power reed - 2NO	BC20PR-CSW30H	$150	
Power reed - 2NC	BC02PR-CSW30H		
Power reed - 1NO & 1NC	BC11PR-CSW30H		
Auxiliary Contact Blocks - Hermetically Sealed (180VA inductive) Product Decsription			
Mid-power reed - 1NO	BC10MP-CSW30H	$75	Z55
Mid-power reed - 1NC	BC01MP-CSW30H		
Mid-power reed - 2NO	BC20MP-CSW30H	$130	
Mid-power reed - 2NC	BC02MP-CSW30H		
Mid-power reed - 1NO & 1NC	BC11MP-CSW30H		
Auxiliary Contact Blocks - Hermetically Sealed (40VA inductive / 100W resistive) Product Decsription			
Mid-logic reed - 1NO	BC10ML-CSW30H	$45	Z55
Mid-logic reed - 1NC	BC01ML-CSW30H		
Mid-logic reed - 2NO	BC20ML-CSW30H	$70	
Mid-logic reed - 2NC	BC02ML-CSW30H		
Mid-logic reed - 1NO & 1NC	BC11ML-CSW30H		
Auxiliary Contact Blocks - Hermetically Sealed (40W resistive) Product Decsription			
Logic reed - 1NO	BC10LR-CSW30H	$28	Z55
Logic reed - 1NC	BC01LR-CSW30H		

Technical Data

FACTORY SEALED: Contact Blocks are Certified as "Explosion Proof". Devices employing this method of protection are designed so that all electrical parts are enclosed in a switch housing that is capable of withstanding, without damage, an explosion of a specified gas or vapor/air mixture which may occur during the operation of the switch. Further, the explosion internal to the switch body is controlled so that the hot gases are extinguished and cooled before they are allowed to escape to the surrounding atmosphere.

HERMETICALLY SEALED: Contact Blocks are Certified as "Non-Incendive". Devices employing this method of protection are designed so that all electrical parts are a bonded part of the switch housing that forms an arcing chamber that is evacuated of all oxygen, filled with an inert gas, and then sealed to prohibit the exchange of gases with the surrounding environment. These devices are incapable of igniting the surrounding gases or vapor/air mixtures under normal operation. Devices of this type are suitable for use in Div. 2/ Zone 2 applications. Hermetically Sealed contact blocks are also extremely useful for switching low energy circuits or circuits applied in atmospheres containing oxidizing agents and pollutants that might effect the performance of silver switching and metal contact elements. Hermetically Sealed Switch performance is consistent and repeatable in almost any environment.

DIELECTRIC STRENGTH (MECHANICAL CONTACTS) 2200V for 1 Minute

Factory Sealed Contact Block					
Class I Div. 2 Gr. B,C, & D / Zone 2 Gr. IIB +H2					
	Utilization Category				
	IEC	UL	Make Rating	Break Rating	Ith-Thermal Current
AC	AC-15	A600	7200VA	720VA	10A
DC	DC-13	Q300	69VA	69VA	2.5A

NOTE: For AC voltage below 72V AC the max. allowed switching current is 10A = Ith.
For DC voltages below 28V DC the max. allowed switching current is 2.5A = Ith.
For switching applications below 24V/40mA, Hermetic REED contacts are recommended.

Hermetically Sealed Mid-Power Reed Contact Block					
Class I Div. 2 Gr. A, B, C, & D/Zone 2 Gr. IIC					
	Utilization Category				
	IEC	UL	Make Rating	Break Rating	Ith-Thermal Current
AC	AC-15	C300	1800VA	180VA	2.5A
DC	DC-13	Q150	69VA	69VA	2.5A

NOTE: For AC voltage below 72VAC the max. allowed switching current is 2.5A = Ith.
For DC voltages below 28VDC the max. allowed switching current is 2.5A = Ith.
Suitable for switching DRY Circuits and Low Energy Circuits (Less than 24V-40mA).

Hermetically Sealed Power Reed Contact Block					
Class I Div. 2 Gr. A, B, C, & D/Zone 2 Gr. IIC					
	Utilization Category				
	IEC	UL	Make Rating	Break Rating	Ith-Thermal Current
AC	AC-15	B300	3600VA	360VA	5A
	AC-15	C600	1800VA	180V	2.5A
DC	DC-13	Q300	69VA	69VA	2.5A

NOTE: For AC voltage below 72V AC the max. allowed switching current is 5A = Ith.
For DC voltages below 28V DC the max. allowed switching current is 2.5A = Ith.
Suitable for switching DRY Circuits and Low Energy Circuits (Less than 24V-40mA).

Hermetically Sealed logic reed Contact Block					
Class I Div. 2 Gr. A, B, C, & D/Zone 2 Gr. IIC					
	Utilization Category				
	IEC	UL	Inductive	Resistive	Ith-Thermal Current
AC		220V Max.	N/A	40 Watt	2A

Suitable for switching DRY Circuits and Low Energy Circuits (Less than 24V-40mA).

Hermetically Sealed mid-logic reed Contact Block					
Class I Div. 2 Gr. A, B, C, & D/Zone 2 Gr. IIC					
	Utilization Category				
	IEC	UL	Inductive	Resistive	Ith-Thermal Current
AC	AC-12	250V Max.	40VA	100 Watt	3A

Suitable for switching DRY Circuits and Low Energy Circuits (Less than 24V-40mA).

Indicating Lights	
Light Unit	T-Code
FV Incandescent Lights	T4A
FV LED Lights	T6 [No marking required]
Resistor Lights	T3C
Light Unit	T-Code
Resistor LED Lights	T6
Transformer Lights Incd. & LED	T4A
Multi-Voltage 20V-240V LED Light	T4A

Materials	
Thermoplastic Polyester and Polyester Blends (UV Stabilized for outdoor use)	Seals
Operator Housings	Neoprene Gaskets
Operator Caps and Handles –	Thermoplastic – Molded Neoprene and alloy derivitives
Non-Illuminated (Glass Reinforced Grades)	BUNA N – Rubber – Teflon Coated
Mounting Rings and Nuts	Thermoplastic – Elastomer Molded Seals
Thrust Washer	Fluorosilicone – Boots
Trim Washer	Metal: Stainless Steel
High Impact Polycarbonate (UV Stabilized for outdoor use)	Push Pull Bushings
Pilot Light Lens	Internal tubes for Maintained Devices
Transparent PB and Mushroom Caps	Detents for Maintained Devices
Custom Polymers	Stainless Steel Springs and Screws throughout
Certain CAM and Bearing parts are Teflon, Silicone, & Moly-Disulfide Impregnated for improved wearability	Aluminum Optional Mounting Nut
Fluorosilicone and Thermoplastic	
Neoprene Boot Accessories	

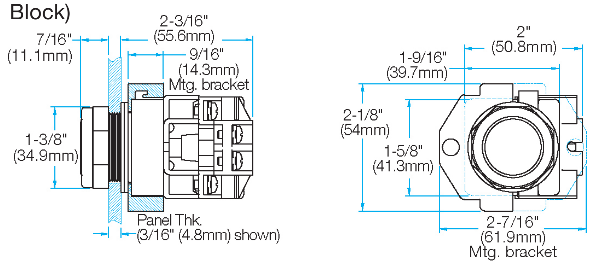
Environmental Ratings
Type 1, 2, 3, 3R, 4/4X, 12, 13, and IP65
Operating Temperature
-40 to +131° F (-40 to +55° C)
Storage Temperature
-40 to +185° F (-40 to +85° C)
Operating environments below freezing temperatures are assumed to be absent of freezing liquids or pollutants.

Terminal & Wiring Consideration
Wire- AWG 22-12 CU
(Copper Only – Solid & Stranded) [.5 ~ 4 mm2]
One or Two wires permitted per termination
Recommended Tightening Torque
7 lb-in (+3.0/-0.0 lb-in) — [.8 Nm]

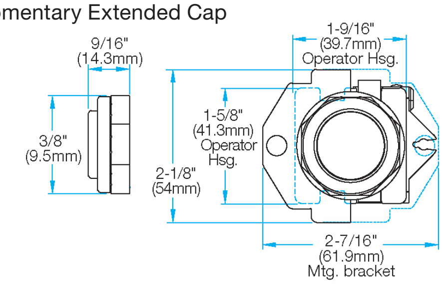
Momentary Non-Illuminated H-Line Push Buttons

Fully-assembled operators come standard with one 3/16" (4.8mm) and three 1/16" (1.6mm) gaskets.

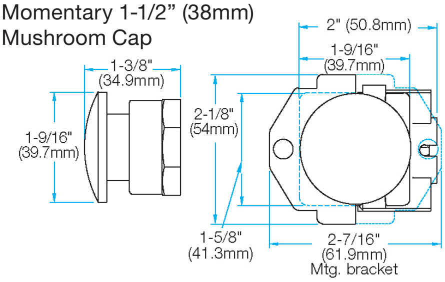
Non-Illuminated Operator
(shown with Flush Cap & Factory Sealed Contact Block)



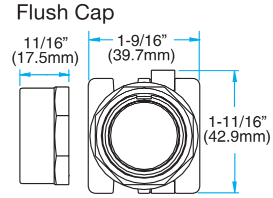
Momentary Extended Cap



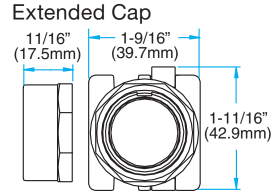
Momentary 1-1/2" (38mm)
Mushroom Cap



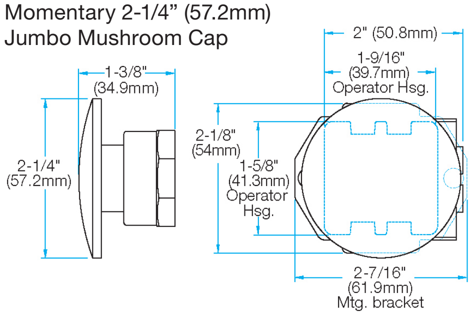
Momentary Guarded
Flush Cap



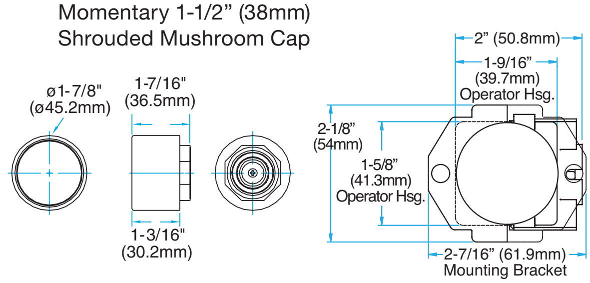
Momentary Guarded
Extended Cap



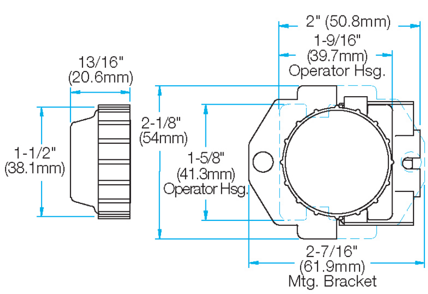
Momentary 2-1/4" (57.2mm)
Jumbo Mushroom Cap



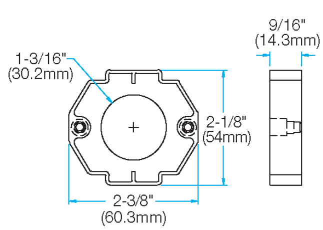
Momentary 1-1/2" (38mm)
Shrouded Mushroom Cap



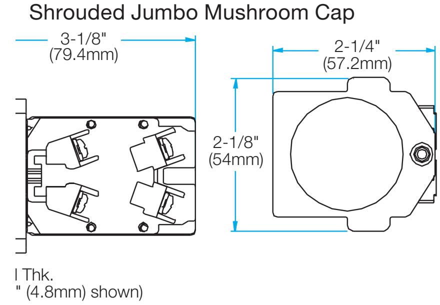
Momentary Fluorosilicone
Rubber Boot



Non-Illuminated Push Button
Mounting Bracket



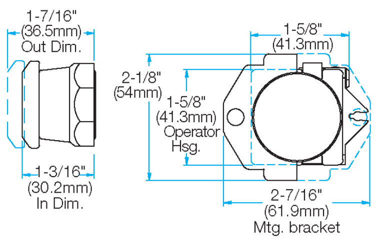
Momentary 2-1/4" (57.2mm)
Shrouded Jumbo Mushroom Cap



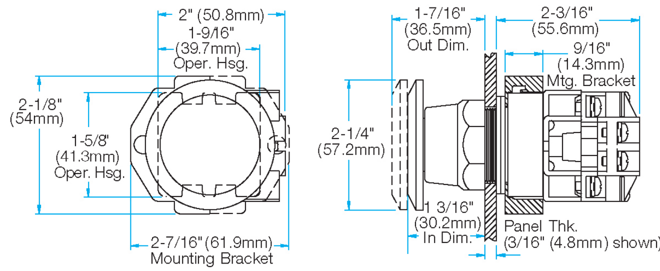
Maintained non-Illuminated H-Line Push Buttons

Fully-assembled operators come standard with one 3/16" (4.8mm) and three 1/16" (1.6mm) gaskets.

2-Position Push-Pull Maintained
1-1/2" (38mm) Mushroom Cap



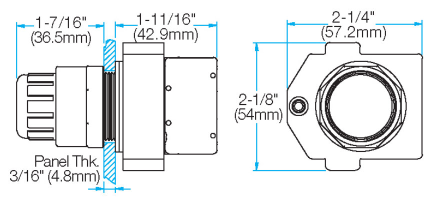
2-Position Push-Pull Maintained Operator
(shown with 2-1/4" (57.2mm) Jumbo Mushroom Cap)



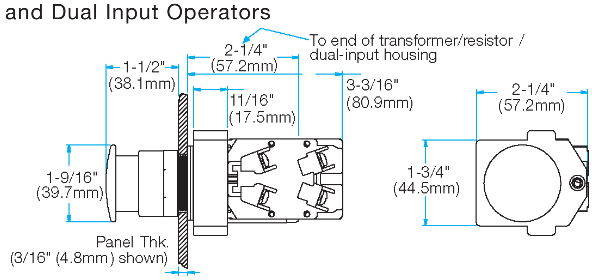
Momentary Illuminated H-Line Push Buttons

Fully-assembled operators come standard with one 3/16" (4.8mm) and three 1/16" (1.6mm) gaskets.

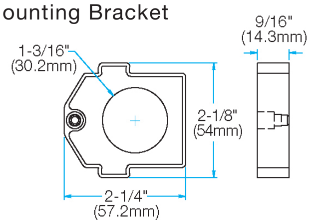
Illuminated Full Voltage Operator



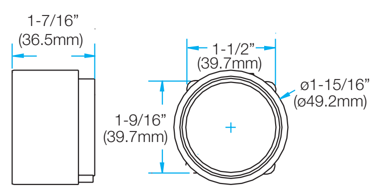
Illuminated Transformer, Resistor
and Dual Input Operators



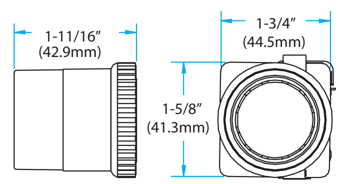
Illuminated Push Button
Mounting Bracket



Illuminated Shrouded
Mushroom Lens



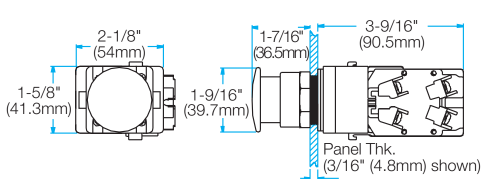
Illuminated Guarded Lens



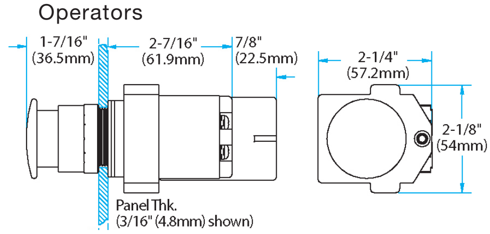
2-Position Push-Pull Maintained Illuminated H-Line Push Buttons

Fully-assembled operators come standard with one 3/16" (4.8mm) and three 1/16" (1.6mm) gaskets.

Illuminated Full Voltage Operator



Illuminated Transformer and Resistor
Operators



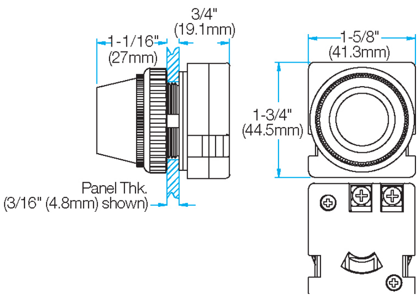
Pushbuttons and Pilot Lights

CSW30H Series (30mm) Hazardous Duty

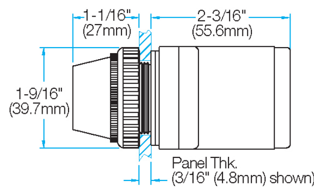
H-Line Pilot Lights

Fully-assembled operators come standard with one 3/16" (4.8mm) and two 1/16" (1.6mm) gaskets.

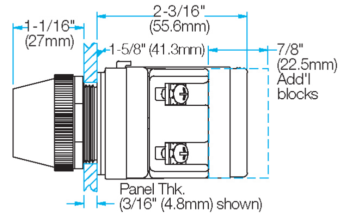
Full Voltage Pilot Light Operator



Transformer & Resistor Pilot Light Operators



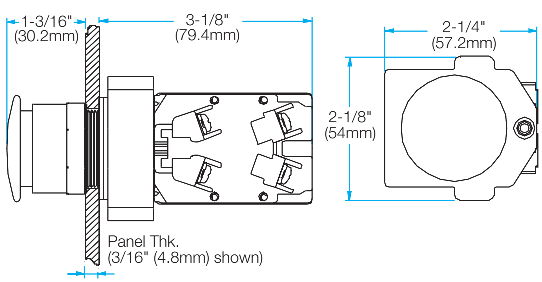
Dual Input Pilot Light Operator



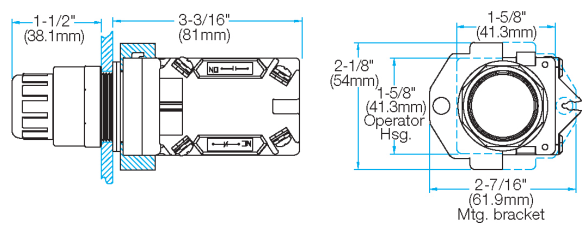
Push-To-Test H-Line Pilot Lights

Fully-assembled operators come standard with one 3/16" (4.8mm) and three 1/16" (1.6mm) gaskets.

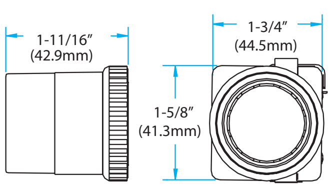
Full Voltage Push-To-Test Operator



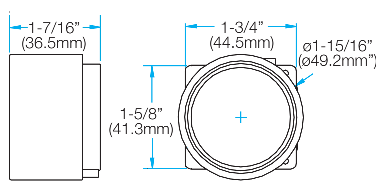
Transformer & Resistor Push-To-Test Operators



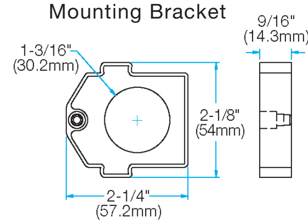
Guarded Lens



Shrouded Mushroom Lens



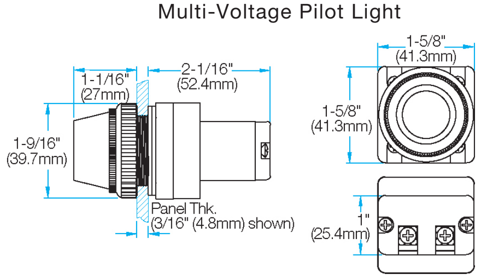
Illuminated Push-To-Test Mounting Bracket



Multi-Voltage H-Line Pilot Light

Fully-assembled operators come standard with four 1/16" (1.6mm) gaskets.

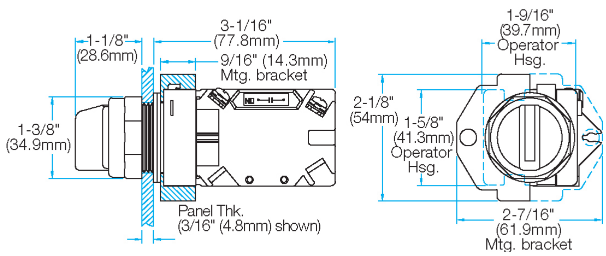
Multi-Voltage Pilot Light



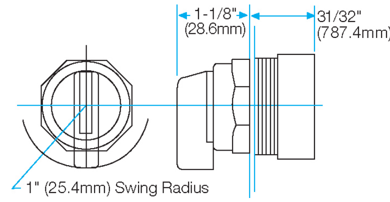
H-line Selector Switches

Fully-assembled operators come standard with one 3/16” (4.8mm) and three 1/16” (1.6mm) gaskets.

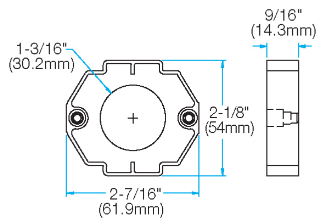
Selector Switch Operator
(shown with standard handle)



Selector Switch Lever Handle

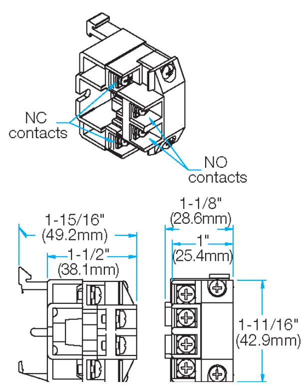


Selector Switch Mounting Bracket

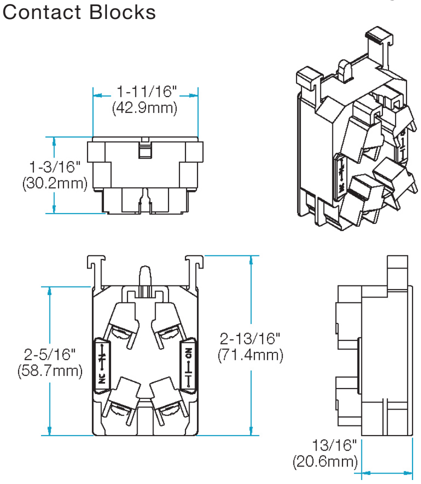


H-line contact blocks

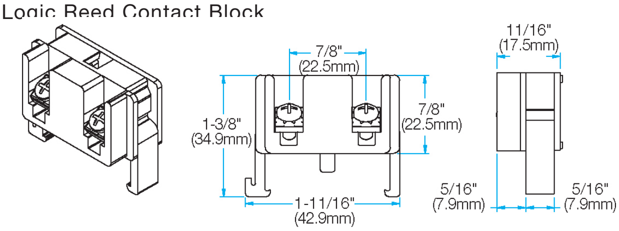
Factory Sealed Contact Block



Power Reed, Mid-Power Reed & Medium Logic
Reed Contact Blocks



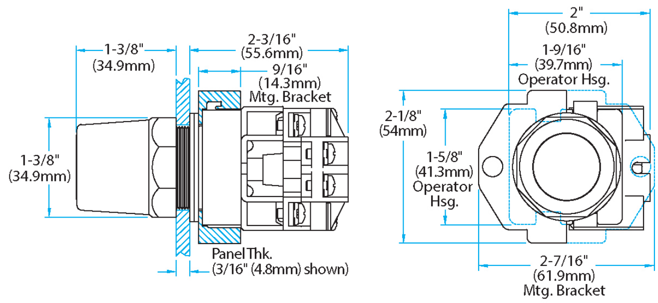
Logic Reed Contact Block



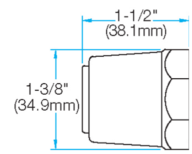
Maintained Flush & Extended h-line Push Button Caps

Fully-assembled operators come standard with one 3/16” (4.8mm) and three 1/16” (1.6mm) gaskets.

Maintained Flush Push Button Cap
(shown with an operator and contact block)



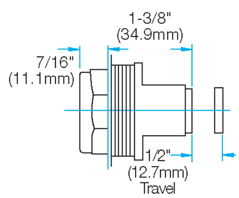
Maintained Extended
Push Button Cap



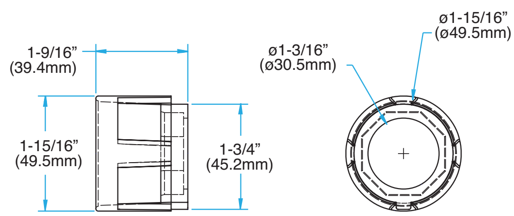
H-line Reset Push Button

**Fully-assembled operators come standard with one 3/16” (4.8mm)
and three 1/16” (1.6mm) gaskets.**

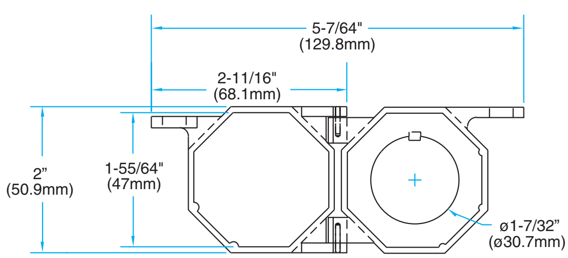
Reset Push Button

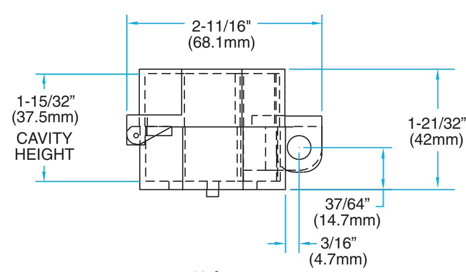


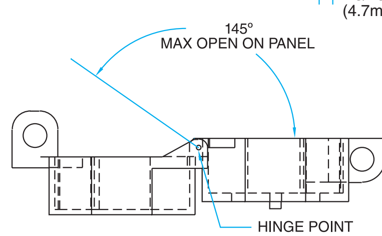
GUARD ATTACHMENT



Lock-off attachment







Data is subject to change without notice.

BTW Series Terminal Blocks

Terminal blocks are devices designed to provide safe and secure electrical and mechanical conductor connections. Among all available connectors, terminal blocks are the most commonly used to their specific characteristics. All parts were developed to assure side-by-side assembly, thus saving space inside panels. Easy assembly of these terminal blocks on DIN Rails reduces panel assembly time.

UL File No. E320231

Two versions are currently available:

1) Screw Type Connection
2) Spring-Clamp Type Connection

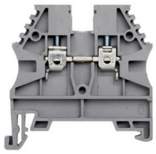
Standard Features:

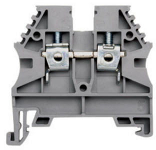
- Wide Range of Accessories
- Easy Installation
- Unlosable Terminal Screws PA66 Polyamide body with high mechanical resistance
- Inlet tapered cable for easy insertion of conductors
- Stainless Steel Spring on Spring-Clamp type Terminals

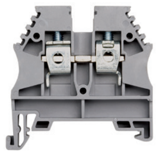
Terminal Blocks

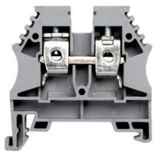
BTWP

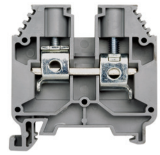
Terminal Blocks w/ Screw-Type Terminals


BTWP 2,5


BTWP 4


BTWP 6

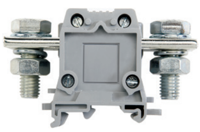

BTWP 10

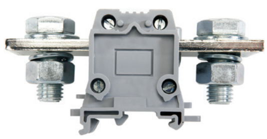

BTWP 16

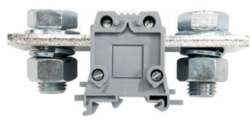

BTWP 35


BTWP 70

Power terminal blocks


BTWP 95B

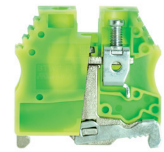

BTWP 150B


BTWP 240B

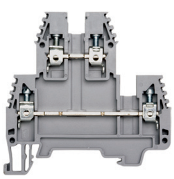
Ground terminal blocks

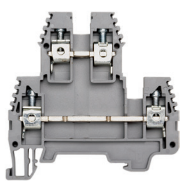

BTWP 2,5/4T


BTWP 6/10T

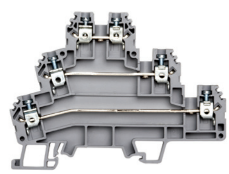

BTWP 16T

Double terminal blocks

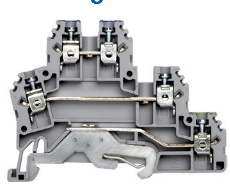

BTWD 2,5N


BTWD 4N

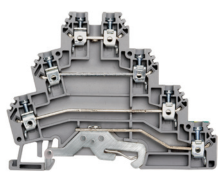
Triple terminal blocks


BTWT

Double terminal block + ground


BTWT 2T

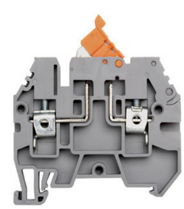
Triple terminal block + ground


BTWT 3T

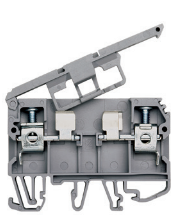
Terminal block for detectors

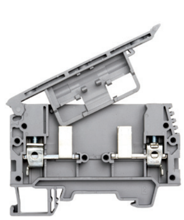

BTWT 3S

Disconnect terminal

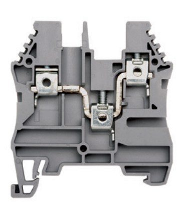

BTWS 3A

Terminal blocks for fuses


BTWS 2S


BTWS 4S

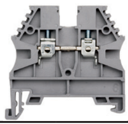
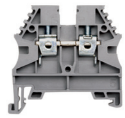
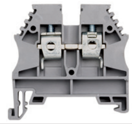
1in-2out terminal block

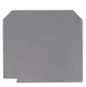
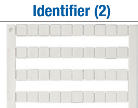

BTWP 4C

Data is subject to change without notice.

MULTIPLIER for BTW Series- -Z9

BTWP Series - Terminal Blocks with screw connection terminals - List Price is per pack.

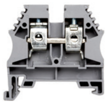
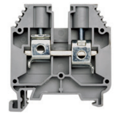
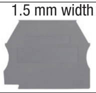
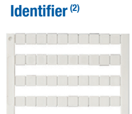
	BTWP 2.5 5 mm width	BTWP 4 6 mm width	BTWP 6 6 mm width
			
Technical data	**Voltage / Current / Cross section**	**Voltage / Current / Cross section**	**Voltage / Current / Cross section**
IEC 60947-7-1	750 V~ / 24 A / 2.5 mm²	750 V~ / 32 A / 4 mm²	630 V~ / 41 A / 6 mm²
UL / CSA	600 V~ / 20 A / AWG 26 ... 12	600 V~ / 30 A / AWG 26 ... 10	600 V~ / 50 A / AWG 26 ... 8
Rated Surge Voltage	8kV	8kV	8kV
Pollution degree	3	3	3
Cable stripping	10 mm	10 mm	12 mm
Tightening torque	0.4 Nm / 3.54 lb - in	0.5 Nm / 4.42 lb - in	0.8 Nm / 7.08 lb - in
Connection capacity	Connection capacity	Connection capacity	Connection capacity
Rigid wire	0.5 ... 4 mm²	0.5 ... 6 mm²	0.5 ... 10 mm²
Flexible cable	1.5 ... 2.5 mm²	1.5 ... 4 mm²	1.5 ... 6 mm²
AWG Conductor	26 ... 12	26 ... 10	26 ... 8

Terminal Block	Color	Catalog Number	Qty/Pack.	List Price	Catalog Number	Qty/Pack.	List Price	Catalog Number	Qty/Pack.	List Price
	Gray	BTWP 2.5	100	$130	BTWP 4	100	$160	BTWP 6	100	$210
	Blue	BTWP 2.5 (AZ)	100	$130	BTWP 4 (AZ)	100	$160	BTWP 6 (AZ)	100	$210
	Green	BTWP 2.5 (VD)	100	$130	BTWP 4 (VD)	100	$160	BTWP 6 (VD)	100	$210
Accessories										
End plate	**Color**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	Qty/Pack.	List Price	**Catalog Number**	Qty/Pack.	List Price
1.5 mm width 	Gray	TF-BTWP 2.5-10	100	$65	TF-BTWP 2.5-10	100	$65	TF-BTWP 2.5-10	100	$65
	Blue	TF-BTWP 2.5-10 (AZ)	100	$65	TF-BTWP 2.5-10 (AZ)	100	$65	TF-BTWP 2.5-10 (AZ)	100	$65
Separating Board	Green	TF-BTWP 2.5-10 (VD)	100	$65	TF-BTWP 2.5-10 (VD)	100	$65	TF-BTWP 2.5-10 (VD)	100	$65
	Color	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	Qty/Pack.	List Price	**Catalog Number**	Qty/Pack.	List Price
	Gray	PD-BTWP 2.5-10	25	$17.50	PD-BTWP 2.5-10	25	$17.50	PD-BTWP 2.5-10	25	$17.50
Connecting bridge	**Nº. of poles**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	Qty/Pack.	List Price	**Catalog Number**	Qty/Pack.	List Price
	2	PC-BTWP 2.5/2	25	$47.50	PC-BTWP 4/2	25	$47.50	PC-BTWP 6/2	25	$47.50
	3	PC-BTWP 2.5/3	20	$56	PC-BTWP 4/3	20	$56	PC-BTWP 6/3	20	$56
	4	PC-BTWP 2.5/4	15	$57	PC-BTWP 4/4	15	$57	PC-BTWP 6/4	15	$57
	10	PC-BTWP 2.5/10	5	$44	PC-BTWP 4/10	5	$44	PC-BTWP 6/10	5	$44
End bracket	**Color**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	Qty/Pack.	List Price	**Catalog Number**	Qty/Pack.	List Price
8 mm width 	Gray	PF3-BTW	100	$120	PF3-BTW	100	$120	PF3-BTW	100	$120
	Gray	PF4-BTW	100	$120	PF4-BTW	100	$120	PF4-BTW	100	$120
Din rail / Support	**Type**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	Qty/Pack.	List Price	**Catalog Number**	Qty/Pack.	List Price
	Flat	MR 35x7.5	2m busbars	$14	MR 35x7.5	2m	$14	MR 35x7.5	2m busbars	$14
Din EN 50022 	Support	ST-BTW	25	$75	ST-BTW	25	$75	ST-BTW	25	$75
Group indentifier	**Assembly**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	Qty/Pack.	List Price	**Catalog Number**	Qty/Pack.	List Price
	Din rail	IG-BTW	50	$75	IG-BTW	50	$75	IG-BTW	50	$75
	End Bracket	IG22-BTW (1)	25	$37.50	IG22-BTW (1)	25	$37.50	IG22-BTW (1)	25	$37.50
Identifier (2)		**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	Qty/Pack.	List Price	**Catalog Number**	Qty/Pack.	List Price
		IDG10/5-BTW	440	$60	IDG10/6-BTW	360	$60	IDG10/6-BTW	360	$60
		IDB5-BTW	500	$50	IDG10/5-BTW	440	$60	IDG10/5-BTW	440	$60
		IDG6/5-BTW	400	$50	IDB5-BTW	500	$50	IDB5-BTW	500	$50
					IDG6/5-BTW	400	$50	IDG6/5-BTW	400	$50

(1) For assembly on PF4-BTW end bracket only.
(2) Further details about identifiers on page 349.

BTWP

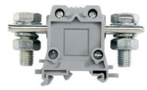
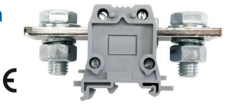
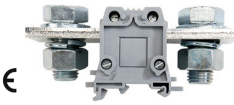
BTWP Series - Terminal blocks with screw connection terminals

		BTWP 10 10 mm width 			BTWP 16 12 mm width 			BTWP 35 16 mm width 			BTWP 70 22 mm width 		
Technical data		**Voltage / Current / Cross section**			**Voltage / Current / Cross section**			**Voltage / Current / Cross section**			**Voltage / Current**		
IEC 60947-7-1		630 V~ / 57 A / 10 mm²			750 V~ / 76 A / 16 mm²			750 V~ / 125 A / 35 mm²			750 V~ / 192 A / 70 mm²		
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		
Rated Surge Voltage		8kV			8kV			8kV			-		
Pollution degree		3			3			3			-		
Cable stripping		12 mm			16 mm			18 mm			20 mm		
Tightening torque		1.2 Nm / 10.62 lb - in			1.2 Nm / 10.62 lb - in			2.5 Nm / 22.12 lb - in			6 Nm / 53.10 lb - in		
Connection capacity		Connection capacity			Connection capacity			Connection capacity			Connection capacity		
Rigid wire		1.5 ... 16 mm²			1.5 ... 16 mm²			6 ... 16 mm²			10 ... 16 mm²		
Flexible cable		1.5 ... 10 mm²			1.5 ... 16 mm²			10 ... 35 mm²			10 ... 70 mm²		
AWG Conductor		16 ... 6			12 ... 4			10 ... 2			6 ... 2/0		
Terminal Block	**Color**	**Catalog Number**	**Qty/ Pack.**	**List Price**	**Catalog Number**	**Qty/ Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/ Pack.**	**List Price**
	Gray	**BTWP 10**	100	Qty/Pack.	**BTWP 16**	50	$210	BTWP 35	50	$400	BTWP 70	10	$300
	Blue	**BTWP 10 (AZ)**	100	$270	**BTWP 16 (AZ)**	50	$210	BTWP 35 (AZ)	50	$400	BTWP 70 (AZ)	10	$300
	Green	**BTWP 10 (VD)**	100	$270	**BTWP 16 (VD)**	50	$210	BTWP 35 (VD)	50	$400	BTWP 70 (VD)	10	$300
Accessories													
End plate	**Color**	**Catalog Number**	**Qty/ Pack.**	**List Price**	**Catalog Number**	**Qty/ Pack.**	**List Price**	-			-		
1.5 mm width 	Gray	**TF-BTWP 2.5-10**	100	$65	**TF-BTWP 16**	100	$100	-			-		
	Blue	**TF-BTWP 2.5-10 (AZ)**	100	$65	**TF-BTWP 16 (AZ)**	100	$100	-			-		
	Green	**TF-BTWP 2.5-10 (VD)**	100	$65	**TF-BTWP 16 (VD)**	100	$100	-			-		
Separating board	**Color**	**Catalog Number**	**Qty/ Pack.**	**List Price**	**Catalog Number**								
	Gray	PD-BTWP 2.5-10	25	$17.50	**PD-BTWP s.5-10**	**25**	$25	-			-		
Connecting bridge	**Nº. of poles**	**Catalog Number**	**Qty/ Pack.**	**List Price**	**Catalog Number**	**Qty/ Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**			
	2	**PC-BTWP 10/2**	25	$75	**PC-BTWP 16/2**	25	$75	PC-BTWP 35/2	25	$150	-		
	3	**PC-BTWP 10/3**	20	$100	**PC-BTWP 16/3**	20	$100	PC-BTWP 35/3	20	$160	-		
	4	**PC-BTWP 10/4**	15	$90	**PC-BTWP 16/4**	15	$90	PC-BTWP 35/4	15	$150	-		
	10	**PC-BTWP 10/10**	5	$70	**PC-BTWP 16/10**	5	$70	PC-BTWP 35/10	5	$100	-		
End bracket	**Color**	**Catalog Number**	**Qty/ Pack.**	**List Price**	**Catalog Number**	**Qty/ Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/ Pack.**	**List Price**
8 mm width 	Gray	**PF3-BTW**	100	$120	**PF3-BTW**	100	$120	PF3-BTW	100	$120	PF3-BTW	100	$120
	Gray	**PF4-BTW**	100	$120	**PF4-BTW**	100	$120	PF4-BTW	100	$120	PF4-BTW	100	$120
Din rail / Support	**Type**	**Catalog Number**	**Qty/ Pack.**	**List Price**	**Catalog Number**	**Qty/ Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**		
	Flat	MR 35x7.5	2 m bus bars	$14	MR 35x7.5	2 m bus bars	$14	MR 35x7.5	2 m bus bars	$14	MR 35x7.5	Qty/ Pack.	List Price
	Support	ST-BTWw	25	$75	ST-BTW	25	$75	ST-BTW	25	$75	ST-BTW	2 m bus bars	$14
Group identifier	**Assem-bly**	**Catalog Number**	**Qty/ Pack.**	**List Price**	**Catalog Number**	**Qty/ Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/ Pack.**	**List Price**
	Din Rail	**IG-BTW**	50	$75	**IG-BTW**	50	$75	IG-BTW	50	$75	IG-BTW	50	$75
	End Bracket	**IG22-BTW (1)**	25	$37.50	**IG22-BTW (1)**	25	$37.50	IG22-BTW (1)	25	$37.50	IG22-BTW (1)	25	$37.50
Identifier (2)		**Catalog Number**	**Qty/ Pack.**	**List Price**	**Catalog Number**	**Qty/ Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/ Pack.**	**List Price**
		**IDG10/6-BTW**	360	$60	**IDG10/6-BTW**	360	$60	IDG10/6-BTW	360	$60	IDG10/6-BTW	360	$60
		IDG10/5-BTW	440	$60	**IDG10/5-BTW**	440	$60	IDG10/5-BTW	440	$60	IDG10/5-BTW	440	$60
		IDB5-BTW	500	$50	**IDB5-BTW**	500	$50	IDB5-BTW	500	$50	IDB5-BTW	500	$50
		IDG6/5-BTW	400	$50	**IDG6/5-BTW**	400	$50	IDG6/5-BTW	400	$50	IDG6/5-BTW	400	$50

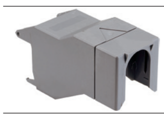
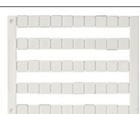
(1) For assembly on PF4-BTW end bracket only.
(2) Further details about identifiers on page 349.

Data is subject to change without notice.

BTWP Series - Power terminal blocks

		BTWP 95B 40 mm width 			BTWP 150B 48 mm width 			BTWP 240B 53 mm width 		
Technical data		**Voltage / Current /Cross section**			**Voltage / Current / Cross section**			**Voltage / Current / Cross section**		
IEC 60947-7-1		1000 V~ / 232 A / 95 mm²			1000 V~ / 309 A / 150 mm²			1000 V~ / 415 A / 240 mm²		
UL/CSA		(3)			(3)			(3)		
Rated Surge Voltage		8kV			8kV			8kV		
Pollution degree		3			3			3		
Screw		M10x30			M12x30			M16x35		
Tightening torque		6 Nm / 53.10 lb - in			8 Nm / 70.80 lb - in			10 Nm / 88.50 lb - in		
Terminal Block	**Color**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
	Gray	**BTWP 95B**	4	$188	BTWP 150B	4	$244	BTWP 240B	4	$324

Accessories

Isolation cover	**Color**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
	Gray	**TI-BTWP 95**	4	$40	TI-BTWP 150	4	$48	TI-BTWP 240	4	$68
Din rail / Support	**Type**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
DIN EN 50022 	Flat	**MR 35x7.5**	2 m bus bars	$14	MR 35x7.5	2 m bus bars	$14	MR 35x7.5	2 m bus bars	$14
	Support	**ST-BTW**	25	$75	ST-BTW	25	$75	ST-BTW	25	$75
Group identifier	**Assembly**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
	Din Rail	**IG-BTW**	50	$75	IG-BTW	50	$75	IG-BTW	50	$75
Identifier (2)		**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
		**IDG10/6-BTW**	360	$60	IDG10/6-BTW	360	$60	IDG10/6-BTW	360	$60
		IDG10/5-BTW	440	$60	IDG10/5-BTW	440	$60	IDG10/5-BTW	440	$60
		IDB5-BTW	500	$50	IDB5-BTW	500	$50	IDB5-BTW	500	$50
		IDG6/5-BTW	400	$50	IDG6/5-BTW	400	$50	IDG6/5-BTW	400	$50

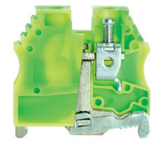
(2) Further details about identifiers on page 349.
(3) UL/CSA pending

BTWP

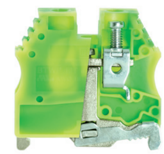
BTWP Series - Ground terminal blocks

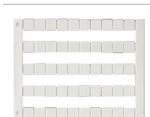
BTWP 2.5/4T
6 mm width

BTWP 6/10T
10 mm width



BTWP 16T
16 mm width

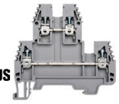
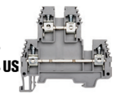
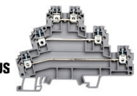
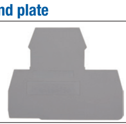
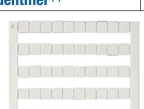


Technical data		Cross section			Cross section			Cross section	
IEC 60947-7-1		4 mm²			10 mm²			16 mm²	
UL / CSA		AWG 26 ... 10			AWG 16 ... 8			AWG 12...4	
Rated Surge Voltage		8kV			8kV			8kV	
Pollution degree		3			3			3	
Cable stripping		10 mm			12 mm			18 mm	
Tightening torque		0.5 Nm / 4.42 lb - in			1.2 Nm / 10.62 lb - in			2.5 Nm / 22.12 lb - in	
Connection capacity		Connection capacity			Connection capacity			Connection capacity	
Rigid wire		0.5 ... 6 mm²			1.5 ... 16 mm²			6 ... 16 mm²	
Flexible cable		1.5 ... 4 mm²			1.5 ... 10 mm²			10 ... 35 mm²	
AWG conductor		26 ... 10			16 ... 8			10 ... 2	
Terminal Block	**Color**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Qty/Pack.**	**List Price**
	Gr/Ye	**BTWP 2.5/4T**	50	$275	**BTWP 6/10T**	25	$187.50	25	$325
Accessories									
Din rail / Support	**Type**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Qty/Pack.**	**List Price**
DIN EN 50022 	Flat	**MR 35x7.5**	2 m bus bars	$14	**MR 35x7.5**	2 m bus bars	$14	2 m bus bars	$14
	Support	**ST-BTW**	25	$75	**ST-BTW**	25	$75	25	$75
Group identifier	**Assembly**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Qty/Pack.**	**List Price**
	Din Rail	**IG-BTW**	50	$75	**IG-BTW**	50	$75	50	$75
Identifier (2)		**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Qty/Pack.**	**List Price**
		**IDG10/6-BTW**	360	$60	**IDG10/6-BTW**	360	$60	360	$60
		IDG10/5-BTW	440	$60	**IDG10/5-BTW**	440	$60	440	$60
		IDB5-BTW	500	$50	**IDB5-BTW**	500	$50	500	$50
		IDG6/5-BTW	400	$50	**IDG6/5-BTW**	400	$50	400	$50

(2) Further details about identifiers on page 349.

Data is subject to change without notice.

BTWP Series - Double and triple terminal blocks

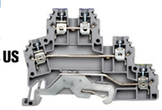
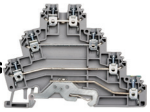
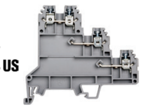
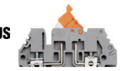
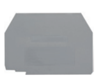
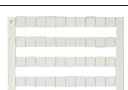
		Double Terminal Block						Triple Terminal Block		
		BTWD 2.5N 5 mm width 			BTWD 4N 6 mm width 			BTWT 3 6 mm width 		
Technical data		Voltage / Current / Cross section			Voltage / Current / Cross section			Voltage / Current / Cross section		
IEC 60947-7-1		500 V~ / 24 A / 2.5 mm²			500 V~ / 32 A / 4 mm²			440 V~ / 24 A / 2.5 mm²		
UL / CSA		300 V~ / 20 A / AWG 26 ... 12			300 V~ / 30 A / AWG 26 ... 10			300 V~ / 24 A / AWG 24 ... 12		
Rated Surge Voltage		8kV			8kV			8kV		
Pollution degree		3			3			3		
Cable stripping		9 mm			9 mm			9 mm		
Tightening torque		0.4 Nm / 13.54 lb - in			0.5 Nm / 14.42 lb - in			0.4 Nm / 13.54 lb - in		
Connection capacity		Connection capacity			Connection capacity			Connection capacity		
Rigid wire		0.5 ... 4 mm²			0.5 ... 6 mm²			0.5 ... 4 mm²		
Flexible cable		1.5 ... 2.5 mm²			1.5 ... 4 mm²			1.5 ... 2.5 mm²		
AWG Conductor		26 ... 12			26 ... 10			24 ... 12		
Terminal Block	Color	Catalog Number	Qty/Pack.	List Price	Catalog Number	Qty/Pack.	List Price	Catalog Number	Qty/Pack.	List Price
	Gray	BTWD 2.5N	100	$430	BTWD 4N	100	$460	BTWT 3	20	$150
Accessories										
End plate	Color	Catalog Number	Qty/Pack.	List Price	Catalog Number	Qty/Pack.	List Price	Catalog Number	Qty/Pack.	List Price
1.5 mm width 	Gray	TF-BTWD 2.5-4N	25	$32.50	TF-BTWD 2.5-4N	25	$32.50	TF-BTWT 3	10	$13
Connecting bridge	Nº. of poles	Catalog Number	Qty/Pack.	List Price	Catalog Number	Qty/Pack.	List Price	Catalog Number	Qty/Pack.	List Price
	2	PC-BTWP 2.5/2	25	$47.50	PC-BTWP 4/2	25	$47.50	PC-BTWT 2.5/2	25	$47.50
	3	PC-BTWP 2.5/3	20	$56	PC-BTWP 4/3	20	$56	PC-BTWT 2.5/3	20	$56
	4	PC-BTWP 2.5/4	15	$57	PC-BTWP 4/4	15	$57	PC-BTWT 2.5/4	15	$57
	10	PC-BTWP 2.5/10	5	$44	PC-BTWP 4/10	5	$44	PC-BTWT 2.5/10	5	$44
End bracket	Color	Catalog Number	Qty/Pack.	List Price	Catalog Number	Qty/Pack.	List Price	Catalog Number	Qty/Pack.	List Price
8 mm width 	Gray	PF3-BTW	100	$120	PF3-BTW	100	$120	PF3-BTW	100	$120
	Gray	PF4-BTW	100	$120	PF4-BTW	100	$120	PF4-BTW	100	$120
Din rail / Support	Type	Catalog Number	Qty/Pack.	List Price	Catalog Number	Qty/Pack.	List Price	Catalog Number	Qty/Pack.	List Price
DIN EN 50022  	Flat	MR 35x7.5	2 m bus bars	$14	MR 35x7.5	2 m bus bars	$14	MR 35x7.5	2 m bus bars	$14
	Suopoort	ST-BTW	250	$75	ST-BTW	250	$75	ST-BTW	250	$75
Identifier group	Assembly	Catalog Number	Qty/Pack.	List Price	Catalog Number	Qty/Pack.	List Price	Catalog Number	Qty/Pack.	List Price
 	Din Rail	IG-BTW	50	$75	IG-BTW	50	$75	IG-BTW	50	$75
	End Bracket	IG22-BTW (1)	25	$37.50	IG22-BTW (1)	25	$37.50	IG22-BTW (1)	25	$37.50
Identifier (2)		Catalog Number	Qty/Pack.	List Price	Catalog Number	Qty/Pack.	List Price	Catalog Number	Qty/Pack.	List Price
		IDG10/5T-BTW	440	$60	IDG10/6T-BTW	360	$60	IDB5-BTW	500	$50
		IDB5-BTW	500	$50	IDG10/5T-BTW	440	$60			
		IDG6/5-BTW	400	$50	IDB5-BTW	500	$50			
					IDG6/5-BTW	400	$50			

(1) For assembly on PF4-BTW end bracket.
(2) Further details about identifiers on page 349.
(3) UL/CSA pending

Terminal Blocks

BPWT

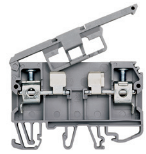
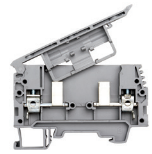
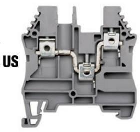
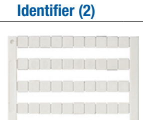
Double and Triple terminal block + ground
Terminal block for detectors

		BTWT 2T 6 mm width 			BTWT 3T 6 mm width 			BTWT 3S 6 mm width 			BTWS 3A 6 mm width 		
Technical data		**Voltage / Current / Cross Section**			**Voltage / Current / Cross Section**			**Voltage / Current / Cross Section**			**Voltage / Current / Cross Section**		
IEC 60947-7-1		440 V~ / 24 A / 2.5 mm²			440 V~ / 24 A / 2.5 mm²			500 V~ / 24 A / 2.5 mm²			500 V~ / 16 A / 4 mm²		
UL / CSA		300 V~ / 24 A / AWG 24 ... 12			300 V~ / 24 A / AWG 24 ... 12			(3)			600 V~ / 16 A / AWG 26...10		
Rated Surge Voltage		8kV			8kV			8kV			8kV		
Pollution degree		3			3			3			3		
Cable stripping		9 mm			9 mm			9 mm			10 mm		
Tightening torque		0.4 Nm / 13.54 lb - in			0.4 Nm / 13.54 lb - in			0.4 Nm / 13.54 lb - in			0.5 Nm / 4.42 lb - in		
Connection capacity		Connection capacity			Connection capacity			Connection capacity			Connection capacity		
Rigid wire		0.5 ... 4 mm²			0.5 ... 4 mm²			0.5 ... 4 mm²			0.5 ... 6 mm²		
Flexible cable		1.5 ... 2.5 mm²			1.5 ... 2.5 mm²			1.5 ... 2.5 mm²			1.5 ... 4 mm²		
AWG Conductor		24 ... 12			24 ... 12			24 ... 12			26 ... 10		
Terminal Block	**Color**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
	Gray	BTWT 2T	20	$160	BTWT 3T	List Price	$230.00	BTWT 3S	20	$100	BTWS 3A	50	$250
Accessories													
End plate	**Color**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
1.5 mm width 	Gray	TF-BTWT 2T	10	$13	TF-BTWT 3T	10	$13	TF-BTWT 3S	10	$13	TF-BTWS 3	10	$10
Connecting bridge	**No.Poles**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**			
	2	PC-BTWT 2.5/2	25	$47.50	PC-BTWT 2.5/2	25	$47.50	PC-BTWT 2.5/2	25	$47.50	-		
	3	PC-BTWT 2.5/3	20	$56	PC-BTWT 2.5/3	20	$56	PC-BTWT 2.5/3	20	$56	-		
	4	PC-BTWT 2.5/4	15	$57	PC-BTWT 2.5/4	15	$57	PC-BTWT 2.5/4	15	$57	-		
	10	PC-BTWT 2.5/10	5	$44	PC-BTWT 2.5/10	5	$44	PC-BTWT 2.5/10	5	$44	-		
End bracket	**Color**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
8 mm width 	Gray	PF3-BTW	100	$120	PF3-BTW	100	$120	PF3-BTW	100	$120	PF3-BTW	100	$120
	Gray	PF4-BTW	100	$120	PF4-BTW	100	$120	PF4-BTW	100	$120	PF4-BTW	100	$120
Rail / Support	**Type**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
Din EN 50022 	Flat	MR 35x7.5	2 m busbars	$14	MR 35x7.5	2 m busbars	$14	MR 35x7.5	2 m busbars	$14	MR 35x7.5	2 m busbars	$14
	Support	ST-BTW	25	$75	ST-BTW	25	$75	ST-BTW	25	$75	ST-BTW	25	$75
Identifier group	**Assem-bly**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
	Din Rail	IG-BTW	50	$75	IG-BTW	50	$75	IG-BTW	50	$75	IG-BTW	50	$75
	End Bracket	IG22-BTW (1)	25	$37.50	IG22-BTW (1)	25	$37.50	IG22-BTW (1)	25	$37.50	IG22-BTW (1)	25	$37.50
Identifier (2)		**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
		IDB5-BTW	500	$50	IDB5-BTW	500	$50	IDB5-BTW	500	$50	IDG10/6-BTW	360	$60
											IDG10/5-BTW	440	$60
											IDB5-BTW	500	$50
											IDG6/5-BTW	400	$50

Note: (1) For assembly on PF4-BTW end bracket.
(2) Further information about identifiers on page 349.
(3) UL/CSA pending

Data is subject to change without notice.

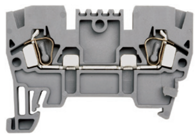
BTWS Series - Terminal blocks for fuses
BWWP Series - 1IN-2OUT terminal block

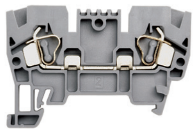
		Terminal Block for fuses						1 IN / 2 OUT Terminal Block		
		BTWS 2S 8 mm width 			BTWS 4S 10 mm width 			BTWP 4C 6 mm width 		
Technical data		**Voltage / Current / Cross section**			**Voltage / Current / Cross section**			**Voltage / Current / Cross section**		
IEC 60947-7-1		500 V~ / 6.3 A / 6 mm²			750 V~ / 6.3 A / 6 mm²			750 V~ / 32 A / 4 mm²		
UL / CSA		300 V~ / 6.3 A / AWG 26 ... 8			600 V~ / 6.3 A / AWG 22 ... 8			3		
Rated Surge Voltage		8kV								
Pollution degree		3								
Fuse dimensions		5x20 ou 5x25 mm			6.35x31.75 mm (1/4"x1 1/4")			-		
Cable stripping		12 mm			12 mm			10 mm		
Tightening torque		0.8 Nm / 7.08 lb - in			0.8 Nm / 7.08 lb - in			0.5 Nm / 4.42 lb - in		
Connection capacity		Connection capacity			Connection capacity			Connection capacity		
Rigid wire		0.5 ... 10 mm²			0.5 ... 10 mm²			0.5 ... 6 mm²		
Flexible cable		1.5 ... 6 mm²			1.5 ... 6 mm²			1.5 ... 4 mm²		
AWG Conductor		26 ... 8			22 ... 8			26 ... 10		
Terminal Block	**Color**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
	Gray	**BTWS 2S**	50	$525	BTWS 4S	20	$210	BTWP 4C	50	$250
					Note! Accept reserve fuse disconnect lever.					
Accessories										
End plate	**Color**	**Catalog Number**	**Qty/Pack.**	**List Price**				**Catalog Number**	**Qty/Pack.**	**List Price**
1.5 mm width 	Gray	TF-BTWS 2	10	$10	Supplied with end plate as standard			TF-BTWP 4C	10	$10
End bracket	**Color**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
8 mm width 	Gray	**PF3-BTW**	100	$120	PF3-BTW	100	$120	PF3-BTW	100	$120
	Gray	**PF4-BTW**	100	$120	PF4-BTW	100	$120	PF4-BTW	100	$120
Rail / Support	**Type**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
DIN EN 50022 	Flat	**MR 35x7.5**	2 m busbars	$14	MR 35x7.5	2 m busbars	$14	MR 35x7.5	2 m busbars	$14
	Support	**ST-BTW**	25	$75	ST-BTW	25	$75	ST-BTW	25	$75
Group identifier	**Assembly**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
	Din Rail	**IG-BTW**	50	$75	IG-BTW	50	$75	IG-BTW	50	$75
	End Bracket	**IG22-BTW (1)**	25	$37.50	IG22-BTW (1)	25	$37.50	IG22-BTW (1)	25	$37.50
Identifier (2)		**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
		**IDB5-BTW**	500	$50	IDG10/6-BTW	360	$60	IDG10/6-BTW	360	$60
					IDG10/5-BTW	440	$60	IDG10/5-BTW	440	$60
					IDB5-BTW	500	$50	IDB5-BTW	500	$50
					IDG6/5-BTW	400	$50	IDG6/5-BTW	400	$50

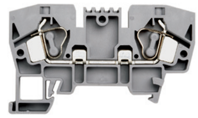
Note: (1) For assembly on PF4-BTW end bracket.
(2) Further information about identifiers on page 349.
(3) UL/CSA pending

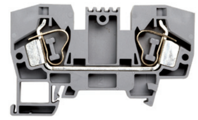
BTWM

Terminal Blocks w/ Spring Connections

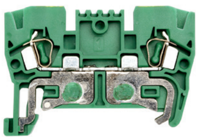

BTWM 2,5

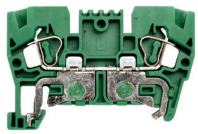

BTWM 4

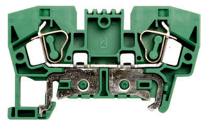

BTWM 6

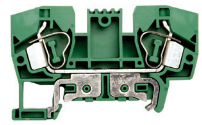

BTWM 10

Ground terminal blocks

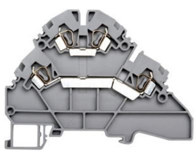

BTWM 2,5T

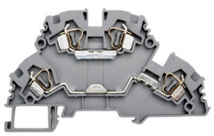

BTWM 4T


BTWM 6T

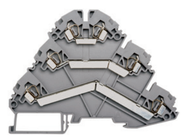

BTWM 10T

Double terminal blocks

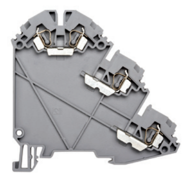

BTWM 2F


BTWM 4-2F

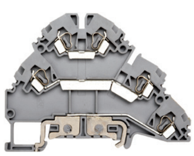
Triple terminal blocks


BTWM 2,5-3F

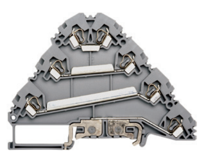
Terminal block for detectors


BTWM 3S

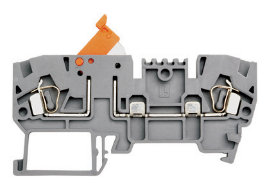
Double terminal block + ground


BTWM 2,5-2FT

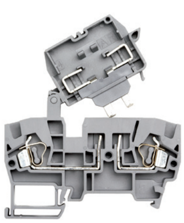
Triple terminal block + ground

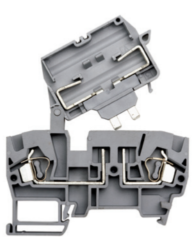

BTWM 2,5-3FT

Disconnect terminal

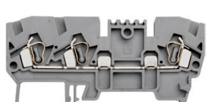

BTWM 2, 5A

Terminal blocks for fuses

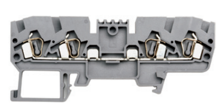

BTWM S
pg.163


BTWM I
pg.163

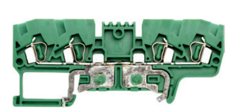
1in-2out terminal block


BTWM 2E
pg.154

2in-2out terminal block

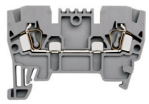
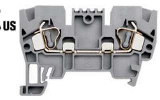
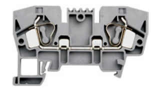
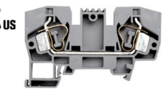

BTWM 2,5C
pg.164

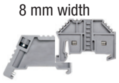
Double earth terminal block


BTWM 2,5CT
pg.164

Selection Guide

Spring clamp terminals

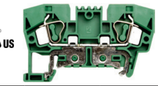
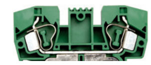
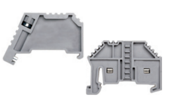
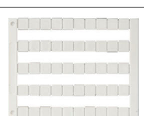
	BTWM 2.5	BTWM 4	BTWM 6	BTWM 10
	5 mm width	6 mm width	8 mm width	10 mm width
	CE cULus 	CE cULus 	CE cULus 	CE cULus 
Technical data	Voltage / Current / Cross section	Voltage / Current / Cross section	Voltage / Current / Cross section	Voltage / Current / Cross section.
IEC 60947-7-1	750 V~ / 24 A / 2.5 mm²	750 V~ / 32 A / 4 mm²	750 V~ / 41 A / 6 mm²	750 V~ / 57 A / 10 mm²
Rated Surge Voltage	8kV	8kV	8kV	8kV
Pollution degree	3	3	3	3
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
Connection capacity	Connection capacity	Connection capacity	Connection capacity	Connection capacity
Rigid wire	0.5 ... 4 mm²	0.5 ... 6 mm²	0.5 ... 10 mm²	0.5 ... 16 mm²
Flexible cable	0.5 ... 2.5 mm²	0.5 ... 4 mm²	0.5 ... 6 mm²	0.5 ... 10 mm²
AWG Conductor	22 ... 12	22 ... 10	22 ... 8	20 ... 6

		BTWM 2.5			BTWM 4			BTWM 6			BTWM 10		
Terminal Block	Color	Catalog Number	Qty/ Pack.	List Price	Catalog Number	Qty/ Pack.	List Price	Catalog Number	Qty/ Pack.	List Price	Catalog Number	Qty/ Pack.	List Price
	Gray	BTWM 2.5	100	$160	BTWM 4	100	$210	BTWM 6	100	$330	BTWM 10	50	$225
	Blue	BTWM 2.5 (AZ)	100	$160	BTWM 4 (AZ)	100	$210	BTWM 6 (AZ)	100	$330	BTWM 10 (AZ)	50	$225
	Green	BTWM 2.5 (VD)	100	$160	BTWM 4 (VD)	100	$210	BTWM 6 (VD)	100	$330	BTWM 10 (VD)	50	$225
Accessories													
End plate	**Color**	**Catalog Number**	**Qty/ Pack.**	**List Price**	**Catalog Number**	**Qty/ Pack.**	**List Price**	**Catalog Number**	**Qty/ Pack.**	**List Price**	**Catalog Number**	**Qty/ Pack.**	**List Price**
1.2 mm width 	Gray	TF-BTWM 2.5	100	$75	TF-BTWM 4	100	$75	TF-BTWM 6	100	$75	TF-BTWM 10	100	$75
	Blue	TF-BTWM 2.5 (AZ)	100	$75	TF-BTWM 4 (AZ)	100	$75	TF-BTWM 6 (AZ)	100	$75	TF-BTWM 10 (AZ)	100	$75
	Green	TF-BTWM 2.5 (VD)	100	$75	TF-BTWM 4 (VD)	100	$75	TF-BTWM 6 (VD)	100	$75	TF-BTWM 10 (VD)	100	$75
Connecting bridge	**Nº. of poles**	**Catalog Number**	**Qty/ Pack.**	**List Price**	**Catalog Number**	**Qty/ Pack.**	**List Price**	**Catalog Number**	**Qty/ Pack.**	**List Price**	**Catalog Number**	**Qty/ Pack.**	**List Price**
	2	PC-BTWM 2.5/2	25	$35	PC-BTWM 4/2	25	$35	PC-BTWM 6/2	25	$35	PC-BTWM 10/2	25	$35
	3	PC-BTWM 2.5/3	20	$46	PC-BTWM 4/3	20	$46	PC-BTWM 6/3	20	$46	PC-BTWM 10/3	20	$46
	4	PC-BTWM 2.5/4	15	$49.50	PC-BTWM 4/4	15	$49.50	PC-BTWM 6/4	15	$49.50	PC-BTWM 10/4	15	$49.50
	10	PC-BTWM 2.5/10	5	$41.50	PC-BTWM 4/10	5	$41.50	PC-BTWM 6/10	5	$41.50	PC-BTWM 10/10	5	$41.50
End bracket	**Color**	**Catalog Number**	**Qty/ Pack.**	**List Price**	**Catalog Number**	**Qty/ Pack.**	**List Price**	**Catalog Number**	**Qty/ Pack.**	**List Price**	**Catalog Number**	**Qty/ Pack.**	**List Price**
8 mm width 	Gray	PF3-BTW	100	$120	PF3-BTW	100	$120	PF3-BTW	100	$120	PF3-BTW	100	$120
	Gray	PF4-BTW	100	$120	PF4-BTW	100	$120	PF4-BTW	100	$120	PF4-BTW	100	$120
Rail / Support	**Type**	**Catalog Number**	**Qty/ Pack.**	**List Price**	**Catalog Number**	**Qty/ Pack.**	**List Price**	**Catalog Number**	**Qty/ Pack.**	**List Price**	**Catalog Number**	**Qty/ Pack.**	**List Price**
Din EN 50022 	Flat	MR 35x7.5	2 m busbars	$14	MR 35x7.5	2 m busbars	$14	MR 35x7.5	2 m busbars	$14	MR 35x7.5	2 m busbars	$14
	Support	ST-BTW	25	$75	ST-BTW	25	$75	ST-BTW	25	$75	ST-BTW	25	$75
Group identifier	**Assembly**	**Catalog Number**	**Qty/ Pack.**	**List Price**	**Catalog Number**	**Qty/ Pack.**	**List Price**	**Catalog Number**	**Qty/ Pack.**	**List Price**	**Catalog Number**	**Qty/ Pack.**	**List Price**
	Din Rail	IG-BTW	50	$75	IG-BTW	50	$75	IG-BTW	50	$75	IG-BTW	50	$75
	End Bracket	IG22-BTW (1)	25	$37.50	IG22-BTW (1)	25	$37.50	IG22-BTW (1)	25	$37.50	IG22-BTW (1)	25	$37.50
Identifier (2)		**Catalog Number**	**Qty/ Pack.**	**List Price**	**Catalog Number**	**Qty/ Pack.**	**List Price**	**Catalog Number**	**Qty/ Pack.**	**List Price**	**Catalog Number**	**Qty/ Pack.**	**List Price**
		IDG10/5-BTW	440	$60	IDG10/6-BTW	360	$60	IDG10/6-BTW	360	$60	IDG10/6-BTW	360	$60
		IDB5-BTW	500	$50	IDG10/5-BTW	440	$60	IDG10/5-BTW	440	$60	IDG10/5-BTW	440	$60
		IDG6/5-BTW	400	$50	IDB5-BTW	500	$50	IDB5-BTW	500	$50	IDB5-BTW	500	$50
					IDG6/5-BTW	400	$50	IDG6/5-BTW	400	$50	IDG6/5-BTW	400	$50

Note:
(1) For assembly on PF4-BTW end bracket.
2) Further information about identifiers on page 349.

BTWM

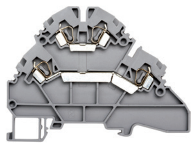
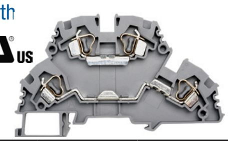
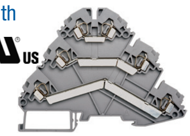
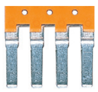
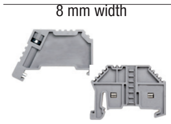
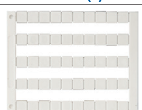
Ground terminal blocks spring type

		BTWM 2.5T 5 mm width			BTWM 4T 6 mm width			BTWM 6T 8 mm width			BTWM 10T 10 mm width		
													
Technical data		Cross section			Cross section			Cross section			Cross section		
IEC 60947-7-1		2.5 mm²			4 mm²			6 mm²			10 mm²		
UL / CSA		AWG 22 ... 12			AWG 22 ... 10			AWG 22 ... 8			AWG 20 ... 6		
Rated Surge Voltage		8kV			8kV			8kV			8kV		
Pollution degree		3			3			3			3		
Cable stripping		10 mm			12 mm			12 mm			13 mm		
Connection capacity		Connection capacity			Connection capacity			Connection capacity			Connection capacity		
Rigid wire		0.5 ... 4 mm²			0.5 ... 6 mm²			0.5 ... 10 mm²			0.5 ... 16 mm²		
Flexible cable		0.5 ... 2.5 mm²			0.5 ... 4 mm²			0.5 ... 6 mm²			0.5 ... 10 mm²		
AWG Condutor		22 ... 12			22 ... 10			22 ... 8			20 ... 6		
Terminal Block	Color	Catalog Number	Qty/Pack.	List Price	Catalog Number	Qty/Pack.	List Price	Catalog Number	Qty/Pack.	List Price	Catalog Number	Qty/Pack.	List Price
	Green	BTWM 2.5T	50	Qty/Pack.	BTWM 4T	50	$300	BTWM 6T	40	$240	BTWM 10T	30	$285
Accessories													
End plate	Color	Catalog Number	Qty/Pack.	List Price	Catalog Number	Qty/Pack.	List Price	Catalog Number	Qty/Pack.	List Price	Catalog Number	Qty/Pack.	List Price
1.2 mm width 	Green	TF-BTWM 2.5 (VD)	10	$7.50	TF-BTWM 4 (VD)	10	$7.50	TF-BTWM 6 (VD)	10	$7.50	TF-BTWM 10 (VD)	10	$7.50
End bracket	Color	Catalog Number	Qty/Pack.	List Price	Catalog Number	Qty/Pack.	List Price	Catalog Number	Qty/Pack.	List Price	Catalog Number	Qty/Pack.	List Price
8 mm width 	Gray	PF3-BTW	100	$120	PF3-BTW	100	$120	PF3-BTW	100	$120	PF3-BTW	100	$120
	Gray	PF4-BTW	100	$120	PF4-BTW	100	$120	PF4-BTW	100	$120	PF4-BTW	100	$120
Din Rail / Support	Type	Catalog Number	Qty/Pack.	List Price	Catalog Number	Qty/Pack.	List Price	Catalog Number	Qty/Pack.	List Price	Catalog Number	Qty/Pack.	List Price
DIN EN 50022 	Flat	MR 35x7.5	2 m busbars	$14	MR 35x7.5	2 m busbars	$14	MR 35x7.5	2 m busbars	$14	MR 35x7.5	2 m busbars	$14
	Support	ST-BTW	25	$75	ST-BTW	25	$75	ST-BTW	25	$75	ST-BTW	25	$75
Group identifier	Assembly	Catalog Number	Qty/Pack.	List Price	Catalog Number	Qty/Pack.	List Price	Catalog Number	Qty/Pack.	List Price	Catalog Number	Qty/Pack.	List Price
	Din Rail	IG-BTW	50	$75	IG-BTW	50	$75	IG-BTW	50	$75	IG-BTW	50	$75
	End Bracket	IG22-BTW (1)	25	$37.50	IG22-BTW (1)	25	$37.50	IG22-BTW (1)	25	$37.50	IG22-BTW (1)	25	$37.50
Identifier (2)		Catalog Number	Qty/Pack.	List Price	Catalog Number	Qty/Pack.	List Price	Catalog Number	Qty/Pack.	List Price	Catalog Number	Qty/Pack.	List Price
		IDG10/5-BTW	440	$60	IDG10/6-BTW	360	$60	IDG10/6-BTW	360	$60	IDG10/6-BTW	360	$60
		IDB5-BTW	500	$50	IDG10/5-BTW	440	$60	IDG10/5-BTW	440	$60	IDG10/5-BTW	440	$60
		IDG6/5-BTW	400	$50	IDB5-BTW	500	$50	IDB5-BTW	500	$50	IDB5-BTW	500	$50
					IDG6/5-BTW	400	$50	IDG6/5-BTW	400	$50	IDG6/5-BTW	400	$50

Note:
(1) For assembly on PF4-BTW end bracket.
(2) Further information about identifiers on page 349.

Data is subject to change without notice.

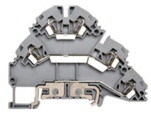
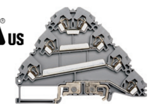
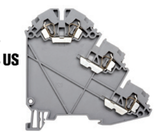
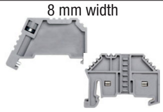
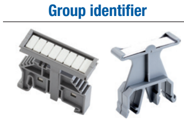
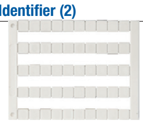
BTWM Series - Double terminal blocks - Triple terminal blocks spring type

		Double Terminal Blocks						Triple Terminal Blocks		
		BTWM 2.5-2F 5 mm width 			**BTWM 4-2F** 6 mm width 			**BTWM 2.5-3F** 5 mm width 		
Technical data		Voltage / Current / Cross section			Voltage / Current / Cross section			Voltage / Current / Cross section		
IEC 60947-7-1		500 V~ / 24 A / 2.5 mm²			750 V~ / 30 A / 4 mm²			500 V~ / 24 A / 2.5 mm²		
Rated Surge Voltage		8kV			8kV			8kV		
Pollution degree		3			3			3		
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		
Connection capacity		Connection capacity			Connection capacity			Connection capacity		
Rigid wire		0.5 ... 4 mm²			0.5 ... 6 mm²			0.5 ... 4 mm²		
Flexible cable		0.5 ... 2.5 mm²			0.5 ... 4 mm²			0.5 ... 2.5 mm²		
AWG Conductor		22 ... 12			22 ... 10			22 ... 12		
Terminal Block	**Color**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
	Gray	BTWM 2.5-2F	30	$135	BTWM 4-2F	50	$300	BTWM 2.5-3F	20	$160
Accessories										
End plate	**Color**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
1.5 mm width 	Gray	TF-BTWM 2.5-2F	50	$65	TF-BTWM 4-2F	25	$32.50	TF-BTWM 2.5-3F	10	$13
Connecting bridge	**NO. of poles**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
	2	PC-BTWM 2.5/2	25	$35	PC-BTWM 4/2	25	$35	PC-BTWM 2.5/2	25	$35
	3	PC-BTWM 2.5/3	20	$46	PC-BTWM 4/3	20	$46	PC-BTWM 2.5/3	20	$46
	4	PC-BTWM 2.5/4	15	$49.50	PC-BTWM 4/4	15	$49.50	PC-BTWM 2.5/4	15	$49.50
	10	PC-BTWM 2.5/10	5	Qty/Pack.	PC-BTWM 4/10	5	$41.50	PC-BTWM 2.5/10	5	$41.50
End bracket 8 mm width	**Color**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
	Gray	PF3-BTW	100	$120	PF3-BTW	100	$120	PF3-BTW	100	$120
	Gray	PF4-BTW	100	$120	PF4-BTW	100	$120	PF4-BTW	100	$120
Rail / Support Din EN 50022	**Type**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
	Flat	MR 35x7.5	2 m busbars	$14	MR 35x7.5	2 m busbars	$14	MR 35x7.5	2 m busbars	$14
	Support	ST-BTW	25	$75	ST-BTW	25	$75	ST-BTW	25	$75
Identifier group	**Assembly**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
	Din Rail	IG-BTW	50	$75	IG-BTW	50	$75	IG-BTW	50	$75
	End Bracket	IG22-BTW (1)	25	$37.50	IG22-BTW (1)	25	$37.50	IG22-BTW (1)	25	$37.50
Identifier (2)		**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
		IDB5-BTW	500	$50	IDG10/6-BTW	360	$60	IDB5-BTW	500	$50
						440	$60			
					IDB5-BTW	500	$50			
					IDG6/5-BTW	400	$50			

Note:
(1) For assembly on PF4-BTW end bracket.
(2) Further information about identifiers on page 349.

BTWM

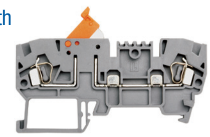
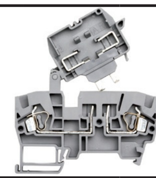
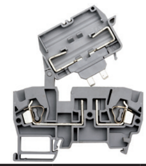
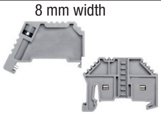
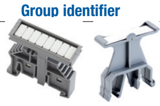
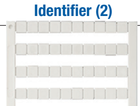
BTWM Series - Double and Triple terminal block + ground spring type
BTWM Series - Terminal block for detectors spring type

		Double Terminal Block + ground			Triple Terminal Block + ground			Terminal block for detectors		
		BTWM 2.5-2FT 5 mm width CE cULus 			BTWM 2.5-3FT 5 mm width CE cULus 			BTWM 3S 5 mm width CE cULus 		
Technical data		**Voltage / Current / Cross section**			**Voltage / Current / Cross section**			**Voltage / Current / Cross section**		
IEC 60947-7-1		500 V~ / 24 A / 2.5 mm²			500 V~ / 24 A / 2.5 mm²			500 V~ / 24 A / 2.5 mm²		
Rated Surge Voltage		8kV			8kV			8kV		
Pollution degree		3			3			3		
UL / CSA		600 V~ / 20 A / AWG 22 ... 12			600 V~ / 20 A / AWG 22 ... 12			(3)		
Cable stripping		10 mm			10 mm			10 mm		
Connection capacity		Connection capacity			Connection capacity			Connection capacity		
Rigid wire		0.5 ... 4 mm²			0.5 ... 4 mm²			0.5 ... 4 mm²		
Flexible cable		0.5 ... 2.5 mm²			0.5 ... 2.5 mm²			0.5 ... 2.5 mm²		
AWG Conductor		22 ... 12			22 ... 12			22 ... 12		
Terminal Block	**Color**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
	Gray	**BTWM 2.5-2FT**	30	$315	**BTWM 2.5-3FT**	30	$390	**BTWM 3S**	20	$100
Accessories										
End plate	**Color**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
1.5 mm width 	Gray	**TF-BTWM 2.5-2FT**	10	$13	**TF-BTWM 2.5-3FT**	10	$13	**TF-BTWM 3S**	10	$13
Connecting bridge	**NO. of poles**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
	2	**PC-BTWM 2.5/2**	25	$35	**-**			**PC-BTWM 2.5/2**	25	$35
	3	**PC-BTWM 2.5/3**	20	$46	**-**			**PC-BTWM 2.5/3**	20	$46
	4	**PC-BTWM 2.5/4**	15	$49.50	**-**			**PC-BTWM 2.5/4**	15	$49.50
	10	**PC-BTWM 2.5/10**	5	$41.50	**-**			**PC-BTWM 2.5/10**	5	$41.50
End bracket	**Color**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
8 mm width 	Gray	**PF3-BTW**	100	$120	**PF3-BTW**	100	$120	**PF3-BTW**	100	$120
	Gray	**PF4-BTW**	100	$120	**PF4-BTW**	100	$120	**PF4-BTW**	100	$120
Din rail / Support	**Type**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
DIN EN 50022 	Flat	**MR 35x7.5**	2 m busbars	$14	**MR 35x7.5**	2 m busbars	$14	**MR 35x7.5**	2 m busbars	$14
	Support	**ST-BTW**	25	$75	**ST-BTW**	25	$75	**ST-BTW**	25	$75
Group identifier	**Assembly**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
	Din Rail	**IG-BTW**	50	$75	**IG-BTW**	50	$75	**IG-BTW**	50	$75
	End Bracket	**IG22-BTW (1)**	25	$37.50	**IG22-BTW (1)**	25	$37.50	**IG22-BTW (1)**	25	$37.50
Identifier (2)		**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
		**IDB5-BTW**	500	$50	**IDB5-BTW**	500	$50	**IDB5-BTW**	500	$50

Note:
(1) For assembly on PF4-BTW end bracket
(2) Further details about identifiers on page 349.
(3) UL/CSA pending

Data is subject to change without notice.

Disconnect terminals spring type
Terminal blocks for fuses spring type

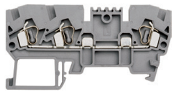
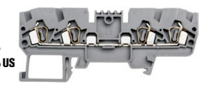
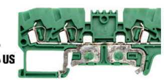
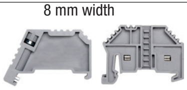
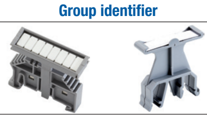
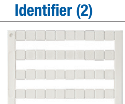
		Disconnect Terminal			Terminal Block for fuses			Terminal blocks for fuses		
		BTWM 2.5A 5 mm width CE cULus 			**BTWM S** 8 mm width CE cULus 			**BTWM I** 8 mm width CE cULus 		
Technical data		Voltage / Current / Cross section			Voltage / Current / Cross section			Voltage / Current /Cross section		
IEC 60947-7-1		750 V~ / 16 A / 2.5 mm²			500 V~ / 10 A / 4 mm²			500 V~ / 10 A / 4 mm²		
UL / CSA		600 V~ / 10 A / AWG 22 ... 12			600 V~ / 10 A / AWG 22 ... 10			600 V~ / 10 A / AWG 22 ... 10		
Rated Surge Voltage		8kV			8kV			8kV		
Pollution degree		3			3			3		
Fuse dimensions		-			5x20 or 5x25 mm			6.35x31.75 mm (1/4"x1 1/4")		
Cable stripping		10 mm			12 mm			12 mm		
Connection capacity		Connection capacity			Connection capacity			Connection capacity		
Rigid wire		0.5 ... 4 mm²			0.5 ... 6 mm²			0.5 ... 6 mm²		
Flexible cable		0.5 ... 2.5 mm²			0.5 ... 4 mm²			0.5 ... 4 mm²		
AWG Conductor		22 ... 12			22 ... 10			22 ... 10		
Terminal Block	**Color**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
	Gray	BTWM 2.5A	50	$350	BTWM S	20	$210	BTWM I	20	$210
					Note! Reserve fuse housed in disconnect lever.			Note! Reserve fuse housed in disconnect lever.		
Accessories										
End plate	**Color**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
1.5 mm width 	Gray	TF-BTWM 2.5A	10	$13	TF-BTWM S-I	10	$13	TF-BTWM S-I	10	$13
Connecting bridge	**N0. of Poles**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
	2	PC-BTWM 2.5/2	25	$35	PC-BTWM 6/2	25	$35	PC-BTWM 6/2	25	$35
	3	PC-BTWM 2.5/3	20	Qty/Pack.	List Price	20	$46	PC-BTWM 6/3	20	$46
	4	PC-BTWM 2.5/4	15	$49.50	PC-BTWM 6/4	15	$49.50	PC-BTWM 6/4	15	$49.50
	10	PC-BTWM 2.5/10	5	$41.50	PC-BTWM 6/10	5	$41.50	PC-BTWM 6/10	5	$41.50
End bracket	**Color**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
8 mm width 	Gray	PF3-BTW	100	$120	PF3-BTW	100	$120	PF3-BTW	100	$120
	Gray	PF4-BTW	100	$120	PF4-BTW	100	$120	PF4-BTW	100	$120
Din rail / Suppoty	**Type**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
DIN EN 50022 	Flat	MR 35x7.5	2 m busbars	$14	MR 35x7.5	2 m busbars	$14	MR 35x7.5	2 m busbars	$14
	Support	ST-BTW	25	$75	ST-BTW	25	$75	ST-BTW	25	$75
Group identifier	**Assembly**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
	Din Rail	IG-BTW	50	$75	IG-BTW	50	$75	IG-BTW	50	$75
	End Bracket	IG22-BTW (1)	25	$37.50	IG22-BTW (1)	25	$37.50	IG22-BTW (1)	25	$37.50
Identifier (2)		**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
		IDG10/5-BTW	440	$60	IDB5-BTW	500	$50	IDB5-BTW	500	$50
		IDB5-BTW	500	$50						
		IDG6/5-BTW	400	$50						

Note:
(1) For assembly on PF4-BTW end bracket.
(2) Further information about identifiers on page 349.

Terminal Blocks

BTWM

1IN-2OUT and 2IN-2OUT Terminal block - spring type
Double ground terminal block - spring type

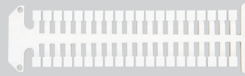
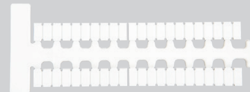
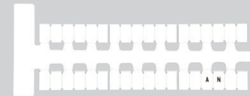
		1IN-2OUT Terminal block			2IN-2OUT Terminal block			Double ground terminal block		
		BTWM 2.5E 5 mm width 			BTWM 2.5C 5 mm width 			BTWM 2.5CT 5 mm width 		
Technical data		Voltage / Current / Cross section			Voltage / Current / Cross section			Cross section		
IEC 60947-7-1		750 V~ / 24 A / 2.5 mm²			750 V~ / 24 A / 2.5 mm²			2.5 mm²		
UL / CSA		600 V~ / 20 A / AWG 22 ... 12			600 V~ / 20 A / AWG 22 ... 12			AWG 22 ... 12		
Rated Surge Voltage		8kV			8kV			8kV		
Pollution degree		3			3			3		
Cable stripping		13 mm			13 mm			13 mm		
Connection capacity		Connection capacity			Connection capacity			Connection capacity		
Rigid wire		0.5 ... 4 mm²			0.5 ... 4 mm²			0.5 ... 4 mm²		
Flexible cable		0.5 ... 2.5 mm²			0.5 ... 2.5 mm²			0.5 ... 2.5 mm²		
AWG Conductor		22 ... 12			22 ... 12			22 ... 12		
Terminal Block	**Color**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
	Gray	BTWM 2.5E	50	Qty/Pack.	BTWM 2.5C	50	$250			
	Green	-			-			BTWM 2.5CT	50	$400
Accessories										
End plate	**Color**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
	Gray	TF-BTWM 2.5E	10	$13	TF-BTWM 2.5C	10	$13	-		
	Green	-			-			TF-BTWM 2.5CT	10	13
Connecting bridge	**NO. of Poles**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
	2	PC-BTWM 2.5/2	25	$35	PC-BTWM 2.5/2	25	$35	-		
	3	PC-BTWM 2.5/3	20	$46	PC-BTWM 2.5/3	20	$46	-		
	4	PC-BTWM 2.5/4	15	Qty/Pack.	PC-BTWM 2.5/4	15	$49.50	-		
	10	PC-BTWM 2.5/10	5	$41.50	PC-BTWM 2.5/10	5	$41.50	-		
End bracket 8 mm width	**Color**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
	Gray	PF3-BTW	100	$120	PF3-BTW	100	$120	PF3-BTW	100	$120
	Gray	PF4-BTW	100	$120	PF4-BTW	100	$120	PF4-BTW	100	$120
Rail / Support DIN EN 50022	**Type**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
	Flat	MR 35x7.5	2 m busbars	$14	MR 35x7.5	2 m busbars $14		MR 35x7.5	2 m busbars	$14
	Support	ST-BTW	25	$75	ST-BTW	25	$75	ST-BTW	25	$75
Group identifier	**Assembly**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
	Din Rail	IG-BTW	50	$75	IG-BTW	50	$75	IG-BTW	50	$75
	End Bracket	IG22-BTW (1)	25	$37.50	IG22-BTW (1)	25	$37.50	IG22-BTW (1)	25	$37.50
Identifier (2)		**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**	**Catalog Number**	**Qty/Pack.**	**List Price**
		IDG10/5-BTW	440	$60	IDG10/5-BTW	440	$60	IDG10/5-BTW	440	$60
		IDB5-BTW	500	$50	IDB5-BTW	500	$50	IDB5-BTW	500	$50
		IDG6/5-BTW	400	$50	IDG6/5-BTW	400	$50	IDG6/5-BTW	400	$50

Note:
(1) For assembly on PF4-BTW end bracket.
(2) Further information about identifiers on page 349.

Data is subject to change without notice.

Selection Guide

Identifiers are supplied in specific packaging and quantity for each type.
Markings shown below are standards and stockable. For any custom markings, please consult WEG.

Identifiers	IDG5			IDG6/5			IDG10/5			IDG10/6		
												
Technical data	Technical data			Technical data			Technical data			Technical data		
Identifier dimensions	5 x 5 mm			6 x 5 mm			10 x 5 mm			10 x 6 mm		
Identifier color	White			White			White			White		
Marking color	Black			Black			Black			Black		
Number of pieces (tags) per identifier	50			40			44			36		
Marking	**Catalog Number**	**Ident./ Pack**	**List Price/ Pack.**	**Catalog Number**	**Ident./ Pack**	**List Price/ Pack.**	**Catalog Number**	**Ident./ Pack**	**List Price/ Pack.**	**Catalog Number**	**Ident./ Pack**	**List Price/Pack.**
Without marking	IDB5-BTW	500	$50	IDG6/5-BTW	400	$50	IDG10/5T-BTW	440	$60	IDG10/6T-BTW	360	$60
0	IDB5-BTWH-0	50	$5	IDG6/5-BTWH-0	40	$5	IDG10/5T-BTWH-0	44	$6	IDG10/6-BTW (0)	36	$6
1	IDB5-BTWH-1	50	$5	IDG6/5-BTWH-1	40	$5	IDG10/5T-BTWH-1	44	$6	IDG10/6-BTW (1)	36	$6
2	IDB5-BTWH-2	50	$5	IDG6/5-BTWH-2	40	$5	IDG10/5T-BTWH-2	44	$6	IDG10/6-BTW (2)	36	$6
3	IDB5-BTWH-3	50	$5	IDG6/5-BTWH-3	40	$5	IDG10/5T-BTWH-3	44	$6	IDG10/6-BTW (3)	36	$6
4	IDB5-BTWH-4	50	$5	IDG6/5-BTWH-4	40	$5	IDG10/5T-BTWH-4	44	$6	IDG10/6-BTW (4)	36	$6
5	IDB5-BTWH-5	50	$5	IDG6/5-BTWH-5	40	$5	IDG10/5T-BTWH-5	44	$6	IDG10/6-BTW (5)	36	$6
6	IDB5-BTWH-6	50	$5	IDG6/5-BTWH-6	40	$5	IDG10/5T-BTWH-6	44	$6	IDG10/6-BTW (6)	36	$6
7	IDB5-BTWH-7	50	$5	IDG6/5-BTWH-7	40	$5	IDG10/5T-BTWH-7	44	$6	IDG10/6-BTW (7)	36	$6
8	IDB5-BTWH-8	50	$5	IDG6/5-BTWH-8	40	$5	IDG10/5T-BTWH-8	44	$6	IDG10/6-BTW (8)	36	$6
9	IDB5-BTWH-9	50	$5	IDG6/5-BTWH-9	40	$5	IDG10/5T-BTWH-9	44	$6	IDG10/6-BTW (9)	36	$6
10	IDB5-BTWH-10	50	$5	IDG6/5-BTWH-10	40	$5	IDG10/5T-BTWH-10	44	$6	IDG10/6-BTW (10)	36	$6
1, 2, 3 ... 8, 9, 10	IDB5-BTWH-1-10	1	$5	IDG6/5-BTWH-1-10	40	$5						
11, 12, 13 ... 18, 19, 20	IDB5-BTWH-11-20	1	$5	IDG6/5-BTWH-11-20	40	$5						
21, 22, 23 ... 28, 29, 30	IDB5-BTWH-21-30	1	$5	IDG6/5-BTWH-21-30	40	$5						
31, 32, 33 ... 38, 39, 40	IDB5-BTWH-31-40	1	$5	IDG6/5-BTWH-31-40	40	$5						
41, 42, 43 ... 48, 49, 50	IDB5-BTWH-41-50	1	$5	IDG6/5-BTWH-41-50	40	$5						
1, 2, 3 ... 20, 21, 22							IDG10/5-BTWH-1-22	44	$6			
23, 24, 25 ... 42, 43, 44							IDG10/5-BTWH-23-44	44	$6			
1, 2, 3 ... 16, 17, 18										IDG10/6-BTWH-1-18	36	$6
19, 20, 21 ... 34, 35, 36										IDG10/6-BTWH-19-36	36	$6
1, 2, 3 ... 48, 49, 50	IDB5-BTWH-1-50		$5									
51, 52, 53 ... 98, 99, 100	IDB5-BTWH-51-100	1	$5									
1, 2, 3 ... 38, 39, 40				IDG6/5-BTWH-1-40	50	$5						
41, 42, 43 ... 78, 79, 80				IDG6/5-BTWH-41-80	50	$5						
81, 82, 83 ... 118, 119, 120				IDG6/5-BTWH-80-120	50	$5						
1, 2, 3 ... 42, 43, 44							IDG10/5-BTWH-1-44	1	$6			
45, 46, 47 ... 86, 87, 88							IDG10/5-BTWH-45-88	1	$6			
89, 90, 91 ... 130, 131, 132							IDG10/5-BT-WH-89-132	1	$6			
1, 2, 3 ... 34, 35, 36										IDG10/6-BTWH-1-36	1	$6
37, 38, 39 ... 70, 71, 72										IDG10/6-BTWH-37-72	1	$6
73, 74, 75 ... 106, 107, 108										IDG10/6-BTW-73-108	1	$6

Power Factor Correction

Product Groups

UCWT series – Three Phase Capacitor Unit

BCWT series – Bank of three phase capacitors with or without fuse protection, in NEMA 4 enclosure

WEG power factor correction capacitors were designed using self-healing metallized polypropylene film, have security protection against internal over pressure and the dielectric losses are less than 0.2 W/kVAr. The growing demand for electricity has required large investments in power generation to meet the rate of global development, both in developing countries where the population has gained greater access to consumer goods, and in developed countries, where energy efficiency has been object concern in order to reduce high investments in power generation. These investments, however, besides being planned in the medium and long term, involve the use of increasingly scarce natural resources which are subject to environmental pressures. In short term, the best way to increase the supply of electricity has been reducing waste and increasing energy efficiency. It is estimated that currently 40% of global consumption of electricity is related to the use of electric motors. Moreover, the application of new technologies has become increasingly common in many industry sectors, bringing deep changes in the form of application and control of electric motors. Within this context of technological changes and pressures for higher energy efficiency, WEG presents its line of capacitors for power factor correction.

Standard Features:

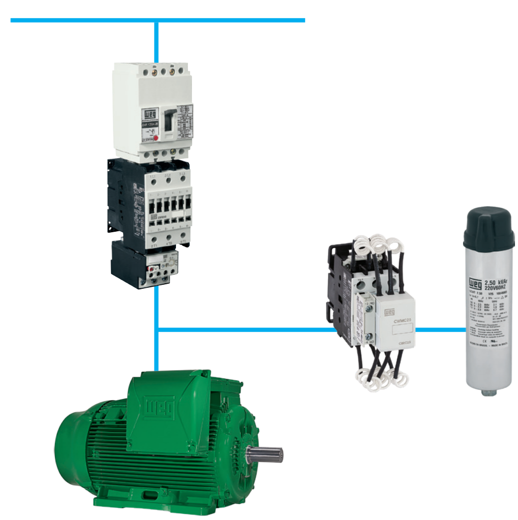
- Self-healing metalized polypropylene film
- Internal over pressure security device
- Maximum allowed fault current of 10kA
- Dielectric losses smaller than 0,2 W/kVAr
- Internal discharge resistors in three-phase units, modules and banks
- Custom Built PFCC Banks available upon Request

Sizing Power Factor Capacitors

There are 2 methods we will use examples to show how to size power factor correction capacitors.
The simplest method uses the selected chart below. The selection chart shows the maximum KVAR based on the motor hp and rpm. The KVAR recommended is designed to improve the power factor to approximately .95.

HP	3600 RPM Required KVAR	3600 RPM Est. Amp Red. %	1800 RPM Required KVAR	1800 RPM Est. Amp Red. %	1200 RPM Required KVAR	1200 RPM Est. Amp Red. %	900 RPM Required KVAR	900 RPM Est. Amp Red. %	720 RPM Required KVAR	720 RPM Est. Amp Red. %	600 RPM Required KVAR	600 RPM Est. Amp Red. %
1	0.5	15	0.75	24	1	29	1.5	39	1.5	42	2	42
1.5	0.75	15	0.75	24	1	29	1.5	39	2	42	2	42
2	1.0	15	1	24	1.5	29	2	39	2	42	2.5	42
3	1.5	14	1.5	23	2.5	28	3	38	3	40	3	40
5	2	14	2.5	22	3	26	3	31	3	40	5	40
7.5	2.5	14	3	20	3	21	5	28	5	38	5	45
10	3	14	3	18	5	21	5	27	7.5	36	7.5	38
15	5	12	5	18	5	20	7.5	24	7.5	32	10	34
20	5	12	5	17	7.5	19	7.5	23	12.5	25	17.5	30
25	7.5	12	7.5	17	7.5	19	10	23	12.5	25	17.5	30
30	7.5	11	7.5	16	10	19	12.5	22	15	24	22.5	30
40	10	12	12.5	15	15	19	17.5	21	22.5	24	25	30
50	12.5	12	17.5	15	20	19	22.5	21	22.5	24	30	30
60	15	12	20	14	22.5	17	25	20	30	22	35	28
75	20	12	22.5	14	25	15	27.5	17	30	14	40	19
100	22.5	11	30	14	30	12	35	16	40	15	45	17
125	25	10	35	12	35	12	40	14	45	15	50	17
150	30	10	40	12	40	12	50	14	50	14	60	17
200	35	10	50	11	50	10	60	13	60	13	90	17
250	40	11	60	10	60	10	75	13	85	13	100	17
300	45	11	60	10	75	12	100	14	100	13	120	17
350	50	12	75	8	90	12	120	13	120	13	135	15
400	75	10	75	8	100	12	130	13	140	13	150	15
450	75	8	90	8	120	10	140	12	160	14	160	15
500	100	8	100	9	150	12	160	12	180	13	180	15

Example:
For a 75 hp motor running at 3600 rpm, the maximum value would be 20 KVAR.
Important! Do not oversize the capacitors, when sizing at the motor load to avoid over voltage on the circuit.



Note: the KVAR needed to correct the Power Factor is the same regardless of the motor voltage. The actual capacitor selection is dependant on voltage.

Sizing Power Factor Capacitors

The next method uses a power factor multiplier chart and formula for calculating the recommended KVAR. This method is often used when sizing power factor capacitors for a system wide approach.

Current power factor	Desired Power factor (F)														
	0.85	0.86	0.87	0.88	0.89	0.90	0.91	0.92	0.93	0.94	0.95	0.96	0.97	0.98	0.99
0.50	1.112	1.139	1.165	1.192	1.220	1.248	1.276	1.306	1.337	1.369	1.403	1.440	1.481	1.529	1.589
0.52	1.023	1.050	1.076	1.103	1.131	1.159	1.187	1.217	1.248	1.280	1.314	1.351	1.392	1.440	1.500
0.54	0.939	0.966	0.992	1.019	1.047	1.075	1.103	1.133	1.164	1.196	1.230	1.267	1.308	1.356	1.416
0.56	0.860	0.887	0.913	0.940	0.968	0.996	1.024	1.054	1.085	1.117	1.151	1.188	1.229	1.277	1.337
0.58	0.785	0.812	0.838	0.865	0.893	0.921	0.949	0.979	1.010	1.042	1.076	1.113	1.154	1.202	1.262
0.60	0.713	0.740	0.766	0.793	0.821	0.849	0.877	0.907	0.938	0.970	1.004	1.041	1.082	1.130	1.190
0.62	0.646	0.673	0.699	0.726	0.754	0.782	0.810	0.840	0.871	0.903	0.937	0.974	1.015	1.063	1.123
0.64	0.581	0.608	0.634	0.661	0.689	0.717	0.745	0.775	0.806	0.838	0.872	0.909	0.950	0.998	1.068
0.66	0.518	0.545	0.571	0.598	0.626	0.654	0.682	0.712	0.743	0.775	0.809	0.846	0.887	0.935	0.995
0.68	0.458	0.485	0.511	0.538	0.566	0.594	0.622	0.652	0.683	0.715	0.749	0.786	0.827	0.875	0.935
0.70	0.400	0.427	0.453	0.480	0.508	0.536	0.564	0.594	0.625	0.657	0.691	0.728	0.769	0.817	0.877
0.72	0.344	0.371	0.397	0.424	0.452	0.480	0.508	0.538	0.569	0.601	0.635	0.672	0.713	0.761	0.821
0.74	0.289	0.316	0.342	0.369	0.397	0.425	0.453	0.483	0.514	0.546	0.580	0.617	0.658	0.706	0.766
0.76	0.235	0.262	0.288	0.315	0.343	0.371	0.399	0.429	0.460	0.492	0.526	0.563	0.604	0.652	0.712
0.78	0.182	0.209	0.235	0.262	0.290	0.318	0.346	0.376	0.407	0.439	0.473	0.510	0.551	0.599	0.659
0.80	0.130	0.157	0.183	0.210	0.238	0.266	0.294	0.324	0.355	0.387	0.421	0.458	0.499	0.547	0.609
0.82	0.078	0.105	0.131	0.158	0.186	0.214	0.242	0.272	0.303	0.335	0.369	0.406	0.447	0.495	0.555
0.84	0.026	0.053	0.079	0.106	0.134	0.162	0.190	0.220	0.251	0.283	0.317	0.354	0.395	0.443	0.503
0.86	-	-	0.026	0.053	0.081	0.109	0.137	0.167	0.198	0.230	0.264	0.301	0.342	0.390	0.450
0.88	-	-	-	-	0.028	0.056	0.084	0.114	0.145	0.177	0.211	0.248	0.289	0.337	0.397
0.90	-	-	-	-	-	-	0.028	0.058	0.089	0.121	0.155	0.192	0.233	0.281	0.341
0.92	-	-	-	-	-	-	-	-	0.031	0.063	0.097	0.134	0.175	0.223	0.283
0.94	-	-	-	-	-	-	-	-	-	-	0.034	0.071	0.112	0.160	0.229
0.96	-	-	-	-	-	-	-	-	-	-	-	-	0.041	0.089	0.149
0.98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.060

First determine the Total kW used in the system.
Second, look to the left hand column of the power factor correction multiplier chart (Table above), and select the original or existing power factor.
Third, select the desired power factor and choose the number (multiplier) that intersects the two columns.
Take the number (multiplier) and multiply it by the Total kW of the system.

Example:

Total kW ____________________= 500 kW
Existing Power Factor _________ = .78
Required Power Factor ________ = .92
Multiplier from Table above________ = 0.376

Formula:
0.376 x 500 kW = 188 kVAr

For automatic switching or fixed units at the main, choose the closest value. If the exact kVAr is not listed, choose the next higher rating.
For the example listed above, it would be 200 kVAr.

If the existing power factor is not known, you can calculate it.
The power factor formula is: Active Power (kW) divided by the Apparent Power (kVA)
PF = kW / kVA

Notes: The examples shown on this catalog are strictly for guidance. Whenever possible, the load types and load curves of the installation should be evaluated. If more than 20% of the loads to be corrected are non-linear (VSDs, Soft-Starters, rectifiers, electronic reactors, etc.), Anti-Harmonics Inductors must be installed in series with the capacitors.
THD limit for capacitors: THDvoltage < 5% Vrms and THDcurrent < 15%.
The use of capacitors in electric systems with high harmonic distortions can internally damage the capacitive cells.

Three Phase Capacitive Units - UCWT

Power 0.37...15 (kVAr)
Rated Voltage 208...240 (V)

Power 0.37...25 (kVAr)
Rated Voltage 380...480 (V)

Three Phase Capacitors - UCWT (1) and (2)

Rated Voltage (V)	60 Hz		Capacitance (uF)	Capacitance (uF) (Δ Connection)	Series (3)	Dimensions ØxH (in)	Weight (lb)	Catalog Number	List Price	Multiplier
	Reative Power (kVAr)	Rated Current In (A)								
	0.45	1.2	9.1	9.1 x 3	D	2.4 x 6.1	1.19	UCWT0.5V25 L10	$45.00	
	0.67	1.9	13.7	13.7 x 3	D	2.4 x 6.1	1.19	UCWT0.75V25 L10	$47.00	
	0.89	2.5	18.3	18.3 x 3	D	2.4 x 6.1	1.19	UCWT1V25 L10	$50.00	
	1.34	3.7	27.4	27.4 x 3	D	2.4 x 6.1	1.19	UCWT1.5V25 L10	$55.00	
	1.79	5.0	36.6	36.6 x 3	D	2.4 x 6.1	1.19	UCWT2V25 L10	$61.00	
	2.23	6.2	45.7	45.7 x 3	D	2.4 x 8.3	1.19	UCWT2.5V25 L16	$70.00	
	2.68	7.4	54.8	54.8 x 3	D	2.4 x 8.3	1.52	UCWT3V25 L16	$76.00	
	4.47	12.4	91.4	91.4 x 3	E	2.9 x 8.7	3.01	UCWT5V25 N20	$124.00	
208	6.70	18.6	137.1	137.1x3	E	2.9 x11.1	3.85	UCWT7.5V25 N22	$148.00	
	8.94	24.8	182.8	182.7x3	E	2.9 x11.1	3.85	UCWT10V25 N22	$175.00	
	8.94	24.8	182.8	182.7x3	F	3.9x9.0	2.17	UCWT10V25 Q26	$184.00	
	11.17	31.0	228.5	228.3x3	F	3.3 x 14	4.40	UCWT12.5V25 Q26	$192.00	
	13.41	37.2	274.2	274 x3	F	3.3 x 14	4.40	UCWT15V25 S26	$246.00	
	15.64	43.4	319.7	319.7x3	F	4.5 x 11.4	3.50	UCWT17.5V25 S26	$258.00	
	17.88	49.6	385.4	385.4x3	F	4.5 x 11.4	3.50	UCWT20V25 S28	$267.00	
	22.35	62.0	456.7	456.7x3	F	5.3 x 11.4	4.43	UCWT25V25 U28	$278.00	
	26.82	74.4	548.1	548.1x3	F	5.3 x 11.4	4.43	UCWT30V25 U28	$285.00	Z11
	0.50	1.2	7.7	7.7x3	D	2.4 x 6.1	1.19	UCWT0.5V29 L10	$45.00	
	0.75	1.8	11.5	11.5x3	D	2.4 x 6.1	1.19	UCWT0.75V29 L10	$47.00	
	1.00	2.4	15.4	15.4x3	D	2.4 x 6.1	1.19	UCWT1V29 L10	$50.00	
	1.50	3.6	23.0	23.0x3	D	2.4 x 6.1	1.19	UCWT1.5V29 L10	$55.00	
	2.00	4.8	30.7	30.7x3	D	2.4 x 6.1	1.19	UCWT2V29 L10	$61.00	
	2.50	6.0	38.4	38.4x3	D	2.4 x 8.3	1.19	UCWT2.5V29 L16	$70.00	
	3.00	7.2	46.1	46.1x3	D	2.4 x 8.3	1.19	UCWT3V29 L16	$76.00	
240	5.00	12.0	76.8	76.8x3	E	2.9 x 8.7	3.01	UCWT5V29 N20	$124.00	
	7.50	18.0	115.2	115.2x3	E	2.9 x 11.1	3.98	UCWT7.5V29 N22	$148.00	
	10.00	24.1	153.6	153.6x3	E	3.3 x 14	4.40	UCWT10V29 N22	$175.00	
	10.00	24.1	153.5	153.6x3	F	2.5 x 9	4.40	UCWT10V29 Q26	$184.00	
	12.50	30.1	192.0	192.0x3	F	3.3 x 14	4.40	UCWT12.50 Q26	$246.00	
	15.00	36.1	230.3	230.3x3	F	4.5 x 9	5.10	UCWT15V29 S26	$257.00	
	17.50	42.1	268.3	268.3x3	F	4.5 x9	7.10	UCWT7.5V29 S28	$269.00	
	20.00	48.1	307.0	307x3	F	4.5 x9	7.05	UCWT20V29 S28	$269.00	

(1) For other voltages, please contact WEG.

(2) Discharge resistors sized so the voltage on the terminals of the capacitor is 1/10 of the rated voltage in 30 s.

(3) The D series capacitors are provided with internal resistors in the capacitive cell. The E series capacitors are provided with external resistors in the capacitive cell.

Power Factor Correction

Three Phase Capacitors - UCWT (1) and (2)

Rated Voltage (V)	60 Hz		Capacitance (uF)	Capacitance (uF) (Δ Connection)	Series (3)	Dimensions ØxH (in)	Weight (lb)	Catalog Number	List Price	Multiplier
	Reative Power (kVAr)	Rated Current In (A)								
480	0.50	0.6	1.9	1.9 x 3	D	2.4 x 6.1	1.17	UCWT0.5V53 L10	$43.00	Z11
	0.60	0.7	2.3	2.3 x3	D	2.4 x 6.1	1.17	UCWT0.5V52 L10	$43.00	
	0.75	0.9	2.9	2.9 x 3	D	2.4 x 6.1	1.17	UCWT0.75V53 L10	$45.00	
	0.90	1.1	3.5	3.5x3.5	D	2.4 x 6.1	1.17	UCWT0.75V52 L10	$46.00	
	1.00	1.2	3.8	3.8 x 3	D	2.4 x 6.1	1.17	UCWT1V53 L10	$47.00	
	1.50	1.8	5.8	5.8 x 3	D	2.4 x 6.1	1.17	UCWT1.5V53 L10	$51.00	
	1.90	2.2	6.9	6.9x3	D	2.4 x 6.1	1.17	UCWT1.5V52 L10	$51.00	
	2.00	2.4	7.7	7.7 x 3	D	2.4 x 6.1	1.17	UCWT2V53 L10	$56.00	
	2.50	3.0	9.6	9.6 x 3	D	2.4 x 6.1	1.17	UCWT2.5V53 L10	$60.00	
	3.60	4.3	13.8	13.8 x 3	D	2.4 x 6.1	1.63	UCWT5V53 L10	$80.00	
	5.00	6.0	19.2	19.2 x 3	D	2.4 x 6.1	1.52	UCWT5V53 L16	$80.00	
	7.50	9.0	28.8	28.8 x 3	E	2.9 x 8.7	2.93	UCWT7.5V53 N20	$103.00	
	9.00	10.8	34.5	34.5x3	E	2.9 x 3	2.93	UCWT7.5V52 N20	$114.00	
	10.00	12.0	38.4	38.4 x 3	E	2.9 x 8.7	3.04	UCWT10V53 N20	$118.00	
	12.50	15.0	48.0	48.0 x 3	E	2.9 x 11.1	3.81	UCWT12.5V53 N22	$131.00	
	15.00	18.0	57.6	57.6 x 3	E	2.9 x 11.1	0.00	UCWT12.5V52 N22	$145.00	
	15.00	18.0	57.6	57.6 x 3	E	2.9 x 11.1	0.00	UCWT12.5V53 N22	$155.00	
	15.00	18.0	57.6	57.6 x 3	E	2.9 x 11.1	0.00	UCWT12.5V53 Q26	$155.00	
	17.50	21.0	67.2	67.15 x 3	E	3.3 x 14	4.40	UCWT17.5V53 S26	$219.00	
	18.00	21.7	69.1	69.1 x 3	F	3.3 x 14	4.40	UCWT15V52 Q26	$224.00	
	20.00	24.1	76.8	76.7 x 3	F	3.3 x 14	4.40	UCWT20V53 S26	$232.00	
	22.50	27.1	86.4	86.3 x 3	F	4.5 x 9	4.40	UCWT22.5V53 S26	$246.00	
	25.00	30.1	96.0	96.3 x3	F	4.5 x 9	4.40	UCWT25V53 S26	$259.00	
	30.00	36.1	115.1	115.1x3	F	4.5 x 9	4.40	UCWT30V53 S28	$267.00	
	35.00	42.1	134.3	134.3x3	F	4.5 x 9	4.40	UCWT39V53 S28	$274.00	
	40.00	48.1	153.5	153.5x3	F	5.3 x 9	45.10	UCWT40V53 U28	$289.00	
	50.00	60.1	191.9	191.9x3	F	5.3 x 9	45.10	UCWT50V53 U29	$325.00	

(1) For other voltages, please contact WEG.

(2) Discharge resistors sized so the voltage on the terminals of the capacitor is 1/10 of the rated voltage in 30 s.

(3) The D series capacitors are provided with internal resistors in the capacitive cell. The E series capacitors are provided with external resistors in the capacitive cell.

Capacitive Units - Technical Data

Technical Characteristics	D Series	E Series	F Series
Phases	Three Phase		
Power	0.37...5 [kVAr]	3.72...25 [kVAr]	7,45...25 [kvar]
Rated Voltage	208...480 [V]		
Rated Frequency	50 or 60 [Hz]		
Capacitance tolerance	±5 [%]		
Useful Life	100.000 [h]		
Temperature class	Min temperature: -13 ºF Max temperature: 131 ºF Avg. max. temp. in 24h = 13 ºF Avg. max. temp. in 1 year = 95 ºF		
Safety	Self-healing polypropylene film Disconnection for overpressure		
Max. Short Circuit Capacity	10 [kA] @ 560V		
Protection Degree	IP50	IP20	
Max. Altitude (1)	6561 (ft)		
Shield / Terminal	Plastic / Screw + Washer	Aluminum / Box	
Input Cable Connection	M3 Flat/Philips	Box Terminal	
Input Cable Section	20…10 AWG	10…8 AWG	
Input Cable Torque	7…13 (lb-in)	13…22 (lb-in)	
Discharge Resistance	Inside the product	Fast-on Terminal	
Discharge Resistor	Included		
Capacitor Mounting Bolt	M12 bolt		
Max. Torque for Capacitor	124 (lb-in)		
Impregnation	Polyurethane Resin		
Max. Voltage	1.1 x Vn 8h Duration for each 24 h - not continuous (system fluctuation)		
Max. dV/dt	≤ 30 [V/μs]		
Max. Current	1.3 x In (short periods of time)		
Max. Inrush Currente	≤ 100 x In		
Voltage Test Between Terminals	2.15 x Vn for 2 sec		
Voltage Test Between Terminals and Enclosure	3 kV for 2 sec		
Reference Standards	IEC 60831-1/2 UL 810		
Certifications	CE IRAM (2) cULus		

(1) Maximum Altitude: 6561 ft. For application in higher altitudes, please contact WEG.
(2) in progress

Accessories for Capacitors

Discharge Resistors

UCWT (E and F Series)				
Catalog Number	Resistance / Power	Package Quantity	List Price	Multiplier
RDC 39KΩ 3W - UCW-T	3x39 kΩ / 3 W	1pk with 3 pieces	$3	Z11
RDC 56KΩ 3W - UCW-T	3x56 kΩ / 3 W	1pk with 3 pieces	$3	
RDC 82KΩ 3W - UCW-T	3x82 kΩ / 3 W	1pk with 3 pieces	$3	
RDC 120KΩ 3W - UCW-T	3x120 kΩ / 3 W	1pk with 3 pieces	$3	
RDC 150KΩ 3W - UCW-T	3x150 kΩ / 3 W	1pk with 3 pieces	$3	
RDC 180KΩ 3W - UCW-T	3x180 kΩ / 3 W	1pk with 3 pieces	$3	
RDC 270KΩ 3W - UCW-T	3x270 kΩ / 3 W	1pk with 3 pieces	$3	
RDC 390KΩ 3W - UCW-T	3x390 kΩ / 3 W	1pk with 3 pieces	$3	

General Information
Circuit Protection
Disconnect Switches
Motor Protectors
Contactors
Overloads
Enclosed Starters
Relays
Pushbuttons and Pilot Lights
Terminal Blocks
Power Factor Correction
Appendix A
Appendix B

D Series

Three Phase Capacitive Units - UCWT

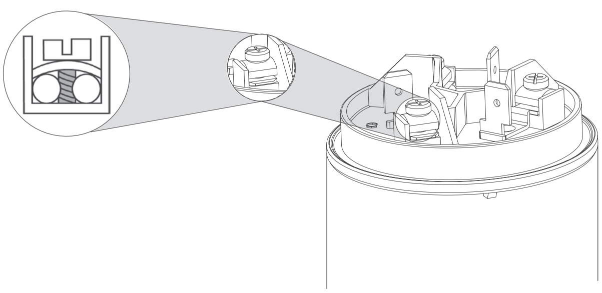
Power 0.37...3 (kVAr)
Rated Voltage 208...240 (V)

UL File No. E192546

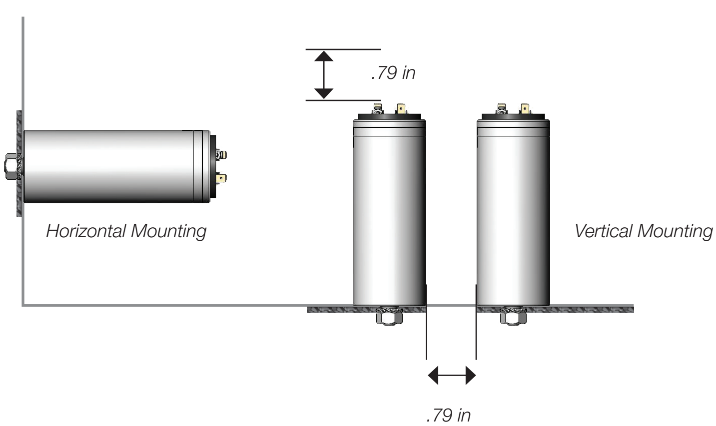
Power 0.37...5 (kVAr)
Rated Voltage 380...480 (V)

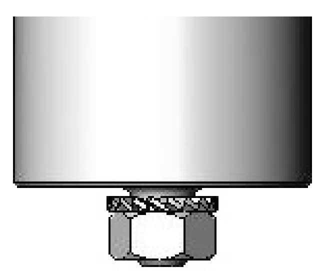
Electrical Connections

- Provided with NEMA 12 rating protection cover.
- M3 Flat/Philips screw terminals for connection of power cables.
- The D series capacitors are provided with internal resistors in the capacitive cell.
- Grounding is assured by connection of capacitive unit mounting bolt with assembly plate.



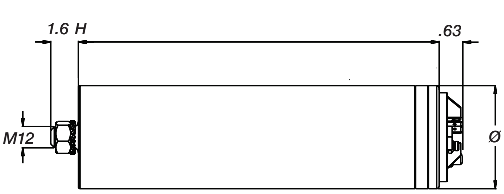
Mounting





M12 bolt mounting
(Nut and washer included)

Dimensional (in) and Protection Degree



Diameter (Ø)	Height (H)	Protection Degree
2.4	6.1	IP50
2.4	8.3	IP50

E Series

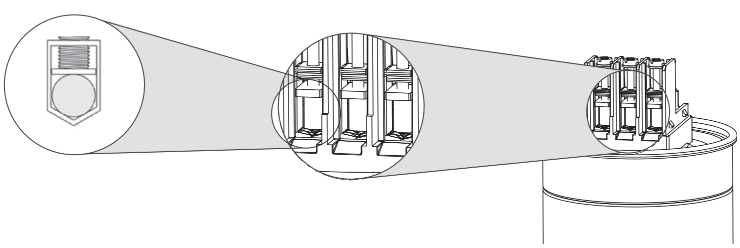
Three Phase Capacitive Units - UCWT

Power 3.72...15 (kVAr)
Rated Voltage 208...240 (V)

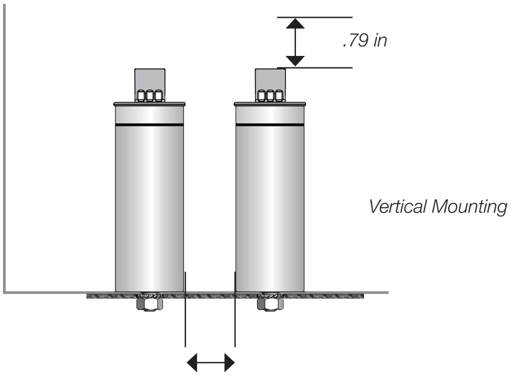
Power 5.56...25 (kVAr)
Rated Voltage 380...480 (V)

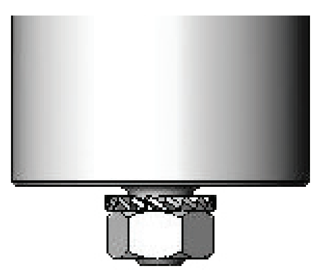
Electrical Connections

- “Box” type terminals for connection of power cables.
- Fast-on connection terminals for discharge resistor connection
- The E series capacitors are provided with external resistors in the capacitive cell.
- Allows connection of power cables separately from discharge resistors.
- Grounding is assured by connection of capacitive unit mounting bolt with assembly plate.



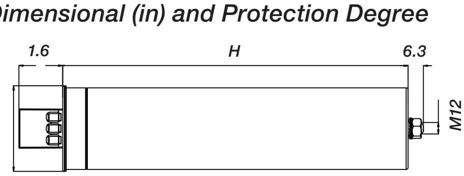
Mounting





M12 bolt mounting
(Nut and washer included)

Dimensional (in) and Protection Degree



Diameter (Ø)	Height (H)	Protection Degree
2.9	8.7	IP20
2.9	11.1	IP20
3.3	14	IP20

F Series

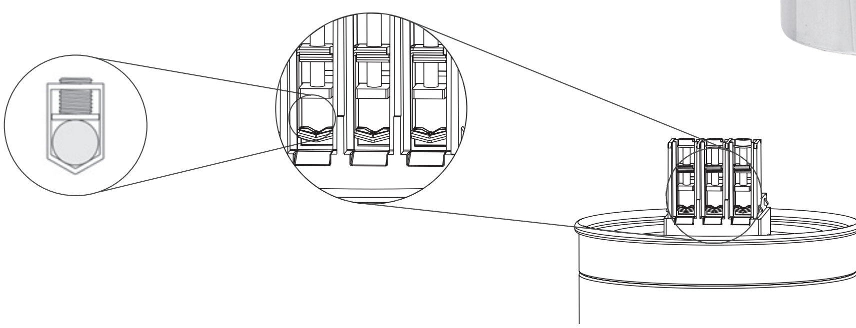
Three Phase Capacitive Units - UCWT

Power 7.45...15 (kVAr)
Rated Voltage 208...240 (V)

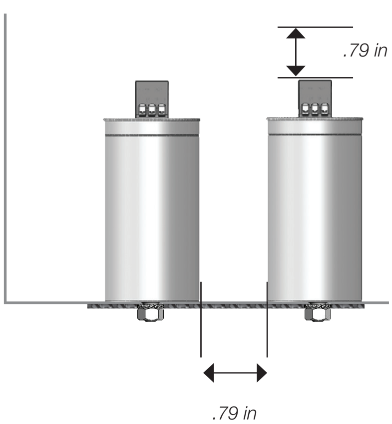
Power 11.12...25 (kVAr)
Rated Voltage 380...480 (V)

Electrical Connections

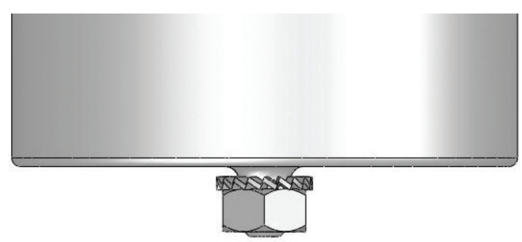
- "Box" type terminals for connection of power cables.
- Fast-on connection terminals for discharge resistor connection.
- The F series capacitors are provided with external resistors in the capacitive cell.
- Allows connection of power cables separately from discharge resistors.
- Grounding is assured by connection of capacitive unit mounting bolt with assembly plate.



Mounting



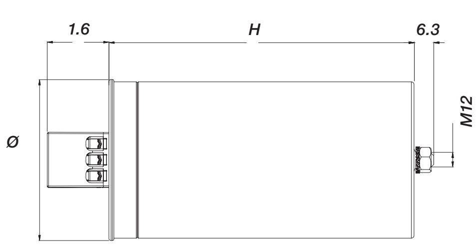
Vertical Mounting



M12 bolt mounting
(Nut and washer included)

Reduced height accommodates installation in MCC buckets.

Dimensional (in) and Protection Degree



Diameter (Ø)	Height (H)	Protection Degree
3.9	9.1	IP20
4.6	9.1	IP20

Three Phase Enclosed Capacitors - BCW

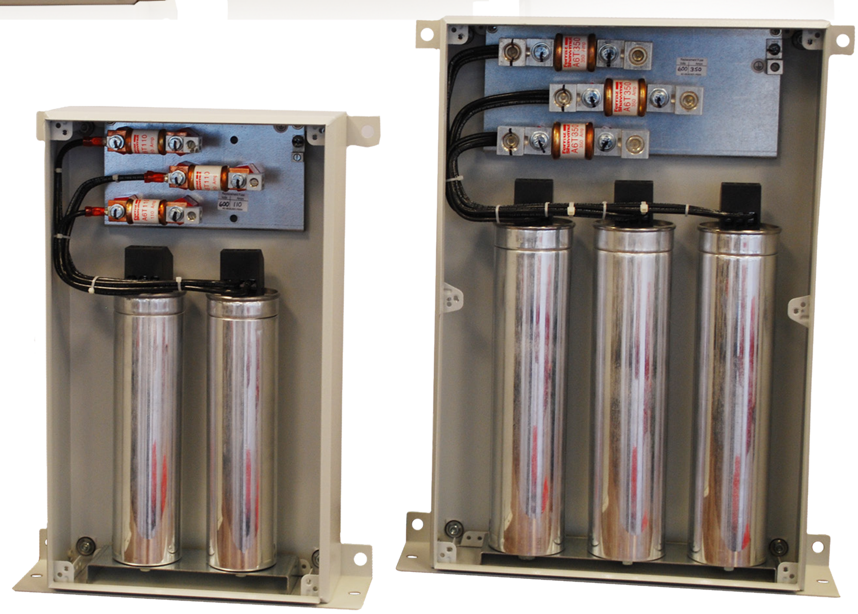
BCW Series

Straight-forward Design
WEG Enclosed Power Factor Capacitor Banks include Three-phase WEG UCWT Capacitors in a NEMA 4 enclosure that is easy to install and wire.

Reliability
WEG UCWT Capacitors are assembled with high performance and low loss, self healing polypropolene dielectric film.

Flexibility
Three phase enclosed capacitor banks available with or without fuses. NEMA 4 enclosure is standard, so no need to worry whether the installation is indoors or outdoors.

UL File No. E346734



General Information
Circuit Protection
Disconnect Switches
Motor Protectors
Contactors
Overloads
Enclosed Starters
Relays
Pushbuttons and Pilot Lights
Terminal Blocks
Power Factor Correction
Appendix A
Appendix B

Three Phase Enclosed Capacitors - BCW

Non-Fused - 240V

Catalog Number[1]	Reactive Power (kVAr)	Rated Current In (A)	Enclosure Size (in) H x W x D	Enclosure Drawing Ref	List Price	Multiplier
BCWTC050V29A4-N	0.5	1.20	11.8 x 7.9 x 4.8	A	$603	Z11
BCWTC075V29A4-N	0.75	1.80			$606	
BCWTC100V29A4-N	1	2.41			$609	
BCWTC150V29A4-N	1.5	3.61			$617	
BCWTC200V29A4-N	2	4.81			$624	
BCWTC250V29B4-N	2.5	6.01	15.8 x 7.9 x 4.8	B	$643	
BCWTC300V29B4-N	3	7.22			$650	
BCWTC500V29B4-N	5	12.03			$709	
BCWTC750V29C4-N	7.5	18.04	19.8 x 7.9 x 4.8	C	$810	
BCWTD100V29E4-N	10	24.06	23.6 x 11.8 x 4.8	E	$967	
BCWTD125V29E4-N	12.5	30.07			$1,055	
BCWTD150V29E4-N	15	36.08			$1,121	
BCWTD175V29E4-N	17.5	42.10			$1,342	
BCWTD200V29E4-N	20	48.11			$1,374	
BCWTD250V29E4-N	25	60.14			$1,475	
BCWTD275V29E4-N	27.5	66.15			$1,561	
BCWTD300V29E4-N	30	72.17			$1,576	
BCWTD350V29F4-N	35	84.20	23.6 x 15.8 x 4.8	F	$1,791	
BCWTD400V29F4-N	40	96.23			$1,892	
BCWTD450V29F4-N	45	108.25			$2,015	

Fused - 240V

Catalog Number[1]	Reactive Power (kVAr)	Rated Current In (A)	Enclosure Size (in) H x W x D	Enclosure Drawing Ref	List Price	Multiplier
BCWTC050V29A4-F	0.5	1.20	11.8 x 7.9 x 4.8	A	$833	Z11
BCWTC075V29A4-F	0.75	1.80			$836	
BCWTC100V29A4-F	1	2.41			$839	
BCWTC150V29A4-F	1.5	3.61			$847	
BCWTC200V29A4-F	2	4.81			$854	
BCWTC250V29B4-F	2.5	6.01	15.8 x 7.9 x 4.8	B	$871	
BCWTC300V29B4-F	3	7.22			$881	
BCWTC500V29B4-F	5	12.03			$934	
BCWTC750V29C4-F	7.5	18.04	19.8 x 7.9 x 4.8	C	$1,236	
BCWTD100V29E4-F	10	24.06	23.6 x 11.8 x 4.8	E	$1,378	
BCWTD125V29E4-F	12.5	30.07			$1,696	
BCWTD150V29E4-F	15	36.08			$1,488	
BCWTD175V29E4-F	17.5	42.10			$1,663	
BCWTD200V29E4-F	20	48.11			$1,735	
BCWTD250V29E4-F	25	60.14			$1,848	
BCWTD275V29E4-F	27.5	66.15			$1,924	
BCWTD300V29F4-F	30	72.17	23.6 x 15.8 x 4.8	F	$2,384	
BCWTD350V29F4-F	35	84.20			$2,651	
BCWTD400V29F4-F	40	96.23			$2,760	
BCWTD450V29F4-F	45	108.25			$2,908	

(1) For other voltages, please contact WEG.

Three Phase Enclosed Capacitors - BCW

Non-Fused - 480V

Catalog Number[1]	Reactive Power (kVAr)	Rated Current In (A)	Enclosure Size (in) H x W x D	Enclosure Drawing Ref	List Price	Multiplier
BCWTC050V53A4-N	0.5	0.60	11.8 x 7.9 x 4.8	A	$601	Z11
BCWTC075V53A4-N	0.75	0.90			$603	
BCWTC100V53A4-N	1	1.20			$606	
BCWTC150V53A4-N	1.5	1.80			$612	
BCWTC200V53A4-N	2	2.41			$617	
BCWTC250V53A4-N	2.5	3.01			$622	
BCWTC300V53A4-N	3	3.61			$627	
BCWTC500V53B4-N	5	6.01	15.8 x 7.9 x 4.8	B	$658	
BCWTC750V53B4-N	7.5	9.02			$688	
BCWTD100V53B4-N	10	12.03			$706	
BCWTD125V53C4-N	12.5	15.04	19.7 x 7.8 x 4.8	C	$795	
BCWTD150V53C4-N	15	18.04			$812	
BCWTD175V53E4-N	17.5	21.05	23.7 x 11.8 x 4.8	E	$1,030	
BCWTD200V53E4-N	20	24.06			$1,048	
BCWTD225V53E4-N	22.5	27.06			$1,065	
BCWTD250V53E4-N	25	30.07			$1,082	
BCWTD275V53D4-N	27.5	33.08	19.7 x 11.8 x 4.8	D	$1,280	
BCWTD300V53D4-N	30	36.08			$1,297	
BCWTD350V53E4-N	35	42.10	23.6 x 11.8 x 4.8	E	$1,498	
BCWTD400V53E4-N	40	48.11			$1,531	
BCWTD450V53E4-N	45	54.13			$1,565	
BCWTD500V53E4-N	50	60.14			$1,598	
BCWTD600V53F4-N	60	72.17	23.6 x 15.8 x 4.8	F	$1,926	
BCWTD750V53F4-N	75	90.21			$2,026	

(1) For other voltages, please contact WEG.

Three Phase Enclosed Capacitors - BCW

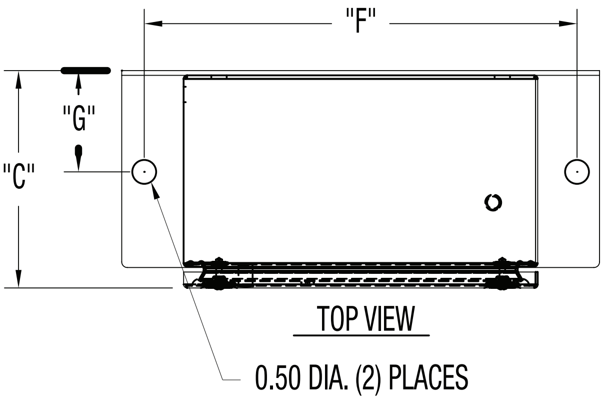
Fused - 480V

Catalog Number[1]	Reactive Power (kVAr)	Rated Current In (A)	Enclosure Size (in) H x W x D	Enclosure Drawing Ref	List Price	Multiplier
BCWTC050V53A4-F	0.5	0.60	11.8 x 7.9 x 4.8	A	$832	Z11
BCWTC075V53A4-F	0.75	0.90			$834	
BCWTC100V53A4-F	1	1.20			$836	
BCWTC150V53A4-F	1.5	1.80			$841	
BCWTC200V53A4-F	2	2.41			$846	
BCWTC250V53A4-F	2.5	3.01			$851	
BCWTC300V53A4-F	3	3.61			$856	
BCWTC500V53B4-F	5	6.01	15.8 x 7.9 x 4.8	B	$889	
BCWTC750V53B4-F	7.5	9.02			$915	
BCWTD100V53B4-F	10	12.03			$932	
BCWTD125V53C4-F	12.5	15.04	19.7 x 7.8 x 4.8	C	$1,208	
BCWTD150V53C4-F	15	18.04			$1,238	
BCWTD175V53E4-F	17.5	21.05	23.7 x 11.8 x 4.8	E	$1,435	
BCWTD200V53E4-F	20	24.06			$1,455	
BCWTD225V53E4-F	22.5	27.06			$1,497	
BCWTD250V53E4-F	25	30.07			$1,513	
BCWTD275V53D4-F	27.5	33.08	19.7 x 11.8 x 4.8	D	$1,587	
BCWTD300V53D4-F	30	36.08			$1,656	
BCWTD350V53E4-F	35	42.10	23.6 x 11.8 x 4.8	E	$1,836	
BCWTD400V53E4-F	40	48.11			$1,877	
BCWTD450V53E4-F	45	54.13			$1,918	
BCWTD500V53E4-F	50	60.14			$1,959	
BCWTD600V53F4-F	60	72.17	23.6 x 15.8 x 4.8	F	$3,110	
BCWTD750V53F4-F	75	90.21			$3,237	

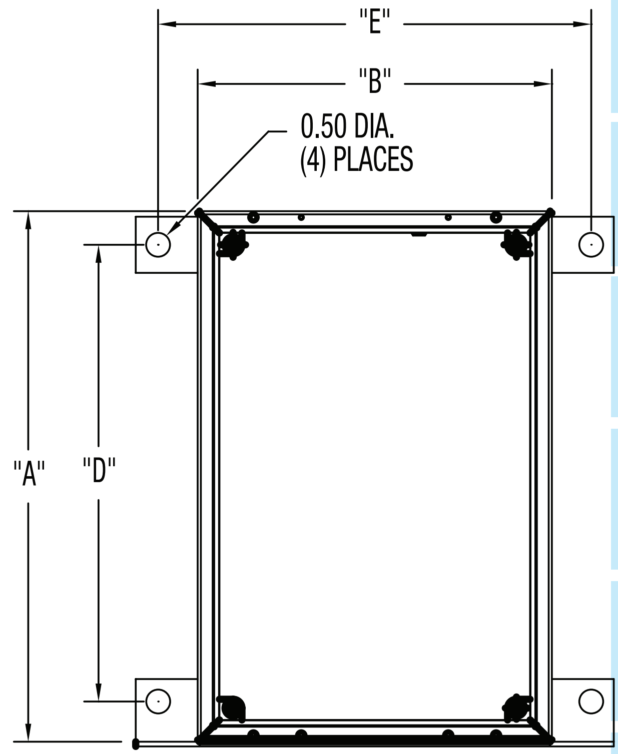
(1) For other voltages, please contact WEG.

Three Phase Enclosed Capacitors - BCW

Enclosure Dimension (in)



TOP VIEW



FRONT VIEW

CAPACITOR ENCLOSURE DIMENSIONS							
DRAWING REF	"A"	"B"	"C"	"D"	"E"	"F"	"G"
A	11.81	7.87	4.83	10.25	9.50	9.50	2.25
B	15.75	7.87	4.83	14.18	9.50	9.50	2.25
C	19.69	7.87	4.83	18.12	9.50	9.50	2.25
D	19.69	11.81	4.83	18.12	13.50	13.50	2.25
E	23.62	11.81	4.83	22.06	13.50	13.50	2.25
F	23.62	15.75	4.83	22.06	17.50	17.50	2.25

Technical Information

NEMA, UL and CSA Enclosure Ratings

Enclosure Rating	NEMA National Electrical Manufacturers Association (NEMA Standard 250) and Electrical and Electronic Mfg. Association of Canada (EEMAC)	Underwriters Laboratories Inc. (UL50 and UL508)	Canadian Standards Association (Standard C22.2 No. 94)
Type 1	Enclosures are intended for indoor use primarily to provide a degree of protection against contact with the enclosed equipment or locations where unusual service conditions do not exist.	Indoor use primarily to provide protection against contact with the enclosed equipment and against a limited amount of falling dust.	General purpose enclosure. Protects against accidental contact with live parts.
Type 3	Enclosures are intended for outdoor use primarily to provide a degree of protection against windblown dust, rain, and sleet; undamaged by the formation of ice on the enclosure.	Outdoor use to provide a degree of protection against windblown dust and windblown rain; undamaged by the formation of ice on the enclosure.	Indoor or outdoor use; provides a degree of protection against rain, snow, and windblown dust; undamaged by the external formation of ice on the enclosure.
Type 3R*	Enclosures are intended for outdoor use primarily to provide a degree of protection against falling rain and sleet; undamaged by the formation of ice on the enclosure.	Outdoor use to provide a degree of protection against falling rain; undamaged by the formation of ice on the enclosure.	Indoor or outdoor use; provides a degree of protection against rain and snow; undamaged by the external formation of ice on the enclosure.
Type 4	Enclosures are intended for indoor or outdoor use primarily to provide a degree of protection against windblown dust and rain, splashing water, and hose directed water; undamaged by the formation of ice on the enclosure.	Either indoor or outdoor use to provide a degree of protection against falling rain, splashing water, and hose-directed water; undamaged by the formation of ice on the enclosure.	Indoor or outdoor use; provides a degree of protection against rain, snow, windblown dust, splashing and hose-directed water; undamaged by the external formation of ice on the enclosure.
Type 4X	Enclosures are intended for indoor or outdoor use primarily to provide a degree of protection against corrosion, windblown dust and rain, splashing water, and hose-directed water; undamaged by the formation of ice on the enclosure.	Either indoor or outdoor use to provide a degree of protection against falling rain, splashing water, and hose-directed water; undamaged by the formation of ice on the enclosure; resists corrosion.	Indoor or outdoor use; provides a degree of protection against rain, snow, windblow dust, splashing and hose-directed water; undamaged by the external formation of ice on the enclosure; resists corrosion.
Type 6	Enclosures are intended for use indoors or outdoors where occasional submersion is encountered, limited depth, undamaged by the formation of ice on the enclosure.	Indoor or outdoor use to provide a degree of protection against entry of water during temporary submersion at a limited depth; undamaged by the external formation of ice on the enclosure.	Indoor or outdoor use; provides a degree of protection against the entry of water during temporary submersion at a limited depth. Undamaged by the external formation of ice on the enclosure; resists corrosion.
Type 12	Enclosures are intended for indoor use primarily to provide a degree of protection against dust, falling dirt, and dripping noncorrosive liquids.	Indoor use to provide a degree of protection against dust, dirt, fiber flyings, dripping water, and external condensation of noncorrosive liquids.	Indoor use; provides a degree of protection against circulating dust, lint, fibers, and flyings; dripping and light splashing of non-corrosive liquids; not provided with knockouts.
Type 12K	Enclosures with knockouts are intended for indoor use primarily to provide a degree of protection against dust, falling dirt, and dropping noncorrosive liquids.	Indoor use to provide a degree of protection against dust, dirt, fiber flyings, dripping water, and external condensation of noncorrosive liquids. Knockouts located in the top or bottom walls, or both.	Indoor use; provides a degree of protection against circulating dust, lint, fibers and flyings; dripping and light splashing of non-corrosive liquids; provided with knockouts.
Type 13	Enclosures are intended for indoor use primarily to provide a degree of protection against dust, spraying of water, oil, and noncorrosive coolant.	Indoor use to provide a degree of protection against lint, dust seepage, external condensation and spraying of water, oil, and noncorrosive liquids.	Indoor use; provides a degree of protection against circulating dust, lint, fibers, and flyings; seepage and spraying of non-corrosive liquids, including oils and coolants.

*NFPA 70 (National Electric Code) defines new Type 3RX as providing the same degree of protection as Type 3R, with the addition of protection against corrosive agents.

Technical Information

IEC Enclosure Ratings

First Numeral

Protection Against Ingress of Solid Objects IP	Requirements	Protection of Persons Against Access to Hazardous Parts with:	Examples
0	No protection.	Non-Protected	
1	Full penetration of 50mm diameter sphere not allowed. Contact with hazardous parts	Back of Hand	
2	Full penetration of 12.5mm diameter sphere not allowed. The jointed test finger shall have adequate clearance from hazardous parts.	Finger	
3	The access probe of 2.5mm diameter shall not penetrate.	Tool	
4	The access probe of 1.0mm diameter shall not penetrate.	Wire	
5	Limited ingress of dust permitted (no harmful deposit).	Wire	
6	Totally protected against ingress of dust.	Wire	

Second Numeral

Protection Against Harmful Ingress of Water IP	Requirements	Protection from Water:	Examples
0	No protection.	Non-Protected	
1	Protected against vertically falling drops of water. Limited ingress permitted.	Vertically Dripping	
2	Protected against vertically falling drops of water with enclosure tilted 15º from the vertical. Limited ingress permitted.	Dripping up to 15º from the Vertical	
3	Protected against sprays to 60º from the vertical. Limited ingress permitted.	Limited Spraying	
4	Protected against water splashed from all directions. Limited ingress permited.	Splashing from all Directions	
5	Protected against jets of water. Limited ingress permitted.	Hosing Jets from all Directions	
6	Protected against strong jets of water. Limited ingress permitted.	Strong Hosing Jets from all Directions	
7	Protected against the effects of immersion between 15cm and 1m.	Temporary Immersion	1 meter
8	Protected against long periods of immersion under pressure.	Continuous Immersion	

Additional Letter (Optional)

Protection Against Ingress of Solid Objects IP	Requirements	Protection of Persons Against Access to Hazardous Parts with:	Example
A (For use with first numeral 0)	Penetration of 50mm diameter sphere up to	Back of Hand	
B (For use with first numerals 0 and 1)	Test finger penetration to a maximum of 80mm must not contact	Finger	
C (For use with first numerals 1 and 2)	Wire of 2.5mm diameter x 10mm long must not contact hazardous	Tool	
D (For use with first numerals 2 and 3)	Wire of 1.0mm diameter x 100mm long must not contact hazardous	Wire	

Technical Information

Motor Current Ratings

Horsepower	60Hz AC Induction Motor					
	Single Phase		Three Phase			
	115V	230V	200V	230V	460V	575V
1/6	4.4	2.2	-	-	-	-
1/4	5.8	2.9	-	-	-	-
1/3	7.2	3.6	-	-	-	-
1/2	9.8	4.9	2.5	2.2	1.1	0.9
3/4	13.8	6.9	3.7	3.2	1.6	1.3
1	16.0	8.0	4.8	4.2	2.1	1.7
1 1/2	20.0	10.0	6.9	6.0	3.0	2.4
2	24.0	12.0	7.8	6.8	3.4	2.7
3	34.0	17.0	11.0	9.6	4.8	3.9
5	56.0	28.0	17.5	15.2	7.6	6.1
7 1/2	80.0	40.0	25.0	22.0	11.0	9.0
10	100	50.0	32.0	28.0	14.0	11.0
15	135	68.0	48.0	42.0	21.0	17.0
20	-	88.0	62.0	54.0	27.0	22.0
25	-	110	78.0	68.0	34.0	27.0
30	-	136	92.0	80.0	40.0	32.0
40	-	176	120	104	52.0	41.0
50	-	216	150	130	65.0	52.0
60	-	-	177	154	77.0	62.0
75	-	-	221	192	96.0	77.0
100	-	-	285	248	124	99.0
125	-	-	359	312	156	125
150	-	-	414	360	180	144
200	-	-	552	480	240	192
250	-	-	692	602	302	242
300	-	-	-	-	361	289
350	-	-	-	-	414	336
400	-	-	-	-	477	382
500	-	-	-	-	590	472

The information in this table was extracted from Table 430.248 and 430.250 of the NEC.

The following values of full load currents are for motors running at usual speeds and motors with normal torque characteristics. The voltages listed are rated motor voltages. The currents listed shall be permitted for system voltage ranges of 110-120, 220-240, 440-480 and 550-600 Volts.

Technical Information

NEMA Ratings – CWM Series contactors to NEMA Comparison

NEMA Ratings	WEC Contactor Series	Maximum Horsepower (UL/CSA)					
		Single Phase		Three Phase			
		115V	230V	200V	230V	460V	575V
00	CWM9N	1/3	1	1 1/2	1 1/2	2	2
	CWM9	1/2	1 1/2	3	3	5	7 1/2
	CWM12	3/4	2	3	3	7 1/2	10
0	CWM18N	1	2	3	3	5	5
	CWM18	1	3	5	5	10	15
	CWM25	1 1/2	3	5	7 1/2	15	15
1	CWM32N	2	3	7 1/2	7 1/2	10	10
	CWM32	2	5	10	10	20	25
	CWM40	3	5	10	10	25	25
2	CWM50N	3	7 1/2	10	15	25	25
	CWM50	3	7 1/2	15	15	30	40
	CWM65	5	10	20	20	40	50
	CWM80	5	15	20	25	50	60
3	CWM95N	7 1/2	15	25	30	50	50
	CWM95	7 1/2	15	25	30	60	75
	CWM105	10	20	30	40	75	75
4	CWM150N	-	-	40	50	100	100
	CWM112	-	-	40	50	100	100
	CWM150	-	-	50	60	125	150
	CWM180	-	-	60	75	150	200
5	CWM300N	-	-	75	100	200	200
	CWM250	-	-	75	100	200	250

This table is for comparison & reference only. CWM Series contactors are not NEMA labeled.

How to dimension control components in a starter

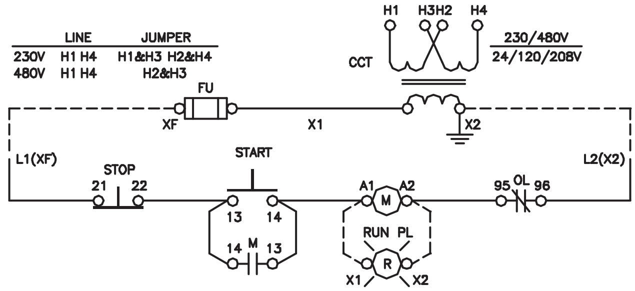
	Across-the-Line Starter	Reversing Starter	Wye-Delta Starter	Autotransformer Starter - tap 65%	Autotransformer Starter - tap 80%
Contactor - K1	FLA	FLA	0.58 x FLA	FLA	FLA
Contactor - K2	-	-	0.58 x FLA	0.42 x FLA	0.64 x FLA
Contactor - K3	-	-	0.33 x FLA	0.23 x FLA	0.16 x FLA
Overload Relay - FT	FLA	FLA	0.58 x FLA	FLA	FLA
Manual Motor Protector - MPW25	FLA				

This table is for comparison & reference only.

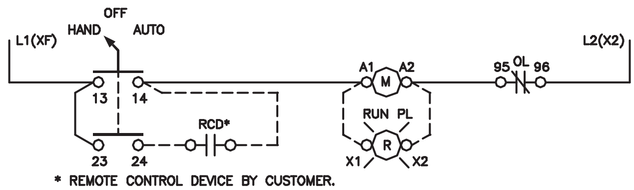
Technical Information

Electrical Wiring Diagrams

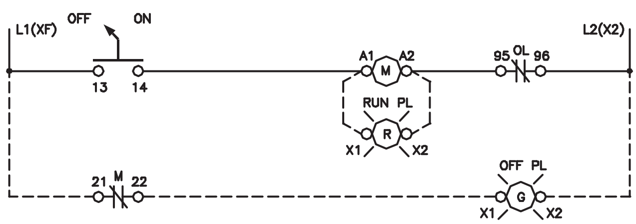
Motor Starters Non-Reversing



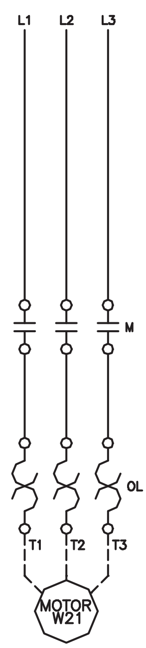
START–STOP PUSHBUTTONS



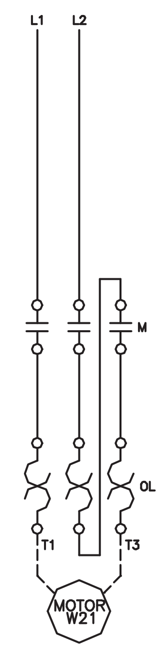
HAND–OFF–AUTO SELECTOR SWITCH



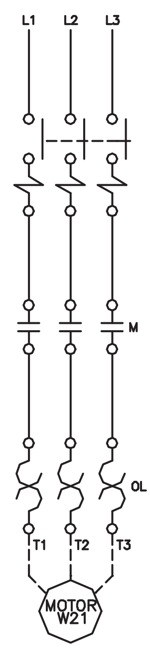
OFF–ON SELECTOR SWITCH



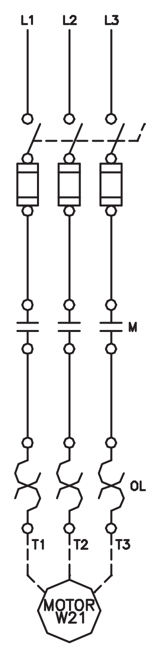
NON COMB. 3–PHASE



NON COM. 1–PHASE



COMP. MCP

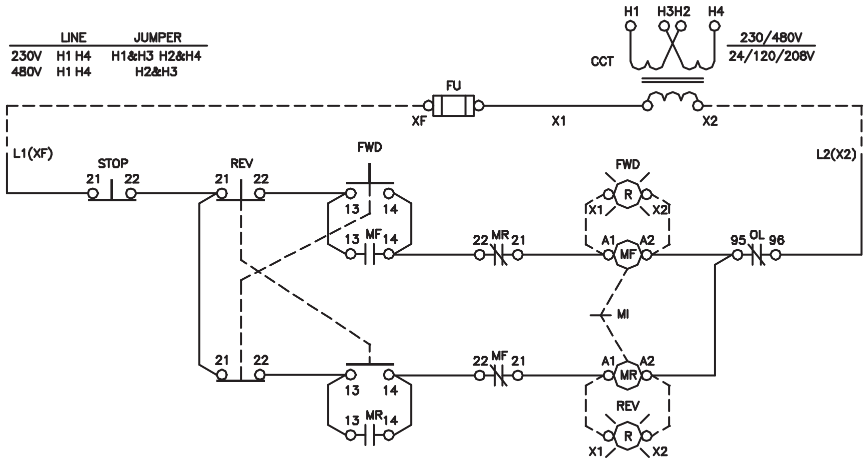


COMB. FUS/ NON FUS. DISC.

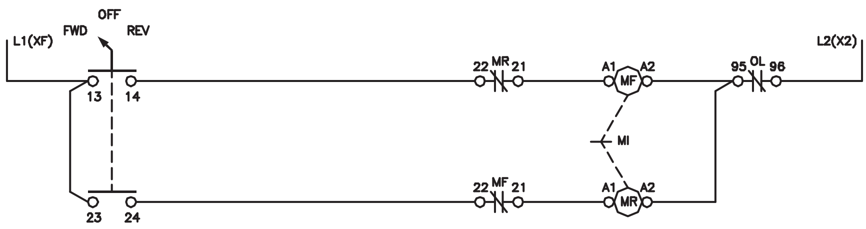
Technical Information

Electrical Wiring Diagrams

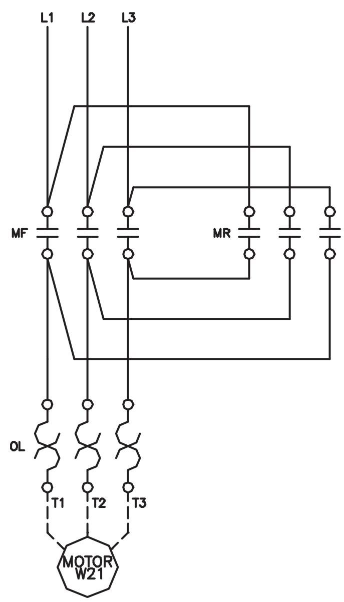
Motor Starters Reversing (1-3PH.)



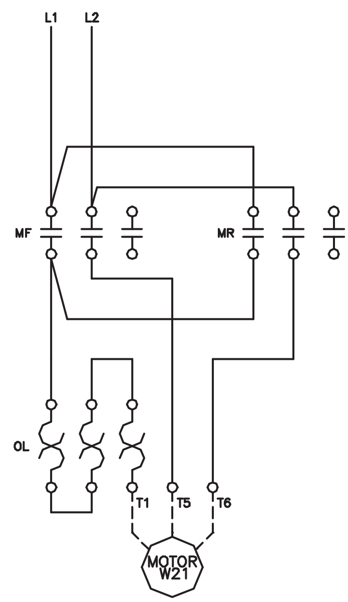
FORWARD–OFF–REVERSE PUSHBUTTONS



FORWARD–OFF–REVERSE SELECTOR SWITCH



NON COMB. 3–PHASE

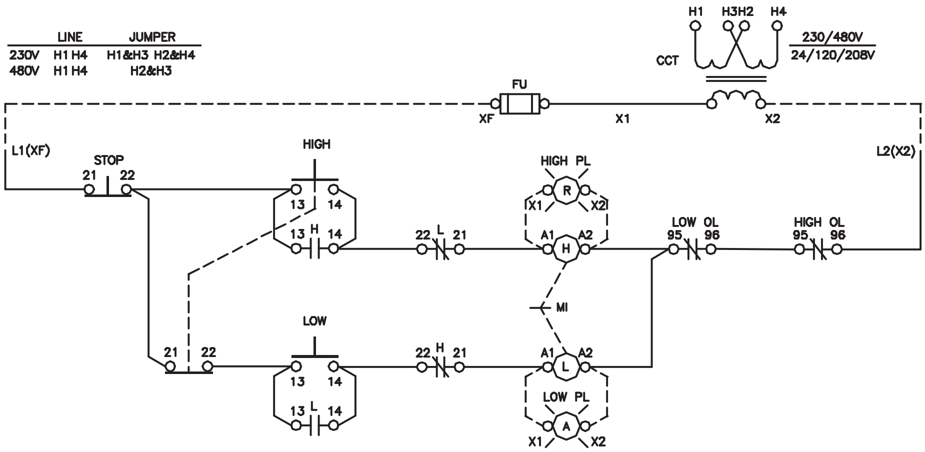


NON COMBINATION
1–PHASE–RECONNECTABLE WINDING
THREE LEAD MOTOR

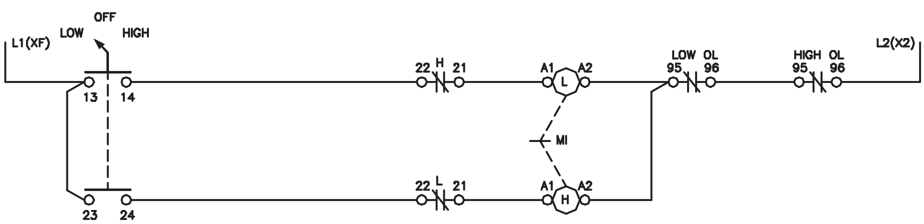
Technical Information

Electrical Wiring Diagrams

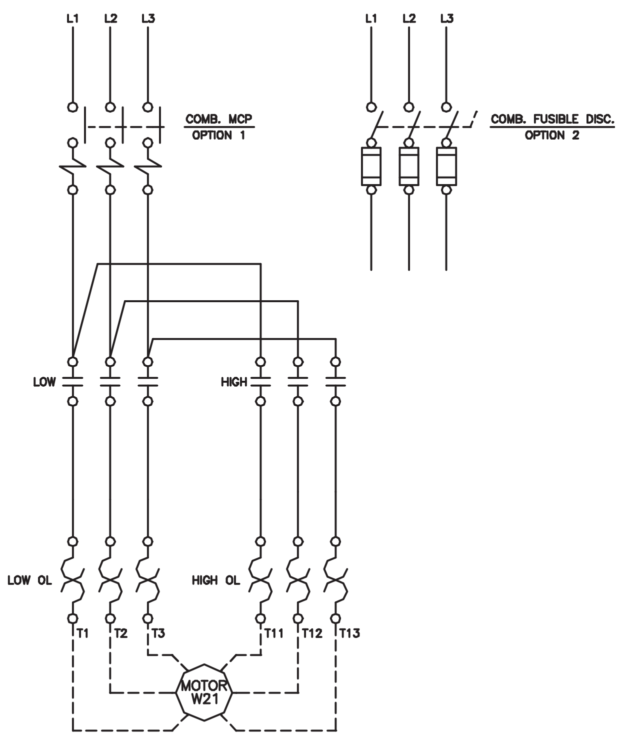
Multi-Speed Two Separate Windings



STOP–LOW–HIGH PUSHBUTTON



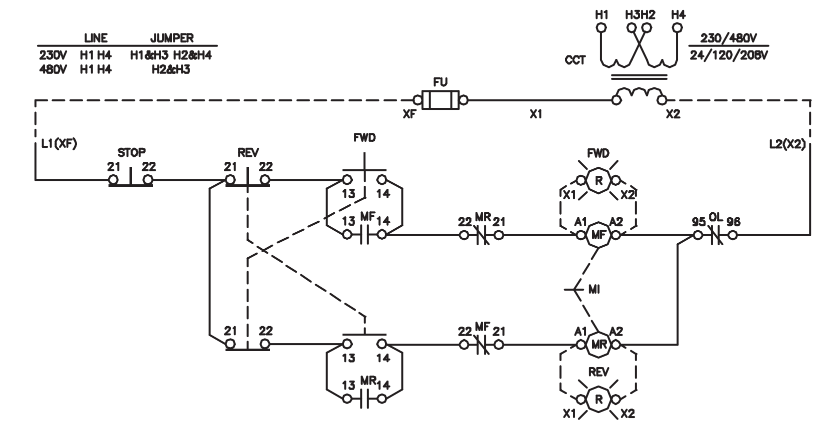
LOW–OFF–HIGH SELECTOR SWITCH



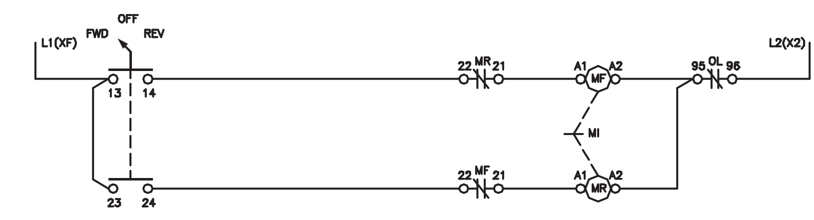
Technical Information

Electrical Wiring Diagrams

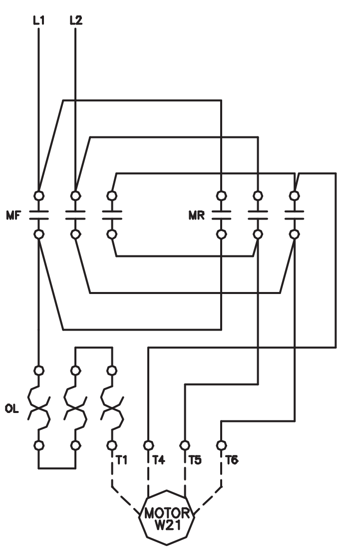
Motor Starters Reversing (1PH)



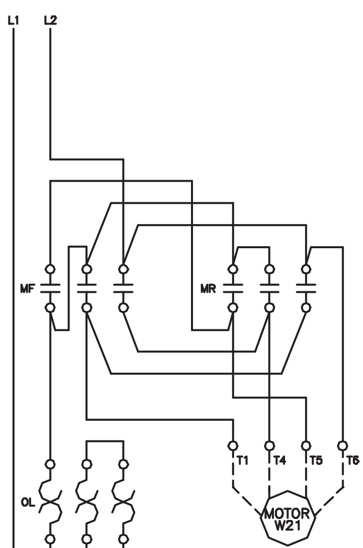
FORWARD–OFF–REVERSE PUSHBUTTONS



FORWARD–OFF–REVERSE SELECTOR SWITCH



NON COMBINATION
SINGLE PHASE–SERIES WINDING
FOUR LEAD REPULSION INDUCTION MOTOR

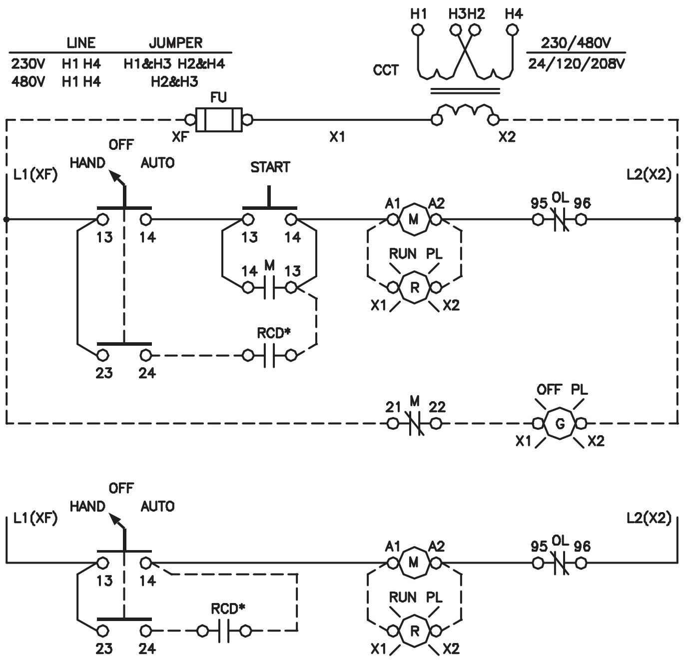


NON COMBINATION
SINGLE PHASE–PARALLEL WINDING
FOUR LEAD CAPACITOR OR SPLIT PHASE MOTOR

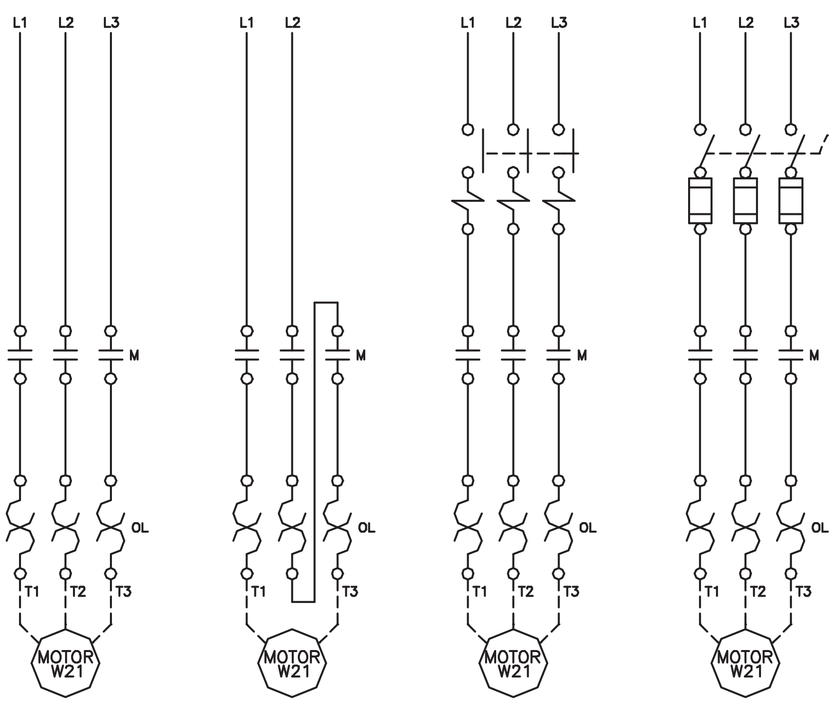
Technical Information

Electrical Wiring Diagrams

Pump Control Panels



* REMOTE CONTROL DEVICE BY CUSTOMER.



NON COMB. 3–PHASE

NON COM. 1–PHASE

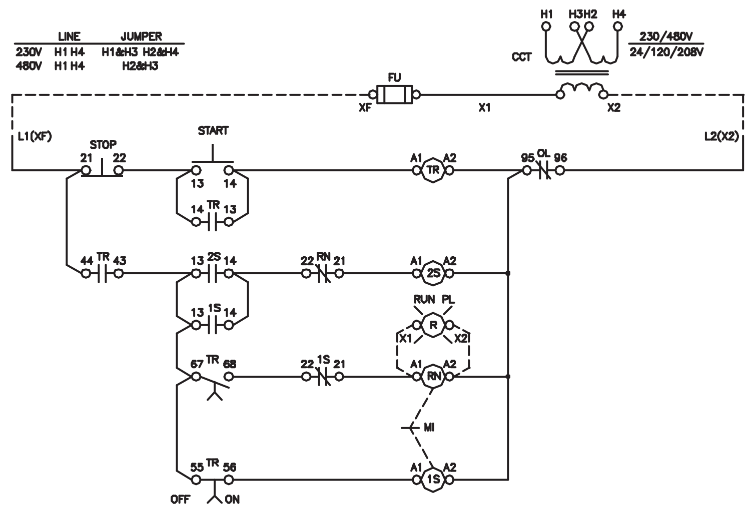
COMP. MCP

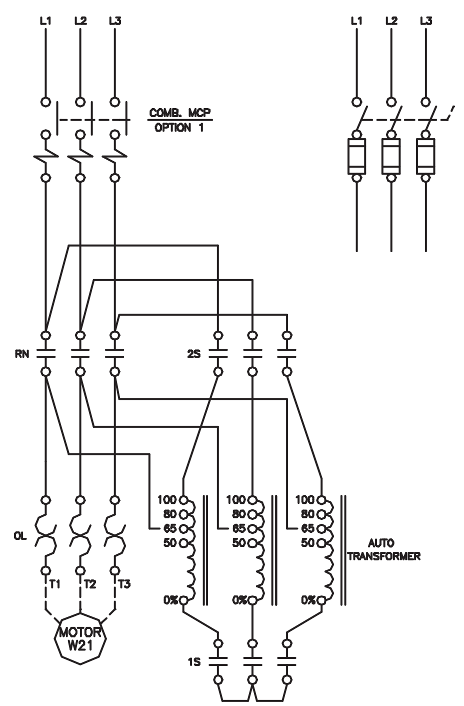
COMB. FUS DISC.

Technical Information

Electrical Wiring Diagrams

Reduced Voltage Starters – Autotransformer

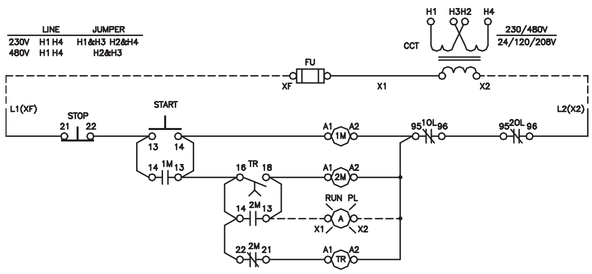




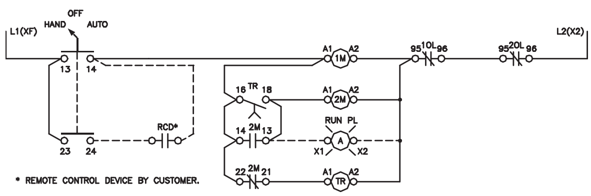
Technical Information

Electrical Wiring Diagrams

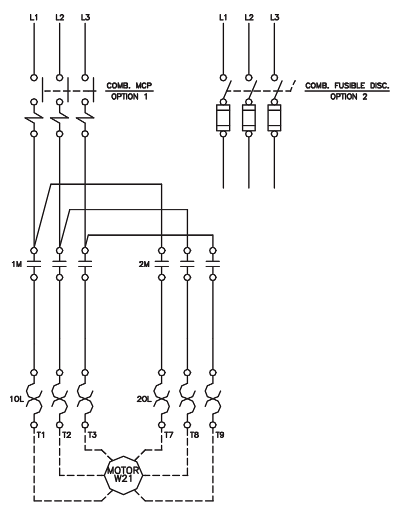
Reduced Voltage Starters – Part Winding



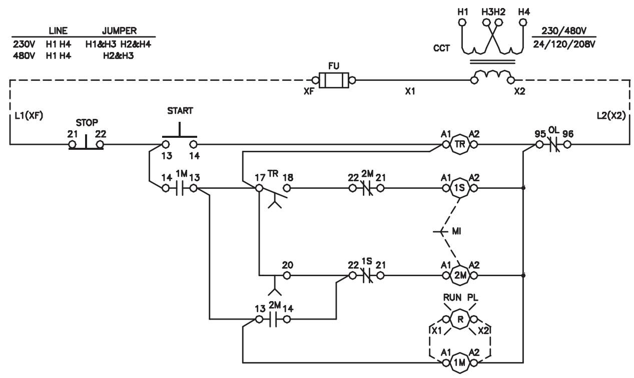
START–STOP PUSHBUTTONS

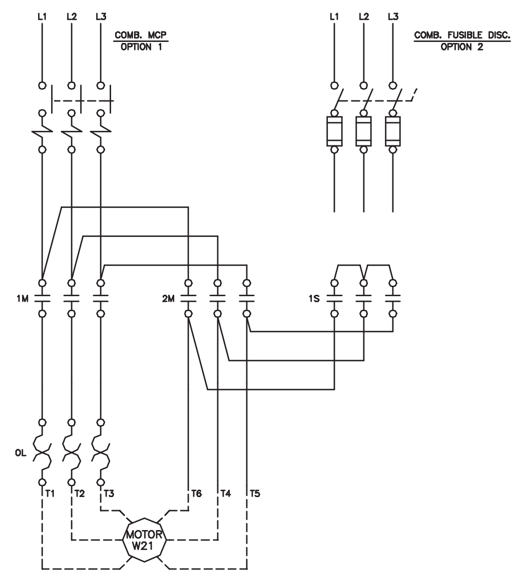


HAND–OFF–AUTO SELECTOR SWITCH



Reduced Voltage Starters – Wye Delta





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