



NOARK

Catalog

Molded Case Circuit Breakers Molded Case Motor Circuit Protectors Molded Case Switches

Ex9 Series - M



Excellent Products. Exceptional Value.

na.noark-electric.com

Company Overview

NOARK Electric is a global manufacturer of low-voltage electrical components for industrial applications. We specialize in motor controls and circuit protection for original equipment manufacturers. Our mission is to provide customers with the highest quality products at an exceptional value and back them with world-class service and support. Every NOARK product is tested and certified to the highest industry standards.

Research and Development

The entire portfolio of high-quality NOARK products is designed for manufacturing and assembly. Each component is developed in-house by our engineering team to meet the strictest standards and performance requirements. This dedication to excellence has led to the development of patented technology found in many of our products.

World-class Manufacturing

After being thoroughly tested, approved and certified – each NOARK product is sent into production at our state-of-the-art manufacturing facilities. This allows us to maintain strict quality control standards throughout the manufacturing process. In addition, NOARK Electric adheres to a policy of environmental protection and sustainability.

North American Distribution

NOARK's primary distribution center is located in Pomona, CA, with the aim of ensuring prompt and reliable deliveries of the entire product range to our customers all over North America. Our supply chain team works closely with our factories and logistics partners to ensure the availability of our products on the North American market and provide logistics services on the level which our customers expect.

NOARK Electric is a wholly subsidiary of the largest electrical manufacturing group in Asia with over 30 thousand employees and sales revenue of \$10 billion USD. We have corporate facilities in Los Angeles, Shanghai and Prague to service the requirements of individual markets and countries.

140+ Countries **300+** Overseas Distributors **20** Overseas Subsidiaries **22** Logistics Centers **3** R & D Centers **10,000,000+** Sq.Ft. Manufacturing Space



Table of Contents

A Molded Case Circuit Breakers

Product Overview	A3
Product Selection Guide	A4
Products	
M1PVS	A5
M1	A6-A9
M2	A10-A11
M3	A12-A13
M4	A14-A15
M5	A16-18
M6	A19-20
Specifications	A21-A24
Trip Unit	A25-A28
Trip Curve	A29-A36
Dimensions	A37-A41
Mounting Positions	A42-A45

B Molded Case Motor Circuit Protectors

Product Overview	B47
Product Selection Guide	B48
M1M-M6M Product Rating	B49
Products	
M1M	B50-B51
M2M	B52
M3M	B52
M4M	B53
M5M	B53
M6M	B54
Specifications	B55
Trip Unit	B56-B57
Trip Curve	B58-B63
Dimensions*	A37-A41
Mounting Positions*	A42-A45

*Note that Molded Case Motor Circuit Protectors Dimensions and Mounting Positions are the same as those of the Molded Case Circuit Breakers.

Table of Contents

C Molded Case Switches

Product Overview	C66
Product Selection Guide	C68
M1D-M6D Product Ratings	C69
Products	
M1D	C70
M2D	C71
M3D	C72
M4D	C72
M5D	C73
M6D	C73
Specifications	C74-C75
Dimensions*	A37-A41
Mounting Positions*	A42-A45

*Note that Molded Case Switches Dimensions and Mounting Positions are the same as those of the Molded Case Circuit Breakers.

D Accessories

Accessories Overview	D77-D78
Accessories Selection	
Internal Accessories	D79-D82
External Accessories	D83-D88
Connection Hardware	D89-D92
Accessories Dimensions	
Internal Accessories	D93
External Accessories	D94-D101
Connection Hardware	D102-D104

Molded Case Circuit Breakers/Motor Circuit Protection and Switches



Handle Lock (KLK)
(D83)



Mechanical Interlock (MIT)
(D83)



Motor Operator (MOD)
(D84)



**Alarm Switch (AL)/
Auxiliary Contact (AX)**
(D80)



**IEC Rotary Handle (RHD)
Close Coupled (D85)**



Molded Case Circuit Breaker (A3-37)
Molded Case Motor Circuit Protectors (B46-64)
Molded Case Switch (C65-75)



DIN Rail Plate (DRP)
(D85)



Under-Voltage Trip (UVT)
(D82)



**NEMA Extended
Rotary Handle
Through the Door (D86)**



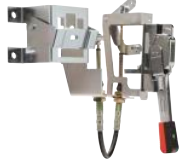
Shunt Trip (SHT)
(D81)



Terminal Lugs (LTC)
(D89)



Rear Connection Kit (RCP)
(D92)



**NEMA Flange Handle
Mechanism (FHM)
Through the Door (D86)**

NOARK



Molded Case Circuit Breakers

M1-M6



M1-M6 Product Overview

Features

Molded Case Circuit Breakers, 15-1200 Amperes

NOARK Electric offers a complete range of Molded Case Circuit Breakers in six frame sizes: M1 - 150A, M2 - 250A, M3 - 400A, M4 - 600A, M5 - 800A, and M6 - 1200A. Each frame size offers a range of interrupting ratings from 240-690 Vac and 250-600 Vdc/1000 Vdc.

- High-breaking capacity and a patented arc extinguishing design
- Bearing-type spindle reduces the operating force required to open and close the operating mechanism
- High quality compact modular design
- Fixed and adjustable trip unit settings
- Line and load lugs installed standard
- 5-Year limited warranty

Wide range of accessories:

- Alarm switch and auxiliary contact
- Shunt and under-voltage trip
- Rotary type handle
- Flange type handle
- Motor Operator
- Mechanical Interlock



Certifications

- UL 489 Listed, File Number E355392
- UL listed to UL489 and Canada CSA standards 22.2 No. 5
- IEC/EN 60947-2
- CE Compliant
- UL489B, File Number E513573



M1-M6 & M1PVS Product Selection Guide

Label

- ① Handle
- ② Product Series
- ③ Product Selection
- ④ Test Button
- ⑤ Adjustable Current and Magnetic Setting (M1~M5) or Electronic Trip (M6)
- ⑥ Brand
- ⑦ UL Listed Mark
- ⑧ CE Mark
- ⑨ Rated Current



Product Selection Guide

M1PVS

M	1	PV	S	80	T	3	L	A^{††}
NOARK Ex9 Series - M	Frame Size	Photovoltaic Code	Interrupting Rating	Amperage	Trip Unit	Pole	Terminal Option	Jumper Connection Type
	1: 80 A	1000VDC type in compliance with UL 489B	S: 10kA @1000Vdc	15~80 A	T: Thermal-Magnetic	3: 3 Poles	Blank: Bus Bar Connection L: Lug Line/Load Side	A: Jumper Connection A B: Jumper Connection B C: Jumper Connection C D: Jumper Connection D

M1-M6

M	1	S	100	T	2	L	F[†]	C^{***}
NOARK Ex9 Series - M	Frame Size	Interrupting Rating	Amperage	Trip Unit	Pole	Terminal Option	Rate Code	Neutral Protection Code
	1: 150 A 2: 250 A 3: 400 A 4: 600 A 5: 800 A 6: 1200 A	S: Standard N: Normal H ^{**} : High	M1: 15~150 A M2: 100~250 A M3: 225~400 A M4: 400~600 A M5: 600~800A M6: 800~1200 A	T: Thermal-Magnetic E: Electronic (M6 only)	1: 1 Pole (M1/M2 Only) 22: 2 Poles (M1/M2 Only) 2: 2 Poles (3 Pole Case) 3: 3 Poles 4: 4 Poles (M5-M6 Only)	L: Lug Line/Load Side	Blank: Standard (80% Rated) F: 100% Rated	Blank: Neutral Pole without protection C: Neutral Pole with 100% protection

** Used for M1-M5

*** M5 4P Only

† M6 only

†† Product equipped with factory installed jumpers

NOARK takes no responsibility if the customer changes the jumper configuration in the field.

M1PVS 15~80A (1000 VDC)

Connection A 3-Pole		
Fixed Magnetic • Fixed Thermal		
Rated Amperage (A)	Catalog Number	Part Number
15	M1PVS15T3LA	1102471
20	M1PVS20T3LA	1102475
25	M1PVS25T3LA	1102479
30	M1PVS30T3LA	1102483
35	M1PVS35T3LA	1102487
40	M1PVS40T3LA	1102491
45	M1PVS45T3LA	1102495
Adjustable Magnetic • Fixed Thermal		
50	M1PVS50T3LA	1102499
60	M1PVS60T3LA	1102503
70	M1PVS70T3LA	1102507
80	M1PVS80T3LA	1102511

Connection B 3-Pole		
Fixed Magnetic • Fixed Thermal		
Rated Amperage (A)	Catalog Number	Part Number
15	M1PVS15T3LB	1102472
20	M1PVS20T3LB	1102476
25	M1PVS25T3LB	1102480
30	M1PVS30T3LB	1102484
35	M1PVS35T3LB	1102488
40	M1PVS40T3LB	1102492
45	M1PVS45T3LB	1102496
Adjustable Magnetic • Fixed Thermal		
50	M1PVS50T3LB	1102500
60	M1PVS60T3LB	1102504
70	M1PVS70T3LB	1102508
80	M1PVS80T3LB	1102512

Connection C 3-Pole		
Fixed Magnetic • Fixed Thermal		
Rated Amperage (A)	Catalog Number	Part Number
15	M1PVS15T3LC	1102473
20	M1PVS20T3LC	1102477
25	M1PVS25T3LC	1102481
30	M1PVS30T3LC	1102485
35	M1PVS35T3LC	1102489
40	M1PVS40T3LC	1102493
45	M1PVS45T3LC	1102497
Adjustable Magnetic • Fixed Thermal		
50	M1PVS50T3LC	1102501
60	M1PVS60T3LC	1102505
70	M1PVS70T3LC	1102509
80	M1PVS80T3LC	1102513

Connection D 3-Pole		
Fixed Magnetic • Fixed Thermal		
Rated Amperage (A)	Catalog Number	Part Number
15	M1PVS15T3LD	1102474
20	M1PVS20T3LD	1102478
25	M1PVS25T3LD	1102482
30	M1PVS30T3LD	1102486
35	M1PVS35T3LD	1102490
40	M1PVS40T3LD	1102494
45	M1PVS45T3LD	1102498
Adjustable Magnetic • Fixed Thermal		
50	M1PVS50T3LD	1102502
60	M1PVS60T3LD	1102506
70	M1PVS70T3LD	1102510
80	M1PVS80T3LD	1102514

• Lug Line/Load Side Connection MCCB sold with Terminal Lugs

M1 Lug Line/Load Side Connection



M1N
1 Pole
10kA @480Vac
50kA @240Vac

Rated Amperage (A)	1-Pole	
	Fixed Magnetic • Fixed Thermal	
	Catalog Number	Part Number
15	M1N15T1L	1102223
20	M1N20T1L	1102224
25	M1N25T1L	1102225
30	M1N30T1L	1102226
35	M1N35T1L	1102227
40	M1N40T1L	1102228
45	M1N45T1L	1102229
50	M1N50T1L	1102230
60	M1N60T1L	1102231
70	M1N70T1L	1102232
80	M1N80T1L	1102233
90	M1N90T1L	1102234
100	M1N100T1L	1102235
125	M1N125T1L	1102236
150	M1N150T1L	1102237



M1S
2 Pole
35 kA @ 480 Vac
50 kA @ 240 Vac
14 kA @ 600 Vac

Rated Amperage (A)	2-Pole	
	Fixed Magnetic • Adjustable Thermal	
	Catalog Number	Part Number
15	M1S15T22L	1102277
20	M1S20T22L	1102278
25	M1S25T22L	1102279
30	M1S30T22L	1102280
35	M1S35T22L	1102281
40	M1S40T22L	1102282
45	M1S45T22L	1102283
50	M1S50T22L	1102284
60	M1S60T22L	1102285
70	M1S70T22L	1102286
80	M1S80T22L	1102287
90	M1S90T22L	1102288
100	M1S100T22L	1102289
125	M1S125T22L	1102264
150	M1S150T22L	1102265

- Lug Line/Load Side Connection MCCB sold with Terminal Lugs

M1 Lug Line/Load Side Connection



	Rated Amperage (A)	2-Pole	
		Fixed Magnetic • Adjustable Thermal	
		Catalog Number	Part Number
	15	M1N15T22L	1102290
	20	M1N20T22L	1102291
	25	M1N25T22L	1102292
	30	M1N30T22L	1102293
	35	M1N35T22L	1102294
	40	M1N40T22L	1102295
	45	M1N45T22L	1102296
	50	M1N50T22L	1102297
	60	M1N60T22L	1102298
	70	M1N70T22L	1102299
	80	M1N80T22L	1102300
	90	M1N90T22L	1102301
	100	M1N100T22L	1102302
	125	M1N125T22L	1102166
	150	M1N150T22L	1102167

M1N
2 Pole
65 kA @ 480Vac
100 kA @ 240Vac
20 kA @ 600Vac

A



	Rated Amperage (A)	2-Pole	
		Fixed Magnetic • Adjustable Thermal	
		Catalog Number	Part Number
	15	M1H15T22L	1102303
	20	M1H20T22L	1102304
	25	M1H25T22L	1102305
	30	M1H30T22L	1102306
	35	M1H35T22L	1102307
	40	M1H40T22L	1102308
	45	M1H45T22L	1102309
	50	M1H50T22L	1102310
	60	M1H60T22L	1102311
	70	M1H70T22L	1102312
	80	M1H80T22L	1102313
	90	M1H90T22L	1102314
	100	M1H100T22L	1102315
	125	M1H125T22L	1102168
	150	M1H150T22L	1102169

M1H
2 Pole
100 kA @ 480 Vac
150 kA @ 240 Vac
25 kA @ 600 Vac

- Lug Line/Load Side Connection MCCB sold with Terminal Lugs

M1 Lug Line/Load Side Connection



M1S 3 Pole

35 kA @ 480 Vac
50 kA @ 240 Vac
14 kA @ 600 Vac

Rated Amperage (A)	3-Pole	
	Fixed Magnetic • Adjustable Thermal	
	Catalog Number	Part Number
15	M1S15T3L	1100027
20	M1S20T3L	1100028
25	M1S25T3L	1100029
30	M1S30T3L	1100030
35	M1S35T3L	1100031
40	M1S40T3L	1100032
45	M1S45T3L	1100033
50	M1S50T3L	1100034
60	M1S60T3L	1100035
70	M1S70T3L	1100036
80	M1S80T3L	1100037
90	M1S90T3L	1100038
100	M1S100T3L	1100039
125	M1S125T3L	1102170
150	M1S150T3L	1102171



M1N 3 Pole

65 kA @ 480 Vac
100 kA @ 240 Vac
20 kA @ 600 Vac

Rated Amperage (A)	3-Pole	
	Fixed Magnetic • Adjustable Thermal	
	Catalog Number	Part Number
15	M1N15T3L	1100040
20	M1N20T3L	1100041
25	M1N25T3L	1100042
30	M1N30T3L	1100043
35	M1N35T3L	1100044
40	M1N40T3L	1100045
45	M1N45T3L	1100046
50	M1N50T3L	1100047
60	M1N60T3L	1100048
70	M1N70T3L	1100049
80	M1N80T3L	1100050
90	M1N90T3L	1100051
100	M1N100T3L	1100052
125	M1N125T3L	1102172
150	M1N150T3L	1102173

- Lug Line/Load Side Connection MCCB sold with Terminal Lugs

M1 Lug Line/Load Side Connection



	Rated Amperage (A)	3-Pole	
		Fixed Magnetic • Adjustable Thermal	
		Catalog Number	Part Number
	15	M1H15T3L	1101548
	20	M1H20T3L	1101549
	25	M1H25T3L	1101550
	30	M1H30T3L	1101551
	35	M1H35T3L	1101552
	40	M1H40T3L	1101553
	45	M1H45T3L	1101554
	50	M1H50T3L	1101556
	60	M1H60T3L	1101555
	70	M1H70T3L	1101556
	80	M1H80T3L	1101557
	90	M1H90T3L	1101558
	100	M1H100T3L	1101559
	125	M1H125T3L	1102174
	150	M1H150T3L	1102175

M1H
3 Pole
100 kA @ 480 Vac
150 kA @ 240 Vac
25 kA @ 600 Vac

A

- Lug Line/Load Side Connection MCCB sold with Terminal Lugs

Specifications	A21-A24	Trip Curve	A29-A36	Accessories	D77-D104
Interruption Polarity.....	A24	Dimensions	A37-A41		
Trip Unit	A25-A28	Mounting Position	A42-A45		

M2 Lug Line/Load Side Connection



	Rated Amperage (A)	1-Pole	
		Fixed Magnetic • Fixed Thermal	
		Catalog Number	Part Number
M2N 1 Pole 10 kA @ 480 Vac 50 kA @ 240 Vac	100	M2N100T1L	1102323
	125	M2N125T1L	1102324
	150	M2N150T1L	1102325
	175	M2N175T1L	1102326
	200	M2N200T1L	1102327
	225	M2N225T1L	1102328
	250	M2N250T1L	1102329



	Rated Amperage (A)	2-Pole	
		Fixed Magnetic • Fixed Thermal	
		Catalog Number	Part Number
M2S 2 Pole 35 kA @ 480 Vac 50 kA @ 240 Vac 14 kA @ 600 Vac	100	M2S100T22L	1102337
	125	M2S125T22L	1102338
	150	M2S150T22L	1102339
	175	M2S175T22L	1102340
	200	M2S200T22L	1102341
	225	M2S225T22L	1102342
	250	M2S250T22L	1102343



	Rated Amperage (A)	2-Pole	
		Fixed Magnetic • Fixed Thermal	
		Catalog Number	Part Number
M2N 2 Pole 65 kA @ 480 Vac 100 kA @ 240 Vac 20 kA @ 600 Vac	100	M2N100T22L	1102351
	125	M2N125T22L	1102352
	150	M2N150T22L	1102353
	175	M2N175T22L	1102354
	200	M2N200T22L	1102355
	225	M2N225T22L	1102356
	250	M2N250T22L	1102357

- Lug Line/Load Side Connection MCCB sold with Terminal Lugs

M2 Lug Line/Load Side Connection



M2S 3 Pole

35 kA @ 480 Vac
50 kA @ 240 Vac
14 kA @ 600 Vac

Rated Amperage (A)	3-Pole	
	Adjustable Magnetic • Adjustable Thermal	
	Catalog Number	Part Number
100	M2S100T3L	1100221
125	M2S125T3L	1100222
150	M2S150T3L	1100223
175	M2S175T3L	1100224
200	M2S200T3L	1100225
225	M2S225T3L	1100226
250	M2S250T3L	1101958



M2N 3 Pole

65 kA @ 480 Vac
100 kA @ 240 Vac
20 kA @ 600 Vac

Rated Amperage (A)	3-Pole	
	Adjustable Magnetic • Adjustable Thermal	
	Catalog Number	Part Number
100	M2N100T3L	1100227
125	M2N125T3L	1100228
150	M2N150T3L	1100229
175	M2N175T3L	1100230
200	M2N200T3L	1100231
225	M2N225T3L	1100232
250	M2N250T3L	1101959



M2H 3 Pole

100 kA @ 480 Vac
150 kA @ 240 Vac
25 kA @ 600 Vac

Rated Amperage (A)	3-Pole	
	Adjustable Magnetic • Adjustable Thermal	
	Catalog Number	Part Number
100	M2H100T3L	1101645
125	M2H125T3L	1101646
150	M2H150T3L	1101647
175	M2H175T3L	1101648
200	M2H200T3L	1101649
225	M2H225T3L	1101650
250	M2H250T3L	1101960

- Lug Line/Load Side Connection MCCB sold with Terminal Lugs

Specifications A21-A24
Interruption Polarity..... A24
Trip Unit A25-A28

Trip Curve A29-A36
Dimensions A37-A41
Mounting Position A42-A45

Accessories D77-D104

M3 Lug Line/Load Side Connection



	Rated Amperage (A)	2-Pole*	
		Adjustable Magnetic • Adjustable Thermal	
		Catalog Number	Part Number
M3S 2 Pole in a 3 Pole Case 42 kA @ 480 Vac 65 kA @ 240 Vac 14 kA @ 600 Vac	225	M3S225T2L	1100315
	250	M3S250T2L	1100316
	300	M3S300T2L	1100317
	350	M3S350T2L	1100318
	400	M3S400T2L	1100319



	Rated Amperage (A)	3-Pole	
		Adjustable Magnetic • Adjustable Thermal	
		Catalog Number	Part Number
M3S 3 Pole 42 kA @ 480 Vac 65 kA @ 240 Vac 14 kA @ 600 Vac	225	M3S225T3L	1100365
	250	M3S250T3L	1100366
	300	M3S300T3L	1100367
	350	M3S350T3L	1100368
	400	M3S400T3L	1100369



	Rated Amperage (A)	2-Pole*	
		Adjustable Magnetic • Adjustable Thermal	
		Catalog Number	Part Number
M3N 2 Pole in a 3 Pole Case 65 kA @ 480 Vac 100 kA @ 240 Vac 25 kA @ 600 Vac	225	M3N225T2L	1100320
	250	M3N250T2L	1100321
	300	M3N300T2L	1100322
	350	M3N350T2L	1100323
	400	M3N400T2L	1100324



	Rated Amperage (A)	3-Pole	
		Adjustable Magnetic • Adjustable Thermal	
		Catalog Number	Part Number
M3N 3 Pole 65 kA @ 480 Vac 100 kA @ 240 Vac 25 kA @ 600 Vac	225	M3N225T3L	1100370
	250	M3N250T3L	1100371
	300	M3N300T3L	1100372
	350	M3N350T3L	1100373
	400	M3N400T3L	1100374

*3-pole Case

• Lug Line/Load Side Connection MCCB sold with Terminal Lugs

M3 Lug Line/Load Side Connection



M3H 2 Pole in a 3 Pole Case 100 kA @ 480 Vac 150 kA @ 240 Vac 30 kA @ 600 Vac	Rated Amperage (A)	2-Pole*	
		Adjustable Magnetic • Adjustable Thermal	
		Catalog Number	Part Number
	225	M3H225T2L	1101692
	250	M3H250T2L	1101693
	300	M3H300T2L	1101694
	350	M3H350T2L	1101695
	400	M3H400T2L	1101696



M3H 3 Pole 100 kA @ 480 Vac 150 kA @ 240 Vac 30 kA @ 600 Vac	Rated Amperage (A)	3-Pole	
		Adjustable Magnetic • Adjustable Thermal	
		Catalog Number	Part Number
	225	M3H225T3L	1101722
	250	M3H250T3L	1101723
	300	M3H300T3L	1101724
	350	M3H350T3L	1101725
	400	M3H400T3L	1101726

A

- Lug Line/Load Side Connection MCCB sold with Terminal Lugs

*3-Pole Case

Specifications	A21-A24	Trip Curve	A29-A36	Accessories	D77-D104
Interruption Polarity.....	A24	Dimensions.....	A37-A41		
Trip Unit	A25-A28	Mounting Position	A42-A45		

M4 Lug Line/Load Side Connection



M4S 2 Pole in a 3 Pole Case 42 kA @ 480 Vac 65 kA @ 240 Vac 22 kA @ 600 Vac	Rated Amperage (A)	2-Pole*	
		Fixed Magnetic • Adjustable Thermal	
		Catalog Number	Part Number
	400	M4S400T2L	1100435
	500	M4S500T2L	1100436
	600	M4S600T2L	1100437



M4S 3 Pole 42 kA @ 480 Vac 65 kA @ 240 Vac 22 kA @ 600 Vac	Rated Amperage (A)	3-Pole	
		Fixed Magnetic • Adjustable Thermal	
		Catalog Number	Part Number
	400	M4S400T3L	1100411
	500	M4S500T3L	1100412
	600	M4S600T3L	1100413



M4N 2 Pole in a 3 Pole Case 65 kA @ 480 Vac 100 kA @ 240 Vac 30 kA @ 600 Vac	Rated Amperage (A)	2-Pole*	
		Fixed Magnetic • Adjustable Thermal	
		Catalog Number	Part Number
	400	M4N400T2L	1100438
	500	M4N500T2L	1100439
	600	M4N600T2L	1100440



M4N 3 Pole 65 kA @ 480 Vac 100 kA @ 240 Vac 30 kA @ 600 Vac	Rated Amperage (A)	3-Pole	
		Adjustable Magnetic • Adjustable Thermal	
		Catalog Number	Part Number
	400	M4N400T3L	1100414
	500	M4N500T3L	1100415
	600	M4N600T3L	1100416

- Lug Line/Load Side Connection MCCB sold with Terminal Lugs

*3-Pole Case

Specifications A21-A24
 Interruption Polarity..... A24
 Trip Unit..... A25-A28

Trip Curve A29-A36
 Dimensions..... A37-A41
 Mounting Position A42-A45

Accessories D77-D104

M4 Lug Line/Load Side Connection



M4H 2 Pole in a 3 Pole Case 100 kA @ 480 Vac 150 kA @ 240 Vac 50 kA @ 600 Vac	Rated Amperage (A)	2-Pole*	
		Fixed Magnetic • Adjustable Thermal	
		Catalog Number	Part Number
	400	M4H400T2L	1101762
	500	M4H500T2L	1101763
	600	M4H600T2L	1101764



M4H 3 Pole 100 kA @ 480 Vac 150 kA @ 240 Vac 50 kA @ 600 Vac	Rated Amperage (A)	3-Pole	
		Adjustable Magnetic • Adjustable Thermal	
		Catalog Number	Part Number
	400	M4H400T3L	1101750
	500	M4H500T3L	1101751
	600	M4H600T3L	1101752

- Lug Line/Load Side Connection MCCB sold with Terminal Lugs

*3-Pole Case

Specifications	A21-A24	Trip Curve	A29-A36	Accessories	D77-D104
Interruption Polarity.....	A24	Dimensions	A37-A41		
Trip Unit	A25-A28	Mounting Position	A42-A45		

M5 Lug Line/Load Side Connection



M5S 2 Pole in a 3 Pole Case 42 kA @ 480 Vac 65 kA @ 240 Vac 22 kA @ 600 Vac	Rated Amperage (A)	2-Pole* Adjustable Magnetic • Adjustable Thermal	
		Catalog Number	Part Number
		600	M5S600T2L
700	M5S700T2L	1102011	
800	M5S800T2L	1102012	



M5S 3 Pole 42 kA @ 480 Vac 65 kA @ 240 Vac 22 kA @ 600 Vac	Rated Amperage (A)	3-Pole Adjustable Magnetic • Adjustable Thermal	
		Catalog Number	Part Number
		600	M5S600T3L
700	M5S700T3L	1102029	
800	M5S800T3L	1102030	

M5S 4 Pole 42 kA @ 480 Vac 65 kA @ 240 Vac 22 kA @ 600 Vac	Rated Amperage (A)	4-Pole Neutral 0% Protection Fixed Magnetic • Adjustable Thermal	
		Catalog Number	Part Number
		600	M5S600T4L
700	M5S700T4L	1102047	
800	M5S800T4L	1102048	

M5S 4 Pole 42 kA @ 480 Vac 65 kA @ 240 Vac 22 kA @ 600 Vac	Rated Amperage (A)	4-Pole Neutral 100% Protection Fixed Magnetic • Adjustable Thermal	
		Catalog Number	Part Number
		600	M5S600T4LC
700	M5S700T4LC	1102065	
800	M5S800T4LC	1102066	

- Lug Line/Load Side Connection MCCB sold with Terminal Lugs

*3-Pole Case

Specifications A21-A24
 Interruption Polarity..... A24
 Trip Unit..... A25-A28

Trip Curve A29-A36
 Dimensions..... A37-A41
 Mounting Position A42-A45

Accessories D77-D104

M5 Lug Line/Load Side Connection



M5N 2 Pole in a 3 Pole Case 65 kA @ 480 Vac 100 kA @ 240 Vac 30 kA @ 600 Vac	Rated Amperage (A)	2-Pole* Fixed Magnetic • Adjustable Thermal	
		Catalog Number	Part Number
		600	M5N600T2L
700	M5N700T2L	1102014	
800	M5N800T2L	1102015	



M5N 3 Pole 65 kA @ 480 Vac 100 kA @ 240 Vac 30 kA @ 600 Vac	Rated Amperage (A)	3-Pole Adjustable Magnetic • Adjustable Thermal	
		Catalog Number	Part Number
		600	M5N600T3L
700	M5N700T3L	1102032	
800	M5N800T3L	1102033	

M5N 4 Pole 65 kA @ 480 Vac 100 kA @ 240 Vac 30 kA @ 600 Vac	Rated Amperage (A)	4-Pole Neutral 0% Protection Fixed Magnetic • Adjustable Thermal	
		Catalog Number	Part Number
		600	M5N600T4L
700	M5N700T4L	1102050	
800	M5N800T4L	1102051	

M5N 4 Pole 65 kA @ 480 Vac 100 kA @ 240 Vac 30 kA @ 600 Vac	Rated Amperage (A)	4-Pole Neutral 100% Protection Fixed Magnetic • Adjustable Thermal	
		Catalog Number	Part Number
		600	M5N600T4LC
700	M5N700T4LC	1102068	
800	M5N800T4LC	1102069	

- Lug Line/Load Side Connection MCCB sold with Terminal Lugs

*3-Pole Case

Specifications	A21-A24	Trip Curve	A29-A36	Accessories	D77-D104
Interruption Polarity.....	A24	Dimensions	A37-A41		
Trip Unit	A25-A28	Mounting Position	A42-A45		

M5 Lug Line/Load Side Connection



M5H 2 Pole in a 3 Pole Case 100 kA @ 480 Vac 150 kA @ 240 Vac 50 kA @ 600 Vac	Rated Amperage (A)	2-Pole* Fixed Magnetic • Adjustable Thermal	
		Catalog Number	Part Number
		600	M5H600T2L
700	M5H700T2L	1102017	
800	M5H800T2L	1102018	



M5H 3 Pole 100 kA @ 480 Vac 150 kA @ 240 Vac 50 kA @ 600 Vac	Rated Amperage (A)	3-Pole Adjustable Magnetic • Adjustable Thermal	
		Catalog Number	Part Number
		600	M5H600T3L
700	M5H700T3L	1102035	
800	M5H800T3L	1102036	

M5H 4 Pole 100 kA @ 480 Vac 150 kA @ 240 Vac 50 kA @ 600 Vac	Rated Amperage (A)	4-Pole Neutral 0% Protection Fixed Magnetic • Adjustable Thermal	
		Catalog Number	Part Number
		600	M5H600T4L
700	M5H700T4L	1102053	
800	M5H800T4L	1102054	

M5H 4 Pole 100 kA @ 480 Vac 150 kA @ 240 Vac 50 kA @ 600 Vac	Rated Amperage (A)	4-Pole Neutral 100% Protection Fixed Magnetic • Adjustable Thermal	
		Catalog Number	Part Number
		600	M5H600T4LC
700	M5H700T4LC	1102071	
800	M5H800T4LC	1102072	

- Lug Line/Load Side Connection MCCB sold with Terminal Lugs

*3-Pole Case

Specifications A21-A24
 Interruption Polarity..... A24
 Trip Unit..... A25-A28

Trip Curve A29-A36
 Dimensions..... A37-A41
 Mounting Position A42-A45

Accessories D77-D104

M6 Lug Line/Load Side Connection



M6S 3 Pole 42 kA @ 480 Vac 65 kA @ 240 Vac 22 kA @ 600 Vac	Rated Amperage (A)	3-Pole Electronic Trip Unit • 80% Rated	
		Catalog Number	Part Number
		800	M6S800E3L
1000	M6S1000E3L	1101842	
1200	M6S1200E3L	1101843	



M6S 3 Pole 42 kA @ 480 Vac 65 kA @ 240 Vac 22 kA @ 600 Vac	Rated Amperage (A)	3-Pole Electronic Trip Unit • 100% Rated	
		Catalog Number	Part Number
		800	M6S800E3LF
1000	M6S1000E3LF	1101902	
1200	M6S1200E3LF	1101903	



M6S 4 Pole 42 kA @ 480 Vac 65 kA @ 240 Vac 22 kA @ 600 Vac	Rated Amperage (A)	4-Pole Electronic Trip Unit • 80% Rated	
		Catalog Number	Part Number
		800	M6S800E4L
1000	M6S1000E4L	1101854	
1200	M6S1200E4L	1101855	



M6S 4 Pole 42 kA @ 480 Vac 65 kA @ 240 Vac 22 kA @ 600 Vac	Rated Amperage (A)	4-Pole Electronic Trip Unit • 100% Rated	
		Catalog Number	Part Number
		800	M6S800E4LF
1000	M6S1000E4LF	1101914	
1200	M6S1200E4LF	1101915	

• Lug Line/Load Side Connection MCCB sold with Terminal Lugs

Specifications A21-A24
 Interruption Polarity..... A24
 Trip Unit A25-A28

Trip Curve A29-A36
 Dimensions A37-A41
 Mounting Position A42-A45

Accessories D77-D104

M6 Lug Line/Load Side Connection



M6N 3 Pole 65 kA @ 480 Vac 100 kA @ 240 Vac 42 kA @ 600 Vac	Rated Amperage (A)	3-Pole Electronic Trip Unit • 80% Rated	
		Catalog Number	Part Number
		800	M6N800E3L
1000	M6N1000E3L	1101845	
1200	M6N1200E3L	1101846	



M6N 3 Pole 65 kA @ 480 Vac 100 kA @ 240 Vac 42 kA @ 600 Vac	Rated Amperage (A)	3-Pole Electronic Trip Unit • 100% Rated	
		Catalog Number	Part Number
		800	M6N800E3LF
1000	M6N1000E3LF	1101905	
1200	M6N1200E3LF	1101906	



M6N 4 Pole 65 kA @ 480 Vac 100 kA @ 240 Vac 42 kA @ 600 Vac	Rated Amperage (A)	4-Pole Electronic Trip Unit • 80% Rated	
		Catalog Number	Part Number
		800	M6N800E4L
1000	M6N1000E4L	1101857	
1200	M6N1200E4L	1101858	



M6N 4 Pole 65 kA @ 480 Vac 100 kA @ 240 Vac 42 kA @ 600 Vac	Rated Amperage (A)	4-Pole Electronic Trip Unit • 100% Rated	
		Catalog Number	Part Number
		800	M6N800E4LF
1000	M6N1000E4LF	1101917	
1200	M6N1200E4LF	1101918	

- Lug Line/Load Side Connection MCCB sold with Terminal Lugs

M1PVS Specifications

		M1PVS
Rated Service Current		15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80
Number of Poles		3
Rated Service Voltage		1000Vdc
Short-Circuit Interrupting Rating @1000Vdc		10
Trip Unit		TM
Ambient Temperature		-20°C~50°C
Certification		UL489B
Mechanical Life		10,000
Electrical Life (Operations @1000Vdc)		1,000
Dimensions (mm/in)	M1PVS-A/B	W 90 (3.5)
		D 84.5 (3.33)
		H 201 (7.91)
	M1PVS-C/D	W 90 (3.5)
		D 84.5 (3.33)
		H 238 (9.37)
Weight (With Jumper)	M1PVS-A/B (kg/lbs)	1.50/3.29
	M1PVS-C/D (kg/lbs)	1.659/3.64
Accessories		
Alarm Switch		■
Auxiliary Contact		■
Shunt Trip		■
Under-Voltage Trip		■
Handle Lock		■
Flange Handle		■
Rotary Handle		■
Mechanical Interlock		■
Motor Operator		■
Terminations		
Connections		Jumpers
Cable Selection		CU

A

M1-M3 Specifications

		M1							M2							M3		
Rated Current (A)		15~150							100~250							225~400		
Number of Poles		1	2		2*, 3			1	2		2*,3							
Breaker Type		N	S	N	H	S	N	H	N	S	N	S	N	H	S	N	H	
Rated Voltage 50/60 Hz	Vac	480	600		600**			480	600		600**							
	Vdc	250	500					250	500									
Interrupting Capacity (kA rms)																		
Circuit Breaker Ratings UL 489 CSA C22.2 (kA rms) Vac 50/60 Hz	240 Vac	50	50	100	150	50	100	150	50	50	100	50	100	150	65	100	150	
	480 Vac	10	35	65	100	35	65	100	10	35	65	35	65	100	42	65	100	
	600 Vac	-	14	20	25	14	20	25	-	14	20	14	20	25	18	25	30	
	250 Vdc 1 Pole	25				-			25				-					
	500 Vdc 2 Poles	-	20	35	50	20	35	50	-	20	35	20	35	50	35	50	65	
	600 Vdc 3 Poles		-			20	35	50		-		20	35	50	35	50	65	
Circuit Breaker Ratings IEC 60947-2	220 / 240 Vac	50	50	100	150	50	100	150	50	50	100	50	100	150	65	100	150	
	380 / 415 Vac	-							-									
	660 / 690 Vac	-	5	8	10	5	8	10	-	6	10	6	10	12	10	15	20	
Ultimate Breaking Capacity (Icu = 100% Ics) (kA rms)	250 Vdc 1 Pole	25				-			25				-					
	500 Vdc 2 Poles	-	20	35	50	20	35	50				20	35	50	35	50	65	
	500 Vdc 3 Poles		-			25	35	50		-		25	35	50	35	50	65	
Current Rating (A) @ 104 °F (40 °C)		15~150							100~250							225~400		
Thermal-Magnetic Trip Units	A = Adjustable T = Thermal F = Fixed M = Magnetic	FT/ FM	15~45 FT/FM 50~150A AT/FM		15~45A FT/FM 50~100A AT/FM 125~150A AT/AM			FT/ FM				AT / AM						
Accessories																		
Alarm Switch																		
Auxiliary Contact																		
Shunt Trip		-	■					-	■									
Under-Voltage Trip																		
Handle Operators																		
Handle Lock		■			■			■			■							
Flange Handle																		
Mechanical Interlock																		
Handle Operators		-							-									
Motor Operator																		
Terminal Cover and Kits																		
Connection																		
Lug Line/Load Side Connection									■									

* 2 pole in a 3 pole case

** 600 Vdc only available for 3 pole and 4 pole

M4-M6 Specifications

		M4			M5			M6	
Rated Current (A)		400~600			600~800			800~1,200	
Number of Poles		2*,3			2*,3,4			3, 4	
Breaker Type		S	N	H	S	N	H	S	N
Rated Voltage 50/60 Hz	Vac	600**						600	
	Vdc							-	
Interrupting Capacity (kA rms)									
Circuit Breaker Ratings UL 489 CSA C22.2 (kA rms) Vac 50/60 Hz	240 Vac	65	100	150	65	100	150	65	100
	480 Vac	42	65	100	42	65	100	42	65
	600 Vac	22	30	50	22	30	50	22	42
	500 Vdc 2 Poles	35	50	65	35	50	65	-	
	600 Vdc 3 Poles	35	50	65	35	50	65	-	
Circuit Breaker Ratings IEC 60947-2	220 / 240 Vac	65	100	150	65	100	150	65 (45)	85 (45)
	380 / 415 Vac								
	660 / 690 Vac	12	15	20	12	15	20	30	30
Ultimate Breaking Capacity (Icu = 100% Ics) (kA rms)	500 Vdc 3 Poles	35	50	65	35	50	65	-	
	500 Vdc 2 Poles	35	50	65	35	50	65	-	
Current Rating (A) @ 104 °F (40 °C)		400~600			600~800			800~1,200	
Thermal-Magnetic Trip Units	A = Adjustable T = Thermal F = Fixed M = Magnetic	AT / AM						Electronic	
Accessories									
Alarm Switch									
Auxiliary Contact									
Shunt Trip									
Under-Voltage Trip								■	
Handle Operators					■			■	
Handle Lock		■							
Flange Handle									
Mechanical Interlock									
Motor Operator									
Terminal Cover and Kits					-			-	
Connection									
Lug Line/Load Side Connection					■				

A

* 2 pole in a 3 pole case

** 600 Vdc only available for 3 pole and 4 pole

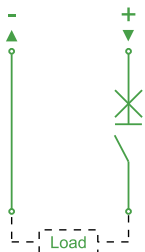
M1-M6 Specifications

		M1	M2	M3	M4	M5	M6				
Insulation Voltage (Vi)		800 Vac									
Impulse Withstand Voltage (Vimp)		8 kVac									
Operational Voltage (Ve)		IEC		690 Vac							
		UL		600 Vac							
IEC Ics (% Icu)		100%									
Operating temperature		-25°C to 70°C									
Utilization Category		A									
Mechanical Operating Cycles		10,000		8,000		3,000					
Electrical Operating Cycles		6,000		5,000		500					
Dimensions LxWxD in (mm)		1 Pole	6.46x1.4x3.33 (164x35x84.5)	7.17x1.57x3.47 (182x40x88)							
		2 Poles	6.46x2.44x3.33 (164x62x84.5)	7.17x2.95x3.47 (182x75x88)							
		2 Poles*									
		3 Poles	6.46x3.54x3.33 (164x90x84.5)	7.17x4.13x3.47 (182x105x88)	11.22x5.51x4.59 (285x140x116.5)	12.32x7.68x5.43 (313x195x138)	16.18x7.68x7.58 (411x195x192.5)	17.72x8.27x6.6 (450x210x167.6)			
		4 Poles					16.18x10.2x7.58 (411x260x192.5)	17.72x11.43x6.6 (450x280x167.6)			
Weight of Unit lb (kg)		1 Pole	1.47 (0.67)	1.76 (0.8)							
		2 Poles	2.53 (1.15)	3.3 (1.5)							
		2 Poles*	3.17 (1.44)	3.75 (1.70)	8.97 (4.07)	20.94 (9.5)	27.8 (12.5)	-			
		3 Poles	3.68 (1.67)	4.41 (2.00)	13.45 (6.1)	25.35 (11.5)	33.18 (15.05)	55.56 (25.2)			
		4 Poles					43.43 (19.7)	69.67 (31.6)			
Cable Connection Wire 167 °F (75 °C) Cu Wire Only AWG (mm ²)		1-Hole	14-3/0 (2.5-95)	1-Hole 8 - 350 kcmil (10-185)	1-Hole	3/0 - 500 kcmil (95-240)	2-Holes (2x) 3/0 - 400 kcmil ((2x) 95-185)	2-Holes	250-600kc- mil (120-300)	3-Holes	3/0- 750 kcmil (95-300)
					2-Holes	3 - 250 kcmil (35-120)		3-Holes	250-500 kcmil (100-250)	4-Holes	3/0- 500 kcmil (95-240)
Lugs in-lb (N.m)		89 (10)		230 (23)		310 (35)		398 (45)		310 (35)	

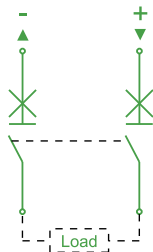
* 2 pole in a 3 pole case

M1-M5 Interruption Polarity for DC Application

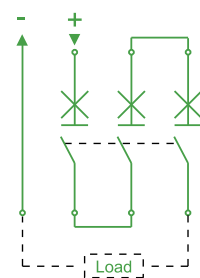
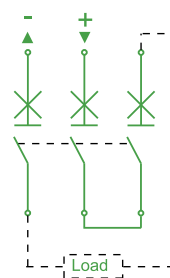
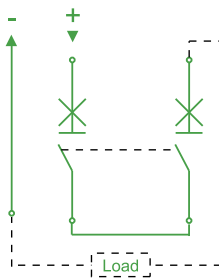
1 Pole



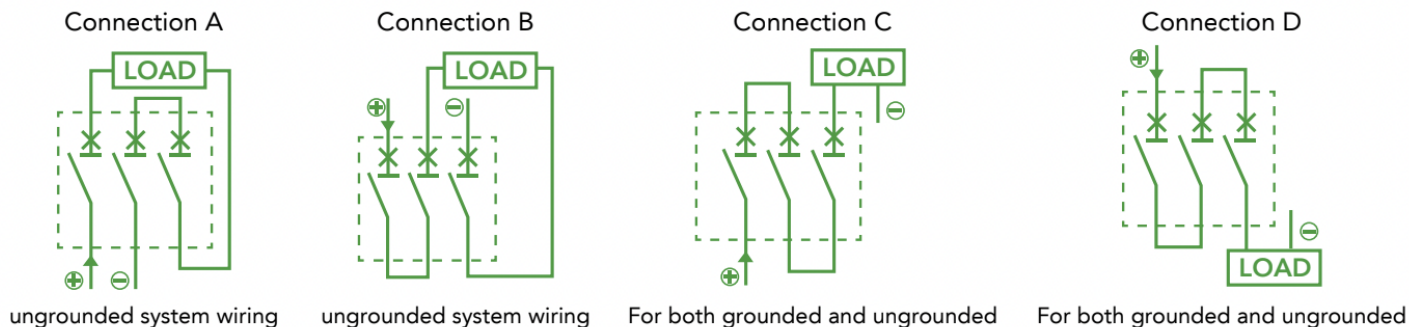
2 Poles



3 Poles



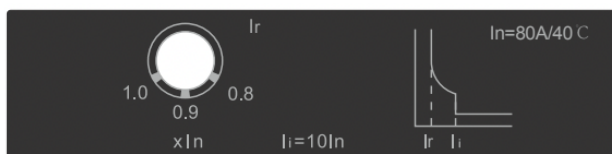
M1PVS Jumper Connection Type and Trip Unit



A

M1PVS

- Fixed Thermal: 15~45 A rated current
- Adjustable Thermal: 50~80 A rated current
- Adjustable: 0.8~1 x I_n
- Fixed Magnetic: 150~800 A tripping current



M1PVS Trip Unit												
	I_r	15 A	20 A	25 A	30 A	35 A	40 A	45 A	50 A	60 A	70 A	80 A
		Adjustable Thermal Overload Protection	0.8 x I_n								40	48
0.9 x I_n									45	54	63	72
1.0 x I_n									50	60	70	80
Fixed Magnetic Short Circuit Protection	I_i	15 A	20 A	25 A	30 A	35 A	40 A	45 A	50 A	60 A	70 A	80 A
		Fixed 1.0 x I_n	150	200	250	300	350	400	450	500	600	700

M1 Trip Unit

M1 1 Pole

- Fixed Magnetic: 150~1,500 A tripping current
- Fixed Thermal: 15~150 A rated current

M1 2 Poles

- Fixed Thermal: 15~45 A rated current
- Adjustable Thermal: 50~150 A rated current
Adjustable: 0.8~1 x In
- Fixed Magnetic: 150~1,500 A tripping current

M1 3 Poles

- Fixed Thermal: 15-45A rated current
- Adjustable Thermal: 50-150A rated current
Adjustable: 0.8~1×In
- Fixed Magnetic: 150~1,000 A tripping current
- Adjustable Magnetic: 125~150 A rated current
Adjustable: 5~10 x In



M1 - 1 Pole																
Fixed Thermal Overload Protection	I_R	15 A	20 A	25 A	30 A	35 A	40 A	45 A	50 A	60 A	70 A	80 A	90 A	100 A	125 A	150 A
	Fixed 1.0 x In		15	20	25	30	35	40	45	50	60	70	80	90	100	125
Fixed Magnetic Short Circuit Protection	I_i	15 A	20 A	25 A	30 A	35 A	40 A	45 A	50 A	60 A	70 A	80 A	90 A	100 A	125 A	150 A
	Fixed 10 x In		150	200	250	300	350	400	450	500	600	700	800	900	1000	1250
M1 - 2 Poles																
Fixed Thermal Overload Protection	I_R	15 A	20 A	25 A	30 A	35 A	40 A	45 A	50 A	60 A	70 A	80 A	90 A	100 A	125 A	150 A
	Fixed 1.0 x In		15	20	25	30	35	40	45							
Adjustable Thermal Overload Protection	0.8 x In								40	48	56	64	72	80	100	120
	0.9 x In								45	54	63	72	81	90	112.5	135
	1.0 x In								50	60	70	80	90	100	125	150
Fixed Magnetic Short Circuit Protection	I_i	15 A	20 A	25 A	30 A	35 A	40 A	45 A	50 A	60 A	70 A	80 A	90 A	100 A	125 A	150 A
	Fixed 1.0 x In		150	200	250	300	350	400	450	500	600	700	800	900	1000	1250
M1 - 3 Pole																
Fixed Thermal Overload Protection	I_R	15 A	20 A	25 A	30 A	35 A	40 A	45 A	50 A	60 A	70 A	80 A	90 A	100 A	125 A	150 A
	Fixed 1.0 x In		15	20	25	30	35	40	45							
Adjustable Thermal Overload Protection	0.8 x In								40	48	56	64	72	80	100	120
	0.9 x In								45	54	63	72	81	90	112.5	135
	1.0 x In								50	60	70	80	90	100	125	150
Fixed Magnetic Short Circuit Protection	I_i	15 A	20 A	25 A	30 A	35 A	40 A	45 A	50 A	60 A	70 A	80 A	90 A	100 A	125 A	150 A
	Fixed 1.0 x In		150	200	250	300	350	400	450	500	600	700	800	900	1000	1250
Adjustable Magnetic Short Circuit Protection	I_i	15 A	20 A	25 A	30 A	35 A	40 A	45 A	50 A	60 A	70 A	80 A	90 A	100 A	125 A	150 A
	5 x In														625	750
	6 x In														750	900
	7 x In														875	1050
	8 x In														1000	1200
	9 x In														1125	1350
10 x In														1250	1500	

M2-M5 Trip Unit

M2 1 Pole

- Fixed Magnetic: 1,000~2,500 A tripping current
- Fixed Thermal: 100~250 A rated current



M2 2 Poles/3 Poles

- Adjustable Thermal: 100-250A rated current
Adjustable: 0.8~1 x In
- Adjustable Magnetic: 700~2500A tripping current
Adjustable:
M2 - 2 Poles/3 Poles 100~150 = 7~12 x In
M2 - 2 Poles/3 Poles 175~250 = 5~10 x In

M3/M4/M5 3 Poles

- Adjustable Thermal: 225 ~ 800A
Adjustable: 0.8~1 x In
- Adjustable Magnetic: 1125-8000A tripping current
Adjustable: 5~10 x In

A

M2 - 1 Pole

	I_R	100 A	125 A	150 A	175 A	200 A	225 A	250 A
Fixed Thermal Overload Protection	Fixed $1.0 \times I_n$	100	125	150	175	200	225	250
	I_i	100A	125A	150A	175A	200A	225A	250A
Fixed Magnetic Short Circuit Protection	Fixed $10 \times I_n$	1000	1250	1500	1750	2000	2250	2500

M2 - 2 Poles/3 Pole

	I_R	100 A	125 A	150 A	175 A	200 A	225 A	250 A
Adjustable Thermal Overload Protection	$0.8 \times I_n$	80	100	120	140	160	180	200
	$0.9 \times I_n$	90	112.5	135	157.5	180	202.5	225
	$1.0 \times I_n$	100	125	150	175	200	225	250
Adjustable Magnetic Short Circuit Protection	I_i	100 A	125 A	150 A	175 A	200 A	225 A	250 A
	$7 \times I_n$	700	875	1050				
	$8 \times I_n$	800	1000	1200				
	$9 \times I_n$	900	1125	1350				
	$10 \times I_n$	1000	1250	1500				
	$11 \times I_n$	1100	1375	1650				
Adjustable Magnetic Short Circuit Protection	I_i	100A	125A	150A	175A	200A	225A	250A
	$5 \times I_n$				875	1000	1125	1250
	$6 \times I_n$				1050	1200	1350	1500
	$7 \times I_n$				1225	1400	1575	1750
	$8 \times I_n$				1400	1600	1800	2000
	$9 \times I_n$				1575	1800	2025	2250
$10 \times I_n$				1750	2000	2250	2500	

M3 - 400 A

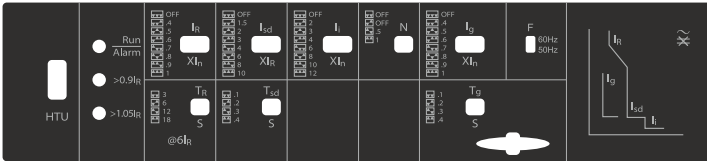
M4 - 600 A

M5 - 800 A

	I_R	225 A	250 A	300 A	350 A	400 A	400 A	500 A	600 A	600 A	700 A	800 A
Adjustable Thermal Overload Protection	$0.8 \times I_n$	180	200	240	280	320	320	400	480	480	560	640
	$0.9 \times I_n$	202.5	225	270	315	360	360	450	540	540	630	720
	$1.0 \times I_n$	225	250	300	350	400	400	500	600	600	700	800
Adjustable Magnetic Short Circuit Protection	I_i	225 A	250 A	300 A	350 A	400 A	400 A	500 A	600 A	600 A	700 A	800 A
	$5 \times I_n$	1,125	1,250	1,500	1,750	2,000	2,000	2,500	3,000	3,000	3,500	4,000
	$6 \times I_n$	1,350	1,500	1,800	2,100	2,400	2,400	3,000	3,600	3,600	4,200	4,800
	$7 \times I_n$	1,575	1,750	2,100	2,450	2,800	2,800	3,500	4,200	4,200	4,800	5,600
	$8 \times I_n$	1,800	2,000	2,400	2,800	3,200	3,200	4,000	4,800	4,800	5,600	6,400
	$9 \times I_n$	2,025	2,250	2,700	3,150	3,600	3,600	4,500	5,400	5,400	6,300	7,200
$10 \times I_n$	2,250	2,500	3,000	3,500	4,000	4,000	5,000	6,000	6,000	7,000	8,000	

M6 Trip Unit

Electronic Trip Unit



These trip functions are available:

L=Long-time Delay: Long-time Delay Protection Current; Long-time Delay Protection Time

S=Short-time Delay: Short-time Delay Protection Current: Short-time Delay Protection Time

I=Instantaneous Trip

G=Ground Fault Protection Current: Short-time Delay Protection Time

Neutral Protection: Long-time Delay, Short-time Delay, Instantaneous protection

Frequency Selection available: 50 or 60 Hz

Long-time delay protection current (IR): 8 specific setting (IR): OFF, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1.0*I_n

Note:

Thermal memory function: protect load circuits against the affects of repeated overload conditions. When circuit breaker immediately closes after a long-time trip, and the continuous current exceeds the long-time setting value (I_r), thermal memory function will automatically reduce the trip time. Given repeated overload current, thermal memory function will make circuit breaker trip in gradually reduced time. When the load current resumes normally, thermal current function will start to reset. It will totally reset in about 1 hour. So next long-time trip time will correspond to the setting value. Thermal memory function will be cleared in OFF setting.

Long-time delay protection time (TR): 4 specific setting (TR) @6*I_r: 3s, 6s, 12s, 18s

Working Current (I)	Long-time delay protection time (TR)
≤ 1.05*I _r	≥ 2h not trip
≤ 1.3*I _r	< 1h trip
=6*I _r	3s/6s/12s/18s

Short-time delay protection current (I_{sd}): 8 specific setting (I_{sd}): OFF, 1.5, 2, 3, 4, 6, 8, 10*I_r

Short-time delay protection time (T_{sd}): 4 specific setting (T_{sd}): 0.1s, 0.2s, 0.3s, 0.4s

Instantaneous protection Current (I_i): 8 specific setting (I_i): OFF, 2, 3, 4, 6, 8, 10, 12*I_n

Neutral Protecting:

Neutral long-time delay protection, 3 specific setting IR(N): OFF, 0.5, 1

Neutral Line Short-time delay protection setting, same as power line, I_{sd}(N)

Neutral Line Instantaneous protection setting, same as power line, I_i(N)

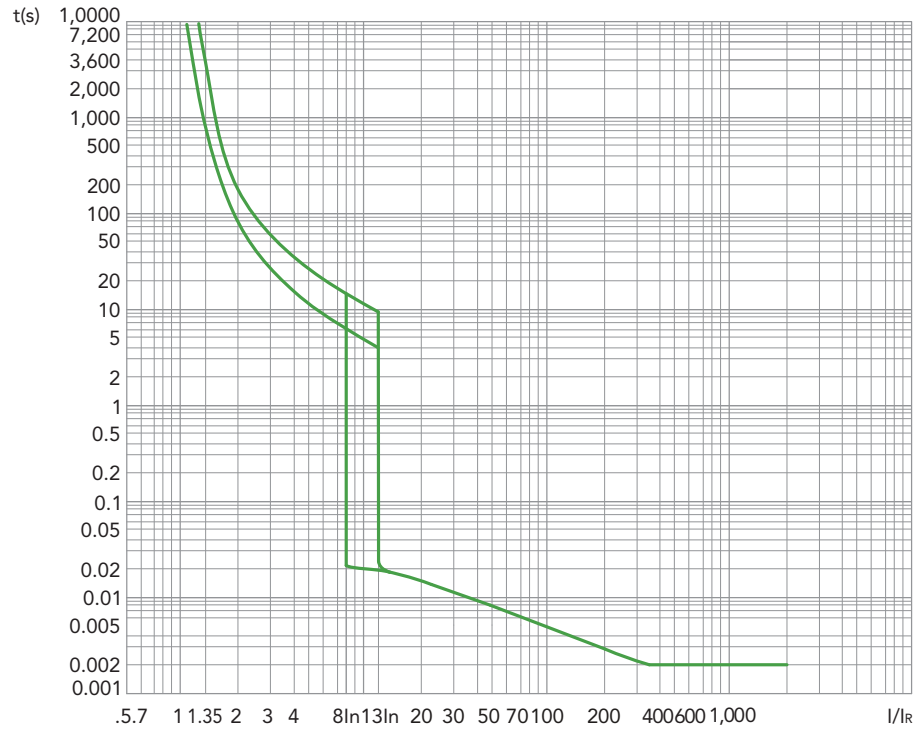
Ground Fault Protection Current Setting: 8 specific setting (I_g): OFF, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1*I_n

Ground Fault Protection Time Setting: 4 specific setting (T_g): 0.1s, 0.2s, 0.3s, 0.4s

Frequency Selection Setting: 2 specific setting: 50Hz, 60Hz

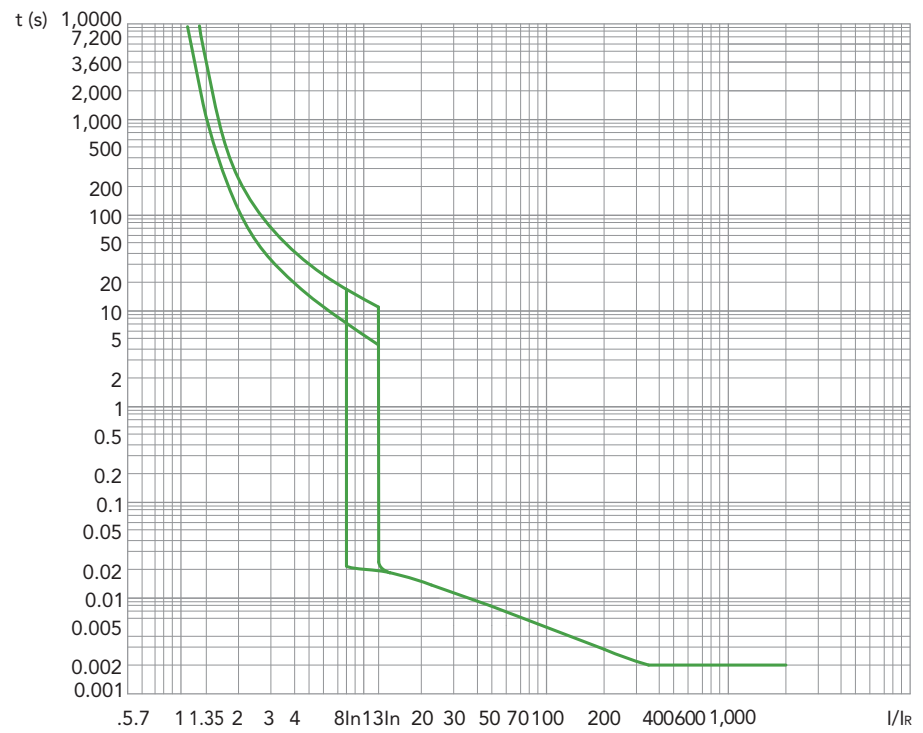
M1PVS Trip Curves

M1PVS (15~35 A)



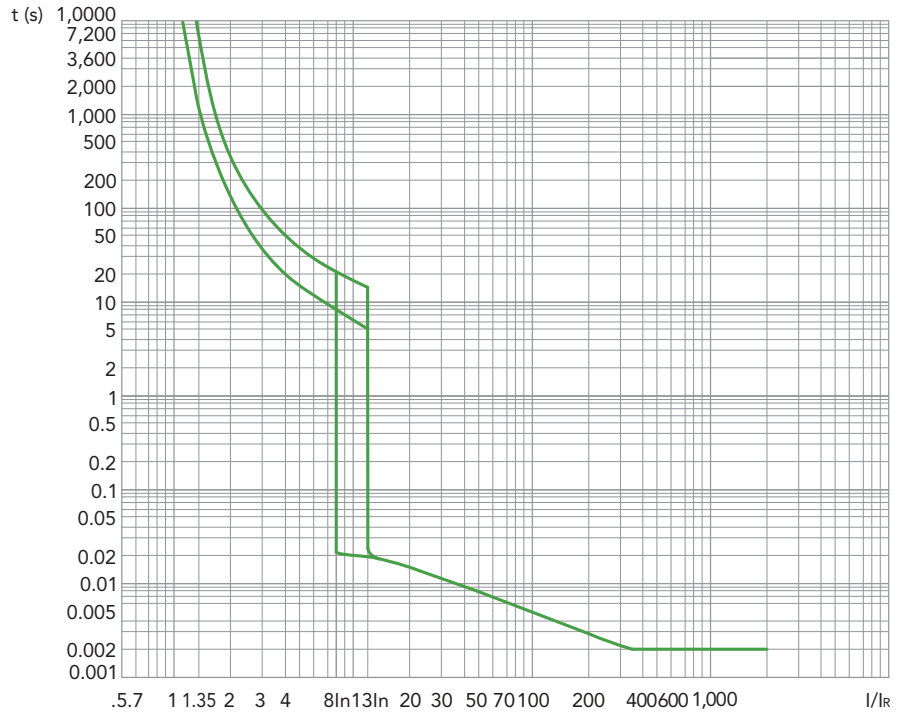
A

M1PVS (40~50 A)



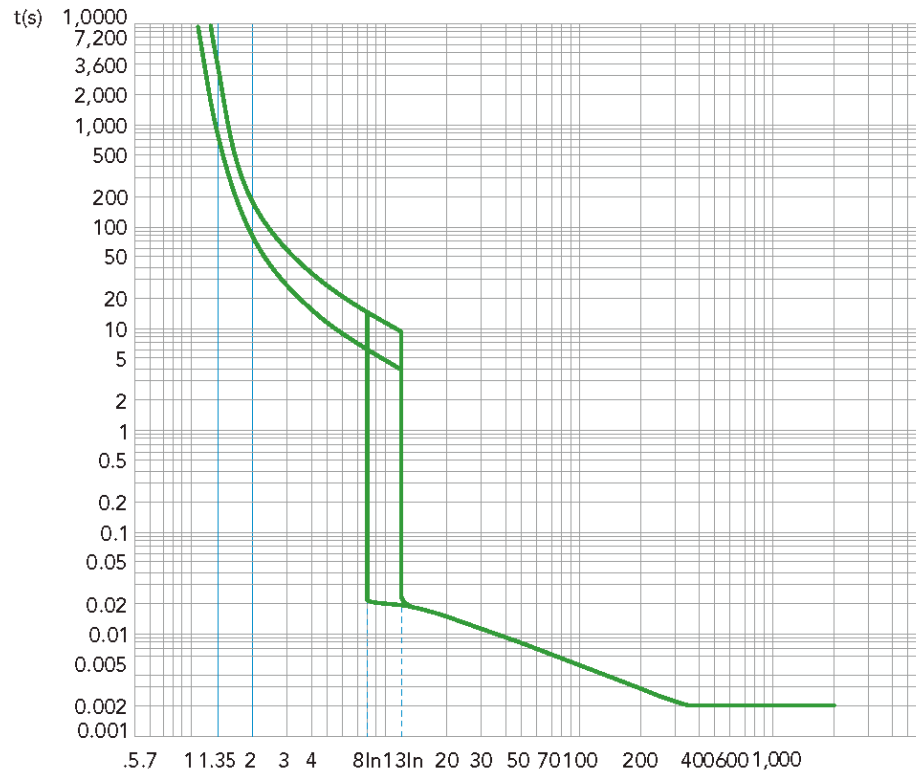
M1PVS Trip Curves

M1PVS (60~80 A)

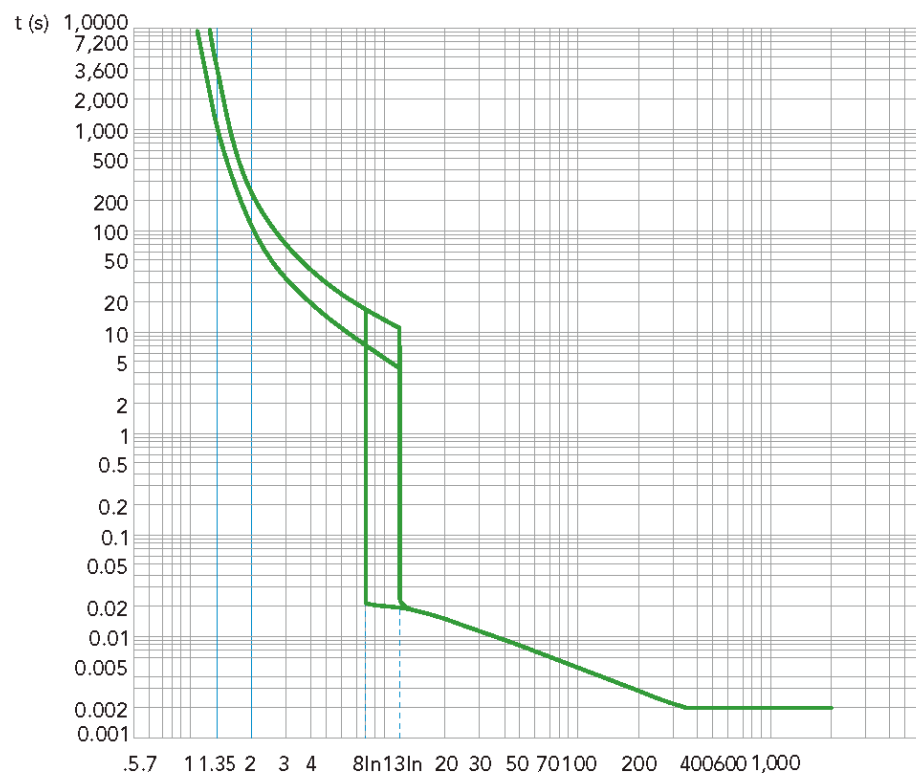


M1 Trip Curves

M1 (15~35 A)



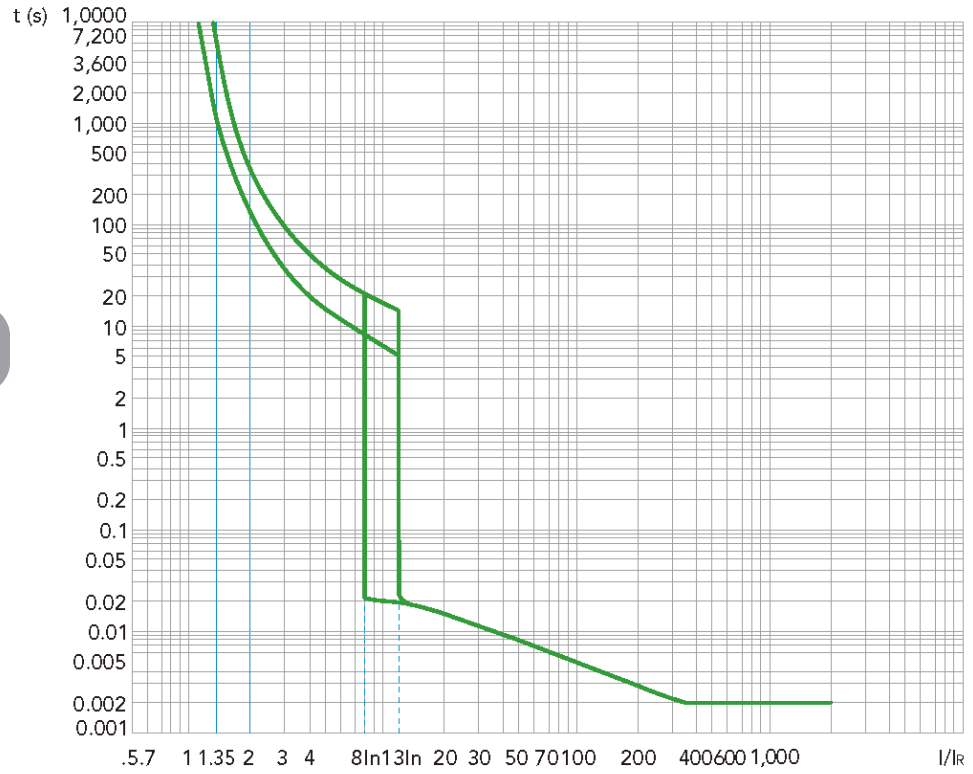
M1 (40~50 A)



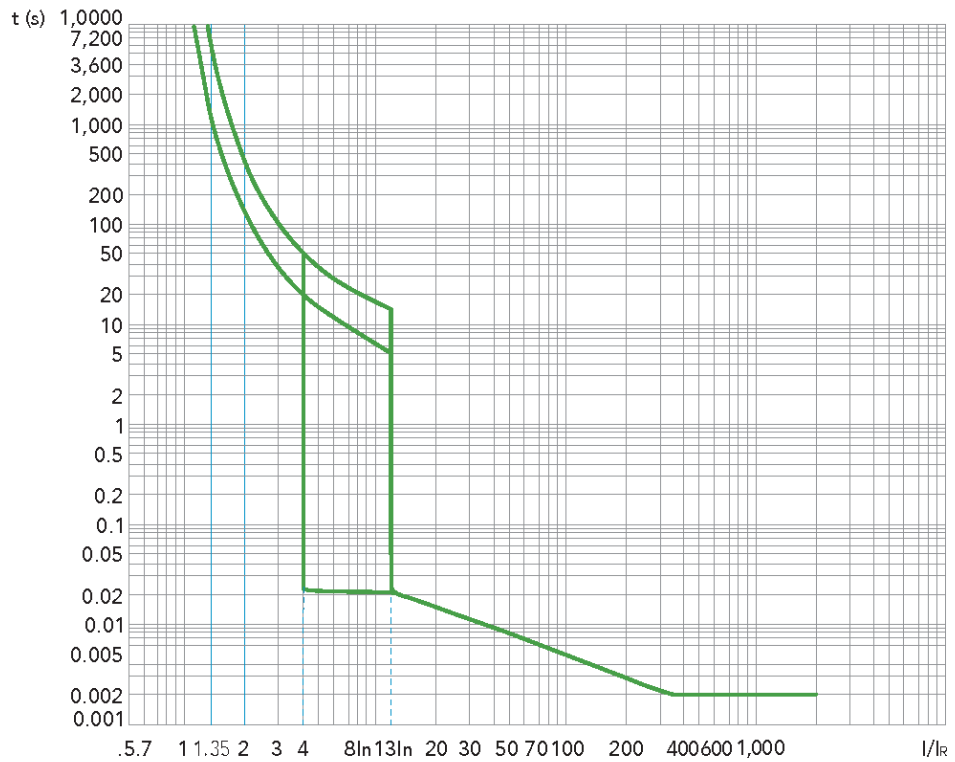
A

M1 Trip Curves

M1 (60~100 A)

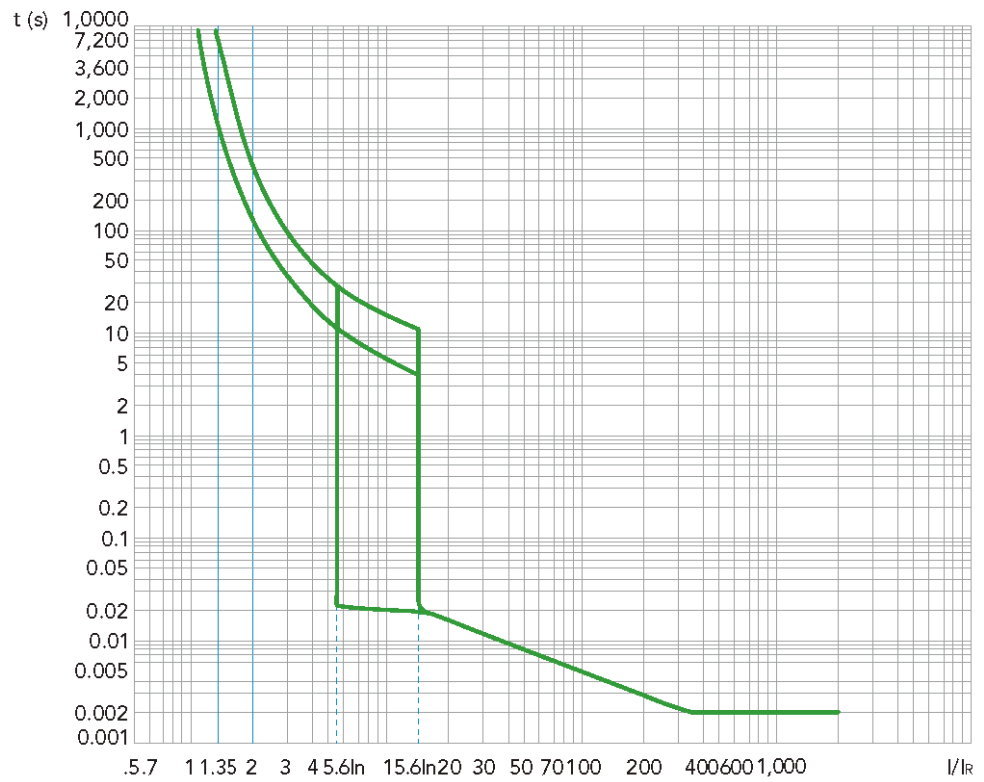


M1 (125~150 A)

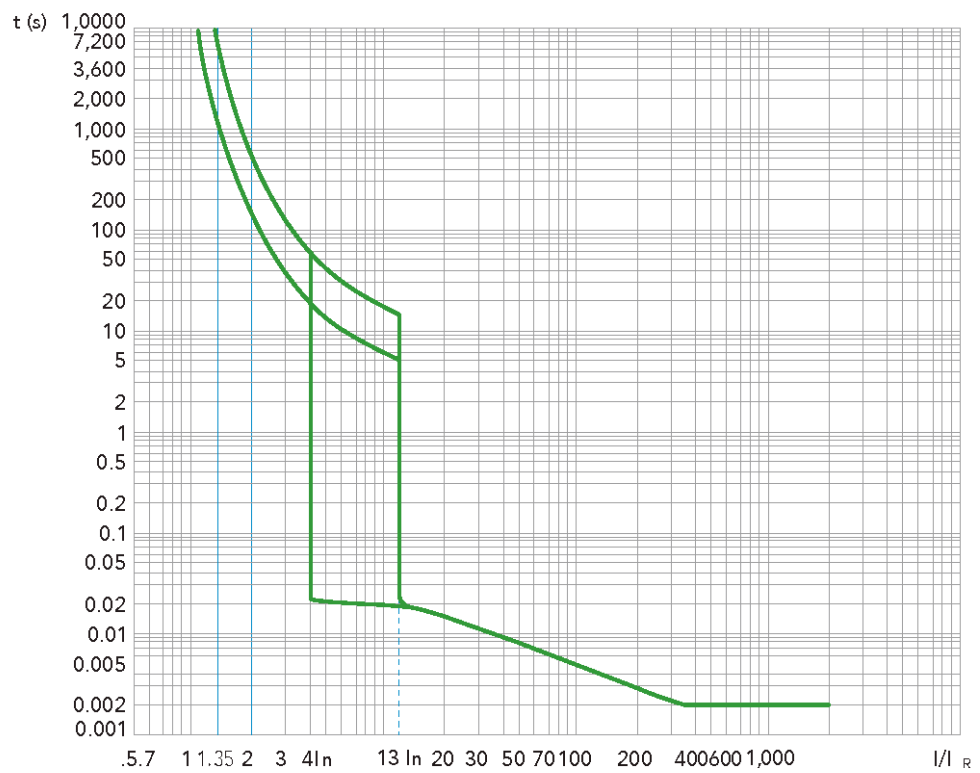


M2 Trip Curves

M2 (100~150 A)



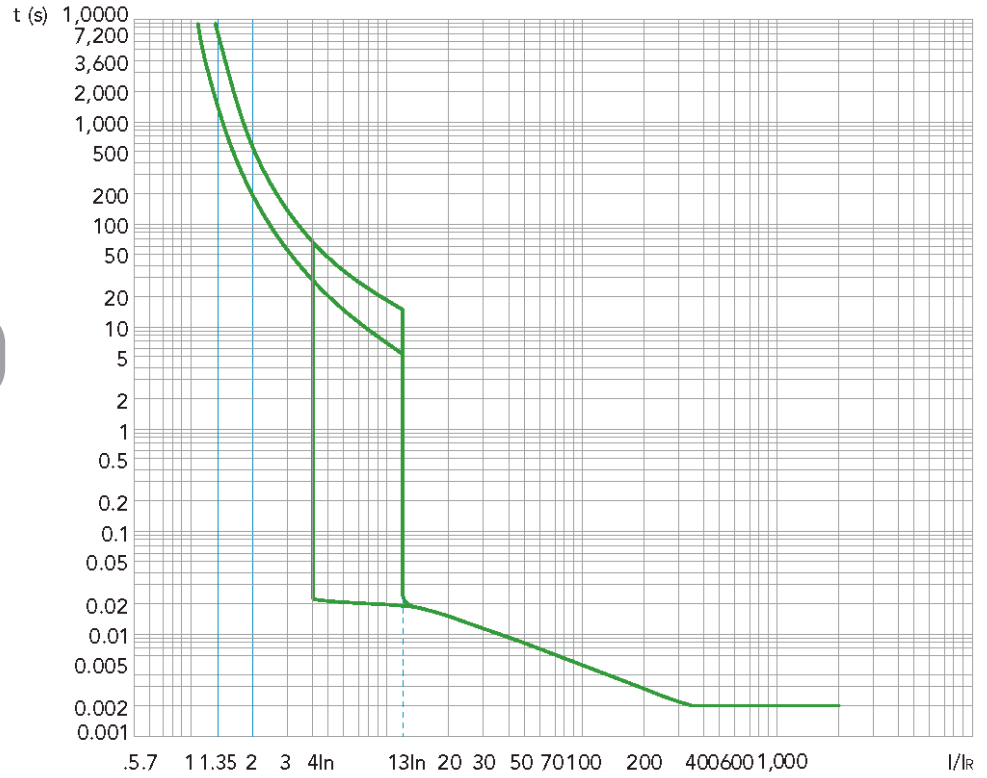
M2 (175~250 A)



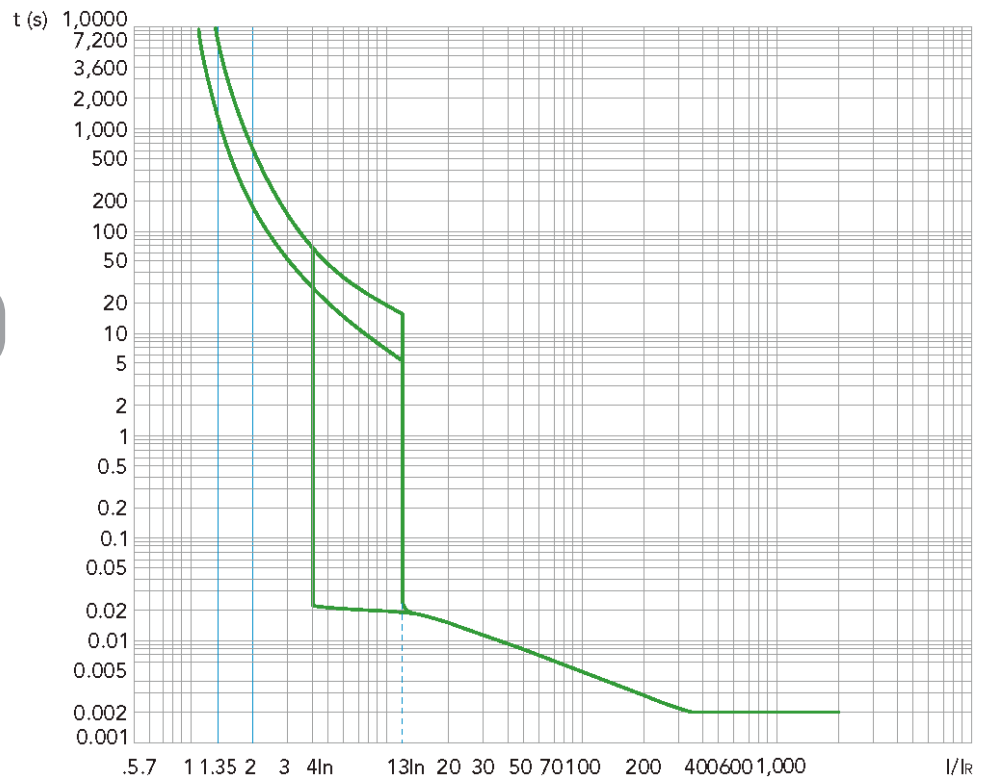
A

M3 Trip Curves

M3 (225~350 A)

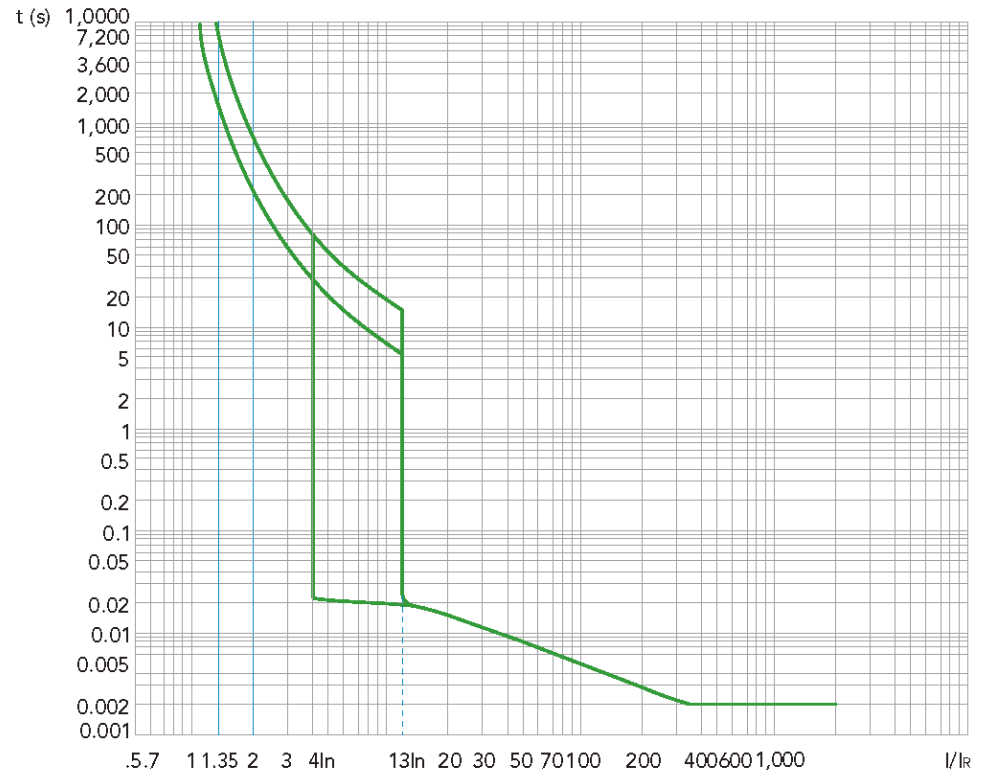


M3 (400 A)

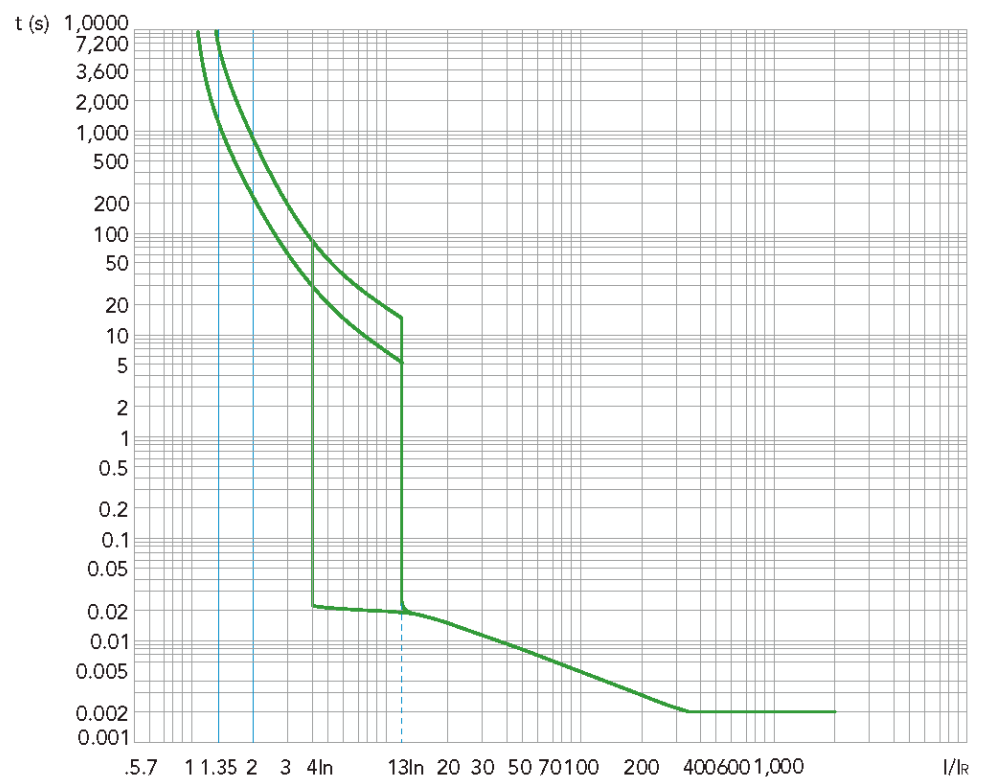


M4 Trip Curves

M4 (400 A)

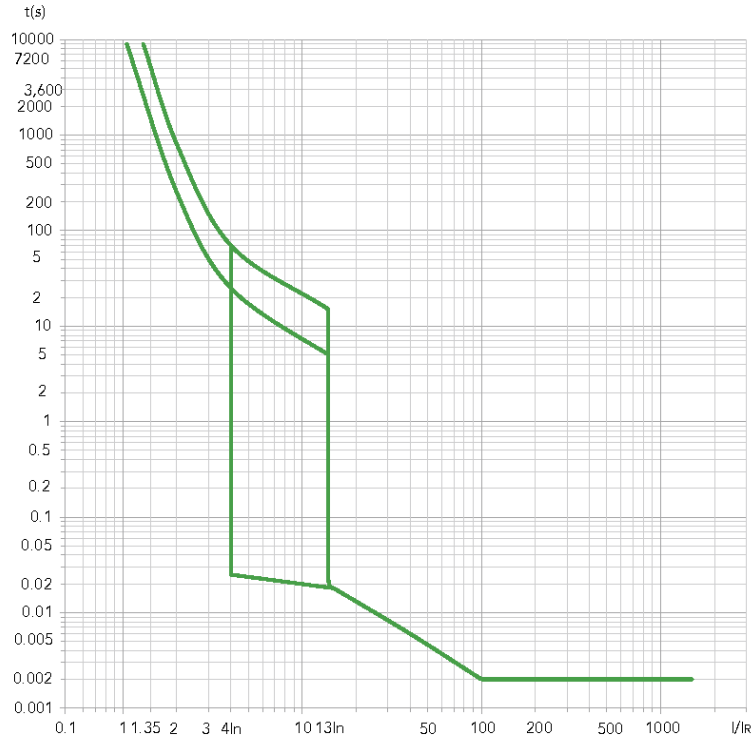


M4 (500~600 A)

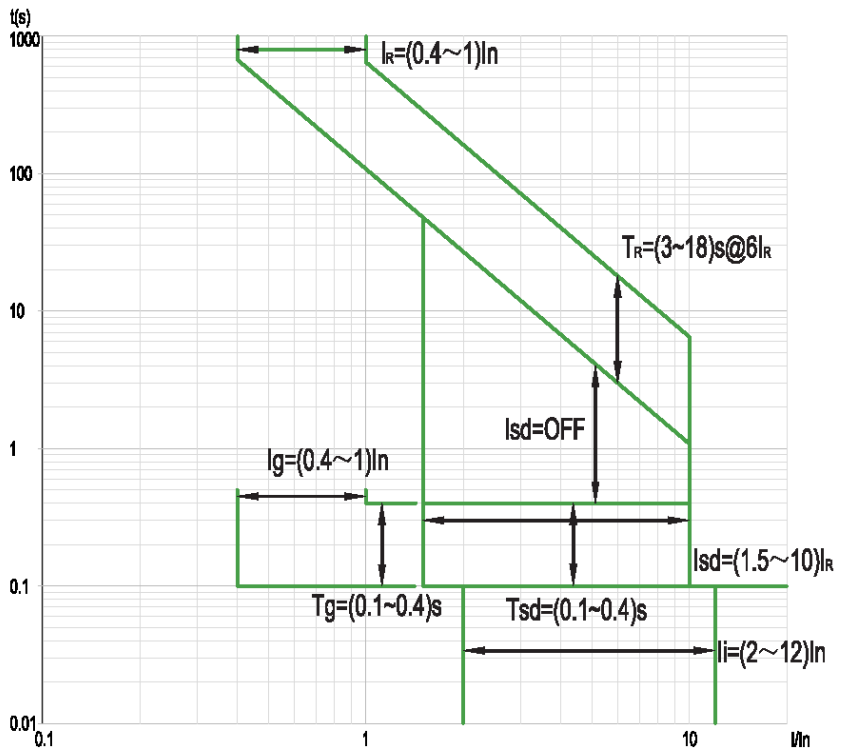


M5-M6 Trip Curves

M5 (600~800 A)

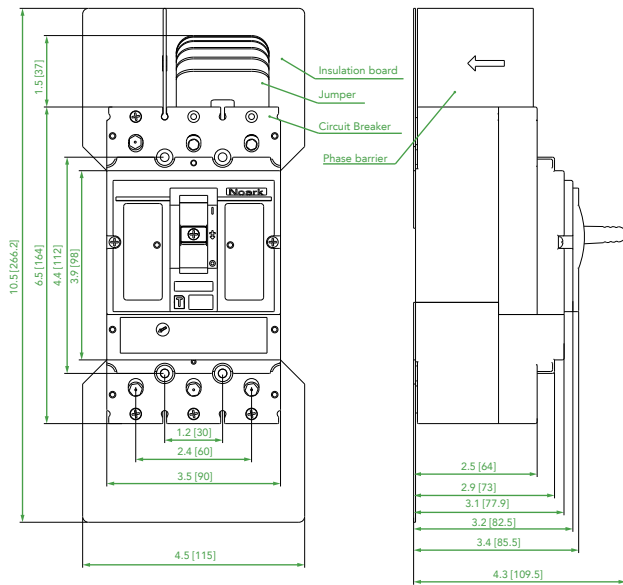


M6 (800-1200A)

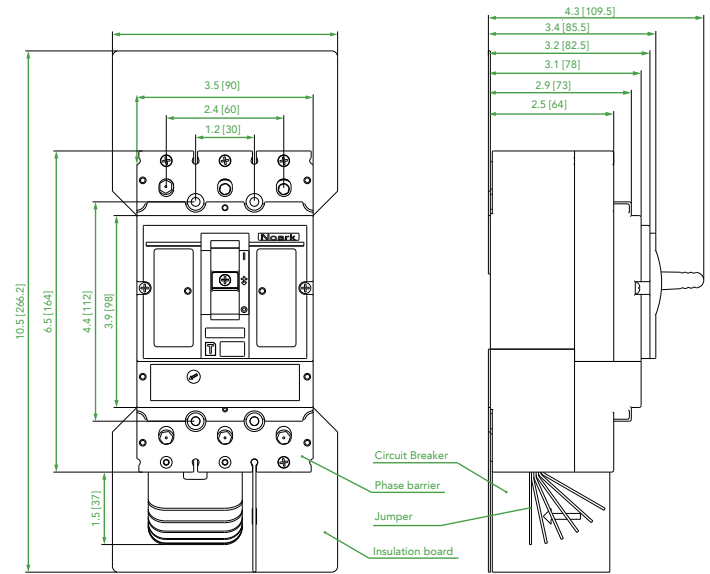


M1PVS Dimensions

M1PVS Connection
A Unit in [mm]

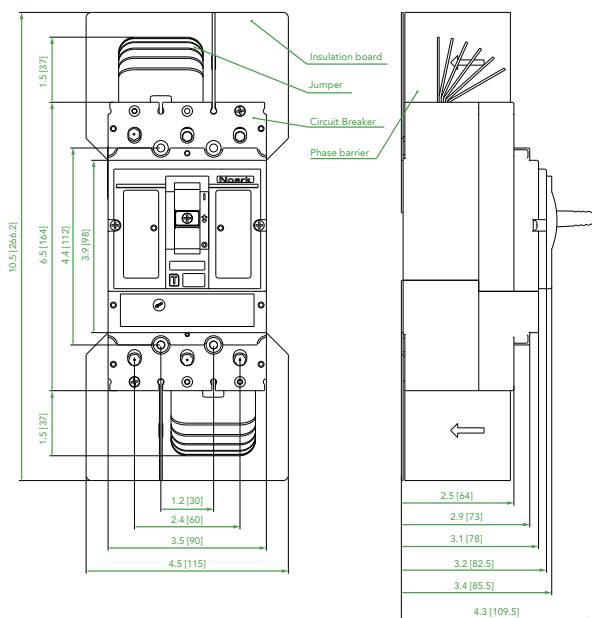


M1PVS Connection
B Unit in [mm]

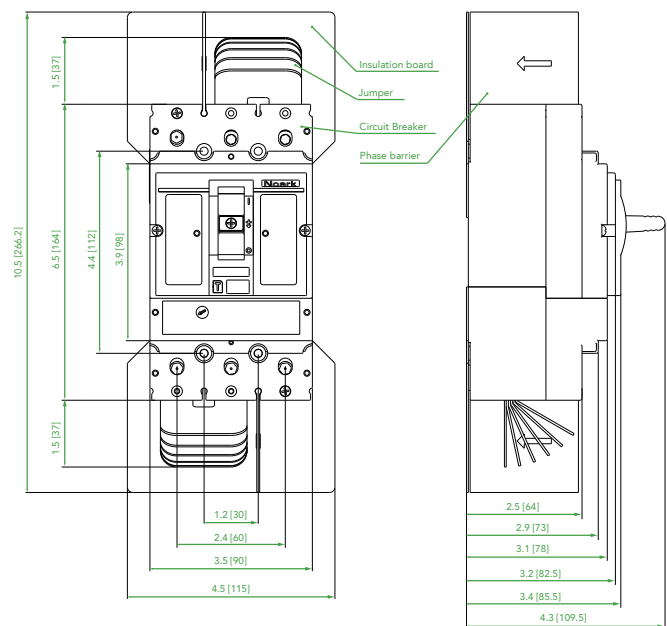


A

M1PVS Connection
C Unit in [mm]

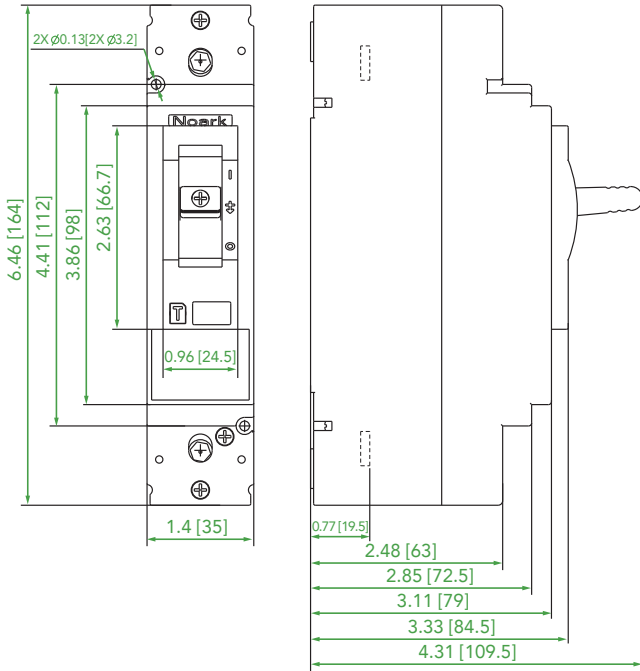


M1PVS Connection
D Unit in [mm]

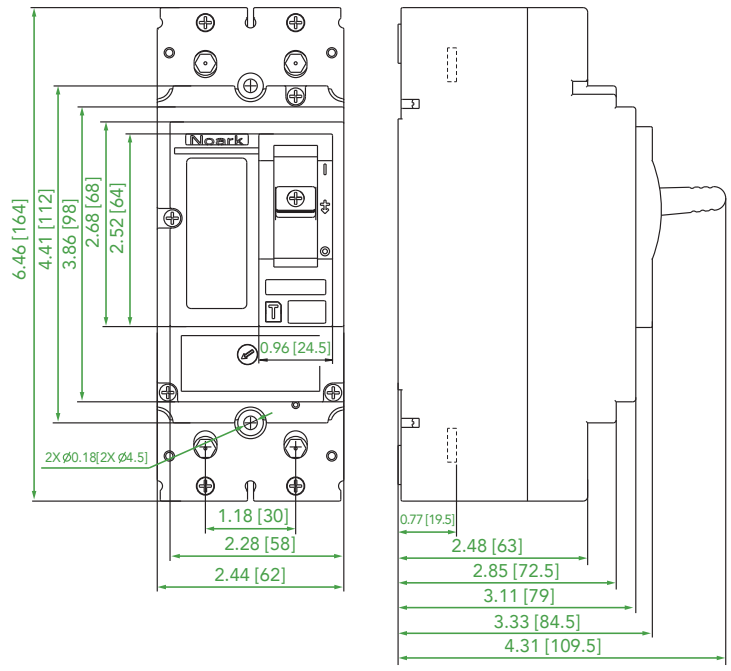


M1/M1M/M1D Dimensions

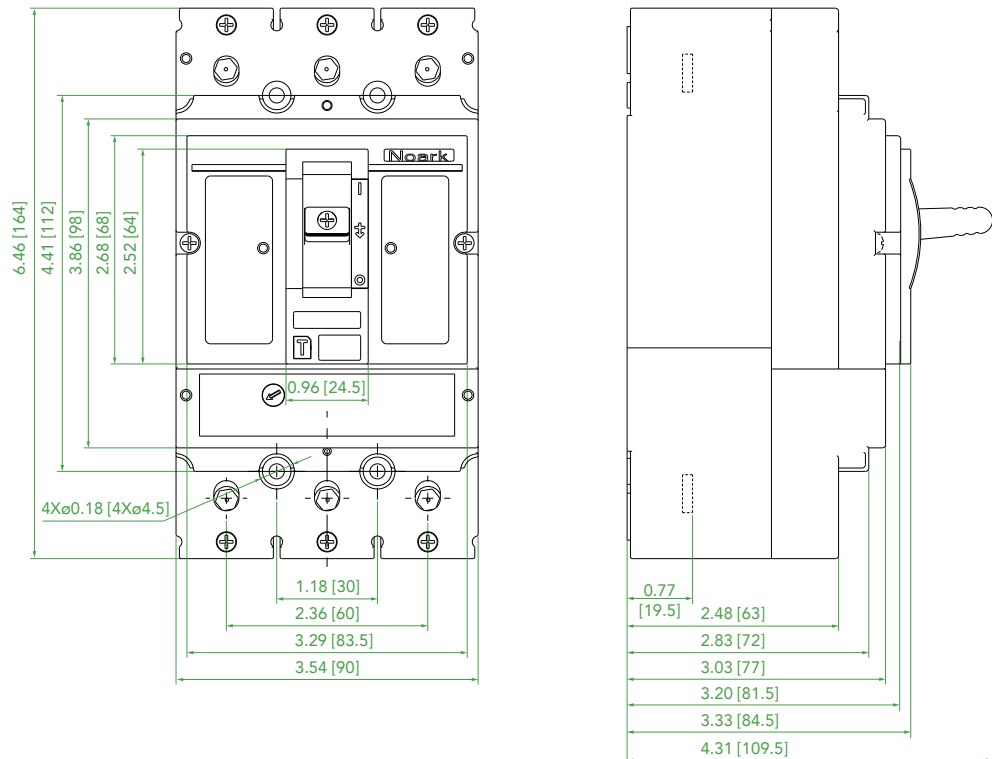
M1/M1M/M1D
1 Pole Unit in [mm]



M1/M1M/M1D
2 Pole Unit in [mm]

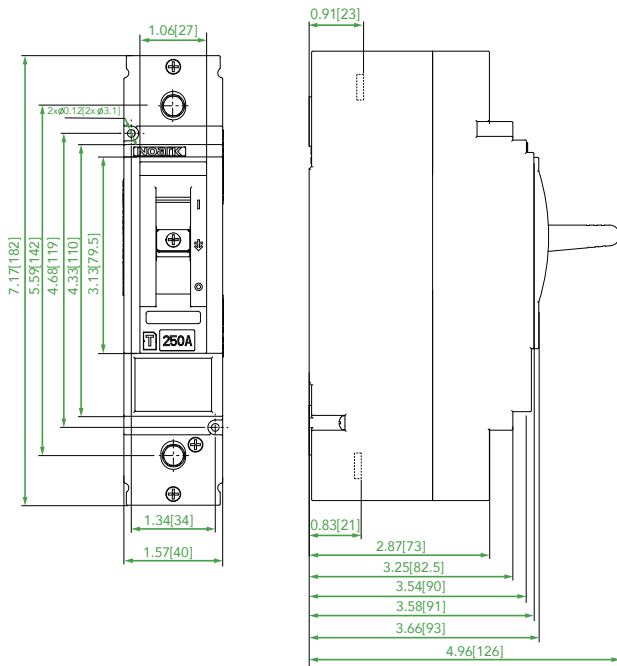


M1/M1M/M1D
3 Pole Unit in [mm]

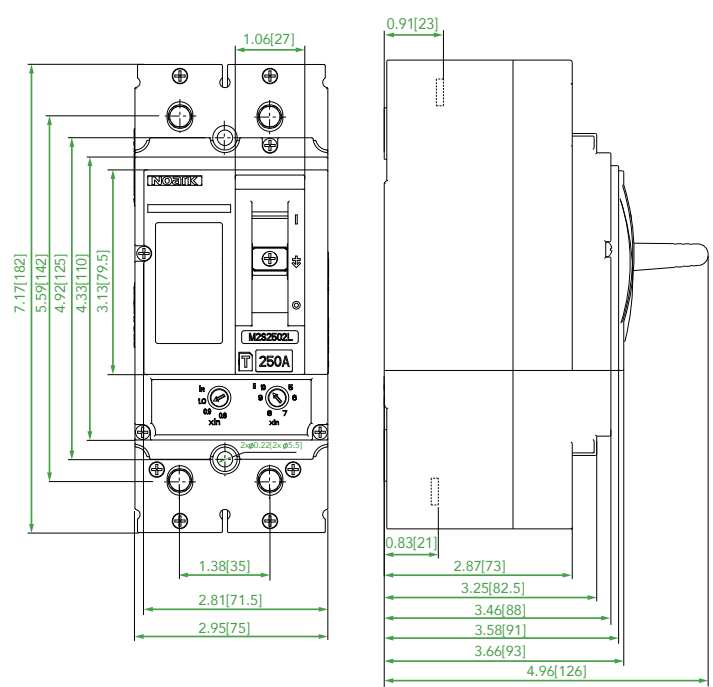


M2/M2M/M2D Dimensions

M2/M2M/M2D
1 Pole Unit in [mm]

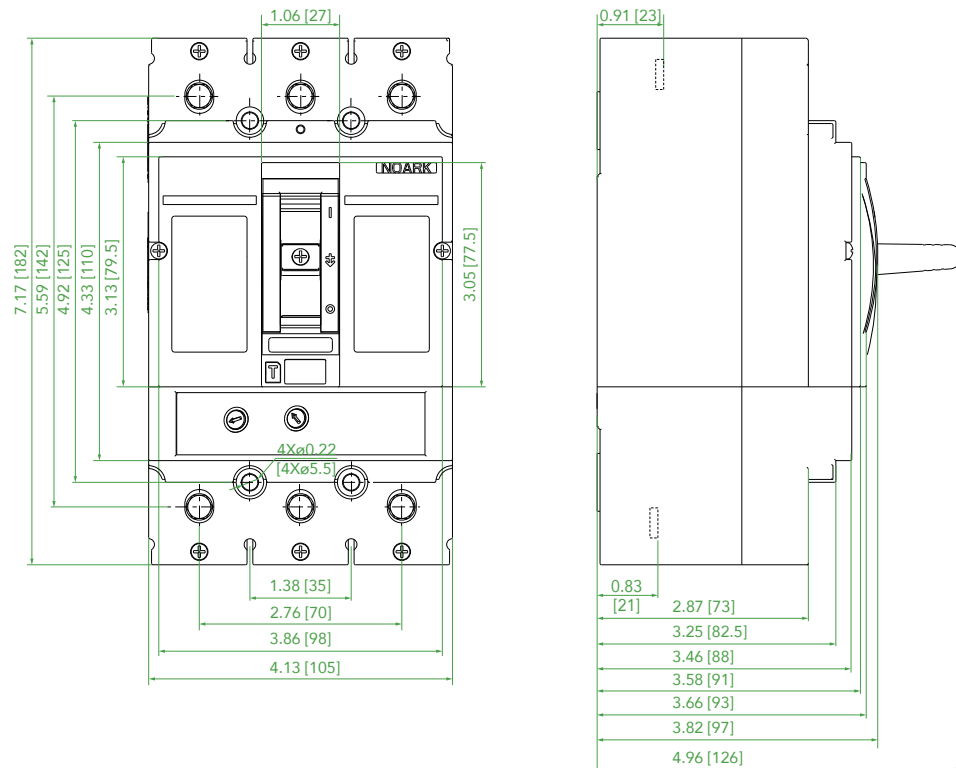


M2/M2M/M2D
2 Pole Unit in [mm]



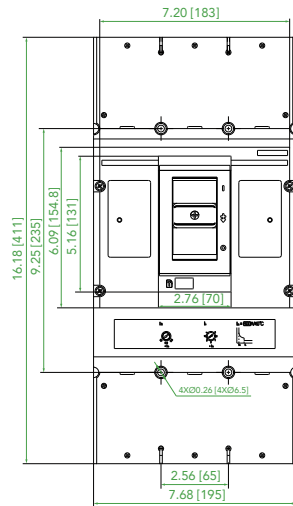
A

M2/M2M/M2D
3 Pole Unit in [mm]

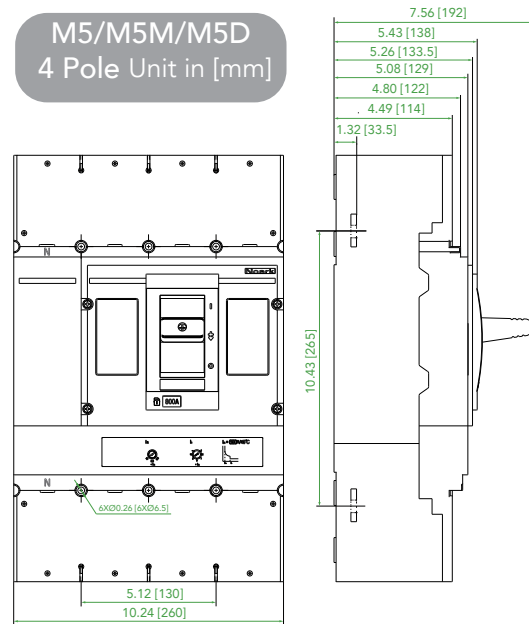


M5/M5M/M5D - M6/M6M/M6D Dimensions

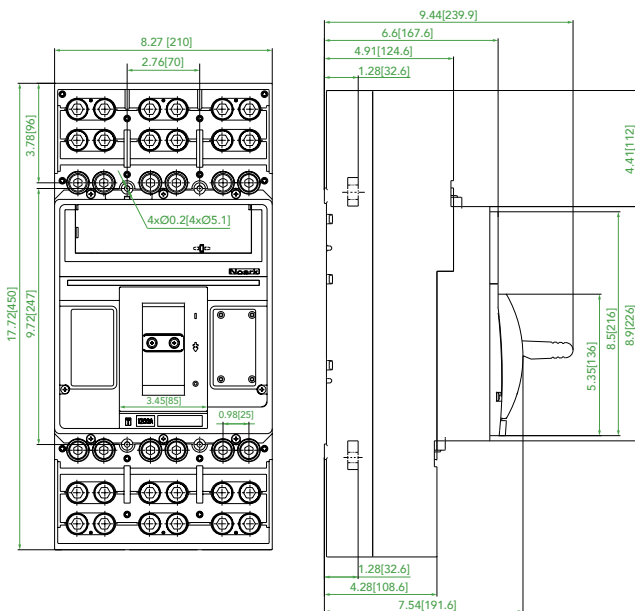
M5/M5M/M5D
3 Pole Unit in [mm]



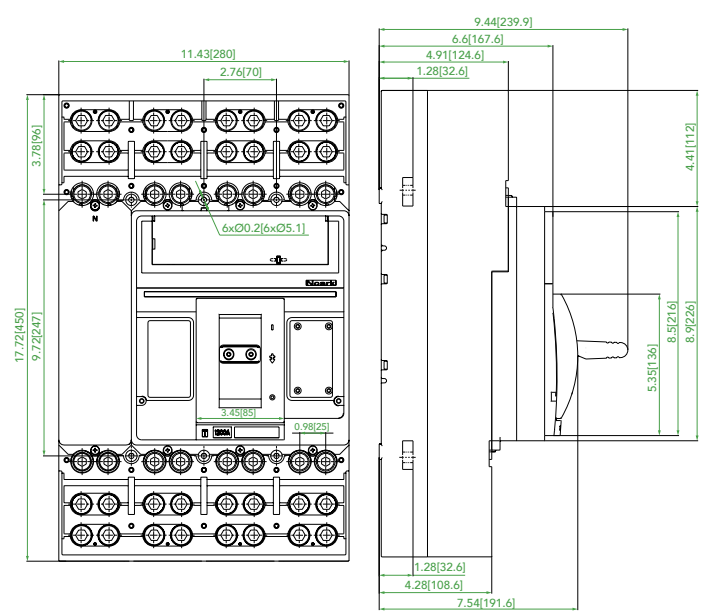
M5/M5M/M5D
4 Pole Unit in [mm]



M6/M6M/M6D
3 Pole Unit in [mm]



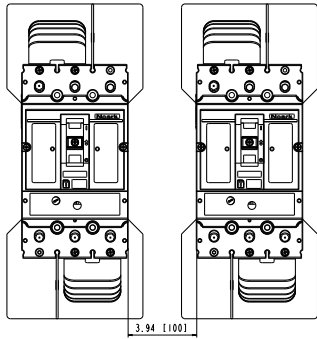
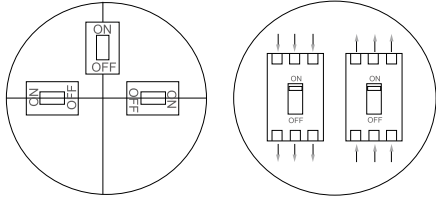
M6/M6M/M6D
4 Pole Unit in [mm]



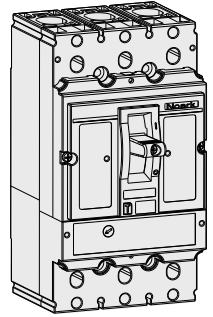
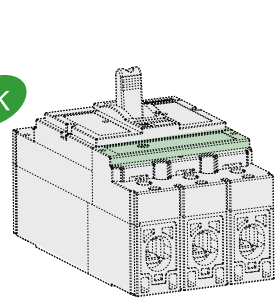
A

M1PVS Mounting Positions

M1PVS
Reverse Feed Allowed

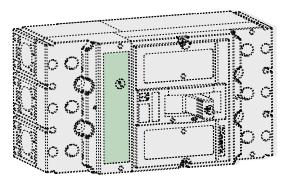
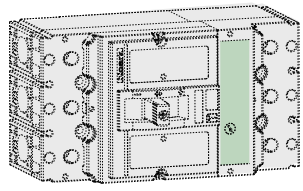


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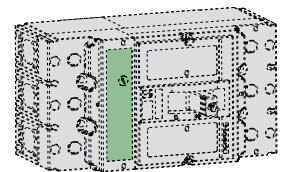
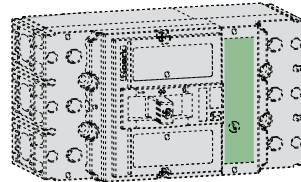
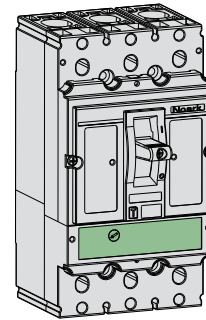
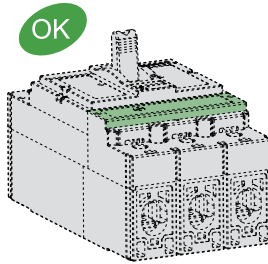
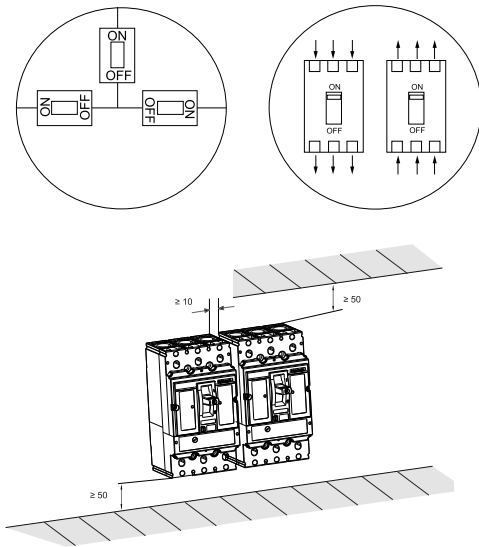
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OK



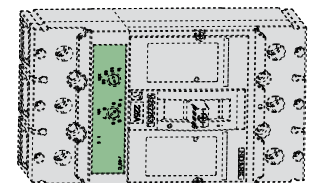
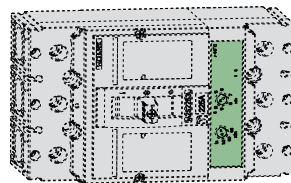
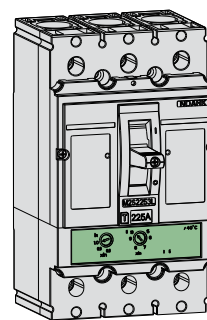
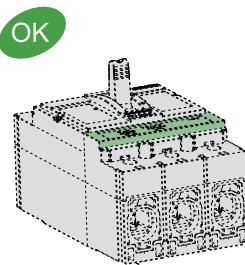
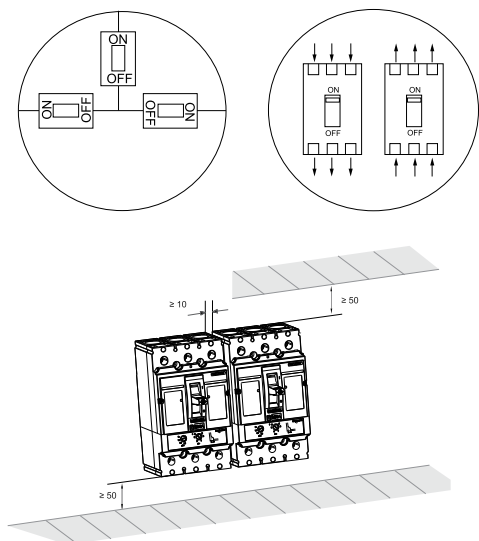
M1/M1M/M1D-M2/M2M/M2D Mounting Positions

M1/M1M/M1D Reverse Feed Allowed



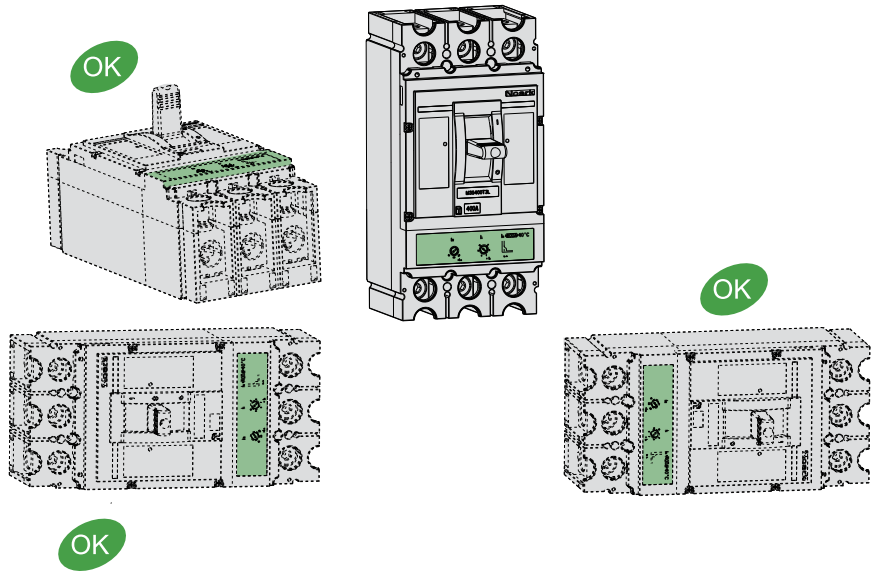
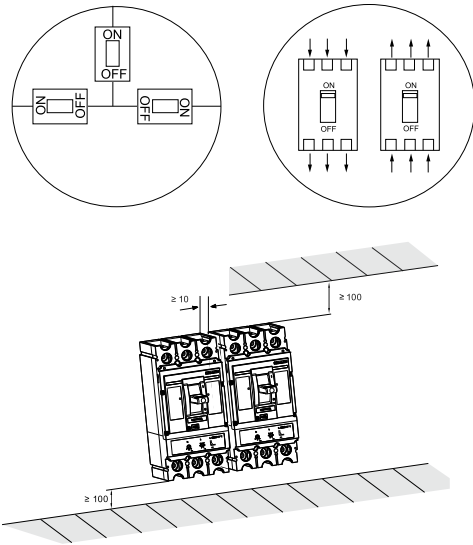
A

M2/M2M/M2D Reverse Feed Allowed

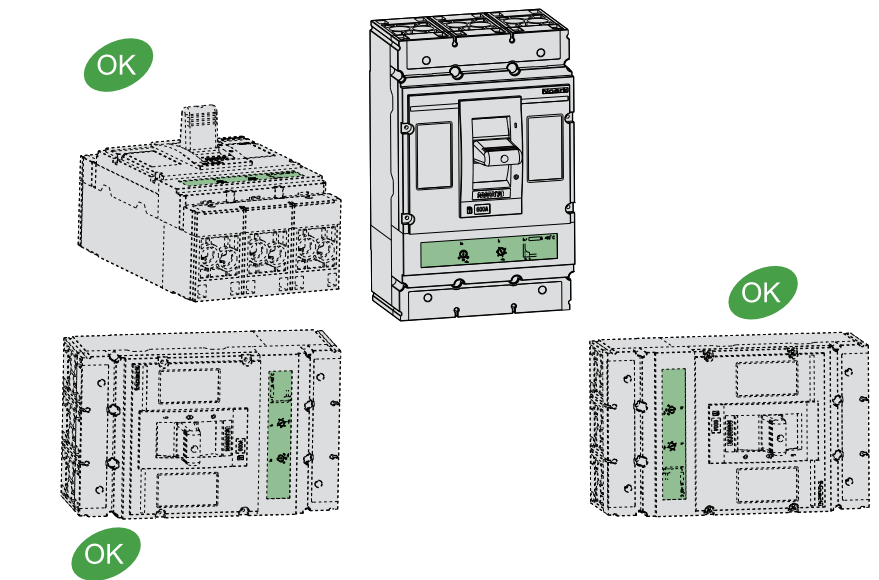
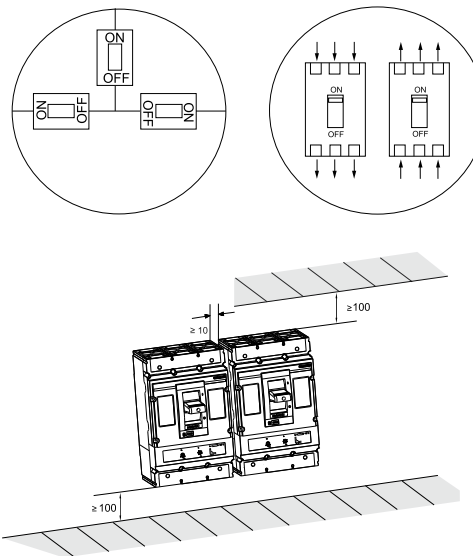


M3/M3M/M3D-M4/M4M/M4D Mounting Positions

M3/M3M/M3D Reverse Feed Allowed

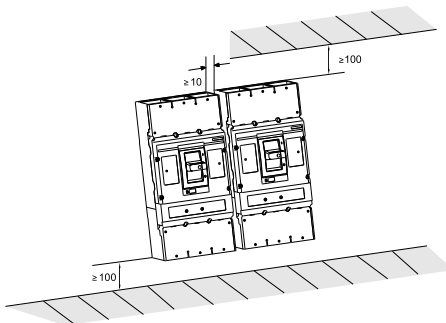
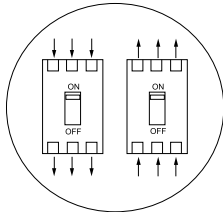


M4/M4M/M4D Reverse Feed Allowed

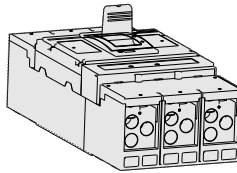


M5/M5M/M5D-M6/M6M/M6D Mounting Positions

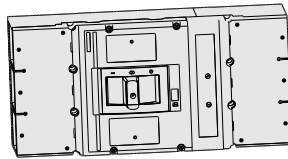
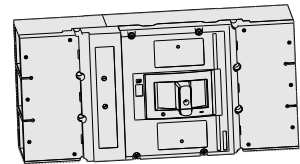
M5/M5M/M5D Reverse Feed Allowed



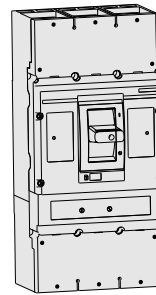
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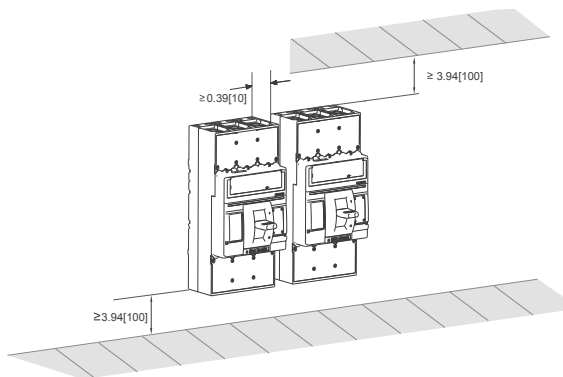
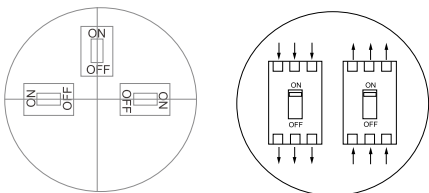
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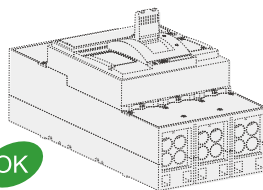
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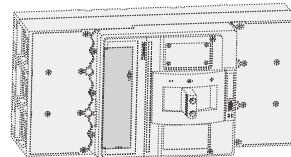
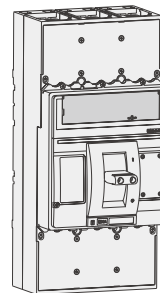
M6/M6M/M6D



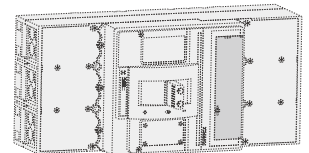
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NOARK



Molded Case Motor Circuit Protectors

M1M-M6M



M1M-M6M Product Overview

Features

Ex9 Series - M Molded Case Motor Circuit Protectors, 3~1200 A

NOARK Electric offers a complete range of 3 pole Molded Case Motor Circuit Protectors (MCPs, magnetic only) which are used to protect the three phase asynchronous motors in six frame sizes: M1M - 150 A, M2M - 250 A, M3M - 400 A, M4M - 600 A, M5M - 800 A, and M6M - 1,200 A. Each frame size offers a range of interrupting voltage ratings from 240-690 Vac. This series MCP conforms to global standards that include UL 489, CSA C22.2 No 5 and IEC 60947-2.

The traditional system used for this purpose is based on three different devices: a circuit breaker for protection against short-circuit, a thermal relay for protection against overload and phase loss or unbalance of phase, and a contactor for motor switching.

In particular, when selecting these devices, different factors must be taken into consideration, such as:

- The rated motor power
- The type of motor: with cage rotor or with wound rotor
- The fault current at the point of the network where the motor is installed

Certifications

- UL 489 Recognized, File Number E355392
(Standard for connection terminals which allows the user to apply field wiring directly to the breaker)
- UL Recognized to UL489 and CSA standards 22.2 No. 5
- IEC/EN 60947-2
- CE Compliant
- RoHS Compliant



M1M-M6M Product Selection Guide

Label

- ① Product Series
- ② Handle
- ③ Product Selection
- ④ Test Button
- ⑤ Instantaneous Trip
- ⑥ Brand
- ⑦ UL Listed Mark
- ⑧ CE Mark
- ⑨ Rated Current



Product Selection Guide

M	1	M	S	100	T	3	L	F ⁺
NOARK Ex9 Series - M	Frame Size	Type	Interrupting Rating	Amperage	Trip Unit	Pole	Terminal Option	Rate Code
	1: 150 A 2: 250 A 3: 400 A 4: 600 A 5: 800 A 6: 1200 A	M: Motor Protection Type	S: Up to 50kA @ 240Vac (M1/M2) 65 kA @ 240Vac (M3/M4/M5/M6) 42kA @ 480Vac 22kA @ 600Vac N: 100 kA @ 240Vac Up to 65kA @ 480Vac 30kA @ 600Vac H: 150 kA @ 240Vac ** 100kA @ 480Vac Up to 50kA @ 600Vac	M1: 3~150 A M2: 250 A M3: 400 A M4: 600 A M5: 800A M6: 1200 A	T: Magnetic Only E: Electronic (M6 only)	3: 3 Poles	L: Lug Line/Load Side Connection (Standard configuration for M1: 1 hole, M2: 1 hole, M3: 1 hole, M4: 2 hole, M5: 600A, 700A 2 hole, M5: 800A 3 hole, M6: 800A, 1000A 3 hole, M6: 1200A 4 hole)	Blank: Standard MCCB (80% Rated) F: 100% Rated MCCB

M1M-M6M Ratings

Breaker Frame	Current Range (A)	Poles	Rated Voltage 50V 60Hz Vac	Breaker Type	Interrupting Capacity (kA ms) UL 489 and CSA C22 2 No.5			Trip Unit Type	Insulation Voltage (Vi)	Impulse Withstand Voltage (Vimp)	Operational Voltage (Ve)		Mechanical Operating Cycles	Electrical Operating Cycles										
					240 Vac	480 Vac	600 Vac				UL	IEC												
M1M	3~150	3	600	S	50	35	14	Adjustable Magnetic	800 Vac	8kVac	600 Vac	690 Vac	10,000	6,000										
				N	100	65	20																	
				H	150	100	25																	
M2M	250			S	50	35	14						Adjustable Magnetic	800 Vac	8kVac	600 Vac	690 Vac	10,000	6,000					
				N	100	65	20																	
				H	150	100	25																	
M3M	400			S	65	42	18											Adjustable Magnetic	800 Vac	8kVac	600 Vac	690 Vac	8,000	5,000
				N	100	65	25																	
				H	150	100	30																	
M4M	600	S	65	42	22	Adjustable Magnetic	800 Vac	8kVac	600 Vac	690 Vac	8,000	5,000												
		N	100	65	30																			
		H	150	100	50																			
M5M	800	S	65	42	22						Adjustable Magnetic	800 Vac	8kVac	600 Vac	690 Vac	3,000	500							
		N	100	65	30																			
		H	150	100	50																			
M6M	1200	S	65	42	22											Adjustable Magnetic	800 Vac	8kVac	600 Vac	690 Vac	3,000	500		
		N	100	65	42																			

B

M1M Lug Line/Load Side Connection



Continuous Amperes	Cam Setting	Full Load Current Amperes	MCP Trip Setting	S Interrupting - Lug Line/Load Side		N Interrupting - Lug Line/Load Side		H Interrupting - Lug Line/Load Side	
				35kA @ 480 Vac		65kA @ 480 Vac		100kA @ 480 Vac	
				Catalog Number	Part Number	Catalog Number	Part Number	Catalog Number	Part Number
3	A	1.6~1.7	21	M1MS03T3L	1102138	M1MN03T3L	1102139	M1MH03T3L	1102140
	B	1.8~1.9	24						
	C	2.0~2.2	27						
	D	2.3~2.4	30						
	E	2.5~2.6	33						
7	A	2.7~3.1	35	M1MS07T3L	1102141	M1MN07T3L	1102142	M1MH07T3L	1102143
	B	3.2~3.6	42						
	C	3.7~4.2	49						
	D	4.3~4.7	56						
	E	4.8~5.2	63						
	F	5.3~5.8	70						
15	A	5.7~6.8	75	M1MS15T3L	1101418	M1MN15T3L	1101424	M1MH15T3L	1101430
	B	6.9~7.9	90						
	C	8.0~9.1	105						
	D	9.2~10.3	120						
	E	10.4~11.4	135						
	F	11.5~12.6	150						
30	A	11.5-13.7	150	M1MS30T3L	1101419	M1MN30T3L	1101425	M1MN30T3L	1101431
	B	13.8-16.0	180						
	C	16.1-18.3	210						
	D	18.4-20.6	240						
	E	20.7-22.9	270						
	F	23.0-25.2	300						
	G	25.3-26.1	330						
50	A	19.2-22.9	250	M1MS50T3L	1101420	M1MN50T3L	1101426	M1MH50T3L	1101432
	B	23.0-26.8	300						
	C	26.9-30.6	350						
	D	30.7-34.5	400						
	E	34.6-38.3	450						
	F	38.4-42.1	500						
	G	42.2-43.5	550						

M1M Lug Line/Load Side Connection



B

Continuous Amperes	Cam Setting	Full Load Current Amperes	MCP Trip Setting	S Interrupting - Lug Line/Load Side		N Interrupting - Lug Line/Load Side		H Interrupting - Lug Line/Load Side	
				35kA @ 480 Vac		65kA @ 480 Vac		100kA @ 480 Vac	
				Catalog Number	Part Number	Catalog Number	Part Number	Catalog Number	Part Number
70	A	26.9-32.2	350	M1MS70T3L	1101421	M1MN70T3L	1101427	M1MH70T3L	1101433
	B	32.3-37.6	420						
	C	37.7-43.0	490						
	D	43.1-48.4	560						
	E	48.5-53.7	630						
	F	53.8-59.1	700						
	G	59.2-60.9	770						
100	A	38.4-46.0	500	M1MS100T3L	1101423	M1MN100T3L	1101429	M1MH100T3L	1101435
	B	46.1-53.7	600						
	C	53.8-61.4	700						
	D	61.5-69.1	800						
	E	69.2-76.8	900						
	F	76.9-84.5	1000						
	G	84.6-87.0	1100						
150	A	57.7~69.1	750	M1MS150T3L	1102147	M1MN150T3L	1102148	M1MH150T3L	1102149
	B	69.2~80.6	900						
	C	80.7~92.2	1050						
	D	92.3~103.7	1200						
	E	103.8~115.2	1350						
	F	115.3~126.7	1500						
	G	126.9~130.5	1650						

- Lug Line/Load Side Connection MCCB sold with Terminal Lugs

Specifications	B55	Dimensions	A37-A41
Trip Unit	B56-B57	Mounting Position	A42-A45
Trip Curve	B58-B63	Accessories	D77-D104

M2M and M3M Lug Line/Load Side Connection



Continuous Amperes	Cam Setting	Full Load Current Amperes	MCP Trip Setting	S Interrupting - Lug Line/Load Side		N Interrupting - Lug Line/Load Side		H Interrupting - Lug Line/Load Side	
				35kA @ 480 Vac		65kA @ 480 Vac		100kA @ 480 Vac	
				Catalog Number	Part Number	Catalog Number	Part Number	Catalog Number	Part Number
250	A	96.2-115.3	1250	M2MS250T3L	1101998	M2MN250T3L	101999	M2MH250T3L	102000
	B	115.4-134.5	1500						
	C	134.6-153.7	1750						
	D	153.8-173.0	2000						
	E	173.1-192.2	2250						
	F	192.3-211.4	2500						
	G	211.5-217.6	2750						



Continuous Amperes	Cam Setting	Full Load Current Amperes	MCP Trip Setting	S Interrupting - Lug Line/Load Side		N Interrupting - Lug Line/Load Side		H Interrupting - Lug Line/Load Side	
				42kA @ 480 Vac		65kA @ 480 Vac		100kA @ 480 Vac	
				Catalog Number	Part Number	Catalog Number	Part Number	Catalog Number	Part Number
400	A	153.8-184.5	2000	M3MS400T3L	1101491	M3MN400T3L	1101496	M3MH400T3L	1101501
	B	184.6-215.3	2400						
	C	215.4-246.0	2800						
	D	246.1-276.8	3200						
	E	276.9-307.6	3600						
	F	307.7-338.4	4000						
	G	338.5-348.1	4400						

- Lug Line/Load Side Connection MCCB sold with Terminal Lugs

M4M and M5M Lug Line/Load Side Connection



B

Continuous Amperes	Cam Setting	Full Load Current Amperes	MCP Trip Setting	S Interrupting - Lug Line/Load Side		N Interrupting - Lug Line/Load Side		H Interrupting - Lug Line/Load Side	
				42kA @ 480 Vac		65kA @ 480 Vac		100kA @ 480 Vac	
				Catalog Number	Part Number	Catalog Number	Part Number	Catalog Number	Part Number
600	A	230.8-276.8	3000	M4MS600T3L	1101528	M4MN600T3L	1101531	M4MH600T3L	1101534
	B	276.9-323.0	3600						
	C	323.1-369.0	4200						
	D	369.2-415.3	4800						
	E	415.4-461.4	5400						
	F	461.5-507.6	6000						
	G	507.7-522.2	6600						



Continuous Amperes	Cam Setting	Full Load Current Amperes	MCP Trip Setting	S Interrupting - Lug Line/Load Side		N Interrupting - Lug Line/Load Side		H Interrupting - Lug Line/Load Side	
				42kA @ 480 Vac		65kA @ 480 Vac		100kA @ 480 Vac	
				Catalog Number	Part Number	Catalog Number	Part Number	Catalog Number	Part Number
800	A	230.8-276.8	3000	M5MS800T3L	1102114	M5MN800T3L	1102117	M5MH800T3L	1102120
	B	276.9-323.0	3600						
	C	323.1-369.0	4200						
	D	369.2-415.3	4800						
	E	415.4-461.4	5400						
	F	461.5-507.6	6000						
	G	507.7-522.2	6600						

- Lug Line/Load Side Connection MCCB sold with Terminal Lugs

M6M Lug Line/Load Side Connection



Continuous Amperes	Cam Setting	Full Load Current Amperes	MCP Trip Setting	S Interrupting - Lug Line/Load Side		N Interrupting - Lug Line/Load Side	
				42kA @ 480 Vac		65kA @ 480 Vac	
				Catalog Number	Part Number	Catalog Number	Part Number
1200	2	184.6-276.8	2400	M6MS1200E3LF	1101939	M6MN1200E3LF	1101942
	3	276.9-369.1	3600				
	4	369.2-553.7	4800				
	6	553.8-738.4	7200				
	8	738.5-923.0	9600				
	10	923.1-1107.6	12000				
	12	1107.7-1309.1	14400				

- Lug Line/Load Side Connection MCCB sold with Terminal Lugs

M1M-M6M Ratings

		M1M			M2M			M3M			M4M			M5M			M6M		
Current Range (A)		3~150			250			400			600			800			1200		
Number of Poles		3																	
Breaker Type		S	N	H	S	N	H	S	N	H	S	N	H	S	N	H	S	N	
Rated Voltage 50/60 Hz Vac		600																	
Interrupting Capacity (kA rms)																			
Circuit Breaker Ratings UL 489 CSA C22.2 (kA rms) Vac 50/60 Hz	240 Vac	50	100	150	50	100	150	65	100	150	65	100	150	65	100	150	65	100	
	480 Vac	35	65	100	35	65	100	42	65	100	42	65	100	42	65	100	42	65	
	600 Vac	14	20	25	14	20	25	18	25	30	22	30	50	22	30	50	22	42	
Circuit Breaker Ratings IEC 60947-2 Ultimate Breaking Capacity (Icu = 100% Ics) (kA rms)	220 / 240 Vac 380 / 415 Vac	50	100	150	50	100	150	65	100	150	65	100	150	65	100	150	65	85	
	660 / 690 Vac	5	8	10	6	10	12	10	15	20	12	15	20	12	15	20	30	45	
Magnetic Trip Units	A = Adjustable M = Magnetic	AM																	
Accessories																			
Alarm Switch																			
Auxiliary Contact																			
Shunt Trip																			
Under-Voltage Trip																			
Handle Operators																			
Handle Lock																			
Flange Handle																			
Mechanical Interlock																			
Motor Operator																			
Terminal Cover and Kits																			
Connection																			
Lug Line/Load Side Connection																			

B

Breaker Frame	Dimensions LxWxD in (mm)				Weight lb (kg)				
	1 Pole	2 Poles	3 Poles	4 Poles	1 Pole	2 Poles	2 Poles*	3 Poles	4 Poles
M1M	-	-	6.46x3.54x3.33 (164x90x34.5)	-	-	-	-	3.68 (1.67)	-
M2M	-	-	7.17x4.13x3.47 (182x105x38)	-	-	-	-	4.41 (2)	-
M3M	-	-	11.22x5.51x4.59 (285x140x116.5)	-	-	-	-	13.45 (6.1)	-
M4M	-	-	12.32x7.68x5.43 (313x195x138)	-	-	-	-	25.35 (11.5)	-
M5M	-	-	16.18x7.68x7.58 (411x195x192.5)	-	-	-	-	33.18 (15.05)	-
M6M	-	-	17.72x8.27x6.6 (450x210x167.6)	-	-	-	-	55.56 (25.2)	-

M1M-M3M Trip Unit

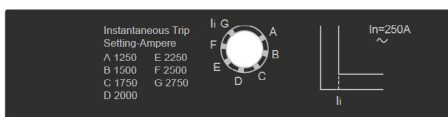
Adjustable Magnetic

- Adjustable Magnetic
- 21-4400A Tripping Current
- Continuous Amperes: M1M~M3M 3~400A
- Frames applicable to M1M:150A, M2M: 250A, M3M: 400A,

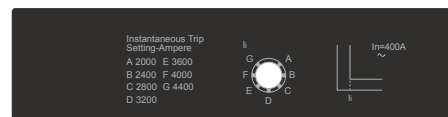
		M1M								
		I_i	3A	7A	15A	30A	50A	70A	100A	150A
Adjustable Magnetic Short Circuit Protection	A	21	35	75	150	250	350	500	750	
	B	24	42	90	180	300	420	600	900	
	C	27	49	105	210	350	490	700	1050	
	D	30	56	120	240	400	560	800	1200	
	E	33	63	135	270	450	630	900	1350	
	F		70	150	300	500	700	1000	1500	
	G				330	550	770	1100	1650	



		M2M	
		I_i	250 A
Adjustable Magnetic Short Circuit Protection	A	1250	
	B	1500	
	C	1750	
	D	2000	
	E	2250	
	F	2500	
	G	2750	



		M3M	
		I_i	400A
Adjustable Magnetic Short Circuit Protection	A	2000	
	B	2400	
	C	2800	
	D	3200	
	E	3600	
	F	4000	
	G	4400	



M4M-M6M Trip Unit

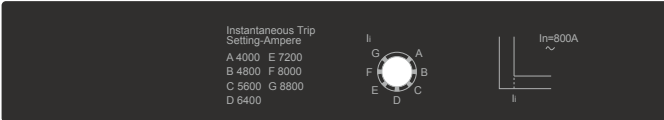
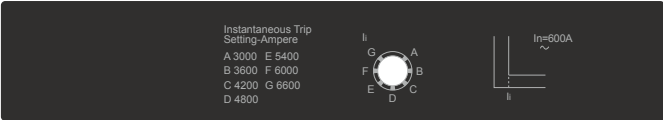
Adjustable Magnetic

- Adjustable Magnetic
- 3000-14400A Tripping Current
- Continuous Amperes: M4M~M6M 600~1200A
- Frames applicable to M4M: 600A, M5M: 800A, M6M: 1200A

B

		M4M	
Adjustable Magnetic Short Circuit Protection	I_i	600A	
	A	3000	
	B	3600	
	C	4200	
	D	4800	
	E	5400	
	F	6000	
	G	6600	

		M5M	
Adjustable Magnetic Short Circuit Protection	I_i	800A	
	A	4000	
	B	4800	
	C	5600	
	D	6400	
	E	7200	
	F	8000	
	G	8800	

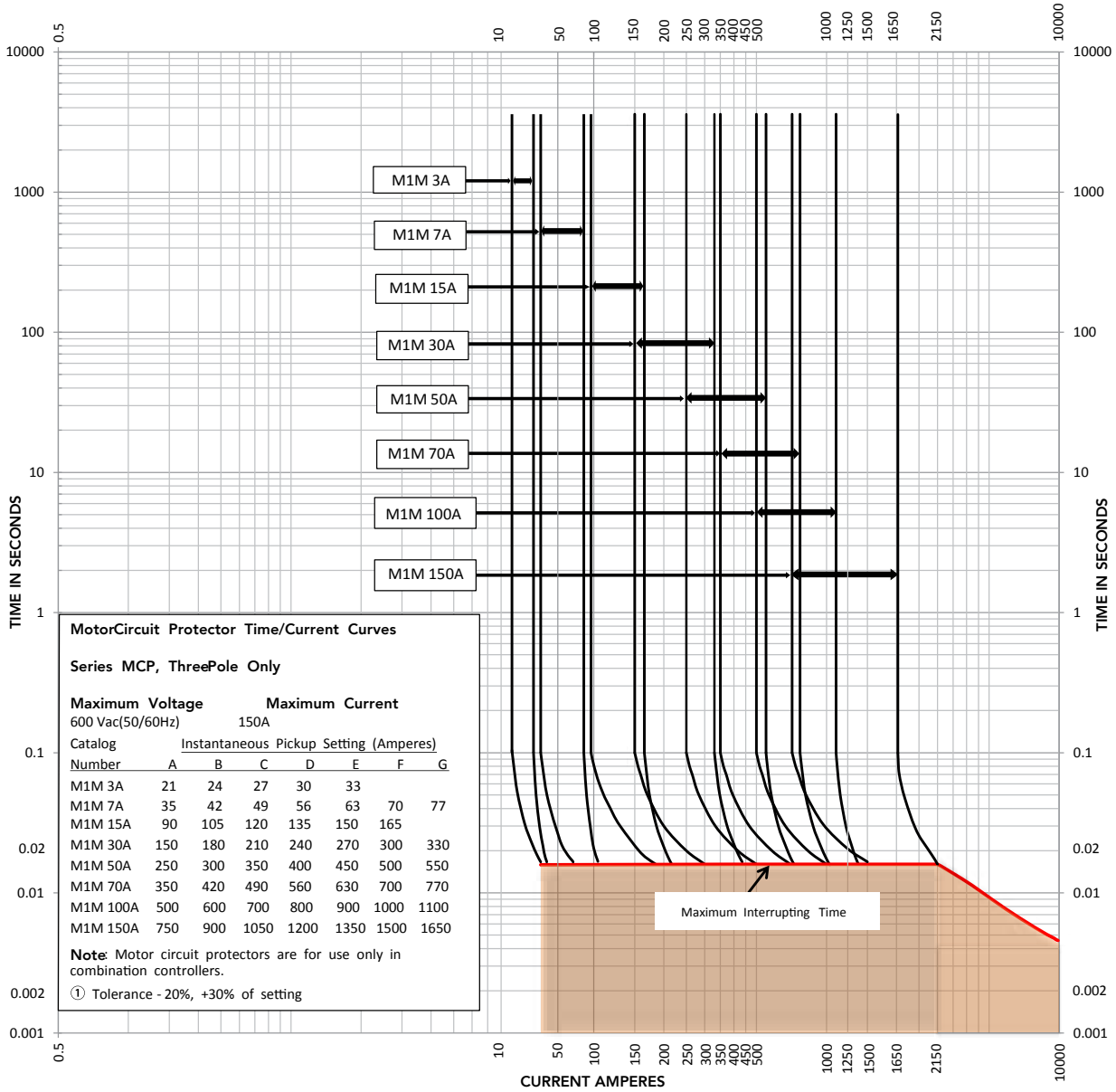


		M6M	
Adjustable Magnetic Short Circuit Protection	I_i	1200A	
	2	2400	
	3	3600	
	4	4800	
	6	7200	
	8	9600	
	10	12000	
	12	14400	



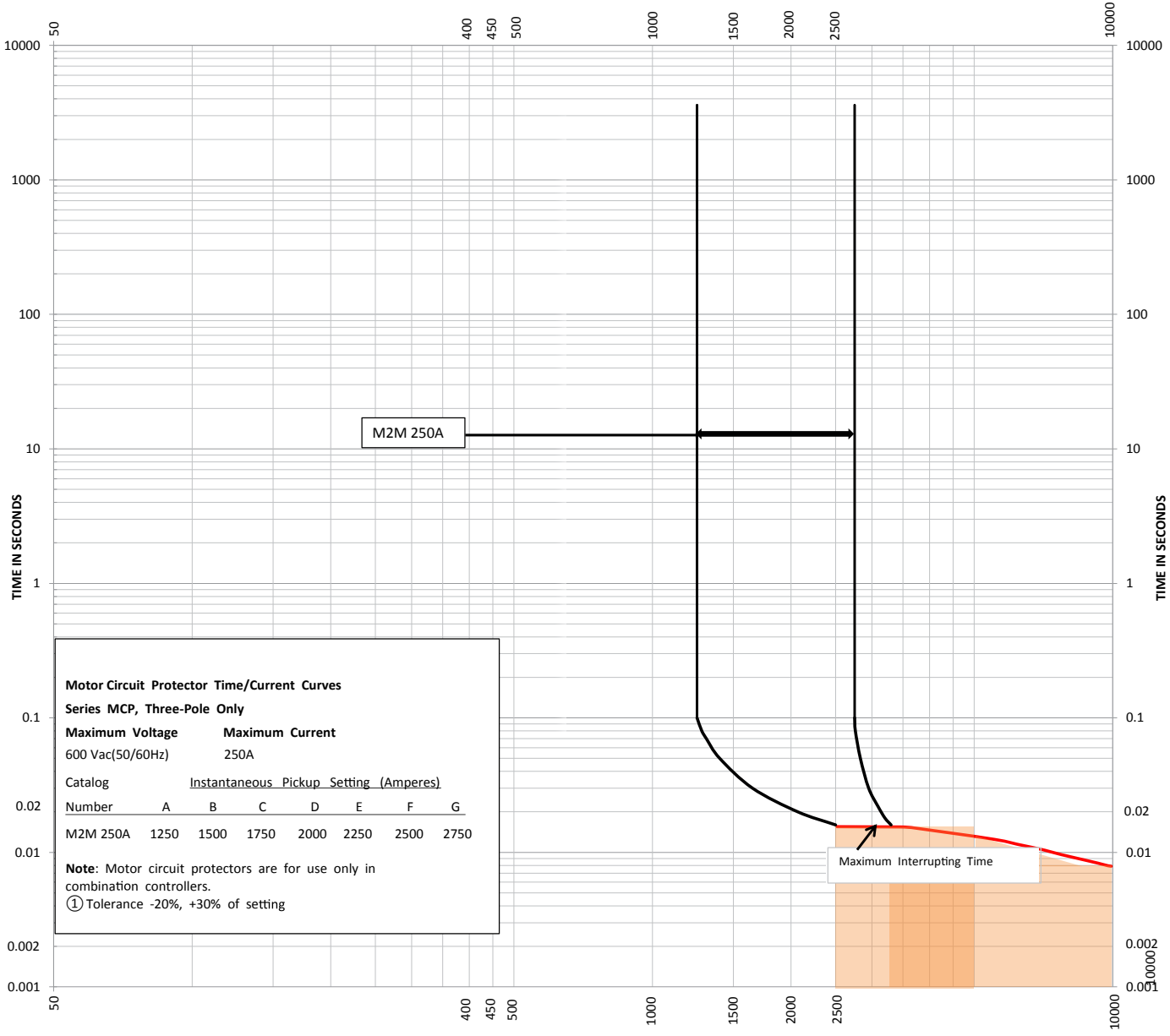
M1M Trip Curve

Motor Circuit Protector Time/Current Curves for M1M CURRENT AMPERES



M2M Trip Curve

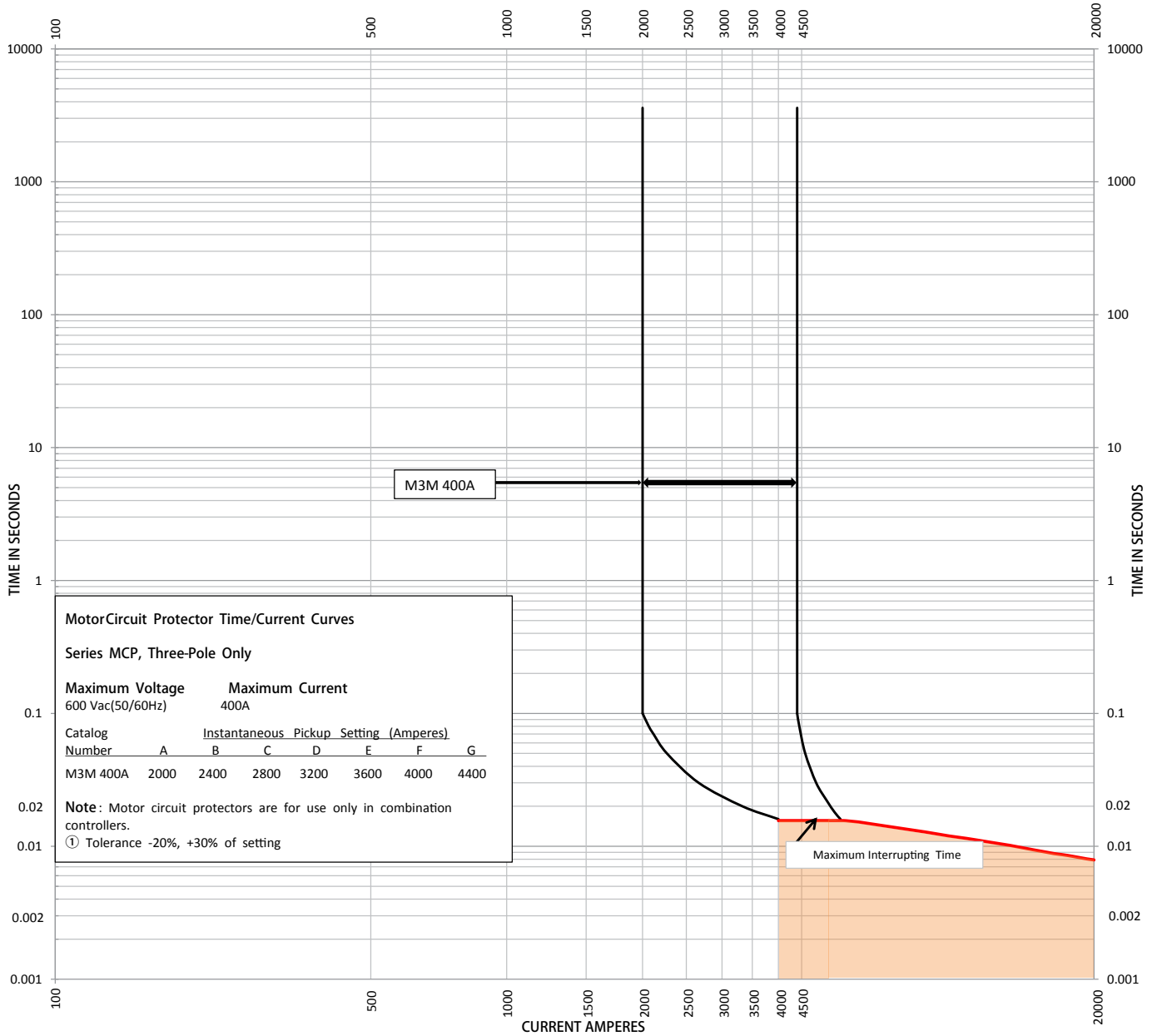
Motor Circuit Protector Time/Current Curves for M2M
CURRENT AMPERES



B

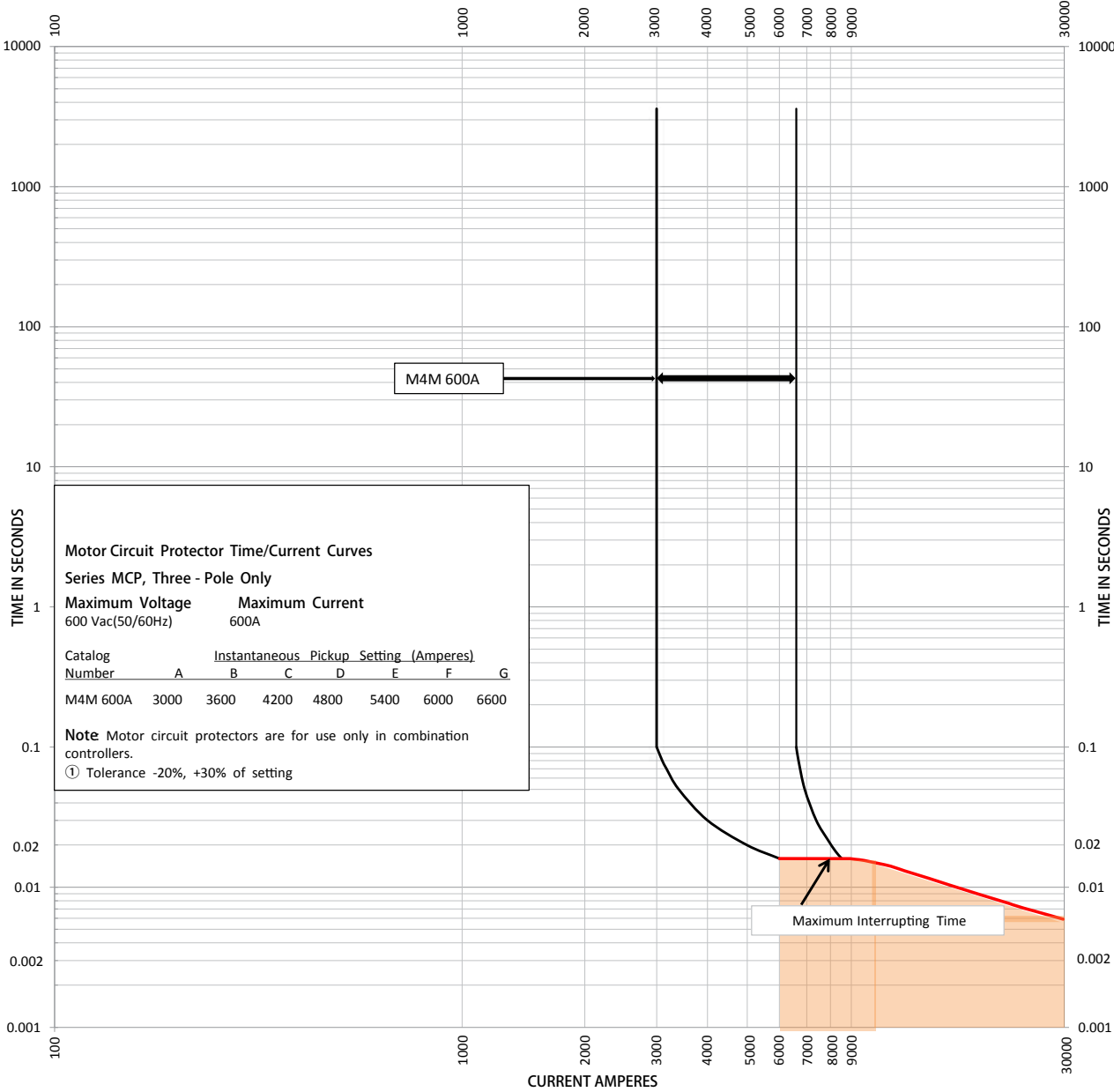
M3M Trip Curve

Motor Circuit Protector Time/Current Curves for M3M CURRENT AMPERES



M4M Trip Curve

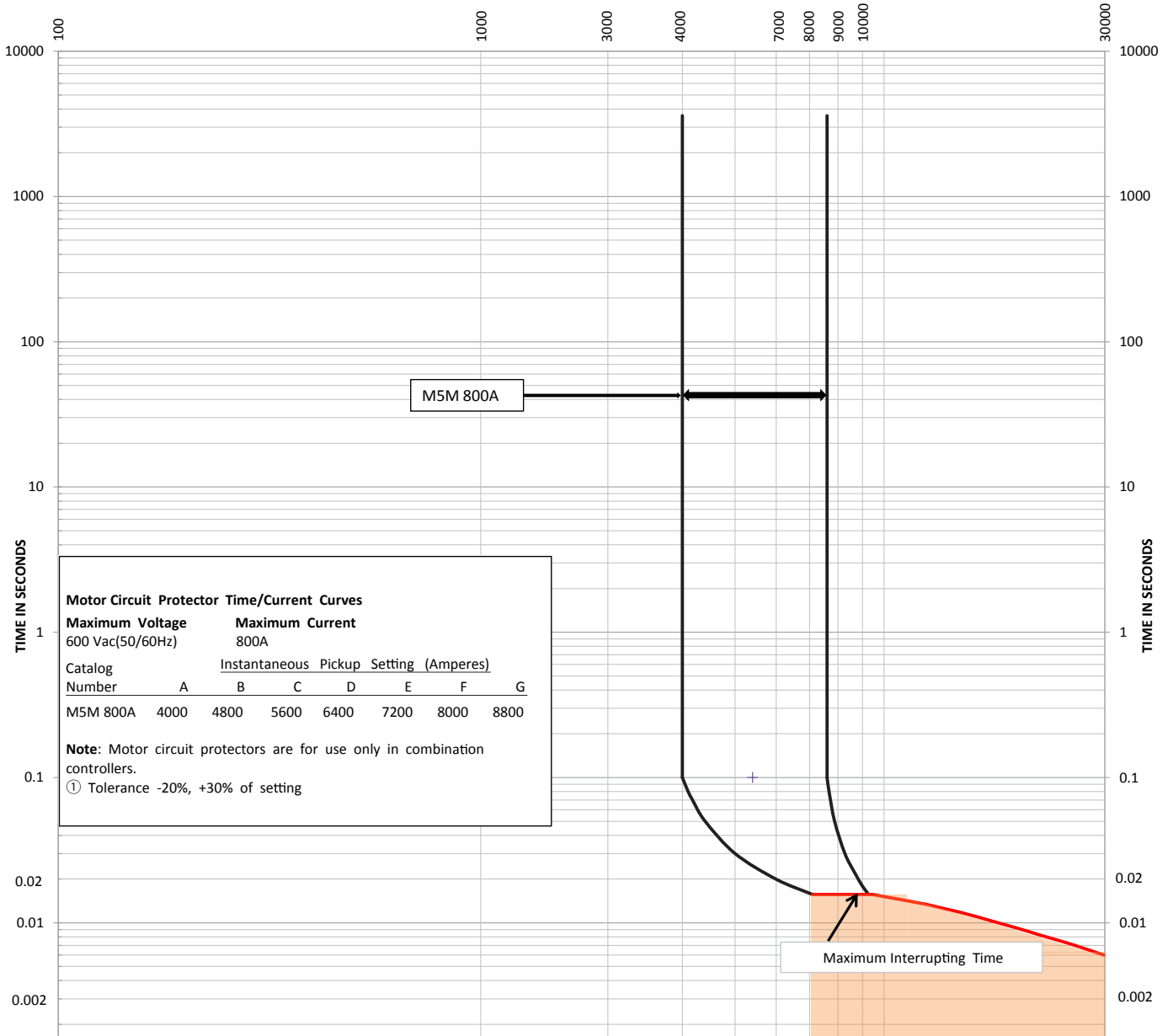
Motor Circuit Protector Time/Current Curves for M4M CURRENT AMPERES



B

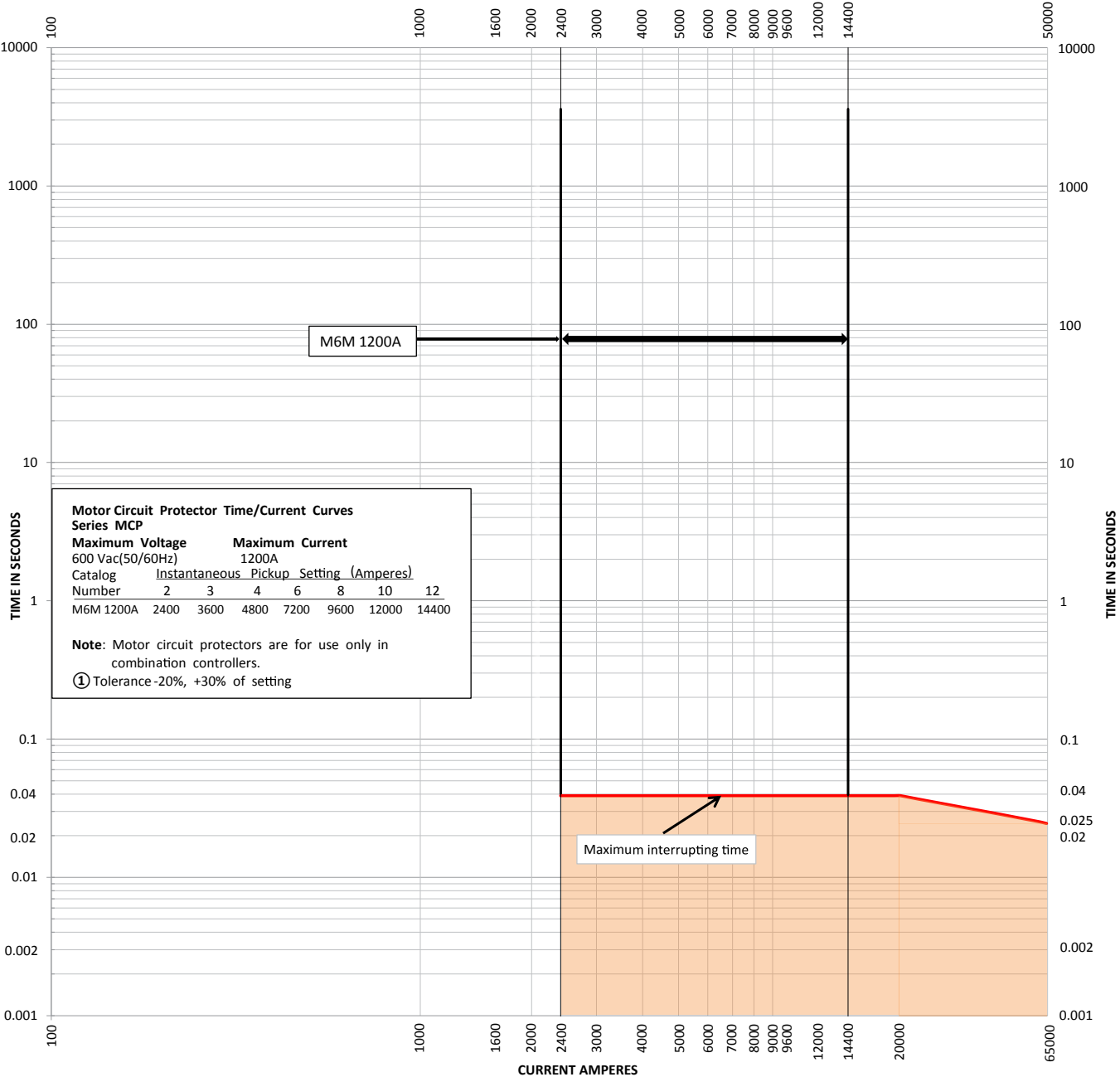
M5M Trip Curve

Motor Circuit Protector Time/Current Curves for M5M CURRENT AMPERES



M6M Trip Curve

Motor Circuit Protector Time/Current Curves for M6M
CURRENT AMPERES



B

For MCP Mounting Positions, please see
pages A42-A45.

Molded Case Switches

M1D-M6D



Noark
Model: M4D
Cat: M4D6003L
UT:
SP:
AN:
AL:
Made in China

M4D
Molded Case Switch
Interruptor en Caja Moldada
Interrupteur à Boîtier Moulé
600V AC 50/60Hz
UL 489 CSA C22.2
Use on circuits delivering
Voltage en circuits qui alimentent
Utiliser dans les circuits alimentant
240V ~ 100KA
480V ~ 60KA
600V ~ 30KA
500V == 50KA(2P)
600V == 50KA(3P)
EC8041-3
U=80V Uimp=8V
Isc=100kA
230/240V ~ 100A
380/415V ~ 100A
602/690V ~ 15A
50V == 30A(2P)

E355396
UL LISTED
MOLDED CASE SWITCH
72°C Cu Wire Only
230/240V-480V 110 kV-amp
795-10mm² 50mm
CE

CAUTION/PRECAUCION/ATTENTION
Provides no overcurrent protection.
No protege contra sobrecorrientes.
Ne fournit aucune protection contre
les surintensités de courant.
May open automatically.
Probable apertura automática.
Probable ouverture automatique.



M1D-M6D Product Overview

Features

Ex9 Series - M Molded Case Switches, 100~1200 A

NOARK Electric offers a complete range of Molded Case Switches in six frame sizes: M1 - 150 A, M2 - 250 A, M3 - 400 A, M4 - 600 A, M5 - 800 A, and M6 - 1,200 A. Each frame size offers a range of interrupting voltage ratings from 240-690 Vac and 250-600 Vdc. The Ex9 Series – M Molded Case Switches are only used for magnetic protection applications mainly as supply circuit protection and emergency-off disconnect switches. The Ex9 Series – M conforms to global standards that include UL 489, CSA C22.2 No 5 and IEC 60947-2.

The Ex9 Series – M offers:

- Instantaneous trip ability and a new patented arc extinguishing design
- New patented technology reduces the manual operating force
- High-quality compact modular with energy saving and environmentally friendly design
- Installation flexibility:
 - ✓ Lug Line/Load Side Connection
 - ✓ Rear Connection
- Wide range of accessories:
 - ✓ Alarm Switch and Auxiliary Contact
 - ✓ Shunt and Under-Voltage Trip
 - ✓ Interlock
 - ✓ NEMA and ICE Type Rotary Handle
 - ✓ NEMA Type Flange Handle
 - ✓ Motor Operator

M1D-M6D National and International Standards

Certifications

- UL 489 Listed, File Number E355396
(Standard for connection terminals which allows the user to apply field wiring directly to the breaker)
- UL listed to UL489 and CSA standards 22.2 No. 5
- IEC/EN 60947-2
- CE Compliant
- RoHS Compliant



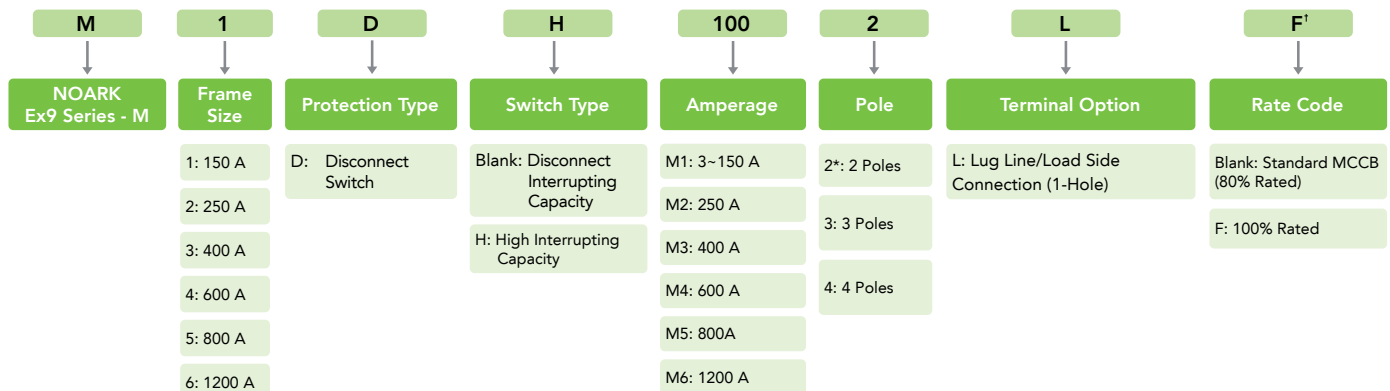
M1D-M6D Product Selection Guide

Label

- ① Product Series
- ② Handle
- ③ Test Button
- ④ Warning Label
- ⑤ Brand
- ⑥ UL Listed Mark
- ⑦ CE Mark
- ⑧ Rated Current



Product Selection Guide



M1D-M6D Specifications

Switch Frame	Rated Current (A)	Poles	Rated Voltage		Switch Type	Withstand Rating* (kA rms)					Insulation Voltage (V)	Impulse Withstand Voltage (Vimp)	Operational Voltage (Ve)		Mechanical Operating Cycles	Electrical Operating Cycles
			Vac 50/60 Hz	Vdc		240 Vac	480 Vac	600 Vac	500 Vac 2 Poles	600 Vac 3 Poles			UL	IEC		
M1D	100-150	2,3	600	600	M1D	100	65	20	35	35	800 Vac	8 kVac	600 Vac	690 Vac	10,000	6,000
M1DH	150				100	25	50	50								
M2D	100-250				M2D	100	65	20	35	35						
M2DH	150				100	25	50	50								
M3D	250-400				M3D	100	65	25	50	50					8,000	5,000
M3DH	150				100	30	65	65								
M4D	400-600	M4D	100	65	30	50	60									
M4DH	150	100	50	65	65											
M5D	800	2,3,4	-	-	M5D	100	65	30	50	50	-	-	-	-	3,000	500
M5DH	150	100			50	65	65									
M6D	800-1200	3,4	-	-	M6D	100	65	42	-	-	-	-	-	-	-	-

Breaker Frame	Dimensions LxWxD in (mm)		Weight lb (kg)			Cable Lugs	Cable Lug Torque in-lb (Nm)
	3 Poles	4 Poles	2 Poles*	3 Poles	4 Poles		
M1D	6.46x3.54x3.33 (164x90x84.5)	-	3.17 (1.44)	3.68 (1.67)	-	One #14 to 3/0 CU or One #12 to 3/0 AL	89 (10)
M2D	7.17x4.13x3.47 (182x105x88)	-	3.75 (1.70)	4.41 (2.00)	-	One #3 to 300kcmil CU/AL	230 (23)
M3D	11.22x5.51x4.59 (285x140x116.5)	-	8.97 (4.07)	13.45 (6.1)	-	One 4/0 to 600 kcmil CU/AL	310 (35)
M4D	12.32x7.68x5.43 (313x195x138)	-	20.94 (9.5)	25.35 (11.5)	-	Two 2/0 to 500 kcmil CU/AL	-
M5D	16.18x7.68x7.58 (411x195x192.5)	16.18x10.2x7.58 (411x260x192.5)	27 (12.15)	33.18 (15.05)	43.43 (19.7)	Two 200 to 600 kcmil CU/AL	398 (45)
						Three 250kcmil to 500kcmil CU/AL 800A Max	-
M6D	22.64x9.84x15.16 (575x320x385)	22.64x12.6x15.16 (575x320x385)	-	55.56 (25.2)	69.67 (31.6)	(3) 3/0 to 750kcmil CU/AL 800A Max	-
						(4) 3/0 to 500kcmil CU/AL 1200A Max	310 (35)

M1D Lug Line/Load Side



- Lug Line/Load Side Connection MCS sold with Terminal Lugs

M1D 65kA@480Vac	Rated Amperage (A)	2 Poles		3 Poles	
		Lug Line/Load Side Connection (1-Hole)		Lug Line/Load Side Connection (1-Hole)	
		Catalog Number	Part Number	Catalog Number	Part Number
	100	M1D1002L	1100458	M1D1003L	1100454
M1D 65kA@480Vac	Rated Amperage (A)	2 Poles		3 Poles	
		Lug Line/Load Side Connection (1-Hole)		Lug Line/Load Side Connection (1-Hole)	
		Catalog Number	Part Number	Catalog Number	Part Number
	150	M1D1502L	1102196	M1D1503L	1102197
M1DH 100kA@480Vac	Rated Amperage (A)	2 Poles		3 Poles	
		Lug Line/Load Side Connection (1-Hole)		Lug Line/Load Side Connection (1-Hole)	
		Catalog Number	Part Number	Catalog Number	Part Number
	100	M1DH1002L	1101776	M1DH1003L	1101772
M1DH 100kA@480Vac	Rated Amperage (A)	2 Poles		3 Poles	
		Lug Line/Load Side Connection (1-Hole)		Lug Line/Load Side Connection (1-Hole)	
		Catalog Number	Part Number	Catalog Number	Part Number
	150	M1DH1502L	1102203	M1DH1503L	1102204

M2D Lug Line/Load Side



- Lug Line/Load Side Connection MCS sold with Terminal Lugs

C

M2D 65kA@480Vac	Rated Amperage (A)	2 Poles		3 Poles	
		Lug Line/Load Side Connection (1-Hole)		Lug Line/Load Side Connection (1-Hole)	
		Catalog Number	Part Number	Catalog Number	Part Number
	125	M2D1252L	1100699	M2D1253L	1100695
	150	M2D1502L	1100707	M2D1503L	1100703
	225	M2D2252L	1100466	M2D2253L	1100462
	250	M2D2502L	1101984	M2D2503L	1101980

M2DH 65kA@480Vac	Rated Amperage (A)	2 Poles		3 Poles	
		Lug Line/Load Side Connection (1-Hole)		Lug Line/Load Side Connection (1-Hole)	
		Catalog Number	Part Number	Catalog Number	Part Number
	125	M2DH1252L	1101794	M2DH1253L	1101782
	150	M2DH1502L	1101795	M2DH1503L	1101783
	225	M2DH2252L	1101796	M2DH2253L	1101784
	250	M2DH2502L	1101992	M2DH2503L	1101988

M3D and M4D Lug Line/Load Side

M3D Lug Line/Load Side

M3DH 65kA@480Vac	Rated Amperage (A)	2 Poles		3 Poles	
		Lug Line/Load Side Connection (1-Hole)		Lug Line/Load Side Connection (1-Hole)	
		Catalog Number	Part Number	Catalog Number	Part Number
	250	M3D2502L	1100716	M3D2503L	1100711
	400	M3D4002L	1100475	M3D4003L	1100470

M3DH 100kA@480Vac	Rated Amperage (A)	2 Poles		3 Poles	
		Lug Line/Load Side Connection (1-Hole)		Lug Line/Load Side Connection (1-Hole)	
		Catalog Number	Part Number	Catalog Number	Part Number
	250	M3DH2502L	1101817	M3DH2503L	1101805
	400	M3DH4002L	1101818	M3DH4003D	1101814

M4D Lug Line/Load Side

M4D 65kA@480Vac	Rated Amperage (A)	2 Poles		3 Poles	
		Lug Line/Load Side Connection (1-Hole)		Lug Line/Load Side Connection (1-Hole)	
		Catalog Number	Part Number	Catalog Number	Part Number
	600	M4D6002L	1100484	M4D6003L	1100480

M4DH 100kA@480Vac	Rated Amperage (A)	2 Poles		3 Poles	
		Lug Line/Load Side Connection (1-Hole)		Lug Line/Load Side Connection (1-Hole)	
		Catalog Number	Part Number	Catalog Number	Part Number
	600	M4DH6002L	1101832	M4DH6003L	1101828

M5D and M6D Lug Line/Load Side

M5D Lug Line/Load Side

M5D 65kA@480Vac	Rated Amperage (A)	2 Poles		3 Poles		4 Poles	
		Lug Line/Load Side Connection		Lug Line/Load Side Connection		Lug Line/Load Side Connection	
		Catalog Number	Part Number	Catalog Number	Part Number	Catalog Number	Part Number
800	M5D8002L	1100484	M5D8003L	1102076	M5D8004L	1102078	

M5DH 100kA@480Vac	Rated Amperage (A)	2 Poles		3 Poles		4 Poles	
		Lug Line/Load Side Connection		Lug Line/Load Side Connection		Lug Line/Load Side Connection	
		Catalog Number	Part Number	Catalog Number	Part Number	Catalog Number	Part Number
800	M5DH8002L	1102080	M5DH8003L	1102082	M5DH8004L	1102084	

M6D Lug Line/Load Side

M6D 65kA@480Vac	Rated Amperage (A)	3 Poles		4 Poles	
		Lug Line/Load Side Connection (1-Hole)		Lug Line/Load Side Connection (1-Hole)	
		Catalog Number	Part Number	Catalog Number	Part Number
800	M6D8003LF	1101922	M6D8004LF	1101928	
1000	M6D10003LF	1101923	M6D10004LF	1101929	
1200	M6D12003LF	1101924	M6D12004LF	1101930	

M1D-M6D Specifications

		M1D/H	M2D/H	M3D/H	M4D/H	M5D/H	M6D					
Rated Current (A)		100 ~ 150	125 ~ 250	250~400	400~600	800	800~1200					
Number of Poles		2, 3					2,3,4	3,4				
Switch Type		M1D	M1DH	M2D	M2DH	M3D	M3DH	M4D	M4DH	M5D	M5DH	M6D
Rated Voltage 50/60 Hz	Vac	600										
	Vdc	600										
Withstand Rating* (kA rms)												
Circuit Breaker Ratings UL 489- -C-SA C22.2 (kA rms) Vac 50/60 Hz	240 Vac	100	150	100	150	100	150	100	150	100	150	100
	480 Vac	65	100	65	100	65	100	65	100	65	100	65
	600 Vac	20	25	20	25	25	30	30	50	30	50	42
	500 Vdc 2 Poles	35	50	35	50	50	65	50	65	50	65	-
	600 Vdc 3 Poles	35	50	35	50	50	65	50	65	50	65	-
Circuit Breaker Ratings IEC 60947-2	220 / 240 Vac 380 / 415 Vac	100	150	100	150	100	150	100	150	100	150	85 (60)
	660 / 690 Vac	8	10	10	12	15	20	15	20	15	20	30
Ultimate Breaking Capacity (Icu = 100% Ics) (kA rms)	500 Vdc 3 Poles	35	50	35	50	50	65	50	65	-	-	-
	500 Vdc 2 Poles	35	50	35	50	50	65	50	65	50	50	-
Trip Current (A)		15xIn	12xIn	12xIn	12xIn	10xIn	10xIn	10xIn	10xIn	10xIn	10xIn	15xIn
Accessories												
Alarm Switch												
Auxiliary Contact												
Shunt Trip												
Under-Voltage Trip												
Handle Operators												
Handle Lock												
Flange Handle												
Mechanical Interlock												
Motor Operator												
Terminal Cover and Kits												
Lug Line/Load Side Connection												

*NOTE: The withstand rating is the fault, at rated voltage, that the molded case switch will withstand without damage when protected by a circuit breaker or fuse with an equal continuous current rating.

M1D-M6D Specifications

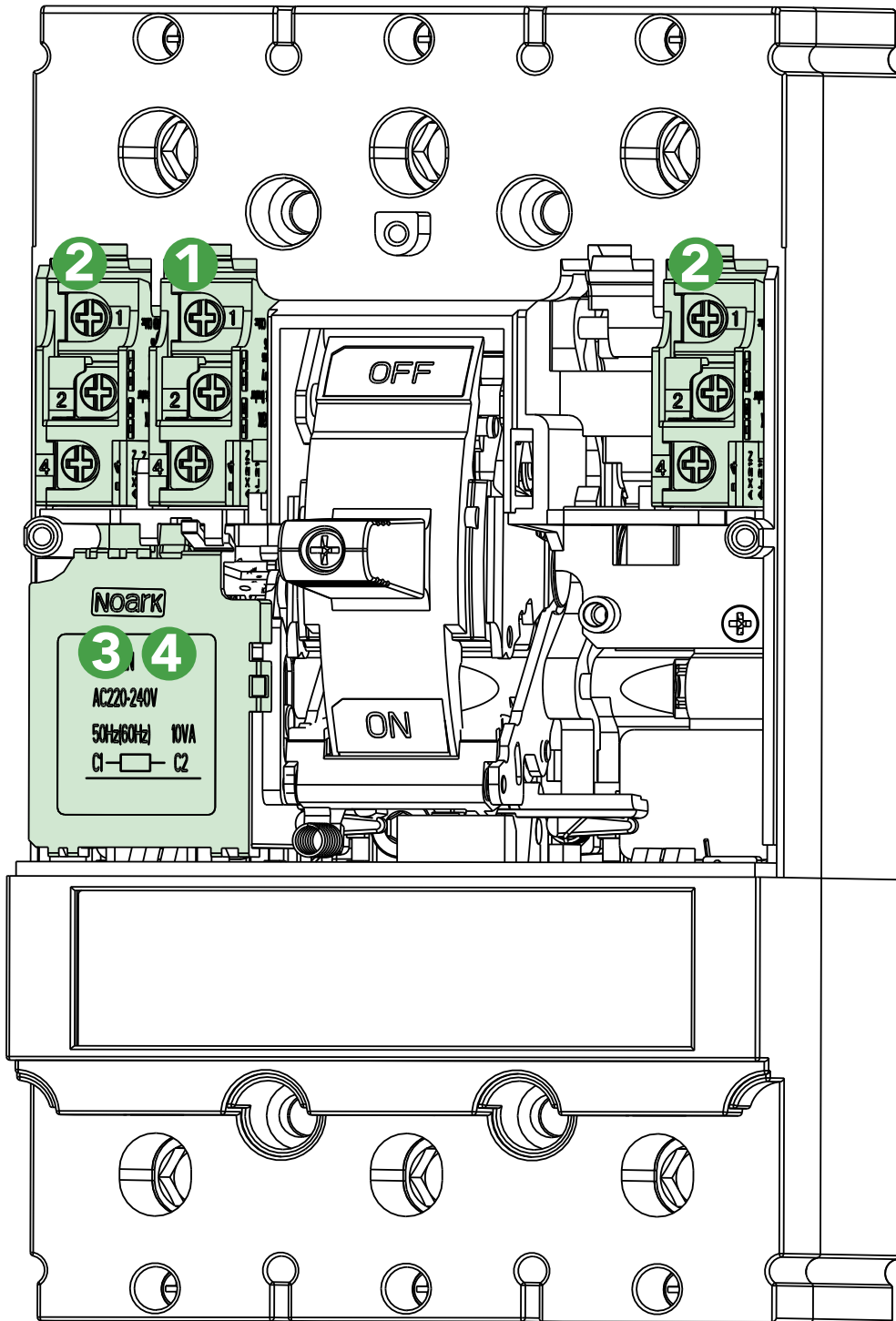
		M1D	M2D	M3D	M4D	M5D	M6D
Insulation Voltage (Vi)		800 Vac					
Impulse Withstand Voltage (Vimp)		8 kVac					
Operational Voltage (Ve)	IEC	690 Vac					
	UL	600 Vac					
IEC Ics (% Icu)		100%					
Utilization Category		A					
Mechanical Operating Cycles		10,000		8,000		3,000	
Electrical Operating Cycles		6,000		5,000		500	
Dimensions LxWxD in (mm)		6.46x3.54x3.33 (164x90x84.5)	7.17x4.13x3.47 (182x105x88)	11.22x5.51x4.59 (285x140x116.5)	12.32x7.68x5.43 (313x195x138)	3P: 16.18x7.68x7.58 (411x195x192.5) 4P: 16.18x10.2x7.58 (411x260x192.5)	3p: 17.72x8.27x6.6 (450x210x167.6) 4P: 17.72x11.43x6.6 (450x280x167.6)
Weight of Unit lb (kg)	2 Poles	3.17 (1.44)	3.75 (1.70)	8.97 (4.07)	20.94 (9.5)	27 (12.15)	-
	3 Poles	3.68 (1.67)	4.41 (2.00)	13.45 (6.1)	25.35 (11.5)	33.18 (15.05)	55.56 (25.2)
	4 Poles	-	-	-	-	43.43 (19.7)	69.67 (31.6)
Cable Connection Wire 167 °F (75 °C) Cu Wire Only AWG (mm ²)		1-Hole 14-3/0 (2.5-95)	1-Hole 3 - 350 kcmil (10-185)	1-Hole #4/0-600 kcmil (95-240)	2-Holes (2x) 2/0-500 kcmil ((2x) 95-185)	2-Holes 250-600kc- mil (120-300)	3-Holes 3/0- 750 kcmil (95-300)
				2-Holes 3 - 250 kcmil (35-120)		3-Holes 250-500 kcmil (100-250)	4-Holes 3/0- 500 kcmil (95-240)
Lugs lb-in (N.m)		89 (10)	230 (23)	310 (35)		398 (45)	310 (35)

C

For MCS Mounting Positions, please see pages A42-A45.



Molded Case Accessories



Molded Case Accessories Overview

Internal Accessories



1 Alarm Switch (AL)



3 Shunt Trip (SHT)



2 Auxiliary Contact (AX)



4 Under-Voltage Trip (UVT)

D

External Accessories



Handle Lock (KLK)



IEC Rotary Handle (RHD)
(Closed Coupled)



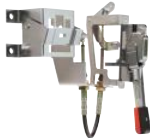
Mechanical Interlock (MIT)



Standard Extended Rotary Handle (ERH)
(Through the Door)



Motor Operator (MOD)



NEMA Flange Handle Mechanism (FHM)
(Through the Door)



Internal Cabinet Handle



Extended Rotary Handle

Molded Case Accessories Overview

Connection Hardware



Terminal Lugs (LTC)



Rear Connection Kit (RCP)



Multi-Wire Terminal Lug Kits



Terminal Cover

Conversion Kits and Phase Barriers



Accessory Description	Frame Size	Bus Pad Dimensions (mm)						Bolt Size	Bolt Torque	Catalog Number
		Up-Side			Down-Side					
		Width	Depth	Height	Width	Depth	Height			
Lug to Bus Bar Conversion Kits	M1	14.2	14.8	18.5	14.2	16.8	17.5	M6*16	6N.m/53.1 lb in	CKLB21
	M2	20	18.5	22	20	30.5	20	M8*20	8N.m/97.4 lb in	CKLB22
	M3	30	30	25.8	26	27	23.9	M10*30	25Nm/222lb-in	Not Required
	M4	50	33.3	31.5	50	33	31.5	M12*30	18Nm/156lb-in	Not Required
	M5	50	33.4	31.5	50	33	31.5	M12*30	18Nm/156lb-in	Not Required
	M6	50	30.3	30.6	50	27.7	30.6	M10*40	25Nm/222lb-in	Not Required

Internal Accessories

Alarm Switch (AL)

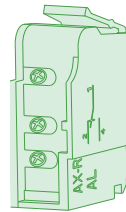


Function:

- Sends a signal when the circuit breaker trips
- UL File Number E355392

1

Auxiliary Contact (AX)



Function:

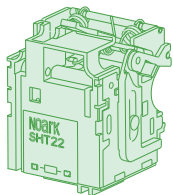
- Indicates the state of a circuit breaker (on/off)
- UL File Number E355392

2

Accessory Description	Rated Operational Voltage	Rated Operational Current	Catalog Number
Alarm Switch 1NO / 1NC	240/480 Vac, 110/220 Vdc	.25A @ 110V .25A @ 220V	AL/AX21P*
Auxiliary Contact 1NO / 1NC		5A @ 240V 2A @ 480V	

*AL/AX21P is an Alarm switch when inserted in position '1' on the breaker and Auxiliary contact when inserted in position '2' on the breaker.

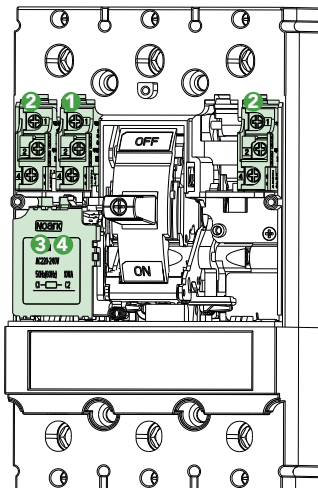
Shunt Release (SHT)



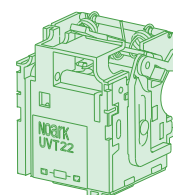
Function:

- Allows circuit breaker to be remotely operated
- Response Voltage, Pick-Up: Us 70-110%
- Opening Time: Interrupts Automatically ≥ 10 ms, ≤ 60 ms
- UL File Number E355392

3



Under-Voltage Trip (UVT)



Function:

- Prevents circuit breaker from closing during an under-voltage situation
- Response Voltage, Drop: Ue 35-70%
- Response Voltage, Pick-Up: Ue 85-110%
- Opening Time: Interrupts Automatically ≥ 10 ms, ≤ 60 ms
- UL File Number E355392

4

Accessory Description	Frame Size	Voltage	Catalog Number
Shunt Trip	M1	100-130 Vac	SHT21NA
		220-240 Vac	SHT21NB
		480-500 Vac	SHT21ND
	M2-M3	24 Vdc	SHT21NE
		100-130 Vac	SHT22NA
		220-240 Vac	SHT22NB
		480-500 Vac	SHT22ND
	M4-M5	24 Vdc	SHT22NE
		100-130 Vac	SHT24NA
		220-240 Vac	SHT24NB
		480-500 Vac	SHT24ND
	M6	24 Vdc	SHT24NE
220-240Vac		SHT26NB	
480-500Vac		SHT26ND	
		24-30Vdc	SHT26NE

Accessory Description	Frame Size	Voltage	Catalog Number
Under-Voltage Trip	M1	110-127 Vac	UVT21NA
		220-240 Vac	UVT21NB
		24-30 Vdc	UVT21ND
	M2-M3	110-127 Vac	UVT22NA
		220-240 Vac	UVT22NB
		24-30 Vdc	UVT22ND
	M4-M5	110-127 Vac	UVT24NA
		220-240 Vac	UVT24NB
	M6	24-30 Vdc	UVT24ND
		110-127 Vac	UVT26NA
		220-240 Vac	UVT26NB
			480-500 Vac

Green Highlight = Most Popular

Additional products, accessories and higher ratings available. Contact your NOARK representative or visit na.noark-electric.com for additional information.

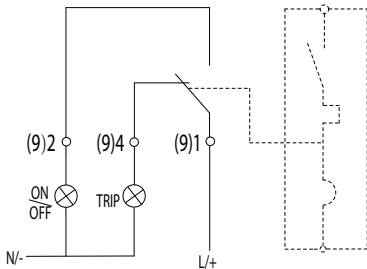
Internal Accessories: Alarm Switch and Auxiliary Contact



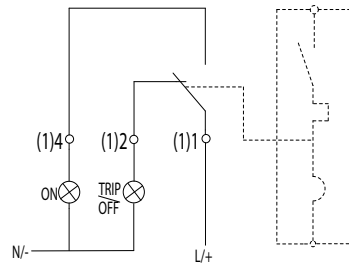
AL/AX	21	P
Description	Type	Device Category
Alarm Auxiliary Contact	21: for M1-M6	P: UL 489

- 5A @ 240Vac
- 2A @ 480Vac
- 0.25A @ 110Vdc
- 0.25A @ 220Vdc

Accessory Description	Product	Part Number
Alarm Auxiliary Contact	AL/AX21P	1100554

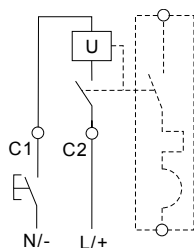


Wiring Diagram of Alarm Contact (Switch)



Wiring Diagram of Auxiliary Contact

Internal Accessories: Shunt Trip



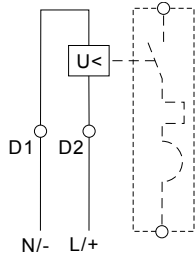
SHT	21	N	A
Description	Type	Device Category	Control Voltage
Shunt Trip	21: for M1 22: for M2-M3 24: for M4-M5 26: for M6	N: UL 489	A: 100~130 Vac B: 220~240 Vac C: 380~440 Vac D: 480~500 Vac E: 24 Vdc H: 220~250 Vdc G: 110~125 Vdc

- Response Voltage, Pick-Up: Us 70-110%
- Opening Time: Interrupts Automatically ≥ 10 ms, ≤ 60 ms

Accessory Description	Type	Voltage	VA Rating	Catalog Number	Part Number
Shunt Trip	M1	100-130 Vac	94 W	SHT21NA	1100505
		220-240 Vac	325 W	SHT21NB	1100506
		380-440 Vac	152 W	SHT21NC	1100507
		480-500 Vac	197 W	SHT21ND	1100508
		24 Vdc	85 W	SHT21NE	1100509
	M2-M3	100-130 Vac	228 W	SHT22NA	1100513
		220-240 Vac	427 W	SHT22NB	1100514
		380-440 Vac	255 W	SHT22NC	1100515
		480-500 Vac	329 W	SHT22ND	1100516
		24 Vdc	57 W	SHT22NE	1100517
	M4-M5	100-130 Vac	228 W	SHT24NA	1100521
		220-240 Vac	427 W	SHT24NB	1100522
		380-440 Vac	225 W	SHT24NC	1100523
		480-500 Vac	329 W	SHT24ND	1100524
		24 Vdc	57 W	SHT24NE	1100525
	M6	100-130Vac	31 W	SHT26NA	1101168
		220-240Vac	92 W	SHT26NB	1101169
		380-440Vac	75 W	SHT26NC	1101170
		480-500Vac	75 W	SHT26ND	1101171
		24-30Vdc	14 W	SHT26NE	1101172
110-125Vdc		44 W	SHT26NG	1101173	
220-250Vdc		92 W	SHT26NH	1101174	

DimensionsD93

Internal Accessories: Under Voltage Trip



UVT	21	N	A
Description	Type	Device Category	Control Voltage
Under-Voltage Trip	21: for M1 22: for M2-M3 24: for M4-M5 26: for M6	N: UL 489	A: 110~127 Vac B: 220~240 Vac C: 380~440 Vac D: 24~30 Vdc E: 48 Vdc F: 60 Vdc G: 110~125 Vdc H: 220~250 Vdc

- Response Voltage, Drop: Ue 35-70%
- Response Voltage, Pick-Up: Ue 85-110%
- Opening Time: Interrupts Automatically ≥ 10 ms, ≤ 60 ms

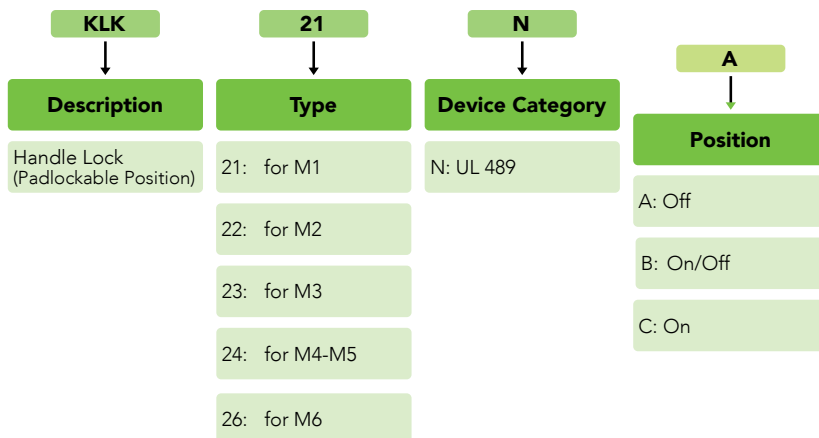
Accessory Description	Type	Voltage	Catalog Number	Part Number
Under-Voltage Trip	M1	110-127 Vac	UVT21NA	1100529
		220-240 Vac	UVT21NB	1100530
		380-440 Vac	UVT21NC	1100531
		24-30 Vdc	UVT21ND	1100532
		48 Vdc	UVT21NE	1100533
		60 Vdc	UVT21NF	1100534
		110-125 Vdc	UVT21NG	1100535
		220-250 Vdc	UVT21NH	1100536
	M2-M3	110-127 Vac	UVT22NA	1100537
		220-240 Vac	UVT22NB	1100538
		380-440 Vac	UVT22NC	1100539
		24-30 Vdc	UVT22ND	1100540
		48 Vdc	UVT22NE	1100541
		60 Vdc	UVT22NF	1100542
		110-125 Vdc	UVT22NG	1100543
		220-250 Vdc	UVT22NH	1100544
	M4-M5	110-127 Vac	UVT24NA	1100545
		220-240 Vac	UVT24NB	1100546
		380-440 Vac	UVT24NC	1100547
		24-30 Vdc	UVT24ND	1100548
		48 Vdc	UVT24NE	1100549
		60 Vdc	UVT24NF	1100550
		110-125 Vdc	UVT24NG	1100551
		220-250 Vdc	UVT24NH	1100552
M6	110-127Vac	UVT26NA	1101175	
	220-240Vac	UVT26NB	1101176	
	380-440Vac	UVT26NC	1101177	
	480-500Vac	UVT26NC1	1101178	
	24-30Vdc	UVT26ND	1101179	
	110-125Vdc	UVT26NG	1101180	
220-250Vdc	UVT26NH	1101181		

DimensionsD93

External Accessories: Handle Lock and Mechanical Interlocks



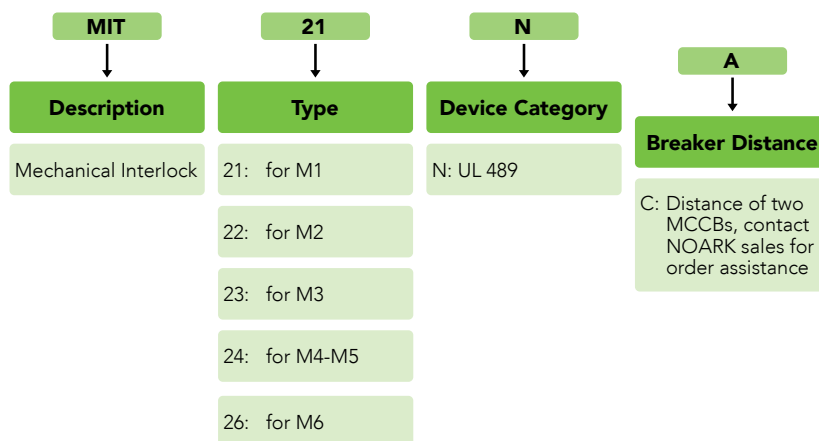
Handle Lock



Accessory Description	Type	Position	Catalog Number	Part Number
Handle Lock	M1	Off	KLK21NA	1100575
		On/Off	KLK21NB	1100576
		On	KLK21NC	1100577
	M2	Off	KLK22NA	1100578
		On/Off	KLK22NB	1100579
		On	KLK22NC	1100580
	M3	Off	KLK23NA	1100581
		On/Off	KLK23NB	1100582
		On	KLK23NC	1100583
	M4-M5	Off	KLK24NA	1100584
		On/Off	KLK24NB	1100585
		On	KLK24NC	1100586
M6	Off	KLK26NA	1101182	



Mechanical Interlocks



Accessory Description	Type	Catalog Number	Part Number
Mechanical Interlock	M1	MIT21NA	1100596
	M2	MIT22NA	1100599
	M3	MIT23NA	1100602
	M4-M5	MIT24NA	1100605
	M6	MIT26NA	1101183

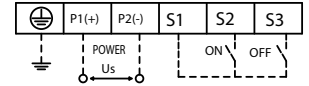
DimensionsD94

External Accessories: Motor Operator and Phase Barrier

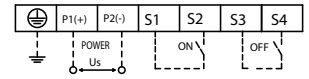


Motor Operator

MOD	21	N	A
Description	Type	Device Category	Control Voltage
Motor Operator	21: for M1	N: UL 489	A: 120 Vac/dc
	22: for M2		B: 240 Vac/dc
	23: for M3		C: 24 Vdc
	24: for M4-M5		



MOD21N / MOD22N



MOD23N / MOD24N

Accessory Description	Type	Voltage	Catalog Number	Part Number
Motor Operator	M1	120 Vac/dc	MOD21NA	1100563
		240 Vac/dc	MOD21NB	1100564
		24 Vdc	MOD21NC	1100565
	M2	120 Vac/dc	MOD22NA	1100566
		240 Vac/dc	MOD22NB	1100567
		24 Vdc	MOD22NC	1100568
	M3	120 Vac/dc	MOD23NA	1100569
		240 Vac/dc	MOD23NB	1100570
		24 Vdc	MOD23NC	1100571
M4-M5	120 Vac/dc	MOD24NA	1100572	
	240 Vac/dc	MOD24NB	1100573	
	24 Vdc	MOD24NC	1100574	



Phase Barriers

PHS	21
Description	Type
Phase Barrier	21: for M1
	22: for M2
	23: for M3
	24: for M4-M5
	26: for M6

- For a 2-pole frame, 2 pcs of PHS are needed for the line/load sides.
- For a 3-pole frame, 4 pcs of PHS are needed for the line/load sides.
- For a 4-pole frame, 6 pcs of PHS are needed for the line/load sides.

Accessory Description	Type	Catalog Number	Part Number
Phase Barrier	M1	PHS21	852546
	M2	PHS22	852547
	M3	PHS23	852548
	M4-M5	PHS24	852549
	M6	PHS26	852550

Dimensions D95 to D96

External Accessories: IEC Rotary Handle and DIN Rail Plate



Rotary Handle

- Grey/Green or Yellow/Red
- IP 30

RHD	21	N	1
Description	Type	Device Category	Color
IEC Rotary Handle (Closed Coupled)	21: for M1	N: UL 489	1: Grey/Green
	22: for M2		2: Red/Yellow
	23: for M3		
	24: for M4		

Accessory Description	Type	Catalog Number	Part Number		
IEC Rotary Handle (Closed Coupled)	IP 30	Grey/Green	M1	RHD21N1	1100555
			M2	RHD22N1	1100556
			M3	RHD23N1	1100557
			M4	RHD24N1	1100558
	Red/Yellow	M1	RHD21N2	1100613	
		M2	RHD22N2	1100614	
		M3	RHD23N2	1100615	
		M4	RHD24N2	1100616	



Din Rail Plate

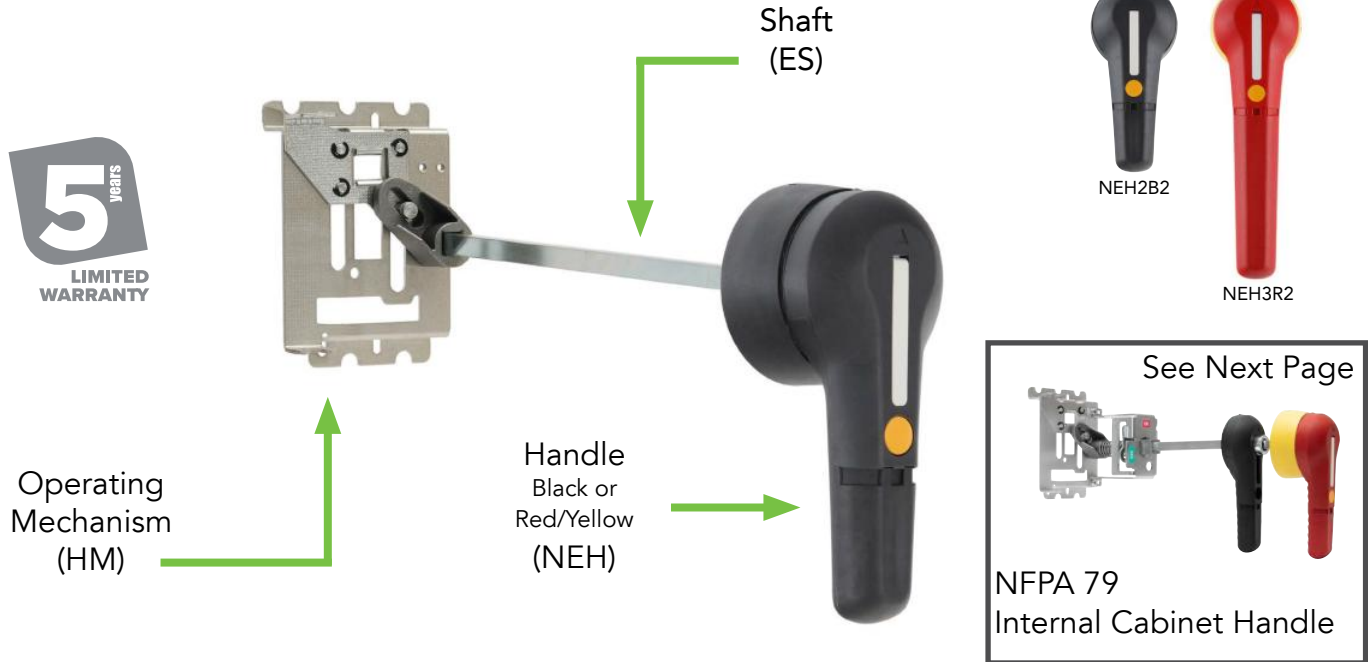
DRP	21	N
Description	Type	Area
DIN Rail Plate	21: for M1	
	22: for M2	

Accessory Description	Type	Catalog Number	Part Number
DIN Rail Plate	M1	DRP21N	1101164
	M2	DRP22N	1101165

Dimensions..... D97 to D98

External Accessories: Extended Rotary Handle

Shown: NEH2R2 handle with ES32A extended handle shaft and HM1A operating mechanism.



NEMA extended rotary handle mechanism selection consists of 3 components (sold separately): operating mechanism (HM), shaft (ES), and rotary handle (NEH).

- UL File Numbers E484125 and E355392

Selection Process

- Step 1.** Identify breaker frame size to select corresponding operating mechanism (HM/HMD/HOM).
- Step 2.** Select shaft (ES) based on the length needed and diameter required.
- Step 3.** Select handle (NEH) with the matching shaft diameter based on desired color combination and UL rating.

Step 1

Operating Mechanism		
Select One		
Frame Size	Use Shaft Diameter	Catalog Number
M1	10mm ²	HM1A
M1 2-Pole	10mm ²	HMD1A
M2	10mm ²	HM2A
M2 2-Pole	10mm ²	HMD2A
M3	12mm ²	HM3B
M4 / M5	12mm ²	HM4B
M6	12mm ²	HOM6B

+

Step 2

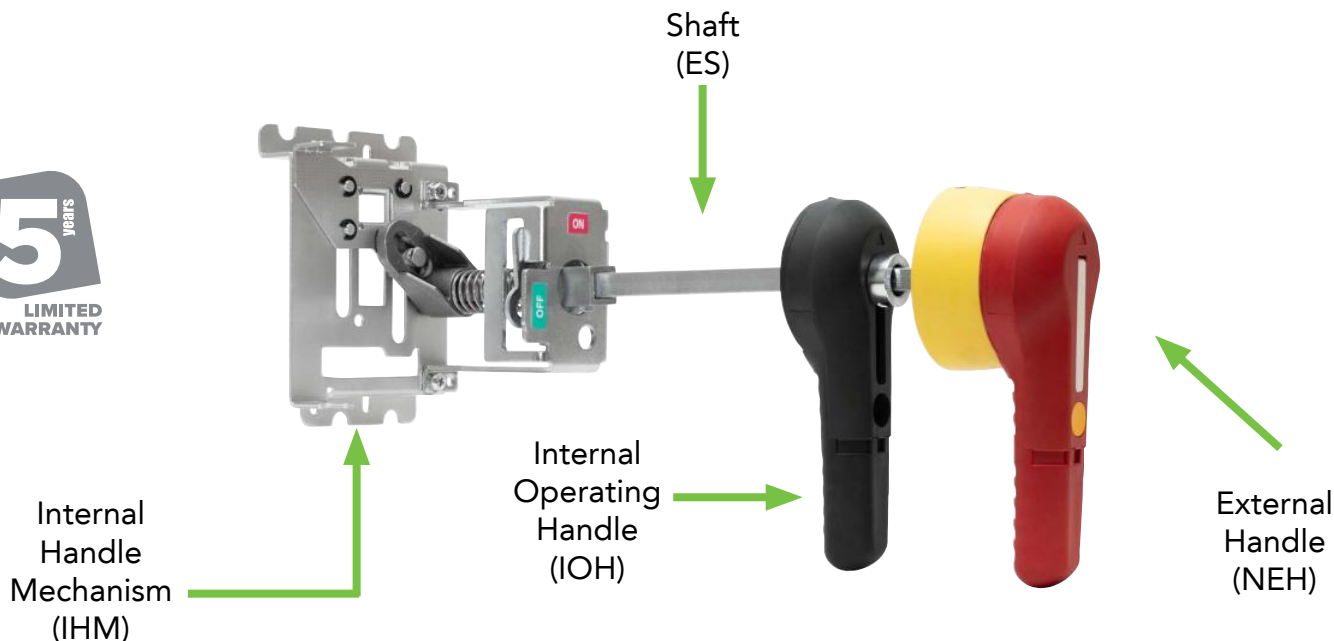
Shaft		
Select One		
Shaft Diameter	Length	Catalog Number
10mm ² M1 or M2	7.9 inch (200mm)	ES20A
	12.6 inch (320mm)	ES32A
	19.7 inch (500mm)	ES50A
12mm ² M3, M4, M5 or M6	7.9 inch (200mm)	ES20B
	12.6 inch (320mm)	ES32B
	19.7 inch (500mm)	ES50B

+

Step 3

4/4X Handle			
Select One			
Frame Size	Use Shaft Diameter	Color	Catalog Number
M1 or M2	10mm ²	Black	NEH2B2
		Red / Yellow	NEH2R2
M3, M4, M5 or M6	12mm ²	Black	NEH3B2
		Red / Yellow	NEH3R2

External Accessories: NFPA 79 Internal Cabinet Handle



• UL File Numbers E484125 and E355392

Selection Process

- Step 1.** Identify breaker frame size to select corresponding internal handle mechanism (IHM).
- Step 2.** Select shaft (ES) based on the length needed and diameter required.
- Step 3.** Select the internal operating handle (IOH) based on the breaker frame size.
- Step 4.** Select handle (NEH) with the matching shaft diameter based on desired color combination and UL rating.

Step 1

Step 2

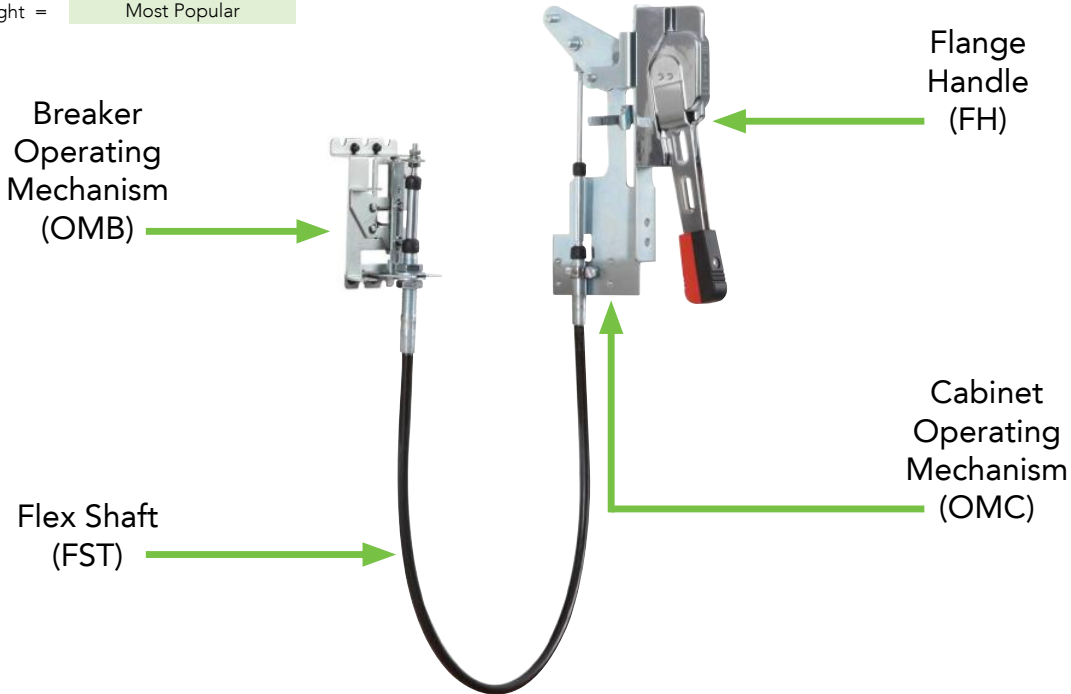
Step 3

Step 4

Internal Handle Mechanism			Shaft			Internal Operating Handle			4/4X Handle			
Select One			Select One			Select One			Select One			
Frame Size	Use Shaft Diameter	Catalog Number	Shaft Diameter	Length	Catalog Number	Frame Size	Use Shaft Diameter	Catalog Number	Frame Size	Use Shaft Diameter	Color	Catalog Number
M1	10mm ²	IHM1	10mm ² M1 or M2	7.9 inch (200mm)	ES20A	M1 or M2	10mm ²	IOH2	M1 or M2	10mm ²	Black	NEH2B2
M2	10mm ²	IHM2		12.6 inch (320mm)	ES32A						Red / Yellow	NEH2R2
M3	12mm ²	IHM3		19.7 inch (500mm)	ES50A	M3, M4 or M5	12mm ²	IOH3	M3, M4 or M5	12mm ²	Black	NEH3B2
M4 or M5	12mm ²	IHM4	7.9 inch (200mm)	ES20B	Red / Yellow						NEH3R2	
			12.6 inch (320mm)	ES32B								
			19.7 inch (500mm)	ES50B								

External Accessories: M1-M6 Flange Handle Mechanism

Green Highlight = Most Popular



M1-M5 Flange handle mechanism selection is separated into 4 components (sold separately): flange handle (FH), flex shaft (FST), cabinet operating mechanism (OMC) and breaker operating mechanism (OMB). NOARK UL MCCB frame size: M1 (15-150A), M2 (175-250A), M3 (300-400A), M4 (500-600A), M5 (700-800A), and M6 (800-1200A).

Selection Process

- UL File Numbers E355392, E484125

- Step 1.** Select desired flange handle.
- Step 2.** Select cabinet operating mechanism.
- Step 3.** Select breaker operating mechanism based on frame size.
- Step 4.** Select flex shaft* based on enclosure requirements.

Step 1

Step 2

Step 3

Step 4

Flange Handle			+	Cabinet Operating Mechanism		+	Breaker Operating Mechanism		+	Flex Shaft*		
Select One			Select One		Select One		Select One			Select One		
Frame Size	Handle Type / Length	Catalog Number	Frame Size	Catalog Number	Frame Size	Catalog Number	Frame Size	Length	Catalog Number	Frame Size	Length	Catalog Number
M1 / M2 / M3 / M4 / M5 / M6	Compact fixed length (9.57 in) UL 4, 4X Rated	FH4XC	M1 / M2 / M3 / M4 / M5 / M6	OMC	M1	OMB21	M1 / M2 / M3 / M4 / M5	3 feet	FST3	M6	4 feet	FSB4
	Adjustable length (11.81 - 13.62 in) UL 4, 4X Rated	FH4XD			M2	OMB22		4 feet	FST4		5 feet	FSB5
			M3	OMB23	5 feet	FST5	6 feet	FSB6				
			M4 / M5	OMB24	6 feet	FST6	7 feet	FSB7				
			M6	OMB26								

* When selecting the length of shaft, ensure minimum bending radius of 6 inches is maintained to operate properly. Contact NOARK if additional lengths are needed.

Connection Hardware: Terminal Lugs



1-Hole

- Terminal lugs included with molded case circuit breakers standard. Listed individually for replacement purposes only.
- Sold Individually
Example: Line / Load Terminal Lugs for 3-pole breaker requires six
- UL File Number E349009

Accessory Description	Frame Size	Configuration	Specifications	Catalog Number
Terminal Lugs	M1 (150A)	1-Hole Standard	#14 AWG~3/0 AWG 1 CU wire #12 AWG~3/0 AWG 1 AL wire	LTC21NAA
	M2 (250A)	1-Hole Standard	#3 AWG~300kcmil 1 CU/AL wire	LTC22NAA
	M3 (400A)	1-Hole Standard	#4/0 AWG~750 kcmil 1 CU/AL wire	LTC23NAA
		2-Hole** Optional	#3 AWG~250 kcmil 2 CU/AL wire	LTC23NBA
	M4 (600A)	2-Hole Standard	#2/0 AWG~500 kcmil 2 CU/AL wire	LTC24NBA
	M5 (800A)	2-Hole (700A) Standard	75°C Al/Cu Wire (2) 250kcmil-600kcmil	LTC25NBA
		3-Hole (800A) Standard	75°C Al/Cu Wire (3) 250kcmil-500kcmil	LTC25NCA
	M6 (1200A)	3- Hole (800-1000A) Standard	75°C Al/Cu Wire (3) 3/0 AWG*-750kcmil	LTC26NCA
4-Hole (1200A) Standard		75°C Al/Cu Wire (4) 3/0 AWG*-500kcmil	LTC26NDA	

NOTE: Terminals are rated 90° when a 100% breaker is used.

** Requires external terminal cover part no. TC23NB ordered separately

* AWG = American Wire Gauge



Accessory Description	Type	Configuration	Catalog Number
Terminal Cover	M3	2-Holes	TC23NB

- Required for installation of M3 2-Hole terminal LTC23NB or LTC23NBA

Green Highlight = Most Popular

Connection Hardware: Multi-Wire Terminal Lug Kits



- Multi-wire terminal lug kits include: three terminal lugs and one terminal shield.
- Al/Cu rated
- UL File Number E355392

Green Highlight = Most Popular

Accessory Description	Frame Size	Configuration	Specifications	Catalog Number
Multi-wire Terminal Lug Kits	M1 (150A)	3-Hole	167 °F (75 °C) #12 AWG*~#3 AWG* Al wire or #14 AWG*~#3 AWG* Cu wire	LK21NCA
		6-Hole	167 °F (75 °C) #12 AWG*~#6 AWG* Al wire or #14 AWG*~#6 AWG* Cu	LK21NFA
	M2 (250A)	3-Hole	167 °F (75 °C) #8 AWG*~#2/0 AWG* Al/Cu wire	LK22NCA
		3-Hole (one large, two small)	167 °F (75 °C) #3 AWG*~#2/0 AWG*, (1) Al/Cu wire and # 12 AWG*~#1 AWG*, (2) Al/Cu wire	LK22NGA
		6-Hole	167 °F (75 °C) #12 AWG*~#6 AWG Al/Cu wire	LK22NFA
	M3 (400A)	2-Hole	167 °F (75 °C) #3AWG*~250 kcmil Al/Cu wire	LK23NBA
		3-Hole	167 °F (75 °C) #3AWG*~250 kcmil Al/Cu wire	LK23NCA
		5-Hole (two large, three small)	167 °F (75 °C) #12 AWG*~#1 AWG*, (3) Al/Cu wire and #3 AWG*~#3/0 AWG*, (2) Al/Cu wire	LK23NEA
		6-Hole	167 °F (75 °C) 12 AWG*~#3 AWG* Al/Cu wire	LK23NFA
	M4 (600A)	3- Hole	167 °F (75 °C) #2/0 AWG*~250 kcmil Al/Cu wire	LK24NCA
5-Hole		167 °F (75 °C) #12 AWG*~#1 AWG*, (3) Al/Cu wire and #3 AWG*~#3/0 AWG*, (2) Al/Cu wire	LK24NEA	

* AWG = American Wire Gauge

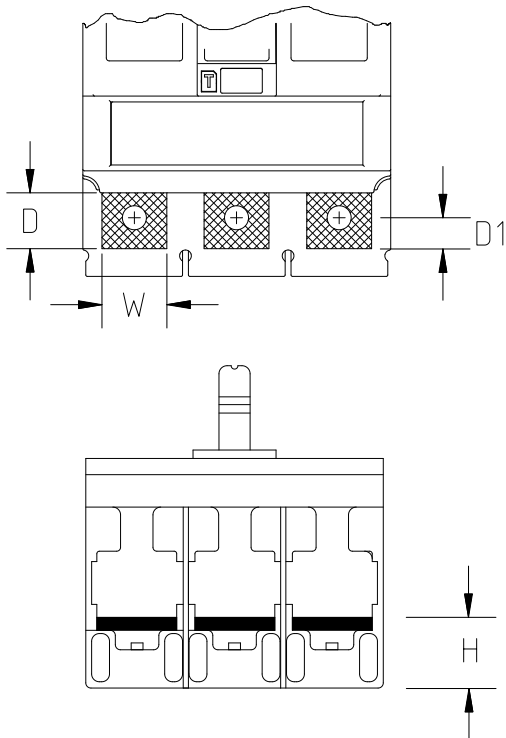
Additional products, accessories and higher ratings available. Contact your NOARK representative or visit na.noark-electric.com for additional information.

Lugs to Bus Bar Conversion Kits

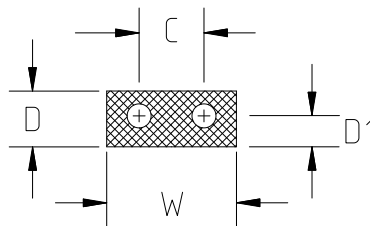


Accessory Description	Frame Size	Bus Pad Dimensions (mm)						Bolt Size	Bolt Torque	Catalog Number
		Up-Side			Down-Side					
		Width	Depth	Height	Width	Depth	Height			
Lug to Bus Bar Conversion Kits	M1	14.2	14.8	18.5	14.2	16.8	17.5	M6*16	6N.m/53.1 lb in	CKLB21
	M2	20	18.5	22	20	30.5	20	M8*20	8N.m/97.4 lb in	CKLB22
	M3	30	30	25.8	26	27	23.9	M10*30	25Nm/222lb-in	Not Required
	M4	50	33.3	31.5	50	33	31.5	M12*30	18Nm/156lb-in	Not Required
	M5	50	33.4	31.5	50	33	31.5	M12*30	18Nm/156lb-in	Not Required
	M6	50	30.3	30.6	50	27.7	30.6	M10*40	25Nm/222lb-in	Not Required

M1-M5 Breaker Bus Pad Dimensions



M6 Breaker Bus Pad Dimensions



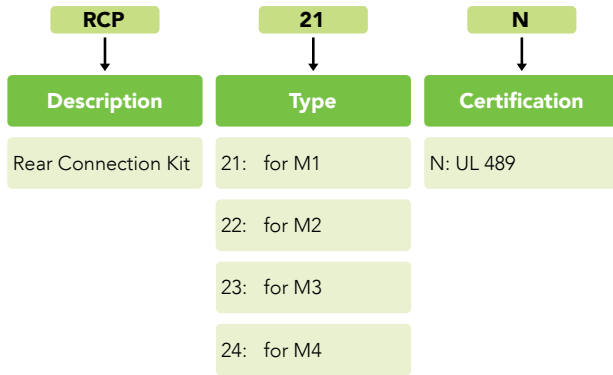
CKLB Conversion Kit



Connection Hardware: Rear Connection Kit and Terminal Cover



Accessory Description	Type	Catalog Number	Part Number
Rear Connection Kit	M1	RCP21N	1100587
	M2	RCP22N	1100588
	M3	RCP23N	1100589
	M4	RCP24N	1100590

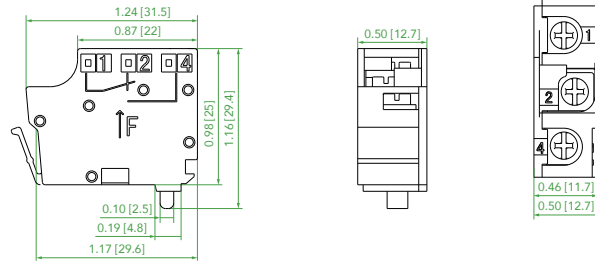


PN	SKU	Applicable Products	Description
1102599	TC21N	M1	Extended terminal cover for M1
1102600	TC22N	M2	Extended terminal cover for M2
1101186	TC23NB	M3	Extended terminal cover suitable for LTC23NBA
1102601	TC23N	M3	Extended terminal cover suitable for LTC23NCA, LTC23NEA, and LTC23NFA
1102602	TC24N	M4	Extended terminal cover for M4

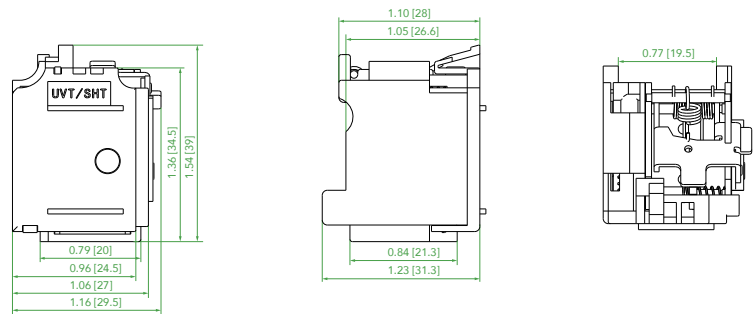
Dimensions D103 to D104

Internal Accessory Dimensions

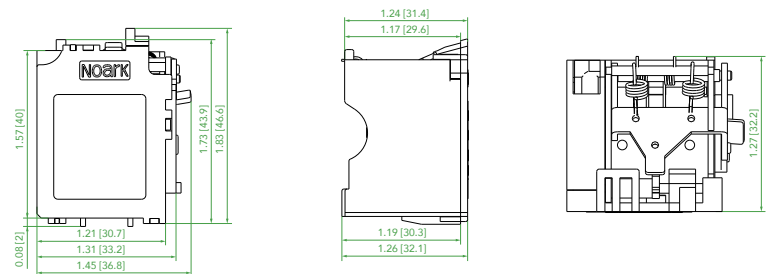
AL/AX21P
Alarm Switch / Auxiliary Contact
Unit: in [mm]



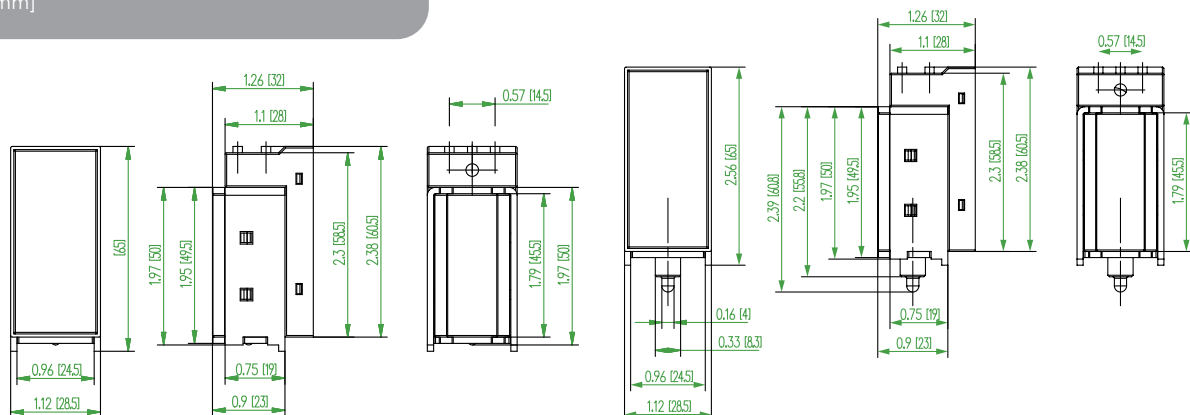
SHT21N / UVT21N
Shunt Trip / Under-Voltage Trip for M1
Unit: in [mm]



SHT22N-24N / UVT22N-24N
Shunt Trip / Under-Voltage Trip for M2-M4
Unit: in [mm]



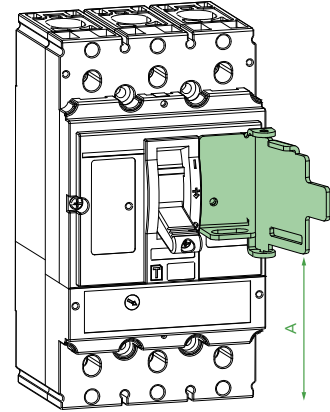
SHT26N / UVT26N
Shunt Trip / Under-Voltage Trip for M2-M4
Unit: in [mm]



External Accessory Dimensions

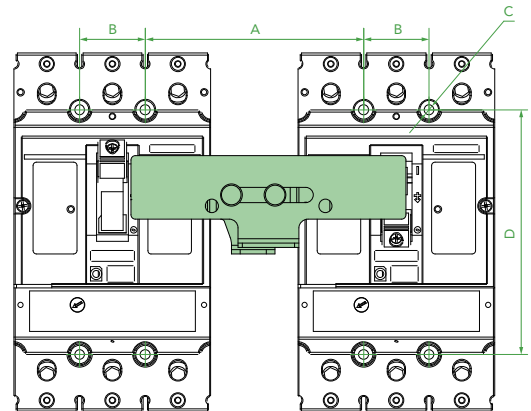
KLK
Handle Lock
Unit: in [mm]

Handle Lock	A
KLK21N	5.71 [145]
KLK22N	6.50 [165]
KLK23N	8.46 [215]
KLK24N	10.51 [267]
KLK26N	6.59 [167.5]

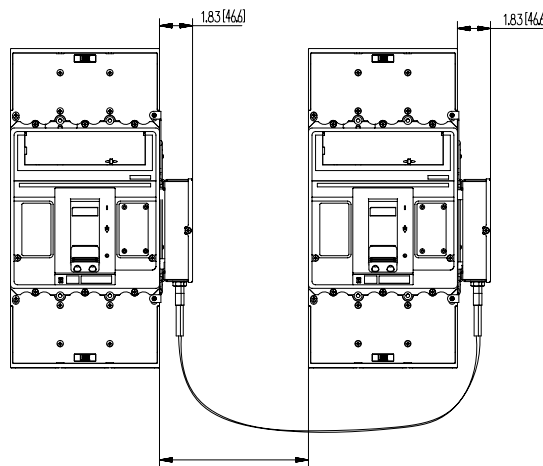


MIT
Mechanical Interlock
Unit: in [mm]

Mechanical Interlock	A	B	C	D
MIT21N	3.94 [100]	1.18 [30]	ø0.18 [ø4.5]	4.41 [112]
MIT22N	4.53 [115]	1.38 [35]	ø0.22 [ø5.5]	4.92 [125]
MIT23N	5.63 [143]	1.77 [45]	ø0.22 [ø5.5]	7.91 [201]
MIT24N	8.03 [204]	2.56 [65]	ø0.26 [ø6.5]	9.25 [235]



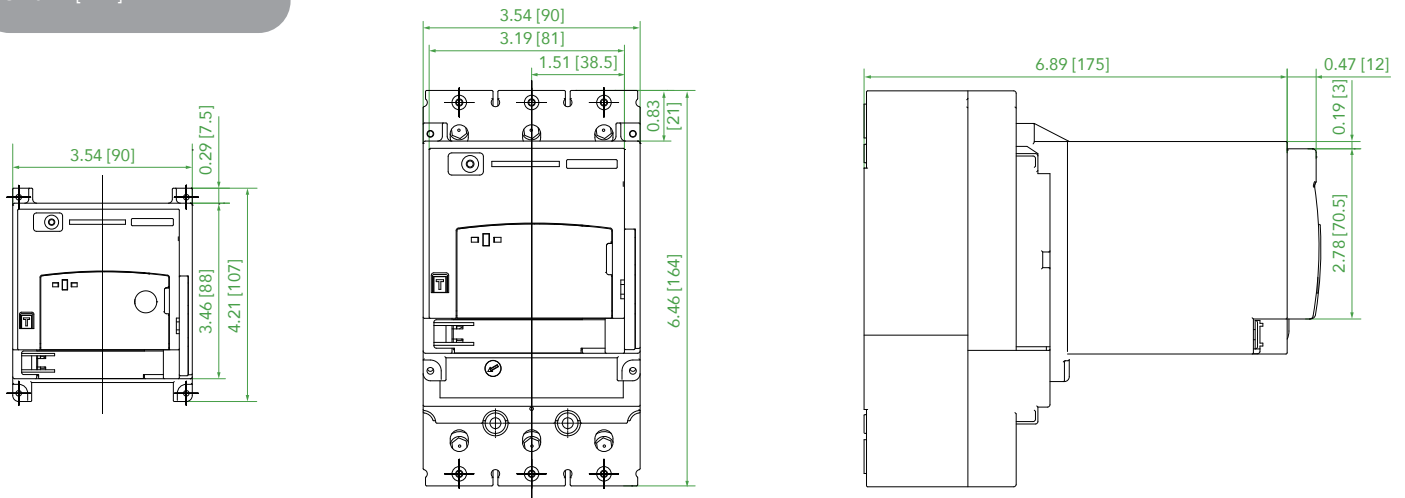
MIT26N
Mechanical Interlock
Unit: in [mm]



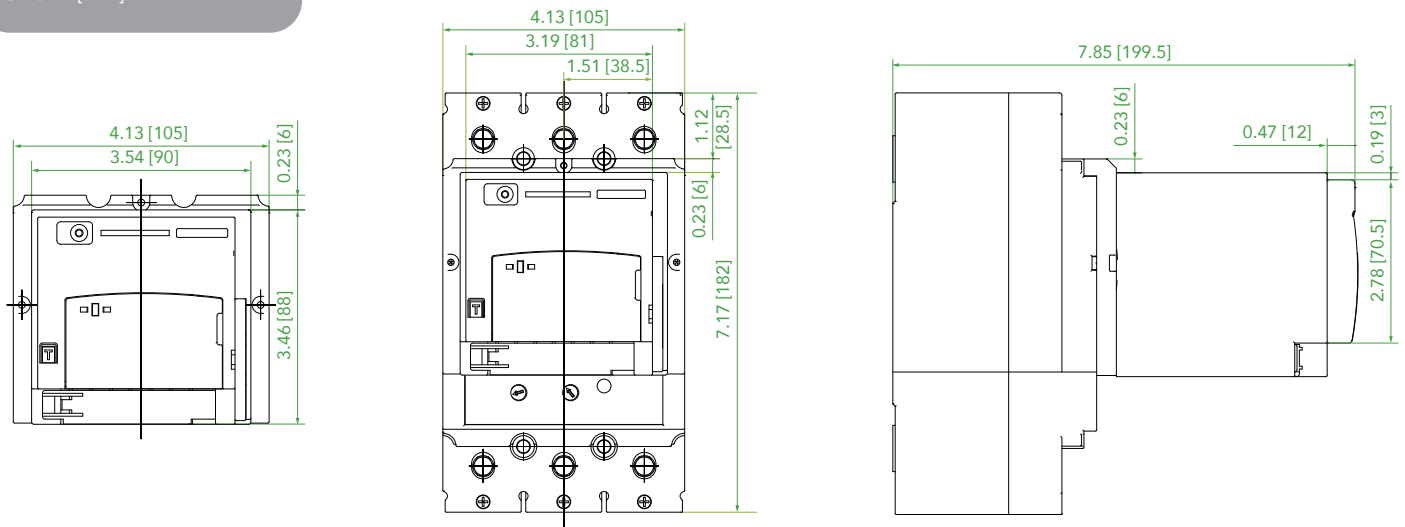
The minimum distance is 1.97[50]
The maximum distance is 59.06[1500]

External Accessory Dimensions

MOD21N
Motor Operator for M1
 Unit: in [mm]



MOD22N
Motor Operator for M2
 Unit: in [mm]



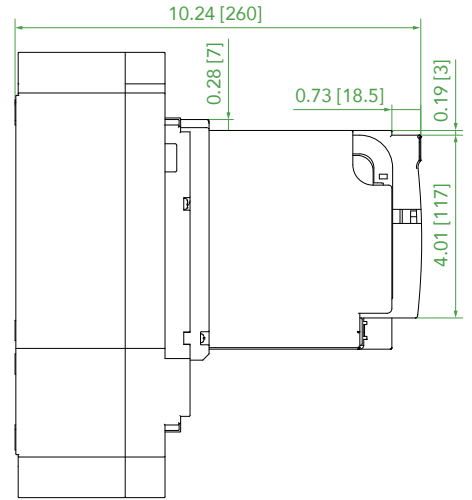
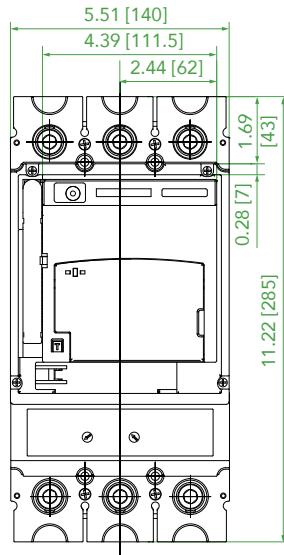
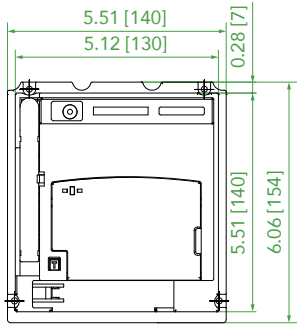
D

External Accessory Dimensions

MOD23N

Motor Operator for M3

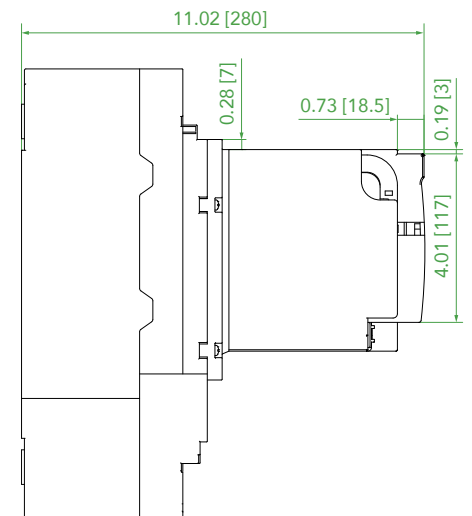
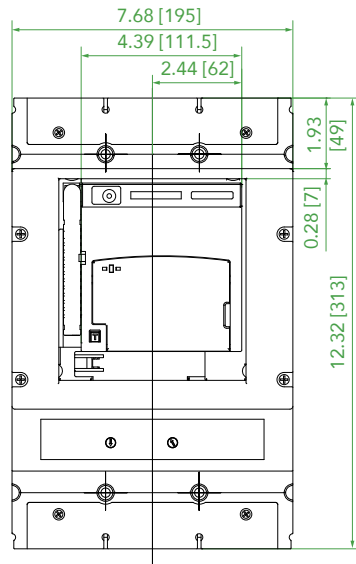
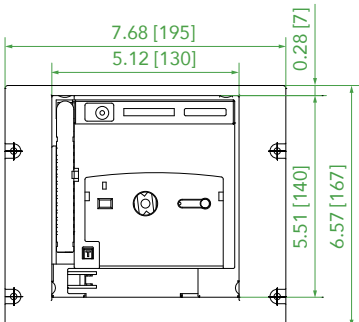
Unit: in [mm]



MOD24N

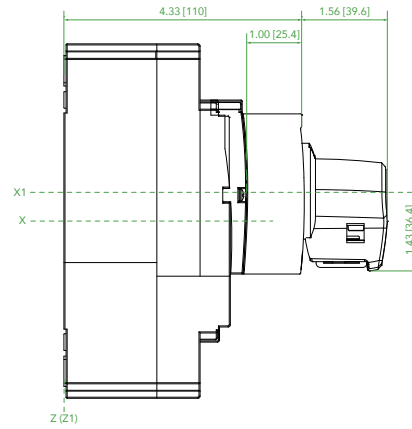
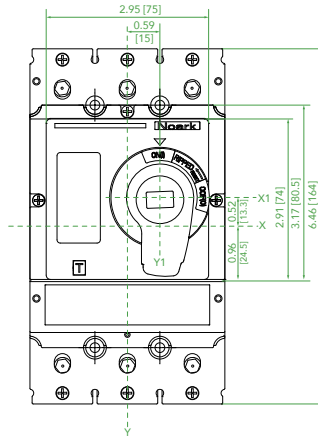
Motor Operator for M4-M5

Unit: in [mm]

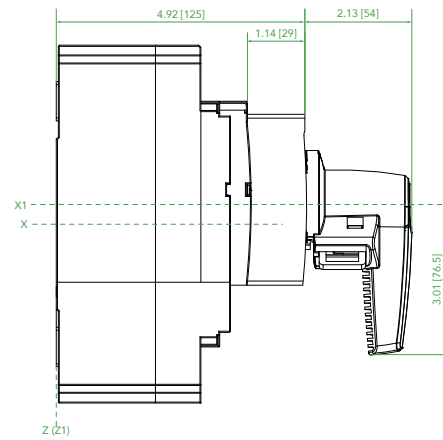
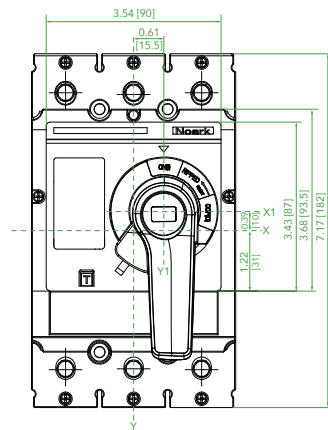


External Accessory Dimensions

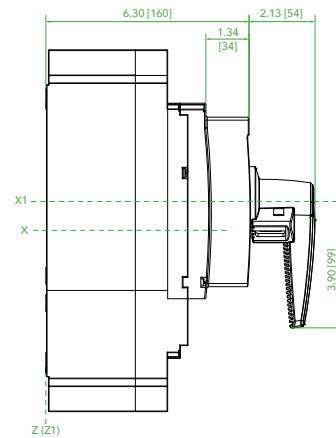
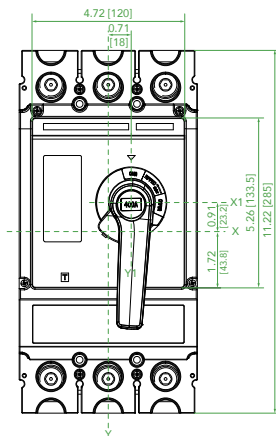
RHD21N
IEC Rotary Handle for M1
Unit: in [mm]



RHD22N
IEC Rotary Handle for M2
Unit: in [mm]



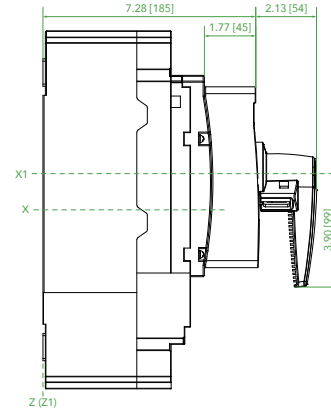
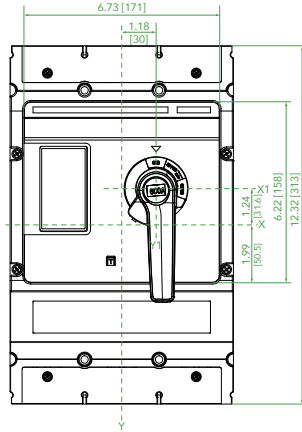
RHD23N
IEC Rotary Handle for M3
Unit: in [mm]



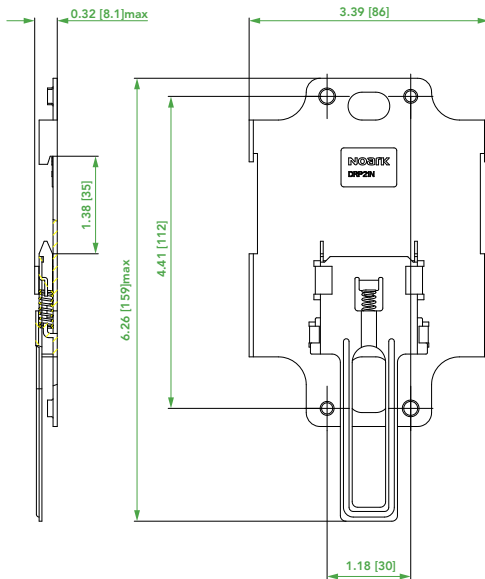
D

External Accessory Dimensions

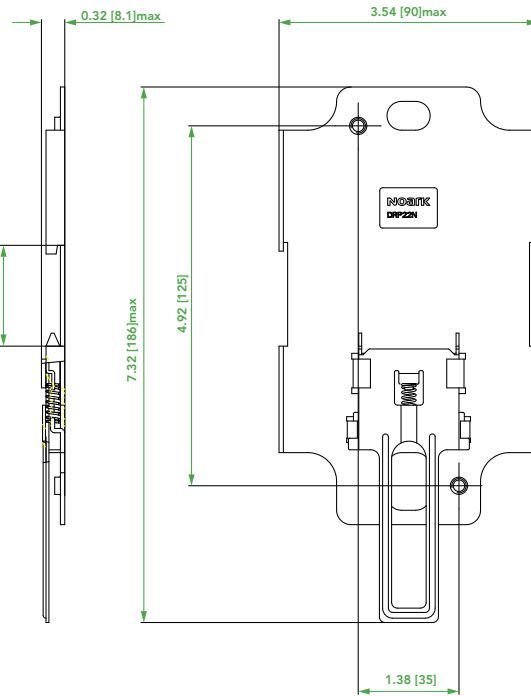
RHD24N
IEC Rotary Handle for M4
Unit: in [mm]



DRP21N
Din Rail Plate for M1
Unit: in [mm]



DRP22N
Din Rail Plate for M2
Unit: in [mm]

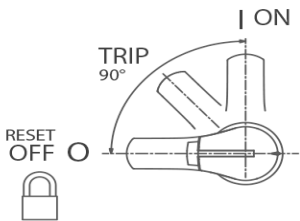


External Accessory Dimensions

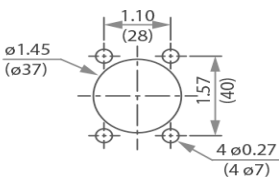
NEMA Extended Rotary Handle

Unit: in [mm]

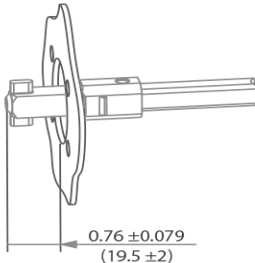
Padlocking Position



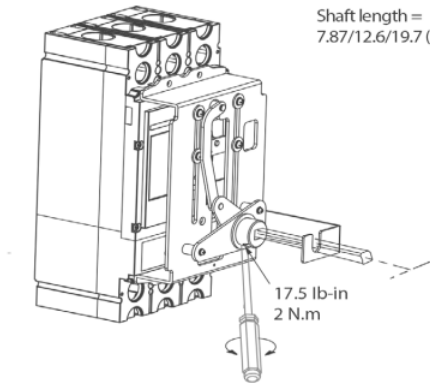
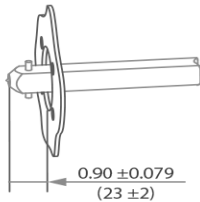
Door Drilling



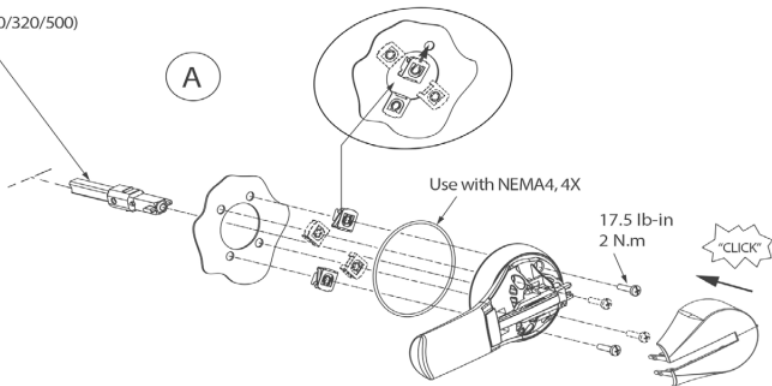
A



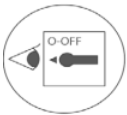
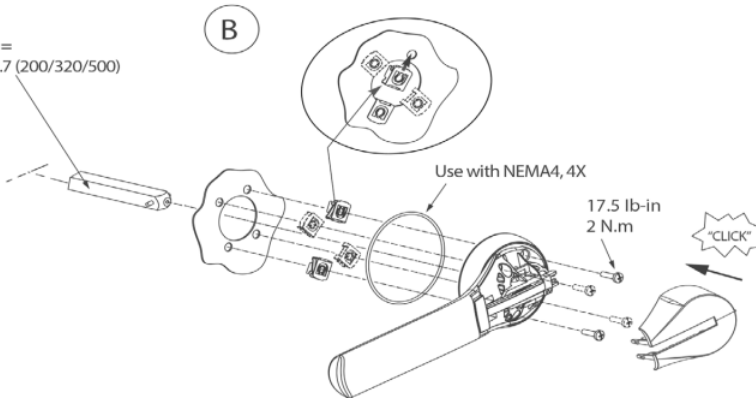
B



A



B



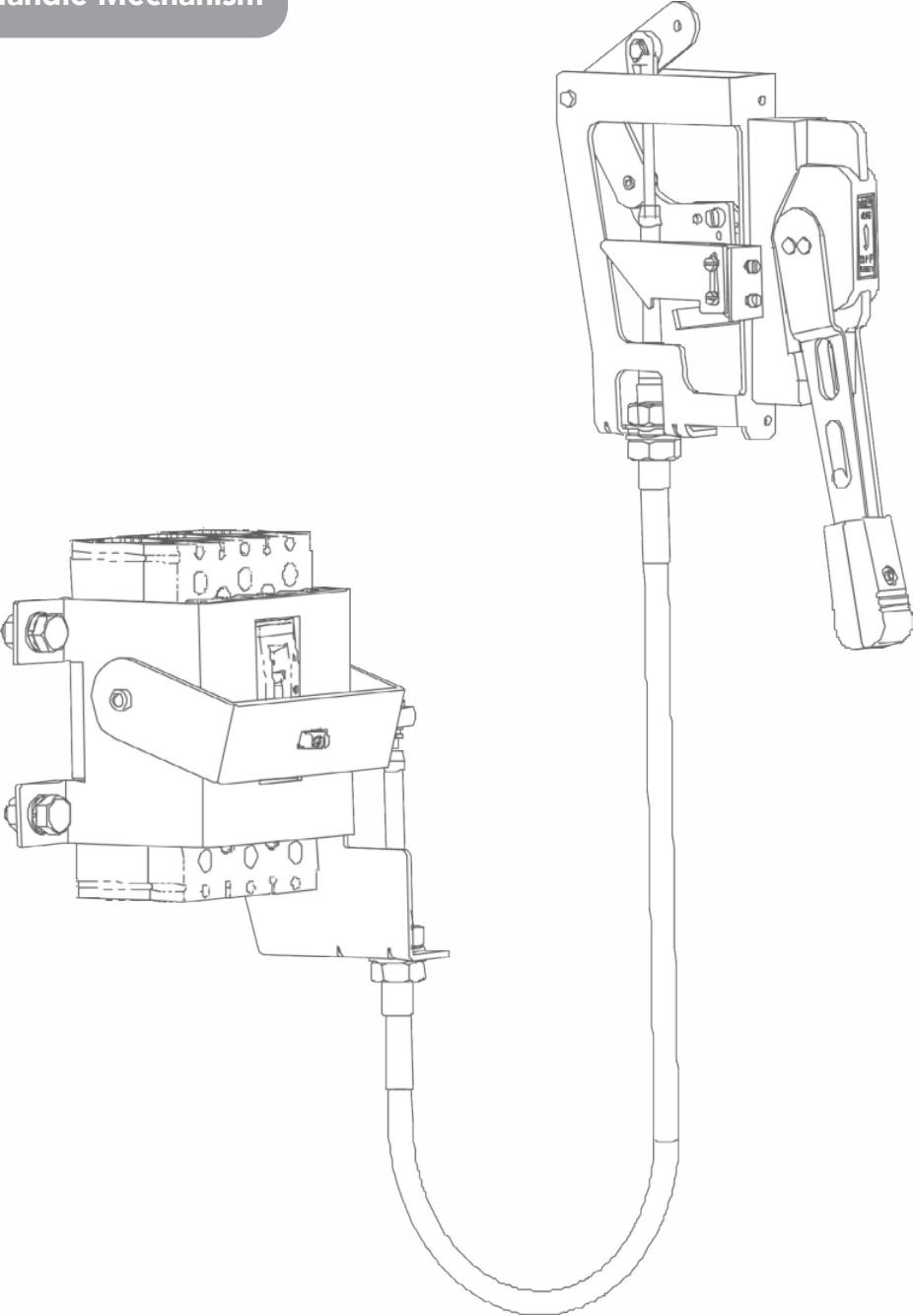
Shaft length = 7.87/12.6/19.7 (200/320/500)

- A External Operation: EH2 Type
- B External Operation: EH3 Type

D

External Accessory Dimensions

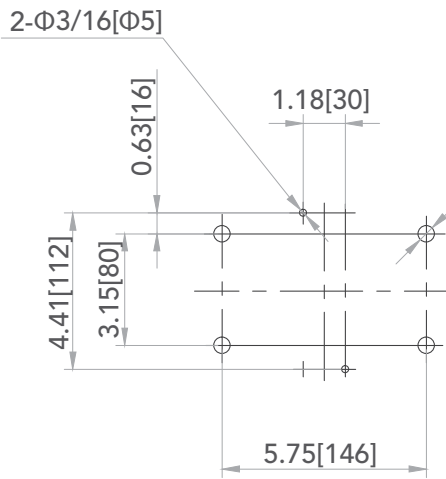
NEMA Flange Handle Mechanism



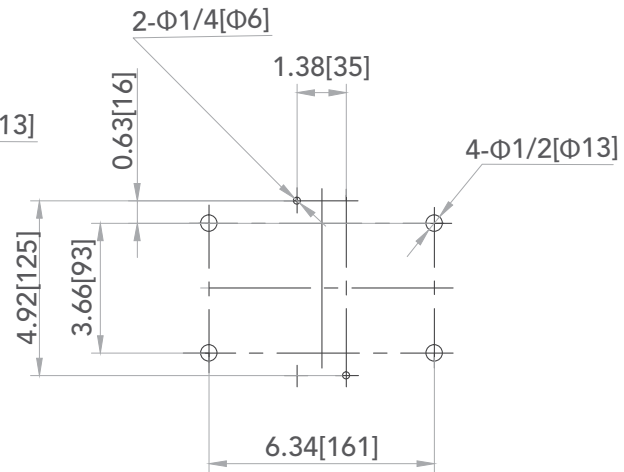
External Accessory Dimensions

NEMA Flange Handle Mechanism

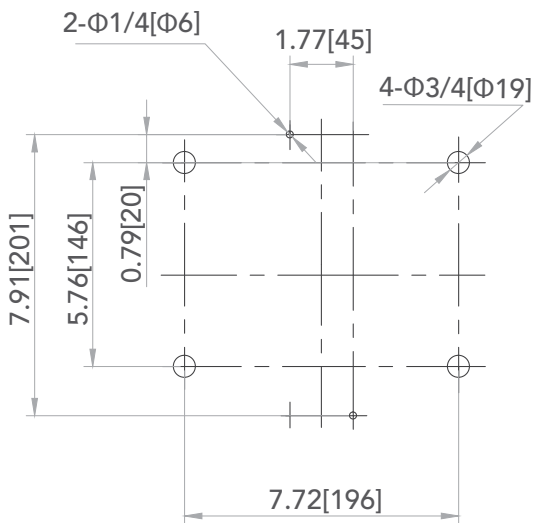
Drilling Plate for Operating Mechanism



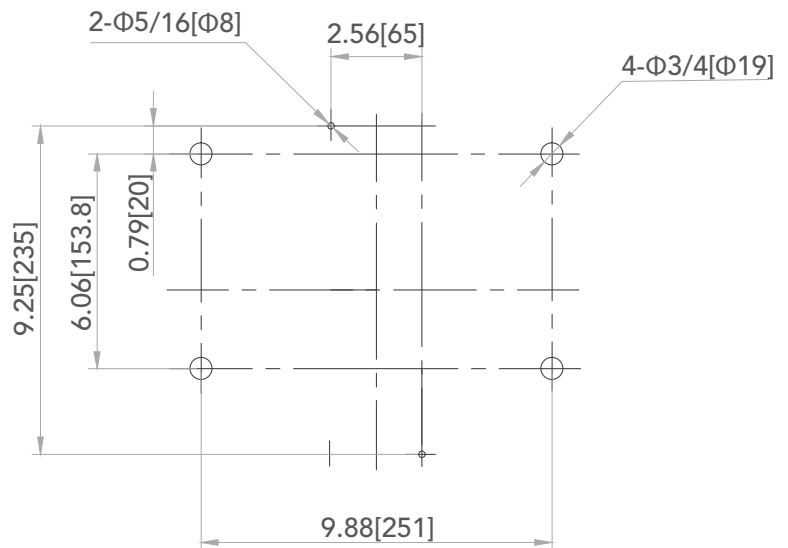
Drilling Plate for OM21



Drilling Plate for OM22



Drilling Plate for OM23



Drilling Plate for OM24

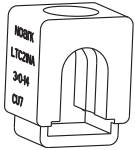
D

Connection Hardware Dimensions

LTC21-26N

Terminal Lug Connection

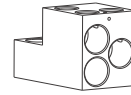
Unit: in [mm]



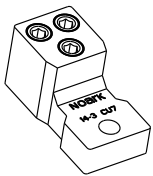
M1 1-Hole
167 °F (75 °C)
Cu wire only
14-3/0 AWG
2.5~95 mm²
89 in-lb (10 N.m)



M3 2-Holes
167 °F (75 °C)
Cu wire only
3 AWG - 250 kcmil
35~120 mm²
310 in-lb (35 N.m)



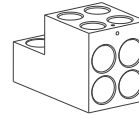
M6 3-Holes
75°C/90°C
Al/Cu Wire
(3)3/0AWG-750kcmil
310 lb-in/pulg/po
(3)95-300mm²
35N·m



M1 3-Holes
167 °F (75 °C)
Cu wire only
14-10 AWG
2.5~6 mm²
44.5 in-lb (5 N.m)
8-3 AWG
10~35 mm²
89 in-lb (10 N.m)



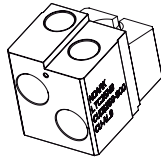
M4 2-Holes
167 °F (75 °C)
Cu wire only
(2) 3/0 AWG - 400 kcmil
(2) 95~185 mm²
310 in-lb (35 N.m)



M6 4-Holes
75°C/90°C
Al/Cu Wire
(4)3/0AWG-500kcmil
310 lb-in/pulg/po
(4)95-240mm²
35N·m



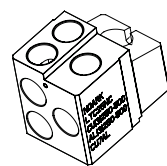
M2 1-Hole
167 °F (75 °C)
Cu wire only
8 AWG - 350 kcmil
10~185 mm²
230 in-lb (23 N.m)



M5 2-Holes
75/90°C
Al/Cu Wire Only
(2)250kcmil-600kcmil
398 lb-in/pulg/po
(2)120-300mm²
45N·m



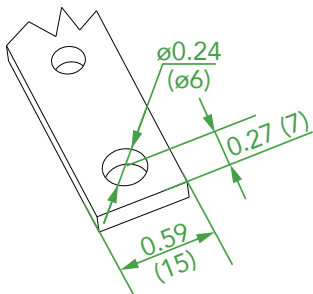
M3 1-Hole
167 °F (75 °C)
Cu wire only
3/0 AWG - 500 kcmil
95~240 mm²
310 in-lb (35 N.m)



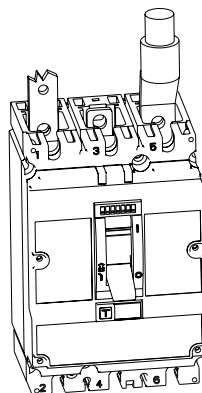
M5 3-Holes
75/90°C
Al/Cu Wire Only
(3)250kcmil-500kcmil
398 lb-in/pulg/po
(3)120-240mm²
45N·m

Bus Bar Connection

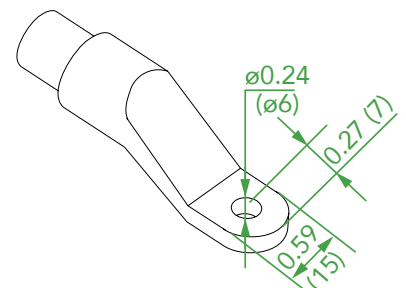
Unit: in [mm]



Bus Bar Connection
Copper Plate



Distance Between Poles
1.18 (30)



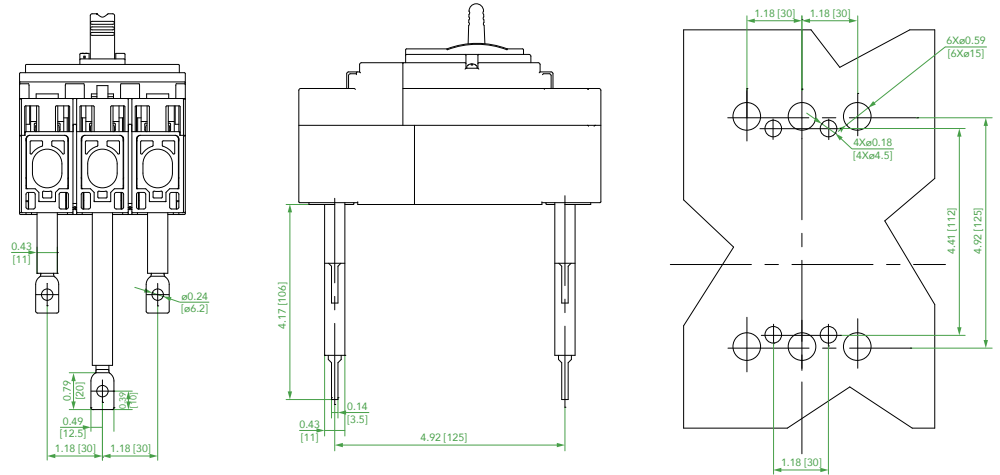
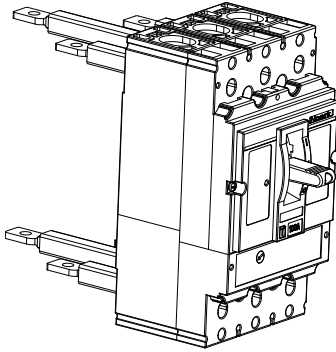
Bus Bar Connection
Copper Cable

Connection Hardware Dimensions

RCP21N

Rear Connection Kit for M1

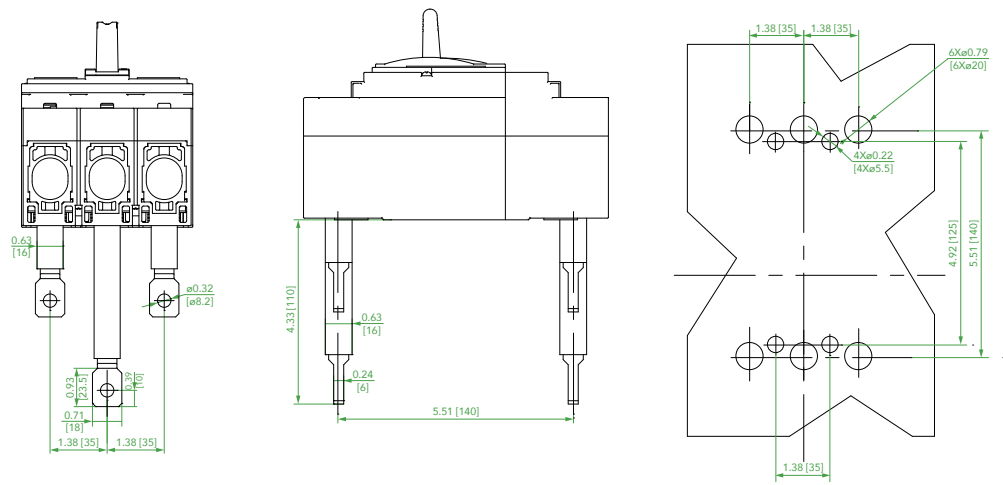
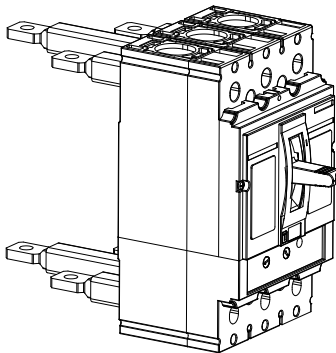
Unit: in [mm]



RCP22N

Rear Connection Kit for M2

Unit: in [mm]

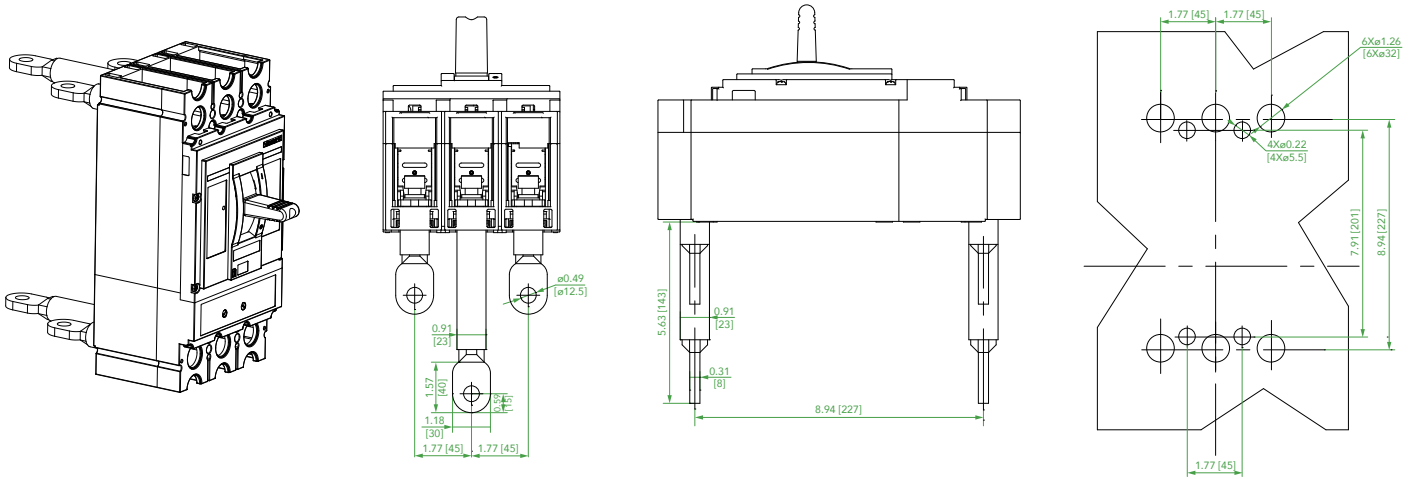


Connection Hardware Dimensions

RCP23N

Rear Connection Kit for M3

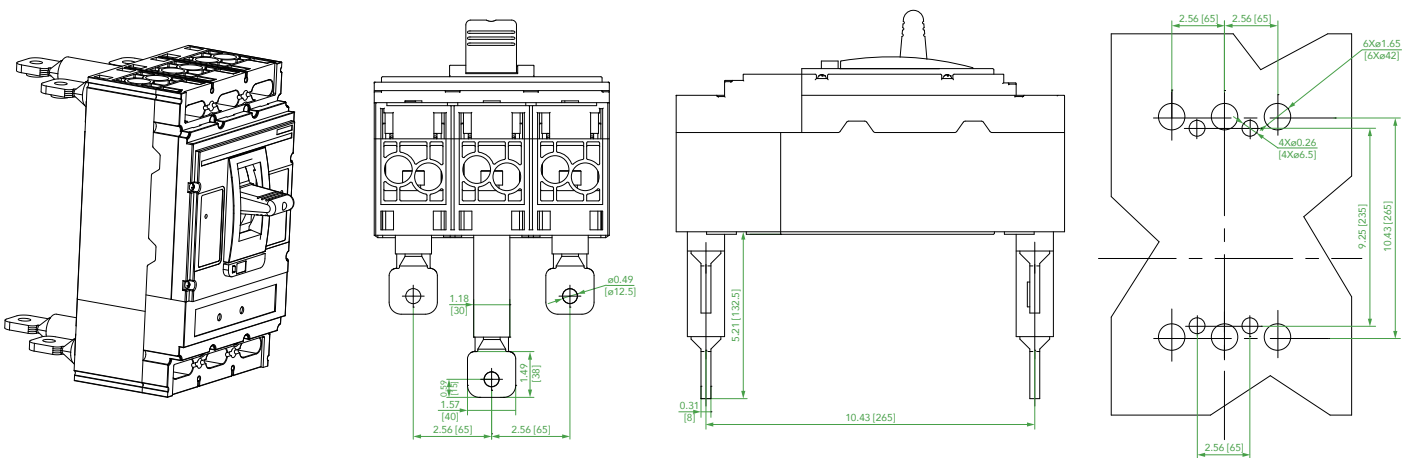
Unit: in [mm]



RCP24N

Rear Connection Kit for M4

Unit: in [mm]

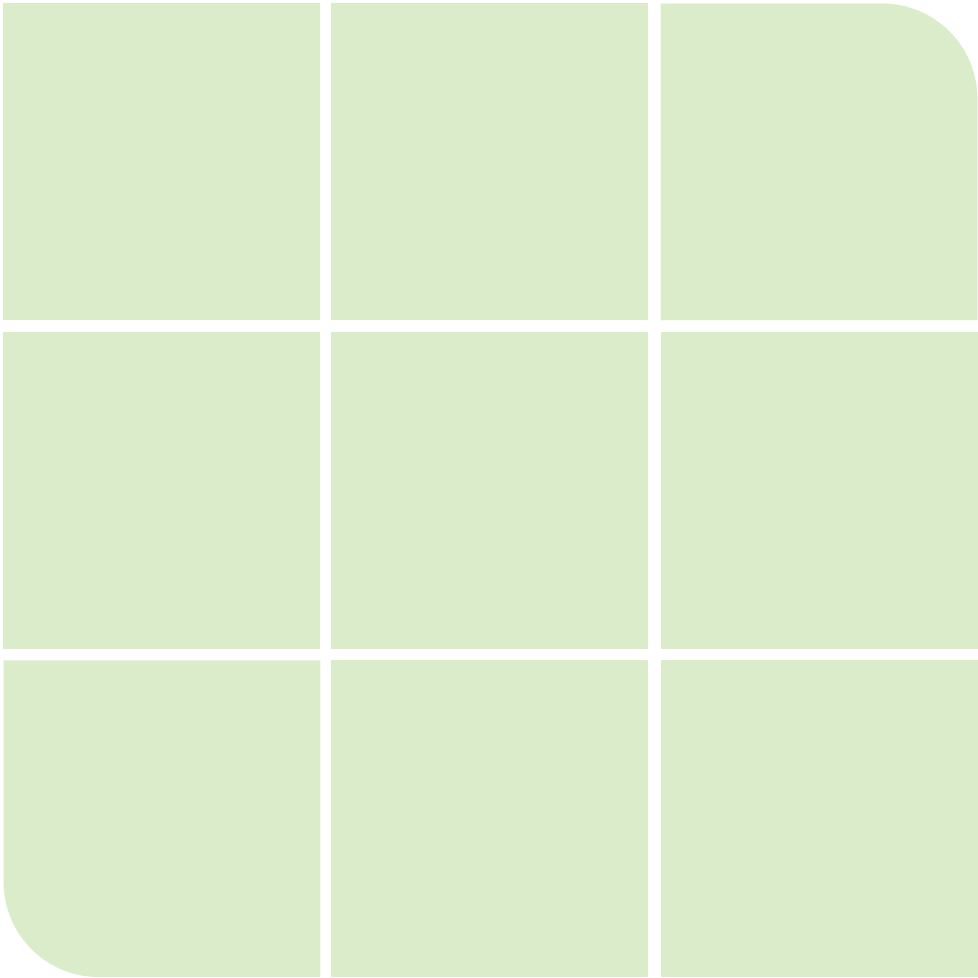


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