Thermal Circuit Breaker

0.5 Amp to 70 Amp

UL 1077, Ignition Protected

Cadmium - Free

Superior Interrupt Capabilities

Series 16

Raising the Bar

MP—Count on it

Mechanical Products Company

Series 16 Overview

Robust 0.5-70A Proven Design

The Series 16 is a proven reliable, single-pole thermal circuit breaker designed for your equipment protection needs in the 0.5 to 70 amp range. The MP Series 16 is suitable for diverse applications such as Medical Equipment, Uninterruptable Power Systems (UPS), Portable Generators, Welders, Industrial Cleaning Equipment, and Transportation.

Series 16 offers:

- AC/DC ratings from 0.5 to 70 Amps
- UL 1500 Ignition Protection
- UL, cUL, CSA, VDE, CCC
- RoHS compliant
- Choice of snap-in or thread mounting
- Multiple hardware and boot options
- Variety of termination options

Series 16 Specifications

Standard Amp Ratings
Series 16 thermal circuit breakers are available in current ratings of 0.5A, 0.75A, 1.0A, 1.5A, 2A, 2.5A, 3A, 3.5A, 4A, 4.5A, 5A, 6A, 7A, 7.5A, 8A, 9A, 10A, 12A, 14A, 15A, 18A, 20A, 25A, 30A, 35A, 40A, 45A, 50A, 55A, 60A, & 70A.

Interrupt/Voltage Ratings
1,000A @ 50VDC - up to 35A
3,000A @ 32VDC - 5 to 70A*
2,000A @ 120VAC - up to 35A
1,000A @ 250VAC - 40A and above

Minimum Ultimate Trip
The Series 16 offers a minimum ultimate trip of 100% of rated current at 25°C/77°F.

Maximum Ultimate Trip
Below 1A - 145%
Between 1A and 35A inclusive - 135%
At 40A and above - 140%
- of rated current at 25°C/77°F.

Overload Capacity
10X of rated current for 5.0 A - 70.0A and
6X of rated current for 0.5A - 4.5A.

Dielectric Strength
Series 16 has a dielectric strength that exceeds 1,500V per UL, CSA and VDE.

Ignition Proof
The Series 16 in ratings of 0.5 - 70A conforms to USCG Title 33, DFR, Section 183.410(a), per UL1500 standard for safety for ignition-protection test for marine products

Regulatory Approvals
UL/cUL recognition per UL 1077 (E66224), CSA per C22.2-235-04 (LR27156), VDE to IEC Std 60934 (40003670 & 40003682), and CCC. All are RoHS compliant.

*MP Certified

Overload Trip Time Data (in seconds)

Current Rating	200%	300%	400%	500%	600%	800%	1000%
0.5 - 4.5 A	10 - 32	5 - 12	3.5 - 6.3	3.0 - 4.7	2.3 - 4.2	-	-
5.0 - 7.5 A	4 - 15	1.4 - 5.2	.75 - 3.0	0.5 - 1.8	0.35 - 1.25	0.2 - 0.8	0.16 - 0.66
8 - 70A	5 - 30	1.5 - 7.5	0.8 - 4.5	0.5 - 2.8	0.4 - 1.9	0.2 - 1.1	0.15 - 0.78

Ambient Temperature Correction Factor

Current Rating	°F	77	104	122	140
	°C	25	40	50	60
0.5 - 4.5A		1.00	1.16	1.33	1.61
5 - 7.5A		1.00	1.32	1.87	Call for info
8 - 35A		1.00	1.15	1.31	1.55
40 - 70A		1.00	1.11	1.21	1.34

Voltage Drop

Ampere Range	Voltage Drop
0.50-0.75	3V
1.0 - 4.5	1V
5.0 - 9.0	0.25V
12.0 - 14.0	0.20V
15.0 - 35.0	0.15V
40.0 - 45.0	0.10V
60.0 - 70.0	0.06V

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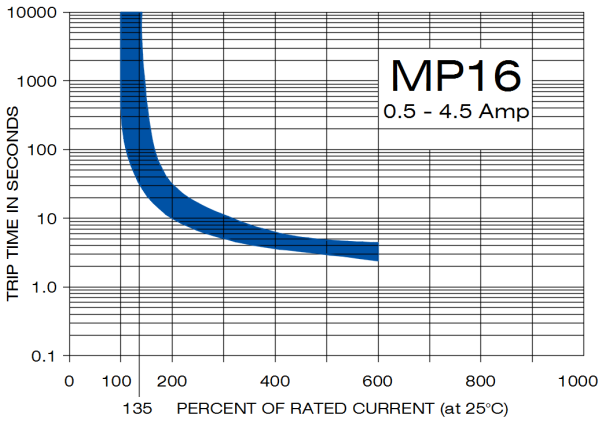
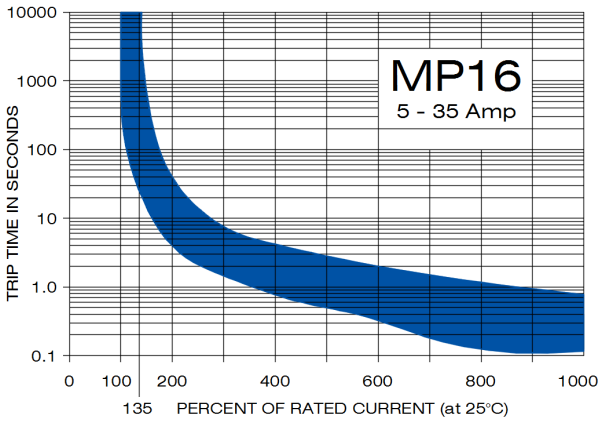
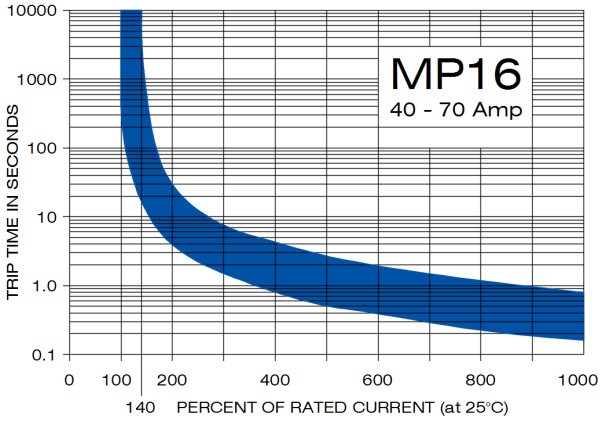
Series 16 Operating Characteristics





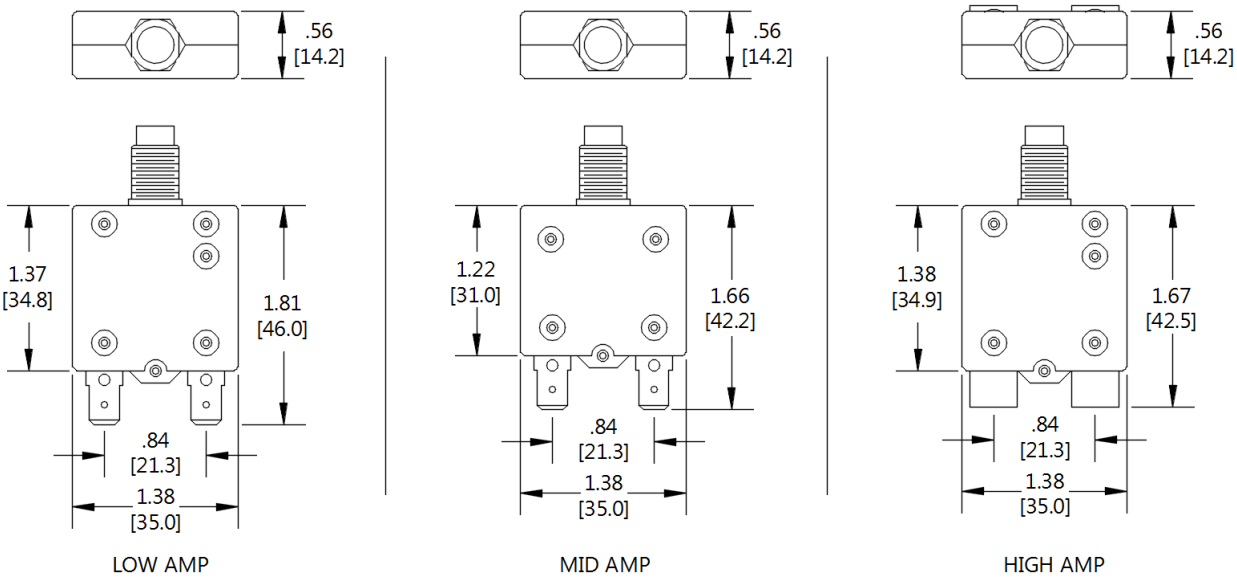


Trip curves presented here are based on typical samples and are for reference. Please consult the factory for more specific application information.

Trip curves are specified at 25°c / 77°F

Series 16 Physical Configuration

Case Sizes
(See Part Numbering Guide)



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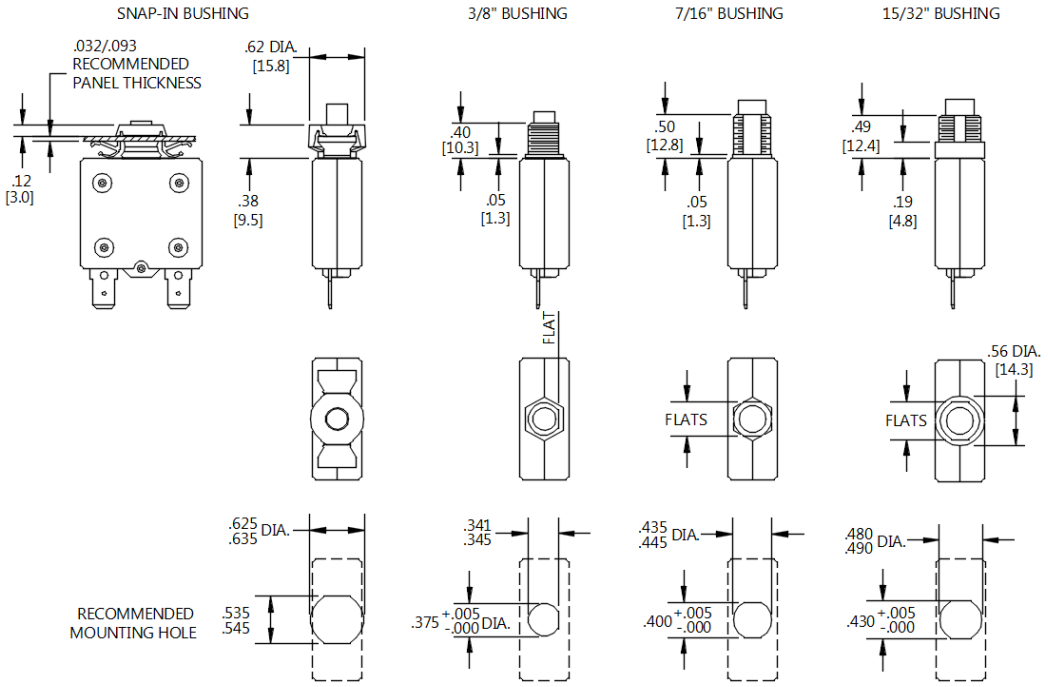
Series 16 Physical Configuration

Bushing Options

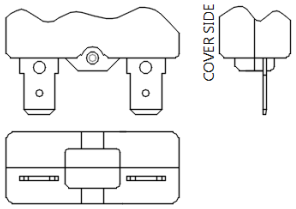
(See Part Numbering Guide)

All dimensions in inches. (mm)

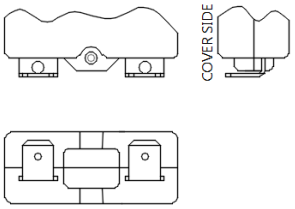


Terminal Options

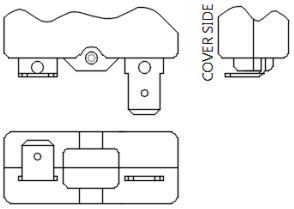
(See Part Numbering Guide)



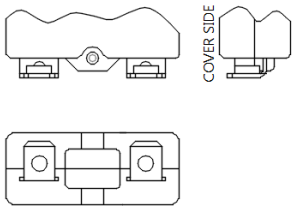
.250x.032 QC, straight



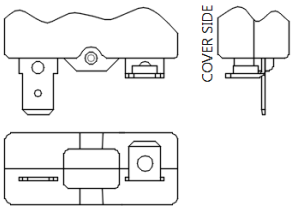
QC, bent



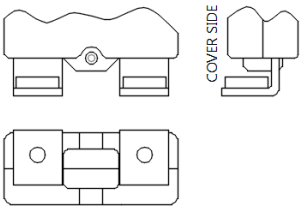
QC, bent & QC straight



#6-32 or #8-32
threaded, bent



.250x.32 QC straight,
#6-32 or #8-32, bent

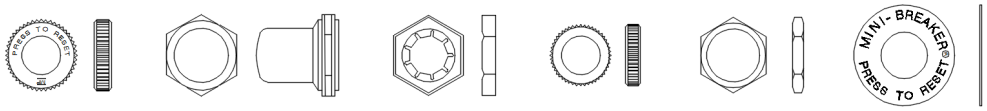


#10-32 threaded, bent
(1648 only)

- For VDE approved screw terminal devices, the use of ring or "U" shaped wire connectors is required

Hardware Options

(See Part Numbering Guide)



Oversized Knurlnut (Nylon) | Boot | Palnut | Knurlnut | Hexnut | Nameplate

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Low Amp 0.5-4.5

Series 16 Part Numbering Guide

P/N: 1 6 ☐ 1 - ☐☐☐ - ☐☐☐ - X X

XX = Unspecified

1601 Model Variation Codes

Model Code	Bushing Mounting	Button / Amp Stamp Color	Terminal Type
1601-001	7/16"-28 Diecast	White / None	0.250" quick connect
1601-015		White / Black	
1601-065			#6-32 threaded, bent 90
1601-073		White / Red	0.250" quick connect
1601-067	Snap-In Black	White / None	
1601-251[1]			

1681 Model Variation Codes

Model Code	Bushing Mounting	Button / Amp Stamp Color	Terminal Type
1681-001	3/8"-27 Nylon	White / None	0.250" quick connect
1681-015		White / Black	
1681-111		White / None	#6-32 threaded, bent 90
1681-254[1]			0.250" quick connect

All models are UL, CSA, & CCC, [1]includes IEC

Amp Rating

Code	Amps
050	0.5
075	0.75
100	1.0
200	2.0
250	2.5
300	3.0
350	3.5
400	4.0
450	4.5

7/16"-28 Hardware

Code	Hardware Configurations
00	No Hardware
06	Hexnut
07	Knurlnut/Palnut/Nameplate
11	Knurlnut (aluminum)
15	Knurlnut/Palnut
18	Hexnut/Hexnut/Nameplate
23	Hexnut/Hexnut
32	Knurlnut / Hexnut / Lockwasher
A0	Knurlnut/Hexnut (2) #6 Terminal Screws & Washers
A1	Knurlnut/Hexnut/Nameplate (2) #6 Terminal Screws & Washers
B4	Protective Rubber Boot/Palnut

3/8"-27 Hardware

Code	Hardware Configurations
00	No Hardware
44	Hexnut
50	Knurlnut/Palnut/Nameplate
51	Knurlnut/Palnut
54	Hexnut/Hexnut
75	Hexnut/Hexnut/Nameplate
79	Knurlnut (aluminum)
97	Knurlnut (black nylon) / Lockwasher
A4	Knurlnut/Hexnut (2) #6 Terminal Screws & Washers
A5	Knurlnut/Hexnut/Nameplate (2) #6 Terminal Screws & Washers
D3	Knurlnut (black nylon)
F4	(2) Knurlnuts / Lockwasher

Popular configurations are listed. If the variation you are looking for is not found, contact the factory for assistance. MP has over 2,000 variations and custom requirements is our specialty - electrical, mechanical, environmental and agency approval capabilities.

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Series 16 Part Numbering Guide

Mid Amp 5 to 35A

P/N: 1 6 ☐ 0 - ☐☐☐ - ☐☐☐ - X X

XX = Unspecified

1600 Model Variation Codes

Model Code	Bushing Mounting	Button / Amp Stamp Color	Terminal Type
1600-001	7/16"-28 Diecast	White / None	0.250" quick connect
1600-037		White / Black	
1600-055		White / None	#6-32 threaded, bent 90
1600-082		White / Black	
1600-180		White / None	0.250" quick connect, bent 90
1600-235			(1) #8-32 threaded, bent 90* (1) 0.250" quick connect
1600-007	15/32"-32 Diecast	White / None	0.250" quick connect
1600-107		White / Black	
1600-111			#6-32 threaded, bent 90*
1600-144	Snap-In Black	White / None	0.250" quick connect
1600-175			#8-32 threaded, bent 90
1600-254[1]			0.250" quick connect
1600-255[1]		White / Black	
1600-263[1]		White / None	0.250" quick connect, bent 90 away from case

1680 Model Variation Codes

Model Code	Bushing Mounting	Button / Amp Stamp Color	Terminal Type
1680-001	3/8"-27 Nylon	White / None	0.250" quick connect
1680-037		White / Black	
1680-055		White / None	#6-32 threaded, bent 90
1680-082		White / Black	
1680-217		Black / None**	0.250" quick connect
1680-219			#8-32 threaded, bent 90
1680-228		Black / None	0.250" quick connect
1680-252[1]		White / None	
1680-253[1]		White / Black	
1680-271			0.250" quick connect, bent 90

All models are UL, CSA, & CCC, [1]includes IEC

*Terminal Hardware Included
**With white trip indicator

Amp Rating

Code	Amps
050	5.0
060	6.0
070	7.0
075	7.5
080	8.0
090	9.0
100	10.0
120	12.0
140	14.0
150	15.0
180	18.0
200	20.0
250	25.0
300	30.0
350	35.0

7/16"-28 Hardware

Code	Hardware Configurations
00	No Hardware
06	Hexnut
07	Knurlnut/Palnut/Nameplate
11	Knurlnut (aluminum)
15	Knurlnut/Palnut
18	Hexnut/Hexnut/Nameplate
23	Hexnut/Hexnut
32	Knurlnut / Hexnut / Lockwasher
A1	Knurlnut/Hexnut/Nameplate (2) #6 Terminal Screws & Washers
A2	Knurlnut/Palnut (2) #6 Terminal Screws & Washers
B4	Protective Rubber Boot/Palnut

3/8"-27 Hardware

Code	Hardware Configurations
00	No Hardware
44	Hexnut
50	Knurlnut/Palnut/Nameplate
51	Knurlnut/Palnut
54	Hexnut/Hexnut
75	Hexnut/Hexnut/Nameplate
79	Knurlnut (aluminum)
97	Knurlnut (black nylon) / Lockwasher
A5	Knurlnut/Hexnut/Nameplate (2) #6 Terminal Screws & Washers
A9	Knurlnut / Lockwasher (2) #8 Terminal Screws & washers.
B8	Knurlnut (black nylon)/ Lockwasher (2) #8 Terminal Screws & Lockwashers
D3	Knurlnut (black nylon)
E2	Knurlnut/Palnut (2) #6 Terminal Screws & Washers
F4	(2) Knurlnuts / Lockwasher

Popular configurations are listed. If the variation you are looking for is not found, contact the factory for assistance. MP has over 2,000 variations and custom requirements is our specialty - electrical, mechanical, environmental and agency approval capabilities.

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High Amp 40 to 70

Series 16 Part Numbering Guide

P/N: 1 6 4 8 - [ ][ ][ ] - [ ][ ][ ] - X X

XX = Unspecified

1648 Model Variation Codes			
Model Code	**Bushing Mounting**	**Button / Amp Stamp Color**	**Terminal Type**
1648-025	3/8"-27 Metal	White / Black	#10-32 threaded, bent 90*
1648-006	7/16"-28 Diecast	White / None	
1648-009		White / Black	
1648-001	15/32"-32 Diecast		
1648-017	Snap-In Black	White / None	

All models are UL, CSA, & CCC

*Terminal Hardware Included

Amp Rating	
Code	**Amperage**
040	40.0
045	45.0
050	50.0
055	55.0
060	60.0
070	70.0

7/16"-28 Hardware	
Code	**Hardware Configurations**
00	No Hardware
06	Hexnut
07	Knurlnut/Palnut/Nameplate
11	Knurlnut (aluminum)
15	Knurlnut/Palnut
18	Hexnut/Hexnut/Nameplate
23	Hexnut/Hexnut
32	Knurlnut / Hexnut / Lockwasher
B4	Protective Rubber Boot/Palnut

3/8"-27 Hardware	
Code	**Hardware Configurations**
00	No Hardware
44	Hexnut
50	Knurlnut/Palnut/Nameplate
51	Knurlnut/Palnut
54	Hexnut/Hexnut
75	Hexnut/Hexnut/Nameplate
79	Knurlnut (aluminum)
97	Knurlnut (black nylon) / Lockwasher
D3	Knurlnut (black nylon)
F4	(2) Knurlnuts / Lockwasher

Popular configurations are listed. If the variation you are looking for is not found, contact the factory for assistance. MP has over 2,000 variations and custom requirements is our specialty - electrical, mechanical, environmental and agency approval capabilities.

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Push-to-Reset Circuit Breaker

Small Package

UL489 Protector

Cadmium - Free

High Capacity 5000AIC

Series 02

Raising the Bar

MP - Count on it

Mechanical Products Company

Series 02 Overview

MP Series 02 includes Models 252, 600, and 601 Push-to-Reset circuit breakers. A distinctive characteristic of this design is its double-contact break mechanism. This configuration allows some models in this family to withstand short circuit conditions as high as 5,000A and continue to function. Model 252 (push-to-reset) and Model 752 (Switchable) are the smallest devices available that are capable of withstanding a 5,000A short circuit.

Series 02 offers:

- AC/DC ratings from 5 to 30A
- UL, CSA, VDE, CCC
- ROHS Compliance - Cd Free
- Superior Interrupt Capacity
- High Capacity in a Small Package

Series 02 Specifications

Standard Amp Ratings
Model 252 is offered in ratings of 10A, 15A & 20A
Model 600 is offered in ratings of 5A*, 7A*, 10A, 15A, and 20A
Model 601 is offered in ratings of 30A

*Consult factory for amperage ratings 5-7A

Minimum Ultimate Trip
Series 02 has a minimum ultimate trip of 100% of rated current at 25°C/77°F

Voltage Ratings
Model 252 - 120VAC
Model 600 - 277VAC/32VDC
Model 601 - 277VAC

Interrupt Capacity (UL489 and UL1077)
Model 252
5,000A/120VAC per UL489
Model 600
5,000A/277VAC per UL1077
1,000A/120VAC per UL1077
Model 601
5,000A/277VAC per UL1077

Dielectric Strength
Series 02 models have a dielectric strength that exceeds 1,500V.

Inrush Capacity
Series 02 models will not trip at 35X rated current for 1/2 cycle (0.008 sec.)

Maximum Ultimate Trip
Series 02 has a maximum ultimate trip of 135% of rated current at 25°C/77°F

Regulatory Approvals
Model 252
UL - Recognized per UL489 (File #14942)
suitable for branch circuit protection
CSA -Certified per C22.2 No. 5 (File #LR13089)
VDE -Licensed to IEC STD 60934 (License #40011788)
CCC -CQC STD GB17701-2008 (Certificate #2005010307139109)
Model 600
UL -Recognized per UL1077 (File #E27727)
CSA -Certified per C22.2 No. 235 (File #LR27156)
VDE -Licensed to IEC STD 60934 (License #40011788)
CCC-CQC STD GB17701-2008 (Certificate #2005010307139109)
Model 601
UL - Recognized per UL1077 (File #E27727)
CSA -Certified per C22.2 No. 235 (File #LR27156)
CCC - CQC STD GB17701-2008 (Certificate #2005010307139109)

Ambient Temperature Correction Factor

Current Rating	°F	32	77	104	122	140
	°C	0	25	40	50	60
5 & 7A		0.84	1.00	1.15	1.3	1.53
10 to 30A		0.88	1.00	1.11	1.2	1.32

Factors are typical for amperages listed

Voltage Drop

Model	Ampere Range	Voltage Drop
252	10 & 20A	0.25V
600	5 & 7A	0.35V
	10 & 20A	0.25V
601	30A	0.15V

Overload Trip Time Data (in seconds)

Current Rating	200%	300%	400%	500%	600%	800%	1000%
5 - 7 A	5 - 20	1.7 - 6.4	0.9 - 3.1	0.5 - 1.9	0.35 - 1.4	0.2 - 0.76	0.17 - 0.53
10 - 30 A	5 - 30	1.8 - 10	0.9 - 5	0.5 - 3.3	0.38 - 2.3	0.2 - 1.3	0.15 - 0.9

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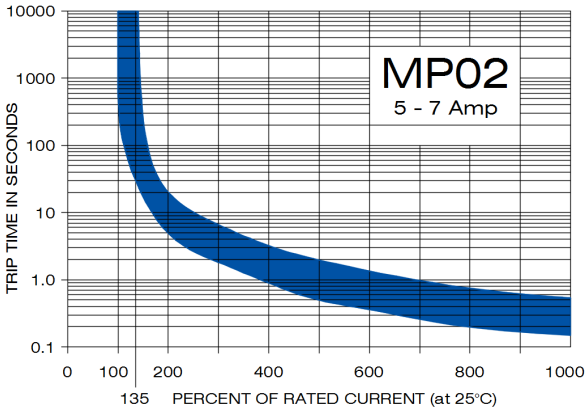
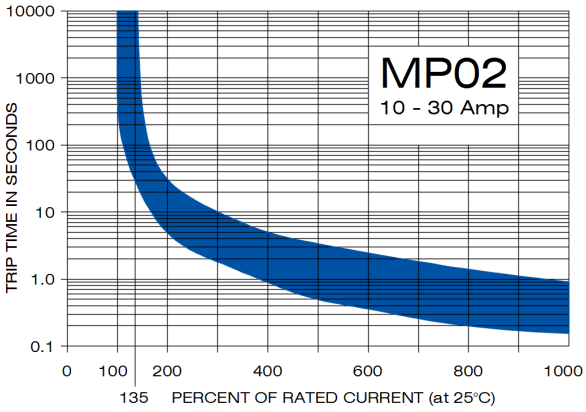
Series 02 Operating Characteristics



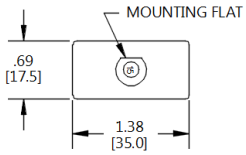


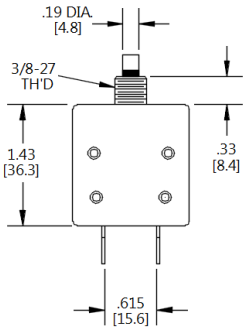
Trip curves presented are based on typical samples and are for reference.
Please consult the factory for more specific application information
Trip curves are specified at 25°C / 77°F

Series 02 Physical Configuration

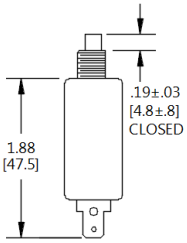
Case Sizes: Models 252 - 600

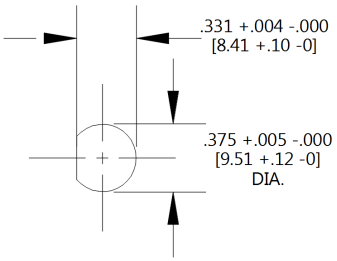
(See Part Numbering Guide)





Models 252 and 600 offer single-pole, push-to-reset circuit protection. Standard terminals are 0.250" quick-connect type. Standard through-hole mounting is threaded 3/8"-27 bushing with a D-shaped flat for anti-rotation requirements.





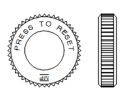
SUGGESTED PANEL
MOUNTING HOLE

If the actuator button is imprinted with the amp rating, the flat on the panel cutout should be to the left of the actuator in vertical orientation. If no amp stamp is specified, the flat can be oriented parallel.

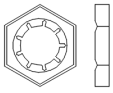
Mounting Hardware

(See Part Numbering Guide)

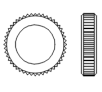
Note: All dimensions are in inches [mm]



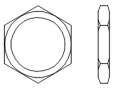
Knurlnut (Nylon)



Palnut



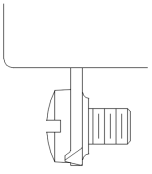
Knurlnut



Hexnut

Nameplate

Standard terminals on Model 601



Model 601, rated at 30A comes with standard #10-32 screw terminals

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Series 02 Part Numbering Guide

P/N: □□□ - □□□ - □□□ - □□□

Code	Model
252	UL489 recognized CSA certified 5,000A interupt @ 120VAC
600	UL1077 recognized CSA certified: 5,000A interrupt @ 277VAC 1,000A interrupt @ 32VDC
601	UL1077 recognized CSA certified: 5,000A interrupt @ 277VAC

Code	Variation
001	3/8"-27 dia. Threaded mounting bushing w/ anti-rotation flat. 0.250" quick-connect terminals. White Actuator with trip indicator.
041	3/8"-27 dia. Threaded mounting bushing w/ anti-rotation flat . 0.250" quick-connect terminals. Terminals bent outbound 90 degrees White Actuator with trip indicator.
401	3/8"-27 dia. Threaded mounting bushing w/ anti-rotation flat. 0.250" quick-connect terminals. White Actuator with trip indicator. Black ampere rating marking on actuator.
001	3/8"-27 dia. Threaded mounting bushing w/ anti-rotation flat. 0.250" quick-connect terminals. White Actuator with trip indicator.
011	3/8"-27 dia. Threaded mounting bushing w/ anti-rotation flat. 0.250" quick-connect terminals. White actuator with trip indicator. ampere rating marking on actuator.
017	3/8"-27 dia. Threaded mounting bushing w/ anti-rotation flat. 0.250" quick-connect terminals. Terminals bent outbound 90 degrees. White actuator with trip indicator.
001	3/8"-27 dia. Threaded mounting bushing w/ anti-rotation flat. #10-32 UNF screw terminals. White Actuator with trip indicator.

Code	Amp Ratings
100	10.0A
150	15.0A
200	20.0A
050	5.0A*
070	7.0A*
100	10.0A
150	15.0A
200	20.0A
300	30.0A

Code	Hardware
050	Palnut / Knurlnut / Name Plate
051	Palnut / Knurlnut
054	Hexnut / Hexnut

*Consult factory for amperage ratings 5-7A

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Switchable Circuit Breaker

Small Package

UL489 Listed

Cadmium - Free

High Capacity 5000AIC

Series 07

Raising the Bar

MP - Count on it

Mechanical Products Company

Series 07 Overview

MP Series 07 includes Models 752, 762, and 772 Switchable circuit breakers. A distinctive characteristic of this design is its double-break contact mechanism. This configuration allows some models in this family to withstand short circuit conditions as high as 5,000A and continue to function. Model 752 (Switchable) and Model 252 (push-to-reset) are the smallest devices available that are capable of withstanding a 5,000A short circuit.

Series 07 offers:

- AC/DC ratings from 5 to 40A
- UL, CSA, VDE, CCC
- ROHS Compliance - Cd Free
- Superior Interrupt Capacity
- High Capacity in a Small Package

Series 07 Specifications

Standard Amp Ratings

Model 752 is offered in ratings of 15A & 20A

Model 762 is offered in ratings of 5A*, 7A*, 10A, 15A, and 20A

Model 772 is offered in ratings of 30A* and 40A*

*Consult factory for amperage ratings 5-7A & 30-40A

Minimum Ultimate Trip

Model 752, 762, 772 offer a minimum ultimate trip of 100% of rated current at 25°C / 77°F

Voltage Ratings

Model 752

120VAC per UL, CSA & CCC

277VAC / 48VDC per VDE

Model 762

120VAC (5-20A) per UL, CSA, CCC

277VAC (5-9A) per UL, CCC

277VAC / 48VDC (10-20A) per VDE

Model 772

277VAC per CCC

Interrupt Capacity (UL489 and UL1077)

Model 752

5,000A/120VAC per UL489

Model 762

5,000A/120VAC per UL1077

1,000A/120VAC per UL1077

Model 772

1,000A/120VAC per UL1077

Dielectric Strength

Series 07 Models have a dielectric strength rating of 1,500VAC.

Inrush Capacity

Series 07 models will not trip at 35X rated current for 1/2 cycle (0.008 sec.)

Maximum Ultimate Trip

Model 752, 762, and 772 have a maximum ultimate trip of 135% of rated current at 25°C/77°F.

Regulatory Approvals

Model 752

UL - Listed per UL489 (File #50952)

suitable for branch circuit protection

CSA -Certified per C22.2 No. 5 (File #2696722)

VDE -Licensed to IEC STD 60934 (License #40011788)

CCC - CQC STD GB17701-2008 (Certificate #2005010307139109)

Model 762

UL -Recognized per UL1077 (File #E27727)

CSA -Certified (File#1258916)

VDE -Licensed to IEC STD 60934 (License #40011788)

CCC - CQC STD GB17701-2008 (Certificate #2005010307139109)

Model 772

UL -Recognized per UL1077 (File #E27727)

CCC - CQC STD GB17701-2008 (Certificate #2005010307139109)

Ambient Temperature Correction Factor

Current Rating	°F	32	77	104	122	140
	°C	0	25	40	50	60
5 & 7A		0 .84	1.00	1.15	1.3	1.53
10 to 30A		0.88	1.00	1.11	1.2	1.32

Voltage Drop

Model	Ampere Range	Voltage Drop
752	15 & 20A	0.25V
762	5 & 7A	0.35V
	10A	0.25V
	15 & 20A	0.25V
772	30 & 40A	0.15V

Overload Trip Time Data (in seconds)

Factors are typical for amperages listed

Model	Current Rating	200%	300%	400%	500%	600%	800%	1000%
762	5 - 7 A	5 - 20	1.7 - 6.4	0.9 - 3.1	0.5 - 1.9	0.35 - 1.4	0.2 - 0.76	0.17 - 0.53
752 / 762 / 772	10 - 40 A	5 - 30	1.8 - 10	0.9 - 5	0.5 - 3.3	0.38 - 2.3	0.2 - 1.3	0.15 - 0.9

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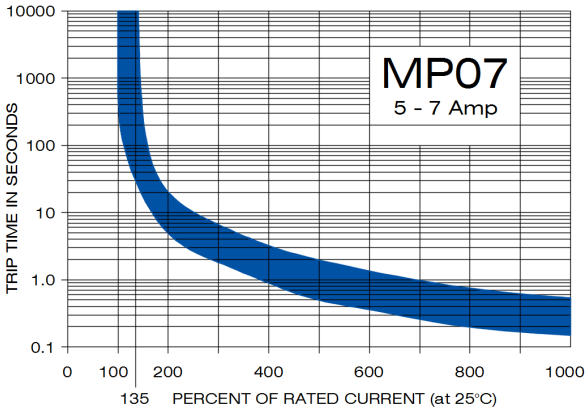
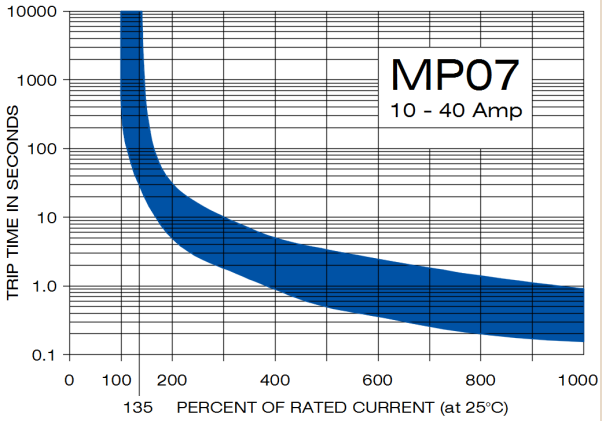
Series 07 Operating Characteristics





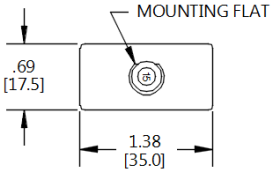
Trip curves presented are based on typical samples and are for reference.
Please consult the factory for more specific application information
Trip curves are specified at 25°C / 77°F

Series 07 Physical Configuration

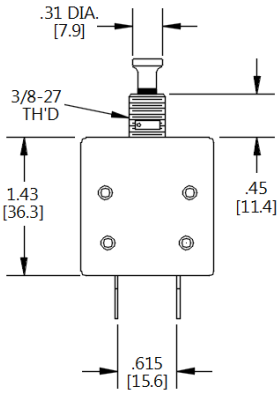
Case Sizes: Models 752 - 762

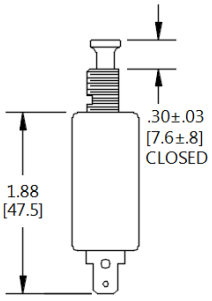
(See Part Numbering Guide)

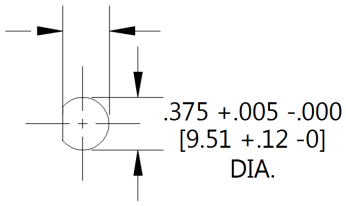
Models 752 and 762 offer single-pole switchable protection in a compact package size. Standard 0.250" quick-connect terminals are available, as is a "push-pull" actuator with imprinted amp rating. Through-the-panel mounting is facilitated by a 3/8"-27 diameter threaded bushing with a D-shaped flat for anti-rotational requirements.



Amp stamp and flat on bushing may be rotated 180° from that shown.







SUGGESTED PANEL MOUNTING HOLE

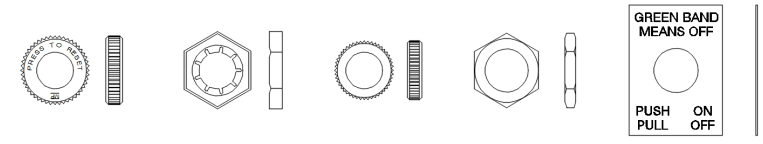
All Series 07 Models have the actuator button imprinted with the amp rating. The flat area on the panel cutout should be to the left of the actuator in vertical orientation.

Mounting Hardware

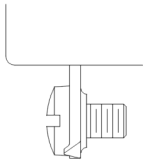
(See Part Numbering Guide)

Note: All dimensions are in inches [mm]

Standard terminals on Model 772



Knurlnut (Nylon) Palnut Knurlnut Hexnut Instruction Plate



Model 772, Rated at 30A and 40A, comes with standard #10-32 screw terminals

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Series 07 Part Numbering Guide

P/N: □□□ - □□□ - □□□ - □□□

Code	Model	Code	Variation	Code	Amp Ratings
752	UL489 listed CSA certified 5,000A interupt @ 120VAC	001	3/8"-27 dia. Threaded mounting bushing w/ anti-rotation flat. 0.250" quick-connect terminals. White Actuator with trip indicator. Black ampere rating marking on actuator.	150 200	15.0A 20.0A
		002	3/8"-27 dia. Threaded mounting bushing w/ anti-rotation flat. 0.250" quick-connect terminals. Terminals bent outbound 45 degrees White Actuator with trip indicator. Black ampere rating marking on actuator.		
762	UL1077 recognized CSA certified: **10 to 20A** 5,000A interrupt @ 120VAC **5 & 7A** 1,000A interrupt @ 277VAC	001	3/8"-27 dia. Threaded mounting bushing w/ anti-rotation flat. 0.250" quick-connect terminals. White Actuator with trip indicator. Black ampere rating marking on actuator.	050 070 100 150 200	5.0A* 7.0A* 10.0A 15.0A 20.0A
		012	3/8"-27 dia. Threaded mounting bushing w/ anti-rotation flat. 0.250" quick-connect terminals. Black actuator with trip indicator. White ampere rating marking on actuator.		
772	1,000 interrupt @ 120VAC	001	3/8"-27 dia. Threaded mounting bushing w/ anti-rotation flat. #10-32 UNF screw terminals. White Actuator with trip indicator. Black ampere rating marking on actuator.	300 400	30.0A* 40.0A*

Code	Hardware
051	Palnut / Knurlnut
054	Hexnut / Hexnut
087	Knurlnut / Hexnut / Instruction Plate
098	Palnut / Knurlnut / Instruction Plate

*Consult factory for amperage ratings 5-7A & 30-40A

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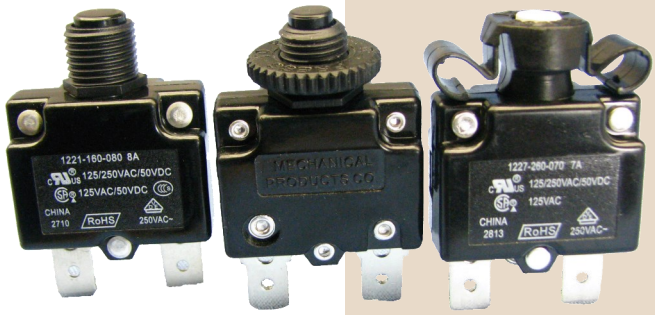
MP Series 12

Push to Reset Thermal Circuit Breaker



Series 12 Features

- 3 - 20 Ampere rating
- Compact Design
- Cycling Trip-Free
- Variety of mounting & termination options

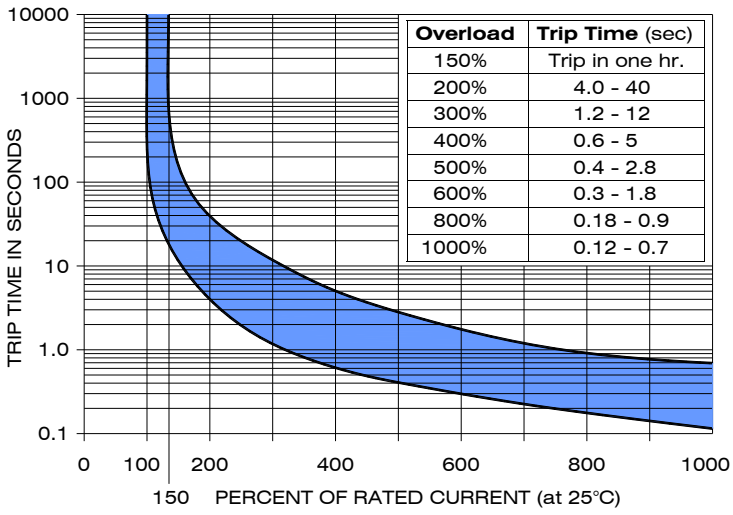
Series 12 Technical Data

Rated Voltage	125/250VAC, 50VDC
Rated Current	3 to 20 Amperes
Interrupt Capacity	1000A (UL1077)
Dielectric Strength	1500VAC
Insulation Resistance	≥ 100Mohm, 500VDC
Reset Overload Capacity	10x rated current
Voltage Drop	< 0.25 Volts
Operating Temperature	-10°C to +60°C

Series 12 Approvals

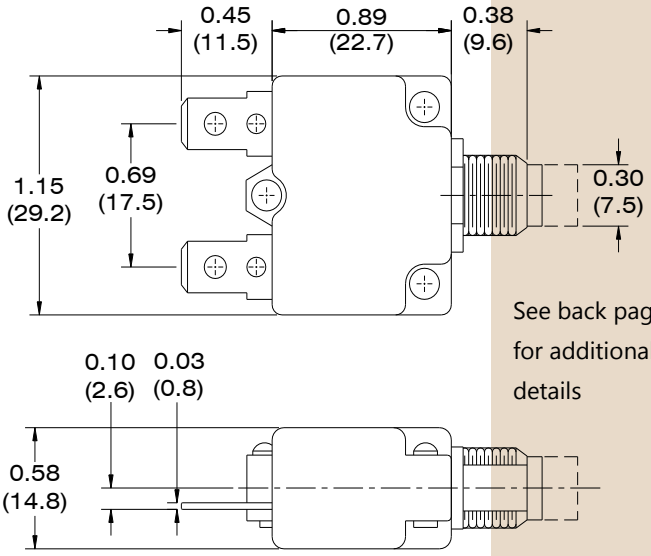
UL/cUL: 3 - 20A, 125/250VAC, 50VDC
CCC: 5 - 20A, 125/250VAC, 50VDC
VDE: 5 - 16A, 250VAC CSA: 3 - 15A, 125 VAC

Series 12 Typical Trip Curve



Overload	Trip Time (sec)
150%	Trip in one hr.
200%	4.0 - 40
300%	1.2 - 12
400%	0.6 - 5
500%	0.4 - 2.8
600%	0.3 - 1.8
800%	0.18 - 0.9
1000%	0.12 - 0.7

Physical Configuration

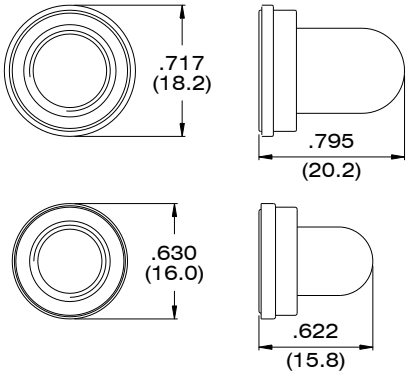


See back page for additional details

Typical Temperature Correction

Current Rating	°F	+14	32	50	68	77	86	104	122	140
	°C	-10	0	+10	20	25	30	40	50	60
3 - 4A		.70	.75	.82	.90	1.00	1.10	1.25	1.61	2.15
4 - 20A		.77	.85	.90	.95	1.00	1.05	1.15	1.25	1.40

Optional Sealing Boots



P/N 1200-320-1
Clear, M11x1.0

P/N 1200-320-2
Black, M11x1.0

P/N 1200-321-1
Clear, 3/8-24 UNF

P/N 1200-321-2
Black, 3/8-24 UNF

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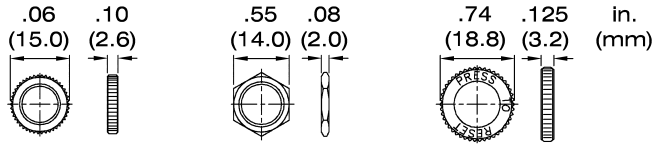
Series 12 Part Numbering Guide

(G) Mounting Hardware

1 = Metal knurl nut, for M11, M12 , or 3/8-24 in.
2 = Metal hex nut, for M11, M12 , or 3/8-24 in.
3 = Plastic knurl nut, for M11 or 3/8-24 in. only
4 = Metal knurl nut & metal hex nut (combines #1 & #2)
5 = Metal hex nut & plastic knurl nut (combines #2 & #3)
6 = Two metal hex nuts (two of #2 above)



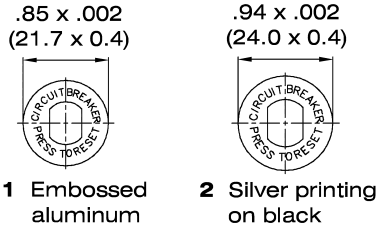
1 Metal Knurlnut **2** Metal Hex Nut **3** Plastic Knurlnut

(F) Hardware Packaging

B = Bulk Packed

(E) Ampere Ratings

030 = 3A	060 = 6A	090 = 9A	150 = 15A
040 = 4A	070 = 7A	100 = 10A	160 = 16A
050 = 5A	080 = 8A	120 = 12A	200 = 20A



1 Embossed aluminum **2** Silver printing on black

(H) Nameplate

0 = No Nameplate
1 = Embossed Aluminum

P/N: 12 2 B - C D 0 - E E E - F G H

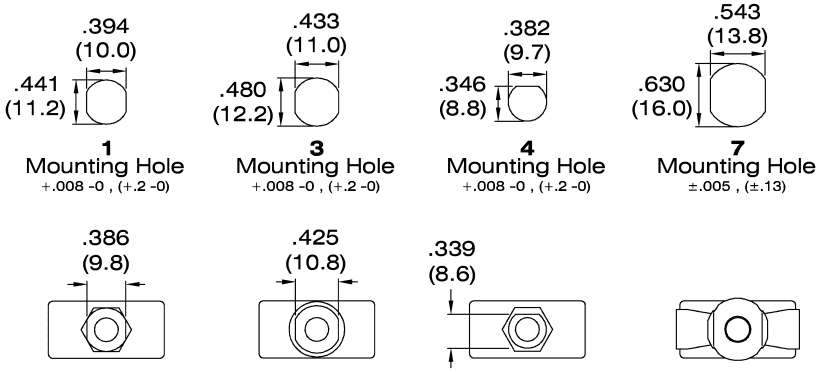
(Hardware is optional. Leave 3 FGH digits blank if no hardware is required.)

Series Number

12 = Series 12 Circuit Protector

(B) Mounting Bushing right →

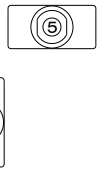
1 = Plastic, M11 x 1.0
3 = Metal, M12 x 1.0
4 = Plastic, 3/8-24 UNF
7 = Plastic, Snap-In

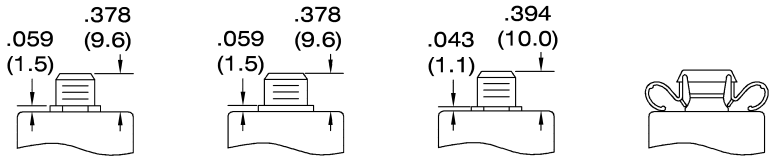


1 Mounting Hole +.008 -0 , (+.2 -0)
3 Mounting Hole +.008 -0 , (+.2 -0)
4 Mounting Hole +.008 -0 , (+.2 -0)
7 Mounting Hole ±.005 , (±.13)

(C) Button

1 = Black, no amp stamp
2 = White, no amp stamp
3 = Black, white perpendicular amp stamp
4 = White, red perpendicular amp stamp
5 = White, black perpendicular amp stamp
6 = Black, white parallel amp stamp
7 = White, red parallel amp stamp
8 = White, black parallel amp stamp

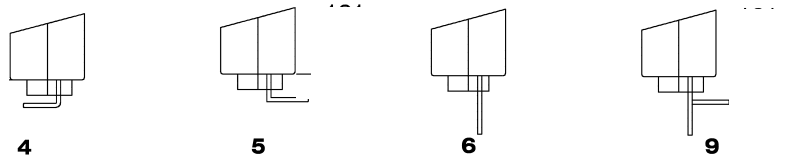




1 Plastic M11x1.0
3 Metal M12x1.0
4 Plastic 3/8-24 UNF
7 Plastic Snap-In

(D) Terminals, .250 inch Tab right →

4 = Bent 90°
5 = Bent back 90°
6 = Quick Connect, straight
9 = Load terminal bent backward 90°



4 Bent 90°
5 QC bent back 90°
6 QC straight
9 Load terminal bent back 90°

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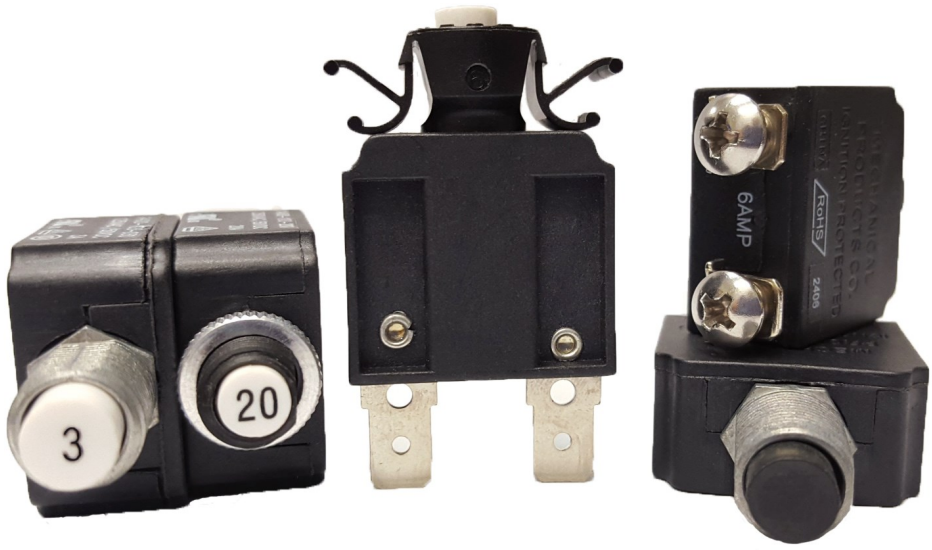
UL 1500 Ignition Proof

OL1 Rated for Motor Loads

High Interrupt Capacity

Reliable on land or sea



Series 14

Raising the Bar

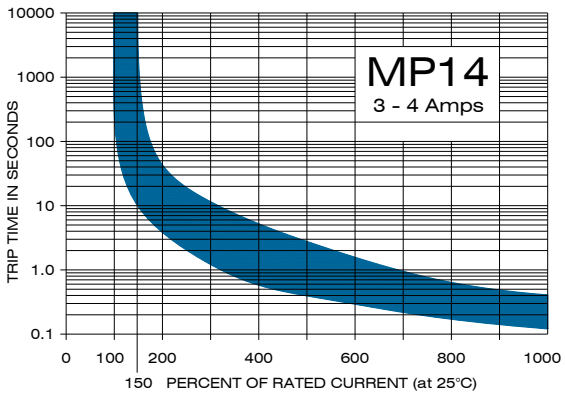
MP—Count on it

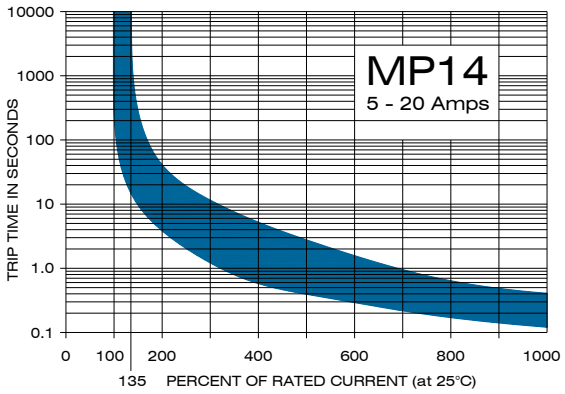
Mechanical Products Company

Series 14 Overview

The Series 14 is an economical and compact circuit protector designed for your Equipment Protection needs in the 3-20 amp range. The MP Series 14 is suitable for a variety of applications ranging from medical equipment to household appliances.

Series 14 offers:
5 unique termination options,
multiple hardware and boot options,
AC/DC ratings from 3 to 20 amps,
UL 1500 Ignition Protection,
UL, cUL, CSA, VDE & CCC certification,
European RoHS Directive compliance,
and a choice of snap-in or threaded mounting,
with 9 button and 5 bushing options from which to select.





Series 14 Specifications

Standard Amp Ratings
Series 14 has available RoHS compliant current ratings of 3A, 4A, 5A, 6A, 7A, 7.5A, 8A, 10A, 12A, 13A, 14A, 15A, 16A, and 20A.

Minimum Ultimate Trip
The Series 14 offers a minimum ultimate trip of 100% of rated current at 25°C/77°F.

Interrupt/Voltage Ratings
Per UL, Series 14 is rated for 1000A at 250VAC/50VDC and 3000A at 32VDC.*
OL1 rated for Motor Loads

Corrosion (Salt Spray)
The Series 14 conforms to 96hr, 5% salt mist, per IEC 60068-2-11, test Ka.

Regulatory Approvals
UL/cUL recognition per UL 1077 (E66224), CCC (2004010307103862), VDE per IEC 934 (40009272), CSA per C22.2-235 (027156), and UL 1500 for Ignition Protection.

Maximum Ultimate Trip
The Series 14 maximum ultimate trip is 135% of rated current for ratings of 5A and above and 150% below 5A, at 25°C/77°F.

Voltage Drop
The Series 14 has a maximum voltage drop of 0.25V at rated current.

Vibration and Shock
The Series 14 is vibration rated at 8g per IEC 60068-2-6, test Fc, and shock rated at 30g (11ms) per IEC 60068-2-27, test Ea.

*MP Certified

Overload Trip Time Data (in seconds)

Current Rating	200%	300%	400%	500%	600%	800%	1000%
3 - 20 A	4-40	1.2-12	.6-5	.4-2.8	.3-1.8	.15-.6	.12-.4

Ambient Temperature Correction Factor

Current Rating	°F	23	32	68	77	86	104	122	140
	°C	-5	0	20	25	30	40	50	60
3 - 4 A		.72	.75	.90	1.00	1.10	1.25	1.61	2.15
5 - 6 A		.75	.80	.90	1.00	1.05	1.10	1.20	1.40
7 - 15 A		.80	.85	.95	1.00	1.05	1.15	1.25	1.40
16 - 20 A		.80	.85	.95	1.00	1.03	1.08	1.16	1.22

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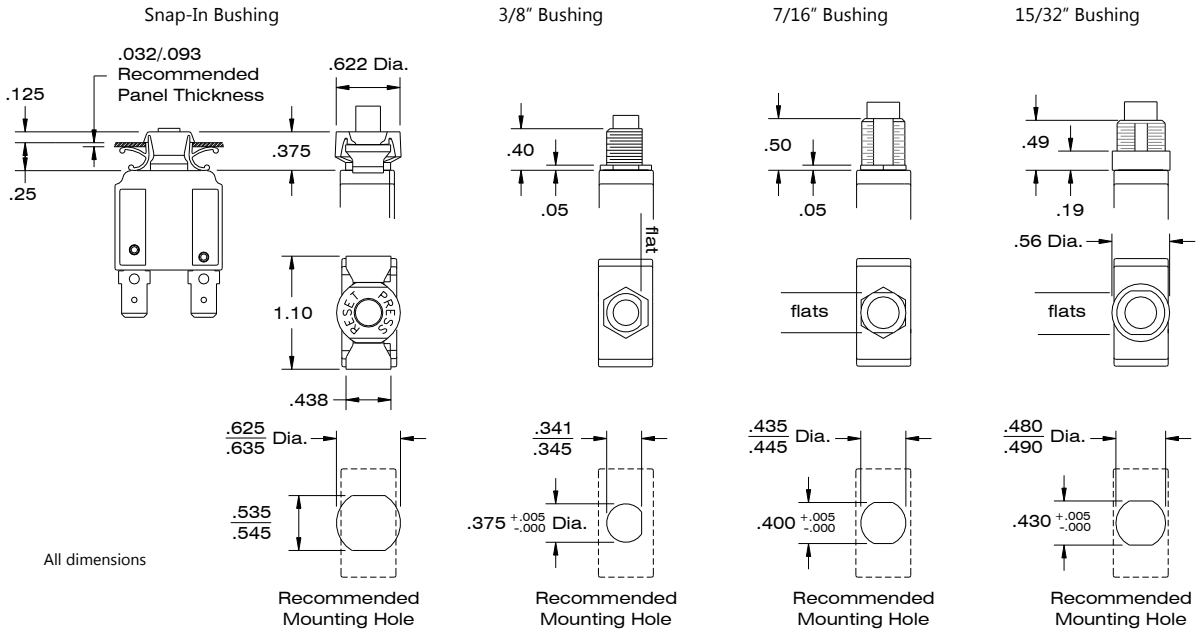
Series 14 Physical Configuration

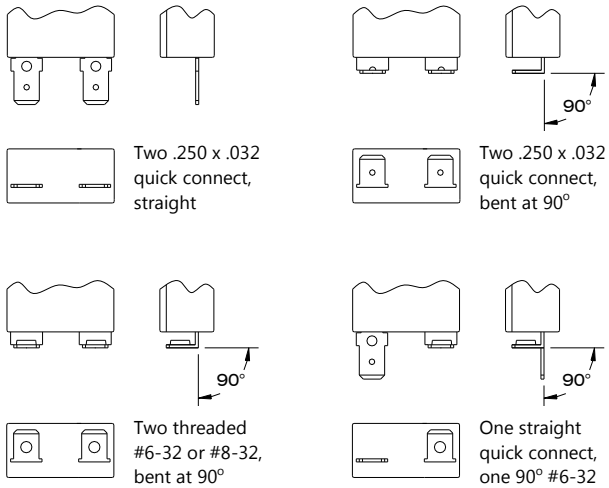
Bushing Options

(See Part Numbering Guide)



Terminal Options

(See Part Numbering Guide)



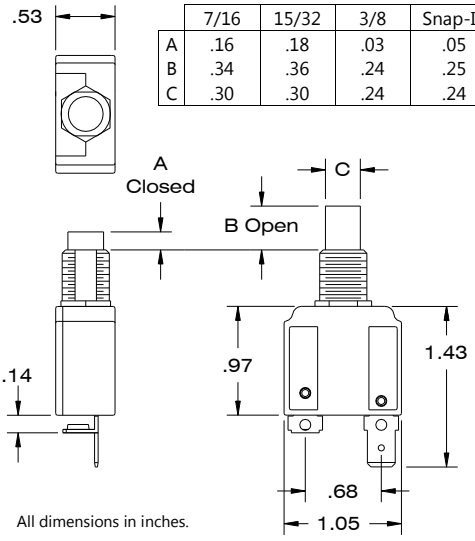
Two .250 x .032 quick connect, straight

Two .250 x .032 quick connect, bent at 90°

Two threaded #6-32 or #8-32, bent at 90°

One straight quick connect, one 90° #6-32

Envelope Dimensions

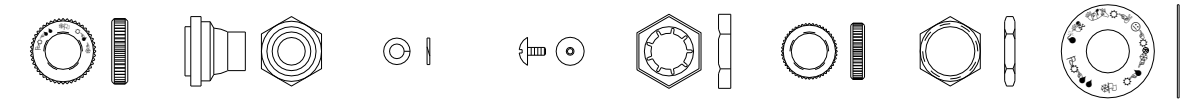


	7/16	15/32	3/8	Snap-In
A	.16	.18	.03	.05
B	.34	.36	.24	.25
C	.30	.30	.24	.24

All dimensions in inches.

Hardware Options

(See Part Numbering Guide)



Oversized Knurlnut (Nylon) | Boot | Washer (for 6/32 & 8/32) | Terminal Screw | Palnut | Knurlnut | Hexnut | Nameplate

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Series 14 Part Numbering Guide

Mounting Bushing

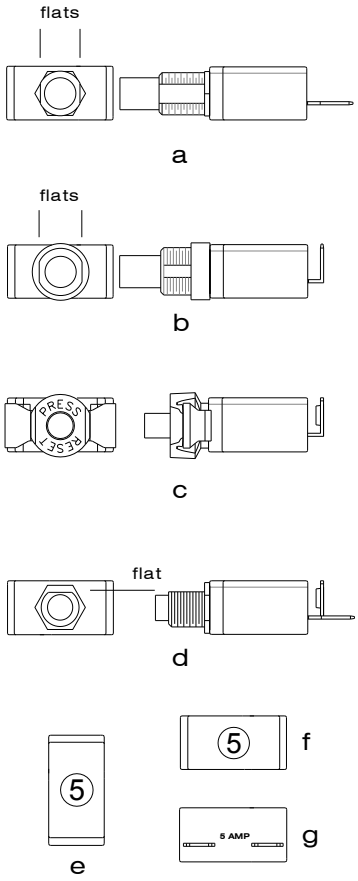
0 = 7/16"-28 threaded metal, two bushing flats perpendicular to case thickness (a)

3 = 15/32"-32 threaded metal, shouldered, with two flats perpendicular to the case thickness (b)

5 = Snap-in bushing, "PRESS" mark parallel to case thickness and opposite terminals (c)

8 = 3/8"-27 threaded nylon, one flat parallel to case thickness and opposite terminals (d)

9 = 3/8"-27 threaded metal, one flat parallel to case thickness and opposite terminals (d)



Ampere Range

Includes amp stamp between terminals (g)

Button

0 = white — no amp stamp
1 = white — black parallel amp stamp (e)
2 = white — black perpendicular amp stamp (f)
3 = black — no amp stamp
4 = black — white parallel amp stamp (e)
5 = black — white perpendicular amp stamp (f)
6 = red — no amp stamp
7 = red — white parallel amp stamp (e)
8 = red — white perpendicular amp stamp (f)

Terminals

0 = Both terminals quick connect, straight (a)
1 = Both terminals quick connect, bent at 90° (b)
2 = Both terminals w/ #6-32 threads, bent at 90° (c)
3 = Both terminals w/ #8-32 threads, bent at 90° (c)
4 = One terminal quick connect straight and one terminal w/ #6-32 threads, bent at 90° (d)

Agency Approvals

0 = CCC
3 = UL/cUL/VDE/CCC (3 & 4A @ 250VAC/50VDC)
3 = UL/CSA/VDE/CCC (5 - 20A @ 250VAC/50VDC)

P/N: 1 4 [ ] 0 - [ ] [ ] [ ] - [ ] [ ] [ ] - [ ] [ ]

Amp Rating

030 to 200 = 3 to 20 amps

Series Number

14 = Series 14 Circuit Protector

Hardware Code (bulk packed)

15	= 7/16" bushing	1 ea. knurl nut, pal nut
A2	= 7/16" bushing	1 ea. knurl nut, pal nut; 2 ea. 6-32 terminal screw, lock washer
C5	= 7/16" bushing	1 ea. knurl nut, pal nut; 2 ea. 8-32 terminal screw, lock washer
13	= 15/32" bushing	1 ea. knurl nut, lock washer
51	= 3/8" bushing	1 ea. knurl nut, pal nut
A9	= 3/8" bushing	1 ea. black nylon knurl nut, lock washer; & 2 ea. 8-32 terminal screw, lock washer
E4	= 3/8" bushing	1 ea. knurl nut, pal nut; 2 ea. 6-32 terminal screw, lock washer

Note: For additional hardware options, please consult factory.

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Thermal Circuit Breaker

3 - 40 Amp Compact Design

UL 1500 Ignition Proof

Reliable on Land or Sea

Series 15

Raising the Bar

MP - Count on it

Mechanical Products Company

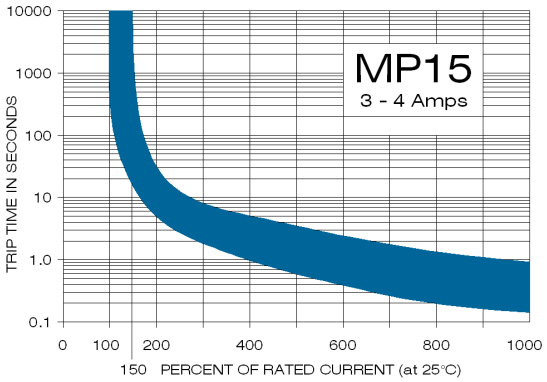
Series 15 Overview

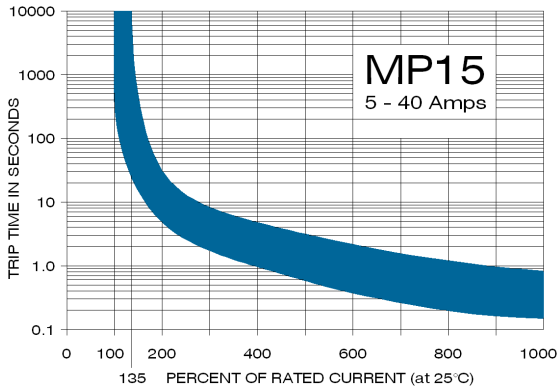
The Series 15 is an innovative, economical and compact thermal circuit breaker designed for your equipment protection needs in the 3-40 amp range. The MP Series 15 is suitable for a variety of applications ranging from medical equipment to household appliances to marine applications.

Series 15 offers:

- AC/DC ratings from 3 to 40 Amps
- UL 1500 Ignition Protection
- UL, cUL, CSA, VDE, CCC
- European RoHS Directive compliance
- Choice of snap-in or thread mounting
- Multiple hardware and boot options
- 7 unique termination options
- Amperage indication between terminals
- **Cadmium Free**

Series 15 Operating Characteristics





Series 15 Specifications

Standard Amp Ratings
Series 15 thermal circuit breakers are available in current ratings of 3A, 4A, 5A, 6A, 7A, 8A, 10A, 12A, 15A, 20A, 25A, 30A, 35A, & 40A.

Minimum Ultimate Trip
The Series 15 offers a minimum ultimate trip of 100% of rated current at 25°C/77°F.

Interrupt/Voltage Ratings
1,000A @ 250VAC / 50 VDC 3-40A.
2,500A @ 32 VDC

Corrosion (Salt Spray)
The Series 15 conforms to 98hr, 5% salt mist, per IEC 60068-2-11, test Ka.

Regulatory Approvals
UL/cUL recognition per UL 1077 (E66224), CSA per C22.2-235 (027156), VDE (40041447) and UL 1500 for Ignition Protection. CCC. All are RoHS Compliant.

Maximum Ultimate Trip
The Series 15 maximum ultimate trip is 135% of rated current for ratings of 5A - 40A and 150% for ratings 3A - 4A, at 25°C/77°F.

Voltage Drop
The Series 15 has a maximum voltage drop of 0.25V at rated current.

Vibration and Shock
The Series 15 is vibration rated at 8g per IEC 60068-2-6, test Fc, and shock rated at 30g (11ms) per IEC 60068-2-27, test Ea.

Overload Trip Time Data (in seconds)

Current Rating	200%	300%	400%	500%	600%	800%	1000%
3 - 4 A	5 - 40	1.8 - 8	1 - 5	0.6 - 3.3	0.4 - 2.4	0.2 - 1.3	0.15 - 0.9
5 - 40 A	5 - 30	1.8 - 7.6	1 - 4.5	0.6 - 3.0	0.4 - 2.2	0.2 - 1.2	0.15 - 0.8

Ambient Temperature Correction Factor

Current Rating	°F	23	32	68	77	86	104	122	140
	°C	-5	0	20	25	30	40	50	60
3 - 20 A		.72	.80	.95	1.00	1.05	1.15	1.35	1.50
21 - 40 A		.80	.85	.95	1.00	1.05	1.10	1.25	1.40

Specifications subject to change

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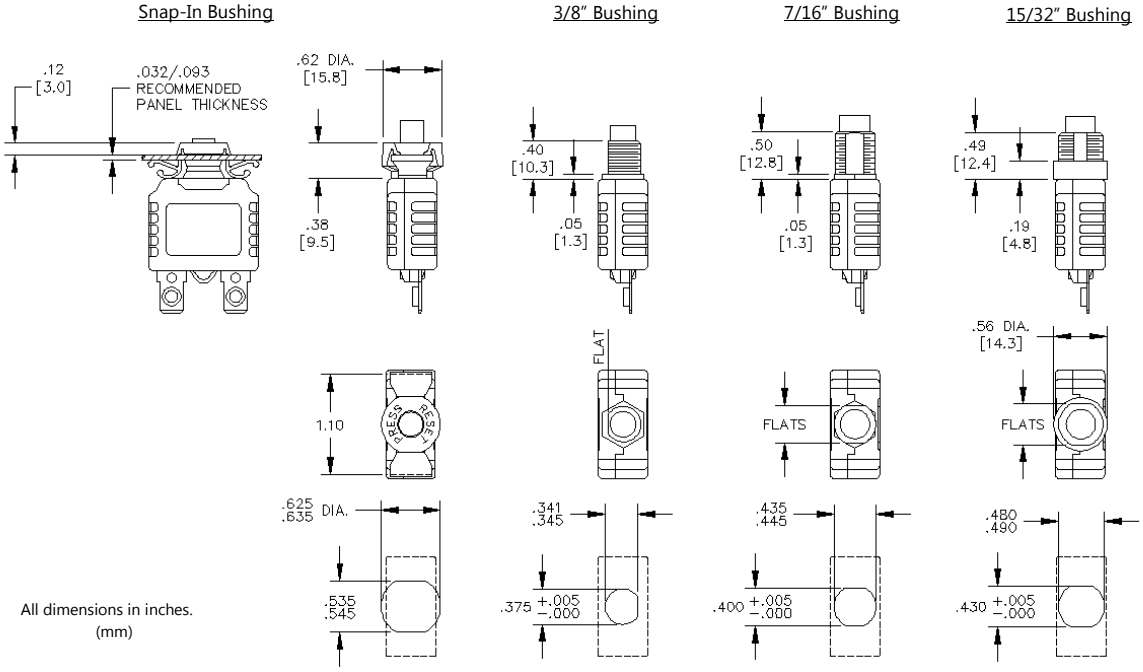
Series 15 Physical Configuration

Bushing Options

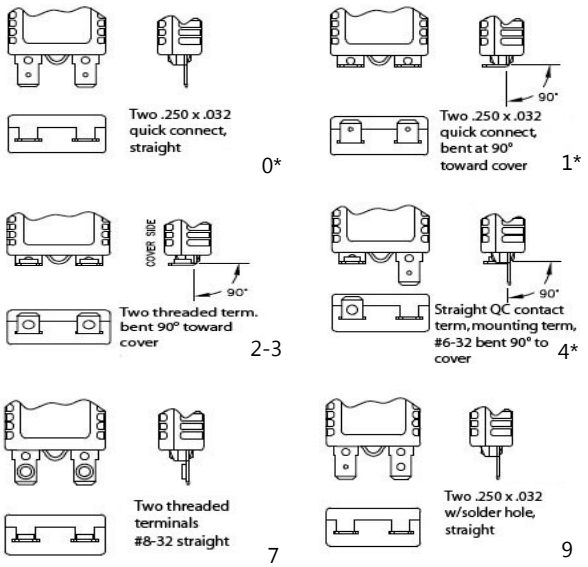
(See Part Numbering Guide)



All dimensions in inches.
(mm)

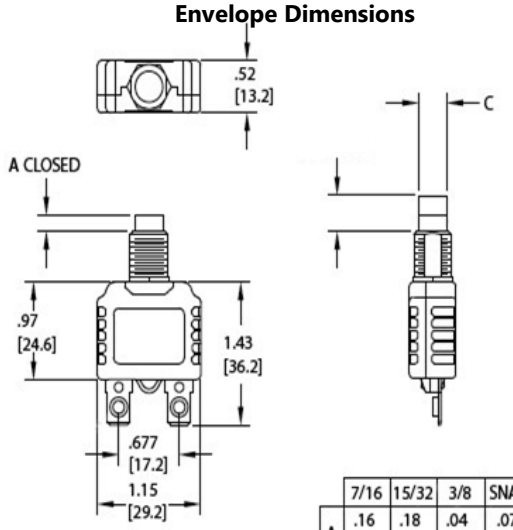
Terminal Options

(See Part Numbering Guide)



*Option available on 3-30A only.

Envelope Dimensions

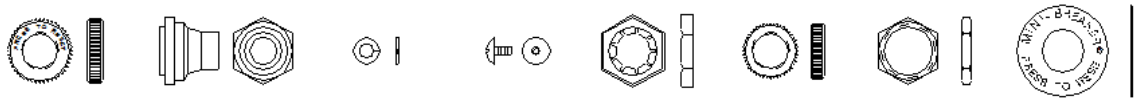


All dimensions in inches.
(mm)

	7/16	15/32	3/8	SNAP-IN
A	.16 [4.2]	.18 [4.5]	.04 [1.1]	.07 [1.84]
B	.36 [9.2]	.38 [9.5]	.24 [6.1]	.25 [6.3]
C	.30 [7.5]	.30 [7.5]	.24 [6.1]	.24 [6.1]

Hardware Options

(See Part Numbering Guide)



Oversized Knurlnut (Nylon) | Boot | Washer (for 6/32 & 8/32) | Terminal Screw | Palnut | Knurlnut | Hexnut | Nameplate

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Specifications Subject to Change

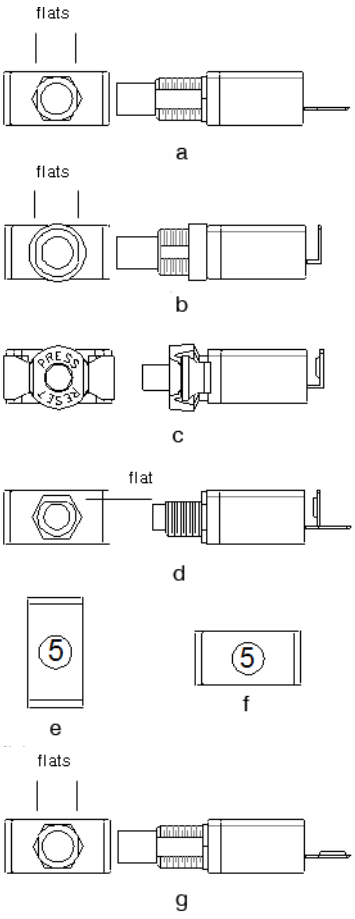
Series 15 Part Numbering Guide

Series Number

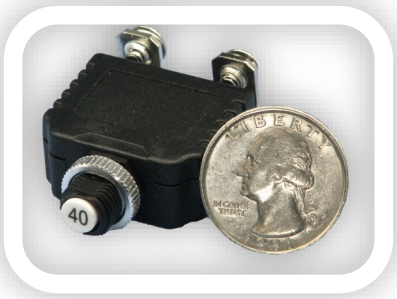
15 = Series 15 Circuit Protector

P/N: 15 [ ] 0 - [ ] [ ] 1 - [ ] [ ] [ ] - [ ] [ ]

Code	Mounting Bushing
0	7/16"-28 thread - Two bushing flats perpendicular to case thickness (a)
3	15/32"-32 thread - Shouldered with two flats perpendicular to the case thickness (b)
6	Snap-in bushing - "Press" mark parallel to case thickness and opposite terminals (c)
8	3/8"-27 threaded nylon - one flat parallel to case thickness and opposite terminals (d)



Code	Button
0	White - No amp stamp
1	White - Black parallel amp stamp (e)
2	White - Black perpendicular amp stamp (f)
3	Black - No amp stamp
4	Black - White parallel amp stamp (e)
5	Black - White perpendicular amp stamp (f)
6	Black - No amp stamp, white trip indicator
7	Black - White parallel amp stamp, White trip indicator (e)
8	Black - White perpendicular amp stamp, White trip indicator (f)



Smallest 40 amp Circuit Breaker

Code	Amp Rating
030	3.0A
040	4.0A
050	5.0A
060	6.0A
070	7.0A
080	8.0A
100	10.0A
120	12.0A
150	15.0A
200	20.0A
250	25.0A
300	30.0A
350	35.0A
400	40.0A

Code	Terminals
0	Both terminals quick connect, straight (a)*
1	Both terminals quick connect, bent at 90° (b)*
2	Both terminals w/ #6-32 threads, bent at 90° (c)
3	Both terminals w/ #8-32 threads, bent at 90° (c)
4	One terminal quick connect straight and one terminal w/ #6-32 threads, bent at 90° (d)*
7	Both terminals #8-32 threads, straight (g)
9	Both terminals solder hole straight (a)

*Option available on 3-30A only.

Code	Hardware
	7/16" BUSHING
15	1 ea. Knurl nut, pal nut
A2	1 ea. Knurl nut, pal nut 2 ea. #6-32 terminal screw, lock washer
C5	1 ea. Knurl nut, pal nut 2 ea. #8-32 terminal screw, lock washer
	15/32" BUSHING
13	1 EA. Knurl nut, lock washer
	3/8" BUSHING
51	1 ea. Knurl nut, pal nut
A9	1 ea. Black nylon knurl nut, lock washer 2 ea. #8-32 terminal screw, lock washer
E4	1 ea. Knurl nut, pal nut 2 ea. #6-32 terminal screw, lock washer
97	1 ea. Black nylon knurl nut, metal lock washer

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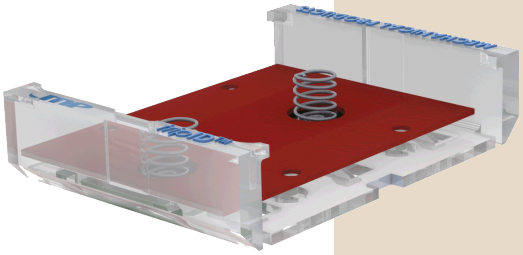
Specifications Subject to Change

Mechanical Products Company

DESIGNED & ASSEMBLED IN U.S.A.

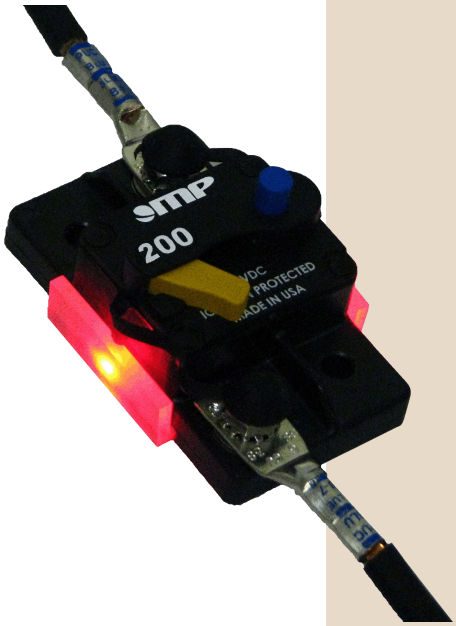
Series 17 LED Lighted *trip*ID™



New Surface Mount *trip***ID**™ Accessory provides a lighted indication of an open circuit condition. Easy to install on all MP Series 17 Surface Mount Circuit Breakers, as well as some non-MP style surface mount hi-amp breakers. Snap on the rear of the breaker to provide a quick easy visual indication of circuit condition.

Part Number: 17LED-R

*trip***ID**™ provides
Immediate Visual Warning
of a tripped circuit



User Benefits

- Visual aid in finding open circuit breaker
- Quick visual *trip***ID**™ via red LED of open circuit
- Provides positive "OK to Service" *trip***ID**™ when used on MP Series 17
- NO additional wiring needed — NO additional tools required
- Easy add-on accessory in the field when *trip***ID**™ is helpful or required
- Can be installed on many hi-amp circuit breakers (non-MP) in the field
- Can be used in harsh applications rated at 12 & 24 VDC - Marine, Heavy Duty Truck, Bus, RV and Off Road

Product Features

- Innovative patent pending accessory for hi-amp circuit breakers
- Positive spring force electrical connection to the circuit breaker from the bottom
- Snaps-on to bottom of breaker prior to mounting for ease of assembly
- One piece accessory that seals to bottom of circuit breaker after mounting
- Red LED located on each side of breaker
- Operating voltage from 10 - 30 VDC for use in 12 and 24 VDC systems
- Designed to meet applicable environment standards of MP Series 17
- Dust and Waterproof, IP67 rated, when used with the MP Series 17
- For use on MP Series 17 Surface Mount Breakers (not designed for panel mount)
- Designed and tested for use on Type I (Auto Reset), Type III (Manual Reset) and Type III PTT (Push to Trip) MP Hi-Amp Surface Mount Circuit Breakers
- For use on many non-MP Hi-Amp surface mount circuit breakers

Not designed for Panel Mount Style Breakers

When you chose MP, you can:

COUNT ON IT !

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Mechanical Products Company

SERIES 17

RAISING THE BAR
MP - COUNT ON IT

- High Amperage 25 to 300 AMP
- Type I & III Vehicle Protection
- IP67 Waterproof
- SAE & ABYC Compliant
- Ignition-Protected
- LED TripID™ Option

MADE in the USA

SUPERIOR CIRCUIT PROTECTION

www.mechprod.com

Series 17 Overview

FEATURES:
48 VDC maximum for 25 - 150 Amp
30 VDC maximum for 175 - 200 Amp
Trip-free operation
Standard Terminations in Surface
and Panel Mount (S0 and P0)
Easy Access Terminations for
Surface and Panel Mount (S1, S3, P1,)

- Auto, manual, or switching option
- Visible trip indication
- Available with 1/4" and 3/8" Stainless - Steel Terminal Studs and Sems Nuts
- Waterproof
- Ignition-protected
- Improved Robust Design

Series 17 Specifications

Standard Amp Ratings	25, 30, 35, 40, 50, 60, 70, 80, 90, 100, 110, 120, 135, 150, 175, 200, 225, 250, 275, and 300 Amps
Maximum Voltage Ratings	Type III: 48 VDC (25 -150A); 30 VDC (175 - 200A); 14VDC (225 - 250A) Type I: 30 VDC auto-reset (25 - 200A); 14VDC (225 - 300A)
Ultimate Trip	Must Hold 100% at 25°C/77°F Must Trip at 135% within 1 hour.
Dielectric Strength	1,500VAC Minimum
Interrupt Capacity (25 - 150A)	3,000A @ 14VDC (Type III) 1,500A @ 48VDC (Type III) 3,000A @ 30VDC (Type I)
Interrupt Capacity (175 - 200A)	2,500A @ 14VDC (Type III) 1,500A @ 30VDC (Type I and Type III)
Interrupt Capacity (225 - 300A)	2.500A, 14VDC per SAE J1625 (Type I) 225A, 250A, 275A, 300A 1.500A, 14VDC per SAE J1625 (Type III manual reset) 225A & 250A 1.500A, 14VDC ABYC Main Rated (Type III manual reset) 225A & 250A
Endurance (25 - 150A)	14VDC @ 100 cycles, 6X rating (Type I & Type III) 28VDC @ 100 cycles, 2X rating (Type III) 30VDC @ 100 cycles, 2X rating (Type I) 48VDC @ 50 cycles, 1.5X rating (Type III)
Endurance (175 - 200A)	14VDC @ 100 cycles, 6X rating (Type I, Type III 175A) 14VDC @ 50 cycles, 4X rating (Type III 200A) 28VDC @ 50 cycles, 2X rating (Type III) 30VDC @ 100 cycles, 2X rating (Type I)
Endurance (225 - 300A)	500 cycles, 200% 14VDC per SAE J1625 (Type I) 225A, 250A, 275A, 300A 50 cycles, 200% 14VDC per UL1077/SAE J1625 (Type III manual reset) 225A & 250A
Operating Temperature Range	-40°C/-40°F to 85°C/185°F
Weight	Panel Mount: 3.1 oz. (88 gm.) Surface Mount: 4.0 oz. (114 gm.)
Ignition Protected	Compliant to SAE J1171
Ingress Protection	IP67 dust and waterproof rated - protection against immersion up to 1 meter of water for 30 minutes.
Corrosion	Conforms to Mil-STD-202, Method 101, Test Condition A, for 96 hours under a 5% salt Spray.
Humidity	Conforms to Mil-STD-202, Method 106, for 240 hours at 95% RH.
Shock	Rated to withstand 100g per Mil-STD-202, Method 213, Test Condition A.
Vibration	Rated to withstand 10g per Mil-STD-204, Test Condition A.
Regulatory Compliance Summary	Interrupt Capacity: SAE J1625, ABYC-E11, UL1077* Ignition Protected: SAE J1171 Endurance: SAE J1625 Dielectric Strength: UL1077* Shock, Vibration, Corrosion, Humidity: Mil-STD-202 Dust and Waterproof: IP67 **tested per UL1077 methods*

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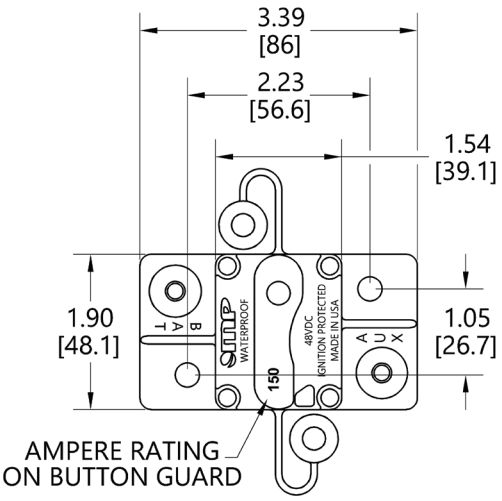
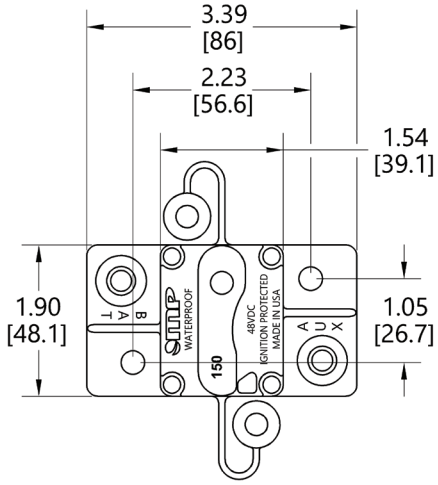
Series 17 Physical Configuration

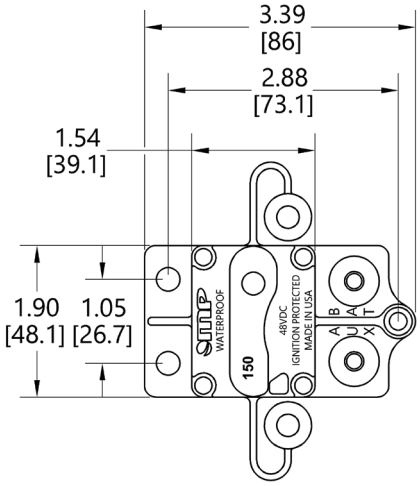
S0 Standard Surface Mount 1/4" -28 Stud Terminals



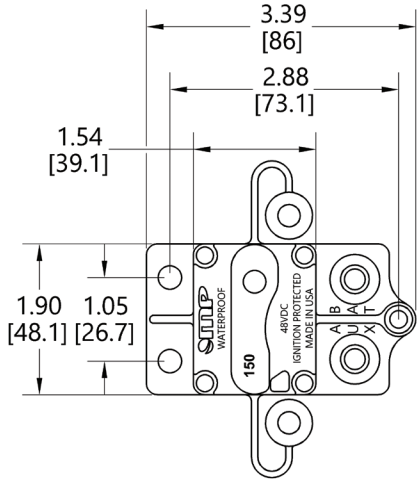
S2 Standard Surface Mount 3/8" -16 Stud Terminals



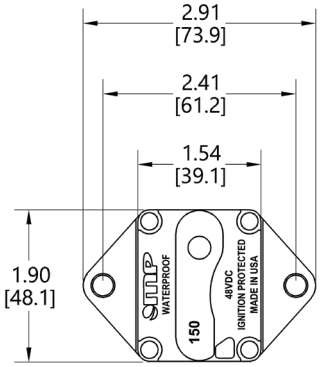
S1 Easy Access Side by Side Surface Mount 1/4" -28 Stud Terminals



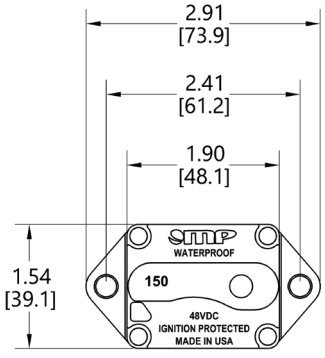
S3 Easy Access Side by Side Surface Mount 3/8" -16 Stud Terminals



P0 / P2 Standard Panel Mount 1/4"-28 or 3/8"-16 Stud Terminals



P1 Easy Access 90° Panel Mount 3/8" -16 Stud Terminals



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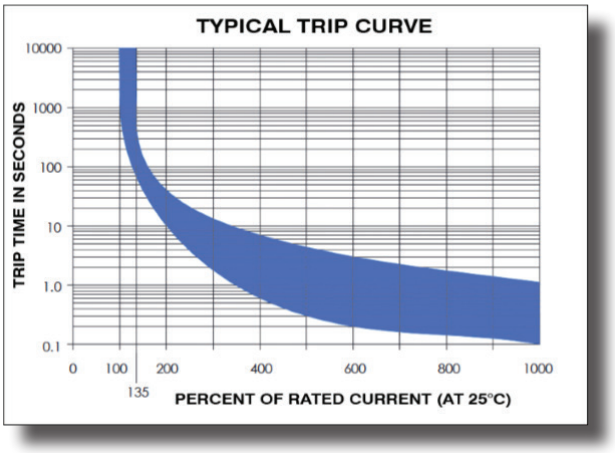

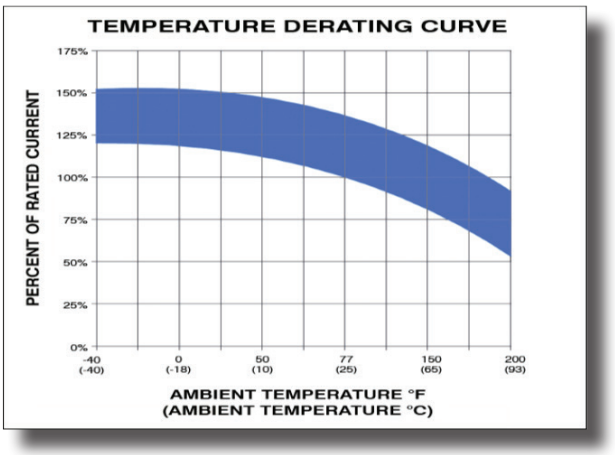

Typical Overload Trip Time Data (in seconds)

Current Rating	200%	400%	600%	800 %	1000%
25-300 Amps	10-40	0.6-7.0	0.2-3.0	0.15– 2.0	0.09-1.2

Typical Ambient Temperature Correction Factor

Current Rating	°F	-40	0	50	77	150	200
	°C	-40	-18	10	25	65	93
25-300 Amps		0.80	0.84	0.87	1.00	1.22	1.47

Series 17 Typical High Amp Applications

Main or supplementary circuit protection in industrial/commercial vehicles:

- Agricultural
- Construction
- Marine
- Trucks
- Buses
- Emergency Vehicles
- Automotive Lifts
- Battery Chargers
- Recreational Vehicles

Protect:

- Wiring
- Lighting
- Components
- Batteries
- Motors
- Pumps
- Alternators
- Air Compressors
- Inverters
- Converters
- Generators
- and more

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Series 17 Part Numbering Guide up to 200A

P/N: 1 7 ☐ - ☐ ☐ - ☐ ☐ ☐ - ☐ ☐

Series Number
17 = Series Circuit Protector

Vehicle Protection
1 = Type I Auto Reset
4 = Type III Manual Reset
5 = Type III Manual Push To Trip Reset
6 = Type III Manual Push to Trip w/ red recessed button

Amp Rating
025 - 200 = 25 to 200A
**225-300A see back page

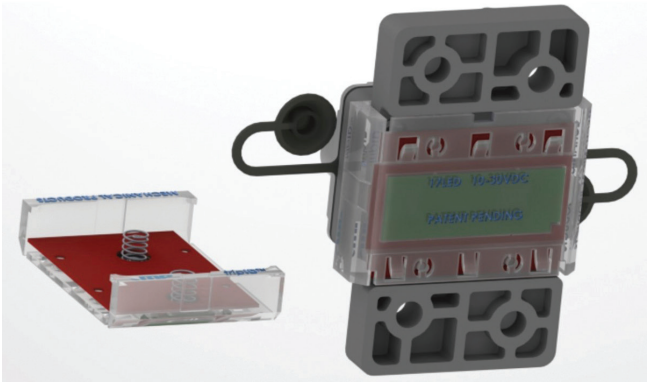
Hardware
0 = No Hardware
1 = Stainless Steel Sems Nuts (Bulk)
2 = Stainless Steel Sems Nuts (Installed)

Special Options
Blank = None
L = 17LED-R Assembled
(S0, S1, S2 & S3 Models Only)

Mounting Options / Configurations

Surface Mount
S0 = Standard Surface Mount with 1/4"-28 Stud Terminals
S1 = Side By Side Surface Mount with 1/4"-28 Stud Terminals
S2 = Standard Surface Mount with 3/8"-16 Stud Terminals
S3 = Side By Side Surface Mount with 3/8"-16 Stud Terminals

Panel Mount
P0 = Standard Panel Mount with 1/4"-28 Stud Terminals
P1 = 90° Panel Mount with 1/4"-28 Stud Terminals
P2 = Standard Panel Mount with 3/8"-16 Stud Terminals



MP P/N: 17LED-R
(Sold separately or assembled)
***Trip*ID**[tm] snaps on to rear of surface mount breaker.

WARNING: Cancer & Reproductive Harm
www.p65warnings.ca.gov/

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Series 17 Part Numbering Guide 225-300A

P/N: 1 7 [ ] - [ ] 2 - [ ] [ ] [ ] - [ ] [ ]

Series Number
17 = Series Circuit Protector

Vehicle Protection
1 = Type I Auto Reset (225 - 300A)
4 = Type III Manual Reset (225 - 250A)
5 = Type III Panel Mount Manual Push To Trip Reset (225A Only)

**275A and 300A only available in Type I Auto Reset

Mounting Options / Configurations

Surface Mount
S2 = Standard Surface Mount with 3/8"-16 Stud Terminals

Panel Mount
P2 = Standard Panel Mount with 3/8"-16 Stud Terminals

Amp Rating
225, 250, 275, 300 = 225 to 300A only

Hardware
0 = No Hardware
1 = Stainless Steel Sems Nuts (Bulk)
2 = Stainless Steel Sems Nuts (Installed)

Special Options
Blank = None
L = 17LED-R Assembled (Surface Mount Models Only)

Series 17 225 - 300A Features

Rated for applications using 12VDC systems (14Vdc max)

Auto Reset (Series 171-S2-xxx)
- -Amperages: 225A, 250A, 275A, 300A
- -Endurance: 500 cycles, 200% 14Vdc per SAE J1625
- -Short Circuit: 2.5kA, 14Vdc per SAE J1625

Manual Reset (Series 174-S2-xxx)
- -Amperages: 225A & 250A
- -Endurance: 50 cycles, 200% 14Vdc per UL1077/SAE J1625
- -Short Circuit: 1.5kA, 14Vdc per SAE J1625
  1.5kA, 14Vdc ABYC Main Rated

3/8" Stainless Steel terminal studs
3/8" Battery Lug for wire size of 4/0 minimum recommended

WARNING: Cancer & Reproductive Harm
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Mechanical Products Company

SERIES 18

RAISING THE BAR
MP - COUNT ON IT

Reliable on land or sea

UL & ABYC

Ignition-Protected

High Interrupt Capacity

MADE in the USA

SUPERIOR CIRCUIT PROTECTION

www.mechprod.com

Series 18 Overview

Clearly Specified Protection.
Available in 17 standard ratings (2-70A), the Series 18 from MP expands the specified performance capabilities of a classic circuit breaker design.

Electrical, mechanical and environmental specifications have all been defined and validated through testing to the requirements of the American Boat and Yacht Council (ABYC), the US Coast Guard (USCG), the Society of Automotive Engineers (SAE), Underwriters Laboratories (UL) and various Military Standards.

- DC Ratings from 2-70A
- UL 1500 Ignition Protection
- Compliances - MIL-STD-202, SAE J553, ABYC-E11, SAE J1428
- Trip Free
- Made in USA

Series 18 Specifications

Standard Amp Ratings	2A, 3A, 5A, 8A, 10A, 12.5A, 15A, 17.5A, 20A, 25A, 30A, 35A, 40A, 45A, 50A, 60A, and 70A
Maximum Voltage Ratings	120VAC and 32VDC.
Ultimate Trip	Minimum ultimate trip of 100% of rated current at 25°C/77°F Maximum ultimate trip of 135% of rated current at 25°C/77°F
Dielectric Strength	1,500VAC
Interrupt Capacity **Style 0 & 1 tested per**	UL 1077: 3000A (32VDC) SAE J553: COMPLIANT
Resettable Overload Capacity	10x rated value
Inrush Capacity	35X rated capacity for 1/2 cycle (0.008sec.)
Endurance	32VDC @ 100 cycles, 4X rating (Type III) 32VDC @ 100 cycles, 4X rating 1/2 hr (Type I) Meets J553 requirements
Voltage Drop	Max voltage drop 0.8V at rated current
Operating Temperature Range	-54^{0}C/-65^{0}F to 60^{0}C/140^{0}F
Weight	1.375 oz. (39 gm.)
Ignition Protected	Conforms to USCG Title 33, CFR, Section 183.410(a) per UL1500 testing
Ingress Protection	Conforms to weatherproof requirements of SAE J1428
Corrosion	Conforms to Mil-STD-202, Method 101, Test Condition A, for 96 hours under a 5% salt spray.
Humidity	Conforms to Mil-STD-202, Method 106, for 240 hours at 95% RH.
Shock	Rated to withstand 100g per Mil-STD-202, Method 213, Test Condition A.
Vibration	Rated to withstand 10g per Mil-STD-204, Test Condition A.
Regulatory Compliance Summary	Interrupt Capacity: SAE J553, *UL1077 Ignition Protected: UL1500 Endurance: SAE J553 Dielectric Strength: *UL1077 Shock, Vibration, Corrosion, Humidity: Mil-STD-202 Weatherproof: SAE J1428 CE Marked *Tested per UL1077 methods

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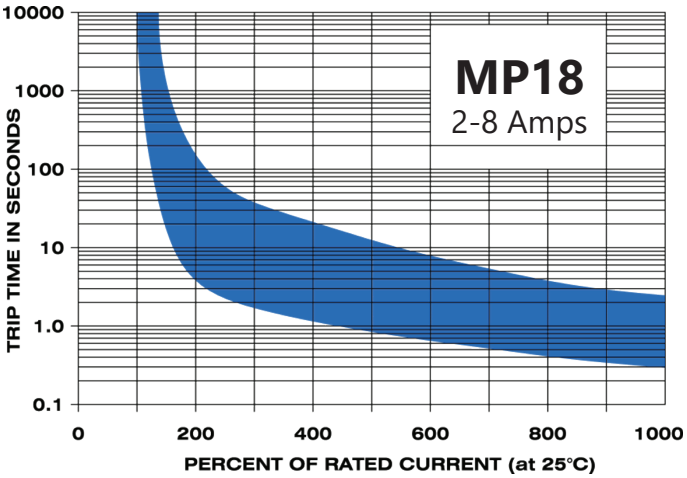
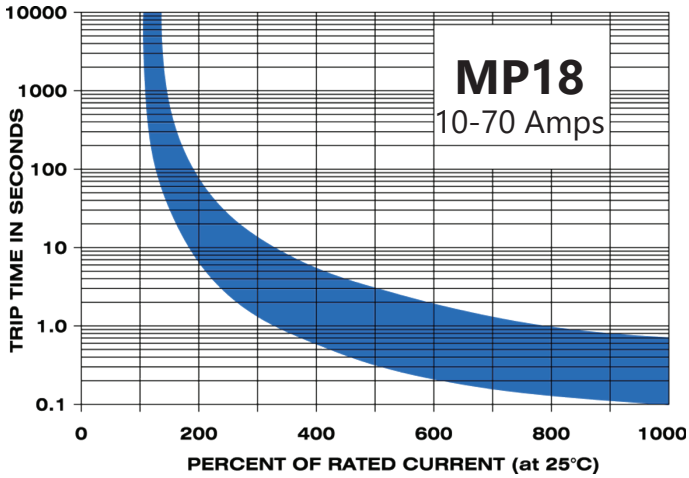
Series 18 Trip Curves





Typical Overload Trip Time Data (in seconds at 25 ° C)

Current Rating	200%	400%	1000%
2 - 8 Amps	4-150	1.2-20	0.3-2.5
10 - 70 Amps	6-70	0.6-5	0.1-0.7

Typical Ambient Temperature Correction Factor

Current Rating	°F	-65	0	32	77	100	140
	°C	-54	17	0	25	38	60
Style 0 & Style 1		0.83	0.87	0.93	1.00	1.11	1.25

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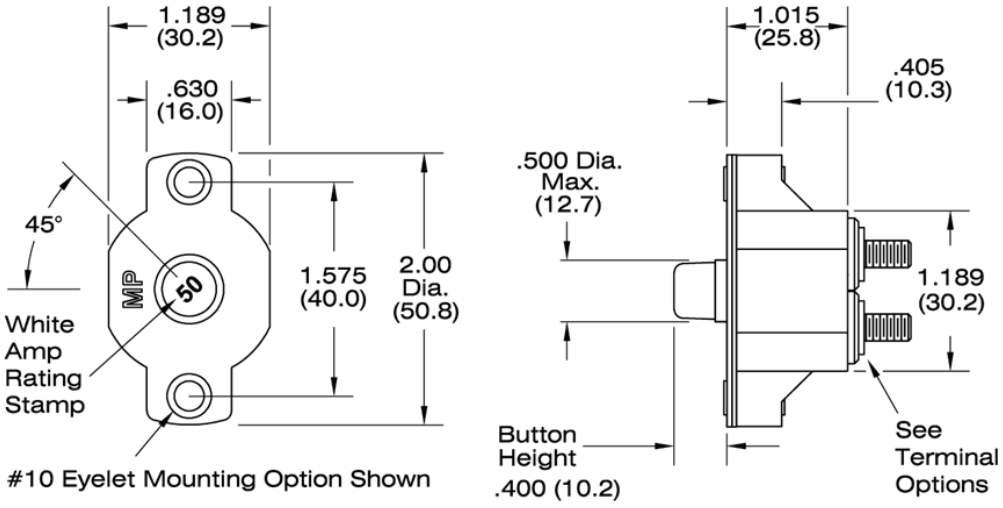
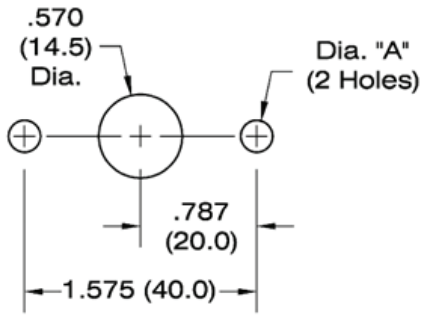
Series 18 Physical Configuration



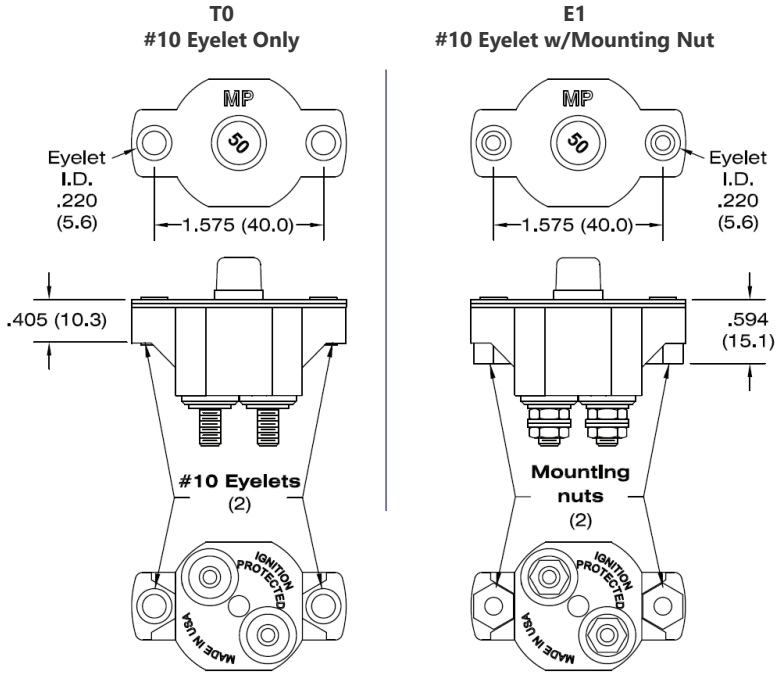
Series 18 Mounting Options

Panel mounting options include both through-hold inserts for #10-32 threaded clearance and #8-32 threaded mounting inserts



Panel Mounting Options

Mounting Code	Eyelet Size	Eyelet Dia.	Optional Screw Available*	Clearance Dia. "A"
T0	#10	.220 (5.6)	-	For #10 screw
E1	#10	.220 (5.6)	#8-32	For #8 screw



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Series 18 Terminal Options

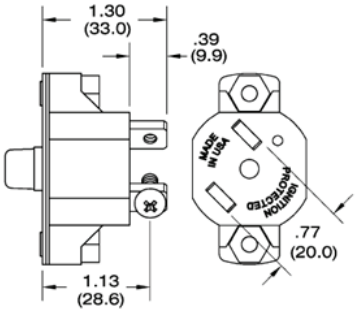
Two terminal options are available for the Series 18.

Style 0: #8-32 screw terminals (for 2-40 amps
Style 1: #10-32 stud terminals (for 10-70 Amp)

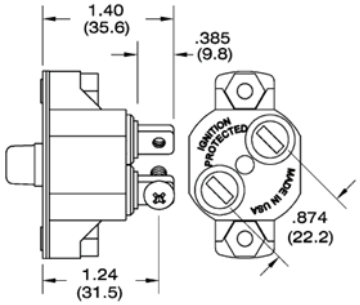
Ampere Rating

	2	10	25	40	70
#8-32 screw	2 - 40 A				
#10-32 stud		10 - 70 A			

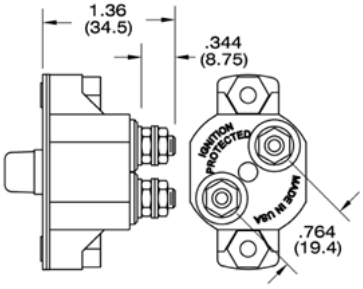
(Optional terminal hardware included as required)



2E (offset)
2-4 Amps, Style 0 only
Offset 8-32 screw terminals



2E (in-line)
5-40 Amps, Style 0 only
In-Line 8-32 screw terminals



3T
10 - 70 Amps, Style 1 only
#10-32 Threaded Stud Terminals

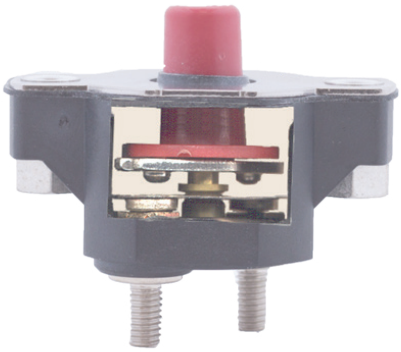
Series 18 Design Characteristics & Typical Applications

Robust design for Harsh Environments

The Series 18 was designed for the harshest of environments. The weatherproof and ignition proof characteristics are especially well suited to applications in the Marine, Heavy Equipment, Trucs, Buses and Battery Chargers.

All materials for the Series 18 were carefully chosen for resistance to UV and flammability. Equipment that must perform in the most demanding environmental conditions relies on the Series 18.

The Series 18 uses a double-break design to achieve increased short-circuit interruption capability. The push-to-reset actuator is trip-free, ensuring the Series 18 cannot be forced to continuously maintain a closed circuit if an overload condition exists.



The Series 18 is designed to be fit and form compatible to previously available devices, while providing enhanced performance.

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Series 18 Part Numbering Guide

P/N: 1 8 □ □ - □ □ - □ - □ □ - □ □ □ □ - □ □

Series Number
18 = Series Circuit Protector

Style
0 = 2 - 40 Amps, Screw Terminals
1 = 10 - 70 Amps, Stud Terminals

Actuation
0 = Manual Reset - Weatherproof
1 = Auto Reset - Weatherproof

Mounting
T0 = #10 eyelet hole only
E1 = #10 eyelet hole with attached mounting nut

Color and Marking
0 = Red button
1 = Red button w/ 45° white amp-stamp
2 = No button (Auto Reset)

Terminals
2E = Offset 8-32 screw terminals (2-4A, Style 0 only)
2E = In-line 8-32 screw terminals (5-40A, Style 0 only)
3T = 10-32 threaded .449" stud (10-70A, Style 1 only)
(see Terminal Configurations on page 5)

Amp Rating

0020 = 2.0A	0250 = 25.0A
0030 = 3.0A	0300 = 30.0A
0050 = 5.0A	0350 = 35.0A
0080 = 8.0A	0400 = 40.0A
0100 = 10.0A	0450 = 45.0A
0125 = 12.5A	0500 = 50.0A
0150 = 15.0A	0600 = 60.0A
0175 = 17.5A	0700 = 70.0A
0200 = 20.0A	

Mounting Hardware
0 = No Mounting Hardware
1 = Std. 8-32 screw for "E1" mounting nut (for .020 to .150 panel) (Bulk)
3 = "1" above w/ mounting lockwasher

Terminal Hardware
0 = No terminal hardware
2 = 8-32 screws & lock washers for "2E" terminals
3 = 10-32 nutes & lock washers for "3T" studs

To visit the MP website:

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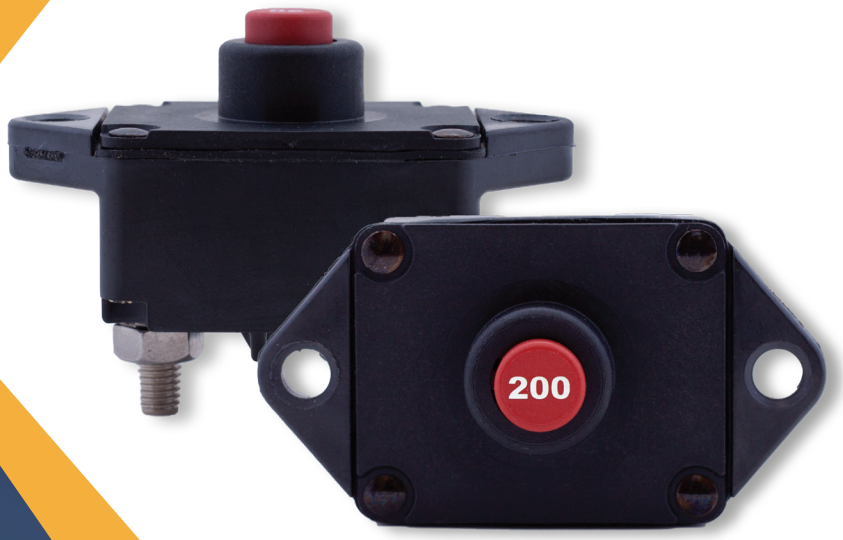
SERIES 19

RAISING THE BAR
MP - COUNT ON IT

- High Amperage 25 to 200 AMP
- Type I & III Vehicle Protection
- IP67 & IP69K Waterproof
- SAE & ABYC Compliant
- Ignition-Protected
- LED *Trip*ID™ Option



MADE in the USA

SUPERIOR CIRCUIT PROTECTION

www.mechprod.com

Series 19 Overview

FEATURES:
Wider Amperage Range - 25 to 200 Amp
Smallest available breaker to 200 Amp
Superior Ingress Protection - IP67 & IP69K
Designed for Harsh Applications to 30VDC
LED *trip*ID™ for open circuits
Recognized per UL1077
Type I and Type III manual reset

Series 19 Specifications

Standard Amp Ratings	25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100, 105, 120, 135, 150, **175, and 200** Amps
Maximum Voltage Ratings	30VDC
Ultimate Trip	Must hold 100% at 25°C / 77°F, Must trip at 135% within 1 hour
Dielectric Strength	1500VAC Minimum
Interrupt Capacity (25 - 150A)	2,500A @ 14VDC (Type III) 1,500A @ 28VDC (Type III) 2,500A @ 30VDC (Type I)
Interrupt Capacity (175 - 200A)	2,500A @ 30VDC (Type I and Type III)
Endurance (25 - 150A)	14VDC @ 100 cycles, 6X rating (Type I and Type III) 28VDC @ 100 cycles, 2X rating (Type III) 30VDC @ 100 cycles, 2X rating (Type I)
Endurance (175 - 200A)	14VDC @ 100 cycles, 6X rating (Type I) 14VDC @ 100 cycles, 2X rating (Type III) 28VDC @ 50 cycles, 2X rating (Type III) 30VDC @ 100 cycles, 2X rating (Type I)
Operating Temperature Range	-40°C / -40°F to 85°C / 185°F
Torque Rating	Mounting: #10-32 screws (for attached nut), 25 in-lbs max. 1/4" bolts (for 0.27" mtg holes), 50 in-lbs max. Terminals: 1/4"-28 studs, 50 in-lbs max.
Weight	Panel Mount: 2.6 oz. (74 gm.) Panel Mount w/Plate: 5.0 oz. (140 gm.)
Ignition Protected	Compliant to SAE J1171
Ingress Protection	IP67 - Dust and waterproof rated. IP69K - High temperature an pressure spray
Corrosion	Conforms to Mil-STD-202, Method 101, Test Condition A, for 96 hours under a 5% salt spray
Humidity	Conforms to Mil-STD-202, Method 106, for 240 hours at 95% RH
Shock	Rated to withstand 100g per Mil-STD-202, Method 213, Test Condition A.
Vibration	Rated to withstand 10g per Mil-STD-204, Test Condition A.
Regulatory Compliance Summary	Interrupt Capacity: SAE J1625, ABYC-E11, UL1077* Ignition Protected: SAE J1171 Endurance: SAE J1625 Dielectric Strength: UL1077* Shock Vibration, Corrosion, Humidity: Mil-STD-202 Dust and Waterproof: IP67 High Temp & Pressure Spray: IP69K **tested per UL1077 methods*

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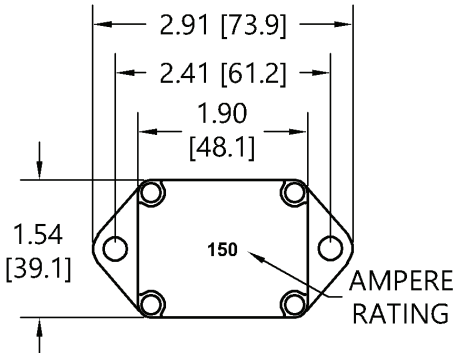
Series 19 Physical Configuration

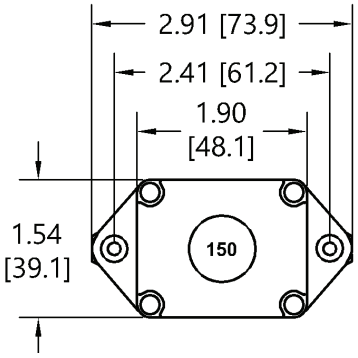
19A-P10

Type I Auto Reset Panel Mount



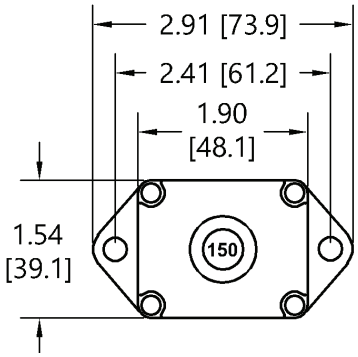
19A-P11

Type I Auto Reset Panel Mount with LED tripIDtm and attached mounting nuts



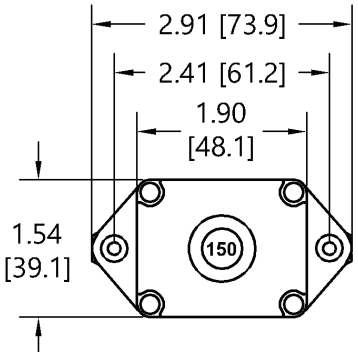
19M-P10

Type III Manual Reset Panel Mount



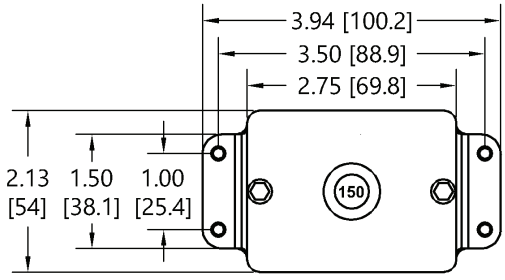
19M-P11

Type III Manual Reset Panel Mount with attached mounting nuts

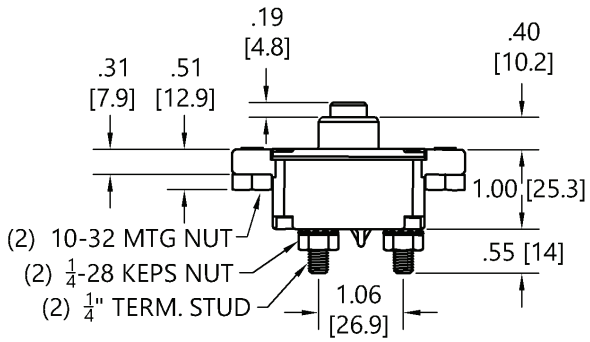


19M-P21

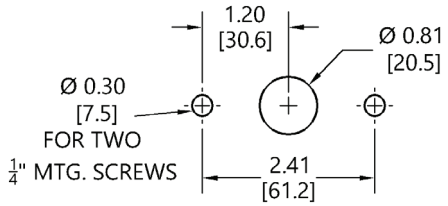
Type III Manual Reset Panel Mount with wide mounting plate and attached mounting nuts



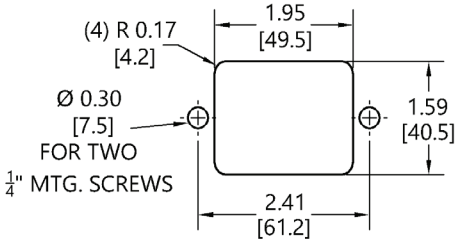
Type III Manual Reset - Side View



Rear Mount Panel Cutout Dimensions without wide mounting plate



Front Mount Panel Cutout Dimensions without wide mounting plate



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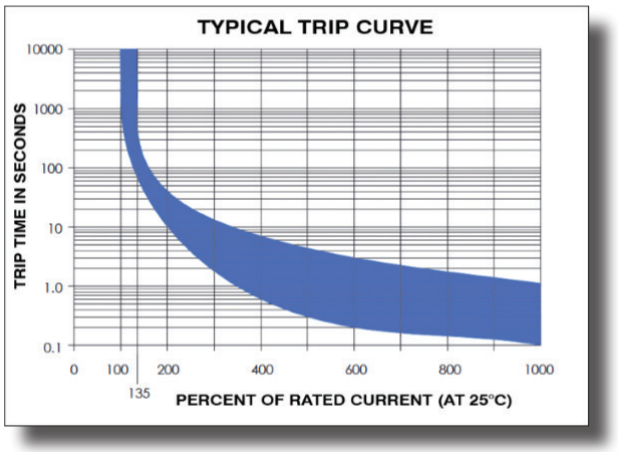

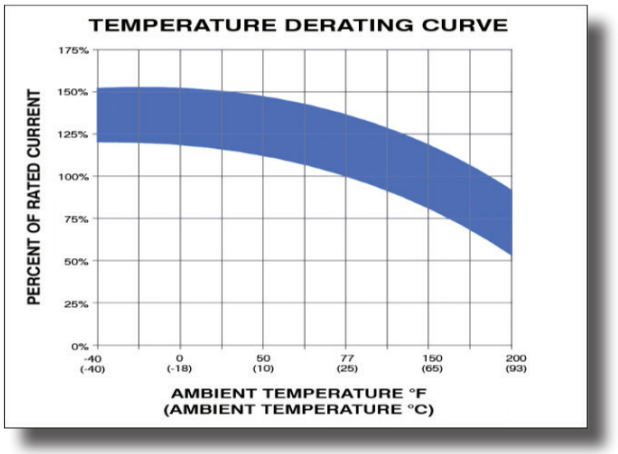

Typical Overload Trip Time Data (in seconds)

Current Rating	200%	400%	600%	800 %	1000%
25-200 Amps	10-40	0.6-7.0	0.2-3.0	0.15– 2.0	0.09-1.2

Typical Ambient Temperature Correction Factor

Current Rating	°F	-40	0	50	77	150	200
	°C	-40	-18	10	25	65	93
25-200 Amps		0.80	0.84	0.87	1.00	1.22	1.47

Type I Auto Reset w/ LED *Trip***ID**™
Shown: P/N 19A-P10-C-150-02

Series 19 Part Numbering Guide

P/N: 1 9 ☐ - ☐☐☐ - ☐ - ☐☐☐ - ☐☐

Series Number
19 = Series Circuit Protector

Vehicle Protection
A = Type I Auto Reset
M = Type III Manual Reset

Mounting Options / Configurations
P10 = Panel Mount
P11 = Panel Mount
with (2) 10-32 attached mounting nuts
P20 = **Panel mount with Wide Mounting Plate
P21 = **Panel Mount with Wide Mounting Plate
and (4) 10-32 attached munting nuts
***Contact Factory for information*

Button / Lighting Option
N = None, Sealed Cover
(Type I Auto Reset Only)
B = Button (Red), no lighting option
(Type III Manual Reset Only)
R = Red Button, Red Lighted *trip***ID**™
(Type I or Type III)
C = **Clear Button, Red Lighted *trip***ID**™
(Type I or Type III)
Options B, R, C include Amp stamp on Button

Amp Rating
025 - 200 Amps

Mounting Hardware
0 = No Mounting Hardware
1 = Bulk, (2) SS #10-32 screws
2 = Assembled, (2) SS #10-32 screws

Terminal Hardware
0 = No Terminal Hardware
1 = (2) SS 1/4" Sems Nuts, Bulk
2 = (2) SS 1/4" Sems Nuts, Assembled

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phone 630 | 953 | 4100 fax 630 | 953 | 4110 www.mechprod.com

1 & 2 pole protection

RoHS compliant

UL 1500 Ignition Proof

0.1 to 30 Amp capacity

Series 24

Raising the Bar

MP—Count on it

Mechanical Products Company

The Series 24 Overview

Multi-Functional to fit your design needs

The switchable, trip-free, MP Series 24 circuit breaker may be specified to meet a wide variety of circuit protection and/or switching requirements in ratings of 0.1 – 30A. The snap-in mount Series 24 may be specified as a circuit protector and/or switch, as a one or two pole device with splash and actuator guard options.

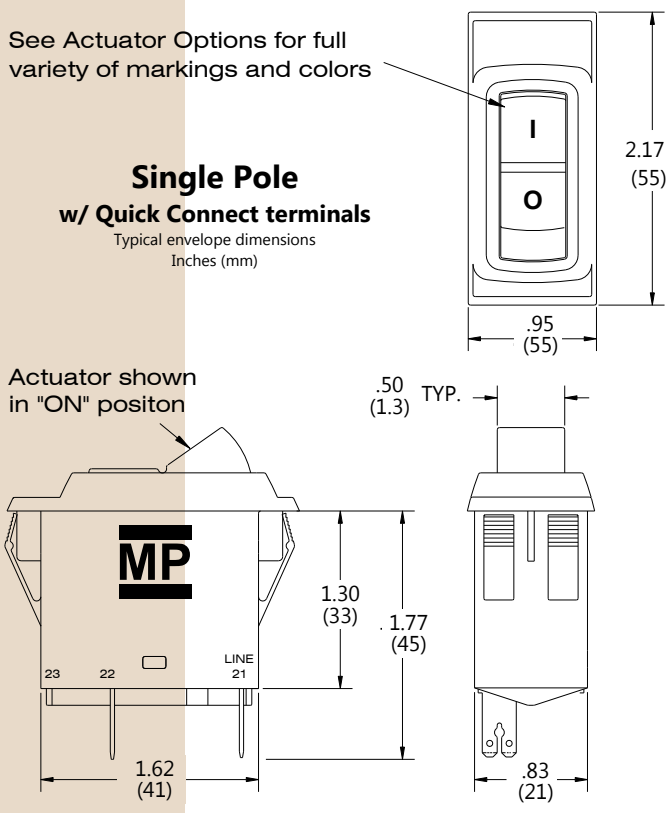
The Series 24 is certified for CSA C22.2 No.100-04 Portable Generators.

Series 24 Offers:

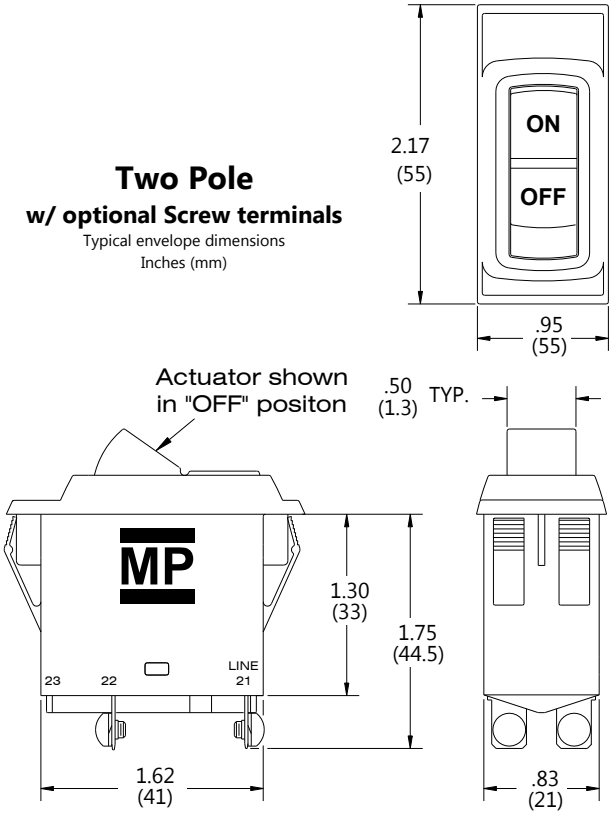
- AC/DC ratings from 0.1 to 30 Amps
- UL 1500 Ignition protection
- 1 & 2 pole protection
- RoHS compliant
- Splash Guard / Actuator Guard
- Lighted or unlighted

MP's Series 24 offers trip-free protection. It operates as a latched mechanism, in which the switch function (Power On/Off) is independent of the trip function (Overload Protection). The latch mechanism is tripped by means of a cantilever-beam current sensing element. The contacts travel through an arc diverter chamber to reduce arc-quenching time. The overall mechanism is extremely simple in design for reliable operation.
US Patent Number 4937548

Series 24 Physical Configuration



Single Pole
w/ Quick Connect terminals
Typical envelope dimensions
Inches (mm)



Two Pole
w/ optional Screw terminals
Typical envelope dimensions
Inches (mm)

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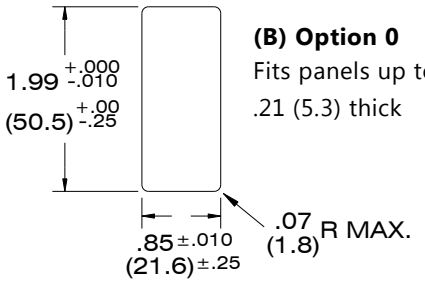
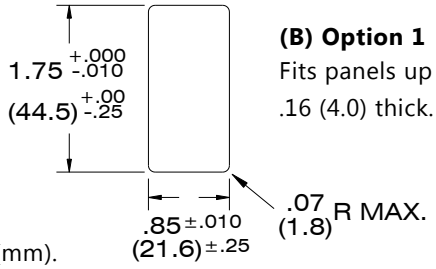
Series 24 Panel Mount Openings (B)



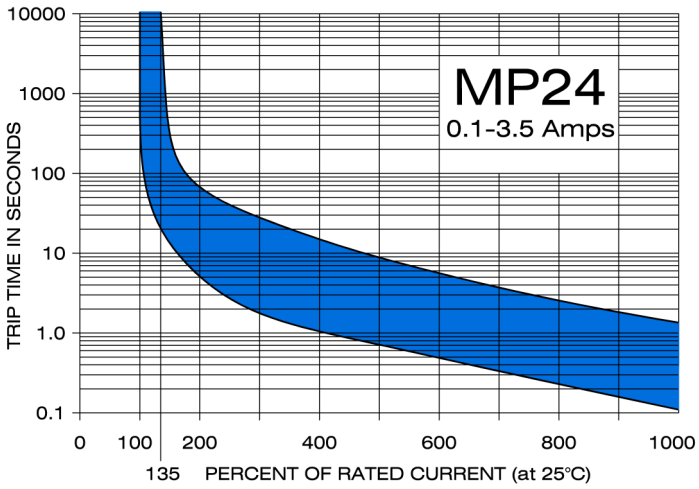
(B) Option 0
Fits panels up to
.21 (5.3) thick

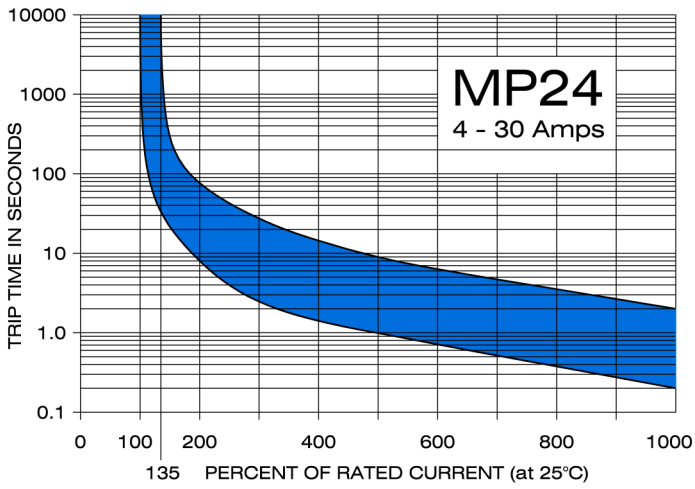


(B) Option 1
Fits panels up to
.16 (4.0) thick.

Inches (mm).

Series 24 Typical Trip Curves





Series 24 Operating Characteristics

Minimum Ultimate Trip
100% of rated current at 25°C/77°F

Maximum Ultimate Trip
135% of rated current at 25°C/77°F

Voltage Drop
The Series 24 in ratings of 0.1-3.5 Amp has a maximum voltage drop of 9.0V at rated current.

The Series 24 in ratings of 4-20 Amp has a maximum voltage drop of .24V at rated current.

Overload Trip Time Data (seconds at 25°C)

Current Rating	200%	500%	1000%
0.1 – 3.5 Amps	8-60	0.7-5	0.3-2.0
4 - 30 Amps	8-80	1-4	0.2-1.5

Typical Ambient Temperature Correction Factor

Current Rating	-22°F -30°C	32 0	77 25	104 40	122 50	140 60
0.1 - 3.5 Amps	0.8	0.9	1.00	1.08	1.16	1.24
4 - 30 Amps	0.8	0.9	1.00	1.08	1.16	1.24

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Series 24 Specifications

Standard Amp Ratings
Series 24 supplementary circuit protectors can be specified for 0.1A, 0.2A, 0.3A, 0.4A, 0.5A, 0.6A, 0.8A, 1A, 1.25A 1.5A, 2A, 2.5A, 3A, 3.5A, 4A, 4.5A, 5A, 6A, 7A, 8A, 10A, 12A, 14A, 15A, 16A, 18A, 20A, 25A, or 30A

Voltage Rating
Series 24 is rated at 250VAC/50VDC Max.

Rated Short Circuit Capacity Icn (IEC60934)
0.1 – 2A, 10 x I_n
2.5 – 20A, 250A 2 pole, 150A 1 pole

Short Circuit Current Rating (UL1077)
UL 2 pole at 250VAC
0.1 – 0.4A, 200A (pending)
0.5 – 30A, 5,000A

UL 2 pole at 50VDC
0.1 – 0.4A, 1,000A (pending)
0.5 - 30A, 1,000A

Inrush Capacity
The Series 24 will not trip at 35X rated current for 1/2 cycle (0.008 sec.)

Typical Life
2 Pole
50,000 operations, I_n <= 16A (240VAC/50VDC)
30,000 operations, I_n >= 17A (240VAC)
10,000 operations, I_n >= 17A (50VDC)

1 Pole
30,000 operations, I_n <= 20A (240VAC)
30,000 operations, I_n <= 16A (50VDC)
30,000 operations, I_n >= 17A (28VDC)

Ambient Operating Temperature
-22 - +140°F (-30 - +60°C)

Dielectric Strength
The Series 24 has dielectric strength ratings of 2,000+VAC per IEC and 1,500+VAC per UL, CSA

Vibration
The Series 24 will withstand 8g (57-500Hz) as tested to IEC60068-2-6, Test Fc 10 frequency cycles/axis

Shock
The Series 24 will withstand 30g (11ms) as tested to IEC60068-2-27, Test Ea

Degree of Protection
The Series 24 is rated at IP40 for the operating area (IP54 with splash protection) and IP00 for the terminal area, per IEC 529/DIN 40050.

Corrosion
The Series 24 will withstand 96 Hrs at 5% salt spray as tested to IEC60068-2-11, Test Ka

Humidity
The Series 24 will withstand 240 Hrs at 95% RH as tested to IEC60068-2-3, Test Ca

Weight
The Series 24 two pole has a typical weight of 37g.

Regulatory Approvals
UL1077 recognized, File #E66224
CSA certified, File #LR27156 (MC# 164913)
VDE/IEC60934 License #40028901, 0.5-20 Amp
CCC CQC GB17701-1999, License Pending*

Illumination Voltage/Power Consumed

Nominal Lamp Voltage	Lamp current
5	114 mA @ 5 VDC
14	38 mA @ 12 VDC
28	23 mA @ 24 VDC
115	<1.5 mA @ 115 VAC
230	<1.5 mA @ 230 VAC

CSA Application Codes
1 Pole: 4-30A, 250VAC, 50VDC, TC3, OL0 250VAC, OL1 125VAC, (50VDC 4-20A OL1, 21-30A OL0)
SC:C1, 1kA 50VDC: SC:U3, 0.37kA 250VAC;
SC:C1, 5kA 250VAC

2 Pole: (1 ph., 2 pole break) 4-30A, 250VAC, 50VDC TC3, OL1 250VAC, OL1 50VDC
SC:U3, 0.37kA 250VAC: SC:C1, 5kA, 250VAC
SC:C1, 1kA 50VDC

Industrial Equipment
Series 24 Quick Connect Terminals are suitable for "General Industrial" use.

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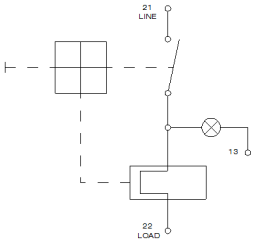
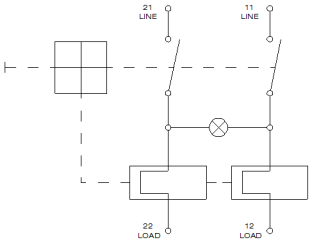
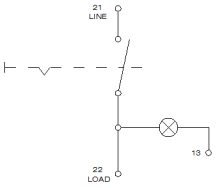
Series 24 Poles (A)



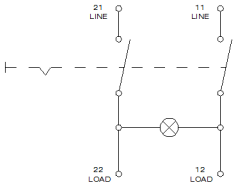
(A) 1 pole, thermally protected



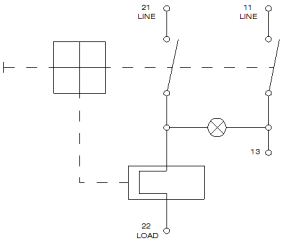
(A) 2 poles, thermally protected



(A) 1 pole, unprotected, switch only



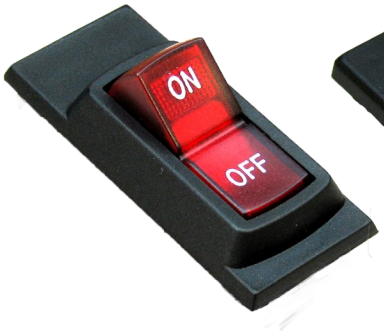
(A) 2 poles, unprotected, switch only



(A) 2 poles, one protected, one unprotected

Series 24 Actuator Options (C & G)

See back page for the complete list of options.



(C) Actuator Style 1
Standard Rocker

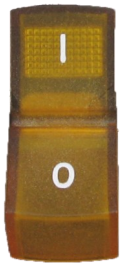
(C) Actuator Style 2
Rocker with
Splash Guard

(C) Actuator Style 3
Rocker with
Actuator Guard

(C) Actuator Style 4
Rocker with
Splash & Actuator Guard

Color 1

Color 2



Color 3

Color 4

Color 5

(G) Actuator Colors

Series 24 rocker actuators are available in a variety of colors, with green, red, amber and white translucent actuators for both lighted and unlighted applications, as well as unlighted black.

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Series 24 Part Numbering Guide

(J) Ampere Ratings

0010 = 0.1A	0150 = 1.5A	0700 = 7.0A
0020 = 0.2A	0200 = 2.0A	0800 = 8.0A
0030 = 0.3A	0250 = 2.5A	1000 = 10.0A
0040 = 0.4A	0300 = 3.0A	1200 = 12.0A
0050 = 0.5A	0350 = 3.5A	1400 = 14.0A
0060 = 0.6A	0400 = 4.0A	1500 = 15.0A
0080 = 0.8A	0450 = 4.5A	1600 = 16.0A
0100 = 1.0A	0500 = 5.0A	1800 = 18.0A
0125 = 1.25A	0600 = 6.0A	2000 = 20.0A
(Additional ratings available)		2500 = 25.0A
		3000 = 30.0A

Series Number

24 = Series 24 Circuit Protector

P/N: 24 AB - C0E - FGH - JJJJ

(A) Poles

1 = 1 pole, thermally protected
2 = 2 pole, thermally protected
3 = 1 pole, unprotected, switch only
4 = 2 pole, unprotected, switch only
5 = 2 pole, one pole protected, one pole switch only

(B) Panel Mount Openings

0 = Snap-in, 0.85 x 1.99 inch panel cutout
1 = Snap-in, 0.85 x 1.75 inch panel cutout

(C) Actuator Styles

1 = Rocker
2 = Rocker with Splash Guard
3 = Rocker with Actuator Guard
4 = Rocker with Splash & Actuator Guard

(E) Light (Voltage) Options

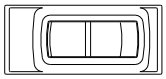
0 = Not lighted
1 = 4-7 VDC Incandescent
2 = 10-14 VDC Incandescent
3 = 20-28 VDC Incandescent
4 = 90-140 VAC Neon
5 = 185-275 VAC Neon
(Note: Options 1-5 require a translucent Actuator color)

(F) Termination Options

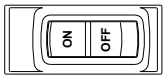
1 = Combination .110/.250" Quick Connects
2 = #6-32 UNF (hardware bulk packed)
4 = #8-32 UNF (hardware bulk packed)

(H) Actuator Markings

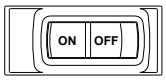
0 = Not marked*



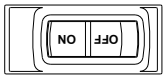
1 = ON / OFF*



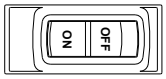
2 = ON / OFF*



3 = ON / OFF*

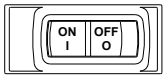


4 = ON / OFF*

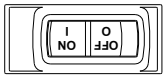


5 = ON I / O OFF

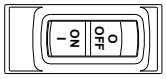
6 = ON I / O OFF



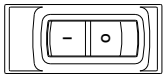
7 = ON I / O OFF



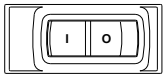
8 = ON I / O OFF



9 = I / O



A = I / O



(*non-VDE only)

(G) Actuator Color

1 = Green – Translucent
2 = Red – Translucent
3 = Amber – Translucent
4 = White – Translucent
5 = Black – Unlighted only

⚠ WARNING: Cancer & Reproductive Harm – www.P65Warnings.Ca.Gov/

- For More Information visit www.mechprod.com/MP Prop 65

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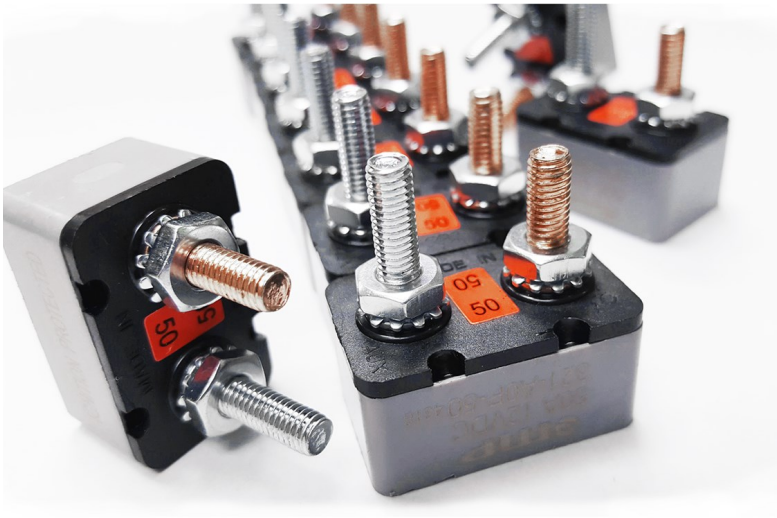
Mechanical Products Company

MP Series 32

Short Stop Circuit Breaker



Series 32 Features

3 - 50 Ampere Type I, II & III Circuit Breakers
Auto, Modified & Manual Reset
Ignition Protected
Black Reset Button

Series 32 Specifications

Rated Voltage	Type I & II - 14 VDC Type III - 28 VDC
Rated Current	3 to 50 Amperes
Interrupt Capacity	2500A @12 VDC
Dielectric Strength	1500VAC
Insulation Resistance	≥ 100Mohm, 500VDC
Reset Overload Capacity	6x rated current
Operating Temperature	-40 to +85°C
Terminations	#10-32 Thread Options (24in./lb. max. torque)

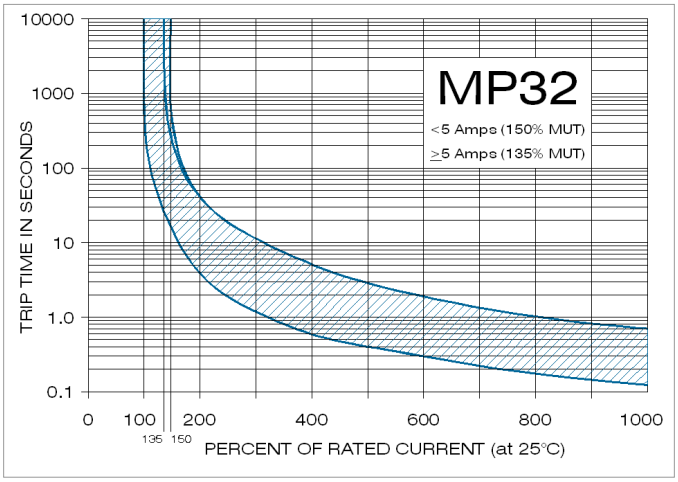
Series 32 Applications

Trucks, Buses, Emergency Vehicles, Con/Ag, Off-Road RV's, Motorhomes, Boats, Trolling Motors, DC Lawn Mowers, Battery Chargers & Floor Cleaning Equipment

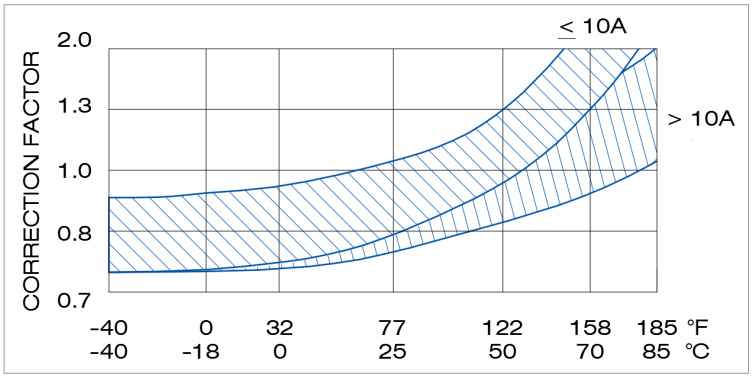
Regulatory

Complies with SAE Standard J553 & J1171 (Ignition Protected)
Ingress Protection: IP66 (Plastic, except terminations)
ROHS Compliant

Typical Trip Curve



Ambient Temperature Correction



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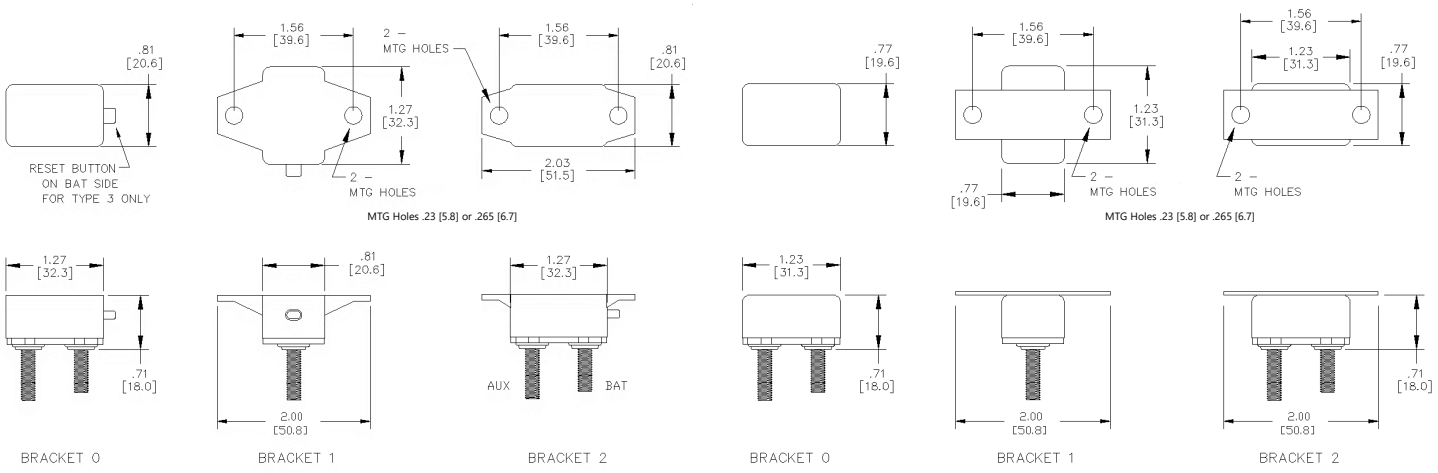
Physical Configuration



Type 1 & 3 - Plastic Cover

Type 1 & 2 - Metal Cover

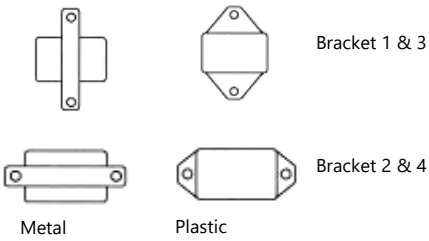
Part Numbering Guide

P/N: 3 2 [ ] - [ ][ ][ ] - [ ][ ] - [ ]

Type
1 = Type 1 (I), Auto-Reset, 14VDC
2 = Type 2 (II), Modified Reset, 14VDC
3 = Type 3 (III), Push to Reset, 28VDC

Terminal Studs
A = Two #10-32 studs; Length .66 [16.8] AUX .56 [14.2] BAT
B = Two #10-32 studs; Length .56 [14.2] AUX & BAT
C = Two #10-32 studs; Length .66 [16.8] AUX & BAT

Bracket
0 = No Mounting Bracket
1 = Perpendicular, .23 Mtg Holes
2 = Parallel, .23 Mtg Holes
3 = Perpendicular, .265 Mtg Holes
4 = Parallel, .265 Mtg Holes



Cover Material
M = Metal (Type 1 & 2 Only)
P = Plastic (Type 1 & 3 Only)
MS = Sealed Metal (Type 1 & 2 Only)
PS = Sealed Plastic (Type 1)

Amp Rating / Color Code
3 to 50 Amps

03 = 3 Amp / Violet
04 = 4 Amp / Pink
05 = 5 Amp / Tan
06 = 6 Amp / Green
08 = 8 Amp / Brown
10 = 10 Amp / Red
15 = 15 Amp / Blue
20 = 20 Amp / Yellow
25 = 25 Amp / Gray
30 = 30 Amp / Green
35 = 35 Amp / Brown
40 = 40 Amp / Orange
50 = 50 Amp / Red

Standard Color Code between terminals

Terminal Hardware
0 = None
A = Two #10-32 KEPS Nuts, Assembled
B = Two #10-32 KEPS Nuts, Bulk Packed

Protective Boot

P/N **32-BR** = Boot, Red

P/N **32-BB** = Boot, Black

⚠ WARNING: Cancer & Reproductive Harm – www.P65Warnings.Ca.Gov/

- For More Information visit www.mechprod.com/MP_Prop_65

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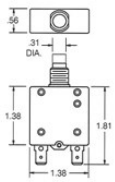
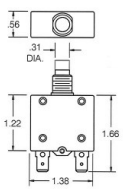
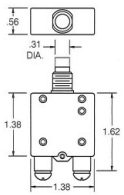
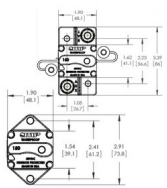
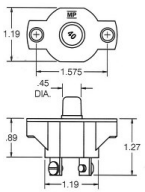
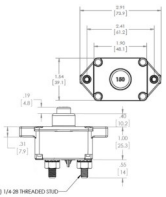
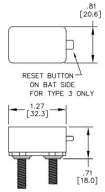
Mechanical Products Company

Series	Series 16	Series 16	Series 16	Series 17	Series 18	Series 19	Series 32
Models	1601, 1611, 1681	1600, 1604, 1610, 1680	1648	171, 174, 175, 176	1800, 1801, 1810, 1811	19A, 19M	321, 322, 323
Features	Low Amp. Robust design. Push-to-Reset, supplementary protector. Various mounting styles and termination options available. UL1500, Ignition Protected. Qualified for Resistive & Motor applications. Cadmium free contacts.	Mid Amp. Robust Design. Push-to-Reset, supplementary protector. Various mounting styles and termination options available. UL1500 Ignition Protected. Qualified for Resistive & motor applications. Cadmium free contacts.	Hi Amp. Robust Design. Push-to-Reset, supplementary protector. Various mounting styles with #10-32 screw terminals standard. UL1500 Ignition Protected. Cadmium free contacts.	Hi-Amp, dust & waterproof ignition protected, type I III & III (PTT) circuit breaker. Standard designs offered thru 300A in panel and surface mount versions. Options include new easy access 1/4" & 3/8" stainless terminals & hardware. Patented. LED TripID™ accessory.	Weatherproof, ignition proof, available as a Push-to-Reset protector. Designed for harsh environments as tested to ABYC, USCG, SAE, UL & Mil Stds requirements. UL1500 Ignition Protected.	Hi-Amp, superior dust & waterproof rating, Ignition protected, Type I & Type III circuit breaker. Fit, form & function to traditional offerings, with expanded ratings through 200 Amps. Options include mounting plate to fit competitive 175 - 200A panel cutout stainless hardware, and patent pending TripID™.	Smallest Push-to-Reset breaker available in 3 - 40 Amps. Various mounting and termination options. Ignition Protected. Cadmium Free contacts.
Current Ratings	0.5 - 4.5 Amperes	5 - 35 Amperes	40 - 70 Amperes	25 - 300 Amperes	2 - 70 Amperes	25 - 200 Amperes	3 - 50 Amperes
Voltage Ratings	250VAC / 50VDC	250VAC / 50VDC (5 - 25A) 250VAC / 32VDC (26 - 35A)	250VAC / 50VDC	48VDC (25 - 150A) 30VDC (175 - 200A) 14VDC (225 - 300A)	120VAC / 32VDC	30VDC	14VDC (Type I & II) 28VDC (Type III)
Calibration @ 25°C (percent of rating)	=< 1A 100% Hold, 145% Trip > 1A 100% Hold, 135% Trip	100% Hold, 135% Trip	100% Hold, 140% Trip	100% Hold, 135% Trip	100% Hold, 135% trip (2-40A, Series 1800 & 1801) 110% Hold, 143% Trip (12.5-70A, Series 1810 & 1811)	100% Hold, 135% Trip	<5A 100% Hold, 150% Trip =>5A 100% Hold, 135% Trip
Overload Trip Time (in seconds @ 25°C) 200%	10 - 32 sec	4 - 15 sec (5-7.5A) 5 - 30 sec (8-35A)	5 - 30 sec	10 - 40 sec	4 - 150 sec (2-40A) 6 - 70 sec (12.5-60A)	10 - 40 sec	4 - 40 sec
500%	3 - 4.7 sec	0.5 - 1.8 sec (5-7.5A) 0.5 - 2.8 sec (8-35A)	0.5 sec - 2.8 sec	0.4 - 5 sec	1.2 - 20 sec (2-10A)*** 0.6 - 5 sec (12.5-60A)***	0.4 - 5 sec	0.4 - 2.8 sec
1000%	2.3 - 4.2 sec**	0.16 - 0.66 sec (5-7.5A) 0.15 - 0.78 sec (8-35A)	0.15 - 0.78 sec	0.09 - 1.2 sec	0.3 - 2.5 sec (2-40A) 0.1 - 0.7 sec (12.5-60A)	0.09 - 1.2 sec	0.12 - 0.7 sec
Short Circuit Interruption	Per UL1077 1,000A @ 250VAC / 50VDC 2,000A @ 120VAC MP Performance Certified 3,000A @ 32VDC	Per UL1077 1,000A @ 250VAC / 50VDC 2,000A @ 120VAC MP Performance Certified 3,000A @ 32VDC	Per UL1077 1,000A @ 250VAC / 50VDC 2,000A @ 120VAC MP Performance Certified 3,000A @ 32VDC	Per SAE J553, J1625, ABYC-E11 3,000A @ 30VDC, Type I (25-150A) 1,500A @ 30VDC, Type I (175-200A) 2,500A @ 14VDC, Type I (225-300A) 3,000A @ 14VDC, Type III (25-200A) 1,500A @ 48VDC, Type III (25-150A)	Per UL1077 3,000A @ 120VAC / 32VDC (Series 1800, 1801, 1810, 1811) 5,000A @ 32VDC (Series 1810, 1811)	Per SAE J553, J1625, ABYC-E11 2,500A @ 30VDC, Type I (25-200A) 2,500A @ 14VDC, Type I (25-150A) 1,500A @ 28VDC, Type III (25-150A) 2,500A @ 30VDC, Type III (175-200A)	Varies by current and voltage. See datasheet
Regulatory Approvals	UL, CSA, CCC, VDE (IEC)	UL, CSA, CCC, VDE (IEC)	UL, CSA, CCC	ABYC-E11, IP67, Mil-STD-202, SAE J553, J1171, J1625	UL1500	ABYC-E11, IP67, IP69K, Mil-STD-202, SAE J553, J1171, J1625	SAE J553*, J1171*
Motor Load Rated	Yes	Yes	*	N/A	N/A	N/A	N/A
Notes	Vibration: 8g Shock: 30g Corrosion: 96hr Salt Spray Humidity: 240hr at 95% RH **Results at 600%	Vibration: 8g Shock: 30g Corrosion: 96hr Salt Spray Humidity: 240hr at 95% RH (applies to Model 1648 also)	55A 32VAC UL CSA CCC 55A 250VAC CCC 55A 250VAC MP Certified 60 - 70A 250VAC / 32VDCMP certified & CCC (See Model 1600 notes)	Vibration: 10g Shock: 100g Corrosion: 96hr Salt Spray Humidity: 240hr at 95% RH Ingress Protection: IP67	Vibration: 10g Shock: 100g Corrosion: 96hr Salt Spray Humidity: 240hr at 95% RH ***Results at 400%	Vibration: 10g Shock: 100g Corrosion: 96hr Salt Spray Humidity: 240hr at 95% RH Ingress protection: IP69K	Corrosion: 96hr Salt Spray Humidity: 240hr @ 95% RH
Dimensions (Inches)							

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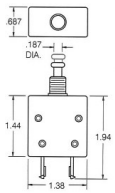
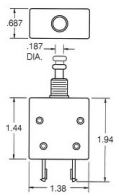
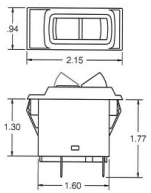
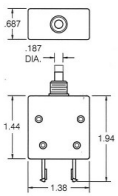
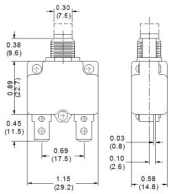
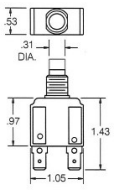
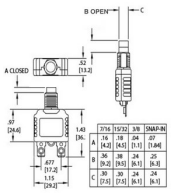
Mechanical Products Company

Series	Series 07	Series 07	Series 24	Series 02	Series 12	Series 14	Series 15
Models	752	762, 772	2410, 2411, 2420, 2421	252, 600, 601	1221, 1223, 1224, 1227	1400, 1430 1450, 1480, 1490	1500, 1530, 1560, 1580
Features	Switchable, Trip Free "Double Break" mechanism, with High Interrupt Capacity. The 752 Push-Pull variants are the smallest UL489 listed molded case circuit breakers available. Suitable for Branch Circuit Protection. Cadmium free contacts.	Switchable Trip Free "double Break" operations gives the Models 762 & 772 up to a 5,000 Amp Interrupt Capacity in a small package size. For 5 - 30 Amps, 0.250" quick connect terminals standard. In 30 - 40 Amps, #10-32 screw terminals are standard. Cadmium free contacts.	Compact Snap-in panel mount, 1 & 2 pole, Power "on/Off" switch with Trip Free Circuit Protection. Options include actuator markings, illuminations, guards, and a splash protector. Switch only versions are available in 1 pole devices, or in one or both poles of a 2 pole device.	Trip Free "Double Break" mechanism with High Interrup capacity. Suitable for branch circuit protection. 0.250" quick connect terminals are standard and #10-32screw terminals at 30 Amps. Cadmium free contacts.	Most economical & compact design, cycling trip free, Push-to-Reset supplementary protector offered in a variety of mounting and termination options.	Compact, economical, Push-to-Reset supplementary protector. Various mounting styles and termination options available. UL1500 ignition protected. Qualified for resistive & motor applications.	Smallest Push-to-Reset breaker available in 3 - 40 Amps. Various mounting and termination options. Ignition Protected. Cadmium Free contacts.
Current Ratings	15 - 20 Amperes	Model 762: 5 - 30 Amperes Model 772: 30 - 40 Amperes	0.1 - 30 Amperes	5 - 30 Amperes	3 - 20 Amperes	3 - 30 Amperes	3 - 40 Amperes
Voltage Ratings	120VAC	277VAC (5-9A) 120VAC (10-30A) 277VAC / 32VDC (30-40A)	250VAC / 50VDC	120VAC / 277VAC / 32VDC	120 / 250VAC / 50VDC	250VAC / 50VDC	250VAC / 50VDC
Calibration @ 25°C (percent of rating)	100% Hold, 135% Trip	100% Hold, 135% Trip	100% Hold, 135% Trip	100% Hold, 135% Trip	100% Hold, 150% Trip	100% Hold, 135% Trip	100% Hold, 150% Trip (3-4A) 100% Hold, 135% Trip (5-40A)
Overload Trip Time (in seconds @ 25°C) 200%	5-30 sec	5-20 sec (5-7A) 5-30 sec (8-40A)	8-40 sec	5-20 sec (5-7A) 5-30 sec (8-40A)	4-40 sec	4-40 sec	5-40 sec (3-4A & 25-40A) 5-30sec (5-20A)
500%	0.5-3.3 sec	0.5 - 1.9 sec (5-7A) 0.5 - 3.3 sec (8-35A)	1-3 sec	0.5 - 1.9 sec (5-7A) 0.5 - 3.3 sec (8-35A)	0.4-2.8 sec	0.4-2.8 sec	0.6-3.3 sec (3-40A)
1000%	0.15-0.9 sec	0.17 - 0.53 sec (5-7.5A) 0.15 - 0.9 sec (8-35A)	0.2-1 sec	0.17 - 0.53 sec (5-7.5A) 0.15 - 0.9 sec (8-35A)	0.12-0.7 sec	0.12-0.4 sec	0.15-0.9 sec (3-40A)
Short Circuit Interruption	Per UL489 5,000A @ 120VAC	Per UL1077 5,000A @ 120VAC	Per UL1077 5,000A @ 250VAC 1,000 @ 50VDC	Per UL489 5,000 @ 120VAC Per UL1077 5,000A @ 277VAC / 32VDC	Per UL1077 1,000A @ 250VAC 1,000A @ 50VDC	Per UL1077 1,000A @ 250VAC / 50VDC 3,000A @ 32VDC	Per UL1077 1,000A @ 250VAC 1,000A @ 50VDC 2,500A @ 32VDC
Regulatory Approvals	UL, CSA, CCC, VDE (IEC)	UL, CSA, CCC, VDE (IEC)	UL, CSA, CCC, VDE (IEC)	UL, CSA, CCC, VDE (IEC)	UL, cUL, CSA, CCC, VDE (IEC)	UL, cUL, CCC, VDE (IEC)	UL, cUL, CSA, CCC*, VDE (IEC)
Motor Load Rated	N/A	Yes	Yes	Yes (600, 601)	N/A	Yes	Yes
Notes	Vibration: 8g Shock: 25g Corrosion: 96hr Salt Spray Humidity: 240hr at 95% RH	Vibration: 8g Shock: 25g Corrosion: 96hr Salt Spray Humidity: 240hr at 95% RH	Vibration: 8g Shock: 30g Corrosion: 96hr Salt Spray Humidity: 240hr at 95% RH UL1500 Ignition Protected	Vibration: 8g Shock: 25g Corrosion: 96hr Salt Spray Humidity: 240hr at 95% RH			Vibration: 8g Shock: 30g Corrosion: 96hr Salt Spray
Dimensions (Inches)							

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