

**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.

### Minimum Ultimate Trip

The Series 16 offers a minimum ultimate trip of 100% 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.

### 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

### 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

### 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.

### Dielectric Strength

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

### 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

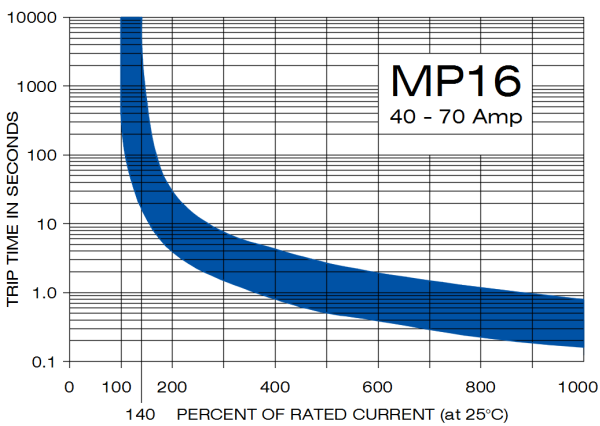
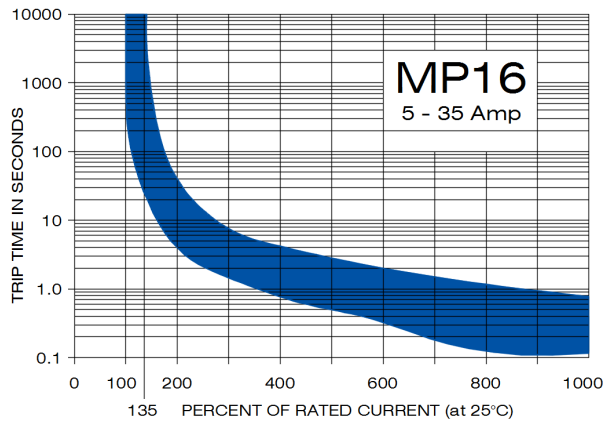
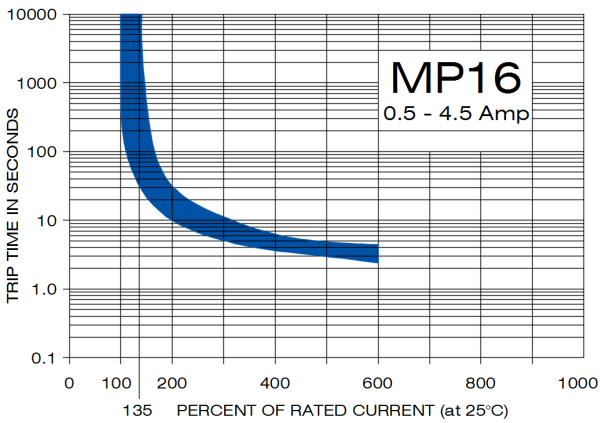
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## Series 16 Operating Characteristics



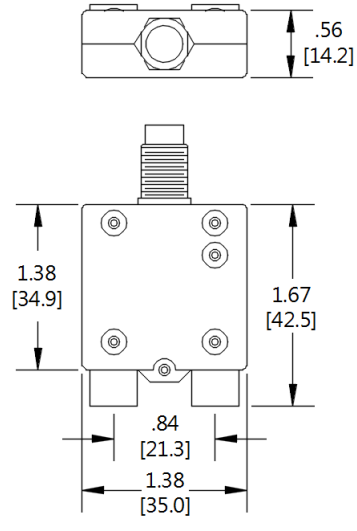
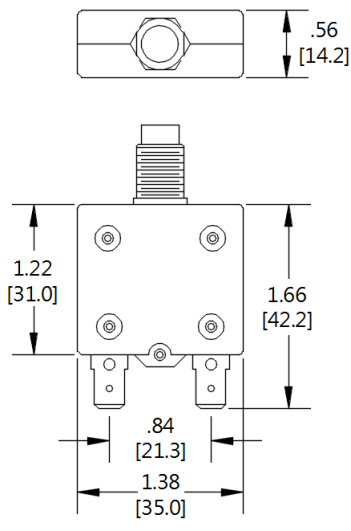
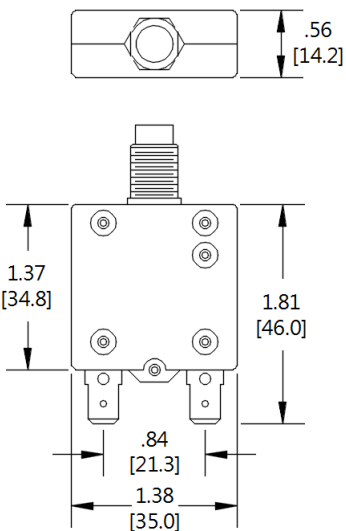
Trip curves presented here are based on typical samples and are for reference. Please consult the factory for more specific application information.

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

## Series 16 Physical Configuration

### Case Sizes

(See Part Numbering Guide)



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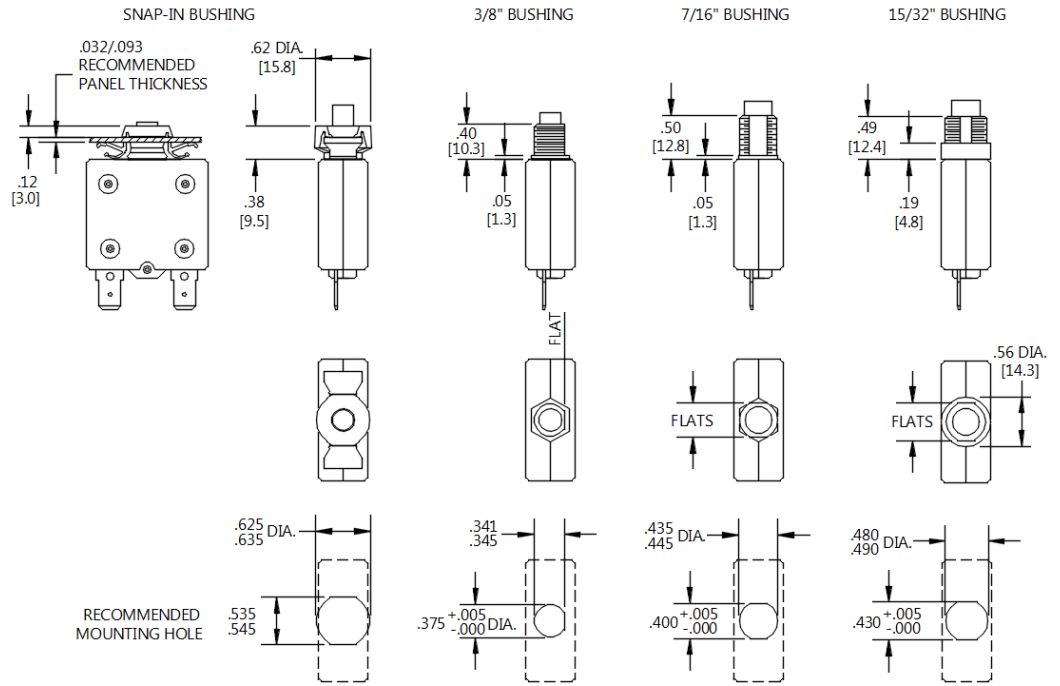
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# Series 16 Physical Configuration

## Bushing Options

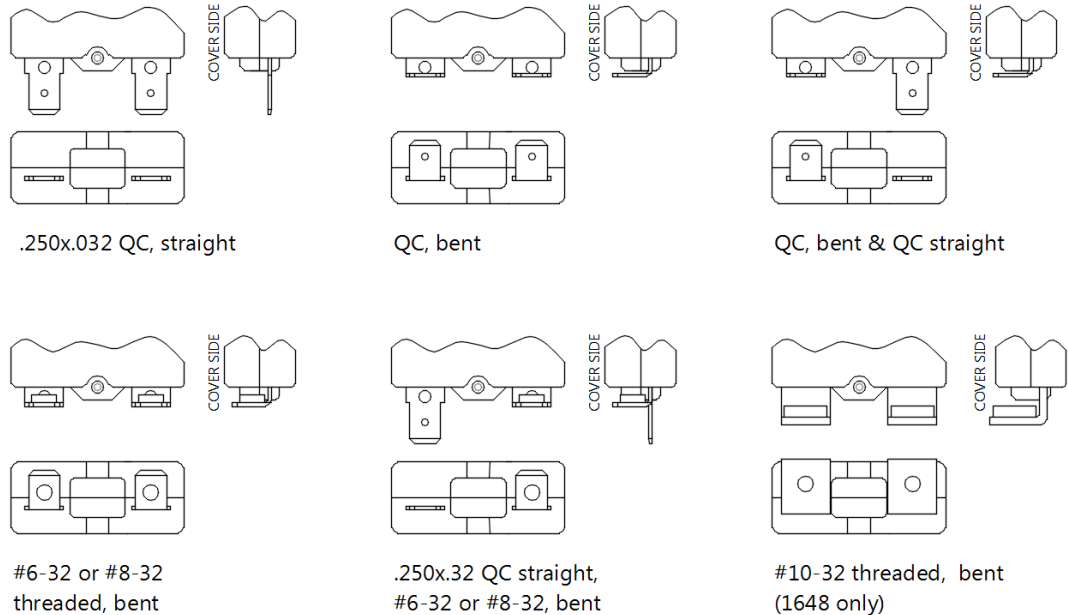
(See Part Numbering Guide)

All dimensions in inches. (mm)



## Terminal Options

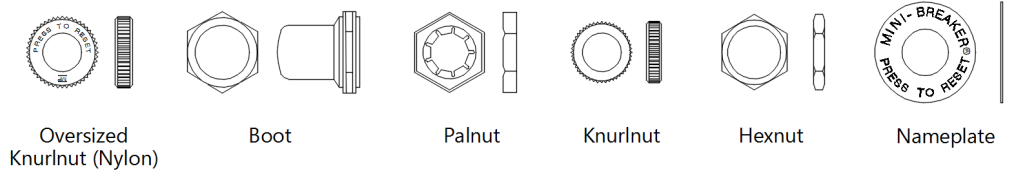
(See Part Numbering Guide)



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

## Hardware Options

(See Part Numbering Guide)



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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	Snap-In Black	White / Red	0.250" quick connect
1601-067		White / None	
1601-251 <sup>1</sup>			

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 <sup>1</sup>			0.250" quick connect

All models are UL, CSA, & CCC, <sup>1</sup>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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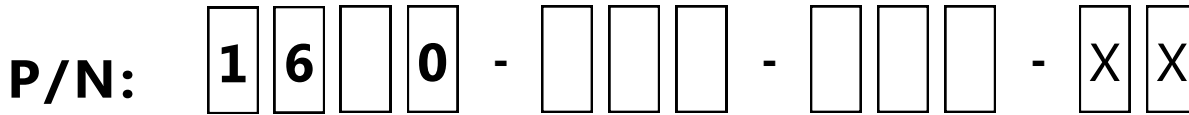
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1600 Model Variation Codes			
Model Code	Bushing Mounting	Button / Amp Stamp Color	Terminal Type
1600-001	7/16"-28 Diecast	White / None	0.250" quick connect
1600-037		White / Black	
1600-055		White / None	#6-32 threaded, bent 90
1600-082		White / Black	
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 <sup>1</sup>		White / Black	0.250" quick connect
1600-255 <sup>1</sup>			0.250" quick connect, bent 90 away from case
1600-263 <sup>1</sup>			

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

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 <sup>1</sup>		White / None	
1680-253 <sup>1</sup>		White / Black	
1680-271			0.250" quick connect, bent 90

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

All models are UL, CSA, & CCC, <sup>1</sup>includes IEC

\*Terminal Hardware Included

\*\*With white trip indicator

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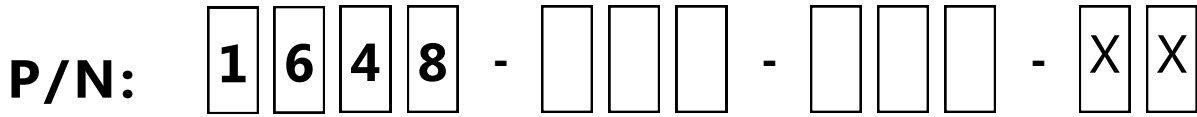
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QC-4006-B

# High Amp 40 to 70

## Series 16 Part Numbering Guide



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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