

Bulletin	1492-MC	1492-MCGA, -MCEA	1492-SP
Type	Branch Circuit Breaker	Ground Fault Detection	Miniature Circuit Breaker Supplementary Protector
Features	<ul style="list-style-type: none"> • 120/240V, 240V & 480Y/277V rating • 1/2 in. per pole wide 10...60 A @ 120/240V AC & 15...30 A @ 240V AC • IP2X finger-safe, built-in with 1/2 in. wide, add protectors for 1 in. wide • Ratings to 480Y/277V AC, 10 000 A interrupt ratings • Mounts on DIN Rail 	<ul style="list-style-type: none"> • 10 000 A interrupt • UL 489 Circuit breaker with ground fault circuit interrupter and ground fault equipment protector • Mounts on DIN Rail or panel mount 	<ul style="list-style-type: none"> • True IP2X finger-safe design (front) • Field mountable options for selective applications • AC and DC voltage ratings in one convenient device • Superior shock and vibration resistance capabilities • Mounts on DIN Rail
Number of Poles	1-, 2-, 3-pole	1- and 2-pole with Neutral	1-, 2-, 3-pole 1-pole + neutral, 3-pole + neutral
Maximum Voltage	120/240V AC 240V AC	120/240V AC 60 Hz	480Y/277V AC 1-pole — 48V DC 2-pole — 96V DC
Tripping Characteristic Reference Temperature	104 °F (40 °C)	104 °F (40 °C)	86 °F (30 °C)
Tripping Characteristic	UL 489 Standard (CSA 22.2 No. 5.1)	UL/CSA Standard	B Curve 3...5 In C Curve 5...10 In D Curve 10...20 In
Certifications	UL 489 Listed Circuit Breaker (CSA 22.2 No. 5.1) UL File Number E197878	UL 489, 943 and 1053 CSA 22.2 No. 5.1	UL 1077 CSA 22.2 No. 235 VDE (IEC 60898) GL (60 947-2)
Dielectric Strength	1960V AC	1960V AC	1960V AC
Shock	25 G half sine wave for 11 ms (3 axes)		
Vibration	100...500 Hz for 1 hour	100...500 Hz for 1 hour	100...500 Hz for 1 hour
Wire Size	#14...1/0 AWG	#14...4 AWG 75°C (Cu only)	#18...4 AWG (1.0...25 mm ²)
Electromechanical Life	UL 489 specifications	UL 489 specifications	≥6000 operations
Interrupt Rating	10 kA @ 240V AC	10 kA @ 120/240V AC	IEC 60898 10 kA @ 415V AC IEC 60947-2 15 kA @ 415V AC UL/CSA 10 kA U2
Operating Temperature (non-condensing)	32...140 °F (0...+60 °C)	32...140 °F (0...+60 °C)	-22...+158 °F (-30...+70 °C)
Product Selection	Page 7-6	Page 7-11	Page 7-46





Bulletin 1492-MC Circuit Breakers
Industrial Circuit Breakers for North American Applications

The Bulletin 1492-MC line includes:

- 1/2 in. wide circuit breakers
- 1 in. wide circuit breakers
- Ground Fault Circuit Interrupters (GFCIs)
- Ground Fault Equipment Protector (GFEPs)

Features

- Designed, manufactured and listed to UL 489 (CSA C22.2, No. 5)
- Thermal-magnetic protection
- All Ratings (10...100 A) are HACR rated
- 10 kAIC (10...100 A)
- Finger-safe design (front) (1/2 in. wide)
- DIN Rail mounting (120/240 & 240V AC)
- Three-position handle (ON, Tripped (Middle), OFF)
- (Line and load) wire connections

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Certifications

UL Listed
 CSA Certified

Standards Compliance for Bul. 1492-MC

- UL 489
- CSA C22.2 No. 5
- HACR (10...100 A)
- SWD (15 and 20 A) for Switching Duty for fluorescent lighting applications

Standards Compliance for GFCI (5 mA trip sensitivity)

- UL 943
- CSA C22.2 No. 144

Standards Compliance for GFEP (30 mA trip sensitivity)

- UL 1053
- CSA C22.2 No. 144

Bulletin 1492-MC Thermal Magnetic Description

Thermal Magnetic Circuit Breakers

Bulletin 1492-MC Circuit Breakers for Branch Circuit protection are available in one (1)-, two (2)-, and three (3)-pole construction in 120/240 volt rating, 240 volt rating and as one (1)-pole and two (2)-pole devices in 480/277 volt rating. Versions are available as Ground Fault Circuit Interrupters and as Ground Fault Equipment Protectors.

The 1492-MC product line consists of Thermal Magnetic Circuit Breakers and Ground Fault Sensing Breakers that are designed, manufactured, and certified to North American standards, UL 489, UL 943, UL1093, and the equivalent CSA standards, CSA 22.2 No. 5.1, 22.2 No. 144.

Bul. 1492-MC Thermal Magnetic Circuit Breakers are general-purpose devices suitable for the majority of industrial, inverse time circuit breaker applications.

They combine thermal and magnetic trip actions and provide accurate overload and short-circuit protection for conductors and connected equipment.

Circuit Breaker Application Information

Selection of a Bul. 1492-MC circuit breaker with appropriate circuit protection includes consideration of:

- Circuit voltage
- Circuit frequency
- Available short circuit current
- Continuous current rating
- Application considerations
- Special operating conditions

The following discussion is based upon National Electric Code and UL requirements. Similar considerations are appropriate for Canadian applications.

Circuit Voltage

Bul. 1492-MC circuit breakers are rated by voltage class. Applications should not exceed the listed voltage range (see Table 1).

Circuit Frequency

Bul. 1492-MC circuit breakers may be applied to frequencies from DC up to 60 Hz without derating. For applications above 60...400 Hz, contact Rockwell Automation with specific application information for the derating of the circuit breakers.

Available Short Circuit Current

Bul. 1492-MC circuit breakers should only be applied in those applications in which the available short-circuit (or fault) current is less than or equal to the interrupting rating shown in the Voltage and Interrupting Ratings table.

Table 1. Voltage and Interrupting Ratings

AC Voltage	DC Voltage *	Interrupting Ratings (rms Symmetrical Amperes)		Cat. No.	
		AC Rating	DC Rating *		
120/240	24, 48, 62.5	10,000	3,000	1492-MCAA1xx 1492-MCAA2xx	
240	24, 48, 62.5		3,000	1492-MCAA2Hxx 1492-MCAA3xx	
120/240	*		*	1492-MCBA1xx 1492-MCBA2xx	
240	*		*	1492-MCBA2Hxx 1492-MCBA3xx	
120	*		10,000	*	1492-MCEA1xx 1492-MCEA2xx
120/240					1492-MCGA1xx
120		1492-MCGA1xx			
120/240		1492-MCGA2xx			

* Rating as supplementary protector.

* Consult your local Rockwell Automation sales office or Allen-Bradley distributor for specific rating.



Continuous Current Rating

Bul. 1492-MC circuit breakers are rated in RMS amperes at a 40 °C (104 °F) ambient temperature per UL 489 (CSA 22.2 No. 5.1). This temperature is generally used as the average temperature within an industrial enclosure. If a circuit breaker is applied in a temperature that exceeds the 40 °C (104 °F) ambient, then the circuit breaker should be derated. Contact your local Rockwell Automation sales office or Allen-Bradley distributor for derating information.

The characteristic trip curves are shown on pages 7-8...7-10. The trip bands shown for each breaker represent current tripping limits for a circuit breaker and are within the limits established by UL. For a specific current at 40 °C (104 °F), a circuit breaker will open ("clear the circuit") automatically at some total time that will be within the "Minimum" and "Maximum" time shown as the "Minimum" and "Maximum" curves. For example, page 7-8 shows that a one pole, 15 A, 1492-MC trips in not less than 10 s and not more than 150 s on a 30 A current. Because the UL standard defines this time spread, users should not specify exact tripping time. The lower current portion of the curves (upper left) depict the time to trip due to thermal action and reflect overload protection of the wire and connect load. The higher current portion of the curves (lower right) depicts the trip due to magnetic action of the circuit breaker and reflects protection due to short circuit level currents.

Standard current ratings are, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 70, 80, 90, and 100 A.

Application Considerations

The selection of a specific ampere rating for a specific application is dependent on the type of load and duty cycle and is governed by the National Electric Code (Canadian Electric Code) and UL/CSA. In general the codes require that overcurrent protection is at the current supply and at points where wire sizes are reduced. In addition the codes state that conductors be protected according to their current carrying capacity. There are specific situations that require application consideration, such as motor circuit, and guidelines for the selection for transformer protection.

Bulletin 1492-MC circuit breakers are "non-100% rated" as defined by UL 489 Part 7.1.4.2. As such the circuit breaker's rating should be loaded to no more than 80%, if used with continuous loads.

Branch Circuits:

Bulletin 1492-MC circuit breakers may be used to protect branch circuits. A branch circuit is the wiring portion of a system extending beyond the final overcurrent device protecting the circuit.

Guidelines established in NEC, CEC, UL, and CSA should be used to determine the specific device. For example:

1) Motor Branch Circuit

Bulletin 1492-MC circuit breakers are not horsepower rated because they are able to safely interrupt currents far in excess of the locked rotor value for a selected motor. This ability is recognized in the codes and standards and is also established by the UL and CSA tests described in UL 489 and CSA C22.2 No. 5.1 standards.

The size of a Bulletin 1492-MC circuit breaker should be determined following the guidelines for an Inverse Time Circuit Breaker.

References: NEC 430.51 and UL 508A. Also see CEC and appropriate Canadian Standards.

2) Transformer Protection

Bulletin 1492-MC circuit breakers may be used for transformer protection following the guidelines established.

References: NEC 450 and UL 508A. Also see CEC and appropriate Canadian Standards.

3) Heater Load, Lighting, and Other Load Protection

Bulletin 1492-MC circuit breakers may be used for protection of heater loads, lighting loads, and other loads following the guidelines established.

References: NEC Article 31 and UL 508A. Also see CEC and appropriate Canadian Standards.

Coordinated Overcurrent Protection

Where an orderly shutdown is required to minimize the hazards to personnel and equipment, a system of coordination based upon the faulted or overloaded circuit is isolated by selective operation of only the overcurrent protective device closest to the overcurrent condition.

The user should select devices that meet this requirement.

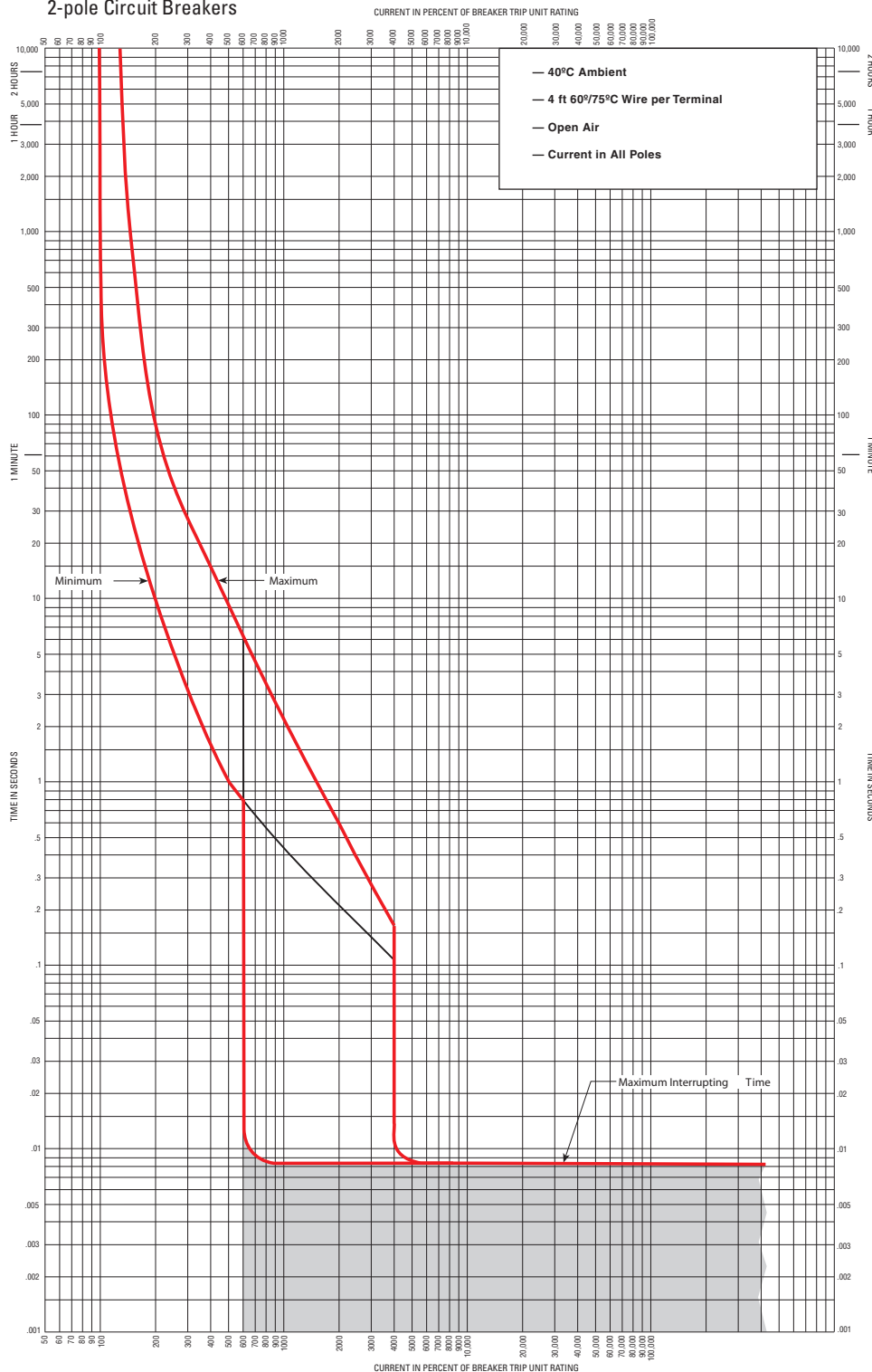
References: NEC 240.12. Also see CEC.

Time Current Curve – 2-Pole Circuit Breakers

Time Current Curve

1492-MCAA2_{NN} 1492-MCAA2H_{NN} 1492-MCEA2_{NN}
 1492-MCBA2_{NN} 1492-MCBA2H_{NN} 1492-MCGA2_{NN}

2-pole Circuit Breakers



1492-MC Cat. No. Explanation

Examples given in this section are for reference purposes. This basic explanation should not be used for product selection; not all combinations will produce a valid catalog number.

1492-MC A A 1 15

 a b c d

a

Body Style	
Code	Description
A	1/2 in. wide/pole (DIN Rail mounting)
B	1 in. wide/pole (DIN Rail mounting)
E	GFEP (30 mA)
G	GFCI (5 mA)

c

Poles	
Code	Description
1	1 pole
2	2 poles
2H	2 poles (240V AC)
3	3 poles

d

Current Rating		Size	
Code	Description	Code	Description
10	10 A	50	50 A
15	15 A	55	55 A
20	20 A	60	60 A
25	25 A	70	70 A
30	30 A	80	80 A
35	35 A	90	90 A
40	40 A	A0	100 A
45	45 A		

b

Interrupt Rating	
Code	Description
A	10 kA AIC

Bul. 1492-MC Thermal Magnetic Product Selection
120/240 and 240V AC DIN Rail Mounting

120/240 and 240V AC DIN Rail Mounting

Continuous Ampere Rating @ 40°C (104°F)	Width per pole [in.]	Cat. No.		Width per pole [in.]	Cat. No.	
		120/240V AC			240V AC	
		1-pole	2-poles		2-poles	3-poles
10	1/2	1492-MCAA110	1492-MCAA210	—	—	—
15	1/2	1492-MCAA115	1492-MCAA215	1/2	1492-MCAA2H15	1492-MCAA315
20	1/2	1492-MCAA120	1492-MCAA220	1/2	1492-MCAA2H20	1492-MCAA320
25	1/2	1492-MCAA125	1492-MCAA225	1/2	1492-MCAA2H25	1492-MCAA325
30	1/2	1492-MCAA130	1492-MCAA230	1/2	1492-MCAA2H30	1492-MCAA330
35	1/2	1492-MCAA135	1492-MCAA235	1	1492-MCBA2H35	1492-MCBA335
40	1/2	1492-MCAA140	1492-MCAA240	1	1492-MCBA2H40	1492-MCBA340
45	1/2	1492-MCAA145	1492-MCAA245	1	1492-MCBA2H45	1492-MCBA345
50	1/2	1492-MCAA150	1492-MCAA250	1	1492-MCBA2H50	1492-MCBA350
55	1/2	1492-MCAA155	1492-MCAA255	1	1492-MCBA2H55	1492-MCBA355
60	1/2	1492-MCAA160	1492-MCAA260	1	1492-MCBA2H60	1492-MCBA360
70	1	1492-MCBA170	1492-MCBA270	1	1492-MCBA2H70	1492-MCBA370
80	1	1492-MCBA180	1492-MCBA280	1	1492-MCBA2H80	1492-MCBA380
90	1	1492-MCBA190	1492-MCBA290	1	1492-MCBA2H90	1492-MCBA390
100	1	1492-MCBA1A0	1492-MCBA2A0	1	1492-MCBA2HA0	1492-MCBA3A0

1492-MC Ground Fault Sensing

The Bulletin 1492-MC Circuit Breakers with Ground Fault protection for Branch Circuits are available in 1- and 2-pole construction in 120/240V rating. Versions are available as Ground Fault Circuit Interrupters and as Ground Fault Equipment Protectors.

When protection from low-level fault currents for North American standards is required, two versions of protection are available.

- Circuit Breakers with protection for personnel use a threshold of 5 mA sensing to provide protection for people. These are typically known as Ground Fault Circuit Interrupters or GFCIs.
- Circuit Breakers that provide protection for equipment at a sensing threshold of 30 mA are also available. These are typically known as Ground Fault Equipment Protectors or GFEPs.

The following devices are tested and listed to meet the North American standards of UL 489, UL 943 (for GFCI), UL1053 (for GFEP), and CSA 22.2 No.5.1.

It is recommended that the devices be tested monthly by using the TEST button to check for proper operation of the device.


Auxiliary Devices

Device description	1-pole	2- and 3-poles
Locking Attachment for Circuit Breaker	1492-MCAAxxx	1492-AMCAL1
	1492-MCBAxxx	1492-AMCBL1
Finger protection cover for 1 in. wide Cat. No. 1492-MCBxxx, package of 10 (one required for line and one required for load for each pole) (not for GFCI / GFEP)	1492-AMCBFP	
DIN Rail adapter, per pole, DIN Rail mounting for GFCI, GFEP	1492-AMCDIN1	
Panel Mounting Clips for GFCI and GFEP, two required per device	1492-AMCP1	

Circuit Breaker

Product Selection/Specifications

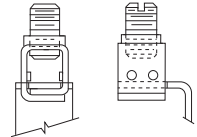
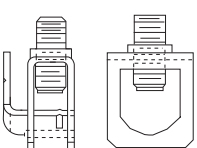
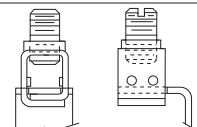
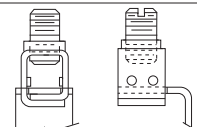
Bul. 1492-MC Ground Sensing Product Selection

		Cat. No.	Cat. No.	
	Continuous Ampere Rating @ 40 °C (104 °F) [A]	120V AC	120/240V AC	
		1-pole	2-pole	
	GFCI (5 mA Sensitivity)			
	15	1492-MCGA115	1492-MCGA215	
	20	1492-MCGA120	1492-MCGA220	
	25	1492-MCGA125	1492-MCGA225	
	30	1492-MCGA130	1492-MCGA230	
	40	1492-MCGA140	1492-MCGA240	
	50	—	1492-MCGA250	
	GFEP (30 mA Sensitivity)			
	15	1492-MCEA115	1492-MCEA215	
	20	1492-MCEA120	1492-MCEA220	
	25	1492-MCEA125	1492-MCEA225	
	30	1492-MCEA130	1492-MCEA230	
40	1492-MCEA140	1492-MCEA240		
50	—	1492-MCEA250		
For panel mounting use two 1492-AMCP1 per device For DIN Rail mounting use one 1492-AMCDIN1 per pole				

Specifications

Standards Compliance	UL 489, CSA C22.2 No. 5
Certifications	UL Listed, CSA Certified
Rated Voltage	120/240V AC, 240V AC
Continuous Current rating @ 40°C (104°F)	10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 70, 80 90, 100 Amp
Rated short circuit capability	10 kA 120/240V AC and 240V AC 14 kA 480Y/277V AC
Degree of protection	Open Device 1/2 in. wide circuit breakers are finger safe from front per IEC. Terminal Covers available for 1 in. wide circuit breaker at 120/240 and 240V AC.
Mounting	DIN Rail (check product for specific)
Operating Temperature	0...60 °C (32...140 °F) (non-condensing)
Shipment and short term storage limits	-40 °C...+80 °C (-40...176 °F)
Wire Size	See Terminals Table Below
Terminal Torque	
Recommended Wire Strip Length	

Terminals

Cat. No.	Continuous Current Rating	Wire Type	Wire Range [AWG]	Terminal Torque	Line Strip Length	Line and Load Terminals
1492-MCAAxxx	10...60 A	Copper (Cu)	14...10	20 lb•in (2.3 N•m)	7/16 in.	
			8	25 lb•in (2.8 N•m)		
			6...4	27 lb•in (3.0 N•m)		
1492-MCBAxxx	35...60 A		14...10	20 lb•in (2.3 N•m)		
	70...100 A		8...4	32 lb•in (3.6 N•m)		
1492-MCEAxxx	15...50 A		14...10	20 lb•in (2.3 N•m)		9/16 in.
			8	25 lb•in (2.8 N•m)	—	
1492-MCGAxxx			6...4	27 lb•in (3.0 N•m)	—	

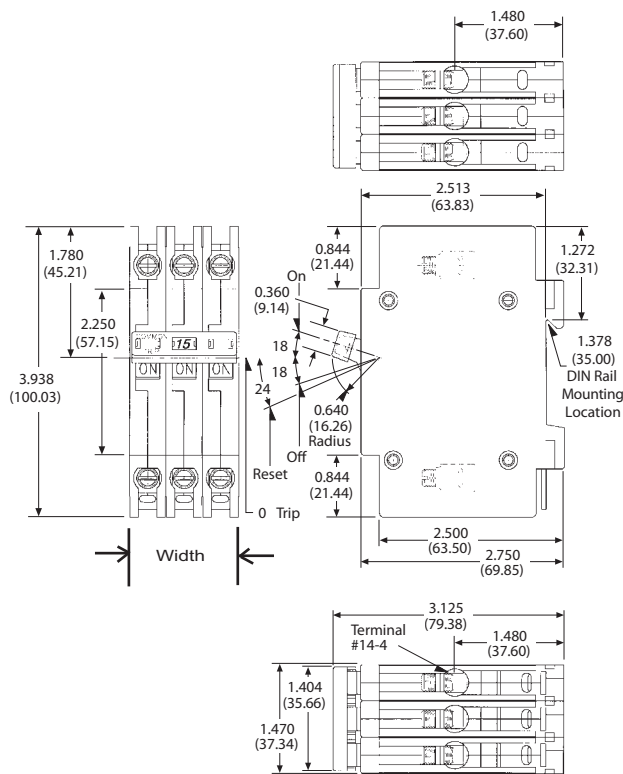


1492-MC Approximate Dimensions

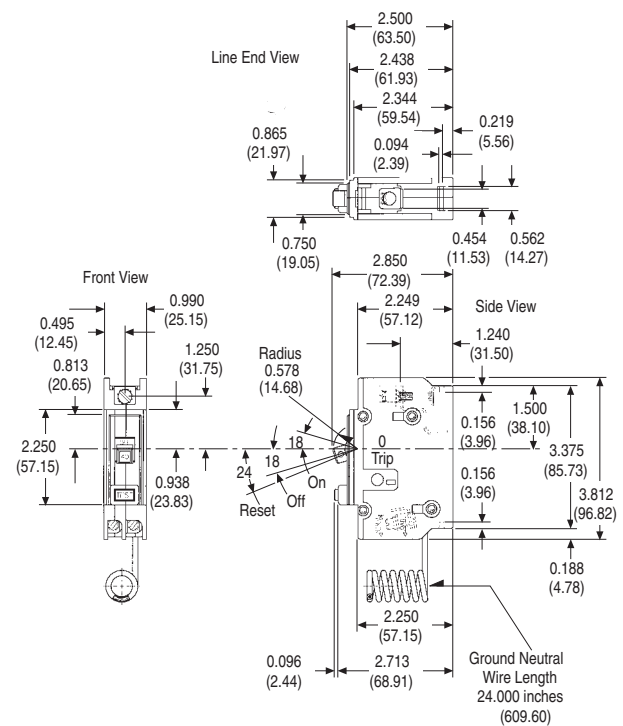
Note: Dimensions are shown in inches (millimeters). Dimensions are not intended for manufacturing purposes.

Catalog Type	No. of Poles	Continuous Current Rating [A]	Width [in.]
1492-MCAA1xx	1	10...60	0.490
1492-MCAA2xx	2	10...60	0.980
1492-MCAA2Hxx	2	15...30	0.980
1492-MCAA3xx	3	15...30	1.470
1492-MCBA1xx	1	70...100	1.000
1492-MCBA2xx	2	70...100	2.000
1492-MCBA2Hxx	2	35...100	2.000
1492-MCBA3xx	3	35...100	3.000
1492-MCEA1xx	1	15...50	0.990
1492-MCEA2xx	2	15...50	1.980
1492-MCGA1xx	1	15...50	0.990
1492-MCGA2xx	2	15...50	1.980

1492-MCAAnxx

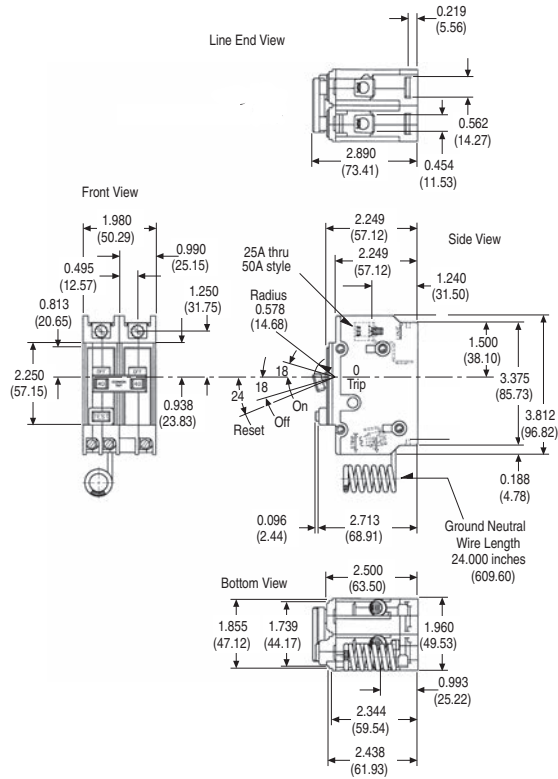


**1492-MCEA1xx
 1492-MCGA1xx**

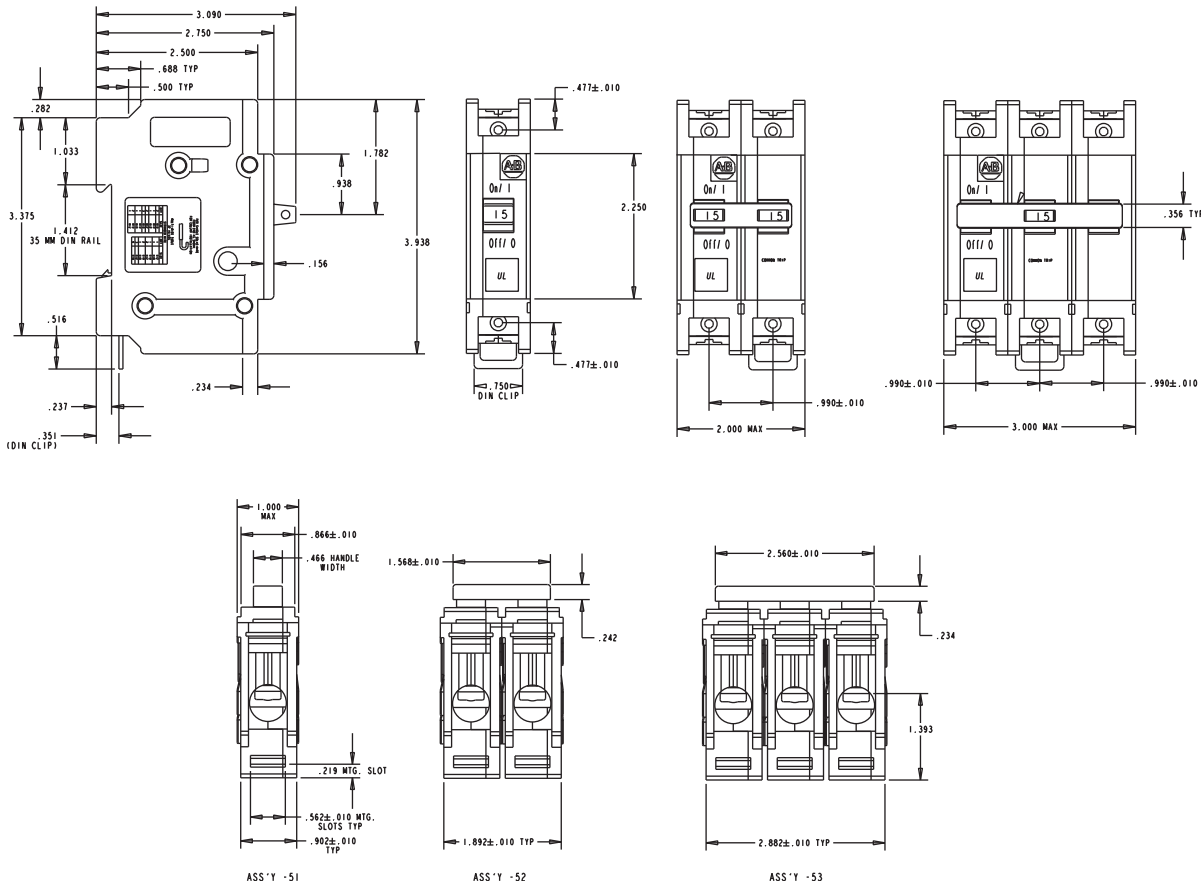


Bulletin 1492-MC
Circuit Breaker
 Approximate Dimensions

1492-MCEA2xx
 1492-MCGA2xx



1492-MCBAxxx



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