

# A-Series

## CIRCUIT BREAKER

Well known for their proven reliability, Carling Technologies' A-Series hydraulic magnetic circuit breakers are compact, temperature stable and designed for precision operation in OEM markets requiring general purpose as well as full load amp applications. When front panel operation and aesthetics demand a clean, contemporary design, the visi-rocker or paddle actuators are ideally suitable. A sealed toggle actuator style is also available and ideal for harsh environment applications requiring additional sealing protection. Optional rocker-guard and push-to-reset bezels, which help prevent inadvertent actuation, are also available.

1-6 poles; ratings from 0.02 to 50 amps, up to 277VAC or 80VDC; UL Recognized, UL Listed, UL1500, UL1077, TUV, VDE & CSA



### Resources:

[Configure a Complete Part](#)

[Download CAD & Sales Drawing >](#)

### Product Highlights:

- Up to 50 amps in a compact size
- Various actuator styles
- Sealed metal toggle option tested to MIL-PRF-55629C. Meets IP68 Requirements

### Typical Applications:

- Telecom / Datacom
- Marine
- Military
- Renewable Energy
- Generators & Welder



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### Electrical

Maximum Voltage 277VAC 50/60 Hz, 80VDC  
 Current Ratings Standard current coils: 0.100, 0.250, 0.500, 0.750, 1.00, 2.50, 5.00, 7.50, 10.0, 15.0, 20.0, 25.0, 30.0, 35.0, 40.0, 50.0. Other ratings available - consult ordering scheme.  
 Standard Voltage Coils DC-6V, 12V; AC-120V, Other ratings available, consult ordering scheme.  
 Auxiliary Switch Rating SPDT; 10.1 A - 250VAC, 1.0 A-65VDC/0.5 A - 80 VDC, 0.1A - 125VAC (with gold contacts).  
 Insulation Resistance Minimum: 100 Megohms at 500 VDC  
 Dielectric Strength UL, CSA - 1500V 60 Hz for one minute between all electrically isolated terminals. A-Series rocker circuit breakers comply with the 8mm spacing & 3750V dielectric requirements from hazardous voltage to operator accessible surfaces per EN 60950 and VDE 0805.  
 Resistance, Impedance Values from Line to Load Terminal - based on Series Trip Circuit Breaker.

### Mechanical

Endurance 10,000 ON-OFF operations @ 6 per minute; with rated Current & Voltage.  
 Trip Free All A-Series Circuit Breakers will trip on overload, even when the actuator is forcibly held in the ON position.  
 Trip Indication The operating actuator moves positively to the OFF position when an overload causes the circuit breaker to trip. When mid-trip handle is specified, the handle moves to the mid position on electrical trip of the circuit breaker. When mid-trip handle with alarm switch is specified, the handle moves to the mid position & the alarm switch actuates when the circuit breaker is electrically tripped.

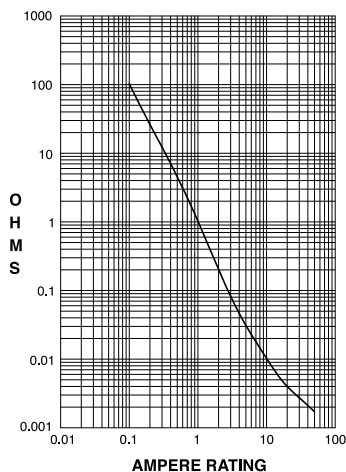
### Physical

Number of Poles 1 - 6 Poles (handle) and 1-3 poles (rocker) at 30 Amps or less. 1 and 2 poles at 31 Amps thru 50 Amps.  
 Internal Circuit Config. Series, (with or without auxiliary switch), Shunt and Relay with current or voltage trip coils, Dual Coil, Switch Only with or without auxiliary switch.  
 Weight Approximately 65 grams/pole. (Approximately 2.32 ounces/pole)  
 Standard Colors Housing - Black; Actuator- See Ordering Scheme.

### Environmental

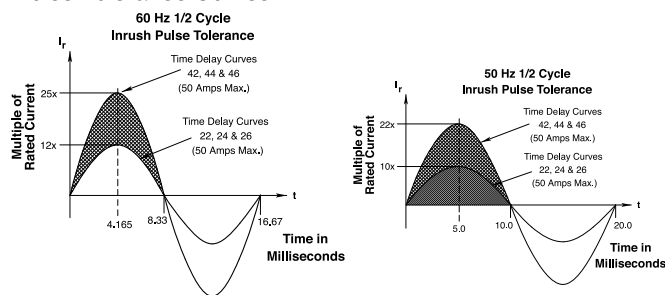
Designed and tested in accordance with requirements of specification MIL-PRF-55629 & MIL-STD-202 as follows:  
 Shock Withstands 100 Gs, 6ms, sawtooth while carrying rated current per Method 213, Test Condition "I". Instantaneous and ultra-short curves tested @ 90% of rated current.  
 Vibration Withstands 0.060" excursion from 10-55 Hz, and 10 Gs 55-500 Hz, at rated current per Method 204C, Test Condition A. Instantaneous and ultrashort curves tested at 90% of rated current.  
 Moisture Resistance Method 106D; ten 24-hour cycles @ +25°C to +65°C, 80-98% RH.56 days @ +85°C, 85% RH.  
 Salt Spray Method 101, Condition A (90-95% RH @ 5% NaCl Solution, 96 hrs).  
 Thermal Shock Method 107D, Condition A (Five cycles @ -55°C to +25°C to +85°C to +25°C).  
 Operating Temperature -40° C to +85° C

RESISTANCE PER POLE VALUES from Line to Load Terminals (Values Based on Series Trip Circuit Breaker)



CURRENT (AMPS)	TOLERANCE (%)
0.10 - 5.0	15
5.1 - 20.0	25
20.1 - 50.0	35

Pulse Tolerance Curves



\*Manufacturer reserves the right to change product specification without prior notice.

## Electrical Tables

**Table A:** Lists UL Recognized & CSA Accepted configurations and performance capabilities as a Component Supplementary Protector.

A-SERIES TABLE A: COMPONENT SUPPLEMENTARY PROTECTORS											
Circuit Configuration	Voltage			Current Rating		Short Circuit Capacity (Amps)		Application Codes		Construction Notes	
	Max Rating	Frequency	Phase	Full Load Amps	General Purpose Amps	UL / CSA		UL	CSA		
						With Backup Fuse	Without Backup Fuse				
Series	32	DC	---	0.02 - 15	---	---	5000	TC1, OL1, U2	TC1, OL1, U2		
	65	DC	---	31 - 50	---	---	7500	TC1, 2, OL1, U1	TC1, 2, OL1, U1		
	80	DC	---	0.02 - 30	---	---	7500	TC1, 2, OL1, U1	TC1, 2, OL1, U1		
				---	31 - 50	---	7500	TC1, 2, OL0, U1	TC1, 2, OL0, U1		
	125	50 / 60	1	0.02 - 30	---	---	3000	TC1, OL1, U2	TC1, OL1, U2	Rocker Version	
	125	50 / 60	1	1 - 50	---	---	2000	TC1, OL1, U2	TC1, OL1, U2		
	125	50 / 60	1 <sup>4</sup>	1 - 50	---	---	1000	TC1, OL1, U2	TC3, OL1, U3		
	125 / 250	50 / 60	1 <sup>3</sup>	0.02 - 30	---	---	3000	TC1, 2, OL1, U2	TC1, 2, OL1, U2	Rocker Version	
	125 / 250	50 / 60	1 <sup>3</sup>	0.02 - 50	---	---	3000	TC1, 2, OL1, U2	TC1, 2, OL1, U2	Handle	
	250	50 / 60	1	0.02 - 30	---	---	1500	TC1, 2, OL0, U2	TC1, 2, OL0, U2	Single Pole Break	
				0.02 - 30	---	---	3000	TC1, OL1, U2	TC1, OL1, U2	Two Pole Break	
				---	---	---	3000	TC1, 2, OL0, U1	TC1, 2, OL0, U1		
				1 <sup>4</sup>	1 - 50	---	1000	TC1, OL1, U2	TC3, OL1, U3		
				3	0.02 - 30	---	5000 <sup>2</sup>	---	TC1, 2, OL1, C1	TC1, 2, OL1, C1	
			31 - 50	---	2000 <sup>1</sup>	---	TC1, 2, OL1, C1	TC1, 2, OL1, C1			
277	50 / 60	1	0.02 - 30	---	---	5000 <sup>1</sup>	TC1, 2, OL1, C1	TC1, 2, OL1, C1			
Dual Coil	32	DC	---	0.02 - 50	---	---	5000	TC1, OL1, U2	TC1, OL1, U2		
	65	DC	---	0.02 - 50	---	---	7500	TC1, 2, OL1, U1	TC1, 2, OL1, U1		
	80	DC	---	0.02 - 30	---	---	7500	TC1, 2, OL1, U1	TC1, 2, OL1, U1		
				---	31 - 50	---	7500	TC1, 2, OL0, U1	TC1, 2, OL0, U1		
	125	50 / 60	1	0.02 - 30	---	---	3000	TC1, OL1, U2	TC1, OL1, U2	Rocker Version	
				1 - 50	---	---	2000	TC1, OL1, U2	TC1, OL1, U2		
	125	50 / 60	1 <sup>4</sup>	0.02 - 30	---	---	1000	TC1, OL1, U2	TC3, OL1, U3		
	125 / 250	50 / 60	1 <sup>3</sup>	0.02 - 30	---	---	3000	TC1, 2, OL1, U1	TC1, 2, OL1, U1	Rocker Version	
	125 / 250	50 / 60	1 <sup>3</sup>	0.02 - 50	---	---	3000	TC1, 2, OL1, U2	TC1, 2, OL1, U2		
	250	50 / 60	1	0.02 - 30	---	---	1500	TC1, OL0, U2	TC1, OL0, U2	Single Pole Break	
				0.02 - 30	---	---	3000	TC1, OL1, U2	TC1, OL1, U2	Two Pole Break	
				---	31 - 50	---	3000	TC1, 2, OL0, U1	TC1, 2, OL0, U1		
				1 <sup>4</sup>	1 - 50	---	1000	TC1, OL1, U2	TC3, OL1, U3		
				3	0.02 - 30	---	5000 <sup>2</sup>	---	TC1, 2, OL1, C1	TC1, 2, OL1, C1	
			31 - 50	---	2000 <sup>1</sup>	---	TC1, 2, OL1, C1	TC1, 2, OL1, C1			
277	50 / 60	1	0.02 - 30	---	---	5000 <sup>1</sup>	TC1, 2, OL1, U1	TC1, 2, OL1, U1			
Shunt	80	DC	---	0.02 - 30	---	---	7500	TC1, 2, OL1, U1	TC1, 2, OL1, U1		
	125 / 250	50 / 60	1	0.02 - 30	---	---	3000	TC1, 2, OL1, U1	TC1, 2, OL1, U1		
				0.02 - 30	---	---	3000	TC1, 2, OL1, U1	TC1, 2, OL1, U1		
	250	50 / 60	3	0.02 - 30	---	---	5000 <sup>2</sup>	---	TC1, 2, OL1, C1	TC1, 2, OL1, C1	
				0.02 - 30	---	---	5000 <sup>2</sup>	---	TC1, 2, OL1, C1	TC1, 2, OL1, C1	
277	50 / 60	1	0.02 - 30	---	---	5000 <sup>1</sup>	TC1, 2, OL1, C1	TC1, 2, OL1, C1			
Relay	80	DC	---	0.02 - 30	---	---	7500	TC1, 2, OL1, U1	TC1, 2, OL1, U1		
	125 / 250	50 / 60	1 <sup>3</sup>	0.02 - 30	---	---	3000	TC1, 2, OL1, U1	TC1, 2, OL1, U1		
				0.02 - 30	---	---	3000	TC1, 2, OL1, U1	TC1, 2, OL1, U1		
	250	50 / 60	3	0.02 - 30	---	---	5000 <sup>2</sup>	---	TC1, 2, OL1, C1	TC1, 2, OL1, C1	
				0.02 - 30	---	---	5000 <sup>2</sup>	---	TC1, 2, OL1, C1	TC1, 2, OL1, C1	
277	50 / 60	1	0.02 - 30	---	---	5000 <sup>1</sup>	TC1, 2, OL1, C1	TC1, 2, OL1, C1			
Switch Only	65	DC	---	0.02 - 50	---	not applicable					
	80	DC	---	0.02 - 30	---						
	250	50 / 60	1	---	31 - 50					---	
			3	0.02 - 50	---						
	277	50 / 60	1	0.02 - 30	31 - 50					---	

Notes:  
 1 Requires branch circuit backup with a UL LISTED Type K5 or RK5 fuse (15A minimum) at no more than 4 times the rating of the protector.  
 2 Same as note 1, except that backup fuse is limited to 80 A maximum.  
 3 2 pole protector required (with one pole per power line) for: 125/250 VAC, 1 pole protector required for: 125 VAC, 1Ø Power System.  
 4 Satisfies the requirements of clause 11.2.8.2.5 of CSA STD C22.2 No 100 for the use of supplementary protectors with portable generators.

## Electrical Tables

**Table B:** Lists UL Recognized, CSA Accepted, VDE & TUV Certified configurations & performance capabilities as a Component Supplementary Protector.

A-SERIES TABLE B: COMPONENT SUPPLEMENTARY PROTECTORS															
CIRCUIT CONFIGURATION	VOLTAGE			CURRENT RATING		SHORT CIRCUIT CAPACITY (AMPS)						APPLICATION CODES		VDE CONSTRUCTION NOTES	
	MAX. RATING	FREQUENCY	PHASE	FULL LOAD AMPS	GENERAL PURPOSE AMPS <sup>1</sup>	UL/CSA		VDE		TUV		UL	CSA		
						WITH BACKUP FUSE	WITHOUT BACKUP FUSE	(Inc) WITH BACKUP FUSE	(Inc) WITHOUT BACKUP	(Inc) WITH BACKUP FUSE	(Inc) WITHOUT BACKUP				
SERIES	65	DC	—	0.10 - 50	—	—	7500	—	—	5000	3000	TC1,2, OL1,U1	TC1,2, OL1,U1	World Market Breaker TUV Only	
	80	DC	—	0.10 - 30	—	—	7500	3000	1500	3000	1500	TC1,2, OL1,U1	TC1,2, OL1,U1	Handle Version 1 Pole Only	
				31 - 50	31 - 50	—	7500	3000	1500	3000	1500	TC1,2, OL0,U1	TC1,2, OL0,U1	Handle Version 1 Pole Only	
				0.10 - 30	—	—	7500	3000	1500	3000	1500	TC1,2, OL1,U1	TC1,2, OL1,U1	Rocker Version 1 - 3 Poles	
				31 - 32	—	—	7500	3000	1500	3000	1500	TC1,2, OL1,U1	TC1,2, OL1,U1	Rocker Version 2 Pole Only	
				31 - 50	31 - 50	—	7500	3000	1500	3000	1500	TC1,2, OL0,U1	TC1,2, OL0,U1	Rocker Version 1 Pole Only	
	250	50 / 60	1	0.10 - 30	—	—	3000	3000	1500	5000	1500	TC1,2, OL1,U1	TC1,2, OL1,U1	Rocker Version 1 - 3 Poles	
				31 - 50	31 - 50	—	3000	—	—	5000	1500	TC1,2, OL0,U1	TC1,2, OL0,U1	Rocker Version 1 - 3 Poles	
				31 - 32	—	—	3000	6000	1500	5000	1500	TC1,2, OL1,U1	TC1,2, OL1,U1	Rocker Version 2 Pole Only	
			1	0.10 - 30	—	—	3000	6000	1500	5000	1500	TC1, OL1,U2	TC1, OL1,U2	Rocker Version 2 Pole Only	
			1 <sup>4</sup>	1 - 50	—	—	1000	—	—	5000	1500	TC1, OL1,U2	TC3, OL1,U3	Rocker Version 1 - 3 Poles	
			3	0.10 - 30	—	—	5000 <sup>3</sup>	—	3000	1500	3000	1500	TC1,2, OL1,C1	TC1,2, OL1,C1	Rocker Version 1 - 3 Poles
			31 - 50	—	—	2000 <sup>2</sup>	—	3000	1500	3000	1500	TC1,2, OL1,C1	TC1,2, OL1,C1	Rocker Version 1 - 3 Poles	
			80	DC	—	0.10 - 30	—	—	7500	3000	1500	3000	1500	TC1,2, OL1,U1	TC1,2, OL1,U1
250	50 / 60	1	0.10 - 30	—	—	3000	3000	1500	5000	1500	TC1,2, OL1,U1	TC1,2, OL1,U1	Rocker Version 1 - 3 Poles		
			30 - 50	31 - 50	—	3000	—	—	5000	1500	TC1,2, OL0,U1	TC1,2, OL0,U1	Rocker Version 1 - 3 Poles		
		3	0.10 - 30	—	—	5000 <sup>3</sup>	—	3000	1500	3000	1500	TC1,2, OL1,C1	TC1,2, OL1,C1	Rocker Version 1 - 3 Poles	
31 - 50	—	—	2000 <sup>2</sup>	—	—	—	3000	1500	TC1,2, OL1,C1	TC1,2, OL1,C1	Rocker Version 1 - 3 Poles				
SHUNT	80	DC	—	0.10 - 30	—	—	7500	3000	1500	3000	1500	TC1,2, OL1,U1	TC1,2, OL1,U1	Handle Version 1 Pole Only	
				0.10 - 30	—	—	7500	3000	1500	3000	1500	TC1,2, OL1,U1	TC1,2, OL1,U1	Rocker Version 1 - 3 Poles	
	250	50 / 60	1	0.10 - 30	—	—	3000	3000	1500	5000	1500	TC1,2, OL1,U1	TC1,2, OL1,U1	Rocker Version 1 - 3 Poles	
				30 - 50	31 - 50	—	3000	—	—	5000	1500	TC1,2, OL0,U1	TC1,2, OL0,U1	Rocker Version 1 - 3 Poles	
			3	0.10 - 30	—	—	5000 <sup>3</sup>	—	3000	1500	3000	1500	TC1,2, OL1,C1	TC1,2, OL1,C1	Rocker Version 1 - 3 Poles
				31 - 50	—	—	2000 <sup>2</sup>	—	—	—	3000	1500	TC1,2, OL1,C1	TC1,2, OL1,C1	Rocker Version 1 - 3 Poles

Notes:

- 1 General Purpose Ratings for UL/CSA Only.
- 2 Requires branch circuit backup with a UL LISTED Type K5 or RK5 fuse (15A minimum) at no more than 4 times the rating of the protector.
- 3 Same as note 2, except that backup fuse is limited to 80 A maximum.
- 4 Satisfies the requirements of clause 11.2.8.2.5 of CSA STD C22.2 No 100 for the use of supplementary protectors with portable generators.

## Electrical Tables

**Table C:** Lists UL Recognized, CSA Accepted configurations and performance capabilities as Protectors, Supplementary for Marine Electrical and Fuel Systems (Guide PEQZ2, File E75596). Ignition Protected per UL 1500. UL Classified Small Craft Electrical Devices, Marine in accordance with ISO 8846 (Guide UZMK, File MQ1515) as Marine Supplementary Protectors.

A-SERIES TABLE C: UL1500 (Marine Ignition Protected)							
CIRCUIT CONFIGURATION	VOLTAGE			CURRENT RATING	SHORT CIRCUIT CAPACITY (AMPS)	APPLICATION CODES	
	MAX. RATING	FREQUENCY	PHASE	FULL LOAD AMPS	WITHOUT BACKUP FUSE	UL	CSA
SERIES	14 <sup>1</sup>	DC	---	0.02 - 50	5000	TC1,OL1,U1	TC1,OL1,U1
	32 <sup>1</sup>	DC	---	0.02 - 50	5000	TC1,OL1,U2	TC1,OL1,U2
	65	DC	---	0.02 - 50	3000	TC1,OL1,U1	TC1,OL1,U1
	125	50 / 60	1	0.02 - 50	3000	TC1,OL1,U2	TC1,OL1,U2
	125 / 250	50 / 60	1 <sup>2</sup>	0.02 - 50	3000	TC1,OL1,U2	TC1,OL1,U2
	250	50 / 60	1	0.02 - 30	1500	TC1,OL1,U1	TC1,OL1,U1

Notes:

1 Available with special catalog number only (consult factory).

2 2 pole protector required (with one per power line) for 125 / 250 VAC. 1 pole protector required for 125 VAC 1 phase power system

**Table D:** Lists UL Listed configurations and performance capabilities as Circuit Breakers for use in Communications Equipment (Guide DITT, File E189195), under UL489A.

A-SERIES TABLE D: UL489A (COMMUNICATIONS EQUIPMENT)				
CIRCUIT CONFIGURATION	VOLTAGE		CURRENT RATING	INTERRUPTING CAPACITY (AMPS)
	MAX. RATING	FREQUENCY	GENERAL PURPOSE AMPS	WITHOUT BACKUP FUSE
SERIES	80	DC	0.10 - 50	5000
	80	DC	60 - 90 <sup>1</sup>	5000

Notes:

1 Parallel Pole Construction

## Agency Certifications

### UL Recognized

UL Standard 1077



Component Recognition Program as Protectors Supplementary (Guide CCN/QVNU2, File E75596)

UL Standard 508



Switches, Industrial Control (Guide CCN/NRNT2, File E148683)

UL Standard 1500



Protectors, Supplementary for Marine Electrical & Fuel Systems (Guide PEQZ2, File E75596) Ignition Protection

### UL Listed

UL Standard 489A



Communications Equipment (Guide CCN/DITT, File E189195)

### CSA Accepted



Component Supplementary Protector under Class 3215 30, File 047848 0 000 CSA Standard C22.2 No. 235

### TUV Certified

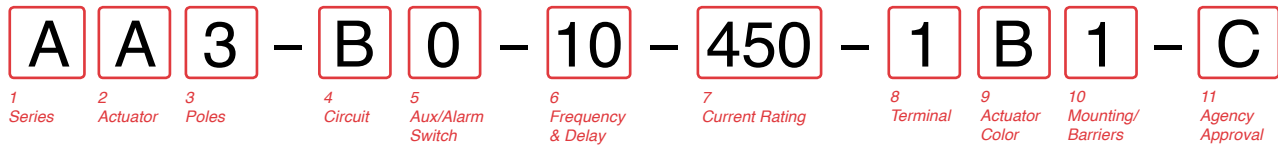


EN60934, under License No. R72103448

### VDE Certified



EN60934, VDE 0642 under File No. 10537



**1 SERIES**

A

**2 ACTUATOR 1**

- A Handle, one per pole
- B Handle, one per multipole unit
- S Mid-Trip Handle, one per pole
- T Mid-Trip Handle, one per pole & Alarm Switch

**3 POLES**

- 1 One
- 2 Two
- 3 Three
- 4 Four
- 5 Five
- 6 Six

**4 CIRCUIT**

- A<sup>2</sup> Switch Only (No Coil)
- B Series Trip (Current)
- C Series Trip (Voltage)
- D<sup>3</sup> Shunt Trip (Current)
- E<sup>3</sup> Shunt Trip (Voltage)
- F<sup>3</sup> Relay Trip (Current)
- G<sup>3</sup> Relay Trip (Voltage)
- H<sup>3,4</sup> Dual Coil with Shunt Trip Voltage Coil
- K<sup>3,4</sup> Dual Coil with Relay Trip Voltage Coil

**5 AUXILIARY / ALARM SWITCH 5**

- 0 without Aux Switch
- 1 S.P.D.T., 0.093 Q.C. Term.
- 2 S.P.D.T., 0.110 Q.C. Term.
- 5 S.P.S.T., 0.093 Q.C. Term. (Gold Contacts)
- 7 S.P.S.T., 0.110 Q.C. Term. (Gold Contacts)
- 8 S.P.S.T., 0.187 Q.C. Term.
- 9 S.P.D.T., 0.187 Q.C. Term.

**6 FREQUENCY & DELAY**

- 03 DC 50/60Hz, Switch Only
- 10 DC Instantaneous
- 11 DC Ultra Short
- 12 DC Short
- 14 DC Medium
- 16 DC Long
- 20 50/60Hz Instantaneous
- 21 50/60Hz Ultra Short
- 22 50/60Hz Short
- 24 50/60Hz Medium
- 26 50/60Hz Long
- 30 DC, 50/60Hz Instantaneous
- 31 DC, 50/60Hz Ultra Short
- 32 DC, 50/60Hz Short
- 34 DC, 50/60Hz Medium
- 36 DC, 50/60Hz Long
- 42<sup>7</sup> 50/60Hz Short, High-inrush
- 44<sup>7</sup> 50/60Hz Medium, High-inrush
- 46<sup>7</sup> 50/60Hz Long, High-inrush
- 52<sup>7</sup> DC, Short, High-inrush
- 54<sup>7</sup> DC, Medium, High-inrush
- 56<sup>7</sup> DC, Long, High-inrush

**7 CURRENT RATING (AMPERES)**

CODE	AMPERES	225	0.250	420	2.000	611	11.000
020	0.020	225	0.250	420	2.000	611	11.000
025	0.025	230	0.300	522	2.250	711	11.500
030	0.030	235	0.350	527	2.750	612	12.000
035	0.035	240	0.400	430	3.000	712	12.500
040	0.040	245	0.450	435	3.500	613	13.000
045	0.045	250	0.500	440	4.000	614	14.000
050	0.050	255	0.550	445	4.500	615	15.000
055	0.055	260	0.600	450	5.000	616	16.000
060	0.060	265	0.650	455	5.500	617	17.000
065	0.065	270	0.700	460	6.000	618	18.000
070	0.070	275	0.750	465	6.500	620	20.000
075	0.075	280	0.800	470	7.000	622	22.000
080	0.080	285	0.850	475	7.500	624	24.000
085	0.085	290	0.900	480	8.000	625	25.000
090	0.090	295	0.950	485	8.500	630	30.000
095	0.095	410	1.000	490	9.000	635	35.000
210	0.100	512	1.250	495	9.500	640	40.000
215	0.150	415	1.500	610	10.000	645	45.000
220	0.200	517	1.750	710	10.500	650	50.000

**OR VOLTAGE COIL (NORMAL RATED VOLTAGE) 6**

CODE	AMPERES	A32	32 DC	J12	12 AC	J65	65 AC
A06	6 DC	A32	32 DC	J12	12 AC	J65	65 AC
A12	12 DC	A48	48 DC	J18	18 AC	K20	120 AC
A18	18 DC	A65	65 DC	J24	24 AC	L40	240 AC
A24	24 DC	J06	6 AC	J48	48 AC		

**8 TERMINAL 9**

- 1<sup>10</sup> Push-On 0.250 Tab (Q.C.)
- 2 Screw 8-32 with upturned lugs
- 3<sup>11</sup> Screw 8-32 (Bus Type)
- 4 Screw 10-32 with upturned lugs
- 5<sup>11</sup> Screw 10-32 (Bus Type)
- 6 Screw 8-32 with upturned lugs & 30° bend
- 7 Screw 8-32 (Bus Type) & 30° bend
- 8 Screw 10-32 with upturned lugs & 30° bend
- 9 Screw 10-32 (Bus Type) & 30° bend
- B Screw M5 with upturned lugs
- C Screw M4 with upturned lugs
- E<sup>11</sup> Screw M4 (Bus Type)
- F Screw M5 with upturned lugs & 30° bend
- G Screw M5 (Bus Type) & 30° bend
- H<sup>11</sup> Screw M5 (Bus Type)
- L<sup>12</sup> 0.250 Q.C./ Solder Lug
- M<sup>11</sup> M6 Threaded Stud
- Q<sup>14</sup> Push-In Stud
- R Screw M4 with upturned lugs & 30° bend
- T<sup>11</sup> Screw M4 (Bus Type) & 30° bend
- P<sup>13</sup> Printed Circuit Board Terminals
- S<sup>13</sup> Push-On 0.110 Tab (Q.C.)

**9 ACTUATOR COLOR & LEGEND**

Actuator Color	I-O	ON-OFF	Dual	Legend Color
White	A	B	1	Black
Black	C	D	2	White
Red	F	G	3	White
Green	H	J	4	White
Blue	K	L	5	White
Yellow	M	N	6	Black
Gray	P	Q	7	Black
Orange	R	S	8	Black
Black (short handle) <sup>15</sup>	T	U	9	White

**10 MOUNTING / BARRIERS**

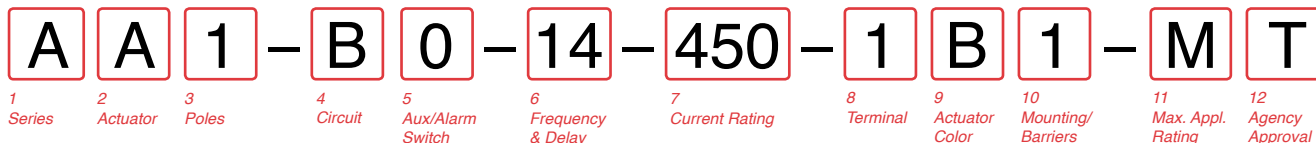
MOUNTING STYLE	BARRIERS
<b>Threaded Insert, 2 per pole</b>	
1 6-32 x 0.195 inches	no
A 6-32 x 0.195 inches	yes
2 ISO M3 x 5mm	no
B ISO M3 x 5mm (multipole only)	yes
<b>Front panel Snap-In, 0.75" wide bezel</b>	
5 without Handleguard	no
6 without Handleguard (multipole only)	yes
<b>Front panel Snap-In, 0.96" wide bezel</b>	
7 without Handleguard, 1-pole 0.96" wide; multipole units have .105" bezel overhang on all sides	no
8 without Handleguard, 1-pole 0.96" wide; (multipole only) .105" bezel overhang on all sides	yes

**11 AGENCY APPROVAL**

- C UL Recognized & CSA Accepted
- D VDE Certified, UL Recognized & CSA Accepted
- E TUV Certified, UL Recognized & CSA Accepted
- I UL Recognized STD 1077, UL Recognized 1500 (ignition protected), & CSA Accepted

Notes:

- 1 Actuator Code:  
A: Handle tie pin spacer(s) and retainers provided un-assembled with multi-pole units.  
B: Handle location as viewed from front of breaker:  
2 pole - left pole 3 pole - center pole 4 pole - two handles at center poles  
5 pole - three handles at center poles 6 pole - four handles at center poles  
S: Handle moves to mid-position only upon electrical trip of the breaker. Available with circuit codes B, C, D, E, F, G, H and K.  
T: Handle moves to mid-position and alarm switch activates only upon electrical trip of the breaker. Available with circuit codes B & C.
- 2 Switch Only circuits, rated up to 50 amps and 6 poles, and only available when tied to a protected pole (Circuit Code B, C, D or H). For .02 to 30 amps, select Current Code 630. For 35 - 50 amps, select Current Code 650.
- 3 Available with terminal Codes 1, 2 and 3. Current Rating limited to 50A amps maximum. Consult factory for available Dual Coil options, as special catalog number is required.
- 4 With Shunt construction, Dual Coils will trip instantaneously on line voltage. Dual coils require 30VA minimum power to trip and are rated for intermittent duty only.
- 5 Auxiliary Switch breakers with Series Trip & Switch Only circuits: ≤ 30A - supplied with standard half shells. 35-50A - supplied with extended boat (B-Style) half shells. On multi-pole breakers, one auxiliary switch is supplied, mounted in the extreme right pole.
- 6 Separate pole type voltage coils not rated for continuous duty. Available only with delay codes 10 and 20.
- 7 Available with Circuit Codes B & D only. VDE Certified to 30 amps. UL Recognized, CSA Accepted & TUV Certified to 50 amps.
- 8 VDE Certification available with single pole breakers with DC Delay only. UL Recognition and CSA Accepted available in one and two pole breakers.
- 9 Screw Terminals are recommended on ratings greater than 20 amps. Ratings over 30 amps are only available with Terminal Codes 5, 9, G, H, M and Q.
- 10 Terminal Code 1: VDE Certification up to 25 amps and UL Recognition and CSA Certification up to 30 amps, but not recommended over 20 amps.
- 11 Terminal Codes 3, 5, E and H (Bus Type) with VDE, are supplied with Lock Washers, and Terminal Code M (M6 Threaded Stud) with VDE is supplied with Lock and Flat Washers. These breakers are only VDE Certified when the washers are used.
- 12 Terminal Code L: VDE Certified available up to 12A. UL Recognized & CSA Accepted available up to 30A.
- 13 Single pole breakers with Terminal Code P (Printed Circuit Board) are available up to 30 amps with VDE Certification and 50 amps with UL Recognition and CSA Accepted, with Circuit Codes A, B and C. Two pole breakers with Terminal Code P (Printed Circuit Board) are available up to 40 amps with UL Recognition and CSA Accepted with Circuit Codes A, B and C.
- 14 Terminal Code Q not available with VDE certification.
- 15 Single pole only.



**1 SERIES**  
A

**2 ACTUATOR <sup>1</sup>**  
A Handle, one per pole  
S Mid-Trip Handle, one per pole  
T Mid-Trip Handle, one per pole & Alarm Switch

**3 POLES <sup>2</sup>**  
1 One  
2 Two  
3 Three  
4 Four

**4 CIRCUIT**  
B Series Trip (Current)

**5 AUXILIARY/ALARM SWITCH <sup>2</sup>**  
0 without Aux Switch  
1 S.P.D.T., 0.093 Q.C. Term.  
2 S.P.D.T., 0.110 Q.C. Term.

**6 FREQUENCY & DELAY**  
11 DC Ultra Short  
12 DC Short  
14 DC Medium  
16 DC Long

**7 CURRENT RATING (AMPERES)**

CODE	AMPERES						
210	0.100	285	0.850	455	5.500	613	13.000
215	0.150	290	0.900	460	6.000	614	14.000
220	0.200	295	0.950	465	6.500	615	15.000
225	0.250	410	1.000	470	7.000	616	16.000
230	0.300	512	1.250	475	7.500	617	17.000
235	0.350	415	1.500	480	8.000	618	18.000
240	0.400	517	1.750	485	8.500	620	20.000
245	0.450	420	2.000	490	9.000	622	22.000
250	0.500	522	2.250	495	9.500	624	24.000
255	0.550	527	2.750	610	10.000	625	25.000
260	0.600	430	3.000	710	10.500	630	30.000
265	0.650	435	3.500	611	11.000	635	35.000
270	0.700	440	4.000	711	11.500	640	40.000
275	0.750	445	4.500	612	12.000	645	45.000
280	0.800	450	5.000	712	12.500	650	50.000

**8 TERMINAL <sup>5</sup>**  
1 <sup>6</sup> Push-On 0.250 Tab (Q.C.)  
2 Screw 8-32 with upturned lugs  
3 <sup>7</sup> Screw 8-32 (Bus Type)  
4 Screw 10-32 with upturned lugs  
5 <sup>7</sup> Screw 10-32 (Bus Type)  
6 Screw 8-32 with upturned lugs & 30° bend  
7 Screw 8-32 (Bus Type) & 30° bend  
8 Screw 10-32 with upturned lugs & 30° bend  
9 Screw 10-32 (Bus Type) & 30° bend  
B Screw M5 with upturned lugs  
F Screw M5 with upturned lugs & 30° bend  
G Screw M5 (Bus Type) & 30° bend  
H Screw M5 (Bus Type)  
M <sup>7</sup> M6 Threaded Stud  
P <sup>8</sup> Printed Circuit Board Terminals  
Q <sup>9</sup> Push-In Stud

**9 ACTUATOR COLOR & LEGEND**

Actuator Color	ON-OFF	Dual	Legend Color
White	B	1	Black
Black	D	2	White
Red	G	3	White
Green	J	4	White
Blue	L	5	White
Yellow	N	6	Black
Gray	Q	7	Black
Orange	S	8	Black
Black (short handle) <sup>10</sup>	U	9	White

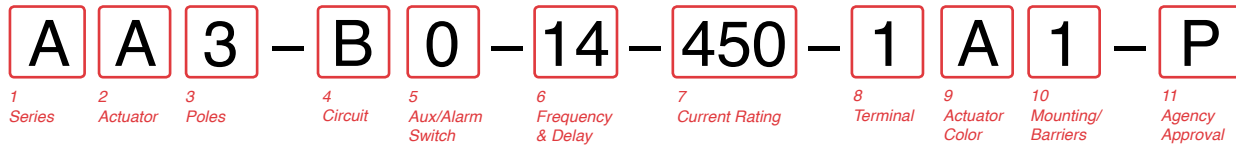
**10 MOUNTING / BARRIERS**

MOUNTING STYLE	BARRIERS
<b>Threaded Insert, 2 per pole</b>	
A 6-32 x 0.195 inches	no
1 6-32 x 0.195 inches	yes
2 ISO M3 x 5mm	no
B ISO M3 x 5mm (multipole only)	yes
<b>Front panel Snap-In, 0.75" wide bezel</b>	
5 without Handguard	no
6 without Handguard (multipole only)	yes
<b>Front panel Snap-In, 0.96" wide bezel</b>	
7 without Handguard, 1-pole 0.96" wide;	no
8 without Handguard, 1-pole 0.96" wide;	yes
(multipole units have .105" bezel overhang on all sides)	
(multipole only) .105" bezel overhang on all sides	

**11 MAXIMUM APPLICATION RATING**  
M 80 DC

**12 AGENCY APPROVAL**  
T UL489A Listed  
K UL489A Listed, VDE Certified  
J UL489A Listed, TUV Certified

- Notes:
- Actuator Code:  
A: Handle tie pin spacer(s) and retainers provided un-assembled with multi-pole units.  
S: Handle moves to mid-position only upon electrical trip of the breaker.  
T: Handle moves to mid-position and alarm switch activates only upon electrical trip of the breaker.
  - On multi-pole breakers, one auxiliary switch is supplied, mounted in the extreme right pole.
  - VDE Certified to 30 amps. UL489A Listed to 50 amps.
  - VDE Certification available with single pole breakers only. UL489A Listing available with one and two pole breakers.
  - Screw Terminals are recommended on ratings greater than 20 amps. Ratings over 30 amps are only available with Terminal Codes 5, 9 G, H, M and Q.
  - Terminal Code 1 (Push-On) available up to 25 amps with VDE Certification and 30 amps with UL489A Listing, but is not recommended over 20 amps.
  - Terminal Codes 3, 5 and H (Bus Type) with VDE, are supplied with Lock Washers, and Terminal Code M (M6 Threaded Stud) with VDE is supplied with Lock and Flat Washers. These breakers are only VDE Certified when the washers are used.
  - Single pole breakers with Terminal Code P (Printed Circuit Board) are available up to 30 amps with VDE Certification and 50 amps with UL489A Listing.
  - Terminal Code Q not available with VDE certification.
  - Single pole only.



**1 SERIES**

**A**

**2 ACTUATOR**<sup>1</sup>

- A** Handle, one per pole
- B** Handle, one per multipole unit
- S** Mid-Trip Handle, one per pole
- T** Mid-Trip Handle, one per pole & Alarm Switch

**3 POLES**

- |              |                |               |
|--------------|----------------|---------------|
| <b>1</b> One | <b>3</b> Three | <b>5</b> Five |
| <b>2</b> Two | <b>4</b> Four  | <b>6</b> Six  |

**4 CIRCUIT**

- |   |  |
|---|--|
| <b>A</b> <sup>2</sup> Switch Only (No Coil) | <b>D</b> <sup>3</sup> Shunt Trip (Current)                     |
| <b>B</b> Series Trip (Current)              | <b>E</b> <sup>3</sup> Shunt Trip (Voltage)                     |
| <b>C</b> Series Trip (Voltage)              | <b>H</b> <sup>3,4</sup> Dual Coil with Shunt Trip Voltage Coil |

**5 AUXILIARY / ALARM SWITCH**<sup>5</sup>

- 0** without Aux Switch
- 2** S.P.D.T., 0.110 Q.C. Term.

**6 FREQUENCY & DELAY**

- |                                   |  |
|-----------------------------------|--|
| <b>03</b> DC 50/60Hz, Switch Only | <b>30</b> DC, 50/60Hz Instantaneous                |
| <b>10</b> DC Instantaneous        | <b>31</b> DC, 50/60Hz Ultra Short                  |
| <b>11</b> DC Ultra Short          | <b>32</b> DC, 50/60Hz Short                        |
| <b>12</b> DC Short                | <b>34</b> DC, 50/60Hz Medium                       |
| <b>14</b> DC Medium               | <b>36</b> DC, 50/60Hz Long                         |
| <b>16</b> DC Long                 | <b>42</b> <sup>7</sup> 50/60Hz Short, High-inrush  |
| <b>20</b> 50/60Hz Instantaneous   | <b>44</b> <sup>7</sup> 50/60Hz Medium, High-inrush |
| <b>21</b> 50/60Hz Ultra Short     | <b>46</b> <sup>7</sup> 50/60Hz Long, High-inrush   |
| <b>22</b> 50/60Hz Short           | <b>52</b> <sup>7</sup> DC, Short, High-inrush      |
| <b>24</b> 50/60Hz Medium          | <b>54</b> <sup>7</sup> DC, Medium, High-inrush     |
| <b>26</b> 50/60Hz Long            | <b>56</b> <sup>7</sup> DC, Long, High-inrush       |

**7 CURRENT RATING (AMPERES)**

CODE	AMPERES						
210	0.100	285	0.850	455	5.500	613	13.000
215	0.150	290	0.900	460	6.000	614	14.000
220	0.200	295	0.950	465	6.500	615	15.000
225	0.250	410	1.000	470	7.000	616	16.000
230	0.300	512	1.250	475	7.500	617	17.000
235	0.350	415	1.500	480	8.000	618	18.000
240	0.400	517	1.750	485	8.500	620	20.000
245	0.450	420	2.000	490	9.000	622	22.000
250	0.500	522	2.250	495	9.500	624	24.000
255	0.550	527	2.750	610	10.000	625	25.000
260	0.600	430	3.000	710	10.500	630	30.000
265	0.650	435	3.500	611	11.000	635	35.000
270	0.700	440	4.000	711	11.500	640	40.000
275	0.750	445	4.500	612	12.000	645	45.000
280	0.800	450	5.000	712	12.500	650	50.000

**OR VOLTAGE COIL (NORMAL RATED VOLTAGE)**<sup>6</sup>

CODE	AMPERES				
<b>A06</b>	6 DC	<b>A32</b>	32 DC	<b>J12</b>	12 AC
<b>A12</b>	12 DC	<b>A48</b>	48 DC	<b>J18</b>	18 AC
<b>A18</b>	18 DC	<b>A65</b>	65 DC	<b>J24</b>	24 AC
<b>A24</b>	24 DC	<b>J06</b>	6 AC	<b>J48</b>	48 AC

**8 TERMINAL**<sup>9</sup>

- |  |   |
|--|---|
| <b>1</b> <sup>10</sup> Push-On 0.250 Tab (Q.C.)    | <b>B</b> Screw M5 with upturned lugs                  |
| <b>2</b> Screw 8-32 with upturned lugs             | <b>C</b> Screw M4 with upturned lugs                  |
| <b>3</b> <sup>11</sup> Screw 8-32 (Bus Type)       | <b>E</b> <sup>11</sup> Screw M4 (Bus Type)            |
| <b>4</b> Screw 10-32 with upturned lugs            | <b>F</b> Screw M5 with upturned lugs & 30° bend       |
| <b>5</b> <sup>11</sup> Screw 10-32 (Bus Type)      | <b>G</b> Screw M5 (Bus Type) & 30° bend               |
| <b>6</b> Screw 8-32 with upturned lugs & 30° bend  | <b>H</b> <sup>11</sup> Screw M5 (Bus Type) & 30° bend |
| <b>7</b> Screw 8-32 (Bus Type) & 30° bend          | <b>R</b> Screw M4 with upturned lugs & 30° bend       |
| <b>8</b> Screw 10-32 with upturned lugs & 30° bend | <b>T</b> <sup>11</sup> Screw M4 (Bus Type) & 30° bend |
| <b>9</b> Screw 10-32 (Bus Type) & 30° bend         |   |

**9 ACTUATOR COLOR & LEGEND**

Actuator Color	I-O	Dual	Legend Color
White	<b>A</b>	<b>1</b>	Black
Black	<b>C</b>	<b>2</b>	White
Red	<b>F</b>	<b>3</b>	White
Green	<b>H</b>	<b>4</b>	White
Blue	<b>K</b>	<b>5</b>	White
Yellow	<b>M</b>	<b>6</b>	Black
Gray	<b>P</b>	<b>7</b>	Black
Orange	<b>R</b>	<b>8</b>	Black
Black (short handle) <sup>15</sup>	<b>T</b>	<b>9</b>	White

**10 MOUNTING / BARRIERS**

	MOUNTING STYLE	BARRIERS
	<b>Threaded Insert, 2 per pole</b>	
<b>1</b>	6-32 x 0.195 inches	no
<b>A</b>	6-32 x 0.195 inches	yes
<b>2</b>	ISO M3 x 5mm	no
<b>B</b>	ISO M3 x 5mm (multipole only)	yes
	<b>Front panel Snap-In, 0.75" wide bezel</b>	
<b>5</b>	without Handleguard	no
<b>6</b>	without Handleguard (multipole only)	yes
	<b>Front panel Snap-In, 0.96" wide bezel</b>	
<b>7</b>	without Handleguard, 1-pole 0.96" wide;	no
	multipole units have .105" bezel overhang on all sides	
<b>8</b>	without Handleguard, 1-pole 0.96" wide;	yes
	(multipole only) .105" bezel overhang on all sides	

**11 AGENCY APPROVAL**

- P** TUV Certified, UL Recognized & CSA Accepted
- Q** UL Recognized STD 1077, UL Recognized 1500 (ignition protected), & CSA Accepted

Notes:

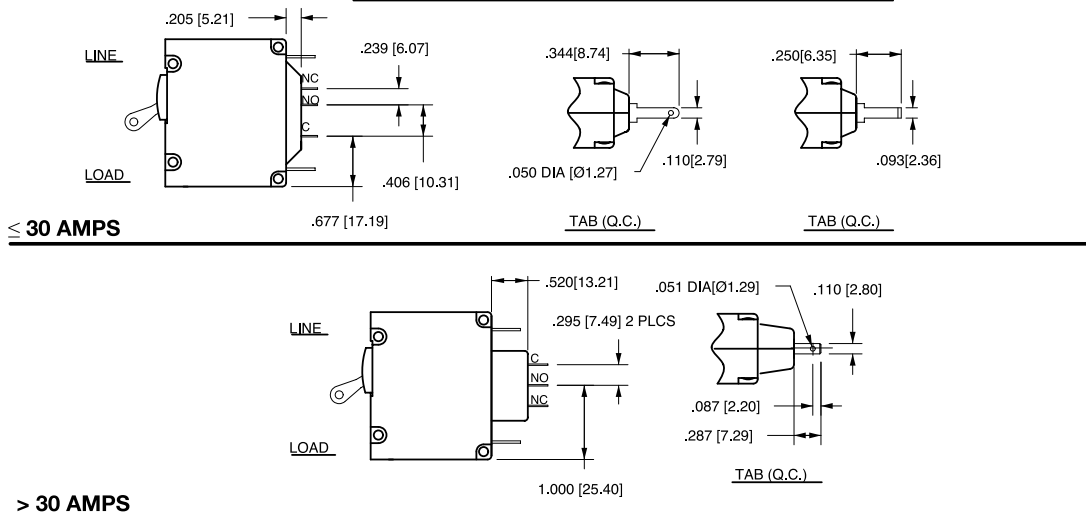
- 1 Actuator Code:  
A: Handle tie pin spacer(s) and retainers provided unassembled with multi-pole units.  
S: Handle moves to mid-position only upon electrical trip of the breaker. Available with circuit codes B, C, D, E, and H.  
T: Handle moves to mid-position and alarm switch activates only upon electrical trip of the breaker. Available with circuit codes B & C.
- 2 Switch Only circuits, rated up to 50 amps and 6 poles, and only available when tied to a protected pole (Circuit Code B, C, D or H), For .01 to 30 amps, select Current Code 630. For 35 - 50 amps, select Current Code 650.
- 3 Available with terminal Codes 1, 2 and 3. Current Rating limited to 30 amps maximum. Consult factory for available Dual Coil options, as special catalog number is required.
- 4 With Shunt construction, Dual Coils will trip instantaneously on line voltage. Dual coils require 30VA minimum power to trip and are rated for intermittent duty only.
- 5 On multi-pole breakers, one auxiliary switch is supplied, mounted in the extreme right pole.
- 6 Separate pole type voltage coils not rated for continuous duty. Available only with delay codes 10, 20 & 30.
- 7 Available with Circuit Codes B & D only. VDE Certified to 30 amps. UL Recognized, CSA Accepted & TUV Certified to 50 amps.
- 8 Available up to two poles with AC or DC delays.
- 9 Screw Terminals are recommended on ratings greater than 20 amps. Ratings over 30 amps are only available with Terminal Codes 5, 9, G and H.
- 10 Terminal Code 1: TUV Certification up to 30 amps, but not recommended over 20 amps.
- 11 Terminal Codes 3, 5, 7, 9, E, G and H (Bus Type) are supplied with Lock Washers. These breakers are only TUV Certified when the washers are used.
- 12 Single pole only.



## Circuit & Terminal Diagrams: in. [mm]

CIRCUIT BREAKER PROFILE	CIRCUIT SCHEMATIC		CIRCUIT SCHEMATIC	
	ANSI	CIRCUIT CODE	ANSI	CIRCUIT CODE
<b>2 TERMINALS</b> 	<b>SWITCH ONLY (NO COIL)</b> 	<b>A</b> <b>0</b>	<b>SERIES TRIP</b> 	<b>BC</b> <b>0</b>
<b>5 TERMINALS</b> 	<b>SWITCH ONLY (NO COIL) WITH AUXILIARY SWITCH</b> 	<b>A</b> <b>1</b> <b>2</b> <b>3</b> <b>4</b>	<b>SERIES TRIP WITH (3) AUXILIARY/ALARM SWITCH</b> 	<b>BC</b> <b>1</b> <b>2</b> <b>3</b> <b>4</b>
<b>3 TERMINALS</b> 	<b>SHUNT TRIP</b> 	<b>DE</b> <b>0</b>	<b>DUAL COIL; SERIES TRIP CURRENT COIL, SHUNT TRIP VOLTAGE COIL</b> 	<b>H</b> <b>0</b>
<b>4 TERMINALS</b> 	<b>RELAY TRIP</b> 	<b>FG</b> <b>0</b>	<b>DUAL COIL; SERIES TRIP CURRENT COIL, RELAY TRIP VOLTAGE COIL</b> 	<b>K</b> <b>0</b>

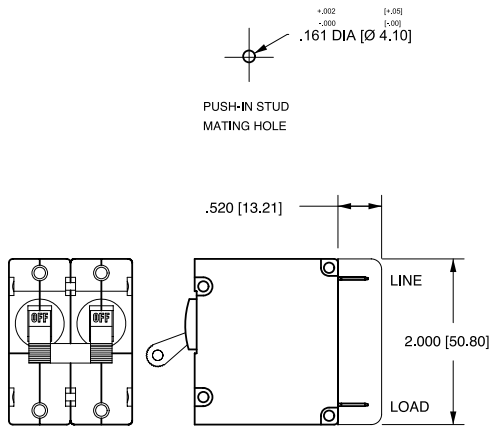
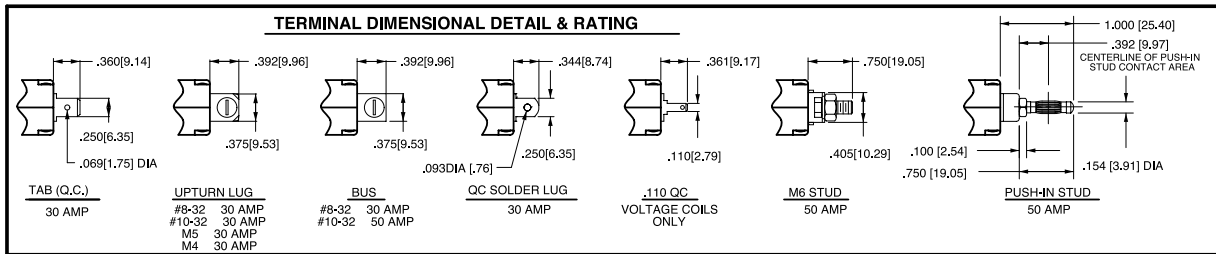
### AUXILIARY/ALARM SWITCH TERMINAL DETAIL



- Notes:
- All dimensions are in inches [millimeters].
  - Tolerance ±.020 [.51] unless otherwise specified.
  - Alarm Switch available with .110 x .020 Q.C. & Solder Lug Terminals Only.

## Circuit & Terminal Diagrams: in. [mm]

HANDLE POSITION VS. AUX/ALARM SWITCH MODE						
CIRCUIT BREAKER MODE	STANDARD C/B		MID TRIP C/B		MID TRIP C/B	
	HANDLE POSITION	AUX. SWITCH MODE	HANDLE POSITION	ALARM SWITCH MODE	HANDLE POSITION	AUX. SWITCH MODE (w/o ALARM SWITCH)
OFF						
ON						
ELECTRICAL TRIP						



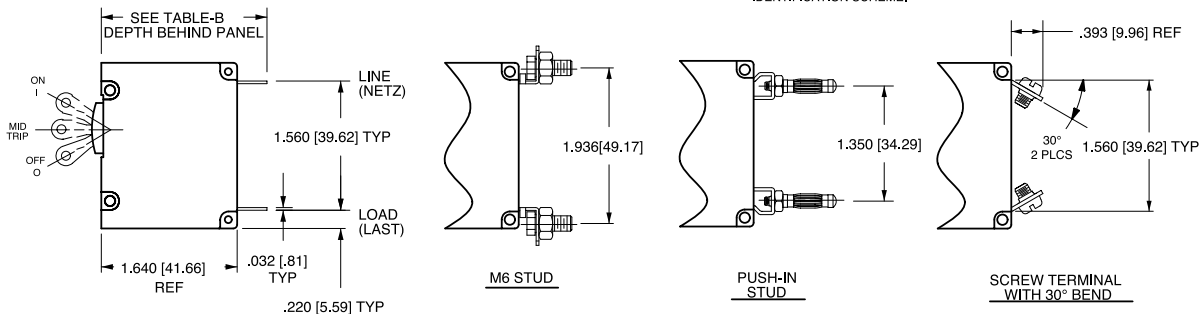
**TABLE A  
TIGHTENING TORQUE SPECIFICATIONS**

THREAD SIZE	TORQUE
#6-32 & M3 MOUNTING HARDWARE	7-9 IN-LBS [0.8-1.0 NM]
#8-32 & M4 THREAD TERMINAL SCREW	12-15 IN-LBS [1.4-1.7 NM]
#10-32 & M5 THREAD TERMINAL SCREW	15-20 IN-LBS [1.7-2.3 NM]

**TABLE B**

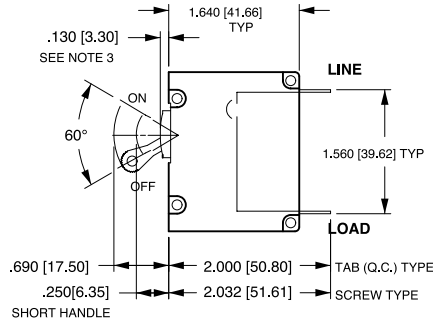
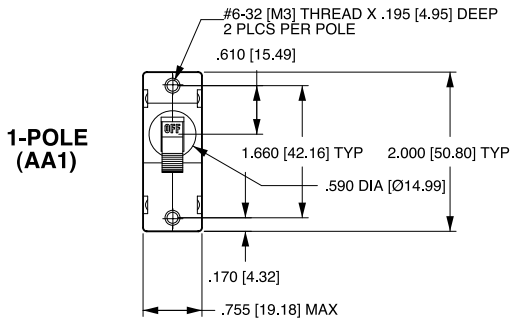
TERMINAL DESCRIPTION		DEPTH BEHIND PANEL
MAIN	TAB (Q.C.)	2.000 [50.80]
	SCREW TYPE	2.032 [51.60]
SHUNT, RELAY & DUAL COIL	TAB (Q.C.)	2.207 [56.10]
	SCREW #8-32 W/UPTURNED LUGS	2.364 [60.05]
AUX. SWITCH*	.093 TAB (Q.C.)	2.095 [53.20]
	.110 TAB (Q.C.)	2.189 [55.60]
	SOLDER TYPE	1.970 [50.00]

\* AVAILABLE ON SERIES TRIP AND SWITCH ONLY CIRCUITS. WHEN CALLED FOR ON MULTI-POLE UNITS, ONLY ONE AUX. SWITCH IS NORMALLY SUPPLIED, AS SHOWN IN MULTI-POLE IDENTIFICATION SCHEME.

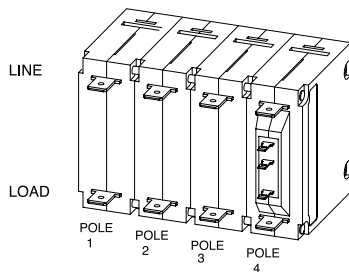
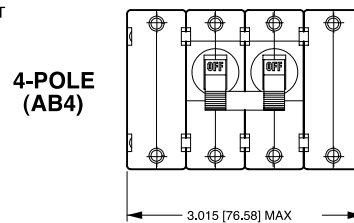
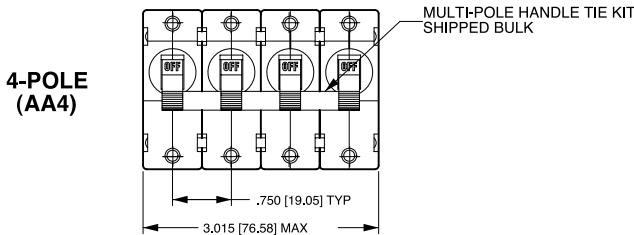
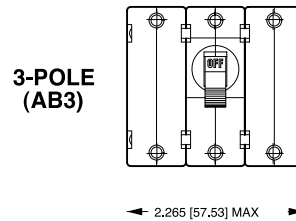
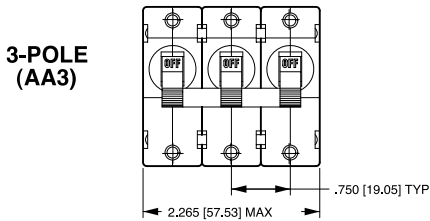
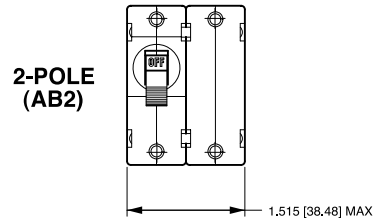
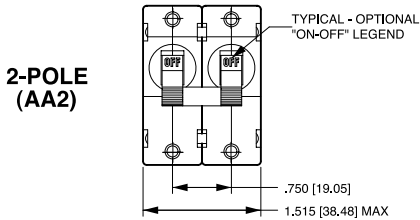


- Notes:
- All dimensions are in inches [millimeters].
  - Tolerance  $\pm 0.02$  [.51] unless otherwise specified.
  - Alarm Switch available with .110 x .020 QC & solder lug terminals only.

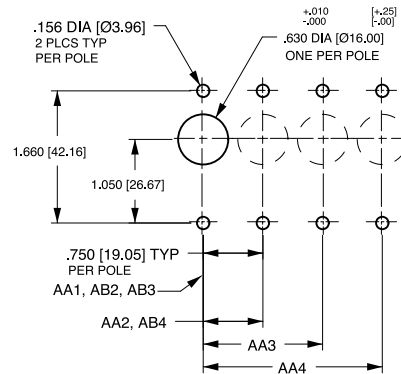
## Dimensional Specifications: in. [mm]



TAB (Q.C.) TYPE TERMINALS IN SERIES TRIP CIRCUIT CONFIGURATION SHOWN. FOR OTHER CONFIGURATIONS, SEE CIRCUIT AND TERMINAL DIAGRAMS.



MULTI-POLE IDENTIFICATION SCHEME AS VIEWED FROM TERMINAL END OF BREAKER.

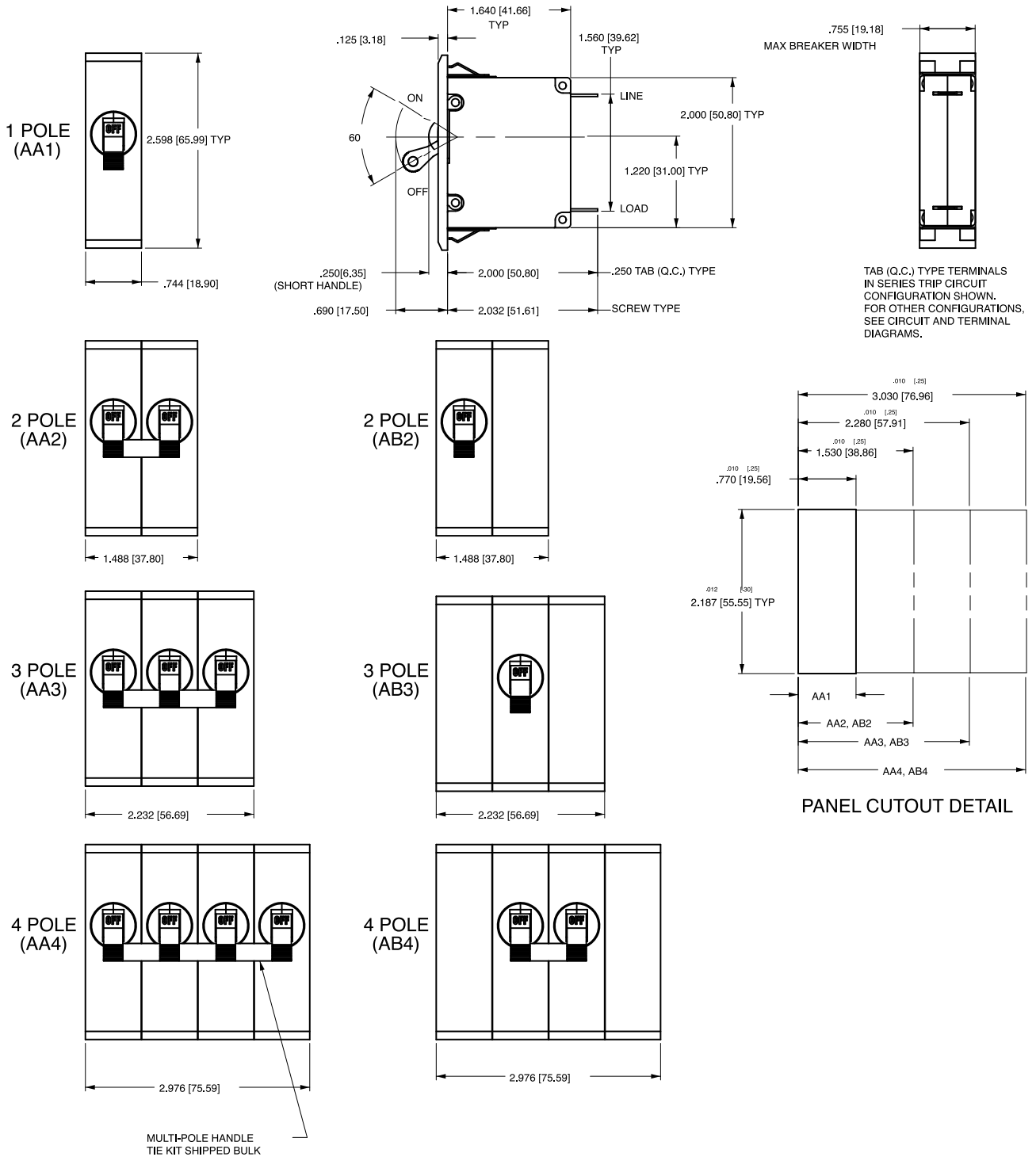


TOLERANCES ±.005 [±.12] UNLESS OTHERWISE SPECIFIED

Notes:

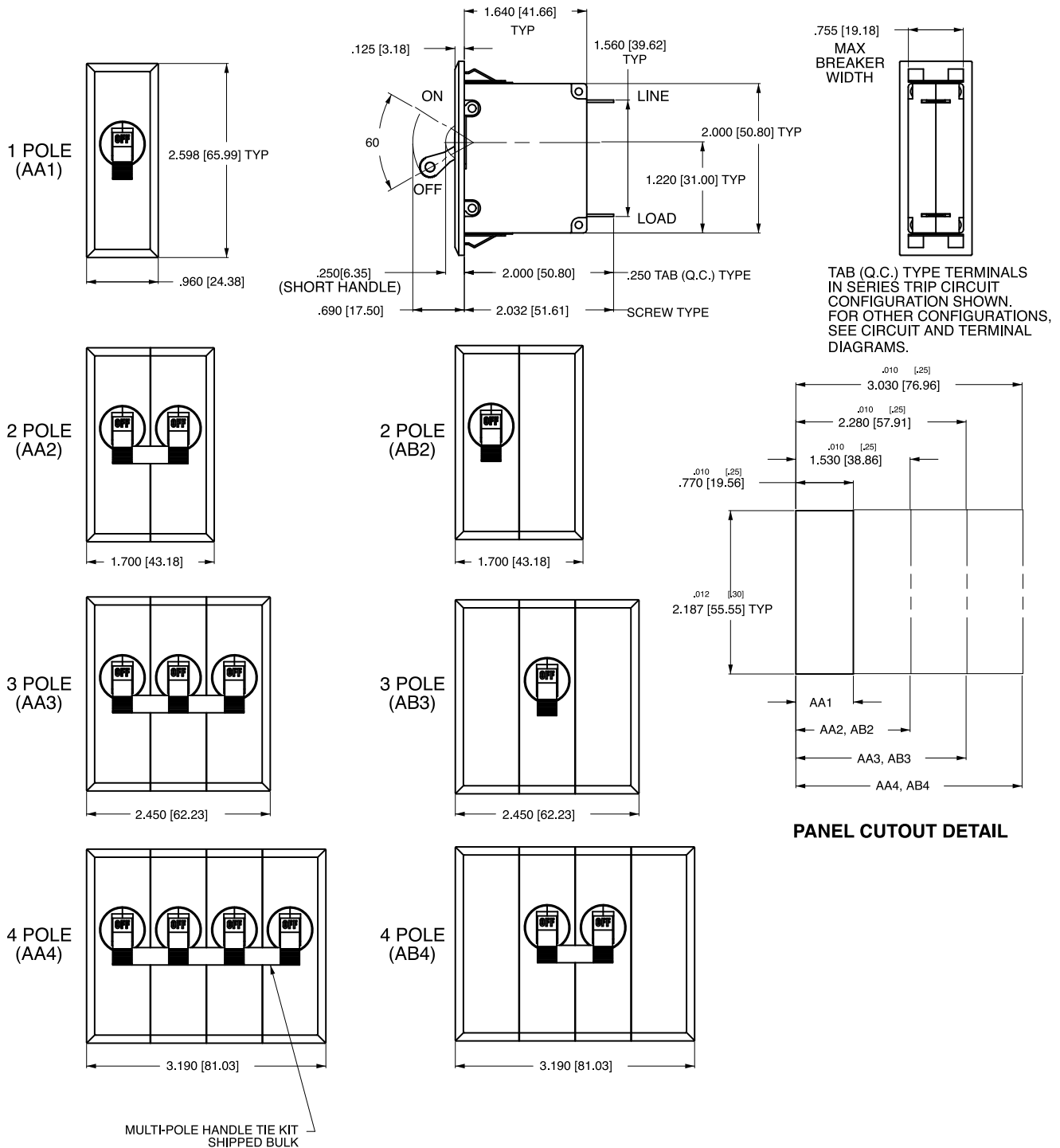
- 1 All dimensions are in inches [millimeters].
- 2 Tolerance ± 0.20 [.51] unless otherwise specified.
- 3 For agency code P = .150 [3.81].

## Dimensional Specifications: in. [mm]



- Notes:
- 1 All dimensions are in inches [millimeters].
  - 2 Recommended panel thickness: .040 [1.02] to .100 [2.54].
  - 3 Tolerance ±.020 [.51] unless otherwise specified.

## Dimensional Specifications: in. [mm]



**Notes:**

- 1 All dimensions are in inches [millimeters].
- 2 Recommended panel thickness: .040 [1.02] to .100 [2.54].
- 3 Tolerance  $\pm 0.020$  [.51] unless otherwise specified.

**A** **M** **1** - **B** **0** - **10** - **450** - **1** **0** **1** - **C**

1 Series    2 Actuator    3 Poles    4 Circuit    5 Aux/Alarm Switch    6 Frequency & Delay    7 Current Rating    8 Terminal    9 Actuator Color    10 Mounting/Barriers    11 Agency Approval

**1 SERIES**  
**A**

**2 ACTUATOR**<sup>1</sup>

**M** Sealed Toggle, one per unit

**3 POLES**

**1** One  
**2** Two  
**3** Three

**4 CIRCUIT**

<b>A</b> <sup>2</sup> Switch Only (No Coil)	<b>F</b> <sup>3</sup> Relay Trip (Current)
<b>B</b> Series Trip (Current)	<b>G</b> <sup>3</sup> Relay Trip (Voltage)
<b>C</b> Series Trip (Voltage)	<b>H</b> <sup>3,4</sup> Dual Coil with Shunt Trip Voltage Coil
<b>D</b> <sup>3</sup> Shunt Trip (Current)	<b>K</b> <sup>3,4</sup> Dual Coil with Relay Trip Voltage Coil
<b>E</b> <sup>3</sup> Shunt Trip (Voltage)	

**5 AUXILIARY / ALARM SWITCH**<sup>5</sup>

<b>0</b> without Aux Switch	<b>7</b> S.P.S.T., 0.110 Q.C. Term. (Gold Contacts)
<b>1</b> S.P.D.T., 0.093 Q.C. Term.	<b>8</b> S.P.S.T., 0.187 Q.C. Term.
<b>2</b> S.P.D.T., 0.110 Q.C. Term.	<b>9</b> S.P.D.T., 0.187 Q.C. Term. (Gold Contacts)
<b>5</b> S.P.S.T., 0.093 Q.C. Term. (Gold Contacts)	

**6 FREQUENCY & DELAY**

<b>03</b> DC 50/60Hz, Switch Only	<b>30</b> DC, 50/60Hz Instantaneous
<b>10</b> DC Instantaneous	<b>31</b> DC, 50/60Hz Ultra Short
<b>11</b> DC Ultra Short	<b>32</b> DC, 50/60Hz Short
<b>12</b> DC Short	<b>34</b> DC, 50/60Hz Medium
<b>14</b> DC Medium	<b>36</b> DC, 50/60Hz Long
<b>16</b> DC Long	<b>42</b> <sup>7</sup> 50/60Hz Short, High-inrush
<b>20</b> 50/60Hz Instantaneous	<b>44</b> <sup>7</sup> 50/60Hz Medium, High-inrush
<b>21</b> 50/60Hz Ultra Short	<b>46</b> <sup>7</sup> 50/60Hz Long, High-inrush
<b>22</b> 50/60Hz Short	<b>52</b> <sup>7</sup> DC, Short, High-inrush
<b>24</b> 50/60Hz Medium	<b>54</b> <sup>7</sup> DC, Medium, High-inrush
<b>26</b> 50/60Hz Long	<b>56</b> <sup>7</sup> DC, Long, High-inrush

**7 CURRENT RATING (AMPERES)**

CODE	AMPERES				
<b>020</b>	0.020	<b>230</b>	0.300	<b>425</b>	2.500
<b>025</b>	0.025	<b>235</b>	0.350	<b>527</b>	2.750
<b>030</b>	0.030	<b>240</b>	0.400	<b>430</b>	3.000
<b>035</b>	0.035	<b>245</b>	0.450	<b>435</b>	3.500
<b>040</b>	0.040	<b>250</b>	0.500	<b>440</b>	4.000
<b>045</b>	0.045	<b>255</b>	0.550	<b>445</b>	4.500
<b>050</b>	0.050	<b>260</b>	0.600	<b>450</b>	5.000
<b>055</b>	0.055	<b>265</b>	0.650	<b>455</b>	5.500
<b>060</b>	0.060	<b>270</b>	0.700	<b>460</b>	6.000
<b>065</b>	0.065	<b>275</b>	0.750	<b>465</b>	6.500
<b>070</b>	0.070	<b>280</b>	0.800	<b>470</b>	7.000
<b>075</b>	0.075	<b>285</b>	0.850	<b>475</b>	7.500
<b>080</b>	0.080	<b>290</b>	0.900	<b>480</b>	8.000
<b>085</b>	0.085	<b>295</b>	0.950	<b>485</b>	8.500
<b>090</b>	0.090	<b>410</b>	1.000	<b>490</b>	9.000
<b>095</b>	0.095	<b>512</b>	1.250	<b>495</b>	9.500
<b>210</b>	0.100	<b>415</b>	1.500	<b>610</b>	10.000
<b>215</b>	0.150	<b>517</b>	1.750	<b>710</b>	10.500
<b>220</b>	0.200	<b>420</b>	2.000	<b>611</b>	11.000
<b>225</b>	0.250	<b>522</b>	2.250	<b>711</b>	11.500

**OR VOLTAGE COIL (NORMAL RATED VOLTAGE)**<sup>6</sup>

CODE	AMPERES				
<b>A06</b>	6 DC	<b>A32</b>	32 DC	<b>J12</b>	12 AC
<b>A12</b>	12 DC	<b>A48</b>	48 DC	<b>J18</b>	18 AC
<b>A18</b>	18 DC	<b>A65</b>	65 DC	<b>J24</b>	24 AC
<b>A24</b>	24 DC	<b>J06</b>	6 AC	<b>J48</b>	48 AC
				<b>J65</b>	65 AC
				<b>K20</b>	120 AC
				<b>L40</b>	240 AC

**8 TERMINAL**<sup>9</sup>

<b>1</b> <sup>10</sup> Push-On 0.250 Tab (Q.C.)	<b>E</b> Screw M4 (Bus Type)
<b>2</b> Screw 8-32 with upturned lugs	<b>F</b> Screw M5 with upturned lugs & 30° bend
<b>3</b> Screw 8-32 (Bus Type)	<b>G</b> Screw M5 (Bus Type) & 30° bend
<b>4</b> Screw 10-32 with upturned lugs	<b>H</b> Screw M5 (Bus Type)
<b>5</b> Screw 10-32 (Bus Type)	<b>L</b> <sup>12</sup> 0.250 Q.C./ Solder Lug
<b>6</b> Screw 8-32 with upturned lugs & 30° bend	<b>M</b> M6 Threaded Stud
<b>7</b> Screw 8-32 (Bus Type) & 30° bend	<b>Q</b> Push-In Stud
<b>8</b> Screw 10-32 with upturned lugs & 30° bend	<b>R</b> Screw M4 with upturned lugs & 30° bend
<b>9</b> Screw 10-32 (Bus Type) & 30° bend	<b>T</b> Screw M4 (Bus Type) & 30° bend
<b>B</b> Screw M5 with upturned lugs	<b>P</b> <sup>12</sup> Printed Circuit Board Terminals
<b>C</b> Screw M4 with upturned lugs	<b>S</b> Push-On 0.110 Tab (Q.C.)

**9 LEGEND PLATE**

**0** No legend plate

**10 MOUNTING / BARRIERS**

MOUNTING STYLE	BARRIERS
<b>1</b> Standard Hex Nut	no
<b>A</b> Standard Hex Nut (multipole only)	yes

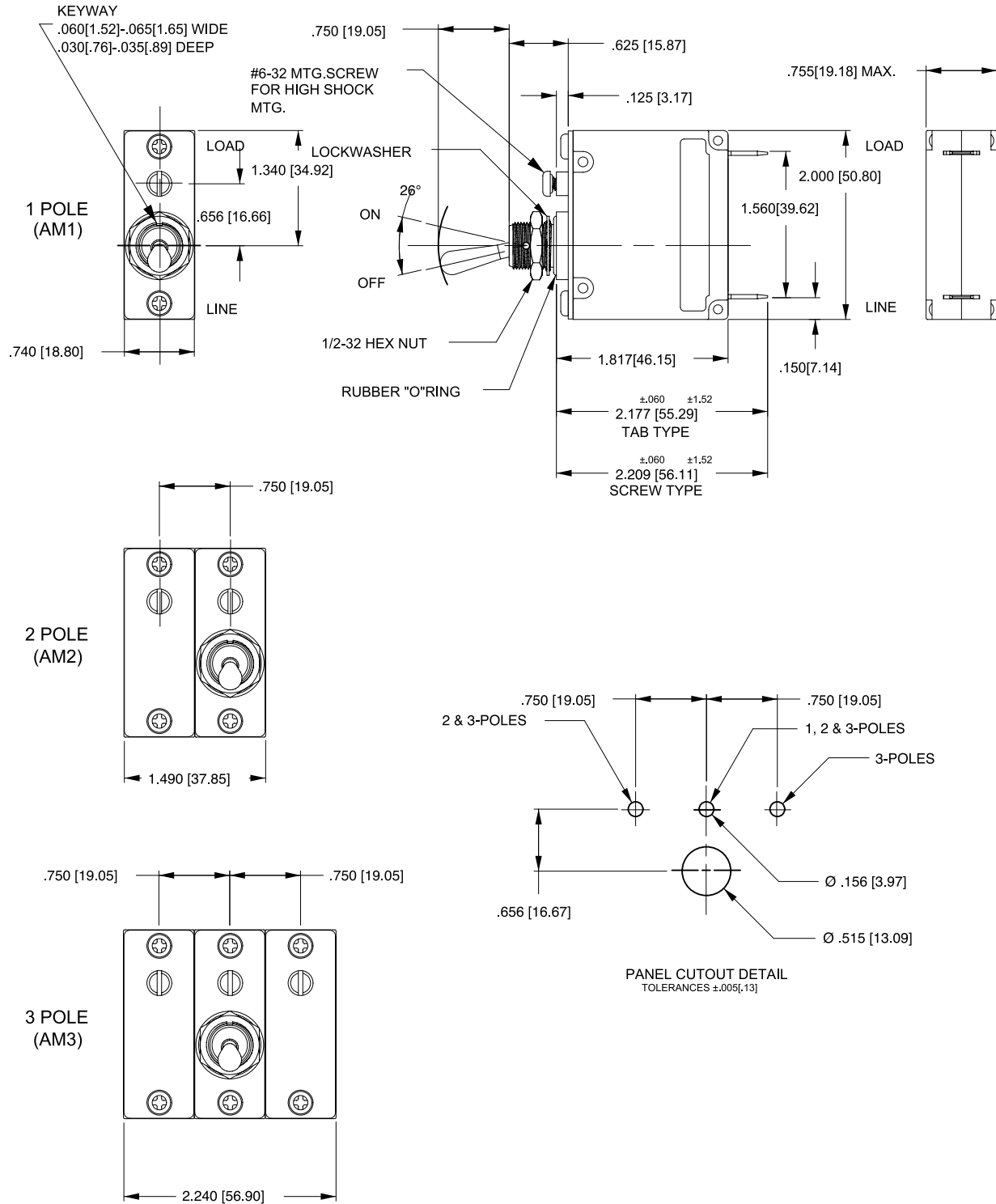
**11 AGENCY APPROVAL**

**C** UL Recognized & CSA Accepted  
**I** UL Recognized STD 1077, UL Recognized 1500 (ignition protected), & CSA Accepted

Notes:

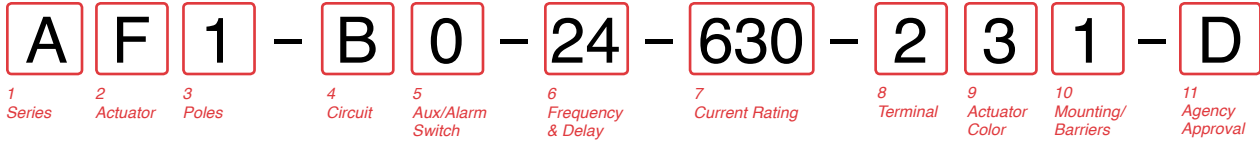
- Actuator Code M: Handle location as viewed from front of panel:  
2 pole - right pole    3 pole - center pole
- Switch Only circuits, rated up to 50 amps and 3 poles. Only available when tied to a protected pole. For .02 to 30 amps, select Current Code 630. For 35 - 50 amps, select Current Code 650.
- Available with terminal Codes 1, 2 and 3. Current Rating limited to 30 amps maximum.
- Consult factory for available Dual Coil options, as special catalog number is required. With Shunt construction, Dual Coils will trip instantaneously on line voltage. Dual coils require 30VA minimum power to trip and are rated for intermittent duty only.
- Auxiliary Switch available on Series Trip & Switch Only circuits, limited to 30 amps. On multi-pole breakers, one auxiliary switch is supplied, mounted in the extreme right pole.
- Voltage coils not rated for continuous duty. Available only with delay codes 10 and 20.
- Available with Circuit Codes B & D only. VDE Certified to 30 amps. UL Recognized, CSA Accepted & TUV Certified to 50 amps.
- UL Recognition and CSA Certification available on one and two pole breakers.
- Screw Terminals are recommended on ratings greater than 20 amps. Ratings over 30 amps are only available with Terminal Codes 5, 9, B, F, G, H, M and Q.
- Terminal Code 1: UL Recognition and CSA Certification up to 30 amps, but not recommended over 20 amps.
- Terminal Code L: available up to 30A.
- Single pole breakers with Terminal Code P (Printed Circuit Board) are available up to 50 amps, with Circuit Codes A, B and C. Two pole breakers with Terminal Code P (Printed Circuit Board) are available up to 40 amps with Circuit Codes A, B and C.

## Dimensional Specifications: in. [mm]



Notes:

- 1 All dimensions are in inches [millimeters].
- 2 Tolerance ±.020 [.51] unless otherwise specified.



**1 SERIES**

**A**

**2 ACTUATOR 1**

**Two Color Visi-Rocker**

- C** Indicate ON, vertical legend
- D** Indicate ON, horizontal legend
- F** Indicate OFF, vertical legend
- G** Indicate OFF, horizontal legend
- H** Indicate OFF, no legend

**Push-To-Reset, Visi-Rocker**

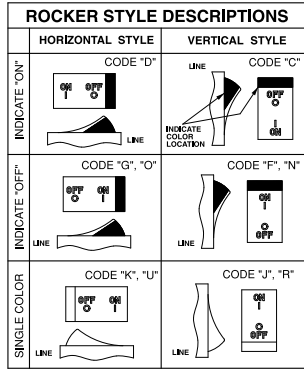
- N** Indicate OFF, vertical legend
- O** Indicate OFF, horizontal legend
- P** Indicate OFF, no legend

**Single color**

- J** Vertical legend
- K** Horizontal legend
- L** No legend

**Push-To-Reset, Single color**

- R** Vertical legend
- U** Horizontal legend
- V** No legend



**3 POLES**

- 1** One
- 2** Two
- 3** Three

**4 CIRCUIT**

- |   |  |
|---|--|
| <b>A</b> <sup>3</sup> Switch Only (No Coil) | <b>F</b> <sup>4</sup> Relay Trip (Current)                     |
| <b>B</b> Series Trip (Current)              | <b>G</b> <sup>4</sup> Relay Trip (Voltage)                     |
| <b>C</b> Series Trip (Voltage)              | <b>H</b> <sup>4,5</sup> Dual Coil with Shunt Trip Voltage Coil |
| <b>D</b> <sup>4</sup> Shunt Trip (Current)  | <b>K</b> <sup>4,5</sup> Dual Coil with Relay Trip Voltage Coil |
| <b>E</b> <sup>4</sup> Shunt Trip (Voltage)  |  |

**5 AUXILIARY / ALARM SWITCH 6,7**

- |   |   |
|---|---|
| <b>0</b> without Aux Switch                         | <b>7</b> S.P.S.T., 0.110 Q.C. Term. (Gold Contacts) |
| <b>1</b> S.P.D.T., 0.093 Q.C. Term.                 | <b>8</b> S.P.D.T., 0.187 Q.C. Term.                 |
| <b>2</b> S.P.D.T., 0.110 Q.C. Term.                 | <b>9</b> S.P.D.T., 0.187 Q.C. Term. (Gold Contacts) |
| <b>5</b> S.P.S.T., 0.093 Q.C. Term. (Gold Contacts) |   |

**6 FREQUENCY & DELAY**

- |                                   |  |
|-----------------------------------|--|
| <b>03</b> DC 50/60Hz, Switch Only | <b>30</b> DC, 50/60Hz Instantaneous                |
| <b>10</b> DC Instantaneous        | <b>31</b> DC, 50/60Hz Ultra Short                  |
| <b>11</b> DC Ultra Short          | <b>32</b> DC, 50/60Hz Short                        |
| <b>12</b> DC Short                | <b>34</b> DC, 50/60Hz Medium                       |
| <b>14</b> DC Medium               | <b>36</b> DC, 50/60Hz Long                         |
| <b>16</b> DC Long                 | <b>42</b> <sup>9</sup> 50/60Hz Short, High-inrush  |
| <b>20</b> 50/60Hz Instantaneous   | <b>44</b> <sup>9</sup> 50/60Hz Medium, High-inrush |
| <b>21</b> 50/60Hz Ultra Short     | <b>46</b> <sup>9</sup> 50/60Hz Long, High-inrush   |
| <b>22</b> 50/60Hz Short           | <b>52</b> <sup>9</sup> DC, Short, High-inrush      |
| <b>24</b> 50/60Hz Medium          | <b>54</b> <sup>9</sup> DC, Medium, High-inrush     |
| <b>26</b> 50/60Hz Long            | <b>56</b> <sup>9</sup> DC, Long, High-inrush       |

Notes:

- 1 Push-To-Reset actuators have OFF portion of rocker shrouded.
- 2 Multi-pole breakers have all breakers identical except when specifying Auxiliary switch and/or mixed poles, and have one rocker per breaker.
- 3 Switch Only circuits, rated up to 50 amps & 3 poles, are available only when tied to a protected pole (Circuit Code B, C, D or H). For .02 to 30 amps, select Current Code 630. For 35 - 50 amps, select Current Code 650.
- 4 Available with terminal Codes 1, 2 and 3. Current Rating limited to 30 amps maximum.
- 5 Consult factory for Dual Coil options, as special catalog number is required. With Shunt construction, Dual Coils will trip instantaneously on line voltage. Dual coils require 30VA minimum power to trip and are rated for intermittent duty only.
- 6 Auxiliary Switch breakers with Series Trip & Switch Only circuits: ≤ 30A, are supplied with standard half shells. 30-50A are supplied with extended boat (B-Style) half shells.
- 7 On multi-pole breakers, one auxiliary switch is supplied, mounted in the extreme right pole.
- 8 Separate pole type voltage coils not rated for continuous duty. Available only with delay codes 10 & 20.
- 9 Available with Circuit Codes B & D only. VDE Certified to 30 amps. UL Recognized, CSA Accepted & TUV Certified to 50 amps.
- 10 Series Trip current ratings: VDE Certification available with single pole breakers with DC Delay only. UL Recognition & CSA Accepted available in one and two pole breakers.
- 11 Screw Terminals are recommended on ratings greater than 20 amps. Ratings over 30 amps are only available with Terminal Codes 5, 9, G, H, M and Q.
- 12 Terminal Code 1: VDE Certification up to 25 amps and UL Recognition and CSA Accepted up to 30 amps, but not recommended over 20 amps.
- 13 Terminal Codes 3, 5 E & H (Bus Type) with VDE, are supplied with Lock Washers; Terminal Code M (M6 Threaded Stud) with VDE is supplied with Lock and Flat Washers. These breakers are only VDE Certified when the washers are used.
- 14 VDE Cert. available up to 12 amps. UL Rec. & CSA Accepted available up to 30 amps.
- 15 Single pole breakers with Terminal Code P (Printed Circuit Board) are available up to 30 amps with VDE Certification and 50 amps with UL Recognition and CSA Accepted, with Circuit Codes A, B & C. Two pole breakers with Terminal Code P (Printed Circuit Board) are available up to 40 amps with UL Recognition and CSA Certification with Circuit Codes A, B and C.
- 16 Terminal Code Q not available with VDE.
- 17 Terminal Code S used on voltage coil circuit constructions only.
- 18 Color shown is visi and legend with remainder of rocker black.
- 19 Dual = ON-OFF/I-O legend with actuator. None = no legend on actuator
- 20 Legend on Push-to-reset bezel/shroud is white with single color actuator codes R, & U. Legend on Push-to-reset bezel/shroud matches Visi-color of rocker with actuator codes N & O. Rockerguard available with actuator codes C through L.

**7 CURRENT RATING (AMPERES)**

CODE	AMPERES	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	410	512	415	517	420	522	527	430	435	440	445	450	455	460	465	470	475	480	485	490	495	610	615	622	624	625	630	635	640	645	650												
020	0.020	0.250	0.300	0.350	0.400	0.450	0.500	0.550	0.600	0.650	0.700	0.750	0.800	0.850	0.900	0.950	1.000	1.250	1.500	1.750	2.000	2.250	2.750	3.000	3.500	4.000	4.500	5.000	5.500	6.000	6.500	7.000	7.500	8.000	8.500	9.000	9.500	10.000	10.500	11.000	11.500	12.000	12.500	13.000	13.000	14.000	15.000	16.000	17.000	18.000	20.000	22.000	24.000	25.000	30.000	35.000	40.000	45.000	50.000

**OR VOLTAGE COIL (NORMAL RATED VOLTAGE) 8**

CODE	AMPERES	A06	A12	A18	A24	A32	A48	A65	J06	J12	J18	J24	J48	J65	L20	L40
		6 DC	12 DC	18 DC	24 DC	32 DC	48 DC	65 DC	6 AC	12 AC	18 AC	24 AC	48 AC	65 AC	120 AC	240 AC

**8 TERMINAL 11**

- |  |  |
|--|--|
| <b>1</b> <sup>12</sup> Push-On 0.250 Tab (Q.C.)    | <b>E</b> <sup>13</sup> Screw M4 (Bus Type)                 |
| <b>2</b> Screw 8-32 with upturned lugs             | <b>F</b> Screw M5 with upturned lugs & 30° bend            |
| <b>3</b> <sup>13</sup> Screw 8-32 (Bus Type)       | <b>G</b> Screw M5 (Bus Type) & 30° bend                    |
| <b>4</b> Screw 10-32 with upturned lugs            | <b>H</b> <sup>13</sup> Screw M5 (Bus Type)                 |
| <b>5</b> <sup>13</sup> Screw 10-32 (Bus Type)      | <b>L</b> <sup>14</sup> 0.250 Q.C./ Solder Lug              |
| <b>6</b> Screw 8-32 with upturned lugs & 30° bend  | <b>M</b> <sup>13</sup> M6 Threaded Stud                    |
| <b>7</b> Screw 8-32 (Bus Type) & 30° bend          | <b>P</b> <sup>15</sup> Printed Circuit Board Terminals     |
| <b>8</b> Screw 10-32 with upturned lugs & 30° bend | <b>Q</b> <sup>16</sup> Push-In Stud                        |
| <b>9</b> Screw 10-32 (Bus Type) & 30° bend         | <b>R</b> Screw M4 with upturned lugs & 30° bend            |
| <b>B</b> Screw M5 with upturned lugs               | <b>S</b> <sup>17</sup> Push-On 0.110 Tab (Q.C.) & 30° bend |
| <b>C</b> Screw M4 with upturned lugs               | <b>T</b> Screw M4 (Bus Type) & 30° bend                    |

**9 ACTUATOR COLOR & LEGEND**

Actuator or Visi-Color 12	Marking:		Marking Color	
	I-O	ON-OFF	Dual 12	Single Color Visi-Rocker
White	A	B	1	Black
Black	C	D	2	White
Red	F	G	3	White
Green	H	J	4	White
Blue	K	L	5	White
Yellow	M	N	6	Black
Gray	P	Q	7	Black
Orange	R	S	8	Black

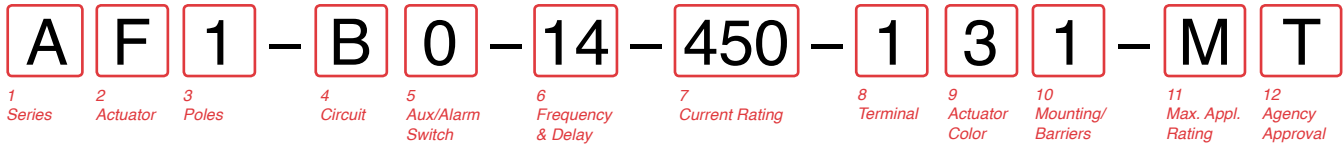
**10 MOUNTING / BARRIERS 20**

	STANDARD ROCKER BEZEL	BARRIERS
<b>1</b>	<b>Threaded Insert, 2 per pole</b>	
	6-32 x 0.195 inches	no
<b>A</b>	6-32 X 0.195 inches (multi-pole units only)	yes
<b>2</b>	ISO M3 x 5mm	no
<b>B</b>	ISO M3 x 5mm (multi-pole units only)	yes
	<b>ROCKERGUARD &amp; PUSH-TO-RESET BEZEL</b>	
<b>3</b>	<b>Threaded Insert, 2 per pole</b>	
	6-32 x 0.195 inches	no
<b>C</b>	6-32 x 0.195 inches (multi-pole units only)	yes
<b>D</b>	ISO M3 x 5mm	no
	ISO M3 x 5mm (multi-pole units only)	yes
<b>8</b>	<b>FRONT PANEL SNAP-IN BRACKET, 0.744" [18.90mm] wide bezel</b>	
	without Rockerguard (single pole units only)	no
<b>H</b>	with Rockerguard (single pole units only)	no
	<b>FRONT PANEL SNAP-IN BRACKET, 0.96" [24.48mm] wide bezel</b>	
<b>9</b>	without Rockerguard (single pole units only)	no
<b>J</b>	with Rockerguard (single pole units only)	no

**11 AGENCY APPROVAL**

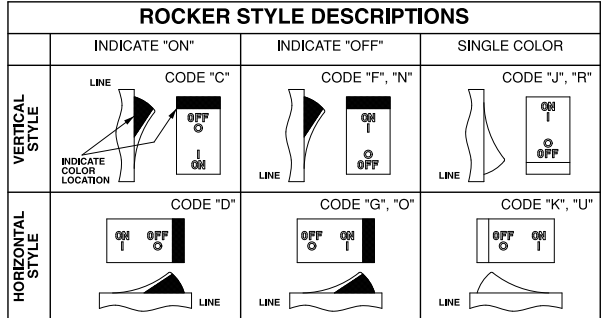
- C** UL Recognized & CSA Accepted
- D** VDE Certified, UL Recognized & CSA Accepted
- E** TUV Certified, UL Recognized & CSA Accepted
- I** UL Recognized STD 1077, UL Recognized 1500 (ignition protected), & CSA Accepted





**1 SERIES**  
A

**2 ACTUATOR 1**  
**Two Color Visi-Rocker**  
**C** Indicate ON, vertical legend  
**D** Indicate ON, horizontal legend  
**F** Indicate OFF, vertical legend  
**G** Indicate OFF, horizontal legend  
**Single color**  
**J** Vertical legend  
**K** Horizontal legend  
**Push-To-Reset, Visi-Rocker**  
**N** Indicate OFF, vertical legend  
**O** Indicate OFF, horizontal legend  
**Push-To-Reset, Single color**  
**R** Vertical legend  
**U** Horizontal legend



**3 POLES 2**  
**1** One  
**2** Two  
**3** Three

**4 CIRCUIT**  
**B** Series Trip (Current)

**5 AUXILIARY / ALARM SWITCH 2**  
**0** without Aux Switch  
**1** S.P.D.T., 0.093 Q.C. Term.  
**2** S.P.D.T., 0.110 Q.C. Term.  
**7** S.P.S.T., 0.110 Q.C. Term. (Gold Contacts)  
**8** S.P.S.T., 0.187 Q.C. Term.  
**9** S.P.D.T., 0.187 Q.C. Term.

**6 FREQUENCY & DELAY**  
**11** DC Ultra Short  
**12** DC Short  
**14** DC Medium  
**16** DC Long  
**52** DC, Short, High-inrush  
**54** DC, Medium, High-inrush  
**56** DC, Long, High-inrush

**7 CURRENT RATING (AMPERES)**

CODE	AMPERES	285	0.850	455	5.500	613	13.000
210	0.100	285	0.850	455	5.500	613	13.000
215	0.150	290	0.900	460	6.000	614	14.000
220	0.200	295	0.950	465	6.500	615	15.000
225	0.250	410	1.000	470	7.000	616	16.000
230	0.300	512	1.250	475	7.500	617	17.000
235	0.350	415	1.500	480	8.000	618	18.000
240	0.400	517	1.750	485	8.500	620	20.000
245	0.450	420	2.000	490	9.000	622	22.000
250	0.500	522	2.250	495	9.500	624	24.000
255	0.550	527	2.750	610	10.000	625	25.000
260	0.600	430	3.000	710	10.500	630	30.000
265	0.650	435	3.500	611	11.000	635	35.000
270	0.700	440	4.000	711	11.500	640	40.000
275	0.750	445	4.500	612	12.000	645	45.000
280	0.800	450	5.000	712	12.500	650	50.000

**8 TERMINAL 5**  
**1** 6 Push-On 0.250 Tab (Q.C.)  
**2** Screw 8-32 with upturned lugs  
**3** 7 Screw 8-32 (Bus Type)  
**4** 5 7 Screw 10-32 with upturned lugs  
**5** 7 Screw 10-32 (Bus Type)  
**6** Screw 8-32 with upturned lugs & 30° bend  
**7** Screw 8-32 (Bus Type) & 30° bend  
**8** Screw 10-32 with upturned lugs & 30° bend  
**9** Screw 10-32 (Bus Type) & 30° bend  
**B** Screw M5 with upturned lugs  
**F** Screw M5 with upturned lugs & 30° bend  
**G** Screw M5 (Bus Type) & 30° bend  
**H** Screw M5 (Bus Type)  
**M** 7 M6 Threaded Stud  
**P** 8 Printed Circuit Board Terminals  
**Q** 9 Push-In Stud

**9 ACTUATOR COLOR & LEGEND**

Actuator or Visi-Color 10	Marking:		Marking Color	
	ON-OFF	Dual 10	Single Color	Visi-Rocker
White	B	1	Black	White
Black	D	2	White	n/a
Red	G	3	White	Red
Green	J	4	White	Green
Blue	L	5	White	Blue
Yellow	N	6	Black	Yellow
Gray	Q	7	Black	Gray
Orange	S	8	Black	Orange

**10 MOUNTING / BARRIERS 11**

	STANDARD ROCKER BEZEL Threaded Insert, 2 per pole	BARRIERS
1	6-32 x 0.195 inches	no
A	6-32 X 0.195 inches (multi-pole units only)	yes
2	ISO M3 x 5mm	no
B	ISO M3 x 5mm (multi-pole units only)	yes
	<b>ROCKERGUARD &amp; PUSH-TO-RESET BEZEL Threaded Insert, 2 per pole</b>	
3	6-32 x 0.195 inches	no
C	6-32 x 0.195 inches (multi-pole units only)	yes
4	ISO M3 x 5mm	no
D	ISO M3 x 5mm (multi-pole units only)	yes
	<b>FRONT PANEL SNAP-IN BRACKET, 0.744" [18.90mm] wide bezel</b>	
8	without Rockerguard (single pole units only)	no
H	with Rockerguard (single pole units only)	no
	<b>FRONT PANEL SNAP-IN BRACKET, 0.96" [24.48mm] wide bezel</b>	
9	without Rockerguard (single pole units only)	no
J	with Rockerguard (single pole units only)	no

**11 MAXIMUM APPLICATION RATING**  
**M** 80 DC

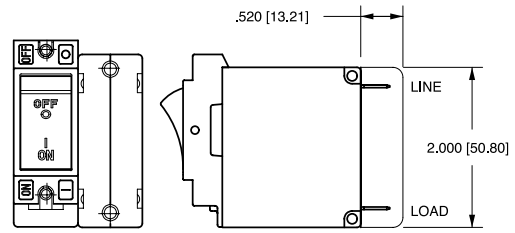
**12 AGENCY APPROVAL**  
**T** UL489A Listed  
**K** UL489A Listed, VDE Certified  
**J** UL489A Listed, TUV Certified

- Notes:
- 1 Push-To-Reset actuators have OFF portion of rocker shrouded.
  - 2 Multi-pole breakers have all breakers identical except when specifying Auxiliary switch and/or mixed poles, and have one rocker per breaker.
  - 3 Auxiliary Switch breakers with Series Trip circuits: ≤ 30A, are supplied with standard half shells. 30-50A are supplied with extended boat (B-Style) half shells.
  - 4 VDE Certification available with single pole breakers only. UL489A Listing available with one and two pole breakers.
  - 5 Screw Terminals are recommended on ratings greater than 20 amps. Ratings over 30 amps are only available with Terminal Codes 5, 9, G, H, M and Q.
  - 6 Terminal Code 1 (Push-On) available up to 25 amps with TUV or VDE Certification and 30 amps with UL489A Listing, but is not recommended over 20 amps.
  - 7 Terminal Codes 3, 5 and H (Bus Type) with TUV or VDE, are supplied with Lock Washers, and Terminal Code M (M6 Threaded Stud) with VDE is supplied with Lock and Flat Washers. These breakers are only TUV or VDE Certified when the washers are used.
  - 8 Single pole breakers with Terminal Code P (Printed Circuit Board) are available up to 30 amps with VDE Certification and 50 amps with UL489A Listing.
  - 9 Terminal Code Q not available with VDE certification.
  - 10 Color shown is Visi and Legend with remainder of rocker black. Dual = ON-OFF/I-O legend.
  - 11 Legend on Push-to-reset bezel/shroud is white with single color actuator codes R & U. Legend on Push-To-Reset bezel/shroud matches Visi-Color of rocker with actuator codes N & O. Rockerguard available with actuator codes C through K

## Circuit & Terminal Diagrams: in. [mm]

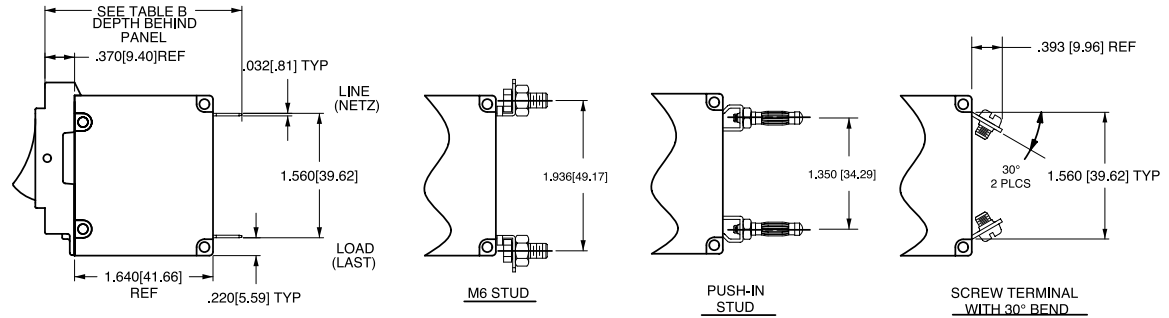
CIRCUIT BREAKER PROFILE	CIRCUIT SCHEMATIC		CIRCUIT CODE	AUX. SWITCH CODE	CIRCUIT SCHEMATIC		CIRCUIT CODE	AUX. SWITCH CODE
	ANSI	IEC			ANSI	IEC		
<b>2 TERMINALS</b> 	<b>SWITCH ONLY (NO COIL)</b> 		A	0	<b>SERIES TRIP</b> 		B C	0
<b>5 TERMINALS</b> 	<b>SWITCH ONLY (NO COIL) WITH AUXILIARY SWITCH (4)</b> 		A	1 2 3 4	<b>SERIES TRIP WITH AUXILIARY SWITCH (4)</b> 		B C	1 2 3 4
<b>3 TERMINALS</b> 	<b>SHUNT TRIP</b> 		D E	0	<b>DUAL COIL; SERIES TRIP CURRENT COIL, SHUNT TRIP VOLTAGE COIL</b> 		H	0
<b>4 TERMINALS</b> 	<b>RELAY TRIP</b> 		F G	0	<b>DUAL COIL; SERIES TRIP CURRENT COIL, RELAY TRIP VOLTAGE COIL</b> 		K	0

TERMINAL DESCRIPTION		DEPTH BEHIND PANEL
MAIN	TAB (Q.C.)	2.370 [60.20]
	SCREW TYPE	2.402 [61.01]
SHUNT, RELAY & DUAL COIL	TAB (Q.C.)	2.577 [65.46]
	SCREW #8-32 W/UPTURNED LUGS	2.734 [69.44]
AUX. SWITCH*	.093 TAB (Q.C.)	2.465 [62.61]
	.110 TAB (Q.C.)	2.559 [65.00]
	SOLDER TYPE	2.340 [59.44]



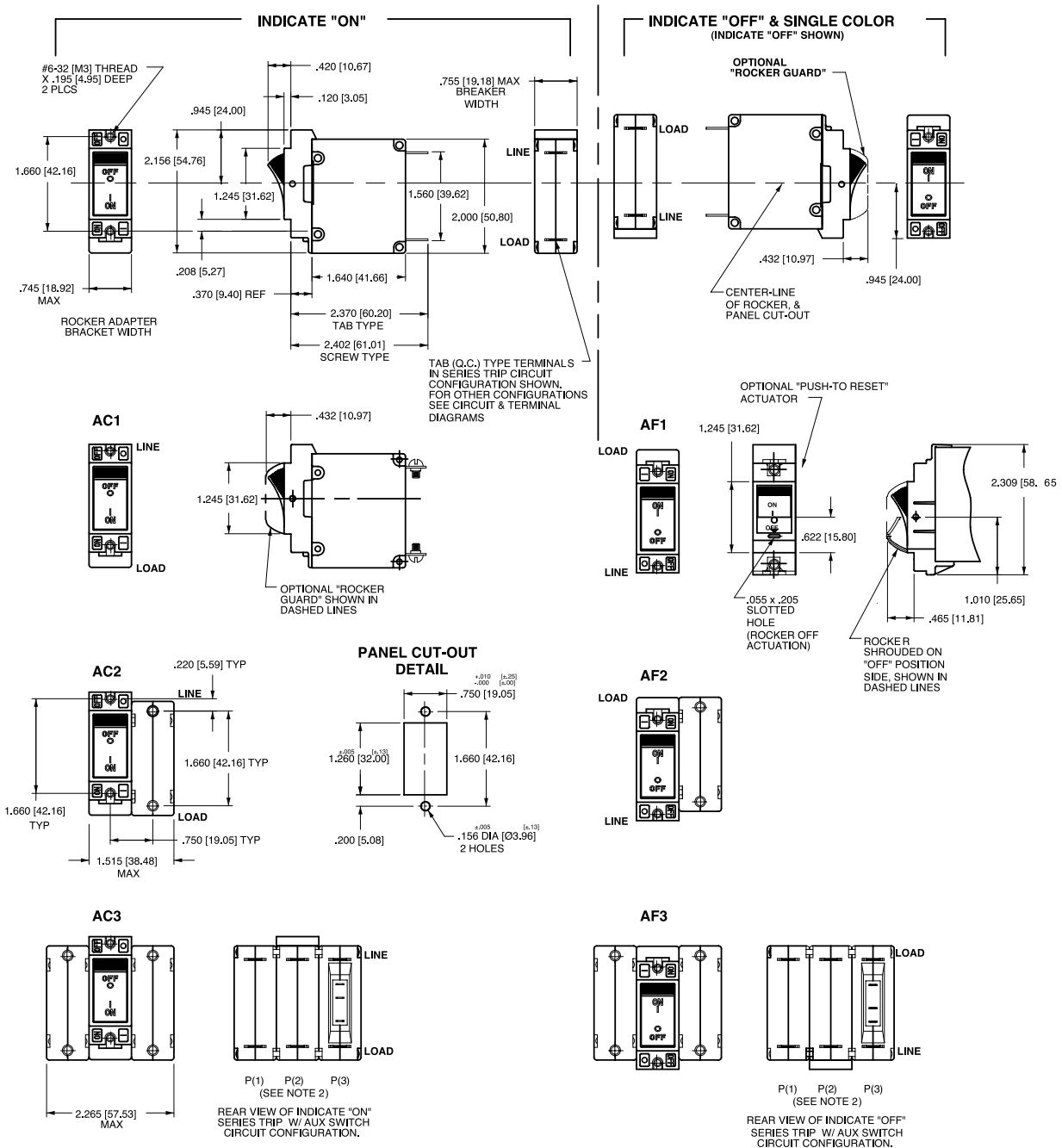
\* AVAILABLE ON SERIES TRIP AND SWITCH ONLY CIRCUITS. WHEN CALLED FOR ON MULTI-POLE UNITS, ONLY ONE AUX. SWITCH IS NORMALLY SUPPLIED, AS VIEWED IN MULTI-POLE IDENTIFICATION SCHEME.

**BARRIER FOR UL-RECOGNIZED MULTI-POLE BREAKERS**



- Notes:
- All dimensions are in inches [millimeters].
  - Tolerance  $\pm .020$  [.51] unless otherwise specified.
  - Schematic shown represents current trip circuit.
  - Circuits shown for >30 amps / VDE.

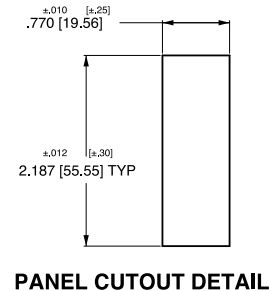
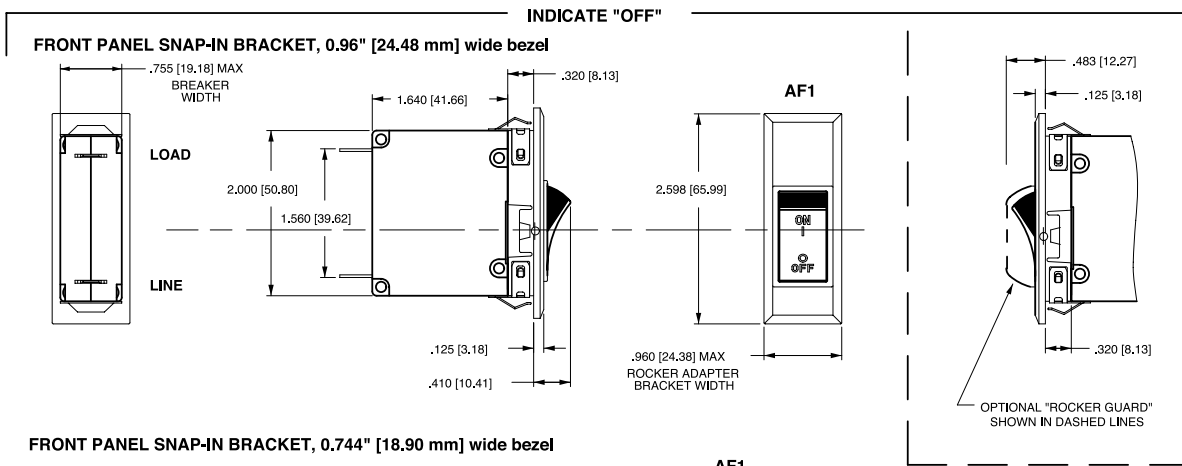
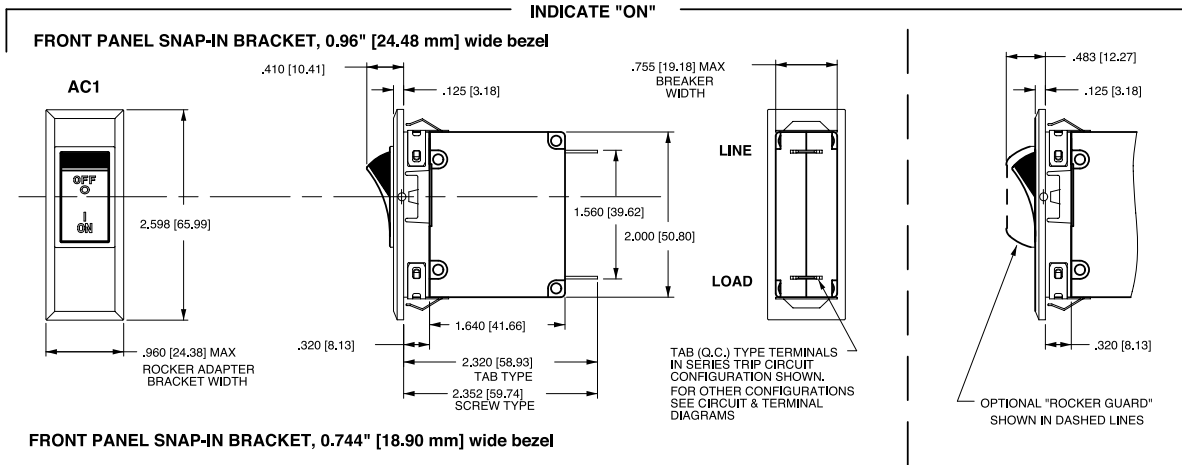
## Dimensional Specifications: in. [mm]



**Notes:**

- 1 Dimensions apply to all variations shown. Notice that circuit breaker line & load terminal orientation on indicate OFF is opposite of indicate ON.
- 2 For pole orientation with horizontal legend, rotate front view clockwise 90°.
- 3 All dimensions are in inches [millimeters].
- 4 Tolerance  $\pm 0.20$  [.51] unless otherwise specified.

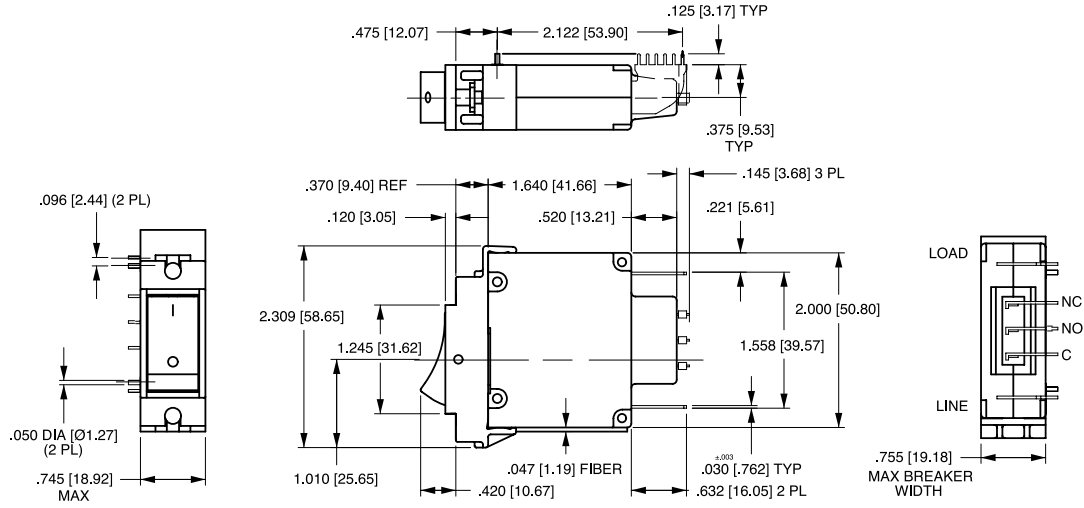
## Dimensional Specifications: in. [mm]



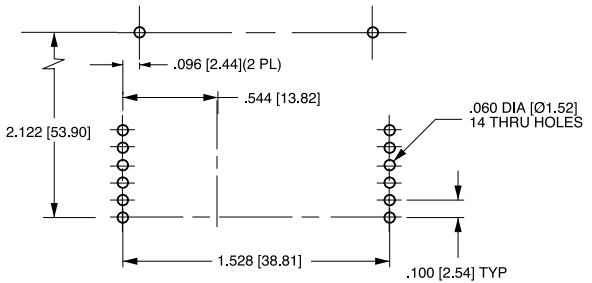
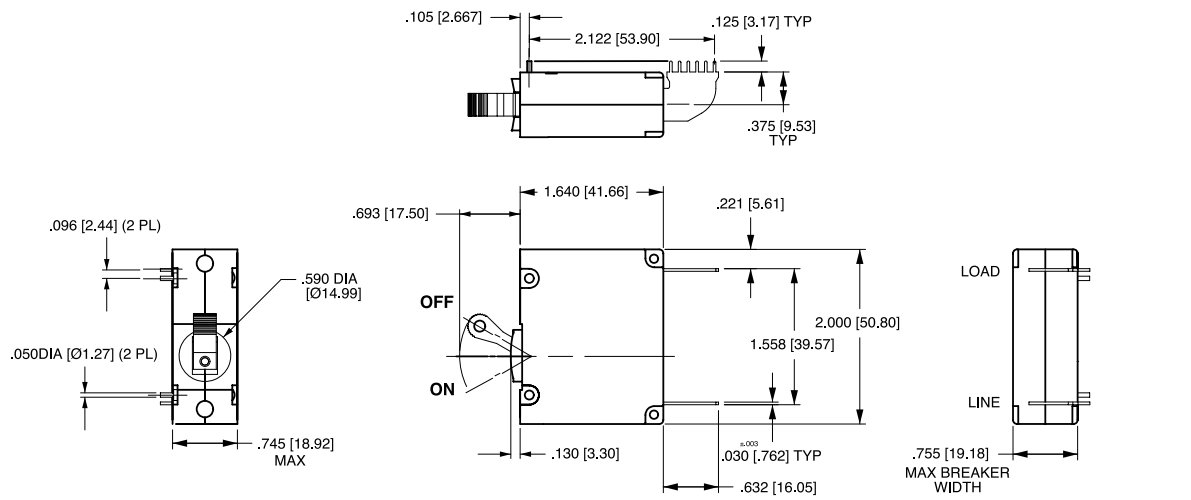
- Notes:
- 1 Dimensions apply to all variations shown. Notice that circuit breaker line & load terminal
  - 2 For pole orientation with horizontal legend, rotate front view clockwise 90°. Orientation on indicate "OFF" is opposite of indicate "ON"
  - 3 Recommended panel thickness: .040 [1.02] to .100 [2.54]
  - 4 All dimensions are in Inches [millimeters].
  - 5 Tolerance  $\pm 0.020$  [.51] unless otherwise specified.

## PC Terminal Diagrams: in. [mm]

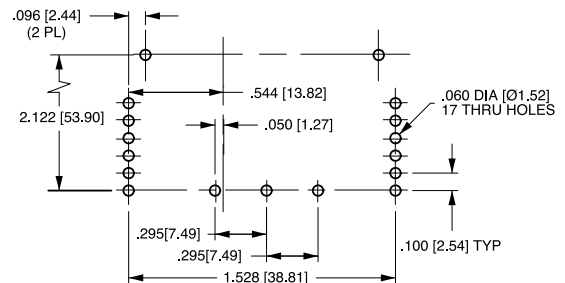
### A-SERIES ROCKER



### A-SERIES HANDLE

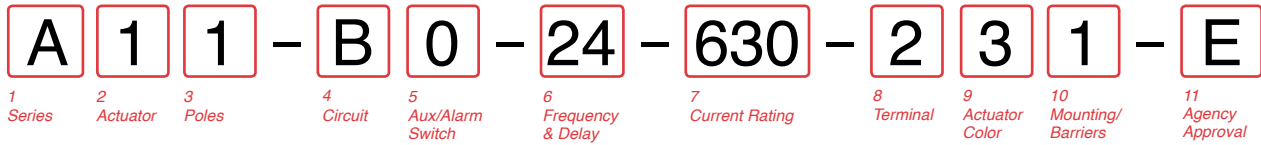


P.C. FOOT PRINT



P.C. FOOT PRINT WITH AUX. SWITCH

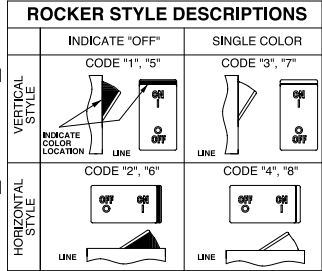
- Notes:
- 1 Drawing illustrates A-Series with VDE certification.
  - 2 All dimensions are in inches [millimeters].
  - 3 Tolerance  $\pm 0.20$  [.51] unless otherwise specified



**1 SERIES**  
A

**2 ACTUATOR 1**

- Two Color Visi-Rocker**
- 1 Indicate OFF, vertical legend
- 2 Indicate OFF, horizontal legend
- Single color**
- 3 Vertical legend
- 4 Horizontal legend
- Push-To-Reset, Visi-Rocker**
- 5 Indicate OFF, vertical legend
- 6 Indicate OFF, horizontal legend
- Push-To-Reset, Single color**
- 7 Vertical legend
- 8 Horizontal legend



**3 POLES 2**

- 1 One
- 2 Two
- 3 Three

**4 CIRCUIT**

- A<sup>3</sup> Switch Only (No Coil)
- B Series Trip (Current)
- C Series Trip (Voltage)
- D<sup>4</sup> Shunt Trip (Current)
- E<sup>4</sup> Shunt Trip (Voltage)
- F<sup>4</sup> Relay Trip (Current)
- G<sup>4</sup> Relay Trip (Voltage)
- H<sup>4,5</sup> Dual Coil with Shunt Trip Voltage Coil
- K<sup>4,5</sup> Dual Coil with Relay Trip Voltage Coil

**5 AUXILIARY / ALARM SWITCH 6,7**

- 0 without Aux Switch
- 1 S.P.D.T., 0.093 Q.C. Term.
- 2 S.P.D.T., 0.110 Q.C. Term.
- 5 S.P.S.T., 0.093 Q.C. Term.. (Gold Contacts)
- 7 S.P.S.T., 0.110 Q.C. Term. (Gold Contacts)
- 8 S.P.S.T., 0.187 Q.C. Term.
- 9 S.P.D.T., 0.187 Q.C. Term.

**6 FREQUENCY & DELAY**

- 03 DC 50/60Hz, Switch Only
- 10<sup>6</sup> DC Instantaneous
- 11 DC Ultra Short
- 12 DC Short
- 14 DC Medium
- 16 DC Long
- 20<sup>6</sup> 50/60Hz Instantaneous
- 21 50/60Hz Ultra Short
- 22 50/60Hz Short
- 24 50/60Hz Medium
- 26 50/60Hz Long
- 30 DC, 50/60Hz Instantaneous
- 31 DC, 50/60Hz Ultra Short
- 32 DC, 50/60Hz Short
- 34 DC, 50/60Hz Medium
- 36 DC, 50/60Hz Long
- 42<sup>9</sup> 50/60Hz Short, High-inrush
- 44<sup>9</sup> 50/60Hz Medium, High-inrush
- 46<sup>9</sup> 50/60Hz Long, High-inrush
- 52<sup>9</sup> DC, Short, High-inrush
- 54<sup>9</sup> DC, Medium, High-inrush
- 56 DC, Long, High-inrush

**7 CURRENT RATING (AMPERES)**

CODE	AMPERES						
020	0.020	225	0.250	420	2.000	611	11.000
025	0.025	230	0.300	522	2.250	711	11.500
030	0.030	235	0.350	527	2.750	612	12.000
035	0.035	240	0.400	430	3.000	712	12.500
040	0.040	245	0.450	435	3.500	613	13.000
045	0.045	250	0.500	440	4.000	614	14.000
050	0.050	255	0.550	445	4.500	615	15.000
055	0.055	260	0.600	450	5.000	616	16.000
060	0.060	265	0.650	455	5.500	617	17.000
065	0.065	270	0.700	460	6.000	618	18.000
070	0.070	275	0.750	465	6.500	620	20.000
075	0.075	280	0.800	470	7.000	622	22.000
080	0.080	285	0.850	475	7.500	624	24.000
085	0.085	290	0.900	480	8.000	625	25.000
090	0.090	295	0.950	485	8.500	630	30.000
095	0.095	410	1.000	490	9.000	635	35.000
210	0.100	512	1.250	495	9.500	640	40.000
215	0.150	415	1.500	610	10.000	645	45.000
220	0.200	517	1.750	710	10.500	650	50.000

**OR VOLTAGE COIL (NORMAL RATED VOLTAGE) 8**

CODE	AMPERES				
A06	6 DC	A32	32 DC	J12	12 AC
A12	12 DC	A48	48 DC	J18	18 AC
A18	18 DC	A65	65 DC	J24	24 AC
A24	24 DC	J06	6 AC	J48	48 AC
				J65	65 AC
				K20	120 AC
				L40	240 AC

**8 TERMINAL 11**

- 1<sup>12</sup> Push-On 0.250 Tab (Q.C.)
- 2 Screw 8-32 with upturned lugs
- 3<sup>13</sup> Screw 8-32 (Bus Type)
- 4 Screw 10-32 with upturned lugs
- 5<sup>13</sup> Screw 10-32 (Bus Type)
- 6 Screw 8-32 with upturned lugs & 30° bend
- 7 Screw 8-32 (Bus Type) & 30° bend
- 8 Screw 10-32 with upturned lugs & 30° bend
- 9 Screw 10-32 (Bus Type) & 30° bend
- B Screw M5 with upturned lugs
- C Screw M4 with upturned lugs
- E<sup>13</sup> Screw M4 (Bus Type)
- F Screw M5 with upturned lugs & 30° bend
- G Screw M5 (Bus Type) & 30° bend
- H<sup>13</sup> Screw M5 (Bus Type)
- L<sup>14</sup> 0.250 Q.C./ Solder Lug
- M<sup>13</sup> M6 Threaded Stud
- P<sup>15</sup> Printed Circuit Board Terminals
- Q Push-In Stud
- R Screw M4 with upturned lugs & 30° bend
- S<sup>16</sup> Push-On 0.110 Tab (Q.C.) & 30° bend
- T Screw M4 (Bus Type) & 30° bend

**9 ACTUATOR COLOR & LEGEND**

Actuator or Visi-Color 17	Marking:		Marking Color	
	ON-OFF	Dual 17	Single Color	Visi-Rocker
White	B	1	Black	White
Black	D	2	White	n/a
Red	G	3	White	Red
Green	J	4	White	Green
Blue	L	5	White	Blue
Yellow	N	6	Black	Yellow
Gray	Q	7	Black	Gray
Orange	S	8	Black	Orange

**10 MOUNTING / BARRIERS 18**

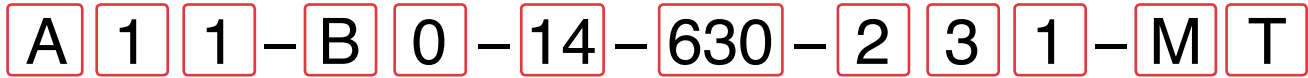
	STANDARD ROCKER BEZEL Threaded Insert, 2 per pole FLAT ROCKER ACTUATOR	BARRIERS
1	6-32 x 0.195 inches	no
A	6-32 X 0.195 inches (multi-pole units only)	yes
2	ISO M3 x 5mm	no
B	ISO M3 x 5mm (multi-pole units only)	yes
	<b>RECESSED OFF SIDE ROCKER ACTUATOR 19</b>	
5	6-32 x 0.195 inches	no
E	6-32 x 0.195 inches (multi-pole units only)	yes
6	ISO M3 x 5mm	no
F	ISO M3 x 5mm (multi-pole units only)	yes
	<b>PUSH-TO-RESET BEZEL, Threaded Insert, 2 per pole</b>	
3	6-32 x 0.195 inches	no
C	6-32 x 0.195 inches (multi-pole units only)	yes
4	ISO M3 x 5mm	no
D	ISO M3 x 5mm (multi-pole units only)	yes

**11 AGENCY APPROVAL**

- C UL Recognized & CSA Accepted
- E TUV Certified, UL Recognized & CSA Accepted
- I UL Recognized STD 1077, UL Recognized 1500 (ignition protected), & CSA Accepted

Notes:

- 1 Push-To-Reset actuators have OFF portion of rocker shrouded.
- 2 Multi-pole breakers have all breakers identical except when specifying Auxiliary switch and/or mixed poles, and have one rocker per breaker.
- 3 Switch Only circuits, rated up to 50 amps & 3 poles. Only available when tied to a protected pole. For .02 to 30 amps, select Current Code 630. For 35 - 50 amps, select Current Code 650.
- 4 Available with terminal Codes 1, 2 and 3. Current Rating limited to 30 amps maximum.
- 5 Consult factory for Dual Coil options, as special catalog number is required. With Shunt construction, Dual Coils will trip instantaneously on line voltage. Dual coils require 30VA minimum power to trip and are rated for intermittent duty only.
- 6 Auxiliary Switch breakers with Series Trip & Switch Only circuits: ≤30A, are supplied with standard half shells. 30-50A are supplied with extended boat (B-Style) half shells.
- 7 On multi-pole breakers, one auxiliary switch is supplied, mounted in the extreme right pole.
- 8 Separate pole type voltage coils not rated for continuous duty. Available only with delay codes 10 & 20.
- 9 Available with Circuit Codes B & D only. UL Recognized, CSA Accepted & TUV Certified to 50 amps.
- 10 UL Recognition, CSA Acceptance & TUV Certification available in one and two pole breakers.
- 11 Screw Terminals are recommended on ratings greater than 20 amps. Ratings over 30 amps are only available with Terminal Codes 5, 9, G, H, M and Q.
- 12 Terminal Code 1: Available up to 30 amps, but not recommended over 20 amps.
- 13 Terminal Codes 3, 5 E & H (Bus Type) with TUV, are supplied with Lock Washers; Terminal Code M (M6 Threaded Stud) with TUV is supplied with Lock and Flat Washers. These breakers are only TUV Certified when the washers are used.
- 14 TUV Cert. available up to 12 amps. UL Rec. & CSA Accepted available up to 30 amps.
- 15 Single pole breakers with Terminal Code P (Printed Circuit Board) are available up to 50 amps with UL Recognition, CSA Accepted & TUV Certification, with Circuit Codes A, B and C. Two pole breakers with Terminal Code P (Printed Circuit Board) are available up to 40 amps with UL Recognition and CSA Accepted with Circuit Codes A, B and C.
- 16 Terminal Code S used on voltage coil circuit constructions only.
- 17 Color shown is visi and legend with remainder of rocker black, Dual = ON-OFF/I-O legend.
- 18 Legend on Push-to-reset bezel/shroud is white with single color actuator codes 7 & 8. Legend on Push-To-Reset bezel/shroud matches Visi-Color of rocker with actuator codes 5 & 6.
- 19 Recessed "off-side" available with actuator codes 1, 2, 3 & 4. Legends on rocker are available in ink stamping only.



1 Series    2 Actuator    3 Poles    4 Circuit    5 Aux/Alarm Switch    6 Frequency & Delay    7 Current Rating    8 Terminal    9 Actuator Color    10 Mounting/Barriers    11 Max. Appl. Rating    12 Agency Approval

**1 SERIES**  
**A**

**2 ACTUATOR<sup>1</sup>**  
**Two Color Visi-Rocker**  
1 Indicate OFF, vertical legend  
2 Indicate OFF, horizontal legend  
**Single color**  
3 Vertical legend  
4 Horizontal legend  
**Push-To-Reset, Visi-Rocker**  
5 Indicate OFF, vertical legend  
6 Indicate OFF, horizontal legend  
**Push-To-Reset, Single color**  
7 Vertical legend  
8 Horizontal legend

	INDICATE "OFF"	SINGLE COLOR
VERTICAL STYLE	CODE "1", "5" 	CODE "3", "7" 
HORIZONTAL STYLE	CODE "2", "6" 	CODE "4", "8" 

**3 POLES<sup>2</sup>**

1	One	2	Two	3	Three
---	-----	---	-----	---	-------

**4 CIRCUIT**  
**B** Series Trip (Current)

**5 AUXILIARY / ALARM SWITCH<sup>3</sup>**

0	without Aux Switch	7	S.P.S.T., 0.110 Q.C. Term. (Gold Contacts)
1	S.P.D.T., 0.093 Q.C. Term.	8	S.P.S.T., 0.187 Q.C. Term.
2	S.P.D.T., 0.110 Q.C. Term.	9	S.P.D.T., 0.187 Q.C. Term.

**6 FREQUENCY & DELAY**

11	DC Ultra Short	52	DC, Short, High-inrush
12	DC Short	54	DC, Medium, High-inrush
14	DC Medium	56	DC, Long, High-inrush
16	DC Long		

**7 CURRENT RATING (AMPERES)**

CODE	AMPERES				
020	0.020	225	0.250	420	2.000
025	0.025	230	0.300	522	2.250
030	0.030	235	0.350	527	2.750
035	0.035	240	0.400	430	3.000
040	0.040	245	0.450	435	3.500
045	0.045	250	0.500	440	4.000
050	0.050	255	0.550	445	4.500
055	0.055	260	0.600	450	5.000
060	0.060	265	0.650	455	5.500
065	0.065	270	0.700	460	6.000
070	0.070	275	0.750	465	6.500
075	0.075	280	0.800	470	7.000
080	0.080	285	0.850	475	7.500
085	0.085	290	0.900	480	8.000
090	0.090	295	0.950	485	8.500
095	0.095	410	1.000	490	9.000
100	0.100	512	1.250	495	9.500
115	0.150	415	1.500	610	10.000
220	0.200	517	1.750	710	10.500
				635	4 35.000
				640	4 40.000
				645	4 45.000
				650	4 50.000

**8 TERMINAL<sup>5</sup>**

1 <sup>6</sup>	Push-On 0.250 Tab (Q.C.)	9	Screw 10-32 (Bus Type) & 30° bend
2	Screw 8-32 with upturned lugs	B	Screw M5 with upturned lugs
3 <sup>7</sup>	Screw 8-32 (Bus Type)	F	Screw M5 with upturned lugs & 30° bend
4	Screw 10-32 with upturned lugs	G	Screw M5 (Bus Type) & 30° bend
5 <sup>7</sup>	Screw 10-32 (Bus Type)	H	Screw M5 (Bus Type)
6	Screw 8-32 with upturned lugs & 30° bend	M <sup>7</sup>	M6 Threaded Stud
7	Screw 8-32 (Bus Type) & 30° bend	P <sup>8</sup>	Printed Circuit Board Terminals
8	Screw 10-32 with upturned lugs & 30° bend	Q <sup>9</sup>	Push-In Stud

**9 ACTUATOR COLOR & LEGEND**

Actuator or Visi-Color <sup>11</sup>	Marking:		Marking Color	
	ON-OFF	Dual <sup>11</sup>	Single Color	Visi-Rocker
White	B	1	Black	White
Black	D	2	White	n/a
Red	G	3	White	Red
Green	J	4	White	Green
Blue	L	5	White	Blue
Yellow	N	6	Black	Yellow
Gray	Q	7	Black	Gray
Orange	S	8	Black	Orange

**10 MOUNTING / BARRIERS<sup>12</sup>**

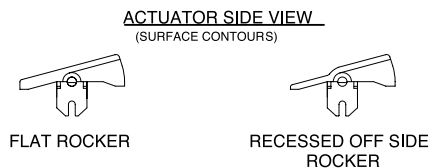
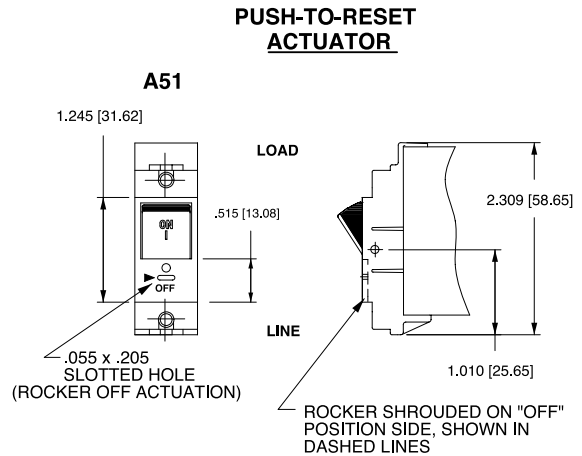
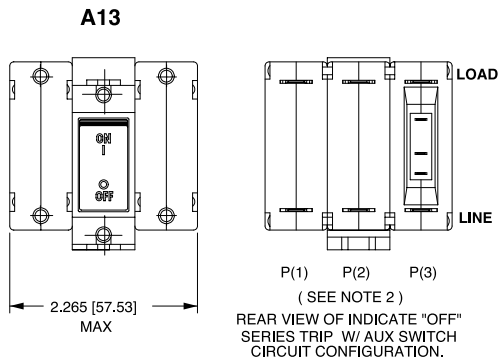
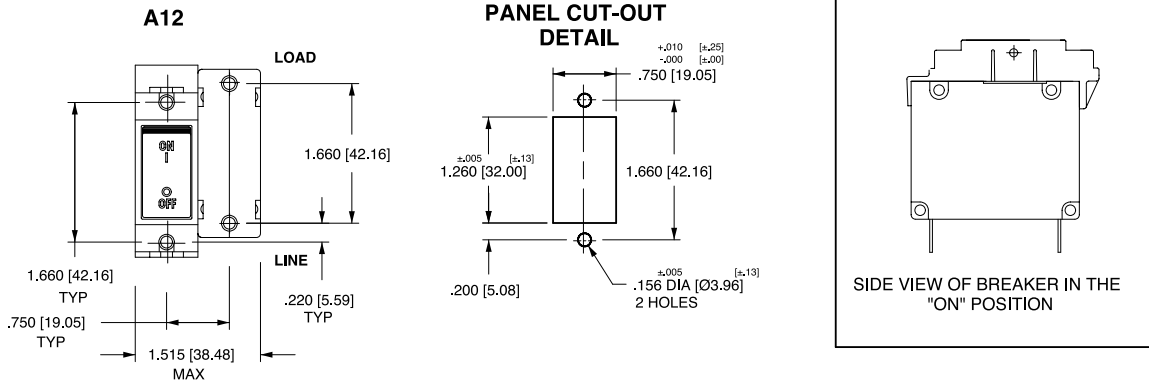
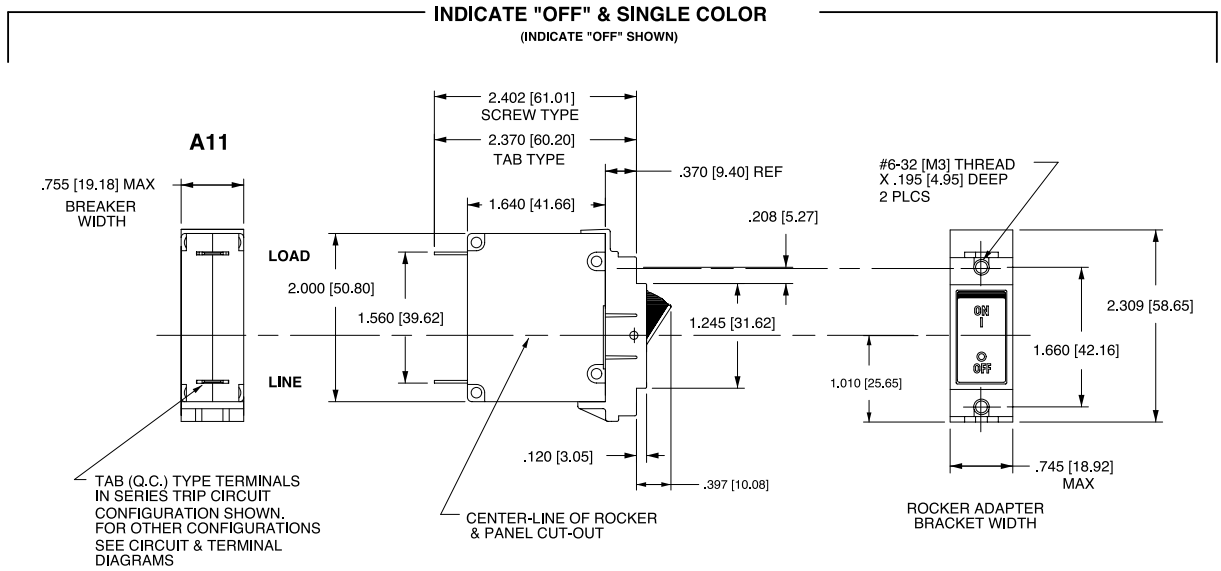
	STANDARD ROCKER BEZEL	BARRIERS
	Threaded Insert, 2 per pole	
	FLAT ROCKER ACTUATOR	
1	6-32 x 0.195 inches	no
A	6-32 X 0.195 inches (multi-pole units only)	yes
2	ISO M3 x 5mm	no
B	ISO M3 x 5mm (multi-pole units only)	yes
	RECESSED OFF SIDE ROCKER ACTUATOR	
5	6-32 x 0.195 inches	no
E	6-32 x 0.195 inches (multi-pole units only)	yes
6	ISO M3 x 5mm	no
F	ISO M3 x 5mm (multi-pole units only)	yes
	PUSH-TO-RESET BEZEL, Threaded Insert, 2 per pole	
3	6-32 x 0.195 inches	no
C	6-32 x 0.195 inches (multi-pole units only)	yes
4	ISO M3 x 5mm	no
D	ISO M3 x 5mm (multi-pole units only)	yes

**11 MAXIMUM APPLICATION RATING**  
M 80 DC

**12 AGENCY APPROVAL**  
T UL489A Listed  
J UL489A Listed, TUV Certified

- Notes:
- 1 Push-To-Reset actuators have OFF portion of rocker shrouded.
  - 2 Multi-pole breakers have all breakers identical except when specifying Auxiliary switch and/or mixed poles, and have one rocker per breaker.
  - 3 Auxiliary Switch breakers with Series Trip circuits: ≤ 30A, are supplied with standard half shells. 30-50A are supplied with extended boat (B-Style) half shells.
  - 4 VDE Certification available with single pole breakers only. UL489A Listing available with one and two pole breakers.
  - 5 Screw Terminals are recommended on ratings greater than 20 amps. Ratings over 30 amps are only available with Terminal Codes 5, 9, G, H, M and Q.
  - 6 Terminal Code 1 (Push-On) available up to 25 amps with TUV or VDE Certification and 30 amps with UL489A Listing, but is not recommended over 20 amps.
  - 7 Terminal Codes 3, 5 and H (Bus Type) with TUV or VDE, are supplied with Lock Washers, and Terminal Code M (M6 Threaded Stud) with VDE is supplied with Lock and Flat Washers. These breakers are only TUV or VDE Certified when the washers are used.
  - 8 Single pole breakers with Terminal Code P (Printed Circuit Board) are available up to 30 amps with VDE Certification and 50 amps with UL489A Listing.
  - 9 Terminal Code Q not available with VDE certification.
  - 10 Color shown is Visi and Legend with remainder of rocker black. Dual = ON-OFF/I-O legend.
  - 11 Legend on Push-to-reset bezel/shroud is white with single color actuator codes R & U.
  - 12 Legend on Push-To-Reset bezel/shroud matches Visi-Color of rocker with actuator codes N & O. Rockerguard available with actuator codes C through K

## Dimensional Specifications: in. [mm]



- Notes:
- 1 All dimensions are in inches [millimeters].
  - 2 For pole orientation with horizontal legend, rotate front view clockwise 90°.
  - 3 Tolerance ± 0.20 [.51] unless otherwise specified.





**1 SERIES**  
**A**

**2 ACTUATOR 1**  
**Y** Single Color Recessed Paddle Actuator with Vertical Legends

**3 POLES 2**  
**1** One                      **2** Two                      **3** Three

**4 CIRCUIT**  
**A** Switch-Only (No Coil)    **F** Relay Trip (Current)  
**B** Series Trip (Current)    **G** Relay Trip (Voltage)  
**C** Series Trip (Voltage)    **H** Dual Coil with Shunt Trip Voltage Coil  
**D** Shunt Trip (Current)    **K** Dual Coil with Shunt Trip Current Coil  
**E** Shunt Trip (Voltage)

**5 AUXILIARY SWITCH**  
**0** without Aux Switch  
**1** S.P.D.T. with 0.093 Q.C. Terminals  
**2** S.P.D.T. with 0.110 Q.C. Terminals  
**3** S.P.D.T. with 0.139 Solder Lug Terminals  
**5** S.P.D.T. with 0.093 Q.C. Terminals (Gold Contacts)  
**6** S.P.S.T.-N.O. with 0.139 Solder Lug Terminals  
**7** S.P.S.T.-N.O. with 0.110 Q.C. Terminals (Gold Contacts)  
**8** S.P.S.T.-N.O. with 0.187 Q.C. Terminals  
**9** S.P.D.T. with 0.187 Q.C. Terminals

**6 FREQUENCY & DELAY 3**  
**3** DC, 50/60 Hz Switch Only    **22** 50/60 Hz Short  
**10** DC Instantaneous    **24** 50/60 Hz Medium  
**11** DC Ultra Short    **26** 50/60 Hz Long  
**12** DC Short    **42** 50/60 Hz Short High-inrush  
**14** DC Medium    **44** 50/60 Hz Medium High-inrush  
**16** DC Long    **46** 50/60 Hz Long High-inrush  
**20** 50/60 Hz Instantaneous    **52** DC, Short, High-inrush  
**21** 50/60 Hz Ultra Short    **54** DC, Medium, High-inrush  
**56** DC, Long, High-inrush

**7 CURRENT RATING (AMPERES) 4**

CODE	AMPERES	295	0.950	460	6.000	614	14.000
220	0.200	295	0.950	460	6.000	614	14.000
225	0.250	410	1.000	465	6.500	615	15.000
230	0.300	512	1.250	470	7.000	616	16.000
235	0.350	415	1.500	475	7.500	617	17.000
240	0.400	517	1.750	480	8.000	618	18.000
245	0.450	420	2.000	485	8.500	620	20.000
250	0.500	522	2.250	490	9.000	622	22.000
255	0.550	425	2.500	495	9.500	624	24.000
260	0.600	527	2.750	610	10.000	625	25.000
265	0.650	430	3.000	710	10.500	630	30.000
270	0.700	435	3.500	611	11.000	635	35.000
275	0.750	440	4.000	711	11.500	640	40.000
280	0.800	445	4.500	612	12.000	645	45.000
285	0.850	450	5.000	712	12.500	650	50.000
290	0.900	455	5.500	613	13.000		

**OR VOLTAGE COIL (NORMAL RATED VOLTAGE)**

CODE	AMPERES	A32	32 DC	J12	12 AC	J65	65 AC
A06	6 DC	A32	32 DC	J12	12 AC	J65	65 AC
A12	12 DC	A48	48 DC	J18	18 AC	K20	120 AC
A18	18 DC	A65	65 DC	J24	24 AC	L40	240 AC
A24	24 DC	J06	6 AC	J48	48 AC		

**8 TERMINAL**  
**1** Push-On 0.250 Tab (Q.C.)    **C** Screw, M4 with upturned lugs  
**2** Screw 8-32 with upturned lugs    **E** Screw, M4 (Bus Type)  
**3** Screw 8-32 (Bus Type)    **F** Screw M5 with upturned lugs & 30° bend  
**4** Screw 10-32 with upturned lugs    **G** Screw M5 (Bus Type) & 30° bend  
**5** Screw 10-32 (Bus Type)    **H** Screw M5 (Bus Type)  
**6** Screw 8-32 with upturned lugs & 30° bend    **L** 0.250 Q.C./Solder Lug  
**7** Screw 8-32 (Bus Type) & 30° bend    **M** M6 Threaded Stud  
**8** Screw 10-32 with upturned lugs & 30° bend    **P** Printed Circuit Board Terminals  
**9** Screw 10-32 (Bus Type) & 30° bend    **Q** Push-In Stud  
**B** Screw M5 with upturned lugs    **R** Screw, M4 with upturned lugs & 30° Bend  
**T** Screw, M5 with upturned lugs    **S** Screw, M4 with upturned lugs

**9 ACTUATOR COLOR & LEGEND 5**

Actuator Color	I-O	ON-OFF	Dual	Legend Color
White	A	B	1	Black
Black	C	D	2	White
Red	F	G	3	White
Green	H	J	4	White
Blue	K	L	5	White
Yellow	M	N	6	Black
Gray	P	Q	7	Black
Orange	R	S	8	Black

**10 MOUNTING / BARRIERS**

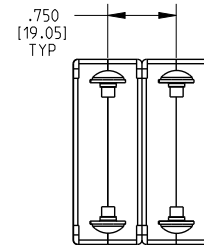
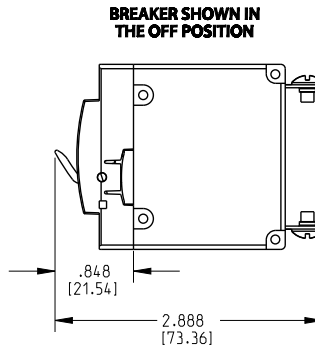
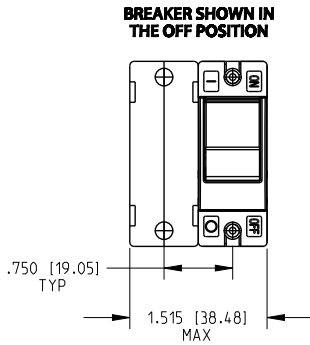
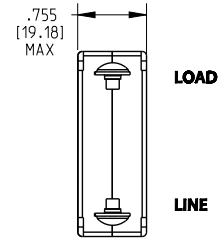
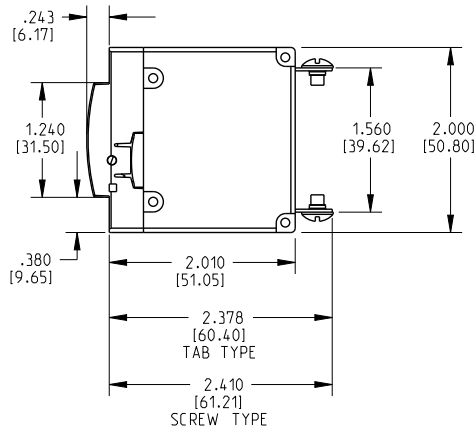
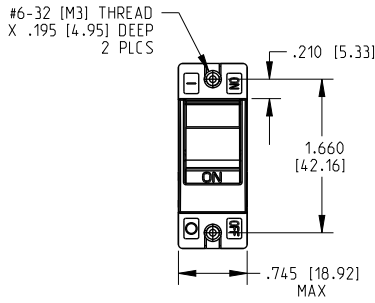
	BARRIERS
<b>1</b> 6-32 x 0.195 inches	no
<b>A</b> 6-32 X 0.195 inches (multi-pole units only)	yes
<b>2</b> ISO M3 x 5mm	no
<b>B</b> ISO M3 x 5mm (multi-pole units only)	yes

**11 MAXIMUM APPLICATION RATING 6**  
**A** 65 VDC  
**C** 120/240 VAC (Available only on 2 or 3-Pole units)  
**K** 120 VAC  
**M** 80 DC

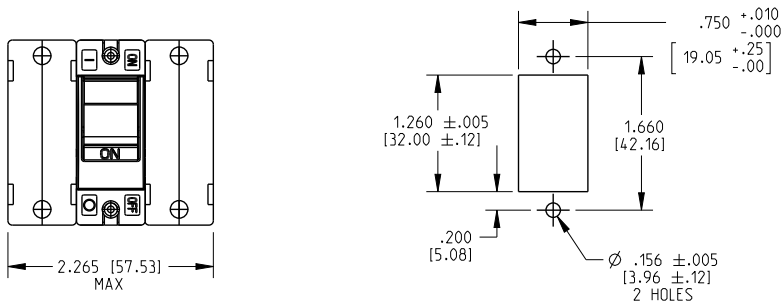
**12 AGENCY APPROVAL 7**  
**A** Without Approvals  
**C** UL Recognized and CSA Accepted  
**T** UL 489A

- Notes:  
1 All standard catalog numbers are supplied with Vertical Legends. For Horizontal or other non-standard legends, choose "X" and order as a special catalog number.  
2 For rating (T) 2 & 3 Pole not available.  
3 Frequency and Time Delay ratings of (03, 20, 21, 22, 24, 26, 42, 44, 46) not available with approval T.  
4 Voltage Coil Ratings starting with (J, K, or L) not available with approval T.  
5 "OFF" and/or "O" Legends are on Bracket and are only visible when the Paddle Actuator is in the off position.  
6 Maximum Application Ratings (C & K) not available with approval T.  
7 Not all approvals are available in all constructions. Consult factory for details.

## Dimensional Specifications: in. [mm]



### PANEL CUT-OUT DETAIL



**Notes:**

- 1 All dimensions are in inches [millimeters].
- 2 Tolerance ± 0.20 [51] unless otherwise specified

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Innovative Designs. Powerful Solutions.

# C-Series

## CIRCUIT BREAKER

The C-Series hydraulic-magnetic circuit breakers are ideal for applications that require higher amperage and voltage handling capability in a smaller package. They are available in 1-6 poles, 0.02-100amps, UL Recognized up to 480VAC or 150VDC, UL489 Listed up to 240VAC or 125VDC, with choice of time delays, terminal options, actuator styles and colors. The C-Series employs a unique arc chute design which allows for higher interrupting capacities of up to 10,000 amps. Thermoset glass filled polyester half shell construction provides for increased mechanical and electrical strength. The wiping contacts mechanical linkage, with two step actuation, cleans contacts providing high, positive contact pressure and longer contact life. Available with American Standard or Metric Threaded Stud terminals, or Saddle Clamp screw terminals. The optional mid-trip handle style actuator allows a visual indication of electrical overload with or without alarm feature.



### Resources:

[Configure a Complete Part](#)

[Download CAD & Sales Drawing >](#)

### Product Highlights:

- Extensive list of Agency Approvals
- Available with Standard or Metric Stud terminals, or Saddle Clamp screw terminals
- Optional mid-trip handle style actuator
- Unique arc chute design which allows for higher interrupting capacities of up to 10,000 amps
- Exclusive Rockerguard and Push-To-Reset bezel
- Available with new solid color and two-color Visi-rocker® actuators
- New thermoset glass filled polyester half shell construction

### Typical Applications:

- Marine
- Telecom / Datacom
- Military
- Renewable Energy
- Generators & Welders



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### Electrical

**Maximum Voltage** AC, 480 WYE/277 VAC, 50/60 Hz (see Table A.)  
 UL489: AC,240 VAC. (See Table D), 50/60 Hz, 125 VDC

**Current Rating** Standard current coils: 0.100, 0.250, 0.500, 0.750, 1.00, 2.50, 5.00, 7.50, 10.0, 15.0, 25.0, 30.0, 35.0, 40.0, 50.0, 60.0, 70.0, 80.0, 90.0 and 100 amps. Other ratings available, see Ordering Scheme.

**Standard Voltage Coils** DC - 6V, 12V; AC - 120V; other ratings available, see Ordering Scheme.

**Auxiliary Switch Rating** SPDT; 10.1 amps-250VAC, DC Aux. Switch 1.0A, 65 VDC. 0.5A, 80VDC,1/4 HP, 125VAC,VDE & TUV 1.0 125 VAC.

**Insulation Resistance** Minimum of 100 Megohms at 500 VDC.

**Dielectric Strength** UL, CSA: 1960 V 50/60 Hz for one minute between all electrically isolated terminals. C-Series Circuit Breakers comply with the 8mm spacing and 3750V 50/60 Hz dielectric requirements from hazardous voltage to operator accessible surfaces, between adjacent poles and from main circuits to auxiliary circuits per Publications EN 60950 and VDE 0805.

**Resistance, Impedance** Values from Line to Load Terminal - based on Series Trip Circuit Breaker.

### Mechanical

**Endurance** 10,000 ON-OFF operations @ 6 per minute; with rated current & voltage.

**Trip Free** All C-Series circuit breakers will trip on overload, even when actuator is forcibly held in the ON position.

**Trip Indication** The operating actuator moves positively to the OFF position when an overload causes the breaker to trip. With mid-trip, handle moves to the mid position on electrical trip of the circuit breaker. With mid trip handle with alarm switch, handle moves to the mid position and the alarm switch actuates when the circuit breaker is electrically tripped.

### Physical

**Number of Poles** 1-6 poles ≤ 50A; 1-4 poles @ 51-70A; 1-2 poles 71-100A. UL489 Handle: 1 pole ≤ 100A, 2 pole ≤ 50A; Rocker: 1 pole ≤ 100A.

**Internal Circuit Config.** Series (with or without auxiliary switch, mid trip & mid trip with alarm switch) Shunt & Relay with current or voltage trip coils, Dual Coil, Switch Only (with or without aux. switch). UL489: Series (with or without auxiliary switch, mid-trip & midtrip with alarm switch).

**Weight** Approx.112 grams/pole ( 3.95 oz).

**Standard Colors** Housing: Black

### Environmental

Designed and tested in accordance with requirements of specification MIL-PRF-55629 & MIL-STD-202 as follows:

**Shock** Withstands 100 Gs, 6ms sawtooth while carrying rated current per Method 213, Test Condition "I". Instantaneous and ultrashort curves tested @ 90% of rated current.

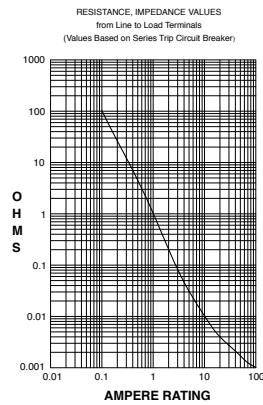
**Vibration** Withstands 0.060" excursion from 10-55 Hz & 10 Gs 55-500 Hz, @ rated current per Method 204C, Test Cond. A. Instantaneous & ultrashort curves tested @ 90% of rated current.

**Moisture Resistance** Method 106D, i.e., ten 24-hour cycles @ +25°C to +65°C, 80-98% RH.

**Salt Spray** Method 101, Condition A (90-95% RH @ 5% NaCl Solution, 96 hrs).

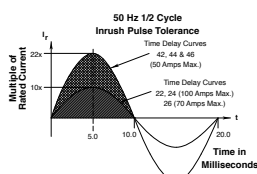
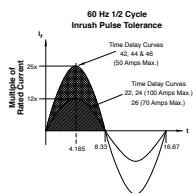
**Thermal Shock** Method 107D, Condition A (five cycles @ -55°C to +25°C to +85°C to +25°C).

**Operating Temperature** -40°C to +85°C



CURRENT (AMPS)	TOLERANCE (%)
0.10 - 5.0	15
5.1 - 20.0	25
20.1 - 50.0	35

### Pulse Tolerance Curves



\*Manufacturer reserves the right to change product specification without prior notice.

### Electrical Tables

**Table A:** Lists UL Recognized & CSA Accepted configurations and performance capabilities as a component supplementary protector

C-SERIES TABLE A: Component Supplementary Protectors												
Circuit Configuration	Voltage			Current Rating		Short Circuit Capacity (Amps)		Application Codes		Construction Notes		
	Max. Rating	Frequency	Phase	Full Load Amps	General Purpose Amps	UL / CSA		UL	CSA			
						With Backup Fuse	Without Backup Fuse					
Series	32	DC	---	0.02 - 100	---	---	5,000	TC1, OL1, U2	TC1, OL1, U2	---		
	48	DC	---	110 - 150	---	---	5,000			---	---	
	65	DC	---	0.02 - 70	---	71 - 100	---	5,000	TC1, 2, OL1, U1	TC1, 2, OL1, U1	---	
				-	---				TC1, 2, OL0, U1	TC1, 2, OL0, U1	---	
	80	DC	---	0.02 - 70	---	71 - 100	---	7,500	TC1, 2, OL1, U1	TC1, 2, OL1, U1	---	
				---	---				TC1, 2, OL0, U1	TC1, 2, OL0, U1	---	
				0.02 - 70	---				10,000	TC1, 2, OL1, U1	TC1, 2, OL1, U1	Must have Agency "L"
	---	71 - 100	TC1, 2, OL0, U1	TC1, 2, OL0, U1								
	125	DC	---	0.02 - 50	---	---	5,000	TC1, 2, OL1, U1	TC1, 2, OL1, U1	Must have Agency "L"		
	125/250	DC	---	0.02 - 50	---	---	5,000	TC1, 2, OL1, U1	TC1, 2, OL1, U1	Must have Agency "L"		
	250	DC	---	0.02 - 50	---	---	5,000	TC1, 2, OL1, U1	TC1, 2, OL1, U1	Must have Agency "L": 250 volts requires 2 pole		
	125	50 / 60	1	0.02 - 100	---	---	---	3,000	TC1, OL1, U2	TC1, OL1, U2	Per pole rating	
								5,000	TC1, 2, OL1, U1	TC1, 2, OL1, U1	Must have Agency "L"	
	150	DC	---	---	---	80 - 100	---	5,000	TC1, 2, OL0, U3	---	Must have Agency "L"	
											101 - 175	---
	125/250	50 / 60	1	0.02 - 100	---	---	---	3,500	TC1, OL1, U2	TC1, OL1, U2	---	
				0.02 - 50				---	3,000	TC1, 2, OL1, U1	TC1, 2, OL1, U1	2 or 3 poles breaking single phase
				51 - 100				---	1,000	TC1, 2, OL1, U1	TC1, 2, OL1, U1	2 or 3 poles breaking single phase
				0.02 - 100				---	5,000	TC1, 2, OL1, U2	TC1, 2, OL1, U2	2 or 3 poles breaking single phase. Agency "L"
	250	50 / 60	1	0.02 - 50	---	---	---	3,500	TC1, 2, OL1, U2	TC1, 2, OL1, U2	Per pole rating	
				0.02 - 100				---	5,000	TC1, 2, OL1, U1	TC1, 2, OL1, U1	Must have Agency "L"
			51 - 70	---				5,000	---	---	---	
			---	0.02 - 100				---	3,000	TC1, 2, OL0, U2	TC1, 2, OL0, U2	---
	250	50 / 60	3	0.02 - 70	---	---	---	5,000	---	---	3 poles breaking 3 phase	
---				0.02 - 90				---	5,000	TC1, 2, OL0, U1	TC1, 2, OL0, U1	Must have Agency "L"
277	50 / 60	1	0.02 - 50	---	---	5,000	---	---	---			
480/277	50 / 60	3	0.02 - 30	---	---	5,000	---	TC1, 2, OL1, C1	TC1, 2, OL1, C1	3 poles breaking 3 phase		
			---	---	---	---	---	---	---	---		
480	50 / 60	1	0.02 - 30	---	---	5,000	---	TC1, 2, OL1, C1	TC1, 2, OL1, C1	2 poles breaking 1 phase		
			---	---	---	---	---	---	---	---		
Dual Coil	80	DC	---	0.02 - 50	---	---	7,500	TC1, 2, OL1, U1	TC1, 2, OL1, U1	---		
	125	50 / 60	1	0.02 - 50	---	---	3,000	TC1, OL1, U2	TC1, OL1, U2	Per pole rating		
	125/250	50 / 60	1	0.02 - 50	---	---	---	3,500	TC1, OL1, U2	TC1, OL1, U2	2 or 3 poles breaking single phase	
								3,000	TC1, 2, OL1, U1	TC1, 2, OL1, U1	2 or 3 poles breaking single phase	
	250	50 / 60	1	0.02 - 50	---	---	---	3,500	TC1, OL1, U2	TC1, OL1, U2	---	
			3					3,000	TC1, OL0, U2	TC1, OL0, U2	Per pole rating	
250	50 / 60	3	0.02 - 50	---	---	5,000	---	---	---			
277	50 / 60	1	0.02 - 50	---	---	5,000	---	---	3 poles breaking 3 phase			
Shunt	80	DC	---	0.02 - 50	---	---	7,500	TC1, 2, OL1, U1	TC1, 2, OL1, U1	---		
	277	50 / 60	1	0.02 - 50	---	---	5,000	---	---	---		
	250	50 / 60	3	0.02 - 50	---	---	---	5,000	---	---	3 poles breaking 3 phase	
								---	---	---	---	---
	480/277	50 / 60	3	0.02 - 30	---	---	5,000	---	TC1, 2, OL1, C1	TC1, 2, OL1, C1	3 poles breaking 3 phase	
---				31 - 50	---	---	---	---	---	---		
480	50 / 60	1	0.02 - 30	---	---	5,000	---	TC1, 2, OL1, C1	TC1, 2, OL1, C1	2 poles breaking 1 phase		
			---	31 - 50	---	---	---	---	---	---		
Relay	80	DC	---	0.02 - 50	---	---	7,500	TC1, 2, OL1, U1	TC1, 2, OL1, U1	---		
	277	50 / 60	1	0.02 - 50	---	---	5,000	---	---	---		
	250	50 / 60	3	0.02 - 50	---	---	5,000	---	---	3 poles breaking 3 phase		
Switch Only	65	DC	---	71 - 100	---	---	---	---	---	---		
				---	---	---	---	---	---			
	80	DC	---	71 - 100	---	---	---	---	---	---		
				---	---	---	---	---	---			
	125	50 / 60	1	0.02 - 100	---	---	---	---	---	---		
	125/250	50 / 60	1	0.02 - 100	---	---	---	---	---	---	2 or 3 poles breaking single phase	
1			0.02 - 100	---	---	---	---	---	---	---		
250	50 / 60	3	0.02 - 70	---	---	---	---	---	---	---		
		1	0.02 - 50	---	---	---	---	---	---	---		
277	50 / 60	1	0.02 - 50	---	---	---	---	---	---			
480/277	50 / 60	3	0.02 - 30	---	---	---	---	---	---	3 poles breaking 3 phase		
			---	31 - 50	---	---	---	---	---	---		

Notes:

- Requires branch circuit backup with a UL LISTED Type K5 or RK5 fuse rated 15A minimum and no more than 4 times full load amps not to exceed 125A for 50 Amp or less rating and not to exceed 175 for 51 through 100 Amp rating

### Electrical Tables

**Table B:** Lists UL Recognized and CSA Accepted configurations and performance capabilities as a Manual Motor Controller.

C-SERIES TABLE B: Manual Motor Controllers					
Circuit Configuration	Voltage			Current Rating	Horsepower Ratings
	Max. Rating	Frequency	Phase	Full Load Amps	Max. HP
Series, Shunt & Relay Switch Only	120 <sup>1</sup>	50 / 60	1	0.02 - 50	7 ½
	250 <sup>1</sup>	50 / 60	1	0.02 - 20	3
			3	0.02 - 20	5
	277 <sup>1</sup>	50 / 60	1	0.02 - 20	3
480 <sup>2</sup>	50 / 60	3	0.02 - 20	5	

- Notes:
- Requires branch circuit backup with a UL Listed Type K5 or RK5 fuse rated 15A Minimum and no more than 4 times full load amps not to exceed 125A for 50 Amp or less rating and not to exceed 175A for 51 through 100A rating.
  - UL Recognized and CSA Certified at 480V refers to 3 and 4 pole versions used in a 3Ø, WYE connected circuit or a 2 pole version with 2 poles breaking 1Ø and backed up with a series fusing as stated in note 1.
- \* Shunt and Relay Trip - Voltage Coil Construction not current coils

**Table C:** Lists UL Recognized, CSA Accepted, VDE and TUV Certified configurations and performance capabilities as a Component Supplementary Protector.

C-SERIES TABLE C: Component Supplementary Protectors															
Circuit Configuration	Voltage			Current Rating		Short Circuit Capacity (Amps)						Application Codes UL / CSA	Construction Notes		
	Max. Rating	Frequency	Phase	Full Load Amps	General Purpose Amps <sup>1</sup>	UL / CSA		VDE		TUV					
						With Backup Fuse	Without Backup Fuse	(Inc) With Backup Fuse	(Inc) Without Backup Fuse	(Inc) With Backup Fuse	(Inc) Without Backup Fuse				
Series	80	DC	---	0.10 - 70	---	---	7,500	---	5,000	5,000	1,500	TC1,2,OL1,U1	---		
				71 - 100	71 - 100	---	10,000	---	5,000	---	5,000		5,000	Agency F, H, J or R	
	250	DC	---	1	0.10 - 50	---	---	5,000	---	---	---	5,000	TC1,2,OL1,U1	2P, Agency J or R	
					0.10 - 70	---	---		3,000	1,500	3,000	1,500		---	
					0.10 - 100	---	---		---	---	---	5,000		5,000	Agency J or R
					0.10 - 90	---	---		---	---	---	---		---	---
415	50 / 60	3	0.10 - 30	---	5,000 <sup>2</sup>	---	---	3,000	1,500	3,000	1,500	TC1,2,OL1,C1	Rocker		
								5,000	2,500				Handle, Agency F, H, J or R		
Dual Coil	80	DC	---	0.10 - 30	---	---	---	7,500	---	1,500	5,000	1,500	TC1,2,OL1,U1	---	
	250	50 / 60	1 & 3					5,000	3,000	3,000	3,000				
Shunt	80	DC	---	0.10 - 70	---	---	---	7,500	---	5,000	5,000	1,500	TC1,2,OL1,U1	---	
	250	50 / 60	1 & 3	0.10 - 70	---	---	---	5,000	3,000	1,500	3,000	1,500	TC1,2,OL1,U1	---	
	415	50 / 60	3	0.10 - 30	---	5,000 <sup>2</sup>	---	---	3,000	1,500	3,000	1,500	TC1,2,OL1,C1	Rocker Handle, Agency F, H, J or R	

- Notes:
- General Purpose ratings for UL/CSA only.
  - Requires branch circuit backup with a UL LISTED Type K5 or RK5 fuse rated 15A minimum and no more than 4 times full load amps not to exceed 125A for 50 Amp or less rating and not to exceed 175 for 51 through 100 Amp rating.

**Table D:** Lists UL Listed (489), CSA Certified (C22.2 No. 5.1-M) configuration and performance capabilities as a Molded Case Circuit Breaker.

C-SERIES TABLE D: UL489 Listed Branch Circuit Breakers							
Circuit Configuration	Voltage			Current Rating	Interrupting Capacity (Amps)		Construction Notes
	Max. Rating	Frequency	Phase	Full Load Amps	Without Backup Fuse		
Series	80	DC	---	0.10 - 100	50,000 <sup>1</sup>		Limited to 2 Poles Max from 71 - 100 Amps
					10,000		
					10,000		
	125	DC	---	0.10 - 100	5,000		1 - 3 Poles
					5,000		1 or 2 Poles (2 poles required for 250 Volts)
	120	50 / 60	1	0.10 - 50	10,000		1 - 3 Poles
					5,000		
	120 / 240	50 / 60	1	0.10 - 50	5,000		2 or 3 Poles (1 pole of a 3 pole unit is neutral)
					10,000 <sup>1</sup>		
	240	50 / 60	1	0.10 - 30	5,000		1 Pole
10,000					2 Poles		
277	50 / 60	1	0.10 - 20	10,000		1-2 Poles	
Dual Coil	120	50 / 60	1	0.10 - 30	10,000		---

- Notes:
- Special catalog number required. Consult factory.



## Electrical Tables

**Table E:** Lists UL Recognized, CSA Accepted configurations and performance capabilities as Protectors, Supplementary for Marine Electrical and Fuel Systems (Guide PEQZ2, File E75596). Ignition Protected per UL 1500. UL Classified Small Craft Electrical Devices, Marine in accordance with ISO 8846 (Guide UZMK, File MQ1515) as Marine Supplementary Protectors.

C-SERIES TABLE E: UL1500 (Marine Ignition Protection)								
Circuit Configuration	Voltage			Current Rating	Interrupting Capacity (Amps)	Application Codes		Construction Notes
	Max. Rating	Frequency	Phase	Full Load Amps	Without Backup Fuse	UL	CSA	
Series	48	DC	---	0.02 - 100	5,000	TC1, 2, OL1, U1	TC1, 2, OL1, U1	---
				101 - 150				
	65	DC	---	0.02 - 100	1,500	TC1, 2, OL0, U1	TC1, 2, OL0, U1	---
	80	DC	---	0.02 - 70	1,500	TC1, 2, OL1, U1	TC1, 2, OL1, U1	---
	125	50 / 60	1	0.02 - 70	5,000	TC1, 2, OL1, U1	TC1, 2, OL1, U1	---
				71 - 100	1,500			
	250	50 / 60	1	0.02 - 70	1,500	TC1, 2, OL1, U1	TC1, 2, OL1, U1	---
				71 - 100				2 Poles Breaking Single Phase

**Table F:** Lists UL Listed configurations and performance capabilities as Circuit Breakers for use in Communications Equipment (Guide DITT, File E189195), under UL489A.

C-SERIES TABLE F: PARALLEL POLE CONSTRUCTION UL489A Listed for Communications Equipment				
Circuit Configuration	Voltage		Current Rating	Interrupting Capacity (Amps)
	Max. Rating	Frequency	General Purpose Amps	Without Backup Fuse
Series	80	DC	100 - 250	10,000

## Agency Certifications

### UL Recognized

UL Standard 1077



Component Recognition Program as Protectors Supplementary (Guide CCN/QVNU2, File E75596)

### CSA Accepted



Component Supplementary Protector under Class 3215 30, File 047848 0 000 CSA Standard C22.2 No. 235

UL Standard 508



Switches, Industrial Control (Guide CCN/NRNT2, File E148683)

### CSA Certified



Circuit Breaker Model Case (Class 1432 01, File 093910), CSA Standard C22.2 No. 5.1 - M

UL Standard 1500



Protectors, Supplementary for Marine Electrical & Fuel Systems (Guide PEQZ2, File E75596) Ignition Protection

### TUV Certified



EN60934, under License No. R72040875

### UL Listed

UL Standard 489



Circuit Breakers, Molded Case, (Guide DIVQ, File E129899)

### VDE Certified

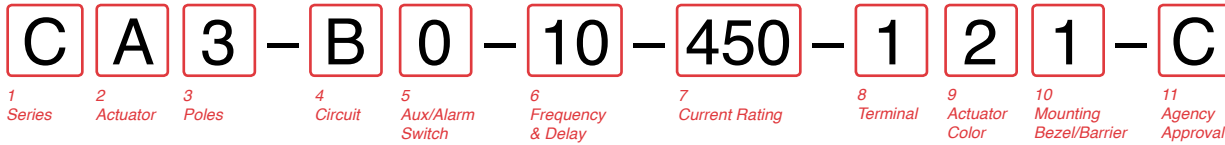


EN60934, VDE 0642 under File No. 10537

UL Standard 489A



Communications Equipment (Guide CCN/DITT, File E189195)



**1 SERIES**

**C**

**2 ACTUATOR <sup>1</sup>**

- A** Handle, one per pole
- B** Handle, one per multipole unit
- S** Mid-Trip Handle, one per pole
- T** Mid-Trip Handle, one per pole & Alarm Switch

**3 POLES <sup>2</sup>**

- |              |                |               |
|--------------|----------------|---------------|
| <b>1</b> One | <b>3</b> Three | <b>5</b> Five |
| <b>2</b> Two | <b>4</b> Four  | <b>6</b> Six  |

**4 CIRCUIT <sup>3</sup>**

- |   |  |
|---|--|
| <b>A</b> <sup>3</sup> Switch Only (No Coil) | <b>F</b> <sup>4</sup> Relay Trip (Current)                     |
| <b>B</b> Series Trip (Current)              | <b>G</b> <sup>4</sup> Relay Trip (Voltage)                     |
| <b>C</b> Series Trip (Voltage)              | <b>H</b> <sup>4,5</sup> Dual Coil with Shunt Trip Voltage Coil |
| <b>D</b> <sup>4</sup> Shunt Trip (Current)  | <b>K</b> <sup>4,5</sup> Dual Coil with Relay Trip Voltage Coil |
| <b>E</b> <sup>4</sup> Shunt Trip (Voltage)  |  |

**5 AUXILIARY / ALARM SWITCH**

- |   |                                     |
|---|-------------------------------------|
| <b>0</b> without Aux Switch                         | <b>6</b> S.P.S.T., 0.139 Solder Lug |
| <b>2</b> S.P.D.T., 0.110 Q.C. Term.                 | <b>8</b> S.P.S.T., 0.187 Q.C. Term. |
| <b>3</b> S.P.D.T., 0.139 Solder Lug                 | <b>9</b> S.P.D.T., 0.187 Q.C. Term. |
| <b>4</b> S.P.D.T., 0.110 Q.C. Term. (Gold Contacts) |                                     |

**6 FREQUENCY & DELAY**

- |  |  |
|--|--|
| <b>03</b> <sup>3</sup> DC 50/60Hz, Switch Only | <b>30</b> DC 50/60Hz Instantaneous                 |
| <b>10</b> <sup>7</sup> DC Instantaneous        | <b>31</b> DC 50/60Hz Ultra Short                   |
| <b>11</b> DC Ultra Short                       | <b>32</b> DC 50/60Hz Short                         |
| <b>12</b> DC Short                             | <b>34</b> DC 50/60Hz Medium                        |
| <b>14</b> DC Medium                            | <b>36</b> DC 50/60Hz Long                          |
| <b>16</b> DC Long                              | <b>42</b> <sup>8</sup> 50/60Hz Short, High-inrush  |
| <b>20</b> <sup>7</sup> 50/60Hz Instantaneous   | <b>44</b> <sup>8</sup> 50/60Hz Medium, High-inrush |
| <b>21</b> 50/60Hz Ultra Short                  | <b>46</b> <sup>8</sup> 50/60Hz Long, High-inrush   |
| <b>22</b> 50/60Hz Short                        | <b>52</b> <sup>8</sup> DC Short, High-inrush       |
| <b>24</b> 50/60Hz Medium                       | <b>54</b> <sup>8</sup> DC Medium, High-inrush      |
| <b>26</b> 50/60Hz Long                         | <b>56</b> DC Long, High-inrush                     |

Notes:

- 1 Actuator Code:  
A: Handle tie pin spacer(s) and retainers provided assembled with multi-pole units.  
B: Handle location as viewed from front of breaker.  
2 pole - left pole 3 pole - center pole 4 pole - two handles at center poles  
5 pole - three handles at center poles 6 pole - four handles at center poles  
S: Handle moves to mid-position only upon electrical trip of the breaker. Available with circuit codes B, C, D, E, F, G, H and K.  
T: Handle moves to mid-position and alarm switch activates only upon electrical trip of the breaker. Available with circuit codes B & C.
- 2 Standard multipole units have all poles identical except when specifying auxiliary switch and/or mixed poles. 4 pole max with VDE. 5th pole available as Series Trip with Voltage Coil only.
- 3 Switch Only circuits, rated up to 50 amps and 6 poles, and only available with VDE Certification when tied to a protected pole (Circuit Code B, C, D or H.). For .02 to 30 amps, select Current Code 630. For 35 - 50 amps, select Current Code 650. For 55-70 amps, select Current Code 670. For 75-100 amps, select Current Code 810. Circuit Codes D,E,F,G,H & K available with Terminal Codes 1,2,4 & 5 only. Circuit Codes D, F, H & K available up to 50 amps maximum Current Rating.
- 5 Consult factory for available Dual Coil options, as special catalog number is required. Dual Coil Voltage Coils with Shunt Trip Construction trip instantaneously on line voltage. Dual Coil Voltage Coils require 30VA minimum power to trip instantaneously and are rated for intermittent duty only.
- 6 Auxiliary Switch available with Series Trip and Switch Only circuits. On multi-pole breakers, one auxiliary switch is supplied, mounted in the extreme right pole.
- 7 Voltage coils not rated for continuous duty. Available only with delay codes 10 & 20.
- 8 Available with Circuit Codes B & D only, and up to 50 amps maximum.
- 9 Current Ratings 60 - 70 are available up to four poles maximum. Ratings 71 - 100 are available up to two poles maximum.
- 10 Terminal Code 1 available to 60 amps maximum.
- 11 Terminal Codes 2, 4, 5 and C available to 50 amps maximum.
- 12 Terminal Codes 3, 6 & 9 available to 100 amps maximum.
- 13 Terminal Code 7 available to 25 amps maximum.
- 14 Terminal Code A available to 100 amps maximum.
- 15 Terminal Codes 7, 9 & C are not VDE approved.
- 16 No marking available. Consult factory. VDE/TUV Approval requires dual (I-O, ON-OFF) or I-O markings on all handles.
- 17 Single pole only.
- 18 VDE/TUV: 30 amps max.; UL/CSA: 50 amps max.; Available in 2 - 4 poles only and limited to AC Delays. "General Purpose amps" not rated for "full load amps" or to be used in applications with a motor.

**7 CURRENT RATING (AMPERES)**

CODE	AMPERES	CODE	AMPERES	CODE	AMPERES	CODE	AMPERES
020	0.020	235	0.350	430	3.000	614	14.000
025	0.025	240	0.400	435	3.500	615	15.000
030	0.030	245	0.450	440	4.000	616	16.000
035	0.035	250	0.500	445	4.500	617	17.000
040	0.040	255	0.550	450	5.000	618	18.000
045	0.045	260	0.600	455	5.500	620	20.000
050	0.050	265	0.650	460	6.000	622	22.000
055	0.055	270	0.700	465	6.500	624	24.000
060	0.060	275	0.750	470	7.000	625	25.000
065	0.065	280	0.800	475	7.500	630	30.000
070	0.070	285	0.850	480	8.000	635	35.000
075	0.075	290	0.900	485	8.500	640	40.000
080	0.080	295	0.950	490	9.000	650	50.000
085	0.085	410	1.000	495	9.500	660	60.000
090	0.090	512	1.250	610	10.000	670	70.000
095	0.095	415	1.500	710	10.500	680	80.000
210	0.100	517	1.750	611	11.000	685	85.000
215	0.150	420	2.000	711	11.500	690	90.000
220	0.200	522	2.250	612	12.000	695	95.000
225	0.250	425	2.500	712	12.500	810	100.000
230	0.300	527	2.750	613	13.000		

**OR VOLTAGE COIL (NORMAL RATED VOLTAGE) <sup>7</sup>**

CODE	AMPERES	CODE	VOLTS	CODE	VOLTS	CODE	VOLTS
A06	6 DC	A32	32 DC	J12	12 AC	J65	65 AC
A12	12 DC	A48	48 DC	J18	18 AC	K20	120 AC
A18	18 DC	A65	65 DC	J24	24 AC	L40	240 AC
A24	24 DC	J06	6 AC	J48	48 AC		

**8 TERMINAL <sup>15</sup>**

- |                                       |  |
|---------------------------------------|--|
| <b>1</b> <sup>10</sup> Stud 10-32     | <b>6</b> <sup>12</sup> Stud M6                       |
| <b>2</b> <sup>11</sup> Screw 10-32    | <b>7</b> <sup>13,15</sup> 0.250 Double Click Connect |
| <b>3</b> <sup>12</sup> Stud 1/4-20    | <b>9</b> <sup>15</sup> 7/16" Clip Terminal           |
| <b>4</b> <sup>11</sup> Stud M5 x 0.8  | <b>A</b> <sup>14</sup> Plug-In Stud                  |
| <b>5</b> <sup>11</sup> Screw M5 x 0.8 | <b>C</b> <sup>11,15</sup> 5/16" Clip Terminal        |

**9 ACTUATOR COLOR & LEGEND <sup>16</sup>**

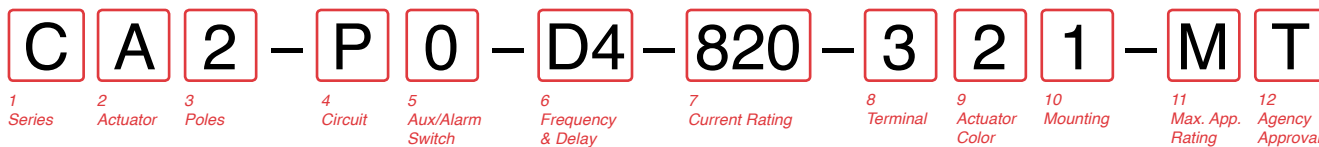
Actuator Color	I-O	ON-OFF	Dual	Legend Color
White	A	B	1	Black
Black	C	D	2	White
Red	F	G	3	White
Green	H	J	4	White
Blue	K	L	5	White
Yellow	M	N	6	Black
Gray	P	Q	7	Black
Orange	R	S	8	Black
Black (short handle) <sup>17</sup>	T	U	9	White

**10 MOUNTING / BARRIERS**

MOUNTING STYLE	BARRIERS	VOLTAGE
<b>Threaded Insert</b>		
1 6-32 x 0.195 inches	no	< 300
A 6-32 X 0.195 inches	yes	< 300
C 18 6-32 X 0.195 inches	yes	≥ 300
2 ISO M3 x 5mm	no	< 300
B ISO M3 x 5mm	yes	< 300
D 18 ISO M3 x 5mm	yes	≥ 300
<b>Front panel Snap-In, 1.00" [25.4mm] wide bezel</b>		
E 17 with Handleguard	no	< 300

**11 AGENCY APPROVAL**

- C** UL Recognized, CSA Accepted
- D** VDE Certified, UL Recognized, CSA Accepted
- E** TUV Certified, UL Recognized, CSA Accepted
- H** UL489 Construction: VDE Certified, UL Recognized, CSA Accepted
- I** UL Recognized STD 1077, UL Recognized 1500 (ignition protected), CSA Accepted
- L** UL489 Construction: UL Recognized, CSA Accepted
- R** UL489 Construction: TUV Certified, UL Recognized, CSA Accepted



**1 SERIES**  
C

**2 ACTUATOR**  
A Handle, one per pole  
S Mid-Trip Handle, one per pole <sup>1</sup>  
T Mid-Trip, one per pole & Alarm Switch <sup>1</sup>

**3 POLES <sup>4</sup>**  
1 One  
2 Two  
3 Three

**4 CIRCUIT**  
P Series Trip (parallel pole)

**5 AUXILIARY / ALARM SWITCH**  
0 without Aux Switch    6 S.P.S.T., 0.139 Solder Lug  
2 S.P.D.T., 0.110 Q.C. Term.    7 S.P.S.T., 0.110 Q.C  
3 S.P.D.T., 0.139 Solder Lug    Term. (Gold Contacts)  
4 S.P.D.T., 0.110 Q.C. Term.    8 S.P.S.T., 0.187 Q.C. Term.  
(Gold Contacts)    9 S.P.D.T., 0.187 Q.C. Term.  
5 S.P.S.T., N.O., 0.110 Q.C    Term. (Gold Contacts)

**6 FREQUENCY & DELAY**  
D1 DC Ultra Short  
D2 DC Short  
D4 DC Medium  
D6 DC Long

**7 CURRENT RATING (AMPERES) <sup>4</sup>**

CODE	AMPERES	
810	100.00	813 130.00
811	110.00	814 140.00
812	120.00	815 150.00
813	130.00	816 160.00
814	140.00	817 170.00
815	150.00	818 180.00
816	160.00	819 190.00
817	170.00	820 200.00
818	180.00	822 225.00
819	190.00	825 250.00

**8 TERMINAL <sup>5</sup>**  
3 1/4-20 threaded Stud  
6 M6 threaded Stud  
A Plug-In Stud <sup>3</sup>

**9 ACTUATOR COLOR <sup>2</sup>**

LEGEND	ON-OFF	Dual	Legend Color
White	B	1	Black
Black	D	2	White
Red	G	3	White
Green	J	4	White
Blue	L	5	White
Yellow	N	6	Black
Gray	Q	7	Black
Orange	S	8	Black

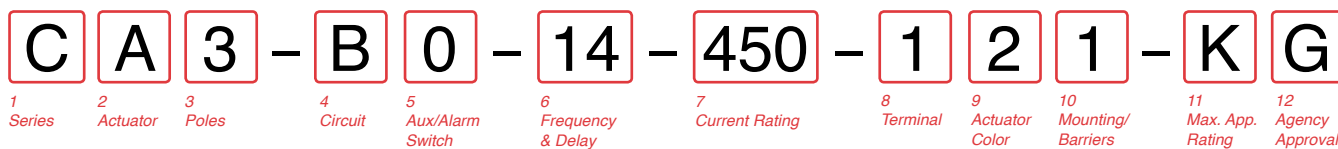
**10 MOUNTING**  
*Threaded Insert*  
1 6-32 x 0.195 inches  
2 ISO M3 x 5mm

**11 MAXIMUM APPLICATION RATING**  
M 80 DC

**12 AGENCY APPROVAL <sup>6</sup>**  
A Without Approval  
G UL489 Listed  
J UL489A Listed, TUV Certified  
K UL489A Listed, VDE Certified  
T UL489A Listed  
7 UL489A Listed, TUV Certified

Notes:

- Handle moves to Mid-Position only upon electrical trip of C/B when Actuator S is specified. When Actuator Code T is specified, handle moves to Mid Position and Alarm Switch actuates only upon electrical trip of C/B. Code T is only available with Circuit Code N.
- Standard Handle colors are White, Black, Red & Yellow.
- Breakers with Terminal Codes 3 & 6 are supplied with bus bars connecting the Line and Load Terminals. For Terminal Code A, Line and Load Terminals must be connected to a copper bus bar having a minimum cross-section of 0.078 square inches. Terminal Code A is not available on the single pole unit.  
Ratings for 101 to 125 amps are available in 1-pole.  
Ratings from 110 to 200 amps are available in 2-pole.  
For ratings from 225-300 amps, specify 3-pole.
- 1 pole only available with terminal codes 3 and 6.
- Agency codes K and 7 are not available with 1 pole.  
Agency code J is only available with 1 pole.  
Agency code G is only available in 2 and 3 pole.
- Circuit P, ratings 101-150 amps (2 pole) and ratings 151-250 amps (3 pole).



**1 SERIES**  
**C**

**2 ACTUATOR <sup>1</sup>**  
**A** Handle, one per pole  
**B** Handle, one per multipole unit  
**S** Mid-Trip Handle, one per pole  
**T** Mid-Trip Handle, one per pole & Alarm Switch

**3 POLES <sup>2</sup>**  
**1** One                                      **2** Two                                      **3** Three

**4 CIRCUIT**  
**B** Series Trip (Current)

**5 AUXILIARY / ALARM SWITCH <sup>3</sup>**  
**0** without Aux Switch  
**2** S.P.D.T., 0.110 Q.C. Term.      **6** S.P.S.T., 0.139 Solder Lug  
**3** S.P.D.T., 0.139 Solder Lug      **8** S.P.S.T., 0.187 Q.C. Term.  
**4** S.P.D.T., 0.110 Q.C. Term. (Gold Contacts)      **9** S.P.D.T., 0.187 Q.C. Term.

**6 FREQUENCY & DELAY**

<b>11</b> DC Ultra Short	<b>26</b> 50/60Hz Long
<b>12</b> DC Short	<b>42</b> <sup>4</sup> 50/60Hz Short, High-inrush
<b>14</b> DC Medium	<b>44</b> <sup>4</sup> 50/60Hz Medium, High-inrush
<b>16</b> DC Long	<b>46</b> <sup>4</sup> 50/60Hz Long, High-inrush
<b>21</b> 50/60Hz Ultra Short	<b>52</b> <sup>4</sup> DC Short, High-inrush
<b>22</b> 50/60Hz Short	<b>54</b> <sup>4</sup> DC Medium, High-inrush
<b>24</b> 50/60Hz Medium	<b>56</b> <sup>4</sup> DC Long, High-inrush

**7 CURRENT RATING (AMPERES)**

CODE	AMPERES						
210	0.100	295	0.950	470	7.000	618	18.000
215	0.150	410	1.000	475	7.500	620	20.000
220	0.200	512	1.250	480	8.000	622	22.000
225	0.250	415	1.500	485	8.500	624	24.000
230	0.300	517	1.750	490	9.000	625	25.000
235	0.350	420	2.000	495	9.500	630	30.000
240	0.400	522	2.250	610	10.000	635	35.000
245	0.450	425	2.500	710	10.500	640	40.000
250	0.500	527	2.750	611	11.000	660	60.000
255	0.550	430	3.000	711	11.500	670	70.000
260	0.600	435	3.500	612	12.000	680	80.000
265	0.650	440	4.000	712	12.500	685	85.000
270	0.700	445	4.500	613	13.000	690	90.000
275	0.750	450	5.000	614	14.000	695	95.000
280	0.800	455	5.500	615	15.000	810	100.00
285	0.850	460	6.000	616	16.000		
290	0.900	465	6.500	617	17.000		

**8 TERMINAL <sup>6</sup>**

<b>1</b> <sup>7</sup> Stud 10-32	<b>6</b> <sup>9</sup> Stud M6
<b>2</b> <sup>8</sup> Screw 10-32	<b>9</b> <sup>9</sup> 7/16" Clip Terminal
<b>3</b> <sup>9</sup> Stud 1/4-20	<b>A</b> <sup>10</sup> Plug-In Stud
<b>4</b> <sup>8</sup> Stud M5 x 0.8	<b>C</b> <sup>8</sup> 5/16" Clip Terminal
<b>5</b> <sup>8</sup> Screw M5 x 0.8	

**9 ACTUATOR COLOR & LEGEND <sup>11</sup>**

Actuator Color	ON-OFF	Dual	Legend Color
White	<b>B</b>	<b>1</b>	Black
Black	<b>D</b>	<b>2</b>	White
Red	<b>G</b>	<b>3</b>	White
Green	<b>J</b>	<b>4</b>	White
Blue	<b>L</b>	<b>5</b>	White
Yellow	<b>N</b>	<b>6</b>	Black
Gray	<b>Q</b>	<b>7</b>	Black
Orange	<b>S</b>	<b>8</b>	Black

**10 MOUNTING / BARRIERS**

MOUNTING STYLE	BARRIERS <sup>12</sup>
<b>Threaded Insert</b>	
<b>1</b> 6-32 x 0.195 inches	yes
<b>2</b> ISO M3 x 5mm	yes

**11 MAXIMUM APPLICATION RATING**

<b>B</b>	125 DC
<b>C</b>	120/240 AC <sup>2</sup>
<b>D</b>	240 AC
<b>K</b>	120 AC
<b>F</b>	277 AC
<b>M</b>	80 DC

**12 AGENCY APPROVAL <sup>11</sup>**

<b>A</b>	without approvals
<b>F</b>	UL489 Listed, CSA Certified & VDE Certified
<b>G</b>	UL489 Listed & CSA Certified
<b>J</b>	UL489 Listed, CSA Certified & TUV Certified

Notes:

- Actuator Code:  
 A: Handle tie pin spacer(s) and retainers provided assembled with multi-pole units.  
 B: Handle located, as viewed from front of breaker in left pole. 2 pole maximum.  
 S: Handle moves to mid-position only upon electrical trip of the breaker.  
 T: Handle moves to mid-position and alarm switch activates only upon electrical trip of the breaker.
- Standard multipole units have all poles identical except when specifying auxiliary switch and/or mixed poles.  
 2 & 3 pole circuit breakers required for 120/240 VAC (Maximum application rating code C) applications, have all poles identical except when specifying auxiliary / alarm switch which is normally supplied in extreme right pole per figure B. Terminal barriers are required on all multipole breakers.  
 Third pole is for 120/240 VAC applications requiring neutral disconnect. The 3rd pole has the same construction as poles 1 & 2.
- On multi-pole breakers, one auxiliary switch is supplied, mounted in the extreme right pole.  
 VDE approval on auxiliary switch codes 2, 3 & 4 only.  
 Auxiliary / Alarm Switch with Independent Circuit ie: separate from breaker circuit, only available with circuit breakers rated 50 amp maximum at 80 VDC, 125 VDC, and 120 VAC. Auxiliary / Alarm Switch with Dependent Circuit ie: same as circuit breaker, is supplied from factory with common terminal of auxiliary / alarm switch connected to line terminal on 120/240 and 240 VAC ratings. Circuit breakers rated 120 VAC 50 amp maximum can be supplied with Auxiliary/Alarm switch common terminal connected to breaker line terminal. Consult factory for special catalog number.
- Available up to 50 amps maximum.
- Current ratings 71 - 100 with VDE approvals are available up to two poles maximum.
- Terminal Codes 9 & C are not VDE approved.
- Terminal Code 1 available to 60 amps maximum.
- Terminal Codes 2, 4, 5 & C available to 50 amps maximum.
- Terminal Codes 3, 6 & 9 available to 100 amps maximum.
- Terminal Code A available to 100 amps maximum.
- VDE and TUV approvals require Dual (I-O, ON-OFF) markings on all handles.
- Barriers supplied on multi-pole units only.

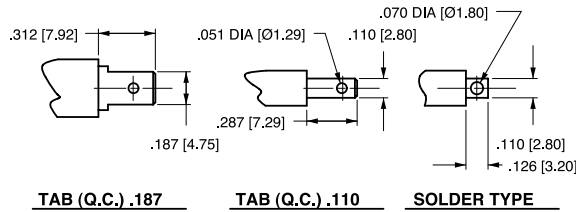
## Circuit & Terminal Diagrams: in. [mm]

DESCRIPTION	CODE	DIMENSIONAL DETAIL	RATING (AMPS)		
			25	50	100
#10-32 STUD	1				
M5 STUD	4				
#1/4-20 STUD	3				
M6 STUD	6				
#1/4-20 STUD	3				
M6 STUD	6				
#10-32 SCREW	2				
M-5 SCREW	5				

DESCRIPTION	CODE	DIMENSIONAL DETAIL	RATING (AMPS)		
			25	50	100
.250 DOUBLE Q.C.	7				
7/16" CLIP TERMINALS	9				
PUSH-IN STUD	A				

NOTES: TOLERANCE ON STUD LENGTHS IS  $\pm .031$  [ $\pm .79$ ] UNLESS OTHERWISE SPECIFIED.

### AUXILIARY / ALARM SWITCH TERMINAL DETAIL<sup>3</sup>



TIGHTENING TORQUE SPECIFICATIONS	
THREAD SIZE	TORQUE
#6-32 [M3] MOUNTING INSERTS	7-9 IN-LBS [0.8-1.0 NM]
#10-32 & M5 THD STUDS	15-20 IN-LBS [1.7-2.3 NM]
#10-32 THD SCREW	15-20 IN-LBS [1.7-2.3 NM]
#1/4-20 & M6 THD STUDS	30-35 IN-LBS [3.4-4.0 NM]

TERMINAL HARDWARE				
TERMINAL DESCRIPTION	CODE	AGENCY APPROVAL	AMPERE RATING	HARDWARE SUPPLIED
#10-32 STUD	1	ALL	.02 - 50	LOCK WASHER - FLAT WASHER - NUT
M5 STUD	4	ALL	.02 - 50	LOCK WASHER - FLAT WASHER - NUT
#1/4-20 STUD	3	ALL	.02 - 80	LOCK WASHER - FLAT WASHER - NUT
			81 - 100	LOCK WASHER - NUT - (2) FLAT WASHER - NUT
M6 STUD	6	ALL	.02 - 80	LOCK WASHER - FLAT WASHER - NUT
			81 - 100	LOCK WASHER - NUT - (2) FLAT WASHER - NUT
#10-32 SCREW	2 & 5	UL RECOGNIZED	.02 - 50	* SADDLE CLAMP - FLAT WASHER - SCREW
		UL-489 LISTED	.02 - 50	LOCK WASHER - FLAT WASHER - SCREW
		TUV & VDE CERTIFIED	.02 - 16	* SADDLE CLAMP - FLAT WASHER - SCREW
		TUV & VDE CERTIFIED	16.1 - 50	LOCK WASHER - FLAT WASHER - SCREW

\* THE SADDLE CLAMP IS FOR DIRECT WIRE CONNECTION USE. DISCARD SADDLE CLAMP IF WIRE TERMINAL LUG IS USED

Notes:

- All dimensions are in inches [millimeters].
- Tolerance  $\pm .020$  [.51] unless otherwise specified.
- Available on Series Trip and Switch Only Circuits when called for on multi-pole units. Only one auxiliary switch is normally supplied, as viewed in multi-pole identification scheme.

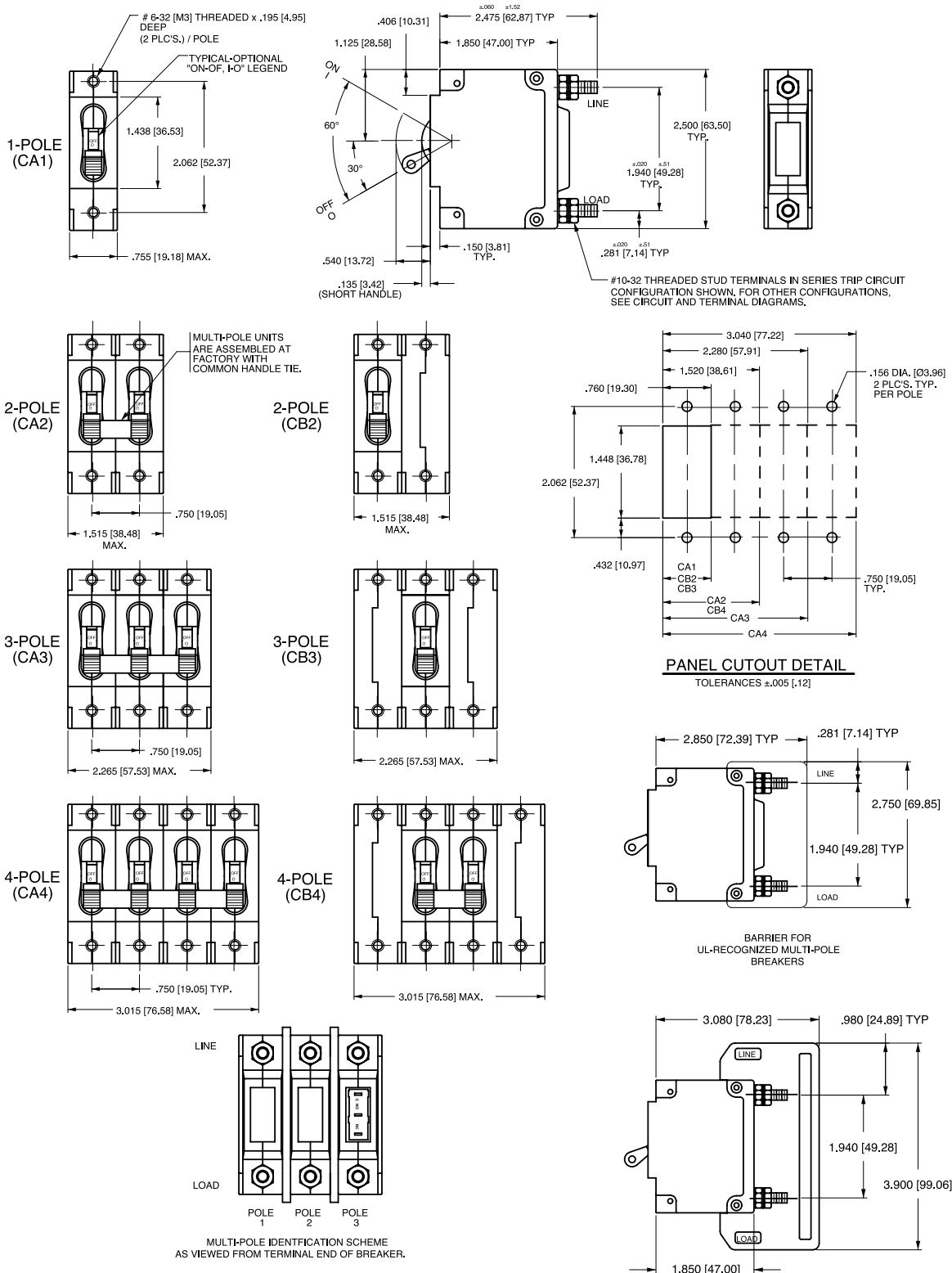
## Circuit & Terminal Diagrams: in. [mm]

	CIRCUIT SCHEMATIC		CIRCUIT CODE	AUX SWITCH CODE	CIRCUIT SCHEMATIC		CIRCUIT CODE	AUX SWITCH CODE
	ANSI	IEC			ANSI	IEC		
	SWITCH ONLY (NO COIL)							
			A	O			B	O
	SWITCH ONLY (NO COIL) WITH AUXILIARY SWITCH		A	2 3 4	SERIES TRIP WITH AUXILIARY / ALARM SWITCH		B	2 3 4
	SHUNT TRIP		D E	0	DUAL COIL; SERIES TRIP CURRENT COIL, SHUNT TRIP VOLTAGE COIL		H	0
	RELAY TRIP		F G	0	DUAL COIL; SERIES TRIP CURRENT COIL, RELAY TRIP VOLTAGE COIL		K	0

HANDLE POSITION VS. AUX/ALARM SWITCH MODE					
CIRCUIT BREAKER MODE	STANDARD C/B		MID TRIP C/B		
	HANDLE POSITION	AUX. SWITCH MODE	HANDLE POSITION	STANDARD ALARM SWITCH MODE	REVERSE ALARM SWITCH MODE <sup>4</sup>
OFF					
ON					
ELECTRICAL TRIP					

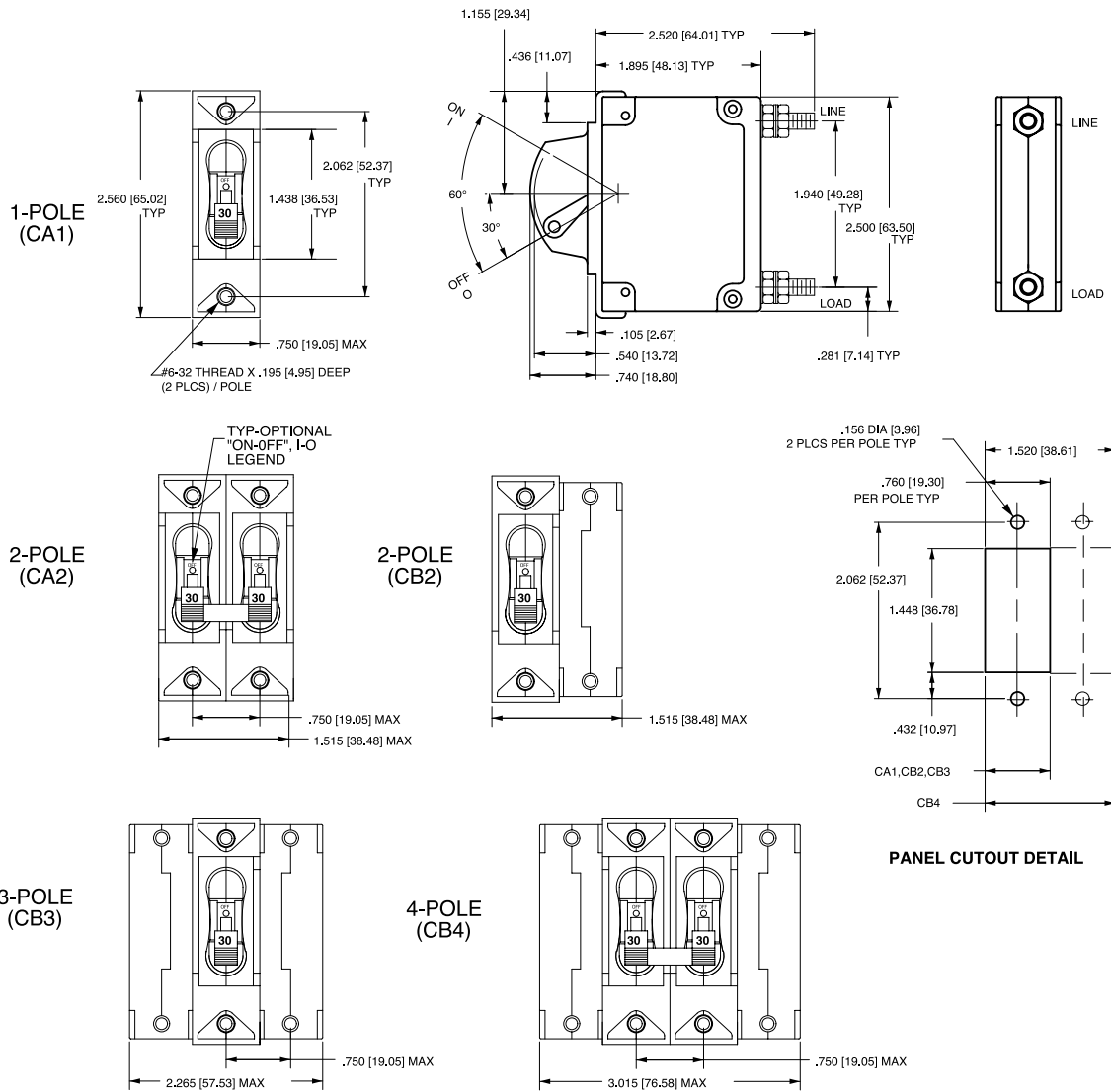
- Notes:
- All dimensions are in inches [millimeters].
  - Tolerance  $\pm .020$  [.51] unless otherwise specified.
  - Schematic shown represents current trip circuits.
  - Available only as special catalog number.

## Dimensional Specifications: in. [mm]



- Notes:
- 1 All dimensions are in inches [millimeters].
  - 2 Tolerance ±.020 [.51] unless otherwise specified.

## Dimensional Specifications: in. [mm]



\*Handleguard available as special catalog number only

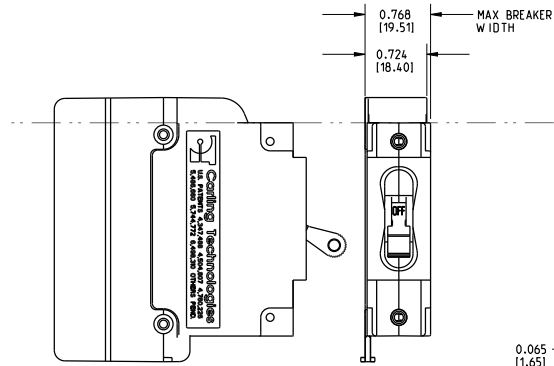
**Notes:**

- All dimensions are in inches [millimeters].
- Tolerance ±.020 [.51] unless otherwise specified.

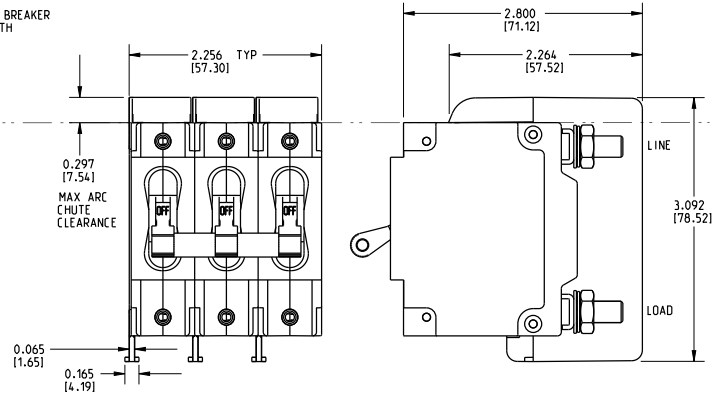


## Dimensional Specifications: in. [mm]

1-POLE (CA1)  
w/ ARC CHUTE BARRIER

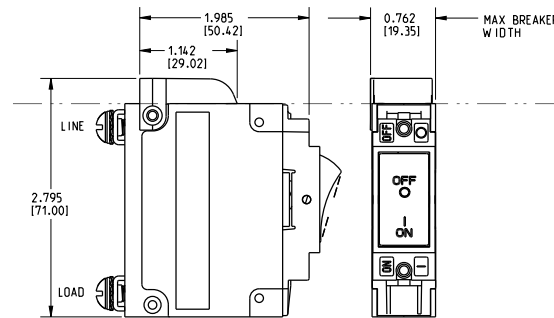


3-POLE (CA3)  
w/ ARC CHUTE BARRIER

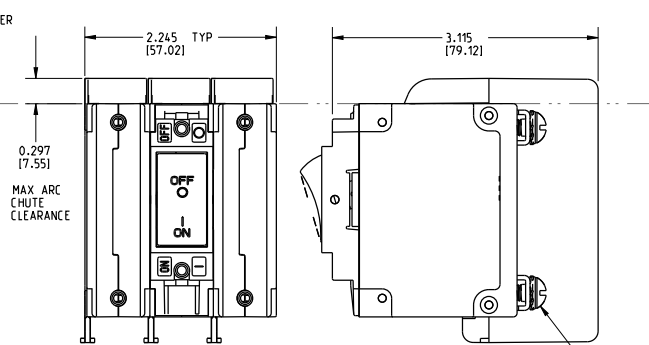


INDICATE "ON"

1-POLE (CC1, CD1)  
w/ ARC CHUTE (NO BARRIER)



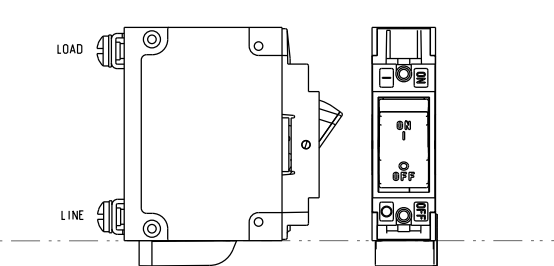
3-POLE (CC3, CD3)  
w/ ARC CHUTE BARRIER



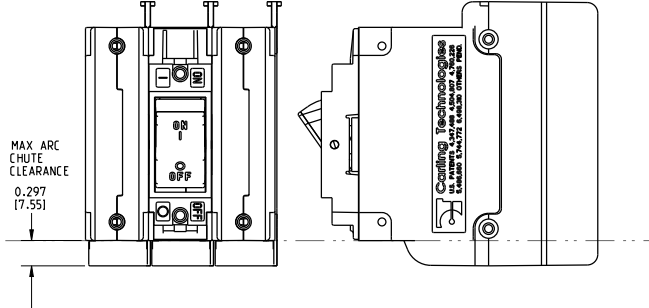
SCREW TYPE TERMINALS IN SERIES TRIP CIRCUIT CONFIGURATION SHOWN.

INDICATE "OFF" / SINGLE COLOR

1-POLE (CF1, CG1, C11, C21)  
w/ ARC CHUTE (NO BARRIER)



3-POLE (CF3, CG3, C13, C23)  
w/ ARC CHUTE BARRIER

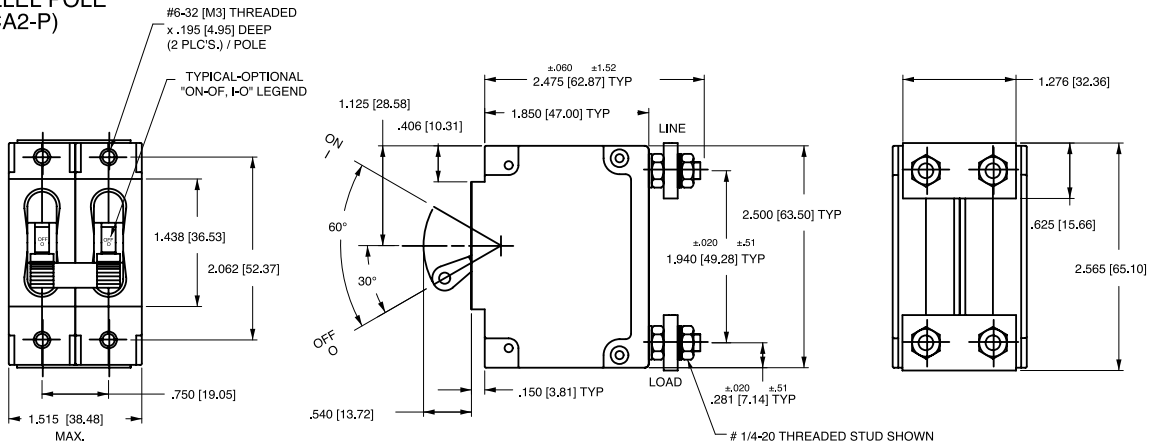


Notes:

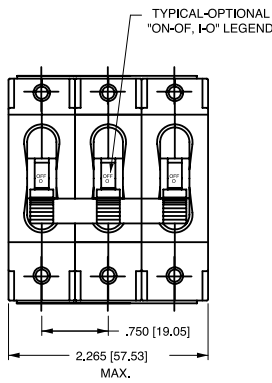
- 1 Only 1-pole and 3-pole configurations shown. Arc chute (without barrier) and arc chute barrier also available for 2-pole construction.
- 2 Dimensions apply to all variations shown.
- 3 Notice that line and load terminal orientation for indicate on and indicate off rocker circuit breakers are opposite.
- 4 Screw type terminals shown for Rocker style (CF1, C11, etc) circuit breakers. For other terminal configurations see circuit and terminal diagrams.
- 5 All dimensions are in inches [millimeters].
- 6 Tolerance  $\pm .020$  unless otherwise specified.
- 7 Must be ordered under a special catalog number.

## Dimensional Specifications: in. [mm]

### PARALLEL POLE (CA2-P)

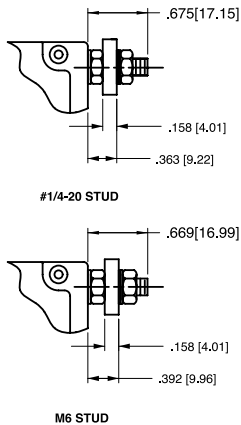
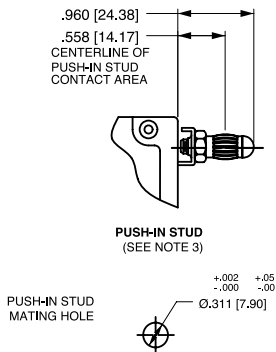


### PARALLEL POLE (CA3-P)

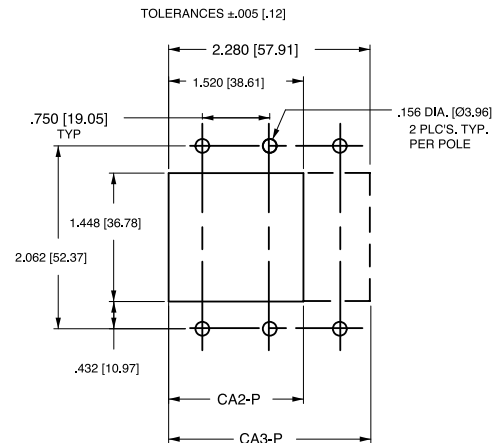


CIRCUIT BREAKER PROFILE	CIRCUIT SCHEMATIC (CA2-P SHOWN)		CIRCUIT CODE	AUX SWITCH CODE
	ANSI	IEC		
	<b>SERIES TRIP</b> 		P	0
	<b>SERIES TRIP WITH AUXILIARY SWITCH</b> 		P	2 3 4

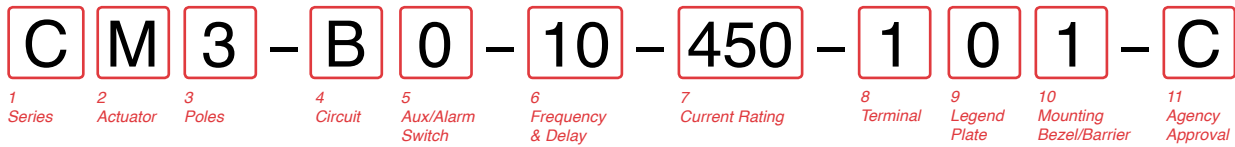
### TERMINAL DETAILS



### PANEL CUTOUT DETAIL



- Notes:
- All dimensions are in inches [millimeters].
  - Tolerance  $\pm 0.020$  [.51] unless otherwise specified.



**1 SERIES**  
**C**

**2 ACTUATOR <sup>1</sup>**  
**M** Sealed Toggle, one per pole

**3 POLES**  
**1** One                                      **2** Two                                      **3** Three

**4 CIRCUIT**

<b>A</b> <sup>2</sup> Switch Only (no coil)	<b>F</b> <sup>3</sup> Relay Trip (current)
<b>B</b> Series Trip (current)	<b>G</b> <sup>3</sup> Relay Trip (voltage)
<b>C</b> Series Trip (voltage)	<b>H</b> <sup>3,4</sup> Dual Coil with Shunt Trip Voltage Coil
<b>D</b> <sup>3</sup> Shunt Trip (current)	<b>K</b> <sup>3,4</sup> Dual Coil with Relay Trip Voltage Coil
<b>E</b> <sup>3</sup> Shunt Trip (voltage)	

**5 AUXILIARY / ALARM SWITCH**

<b>0</b> without Aux Switch	<b>6</b> S.P.S.T., 0.139 Solder Lug
<b>2</b> S.P.D.T., 0.110 Q.C. Term.	<b>8</b> S.P.S.T., 0.187 Q.C. Term.
<b>3</b> S.P.D.T., 0.139 Solder Lug	<b>9</b> S.P.D.T., 0.187 Q.C. Term.
<b>4</b> S.P.D.T., 0.110 Q.C. Term. (Gold Contacts)	

**6 FREQUENCY & DELAY**

<b>03</b> <sup>2</sup> DC 50/60Hz, Switch Only	<b>30</b> DC 50/60Hz Instantaneous
<b>10</b> <sup>6</sup> DC Instantaneous	<b>31</b> DC 50/60Hz Ultra Short
<b>11</b> DC Ultra Short	<b>32</b> DC 50/60Hz Short
<b>12</b> DC Short	<b>34</b> DC 50/60Hz Medium
<b>14</b> DC Medium	<b>36</b> DC 50/60Hz Long
<b>16</b> DC Long	<b>42</b> <sup>7</sup> 50/60Hz Short, High-inrush
<b>20</b> <sup>6</sup> 50/60Hz Instantaneous	<b>44</b> <sup>7</sup> 50/60Hz Medium, High-inrush
<b>21</b> 50/60Hz Ultra Short	<b>46</b> <sup>7</sup> 50/60Hz Long, High-inrush
<b>22</b> 50/60Hz Short	<b>52</b> <sup>7</sup> DC Short, High-inrush
<b>24</b> 50/60Hz Medium	<b>54</b> <sup>7</sup> DC Medium, High-inrush
<b>26</b> 50/60Hz Long	<b>56</b> DC Long, High-inrush

**7 CURRENT RATING (AMPERES) <sup>9</sup>**

CODE	AMPERES				
020	0.020	235	0.350	430	3.000
025	0.025	240	0.400	435	3.500
030	0.030	245	0.450	440	4.000
035	0.035	250	0.500	445	4.500
040	0.040	255	0.550	450	5.000
045	0.045	260	0.600	455	5.500
050	0.050	265	0.650	460	6.000
055	0.055	270	0.700	465	6.500
060	0.060	275	0.750	470	7.000
065	0.065	280	0.800	475	7.500
070	0.070	285	0.850	480	8.000
075	0.075	290	0.900	485	8.500
080	0.080	295	0.950	490	9.000
085	0.085	410	1.000	495	9.500
090	0.090	512	1.250	610	10.000
095	0.095	415	1.500	710	10.500
210	0.100	517	1.750	611	11.000
215	0.150	420	2.000	711	11.500
220	0.200	522	2.250	612	12.000
225	0.250	425	2.500	712	12.500
230	0.300	527	2.750	613	13.000

**OR VOLTAGE COIL (NORMAL RATED VOLTAGE) <sup>7</sup>**

CODE	AMPERES				
A06	6 DC	A32	32 DC	J12	12 AC
A12	12 DC	A48	48 DC	J18	18 AC
A18	18 DC	A65	65 DC	J24	24 AC
A24	24 DC	J06	6 AC	J48	48 AC
				J65	65 AC
				K20	120 AC
				L40	240 AC

**8 TERMINAL**

<b>1</b> <sup>9</sup> Stud 10-32	<b>6</b> <sup>11</sup> Stud M6
<b>2</b> <sup>10</sup> Screw 10-32	<b>7</b> <sup>12</sup> 0.250 Double Click Connect
<b>3</b> <sup>11</sup> Stud 1/4-20	<b>9</b> <sup>11</sup> 7/16" Clip Terminal
<b>4</b> <sup>10</sup> Stud M5 x 0.8	<b>A</b> <sup>13</sup> Plug-In Stud
<b>5</b> <sup>10</sup> Screw M5 x 0.8	<b>C</b> <sup>10</sup> 5/16" Clip Terminal

**9 LEGEND PLATE**  
**0** No Legend

**10 MOUNTING / BARRIERS**

	MOUNTING STYLE	BARRIERS
<b>1</b>	Standard Hex Nut	no
<b>A</b>	Standard Hex Nut (multi-pole units only)	yes

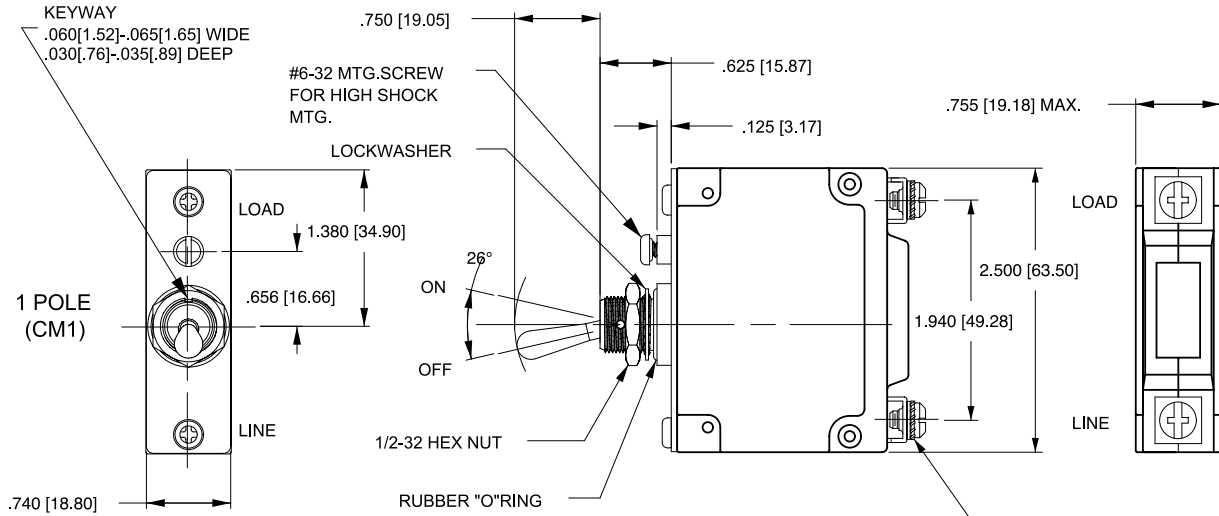
**11 AGENCY APPROVAL**

<b>C</b>	UL Recognized & CSA Accepted
<b>I</b>	UL Recognized & CSA Accepted, UL1500 ignition protection
<b>L</b>	UL Recognized & CSA Accepted with listed construction

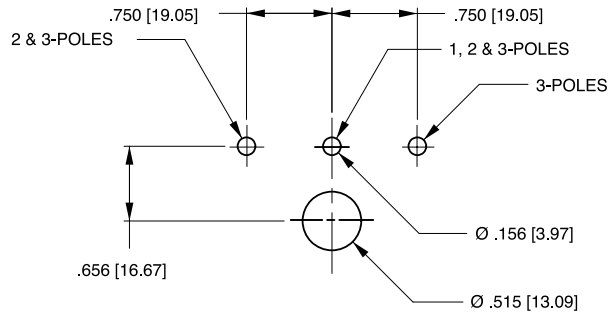
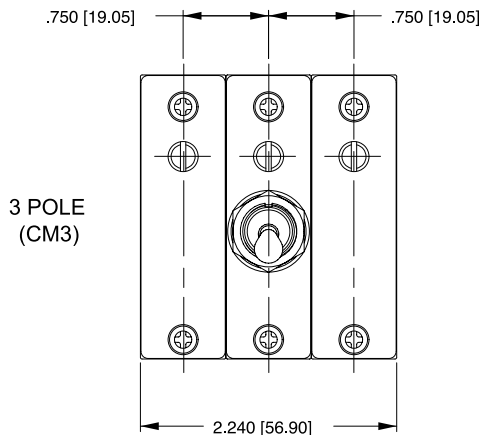
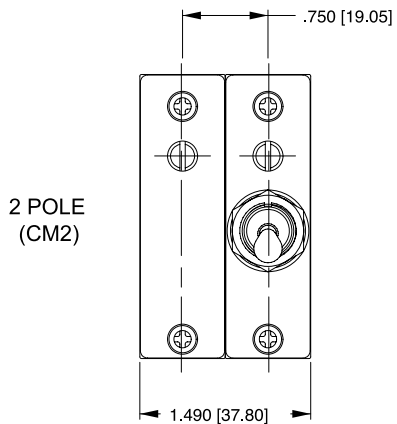
Notes:

- 1 Actuator Code M: Handle location as viewed from front of breaker:  
 2 pole - right pole                      3 pole - center pole
- 2 Switch Only circuits, rated up to 50 amps and 3 poles, and only available with VDE. For .02 to 30 amps, select Current Code 630. For 35 - 50 amps, select Current Code 650. For 55-70 amps, select Current Code 670. For 75-100 amps, select Current Code 810.
- 3 Circuit Codes D,E,F,G,H & K available with Terminal Codes 1,2,4 & 5 only.
- 4 Consult factory for available Dual Coil options, as special catalog number is required. Dual Coil Voltage Coils with Shunt Trip Construction trip instantaneously on line voltage. Dual Coil Voltage Coils require 30VA minimum power to trip instantaneously and are rated for intermittent duty only.
- 5 Auxiliary Switch available with Series Trip and Switch Only circuits. On multi-pole breakers, one auxiliary switch is supplied, mounted in the extreme right pole.
- 6 Voltage coils not rated for continuous duty. Available only with delay codes 10 & 20.
- 7 Available with Circuit Codes B & D only, and up to 50 amps maximum.
- 8 Consult factory for current ratings 71-100, in three pole units, available as special catalog number only.
- 9 Terminal Code 1 available to 60 amps maximum.
- 10 Terminal Codes 2, 4, 5 and C available to 50 amps maximum.
- 11 Terminal Codes 3, 6 & 9 available to 100 amps maximum.
- 12 Terminal Code 7 available to 25 amps maximum.
- 13 Terminal Code A available to 100 amps maximum.

## Dimensional Specifications: in. [mm]



SCREW TYPE TERMINALS  
IN SERIES TRIP CIRCUIT  
CONFIGURATION SHOWN.  
FOR OTHER CONFIGURATIONS  
SEE CIRCUIT & TERMINAL  
DIAGRAMS



PANEL CUTOUT DETAIL  
TOLERANCES ±.005[.13]

Notes:

- 1 All dimensions are in inches [millimeters].
- 2 Tolerance ±.020 [.51] unless otherwise specified.

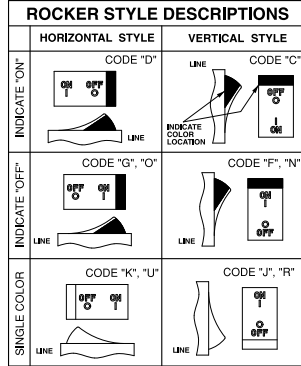
C C 3 - B 0 - 14 - 450 - 1 2 1 - D

1	2	3	4	5	6	7	8	9	10	11
Series	Actuator	Poles	Circuit	Aux/Alarm Switch	Frequency & Delay	Current Rating	Terminal	Actuator Color	Mounting/Barriers	Agency Approval

**1 SERIES**  
C

**2 ACTUATOR 1**

- Two Color Visi-Rocker**  
**C** Indicate ON, vertical legend  
**D** Indicate ON, horizontal legend  
**E** Indicate ON, no legend  
**F** Indicate OFF, vertical legend  
**G** Indicate OFF, horizontal legend  
**H** Indicate OFF, no legend  
**Push-To-Reset, Visi-Rocker**  
**N** Indicate OFF, vertical legend  
**O** Indicate OFF, horizontal legend  
**P** Indicate OFF, no legend  
**Single color**  
**J** Vertical legend  
**K** Horizontal legend  
**L** No legend  
**Push-To-Reset, Single color**  
**R** Vertical legend  
**U** Horizontal legend  
**V** No legend



**3 POLES 2**

- |       |       |         |
|-------|-------|---------|
| 1 One | 2 Two | 3 Three |
|-------|-------|---------|

**4 CIRCUIT**

- |   |  |  |
|---|--|--|
| <b>A</b> <sup>3</sup> Switch Only (No Coil)<br><b>B</b> Series Trip (Current)<br><b>C</b> Series Trip (Voltage)<br><b>D</b> <sup>4</sup> Shunt Trip (Current)<br><b>E</b> <sup>4</sup> Shunt Trip (Voltage) | <b>F</b> <sup>4</sup> Relay Trip (Current)<br><b>G</b> <sup>4</sup> Relay Trip (Voltage)<br><b>H</b> <sup>4,5</sup> Dual Coil with Shunt Trip Voltage Coil<br><b>K</b> <sup>4,5</sup> Dual Coil with Relay Trip Voltage Coil |  |
|---|--|--|

**5 AUXILIARY / ALARM SWITCH 6**

- |  |   |  |
|--|---|--|
| <b>0</b> without Aux Switch<br><b>2</b> S.P.D.T., 0.110 Q.C. Term.<br><b>3</b> S.P.D.T., 0.139 Solder Lug<br><b>4</b> S.P.D.T., 0.110 Q.C. Term. (Gold Contacts) | <b>6</b> S.P.S.T., 0.139 Solder Lug<br><b>8</b> S.P.S.T., 0.187 Q.C. Term.<br><b>9</b> S.P.D.T., 0.187 Q.C. Term. |  |
|--|---|--|

**6 FREQUENCY & DELAY**

- |  |   |  |
|--|---|--|
| <b>03</b> DC 50/60Hz, Switch Only<br><b>10</b> <sup>7</sup> DC Instantaneous<br><b>11</b> DC Ultra Short<br><b>12</b> DC Short<br><b>14</b> DC Medium<br><b>16</b> DC Long<br><b>20</b> <sup>7</sup> 50/60Hz Instantaneous<br><b>21</b> 50/60Hz Ultra Short<br><b>22</b> 50/60Hz Short<br><b>24</b> 50/60Hz Medium<br><b>26</b> 50/60Hz Long | <b>30</b> DC 50/60Hz Instantaneous<br><b>31</b> DC 50/60Hz Ultra Short<br><b>32</b> DC 50/60Hz Short<br><b>34</b> DC 50/60Hz Medium<br><b>36</b> DC 50/60Hz Long<br><b>42</b> <sup>8</sup> 50/60Hz Short, High-inrush<br><b>44</b> <sup>8</sup> 50/60Hz Medium, High-inrush<br><b>46</b> <sup>8</sup> 50/60Hz Long, High-inrush<br><b>52</b> <sup>8</sup> DC Short, High-inrush<br><b>54</b> <sup>8</sup> DC Medium, High-inrush<br><b>56</b> <sup>8</sup> DC Long, High-inrush |  |
|--|---|--|

Notes:

- 1 Push-To-Reset actuators have OFF portion of rocker shrouded.
- 2 Multi-pole breakers have all poles identical except when specifying Auxiliary switch and/or mixed poles, and have one rocker per breaker. Rocker location as viewed from front panel: 2 pole – left pole; 3 pole – center pole.
- 3 Switch Only circuits, rated up to 50 amps and 3 poles, and only available with VDE Certification when tied to a protected pole (Circuit Code B, C, D or H.). For .02 to 30 amps, select Current Code 630. For 35 - 50 amps, select Current Code 650. For 55-70 amps, select Current Code 670. For 75-100 amps, select Current Code 810.
- 4 Circuit Codes D,E,F,G,H & K available with Terminal Codes 1,2,4 & 5 only. Circuit Codes D,F,H & K available up to 50 amps maximum Current Rating.
- 5 Consult factory for available Dual Coil options, as special catalog number is required. Dual Coil Voltage Coils with Shunt Trip Construction trip instantaneously on line voltage. Dual Coil Voltage Coils require 30VA minimum power to trip instantaneously and are rated for intermittent duty only.
- 6 Auxiliary Switch available with Series Trip and Switch Only circuits. On multi-pole breakers, one auxiliary switch is supplied, mounted in the extreme right pole. Auxiliary switch codes 2, 3 & 4 are VDE approved.
- 7 Voltage coils not rated for continuous duty. Available only with delay codes 10 & 20.
- 8 Available with Circuit Codes B & D only, and up to 50 amps maximum.
- 9 Current Ratings 60-70 are available up to four poles maximum. Ratings 71-100 are available up to two poles maximum.
- 10 Terminal Code 1 available to 60 amps maximum.
- 11 Terminal Codes 2,4,5 & C available to 50 amps maximum.
- 12 Terminal Codes 3,6 & 9 available to 100 amps maximum.
- 13 Terminal Code 7 available to 25 amps maximum.
- 14 Terminal Code A available to 100 amps maximum.
- 15 Terminal Codes 7, 9 & C are not VDE approved.
- 16 Color shown is visi and legend with remainder of rocker black
- 17 Legend on Push-to-reset bezel/shroud is white when single color rocker is ordered. Dual = ON-OFF/I-O legend with actuator codes C - G, and J, K, N, O, R, & U. None = no legend with actuator codes H, L, P, V. Rockerguard available with actuator codes C - L. Push-to-reset available with actuator codes N, O, P, R, U, V.
- 18 VDE/TUV approval requires Dual (I-O, ON-OFF) or I-O markings on rocker.
- 19 VDE/TUV: 30 amps max.; UL/CSA: 50 amps max.; Available in 2 - 4 poles only and limited to AC Delays. "General Purpose amps" not rated for "full load amps" or to be used in applications with a motor.

**7 CURRENT RATING (AMPERES)**

CODE	AMPERES	
020	0.020	
025	0.025	
030	0.030	
035	0.035	
040	0.040	
045	0.045	
050	0.050	
055	0.055	
060	0.060	
065	0.065	
070	0.070	
075	0.075	
080	0.080	
085	0.085	
090	0.090	
095	0.095	
210	0.100	
215	0.150	
220	0.200	
225	0.250	
230	0.300	
235	0.350	
240	0.400	
245	0.450	
250	0.500	
255	0.550	
260	0.600	
265	0.650	
270	0.700	
275	0.750	
280	0.800	
285	0.850	
290	0.900	
295	0.950	
300	1.000	
310	1.250	
315	1.500	
317	1.750	
320	2.000	
322	2.250	
325	2.500	
327	2.750	
330	3.000	
335	3.500	
340	4.000	
345	4.500	
350	5.000	
355	5.500	
360	6.000	
365	6.500	
370	7.000	
375	7.500	
380	8.000	
385	8.500	
390	9.000	
395	9.500	
400	10.000	
410	10.500	
411	11.000	
412	11.500	
413	12.000	
414	12.500	
415	13.000	
614	14.000	
615	15.000	
616	16.000	
617	17.000	
618	18.000	
620	20.000	
622	22.000	
624	24.000	
625	25.000	
630	30.000	
635	35.000	
640	40.000	
650	50.000	
660	60.000	
670	70.000	
680	80.000	
685	85.000	
690	90.000	
695	95.000	
810	100.00	

**OR VOLTAGE COIL (NORMAL RATED VOLTAGE) 7**

CODE	AMPERES	
A06	6 DC	
A12	12 DC	
A18	18 DC	
A24	24 DC	
A32	32 DC	
A48	48 DC	
A65	65 DC	
J06	6 AC	
J12	12 AC	
J18	18 AC	
J24	24 AC	
J48	48 AC	
J65	65 AC	
K20	120 AC	
L40	240 AC	

**8 TERMINAL**

- |  |  |
|--|--|
| <b>1</b> <sup>10</sup> Stud 10-32<br><b>2</b> <sup>11</sup> Screw 10-32<br><b>3</b> <sup>12</sup> Stud 1/4-20<br><b>4</b> <sup>11</sup> Stud M5 x 0.8<br><b>5</b> <sup>11</sup> Screw M5 x 0.8 | <b>6</b> <sup>12</sup> Stud M6<br><b>7</b> <sup>13</sup> 0.250 Double Quick Connect<br><b>9</b> 7/16" Clip Terminal<br><b>A</b> <sup>14</sup> Plug-In Stud<br><b>C</b> 5/16" Clip Terminal |
|--|--|

**9 ACTUATOR COLOR & LEGEND 16,17,18**

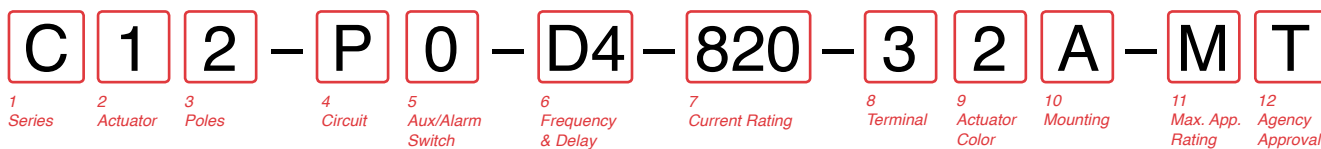
Actuator or Visi-Color	Marking:	Marking Color:
<b>Color:</b>	<b>I-O ON-OFF</b>	<b>Single Color</b>
White	A B 1	Rocker/Handle
Black	C D 2	White
Red	F G 3	White
Green	H J 4	White
Blue	K L 5	White
Yellow	M N 6	Black
Gray	P Q 7	Black
Orange	R S 8	Black
		Black
		White
		n/a
		Red
		Green
		Blue
		Yellow
		Gray
		Orange

**10 MOUNTING / BARRIERS 1**

	STANDARD ROCKER BEZEL	BARRIERS	VOLTAGE
1	6-32 x 0.195 inches	no	<300
2	6-32 x 0.195 inches	yes	<300
3	6-32 x 0.195 inches	yes	≥300
4	ISO M3 x 5mm	no	<300
5	ISO M3 x 5mm	yes	<300
6	ISO M3 x 5mm	yes	≥300
<b>ROCKERGUARD BEZEL</b>			
A	6-32 x 0.195 inches	no	<300
C	6-32 x 0.195 inches	yes	<300
E	6-32 x 0.195 inches	yes	≥300
G	ISO M3 x 5mm	no	<300
J	ISO M3 x 5mm	yes	<300
L	ISO M3 x 5mm	yes	≥300
<b>PUSH-TO-RESET BEZEL</b>			
B	6-32 x 0.195 inches	no	<300
D	6-32 x 0.195 inches	yes	<300
F	6-32 x 0.195 inches	yes	≥300
H	ISO M3 x 5mm	no	<300
J	ISO M3 x 5mm	yes	<300
M	ISO M3 x 5mm	yes	≥300

**11 AGENCY APPROVAL**

- |  |
|--|
| <b>C</b> UL Recognized & CSA Accepted  |
| <b>D</b> VDE Certified, UL Recognized & CSA Accepted                                     |
| <b>E</b> TUV Certified, UL Recognized & CSA Accepted                                     |
| <b>H</b> UL489 Construction: VDE Certified, UL Recognized & CSA Accepted                 |
| <b>I</b> UL Recognized STD 1077, UL Recognized 1500 (ignition protected), & CSA Accepted |
| <b>L</b> UL489 Construction: UL Recognized & CSA Accepted                                |
| <b>R</b> UL489 Construction: TUV Certified, UL Recognized & CSA Accepted                 |



**1 SERIES**  
**C**

**2 ACTUATOR**  
**C** Curved Rocker, Two Color Visi, Indicate On, Vertical Legend  
**D** Curved Rocker, Two Color Visi, Indicate On, Horizontal Legend  
**F** Curved Rocker, Two Color Visi, Indicate Off, Vertical Legend  
**G** Curved Rocker, Two Color Visi, Indicate Off, Horizontal Legend  
**J** Curved Rocker, Single Color, Vertical Legend  
**K** Curved Rocker, Single Color, Horizontal Legend  
**N** Curved Rocker, Push To Reset, Two Color Visi, Vertical Legend  
**O** Curved Rocker, Push To Reset, Two Color Visi, Horizontal Legend  
**1** Flat Rocker, Two Color Visi, Vertical Legend  
**2** Flat Rocker, Two Color Visi, Horizontal Legend  
**3** Flat Rocker, Single Color, Vertical Legend  
**4** Flat Rocker, Single Color, Horizontal Legend  
**5** Flat Rocker, Push To Reset, Two Color Visi, Vertical Legend  
**6** Flat Rocker, Push To Reset, Two Color Visi, Horizontal Legend  
**7** Flat Rocker, Push To Reset, Single Color, Vertical Legend  
**8** Flat Rocker, Push To Reset, Single Color, Horizontal Legend

**3 POLES<sup>2</sup>**  
**1** One                                      **2** Two                                      **3** Three

**4 CIRCUIT**  
**P** Series Trip (parallel pole)

**5 AUXILIARY/ALARM SWITCH**

<b>0</b> without Aux Switch	<b>6</b> S.P.S.T., 0.139 Solder Lug
<b>2</b> S.P.D.T., 0.110 Q.C. Term.	<b>7</b> S.P.S.T., 0.110 Q.C. Term. (Gold Contacts)
<b>3</b> S.P.D.T., 0.139 Solder Lug	<b>8</b> S.P.S.T., 0.187 Q.C. Term. (Gold Contacts)
<b>4</b> S.P.D.T., 0.110 Q.C. Term. (Gold Contacts)	<b>9</b> S.P.D.T., 0.187 Q.C. Term. (Gold Contacts)
<b>5</b> S.P.S.T., N.O., 0.110 Q.C. Term. (Gold Contacts)	

**6 FREQUENCY & DELAY**

<b>D1</b> DC Ultra Short
<b>D2</b> DC Short
<b>D4</b> DC Medium
<b>D6</b> DC Long

**7 CURRENT RATING (AMPERES)<sup>2</sup>**

CODE	AMPERES			
<b>810</b>	100.00	<b>813</b> 130.00	<b>817</b> 170.00	<b>820</b> 200.00
<b>811</b>	110.00	<b>814</b> 140.00	<b>817</b> 175.00	<b>822</b> 225.00
<b>812</b>	120.00	<b>815</b> 150.00	<b>818</b> 180.00	<b>825</b> 250.00
<b>912</b>	125.00	<b>816</b> 160.00	<b>819</b> 190.00	

**8 TERMINAL<sup>3</sup>**  
**3** Stud 1/4-20  
**6** Stud M6  
**A** Plug-In Stud<sup>1</sup>

**9 ACTUATOR COLOR**

LEGEND			
ON-OFF	Dual	Legend Color	
White	<b>B</b>	<b>1</b>	Black
Black	<b>D</b>	<b>2</b>	White
Red	<b>G</b>	<b>3</b>	White
Green	<b>J</b>	<b>4</b>	White
Blue	<b>L</b>	<b>5</b>	White
Yellow	<b>N</b>	<b>6</b>	Black
Gray	<b>Q</b>	<b>7</b>	Black
Orange	<b>S</b>	<b>8</b>	Black

**10 MOUNTING**  
**ROCKER / MOUNTING INSERT STYLE**

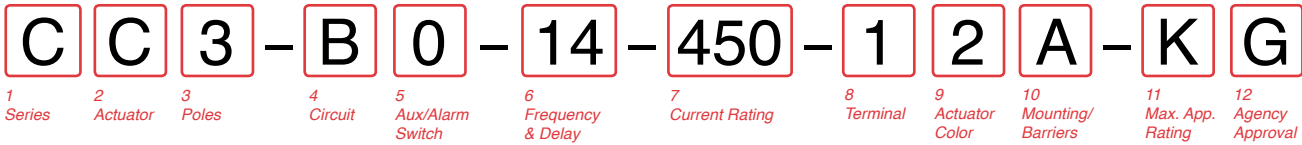
<b>A</b>	Standard Rocker Bezel - 6-32 Inserts
<b>B</b>	Standard Rocker Bezel - M3 Inserts
<b>C</b>	Rocker Guard Bezel - 6-32 Inserts
<b>D</b>	Rocker Guard Bezel - M3 Inserts
<b>E</b>	Standard Bezel with recessed Off Side Flat Rocker - 6-32 Inserts
<b>F</b>	Standard Bezel with recessed Off Side Flat Rocker - M3 Inserts
<b>G</b>	Push to Reset Bezel - 6-32 Inserts
<b>H</b>	Push to Reset Bezel - M3 Inserts

**11 MAXIMUM APPLICATION RATING**  
**M** 80 DC

**12 AGENCY APPROVAL<sup>4</sup>**

<b>A</b>	Without Approval
<b>G</b>	UL489 Listed
<b>J</b>	UL489A Listed, TUV Certified
<b>T</b>	UL489A Listed
<b>7</b>	UL489A Listed, TUV Certified

- Notes:
- 1 Breakers with Terminal Codes 3 & 6 are supplied with bus bars connecting the Line and Load Terminals. For Terminal Code A, Line and Load Terminals must be connected to a copper bus bar having a minimum cross-section of 0.078 square inches. Terminal Code A is not available on the single pole unit.
  - 2 Ratings for 101 to 125 amps are available in 1-pole. Ratings from 110 to 200 amps are available in 2-pole. For ratings from 225-300 amps, specify 3-pole.
  - 3 1 pole only available with terminal codes 3 and 6.
  - 4 Agency codes K and 7 are not available with 1 pole. Agency code J is only available with 1 pole. Agency code G is only available in 2 and 3 pole. Circuit P, ratings 101-150 amps (2 pole) and ratings 151-250 amps (3 pole).



**1 SERIES**

**C**

**2 ACTUATOR <sup>1</sup>**

**Two Color Visi-Rocker**

**C** Indicate ON, vertical legend

**D** Indicate ON, horizontal legend

**F** Indicate OFF, vertical legend

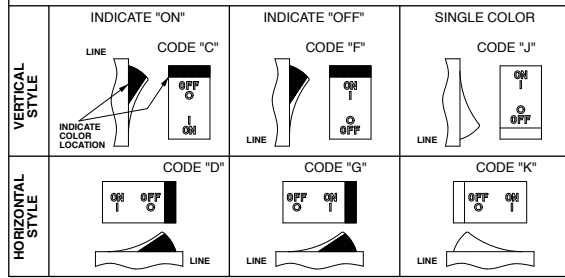
**G** Indicate OFF, horizontal legend

**Single color**

**J** Vertical legend

**K** Horizontal legend

**ROCKER STYLE DESCRIPTIONS**



**3 POLES <sup>1</sup>**

**1** One

**2** Two

**3** Three

**4 CIRCUIT**

**B** Series Trip (current)

**5 AUXILIARY / ALARM SWITCH <sup>2</sup>**

**0** without Aux Switch

**2** S.P.D.T., 0.110 Q.C. Term.

**3** S.P.D.T., 0.139 Solder Lug

**4** S.P.D.T., 0.110 Q.C. Term.

(Gold Contacts)

**6** S.P.S.T., 0.139 Solder Lug

**8** S.P.S.T., 0.187 Q.C. Term.

**9** S.P.D.T., 0.187 Q.C. Term.

**6 FREQUENCY & DELAY**

**11** DC Ultra Short

**12** DC Short

**14** DC Medium

**16** DC Long

**21** 50/60Hz Ultra Short

**22** 50/60Hz Short

**24** 50/60Hz Medium

**26** 50/60Hz Long

**42<sup>8</sup>** 50/60Hz Short, High-inrush

**44<sup>8</sup>** 50/60Hz Medium, High-inrush

**46<sup>8</sup>** 50/60Hz Long, High-inrush

**52<sup>8</sup>** DC Short, High-inrush

**54<sup>8</sup>** DC Medium, High-inrush

**56<sup>8</sup>** DC Long, High-inrush

**Notes:**

- 1 Multi-pole breakers have all breakers identical except when specifying Auxiliary switch and/or mixed poles, and have one rocker per breaker.
- 2 On multi-pole breakers, one auxiliary switch is supplied, mounted in the extreme right pole.
- 3 Available up to 50 amps maximum.
- 4 Current ratings 71 - 100 with VDE approvals are available up to two poles maximum.
- 5 Terminal Code 1 available to 60 amps maximum.
- 6 Terminal Codes 2, 4, 5 & C available to 50 amps maximum.
- 7 Terminal Codes 3, 6, 9 & A available to 100 amps maximum.
- 8 Terminal Codes 9 & C are not VDE approved.
- 9 Color shown is visi and legend with remainder of rocker black
- 10 Dual = ON-OFF/I-O legend on actuator.
- 11 VDE and TUV approval requires Dual (I-O, ON-OFF) markings on rocker.
- 12 Rockerguard available with all actuator codes.
- 13 Barriers supplied on multi-pole units only.
- 14 2 & 3 pole circuit breakers required for 120/240 AC rating.

**7 CURRENT RATING (AMPERES) <sup>4</sup>**

CODE	AMPERES	CODE	AMPERES	CODE	AMPERES	CODE	AMPERES
210	0.100	295	0.950	470	7.000	618	18.000
215	0.150	410	1.000	475	7.500	620	20.000
220	0.200	512	1.250	480	8.000	622	22.000
225	0.250	415	1.500	485	8.500	624	24.000
230	0.300	517	1.750	490	9.000	625	25.000
235	0.350	420	2.000	495	9.500	630	30.000
240	0.400	522	2.250	610	10.000	635	35.000
245	0.450	425	2.500	710	10.500	640	40.000
250	0.500	527	2.750	611	11.000	650	50.000
255	0.550	430	3.000	711	11.500	660	60.000
260	0.600	435	3.500	612	12.000	670	70.000
265	0.650	440	4.000	712	12.500	680	80.000
270	0.700	445	4.500	613	13.000	685	85.000
275	0.750	450	5.000	614	14.000	690	90.000
280	0.800	455	5.500	615	15.000	695	95.000
285	0.850	460	6.000	616	16.000	810	100.00
290	0.900	465	6.500	617	17.000		

**8 TERMINAL**

- |   |                                      |
|---|--------------------------------------|
| 1 <sup>5</sup> Stud 10-32                                 | 6 <sup>7</sup> Stud M6               |
| 2 <sup>6</sup> Screw 10-32 with saddle & washer clamps    | 9 <sup>7,8</sup> 7/16" Clip Terminal |
| 3 <sup>7</sup> Stud 1/4-20                                | A <sup>7,8</sup> Plug-In Stud        |
| 4 <sup>6</sup> Stud M5 x 0.8                              | C <sup>6,8</sup> 5/16" Clip Terminal |
| 5 <sup>6</sup> Screw M5 x 0.8 with saddle & washer clamps |                                      |

**9 ACTUATOR COLOR & LEGEND <sup>11</sup>**

Actuator or Visi-Color	Marking:	Marking Color:	Single Color	Rocker/Handle	Visi-Rocker
White	<b>B</b>	1	Black	Black	White
Black	<b>D</b>	2	White	White	n/a
Red	<b>G</b>	3	White	White	Red
Green	<b>J</b>	4	White	White	Green
Blue	<b>L</b>	5	White	White	Blue
Yellow	<b>N</b>	6	Black	Black	Yellow
Gray	<b>Q</b>	7	Black	Black	Gray
Orange	<b>S</b>	8	Black	Black	Orange

**10 MOUNTING / BARRIERS <sup>12</sup>**

	Standard Rocker Bezel Threaded Insert, 2 per pole	BARRIERS <sup>13</sup>
<b>A</b>	6-32 X 0.195 inches	yes
<b>C</b>	ISO M3 x 5mm	yes
	Rockerguard Bezel Threaded Insert, 2 per pole	
<b>B</b>	6-32 x 0.195 inches	yes
<b>D</b>	ISO M3 x 5mm	yes

**11 MAXIMUM APPLICATION RATING**

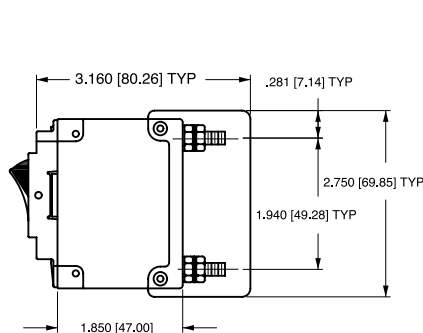
- B** 125 DC
- C** 120/240 AC <sup>14</sup>
- D** 240 AC
- F** 277 AC
- K** 120 AC
- M** 80 DC

**12 AGENCY APPROVAL**

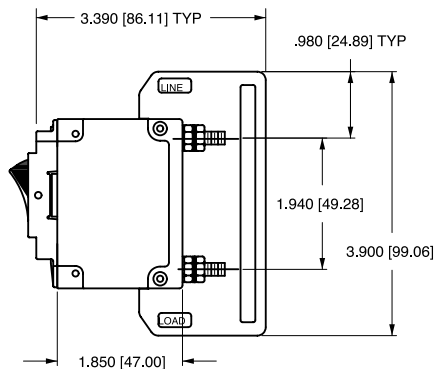
- A** without approvals
- F** UL 489 Listed, CSA Certified, & VDE Certified
- G** UL 489 Listed & CSA Certified
- J** UL489 Listed, CSA Certified & TUV Certified

## Circuit & Terminal Diagrams: in. [mm]

CIRCUIT BREAKER PROFILE	CIRCUIT SCHEMATIC		CIRCUIT CODE	AUX SWITCH CODE	CIRCUIT SCHEMATIC		CIRCUIT CODE	AUX SWITCH CODE
	ANSI	IEC			ANSI	IEC		
<p>SERIES TRIP (2 TERM'S.)</p>	<p>SWITCH ONLY (NO COIL)</p>		A	0	<p>SWITCH TRIP</p>		BC	0
<p>SERIES TRIP W/AUX. SWITCH (5 TERM'S.)</p>	<p>SWITCH ONLY (NO COIL) WITH AUXILIARY SWITCH</p>		A	2 3 4	<p>SERIES TRIP WITH AUXILIARY SWITCH</p>		BC	2 3 4
<p>SHUNT TRIP (3 TERM'S.)</p>	<p>SHUNT TRIP</p>		DE	0	<p>DUAL COIL; SERIES TRIP CURRENT COIL, SHUNT TRIP VOLTAGE COIL</p>		H	0
<p>SHUNT TRIP (4 TERM'S.)</p>	<p>RELAY TRIP</p>		FG	0	<p>DUAL COIL; SERIES TRIP CURRENT COIL, RELAY TRIP VOLTAGE COIL</p>		K	0



BARRIER FOR  
UL-RECOGNIZED MULTI-POLE  
BREAKERS



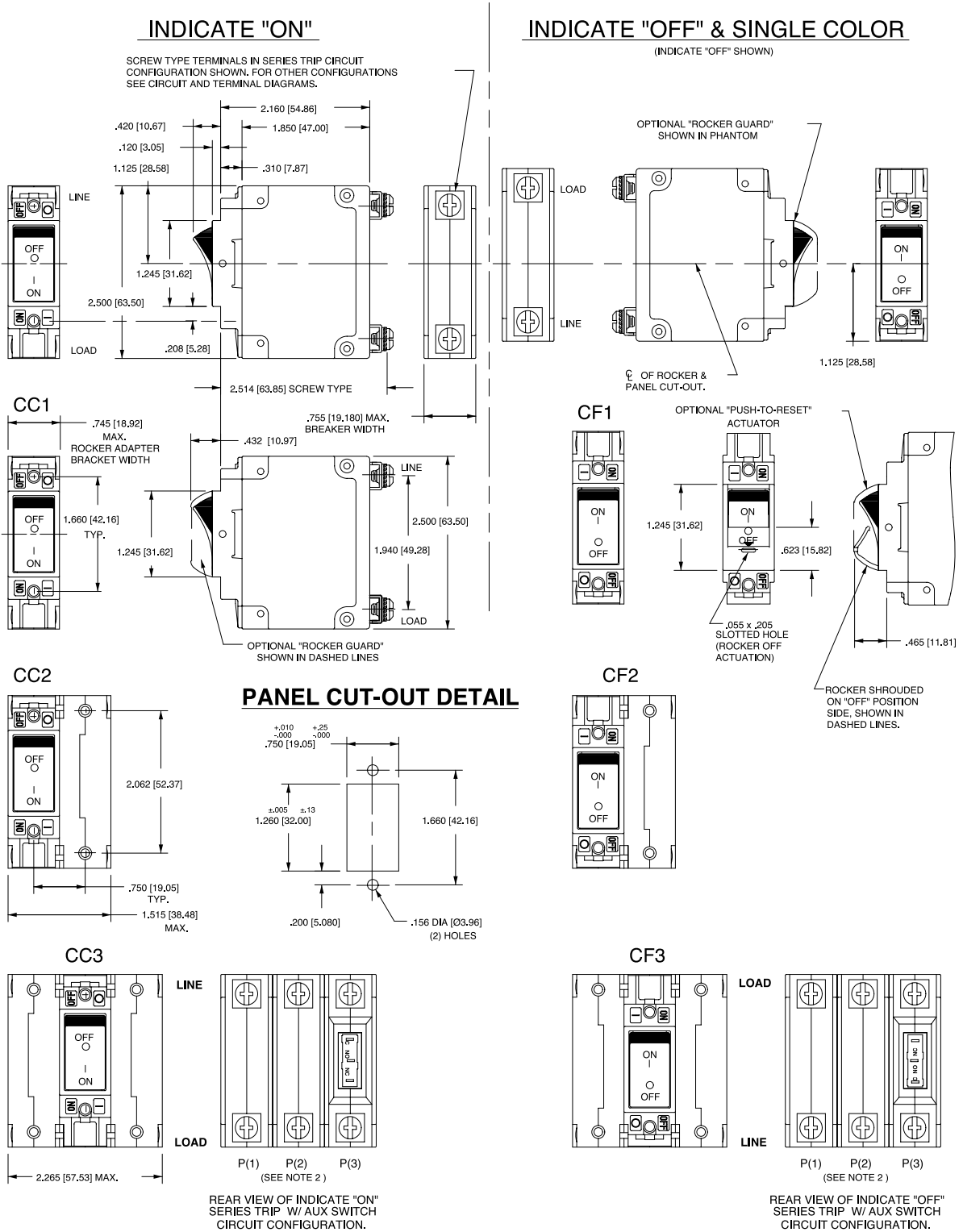
BARRIER FOR  
UL-489 LISTED MULTI-POLE  
BREAKERS

**Notes:**

- 1 All dimensions are in inches [millimeters].
- 2 Tolerance  $\pm .020$  [.51] unless otherwise specified.
- 3 Schematic shown represents current trip circuit.

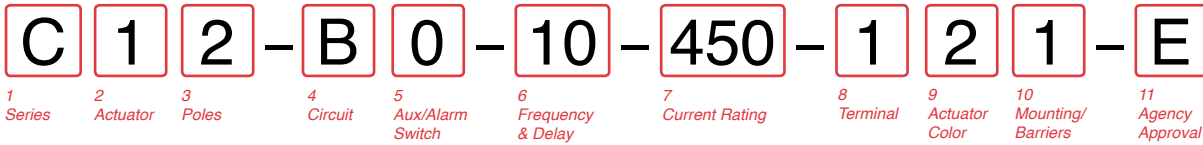


## Dimensional Specifications: in. [mm]



**Notes:**

- 1 Dimensions apply to all variations shown. Notice that circuit breaker line and load terminal orientation on indicate OFF is opposite of indicate ON.
- 2 For pole orientation with horizontal legend, rotate front view clockwise 90°.
- 3 All dimensions are in inches [millimeters].
- 4 Tolerance ±.020 [5.1] unless otherwise specified.



**1 SERIES**  
**C**

**2 ACTUATOR 1**  
**Two Color Visi-Rocker**

- Indicate OFF, vertical legend
- Indicate OFF, horizontal legend

**Single color**

- Vertical legend
- Horizontal legend

**Push-To-Reset, Visi-Rocker**

- Indicate OFF, vertical legend
- Indicate OFF, horizontal legend

**Push-To-Reset, Single color**

- Vertical legend
- Horizontal legend

**ROCKER STYLE DESCRIPTIONS**

	INDICATE "OFF"	SINGLE COLOR
VERTICAL STYLE		
HORIZONTAL STYLE		

**3 POLES 2**

**1** One      **2** Two      **3** Three

**4 CIRCUIT**

<b>A</b> <sup>3</sup> Switch Only (No Coil)	<b>F</b> <sup>4</sup> Relay Trip (Current)
<b>B</b> Series Trip (Current)	<b>G</b> <sup>4</sup> Relay Trip (Voltage)
<b>C</b> Series Trip (Voltage)	<b>H</b> <sup>4,5</sup> Dual Coil with Shunt Trip Voltage Coil
<b>D</b> <sup>4</sup> Shunt Trip (Current)	<b>K</b> <sup>4,5</sup> Dual Coil with Relay Trip Voltage Coil
<b>E</b> <sup>4</sup> Shunt Trip (Voltage)	

**5 AUXILIARY / ALARM SWITCH 6**

<b>0</b> without Aux Switch	<b>6</b> S.P.D.T., 0.139 Solder Lug
<b>2</b> S.P.D.T., 0.110 Q.C. Term.	<b>8</b> S.P.S.T., 0.187 Q.C. Term.
<b>3</b> S.P.D.T., 0.139 Solder Lug	<b>9</b> S.P.D.T., 0.187 Q.C. Term.
<b>4</b> S.P.D.T., 0.110 Q.C. Term. (Gold Contacts)	

**6 FREQUENCY & DELAY**

<b>03</b> DC 50/60Hz, Switch Only	<b>30</b> DC 50/60Hz Instantaneous
<b>10</b> <sup>7</sup> DC Instantaneous	<b>31</b> DC 50/60Hz Ultra Short
<b>11</b> DC Ultra Short	<b>32</b> DC 50/60Hz Short
<b>12</b> DC Short	<b>34</b> DC 50/60Hz Medium
<b>14</b> DC Medium	<b>36</b> DC 50/60Hz Long
<b>16</b> DC Long	<b>42</b> <sup>8</sup> 50/60Hz Short, High-inrush
<b>20</b> <sup>7</sup> 50/60Hz Instantaneous	<b>44</b> <sup>8</sup> 50/60Hz Medium, High-inrush
<b>21</b> 50/60Hz Ultra Short	<b>46</b> <sup>8</sup> 50/60Hz Long, High-inrush
<b>22</b> 50/60Hz Short	<b>52</b> <sup>8</sup> DC Short, High-inrush
<b>24</b> 50/60Hz Medium	<b>54</b> <sup>8</sup> DC Medium, High-inrush
<b>26</b> 50/60Hz Long	<b>56</b> <sup>8</sup> DC Long, High-inrush

Notes:

- Push-to-reset actuators have OFF portion of rocker shrouded.
- Multi-pole breakers have all poles identical except when specifying Auxiliary switch and/or mixed poles, and have one rocker per breaker. Rocker location as viewed from front panel: 2 pole – left pole; 3 pole – center pole.
- Switch Only circuits, rated up to 50 amps and 3 poles, and only available with VDE Certification when tied to a protected pole (Circuit Code B, C, D or H.). For .02 to 30 amps, select Current Code 630. For 35 - 50 amps, select Current Code 650. For 55-70 amps, select Current Code 670. For 75-100 amps, select Current Code 810.
- Circuit Codes D,E,F,G,H & K available with Terminal Codes 1,2,4 & 5 only. Circuit Codes D,F,H & K available up to 50 amps maximum Current Rating.
- Consult factory for available Dual Coil options, as special catalog number is required. Dual Coil Voltage Coils with Shunt Trip Construction trip instantaneously on line voltage. Dual Coil Voltage Coils require 30VA minimum power to trip instantaneously and are rated for intermittent duty only.
- Auxiliary Switch available with Series Trip and Switch Only circuits. On multi-pole breakers, one auxiliary switch is supplied, mounted in the extreme right pole. Auxiliary switch codes 2, 3 & 4 are VDE approved.
- Voltage coils not rated for continuous duty. Available only with delay codes 10 and 20.
- Available with Circuit Codes B & D only, and up to 50 amps maximum.
- Current ratings 60-70 are available up to four poles maximum. Current ratings 71 - 100 are available up to two poles maximum.
- Terminal Code 1 available to 60 amps maximum.
- Terminal Codes 2,4,5 & C available to 50 amps maximum.
- Terminal Codes 3,6 & 9 available to 100 amps maximum.
- Terminal Code 7 available to 25 amps maximum.
- Terminal Code A available to 100 amps maximum.
- Terminal Codes 7, 9 & C are not VDE approved.
- Color shown is visi & legend with remainder of rocker black. Dual = ON-OFF/I-O legend.
- Legend on Push-to-reset bezel/shroud is white with single color actuator codes 7 & 8. Legend on Push-to-reset bezel/shroud matches visi-color of rocker with actuator codes 5 & 6.
- VDE/TUV approval requires Dual (I-O, ON-OFF) or I-O markings on rocker.
- VDE/TUV: 30 amps max.; UL/CSA: 50 amps max.; Available in 2 & 3 poles only and limited to AC Delays. "General Purpose amps" not rated for "full load amps" or to be used in applications with a motor.
- Recessed "OFF SIDE" available with actuator codes 1,2,3&4. Legends on rocker are available in ink stamping only.

**7 CURRENT RATING (AMPERES) 9**

CODE	AMPERES				
020	0.020	235	0.350	430	3.000
025	0.025	240	0.400	435	3.500
030	0.030	245	0.450	440	4.000
035	0.035	250	0.500	445	4.500
040	0.040	255	0.550	450	5.000
045	0.045	260	0.600	455	5.500
050	0.050	265	0.650	460	6.000
055	0.055	270	0.700	465	6.500
060	0.060	275	0.750	470	7.000
065	0.065	280	0.800	475	7.500
070	0.070	285	0.850	480	8.000
075	0.075	290	0.900	485	8.500
080	0.080	295	0.950	490	9.000
085	0.085	410	1.000	495	9.500
090	0.090	512	1.250	610	10.000
095	0.095	415	1.500	710	10.500
210	0.100	517	1.750	611	11.000
215	0.150	420	2.000	711	11.500
220	0.200	522	2.250	612	12.000
225	0.250	425	2.500	712	12.500
230	0.300	527	2.750	613	13.000

**OR VOLTAGE COIL (NORMAL RATED VOLTAGE) 7**

CODE	AMPERES				
A06	6 DC	A32	32 DC	J12	12 AC
A12	12 DC	A48	48 DC	J18	18 AC
A18	18 DC	A65	65 DC	J24	24 AC
A24	24 DC	J06	6 AC	J48	48 AC
				J65	65 AC
				K20	120 AC
				L40	240 AC

**8 TERMINAL**

<b>1</b> <sup>10</sup> Stud 10-32	<b>6</b> <sup>12</sup> Stud M6
<b>2</b> <sup>11</sup> Screw 10-32	<b>7</b> <sup>13</sup> 0.250 Double Quick Connect
<b>3</b> <sup>12</sup> Stud 1/4-20	<b>9</b> <sup>15</sup> 7/16" Clip Terminal
<b>4</b> <sup>11</sup> Stud M5 x 0.8	<b>A</b> <sup>14</sup> Plug-In Stud
<b>5</b> <sup>11</sup> Screw M5 x 0.8	<b>C</b> <sup>15</sup> 5/16" Clip Terminal

**9 ACTUATOR COLOR & LEGEND 16,17,18**

**Actuator or Visi-Color Marking:** \_\_\_\_\_ **Marking Color:** \_\_\_\_\_

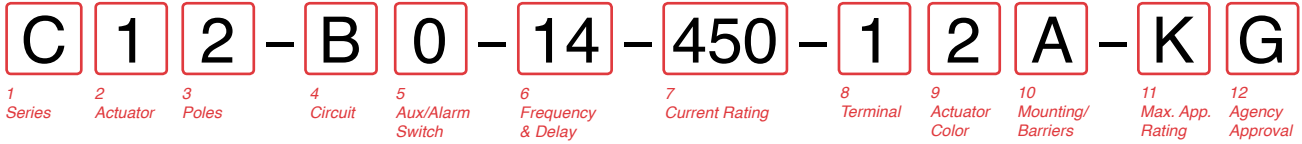
Color:	I-O ON-OFF	Dual/None	Rocker/Handle	Visi-Rocker
White	A B	1	Black	White
Black	C D	2	White	n/a
Red	F G	3	White	Red
Green	H J	4	White	Green
Blue	K L	5	White	Blue
Yellow	M N	6	Black	Yellow
Gray	P Q	7	Black	Gray
Orange	R S	8	Black	Orange

**10 MOUNTING / BARRIERS 1**

	STANDARD ROCKER BEZEL	BARRIERS	VOLTAGE
<b>1</b>	6-32 x 0.195 inches	no	<300
<b>2</b>	6-32 x 0.195 inches	yes	<300
<b>3</b> <sup>19</sup>	6-32 x 0.195 inches	yes	≥300
<b>4</b>	ISO M3 x 5mm	no	<300
<b>5</b>	ISO M3 x 5mm	yes	<300
<b>6</b> <sup>19</sup>	ISO M3 x 5mm	yes	≥300
<b>RECESSED OFF ROCKER</b>			
<b>7</b>	6-32 x 0.195 inches	no	<300
<b>8</b>	6-32 x 0.195 inches	yes	<300
<b>9</b>	6-32 x 0.195 inches	yes	≥300
<b>A</b>	ISO M3 x 5mm	no	<300
<b>C</b>	ISO M3 x 5mm	yes	<300
<b>E</b>	ISO M3 x 5mm	yes	≥300
<b>PUSH-TO-RESET BEZEL</b>			
<b>B</b>	6-32 x 0.195 inches	no	<300
<b>D</b>	6-32 x 0.195 inches	yes	<300
<b>F</b> <sup>19</sup>	6-32 x 0.195 inches	yes	≥300
<b>H</b>	ISO M3 x 5mm	no	<300
<b>J</b>	ISO M3 x 5mm	yes	<300
<b>M</b> <sup>19</sup>	ISO M3 x 5mm	yes	≥300

**11 AGENCY APPROVAL**

<b>C</b>	UL Recognized & CSA Accepted
<b>E</b>	TUV Certified, UL Recognized & CSA Accepted
<b>I</b>	UL Recognized STD 1077, UL Recognized 1500 (ignition protected), & CSA Accepted
<b>L</b>	UL489 Construction: UL Recognized & CSA Accepted
<b>R</b>	UL489 Construction: TUV Certified, UL Recognized & CSA Accepted



**1 SERIES**  
C

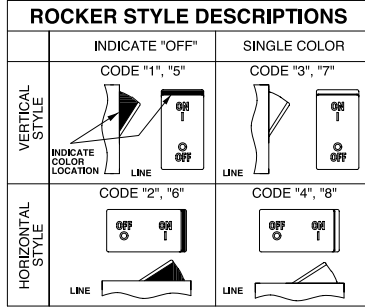
**2 ACTUATOR <sup>1</sup>**

**Two Color Visi-Rocker**

- 1 Indicate OFF, vertical legend
- 2 Indicate OFF, horizontal legend
- 3 Vertical legend
- 4 Horizontal legend

**Push-To-Reset, Visi-Rocker**

- 5 Indicate OFF, vertical legend
- 6 Indicate OFF, horizontal legend
- 7 Vertical legend
- 8 Horizontal legend



**3 POLES <sup>2</sup>**

- 1 One
- 2 Two
- 3 Three

**4 CIRCUIT**

- B Series Trip (current)

**5 AUXILIARY / ALARM SWITCH <sup>3</sup>**

- 0 without Aux Switch
- 2 S.P.D.T., 0.110 Q.C. Term.
- 3 S.P.D.T., 0.139 Solder Lug
- 4 S.P.D.T., 0.110 Q.C. Term. (Gold Contacts)
- 6 S.P.S.T., 0.139 Solder Lug
- 8 S.P.S.T., 0.187 Q.C. Term.
- 9 S.P.D.T., 0.187 Q.C. Term.

**6 FREQUENCY & DELAY**

- 11 DC Ultra Short
- 12 DC Short
- 14 DC Medium
- 16 DC Long
- 21 50/60Hz Ultra Short
- 22 50/60Hz Short
- 24 50/60Hz Medium
- 26 50/60Hz Long
- 42 50/60Hz Short, High-inrush
- 44 50/60Hz Medium, High-inrush
- 46 50/60Hz Long, High-inrush
- 52 DC Short, High-inrush
- 54 DC Medium, High-inrush
- 56 DC Long, High-inrush

Notes:

- 1 Push-to-reset actuators have OFF portion of rocker shrouded.
- 2 Multi-pole breakers have all breakers identical except when specifying Auxiliary switch and/or mixed poles, and have one rocker per breaker.
- 3 On multi-pole breakers, one auxiliary switch is supplied, mounted in the extreme right pole.
- 4 Available up to 50 amps maximum.
- 5 Current ratings 71 - 100 with VDE approvals are available up to two poles maximum.
- 6 Terminal Code 1 available to 60 amps maximum.
- 7 Terminal Codes 2, 4, 5 & C available to 50 amps maximum.
- 8 Terminal Codes 3, 6, 9 & A available to 100 amps maximum.
- 9 Terminal Codes 9 & C are not VDE approved.
- 10 Color shown is visi and legend with remainder of rocker black
- 11 Dual = ON-OFF/I-O legend on actuator.
- 12 TUV approval requires Dual (I-O, ON-OFF) markings on rocker.
- 13 Legend on push-to-reset bezel/shroud is white when single color rocker is ordered. Legend on push-to-reset bezel/shroud matches visi-color of rocker with actuator codes 5 & 6.
- 14 Recessed "OFF-SIDE" available with actuator codes 1, 2, 3, & 4. Legends on rocker are available in ink stamping only.
- 15 Barriers supplied on multi-pole units only.
- 16 2 & 3 pole circuit breakers required for 120/240 AC rating.

**7 CURRENT RATING (AMPERES) <sup>5</sup>**

CODE	AMPERES	CODE	AMPERES	CODE	AMPERES	CODE	AMPERES
210	0.100	295	0.950	470	7.000	618	18.000
215	0.150	410	1.000	475	7.500	620	20.000
220	0.200	512	1.250	480	8.000	622	22.000
225	0.250	415	1.500	485	8.500	624	24.000
230	0.300	517	1.750	490	9.000	625	25.000
235	0.350	420	2.000	495	9.500	630	30.000
240	0.400	522	2.250	610	10.000	635	35.000
245	0.450	425	2.500	710	10.500	640	40.000
250	0.500	527	2.750	611	11.000	650	50.000
255	0.550	430	3.000	711	11.500	660	60.000
260	0.600	435	3.500	612	12.000	670	70.000
265	0.650	440	4.000	712	12.500	680	80.000
270	0.700	445	4.500	613	13.000	685	85.000
275	0.750	450	5.000	614	14.000	690	90.000
280	0.800	455	5.500	615	15.000	695	95.000
285	0.850	460	6.000	616	16.000	810	100.00
290	0.900	465	6.500	617	17.000		

**8 TERMINAL**

- 1 <sup>6</sup> Stud 10-32
- 2 <sup>7</sup> Screw 10-32
- 3 <sup>8</sup> Stud 1/4-20
- 4 <sup>7</sup> Stud M5 x 0.8
- 5 <sup>7</sup> Screw M5 x 0.8
- 6 <sup>8</sup> Stud M6
- 9 <sup>8,9</sup> 7/16" Clip Terminal
- A <sup>8</sup> Plug-In Stud
- C <sup>7,9</sup> 5/16" Clip Terminal

**9 ACTUATOR COLOR & LEGEND <sup>10</sup>**

Actuator or Visi-Color	Marking:	Marking Color:	Single Color	Visi-Rocker
Color:	ON-OFF	Dual <sup>11,12</sup>	Rocker/Handle	
White	B	1	Black	White
Black	D	2	White	n/a
Red	G	3	White	Red
Green	J	4	White	Green
Blue	L	5	White	Blue
Yellow	N	6	Black	Yellow
Gray	Q	7	Black	Gray
Orange	S	8	Black	Orange

**10 MOUNTING / BARRIERS**

	STANDARD ROCKER BEZEL	BARRIERS <sup>15</sup>
	Threaded Insert, 2 per pole	
A	6-32 X 0.195 inches	yes
C	ISO M3 x 5mm	yes
	RECESSED OFF ROCKER <sup>14</sup>	
	Threaded Insert, 2 per pole	
E	6-32 x 0.195 inches	yes
F	ISO M3 x 5mm	yes
	PUSH-TO-RESET BEZEL <sup>13</sup>	
	Threaded Insert, 2 per pole	
B	6-32 x 0.195 inches	yes
D	ISO M3 x 5mm	yes

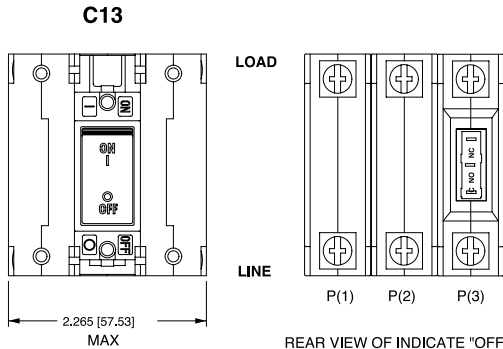
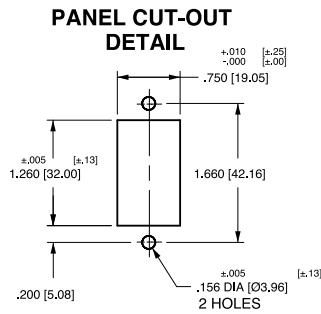
**11 MAXIMUM APPLICATION RATING**

- B 125 DC
- C 120/240 AC <sup>16</sup>
- D 240 AC
- F 277 AC
- K 120 AC
- M 80 DC

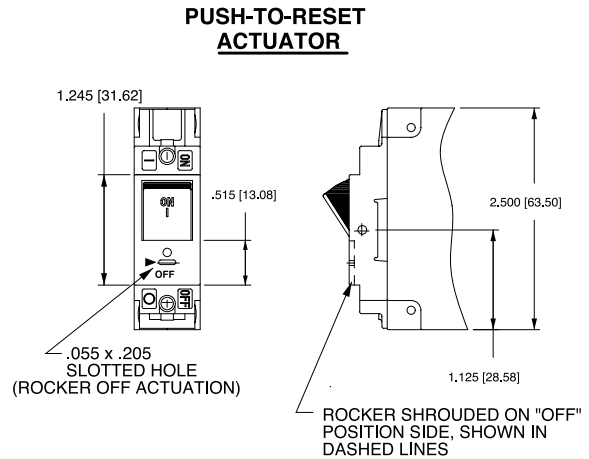
**12 AGENCY APPROVAL <sup>12</sup>**

- A without approvals
- G UL 489 Listed & CSA Certified
- J UL489 Listed, CSA Certified & TUV Certified

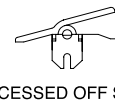
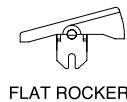
## Dimensional Specifications: in. [mm]



REAR VIEW OF INDICATE "OFF" SERIES TRIP W/ AUX SWITCH CIRCUIT CONFIGURATION.



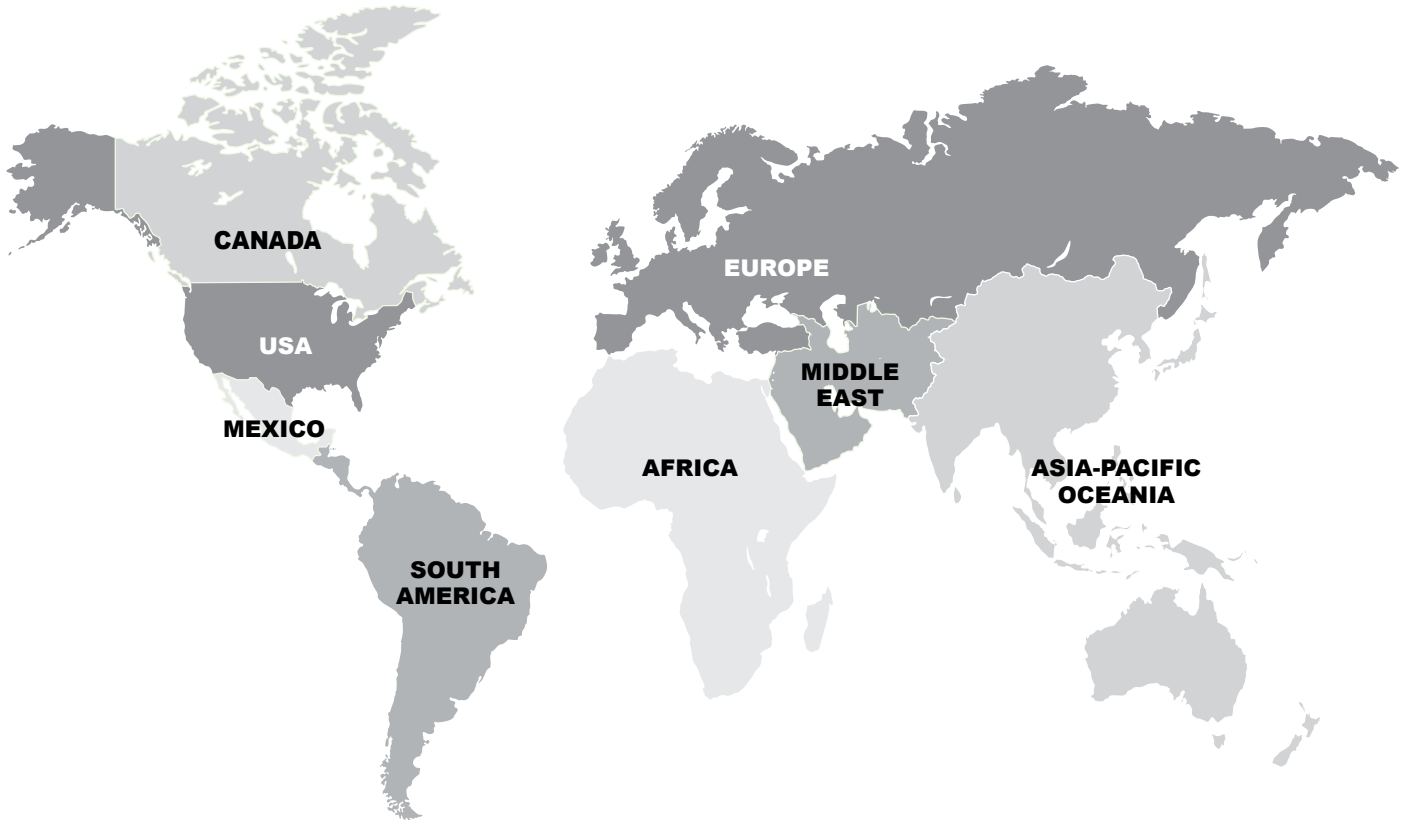
**ACTUATOR SIDE VIEW**  
(SURFACE CONTOURS)



- Notes:
- 1 For pole orientation with horizontal legend, rotate front view clockwise 90°.
  - 2 All dimensions are in inches [millimeters].
  - 3 Tolerance ±.020 [.51] unless otherwise specified.

## Authorized Sales Representatives and Distributors

Click on a region of the map below to find your local representatives and distributors or visit [www.carlingtech.com/findarep](http://www.carlingtech.com/findarep).



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Founded in 1920, Carling Technologies is a leading manufacturer of electrical and electronic switches and assemblies, circuit breakers, electronic controls, power distribution units, and multiplexed power distribution systems. With four ISO registered manufacturing facilities and technical sales offices worldwide, Carling Technologies Sales, Service and Engineering teams do much more than manufacture electrical components, they engineer powerful solutions! To learn more about Carling please visit [www.carlingtech.com/company-profile](http://www.carlingtech.com/company-profile).

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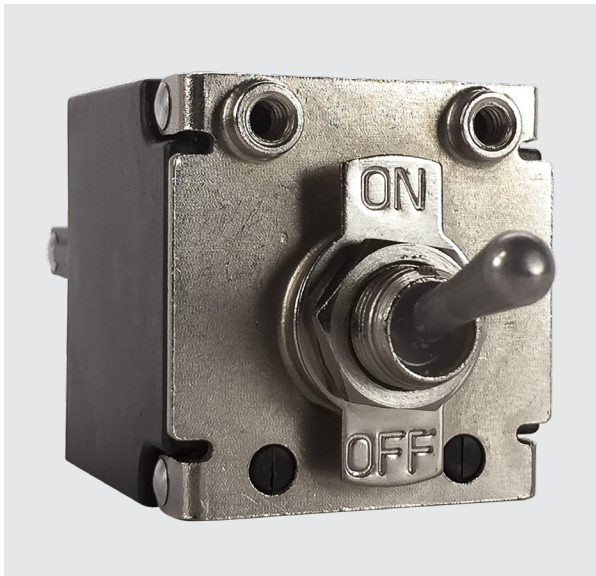
# MS-Series

## CIRCUIT BREAKER

Designed and tested to operate flawlessly in the harshest of environments, the MS-Series sealed toggle circuit breaker is ideally suited for COTS (commercial off the shelf) military applications. Our space saving envelope meets IP68 requirements and features a durable metal and sealed mounting bushing with MIL-PRF-39019F ingress protection when mounted in a panel.

This class-leading, affordable circuit breaker was designed in accordance with the requirements of MIL-PRF-55629 and MIL STD 202, making it the best choice for those applications where shock, vibration, moisture resistance, salt spray and thermal shock are of the utmost consideration. The MS-Series' compact size and reliability make it ideal for crucial communication equipment and other mission critical components.

1-3 poles; 0.20-30 amps; 65VDC, 240VAC, 120/240VAC; UL, CUL recognized & TUV certified.



### Resources:

[Configure a Complete Part](#)

[Download CAD & Sales Drawing >](#)

[Watch Product Video](#)



### Product Highlights:

- Sealed Toggle Actuator
- MIL-PRF-39019F Ingress Protection
- MIL-PRF-55629 and MIL STD 202 Compliant
- Compact Design

### Typical Applications:

- COTS Military
  - Communication Equipment
- Off Highway Equipment
  - Construction, Mining & Agriculture
- Generators & Power Supplies
- Harsh Environment Applications



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# MS-Series

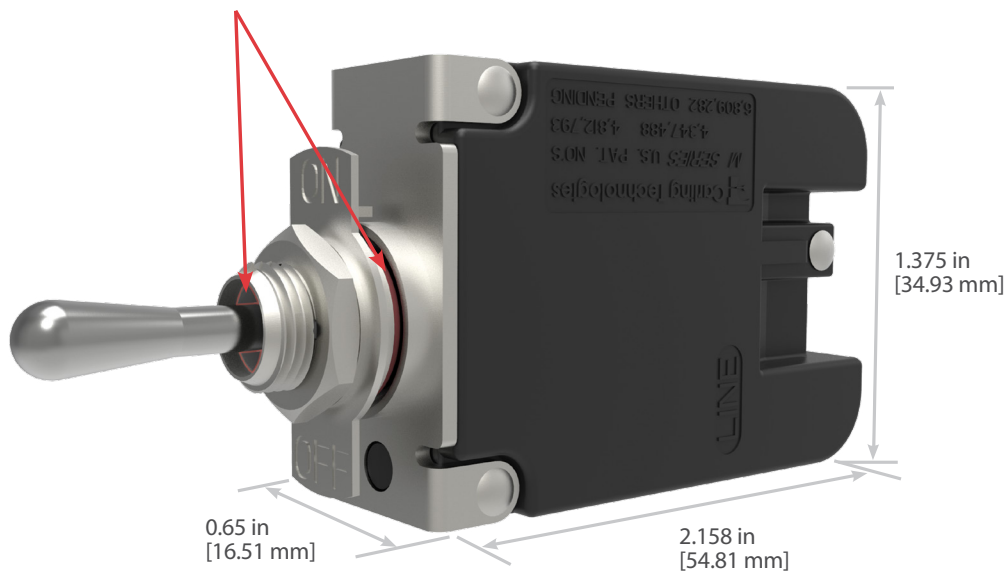
## DESIGN FEATURES

### SEALS

IP68 Designed and tested to comply with MIL-PRF-39019F Ingress Protection

### COMPACT SIZE

Max performance in compact size: 0.20-30 Amps; 65 VDC, 240 VAC 120/240 VAC

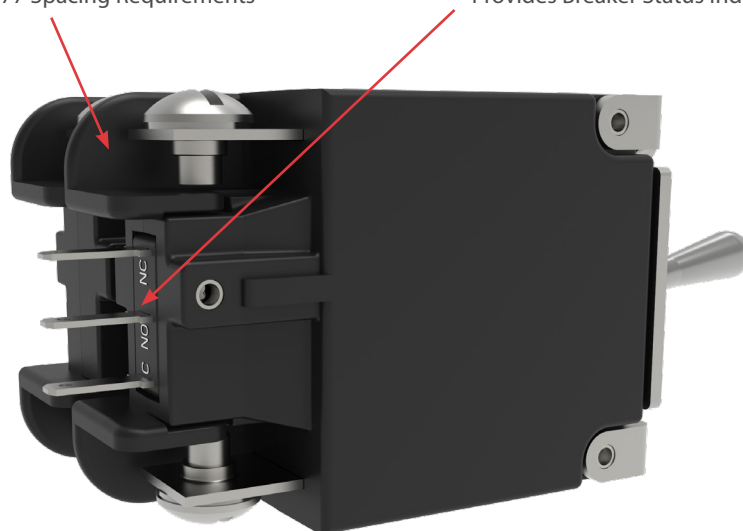


### TERMINAL BARRIERS

Meet UL 1077 Spacing Requirements

### OPTIONAL AUXILIARY SWITCH

Provides Breaker Status Indication





## Electrical Tables

**Table A:** Lists UL & cUL Configuration & Performance Capabilities

MS-SERIES TABLE A: COMPONENT SUPPLEMENTARY PROTECTORS										
Circuit Configuration	Voltage			Current Rating		Poles Breaking	Short Circuit Capacity (Amps) <sup>1</sup>			
	Max Rating	Frequency	Phase	General Purpose Amps	UL / cUL		TUV			
					U1		U3	I <sub>nc</sub> <sup>2</sup>	I <sub>cn</sub>	
Series	65	DC	---	0.02 - 30	1	3000	300	3000	300	
	240	50 / 60	1	0.02 - 30	1, 2	2000	300	3000	300	
	120 / 240	50 / 60	1	0.02 - 30	2 or 3	2000	300	3000	300	

**Notes:**

1 Short Circuit Current Rating (SC) Codes — The short-circuit current rating, followed by a letter and number designating the test conditions and any calibration following the short-circuit test as defined below:

U - Indicates that the short circuit test was performed without a series fuse

1 - Indicates that a re-calibration was not performed as part of the short circuit testing

3 - Indicates that the protector has proven to be suitable for further use after the short circuit test

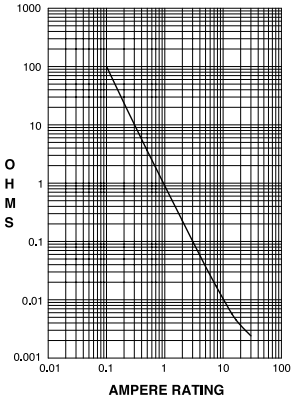
Re-calibration, dielectric strength and voltage withstand tests were performed after the short circuit testing

2 - Inc rating obtained with a 50 Amp type gL fuse

### Electrical

Current Ratings .02 - 30 Amps  
 Voltage Rating 65VDC, 240VAC, 120/240VAC  
 Short Circuit Rating See Table A  
 Auxiliary Switch Rating 5A @ 125VAC, 3A @ 32VDC, .1A @ 125VAC, 32VDC  
 Dielectric Strength UL,CSA 1500V, 50/60 Hz for one minute between all electrically isolated terminals.  
 Insulation Resistance Minimum of 100 Megohms @ 500VDC  
 Time Delay See delay curve  
 Impedance

RESISTANCE, IMPEDANCE VALUES from Line to Load Terminals (Values Based on Series Trip Circuit Breaker)




CURRENT (AMPS)	TOLERANCE (%)
0.20 - 30.0	25

### Physical

Number of Poles 1-3 poles  
 Weight Approximately 1.8 oz (50 G) per pole  
 Dimensions See form & fit drawing

### Agency Certifications

 UL Standard 1077  
 CUL Standard C22.2

 TUV Certified

### Mechanical

Current Ratings 10,000 On-Off operations @ 6 per minute with rated current and voltage.  
 Trip Free Trips on short circuit and overload, even when the actuator is forcibly held in the "On" position.  
 Trip Indication The operating handle moves positively to the "Off" position when a short circuit or overload causes the circuit breaker to trip.

### Environmental

Designed in accordance with requirements of specification MIL PRF-55629 & MIL-STD-202G as follows:  
 Shock Withstands 100G's, 6ms, saw tooth while carrying rated current per Method 213, Condition I. Instantaneous curves tested at 80% of rated current.  
 Vibration Withstands 0.060" excursion from 10-55 Hz, and 10G's 55-500 Hz, at rated current per Method 204C, Test Condition A. Instantaneous curves tested at 80% of rated current.  
 Salt Spray Method 101, Condition A (90-95% RH @ 5% NaCl Solution, 96 hrs)  
 Moisture Resistance Method 106G  
 Thermal Shock Method 107D, Condition A (Five cycles @ -55°C to +25°C to +85°C to +25°C)  
 Operating Temperature -40°C to +85°C  
 Ingress Protection Level MIL-PRF-55629C when mounted in panel.  
 Other Materials used in this product are non-nutrient to fungus growth.

\*Manufacturer reserves the right to change product specification without prior notice.



**1 SERIES**  
M

**2 ACTUATOR**  
S Sealed Toggle

**3 POLES**  
1 One                      2 Two                      3 Three

**4 CIRCUIT**  
A Switch Only (no coil) <sup>1,2</sup>  
B Series Trip (current)  
M Series Trip (current) Aux switch .110 QC x 0.20 QC (silver contacts)  
9 Series Trip (current) Aux switch .110 QC x 0.20 QC (gold contacts)

**5 FREQUENCY & DELAY**

03 DC, 50/60Hz, Switch Only <sup>1</sup>	32 DC, 50/60Hz Short
10 DC, Instantaneous	34 DC, 50/60Hz Medium
12 DC, Short	62 50/60Hz Short, High-inrush <sup>4</sup>
14 DC, Medium	64 50/60Hz Medium, High-inrush <sup>4</sup>
20 50/60Hz Instantaneous	72 DC, Short, High-inrush <sup>4</sup>
22 50/60Hz Short	74 DC, Medium, High-inrush <sup>4</sup>
24 50/60Hz Medium	92 DC, 50/60Hz Short, High-inrush <sup>4</sup>
30 DC, 50/60Hz Instantaneous	94 DC, 50/60Hz Medium, High-inrush <sup>4</sup>

**6 CURRENT RATING (AMPERES)**

CODE	AMPERES				
220	0.200	295	0.950	460	6.00
225	0.250	410	1.00	465	6.50
230	0.300	512	1.25	470	7.00
235	0.350	415	1.50	475	7.50
240	0.400	517	1.75	480	8.00
245	0.450	420	2.00	485	8.50
250	0.500	522	2.25	490	9.00
255	0.550	425	2.50	495	9.50
260	0.600	527	2.75	610	10.00
265	0.650	430	3.00	710	10.50
270	0.700	435	3.50	611	11.00
275	0.750	440	4.00	711	11.50
280	0.800	445	4.50	612	12.00
285	0.850	450	5.00	712	12.50
290	0.900	455	5.50	613	13.00

**7 TERMINAL**  
1 Push-On 0.250 Tab (QC)  
2 Screw 8-32 (Upturned Lugs)  
3 Screw 8-32 (Bus Type)  
C Screw Terminal M4 (Upturned Lugs)  
E Screw Terminal M4 (Bus Type)  
L Solder Lug

**8 ACTUATOR & MARKING COLOR**  
1 Dull Metallic

**9 FRONT PANEL HARDWARE**  
A No Outer Panel Hardware  
B Hex Nut, Nickel Plated  
C Hex Nut, Nickel Plated with Locking Ring  
F Panel Dress Nut, Nickel Plated  
G Panel Dress Nut, Nickel Plated with Locking Ring

**10 LEGEND PLATE**  
A No Legend Plate  
B On-Off Vertical  
C On-Off Horizontal  
D I-O Vertical  
E I-O Horizontal  
F Dual Vertical  
G Dual Horizontal

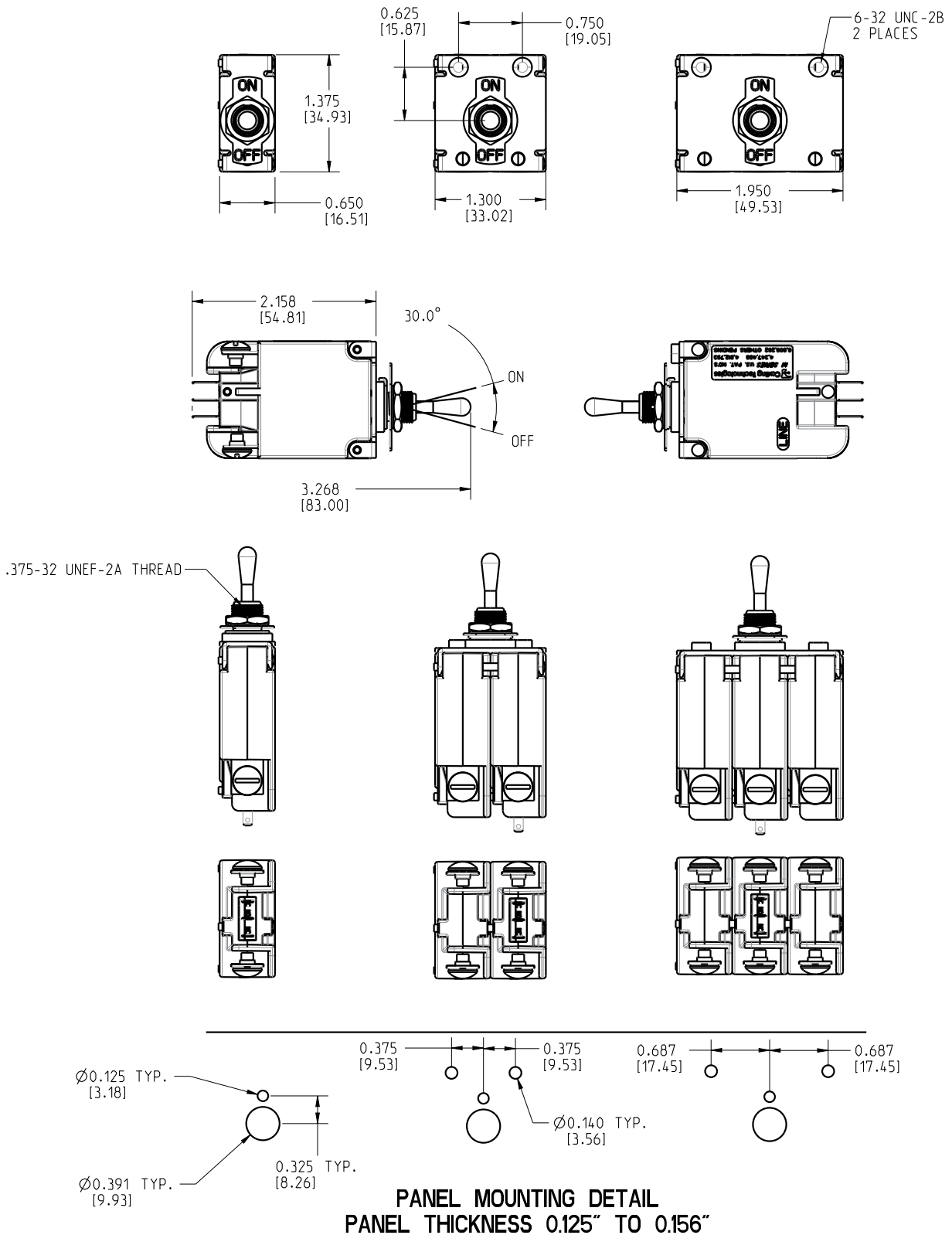
**11 BUSHING COLOR**  
A Nickel Plated / Multipole Version

**12 VOLTAGE CODE**  
0A 65 VDC  
0D 240 VAC  
0C 120/240 VAC <sup>3</sup>  
0N 65 VDC / 120/240 VAC <sup>3</sup>  
17 65 VDC / 240 VAC

**13 AGENCY APPROVAL**  
A Without approvals  
B UL Recognized  
C UL & cUL Recognized  
E TUV Certified, UL Recognized, CUL Recognized  
U TUV Certified

Notes:  
1 Series code "A" only available with delay code "03"  
2 Only available when tied to a protected pole  
3 Requires a 2 or 3 pole device  
4 Only available without agency approvals (Approval Code A)

## Dimensional Specifications: in. [mm]



- Notes:
- 1 All dimensions are in inches [millimeters].
  - 2 Tolerance  $\pm 0.020$  [51] unless otherwise specified.

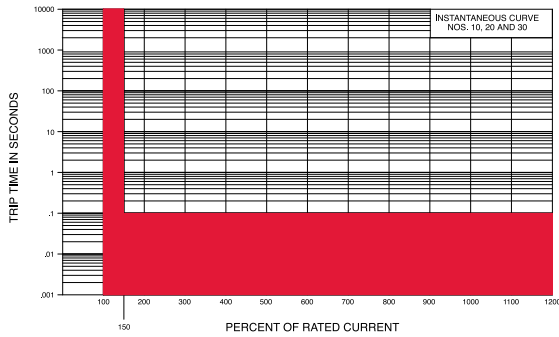
M, MS-SERIES TIME DELAY VALUES										
TRIP TIME SECONDS	PERCENT OF RATED CURRENT									
	Delay	100%	135%	150%	200%	400%	600%	800%	1000%	1200%
10, 20, 30	No Trip	May Trip	.100 Max	.100 Max	.100 Max	.100 Max	.100 Max	.100 Max	.100 Max	.100 Max
12, 22, 32, 62, 72, 92	No Trip	.300 - 7.00	.200 - 5.00	.100 - 2.00	.030 - .500	.008 - .300	.006 - .150	.005 - .100	.005 - .100	.005 - .100
14, 24, 34, 64, 74, 94	No Trip	3.00 - 70.0	2.00 - 40.0	1.00 - 15.0	.100 - 4.00	.008 - 2.00	.006 - .800	.005 - .350	.005 - .160	.005 - .160

Notes:

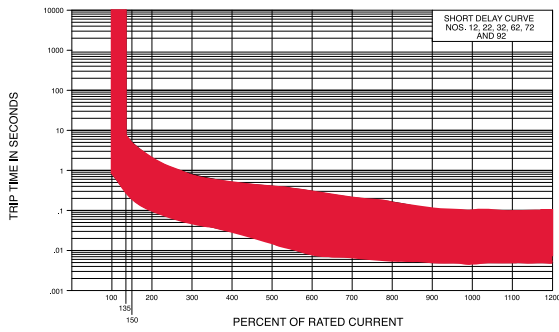
- 1 Delay Curves 12,14, 22, 24, 32, 34, 62, 64, 72, 74, 92, 94: Breakers to hold 100% and must trip at 135% of rated current and greater within the time limit shown in this curve.
- 2 Delay Curves 10, 20, 30: Breakers to hold 100% and must trip at 150% of rated current and greater within the time limit shown in this curve.
- 3 All Curves: Curve data shown represents breaker response at ambient temperature of 77°F (25°C) with no preloading. Breakers are mounted in standard wall-mount position.
- 4 The minimum inrush pulse tolerance handling capability is 12 times the rated current on standard delays and 18 times the rated current on high inrush delays. These values are based on a 60 Hz 1/2 cycle, 8.33 ms pulse. High inrush delays should be specified for applications with high initial surge currents of short duration, such as switching power supplies, highly capacitive loads and transformer loads.

## Dual Rated AC/DC

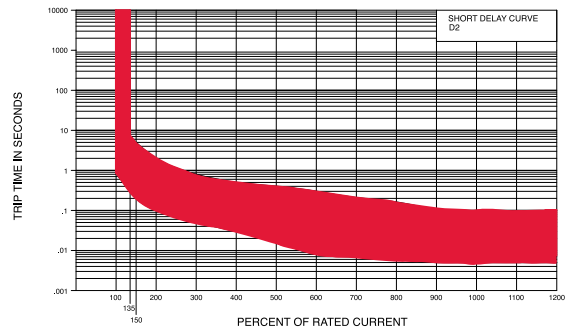
### Instantaneous



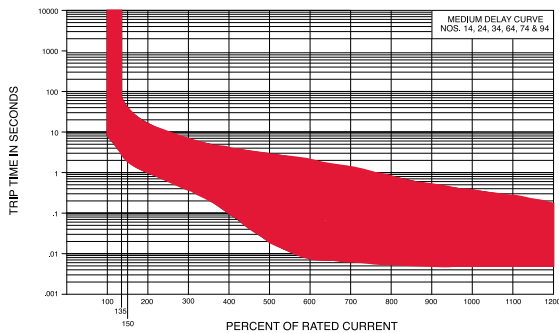
### Short



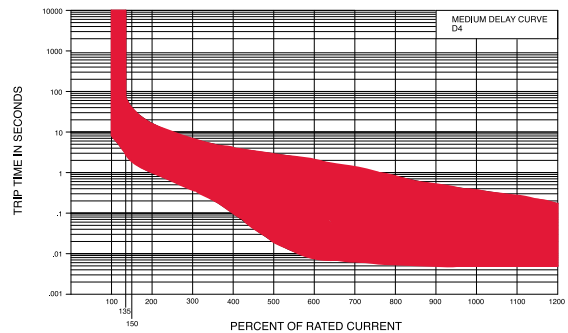
### Short D2



### Medium



### Medium D4



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