

# H-Series

## CIRCUIT BREAKER

The H-Series hydraulic-magnetic circuit breaker provides maximum and dependable circuit protection, while providing a cost effective, compact solution. By meeting the IEC spacing requirements, the H-Series is the ideal choice for international market applications. It also features a “trip-free” mechanism, which will open the contacts when a fault condition occurs, even if the handle is held in the ON position.

1-3 poles; 1-35 amps; 65VDC, 80VDC, 250VAC; UL recognized, CSA accepted, TUV & CCC certified.



### Resources:

[Configure a Complete Part](#)

[Download CAD & Sales Drawing >](#)

### Product Highlights:

- Choice of actuator styles
- UL1077, CCC, CSA, C22.2 and EN60934 approvals
- Compact size
- Temperature stable operation -40° C to +80° C
- Choice of terminals, including PCB
- Single or multi-pole configurations

### Typical Applications:

- Telecom / Datacom
- Marine



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## Electrical Tables

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

H-SERIES: COMPONENT SUPPLEMENTARY PROTECTORS										
Circuit Configuration	Voltage			Current Rating	Minimum Poles	Short Circuit Capacity (Amps)			Application Codes	
	Max Rating	Frequency	Phase	Full Load Amps		UL	CSA	TUV	UL	CSA
						Without Backup Fuse	Without Backup Fuse	(Icn) Without Backup Fuse		
Series	65	DC	---	1 - 25	1	3000	3000	3000	TC1, OL1, U1	TC1, OL1, U1
	65	DC	---	26 - 35	1	3000	3000	3000	TC1, OL1, U3	TC1, OL1, U3
	80	DC	---	1 - 25	1	1000	1000	1000	TC1, OL1, U1	TC1, OL1, U1
	80 <sup>1</sup>	DC	---	26 - 35	1	1000	1000	1000	TC1, OL1, U3	TC1, OL1, U3
	250	50 / 60	1	1 - 35	1	1500	1500	500	TC1, OL1, U1	TC1, OL1, U3
	250	50 / 60	1	1 - 35	2	1500	1500	500	TC1, OL1, U3	TC1, OL1, U3
	250	50 / 60	3	1 - 35	3	1500	1500	500	TC1, OL0, U3	TC1, OL0, U3

Notes:

<sup>1</sup> Polarity Sensitive

## Electrical

Maximum Voltage	250VAC 50/60Hz 80 VDC
Current Ratings	Standard current coils: 1.00, 2.50, 5.00, 7.50, 10.0, 15.0, 20.0, 25.0, 30.0, 32.0, 35.0 SPDT: 10.1A-250VAC, 1.0A-65VDC/0.5A-80VDC, 0.1A-125VAC (with gold contacts)
Auxiliary Switch Rating	1.0A-65VDC/0.5A-80VDC, 0.1A-125VAC (with gold contacts)

## Mechanical

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

Number of Poles	1-3
Weight	Approx. 48 grams/pole (1.7 oz)
Internal Circuit Config.	Series and Switch Only (with or without auxiliary switch)

## Agency Approvals

UL Recognized under the Component Recognition Program as Protectors, Supplementary (Guide QVNU2 File E75596)  
UL standard 1077

CCC certified, Certificate No. 2010010307447291

CSA Accepted Supplementary Protector  
CSA standard C22.2 No. 235

TUV certified to EN60934, Certificate No. R50204086

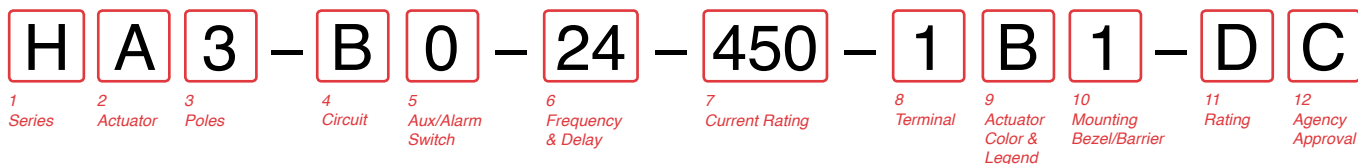
## Typical Protector Resistance

DCR and Impedance values are based on measurements by the voltmeter ammeter method. Rated current is applied for one hour at a voltage not less than 20 volts. Ambient temperature: 25 °C; Tolerance: Below 10 amps +/- 25%; Above 10 amps +/-35%

## Impedance Chart

Current Rating (Amps)	Series	
	DC-Ohms	50/60Hz-Ohms
1	0.85	0.87
2.5	0.13	0.15
5	0.035	0.036
7.5	0.018	0.019
10	0.010	0.011
15	0.006	0.0061
20	0.005	0.0051
25	0.003	0.0035
30	0.0025	0.0026
35	0.0021	0.0022

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



**1 SERIES**  
**H**

**2 ACTUATOR 1**  
**A** Handle, one per pole                      **B** Handle, one per unit

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

**4 CIRCUIT**  
**A** Switch Only (no coil)                      **C 4** Series Trip (voltage)  
**B** Series Trip (current)                      **G 4** Relay Trip (voltage)

**5 AUXILIARY / ALARM SWITCH**  
**0** without Aux Switch                      **3 3** 0.110 Q.C. term with gold contacts  
**1 3** 0.110 Q.C. term                      **4 3** 0.110 PC term  
**2 3** 0.110 Solder Lug

**6 FREQUENCY & DELAY**  
**03 3** DC 50/60HZ, Switch Only                      **30** DC, 50/60Hz, Instantaneous  
**10** DC, Instantaneous                      **31** DC, 50/60Hz, Ultra Short  
**11** DC, Ultra Short                      **32** DC, 50/60Hz, Short  
**12** DC, Short                      **34** DC, 50/60Hz, Medium  
**14** DC, Medium                      **36** DC, 50/60Hz, Long  
**16** DC, Long                      **42 4** 50/60 Hz High-inrush Short  
**20** 50/60 Hz Instantaneous                      **44 4** 50/60 Hz High-inrush Medium  
**21** 50/60 Ultra Short                      **46 4** 50/60 Hz High-inrush Long  
**22** 50/60 Hz Short                      **52 4** DC High-inrush Short  
**24** 50/60 Hz Medium                      **54 4** DC High-inrush Medium  
**26** 50/60 Hz Long                      **56 4** DC High-inrush Long

**7 CURRENT RATING (AMPERES) 5**

CODE	AMPERES						
410	1.00	445	4.50	610	10.00	618	18.00
512	1.25	450	5.00	710	10.50	620	20.00
415	1.50	455	5.50	611	11.00	622	22.00
517	1.75	460	6.00	711	11.50	624	24.00
420	2.00	465	6.50	612	12.00	625	25.00
522	2.25	470	7.00	712	12.50	630	30.00
425	2.50	475	7.50	613	13.00	632	32.00
527	2.75	480	8.00	614	14.00	635	35.00
430	3.00	485	8.50	615	15.00		
435	3.50	490	9.00	616	16.00		
440	4.00	495	9.50	617	17.00		

**VOLTAGE RATING**

CODE	RATING	TRIP VOLTS					
A06	6DC	5DC	A65	65DC	55DC	J65	65AC 55AC
A12	12DC	10DC	J06	6AC	5AC	K20	120AC 65AC
A18	18DC	15DC	J12	12AC	10AC	L40	240AC 130AC
A24	24DC	20DC	J18	18AC	15AC	B10	110DC 59DC
A32	32DC	25DC	J24	24AC	20AC	B20	120DC 65DC
A48	48DC	40DC	J48	48AC	40AC		

**8 TERMINAL 6**

1	Push ON 0.250 Tab (Q.C.)		<b>Printed Circuitboard Terminals</b>
2	Screw 8-32 with upturned lugs	<b>L</b>	90 Facing Left
3	Screw 8-32 (bus type)	<b>R</b>	90 Facing Right
<b>A</b>	Screw M4 with upturned lugs	<b>S</b>	Straight
<b>B</b>	Screw M4 (bus type)	<b>T</b>	Straight, Long

**9 ACTUATOR COLOR & LEGEND**

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

**10 MOUNTING / BARRIERS**

	MOUNTING STYLE	BARRIERS	BEZEL
	<b>Threaded Insert</b>		
<b>1</b>	6-32 x 0.195 inches	no	domed
<b>A</b>	6-32 x 0.195 inches	yes	domed
<b>2</b>	ISO M3 x 5mm	no	domed
<b>B</b>	ISO M3 x 5mm	yes	domed
<b>3</b>	6-32 x 0.195 inches	no	flat
<b>C</b>	6-32 x 0.195 inches	yes	flat
<b>4</b>	ISO M3 x 5mm	no	flat
<b>D</b>	ISO M3 x 5mm	yes	flat

**11 MAX. APPLICATION RATING**

<b>A</b>	65VDC
<b>D</b>	250VAC
<b>M 6</b>	80VDC
<b>4 7</b>	80VDC / 250VAC

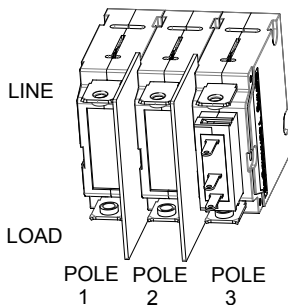
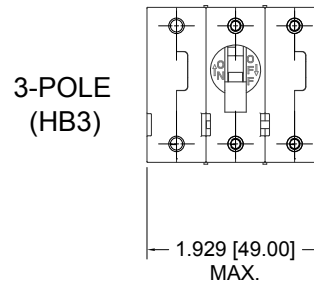
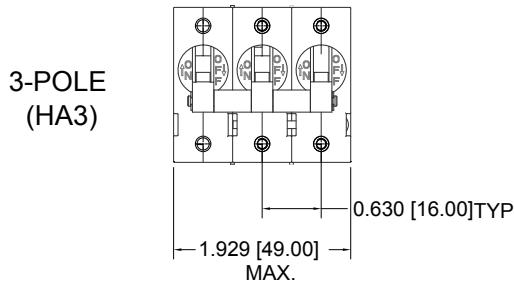
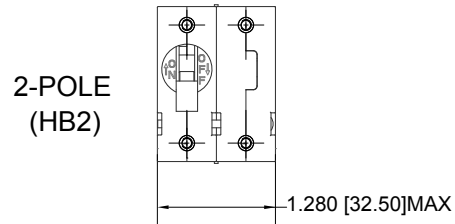
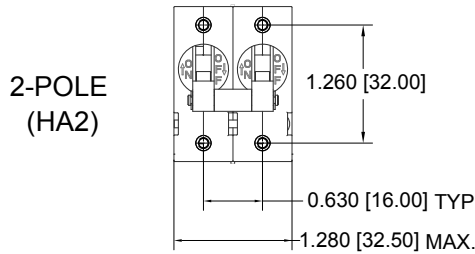
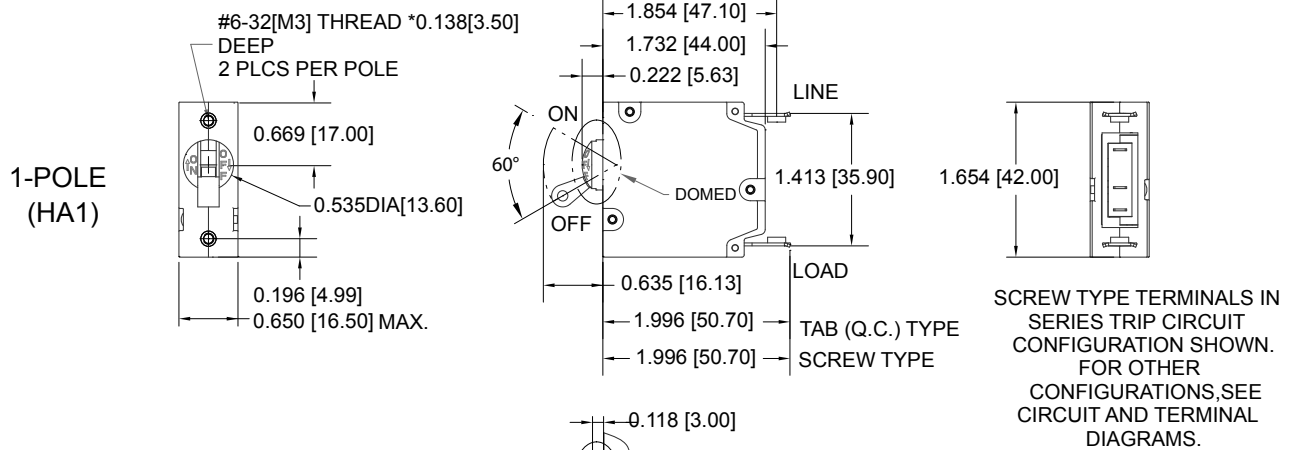
**12 AGENCY APPROVAL**

<b>A</b>	Without approvals
<b>C</b>	UL Recognized, CSA Accepted
<b>E</b>	UL Recognized, CSA Accepted, TUV Certified
<b>5</b>	UL Recognized, CSA Accepted, TUV Certified, CCC Certified

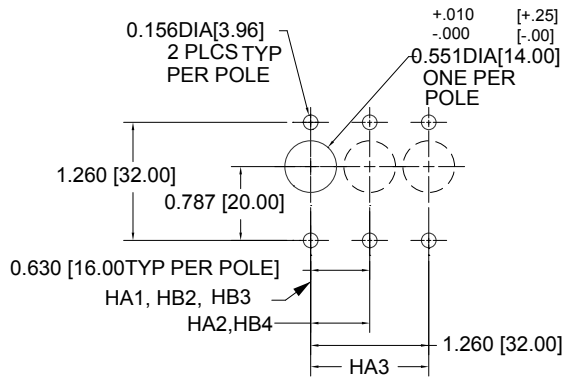
Notes:

- Actuator Option A: handle tie pin, spacer & retainers provided unassembled on multipole units.  
 Actuator Option B: Handle location as viewed from front of panel: 2 pole: left pole; 3 pole: center pole
- Standard multipole units have all poles identical, except when specifying auxiliary switch
- Auxiliary switch available on Series Trip and Switch Only circuits to 32A. On multipole units, only one auxiliary switch is normally supplied, mounted in extreme right pole.
- Separate Pole Type Voltage Coils not rated for continuous duty. Available only with delay code 10 & 20. Only Available with Agency code C.
- For other current ratings, consult factory.
- 26-35A Polarity sensitive, only available as 1 pole unit.
- Voltage code 4 available to 25A max.

## Dimensional Specifications: in. [mm]



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



PANEL CUTOUT DETAIL

TOLERANCES ±.005

[±.12]

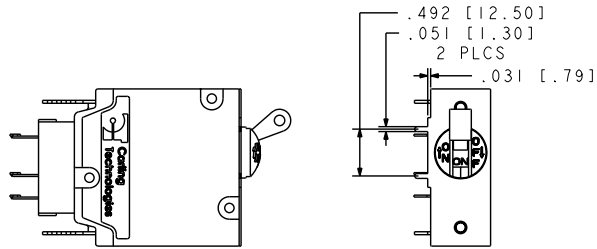
UNLESS OTHERWISE SPECIFIED

Notes:

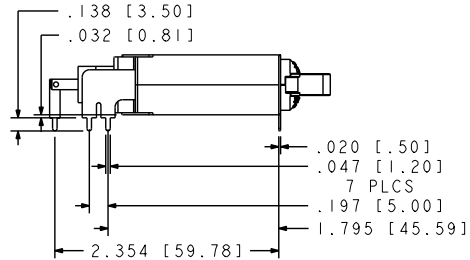
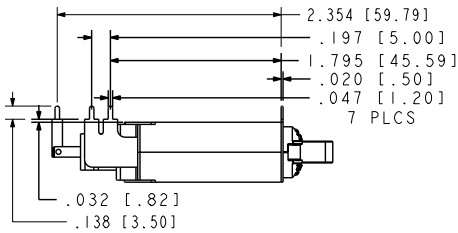
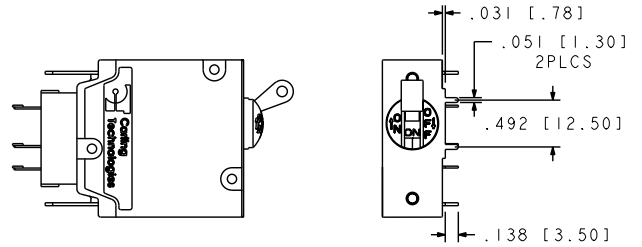
- 1 All dimensions are in inches [millimeters].
- 2 Tolerance ±.020 [51] unless otherwise specified.

### PC Terminal Diagrams: in. [mm]

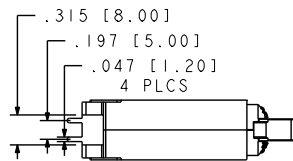
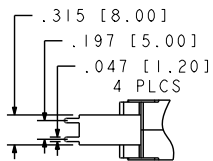
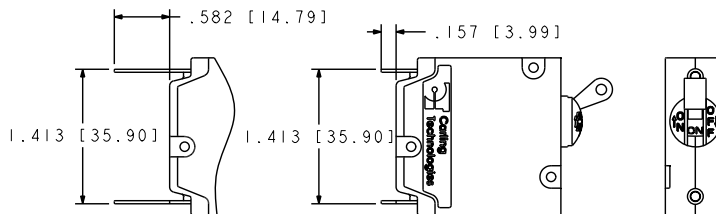
PRINTED CIRCUIT BOARD MOUNTING TERMINAL CODE R



PRINTED CIRCUIT BOARD MOUNTING TERMINAL CODE L



PRINTED CIRCUIT BOARD MOUNTING TERMINAL CODE S & T



P.C. TERMINAL T

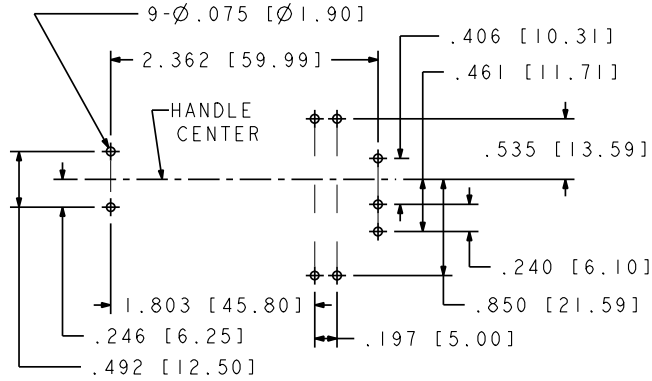
P.C. TERMINAL S

Notes:

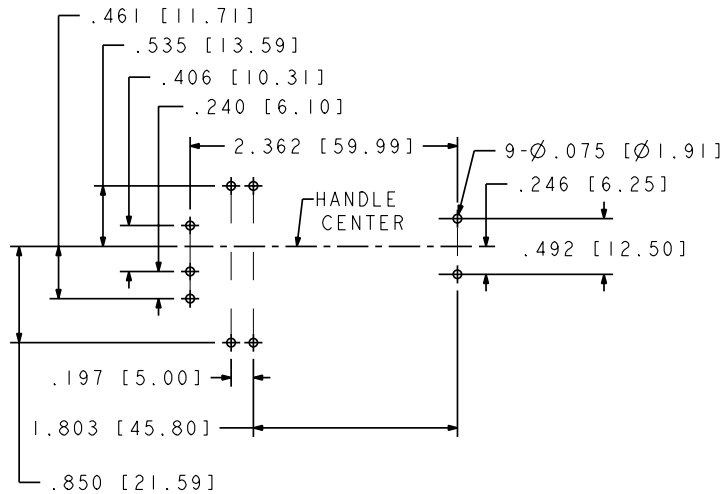
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## PC Terminal Diagrams: in. [mm]

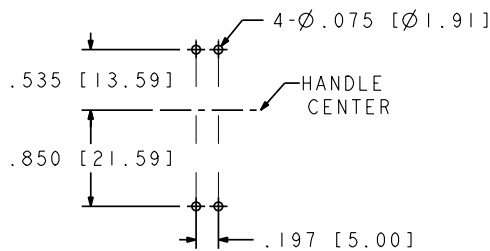
### P.C. FOOT PRINT FOR TERMINAL CODE R



### P.C. FOOT PRINT FOR TERMINAL CODE L

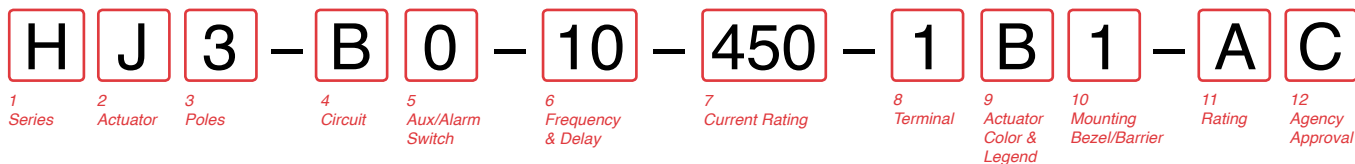


### P.C. FOOT PRINT FOR TERMINAL CODE S & T



Notes:

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



**1 SERIES (VISI ROCKER)**  
H

**2 ACTUATOR 1**  
J Vertical - Indicator OFF      L Horizontal - Indicator OFF  
K Vertical - Indicator ON      M Horizontal - Indicator ON

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

**4 CIRCUIT**  
A Switch Only (no coil)                      C<sup>4</sup> Series Trip (voltage)  
B Series Trip (current)                      G<sup>4</sup> Relay Trip (voltage)

**5 AUXILIARY / ALARM SWITCH**  
0 without Aux Switch      3<sup>3</sup> 0.110 Q.C. term with gold contacts  
1<sup>3</sup> 0.110 Q.C. term      4<sup>3</sup> 0.110 PC term  
2<sup>3</sup> 0.110 Solder Lug

**6 FREQUENCY & DELAY**  
03<sup>3</sup> DC 50/60HZ, Switch Only      30 DC, 50/60Hz, Instantaneous  
10 DC, Instantaneous      31 DC, 50/60Hz, Ultra Short  
11 DC, Ultra Short      32 DC, 50/60Hz, Short  
12 DC, Short      34 DC, 50/60Hz, Medium  
14 DC, Medium      36 DC, 50/60Hz, Long  
16 DC, Long      42<sup>4</sup> 50/60 Hz High-inrush Short  
20 50/60 Hz Instantaneous      44<sup>4</sup> 50/60 Hz High-inrush Medium  
21 50/60 Ultra Short      46<sup>4</sup> 50/60 Hz High-inrush Long  
22 50/60 Hz Short      52<sup>4</sup> DC High-inrush Short  
24 50/60 Hz Medium      54<sup>4</sup> DC High-inrush Medium  
26 50/60 Hz Long      56<sup>4</sup> DC High-inrush Long

**7 CURRENT RATING (AMPERES) 5**

CODE	AMPERES				
410	1.00	445	4.50	610	10.00
512	1.25	450	5.00	710	10.50
415	1.50	455	5.50	611	11.00
517	1.75	460	6.00	711	11.50
420	2.00	465	6.50	612	12.00
522	2.25	470	7.00	712	12.50
425	2.50	475	7.50	613	13.00
527	2.75	480	8.00	614	14.00
430	3.00	485	8.50	615	15.00
435	3.50	490	9.00	616	16.00
440	4.00	495	9.50	617	17.00

**VOLTAGE RATING**

CODE	RATING	TRIP VOLTS			
A06	6DC	5DC	A65	65DC	55DC
A12	12DC	10DC	J06	6AC	5AC
A18	18DC	15DC	J12	12AC	10AC
A24	24DC	20DC	J18	18AC	15AC
A32	32DC	25DC	J24	24AC	20AC
A48	48DC	40DC	J48	48AC	40AC
			J65	65AC	55AC
			K20	120AC	65AC
			L40	240AC	130AC
			B10	110DC	59DC
			B20	120DC	65DC

**8 TERMINAL**

		Printed Circuitboard Terminals
1	Push ON 0.250 Tab (Q.C.)	L 90 Facing Left
2	Screw 8-32 with upturned lugs	R 90 Facing Right
3	Screw 8-32 (bus type)	S Straight
A	Screw M4 with upturned lugs	T Straight, Long
B	Screw M4 (bus type)	

**9 ACTUATOR COLOR & LEGEND**

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

**10 MOUNTING / BARRIERS 6**

	MOUNTING STYLE	BARRIERS	HALF ROCKER GUARD	BRACKET COLOR
	<b>Threaded Insert</b>			
1	6-32 x 0.195 inches	no	no	Black
A	6-32 x 0.195 inches	yes	no	Black
2	ISO M3 x 5mm	no	no	Black
B	ISO M3 x 5mm	yes	no	Black
3	6-32 x 0.195 inches	no	yes	Black
C	6-32 x 0.195 inches	yes	yes	Black
4	ISO M3 x 5mm	no	yes	Black
D	ISO M3 x 5mm	yes	yes	Black
5	6-32 x 0.195 inches	no	no	White
E	6-32 x 0.195 inches	yes	no	White
6	ISO M3 x 5mm	no	no	White
F	ISO M3 x 5mm	yes	no	White
7	6-32 x 0.195 inches	no	yes	White
G	6-32 x 0.195 inches	yes	yes	White
8	ISO M3 x 5mm	no	yes	White
H	ISO M3 x 5mm	yes	yes	White
9	6-32 x 0.195 inches	no	no	Gray
J	6-32 x 0.195 inches	yes	no	Gray
P	ISO M3 x 5mm	no	no	Gray
K	ISO M3 x 5mm	yes	no	Gray
Q	6-32 x 0.195 inches	no	yes	Gray
L	6-32 x 0.195 inches	yes	yes	Gray
U	ISO M3 x 5mm	no	yes	Gray
M	ISO M3 x 5mm	yes	yes	Gray

**11 MAX. APPLICATION RATING**  
A 65VDC  
D 250VAC  
M<sup>7</sup> 80VDC  
4<sup>8</sup> 80VDC / 250VAC

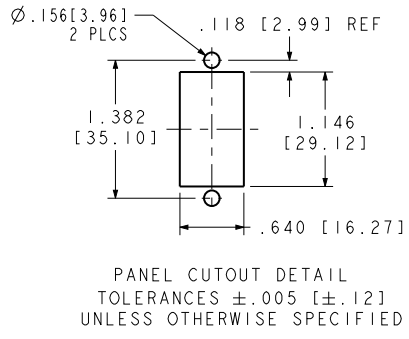
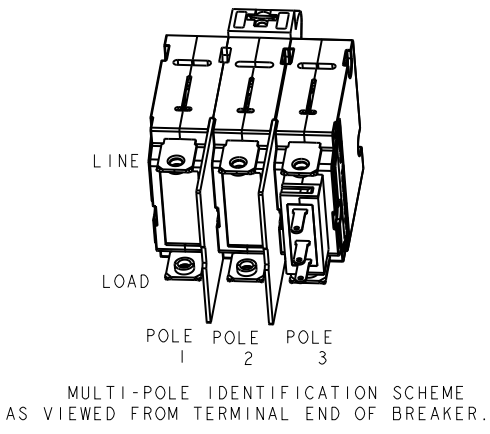
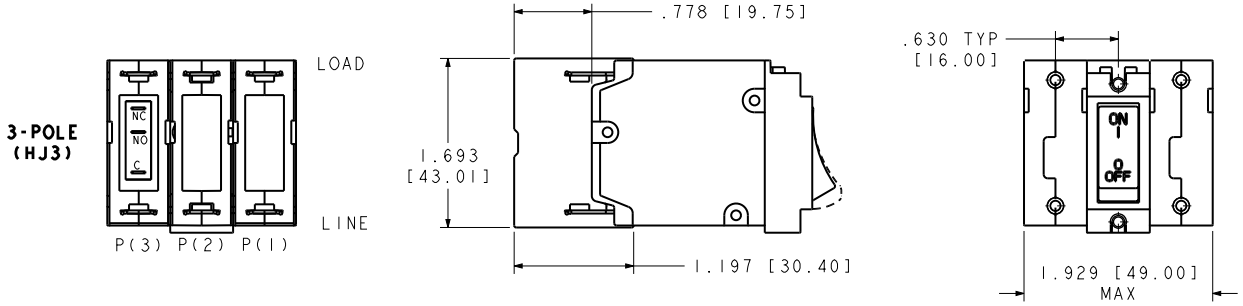
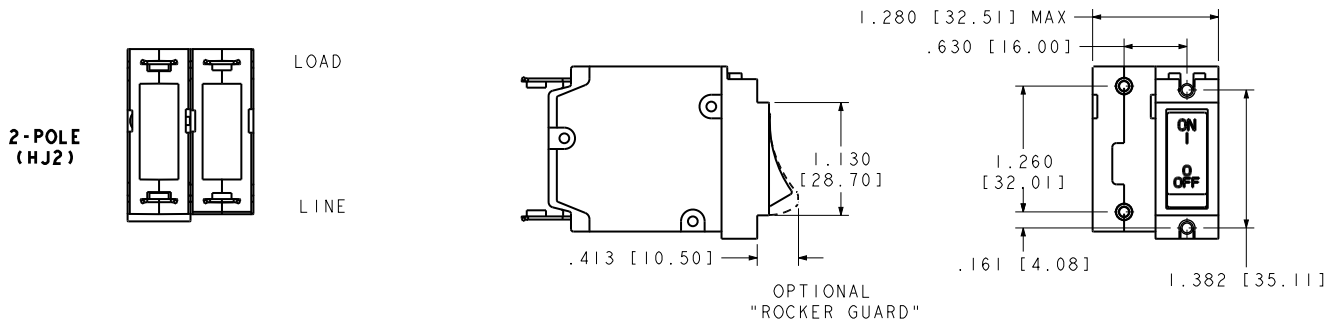
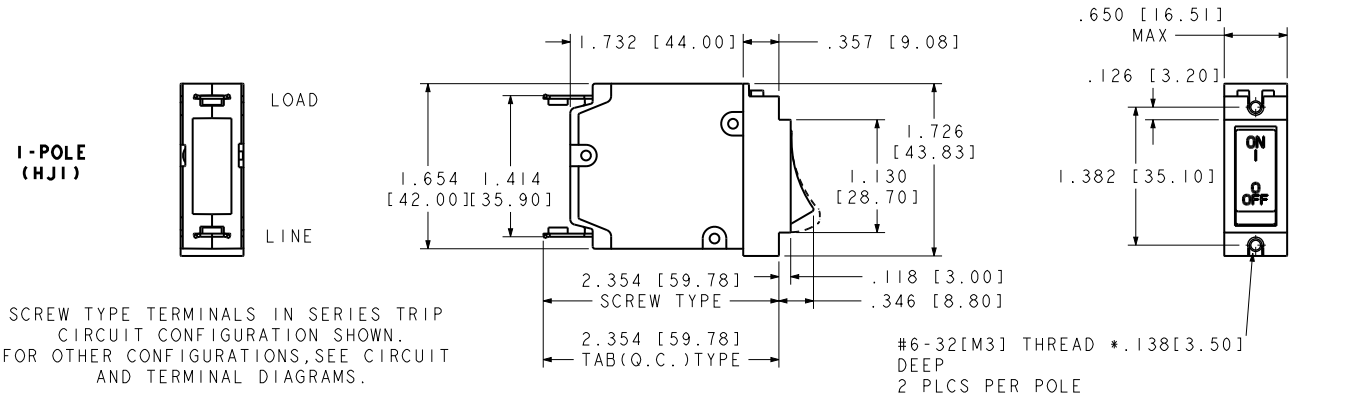
**12 AGENCY APPROVAL**  
A Without approvals  
C UL Recognized, CSA Accepted  
E UL Recognized, CSA Accepted, TUV Certified  
5 UL Recognized, CSA Accepted, TUV Certified, CCC Certified

- Notes:
- Half guard construction have OFF protection for actuator
  - Standard multipole units have all poles identical, except when specifying auxiliary switch
  - Auxiliary switch available on Series Trip and Switch Only circuits to 32A. On multipole units, only one auxiliary switch is normally supplied, mounted in extreme right pole.
  - Separate Pole Type Voltage Coils not rated for continuous duty. Available only with delay code 10 & 20. Only Available with Agency code C.
  - For other current ratings, consult factory.
  - On Visi-Rocker, Visi portion of rocker cannot be the same color as the bezel. Remainder of rocker same color as bezel.
  - 26-35A Polarity sensitive, only available as 1 pole unit.
  - Voltage code 4 available to 25A max.



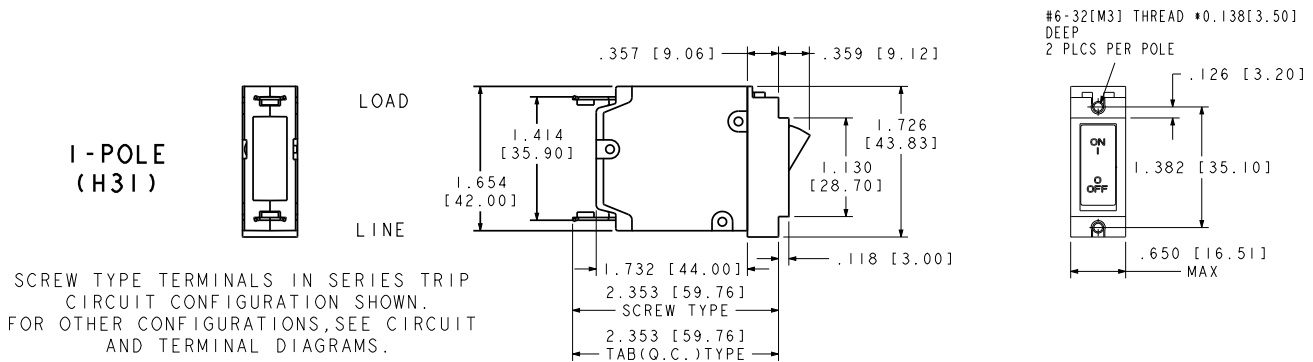


## Dimensional Specifications: in. [mm]

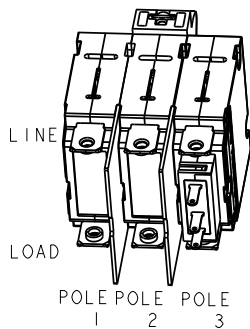
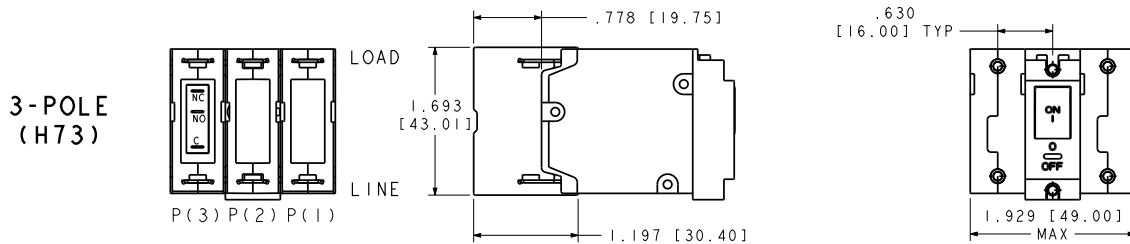
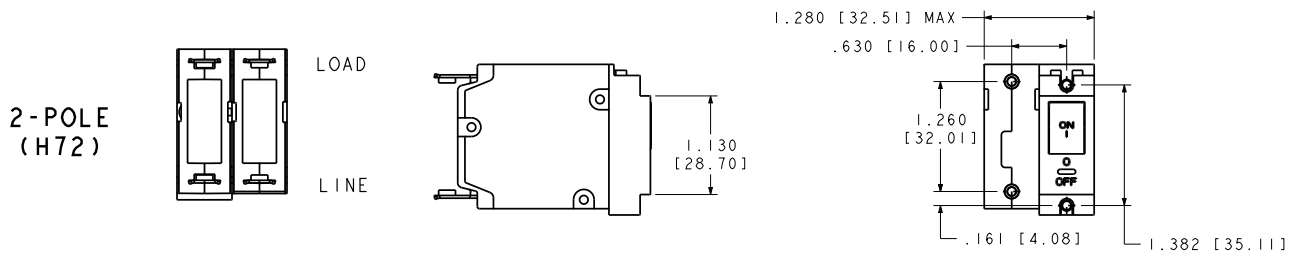
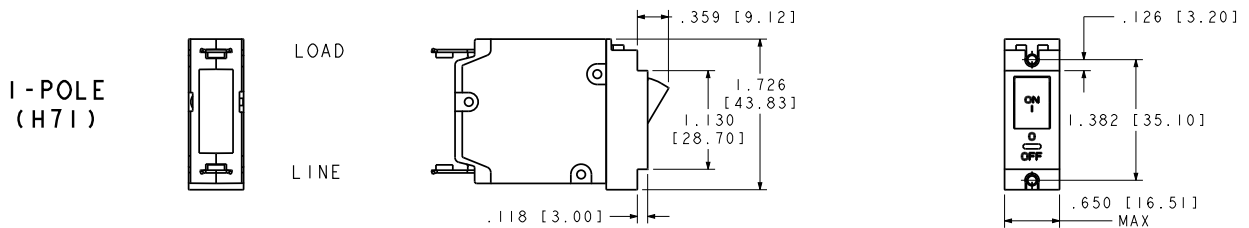


Notes:  
1 All dimensions are in inches [millimeters].  
2 Tolerance ±.020 [.51] unless otherwise specified.

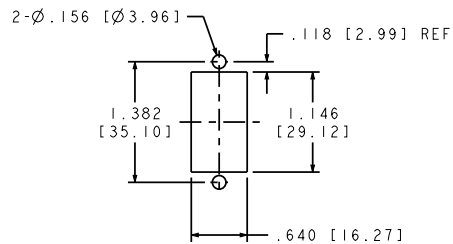
## Dimensional Specifications: in. [mm]



### PUSH-TO-RESET ACTUATOR



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



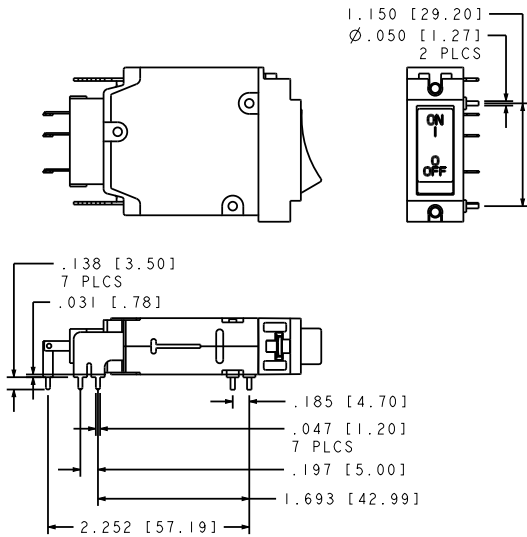
PANEL CUTOUT DETAIL  
TOLERANCES ±.005 [.12] UNLESS OTHERWISE SPECIFIED

**Notes:**

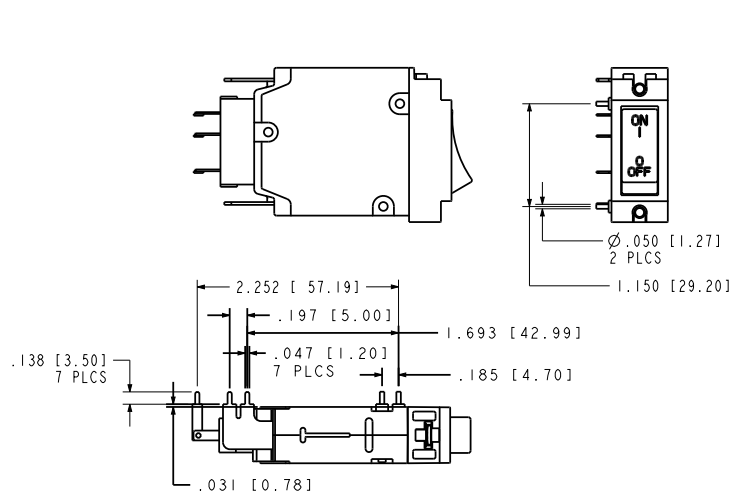
- 1 All dimensions are in inches [millimeters].
- 2 Tolerance ±.020 [.51] unless otherwise specified.

## PC Terminal Diagrams: in. [mm]

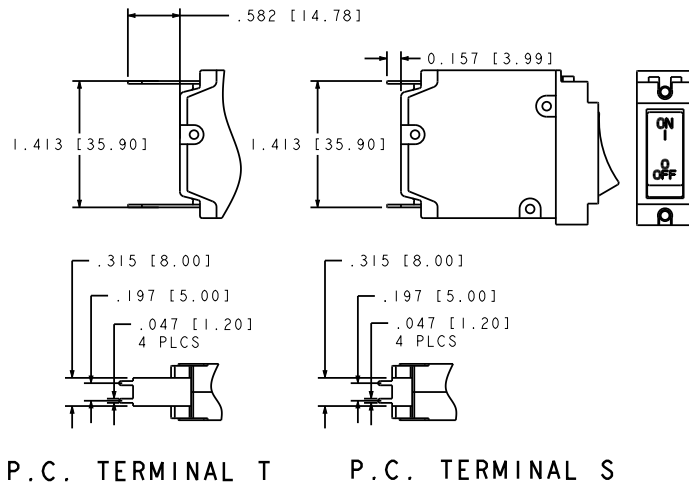
PRINTED CIRCUIT BOARD  
MOUNTING TERMINAL CODE R



PRINTED CIRCUIT BOARD  
MOUNTING TERMINAL CODE L



PRINTED CIRCUIT BOARD MOUNTING  
TERMINAL CODE S & T

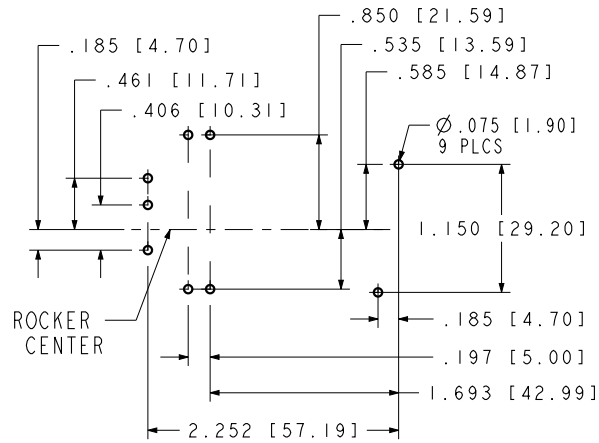


Notes:

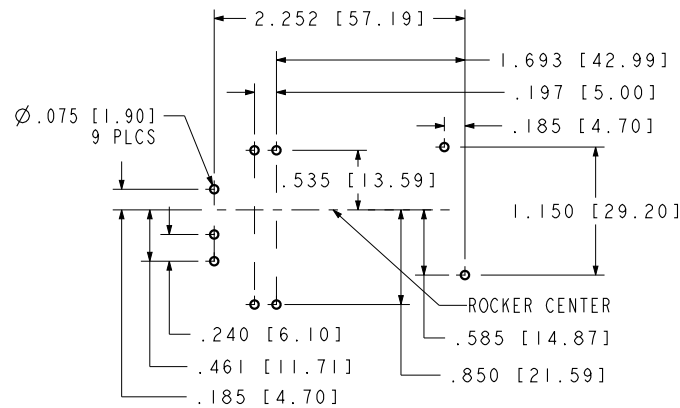
- 1 All dimensions are in inches [millimeters].
- 2 Tolerance  $\pm 0.020$  [.51] unless otherwise specified.

## PC Terminal Diagrams: in. [mm]

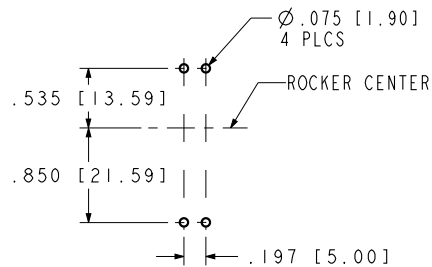
### P.C. FOOT PRINT FOR TERMINAL CODE R



### P.C. FOOT PRINT FOR TERMINAL CODE L



### P.C. FOOT PRINT FOR TERMINAL CODE S & T

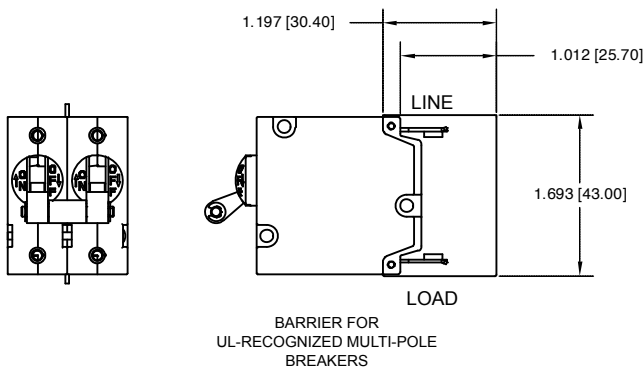
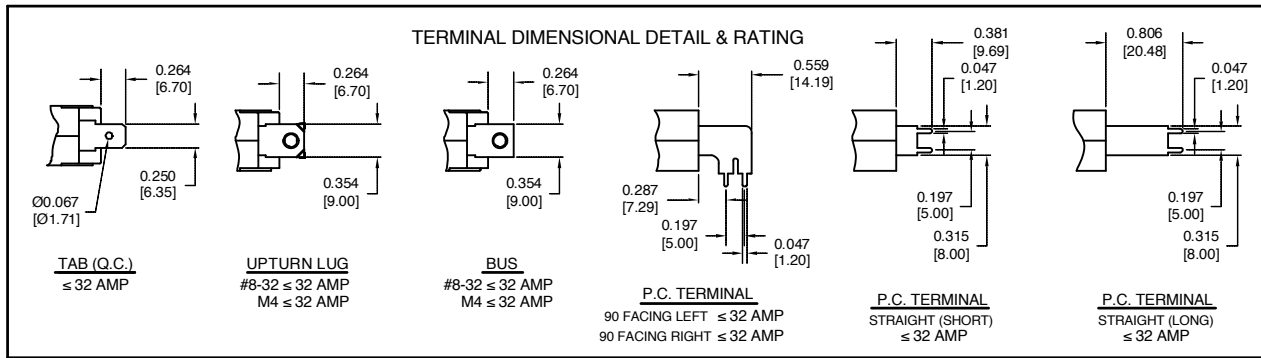


**Notes:**

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

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

HANDLE POSITION VS. AUX SWITCH MODE		
STANDARD C/B		
CIRCUIT BREAKER MODE	HANDLE POSITION	AUX. SWITCH MODE
OFF		
ON		
ELECTRICAL TRIP		

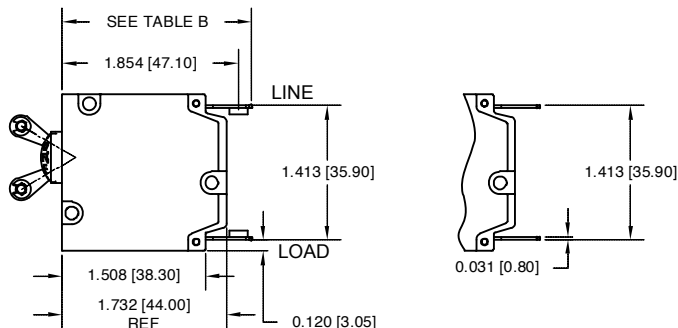


**TABLE A  
TIGHTENING TORQUE SPECIFICATIONS**

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]

**TABLE B**

TERMINAL DESCRIPTION	DEPTH BEHIND PANEL	
MAIN	TAB (Q.C.)	1.996 [50.70]
	SCREW TYPE	1.996 [50.70]
AUX. SWITCH*	.110 TAB (Q.C.)	2.467 [62.67]
	SOLDER TYPE	2.252 [57.19]



\* 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.

1. ALL DIMENSIONS ARE IN INCHES [mm]  
2. TOLERANCE ± 0.020 [0.51] UNLESS OTHERWISE SPECIFIED.

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

CIRCUIT BREAKER PROFILE	CIRCUIT SCHEMATIC		CIRCUIT SCHEMATIC	
	ANSI	ANSI	ANSI	ANSI
<b>2 TERMINALS</b> 	<b>SWITCH ONLY (NO COIL)</b> 	<b>CIRCUIT CODE</b> A <b>AUX SWITCH CODE</b> 0	<b>SERIES TRIP</b> 	<b>CIRCUIT CODE</b> B <b>AUX SWITCH CODE</b> 0
<b>5 TERMINALS</b> 0.377 [9.58] 	<b>SWITCH ONLY (NO COIL) WITH AUXILIARY SWITCH</b> 	<b>CIRCUIT CODE</b> A <b>AUX SWITCH CODE</b> 1 2 3	<b>SERIES TRIP WITH AUXILIARY</b> 	<b>CIRCUIT CODE</b> B <b>AUX SWITCH CODE</b> 1 2 3
<b>5 TERMINALS</b> 0.377 [9.58] 	<b>SWITCH ONLY (NO COIL) WITH AUXILIARY SWITCH</b> 	<b>CIRCUIT CODE</b> A <b>AUX SWITCH CODE</b> 1 2 3	<b>SERIES TRIP WITH AUXILIARY</b> 	<b>CIRCUIT CODE</b> B <b>AUX SWITCH CODE</b> 1 2 3
<b>3 TERMINALS</b> 	<b>SHUNT TRIP</b> 	<b>CIRCUIT CODE</b> D E <b>AUX SWITCH CODE</b> 0		
<b>4 TERMINALS</b> 	<b>RELAY TRIP</b> 	<b>CIRCUIT CODE</b> F G <b>AUX SWITCH CODE</b> 0		

### AUXILIARY SWITCH TERMINAL DETAIL

