Designed specifically for world market applications, the B-series utilizes the hydraulic magnetic principle which provides precise operation and performance even when exposed to extremely hot and/or cold application environments. Typical applications include power supplies, medical equipment, office equipment, control panels and marine equipment.

1-6 poles, 0.02 - 50 amps, up to 277 VAC or 80 VDC, with choice of time delays, terminals and actuator colors.

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 Certified

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

VDE Certified

EN60934, VDE 0642 under File No. 10537

Electrical

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

B-SERIES TABLE A: COMPONENT SUPPLEMENTARY PROTECTOR

CIRCUIT CONFIGURATION	VOLTAGE			CURRENT RATING		INTERRUPTING CAPACITY(AMPS)	
						UL / CSA	
	MAX RATING	FREQUENCY	PHASE	FULL LOAD AMPS	GENERAL PURPOSE AMPS	WITH BACKUP FUSE	WITHOUT BACKUP FUSE
SERIES	65	DC	---	31 - 50	---	---	3000
	80	DC	---	0.02 - 30	---	---	3000
	80	DC	---	---	31 - 50	---	1500
	125/250	50/60	1 [3]	0.02 - 30	---	---	3000
	125/250	50/60	1 [3]	31 - 50	---	---	2000
	250	50/60	1	0.02 - 30	---	2000 [1]	---
	250	50/60	1	---	31 - 50	2000 [1]	---
	250	50/60	3	0.02 - 20	---	5000 [1]	---
	250	50/60	3	21 - 30	---	2000 [1] 5000 [2]	---
	277	50/60	1	0.02 - 30	---	5000 [1]	---
DUAL COIL	80	DC	---	0.02 - 30	---	---	3000
	250	50/60	1 & 3	0.02 - 20	---	5000 [1]	---
	250	50/60	1 & 3	21 - 30	---	2000 [1] 5000 [2]	---
	277	50/60	1	0.02 - 30	---	5000 [1]	---
SHUNT	80	DC	---	0.02 - 30	---	---	3000
	250	50/60	1 & 3	0.02 - 20	---	5000 [1]	---
	250	50/60	1 & 3	21 - 30	---	2000 [1] 5000 [2]	---
	277	50/60	1	0.02 - 30	---	5000 [1]	---
RELAY	80	DC	---	0.02 - 30	---	---	3000
	250	50/60	1 & 3	0.02 - 20	---	5000 [1]	---
	250	50/60	1 & 3	21 - 30	---	2000 [1] 5000 [2]	---
	277	50/60	1	0.02 - 30	---	5000 [1]	---
SWITCH ONLY	65	DC	---	0.02 - 50	---		
	80	DC	---	0.02 - 30	---		
	250	50/60	1	31 - 50	---		
	250	50/60	1	---	31 - 50		
	250	50/60	3	0.02 - 50	---		
	277	50/60	1	0.02 - 30	31 - 50		

Notes for Table A:

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: 250/125 VAC, 125/250 VAC and 208Y/120 VAC Power Systems. 1 pole protector required for : 125 VAC, 1Ø Power System.

Electrical

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

B-SERIES TABLE B: COMPONENT SUPPLEMENTARY PROTECTOR

CIRCUIT CONFIGURATION	VOLTAGE			CURRENT RATING		INTERRUPTING CAPACITY (AMPS)					
						UL / CSA		VDE		TUV	
	MAX RATING	FREQUENCY	PHASE	FULL LOAD AMPS	GENERAL PURPOSE AMPS [1]	WITH BACKUP FUSE	WITHOUT BACKUP FUSE	(Inc) WITH BACKUP FUSE	(Icn) WITHOUT BACKUP FUSE	(Inc) WITH BACKUP FUSE	(Icn) WITHOUT BACKUP FUSE
SERIES	80	DC	---	0.10 - 30	---	---	3000	3000	1500	3000	1500
	80	DC	---	31 - 50	31 - 50	---	1500	3000	1500	3000	1500
	80	DC	---	31 - 32	31 - 32	---	1500	3000	1500	3000	1500
	250	50/60	1 & 3	0.10 - 20	---	5000 [2]	3000	3000	1500	3000	1500
	250	50/60	1 & 3	21 - 30	---	2000 [2] 5000 [3]	---	3000	1500	3000	1500
	250	50/60	1	0.10 - 30	---	---	2000	3000	1500	5000	1500
	250	50/60	1	31 - 50	---	---	2000	---	---	5000	1500
	250	50/60	1	31 - 32	---	2000 [2]	---	3000	1500	5000	1500
DUAL COIL	80	DC	---	0.10 - 30	---	---	3000	3000	1500	3000	1500
	250	50/60	1 & 3	0.10 - 20	---	5000 [2]	---	3000	1500	3000	1500
	250	50/60	1 & 3	21 - 30	---	2000 [2] 5000 [3]	---	3000	1500	3000	1500
	250	50/60	1	31 - 50	31 - 50	---	2000	---	---	5000	1500
SHUNT	80	DC	---	0.10 - 30	---	---	3000	3000	1500	3000	1500
	250	50/60	1 & 3	0.10 - 20	---	5000 [2]	---	3000	1500	3000	1500
	250	50/60	1 & 3	21 - 30	---	2000 [2] 5000 [3]	---	3000	1500	3000	1500
	250	50/60	1	31 - 50	31 - 50	---	2000	---	---	5000	1500

Notes for Table B:
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 1, except that backup fuse is limited to 80 A maximum.

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

B-SERIES TABLE C: UL1500 (MARINE IGNITION PROTECTED)

CIRCUIT CONFIGURATION	VOLTAGE			CURRENT RATING	INTERRUPTING CAPACITY (AMPS)
	MAX RATING	FREQUENCY	PHASE	FULL LOAD AMPS	WITHOUT BACKUP FUSE
SERIES	14 [1]	DC	---	0.02 - 50	5000
	65	DC	---	0.02 - 50	3000
	125 / 250	50/60	1 [2]	0.02 - 50	1500
	250	50/60	1	0.02 - 30	1000

Notes for Table C:
1 Available with special catalog number only (consult factory).
2 2 pole protector required (with one pole per power line) for: 250/125 VAC, 125/250 VAC and 208Y/120 VAC Power Systems. 1 pole protector required for : 125 VAC, 1Ø Power System.

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

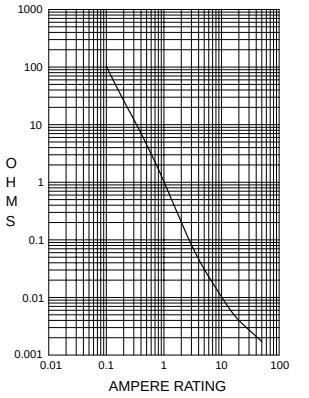
B-SERIES TABLE D: UL489A LISTED (COMMUNICATIONS EQUIPMENT)

CIRCUIT CONFIGURATION	VOLTAGE			CURRENT RATING	INTERRUPTING CAPACITY (AMPS)
	MAX RATING	FREQUENCY	PHASE	UL GENERAL PURPOSE AMPS	WITHOUT BACKUP FUSE
SERIES	80	DC	---	.10 - 50	5000

Electrical

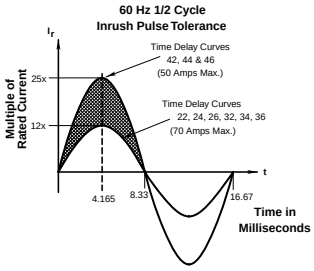
Maximum Voltage	277VAC 50/60 Hz, 80VDC
Current Ratings	Standard current coils: 0.100, 0.250, 0.500, 0.750, 1.00, 2.50, 5.00, 7.50, 10.0, 15.0, 20.0, 25.0, 30.0, 35.0, 40.0 and 50.0 amps. Other ratings available, see ordering scheme.
Standard Voltage Coils	DC - 6V, 12V; AC - 120V, other ratings available, see ordering scheme.
Auxiliary Switch Rating	SPDT; 10.1 AMPS - 250VAC,1.0A 65 VDC or 0.5A 80 VDC, 0.1 Amps - 125VAC (with gold contacts). VDE-1.0 Amp - 125VAC.
Insulation Resistance	Minimum of 100 Megohms at 500 VDC.
Dielectric Strength	UL, CSA - 1500 V 50/60 Hz for one minute between all electrically isolated terminals. B-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.

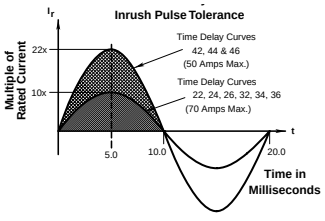
RESISTANCE, IMPEDANCE VALUES
from Line to Load Terminals
(Values Based on Series Trip Circuit Breaker)



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

Pulse Tolerance Curves





Mechanical

Endurance	10,000 ON-OFF operations @ 6 per minute; with rated Current and Voltage.
Trip Free	All B-Series Circuit Breakers will trip on overload, even when Handle is forcibly held in the ON position.
Trip Indication	The operating Handle moves positively to the OFF position when an overload causes the breaker to trip.

Physical

Number of Poles	1 - 6 poles 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 and 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, 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).

B-Series Handle UL Recognized – Ordering Scheme

B	A	3	-	B	0	-	10	-	450	-	1	B	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

B

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	**3**	Three	**5**	Five
2	Two	**4**	Four	**6**	Six

4 CIRCUIT

A[2]	Switch Only (No Coil)	**G**[3]	Relay Trip (Voltage)
B	Series Trip (Current)	**H**[3,4]	Dual Coil with Shunt Trip Voltage Coil
C	Series Trip (Voltage)	**J**[3,4]	Dual Coil with Shunt Trip Voltage Coil (side terminal)
D[3]	Shunt Trip (Current)	**K**[3,4]	Dual Coil with Relay Trip Voltage Coil
E[3]	Shunt Trip (Voltage)		
F[3]	Relay Trip (Current)		

5 AUXILIARY/ALARM SWITCH[5]

0	w/o Aux Switch	**5**	S.P.S.T., 0.093 Q.C. Term.(Gold Contacts)
1	S.P.D.T., 0.093 Q.C. Term.	**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. Term.(Gold Contacts)
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

03[2]	DC 50/60Hz, Switch Only	**30**	DC, 50/60Hz Instantaneous
10[6]	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**[7]	50/60Hz Short, Hi-Inrush
20[6]	50/60Hz Instantaneous	**44**[7]	50/60Hz Medium, Hi-Inrush
21	50/60Hz Ultra Short	**46**[7]	50/60Hz Long, Hi-Inrush
22	50/60Hz Short	**52**[7]	DC, Short,Hi-Inrush
24	50/60Hz Medium	**54**[7]	DC,Medium, Hi-Inrush
26	50/60Hz Long	**56**[7]	DC, Long, Hi-Inrush

7 CURRENT RATING (AMPERES)

020	0.020	**230**	0.300	**425**	2.500	**612**	12.000
025	0.025	**235**	0.350	**527**	2.750	**712**	12.500
030	0.030	**240**	0.400	**430**	3.000	**613**	13.000
035	0.035	**245**	0.450	**435**	3.500	**614**	14.000
040	0.040	**250**	0.500	**440**	4.000	**615**	15.000
045	0.045	**255**	0.550	**445**	4.500	**616**	16.000
050	0.050	**260**	0.600	**450**	5.000	**617**	17.000
055	0.055	**265**	0.650	**455**	5.500	**618**	18.000
060	0.060	**270**	0.700	**460**	6.000	**620**	20.000
065	0.065	**275**	0.750	**465**	6.500	**622**	22.000
070	0.070	**280**	0.800	**470**	7.000	**624**	24.000
075	0.075	**285**	0.850	**475**	7.500	**625**	25.000
080	0.080	**290**	0.900	**480**	8.000	**630**	30.000
085	0.085	**295**	0.950	**485**	8.500	**635**[8]	35.000
090	0.090	**410**	1.000	**490**	9.000	**640**[8]	40.000
095	0.095	**512**	1.250	**495**	9.500	**645**[8]	45.000
210	0.100	**415**	1.500	**610**	10.000	**650**[8]	50.000
215	0.150	**517**	1.750	**710**	10.500		
220	0.200	**420**	2.000	**611**	11.000		
225	0.250	**522**	2.250	**711**	11.500		

OR VOLTAGE COIL (NOMINAL RATED VOLTAGE)[6]

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[10]	Push-On 0.250 Tab (Q.C.)	**E**[11]	Screw M4 (Bus Type)
2	Screw 8-32 w/upturned lugs	**F**	Screw M5 w/upturned lugs and 30° bend
3[11]	Screw 8-32 (Bus Type)	**G**	Screw M5 (Bus Type) and 30° bend
4	Screw 10-32 w/upturned lugs	**H**	Screw M5 (Bus Type)
5[11]	Screw 10-32 (Bus Type)	**L**[12]	0.250 Q.C./ Solder Lug
6	Screw 8-32 w/upturned lugs and 30° bend	**M**[11]	M6 Threaded Studs
7	Screw 8-32 (Bus Type) and 30° bend	**P**[13]	Printed Circuit Board Terminals
8	Screw 10-32 w/upturned lugs and 30° bend	**Q**	Push-In Stud
9	Screw 10-32 (Bus Type) and 30° bend	**R**	Screw M4 w/upturned lugs and 30° bend
B	Screw M5 w/upturned lugs	**S**[15]	Push-On 0.110 Tab (Q.C.)
C	Screw M4 w/upturned lugs	**T**	Screw M4 (Bus Type) and 30° bend

9 ACTUATOR COLOR & LEGEND

	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

	MOUNTING STYLE	BARRIERS
	Threaded Insert, 2 per pole	
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	yes
	Rectangular Adapter Plate with mounting centers of 2.062" [52.37mm] and Threaded insert, 2 per pole	
3[14]	6-32 x 0.225 inches	no
C[14]	6-32 X 0.225 inches	yes
4[14]	ISO M3 x 6.5mm	no
D[14]	ISO M3 x 6.5mm	yes
	Front panel Snap-In, 0.75" [19.05mm] wide bezel	
5	without Handleguard	no
6	without Handleguard	yes
	Front panel Snap-In, 0.96" [24.48mm] wide bezel	
7	without Handleguard on 1-pole units; .105" [2.67mm]] bezel overhang/ side on multipole units	no
8	without Handleguard on 1-pole units; .105" [2.67mm] bezel overhang/side on multipole units	yes

11 AGENCY APPROVAL

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

Notes:

1 Actuator Code:
A: Handle tie pin spacer(s) and retainers provided unassembled 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 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.

3 Available with Terminal Codes 1, 2 and 3. Current Rating limited to 30 amps maximum.

4 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.

5 Auxiliary Switch breakers with Series Trip and Switch Only circuits. On multi-pole breakers, one aux. 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 and CSA Certified to 50 amps.

8 VDE Certification available with single pole breakers with DC Delay only. UL Recognition and CSA Certification 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 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 VDE Cert. available up to 12 amps. UL Rec. & CSA Cert. available up to 30 amps.

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 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 Certification with Circuit Codes A, B and C.

14 Available with Actuator Codes A, S and T.

15 Available with voltage coils only.

B-Series Handle UL489A – Ordering Scheme

B	A	1	-	B	0	-	14	-	450	-	1	B	1	-	M	T
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
B

2 ACTUATOR[1]
A	Handle, one per pole
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

4 CIRCUIT
B	Series Trip (Current)

5 AUXILIARY/ALARM SWITCH[2]
0	w/o Aux Switch	**7**	S.P.S.T., 0.110 Q.C. Term.(Gold Contacts)
1	S.P.D.T., 0.093 Q.C. Term.		
2	S.P.D.T., 0.110 Q.C. Term.	**8**	S.P.S.T., 0.187 Q.C. Term.
3	S.P.D.T., 0.139 Solder Lug	**9**	S.P.D.T., 0.187 Q.C. Term.

6 FREQUENCY & DELAY[4]
11	DC Ultra Short	**52**[3]	DC, Short,Hi-Inrush
12	DC Short	**54**[3]	DC, Medium, Hi-Inrush
14	DC Medium	**56**[3]	DC, Long, Hi-Inrush
16	DC Long		

7 CURRENT RATING (AMPERES)
210	0.100	**415**	1.500	**710**	10.500
215	0.150	**517**	1.750	**611**	11.000
220	0.200	**420**	2.000	**711**	11.500
225	0.250	**522**	2.250	**612**	12.000
230	0.300	**527**	2.750	**712**	12.500
235	0.350	**430**	3.000	**613**	13.000
240	0.400	**435**	3.500	**614**	14.000
245	0.450	**440**	4.000	**615**	15.000
250	0.500	**445**	4.500	**616**	16.000
255	0.550	**450**	5.000	**617**	17.000
260	0.600	**455**	5.500	**618**	18.000
265	0.650	**460**	6.000	**620**	20.000
270	0.700	**465**	6.500	**622**	22.000
275	0.750	**470**	7.000	**624**	24.000
280	0.800	**475**	7.500	**625**	25.000
285	0.850	**480**	8.000	**630**	30.000
290	0.900	**485**	8.500	**635**[4]	35.000
295	0.950	**490**	9.000	**640**[4]	40.000
410	1.000	**495**	9.500	**645**[4]	45.000
512	1.250	**610**	10.000	**650**[4]	50.000

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

9 ACTUATOR COLOR
	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/BARRIERS
	MOUNTING STYLE	BARRIERS
	Threaded Insert, 2 per pole	
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	yes
	Rectangular Adapter Plate with mounting centers of 2.062 inches and Threaded insert, 2 per pole	
3	6-32 x 0.225 inches	no
C	6-32 X 0.225 inches	yes
4	ISO M3 x 6.5mm	no
D	ISO M3 x 6.5mm	yes
	Front panel Snap-In, 0.75" wide bezel	
5	without Handleguard	no
6	without Handleguard	yes
	Front panel Snap-In, 0.96" wide bezel	
7	without Handleguard on 1-pole units; .105 " bezel overhang/ side on multipole units	no
8	without Handleguard on 1-pole units; .105 " bezel overhang/ side on multipole units	yes

11 MAXIMUM APPLICATION RATING
M	80 DC

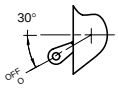
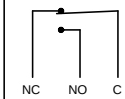
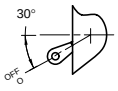
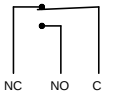
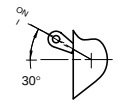
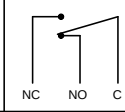
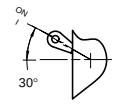
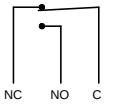
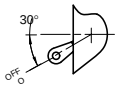
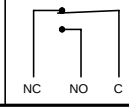
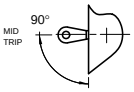
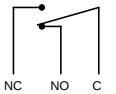
12 AGENCY APPROVAL
T	UL489A LISTED
K	UL489A LISTED, VDE CERTIFIED

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.
   T: Handle moves to mid-position and alarm switch activates only upon electrical trip of the breaker.
2. On multi-pole breakers, one auxiliary switch is supplied, mounted in the extreme right pole.
3. VDE Certified to 30 amps. UL489A Listed to 50 amps.
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 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 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.
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.

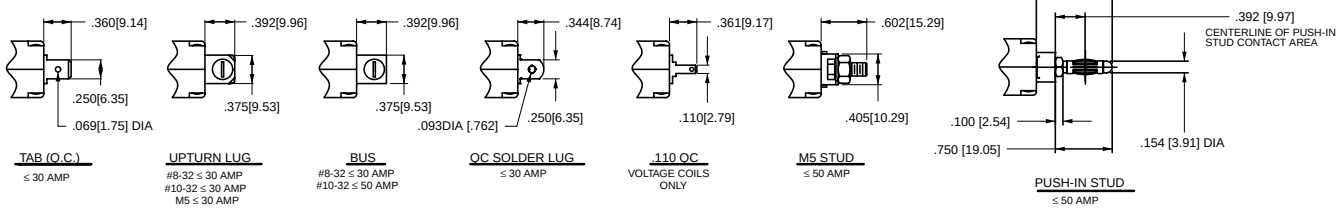
	CIRCUIT SCHEMATIC		CIRCUIT CODE	AUX SWITCH CODE	CIRCUIT SCHEMATIC		CIRCUIT CODE	AUX SWITCH CODE
	ANSI	IEC			ANSI	IEC		
	SWITCH ONLY (NO COIL)				SERIES TRIP			
SERIES TRIP (2 TERM'S.) MAIN TERM'S. (SEE TABLE A) 1.730 [43.94]	LINE / LOAD	LINE (NETZ) / LOAD (LAST)	A	O	LINE / LOAD	LINE (3) (NETZ) / LOAD (LAST)	B C	O
SERIES TRIP W AUX SWITCH (5 TERM'S.) .520 [13.21] C NO NC AUX. SWITCH TERM'S.	SWITCH ONLY (NO COIL) WITH AUXILIARY SWITCH		A	2 3 4	SERIES TRIP WITH AUXILIARY / ALARM SWITCH		B C	2 3 4
	LINE / C / NO / NC / LOAD	LINE (NETZ) / C / NO / NC / LOAD (LAST)			LINE / STD. AUX. SWITCH / C / NO / NC / ALARM SWITCH / LOAD	LINE (NETZ) (3) / STD. AUX. SWITCH / C / NO / NC / ALARM SWITCH / LOAD (LAST)		
SHUNT TRIP (3 TERM'S.) .390 [9.91]	SHUNT TRIP		D E	0	DUAL COIL; SERIES TRIP CURRENT COIL, SHUNT TRIP VOLTAGE COIL		H	0
	LINE / SHUNT / LOAD	LINE (NETZ) (3) / SHUNT (NEBENSCHLUSS) / I > / LOAD (LAST)			LINE / VOLTAGE COIL / LOAD	LINE (NETZ) / I > / U > / LOAD (LAST) / VOLTAGE COIL		
RELAY TRIP (4 TERM'S.) .780 [19.81] .390 [9.91]	RELAY TRIP		F G	0	DUAL COIL; SERIES TRIP CURRENT COIL, RELAY TRIP VOLTAGE COIL		K	0
	LINE / LOAD / RELAY / RELAY	RELAY (RELAIS) / LINE (NETZ) (3) / I > / RELAY (RELAIS) / LOAD (LAST)			LINE / VOLTAGE COIL / LOAD	LINE (NETZ) / VOLTAGE COIL / I > / U > / LOAD (LAST) / VOLTAGE COIL		

Notes:
1 All dimensions are in inches [millimeters].
2 Tolerance ±.015 [.38] unless otherwise specified.
3 Alarm Switch available with .110 x .020 Q.C. & Solder Lug Terminals Only.

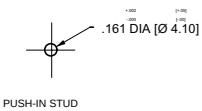
HANDLE POSITION VS. AUX/ALARM SWITCH MODE

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

TERMINAL DIMENSIONAL DETAIL & RATING



AUXILIARY SWITCH TERMINAL DETAIL



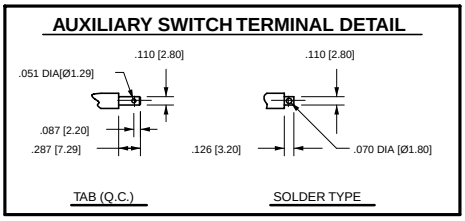
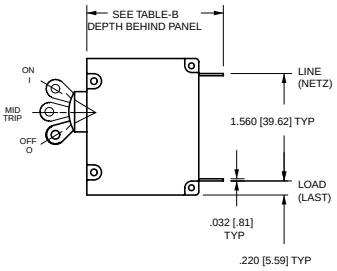
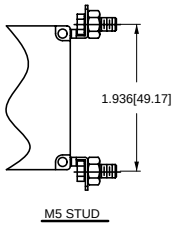


TABLE A
TIGHTENING TORQUE SPECIFICATIONS

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]





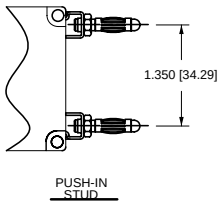


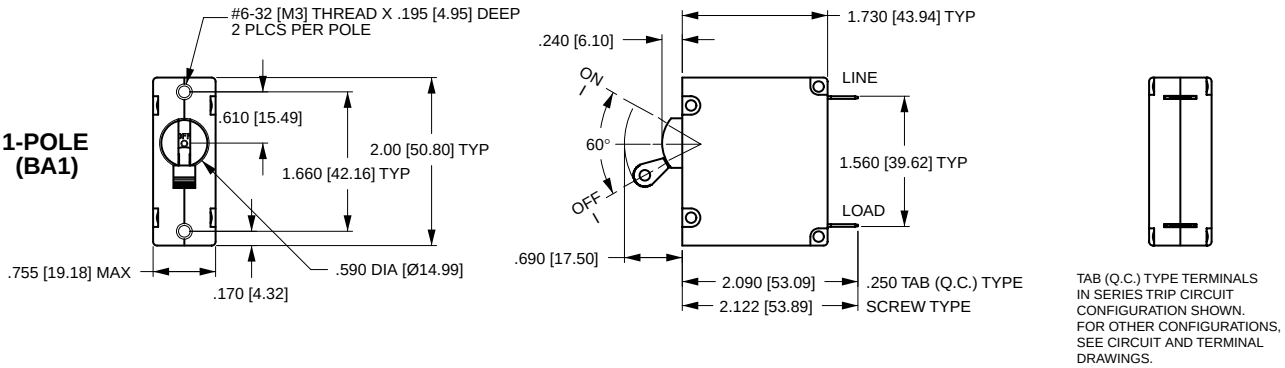
TABLE B

TERMINAL DESCRIPTION		DEPTH BEHIND PANEL
MAIN	TAB (Q.C.)	2.090 [53.09]
	SCREW TYPE	2.122 [53.90]
SHUNT, RELAY & DUAL COIL	TAB (Q.C.)	2.612 [66.35]
	SCREW #8-32 W/UPTURNED LUGS	2.644 [67.16]
AUX. SWITCH*	TAB (Q.C.) .110 x .020	2.537 [64.44]
	SOLDER TYPE	2.348 [59.64]

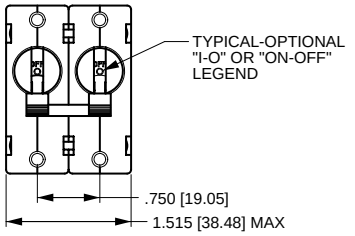
* AVAILABLE ON SERIES TRIP AND SWITCH ONLY CIRCUITS. WHEN CALLED FOR ON MULTI-POLE UNITS, ONLY ONE AUX. SWITCH IS NORMALLY SUPPLIED, AS SHOWN IN MULTI-POLE IDENTIFICATION SCHEME.

Notes:
1 All dimensions are in inches [millimeters].
2 Tolerance ±.015 [.38] unless otherwise specified.

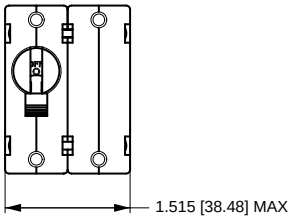
1-POLE (BA1)



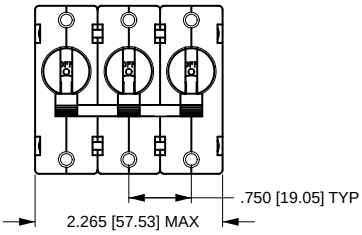
2-POLE (BA2)



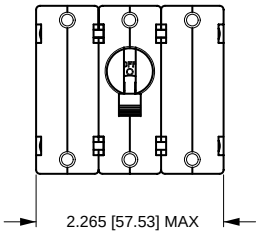
2-POLE (BB2)



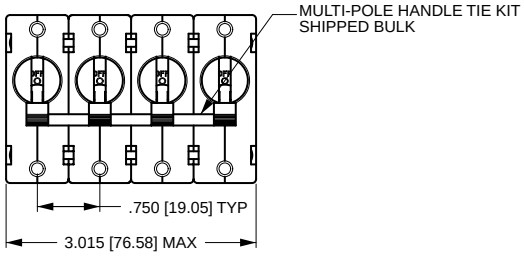
3-POLE (BA3)



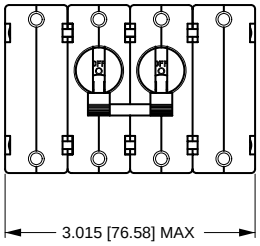
3-POLE (BB3)

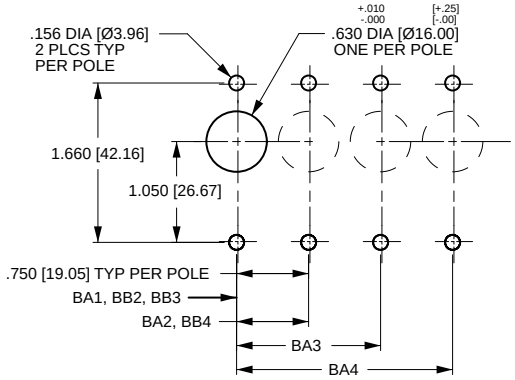


4-POLE (BA4)



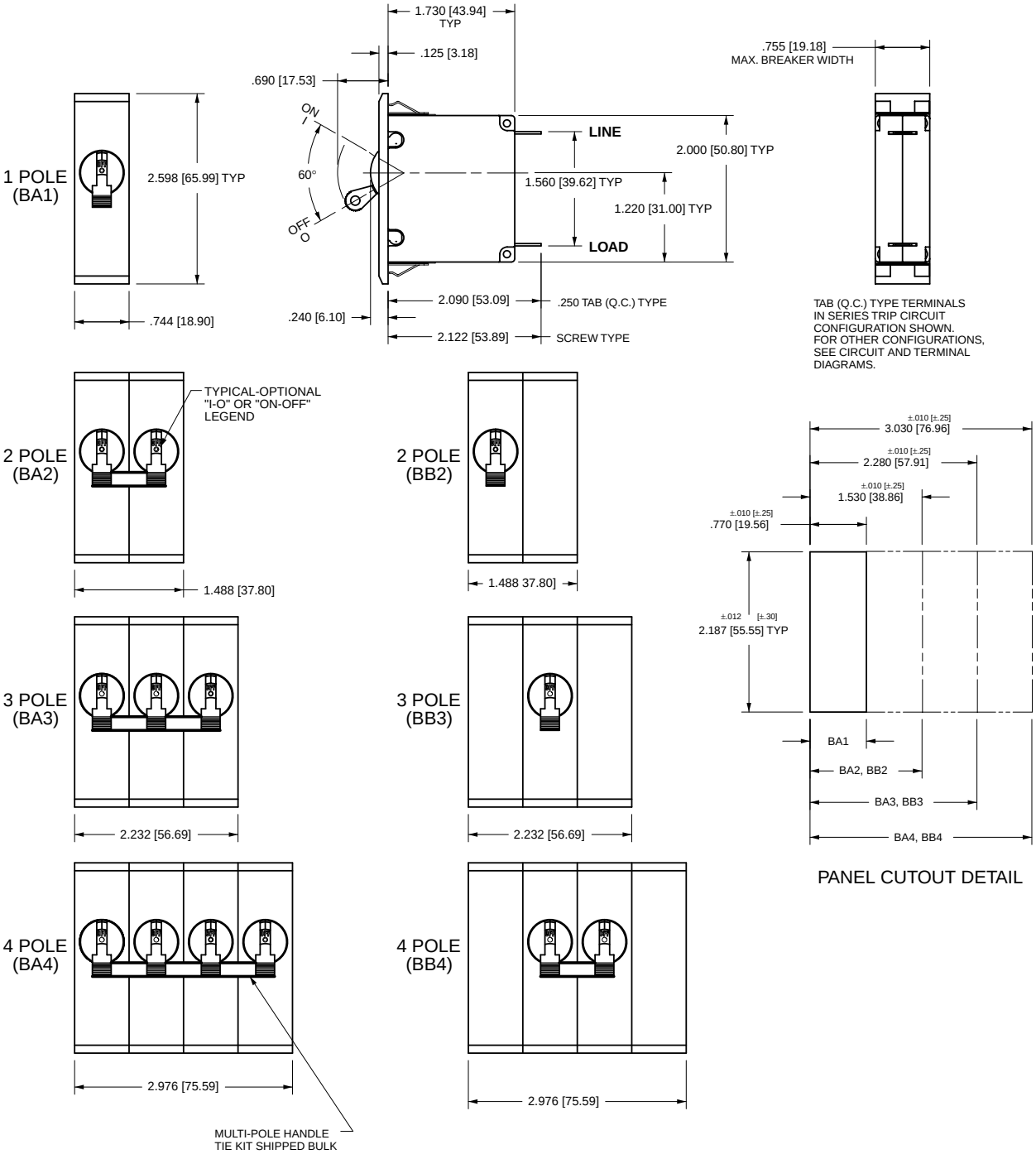
4-POLE (BB4)



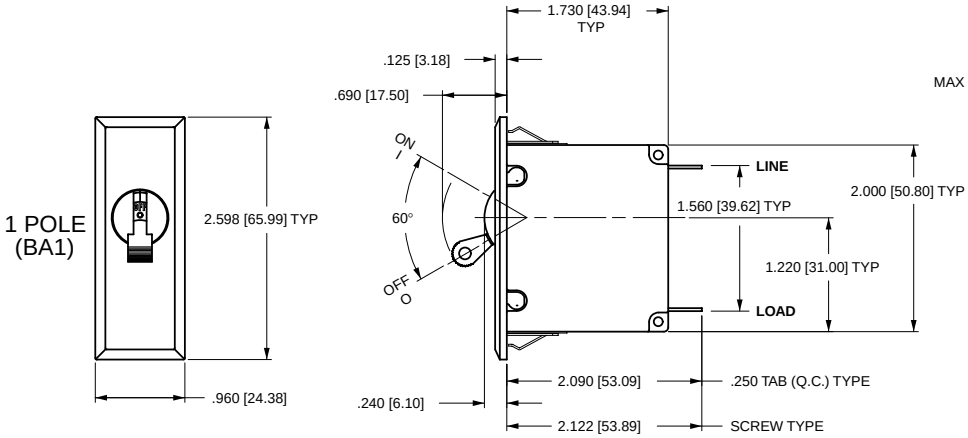


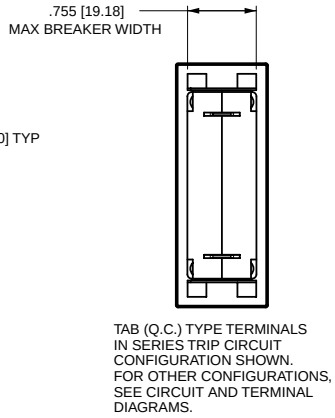
PANEL CUTOUT DETAIL
TOLERANCES ±.005 [±.12]

Notes:
1 All dimensions are in inches [millimeters].
2 Tolerance ±.010 [.25] unless otherwise specified.

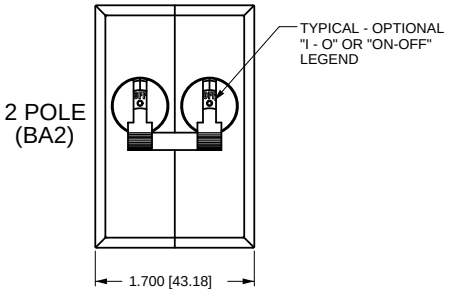


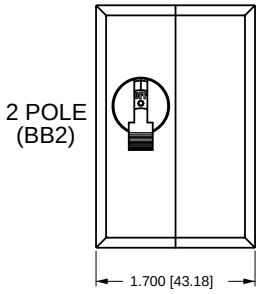
Notes:
1 All dimensions are in inches [millimeters].
2 Recommended panel thickness: .040 [1.02] to .100 [2.54].
3 Tolerance ±.015 [.38] unless otherwise specified.

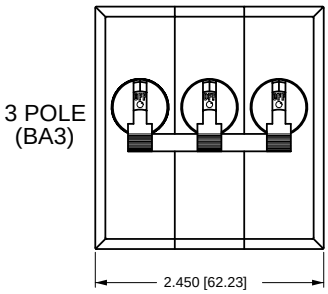


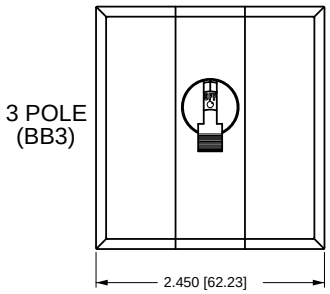


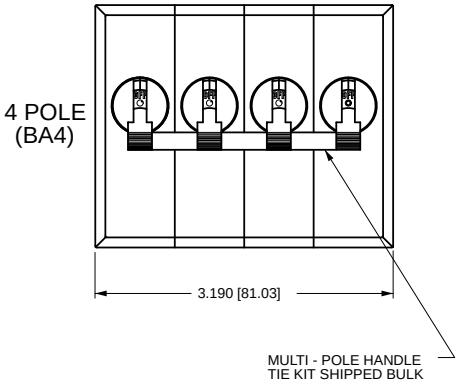
TAB (Q.C.) TYPE TERMINALS IN SERIES TRIP CIRCUIT CONFIGURATION SHOWN. FOR OTHER CONFIGURATIONS, SEE CIRCUIT AND TERMINAL DIAGRAMS.

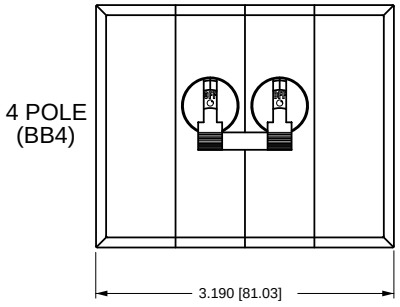


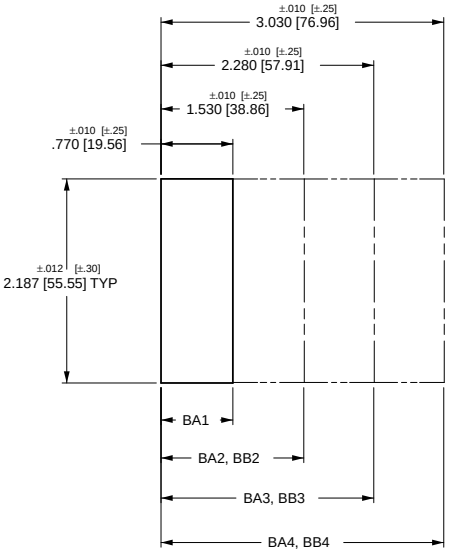






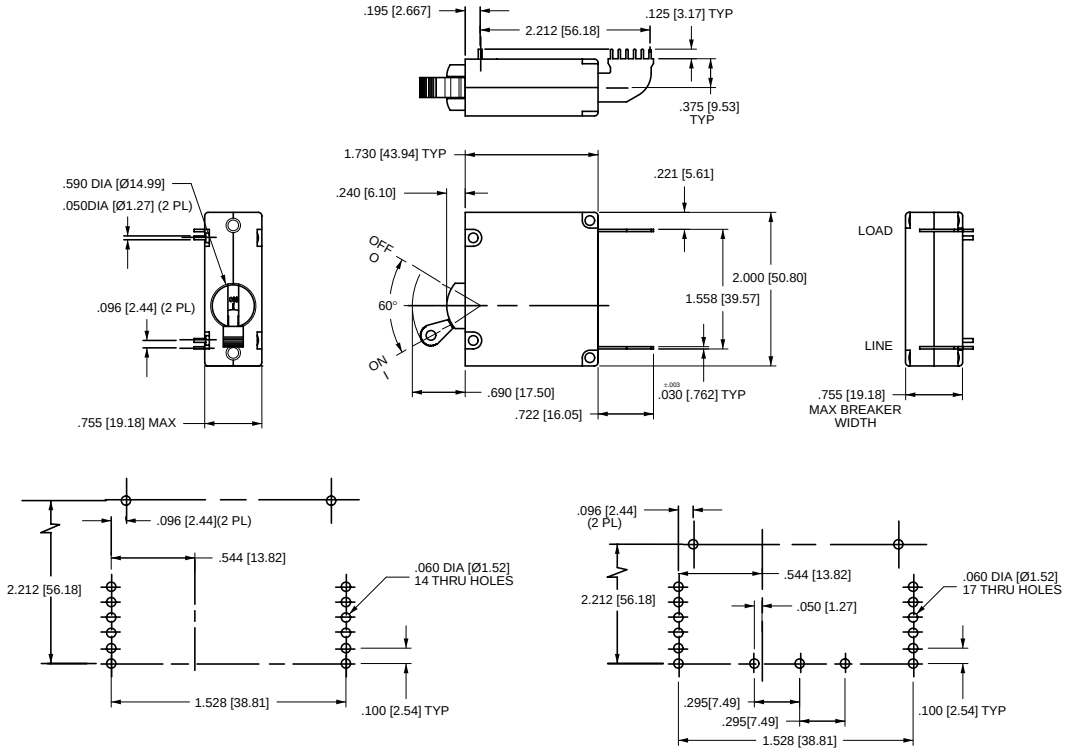






PANEL CUTOUT DETAIL

Notes:
1 All dimensions are in inches [millimeters].
2 Recommended panel thickness .040 [1.02] to .100 [2.54].
3 Tolerance ±.015 [.38] unless otherwise specified.



P.C. FOOT PRINT

P.C. FOOT PRINT WITH AUX. SWITCH

Notes:
1 All dimensions are in inches [millimeters].
2 Tolerance ±.010 [.25] unless otherwise specified.