



A-Series – General Specifications

Compact size and well known for its proven reliability, the A-Series utilizes the hydraulic magnetic principle which provides precise operation and performance even when exposed to extremely hot and/or cold application environments. When aesthetics demand a clean contemporary and functional design, the visi-rocker two-color actuator can be specified. A rockerguard and push-to-reset bezel help prevent inadvertent actuation. A specially constructed version is now available for applications requiring CE markings. The A-series is used in many telecommunications and marine applications.

1-6 poles (handle), 1-3 poles (rocker). 0.02 - 50 amps, up to 277 VAC or 80 VDC, with a choice of time delays, terminals and actuator colors.

Agency Certifications

UL Recognized

UL Standard 1077



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

UL Standard 508



Switches, Industrial Control (Guide 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 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.

A-SERIES TABLE A: COMPONENT SUPPLEMENTARY PROTECTOR							
CIRCUIT CONFIGURATION	VOLTAGE			CURRENT RATING		INTERRUPTING CAPACITY (AMPS)	
	MAX RATING	FREQUENCY	PHASE	FULL LOAD AMPS	GENERAL PURPOSE AMPS	UL / CSA	
						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	31 - 50	---	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	---
	277	50 / 60	1	0.02 - 30	---	5000 ²	---
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	---
	277	50 / 60	1	0.02 - 30	---	5000 ²	---
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	---
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	---
SWITCH ONLY	65	DC	---	0.02 - 50	---	---	---
	80	DC	---	0.02 - 30	---	---	---
	250	50 / 60	1	31 - 50	---	---	---
	250	50 / 60	1	---	31 - 50	---	---
	277	50 / 60	1	0.02 - 30	31 - 50	---	---

Notes for Table A:

- 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.
- Same as note 1, except that backup fuse is limited to 80 A maximum.
- 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.

A-Series – General Specifications

Electrical

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

A-SERIES TABLE B: COMPONENT SUPPLEMENTARY PROTECTOR												
CIRCUIT CONFIGURATION	VOLTAGE			CURRENT RATING		INTERRUPTING CAPACITY (AMPS)						VDE CONSTRUCTION NOTES
	MAX RATING	FREQUENCY	PHASE	FULL LOAD AMPS	GENERAL PURPOSE AMPS 1	UL / CSA		VDE		TUV		
						WITH BACKUP FUSE	WITHOUT BACKUP FUSE	(Inc) WITH BACKUP FUSE	(lcn) WITHOUT BACKUP FUSE	(Inc) WITH BACKUP FUSE	(lcn) WITHOUT BACKUP FUSE	
SERIES	80	DC	---	0.10 - 30	---	---	3000	3000	1500	3000	1500	Handle Version 1 Pole Only
	80	DC	---	31 - 50	31 - 50	---	1500	3000	1500	3000	1500	Handle Version 1 Pole Only
	80	DC	---	0.10 - 30	---	---	3000	3000	1500	3000	1500	Rocker Version 1 - 3 Poles
	80	DC	---	31 - 32	31 - 32	---	1500	3000	1500	3000	1500	Rocker Version 2 Pole Only
	80	DC	---	31 - 50	31 - 50	---	1500	3000	1500	3000	1500	Rocker Version 1 Pole Only
	250	50/60	1 & 3	0.10 - 20	---	5000 ²	3000	3000	1500	3000	1500	Rocker Version 1 - 3 Poles
	250	50/60	1 & 3	21 - 30	---	2000 ² 5000 ³	---	3000	1500	3000	1500	Rocker Version 1 - 3 Poles
	250	50/60	1	0.10 - 30	---	---	2000	3000	1500	5000	1500	Rocker Version 1 - 3 Poles
	250	50/60	1	31 - 50	---	---	2000	---	---	5000	1500	Rocker Version 1 - 3 Poles
DUAL COIL	80	DC	---	0.10 - 30	---	---	3000	3000	1500	3000	1500	Rocker Version 1 - 3 Poles
	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	Handle Version 1 Pole Only
	80	DC	---	0.10 - 30	---	---	3000	3000	1500	3000	1500	Rocker Version 1 - 3 Poles
	250	50/60	1 & 3	0.10 - 20	---	5000 ²	---	3000	1500	3000	1500	Rocker Version 1 - 3 Poles
	250	50/60	1 & 3	21 - 30	---	2000 ² 5000 ³	---	3000	1500	3000	1500	Rocker Version 1 - 3 Poles
	250	50/60	1	31 - 50	31 - 50	---	2000	---	---	5000	1500	Rocker Version 1 - 3 Poles

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 2, 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 (Guide PEQ22, 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	INTERRUPTING CAPACITY (AMPS)
	MAX RATING	FREQ.	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 (Guide DITT, File E189195), under UL489A.

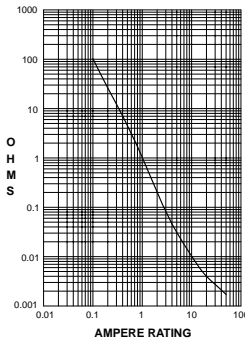
A-SERIES TABLE D: UL489A (COMMUNICATIONS EQUIPMENT)				
CIRCUIT CONFIGURATION	VOLTAGE		CURRENT RATING	INTERRUPTING CAPACITY (AMPS)
	MAX RATING	FREQUENCY	UL GENERAL PURPOSE AMPS	WITHOUT BACKUP FUSE
SERIES	80	DC	.10 - 50	5000

A-Series – General Specifications

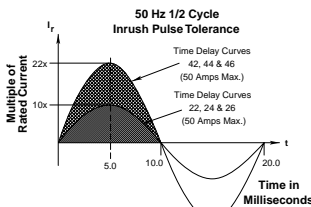
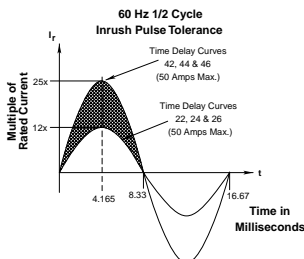
Electrical

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 Dielectric Strength Minimum: 100 Megohms at 500 VDC 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.

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%



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

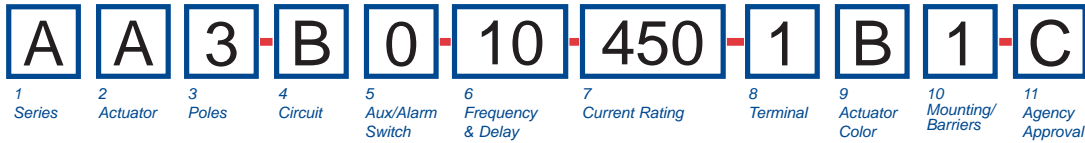
Number of Poles 1 - 6 Poles (handle) and 1-3 poles (rocker) at 30 Amps or less. 1 and 2 poles at 31 Amps thru 50 Amps.
 Internal Circuit Configurations Series, (with or without auxiliary switch), Shunt and Relay with current or voltage trip coils, Dual Coil, Switch Only with or without auxiliary switch.
 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

A-Series Handle UL Recognized – Ordering Scheme



1 SERIES	
A	Series

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
2	Two	4	Four
		5	Five
		6	Six

4 CIRCUIT	
A ²	Switch Only (No Coil) F ³ Relay Trip (Current)
B	Series Trip (Current) G ³ Relay Trip (Voltage)
C	Series Trip (Voltage) H ^{3,4} Dual Coil with Shunt Trip
D ³	Shunt Trip (Current) K ^{3,4} Dual Coil with Relay Trip
E ³	Shunt Trip (Voltage) Voltage Coil

5 AUXILIARY/ALARM SWITCH 5	
0	w/o Aux Switch
1	S.P.D.T., 0.093 Q.C. Term.
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)
5	S.P.S.T., 0.093 Q.C. Term.(Gold Contacts)
6	S.P.S.T., 0.139 Solder Lug
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 ⁶	DC Instantaneous
11	DC Ultra Short
12	DC Short
14	DC Medium
16	DC Long
20 ⁶	50/60Hz Instantaneous
21	50/60Hz Ultra Short
22	50/60Hz Short0
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 ⁷	50/60Hz Short, Hi-Inrush
44 ⁷	50/60Hz Medium, Hi-Inrush
46 ⁷	50/60Hz Long, Hi-Inrush
52 ⁷	DC, Short, Hi-Inrush
54 ⁷	DC, Medium, Hi-Inrush
56 ⁷	DC, Long, Hi-Inrush

7 CURRENT RATING (AMPERES)			
020	0.020	225	0.250
025	0.025	230	0.300
030	0.030	235	0.350
035	0.035	240	0.400
040	0.040	245	0.450
045	0.045	250	0.500
050	0.050	255	0.550
055	0.055	260	0.600
060	0.060	265	0.650
065	0.065	270	0.700
070	0.070	275	0.750
075	0.075	280	0.800
080	0.080	285	0.850
085	0.085	290	0.900
090	0.090	295	0.950
095	0.095	410	1.000
210	0.100	512	1.250
215	0.150	415	1.500
220	0.200	517	1.750
420	2.000	611	11.000
422	2.250	711	11.500
527	2.750	612	12.000
430	3.000	712	12.500
435	3.500	613	13.000
440	4.000	614	14.000
445	4.500	615	15.000
450	5.000	616	16.000
455	5.500	617	17.000
460	6.000	618	18.000
465	6.500	620	20.000
470	7.000	622	22.000
475	7.500	624	24.000
480	8.000	625	25.000
485	8.500	630	30.000
490	9.000	635 ⁸	35.000
495	9.500	640 ⁸	40.000
610	10.000	645 ⁸	45.000
710	10.500	650 ⁸	50.000

OR VOLTAGE COIL (NOMINAL RATED VOLTAGE) ⁶			
A06	6 DC	A32	32 DC
A12	12 DC	A48	48 DC
A18	18 DC	A65	65 DC
A24	24 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 ⁹	
1 ¹⁰	Push-On 0.250 Tab (Q.C.)
2	Screw 8-32 w/upturned lugs
3 ¹¹	Screw 8-32 (Bus Type)
4	Screw 10-32 w/upturned lugs
5 ¹¹	Screw 10-32 (Bus Type)
6	Screw 8-32 w/upturned lugs and 30° bend
7	Screw 8-32 (Bus Type) and 30° bend
8	Screw 10-32 w/upturned lugs and 30° bend
9	Screw 10-32 (Bus Type) and 30° bend
B	Screw M5 w/upturned lugs
C	Screw M4 w/upturned lugs
E ¹¹	Screw M4 (Bus Type)
F	Screw M5 w/upturned lugs and 30° bend
G	Screw M5 (Bus Type) and 30° bend
H	Screw M5 (Bus Type)
L ¹²	0.250 Q.C./ Solder Lug
M ¹¹	M6 Threaded Stud
Q	Push-In Stud
R	Screw M4 w/upturned lugs and 30° bend
T ¹¹	Screw M4 (Bus Type) and 30° bend
P ¹³	Printed Circuit Board Terminals
S ¹³	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) ¹⁴	T	U	9	White

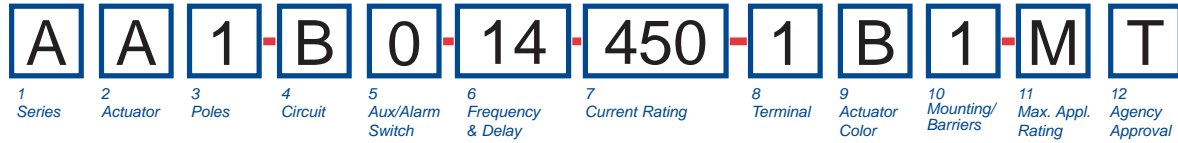
10 MOUNTING/BARRIERS	
MOUNTING STYLE	BARRIERS
Threaded Inserts, 2 per pole	
1	6-32 x 0.195 inches
A	6-32 X 0.195 inches
2	ISO M3 x 5mm
B	ISO M3 x 5mm
Front panel Snap-In, 0.75" wide bezel	
5	without Handguard
6	without Handguard
Front panel Snap-In, 0.96" wide bezel	
7	without Handguard on 1-pole units; .105 " bezel overhang/ side on multipole units
8	without Handguard on 1-pole units; .105 " bezel overhang/side on multipole units

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. 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 & Switch Only circuits: $\leq 30A$ - 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. Separate pole type voltage coils not rated for continuous duty. Available only with delay codes 10 and 20.
- 6 Available with Circuit Codes B & D only. VDE Certified to 30 amps. UL Recognized and CSA Certified to 50 amps.
- 7 VDE Certification available with single pole breakers with DC Delay only. UL Recognition and CSA Certification available in one and two pole breakers.
- 8 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..
- 9 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.
- 10 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.
- 11 Terminal Code L: VDE Cert. available up to 12 amps. UL Rec. & CSA Cert. available up to 30 amps.
- 12 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 Single pole only.

A-Series Handle UL489A – Ordering Scheme



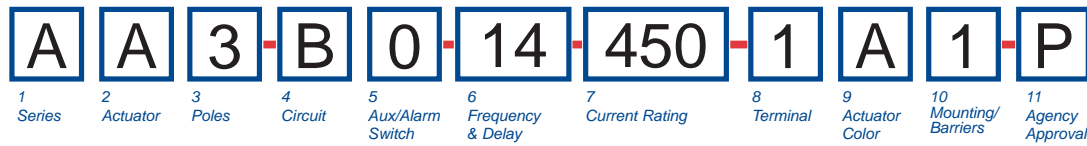
1 SERIES		
A		
2 ACTUATOR¹		
A Handle, one per pole		
S Mid-Trip Handle, one per pole		
T Mid-Trip Handle, one per pole & Alarm Switch		
3 POLES²		
1 One	2 Two	
3 Three	4 Four	
4 CIRCUIT		
B Series Trip (Current)		
5 AUXILIARY/ALARM SWITCH⁵		
0 w/o Aux Switch	7 S.P.S.T., 0.110 Q.C.	
1 S.P.D.T., 0.093 Q.C. Term.	Term.(Gold Contacts)	
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		
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 TERMINAL⁸			
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
Black (short handle) ⁹	T	9	White
10 MOUNTING/BARRIERS			
MOUNTING STYLE			BARRIERS
<i>Threaded Insert, 2 per pole</i>			
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
<i>Front panel Snap-In, 0.75" wide bezel</i>			
5	without Handleguard		no
6	without Handleguard		yes
<i>Front panel Snap-In, 0.96" wide bezel</i>			
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.
- 9 Single pole only.

A-Series Handle WORLD – Ordering Scheme



1 SERIES	
A	
2 ACTUATOR¹	
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	3 Three
2 Two	4 Four
	5 Five
	6 Six
4 CIRCUIT	
A² Switch Only (No Coil)	D³ Shunt Trip (Current)
B Series Trip (Current)	E³ Shunt Trip (Voltage)
C Series Trip (Voltage)	H^{3,4} Dual Coil with Shunt Trip Voltage Coil
5 AUXILIARY/ALARM SWITCH⁵	
0 w/o Aux Switch	4 S.P.D.T., 0.110 Q.C. Term. (Gold Contacts)
2 S.P.D.T., 0.110 Q.C. Term.	
3 S.P.D.T., 0.139 Solder Lug	
6 FREQUENCY & DELAY	
03 DC 50/60Hz, Switch Only	30 DC, 50/60Hz Instantaneous
10⁶ 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	42⁷ 50/60Hz Short, Hi-Inrush
20⁶ 50/60Hz Instantaneous	44⁷ 50/60Hz Medium, Hi-Inrush
21 50/60Hz Ultra Short	46⁷ 50/60Hz Long, Hi-Inrush
22 50/60Hz Short	52⁷ DC, Short, Hi-Inrush
24 50/60Hz Medium	54⁷ DC, Medium, Hi-Inrush
26 50/60Hz Long	56⁷ DC, Long, Hi-Inrush

7 CURRENT RATING (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 (NOMINAL RATED VOLTAGE)⁸							
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 TERMINAL⁸		B Screw M5 w/upturned lugs
1¹⁰ Push-On 0.250 Tab (Q.C.)	2 Screw 8-32 w/upturned lugs	C Screw M4 w/upturned lugs
3¹¹ Screw 8-32 (Bus Type)	4 Screw 10-32 w/upturned lugs	E¹¹ Screw M4 (Bus Type)
5¹¹ Screw 10-32 (Bus Type)	6 Screw 8-32 w/upturned lugs and 30° bend	F Screw M5 w/upturned lugs and 30° bend
7 Screw 8-32 (Bus Type) and 30° bend	8 Screw 10-32 w/upturned lugs and 30° bend	G Screw M5 (Bus Type) and 30° bend
9 Screw 10-32 (Bus Type) and 30° bend		H Screw M5 (Bus Type)
		M¹¹ M6 Threaded Stud Push-In Stud
		Q Screw M4 w/upturned lugs and 30° bend
		R Screw M4 w/upturned lugs and 30° bend
		T¹¹ Screw M4 (Bus Type) and 30° bend

9 ACTUATOR COLOR & LEGEND			
Actuator Color	I-O	Dual	Legend Color
White	A	1	Black
Black	C	2	White
Red	F	3	White
Green	H	4	White
Blue	K	5	White
Yellow	M	6	Black
Gray	P	7	Black
Orange	R	8	Black

10 MOUNTING/BARRIERS	
MOUNTING STYLE	BARRIERS
Threaded Inserts, 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
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 AGENCY APPROVAL	
P TUV Certified, UL Recognized & CSA Certified	
Q 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.
 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.

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 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 and up to 30 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. Terminal Code M (M6 Threaded Stud) with TUV is supplied with lock and flat washers.

A-Series Rocker UL489A – Ordering Scheme

A F 1 - B 0 - 14 - 450 - 1 3 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

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, Single color
R Vertical legend
U Horizontal legend

	INDICATE 'ON'	INDICATE 'OFF'	SINGLE COLOR
VERTICAL STYLE	CODE 'C' 	CODE 'F', 'N' 	CODE 'J', 'R'
HORIZONTAL STYLE	CODE 'D' 	CODE 'G', 'O' 	CODE 'K', 'U'

3 POLES²

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

4 CIRCUIT

B Series Trip (Current)

5 AUXILIARY/ALARM SWITCH

0 w/o Aux Switch	7 S.P.S.T., 0.110 Q.C. Term. (Gold Contacts)
1³ S.P.D.T., 0.093 Q.C. Term.	8 S.P.S.T., 0.187 Q.C. Term.
2³ S.P.D.T., 0.110 Q.C. Term.	9 S.P.D.T., 0.187 Q.C. Term.
3³ S.P.D.T., 0.139 Solder Lug	

6 FREQUENCY & DELAY

11 DC Ultra Short	52⁴ DC, Short, Hi-Inrush
12 DC Short	54⁴ DC, Medium, Hi-Inrush
14 DC Medium	56⁴ 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	635⁵ 35.000
295 0.950	490 9.000	640⁵ 40.000
410 1.000	495 9.500	645⁵ 45.000
512 1.250	610 10.000	650⁵ 50.000

8 TERMINAL⁶

1⁷ 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
3⁸ 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
5⁸ Screw 10-32 (Bus Type)	H Screw M5 (Bus Type)
6 Screw 8-32 w/upturned lugs and 30° bend	M⁸ M6 Threaded Stud
7 Screw 8-32 (Bus Type) and 30° bend	P⁹ Printed Circuit Board
8 Screw 10-32 w/upturned lugs and 30° bend	Q Push-In Stud

9 ACTUATOR COLOR & LEGEND

Actuator or

Color:	ON-OFF	Single Color	Marking Color:	Marking Color:
White	1	Dual/None	Rocker/Handle	Visi-Rocker
Black	D	2	Black	White
Red	G	3	White	n/a
Green	J	4	White	Red
Blue	L	5	White	Green
Yellow	N	6	Black	Blue
Gray	Q	7	Black	Yellow
Orange	S	8	Black	Gray
				Orange

10 MOUNTING/BARRIERS

	STANDARD ROCKER BEZEL	BARRIERS
	Threaded Insert, 2 per pole	
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
	ROCKERGUARD & 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
8	FRONT PANEL SNAP-IN BRACKET, 0.744" [18.90mm] wide bezel	
	without Rockerguard (multi-pole units only)	no
H	with Rockerguard (multi-pole units only)	yes
	FRONT PANEL SNAP-IN BRACKET, 0.96" [24.48mm] wide bezel	
9	without Rockerguard (single pole units only)	no
J	with Rockerguard (single pole units only)	yes

11 MAXIMUM APPLICATION RATING

M 80 DC

12 AGENCY APPROVAL

T UL489A LISTED
K UL489A LISTED, VDE CERTIFIED

- Notes:
- 1 Push-To-Reset actuators have OFF portion of rocker shrouded.
 - 2 Multi-pole breakers have all breakers identical except when specifying Aux. switch and/or mixed poles, and have one rocker per breaker.
 - 3 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.
 - 4 VDE Certified to 30 amps. UL489A Listed to 50 amps.
 - 5 VDE Certification available with single pole breakers only. UL489A Listing available with one and two pole breakers.
 - 6 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.
 - 7 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.
 - 8 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.
 - 9 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.

A-Series Handle – Circuit & Terminal Diagrams

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

Notes:

- 1 All dimensions are in inches [millimeters].
- 2 Tolerance ± 0.015 [.38] unless otherwise specified.
- 3 Alarm Switch available with .110 x .020 Q.C. & Solder Lug Terminals Only.

A-Series Handle – Circuit & Terminal Diagrams

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

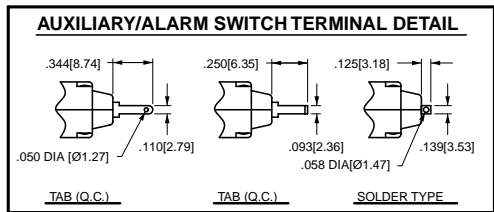
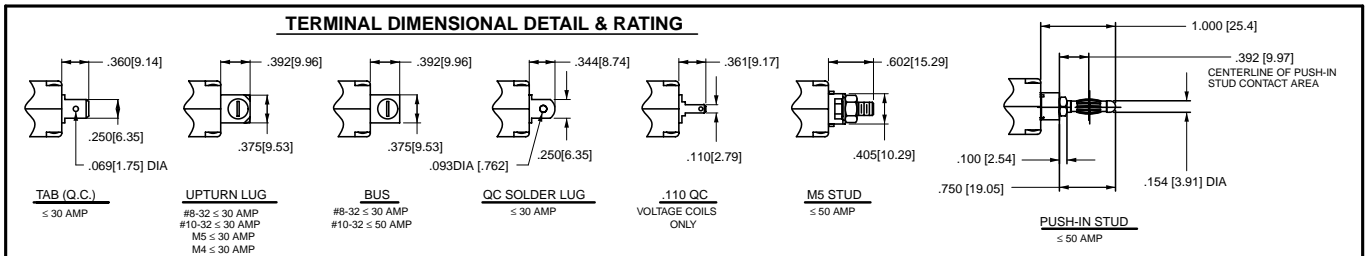


TABLE A TIGHTENING TORQUE SPECIFICATIONS

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]
#10-32 & M5 THREAD TERMINAL SCREW	15-20 IN-LB [1.7-2.3 NM]

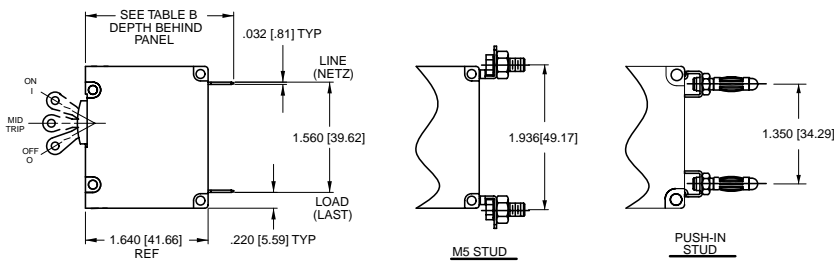
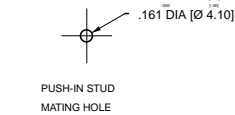


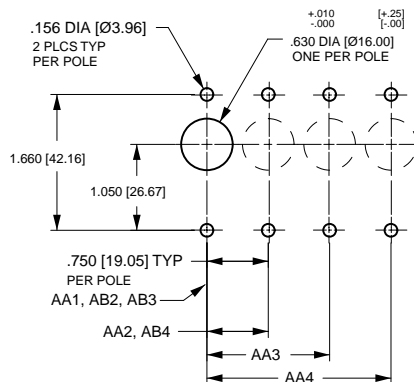
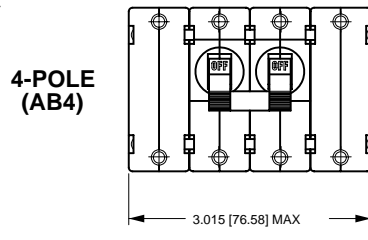
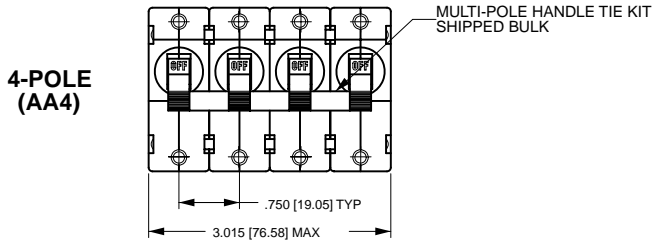
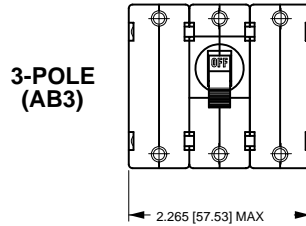
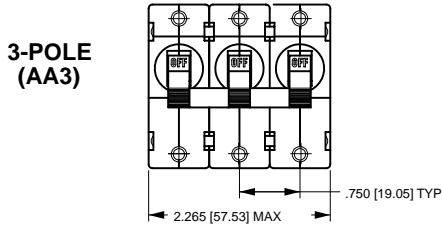
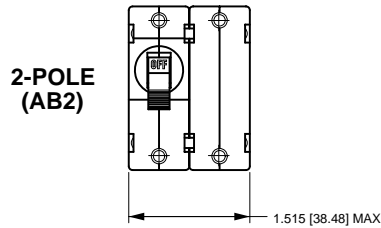
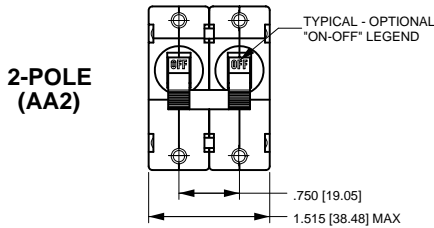
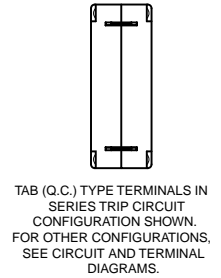
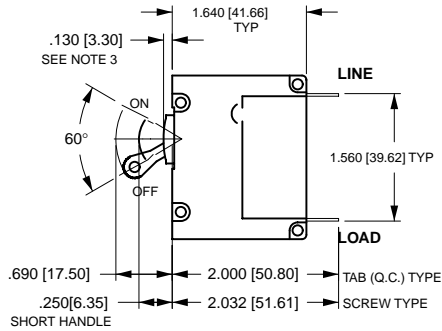
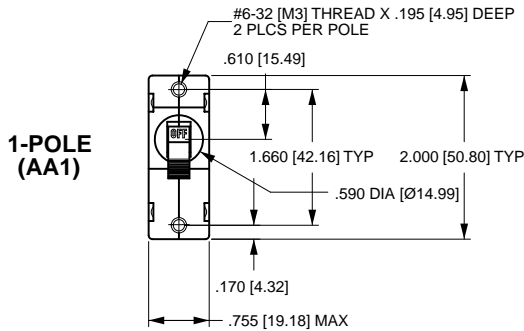
TABLE B

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. SEE PAGE

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

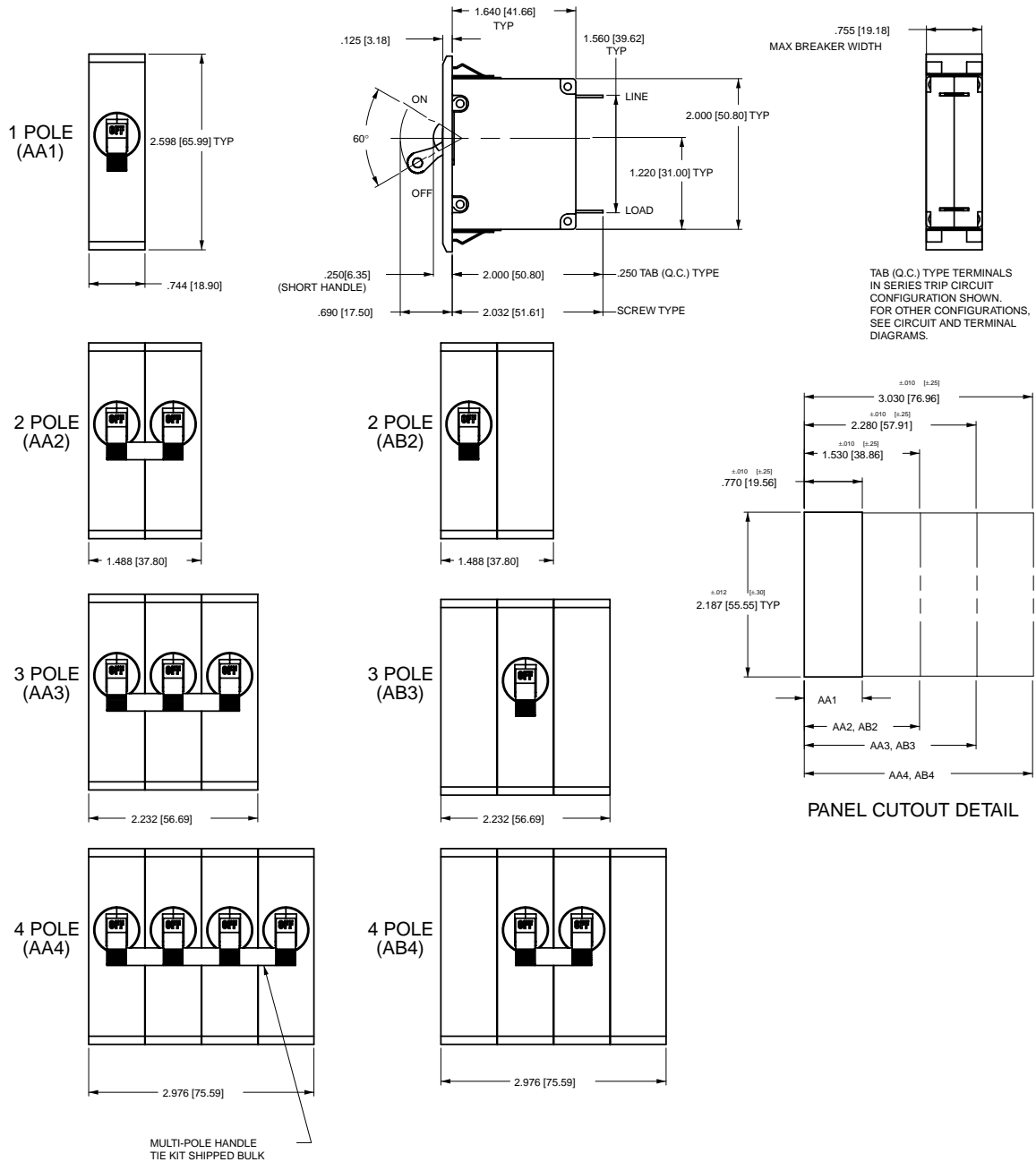
A-Series Handle – Form & Fit Drawings



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

- Notes:
 1 All dimensions are in inches [millimeters].
 2 Tolerance ±.010 [.25] unless otherwise specified.
 3 For agency code P = .150 [3.81].

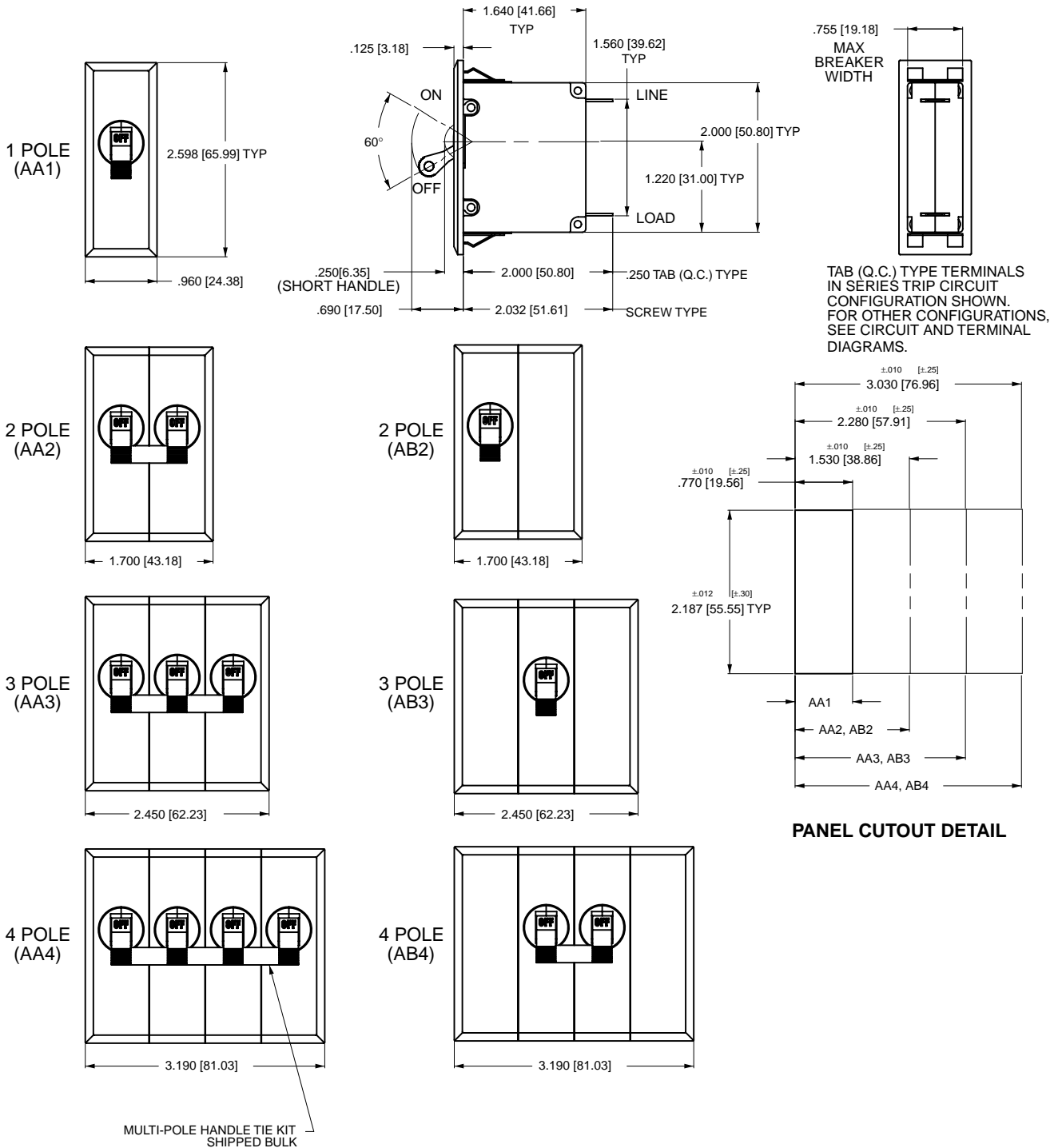
A-Series Handle – Front Panel Snap-In Mounting Style 5



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.

A-Series Handle— Front Panel Snap-In Mounting Style 7

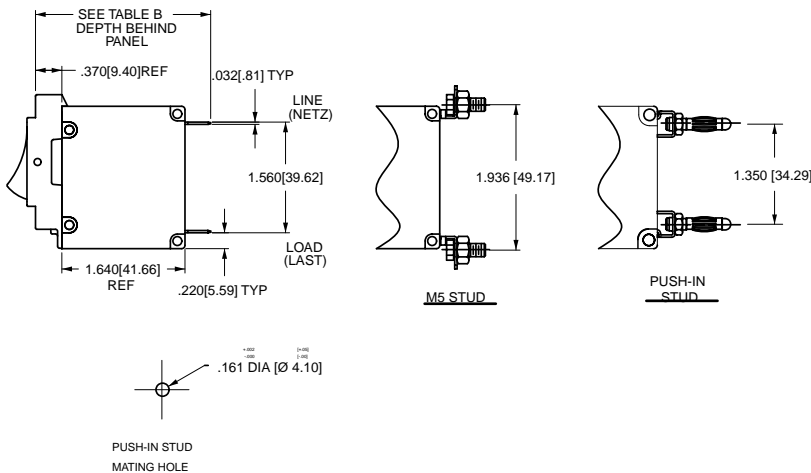


Notes:

- 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.

A-Series Rocker – Circuit & Terminal Diagrams

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

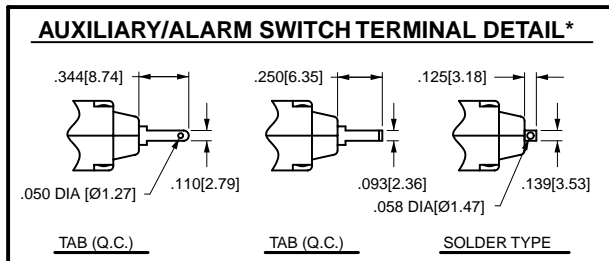
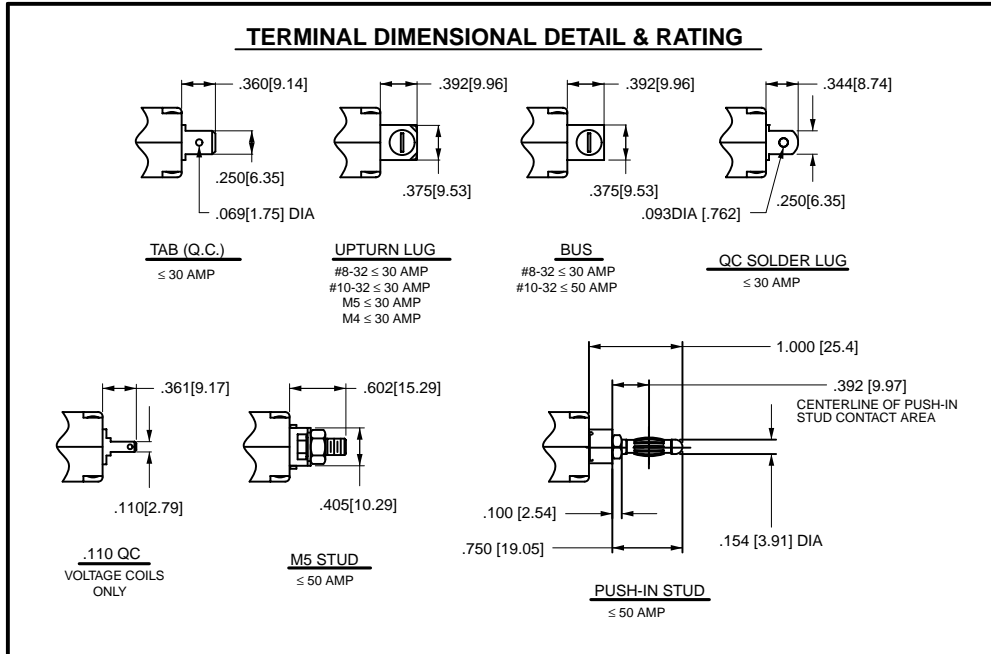


TERMINAL DESCRIPTION		DEPTH BEHIND PANEL
MAIN	TAB (Q.C.)	2.370 [60.20]
	SCREW TYPE	2.402 [61.01]
SHUNT, RELAY & DUAL COIL	TAB (Q.C.)	2.577 [65.46]
	SCREW #8-32 W/UPTURNED LUGS	2.734 [69.44]
AUX. SWITCH*	.093 TAB (Q.C.)	2.465 [62.61]
	.110 TAB (Q.C.)	2.559 [65.00]
	SOLDER TYPE	2.340 [59.44]

* 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.

- Notes:
- 1 All dimensions are in inches [millimeters].
 - 2 Tolerance ±.015 [.38] unless otherwise specified.
 - 3 Schematic shown represents current trip circuit.
 - 4 Circuits shown for >30 amps / VDE.

A-Series Rocker – Circuit & Terminal Diagrams



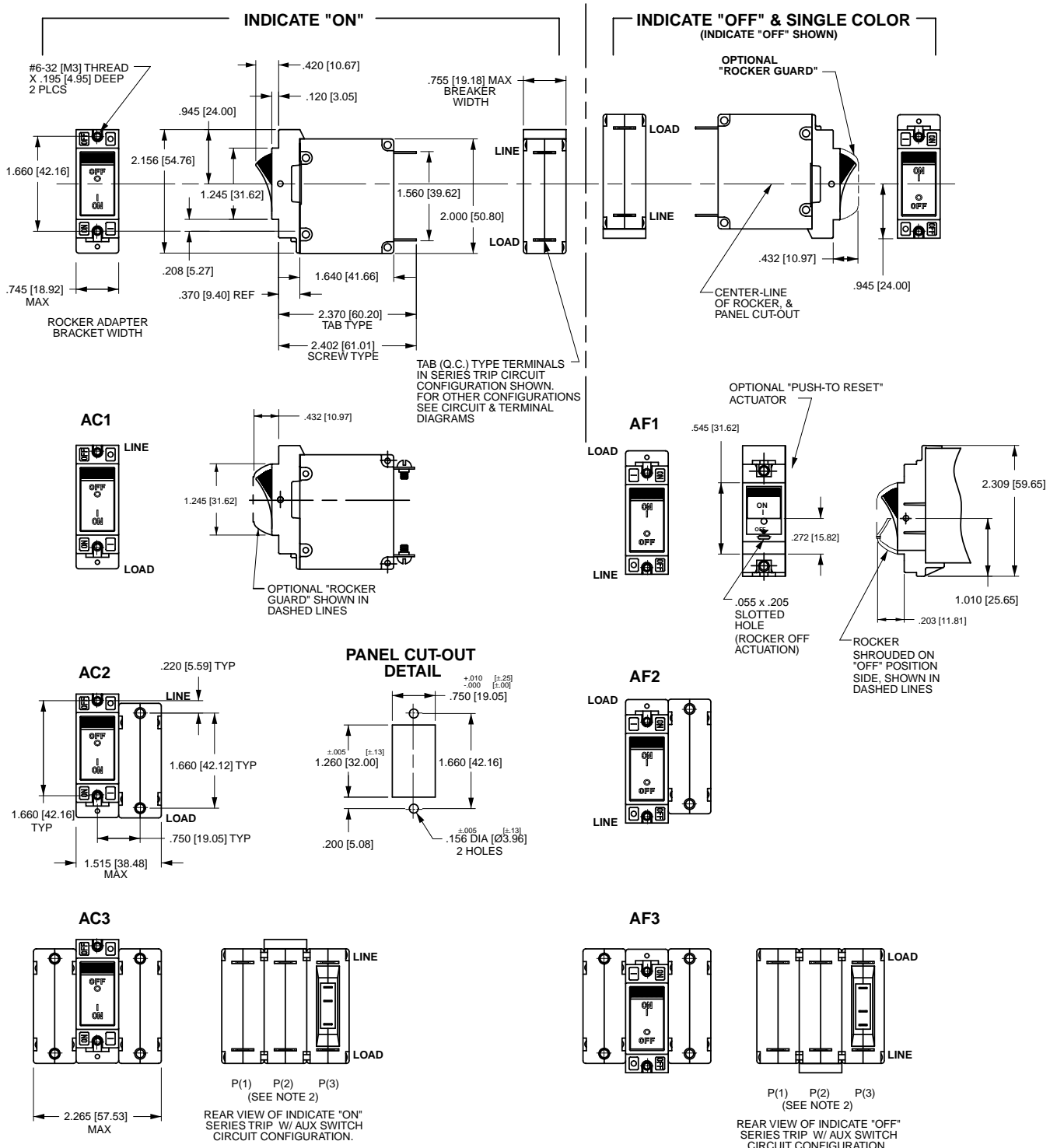
**TABLE A
TIGHTENING TORQUE
SPECIFICATIONS**

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]

Notes:

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

A-Series Rocker – Form & Fit Drawings

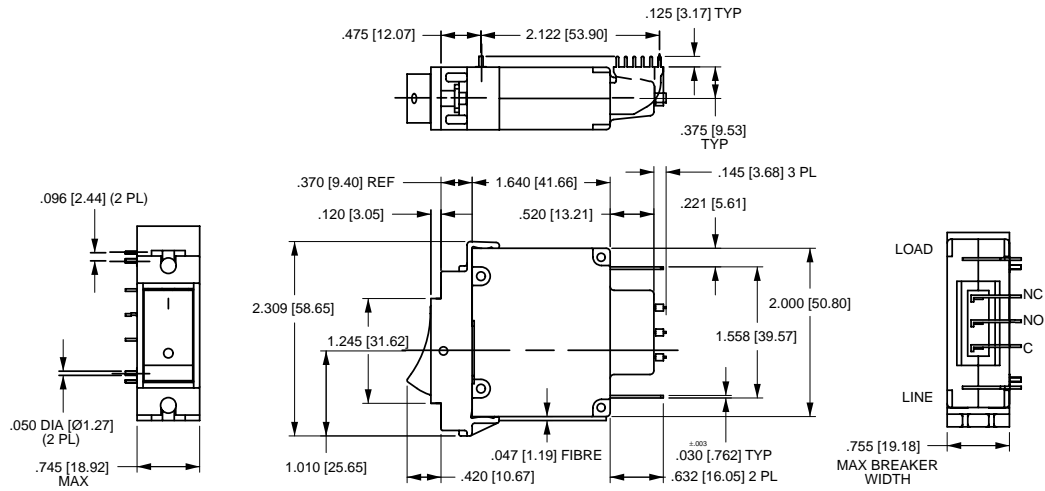


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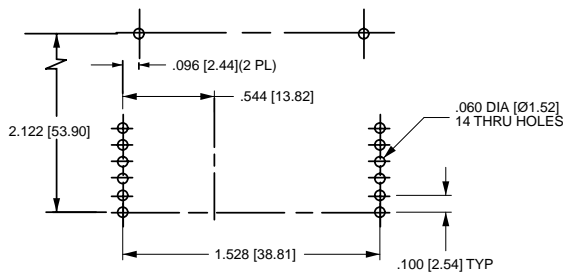
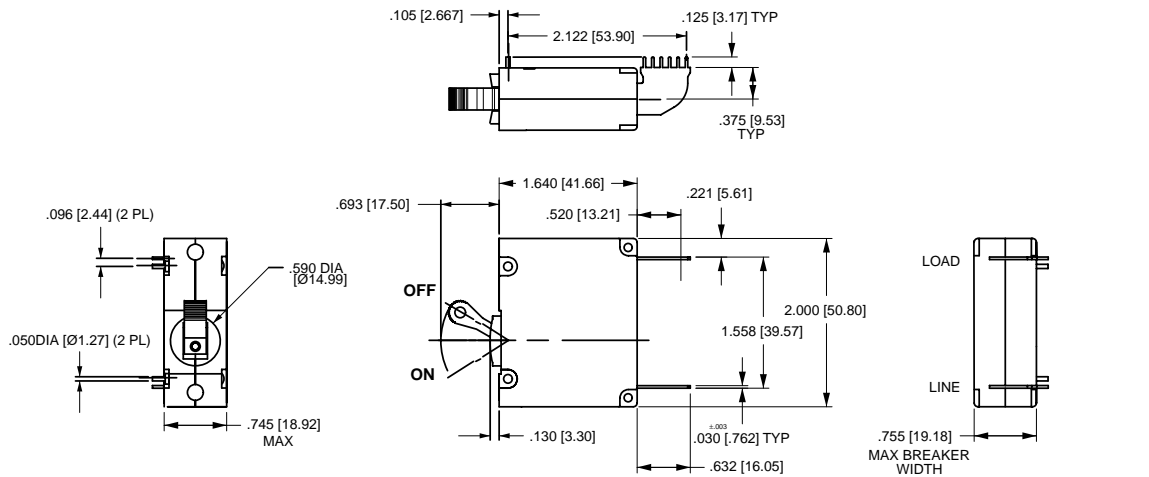
- 1 Dimensions apply to all variations shown. Notice that circuit breaker line & load terminal orientation on indicate OFF is opposite of indicate ON.
- 2 For pole orientation with horizontal legend, rotate front view clockwise 90°.
- 3 All dimensions are in inches [millimeters].
- 4 Tolerance ±.010 [±.25] unless otherwise specified.

A-Series PC Terminal Diagrams

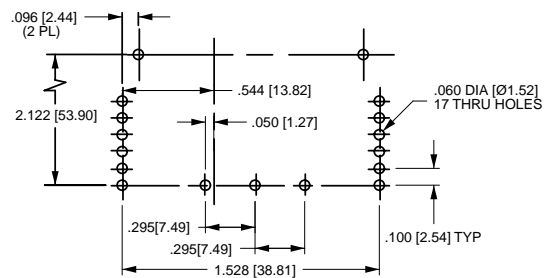
A-SERIES ROCKER



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 ± 0.10 [.25] unless otherwise specified.