





➡ Product Type

Hydraulic/Magnetic Circuit Breaker

Product Series A-Series

Description
A-Series PDF eLibrary ↓

The A-Series hydraulic/magnetic circuit breakers are compact and temperature stable designed for precision operation in OEM markets requiring general purpose as well as full load amp applications. These circuit breakers are available with handle actuators for 1- 6 poles. When front panel

operation and aesthetics demand a clean, contemporary design, two color Visi-Rocker which can indicate either the ON mode or the TRIPPED/OFF mode, and solid color rocker actuators are available. Rocker actuators are available in 1-3 pole construction. The new Rockerguard bezel and push-to-reset bezel help prevent inadvertent actuation. A-Series circuit breakers are offered from in 0.02 to 50 amps, up to 277VAC or 80VDC. They are available with a choice of time delays, terminals, actuator styles, with a wide range of standard colors, & imprinting.

Series PDF eLibrary	 A-Series Cir. Breaker PDF (3.5 MB) Cir. Breaker Time Delays for A,B,C,D & PD-Series PDF (2.3 MB) Cir. Breaker Accessories PDF (49.5 KB)
Certifications	UL recognized, CSA, TUV, VDE - 0642, UL-1500, UL489A listed (Telecom)
Number of Poles	1-6 poles
Available Delays	Instant, Ultra-Short, Short, Medium, Long (motor loads), AC,DC, AC/DC; High Inrush - Short, Medium, Long
Maximum Current and Voltage Ratings	0.02-30A @ 277VAC, 80VDC 31.0-50A @ 125/250VAC, 80VDC 0.1 - 50A @ 80VDC (UL489A)
Maximum Interrupting Capacity	3,000A @ 65VDC (UL only) 3,500A @ 65VDC w/fuse back up 3,000A @ 125/250VAC (UL only) 5,000A @ 277VAC w/fuse back up 5,000A @ 80VDC (UL489A)
Auxiliary Switch Ratings	10.1A @ 250VAC 0.1A @ 125VAC (gold contacts) 5A @ 30VDC 0.5A @ 80VDC 1.0A @ 65VDC
Available Circuits	Series, Shunt, Relay, Switch Only, Series w/Remote Shutdown, Relay and Shunt Trip Dual Coil
Actuator Style	Solid Color Curved Rocker (1 per unit) Two Color Visi-Rocker (1 per unit) Handle (1 per pole or 1 per unit) Mid Trip Handle (1 per pole or 1 per unit)

Terminal Options	.250 QC Tabs 8-32 Screw w/ Upturned Lugs 8-32 Screw (Bus Type) 10-32 Screw w/ Upturned Lugs 10-32 Screw (Bus Type) M4 & M5 Screw (Bus Type) M4 & M5 Screw w/ Upturned Lugs Push in Stud Terminals			
Mounting Method	Front Panel Snap-in Front Panel (handle actuator)			
Value Added	Custom actuator colors PC Terminals available Non-standard amp ratings Panel hole plug available and more			



Agency Certifications

UL Recognized

UL Standard 1077



UL Standard 508



UL Standard 1500



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

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

Protectors, Supplementary for Marine Electrical & Fuel Systems (Guide PEQZ2, File E75596) Ignition Protection 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. In addition, these breakers meet CSA Standard 22.2 No. 100 for the Generator & Welder markets.

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.

UL Listed

UL Standard 489A



CSA Accepted



TUV Certified



VDE Certified



Communications Equipment (Guide CCN/DITT, File E189195)

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

EN60934, under License No. R72040875

EN60934, VDE 0642 under File No. 10537

Electrical

Maximum Voltage Current Ratings 277VAC 50/60 Hz, 80VDC 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

Auxiliary Switch Rating

DC-6V, 12V; AC-120V, Other ratings available, consult ordering scheme. SPDT; 10.1 A - 250VAC, 1.0 A-65VDC/0.5 A - 80 VDC,

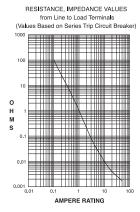
Insulation Resistance Dielectric Strength 0.1A - 125VAC (with gold contacts).

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.

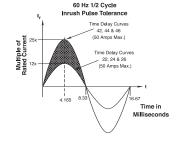
Resistance, Impedance

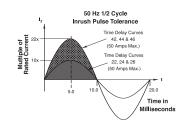
Values from Line to Load Terminal - based on Series Trip Circuit Breaker.



TOLERANCE (%)		
15%		
25%		
35%		

Pulse Tolerance Curves





Mechanical

Endurance 10,000 ON-OFF operations @ 6 per

Trip Free All A-Series Circuit Breakers will trip on overload, even when the actuator

is forcibly held in the ON position.

minute; with rated Current & Voltage.

Trip Indication The operating actuator moves positively to the OFF position when an

tively 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

Vibration

Thermal Shock

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.

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

rated current

Moisture Resistance Method 106D; ten 24-hour cycles @

+ 25°C to +65°C, 80-98% RH.56

ultrashort curves tested at 90% of

days @ +85°C, 85% RH.

Salt Spray Method 101, Condition A (90-95%

RH @ 5% NaCl Solution, 96 hrs). Method 107D, Condition A (Five cycles @ -55°C to +25°C to +85°C

to +25°C).

Operating Temperature -40° C to +85° C

	Δ Δ	0		40	1		4 = 0		4		4		
	$A \sqcup A \sqcup$	3 –	·IBI	0 - 10	_	- .	450) —	· 1	IB	II 1	_	
1		3	1	5 6		7			8	9	10		11
Se		Poles	Circuit	Aux/Alarm Frequency		Cu	rent Rating		Terminal	Actuator		′	Agency
				Switch & Delay						Color	Damers		Approval
	1 SERIES					7 CU	RRENT RA	TING (AN	IPERES)				
/	Α					020 025	0.020 0.025	225 230	0.250 0.300	420 522	2.000 2.250	611 711	11.000 11.500
	2 ACTUATOR 1					030	0.025	235	0.350	52Z 527	2.250	612	12.000
	A Handle, one pB Handle, one p		\i4			035 040	0.035 0.040	240 245	0.400 0.450	430 435	3.000 3.500	712 613	12.500 13.000
	S Mid-Trip Hand					045	0.045	250	0.430	440	4.000	614	14.000
	T Mid-Trip Hand	le, one per pol	le & Alarm Sv	vitch		050 055	0.050 0.055	255 260	0.550 0.600	445 450	4.500 5.000	615 616	15.000 16.000
	3 POLES					060	0.060	265	0.650	455	5.500	617	17.000
1	1 One	3 4	Three	5 Five		065	0.065	270	0.700	460	6.000	618	18.000
	2 Two	4	Four	6 Six		070 075	0.070 0.075	275 280	0.750 0.800	465 470	6.500 7.000	620 622	20.000 22.000
4	4 CIRCUIT		F³	Relay Trip (Current)		080	0.080	285	0.850	475	7.500	624	24.000
	A ² Switch Only (N	,	G³	Relay Trip (Voltage)		085 090	0.085 0.090	290 295	0.900 0.950	480 485	8.000 8.500	625 630	25.000 30.000
	B Series Trip (Co C Series Trip (Vo	,	H ^{3,4}	Dual Coil with Shunt Trip Voltage Coil		095	0.095	410	1.000	490	9.000	635°	35.000
	D ³ Shunt Trip (Cu		K ^{3,4}	Dual Coil with Relay Trip		210 215	0.100 0.150	512 415	1.250 1.500	495 610	9.500 10.000	640° 645°	40.000 45.000
ı	E ³ Shunt Trip (Vo	,		Voltage Coil		220	0.200	517	1.750	710	10.500	650°	50.000
			_	0.D0.T. 0.000.0.0					IINAL RATE				
	5 AUXILIARY/ALAF 0 w/o Aux Switch		5	S.P.S.T., 0.093 Q.C. Term.(Gold Contacts)		A06 A12	6 DC 12 DC	A32 A48	32 DC 48 DC	J12 J18	12 AC 18 AC	J65 K20	65 AC 120 AC
1	1 S.P.D.T., 0.093	3 Q.C. Term.	6	S.P.S.T., 0.139 Solder Lug		A18	18 DC	A65	65 DC	J24	24 AC	L40	240 AC
	S.P.D.T., 0.110 S.P.D.T., 0.139		7	S.P.S.T., 0.110 Q.C. Term.(Gold Contacts)		A24	24 DC	J06	6 AC	J48	48 AC		
	S.P.D.T., 0.110		8	S.P.S.T., 0.187 Q.C. Term.		8 TFI	RMINAL			E ¹¹	Screw M4 (Rus Tyn	e)
	(Gold Contact:	s)	9	S.P.D.T., 0.187 Q.C. Term.		110	Push-On 0			F	Screw M5 v	v/upturne	
	6 FREQUENCY & DE	ΙΔΥ				2 3 ¹¹	Screw 8-3 Screw 8-3			G	and 30° bei		۵)
	03 DC 50/60Hz,		30	DC, 50/60Hz Instantaneous		4	Screw 10-			J	and 30° bei	nd	·
	10⁶ DC Instantane11 DC Ultra Shor		31 32	DC, 50/60Hz Ultra Short DC, 50/60Hz Short		5 ¹¹	Screw 10- Screw 8-3			H ¹¹ L ¹²	Screw M5 (0.250 Q.C./		
	12 DC Short	·	34	DC, 50/60Hz Medium		O	and 30° be		ieu iugs	M ¹¹	M6 Thread		Lug
	14 DC Medium 16 DC Lona		36 42 ⁷	DC, 50/60Hz Long		7	Screw 8-3	2 (Bus Typ	e) and	Q14	Push-In Stu		
	16 DC Long 20 ⁶ 50/60Hz Insta	ntaneous	447	50/60Hz Short, Hi-Inrush 50/60Hz Medium, Hi-Inrush		8	30° bend Screw 10-	32 w/uptui	rned lugs	R	Screw M4 vand 30° bei		ea lugs
	21 50/60Hz Ultra		46 ⁷	50/60Hz Long, Hi-Inrush		_	and 30° be			T ¹¹	Screw M4 (e)
	50/60Hz Shor50/60Hz Medi		52 ⁷ 54 ⁷	DC, Short,Hi-Inrush DC,Medium, Hi-Inrush		9	Screw 10- 30° bend	32 (Bus Ty	/pe) and	P ¹³	and 30° bei		d
	26 50/60Hz Long		56 ⁷	DC, Long, Hi-Inrush		В	Screw M5			-	Terminals		
Note					_	С	Screw M4	w/upturne	d lugs	S ¹³	Push-On 0.	110 Tab	(Q.C.)
1	Actuator Code: A: Handle tie pin spa	cer(s) and retair	ners provided u	nassembled with multi-pole units.		9 AC	TUATOR C	OLOR & I	LEGEND				
	B: Handle location as 2 pole - left pole		ont of breaker: 3 pole - cei	nter nole			tor Color	I-O	ON-OF		0	end Colo	r
	4 pole - two han	dles at center pole	s 5 pole - thr	ee handles at center poles		White Black		A C	B D	1 2	Blac Whit		
		idles at center pole mid-position only		al trip of the breaker. Available with cir	-	Red		F	G	3	Whit	е	
	cuit codes B, C, D, E T: Handle moves to			ctivates only upon electrical trip of the	,	Greei Blue	1	H K	J L	4 5	Whit Whit		
2	breaker. Available wi	th circuit codes I	B & C.	, ,		Yellow	,	M	N	6	Blac	k	
2	Certification when tie	ed to a protected	pole (Circuit C	es, and only available with VDE code B, C, D or H.), For .02 to 30 amp	s,	Gray Orang	a .	P R	Q S	7 8	Blac Blac		
3	select Current Code Available with termin			Current Code 650. Rating limited to 30 amps maximum.			short handl		Ü	9	Whit		
4	Consult factory for a	vailable Dual Co	il options, as sp	pecial catalog number is required. Wi		40.14	DUNTING"	ADDIES					
_	30VA minimum powe	er to trip and are	rated for intern	nittent duty only.		TUIM	DUNTING/I MOUNTIN					BARRI	ERS
5	standard half shells.	35-50A - supplie	ed with extende	Only circuits: ≤ 30A - supplied with ed boat (B-Style) half shells.			Threaded	Inserts, 2					-
6	On multi-pole breaker	s, one auxilary sw	vitch is supplied	mounted in the extreme right pole. uous duty. Available only with delay		1 A	6-32 x 0.1 6-32 X 0.1					no yes	
U	codes 10 and 20.	onago oono not	atou for contin	acces daty. Available offiny with delay		2	ISO M3 x					no	

Available with Circuit Codes B & D only. VDE Certified to 30 amps. UL Recognized, CSA Accepted & TUV Certified to 50 amps.

- VDE Certification available with single pole breakers with DC Delay only. UL Recognition and CSA Accepted available in one and two pole breakers.
- Screw Terminals are recommended on ratings greater than 20 amps. Ratings over 30 amps are only available with Terminal Codes 5, 9, G, H, M and Q... 9
- 10 Terminal Code 1: VDE Certification up to 25 amps and UL Recognition and CSA Certification up to 30 amps, but not recommended over 20 amps.
- 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.
- Terminal Code L: VDE Certified available up to 12A. UL Recognized & CSA Accepted avail-12 able up to 30A.
- Single pole breakers with Terminal Code P (Printed Circuit Board) are available up to 30 amps with VDE Certification and 50 amps with UL Recognition and CSA Accepted, with 13 Circuit Codes A, B and C. Two pole breakers with Terminal Code P (Printed Circuit Board) are available up to 40 amps with UL Recognition and CSA Accepted with Circuit Codes A,
 - Terminal Code Q not available with VDE certification.
- Single pole only.

- UL Recognized & CSA Accepted
- VDE Certified, UL Recognized & CSA Accepted Ε TUV Certified, UL Recognized & CSA Accepted
- UL Rec. STD 1077, UL Rec. 1500 (ignition protected), & CSA Accepted

yes

nο

no

yes

yes

ISO M3 x 5mm

without Handleguard

В

6

7

8

ISO M3 x 5mm (multipole only)

Front panel Snap-In, 0.75" wide bezel

Front panel Snap-In, 0.96" wide bezel

without Handleguard, 1-pole 0.96" wide;

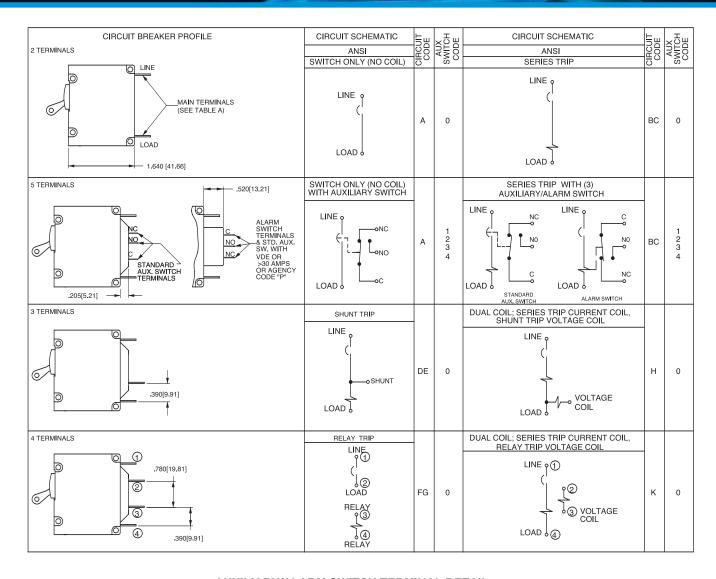
without Handleguard, 1-pole 0.96" wide;

multipole units have .105" bezel overhang on all sides

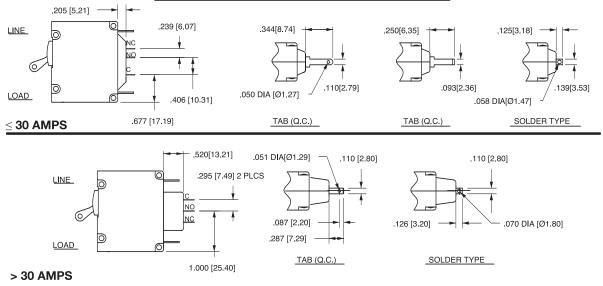
(multipole only) .105" bezel overhang on all sides

without Handleguard (multipole only)

- D

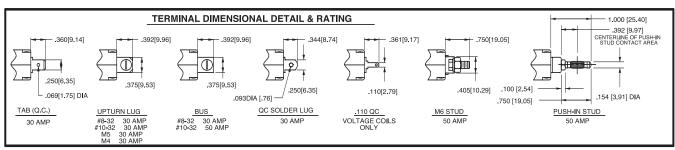


AUXILIARY/ALARM SWITCH TERMINAL DETAIL

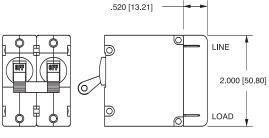


- All dimensions are in inches [millimeters]. Tolerance ±.020 [.51] unless otherwise specified.
- Alarm Switch available with .110 x .020 Q.C. & Solder Lug Terminals Only.

	HANDLE POSITION VS. AUX/ALARM SWITCH MODE								
	STANDARD C/B		MID T	RIP C/B	MID_TRIP.C/B				
CIRCUIT BREAKER MODE	HANDLE POSITION	AUX. SWITCH MODE	HANDLE POSITION	ALARM SWITCH MODE	HANDLE POSITION	AUX. SWITCH MODE (w/o ALARM SWITCH)			
OFF	300	NC NO C	300	NC NO C	30°	NC NO C			
ON	30°	NC NO C	30°	NC NO C	30°	NC NO C			
ELECTRICAL TRIP	30°	NC NO C	90° Trip	NC NO C	MID 90° TRIP	NC NO C			







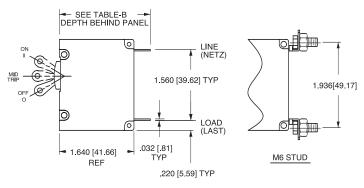
BARRIER FOR UL-RECOGNIZED MULTI-POLE BREAKERS

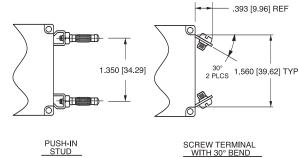
TABLE A TIGHTENING TORQUE SPECIFICATIONS

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

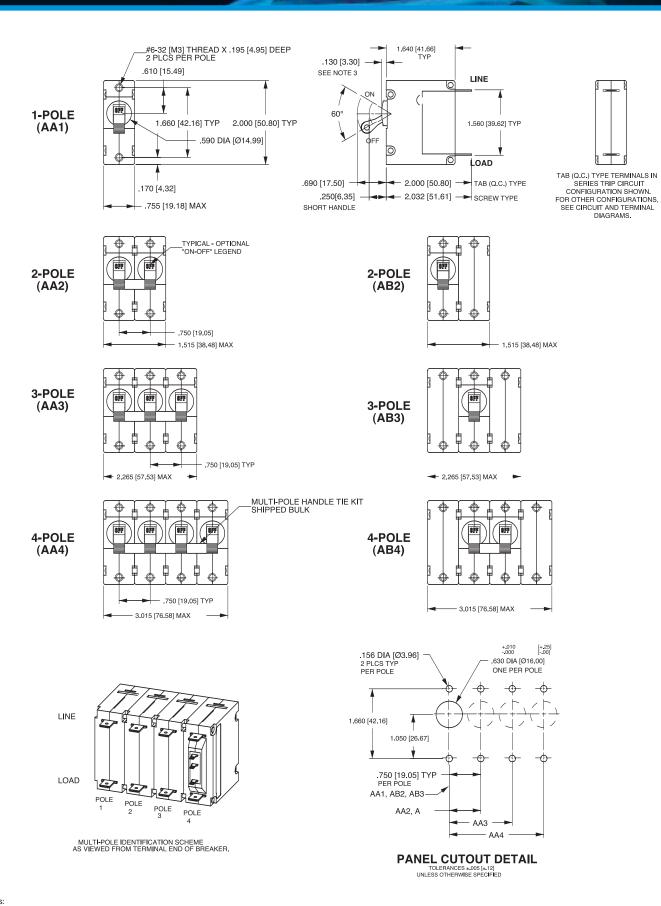
TABLE B					
TERMIN.	DEPTH BEHIND PANEL				
MANINI	TAB (Q.C.)	2.000 [50.80]			
MAIN	SCREW TYPE	2.032 [51.60]			
SHUNT, RELAY	TAB (Q.C.)	2.207 [56.10]			
& DUAL COIL	SCREW #8-32 W/UPTURNED LUGS	2.364 [60.05]			
AUX. SWITCH*	.093 TAB (Q.C.)	2.095 [53.20]			
AUX. SWITCH	.110 TAB (Q.C.)	2.189 [55.60]			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





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



Notes

- All dimensions are in inches [millimeters].
- Tolerance \pm 0.20 [.51] unless otherwise specified. For agency code P = .150 [3.81].