D-Series

HYDRAULIC-MAGNETIC CIRCUIT BREAKER

Designed for snap-on-back panel rail mounting on either a 35mm x 7.5mm, or a 35mm x 15mm Symmetrical Din Rail, allowing rapid and simple mounting and removal of the breaker. It features recessed, wire-ready, touch-proof, shock-resistant terminals, suitable for automatic screwdriver assembly, as well as "Dead Front" construction characteristics.

Available with a Visi-Rocker two-color actuator, which can be specified to indicate either the ON or the TRIPPED/OFF mode, or solid color rocker or handle type actuators. All actuator types fit in the same industry standard panel cutouts.

Resources:

Configure a Complete Part

Download CAD & Sales Drawing ›

Product Highlights:

- 0.02 - 50 Amps
- 480 VAC or 65 VDC
- 1-4 poles (Handle)
- 1-3 poles (Rocker)
- Choice of Time Delays
- DIN rail mounting
- Precise temperature independent operation
- Wiping contacts – mechanical linkage with two-step
- Finger safe terminals
- Common trip linkage between poles ensures that an overload in one pole will trip all adjacent poles

Typical Applications:

- Industrial Controls
- Renewable Energy

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Innovative Designs. Powerful Solutions.

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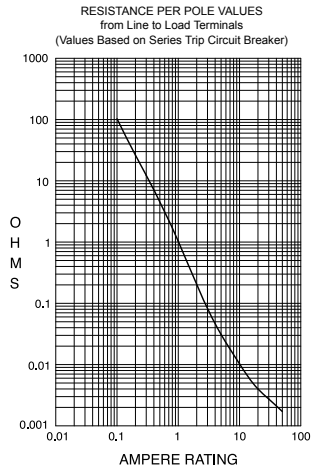
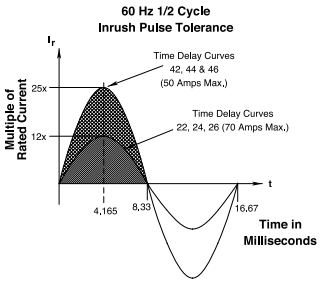
Electrical

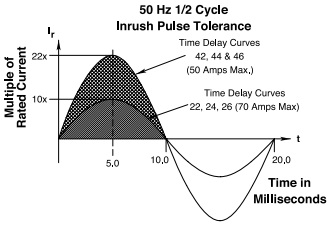
Maximum Voltage	AC, 480 wye/277 VAC (See Table A), 50/60 Hz, 65VDC
Standard Current Coils	0.100, 0.250, 0.500, 0.750, 1.00, 2.50, 5.00, 7.50, 10.0, 15.0, 20.0, 25.0, 30.0, 35.0, 40.0 & 50.0. Other ratings available - consult factory.
Standard Voltage Coils	DC - 6V, 12V; AC - 120V, other ratings available, see ordering scheme.
Insulation Resistance	Minimum of 100 Megohms at 500 VDC.
Dielectric Strength	UL, CSA: 1960 V 50/60 Hz for one minute between all electrically isolated terminals. D-Series circuit breakers comply with the 8mm spacing and 3750V 50/60 Hz dielectric requirements from hazardous voltage to operator accessible surfaces and between adjacent poles per Publications EN 60950 and VDE 0805.
Resistance, Impedance	Values from Line to Load Terminal - 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 D-Series Circuit Breakers will trip on overload, even when actuator is forcibly held in the ON position.
Trip Indication	The operating actuator moves positively to the OFF position when an overload causes the breaker to trip.

Physical

Number of Poles	Rocker Type: 1-3; Handle Type: 1-4
Internal Circuit Config.	Switch Only and Series Trip with current or voltage trip coils.
Weight	Approximately 128 grams/pole (Approximately 4.57 ounces/pole)
Standard Colors	Housing - Black; Actuator - See Ordering Scheme.
Mounting	Mounts on a standard 35mm Symmetrical DIN Rail (35 x 7.5 or 35 x 15mm per DIN EN5002).

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 ultra-short 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).
Operating Temperature	-40° C to +85° C

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

Electrical Tables

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

D-SERIES TABLE A: COMPONENT SUPPLEMENTARY PROTECTORS

CIRCUIT CONFIGURATION	VOLTAGE			CURRENT RATING	SHORT CIRCUIT CAPACITY (AMPS)				APPLICATION CODES	
					UL/CSA		VDE			
	MAX. RATING	FREQUENCY	PHASE [1]	FULL LOAD AMPS	WITH BACKUP FUSE	WITH BACKUP FUSE	(Inc) WITH BACKUP FUSE	(Icn) WITHOUT BACKUP FUSE	UL	CSA
SERIES	65	DC	---	0.02 - 50	---	5,000	5,000	1,500	TC1,2, OL1, U1	TC1,2, OL1, U1
	80	DC	---	0.02 - 50	---	5,000	5,000	1,500	TC1,2, OL1, U1	TC1,2, OL1, U1
	125 / 250	50 / 60	1	0.02 - 50	---	3,000	---	---	TC1,2, OL1, U1	TC1,2, OL1, U1
	250	50 / 60	1 & 3	0.02 - 50	5,000 [2]	---	5,000	1,500	TC1,2, OL1, C1	TC1,2, OL1, C1
	277	50 / 60	1	0.02 - 50	5,000 [2]	---	---	---	TC1,2, OL1, C1	TC1,2, OL1, C1
	480 Y [3]	50 / 60	1 & 3	0.02 - 50	5,000 [2]	---	---	---	TC1,2, OL1, C1	TC1,2, OL1, C1
SWITCH ONLY	65	DC	---	0.02 - 50						
	250	50 / 60	3	0.02 - 50						
	277	50 / 60	1	0.02 - 50						
	480 Y [3]	50 / 60	1 & 3	0.02 - 30						

Notes:
1 DC and 1 Phase 277 V ratings are 1 or 2 poles breaking. Three phase ratings are 3 poles breaking.
2 Requires branch circuit backup with a UL LISTED Type K5 or RK5 fuse rated 15A minimum and no more than 4 times full load amps not to exceed 150 A for 250V rating and 125 A for 277 and 480 V ratings.
3 UL recognition and CSA Acceptance at 480 volts refers to 3 and 4 pole versions, used only in a 3 phase WYE connected circuit or 2 pole versions connected with 2 poles breaking 1 phase and backed up with series fusing per note 2

Agency Certifications

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

UL Listed
UL Standard 508
Switches, Industrial Control (Guide NRNT2, File E148683)

CSA Accepted
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

D	A	3	–	B0	–	10	–	450	–	1	2	1	–	C
1 Series	2 Actuator	3 Poles		4 Circuit		5 Frequency & Delay		6 Current Rating		7 Terminal	8 Actuator Color	9 Mounting/ Voltage		10 Agency Approval

1 SERIES
D

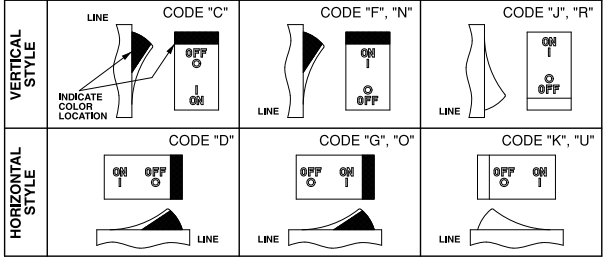
2 ACTUATOR [1]
Handle [2]
- **A** Handle, one per pole
- **B** Handle, one per multipole unit

Visi-Rocker [3]
- **C** Indicate ON, vertical legend
- **D** Indicate ON, horizontal legend
- **E** Indicate ON, no legend (VDE approval not available with no legend)
- **F** Indicate OFF, vertical legend
- **G** Indicate OFF, horizontal legend
- **H** Indicate OFF, no legend (VDE approval not available with no legend)

Single Color Rocker [3]
- **J** Vertical legend
- **K** Horizontal legend
- **L** No legend (VDE approval not available with no legend)

ROCKER STYLE DESCRIPTIONS

	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 POLES
1	One	3	Three
2	Two	4	Four

4 CIRCUIT
- **A0** Switch Only (No Coil) [4]
- **B0** Series Trip (Current)
- **C0** Series Trip (Voltage)

5 FREQUENCY & DELAY
03	DC 50/60Hz, Switch Only	**26**	50/60Hz Long
10 [5]	DC Instantaneous	**32**	DC, 50/60Hz Short
11	DC Ultra Short	**34**	DC, 50/60Hz Medium
12	DC Short	**36**	DC, 50/60Hz Long
14	DC Medium	**42** [6]	50/60Hz Short, High-inrush
16	DC Long	**44** [6]	50/60Hz Medium, High-inrush
20 [5]	50/60Hz Instantaneous	**46** [6]	50/60Hz Long, High-inrush
21	50/60Hz Ultra Short	**52** [6]	DC, Short, High-inrush
22	50/60Hz Short	**54** [6]	DC, Medium, High-inrush
24	50/60Hz Medium	**56** [6]	DC, Long, High-inrush

7 CURRENT RATING (AMPERES) [9]
CODE	AMPERES	CODE	AMPERES	CODE	AMPERES	CODE	AMPERES
020	0.020	**275**	0.750	**450**	5.000	**616**	16.000
025	0.025	**280**	0.800	**455**	5.500	**617**	17.000
030	0.030	**285**	0.850	**460**	6.000	**618**	18.000
050	0.050	**410**	1.000	**465**	6.500	**619**	19.000
075	0.075	**512**	1.250	**470**	7.000	**620**	20.000
080	0.080	**413**	1.300	**572**	7.250	**621**	21.000
085	0.085	**414**	1.400	**475**	7.500	**622**	22.000
210	0.100	**415**	1.500	**480**	8.000	**623**	23.000
215	0.150	**517**	1.750	**485**	8.500	**624**	24.000
220	0.200	**420**	2.000	**490**	9.000	**625**	25.000
225	0.250	**522**	2.250	**495**	9.500	**626**	26.000
230	0.300	**425**	2.500	**610**	10.000	**627**	27.000
235	0.350	**527**	2.750	**710**	10.500	**628**	28.000
240	0.400	**430**	3.000	**611**	11.000	**629**	29.000
245	0.450	**532**	3.250	**711**	11.500	**630**	30.000
250	0.500	**435**	3.500	**612**	12.000	**632**	32.000
255	0.550	**436**	3.600	**712**	12.500	**635**	35.000
260	0.600	**440**	4.000	**613**	13.000	**640**	40.000
265	0.650	**445**	4.500	**614**	14.000	**645**	45.000
270	0.700	**547**	4.750	**615**	15.000	**650**	50.000

OR VOLTAGE COIL (NORMAL RATED VOLTAGE) [7]
CODE	AMPERES	CODE	AMPERES	CODE	AMPERES
A06	6 DC, 5 DC	**A48**	48 DC, 40 DC	**J24**	24 AC, 20 AC
A12	12 DC, 10 DC	**A65**	65 DC, 55 DC	**J48**	48 AC, 40 AC
A18	18 DC, 15 DC	**J06**	6 AC, 5 AC	**K20**	120 AC, 65 AC
A24	24 DC, 20 DC	**J12**	12 AC, 10 AC	**L40**	240 AC, 130 AC
A32	32 DC, 25 DC	**J18**	18 AC, 15 AC		

7 TERMINAL
- **1** #10 Screw & Pressure Plate for Direct Wire Connection
- **2** #10 Screw without Pressure Plate

8 ACTUATOR COLOR & LEGEND
Actuator or *Visi-Color* *Marking:* *Marking Color:*

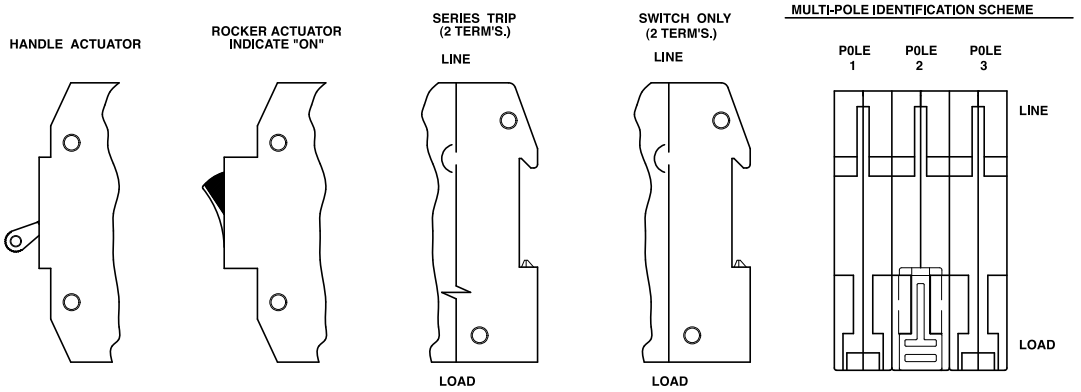
Color	I-O	ON-OFF	Dual	Single Color Rocker/Handle	Visi-Rocker (Actuator Black) [7]
White	**A**	**B**	**1**	Black	White
Black	**C**	**D**	**2**	White	N/A
Red	**F**	**G**	**3**	White	Red
Green	**H**	**J**	**4**	White	Green
Blue	**K**	**L**	**5**	White	Blue
Yellow	**M**	**N**	**6**	Black	Yellow
Gray	**P**	**Q**	**7**	Black	Gray
Orange	**R**	**S**	**8**	Black	Orange

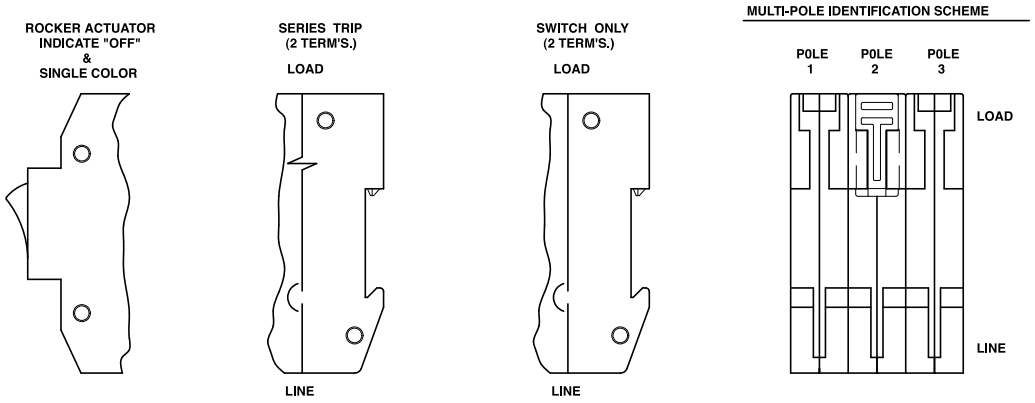
9 MOUNTING / VOLTAGE
	MOUNTING STYLE Threaded Insert	VOLTAGE
1	6-32 x 0.195 inches	< 300
C [8]	6-32 X 0.195 inches	≥ 300
2	ISO M3 x 5mm	< 300
D [8]	ISO M3 x 5mm	≥ 300

10 AGENCY APPROVAL
- **C** UL Recognized & CSA Accepted
- **D** [9] VDE Certified, UL Recognized & CSA Accepted

Notes:
1. Handle breakers available up to four poles. Rocker breakers available up to three poles.
2. Actuator Code:
   A: Multi-pole units factory assembled with common handle tie.
   B: Handle location as viewed from front of breaker:
   2 pole - left pole
   3 pole - center pole
   4 pole - two handles at center poles
3. Multipole rocker breakers have one rocker per breaker, as viewed from the front of the panel. Two pole - left pole. Three pole - center pole
4. ≤ 30A, select Current Rating code 630. 31-50A, select Current Rating code 650.
5. Voltage coil only available with delay codes 10 & 20.
6. Available to 50A max with circuit code BO only.
7. Color shown is visi and legend with remainder of rocker black.
8. ≥ 300V: Three pole breaker 3Ø or 2 pole breaker 1Ø, UL/CSA limited to 30 FLA max.
9. VDE Approval requires Dual (I-O, ON-OFF) or I-O markings

Circuit & Terminal Diagrams: in. [mm]





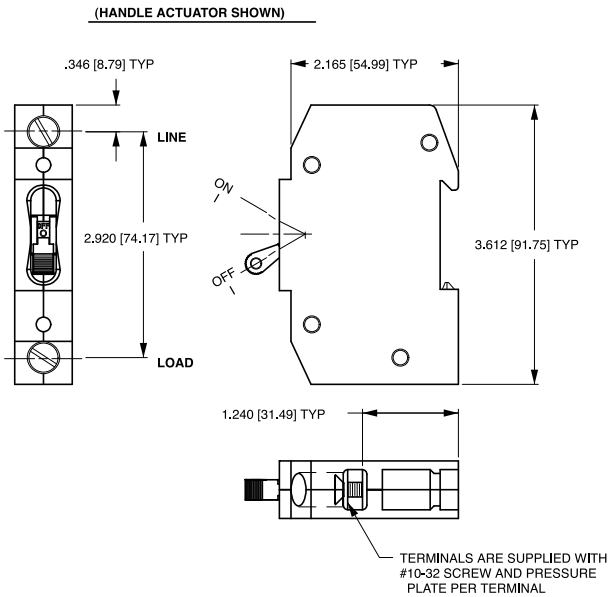
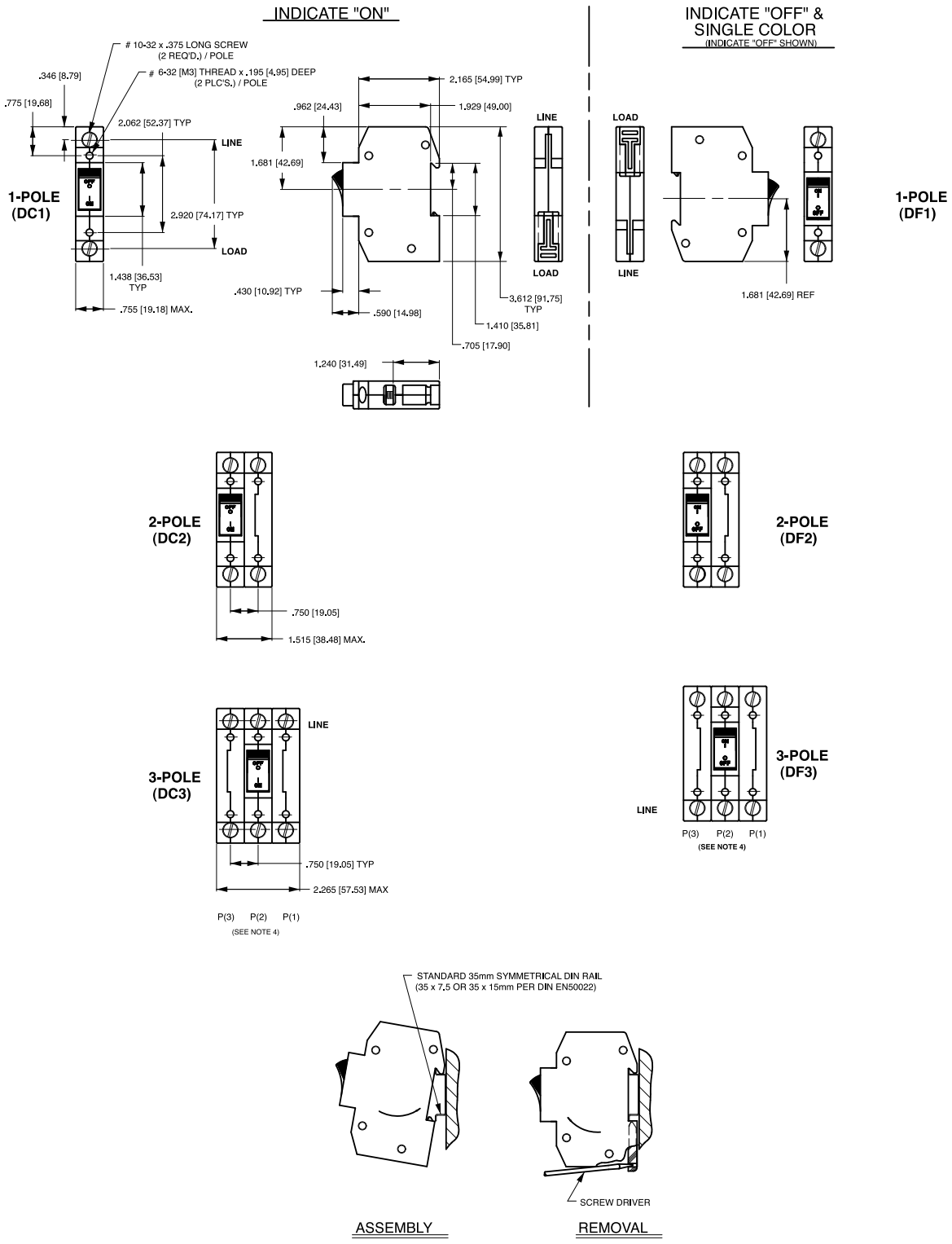


TABLE A
TIGHTENING TORQUE SPECIFICATIONS

THREAD SIZE	TORQUE
#6-32 [M3] HARDWARE	7-9 IN-LBS [0.8-1.0 NM]
#10-32 THD TERMINAL SCREW	15-20 IN-LBS [1.7-2.3 NM]

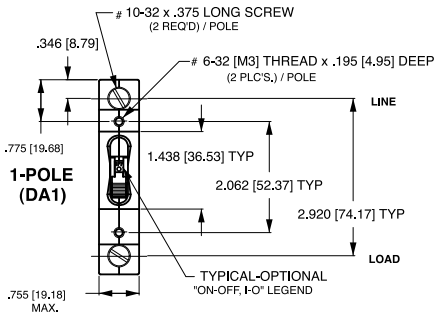
Notes:
1 All dimensions are in inches [millimeters].
2 Tolerance ±.020 [.51] unless otherwise specified.

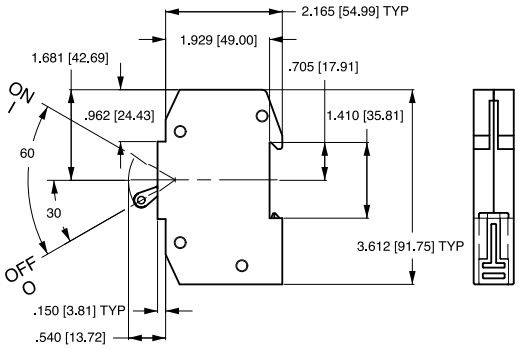
Dimensional Specifications: in. [mm]

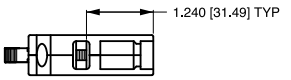


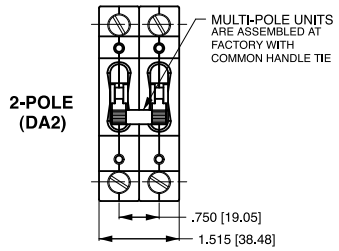
Notes:
1 All dimensions are in inches [millimeters].
2 Tolerance ±.020 [.51] unless otherwise specified.
3 Dimensions apply to all variations shown. Notice that circuit breaker line and load terminal orientation on indicate OFF is opposite of indicate ON.
4 For pole orientation with horizontal legend, rotate front view clockwise 90°.

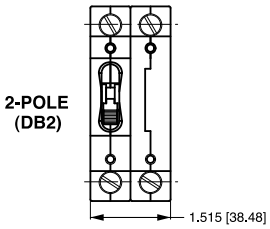
Dimensional Specifications: in. [mm]

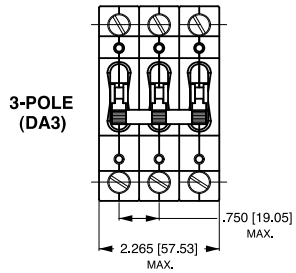


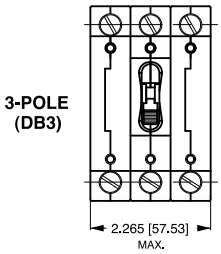


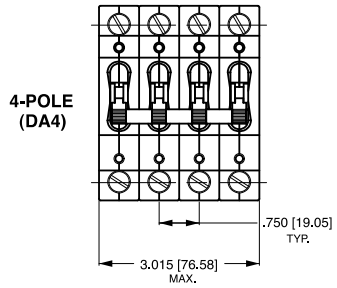


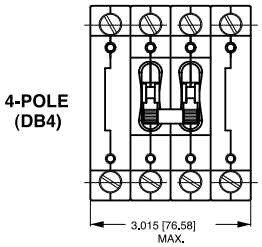


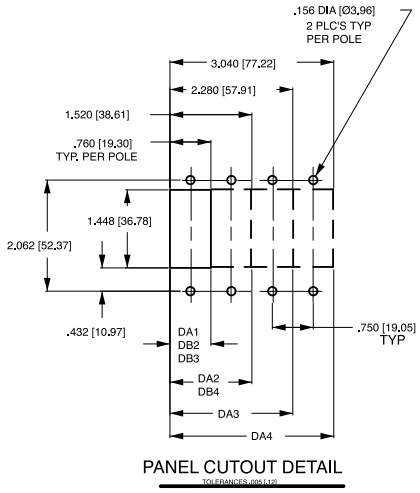


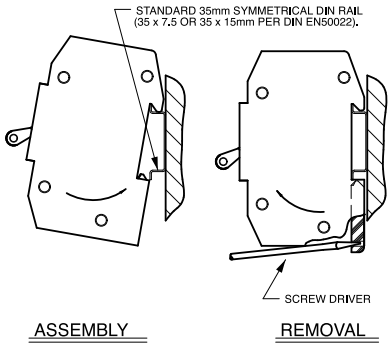












Notes:
1 All dimensions are in inches [millimeters].
2 Tolerance ±.010 [.25] unless otherwise specified.

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