Littelfuse® | Carling Technologies®
A Littelfuse® Brand

CX-Series

Hydraulic-Magnetic Circuit Breaker

PRODUCT WEBPAGE

request sample, configure part, watch video





High Amperage and DC Voltage Circuit Breaker Disconnect for UL 489B Applications

The CX-Series hydraulic-magnetic circuit breakers employ a patented magnetic flux boosting terminal configuration to offer rapid cooling and superior performance for high amperage and high DC voltage applications. Compact in size, the CX-Series is available as a one pole breaker rated up to 125 amps, as a two to four pole breaker rated up to 115 amps, and as a disconnect option with additional amperage and pole configuration options. Maximum voltage capacity of 600VDC and 10,000 amps max IC.

1-5	125	600	Suited for 380VDC
Poles	Amps Max	VDC Max	Applications

Typical Applications

- Datacom, PDU and UPS Systems
- Power Supplies and Convertors
- Renewable Energy
- Motor Controllers
- Charging Stations
- Smart Grids
- Mission Critical Equipment

www.carlingtech.com 860.793.9281 sales@carlingtech.com

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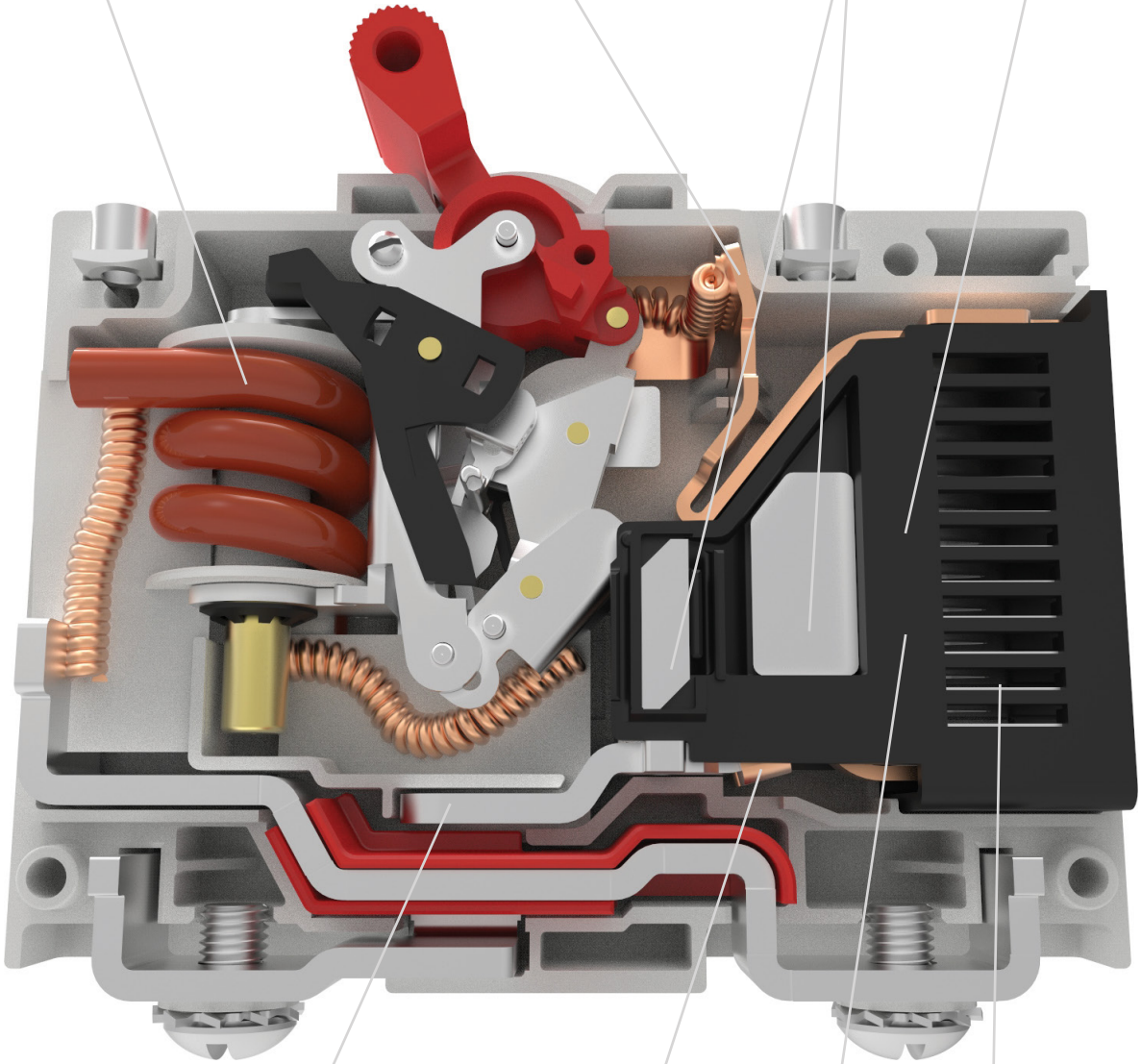
Design Features

HYDRAULIC/MAGNETIC SENSING COIL

UPPER ARC RUNNER
Aids in motivating arc off of movable contact and into arc chamber

MAGNETS

ARC SPLITTER RETAINER
with integrated pressurizing walls



PATENTED MAGNETIC FLUX BOOSTING TERMINAL CONFIGURATION
Design enhances motivation of arc into arc chamber

LOWER ARC RUNNER
Aids in motivating arc off of stationary contact and into arc chamber

LARGE ARC GAP
To generate high arc voltages

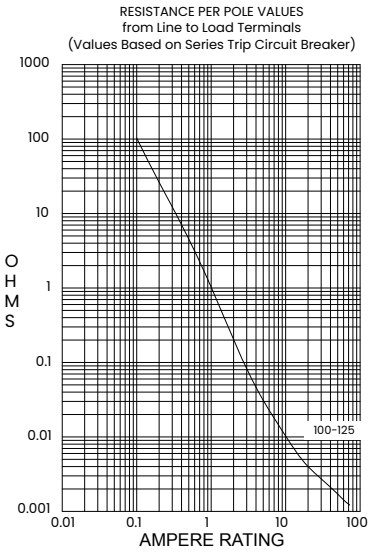
(12) ARC DEIONIZING SPLITTER PLATES

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Tech Specs

Electrical

Maximum Voltage	600 VDC
Overload	50 operations at 600% of rated current for UL489, and at 150% of rated current for UL1077.



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

Physical

Number of Poles	1- 2 poles, + Auxiliary Switch Pole.
Termination	10-32 or M5 Screw Terminals
Terminals	1/4-20 or M6 Threaded Stud
Termination Barrier	Standard with multi-pole constructions
Mounting	Threaded insert: #6-32 UNC-2B, or M3X0.5-6H B ISO (2 per pole)
Actuator	Handle, 1 per pole.
Internal Circuit Configuration	Series Trip
Materials	Housing - Glass filled Polyester Handle - Glass filled Polyester Line/Load Terminals - Copper Alloy.~150 Grams (~5.3 Ounces).
Weight	~150 Grams (~5.3 Ounces).
Standard Color	Housing - Gray. Handle - White, Black, Red, Green, Blue, Yellow, Gray,

Environmental

Designed and tested in accordance with requirements of specification MIL-PRF-55629 & MIL-STD-202 as follows:

Shock	Withstands 100 Gs, 6ms saw tooth while carrying rated current per MILPRF-55629 and MIL-STD-202G, Method 213G, Test Condition "I". Instantaneous and ultra short curves tested at 90% of rated curren
Vibration	Withstands 0.060" excursion from 10-55 Hz & 10 Gs 55-500 Hz, at rated current per MIL-PRF-55629 and MILSTD-202G, Method 204D, Test Cond. A. Instantaneous & ultrashort curves tested at 90% of rated current.
Moisture Resistance	MIL-PRF-55629 and MIL-STD-202G, Method 106G, i.e., Ten 24- hour cycles at +25°C to +65°C, 80-98% RH.
Salt Spray	Method 101, Condition A (90-95% RH at 5% NaCl Solution, 96 hrs).
Thermal Shock	MIL-PRF-55629 and MIL-STD-202G, Method 107G, Condition A (5-cycles at -55°C to +25°C to +85°C to +25°C).
Operating Temperature	-40°C to +85°C.

Mechanical

Endurance	Max 10,000 ON-OFF operations @ 6 per minute; 6000 with rated current & voltage, and 4,000 cycles mechanical.
Trip Free	Trips on overload even when actuator 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.

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

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Tech Specs

Tables

Table A: Lists UL Listed (UL489) configuration and performance capabilities as a Molded Case Circuit Breaker

UL489 Listed Branch Circuit Breakers					
Circuit Configuration	Voltage		Max Current Rating (Amps)	Interrupting Capacity (Amps)	Poles
	Max Rating	Frequency			
Series	250	DC	15	5,000	1
	250 / 500			10,000	2
	205 / 410		50		
	225 / 450 [1]		30		

Notes
1 Special Part Number Required. Consult Factory.

Table B: Lists UL Recognized configurations and performance capabilities as a Component Supplementary Protector

UL1077 Component Supplementary Protector						
Circuit Configuration	Voltage		Max Current Rating (Amps)	Interrupting Capacity (Amps)	Poles	Application Code
	Max Rating	Frequency				
Series	300	DC	1 - 75	5,000	1	TC1, OL0, U3
	300		76 - 125	3,000		
	440		1 - 30	10,000	2	
			31 - 63	5,000		
	600		1 - 75			
			78 - 115	3,000		
Switch Only [1]	600		1 - 115	-	2 or 3	-

Notes
1 Requires inclusion of a relay trip voltage coil

Table C: Lists UL Listed (UL489B) configuration and performance capabilities as a Molded Case Switch

UL489B Listed Photovoltaic Molded Case Switch						
Circuit Configuration	Voltage			Current Rating (Amps)	Interrupting Capacity (Amps)	Application Code
	Max Rating	Frequency	Poles			
Series	600	DC	2 [1]	50 - 100	600	May have a third pole that is a voltage pole
			4 [2]	110 - 175		May have a fifth pole that is a voltage trip pole

Notes
1 Two poles in series.
2 Two poles in series in parallel with 2 poles in series.

Table D: TUV Certified Configuration to IEC / EN 60947-2. Low Voltage Switch gear and Control gear - Circuit Breakers

TUV IEC/EN 60947-2 Low Voltage Switch Gear & Control Gear / Circuit Breaker					
Circuit Configuration	Voltage			Current Rating (Amps)	Interrupting Capacity ICS / ICU (Amps)
	Max Rating	Frequency	Poles		
Series	440	DC	2	1 - 63	4,000

Time Delay Specs

To view all hydraulic-magnetic circuit breaker time delay values, please visit www.carlingtech.com/sites/default/files/documents/Carling-HM-CB-Time-Delays.pdf

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Ordering Scheme UL 489 Listed

Sample Part Number	C	X	1	-	B	0	-	14	-	615	-	2	2	A	-	12	G
Selection	1	2	3		4	5		6		7		8	9	10		11	12

1. SERIES

C

2. ACTUATOR

X Handle, one per pole

3. POLES

1 One
2 Two

4. CIRCUIT

B Series Trip (current)

5 AUXILIARY/ALARM SWITCH

0 Without Aux Switch

6. FREQUENCY & DELAY

11 DC Ultra Short
12 DC Short
14 DC Medium
16 DC Long

7. CURRENT RATING (AMPERES)

CODE	AMPERES	CODE	AMPERES	CODE	AMPERES	CODE	AMPERES
220	0.20	**295**	0.95	**460**	6.00	**614**	14.00
225	0.25	**410**	1.00	**465**	6.50	**615**	15.00
230	0.30	**512**	1.25	**470**	7.00	**616**	16.00
235	0.35	**415**	1.50	**475**	7.50	**617**	17.00
240	0.40	**517**	1.75	**480**	8.00	**618**	18.00
245	0.45	**420**	2.00	**485**	8.50	**620**	20.00
250	0.50	**522**	2.25	**490**	9.00	**622**	22.00
255	0.55	**425**	2.50	**495**	9.50	**624**	24.00
260	0.60	**527**	2.75	**610**	10.00	**625**	25.00
265	0.65	**430**	3.00	**710**	10.50	**630**	30.00
270	0.70	**435**	3.50	**611**	11.00	**635**	35.00
275	0.75	**440**	4.00	**711**	11.50	**640**	40.00
280	0.80	**445**	4.50	**612**	12.00	**645**	45.00
285	0.85	**450**	5.00	**712**	12.50	**650**	50.00
290	0.90	**455**	5.50	**613**	13.00		

8. TERMINAL

2 Screw Terminal, 10-32
3 Stud, 1/4-20
5 Screw Terminal, M5
6 Stud, M6

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

10. MOUNTING INSERTS

A 6-32 Thread
B M3 Thread

11. MAXIMUM APPLICATION RATING

12 250 VDC
13 250/500 VDC [1]
15 205/410 VDC
19 225/450 VDC [2]

12. AGENCY APPROVAL

A Without Approvals
G UL 489 Listed
S UL 489 Listed, TUV to IEC60947-2 [1]

Notes:
1 Only Available with 250/500 VDC up to 15 amps.
2 Available 1-30 amps. Special Catalog Number Required. Consult Factor.

Configure Complete Part Number > | Browse Standard Parts >

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Ordering Scheme UL 489B Listed

Sample Part Number	C	X	2	-	S	0	-	03	-	810	-	3	2	A	-	06	14
Selection	1	2	3		4	5		6		7		8	9	10		11	12

1. SERIES

C

2. ACTUATOR

X Handle, one per pole

3. POLES 1,2

2 Two
3 Three
4 Four
5 Five

4. CIRCUIT

S Switch Only

5. RELAY TRIP VOLTAGE COIL RATING 1,2

0 Without Relay Trip Voltage Coil
A 12 VDC
B 24 VDC
C 32 VDC
D 48 VDC

6. FREQUENCY & DELAY

03 DC Switch Only

7. CURRENT RATING (AMPERES) 1,3

2-Pole Section
810 50A - 100A

4-Pole Section
917 110A - 175A

8. TERMINAL 4,5

3 Stud, 1/4-20
6 Stud, M6
A Stud, 1/4-20, with 10-32 Screw Terminals on Voltage Pole
B Stud, M6, with M5 Screw Terminals on Voltage Pole

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

10. MOUNTING INSERTS

A 6-32 Thread
B M3 Thread

11. MAXIMUM APPLICATION RATING

06 600 VDC

12. AGENCY APPROVAL

A Without Approvals
14 UL489B Listed

Notes:
1 2 Pole Unit is required for ratings between 50A - 100A.
4 Pole Unit is required for ratings between 110A - 175A.
2 A Relay Trip Voltage Coil Pole may be added to either the 2 or 4 Pole construction.
The addition of this extra pole dictates a change in the designation for the number of poles in selection 3.
3 For Current Ratings between 50A - 100A select current code 810 (100A).
For Current Ratings between 101A - 175A select current code 917 (175A).
4 Voltage Pole must have screw terminals.
Switch Pole must have stud terminals.
5 On 3 Pole Unit, Voltage Pole to be located at P1 as standard.
On 5 Pole Unit, Voltage Pole to be located at P3 as standard.

Configure Complete Part Number > Browse Standard Parts >

COS-8067 Rev: B
*Manufacturer reserves the right to change product specification without prior notice.
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Ordering Scheme

UL 1077 Recognized

Sample Part Number	C	X	1	-	B	0	-	14	-	620	-	2	2	A	-	10	C
Selection	1	2	3		4	5		6		7		8	9	10		11	12

1. SERIES

C

2. ACTUATOR

X	Handle, one per pole

3. POLES [7]

1	One	**3**	Three
2	Two	**4**	Four [10]

4. CIRCUIT

A	Switch Only (no coil) [1, 9]
B	Series Trip (current)
G	Relay Trip (voltage) [1, 2, 3, 9]

5. AUXILIARY SWITCH

0	Without Aux Switch

6. FREQUENCY & DELAY

03	DC 50/60Hz, Switch Only
10	DC Instantaneous
11	DC Ultra Short
12	DC Short
14	DC Medium
16	DC Long

7. CURRENT RATING (AMPERES)

CODE	AMPERES	CODE	AMPERES	CODE	AMPERES	CODE	AMPERES
220	0.200	**415**	1.500	**490**	9.000	**630**	30.000
225	0.250	**517**	1.750	**495**	9.500	**635**	35.000
230	0.300	**420**	2.000	**610**	10.000	**640**	40.000
235	0.350	**522**	2.250	**710**	10.500	**650**	50.000
240	0.400	**425**	2.500	**611**	11.000	**660**	60.000
245	0.450	**527**	2.750	**711**	11.500	**665**	65.000
250	0.500	**430**	3.000	**612**	12.000	**670**	70.000
255	0.550	**435**	3.500	**712**	12.500	**675**	75.000
260	0.600	**440**	4.000	**613**	13.000	**680**	80.000
265	0.650	**445**	4.500	**614**	14.000	**685**	85.000
270	0.700	**450**	5.000	**615**	15.000	**690**	90.000
275	0.750	**455**	5.500	**616**	16.000	**695**	95.000
280	0.800	**460**	6.000	**617**	17.000	**810**	100.000
285	0.850	**465**	6.500	**618**	18.000	**911**	115.000
290	0.900	**470**	7.000	**620**	20.000	**912**	125.000
295	0.950	**475**	7.500	**622**	22.000		
410	1.000	**480**	8.000	**624**	24.000		
512	1.250	**485**	8.500	**625**	25.000		

8. TERMINAL [8]

2	Screw, 10-32
3	Stud, 1/4-20
5	Screw, M5
6	Stud, M6

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

10. MOUNTING INSERTS

A	6-32 Thread
B	M3 Thread

11. MAXIMUM APPLICATION RATING

10	300VDC
11	440 VDC without factory installed terminal bus [4]
14	440VDC with factory installed terminal bus [4]
06	600VDC [5]
18	220/440VDC [11]

12. AGENCY APPROVAL

A	Without Approvals
C	UL 1077 Recognized
W	UL 1077 Recognized & TUV Certified IEC/ EN 60947-2 [9]

Notes:

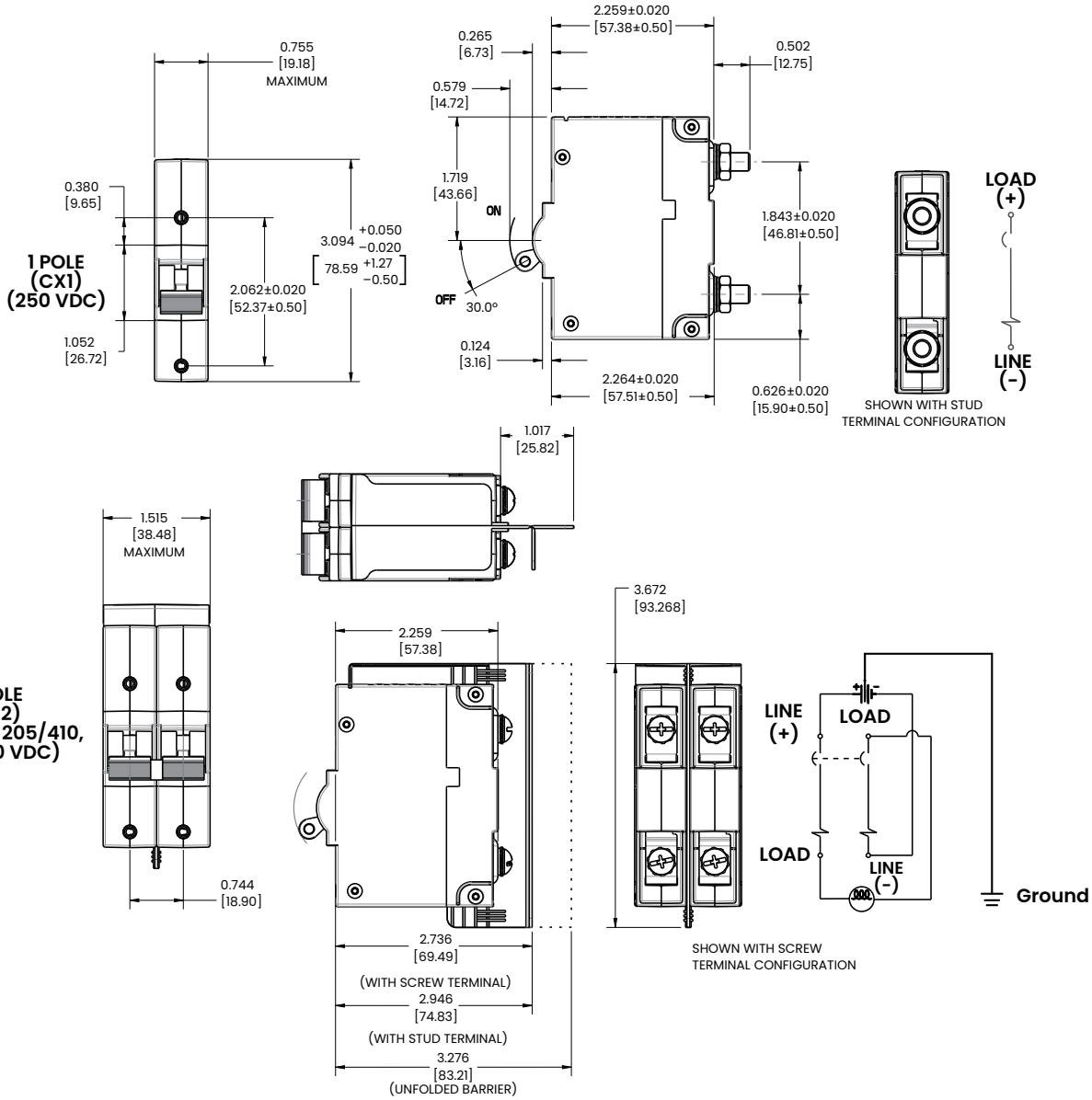
1. Only available when tied to a protected pole. Requires special part number consult factory for details
2. Voltage trip circuit coil not rated for continuous duty - use instantaneous delay code 10
3. Contacts Rated for 20A @ 80 VDC
4. 440 VDC Rating available in two different wiring configurations.
5. 600 VDC only available with factory installed terminal bus.
6. Single pole units available up to 125A, multi pole units limited to 115A Max.
7. 3 Pole units must include one Auxiliary switch pole (circuit code A or G) - Requires Special Part Number. Unless breaker is rated 220/440 VDC (Voltage Code 18) in which case Circuit Code B is required.
8. Screw Terminals are limited to 50A max.
9. Agency approval code W only available with 440 VDC or 220/440 VDC rating and circuit code B.
10. 4 Pole 600 VDC units only available up to 75A Max.
11. 3 Pole 220/440 VDC units only available in one specific wiring configuration. See dimensional specifications pages for more details

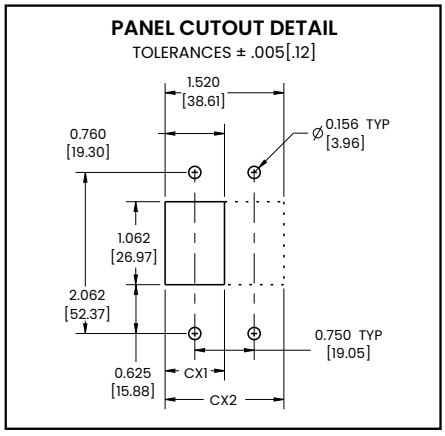
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Dimensional Specs UL 489 Listed

inches [millimeters]





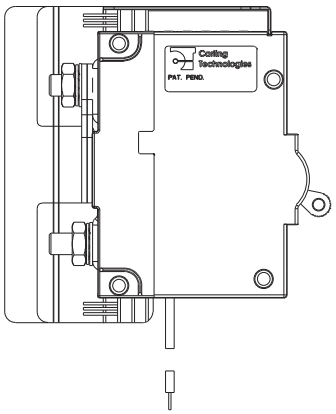
Notes:
1 600V Rating requires minimum of 2 protected poles

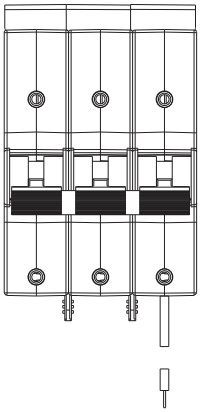
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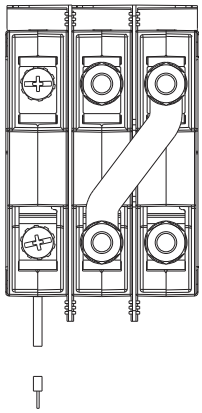
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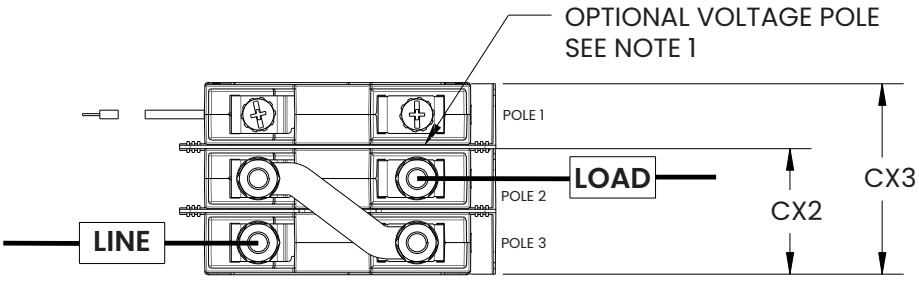
Dimensional Specs UL 489B Listed

inches [millimeters]

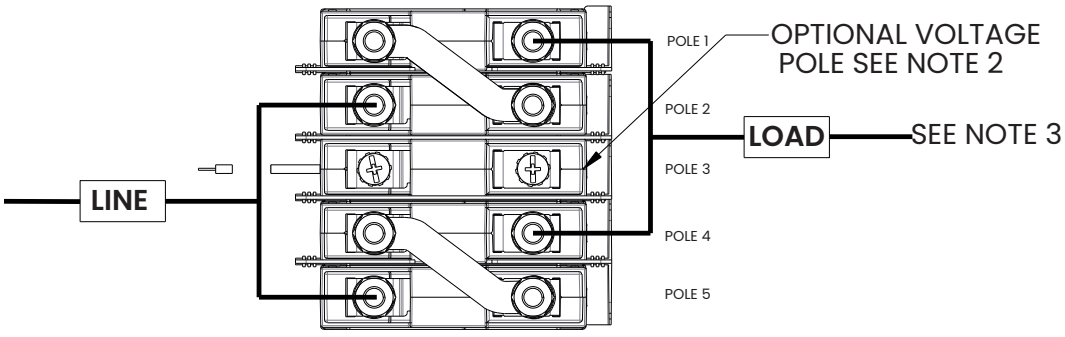








CX3-2 POLE SWITCH (CX2)SHOWN
WITH OPTIONAL VOLTAGE POLE
50A-100A DEVICE,600VDC



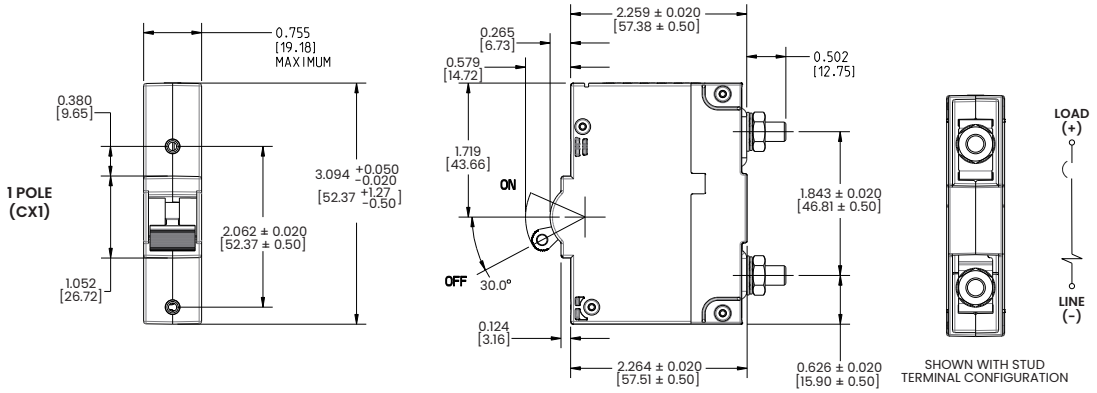
CX5-4 POLE SWITCH (CX4)SHOWN
WITH OPTIONAL VOLTAGE POLE
101A-175A DEVICE,600VDC

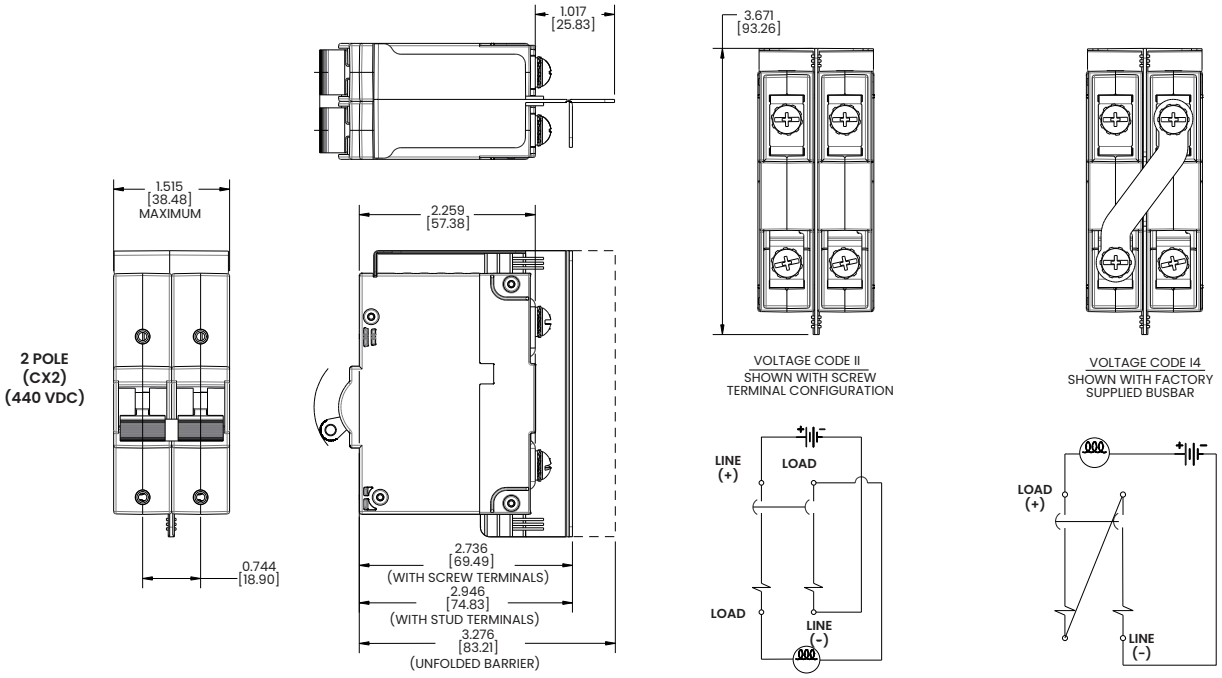
Notes:
1 3 pole configuration supplied with voltage coil on pole 1. Optional location pole 3. Consult factory.
2 5 pole configuration supplied with voltage coil in center pole. (Pole 3)
3 Line & Load connections requires bus connection as shown.
Minimum cross selection .127 in^2 (81.94 mm^2)

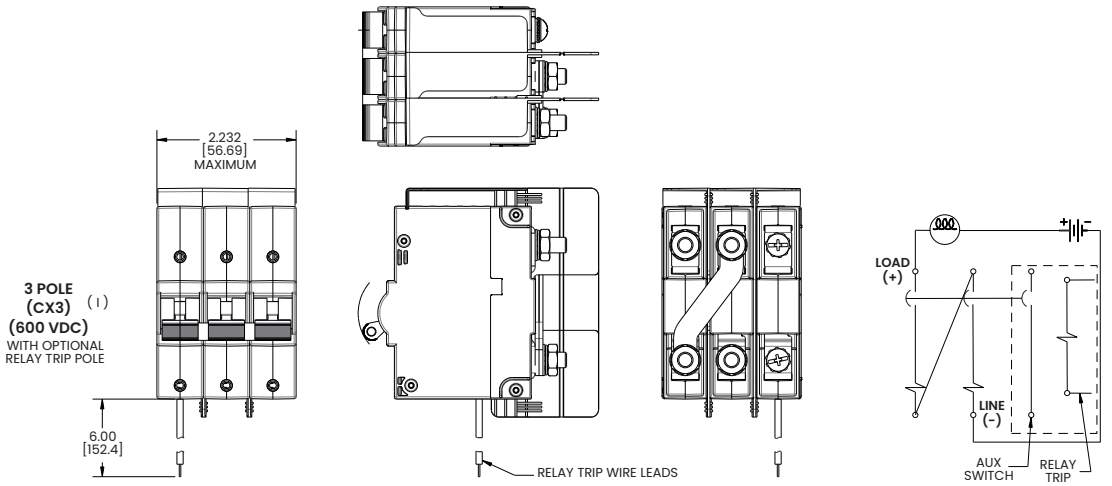
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Dimensional Specs UL 1077 Recognized

inches [millimeters]







Notes:
1 600V Rating requires minimum of 2 protected poles

CLA-8118 Rev: E

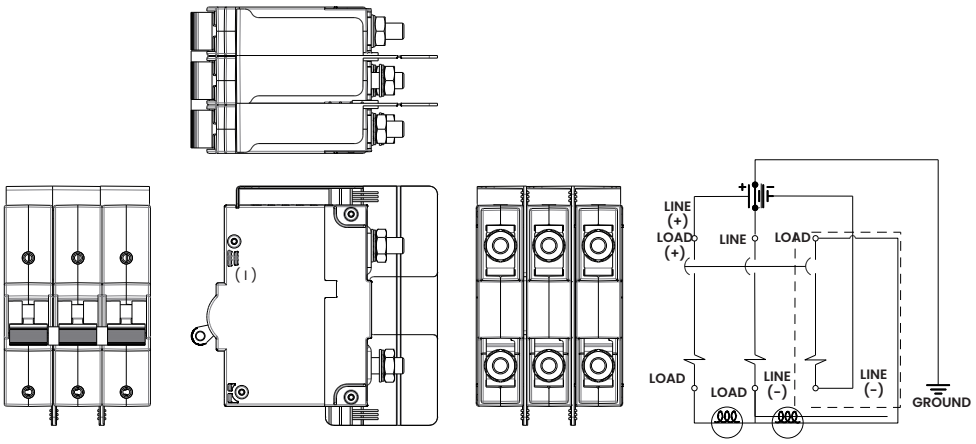
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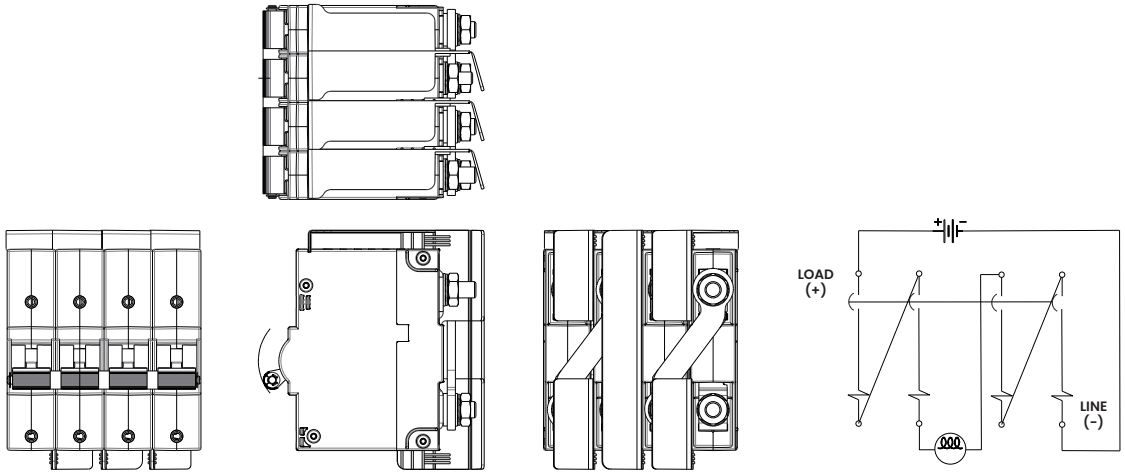
Dimensional Specs UL 1077 Recognized

inches [millimeters]

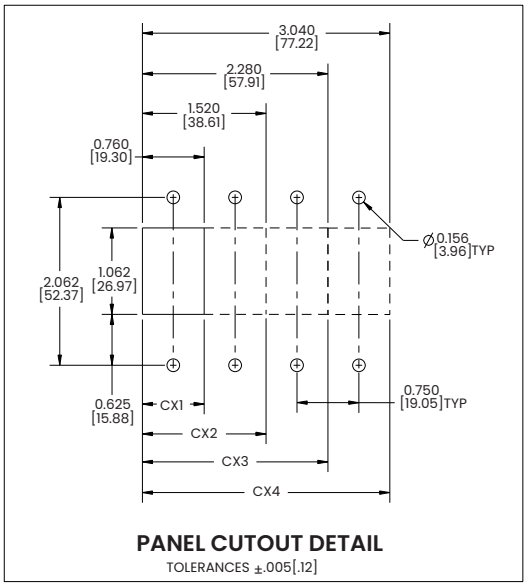
3 POLE (CX3) (220/440 VDC)



4 POLE (CX4) (1,2) (600 VDC)



(2) FOUR POLE UNIT AVAILABLE UP TO 75A MAXIMUM



PANEL CUTOUT DETAIL

TOLERANCES ±.005[.12]

Notes:

1 600V Rating requires minimum of 2 protected poles

CLA-8118 Rev: E

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

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About Carling

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To view all of Carling's environmental, quality, health & safety certifications please visit www.carlingtech.com/environmental-certifications.

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