

# C-Series Circuit Breaker

The C-Series hydraulic/magnetic circuit breakers are ideal for applications that require higher amperage and voltage handling capability in a smaller package. They are available in 1-6 poles, 0.02-100amps, UL Recognized up to 480VAC or 150VDC, UL489 Listed up to 240VAC or 125VDC, with choice of time delays, terminal options, actuator styles and colors.

## Product Highlights:

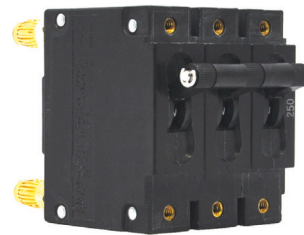
- The UL489 C-Series employs a unique arc chute design which allows for higher interrupting capacities of up to 10,000 amps. New thermoset glass filled polyester half shell construction provides for increased mechanical and electrical strength. The wiping contacts, mechanical linkage with two step actuation, clean contacts providing high, positive contact pressure and longer contact life
- Available with American Standard or Metric Threaded Stud terminals, or Saddle Clamp screw terminals. Optional mid-trip handle style actuator allows visual indication of electrical overload with or without alarm feature
- Available with new solid color rocker actuators and unique two-color Visi-rocker® actuators, which can be specified to indicate either the ON or TRIPPED/OFF mode
- Exclusive Rockerguard and Push-To-Reset bezel help prevent inadvertent actuation
- The metal toggle option was tested to MIL-PRF-55629C for ingress protection when mounted in a panel, and also meets IP68 requirement.



HANDLE ACTUATOR



METAL TOGGLE ACTUATOR



PARALLEL POLE ACTUATOR

## Agency Certifications:

UL Recognized  
UL Standard 1077 | UL Standard 508  
UL Standard 1500  
UL Listed  
UL Standard 489 | UL Standard 489A  
CSA Accepted | CSA Certified  
TUV Certified | VDE Certified

\* For full Agency Certifications, please see pg. 6



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## Electrical Tables

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

| C-SERIES TABLE A: COMPONENT SUPPLEMENTARY PROTECTORS |             |           |           |                |                      |   |                     |                           |                          |  |                                    |
|--|-------------|-----------|-----------|----------------|----------------------|---|---------------------|---------------------------|--------------------------|--|------------------------------------|
| CIRCUIT CONFIGURATION                                | VOLTAGE     |           |           | CURRENT RATING |                      | SHORT CIRCUIT CAPACITY (AMPS)<br>UL/CSA |                     | APPLICATION CODES         |                          | NOTES  |                                    |
|  | MAX. RATING | FREQUENCY | PHASE     | FULL LOAD AMPS | GENERAL PURPOSE AMPS | WITH BACKUP FUSE <sup>1</sup>           | WITHOUT BACKUP FUSE | UL                        | CSA                      |  |                                    |
| SERIES   | 32          | DC        | ---       | 0.02 - 100     | ---                  | ---                                     | 5000                | TC1, OL1, U2              | TC1, OL1, U2             |  |                                    |
|  | 48          | DC        | ---       | 110 - 150      | ---                  | ---                                     | 5000                | TC1, OL1, U2              | TC1, OL1, U2             |  |                                    |
|  | 65          | DC        | ---       | 0.02 - 70      | ---                  | ---                                     | 5000                | TC1,2, OL1,U1             | TC1,2, OL1,U1            |  |                                    |
|  |             |           |           | ---            | 71 - 100             | ---                                     | 5000                | TC1,2, OL0,U1             | TC1,2, OL0,U1            |  |                                    |
|  | 80          | DC        | ---       | 0.02 - 70      | ---                  | ---                                     | 7500                | TC1,2, OL1,U1             | TC1,2, OL1,U1            |  |                                    |
|  |             |           |           | ---            | 71 - 100             | ---                                     | 7500                | TC1,2, OL0,U1             | TC1,2, OL0,U1            |  |                                    |
|  | 80          | DC        | ---       | 0.02 - 70      | ---                  | ---                                     | 10,000              | TC1,2, OL1,U1             | TC1,2, OL1,U1            | Must Have Agency Code "L"                                      |                                    |
|  |             |           |           | ---            | 71 - 100             | ---                                     | 10,000              | TC1,2, OL0,U1             | TC1,2, OL0,U1            | Must Have Agency Code "L"                                      |                                    |
|  | 125         | DC        | ---       | 0.02 - 50      | ---                  | ---                                     | 5000                | TC1,2,OL1,U1              | TC1,2,OL1,U1             | Must Have Agency Code "L"                                      |                                    |
|  | 125 / 250   | DC        | ---       | 0.02 - 50      | ---                  | ---                                     | 5000                | TC1,2,OL1,U1              | TC1,2,OL1,U1             | Must Have Agency Code "L"                                      |                                    |
|  | 250         | DC        | ---       | 0.02 - 50      | ---                  | ---                                     | 5000                | TC1,2,OL1,U1              | TC1,2,OL1,U1             | Must Have Agency Code "L". 2 Pole Break Required for 250 Volts |                                    |
|  | 125         | 50 / 60   | 1         | 0.02 - 100     | ---                  | ---                                     | 3000                | TC1, OL1, U2              | TC1, OL1, U2             | Per Pole Rating  |                                    |
|  |             |           |           | 0.02 - 100     | ---                  | ---                                     | 5000                | TC1,2,OL1,U1              | TC1,2,OL1,U1             | Must Have Agency Code "L"                                      |                                    |
|  | 150         | DC        | ---       | ---            | 80 - 100             | ---                                     | 5000                | TC1, OL0, U3              | ---                      | Must Have Agency Code "L"                                      |                                    |
|  | 150         | DC        | ---       | ---            | 101 - 175            | ---                                     | 5000                | TC1, OL0, U3              | ---                      | Must Have Agency Code "L" Parallel Pole                        |                                    |
|  | 125 / 250   | 50 / 60   | 1         | 0.02 - 100     | ---                  | ---                                     | 3500                | TC1, OL1, U2              | TC1, OL1, U2             |  |                                    |
|  |             |           |           | 0.02 - 50      | ---                  | ---                                     | 3000                | TC1,2,OL1,U1              | TC1,2,OL1,U1             | 2 or 3 poles breaking single phase                             |                                    |
|  |             |           |           | 51 - 100       | ---                  | ---                                     | 1000                | TC1,2,OL1,U1              | TC1,2,OL1,U1             | 2 or 3 poles breaking single phase                             |                                    |
|  |             |           |           | 0.02 - 100     | ---                  | ---                                     | 5000                | TC1,2,OL1,U2              | TC1,2,OL1,U2             | 2 or 3 poles breaking single phase, "L" Agency Code            |                                    |
|  | 250         | 50 / 60   | 1         | 0.02 - 50      | ---                  | ---                                     | 3500                | TC1, OL1, U2              | TC1, OL1, U2             | Per Pole Rating  |                                    |
|  |             |           |           | 0.02 - 100     | ---                  | ---                                     | 5000                | TC1,2,OL1,U1              | TC1,2,OL1,U1             | Must Have Agency Code "L"                                      |                                    |
|  |             |           | 3         | ---            | 0.02 - 100           | ---                                     | ---                 | 3000                      | TC1, OL0, U2             | TC1, OL0, U2   |                                    |
|  |             |           |           | 0.02 - 70      | ---                  | 5000                                    | ---                 | TC1,2,OL1,C1              | TC1,2,OL1,C1             | 3 poles breaking 3 phase                                       |                                    |
|  | ---         | 0.02 - 90 | ---       | 5000           | ---                  | TC1,2,OL0,U1                            | TC1,2,OL0,U1        | Must Have Agency Code "L" |                          |  |                                    |
|  | 277         | 50 / 60   | 1         | 0.02 - 50      | ---                  | 5000                                    | ---                 | TC1,2,OL1,C1              | TC1,2,OL1,C1             |  |                                    |
|  | 480 / 277   | 50 / 60   | 3         | 0.02 - 30      | ---                  | 5000                                    | ---                 | TC1,2,OL1,C1              | TC1,2,OL1,C1             | 3 poles breaking 3 phase                                       |                                    |
|  | 480         | 50 / 60   | 1         | 0.02 - 30      | ---                  | 5000                                    | ---                 | TC1,2,OL1,C1              | TC1,2,OL1,C1             | 2 poles breaking 1 phase                                       |                                    |
| ---  |             |           |           | 31 - 50        | 5000                 | ---                                     | TC1,2,OL0,C1        | TC1,2,OL0,C1              |                          |  |                                    |
| DUAL COIL  | 80          | DC        | ---       | 0.02 - 50      | ---                  | ---                                     | 7500                | TC1,2, OL1,U1             | TC1,2, OL1,U1            |  |                                    |
|  | 125         | 50 / 60   | 1         | 0.02 - 50      | ---                  | ---                                     | 3000                | TC1, OL1, U2              | TC1, OL1, U2             | Per Pole Rating  |                                    |
|  | 125 / 250   | 50 / 60   | 1         | 0.02 - 50      | ---                  | ---                                     | 3500                | TC1, OL1, U2              | TC1, OL1, U2             | 2 or 3 poles breaking single phase                             |                                    |
|  |             |           |           | 0.02 - 50      | ---                  | ---                                     | 3000                | TC1,2,OL1,U1              | TC1,2,OL1,U1             | 2 or 3 poles breaking single phase                             |                                    |
|  | 250         | 50 / 60   | 3         | 0.02 - 50      | ---                  | ---                                     | 3500                | TC1, OL1, U2              | TC1, OL1, U2             |  |                                    |
|  |             |           |           | 0.02 - 50      | ---                  | ---                                     | 3000                | TC1, OL0, U2              | TC1, OL0, U2             | Per Pole Rating  |                                    |
|  | ---         | 0.02 - 50 | ---       | 5000           | ---                  | TC1,2,OL1,C1                            | TC1,2,OL1,C1        |                           |                          |  |                                    |
| 277  | 50 / 60     | 1         | 0.02 - 50 | ---            | 5000                 | ---                                     | TC1,2,OL1,C1        | TC1,2,OL1,C1              | 3 poles breaking 3 phase |  |                                    |
| SHUNT  | 80          | DC        | ---       | 0.02 - 50      | ---                  | ---                                     | 7500                | TC1,2, OL1,U1             | TC1,2, OL1,U1            |  |                                    |
|  | 277         | 50 / 60   | 1         | 0.02 - 50      | ---                  | 5000                                    | ---                 | TC1,2,OL1,C1              | TC1,2,OL1,C1             |  |                                    |
|  | 250         | 50 / 60   | 3         | 0.02 - 50      | ---                  | ---                                     | 5000                | ---                       | TC1,2,OL1,C1             | TC1,2,OL1,C1   | 3 poles breaking 3 phase           |
|  |             |           |           | 0.02 - 30      | ---                  | 5000                                    | ---                 | TC1,2,OL1,C1              | TC1,2,OL1,C1             | 3 poles breaking 3 phase                                       |                                    |
|  | ---         | 31 - 50   | 5000      | ---            | TC1,2,OL0,C1         | TC1,2,OL0,C1                            |                     |                           |                          |  |                                    |
| 480  | 50 / 60     | 1         | 0.02 - 30 | ---            | 5000                 | ---                                     | TC1,2,OL1,C1        | TC1,2,OL1,C1              | 2 poles breaking 1 phase |  |                                    |
| ---  | 31 - 50     | 5000      | ---       | TC1,2,OL0,C1   | TC1,2,OL0,C1         |   |                     |                           |                          |  |                                    |
| RELAY  | 80          | DC        | ---       | 0.02 - 50      | ---                  | ---                                     | 7500                | TC1,2, OL1,U1             | TC1,2, OL1,U1            |  |                                    |
|  | 277         | 50 / 60   | 1         | 0.02 - 50      | ---                  | 5000                                    | ---                 | TC1,2,OL1,C1              | TC1,2,OL1,C1             |  |                                    |
|  | 250         | 50 / 60   | 3         | 0.02 - 50      | ---                  | 5000                                    | ---                 | TC1,2,OL1,C1              | TC1,2,OL1,C1             | 3 poles breaking 3 phase                                       |                                    |
| SWITCH ONLY  | 65          | DC        | ---       | 0.02 - 70      | ---                  | ---                                     | ---                 | ---                       | ---                      |  |                                    |
|  |             |           |           | ---            | 71 - 100             | ---                                     | ---                 | ---                       | ---                      |  |                                    |
|  | 80          | DC        | ---       | 0.02 - 70      | ---                  | ---                                     | ---                 | ---                       | ---                      |  |                                    |
|  |             |           |           | ---            | 71 - 100             | ---                                     | ---                 | ---                       | ---                      |  |                                    |
|  | 125         | 50 / 60   | 1         | 0.02 - 100     | ---                  | ---                                     | ---                 | ---                       | ---                      |  |                                    |
|  | 125 / 250   | 50 / 60   | 1         | 0.02 - 100     | ---                  | ---                                     | ---                 | ---                       | ---                      | ---  | 2 or 3 poles breaking single phase |
|  |             |           |           | 1              | 0.02 - 100           | ---                                     | ---                 | ---                       | ---                      | ---  | ---                                |
| 250  | 50 / 60     | 3         | 0.02 - 70 | ---            | ---                  | ---                                     | ---                 | ---                       | ---                      |  |                                    |
|  |             |           | 1         | 0.02 - 50      | ---                  | ---                                     | ---                 | ---                       | ---                      | ---  |                                    |
| 277  | 50 / 60     | 1         | 0.02 - 50 | ---            | ---                  | ---                                     | ---                 | ---                       |                          |  |                                    |
| 480 / 277  | 50 / 60     | 3         | 0.02 - 30 | ---            | ---                  | ---                                     | ---                 | ---                       | 3 poles breaking 3 phase |  |                                    |
| ---  | 31 - 50     | ---       | ---       | ---            | ---                  | ---                                     | ---                 | ---                       |                          |  |                                    |

Notes for Table A:

- 1 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 125A for 50 Amp or less rating and not to exceed 175 for 51 through 100 Amp rating

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

## Electrical Tables

**Table B:** Lists UL Recognized and CSA Accepted configurations and performance capabilities as a Manual Motor Controller.

| C-SERIES TABLE B: MANUAL MOTOR CONTROLLERS |                  |           |           |                |                    |
|--|------------------|-----------|-----------|----------------|--------------------|
| CIRCUIT CONFIGURATION                      | VOLTAGE          |           |           | CURRENT RATING | HORSEPOWER RATINGS |
|  | MAX. RATING      | FREQUENCY | PHASE     | FULL LOAD AMPS | MAX HP             |
| SERIES, SHUNT & RELAY SWITCH ONLY          | 120 <sup>1</sup> | 50 / 60   | 1         | 0.02 - 50      | 7 1/2              |
|  | 250 <sup>1</sup> | 50 / 60   | 1         | 0.02 - 20      | 3                  |
|  |                  |           | 3         | 0.02 - 20      | 5                  |
|  | 277 <sup>1</sup> | 50 / 60   | 1         | 0.02 - 20      | 3                  |
| 480 <sup>2</sup>                           | 50 / 60          | 3         | 0.02 - 20 | 5              |                    |

Notes for Table B:

1 UL recognized and CSA Accepted at 480V refers to 3 & 4 pole versions used in a 3Ø, wye connected circuit or 2-pole version connected with 2 poles breaking. 1Ø and backed up with series fusing as stated above in note 1.

\*Series, Shunt and Relay Trip - Voltage Coil Construction not current coils

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

| C-SERIES TABLE C: COMPONENT SUPPLEMENTARY PROTECTORS |             |           |           |                |                                   |                               |                     |                        |                           |                        |                           |                   |               |                              |
|--|-------------|-----------|-----------|----------------|-----------------------------------|-------------------------------|---------------------|------------------------|---------------------------|------------------------|---------------------------|-------------------|---------------|------------------------------|
| CIRCUIT CONFIGURATION                                | VOLTAGE     |           |           | CURRENT RATING |                                   | SHORT CIRCUIT CAPACITY (AMPS) |                     |                        |                           |                        |                           | APPLICATION CODES |               | CONSTRUCTION NOTES           |
|  | MAX. RATING | FREQUENCY | PHASE     | FULL LOAD AMPS | GENERAL PURPOSE AMPS <sup>1</sup> | UL/CSA                        |                     | VDE                    |                           | TUV                    |                           | UL                | CSA           |                              |
|  |             |           |           |                |                                   | WITH BACKUP FUSE              | WITHOUT BACKUP FUSE | (Inc) WITH BACKUP FUSE | (Inc) WITHOUT BACKUP FUSE | (Inc) WITH BACKUP FUSE | (Inc) WITHOUT BACKUP FUSE |                   |               |                              |
| SERIES   | 80          | DC        | ---       | 0.10 - 70      | ---                               | ---                           | 7500                | ---                    | 5000                      | 5000                   | 1500                      | TC1,2, OL1,U1     | TC1,2, OL1,U1 |                              |
|  |             |           | ---       | 71 - 100       | 71 - 100                          | ---                           | 10,000              | ---                    | 5000                      | ---                    | 5000                      | 5000              | TC1,2, OL0,U1 | TC1,2, OL0,U1                |
|  | 125         | DC        | ---       | 1 - 50         | ---                               | ---                           | 5000                | ---                    | ---                       | ---                    | 5000                      | TC1,2, OL1,U1     | TC1,2, OL1,U1 | Agency Code J or R Only      |
|  |             |           | ---       | 0.10 - 50      | ---                               | ---                           | 5000                | ---                    | ---                       | ---                    | 5000                      | 5000              | TC1,2, OL1,U1 | TC1,2, OL1,U1                |
|  | 250         | 50 / 60   | 1         | 0.10 - 70      | ---                               | ---                           | 5000                | 3000                   | 1500                      | 3000                   | 1500                      | TC1,2, OL1,U1     | TC1,2, OL1,U1 |                              |
|  |             |           |           | 0.10 - 100     | ---                               | ---                           | 5000                | ---                    | ---                       | 5000                   | 5000                      | TC1,2, OL1,U1     | TC1,2, OL1,U1 | Agency Code J or R Only      |
|  |             |           | 3         | 0.10 - 90      | ---                               | ---                           | 5000                | ---                    | ---                       | 5000                   | 5000                      | TC1,2, OL1,U1     | TC1,2, OL1,U1 | Agency Code J or R Only      |
| 415  | 50 / 60     | 3         | 0.10 - 30 | ---            | ---                               | 5000                          | ---                 | 3000                   | 1500                      | 3000                   | 1500                      | TC1,2, OL1,C1     | TC1,2, OL1,C1 | Rocker                       |
| DUAL COIL  | 80          | DC        | ---       | 0.10 - 30      | ---                               | ---                           | 7500                | ---                    | 1500                      | 5000                   | 1500                      | TC1,2, OL1,U1     | TC1,2, OL1,U1 |                              |
|  | 250         | 50 / 60   | 1 & 3     | 0.10 - 30      | ---                               | ---                           | 5000                | 3000                   | 1500                      | 3000                   | 1500                      | TC1,2, OL1,U1     | TC1,2, OL1,U1 |                              |
| SHUNT  | 80          | DC        | ---       | 0.10 - 70      | ---                               | ---                           | 7500                | ---                    | 5000                      | 5000                   | 1500                      | TC1,2, OL1,U1     | TC1,2, OL1,U1 |                              |
|  | 250         | 50 / 60   | 1 & 3     | 0.10 - 70      | ---                               | ---                           | 5000                | 3000                   | 1500                      | 3000                   | 1500                      | TC1,2, OL1,U1     | TC1,2, OL1,U1 |                              |
|  | 415         | 50 / 60   | 3         | 0.10 - 30      | ---                               | ---                           | 5000                | ---                    | 3000                      | 1500                   | 3000                      | 1500              | TC1,2, OL1,C1 | TC1,2, OL1,C1                |
|  |             |           |           |                |                                   | 5000                          | ---                 | 5000                   | 2500                      | 3000                   | 1500                      | TC1,2, OL1,C1     | TC1,2, OL1,C1 | Handle/ Agency F, H, J, or R |

Notes for Table C:

1 General Purpose ratings for UL/CSA only.

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 125A for 50 Amp or less rating and not to exceed 175 for 51 through 100 Amp rating.

## Electrical Tables

**Table D:** Lists UL Listed (489), CSA Certified (C22.2 No. 5.1-M) configuration and performance capabilities as a Molded Case Circuit Breaker.

| C SERIES TABLE D : UL489 LISTED BRANCH CIRCUIT BREAKERS |             |           |           |                |                              |  |
|---|-------------|-----------|-----------|----------------|------------------------------|--|
| CIRCUIT CONFIGURATION                                   | VOLTAGE     |           |           | CURRENT RATING | INTERRUPTING CAPACITY (AMPS) | CONSTRUCTION NOTES                               |
|   | MAX. RATING | FREQUENCY | PHASE     | FULL LOAD AMPS | WITHOUT BACKUP FUSE          |  |
| SERIES  | 80          | DC        | ---       | 0.10 - 100     | 50,000 <sup>1</sup>          | Limited to 2 Poles Max from 71 - 100 Amps.       |
|   |             |           |           |                | 10,000                       | Limited to 2 Poles Max from 71 - 100 Amps.       |
|   | 125         | DC        | ---       | 0.10 - 100     | 5,000                        | 1 - 3 Poles                                      |
|   | 125 / 250   | DC        | ---       | 0.10 - 50      | 5,000                        | 1 or 2 Poles (2 Poles Required for 250 Volts)    |
|   | 120         | 50 / 60   | 1         | 0.10 - 50      | 10,000                       | 1 - 3 Poles                                      |
|   |             |           |           | 51 - 70        | 5,000                        | 1 - 3 Poles                                      |
|   | 120 / 240   | 50 / 60   | 1         | 0.10 - 50      | 5,000                        | 2 or 3 Poles. 1 Pole of a 3 Pole Unit is Neutral |
|   |             |           |           | 0.10 - 50      | 10000 <sup>1</sup>           | 2 or 3 Poles. 1 Pole of a 3 Pole Unit is Neutral |
|   | 240         | 50 / 60   | 1         | 0.10 - 30      | 5,000                        | 1Pole  |
| 240   | 50 / 60     | 1         | 0.10 - 20 | 5,000          | 2 Pole                       |  |
| 277   | 50 / 60     | 1         | 0.10 - 20 | 10,000         | 1Pole                        |  |
| DUAL COIL   | 120         | 50 / 60   | 1         | 0.10 - 30      | 10,000                       | ---  |

Notes from Table D:

1 Special catalog number required. Consult factory.

**Table E:** Lists UL Recognized, CSA Accepted configurations and performance capabilities as Protectors, Supplementary for Marine Electrical and Fuel Systems (Guide PEQZ2, 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.

| C-SERIES TABLE E: UL1500 (Marine Ignition Protected) |             |           |       |                |                              |                   |              |                                  |
|--|-------------|-----------|-------|----------------|------------------------------|-------------------|--------------|----------------------------------|
| CIRCUIT CONFIGURATION                                | VOLTAGE     |           |       | CURRENT RATING | INTERRUPTING CAPACITY (AMPS) | APPLICATION CODES |              | CONSTRUCTION NOTES               |
|  | MAX. RATING | FREQUENCY | PHASE | FULL LOAD AMPS | WITHOUT BACKUP FUSE          | UL                | CSA          |                                  |
| SERIES   | 48          | DC        | ---   | 0.02 - 100     | 5000                         | TC1,2,OL1,U1      | TC1,2,OL1,U1 | ---                              |
|  |             |           |       | 101 - 150      | 5000                         | TC1,2,OL1,U1      | TC1,2,OL1,U1 | ---                              |
|  | 65          | DC        | ---   | 0.02 - 100     | 1500                         | TC1,2,OL0,U1      | TC1,2,OL0,U1 | ---                              |
|  | 80          | DC        | ---   | 0.02 - 70      | 1500                         | TC1,2,OL1,U1      | TC1,2,OL1,U1 | ---                              |
|  | 125         | 50 / 60   | 1     | 0.02 - 70      | 5000                         | TC1,2,OL1,U1      | TC1,2,OL1,U1 | ---                              |
|  |             |           |       | 71 - 100       | 1500                         | TC1,2,OL1,U1      | TC1,2,OL1,U1 | ---                              |
|  | 250         | 50 / 60   | 1     | 0.02 - 70      | 1500                         | TC1,2,OL1,U1      | TC1,2,OL1,U1 | ---                              |
|  |             |           |       | 71 - 100       | 1500                         | TC1,2,OL1,U1      | TC1,2,OL1,U1 | 2 Poles Breaking<br>Single Phase |

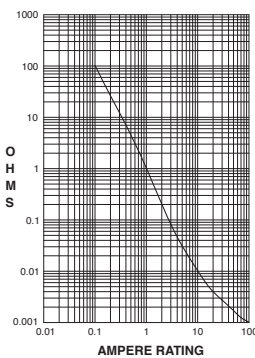
**Table F:** Lists UL Listed configurations and performance capabilities as Circuit Breakers for use in Communications Equipment (Guide DITT, File E189195), under UL489A.

| C-SERIES TABLE F : PARALLEL POLE CONSTRUCTION<br>UL489A LISTED FOR COMMUNICATIONS EQUIPMENT |             |           |                      |                              |
|---|-------------|-----------|----------------------|------------------------------|
| CIRCUIT CONFIGURATION   | VOLTAGE     |           | CURRENT RATING       | INTERRUPTING CAPACITY (AMPS) |
|   | MAX. RATING | FREQUENCY | GENERAL PURPOSE AMPS | WITHOUT BACKUP FUSE          |
| SERIES  | 80          | DC        | 110 - 250            | 10,000                       |

## Electrical

|                         |   |
|-------------------------|---|
| Maximum Voltage         | AC, 480 WYE/277 VAC, 50/60 Hz (see Table A.)<br>UL489: AC, 240 VAC. (See Table D), 50/60 Hz, 125 VDC  |
| Current Rating          | Standard current coils: 0.100, 0.250, 0.500, 0.750, 1.00, 2.50, 5.00, 7.50, 10.0, 15.0, 25.0, 30.0, 35.0, 40.0, 50.0, 60.0, 70.0, 80.0, 90.0 and 100 amps. Other ratings available, see Ordering Scheme.  |
| Standard Voltage Coils  | DC - 6V, 12V; AC - 120V; other ratings available, see Ordering Scheme.  |
| Auxiliary Switch Rating | SPDT; 10.1 amps-250VAC, DC Aux. Switch 1.0A, 65 VDC. 0.5A, 80VDC, 1/4 HP, 125VAC, VDE & TUV 1.0 125 VAC.  |
| 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. C-Series Circuit Breakers comply with the 8mm spacing and 3750V 50/60 Hz dielectric requirements from hazardous voltage to operator accessible surfaces, between adjacent poles and from main circuits to auxiliary circuits per Publications EN 60950 and VDE 0805. |
| Resistance, Impedance   | Values from Line to Load Terminal - based on Series Trip Circuit Breaker.   |

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



| CURRENT (AMPS) | TOLERANCE (%) |
|----------------|---------------|
| 0.10 - 5.0     | 15%           |
| 5.1 - 20.0     | 25%           |
| 20.1 - 100.0   | 35%           |

## Pulse Tolerance Curves



## Mechanical

|                 |  |
|-----------------|--|
| Endurance       | 10,000 ON-OFF operations @ 6 per minute; with rated current & voltage.   |
| Trip Free       | All C-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. With mid-trip, handle moves to the mid position on electrical trip of the circuit breaker. With mid trip handle with alarm switch, handle moves to the mid position and the alarm switch actuates when the circuit breaker is electrically tripped. |

## Physical


|                          |  |
|--------------------------|--|
| Number of Poles          | 1-6 poles ≤ 50A; 1-4 poles @ 51-70A; 1-2 poles 71-100A. UL489 Handle: 1 pole ≤ 100A, 2 pole ≤ 50A; Rocker: 1 pole ≤ 100A.  |
| Internal Circuit Config. | Series (with or without auxiliary switch, mid trip & mid trip with alarm switch) Shunt & Relay with current or voltage trip coils, Dual Coil, Switch Only (with or without aux. switch). UL489: Series (with or without auxiliary switch, mid-trip & midtrip with alarm switch). |
| Weight                   | Approx. 112 grams/pole ( 3.95 oz).   |
| Standard Colors          | Housing: Black   |


## 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 ultrashort curves tested @ 90% of rated current.          |
| Vibration  | Withstands 0.060" excursion from 10-55 Hz & 10 Gs 55-500 Hz, @ rated current per Method 204C, Test Cond. A. Instantaneous & ultrashort curves tested @ 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   |

**Agency Certifications:**


**UL Recognized**


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


UL Standard 508      Motor Controllers, Manual  
 (Guide CCN/NLRV2, File E135367)


UL Standard 1500      Protectors, Supplementary for  
Marine Electrical & Fuel Systems  
 (Guide PEQZ2, File E75596)  
Ignition Protection


**UL Listed**


UL Standard 489      Circuit Breakers, Molded Case,  
 (Guide DIVQ, File E129899)

UL Standard 489A      Communications Equipment  
 (Guide CCN/DITT, File E189195)

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

**CSA Certified**      Circuit Breaker Model Case  
 (Class 1432 01, File 093910),  
CSA Standard C22.2 No. 5.1 - M

**TUV Certified**      EN60934, under License No.  
 R72041016

**VDE Certified**      EN60934, VDE 0642 under File No.  
 10537

**C A 3 - B 0 - 10 - 450 - 1 2 1 - C**

1 Series    2 Actuator    3 Poles    4 Circuit    5 Aux/Alarm Switch    6 Frequency & Delay    7 Current Rating    8 Terminal    9 Actuator Color    10 Mounting Bezel/Barrier    11 Agency Approval

**1 SERIES**  
**C**

**2 ACTUATOR<sup>1</sup>**

- A** Handle, one per pole
- B** Handle, one per multipole unit
- S** Mid-Trip Handle, one per pole
- T** Mid-Trip, one per pole & Alarm Switch

**3 POLES<sup>2</sup>**

- |              |                |               |
|--------------|----------------|---------------|
| <b>1</b> One | <b>3</b> Three | <b>5</b> Five |
| <b>2</b> Two | <b>4</b> Four  | <b>6</b> Six  |

**4 CIRCUIT<sup>3</sup>**

- A<sup>3</sup>** Switch Only (no coil)
- B** Series Trip (current)
- C** Series Trip (voltage)
- D<sup>4</sup>** Shunt Trip (current)
- E<sup>4</sup>** Shunt Trip (voltage)
- F<sup>4</sup>** Relay Trip (current)
- G<sup>4</sup>** Relay Trip (voltage)
- H<sup>4,5</sup>** Dual Coil with Shunt Trip Voltage Coil
- K<sup>4,5</sup>** Dual Coil with Relay Trip Voltage Coil

**5 AUXILIARY/ALARM SWITCH**

- |   |                                     |
|---|-------------------------------------|
| <b>0</b> without Aux Switch                         | <b>6</b> S.P.S.T., 0.139 Solder Lug |
| <b>2</b> S.P.D.T., 0.110 Q.C. Term.                 | <b>8</b> S.P.S.T., 0.187 Q.C. Term. |
| <b>3</b> S.P.D.T., 0.139 Solder Lug                 | <b>9</b> S.P.D.T., 0.187 Q.C. Term. |
| <b>4</b> S.P.D.T., 0.110 Q.C. Term. (Gold Contacts) |                                     |

**6 FREQUENCY & DELAY**

- |   |   |
|---|---|
| <b>03<sup>3</sup></b> DC 50/60Hz, Switch Only | <b>30</b> DC 50/60Hz Instantaneous              |
| <b>10<sup>7</sup></b> DC Instantaneous        | <b>31</b> DC 50/60Hz Ultra Short                |
| <b>11</b> DC Ultra Short                      | <b>32</b> DC 50/60Hz Short                      |
| <b>12</b> DC Short                            | <b>34</b> DC 50/60Hz Medium                     |
| <b>14</b> DC Medium                           | <b>36</b> DC 50/60Hz Long                       |
| <b>16</b> DC Long                             | <b>42<sup>8</sup></b> 50/60Hz Short, Hi-Inrush  |
| <b>20<sup>7</sup></b> 50/60Hz Instantaneous   | <b>44<sup>8</sup></b> 50/60Hz Medium, Hi-Inrush |
| <b>21</b> 50/60Hz Ultra Short                 | <b>46<sup>8</sup></b> 50/60Hz Long, Hi-Inrush   |
| <b>22</b> 50/60Hz Short                       | <b>52<sup>8</sup></b> DC Short, Hi-Inrush       |
| <b>24</b> 50/60Hz Medium                      | <b>54<sup>8</sup></b> DC Medium, Hi-Inrush      |
| <b>26</b> 50/60Hz Long                        | <b>56</b> DC Long, Hi-Inrush                    |

Notes:

- 1 Actuator Code:  
A: Handle tie pin spacer(s) and retainers provided assembled 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 Standard multipole units have all poles identical except when specifying auxiliary switch and/or mixed poles. 4 pole max w/VDE. 5th pole available as Series Trip w/ Voltage Coil only.
- 3 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. For 55-70 amps, select Current Code 670. For 75-100 amps, select Current Code 810. Circuit Codes D,E,F,G,H & K available with Terminal Codes 1,2,4 & 5 only. Circuit Codes D, F, H & K available up to 50 amps maximum Current Rating. Consult factory for available Dual Coil options, as special catalog number is required. Dual Coil Voltage Coils with Shunt Trip Construction trip instantaneously on line voltage. Dual Coil Voltage Coils require 30VA minimum power to trip instantaneously and are rated for intermittent duty only.
- 5 Auxiliary Switch available with Series Trip and Switch Only circuits. On multi-pole breakers, one aux. switch is supplied, mounted in the extreme right pole.
- 7 Voltage coils not rated for continuous duty. Available only with delay codes 10 & 20.
- 8 Available with Circuit Codes B & D only, and up to 50 amps maximum.
- 9 Current Ratings 60 - 70 are available up to four poles maximum. Ratings 71 - 100 are available up to two poles maximum.
- 10 Terminal Code 1 available to 60 amps maximum.
- 11 Terminal Codes 2, 4, 5 and C available to 50 amps maximum.
- 12 Terminal Codes 3, 6 & 9 available to 100 amps maximum.
- 13 Terminal Code 7 available to 25 amps maximum.
- 14 Terminal Code A available to 100 amps maximum.
- 15 Terminal Codes 7, 9 & C are not VDE approved.
- 16 No marking available. Consult factory. VDE/TUV Approval requires dual (I-O, ON-OFF) or I-O markings on all handles.
- 17 Single pole only.
- 18 VDE/TUV: 30 amps max.; UL/CSA: 50 amps max.; Available in 2 - 4 poles only and limited to AC Delays. "General Purpose amps" not rated for "full load amps" or to be used in applications with a motor.

**7 CURRENT RATING (AMPERES)**

| CODE | AMPERES |     |       |     |        |
|------|---------|-----|-------|-----|--------|
| 020  | 0.020   | 235 | 0.350 | 430 | 3.000  |
| 025  | 0.025   | 240 | 0.400 | 435 | 3.500  |
| 030  | 0.030   | 245 | 0.450 | 440 | 4.000  |
| 035  | 0.035   | 250 | 0.500 | 445 | 4.500  |
| 040  | 0.040   | 255 | 0.550 | 450 | 5.000  |
| 045  | 0.045   | 260 | 0.600 | 455 | 5.500  |
| 050  | 0.050   | 265 | 0.650 | 460 | 6.000  |
| 055  | 0.055   | 270 | 0.700 | 465 | 6.500  |
| 060  | 0.060   | 275 | 0.750 | 470 | 7.000  |
| 065  | 0.065   | 280 | 0.800 | 475 | 7.500  |
| 070  | 0.070   | 285 | 0.850 | 480 | 8.000  |
| 075  | 0.075   | 290 | 0.900 | 485 | 8.500  |
| 080  | 0.080   | 295 | 0.950 | 490 | 9.000  |
| 085  | 0.085   | 410 | 1.000 | 495 | 9.500  |
| 090  | 0.090   | 512 | 1.250 | 610 | 10.000 |
| 095  | 0.095   | 415 | 1.500 | 710 | 10.500 |
| 210  | 0.100   | 517 | 1.750 | 611 | 11.000 |
| 215  | 0.150   | 420 | 2.000 | 711 | 11.500 |
| 220  | 0.200   | 522 | 2.250 | 612 | 12.000 |
| 225  | 0.250   | 425 | 2.500 | 712 | 12.500 |
| 230  | 0.300   | 527 | 2.750 | 613 | 13.000 |

**VOLTAGE COIL (NOMINAL RATED VOLTAGE)<sup>7</sup>**

| CODE | RATING |     |      |     |       |
|------|--------|-----|------|-----|-------|
| A06  | 6DC    | A32 | 32DC | J12 | 12AC  |
| A12  | 12DC   | A48 | 48DC | J18 | 18AC  |
| A18  | 18DC   | A65 | 65DC | J24 | 24AC  |
| A24  | 24DC   | J06 | 6AC  | J48 | 48AC  |
|      |        |     |      | J65 | 65AC  |
|      |        |     |      | K20 | 120AC |
|      |        |     |      | L40 | 240AC |

**8 TERMINAL<sup>15</sup>**

- |                                |   |
|--------------------------------|---|
| 1 <sup>10</sup> Stud 10-32     | 6 <sup>12</sup> Stud M6                       |
| 2 <sup>11</sup> Screw 10-32    | 7 <sup>13,15</sup> 0.250 Double Click Connect |
| 3 <sup>12</sup> Stud 1/4-20    | 9 <sup>15</sup> 7/16" Clip Terminal           |
| 4 <sup>11</sup> Stud M5 x 0.8  | A <sup>14</sup> Plug-In Stud                  |
| 5 <sup>11</sup> Screw M5 x 0.8 | C <sup>11,15</sup> 5/16" Clip Terminal        |

**9 ACTUATOR COLOR & LEGEND<sup>16</sup>**

| 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) <sup>17</sup> | T   | U      | 9    | White        |

**10 MOUNTING/BARRIERS**

| MOUNTING STYLE  | BARRIERS            | VOLTAGE   |
|---|---------------------|-----------|
| <b>Threaded Insert</b>                                |                     |           |
| 1   | 6-32 x 0.195 inches | no < 300  |
| A   | 6-32 X 0.195 inches | yes < 300 |
| C <sup>18</sup>                                       | 6-32 X 0.195 inches | yes ≥ 300 |
| 2   | ISO M3 x 5mm        | no < 300  |
| B   | ISO M3 x 5mm        | yes < 300 |
| D <sup>18</sup>                                       | ISO M3 x 5mm        | yes ≥ 300 |
| <b>Front panel Snap-In, 1.00" [25.4mm] wide bezel</b> |                     |           |
| E <sup>17</sup> with Handleguard                      | no                  | < 300     |

**11 AGENCY APPROVAL**

- C** UL Recognized, CSA Accepted
- D** VDE Certified, UL Recognized, CSA Accepted
- E** TUV Certified, UL Recognized, CSA Accepted
- H** UL489 Construction: VDE Certified, UL Recognized, CSA Accepted
- I** UL Rec. STD 1077, UL Rec. 1500 (ignition protected), CSA Accepted
- L** UL489 Construction: UL Recognized, CSA Accepted
- R** UL489 Construction: TUV Certified, UL Recognized, CSA Accepted







**1 SERIES**  
**C**

**2 ACTUATOR**

- C** Curved Rocker, Two Color Visi, Indicate On, Vertical Legend
- D** Curved Rocker, Two Color Visi, Indicate On, Horizontal Legend
- F** Curved Rocker, Two Color Visi, Indicate Off, Vertical Legend
- G** Curved Rocker, Two Color Visi, Indicate Off, Horizontal Legend
- J** Curved Rocker, Single Color, Vertical Legend
- K** Curved Rocker, Single Color, Horizontal Legend
- 1** Flat Rocker, Two Color Visi, Vertical Legend
- 2** Flat Rocker, Two Color Visi, Horizontal Legend
- 3** Flat Rocker, Single Color, Vertical Legend
- 4** Flat Rocker, Single Color, Horizontal Legend
- 5** Flat Rocker, Push To Reset, Two Color Visi, Vertical Legend
- 6** Flat Rocker, Push To Reset, Two Color Visi, Horizontal Legend
- 7** Flat Rocker, Push To Reset, Single Color, Vertical Legend
- 8** Flat Rocker, Push To Reset, Single Color, Horizontal Legend

**3 POLES<sup>2</sup>**

- |              |              |                |
|--------------|--------------|----------------|
| <b>1</b> One | <b>2</b> Two | <b>3</b> Three |
|--------------|--------------|----------------|

**4 CIRCUIT<sup>3</sup>**

- |                      |                                      |
|----------------------|--------------------------------------|
| <b>B</b> Series Trip | <b>P</b> Series Trip (parallel pole) |
|----------------------|--------------------------------------|

**5 AUXILIARY/ALARM SWITCH**

- |  |                                     |
|--|-------------------------------------|
| <b>0</b> without Aux Switch                            | <b>6</b> S.P.S.T., 0.139 Solder Lug |
| <b>2</b> S.P.D.T., 0.110 Q.C. Term.                    | <b>8</b> S.P.S.T., 0.187 Q.C. Term. |
| <b>3</b> S.P.D.T., 0.139 Solder Lug                    | <b>9</b> S.P.D.T., 0.187 Q.C. Term. |
| <b>4</b> S.P.D.T., 0.110 Q.C. Term.<br>(Gold Contacts) |                                     |

**6 FREQUENCY & DELAY<sup>5</sup>**

- |                          |                          |
|--------------------------|--------------------------|
| <b>D1</b> DC Ultra Short | <b>11</b> DC Ultra Short |
| <b>D2</b> DC Short       | <b>12</b> DC Short       |
| <b>D4</b> DC Medium      | <b>14</b> DC Medium      |
| <b>D6</b> DC Long        | <b>16</b> DC Long        |

**7 CURRENT RATING (AMPERES)<sup>2</sup>**

| CODE       | AMPERES | CODE       | AMPERES | CODE       | AMPERES | CODE       | AMPERES |
|------------|---------|------------|---------|------------|---------|------------|---------|
| <b>810</b> | 100.00  | <b>813</b> | 130.00  | <b>817</b> | 170.00  | <b>820</b> | 200.00  |
| <b>811</b> | 110.00  | <b>814</b> | 140.00  | <b>917</b> | 175.00  | <b>922</b> | 225.00  |
| <b>812</b> | 120.00  | <b>815</b> | 150.00  | <b>818</b> | 180.00  | <b>825</b> | 250.00  |
| <b>912</b> | 125.00  | <b>816</b> | 160.00  | <b>819</b> | 190.00  |            |         |

**8 TERMINAL<sup>4</sup>**

- 3** Stud 1/4-20
- 6** Stud M6
- A** Plug-In Stud

**9 ACTUATOR COLOR**

|        | LEGEND          | Dual     | Legend Color |
|--------|-----------------|----------|--------------|
| White  | <b>B</b> ON-OFF | <b>1</b> | Black        |
| Black  | <b>D</b>        | <b>2</b> | White        |
| Red    | <b>G</b>        | <b>3</b> | White        |
| Green  | <b>J</b>        | <b>4</b> | White        |
| Blue   | <b>L</b>        | <b>5</b> | White        |
| Yellow | <b>N</b>        | <b>6</b> | Black        |
| Gray   | <b>Q</b>        | <b>7</b> | Black        |
| Orange | <b>S</b>        | <b>8</b> | Black        |

**10 MOUNTING**

- ROCKER / MOUNTING INSERT STYLE**
- A** Standard Rocker Bezel - 6-32 Inserts
  - B** Standard Rocker Bezel - M3 Inserts
  - C** Rocker Guard Bezel - 6-32 Inserts
  - D** Rocker Guard Bezel - M3 Inserts
  - E** Standard Bezel with recessed Off Side Flat Rocker - 6-32 Inserts
  - F** Standard Bezel with recessed Off Side Flat Rocker - M3 Inserts
  - G** Push to Reset Bezel - 6-32 Inserts
  - H** Push to Reset Bezel - M3 Inserts

**11 MAXIMUM APPLICATION RATING**

- M** 80 DC

**12 AGENCY APPROVAL<sup>6</sup>**

- A** Without Approval
- J** UL489A Listed, TUV Certified
- T** UL489A Listed
- 7** UL489A Listed, TUV Certified

Notes:

- 1 Breakers with Terminal Codes 3 & 6 are supplied with bus bars connecting the Line and Load Terminals. For Terminal Code A, Line and Load Terminals must be connected to a copper bus bar having a minimum cross-section of 0.078 square inches. Terminal code A not available on the single pole unit.
- 2 Ratings for 101 to 125 amps are available in 1-pole size. Ratings from 110 to 200 amps are available in 2-pole size. For ratings from 225-250 amps, specify 3-pole size.
- 3 Circuit code B only available with 1-pole.
- 4 1 pole only available with terminal codes 3 and 6.
- 5 Delays 11, 12, 14, and 16 are only available with 1 pole.
- 6 Agency code K and 7 not available with 1 pole.  
Agency code J only available with 1 pole.







**1 SERIES**  
C

**2 ACTUATOR<sup>1</sup>**

**Two Color Visi-Rocker**

C Indicate ON, vertical legend  
 D Indicate ON, horizontal legend  
 E Indicate ON, no legend  
 F Indicate OFF, vertical legend  
 G Indicate OFF, horizontal legend  
 H Indicate OFF, no legend

**Push-To-Reset, Visi-Rocker**

N Indicate OFF, vertical legend  
 O Indicate OFF, horizontal legend  
 P Indicate OFF, no legend

**Single color**

J Vertical legend  
 K Horizontal legend  
 L No legend

**Push-To-Reset, Single color**

R Vertical legend  
 U Horizontal legend  
 V No legend

|                  | INDICATE "ON"    | INDICATE "OFF"        | SINGLE COLOR          |
|------------------|------------------|-----------------------|-----------------------|
| VERTICAL STYLE   | CODE "C"<br>LINE | CODE "F", "H"<br>LINE | CODE "J", "R"<br>LINE |
| HORIZONTAL STYLE | CODE "D"<br>LINE | CODE "G", "O"<br>LINE | CODE "K", "U"<br>LINE |

**3 POLES<sup>2</sup>**

1 One                      2 Two                      3 Three

**4 CIRCUIT**

A<sup>3</sup> Switch Only (No Coil)  
 B Series Trip (Current)  
 C Series Trip (Voltage)  
 D<sup>4</sup> Shunt Trip (Current)  
 E<sup>4</sup> Shunt Trip (Voltage)

F<sup>4</sup> Relay Trip (Current)  
 G<sup>4</sup> Relay Trip (Voltage)  
 H<sup>4,5</sup> Dual Coil with Shunt Trip Voltage Coil  
 K<sup>4,5</sup> Dual Coil with Relay Trip Voltage Coil

**5 AUXILIARY/ALARM SWITCH<sup>6</sup>**

0 without Aux Switch  
 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)

6 S.P.S.T., 0.139 Solder Lug  
 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<sup>7</sup> DC Instantaneous  
 11 DC Ultra Short  
 12 DC Short  
 14 DC Medium  
 16 DC Long  
 20<sup>7</sup> 50/60Hz Instantaneous  
 21 50/60Hz Ultra Short  
 22 50/60Hz Short  
 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<sup>8</sup> 50/60Hz Short, Hi-Inrush  
 44<sup>8</sup> 50/60Hz Medium, Hi-Inrush  
 46<sup>8</sup> 50/60Hz Long, Hi-Inrush  
 52<sup>8</sup> DC Short, Hi-Inrush  
 54<sup>8</sup> DC Medium, Hi-Inrush  
 56<sup>8</sup> DC Long, Hi-Inrush

- Notes:
- Push-To-Reset actuators have OFF portion of rocker shrouded.
  - Multi-pole breakers have all poles identical except when specifying Aux. switch and/or mixed poles, and have one rocker per breaker. Rocker location as viewed from front panel: 2 pole – left pole; 3 pole – center pole.
  - Switch Only circuits, rated up to 50 amps and 3 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. For 55-70 amps, select Current Code 670. For 75-100 amps, select Current Code 810.
  - Circuit Codes D,E,F,G,H & K available with Terminal Codes 1,2,4 & 5 only. Circuit Codes D,F,H & K available up to 50 amps maximum Current Rating.
  - Consult factory for available Dual Coil options, as special catalog number is required. Dual Coil Voltage Coils with Shunt Trip Construction trip instantaneously on line voltage. Dual Coil Voltage Coils require 30VA minimum power to trip instantaneously and are rated for intermittent duty only.
  - Auxiliary Switch available with Series Trip and Switch Only circuits. On multi-pole breakers, one aux. switch is supplied, mounted in the extreme right pole. Auxiliary switch codes 2, 3 & 4 are VDE approved.
  - Voltage coils not rated for continuous duty. Available only with delay codes 10 & 20.
  - Available with Circuit Codes B & D only, and up to 50 amps maximum.
  - Current Ratings 60-70 are available up to four poles maximum. Ratings 71-100 are available up to two poles maximum.
  - Terminal Code 1 available to 60 amps maximum.
  - Terminal Codes 2, 4, 5 & C available to 50 amps maximum.
  - Terminal Codes 3, 6 & 9 available to 100 amps maximum.
  - Terminal Code 7 available to 25 amps maximum.
  - Terminal Code A available to 100 amps maximum.
  - Terminal Codes 7, 9 & C are not VDE approved.
  - Color shown is visi and legend with remainder of rocker black
  - Legend on Push-to-reset bezel/shroud is white when single color rocker is ordered. Dual = ON-OFF/I-O legend with actuator codes C - G, and J, K, N, O, R, & U. None = no legend with actuator codes H, L, P, V. Rockerguard available with actuator codes C - L. Push-to-reset available with actuator codes N, O, P, R, U, V.
  - VDE/TUV approval requires Dual (I-O, ON-OFF) or I-O markings on rocker.
  - VDE/TUV: 30 amps max.; UL/CSA: 50 amps max.; Available in 2 - 4 poles only, and limited to AC Delays. "General Purpose amps" not rated for "full load amps" or to be used in applications with a motor.

**7 CURRENT RATING (AMPERES)**

| CODE | AMPERES | CODE | AMPERES | CODE | AMPERES | CODE             | AMPERES |
|------|---------|------|---------|------|---------|------------------|---------|
| 020  | 0.020   | 235  | 0.350   | 430  | 3.000   | 614              | 14.000  |
| 025  | 0.025   | 240  | 0.400   | 435  | 3.500   | 615              | 15.000  |
| 030  | 0.030   | 245  | 0.450   | 440  | 4.000   | 616              | 16.000  |
| 035  | 0.035   | 250  | 0.500   | 445  | 4.500   | 617              | 17.000  |
| 040  | 0.040   | 255  | 0.550   | 450  | 5.000   | 618              | 18.000  |
| 045  | 0.045   | 260  | 0.600   | 455  | 5.500   | 620              | 20.000  |
| 050  | 0.050   | 265  | 0.650   | 460  | 6.000   | 622              | 22.000  |
| 055  | 0.055   | 270  | 0.700   | 465  | 6.500   | 624              | 24.000  |
| 060  | 0.060   | 275  | 0.750   | 470  | 7.000   | 625              | 25.000  |
| 065  | 0.065   | 280  | 0.800   | 475  | 7.500   | 630              | 30.000  |
| 070  | 0.070   | 285  | 0.850   | 480  | 8.000   | 635              | 35.000  |
| 075  | 0.075   | 290  | 0.900   | 485  | 8.500   | 640              | 40.000  |
| 080  | 0.080   | 295  | 0.950   | 490  | 9.000   | 650              | 50.000  |
| 085  | 0.085   | 410  | 1.000   | 495  | 9.500   | 660 <sup>9</sup> | 60.000  |
| 090  | 0.090   | 512  | 1.250   | 610  | 10.000  | 670 <sup>9</sup> | 70.000  |
| 095  | 0.095   | 415  | 1.500   | 710  | 10.500  | 680 <sup>9</sup> | 80.000  |
| 210  | 0.100   | 517  | 1.750   | 611  | 11.000  | 685 <sup>9</sup> | 85.000  |
| 215  | 0.150   | 420  | 2.000   | 711  | 11.500  | 690 <sup>9</sup> | 90.000  |
| 220  | 0.200   | 522  | 2.250   | 612  | 12.000  | 695 <sup>9</sup> | 95.000  |
| 225  | 0.250   | 425  | 2.500   | 712  | 12.500  | 810 <sup>9</sup> | 100.000 |
| 230  | 0.300   | 527  | 2.750   | 613  | 13.000  |                  |         |

**VOLTAGE COIL (NOMINAL RATED VOLTAGE<sup>7</sup>)**

| CODE | RATING | CODE | RATING | CODE | RATING | CODE | RATING |
|------|--------|------|--------|------|--------|------|--------|
| A06  | 6DC    | A32  | 32DC   | J12  | 12AC   | J65  | 65AC   |
| A12  | 12DC   | A48  | 48DC   | J18  | 18AC   | K20  | 120AC  |
| A18  | 18DC   | A65  | 65DC   | J24  | 24AC   | L40  | 240AC  |
| A24  | 24DC   | J06  | 6AC    | J48  | 48AC   |      |        |

**8 TERMINAL**

|                                |  |
|--------------------------------|--|
| 1 <sup>10</sup> Stud 10-32     | 6 <sup>12</sup> Stud M6                    |
| 2 <sup>11</sup> Screw 10-32    | 7 <sup>13</sup> 0.250 Double Quick Connect |
| 3 <sup>12</sup> Stud 1/4-20    | 9 7/16" Clip Terminal                      |
| 4 <sup>11</sup> Stud M5 x 0.8  | A <sup>14</sup> Plug-In Stud               |
| 5 <sup>11</sup> Screw M5 x 0.8 | C 5/16" Clip Terminal                      |

**9 ACTUATOR COLOR & LEGEND<sup>16,17,18</sup>**

| Actuator or Visi-Color | Marking: | Marking Color: | Single Color | Rocker/Handle | Visi-Rocker |
|------------------------|----------|----------------|--------------|---------------|-------------|
| Color:                 | I-O      | ON-OFF         | Dual/None    |               |             |
| 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      |

**10 MOUNTING/BARRIERS<sup>1</sup>**

|                 | STANDARD ROCKER BEZEL | BARRIERS |
|-----------------|-----------------------|----------|
| 1               | 6-32 x 0.195 inches   | no       |
| 2               | 6-32 x 0.195 inches   | yes      |
| 3 <sup>19</sup> | 6-32 x 0.195 inches   | yes      |
| 4               | ISO M3 x 5mm          | no       |
| 5               | ISO M3 x 5mm          | yes      |
| 6 <sup>19</sup> | ISO M3 x 5mm          | yes      |

|                 | ROCKERGARD BEZEL    |     |
|-----------------|---------------------|-----|
| A               | 6-32 x 0.195 inches | no  |
| C               | 6-32 x 0.195 inches | yes |
| E <sup>19</sup> | 6-32 x 0.195 inches | yes |
| G               | ISO M3 x 5mm        | no  |
| J               | ISO M3 x 5mm        | yes |
| L <sup>19</sup> | ISO M3 x 5mm        | yes |

|                 | PUSH-TO-RESET BEZEL |     |
|-----------------|---------------------|-----|
| B               | 6-32 x 0.195 inches | no  |
| D               | 6-32 x 0.195 inches | yes |
| F <sup>19</sup> | 6-32 x 0.195 inches | yes |
| H               | ISO M3 x 5mm        | no  |
| J               | ISO M3 x 5mm        | yes |
| M <sup>19</sup> | ISO M3 x 5mm        | yes |

**11 AGENCY APPROVAL**

C UL Recognized & CSA Accepted  
 D VDE Certified, UL Recognized & CSA Accepted  
 E TUV Certified, UL Recognized & CSA Accepted  
 H UL489 Construction: VDE Certified, UL Recognized & CSA Accepted  
 I UL Rec. STD 1077, UL Rec. 1500 (ignition protected), & CSA Accepted  
 L UL489 Construction: UL Recognized & CSA Accepted  
 R UL489 Construction: TUV Certified, UL Recognized & CSA Accepted





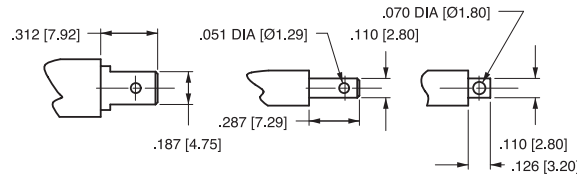


| DESCRIPTION  | CODE | DIMENSIONAL DETAIL | RATING (AMPS) |    |     |
|--------------|------|--------------------|---------------|----|-----|
|              |      |                    | 25            | 50 | 100 |
| #10-32 STUD  | 1    |                    |               |    |     |
| M5 STUD      | 4    |                    |               |    |     |
| #1/4-20 STUD | 3    |                    |               |    |     |
| M6 STUD      | 6    |                    |               |    |     |
| #1/4-20 STUD | 3    |                    |               |    |     |
| M6 STUD      | 6    |                    |               |    |     |
| #10-32 SCREW | 2    |                    |               |    |     |
| M-5 SCREW    | 5    |                    |               |    |     |

| DESCRIPTION          | CODE | DIMENSIONAL DETAIL | RATING (AMPS) |    |     |
|----------------------|------|--------------------|---------------|----|-----|
|                      |      |                    | 25            | 50 | 100 |
| .250 DOUBLE Q.C.     | 7    |                    |               |    |     |
| 7/16" CLIP TERMINALS | 9    |                    |               |    |     |
| PUSH-IN STUD         | A    |                    |               |    |     |

NOTES: TOLERANCE ON STUD LENGTHS IS ±.031 [±.79] UNLESS OTHERWISE SPECIFIED.

AUXILIARY / ALARM SWITCH TERMINAL DETAIL<sup>3</sup>



TAB (Q.C.) .187      TAB (Q.C.) .110      SOLDER TYPE

| TIGHTENING TORQUE SPECIFICATIONS |                           |
|----------------------------------|---------------------------|
| THREAD SIZE                      | TORQUE                    |
| #6-32 [M3] MOUNTING INSERTS      | 7-9 IN-LBS [0.8-1.0 NM]   |
| #10-32 & M5 THD STUDS            | 15-20 IN-LBS [1.7-2.3 NM] |
| #10-32 THD SCREW                 | 15-20 IN-LBS [1.7-2.3 NM] |
| #1/4-20 & M6 THD STUDS           | 30-35 IN-LBS [3.4-4.0 NM] |

| TERMINAL HARDWARE    |       |                     |               |  |
|----------------------|-------|---------------------|---------------|--|
| TERMINAL DESCRIPTION | CODE  | AGENCY APPROVAL     | AMPERE RATING | HARDWARE SUPPLIED                        |
| #10-32 STUD          | 1     | ALL                 | .02 - 50      | LOCK WASHER - FLAT WASHER - NUT          |
| M5 STUD              | 4     | ALL                 | .02 - 50      | LOCK WASHER - FLAT WASHER - NUT          |
| #1/4-20 STUD         | 3     | ALL                 | .02 - 80      | LOCK WASHER - FLAT WASHER - NUT          |
|                      |       |                     | 81 - 100      | LOCK WASHER - NUT - (2)FLAT WASHER - NUT |
| M6 STUD              | 6     | ALL                 | .02 - 80      | LOCK WASHER - FLAT WASHER - NUT          |
|                      |       |                     | 81 - 100      | LOCK WASHER - NUT - (2)FLAT WASHER - NUT |
| #10-32 SCREW         | 2 & 5 | UL RECOGNIZED       | .02 - 50      | * SADDLE CLAMP - FLAT WASHER - SCREW     |
|                      |       | UL-489 LISTED       | .02 - 50      | LOCK WASHER - FLAT WASHER - SCREW        |
|                      |       | TUV & VDE CERTIFIED | .02 - 16      | * SADDLE CLAMP - FLAT WASHER - SCREW     |
|                      |       | TUV & VDE CERTIFIED | 16.1 - 50     | LOCK WASHER - FLAT WASHER - SCREW        |

\* THE SADDLE CLAMP IS FOR DIRECT WIRE CONNECTION USE. DISCARD SADDLE CLAMP IF WIRE TERMINAL LUG IS USED

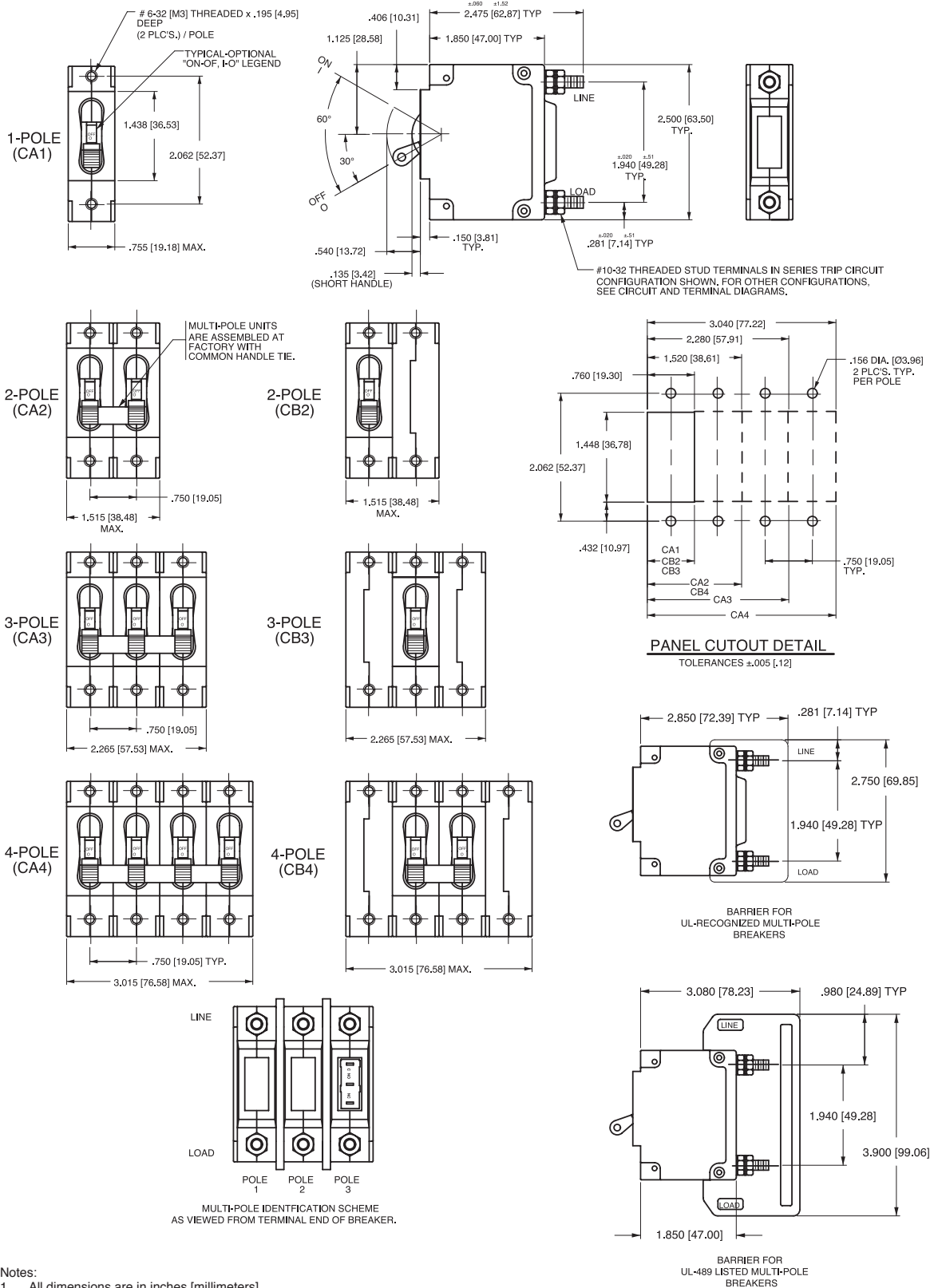
- Notes:
- All dimensions are in inches [millimeters].
  - Tolerance ±.020 [.51] unless otherwise specified.
  - Available on Series Trip and Switch Only Circuits when called for on multi-pole units. Only one aux. switch is normally supplied, as viewed in multi-pole identification scheme.



|  | CIRCUIT SCHEMATIC                           |     | CIRCUIT CODE | AUX SWITCH CODE | CIRCUIT SCHEMATIC  |     | CIRCUIT CODE | AUX SWITCH CODE |
|--|---|-----|--------------|-----------------|--|-----|--------------|-----------------|
|  | ANSI  | IEC |              |                 | ANSI   | IEC |              |                 |
|  | SWITCH ONLY (NO COIL)                       |     | A            | O               | SERIES TRIP  |     | B            | O               |
|  |   |     |              |                 |  |     |              |                 |
|  | SWITCH ONLY (NO COIL) WITH AUXILIARY SWITCH |     | A            | 2<br>3<br>4     | SERIES TRIP WITH AUXILIARY / ALARM SWITCH                    |     | B            | 2<br>3<br>4     |
|  |   |     |              |                 |  |     |              |                 |
|  | SHUNT TRIP                                  |     | D            | 0               | DUAL COIL; SERIES TRIP CURRENT COIL, SHUNT TRIP VOLTAGE COIL |     | H            | 0               |
|  |   |     |              |                 |  |     |              |                 |
|  | RELAY TRIP                                  |     | F            | 0               | DUAL COIL; SERIES TRIP CURRENT COIL, RELAY TRIP VOLTAGE COIL |     | K            | 0               |
|  |   |     |              |                 |  |     |              |                 |

| HANDLE POSITION VS. AUX/ALARM SWITCH MODE |                 |                  |                 |                            |  |
|---|-----------------|------------------|-----------------|----------------------------|--|
| CIRCUIT BREAKER MODE                      | STANDARD C/B    |                  | MID TRIP C/B    |                            |  |
|   | HANDLE POSITION | AUX. SWITCH MODE | HANDLE POSITION | STANDARD ALARM SWITCH MODE | REVERSE ALARM SWITCH MODE <sup>4</sup> |
| OFF                                       |                 |                  |                 |                            |  |
| ON  |                 |                  |                 |                            |  |
| ELECTRICAL TRIP                           |                 |                  |                 |                            |  |

- Notes:
- All dimensions are in inches [millimeters].
  - Tolerance  $\pm 0.020$  [.51] unless otherwise specified.
  - Schematic shown represents current trip circuits.
  - Available only as special catalog number.



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



\*Handleguard available as special catalog number only

- Notes:  
 1 All dimensions are in inches [millimeters].  
 2 Tolerance  $\pm 0.020$  [.51] unless otherwise specified.

1-POLE (CA1)  
w/ ARC CHUTE BARRIER



3-POLE (CA3)  
w/ ARC CHUTE BARRIER

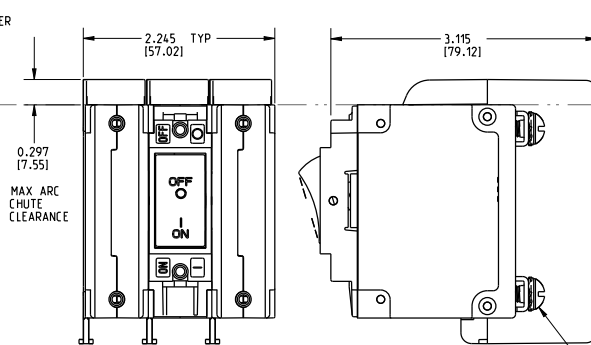


INDICATE "ON"

1-POLE (CC1,CD1)  
w/ ARC CHUTE (NO BARRIER)



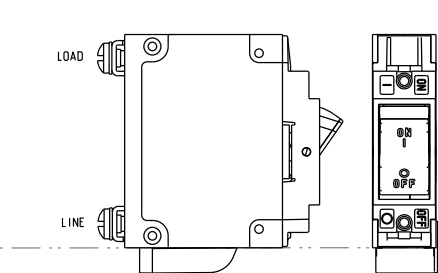
3-POLE (CC3,CD3)  
w/ ARC CHUTE BARRIER



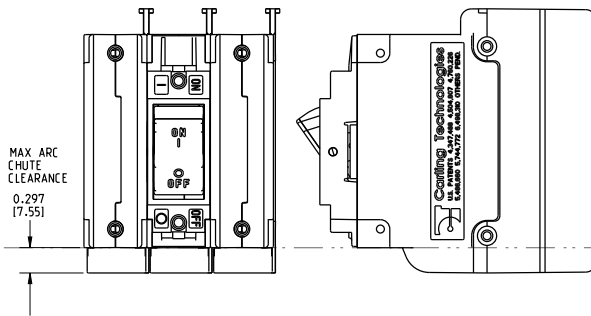
SCREW TYPE TERMINALS IN SERIES TRIP CIRCUIT CONFIGURATION SHOWN.

INDICATE "OFF" / SINGLE COLOR

1-POLE (CF1, CG1,C11,C21)  
w/ ARC CHUTE (NO BARRIER)



3-POLE (CF3,CG3,C13,C23)  
w/ ARC CHUTE BARRIER



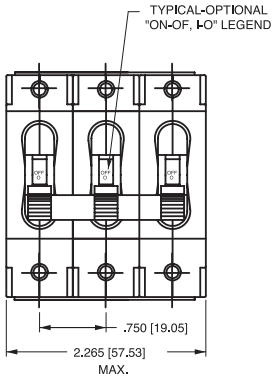
Notes:

- 1 Only 1-pole and 3-pole configurations shown. Arc chute (w/o barrier) and arc chute barrier also available for 2-pole construction.
- 2 Dimensions apply to all variations shown.
- 3 Notice that line and load terminal orientation for indicate on and indicate off rocker circuit breakers are opposite.
- 4 Screw type terminals shown for Rocker style (CF1, C11, etc) circuit breakers. For other terminal configurations see circuit and terminal diagrams.
- 5 All dimensions are in inches [millimeters].
- 6 Tolerance  $\pm .020$  unless otherwise specified.
- 7 Must be ordered under a special catalog number.

**PARALLEL POLE (CA2-P)**

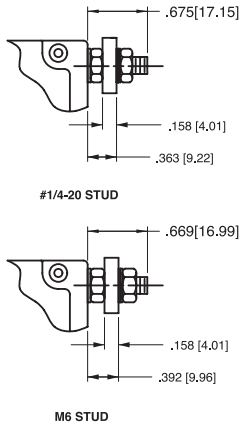


**PARALLEL POLE (CA3-P)**



| CIRCUIT BREAKER PROFILE | CIRCUIT SCHEMATIC (CA2-P SHOWN)              |     | CIRCUIT CODE | AUX SWITCH CODE |
|-------------------------|--|-----|--------------|-----------------|
|                         | ANSI   | IEC |              |                 |
|                         | <b>SERIES TRIP</b><br>                       |     | P            | 0               |
|                         | <b>SERIES TRIP WITH AUXILIARY SWITCH</b><br> |     | P            | 2<br>3<br>4     |

**TERMINAL DETAILS**



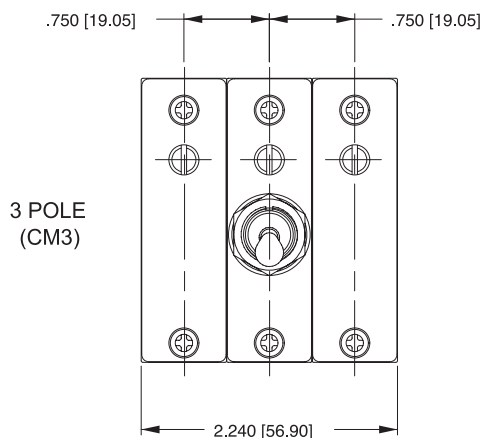
**PANEL CUTOUT DETAIL**



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



SCREW TYPE TERMINALS  
 IN SERIES TRIP CIRCUIT  
 CONFIGURATION SHOWN.  
 FOR OTHER CONFIGURATIONS  
 SEE CIRCUIT & TERMINAL  
 DIAGRAMS



PANEL CUTOUT DETAIL  
 TOLERANCES ±.005[.13]

Notes:

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

| CIRCUIT BREAKER PROFILE  | CIRCUIT SCHEMATIC   |     | CIRCUIT CODE | AUX. SWITCH CODE | CIRCUIT SCHEMATIC   |     | CIRCUIT CODE | AUX. SWITCH CODE |
|--|---|-----|--------------|------------------|---|-----|--------------|------------------|
|  | ANSI  | IEC |              |                  | ANSI  | IEC |              |                  |
| <p>2.160 [54.86] TYP</p> <p>LINE</p> <p>MAIN TERM.S. (SEE TABLE A)</p> <p>LOAD</p> <p>SERIES TRIP (2 TERMS.)</p> <p>.625 [15.88] TYP</p>                                     | <p>SWITCH ONLY (NO COIL)</p> <p>LINE</p> <p>LOAD</p> <p>LINE (NETZ)</p> <p>LOAD (LAST)</p>  |     | A            | 0                | <p>SWITCH TRIP</p> <p>LINE</p> <p>LOAD</p> <p>LINE (NETZ) (3)</p> <p>LOAD (LAST)</p>  |     | BC           | 0                |
| <p>.675 [17.15] TYP</p> <p>.970 [24.64]</p> <p>C</p> <p>NO</p> <p>NC</p> <p>1.265 [32.13]</p> <p>AUX. SWITCH TERMS.(3 PLCS.)</p> <p>SERIES TRIP W/AUX. SWITCH (5 TERMS.)</p> | <p>SWITCH ONLY (NO COIL) WITH AUXILIARY SWITCH</p> <p>LINE</p> <p>LOAD</p> <p>LINE (NETZ)</p> <p>LOAD (LAST)</p>                                      |     | A            | 2<br>3<br>4      | <p>SERIES TRIP WITH AUXILIARY SWITCH</p> <p>LINE</p> <p>LOAD</p> <p>LINE (NETZ) (3)</p> <p>LOAD (LAST)</p>  |     | BC           | 2<br>3<br>4      |
| <p>SERIES TRIP (3 TERMS.)</p>  | <p>SHUNT TRIP</p> <p>LINE</p> <p>LOAD</p> <p>LINE (NETZ) (3)</p> <p>LOAD (LAST)</p> <p>SHUNT (NEBENSCHLUSS)</p>                                       |     | DE           | 0                | <p>DUAL COIL; SERIES TRIP CURRENT COIL, SHUNT TRIP VOLTAGE COIL</p> <p>LINE</p> <p>LOAD</p> <p>LINE (NETZ)</p> <p>LOAD (LAST)</p> <p>VOLTAGE COIL</p> <p>VOLTAGE COIL</p> |     | H            | 0                |
| <p>.646 [16.41]</p> <p>1</p> <p>2</p> <p>3</p> <p>4</p> <p>.812 [20.62] TYP</p> <p>.646 [16.41] TYP</p> <p>SERIES TRIP (4 TERMS.)</p>  | <p>RELAY TRIP</p> <p>LINE</p> <p>LOAD</p> <p>RELAY</p> <p>RELAY</p> <p>RELAY (RELAIS)</p> <p>RELAY (RELAIS)</p> <p>LINE (NETZ)</p> <p>LOAD (LAST)</p> |     | FG           | 0                | <p>DUAL COIL; SERIES TRIP CURRENT COIL, RELAY TRIP VOLTAGE COIL</p> <p>LINE</p> <p>LOAD</p> <p>LINE (NETZ)</p> <p>LOAD (LAST)</p> <p>VOLTAGE COIL</p> <p>VOLTAGE COIL</p> |     | K            | 0                |



BARRIER FOR UL-RECOGNIZED MULTI-POLE BREAKERS



BARRIER FOR UL-489 LISTED MULTI-POLE BREAKERS

Notes:

- 1 All dimensions are in inches [millimeters].
- 2 Tolerance  $\pm .020$  [.51] unless otherwise specified.
- 3 Schematic shown represents current trip circuit.

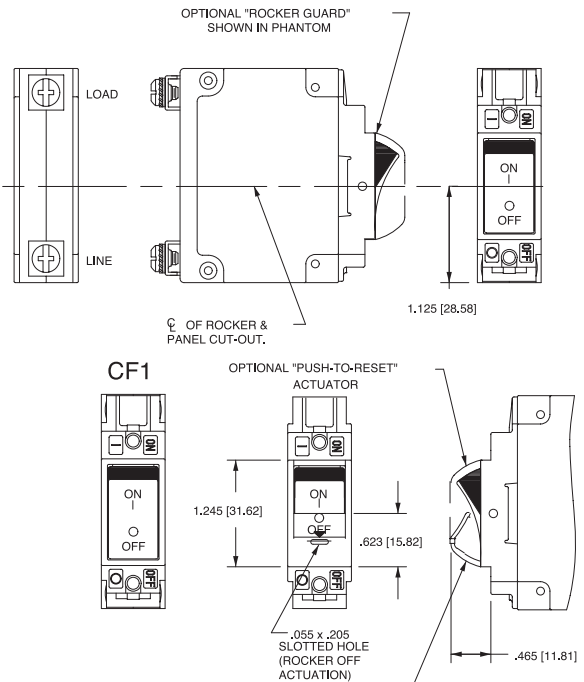
**INDICATE "ON"**

SCREW TYPE TERMINALS IN SERIES TRIP CIRCUIT CONFIGURATION SHOWN, FOR OTHER CONFIGURATIONS SEE CIRCUIT AND TERMINAL DIAGRAMS.

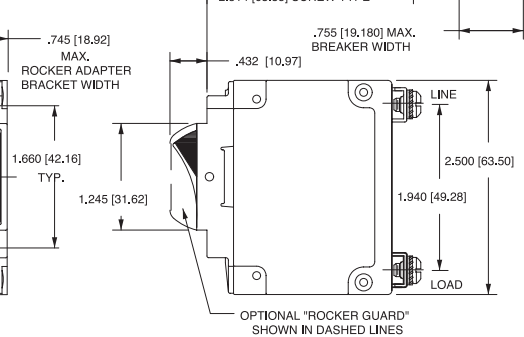
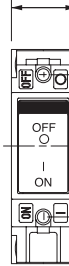


**INDICATE "OFF" & SINGLE COLOR**

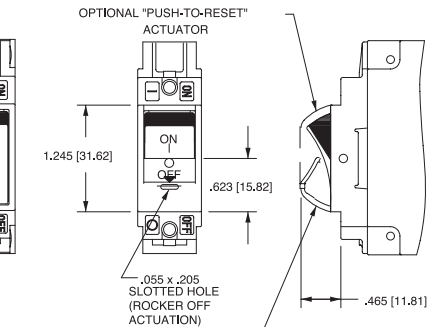
(INDICATE "OFF" SHOWN)



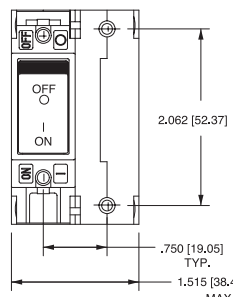
**CC1**



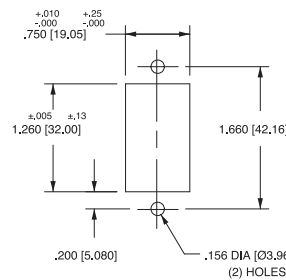
**CF1**



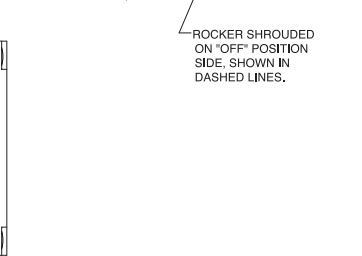
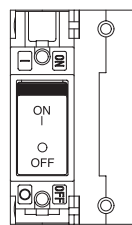
**CC2**



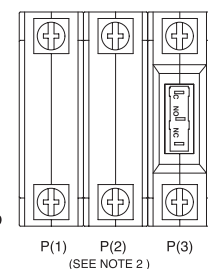
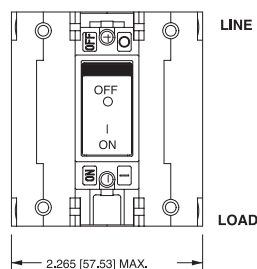
**PANEL CUT-OUT DETAIL**



**CF2**

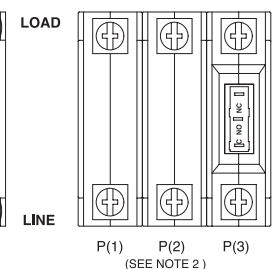
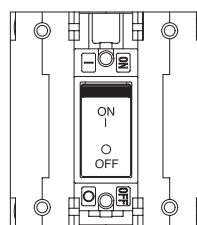


**CC3**



REAR VIEW OF INDICATE "ON" SERIES TRIP W/ AUX SWITCH CIRCUIT CONFIGURATION.

**CF3**



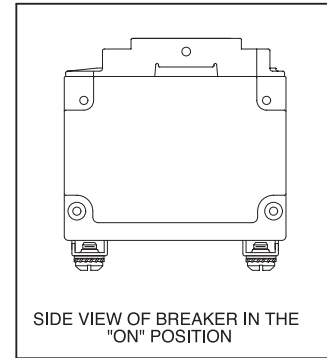
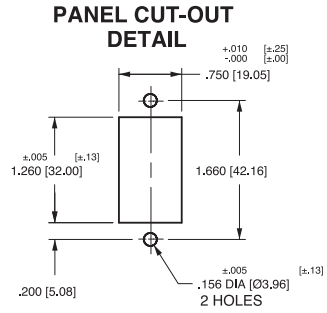
REAR VIEW OF INDICATE "OFF" SERIES TRIP W/ AUX SWITCH CIRCUIT CONFIGURATION.

**Notes:**

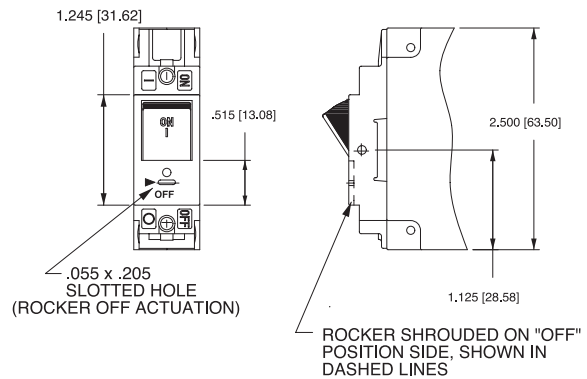
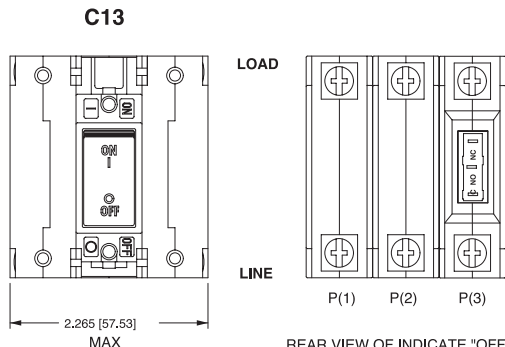
- 1 Dimensions apply to all variations shown. Notice that circuit breaker line and load terminal orientation on indicate OFF is opposite of indicate ON.
- 2 For pole orientation with horizontal legend, rotate front view clockwise 90°.
- 3 All dimensions are in inches [millimeters].
- 4 Tolerance ±.020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



INDICATE "OFF" & SINGLE COLOR



**PUSH-TO-RESET ACTUATOR**



**ACTUATOR SIDE VIEW (SURFACE CONTOURS)**



- Notes:
- 1 For pole orientation with horizontal legend, rotate front view clockwise 90°.
  - 2 All dimensions are in inches [millimeters].
  - 3 Tolerance  $\pm .020$  [.51] unless otherwise specified.

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Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



## JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



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