

UL(AC), DL(DC) Series UL489 Miniature Molded Case Circuit Breakers

- Available in AC and DC models
- DIN Rail Mounted
- 17.5mm width
- Thermal Magnetic
- Current Limiting
- 240V, 480Y/277V AC, 50/60Hz
- 125V DC (1 pole); 250V DC (2pole)
- 10kA Short Circuit Interrupting Capacity
- HACR Type 40°C
- Line/Load reversible



IEC 60947-2
Short Circuit Tested

Current/ Voltage Rating

| | |
|--|---|
| UL-Series | 0.3 - 63A/ 240V AC, 0.3-32A/ 480Y/277V AC* |
| DL-Series | 0.3 - 63A/ 125/ 250V DC |
| Calibration Temperature | 40°C (104°F) |
| Ambient Temperature | -25°C to +55°C (-13°F to 131°F) |
| Storage Temperature | -40°C to +70°C (-40°F to 158°F) |
| Terminal Torque (min/max) | 2 Nm (17.7 lb.in.) / 2.5Nm (22.2 lb.in) |
| Electrical Life | 6000 switching cycles ON/ OFF |
| Mechanical Life | 10000 switching cycles ON/ OFF |
| Vibration Resistance | > 15g according to DIN EN 60069-2-59 during a load with $I_1 = 1.05 \times I_N$ |
| Resistance to mechanical shocks | 25g @ 11ms |

*One device dual voltage ratings.

Short Circuit Interrupting Capacity According to UL 489

| No. Poles | Type | 0.3-32A | 40-63A |
|-----------|------|----------------------------|------------------|
| 1 | AC | 10kA @ 120, 240, 277V | 10kA @ 120, 240V |
| 2-3 | AC | 10kA @ 120, 240, 480Y/277V | 10kA @ 120 240V |

| No. Poles | Type | 0.3-32A | 40-63A |
|-----------|------|-------------|-------------|
| 1 | DC | 10kA @ 125V | 10kA @ 125V |
| 2 | DC | 10kA @ 250V | 10kA @ 250V |

Interrupting Capacity According to IEC 60947-2, DIN EN 60937-2

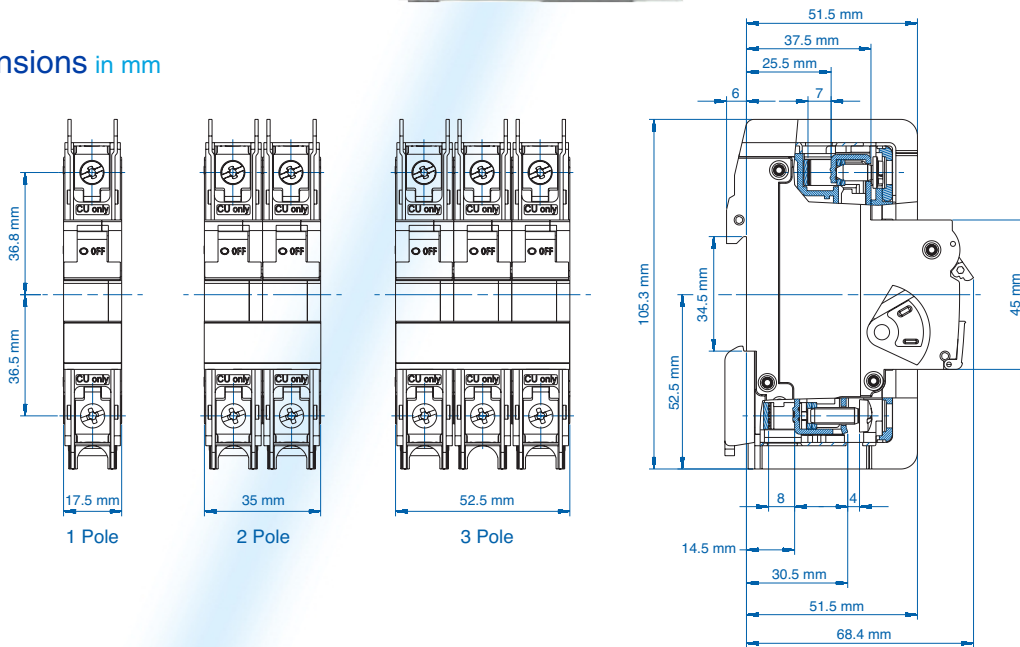
| No. Poles | Type | 0.3-32 | 40-63A |
|-----------|------|-----------|-----------|
| 1 | AC | 15kA@240V | 15kA@240V |
| 2-3 | AC | 15kA@415V | 10kA@415V |

Marking Details



UL489

Dimensions in mm



| Trip-Characteristics* | | | | Applications | | | | | | | | |
|--------------------------------|--------------------|--------------------------|-----------------------|---|-------------------------------------|--------------|------------------------------|---------------|----------------|------------------|---|-------------------|
| Characteristic Trip Boundaries | | | | Lighting Wiring Protection Control Circuits | Business Equipment Appliances | Transformers | Power Supplies Heaters | Motors | | Reactive Load | Telecommu- nications/ Computer Equipment | Power Supplies |
| Thermal Trip | | Magnetic Trip | | | | | | Low Inrush | High Inrush | | | |
| Must not Trip > 100ms | Must Trip < 1hr | Must not Trip > 100ms | Must Trip at 100ms | | | | | | | | | |
| C-Characteristics AC | | | | | | | | | | | | |
| 1.05xRC | 1.35xRC | 5xRC | 10xRC | | | | | | | | | |
| C-Characteristics DC | | | | | | | | | | | | |
| 1.05xRC | 1.35xRC | 7xRC | 14xRC | | | | | | | | | |
| D-Characteristics AC | | | | | | | | | | | | |
| 1.05xRC | 1.35xRC | 10xRC | 16xRC | | | | | | | | | |
| D-Characteristics DC | | | | | | | | | | | | |
| 1.05xRC | 1.35xRC | 14xRC | 22.4xRC | | | | | | | | | |

*The value of each characteristic is shown vertically beneath its corresponding heading.



Warning!

This information should only be used as a selection guide. The use of a Miniature Circuit Breaker in an application with a certain Trip-Characteristic always requires prototype testing! It is the responsibility of the circuit design engineer to select the appropriate Miniature Circuit Breaker for his specific application.

UL - Series C-Trip Characteristic

Application Examples:

Low inrush motors, resistive loads, wiring protection, receptacles, lighting, and control circuit applications. Relatively short thermal trip delay and medium magnetic trip point.



E329510

One Pole



Standard Pack: 12

Weight:

0.3-32A:

1.74kg (3.83lb.)

40-63A:

1.98kg (4.37lb.)

| Rated Current | Type/ Cat. No. | Rated Voltage |
|---------------|-------------------|---------------|
| 0.3A | 1C03UL | 277V AC |
| 0.5A | 1C05UL | 277V AC |
| 1.0A | 1C1UL | 277V AC |
| 1.6A | 1C1.6UL | 277V AC |
| 2.0A | 1C2UL | 277V AC |
| 3.0A | 1C3UL | 277V AC |
| 4.0A | 1C4UL | 277V AC |
| 5.0A | 1C5UL | 277V AC |
| 6.0A | 1C6UL | 277V AC |
| 8.0A | 1C8UL | 277V AC |
| 10A | 1C10UL | 277V AC |
| 12A | 1C12UL | 277V AC |
| 13A | 1C13UL | 277V AC |
| 15A | 1C15UL | 277V AC |
| 16A | 1C16UL | 277V AC |
| 20A | 1C20UL | 277V AC |
| 25A | 1C25UL | 277V AC |
| 30A | 1C30UL | 277V AC |
| 32A | 1C32UL | 277V AC |
| 40A | 1C40UL | 240V AC |
| 50A | 1C50UL | 240V AC |
| 60A | 1C60UL | 240V AC |
| 63A | 1C63UL | 240V AC |

Three Pole



Standard Pack: 4

Weight:

0.3-32A:

1.74kg (3.83lb.)

40-63A:

1.98kg (4.37lb.)

| Rated Current | Type/ Cat. No. | Rated Voltage |
|---------------|-------------------|---------------|
| 0.3A | 3C03UL | 480Y/277V AC |
| 0.5A | 3C05UL | 480Y/277V AC |
| 1.0A | 3C1UL | 480Y/277V AC |
| 1.6A | 3C1.6UL | 480Y/277V AC |
| 2.0A | 3C2UL | 480Y/277V AC |
| 3.0A | 3C3UL | 480Y/277V AC |
| 4.0A | 3C4UL | 480Y/277V AC |
| 5.0A | 3C5UL | 480Y/277V AC |
| 6.0A | 3C6UL | 480Y/277V AC |
| 8.0A | 3C8UL | 480Y/277V AC |
| 10A | 3C10UL | 480Y/277V AC |
| 12A | 3C12UL | 480Y/277V AC |
| 13A | 3C13UL | 480Y/277V AC |
| 15A | 3C15UL | 480Y/277V AC |
| 16A | 3C16UL | 480Y/277V AC |
| 20A | 3C20UL | 480Y/277V AC |
| 25A | 3C25UL | 480Y/277V AC |
| 30A | 3C30UL | 480Y/277V AC |
| 32A | 3C32UL | 480Y/277V AC |
| 40A | 3C40UL | 240V AC |
| 50A | 3C50UL | 240V AC |
| 60A | 3C60UL | 240V AC |
| 63A | 3C63UL | 240V AC |

Two Pole



Standard Pack: 6

Weight:

0.3-32A:

1.74kg (3.83lb.)

40-63A:

1.98kg (4.37lb.)

| Rated Current | Type/ Cat. No. | Rated Voltage |
|---------------|-------------------|---------------|
| 0.3A | 2C03UL | 480Y/277V AC |
| 0.5A | 2C05UL | 480Y/277V AC |
| 1.0A | 2C1UL | 480Y/277V AC |
| 1.6A | 2C1.6UL | 480Y/277V AC |
| 2.0A | 2C2UL | 480Y/277V AC |
| 3.0A | 2C3UL | 480Y/277V AC |
| 4.0A | 2C4UL | 480Y/277V AC |
| 5.0A | 2C5UL | 480Y/277V AC |
| 6.0A | 2C6UL | 480Y/277V AC |
| 8.0A | 2C8UL | 480Y/277V AC |
| 10A | 2C10UL | 480Y/277V AC |
| 12A | 2C12UL | 480Y/277V AC |
| 13A | 2C13UL | 480Y/277V AC |
| 15A | 2C15UL | 480Y/277V AC |
| 16A | 2C16UL | 480Y/277V AC |
| 20A | 2C20UL | 480Y/277V AC |
| 25A | 2C25UL | 480Y/277V AC |
| 30A | 2C30UL | 480Y/277V AC |
| 32A | 2C32UL | 480Y/277V AC |
| 40A | 2C40UL | 240V AC |
| 50A | 2C50UL | 240V AC |
| 60A | 2C60UL | 240V AC |
| 63A | 2C63UL | 240V AC |

Add-on Neutral Pole



| Rated Current | Type/ Cat. No. | Rated Voltage |
|---------------|-------------------|---------------|
| 0.3-32A | N32UL | 480/277V AC |
| 40-63A | N63UL | 240V AC |

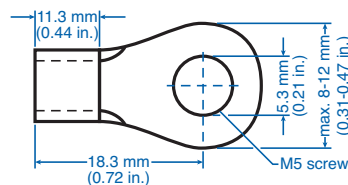
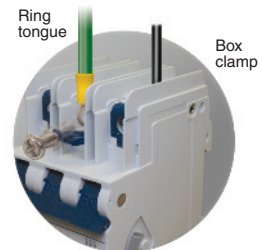
Standard Pack: 6

Weight:

0.99kg (2.18 lb.)

Standard Dual Connection Terminal

- Box clamp terminals
Top: 18-3 AWG;
Bottom: 18-2 AWG
(Line/Load reversible)
- Ring tongue terminals



* May differ by manufacturer. Top terminal ring tongue max. thickness 1.6mm.

UL - Series D-Trip Characteristic

Application Examples:

High inrush motors, transformers, power supplies, heaters and reactive loads. Relatively long thermal trip delay and very high magnetic trip point.

Altech Corp.[®]

UL489



One Pole



Standard Pack: 12

Weight:
0.3-32A:
1.74kg (3.83lb.)
40-63A:
1.98kg (4.37lb.)

| Rated Current | Type/ Cat. No. | Rated Voltage |
|---------------|-------------------|---------------|
| 0.3A | 1D03UL | 277V AC |
| 0.5A | 1D05UL | 277V AC |
| 1.0A | 1D1UL | 277V AC |
| 1.6A | 1D1.6UL | 277V AC |
| 2.0A | 1D2UL | 277V AC |
| 3.0A | 1D3UL | 277V AC |
| 4.0A | 1D4UL | 277V AC |
| 5.0A | 1D5UL | 277V AC |
| 6.0A | 1D6UL | 277V AC |
| 8.0A | 1D8UL | 277V AC |
| 10A | 1D10UL | 277V AC |
| 12A | 1D12UL | 277V AC |
| 13A | 1D13UL | 277V AC |
| 15A | 1D15UL | 277V AC |
| 16A | 1D16UL | 277V AC |
| 20A | 1D20UL | 277V AC |
| 25A | 1D25UL | 277V AC |
| 30A | 1D30UL | 277V AC |
| 32A | 1D32UL | 277V AC |
| 40A | 1D40UL | 240V AC |
| 50A | 1D50UL | 240V AC |
| 60A | 1D60UL | 240V AC |
| 63A | 1D63UL | 240V AC |

Three Pole



Standard Pack: 4

Weight:
0.3-32A:
1.74kg (3.83lb.)
40-63A:
1.98kg (4.37lb.)

| Rated Current | Type/ Cat. No. | Rated Voltage |
|---------------|-------------------|---------------|
| 0.3A | 3D03UL | 480Y/277V AC |
| 0.5A | 3D05UL | 480Y/277V AC |
| 1.0A | 3D1UL | 480Y/277V AC |
| 1.6A | 3D1.6UL | 480Y/277V AC |
| 2.0A | 3D2UL | 480Y/277V AC |
| 3.0A | 3D3UL | 480Y/277V AC |
| 4.0A | 3D4UL | 480Y/277V AC |
| 5.0A | 3D5UL | 480Y/277V AC |
| 6.0A | 3D6UL | 480Y/277V AC |
| 8.0A | 3D8UL | 480Y/277V AC |
| 10A | 3D10UL | 480Y/277V AC |
| 12A | 3D12UL | 480Y/277V AC |
| 13A | 3D13UL | 480Y/277V AC |
| 15A | 3D15UL | 480Y/277V AC |
| 16A | 3D16UL | 480Y/277V AC |
| 20A | 3D20UL | 480Y/277V AC |
| 25A | 3D25UL | 480Y/277V AC |
| 30A | 3D30UL | 480Y/277V AC |
| 32A | 3D32UL | 480Y/277V AC |
| 40A | 3D40UL | 240V AC |
| 50A | 3D50UL | 240V AC |
| 60A | 3D60UL | 240V AC |
| 63A | 3D63UL | 240V AC |

Two Pole



Standard Pack: 6

Weight:
0.3-32A:
1.74kg (3.83lb.)
40-63A:
1.98kg (4.37lb.)

| Rated Current | Type/ Cat. No. | Rated Voltage |
|---------------|-------------------|---------------|
| 0.3A | 2D03UL | 480Y/277V AC |
| 0.5A | 2D05UL | 480Y/277V AC |
| 1.0A | 2D1UL | 480Y/277V AC |
| 1.6A | 2D1.6UL | 480Y/277V AC |
| 2.0A | 2D2UL | 480Y/277V AC |
| 3.0A | 2D3UL | 480Y/277V AC |
| 4.0A | 2D4UL | 480Y/277V AC |
| 5.0A | 2D5UL | 480Y/277V AC |
| 6.0A | 2D6UL | 480Y/277V AC |
| 8.0A | 2D8UL | 480Y/277V AC |
| 10A | 2D10UL | 480Y/277V AC |
| 12A | 2D12UL | 480Y/277V AC |
| 13A | 2D13UL | 480Y/277V AC |
| 15A | 2D15UL | 480Y/277V AC |
| 16A | 2D16UL | 480Y/277V AC |
| 20A | 2D20UL | 480Y/277V AC |
| 25A | 2D25UL | 480Y/277V AC |
| 30A | 2D30UL | 480Y/277V AC |
| 32A | 2D32UL | 480Y/277V AC |
| 40A | 2D40UL | 240V AC |
| 50A | 2D50UL | 240V AC |
| 60A | 2D60UL | 240V AC |
| 63A | 2D63UL | 240V AC |

Add-on Neutral Pole



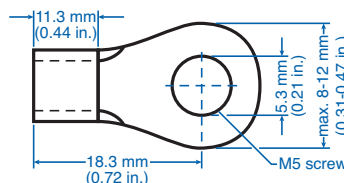
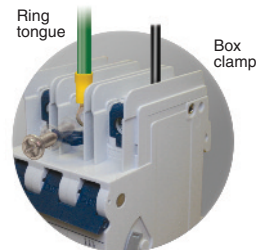
| Rated Current | Type/ Cat. No. | Rated Voltage |
|---------------|-------------------|---------------|
| 0.3-32A | N32UL | 480/277V AC |
| 40-63A | N63UL | 240V AC |

Standard Pack: 6

Weight:
0.99kg (2.18 lb.)

Standard Dual Connection Terminal

- Box clamp terminals
Top: 18-3 AWG;
Bottom: 18-2 AWG
(Line/Load reversible)
- Ring tongue terminals



* May differ by manufacturer. Top terminal ring tongue max. thickness 1.6mm.

DL - Series C-Trip (DC) Characteristic

Application Examples:

Telecommunication equipment,
computer equipment, uninterruptible power supplies.



One Pole

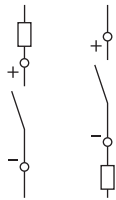


Standard Pack: 12

Weight:

0.3-32A:
1.86kg (4.1lb.)

40-63A:
2.10kg (4.6lb.)



| Rated Current | Type/ Cat. No. | Rated Voltage |
|---------------|-------------------|---------------|
| 0.3A | 1C03DL | 125V DC |
| 0.5A | 1C05DL | 125V DC |
| 1.0A | 1C1DL | 125V DC |
| 1.6A | 1C1.6DL | 125V DC |
| 2.0A | 1C2DL | 125V DC |
| 3.0A | 1C3DL | 125V DC |
| 4.0A | 1C4DL | 125V DC |
| 5.0A | 1C5DL | 125V DC |
| 6.0A | 1C6DL | 125V DC |
| 8.0A | 1C8DL | 125V DC |
| 10A | 1C10DL | 125V DC |
| 12A | 1C12DL | 125V DC |
| 13A | 1C13DL | 125V DC |
| 15A | 1C15DL | 125V DC |
| 16A | 1C16DL | 125V DC |
| 20A | 1C20DL | 125V DC |
| 25A | 1C25DL | 125V DC |
| 30A | 1C30DL | 125V DC |
| 32A | 1C32DL | 125V DC |
| 40A | 1C40DL | 125V DC |
| 50A | 1C50DL | 125V DC |
| 60A | 1C60DL | 125V DC |
| 63A | 1C63DL | 125V DC |

Two Pole

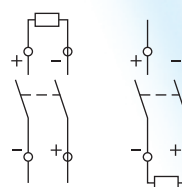


Standard Pack: 6

Weight:

0.3-32A:
1.86kg (4.1lb.)

40-63A:
2.10kg (4.6lb.)



| Rated Current | Type/ Cat. No. | Rated Voltage |
|---------------|-------------------|---------------|
| 0.3A | 2C03DL | 250V DC |
| 0.5A | 2C05DL | 250V DC |
| 1.0A | 2C1DL | 250V DC |
| 1.6A | 2C1.6DL | 250V DC |
| 2.0A | 2C2DL | 250V DC |
| 3.0A | 2C3DL | 250V DC |
| 4.0A | 2C4DL | 250V DC |
| 5.0A | 2C5DL | 250V DC |
| 6.0A | 2C6DL | 250V DC |
| 8.0A | 2C8DL | 250V DC |
| 10A | 2C10DL | 250V DC |
| 12A | 2C12DL | 250V DC |
| 13A | 2C13DL | 250V DC |
| 15A | 2C15DL | 250V DC |
| 16A | 2C16DL | 250V DC |
| 20A | 2C20DL | 250V DC |
| 25A | 2C25DL | 250V DC |
| 30A | 2C30DL | 250V DC |
| 32A | 2C32DL | 250V DC |
| 40A | 2C40DL | 250V DC |
| 50A | 2C50DL | 250V DC |
| 60A | 2C60DL | 250V DC |
| 63A | 2C63DL | 250V DC |



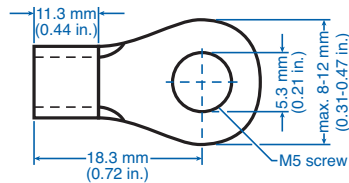
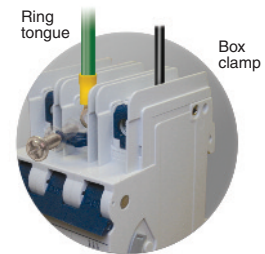
Warning!

Correct polarity must be observed
when connecting the DC circuit breakers.



Standard Dual Connection Terminal

- Box clamp terminals
Top: 18-3 AWG;
Bottom: 18-2 AWG
(Line/Load reversible)
- Ring tongue terminals



* May differ by manufacturer. Top terminal ring tongue max. thickness 1.6mm.

DL - Series D-Trip (DC) Characteristic

Application Examples:

Telecommunication equipment,
computer equipment, uninterruptible power supplies.



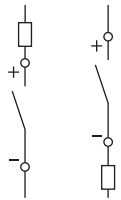
One Pole



| Rated Current | Type/ Cat. No. | Rated Voltage |
|---------------|-------------------|---------------|
| 0.3A | 1D03DL | 125V DC |
| 0.5A | 1D05DL | 125V DC |
| 1.0A | 1D1DL | 125V DC |
| 1.6A | 1D1.6DL | 125V DC |
| 2.0A | 1D2DL | 125V DC |
| 3.0A | 1D3DL | 125V DC |
| 4.0A | 1D4DL | 125V DC |
| 5.0A | 1D5DL | 125V DC |
| 6.0A | 1D6DL | 125V DC |
| 8.0A | 1D8DL | 125V DC |
| 10A | 1D10DL | 125V DC |
| 12A | 1D12DL | 125V DC |
| 13A | 1D13DL | 125V DC |
| 15A | 1D15DL | 125V DC |
| 16A | 1D16DL | 125V DC |
| 20A | 1D20DL | 125V DC |
| 25A | 1D25DL | 125V DC |
| 30A | 1D30DL | 125V DC |
| 32A | 1D32DL | 125V DC |
| 40A | 1D40DL | 125V DC |
| 50A | 1D50DL | 125V DC |
| 60A | 1D60DL | 125V DC |
| 63A | 1D63DL | 125V DC |

Standard Pack: 12

Weight:
0.3-32A:
1.86kg (4.1lb.)
40-63A:
2.10kg (4.6lb.)



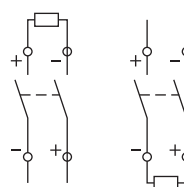
Two Pole



| Rated Current | Type/ Cat. No. | Rated Voltage |
|---------------|-------------------|---------------|
| 0.3A | 2D03DL | 250V DC |
| 0.5A | 2D05DL | 250V DC |
| 1.0A | 2D1DL | 250V DC |
| 1.6A | 2D1.6DL | 250V DC |
| 2.0A | 2D2DL | 250V DC |
| 3.0A | 2D3DL | 250V DC |
| 4.0A | 2D4DL | 250V DC |
| 5.0A | 2D5DL | 250V DC |
| 6.0A | 2D6DL | 250V DC |
| 8.0A | 2D8DL | 250V DC |
| 10A | 2D10DL | 250V DC |
| 12A | 2D12DL | 250V DC |
| 13A | 2D13DL | 250V DC |
| 15A | 2D15DL | 250V DC |
| 16A | 2D16DL | 250V DC |
| 20A | 2D20DL | 250V DC |
| 25A | 2D25DL | 250V DC |
| 30A | 2D30DL | 250V DC |
| 32A | 2D32DL | 250V DC |
| 40A | 2D40DL | 250V DC |
| 50A | 2D50DL | 250V DC |
| 60A | 2D60DL | 250V DC |
| 63A | 2D63DL | 250V DC |

Standard Pack: 6

Weight:
0.3-32A:
1.86kg (4.1lb.)
40-63A:
2.10kg (4.6lb.)

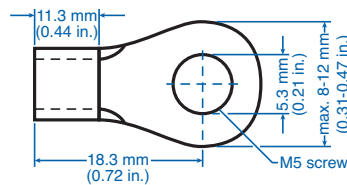
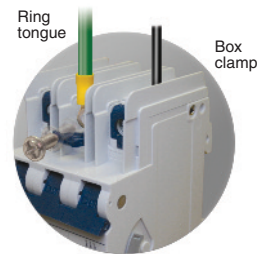


Warning!
Correct polarity must be observed
when connecting the DC circuit breakers.



Standard Dual Connection Terminal

- Box clamp terminals
Top: 18-3 AWG;
Bottom: 18-2 AWG
(Line/Load reversible)
- Ring tongue terminals



* May differ by manufacturer. Top terminal ring tongue max. thickness 1.6mm.



Auxiliary Contact, Alarm Switch

| Type/ Cat No. | Description | Contacts Type | Std Pk |
|---------------|------------------------------|--------------------|--------|
| H10UL | 1 Auxiliary Contact | 1NO | 6 |
| H11UL | 2 Auxiliary Contacts | 1NO + 1NC | 6 |
| H12UL | 3 Auxiliary Contacts | 1NO + 2NC | 6 |
| H21UL | 3 Auxiliary Contacts | 2NO + 1NC | 6 |
| HLS11L* | 1 Auxiliary/1 Signal Contact | 1CO + 1CO (Signal) | 6 |

| Rated Operating Currents | 10A@240V AC 3A@110V AC 1A@220V AC |
|--------------------------|---|
|--------------------------|---|

| Minimum Contact Load | 1mA @ 24V DC |
|----------------------|--------------|
|----------------------|--------------|

| Torque | max. 0.8Nm (7 lb.in) |
|--------|----------------------|
|--------|----------------------|

Wire Range:

| Single Wire | 1.0mm ² - 2.5mm ² (18-14 AWG) |
|----------------------------|---|
| Stranded Wire | 1.0mm ² - 1.5mm ² (18-16 AWG) |
| Stranded Wire with Ferrule | 1.0mm ² - 1.5mm ² (18-16 AWG) |



Shunt Trip

| Type/ Cat No. | Description | Max. Operating Current @ Un | Std Pk |
|---------------|------------------------------|---|--------|
| FA12UL | 12V AC/DC | 1.3A | 5 |
| FA24UL | 24V AC/DC | 0.6A | 5 |
| FA48UL | 48 - 72V AC/DC | 0.2A | 5 |
| FA110UL | 110 - 240V AC/DC, 277V AC | 0.25A @ 110V 0.5A @ 240V 0.58A @ 277V | 5 |



Undervoltage Trip*

| Type/ Cat No. | Line Voltage V _E | Std Pk |
|---------------|-----------------------------|--------|
| UA120UL | 120V AC, 60Hz | 5 |

Reset-Hold Voltage = 0.85 x V_E
Drop-Out Voltage = 0.35 ~ 0.7 x V_E
V_E = Rated Voltage



Neutral Pole

| Type/ Cat No. | Rated Current In | Rated Voltage | Std Pk |
|---------------|------------------|---------------|--------|
| N32UL | 0.3 - 32A | 480Y/277V AC | 6 |
| N63UL | 40 - 63A | 240V AC | 6 |

Touch Protection Caps

to cover the terminal screw holes on the switching devices, neutral Poles and shunt trips for increased touch protection.



| Type/ Cat No. | Std Pk |
|---------------|--------|
| BS.UL | 100 |

Mounting Screw 34mm

to connect the auxiliary contact and shunt trip or neutral Pole to the circuit breaker.

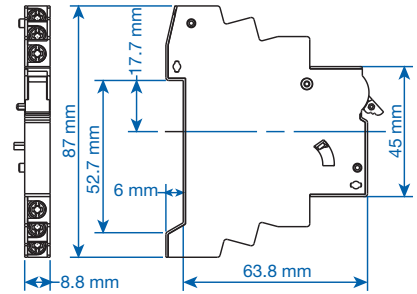


| Type/ Cat No. | Std Pk |
|---------------|--------|
| E983419 | 10 |

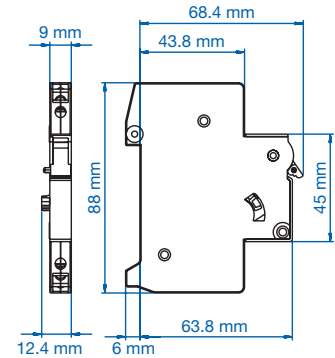


Lock-out Adapter

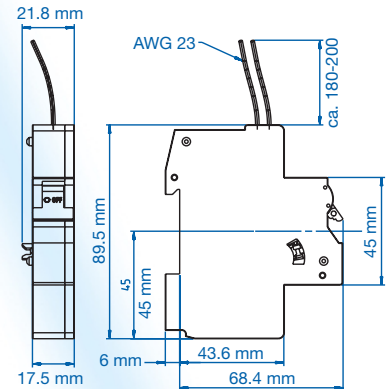
| Type/ Cat No. | Std Pk |
|---------------|--------|
| EASS | 10 |



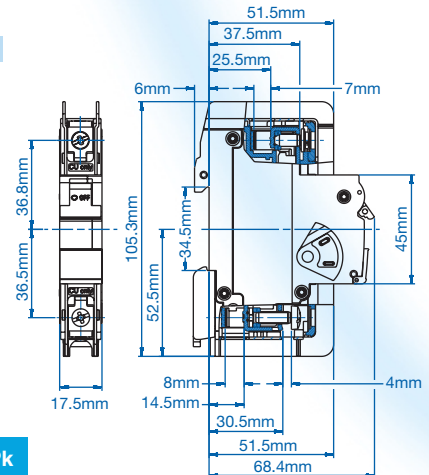
Dimensions HxxUL.



Dimensions HLS11L.



Dimensions UA120UL



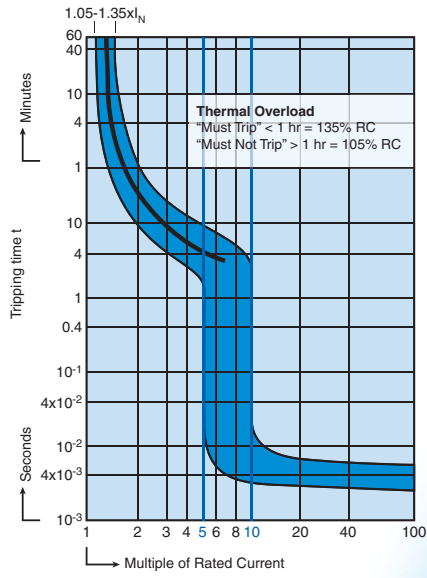
Dimensions NxxUL, FxaxUL

* UL Pending
Altech Corp.

UL Series (AC) Trip Curves

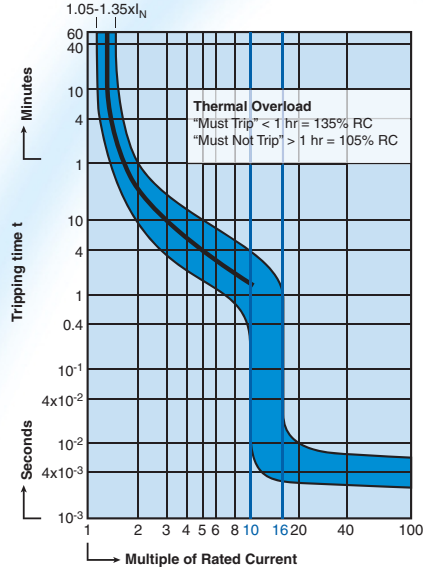


C (AC) Trip Curve

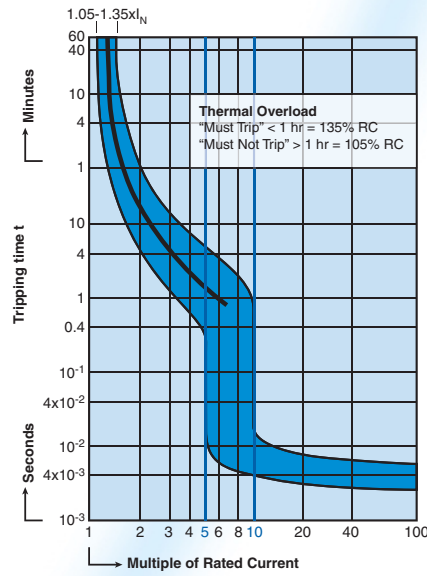


0.3A Through 10A Rated Current

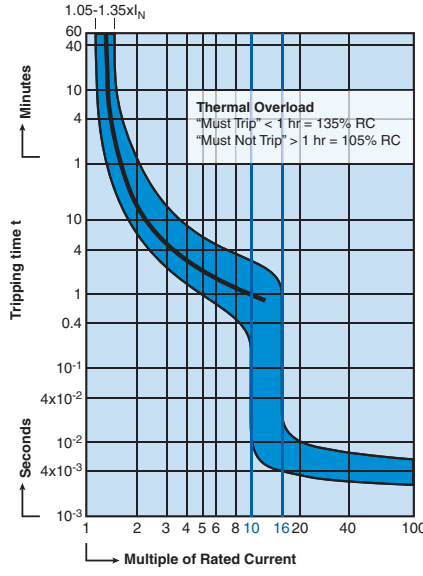
D (AC) Trip Curve



0.3A Through 10A Rated Current



12A Through 63A Rated Current



12A Through 63A Rated Current

“C” Magnetic Trip Parameters Rated current 0.3A to 63A.

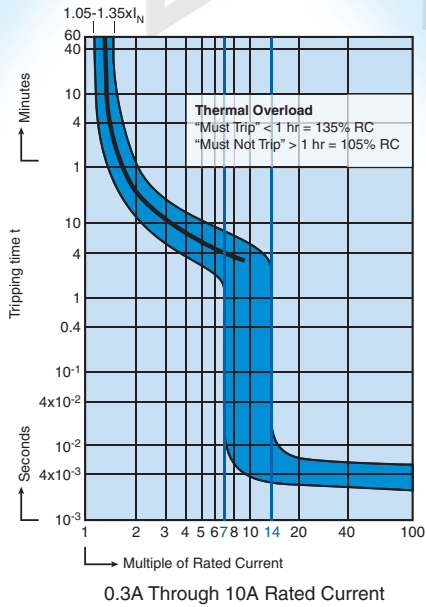
1. Hold for a minimum of 100ms at surge of 5 times rated current.
2. Trip in under 100ms at 10 times rated current.

“D” Magnetic Trip Parameters Rated current 0.3A to 63A.

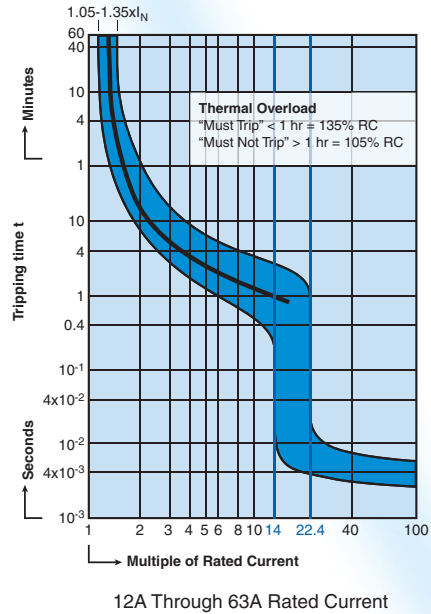
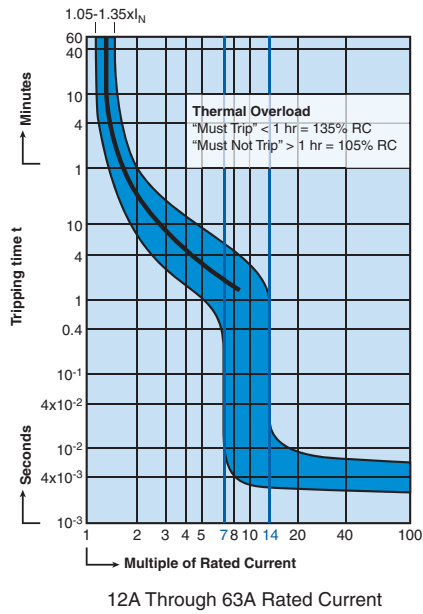
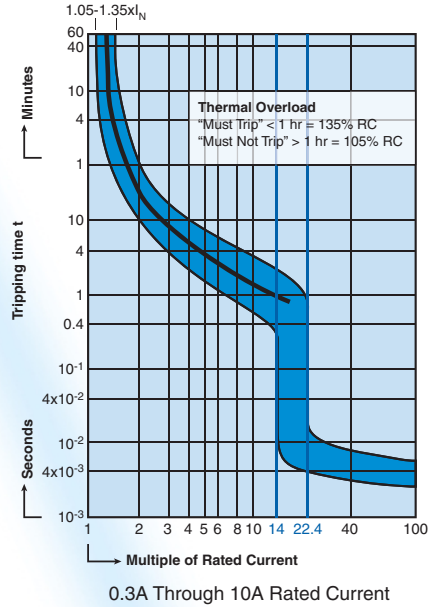
1. Hold for a minimum of 100ms at surge of 10 times rated current.
2. Trip in under 100ms at 16 times rated current.

UL Series (DC) Trip Curves

C (DC) Trip Curve



D (DC) Trip Curve



"C" Magnetic Trip Parameters

Rated current 0.3A to 63A.

1. Hold for a minimum of 100ms at surge of 7 times rated current.
2. Trip in under 100ms at 14 times rated current.

"D" Magnetic Trip Parameters

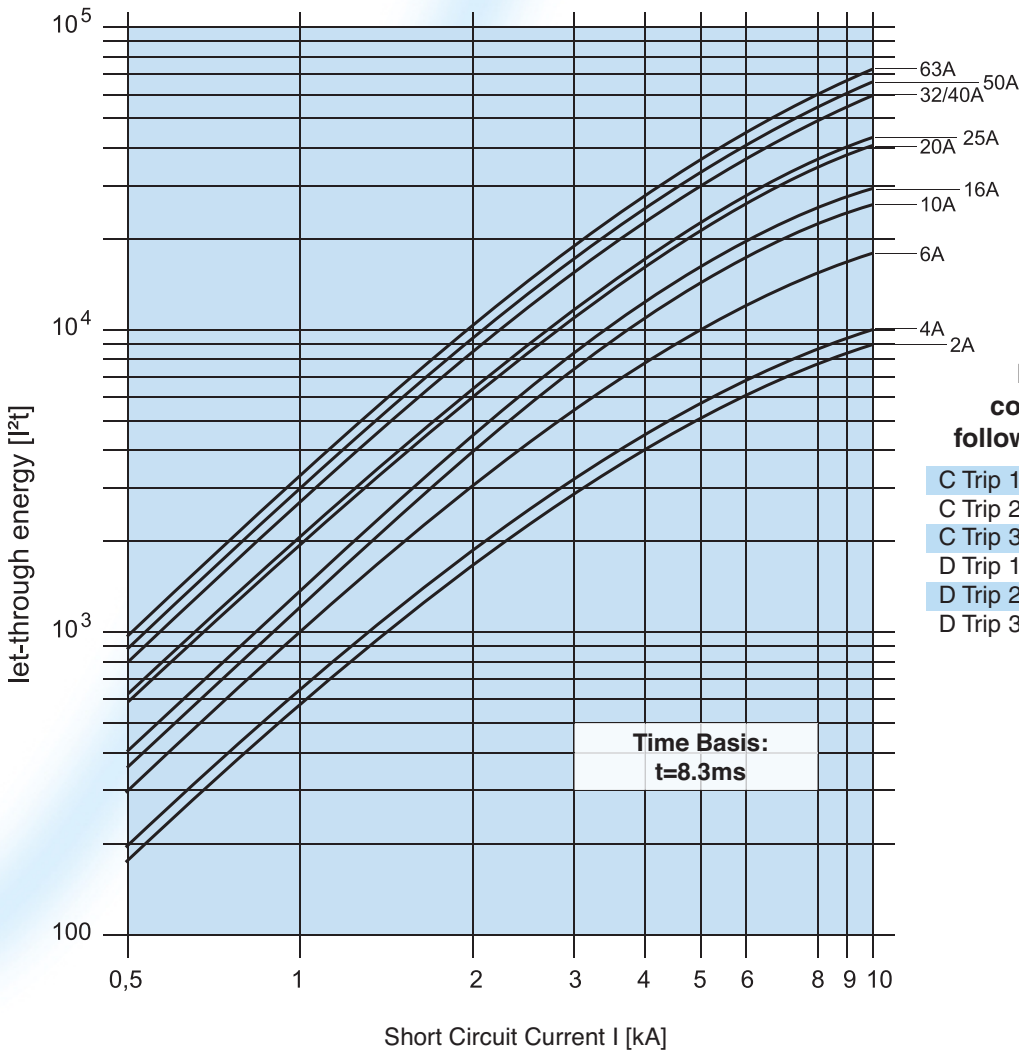
Rated current 0.3A to 63A.

1. Hold for a minimum of 100ms at surge of 14 times rated current.
2. Trip in under 100ms at 22.4 times rated current.

UL/ DL Series Internal Resistance

| Rated Current (A) | C Trip Characteristic (Ohm) | D Trip Characteristic (Ohm) |
|-------------------|-----------------------------|-----------------------------|
| 0.3 | 16.8620 | 16.8620 |
| 0.5 | 6.8540 | 6.0009 |
| 1.0 | 1.7000 | 1.7560 |
| 1.6 | 0.5870 | 0.5870 |
| 2.0 | 0.4190 | 0.4190 |
| 3.0 | 0.2020 | 0.2020 |
| 4.0 | 0.1090 | 0.1090 |
| 5.0 | 0.0654 | 0.0654 |
| 6.0 | 0.0528 | 0.0491 |
| 8.0 | 0.0278 | 0.0240 |
| 10 | 0.0216 | 0.0187 |
| 12 | 0.0084 | 0.0085 |
| 13 | 0.0084 | 0.0085 |
| 15/ 16 | 0.0085 | 0.0076 |
| 20 | 0.0067 | 0.0064 |
| 25 | 0.0050 | 0.0041 |
| 30/ 32 | 0.0032 | 0.0027 |
| 40 | 0.0025 | 0.0022 |
| 50 | 0.0019 | 0.0018 |
| 60/ 63 | 0.0018 | 0.0017 |

UL Series Let-through Energy I²t Diagram, D Trip 1 pole



For other Trip/Pole configurations use the following correction factors:

- C Trip 1 pole + 0.84 x curve value
- C Trip 2 pole + 0.71 x curve value
- C Trip 3 pole + 0.92 x curve value
- D Trip 1 pole + 1.00 x curve value
- D Trip 2 pole + 0.87 x curve value
- D Trip 3 pole + 1.08 x curve value