

# UR Series

## UL1077 Recognized Supplementary Protector

- DIN Rail Mounted
- 17.5mm width per pole
- Thermal Magnetic
- 0.5-60A / 480Y/277V AC, 50/60Hz
- 10kA Short Circuit Withstand Capacity
- Applications (on the load side of Branch Circuit Protection) include: Sensitive Electronics, Power Supplies, Appliance circuits, etc.



### UR - Series

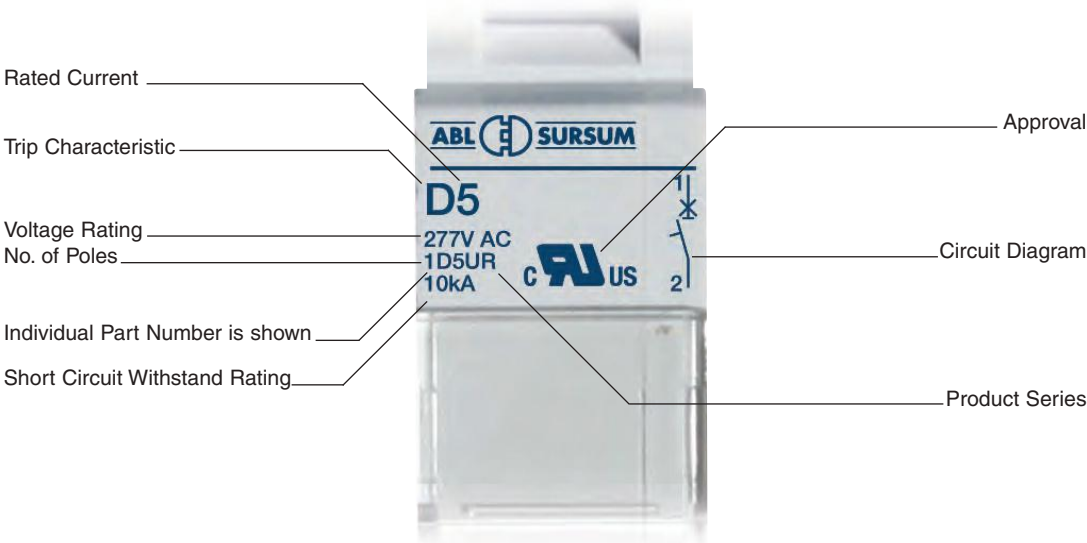
<b>Voltage Rating</b>	0.5-60A / 480Y/277V AC
<b>Short Circuit Withstand Rating</b>	0.5 - 10A (RC): 10 kA with no back-up fuse 8 - 63A (RC): 10 kA with UL-listed Class J back-up fuse; 5 kA with no back-up fuse
<b>Calibration Temperature</b>	30°C (86°F)
<b>Ambient Temperature</b>	-25°C to +70°C (-13°F to 158°F)
<b>Storage Temperature</b>	-40°C to +70°C (-40°F to 158°F)
<b>Terminal Torque (min/max)</b>	2 Nm (17.7 lb.in.) / 2.5Nm (22.2 lb.in)
<b>Electrical Life</b>	6,000 switching cycles ON/ OFF
<b>Mechanical Life</b>	10,000 switching cycles ON/ OFF
<b>Vibration Resistance</b>	> 15g according to DIN EN 60069-2-59 during a load with 1.05 x I <sub>N</sub>
<b>Resistance to mechanical shocks</b>	25g @ 11ms
<b>Degree of protection acc. IEC/EN 60529</b>	IP20
<b>Mounting Orientation</b>	In any plane

### Short Circuit Withstand Ratings for R-Series Supplementary Protector

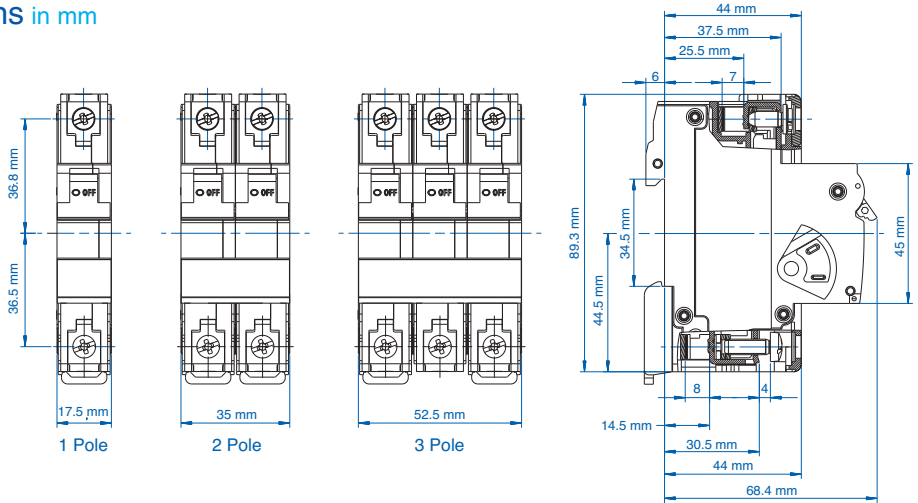
Trip Curve	Amp Range	Backup Protection	
		UL-Listed Class J Fuse up to 10kA	No Backup Fuse Required up to:
All	0.5 - 10A	70A	10kA
All	12 - 60A	4xRC*	5kA

\*up to nearest rated current

Marking Details



Dimensions in mm



Application Overview

Trip-Characteristics*				Applications					
Characteristic Trip Boundaries				Lighting Wiring Protection Control Circuits	Business Equipment Appliances	Control Transformers	Power Supplies	General Electronics	Reactive Load
Thermal Trip		Magnetic Trip							
Must not Trip>100ms	Must Trip <1hr	Must not Trip>100ms	Must Trip at 100ms						
B-Characteristics									
1.13xRC	1.45xRC	3xRC	5xRC						
C-Characteristics									
1.13xRC	1.45xRC	5xRC	10xRC						
D-Characteristics									
1.13xRC	1.45xRC	10xRC	20xRC						

\*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/Supplementary Protector 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/Supplementary Protector for his specific application.

UL 489

UL 508

UL 1077

UL 1077  
Equipment Breakers

Earth Leakage  
Circuit Breakers

ANNEX

# UR - Series B-Trip Characteristic

## Application Examples:

Business equipment, wiring protection, lighting, appliances, control circuits, some motors and some electronic applications. Relatively long thermal trip delay but low magnetic trip point.



### One Pole

Rated Current	Type/ Cat. No.	Rated Voltage
0.5A	<b>1B05UR</b>	277V AC
1.0A	<b>1B1UR</b>	277V AC
2.0A	<b>1B2UR</b>	277V AC
3.0A	<b>1B3UR</b>	277V AC
4.0A	<b>1B4UR</b>	277V AC
5.0A	<b>1B5UR</b>	277V AC
6.0A	<b>1B6UR</b>	277V AC
8.0A	<b>1B8UR</b>	277V AC
10A	<b>1B10UR</b>	277V AC
12A	<b>1B12UR</b>	277V AC
13A	<b>1B13UR</b>	277V AC
15A	<b>1B15UR</b>	277V AC
16A	<b>1B16UR</b>	277V AC
20A	<b>1B20UR</b>	277V AC
25A	<b>1B25UR</b>	277V AC
30A	<b>1B30UR</b>	277V AC
32A	<b>1B32UR</b>	277V AC
40A	<b>1B40UR</b>	277V AC
50A	<b>1B50UR</b>	277V AC
60A	<b>1B60UR</b>	277V AC
63A*	<b>1B63UR</b>	277V AC

Standard Pack: 12

Weight:

0.3A - 32A

1.75kg (3.86 lb.)

40A - 63A

2.07kg (4.56 lb.)



### Three Pole

Rated Current	Type/ Cat. No.	Rated Voltage
0.5A	<b>3B05UR</b>	480Y/277V AC
1.0A	<b>3B1UR</b>	480Y/277V AC
2.0A	<b>3B2UR</b>	480Y/277V AC
3.0A	<b>3B3UR</b>	480Y/277V AC
4.0A	<b>3B4UR</b>	480Y/277V AC
5.0A	<b>3B5UR</b>	480Y/277V AC
6.0A	<b>3B6UR</b>	480Y/277V AC
8.0A	<b>3B8UR</b>	480Y/277V AC
10A	<b>3B10UR</b>	480Y/277V AC
12A	<b>3B12UR</b>	480Y/277V AC
13A	<b>3B13UR</b>	480Y/277V AC
15A	<b>3B15UR</b>	480Y/277V AC
16A	<b>3B16UR</b>	480Y/277V AC
20A	<b>3B20UR</b>	480Y/277V AC
25A	<b>3B25UR</b>	480Y/277V AC
30A	<b>3B30UR</b>	480Y/277V AC
32A	<b>3B32UR</b>	480Y/277V AC
40A	<b>3B40UR</b>	480Y/277V AC
50A	<b>3B50UR</b>	480Y/277V AC
60A	<b>3B60UR</b>	480Y/277V AC
63A*	<b>3B63UR</b>	480Y/277V AC

Standard Pack: 4

Weight:

0.3A - 32A

1.75kg (3.86 lb.)

40A - 63A

2.07kg (4.56 lb.)



### Two Pole

Rated Current	Type/ Cat. No.	Rated Voltage
0.5A	<b>2B05UR</b>	480Y/277V AC
1.0A	<b>2B1UR</b>	480Y/277V AC
2.0A	<b>2B2UR</b>	480Y/277V AC
3.0A	<b>2B3UR</b>	480Y/277V AC
4.0A	<b>2B4UR</b>	480Y/277V AC
5.0A	<b>2B5UR</b>	480Y/277V AC
6.0A	<b>2B6UR</b>	480Y/277V AC
8.0A	<b>2B8UR</b>	480Y/277V AC
10A	<b>2B10UR</b>	480Y/277V AC
12A	<b>2B12UR</b>	480Y/277V AC
13A	<b>2B13UR</b>	480Y/277V AC
15A	<b>2B15UR</b>	480Y/277V AC
16A	<b>2B16UR</b>	480Y/277V AC
20A	<b>2B20UR</b>	480Y/277V AC
25A	<b>2B25UR</b>	480Y/277V AC
30A	<b>2B30UR</b>	480Y/277V AC
32A	<b>2B32UR</b>	480Y/277V AC
40A	<b>2B40UR</b>	480Y/277V AC
50A	<b>2B50UR</b>	480Y/277V AC
60A	<b>2B60UR</b>	480Y/277V AC
63A*	<b>2B63UR</b>	480Y/277V AC

Standard Pack: 6

Weight:

0.3A - 32A

1.75kg (3.86 lb.)

40A - 63A

2.07kg (4.56 lb.)



### Add-on Neutral Pole

Rated Current	Type/ Cat. No.	Rated Voltage
0.3-63A	<b>N63UM</b>	480/277V AC

Standard Pack: 6

Weight:

0.775kg (1.71)

\*63A is not UL Recognized.

# UR - Series C-Trip Characteristic

**Application Examples:**

Low inrush motors, lighting, wiring protection, appliances, business equipment, and control circuit applications. Relatively long thermal trip delay and medium magnetic trip point.



**One Pole**



Standard Pack: 12

Weight:  
0.3A - 32A  
1.75kg (3.86 lb.)  
40A - 63A  
2.07kg (4.56 lb.)

Rated Current	Type/ Cat. No.	Rated Voltage
0.5A	1C05UR	277V AC
1.0A	1C1UR	277V AC
2.0A	1C2UR	277V AC
3.0A	1C3UR	277V AC
4.0A	1C4UR	277V AC
5.0A	1C5UR	277V AC
6.0A	1C6UR	277V AC
8.0A	1C8UR	277V AC
10A	1C10UR	277V AC
12A	1C12UR	277V AC
13A	1C13UR	277V AC
15A	1C15UR	277V AC
16A	1C16UR	277V AC
20A	1C20UR	277V AC
25A	1C25UR	277V AC
30A	1C30UR	277V AC
32A	1C32UR	277V AC
40A	1C40UR	277V AC
50A	1C50UR	277V AC
60A	1C60UR	277V AC
63A*	1C63UR	277V AC

**Three Pole**



Standard Pack: 4

Weight:  
0.3A - 32A  
1.75kg (3.86 lb.)  
40A - 63A  
2.07kg (4.56 lb.)

Rated Current	Type/ Cat. No.	Rated Voltage
0.5A	3C05UR	480Y/277V AC
1.0A	3C1UR	480Y/277V AC
2.0A	3C2UR	480Y/277V AC
3.0A	3C3UR	480Y/277V AC
4.0A	3C4UR	480Y/277V AC
5.0A	3C5UR	480Y/277V AC
6.0A	3C6UR	480Y/277V AC
8.0A	3C8UR	480Y/277V AC
10A	3C10UR	480Y/277V AC
12A	3C12UR	480Y/277V AC
13A	3C13UR	480Y/277V AC
15A	3C15UR	480Y/277V AC
16A	3C16UR	480Y/277V AC
20A	3C20UR	480Y/277V AC
25A	3C25UR	480Y/277V AC
30A	3C30UR	480Y/277V AC
32A	3C32UR	480Y/277V AC
40A	3C40UR	480Y/277V AC
50A	3C50UR	480Y/277V AC
60A	3C60UR	480Y/277V AC
63A*	3C63UR	480Y/277V AC

**Two Pole**



Standard Pack: 6

Weight:  
0.3A - 32A  
1.75kg (3.86 lb.)  
40A - 63A  
2.07kg (4.56 lb.)

Rated Current	Type/ Cat. No.	Rated Voltage
0.5A	2C05UR	480Y/277V AC
1.0A	2C1UR	480Y/277V AC
2.0A	2C2UR	480Y/277V AC
3.0A	2C3UR	480Y/277V AC
4.0A	2C4UR	480Y/277V AC
5.0A	2C5UR	480Y/277V AC
6.0A	2C6UR	480Y/277V AC
8.0A	2C8UR	480Y/277V AC
10A	2C10UR	480Y/277V AC
12A	2C12UR	480Y/277V AC
13A	2C13UR	480Y/277V AC
15A	2C15UR	480Y/277V AC
16A	2C16UR	480Y/277V AC
20A	2C20UR	480Y/277V AC
25A	2C25UR	480Y/277V AC
30A	2C30UR	480Y/277V AC
32A	2C32UR	480Y/277V AC
40A	2C40UR	480Y/277V AC
50A	2C50UR	480Y/277V AC
60A	2C60UR	480Y/277V AC
63A*	2C63UR	480Y/277V AC

**Add-on Neutral Pole**



Rated Current	Type/ Cat. No.	Rated Voltage
0.3-63A	N63UM	480/277V AC

Standard Pack: 6

Weight:  
0.775kg (1.71)

\*63A is not UL Recognized.

UL 489

UL 508

UL 1077

UL 1077  
Equipment Breakers

Earth Leakage  
Circuit Breakers

ANNEX

# UR - Series D-Trip Characteristic

## Application Examples:

Control transformers, power supplies, reactive loads. Relatively long thermal trip delay and very high magnetic trip point.



UL Recognized  
E137915



Standard Pack: 12

Weight:

0.3A - 32A

1.75kg (3.86 lb.)

40A - 63A

2.07kg (4.56 lb.)

## One Pole

Rated Current	Type/ Cat. No.	Rated Voltage
0.5A	<b>1D05UR</b>	277V AC
1.0A	<b>1D1UR</b>	277V AC
2.0A	<b>1D2UR</b>	277V AC
3.0A	<b>1D3UR</b>	277V AC
4.0A	<b>1D4UR</b>	277V AC
5.0A	<b>1D5UR</b>	277V AC
6.0A	<b>1D6UR</b>	277V AC
8.0A	<b>1D8UR</b>	277V AC
10A	<b>1D10UR</b>	277V AC
12A	<b>1D12UR</b>	277V AC
13A	<b>1D13UR</b>	277V AC
15A	<b>1D15UR</b>	277V AC
16A	<b>1D16UR</b>	277V AC
20A	<b>1D20UR</b>	277V AC
25A	<b>1D25UR</b>	277V AC
30A	<b>1D30UR</b>	277V AC
32A	<b>1D32UR</b>	277V AC
40A	<b>1D40UR</b>	277V AC
50A	<b>1D50UR</b>	277V AC
60A	<b>1D60UR</b>	277V AC
63A*	<b>1D63UR</b>	277V AC



Standard Pack: 4

Weight:

0.3A - 32A

1.75kg (3.86 lb.)

40A - 63A

2.07kg (4.56 lb.)

## Three Pole

Rated Current	Type/ Cat. No.	Rated Voltage
0.5A	<b>3D05UR</b>	480Y/277V AC
1.0A	<b>3D1UR</b>	480Y/277V AC
2.0A	<b>3D2UR</b>	480Y/277V AC
3.0A	<b>3D3UR</b>	480Y/277V AC
4.0A	<b>3D4UR</b>	480Y/277V AC
5.0A	<b>3D5UR</b>	480Y/277V AC
6.0A	<b>3D6UR</b>	480Y/277V AC
8.0A	<b>3D8UR</b>	480Y/277V AC
10A	<b>3D10UR</b>	480Y/277V AC
12A	<b>3D12UR</b>	480Y/277V AC
13A	<b>3D13UR</b>	480Y/277V AC
15A	<b>3D15UR</b>	480Y/277V AC
16A	<b>3D16UR</b>	480Y/277V AC
20A	<b>3D20UR</b>	480Y/277V AC
25A	<b>3D25UR</b>	480Y/277V AC
30A	<b>3D30UR</b>	480Y/277V AC
32A	<b>3D32UR</b>	480Y/277V AC
40A	<b>3D40UR</b>	480Y/277V AC
50A	<b>3D50UR</b>	480Y/277V AC
60A	<b>3D60UR</b>	480Y/277V AC
63A*	<b>3D63UR</b>	480Y/277V AC



Standard Pack: 6

Weight:

0.3A - 32A

1.75kg (3.86 lb.)

40A - 63A

2.07kg (4.56 lb.)

## Two Pole

Rated Current	Type/ Cat. No.	Rated Voltage
0.5A	<b>2D05UR</b>	480Y/277V AC
1.0A	<b>2D1UR</b>	480Y/277V AC
2.0A	<b>2D2UR</b>	480Y/277V AC
3.0A	<b>2D3UR</b>	480Y/277V AC
4.0A	<b>2D4UR</b>	480Y/277V AC
5.0A	<b>2D5UR</b>	480Y/277V AC
6.0A	<b>2D6UR</b>	480Y/277V AC
8.0A	<b>2D8UR</b>	480Y/277V AC
10A	<b>2D10UR</b>	480Y/277V AC
12A	<b>2D12UR</b>	480Y/277V AC
13A	<b>2D13UR</b>	480Y/277V AC
15A	<b>2D15UR</b>	480Y/277V AC
16A	<b>2D16UR</b>	480Y/277V AC
20A	<b>2D20UR</b>	480Y/277V AC
25A	<b>2D25UR</b>	480Y/277V AC
30A	<b>2D30UR</b>	480Y/277V AC
32A	<b>2D32UR</b>	480Y/277V AC
40A	<b>2D40UR</b>	480Y/277V AC
50A	<b>2D50UR</b>	480Y/277V AC
60A	<b>2D60UR</b>	480Y/277V AC
63A*	<b>2D63UR</b>	480Y/277V AC



## Add-on Neutral Pole

Rated Current	Type/ Cat. No.	Rated Voltage
0.3-63A	<b>N63UM</b>	480/277V AC

Standard Pack: 6

Weight:

0.775kg (1.71)

\*63A is not UL Recognized.

## UR Series Accessories

For mounting instructions please refer to page 43.



### Auxiliary Contact, Alarm Switch



Type/ Cat No.	Description	Contacts Type	Std Pk
H10UM	1 Auxiliary Contact	1NO	6
H11UM	2 Auxiliary Contacts	1NO + 1NC	6
H12UM	3 Auxiliary Contacts	1NO + 2NC	6
H21UM	3 Auxiliary Contacts	2NO + 1NC	6
HLS11M*	1 Auxiliary/ 1 Signal Contacts	1CO + 1CO (Signal)	6

**Rated Operating Currents**  
10A @ 240V AC  
3A @ 110V DC  
1A @ 220V DC

**Minimum Contact Load** 1mA @ 24V DC  
**Torque** max. 0.8Nm (7 lb.in)

**Wire Range:**  
**Single Wire** 1.0mm<sup>2</sup> - 2.5mm<sup>2</sup> (18-14 AWG)  
**Stranded Wire** 1.0mm<sup>2</sup> - 1.5mm<sup>2</sup> (18-16 AWG)  
**Stranded Wire with Ferrule** 1.0mm<sup>2</sup> - 1.5mm<sup>2</sup> (18-16 AWG)

### Shunt Trip



Type/ Cat No.	Rated Voltage U <sub>N</sub>	Max. Operating Current @ U <sub>N</sub>	Std Pk
FA12UM	12V AC/DC	1.3A	5
FA24UM	24V AC/DC	0.6A	5
FA48UM	48 - 72V AC/DC	0.2A	5
FA110UM	110 - 240 V AC/DC, 277V AC	0.25A @ 110V 0.5A @ 240V 0.58A @ 277V	5

### Undervoltage Trip\*



Type/ Cat No.	Line Voltage V <sub>E</sub>	Std Pk
UA120UM	120V AC, 60Hz	5

Reset-Hold Voltage = 0.85 x V<sub>E</sub>  
Drop-Out Voltage = 0.35 ~ 0.7 x V<sub>E</sub>  
V<sub>E</sub> = Rated Voltage

### Neutral Pole

Type/ Cat No.	Rated Current I <sub>N</sub>	Rated Voltage U <sub>N</sub>	Std Pk
N63UM	0.3 - 63A	480Y/277V 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	Type/ Cat No.	Std Pk
BS.UL	100	15.960	1

### Cooling Spacer



### Mounting Screw 34mm

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

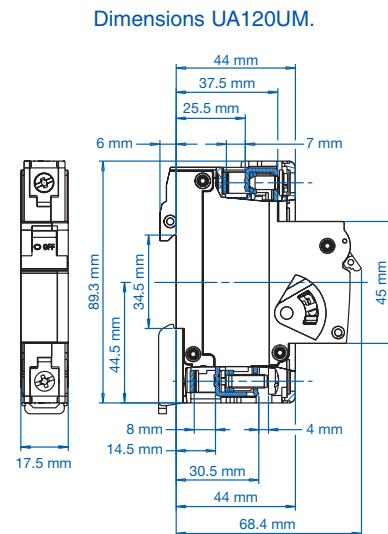
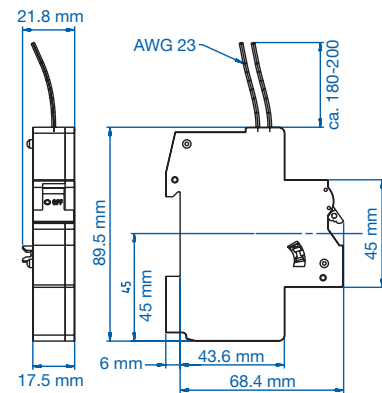
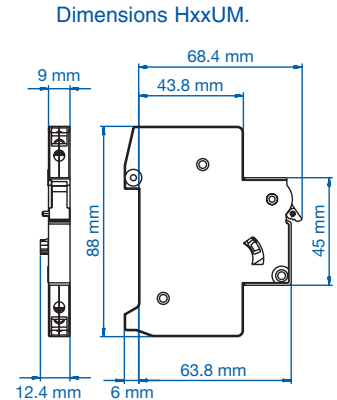
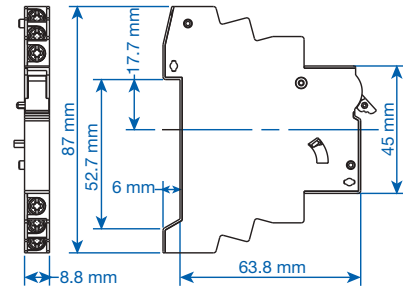


### Lock-out Adapter\*\*

Type/ Cat No.	Std Pk	Type/ Cat No.	Std Pk
E983419	10	EASS	10

\* Not UL approved.

\*\* UR series can also be locked in the on and off position by simply using a common lead or meter seal, which gets fed through the hole in the handle and a corresponding hole in the housing.



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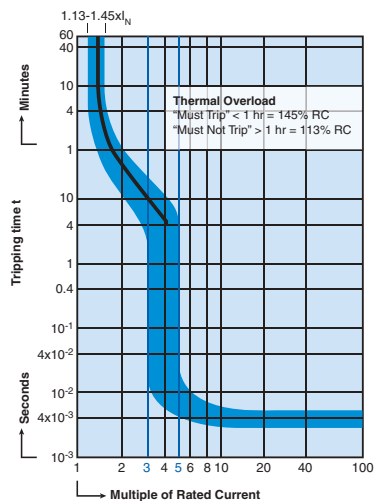
UL 1077  
Equipment Breakers

Earth Leakage  
Circuit Breakers

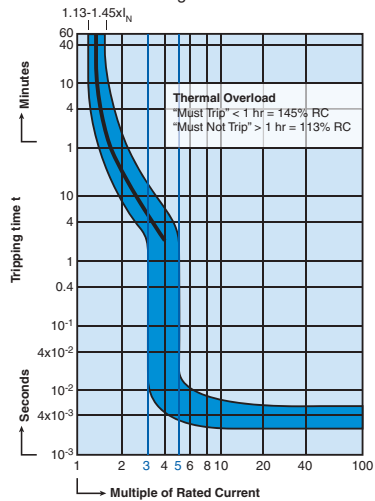
ANNEX

# UR Series Trip Curves

## B Trip Curve



0.5A Through 10A Rated Current



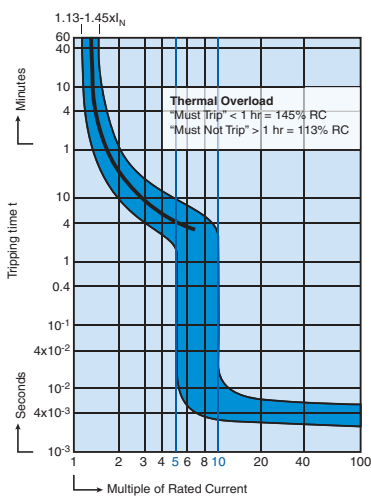
12A Through 63A Rated Current

### "B" Magnetic Trip Parameters

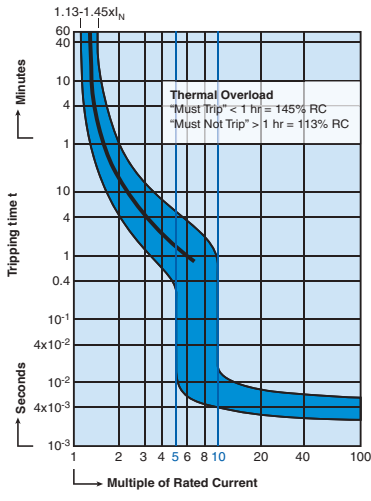
Rated current 0.5A to 63A.

1. Hold for a minimum of 100ms at surge of 3 times rated current.
2. Trip in under 100ms at 5 times rated current.

## C Trip Curve



0.5A Through 10A Rated Current



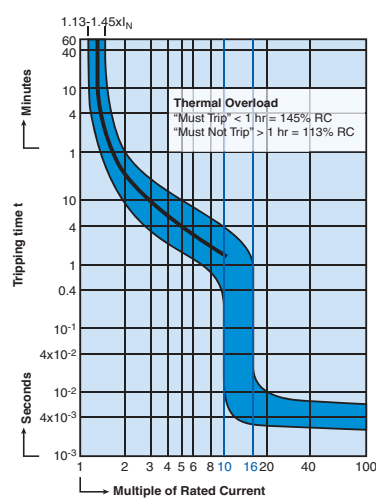
12A Through 63A Rated Current

### "C" Magnetic Trip Parameters

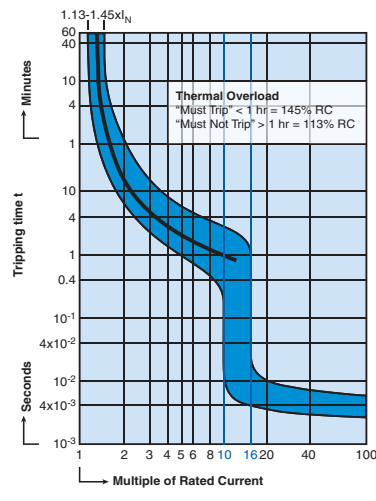
Rated current 0.5A to 63A.

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 Trip Curve



0.3A Through 10A Rated Current



12A Through 63A Rated Current

### "D" Magnetic Trip Parameters

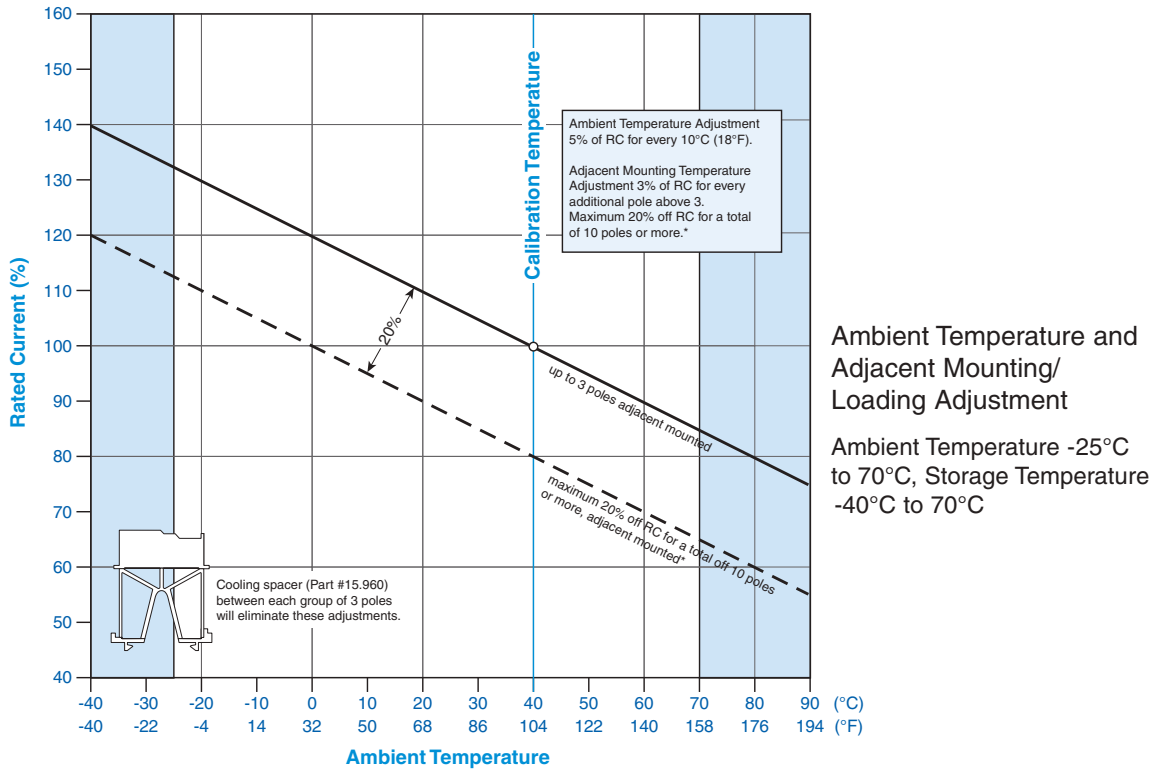
Rated current 0.5A to 63A.

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

## UR Series Internal Resistance

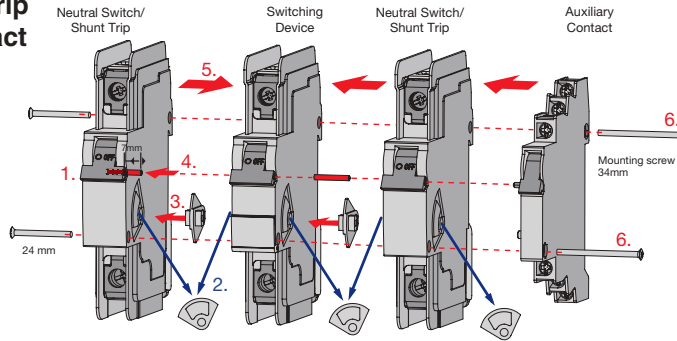
Rated Current (A)	Trip Characteristic		
	B (Ohm)	C (Ohm)	D (Ohm)
0.5	8.0400	6.8540	6.0009
1.0	1.7000	1.7000	1.7560
2.0	0.4190	0.4190	0.4190
3.0	0.2020	0.2020	0.2020
4.0	0.1090	0.1090	0.1090
5.0	0.0654	0.0654	0.0654
6.0	0.0528	0.0528	0.0491
8.0	0.0278	0.0278	0.0240
10	0.0216	0.0216	0.0187
12/ 13	0.0113	0.0084	0.0085
15/ 16	0.0085	0.0085	0.0076
20	0.0067	0.0067	0.0064
25	0.0050	0.0050	0.0041
30/ 32	0.0032	0.0032	0.0027
40	0.0025	0.0025	0.0022
50	0.0019	0.0019	0.0018
60/ 63*	0.0018	0.0018	0.0017

**Temperature Correction Curve (UL, DL, V-EA, MA and UR series)**



**Accessory Mounting Instructions (UL, V-EA and UR series)**

**Neutral / Shunt Trip + Auxiliary Contact**

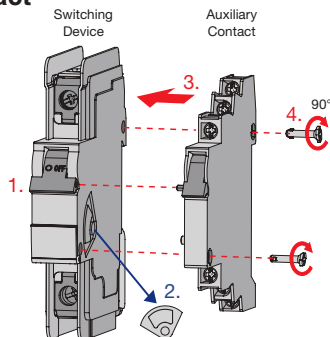


Neutral Poles N63UM, N32UL, N63UL or Shunt Trips FA..UM, FA..UL can be mounted on the right or left side of the circuit protection device.

1. Turn handle to off position.
2. Remove gray cover from the circuit protection device and accessory.
3. Insert linkage component between circuit protection device and neutral pole (N63UM, N32UL, N63UL) or shunt trip (FA..UM, FA..UL).
4. Insert connecting pin into handle.
5. Assemble circuit protection device and neutral pole (N63UM, N32UL, N63UL) or shunt trip (FA..UM, FL..UL).
6. The auxiliary contact (H..UM, H..UL) can also be mounted on the right side by using a different screw (E983419; see accessory pages 14, 32 or 41).

After final assembly check operation by moving the handle to the ON/OFF position several times.

**Auxiliary Contact**



Auxiliary contact can be mounted on the right side of the circuit protection device only.

1. Turn handles to OFF position.
2. Remove gray cover from switching device.
3. Combine circuit protection device and auxiliary contact (H..UM, H..UL).
4. Insert mounting screws and connect the two devices by turning the screws 90° clockwise.

After final assembly check operation by moving the handle to the ON/OFF position several times.

UL 489

UL 508

UL 1077

UL 1077  
Equipment Breakers

Earth Leakage  
Circuit Breakers

ANNEX