

# UL 1077 Miniature Circuit Breakers

The IMO range of UL 1077 Approved Miniature Circuit Breakers have been designed for protection of electrical installations against overload and short circuits and are manufactured in accordance with UL 1077.

## UL 1077 MCB Features

- UL1077, IEC 60947-2 & IEC 60898-1 Compliant
- DIN Rail Mountable
- 10kA Short Circuit Capacity
- Available from 0.5Amps to 63Amps
- Suitable for Supplementary Circuit Device Protection
- Thermo-Magnetic Overcurrent Protection
- B, C & D Type Tripping Curve
- Contact Position Indicator
- RoHS Compliant

Tripping characteristics in accordance with B, C and D type curves

- Curve B:  $3-5I_n$
- Curve C:  $5-10I_n$
- Curve D:  $10-20I_n$



## Options & Ordering Codes

| US10                     |  | C    | 10 | 16A                |
|--------------------------|--|------|----|--------------------|
| Series                   |  |      |    | Rated Current Amps |
| UL MCB 10kA              |  | US10 |    |                    |
| Operating Characteristic |  |      |    | Poles              |
| B Curve                  |  | B    | 10 | Single Pole        |
| C Curve                  |  | C    | 20 | Two Pole           |
| D Curve                  |  | D    | 30 | Three Pole         |

## Specifications

|                                         |                                    |
|-----------------------------------------|------------------------------------|
| In accordance with                      | UL 1077, IEC 60947-2 & IEC 60898-1 |
| Pole composition                        | 1P, 2P, 3P                         |
| Tripping curve                          | B, C, D                            |
| Calibration temperature                 | +104°F (+40°C)                     |
| Rated operational current               | 0.5 to 63A                         |
| UL AC rated operational voltage         | 1P: 277V AC, 2P/3P: 480Y/277V AC   |
| IEC AC rated operational voltage        | 1P: 230V AC, 2P/3P: 415V AC        |
| DC rated operational voltage            | 1P: 48V DC, 2P: 96V DC             |
| Rated operational frequency             | 50/60Hz                            |
| Rated short circuit breaking capacity   | 10kA                               |
| Mechanical lifetime                     | 20,000 operations                  |
| Electrical lifetime                     | 6,000 operations                   |
| Vibration resistance acc. IEC 60068-2-6 | ±1mm @ 5-25Hz; 50m/s² @ 25-150Hz   |
| Fastening torque                        | 2.5 Nm (22.2 lb/in)                |
| Wire range                              | AWG 18-3 (0.82 to 26.7mm²)         |
| Mounting                                | DIN Rail EN 60715 (EN 50022)       |
| Protection degree                       | NEMA 1 (IP20)                      |
| Pollution degree                        | 3                                  |
| Operating temperature                   | -13°F to +131°F (-25°C to +55°C)   |

## Selection Chart

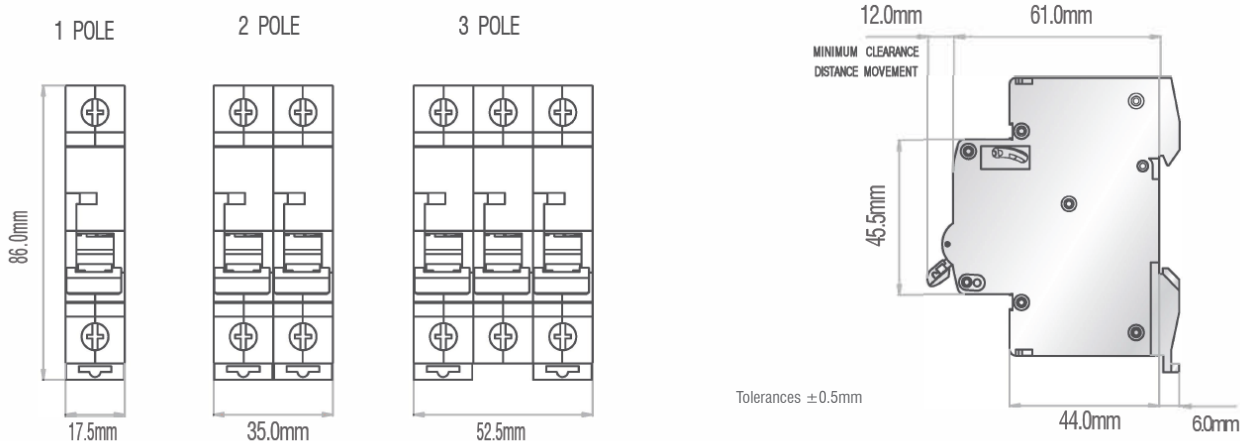
| Type                 | B Operating Characteristics |      |       | C Operating Characteristics |      |       | D Operating Characteristics |      |       |
|----------------------|-----------------------------|------|-------|-----------------------------|------|-------|-----------------------------|------|-------|
| Poles                | 1                           | 2    | 3     | 1                           | 2    | 3     | 1                           | 2    | 3     |
| Rated Current (Amps) | 0.5                         | ✓    | ✓     | ✓                           | ✓    | ✓     | ✓                           | ✓    | ✓     |
|                      | 1                           | ✓    | ✓     | ✓                           | ✓    | ✓     | ✓                           | ✓    | ✓     |
|                      | 1.6                         | ✓    | ✓     | ✓                           | ✓    | ✓     | ✓                           | ✓    | ✓     |
|                      | 2                           | ✓    | ✓     | ✓                           | ✓    | ✓     | ✓                           | ✓    | ✓     |
|                      | 3                           | ✓    | ✓     | ✓                           | ✓    | ✓     | ✓                           | ✓    | ✓     |
|                      | 4                           | ✓    | ✓     | ✓                           | ✓    | ✓     | ✓                           | ✓    | ✓     |
|                      | 5                           | ✓    | ✓     | ✓                           | ✓    | ✓     | ✓                           | ✓    | ✓     |
|                      | 6                           | ✓    | ✓     | ✓                           | ✓    | ✓     | ✓                           | ✓    | ✓     |
|                      | 7                           | ✓    | ✓     | ✓                           | ✓    | ✓     | ✓                           | ✓    | ✓     |
|                      | 8                           | ✓    | ✓     | ✓                           | ✓    | ✓     | ✓                           | ✓    | ✓     |
|                      | 10                          | ✓    | ✓     | ✓                           | ✓    | ✓     | ✓                           | ✓    | ✓     |
|                      | 13                          | ✓    | ✓     | ✓                           | ✓    | ✓     | ✓                           | ✓    | ✓     |
|                      | 15                          | ✓    | ✓     | ✓                           | ✓    | ✓     | ✓                           | ✓    | ✓     |
|                      | 16                          | ✓    | ✓     | ✓                           | ✓    | ✓     | ✓                           | ✓    | ✓     |
|                      | 20                          | ✓    | ✓     | ✓                           | ✓    | ✓     | ✓                           | ✓    | ✓     |
|                      | 25                          | ✓    | ✓     | ✓                           | ✓    | ✓     | ✓                           | ✓    | ✓     |
|                      | 30                          | ✓    | ✓     | ✓                           | ✓    | ✓     | ✓                           | ✓    | ✓     |
|                      | 32                          | ✓    | ✓     | ✓                           | ✓    | ✓     | ✓                           | ✓    | ✓     |
|                      | 40                          | ✓    | ✓     | ✓                           | ✓    | ✓     | ✓                           | ✓    | ✓     |
|                      | 50                          | ✓    | ✓     | ✓                           | ✓    | ✓     | ✓                           | ✓    | ✓     |
|                      | 60                          | ✓    | ✓     | ✓                           | ✓    | ✓     | ✓                           | ✓    | ✓     |
|                      | 63                          | ✓    | ✓     | ✓                           | ✓    | ✓     | ✓                           | ✓    | ✓     |
| Weight (lb/pc)       | 0.275                       | 0.55 | 0.825 | 0.275                       | 0.55 | 0.825 | 0.275                       | 0.55 | 0.825 |
| Weight (kg/pc)       | 0.125                       | 0.25 | 0.37  | 0.125                       | 0.25 | 0.37  | 0.125                       | 0.25 | 0.37  |
| Packing (Qty)        | 12                          | 6    | 4     | 12                          | 6    | 4     | 12                          | 6    | 4     |

# UL 1077 Miniature Circuit Breakers

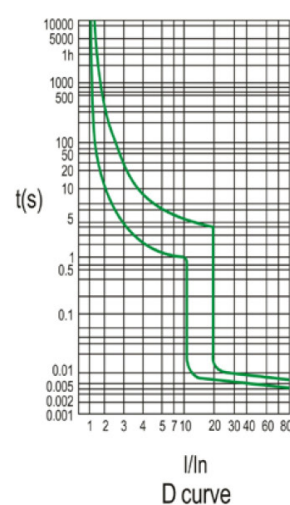
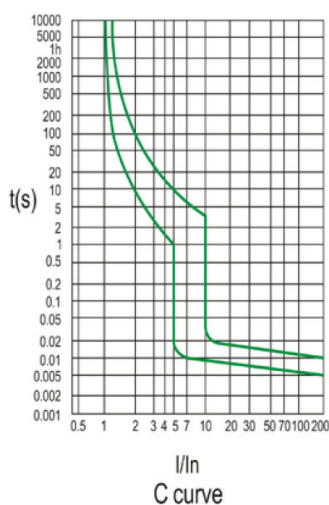
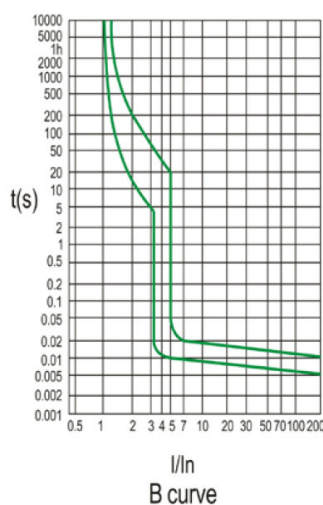


Technical Datasheet

## Dimensions (mm) Miniature Circuit Breakers



## B, C & D Tripping Curve



# UL 1077 Miniature Circuit Breakers



## Technical Datasheet

### Derating Curve

| Amps | -30°C | -20°C | -10°C | 0°C  | 10°C | 20°C | 30°C | 35°C | 40°C | 45°C | 50°C | 55°C | 60°C |
|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|------|
| 0.5  | 0.6   | 0.6   | 0.58  | 0.56 | 0.54 | 0.52 | 0.5  | 0.5  | 0.49 | 0.48 | 0.46 | 0.45 | 0.42 |
| 1    | 1.3   | 1.2   | 1.2   | 1.12 | 1.1  | 1    | 1    | 1    | 0.99 | 0.97 | 0.95 | 0.92 | 0.88 |
| 1.6  | 2     | 1.9   | 1.9   | 1.8  | 1.7  | 1.7  | 1.6  | 1.6  | 1.5  | 1.5  | 1.5  | 1.4  | 1.1  |
| 2    | 2.6   | 2.4   | 2.3   | 2.2  | 2.2  | 2.1  | 2    | 2    | 2    | 1.9  | 1.9  | 1.8  | 1.5  |
| 3    | 3.8   | 3.6   | 3.5   | 3.4  | 3.3  | 3.1  | 3    | 3    | 3    | 2.9  | 2.8  | 2.6  | 2.1  |
| 4    | 5     | 4.8   | 4.7   | 4.5  | 4.3  | 4.2  | 4    | 4    | 3.9  | 3.8  | 3.7  | 3.6  | 3.2  |
| 5    | 6.2   | 6.1   | 5.8   | 5.6  | 5.4  | 5.2  | 5    | 5    | 4.9  | 4.8  | 4.7  | 4.5  | 4    |
| 6    | 7.5   | 7.2   | 7     | 6.7  | 6.5  | 6.3  | 6    | 6    | 5.9  | 5.8  | 5.5  | 5.4  | 5    |
| 7    | 8.8   | 8.5   | 8.2   | 7.8  | 7.6  | 7.4  | 7    | 7    | 6.9  | 6.8  | 6.6  | 6.3  | 5.6  |
| 8    | 10    | 9.7   | 9.4   | 9    | 8.7  | 8.4  | 8    | 8    | 7.8  | 7.6  | 7.4  | 7.3  | 7    |
| 10   | 12.5  | 12    | 12    | 11   | 11   | 10.2 | 10   | 10   | 9.8  | 9.7  | 9.5  | 9.2  | 8.5  |
| 13   | 16.5  | 16    | 15    | 15   | 14   | 14   | 13   | 13   | 13   | 12.2 | 12   | 12   | 11.5 |
| 15   | 19    | 18    | 17    | 17   | 16   | 16   | 15   | 15   | 15   | 14.5 | 14.2 | 14   | 13.5 |
| 16   | 20.5  | 19.5  | 19    | 18   | 17   | 17   | 16   | 16   | 16   | 15.5 | 15   | 14.2 | 12.5 |
| 20   | 25    | 24.5  | 24    | 23   | 22   | 21   | 20   | 20   | 20   | 19.5 | 19   | 18.2 | 17   |
| 25   | 31.5  | 30    | 29    | 28   | 27   | 26.5 | 25   | 25   | 24.5 | 24.5 | 23.5 | 23   | 22   |
| 30   | 36    | 35    | 33.8  | 32.4 | 33.2 | 32.2 | 31   | 30   | 29.5 | 29   | 28.8 | 28.5 | 28   |
| 32   | 40    | 38.5  | 37.5  | 36.5 | 35   | 33.5 | 32   | 32   | 31.5 | 30.5 | 30   | 29   | 26   |
| 40   | 50    | 48.5  | 47.5  | 45.5 | 43.5 | 42   | 40   | 40   | 39.5 | 38   | 37   | 36   | 33   |
| 50   | 62    | 60.5  | 59.5  | 57   | 55   | 52.5 | 50   | 50   | 49.5 | 47   | 46   | 45   | 42   |
| 60   | 70    | 70    | 69.5  | 67   | 65   | 62   | 60   | 60   | 60   | 56   | 55   | 54   | 51   |
| 63   | 78.5  | 76    | 74    | 71.5 | 69   | 66   | 63   | 63   | 62.5 | 60   | 58   | 57   | 54   |

### Accessories

| Auxiliary Contact                                                | UB10-AC11 |
|------------------------------------------------------------------|-----------|
| For monitoring the status of the protection device (open/closed) |           |
| 1 pole changeover                                                |           |
| Rated current: 6A @ 240VAC & 24VDC, 2A @ 48VDC, 1A @ 125VDC      |           |

| Shunt Trip                                              | UB10-SH-110 |
|---------------------------------------------------------|-------------|
| Shunt Trip to remotely switch off the protection device |             |
| Rating voltage Ue: AC 110V                              |             |

| Shunt Trip                                              | UB10-SH-230 |
|---------------------------------------------------------|-------------|
| Shunt Trip to remotely switch off the protection device |             |
| Rating voltage Ue: AC 230V                              |             |

| Undervoltage Trip                                                   | UB10-UV-110V |
|---------------------------------------------------------------------|--------------|
| For protection of the device when the rated voltage drops below 50% |              |
| Rating voltage Ue: AC 110V                                          |              |

| Undervoltage Trip                                                   | UB10-UV-230V |
|---------------------------------------------------------------------|--------------|
| For protection of the device when the rated voltage drops below 50% |              |
| Rating voltage Ue: AC 230V                                          |              |

| Alarm Contact                                                         | UB10-AL11 |
|-----------------------------------------------------------------------|-----------|
| To facilitate the ability to have an audible alarm when the MCB trips |           |
| Rated Current: 3A @ 400VAC, 6A @ 230VAC                               |           |

| Locking Device | UBLO |
|----------------|------|
|----------------|------|

### Shunt Trip - Wiring Diagram

