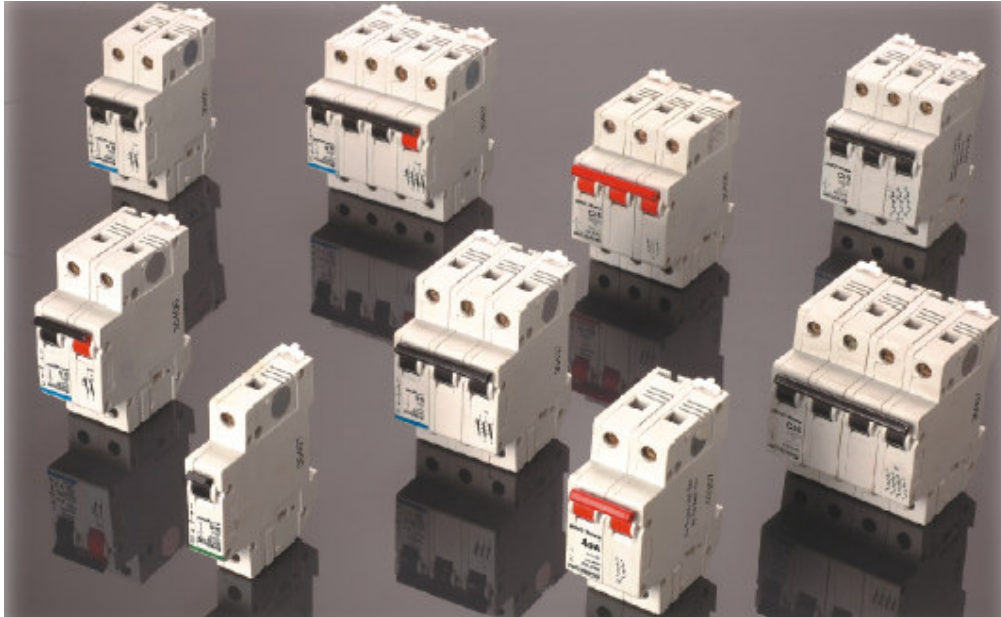




# Miniature Circuit Breaker

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## Introduction - Miniature Circuit Breaker (MCB)



### **SALIENT FEATURES**

#### **Standards**

MCBs conform to the latest standard IS 8828: 1996/IEC: 898 1995

#### **Mid-Trip Position**

The Mid trip position of the knob is visible indication of fault condition. Identification of Faulty circuit becomes very easy.

#### **Energy Saving**

Watt loss - 40%-75% of stipulated values in IS: 1996 / IEC Pub 898 1995, making it one of the most energy efficient MCB's.

#### **Low let through energy**

2 Under short circuit conditions I t (let through energy) is minimum in Goldline MCBs (Class-3 as per BS EN 60898) - ensuring longer life of contacts and reduces thermal Stresses in the distribution circuits.

#### **Safety**

MCBs have incorporated shrouds to prevent direct touch with live parts ensuring protection against electric shock.

#### **Perfect Connections**

MCBs have been provided with serrated box type terminals with saw tooth type serrations & stirrup type terminal surface on both sides. Thus it ensures perfect grip on conductors. Torque withstand capacity of terminals is more than 2 Nm.



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## Step mounting clip

The MCB has been fitted with 2-step thermoplastic mounting clip which provides convenient mounting and removal of MCBs.

## CB Certification

The only MCB in India under IECEE-CB scheme as per IEC: 898-1995. The CB certificate is acceptable to all member countries globally.

## CONSTRUCTIONAL FEATURES

### Housing

The housing of Goldline MCBs is made of injection moulded thermoplastic polyester (PBT) in RAL 7035 Grey colour, as per international code. This material is fire retardant, Anti tracking and non-hygroscopic.

### Contacts

The contacts are made of Silver-inlaid copper which ensure longer life of contacts. These have low resistance resulting in low watt loss. The contacts are designed to have zero Bounce during closing operation.

### Operating Mechanism

Goldline MCBs have quick make, quick break, trip-free mechanism.

### Mounting Arrangement

Goldline MCBs are installed directly on 35mm DIN Rail in distribution boards / control Panels simply by snap-on-fixing, hence saves time in installation or removal.

### Working Principle

Miniature Circuit Breakers are based on thermal magnetic technology. The protection is Provided by combining a temperature sensitive device (bimetal) and a current sensitive electromagnetic device. Both components trigger the mechanism mechanically. The MCB design is based on current limiting technology.

### Back up Protection

Goldline MCBs are capable of handling fault levels of current up to 10,000 A. However, for installations where the fault current is expected to be more than 10,000A, backup can be achieved by using Indo Asian HRC Fuse links 100A, gG type fuse link.

### Low Watt Loss

Goldline MCBs have been designed to minimize energy loss through unique contact Configuration and reduction of hot spots. Watt loss per pole in Goldline MCB is far lower than that specified in IS 8828:1996 / IEC Pub 898-1995.

Rated Current (A) Max. allowable Watt loss MCB Max. Watt Per pole as per Loss Per pole  
IS: 8828-1996, IEC Pub 898 (1995)

Rated Current (A)	Max. allowable Watt loss per pole as per IS: 8828-1996, IEC Pub 898 (1995) & IEC-60898-1, 2002	Goldline MCB Max. Watt Loss Per pole
<10	3.0	1.3
10<In=16	3.5	2.5
16<In=25	4.5	2.7
25<In=32	6.0	4.0
32<In=40	7.5	4.3
40<In=50	9.0	4.5
63	13.0	7.0



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## APPLICATIONS

### B Type

For protection of Resistive loads such as bulbs, heaters etc.

### C type

For protection of Inductive loads such as motors, air conditioners etc.

### D type

For protection of Cables and highly inductive loads which have high starting current such as transformers.

**Indo Kopp MCBs for DC application have all features as those of AC MCBs with following additional features making it suitable for DC circuits.**

## FEATURES

- DC MCB incorporates built in permanent magnet, which directs the arc in to the arc quenching chamber.
- Free from nuisance tripping caused by vibrations.
- Clear indication of polarity by the use of stickers, + sign on incoming terminal of single pole and + symbol on first pole/ - symbol on second pole of 2 pole MCBs.
- Time constant > 5 ms.
- DC MCB with extended terminals meeting RSDO specification no. SPEC/E-12/1/04 are also available.

## ACCESSORIES

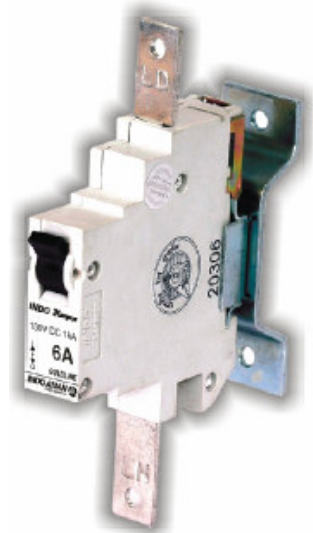
### AUXILIARY SWITCH

The auxiliary switch is used for remote signalling, auxiliary supplies and other similar functions. The auxiliary switch is switched ON and OFF together with the MCB through internal linkage. This can be used in following configurations application. This is fitted on left side of the MCB.

Configuration	Combination of Terminals to be used
1. N.C. & N.O.E	21-22, 11-14
2. N.C. & Changover	21-22, 11-12, 14
3. N.C. & N.C.	21-22, 11-12

### Technical Data

Rated Voltage, Max.	: 220 V AC 110 V DC
Rated Current	: 6 A AC / 1 A DC
Conductor Cross section	: up to 1 mm
Module Width	: 9 mm





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## SHUNT TRIP

The shunt trip switch provides the facility of tripping MCBs from remote locations. Depending on the construction and use, this is available in two different versions as described below:

### 1. Shunt trip function only

For tripping, the required tripping voltage is applied across the leads taken out of the Shunt trip.

### 2. Shunt trip with isolable neutral

In this version in addition to shunt coil, the isolable neutral is provided in the same housing.

The two leads are taken out for application of tripping voltage to the coil. The instant tripping voltage to the coil can be for less than 100 milliseconds preferably via push button or any other device. In case tripping voltage is continuously applied, for longer, the coil can burn.

The shunt trip release is fixed on the right side of the MCB.

## Technical Data

Rated Voltage Un	: 24-415 VAC 24-220 VDC
Rated Frequency	: 50 Hz or D.C.
Break time	: <0.1 sec.
Module Width	: 17.5 mm.
Connecting Terminal	: 6 inch long flexible wires

All above accessories are available factory fitted.

## Technical Specifications

### AC MCB

Specifications	: IS 8828: 1996, IEC Pub 898-1995
Number of Poles	: 1, 1+N, 2, 3, 3+N & 4
Tripping Characteristic & Rated Currents (In)	: B characteristics - 6A to 63A C characteristics - 0.5A to 63A D characteristics - 0.5A to 63A
Rated breaking capacity (Icn)	: 10,000 A
Energy Limiting Class	: Class 3 as per BS EN 60898
Rated Voltages (Ue) Single Pole	: 240 / 415 VAC / 60 VDC
Multi Pole	: 415 VAC / 110 VDC (When 2 poles connected in Series)
Insulation Voltage (Ui)	: 500V
Rated Frequency	: 50/60 Hz
Impulse withstand voltage (Uimp)	: 4 KV (1.2 / 50 u s)
Impulse power frequency voltage	: 2KV (50 Hz)
Housing material	: Polybutylene Terephthalate in RAL 7035 Grey colour
Degree of Protection	: IP 20 as per IS: 13947 / IEC 60529
Mounting	: Quick-snap on DIN rails, 35mm
Connecting Terminals	: Combination box terminals on incoming and outgoing sides. Suitable for single-core, stranded and flexible conductors upto 25 Sq mm.
Electrical Service Life	: Min. 30,000 make/break operations
Ambient Temperature	: T max. : +55° C T min.: -25° C



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## **DC MCB**

Specifications	: IEC-60898-2-2002/RSDO - SPEC/E-12/1/04
No. of Poles	: Single pole, Double Pole
Rated Current	: 0.5 to 63A
Rated Voltage	: 220 V DC
Rated short circuit breaking capacity	: at 48V DC-10kA above 48V DC & upto 130 VDC-1kA
Insulation Voltage	: 500V
Mounting	: Quick snap to mounts rails 35 mm on mounting bracket for RSDO
Connecting Terminals	: Combination box type terminals on both sides and also with extended terminals
Electrical Service Life	: 10,000 make/break operations
Vibration Level	: 3g, 50 cycles

## **ISOLATORS**

Specifications	: IS 13947 Part 3/IEC-60947-3, 1999
Current Ratings	: 40, 63, 80,100 and 125A
Rated Voltage	: 240/415 V
Number of Poles	: SP, DP, TP & FP
Utilization Category	: AC23A