



TECHNO MCB

Technology packed to Protect your home

10kA



MCB UPTO 63A | ISOLATOR UPTO 125A | MCB CHANGEOVER | AUXILIARY SWITCH



KEMA





INTRODUCTION

When it comes to the most innovative designs and developments, you do not have to look beyond HPL. As a matter of fact we go out of our way to ensure that each and every one of our customers benefit from our cutting edge technical expertise. That's why we put our best foot forward and work with both users and influencers to examine various applications and operations in ever-minute detail. In doing so, we fully identify and respect every single need of the end user so as to offer him or her a complete, practical, and individually customised solution.

And this does not happen just like that. For us, it is extremely crucial to have a global, outside-in perspective towards our products. Technical collaboration with LS Industrial systems co. Ltd. Korea testify to that and only helps us strengthen that further. In the bargain, it also speaks volumes for the values we attach to our organisation's working in order to achieve efficiencies for the business.

ELECTRICITY: THE POETRY BEHIND MODERN DAY LIVES.

The sheer importance of electricity cannot but be overstated in our daily lives. Be it the joy of watching your favourite sport or merely charging that smart phone which keeps your life buzzing life, as we know it today is just not possible without it. So much so that a day without electricity is akin to a day without much engagement, productivity or entertainment. This wide and significant use of electricity requires ever greater levels of safety equipment. It demands confirmations to the most stringent international quality standards as per the latest national and international specifications.

HPL MCBS MAGNIFICENT. CAPABLE. BANKABLE.

That's why we proudly present to you our wide range of Miniature Circuit Breakers with a unique combination of personalised safety, reliability and trouble free service. Nothing more needs to be said about them because they are a direct outcome of the kind of attention to detail which has made the HPL brand a name to reckon with not only in industry circles but even with the wider segment of its end consumers.



10 KA

Range : 0.5 Amp to 63Amp. MCB in SP, SPN, DP, TPN & FP configuration

TYPE CLASSIFICATION: B, C & D

SHORT CIRCUIT BREAKING CAPACITY: 10 KA

SPECIFICATION: IS/IEC 60898-1

RATED VOLTAGE: 240 / 415 V: 50 HZ

REF. AMBIENT TEMPERATURE : 30°C

80 AMP MCB & 125 AMP ISOLATOR



80 AMP MCB AND 125 AMP ISOLATOR HAVE BEEN DESIGNED, KEEPING IN MIND EVERY CUSTOMER'S NEEDS AND SO BOASTS OF MAGNIFICENT FEATURES:

- Conforms to IS/IEC 60947-3
- A standard thickness of 17.5mm, similar to lower rating of MCB (0.5A to 63A) to facilitate easy mounting in any distribution box without requiring any extra space or special distribution boards.
- Box type terminal for easy termination of cable up to 50mm.
- Heavy duty screws for better tightening of contacts. Heavy duty ETP copper terminals and extra thick silver inlaid contacts to ensure low temperature rise and low watt loss.
- Isolator Range : 40 Amp. to 125 Amp. in DP, TP, & FP configuration.

DC MCB UPTO 63 AMPS

TECHNO MCB specially designed for DC application has been developed by HPL's world class R&D to meet the market's stringent requirements for DC circuits.

AVAILABILITY

DC MCBs are available in SP & DP configuration from 0.5 Amp to 63 Amp in various voltages such as 12V, 24V, 48V, 60V, 110V, & 220V.

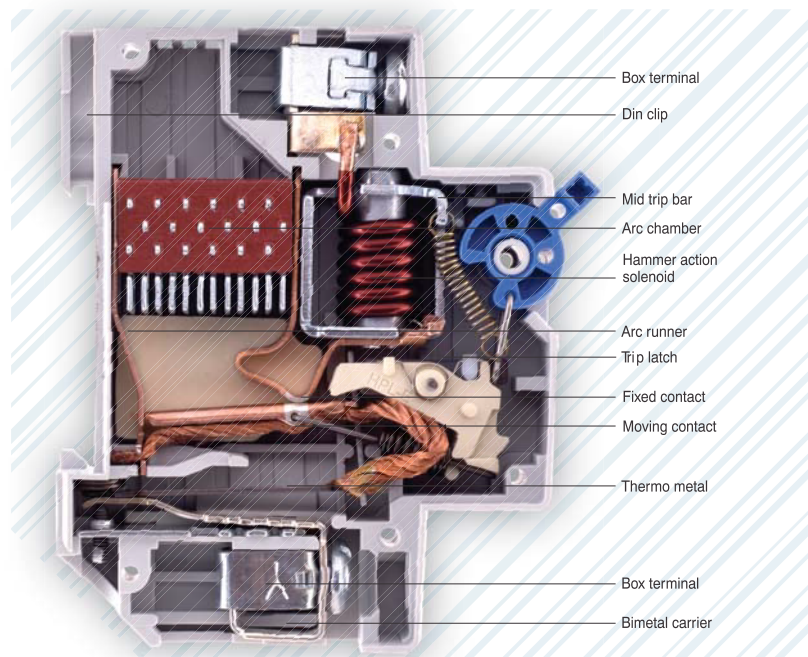
FEATURES

- Dual tripping system-overload through precisely calibrated bimetal and short circuit through electromagnetic coil.
- DC MCB incorporates a built in permanent magnet, which directs the arc into the arc quenching chamber.
- Free from nuisance tripping caused by vibrations.
- Time constant < 5ms
- DC MCB offers a unique feature of knob assuming mid trip position in the event of fault. This enables clear visual indication of the faulty circuit.

- Housing of DC MCB is made up of fire retardant, anti-cracking and PBT/Nylon.
- Contacts are made up of silver inlaid copper, which ensure low resistance and longer life of circuit breaker.

SALIENT FEATURES

- CONFORMS TO LATEST STANDARDS: TECHNO MCB conforms to the latest standard IS/IEC 60898-2 in selected ratings. CE MARKING fulfils the requirement of global standards.
- ENERGY Saving: The low power loss as stipulated in the IS/IEC 60898-2 has been taken care of in designing the TECHNO MCB as it contributes significantly to the energy saving.
- DIN RAIL MOUNTING: TECHNO MCB's can be mounted on standard 35mm DIN Rail by snap action. No time wastage in installing and replacing the MCB.
- SHOCK PROOF: Finger and hand touch safe. IP20 degree protection, as per the test clause 9.6 of IS/IEC 60898-1 Protection against electric shock.





SAILENT FEATURES CONT...

HOUSING

- The housing of TECHNO MCB is injection moulded from special grade PBT / Nylon as per international specifications.
- The housing and other moulded components are fire retardant, anti-cracking and non-hygroscopic.
- The housing can withstand high temperatures and is impact resistant.

CONTACTS

Contacts are made of special silver inlaid into copper strip, ensuring higher life and maximum safety against contact welding and erosion. These contacts have low contact resistance resulting in reduced watt loss.

CURRENT LIMITING ACTION

The high speed current limiting action ensures that the MCB operates before the full prospective fault current is allowed to develop. Under fault conditions, damage can be sustained to the installation and association equipment due to the amount of energy that passes before the current is completely interrupted. The total energy let through depends on the value of current and the time for which it flows, and is denoted by the symbol I^2t . The high speed current limiting action of TECHNO MCB ensures that the energy let through and any subsequent damage is minimized. The reduced LET THROUGH ENERGY (Class 3 as per BS EN 60898) assists greatly with both back-up and discrimination considerations.

OPERATING MECHANISM

TEHCNO MCB has a quick make & break Trip Free Mechanism. In the event of an over current or short circuit the MCB automatically interrupts all poles even if the MCB toggle is held in ON position, the handle always indicates the correct contact position.

MODERATE OVERLOAD CONDITION

Detection of moderate overload conditions is achieved by the use of a Bimetal Overload Relay, which deflects in

response to the current passing through it. The Bimetal Relay moves against the trip bar releasing the trip mechanism.

SHORT CIRCUIT CONDITIONS

When the current flowing through the MCB reaches a predetermined level, the solenoid in Magnetic Coil directly pulls in the plunger, which releases the trip mechanism.

PERFECT CONNECTIONS

The design of terminals makes the wiring easier. Combination box type terminals with combination head screws on both sides along with deep serrations ensures sparkles & firm connections. The bi-connection facility simplifies connection in various application areas.

LOW WATT LOSS

TECHNO MCBs have been designed to minimize energy loss through unique contact configuration & reduction of hot spots. Watt loss per pole in TECHNO MCB is far lower than that specified in IS/IEC 60898-1.

MID TRIP POSITION

POSITION OF THE KNOB IS CLEAR INDICATION OF THE FAULT. FAULTY CIRCUIT IDENTIFICATION BECOMES EASY.

ON
MID-TRIP
OFF



RATED CURRENT	MAX. ALLOWABLE WATT LOSS PER POLE AS PER IS/IEC 60898-1	TECHNO MCB MAX. WATT LOSS PER POLE
$6 < I_n < 10$	3.0	0.75
$10 < I_n < 16$	3.5	2.0
$16 < I_n < 25$	4.5	2.6
$25 < I_n < 32$	6.0	3.3
$32 < I_n < 40$	7.5	4.0
$40 < I_n < 50$	9.0	4.6
$50 < I_n < 63$	13.0	5.2
$80 < I_n < 100$	Consideration	9.2



SAILENT FEATURES CONT...

POTENTIAL FREE DIN CLIP

The all insulated DIN clip ensures electrical safety and high mechanical strength.

WORKING PRINCIPLE

TECHNO MCB is a high fault capacity and thermal-magnetic type of breaker. It protects against overload and short circuit. Overload protection is achieved with a thermal bi-metal strip which gets heated in case of overload and in turn pushes the trip latch which releases the contacts. The operating knob is switched to Mid Trip Position clearly indicating the fault.

In case of short circuit the high fault current energizes the magnetic coil resulting in plunger striking the trip lever which ensures immediate release of tripping mechanism and the operating knob is switched to Mid Trip Position.

TRIPPING CHARACTERISTICS

Techno MCB	Type	Non-Tripping Current Min. (1 Hr.)	Tripping Current Max. (1 Hr.)	Magnetic Min	Tripping Max.
0.5 A – 80 A	B	1.13 In	1.45 In	3 In	5 In
0.5 A – 80 A	C	1.13 In	1.45 In	5 In	10 In
0.5 A – 80 A	D	1.13 In	1.45 In	10 In	20 In

RECOMMENDED APPLICATIONS

B TYPE: For protection of Resistive load such as bulb, heater, etc.

C TYPE: For protection of Inductive load such as motor, air conditioner, etc.

D TYPE: For protection of Cables and highly Inductive load which have high starting current such as transformers, etc.

TECHNO MCB – TP&N 63 Amp



AUXILIARY SWITCH

TECHNO MCB with Auxiliary Switch

Auxiliary switch can be supplied factory fitted with any MCB (SP, SPN, DP, TP, TPN, FP) to give indication of 'ON' or 'OFF' position of MCB.

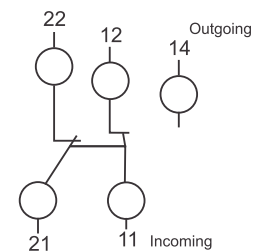


FUNCTION

The auxiliary switch is used for remote indication of the circuit condition (ON/OFF) of the MCB. All the connecting terminals are easily accessible from the top position. The auxiliary switch is connected to the tripping mechanism of MCB and operates along with the MCB. It is available in factory fitted module. Auxiliary switch can be supplied factory fitted with any MCB (SP, SPN, DP, TP, TPN, FP) to give indication of 'ON' or 'OFF' position of MCB. This can be used in following outgoing combination modes depending upon user requirement.

Configuration	Combination of Terminals to be used
N.C. & N.O.	21-22, 11-14
N.C. & Changeover	21-22, 11-12, 14
N.C. & N.C.	21-22, 11-12

WIRING DIAGRAM



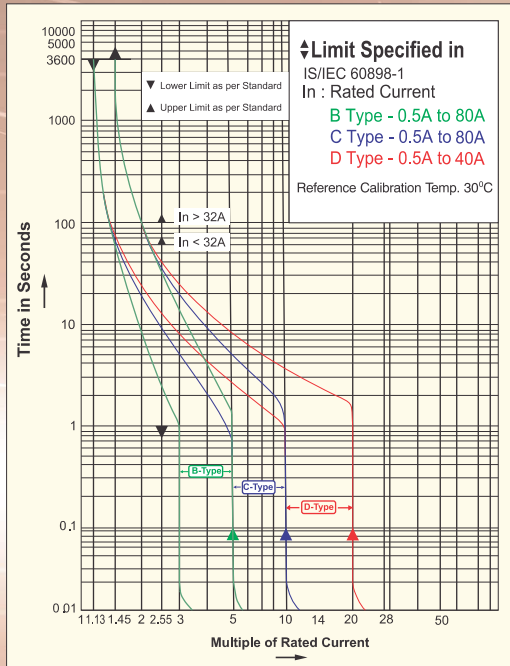
TECHNICAL DATA

Configuration	Combination of Terminals to be used
Rated Voltage	220 V AC/110 V DC
Rated Current	6 A AC/1 A DC
Conductor Crossover	Upto 1mm ²
Tightening Torque	1.33 Nm

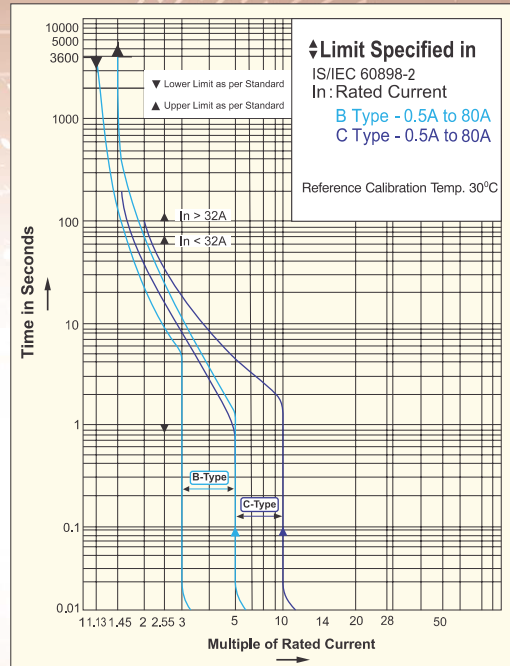


TRIPPING CHARACTERIS CURVES

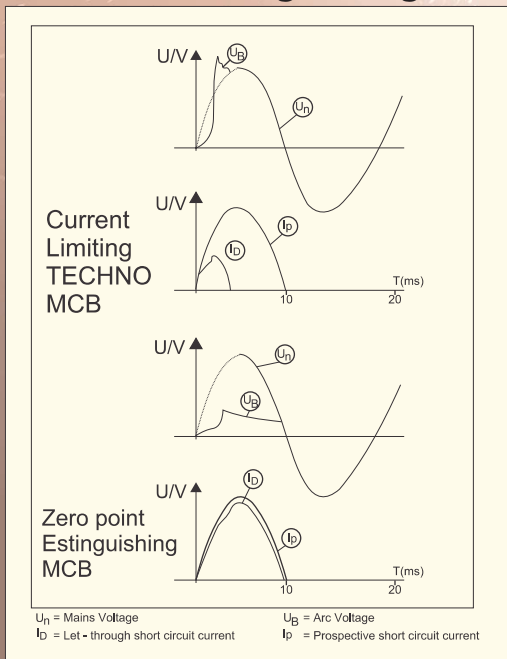
Tripping Characteristics Curve AC MCB Type B, C & D



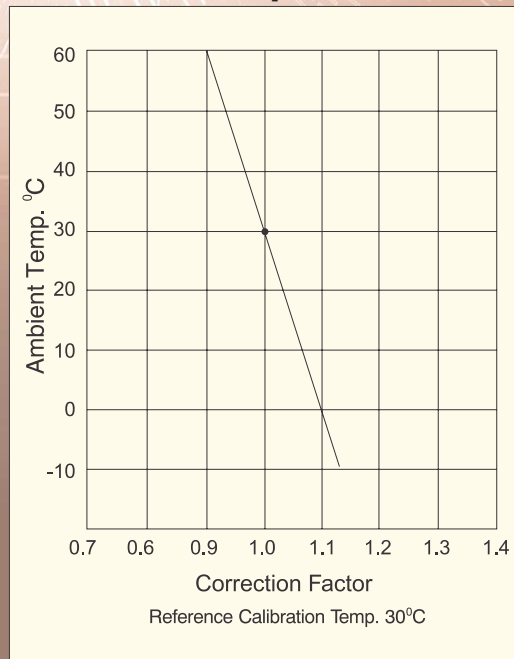
Tripping Characteristics Curve DC MCB Type B & C



Techno MCB Vs Zero Point Extinguishing MCB



Temperature Compensation Graph





TRIPPING CHARACTERIS CURVES

Specifications	: IS/IEC 60898-1
Number of poles	: 1, 1+N, 2, 3, 3+N & 4
Tripping Characteristics & Rating	: B characteristics – 0.5 A to 80 A
Currents (In)	: C characteristics - 0.5 A to 80 A
Rated breaking capacity (Icn)	: 10,000 A
Energy Limiting Class	: Class 3 as per BS EN 60898
Rated Voltages (Ue) Single Pole	: 240/415 V AC 240V
Multi Pole	: 415 V AC
Insulation Voltage (Ui)	: 660 V
Rated Frequencies	: 50/60 Hz
Impulse withstand voltage (Uimp)	: 4 KV (1.2/50 μ)
Impulse power frequency voltage	: 2 KV (50 Hz)
Housing material	: PBT/Nylon in Grey Color
Degree of protection	: IP 20 as per IS/IEC 60898-1
Mounting Position	: Any position
Mounting	: Quick snap to mounting rails, 35 mm
Connecting Terminals	: Combination box terminals on incoming and outgoing sides. Suitable for single-core, stranded and flexible conductors upto 25 sq mm, combination crosshead screw, max, tightening torque 2 Nm
Electrical Service Life	: Min. 4,000 make/break operations
Ambient Temperature	: Tmax – 5°C To 55°C (with de-rating factor)
Impact Resistance	: 3g, At least 2 impacts duration 13 ms

DC MCB

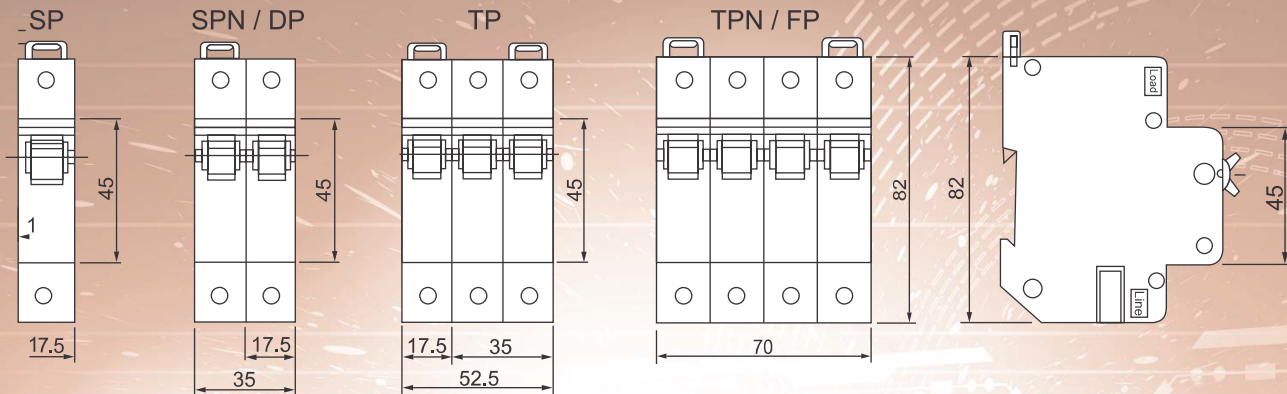
Specifications	: IS/IEC 60898-2
No. of Poles	: Single pole, Double pole
Rated Current	: 0.5 A – 80 A
Rated Voltage	: 220 V DC
Rated short circuit breaking capacity	: 1kA
Insulation Voltage	: 660 V
Degree of protection	: IP 20 as per IS/IEC 60898-2
Mounting Position	: Any position
Connecting Terminals	: Combination box type terminals on both sides
Electrical Service Life	: 4000 Cycles
Impact Resistance	: 3g, Atleast 2 impacts duration 13 ms.

ISOLATOR

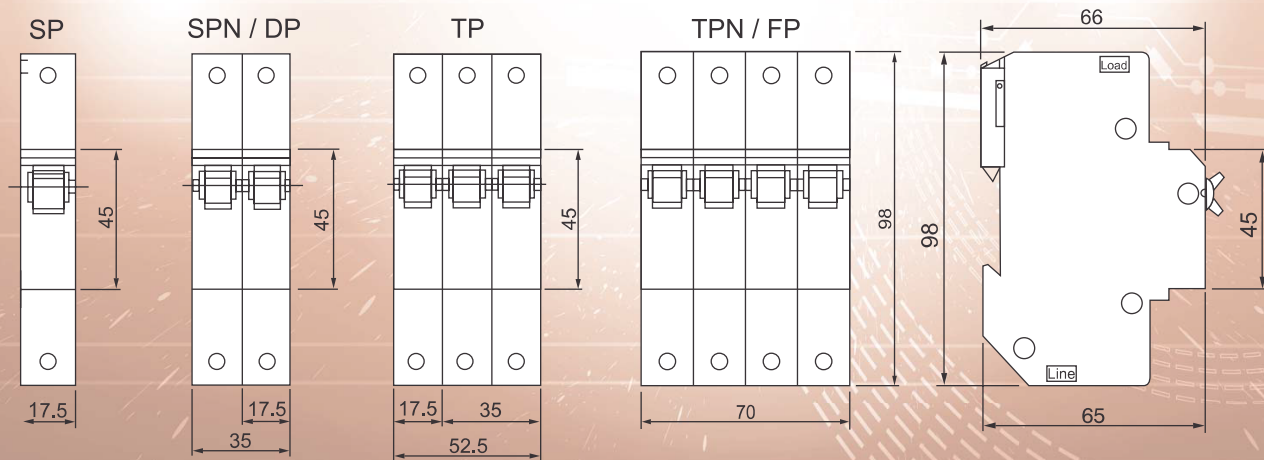
Specifications	: IS 13947 Part 3/IEC-60947-3, 1999
No. of Poles	: SP, DP, TP & FP
Utilization Category	: AC 22 A
Rated Current	: 240/415 V AC
Rated Voltage	: 40 – 125 Amp



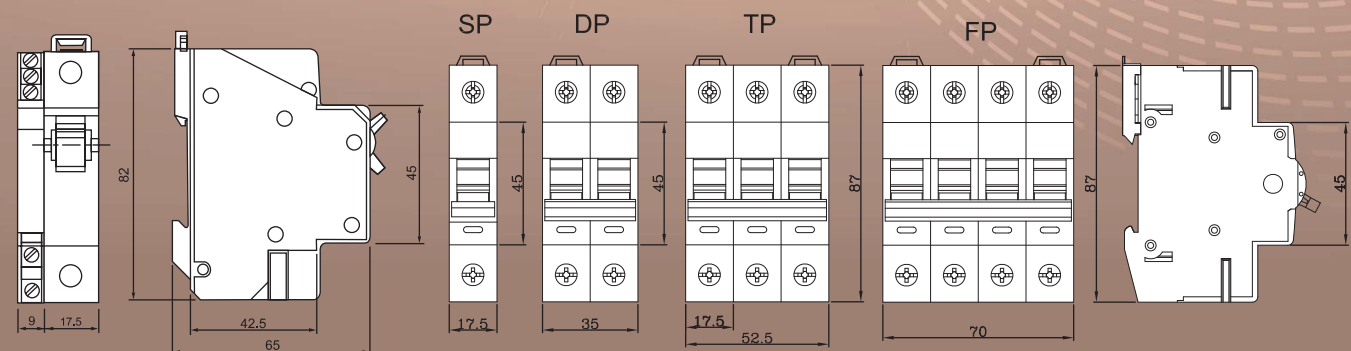
DIMENSIONS



MCB & ISOLATORS 0.5A to 63A



MCB 80A



Single Pole MCB with Auxiliary Switch

ISOLATORS 80A to 125A

All dimensions are in mm

HPL Techno MCB 0118



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