Panasonic

ideas for life

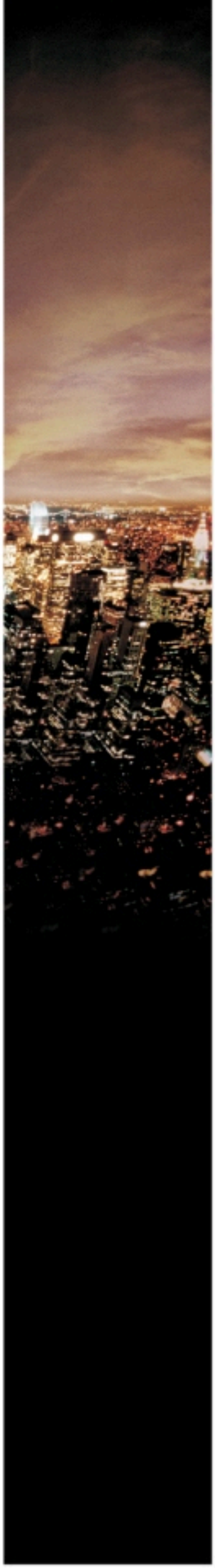
Switchgear & Protection Devices

Catalogue

Shielding Environment, Securing Lives

2012 | www.anchor-world.com

Anchor Electricals Pvt. Ltd.
A member of the Panasonic Group



Miniature Circuit Breaker

Complete Range, Safety,
High Specificaion and Technology

Panasonic generates ideas for life.. today and tomorrow. Through innovative thinking, we are committed to enriching people's lives around the world.

Corporate Profile

Since the foundation of the Panasonic group, we have been pursuing our mission of realizing comfortable living demanded in each era under the management philosophy that commits our company to contributing to the progress and development of society and the well-being of people.

The Panasonic Group now aims to become the No.1 Green Innovation Company in the Electronics Industry in 2018, the 100th anniversary of its founding.

As a member of the Panasonic Group, we are determined to make the "environment" central to all of our business activities and implement our management philosophy by providing products and services that achieve the balance of comfort and eco-friendliness.

Panasonic History

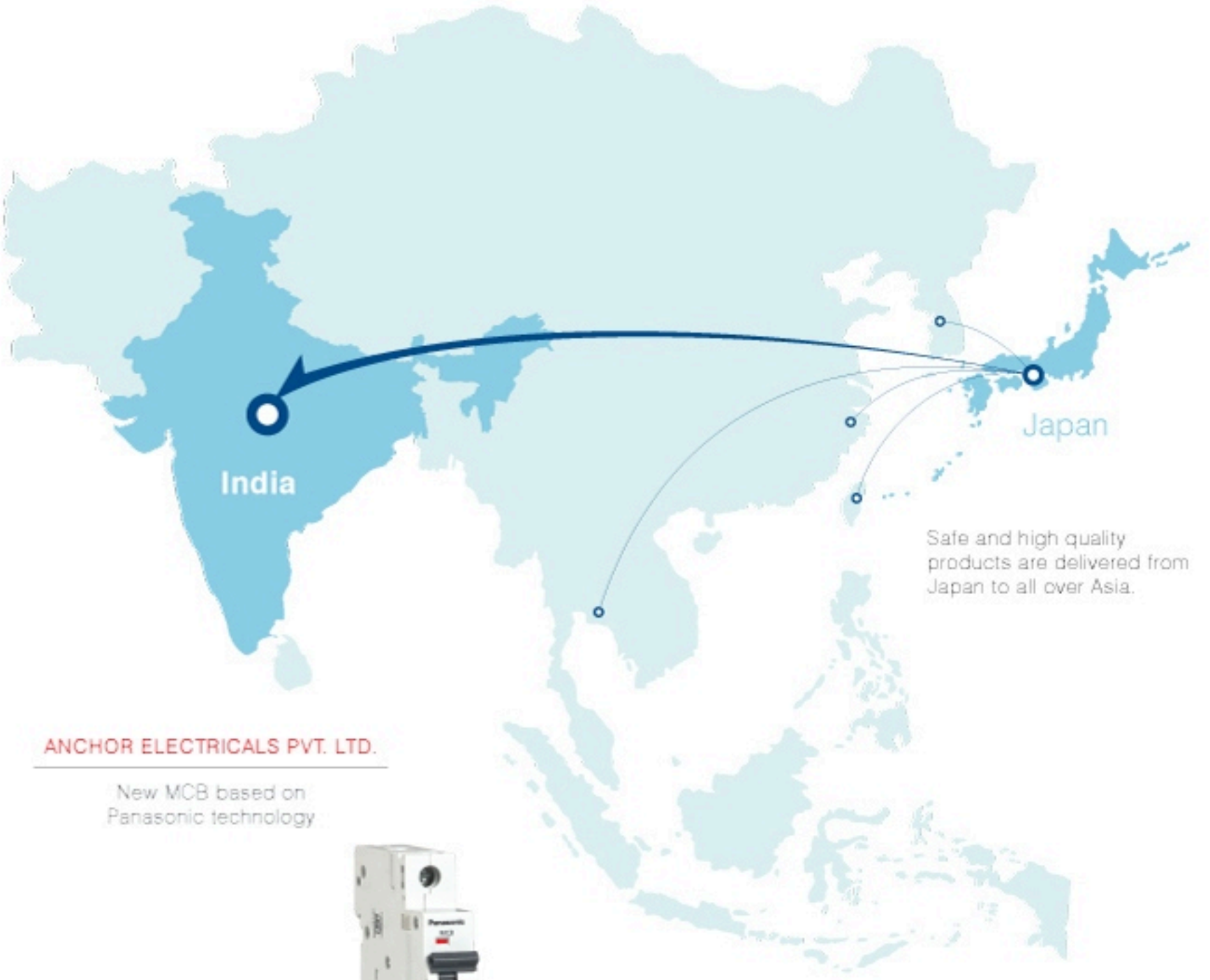
The history of Panasonic goes back to when Konosuke Matsushita founded Matsushita Electric Housewares Manufacturing Works in 1918.

Today the company has evolved and developed into the worlds leading electronics and electrical solutions provider. The belief in our basic management objective to devote ourselves to the progress and development of society and the well-being of all people around the globe has been the foundation of the company.

Panasonic starts with a desire to create things of value. With hard work and dedication resulting in manufacturing of one innovative product after another, this fledging company has emerged today as the second largest global electronic conglomerate.

With its highly developed technology, the Panasonic Group is proud to expand its manufacturing skills in India.

Since its establishment in 1918, the Panasonic Group has been developing various technologies and reliable products that have steered its current worldwide presence.
With its rapid economic growth, India represents a very important market with specific needs.
Panasonic Group hence looks forward to providing solutions based on its policy rooted in Safety, Comfort and Energy Saving.



Safe and high quality products are delivered from Japan to all over Asia.

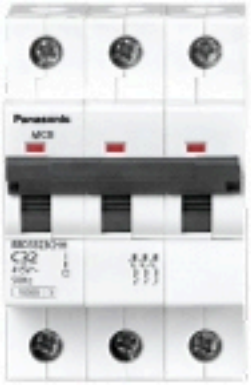
ANCHOR ELECTRICALS PVT. LTD.

New MCB based on Panasonic technology

Miniature Circuit Breaker

The Panasonic manufacturing concept.






Our five-designs concept

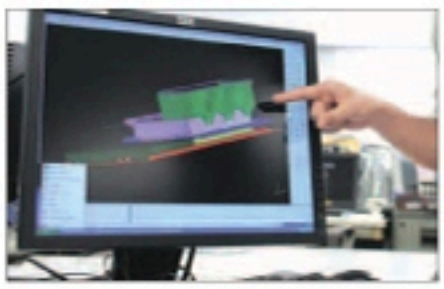
We develop products through an integrated system that begins with determination of market needs.

The system proceeds with the development of high level basic technologies, Product Planning, Design, Production and also includes Sales and After-Sales Service.

Aiming for constant improvement with our long history of product development.

Panasonic Establishment Product	The Circuit Breaker		
Improved Attachment Plug	Enclosed Fuse	HB Safety Breaker	Compact Breaker
		 (without fuse)	
From 1918	From 1960	From 1970	From 2000

Latest In-house Production Technology.



PRODUCT TECHNOLOGY

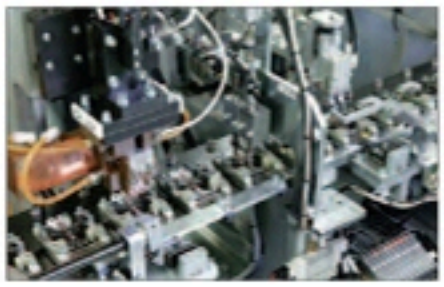
Circuit interruption technology / Sensing technology /
Mechanism technology / Information & Telecommunication technology /
Material technology / Semiconductor technology

Product Design
3-D product designing

EVALUATION TECHNOLOGY

Durability evaluation technology / User interface Evaluation technology /
Material analysis technology.

Short Circuit Testing Machine
Evaluating safety by testing short circuit cutoff capacity,
the basic function of a circuit breaker



MANUFACTURING TECHNOLOGY

Component processing technology / Assembling technology /
Die machining technology / Environmental compatibility technology /
Process Developing technology / Measurement technology.

Manufacturing Technology
Development of construction methods and equipment

CONTROL TECHNOLOGY

Automatic overcurrent characteristics measuring technology /
Mechanical characteristics measuring technology

Outgoing Inspection Room
Before shipment, products are tested for overcurrent characteristics
and other aspects of basic circuit breaker performance

Safe, simple and comfortable

MCB (10KA)

CONSTRUCTIONS & FEATURES

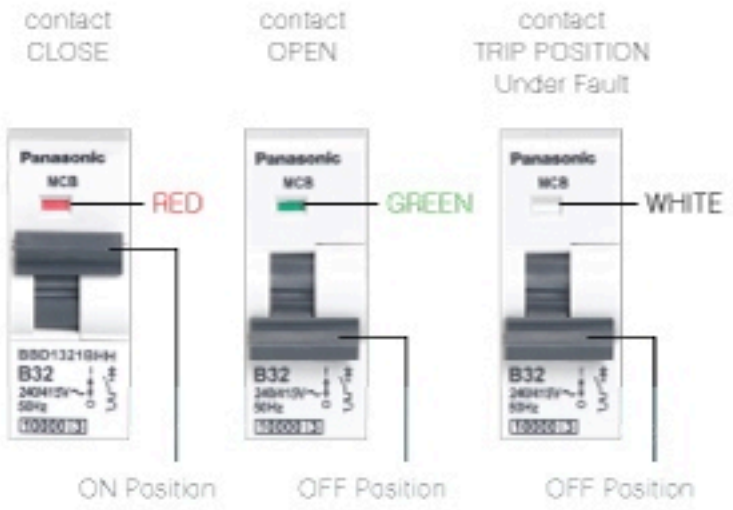
1. State of the art design
   - Elegant appearance, cover and handle in arc shape for comfortable operation
   - Contact position indicating window (Clear ON-OFF Indicator)
2. Three level indications For ON, OFF & TRIP (Under Fault)
3. Rated short circuit capacity: 10000A (10kA)
4. Trip free mechanism
5. High speed and high breaking capacity mechanism
6. Terminal block with safety shutter: It prevents wrong wiring & burning of terminals
7. High speed wiping contact structure
8. Bi-connect terminals at both sides give choice of using either a busbar or cable to make connection
9. Environment Friendly,Meets the RoHS Compliance defined by the European Standards.
10. Power loss values are much lower than the specified values of IS / IEC making it the most energy-efficient MCB.

Panasonic MCB brings across high quality and safety, contributing its best expertise for the Indian electricity distribution, securing lives and electrical installations.

1 Three level indicator

Safety

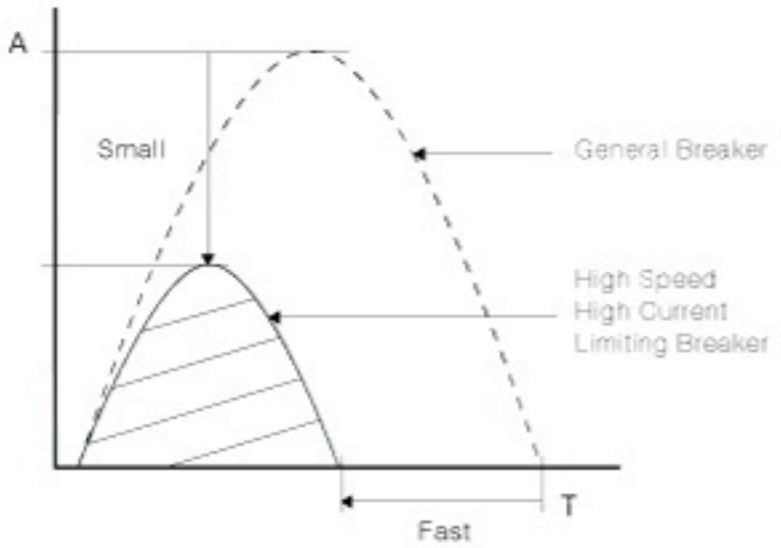
PANASONIC MCB is having Three Level Indications to identify clear ON, OFF and TRIP POSITION, The Trip position helps user to identify the fault circuit.



2 High speed mechanism

Safety

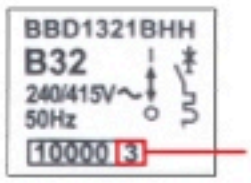
This is the mechanism of a Breaker that, compared to a General Breaker, cuts off the current several times faster (High Speed) while suppressing the large current (current limiting) in respect to a large current (short circuit current) when a short circuit accident occurs.



3 Safe & energy efficient

Minimum let through energy in case of fault; ensures safety and longevity of downstream circuit/installation.

Rated Short-circuit capacity (A)	Energy limiting Classes					
	1 I^2t max(A^2s)	2 I^2t max(A^2s)		3 I^2t max(A^2s)	
	B-type & C-type	B-type	C-type	B-type	C-type
10000	limit specified	310000	370000	90000	110000



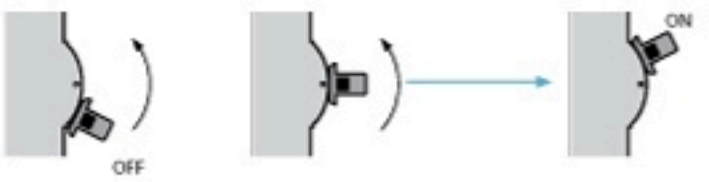
Best performance of Energy Limiting Class (EN60898:1991 A11(Sept.1994) Indicate class 3

4 Independent manual operation

Safety

The handle and the contact move independently in order to create a firm and instantaneous contact when connecting together.

Handle Movement



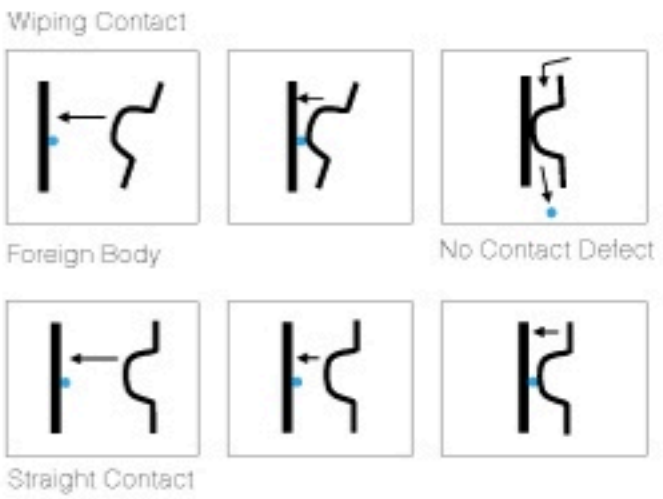
Contact Instantaneously
A point of contact is met instantaneously, strongly and is independant of handle speed.

Contact Movement

5 Wiping contact structure

Safety

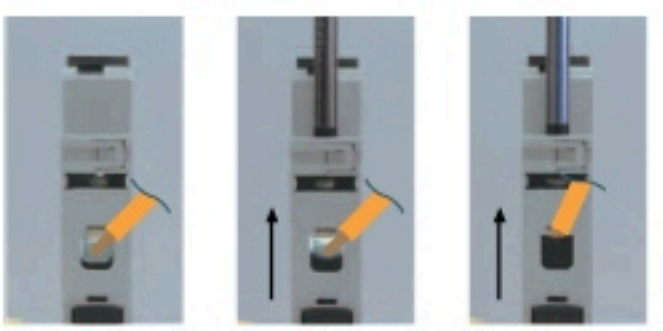
Wiping contact design ensures the proper current flow with continuity, while contact makes on condition, to prevent no contact defect.



6 Safety shutter

Safety | Construction Effective

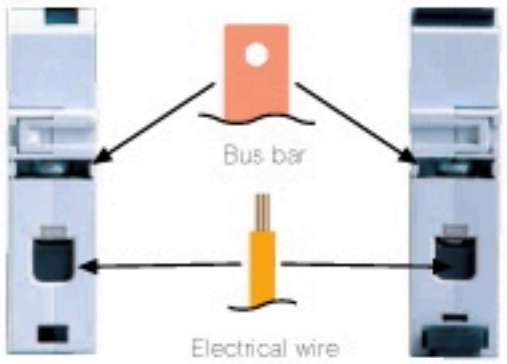
Fully insulated safety shutters provide safety in connection. During wiring, they guide the cable towards the terminal clamp and the shutter gives total protection.



7 Double terminal on both sides

Construction Effective

Customers have the choice of using either a bus bar or cable to make connections on both sides thus providing the ultimate flexibility.



8 Dust preventing surface

Safety

The surface of MCB has been designed in such a way that it does not allow dust to settle on its surface. The MCB thus retains its new look for years.

MCB TECHNICAL INFORMATION

• STANDARD CONFORMITY

IS/IEC 60898-1:2008
DIN43-880

• TECHNICAL DATA

Type	B	C	D
Magnetic Release Setting	(3-5) In	(5-10) In	(10-20) In
No. of Poles (Execution)	SP	SP, SP+N, DP TP, TP+N, FP	SP, DP, TP, FP
Rated Current (In) A	6A to 63A		
Rated Voltage (Ue)	SP, TP+N: AC 240/415V, SP+N: AC 240V, DP, TP, FP: AC 415V		
Rated Frequency (f) Hz	50Hz		
Rated Short Circuit Breaking Capacity	10000 A		
Service Short Circuit Breaking Capacity	7500 A		
Energy Limitation	Class 3		
Tripping Mechanism	Thermal & Magnetic Type		
Normal Ambient Temperature	30°C		
Power Loss	Much less than Standard Values		
Rated Impulse Voltage	4kV		
Dielectric Strength	2000V for 1 Minute		
Protection Class	IP20		
Mounting	On DIN Rail (35mm×7.5mm)		
Connections	1sq.mm to 25sq.mm For Cu conductors		

• NORMAL CONDITIONS FOR OPERATION IN SERVICE

Ambient Temperature	-10°C to +60°C
Relative Humidity	Not exceeding 85%
Altitude	Not exceeding 2000m

• TRIPPING CHARACTERISTICS CURVE TYPE B, C & D

Test	Type	Test Current	Initial condition	Time Limits of tripping or non-tripping	Result to be obtained
a	B, C, D	1.13 In	Cold	t ≥ 1 h	No Tripping
b	B, C, D	1.45 In	Immediately following test 'a'	t < 1 h	Tripping
c	B, C, D	2.55 In	Cold	1.5 < t < 60 s (In≤32A) 1.5 < t < 120 s (In>32A)	Tripping
d	B C D	3 In 5 In 10 In	Cold	t ≥ 0.1 s	No Tripping
e	B C D	5 In 10 In 20 In	Cold	t < 0.1 s	Tripping

In: Rated Current

• POWER LOSS IN WATT PER POLE AT RATED CURRENT

Rated Current In (A)	6	10	16	20	25	32	40	50	63
As per Indian Standard (W)	3	3	3.5	4.5	4.5	6	7.5	9	13
PANASONIC Series (W)	1.2	2.1	2	1.9	2.1	2.5	3.25	4.35	5

• ITEM CODIFICATION

	No. of Poles	Rated Current	No. of Elements	Instantaneous Trippring	Icu	Country
BBD	1	06	1	B	H	H
	1: SP 2: SP+N/DP 3: TP 4: TP+N/FP	06: 6A 10: 10A 16: 16A 20: 20A 25: 25A 32: 32A 40: 40A 50: 50A 63: 63A	1: 1E 2: 2E 3: 3E 4: 4E	B: B Type C: C Type D: D Type	H: 10KA	H: India

• TRIPPING CHARACTERISTICS CURVE TYPE B, C & D

Test	Type	Test Current	Initial condition	Time Limits of tripping or non-tripping	Result to be obtained
a	B, C, D	1.13 In	Cold	t ≥ 1 h	No Tripping
b	B, C, D	1.45 In	Immediately following test 'a'	t < 1 h	Tripping
c	B, C, D	2.55 In	Cold	1.5 < t < 60 s (In≤32A) 1.5 < t < 120 s (In>32A)	Tripping
d	B C D	3 In 5 In 10 In	Cold	t ≥ 0.1 s	No Tripping
e	B C D	5 In 10 In 20 In	Cold	t < 0.1 s	Tripping

In: Rated Current

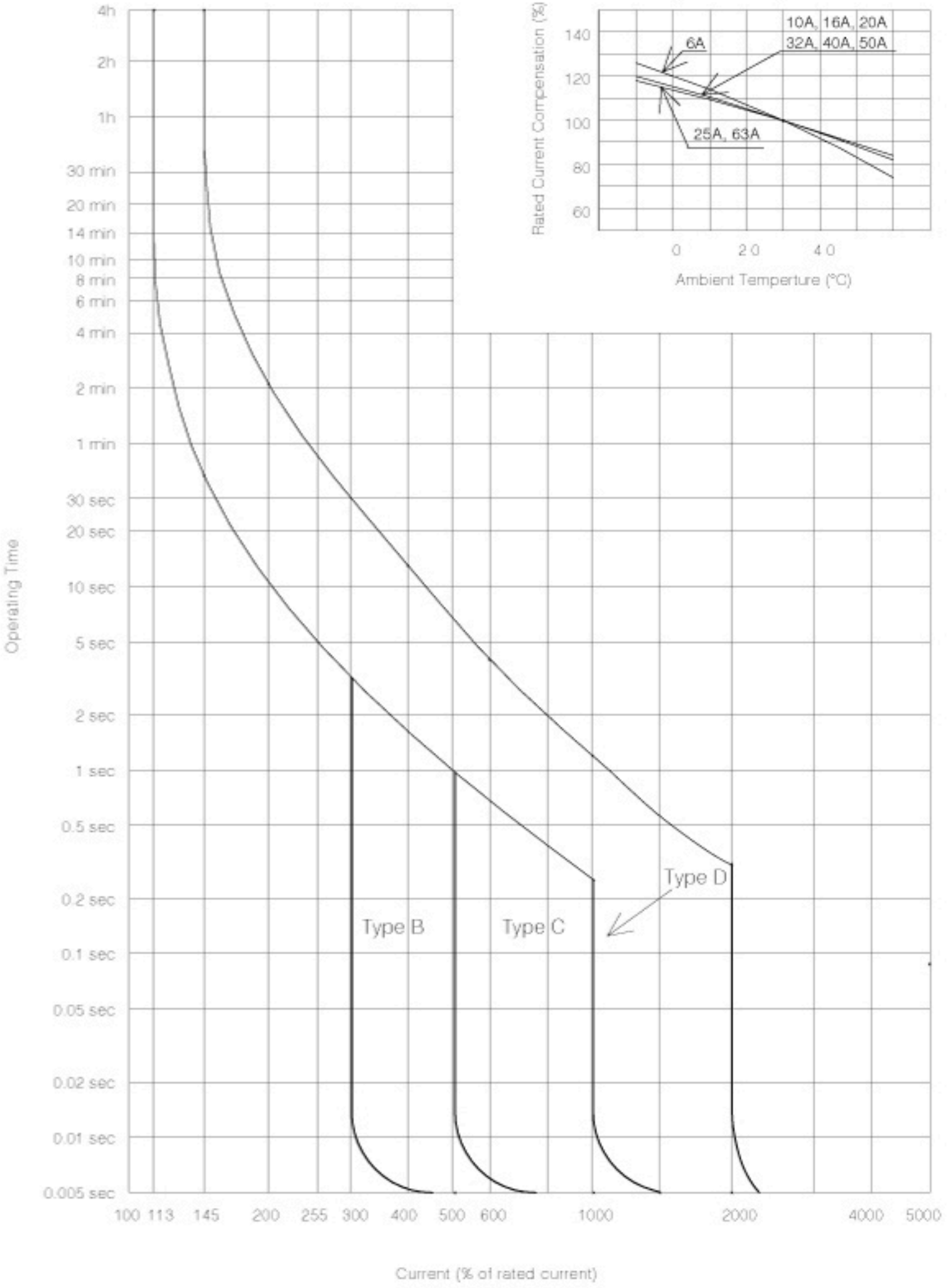
• POWER LOSS IN WATT PER POLE AT RATED CURRENT

Rated Current In (A)	6	10	16	20	25	32	40	50	63
As per Indian Standard (W)	3	3	3.5	4.5	4.5	6	7.5	9	13
PANASONIC Series (W)	1.2	2.1	2	1.9	2.1	2.5	3.25	4.35	5

• ITEM CODIFICATION

	No. of Poles	Rated Current	No. of Elements	Instantaneous Trippring	Icu	Country
BBD	1	06	1	B	H	H
	1: SP 2: SP+N/DP 3: TP 4: TP+N/FP	06: 6A 10: 10A 16: 16A 20: 20A 25: 25A 32: 32A 40: 40A 50: 50A 63: 63A	1: 1E 2: 2E 3: 3E 4: 4E	B: B Type C: C Type D: D Type	H: 10KA	H: India

• OPERATING TIME CURRENT CHARACTERISTICS CURVE [AMBIENT TEMPERRATURE 30°C] (6A~63A)



Channelizing electricity,
Shielding lives

ISOLATOR

CONSTRUCTION & FEATURES

1. Can be used safely as incomer
2. Heavy duty frame for the complete range
3. Silver alloy contacts for weld free operations
4. Clear ON-OFF Indication for the complete range
5. Low watt loss
6. Utilization category AC22A

ISOLATOR TECHNICAL INFORMATION

- STANDARD CONFORMITY

  IS/IEC 60947-3
  DIN43-880

- TECHNICAL DATA

No. of Poles (Execution)		SP, DP, TP, FP
Rated Current (In)	A	40A, 63A, 100A
Rated Voltage (Ue)	V~	SP: AC 240V. Others: AC415V
Rated Frequency (f)	Hz	50Hz
Utilization Category		AC 22A
Rated Impulse Voltage		6kV
Dielectric Strength		2000V 1min
Protection Class		IP20
Mounting		On DIN Rail (35mm×7.5mm)
Connections		40A/63A: 4sq.mm to 25sq.mm for Cu conductors
		100A: 10sq.mm to 50sq.mm for Cu conductors

- MECHANICAL & ELECTRICAL ENDURANCE

Rated Current	Test Voltage	Test Current	Number of operating Cycles
40A 63A	SP: AC 240V Other: AC 415V	In	With In 20000 Without In 30000 (In: Rated Current)
100A	SP: AC 240V Other: AC 415V	In	With In 10000 Without In 30000 (In: Rated Current)

- NORMAL CONDITIONS FOR OPERATION IN SERVICE

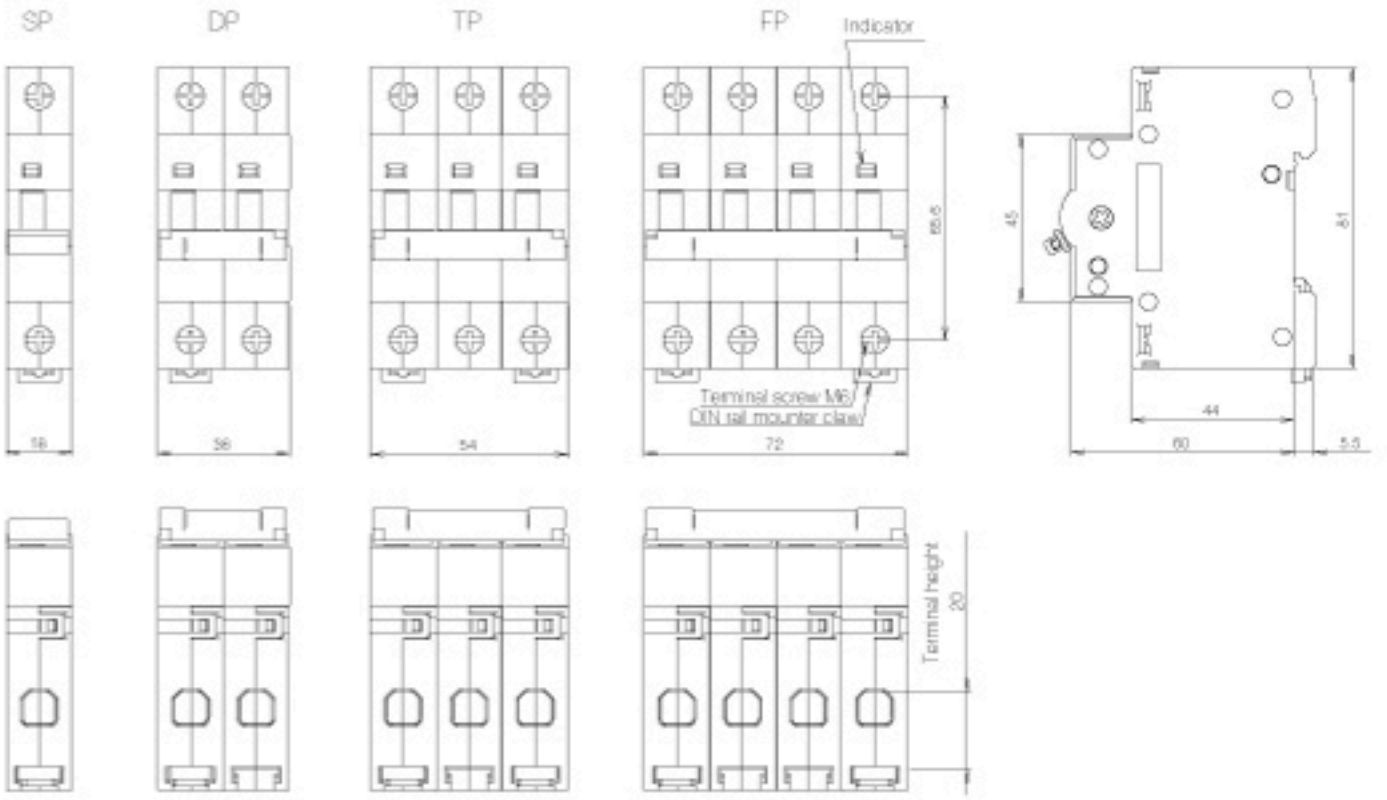
Ambient Temperature	-10°C to +60°C
Relative Humidity	Not exceeding 85%
Altitude	Not exceeding 2000m

- ITEM CODIFICATION

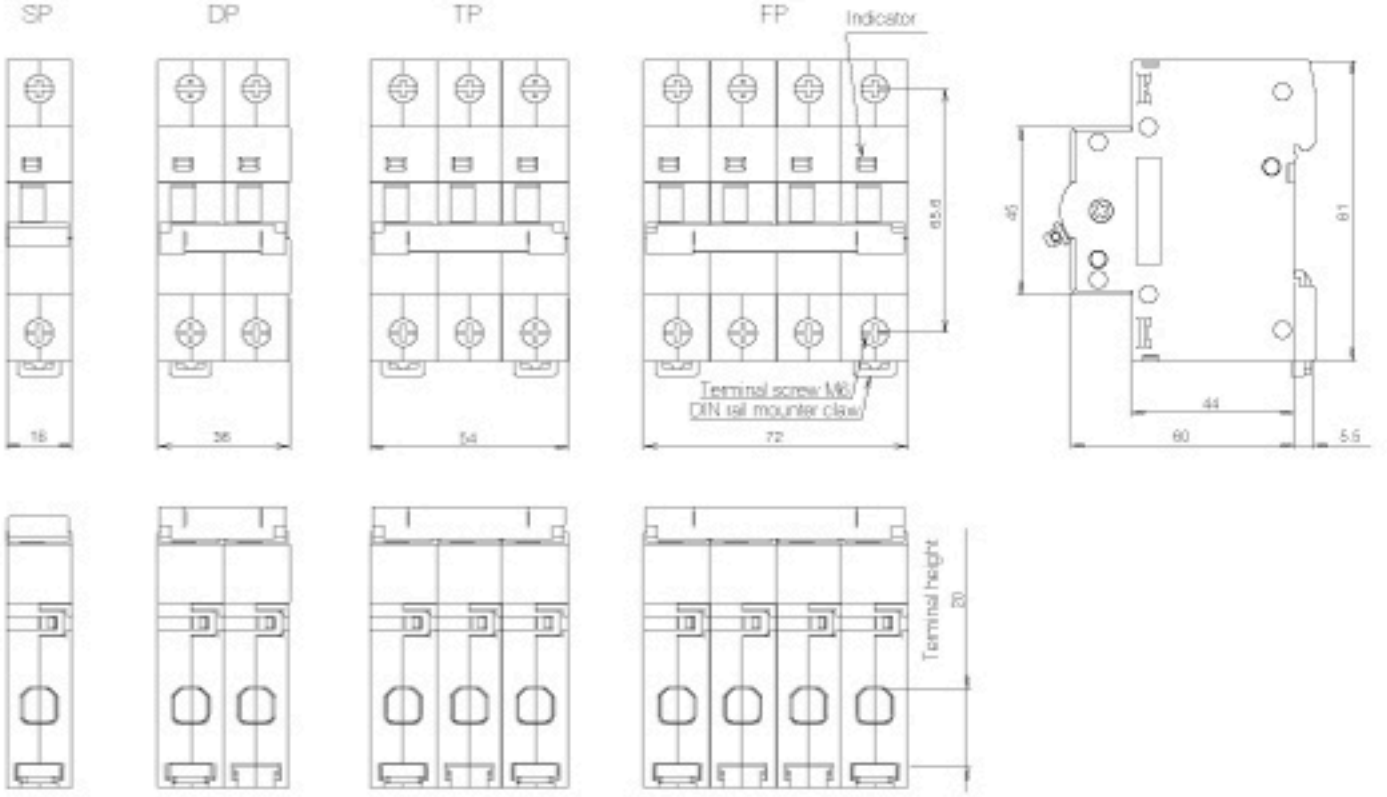
	Type	No. of Poles	Current Capacity	Country
BBD	S	2	40	H
	S: Isolator	1: SP 2: DP 3: TP 4: FP	40 : 40A 63 : 63A 100 : 100A	H: India

DIMENSIONS: For Single Pole Isolator 81mm×18mm×65.5mm (H×W×D) (In mm)

40A / 63A



100 A



Complete protection enhanced

RCCB (Residual Current Operated Circuit Breaker)

CONSTRUCTIONS & FEATURES

1. Elegant Appearance
2. In case of leakage current in circuit, RCCB trips which enables a quick solution to the faulty line
3. Provides protection against earth fault / leakage current
4. Equipped with finger protected connection terminals
5. Automatically disconnects the circuit when earth fault / leakage current occurs and exceeds the rated sensitivity.
6. Visual ON - OFF indication
7. Test Button 'T' is provided for periodic check up
8. Truly current operated, operates even at very low voltage
9. No nuisance tripping
10. Trips within 300 milliseconds in the event of fault
11. High short current withstand capacity of 10kA (DP), 6KA (FP)
12. Bi-connect terminals for busbar as well as cable connection
13. Simple and robust operating mechanism
14. IP20 protection, finger touch proof

RCCB TECHNICAL INFORMATION

- STANDARD CONFORMITY

  IS 12640 Part - 1
  DIN 43-880

- TECHNICAL DATA

No. of Poles (Execution)	DP, FP
Rated Current (In)	25A, 32A, 40A, 63A
Rated Voltage (Ue)	DP: AC 240V, FP: AC 240/415V
Rated Frequency (f)	50Hz
Sensitivity	30mA, 100mA, 300mA
Short Circuit Withstand Capacity	DP: 10000A, FP: 6000A
Short Circuit Breaking Performance Rated Conditional Short-Curcuit (Inc) Rated Conditional Residual Short-Curcuit Current (IΔc)	DP: 10000A FP: 6000A
Rated Making And Breaking Capacity (Im) Rated Residual Making And Breaking Capacity (IΔm)	DP: 630A FP: 630A
Mode	Electro-Magnetic Type
Rated Impulse Voltage	4kV
Vibration Resistances	5G
Dielectric Strength	2000V 1min
Protection Class	IP20
Mounting	On DIN Rail 35mm×7.5mm
Connections	1.5 sq.mm to 25 sq.mm

- MECHANICAL & ELECTRICAL ENDURANCE

	Test Voltage	Test Current	Number of operating Cycles
Rated Load	DP: AC 240V FP: AC 240/415V	In	With In 2000 Without In 20000 (In≤25A) Without In 10000 (In>25A) (In: Rated Current)

- NORMAL CONDITIONS FOR OPERATION IN SERVICE

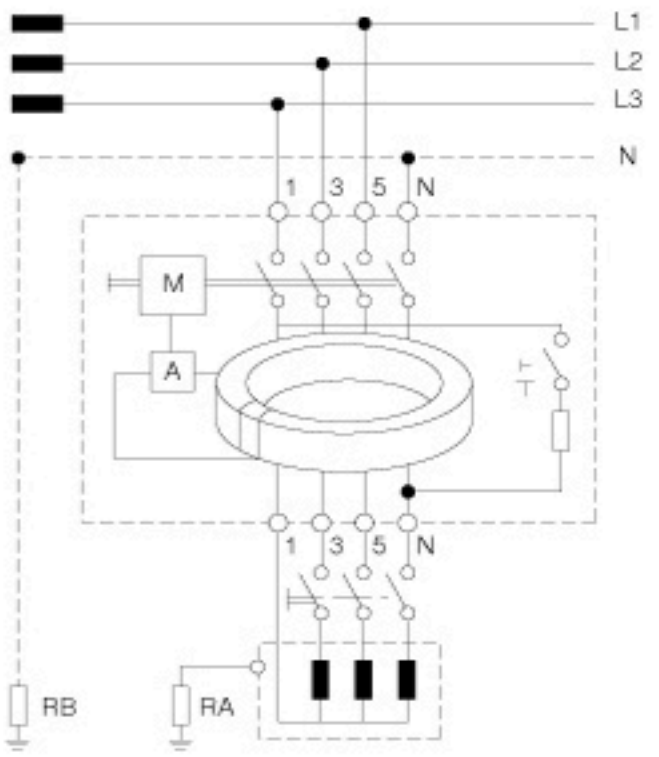
Ambient Temperature	-10°C to + 60°C
Relative Humidity	Not exceeding 85%
Altitude	Not exceeding 2000m

OPERATING PRINCIPLE

RCCB works on the principle that in electrical circuits the incoming current is same as the outgoing current as shown in the diagram. RCCB incorporates a core balance transformer (CBT) having primary and secondary windings with sensitive relay for instantaneous detection of fault signal. The primary winding lies in series with the supply mains and load. Secondary winding is connected to a very sensitive relay. In faultless condition, the magnetizing effects of current carrying conductors cancel each other. There is no residual magnetic field that can induce a voltage in the secondary. During flow of leakage current in the circuit an imbalance is created in the circuit which gives rise to leakage flux in core. This leakage flux generates an electrical signal that is sensed by the relay and it trips the mechanism thereby disconnecting supply.

The trip mechanism is operated at a Residual Current between 60-80% of its Rated Leakage Current.

When pressing the TEST button 'T' (during load conditions) a fault is simulated via the test resistance and RCCB trips.



A : Opening Relay | M : Opening Coil | RA : Protection Earth | RB : Opening Earth | T : Test Button

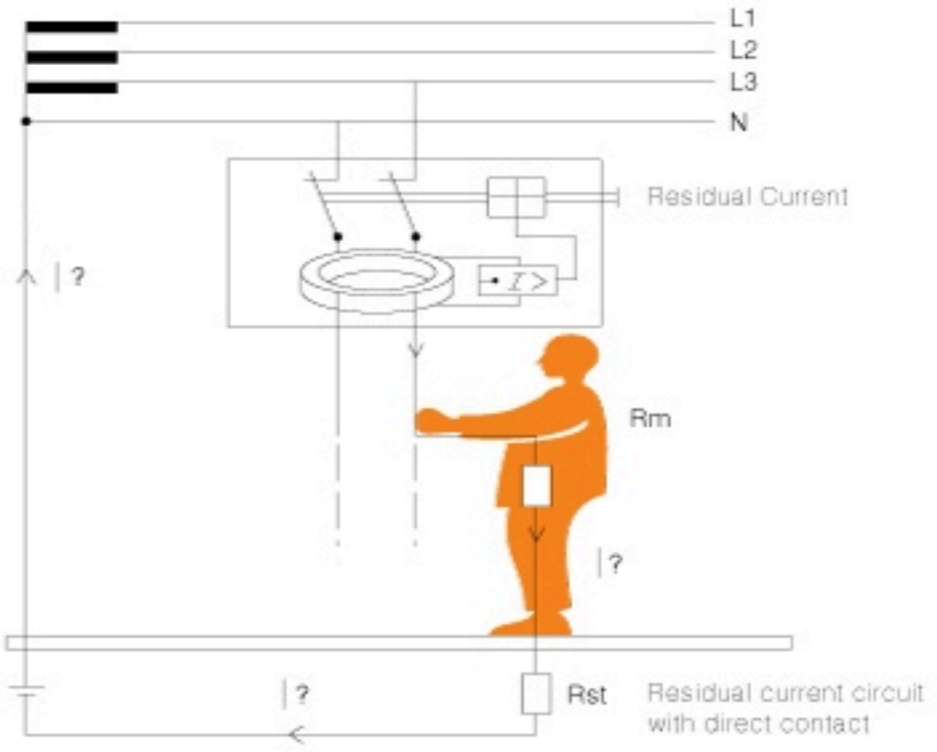
PROTECTION AGAINST DIRECT & INDIRECT CURRENT

Direct Protection in the event of a direct contact (unearthed) live part, extremely sensitive RCCB with rated residual operating current of 30mA or less used instead of a more conventional RCCB with higher residual operating fault currents.

Protection is necessary if :

1. The insulation of totally insulated device or their loads is damaged
2. The earth wire is interrupted
3. The earth wire and live wire is transposed
4. A component which is live in normal operations is touched during repair work

Indirect current when a person makes contact with a metal part which accidentally has been powered up following an insulation fault.

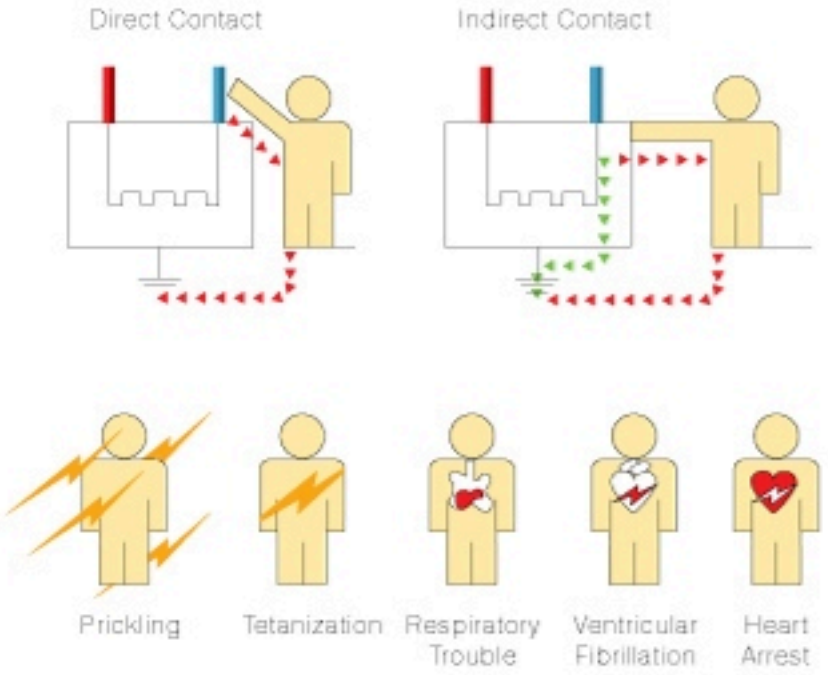


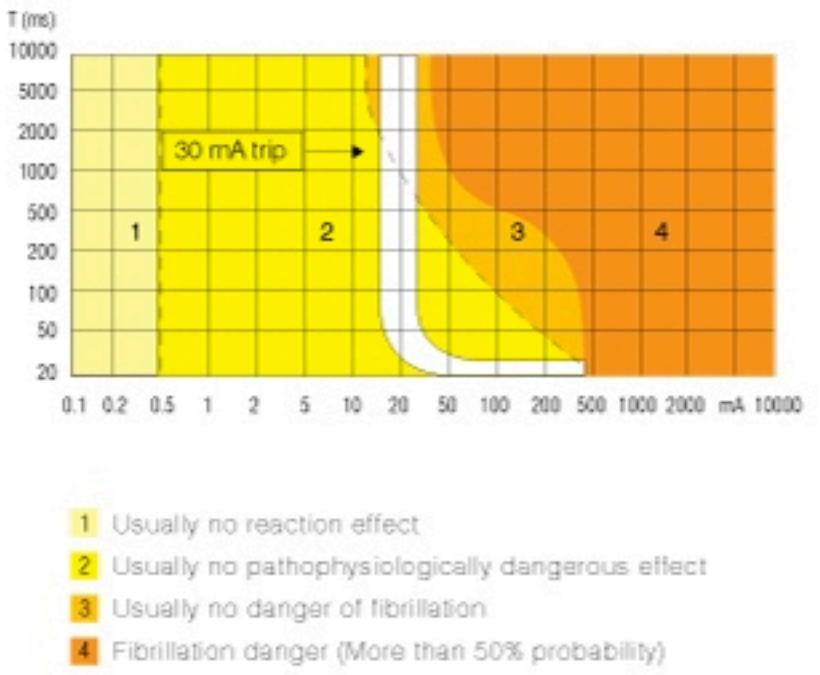
• SENSITIVITY APPLICATIONS SELECTION CRITERON OF RCCB

	RCCB	Application
FIRE PROTECTION	30mA	Human protection / Domestic Installation
	100mA	Limited human protection / Machine protection
	300mA	Building / Fire

Even relatively insensitive RCCB's (In = 300mA) can be used to provide effective protection against fire caused by earth leakage faults. With residual currents = 300mA, the electrical energy released at the location of the earth fault is not sufficient to ignite normal building materials. With larger residual currents, the RCCB switches off the circuit in less than 200 milliseconds, thus limiting the amount of energy released to a harmless level.

IEC 479 EFFECT OF ELECTRIC CURRENT ON HUMAN BODY





FAULT FINDINGS WHEN RCCB TRIPS

Switch off all the switches/MCB's connected in circuit downstream with the RCCB. Switch ON RCCB and simultaneously switch ON the switches one by one. You will find during switching ON of a particular appliance/Switch RCCB trips again and again. This shows that this is a faulty circuit/appliance. Isolate the faulty circuit, rectify the fault and switch ON the RCCB.

INSTALLATION

To ensure correct functioning of the RCCB, the neutral conductor on the load side must not be connected to earth, otherwise unwanted nuisance tripping may occur. Care must be taken to ensure that the earth loop impedances as given below are not exceeded so that the maximum permissible touch voltage of 50/25V is not exceeded.

GENERAL INFORMATION

PANASONIC RCCBs provide reliable protection by interrupting the circuit in the event of any leakage.
They are manufactured in two types as Life Protection & Fire Protection.

1) **LIFE PROTECTION:** According to IEC 60479-1, the value 30mA of leakage current is the limited value for human safety. The breaker should trip immidiately if the value of residual current exceeds the limited value (30mA).
2) **FIRE PROTECTION:** RCCB of 100mA/300mA is for protection against harmful current leakage. A residual current of 300mA and higher, is dangerous in terms of fire hazard.

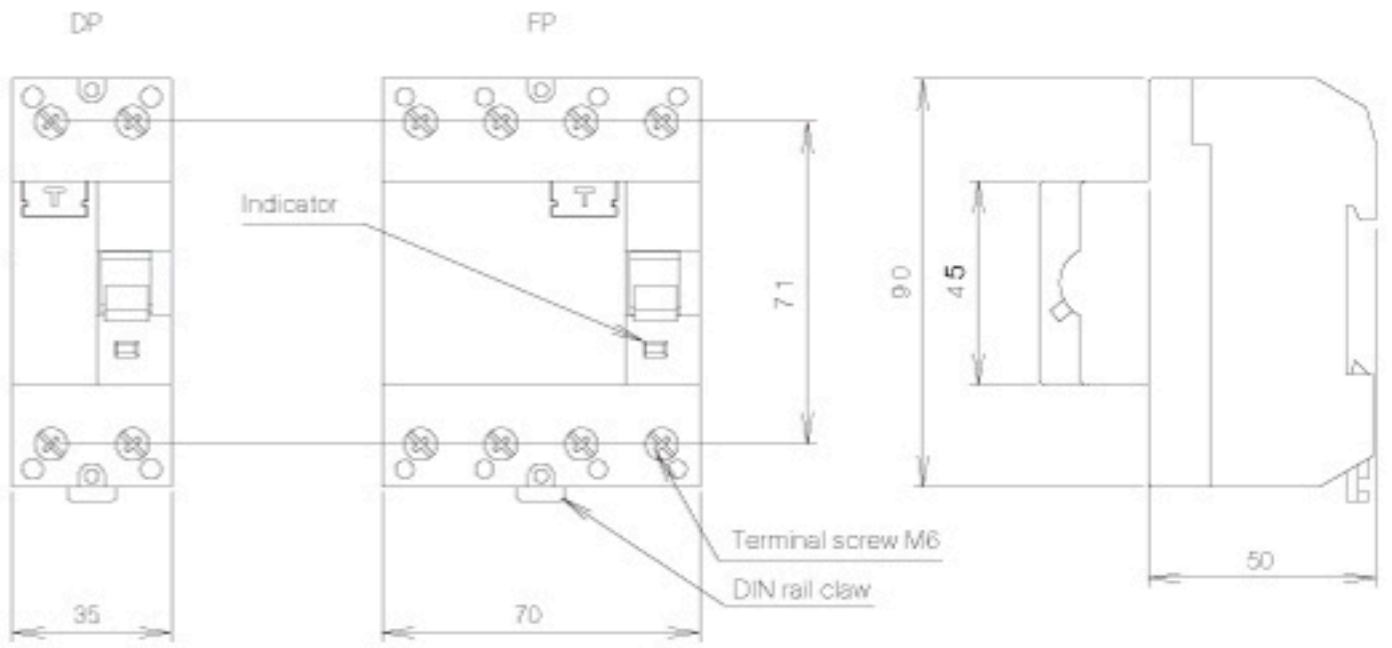
PROTECTION FROM NUISANCE TRIPPING

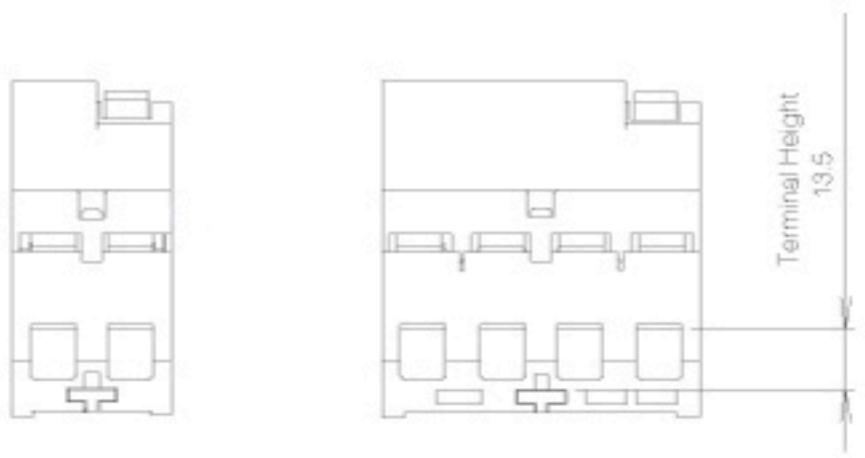
PANASONIC RCCB is truly current operated and operates independant of voltage. It prevents the risk of nuisance tripping due to transient voltages created by lighting, line disturbances (from other equipments) & transient current (from highly capacitive circuits).

PRECAUTION

Residual circuit breaker should be absolutely free from line voltage. Electronic residual circuit breaker needs line voltage to operate. In the event of a break off at neutral, it does not give any protection, which is why the use of electronic type residual circuit breaker is forbidden in many countries.

DIMENSIONS: DP RCCB 90×35×50 (H×W×D) (In mm) | FP RCCB 90×70×50 (H×W×D) (In mm)





• ITEM CODIFICATION

	Type	No. of Poles	Current Capacity	Sensitive Rated Current	No. of Elements	Country
BBD	R	2	25	3	0	H
	R: RCCB	2: DP 4: FP	25 : 25A 32 : 32A 40 : 40A 63 : 63A	3: 30 mA 4: 100 mA 5: 300 mA	0: 0E	H: India

Terms and conditions

1. Prices are in indian rupees only.
2. All prices are maximum retail prices (mrp) inclusive of excise duty & vat / sales tax as applicable.
3. Discount structure is exclusive of vat / sales taxes and octroi.
4. Goods are dispatched by us on purchaser's risk. All claims for loss, damage or shortage should be filed by the purchasers directly with the carriers.
5. This price list supersedes all our previous price lists.
6. Prices are subject to change without notice.
7. Company reserves the right to issue amendments, which may arise due to any printing errors in the price list.
8. Orders will be accepted in multiple of standard packing only.
9. Product design is subject to change without notice for continuous upgradation of products.
10. All our listed products carry a warranty of 1 year from the date of manufacturing against any manufacturing defects, subject to use in normal recommended operating conditions.

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BHOPAL
0755-4286164

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MUMBAI
022-30418888

RAIPUR
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