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Resident Offices:

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Allahabad	Berhampur	Goa	Kanyakumari	Nagerkoil	Sholapur	Vellore
Anantpuram	Bhilai	Gorakhpur	Kolhapur	Nasik	Srinagar	
Aurangabad	Bhopal	Gulbarga	Kota	Patiala	Sambalpur	
Amravati	Bilaspur	Jabalpur	Madurai	Pondicherry	Tirupati	
Akola	Bijapur	Jabli	Malda	Rajkot	Trichy	
Angul	Calicut	Jamshedpur	Mangalore	Rourkela	Trivandrum	
Bareilly	Cuttack	Jalandhar	Meerut	Salem	Udaipur	

Microprocessor MCCB

- COMPACT & OPTIMIZED design
- High level of SAFETY
- Made of HIGH quality of Polyester Resin G.F. material
- True RMS sensing for precise and RELIABLE protection
- VARIED settings for Current & Time



intelliTAB
intelligent protection RANGE



SWITCHGEAR



HPL Electric & Power Ltd.

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www.hplindia.com

Corporate Information

HPL's vision of creating a niche, as a major player in India Electrical Industry with commitment to state-of-the-art technology & world class products.

HPL Group possess 6 most modern manufacturing units, ISO 9001 : 2000; ISO 14001; OHSAS 18001 certified located at Gurgaon, Kundli, Sonapat, Panipat, New Delhi and Himachal Pradesh having 5,00,000 sq. feet covered area to manufacture products conforming to International and India standards.

HPL Products Profile has the following Strategic Business Units :

- LV Switchgears
- LV Protection Devices
- Metering and Energy Management Systems
- Lighting
- Luminaires
- Wires & Cables
- Electrical Wiring Accessories

HPL Products are tested at CPRI, ERDA, ERTL, NPL etc. according to Indian Standards, whereas MCB's Rewireable Switches & Electronic Energy Meters carry ISI marking. Further HPL products have approvals from CPWD state PWD's, MES, BSNL & many more Institutional users.

HPL Group with Head Office at New Delhi has extensive Sales & Marketing Network of 90 Branch offices & Representative Offices, over 2400 Authorised Dealers and 18000 Retailers across country, who are committed to provide solutions and services to customer's delight. HPL is also exporting its products to Middle East, SAARC and European Countries.



Microprocessor MCCB

***intelli*TAB**
intelligent protection ^{RANGE}

HPL intelli TAB range of Moulded Case Circuit Breakers are manufactured in the state-of-the-art plant in Kundli, Sonapat. These MCCBs are provided with Microprocessor based Trip Release which gives Overload, Short circuit and Ground Fault protection with precision. These MCCBs deliver comprehensive solutions to customer applications ensuring operational safety, reliability and versatility. These are provided with all the accessories like Shunt coils, UVT coils, Auxiliary and Alarm Contacts etc.





Current Range (Ampere)

HPL intelli TAB range of MCCBs are available in the following Frame sizes in 3-Pole & 4-Pole versions:

- Frame-3: 250A, 315A, 400A, 500A, 630A
- Frame-4 *: 500A, 630A, 800A



Salient Features

- Compact & Optimized Design
- High level of SAFETY
- Made of HIGH quality of Polyster Resin G.F. material
- True RMS sensing for precise and RELIABLE protection
- VARIED settings for Current & Time
- Overload protection ADJUSTABLE in the range 30% to 100% of I_n with variable time setting
- Short circuit Protection ADJUSTABLE in the range 400% to 1000% of I_r with variable time setting
- Ground Fault Protection ADJUSTABLE in the range 10% to 40% of I_n with variable time setting
- Suitable for DISCRIMINATION
- NO EXTERNAL Power required for the electronic circuit
- Field Testing facility available
- CONSISTENT performance and LONG Life

Notes: * On Request



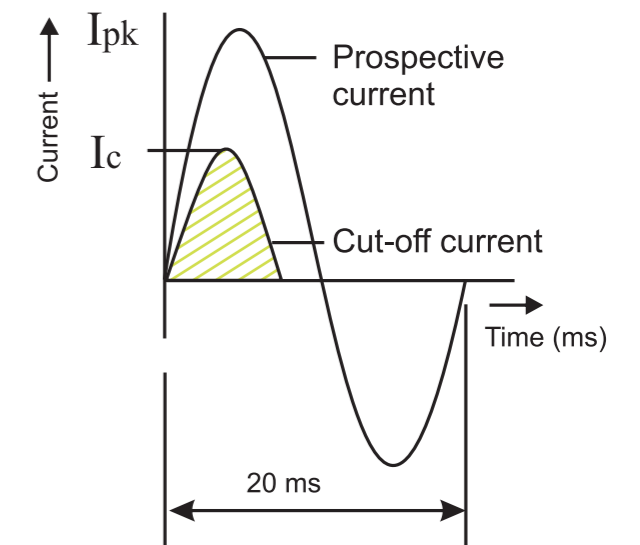
Working Principle

These MCCBs work on Current Limiting principle. In case of any fault, the breaker's tripping mechanism opens the circuit so fast that very low energy (I^2t) is released in a very short time so that the entire system connected on the Load side is fully protected. This is achieved by

- Reversing current mechanism opens the contacts fast
- The intelligent Arc Interrupter
- Arc guided rapidly away from the separating contacts and towards the arc chamber
- Quick arc quenching in the arc chamber

As a result, there is substantial reduction in the peak current which reduces the overall electro-thermal dynamic stresses produced in the system during fault conditions helping the downstream devices to be SAFE & SECURED.

Moreover, during fault condition, the current transformers fitted in the circuit of each phase senses the current and sends signal to the tripping device through the electronic circuit and trips the breaker. For discrimination, the tripping time and respective tripping current can be set with the help of Piano type DIP switches provided on the front of the breaker.



Operating Conditions

- Altitude: It should be less than 2000m
- Pollution Degree: These MCCBs are suitable for use in Pollution degree 3, where conductive pollution or dry non-conductive pollution that becomes conductive due to condensation occurs (Harsh environments like Industrial environment or construction sites)





Positive Isolation

Intelli TAB MCCBs ARE SUITABLE FOR ISOLATION AS PER IS/IEC 60947-2, which highlights the following points:

The operating knob should correctly show the OFF - TRIP - ON position

No leakage current between the contacts in OPEN condition

High impulse withstand capacity for the breaker



Accessories

intelliTAB MCCBs have a wide range of accessories giving convenience and additional protection.

These are of two types:

External accessories

Internal accessories

External Accessories

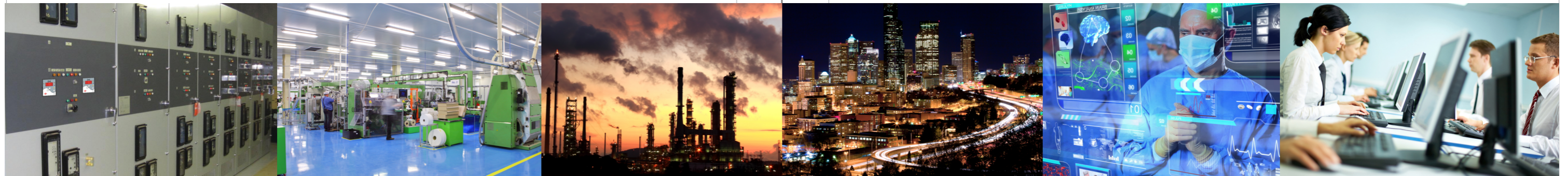
Rotary Handle

This is a toggle handle operating mechanism which serves as switching position indicator for ON, OFF & TRIP. Basically it is used with a breaker which is installed in an enclosure that does not allow ready access to the breaker's operating handle. The handle can be locked in OFF or ON position for safety during service condition.



Phase Barrier

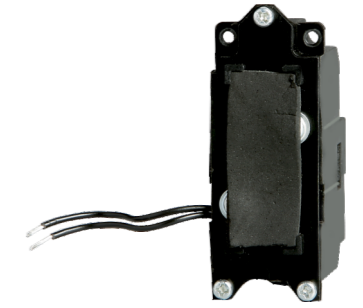
Phase barriers are provided between the phases to increase the creepage distance between them thereby reducing the risk of phase to phase shorting.



Internal Accessories

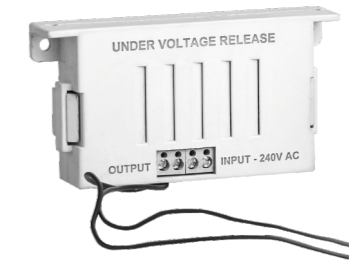
Shunt Trip Coil

Shunt Trip Coil is a release energized by a source of voltage which may be independent of the main circuit voltage and provides remote tripping facility. Once the MCCB trips, the micro switch connected to the Shunt coil, prevents the coil from burning even if supply of voltage is continuous. It operates in the voltage range of 70 - 110% of the rated coil voltage. It is available in 110Vac, 240Vac, 415Vac, 24Vdc & 48Vdc.



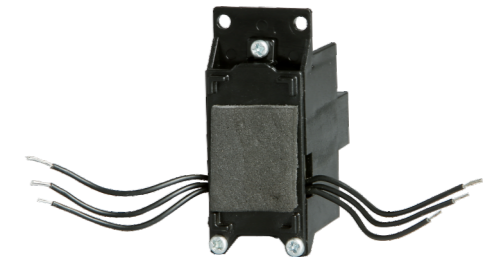
Under Voltage Trip Coil

UVT Coil is a release which trips the breaker when the voltage drops below certain level so that the connected LOAD is protected. It operates in the voltage range of 35 - 70% of the rated coil voltage. It is available in 110Vac, 240Vac, 415Vac, 24Vdc & 48Vdc.



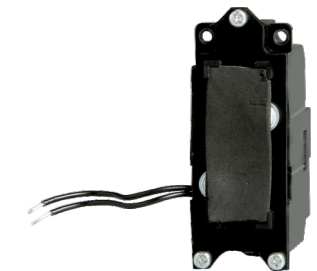
Auxiliary Switch

This is used for signaling and control purposes. It consists of one or more potential free changeover contacts and acts as an indicator whether the circuit breaker's status is OPEN or CLOSED.



Alarm Switch

This is used for giving Tripping indication once the breaker trips. It looks similar to Auxiliary Switch but operates only when the MCCB trips.





Specifications

Parameters	Offered			
No. of poles	3/4			
Type	N	S	H	
Rated Current (In A)	250A, 315A, 400A, 500A, 630A			
Rated Operational Voltage (Ue)	415V			
Rated Insulation Voltage (Ui)	800V			
Rated Impulse withstand voltage (Uimp)	8kV			
Rated Frequency	50/60 Hz			
Reference Ambient Calibration Temperature#	40°C			
Rated Ultimate S.C. Breaking Capacity (at 415 VAC, 50/60 Hz) Icu in kA	36	50	65	
Rated Ultimate S.C. Breaking Capacity (at 230 VAC, 50/60 Hz) Icu in kA	65	85	95	
Rated Ultimate S.C. Breaking Capacity (at 250 VDC) Icu in kA	20	25	35	
Rated Service S.C. Breaking Capacity (at 415 VAC, 50/60 Hz) Ics in kA	100% Icu	75% Icu	50% Icu	
Rated Service S.C. Breaking Capacity (at 230 VAC, 50/60 Hz) Ics in kA	100% Icu	75% Icu	50% Icu	
Rated S.C. Making Capacity (at 415 VAC, 50/60 Hz) Icm in kA	76	105	143	
Utilization Category	A			
Positive Isolation	Available			
No. of operating cycles	Mechanical-15000; Electrical-3000			
Type of Releases	Microprocessor Based Release			
Communication Jack	RJ-45 Terminal			
Test Function (TF)	↑ 1 ↑ 2 - OFF ↓ 1 ↓ 2 - ON			
Terminal Capacity (Cable)	--			
Terminal Capacity (Link)	320mm ² max.			
Terminal Capacity (Busbar width for direct mounting)	28 mm max.			
Size (H x B x D)mm		Dim.	3P	4P
		H	254.5	254.5
		B	140	184
		D	99	99
Gross Weight*	7.75 Kg (3P) & 9.5 Kg (4P)			
Reference Standards	IS/IEC 60947-2			

- Notes :-
- **However on demand, MCCBs can be provided with calibration done at higher temperature also.
 - As product improvement is a continuous process, HPL reserves the right to modify the above specification, in case if required.
 - Weight shown above is for the highest rating of MCCB in the Frame size



Electronic Trip Relay

Parameters	Offered	
Long Time Delay	$I_r = I_n * \Sigma(0.3+A)$	
	Current Settings (A)	0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 10
	Time Delay(sec)	1, 5, 10, 15, 20, 25, 30, 35
Short Time Delay	$I_s = I_r * \Sigma(0.3+x)$	
	Current Settings (A)	4x, 6x, 8x, 10x
	Time Delay(Sec)	0.01, 0.15, 0.2, 0.35
Instantaneous Setting	$I_i = 10 * I_n$	Fixed
Ground Fault(Available in 4P version only)	$I_g = * I_n$	
	Current Settings(A)	0.1, 0.2, 0.3, 0.4
	Time Delay(Sec)	1, 5, 10, 15





Operating Instructions

Operating Instruction sheet for "intelliTAB" Electronics MCCB (TP)

Settings for "LTD C" Long Time Delay Current		Settings for "LTD T" Long time delay Time	
30%	40%	1s	5s
50%	60%	10s	15s
70%	80%	20s	25s
90%	100%	30s	35s

NOTES:- $I_r = I_n * \Sigma(0.3+A)$; Example:- For 90% setting of 630A, $630 * \Sigma(0.3+0.2+0.4) = 567A$

■ Means "NOT IN USE"; ■ Means "ON" for the particular setting

Settings for "STD C" Short Time Delay Current	Settings for "STD T" Short time delay Time
4x	Inst./0.01s
6x	0.15s
8x	0.2s
10x	0.35s

NOTES:- $I_s = I_r * \Sigma(x)$; Example:- For 10x of 630A, $630 * \Sigma(4+6)$

■ Means "NOT IN USE"; ■ Means "ON" for the particular setting



Operating Instructions

Operating Instruction sheet for "intelliTAB" Electronics MCCB (FP)

Settings for "LTD C" Long Time Delay Current		Settings for "LTD T" Long time delay Time	
30%	40%	1s	5s
50%	60%	10s	15s
70%	80%	20s	25s
90%	100%	30s	35s

NOTES:- $I_r = I_n * \Sigma(0.3+A)$; Example: For 90% setting of 630A, $630 * \Sigma(0.3+0.2+0.4) = 567A$

■ Means "NOT IN USE"; ■ Means "ON" for the particular setting

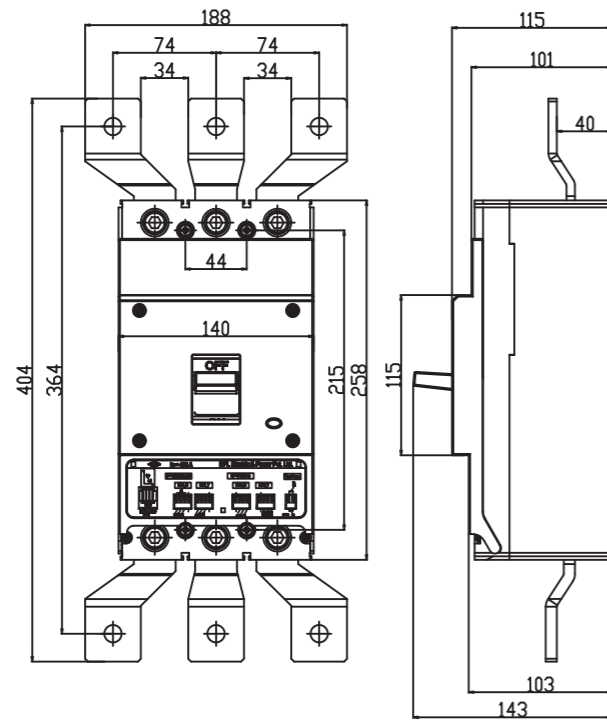
Settings for "STD C" Short Time Delay Current & Settings for "STD T" Short time delay Time		Settings for "GF C" Ground fault Current & Settings for "GF T" Ground fault delay Time (Available only in 4P)	
STD_C	STD_T	GF_C	GF_T
4x	Inst./0.01s	10%	1s
6x	0.15s	20%	5s
8x	0.2s	30%	10s
10x	0.35s	40%	15s

NOTES:- $I_s = I_r * \Sigma(x)$; Example:- For 10x of 630A, $630 * \Sigma(4+6)$

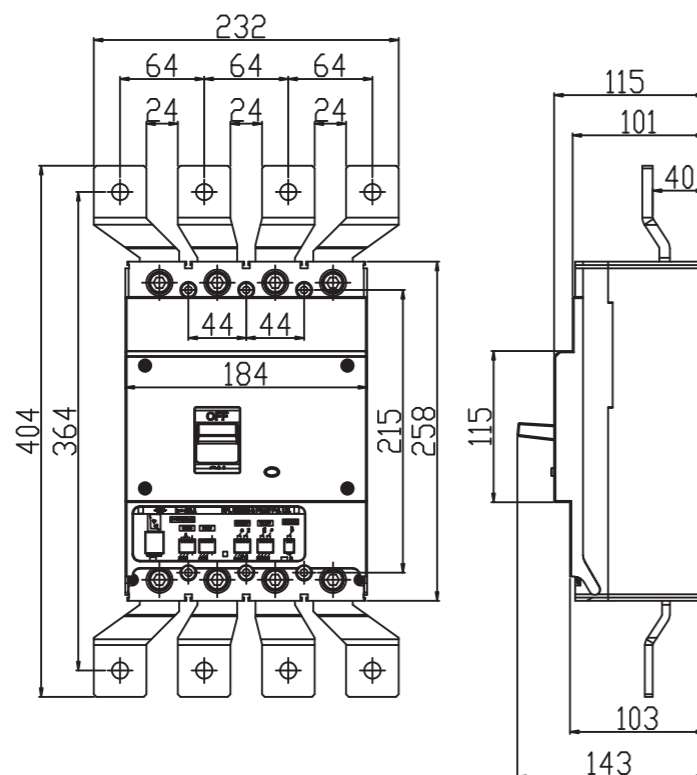
✗ Means "NOT IN USE"; ■ Means "ON" for the particular setting

MCCB Dimensional Details (mm)

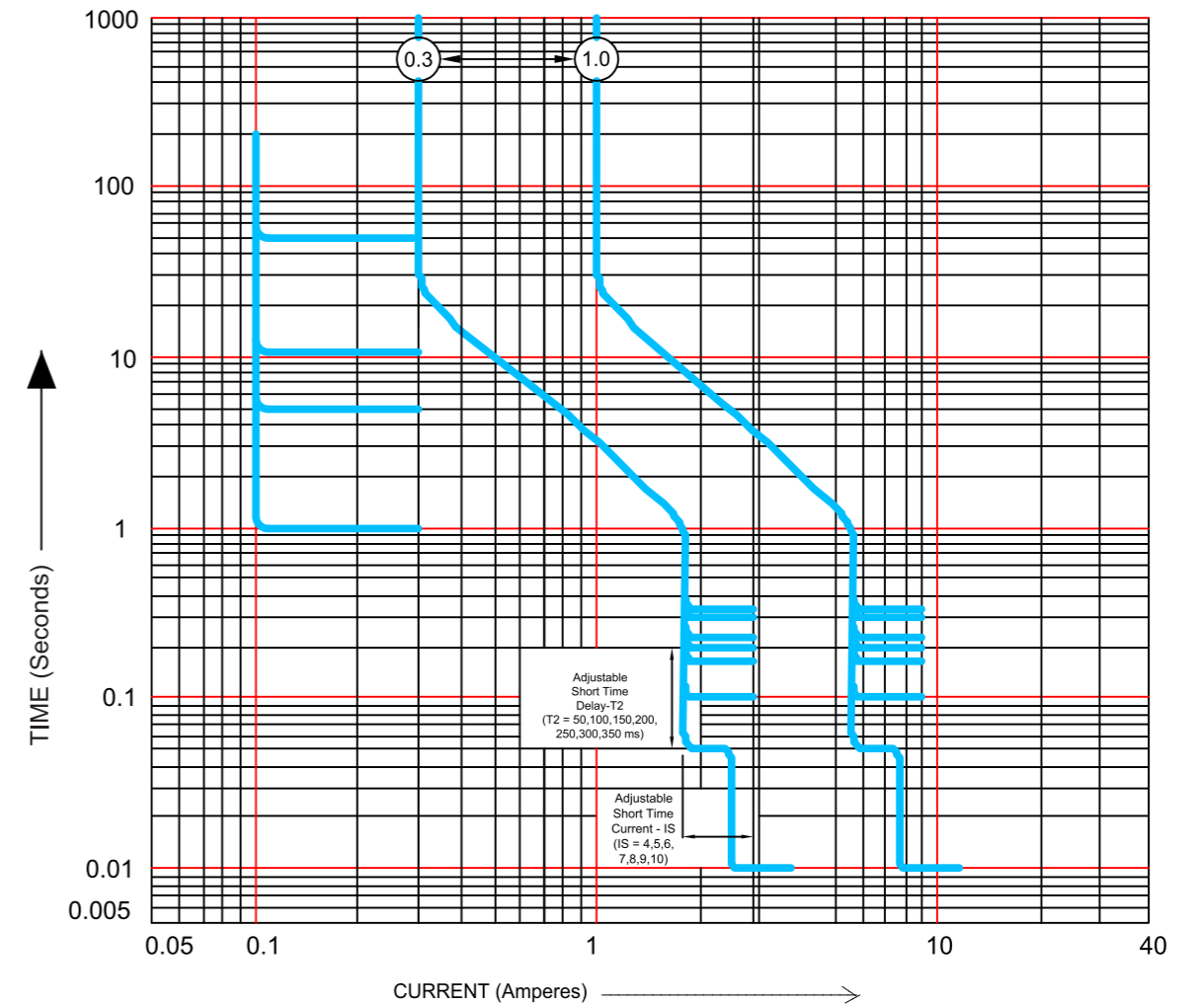
3 Pole Version



4 Pole Version



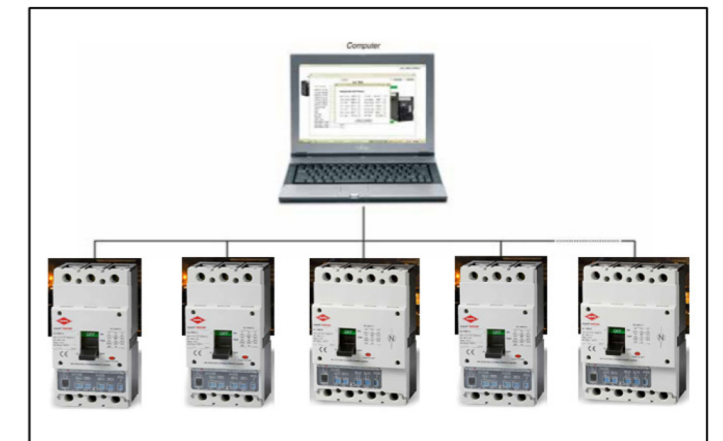
Time Current Characteristics Curve



Communication Facility

HPL make intelli PROTECT MCCBs are provided with communication facility where two way communication is achieved through RS 232/485 port. This communication facility enables the user to monitor the entire system from his control room on a PC or Laptop. Through this facility it is possible to control/modify the setting of the electronic MCCB from PC/ Laptop as per user requirement.

The software required for this communication system is offered by **HPL as an optional feature.**





Ordering Code

1	MCCB 250A, 3P, 36kA with microprocessor release	TAB3NX250AC3PMPR
2	MCCB 315A, 3P, 36kA with microprocessor release	TAB3NX315AC3PMPR
3	MCCB 400A, 3P, 36kA with microprocessor release	TAB3NX400AC3PMPR
4	MCCB 500A, 3P, 36kA with microprocessor release	TAB3NX500AC3PMPR
5	MCCB 630A, 3P, 36kA with microprocessor release	TAB3NX630AC3PMPR
6	MCCB 250A, 4P, 36kA with microprocessor release	TAB3NX250AC4PMPR
7	MCCB 315A, 4P, 36kA with microprocessor release	TAB3NX315AC4PMPR
8	MCCB 400A, 4P, 36kA with microprocessor release	TAB3NX400AC4PMPR
9	MCCB 500A, 4P, 36kA with microprocessor release	TAB3NX500AC4PMPR
10	MCCB 630A, 4P, 36kA with microprocessor release	TAB3NX630AC4PMPR
11	MCCB 250A, 3P, 50kA with microprocessor release	TAB3SY250AC3PMPR
12	MCCB 315A, 3P, 50kA with microprocessor release	TAB3SY315AC3PMPR
13	MCCB 400A, 3P, 50kA with microprocessor release	TAB3SY400AC3PMPR
14	MCCB 500A, 3P, 50kA with microprocessor release	TAB3SY500AC3PMPR
15	MCCB 630A, 3P, 50kA with microprocessor release	TAB3SY630AC3PMPR
16	MCCB 250A, 4P, 50kA with microprocessor release	TAB3SY250AC4PMPR
17	MCCB 315A, 4P, 50kA with microprocessor release	TAB3SY315AC4PMPR
18	MCCB 400A, 4P, 50kA with microprocessor release	TAB3SY400AC4PMPR
19	MCCB 500A, 4P, 50kA with microprocessor release	TAB3SY500AC4PMPR
20	MCCB 630A, 4P, 50kA with microprocessor release	TAB3SY630AC4PMPR
21	MCCB 250A, 3P, 65kA with microprocessor release	TAB3HZ250AC3PMPR
22	MCCB 315A, 3P, 65kA with microprocessor release	TAB3HZ315AC3PMPR
23	MCCB 400A, 3P, 65kA with microprocessor release	TAB3HZ400AC3PMPR
24	MCCB 500A, 3P, 65kA with microprocessor release	TAB3HZ500AC3PMPR
25	MCCB 630A, 3P, 65kA with microprocessor release	TAB3HZ630AC3PMPR
26	MCCB 250A, 4P, 65kA with microprocessor release	TAB3HZ250AC4PMPR
27	MCCB 315A, 4P, 65kA with microprocessor release	TAB3HZ315AC4PMPR
28	MCCB 400A, 4P, 65kA with microprocessor release	TAB3HZ400AC4PMPR
29	MCCB 500A, 4P, 65kA with microprocessor release	TAB3HZ500AC4PMPR
30	MCCB 630A, 4P, 65kA with microprocessor release	TAB3HZ630AC4PMPR



Other HPL Industrial Products



ACB



Controlgear



On Load Changeover Switch



TAB MCCB (TM Range)



Switch Disconnecter Fuse



HRC Fuse Link