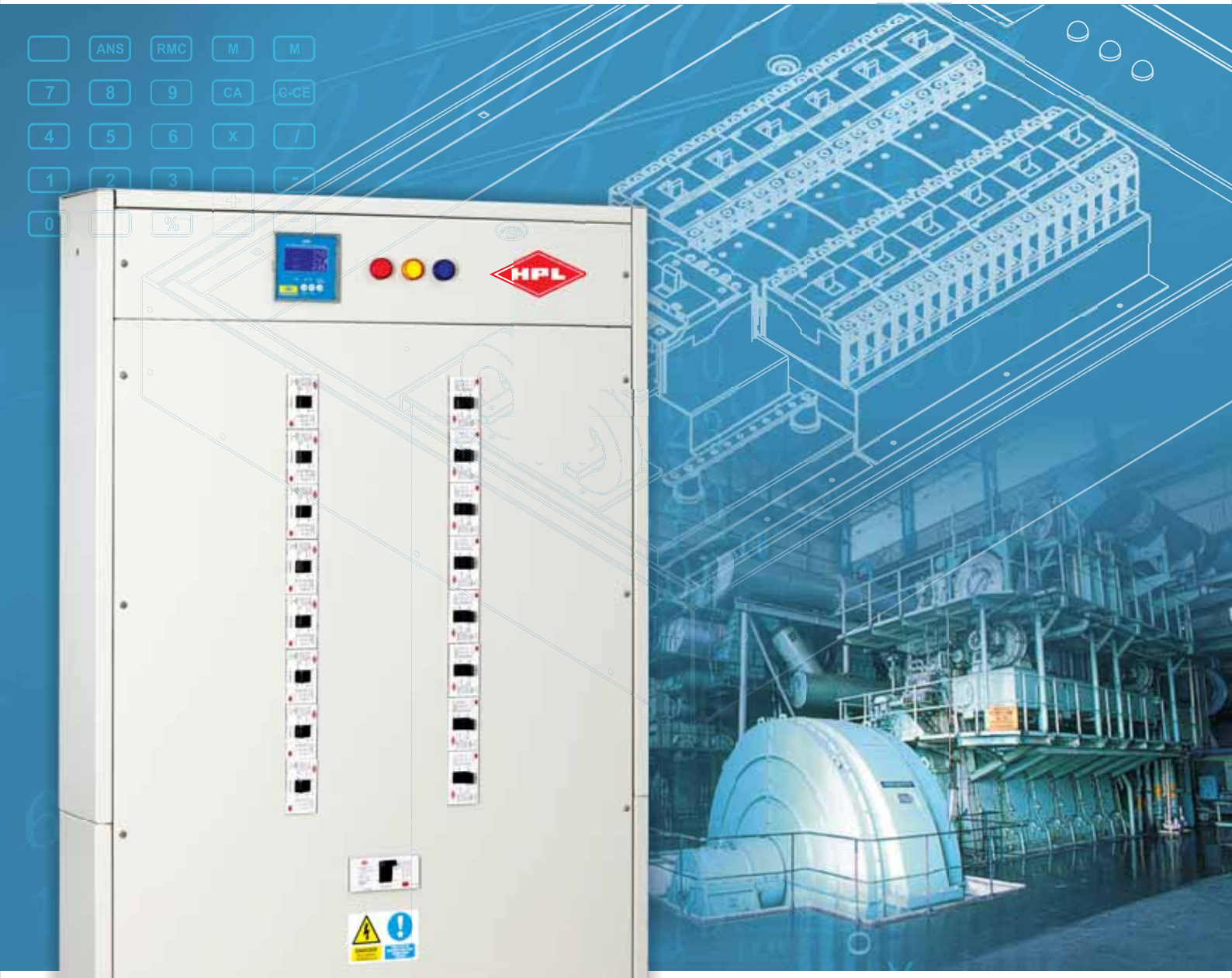
The Power of Technology

MCCB Distribution Panel



- Range : 4, 6, 8, 10 & 12 ways.
- Incoming - 160A / 250A / 400A / 630A.
- Outgoing - 160A / 250A
- No. of poles of MCCB - 3 / 4.
- Fully shrouded bus bar with high short circuit withstand.
- Multifunction Digital Metering - Optional.
- Provision for single Door / Double Door.
- Highly Reliable Tested Solution

Incoming power when distributed into different branch circuits/ sub circuits as required in various Installation- needs accurate monitoring, control & protection. HPL MCCB Distribution Panel while meeting this need- plays a key role in the reliability chain of the power system.

It is a dependable Link between Incoming power supply & various down stream circuits for Final Distribution / further distribution and control.

HPL MCCB Distribution Panel extends :

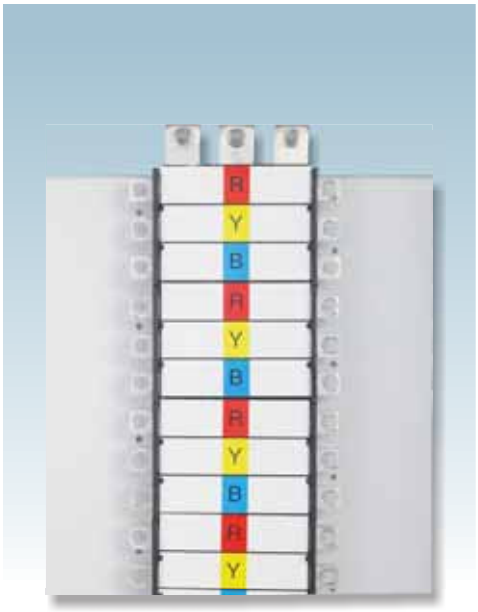
- ✓ Safety – To human life against direct / indirect electric shock.
- ✓ Protection- of electrical devices including components for protection, measurement, indication against impact (mechanical) & other causes which may affects the function.
- ✓ Minimum maintenance.
- ✓ User friendly Modular Construction & Compact Design
- ✓ Highly reliable tested solution to Industrial, Residential & Commercial application

MCCB Distribution panel is an assembly of industrial switchgear components & Bus bar housed in sheet steel enclosure. The components discharge different functions like power switching & Distribution, metering, protection , indication etc.

Flexibility :

HPL MCCB Distribution panels are available in various configuration based on –

- ✓ No. of circuits (Ways)
- ✓ Incoming & outgoing power need (Rating)
- ✓ Type of circuit (3ph 3wire / 3ph 4 wire- 3P/4P)
- ✓ Multifunction Digital Metering option.
- ✓ One can select based on the need.



Enclosure :

In our plant, the sheet metal that goes into the manufacture of MCCB distribution panel undergoes a series of pretreatment process before being sent for painting which helps for perfect locking of the paint & thereby the life.

There are a number of factors which contribute to the design of enclosure. One important criteria is the temperature rise that takes place due to passage of current. The flow and distribution of current into various components is entrusted to the Bus bar system. It forms the back bone of the panel. Bus bar size determines the current carrying capacity within the confines of acceptable limit.

Also the short circuit capacity of the Bus bar system determines the size of bus bar, Insulating supports etc.

Our Shrouded Bus bar (Copper) system used through out the range is tested for very high withstand capability under short circuit & there by making the distribution panel highly reliable while using HPL MCCB range.

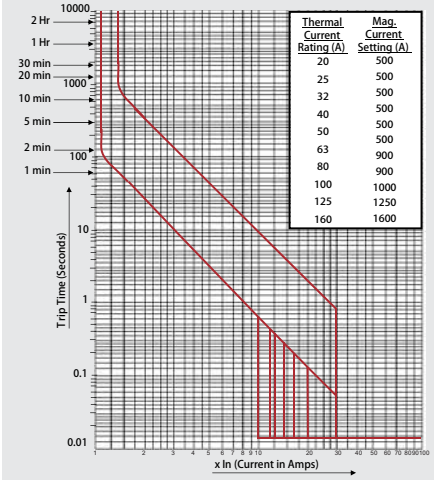
We take utmost care while designing to ensure that heat generated by bus bars does not damage the different switchgear component, CTs & other adjacent equipments. Also the bus bar system is capable enough to withstand the stresses arising out of the fault conditions.

Bus bars must withstand dielectric test also which is standard part of our quality system

PAN assemblies are also available to facilitate the switchboard manufacturers / Panel makers with a better designed, high quality tested solution. It can be installed in the enclosure & a tested solution (for PAN assembly) can be supplied to the actual users.

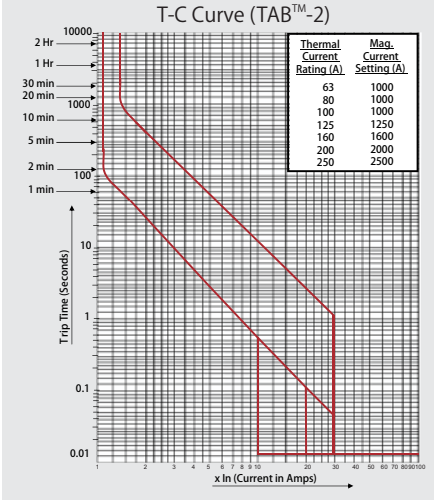
Flexibility in configuration, superior features, high short circuit with stand capability and very high standard of quality checks make it an ideal choice for every installation.

T-C Curve (TAB™-1)



Thermal Current Rating (A)	Mag. Current Setting (A)
20	500
25	500
32	500
40	500
50	500
63	500
80	900
100	900
125	1000
160	1250
	1600

T-C Curve (TAB™-2)



Thermal Current Rating (A)	Mag. Current Setting (A)
63	1000
80	1000
100	1000
125	1250
160	1600
200	2000
250	2500

Power Switching & Protection

HPL MCCBs (TAB & Load Guard Range) are designed and manufactured to handle significant power effectively & reliably for every Application.

Major Features :

- ✓ Available in various frame size from 10A- 800A, 415v, 50Hz.
- ✓ Wide range of Breaking Capacity- from 10kA to 65kA
- ✓ Available with wide range of internal & external accessories.
- ✓ Conforms to IEC 60947-2 / IS 13947-2
- ✓ Positive Isolation
- ✓ Line – load Reversibility
- ✓ Low let through energy
- ✓ High Insulation / Impulse withstand voltage

Routine tests are carried out on each & every MCCB we manufacture. A rigorous quality system is in place to check the process quality & ultimately the final product to ensure efficient working at the time of need (under abnormal system condition)

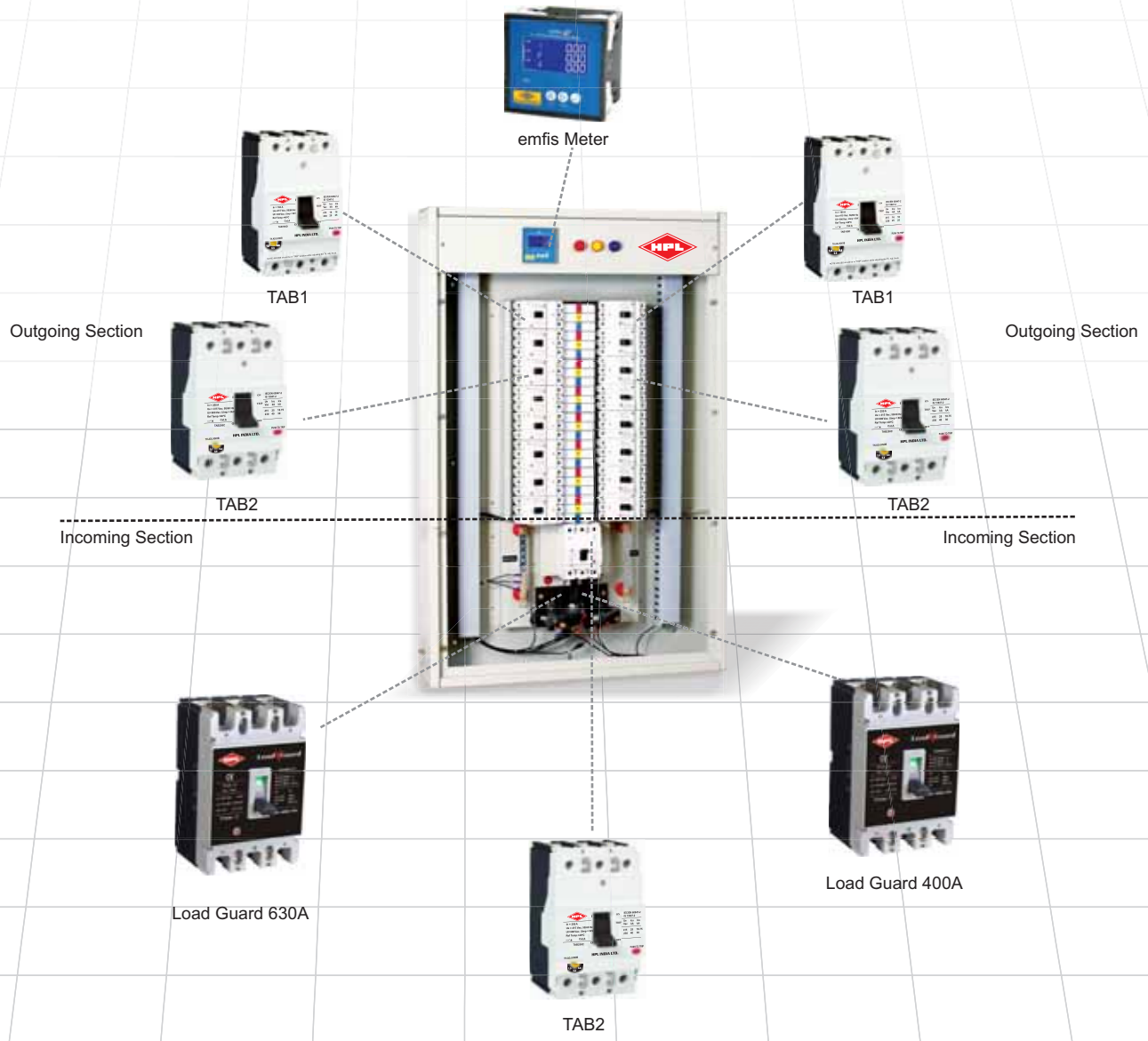
General Features

Construction	:	Steel Sheet (Thickness 1.6 mm)
Type	:	Three Phase, Four Wire
Type of Separation	:	Form 2
Incomer Rating Options	:	160A - TAB1
		250A - TAB2
		400A, 630A - TAB3
		400A, 630A, 800A - LOAD GUARD
Incomer Selection	:	MCCB - 3 Pole / 4 Pole
Outgoing Rating Options	:	16-160A TAB1
		63-250A TAB2
Degree of Protection	:	IP 31 / IP 41
Single Door / Double Door	:	(Single Door) standard/ (Double Door Optional)
No. of Ways	:	4 / 6 / 8 / 10 & 12

Electrical Features

Bus Bar(Copper) Nominal Rating	:	250A Size 25x7x1
	:	400A Size 25x5x2
		630A Size 35x6x2
		800A Size 35x8x2
Bus Bar Short Circuit withstand Capacity (Icw)	:	36kA for 1 sec (250 & 400A)
		50kA for 1 sec (630A)
Rated Operational Voltage (Ue)	:	415V AC
Rated Frequency	:	50 / 60 Hz
Rated Insulation Voltage (Ui)	:	800V AC
Input Withstand Voltage (Uimp)	:	8 kV
Reference Standard: IS	:	8623 (PART 1) - 1993,
		IEC:439-1 (1985)
Indication Lamps	:	ON / OFF / TRIP
Multifunction Digital Metering	:	Optional
Control Circuit Protection	:	By MCB as standard
Cable Entry	:	From bottom (as standard)

Internal Configuration



- ✓ Versatile Solution accommodating different size / rating / configuration of MCCBs to best match application needs - truely user friendly.
- ✓ Out going MCCBs fit directly to stack (Bus bar shrouded system) without any additional parts easy to connect /replace at site.
- ✓ Blanking plates finger protect non connected/ Unused MCCB outgoings.

emfis vifp - Digital Multi-function Panel Mounted Meter

Pan Assembly

Current Transfarmer

Metering Option

Digital Multi- Function Panel Mounted Meters (emfis):

This is an optional feature Today Hpl is recognized globally for various products / Technologies including various types of intelligent metering solution. In Distribution Panel we can provide :

- ✓ emfis-vif Digital Multifunction Meter
- ✓ emfis-vifp Digital Multifunction Meter
- ✓ emfis-vifpe Digital Multifunction Meter
- ✓ emfis-Basic Digital Multifunction Meter

Some of the salient features:

- ? Three line backlit LCD display
- ? Flush mounted compact display
- ? Maximum demand with real date & time (emfis-Basic)
- ? Optically isolated energy pulse output (emfis-vifpe / emfis-Basic)
- ? RS485 port (optional- emfis-vifpe / basic)

Also we can certainly extend solution to your any specific application need

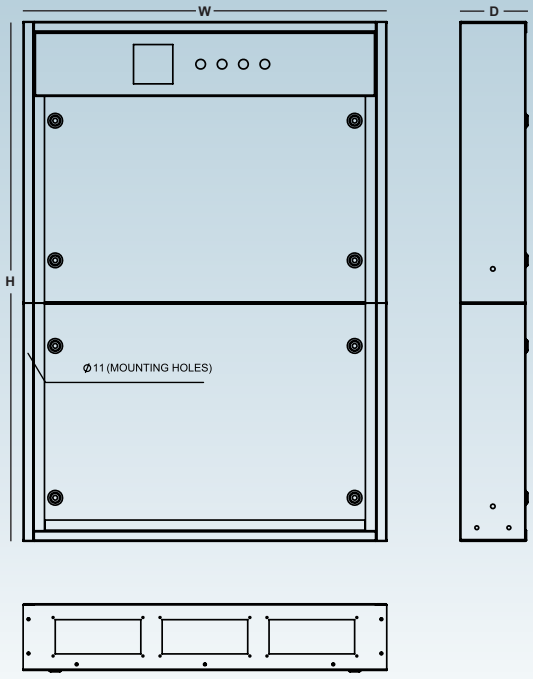
In our plant routine tests are carried out on each & every MCCB Distribution Panel that comes out of manufacturing line The tests primarily consist of

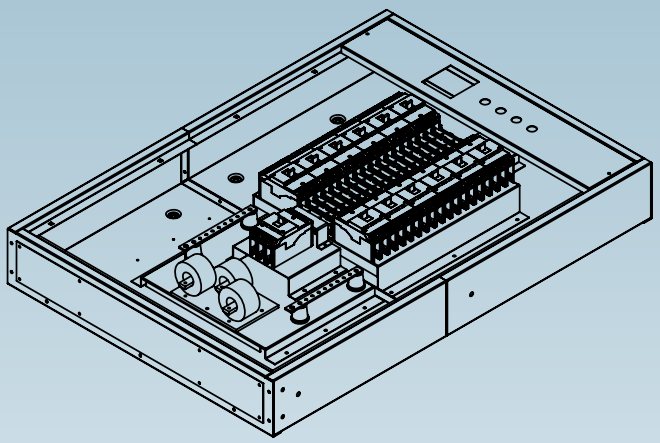
- ✓ Dimensional & Mechanical checks
- ✓ Dielectric Test
- ✓ Functional Test
- ✓ Measurement of Insulation resistance between phases and phase & earth etc.

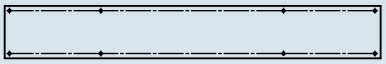
Our bus bar with high short circuit withstand capability is the indication of superior design where as very high rate of winning the customer confidence is the result of quality of manufacturing in line with proven design.

Also, complete Factory Built Assemblies for Specific requirement / project can be discussed to offer our service.

Dimentional Details







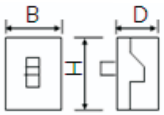
GLAND PLATE FOR PANEL

S. No	Modules	Dimensions with Incoming (I/C) / Outgoing (O/G) Option				
		TAB2,3P- I/C TAB1,3P- O /G	**TAB 2,4P- I/C TAB1,4P- O /G	Load Guard(400A),3P- I /C TAB1,3P- O /G	Load Guard(400A),4P- I /C TAB1,4P- O /G	Load Guard (630A),3P- I /C TAB2,3P- O /G
1	4 Way	850(W) X 154(D) X 988(H)	850(W) X 154(D) X 1067(H)	850(W) X 154(D) X 1188(H)	850(W) X 154(D) X 1267(H)	950(W) X 200(D) X 1612(H)
2	6 Way	850(W) X 154(D) X 988(H)	850(W) X 154(D) X 1067(H)	850(W) X 154(D) X 1188(H)	850(W) X 154(D) X 1267(H)	950(W) X 200(D) X 1612(H)
3	8 Way	850(W) X 154(D) X 1139(H)	850(W) X 154(D) X 1271(H)	850(W) X 154(D) X 1339(H)	850(W) X 154(D) X 1471(H)	950(W) X 200(D) X 1930(H)
4	10 Way	850(W) X 154(D) X 1139(H)	850(W) X 154(D) X 1271(H)	850(W) X 154(D) X 1339(H)	850(W) X 154(D) X 1471(H)	950(W) X 200(D) X 1930(H)
5	12 Way	850(W) X 154(D) X 1215(H)	850(W) X 154(D) X 1373(H)	850(W) X 154(D) X 1415(H)	850(W) X 154(D) X 1573(H)	950(W) X 200(D) X 2089(H)

Notes :-

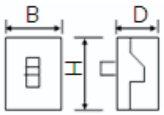
- QQQUnder development
- I / C- Incomer
- O / G - Outgoing
- All Dimn. are in mm

Specifications The TAB™1 Series

No. of poles	3/4+			
Type	L	D	C	N
Rated Current*	20-160A	20-160A	20-160A	20-160A
Rated Operational Voltage	415V			
Rated Insulation Voltage	800V			
Rated Impulse withstand voltage	8kV			
Dielectric strength	3 KV for 1 minute			
Rated Frequency	50/60 Hz			
Reference Ambient Calibration Temperature**	40ºC			
Rated Ultimate S.C. Breaking Capacity (at 415 VAC, 50/60 Hz) Icu in kA	10	16	25	36
Rated Ultimate S.C. Breaking Capacity (at 230 VAC, 50/60 Hz) Icu in kA	16	25	40	50
Rated Ultimate S.C. Breaking Capacity (at 250 VDC) Icu in kA	12	18	30	40
Rated Service S.C. Breaking Capacity (at 415 VAC, 50/60 Hz) Ics in kA	100% Icu	100% Icu	75% Icu	50% Icu
Rated Service S.C. Breaking Capacity (at 230 VAC, 50/60 Hz) Ics in kA	100% Icu	100% Icu	75% Icu	50% Icu
Rated S.C. Making Capacity (at 415 VAC, 50/60 Hz) Icm in kA	17	32	52.5	75.6
Utilization Category	A			
Positive Isolation	Available			
No. of operating cycles	Mechanical-25000; Electrical-7000			
Type of Releases	Thermal - Magnetic			
Release Setting Thermal	80-100% Adjustable			
Release Setting Magnetic	Fixed			
Terminal Capacity (Cables)	50mm² max.			
Terminal Capacity (Link)	120mm² max.			
Terminal Capacity (Busbar width for direct mounting)	16 mm max.			
Size (H x B x D) 	**Dim.** H B D	**3P** 130 75 71	**4P** 130 100 71	**Unit** mm mm mm
Weight	0.9 Kg (3P) & 1.15 Kg (4P)			
Reference Standards	IEC 60947-2/IS 13947 (Part 2)			

Notes :- *Continuous current rating available are 20, 25, 32, 40, 50, 63, 80, 100, 125 & 160 Amps.
**However on demand, MCCBs can be provided with calibration done at higher temperature also.
+ 4P MCCBs are available in TPN as well as true 4 pole version.

Specifications The TAB™2 Series

No. of poles	3/4+			
Type	-	C	N	S
Rated Current*	_	63-250A	63-250A	63-250A
Rated Operational Voltage	415V			
Rated Insulation Voltage	800V			
Rated Impulse withstand voltage	8kV			
Dielectric strength	3 KV for 1 minute			
Rated Frequency	50/60 Hz			
Reference Ambient Calibration Temperature**	40ºC			
Rated Ultimate S.C. Breaking Capacity (at 415 VAC, 50/60 Hz) Icu in kA	-	25	36	50
Rated Ultimate S.C. Breaking Capacity (at 230 VAC, 50/60 Hz) Icu in kA	-	40	50	70
Rated Ultimate S.C. Breaking Capacity (at 250 VDC) Icu in kA	-	30	40	55
Rated Service S.C. Breaking Capacity (at 415 VAC, 50/60 Hz) Ics in kA	-	100% Icu	100% Icu	50% Icu
Rated Service S.C. Breaking Capacity (at 230 VAC, 50/60 Hz) Ics in kA	-	100% Icu	100% Icu	50% Icu
Rated S.C. Making Capacity (at 415 VAC, 50/60 Hz) Icm in kA	-	52.5	75.6	105
Utilization Category	A			
Positive Isolation	Available			
No. of operating cycles	Mechanical-25000; Electrical-7000			
Type of Releases	Thermal-Magnetic			
Release Setting Thermal	80-100% Adjustable			
Release Setting Magnetic	Fixed			
Terminal Capacity (Cables)	95mm² max.			
Terminal Capacity (Link)	185mm² max.			
Terminal Capacity (Busbar width for direct mounting)	22 mm max.			
Size (H x B x D) 	**Dim.** H B D	**3P** 150 105 72	**4P** 150 140 72	**Unit** mm mm mm
Weight	...Kg (3P) & .....Kg (4P)			
Reference Standards	IEC 60947-2/IS 13947 (Part 2)			

Notes :- *Continuous current rating available are 63, 80, 100, 125, 160, 200 & 250 Amps.

**However on demand, MCCBs can be provided with calibration done at higher temperature also.

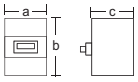
+ 4P MCCBs are available in TPN as well as true 4 pole version.

MCCB - Electrical & Mechanical Features


H1


H2


H3

					HPL-63		HPL-100				HPL-250			
	Model Code				L	D	C	N	S	H	C	N	S	H
Endurance (No. of Operation)	AF	Frame Size			H1		H2				H3			
	Ui	Rated Insulation Voltage (V), 50 Hz			690		690				690			
	Ue	Rated Voltage (V), 50 Hz			415		415				415			
	P	Poles			2/3/4		2/3 2/3/4 3/4 3/4				2/3/4			
	n	Operational Performance Capability	Electrical		1000		1500				1000			
			Mechanical		8500		8500				7000			
	A	Rated Current at 40°C			10, 16,25,32, 40, 50, 63, 80, 100		32, 40, 63, 80,100,125				125, 160, 200, 250			
	Icu	Rated Ultimate Short Circuit Breaking Capacity (kA)	415V		10	15	25	36	50	65	25	36	50	65
			240V		20	30	50	70	100	130	36	70	100	130
	Ics	Rated Service Short Circuit Breaking Capacity (kA)	415V		75% of Icu		75% of Icu	75% of Icu			50% of Icu	75% of Icu		
			240V		75% of Icu		75% of Icu	75% of Icu			75% of Icu			
Overcurrent Releases		Fixed Thermal & Magnetic Trip Unit			available		available				available			
		Adjustable Magnetic Trip Unit			–		–				–			
		Test Trip Button			available		available				available			
	kg	Weight (3 pole)			0.9 / 1.3		1.6				3.5			
Mechanical Characteristics	mm			2P	-		60	-			C	N	S	H
			a	3P	76		-	90			75			
				4P	102		-	120			105			
				2P	-		-	156			140			
			b	3P	136		-	156			165			
				4P	136		-	156			165			
				2P	-		-	87			165			
			c	3P	73		68			87	103			
				4P	82		-	87			87			104
											103			

MCCB - Electrical & Mechanical Features


H4


H5


H6

	HPL-400		HPL-630		HPL-800	
	S	H	S	H	S	H
	H4		H5		H5	
	690		690		690	
	415		415		415	
	3/4		3/4		3/4	
	1000		1000		500	
	4000		4000		2500	
	315, 400		500, 630		800	
	50	65	50	65	50	65
	100	130	100	130	100	130
	75% of Icu		75% of Icu		75% of Icu	
	75% of Icu		75% of Icu		75% of Icu	
	available		available		available	
	–		–		–	
	available		available		available	
	6		9.5		10.5	
2P	-		-		-	
3P	140	150	182	210	210	
4P	200		242		242	
2P	-		-		-	
3P	257		270	280	280	
4P	257		270		270	
2P	-		-		-	
3P	107		111	107	107	
4P	107		112		112	

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