Catalogue number: **TS400/630/800 Range**

Thermal Magnetic and Electronic MCCB: 2,3,4 Pole 160A ~ 800A

Generic photo only (actual product may change depending on configuration)

Thermal Magnetic And Electronic MCCB Range

- Higher short circuit breaking capacity
- Fixed Dimensions
- Available in 2,3 or 4 Pole Range
- Optional Auxiliaries Available
- Shunt/Undervoltage release auxiliaries available.
- Auxiliary/Alarm/Fault Alarm auxiliary Switches available.

TS □□□□ □□

Frame Size	
400	400AF
600	600AF
800	800AF

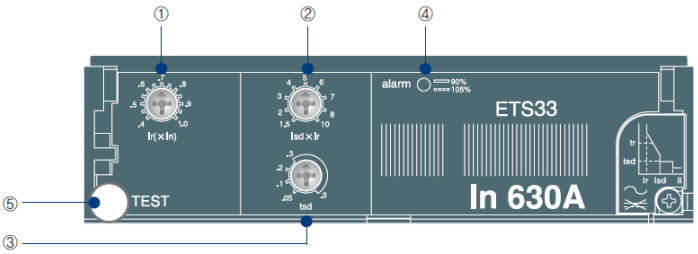
Trip Unit Type
NETS
NETM
HETS
HETM

Rated Current	
400	32A
-	-
800	250A

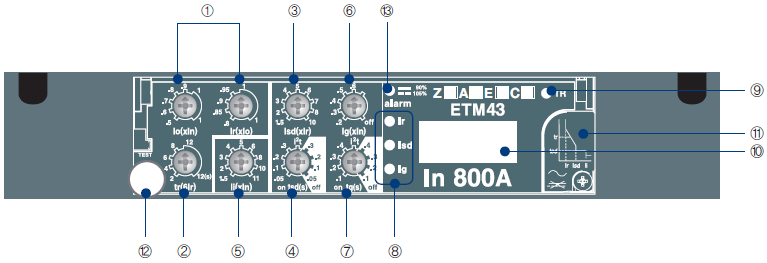
Trip Unit Types

MCCB Trip Unit Type	
NETS	Normal Electronic Trip unit's standard
NETM	Normal Electronic Trip unit's multifunction
HETS	High Electronic Trip unit's standard
HETM	High Electronic Trip units' multifunction

***"High, Normal" signifies the value of the short-circuit breaking capacity (Icu: kA rating)
High- high short circuit breaking capacity.
Normal- normal short circuit breaking capacity.



1 Adjustable rated current setting (Ir)
2 Adjustable short time delay current setting (Isd)
3 Adjustable time delay setting (tsd)
4 Alarm LED 90% Ir: ON,
105% Ir or more: ON-OFF
5 Test connector



1 Adjustable rated current setting (Ir)
2 Adjustable long time setting (tr)
3 Adjustable short time current setting (Isd)
4 Adjustable time delay setting (tsd)
5 Adjustable instantaneous current setting (Ii)
6 Adjustable earth fault current setting (Ig)
7 Adjustable earth fault delay setting (tg)
8 Indication LED
9 TR (trip reason) button
10 Display LCD (Ammeter)
11 Auxiliary power
12 Test connector
13 Alarm LED

Catalogue number: **TS400/630/800 Range**

Thermal Magnetic and Electronic MCCB: 2,3,4 Pole 160A ~ 800A

Specifications				MCCB Type					
				TS400		TS630		TS800	
Frame Size			AF	400		630		800	
Rated Current			A	300,400		500,630		500,630	
No. of poles				2,3,4		2,3,4		2,3,4	
Rated operational voltage, Ue	AC		V	690		690		690	
	DC		V	500		500		500	
Rated impulse withstand voltage, Uimp			kV	8		8		8	
Rated Insulation Voltage. Ui			A	1000		1000		1000	
Rated Ultimate short-circuit breaking capacity, Icu				N	H	N	H	N	H
	AC	220/240V	[kA]	100	120	100	120	100	120
		380/415V	[kA]	65	85	65	85	65	100
		440/460V	[kA]	65	85	65	85	65	100
		480/500V	[kA]	42	65	42	65	42	85
		525V	[kA]	22	35	22	35	22	35
		660/690V	[kA]	10	20	10	20	10	20
	DC	250V	kA]	50	85	50	85	50	85
		500V(2P series)	[kA]	50	85	50	85	50	85
Rated service breaking Capacity Ics	AC	220/240V	[%Icu]	100%	100%	100%	100%	100%	100%
		660/690V	[kA]	10	12	10	12	10	20
	DC		[%Icu]	100%	100%	100%	100%	100%	100%
Rated short-circuit making capacity Icm	AC	220/240V	[kA]	220	264	220	264	220	264
		380/415V	[kA]	143	187	143	187	143	220
		440/460V	[kA]	143	187	143	187	143	220
		480/500V	[kA]	88	143	88	143	88	187
		525V	[kA]	46	74	46	74	46	74
		660/690V	[kA]	17	40	17	40	17	40
Trip Unit (release) Available				ETS, ETM		ETS, ETM		ETS, ETM	
Mechanical life			Operations	20000		20000		10000	
Electrical life @415 VAC	AC		Operations	10000		6000		3000	
Reference standard				IEC60947-2		IEC60947-2		IEC60947-2	

TS400/630/800 ETS, Standard Electronic MCCB Setting Configuration

Figure 1 ETS33 Electronic Trip Unit

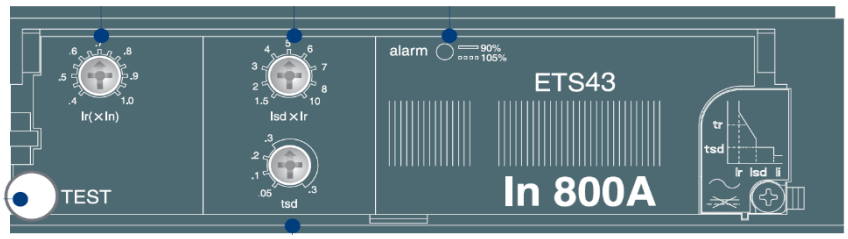
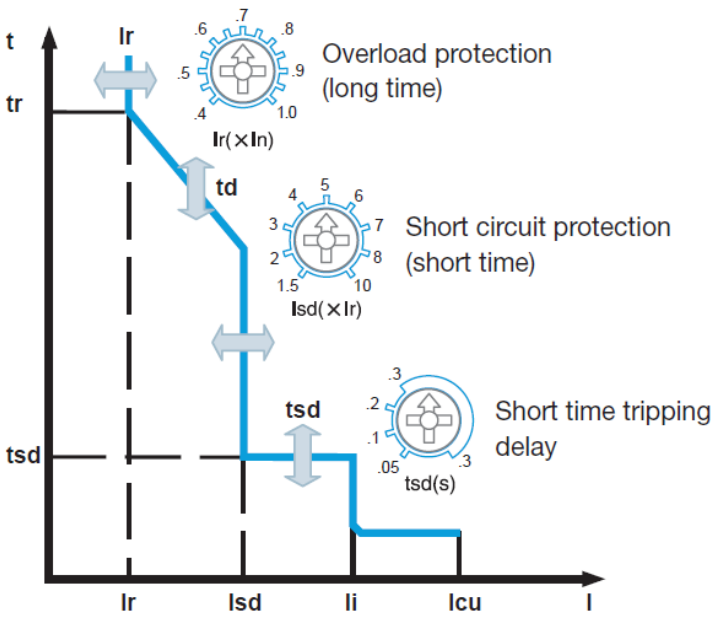


Figure 2ETS43 Electronic Trip Unit



Overload Protection (Long Time), Ir

Circuit Breakers	TS400	TS630	TS800
Trip Unit In(A)	400	630	800
Setting Value	Overload Protection setting current, Ir= Setting Value(0.4-1)xIn		
0.4	160	252	320
0.45	180	284	360
0.5	200	315	400
0.55	220	347	440
0.6	240	378	480
0.65	260	410	520
0.7	280	441	560
0.75	300	473	600
0.8	320	504	640
0.85	340	536	680
0.9	360	567	720
0.95	380	599	760
1	400	630	800

Long Time tripping delay, td (sec)

Trippping Time (s)	Fixed at 6 x Ir Tolerance ±20%

Short Time tripping setting, tsd (ms)

Time delay (tds)	setting time (ms)	50	100	200	300	4 Settings
	operation time (ms)	30<t≤70	70<t≤140	140<t≤240	240<t≤350	

Short circuit protection (Instantaneous), Ii (A)

Trippping Thresold (A), Ii	Fixed at 11 x In

Catalogue number: **TS400/630/800 Range**

Thermal Magnetic and Electronic MCCB: 2,3,4 Pole 160A ~ 800A

Short-circuit Protection (short time), Isd(×Ir)

Circuit Breakers		TS400	TS630	TS800
Trip Unit In(A)		400	630	800
Setting Value		Short Time pick up current Setting, Isd= Setting Value(1.5-1.0)xIr		
0.4	1.5	240	378	480
0.45		270	425	540
0.5		300	473	600
0.55		330	520	660
0.6		360	567	720
0.65		390	614	780
0.7		420	662	840
0.75		450	709	900
0.8		480	756	960
0.85		510	803	1020
0.9		540	851	1080
0.95		570	898	1140
1		600	945	1200
0.4	2	320	504	640
0.45		360	567	720
0.5		400	630	800
0.55		440	693	880
0.6		480	756	960
0.65		520	819	1040
0.7		560	882	1120
0.75		600	945	1200
0.8		640	1008	1280
0.85		680	1071	1360
0.9		720	1134	1440
0.95		760	1197	1520
1		800	1260	1600
0.4	3	480	756	960
0.45		540	851	1080
0.5		600	945	1200
0.55		660	1040	1320
0.6		720	1134	1440
0.65		780	1229	1560
0.7		840	1323	1680
0.75		900	1418	1800
0.8		960	1512	1920
0.85		1020	1607	2040
0.9		1080	1701	2160
0.95		1140	1796	2280
1		1200	1890	2400

Circuit Breakers		TS400	TS630	TS800
Trip Unit In(A)		400	630	800
Setting Value		Short Time pick up current Setting, Isd= Setting Value(1.5-1.0)xIr		
0.4	4	640	1008	1280
0.45		720	1134	1440
0.5		800	1260	1600
0.55		880	1386	1760
0.6		960	1512	1920
0.65		1040	1638	2080
0.7		1120	1764	2240
0.75		1200	1890	2400
0.8		1280	2016	2560
0.85		1360	2142	2720
0.9		1440	2268	2880
0.95		1520	2394	3040
1		1600	2520	3200
0.4	5	800	1260	1600
0.45		900	1418	1800
0.5		1000	1575	2000
0.55		1100	1733	2200
0.6		1200	1890	2400
0.65		1300	2048	2600
0.7		1400	2205	2800
0.75		1500	2363	3000
0.8		1600	2520	3200
0.85		1700	2678	3400
0.9		1800	2835	3600
0.95		1900	2993	3800
1		2000	3150	4000
0.4	6	960	1512	1920
0.45		1080	1701	2160
0.5		1200	1890	2400
0.55		1320	2079	2640
0.6		1440	2268	2880
0.65		1560	2457	3120
0.7		1680	2646	3360
0.75		1800	2835	3600
0.8		1920	3024	3840
0.85		2040	3213	4080
0.9		2160	3402	4320
0.95		2280	3591	4560
1		2400	3780	4800

Catalogue number: **TS400/630/800 Range**

Thermal Magnetic and Electronic MCCB: 2,3,4 Pole 160A ~ 800A

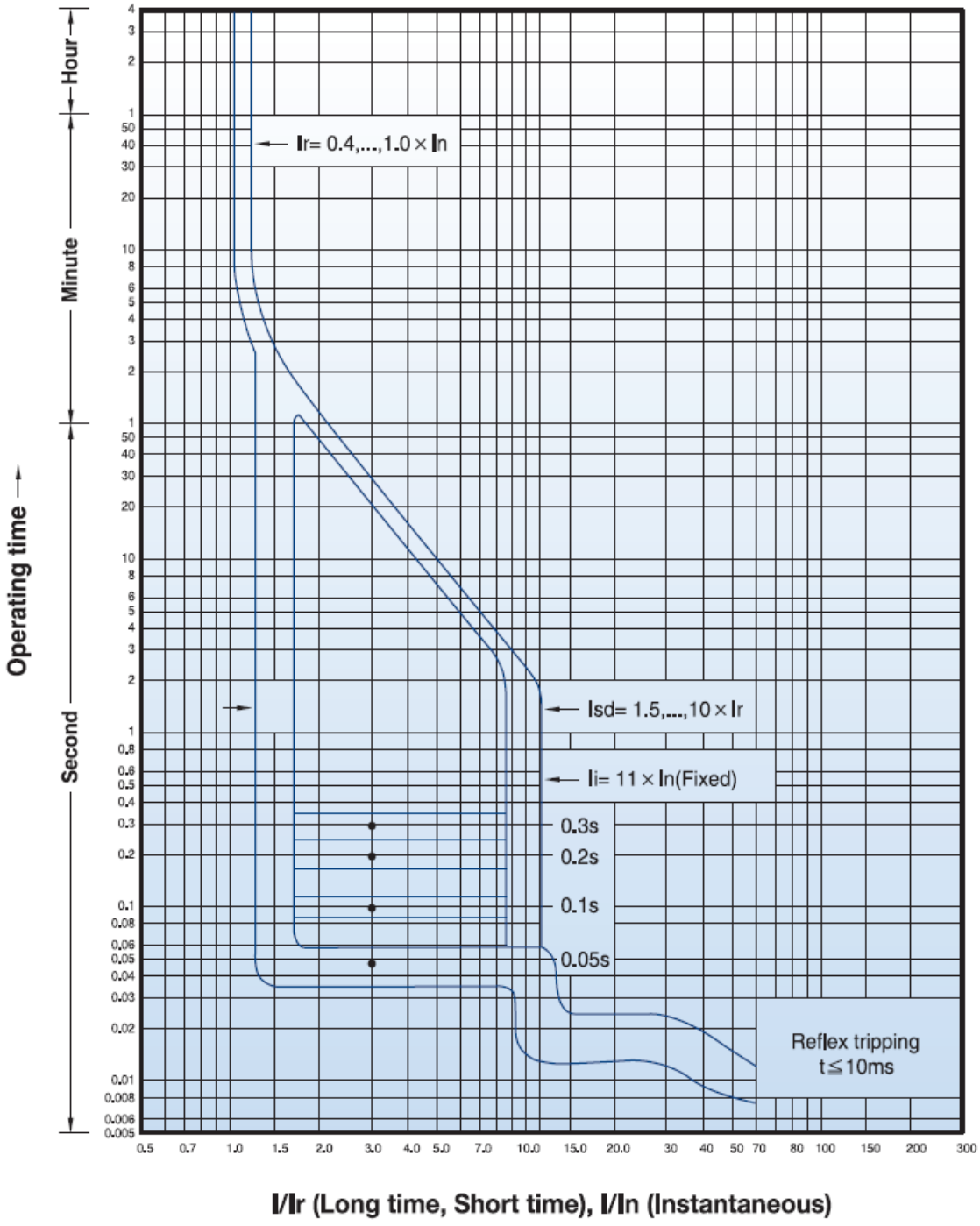
Circuit Breakers		TS400	TS630	TS800
Trip Unit In(A)		400	630	800
Setting Value		Short Time pick up current Setting, Isd= Setting Value(1.5-1.0)xIr		
0.4	7	1120	1764	2240
0.45		1260	1985	2520
0.5		1400	2205	2800
0.55		1540	2426	3080
0.6		1680	2646	3360
0.65		1820	2867	3640
0.7		1960	3087	3920
0.75		2100	3308	4200
0.8		2240	3528	4480
0.85		2380	3749	4760
0.9		2520	3969	5040
0.95		2660	4190	5320
1		2800	4410	5600
0.4	8	1280	2016	2560
0.45		1440	2268	2880
0.5		1600	2520	3200
0.55		1760	2772	3520
0.6		1920	3024	3840
0.65		2080	3276	4160
0.7		2240	3528	4480
0.75		2400	3780	4800
0.8		2560	4032	5120
0.85		2720	4284	5440
0.9		2880	4536	5760
0.95		3040	4788	6080
1		3200	5040	6400
0.4	10	1600	2520	3200
0.45		1800	2835	3600
0.5		2000	3150	4000
0.55		2200	3465	4400
0.6		2400	3780	4800
0.65		2600	4095	5200
0.7		2800	4410	5600
0.75		3000	4725	6000
0.8		3200	5040	6400
0.85		3400	5355	6800
0.9		3600	5670	7200
0.95		3800	5985	7600
1		4000	6300	8000

Catalogue number: **TS400/630/800 Range**

Thermal Magnetic and Electronic MCCB: 2,3,4 Pole 160A ~ 800A

TS400/630/800 ETS Characteristic Curve

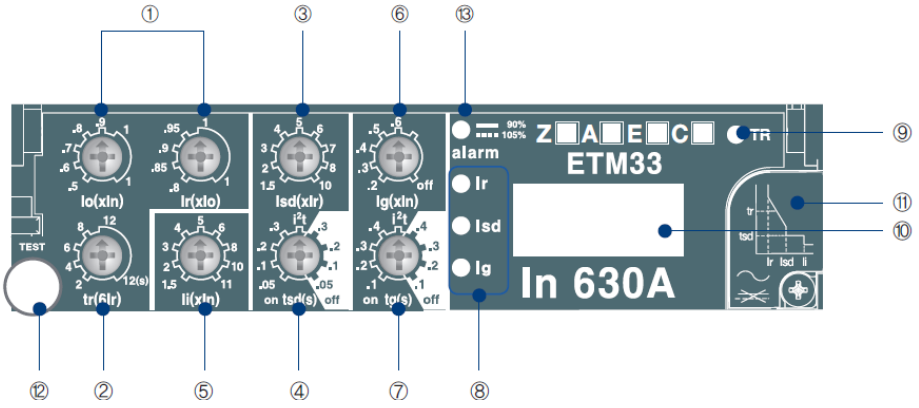
TS400NETS400
TS400NETS400/4
TS630NETS630
TS630NETS630/4
TS400HETS400
TS400HETS400/4
TS630HETS630
TS630HETS630/4
TS800NETS800
TS800NETS800/4
TS800HETS800
TS800HETS800/4

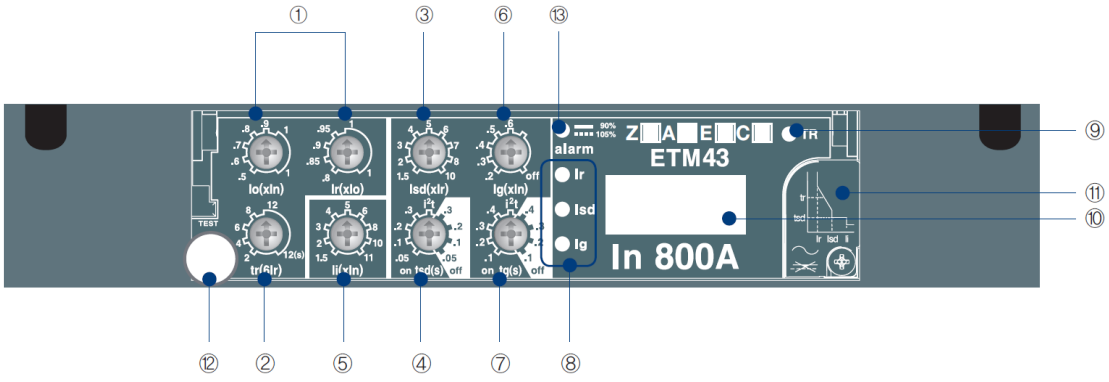


Catalogue number: **TS400/630/800 Range**

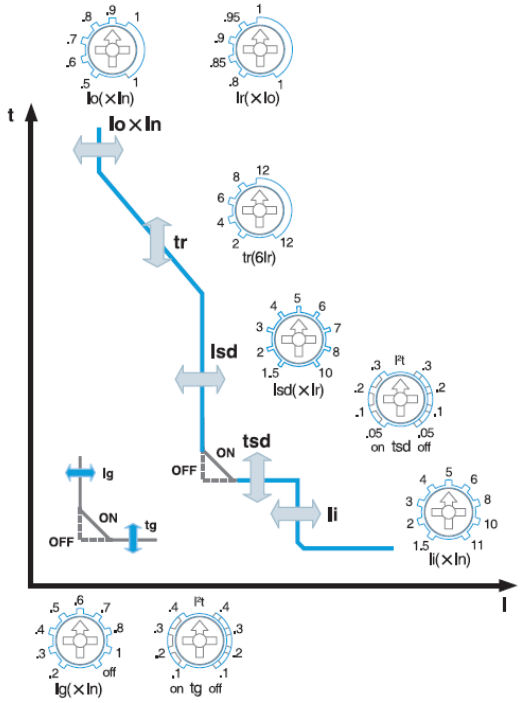
Thermal Magnetic and Electronic MCCB: 2,3,4 Pole 160A ~ 800A

TS400/630/800 ETM, Multifuction Electronic MCCB Setting Configuration





1 Adjustable rated current setting (Ir)
2 Adjustable long time setting (tr)
3 Adjustable short time current setting (Isd)
4 Adjustable time delay setting (tsd)
5 Adjustable instantaneous current setting (Ii)
6 Adjustable earth fault current setting (Ig)
7 Adjustable earth fault delay setting (tg)
8 Indication LED
9 TR (trip reason) button
10 Display LCD (Ammeter)
11 Battery
12 Test connector
13 Alarm LED 90% Ir : ON,
105% Ir or more: ON-OFF



Long time protection against overloads
Io = Coarse adjustment (function of In)
Ir = Fine adjustment
tr = Long time delay

Short circuit protection
Isd = Short circuit threshold,
tsd = Short circuit time delay
I2t curve in position ON or OFF

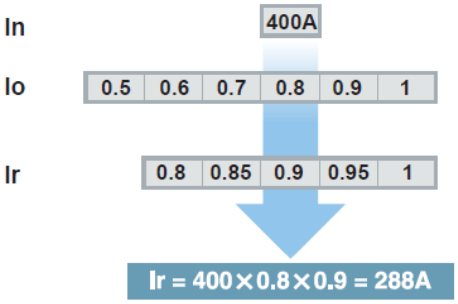
Instantaneous protection
Ii = Instantaneous threshold

Earth fault protection
Ig = Insulation fault threshold
tg = Earth fault time delay
I2t curve in position ON or OFF

Overload Protection (Long Time), Ir

Trip Unit Type		TS400	TS630	TS800
Trip Unit In(A)		400	630	800
Setting Value Coarse, Io	Setting value Fine, Ir	Short Time pick up current Setting, Isd= Setting Value(1.5-1.0)xIr		
0.5	0.8	160	252	320
	0.85	170	267.75	340
	9	1800	2835	3600
	0.95	190	299.25	380
	1	200	315	400
0.6	0.8	192	302.4	384
	0.85	204	321.3	408
	9	2160	3402	4320
	0.95	228	359.1	456
	1	240	378	480
0.7	0.8	224	352.8	448
	0.85	238	374.85	476
	9	2520	3969	5040
	0.95	266	418.95	532
	1	280	441	560
0.8	0.8	256	403.2	512
	0.85	272	428.4	544
	9	2880	4536	5760
	0.95	304	478.8	608
	1	320	504	640
0.9	0.8	288	453.6	576
	0.85	306	481.95	612
	9	3240	5103	6480
	0.95	342	538.65	684
	1	360	567	720
1	0.8	320	504	640
	0.85	340	535.5	680
	9	3600	5670	7200
	0.95	380	598.5	760
	1	400	630	800

Setting example :



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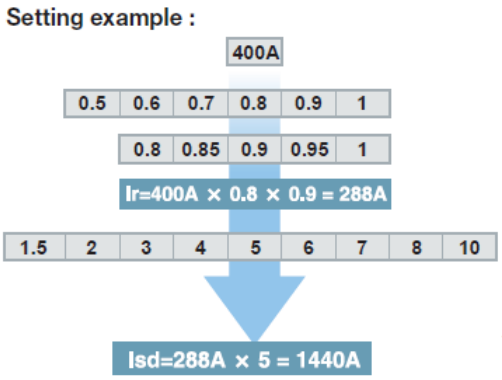
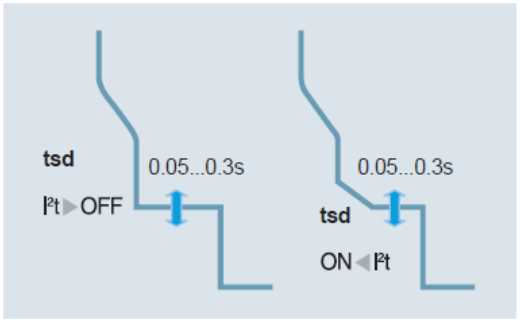
Thermal Magnetic and Electronic MCCB: 2,3,4 Pole 160A ~ 800A

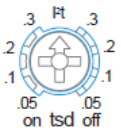
Short Circuit Protection, Isd (A)



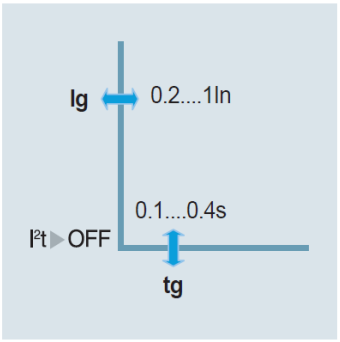
The breaker trips when the current exceeds 2880 A.

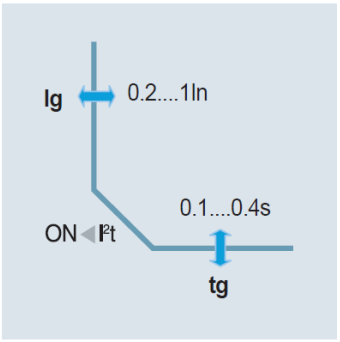
Short circuit time delay, tsd

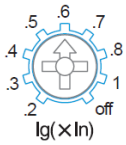


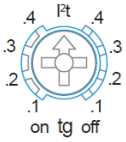


Earth fault protection(E), optional









Ig = insulation fault threshold
tg = earth fault time delay

Optional units

The following optional units can be added to the ETM Electronic MCCB,

- **A-Ammeter (A)**; measure of current with an accuracy of ±10%.
- **Z-Zone selective interlocking (ZSI)**; reduce stress on components during short-circuit or earth fault conditions, reduces tripping time and reduced damages caused by faults of interference to the power supply. ***DC24V power supply required.***
- **C-Communication;** RS485 (Modbus-RTU) interface, connection available to all kinds of PLC and computers. Transmitted data; protection setting values, highest current of the three phases, “R, S, T and N” phase currents and fault reading (Overload, short-circuit, etc.).

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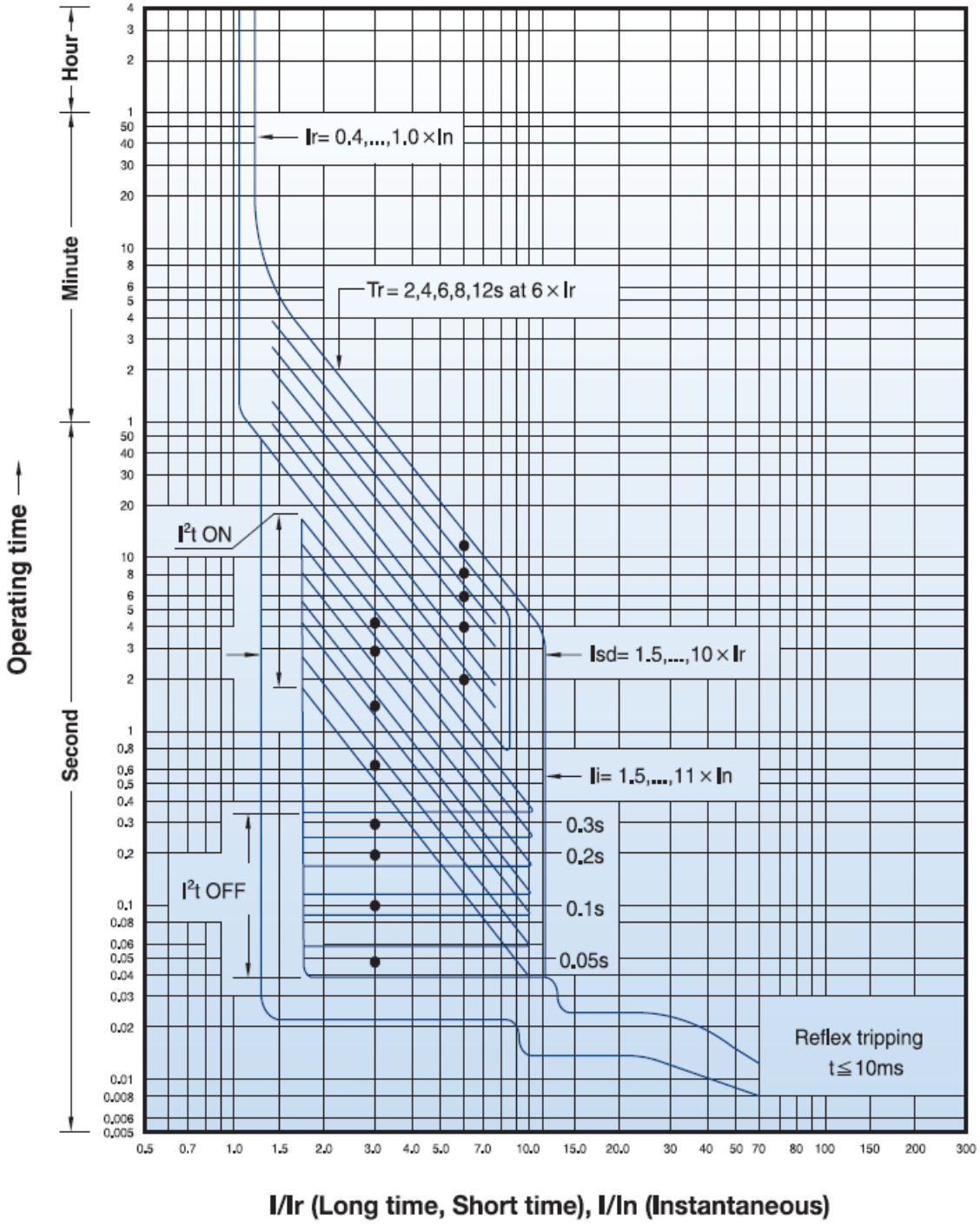
Thermal Magnetic and Electronic MCCB: 2,3,4 Pole 160A ~ 800A

TS400/630/800 ETM Characteristic Curve

TS400NETM400
TS400NETM400/4
TS630NETM630
TS630NETM630/4
TS800NETM800
TS800NETM800/4
TS800HETM800
TS800HETM800/4

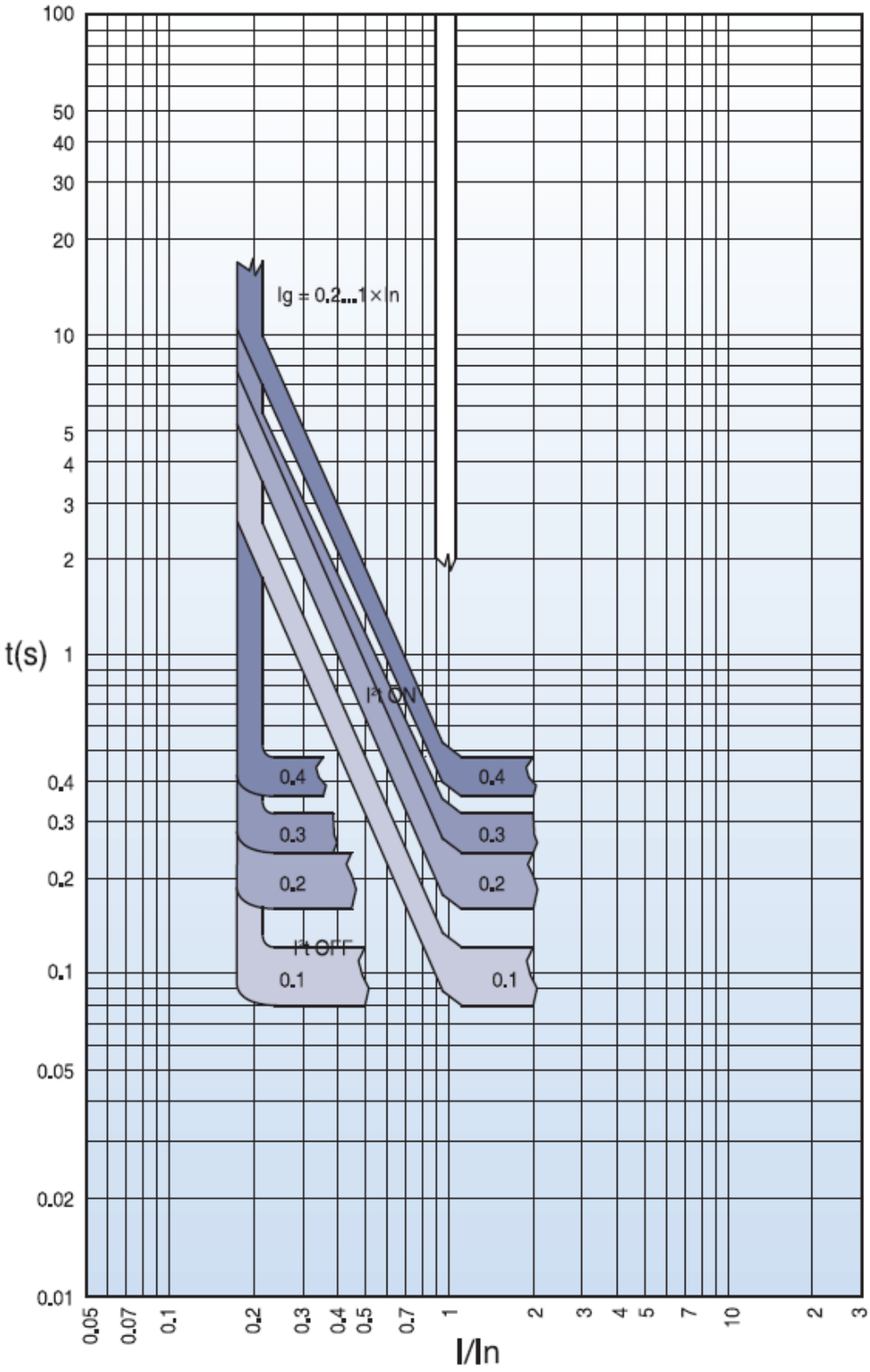


Catalogue number: **TS400/630/800 Range**

Thermal Magnetic and Electronic MCCB: 2,3,4 Pole 160A ~ 800A

TS400/630/800 ETM Ground Fault (G) Curve

TS400NETM400
TS400NETM400/4
TS630NETM630
TS630NETM630/4
TS800NETM800
TS800NETM800/4
TS800HETM800
TS800HETM800/4

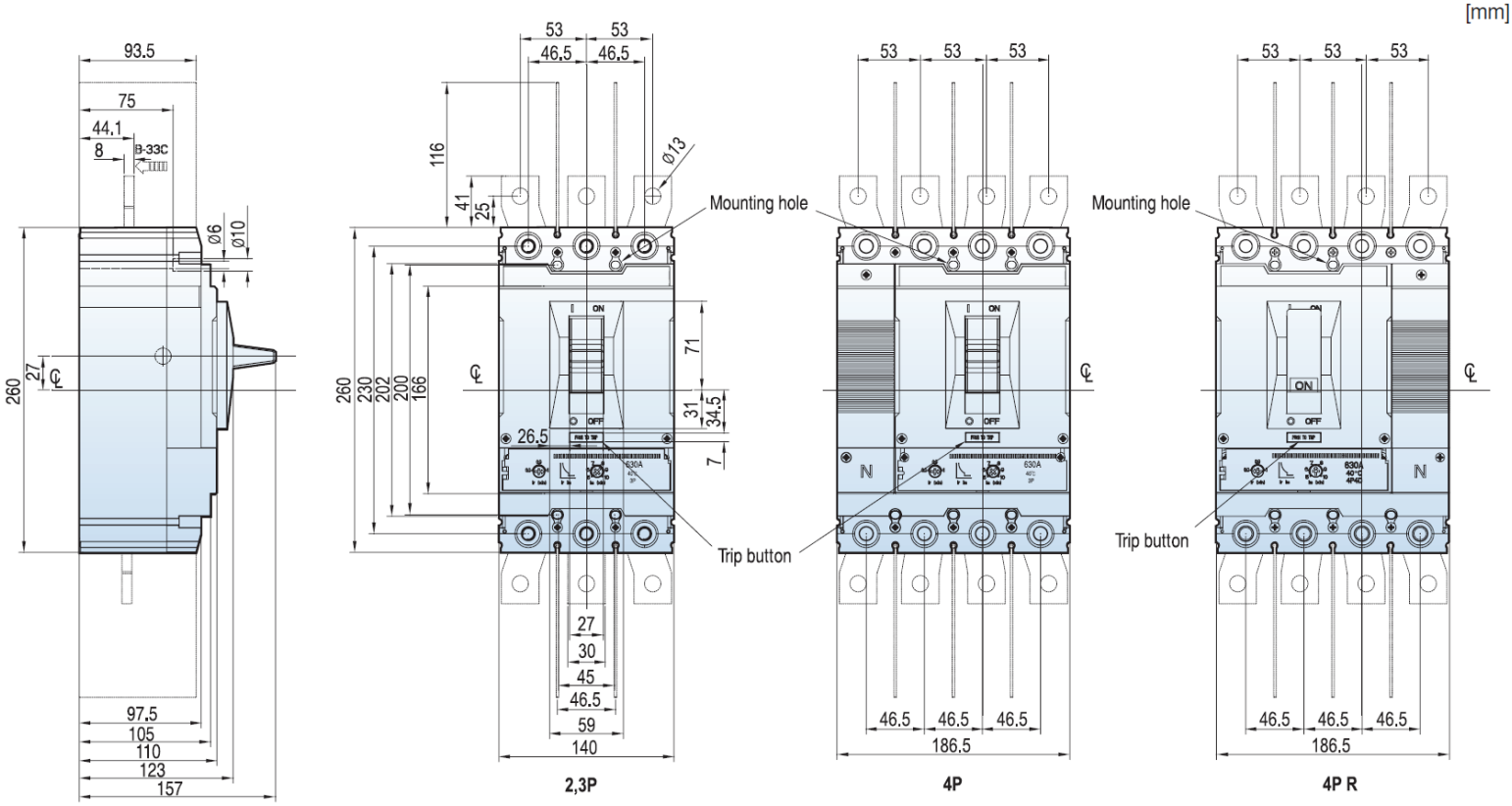


Catalogue number: **TS400/630/800 Range**

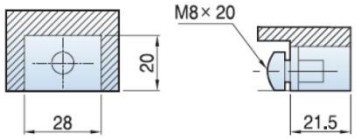
Thermal Magnetic and Electronic MCCB: 2,3,4 Pole 160A ~ 800A

TS400/630 Overall Dimensions

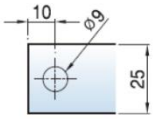
[mm]



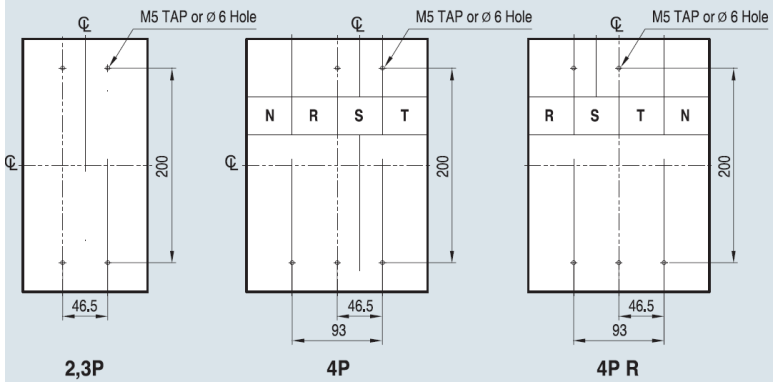
Terminal section



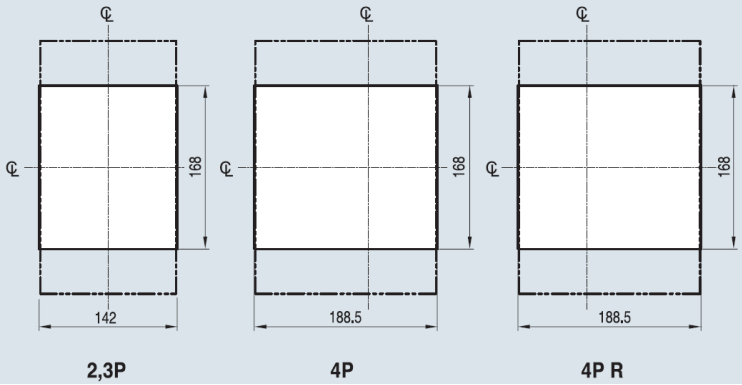
Conductor



Panel drilling



Front panel cutting

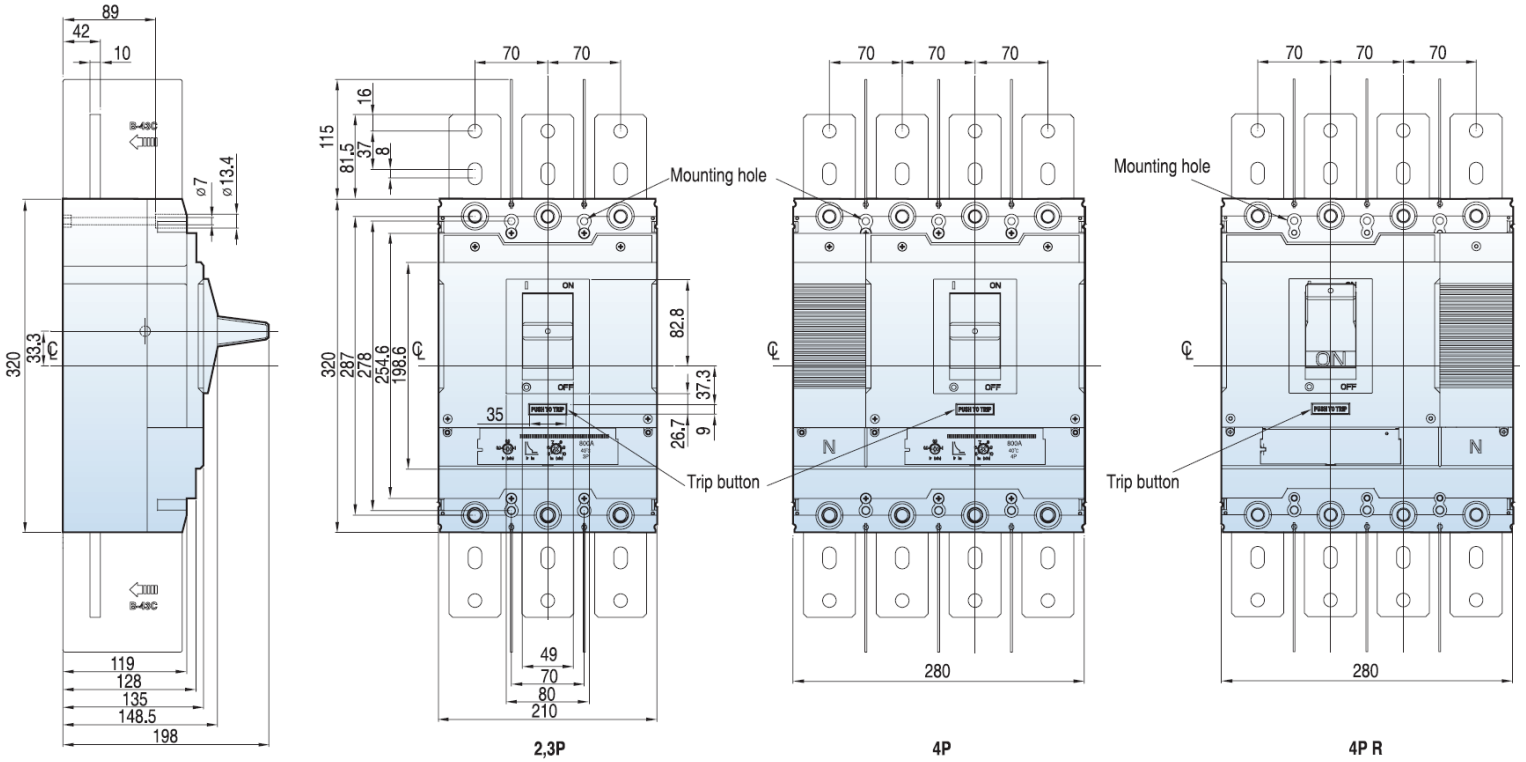


Catalogue number: **TS400/630/800 Range**

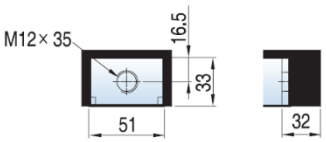
Thermal Magnetic and Electronic MCCB: 2,3,4 Pole 160A ~ 800A

TS800 Overall Dimensions

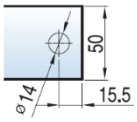
[mm]



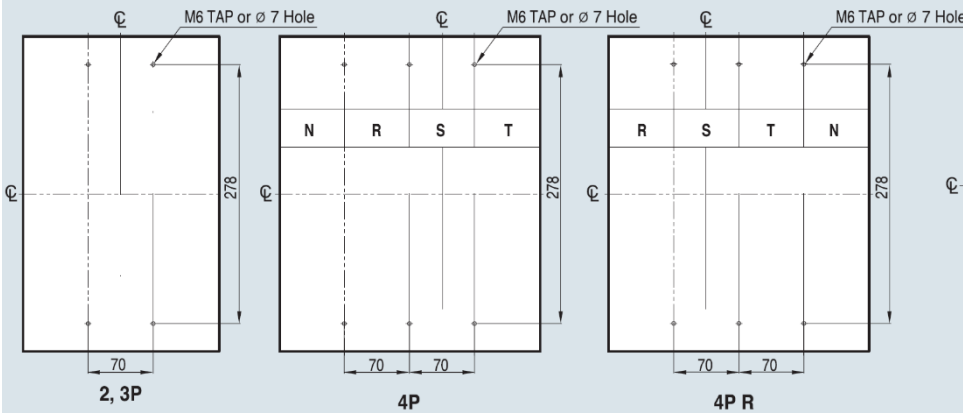
Terminal section



Conductor



Panel drilling



Front panel cutting