

DC MCCB DC SWITCH





Frame size			[AF]
Conventional thermal current, I _{th}			[A]
No. of poles			
Rated operational voltage,	AC	[V]	
U _e	DC	[V]	
Rated operational current, I _e			
Rated impulse withstand voltage, U _{imp}			[kV]
Rated insulation voltage, U _i			[V]
Rated short-circuit making capacity, I _{cm}			[kA peak]
Rated short-time withstand current, I _{cw}	1s	[A rms]	
	3s	[A rms]	
	20s	[A rms]	
Isolation behavior			
Trip unit (release)			
	● disconnector unit		DSU
Connection	fixed	front-connection	
		rear-connection	
	plug-in	front-connection	
		rear-connection	
Mechanical life			[operations]
Electrical life @415 V AC			[operations]
Basic dimensions, W×H×D (front connection)	3-pole	[mm]	
	4-pole	[mm]	
Weight (front connection)	3-pole	[kg]	
	4-pole	[kg]	
Reference standard			

TD series		
		
TD160NA	TS100NA	TS160NA
160	100	160
160	100	160
2, 3, 4	2, 3, 4	2, 3, 4
690	690	690
500	500	500
160	100	160
8	8	8
750	750	750
3.1	2.8	3.6
2200	2000	2500
2200	2000	2500
960	690	960
●	●	●
●	●	●
●	●	●
●	●	●
●	●	●
25000	25000	25000
10000	10000	10000
90×140×86	105×160×86	105×160×86
120×140×86	140×160×86	140×160×86
1.5	2	2
1.8	2.6	2.6
IEC60947-3	IEC60947-3	IEC60947-3

The switch-disconnectors are different from the circuit-breakers in the absence of the conventional protection unit. They keep the overall dimensions, connection systems and accessories unchanged from the corresponding circuit-breakers. Installation standards require upstream protection. However, thanks to their high-set magnetic release, TD160 ... TS800 DSU are self protected.



TS series



TS250NA	TS400NA	TS630NA	TS800NA
250	400	630	800
250	400	630	800
2, 3, 4	2, 3, 4	2, 3, 4	2, 3, 4
690	690	690	690
500	500	500	500
250	400	630	800
8	8	8	8
750	750	750	750
4.9	7.1	8.5	12
3500	5000	6300	8000
3500	5000	6300	8000
1350	1930	2320	2560
●	●	●	●
●	●	●	●
●	●	●	●
●	●	●	●
●	●	●	●
●	●	●	●
25000	20000	20000	10000
10000	6000	6000	3000
105×160×86	140×260×110	140×260×110	210×320×135
140×160×86	186.5×260×110	186.5×260×110	280×320×135
2	5.4	5.4	15.1
2.6	7.2	7.2	19.6
IEC60947-3	IEC60947-3	IEC60947-3	IEC60947-3

Trip unit identification





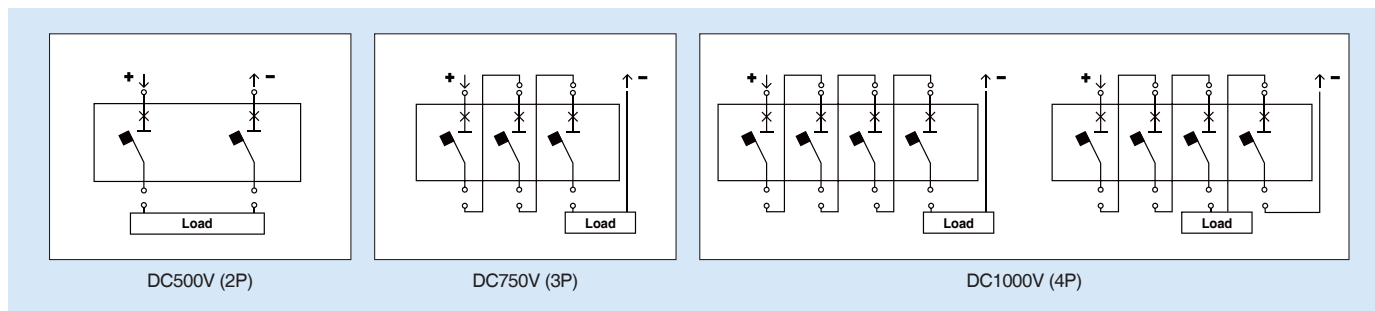
MCCB for DC Application

- MCCB is suitable for DC application such as Photovoltaic Circuit Breaker, UPS and datacenter
- DC short circuit test tested by VDE
- Higher nominal voltage range up to 1000 VDC
- Rated Current : 16A~800A
- No of Pole : 2/3/4Pole
- Available for AC/DC application

Frame size (AF)	
Rated current, I _n (A)	
No. of Poles (Pole)	
Rating (DC)	1000V
	750V
	500V
Rated service breaking KA (DC)	Type
	1000V (4P)
	750V (3P)
	500V (2P)
Trip unit	
	FTU ((fixed-thermal, fixed-magnetic)
	FMU (adjustable-thermal, fixed-magnetic)
	ATU (adjustable-thermal, adjustable-magnetic)

TD100			TD160			TS100		
100			160			100		
16, 20, 25, 32, 40, 50, 63, 80, 100			100, 125, 160			40, 50, 63, 80, 100		
2, 3, 4			2, 3, 4			2, 3, 4		
4P			4P			4P		
3P			3P			3P		
2P			2P			2P		
N	H	L	N	H	L	N	H	L
42	65	100	42	65	100	50	85	100
42	65	100	42	65	100	50	85	100
42	65	100	42	65	100	50	85	100
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●
-	-	-	-	-	-	-	-	-

Exemplary circuit diagrams





TS160			TS250			TS400			TS630			TS800		
160			250			400			630			800		
100, 125, 160			125, 160, 200, 250			300, 400			500, 630			700, 800		
2, 3, 4			2, 3, 4			2, 3, 4			2, 3, 4			2, 3, 4		
4P			4P			4P			4P			4P		
3P			3P			3P			3P			3P		
2P			2P			2P			2P			2P		
N	H	L	N	H	L	N	H	L	N	H	L	N	H	L
50	85	100	50	85	100	50	85	100	50	85	100	50	85	100
50	85	100	50	85	100	50	85	100	50	85	100	50	85	100
50	85	100	50	85	100	50	85	100	50	85	100	50	85	100
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●



Characteristics curves

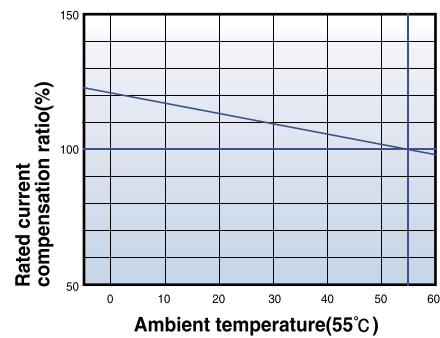
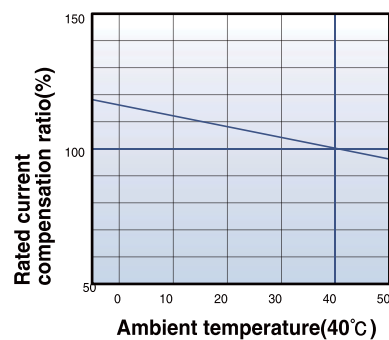
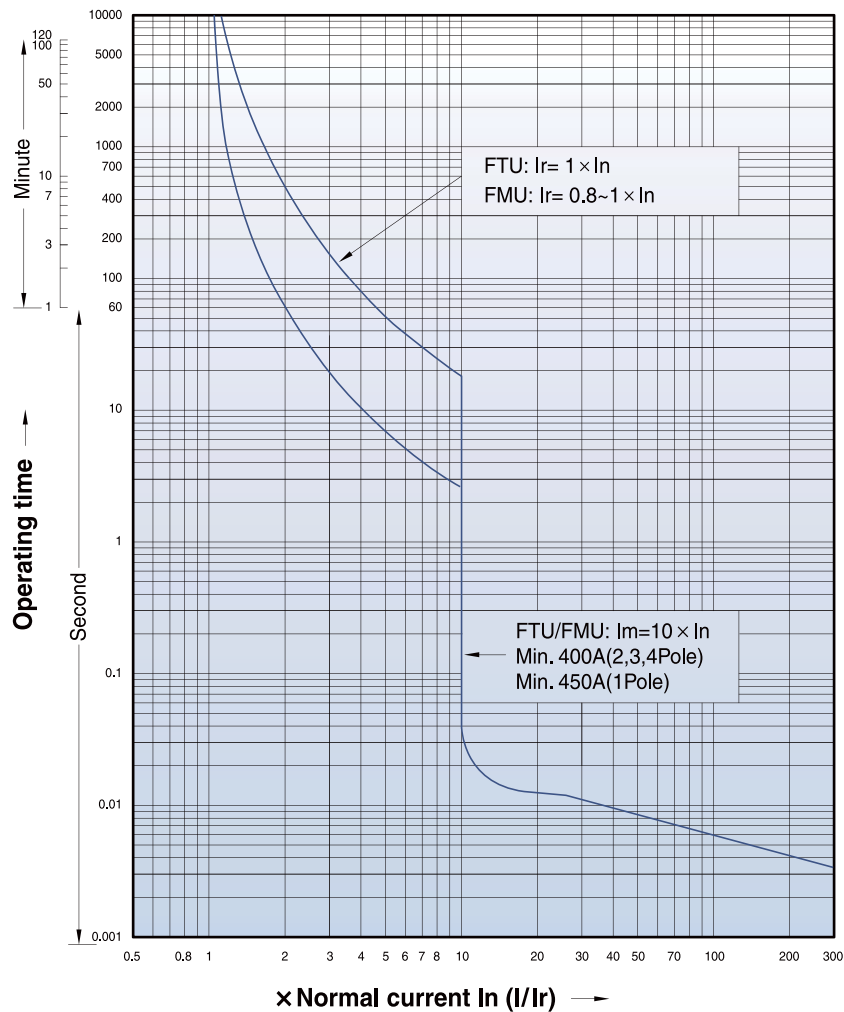
Circuit breakers with thermal-magnetic trip units

TD160

FTU

FMU

100~160A





Characteristics curves

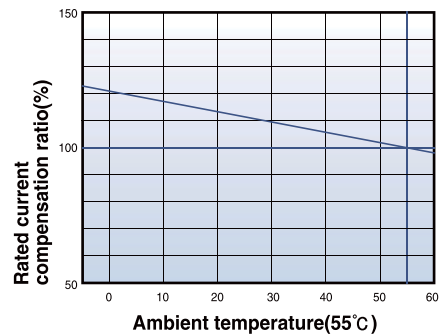
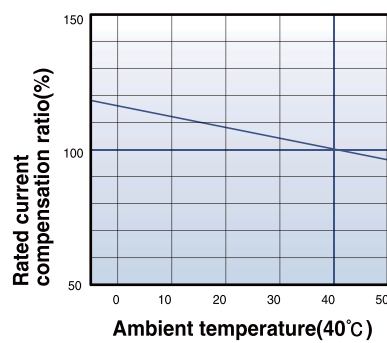
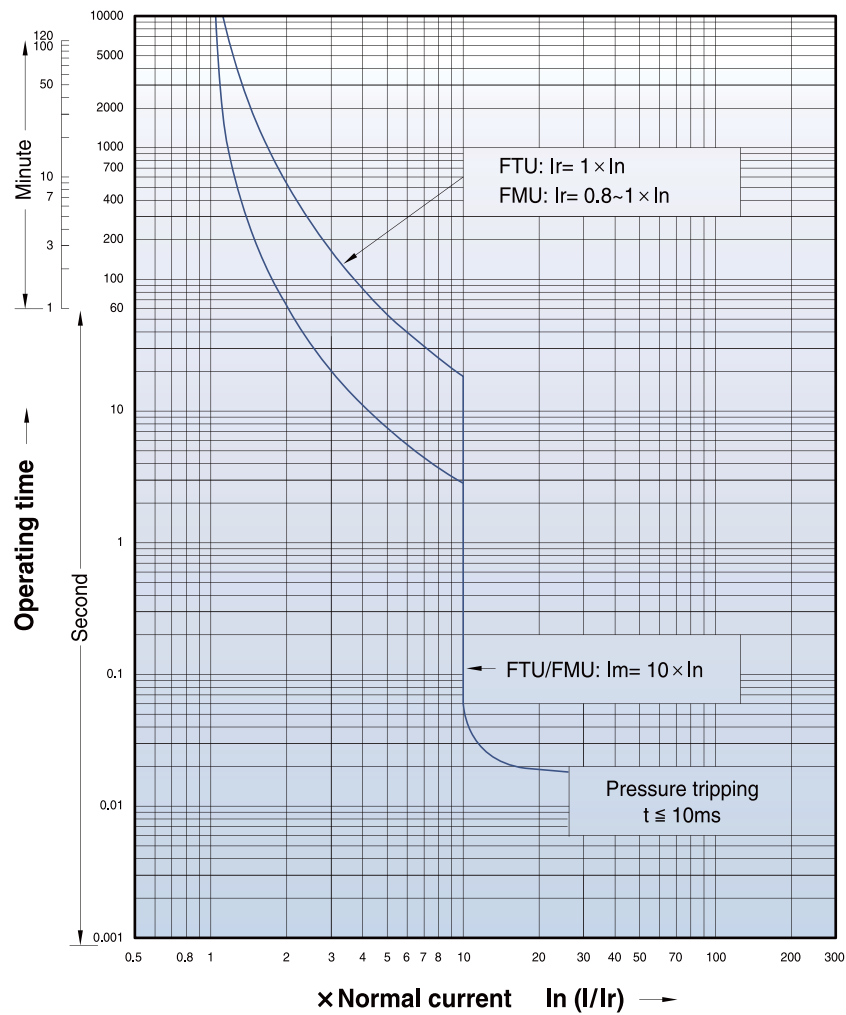
Circuit breakers with thermal-magnetic trip units

TS100

FTU

FMU

40~100A





Characteristics curves

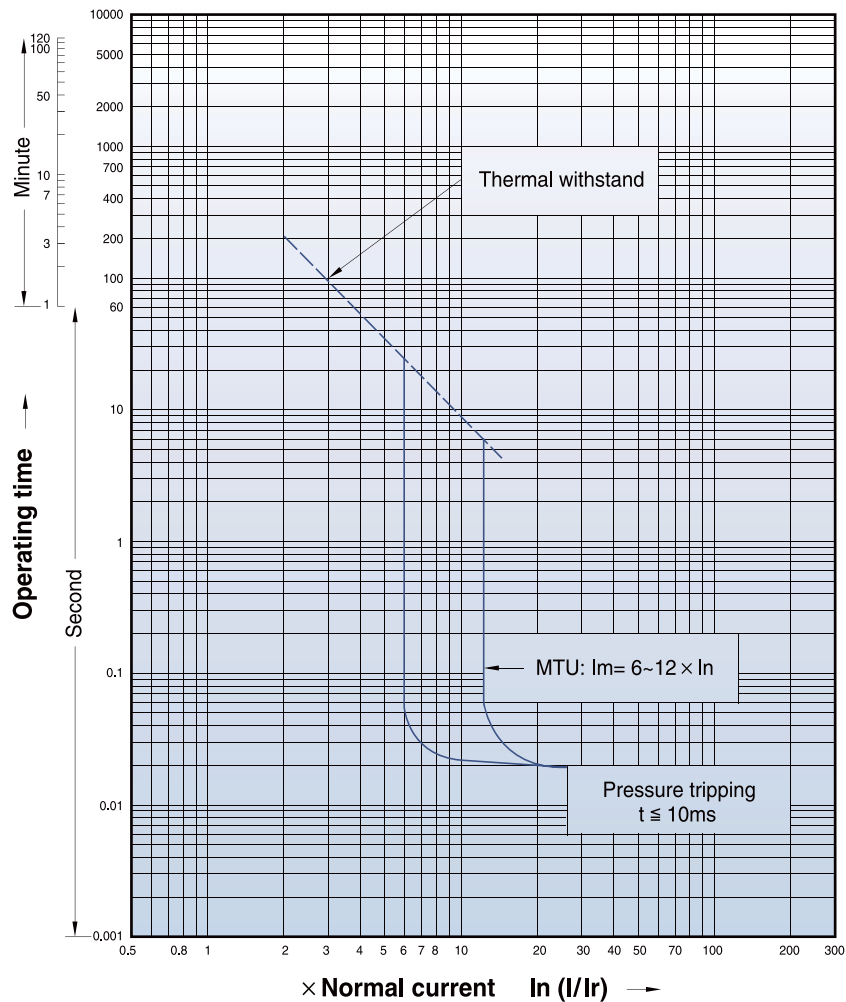
Circuit breakers with thermal-magnetic trip units

TS100

Magnetic only
MTU
1.6~100A

TS160

Magnetic only
MTU
32~160A



Magnetic trip units(MTU)

Rating(A)		In												
		TS100 to TS800												
N / H / L	TS100	●	●	●	●	●	●	●	●	●	-	-	-	-
	TS160	-	-	-	-	-	●	●	●	●	-	-	-	-
	TS250	-	-	-	-	-	-	-	-	●	●	●	-	-
	TS400	-	-	-	-	-	-	-	-	-	-	●	-	-
	TS630	-	-	-	-	-	-	-	-	-	-	-	●	-
	TS800	-	-	-	-	-	-	-	-	-	-	-	-	●

Short - circuit protection(magnetic)

Pick - up	I_m	Setting
		$6 \sim 12 \times I_n$ (6 Point)



Characteristics curves

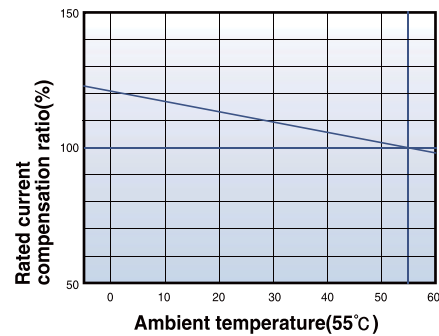
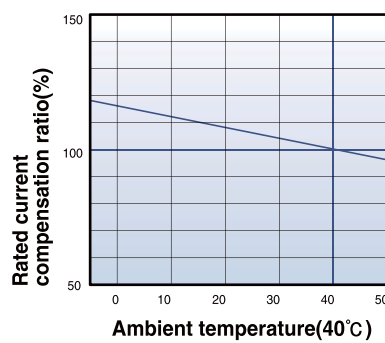
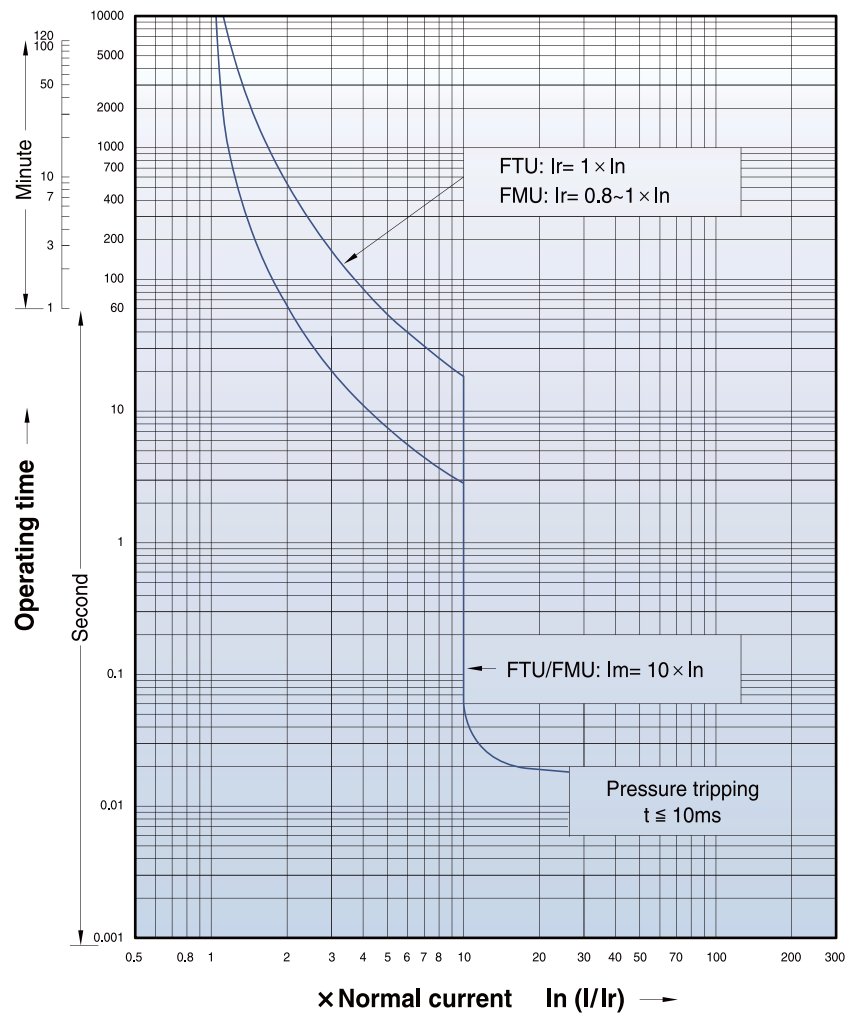
Circuit breakers with thermal-magnetic trip units

TS160

FTU

FMU

100, 125, 160A





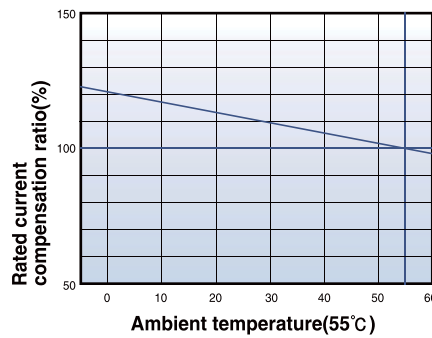
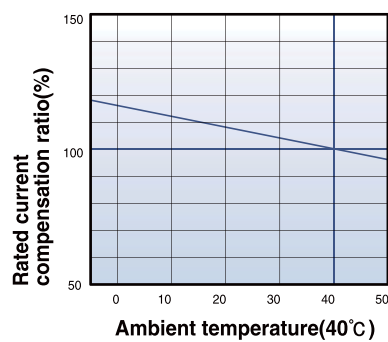
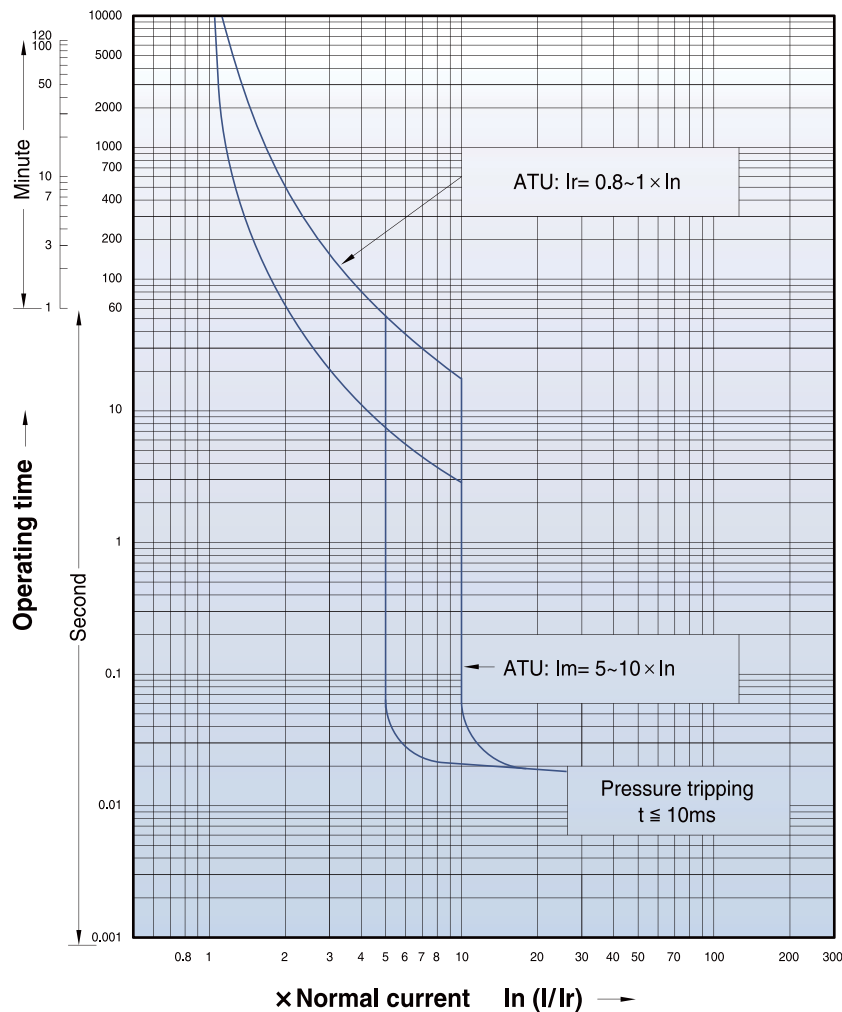
Characteristics curves

Circuit breakers with thermal-magnetic trip units

TS160

ATU

100, 125, 160A





Characteristics curves

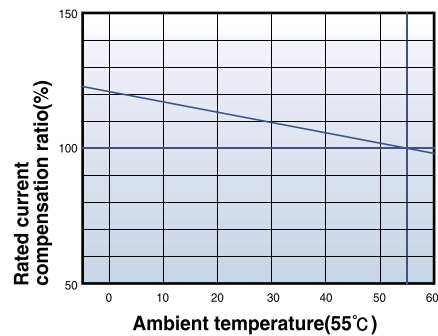
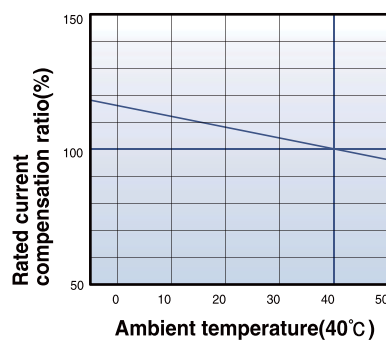
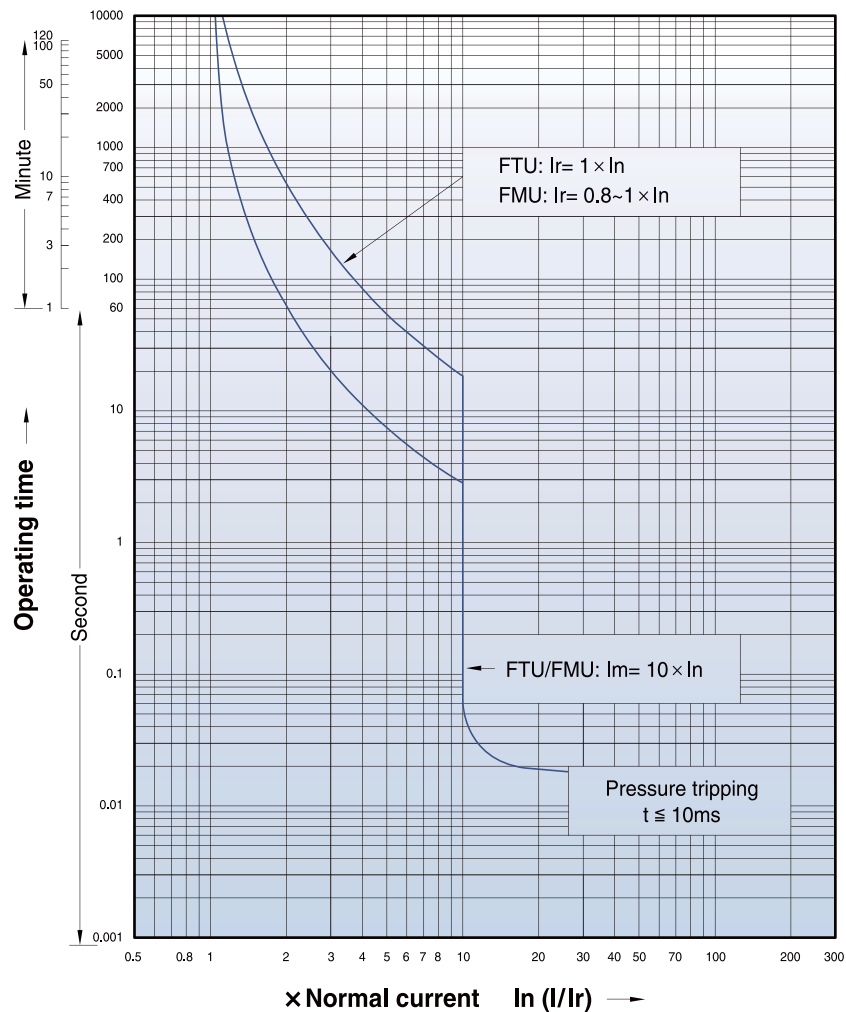
Circuit breakers with thermal-magnetic trip units

TS250

FTU

FMU

125~250A

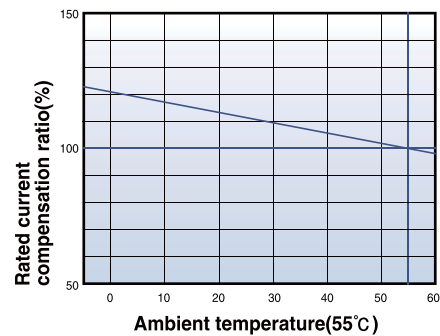
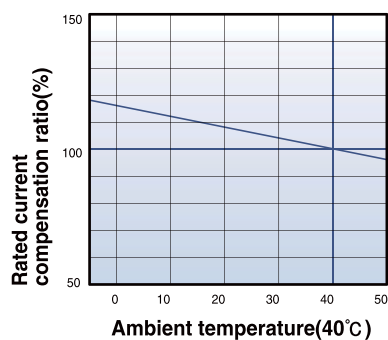
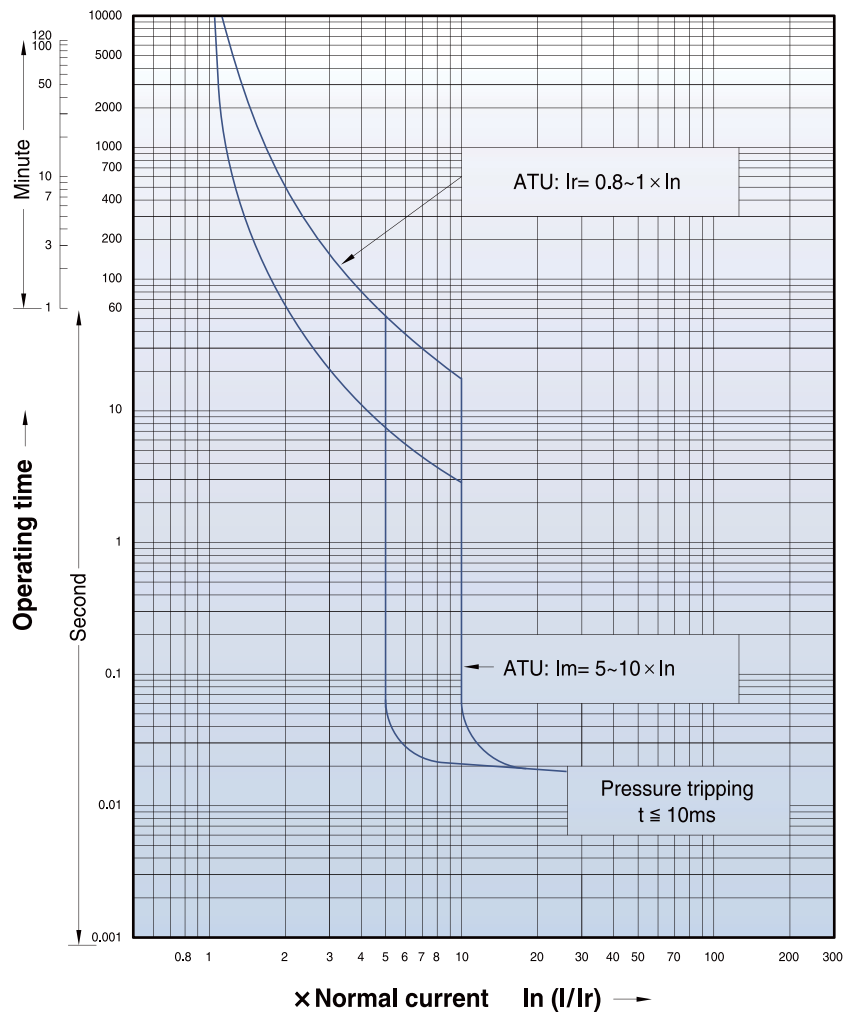




Characteristics curves

Circuit breakers with thermal-magnetic trip units

TS250
ATU
125~250A



Characteristics curves

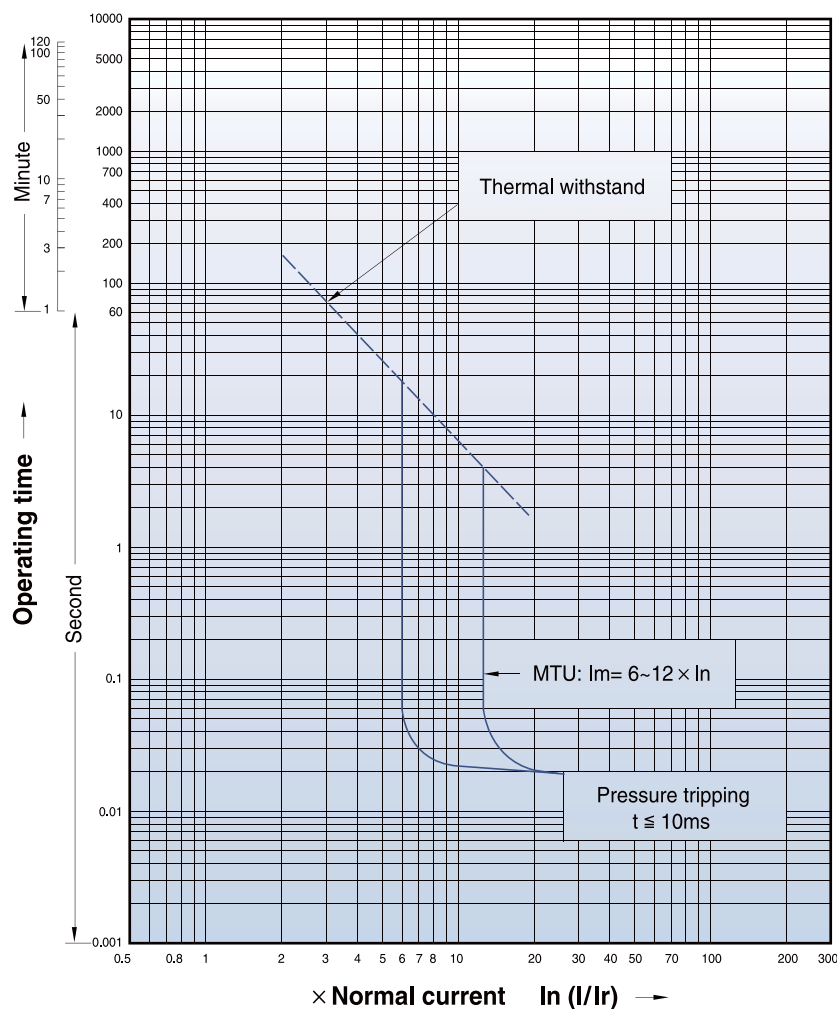
Circuit breakers with thermal-magnetic trip units

TS250

Magnetic only

MTU

100, 160, 220A



Magnetic trip units(MTU)

Rating(A)		I_n
N / H / L	TS100	
	TS160	
	TS250	
	TS400	
	TS630	
	TS800	

TS100 to TS800													
1.6	3.2	6.3	12	20	32	50	63	100	160	220	320	500	630
●	●	●	●	●	●	●	●	●	-	-	-	-	-
-	-	-	-	-	●	●	●	●	●	-	-	-	-
-	-	-	-	-	-	-	-	●	●	●	-	-	-
-	-	-	-	-	-	-	-	-	-	-	●	-	-
-	-	-	-	-	-	-	-	-	-	-	-	●	-
-	-	-	-	-	-	-	-	-	-	-	-	-	●

Short - circuit protection(magnetic)

Pick - up	I_m

Setting
$6..12 \times I_n$ (6 Point)



Characteristics curves

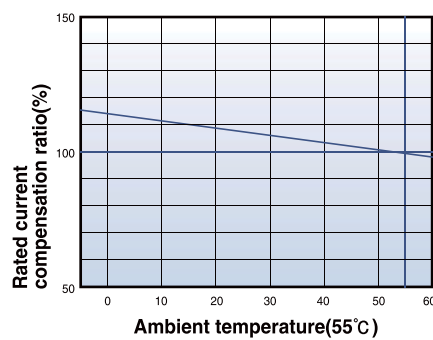
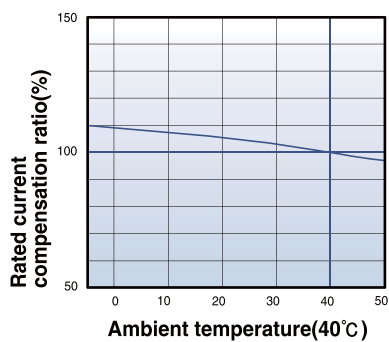
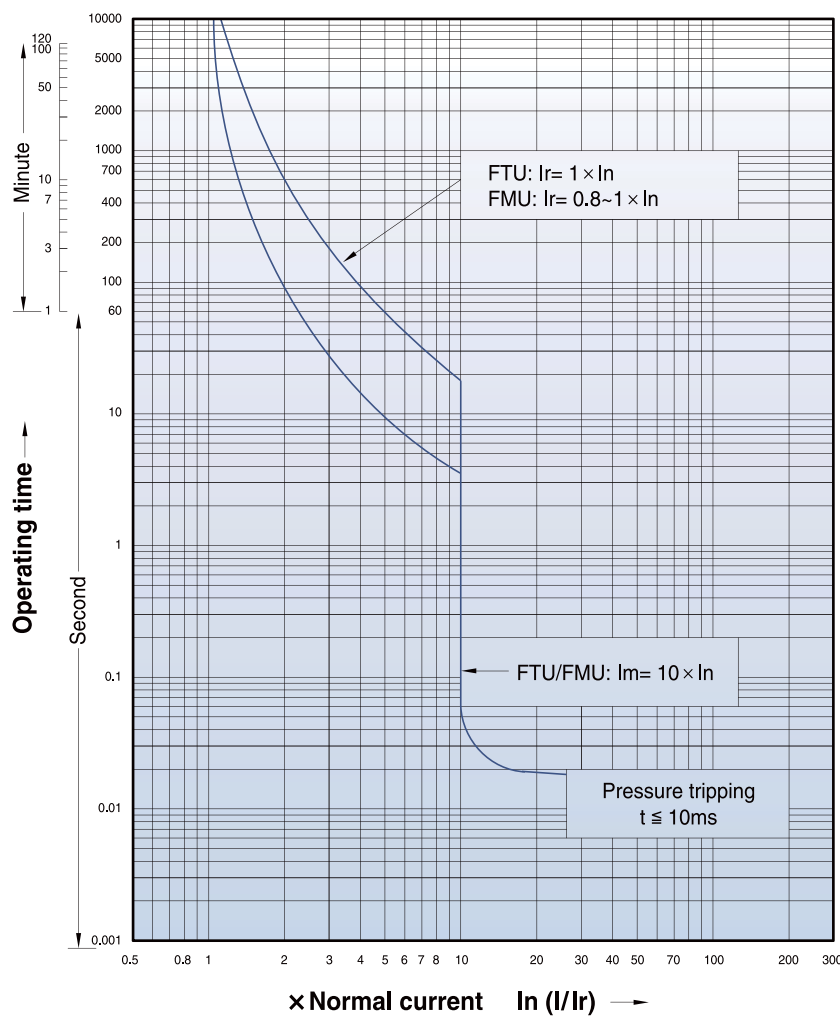
Circuit breakers with thermal-magnetic trip units

TS400

FTU

FMU

300, 400A

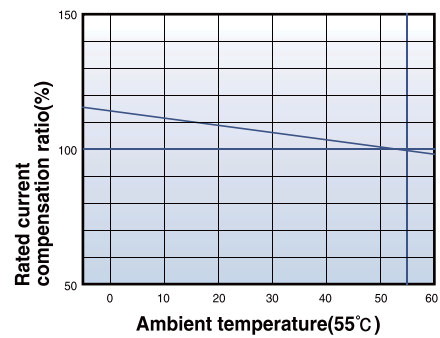
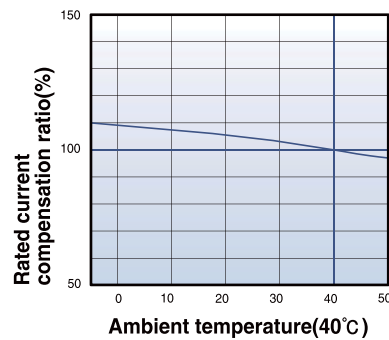
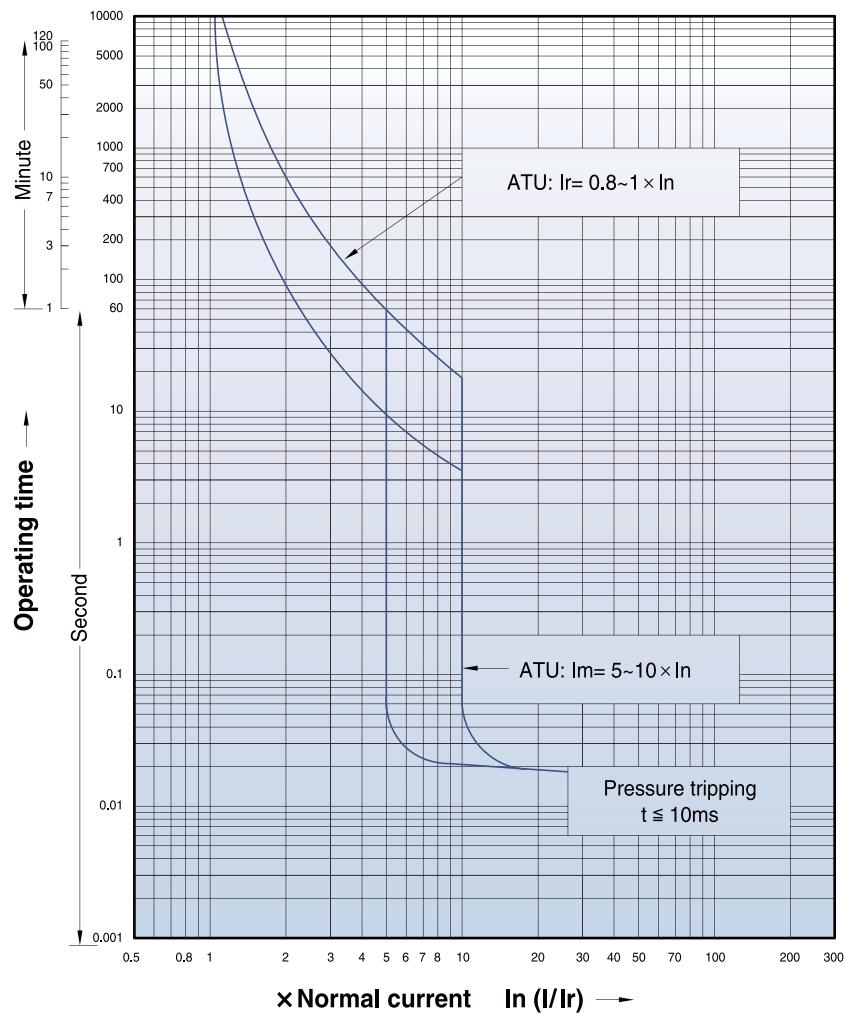




Characteristics curves

Circuit breakers with thermal-magnetic trip units

TS400
ATU
300, 400A





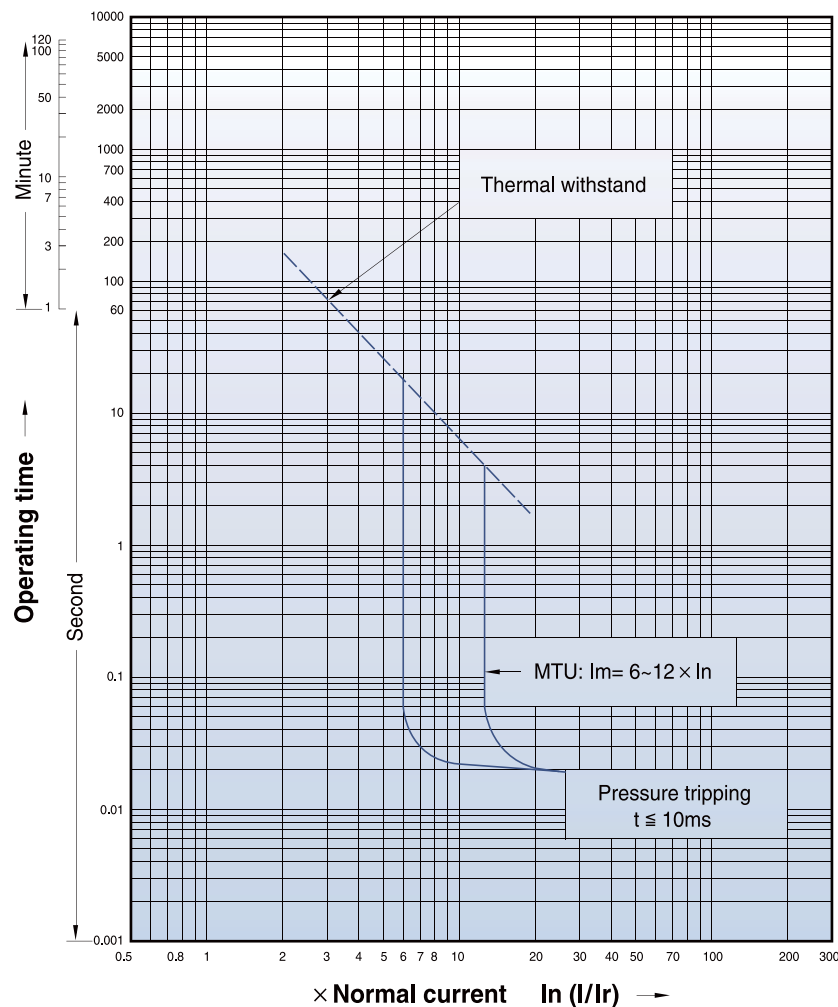
Characteristics curves

Circuit breakers with magnetic only trip units

TS400

MTU

320A



Magnetic trip units(MTU)

Rating(A)		I_n
N / H / L	TS100	
	TS160	
	TS250	
	TS400	
	TS630	
	TS800	

TS100 to TS800													
1.6	3.2	6.3	12	20	32	50	63	100	160	220	320	500	630
●	●	●	●	●	●	●	●	●	-	-	-	-	-
-	-	-	-	-	●	●	●	●	●	-	-	-	-
-	-	-	-	-	-	-	-	●	●	●	-	-	-
-	-	-	-	-	-	-	-	-	-	-	●	-	-
-	-	-	-	-	-	-	-	-	-	-	-	●	-

Short - circuit protection(magnetic)

Pick - up	I_m

Setting
$6..12 \times I_n$ (6 Point)



Characteristics curves

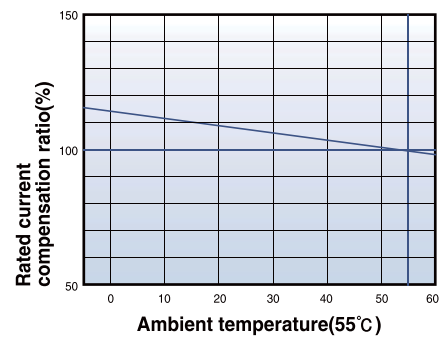
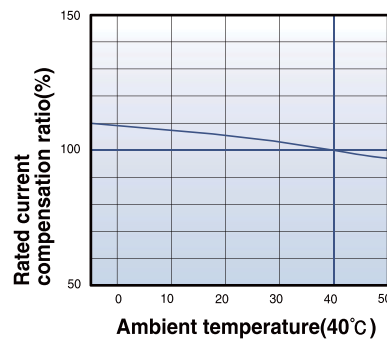
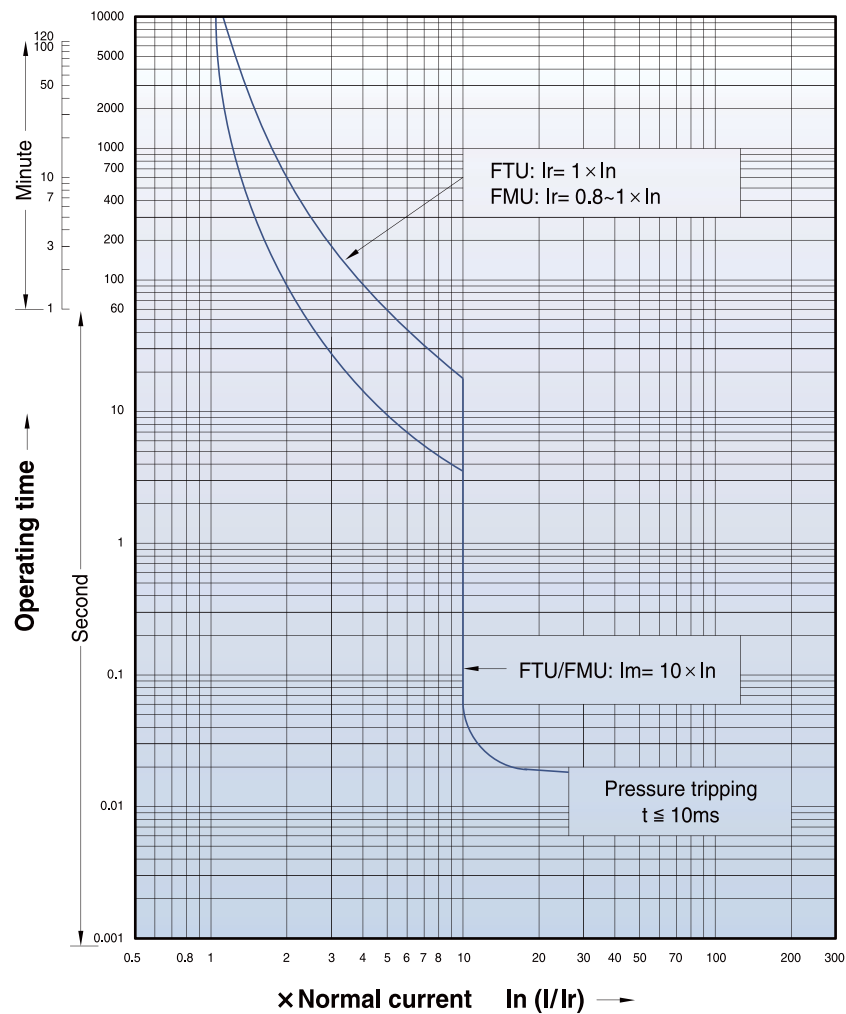
Circuit breakers with thermal-magnetic trip units

TS630

FTU

FMU

500, 630A

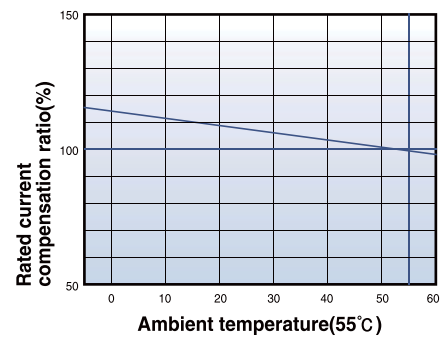
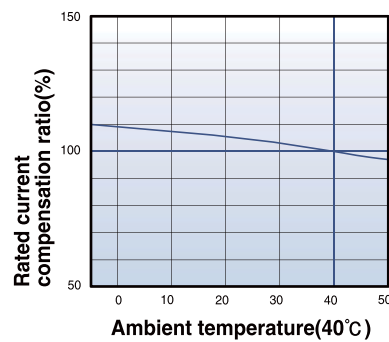
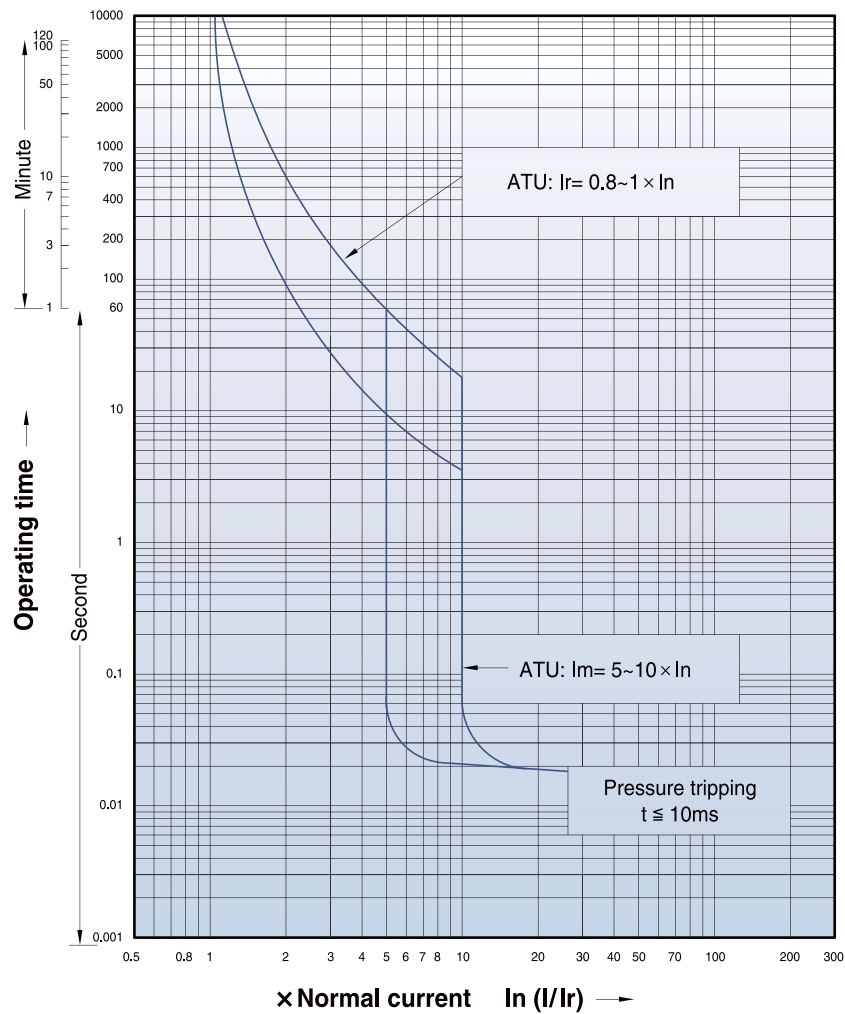




Characteristics curves

Circuit breakers with thermal-magnetic trip units

TS630
ATU
500, 630A





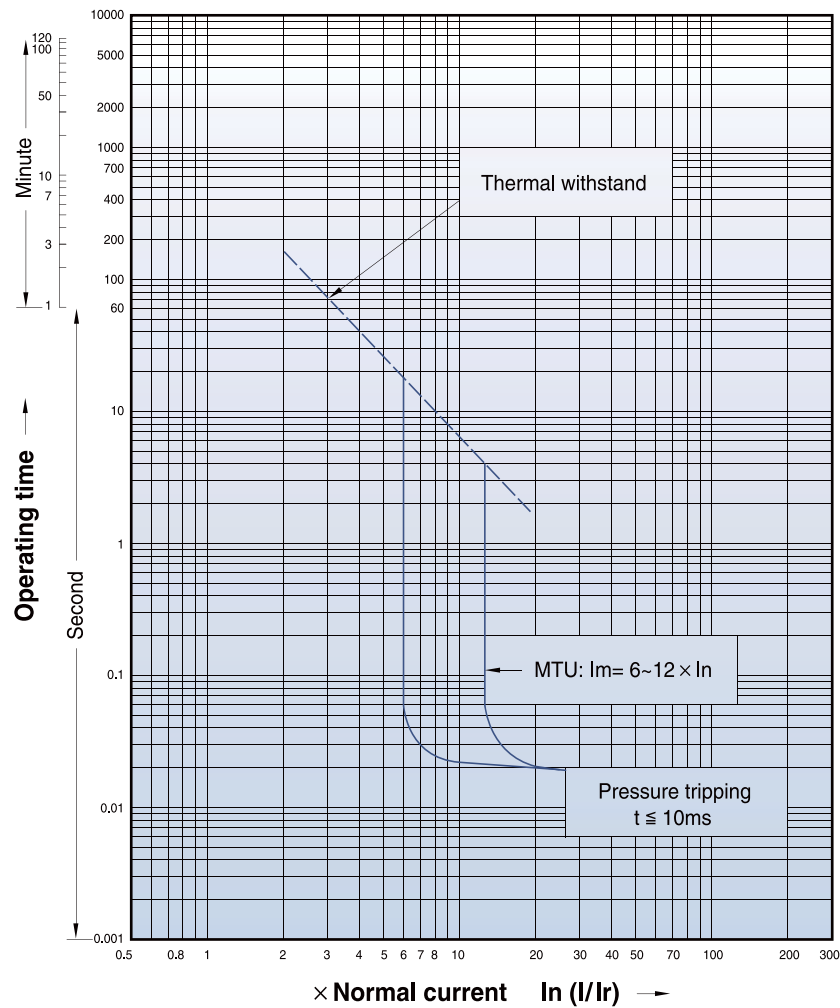
Characteristics curves

Circuit breakers with magnetic only trip units

TS630

MTU

500A



Rating(A)		I_n
N / H / L	TS100	
	TS160	
	TS250	
	TS400	
	TS630	
	TS800	

Magnetic trip units(MTU)

TS100 to TS800													
1.6	3.2	6.3	12	20	32	50	63	100	160	220	320	500	630
●	●	●	●	●	●	●	●	●	-	-	-	-	-
-	-	-	-	-	●	●	●	●	●	-	-	-	-
-	-	-	-	-	-	-	-	●	●	●	-	-	-
-	-	-	-	-	-	-	-	-	-	-	●	-	-
-	-	-	-	-	-	-	-	-	-	-	-	●	-
-	-	-	-	-	-	-	-	-	-	-	-	-	●

Short - circuit protection(magnetic)

Pick - up	I_m
-----------	-------

Setting
$6 \sim 12 \times I_n$ (6 Point)



Characteristics curves

Circuit breakers with thermal-magnetic trip units

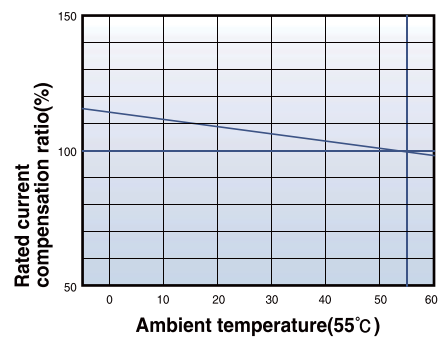
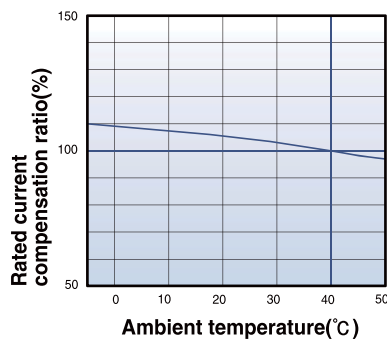
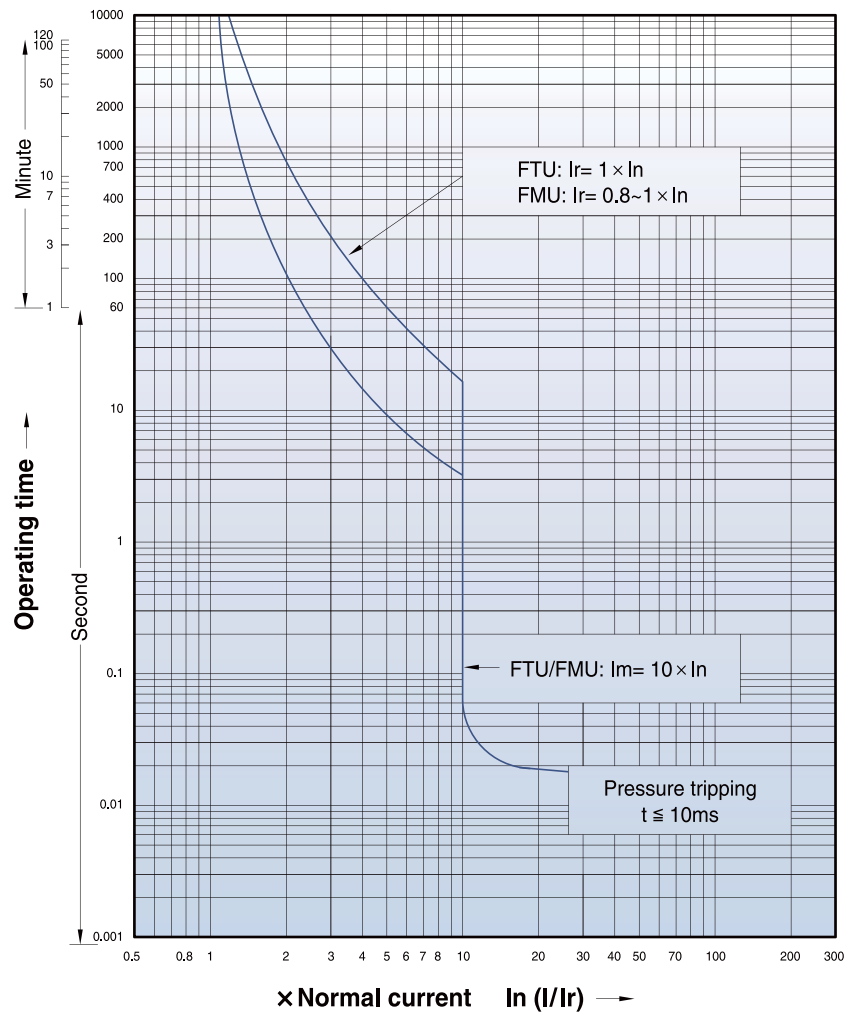
TS800

FTU

700, 800A

FMU

800A





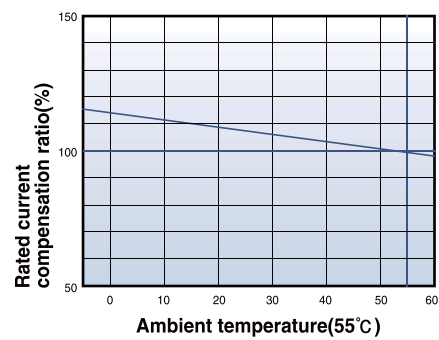
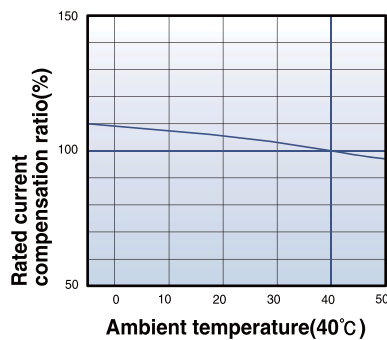
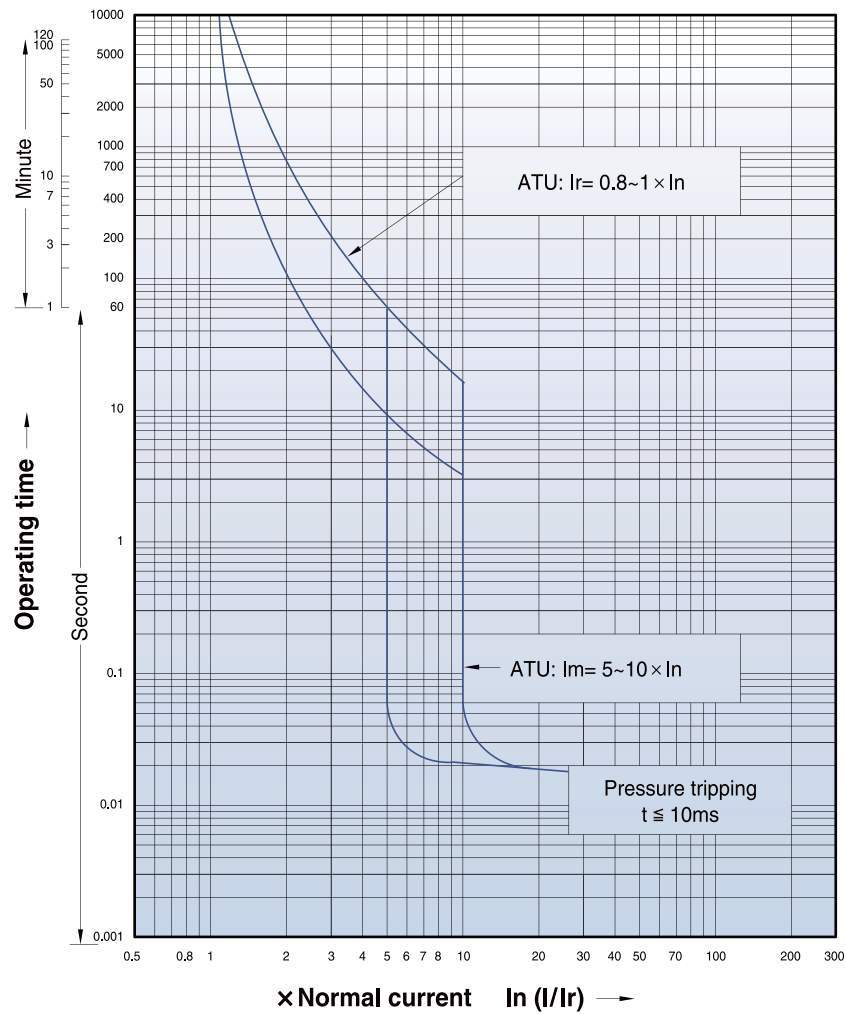
Characteristics curves

Circuit breakers with thermal-magnetic trip units

TS800

ATU

800A





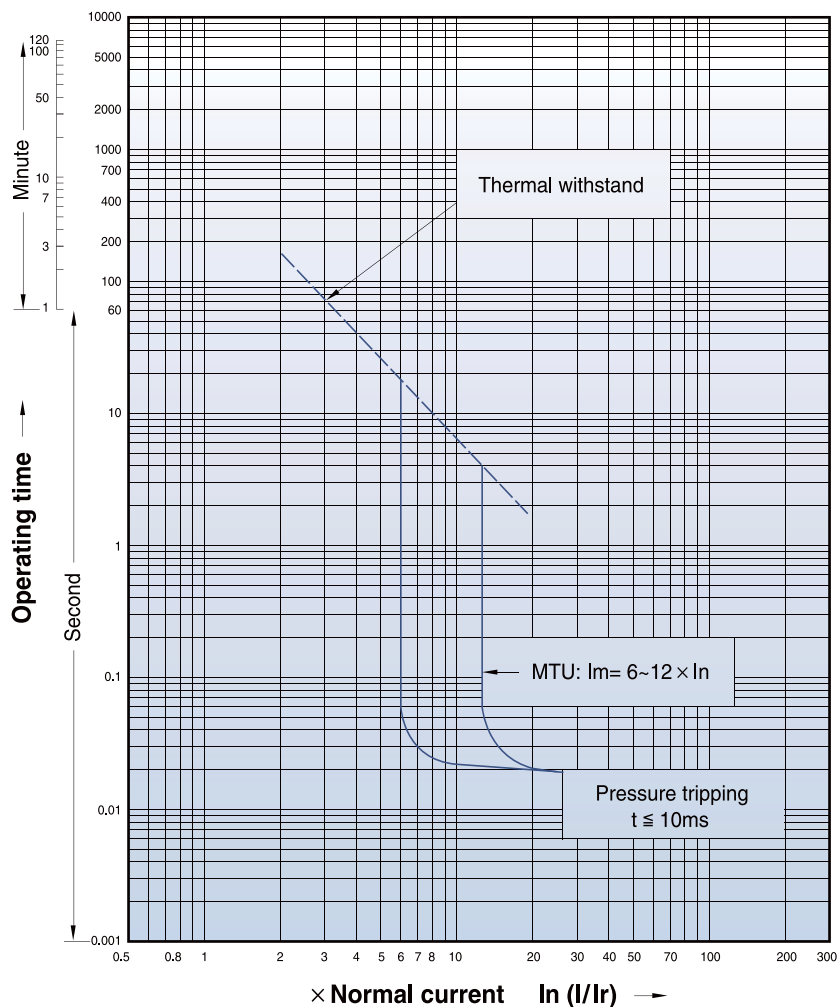
Characteristics curves

Circuit breakers with magnetic only trip units

TS800

MTU

630A



Magnetic trip units(MTU)

Rating(A)		I_n
N / H / L	TS100	
	TS160	
	TS250	
	TS400	
	TS630	
	TS800	

TS100 to TS800													
1.6	3.2	6.3	12	20	32	50	63	100	160	220	320	500	630
●	●	●	●	●	●	●	●	●	-	-	-	-	-
-	-	-	-	-	●	●	●	●	●	-	-	-	-
-	-	-	-	-	-	-	-	●	●	●	-	-	-
-	-	-	-	-	-	-	-	-	-	-	●	-	-
-	-	-	-	-	-	-	-	-	-	-	-	●	-
-	-	-	-	-	-	-	-	-	-	-	-	-	●

Short - circuit protection(magnetic)

Pick - up	I_m

Setting
$6 \sim 12 \times I_n$ (6 Point)



Characteristics curves

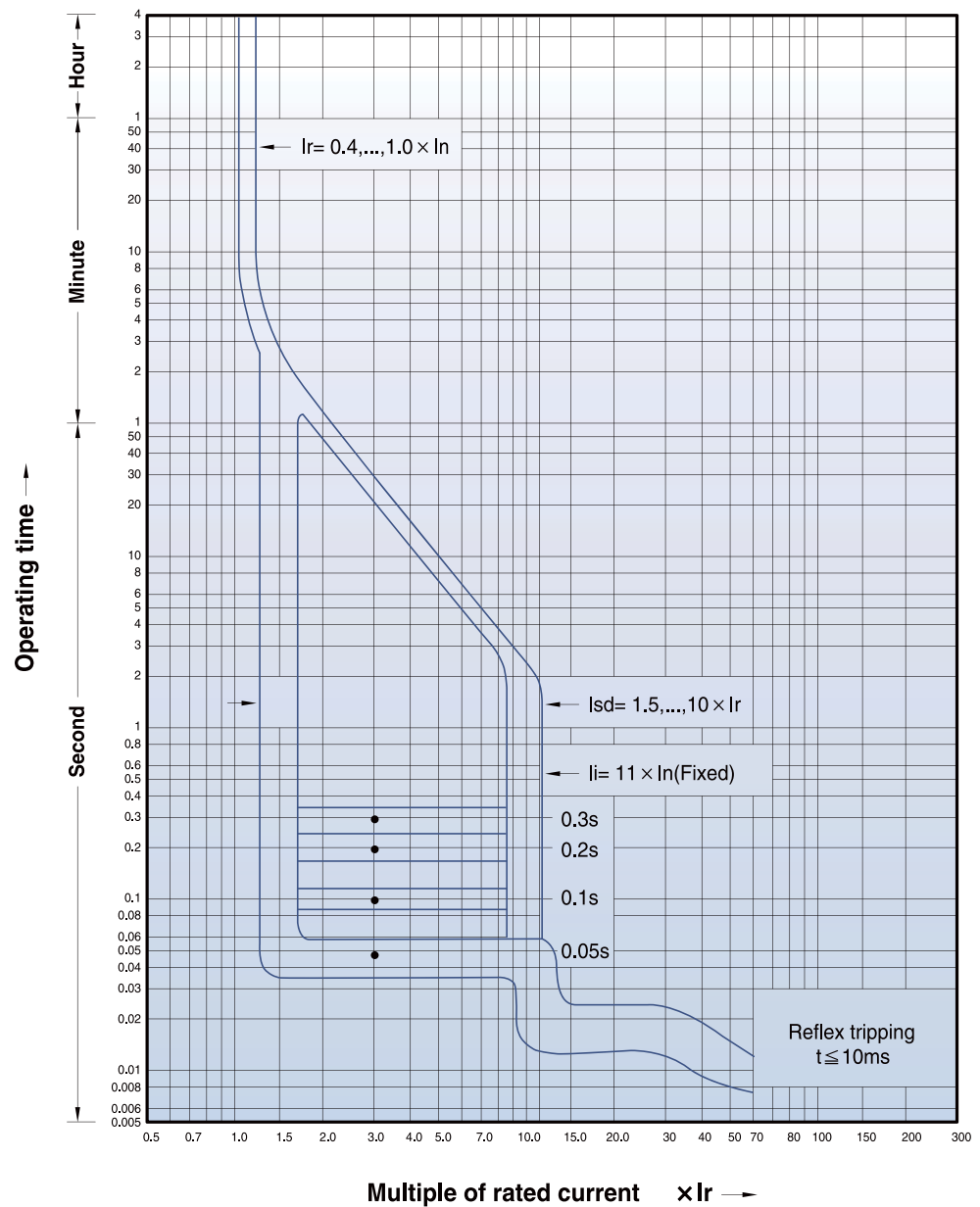
Circuit breakers with electronic trip unit (ETS)

TS100 to TS800

ETS23

ETS33

ETS43





Type		Approvals						Certificates
Certificate		Safety certi	IEC	UL	cUL	GB	Gosstandart	KEMA
Mark and name								
Type		Korea	Europe	U.S.A	U.S.A	China	Russia	Netherlands
MCCB	TE100S		●					●
	TE100N		●					●
	TD100N	●	●			●	●	●
	TD100H	●	●			●	●	●
	TD100L	●	●			●	●	●
	TD160N	●	●			●	●	●
	TD160H	●	●			●	●	●
	TD160L	●	●			●	●	●
	TS100N	●	●			●	●	●
	TS100H	●	●			●	●	●
	TS100L	●	●			●	●	●
	TS160N	●	●			●	●	●
	TS160H	●	●			●	●	●
	TS160L	●	●			●	●	●
	TS250N	●	●			●	●	●
	TS250H	●	●			●	●	●
	TS250L	●	●			●	●	●
	TS400N	●	●			●	●	●
	TS400H	●	●			●	●	●
	TS400L	●	●			●	●	●
	TS630N	●	●			●	●	●
	TS630H	●	●			●	●	●
	TS630L	●	●			●	●	●
	TS800N		●			●	●	●
	TS800H		●			●	●	●
	TS800L		●			●	●	●
	TS100 ETS	●	●			●	●	●
	TS160 ETS	●	●			●	●	●
	TS250 ETS	●	●			●	●	●
	TS400 ETS	●	●			●	●	●
	TS400 ETM	●	●			●	●	●
	TS630 ETS	●	●			●	●	●
	TS630 ETM	●	●			●	●	●
	TS800 ETS		●			●	●	●
	TS800 ETM		●			●	●	●
	TS1000N		●					●
	TS1250N		●					●
	TS1600N		●					●
	TS1000H		●					●
	TS1250H		●					●
	TS1600H		●					●
	TS1000L		●					●
MCCB UL	TD125NU			●	●			
	TD125HU			●	●			
	TS250NU			●	●			
	TS250HU			●	●			
	TS400NU			●	●			
	TS400HU			●	●			
	TS800NU			●	●			

Note) ● : Completion



Marine certifications

Type		Approvals						
Mark and name								
Type		KR Korea	LR U.K	BV France	ABS U.S.A	GL Germany	DNV Norway	RINA Italy
TD 100AF	TD100E	●	●	●			●	●
	TD100S	●	●	●			●	●
	TD100P	●	●	●			●	●
	TD100N FTU	●	●	●	●	●	●	●
	TD100N FMU	●	●	●	●	●	●	●
	TD100H FTU	●	●	●	●	●	●	●
	TD100H FMU	●	●	●	●	●	●	●
	TD100L FTU	●	●	●	●	●	●	●
TD 160AF	TD100L FMU	●	●	●	●	●	●	●
	TD160E	●	●	●			●	●
	TD160S	●	●	●			●	●
	TD160P	●	●	●			●	●
	TD160N FTU	●	●	●	●	●	●	●
	TD160N FMU	●	●	●	●	●	●	●
	TD160H FTU	●	●	●	●	●	●	●
	TD160H FMU	●	●	●	●	●	●	●
TS 100AF	TD160L FTU	●	●	●	●	●	●	●
	TD160L FMU	●	●	●	●	●	●	●
	TS100E	●	●	●			●	●
	TS100E ETS	●	●	●			●	●
	TS100S	●	●	●			●	●
	TS100S ETS	●	●	●			●	●
	TS100P	●	●	●			●	●
	TS100P ETS	●	●	●			●	●
	TS100N FTU	●	●	●	●	●	●	●
	TS100N FMU	●	●	●	●	●	●	●
	TS100N ETS	●	●	●	●	●	●	●
	TS100H FTU	●	●	●	●	●	●	●
	TS100H FMU	●	●	●	●	●	●	●
	TS100H ETS	●	●	●	●	●	●	●
TS 160AF	TS100L FTU	●	●	●	●	●	●	●
	TS100L FMU	●	●	●	●	●	●	●
	TS100L ETS	●	●	●	●	●	●	●
	TS160E	●	●	●			●	●
	TS160E ETS	●	●	●			●	●
	TS160S	●	●	●			●	●
	TS160S ETS	●	●	●			●	●
	TS160P	●	●	●			●	●
	TS160P ETS	●	●	●			●	●
	TS160N FTU	●	●	●	●	●	●	●
	TS160N FMU	●	●	●	●	●	●	●
	TS160N ATU	●	●	●	●	●	●	●
	TS160N ETS	●	●	●	●	●	●	●
	TS160H FTU	●	●	●	●	●	●	●
	TS160H FMU	●	●	●	●	●	●	●
	TS160H ATU	●	●	●	●	●	●	●
	TS160H ETS	●	●	●	●	●	●	●
	TS160L FTU	●	●	●	●	●	●	●
	TS160L FMU	●	●	●	●	●	●	●
	TS160L ATU	●	●	●	●	●	●	●
	TS160L ETS	●	●	●	●	●	●	●

Note) ●: Completion



Marine certifications

Type		Approvals						
Type	Mark and name							
		KR Korea	LR U.K	BV France	ABS U.S.A	GL Germany	DNV Norway	RINA Italy
TS 250AF	TS250E	●	●	●			●	●
	TS250E ETS	●	●	●			●	●
	TS250S	●	●	●			●	●
	TS250S ETS	●	●	●			●	●
	TS250P	●	●	●			●	●
	TS250P ETS	●	●	●			●	●
	TS250N FTU	●	●	●	●	●	●	●
	TS250N FMU	●	●	●	●	●	●	●
	TS250N ATU	●	●	●	●	●	●	●
	TS250N ETS	●	●	●	●	●	●	●
	TS250H FTU	●	●	●	●	●	●	●
	TS250H FMU	●	●	●	●	●	●	●
	TS250H ATU	●	●	●	●	●	●	●
	TS250H ETS	●	●	●	●	●	●	●
	TS250L FTU	●	●	●	●	●	●	●
	TS250L FMU	●	●	●	●	●	●	●
	TS250L ATU	●	●	●	●	●	●	●
	TS250L ETS	●	●	●	●	●	●	●
TS 400AF	TS400E	●	●	●			●	●
	TS400E ETS	●	●	●			●	●
	TS400E ETM	●	●	●			●	●
	TS400S	●	●	●			●	●
	TS400S ETS	●	●	●			●	●
	TS400S ETM	●	●	●			●	●
	TS400P	●	●	●			●	●
	TS400P ETS	●	●	●			●	●
	TS400P ETM	●	●	●			●	●
	TS400N FTU	●	●	●	●	●	●	●
	TS400N FMU	●	●	●	●	●	●	●
	TS400N ATU	●	●	●	●	●	●	●
	TS400N ETS	●	●	●	●	●	●	●
	TS400N ETM	●	●	●	●	●	●	●
	TS400H FTU	●	●	●	●	●	●	●
	TS400H FMU	●	●	●	●	●	●	●
	TS400H ATU	●	●	●	●	●	●	●
	TS400H ETS	●	●	●	●	●	●	●
	TS400H ETM	●	●	●	●	●	●	●
	TS400L FTU	●	●	●	●	●	●	●
	TS400L FMU	●	●	●	●	●	●	●
	TS400L ATU	●	●	●	●	●	●	●
	TS400L ETS	●	●	●	●	●	●	●
	TS400L ETM	●	●	●	●	●	●	●
TS 630AF	TS630E	●	●	●			●	●
	TS630E ETS	●	●	●			●	●
	TS630E ETM	●	●	●			●	●
	TS630S	●	●	●			●	●
	TS630S ETS	●	●	●			●	●
	TS630S ETM	●	●	●			●	●
	TS630P	●	●	●			●	●
	TS630P ETS	●	●	●			●	●
	TS630P ETM	●	●	●			●	●

Note) ● : Completion

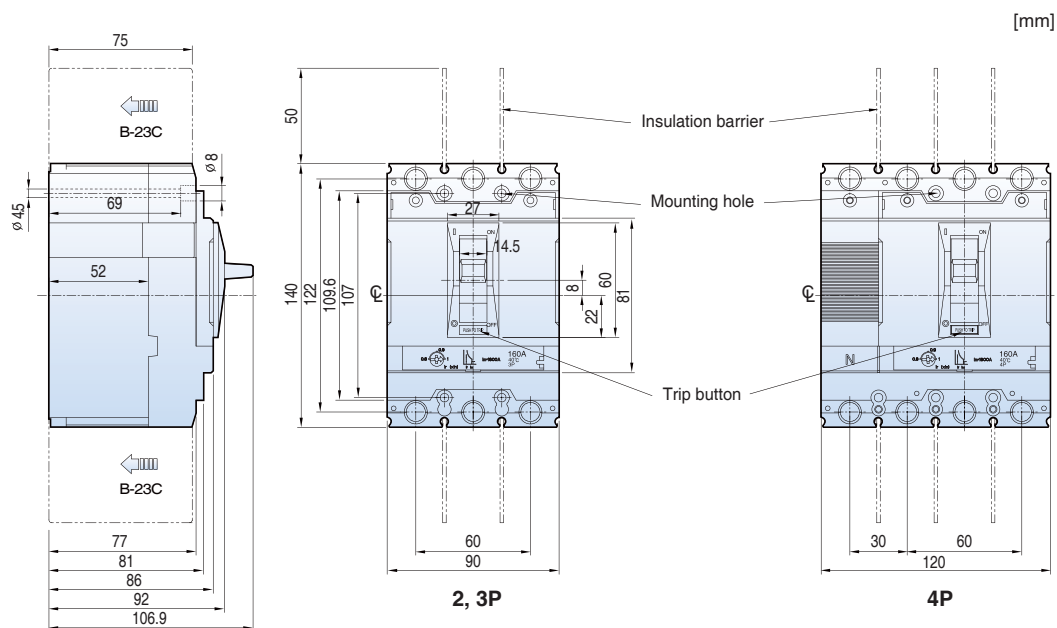


Marine certifications

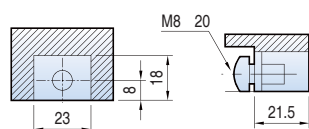
Type		Approvals						
Type	Mark and name							
		KR Korea	LR U.K	BV France	ABS U.S.A	GL Germany	DNV Norway	RINA Italy
TS 630AF	TS630N FTU	●	●	●	●	●	●	●
	TS630N FMU	●	●	●	●	●	●	●
	TS630N ATU	●	●	●	●	●	●	●
	TS630N ETS	●	●	●	●	●	●	●
	TS630N ETM	●	●	●	●	●	●	●
	TS630H FTU	●	●	●	●	●	●	●
	TS630H FMU	●	●	●	●	●	●	●
	TS630H ATU	●	●	●	●	●	●	●
	TS630H ETS	●	●	●	●	●	●	●
	TS630H ETM	●	●	●	●	●	●	●
	TS630L FTU	●	●	●	●	●	●	●
	TS630L FMU	●	●	●	●	●	●	●
	TS630L ATU	●	●	●	●	●	●	●
	TS630L ETS	●	●	●	●	●	●	●
	TS630L ETM	●	●	●	●	●	●	●
TS 800AF	TS800E	●	●	●			●	●
	TS800E ETS	●	●	●			●	●
	TS800E ETM	●	●	●			●	●
	TS800S	●	●	●			●	●
	TS800S ETS	●	●	●			●	●
	TS800S ETM	●	●	●			●	●
	TS800P	●	●	●			●	●
	TS800P ETS	●	●	●			●	●
	TS800P ETM	●	●	●			●	●
	TS800N FTU	●	●	●	●	●	●	●
	TS800N FMU	●	●	●	●	●	●	●
	TS800N ATU	●	●	●	●	●	●	●
	TS800N ETS	●	●	●	●	●	●	●
	TS800N ETM	●	●	●	●	●	●	●
	TS800H FTU	●	●	●	●	●	●	●
	TS800H FMU	●	●	●	●	●	●	●
	TS800H ATU	●	●	●	●	●	●	●
	TS800H ETS	●	●	●	●	●	●	●
	TS800H ETM	●	●	●	●	●	●	●
	TS800L FTU	●	●	●	●	●	●	●
	TS800L FMU	●	●	●	●	●	●	●
	TS800L ATU	●	●	●	●	●	●	●
	TS800L ETS	●	●	●	●	●	●	●
	TS800L ETM	●	●	●	●	●	●	●

Note) ●: Completion

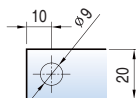
TD100/160



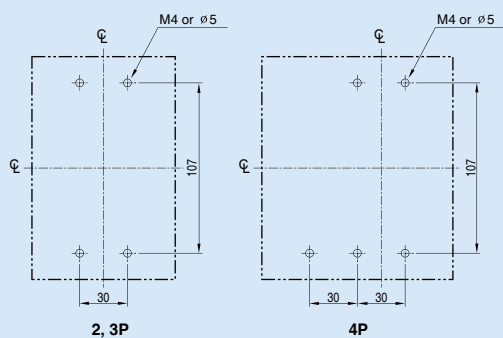
Terminal section



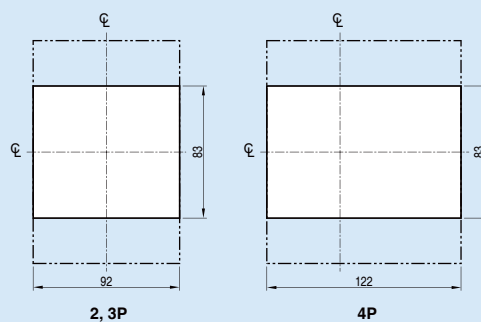
Conductor



Panel drilling



Front panel cutting

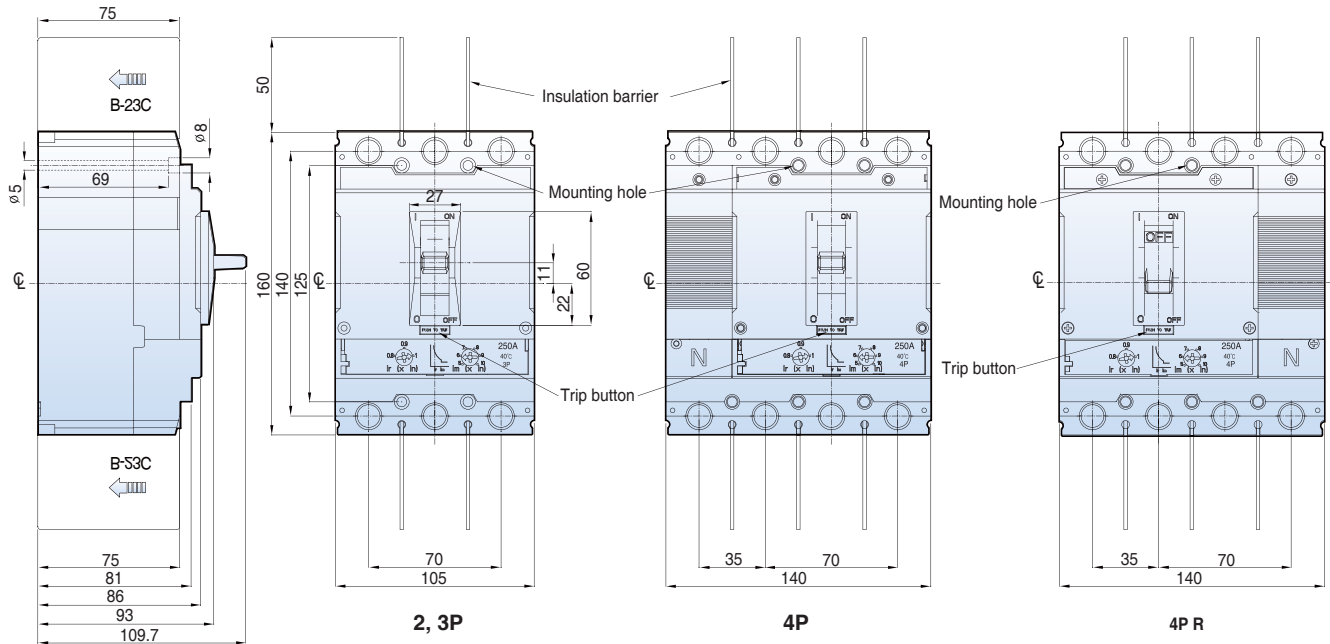




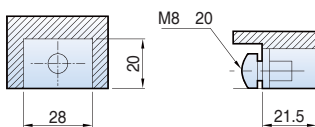
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TS100/160/250

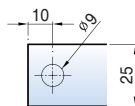
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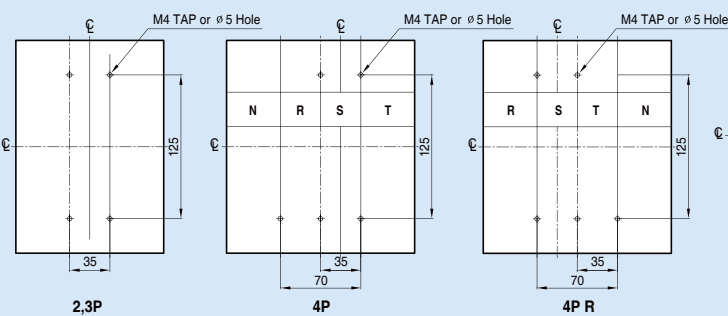
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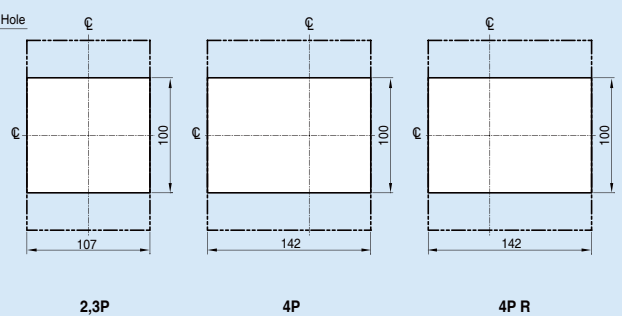
Conductor



Panel drilling



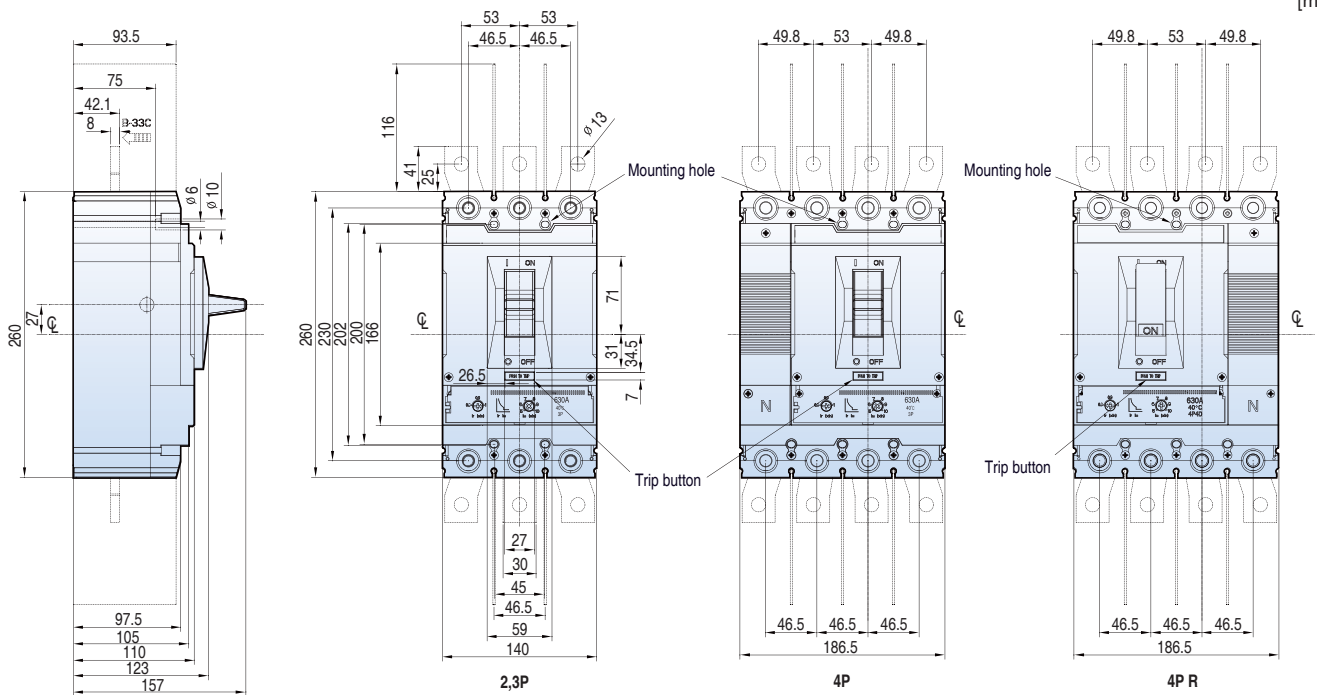
Front panel cutting



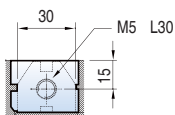


TS400/630

[mm]



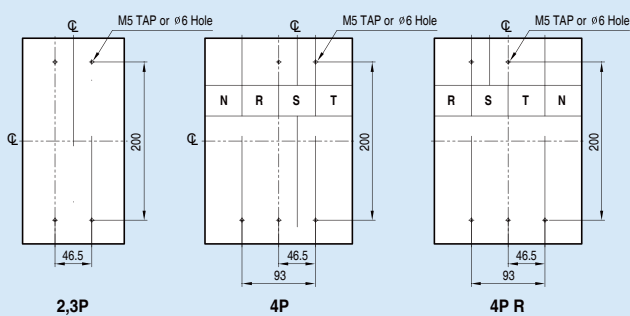
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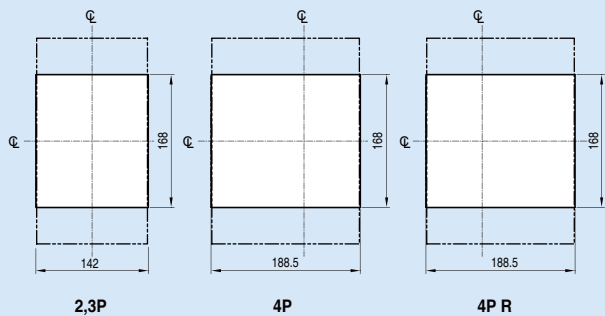
Conductor



Panel drilling

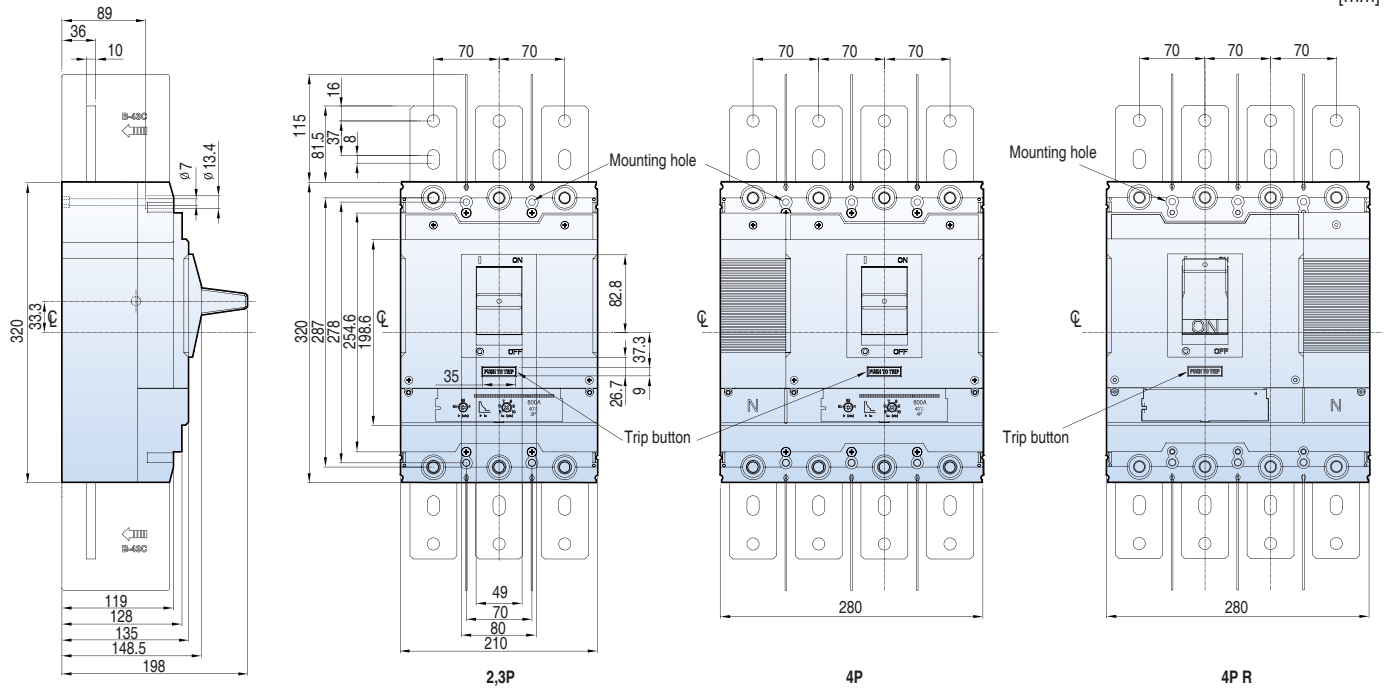


Front panel cutting

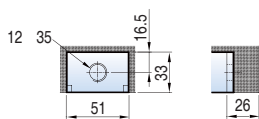


TS800

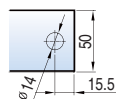
[mm]



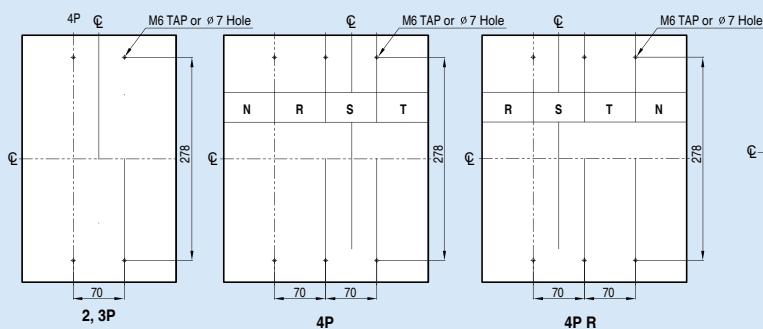
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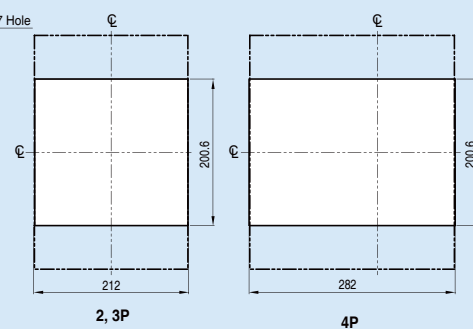
Conductor



Panel drilling



Front panel cutting





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