

# Overview of trip units

Susol



## Trip unit identification

TS250 FMU

Trip unit function

MCCB frame type



### FTU Fixed-thermal, fixed-magnetic

FTU

$I_m=2500A$

250A  
40°C  
3P

### FMU Adjustable-thermal, fixed-magnetic

FMU

$I_m=2500A$

250A  
40°C  
3P

### ATU Adjustable-thermal, adjustable-magnetic

ATU

250A  
40°C  
3P

### MTU Magnetic only

MTU

220A  
3P

### DSU Disconnecting switch

DSU

3P

### ETS Electronic (LSI)

ETS23

In 250A

alarm

90%  
100%

tsd

tsd (s)

TEST

### ETM Electronic (LSIG, multi-function unit)

ETM33

In 630A

alarm

90%  
100%

tsd

TR

# Overview of trip units



On Susol circuit breakers, the thermal-magnetic and electronic trip units are interchangeable and may be rapidly fitted to the circuit breakers.

It is therefore easy to change the protection of a given circuit following a modification in an installation. On TS400 and 630 circuit breakers, the electronic trip units are interchangeable plug-in modules. Trip unit ETM offers a large number of protection settings.

### Each Trip devices has different types of protection depending on the associated trip unit:

- Standard protection
- Protection of networks supplied by line distribution
- Protection of long cables
- Protection of DC networks
- Protection of motor-starters
- Service connection circuit breaker (for special subscriber contracts)

Susol TD100, TD160 circuit breakers may be equipped with either FTU or FMU.  
The trip units are not interchangeable types and can be supplied only after fixed with circuit breakers.

## Ampere ratings

MCCB frame type		Rated current, In[A]						
		Thermal magnetic release				Electronic release		DSU
		FTU	FMU	ATU	MTU	ETS	ETM	
TE100	Built in unit	16, 20, 25, 32, 40,	16, 20, 25, 32, 40,	-	-	-	-	-
TD100		50, 63, 80, 100	50, 63, 80, 100	-	-	-	-	-
TE160	Built in unit	100, 125, 160	100, 125, 160	-	-	-	-	160
TD160		100, 125, 160	100, 125, 160	-	-	-	-	160
TS100	Inter changeable trip unit	40, 50, 63, 80, 100	40, 50, 63, 80, 100	-	1.6, 3.2, 6.3, 12, 20, 32, 50, 63, 100	40, 80	-	100
TS160		100, 125, 160	100, 125, 160	125, 160	32, 50, 63, 100, 160	40, 80, 160	-	160
TS250		125, 160, 200, 250	125, 160, 200, 250	125, 160, 200, 250	100, 160, 220	40, 80, 160, 250	-	250
TS400		300, 400	300, 400	300, 400	320	160, 250, 400	160, 250, 400	400
TS630		500, 630	500, 630	500, 630	500	160, 250, 400, 630	160, 250, 400, 630	630
TS800		700, 800	800	800	630	630, 800	630, 800	800

### Types of trip units

FTU	• Fixed thermal, Fixed magnetic
FMU	• Adjustable thermal, Fixed magnetic
ATU	• Adjustable thermal, Adjustable magnetic
MTU	• Magnetic only
ETS	• Electronic (LSI)
ETM	• Electronic (LSIG, Ammeter, Communication, Zone selective interlocking)
DSU	• Disconnecting switch

# MCCBs for power distribution

Susol

## Electrical characteristics

			TD100			TD160		
Frame size	[AF]		100			160		
Rated current, In *	[A]		16, 20, 25, 32, 40, 50, 63, 80, 100			1P: 16, 20, 25, 32, 40, 50, 63, 80, 100, 125, 160 2, 3P: 100, 125, 160		
No. of poles			2*, 3, 4			1, 2*, 3, 4		
Rated operational voltage, Ue	AC	[V]	690			240(1P), 690		
	DC	[V]	500			250(1P), 500		
Rated impulse withstand voltage, Uimp	[kV]		8			8		
Rated insulation voltage, Ui	[V]		750			750		
Rated ultimate short-circuit breaking capacity, Icu			N	H	L	N	H	L
AC 50/60Hz	220/240V	[kA]	85	100	200	30(1P) 85	50(1P) 100	200
	380/415V	[kA]	50	85	150	50	85	150
	440/460V	[kA]	50	70	130	50	70	130
	480/500V	[kA]	30	50	65	30	50	65
	660/690V	[kA]	5	8	10	5	8	10
DC	250V	[kA]	42	65	100	16(1P) 42	25(1P) 65	100
	500V(2poles in series)	[kA]	42	65	100	42	65	100
Rated service breaking capacity, Ics	[%Icu]		100%	100%	100%	100%	100%	100%
Rated short-circuit making capacity Icm								
AC 50/60Hz	220/240V	[kA]	187	220	440	105(1P) 187	105(1P) 220	440
	380/415V	[kA]	105	187	330	105	187	330
	440/460V	[kA]	105	154	286	105	154	286
	480/500V	[kA]	63	105	143	63	105	143
	660/690V	[kA]	8	14	17	8	14	17
Category of utilization			A			A		
Isolation behavior			●			●		
Trip unit (release)								
Thermal-Magnetic								
● fixed-thermal, fixed-magnetic	FTU		●			●		
● adjustable-thermal, fixed-magnetic	FMU		●			●***		
● adjustable-thermal, adjustable-magnetic	ATU		-			-		
● magnetic only	MTU		-			-		
Electronic								
● LSI	ETS		-			-		
● LSI	ETM		-			-		
Option	Earth-fault protection, Ig		-			-		
	Zone selective interlocking, ZSI		-			-		
	Ammeter		-			-		
	Communication		-			-		
	Earth-leakage protection module		-			-		
Connection	fixed	front-connection	●			●		
		rear-connection	●			●***		
	plug-in	front-connection	●			●***		
		rear-connection	●			●***		
Mechanical life	[operations]		25000			25000		
Electrical life @ 415 V AC	[operations]		10000			10000		
Basic dimensions, W×H×D (front connection)	1-pole	[mm]	-			35×140×86		
	3-pole	[mm]	90×140×86			90×140×86		
	4-pole	[mm]	120×140×86			120×140×86		
Weight (front connection)	1-pole	[kg]	-			0.57		
	3-pole	[kg]	1.5			1.5		
	4-pole	[kg]	1.8			1.8		
Reference standard			IEC60947-2			IEC60947-2		

\* Applicable to MCCBs equipped with FTU, FMU, ATU  
\* 2 pole MCCB in 3pole frame size

\*\* 700A only available for TS800FTU  
\*\*\* Not applicable to 1pole

