01 Smart Electric Safety Supervision And Power Management System

MTM5EL INDEX

Instruction of Type Code

Instruction of Type Code for MTM5EL

M	T	M5	EL	-	125A

Matis Company Code

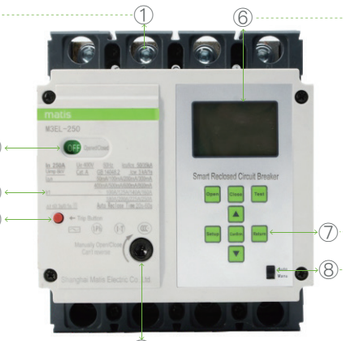
Auto recloser and Control product Code

Traditional auto-recloser (MCCB): M5

Earth leakage recloser

Current specification: 125A,250A,400A,630A,800A

Product Overview



① Terminals

② ON/OFF Indicator

③ residual current

④ Test button

⑤ Manual rotary switch

⑥ LCD display screen

⑦ Functional keypad

⑧ Auto /Manual Control
Manual: Manual closing
Automatic:Remote Contro

① Communication Terminal

Product Features

MTM5 rated voltage 400V, rated current to 630A three-phase four-wire neutral point direct grounding (TT) distribution network. It is used to provide indirect contact protection; to prevent fire hazards caused by equipment insulation damage and ground fault current; it can also be used to distribute electric energy and protect lines and power equipment from overload, undervoltage, short circuit, single-phase grounding and other faults.

Safe and reliable

- It has electrical protection such as leakage, short circuit, overload delay, overvoltage and undervoltage
- With high breaking capability, to ensure the reliability of line short-circuit protection
- Real-time monitoring and tracking of line residual current, automatic adjustment of gears
- Monitoring of trips due to grid quality

Energy saving

- The recloser can be turned on or off regularly to save energy and reduce carbon emissions
- Real-time display of line residual current, power supply voltage and load current

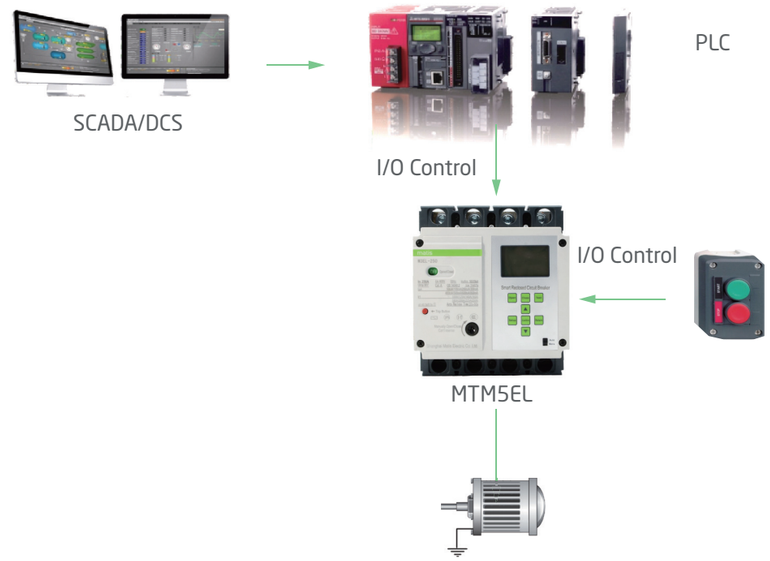
Smart and efficient

- With communication function, it can realize remote signaling, remote measurement, remote control and remote adjustment
- With RS485 function, external lightning protection module can be added

Product Features

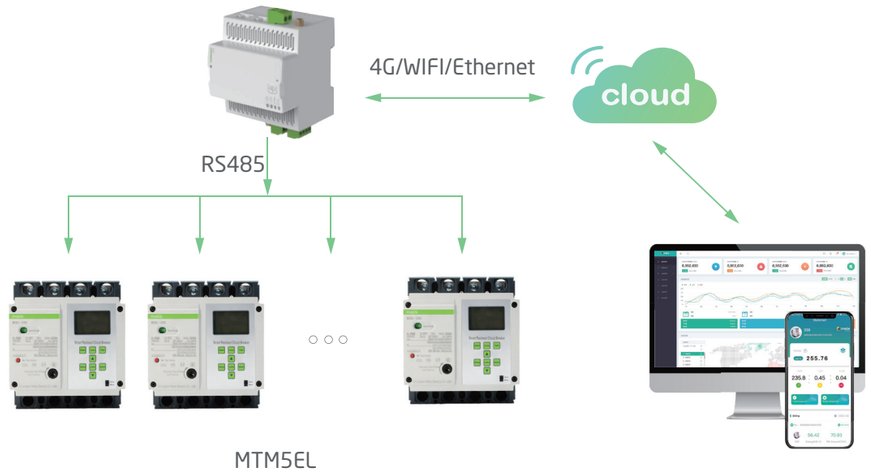
IO control (Wet Contact)

MT51AI can be controlled by IO (wet contact) with PLC or Pushbutton under the Auto mode



RS485 Control

MT51AS can be connected to Gateway by RS485 and Modbus protocol ,then gateway can be connected Internet by different types communication such 4G, Wifi, Ethernet .Then the MT51AS can be controlled by App or Web sotware



Technical Parameter

Item Code:		MTM5EL-125A	MTM5EL-250A	MTM5EL-400A	MTM5EL-630A	MTM5EL-800A
Frame rated current(A)		125	250	400	630	800
Poles		3P+N	3P+N	3P+N	3P+N	3P+N
Rated operating voltage Ue(V)		AC 400/50HZ				
Rated insulation voltage Ui(V)		800		1000		
Rated impulse withstand voltage Uimp(V)		8000				
Arc distance(mm)		≯ 50		≯ 100		
Extreme short-circuit breaking capability Icu(kA)		50		65	85	65
Operating short-circuit breakingcapacity Ics(kA)		35		42	65	42
Rated residual short-circuit making (breaking) capability IΔm(kA)		12.5		16.25	21.25	16.25
Residual current operating characteristics		AC type				
Rated residual operating currentIΔn (mA)		50/100/200/300/400/500/600/800 The MCU automatically tracks or manually sets it arbitrarily			100/200/300/400/500/600/800/ 1000 The MCU automatically tracks or manually sets it arbitrarily	
Residual action time characteristics		Delay type/non-delay type				
The time-delay limit non-driven time(s)		0.06: 2IΔn				
Breaking time(s)		IΔn≤0.5; 2IΔn≤0.2; 5IΔn≤0.15				
Auto-reclosing time (s)		20-60				
Operational performance (times)	Power-on	1500	1000	1000	500	
	Power-off	8500	7000	4000	2500	
	Total times	10000	8000	5000	3000	
Overload, short circuit characteristics		Three-stage protection, electronically adjustable, see "Protection Characteristics" for details				
Overvoltage protection value(V)		Set value (250~300)±5%				
Undervoltage protection value(V)		Set value (145~200)±5%				
Joint control delay time (ms)		≤40ms				
Communication delay (ms)		≤200ms				

Order Code

MTM5EL

Picture	Frame Current(A)	Phase	Rated current	Leakage Current	Type code	Weight(g)	Order code
	125	3P+N	50A, 63A, 80A, 100A, 125A	50/100/200/300/400/500/600/800The MCU automatically tracks or manually sets it arbitrarily	MTM5EL-125A		
	250		100A, 125A, 140A, 160A 180A, 200A, 225A, 250A		MTM5EL-250A		
	400		200A, 225A, 250A, 315A, 350A, 400A	100/200/300/400/500/600/800/1000 The MCU automatically tracks or manually sets it arbitrarily	MTM5EL-400A		
	630		315A, 350A, 400A, 500A, 630A		MTM5EL-630A		
	800		630A,700A,800A		MTM5EL-800A		

Long-Delay time setting for Overload protection

Parameter	Frame current (A)	Rated current	Default (A)
Action set value Ir1	125	50A, 63A, 80A, 100A, 125A	125A
	250	100A, 125A, 140A, 160A 180A, 200A, 225A, 250A	250A
	400	200A, 225A, 250A, 315A, 350A, 400A	400A
	630	315A, 350A, 400A, 500A, 630A	630A
	800	630A,700A,800A	800A
Delay time set value tL		3s, 4s, 6s, 8s, 10s, 12s, 14s, 16s, 18s, OFF	12s

Action characteristics

Environment Temperature	Current Name	Set Current Multiple	Set Sime
+40℃	Conventional non-tripping current	1.05Ir1	≥2h
	Conventional tripping current	1.3Ir1	<2h

Time delay characteristics:

Overload protection is carried out according to the inverse time characteristic
T=(6Ir1/I)2tL Delay accuracy: ±10% where T is the action time value, Ir1 is the long delay protection setting value, I is the fault current, and tL is the long delay time setting value.

Short-circuit short-delay protection:

Short-circuit short-delay protection prevents resistive short-circuits in the power distribution system, and trip delay is for selective protection.

Short Circuit Short Delay Parameter Setting

Parameters	Set Value	Factory Set Value
Short delay action current set value Ir2	2Ir1, 2.5Ir1, 3Ir1, 4Ir1, 5Ir1, 6Ir1, 7Ir1, 8Ir1, 10Ir1, 12Ir1	6Ir1
Short delay set value ts	0.1s, 0.2s, 0.3s, 0.4s, 0.6s, 0.8s, 1.0s, OFF	0.4s

Short circuit short delay protection action characteristics

Characteristics	Fault Current Multiple	Trip Characteristics	Delay Time
Non-action characteristics	≤0.8 Ir2	Non-action	/
Action characteristics	>1.2 Ir2	Time-delay action	±40ms

Short-circuit instantaneous protection related parameter setting

Parameter Setting	Set Value	Factory Set Value
Instantaneous action current set value Ir3	4Ir1, 6 Ir1, 7 Ir1, 8 Ir1, 10 Ir1, 11 Ir1, 12 Ir1, 13 Ir1, 14 Ir1, OFF	10Ir1

Trip Characteristic for Instantaneous time

Characteristics	Fault Current Multiple	Trip Characteristics	Delay Time
Non-action characteristics	≤0.8	Non-action	≥200ms
Action characteristics	>1.2	Time-delay action	>200ms

Residual current protection characteristics—Gear setting range

Parameters	Set Value(125,250,400)	Set Value(630,800)	Factory Set Value
Residual operating current IΔn	50, 100, 200, 300, 400, 500, 600, 800, Auto	100, 200, 300, 400, 500, 600, 800, 1000, Auto	500

Action characteristics

Gear Value(mA)	Floating Value(mA)
50	25
100	50
200	100
300	150
400	200
500	250
600	300
800	400
1000	-

When the residual current is greater than the floating value of the gear without reaching its action value, and it is stable for 60 seconds, the gear is floated up one gear, and so on, until the maximum gear. When the residual current is less than the floating value of the next gear of the gear and is stable for 120s, the gear is floated down one gear, and so on, until the minimum gear.Taking the "Auto 2" gear, the initial residual current of the line is 100 mA as an example. The circuit breaker is energized and the gear is automatically set to 300 mA. At that time, the residual current increased to more than 150 mA, and after 60 seconds of stabilization, the gear changed to 500 mA; When the residual current is reduced to less than 150 mA and stabilized for 120 CBRM5EL-250CY seconds, the gear changes to 200 mA.

Auto-reclosing

When the residual current exceeds the action current value, after the gear action trips, it can be automatically reclosed after 20~60 seconds, but the manual closing is not limited by time. If the fault current is eliminated within 5 seconds after closing, the closing is successful and the circuit breaker is operating normally; If the fault current is not eliminated, the circuit breaker tripps and locks again, and cannot be automatically reclosed, the closing must be operated manually.

Overvoltage protection

When the line phase voltage is higher than the overvoltage protection set value, the circuit breaker trips for protection. When the line voltage returns to normal voltage, the circuit breaker can be automatically closed and put into operation. The setting value range of overvoltage protection is 150V~300V, the factory setting is 275V, and user can set or turn off the protection by themselves.

Protection Characteristics

Undervoltage protection

When the line phase voltage is lower than the undervoltage protection set value, the circuit breaker trips for protection. When the line voltage returns to normal voltage, the circuit breaker can be automatically closed and put into operation. The setting value range of undervoltage protection is 145V~200V, the factory setting is 145V, and user can set or turn off the protection by themselves.

Phase loss protection

When there is a phase loss at the power end of the line, the circuit breaker trips for protection, and when the line voltage returns to normal voltage, it can be automatically closed and put into operation.

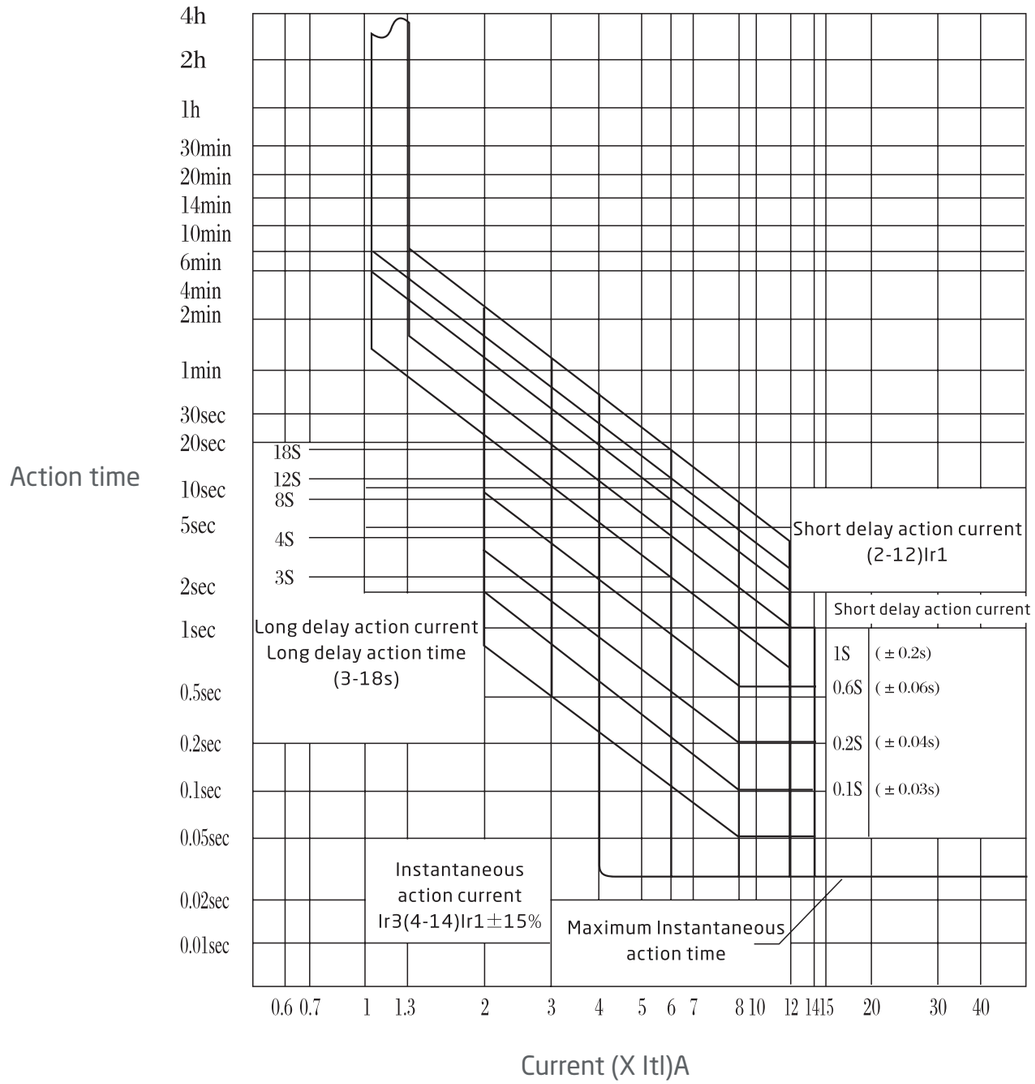
Characteristic Curve

Joint protection function

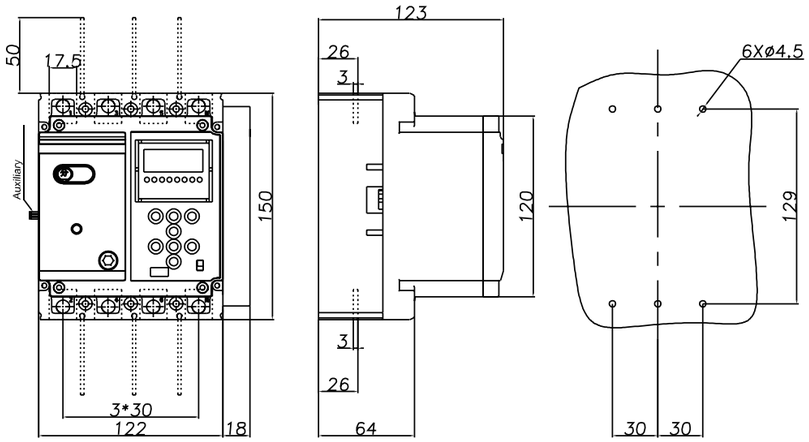
Through the joint interface, it can be protected in conjunction with other fire fighting device, as follows:

IN Input Set		Priority	Priority	Delay Time
Input control	IN1 is shorted to DCOM	The circuit breaker is closed	Low	≤40ms
	IN3 is shorted to DCOM	The circuit breaker opens	High	≤40ms

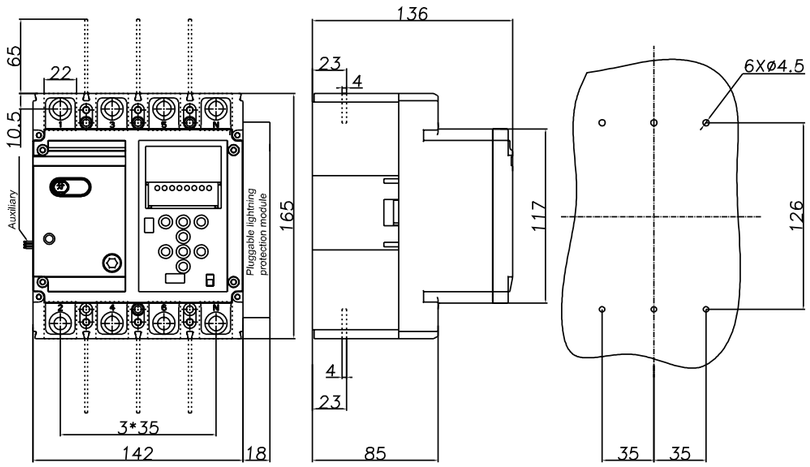
Note: If it is shorted for a long time, it will short-circuit it until it is in the open status.



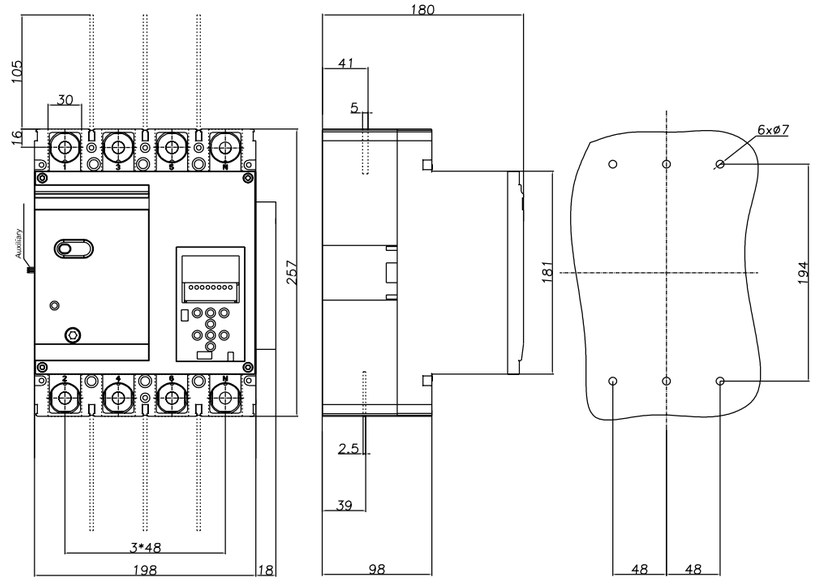
MTM5EL-125A



MTM5EL-250A



MTM5EL-400A



MTM5EL-630A