MTM5M

Smart MCCB

It is suitable for low-voltage power grids with AC 50Hz, rated insulation voltage 1000V, rated current 100A~630A, and rated working voltage of 400V and below.

It is used to provide indirect contact protection to prevent fire hazards caused by ground fault current due to device insulation damage. It can also be used to distribute energy and protect line overload and short circuit. It has protection functions for line overvoltage, undervoltage and phase loss.

- Safe and Reliable
- Energy saving
- Smart and efficient
- Real time measurement

Comprehensive Security Protection

Effectively ensure the safe and stable operation of the electrical system.

Over/under-voltage Protection (can self-setup)

When the line phase voltage is higher or lower than the voltage protection setting 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 overvoltage setting value range is 250V-300V; the undervoltage setting value range is 145V~200V.

Phase Loss Protection (can self-setup)

When a phase loss occurs at the power supply end of the line, the circuit breaker trips for protection. When the line returns to normal voltage, it can be automatically closed and put into operation. The setting value range is 10V-50V.

Over-temperature Protection (ON by default)

Terminal and contact over-temperature protection setting value range: 50 ℃ ~120 ℃ adjustable; high temperature action delay time: 1s~999s adjustable.

Neutral Loss Protection (OFF by default)

When the neutral line is disconnected at the power supply end of the line, the circuit breaker trips for protection. When the line returns to normal voltage, it can be automatically closed and put into operation. Neutral loss protection requires the circuit breaker outgoing line to be loaded.

Linkage Protection

When local remote control is required (for example, the switch is in a distribution cabinet and a remote button on the cabinet door is required to control the switch), the external terminal of the switch can be used for linkage protection control.

Power-off Tripping, Power-on Closing (OFF by default)

When there is a power outage at the power supply end of the line, the circuit breaker will trip for protection; when the line voltage returns to normal range, the circuit breaker will automatically close; the factory default is off for power-off tripping and power-on closing.

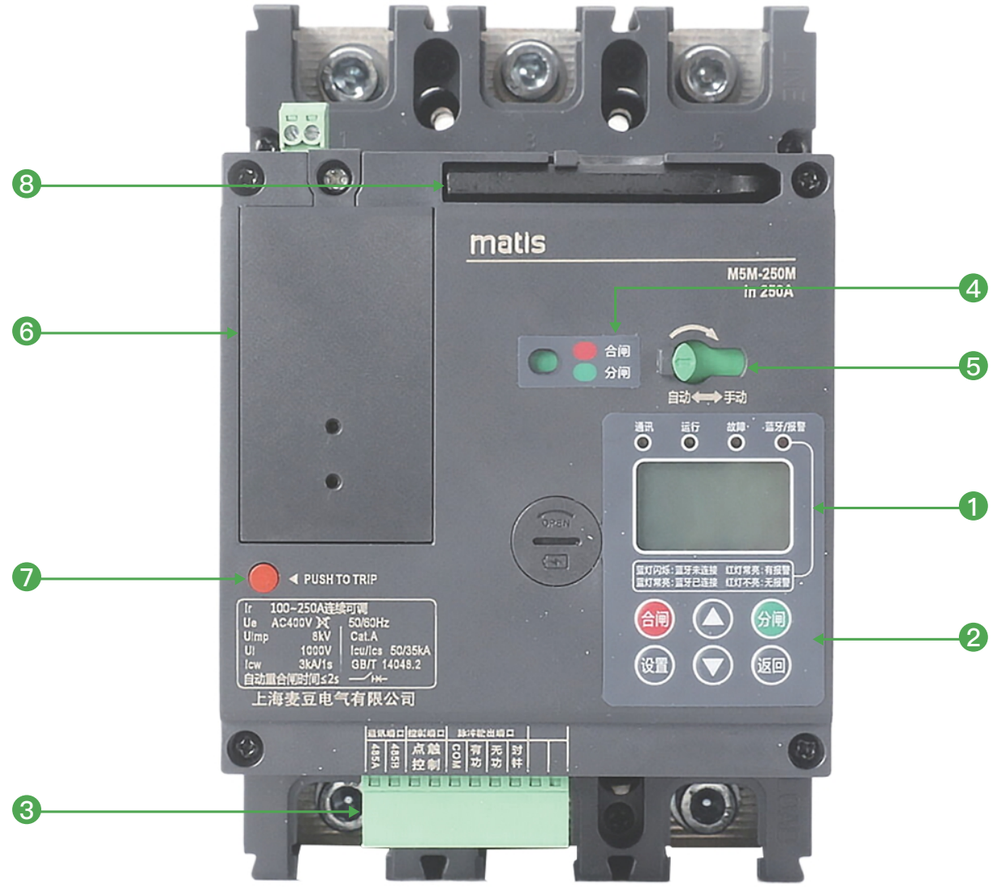
Three-stage Current Protection

When the line phase voltage is higher than the overvoltage protection setting value, the circuit breaker trips for protection. When the line voltage returns to normal voltage, it can be automatically closed and put into operation. The setting value range is 250V-300V, and the protection can be set or closed by yourself.

Real-time Accurate Measurement

0.05In-1.2In metering: class 1.0; real-time measurement of active power, reactive power, apparent power, power factor and other parameters, and accumulation of three- phase active energy; accuracy class: current and voltage accuracy can reach up to class 0.5s; active and reactive power accuracy can reach up to class 1.

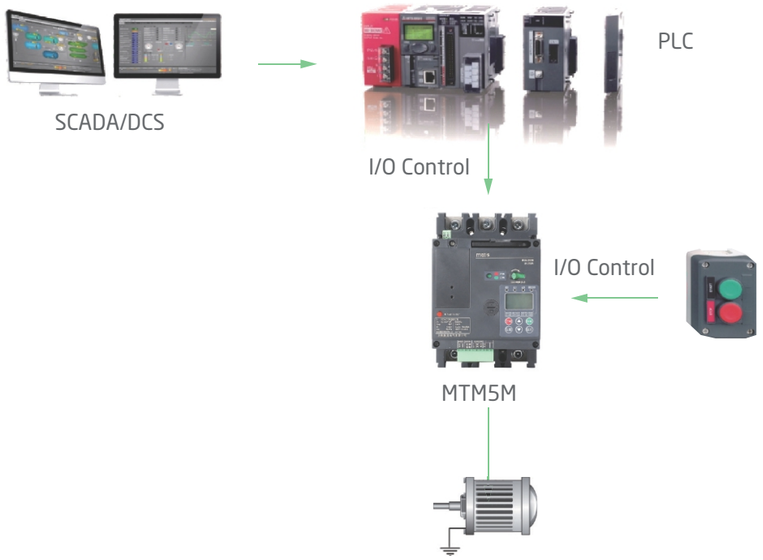
Interface



①: LED screen
②: Menu operation button
③: Port (RS485/control/pulse/input)
④: Indicator
⑤: Auto/manual knob
⑥: HPLC module
⑦: Emergency trip button
⑧: Manually operated hexagonal wrench

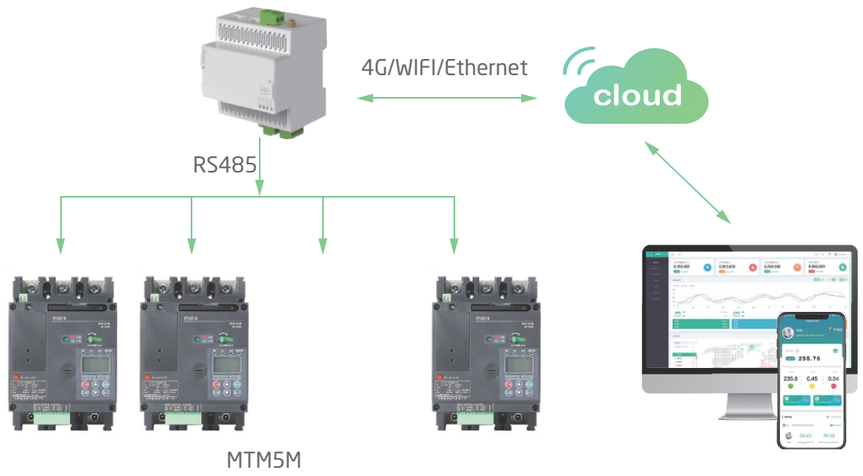
IO Control

MTM5M smart metering MCCB can be controlled in automatic mode by IO port (wet contact) of PLC or button.



RS485 Control

The MTM5M can be connected to the gateway via RS485 and Modbus protocols, and the gateway can be connected to the internet via different types of communications such as 4G, Wifi, Ethernet, etc. The MTM5M can then be controlled via an app or web software.



Technical Parameters

Models		MTM5M-125M	MTM5M-250M	MTM5M-400M	MTM5M-630M
Frame size rated current (A)		125	250	400	630
Poles		3P (4P optional)			
Rated working voltage Ue(V)		AC400/50HZ			
Rated insulation voltage Ui(V)		1000			
Rated impulse withstand voltage Uimp(V)		8000			
Arcing distance (mm)		≥ 50		≥ 100	
Ultimate short-circuit breaking capacity Icu(kA)		50		70	
Operating short-circuit breaking capacity Ics(kA)		35		50	
Rated short-time withstand current Icw (kA)/s		1.5	3	5	8
Automatic closing time(s)		≤ 2s			
Operation performance(times)	Power-on	1500	1000	1000	1000
	Power-off	8500	7000	4000	4000
	Total times	10000	8000	5000	5000
Overload and short circuit characteristics		Three-stage protection, electronically adjustable, see "Protection Characteristics" for details			
Overvoltage protection value (V)		Setting value (231~330)/ Default value 275V			
Undervoltage protection value (V)		Setting value (88~209)/ Default value 145V			
Phase loss protection value (V)		Setting value (10~130)/ Default value 30V			
Control delay time (ms)		≤ 40ms			
Communication delay time (ms)		≤ 200ms			

Function Description

Automatic reclosing	●	●	●	●
Security padlock	●	●	●	●
6-way temperature monitoring	●	●	●	●

Environmental Characteristics

Storage temperature	-5℃ ~+40℃
Relative humidity	≤ 50% (ambient temperature +40℃)
Highest altitude	2000 m
Installation environment	No conductive dust, no corrosive gas, no flammable and explosive gas, no rain or snow

Metering Parameters

Accuracy	Allowable Error
Current accuracy	0.5%
Voltage accuracy	0.5%
Active power accuracy	1.0%
Reactive power accuracy	1.0%

Overload Long Delay Parameter Setting

Specifications	Setting Value Ir1_A	Factory Setting Value
125A	50A-125A continuously adjustable	125A
250A	100A-250A continuously adjustable	250A
400A	160A-400A continuously adjustable	400A
630A	250A-630A continuously adjustable	630A
Delay time setting value Ir1_T	3s~18s adjustable	12s

Ambient Temperature	Current Name	Setting Current Multiple	Scheduled Time
+40	Conventional non-tripping current	1.05Ir1	≥ 2h
	Conventional tripping current	1.3Ir1	<2h

Short Circuit Short Delay Protection Action Characteristics

Parameter Settings	Setting Range	Factory Setting Value
Short-time delay action current setting value Ir2_N	2~12Ir1 adjustable	6Ir1
Short delay time setting value Ir2_T	0.1s~1.0s adjustable	0.4s

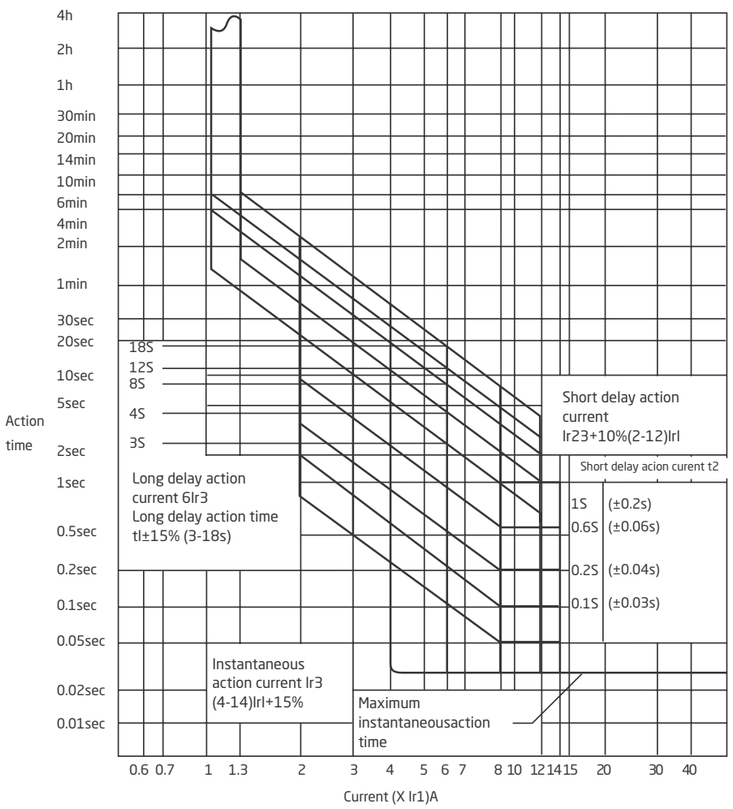
Characteristics	Fault Current Multiple	Trip Characteristics	Delay Error
Non-action characteristics	≤0.85 Ir2	No action	/
Action characteristics	>1.15 Ir2	Delayed action	±40ms

Short Circuit Instantaneous Protection Action Characteristics

Parameter Settings	Setting Range	Factory Setting Value
Short-time delay action current setting value Ir2_N	2~12Ir1 adjustable	6Ir1
Short delay time setting value Ir2_T	0.1s~1.0s adjustable	0.4s

Characteristic	Current Multiple (1/Ii)	Delay Error
Non-action characteristics	≤0.85	/
Action characteristics	>1.15	±40ms

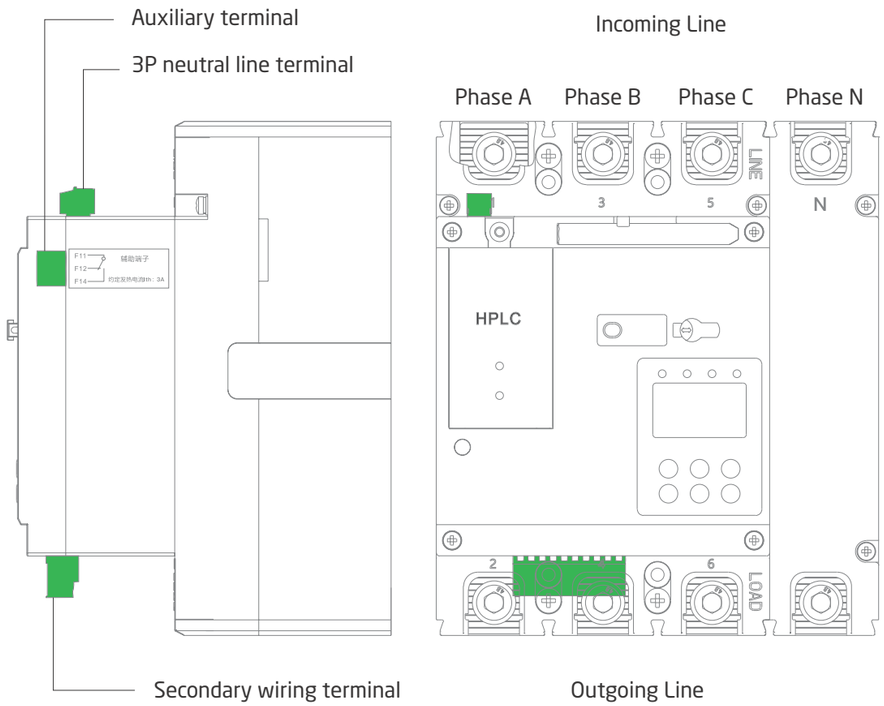
Characteristic Curve



Residual Current Protection Characteristics

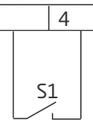
Model	Frame Current (A)	Short Circuit Breaking Capacity Ics(KA)	Poles	Rated Current Adjustable (A	Communication	Accuracy Class	Temperature control protection
MTM5M-125M	125	35	3P	50~125A	Modbus RTU (RS485)	Class 1.0	/
MTM5M-250M	250			100~250A			
MTM5M-400M	400	50		160~400A			
MTM5M-630M	630	70		250~630A			
MTM5M-125M/TH	125	35		50~125A			6-way temperature controlprotection for incoming/outgoing line
MTM5M-250M/TH	250	35		100~250A			
MTM5M-400M/TH	400	50		160~400A			
MTM5M-630M/TH	630	70		250~630A			

Wiring Diagram

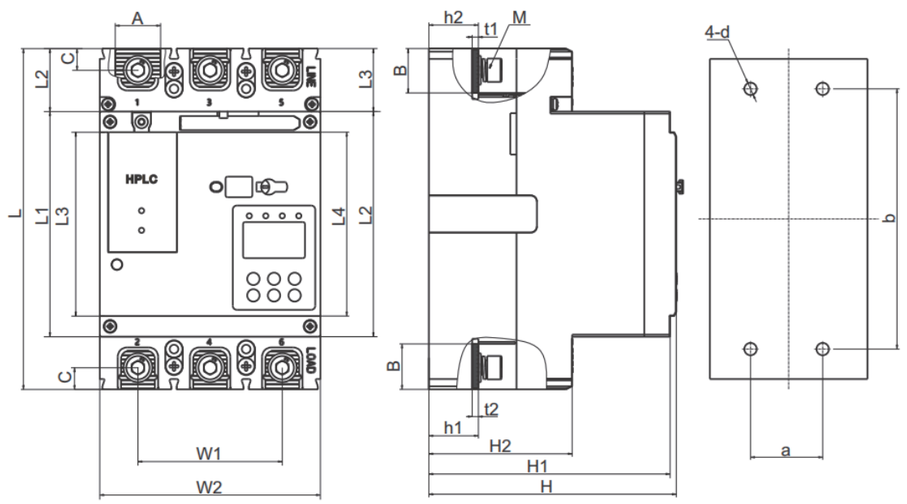


Secondary Wiring Terminal Diagram

Communi cation port		Control port		Pulse output port					
485A	485B	Connect- ON Disconnect-OFF		COM	Active	Rcetive	Clock		
1	2	3	4	5	6	7	8	9	10



Dimensions



Model	Overall Dimensions (mm)									Installation Dimensions(mm)		
	L	L1	L2	L3	W1	W2	H	H1	H2	a	b	d
MTM5M-125M	150	108.7	24.7	88.7	60	92	120	117	65.5	30	129	ϕ4.5
MTM5M-250M	165	109	30.5	99	70	107	120	117	69.5	35	126	ϕ4.5
MTM5M-400M	258	177	40.5	148	96	150	160	157	98.5	44	195	ϕ7
MTM5M-630M	270	177	46.5	145.8	116	182	163.5	160.5	102	58	200	ϕ7

Model	Terminal Board Size (mm)							Terminal Screws	Mounting Screws
	A	B	C	t1	t2	h1	h2	M	
MTM5M-125M	18	17	8.5	3	3	23	26	M8x20	M4x45
MTM5M-250M	22	21	10.5	3	3	24	24	M8x20	M4x45
MTM5M-400M	33	28.5	16.5	5	4	36.5	37.5	M10X35	M5X100
MTM5M-630M	44	30.5	17.7	6	6	41.5	43.5	M12x35	M6x65