

Re-closing Series (RS485)

MT53ASp Series

Product Manual (RS485 Version)

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1 Product Definition and Scope of Application

1.1 Product Definition

MT53ASp is a PRO-type auto re-closing module mechanically combined with matched circuit breaker. The device identifies circuit breaker status via position and trip feedback. Under AUTO mode, it performs delayed re-closing for recoverable fault tripping according to selected re-closing strategy; Status reading, parameter configuration, remote opening, remote closing and lock control are realized via RS485 Modbus RTU.

1.2 Core Functions

- Operation status identification for AUTO / MAN (or mechanical lock);
- Status reading of circuit breaker opening, closing and fault tripping;
- Customizable 1~5 re-closing times and 4 groups of preset re-closing strategies;
- Independent configuration of each re-closing waiting time and post-closing stabilization time;
- Record of opening cause, closing cause, lock cause and operation counter;
- Permanent fault judgment for re-tripping within ≤ 700 ms after closing;
- RS485 remote opening, closing, locking, parameter configuration, reset and reboot;
- Independent enable for auto-closing function after power-on recovery.

1.3 Application

Application Scenarios	Recommendation	Limitation Notes
General lighting & power branch circuits	Short-3 is optional or set on-site	Ensure auto-recovery will not cause personal injury or equipment damage risk
Fans, water pumps and factory auxiliary circuits	Long-fixed is optional	Verify restart interlock and mechanical safety
Unattended equipment and	Progressive is optional	Remote monitoring and locking function

communication circuits		shall be retained
Circuits prone to nuisance tripping caused by transient surge	Short-1 is optional	Re-closing cycles shall not be used to mask persistent faults

2 Technical Parameters

Category	Item	Design Parameter / Definition
Power Supply	Rated Operating Voltage	230V AC;
	Rated Frequency	50/60Hz
Communication	Physical Interface	RS485, Modbus RTU Slave
	Default Slave Address	1; configurable from 1 to 247
	Default Serial Port Parameters	9600 bps, 8N1 (Register default: 0x1002)
	Selectable Baud Rate	2400/4800/9600/19200/38400/115200 bps
Re-closing	Preset Programs	4 optional programs, re-closing times: 0~5 times; default: 3 re-closing program
	Custom Times	1~5 times, re-closing times configurable
	Custom Timing	Each re-closing waiting time: 1~65535s, independently configurable
Safety	Permanent Fault Judgment	Re-tripping within ≤ 700 ms after closing
Installation	Mounting Method	DIN rail / mechanically combined with matched circuit breaker; refer to mechanical drawing
Ambient	Temperature	-25 °C to +55 °C

3 Operation Modes and Safety Locking

3.1 AUTO (Automatic Mode)

- Automatic re-closing is permitted per selected strategy under AUTO mode;
- RS485 remote control is allowed, provided remote control is enabled in advance;
- Automatic re-closing is prohibited after manual opening or RS485 remote opening.

3.2 MANU (Manual Mode)

- Automatic re-closing is disabled under MAN mode;
- Local manual opening and closing are permitted;
- Pending automatic re-closing shall be stopped immediately when switching from AUTO to MAN.

3.3 LOCK (Mechanical Lock Mode):

- When mechanical safety lock is activated, all closing operations are prohibited, including motor-driven closing, automatic re-closing, remote closing and manual closing.

4 Auto Re-closing Logic

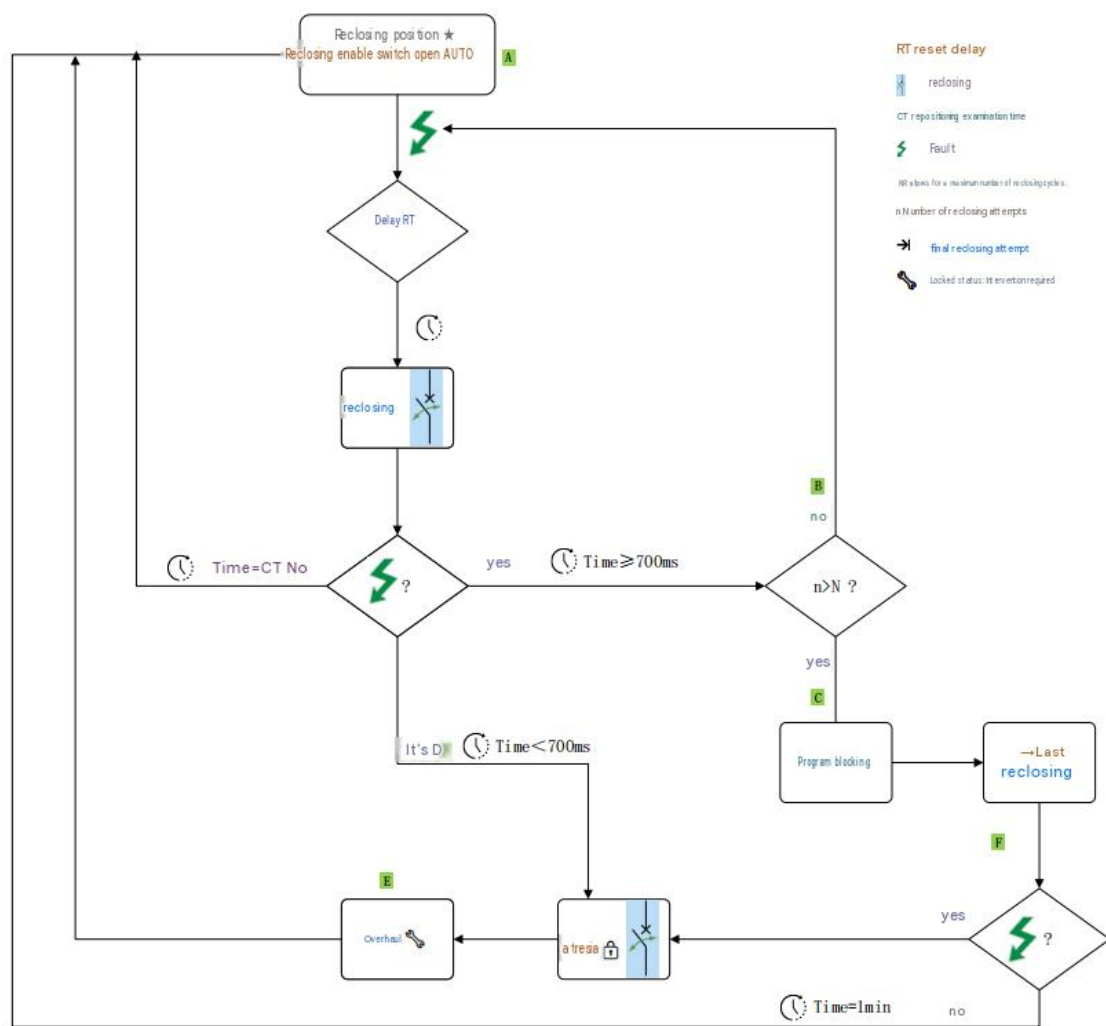
4.1 Re-closing Enable & Inhibit Conditions

Condition	Action
AUTO mode, fault tripping detected, no manual or remote opening, normal device status, re-closing function enabled and available re-closing count remaining	Start auto re-closing per selected strategy
MAN mode or mechanical LOCK	Auto re-closing inhibited
Manual or intentional remote opening	Remain open, no auto re-closing initiated
Re-closing strategy set to inhibit	Remain open
Re-tripping within ≤ 700 ms after closing	Judged as permanent fault and locked out

4.2 Auto Re-closing Strategies

Mode Value	Mode Name	Times	Delay Strategy	Application
0	Inhibit	0	—	Disable automatic re-closing
1	Custom	1~5	Independently configurable for each cycle	For on-site condition tuning
2	Short-1	1	10s	Nuisance tripping caused by transient surge
3	Short-3	3	10s / 1min / 3min	General lighting / power circuits, default recommendation
4	Long-fixed	5	10s / 1min / 3min / 3min / 3min	Main factory power supply lines, fan circuits
5	Progressive	5	10s / 1min / 3min / 4min / 5min	Abnormal fluctuation and self-recovery scenarios

4.3 Re-closing Flow



5 LED Indication Logic

Multi-color LEDs are integrated on module front panel to reflect device operating status in real-time:

Status	Meaning
Green LED steady on	AUTO mode, normal operation
Green LED flashing	MANU mode, waiting for manual or communication control
● Red LED flashing	Waiting for re-closing / countdown
● Red LED steady on	Auto re-closing sequence locked out or permanent fault

Yellow LED steady on	Device under mechanical padlock lock status
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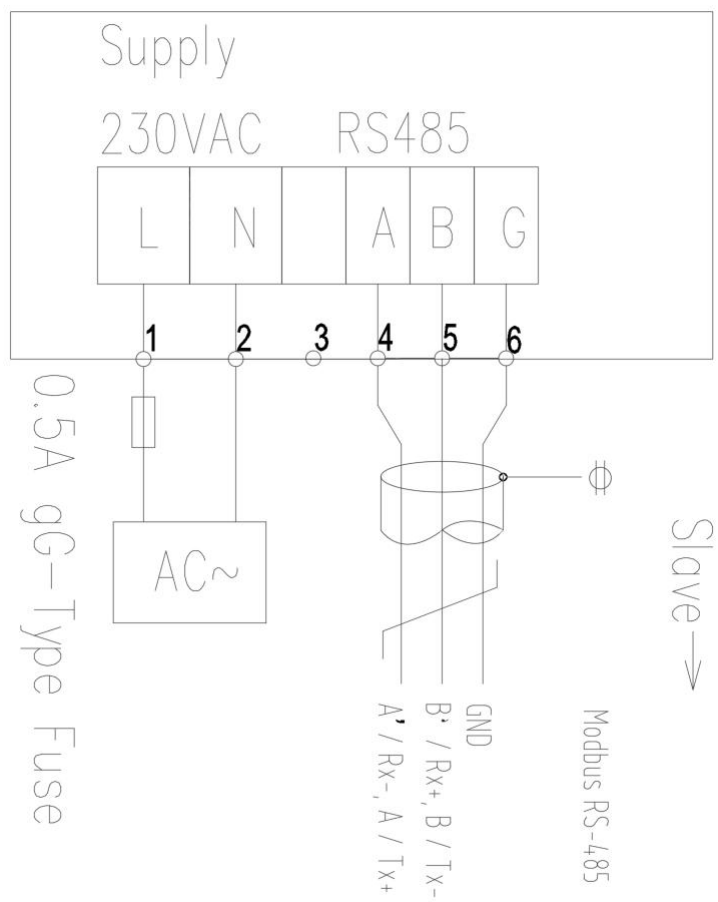
6 Terminal Definition

Terminal No.	Function Definition	Remarks
1、 2	Power Input	230V AC (±15%)
4	RS-485 A	Communication Interface A
5	RS-485 B	Communication Interface B
6	RS-485 GND	Communication Ground (optional connection)

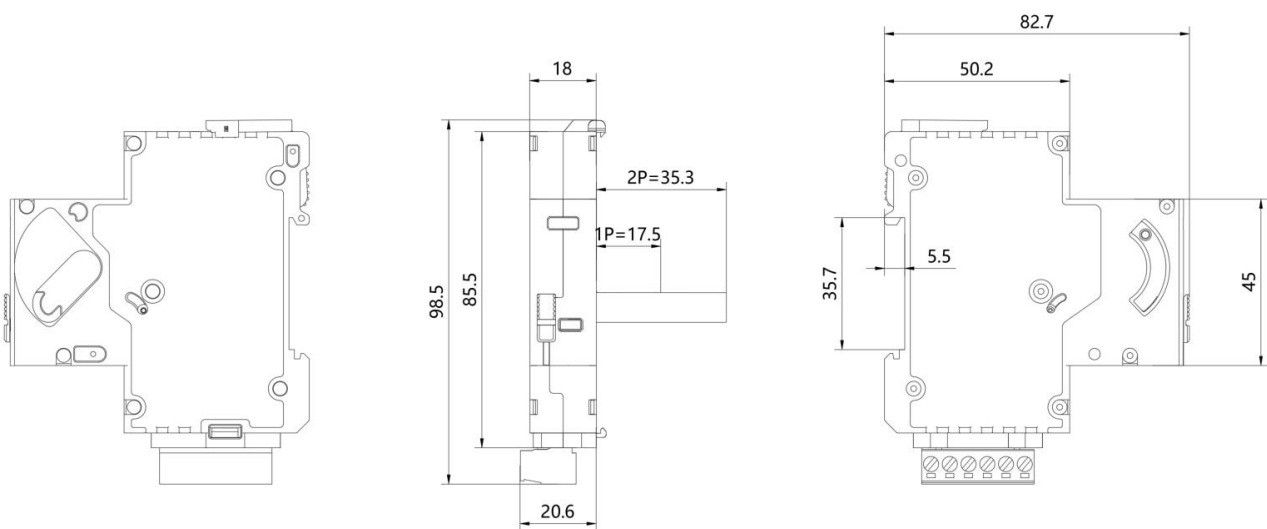
RS485 Communication (Modbus): Bidirectional communication with monitoring platform is realized via terminals 4/5. It supports real-time reading of trip counts, fault causes and reset by remote commands.

Auxiliary Module Connection: The side expansion interface supports connecting up to 2 signal auxiliary modules (OF & SD), for dry-contact signal output or interlocking with local alarm system.

6. 1 Wiring Diagram



7 Dimension Drawing



8 EMC Standards

Test	Basic Standard	Test Level Description
Electro-Static Discharge Immunity (ESD)	IEC 61000-4-2	Level 3: Air 8kV, Contact 6kV
Radio-Frequency Electromagnetic Field Immunity (RS/RFI)	IEC 61000-4-3	Level 3: 10 V/m, 80 MHz-1000 MHz
Electrical Fast Transient Burst (EFT)	IEC 61000-4-4	2 kV (power supply line), 5/50ns
Surge Immunity (Surge)	IEC 61000-4-5	Level 3: Common-mode 4kV, Differential-mode 2kV
Conducted Susceptibility (CS)	IEC 61000-4-6	Level 2: 3 V, 150 Ω , 0.15-80 MHz
Power-Frequency Magnetic Field Immunity	IEC 61000-4-8	Level 4: 30 A/m, continuous wave
Common-mode conducted disturbance below 150 MHz	IEC 61000-4-16	Test Level 3
Radiated Emission (EMI) RE	EN 55022 / CISPR 22	Class B
Conducted Emission CE	EN 55022 / CISPR 22	Class B