



### Features:

- Compact PLC with built-in HMI.
- Configurable LED display.
- Windows based software program for configuration.

**Size:** 48mm x 96mm

**IO Configuration Table**

	MM1010-T/R	MM1010-V/I	MM1010-1AI (T/R)-DR03	MM1012	MM1012-1	MM1012-2	MM1013	MM1015
<b>Digital Inputs</b>	8	8	—	6	6	6	8	10
<b>Relay Outputs</b>	5	5	3	4	4	4	5	6
<b>Analog Inputs</b>	1(TC/RTD)	1(V/I)	1(RTD)	2(T/R/V/I)	2(T/R/V/I)	2(T/R/V/I)	—	—
<b>Analog Outputs</b>	—	—	—	—	1(0-10V)	1(0-20mA)	—	—
<b>Selpro Model Selection</b>	MM1010-1	MM1010-2	MM1010-4	MM1012	MM1012	MM1012	MM1013	MM1015

### Technical Specifications

#### Display

Display	7 segment LED
Digits	3 digit + [4 + 4] digit
No. of Keys	5 keys (4 user configurable)

#### Input Specifications

<b>Digital Input</b>	
Input Type	PNP
Input Voltage Range	11 - 28V DC (abs. max.: 30V DC)
Response Time	Programmable upto 1 to 255ms from Front End (Default 10ms; Also depends on ladder execution time)
Isolation	4kV
<b>Analog Input</b>	
No. of Inputs / Type	TC / RTD / 0-20mA / 0-10V [User selectable]
Sensors	J, K, T, R, S, C, E, B, N, L, U, W, PLTNL, RTD, mV (0-60mV), VOLTAGE (0-10V), CURRENT (0-20mA)
Resolution	16 bits
Accuracy	For TC inputs: 0.25% of full scale $\pm 1^\circ$ For R & S inputs: 0.5% of full scale $\pm 2^\circ$ (20 min of warm up time for TC inputs) For RTD inputs: 0.1% of full scale $\pm 1^\circ$ For V/I Inputs: $\pm 0.5%$ of full scale / $\pm 5$ counts whichever greater
Conversion time	100 msec
Linearity	0.1%

#### Output Specifications

##### Digital Output - Relay

Contact Rating	NO type : 3A resistive @ 240V AC [For MM1010-24V] 5A resistive @ 240V AC
Isolation	4kV

##### Analog Output

Output Type	<b>Current</b> - 0-20mA <b>Voltage</b> - 0-10V
Resolution	14.5 bits
Conversion time	20 msec
Linearity error	0.1%

#### Functional Specifications:

Programming Method	Windows based software for ladder programming and HMI configuration.
Memory	Data memory: 16 kbytes Code memory: 223 kbytes
Max. no. of Objects	5000 (As per memory)
Minimum Scan Time	200 $\mu$ sec
Typical Scan Time	1 ms

#### Communication:

Communication Ports	RS485 port [slave]
Communication Protocol	MODBUS RTU

### Functional Features

Timer Operational Modes	On Delay, Off Delay, Pulse, Special [Up/Down] Timer
Timer Resolution	1 ms (Accurate only for 1 msec Timer block)
Timer Display Format	Sec, Min, Hr, Day, Min.Sec, Hr.Min, Day.Hr.
Counter	Up Counter, Down Counter, Up/Down Counter, Special Up Down Counter
Other Blocks	PID Control with Autotune, Analog input, Rampsoak, FTC, Analog Output, Hysterisis, Scaling.
Memory Retention	10 years (4k memory)
RTC	No

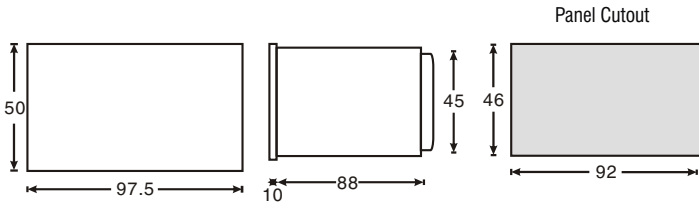
### Supply Voltage

Supply Voltage	230V AC (-20% /+15%), 50Hz
[As per product selection]	24V DC (-5% / +20%)

### Environmental Specifications

Temperature	Operating : 0 to 50 °C Storage : -20 to 60 °C
Humidity (non-condensing)	95% RH
Weight	258gms

### Dimensions (in mm)



### Terminal Connections

**MM1010-T/R-24V**

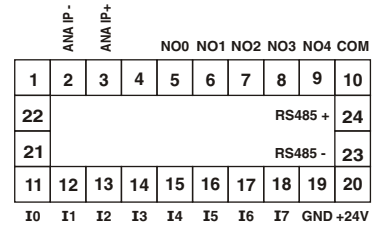
For TC/RTD

**MM1010-T/R-230V**

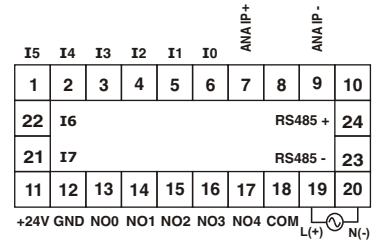
For TC/RTD

### Terminal Connections

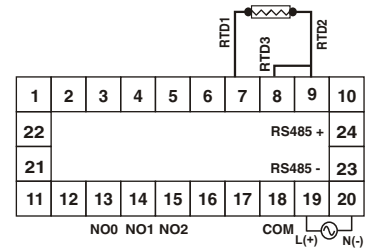
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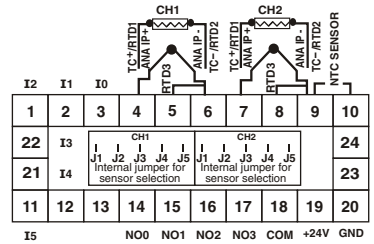
#### MM1010-V/I-230V



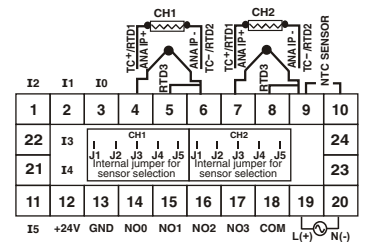
#### MM1010-1AI(T/R)-DR03-230V



#### MM1012-24V

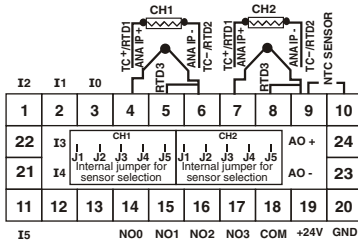


#### MM1012-230V

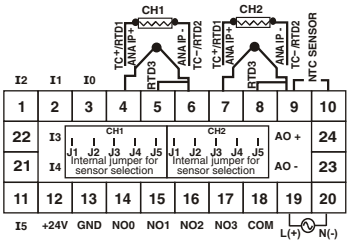


## Terminal Connections

### MM1012-1/2-24V



### MM1012-1/2-230V

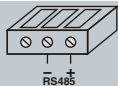


### RS485 for downloading and networking Reference for analog input type selection

RS485 on side terminal

For TC/RTD Short J4 & J5

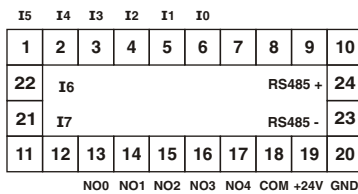
From Front



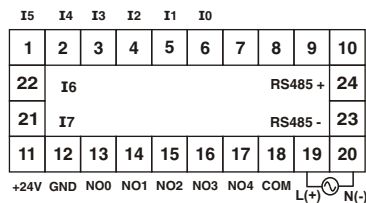
For Volt Short J3 & J4

For Current Short J1 & J2

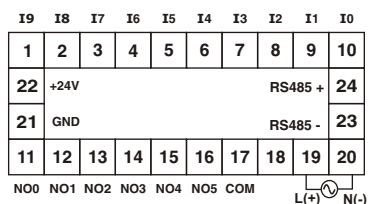
### MM1013-24V



### MM1013-230V



### MM1015-230V



## Ordering Information

Product	Order Code
MM1010-1	MM1010-T/R-24V
	MM1010-T/R-230V
MM1010-2	MM1010-V-24V
	MM1010-V-230V
	MM1010-I-24V
MM1010-4	MM1010-1AI(T/R)-DR03-230V
	MM1010-I-230V
MM1012	MM1012-24V
	MM1012-230V
MM1012-1	MM1012-1-24V
	MM1012-1-230V
MM1012-2	MM1012-2-24V
	MM1012-2-230V
MM1013	MM1013-24V
	MM1013-230V
MM1015	MM1015-230V

### Accessories (To be ordered separately)

Communication cable	ACH-001 (D-Type 9 Pin Cable)
Windows-based software for ladder programming	ACD-003
Power Supply Module	PS-CF-24V-1.1A
<b>Converters</b>	
RS485 to RS232	AC-RS485-RS232-01 ( Non Isolated )
	AC-RS485-RS232-ISO ( Isolated )
USB to RS485 (with wire)	AC-USB-RS485-02