



## Features:

- Compact PLC with built-in HMI.
- 4 line x 16 characters LCD display.
- Windows based user friendly software for ladder programming and HMI configuration.
- RTC with Time Switch function.
- RS 485 based communication with MODBUS Protocol.
- Inbuilt 45 IOs and expandable upto 150 IOs.

**Size:** 96mm x 96mm

## Technical Specifications

### Display

Display	LCD (backlight) 4 line x 16 characters. Font size 5x7mm
No. of Keys	18 keys (10 numeric, 14 user configurable)

### Input Specifications

<b>Digital Input</b>	
No. of digital input	Dependent on card selection
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>Fast Counter Input (Applicable for 19 DIQ Card only)</b>	
Input Type	NPN
Operating Modes / Frequency	Unidirectional, Bidirectional : 7.5 kHz, Quadrature : 2.5 kHz
Maximum Count	10 digits
<b>Analog Input</b>	
No of Inputs / Type	Dependent on card selection
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 (0-10V : 1mV, 0-20mA : 1µA, TC / RTD : 0.1 °C)
Accuracy	For TC inputs: 0.25% of full scale ±1° For R & S inputs: 0.5% of full scale ±2° (20 min of warm up time for TC inputs) For RTD inputs: 0.1% of full scale ±1° For V/I Inputs: ± 0.5% of full scale / ± 5 counts whichever greater
Conversion Time	100 msec
Linearity	0.1%

### Output Specifications

<b>Digital Output - Relay</b>	
No. of Outputs	Dependent on card selection
Contact Rating	NO Type : 4ch / 8ch : 5A resistive @ 240V AC 11ch : 3A resistive @ 240V AC
Isolation	4kV
<b>Digital Output - Transistor</b>	
No. of Outputs	Dependent on card selection
Transistorized Output Rating	For 14 Channels : PNP Type : 24V, 100mA
Min. Switching Time	1 ms (or as per Ladder Scan Time)
<b>Analog Output</b>	
No. of Analog Output	Dependent on card selection
Output Type	<b>Current</b> - 0-20mA <b>Voltage</b> - 0-10V
Resolution	14.5 bit
Conversion Time	20 msec.
Linearity Error	0.1%

### Functional Specifications

Programming Method	Windows based software for ladder programming and HMI configuration. [Product selection in Selpro software MM3010]
Memory	Data memory: 16 kbytes Code memory: 351 kbytes Upload memory: 96 kbytes
Max. no. of Objects	5000 (As per memory)
Minimum Scan Time	200 µsec [Typically 1ms]

### Communication

Communication Ports	Master- RS485 Slave- RS232/RS485 [selectable via Jumper]
Communication Protocol	MODBUS RTU
Supported Expansion	I0610 on RS485 master port

### Functional Features

Timer Operational Modes	On Delay, Off Delay, Pulse, Special [Up/Down] Timer [1ms]
Timer Resolution	1 ms (Accurate only for 1 msec Timer block)
Timer Display Format	Sec, Min, Hr, Day, Min.Sec, Hr.Min, Day.Hr, Hr.Min.Sec, Day.Hr.Min.Sec
Counter	Up Counter, Down Counter, Up/Down Counter, Special Up Down Counter, Fast Counter [up to 10 digits] Uni/Bi/Quad
Other Blocks	PID Control with autotune, Analog input, Analog output, Hysteresis, Scaling, Time switch, Communication, RTC
Memory Retention	10 years (4k memory)
RTC	Yes (with 2 years battery life from the date of manufacture)

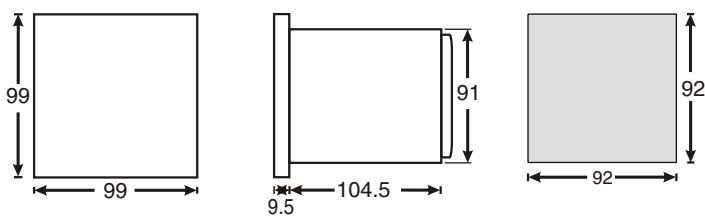
### Supply Voltage

Supply Voltage	230V AC (-20% /+15%), 50Hz 24V DC (-5% / +20%)
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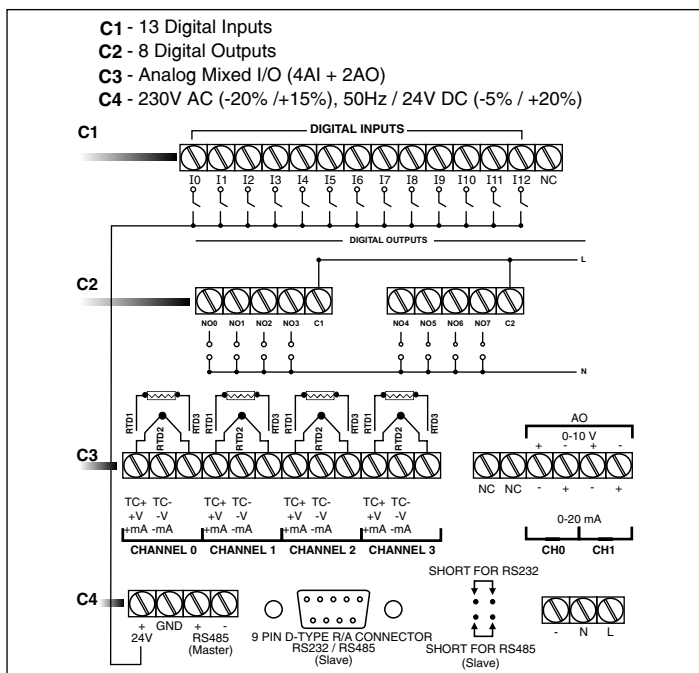
### Environmental Specifications

Temperature	Operating : 0 to 50 °C Storage : -20 to 60 °C
Humidity (non-condensing)	95% RH
Weight	564gms

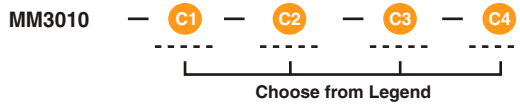
### Dimensions (in mm)



### Sample Terminal Connections



### Ordering Information



Slots	Cards	Order Code
C1 Digital input Cards	8 Digital Input	DI08
	13 Digital Input	DI13
	19 Digital Input + 1 Quad	DIQ19
C2 Digital output Cards	8 Digital Output (Relay type)	DR08
	11 Digital Output (Relay type)	DR11
	14 Digital Output, PNP, 100mA (Transistor type)	DT14
C3 Digital / Analog Mixed I/O Cards	Digital Mixed I/O : 8DI + 4DO (Relay Type)	MDI08R04
	6 channel Analog I/P (TC / RTD type)	AI06-T/R
	6 channel Analog I/P (Voltage / Current type)	AI06-V/I
	2 Channel Analog I/P (Universal type)(TC/RTD/V/I)	AI02
	Analog Mixed I/O : 4AI + 2AO 4AI (Universal I/P) - Set internal Jumpers (Default TC/RTD)2AO [Factory set to be specified while ordering (0-10V/0-20mA)]	MAI04002
C4 Power Supply	230V AC (-20% /+15%), 50Hz	270V
	24V DC (-5% / +20%)	24V DC

### Accessories (To be ordered separately)

Communication cable	ACH-001 (D-Type 9 Pin Cable)
Windows-based software for ladder programming	ACD-003
4 Relay module	AR-04-5A-NO/NC (SPDT)
	AR-04-5A-NO (SPST)
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 RS232	AC-USB-RS232-01
USB to RS485 (with wire)	AC-USB-RS485-02

### Ordering information for IO610 EXPANSION MODULES ON MASTER RS485 BUS.

IO610-8DI [ 8 Digital inputs ]
IO610-4RO [ 4 Relay Outputs ]
IO610-4TO [ 4 Transistor Outputs ]
IO610-2AI-VI [ 2 Analog inputs (Voltage / Current) ]
IO610-2AI-TCR [ 2 Analog inputs (TC/RTD) ]
IO610-2AO [ 2 Analog Outputs ]