

selec

MM1010-230V (48X96)
Operating Instructions



FEATURES

- Upto 8 Digital inputs
- Upto 5 Relays / Digital outputs
- One analog input

SPECIFICATIONS

Display	7 segment led
Digits	3 digit + (4 + 4) digit
No. of Keys	5
No. of Configurable Keys	4
DIGITAL INPUT	
No. of Digital Inputs	8
Input Type	PNP
Input Voltage Range	11 - 28 VDC (abs. max.: 30 VDC)
Response Time (Inputs other than fast counter)	For 8DI IX0,IX1 (2 inputs) - 1 ms (without debounce) Others - 10 ms (with debounce)
Isolation	2 kV
DIGITAL OUTPUT- Relay	
No. of Relay Outputs	5
Relay (NO Type) Contact rating	NO type; 5 A resistive @240 VAC
Isolation	2 kV
Response Time	20 ms
ANALOG INPUT	
No of Inputs / Type	Input:- TC / RTD / 0-10V / 0-20 mA (User selectable)

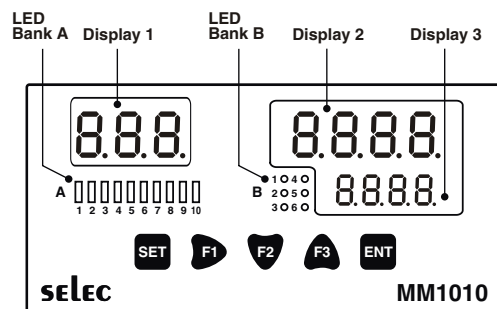
FUNCTIONAL SPECIFICATIONS

Programming Method	Windows based software for ladder program & HMI configuration
Memory	Data memory: 16K Code memory: 128K
No of Objects	Maximum 5000 (as per memory)
Minimum Scan Time	200 µsec

FUNCTIONAL BLOCKS

Timer Operational Modes (Least count .01 sec)	On Delay, Off Delay, Pulse Special (Up / Down) Timer(10 ms)
Timer Display Format	Sec, Min, Hr, Day, Min. Sec, Hr.Min, Day.Hr, Hr.Min.Sec, Day.Hr.Min.Sec
Counter (8 digits)	Up Counter, Down Counter, Up / Down Counter
Other Blocks	PID Control, Analog input
Communication Ports	RS485 ports (slave)
Communication Protocol	MODBUS/RTU
Memory Retention	10 years
Supply Voltage	90 - 270 VAC//DC
Temperature	Operating: 0 to 50°C Storage: -20 to 60°C
Humidity (non-condensing)	95%
Weight	258 gms

FRONT PANEL DESCRIPTION



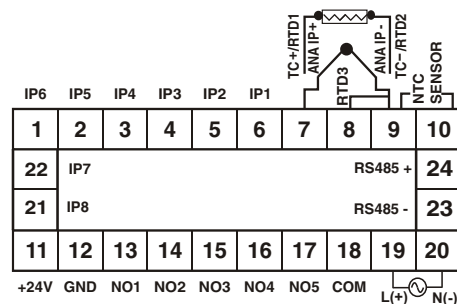
FRONT KEYS DESCRIPTION

General key description (internal menu)	Display 1	Display 2	Display 3	LED Bank A	LED Bank B
ENT Enter To Enter into internal menu (In Internal menu system settings, digital input /output status and communication settings can be viewed)	MMI	VER	2.01	OFF	OFF
SET To view system settings, digital input and output status when in internal menu Press ENT to go to previous screen.	SCN	1 (Scan rate in milli-sec. with a least count of 1ms)	ms	Digital Inputs (Status DI0 to DI7)	Digital Outputs (Status DO0 to DO4)
F1 To view communication settings, digital input and output status when in internal menu. Press ENT to go to previous screen.	1 (Slave ID)	19K2 (Baud Rate)	8N2 (Word Length, Parity, Stop Bits)	OFF	OFF
ENT To Exit from internal menu	User defined HMI page				

Key operation in user defined HMI modes

Key	User defined HMI Mode	Edit Mode (Accept data entry task)
SET	User Configurable (Dual key definition is also possible)	Allows switching between sign (+ve or -ve) for signed variables
F1	User configurable (Dual key definition is also possible)	Moves the cursor to the right by one digit
F2	User configurable (Dual key definition is also possible)	Decrements the digit of the parameter in edit mode by 1
F3	User configurable (Dual key definition is also possible)	Increments the digit of the parameter in edit mode by 1
ENT	Not User Configurable	Saves the selected / edited parameter

TERMINAL CONNECTIONS



ORDERING INFORMATION

Product	Order Code
MM1010	MM1010-230V
Accessories (ordered separately)	Order Code
Communication cable	ACH-001.
Windows-based software for ladder programming	ACD-003
RS485 to RS232 converter	AC - RS485 - RS232 - 01

SAFETY PRECAUTIONS

This manual is meant for personnel involved in wiring, installation, operation and routine maintenance of the equipment. All safety related codifications, symbols and instructions that appear in this operating manual or on the equipment must be strictly followed to ensure operator and instrument safety. Any misuse may impair the protection provided by the equipment.

CAUTION: Read complete instructions prior to installation and operation of the unit.

CAUTION: Risk of electric shock.

INSTALLATION INSTRUCTIONS

CAUTION

1. This equipment, being built-in-type, normally becomes a part of the main control panel and the terminals do not remain accessible to the user after installation.
2. Conductors must not come in contact with the internal circuitry of the equipment else it may lead to a safety hazard that may endanger life or cause electrical shock to the operator.
3. The equipment shall not be installed in environmental conditions other than those specified in this manual.
4. Since this equipment forms part of the main control panel, its output terminals get connected to the host equipment. Such equipment shall also comply to EMI/EMC and safety requirements like BSEN 61326-1 and BS EN 61010.
5. Thermal dissipation of equipment is met through ventilation holes provided on chassis of equipment. Obstruction of these ventilation holes may lead to a safety hazard.
6. The output terminals shall be loaded strictly as per the values/range specified by the manufacturer.

ELECTRICAL PRECAUTIONS DURING USE

Electrical noise generated by switching of inductive loads can create momentary disruption, erratic display, latch up, data loss or permanent damage to the instrument.

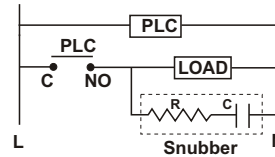
To reduce noise:

- A) Use of MOV / Snubber circuits across the load is recommended.
1. Snubber Part no.: APRC-01.
2. MOV Part no.: AP-MOV-03

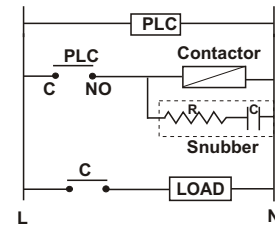
ELECTRICAL PRECAUTIONS DURING USE (CONTD.)

Typical connections for loads :

For load current < 0.5A



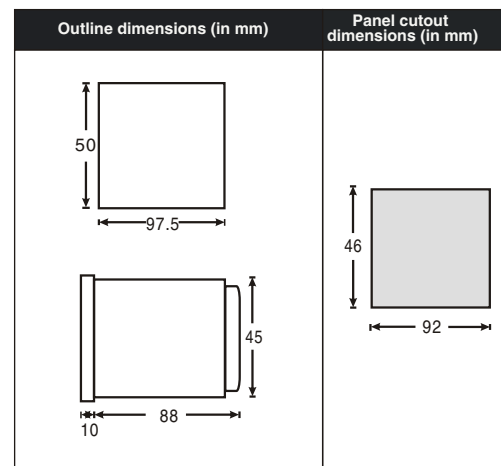
For bigger loads use interposing relay/contactor



NOTE: Use snubber as shown above to increase life of internal relay of temperature controller.

B) Use separate shielded wires for inputs.

MECHANICAL INSTALLATION



2. Remove the clamp from the PLC.
3. Fix the unit into the cutout. Insert the clamp from both sides and tighten the screws.

CAUTION

The equipment in its installed state must not come in close proximity to any heating sources, caustic vapors, oils, steam, or other unwanted process byproducts.

EMC Guidelines:

1. Use proper input power cables with shortest connections and twisted type.
2. Layout of connecting cables shall be away from any internal EMI source.

MAINTENANCE

1. To avoid blockage of ventilation holes, clean the equipment regularly using a clean soft cloth.
2. Do not use Isopropyl alcohol or any other organic solvents for cleaning.

WIRING INSTRUCTIONS

CAUTION

1. To prevent risk of electric shock, power supply to the equipment must be kept OFF while wiring.
2. Terminals and electrically charged parts must not be touched when the power is ON.
3. Wiring shall be done strictly according to the terminal layout provided in the operating manual.
4. Use lugged terminals to meet M3.5 screws.
5. To eliminate electromagnetic interference use short wire with adequate ratings and twists of equal size.
6. The power supply connection cable must have a cross section of 1sq.mm or greater and insulation capacity of atleast 1.5KV.

FUNCTIONAL DETAILS

MM1010 is a PLC with built in HMI. The user can configure the product using SELPRO software.

SELPRO has two sections:

1. Ladder logic programming section
2. Selec Machine Interface, used for configuration of HMI

This software is provided with the product. For details of the software and configuration method, please refer to its user manual with the product.

The display shows pages as configured by the user in Selec Machine Interface. An internal window is provided to the user to view status of physical inputs, physical outputs, system settings and communication settings. No editing is possible in this view.

Note: At least one page has to be defined in HMI

At power ON the control would go to the first page or the page sequence defined by user or the page defined under STR would appear.

COMMUNICATION



While making communication connections, make sure that the power supply to the unit is OFF.

MM1010 has one serial RS485 communication port. Serial communication port is used:

1. To download application program from PC to PLC.
2. For Online simulation
3. For Standard modbus communication of all the user defined variables in ladder; PLC acting as a slave device. The modbus variable table is generated by the ladder editor and can be viewed on demand.

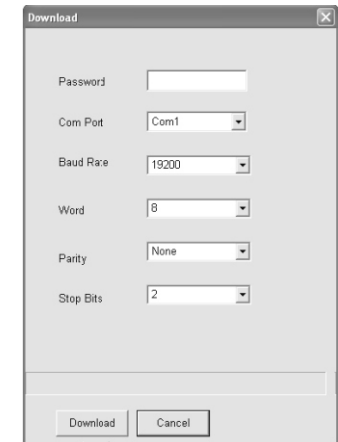
Downloading application programs:

For downloading application program from the PC to the PLC, follow the steps given below, in sequence:

Step 1: Make the necessary connection between MM1010, RS485 to RS232 converter and PC.

Step 2 : Save the ladder to be downloaded in the PLC and its corresponding HMI and compile using the Compile option present in Menu Bar

Step 3 : Select the download option from Communication option from Menu Bar. A downloader window as shown below appears:



Enter password for downloading which is 9303. Change communication settings as per target settings. Click on the 'Download' button to start downloading.

NOTE: Communication settings show default values. Downloading would take place only if target communication settings and communication settings of project match.

(Specifications subject to change as development is a continuous process).

Selec Controls Pvt. Ltd., India,

Tel:91-22-28476443/1882, Fax:91-22-28471733,
Toll free: 1800 227 353, Website: www.selec.com
E- mail: sales@selec.com.