TAIWAN SAVCH ELECTRIC

SAVCH Programmable Logic Controller

H/M series PLC MPU

User Manual

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SAVCH

User Manual

Contents

1. Products Receiving

All products have been performed with strict test and inspection. After receiving the product, the following checks shall be performed.

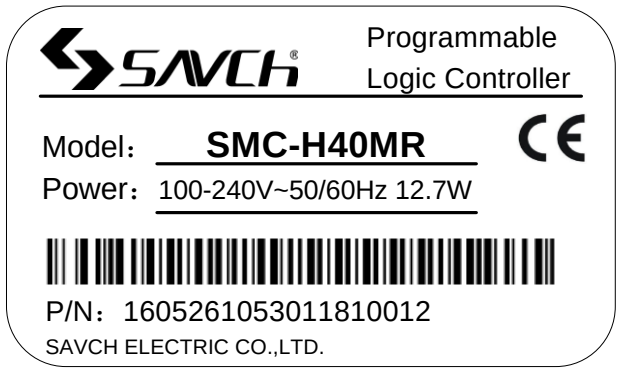
●To check that SAVCH product, an instruction manual is inside of the package

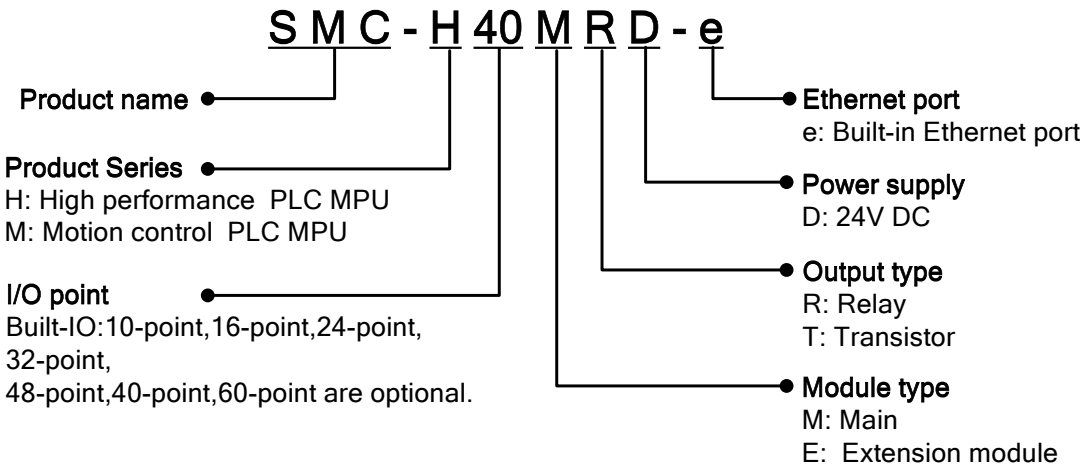
●To check whether model number correspond with model your purchase order.

●To check whether there are damaged parts during transportation and delivering. If there are, do not connect with power supply.

If any of the above checkpoints are not satisfactory, contact your SAVCH ELECTRIC representative for a quick resolution.

2. Model Description



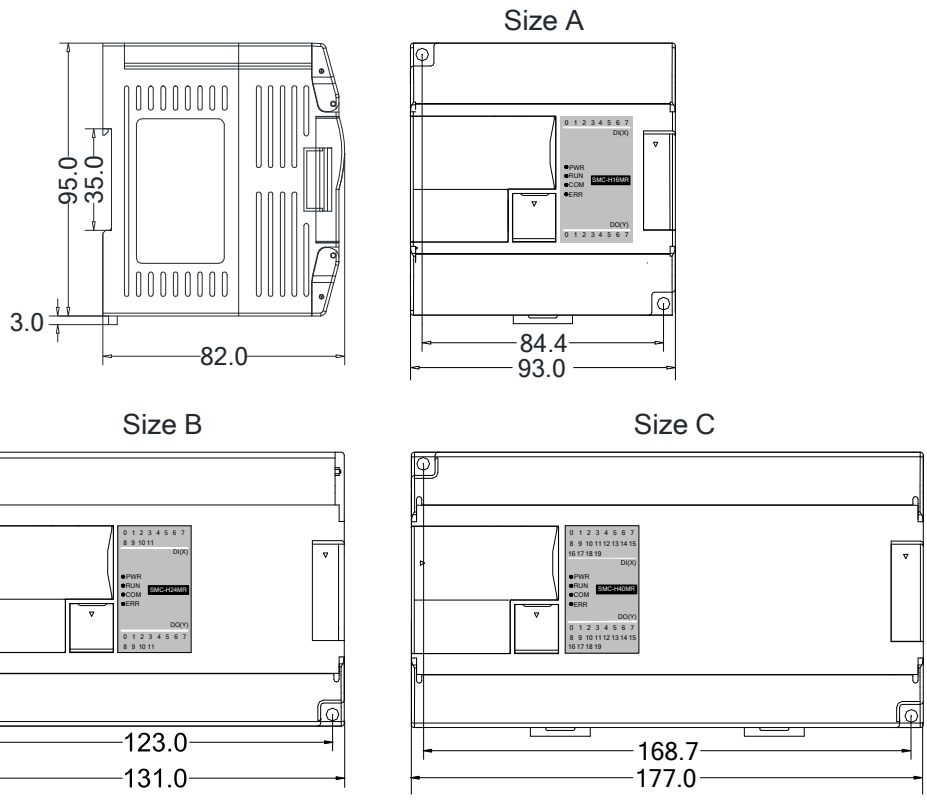


3. Product Model List & Dimensions

Ethernet Model	24VDC	Model	24VDC	Dimension	Figure No.
SMC-H16MRD-e	0.56A	SMC-H16MRD	0.53A	93×95×82mm	Size A
SMC-H16MTD-e	0.58A	SMC-H16MTD	0.55A		
SMC-M16MTD-e	0.58A	SMC-M16MTD	0.55A		
SMC-H24MRD-e	0.6A	SMC-H24MRD	0.57A		
SMC-H24MTD-e	0.62A	SMC-H24MTD	0.59A		
SMC-M24MTD-e	0.62A	SMC-M24MTD	0.58A		
SMC-H32MRD-e	0.64A	SMC-H32MRD	0.61A	131×95×82mm	Size B
SMC-H32MTD-e	0.66A	SMC-H32MTD	0.63A		
SMC-H40MRD-e	0.68A	SMC-H40MRD	0.65A		
SMC-H40MTD-e	0.7A	SMC-H40MTD	0.67A		
SMC-M40MTD-e	0.71A	SMC-M40MTD	0.68A		

Ethernet Model	24VDC	Model	24VDC	Dimension	Figure No.
SMC-H60MRD-e	0.78A	SMC-H60MRD	0.75A	177×95×82mm	Size C
SMC-H60MTD-e	0.8A	SMC-H60MTD	0.77A		
SMC-M60MTD-e	0.81A	SMC-M60MTD	0.78A		

Ethernet Model	220VAC	Model	220VAC	Dimension	Figure No.
SMC-H16MR-e	10.2W	SMC-H16MR	9.6W	93×95×82mm	Size A
SMC-H16MT-e	10.9W	SMC-H16MT	10.3W		
SMC-M16MT-e	10.7W	SMC-M16MT	10.1W		
SMC-H24MR-e	11.3W	SMC-H24MR	10.7W		
SMC-H24MT-e	11.7W	SMC-H24MT	11.1W		
SMC-M24MT-e	12.3W	SMC-M24MT	11.7W		
SMC-H32MR-e	13.1W	SMC-H32MR	12.5W	131×95×82mm	Size B
SMC-H32MT-e	12.7W	SMC-H32MT	12.1W		
SMC-H40MR-e	13.3W	SMC-H40MR	12.7W		
SMC-H40MT-e	14.7W	SMC-H40MT	14.1W		
SMC-M40MT-e	14.9W	SMC-M40MT	14.3W		
SMC-H60MR-e	17.1W	SMC-H60MR	16.5W	177×95×82mm	Size C
SMC-H60MT-e	17.8W	SMC-H60MT	17.2W		
SMC-M60MT-e	17.9W	SMC-M60MT	17.3W		



4. Indicator Description

① PWR: Power indicator,green. Continuous ON - Power good; OFF - Power error.

② RUN: Running indicator,green. Continuous ON - PLC is in running state; OFF - PLC was shutdown.

③ COM: Communication indicator,green. Flickering - PLC is in communicating state, the flicker frequency indicates the speed of the communication; OFF - No communication.

④ ERR: Error indicator .double (red. yellow), as follows

Consult manage	Signify information type	ERR the state of the indicator
Normal	Without error	Not light
Normal,just prompt take attention to the locked data	PLC have the component which locked	Yellow flicker: On 0.2 seconds and Off 0.8 seconds
Modificate the PLC hardward configure	Problem in the soft setting ,permit user keep on operate the user program	Yellow flicker: On 0.2 seconds and Off 0.8 seconds
Check module parallel bus (check the RTC battery; check extension module power supply)	Communication abnormal between modules, auto dislodge the abnormal module, permit user keep on operate the user program	Yellow flicker: On 0.8 seconds and Off 0.2 seconds
Upgrade the fireware or modify the user program	Fireware abnormal or user program abnormal,can not operate the user program	Red slowly flicker:indicator light 0.5s not light 0.5s
Maintain	Hardware error,user program con not running	red constant light

5. Power Supply Specification

Item	AC Power Supply	DC Power Supply
Power Supply Voltage	100~240VAC	DC24V -15%~+20%
Power Supply Frequency	50~60Hz	——
Power Consumption	25VA MAX	——
Instantaneous Surge	20A 1.5ms MAX @220VAC	20A 1.5ms MAX @24VDC
Power Loss Time	20ms or less @220VAC	10ms or less
Fuse	2A, 250VAC	2A, 250VAC
5V Output Voltage (for CPU)	5V, -2%~+2%, 1.2A MAX	5V, -2%~+2%, 1.2A MAX
24V Output Voltage (for output and extension)	24V, -15%~+15%, 500mA MAX	24V, -15%~+15%, 500mA MAX
24V Output Voltage (for input and peripheral)	24V, -15%~+15%, 300mA MAX	Use external 24VDC power supply
Insulation Type	Transformer isolation or optoelectronic isolation ,1500VAC/1 minute	No Electrical isolation
Power Protection	DC24V output over current	DC input power polarity reverse, over voltage

6. Environmental Specifications for Product

Item	Environment Specification	
Temperature/Humidity	Operating temperature:0~+55℃ Storage temperature:-25~+70℃ Humidity: 5~95%RH, No condensation	
Vibration Resistance	10~57 HZ, amplitude=0.075mm, 57HZ~150HZ acceleration=1G, 10 times each for X-axis, Y-axis and Z-axis	
Impact Resistance	15G, duration=11ms, 6 times each for X-axis, Y-axis and Z-axis	
Interference Immunity	AC EFT:±2500V Surge:±2500V	DC EFT:±2500V Surge:±1000V
Over Voltage Resistance	1500VAC/1min between AC terminal and PE terminal, 500VAC/1min between DC terminal and PE terminal	

Item	Environment Specification
Insulation Impedance	≧5MΩbetween AC terminal and all input/output points to PE terminal @500VDC
Ground	The third kind of grounding (Connecting to the ground of high voltage system is prohibited)
Operating environment	Avoid dust, moisture, corrosion, electric shock and external shocks

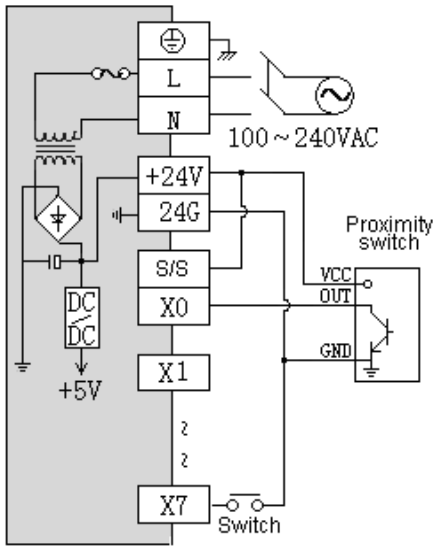
7. Digital Input (DI) Specification

Item	Digital Input (DI)
Input Signal	No voltage contact or NPN/PNP
Action driving	ON>3.5mA OFF<1.5mA
Input Impedance	Input Impedance≈4.3KΩ
Maximum Input Current	10mA
Reaction Time	6.4ms DEFAULT, can be configured to 0.8~51.2ms
Insulation Type	Optoelectronic isolation for each channel
Input Indication	LED's lighting indicates ON, no light indicates OFF
Power supply	MPU internal power supply:DC power supply (SINK or SOURCE) 5.3mA@24VDC

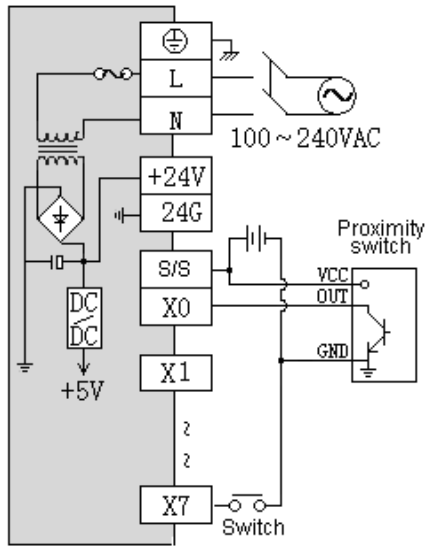
8. Digital Output (DO) Specification

Item		Output point type : Relay - R	transistor output T
Maximum load	Resistive Load	2A/1 point, 8A/4 points COM	0.5A/1 point, 2A/4 points COM
	Inductive Load	50VA	5W/DC24V
	Lamp load	100W	12W/DC24V
Minimum Load		10mA	2mA
Voltage Specification		Below 250VAC, 30VDC	30VDC
Drive Capability		Maximum contact capacity: 5A/250VAC	1A MAX, 10 seconds
Reaction Time		Off→On 10ms, On→off 5ms	Off→On 10μs，On→Off 120μs
Insulation Type		Mechanical isolation	Optoelectronic isolation for each channel
Output Indication		LED's lighting indicates ON, no light indicates OFF	
Power Supply		MPU internal 24VDC power supply	

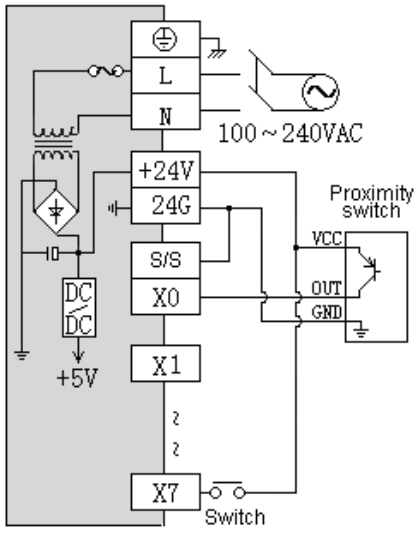
9. Digital Input / Output (DI/DO) Wiring Diagram



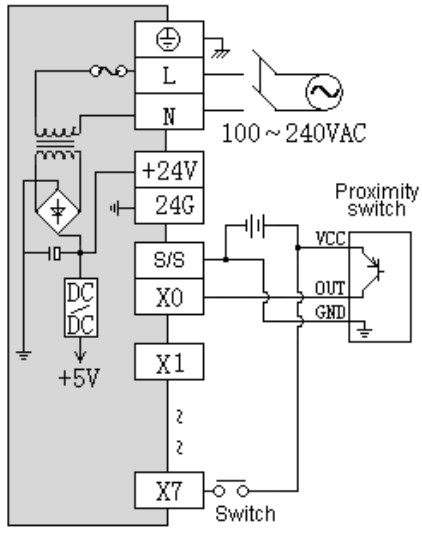
NPN Internal power



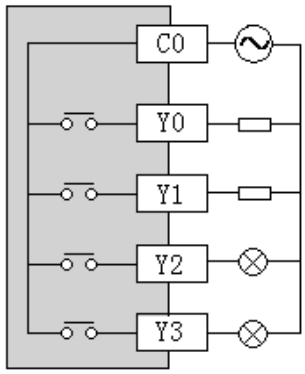
NPN External power



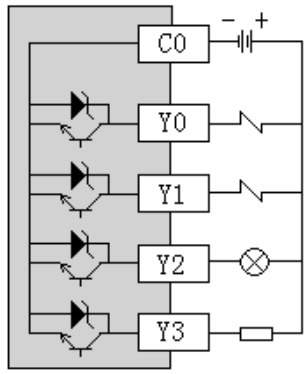
PNP Internal power



PNP External power

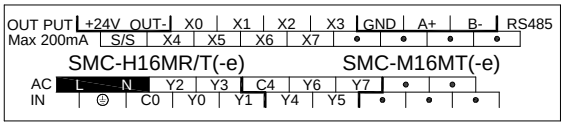


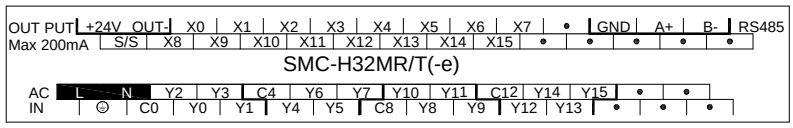
AC / DC Relay output

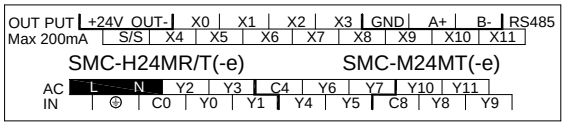


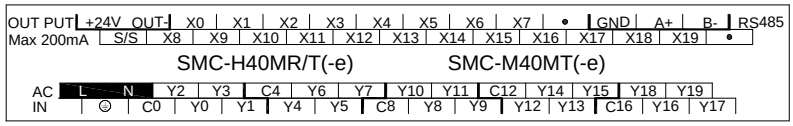
DC NPN Transistor output

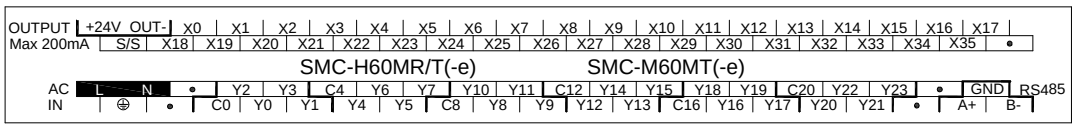
10. MPU Terminal Wiring Diagram

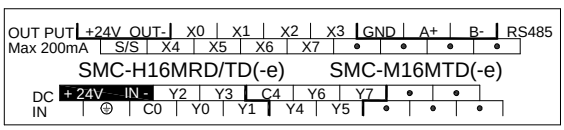


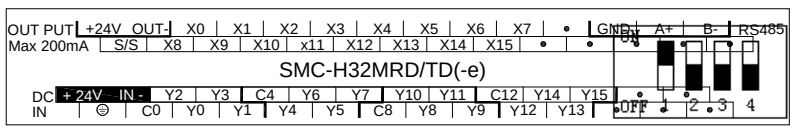


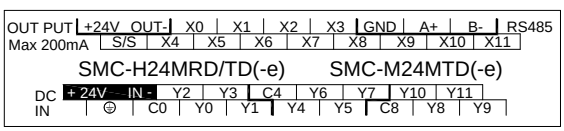


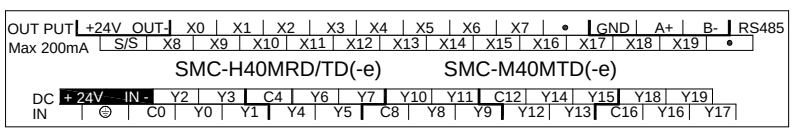


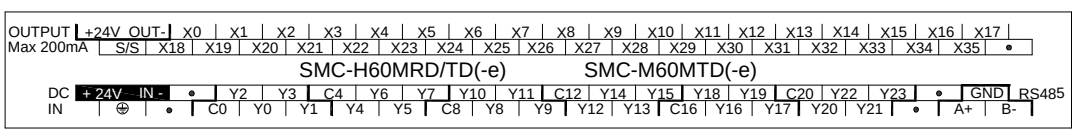




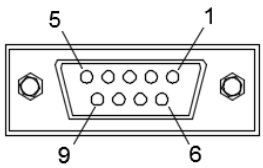




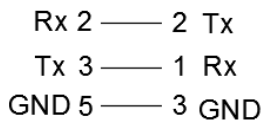




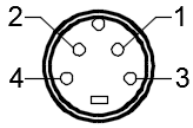
11. Programming Cable Wiring



Computer side (RS-232) DB9 female



PLC side (COM1)



4 core S terminal male

12. Address Setting

Savch PLC with Ethernet port, the default IP address is: 192.168.1.111, subnet mask: 255.255.255.0, gateway: 192.168.1.1. Hardware DIP dial switch address range: 1-15, the default address is 1. If you need to set a bigger address range, you can set on the software after connection with PLC, it can be set on the PLC parameter option in the software menu by checking on the "soft address" with the range of 1-254(the soft address is prior to the hardware dial address).

13. Power Supply Wiring

There are two kinds of power supplies for PLC: AC input and DC input. Please pay particular attention to the following notes:

- AC input voltage is 100~240VAC 50/60Hz unless otherwise stated. Connecting any one of the AC input wires to the terminal-L and terminal-N on the MPU will be OK, but for safety's sake, please connect the two wires (Live Wire & Neutral Wire) of AC input to terminal-L and terminal-N respectively.
- ⚠ Any AC110V or AC220V connected to the +24V terminal or input points will permanently damage the PLC.

Please use wires of 2.5mm or above for the grounding of the MPU.

14. Mounting and Installation

The PLC should be secured to an enclosed cabinet while mounting. For heat dissipation, make sure to provide a minimum clearance of 50mm between the unit and all sides of the cabinet. (See the figure.)

Rail Mounting: Use standard 35 mm rail.

Screw Mounting: Each MPU or extension module has two positioning screw holes, the diameter of the hole is 4.5mm. Please refer to the dimension figure for the location of the positioning holes and their spacing.

To avoid over temperature and for a better heat dissipation, do not mount PLC to a position near to the bottom/top of the cabinet. Do not mount PLC in vertical direction.

Extension Module Wiring: Connections between extension modules and connections between module and MPU are achieved through bus. An extension cable will be configured to every extension module, for the connection between two different modules.

Connection methods: turn the right side of extended interface (the last MPU or extension module) over, plug the extension cable in the extended interface, then press down the cover of the extended interface to reset the interface, the extended interface at the right side of the module will be reserved for extension of the next module. Connect all extension modules in turn in the same way.