

# HM-700 Series Human-Machine Interface



## HM-730S

### Installation Instructions

V1.02 2013-08-05

## 1. Installation Instructions

HMI is the CPI information products, may result in the use of RF interference or electromagnetic waves are generated, may affect other appliances, the user must ensure compliance with the following installation instructions to ensure the correct use of safety.

### 1.1. Safety Precautions

You should pay attention to the following safety precautions when installation, wiring, operation, maintenance and inspection.

#### 1.1.1. Installation Notes

1. Following the specified instruction to install the HMI, or it may result in equipment damage.
2. Prohibited to let the HMI to exposure in moisture, corrosive gases, flammable gases and other substances, or it may result in electric shock or fire.
3. Serial communication cable and network cable and power cable should be separated, and must be used to mask the cable, otherwise it may cause unpredictable problems.
4. Attention! When drilling or work with HMI, you should not let the cut wires or filler and other impurities fall into the HMI internal.

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4. When FG terminal is connected, please check if the wire is grounded properly. Because improper grounding may result in communication error, electric shock or fire.

#### 1.1.5. Communication cable wiring Notes

1. Comply with communication wiring specification for wiring.
2. Restrict cable length to less than 500'(150m) for RS485/422 devices and 50'(15m) for RS232 devices to avoid communication problems.
3. Proper grounding circuit to avoid bad communication quality.
4. Shielded cable must be used for long lengths or cables run in an electrically noisy environment.
5. When wiring, should be away from AC power cable and high energy and rapidly switching DC wiring cable.

#### 1.1.6. Operation Notes

1. HMI should meet the editing software to plan the screen. Un-planned HMI may not be able start the application, or result in abnormal operation.
2. Shouldn't change the wiring when the power is turned on, or it may result the electric shock or human injure.
3. Do not use a sharp object to touch the panel, or it may cause the panel sunken, and thus cannot make HMI operate normally.
4. The backup data of this product using the rechargeable lithium battery to supply the electric, therefore, do not let the product with power off for a long time (more than 6 months) to cause the low battery and let the kept data missing (system parameter, recipe, resume...)

#### 1.1.7. Maintenance Checks

1. Prohibiting touch HMI internal, otherwise it may cause electric shock.
2. Prohibiting dismantle the operation panel when power is on, otherwise, it may cause electric shock.
3. When the power is off for 3 minutes, should not touch the terminal block, otherwise, the residual voltage may cause electric shock.

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### 1.1.2. Power Wiring

1. The input power of HMI using a DC power supply, voltage range of  $24 \pm 20\%$  VDC, too much or too less will be serious damage to HMI. Regularly check the power supply of DC power source to see if it is stable or not.
2. To avoid electric shock, before connecting to the communications cable or download cable, please cut off the HMI power.
3. DC power supply must be properly isolated from the main AC power.
4. Do not let the input circuit of HMI and inductive load (solenoid or electromagnetic switch), inverter or driver to share the power supply.

### 1.1.3. Power wiring method

1. Please remove the quick connector from HMI body when wiring.
2. Only one cable can be inserted into the cable socket of quick connector.
3. 24VDC' anode connect to the terminal marked as a "+", and 24VDC cathode connect to the terminal marked as a "-".
4. When error compulsorily pulls out the wire, you should re-check the connection cable and start.
5. The proposed wiring material are as follows:

Type	Wire Gauge (AWG)	Stripped Length	Torque
Multi-core wire	22~16	7~8 mm	4.5 lb-inch
Single-core wire	22~16	7~8 mm	4.5 lb-inch

### 1.1.4. FG grounding requirements

1. Please use at least 2mm 2(AWG14) as a grounding conductor, grounding impedance must be less than  $100\Omega$  (class3).
2. Please use the independent grounding pole, should not connect to the grounding conductor of power circuit.
3. Ground conductors should be as short and as large in size as possible. The conductors must always be large enough to carry the maximum short circuit current of the path being considered. Ground conductors should be connected to a tree from a central star earth ground point. This ensures that no ground conductor carries current from any other branch.

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4. The vent of HMI should not obstructed, otherwise, it may easily cause a malfunction.

## 1.2. Installation and storage environmental conditions

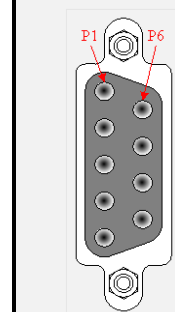
The product must be kept in the shipping carton before installation. In order to retain the warranty coverage, the HMI should be stored properly when it is not to be used for an extended period of time. Some storage suggestions are::

1. The storage location should be dry with no dust, should've better with correctly packaged and placed on a solid shelf surface.
2. Store within an ambient temperature range of  $-20^{\circ}\text{C} \sim +60^{\circ}\text{C}$  ( $-4^{\circ}\text{F} \sim 140^{\circ}\text{F}$ ).
3. Storage location' ambient relative humidity must be within the range of 10% to 90% without condensation.
4. Do not store in the environment of corrosive gases and liquids.
5. The suitable installation environment : No heat-radiating elements, no water droplets, no vapor, no dust and oily dust' place; non-corrosive, flammable gases, liquids spaces; no airborne dust or metallic particles of places; sturdy no vibration. no electromagnetic noise interference' places.

## 2. Serial port pin definitions

- COM1 – ( Support RS232 / RS485 )

Pin	Pin Definitions
1	RS485+
2	RS232 RXD
3	RS232 TXD
4	Terminal resistor for RS485+
5	Signal Ground
6	RS485-
7	RS232 RTS
8	RS232 CTS
9	+5VDC Output ( Maximum 100mA )



D type / 9P

Female socket

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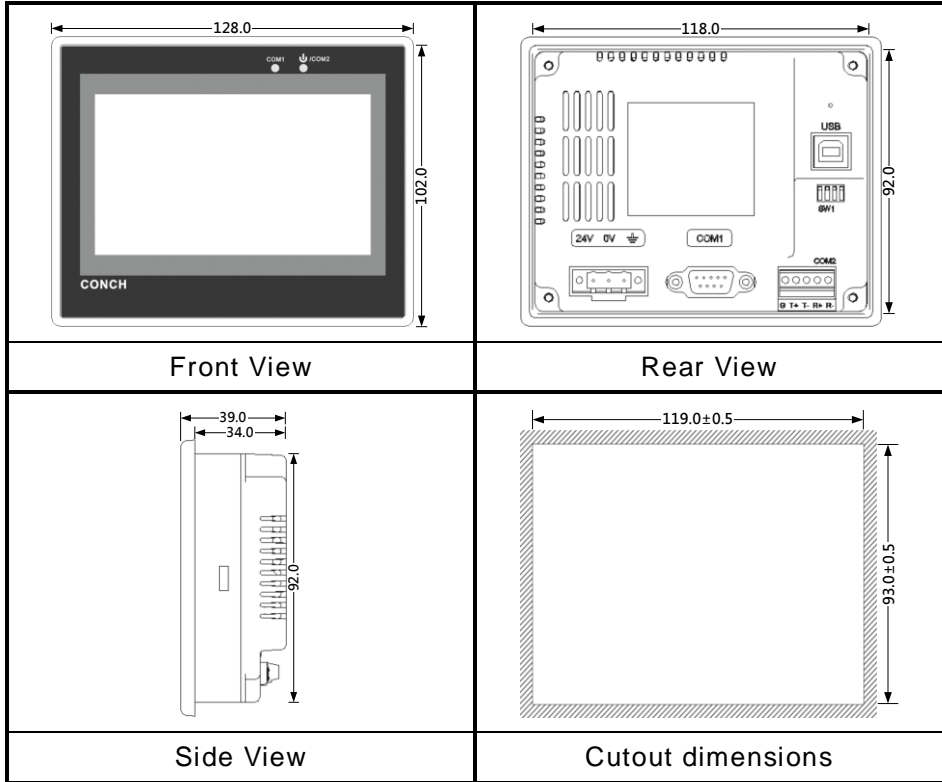
● **COM2/COM3 – ( Support RS485 / RS422 )**

Pin	COM2 Pin Definitions	COM3 Pin Definitions
G	Signal Ground	
T+	RS422 TX+ / RS485+	
T-	RS422 TX- / RS485-	
R+	RS422 RX+	RS485+
R-	RS422 RX-	RS485-

▲ COM2 can provide 2 kinds of RS485 and RS422 communication interfaces. COM3 will be enabled when it is in RS485 mode.

**3. Mounting**

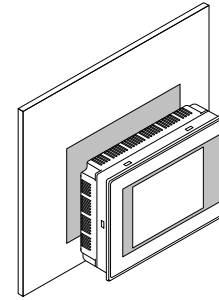
◆ **The dimensions of HM-730 - (unit: mm)**



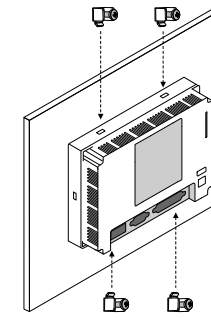
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◆ **Installation sequence -**

1. On a fixed panel, follow the recommendations of mounting diagram to cutting an area, to install HMI on this panel. As below diagram: (please make sure to install the waterproof ring before HMI installation).



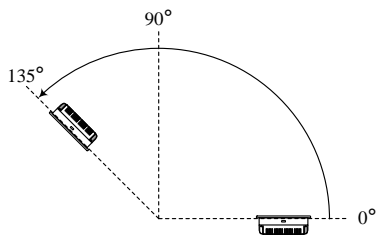
2. Make sure the fixed piece screw is installed into the HMI fixed holes, and then the beneath hooked the front cover, screw head is withstand the insides of control box. As below diagram:



3. Please lock tight with 0.5N • m torque and do not exceed this force, otherwise, it may damage the plastic shell. (torque 0.5N • m = 4.43lb-inch)

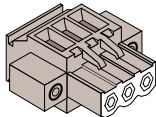
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◆ The Installation angle should be between 0° ~ 135°. As below diagram:



◆ **Power wiring steps -**

1. First, unplug the power terminals, and then use a flat-blade screwdriver to loosen the screw.



2. Strip 24VDC power cord ( stripping length 7~8 mm ), according to the polarity insert the power terminal to the corresponding position.
3. Using a flat-blade screwdriver to lock tight the power terminal screw.
4. At last, insert the power terminal into HMI power supply end.

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**4. Specifications:**

Item No.	HM-730S	
Display	Type(65K colors)	4.3" TFT LCD (65536 colors)
	Backlight module	LED backlight (Average life 30,000 hours)
	Resolution (pixels)	480 x 272 pixels
	Display Size	95.00mm(W) x 53.8mm(H)
Operation System	Embedded Real Time OS	
CPU	32-bit RISC 400MHz	
SDRAM	64MB DDR2 RAM	
Program memory ROM	45MB NAND Flash Memory	
Backup memory SRAM	256KB (Maxi. extended to 1MB) / 3V lithium battery	
RTC	Built-in	
Function Key	/	
Interface	Serial Port	COM1 - ( RS232 / RS485 ) COM2/COM3 - ( RS485 / RS422 )
	USB Device	USB2.0 Client x 1 (Project program downloading)
	USB Host	/
	Ethernet	/
	SD Card	/
Input Voltage	24±20% VDC	
Power Consumption	Maxi.8W @24VDC	
Store Ambient Temp.	-20°C ~ +60°C ( -4°F ~ 140°F )	
Operatoion Temp.	0°C ~ +50°C ( 32°F ~ 122°F )	
Relative Humidity	10 ~ 90% RH non-condensing	
Cooling Method	Natural air circulation	
Panel Protection Level	IP65, Dust-proof, Drop-proof design (O-ring waterproof)	
Shell Material	Industrial Plastic	
Vibration resistance	10~50Hz (x, y, z each direction 2G 30 minutes)	
Dimensions	128(W) x 102(H) x 39(D) mm	
Panel Cutout	119.0±0.5(W) x 93.0±0.5(H) mm	
Weight	Approx. 230g	

※ Model type and specification are subjected to change without notification

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