



# PM74

## 7" RESISTIVE TOUCH SCREEN LCD MODULE



### User Manual

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## PREFACE



This manual contains the information necessary for the product to be installed correctly and also instructions for its maintenance and use; we therefore recommend that the utmost attention is paid to the following instructions and to save it.

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Whenever a failure or a malfunction of the device may cause dangerous situations for persons, thing or animals, please remember that the plant has to be equipped with additional devices which will guarantee safety.

## 1. INSTRUMENT DESCRIPTION

### 1.1 General description

**PM74** is aTFT 7" high precision four-wire resistive touch screen graphic panel. It supports Graphic tools for preload and pre-design display interface to simplify the host operation and development time. Suitable for industry control, instrumentation, medical electronics, power electric equipment applications.

## 2. USAGE WARNINGS

### 2.1 Allowed Usage



The instrument has been designed as a measurement and control device, built according to EN60730-1 for operation at altitudes below 2000 m above sea level.

Using the instrument for applications not expressly permitted by the above mentioned rule must adopt all the necessary protective measures.

The instrument **must not be used in dangerous environments** (flammable or explosive) without adequate protections.



The installer must ensure that the EMC rules are respected, also after the instrument installation, if necessary using proper filters.

### 2.2 General Notes

- The communication port supports RS232, RS485 and RS422.
- The power ground must be connected to make the HMI run correctly.
- The communication ground must be connected to make the HMI communicate correctly.

### 2.3 Safety Precautions

Notice following safety precautions at any moment when installing, wiring, operating and checks.

#### 2.3.1 Installation

- Please setup the HMI according to this manual otherwise it may cause device damage.
- It is forbidden to uncover the product in the environment that has water vapor, corrosive gas or combustible gas, otherwise it may cause short circuit or fire.

#### 2.3.2 Wiring

- Please connect the grounding terminal with class-3 ground, otherwise it may cause short circuits or fire.
- The panel uses 24 VDC power supply. Any connection of non standard power supply will lead to machine damage.

#### 2.3.3 Operation

- PM series HMI need PISudio editor software to design project picture. HMI not designed may lead to run abnormally.
- Do not change wiring while the power is ON, otherwise it may cause short circuit or device damage.
- Please do not touch panel with sharp objects, otherwise it may lead to panel damages.

#### 2.3.4 Maintenance

- It is forbidden to touch inside HMI, it may lead to short circuit or device damage.
- When powered, it is forbidden to dismantle HMI panel, otherwise it may lead to short circuit or device damage.
- Do not touch connection terminals within 10 minutes after turning power OFF: residual voltages may lead to short circuit or device damage.
- During operation, the ventilation holes must not be sealed, overheating could easily occur and cause serious failures.

#### 2.3.5 Communication

- Please connect the communication wires according to this manual.
- The length of the communication cables must meet the requirements of the adopted standard.
- Use the correct ground loops in order to avoid abnormal communication.

## 2.4 Working Environment

If not used for a while, the product must be placed in the pack box before installation, in order to make the product accordance with the warranty of our company. For future maintenance, be sure to notice the following items when stored:

- Storage environment must be dry and dust-free.
- Storage temperature must be between  $-20 \div +70^{\circ}\text{C}$  ( $-4 \div +140^{\circ}\text{F}$ ).
- Storage humidity must be in the range of  $10 \div 85\%$ , with no condensation.
- Avoid corrosive gases and liquids in the storage environment.
- Avoid placing the product directly on the ground.

## 2.5 Basic Inspection

Please do following basic checking before using the HMI.

### 2.5.1 General

- Check for loose screws.
- The vent holes should be protected from oil, water and metal powder and the chip powder of the drill should be prevented from falling into the HMI.
- If there are harmful gases or dust in the HMI operating environment, please take protective measures.

### 2.5.2 Checking before installation (unpowered)

- Carry out the electrical wiring by connecting only one wire to each terminal, according to the diagram, checking that the power supply is the same as that indicated on the instrument and that the load current absorption is no higher than the maximum electricity current permitted.
- Communication wiring should be correct, otherwise abnormal operation may occur.
- Check for external materials entering the HMI cover, especially for flammable substances and conductive materials such as screws, metal sheets, etc..
- Connect the instrument as far away as possible from sources of electromagnetic disturbances such as motors, power relays, relays, solenoid valves, etc..
- Check HMI supply voltage.

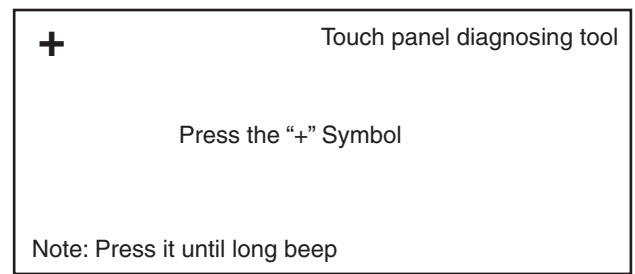
### 2.5.3 Checking before running (powered)

- Check the status of the power indicator.
- Check if the communications between the HMI and the device are normal.

**Note:** If there is any abnormality in using the touch screen or the panel, please contact the distributor.

## 2.6 Touch Screen Calibration

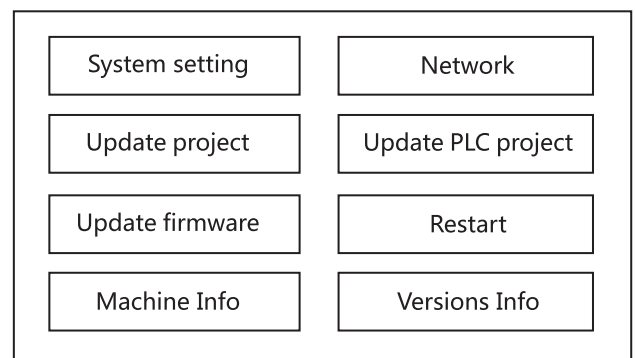
After starting the HMI, keep on pressing the top left corner of the screen for about  $3 \div 5$  s, an interface will appear as following:



Tap in sequence (where the “+” symbol is displayed) the upper left corner, the lower left corner, the lower right corner, the upper right corner and the center; then restart the panel.

## 2.7 Parameters Setting

Keep on pressing top right corner of screen about 3 to 5 s, an interface will appear as following:



## 2.8 Handling Precautions

- Some part of the product are made of glass. Do not subject it to a mechanical shock or dropping it, etc..
- Do not apply excessive or uneven force to the product since this may damage the performance.
- If the display surface is dirt, breathe on the surface and gently wipe it with a soft dry cloth. If still not completely clear, moisten cloth with Isopropyl alcohol or Ethyl alcohol solvents. Solvents other than those mentioned above may damage the product. Especially, do not use Water, Ketone, Aromatic solvents.
- Do not attempt to disassemble any part of the panel.
- If the logic circuit power is OFF, do not apply the input signals.
- To prevent destruction of the elements by static electricity, be careful to maintain an optimum work environment.
  - Be sure to ground the body when handling the panel.
  - Tools required for assembly, such as soldering irons, must be properly grounded.
  - To reduce the amount of static electricity generated, do not conduct assembly and other work under dry conditions.
  - The screen of the panel is coated with a film to protect the display surface. Be care when peeling off this protective film since static electricity may be generated.

### 3. INSTALLATION WARNINGS

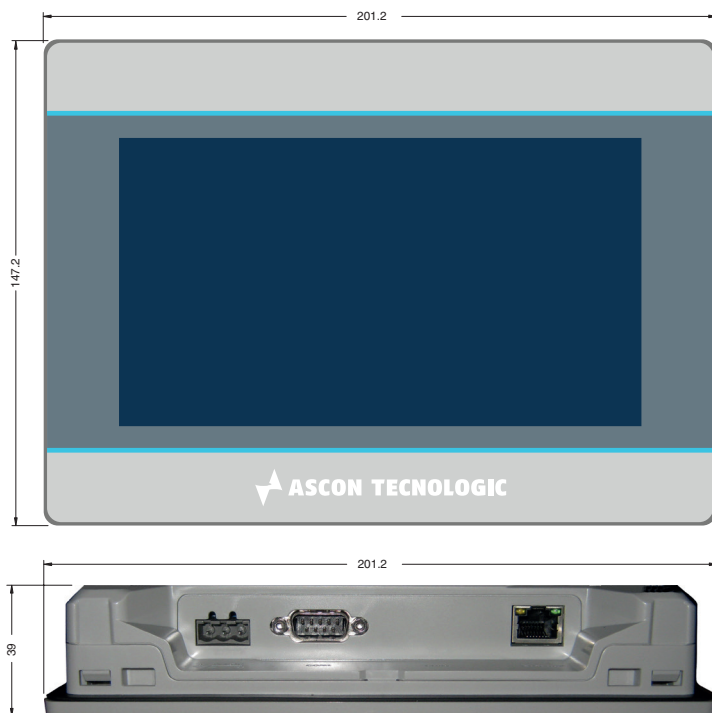
#### 3.1 General Warnings

- Avoid placing the instrument in dirty environments or with very high humidity levels that may create condensation and avoid the introduction of conductive substances into the instrument.
- Ensure adequate ventilation to the panel and avoid installation in containers which may overheat or which may cause the instrument to function at a temperature higher than the one permitted and declared.
- Connect the panel as far away as possible from sources of electromagnetic disturbances such as motors, power relays, relays, solenoid valves, etc..

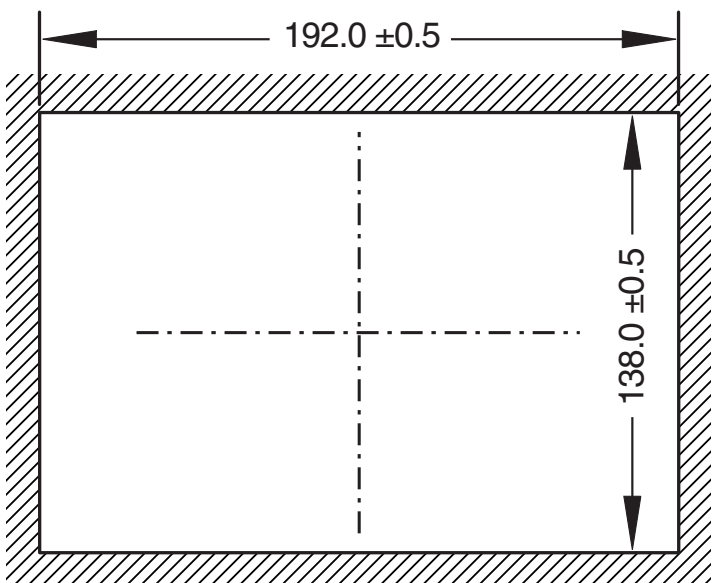
#### 3.2 Panel Dimensions

Touch Screen size: 7".

##### 3.2.1 Instrument dimensions



##### 3.2.2 Panel cutout



**Note:** The dimensions in the drawings are in mm.

### 3.3 Electrical connections



#### 3.3.1 Power supply terminals (label 24 VDC)

Pin	Description
⊥	Ground terminal
+	24 VDC power supply terminal
-	0 V Power supply terminal

#### 3.3.2 COM1 connector terminals (label COM1)

D sub-miniature 9 pin connector. Connections:

Pin	Description	Pin	Description
1	RS422 TX+/RS485 TX A+	2	RS232 RXD
3	RS232 TXD	5	GND
6	RS422 TX-/RS485 TX B-	8	RS422 RX-
9	RS232 RX+	8+	

**Note:** In this series of terminals, the RS422 and RS485 communication protocols cannot be used at the same time.

#### 3.3.3 COM2 connector terminals (label COM2)

Not present.

#### 3.3.4 USB-A Connector (label USB-B)

The USB connector is a USB-B Client type for data logging purposes.

#### 3.3.5 USB-B Connector (label USB-A)

The USB connector is a USB-A Master type for HMI programming purposes.

#### 3.3.6 ETHERNET Connector (label ETHERNET)

The ETHERNET connector is a standard RJ45 type for network connections.

## 4. TECHNICAL DATA

### 4.1 General specifications

**Power supply:** 24 VDC;  
**Power supply range:** 12 ÷ 28 VDC;  
**Rated power:** < 8W;  
**Screen Size (Diagonal):** 7";  
**Resolution:** 800 x 480;  
**Color Depth:** 16 kcolours;  
**Pixel Configuration:** RGB Stripe;  
**Brightness:** 300 cd/m<sup>2</sup>;  
**Touch screen type:** High precision four wire resistive;  
**Backlight type:** LED;  
**Backlight life time:** 50000 hours;  
**CPU:** Cortex A7, 528 MHz;  
**Memory:** 128 MB;  
**Storage:** 128 MB Flash;  
**USB ports:** USB-A (USB2.0 Host) + USB-B (USB 2.0 Client);  
**Real Time Clock (RTC):** Yes;  
**Calendar:** Yes;  
**Communications port (COM1):** RS232, RS422/RS485 (2 in 1);  
**Outline Dimensions (W x H x D):** 201.0 x 147.2 x 39.0 mm;  
**Installation panel cutout (W x H):** 192.0 x 138.0 mm;  
**Weight:** 0.74 kg;  
**Front panel protection:** IP65;  
**Operating Temperature:** -10 ÷ +60°C;  
**Storage Temperature:** -20 ÷ +70°C;  
**Relative humidity:** 10 ÷ 90% non condensing;  
**Vibration resistance:** 10 ÷ 25 Hz (X, Y, Z directions 2G/30 minutes);  
**Cooling:** Natural ventilation;  
**Programming software:** PISudio.

## 5. HOW TO ORDER

**MODEL**  
**PM74** = 7" Touch Screen panel

