

1 Safety Precautions

Both the installer, the owner, and the operator of this PWS must read and understand this installation manual.

General

- Only qualified personnel may install or operate the PWS.
- The PWS must be installed according to the installation instructions.
- The PWS is designed for stationary installation on a plane surface, where the following conditions are fulfilled:
 - no high explosive risks
 - no strong magnetic fields
 - no direct sunlight
 - no large, sudden temperature changes
 - for use in Pollution Degree 2 Environment
 - for use on the flat surface of a Type 1 enclosure
- Never allow fluids, metal filings or wiring debris to enter any openings in the PWS. This may cause fire or electrical shock.
- The PWS fulfills the requirements of EMC directive 2004/108/EC.
- Storing the PWS where the temperature is lower/higher than recommended in this manual can cause the LCD display liquid to congeal/become isotopic.
- The LCD display liquid contains a powerful irritant. In case of skin contact, wash immediately with plenty of water. In case of eye contact, hold the eye open, flush with plenty of water and get medical attention.
- The supplier is not responsible for modified, altered or reconstructed equipment.
- Use only parts and accessories manufactured according to specifications of the supplier.
- Peripheral equipment must be appropriate for the application and location.
- The figures in this manual serves an illustrative purpose. Because of the many variables associated with any particular installation, the supplier cannot assume responsibility for actual use based on the figures.
- The supplier neither guarantees that the PWS is suitable for your particular application, nor assumes responsibility for your product design, installation or operation.

Power Source

- The PWS is equipped with a 24 V DC input. Supply power other than 24 V DC \pm 15% will severely damage the PWS. Thus, check the power supply supporting the DC power regularly.
- To avoid electric shock, be sure the power cable is unplugged from the power input when connecting the cable to the PWS.

Installation

- Communication cables must be separated from the power cables for operational circuits. Use shielded cables or it may cause unpredictable problems.

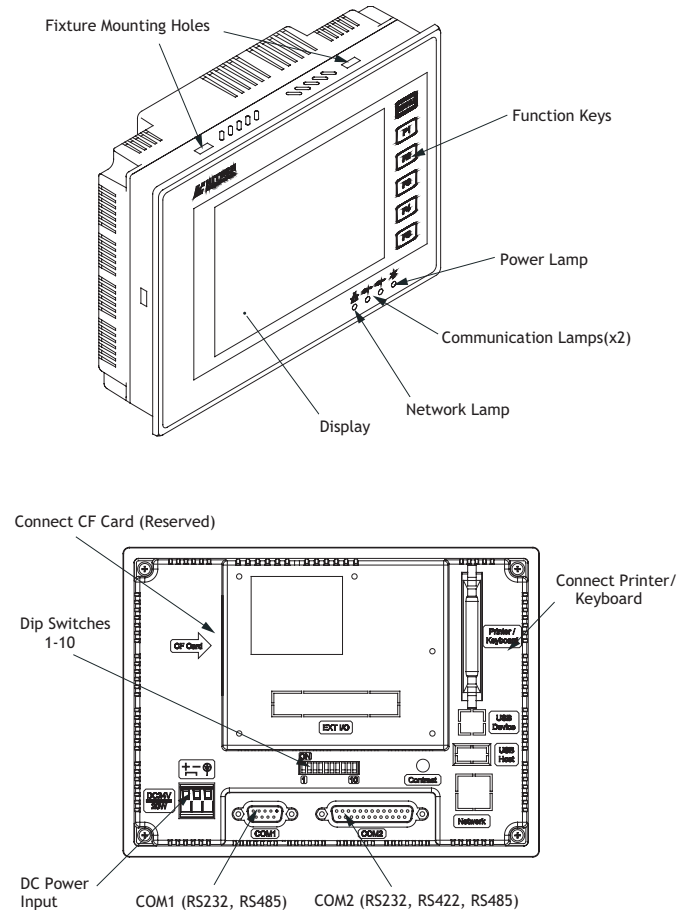
During Use

- Emergency stop and other safety functions may not be controlled from the PWS.
- Do not use force or sharp objects when touching the keys, display etc.

Service and Maintenance

- Only qualified personnel should carry out repairs.
- Before carrying out any cleaning or maintenance operations, disconnect the equipment from the electrical supply.
- Clean the display and surrounding front cover with a soft cloth and mild detergent.
- Replacing the battery incorrectly may result in explosion. Only use batteries recommended by the supplier.

7 Description of Parts

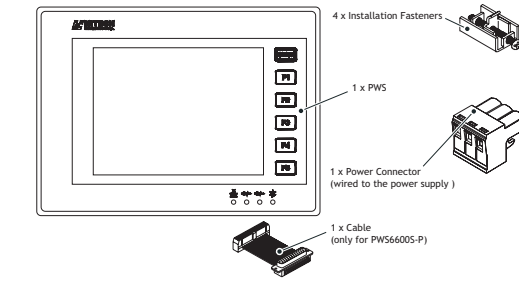


Dismantling and Scrapping

- The PWS or parts thereof shall be recycled according to local regulations.
- The following components contain substances that might be hazardous to health and the environment: lithium battery, electrolytic capacitor and display.

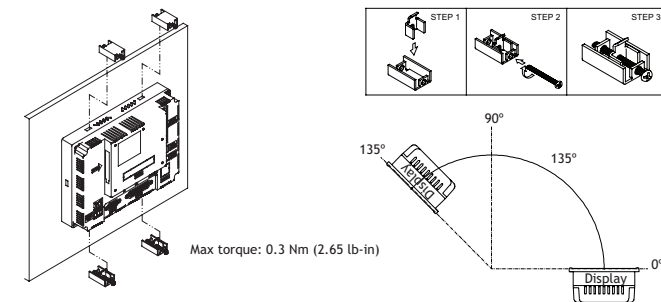
Note: Indicated loss of life, severe personal injury, or substantial property damage will result if proper precautions are not taken.

2 Package Contents



3 Mounting Procedure

- Cut out the control front panel to match the dimensions (mm) specified under the External and Cut-out dimensions chapter.
- Mount the PWS into the cut-out. Insert the fixtures to the holes on the unit and fasten the screws into the front panel. Do not tighten the screws with too much or uneven force, or it may cause deformation of the PWS.



- The PWS must be installed within an angle of 0° to 135° as shown above.

8 Product Specifications

Item	PWS6600S-P AP1600S-P	PWS6600S-S AP1600S-S
Display Type	Color STN LCD	
Display Color	16 shades of blue	
Display size	5.7"	
Active area of display	115.2 x 86.4 mm	
Display resolution	320 x 240, Number of 8 x 8 characters displayable 40 x 30	
Display adjustment	Via touch panel	
Back light	CCFL, Lifetime 50,000 hours @ 25 °C	
Touch Screen	Analog	
Keypad	1 Menu key and 5 user-defined Function keys (F1-F5)	
Keypad pressure and lifetime	350±50 gf operating force, lifetime is over 1 million activations	
Input Power	24 V DC \pm 15%, less than 20W	
Flash ROM	4 MB	
RAM	512 KB	
CPU	32 bits RISC	
RTC	YES (rechargeable lithium battery)	
Data/Recipe	512 KB	
COM1	9-pin female connector, RS232 and RS485	
COM2	25-pin female connector, RS232, RS422 and RS485	
Multi-functional port	26-pin connector to printer or 64 external keys	
Ethernet	-	
Front Panel seal	IP65	
Ambient temperature	0 °C - 50 °C	
Storage temperature	-10 °C - 60 °C	
Ambient humidity	10-90% RH(0 °C-40 °C), 10-60% RH(41 °C-50 °C), non-condensing	
Vibration endurance	0.5 mm displacement, 10-55 Hz, 2 hours per X, Y, Z axis directions	
Shock endurance	10 G, 11 ms three times in each direction of X, Y, Z axes	
CE	EN61000-6-4, EN61000-6-2	
External dimensions	195.0 x 145.0 x 59.1 mm	
Cut-out dimensions	185.8 x 135.8 mm	
Weight	0.81 kg	
Cooling	Natural cooling	

Note: When using the PWS for the first time, remember to reset Real Time Clock (RTC).

4 Grounding

Make sure that the PWS works properly. To prevent it from radiating radio frequency noise, the PWS must be connected to earth ground.

- Without grounding, the PWS may be severely affected by excess noise. Make sure that the grounding is done properly from the power connector at the rear side of the PWS. When power is connected, make sure that the wire is grounded.
- Use a cable of at least 2 mm² (AWG 14) to ground the PWS. Ground resistance must be less than 100 Ohms (class3). Note that the ground cable must not be connected to the same ground point as the power circuit.

5 Power Supply and Wiring

The PWS must use a power supply with 24 V DC and the power consumption is 20W.

Warning:

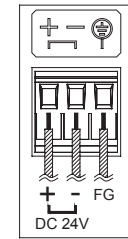
To avoid an electric shock, be sure to switch off the power before connecting the communication/download cable to the PWS.

Steps to wire

- Unplug the power connector and unscrew the screws.
- Strip about 7-8mm of insulation. Insert the wire all the way into the power connector and then turn the screws tight.
- Plug in the connector to the power input of the PWS.

Note:

Power connector is already plugged in the power input of the PWS when the package is first opened.



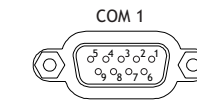
Use Copper Conductors Only

Type	Wire Gauge (AWG)	Stripped Length	Torque
Solid	28-12	7-8 mm	4.5 lb-in
Stranded	30-12	7-8 mm	4.5 lb-in

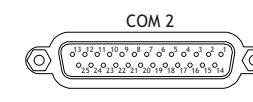
9 Communication Ports

- COM 1 is a 9-pin female connector used to connect a controller and the PWS via RS232 or RS485
- COM 2 is a 25-pin female connector used to connect a controller and the PWS via RS232, RS422 or RS485

Please make sure that the connection is in accordance with the setting of the dip switches. (For example, RS485 with SW9 and SW10=ON). For illustration on the connection between the PWS and a controller, please consult the information on the controller.

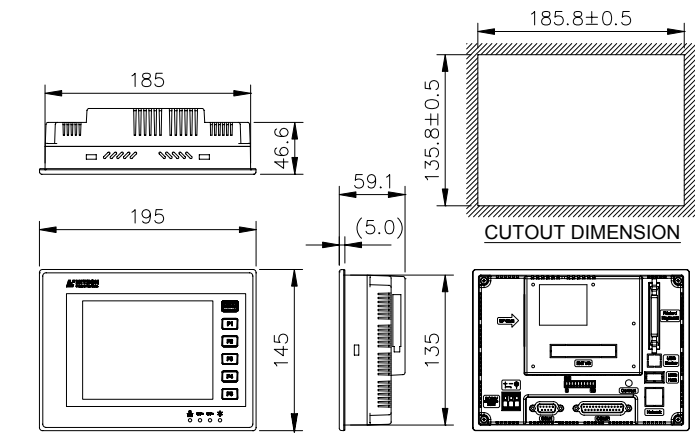


PIN	Function
1	RS485+
2	RS232 RXD
3	RS232 TXD
4	N/A
5	Signal ground
6	RS485-
7	RS232 RTS
8	RS232 CTS
9	Optional +5 V @ 100mA output



PIN	Function
1	N/A
2	RS232 TXD
3	RS232 RXD
4	RS232 RTS
5	RS232 CTS
6	N/A
7	Signal ground
8	Optional +5 V @ 100mA output
9	N/A
10	N/A
11	N/A
12	RS422 CTS+
13	RS422 CTS-
14	RS422 TX+ (RS485+)
15	RS422 TX- (RS485-)
16	RS422 RX+
17	RS422 RX-
18	N/A
19	N/A
20	N/A
21	N/A
22	N/A
23	RS422 RTS+
24	RS422 RTS-
25	N/A

6 External and Cut-out Dimensions



10 Dip Switches

Dip Switches	Function	
SW 1	Reserved	
SW 2	Reserved	
SW 3	SW 4	Operation Mode
ON	ON	Runs user application
ON	OFF	Runs burn-in test program
OFF	ON	Updates BIOS
OFF	OFF	Runs bench test program
SW 5	Communication Parameters	
ON	The PWS uses parameters defined on the Configuration Screen for controller communications	
OFF	The PWS uses parameters defined in ADP for controller communications	
SW 6	Password	
ON	The PWS asks the operator to enter a password after power-on self-test	
OFF	No password is required to start the PWS	
SW 7	System Menu	
ON	The PWS displays System Menu	
OFF	The PWS runs user application without displaying System Menu	
SW 8	Default user level	
ON	The default user level is set to 1 if the PWS requires no password to start its operation	
OFF	The default user level is set to 9 if the PWS requires no password to start its operation	
SW 9	COM 1 Port	
ON	For RS485 this switch has to be set ON	
SW 10	COM 2 Port	
ON	For RS485 this switch has to be set ON	
OFF	For RS422 this switch has to be set OFF	

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