10.5"/12.1" 110V AC QUICKPANEL

(QPICxAE0000/QPLCxAE0000)

Installation Guide

⚠ WARNINGS

- When connecting the QPICxAE0000/QPLCxAE0000 (hereafter referred to as the "QP")'s power cord terminals to the QP Terminal Block, check first that the QP's power supply is completely turned OFF, via a breaker, or similar unit.
- Whenever changing the backlight, to prevent electric shocks and burns, be sure to unplug the QP's power cord and wear protective gloves.
- Do not open or remodel the QP unit, since it may lead to a fire or electric shock.
- Do not use power beyond the QP's specified voltage range. Doing so may cause a fire or an electric shock.
- Do not use the QP in an environment where flammable gases are present, since operating the QP may cause an explosion.
- The QP uses a lithium battery for backing up its internal clock data. If the battery is incorrectly replaced (i.e. its + and — sides are reversed), the battery may explode. When changing the battery, please contact your local distributor.
- Do not use the QP unit as a warning device for critical alarms that can cause serious operator injury, machine damage or production stoppage. Critical alarm indicators and their control/activator units must be designed using stand-alone hardware and/or mechanical interlocks.
- Do not use QP touch panel switches in life-related or important disaster prevention situations. For safety related switches, such as an emergency switch, be sure to use a separate mechanical switch.
- To prevent operator injury or machine damage, be sure to design your machine operation system so that the machine will not malfunction due to a communication fault between the QP and its host controller.
- The QP is not appropriate for use with aircraft control devices, aerospace equipment, central trunk data transmission (communication) devices, nuclear power control devices, or medical life support equipment, due to these devices' inherent requirements of extremely high levels of safety and reliability.
- When using the QP with transportation vehicles (trains, cars and ships), disaster and crime prevention devices, various types of safety equipment, non-life support related medical devices, etc. Redundant and/or failsafe system designs should be used to ensure the proper degree of reliability and safety.

⚠ CAUTIONS

- Do not strike the QP touch panel with a hard or heavy object, or press on the touch panel with too much force, since it may damage the display.
- Do not install the QP where the temperature will exceed its specified range.
- Be sure that water, liquids or metal particles do not enter the QP, since it may cause a malfunction or a short circuit.
- Avoid installing the QP where sudden, large changes in temperature may occur. These changes may cause condensation to form inside the unit, possibly causing a malfunction.
- To prevent excessive heat from building up inside the QP, do not install it where its ventilation holes may be blocked. Also, do not install or store the QP near high temperature equipment.
- Do not install or store the QP where direct sunlight or high levels of dust exist.
- Since the QP is a precision instrument, do not install or store it where either strong shocks or excessive vibration may occur.
- Do not install or store the QP in an area containing chemicals or chemical fumes.
- Do not use paint thinner or organic solvents to clean the QP's case or screen.
- Due to the danger of unforeseeable accidents, back up all QP data regularly.
- After turning the QP OFF, be sure to wait a few seconds before turning it ON again. If the QP started too soon, it may not start up correctly.

Package Contents

The following items are included in the QP's package. Before using the QP, please confirm that all items listed here are present.

■ **QP Unit (1)**
(QPICxAE0000/QPLCxAE0000)
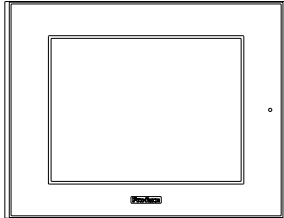
■ **QuickPanel Installation Guide (1)**
   <This Guide>

QP Installation
Guide
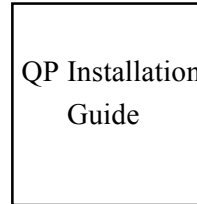
■ **Installation Fasteners (4)**
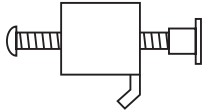
■ **Installation Gasket (1)**

This unit has been carefully packed, with special attention to quality. However, should you find anything damaged or missing, please contact your local distributor immediately.

Options

■ **QuickPanel Hardware Reference Guide**

■ **Cables**
■ **Software**
■ **Maintenance Parts**

TCP

QP Hardware Reference Guide

1 VICPAS Names
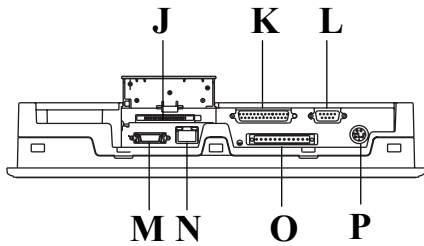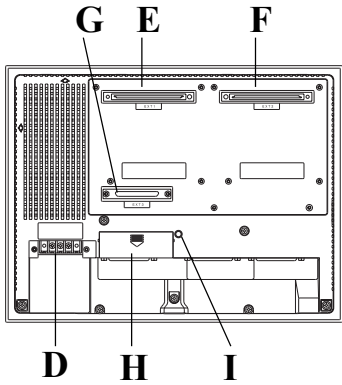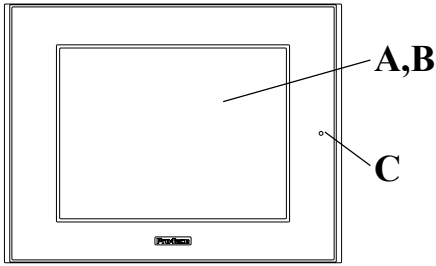
A : Display

B : Touch Panel

C : Status LED

D : Power Input Terminal Block

E : Expansion Unit Interface 1

F : Expansion Unit Interface 2

G : CF Card Expansion Interface

H : CF Card Cover

I : CF Card Access Lamp

J : CF Card Slot

K : Serial Interface (HOST-I/F 25-pin)

L : Serial Interface (SUB-SIO 9-pin)

M: Printer Interface
(Half Pitch 20-pin)

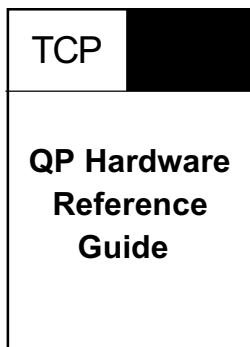N : Ethernet Interface

O : Screw Lock Terminal Block

P : Tool Connector
Connects a Data Transfer Cable
or bar code reader

2 Dimensions

Unit:mm [in]

301[11.85]

Top
(QPICxAE0000/QPLCxAE0000)

58[2.28]

8[0.31]

227[8.94]

Side
(QPICxAE0000/
QPLCxAE0000)

317[12.48]

243[9.57]

Front
(QPICxAE0000)

317[12.48]

243[9.57]

Front
(QPLCxAE0000)
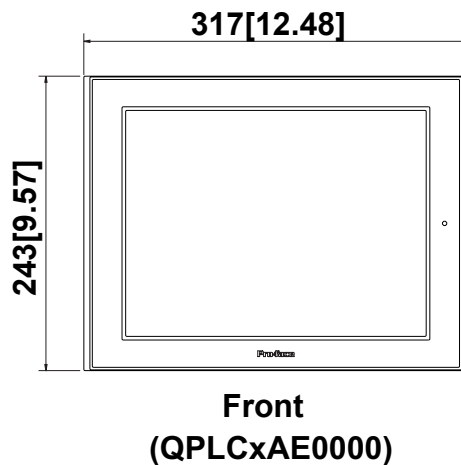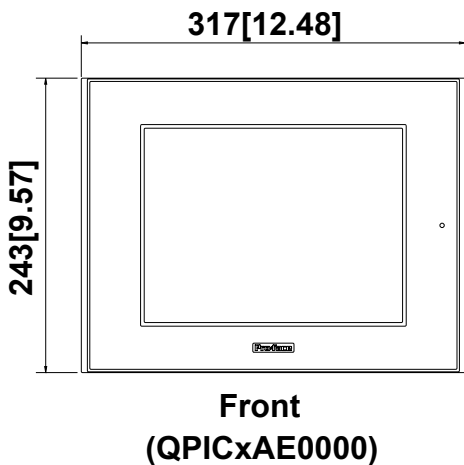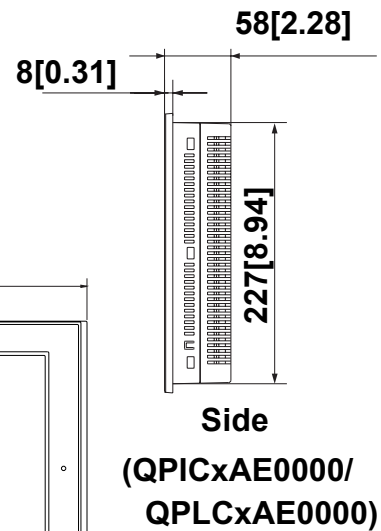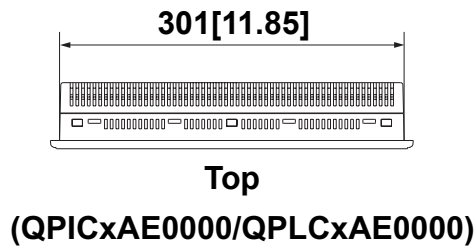
3 Dip Switches

These switches are located inside the CF Card's cover.
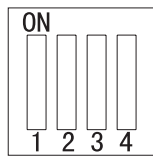
Dip Switches
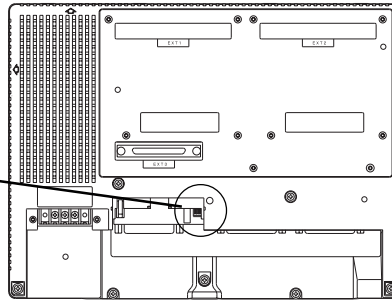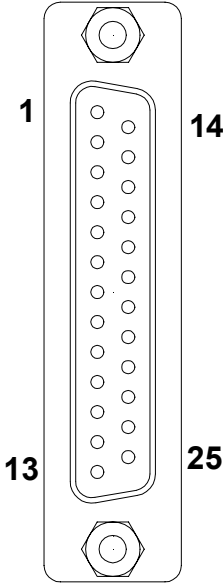
Rear View of QP

Dip Switch	Function	ON	OFF	Note
1	This Dip switch setting controls the startup from a CF Card.	Startup from CF Card is enabled.	Startup from CF Card is disabled.	CF Card with startup data required.
2	Reserved	———	———	———
3	Reserved	———	———	———
4	This setting controls the forced closing of the CF Card cover.	Forced close enabled.	Forced close disabled.	Used when CF Card cover is damaged.

■ Serial Interface (HOST-I/F)

This interface is used to connect the QP to the host (PLC), via an RS-232C or RS-422 cable.

Pin Arrangement	Pin #	Signal Name	Meaning
	1	FG	Frame Ground
	2	SD	Send Data (RS-232C)
	3	RD	Receive Data (RS-232C)
	4	RS	Request to Send (RS-232C)
	5	CS	Clear to Send (RS-232C)
	6	DR	Data Set Ready (RS-232C)
	7	SG	Signal Ground
	8	CD	Carrier Detect (RS-232C)
	9	TRMX	Termination (RS-422)
	10	RDA	Receive Data A (RS-422)
	11	SDA	Send Data A (RS-422)
	12	NC	No Connection(Reserved)
	13	NC	No Connection(Reserved)
	14	VCC	5V±5% Output 0.25A
	15	SDB	Send Data B (RS-422)
	16	RDB	Receive Data B (RS-422)
	17	RI	Ring Indicate (RS-232C)
	18	CSB	Clear to Send B (RS-422)
	19	ERB	Enable Receive B (RS-422)
	20	ER	Enable Receive (RS-232C)
	21	CSA	Clear to Send A (RS-422)
	22	ERA	Enable Receive A (RS-422)
	23	NC	No Connection(Reserved)
	24	NC	No Connection(Reserved)
	25	NC	No Connection(Reserved)

Recommended Connector : Dsub 25 pin plug XM2A-2501 <made by OMRON Corp.>

Recommended Cover   : Dsub 25 pin Cover XM2S-2511 <made by OMRON Corp.>
                        Jack Screw XM2Z-0071 <made by OMRON Corp.>

Recommended Cable   : CO-MA-VV-SB5P x 28AWG
                        <made by HITACHI Cable Ltd.>

Important

- *Since Pin#14(VCC) is unprotected, be sure to keep the output current within the rated range.*
- *Be sure to connect the QP's SG/GND (Signal Ground) terminal to the other (host) unit's Signal Ground terminal.*

Note: Use rough metric type M2.6 x 0.45p threads to hold the cable's set (fastening) screws in place.

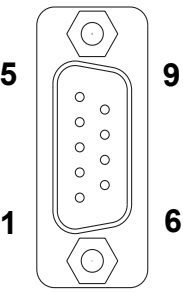When creating a cable, please be aware of the following:

<For RS-422 Connectors>

- **The following pairs of pin no.s must be connected (shorted).**
    - **...#18 (CSB) <-> #19 (ERB)**
    - **...#21 (CSA) <-> #22 (ERA)**
- **Connecting the #9 (TRMX) and #10 (RDA) wires, adds a termination resistance of 100Ω between RDA and RDB.**
- **Use a 4-wire cable when the PLC type is Memory Link and the cable is RS-422.**

<For RS-232C Connectors>

- **Do not connect #9 (TRMX), #10 (RDA), #11 (SDA), #15 (SDB), #16 (RDB), #18 (CSB), #19 (ERB), #21 (CSA), and #22 (ERA).**

■ Serial Interface (SUB-SIO) – *Not Supported (contact factory)*

Pin Arrangement	Pin #	Signal Name	Meaning
	1	CD	Carrier Detect(RS-232C)
	2	RD	Receive Data(RS-232C)
	3	SD	Send Data(RS-232C)
5 ... 9	4	ER	Enable Receive(RS-232C)
	5	SG	Signal Ground
	6	DR	Data Set Ready(RS-232C)
1 ... 6	7	RS	Request to Send(RS-232C)
	8	CS	Clear to Send(RS-232C)
	9	RI/VCC	Ring Indicate(RS-232C) 5V±5% 0.25A

Recommended Connector : Dsub 9 pin plug XM2D-0901 <made by OMRON Corp.>
Recommended Cover   : Dsub 9 pin cover XM2S-0913 <made by OMRON Corp.>
                          Jack Screw XM2Z-0073 <made by OMRON Corp.>
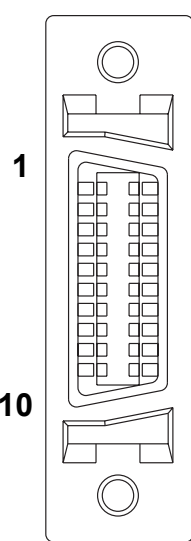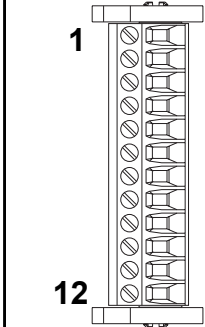
Important *Since Pin#9(RI/VCC) is unprotected, be sure to keep the output current within the rated range.*

■ Printer Interface (Half Pitch 20-pin)

Pin Arrangement	Pin #	Signal Name	Meaning
	1	GND	Ground
	2	RESERVED	Reserved
	3	PDB5	Data Signal
	4	PDB4	Data Signal
	5	PDB3	Data Signal
	6	GND	Ground
	7	SLCT	Select Condition(Input)
1 ... 11	8	PDB0	Data Signal
	9	PSTB	Strobe Signal(Output)
	10	BUSY	Busy Signal(Input)
	11	PDB7	Data Signal
	12	PDB6	Data Signal
	13	GND	Ground
10 ... 20	14	ERROR	Printer Error(Input)
	15	GND	Ground
	16	PDB2	Data Signal
	17	PDB1	Data Signal
	18	PE	Paper End
	19	INIT	Initialize Signal(Output)
	20	GND	Ground

■ **Screw Lock Terminal Block (12 pin)** – *Not Supported (contact factory)*

This interface performs external reset, remote I/O and sound output.

Pin Arrangement	I/F	Pin No.	Signal Name	Meaning
	External Reset	1	AUXCOM	External Reset Common
		2	AUXRESET	External Reset Input
	AUX	3	RUN	Online
		4	ALARM	System Alarm Output
		5	OUTCP	24VDC
		6	BUZZ	External Buzzer Output
		7	Reserved	Reserved
		8	OUTCN	0V
		9	Reserved	Reserved
	Sound I/F	10	SP OUT	Speaker Output
		11	GND	Ground
		12	LINE OUT	Sound Line Out Output

■ **Ethernet Interface**

This interface complies with the IEEE802.3 standard for Ethernet (10BASE-T) connections. This interface uses an RJ-45 type modular jack connector (8 points).

■ **CF Card Interface**

This slot accepts a CF Card.

■ **Expansion CF Card Interface**

This interface is for connecting the Front Maintenance CF Card Unit.

■ **Expansion Unit Interface 1**

This interface is used to connect an expansion unit that can transmit data over a Fieldbus or similar type of network.

■ **Expansion Unit Interface 2**

Provides expanded features.

5 Installation

■ **Confirm the Installation Gasket's Positioning**

It is strongly recommended that you use the gasket. It absorbs vibration in addition to repelling water.

Place the QP on a level surface with the display panel facing downward. Check that the QP's installation gasket is seated securely into the gasket's groove, which runs around the perimeter of the panel's frame.

> **!** *Important*
> - *Before installing the QP into a cabinet or panel, check that the installation gasket is securely attached to the unit.*
> - *A gasket which has been used for a long period of time may have scratches or dirt on it, and could have lost much of its dust and drip resistance. Be sure to change the gasket periodically (or when scratches or dirt become visible).*

Rear face — Gasket
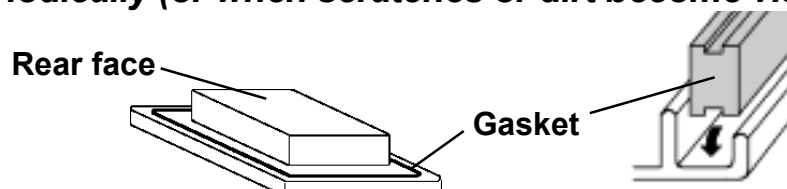
■ Create a Panel Cut and insert the QP into the panel from the front

Unit: mm [in]

Panel

301.5 $^{+1}_{0}$ [11.87 $^{+0.04}_{0}$]

under 4-R3

227.5 $^{+1}_{0}$ [8.96 $^{+0.04}_{0}$]

QP

Panel

QP

Panel thickness 1.6mm[0.06in] to 10mm[0.39in]
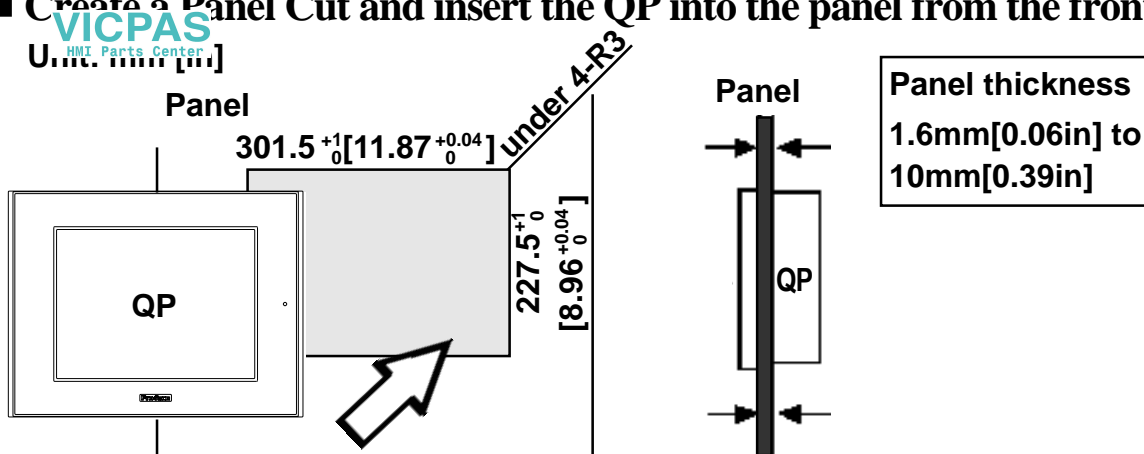
■ Attach the Installation Fasteners from Inside the Panel

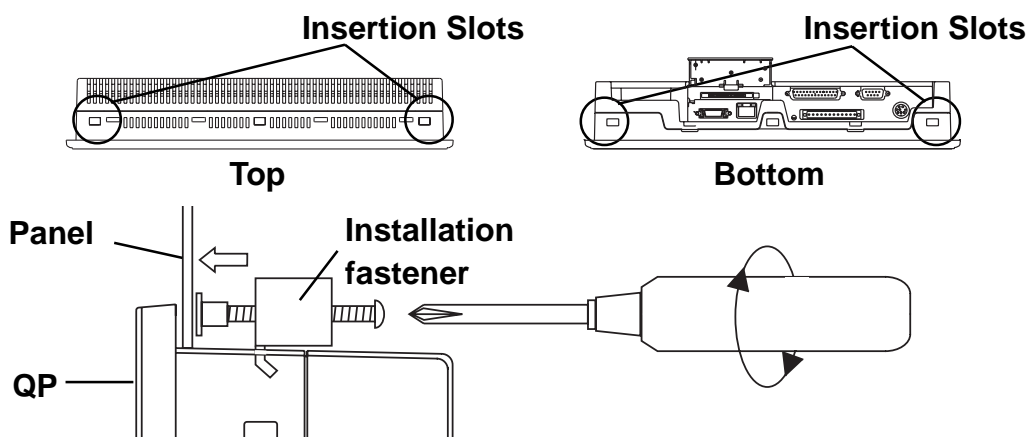The following figures show the four(4) fastener insertion slot locations. Insert each fastener's hook into the slot and tighten it with a screwdriver.

Insertion Slots

Insertion Slots

Top

Bottom

Panel

Installation fastener

QP

! *Important*

- *Tightening the screws with too much force can damage the QP's plastic case.*
- *The necessary torque is 0.5 N•m.*

Note:
- **Depending on the installation panel's thickness, etc., the number of installation fasteners used may need to be increased to provide the desired level of moisture resistance.**

- **If the number of the installation fasteners is increased, do not use the QP side face's middle installation fastener hole. Instead, use the top and bottom holes.**

6 Wiring

⚠ WARNINGS

- To avoid an electric shock, when connecting the QP's power cord terminals to the power terminal block, confirm that the QP's power supply is completely turned OFF, via a breaker, or similar unit.
- The QPICxAE0000/QPLCxAE0000 units are designed to use only AC100V input. Any other power level can damage both the QP and the power supply.
- Since there is no power switch on the QP unit, be sure to attach a breaker-type switch to its power cord.

⚠ Important When the FG terminal is connected, be sure the wire is grounded. Not grounding the QP unit will result in excess noise and vibration.

✎ Note:
- Wherever possible, use thick wires (max. 2 mm²) for power terminals, and twist the wire ends before attaching the ring terminals.

- Be sure to use the following size ring terminals.[1]

Over φ 3.2mm(0.13in)

Under 6.0mm(0.24in)
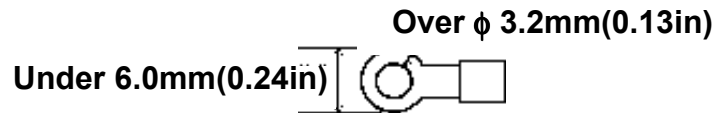
- To avoid a short caused by loose ring terminals, be sure to use ring terminals with an insulating sleeve.

Rear of QP

L   N   FG   **L N FG**
                              Ring Terminals[1]

**Power Input
Terminal Block**
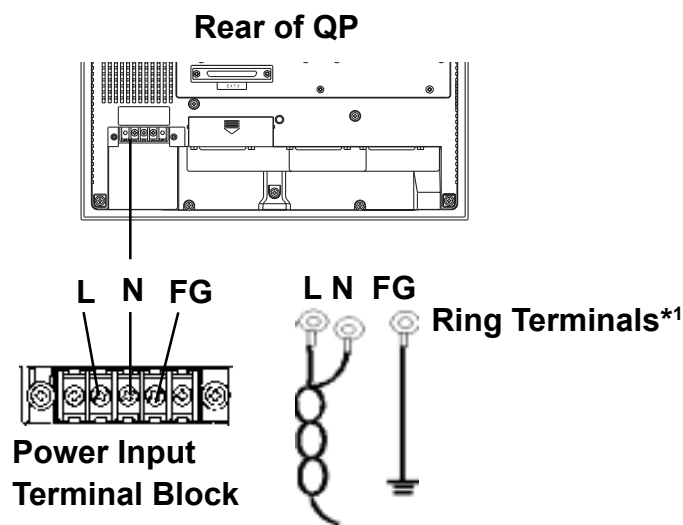
[1]   *AC100V   L=AC Input Terminal   live line*
        AC100V   N=AC Input Terminal   neutral line
                FG=Ground Terminal connected to the QP chassis
        Suggested Ring Terminal : V2-MS3 (made by JST)

■ Connecting the QP Power Cord

When connecting the power cord, be sure to follow the procedures given below.

1. Confirm that the QP's Power Cord is unplugged from the power supply.

2. Use a screwdriver to remove the Power Input Terminal Block's clear plastic cover.

3. Unscrew the screws from the middle three (3) terminals, align the Ring Terminals and re-attach the screws.

4. Confirm that the wires are connected correctly.

5. Replace the Power Input Terminal Block's clear plastic cover.

✎ Note: **The torque required to tighten these screws is 0.5 N•m.**

7   Power Supply Cautions

Please pay special attention to the following instructions when connecting the power cord terminals to the QP unit.

- If the power supply voltage exceeds the QP's specified range, connect a voltage transformer.
- Between the line and the ground, be sure to use a low noise power supply. If there is still an excessive amount of noise, connect a noise reducing transformer.
- Input and Output signal lines must be separated from the power control cables for operational circuits.
- To increase the noise resistance, be sure to twist the ends of the power cord wires before connecting it to the QP unit.
- The QP's power supply cord should not be bundled with or kept close to main circuit lines (high voltage, high current), or input/output signal lines.
- Connect a surge absorber to handle power surges.
- To reduce noise, make the power cord as short as possible.

8   Grounding Caution

When attaching a wire to the QP's rear face FG terminal, (on the Power Input Terminal Block), be sure to create an exclusive ground.[*1]

9   Input/Output Signal Line Cautions

- All QP Input and Output signal lines must be separated from all operating circuit (power) cables.
- If this is not possible, use a shielded cable and ground the shield.

10   Replacing the Backlight

The QP unit's backlight is user replacable.

For an explanation of how to replace the QP's backlight, please refer to the Installation Guide which comes with the replacement backlights (sold separately).

Corresponding Replacement Backlights

QP Unit	Backlight Model
QPICxAE0000	HMI-CCT-302
QPLCxAE0000	HMI-CCT-405

⚠️ **Important**   ***Use of a different model backlight may cause a QP malfunction or breakdown.***

*1   *Use a grounding resistance of 100Ω, a wire of 2mm² or thicker, or your country's applicable standard.*