OMRON

Industrial PC Platform

NY-series

NYE Industrial Panel PC

Hardware User's Manual

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Industrial Panel PC

W634-E2-04

Introduction

Thank you for purchasing the Industrial Panel PC.

This manual contains information that is necessary to use the Industrial Panel PC (hereafter also named Panel PC). Please read this manual and make sure you understand the functionality and performance of the Panel PC before attempting to use it.

Keep this manual in a safe place where it will be available for reference during operation.

Intended Audience

This manual is intended for the following personnel, who must also have knowledge of electrical systems (an electrical engineer or the equivalent).

- Personnel in charge of introducing Factory Automation systems.
- Personnel in charge of designing Factory Automation systems.
- Personnel in charge of installing and maintaining Factory Automation systems.
- Personnel in charge of managing Factory Automation systems and facilities.

Applicable Products

This manual covers following Industrial Panel PC products:

NYE□□-□□□□□-□□□□□□□□

Product	Model
Panel PC with Windows 10	NYE□□-□□5□□
Panel PC with Windows 10 and FHV7 software	NYE□□-□□F□□
Panel PC, with Windows 10 and Soft-NA	NYE□□-□□N□□
Panel PC, with Windows 10 and NS software	NYE□□-□□S□□

> **Additional Information**
>
> Refer to *1-4 Product Configuration* on page 1-5 for configuration details.

Sections in this Manual

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Section 1   Overview

Section 2   System Configurations

Section 3   Hardware

Section 4   Specifications

Section 5 Installation

Section 6 Operating Procedures

Section 7 Maintenance

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Manual Information

This section provides information about this manual.

Page Structure

The following page structure is used in this manual.

Ⓐ ——— 5 Installation

Ⓑ ——— **5-1 Unpack**

This section provides details on how to unpack the Industrial Panel PC.

Ⓒ ——— **5-1-1 Unpack Procedure**

1 Check the package for damage.
If there is any visible damage:
 • Take photos of the package and save them.
 • Inform your supplier immediately.

Ⓓ ——— **2** Open the package.
Ensure not to damage the contents.

3 Ensure that all items are present.

Additional Information

Ⓔ ——— Refer to *5-1-2 Items Supplied with the Product* for the items supplied.

Ⓑ — 5-1 Unpack

Ⓖ — 5

Ⓒ — 5-1-1 Unpack Procedure

Ⓕ ——— NY-series User's Manual (W555)   5 - 3 ——— Ⓗ

Note: This illustration is provided as a sample. It will not literally appear in this manual.

Item	Explanation	Item	Explanation
A	Level 1 heading	E	Special Information
B	Level 2 heading	F	Manual name
C	Level 3 heading	G	Page tab with the number of the main section
D	Step in a procedure	H	Page number

Special Information

Special information in this manual is classified as follows:

Precautions for Safe Use

Precautions on what to do and what not to do to ensure safe usage of the product.

Precautions for Correct Use

Precautions on what to do and what not to do to ensure proper operation and performance.

Additional Information

Additional information to read as required.
This information is provided to increase understanding or make operation easier.

Version Information

Information on differences in specifications and functionality between different versions.

Terms and Conditions Agreement

Warranty, Limitations of Liability

Warranties

● **Exclusive Warranty**

Omron's exclusive warranty is that the Products will be free from defects in materials and workmanship for a period of twelve months from the date of sale by Omron (or such other period expressed in writing by Omron). Omron disclaims all other warranties, express or implied.

● **Limitations**

OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCTS. BUYER ACKNOWLEDGES THAT IT ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE.

Omron further disclaims all warranties and responsibility of any type for claims or expenses based on infringement by the Products or otherwise of any intellectual property right.

● **Buyer Remedy**

Omron's sole obligation hereunder shall be, at Omron's election, to (i) replace (in the form originally shipped with Buyer responsible for labor charges for removal or replacement thereof) the non-complying Product, (ii) repair the non-complying Product, or (iii) repay or credit Buyer an amount equal to the purchase price of the non-complying Product; provided that in no event shall Omron be responsible for warranty, repair, indemnity or any other claims or expenses regarding the Products unless Omron's analysis confirms that the Products were properly handled, stored, installed and maintained and not subject to contamination, abuse, misuse or inappropriate modification. Return of any Products by Buyer must be approved in writing by Omron before shipment. Omron Companies shall not be liable for the suitability or unsuitability or the results from the use of Products in combination with any electrical or electronic components, circuits, system assemblies or any other materials or substances or environments. Any advice, recommendations or information given orally or in writing, are not to be construed as an amendment or addition to the above warranty.

See https://www.omron.com/global/ or contact your Omron representative for published information.

Limitation on Liability; Etc

OMRON COMPANIES SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, NEGLIGENCE OR STRICT LIABILITY.

Further, in no event shall liability of Omron Companies exceed the individual price of the Product on which liability is asserted.

Application Considerations

Suitability of Use

Omron Companies shall not be responsible for conformity with any standards, codes or regulations which apply to the combination of the Product in the Buyer's application or use of the Product. At Buyer's request, Omron will provide applicable third party certification documents identifying ratings and limitations of use which apply to the Product. This information by itself is not sufficient for a complete determination of the suitability of the Product in combination with the end product, machine, system, or other application or use. Buyer shall be solely responsible for determining appropriateness of the particular Product with respect to Buyer's application, product or system. Buyer shall take application responsibility in all cases.

NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY OR IN LARGE QUANTITIES WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCT(S) IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

Programmable Products

- Omron Companies shall not be responsible for the user's programming of a programmable Product, or any consequence thereof.
- Omron Companies shall not be responsible for the operation of the user accessible operating system (e.g. Windows, Linux), or any consequence thereof.

Disclaimers

Performance Data

Data presented in Omron Company websites, catalogs and other materials is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of Omron's test conditions, and the user must correlate it to actual application requirements. Actual performance is subject to the Omron's Warranty and Limitations of Liability.

Change in Specifications

Product specifications and accessories may be changed at any time based on improvements and other reasons. It is our practice to change part numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the Product may be changed without any notice. When in doubt, special part numbers may be assigned to fix or establish key specifications for your application. Please consult with your Omron's representative at any time to confirm actual specifications of purchased Product.

Errors and Omissions

Information presented by Omron Companies has been checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical or proofreading errors or omissions.

Safety Precautions

Definition of Precautionary Information

The following notation is used in this manual to provide precautions required to ensure safe usage of the Industrial Panel PC. The safety precautions that are provided are extremely important to safety. Always read and heed the information provided in all safety precautions.
The following notation is used.

⚠ WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury. Additionally, there may be severe property damage.
⚠ CAUTION	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury, or property damage.

Symbols

🚫	The circle and slash symbol indicates operations that you must not do. The specific operation is shown in the circle and explained in text. This example indicates prohibiting disassembly.
⚠	The triangle symbol indicates precautions (including warnings). The specific operation is shown in the triangle and explained in text. This example indicates a precaution for electric shock.
⚠	The triangle symbol indicates precautions (including warnings). The specific operation is shown in the triangle and explained in text. This example indicates a general precaution.
❗	The filled circle symbol indicates operations that you must do. The specific operation is shown in the circle and explained in text. This example shows a general precaution for something that you must do.

Warnings

⚠ WARNING

Disassembly and Dropping

Do not attempt to disassemble, repair, or modify the product in any way. Doing so may result in malfunction or fire.

Installation

Always connect to a ground of 100 Ω or less when installing the product.

Ensure that installation and post-installation checks of the product are performed by personnel in charge who possess a thorough understanding of the machinery to be installed.

Fail-safe Measures

Provide safety measures in external circuits to ensure safety in the system if an abnormality occurs due to malfunction of the product or due to other external factors affecting operation. Not doing so may result in serious accidents due to incorrect operation.

Emergency stop circuits, interlock circuit, limit circuits, and similar safety measures must be provided in external control circuits.

Unintended behavior may occur when an error occurs in internal memory of the product. As a countermeasure for such problems, external safety measures must be provided to ensure safe operation of the system.

Provide measures in the communications system and user program to ensure safety in the overall system even if errors or malfunctions occur in data link communications or remote I/O communications.

The use of an uninterruptible power supply (UPS) allows normal operation to continue even if a momentary power failure occurs, possibly resulting in the reception of an erroneous signal from an external device affected by the momentary power failure. Take external fail-safe measures. Where necessary, monitor the power supply voltage on the system for external devices and use it as an interlock condition.

Do not use the input functions of the touchscreen in applications that involve human life, in applications that may result in serious injury, or for emergency stop switches.

Actual Operation

Check the user program, data, and parameter settings for proper execution before you use them for actual operation.	❗
Security setting adjustments should only be performed by the engineer in charge that possesses a thorough understanding of the security settings. Selecting non-recommended security settings can put your system at risk.	❗
Changing BIOS information is only allowed for the engineer in charge that possesses a thorough understanding of the BIOS settings because it can change the behavior of the product.	❗
Never press two or more points on the resistive touch panel of the unit simultaneously. Touching two points or more interrupts normal touch panel operations.	🚫

Cybersecurity

To maintain the security and reliability of the system, a robust cybersecurity defense program should be implemented, which may include some or all of the following:

Anti-virus protection

- Install the latest commercial-quality anti-virus software on the computer connected to the control system and keep the software and virus definitions up-to-date.
- Scan USB drives or other external storage devices before connecting them to control systems and equipment.

Security measures to prevent unauthorized network access

- Install physical controls so that only authorized personnel can access control systems and equipment.
- Reduce connections to control systems and equipment via networks to prevent access from untrusted devices.
- Install firewalls to block unused communications ports and limit communication between systems. Limit access between control systems and systems from the IT network.
- Control remote access and adopt multifactor authentication to devices with remote access to control systems and equipment.
- Set strong password policies and monitor for compliance frequently.

Data input and output protection

- Backup data and keep the data up-to-date periodically to prepare for data loss.
- Validate backups and retention policies to cope with unintentional modification of input/output data to control systems and equipment.
- Validate the scope of data protection regularly to accommodate changes.
- Check validity of backups by scheduling test restores to ensure successful recovery from incidents.
- Safety design, such as emergency shutdown and fail-soft operations in case of data tampering and incidents.

Additional recommendations

- When using an external network environment to connect to an unauthorized terminal such as a SCADA, HMI or to an unauthorized server may result in network security issues such as spoofing and tampering.
- You must take sufficient measures such as restricting access to the terminal, using a terminal equipped with a secure function, and locking the installation area by yourself.
- When constructing network infrastructure, communication failure may occur due to cable disconnection or the influence of unauthorized network equipment.
- Take adequate measures, such as restricting physical access to network devices, by means such as locking the installation area.
- When using devices equipped with an SD Memory Card, there is a security risk that a third party may acquire, alter, or replace the files and data in the removable media by removing or unmounting the media.
- Please take sufficient measures, such as restricting physical access to the Controller or taking appropriate management measures for removable media, by means of locking and controlling access to the installation area.
- Educate employees to help them identify phishing scams received via email on systems that will connect to the control network.

Cautions

⚠ CAUTION

Wiring

The product has an internal non-isolated DC power supply. Circuit ground (0 VDC) and frame ground are connected together. When connecting a non-isolated device or a non-isolated interface to the product, take appropriate actions to avoid communication failures or damage to the mentioned ports.
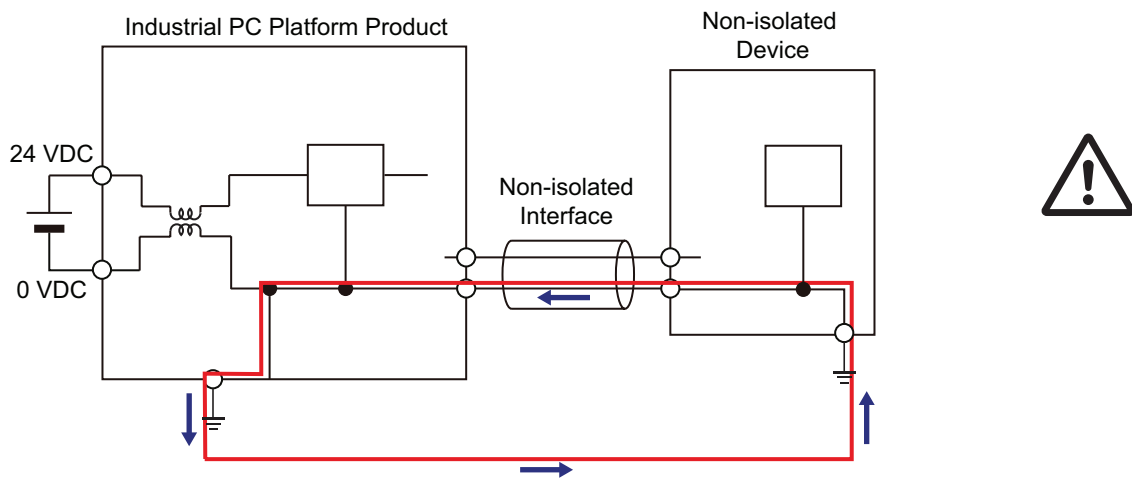
Never ground the 24 VDC side of the power supply. This may cause a short circuit.

Precautions for Safe Use

Disassembly, Dropping, Mounting, Installation and Storage NYE

- Do not drop the product or subject it to abnormal vibration or shock. Doing so may result in product malfunction or burning.
- When unpacking, check carefully for any external scratches or other damages. Also, shake the product gently and check for any abnormal sound.
- Always use the devices specified in the relevant manual.
- The product must be installed in a control panel.
- Always install equipment that is included in the product specifications. Not doing so may result in failure or malfunction.
- Install the product in the correct orientation and temperature according to the specifications in the manual to prevent overheating. Not doing so may result in malfunction.
- When connecting peripheral devices to the product, ensure sufficient countermeasures against noise and static electricity during installation of the peripheral devices.
- The mounting panel must be between 1.6 and 6.0 mm thick. Tighten the Mounting Brackets evenly to a torque of 0.6 Nm to maintain water and dust resistance. If the tightening torque exceeds the specified value, or the tightening is not even, deformation of the front panel may occur. Additionally, make sure the panel is not dirty or warped and that it is strong enough to hold the product.
- Do not let metal particles enter the product when preparing the panel. Do not allow wire clippings, shavings, or other foreign material to enter any product. Otherwise, the product burning, failure, or malfunction may occur. Cover the product or take other suitable countermeasures, especially during wiring work.
- Do not press the touch panel with a force greater than 30 N.
- Design power sequence control carefully. If the machine controller is running but a device with touch screen not, the touch interface can not be used for application control.

Wiring

- Follow the instructions in the manual to correctly perform connector wiring and insertion. Double-check all wiring and connector insertion before turning ON the power supply.
- Always ensure connectors, cables and Storage devices are completely locked in place to prevent accidental disconnection.
- Before you connect a computer to the product, disconnect the power supply plug of the computer from the AC outlet. Also, if the computer has an FG terminal, make the connections so that the FG terminal has the same electrical potential as the product. A difference in electrical potential between the computer and the product may cause failure or malfunction.
- Do not bend or pull the cables beyond normal limit. Do not place heavy objects on top of the cables or other wiring lines. Doing so may break the cables.
- Always use power supply wires with sufficient wire diameters to prevent voltage drop and burning. Make sure that the current capacity of the wire is sufficient. Otherwise, excessive heat may be generated. When cross-wiring terminals, the total current for all the terminals will flow in the wire. When wiring cross-overs, make sure that the current capacity of each of the wires is not exceeded.
- In case a peripheral port is used to supply power to an external device, make sure that the port supplies the right voltage and that it can supply the required current.

- Be sure that all mounting bracket screws and cable connector screws are tightened to the torque specified in the relevant manuals. The loose screws may result in fire or malfunction.
- Use crimp terminals for wiring.

Power Supply Design and Turning ON/OFF the Power Supply

- Always use a power supply that provides power within the rated range in the manual.
- Do not perform a dielectric strength test.
- Always use the recommended uninterruptable power supply (UPS) to prevent data loss and other system file integrity issues caused by unexpected power interruption. Back up the system files in the planned way to prevent data loss and other system file integrity issues caused by incorrect operation.
- Use an Omron S8BA UPS with the correct revision number to prevent improper system shutdown.
- Always check the power supply and power connections before applying power. Incorrect power connections can damage the product or cause burning.
- Always turn OFF the power supply to system before you attempt any of the following.
  - Connecting cables
  - Connecting or disconnecting the connectors
  - Wiring the system
  - Replacing or removing the storage device
  - Replacing the Battery

Actual Operation

- Choose a OS password that is not obvious to prevent unauthorized access.
- Remember the OS user name and password. The product is inaccessible without it.
- Before operating the system, please make sure the appropriate software is installed and configured. Doing so may prevent unexpected operation.
- Install all updates and ensure the browser stays up-to-date.
- Install all updates and ensure the firewall stays up-to-date.
- Install all updates and ensure virus definitions stay up-to-date.
- Make sure that your OS environment is protected against malicious software and viruses.
- Virtual memory settings can affect the performance of the system. Disable the paging file after installation of applications or updates.
- Correctly perform wiring and setting, and ensure that the shutdown by the UPS can be executed.
- Always use the SMART monitoring feature for storage devices that do not comply to the Omron Storage Device Specifications. Monitor the operating temperature and vibrations to ensure they stay within the environmental specifications of the storage device.

Operation

- Do not carry out the following operations when accessing a USB device.
  - Turn OFF the power supply of the product.
  - Press the Power Button of the product.
  - Remove a USB device.
- Confirm the safety of the system before using the touch panel.

- Signals from the touchscreen may not be entered if the touchscreen is pressed consecutively at high speed. Only move on to the next operation after confirming that the product has detected the previous input of the touchscreen.
- Do not accidentally press the touchscreen when the backlight is not lit or when the display does not appear. Confirm the safety of the system before pressing the touchscreen.
- Do not use hard or pointed objects to operate or scrub the touchscreen, otherwise the surface of the touchscreen may be damaged.
- Water and oil resistance will be lost if the front sheet is torn or is peeling off. Do not use the Unit, if the front sheet is torn or is peeling off.
- A touch position detection error of approximately 20 pixels may occur due to the precision of the touch panel. Always take this into account when positioning objects on the panel so adjoining objects will not be activated by mistake.

General Communications

- Separate the machine network segment from the office network to avoid communication failures.

Battery Replacement

- Dispose of any Battery that has been dropped on the floor or otherwise subjected to excessive shock. Batteries that have been subjected to shock may leak if they are used.
- UL standards require that only an experienced engineer replace the Battery. Make sure that an experienced engineer is in charge of Battery replacement.
- The Battery may leak, rupture, heat, or ignite. Never short-circuit, charge, disassemble, heat, or incinerate the Battery or subject it to strong shock.

Product Replacement

- Make sure that the required data, including the user program, configurations, settings and variables is transferred to a product that was replaced and to externally connected devices before restarting operation.
  Be sure to include the tag data link settings and routing tables, which are stored in the product.

Cleaning, Maintenance and Disposal

- Do not use corrosive substances to clean the product. Doing so may result in the failure or malfunction.
- Periodically check the installation conditions in applications where the product is subject to contact with oil or water.
- The deterioration over time may cause the touch points to move on the touch panel. Calibrate the touch panel periodically.
- As the rubber gasket will deteriorate, shrink, or harden depending on the operating environment, periodical inspection is necessary.
- Dispose of the product and batteries according to local ordinances as they apply.

廢電池請回收

- Dispose in accordance with applicable regulations.

- The following information must be displayed for all products that contain primary lithium batteries with a perchlorate content of 6 ppb or higher when shipped to or transported through the State of California, USA.

   Perchlorate Material - special handling may apply.
   See http://www.dtsc.ca.gov/hazardouswaste/perchlorate.
- The product contains a lithium battery with a perchlorate content of 6ppb or higher. When exporting an end product containing the product to or shipping through California, USA, label all packing and shipping containers appropriately.

Precautions for Correct Use

Storage, Installation and Mounting

- Do not operate or store the product in the following locations. Operation may stop or malfunctions may occur.
  - Locations subject to direct sunlight
  - Locations subject to temperatures or humidity outside the range specified in the specifications
  - Locations subject to condensation as the result of severe changes in temperature
  - Locations subject to corrosive or flammable gases
  - Locations subject to dust (especially iron dust) or salts
  - Locations subject to exposure to water, oil or chemicals
  - Locations subject to shock or vibration
  - Locations outdoors subject to direct wind and rain
  - Locations subject to strong ultraviolet light
- Always install the product with sufficient surrounding space to allow for adequate heat dissipation and cooling effect.
- Take appropriate and sufficient countermeasures when installing the product in the following locations
  - Locations subject to strong, high-frequency noise
  - Locations subject to static electricity or other forms of noise
  - Locations subject to strong electromagnetic fields
  - Locations subject to possible exposure to radioactivity
  - Locations close to power lines
- Always touch a grounded piece of metal to discharge static electricity from your body before starting an installation or maintenance procedure.
- Insert USB devices correctly to avoid the burning, failure or malfunction.
- The backlight has a finite life and if that is exceeded, the product may fail or malfunction. Check the brightness periodically and if necessary, replace the product.

Wiring

- Always ensure the rated supply voltage is connected to the product.
- Do not allow wire clippings, shavings, or other foreign material to enter the product. Otherwise, burning, failure, or malfunction may occur. Cover the product or take other suitable countermeasures, especially during wiring work.
- Do not use cables exceeding the maximum specified length. Doing so may cause malfunction.
- Do not connect an AC power supply to the DC power connector.
- Observe the following precautions to prevent broken wires.
  - When you remove the sheath, be careful not to damage the conductor.
  - Connect the conductor without twisting the wires.
  - Do not weld the conductors. Doing so may cause the wires to break with vibration.

Actual Operation and Operation

- After an OS update or a peripheral device driver update for the product is executed, the product behavior might be different. Confirm that operation is correct before you start actual operation.
- Always create a Windows System Repair Disk using Windows Backup and Restore to recover the HDD/SSD configuration if necessary.
- CFast Cards, power buttons and batteries have finite lives and if those are exceeded, the product may fail or malfunction.
- If the battery runs low, time and date can no longer be retained by the unit. To prevent this, replace the battery within the specified expiry period.
- Do not reset or power OFF the product while the password is being changed. If you fail to save the password there is a possibility that the project will not work.
- You can operate the touchscreen even when you wear some gloves. Confirm that you can correctly operate the touchscreen while wearing gloves prior to actual operation.
- If the product experiences a sudden loss of power or disconnecting the cable while saving a setting or transfer of data is underway, the changes may not be stored and unexpected behavior may occur.
- Ensure that available software checks are performed by personnel in charge who possess a thorough understanding of the software.

Battery Replacement

- Make sure to use a battery of the correct type, install the battery properly.

Regulations and Standards

Conformance to EU Directives

The Industrial Panel PC complies with EU Directives. To ensure that the machine or device in which the Panel PC is used complies with EU Directives, the following precautions must be observed:

- The Panel PC must be installed within a control panel.
- The Panel PC that complies with EU Directives also conforms to the Common Emission Standard. Radiated emission characteristics may vary depending on the configuration of the control panel used, other devices connected to the control panel, wiring, and other conditions. You must therefore confirm that the overall machine or equipment in which the Panel PC is used complies with EU Directives.
- This is a Class A product (for industrial environments). In a residential environment, it may cause radio interference. If radio interference occurs, the user may be required to take appropriate measures.

Applicable Directive

EMC Directive

EMC Directive

OMRON devices that comply with EU Directives also conform to the related EMC standards so that they can be more easily built into other devices or the overall machine. The actual products have been checked for conformity to EMC standards.
Applicable EMC (Electromagnetic Compatibility) standards are as follows:

- EMS (Electromagnetic Susceptibility): EN 61131-2
- EMI (Electromagnetic Interference): EN 61131-2

Whether the products conform to the standards in the system used by the customer, however, must be checked by the customer. EMC-related performance of the OMRON devices that comply with EU Directives will vary depending on the configuration, wiring, and other conditions of the equipment or control panel on which the OMRON devices are installed. The customer must, therefore, perform the final check to confirm that devices and the overall machine conform to EMC standards.

Conformance to UL and CSA Standards

Some Industrial PC Platform products comply with UL and CSA standards. If you use a product that complies with UL or CSA standards and must apply those standards to your machinery or devices, refer to this manual. This manual provides the application conditions for complying with the standards. If the product is used in a manner not specified in the Instruction Sheet or in the product manuals then the protection provided by the equipment may be impaired.

Software Licenses and Copyrights

This product incorporates certain third party software. The license and copyright information associated with this software is available at https://www.fa.omron.co.jp/nj_info_e/.

Related Manuals

The following manuals are related. Use these manuals for reference.

NYE Manuals

This table contains the related manual of the NYE-series products.

Manual name	Cat. No.	Model numbers	Application	Description
NYE-series Industrial Panel PC Hardware User's Manual	W634	NYE☐☐-☐☐☐☐	Learning all basic information about the Panel PC. This includes introductory information with features, hardware overview, specifications, mounting, wiring, connecting, operating and maintaining the Industrial Monitor.	An introduction to the Panel PC is provided along with the following information: • Overview • Hardware • Software • Specifications • Installation • Operating Procedures • Maintenance
NYE-series Industrial PC Operating Systems and Software Utilities Manual	W635	NYE☐☐-☐5☐☐ NYE☐☐-☐N☐☐ NYE☐☐-☐S☐☐	Learning all software related information about the Panel PC. This includes introductory information,installation, operating procedures and maintenance. Mainly software information is provided.	An introduction to the Panel PC is provided along with the following information: • Overview • Software • Specifications • Installation • Operating Procedures • Maintenance
NY-series Industrial Panel PC FHV7 Software, Setup and Operation Manual	W642	NYE☐☐-☐☐F☐☐	Learning all software related information about the Panel PC with FHV7 Software.	An introduction to the Panel PC with FHV7 Software is provided along with the following information: • Overview • Software • Specifications • Operating Procedures • Maintenance
NS-Runtime	V093	NYE☐☐-☐☐S☐☐	Learning all software related information about NS-Runtime	An introduction to NS-Runtime with the following information: • Overview • User Interface • Installation • Basic Operations • Applicaton Methods
CX-Designer User's Manual	V099	NYE☐☐-☐☐S☐☐	Learning all software related information about CX-Designer	An introduction to CX-Designer with the following information: • Overview • User Interface • Installation • Basic Operations • Applicaton Methods

Manual name	Cat. No.	Model numbers	Application	Description
NA-series Soft-NA User's Manual	V126	NYE□□-□ □N□□	Learning all software related information about Soft-NA	An introduction to soft-NA is provided along with the following information: • Overview • Software • Specifications • Programming • Operating Procedures

Related Products Manuals

Manual name	Cat. No.	Model-ID	Application	Description
UPS S8BA User's Manual	U702	S8BA	Learning the information that is necessary to use the Uninterruptible Power Supply (UPS) Unit.	An introduction to the UPS is provided along with the following information: • Overview • Preparation • Installation and Connection • Check and Start Operation • Maintenance and Inspection • Shutdown Processing • I/O Signal Functions • Troubleshooting
UPS Power Attendant Lite for Windows User's Manual	---	S8BA	Learning the information that is necessary to use the software to monitor, test and control the UPS and to configure all settings.	An introduction to the software is provided along with the following information: • Overviews • Connection and Installation • The Simple Usage and Operation Test • Settings

Terminology and Abbreviations

Industrial PC Platform

Term / Abbreviation	Description
Industrial PC Platform	An integrated range of OMRON products designed for use in any industrial application that will benefit from advanced PC technology
Industrial Monitor	An industrial monitor with a touchscreen as the user interface designed to work in industrial environments
Industrial Panel PC	An industrial PC with an integrated touchscreen monitor designed to work in industrial environments
Industrial Box PC	A box-shaped industrial PC including an OS designed to work in industrial environments
IPC	Industrial PC

Hardware

Term / Abbreviation	Description
3D TLC	3D Triple-Level Cell flash memory
CFast	An SSD CFast storage device
CPU	A Central Processing Unit is the hardware within a computer that executes the instructions of a computer program
Ethernet	A network communication protocol used in TCP/IP network
HMI	A Human Machine Interface that facilitates machine operation and control
SATA	The Serial AT Attachment is a serial bus interface primarily used with mass storage devices such as hard disk drives
USB	Universal Serial Bus

Software

Term / Abbreviation	Description
BIOS	Basic Input Output System. The first software run by a PC when powered on.
DST	Daylight Saving Time
IIoT	Industrial Internet of Things
Linux	An open source Operating System
MBR	Master Boot Record
Merge module	A module providing a standard method by which developers deliver shared Windows installer components and setup logic to their applications
MSDN	Microsoft Developer Network
NUI	Natural User Interface
OS	Operating System
TCP/IP	Transmission Control Protocol / Internet Protocol, a core member of the Internet protocol suite
TPM	Trusted Platform Module
Windows	An Operating System designed by Microsoft

Revision History

A manual revision code appears as a suffix to the catalog number on the front and back covers of the manual.

Cat. No. | W634-E2-04

Revision code

Revision code	Date	Revised content
04	March 2025	Added KC certificate details
03	February 2024	• Added new OS options 5, F and N • Minor modifications due to added OS options
02	December 2022	• Corrected references from W616 to W635 • Corrected model-ID on frontcover • Minor modifications
01	September 2022	First release

1

Overview

This section provides general information about the Industrial Panel PC.

1-1   Intended Use

The Industrial Panel PC is intended to be used as a panel mounted industrial PC in factory automation environments. This Panel PC can be used with an Operating System and third party software to serve as a powerful PC platform.

A user can access the Panel PC for control, configuration and supervisory operations using the integrated touchscreen display.

The Panel PC can easily be integrated in manufacturing innovations like big data, NUI and IIoT.

The Panel PC has a compact design that offers flexibility, expandability and easy maintenance for applications in factory automation environments.
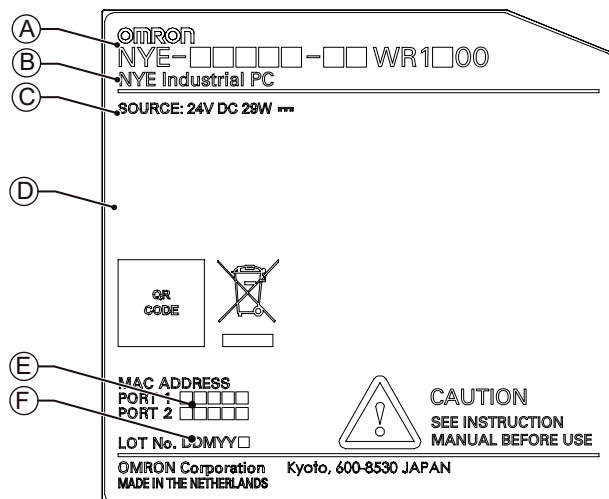
1-2　Hardware Features

The Industrial Panel PC provides the following hardware features.

*   A range of dimensions

    The Industrial Panel PC is available in a range of widescreen dimensions.

*   Fanless cooling

    The Panel PC has passive cooling which means no moving parts and less maintenance effort.

*   LED indicators

    LED indicators provide a clear indication of the operational status of the Panel PC.

*   2 Ethernet ports 1Gb/s

    Interface with multiple networks.

*   Built-in I/O

    Built-in I/O for Panel PC shutdown control.

*   3 USB ports

    2 USB2.0 ports and 1 USB3.0 port are provided for connection to external USB devices such as keyboards, memory sticks, or other peripheral hardware.

*   Built-in CFast Card slot

    For storage of an Operating System and third party software.

*   LCD touchscreen

    The LCD touchscreen provides high functionality for your PC interface.

    The high resolution and a high brightness provide clarity and high visibility.

1-3   ID Information Label

The ID information label contains relevant information about the Industrial Panel PC.

The following example will be different from your product label.

Item	Name	Description
A	Model ID [*1]	The Model ID containing configuration details.
B	Product name	The name of your product
C	Power rating	Power rating details and optional UL related information
D	Standards and QR code	The applicable standards and a QR code for OMRON internal use. For KC certificate details refer to: • https://www.rra.go.kr/selform/OMR-NY-00146 • https://www.rra.go.kr/selform/OMR-NY-00147 • https://www.rra.go.kr/selform/OMR-NY-00148 • https://www.rra.go.kr/selform/OMR-NY-00149
E	MAC ADDRESS	• PORT 1: the MAC address of Ethernet port 1 • PORT 2: the MAC address of Ethernet port 2
F	LOT number and serial number	Production details, consisting of: • The lot number of the Industrial Panel PC in the format DDMYY□. DDMYY with Month number 1 to 9 for January to September, X for October, Y for November, and Z for December. □: For use by OMRON • Serial number (4 digits)

*1.   Refer to *1-4 Product Configuration* on page 1-5 for model details.

📝 **Additional Information**

Refer to *3-1-1 Base Layer NYE* on page 3-3 for the ID label location.

1-4 Product Configuration

This section provides an overview of the product configurations available for the Panel PC.
The product configuration is visible in the model-ID that is mentioned on the ID information label of the Panel PC.
The structure of the model-ID is: NYE□□-□□□□□-□□□□□□□□.
Each item in the model-ID has a specific meaning.

NYE □□ - □□□□□ - □□□□□□□□
 1   2   3 4 5 6 7   8 9 10 11 12 13 14

Item	Description	Option / Description
1	Series name	NYE: NYE- series Panel PC
2	CPU	2A: Intel Atom E3940 CPU
3	Memory	2: DDR3L 4 GB no ECC
4	Expansion	0: No expansion
5	Operating System / Software	5: Windows 10 IoT Enterprise 2021 LTSC - 64 bit F: Windows 10 IoT Enterprise 2021 LTSC - 64 bit with FHV7 N: Windows 10 IoT Enterprise 2021 LTSC - 64 bit with Soft-NA S: Windows 10 IoT Enterprise 2021 LTSC - 64 bit with NS software
6	Storage	1: 128GB, CFast 3DTLC
7	Interfaces	1: RS-232C
8	Display size (diagonal)	07: 7.0 inch model 09: 9.0 inch model 12: 12.1 inch model 15: 15.4 inch model
9	Aspect ratio	W: Wide
10	Touchscreen	R: Resistive
11	Frame-type	1: Panel mount
12	Front material & Color	2: Body Aluminium Black + Frontsheet Black 3: Body Aluminium Black + Frontsheet Silver
13	Build-in options	0: None
14	Customization	0: None

1-5 Overall Setup Procedure

This section gives the overall setup procedure for the Industrial PC.
This manual presents this information in the same order as the following setup procedure.

To setup the Industrial PC:

1 Familiarize yourself with the Industrial PC
   • Refer to the information in this manual.
     Specifically refer to following sections of this manual:
     • *Section 2 System Configurations* on page 2-1
     • *Section 3 Hardware* on page 3-1
     • *Section 4 Specifications* on page 4-1
   • Refer to the information in related manual *NY-series NYE Industrial PC Operating Systems and Software Utilities Manual (Cat.No. W635)*.

2 Install the IPC Hardware
   Perform the procedures that are required to use the Industrial PC such as installation, and connection with peripheral devices including a UPS.
   Refer to *Section 5 Installation* on page 5-1.

3 Setup the IPC
   Install and configure the operating system, the software support utilities and the UPS software.
   Refer to the information in related manual *NY-series NYE Industrial PC Operating Systems and Software Utilities Manual (Cat.No. W635)*.

4 Operate the IPC
   Use the operating procedures to operate the Industrial PC.
   Refer to:
   • *Section 6 Operating Procedures* on page 6-1
   • "Section Operating Procedures" in related manual *NY-series NYE Industrial PC Operating Systems and Software Utilities Manual (Cat.No. W635)*

The setup of the Industrial PC is finished.

The section 'Maintenance' contains preventive and corrective maintenance information.
Refer to:
• *Section 7 Maintenance* on page 7-1
• "Section Maintenance" in related manual *NY-series NYE Industrial PC Operating Systems and Software Utilities Manual (Cat.No. W635)*
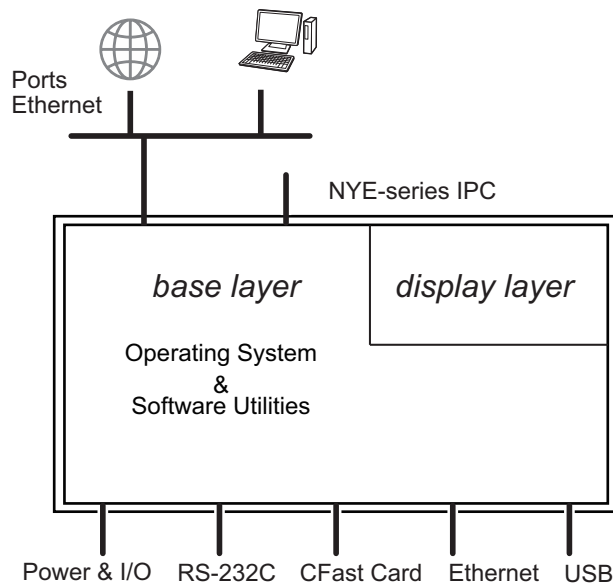
2

System Configurations

This section provides an overview of the system configurations for the Industrial Panel PC.

2-1 Hardware Configuration

The Industrial PC supports the following hardware configurations.

The major parts for configurations are layers.
- All NYE configurations have the base layer and the display layer.
  The base layer contains the CPU, the software and the connectors and functionality.
- The display layer is always present for an Industrial Panel PC.

> **Additional Information**
>
> - Refer to *3-1 Layers and Components* on page 3-2 for details.
> - Refer to *NY-series NYE Industrial PC Operating Systems and Software Utilities Manual (Cat.No. W635)* for details on the operating system and the support software.
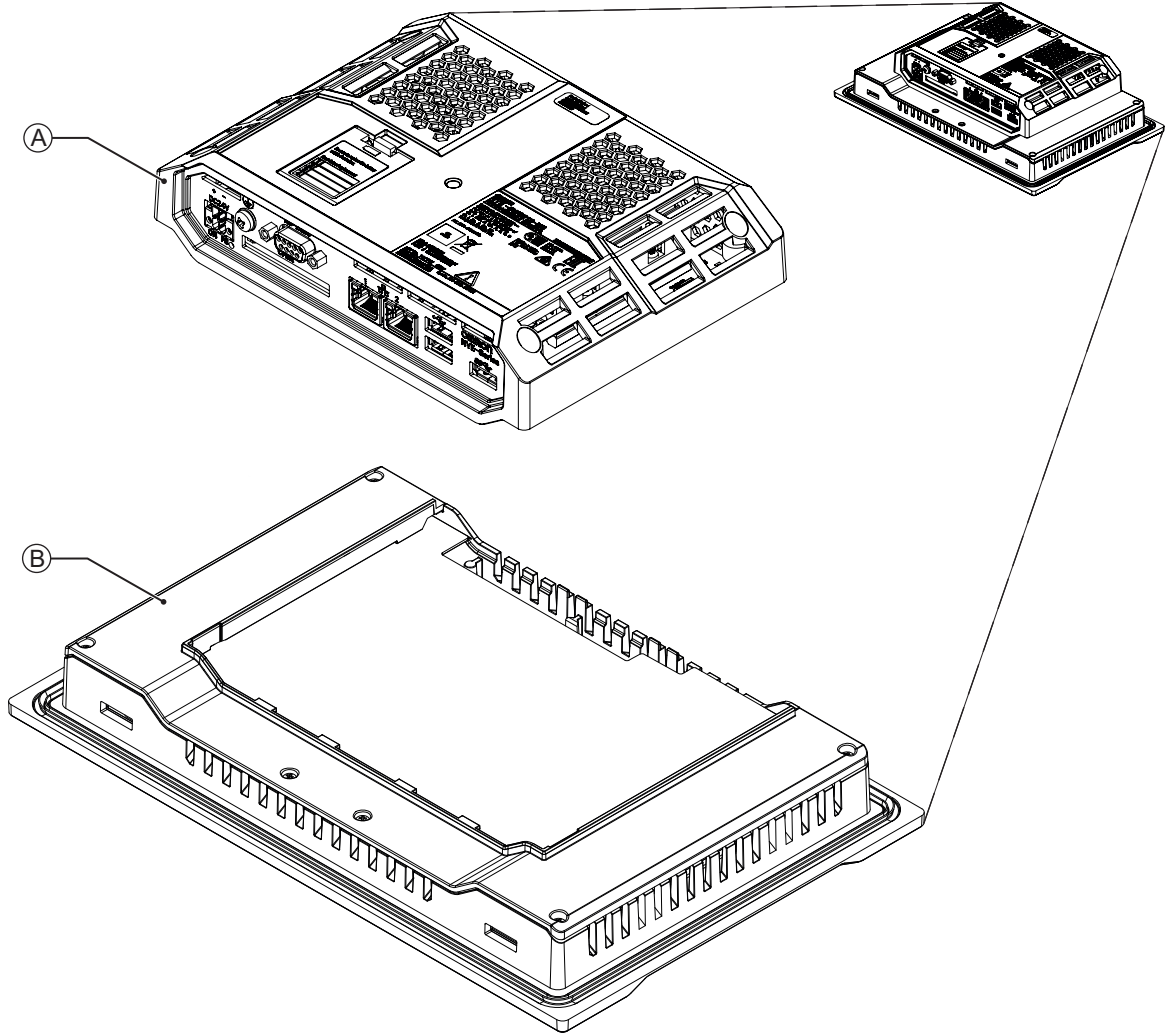
3

Hardware

This section provides an overview of the hardware of the Industrial Panel PC.

3-1 Layers and Components

This section shows the layers of the Industrial Panel PC.
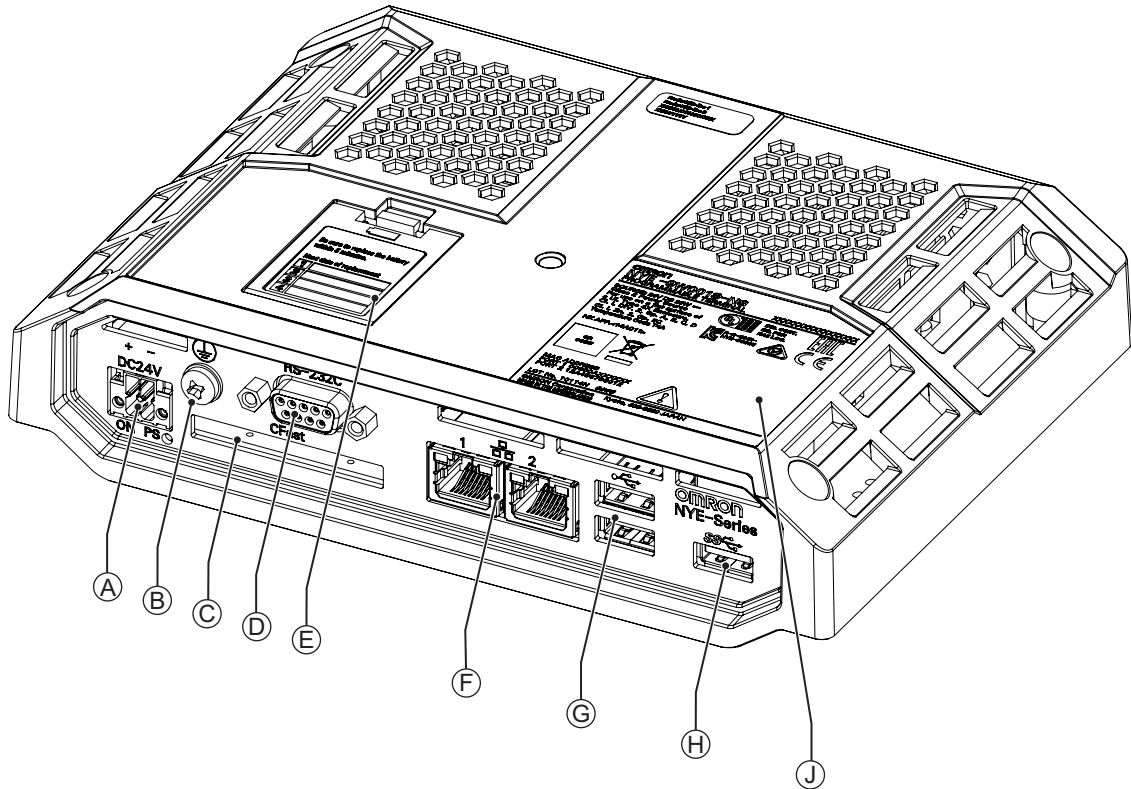

Item	Name	Description
A	Base layer *1	The layer with the CPU and the main interfaces
B	Display layer *1	Touch display to interact with the user

*1. The layers can not be separated.

3-1-1 Base Layer NYE

This section shows the component names and functions for the base layer.

The base layer houses most of the functionality of the Panel PC.

Item	Name	Description
A	Power and I/O connector	Lockable power and I/O connector
B	Ground terminal	Provides a ground terminal for the Panel PC
C	CFast Card slot	CFast Card slot
D	RS232C connector	RS232C connector
E	Battery Cover	Cover for replacable battery
F	10BASE-T / 100BASE-TX / 1000BASE-T Ethernet connectors	2 RJ45 Gb Ethernet interface connectors
G	USB 2.0 connectors	2 USB 2.0 interface connectors
H	USB 3.0 connector	USB 3.0 interface connector
J	ID information label	Label containing model-ID, LOT No. and other product specific information

3-1-2   Display Layer NYE

This section shows the component names and functions for the display layer.
The main function of the display layer is to show content and interact with the user.
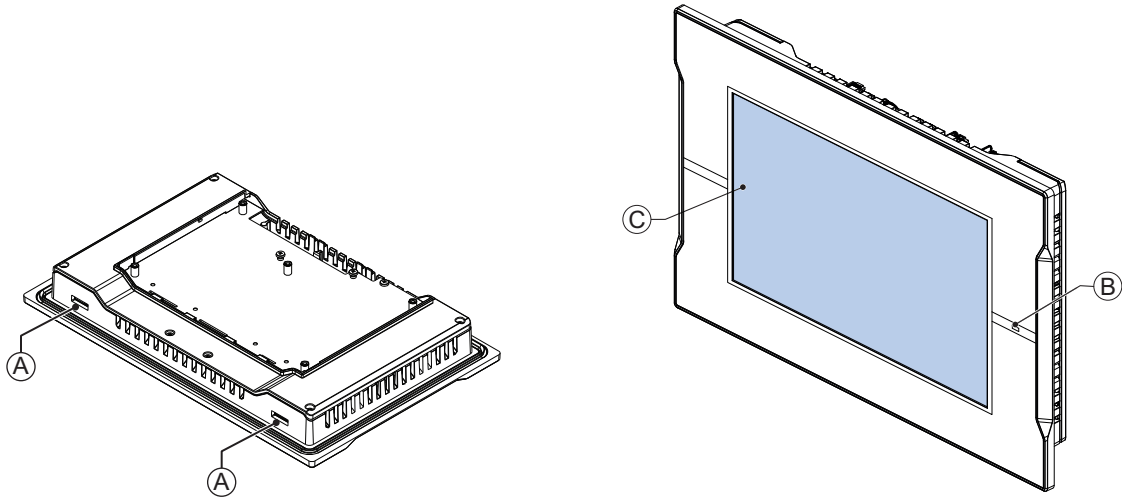
| Item	Name	Description
A	Mounting brackets	Opening for mounting clamps to secure the Panel PC on a mounting surface
B	Status LED indicator	LED to indicate power and status
C	Touchscreen LCD	LCD display

3-2 LED Indicators

The Industrial Panel PC has LED indicators located at the base layer and at the display layer. These LED indicators provide the current operating status of the Industrial Panel PC.

3-2-1 LED Indicators Display Layer

The display layer has a Status LED indicator.
The following LEDs are available on the display layer of the Industrial Panel PC
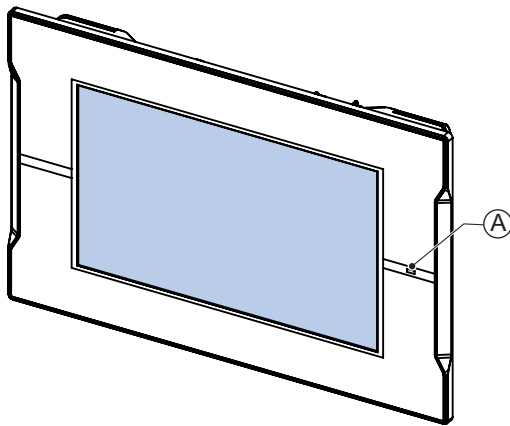
Item	LED	Description
A	Status LED Indicator	Indicates the status of the Panel PC

Status LED Indicator

The Status LED indicator provides information about the operating condition of the Panel PC.

Color		Status	Meaning
None		Not lit	One of the following situations: • The 24 VDC power is not supplied. • Turned OFF or in Sleep mode.
Green		Lit	PWR LED Power is currently supplied and the Industrial Panel PC is turned ON.
Red		Lit	ERR LED Internal Power Supply defective

3-3 Power Button

The power button is located at the base layer.

The power button is used to manually switch the Panel PC ON and OFF.
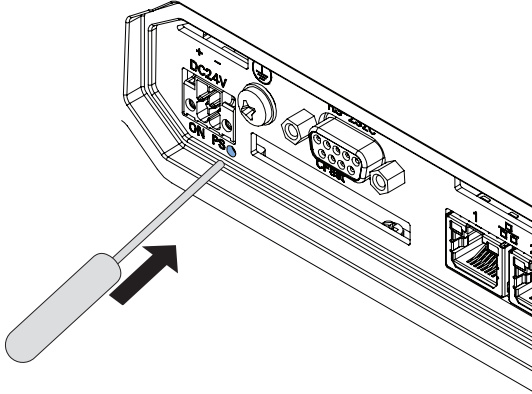
> 📖 **Additional Information**
>
> - Refer to *6-2 Power ON* on page 6-3 for ON details.
> - Refer to *6-3 Power OFF* on page 6-4 for OFF details.

3-4   Connectors

This section gives an overview of the connectors located at the base layer of the Industrial Panel PC.

3-4-1   Power and I/O Connector

The power connector on the Panel PC is used to supply 24 VDC power to the Panel PC and to indicate the power status or set the power status of the Panel PC.
The power connector is supplied with the Panel PC.
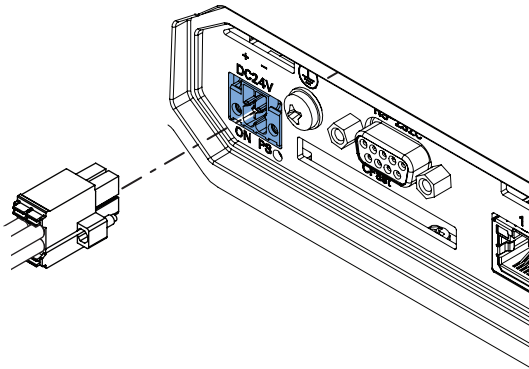
> **Additional Information**
>
> • Refer to *4-2-1 Power and I/O Connector Specifications* on page 4-9 for specifications.
> • Refer to *5-3-3 Wire the Power and I/O Connector* on page 5-27 for wiring details.
> • Refer to *5-4 Connect* on page 5-31 for connection details.

3-4-2   RS-232C Connector

An RS-232C connector is available.
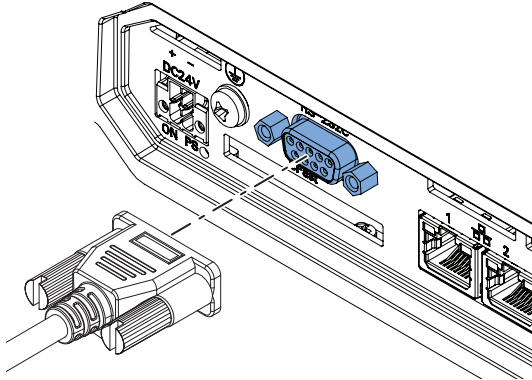
> 📖 **Additional Information**
>
> • Refer to *1-4 Product Configuration* on page 1-5 for configuration details.
> • Refer to *4-2-2 RS-232C Connector Specifications* on page 4-12 for specifications.
> • Refer to *5-4 Connect* on page 5-31 for connection details.

3-4-3   Ethernet Connectors

The Ethernet connectors provide individual Ethernet ports on the Industrial Panel PC.
Each port offers 10BASE-T/100BASE-TX/1000BASE-T Ethernet speeds.
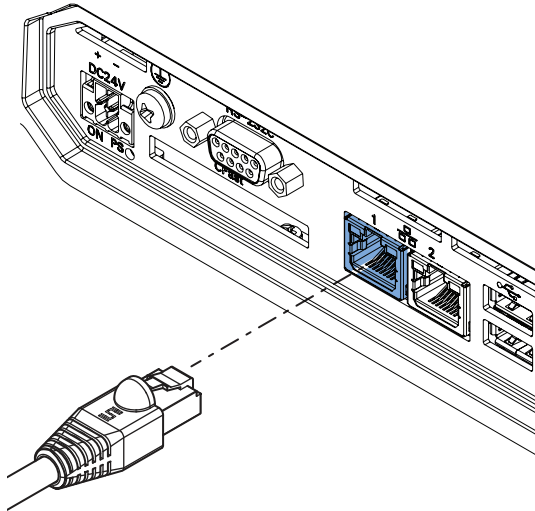
Additional Information

- Refer to *4-2-3 Ethernet Connector Specifications* on page 4-14 for specifications.
- Refer to *5-4 Connect* on page 5-31 for connection details.

3-4-4   USB Connectors

USB connectors support USB 2.x or USB 3.x specifications.
All USB interfaces are protected against overcurrent.
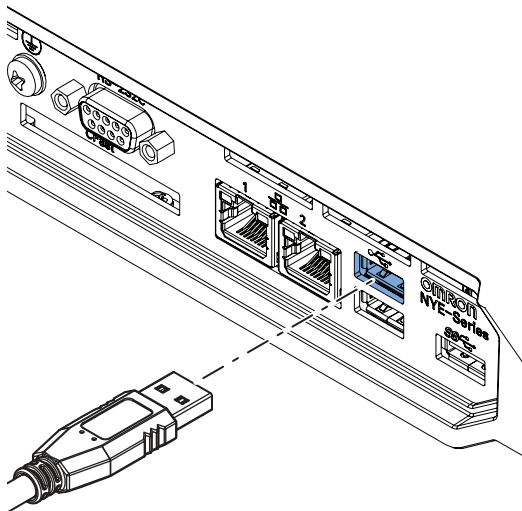
Additional Information

- Refer to *4-2-4 USB Connector Specifications* on page 4-16 for specifications.
- Refer to *5-4 Connect* on page 5-31 for connection details.

3-5   CFast Card Slot

The CFast Card slot is the storage device for the OS and related software.
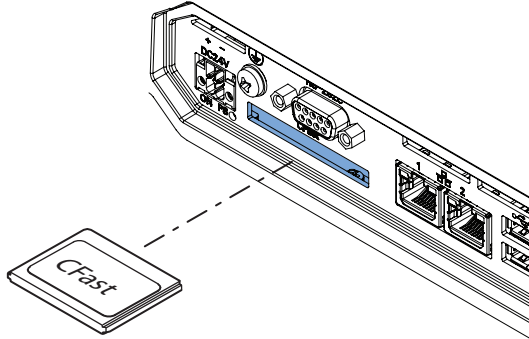
📖 **Additional Information**

Refer to *3-7-3 CFast Cards* on page 3-13 for more information.
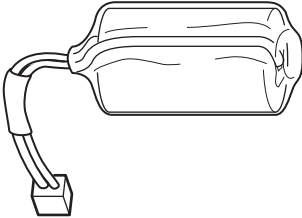
3-6 Spare Parts

The following spare parts for the Industrial Panel PC are available.

3-6-1 Battery

One battery is located inside the Panel PC. The battery supplies power to the real-time clock.

Model	Appearance	Specifications
CJ1W-BAT01		Service life: 5 years at 25°C

📝 **Additional Information**

Refer to the label on the battery for the production date.
The manufacturing date is mentioned with YY-MM.
Production Date

OMRON
CJ1W-BAT01
22-03
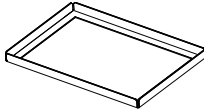
3-7 Optional Hardware

The following optional hardware is available for the Industrial Panel PC.

3-7-1 High-Pressure Waterproof Attachment (PWA)

Details for the High-Pressure Waterproof Attachment (PWA) are provided below.

Model	Model	Appearance	Specifications
High-pressure Waterproof Attachment (PWA)	NA-15WATW01 NA-12WATW01 NA-9WATW01 NA-7WATW01		Install it to conform to UL Type 4X standards.
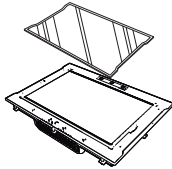
Additional Information

- Refer to the Installation - Mount information for details.

3-7-2 Anti-reflection Sheets

Attach a Sheet to the screen to suppress the diffused reflections and protect against damage and dirt. Details for the Anti-reflection Sheets are provided below.

Model	Model	Appearance	Specifications
Anti-reflection Sheets	NA-15WKBA04 NA-12WKBA04 NA-9WKBA04 NA-7WKBA04		Anti reflective material

3-7-3 CFast Cards

CFast Card details are provided below.

OMRON is not responsible for the operation, performance, or write life of any other CFast Card.

Model	Appearance	Storage type	Capacity	Details
NY000-AT04	CFast	CFast Card	128 GB	Innodisk DECFA-A28DK1GWADL
NY000-AT04-NS			128 GB	Innodisk DECFA-A28DK1GWADL with OS (Windows) and NS-Runtime
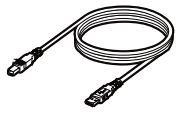
Additional Information

Refer to *CFast Card Specifications* on page 4-8 for CFast Card specifications.

3-7-4 USB Type-A to USB Type-B Cables

USB Type-A to USB Type-B cable details are provided below.

OMRON is not responsible for the operation or performance of any other brand of USB Type-A to USB Type-B cable.

Model	Appearance	Cable length	Specifications
FH-VUAB 2M		2 m	• USB 2.0
FH-VUAB 5M		5 m	• Minimum bend radius: 25 mm

USB Type-A to USB Type-B Cable Clearance
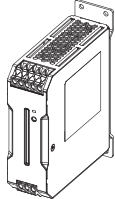
The USB Type-A to USB Type-B cable requires a minimum clearance of 60 mm from the connector entry to prevent excessive strain on the connector and cable assembly.
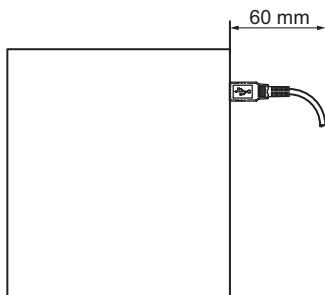
3-7-5 Power Supply

Details for the recommended power supply are provided below.

OMRON is not responsible for the operation or performance of any other power supply.

Model	Appearance	Specifications
S8VK-G□□□24 S8VK-X□□□24A-EIP S8VK-S□□□24 S8VK-WA□□□24		Output voltage: 24 VDC
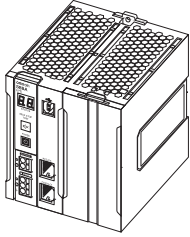
> **Additional Information**
>
> • Refer to *4-1-3 Power Consumption Specifications* on page 4-5 for power consumption de-
>   tails.
> • Refer to the OMRON website for specifications and manuals.
>   Note that the power consumption details of the Panel PC determine the minimum power rat-
>   ing of your power supply.

3-7-6 UPS

Details for the recommended UPS are provided below.

OMRON is not responsible for the operation or performance of any other UPS.

Model	Appearance	Specifications
S8BA with revision number 09 or higher. [1]		Output voltage during backup operation: 24 VDC±5%

[1]. The revision number of the UPS can be retrieved from the serial number label on the product and the product packaging.

A3☐☐☐☐☐☐☐☐☐☐☐☐☐☐
　1　　　　2　　　　3　4
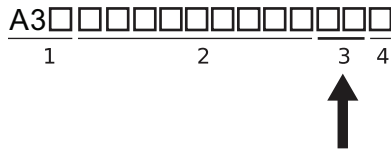
Item	Description
1	Product code
2	Product period and sequential number
3	Revision number
4	RoHS status

Precautions for Safe Use

Use an Omron S8BA UPS with the correct revision number to prevent improper system shutdown.

Additional Information

- Refer to *3-7-5 Power Supply* on page 3-14 for power supply details.
- Refer to *4-1-3 Power Consumption Specifications* on page 4-5 for more information.
- Refer to the OMRON website for S8BA specifications or to the *UPS S8BA User's Manual (Cat. No. U702)* for the UPS manual.
  Note that the power consumption details determine the output current/capacity of your UPS.

4

Specifications

This section provides specifications of the Industrial Panel PC.

4-1   General Specifications

This section provides general specifications of the Industrial Panel PC.

4-1-1   Dimensions and Weight

The dimensions and weights can differ depending on the configuration.
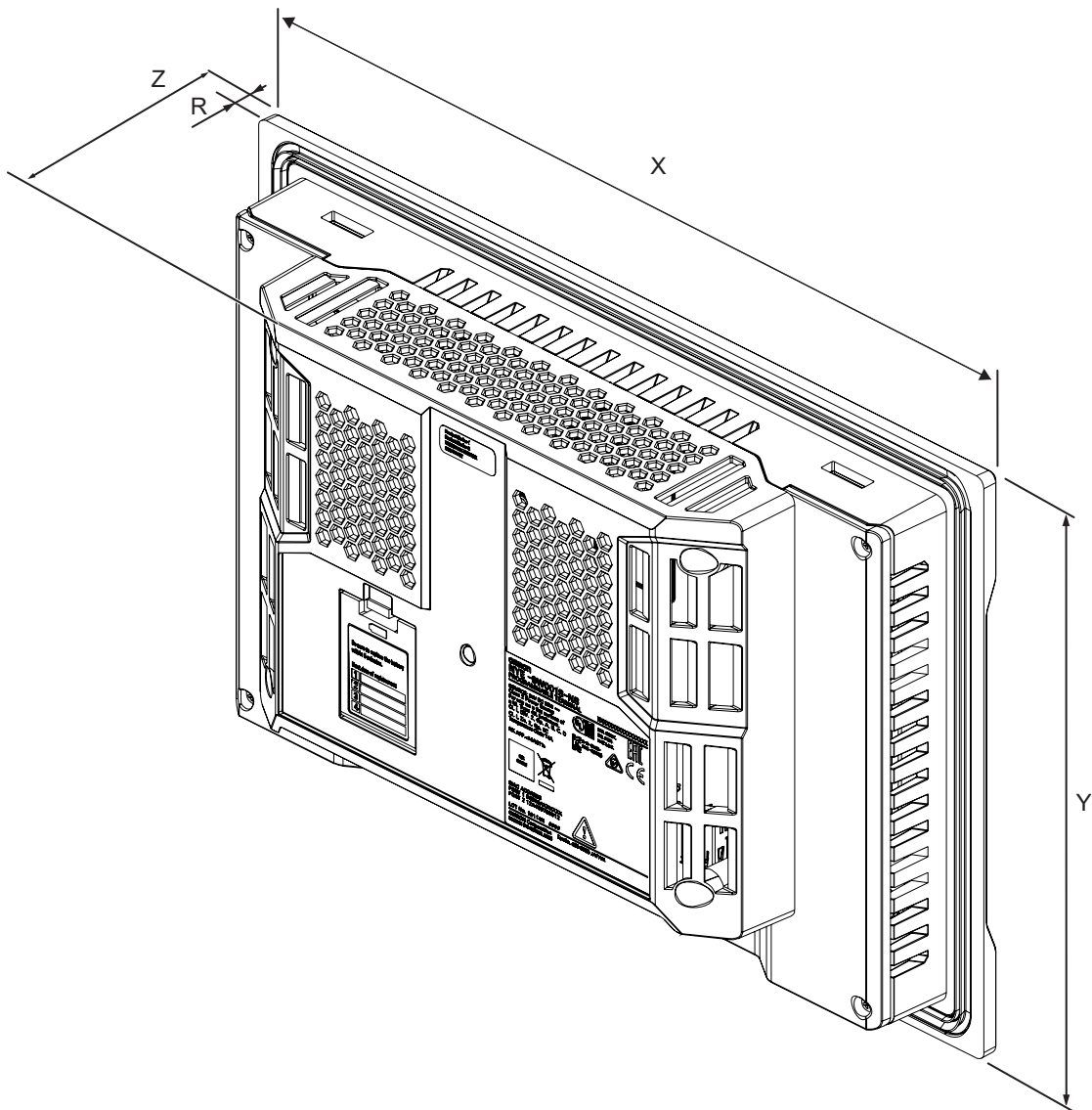
The following tables provide specification details per configuration.

15" Display NYE-series

The following table provides specification details on dimensions and weights for the Panel PC with 15" display.

Refer to the image in *4-1-1 Dimensions and Weight* on page 4-2 for X, Y, Z and R details.

Model		Specifications				
Model-ID	Model Details	Width X	Height Y	Depth Z	Weight	Rim thickness R
NYE□□-□□□□□-15□□	15" display	420 mm	291 mm	69 mm	3.2 kg	6.0 mm

12" Display NYE-series

The following table provides specification details on dimensions and weights for the Panel PC with 12" display.

Refer to the image in *4-1-1 Dimensions and Weight* on page 4-2 for X, Y, Z and R details.

Model		Specifications				
Model-ID	Model Details	Width X	Height Y	Depth Z	Weight	Rim thickness R
NYE□□-□□□□□-12□□	12" display	340 mm	244 mm	69 mm	2.4 kg	6.0 mm

9" Display NYE-series

The following table provides specification details on dimensions and weights for the Panel PC with 9" display.

Refer to the image in *4-1-1 Dimensions and Weight* on page 4-2 for X, Y, Z and R details.

Model		Specifications				
Model-ID	Model Details	Width X	Height Y	Depth Z	Weight	Rim thickness R
NYE□□-□□□□□-09□□	9" display	290 mm	190 mm	69 mm	1.8 kg	6.0 mm

7" Display NYE-series

The following table provides specification details on dimensions and weights for the Panel PC with 7" display.

Refer to the image in *4-1-1 Dimensions and Weight* on page 4-2 for X, Y, Z and R details.

Model		Specifications				
Model-ID	Model Details	Width X	Height Y	Depth Z	Weight	Rim thickness R
NYE□□-□□□□□-07□□	7" display	236 mm	165 mm	69 mm	1.4 kg	6.0 mm

4-1-2   General Electrical Specifications

The following table provides the general electrical specifications.

Item	Specifications
Rated power supply voltage	24 VDC
Allowable power supply voltage range	20.4 to 28.8 VDC
Power supply standard	SELV
Grounding method	Ground to less than 100 Ω
Inrush current	0.25 A / 1 s max, electronically controlled
Overvoltage category	JIS B3502 and IEC 61131-2: Category II
EMC immunity level	IEC 61131-2: Zone B
RTC accuracy	At ambient temperature of 55°C: −3.5 to +0.5 min error per month At ambient temperature of 25°C: −1.5 to +1.5 min error per month At ambient temperature of 0°C: −3 to +1 min error per month
Power button life	100,000 operations

4-1-3 Power Consumption Specifications

The total power consumption for the Panel PC is the sum of the power consumption of all installed components.

The following table provides an overview of the components and their power consumption.

Item	Power consumption			
	07 inch models *1	09 inch models *1	12 inch models *1	15 inch models *1
NYE2A-□□□□□	18 W	20 W	28 W	24 W

*1. Refer to *1-4 Product Configuration* on page 1-5 for product configuration details.

Installed drives

Drives	Power consumption
CFast Card Slot	Refer to *4-1-7 Storage Device Specifications* on page 4-8 for Omron drive details. For other drives refer to the applicable specifications for maximum power consumption details.

Connected expansions

Expansions	Power consumption
USB	Refer to the power consumption specifications of your connected USB devices. Refer to *4-2-4 USB Connector Specifications* on page 4-16 for maximum power consumption details.

Calculation for the total power consumption:

Industrial Panel PC with my specific CPU …....…... W
Depending on the configuration:
- Drive in CFast slot …....…... W
- Expansion USB …....…... W
- Expansion Serial (max 0.5 W) …....…... W
———————— +
Total power consumption …....…... W

> **Additional Information**
>
> Ensure to use a power supply with sufficient capacity.
> Refer to *4-1-4 Power Supply Specifications* on page 4-6 for details.

4-1-4　Power Supply Specifications

The minimum power supply requirements depend on the maximum power consumption of the Panel PC. Refer to *4-1-3 Power Consumption Specifications* on page 4-5 for details.

With a UPS installed the minimum power requirements are:

Model	Minimum power requirements	
	Power supply [*1]	UPS [*2]
• NYE□□-□□□□□-15WR1□00 • NYE□□-□□□□□-12WR1□00	60 W	60 W
• NYE□□-□□□□□-07WR1□00 • NYE□□-□□□□□-05WR1□00	30 W	30 W

*1.　Refer to *3-7-5 Power Supply* on page 3-14 for power supply products.

*2.　Refer to *3-7-6 UPS* on page 3-15 for UPS products.

4-1-5 CPU Specifications

This section gives the specifications of the CPUs that are available for the Industrial Panel PC.

NY□2A Intel® Atom® x5-E3940 CPU Specifications

CPU specifications for an Intel® Atom® x5-E3940 CPU.

Item	Specifications
Cores / Threads	4 / 4
CPU base frequency	1.6 GHz
Maximum turbo frequency	1.8 Ghz
Cache	2 MB
Maximum memory size	8 GB
Cooling details	Passive cooling (fanless)
Graphics controller	Intel ® HD Graphics 500
DDR type	DDR3L-1866, non-ECC

4-1-6 Memory Specifications

This section provides the memory specifications of the Industrial Panel PC.

DDR3L Non-ECC

The following table provides specification details of the DDR3L memory.

Item		Model Specifications *1
		4 GB
Memory type		DDR3L Non-ECC
Package memory format		On board
Serial Presence Detect (SPD)	Speed grade *2	1866 MT/s
	CAS Latency	CL13

*1. The applicable type of memory is determined by the CPU type.

Refer to *4-1-5 CPU Specifications* on page 4-7 for CPU details.

Refer to *1-4 Product Configuration* on page 1-5 for product configuration details.

*2. The actual speed depends on the CPU type.

4-1-7 Storage Device Specifications

This section provides the specifications of the storage devices.

CFast Card Specifications

Specifications for the CFast Drive are provided in the table below.

Item	Model Specifications	
	128 GB [1]	128 GB [1]
Model [2]	NY000-AT04	NY000-AT04-NS
Type	3D TLC	
Max. power consumption	1.0 W	
Max. sequential read speed	440 MB/s	
Max. sequential write speed	250 MB/s	
Operating temperature	-40 to 85°C [3]	
Max. operating humidity (with no condensation)	10 to 95% RH	
Storage temperature	-40 to 85°C	
Max. storage humidity (with no condensation)	10 to 95% RH	
Endurance	150 TBW	

*1. Refer to *1-4 Product Configuration* on page 1-5 for product configuration details.

*2. Refer to *3-7-3 CFast Cards* on page 3-13 for brand details.

*3. Refer to *4-4-1 Operation Environment Specifications* on page 4-18 for the temperature specifications of the complete Panel PC.

4-2 Connector Specifications

This section provides the connector specifications of the Industrial Panel PC.

4-2-1 Power and I/O Connector Specifications

The Power and I/O connector is locked with a screw to prevent unintentional disconnection.
The connector can only be inserted the correct way.
The connector is a Phoenix Contact type DFMC 1,5/ 2-STF-3,5 BK (1708595).
The Panel PC provides protection against reverse polarity.
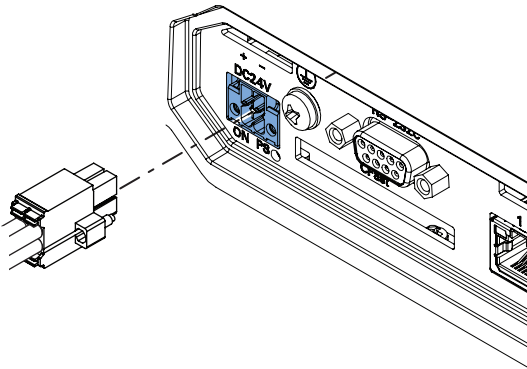
Item	Specifications
Conductor isolation rating	90°C
Termination rating	90°C

> **Additional Information**
>
> • Refer to *5-3-3 Wire the Power and I/O Connector* on page 5-27 for wiring details.
> • Refer to *5-3-2 Ground* on page 5-20 for grounding details.

Power and I/O Connector Pin Details

The pin details of the Power and I/O connector.
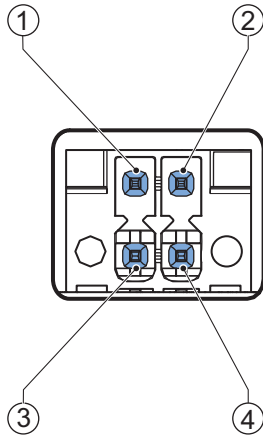
The pin layout represents the Power and I/O connector on the Panel PC.

The I/O signals connected must be powered from a power supply which conforms to the SELV standards.

Pin details of the Power and I/O Connector:

Pin	Type	Electrical Specifications	Description / Details
1	Power	DC+	+24V DC
2	Power	DC-	0V DC
3	Input	24V NPN Sourcing Type1 Non-isolated	This input is for the Power ON/OFF signal
4	Output	NPN Non-isolated	This output provides the power status

*1.   Refer to *Power and I/O Connector Power Status Output Details* on page 4-11 for Power Status Output details.

*2.   Refer to *6-2 Power ON* on page 6-3 and *6-3 Power OFF* on page 6-4 for Power ON/OFF Input details.

> **Additional Information**
>
> Refer to *5-3-3 Wire the Power and I/O Connector* on page 5-27 for details.

Power and I/O Connector Power Status Output Details

This section provides details of the Power Status Output pin.

The Power Status Output is a sinking Mosfet on pin 4 of the Power and I/O connector.

The Power Status output pin is:

• 0 V if the Panel PC is not connected to a power supply. Ⓐ

• 0 V if the Panel PC is ON. Ⓑ

• + 24V DC at 2A switching capacity when the Panel PC is OFF and the power supply is connected . Ⓒ

Additional Information

Refer to *5-3-3 Wire the Power and I/O Connector* on page 5-27 for I/O connector wiring details.

● **Power Status Output during Power ON**

The voltage of the Power Status Output during Power ON.
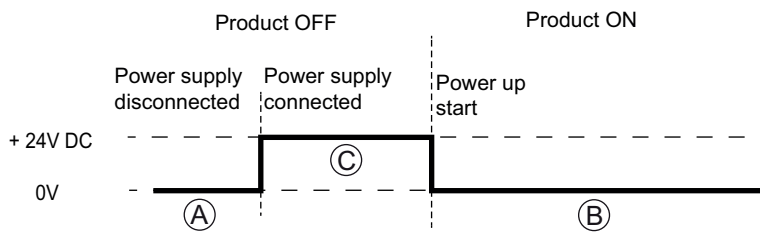
● **Power Status Output during Power OFF**

The voltage of the Power Status Output during Power OFF.
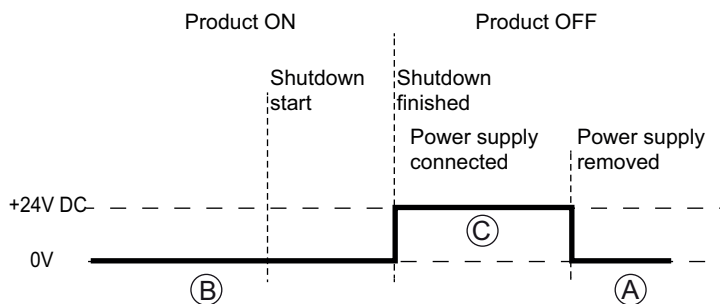
4-2-2   RS-232C Connector Specifications

The RS-232C interface on the Panel PC uses a standard SUBD9 connector.

The RS-232C interface is isolated from the internal ground.
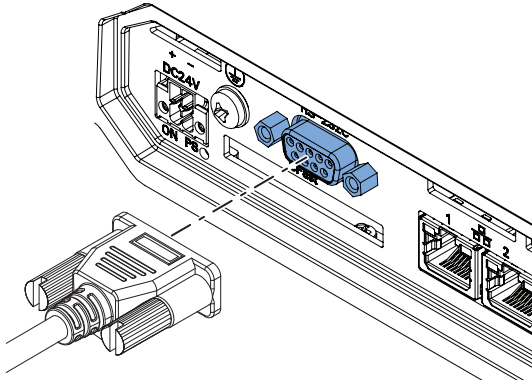
> **Additional Information**
>
> • Refer to *5-3-2 Ground* on page 5-20 for grounding details.
> • Refer to *RS-232C Connector Pin Details* on page 4-13 for pin details.

RS-232C Connector Pin Details
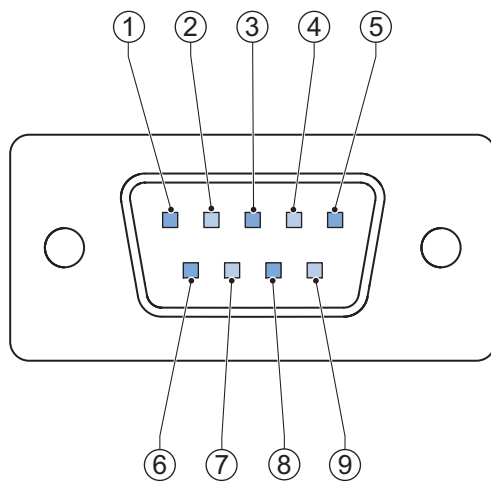
The pin layout represents the RS-232C connector on the Panel PC.

Pin	Signal Name	Description
1	-	Not Connected
2	SD	Send data
3	RD	Receive data
4	RS	Request to send
5	CS	Clear to send
6	+5V	5V output, 100mA max.
7	-	Not Connected
8	-	Not Connected
9	GND	Signal ground[1]

*1.   The 0 VDC pin is internally connected to the ground connection.

Additional Information

Refer to *5-3-2 Ground* on page 5-20 for grounding details.

4-2-3　Ethernet Connector Specifications

Details of the RJ45 Ethernet connectors are provided below.

The Ethernet connector locks automatically to prevent unintentional disconnection.
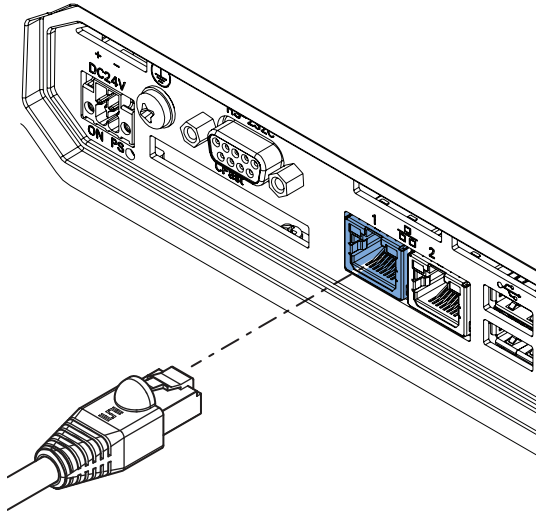
Ethernet Connector Specification Details

Details of the RJ45 Ethernet connectors are provided below.

Item	Specifications
Physical layer	10BASE-T, 100BASE-TX or 1000BASE-T
Frame length	1,514 bytes max.
Media access method	CSMA/CD
Modulation	Baseband
Topology	Star
Transmission media	STP (shielded, twisted pair) cable of Ethernet category 5,5e or higher
Maximum transmission distance between Ethernet switch and node	100 m
Cascade connections	There are no restrictions if an Ethernet switch is used

Ethernet Connector LED Indicators

This section explains the RJ45 Ethernet connector LED indicators.

Each connector has LED indicators that display the link, activity and speed status.
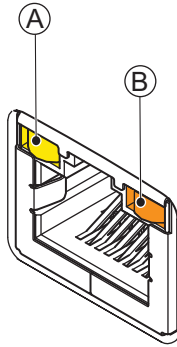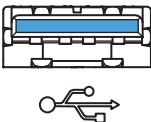
Item	Indicator	Color	Status		Description
A	Link/Act	Yellow		Not lit	No link
				Lit	Link
				Flashing	Link and activity
B	Speed	Not lit		Not lit	10 Mbps or no link
		Green		Lit	100 Mbps link
		Orange		Lit	1 Gbps link

4-2 Connector Specifications

4

4-2-3 Ethernet Connector Specifications
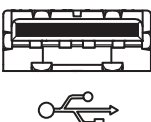
4-2-4   USB Connector Specifications

The Industrial Panel PC includes several USB connectors.

The connector layout represents the USB connectors on the Panel PC.
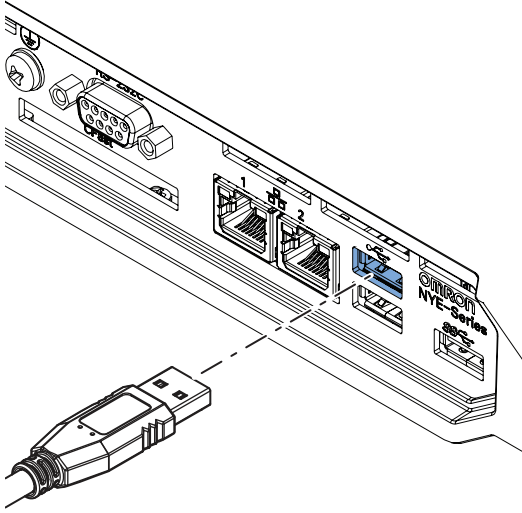
The power consumption is provided per USB Connector, calculate the sum for the maximum power consumption off all USB Connectors.

Interface	Details	Specification	Details
USB-A USB3.x		Maximum current	900 mA at 5V DC
		Maximum power consumption	4.5 W per USB connection
		Maximum cable length	3 m

Interface	Details	Specification	Details
USB-A USB2.x		Maximum current	500 mA at 5V DC
		Maximum power consumption	2.5 W per USB connection
		Maximum cable length	5 m

🗒 **Additional Information**

Note that the read/write speed of the connected USB device determines the actual data transfer speed. Use a fast USB device to reduce data transfer durations.

4-3 Display Specifications

This section provides the display specifications of the Industrial Panel PC.

> ## ⚠ WARNING
>
> Do not use the input functions of the touchscreen in applications that involve human life, in applications that may result in serious injury, or for emergency stop switches. 🚫

Item		Model Specifications			
		15 inch *1	12 inch *1	9 inch *1	7 inch *1
Display panel *2	Display device	TFT LCD			
	Screen size	15.4 inch	12.1 inch	9.0 inch	7.0 inch
	Resolution (horizontal × vertical)	1,280 × 800 pixels at 60 Hz		800 × 480 pixels at 60 Hz	
	Colors	16,770,000 colors (24 bit full color)			
	Effective display area	331 × 207 mm (horizontal × vertical)	261 × 163 mm (horizontal × vertical)	197 × 118 mm (horizontal × vertical)	152 × 91 mm (horizontal × vertical)
	View angles	Left: 60°, Right: 60°, Top: 60°, Bottom: 60°			
Touch	Technology	Resistive			
	Touch resolution	16,384 × 16,384			
	Life	1,000,000 operations minimum			
	Single touch	Yes			
Backlight	Life	50,000 hours minimum *3			
	Brightness adjustment *4	100 levels lineair			
	Type	LED			
Display layer indicators	Status LED	Status*5 of the Panel PC			

*1. Refer to *1-4 Product Configuration* on page 1-5 for details.

*2. There may be some defective pixels in the display. This is not a fault as long as the number of defective light and dark pixels fall within the following standard range: light and dark pixels 10 or less. There must not be 3 adjacent light/dark pixels.

*3. This is the estimated time before brightness is reduced by half at room temperature.
The life expectancy is drastically shortened if used at high temperatures.

*4. If the brightness is set to very low, it causes flickering or the screen will be too dark to use.

*5. Refer to *3-1-2 Display Layer NYE* on page 3-4 for details.

All LCD displays will display image retention effects when used in less optimal conditions.

Refer to *7-1-5 Minimize LCD Image Retention* on page 7-4 for details.

4-4 Environmental Specifications

This section provides environmental specifications of the Industrial Panel PC.

4-4-1 Operation Environment Specifications

The following table provides general environmental specifications for the Industrial Panel PC.

Item	Specifications			
	15 inch [*1]	12 inch [*1]	9 inch	7 inch [*1]
Ambient operating temperature	0 to 50°C [*2]			
Ambient storage temperature	-20 to 60°C [*2]			
Ambient operating humidity	10% to 90% (with no condensation) [*2]			
Ambient storage humidity	10% to 90% (with no condensation) [*2]			
Operating atmosphere	No corrosive gases			
Altitude	2,000 m max.			
Noise resistance (during operation)	Conforms to IEC 61000-4-4, 2kV (power lines)			
Vibration resistance (during operation)	The vibration resistance depends on the storage device(s): • For a Panel PC with a CFast storage devices: 5 to 8.4Hz with 3.5 mm single amplitude and 8.4 to 150 Hz with 9.8 m/s² for 100 minutes each in X, Y and Z directions. Conforms to IEC 60068-2-6.			
Shock resistance (during operation)	Conforms to IEC 60068-2-27. 147 m/s², 3 times each in X, Y and Z directions			

Material finish	• NYE□□-□□□□□-□□WR1200
	  Housing black aluminium, Frontsheet black
	• NYE□□-□□□□□-□□WR1300
	  Housing black aluminium, Frontsheet silver			

Degree of protection	Front of Monitor: IP65 or the equivalent [*3]			
Pollution degree	JIS B3502 and IEC 61131-2: 2 or less and IEC 61010-2-201: 2 or less			

*1. Refer to Product Configuration for details.

*2. Refer to *4-4-2 Temperature and Humidity Specifications* on page 4-19 for ambient operating temperature and humidity details per CPU type.

*3. The Panel PC may not operate properly in locations subjected to oil splashes for extended periods of time.

4-4-2 Temperature and Humidity Specifications

The maximum ambient operating temperature depends on the model, mounting orientation, and storage device type.

The following tables provide ambient temperature and humidity details and temperature specifications per model.

Temperature and Humidity Graphs

The maximum ambient operating temperature and ambient humidity are specified per storage device type.

The following graphs provide ambient temperature and humidity details per storage device type and the conditions for storage.

- Operate the Panel PC with a CFast card within the ambient temperature and humidity ranges as shown in the following graph.
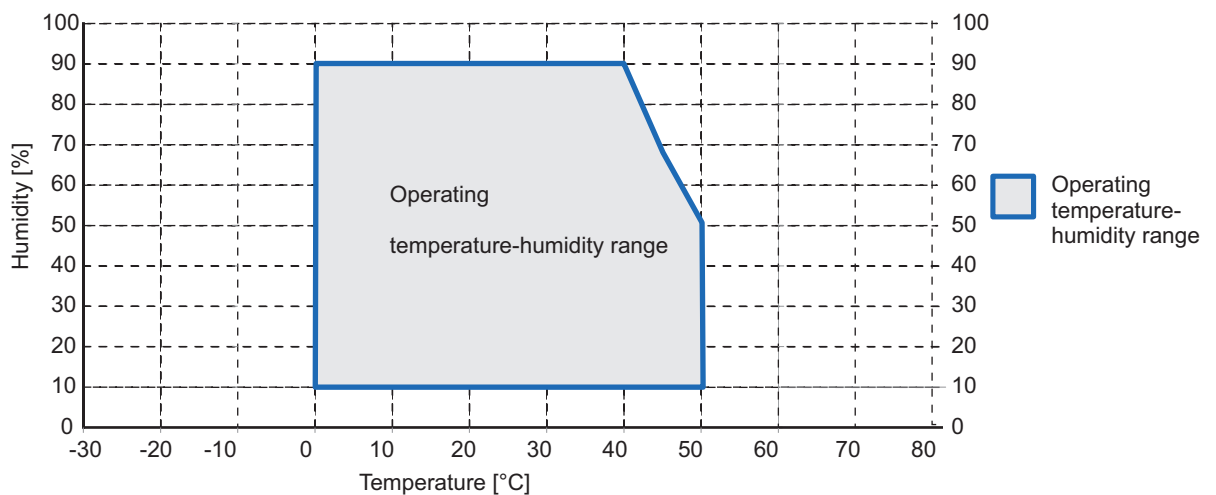
> **Additional Information**
>
> Refer to the ambient temperature specifications per CPU type for CPU-specific limitations.

- Store the Panel PC within the ambient temperature and humidity ranges as shown in the following graph.

NYE2A-□0 Temperature Specifications

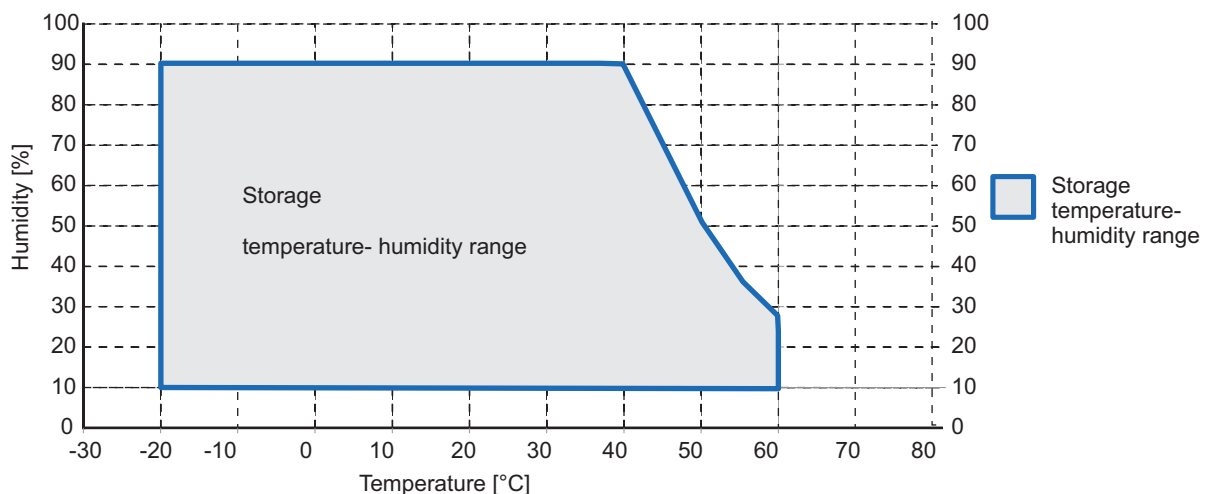Ambient operating temperature specifications for model NYE2A-□0.

This Panel PC has an Intel® Atom® x5-E3940 CPU.

Product Orientation	Mounting Angle	Storage device type [1]
		CFast Card
Landscape	0° to 45°	0 to 40°C
	45° to 85°	0 to 45°C
	90° ± 5°	0 to 50°C
	95° to 135°	0 to 45°C

[1]. Refer to *1-4 Product Configuration* on page 1-5 for model details.
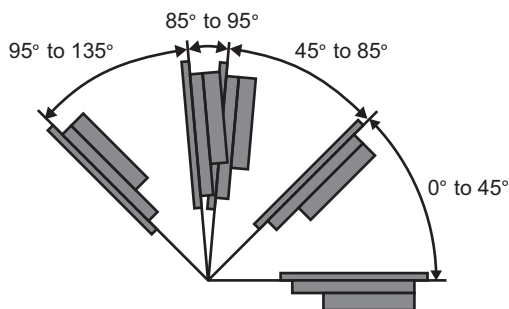
4-4-3 Recycling Specifications

The following table provides recycling information for the Industrial Panel PC.

Part	Recycle specifications
Battery	Chemical waste
Other electrical components	Electrical waste

Precautions for Safe Use

廢電池請回收

Dispose of the product and batteries according to local ordinances as they apply.

Dispose in accordance with applicable regulations.

5

Installation

This section provides all installation details for the Industrial Panel PC.

5-1 Unpack

This section provides details on how to unpack the Industrial Panel PC.

5-1-1 Unpack Procedure

1 Check the package for damage.
If there is any visible damage:
- Take photos of the package and save them.
- Inform your supplier immediately.

2 Open the package.
Ensure not to damage the contents.

3 Ensure that all items are present.

Additional Information

Refer to *5-1-2 Items Supplied* on page 5-3 for the items supplied.
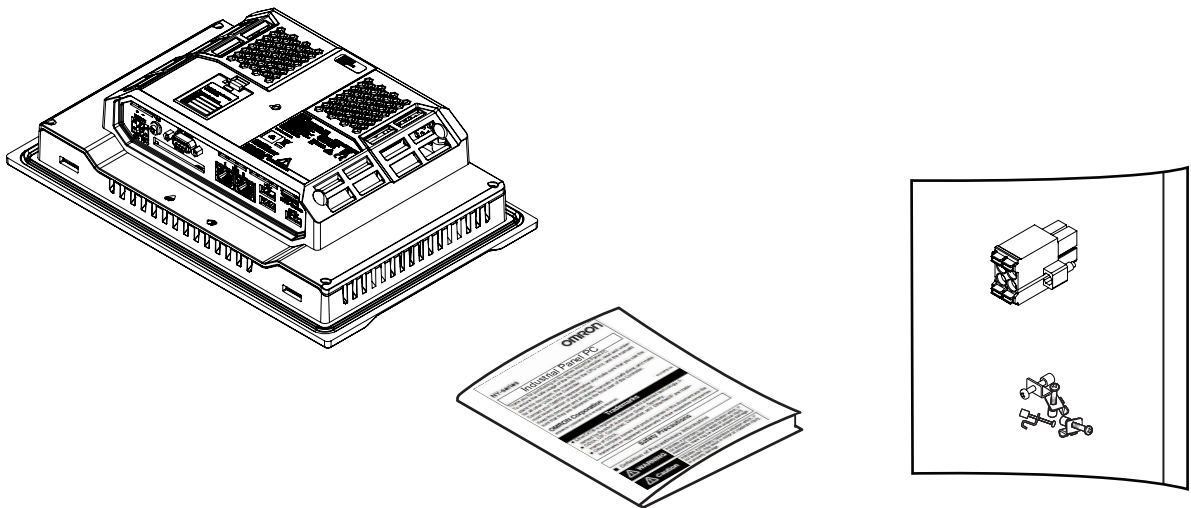
5-1-2   Items Supplied

This section describes the items supplied with your Industrial Panel PC.
• Industrial Panel PC
• Documentation:
    • Safety Precautions sheets (English and Japanese)
    • General Compliance Information and Instructions for EU
    • Standards and Certifications sheet
• Bag with:
    • Connector (Power and IO)
    • Mounting Clamps

Model NYE☐☐

5-2 Mount

This section describes how to mount the Industrial Panel PC in a control panel.

⚠ WARNING

Ensure that installation and post-installation checks of the product are performed by personnel in charge who possess a thorough understanding of the machinery to be installed.

5-2-1 Installation Method in Control Panels

The Panel PC must be mounted to the outside surface of a control panel.

Consider product orientation, cooling distance, noise resistance, ducts and product replacement when determining the space between the Panel PC and other devices.

Precautions for Safe Use

Install the product in the correct orientation and temperature according to the specifications in the manual to prevent overheating. Not doing so may result in malfunction.

Precautions for Correct Use

Do not operate or store the product in the following locations. Operation may stop or malfunctions may occur.
- Locations subject to direct sunlight
- Locations subject to temperatures or humidity outside the range specified in the specifications
- Locations subject to condensation as the result of severe changes in temperature
- Locations subject to corrosive or flammable gases
- Locations subject to dust (especially iron dust) or salts
- Locations subject to exposure to water, oil or chemicals
- Locations subject to shock or vibration
- Locations outdoors subject to direct wind and rain
- Locations subject to strong ultraviolet light

Additional Information

- Refer to *5-2-2 Product Orientation* on page 5-5 for orientation details.
- Refer to *5-2-3 Temperature* on page 5-6 for temperature details.
- Refer to *5-2-4 Humidity* on page 5-8 for humidity details.
- Refer to *5-3 Wire* on page 5-20 for wiring details.

5-2-2   Product Orientation

The Industrial Panel PC can be mounted in a landscape orientation with the LED Ⓐ at the right side.
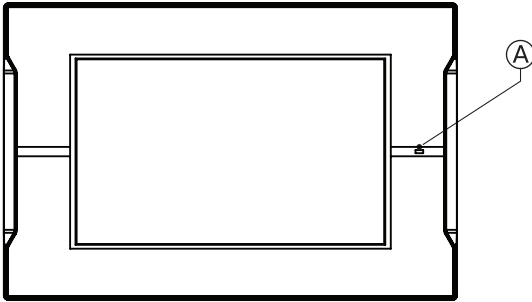
Do not install the Industrial Panel PC in any of the following orientations.
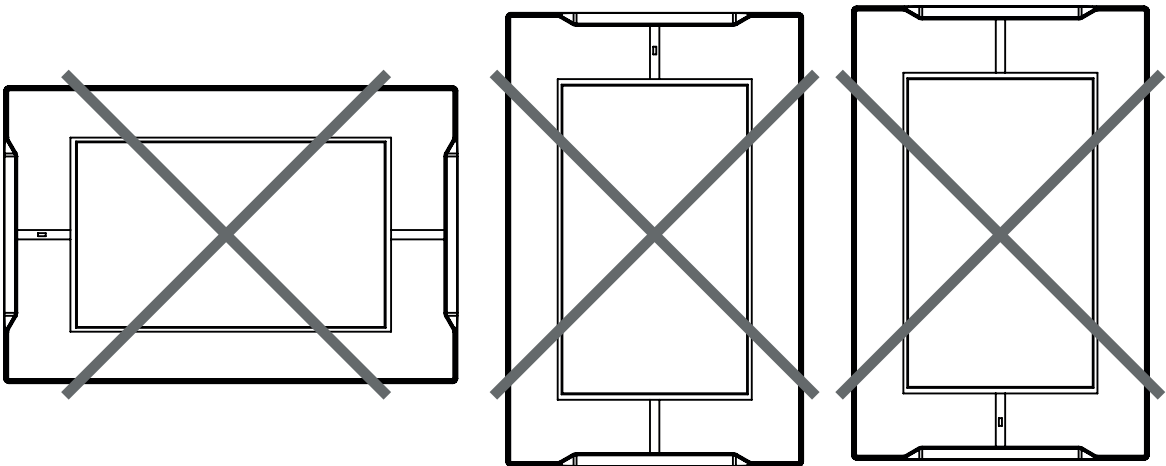
Distance for Cooling

Adequate airflow around the Industrial Panel PC is required.

> 📝 **Additional Information**
>
> • The ambient temperature must be within the operating range.
>   Refer to *4-4-1 Operation Environment Specifications* on page 4-18 for temperature specifications.
> • Allow space to accommodate for the bending radius of the cables.
>   Refer to *3-7 Optional Hardware* on page 3-12 for cable bending requirements and connector clearances.

Provide enough space for good air flow and ensure the following minimum distances are observed around the sides of the Industrial Panel PC.
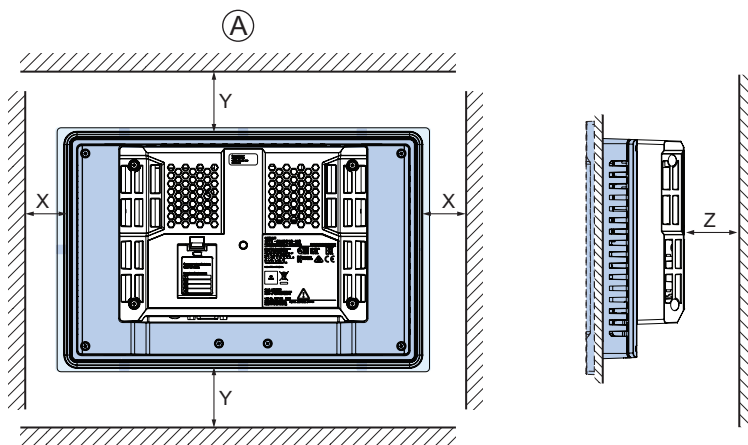
Ⓐ Landscape orientation.

Item	Minimum distance
X	50 mm
Y	100 mm
Z	50 mm

High Temperatures

Use the following cooling methods as required, taking into account the ambient temperature and the amount of heating inside the panel.

● Natural Cooling

Natural cooling relies on natural ventilation through slits in the panel, rather than using cooling devices such as fans or coolers. When using this method, observe the following points.
- Do not install the Panel PC at the top of the panel, where hot air tends to stagnate.
- To provide ventilation space above and below the Panel PC, leave sufficient distance from other devices, wiring ducts, etc.
- Do not mount the Panel PC in the wrong direction (e.g., vertically or upside down). Doing so may cause abnormal heating in the Panel PC.
- Do not install the Panel PC directly above any heat-generating equipment, such as heaters or transformers.
- Do not install the Panel PC in a location exposed to direct sunlight.

Natural Cooling
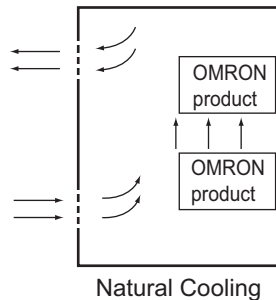
● Forced Ventilation

Forced ventilation with a fan in the top of the control cabinet.

Forced Ventilation Method
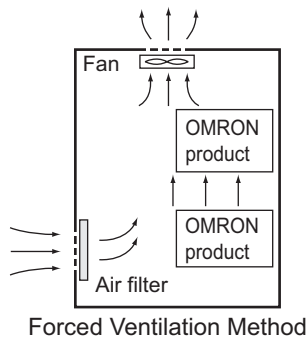
● Forced Air Circulation

Forced circulation with a fan inside the closed control cabinet.
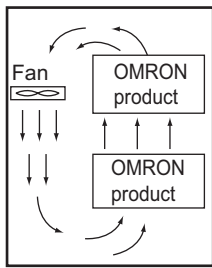
Forced Air Circulation

● **Room Cooling**

Cool the entire room where the control panel is located.
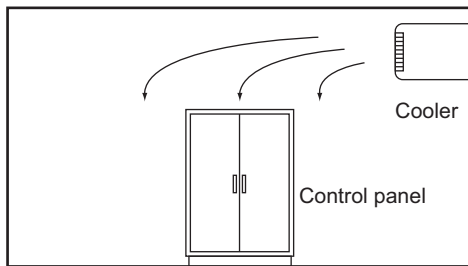
Room Cooling

Low Temperatures

The Panel PC may not start normally if the temperature is below 0°C when the power is turned ON. Maintain an ambient air temperature of at least 5°C by implementing measures such as installing a low-capacity space heater in the panel.

Alternatively, leave the Panel PC power ON to keep the Panel PC warm.

5-2-4 Humidity

Rapid temperature changes can cause condensation to occur, resulting in malfunctioning due to short-circuiting.

When there is a possibility of this occurring, take measures against condensation, such as leaving the Panel PC power ON at night or installing a heater to keep it warmer.
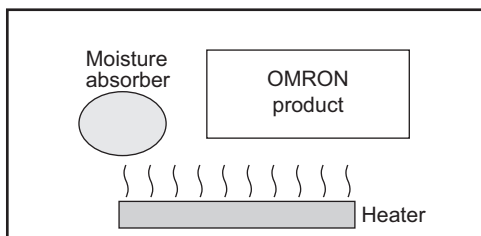
Examples of Measures against Condensation

5-2-5 Vibration and Shock

The Panel PC is tested for conformity with the sine wave vibration test method (IEC 60068-2-6) and the shock test method (IEC 60068-2-27) of the Environmental Testing for Electrotechnical Products. It is designed so that malfunctioning will not occur within the specifications for vibration and shock. If, however, the Panel PC is to be used in a location in which it will be directly subjected to regular vibration or shock, then implement the following countermeasures:

• Separate the Panel PC from the source of the vibration or shock. Or secure the Panel PC with rubber padding to prevent vibration.
• Make the building or the floor vibration-resistant.
• Prevent shocks when other devices, such as electromagnetic contactors, operate. Secure either the source of the shock or the Panel PC with rubber padding.

5-2-6 Atmosphere

Using the Panel PC in any of the following locations can cause defective contact with connectors and corrosion of components. Implement countermeasures such as purging the air as required.

• In locations exposed to dust, dirt, salt, metal powder, soot, or organic solvents, use a panel with an airtight structure. Be careful of temperature increases inside the panel.
• In locations exposed to corrosive gas, purge the air inside the panel to clear the gas and then pressurize the inside of the panel to prevent gas from entering from outside.
• In locations where flammable gas is present, either use an explosion-protected construction or do not use the Panel PC.

5-2-7 Electrical Environment

When installing or wiring devices, make sure that there will be no danger to people and that noise will not interfere with electrical signals.

Installation Location

Install the Panel PC as far away as possible from high-voltage (600 V or higher) and power devices to ensure safe operation and maintenance.

Example of Recommended Equipment Arrangement

OK

Control panel | Control panel | High-voltage power panel
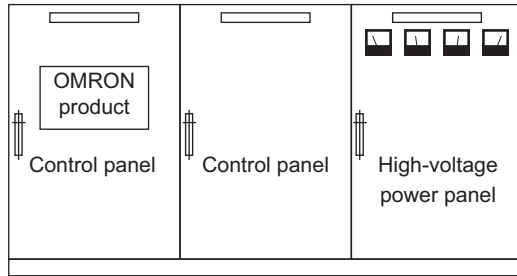
Example of Poor Equipment Arrangement

NG

Control panel | Control panel | High-voltage power panel
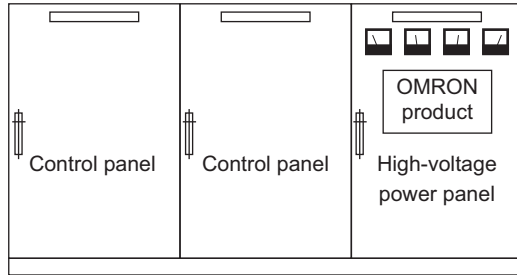
Examples of Equipment Arrangement in Panel with High-voltage Devices

Hardware Arrangement

The coils and contacts in electromagnetic contacts and relays in an external circuit are sources of noise. Do not install them close to the Panel PC. Locate them at least 100 mm away from the Panel PC.
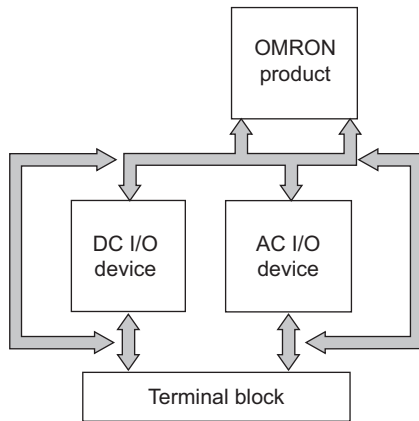
Example of Arrangement in Panel

Wire Layout for the Power Supply

Observe the following points when wiring the power supply system.
• Separate the Panel PC power supply from the I/O device power supply and install a noise filter near the Panel PC power supply feed section.
• Use an isolating transformer to significantly reduce noise between the Panel PC and the ground. Install the isolating transformer between the Panel PC power supply and the noise filter, and do not ground the secondary coil of the transformer.
• Keep the wiring between the transformer and the Panel PC as short as possible, twist the wires well, and keep the wiring separate from high-voltage and power lines.
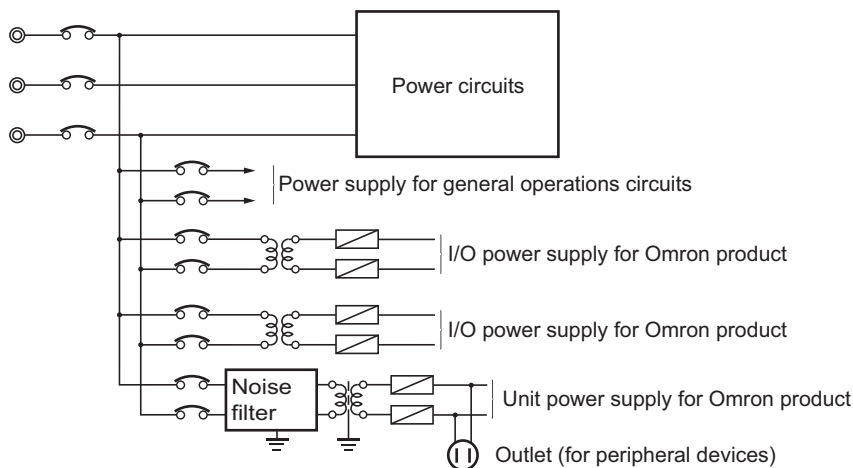
Power Supply System Diagram

Wire External I/O Signal Lines

Observe the following points when wiring the external I/O signal lines.

• To absorb reverse electromotive force when an inductive load is connected to an output signal, connect a surge suppressor near the inductive load in an AC circuit, or connect a diode near the inductive load in a DC circuit.

Connect a diode in a DC circuit.
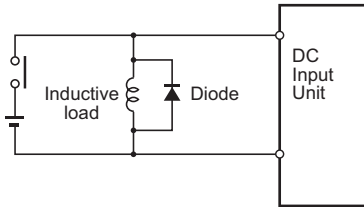
Input Signal Noise Countermeasures
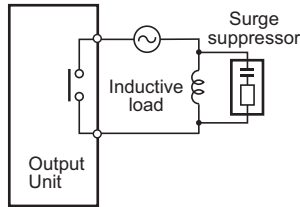
Connect a surge suppressor in an AC circuit.

Connect a diode in a DC circuit.

Output Signal Noise Countermeasures

• Never bundle output signal lines with high-voltage or power lines, and do not route them in close proximity or parallel to such lines.
  If output signal lines must be routed in close proximity to such lines, place them in separate ducts or conduits. Be sure to ground the ducts or conduits.

Suspended ducts   Floor ducts   Conduits
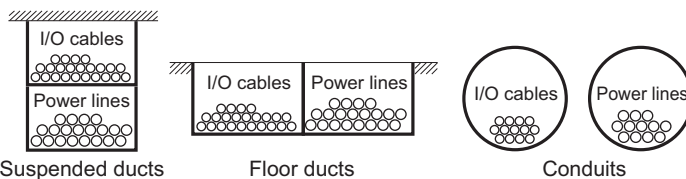
I/O Cable Arrangement

• If the signal lines and power lines cannot be routed in separate ducts, use shielded cable. Connect the shield to the ground terminal at the Panel PC, and leave it unconnected at the input device.
• Wire the lines so that common impedance does not occur. Such wiring will increase the number of wires, so use common return circuits. Use thick wires with sufficient allowance for the return circuits, and bundle them with lines of the same signal level.
• For long I/O lines, wire the input and output signal lines separately.
• Use twisted-pair wires for pilot lamps (and particularly lamps with filaments).
• Use countermeasures, such as CR surge absorbers and diodes, for input device and output load device noise sources, as required.

External Wiring

Wiring, and noise countermeasures in particular, are based on experience, and it is necessary to closely manage wiring based on experience and information in the manuals.

● Wiring Routes

Each of the following combinations includes different signal types, properties, or levels. They will cause the signal-to-noise ratio to drop due to factors such as electrical induction. As a general rule when wiring, either use separate cables or separate wiring routes for these items. Future maintenance operations and changes to the system will also be made easier by carefully organizing the wiring from the start.

- Power lines and signal lines
- Input signals and output signals
- Analog signals and digital signals
- High-level signals and low-level signals
- Communications lines and power lines
- DC signals and AC signals
- High-frequency devices (such as Inverters) and signal lines (communications)

● (Routing of) Wiring

Observe the following points when wiring power supply and signal cables.

- When routing signal cables with differing characteristics through the same duct, always keep them separated.
- As much as possible, avoid routing multiple power supply lines through the same duct. If it cannot be avoided, then construct a partition between them in the duct and ground the partition.
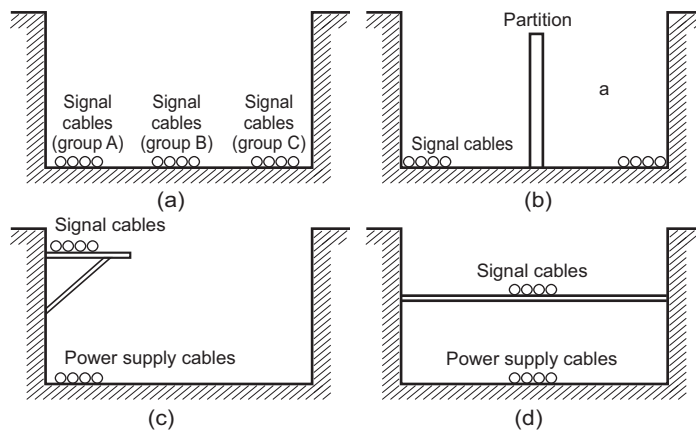
Partitioning Methods for Signal and Power Supply Cables

- To avoid overheating the conduits when using conduits for wiring, do not place wires for a single circuit in separate conduits.
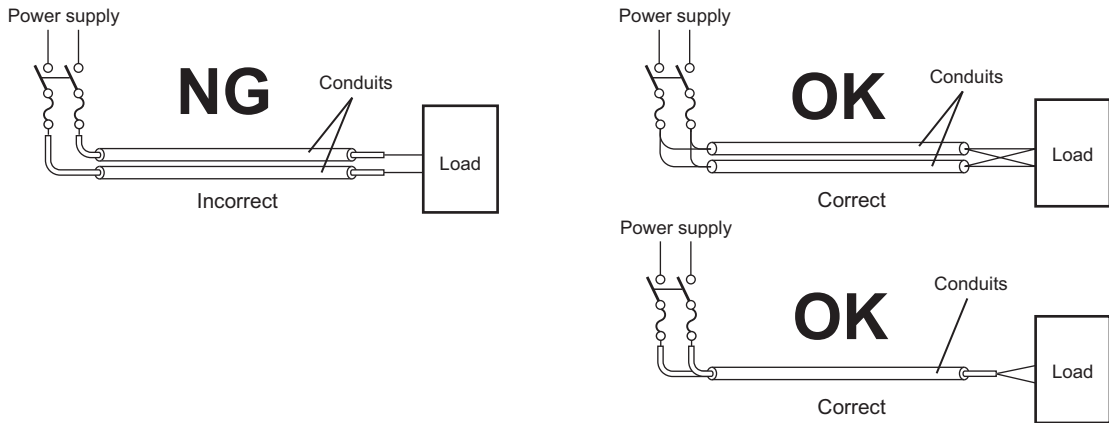
Parallel Wiring (Single Phase)

- Power cables and signal cables adversely affect each other. Do not wire them in parallel.
- Noise induction may occur if the Panel PC is installed in a panel that includes high-voltage devices. Wire and install them as far apart as possible.
- Either install the Panel PC a minimum of 200 mm away from high-voltage lines or power lines, or place the high-voltage lines or power lines in metal tubing and completely ground the metal tubing to 100 Ω or less.
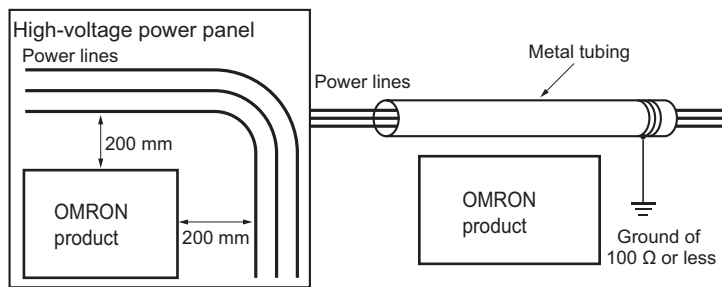
Example: Separating an OMRON product from Power Lines

● Wiring Ducts

Whenever possible, route the cables and wires through wiring ducts.
Install the wiring ducts so that it is easy to route the wires from the Panel PC directly into the duct.

> **Additional Information**
>
> Refer to *Distance for Cooling* on page 5-6 for the minimum required distances.

It is convenient to use wiring ducts that have the same depth as the Panel PC.

● **Other Precautions**

Basic I/O Units have both plus and minus commons, so pay attention to the polarity when wiring.

5-2-8   Panel Mount Procedure

Ensure the panel cut out is ready before beginning the mounting procedure.
Refer to *Prepare the Mounting Surface* on page 5-18 for details.

Tools required: Panel Mounting Brackets and a Philips screwdriver.
Optional hardware: High-Pressure Waterproof Attachment (PWA)
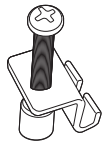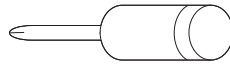
| Panel Mounting Bracket | Philips screwdriver | High-Pressure Waterproof Attachment (PWA) |
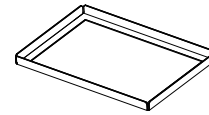
The housing of the Industrial Panel PC is equipped with recesses for the Panel Mounting Brackets.
These brackets are used to fasten and secure the Panel PC to the mounting surface.
Use the following procedure to mount the Panel PC to the mounting surface:

1   Insert the Industrial Panel PC from the front side of the panel.
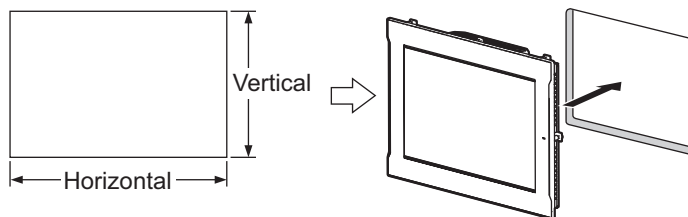
2   Insert the Panel PC into the mounting surface cut out so the bezel Ⓑ touches the mounting surface.

3   Mount the optional High-pressure Waterproof Attachment (PWA) to greatly reduce the risk of water entry. Water entry may cause severe equipment damage.
Slide the PWA over the Panel PC from the back until the flat side of the PWA is flat against the inside of the panel, as shown in the following figure.
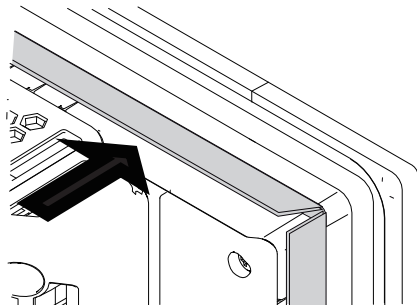
4 Attach the panel mounting brackets from the back of the panel as shown in the following figure.

Catch the brackets Ⓒ in the mounting holes Ⓓ in the Panel PC, pull forward lightly, and then use a Phillips screwdriver to tighten the screws and secure the Panel PC to the panel, which will be held between the mounting brackets and the Panel PC.

Image Ⓐ shows the parts and mounting action.

Image Ⓑ shows the situation with the panel Ⓔ and the optional PWA Ⓕ.
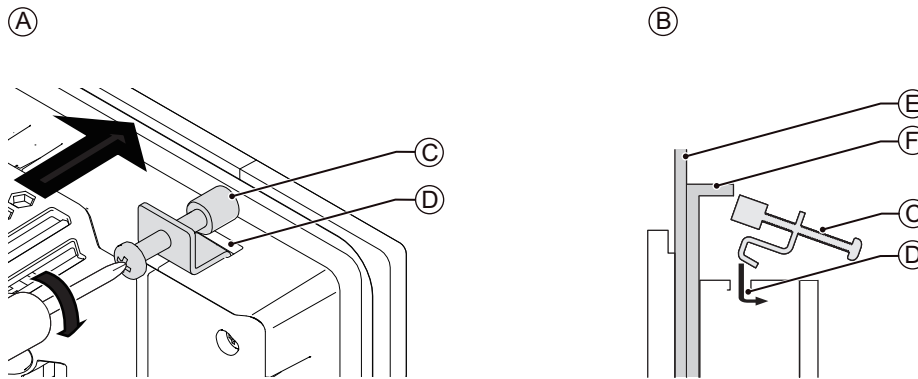
5 Ensure all mounting brackets are mounted.
The number of mounting brackets differs per model.

07"   09"   12"   15"
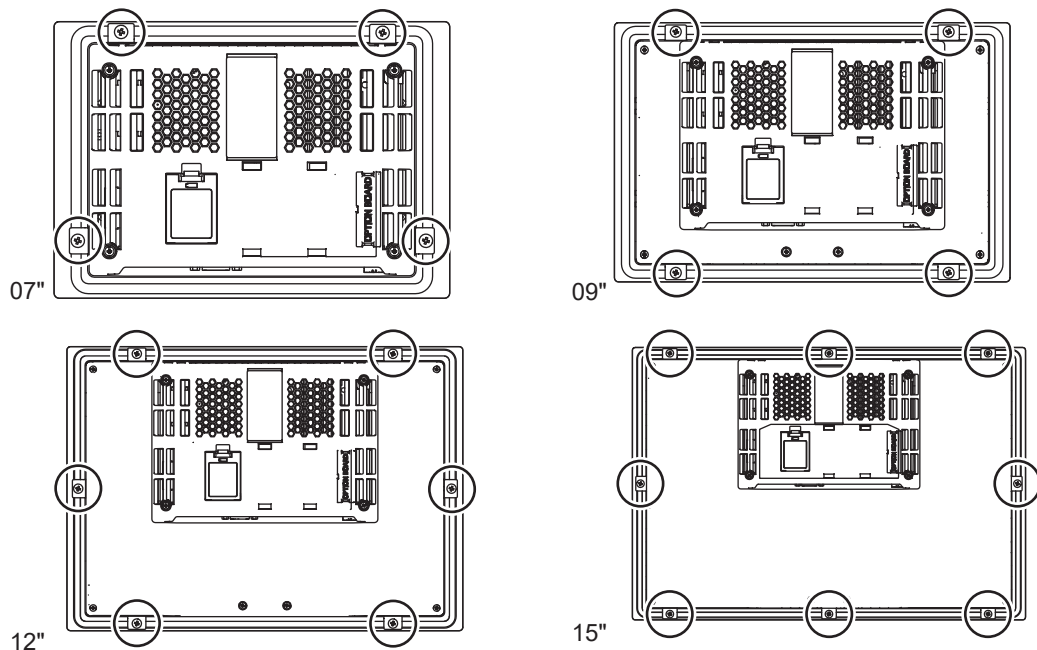
6 Tighten all mounting brackets to a torque of 0.6 N·m to maintain water and dust resistance.

Precautions for Safe Use

The mounting panel must be between 1.6 and 6.0 mm thick. Tighten the Mounting Brackets evenly to a torque of 0.6 N·m to maintain water and dust resistance. If the tightening torque exceeds the specified value, or the tightening is not even, deformation of the front panel may occur. Additionally, make sure the panel is not dirty or warped and that it is strong enough to hold the product.

Prepare the Mounting Surface

The Industrial Panel PC can be mounted in a landscape orientation.
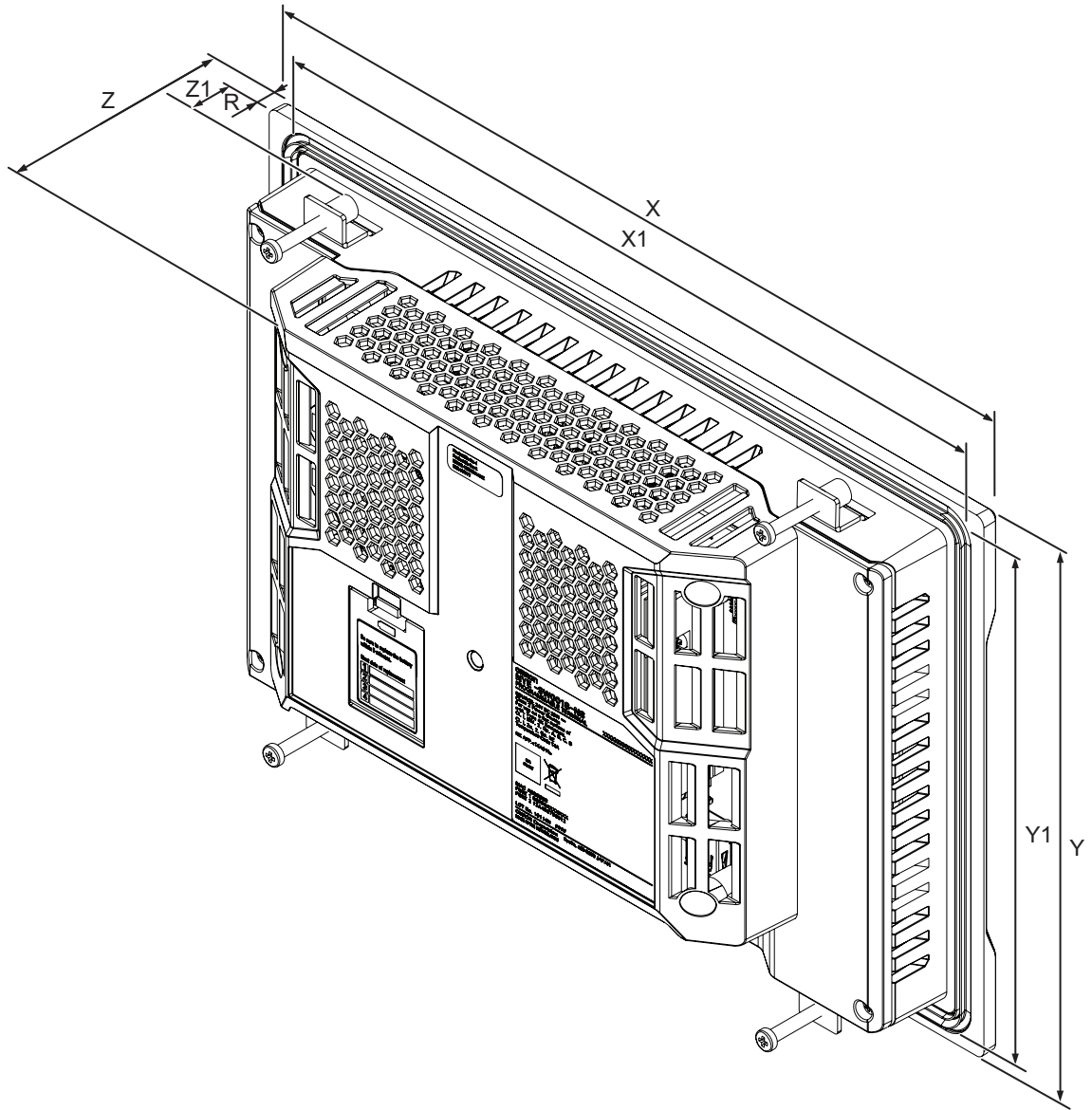
Item	Model Specifications			
	15.4 inch [1]	**12.1 inch [1]**	**9.0 inch**	**7.0 inch [1]**
Panel cutout dimensions	$X1 = 392^{-0\,+1}$ mm $Y1 = 268^{-0\,+1}$ mm	$X1 = 310^{-0\,+1}$ mm $Y1 = 221^{-0\,+1}$ mm	$X1 = 261^{-0\,+1}$ mm $Y1 = 166^{-0\,+1}$ mm	$X1 = 197^{-0\,+1}$ mm $Y1 = 141^{-0\,+1}$ mm
Panel thickness range [2]	Panel thickness range $Z1 = 1.6$ to 6.0 mm			
Dimensions	Refer to *4-1-1 Dimensions and Weight* on page 4-2 for X, Y, Z and R dimensions.			

[1]. Refer to *1-4 Product Configuration* on page 1-5 for model details.

[2]. The minimum panel thickness depends on the panel material.
For the most common materials the minimum panel thickness is mentioned in the following steps.

1 Ensure the mounting surface conforms to following requirements.

Standards conformance	Material	Mounting panel requirements
IP65	Steel	Thickness 1.6 to 6.0 mm
	Aluminum	Thickness 2.5 to 6.0 mm

2 Create an opening in the mounting surface.

The table before step 1 gives an overview of the cut out dimensions for the Panel PC.

Prepare a rectangular cut out with the dimensions X1 and Y1.

3 Ensure the mounting surface is clean and not warped.

The mounting surface is prepared.

5-3 Wire

This section describes how to wire the Industrial Panel PC.

5-3-1 Wiring Warnings and Cautions

This section describes the Warnings and Cautions when wiring the Industrial Panel PC.

⚠ WARNING	
Provide safety measures in external circuits to ensure safety in the system if an abnormality occurs due to malfunction of the product or due to other external factors affecting operation. Not doing so may result in serious accidents due to incorrect operation.	❗

⚠ WARNING	
Emergency stop circuits, interlock circuit, limit circuits, and similar safety measures must be provided in external control circuits.	❗

⚠ WARNING	
Unintended behavior may occur when an error occurs in internal memory of the product. As a countermeasure for such problems, external safety measures must be provided to ensure safe operation of the system.	❗

Precautions for Safe Use

Do not let metal particles enter the product when preparing the panel. Do not allow wire clippings, shavings, or other foreign material to enter any product. Otherwise, the product burning, failure, or malfunction may occur. Cover the product or take other suitable countermeasures, especially during wiring work.

5-3-2 Ground

This section describes how to ground the Industrial Panel PC.

⚠ WARNING	
Always connect to a ground of 100 Ω or less when installing the product.	❗

⚠ CAUTION

The product has an internal non-isolated DC power supply. Circuit ground (0 VDC) and frame ground are connected together. When connecting a non-isolated device or a non-isolated interface to the product, take appropriate actions to avoid communication failures or damage to the mentioned ports.
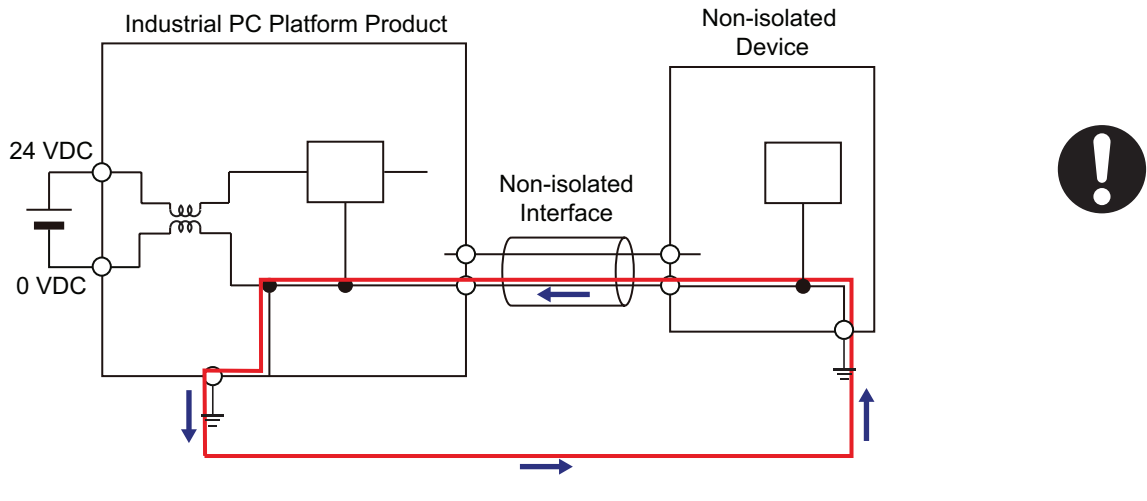
⚠ CAUTION

Never ground the 24 VDC side of the power supply. This may cause a short circuit.

The shielding of the communication connectors are directly bonded to the case and to the ground of the Panel PC.

The shield of a communication cable should be terminated to ground at both ends of the cable with a low impedance connection. A large surface area surrounding the entire cable shield ensures a low impedance connection, avoid the use of pigtails.

Potential differences between the two connected communicating devices might cause an equipotential current to flow through the shielding connected at both ends.

To avoid equipotential currents on the cable shields, an additional equipotential bonding conductor must be installed.

Refer to IEC 61918 for guidelines regarding conductor sizing and length to prevent a voltage offset between two communicating devices exceeding 1 V.

Make sure to run the bonding conductor in close proximity to the communication cable.

The Panel PC has a protection ground connection because the metal part of the Panel PC outside of the enclosure must be part of the protection grounding of that enclosure (for example a cabinet).

There are no power supply voltages used in the Panel PC which require protection grounding.

Considerations for Earthing Methods

Local potential fluctuations due to lightning or noise occurred by power devices will cause potential fluctuations between ground terminals of devices. This potential fluctuation may result in device malfunction or damage. To prevent this, it is necessary to suppress the occurrence of a difference in electrical potential between ground terminals of devices. You need to consider the earthing methods to achieve this objective.

The recommended earthing methods for each usage condition are given in the following table.

Specification of communications cables	Earthing methods		
	Equipotential bonding system	Star earthing	Daisy chain
The cable shield connected to the connector hood at both ends of the communications cable	Recommended	Not recommended	Not recommended

> **Additional Information**
>
> - In a country or region where the earthing method is regulated, you must comply with the regulations. Refer to the applicable local and national ordinances of the place where you install the system, or other international laws and regulations.
> - Ethernet switches are used with the EtherNet/IP. For information on the environmental resistance of the Ethernet switch to use, the grounding between Ethernet switches, or the specifications of cables, ask the Ethernet switch manufacturer.

Each of these earthing methods is given below.

Equipotential Bonding System

Equipotential bonding is an earthing method in which steel frames and building structures, metal ducts and pipes, and metal structures in floors are connected together and make connections to the earth trunk line to achieve a uniform potential everywhere across the entire building. We recommend this earthing method.
The following figure shows an example of an equipotential bonding system.
Connect the main earthing terminal and building structures together with equipotential bonding conductors and embed the mesh ground line in each floor.
Connect the ground line of each control panel to the equipotential bonding system.
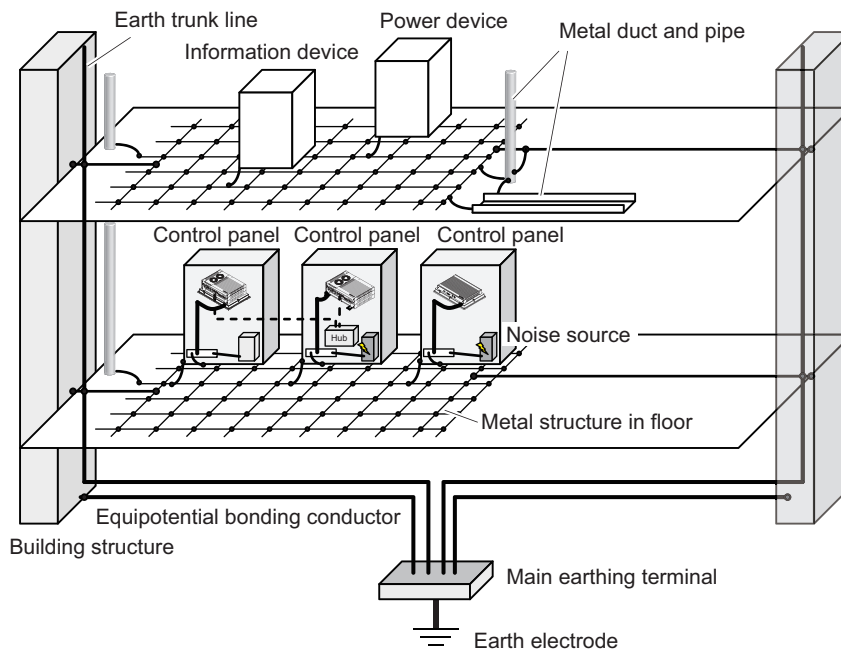
Star Earthing

If the earthing method used for the building is not equipotential bonding or the earthing system is un-known, choose (a) from among the earthing methods given below.

a. Connecting devices and noise sources to separate earth electrodes
    This is an earthing method to separately ground an earth electrode of the device that is connected with a communications cable or other devices and an earth electrode of a high-power device that could be a noise source, such as a motor or inverter.
    Each earth electrode must be ground to 100 Ω or less.
    Connect the ground lines of the device that is connected with a communications cable and other devices as a bundle to a single earth electrode. Be sure that the earth electrode is separated by a minimum of 10 m from any other earth electrode of a device that could be a noise source.
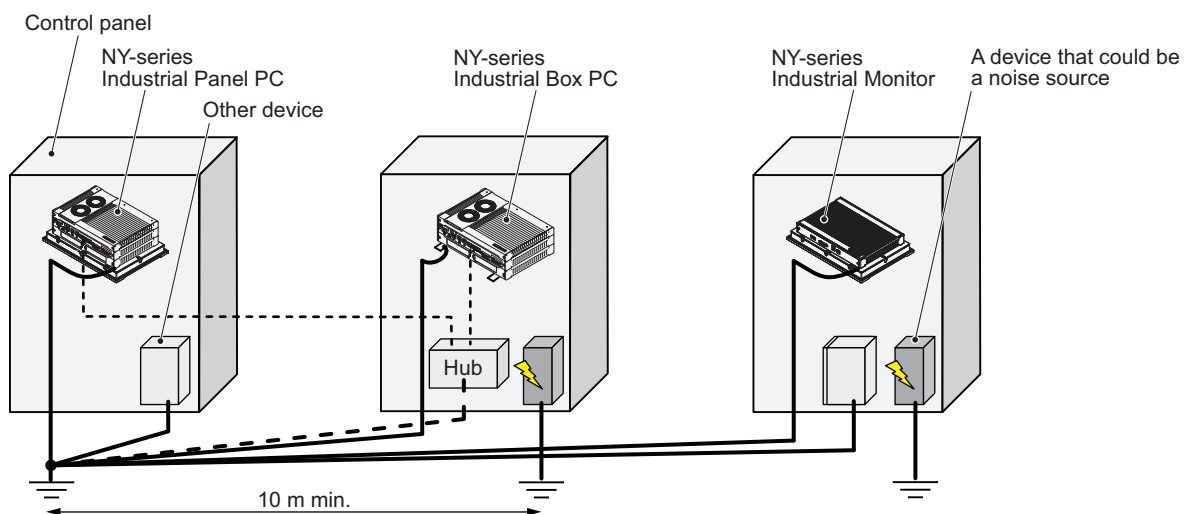
b. Connecting devices and noise sources to a common earth electrode
    This is an earthing method to connect the device that is connected with a communications cable, other devices, and a device that could be a noise source, to a common earth electrode.
    This earthing method is not recommended because the device that could be a noise source may interfere electromagnetically with other devices.
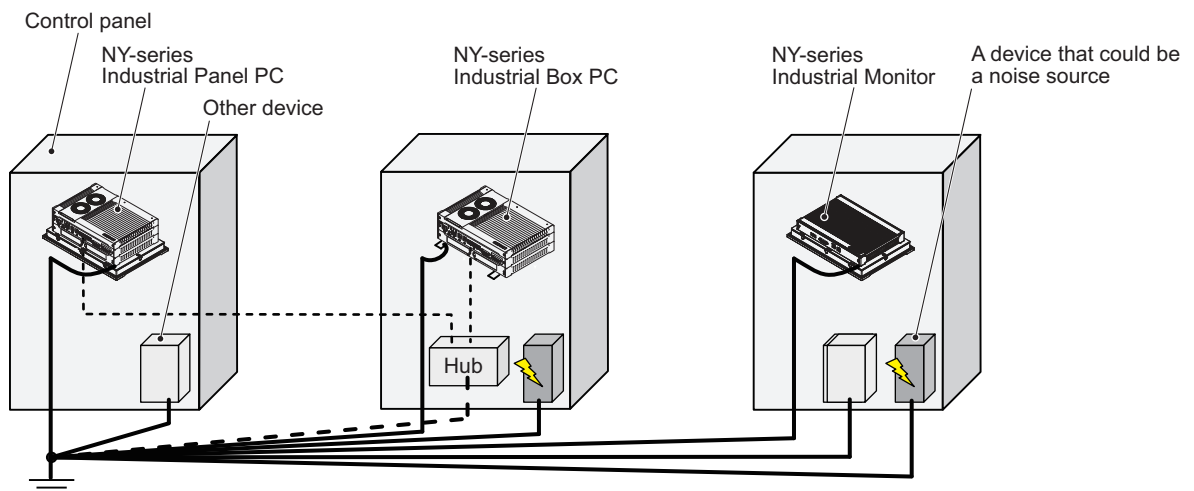
Daisy Chain

This is an earthing method to connect the device that is connected with a communications cable, other devices, and a device that could be a noise source using a daisy chain topology to a common earth electrode.

This earthing method is not recommended because the device that could be a noise source may interfere electromagnetically with other devices.
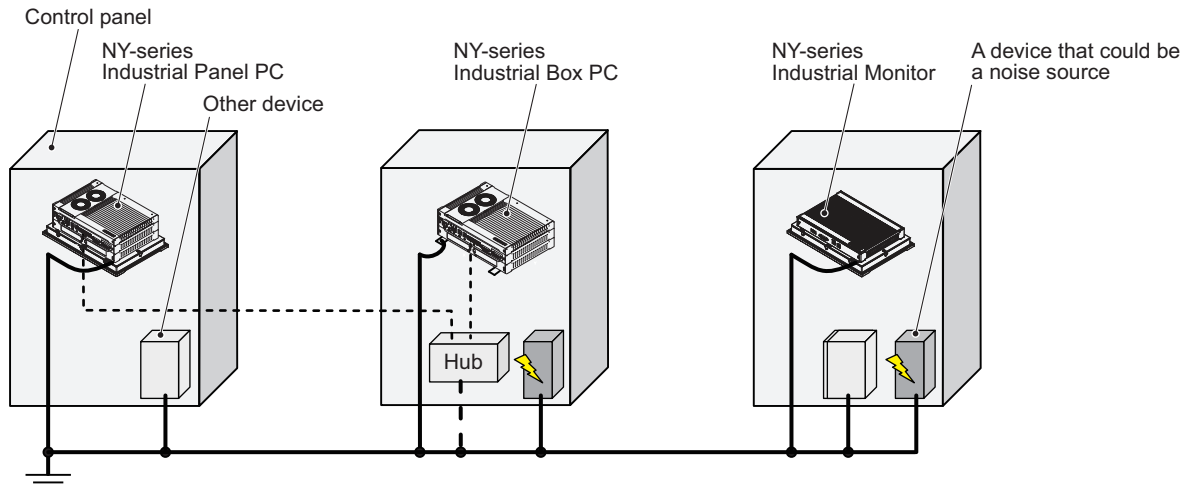
Ground Connection Details

This section provides details about the ground connection.

Use the ground terminal to ground your Panel PC.

The washers and screw Ⓐ are pre-mounted at the Panel PC.
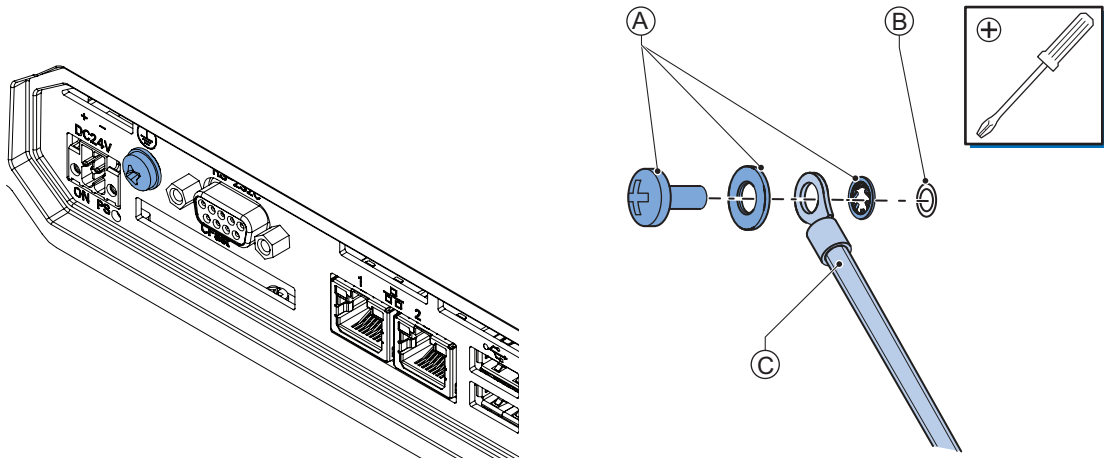
Remove the pre-mounted washers and screw Ⓐ and then mount the ground connection wire Ⓒ to the Panel PC Ⓑ using the washers and screw Ⓐ.

Tighten the screw with a torque of 1.2 N·m max.

● **Crimp terminals**

Use crimp terminals with dimensions X = M4 and Y = 8 mm max.

5-3-3 Wire the Power and I/O Connector

This section describes how to wire the power connector.

Precautions for Safe Use

- Do not perform a dielectric strength test.
- Always use the recommended uninterruptible power supply (UPS) to prevent data loss and other system file integrity issues caused by unexpected power interruption. Back up the system files in the planned way to prevent data loss and other system file integrity issues caused by incorrect operation.

Additional Information

- The selected conductor size must match with the used maximum power supply capacity or an overcurrent protection device must be used.
- The used wires and the overcurrent protection device must meet the applicable national standards.
  Standards are:
  - NEC (National Electric Code)
  - CEC (Canadian Electrical Code)
  - international applicable standards
- Refer to *4-1-2 General Electrical Specifications* on page 4-4 for electrical specifications.
- Refer to *4-1-3 Power Consumption Specifications* on page 4-5 for power consumption specifications.
- Refer to *3-7-6 UPS* on page 3-15 for UPS information.

Power and I/O Connector Wiring Materials

Use the supplied Power and I/O connector to connect the power and the input and output to the Industrial Panel PC.

Recommended conductor sizes for the connector are provided in the table.

Wire type	Conductor cross-section
Solid conductor	0.2 to 1.5 mm^2
Flexible conductor	
Flexible conductor, with ferrule and no plastic sleeve	0.25 to 1.5 mm^2
Flexible conductor, with ferrule and plastic sleeve	0.25 to 0.75 mm^2
Minimum AWG according to UL/cUL	24
Maximum AWG according to UL/cUL	16

DC Power Supply

The OMRON S8VK-series power supply is recommended for use with the Industrial Panel PC.

Additional Information

- Refer to *3-7-5 Power Supply* on page 3-14 for more information.
- Refer to *4-1-3 Power Consumption Specifications* on page 4-5 for power consumption details.

Power and I/O Connections

This section describes the Power and I/O connection details for wiring.
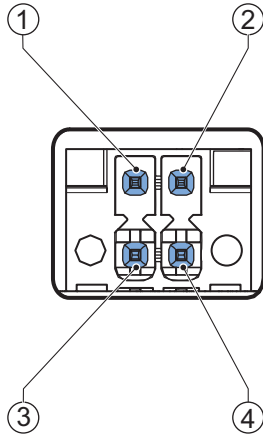
Wire the connector according to the pin-details in *4-2-1 Power and I/O Connector Specifications* on page 4-9.

> 📓 **Additional Information**
>
> • Refer to *4-2-1 Power and I/O Connector Specifications* on page 4-9 for I/O connector specifications.
> • Refer to *3-7-6 UPS* on page 3-15 for UPS information.

Power and I/O Connector Wiring Procedure

Use the following procedure to wire the Power and I/O connector.

1 Ensure the Power and I/O connector is not connected to the Panel PC.

2 Remove the sheath from the wires.

7 mm

✍ Precautions for Correct Use

Observe the following precautions to prevent broken wires.
- When you remove the sheath, be careful not to damage the conductor.
- Connect the conductor without twisting the wires.
- Do not weld the conductors. Doing so may cause the wires to break with vibration.

3 Insert a screwdriver in the small groove above the cable entry ❶ to unlock the cable entry and then push the wire all the way to the back of the cable opening ❷.
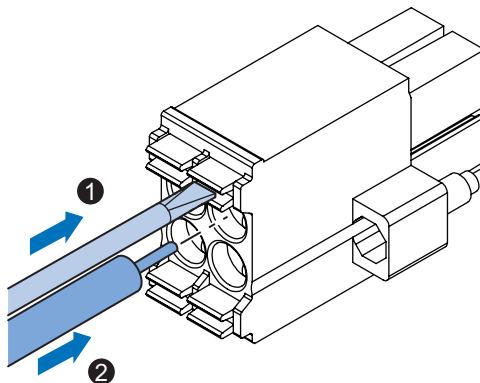
4 Remove the screwdriver.
Do not apply stress to the cable after you have connected the wires.

The Power and I/O connector is wired.

5-3-4 Wire an external Power Button

This section describes how to wire an additional power button for your Panel PC.

> **Additional Information**
>
> - The selected conductor size must match with the used maximum power supply capacity or an overcurrent protection device must be used.
> - The used wires and the overcurrent protection device must meet the applicable national standards.
>   Standards are:
>   - NEC (National Electric Code)
>   - CEC (Canadian Electrical Code)
>   - international applicable standards
> - Refer to *4-1-2 General Electrical Specifications* on page 4-4 for electrical specifications.
> - Refer to *4-1-3 Power Consumption Specifications* on page 4-5 for power consumption specifications.
> - Refer to *3-7-6 UPS* on page 3-15 for UPS information.

An external Power Button to switch the Panel PC ON or OFF can be wired between pins 2 and 3.
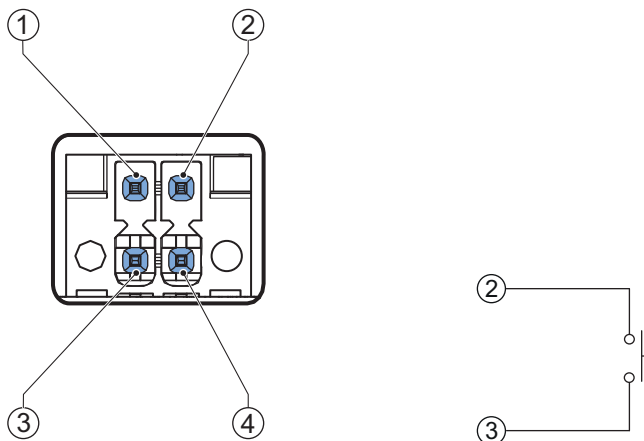
5-4   Connect

This section describes how to connect the Industrial Panel PC.

5-4-1   Connection Procedure

Use the following procedure to connect the Industrial Panel PC.
Ensure the Panel PC is securely fastened to the mounting surface.
Ensure the mounted Panel PC can be connected to power and peripheral devices. Remove dust covers where applicable and store them in a safe place.

> **Additional Information**
>
> • Refer to *5-2 Mount* on page 5-4 for mounting details.
> • Refer to *3-7 Optional Hardware* on page 3-12 for the cables advised by Omron.
>   Refer to individual cable specifications for cable bending requirements and connector clearance.

Use the following procedure to connect the Panel PC:

1 Ensure the ground terminal is connected.
Refer to *5-3-2 Ground* on page 5-20 for grounding details.

2 Connect the Power and I/O connector and tighten the fastening screws.

3 Connect the Serial connecter.

4 Connect the USB ports to peripheral devices .

5 Connect the Panel PC to the Ethernet interface connector(s).

The Panel PC is connected.

5-5 Initial Power ON

This section describes how to Power ON the Industrial Panel PC for the first time.

> ⚠ **WARNING**
>
> Ensure that installation and post-installation checks of the product are performed by personnel in charge who possess a thorough understanding of the machinery to be installed.

5-5-1 Initial Power ON Procedure

Use the following procedure to power ON the Industrial Panel PC for the first time.

1 Ensure the following conditions are present before applying power for the first time:
- The Panel PC is securely fastened to the mounting surface.
- The Panel PC is connected to ground.
- All connectors are securely fastened.

2 Connect an optional keyboard and/or mouse.

Additional Information

- If using an OMRON Industrial Panel PC, this may not be required because it has touch functionality.
- Do not connect additional storage devices before the installation of the operating system completed. Adding storage devices like a USB flash drive, an SD memory card or a PCIe card might influence the default drive letter sequence.

3 Ensure the power supply is ON.

Precautions for Safe Use

Always check the power supply and power connections before applying power. Incorrect power connections can damage the product or cause burning.

4 Press the power button and release within 1 second.
The Panel PC starts and the PWR LED will go ON.

Additional Information

- If a Windows operating system is preinstalled:
  - the Windows configuration will automatically start
  - refer to *5-5-2 Windows Startup First Time* on page 5-34 for details

5 Verify the ERR LED is OFF.
The Panel PC is ON and if an operating system is installed it will start.

Precautions for Safe Use

Always use the SMART monitoring feature for storage devices that do not comply to the Omron Storage Device Specifications. Monitor the operating temperature and vibrations to ensure they stay within the environmental specifications of the storage device.

Additional Information

- The first time initialization will prepare the system and automatically reboot the Panel PC when required.
- Install support software to fully utilize your Panel PC and optional connected hardware.

5-5-2　Windows Startup First Time

Use the following procedure for the first time startup of Windows on your Panel PC.
This procedure is applicable for NYE☐☐-☐☐5☐☐, NYE☐☐-☐☐N☐☐, NYE☐☐-☐☐S☐☐.
This procedure is not applicable for NYE☐☐-☐☐F☐☐.

> **Additional Information**
>
> Do not power OFF the Panel PC during this procedure!
> At the end of this Out Of Box Experience (OOBE) will result in the Windows home screen.

1　Ensure an input device is present.
- For an Industrial Panel PC touch functionality is available. A keyboard and mouse are not required.

2　If a UPS or I/O connector is connected then disconnect it from the Panel PC.

3　Power ON the Panel PC.

4　Follow the windows installation procedure.

Pay special attention to the following steps:
- Language
  Select the preferred language in the Language Selection Window
  Select the language carefully, the selected system language can not be changed.
- Legal stuff like license agreements
  - Windows 10: Select **Accept** to accept the combined Windows and OMRON license agreements.
- The **Sign in with Microsoft** Window.
  Select:
  - Enter your excisting Microsoft account when your Industrial Panel PC is connected to a network.
  - Select **Domain join instead** when a local account is preffered.
- Settings
  - Windows 10: Select **Customize** instead of **Use Express settings**.
    Set the settings according to your application environment.
- Create a user account and password and enter the **password hint**

⚠ WARNING

Security setting adjustments should only be performed by the engineer in charge that possesses a thorough understanding of the security settings. Selecting non-recommended security settings can put your system at risk.

> **Precautions for Safe Use**
>
> - Choose an OS password that is not obvious to prevent unauthorized access.
> - Remember the OS user name and password. The product is inaccessible without it.

The Panel PC will automatically restart.

A black screen will be visible for a few seconds and then the Panel PC will boot to the Windows start screen.

Recent Windows 10 Operating Systems will automatically perform a Windows Update when the Panel PC is connected to the internet. This will keep the Panel PC occupied for a longer period of time, wait until it is completed and the Panel PC automatically reboots.

5 Login.

6 Check and if necessary adjust the time and the timezone.

7 Adjust the backlight, Logo LED, and Status LED brightness to your settings.

> **Additional Information**
>
> Verify that the Panel PC is responding to finger touches on the touchscreen of the product.

8 Reconnect the UPS connector or I/O connector if applicable.

9 Install any third party software and drivers that may be required for your applications.

> **Precautions for Safe Use**
>
> Before operating the system, please make sure the appropriate software is installed and configured. Doing so may prevent unexpected operation.

5-6   Install Software

Install applicable software and activate Windows.

> 📖 **Additional Information**
>
> Refer to *NY-series NYE Industrial PC Operating Systems and Software Utilities Manual (Cat.No. W635)* for details.

5-7 Connect UPS

The OMRON S8BA UPS protects the Panel PC from power failures, voltage variations and instantaneous voltage drops. Short power interruptions will be backed up by the UPS and the Panel PC will continue normal operation. The UPS signals the Panel PC when a power failure occurs and then the Panel PC can shutdown normally without data loss. The Panel PC can automatically start up again when the power is restored.

⚠ WARNING

The use of an uninterruptible power supply (UPS) allows normal operation to continue even if a momentary power failure occurs, possibly resulting in the reception of an erroneous signal from an external device affected by the momentary power failure. Take external fail-safe measures. Where necessary, monitor the power supply voltage on the system for external devices and use it as an interlock condition.

Precautions for Safe Use

- Always use an uninterruptible power supply (UPS) to prevent data loss and other system file integrity issues caused by unexpected power interruption.
- Use an Omron S8BA UPS with the correct revision number to prevent improper system shutdown.
- Correctly perform wiring and setting, and ensure that the shutdown by the UPS can be executed.

Additional Information

- The minimum power requirements of the UPS are dependent on the power consumption. Refer to *4-1-3 Power Consumption Specifications* on page 4-5 for power consumption details.
- Refer to the OMRON website for S8BA specifications or to the *UPS S8BA User's Manual (Cat. No. U702)* for the UPS manual. Note that the power consumption details determine the output current/capacity of your UPS.

5-7-1　Connect UPS Using the USB Connector

Use the following procedure for a UPS connection using the USB connector.

The Industrial PC Support Utility monitors the UPS status via the USB interface and shuts down the Industrial Panel PC when needed.

For Panel PCs with Windows:

• the drivers for the S8BA UPS are pre-installed

• Installation files and the manual for the UPS Settings Utility are available in the directory D:\OM-RON-NY\Installers\ UPS Settings Utility

> **Additional Information**
>
> Refer to *5-7 Connect UPS* on page 5-37 for safety details.

Follow the steps below to connect the S8BA UPS with a USB cable and to configure it correctly.
Refer to *3-7-6 UPS* on page 3-15 for more information.

1 Ensure the revision number of the UPS is correct.
Refer to *3-7-6 UPS* on page 3-15 for more information.

2 For Panel PCs that do not have Windows pre-installed: Download the above mentioned software.

3 Wire the S8BA UPS.

1) Wire the input of the UPS to the output of the Power Supply.

2) Wire the output of the UPS to the power connector of the Panel PC.

3) Ground the UPS.

4) Connect the USB port of the S8BA UPS to the USB port of the Panel PC using the USB cable provided with the S8BA UPS.
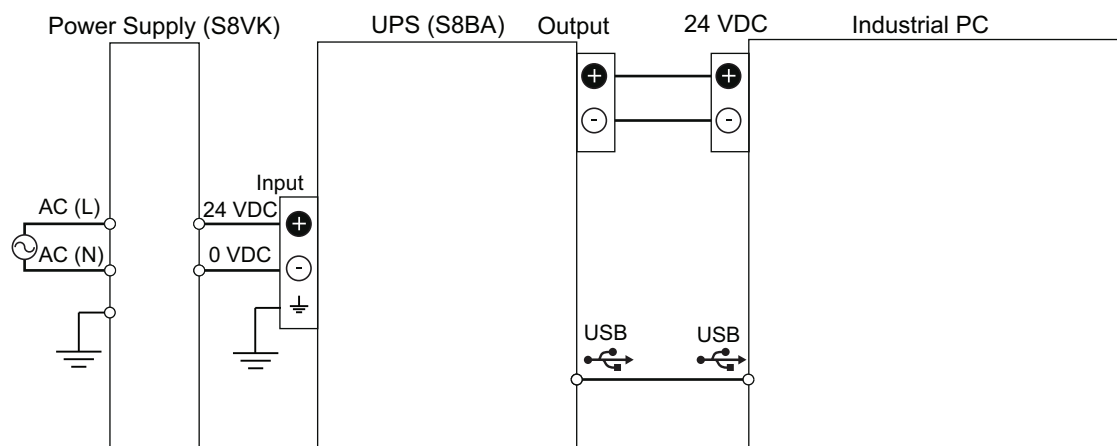
Refer to the *UPS S8BA User's Manual (Cat. No. U702)* for details.
Refer to *5-3 Wire* on page 5-20 for wiring details.

4 Supply power to the Power Supply.

5 Press and hold the UPS power button until **On** appears on the UPS display.

6 Power ON the Panel PC and then wait until the device drivers are successfully installed.

7 Configure the UPS using the UPS Settings Utility.
Refer to UPS Setting Utility Instruction Manual for S8BA/BU-2RWL for details.

8 Configure the UPS using the Industrial PC Support Utility.
Refer to *NY-series NYE Industrial PC Operating Systems and Software Utilities Manual (Cat.No. W635)* for details.

9 Configure the Panel PC to auto-start after power loss within the BIOS settings.
Refer to *A-1 BIOS* on page A-2 for BIOS details.

10 Simulate a power interruption and confirm a correct shutdown of the Panel PC.
- Start the Panel PC
- Start applications
- Create a power interruption
- Monitor the shutdown sequence and confirm a correct shutdown sequence

The UPS is connected with USB and correctly configured.
The Panel PC will shut down properly in case of a power supply interruption and restart automatically when the power is restored.

> **Additional Information**
>
> The default **Input sensitivity setting** is **Standard voltage sensitivity** and this is correct.
> Do not set this parameter to **Low voltage sensitivity**. Doing so can cause a system malfunction when switching to battery mode.

5-8   Create Backup and Repair Data

Ensure the operating system, software and data can always be restored when required.

There are different software tools to create a backup and repair data.

Select the Backup and Repair procedure or procedures that are most suitable for your situation.

Precautions for Correct Use

Refer to *NY-series NYE Industrial PC Operating Systems and Software Utilities Manual (Cat.No. W635)* for the Overview of Recover, Restore and Repair Methods.

6

Operating Procedures

This section provides the operating procedures for the Industrial Panel PC.

6

6-1 Touchscreen Operation

Touchscreen operation is specific for the type of touchscreen installed.

Refer to *6-1-1 Touchscreen Operation - Resistive Touch* on page 6-2 for details.

6-1-1 Touchscreen Operation - Resistive Touch

⚠ WARNING

Never press two or more points on the resistive touch panel of the unit simultaneously. Touching two points or more interrupts normal touch panel operations.

Resistive touchscreens have a touch foil in front of a glass screen. These touchscreens detect a touch using a slight mechanical compression of the foil surface.

The touchscreen can be operated when wearing gloves.

Check correct usage of the gloves before using them.

6-2   Power ON

This section provides Power ON details.

6-2-1   Power ON Using the Power Button

Start condition: Power is supplied to the Panel PC and the Panel PC is OFF.

1 Press the power button and release within 1 second.
Refer to *3-3 Power Button* on page 3-6 for the power button location.
The Panel PC starts and the PWR LED will turn ON.

2 Wait until the PWR LED is ON and verify that the ERR LED is OFF.
The Panel PC is ON and the Operating System, if installed, starts.

6-2-2   Power ON Using the Power ON/OFF Input

Start condition: Power is supplied to the Panel PC and the Panel PC is OFF.

1 Supply a 24 VDC signal to pin 3 of the Power and I/O connector. This activates the Power
ON/OFF input that consists of pins 3 and 4.
The input signal must remain ON for a minimum of 60 ms and a maximum of 750 ms to be
correctly detected by the Panel PC.
The Panel PC starts and the PWR LED will turn ON.

2 Wait until the PWR LED is ON and verify that the ERR LED is OFF.
The Panel PC is ON and the Operating System, if installed, starts.

> **Additional Information**
>
> • Refer to *4-2 Connector Specifications* on page 4-9 for connector details.
> • Refer to *5-3 Wire* on page 5-20 for wiring details.

6-2-3   Auto Power ON

The Panel PC can be configured to start up when power is supplied to the power connector.
The **Power Loss Control** BIOS setting controls this behavior.
Set the Power Loss Control setting to **Turn ON** to activate the Auto Power ON function.

6-3   Power OFF

This section provides Power OFF details.

Before following power OFF procedures below, check that the Industrial Panel PC is ON by examining the LED indicators on the Panel PC.

6-3-1   Power OFF Using the Power Button

1   Ensure all programs are closed.

If required close all active programs.

2   Press and release the power button on the Industrial Panel PC within 1 second.

The Industrial Panel PC will shutdown.

Note that this behaviour of can be reconfigured with the Power Options settings.

Refer to *3-3 Power Button* on page 3-6 for power button location information.

3   Wait until the PWR LED is OFF.

The Panel PC is powered OFF.

> **Additional Information**
>
> The Panel PC will restart automatically if a UPS is connected to the I/O connector of the Panel PC. Use the Power button of the UPS or remove the input power from the UPS for a normal shutdown of the Panel PC.

6-3-2   Power OFF Using Windows Shut Down

1   Ensure all programs are closed.

If required close all active programs.

2   Select the Windows **Shutdown** button.

To display the **Shutdown** button:

• For Windows 10 select the **Windows** button and then the **Power** button.

The Industrial Panel PC will shut down.

3   Wait until the PWR LED is OFF.

The Industrial Panel PC is powered OFF.

6-3-3 Power OFF Using the Power ON/OFF Input

1 Ensure all programs are closed.

If required, close all active programs.

2 Connect pin 2 and 3 of the Power and I/O connector to bring pin 3 to 0V. This activates the Power ON/OFF input.

The input signal must remain ON for a minimum of 60 ms and a maximum of 750 ms to be correctly detected by the Industrial Panel PC.

The Industrial Panel PC will shutdown.

Note that this behaviour can be reconfigured with the Power Options settings.

3 Wait until the PWR LED is OFF.

The Panel PC is powered OFF.

> **Additional Information**
>
> • Refer to *4-2 Connector Specifications* on page 4-9 for connector details.
> • Refer to *5-3 Wire* on page 5-20 for wiring details.

## 6-3-4 Forced Power OFF Using the Power Button

> **Precautions for Safe Use**
>
> Press the power button for several seconds to force the product shutdown. Always back up files in the planned way to prevent data loss or system file corruption.

1 Ensure all programs are closed.

If required, close all active programs to prevent losing unsaved data.

2 Press and hold the power button on the Panel PC for 5 to 10 seconds.

Refer to *3-3 Power Button* on page 3-6 for power button location information.

The Panel PC will power OFF.

Any optional operating system settings related to power OFF will be disregarded.

3 Wait until the PWR LED is OFF.

The Panel PC is powered OFF.

Confirm normal operation and check all product settings because unsaved data was lost.

6-4   React to Product Messages

The Industrial Panel PC uses the Industrial PC Tray Utility icon (A) in the system tray area (B) of Windows to present Warnings and Errors.
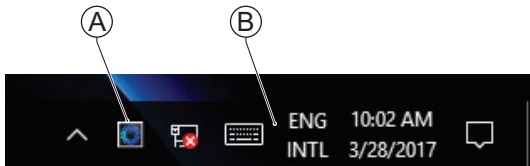
Check the Industrial PC Tray Utility icon for a Warning or Error symbol.
A Warning or Error symbol displayed on the Industrial PC Tray Utility icon indicates a product message.

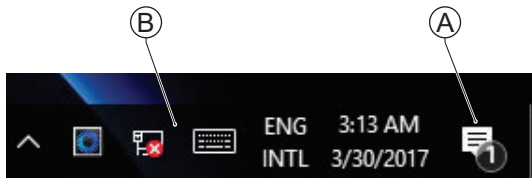To react to a product message:

1 Select the Industrial PC Tray Utility icon.
A pop-up window will appear.

2 Read the message available in the pop-up.

3 Refer to *7-2-1 Warning and Error Messages* on page 7-5 for all details on the message.
Perform the actions presented for the message until the Warning or Error is resolved.

The product messages for the Industrial Panel PC are resolved.

6-5   React to Windows Messages

Windows uses the Windows Action Center icon Ⓐ in the system tray area Ⓑ of Windows to present Warnings and Errors.

Ⓑ   Ⓐ

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Windows 10

Check the Windows Action Center icon for a Warning or Error symbol.
A Warning or Error symbol displayed on the Windows Action Center icon indicates a Windows message.

To react to a Windows message:

1 Open the Windows Action Center.
    • For Windows 10: Click the Windows Action Center icon.
    A pop-up window will appear.

2 Read the message available in the window.

3 Perform the actions until each Warning or Error is resolved.

The Windows messages for the Industrial Panel PC are resolved.

7

Maintenance

This section provides an overview of all maintenance tasks for the Industrial Panel PC.

7

7-1   Preventive Maintenance

Preventive Maintenance covers all actions that prevent downtime.

7-1-1   Preventive Maintenance Schedule

Prevent unscheduled downtime with the following preventive maintenance schedule.

Daily	Reference
Check Industrial Panel PC status	• Refer to *7-2-1 Warning and Error Messages* on page 7-5 for all available messages. • Refer to *3-2 LED Indicators* on page 3-5 for LED details.
Clean the display	Refer to *7-1-2 Clean the Touchscreen Surface* on page 7-3 for display cleaning details.

Weekly	Reference
Clean the Panel PC	Refer to *7-1-3 Clean the Panel PC* on page 7-3 for cleaning details.
Ensure you have the latest software updates	Refer to *NY-series NYE Industrial PC Operating Systems and Software Utilities Manual (Cat.No. W635)* for details.

When changing applications or configurations	Reference
Create a backup of the Industrial Panel PC	Refer to *NY-series NYE Industrial PC Operating Systems and Software Utilities Manual (Cat.No. W635)* for backup details.

Periodically but at least every 6 months	Reference
Check the ambient environment: • Temperature and humidity within specifications • Noise sources not close to the Industrial Panel PC	Refer to *4-4 Environmental Specifications* on page 4-18 for environmental specifications.
Check installation: Industrial Panel PC mounted securely	Refer to *5-2 Mount* on page 5-4 for installation details.
Check wiring and connections: • Cable connectors fully inserted and locked • No damaged wiring or connectors	Refer to *5-3 Wire* on page 5-20 for wiring details. Refer to *5-4 Connect* on page 5-31 for connection details.
Check the gasket behind the monitor rim	Refer to *7-1-4 Check the Gasket Seal* on page 7-4 for gasket details.
Check the display: • Brightness is sufficient • No touch offset	Refer to *NY-series NYE Industrial PC Operating Systems and Software Utilities Manual (Cat.No. W635)* for adjustments and touch-calibration details.
Check the backup and repair media.	Refer to NY-series NYE Industrial PC Operating Systems and Software Utilities Manual (Cat.No. W635) for details.

7-1-2 Clean the Touchscreen Surface

Clean the touchscreen surface of the Panel PC when necessary to keep it in the best operating condition.

- Ensure the Panel PC is OFF before cleaning.
- Wipe the Panel PC daily with a dry, soft cloth. If the touchscreen is very dirty and you try to clean it with a dry cloth, you may scratch the surface. Use a damp cloth first to remove the dirt.
- When a spot cannot be removed with a dry cloth, dampen the cloth with a neutral cleanser, wring out the cloth and wipe the touchscreen surface.
- Remove all residue from gum, vinyl or tape when cleaning.

Precautions for Correct Use

Turn OFF the product or disable the touchscreen for cleaning.

Additional Information

Allowed cleaning materials for the touchscreen surface:
- Isopropyl alcohol
- Detergents between pH 5 and pH 8
  Rinse with demineralized water after cleaning
- Demineralized water

7-1-3 Clean the Panel PC

Clean the Panel PC periodically in order to keep it in the best operating condition.
Wipe the Panel PC with a dry, soft cloth.

Precautions for Safe Use

Do not use corrosive substances to clean the product.
Doing so may result in the failure or malfunction.

7-1-4   Check the Gasket Seal

The gasket prevents liquid from penetrating the mounting surface.
A damaged gasket can lead to Panel PC or other hardware failures.

Check the gasket on all 4 sides of the Panel PC.
The gasket should be visible as a thin black line that has no dents or damage.
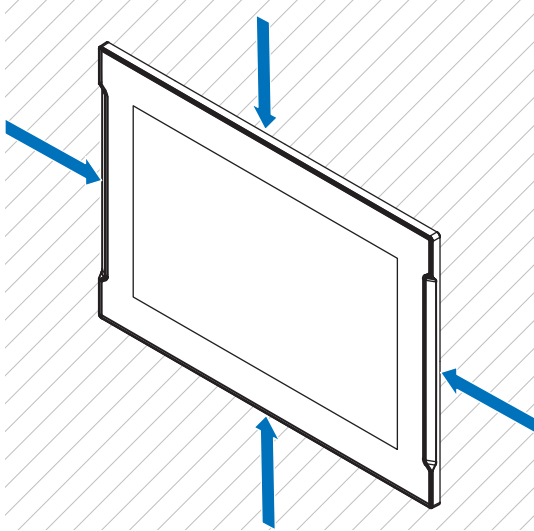
 Precautions for Safe Use

As the rubber gasket will deteriorate, shrink, or harden depending on the operating environment, periodical inspection is necessary.

7-1-5   Minimize LCD Image Retention

All LCD displays will display image retention effects when used in less optimal conditions.

To minimize the effects of image retention:
• Prevent static text and static images with high contrast
• Switch OFF the display when not in use
• Use a screen saver

7-2   Corrective Maintenance

Corrective maintenance covers all actions to correct problems that cause downtime.

⚠ WARNING
Do not attempt to disassemble, repair or modify the product in any way. Doing so may result in malfunction or fire.

Contact your local OMRON representative if the corrective maintenance actions did not solve the problem.

7-2-1   Warning and Error Messages

Warning and Error messages are provided by the Industrial Panel PC when there is a potential problem that may cause downtime. This section provides details about these messages.
Warning messages inform you about a situation that will lead to downtime of the Industrial Panel PC.
Error messages inform you about what caused the downtime of the Industrial Panel PC.

The following message channels are available.

LED Indicators

The ERR LED indicator provides information on warnings and errors.

Industrial PC Support Utility

The Industrial PC Support Utility provides information on warnings and errors.
The Industrial PC Support Utility indicates the status of the UPS.

Windows Action Center

The Windows Action Center provides information on Windows related warnings and errors.

The Windows Action Center indicates security and maintenance issues.
Some examples:
• Virus protection (Important)
  Windows did not find anti-virus software on this computer.
• Windows Update (Important)
  windows Update is not set up for this computer.
• Set up backup
  Your files are not being backed up.

Windows Pop Up Window

Windows Pop Up windows provide information on Windows issues.

An example of a Windows Pop Up

• Close programs to prevent information loss.

To solve this change the paging file size.

Windows Boot in Recovery Mode

Windows 10 can boot in Recovery Mode when the Industrial Panel PC was Powered OFF unexpect-
edly.
Follow the recovery steps, the recovery steps will bring the Industrial Panel PC to the standard Win-
dows login screen.

Follow the standard Power OFF procedure to prevent Windows booting in Recovery Mode.
Refer to *6-3 Power OFF* on page 6-4 for details.

Windows is out of Recovery Mode.

7-2-2 Replace the CJ1W Battery

Use the following information to replace the CJ1W Battery.

Precautions for Safe Use

- The Battery may leak, rupture, heat, or ignite. Never short-circuit, charge, disassemble, heat, or incinerate the Battery or subject it to strong shock.
- Dispose of any Battery that has been dropped on the floor or otherwise subjected to excessive shock. Batteries that have been subjected to shock may leak if they are used.
- UL standards require that only an experienced engineer replace the Battery. Make sure that an experienced engineer is in charge of Battery replacement.

Precautions for Correct Use

- Always touch a grounded piece of metal to discharge static electricity from your body before starting an installation or maintenance procedure.
- Make sure to use a battery of the correct type and install the battery properly.
- Replace the battery while the Panel PC is OFF and 24V power is applied to the Panel PC. This will maintain the real-time clock configuration.

Additional Information

- Refer to *3-6-1 Battery* on page 3-11 for the battery model.
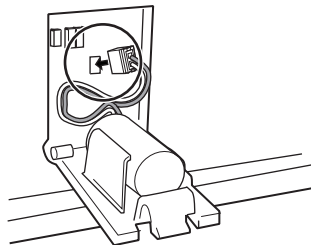
Replace CJ1W Battery in the NYE

Use the following procedure to replace the battery:
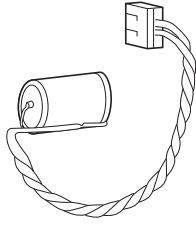
1 Power OFF the Panel PC.

2 Open the cover.

Additional Information

Push the small lever and tilt the battery cover outwards.

3 Lift the battery from the compartment.

4 Disconnect the battery from the battery connector .

5 Connect the new battery to the battery connector.

6 Place the new battery in the Panel PC.
Ensure the wires are at the side of the battery and not on top of the battery. If the wires are on top of the battery this might make closing and opening the cover more difficult.

7 Write the next date of replacement on the label at the inside of the cover.

> **Additional Information**
>
> Refer to *3-6-1 Battery* on page 3-11 for lifetime of the battery.

8 Close the cover.

9 Power ON the Panel PC.

10 Check the Date and Time in the operating system.
Correct the Date and Time if this is required.

11 Dispose of the battery according to local ordinances as they apply.

廢電池請回收

A battery is chemical waste.

The battery is replaced.

7-2-3   Replace the CFast Card

Use the following procedure to replace the CFast Card.

Prepare the new CFast Card.

> **Additional Information**
>
> - Refer to *3-7-3 CFast Cards* on page 3-13 for the available CFast Card models.
> - Refer to *CFast Card Specifications* on page 4-8 for specification details.
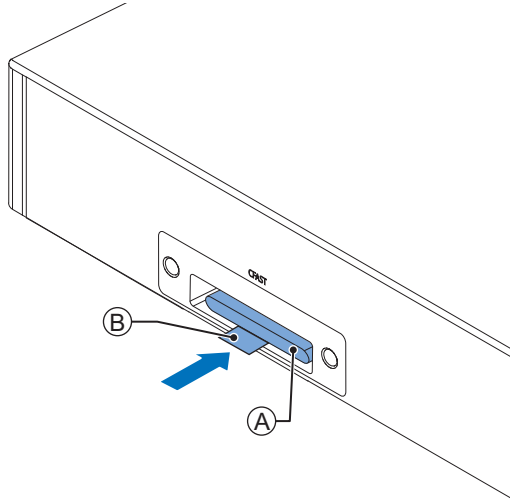
To replace the CFast Card:

1   Power OFF the Panel PC.

2   Pull the plastic Pull Tab Ⓐ to remove the CFast Card Ⓑ from the Panel PC.
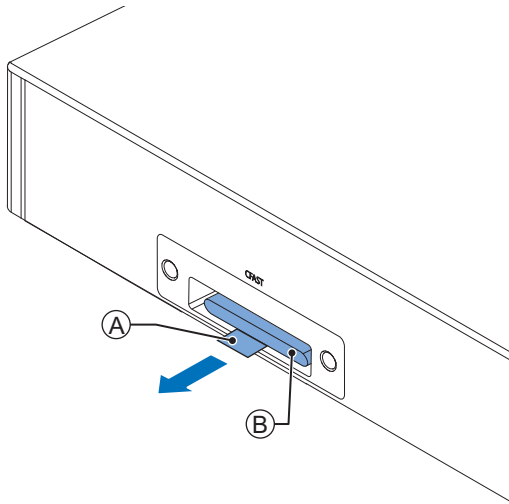
3 Insert the replacement CFast Card Ⓐ into the slot of the Panel PC.

Ensure the CFast Card Ⓐ is completely in the Panel PC.

If the CFast Card can not go in completely then the CFast Card orientation is incorrect. Remove the CFast Card, turn it upside down and reinsert it. Ensure the CFast Card Ⓐ is completely in the Panel PC.

Fold the plastic Pull Tab Ⓑ up so it stays inside the slot area.

4 Restore the drive data from a backup.
Refer to *NY-series NYE Industrial PC Operating Systems and Software Utilities Manual (Cat.No. W635)* for details.

The CFast Card is replaced.

A

Appendices

A

A-1   BIOS

This section provides the BIOS information of the Industrial Panel PC.

⚠ WARNING

Changing BIOS information is only allowed for the engineer in charge that possesses a thorough understanding of the BIOS settings because it can change the behavior of the product.

A-1-1   BIOS Overview

The BIOS contains settings that influence the behavior of the Industrial Panel PC.

BIOS setting are specific for your CPU type.

Refer to *1-4 Product Configuration* on page 1-5 for CPU details.

The touchscreen functionality is not functional when working in BIOS.

Ensure a USB keyboard is connected.

BIOS Setup Program

Press the **DEL** key repeatedly directly after Power ON to access the BIOS Setup Program.

Boot Selection Popup Menu

Press the **F11** key repeatedly directly after Power ON to display the Boot Selection Popup menu.

The popup menu allows selection of the boot device and the option to enter the BIOS setup program.

BIOS Structure

The BIOS contains a menu bar, a left frame and a right frame.

The left frame displays all the options that can be configured in the selected menu.

The left frame uses following colors:

• Blue = Configurable options

• Greyed-out = Not configurable

• Inverse white = Selected

The right frame displays the key legend. Above the key legend is an area reserved for text messages.

These text messages explain the options and the possible impacts when you change the selected option in the left frame.

Use the →← keys to navigate between pages.

The menu bar gives access to following pages:

• **Main**

• **Advanced**

• **Chipset**

• **Security**

- **Boot**
- **Save & Exit**

BIOS Navigation and Function Keys

The right part of the BIOS screens is divided in two parts.

Top part.
Provides additional information on selected screens or parameters.
Bottom part.
Provides information on Keys.

- → ← : Select Screen

  Changed between different BIOS pages.

- ↑ ↓ : Select Item

  Changed between different parameters.

- **Enter: Select**

  Selects the parameter that has the focus and displays a submenu or the possibility to change the parameter.

- **+ / - : Change Option**

  Change settings. A numerical value will be increased or decreased. A boolean value will toggle.

- **F1: General Help**

  Displays help information.

- **F2: Previous Values**

  Changes all parameters to the values they had when entering the BIOS.

- **F9: Optimized Defaults**

  Changes all settings to the default values.

- **F10: Save & Exit**

  Saves all changes and exits the BIOS.

- **ESC: Exit**

  Go one level up. For parameters this is the previous level. For the main pages this exits the BIOS.

BIOS Password & Write Protection

A BIOS password protects the BIOS setup program from unauthorized access. This ensures that users cannot change the system configuration without authorization. With an assigned BIOS password, the BIOS prompts the user for a password on a setup entry. If the password entered is wrong, the BIOS setup program will not launch.
The BIOS uses encryption for the password.

When a BIOS password is set the password is case sensitive with a minimum of 3 characters and a maximum of 20 characters. Setting no characters removes the BIOS password.

Once a BIOS password has been assigned, the BIOS activates the grayed out **BIOS Update and Write Protection** option. If this option is set to **enabled**, only authorized users (users with the correct password) can update the BIOS. With the BIOS password protection and the BIOS update and write protection, the system configuration is completely secured. If the BIOS is password protected, you cannot change the configuration of an end application without the correct password.

Precautions for Safe Use

Remember the BIOS password. The BIOS is inaccessible without it.

To change an empty BIOS password:

1. Enter a new password at **Create New Password**
   Confirm with **Enter**

2. Enter the New Password a second time at **Confirm New Password**
   Confirm with **Enter**

3. Select **F10** to save the new password and exit the BIOS

The new password is set.

To change an existing BIOS password:

1. Enter the Current Password at **Enter Current Password**
   Confirm with **Enter**

2. Enter the New Password at **Create New Password**
   Confirm with **Enter**

3. Enter the New Password a second time at **Confirm New Password**
   Confirm with **Enter**

4. Select **F10** to save the new password and exit the BIOS

A new password is set.

To clear an existing BIOS password:

1. Enter the Current Password at **Enter Current Password**
   Confirm with **Enter**

2. Leave the password field empty at **Create New Password**
   Confirm with **Enter**

3. Confirm your change with **Yes** at the question **WARNING: Clear Old Password. Continue?**

4. Select **F10** to save the new password and exit the BIOS

The password is removed.

A-1 BIOS

A

A-1-1 BIOS Overview

A-1-2　BIOS for Atom CPU - 3AWNR113

The BIOS settings for Atom CPUs with BIOS 3AWNB112.

The BIOS is divided in the pages Main, Advanced, Chipset, Security, Boot and Save&Exit.

BIOS - Main

The main setup screen gives platform information about the BIOS, Board Information, Firmware Revision, MAC Addresses and information about the number of Boots and the Running Time. Platform Information gives CPU and platform details.

Changeable BIOS Main parameters and their factory default values:
- **System Date**
  Use the **Enter** key to the next Date field.
- **System Time**
  Use the **Enter** key to the next Time field.

BIOS - Advanced

This section provides Advanced BIOS information for a Panel PC with an Atom CPU.

Changeable BIOS Advanced parameters and their factory default values:

Item		Default / Remark
Module Serial Ports	SoC Serial Port 0	Enabled
CPU	VT-d	Enabled
USB	Legacy USB Support	Enabled
	xHCI Hand-off	Enabled
	USB Mass Storage Driver Support	Enabled
	USB Transfer Timeout	20 sec
	Device Reset Timeout	20 sec
	Device Power-up Delay Selection	Auto
UEFI Network Stack	UEFI Network Stack	Disabled
CSM & Option ROM Control	CSM Support	Disabled

BIOS - Chipset

This section provides Chipset information for a Panel PC with an Atom CPU.

Changeable BIOS Chipset parameters and their factory default values:

Item			Default / Remark
Processor (Integrated Components)	Above 4GB MMIO BIOS assignment		Disabled
	PCIE VGA Workaround		Disabled
Extention Graphic Configuration	Intel Graphics Pei Display Peim		Disabled
	Integrated Graphics Device		Enabled
	Primary Display		IGD
	RC6(Render Standby)		Enabled
	GTT Size		8MB
	Aperture Size		256MB
	IGD Pre-Allocated Graphics Memory		64M
	IGD Total Graphics Memory		256M
	GT PM Support		Enabled
South Cluster Configuration	PCI Express Configuration	Peer Memory Write Enable	Disabled
		GBE PCI Express Port	Refer to *PCI Express Port* on page A-8 for details
		PCI Express Port 0,1,2,3	
	SATA Drives	Chipset SATA	Enabled
		SATA Port 0	Enabled
		SATA Port 1	Enabled
	USB Configuration	USB Port Disable Override	Enabled
		USB Port 0,1,2,3,4,5,6,7	Enabled
		USB 3 Port #0, #1	Enabled
		USB 3 Port #2, #3, #4, #5	Disabled
	Miscellaneous Configuration	Wake On Lan	Disabled

● **PCI Express Port**

Provides BIOS Chipset details for the submenu Platform Controller Hub / PCI Express Configuration / PCI Express Port.

Changeable BIOS PCI Express Port parameters and their factory default values:

Item		Default / Remark
PCI Express Port		Port specific [1]
PCI Express Root Port		Port specific [2]
ASPM		Disabled
L1 Substates		Disabled
	ACS	Enabled
URR		Disabled
FER		Disabled
NFER		Disabled
CER		Disabled
CTO		Default Setting
SEFE		Disabled
SENFE		Disabled
SECE		Disabled
PME SCI		Port specific [3]
PCIe Speed		Gen1
	Transmitter Half Swing	Disabled
Extra Bus Reserved		0
Reserved Memory		10
Reserved I/O		4
Non Snoop Latency Override [4]		Auto
Force LTR Override [4]		Disabled
PCH PCIE LTR		Enabled
	Snoop Latency Override	Auto
	Non Snoop Latency Override	Auto
PCIE LTR LOCK		Enabled
PCIe Selectable De-emphasis		Enabled

*1. Port specific:
   - GBE shows Port 0 = Enabled
   - Port 0 shows Port 2 = Enabled
   - Not for Port 1, 2, 3
*2. Port specific:
   - Not for GBE, Port 0
   - Port 1, 2 = Auto
   - Port 3 = Enabled
*3. Port specific:
   - GBE, Port 0, 1, 2 = Enabled
   - Port 3 = Disabled
*4. Only for Port 0

BIOS - Security - 1AWGR113

Provides security information like BIOS Password and HDD information for a Panel PC with an Atom CPU and BIOS 1AWGR113.

⚠ WARNING

Security setting adjustments should only be performed by the engineer in charge that possesses a thorough understanding of the security settings. Selecting non-recommended security settings can put your system at risk.

Changeable BIOS Security parameters and their factory default values:

Item			Default / Remark
BIOS Password			Empty
Secure Boot Menu	Secure Boot		Disabled
	Secure Boot Customization		Custom
	Key Management	Factory Key Provision	Disabled
		Platform Key(PK)	0 | 0 | No Keys
		Key Exchange Keys	
		Authorized Signatures	
		Forbidden Signatures	
		Authorized TimeStamps	
		OsRecovery Signatures	

A-1 BIOS

A

A-1-2 BIOS for Atom CPU - 3AWNR113

BIOS - Boot - 1AWGR113

Provides Boot information and configuration settings for a Panel PC with an Atom CPU and BIOS 1AWGR113.

Changeable BIOS Boot parameters and their factory default values:

Item	Default / Remark
Setup Prompt Timeout	1
Bootup NumLock State	On
Enter Setup If No Boot Device	No
Enable Popup Boot Menu	Yes
Boot Priority Selection	Type Based
1st Boot Device	SATA 1 Drive
2nd Boot Device	Disabled
3rd Boot Device	Disabled
4th Boot Device	Disabled
5th Boot Device	Disabled
6th Boot Device	Disabled
7th Boot Device	Disabled
8th Boot Device	Disabled
Power Loss Control	Remain Off [1]
Quiet Boot	Disabled
UEFI Fast Boot	Disabled
UEFI Screenshot Capability	Disabled
New Boot Option Policy	Default

*1. Turn On for model-ID NYE☐☐-☐☐F☐☐

BIOS - Save & Exit

Provides the possibility to leave the BIOS with or without saving changes and to create or restore a set of User Defaults.

Save & Exit Parameters:

- **Save Changes and Exit**

  Changed settings are saved and the Operating System starts with the changed settings.

- **Discard Changes and Exit**

  Changed settings are not saved and the Operating System starts with the unchanged settings.

- **Save Changes and Reset**

  Changed settings are saved and the Panel PC restarts using the changed settings.

- **Discard Changes and Reset**

  Changed settings are not saved and the Panel PC restarts with the unchanged settings.

- **Save Changes**

  Changed settings are saved and the BIOS setup stays open.

- **Discard Changes**

  Changed settings are reverted to their last saved values and the BIOS setup stays open.

- **Restore Defaults**

  Revert all BIOS settings to factory default.

- **Save as User Defaults**

  Saves the BIOS values as a User Defaults set.

- **Restore User Defaults**

  Restores the User Defaults set to the BIOS.

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