OMRON

Industrial PC Platform

NY-series

Industrial Panel PC

User's Manual

- NYP17-□-12□□
- NYP17-□-13□□
- NYP25-□-11□□
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- **NYP1C-**□-12□□
- NYP1C-□-13□□

Industrial Panel PC





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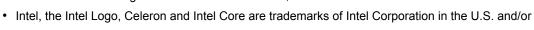
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Introduction

Thank you for purchasing the Industrial Panel PC.

This manual contains information that is necessary to use the Industrial Panel PC (hereafter also named as 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:

Product	Model
Industrial Panel PC, 15.4 inch	• NYP17-□11□□-15WC100□
	• NYP17-□12□□-15WC100□
	• NYP17-□13□□-15WC100□
	NYP25-□11□□-15WC100□
	NYP25-□12□□-15WC100□
	NYP25-□13□□-15WC100□
	NYP1C-□11□□-15WC100□
	NYP1C-□12□□-15WC100□
	• NYP1C-□13□□-15WC100□
Industrial Panel PC, 12.1 Inch	• NYP17-□11□□-12WC100□
	• NYP17-□12□□-12WC100□
	• NYP17-□13□□-12WC100□
	NYP25-□11□□-12WC100□
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	NYP1C-□13□□-12WC100□



Additional Information

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

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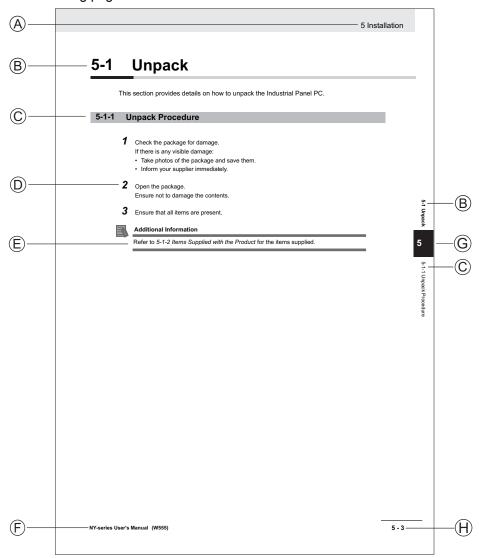
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Manual Information

This section provides information about this manual.

Page Structure

The following page structure is used in this manual.



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

Item	Explanation	Item	Explanation
Α	Level 1 heading	Е	Special Information
В	Level 2 heading	F	Manual name
С	Level 3 heading	G	Page tab with the number of the main section
D	Step in a procedure	Н	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 and Limitations of Liability

Warranty

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, expressed or implied.

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Application Considerations

Suitability for 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 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

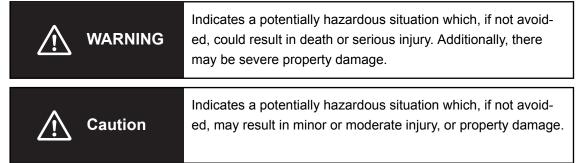
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Safety Precautions

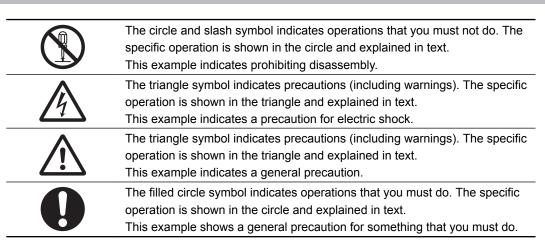
Definition of Precautionary Information

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.



Symbols



Warnings

MARNING

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.



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.



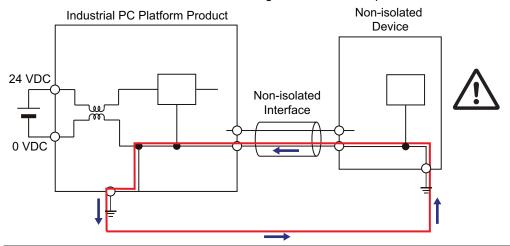
Actual Operation

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.	0
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.	0
Water or other liquid present on the touchscreen surface may create false touch behavior and unexpected operation. Wipe away the liquid on the touchscreen before operation.	0

Cautions

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

- 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.
- If the storage period exceeds 6 months, check the performance of the Fan Unit before production starts.
- 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.

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, PCIe Cards 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.
- 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.

- 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.
- For an NY Monitor Link connection, always follow the cable type and connection method specifications in the manual. Otherwise, communications may be faulty.

Power Supply Design and Turning ON/OFF the Power Supply

- · Always use a power supply that provides power within the rated range.
- 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.
- Use an Omron S8BA UPS with the correct revision number to prevent improper system shutdown.
- Power ON after the DVI or NY Monitor Link cable is connected between the product and an external monitor.
- 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.
 - · Inserting or removing PCIe Cards
 - · Connecting cables
 - · Connecting or disconnecting the connectors
 - · Wiring the system
 - · Replacing or removing the HDD/SSD
 - · Replacing the Battery
 - · Replacing the Fan Unit

Actual Operation

- Choose an operating system 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.
- Make sure that your OS environment is protected against malicious software and viruses.
- · Install all updates and ensure virus definitions stay up-to-date.
- Do not remove the fan cover while the power is ON. Contact with a rotating fan may result in injury.
- 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 or an SD Memory Card.
 - Turn OFF the power supply of the product.
 - · Press the Power Button of the product.
 - Remove a USB device or SD memory card.
- Do not attempt to remove or touch the fan unit while the product is powered ON or immediately after the power supply is turned OFF. If you attempt to replace the fan unit then, there is a risk of personal injury due to hot or rotating parts.
- 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.
- Do not touch any product housing when power is being supplied or immediately after the power supply is turned OFF. Doing so may result in burn injury.
- · 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.
- In systems with multiple screens in extended view, an interruption in the video signal of one screen
 will cause all windows on that screen to be moved to the primary screen. Make sure that this situation is properly handled.

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.

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.
- 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.



• 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 and PCIe devices correctly to avoid the burning, failure or malfunction.
- Execute a backup of the product before PCle addition or replacement. Be sure that the PCle device works correctly before you use them for actual operation. PCle devices and their related software may cause an OS boot failure or crash.
- 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.
- Ensure the selected operating system supports ACPI to enable operating system shutdown using the power button.
- Download the enhanced Video Driver from the OMRON Download Center and install it on the Industrial PC.

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.

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.
- Ensure the fan is operational to provide adequate cooling while the power is turned ON.
- HDD and SSD storage devices, SD Memory Cards, power buttons, fan units and batteries have finite lives and if those are exceeded, the product may fail or malfunction.
- Always monitor the fan status. If a fan is used beyond its service life, the *Low Revolution Speed* warning message is displayed and the product overheating may occur.
- Always monitor the battery warning message. When a battery has low voltage, the system time will be lost.
- The touchscreen supports 5 simultaneous touches. When the number of touches is exceeded, not all touch points will be detected.
- The capacitive touchscreen reacts to contact on its surface. Accidental touching the surface of the touchscreen may cause unintended behavior.
- 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.
- Do not turn ON the power supply to the product when a part of a human body or a conductive object
 is touching the surface of the touchscreen. Doing so will cause the touchscreen functionality to be
 disabled. Remove the conductive object and cycle the power supply to restore the touchscreen
 functionality.
- 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.
- · Diagnostic information is not available when the Industrial PC Support Utility is not installed.

Battery Replacement

- Turn ON the power after replacing the battery for a product that has been unused for an extended period of time. Leaving the product unused without turning ON the power even once after the battery is replaced may result in a shorter battery life.
- Make sure to use a battery of the correct type, install the battery properly.
- Apply power for at least five minutes before changing the battery. Mount a new battery within five
 minutes after turning OFF the power supply. If power is not supplied for at least five minutes, the
 clock data may be lost. Check the clock data after changing the battery.

SD Memory Cards

• Insert an SD Memory Card completely and ensure it is in place.

Cleaning and Maintenance

- Do not use corrosive substances to clean the product.
- Turn OFF the product or disable the touchscreen for cleaning with water.

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 Industrial Panel PC is used complies with EU Directives, the following precautions must be observed:

- · The Industrial Panel PC must be installed within a control panel.
- The Industrial Panel PC that complies with EU Directives also conforms to the Common Emission Standard. Radiated emission characteristics (10-m regulations) 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 Industrial 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 (Radiated emission: 10-m regulations)

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 KC Standards

Observe the following precaution if you use Industrial PC Platform products in Korea.

A 급 기기 (업무용 방송통신기자재) 이 기기는 업무용(A 급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.

Class A Device (Broadcasting Communications Device for Office Use).

This device obtained EMC registration for office use (Class A), and it is intended to be used in places other than homes.

Sellers and/or users need to take note of this.

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 http://www.fa.omron.co.jp/nj info e/.

Related Manuals

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

Related Products Manuals

Manual name	Cat. No.	Model num- bers	Application	Description
UPS S8BA User's Manual	U702	S8BA	Learning the information that is necessary to use the Uninterruptible Pow- er 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 Setting Utili- ty Instruction Manual		• SB8A • BU-2RWL	Learning the information that is necessary to connect the UPS and to configure all settings.	An introduction to the UPS Setting Utility is provided along with the following information: Overview Operating Environment Software License Agreement Connect Use the UPS Setting Utility Setting Details
UPS Power Attendant Lite for Win- dows 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

Industrial Monitor Manual

This table contains the related manual of the Industrial Monitor.

Manual name	Cat. No.	Model numbers	Application	Description
Industrial Monitor Us- er's Manual	W554	NYM15W-C100□ NYM15W-C106□ NYM12W-C100□ NYM12W-C106□	Learning all basic information about the Industrial Monitor. This includes introductory information with features, hardware overview, specifications, mounting, wiring, connecting, operating and maintaining the Industrial Monitor.	An introduction to the Industrial Monitor is provided along with the following information: Overview Hardware Software Specifications Installation Operating Procedures Maintenance

Terminology and Abbreviations

Industrial PC Platform

Term / Abbreviation	Description
Industrial PC Platform	An integrated range of OMRON products designed for use in any industrial applica-
	tion 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 indus-
	trial environments
Industrial Box PC	A box-shaped industrial PC including an OS designed to work in industrial environ-
	ments
IPC	Industrial PC
Sysmac	OMRON's brand name of the product family for the industrial automation equip-
	ment

Hardware

Term / Abbreviation	Description
BMC	Board Management Controller
CPU	A Central Processing Unit is the hardware within a computer that executes the in-
	structions of a computer program
DVI	Digital Visual Interface
DVI-D	A Digital Visual Interface with only Digital signals
DVI-I	A Digital Visual Interface with Analog and Digital signals
Ethernet	A network communication protocol used in TCP/IP network
HDD	A Hard Disk Drive storage device
HMI	A Human Machine Interface that facilitates machine operation and control
iMLC	Industrial Multi-Level Cell type of SSD storage device
NYML	NY Monitor Link interface with video signals and USB signals
PCle	The PCI Express is a high-speed computer bus standard called Peripheral Compo-
	nent Interconnect Express
SATA	The Serial AT Attachment is a serial bus interface primarily used with mass storage
	devices such as hard disk drives
SLC	Single-Level Cell type of SSD storage device
SO-DIMM	Small Outline Dual Inline Memory Module
SSD	A Solid State Drive storage device
USB	Universal Serial Bus

Software

Term / Abbreviation	Description		
ACPI	Advanced Configuration and Power Interface protocol for operating systems		
API	Application Programming Interface		
BIOS	Basic Input Output System. The first software run by a PC when powered on.		
Developer	Any person involved with the development of software		
DST	Daylight Saving Time		
EWF	Enhanced Write Filter		
FBWF	File-Based Write Filter		
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 Win-		
	dows installer components and setup logic to their applications		
MSDN	Microsoft Developer Network		
NUI	Natural User Interface		
OS	Operating System		
PLC	Programmable Logic Controller		
RTOS	Realtime Operating System		
SDK	Software Development Kit		
TCP/IP	Transmission Control Protocol / Internet Protocol, a core member of the Internet		
	protocol suite		
TPM	Trusted Platform Module		
VxWorks	A Realtime Operating System designed by Wind River		
Windows	An Operating System designed by Microsoft		

Revision History

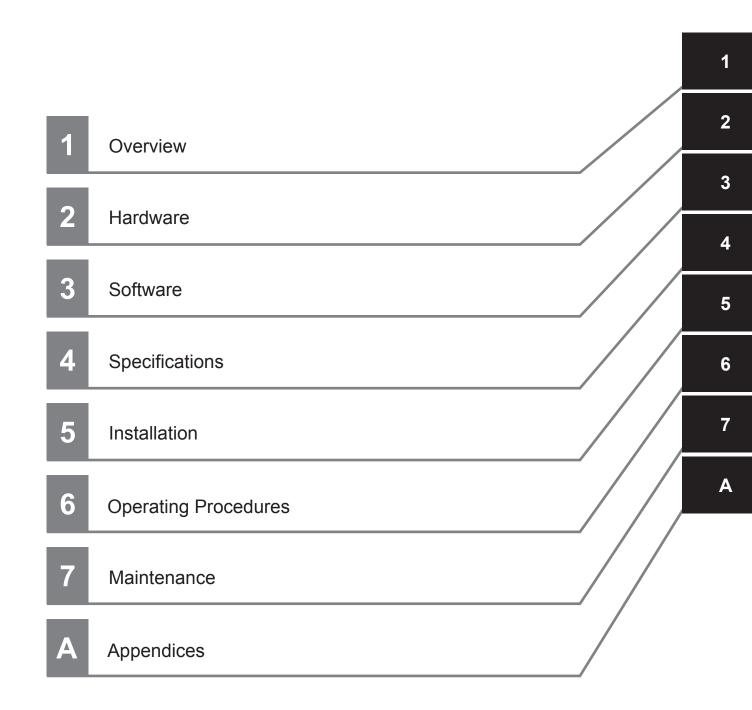
A manual revision code appears as a suffix to the catalog number on the front and back covers of the manual.



Revision code	Date	Revised content	
04	June 2017	O17 Added NY Monitor Link option	
03	May 2017	 Added operating system Windows 10 IoT Enterprise LTSB Added Storage Device Considerations Modified UPS configuration procedure Several minor modifications 	
02	December 2016	UL implementationKC Standard implementationMinor modifications	
01	August 2016		

Revision History

Sections in this Manual



Sections in this Manual



Overview

This section provides general information about the Industrial Panel PC.

1-1	-1 Intended Use				
1-2	1-2 Hardware Features				
1-3	I-3 ID Information Label				
1-4	1-4 Product Configuration				
1-5	Indus	strial PC Platform Overview	1 - 6		
	1-5-1	Industrial Monitor	1 - 6		
	1-5-2	Industrial Box PC	1 - 7		
	1-5-3	Industrial Panel PC	1 - 7		

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 configured with Windows, Linux or a realtime operating system (RTOS). It can be used with 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.

· Flexible mounting orientation

The Panel PC is designed to support landscape and portrait mounting orientations.

· Powerful CPU options

Powerful CPU options provide high performance for various applications.

· Fanless cooling for multiple CPU types

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

Easy access to storage devices and the PCI Express Card
 Adding or changing storage devices (HDD, SSD) and the PCI Express Card is fast and simple.

· LED indicators

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

· DVI visual interface

The video interface for the Panel PC is provided with a DVI connector for connection to an additional monitor.

An extra (optional) DVI interface is available for connection to a second additional monitor.

· NY Monitor Link interface

The interface combines video signals and USB signals for a connection to an OMRON Industrial Monitor using a single NY Monitor Link cable up to 100 meter.

• 3 Ethernet ports 1Gb/s

Interface with multiple networks.

• Built-in I/O

Built-in I/O for UPS status and Panel PC shutdown control are provided.

· 4 USB ports

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

· Built-in SD Memory Card slot

An SD Memory Card slot is provided for removable memory.

LCD touchscreen

The LCD touchscreen provides high functionality for your PC interface.

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

Multi-touch functionality

Up to 5 simultaneous touches are supported for complex functions.

Backlit Logo

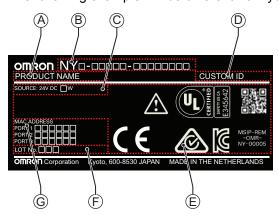
The standard product logo is OMRON. Check your sales representative for the possibilities to customize the product logo. The product logo is provided with a controllable backlight to increase visibility.

· Brightness control

Use the Monitor Utilities to control the Panel PC's LCD brightness.

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	
Α	Product name	The name of your product	
В	Model *1	Model and configuration details	
С	Power rating	Power rating details	
D Custom ID		A custom ID [NYC	
	(Optional)	Only for Industrial Monitors and Industrial Panel PCs with a custom logo *1.	
Е	Standards and QR code	The applicable standards and a QR code for OMRON internal use	
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)	
G	MAC ADDRESS *2	 PORT 1: the MAC address of Ethernet port 1 PORT 2: the MAC address of Ethernet port 2 PORT 3: the MAC address of Ethernet port 3 	

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

^{*2.} Refer to 4-2-4 Ethernet Connector Specifications on page 4 - 17 for Ethernet specifications.



Additional Information

Refer to 2-1-1 Front and Top of the Industrial Panel PC on page 2 - 2 for the ID label location.

1-4 Product Configuration

This section provides an overview of the product configurations available for the Industrial Panel PC. The product configuration is visible in the model-type that is mentioned on the ID information label of the Panel PC.

Each item in the model-type has a specific meaning.



Item	Description	Option / Description
1	Series name	NYP: NY- series Industrial Panel PC
2	Processor	17: Intel [®] Core [™] i7-4700EQ 4th generation CPU with Fan Unit for active cooling 25: Intel [®] Core [™] i5-4300U 4th generation CPU with fanless cooling 1C: Intel [®] Celeron [®] 2980U 4th generation CPU with fanless cooling
3	Main memory	1: 2 GB, non-ECC *1 2: 4 GB, non-ECC 3: 8 GB, non-ECC
4	Expansion slots	1: 1 PCle slot
5	Operating system	1: Windows Embedded Standard 7 - 32 bit 2: Windows Embedded Standard 7 - 64 bit 3: Windows 10 IoT Enterprise LTSB - 64 bit
6	Storage	8: 32 GB, SSD SLC *1 9: 64 GB, SSD SLC C: 320 GB, HDD K: 128 GB, SSD iMLC
7	Optional interface	1: RS-232C 2: DVI-D 6: NY Monitor Link
8	Display size (diagonal)	12: 12.1 inch model, 1280 x 800 pixels, 24 bit full color 15: 15.4 inch model, 1280 x 800 pixels, 24 bit full color
9	Display ratio	W: Wide
10	Touchscreen	C: Projected Capacitive Touch type
11	Frame type	1: Aluminum frame, black
12	Design	0: Standard
13	Built-in options	0: None
14	Logo	0: OMRON 2: Customization

^{*1.} Not available for Windows 10 IoT Enterprise LTSB.

1-5 Industrial PC Platform Overview

The Industrial PC Platform is an integrated range of products designed for use in a variety of industrial applications that will benefit from advanced PC technology. The range is scalable, robust and reliable, and is suitable for use with both standard operating system software and proprietary programs for machine control and automation.

In line with OMRON's established quality standards, each element in the Industrial PC Platform, ranging from the standalone Industrial Box PC to the touchscreen Industrial Monitor, is engineered with long-life components and built to the most advanced design standards.

The following sections introduce Industrial PC Platform products.

1-5-1 Industrial Monitor

The Industrial Monitor is of key importance at the interface between operator and system. The Industrial Monitor is efficient, effective and highly visible with an attractive design.

Using smart algorithms, the touch controller determines the exact location of each touch for precise control as well as detecting abnormal or illegal actions to protect misuse or false touches.



1-5-2 Industrial Box PC

The Industrial Box PC is designed to meet the specific needs of the industrial environment. Design simplification and future-proof architecture minimize the risk of failure. In addition, new PC features can be seamlessly incorporated, without the need for wholesale redesign.



1-5-3 Industrial Panel PC

The Industrial Panel PC intelligently combines the functionality of the Industrial Box PC and Industrial Monitor. No cables are used between the two components, which ensures optimal signal distribution and reliable operation in industrial environments.



Hardware

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

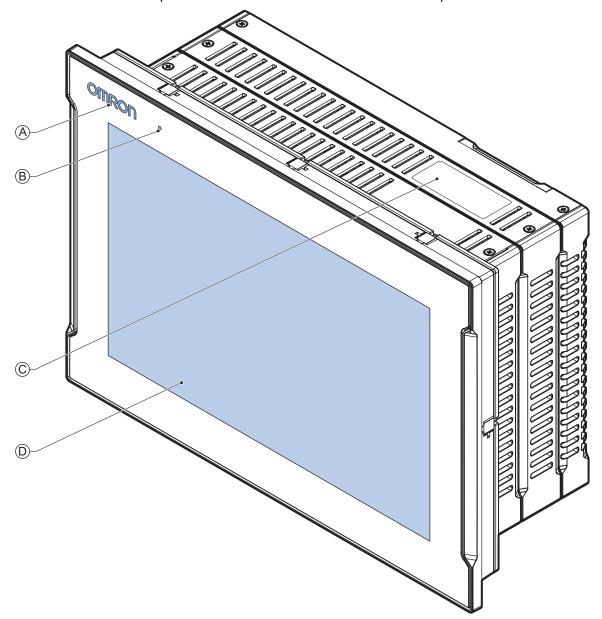
2-1	Compo 2-1-1 2-1-2	Pront Names and Functions Front and Top of the Industrial Panel PC Back and Bottom of the Industrial Panel PC	2 - 2
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2-1 Component Names and Functions

This section shows views of the Industrial Panel PC with information about all items.

2-1-1 Front and Top of the Industrial Panel PC

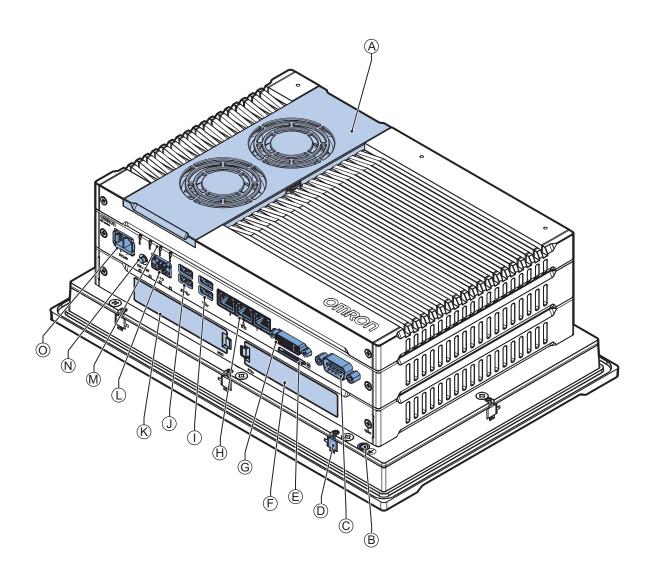
This section shows the component names and functions for the front and top of the Panel PC.



Item	Name	Description
Α	Logo LED	Backlit logo with adjustable brightness
В	Status LED indicator	LED to indicate power and connection status with adjustable brightness
С	ID information label	Label containing Model ID., LOT No. and other product specific information. Refer to 1-3 ID Information Label on page 1 - 4 for label details.
D	Touchscreen LCD	Multi-touch LCD display

2-1-2 Back and Bottom of the Industrial Panel PC

This section shows the component names and functions for the back and bottom of the Panel PC.



Item	Name	Description
Α	Cover	Provides access to:
		The battery
		The fans (only for Panel PCs that have active cooling)
		The battery replacement date
		The license key for the operating system (optional)
В	Ground terminal	Provides a ground terminal for the Panel PC
С	Option port	Interface connection options for peripheral devices or an additional
		monitor:
		RS-232C connector
		or
		DVI-D connector
		or
		NYML connector

Item	Name	Description
D	Mounting brackets	8 retractable mounting brackets to secure the Panel PC on a mounting surface
E	SD Memory Card slot	SD Memory Card slot
F	PCle bay	PCI Express mounting slot
G	DVI connector	Digital Visual Interface connector
Н	10BASE-T / 100BASE-TX / 1000BASE-T Ethernet con- nectors	3 RJ45 Gb Ethernet interface connectors
I	USB 2.0 connectors	2 USB 2.0 interface connectors
J	USB 3.0 connectors	2 USB 3.0 interface connectors
K	Drive bays *1	Two 2.5 inch drive bays for HDD/SSD storage devices:
		 Drive bay A = Bay for an optional drive *2 for the operating system and main storage Drive bay A is the bay at the side of the connectors
		 Drive bay B = Bay for an optional drive *2 for additional storage Drive bay B is the bay at the side of the display
L	I/O connector	2 inputs (Power ON/OFF Input and UPS Mode Input) and 1 output (Power Status Output)
M	LED indicators	Visual indicators for the operating state of the Industrial Panel PC
N	Power button	Pushbutton to manually power ON/OFF the Panel PC
0	Power connector	Lockable power connector

^{*1.} Depending on the model one or two drives are supported.

Refer to 4-1-4 CPU Specifications on page 4 - 6 for the number of supported drives.

Refer to 1-4 Product Configuration on page 1 - 5 for:

- installed drive (storage) details
- · operating system details

^{*2.} Installed storage and the operating system are depending on the configuration.

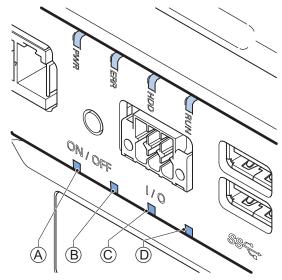
2-2 LED Indicators

The Industrial Panel PC has two rows of four LED indicators on the bottom of the Panel PC and two LED indicators on the front of the Panel PC. These LED indicators provide the current operating status of the Industrial Panel PC.

2-2-1 Bottom LED Indicators

The Industrial Panel PC has two rows of four LED indicators on the bottom that show the operating status of the Industrial Panel PC. Both rows have the same function.

The following LED indicators are available:



Item	LED Indicator	Name	Description
Α	PWR	Power	Indicates the operating mode of the Industrial Panel PC.
В	ERR	Error	Indicates the presence and type of an error.
С	HDD	Hard Disk Drive	Indicates HDD/SSD activity.
D	RUN	Run	Indicates the status of a user-defined function.

PWR LED Indicator

The Power LED (PWR) indicates the operating mode of the Panel PC.

Color	Status		Meaning
Green		Not lit	There is no power supplied or the Panel PC is OFF.
		Blinking	Power is currently supplied and the Panel PC is in stand-by mode.
		Lit	Power is currently supplied and the Panel PC is turned ON.

ERR LED Indicator

The Error LED (ERR) indicates the presence and type of an error within the Industrial Panel PC.

Color	Status		Meaning
Red		Not lit	The 24 VDC power is not supplied
			No error is present
		Blinking	Fan Error
			Battery low
		Lit	Thermal shutdown
			Watchdog Error
			Power Supply undervoltage error
			Power Supply overvoltage error
			Power supply defective



Additional Information

- The status of this LED can also be defined by users using the Industrial PC System API. Refer to 3-3-2 Industrial PC System API on page 3 25 for Industrial PC System API details.
- Refer to 7-2 Corrective Maintenance on page 7 13 for actions to solve errors.

HDD LED Indicator

The Hard Disk Drive LED (HDD) indicates activity of the HDD or SSD.

Color	Status		Meaning
Yellow		Flickering	The HDD or SSD is active.

RUN LED Indicator

The RUN LED is available for user applications.

Color	Status		Meaning
Green		Not lit	User-defined. The status can be defined in a user program using the
		Blinking	Industrial PC System API.
		Lit	



Additional Information

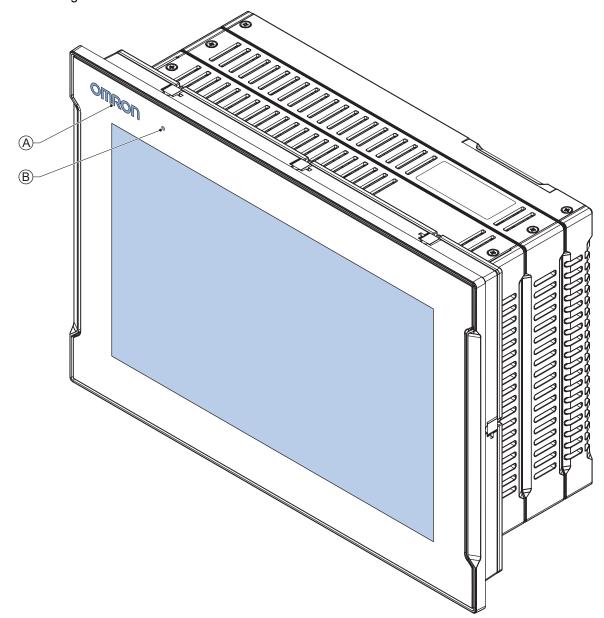
Refer to 3-3-2 Industrial PC System API on page 3 - 25 for Industrial PC System API details.

2-2-2 Front LED and LED Indicator

The front of the Industrial Panel PC has a logo LED and a Status LED indicator.

The Status LED indicator provides the same information as the Power and Error LEDs on the bottom of the Industrial Panel PC.

The following LEDs are available on the front of the Industrial Panel PC.



Item	LED	Description
Α	Logo LED	LED to backlight the logo
В	Status Indicator LED	Indicates the operating condition of the Industrial Panel PC

Logo LED

The Logo LED brightness can be changed with the Industrial Monitor Utility.



Additional Information

The Logo LED brightness is adjustable.

Refer to Industrial Monitor Utility for brightness details.

The Industrial Monitor Utility information is available:

- For products *NYM*□ in the section *Software* in this manual.
- For products *NYP*□ in the section *Support Software* in this manual.
- For products NY5□ in the NY-series IPC Machine Controller Industrial Panel PC / Industrial Box PC Setup User's Manual (Cat. No. W568)

Status LED Indicator

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

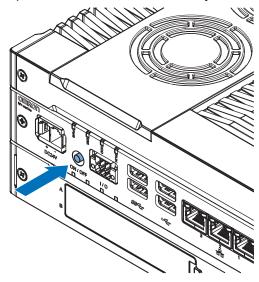
Color	Sta	tus	Meaning
None		Not lit	One of the following situations:
			The 24 VDC power is not supplied.
			Normal operation
			Turned OFF by the Industrial Monitor Utility.
Green		Blinking	Power is currently supplied and the Industrial Panel PC is in stand-by
			mode.
Red		Blinking	One of the following situations:
			Fan Error
			Battery low
Red		Lit	At maximum brightness in following situations:
			Power supply undervoltage error
			Power supply overvoltage error
			Power supply defective
			Monitor internal hardware error
			At controllable brightness in following situations:
			Thermal shutdown
			Watchdog Error



- · Refer to Industrial Monitor Utility information for brightness adjustment details.
- For Panel PCs without Machine Controller Software the status of this LED can also be defined by the Industrial Monitor API.
- The Industrial Monitor Utility information and the Monitor API information are available:
 - For products *NYP*□ in the section *Support Software*.
 - For products NY5□ in the NY-series IPC Machine Controller Industrial Panel PC / Industrial Box PC Setup User's Manual (Cat. No. W568)
 - NY-series Software Development Kit User's Manual

2-3 **Power Button**

The power button is used to manually switch the Panel PC ON and OFF.

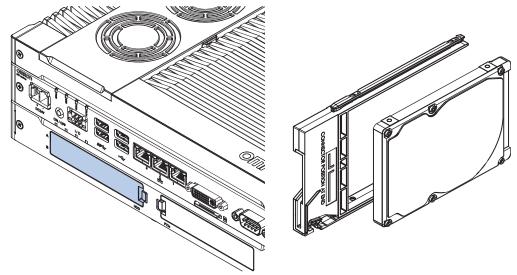




- Refer to 6-2 Power ON on page 6 3 for ON details.
 Refer to 6-3 Power OFF on page 6 5 for OFF details.

2-4 Drive Bays

The drive bays in the Industrial Panel PC accept 2.5 inch Hard Disk Drives (HDD) or Solid State Drives (SSD). Depending on the model one or two drives are supported.



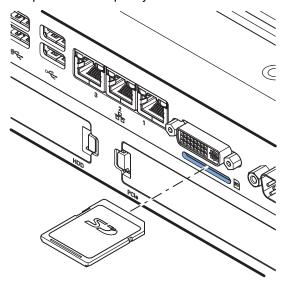


- Refer to 4-1-4 CPU Specifications on page 4 6 for the number of supported drives.
- Refer to 4-1-6 Storage Device Specifications on page 4 8 for storage device specifications
- Refer to 5-2-1 Install a Drive on page 5 5 for install information.
- Refer to 7-2-5 Replace a Drive on page 7 20 for maintenance information.

2-5 SD Memory Card Slot

The SD Memory Card slot on the Industrial Panel PC accepts SD Memory Cards with the following specifications.

- SDHC type (SD 2.0 specification)
- · Up to 32 GB capacity





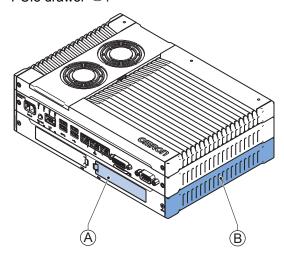
Additional Information

Refer to 2-9-1 SD Memory Cards on page 2 - 20 for SD Memory Card details.

2-6 PCIe Card Slot

The PCI Express (PCIe) Card slot of the Industrial Panel PC accepts various PCIe Cards for specific hardware needs.

The PCIe Card connectors are available behind the cover $\widehat{\mathbb{A}}$ and the PCIe Card is mounted in the PCIe drawer $\widehat{\mathbb{B}}$.





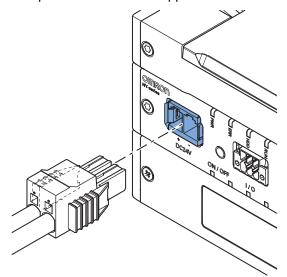
- Refer to 4-1-7 PCIe Card Specifications on page 4 9 for specifications.
- Refer to 5-2-2 Install the PCIe Card on page 5 9 for install information.
- Refer to 7-2-6 Replace the PCIe Card on page 7 25 for maintenance information.

2-7 Connectors

This section gives an overview of the available connectors for the Industrial Panel PC.

2-7-1 Power Connector

The power connector on the Panel PC is used to supply 24 VDC power to the Panel PC. The power connector is supplied with the Panel PC.





Additional Information

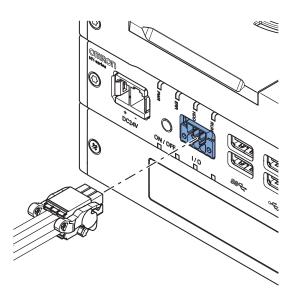
- Refer to 4-2-1 Power Connector Specifications on page 4 11 for specifications.
- Refer to 5-4-3 Wire the Power Connector on page 5 34 for wiring details.
- Refer to 5-5 Connect on page 5 40 for connection details.

2-7-2 I/O Connector

The I/O connector on the Industrial Panel PC provides discrete signals with the following functions.

- · Input signal to the Panel PC when a connected UPS switches to battery power.
- Input signal to the Panel PC to perform a shutdown or power ON when the signal turns ON.
- Output signal from the Panel PC to indicate the power status of the Panel PC.

The I/O connector is supplied with the Panel PC.





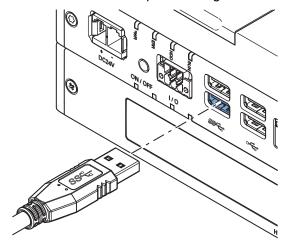
Additional Information

- Refer to 4-2-2 I/O Connector Specifications on page 4 12 for specifications.
- Refer to 5-4-4 Wire the I/O Connector on page 5 37 for wiring details.
- Refer to 5-5 Connect on page 5 40 for connection details.

2-7-3 USB Connectors

The USB connectors support USB 2.0 and USB 3.0 specifications.

All USB interfaces are protected against overcurrent and all ports support Wake-on-USB.

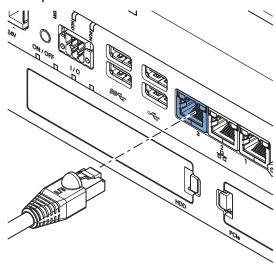




- Refer to 4-2-3 USB Connector Specifications on page 4 16 for specifications.
- Refer to 5-5 Connect on page 5 40 for connection details.

2-7-4 Ethernet Connectors

The Ethernet connectors provide 3 individual Ethernet ports on the Industrial Panel PC. Each port offers 10BASE-T/100BASE-TX/1000BASE-T Ethernet speeds.



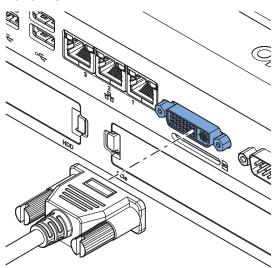


Additional Information

- Refer to 4-2-4 Ethernet Connector Specifications on page 4 17 for specifications.
- Refer to 5-5 Connect on page 5 40 for connection details.

2-7-5 DVI Connector

The DVI interfaces supported on this connector are dependent on the configuration of the Industrial Panel PC.

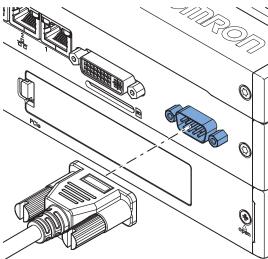




- Refer to 1-4 Product Configuration on page 1 5 for configuration details.
- Refer to 4-2-5 DVI Connector Specifications on page 4 18 for specifications.
- Refer to 5-5 Connect on page 5 40 for connection details.

2-7-6 RS-232C Connector (Optional)

Depending on the product configuration an optional RS-232C connector is available.



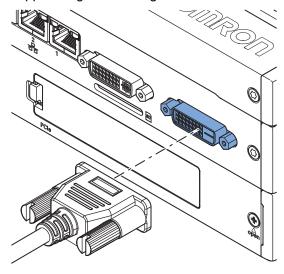


Additional Information

- Refer to 1-4 Product Configuration on page 1 5 for configuration details.
- Refer to 4-2-7 RS-232C Connector Specifications on page 4 21 for specifications.
- Refer to 5-5 Connect on page 5 40 for connection details.

2-7-7 DVI-D Connector (Optional)

Depending on the product configuration an optional DVI-D connector is available. This interface only supports digital video signals.



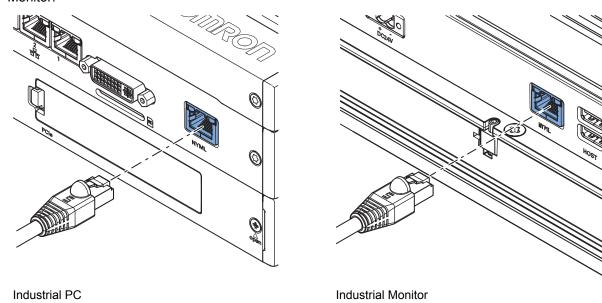


- Refer to 1-4 Product Configuration on page 1 5 for configuration details.
- Refer to 4-2-6 DVI-D Connector Specifications on page 4 20 for specifications.
- Refer to 5-5 Connect on page 5 40 for connection details.

2-7-8 NY Monitor Link Connector (Optional)

Depending on the product configuration this NY Monitor Link connector is available.

The NY Monitor Link interface connector connects an OMRON Industrial PC to the OMRON Industrial Monitor.





- Refer to 1-4 Product Configuration on page 1 5 for configuration details.
- Refer to 4-2-8 NY Monitor Link Connector Specifications on page 4 21 for specifications.
- Refer to 5-5 Connect on page 5 40 for connection details.

2-8 Spare Parts

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

2-8-1 Battery

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

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



Additional Information

Refer to 7-2-4 Replace the Battery on page 7 - 18 for the replacement procedure.

2-8-2 Fan Unit

The Fan Unit is available for the Panel PC that has active cooling.

Model	Appearance	Specifications
NY000-AF00		 Service life: 70,000 hours of continuous operation at 40°C with 15% to 65% relative humidity Shelf life: 6 months This is the storage limitation with no power supplied. We highly recommend performance testing if the Fan Unit has been stored over 6 months.



Additional Information

Refer to 7-2-3 Replace the Fan Unit on page 7 - 16 for the replacement procedure.

2-8-3 Accessory Kit

The accessory kit for the Panel PC.

Model	Appearance	Specifications
NY000-AK00		Accessory Kit containing all accessories supplied with the Panel PC. Power connector I/O connector Drive bracket for drive installation amounting screws for drive installation PCle Card support for PCle Card installation PCle Card clip for PCle Card installation

2-9 Optional Hardware

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

2-9-1 SD Memory Cards

SD Memory Card details are provided below.

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

Model	Appearance	Card type	Capacity	Format
HMC-SD291	omnon A	SD Card	2 GB	FAT16
HMC-SD491	2GB	SDHC Card	4 GB	FAT32

2-9-2 USB Flash Drives

USB Flash Drive details are provided below.

OMRON is not responsible for the operation, performance, or write life of any other brand of USB Flash Drives.

Model	Appearance	Capacity
FZ-MEM2G		2 GB
FZ-MEM8G	C. Alaba	8 GB

2-9-3 Storage Devices

Storage device details are provided below.

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

Model	Appearance	Storage type	Capacity
NY000-AH00		HDD	320 GB
NY000-AS00		SSD SLC	32 GB
NY000-AS01			64 GB
NY000-AS02		SSD iMLC	128 GB



Additional Information

Refer to 4-1-6 Storage Device Specifications on page 4 - 8 for storage device specifications.

Storage Device Considerations

For a storage device that is not an OMRON NY000-A□□□ consider the following:

- OMRON is not responsible for the operation, performance or write life of any storage device other than those supplied by OMRON.
- Test and measure the environmental performance of the intended storage device before actual operation, using the SMART monitoring feature of the selected storage device.
- Ensure the temperature and vibrations of the storage device are within the operating temperature specifications and vibration specifications during actual operation.
- Using a storage device with maximum power consumption exceeding 2W is not advised. Ensure that the SMART monitor features of the storage device are used to detect overheating.



- Refer to 4-1-6 Storage Device Specifications on page 4 8 for storage device specifications.
- Refer to 4-5-1 Operation Environment Specifications on page 4 25 for environment specifications, specifically temperature and vibration specifications.

2-9-4 DVI Cables

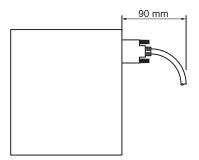
DVI cable details are provided below.

OMRON is not responsible for the operation or performance of any other brand of DVI cable.

Model	Appearance	Cable length	Specifications
NY000-		2 m	Supports DVI-D
AC00 2M			Minimum bend radius: 36 mm
NY000-		5 m	
AC00 5M			

DVI Cable Clearance

The DVI cable requires a minimum clearance of 90 mm from the connector entry to prevent excessive strain on the connector and cable assembly.



2-9-5 USB Type-A to USB Type-B Cables

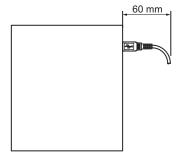
USB Type-A to USB Type-B cable details are provided below.

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.



2-9-6 NY Monitor Link Cables

The following table lists the recommended cables and connectors for the NY Monitor Link cable.

Application		Intra cabinet or light industrial environment	Inter cabinet	Inter cabinet and harsh industrial environment
Maximum length		25 m	100 m	100 m
Manufacturer		Lapp	Lapp	Lapp
Cable type		2170196	2170614	2170466
Category type		Cat 6A	Cat 7	Cat 6A
Cable sheath		Halogen free	Halogen free	Halogen free
Conductor pairs/size/	type	4 x 2 x AWG23/1	4 x 2 x AWG23/1	4 x 2 x AWG22/1
Overall shielding		Aluminum foil	Copper braid	Copper braid
Pair shielding	Pair shielding		Aluminum foil	Aluminum foil
Maximum outer diameter		7.6 mm	7.7 mm	9.0 mm
Maximum bending rafixed position	Maximum bending radius of cable in a fixed position		31 mm	90 mm
Maximum temperatur fixed position	e for a cable in a	60°C	60°C	80°C
RJ45 connectors	Manufacturer	Stewart Connector	Stewart Connector	Lapp
	Partnumber	SS39200-027 or SS39200-030	SS39200-027 or SS39200-030	21700600 (T568A) or 21700601 (T568B)
	Connector length	30 mm	30 mm	50 mm



Additional Information

When making cables, connect the shield to the connectors at both ends.

NY Monitor Link Cable Clearance

The NY Monitor Link cable requires a minimum clearance from the connector entry to prevent excessive strain on the connector and cable assembly.

The minimum clearance consists of the sum of:

- · Connector length
- · Maximum bending radius of cable in a fixed position

2-9-7 Industrial Monitor

Details for the recommended monitor are provided below.

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

Model	Appearance	Specifications
NYM15W-C100□ NYM15W-C106□ NYM12W-C100□ NYM12W-C106□		 LCD touchscreen Multi-touch functionality Supply voltage: 24 VDC Up to 1,280 x 800 pixels at 60 Hz 2 USB Type-A Connectors Programmable brightness control



Additional Information

Refer to the OMRON website for specifications and manuals.

2-9-8 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		Output voltage: 24 VDC



- Refer to 4-1-3 Power Consumption Specifications on page 4 3 for power consumption details
- Refer to the OMRON website for specifications and manuals of the S8VK-G.
 Note that the power consumption details of the Panel PC determine the minimum power rating of your power supply.

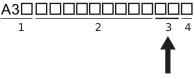
2-9-9 UPS

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 04 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.



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 2-9-8 Power Supply on page 2 24 for power supply details.
- Refer to 4-1-3 Power Consumption Specifications on page 4 3 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.

2-9-10 UPS Communication Cable

Communication cable details are provided below.

OMRON is not responsible for the operation or performance of any other brand of communication cable.

Model	Appearance	Cable length	Specifications
S8BW-C02		2 m	Signals for • Signal output (BL, TR, BU, WB)
			Remote ON/OFF input
			UPS Stop Signal input (BS)

Software

This section provides software information for the Industrial Panel PC.

3-1	Windo	ws Operating System	3 - 2
	3-1-1	Determine Your Version of the Windows Operating Systems	3 - 2
	3-1-2	Determine Your Ethernet Ports	
3-2	Suppo	rt Software	3 - 4
	3-2-1	Overview IPC Support Software for Windows	
	3-2-2	Installed IPC Support Software	3 - 4
	3-2-3	Industrial PC Support Utility	3 - 5
	3-2-4	Industrial Monitor Utility	
	3-2-5	Industrial Monitor Brightness Utility	3 - 12
	3-2-6	Rescue Disk Creator	
	3-2-7	Industrial PC Tray Utility	
	3-2-8	Power Attendant Lite Utility	3 - 21
3-3	Softwa	re for Developers	3 - 24
	3-3-1	Overview IPC Developer Software for Windows	3 - 24
	3-3-2	Industrial PC System API	3 - 25
	3-3-3	Industrial Monitor API	

3-1 Windows Operating System

This section provides an overview of Windows Operating System information.

3-1-1 Determine Your Version of the Windows Operating Systems

This section provides methods to find version details of your Windows Operating System.

Windows 7

To determine your version of the Windows Operating System:

- **1** Select the **Start** Button.
- **2** Enter *System Information* in the search box.
- 3 Select System Information in the pop-up that appears.
 An overview of your System Information will appear, including the Windows Operating System details.

Windows 10

To determine your version of the Windows Operating System:

- **1** Select the **Search** Button.
- **2** Enter System Information in the search box.
- 3 Select System Information in the pop-up that appears.
 An overview of your System Information will appear, including the Windows Operating System details.

3-1-2 Determine Your Ethernet Ports

This section provides information to determine the relation between the physical Ethernet ports on your Industrial Panel PC and the ports in Windows.

Available Ethernet Ports

The Ethernet ports available are:

- Port 1 Local Area Connection I218 (Intel[®] Ethernet Connection I218-LM)
- Port 2 Local Area Connection 3 I210 #2 (Intel[®] I210 Gigabit Ethernet Network Connection #2)
- Port 3 Local Area Connection 2 I210 (Intel® I210 Gigabit Ethernet Network Connection)

The following procedure provides information to determine the Ethernet ports on your Industrial Panel PC.

Determine Ethernet Ports using Network Connections

To determine the Ethernet ports using computer management:

- **1** Select the **Start** Button.
- **2** Enter *Network* in the search box.
- 3 Select Network and Sharing Center in the pop-up that appears.
 An overview of your basic network information and set up connections will appear, including a series of options in the left bar.
- **4** Select **Change adapter settings** in the left bar. An overview of your adapters will appear.
- **5** Determine the specific connector with the information in *Available Ethernet Ports* on page 3 3. The adapter name and the connector ID are known.

3-2 Support Software

This section provides an overview of the support software available for your Industrial Panel PC.

3-2-1 Overview IPC Support Software for Windows

This section gives an overview of the software utilities available for all Industrial PC Platform products with a Windows operating system.

Product	Software utility
Industrial Monitor	Industrial Monitor Utility
	Industrial Monitor Brightness Utility
	Industrial PC Tray Utility
Industrial Box PC	Industrial PC Support Utility
	Industrial PC Tray Utility
Industrial Panel PC	Industrial Monitor Utility
	Industrial Monitor Brightness Utility
	Industrial PC Support Utility
	Industrial PC Tray Utility

Select and download the utilities required from the OMRON download website.



Additional Information

- An internet connection is required to install support software.
- Refer to NY-series Industrial Panel PC User's Manual (Cat. No. W555) for support software details.

3-2-2 Installed IPC Support Software

This section gives an overview of the installed IPC support software available for your Industrial Panel PC.

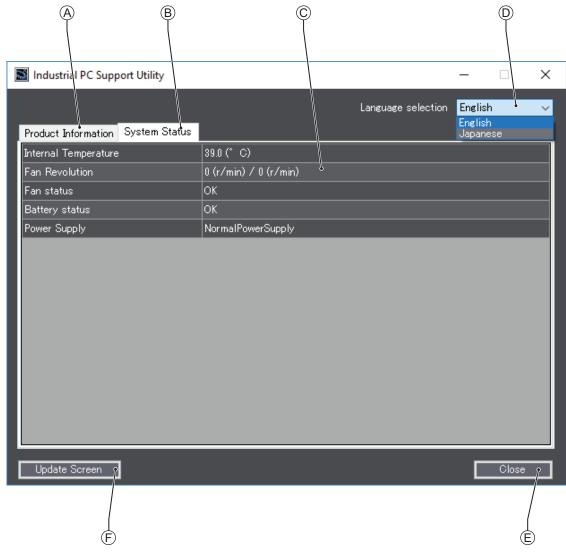
Product	Specifications
Industrial PC Support Utility	Refer to 3-2-3 Industrial PC Support Utility on page
	3 - 5 for details.
Industrial PC Tray Utility	Refer to 3-2-7 Industrial PC Tray Utility on page
	3 - 18 for details.
Industrial PC System API	For the Industrial PC Support Utility.
Industrial Monitor API	For the display and for an optional OMRON Industrial
	Monitor.
congatec CGOS API	For the Industrial PC System API.
Microsoft .NET Framework 4.6	For the Industrial PC Tray Utility.
Industrial Monitor Brightness Utility	For the display and for an optional OMRON Industrial
	Monitor.
Industrial Monitor Utility	For the display and for an optional OMRON Industrial
	Monitor.

3-2-3 Industrial PC Support Utility

This section provides an overview of the Industrial PC Support Utility.

Industrial PC Support Utility Overview

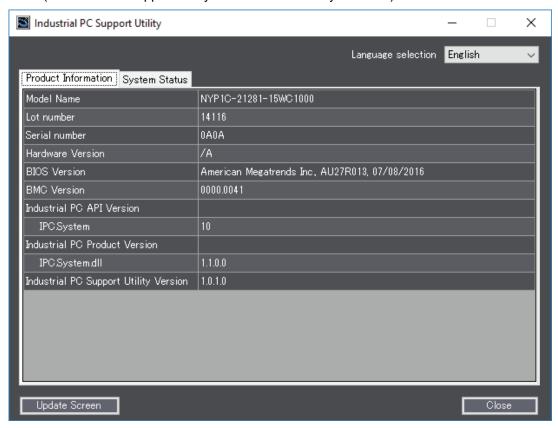
The Industrial PC Support Utility is a software utility to assist in diagnosing and resolving problems of the Industrial Panel PC.



Item	Description	Details
A	Production Data Tab	Select to display Production Data details in the Tab details area ©. Refer to <i>Production Data Tab</i> on page 3 - 6 for details.
В	System Status Tab	Select to display System Status details in the Tab details area ©. Refer to System Status Tab on page 3 - 7 for details.
С	Tab details	Details of the selected Tab page.
D	Language Selector	Select to display and choose the UI language of the Industrial PC Support Utility.
E	Close Button	Close the Industrial PC Support Utility.
F	Update Screen Button	Use this button to retrieve updated values from the Industrial Panel PC.

Production Data Tab

The Production Data tab displays generic Industrial Panel PC information. These are e.g. Model name, Lot number, Serial number, Hardware version, BIOS version, BMC version, and software versions (Industrial PC Support Utility and Industrial PC System API).



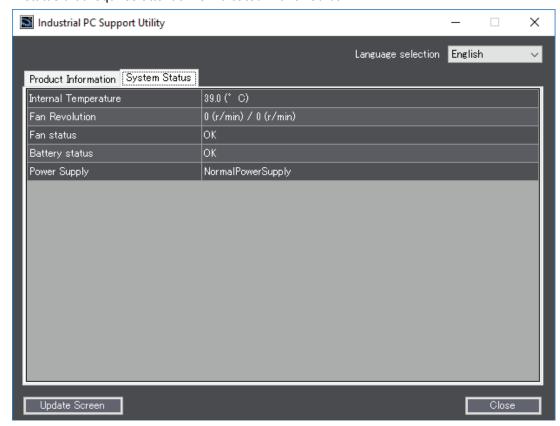
- Model Name is the configuration code of this model.
 Refer to 1-4 Product Configuration on page 1 5 for details.
- BMC Version is the firmware version of the Board Management Controller.

Values are not updated automatically. Select the Update Screen Button to display the latest values.

System Status Tab

The System Status tab displays actual states and diagnostic information like internal temperature, fan revolution, battery and power supply status.

A status that requires attention is indicated with a red bar.



Item	Description
Internal Temperature*1	The average CPU temperature.
Fan Revolution *2	The actual rotation speed for each fan in revolutions per minute (r/min).
	First number = rotation speed of fan located closest to Power button.
	Second number = rotation speed of fan located closest to battery.
Fan Status *3	The target speed for the fans is dynamically set based on the CPU temperature. The
	target speed is compared with the actual fan speed.
	OK indicates both fans are running on the target speed.
	Low revolution speed indicates one or both fans do not reach the target speed.
	Clean the fans and replace the Fan Unit if the problem persists.
	Refer to 7-2-3 Replace the Fan Unit on page 7 - 16 for replacement details.
Battery Status	The battery status.
	OK indicates the battery is full.
	Low indicates the battery voltage is low. Replace the battery.
	Refer to 7-2-4 Replace the Battery on page 7 - 18 for replacement details.
Power Supply	The power supply status is determined by the UPS and reported to the Panel PC via
	the I/O connector.
	NormalPowerSupply indicates the Panel PC is powered by the 24V power supply.
	UPS Power Supply indicates that there is no power from the 24V power supply
	and the Panel PC runs on battery power from the UPS.

^{*1.} Not for products NY512-A□ Refer to *1-4 Product Configuration* on page 1 - 5 for configuration details.

^{*2.} The Fan Revolution will always show 0 (r/min) / 0 (r/min) for fanless models

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

*3. The Fan Status will always show OK for fanless models

Values are not updated automatically. Select the **Update Screen** Button to display the latest values.

Installation

The Industrial PC Support Utility is pre-installed on the Industrial Box PC and Industrial Panel PC. Download the Industrial PC Support Utility from the OMRON download website if reinstallation is required.

Startup

The Industrial PC Support Utility can be started from:

- Windows Start Menu
 Select OMRON and then Industrial PC Support Utility.
- · Industrial PC Tray Utility
- · Windows desktop shortcut



Logging

There is logging in the Windows event log of the following utilities:

- Industrial Monitor Utility
 In the Windows Event Viewer filter for event source IndMonService.
- Industrial Monitor Brightness Utility
 In the Windows Event Viewer filter for event source IndMonService.
- Industrial PC Support Utility
 In the Windows Event Viewer filter for event source IPCServiceHost or OMRON Industrial PC Support Utility.



Additional Information

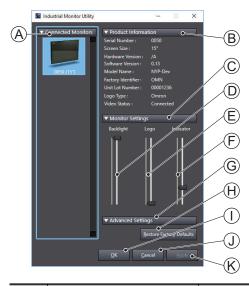
Refer to 7-2-9 Windows Event Viewer on page 7 - 38 for the logged messages.

3-2-4 Industrial Monitor Utility

This section provides an overview of the Industrial Monitor Utility.

Industrial Monitor Utility Overview

The Industrial Monitor Utility provides a user interface to control settings and display details of connected Industrial Monitors.



Item	Description	Details
A	Connected Monitors	Shows a list of the connected Industrial Monitors.*1 Select one Industrial Monitor in the list to display the Monitor Details. When selected the LED Indicators of the selected monitor will flash during 3 seconds.
В	Product Information	Provides the following details of the selected Industrial Monitor. Serial Number Screen Size Hardware Version Software Version Model Name Factory Identifier Unit Lot Number Logo Type Video Status
С	Monitor Settings	Provides several setting adjustments to control the operation of the selected Industrial Monitor.
D	Backlight Brightness Adjustment *2	Use the slider to control the brightness of the selected Industrial Monitor.
E	Logo Brightness Adjust- ment	Use the slider to control the brightness of the Logo LED. Refer to <i>Logo LED</i> on page 2 - 8 for details about the Logo LED.
F	Status Brightness Adjust- ment	Use the slider to control the brightness of the Status LED Indicator on the monitor. Refer to <i>Status LED Indicator</i> on page 2 - 8 for details about the operation of the Status LED Indicator.
G	Advanced Settings	Provides advanced setting adjustments to control the operation of the selected Industrial Monitor.
Н	Restore Factory Defaults	Restores the factory default settings of the selected Industrial Monitor.

Item	Description	Details
I	OK button	Applies the changes and closes the window
J	Cancel button	Exits the utility
K	Apply button	Applies the changes

^{*1.} The Industrial Monitor Utility scans the connected USB devices and shows a list of connected monitors. If an Industrial Monitor is not connected with the USB cable, it will not be found.

*2. With a very low backlight brightness setting (15%-0%) the displayed information might not be visible in an environment with high ambient light conditions. This prevents brightness adjustments with the Industrial Monitor Utility.



Additional Information

To adjust the backlight brightness when the brightness setting is set too low:

- · Bring the Panel PC in a low ambient light environment
- · Lighten the display with a bright flashlight

Installation

The Industrial Monitor Utility is pre-installed on the Industrial Box PC and the Industrial Panel PC. Download the Industrial Monitor Utility from the OMRON download website for re-installation or for installation on another Industrial PC.

The Industrial Monitor Utility is installed onto Windows, and can be accessed via the Windows start menu and the Industrial PC Tray Utility. Installing the Industrial Monitor Utility will also install the Industrial PC Tray Utility.



Additional Information

Refer to 3-2-7 Industrial PC Tray Utility on page 3 - 18 for Industrial PC Tray Utility details.

Compatibility

This monitor utility can be used on any PC that is connected to an OMRON Industrial Monitor.

This monitor utility can be used with:

- · Windows Embedded Standard 7
- · Windows 10



Additional Information

This monitor utility does not support 3rd party monitors.

Startup

The Industrial Monitor Utility can be started from:

- Windows Start Menu.
 Select Omron and then Industrial Monitor Utility.
- Industrial PC Tray Utility

Configuration

The Industrial Monitor Utility can be configured with following options:

Configuration item	Description	
Language	Follows the Windows language configuration when that language is supported for the	
	Industrial Monitor Utility. The default language English (EN-US) will be used if the lan-	
	guage configured in Windows is not supported.	
Monitor identification	If enabled, the Status LED indicator on the selected Industrial Monitor will flash for 3	
	seconds.	
	To enable:	
	(1) Open the Windows registry key HKEY_LOCAL_MACHINE\SOFTWARE	
	\Wow6432Node\Omron\IPC\MonitorConfiguration	
	(2) Set the registry value Indicate to value True.	

Messages

The Industrial Monitor Utility can use the Industrial PC Tray Utility to display following messages:

Message type	Message	Description
Info	Connected	A new monitor connected
		USB cable connected
		Monitor powered ON
Warning	Not Connected	Monitor disconnected
		USB cable disconnected
		Monitor powered OFF
Warning	Video Discon-	DVI cable disconnected or NY Monitor Link cable disconnected
	nected	
Warning	No Signal	DVI cable connected but no signal detected

Logging

There is logging in the Windows event log of the following utilities:

- · Industrial Monitor Utility
 - In the Windows Event Viewer filter for event source IndMonService.
- · Industrial Monitor Brightness Utility
 - In the Windows Event Viewer filter for event source IndMonService.
- Industrial PC Support Utility
 - In the Windows Event Viewer filter for event source *IPCServiceHost* or *OMRON Industrial PC Support Utility*.



Additional Information

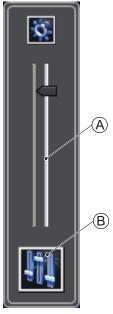
Refer to 7-2-9 Windows Event Viewer on page 7 - 38 for the logged messages.

3-2-5 Industrial Monitor Brightness Utility

This section provides an overview of the Industrial Monitor Brightness Utility.

Industrial Monitor Brightness Utility

The Industrial Monitor Brightness Utility is a software utility that allows you to control the brightness of the screen backlight of all connected Industrial Monitors.



Item	Description	Details
Α	Backlight brightness slider	Use the slider to control the display brightness of all connected Industrial
		Monitors.
В	Industrial Monitor Utility	Button to start the Industrial Monitor Utility.

With a very low backlight brightness setting (15%-0%) the displayed information might not be visible in an environment with high ambient light conditions. This prevents brightness adjustments with the Industrial Monitor Brightness Utility.



Additional Information

To adjust the backlight brightness when the brightness setting is set too low:

- · Bring the Panel PC in a low ambient light environment
- · Lighten the display with a bright flashlight

Compatibility

This monitor utility can be used on any PC that is connected to an OMRON Industrial Monitor.

This monitor utility can be used with:

- · Windows Embedded Standard 7
- Windows 10



Additional Information

This monitor utility does not support 3rd party monitors.

Installation

The Industrial Monitor Brightness Utility is pre-installed on the Industrial Box PC and the Industrial Panel PC.

Installation of the Industrial Monitor Brightness Utility is part of the installation of the Industrial Monitor Utility.

Download the Industrial Monitor Utility from the OMRON download website for re-installation or for installation on another PC with Windows 7.

The Industrial Monitor Brightness Utility is installed onto Windows, and can be accessed via the Windows start menu and the Industrial PC Tray Utility. Installing the Industrial Monitor Utility will also install the Industrial PC Tray Utility.



Additional Information

Refer to 3-2-7 Industrial PC Tray Utility on page 3 - 18 for Industrial PC Tray Utility details.

Startup

Start the Industrial Monitor Brightness Utility from the Industrial PC Tray Utility or from the Windows Start Menu (select **Omron** and then **Industrial Monitor Brightness Utility**).



Additional Information

Refer to 3-2-7 Industrial PC Tray Utility on page 3 - 18 for Industrial PC Tray Utility details.

Configuration

Configuration is not required. This Industrial Monitor Brightness Utility will detect and support all connected NY-series Industrial Monitors.

Logging

There is logging in the Windows event log of the following utilities:

- · Industrial Monitor Utility
 - In the Windows Event Viewer filter for event source IndMonService.
- · Industrial Monitor Brightness Utility
 - In the Windows Event Viewer filter for event source IndMonService.
- · Industrial PC Support Utility
 - In the Windows Event Viewer filter for event source *IPCServiceHost* or *OMRON Industrial PC Support Utility*.



Additional Information

Refer to 7-2-9 Windows Event Viewer on page 7 - 38 for the logged messages.

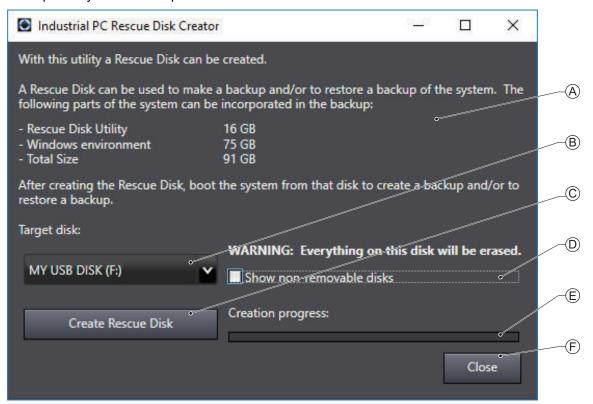
3-2-6 Rescue Disk Creator

This section provides an overview of the Rescue Disk Creator.

Rescue Disk Creator Overview

The Rescue Disk Creator creates a Rescue Disk.

A Rescue Disk is a disk with the Rescue Disk Utility; this is the software that performs the system backup and system restore procedures.



Item	Description	Details
Α	Explanation area	Information about the utility and the backup.
		In the right bottom corner messages are displayed when applicable.
В	Target disk selection	Selection of the disk that will become the Rescue Disk.
С	Create Rescue Disk Button	Start the Rescue Disk creation.
D	Show non-removable disks	Check the box to display not only the removable storage devices
		but also the non-removable (internal) storage devices and USB
		Flash Drives and other USB storage devices.
Е	Creation progress bar	Display the progress of the Rescue Disk creation.
F	Close Button	Close the Rescue Disk Creator.



Additional Information

- Refer to *Create a System Backup with the Rescue Disk* on page 7 7 for system backup details.
- Refer to Restore a System Backup with the Rescue Disk on page 7 31 for system restore details.

Compatibility

This software utility can be used on PCs with Windows 7 and Windows 10.

Installation

The Rescue Disk Creator is preinstalled.

Use the following procedure to reinstall the Rescue Disk Creator:

- 1 Use Windows Explorer to examine the local disk C.
- Open the Rescue Disk folder (This PC\Local Disk(C:)\Program Files (x86)\OMRON\Industrial PC\Rescue Disk) and activate the installer file **setup.exe**.

 A progress bar will visualize the extraction process and then a language selection window opens.
- **3** Select your language and then select **OK**. The installer window opens.
- **4** Follow the installer steps to complete the Rescue Disk Creator installation.

The Rescue Disk Creator is installed and available in the OMRON folder in the Windows Start Menu.



Startup

To manually start the Rescue Disk Utility:

- 1 Locate the Rescue Disk Utility using the Windows **Start** menu or the Windows search box.
- 2 Use the option Run as administrator to activate the Rescue Disk Utility.



Additional Information

The procedure to use Run as administrator is:

- For Windows 10 using the Start menu:
 Rightclick the Rescue Disk Utility, select More and then Run as administrator.
- For Windows 10 using Search:
 Rightclick the Rescue Disk Utility in the search results and select Run as administrator.
- For Windows 7 using the Start menu or Search:
 Rightclick the Rescue Disk Utility and select Run as administrator.

The Rescue Disk Utility started.

Messages

The Rescue Disk Creator can display the following messages:

Message type	Message	Description
Error	Creation progress: Failed to format the disk. Reason: Access denied Call canceled Call cancellation request too late Cluster size is beyond 32 bits Cluster size is too large Cluster size is too small Incompatible media in drive Invalid volume label Input/Output (I/O) error No media in drive Unable to quick format Unknown error Unsupported file system Volume lock failed Volume is not mounted Volume is too large Volume is too small Volume write protected	The mentioned reason prevented formatting of the connected storage device. Ensure the connected storage device: Is not write protected or read-only Has a cluster size too small or more than the maximum 32 bits Has a valid volume label Has sufficient storage capacity to store the rescue disk utility and a full system backup
Error	Creation progress: Failed to copy image to rescue disk. Reason: Unable to revoke access to the disk Unable to revoke access to the drive Disk write failed Unable to dismount the drive Invalid drive Unable to obtain exclusive access to the drive The disk could not be accessed The drive could not be accessed Unable to revoke exclusive access to the drive	The mentioned reason prevented copying the image to the connected storage device. Ensure the connected storage device: Is not used by other programs Is not write protected or read-only

To solve an error:

- (1) Check that the correct target disk was selected.
- (2) Check that the target disk has sufficient storage capacity to store the rescue disk utility and a full system backup
- (3) If the storage device is removable, check that it is inserted properly and is of the correct type.
- (4) Check whether the storage device is write protected. SD Memory Cards often have a small mechanical write protection switch on them.
- (5) Check that the user has the necessary access rights for the target disk.
- (6) Check that the Rescue Disk Creator is running "As Administrator".
- (7) Check that no other applications are using the target disk.
- (8) Retry the operation with the same target disk.
- (9) Retry the operation with a different target disk.
- (10) Restart the IPC and then retry the operation.
- (11) If the issue persists, contact your OMRON representative.

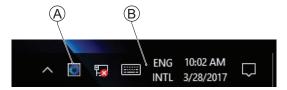
3-2-7 Industrial PC Tray Utility

This section provides an overview of the Industrial PC Tray Utility.

Industrial PC Tray Utility Overview

The Industrial PC Tray Utility is a software utility that provides information about the current state of the Industrial PC, its related devices, and associated software.

When running, the Industrial PC Tray Utility is always present as a status icon A in the system tray area B of Windows.



Windows 10

Features

The Industrial PC Tray Utility provides the following features:

- Display the overall state of all installed OMRON utilities in the icon in the system tray area.
- Display a menu that can start all installed utilities and show the state of each installed utility.
- Display notification messages in popup windows that inform the user about the state of applications
 or hardware. The Industrial PC Tray Utility displays the messages provided by installed OMRON
 utilities. Refer to the OMRON utilities information for the messages that can be displayed.





Menu

Select the Industrial PC Tray Utility icon ${}^{\textstyle \frown}$ to display the menu.

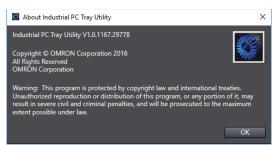


- · The application displays the available utilities.
 - Select an entry to launch the associated utility, if applicable.

- The icons of menu items in the Industrial PC Tray Utility menu will have a warning or error symbol when applicable.
- The Industrial PC Support Utility (A) is available in the menu when installed.
- The Industrial Monitor Utility [®] is available in the menu when installed.
- The Industrial Monitor Brightness Utility © is available in the menu when installed.
- The application area can be configured to show and launch both OMRON and third party utilities.
- The **Exit** entry © closes the utility.

About the Industrial PC Tray Utility

The About window shows the version of the Industrial PC Tray Utility and copyright information.



Status Indicators on Icons

The following table provides the indicator details of the Industrial PC Tray Utility.

Overlay type	Icon	Description
None		No OMRON utility has issued warning or error notifications.
Warning sign		At least one OMRON utility has issued a warning notification.
Error sign	X	At least one OMRON utility has issued an error notification.

Compatibility

This software utility can be used on PCs with Windows 7 and Windows 10.

Installation

The Industrial PC Tray Utility is pre-installed on an Industrial Box PC and an Industrial Panel PC. The Industrial PC Tray Utility is included in the installers of the Industrial PC Support Utility and Industrial Monitor Utility. Install the Industrial PC Support Utility or Industrial Monitor Utility to install the Industrial PC Tray Utility.

Startup

By default the Industrial PC Tray Utility is configured to start automatically at Windows startup.

To manually start the Industrial PC Tray Utility:

- 1 Locate the Industrial PC Tray Utility using the Windows **Start** menu or the Windows search box.
- **2** Use the option **Run as administrator** to activate the Industrial PC Tray Utility.



Additional Information

The procedure to use **Run as administrator** is:

- For Windows 10 using the Start menu:
 Rightclick the Industrial PC Tray Utility, select More and then Run as administrator.
- For Windows 10 using Search:
 Rightclick the Industrial PC Tray Utility in the search results and select Run as administrator.
- For Windows 7 using the Start menu or Search:
 Rightclick the Industrial PC Tray Utility and select Run as administrator.

The Industrial PC Tray Utility started.

3-2-8 Power Attendant Lite Utility

This section provides an overview of the Power Attendant Lite Utility (PAL).

Power Attendant Lite Utility Overview

The Power Attendant Lite Utility is a software utility that constantly monitors the status of the UPS that is connected to the Panel PC.

When the Power Attendant Lite Utility discovers a power interruption it will send a signal to the Panel PC to shut down.

The manual UPS Power Attendant Lite for Windows User's Manual is available.

Features

The Power Attendant Lite Utility provides the following features:

- Signal the Panel PC to shut down when a power interruption is detected.
- · Configure the shutdown conditions when a power interruption is detected.
- Display the state of the connected UPS using the icon in the system tray area.

lcon	Description
•	Normal operation
×	Power Attendant Lite service stopped
A A	UPS is supplying power from the internal battery
d Þ	Communication error

Compatibility

The Power Attendant Lite Utility can be used on a Panel PC with one of the following operating systems:

- · Windows 10
- · Windows 7

Installation

The Power Attendant Lite Utility is not pre-installed on a Panel PC.

The Power Attendant Lite Utility installer is included in the installers directory (D:/OMRON-NY/Installers). Download the installer from the OMRON download website if required.

To install the Power Attendant Lite Utility:

- **1** Ensure the revision number of the UPS is correct. Refer to 2-9-9 UPS on page 2 25 for details.
- **2** Ensure the UPS is connected to the Panel PC with a USB cable. Refer to 5-8-1 Connect UPS Using the USB Connector on page 5 51 for details.
- **3** Open the Power Attendant Lite Utility installer folder and activate the installer file **setup.exe**.
- **4** Follow the installer steps to complete the installation.

The Power Attendant Lite Utility is installed.

Configuration

Configure the Power Attendant Lite Utility before using the Panel PC with a UPS connected using USB.

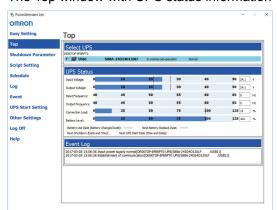
To configure the Power Attendant Lite Utility:

1 Activate the icon of the Power Attendant Lite Utility to start the software.

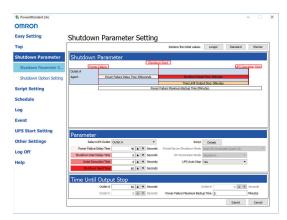


A UPS selection window will be displayed.

- Select the connected UPS.A Login window will be displayed.
- 3 Login with ID Admin and password omron.
 The Top window with UPS status information will be displayed.



4 Configure the parameters for your specific situation.



Refer to UPS Power Attendant Lite for Windows User's Manual for details.

- 5 Select Detailed Setting / Other Settings / Communication Setting / UPS Communication Port to display the parameter COM search to UPS detection.
- **6** Set the parameter to **Do not search for COM ports** to prevent interference for the COM ports.
- 7 Select Submit to save the setting.
- **8** Select the close button in the right top corner to exit the Power Attendant Lite Utility software.
- 9 Select the restart behavior of the Panel PC with the Bios Boot Menu parameter Power Loss Control.

Set this parameter to **Turn On** to restart automatically after a power down from the Power Attendant Lite Utility.

Refer to the Bios Boot Menu information for details.

- 10 Test the UPS shutdown behavior.
 - (1) Start the Panel PC
 - (2) Start applications
 - (3) Create a power interruption
 - (4) Monitor the shutdown sequence and confirm a correct shutdown When the shutdown sequence is not correct change parameters in the Power Attendant Lite Utility software and test the UPS shutdown behavior again.

The Power Attendant Lite Utility is configured.

The Panel PC will shut down properly in case of a power supply interruption and restart automatically when the power is restored.

3-3 Software for Developers

This section provides information on the software that is available for developers.

3-3-1 Overview IPC Developer Software for Windows

This section gives an overview of the software available for developers for all Industrial PC Platform products with a Windows operating system.

Product	Developer software
Industrial Monitor	Industrial Monitor SDK
	Industrial Monitor API
Industrial Box PC	Industrial PC System SDK
	Industrial PC System API
Industrial Panel PC	Industrial Monitor SDK
	Industrial Monitor API
	Industrial PC System SDK
	Industrial PC System API

Select and download the software required from the OMRON download website.

3-3-2 Industrial PC System API

This section describes some of the Industrial PC System API functions.

The Industrial PC System API allows programmers to create programs that can retrieve information or set an indicator status of the product.

The API makes use of the included OMRON IPC System Service to manage the hardware.

Features

The Industrial PC System API can:

- · Retrieve product information from the Industrial PC
- · Retrieve system flags
- Retrieve maintenance information
- Configure and program the Watchdog^{*1}
- Set the status of the Run LED Indicator and the ERR LED Indicator*1
- *1 Only for
- Industrial Box PCs with a Windows operating system.

These are:

- NYB ----1
- NYB□□-□□2□□
- NYB□□-□□3□□
- · Industrial Panel PCs with a Windows operating system.

These are:

- NYPOO-00300-0000000

Installation

The Industrial PC System API is part of the SDK download.

The Industrial PC System API is pre-installed on the Industrial Panel PC and the Industrial Box PC. Install the Industrial PC System SDK to use the Industrial PC System API on development PCs. Use the Merge Module to include the Industrial PC System API in the installer for custom applications. To use the Industrial PC System API the API needs to be referenced in your development project.

3-3-3 Industrial Monitor API

This section describes some of the Industrial Monitor API functions.

The Industrial Monitor API allows programmers to create applications that can control the hardware features and retrieve information from connected Industrial Monitors.

The main function of the Industrial Monitor API is to enable the brightness of the backlight and the LEDs of the monitor to be increased or decreased according to the working environment.

The API makes use of the included OMRON Industrial Monitor Service to manage the hardware.

Features

For all connected Industrial Monitors, the Industrial Monitor API can:

- · Retrieve product information from the Industrial Monitor or Industrial Panel PC display
- · Retrieve product status information
- · Set the brightness of the Status LED indicator
- · Set the brightness of the backlight
- · Set the brightness of the Logo LED
- · Set the touch points of the monitor
- · Store settings
- · Restore to factory defaults

The API makes use of the included Industrial Monitor Service to manage all Industrial Monitors connected via USB.

Installation

The Industrial Monitor API is part of the SDK download.

The Industrial Monitor API is pre-installed on the Industrial Panel PC and Industrial Box PC.

Install the Industrial Monitor SDK to use the Industrial Monitor API on development PCs.

Use the Merge Module to include the Industrial Monitor API in the installer for custom applications.

To use the Industrial Monitor API the API needs to be referenced in your development project.

Specifications

This section provides specifications of the Industrial Panel PC.

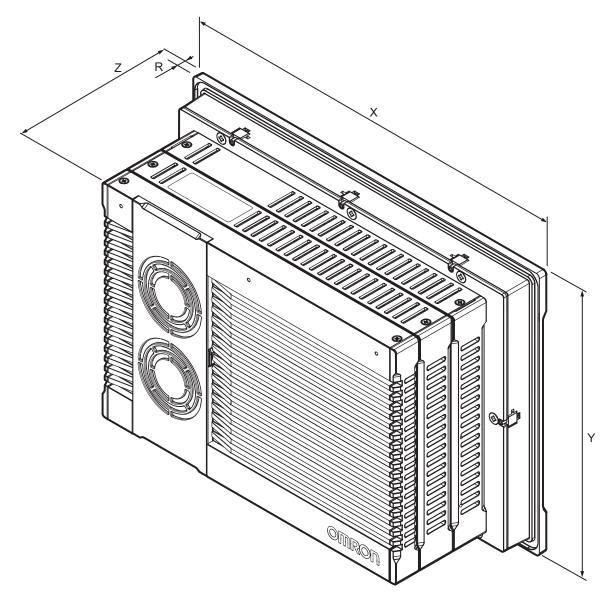
4-1	Genera	al Specifications	4 - 2
	4-1-1	Dimensions and Weight	4 - 2
	4-1-2	General Electrical Specifications	4 - 3
	4-1-3	Power Consumption Specifications	4 - 3
	4-1-4	CPU Specifications	4 - 6
	4-1-5	Memory Specifications	4 - 7
	4-1-6	Storage Device Specifications	4 - 8
	4-1-7	PCIe Card Specifications	4 - 9
4-2	Conne	ctor Specifications	4 - 11
	4-2-1	Power Connector Specifications	
	4-2-2	I/O Connector Specifications	
	4-2-3	USB Connector Specifications	4 - 16
	4-2-4	Ethernet Connector Specifications	4 - 17
	4-2-5	DVI Connector Specifications	4 - 18
	4-2-6	DVI-D Connector Specifications	4 - 20
	4-2-7	RS-232C Connector Specifications	4 - 21
	4-2-8	NY Monitor Link Connector Specifications	
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	4-3-2	Supported Languages	
4-4	Display	y Specifications	4 - 24
4-5	Enviro	nmental Specifications	4 - 25
	4-5-1	Operation Environment Specifications	
	4-5-2	Temperature and Humidity Specifications	
	4-5-3	Recycling Specifications	
		J - U - - 	

4-1 General Specifications

This section provides general specifications of the Industrial Panel PC.

4-1-1 Dimensions and Weight

The following table provides specification details on dimensions and weights.



14	Model Specifications	
ltem	12.1 Inch *1	15.4 Inch *1
Dimensions	Width X = 332 mm	Width X = 401 mm
	Height Y = 234 mm	Height Y = 277 mm
	Depth Z = 121 mm	Depth Z = 121 mm
Monitor thickness in front of panel	Rim thickness R = 8.0 mm	
Weight	6.1 kg	7.2 kg

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

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	At 24 VDC: 12 A / 6 ms max. for cold start at room temperature
Overvoltage category	JIS B3502 and IEC 61131-2: Category II
EMC immunity level	IEC 61132-2: 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
Fan life	8 years of continuous operation at 40°C
Battery life	5 years at 25°C (for battery CJ1W-BAT01)

4-1-3 Power Consumption Specifications

The following tables provide details on the power consumption of the Industrial Panel PC. The total power consumption is the sum of the power consumption of all items that are installed in your Panel PC.



Additional Information

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

Power Consumption with an Intel[®] Core[™] i7-4700EQ CPU

Power consumption specifications for an Industrial Panel PC with an Intel[®] Core[™] i7-4700EQ CPU.

Item		Power consumption	
		12.1 Inch models *1	15.4 Inch models *1
Industrial Panel PC with an Intel [®] Core [™] i7-4700EQ excluding Drives and Expansions.		99 W	99 W
Drives *1	HDD 320 GB	2 W	
	SSD SLC 32 GB		
	SSD SLC 64 GB		
	SSD iMLC 128 GB		
Expansions *2	USB	14 W max. ((2 x 500 mA at	5 VDC) + (2 x 900 mA at 5
		VDC))	
	PCle	15 W max.	

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

^{*2.} Refer to the documentation of your expansions for their power consumption details.

The total power consumption is the sum of the power consumption of all items that are installed in your Industrial Panel PC.

The required supply specifications for a Panel PC with an Intel[®] Core[™] i7-4700EQ CPU.

Item	Minimum power requirements
Power supply	240 W
Refer to 2-9-8 <i>Power Supply</i> on page 2 - 24 for power supply products.	
UPS	240 W
Refer to 2-9-9 UPS on page 2 - 25 for UPS products.	

Power Consumption with an Intel[®] Core[™] i5-4300U CPU

Power consumption specifications for an Industrial Panel PC with an Intel[®] Core[™] i5-4300U CPU.

ltem		Power consumption	
		12.1 Inch models *1	15.4 Inch models *1
Industrial Panel PC with an Intel [®] Core [™] i5-4300U excluding Drives and Expansions.		70 W	70 W
Drives *1	HDD 320 GB	2 W	
	SSD SLC 32 GB		
	SSD SLC 64 GB		
	SSD iMLC 128 GB		
Expansions *2	USB	14 W max. ((2 x 500 mA at	5 VDC) + (2 x 900 mA at 5
		VDC))	
	PCle	5 W max.	

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

The total power consumption is the sum of the power consumption of all items that are installed in your Industrial Panel PC.

The required supply specifications for a Panel PC with an Intel[®] Core [™] i5-4300U CPU.

Item	Minimum power requirements
Power supply	120 W
Refer to 2-9-8 Power Supply on page 2 - 24 for power	
supply products.	
UPS	120 W
Refer to 2-9-9 UPS on page 2 - 25 for UPS products.	

Power Consumption with an Intel® Celeron® 2980U CPU

Power consumption specifications for an Industrial Panel PC with an Intel® Celeron® 2980U CPU.

16	Power consumption	
ltem	12.1 Inch models *1	15.4 Inch models *1
Industrial Panel PC with an Intel [®] Celeron [®] 2980U excluding Drives and Expansions.	63 W	63 W

^{*2.} Refer to the documentation of your expansions for their power consumption details.

Mana		Power consumption	
	Item	12.1 Inch models *1	15.4 Inch models *1
Drives *1	HDD 320 GB	2 W	
	SSD SLC 32 GB		
	SSD SLC 64 GB		
	SSD iMLC 128 GB		
Expansions *2	USB	14 W max. ((2 x 500 mA at VDC))	5 VDC) + (2 x 900 mA at 5
	PCle	5 W max.	

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

The total power consumption is the sum of the power consumption of all items that are installed in your Industrial Panel PC.

The required supply specifications for a Panel PC with an Intel® Celeron® 2980U CPU.

Item	Minimum power requirements
Power supply	120 W
Refer to 2-9-8 Power Supply on page 2 - 24 for power	
supply products.	
UPS	120 W
Refer to 2-9-9 UPS on page 2 - 25 for UPS products.	

^{*2.} Refer to the documentation of your expansions for their power consumption details.

4-1-4 CPU Specifications

This section gives the specifications of the CPUs that are available for the Industrial Panel PC. Refer to *1-4 Product Configuration* on page 1 - 5 for product configuration details.

Intel[®] Core[™] i7-4700EQ CPU Specifications

CPU specifications for Industrial Panel PCs with an Intel[®] Core[™] i7-4700EQ CPU.

Item	Specifications
Cores / Threads	4/8
CPU base frequency	2.4 GHz
Maximum turbo frequency	3.4 GHz
Cache	6 MB
Cooling details	Requires active cooling (fan)
Drive bays (HDD/SSD)	2
Graphics controller	Intel ® HD Graphics 4600. Up to two independent
	screens.



Additional Information

Refer to A-1-3 BIOS - Advanced on page A - 5 for turbo frequency details.

Intel[®] Core[™] i5-4300U CPU Specifications

CPU specifications for Industrial Panel PCs with an Intel[®] Core[™] i5-4300U CPU.

Item	Specifications
Cores / Threads	2/4
CPU base frequency	1.9 GHz
Maximum turbo frequency	2.9 GHz
Cache	3 MB
Cooling details	Passive cooling (fanless)
Drive bays (HDD/SSD)	2
Graphics controller	Intel ® HD Graphics 4400. Up to two independent
	screens.



Additional Information

Refer to A-1-3 BIOS - Advanced on page A - 5 for turbo frequency details.

Intel® Celeron® 2980U CPU Specifications

CPU specifications for Industrial Panel PCs with an Intel® Celeron® 2980U CPU.

Item	Specifications
Cores / Threads	2/2
CPU base frequency	1.6 GHz
Maximum turbo frequency	
Cache	2 MB
Cooling details	Passive cooling (fanless)
Drive bays (HDD/SSD)	1. Drive bay A.
Graphics controller	Intel ® HD Graphics. Up to two independent screens.

4-1-5 Memory Specifications

The following table provides specification details of the memory.

ltem		Model Specifications		
		2 GB *1	4 GB *1	8 GB *1
Memory type		DDR3L		
Package memory format		SO-DIMM		
Serial Presence De-	Speed grade	1600 Mbps		
tect (SPD)	CAS Latency	CL11		

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



Additional Information

The small outline dual in-line memory modules (SO-DIMM) cannot be added or replaced by users.

4-1-6 Storage Device Specifications

This section provides the specifications of the storage devices.

Hard Disk Drive Specifications

Specifications for the Hard Disk Drive (HDD) are provided in the table below.

	Model Specifications	
Item	320 GB *1	
Model	NY000-AH00	
S.M.A.R.T. support	Yes	
Rotation speed	5,400 r/min	
Interface	Serial ATA 3.0	
Operating temperature	5 to 55°C *2	
Operating humidity	10% to 95% (with no condensation)29°C wet-bulb temperature max.	
Storage temperature	-40 to 65°C	
Storage humidity	8% to 90% (with no condensation) 40°C wet-bulb temperature max.	
Life	Approximately 5 years or 20,000 powered-ON hours (whichever comes first) under the following conditions: • 25°C at 101.3 kPa • Less than 333 powered-ON hours/month*3 • Less than 20% operation while powered-ON*4	
	Less than 1.30 x 10 ⁶ seeks/month	

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

Solid State Drive Specifications

Specifications for the Solid State Drive (SSD) are provided in the table below.

lk	Model Specifications			
Item	32 GB *1	64 GB *1	128 GB *1	
Model	NY000-AS00	NY000-AS01	NY000-AS02	
Туре	SLC	SLC	iMLC	
S.M.A.R.T. support	Yes			
Interface	Serial ATA 3.1			
Sustained read speed	Up to 160 MB/s Up to 430 M		Up to 430 MB/s	
Sustained write speed	Up to 150 MB/s Up to 190 MB/s			
Operating temperature	0 to 70°C *2			
Operating humidity	10% to 95% (with no condensation)			
Storage temperature	-40 to 100°C			
Storage humidity	10% to 95% (with no condensation)			

^{*2.} Refer to 4-5-1 Operation Environment Specifications on page 4 - 25 for the temperature specifications of the complete Panel PC

^{*3.} Powered-ON hours include sleep and standby modes.

^{*4.} Operation includes seeking, writing, and reading functions.

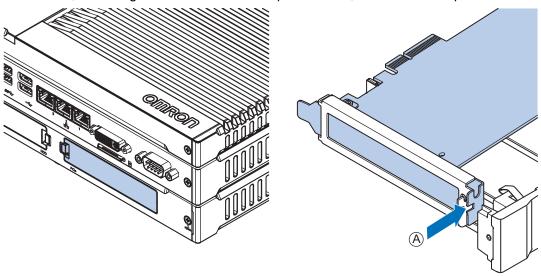
14	Model Specifications		
Item	32 GB *1	64 GB *1	128 GB *1
Life	1500 TB/11 years at a daily workload of 350 GB	3000 TB/23 years at a daily workload of 350 GB	114 TB/3 years at a daily workload of 100 GB

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

4-1-7 PCIe Card Specifications

The PCI Express (PCIe) Card slot of the Industrial Panel PC accepts various cards for specific hardware needs.

Ensure that, according to the PCIe hardware specifications, the indent (A) is present in the PCIe Card.



The following tables provide PCIe Card details per CPU type.

PCle Card Slot Specifications with an Intel[®] Core[™] i7-4700EQ CPU

The table below provides PCIe Card slot details for Industrial Panel PCs with an Intel[®] Core [™] i7-4700EQ CPU.

Item	Specifications	
Configuration	X4 (4 lanes) up to Gen 3	
Card height	Standard height cards, 4.20 inches (106.7 mm) ^{*1}	
Card length	Half-length cards, 6.6 inches (167.65 mm)	
Power consumption	Refer to <i>Power Consumption with an Intel</i> [®] <i>Core</i> [™] <i>i7-4700EQ CPU</i> on page 4 - 3 for the maximum power consumption	

^{*1.} Low profile cards, 2.536 inches (64.4 mm) are not supported.

PCIe Card Slot Specifications with an Intel[®] Core[™] i5-4300U CPU

The table below provides PCIe Card slot details for Industrial Panel PCs with an Intel[®] Core[™] i5-4300U CPU.

^{*2.} Refer to 4-5-1 Operation Environment Specifications on page 4 - 25 for the temperature specifications of the complete Panel PC

Item	Specifications	
Configuration	X1 (1 lane) up to Gen 2	
Card height	Standard height cards, 4.20 inches (106.7 mm) ^{*1}	
Card length	Half-length cards, 6.6 inches (167.65 mm)	
Power consumption	Refer to <i>Power Consumption with an Intel</i> [®] <i>Core</i> [™] <i>i5-4300U CPU</i> on page 4 - 4 for the maximum power consumption	

^{*1.} Low profile cards, 2.536 inches (64.4 mm) are not supported.

PCIe Card Slot Specifications with an Intel[®] Celeron[®] 2980U CPU

The table below provides PCIe Card slot details for Industrial Panel PCs with an Intel[®] Celeron[®] 2980U CPU.

Item	Specifications	
Configuration	X1 (1 lane) up to Gen 2	
Card height	Standard height cards, 4.20 inches (106.7 mm) ^{*1}	
Card length	Half-length cards, 6.6 inches (167.65 mm)	
Power consumption	Refer to <i>Power Consumption with an Intel</i> ® <i>Celeron</i> ® 2980U CPU on page 4 - 4 for the maximum power consumption	

^{*1.} Low profile cards, 2.536 inches (64.4 mm) are not supported.

4-2 Connector Specifications

This section provides the Connector Specifications of the Industrial Panel PC.

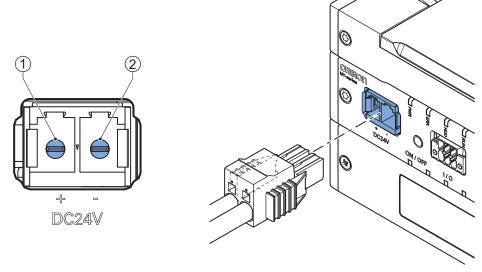
4-2-1 Power Connector Specifications

The power supply connector can be locked to prevent unintentional disconnection.

The connector can only be inserted the correct way.

The connector is a Phoenix Contact type SPC5/2-STCL-7.62 BK (1711708).

The Panel PC provides protection against reverse polarity.



The pin layout represents the power connector on the Panel PC.

Pin	Description
1	24 VDC
2	0 VDC

Item	Specifications
Conductor isolation rating	90°C
Termination rating	90°C

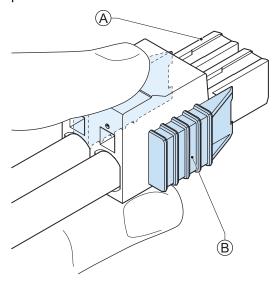


Additional Information

- Refer to 5-4-3 Wire the Power Connector on page 5 34 for wiring details.
- Refer to 5-4-2 Ground on page 5 27 for grounding details.

Locking and Removing the Power Connector

The power connector automatically locks into place when the black part of the connector is held and pushed in.



Pushing both orange sliders $^{\textcircled{B}}$ towards the end of the connector $^{\textcircled{A}}$ will release the lock when removing the connector.

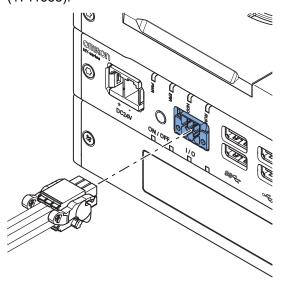
4-2-2 I/O Connector Specifications

Details of the I/O connector are provided below.

The I/O connector can be locked to prevent unintentional disconnection.

The connector can only be inserted in the correct way.

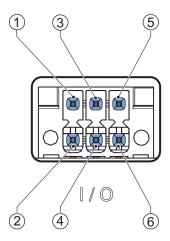
The Lock-and-Release Latch connector is a Phoenix Contact type DFMC 1,5/ 3-ST-3,5-LR BK (1711658).



Item	Specifications
Conductor isolation rating	90°C
Termination rating	90°C

I/O Connector Pin Details

The pin details of the I/O connector.



The pin layout represents the 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 I/O Connector:

Pin	Descrip- tion	Туре	Electrical Specifications	Details
1 2	Power Status Output	Contact output	SPST-NO contact configuration 24 VDC at 2A switching capacity (resistive load) Operation lifetime 150,000 cycles at 2A max. Connect to SELV	 Open: The Power Status Output is OFF when the Panel PC is OFF or has been disconnected from the power supply. Closed: The Power Status Output is ON when the Panel PC has shutdown successfully and is connected to the power supply and has not been disconnected from that power supply since power OFF. Refer to I/O Connector Power Status Output Details on page 4 - 14 for details.
3 4	Power ON/OFF In- put *2	Isolated transistor input (sinking or sourcing)	ON: 8.8 VDC min./5 mA min. OFF: 1.1 VDC max./0.5 mA max. Connect to SELV	If the signal changes from inactive to active, the Panel PC will perform one of the following operations. • When powered ON, the Panel PC will shut down and power OFF. • When powered OFF, the Panel PC will power ON.
5	UPS Mode Input			This input is provided to allow monitoring the state of an external UPS unit that provides a compatible power state output signal.

^{*1.} Refer to I/O Connector Power Status Output Details on page 4 - 14 for Power Status Output details.

^{*2.} Refer to 6-2 Power ON on page 6 - 3 and 6-3 Power OFF on page 6 - 5 for Power ON/OFF Input details.



Additional Information

Refer to 5-4-4 Wire the I/O Connector on page 5 - 37 for I/O connector wiring details.

I/O Connector Power Status Output Details

This section provides details of the Power Status Output relay.

The Power Status Output is a relay between pin 1 and 2 of the I/O Connector.

Power ON Power Status Output Operation

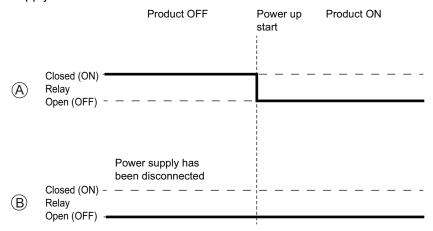
This section provides power ON details of the Power Status Output operation.

The Power Status Output turns ON to indicate that the system has been shut down and the power supply to the Panel PC can be turned OFF.

If power is not turned OFF, the Power Status output will turn OFF when the Panel PC is turned ON.

The Power Status Output is ON (A) when the Panel PC has been used and has not been disconnected from the power supply.

The Power Status Output is OFF ^(B) when the Panel PC has been disconnected from the power supply.





Additional Information

Refer to 5-4-4 Wire the I/O Connector on page 5 - 37 for I/O connector wiring details.

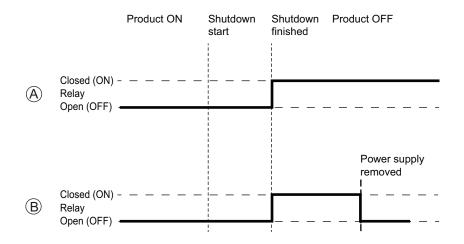
Power OFF Power Status Output Operation

This section provides power OFF details of the Power Status Output operation.

The Power Status Output turns ON to indicate that the system has been shut down and the power supply to the Panel PC can be turned OFF.

If power is not turned OFF, the Power Status output will stay ON (A). It will turn OFF when the Panel PC is turned ON.

If power is turned OFF, the Power Status Output will turn OFF [®].



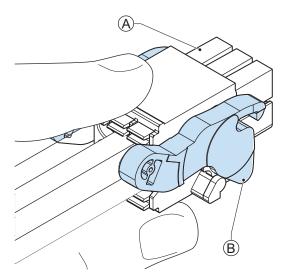


Additional Information

Refer to 5-4-4 Wire the I/O Connector on page 5 - 37 for I/O connector wiring details.

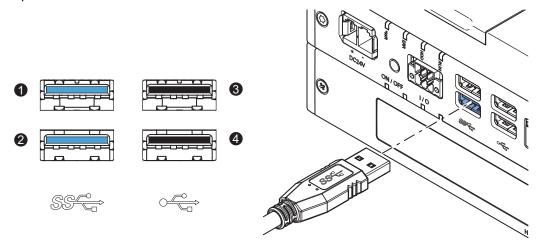
Lock and Remove the I/O Connector

The I/O connector locks into place when the black part of the connector is held and pushed in.



4-2-3 USB Connector Specifications

The Industrial Panel PC includes four USB connectors. Two connectors provide version 2.0 performance and two connectors provide version 3.0 performance. Details of the USB interface connectors are provided below.



The connector layout represents the USB connectors on the Panel PC.

Interface Connector	Details
1	• USB 3.0
2	900 mA maximum current
	3 m maximum cable length
	Blue color
3	• USB 2.0
4	500 mA maximum current
	5 m maximum cable length
	Black color



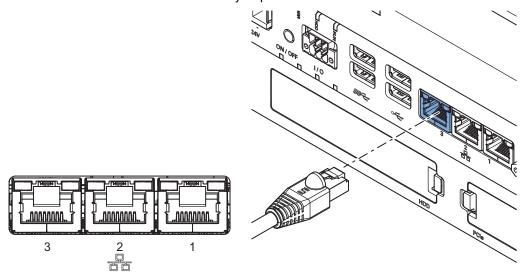
Additional Information

Refer to 5-4-2 Ground on page 5 - 27 for grounding details.

4-2-4 Ethernet Connector Specifications

Details of the RJ45 Ethernet connectors are provided below.

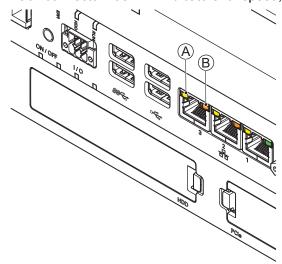
The Ethernet connector locks automatically to prevent unintentional disconnection.



The view represents the Ethernet connector on the Industrial Panel PC.

Ethernet Connector LED Indicators

Each connector has LED indicators for speed, link and activity.



Item	Indicator	Color	Status	Description
A	Link/Act	Yellow	Not lit	No link
			Lit	Link
			Flashing	Link and activity

Item	Indicator	Color	Status	Description
В	Speed	Not lit	Not lit	10 Mbps or no link
		Green	Lit	100 Mbps link
		Orange	Lit	1 Gbps link

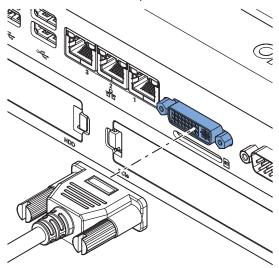
Ethernet Connector Specifications

ltem	Specifications
Number of available ports	3
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
Maximum number of cascade connections	There are no restrictions if an Ethernet switch is used

4-2-5 DVI Connector Specifications

DVI is the standard video interface for the Panel PC.

The video interface depends on the model of the Panel PC as specified below:





Additional Information

- Refer to 4-1-4 CPU Specifications on page 4 6 for graphics controller details.
- Refer to 5-4-2 Ground on page 5 27 for grounding details.
- Refer to A-3 DVI Connector Pin Details on page A 18 for pin details.

The following tables provide DVI details per CPU type.

DVI-I Connector Specifications with an Intel[®] Core[™] i7-4700EQ CPU

DVI-I connector specifications for Industrial Panel PCs with an Intel[®] Core[™] i7-4700EQ CPU.

Item	Specifications	
Video interface	Digital or Analog	
Resolution	Up to 1920 x 1200 pixels at 60 Hz	
Туре	Dual link	
Maximum DVI cable length	Dependent upon connected monitor type and resolution	

DVI-D Connector Specifications with an Intel[®] Core[™] i5-4300U CPU

DVI-D connector specifications for Industrial Panel PCs with an Intel[®] Core[™] i5-4300U CPU.

Item	Specifications
Video interface	Digital only
Resolution	Up to 1920 x 1200 pixels at 60 Hz
Туре	Dual link
Maximum DVI cable length	Dependent upon connected monitor type and resolution

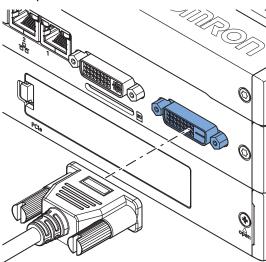
DVI-D Connector Specifications with an Intel® Celeron® 2980U CPU

DVI-D connector specifications for Industrial Panel PC with an Intel® Celeron® 2980U CPU.

Item	Specifications	
Video interface	Digital only	
Resolution	Up to 1920 x 1200 pixels at 60 Hz	
Туре	Dual link	
Maximum DVI cable length	Dependent upon connected monitor type and resolution	

4-2-6 DVI-D Connector Specifications

The optional video interface on the Panel PC uses a DVI dual link connector.



Item	Specification
Video interface	Digital only
Resolution	Up to 1920 x 1200 pixels at 60 Hz
Туре	Dual link
Maximum DVI cable length	Dependent upon connected monitor type and resolution



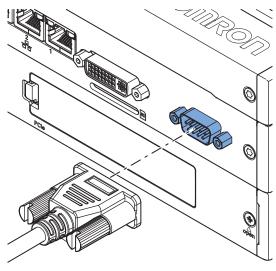
Additional Information

- Refer to 4-1-4 CPU Specifications on page 4 6 for graphics controller details.
- Refer to 5-4-2 Ground on page 5 27 for grounding details.
- Refer to A-3-2 DVI-D Connector Pin Details on page A 19 for pin details.

4-2-7 RS-232C Connector Specifications

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

The RS-232C interface is not isolated from the internal Panel PC's components.





Additional Information

- Refer to 5-4-2 Ground on page 5 27 for grounding details.
- Refer to A-4 RS-232C Connector Pin Details on page A 21 for pin details.

4-2-8 NY Monitor Link Connector Specifications

The NY Monitor Link connector connects an OMRON Industrial Monitor with an OMRON Industrial PC that has an NY monitor link connector.

The NY Monitor Link communication is a combination of video and USB information.

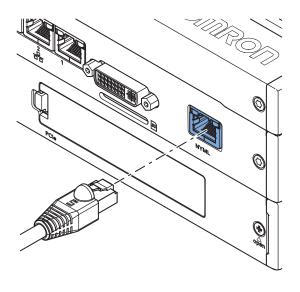
Item	Specifications
Connector type	RJ45
Transmission media	Twisted pair cable of category 6A or higher (double-shielded straight cable with copper braiding and aluminum foil)
Maximum cable length between Industrial PC and Industrial Monitor	100 m
Topology	Line (direct) connection only *1
Video resolution	1.280 x 800 pixels at 60 Hz
Data throughput rate	280 Mbps max.

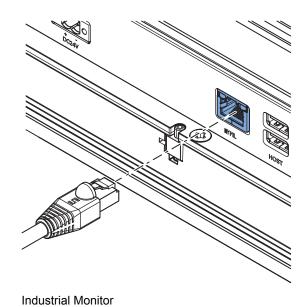
^{*1.} Use a direct connection between the OMRON Industrial PC and the OMRON Industrial Monitor.

Do not use:

- · Ethernet switches
- Ethernet hubs
- · Daisy chain connections

The NY Monitor Link connector locks automatically to prevent unintentional disconnection.

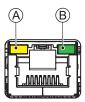




Industrial PC

NY Monitor Link Connector LED Indicators

The connector has LED indicators Connected A and Video B.



NYML

Item	Indica- tor	Color	Sta	atus	Description
Α	Con- nected	Yellow		Not lit	Not connected
				Lit	Connected USB communication active
В	Video	Green		Not lit	No video signal
				Blinking	Video signal present
				Lit	Encrypted video signal present Video output is not supported for encrypted video.

4-3 Software Specifications

This section provides the Software Specifications of the Industrial Panel PC.

4-3-1 Available Windows Operating Systems

The available Windows Operating Systems are:

- Windows Embedded Standard 7 SP1 32 bit
 An Internet Browser, Firewall and Anti-virus software are not pre-installed.
- Windows Embedded Standard 7 SP1 64 bit
 An Internet Browser, Firewall and Anti-virus software are not pre-installed.
- Windows 10 IoT Enterprise LTSB 64 bit
 The Long-term Service Branch of Windows is primarily for specialized devices. The LTSB of Windows does not contain many in-box applications, such as Microsoft Edge, Windows Store client, Cortana, Microsoft Mail, Calendar, OneNote, Weather, News, Sports, Money, Photos, Camera, Music, and Clock.



Additional Information

Refer to 5-7 Install Software on page 5 - 47 for software installation details.

4-3-2 Supported Languages

Languages default supported by the operating system are:

Language	Windows 7	Windows 10
EN	✓	✓
CN Simplified (zh-cn)	✓	✓
CN Traditional (zh-tw)	✓	✓
DE	✓	✓
ES	✓	✓
FR	✓	✓
IT	✓	✓
JA	✓	✓
КО		✓



Additional Information

Refer to the Microsoft support information for details on available language packs.

4-4 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.





Precautions for Correct Use

The touchscreen supports 5 simultaneous touches. When the number of touches is exceeded, not all touch points will be detected.

ltem		Model Specifications			
		12.1 Inch *1	15.4 Inch *1		
Display panel *2	Display device	TFT LCD			
	Screen size	12.1 inches	15.4 inches		
	Surface treatment	Anti glare treatment			
	Surface hardness	Mohs scale 5-6			
	Resolution	1,280 × 800 pixels at 60 Hz (horizon	tal × vertical)		
	Colors	16,770,000 colors			
	Effective display	261 × 163 mm (horizontal × verti-	331 × 207 mm (horizontal × verti-		
	area	cal)	cal)		
	View angles	Left: 60°, Right: 60°, Top: 60°, Bottom: 60°			
	Life	50,000,000 operations minimum			
	EMC	Correct touchscreen operation is possible within allowable EMC immuni-			
		ty conditions*3			
Touch	Technology	Projected capacitive			
	Touch resolution	Touch accuracy 1.5% (4-5mm)			
	Multitouch	Up to 5 simultaneous touches			
	Features	Water detection*4, hand palm rejection*5, gloves *6			
Backlight	Life	50,000 hours minimum. *7			
	Brightness adjust-	200 levels			
	ment *8				

- *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. Refer to 4-1-2 General Electrical Specifications on page 4 3 for EMC immunity level specifications.
- *4. If water is detected the touch functionality will not be available.
- *5. If a palm is detected that specific area is neglected.
- *6. The touchscreen can be operated when wearing gloves. Confirm you can operate the touchscreen with gloves before actual operation.
- 7. 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.
- *8. If the brightness is set to very dark, it causes flickering or the screen will be too dark to use.

4-5 Environmental Specifications

This section provides environmental specifications of the Industrial Panel PC.

4-5-1 Operation Environment Specifications

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

Item	Specifications	
Ambient operating temperature	0 to 55°C *1	
Ambient storage temperature	-20 to 70°C *1	
Ambient operating humidity	10% to 90% (with no condensation) *1	
Ambient storage humidity	10% to 90% (with no condensation) *1	
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 only SSD storage devices: 5 to 8.4Hz with 3.5 mm single amplitude and 8.4 to 150 Hz with 9.8 m/s² for 10 times each in X, Y and Z directions. Conforms to IEC 60068-2-6. For a Panel PC with one or more HDD storage devices the Panel PC must be installed in a vibration free environment. *2 	
Shock resistance (during operation)	Conforms to IEC 60068-2-27. 147 m/s², 3 times each in X, Y and Z directions	
Degree of protection	Front of Monitor: IP65 or the equivalent *3	
Pollution degree	JIS B3502 and IEC 61131-2: 2 or less	

^{*1.} Refer to 4-5-2 Temperature and Humidity Specifications on page 4 - 26 for ambient operating temperature and humidity details per CPU type.

- *2. A Panel PC with one or more HDD storage devices should not be used in applications subject to vibration. Examples of applications subject to vibration:
 - AGV (Automated Guided Vehicles)
 - · Rail vehicle
 - · Stacker crane
 - Elevator
 - · Tableting machine
 - · Connector pin assembling machine
 - · Bending machine

Ensure your Panel PC with HDD does not vibrate. When in doubt use a Panel PC with SSD storage devices.

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

4-5-2 Temperature and Humidity Specifications

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

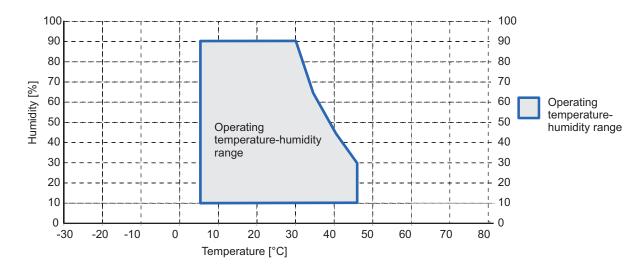
The following tables provide ambient temperature and humidity details per CPU type.

Temperature and Humidity Graphs

The maximum ambient operating temperature and ambient humidity are specified per CPU type, mounting orientation and 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 HDD within the ambient temperature and humidity ranges as shown in the following graph.

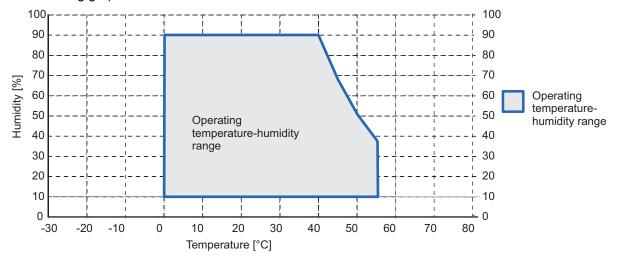




Additional Information

Refer to the ambient temperature and humidity specifications per CPU type for CPU-specific limitations.

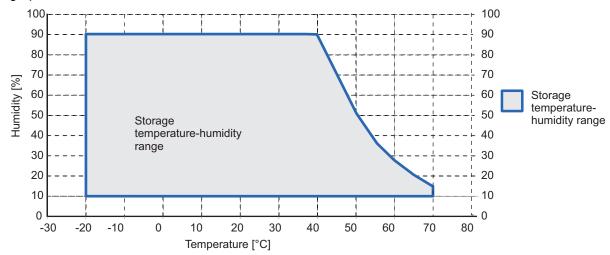
• Operate the Panel PC with a SSD within the ambient temperature and humidity ranges as shown in the following graph.



Additional Information

Refer to the ambient temperature and humidity 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.

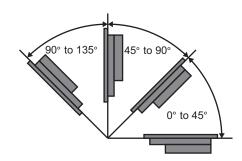


Temperature Specifications with an Intel[®] Core[™] i7-4700EQ CPU

Ambient operating temperature specifications for a Panel PC with an Intel[®] Core[™] i7-4700EQ CPU.

Product Orientation	Mounting Angle	Configuration *1	
		With 1 or 2 SSD's	With 1 HDD
Landscape and Portrait	0° to 45°	0 to 50°C	5 to 35°C
Landscape	45° to 90°	0 to 55°C	5 to 35°C
	90° to 135°	0 to 55°C	5 to 40°C
Portrait	45° to 90°	0 to 55°C	5 to 40°C
	90° to 135°	0 to 55°C	5 to 40°C

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



Additional Information

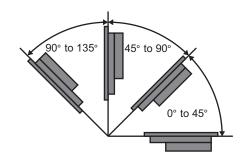
Refer to *Temperature and Humidity Graphs* on page 4 - 26 for graph details.

Temperature Specifications with an Intel[®] Core[™] i5-4300U CPU

Ambient operating temperature specifications for a Panel PC with an Intel^® Core $^{\text{\tiny TM}}$ i5-4300U CPU.

Product Orientation	Mounting Angle	Configuration *1	
		With 1 or 2 SSD's	With 1 HDD
Landscape and Portrait	0° to 45°	0 to 50°C	5 to 35°C
Landscape	45° to 90°	0 to 55°C	5 to 35°C
	90° to 135°	0 to 55°C	5 to 40°C
Portrait	45° to 90°	0 to 55°C	5 to 40°C
	90° to 135°	0 to 55°C	5 to 40°C

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





Additional Information

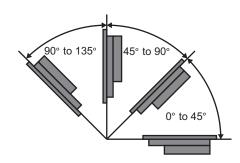
Refer to Temperature and Humidity Graphs on page 4 - 26 for graph details.

Temperature Specifications with an Intel® Celeron® 2980U CPU

Ambient operating temperature specifications for a Panel PC with an Intel[®] Celeron[®] 2980U CPU.

Product Orientation	Mounting Angle	Configuration *1	
		With 1 or 2 SSD's	With 1 HDD
Landscape and Portrait	0° to 45°	0 to 50°C	5 to 35°C
Landscape	45° to 90°	0 to 55°C	5 to 35°C
	90° to 135°	0 to 55°C	5 to 40°C
Portrait	45° to 90°	0 to 55°C	5 to 40°C
	90° to 135°	0 to 55°C	5 to 40°C

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



Additional Information

Refer to Temperature and Humidity Graphs on page 4 - 26 for graph details.

4-5-3 Recycling Specifications

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

Part	Recycle specifications	
Battery	Chemical waste	
PCIe Card and other electrical components	Electrical waste	



Precautions for Safe Use

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



Installation

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

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	5-1-2	Items Supplied	
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	5-2-1 5-2-2	Install the PCIe Card	
5-3	Mount.		
	5-3-1	Installation Method in Control Panels	
	5-3-2	Product Orientation	
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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.



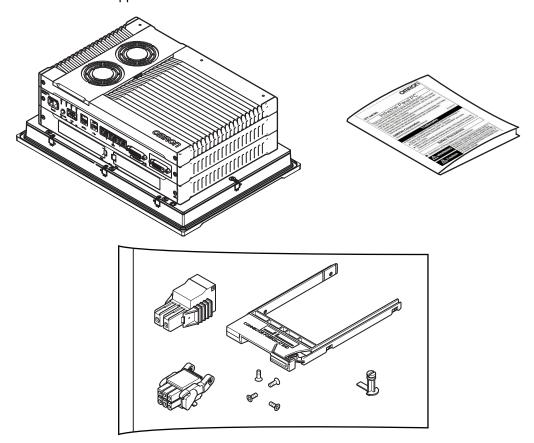
Additional Information

Refer to 5-1-2 Items Supplied on page 5 - 4 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)
 - EU Compliance sheet
 - · Standards and Certifications sheet
- · Bag with:
 - Power connector
 - · I/O connector
 - · Drive bracket for drive installation
 - 4 Mounting screws for drive installation
 - PCIe Card support for PCIe Card installation



5-2 Install Options

This section describes the installable options for the Industrial Panel PC.

5-2-1 Install a Drive

A drive is a storage device for the Industrial Panel PC.



Additional Information

- Depending on the product configuration a drive is already installed.
 Refer to 1-4 Product Configuration on page 1 5 for storage details.
- Depending on the CPU type one or two drives are supported.

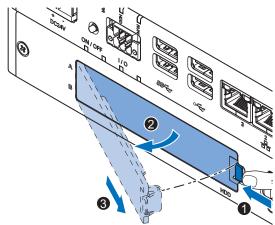
 Refer to 4-1-4 CPU Specifications on page 4 6 for the number of supported drives.
- Refer to 2-9-3 Storage Devices on page 2 21 for the recommended drive models.
- Refer to 4-1-6 Storage Device Specifications on page 4 8 for drive specifications.

Prepare the following items:

- · The drive
 - A drive is not supplied with the Panel PC.
- The drive bracket with mounting screws
 These are supplied with the Panel PC.

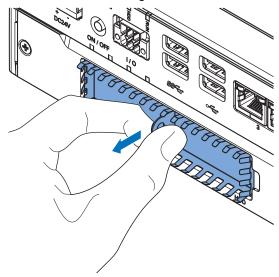
To install a drive:

- **1** Ensure the Panel PC is OFF.
- **2** Remove the drive cover.

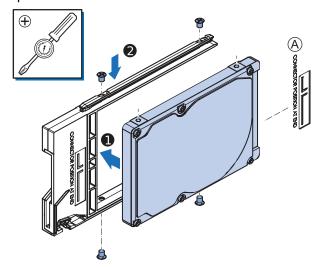


- (1) Push the lock lever 1.
- (2) Tilt the drive cover 2.
- (3) Remove the drive cover 3.

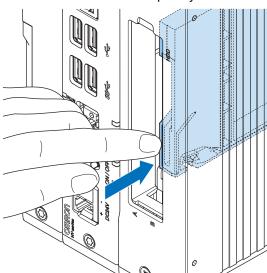
3 Pull the metal shielding cover out of the Panel PC.



4 Align the connectors of the drive as shown ⓐ on the bracket. Then insert the replacement drive
 in the bracket and insert the 4 mounting screws ②. Tighten these screws with a torque of 0.35 N⋅m.

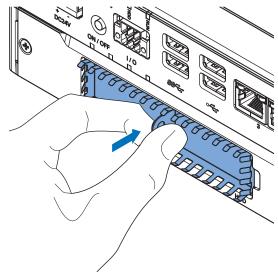


- **5** Insert the bracket with the drive in the correct bay.
 - · A drive for the operating system has to be inserted in bay A
 - The drive for additional storage can be inserted in bay B Ensure the bracket is completely in the Panel PC with an extra push.



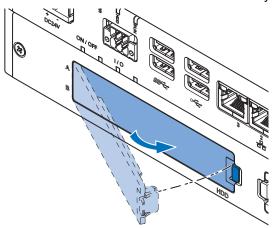
The drive bracket will lock into place when it is fully inserted.

6 Insert the metal shielding cover.



7 Mount the drive cover.

The lock lever will click when closed correctly.



- **8** Finalize the drive installation when the Panel PC installation is completed.
 - If the drive is inserted in bay A:
 - (1) Install an operating system
 - (2) Power OFF and then Power ON
 - (3) Ensure the drive is functional and confirm normal operation. If required set the drive as boot disk in the BIOS settings. Refer to A-1-5 BIOS - Boot on page A - 10 for boot priority settings.
 - If the drive is inserted in bay B:
 - (1) Ensure the drive is functional and confirm normal operation.
 If the Panel PC has a Windows operating system and the storage drive is not visible in Windows then the drive needs to be allocated.

The drive is installed and functional.

5-2-2 Install the PCIe Card

Prepare the following items:

• The PCle Card.

A PCIe Card is not supplied with the Panel PC.



Additional Information

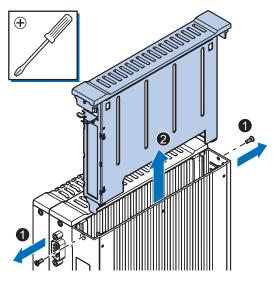
Refer to 4-1-7 PCIe Card Specifications on page 4 - 9 for PCIe specifications.

The PCIe Card mounting material: Card Support.
 This item is supplied with the Panel PC.

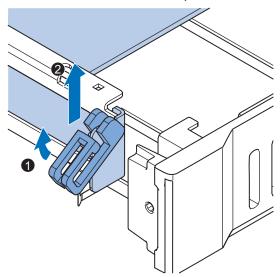
To install the PCIe Card:

- **1** Ensure the Panel PC is OFF.
- 2 Remove the two crosshead screws 1 indicated with "open" and then pull up 2 the PCIe Drawer.

The indent at the side of the drawer will help you to pull the drawer from the Panel PC.

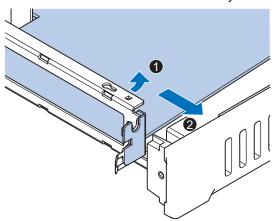


3 Pull the middle of the Card Clip to unlock it and remove it from the PCle Drawer.



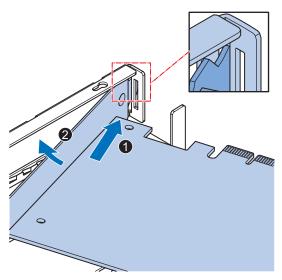
4 Remove the slot cover from the PCle Drawer.

The thin sheet metal frame should stay in the PCle Drawer.



The slot cover is now removed.

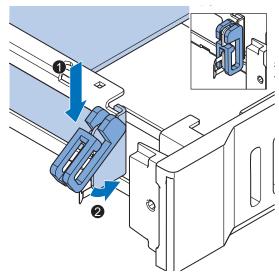
5 Place the PCle Card in the PCle Drawer.



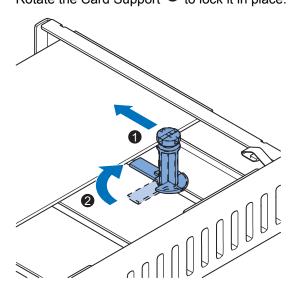
Ensure to insert the PCIe Card in the correct opening.

Ensure the thin sheet metal frame is positioned between the PCIe Card and the PCIe Drawer to ensure a good conductive contact.

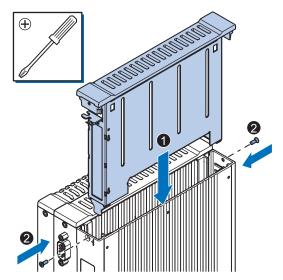
Place the Card Clip in the PCIe Card and PCIe Drawer and then rotate the Clip to lock it in place.



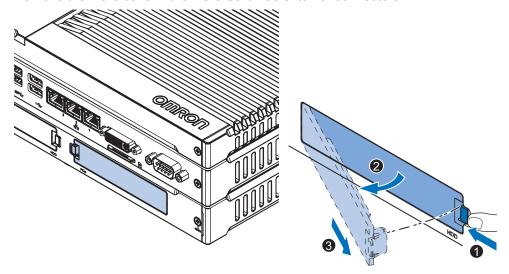
Slide the Card Support os that it supports the side of the PCIe Card. The card should be in small groove so there is support below and above the card. Rotate the Card Support to lock it in place.



8 Insert the PCIe Drawer in the Panel PC and then insert the two crosshead screws that hold the PCIe Drawer in place.



9 Remove the PCIe cover if the PCIe Card has external connectors.



- (1) Push the lock lever **1**.
- (2) Tilt the PCle cover 2.
- (3) Remove the PCle cover 3.

The PCIe Card is installed.

5-3 Mount

This section describes how to mount the Industrial Panel PC in either a landscape or portrait orientation 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.



5-3-1 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

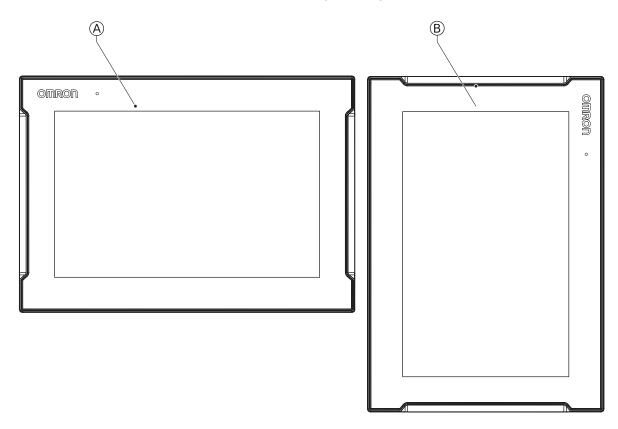


Additional Information

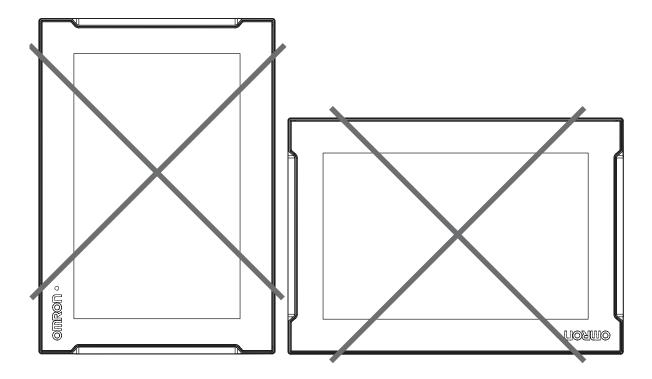
- Ensure you have installed the options before you mount the product. Refer to *5-2 Install Options* on page 5 5 for option details.
- Refer to 5-3-2 Product Orientation on page 5 15 for orientation details.
- Refer to 5-3-3 Temperature on page 5 16 for temperature details.
- Refer to 5-3-4 Humidity on page 5 18 for humidity details.
- Refer to 5-4 Wire on page 5 27 for wiring details.

5-3-2 Product Orientation

The Industrial Panel PC can be mounted in a landscape $^{ ext{(A)}}$ or portrait $^{ ext{(B)}}$ orientation.



Do not install the Industrial Panel PC in any of the following orientations.



5-3-3 Temperature

The temperature inside a control panel may be at least 10 to 15°C higher than outside the panel. Implement the following measures against overheating at the installation site and in the control panel, and allow a sufficient margin for the temperature.

Distance for Cooling

Adequate airflow around the Industrial Panel PC is required.



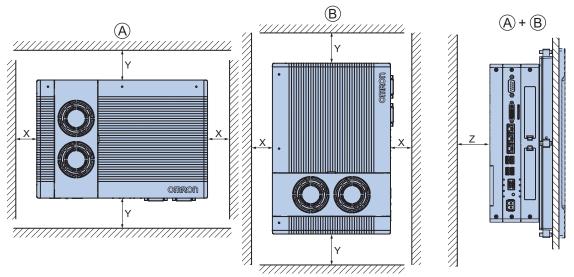
Additional Information

- The ambient temperature must be within the operating range.
 Refer to 4-5-1 Operation Environment Specifications on page 4 25 for temperature specifications
- Allow space to accommodate for the bending radius of the cables.
 Refer to:
 - 2-9-4 DVI Cables on page 2 22
 - 2-9-5 USB Type-A to USB Type-B Cables on page 2 22
 - 2-9-6 NY Monitor Link Cables on page 2 23
 - · individual cable specifications

for cable bending requirements and connector clearance.

and to 2-9-5 USB Type-A to USB Type-B Cables on page 2 - 22 for USB cable bending requirements.

Provide enough space for good air flow and ensure the following minimum distances are observed around the sides of the Industrial Panel PC for landscape A and portrait B orientations.



Item	Minimum distance *1
Χ	50 mm
Υ	100 mm
Z	

^{*1.} Measure the minimum distances X and Y at the air openings in the sides of the Industrial Panel PC.

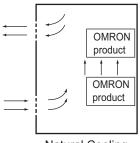
High Temperatures

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.

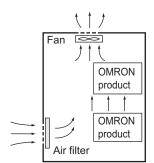
- Do not install the Panel PC at the top of the panel, where hot air tends to stagnate.
- To provide ventilation space above and below the Panel PC, leave sufficient distance from other devices, wiring ducts, etc.
- Do not mount the Panel PC in the wrong direction (e.g., vertically or upside down). Doing 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

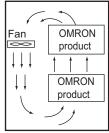
Forced ventilation with a fan in the top of the control cabinet.



Forced Ventilation Method

Forced Air Circulation

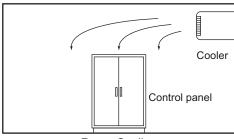
Forced circulation with a fan inside the closed control cabinet.



Forced Air Circulation

Room Cooling

Cool the entire room where the control panel is located.



Room Cooling

Low Temperatures

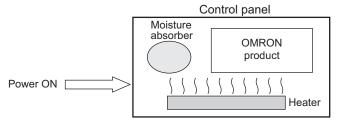
The Panel PC may not start normally if the temperature is below 0°C when the power is turned ON. Maintain an air temperature of at least 5°C inside the panel, by implementing measures such as installing a low-capacity space heater in the panel.

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

5-3-4 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 in the control panel to keep it warmer.



Examples of Measures against Condensation

5-3-5 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 control panel from the source of the vibration or shock. Or secure the Panel PC and the control panel with rubber padding to prevent vibration.
- · Make the building or the floor vibration-resistant.
- Prevent shocks when other devices in the panel, such as electromagnetic contactors, operate. Secure either the source of the shock or the Panel PC with rubber padding.

5-3-6 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.

5-3-7 Electrical Environment

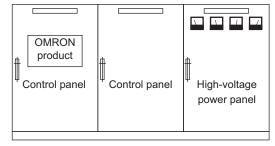
When installing or wiring devices, make sure that there will be no danger to people and that noise will not interfere with electrical signals.

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.

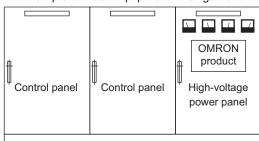
Example of Recommended Equipment Arrangement





Example of Poor Equipment Arrangement

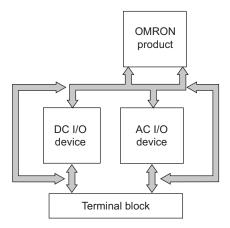
NG



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.

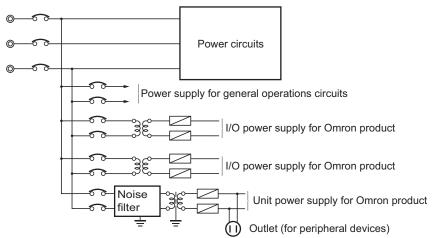


Example of Arrangement in Panel

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.

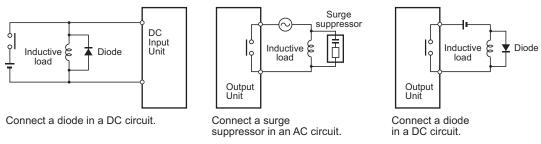


Power Supply System Diagram

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.

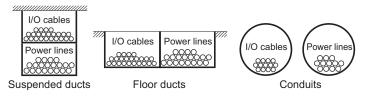


Input Signal Noise Countermeasures

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.



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

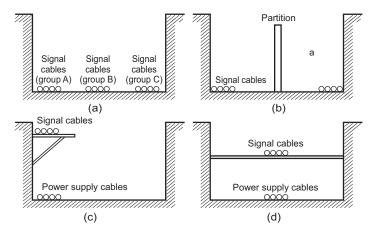
Each of the following combinations includes different signal types, properties, or levels. They will cause the signal-to-noise ratio to drop due to factors such as electrical induction. As a general rule when wiring, either use separate cables or separate wiring routes for these items. Future maintenance 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

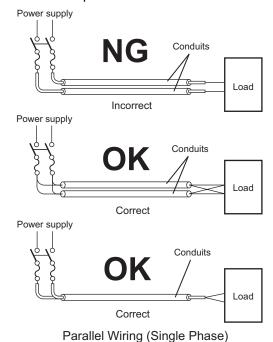
Observe the following points when wiring power supply and signal cables.

- 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.

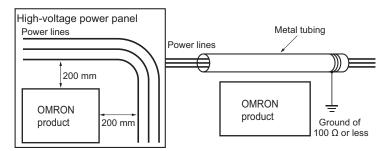


Partitioning Methods for Signal and Power Supply Cables

 To avoid overheating the conduits when using conduits for wiring, do not place wires for a single circuit in separate conduits.



- · 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 Industrial Panel PC directly into the duct.



Additional Information

Refer to Distance for Cooling on page 5 - 16 for the minimum required distances.

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



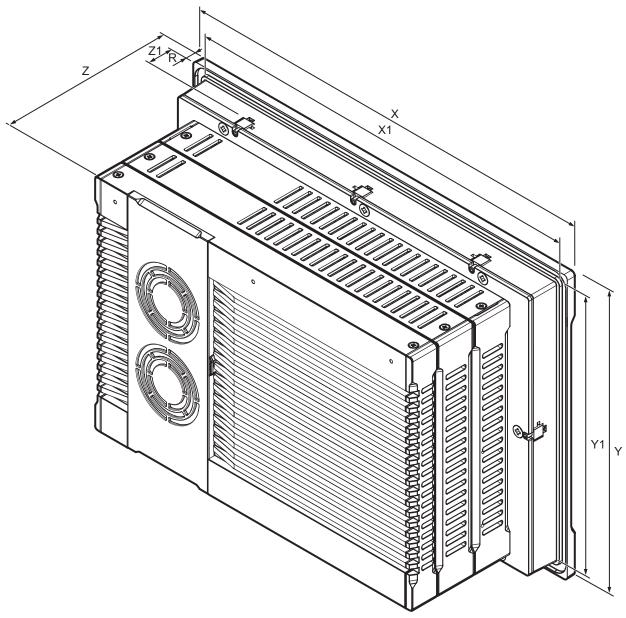
Other Precautions

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

5-3-8 Prepare the Mounting Surface

The Industrial Panel PC can be mounted in a landscape or portrait orientation.

The mounting hardware is integrated into the back of the Panel PC.



14	Model Specifications		
Item	12.1 Inch models ^{*1}	15.4 Inch models ^{*1}	
Panel cutout dimen-	Cutout Width X1 = 314 ^{-0 +1} mm	Cutout Width X1 = 383 ⁻⁰ +1 mm	
sions	Cutout Height Y1 = 216 ^{-0 + 1} mm	Cutout Height Y1 = 259 ^{-0 +1} mm	
Panel thickness	Panel thickness range Z1 = 1.6 to 6.0 mm	Panel thickness range Z1 = 1.6 to 6.0 mm	
range *2			
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.

5-3-9 Mount the Panel PC

Ensure the panel cut out is ready before beginning the mounting procedure.

Tools required: Torque screw driver with hexagon 2 mm bit.

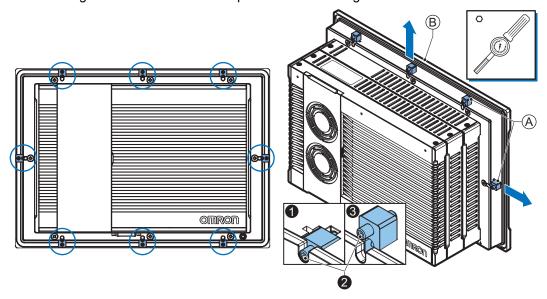
The Panel PC is equipped with 8 retractable mounting brackets

On the back of the Panel PC.

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 Ensure all 8 retractable mounting brackets are in the retracted position 1. If required press the mounting brackets in the retracted position and hand tighten the allen bolt 2.



The left image shows a Panel PC with passive cooling. The right image shows a Panel PC with active cooling.

- **2** Insert the Panel PC into the mounting surface cut out so the bezel [®] touches the mounting surface.
- 3 Loosen the allen bolts 2 of the mounting brackets.The mounting brackets are spring loaded and will extend 3 when loose.
- **4** Ensure all mounting brackets extend to overlap the mounting surface.
- **5** 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 $0.6~N\cdot m$ 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.

5-4 Wire

This section describes how to wire the Industrial Panel PC.

5-4-1 Wiring Warnings and Cautions

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

riangle 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.

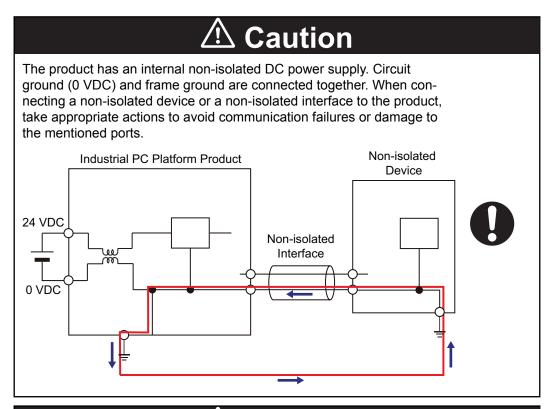
5-4-2 Ground

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

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 commu	Earthing methods			
Specification of commu- nications cables	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.

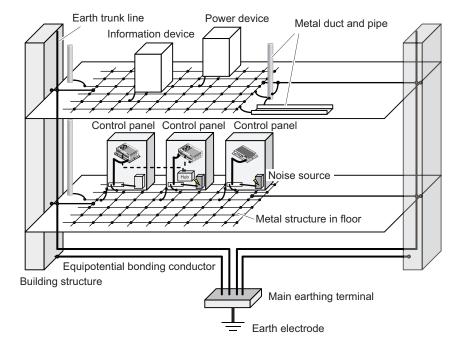
Equipotential Bonding System

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

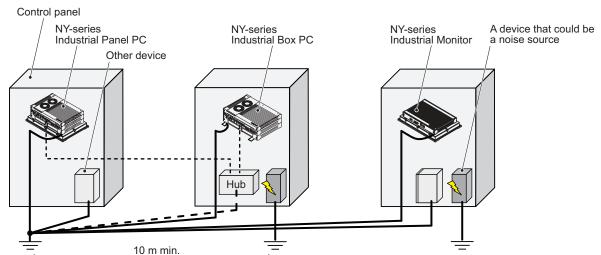
If the earthing method used for the building is not equipotential bonding or the earthing system is unknown, choose (a) from among the earthing methods given below.

(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.

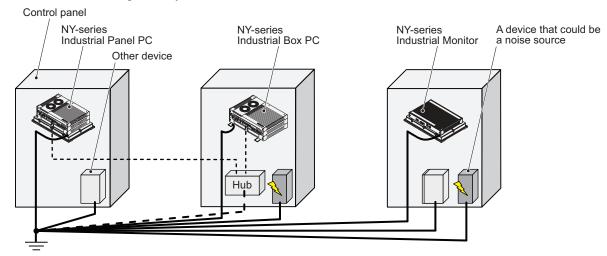
Connect the ground lines of the device that is connected with a communications cable and other devices as a bundle to a single earth electrode. Be sure that the earth electrode is separated by a minimum of 10 m from any other earth electrode of a device that could be a noise source.



(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.

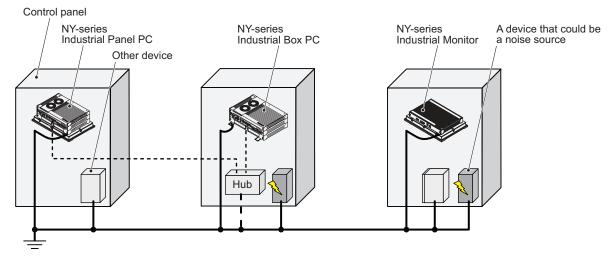
This earthing method is not recommended because the device that could be a noise source may interfere electromagnetically with other devices.



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.

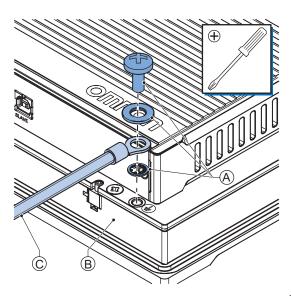


Ground Connection Details

This section provides details about the ground connection.

Use the ground terminal on the backside of the monitor to ground your Industrial Panel PC.

The washers and screw (A) are pre-mounted at the Industrial Panel PC.



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

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.





5-4-3 Wire the Power 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 3 for electrical specifications.
- Refer to 4-1-3 Power Consumption Specifications on page 4 3 for power consumption specifications
- Refer to 2-9-9 UPS on page 2 25 for UPS information.

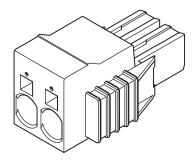
Power Connector Wiring Materials

Use the power supply connector that was supplied to connect the power supply to the Industrial Panel PC.

- Select power supply conductors with consideration to the voltage drop and heat generation for the cable length at the installation environment.
- Always use twisted wires to minimize the occurrence of electrical disturbance.
- · Recommended power supply conductor sizes are provided in the table.

Wire type	Conductor cross-section
Solid conductor	0.5 to 10 mm ²
Flexible conductor	0.5 to 6 mm ²
Flexible conductor, with ferrule and no plastic sleeve	0.5 to 6 mm ²
Flexible conductor, with ferrule and plastic sleeve	0.5 to 4 mm ²
Minimum AWG according to UL/cUL	20
Maximum AWG according to UL/cUL	8

Power Supply Connector



DC Power Supply

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



Additional Information

- Refer to 2-9-8 Power Supply on page 2 24 for more information.
- Refer to 4-1-3 Power Consumption Specifications on page 4 3 for power consumption details.

Power Connector Wiring Procedure

Use the following procedure to wire the power connector.

1 Remove the sheath from the power supply wires.

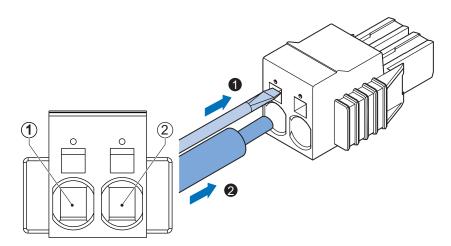




Precautions for Safe Use

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.
- 2 Insert a screwdriver in the small opening above the cable opening to unlock the cable entry and then push the wire all the way to the back of the cable opening •.



Pin	Description
1	24 VDC
2	0 VDC

3 Remove the screwdriver.

Do not apply stress to the cable after you have connected the wires.

5-4-4 Wire the I/O Connector

This section describes how to wire the I/O connector.

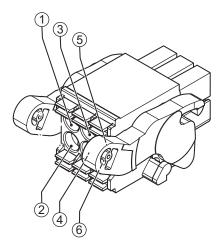
I/O Connector Wiring Materials

Use the supplied I/O connector to connect the inputs and outputs to the Industrial Panel PC. Recommended I/O 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

I/O Connections

This section describes I/O connection details.



Pin	Description	Internal Circuit Details
1	Power Status Output	The Power Status Output has an internal relay. Wire this
2		according to the input device connected to the Power Sta-
		tus Output.

Pin	Description	Internal Circuit Details
3	Power ON Input	The Power ON Input and the UPS Mode Input are bi-di-
4		rectional and isolated. Each input can be wired as sinking
5	UPS Mode Input	(NPN) or sourcing (PNP). Wire these according to the
6		output device connected to the inputs.

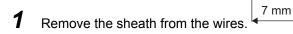


Additional Information

- Refer to 4-2-2 I/O Connector Specifications on page 4 12 for I/O connector specifications.
- Refer to I/O Connector Power Status Output Details on page 4 14 for power status output details.
- Refer to 5-8 Connect UPS on page 5 50 for UPS connection details.

I/O Connector Wiring Procedure

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

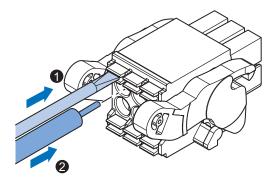




Precautions for Safe Use

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.
- **2** Remove the I/O connector from the Panel PC.
- 3 Insert a screwdriver in the small groove above the cable entry 1 to unlock the cable entry and then push the wire all the way to the back of the cable opening 2.



4 Remove the screwdriver.

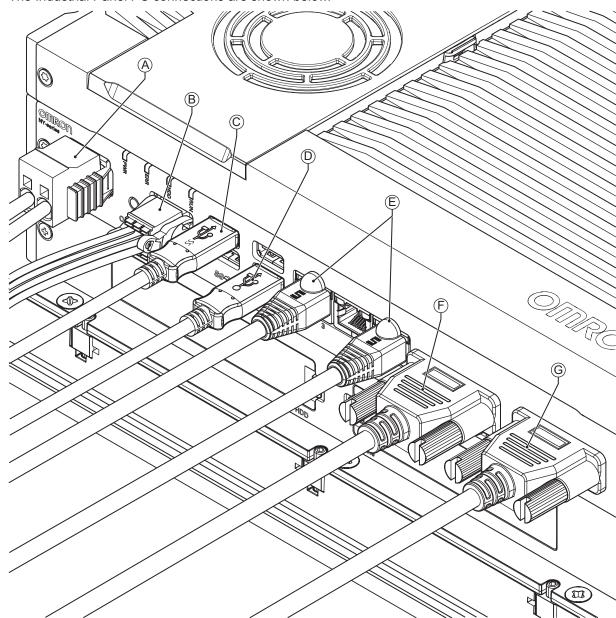
Do not apply stress to the cable after you have connected the wires.

5-5 Connect

This section describes how to connect the Industrial Panel PC.

5-5-1 Connector Identification

The Industrial Panel PC connections are shown below.



Item	Name	Description
Α	Power connector	Lockable power connector
В	I/O connector	2 inputs (UPS signal and power OFF control) and 1 output (power state)
С	USB 3.0 connector	2 USB 3.0 connectors
D	USB 2.0 connector	2 USB 2.0 connectors
E	10BASE-T/100BASE-TX/ 1000BASE-T Ethernet con- nectors	3 RJ45 Gb Ethernet connectors
F	DVI connector	Digital Visual Interface connector
G	Option port	Interface connection options for peripheral devices or an additional monitor: RS-232C connector (default) DVI-D connector NY Monitor Link connector

5-5-2 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

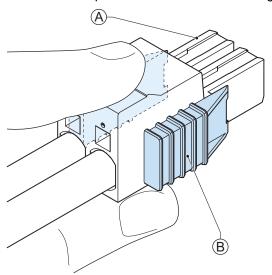
- Refer to 5-3 Mount on page 5 14 for mounting details.
- · Refer to:
 - 2-9-4 DVI Cables on page 2 22
 - 2-9-5 USB Type-A to USB Type-B Cables on page 2 22
 - 2-9-6 NY Monitor Link Cables on page 2 23
 - · individual cable specifications

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 *5-4-2 Ground* on page 5 - 27 for grounding details.
- **2** Connect the power connector A.

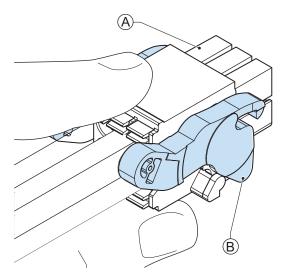
 Hold the black part to enable the auto-locking mechanism.



Do not push the orange sliders [®] in the direction of the Panel PC because this will unlock the connector.

3 Connect the I/O connector.

Hold the black part (A) when inserting the connector, this enables the auto-locking mechanism.



Do not tilt the orange levers (B) because this will unlock the connector.

4 Connect an external monitor such as the Industrial Monitor.
Connect the monitor to the DVI interface and tighten the fastening screws or use the optional NYML connector.

For an Industrial Panel PC this is optional because a monitor is integrated.

- **5** Connect a device to the optional interface (DVI, RS-232C or NYML) if applicable and tighten the fastening screws when applicable.
- **6** Connect the USB ports to peripheral devices .
- 7 Connect the Panel PC to the required Ethernet interface connector(s).
 Refer to 4-2-4 Ethernet Connector Specifications on page 4 17 for Ethernet port details.
 The Panel PC is connected.

5-6 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.



5-6-1 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** Ensure that an optional connected monitor(s) is powered ON.
- **3** Connect an optional keyboard and/or mouse.
 - If using an OMRON Industrial Panel PC this is not 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.
- **4** 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.

Press the power button and release within 1 second.
Refer to 2-3 Power Button on page 2 - 9 for the power button location.
The Panel PC starts and the PWR LED will go ON.



Additional Information

- Do not connect or disconnect the DVI-D cable while power is supplied to the Panel PC.
- · If a Windows operating system is preinstalled:
 - · the Windows configuration will automatically start
 - · refer to Windows Startup First Time for details
- **6** 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 like the Industrial Monitor.

5-6-2 Windows Startup First Time

Use the following procedure for the first time startup of Windows on your Panel PC.



Additional Information

Do not power OFF the Panel PC during this procedure! At the end of this procedure an automatic restart will result in the Windows home screen.

- Ensure an input device is present.
 - For an Industrial Box PC connect a keyboard and mouse or a touch monitor.
 - For an Industrial Panel PC touch functionality is available. A keyboard and mouse are not required.
- **2** 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.

Refer to 4-3-2 Supported Languages on page 4 - 23 for supported languages.

- · Legal stuff like license agreements
 - Windows 10: Select Accept to accept the combined Windows and OMRON license agreements.
 - Windows 7: Select Accept separately for Windows and for the OMRON utilities.
- Settings
 - Windows 10: Select Customize instead of Use Express settings.
 Set the settings according to your application environment.
 - Windows 7: Select Use recommended settings.
- Create a user account and password and enter the password hint



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.
- 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.

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.

3 Login



Adjust the backlight, Logo LED, and Status LED brightness of the monitor(s) to your settings.



Additional Information

- Use the Industrial Monitor Utility to adjust the display and/or connected OMRON Industrial Monitor.
- Verify that the Panel PC is responding to finger touches on the touchscreen of the product.
- **5** 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.

5-7 Install Software

This section describes how to install the software for the Industrial Panel PC.

5-7-1 Internet Browser

Depending on the operating system an Internet Browser is preinstalled.

- · For Windows 10 the standard Internet Browser is installed.
- For Windows 7 an executable file for browser installation is provided in the user data partition of the drive. For Windows 7 use the procedure below to perform the browser installation.



Additional Information

- Check the IT policy of your company for available software and for details on the software environment the Industrial Panel PC will operate in.
- Install all updates and ensure the browser stays up-to-date.

To install the available Internet Browser in a Windows 7 operating system:

- **1** Use Windows Explorer to examine the contents of the user data partition mapped as drive letter D:.
- Open the Installer folder (D:\OMRON-NY\Installers) and locate the Internet Explorer installer files.
- **3** Select the installer suitable for your system (32/64 bits) and language (English/Japanese).
- **4** Ensure there is a connection to the Internet.
- **5** Launch the installer to begin the installation process.
- **6** Follow the installer steps to complete the browser installation.
- **7** Download and install the latest updates via Windows Update.

The Internet Browser is installed in Windows 7.

5-7-2 Firewall

An industrial network should be separated from an office network.

Depending on the operating system a Firewall is preinstalled.

- For Windows 10 the standard firewall software is installed and enabled.
- · For Windows 7 the Firewall software is not installed.



Precautions for Safe Use

- Separate the machine network segment from the office network to avoid communication failures.
- Install all updates and ensure the firewall stays up-to-date.



Additional Information

Check the IT policy of your company for available software and for details on the software environment the Industrial Panel PC will operate in.

5-7-3 Anti-virus Software

The Windows operating system is vulnerable for viruses. Anti-virus software should be installed on the Windows operating system.

Depending on the operating system Anti-virus software is preinstalled.

- For Windows 10 the standard Anti-virus software is installed and enabled.
- For Windows 7 Anti-virus software is not installed.



Additional Information

Check the IT policy of your company for available software and for details on the software environment the Industrial Panel PC will operate in.



Precautions for Safe Use

- Make sure that your operating system environment is protected against malicious software and viruses.
- Install all updates and ensure virus definitions stay up-to-date.

5-7-4 Drivers and Custom Software

Use the following procedure to install drivers and custom software on your Industrial Panel PC.

- For an Industrial PC without Operating System download the drivers from the OMRON download website.
- For an Industrial PC with a Windows operating system the drivers for most OMRON devices and common third party devices are already available on the product. They will be installed automatically after the initial Windows configuration or upon connection of a device to the Panel PC.
 - **1** Install drivers that are required for the application.
 - 2 Install third-party software that is required for application.

 Follow the installation instructions as supplied with the driver or software.



Precautions for Safe Use

Before operating the system, please make sure the appropriate software is installed and configured. Doing so may prevent unexpected operation.

5-7-5 Activate Windows

To activate Windows an internet connection is required.

If an internet connection is not available during the installation proces then the Windows license will only be active after an internet connection has been established.

Refer to 7-2-2 Remove the Cover on page 7 - 15 for the location of the Windows license key.

5-7-6 Customize Windows

Windows provides customization tools.

Using these tools is only allowed for experienced software engineers.



Additional Information

- For Windows 10:
 - Refer to A-2-3 Unified Write Filter on page A 15 for UWF details.
 - Refer to A-2-4 Trusted Platform Module on page A 17 for TPM details.
- For Windows 7:
 - Refer to A-2-1 Enhanced Write Filter on page A 12 for EWF details.
 - Refer to A-2-2 File-Based Write Filter on page A 13 for FBWF details.
 - Refer to A-2-4 Trusted Platform Module on page A 17 for TPM details.

5-8 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.

To connect the Panel PC to the OMRON S8BA UPS use one of the following two options:

- The USB connector and Power Attendant Lite Utility Software.
 Refer to 5-8-1 Connect UPS Using the USB Connector on page 5 51 for details.
 This is the preferred connection method.
- The I/O connector and a custom software program
 Refer to 5-8-2 Connect UPS Using the I/O Connector on page 5 53 for details.

igwedge 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 3 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.

5-8-1 Connect UPS Using the USB Connector

The Power Attendant Lite Utility software monitors the UPS status via the USB interface and shuts down the Industrial Panel PC when needed.

UPS Drivers and the required software is available.

- For Panel PCs with Windows 10 or Windows 7 preinstalled:
 - · Drivers for the S8BA UPS are pre-installed
 - Installation files and manual for the Power Attendant Lite Utility are available in the directory
 D:\OMRON-NY\Installers\Power Attendant Lite Utility
 - Installation files and manual for the UPS Settings Utility are available in the directory
 D:\OMRON-NY\Installers\UPS Settings Utility
- For all other Panel PCs following software can be downloaded from the OMRON download site:
 - · Drivers for the S8BA UPS
 - · Installation files and manual for the Power Attendant Lite Utility
 - Installation files and manual for the UPS Settings Utility (Windows only)

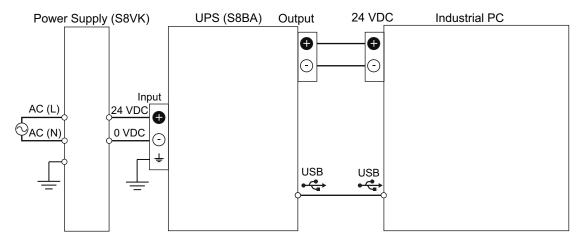


Precautions for Safe Use

- 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.

Follow the steps below to connect the S8BA UPS with a USB cable and to configure it correctly. Refer to 2-9-9 UPS on page 2 - 25 for more information.

- **1** Ensure the revision number of the UPS is correct. Refer to 2-9-9 UPS on page 2 - 25 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 *5-4-3 Wire the Power Connector* on page 5 - 34 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 Install the Power Attendant Lite Utility.
 Refer to *Installation* on page 3 21 for details.
- **9** Configure the UPS using the Power Attendant Lite Utility. Refer to *Configuration* on page 3 22 for details.
- ${f 10}$ Configure the Panel PC to auto-start after power loss within the BIOS settings.
 - Refer to A-1-1 BIOS Overview on page A 2 for details on BIOS changes.
 - Refer to A-1-5 BIOS Boot on page A 10 for power loss BIOS details.
- 11 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 and 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.
- The UPS Setting Utility can not be used when the Power Attendant Lite Utility is active.
 To use the UPS Setting Utility:
 - (1) Right-click the Power Attendant Lite Utility icon and select Agent Stop.
 - (2) Use the UPS Setting Utility.
 - (3) Right-click the Power Attendant Lite Utility icon and select Agent Start.

5-8-2 Connect UPS Using the I/O Connector

The I/O connector of the Industrial Panel PC:

- receives the power status of the UPS with the UPS Mode Input when the Panel PC has a Windows
 operating system. For other operating systems this input is not functional.
- indicates the power status of the Panel PC to the UPS with the Power Status Output.



Additional Information

- A UPS connection using the I/O connector is only possible for a Panel PC with a Windows operating system. For all other operating systems use the USB connector to connect the UPS.
 - Refer to 5-8-1 Connect UPS Using the USB Connector on page 5 51 for details.
- The Panel PC does not react automatically to the UPS Mode Input.
 A custom software program is required to shut down the Panel PC when needed.

UPS Drivers and the required software is available.

- For Panel PCs with Windows 10 or Windows 7 preinstalled:
 - Drivers for the S8BA UPS are pre-installed
 - Installation files and manual for the UPS Settings Utility are availabe in the installer directory
 D:\OMRON-NY\Installers\UPS Settings Utility
- For all other Panel PCs following software can be downloaded from the OMRON download site:
 - · Drivers for the S8BA UPS
 - Installation files and manual for the UPS Settings Utility (Windows only)



Precautions for Safe Use

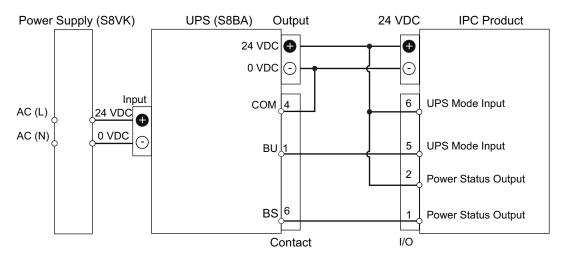
- Always use the recommended uninterruptible power supply (UPS) to prevent data loss and other system file integrity issues caused by unexpected power interruption.
- Use an Omron S8BA UPS with the correct revision number to prevent improper system shutdown.
- Correctly perform wiring and setting, and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

Follow the steps below to connect the S8BA UPS to the I/O connector of the Panel PC and to configure it correctly.

Refer to 5-4-4 Wire the I/O Connector on page 5 - 37 for I/O Connector details.

1 Ensure the revision number of the UPS is correct. Refer to 2-9-9 UPS on page 2 - 25 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 Contact port of the S8BA UPS to the I/O port of the Panel PC with the connection cable S8BW-02.



- 4 Power ON the Panel PC.
- **5** Configure the UPS.
 - (1) Connect the USB cable supplied with the UPS to the USB connector of the UPS and to the USB connector of the Panel PC.
 - (2) Configure the UPS using the UPS Settings Utility.

 Refer to UPS Setting Utility Instruction Manual for S8BA/BU-2RWL for details.
 - (3) Remove the USB cable between the UPS and the Panel PC
- **6** Configure the Panel PC to auto-start after power loss within the BIOS settings.
 - Refer to A-1-1 BIOS Overview on page A 2 for details on BIOS changes.
 - Refer to A-1-5 BIOS Boot on page A 10 for power loss BIOS details.
- 7 Create a software program that monitors the UPS Mode Input and initiates Power OFF of the Panel PC when the UPS Mode Input becomes active.

If the Panel PC has a Windows operating system then use the Industrial PC System API to create the software program.

Refer to NY-series Software Development Kit User's Manual for API details.

- 8 Install the created software program.
- **9** Test the created software program and ensure it functions correctly.

 ${f 10}$ 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 and 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.

5-9 Create Backup and Repair Data

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



Precautions for Correct Use

Create backups according to the preventive maintenance schedule to prevent data loss and system integrity issues.

Refer to 7-1-1 Preventive Maintenance Schedule on page 7 - 2 for intervals.

Recommended software to create a backup is the Rescue Disk Utility. This software creates a system backup on a USB storage device. A system backup contains the Windows partition, the boot partition and the MBR. A system restore action will restore the Windows partition, the boot partition and the MBR of the Panel PC.

The Rescue Disk Utility allows:

- Create Backup
 - The creation of a system backup.
- · Restore Backup

A system restore to bring the system back to the condition it was in when the Rescue Disk backup was created.



Additional Information

- The Rescue Disk Utility can only:
 - · backup or restore the system
 - A backup or restore from any other partition or storage device is not possible.
 - do a complete system backup or complete system restore
 - A partial backup or a partial restore of a partition is not possible.
- Refer to 3-2-6 Rescue Disk Creator on page 3 14 for Rescue Disk Creator details.
- Refer to 5-9-1 Create a New Rescue Disk with the Rescue Disk Creator on page 5 57 for Rescue Disk creation details.
- Refer to *Create a System Backup with the Rescue Disk* on page 7 7 for system backup details.

The standard Windows Backup and Restore features can be used. The Windows software can create and restore full backups and partial backups. These backups can be created automatically at predefined intervals.

The Windows Backup and Restore allows:

- · Creation of a Windows Backup
 - Creates a backup of a user's selection of folders and the option to create a system image of a drive. This backup:
 - · Can not include the MBR and the Windows partition.
 - Can include data from another partition than the Windows partition.
 - Can include data from another storage device than the device with the Windows partition.
- · Creation of a Windows System Repair Disk.

5 - 56

Creates a Windows System Repair Disk that will also include the MBR and the Windows partition. This procedure requires a separate PC with Windows 7 and a DVD writer and also an external DVD reader.

The Repair Disk gives following options:

- · Startup Repair
 - Examines Windows 7's most integral files and repairs any missing or damaged files that may be keeping Windows 7 from starting.
- · System Restore
 - Restores your Windows system files to an earlier point in time. It does not affect your personal files
- System Image Recovery
 Returns your PC to the condition it was in when you created the selected System Image backup.



Additional Information

- Refer to Create a Custom Backup with Windows Backup on page 7 9 for Windows Backup details.
- Refer to Create a Windows System Repair Disk on page 5 59 for Windows Repair Disk details.

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

5-9-1 Create a New Rescue Disk with the Rescue Disk Creator

A Rescue Disk is a disk with the Rescue Disk Utility that enables users to create a system backup and to do a system restore.

A system backup contains the Windows partition, the boot partition and the MBR.

Prepare:

- The Rescue Disk Creator
 Refer to Installation on page 3 15 for installation details.
- A USB storage device that has sufficient capacity to backup the content of the Panel PC. Note that all content on this USB storage device will be erased during the Rescue Disk creation.

Use the following procedure to create a new Rescue Disk:

- 1 Connect a USB storage device that has sufficient capacity to backup the content of the Panel PC.
- 2 Select the Windows Start Button.
- **3** In the search field, input *Rescue*.
- 4 Right-click Rescue Disk Creator and then select Run as administrator.
 The Rescue Disk Creator Utility window opens.



- Select the connected USB storage device at Target disk:.
 Refer to Messages on page 3 16 for message details if required.
 The button Create Rescue Disk will be enabled as soon as a USB storage device is detected and accepted.
- 6 Select the Create Rescue Disk button to start the creation process. Wait until the progress bar shows the Rescue Disk creation finished. Refer to *Messages* on page 3 16 for message details if required.
- 7 Select Close to close the Rescue Disk Creator.

 The Rescue Disk is available but it is still empty, there is no system backup on the Rescue Disk.

 Next step is to create a system backup with this Rescue Disk.



Additional Information

- Refer to *Create a System Backup with the Rescue Disk* on page 7 7 for system backup details.
- Refer to Installation on page 3 15 for installation details of the Rescue Disk Creator.
- Refer to Restore a System Backup with the Rescue Disk on page 7 31 for system restore details.

5-9-2 Create a Windows System Repair Disk and a Windows Backup

A Windows Repair Disk is a disk that enables users to restore the Windows operating system.

A Windows Backup is a backup that enables users to restore a user-defined content set.

- Use the following procedures to ensure you can always go back to this situation.
 - 1 Create a Windows System Repair Disk.
 Refer to Create a Windows System Repair Disk on page 5 59 for details.
 - Create a Windows Backup.
 Refer to Create a Custom Backup with Windows Backup on page 7 9 for details.

Create a Windows System Repair Disk

A Windows System Repair Disk can repair Windows if a serious error occurs.



Additional Information

To create a Windows System Repair Disk, a separate Windows PC with a DVD writer is required that has the same Windows edition and System type as the Industrial Panel PC. The Windows System Repair Disk can not be created with the Industrial Panel PC.

Prepare:

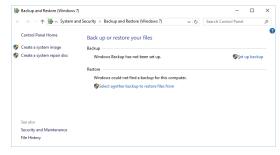
- A PC with a DVD writer that has the same Windows edition and System type as your Panel PC.
 - An example of the Windows edition is "Windows 7" with "Service Pack 1".
 - An example of the System type is "64-bit Operating System".
- An empty DVD

Use the Windows Backup and Restore mechanisms on the PC with a DVD writer to create a system repair disk.

To create a Windows System Repair Disk:

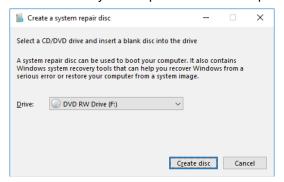
- **1** Start the PC that has a DVD writer and login.
- 2 Select the Windows **Start** Button.
- **3** In the search field, input *Backup*.
- 4 Select Backup and Restore.

The Backup and Restore window opens.



5 Select Create a system repair disk.

The Create a system repair disk window opens.



- **6** Select the applicable drive letter of the DVD writer and then select **Create disk**.
- **7** Wait until the disk is created and the remove it and store it in a safe place.



Additional Information

Refer to http://windows.microsoft.com/ for Backup and Restore details.



Operating Procedures

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

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	6-3-2	Power OFF Using Windows Shut Down	
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6-1 Touchscreen Operation

riangle WARNING

Water or other liquid present on the touchscreen surface may create false touch behavior and unexpected operation. Wipe away liquid on the touchscreen before operation.



⚠ Caution

When using a system with multiple touchscreens, multiple users can perform simultaneous operations. Make sure that this can not result in unintended actions.





Precautions for Correct Use

The touchscreen supports 5 simultaneous touches. When the number of touches is exceeded, not all touch points will be detected.

The touchscreen supports following operations.

- The touchscreen supports projected capacitive technology for the touch operation. Only light pressure is required to activate the touch function.
- Up to 5 simultaneous touches can be detected.
- Multiple simultaneous touch points can be supported in software for advanced touch functions such as zoom, rotation and multiple user interaction.
- The touchscreen can ignore hand-palm touches while still accepting additional correct touches.
- The touchscreen can be operated when wearing gloves. Check correct usage of the gloves before using them.
- When water is detected on the touchscreen, the touch functions will be blocked to prevent erroneous touches.



Additional Information

Refer to 7-1-2 Clean the Touchscreen Surface on page 7 - 3 for cleaning details.

6-2 Power ON

This section provides Power ON details.



Precautions for Correct Use

Do not turn ON the power supply to the product when a part of a human body or a conductive object is touching the surface of the touchscreen. Doing so will cause the touchscreen functionality to be disabled. Remove the conductive object and cycle the power supply to restore the touchscreen functionality.

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 2-3 Power Button on page 2 - 9 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.

- Supply an input signal to pins 3 and 4 of the I/O connector.
 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.
- **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.

The Panel PC starts and the PWR LED will turn ON.



Additional Information

- Refer to 4-2-2 I/O Connector Specifications on page 4 12 for connector specifications.
- Refer to 5-4-4 Wire the I/O Connector on page 5 37 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.



Additional Information

Refer to A-1-5 BIOS - Boot on page A - 10 for BIOS details.

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.
- 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 2-3 Power Button on page 2 9 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.
- For Windows 7 select the Windows 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 Supply a 24 VDC signal to the Power ON/OFF Input (pins 3 and 4) of the I/O connector. 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 4-2-2 I/O Connector Specifications on page 4 12 for connector specifications.
- Refer to 5-4-4 Wire the I/O Connector on page 5 37 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.

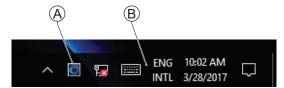
- 1 Ensure all programs are closed.
 If required, close all active programs to prevent losing unsaved data.
- Press and hold the power button on the Panel PC for 5 to 10 seconds.
 Refer to 2-3 Power Button on page 2 9 for power button location information.
 The Industrial Panel PC will power OFF.
 Any 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 ⓐ in the system tray area ⓑ of Windows to present Warnings and Errors.





Additional Information

Refer to 3-2-7 Industrial PC Tray Utility on page 3 - 18 for Industrial PC Tray Utility details.

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:

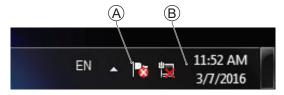
- Select the Industrial PC Tray Utility icon.
 A pop-up window will appear.
- **2** Read the message available in the pop-up.
- **3** Refer to 7-2-1 Warning and Error Messages on page 7 13 for all details on the message. Perform the actions presented for the message until the Warning or Error is resolved.

The product messages for the Industrial Panel PC are resolved.

6-5 React to Windows Messages

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





Windows 10

Windows 7

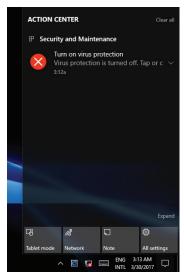
Check the Windows Action Center icon for a Warning or Error symbol.

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

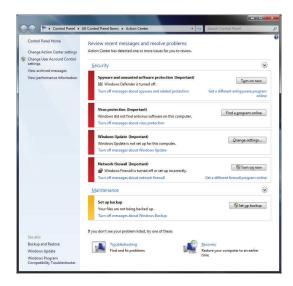
To react to a Windows message:

- **1** Open the Windows Action Center.
 - · For Windows 10: Click the Windows Action Center icon.
 - For Windows 7: Rightclick the Windows Action Center icon and select **Open Action Center** from the pop-up window.

A pop-up window will appear.



Windows 10



Windows 7

- **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.



Maintenance

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

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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 - 13 for all available messages.
	Refer to 2-2 LED Indicators on page 2 - 5 for LED details.
Monitor storage devices that do not comply to the Omron specifications	Refer to Storage Device Considerations on page 2 - 21 for 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 soft- ware updates	Refer to 7-1-5 Keep Software Updated on page 7 - 4 for update details.
When changing applications or configurations	Reference
Create a backup of the Industrial Panel PC	Refer to 5-9 Create Backup and Repair Data on page 5 - 56 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 4-5 Environmental Specifications on page 4 - 25 for environmental specifications.
Check installation: Industrial Panel PC mounted securely	Refer to 5-3 Mount on page 5 - 14 for installation details.
Check wiring and connections: Cable connectors fully inserted and locked No damaged wiring or connectors	Refer to 5-4 Wire on page 5 - 27 for wiring details. Refer to 5-5 Connect on page 5 - 40 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 <i>4-4 Display Specifications</i> on page 4 - 24 for display specifications. Refer to <i>Industrial Monitor Brightness Utility</i> on page 3 - 12 for brightness details. Refer to <i>Calibrate Touchscreen</i> on page 7 - 43 for calibration details.

Periodically but at least every 6 months	Reference	
Check the battery replacement date	Refer to 7-2-2 Remove the Cover on page 7 - 15 to check the label.	
on the label at the inside of the cover.	Refer to 7-2-4 Replace the Battery on page 7 - 18 to replace the battery.	
Replace the battery before the replacement date.		
Check the backup and repair me-	Refer to 7-1-7 Check the Backup and Repair Media on page 7 - 11 for	
dia.	details.	
When the Industrial Panel PC is not powered for 6 months	Reference	
Confirm both fans rotate immedi-	Refer to 7-2-3 Replace the Fan Unit on page 7 - 16 to replace the Fan	
ately after Power ON.	Unit.	
Replace the Fan Unit when the		
fans do not rotate smoothly.		

7-1-2 Clean the Touchscreen Surface

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

- · Ensure the Industrial Panel PC is OFF before cleaning.
- Wipe the Industrial 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 (an approximately 2% solution), wring out the cloth, and wipe the Industrial Panel PC.
- · Remove all residue from gum, vinyl or tape when cleaning.



Precautions for Correct Use

Turn OFF the product or disable the touchscreen for cleaning.

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.

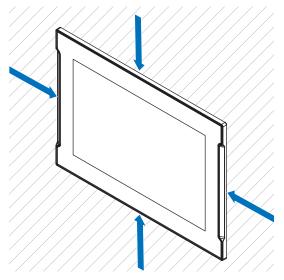
7-1-4 Check the Gasket Seal

The gasket prevents liquid from penetrating the mounting surface.

A damaged gasket can lead to Panel PC or other hardware failure.

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 Keep Software Updated

Always keep software at the latest released version to ensure stable operation.

This is specifically important for:

- · Anti-virus software
- · Firewall software
- · Internet browser
- · Windows security patches
- OMRON software



Precautions for Correct Use

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.



Additional Information

- Refer to 5-7-1 Internet Browser on page 5 47 for Browser details.
- Refer to 5-7-2 Firewall on page 5 48 for Firewall details.
- Refer to 5-7-3 Anti-virus Software on page 5 48 for Anti-virus details.

7-1-6 Create Backup and Repair Data

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



Precautions for Correct Use

Create backups according to the preventive maintenance schedule to prevent data loss and system integrity issues.

Refer to 7-1-1 Preventive Maintenance Schedule on page 7 - 2 for intervals.

Recommended software to create a backup is the Rescue Disk Utility. This software creates a system backup on a USB storage device. A system backup contains the Windows partition, the boot partition and the MBR. A system restore action will restore the Windows partition, the boot partition and the MBR of the Panel PC.

The Rescue Disk Utility allows:

- Create Backup
 The creation of a system backup.
- Restore Backup

A system restore to bring the system back to the condition it was in when the Rescue Disk backup was created.



Additional Information

- · The Rescue Disk Utility can only:
 - backup or restore the system
 - A backup or restore from any other partition or storage device is not possible.
 - do a complete system backup or complete system restore
 - A partial backup or a partial restore of a partition is not possible.
- Refer to 3-2-6 Rescue Disk Creator on page 3 14 for Rescue Disk Creator details.
- Refer to 5-9-1 Create a New Rescue Disk with the Rescue Disk Creator on page 5 57 for Rescue Disk creation details.
- Refer to *Create a System Backup with the Rescue Disk* on page 7 7 for system backup details.

The standard Windows Backup and Restore features can be used. The Windows software can create and restore full backups and partial backups. These backups can be created automatically at predefined intervals.

The Windows Backup and Restore allows:

- · Creation of a Windows Backup
 - Creates a backup of a user's selection of folders and the option to create a system image of a drive. This backup:
 - · Can not include the MBR and the Windows partition.
 - Can include data from another partition than the Windows partition.
 - Can include data from another storage device than the device with the Windows partition.
- · Creation of a Windows System Repair Disk.

Creates a Windows System Repair Disk that will also include the MBR and the Windows partition. This procedure requires a separate PC with Windows 7 and a DVD writer and also an external DVD reader.

The Repair Disk gives following options:

Startup Repair

Examines Windows 7's most integral files and repairs any missing or damaged files that may be keeping Windows 7 from starting.

· System Restore

Restores your Windows system files to an earlier point in time. It does not affect your personal files.

System Image Recovery
 Returns your PC to the condition it was in when you created the selected System Image backup.



Additional Information

- Refer to Create a Custom Backup with Windows Backup on page 7 9 for Windows Backup details.
- Refer to *Create a Windows System Repair Disk* on page 5 59 for Windows Repair Disk details.

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

Create a System Backup with the Rescue Disk

A Rescue Disk is a disk with the Rescue Disk Utility; this is the software that performs the system backup and system restore procedures of the Panel PC.

A system backup contains the Windows partition, the boot partition and the MBR.



Precautions for Correct Use

The backup data of the Rescue Disk can be used to recover the data of the Panel PC that created that backup. It can also restore data to another Panel PC if the product configuration is identical to the Panel PC that created the backup.

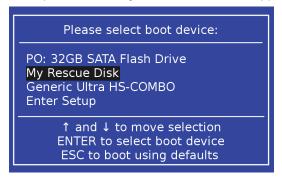


Additional Information

To create a system backup a Rescue Disk should be available. Refer to 5-9-1 Create a New Rescue Disk with the Rescue Disk Creator on page 5 - 57 for Rescue Disk creation.

To create a system backup:

- **1** Ensure the Panel PC is powered OFF.
- **2** Ensure a keyboard is connected to the Panel PC.
- **3** Connect the Rescue Disk to a USB connector of the Panel PC.
- 4 Power ON the Panel PC while pressing the **F11** key twice per second. The option to select your boot device will appear.



Your Rescue Disk will be displayed in this boot menu with the manufacturer data of your USB device.

If your boot device is not visible in this list:

- (1) Disconnect the USB connector of the Rescue Disk.
- (2) Re-insert the USB connector of the Rescue Disk.
- (3) Select Ctrl, Alt and Delete to reboot the Panel PC.
- (4) Press the F11 key twice per second.
 The option to select your boot device will appear with your boot device in the list.

5 Use the arrow keys to select the Rescue Disk and then select **Enter**.

The Recovery Manager window opens.

The mentioned number can be different from the number displayed on your screen.



6 Select Create Backup.

The backup confirmation window opens.





Windows 7

Windows 10

- 7 Select Continue to start the system backup process.
 Wait until the message Backup finished appears.
- **8** Select **OK** to return to the main menu.
- **9** Select **Exit** to close the Rescue Disk Utility. The Panel PC will power OFF.
- 10 Remove the Rescue Disk and store it in a safe place.

A system backup is created on the Rescue Disk.



Precautions for Correct Use

Create backups according to the preventive maintenance schedule to prevent data loss and system integrity issues.

Refer to 7-1-1 Preventive Maintenance Schedule on page 7 - 2 for intervals.



Additional Information

Refer to *Restore a System Backup with the Rescue Disk* on page 7 - 31 for system restore details.

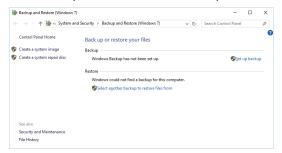
Create a Custom Backup with Windows Backup

Use the following procedure to create a custom backup of the Industrial Panel PC with the Windows Backup and Restore mechanism.

To manually or automatically create a customized backup:

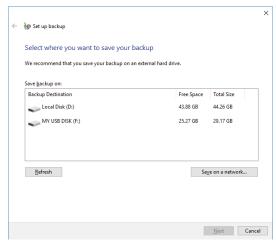
- **1** Select the Windows **Start** Button.
- 2 In search field, input Backup.
- **3** Select Backup and Restore.

The Backup and Restore window opens.



4 Select Set up backup.

The Set up backup window opens.



5 Select the backup destination.

A network location can be added with Save on a network.



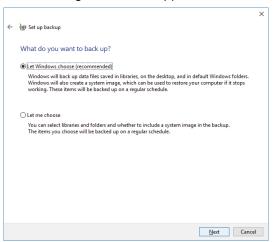
Additional Information

Preferred locations for an automatic backup are:

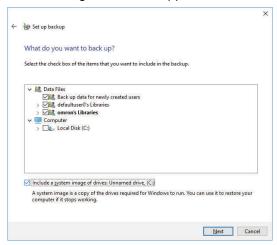
- A network drive
- The local drive in drive bay B
 Refer to 4-1-6 Storage Device Specifications on page 4 8 for specifications.

6 Select Next.

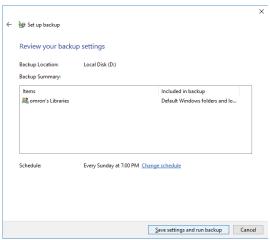
The following window will appear:



7 Select Let me choose and then select Next.
The following window will appear:



8 Select all directories you want to include in the backup.



9 Select Next.

10 Select Configure schedule or Change schedule and change the backup schedule.

- · The interval is short enough to minimize data loss when a restore is required
- · The Industrial Panel PC is powered ON during the backup periods
- The time the backup is scheduled does not interfere with normal operation or uncheck **Run backup on a schedule** if an automatic backup is not possible.
- 11 Select OK.
- 12 Select Save settings and run backup to create the first backup.



Precautions for Correct Use

Create backups according to the preventive maintenance schedule to prevent data loss and system integrity issues.

Refer to 7-1-1 Preventive Maintenance Schedule on page 7 - 2 for intervals.



Additional Information

- Check your backup to ensure it contains all data required for a restore.
- Refer to http://windows.microsoft.com/ for Backup and Restore details.
- Refer to Restore a Custom Backup with Windows on page 7 33 for the Restore Procedure.

7-1-7 Check the Backup and Repair Media

Use the following procedure to check the backup or repair media.

Check the Rescue Disk Medium

Use the following procedure to check the rescue disk for the system backup.

- 1 Follow the first few steps of the Restore a System Back with the Rescue Disk procedure to display the boot device screen.
 - Refer to Restore a System Backup with the Rescue Disk on page 7 31 for details.
- **2** Continue with the procedure until the restore selection window opens.



Select the restore option:

NBB

NBR, Boot and Windows Partitions

Windows 7

Windows 10

- 3 Select Return.
- 4 Select Exit.

The rescue disk for the system backup is approved.

Check the Custom Backup Medium (Windows)

Use the following procedure to check the custom backup medium.

- 1 Insert the backup in the Industrial Panel PC that created the backup.
- **2** Follow the first few steps of the restore procedure to display the 'Restore files' screen. Refer to *Restore a Custom Backup with Windows* on page 7 33 for details.
- **3** Browse the backup medium and ensure at least one backup is displayed.
- **4** Select **Cancel** to cancel the restore procedure.

The backup medium for the custom backup is approved.

Check the System Repair Disk (Windows)

Use the following procedure to check the system repair disk to repair Windows.

- 1 Follow the first few steps of the repair procedure to display the recovery software screen to select your keyboard language.

 Refer to Repair Windows with the System Repair Disk on page 7 36 for details.
- **2** Exit the recovery software.

The backup medium for the system repair disk is approved.

7-2 Corrective Maintenance

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

riangle 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.



Additional Information

Refer to ERR LED Indicator on page 2 - 6 for ERR details.

Industrial PC Support Utility

The Industrial PC Support Utility provides information on warnings and errors.

The Industrial PC Support Utility indicates:

- Internal temperature above setting
 Check the status of the Fan Unit and check the ambient conditions.
- Low revolution speed of the Fan Unit
 - · Check for excessive dust on the fans and in the Fan Unit.
 - · If required replace the Fan Unit.
- · Low battery status

Replace the battery.



Additional Information

- Refer to 4-5-1 Operation Environment Specifications on page 4 25 for environmental details.
- Refer to 7-2-2 Remove the Cover on page 7 15 for fan details.
- Refer to 7-2-3 Replace the Fan Unit on page 7 16 for Fan Unit replacement details.
- Refer to 7-2-4 Replace the Battery on page 7 18 for battery replacement details.

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.



Additional Information

Refer to 6-5 React to Windows Messages on page 6 - 8 for details.

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.



Additional Information

Refer to 7-2-10 Windows Low on Memory on page 7 - 40 for details.

7-2-2 Remove the Cover

The Cover of the Industrial Panel PC provides access to the following items.

- · Battery
- · Fan Unit (applies to products with active cooling)

The inside of the Cover contains the following information.

- · Battery replacement date
- License key for the operating system (optional)

No tools are required to open the Cover.

Use the following procedure to remove the Cover of the Panel PC.

1

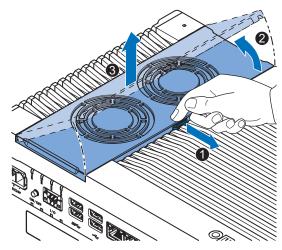
Power OFF your Panel PC if it has active cooling.



Precautions for Safe Use

Do not remove the fan cover while the power is ON. Contact with the rotating fan may result in injury.

2 Remove the Cover.



- (1) Pull the lever 1 to unlock the Cover.
- (2) Lift the side 2 to tilt the Cover.
- (3) Remove 3 the complete Cover.

The Cover is removed.

To mount the Cover, position the side of the Cover in the Panel PC and push the cover in place. The lever will lock in place.

7-2-3 Replace the Fan Unit

The fans are mounted in the Fan Unit.

Use the following procedure to replace the Fan Unit.



Precautions for Safe Use

If the replacement Fan Unit has been stored over 6 months then check the performance of the Fan Unit after replacement.



Additional Information

Refer to 2-8-2 Fan Unit on page 2 - 18 for the model.

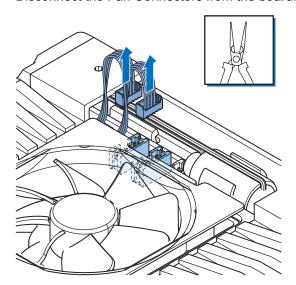
- **1** Power OFF the Panel PC.
- **2** Remove the Cover of the Panel PC.



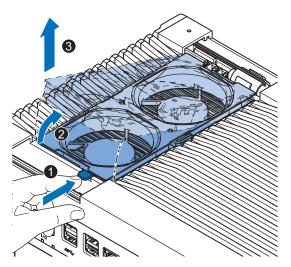
Additional Information

Refer to 7-2-2 Remove the Cover on page 7 - 15 for the cover removal procedure.

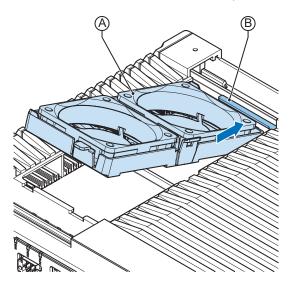
3 Disconnect the Fan Connectors from the board.



4 Replace the complete Fan Unit.



- (1) Push the lever **1** to unlock the Fan Unit.
- (2) Lift the lever to tilt 2 the Fan Unit.
- (3) Remove 3 the complete Fan Unit.
- Insert the new Fan Unit in the Panel PC.
 Ensure the end of the Fan Unit is positioned under the fan guide is.



- **6** Connect the Fan Connectors to the board.
- **7** Mount the Cover.
- 8 Power ON the system.
 Confirm both fans rotate immediately after Power ON.

The fans are replaced and the alarm is automatically reset.

7-2-4 Replace the 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.
- Apply power for at least five minutes before changing the battery. Mount a new battery within
 five minutes after turning OFF the power supply. If power is not supplied for at least five minutes, the clock data may be lost. Check the clock data after changing the battery.
- Turn ON the power after replacing the battery for a product that has been unused for ax extended period of time. Leaving the product unused without turning ON the power even once after the battery is replaced may result in a shorter battery life.



Additional Information

- Refer to 2-8-1 Battery on page 2 18 for the battery model.
- UL standards require that batteries be replaced by experienced technicians.
 Always place an experienced technician in charge of battery replacement.

Use the following procedure to replace the battery:

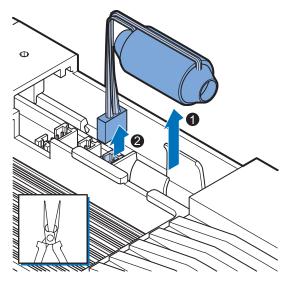
- **1** Power OFF the Panel PC.
- **2** Remove the cover.



Additional Information

Refer to 7-2-2 Remove the Cover on page 7 - 15 for the cover removal procedure.

- **3** Lift the battery **1** from the compartment.
- **4** Disconnect the battery from the battery connector **2**.



- **5** Connect the new battery to the battery connector.
- 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.
- Write the next date of replacement on the label at the inside of the cover.



Additional Information

Refer to 2-8-1 Battery on page 2 - 18 for lifetime of the battery.

- **8** Mount the cover.
- **9** Remove the power connector for at least 3 seconds to reset the battery warning.
- 10 Power ON the Panel PC.
- **11** Check the Date and Time in the operating system. Correct the Date and Time if this is required.

The battery is replaced and the alarm is reset.

7-2-5 Replace a Drive

Use the following procedure to replace a drive.

Prepare the new drive.

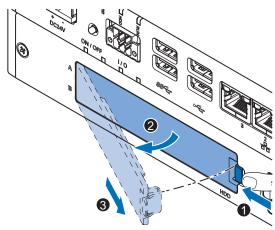


Additional Information

- Refer to 1-4 Product Configuration on page 1 5 for the installed drive model.
- Refer to 2-9-3 Storage Devices on page 2 21 for the available drive models.
- Refer to 4-1-6 Storage Device Specifications on page 4 8 for drive specifications.

To replace a drive:

- **1** Power OFF the Panel PC.
- **2** Remove the drive cover.



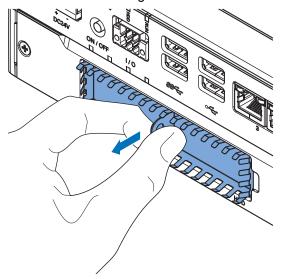
- (1) Push the lock lever **1**.
- (2) Tilt the cover 2.
- (3) Remove the drive cover 3.



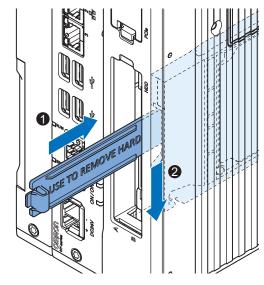
Additional Information

- Refer to 2-4 Drive Bays on page 2 10 for the location of the drive cover.
- The Panel PC has 2 drive bays, marked with "A" and "B" at the left side of the drive cover.
 Take note of the bay position for the drive that is being removed and do not place a drive in the incorrect bay.

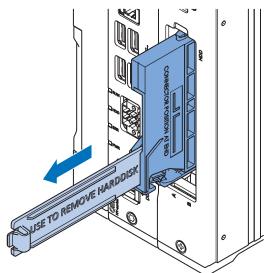
3 Pull the metal shielding cover out of the Panel PC.



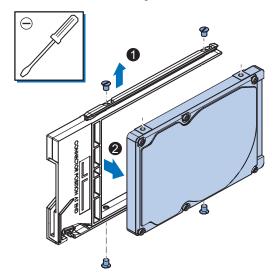
4 Insert the drive cover in the drive bracket bay 1 and move it down 2 so that it locks in the drive bracket.



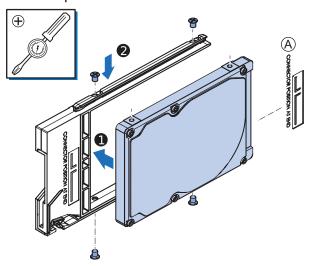
5 Remove the drive bracket from the Panel PC using the drive cover.



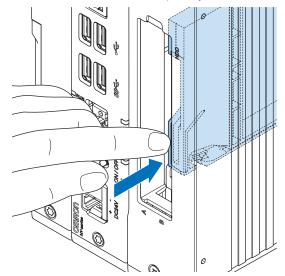
6 Remove the 4 mounting screws **1** and then remove the drive **2** from the drive bracket.



7 Align the connectors of the replacement drive as shown A on the bracket. Then insert the replacement drive 1 in the bracket and insert the 4 mounting screws 2. Tighten these screws with a torque of 0.35 N·m.

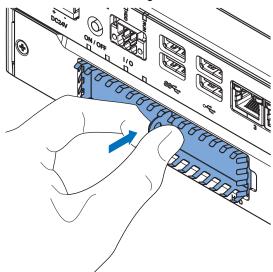


Insert the bracket with the replacement drive into the correct bay of the Panel PC. Ensure the bracket is completely in the Panel PC with an extra push.



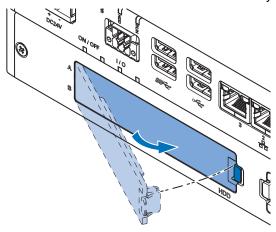
The drive bracket will lock into place when it is fully inserted.

9 Insert the metal shielding cover.



10 Mount the drive cover.

The lock lever will click when closed correctly.



11 Restore the drive data.

- For products *NYB*□ and *NYP*□:
 - For an Industrial PC with RTOS Controller restore the drive data from a backup.
 - For an Industrial PC without Operating System restore the drive data from a backup.
 - For an Industrial PC with a Windows operating system refer to the restore procedure in the section *Corrective Maintenance* to restore data.
- For products *NY512-A* refer to the restore procedure in the section *Corrective Maintenance* to restore data.
- For products NY512-1□ refer to the NY-series IPC Machine Controller Industrial Panel PC / Industrial Box PC Setup User's Manual (Cat. No. W568) to restore data from a backup.

12 Finalize the drive replacement.

If the Panel PC has a Windows operating system and the storage drive is not visible in Windows then the drive needs to be allocated.

The drive is replaced.

7-2-6 Replace the PCIe Card

Use the following procedure to replace the PCIe Card.

Prepare:

· The PCIe Card



Additional Information

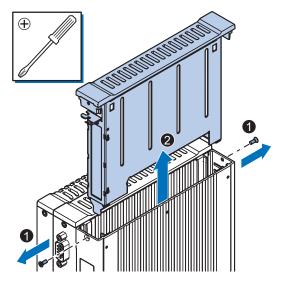
Refer to 4-1-7 PCIe Card Specifications on page 4 - 9 for PCIe specifications.

• The PCIe Card mounting materials: Card Clip and Card Support These are supplied with the Industrial Panel PC.

To replace the PCIe Card:

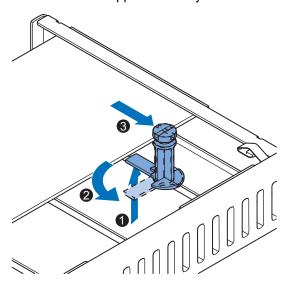
- **1** Power OFF the system.
- **2** Unmount the Panel PC.
- Remove the two crosshead screws indicated with "open" and then pull up the PCIe Drawer.

The indent at the side of the drawer will help you to pull the drawer from the Panel PC.

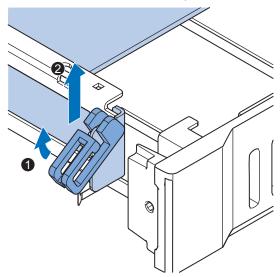


4 Push the notch • at the bottom of the Card Support up and rotate • the Card Support.

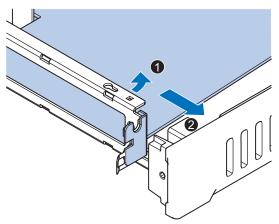
Slide the Card Support • away from the card to create space and to remove it.



5 Pull the middle of the Card Clip to unlock it and remove it from the PCle Drawer.

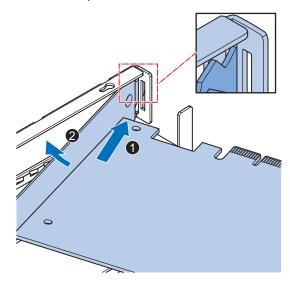






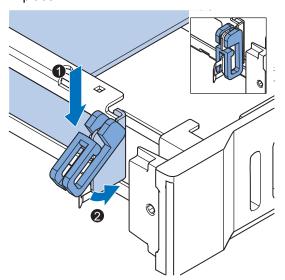
The PCIe Card is now removed.

7 Place the replacement PCIe Card in the PCIe Drawer.

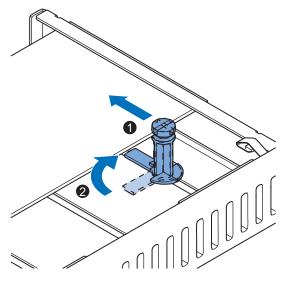


Ensure the PCIe Card is inserted into the correct opening.

8 Place the Card Clip in the PCle Card and PCle Drawer **1** and then rotate the Clip **2** to lock it in place.

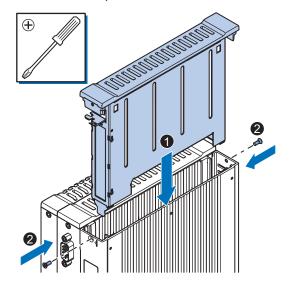


9 Slide the Card Support • so that it supports the side of the PCIe Card.
Rotate the Card Support • to lock it in place.



Ensure the Card Support contacts the PCIe Card with the small groove so that there is support below and above the PCIe Card.

10 Insert the PCIe Drawer in the Panel PC and then insert the two crosshead screws that hold the PCIe Drawer in place.



11 Remount the Panel PC.

12 Confirm normal operation. The PCIe Card is replaced.

7-2-7 Restore and Repair Data

Depending on the available backup and repair data an applicable restore or repair action can be selected.

Use following actions to restore or repair your Panel PC.

- Restore the Windows partition, the boot partition and the MBR to the moment the selected Rescue Disk was created.
 - This is a system restore with the Rescue Disk.
 - Refer to Restore a System Backup with the Rescue Disk on page 7 31 for system restore details.
- Restore a user's selection of folders to the moment the selected Windows backup was created. Refer to *Restore a Custom Backup with Windows* on page 7 33 for Windows restore details.
- Repair Windows.
 Refer to Repair Windows with the System Repair Disk on page 7 36 for Windows repair disk details.



Additional Information

Contact your OMRON representative when the Panel PC needs to be restored and you do not have a system backup.

Restore a System Backup with the Rescue Disk

A Rescue Disk is a disk with the Rescue Disk Utility; this is the software that performs the backup and restore procedures.

Use the Rescue Disk to restore the system backup. This will restore the Windows partition, the boot partition and the MBR to the moment the Rescue Disk backup was created.



Precautions for Correct Use

The backup data of the Rescue Disk can be used to recover the data of the Panel PC that created that backup. It can also restore data to another Panel PC if the product configuration is identical to the Panel PC that created the backup.



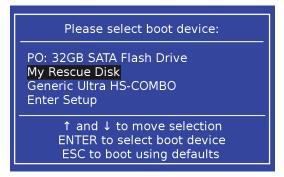
Additional Information

To restore a system backup, a Rescue Disk with a system backup should be available. Refer to 5-9-1 Create a New Rescue Disk with the Rescue Disk Creator on page 5 - 57 for Rescue Disk creation details.

Refer to Create a System Backup with the Rescue Disk on page 7 - 7 for system backup details.

To restore a system backup:

- **1** Ensure the Panel PC is powered OFF.
- **2** Ensure a keyboard is connected to the Panel PC.
- **3** Connect the Rescue Disk to a USB connector of the Panel PC.
- 4 Power ON the Panel PC while pressing the **F11** key twice per second. The option to select your boot device will appear.



Your Rescue Disk will be displayed in this boot menu with the manufacturer data of your USB device.

If your boot device is not visible in this list:

- (1) Disconnect the USB connector of the Rescue Disk.
- (2) Re-insert the USB connector of the Rescue Disk.
- (3) Select Ctrl, Alt and Delete to reboot the Panel PC.
- (4) Press the F11 key twice per second.
 The option to select your boot device will appear with your boot device in the list.

5 Use the arrow keys to select the Rescue Disk and then select **Enter**. The Recovery Manager window opens.



The mentioned number can be different from the number displayed on your screen.

6 Select Restore Backup.

The restore selection window opens.





Windows 7

Windows 10

- 7 Select:
 - Windows Partition for Windows 7
 - MBR, Boot and Windows Partitions for Windows 10

to restore the system.

The overwrite confirmation window opens.



- 8 Select **Yes** to start the system restore process. Wait until the message **Restore finished** appears.
- **9** Select **OK** to return to the main menu.
- 10 Select Exit to close the Rescue Disk Utility.
 The Panel PC will power OFF.
- 11 Remove the Rescue Disk and store it in a safe place.

The system backup of the Panel PC is restored.



Additional Information

- Refer to 3-2-6 Rescue Disk Creator on page 3 14 for Rescue Disk Creator details.
- Refer to 5-9-1 Create a New Rescue Disk with the Rescue Disk Creator on page 5 57 for Rescue Disk creation details.
- Refer to Create a System Backup with the Rescue Disk on page 7 7 for system backup details.

Restore a Custom Backup with Windows

Use the following procedure to restore a custom backup of user files with Windows Backup and Restore.



Additional Information

- With Windows Backup and Restore it is not possible to restore the complete boot disk or the
 operating system. Use the Windows Repair Disk to repair the Windows operating system.
 Refer to http://windows.microsoft.com/ for Backup and Restore details.
 Refer to Restore a System Backup with the Rescue Disk on page 7 31 for Repair Disk details
- Refer to Create a Custom Backup with Windows Backup on page 7 9 for Custom Backup details.
- Use the Windows System Repair Disk to repair the Windows operating system when Windows can not be started.
 - Refer to Repair Windows with the System Repair Disk on page 7 36 for repair details.

Ensure:

- · The Industrial Panel PC is ON
- · You are logged in
- · A backup is created earlier and it is available

To restore a backup:

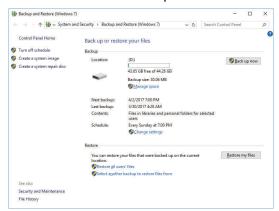
- 1 Select the Windows **Start** Button.
- **2** In the search field, input *Backup*.
- **3** Select Backup and Restore.

The Backup and Restore window opens.

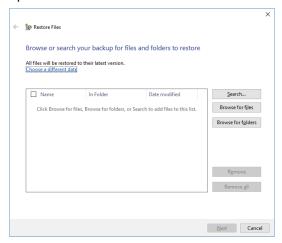


4 Select Restore my files.

The restore files window opens.



5 Use the buttons **Search** and **Browse for files** or **Browse for folders** to find the created back-up.



6 Add the files and folders to be restored and then select **Next**.

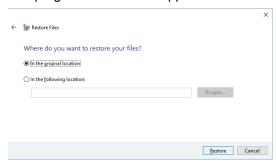


Additional Information

With this Windows Restore procedure it is not possible to restore files that are in use. This means system files and files of the logged in user can not be restored with this procedure. Refer to *Repair Windows with the System Repair Disk* on page 7 - 36 for Windows Repair details.

7 Select In the original location and then select Next.

The progress window will appear.



8 Wait until the message Your files have been restored appears and then select Finish.



The files are restored.

Repair Windows with the System Repair Disk

Use the following procedure to repair the Windows operating system with a System Repair Disk.

Ensure:

- · The Industrial Panel PC is powered OFF.
- · A System Repair Disk is created earlier and it is available.

To perform a system repair:

- 1 Connect a USB keyboard, a USB mouse and a USB external DVD drive to the Industrial Panel PC.
- **2** Power ON the Industrial Panel PC and immediately press the **F11** key repeatedly.
- **3** Insert the System Repair Disk in the DVD drive.
- Select DVD Drive as boot device and press Enter.
 The message Windows is loading files ... and a progress bar appear.
- **5** Press any key to start and wait until the recovery software started.
- **6** Select your keyboard language and then select **Next**. The System Recovery Options window appears.
- 7 Select Restore your computer using a system image that you created earlier and select Next.
- 8 Select **Use latest available system image** and then select **Next**. The Re-Image Your Computer window appears.
- **9** Do not change the setting to restore C: , select **Next**.
- **10** Review the settings and select **Finish**.
- **11** Wait until the repair process is finished, this can take several hours.
- **12** Restart the Industrial Panel PC.

Windows is repaired.



Additional Information

- Refer to http://windows.microsoft.com/ for System repair details.
- Refer to Create a Windows System Repair Disk on page 5 59 for System Repair disk creation.
- Refer to 5-9 Create Backup and Repair Data on page 5 56 for Backup creation.

7-2-8 Allocate a Drive in Windows

An added drive must be allocated before it becomes visible in Windows.

To allocate a drive in Windows:

- **1** Ensure the Panel PC is ON.
- 2 Select the Windows **Start** Button.
- **3** In the search field, input *partition*.
- 4 Select Create and format hard disk partitions.
 The Disk Management window opens. The new disk is displayed with a storage space Unallocated.
- **5** Right click on the unallocated space and select **New Simple Volume**. The New Simple Volume Wizard opens.
- **6** Follow the steps in the New Simple Volume Wizard.

The drive is installed and ready for use in Windows under the configured drive letter.



Additional Information

Do not format, resize or change settings for partition C:. Windows is installed on drive partition C: and any change to this partition can cause Windows to stop working.

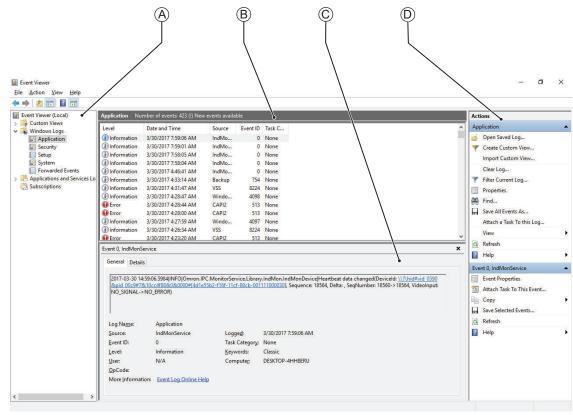
7-2-9 Windows Event Viewer

The Windows Event Viewer displays logged events.

These logged events can support you in corrective maintenance.

- 1 Select the Windows Start Button.
- 2 In the search field, input Event.
- 3 Select View event logs.

The Event Viewer opens.



Item	
Α	Selection tree
В	Event list
С	Event details
D	Action list

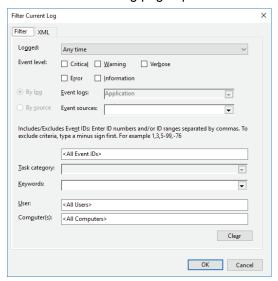
- In the Selection tree expand Windows Logs and select Application.
 The Event list will display the Events.
- **5** Select the heading **Source** to sort the event messages per application.
- **6** Scroll to the event you want to investigate.

 Refer to the section 'Logging' of a specific utility for more details.
- 7 Select the event to display details in the Event details window or to take action in the Action overview window.

Filter Events and Event Details

This procedure explains how to filter events in the Windows event log. To filter the events:

- **1** Open the Windows Event Viewer. Refer to 7-2-9 Windows Event Viewer on page 7 - 38 for details.
- 2 In the Actions list select Filter Current Log.
 The Filter Current Log page opens.



- 3 Input the desired filters and select **OK**.
- The filtered events will appear in Event list of the Event Viewer.
 Select an event in the Event list to display Event details in the Event details part of the Event Viewer.

The filtered events are available including the details per event.

7-2-10 Windows Low on Memory

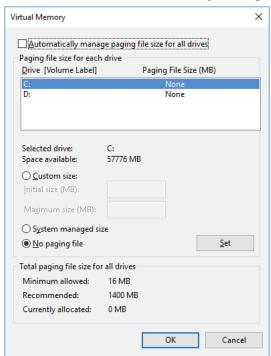
The Windows memory can become low when adding applications and/or updates.

When the memory is low a new window with the message *Close programs to prevent information loss* will appear.

Increase the paging file size to solve this problem.

To increase the page file size:

- **1** Select the Windows **Start** Button.
- 2 In the search field, input advanced system settings.
- 3 Select View advanced system settings.
 The Advanced tab page in the Windows System properties will appear.
- **4** In the group **Performance**, select the **Settings...** Button. The Performance options window will appear.
- **5** Select the **Advanced** tab page.
- 6 In the group Virtual memory, select the Change... Button.
- 7 Select the checkbox Automatically manage paging file size for all drives.



8 Select the **OK** Button to save this setting.



Precautions for Safe Use

Virtual memory settings can affect the performance of the system. Disable the paging file after installation of applications or updates.

7-2-11 Windows Blue Screens

A blue screen will appear if Windows crashes.

Possible solutions for repetitive blue screens:

- 1 Install the latest updates of Windows.
- **2** Install the latest device drivers.
- **3** If changes to the system were made: Undo recent hardware changes, undo recent driver updates and then roll back system to latest working state.



Additional Information

Refer to http://windows.microsoft.com/en-us/windows7/resolving-stop-blue-screen-errors-in-windows-7 for details.

7-2-12 Correct Display Functionality when Nothing is Displayed

When it seems the display is not functional, check the ERR LED.

- · If the ERR LED is OFF
 - Check if the power supply is present.

Refer to 4-1-2 General Electrical Specifications on page 4 - 3 for power supply specifications.

· Check if the brightness setting is not too low.

Refer to Industrial Monitor Utility for brightness details.

The Industrial Monitor Utility information is available:

- For products *NYP*□ in the section *Software* in this manual.
- For products NY5□ in the NY-series IPC Machine Controller Industrial Panel PC / Industrial Box PC Setup User's Manual (Cat. No. W568)
- If the ERR LED is blinking check if the Panel PC is not in standby mode.
- · If the ERR LED is ON
 - Check if the power supply voltage is inside specifications.

Refer to 4-1-2 General Electrical Specifications on page 4 - 3 for power supply specifications.

- · Check if the ambient temperature is inside specifications.
 - Refer to 4-5-1 Operation Environment Specifications on page 4 25 for temperature specifications.
- · Check if the Fan Unit has no warning messages.

Refer to ERR LED Indicator on page 2 - 6 for message details.

Check if a watchdog error occurred.

The watchdog is disabled by default and can only be enabled by software using the Industrial PC System API.

The API information is available:

- For products *NYP*□ in the section *Software*.
- For products NY5□ refer to the NY-series IPC Machine Controller Industrial Panel PC / Industrial Box PC Setup User's Manual (Cat. No. W568)

7-2-13 Correct Touchscreen Functionality

The touchscreen functionality can have several unwanted situations.

- (1) With one display:
 - · No touch response
 - Refer to Correct Touchscreen Functionality with No Touch Response on page 7 42 for details.
 - The touch response is at a different position than the actual touch Refer to *Calibrate Touchscreen* on page 7 43 for details.
- (2) With more than one display:

When other monitors are connected it is possible the touch actions on the touchscreen monitor show a response on another monitor.

Refer to Correct Touchscreen Functionality with Multiple Monitors on page 7 - 44 for details.

Correct Touchscreen Functionality with No Touch Response

When the touchscreen functionality is not functional, check:

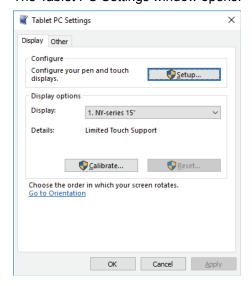
- Water present on the display surface.
 Wipe the display surface with a dry lint free cloth.
- When using gloves, ensure to use gloves that had no problems when the touch functionality was functional.

Calibrate Touchscreen

When the resolution of the touchscreen monitor is changed the touch functionality might not scale accordingly. The result is that touching the touchscreen monitor will display the touch at incorrect locations.

Use the following procedure to calibrate the touchscreen functionality of your Industrial Panel PC.

- **1** Select the Windows **Start** Button.
- 2 In the search field, input *Tablet*.
- 3 Select Tablet PC Settings.
 The Tablet PC Settings window opens.



- 4 Select the Calibrate Button.
 A window with lines and a touch indicator will appear.
- Touch the indicator on all locations where it appears.
 When finished a window appears with the question Do you want to save the calibration data?
- **6** Select the **Yes** Button.
- **7** Check the touchscreen functionality.

The touchscreen functionality is calibrated.

Correct Touchscreen Functionality with a PenMount Message

When a touchscreen monitor receives incorrect signals the message *PenMount Device touch disabled* at abnormal state. Please remove palm or water. appears.



Touching the display has no effect.

The **OK** Button will remove the pop-up so the display can be used with a mouse and a keyboard.

Use the following procedure to enable the touchscreen functionality of your Industrial Panel PC.

- **1** Ensure nothing touches the display.
- **2** Dry the surface with a soft cloth.
- **3** Check the touchscreen functionality.

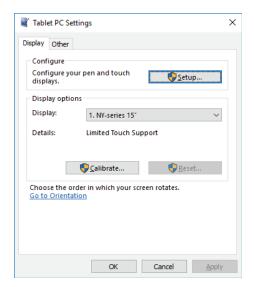
The touchscreen functionality is enabled.

Correct Touchscreen Functionality with Multiple Monitors

When more than one monitor is connected then Windows can not determine which monitor has the touch functionality. The result is that touching the touchscreen monitor can result in actions on a different connected monitor.

Use the following procedure to correct the touchscreen functionality on monitors of your Industrial Panel PC.

- 1 Select the Windows Start Button.
- **2** In the search field, input *Tablet*.
- 3 Select **Tablet PC Settings**.
 The Tablet PC Settings window opens.



4 Select the Setup Button.

An empty screen appears with only the message *Touch this screen to identify it as the touchscreen. If this is not the Table PC screen, press Enter to move to the next screen. To close the tool, press Esc.*



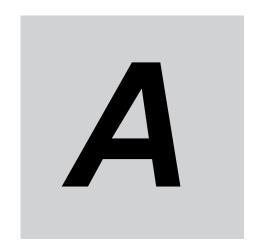
- **5** Select **Enter** to move the message to the connected monitor with touch functionality.
- Touch the screen to indicate it is the correct monitor with touch functionality.

 The message appears *Press Enter to proceed to the next step to complete your configuration.*
- 7 Select the Enter key.
- Check the touchscreen functionality.

 Calibrate the touch functionality if the touch indicator does not appear at the location that you touch.

Refer to Calibrate Touchscreen on page 7 - 43 for calibration details.

The touchscreen functionality is available on the correct monitor.



Appendices

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	A-1-3	BIOS - Advanced	
	A-1-4	BIOS - Chipset	
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A-1 BIOS

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

riangle 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.

The touchscreen functionality is not functional when working in BIOS.

Ensure a USB keyboard is connected.

BIOS Setup Program

Press the **DEL** or **F2** 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 $\rightarrow \leftarrow$ keys to navigate between pages.

The menu bar gives access to following pages with settings:

• Main

Refer to A-1-2 BIOS - Main on page A - 4 for Main details.

Advanced

Refer to A-1-3 BIOS - Advanced on page A - 5 for Advanced details.

Chipset

Refer to A-1-4 BIOS - Chipset on page A - 9 for Chipset details.

Boot

Refer to A-1-5 BIOS - Boot on page A - 10 for Boot details.

Security

Refer to A-1-6 BIOS - Security on page A - 11 for Security details.

Save & Exit

Refer to A-1-7 BIOS - Save & Exit on page A - 11 for Save and Exit details.

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.

The BIOS password is case sensitive with a minimum of 3 characters and a maximum of 20 characters. 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.

A-1-2 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.

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.

A-1-3 BIOS - Advanced

This section provides advanced BIOS information.

Changeable BIOS Advanced parameters and their factory default values:

Item			Default / Remark
Machine Control *1			Disabled
Graphics	Primary Graphics Device		Auto
	Internal Graphics Device		Auto
	IGD Pre-Allocated Graphic	s Memory	32M
	IGD Total Graphics Memor	у	256M
	Primary IGD Boot Display I	Device	Auto
	Active LFP Configuration		eDP / for Industrial Panel PC No Local Flat Panel / for Industrial Box PC
	Digital Display Interface 1		HDMI/DVI
	Digital Display Interface 2		HDMI/DVI
Hardware Health	Start Temperature		50 C
Monitoring *1	Temperature Range		30 C
	Minimum Fan Speed		30% / Fixed
	Maximum Fan Speed		100%
	Fan Always On At Minimum Speed		Disabled
PCI & PCI Express	PCI Latency Timer		32 PCI Bus Clocks
	PERR # Generation		Disabled
	SERR # Generation		Disabled
	PIRQ Routing & IRQ Reservation	PIRQA,B,C,D,E,F,G,H	Auto
	PCI Express Settings	Relaxed Ordering	Disabled
		Extended Tag	Disabled
		No Snoop	Enabled
		Maximum Payload	Auto
		Maximum Read Request	Auto
		ASPM	Disabled
		Extended Synch	Disabled
		Link Training Retry	5
		Link Training Timeout (us)	100
		Unpopulated Links	Disabled
		Restore PCIe Registers	Disabled

	Item		Default / Remark
PCI & PCI Express	PCI Express Gen 2 Set-	Completion Timeout	Default
	tings	ARI Forwarding	Disabled
		AtomicOp Requester Enable	Disabled
		AtomicOp Egress Block- ing	Disabled
		IDO Request Enable	Disabled
		IDO Completion Enable	Disabled
		LTR Mechanism Enable	Disabled
		End-End TLP Prefix Blocking	Disabled
		Target Link Speed	Auto
		Clock Power Manage-	Disabled
		ment	
		Compliance SOS	Disabled
		Hardware Autonomous Width	Enabled
		Hardware Autonomous Speed	Enabled
	PCI Express Gen3 Set-	Run-time C7 Allowed	Disabled
	tings (for Port 0 and 1) *1	Detect Non-compliant Device	Disabled
		Program PCIe ASPM after OpROM	Disabled
		PEG Sampler Calibrate	Disabled
		Swing Control	Full
		Peg Gen3 Equalization	Enabled
		- Gen3 EQ Phase 2	Enabled
		- PEG Gen3 Root Port Preset Value for each Lane. Lane 015	8
		- PEG Gen3 Endpoint Preset Value for each Lane. Lane 015	7
		- PEG Gen3 Endpoint Hint Value for each Lane. Lane 015	2
		- Gen3 Eq Preset Search	Enabled
		– Always Re-search Gen3Eq Preset	Disabled
		– Preset Search DwellTime	1000
		– Error Target	1
		PEG RxCEM Loopback Mode	Disabled
		PCIe Gen3 RxCTLEp Setting. PCIe Gen3	8
		RxCTLEp 07	

	Default / Remark		
PCI & PCI Express	GbE Channel 0	PCI Express Port 0	Enabled
		ASPM	Disabled
	GbE Channel 1	PCI Express Port 1	Enabled
		ASPM	Disabled
	PCI Express Port 0, 1 (x4	PEG1 Speed	Auto
	Gen3) *4	PEG1 ASPM	Disabled
		PEG1 De-emphasis Control	-3.5 dB
	PCI Express Port 2, 3, 4,	PCI Express Port x	Enabled
	5 (x1 Gen2) *4	ASPM	Disabled
		Hot Plug	Disabled
		PCIe Speed	Auto
		Detect Non-compliant De-	Disabled
		vice	
ACPI	Hibernation Support		Disabled
	ACPI Sleep State		Suspend Disabled
	Lock Legacy Resources		Disabled
	S3 Video Repost		Disabled
	ACPI Low Power S0 Idle *3 *2		Disabled
	Native PCI Express Support		Enabled
	- Native ASPM		Disabled
	ACPI Debug		Disabled
	ACPI 5.0 CPPC Support		Disabled
	Active Trip Point *3 *2		71 C
	Automatic Critical Trip Point		Enabled
RTC Wake	Make System At Fixed Tim	е	Disabled
Trusted Computing	Security Device Support		Enable
	TPM State		Enabled
	Pending operation		None

	Item		Default / Remark
CPU	CPU Information		Display of CPU parame-
			ters
	Set Boot Freq Ratio		255
	Hyper-Threading *2 *1		Enabled
	Active Processor Cores		All
	Limit CPUID Maximum		Disabled
	Execute Disable Bit		Enabled
	Intel Vitalization Technolog	ıy	Enabled
	Hardware Prefetcher		Enabled
	Adjacent Cache Line Prefe	etch	Enabled
	CPU AES *2 *1		Enabled
	EIST		Enabled
	- Turbo Mode *2 *1		Enabled
	- Energy Performance *2 *1		Performance
	P-State Reduction *3		Disabled
	CPU C States		Disabled
	TCC Activation Offset		0
	Intel TXT(LT) Support *2 *1		Disabled
SATA	SATA Controller(s)		Enabled
	SATA Mode Selection		AHCI
	SATA Test Mode		Disabled
	Aggressive LPM Support		Disabled
	SATA Controller Speed		Default
	·		Enabled *5
	*5	Hot Plug	Disabled
		External SATA	Disabled
		SATA Device Type	Hard Disk Drive
		Spin Up Device	Disabled
Memory Configuration	Spiri op Device		Display of memory pa-
momory comiguration			rameters
Intel (R) Rapid Start Tec	hnology		Disabled
USB	XHCI Mode		Smart Auto
	Overcurrent Protection		Disabled
	USB Ports Per-Port Disa-	USB Ports Per-Port Disa-	Enabled
	ble Control	ble Control	
		- USB Port 06	Enabled
		- USB 3.0 Port 01	Enabled
	Legacy USB Support		Enabled
	External USB Controllers Support		Enabled
	XHCI Hand-off		Enabled
	EHCI Hand-off		Disabled
	USB Mass Storage Driver Support		Enabled
	USB Transfer Timeout		20 sec
	Device Reset Timeout		20 sec
	Device Power-up Delay Selection		Auto
	Generic Ultra HS-COMBO		

	Default / Remark		
SMART Settings	Smart Self Test *6		Disabled
UEFI Network Stack	UEFI Network Stack	Disabled	
NVMe Configuration	NVMe Configuration		
Intel® Ethernet	NIC Configuration	Link Speed	Auto Negotiated
Connection I218-LM -		Wake On LAN	Enabled
Unique MAC Address	Blink LEDs		0

^{*1.} Only for Panel PCs with a CPU type Intel[®] Core[™] i7-4700EQ.

- Panel PCs with an Intel[®] Core[™] i7-4700EQ CPU type use Port 0..5
- Panel PCs with an Intel[®] Core[™] i5-4300U CPU type use Port 2 and 3
- Panel PCs with an Intel[®] Celeron[®] 2980U CPU type use Port 2 and 3
- *5. Panel PCs with an Intel® Celeron® 2980U CPU type only Port 0 and 1 are available
 - Panel PCs with an Intel[®] Core[™] i5-4300U CPU type Port 1 is Disabled
 - Panel PCs with an Intel[®] Core[™] i7-4700EQ CPU type Port 1 is Disabled. For Port 2: SATA Port = Enabled.
- *6. Smart Self Test monitors the status of the HDD/SSD. Enable only when Smart Monitoring software is used.

A-1-4 BIOS - Chipset

Provides Chipset settings.

Changeable BIOS Chipset parameters and their factory default values:

	Default / Remark	
Platform Controller Hub	PCI Express Clock Gating	Disabled
(PCH)	DMI Link ASPM PCH Side	Disabled
	DMI Link Extended Synch Control	Disabled
	Isolate SMBus Segments	During POST
	PCIe-USB Glitch W/A	Disabled
	USB Precondition	Disabled
	BTCG	Enabled
	HDA Controller	Auto
	HDA PME	Disabled
	PCH LAN Controller	Enabled
	Wake on LAN	Enabled
	Serial IRQ Mode	Continuous
	SB CRID	Disabled
	Port 80h Redirection	LPC Bus
	Subtractive Decode	Disabled
Processor (Integrated	VT-d *1 *2	Enabled
Components	Audio Device (B0:D3:F0)	Enabled
	NB CRID	Disabled
	BDAT ACPI Table Support	Disabled

^{*1.} Only for Panel PCs with a CPU type Intel[®] Core[™] i5-4300U.

^{*2.} Only for Panel PCs with a CPU type Intel[®] Core[™] i5-4300U.

^{*3.} Only for Panel PCs with a CPU type Intel® Celeron® 2980U.

^{*4.} The active PCI Express Port number is related to the CPU type

^{*2.} Only for Panel PCs with a CPU type Intel® Core™ i7-4700EQ.

A-1-5 BIOS - Boot

Provides Boot information and configuration settings.

Changeable BIOS Boot parameters and their factory default values:

It	Default / Remark	
Quiet Boot	Disabled	
Setup Prompt Timeout	1	
Bootup NumLock State		On
Battery Support		Auto (Battery Manager)
Power Loss Control *1		Remain Off
CSM & Option ROM Control	Launch CSM	Enabled
	Boot Option Filter	UEFI and Legacy
	PXE Option ROM Launch Policy	UEFI ROM Only
	Storage Option ROM Launch Policy	Legacy ROM Only
	Video Option ROM Launch Policy	Legacy ROM Only
	Other Option ROM Launch Policy	UEFI ROM Only
	Gate A20 Active	Upon Request
	Option ROM Messages	Force BIOS
Enter Setup If No Boot Device		No
Enable Popup Boot Menu		Yes
Boot Priority Selection		Type Based
Boot Option Sorting Method		Legacy First
Type Based Boot Priority	1st Boot Device	SATA 2 Drive *2
	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
UEFI Fast Boot		Disabled

^{*1.} Power Loss Control settings are:

Remain OFF: The Industrial Panel PC will stay OFF when power is supplied to the power connector Turn ON: The Industrial Panel PC will automatically start up when power is supplied to the power connector. Last State: The Industrial Panel PC will start up or remain OFF when power is supplied based on the Industrial Panel PC state at the moment power was removed from the power connector.

^{*2.} For Panel PCs with a CPU type Intel® Celeron® 2980U: SATA 1 Drive

A-1-6 BIOS - Security

Provides security information like BIOS Password and HDD information.

⚠ 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:

	Default / Remark		
BIOS Password			Empty
BIOS Lock			Enabled
HDD Security Configuration	Diskname		Display disk parameters
Secure Boot Menu	Secure Boot Menu Secure Boot Mode Key Management Default Key Provision		Disabled
			Custom
			Disabled
		Platform Key (PK)	NOT INSTALLED
		Key Exchange Key (KEK)	NOT INSTALLED
		Authorized Signatures	NOT INSTALLED
		Forbidden Signatures	NOT INSTALLED
		Authorized TimeStamps	NOT INSTALLED

A-1-7 BIOS - Save & Exit

Provides the possibility to leave the BIOS with or without saving changes.

Save & Exit Parameters: Disabled.

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.

A-2 Customize Windows

This section provides an overview of the tools to customize Windows.

A-2-1 Enhanced Write Filter

The Enhanced Write Filter (EWF) is applicable to Panel PCs with a Windows 7 operating system. The Enhanced Write Filter (EWF) intercepts disk changes and stores them into a memory overlay in RAM memory instead of applying them to the original volume.



Additional Information

- File-Based Write Filter (FBWF) provides a similar function, but operates at the file level, while EWF operates at the sector level.
- · Refer to the Microsoft Developer Network (MSDN) for detailed information.

Application

EWF and FBWF provide the following benefits:

- · Write-protect one or more partitions on a system.
- · Make it possible to revert changes and revert to the original disk content.
- Enable booting from read-only media.
 - By redirecting all write requests to RAM, EWF and FBWF enable the run-time image to maintain the appearance of a writable run-time image.
- · Improve the file system performance when using relatively slow storage.
- · Minimize write actions to the disk.

For example, minimize write access to flash memory. Write cycles on flash memory are limited for technical reasons.

Usage

EWF is included in the Windows Embedded Standard 7 image and disabled by default. The configuration of this component can be defined with the command line tool EWFMGR. EXE.

To run to EWF Manager, open the Command Prompt with Administrator rights.

Command	Function	Remarks
ewfmgr	Shows an overview with current	
	status.	
ewfmgr c: -enable	Enables the write filter for the drive	The protection is not effective until
	C:.	the system is restarted.
ewfmgr c: -commit	Writes all the changes in the mem-	Committing the overlay can affect
	ory overlay to the physical disk dur-	the speed of the boot process.
	ing the next restart.	
ewfmgr c: -commitanddisable	Writes all the changes in the mem-	Committing the overlay can affect
	ory overlay to the physical disk dur-	the speed of the boot process.
	ing the next restart, and disables	The protection is not disabled until
	the disk protection.	the system is restarted.

Command	Function	Remarks
<pre>ewfmgr c: -commitanddisable - live</pre>	Writes all the changes in the memory overlay to the physical disk immediately, and disables the disk protection.	Protection is also disabled immediately. No restart is required.
ewfmgr c: -disable	Disables the disk protection.	The protection is not disabled until the system is restarted.
ewfmgr /h	Displays a helpscreen that explains all commands and options available.	A complete reference can also be found at the Microsoft Developer Network (MSDN).

Considerations

- · EWF and FBWF cannot be used simultaneously.
- · To prevent data loss in the event of a power failure, the use of a UPS is recommended.
- When the EWF function is enabled and a large amount of data is written, the system memory space
 will be reduced and operation may become unstable. To prevent this problem, it is recommended
 that a large amount of data be written to a different location.
- Automatic Adjustment of daylight saving time (DST) is incompatible with the Enhanced Write Filter (EWF).



Additional Information

Refer to the Microsoft Developer Network (MSDN) for DST details.

A-2-2 File-Based Write Filter

The File-Based Write Filter (FBWF) is applicable to Panel PCs with a Windows 7 operating system. The File-Based Write Filter (FBWF) intercepts file changes and stores them into a memory overlay in RAM memory instead of applying them to the original volume.

When FBWF is enabled, all files and folders of a partition are protected unless they are included in an exception list.



Additional Information

- Enhanced Write Filter (EWF) provides a similar function, but operates at the sector level, while FBWF operates at the file level. FBWF is more flexible in its configuration than EWF and allows immediate writing without rebooting.
- Refer to the Microsoft Developer Network (MSDN) for detailed information.

Application

EWF and FBWF provide the following benefits:

- · Write-protect one or more partitions on a system.
- Make it possible to revert changes and revert to the original disk content.
- Enable booting from read-only media.
 By redirecting all write requests to RAM, EWF and FBWF enable the run-time image to maintain the appearance of a writable run-time image.
- Improve the file system performance when using relatively slow storage.

Minimize write actions to the disk.
 For example, minimize write access to flash memory. Write cycles on flash memory are limited for technical reasons.

Usage

FBWF is included in the Windows Embedded Standard 7 image and disabled by default. The configuration of this component can be defined with the command line tool FBWFMGR.EXE.

To run to FBWF Manager, open the Command Prompt with Administrator rights.

Command	Function	Remarks
fbwfmgr	Shows an overview with current	
	status.	
fbwfmgr /displayconfig	Shows current configuration.	
fbwfmgr /enable	Enables the write filter.	The protection is not effective until
		the system is restarted.
<pre>fbwfmgr /addvolume c:</pre>	Adds a volume to the protected vol-	That volume will be protected after
	ume list.	the next restart.
<pre>fbwfmgr /commit c: \Test.txt</pre>	Writes the changes to the protected	
	file/folder.	
fbwfmgr /addexclusion C:	Adds a write-through path to the	The exclusion is active after the
\Test.txt	exclusion list (file/folder).	next restart.
fbwfmgr /removeexclusion C:	Removes the write-through path	The exclusion is removed after the
\Test.txt	from the exclusion list (file/folder).	next restart.
fbwfmgr /h	Displays a helpscreen that explains	A complete reference can also be
	all commands and options availa-	found at the Microsoft Developer
	ble.	Network (MSDN).



Additional Information

When specifying a file name, notice the space between drive name (c:) and file path (\Test.txt).

Considerations

- · EWF and FBWF cannot be used simultaneously.
- FBWF can only protect formatted volumes. Do not move files between protected and unprotected volumes.
- When the FBWF function is enabled and a large amount of data is written, the system memory space will be reduced and operation may become unstable. To prevent this problem, it is recommended that a large amount of data be written to a different location.
- · FBWF supports only NTFS and FAT32 file systems.
- Automatic Adjustment of daylight saving time (DST) is incompatible with the File-Based Write Filter (FBWF).



Additional Information

Refer to the Microsoft Developer Network (MSDN) for DST details.

A-2-3 Unified Write Filter

The Unified Write Filter (UWF) is applicable to Panel PCs with a Windows 10 operating system. The UWF intercepts disk changes and stores them into a memory overlay in RAM memory instead of applying them to the original volume.



Additional Information

Refer to the Microsoft Developer Network (MSDN) for detailed information.

Application

UWF provides the following benefits:

- Write-protect one or more partitions on a system.
- · Make it possible to revert changes and revert to the original disk content.
- Enable booting from read-only media.
 By redirecting all write requests to RAM the run-time image maintains the appearance of a writable run-time image.
- Improve the file system performance when using relatively slow storage.
- Minimize write actions to the disk.
 For example, minimize write access to flash memory. Write cycles on flash memory are limited for technical reasons.

Usage

UWF is included in the Windows 10 image and disabled by default. The configuration of this component can be defined with the command line tool uwfmgr.ExE.

To run to UWF Manager, open the Command Prompt with Administrator rights.

Command	Function	Remarks
uwfmgr.exe get-config	Shows an overview with current	Use this command to check the
	status	status after another command is executed
uwfmgr.exe filter	Configures basic UWF settings	
uwfmgr.exe enable	Enables the unified write filter	This change is not effective until the
		system is restarted
uwfmgr.exe disable	Disables the unified write filter	This change is not effective until the
		system is restarted
uwfmgr.exe volume protect C:	Enables the unified write filter for	
	the C: drive	
uwfmgr.exe file commit C:	Issues a commit for a new file with	Committing the overlay can affect
\temp\test1.txt	the name C:\temp\test1.txt	the speed of the boot process
uwfmgr.exe help	Displays a helpscreen that explains	A complete reference can also be
	all commands and options available	found at the Microsoft Developer
		Network (MSDN)

Considerations

• To prevent data loss in the event of a power failure, the use of a UPS is recommended.

- When the UWF function is enabled and a large amount of data is written, the system memory space will be reduced and operation may become unstable. To prevent this problem, it is recommended that a large amount of data be written to a different location.
- Automatic Adjustment of daylight saving time (DST) is incompatible with the Unified Write Filter (UWF).



Additional Information

Refer to the Microsoft Developer Network (MSDN) for DST details.

A-2-4 Trusted Platform Module

The Trusted Platform Module (TPM) integrates encryption keys into the Industrial Panel PC in order to secure hardware and software. The TPM enables the following security functions:

- Ensure the integrity of the platform: The TPM can be used in the BIOS and other software to protect against unauthorized manipulation.
- Disk encryption: The TPM can be used with "BitLocker" drive encryption.
- Password protection and other uses of encryption: The TPM provides encryption key management.



Additional Information

Refer to the Microsoft Developer Network (MSDN) for best practice information.

Usage

To enable the TPM, see the relevant section in the BIOS Settings.

To use the TPM with "BitLocker" drive encryption, please follow the instructions in the operating system.



Additional Information

Refer to A-1 BIOS on page A - 2 to enable TPM in the BIOS Settings.

Considerations

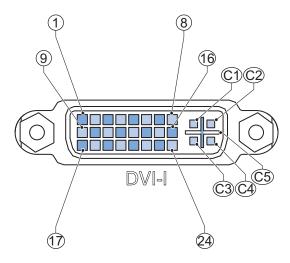
Risk of data loss: If you lose the password for the drive encryption, you will not be able to restore the data. You will then lose access to the encrypted drive. Please store the password carefully and make sure it is protected against unauthorized access.

A-3 DVI Connector Pin Details

This section provides the pin details for the DVI-I and the DVI-D connectors.

A-3-1 DVI-I Connector Pin Details

Pin details of the DVI-I connector.



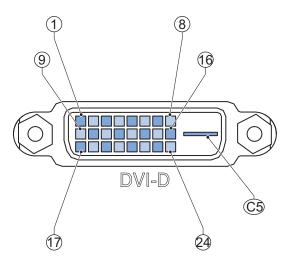
The pin layout represents the DVI-I connector on the Industrial Panel PC. Pin numbers increase from left to right for every row.

Pin	Signal Name	Function
1	TMDS data 2-	Digital red- (link 1)
2	TMDS data 2+	Digital red+ (link 1)
3	0 VDC	TMDS data 2/4 shield
4	Not connected	
5	Not connected	
6	DDC clock	DDC clock
7	DDC data	DDC data
8	Analog vertical sync	For Intel [®] Core [™] i7-4700EQ CPU type
9	TMDS data 1-	Digital green- (link 1)
10	TMDS data 1+	Digital green+ (link 1)
11	0 VDC	TMDS data 1/3 shield
12	Not connected	
13	Not connected	
14	+5 V	Power for monitor DDC interface
15	0 V	Return for pin 14 and analog sync
16	HPD	Hot Plug Detect
17	TMDS data 0-	Digital blue- (link 1) and digital sync
18	TMDS data 0+	Digital blue+ (link 1) and digital sync
19	0 VDC	TMDS data 0/5 shield
20	Not connected	
21	Not connected	
22	0 VDC	TMDS clock shield

Pin	Signal Name	Function
23	TMDS clock+	Digital clock+
24	TMDS clock-	Digital clock-
C1	Analog red	For Intel [®] Core [™] i7-4700EQ CPU type
C2	Analog green	For Intel [®] Core [™] i7-4700EQ CPU type
C3	Analog blue	For Intel [®] Core [™] i7-4700EQ CPU type
C4	Analog horizontal sync	For Intel [®] Core [™] i7-4700EQ CPU type
C5	0 VDC	Analog ground return for red, green and blue
		for Intel [®] Core [™] i7-4700EQ CPU type

A-3-2 DVI-D Connector Pin Details

Pin details of the DVI-D connector.

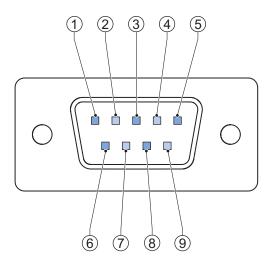


The pin layout represents the DVI connector on the Industrial Panel PC. Pin numbers increase from left to right for every row.

Pin	Signal Name	Function	
1	TMDS data 2-	Digital red- (link 1)	
2	TMDS data 2+	Digital red+ (link 1)	
3	0 VDC	TMDS data 2/4 shield	
4	Not connected		
5	Not connected		
6	DDC clock	DDC clock	
7	DDC data	DDC data	
8	Not connected		
9	TMDS data 1-	Digital green- (link 1)	
10	TMDS data 1+	Digital green+ (link 1)	
11	0 VDC	TMDS data 1/3 shield	
12	Not connected		
13	Not connected		
14	+5 V	Power for monitor DDC interface	
15	0 V	Return for pin 14	
16	HPD	Hot plug detect	

Pin	Signal Name	Function
17	TMDS data 0-	Digital blue- (link 1) and digital sync
18	TMDS data 0+	Digital blue+ (link 1) and digital sync
19	0 VDC	TMDS data 0/5 shield
20	Not connected	
21	Not connected	
22	0 VDC	TMDS clock shield
23	TMDS clock+	Digital clock+
24	TMDS clock-	Digital clock-
C5	Not connected	

A-4 RS-232C Connector Pin Details



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

Pin	Signal Name
1	CD
2	RXD
3	TXD
4	DTR
5	0 VDC *1
6	DSR
7	RTS
8	CTS
9	RI

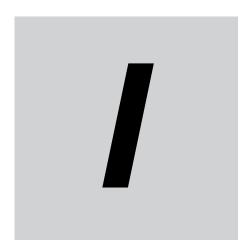
^{*1.} The 0 VDC pin is internally connected to the ground connection.



Additional Information

Refer to 5-4-2 Ground on page 5 - 27 for grounding details.

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