OMRON

Industrial PC Platform

NY-series

NYE Industrial Panel PC

Conversion Guideline for NS-series products

From
NS15-□□□□-V2
NS15-□□□□B-V2
NS12-□□□□-V2
NS12-□□□□B-V2
NS10-□□□□-V2
NS10-□□□□B-V2
NS8-□□□□-V2
NS8-□□□□B-V2
NS5-□□□□-V2
NS5-□□□□B-V2
To
NYE2A-20S11-□□WR1□00

Introduction

You want to convert your NS-series Programmable Terminal to an NYE-series Industrial Panel PC. This manual is relevant for the conversion from an NS-series product to an NYE-series product. After the conversion this manual can be discarded because all required information is available in the Hardware and Software manuals of the Industrial Panel PC.

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 and Replacements

This manual covers the conversion from NS-series Programmable Terminal products to NYE-series Industrial Panel PC products.

Discontinued Product	Recommended Replacement Model
NS15-□□□□-V2	NYE2A-20S11-15WR1300
NS15-□□□□B-V2	NYE2A-20S11-15WR1200
NS12-□□□□-V2	NYE2A-20S11-12WR1300
NS12-□□□□B-V2	NYE2A-20S11-12WR1200
NS10-□□□□-V2	NYE2A-20S11-12WR1300
NS10-□□□□B-V2	NYE2A-20S11-12WR1200
NS8-□□□□-V2	NYE2A-20S11-09WR1300
NS8-□□□□B-V2	NYE2A-20S11-09WR1200
NS5-□□□□-V2	NYE2A-20S11-07WR1300
NS5-□□□□B-V2	NYE2A-20S11-07WR1200
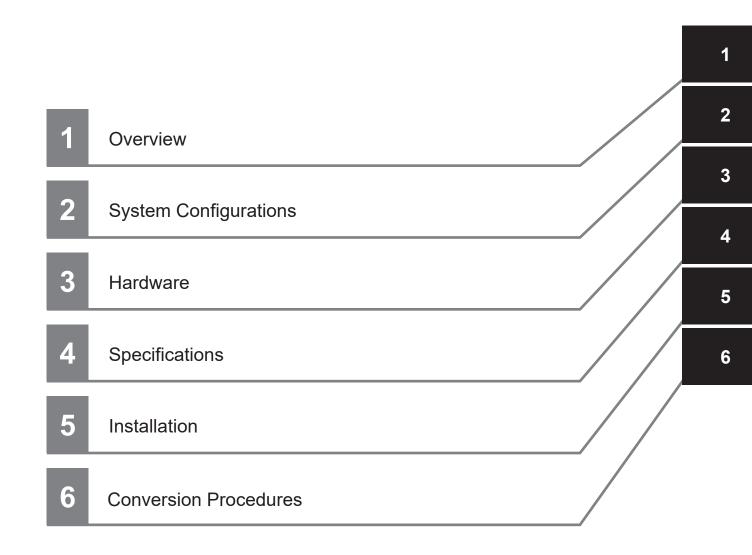
Additional Information

Refer to *1-2 Product Configuration* on page 1-3 for configuration details.

Sections in this Manual

		1
1	Overview	2
		3
2	System Configurations	
		4
3	Hardware	
		5
4	Specifications	6
5	Installation	
6	Conversion Procedures	

CONTENTS

Section 3   Specifications

Section 4   Installation

Section 5   Conversion Procedures

Index

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

Special Information

Special information in this manual is classified as follows:

Precautions for Safe Use

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

Precautions for Correct Use

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

Additional Information

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

Version Information

Information on differences in specifications and functionality between different versions.

Terms and Conditions Agreement

Warranty, Limitations of Liability

Warranties

● **Exclusive Warranty**

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

● **Limitations**

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

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

● **Buyer Remedy**

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

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

Limitation on Liability; Etc

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

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

Application Considerations

Suitability of Use

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

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

Programmable Products

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

Disclaimers

Performance Data

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

Change in Specifications

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

Errors and Omissions

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

Safety Precautions

Information is available in the related manual *NY-series NYE Industrial Panel PC Hardware User's Manual (Cat.No. W634)*.

Precautions for Safe Use

Information is available in the related manual *NY-series NYE Industrial Panel PC Hardware User's Manual (Cat.No. W634).*

Precautions for Correct Use

Information is available in the related manual *NY-series NYE Industrial Panel PC Hardware User's Manual (Cat.No. W634)*.

Regulations and Standards

Conformance to EU Directives

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

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

NYE Manuals

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

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

Related Products Manuals

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

Terminology and Abbreviations

Industrial PC Platform

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

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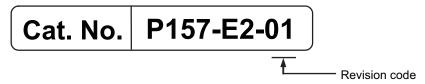
Term / Abbreviation	Description
3D TLC	3D Triple-Level Cell flash memory
CFast	An SSD CFast storage device
CPU	A Central Processing Unit is the hardware within a computer that executes the instructions of a computer program
Ethernet	A network communication protocol used in TCP/IP network
HMI	A Human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

Software

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

Revision History

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

| Cat. No. | P157-E2-01 |

Revision code

Revision code	Date	Revised content
01	September 2022	First release.

1

Overview

This section provides general information about the Industrial Panel PC.

1-1 Intended Use

This manual is intended as a guideline for the conversion from an OMRON NS-series product to an OMRON NYE-series Industrial Panel PC. This guideline can serve as a practical procedure to facilitate the conversion from your NS-series product to the Panel PC..

Parts of the content of this Conversion Manual is from the Panel PC manuals that contains all required information and details.
- Refer to NY-series NYE Industrial Panel PC Hardware User's Manual (Cat.No. W634) for details.
- Refer to NY-series NYE Industrial PC Operating Systems and Software Utilities Manual (Cat.No. W635) for details.

1-2　Product Configuration

This section provides an overview of the product configurations available for the Panel PC.

The product configuration is visible in the model-ID that is mentioned on the ID information label of the Panel PC.

The structure of the model-ID is: NYE□□-□□□□□-□□□□□□□□.

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

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

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

1-3   Overall Conversion Procedure

This section gives the overall conversion procedure from NS-series poducts to the NYE-series Panel PC.
This manual presents the sections in the same order as the following setup procedure.

To convert to the Panel PC:

1 Select the correct Panel PC
Refer to *Applicable Products and Replacements* on page 1 for details.

2 Familiarize yourself with the Panel PC
For a summery:
- Refer to *Section 2 Hardware* on page 2-1 for general information.
- Refer to *Section 3 Specifications* on page 3-1 for specific details.
For all details:
- Refer to *NY-series NYE Industrial Panel PC Hardware User's Manual (Cat.No. W634) for details.*.
- Refer to *NY-series NYE Industrial PC Operating Systems and Software Utilities Manual (Cat.No. W635)* for details.

3 Familiarize yourself with the details of the hardware and software conversion steps
- Refer to *5-1 Hardware Conversion* on page 5-2 for details.
- Refer to *5-2 Software Conversion* on page 5-3 for details.

4 Install the IPC Hardware
Perform the procedures that are required to use the Panel PC such as installation, and connection with peripheral devices.
Refer to *Section 4 Installation* on page 4-1.

5 Setup the IPC
Configure the Operating System, the software support utilities and the UPS software.
Refer to the information in related manuals:
- Refer to *NY-series NYE Industrial Panel PC Hardware User's Manual (Cat.No. W634) for details.*
- Refer to *NY-series NYE Industrial PC Operating Systems and Software Utilities Manual (Cat.No. W635)* for details.

6 Convert the NS project to NS-Runtime.
- Refer to *5-2-1 Upgrade an NS Project to Version 8.1* on page 5-4 for details.
- Refer to *5-2-2 Convert Model of an NS Project to NS-Runtime* on page 5-5 for details.

7 Modify the NS-Runtime project for changed functionalities.
Refer to *5-2-3 Modify the NS-Runtime Project* on page 5-7 for details.

8 Transfer the projects to the Panel PC and use the Panel PC to test all software and the NS-Runtime projects.

9 Operate the Panel PC

Use the operating procedures to operate the Panel PC.

Refer to "Section Operating Procedures" in related manuals

The conversion from an NS-series product to the NYE-series Panel PC is finished.

2

Hardware

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

2-1   Warning - Information Not Complete

<table>
<tr><td colspan="2">⚠ WARNING</td></tr>
<tr><td>The CONTENT in this section is NOT COMPLETE!.
Refer to the complete information and the complete procedures that are availble in the
Panel PC manuals.
• Refer to NY-series NYE Industrial Panel PC Hardware User's Manual (Cat.No.
    W634) for complete information and complete procedures.
• Refer to NY-series NYE Industrial PC Operating Systems and Software Utilities
    Manual (Cat.No. W635) for complete information and complete procedures.</td><td>🚫</td></tr>
</table>

2-2   Layers and Components

This section shows the layers of the Industrial Panel PC.
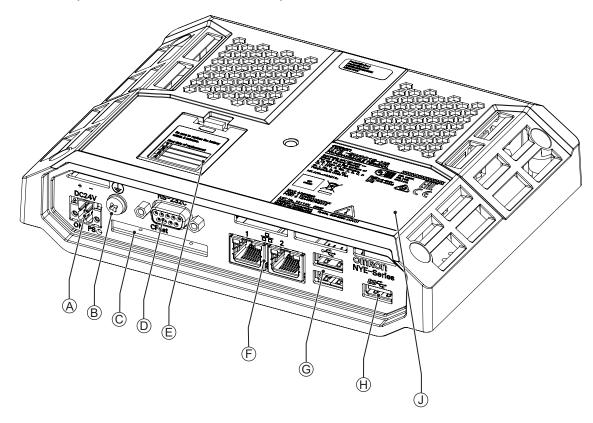
Item	Name	Description
A	Base layer *1	The layer with the CPU and the main interfaces
B	Display layer *1	Touch display to interact with the user

*1.   The layers can not be separated.

2-2-1   Base Layer NYE

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

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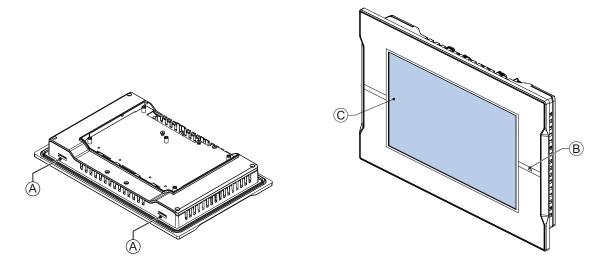
Item	Name	Description
A	Power and I/O connector	Lockable power and I/O connector
B	Ground terminal	Provides a ground terminal for the Panel PC
C	CFast Card slot	CFast Card slot
D	RS232C connector	RS232C connector
E	Battery Cover	Cover for replacable battery
F	10BASE-T / 100BASE-TX / 1000BASE-T Ethernet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

2-2-2 Display Layer NYE

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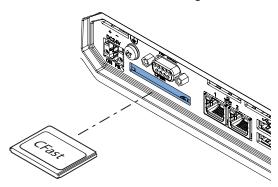
Item	Name	Description
A	Mounting brackets	Opening for mounting clamps to secure the Panel PC on a mounting surface
B	Status LED indicator	LED to indicate power and status
C	Touchscreen LCD	LCD display

2-3   CFast Card Slot

The CFast Card slot is the storage device for the OS and related software.

> **Additional Information**
>
> Refer to *2-5-1 CFast Cards* on page 2-8 for details.

2-4   Spare Parts

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

2-4-1   Battery

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

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

> **Additional Information**
>
> Refer to the label on the battery for the production date.
> The manufacturing date is mentioned with YY-MM.
> Production Date
>
> **OMRON**
> CJ1W-BAT01
> 22-03

2-5 Optional Hardware

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

2-5-1 CFast Cards

CFast Card details are provided below.

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

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

Additional Information

Refer to *CFast Card Specifications* on page 3-7 for CFast Card specifications.

2-5-2 Power Supply

Details for the recommended power supply are provided below.

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

Model	Appearance	Specifications
S8VK-G□□□24 S8VK-X□□□24A-EIP S8VK-S□□□24 S8VK-WA□□□24		Output voltage: 24 VDC

Additional Information

• Refer to *3-2-3 Power Consumption Specifications* on page 3-6 for power consumption details.
• Refer to the OMRON website for specifications and manuals.
  Note that the power consumption details of the Panel PC determine the minimum power rating of your power supply.
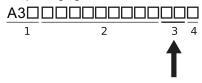
2-5-3 UPS

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.

$$\underset{1}{\underline{A3\square}}\ \underset{2}{\underline{\square\square\square\square\square\square\square\square}}\ \underset{3}{\underline{\square\square\square}}\ \underset{4}{\underline{\square}}$$

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 *2-5-2 Power Supply* on page 2-8 for power supply details.
- Refer to *3-2-3 Power Consumption Specifications* on page 3-6 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.

3

Specifications

This section provides specifications of the Industrial Panel PC.

3

3-1 Warning - Information Not Complete

⚠ WARNING

The CONTENT in this section is NOT COMPLETE!.
Refer to the complete information and the complete procedures that are availble in the Panel PC manuals.
- Refer to NY-series NYE Industrial Panel PC Hardware User's Manual (Cat.No. W634) for complete information and complete procedures.
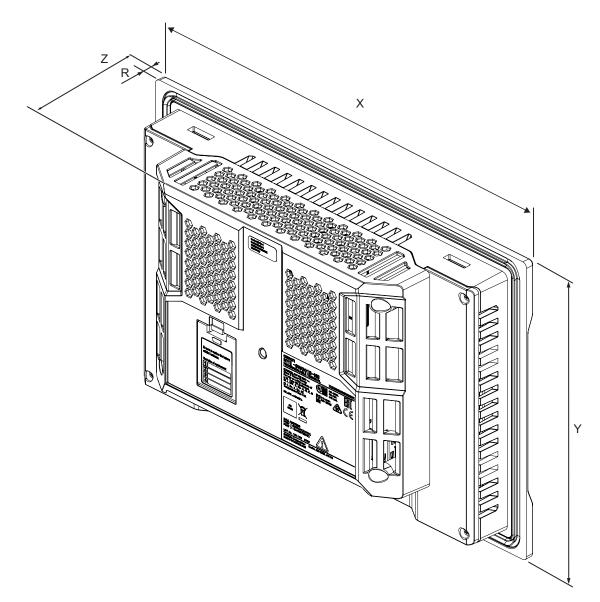- Refer to NY-series NYE Industrial PC Operating Systems and Software Utilities Manual (Cat.No. W635) for complete information and complete procedures.

3-2　General Specifications

This section provides general specifications of the Industrial Panel PC.

3-2-1　Dimensions and Weight

The dimensions and weights can differ depending on the configuration.

The following tables provide specification details per configuration.

15" Display NYE-series

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

Refer to the image in *3-2-1 Dimensions and Weight* on page 3-3 for X, Y, Z and R details.

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

12" Display NYE-series

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

Refer to the image in *3-2-1 Dimensions and Weight* on page 3-3 for X, Y, Z and R details.

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

09" Display NYE-series

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

Refer to the image in *3-2-1 Dimensions and Weight* on page 3-3 for X, Y, Z and R details.

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

07" Display NYE-series

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

Refer to the image in *3-2-1 Dimensions and Weight* on page 3-3 for X, Y, Z and R details.

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

3-2-2 General Electrical Specifications

The following table provides the general electrical specifications.

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

3-2-3   Power Consumption Specifications

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

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

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

[1].   Refer to *1-2 Product Configuration* on page 1-3 for product configuration details.

Installed drives

Drives	Power consumption
CFast Card Slot	Refer to *3-2-5 Storage Device Specifications* on page 3-7 for Omron drive details. For other drives refer to the applicable specifications for maximum power consumption details.

Connected expansions

Expansions	Power consumption
USB	Refer to the power consumption specifications of your connected USB devices. Refer to *3-2-6 USB Connector Specifications* on page 3-8 for maximum power consumption details.

Calculation for the total power consumption:

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

📑 Additional Information

Ensure to use a power supply with sufficient capacity.
Refer to *3-2-4 Power Supply Specifications* on page 3-7 for details.

3-2-4 Power Supply Specifications

The minimum power supply requirements depend on the maximum power consumption of the Panel PC. Refer to *3-2-3 Power Consumption Specifications* on page 3-6 for details.

With a UPS installed the minimum power requirements are:

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

*1. Refer to *2-5-2 Power Supply* on page 2-8 for power supply products.
*2. Refer to *2-5-3 UPS* on page 2-9 for UPS products.

3-2-5 Storage Device Specifications

This section provides the specifications of the storage devices.

CFast Card Specifications

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

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

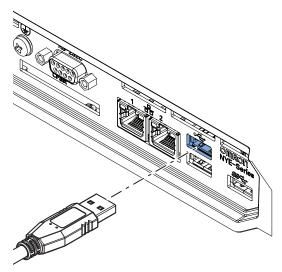*1. Refer to *1-2 Product Configuration* on page 1-3 for product configuration details.
*2. Refer to *2-5-1 CFast Cards* on page 2-8 for brand details.
*3. Refer to *3-4-1 Operation Environment Specifications* on page 3-11 for the temperature specifications of the complete Panel PC.

3-2-6 USB Connector Specifications

The Industrial Panel PC includes several USB connectors.

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

The power consumption is provided per USB Connector, calculate the sum for the maximum power consumption off all USB Connectors.

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

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

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

3-3   Display Specifications

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

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

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

*1.   Refer to *1-2 Product Configuration* on page 1-3 for details.

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

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

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

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

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

Refer to *3-3-1 Minimize LCD Image Retention* on page 3-10 for details.

3-3-1   Minimize LCD Image Retention

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

To minimize the effects of image retention:

• Prevent static text and static images with high contrast
• Switch OFF the display when not in use
• Use a screen saver

3-4   Environmental Specifications

This section provides environmental specifications of the Industrial Panel PC.

3-4-1   Operation Environment Specifications

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

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

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

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

*1.   Refer to Product Configuration for details.

*2.   Refer to *3-4-2 Temperature and Humidity Specifications* on page 3-12 for ambient operating temperature and humidity details per CPU type.

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

3-4-2 Temperature and Humidity Specifications

The maximum ambient operating temperature depends on the model, mounting orientation, and storage device type.
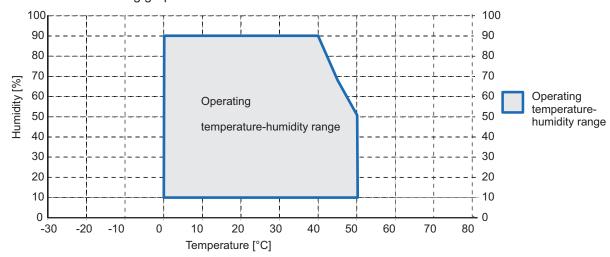The following tables provide ambient temperature and humidity details and temperature specifications per model.

Temperature and Humidity Graphs

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

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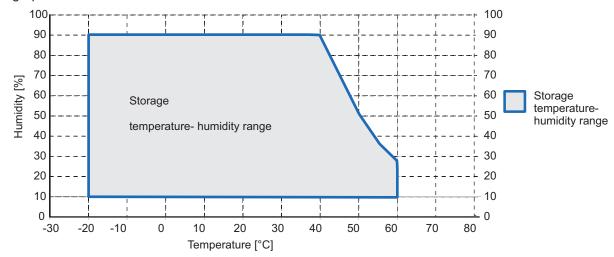

> 📑 **Additional Information**
>
> Refer to the ambient temperature specifications per CPU type for CPU-specific limitations.

• Store the Panel PC within the ambient temperature and humidity ranges as shown in the following graph.
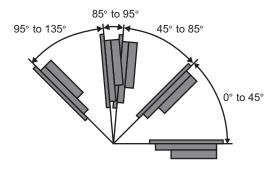
NY-series NYE Industrial Panel PC Conversion Guideline for NS-series products (P157)

NYE2A-□0 Temperature Specifications

Ambient operating temperature specifications for model NYE2A-□0.

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

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

*1. Refer to *1-2 Product Configuration* on page 1-3 for model details.

4

Installation

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

4-1   Warning - Information Not Complete

⚠ WARNING

The CONTENT in this section is NOT COMPLETE!.
Refer to the complete information and the complete procedures that are availble in the
Panel PC manuals.
• Refer to NY-series NYE Industrial Panel PC Hardware User's Manual (Cat.No.
  W634) for complete information and complete procedures.
• Refer to NY-series NYE Industrial PC Operating Systems and Software Utilities
  Manual (Cat.No. W635) for complete information and complete procedures.

🚫

NY-series NYE Industrial Panel PC Conversion Guideline for NS-series products (P157)

4-2 Install Options

There are no installable options for the NYE Industrial Panel PC.

4-2-1 No Options

For this Panel PC there are no options to install.

4-3 Mount

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

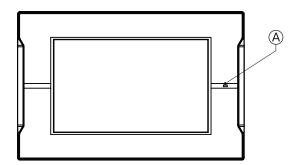## ⚠ WARNING

Ensure that installation and post-installation checks of the product are performed by personnel in charge who possess a thorough understanding of the machinery to be installed.
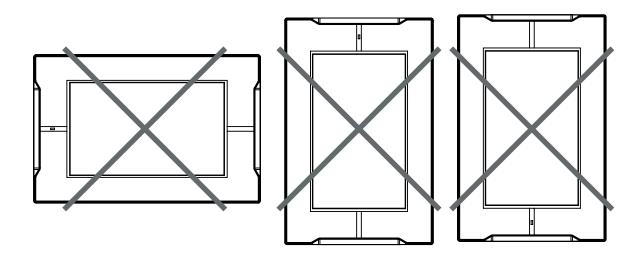
4-3-1 Product Orientation

The Industrial Panel PC can be mounted in a landscape orientation with the LED Ⓐ at the right side.

Do not install the Industrial Panel PC in any of the following orientations.
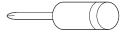
4-3-2   Panel Mount Procedure

Ensure the panel cut out is ready before beginning the mounting procedure.
Refer to *Prepare the Mounting Surface* on page 4-7 for details.
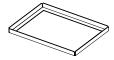
Tools required: Panel Mounting Brackets and a Philips screwdriver.
Optional hardware: High-Pressure Waterproof Attachment (PWA)

Panel Mounting Bracket   Philips screwdriver   High-Pressure Waterproof Attach-
                                                             ment (PWA)
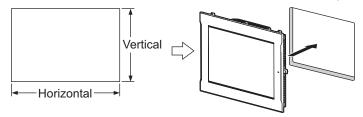
The housing of the Industrial Panel PC is equipped with recesses for the Panel Mounting Brackets.
These brackets are used to fasten and secure the Panel PC to the mounting surface.
Use the following procedure to mount the Panel PC to the mounting surface:
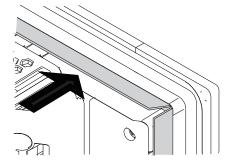
1   Insert the Industrial Panel PC from the front side of the panel.

2   Insert the Panel PC into the mounting surface cut out so the bezel Ⓑ touches the mounting
surface.

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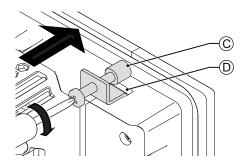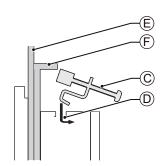
4 Attach the panel mounting brackets from the back of the panel as shown in the following figure.

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

Image Ⓐ shows the parts and mounting action.
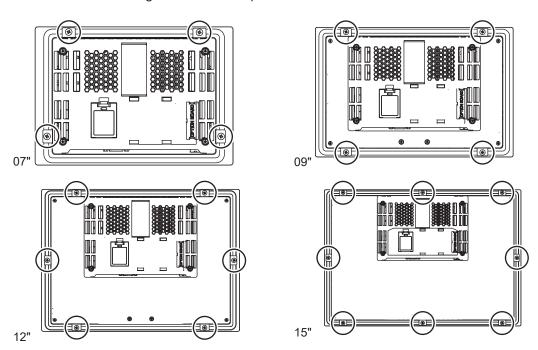
Image Ⓑ shows the situation with the panel Ⓔ and the optional PWA Ⓕ.

Ⓐ   Ⓑ

5 Ensure all mounting brackets are mounted.
The number of mounting brackets differs per model.

07"   09"

12"   15"

6 Tighten all mounting brackets to a torque of 0.6 N·m to maintain water and dust resistance.
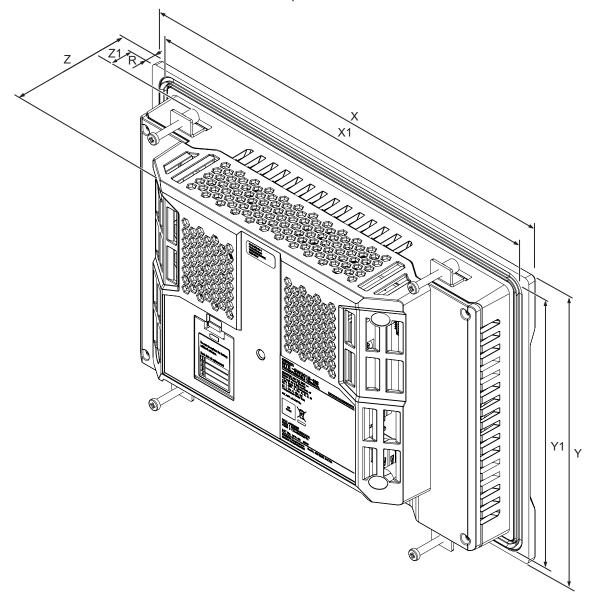
Precautions for Safe Use

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

Prepare the Mounting Surface

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

Item	Model Specifications			
	15.4 inch [1]	12.1 inch [1]	9.0 inch	7.0 inch [1]
Panel cut-out dimensions	Width $X1 = 392^{-0\,+1}$ mm Height $Y1 = 268^{-0\,+1}$ mm	Width $X1 = 310^{-0\,+1}$ mm Height $Y1 = 221^{-0\,+1}$ mm	Width $X1 = 261^{-0\,+1}$ mm Height $Y1 = 166^{-0\,+1}$ mm	Width $X1 = 197^{-0\,+1}$ mm Height $Y1 = 141^{-0\,+1}$ mm
Panel thickness range [2]	Panel thickness range $Z1 = 1.6$ to 6.0 mm			
Dimensions	Refer to *3-2-1 Dimensions and Weight* on page 3-3 for X, Y, Z and R dimensions.			

*1. Refer to *1-2 Product Configuration* on page 1-3 for model details.
*2. The minimum panel thickness depends on the panel material.

For the most common materials the minimum panel thickness is mentioned in the following steps.

1 Ensure the mounting surface conforms to following requirements.

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

2 Create an opening in the mounting surface.

The table before step 1 gives an overview of the cut out dimensions for the Panel PC.
Prepare a rectangular cut out with the dimensions X1 and Y1.

3 Ensure the mounting surface is clean and not warped.

The mounting surface is prepared.

4-3-3　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
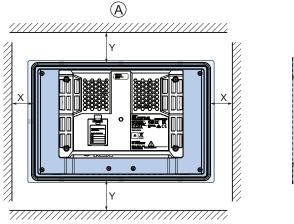
Adequate airflow around the Industrial Panel PC is required.
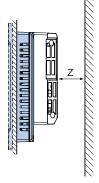
> **Additional Information**
>
> • The ambient temperature must be within the operating range.
>   Refer to *3-4-1 Operation Environment Specifications* on page 3-11 for temperature specifications.
> • Allow space to accommodate for the bending radius of the cables.
>   Refer to *2-5 Optional Hardware* on page 2-8 for cable bending requirements and connector clearances.

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

Landscape orientation.

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

4-4 Wire

This section describes how to wire the Industrial Panel PC.

4-4-1 Ground

This section describes how to ground the Industrial Panel PC.
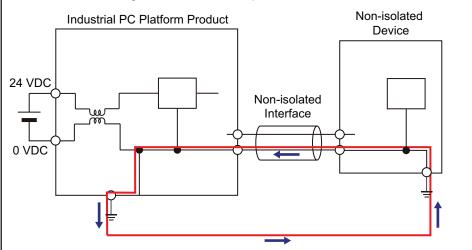
⚠ WARNING

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

⚠ CAUTION

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

⚠ CAUTION

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

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

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

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

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

Refer to IEC 61918 for guidelines regarding conductor sizing and length to prevent a voltage offset between two communicating devices exceeding 1 V.
Make sure to run the bonding conductor in close proximity to the communication cable.
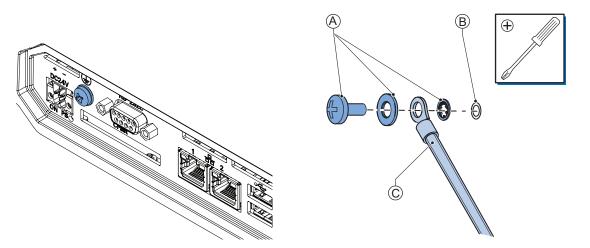
The Panel PC has a protection ground connection because the metal part of the Panel PC outside of the enclosure must be part of the protection grounding of that enclosure (for example a cabinet). There are no power supply voltages used in the Panel PC which require protection grounding.

Ground Connection Details

This section provides details about the ground connection.
Use the ground terminal to ground your Panel PC.

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

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

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

● Crimp terminals

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

4-4-2   DC Power Supply

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

> **Additional Information**
>
> • Refer to *2-5-2 Power Supply* on page 2-8 for more information.
> • Refer to *3-2-3 Power Consumption Specifications* on page 3-6 for power consumption details.

4-5 Connect

This section describes how to connect the Industrial Panel PC.

4-5-1 Connection Procedure

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

> **Additional Information**
>
> • Refer to *4-3 Mount* on page 4-4 for mounting details.
> • Refer to *2-5 Optional Hardware* on page 2-8 for the cables advised by Omron.
>   Refer to individual cable specifications for cable bending requirements and connector clearance.

Use the following procedure to connect the Panel PC:

1 Ensure the ground terminal is connected.
Refer to *4-4-1 Ground* on page 4-10 for grounding details.

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

3 Connect the Serial connecter.

4 Connect the USB ports to peripheral devices .

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

The Panel PC is connected.

4-6   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.

4-6-1   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 Connect an optional keyboard and/or mouse.
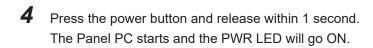
> **Additional Information**
>
> - If using an OMRON Industrial Panel PC, this may not be required because it has touch functionality.
> - Do not connect additional storage devices before the installation of the operating system completed. Adding storage devices like a USB flash drive, an SD memory card or a PCIe card might influence the default drive letter sequence.

3 Ensure the power supply is ON.

> **Precautions for Safe Use**
>
> Always check the power supply and power connections before applying power. Incorrect power connections can damage the product or cause burning.

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

> **Additional Information**
>
> - If a Windows operating system is preinstalled:
>   - the Windows configuration will automatically start
>   - refer to *4-6-2 Windows Startup First Time* on page 4-15 for details

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

Precautions for Safe Use

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

Additional Information

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

4-6-2　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 Out Of Box Experience (OOBE) will result in the Windows home screen.

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

2 Power ON the Panel PC.

3 Follow the windows installation procedure.

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

⚠ **WARNING**

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

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

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

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

4 Login

5 Check and if necessary adjust the time and the timezone

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

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

7 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.

4-6-3 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.

4-7   Power OFF

Ensure all programs are closed and then Power OFF the Industrial Panel PC.

There are several procedures to Power OFF.
Refer to NY-series NYE Industrial Panel PC Hardware User's Manual (Cat.No. W634) for operating details.

5

Conversion Procedures

This section provides the conversion procedures for the Industrial Panel PC.
They consist of both hardware actions and software actions.

- Refer to *5-1 Hardware Conversion* on page 5-2 for details.
- Refer to *5-2 Software Conversion* on page 5-3 for details.

5-1 Hardware Conversion

This section covers the hardware actions that are required for the conversion from NS-series products to NYE-series products.

In this section for some hardware changes detailed information is available.
For all information about the hardware of the Panel PC refer to NY-series NYE Industrial Panel PC Hardware User's Manual (Cat.No. W634).

The hardware changes relevant for the conversion:
- The Panel PC has no integrated battery monitoring.
  Refer to Hardware - Optional Hardware - Battery in NY-series NYE Industrial Panel PC Hardware User's Manual (Cat.No. W634) for details.
  Refer to Software - Industrial PC Support Utility - Product Information Tab in NY-series NYE Industrial Panel PC Hardware User's Manual (Cat.No. W634) for Battery status details.
- The Panel PC has no buzzer.
- The dimensions are different.
  - For product dimensions refer to *3-2-1 Dimensions and Weight* on page 3-3.
  - For mounting area dimensions refer to *4-3-2 Panel Mount Procedure* on page 4-5.
- The screen resolution might be different but the conversion details are in the section *5-2-5 Modify Screen Resolution for an NS-Runtime Project* on page 5-18.
- Grounding is different.
  The Panel PC has a non-isolated input power supply and the 0V signal ground is directly connected to PE.
  The PE connection is mandatory, because the unit has a metal front enclosure which is at the boundary of a cabinet enclosure. To protect users PE needs to be grounded.
  When the ground of the power supply must be kept floating for other devices then use a separate 24V power supply.

5-2 Software Conversion

This section covers the software actions that are required for the conversion from NS-series products to NYE-series products.

In this section for some software changes detailed information is available.
For all information about the software of the Panel PC refer to NY-series NYE Industrial PC Operating Systems and Software Utilities Manual (Cat.No. W635).

The software actions for the conversion:
- Ensure NS-Runtime is installed.
- Ensure your NS Project has Version 8.1.
  Refer to *5-2-1 Upgrade an NS Project to Version 8.1* on page 5-4 for details.
- Convert your NS projects to NS-Runtime projects.
  Refer to *5-2-2 Convert Model of an NS Project to NS-Runtime* on page 5-5 for details.
- Modify your projects for the differences between an NS Project and an NS-Runtime Project.
  Refer to *5-2-3 Modify the NS-Runtime Project* on page 5-7 for details.
- Test your NS-Runtime Projects.
- Create Backup and Repair Data.
  Refer to *5-2-7 Create Backup and Repair Data* on page 5-21 for details.

5

5-2-1   Upgrade an NS Project to Version 8.1

This section provides the details to upgrade an NS Project to Version 8.1.
The option to convert to NS-Runtime is only available in NS Projects with Version 8.1.

If your NS Project has a version
- higher than Version 8.1
  Contact your local OMRON representative for support to convert the NS Project to Version 8.1.
- lower than Version 8.1
  Follow the steps in the procedure below to convert the NS Project to Version 8.1.

To upgrade an NS project to Version 8.1:

1 Open **CX-Designer**

2 Open the NS Project that needs the upgrade to Version 8.1.

3 Select **Tools** - **Convert** - **Version..** to view the Convert Version window.

4 Select **System Ver8.1**.

5 Select **OK** to start the conversion process.
The **Convert to:** window appears.

6 Save this upgraded project as a **CX-Designer Project File(*.IPP)**.
The NS project is upgraded to version 8.1.
In CX-Designer in the right bottom corner the version **System Ver8.1**
is visible.

5-2-2   Convert Model of an NS Project to NS-Runtime

This section provides the details to convert an NS Project model to an NS-Runtime model for the Panel PC.

⚠ Attention.
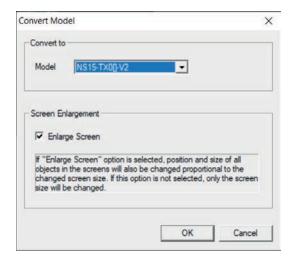
NS -Runtime will be displayed if the source version is in the range of Ver. 6.5 to Ver. 8.1.
For source versions higher than V8.1 refer to *5-2-1 Upgrade an NS Project to Version 8.1* on page 5-4 for details.

NS-Runtime projects maintain object sizes and positions when converted from NS. For the best conversion there are two steps:

1. Convert the NS project to a model with the best possible object dimensions.

2. Convert the NS project that has good object dimensions to NS-Runtime

To convert the NS Project to an NS-Runtime Project:

1   Open the project

2   Select **Tools** - **Convert** - **Model..**
The Convert Model window willl appear.
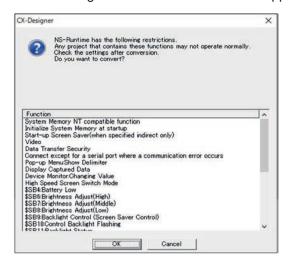
3   Select the model that resembles the screen size of the target Panel PC.
Example: Select **NS15-** for a 15 inch Panel PC.

4   When converting to a larger screen check the box **Enlarge Screen**.

5   Select **OK** and save the new project.

This new project has the correct version 8.1 and the best possible settings for the new screen diameter. Next step is to convert it to NS-Runtime.

6   Open the new project.

7 Select **Tools** - **Convert** - **Model..** to view the Convert Model window.

8 Select **NS-Runtime** and select **OK**.
A detailed log window with restrictions will appear.


⚠ **Attention.**

NS-Runtime will be displayed if the source version is in the range of Ver. 6.5 to Ver. 8.1.
For source versions higher than V8.1 refer to *5-2-1 Upgrade an NS Project to Version 8.1* on page 5-4 for details.

9 Save the content of the detailed log window.

10 Select **OK** to start the conversion process.

11 Save this new project, this is the NS-Runtime project.

12 Correct or add the functions mentioned in the detailed log in your NS-Runtime project.

⚠ **Attention.**

The saved detailed log indicate the functions that required attention.
- To facilitate the correction of software settings details on the differences and support details are available.
  - Refer to *Communication in NS-Runtime* on page 5-8 for details.
  - Refer to *System Configuration in NS-Runtime* on page 5-11 for details.
  - Refer to *Functions in NS-Runtime* on page 5-16 for details.
- Refer to NS-Runtime Software User's Manual (V093) for details on the differences between the NS series products and NS-Runtime.
- Refer to NS series Programming Manual (V073) for functions implemented for NS-Runtime V8.2 and onwards.

The NS project is converted to NS-Runtime.

5-2-3   Modify the NS-Runtime Project

An NS Project that is converted to an NS-Runtime Project will probably have content that has been not corrected or checked for the NS-Runtime functionallity. The changes in functionallity are reported in detailed logs per conversion step.

Modify the content of your NS-Runtime project with the content of the detailed log reports.

Refer to *5-2-1 Upgrade an NS Project to Version 8.1* on page 5-4 for details.

To modify the NS project to NS-Runtime:

1   Check and where applicable modify the settings of the **Communication** in NS-Runtime.
Refer to *Communication in NS-Runtime* on page 5-8 for details.

2   Check and where applicable modify the settings of the **System Configuration** in NS-Runtime.
Refer to *System Configuration in NS-Runtime* on page 5-11 for details.

3   Check and where applicable modify the settings of the **Functions** in NS-Runtime.
Refer to *Functions in NS-Runtime* on page 5-16 for details.

4   Correct object dimensions, fonts and the screen resolution.
Refer to *5-2-4 Modify Object Dimensions, Fonts and Screen Resolution* on page 5-17 for details.

The NS-Runtime project is modified and ready to be tested.

Communication in NS-Runtime

Some hosts and protocols supported by the NS series have settings that are not supported by NS-Runtime.

In this section an overview of the communication details between NS Projects and NS-Runtime.

Communication	Details	Serial Port	Host Type / Protocol	Conversion details
Serial port A/B	Refer to NS-Runtime Software User's Manual (V093) for details	PLC	SYSMAC-PLC / NT-Link (1:N)	After conversion, it will be converted to another protocol.
			SYSMAC-PLC / NT-Link (1:1)	
			MELSEC-A	Conversion with these settings will generate an error during the conversion and the conversion process will be aborted.
			MELSEC-F	
			SIMATIC S7-300	
		Thermo unit	-	
		Memory Link	-	
		Barcode reader	-	
		Modem	-	
		Generic protocol	-	
Ethernet	Refer to *Ethernet* on page 5-10 for details	-		
Controller	Refer to *Controller Link* on page 5-10 for details	-	Trajexia / FINS	

● **Serial Port**

Serial Port setting can be converted from NS Projects to NS-Runtime but supported hosts and protocols can differ.

To compensate for the differences the conversion procedure automatically converts parameters.

The automatic conversion converts following parameters:

Parameter / Configuration	NS Project Before conversion	NS-Runtime Afer conversion
Host type	SYSMAC-PLC	SYSMAC-CS1
Protocol	Host Link	Host Link [1][2]
	NT-Link (1:1)	
	NT-Link (1:N)	
Port name	-	Serial port A: COM1 Serial port B: COM2
Baudrate	-	19200
Data length	-	7
Stop bit	-	2
Parity	-	Even

[1]. Do not use WR memory. Use the toolbus or change the configuration to an Ethernet connection.

[2]. Host Link requires a Virtual COM driver. Refer to NY-series NYE Industrial PC Operating Systems and Software Utilities Manual (Cat.No. W635) for details.

Manually check following settings and modify them where needed.

Configuration	NS Project Before conversion
Host type	In the NS series, communication was possible by selecting SYSMAC-PLC as long as it was within the range of the model supported by the connected device. NS-Runtime is divided into four PLC types: SYSMAC-CS1, SYSMAC-CJ1/CP1, SYSMAC-CV, SYSMAC-CJ2. Select the host type to the device you are using.
COM number	Set it to a number from COM1 to COM16 using CX-Designer so it matches the COM number of your PC. The field for setting the COM number is valid for both the Host Link[2] and the toolbus.
Baudrate	Select 19200 / 38400 / 57600 / 115200 bps
Data length	The Host Link[1] of NS series only had 9600 and 19200 bps. If the NS series used 9600 bps then also change the settings on the PLC side. Match the settings with the settings of the connection destination.
Stop bit	
Parity	
Toolbus	The SCU unit doesn't support communication using the toolbus. Use the CPU unit built-in port when communicating using the toolbus.

[1]. Host Link requires a Virtual COM driver. Refer to NY-series NYE Industrial PC Operating Systems and Software Utilities Manual (Cat.No. W635) for details.
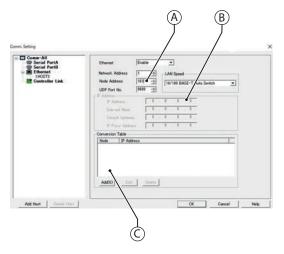
An RS-232C cable can be connected to the Panel PC but it is also possible to use a converter to RS-422A.

● **Ethernet**

Ethernet settings do not change during the conversion from NS Projects to NS-Runtime but the node address needs to be set.

Thet field for setting the IP address Ⓑ cannot be edited but with the PCs port addresss communication can be established with the PLC. To achieve this set the node address Ⓐ to the lowest 3 digits of the IP address of the PC.

For the FINS protocol, set the IP address and node address of the connection destination PLC not only with the node address but also in the conversion table Ⓒ. E.g. Node 1, IP Address 192.168.250.1.

● **Controller Link**

Controller Link is not supported by Windows, starting with Windows 7 and onwards.
Converting a project with Controller Link will not cause an error, but there will be no functionality when running NS-Runtime on the Panel PC.

System Configuration in NS-Runtime

There are differences in the configuration between NS Projects and NS-Runtime.

In this section an overview of the configuration differences.

● Project Properties

Overview of the differences between NS Projects and NS-Runtime.

Item	NS Project	NS-Runtime	Details
[Pop-up Menu] – [Show Delimiter]	By checking it, you can display a dividing line between the items in the pop-up menu.	This item is grayed out, so the delimiter line cannot be displayed.	After conversion, it will be converted to another protocol. Conversion with these settings will generate an error during the conversion and the conversion process will be aborted.

● System Settings

Overview of the differences between NS Projects and NS-Runtime.

Item	NS Project	NS-Runtime	Details
[PT] – [Screen Saver]	It supports indirect specification the screen saver startup time.	It doesn't support indirect specification. Only fixed values can be set.	-
[PT] – [Device Monitor]	It supports the Device Monitor function and you can set whether to allow or prohibit value changes from the device monitor.	It doesn't support the Device Monitor.	Use CX-Programmer or SwitchBox Utility as an alternative to the Device Monitor function.
[PT] – [Advanced Setting]	It supports high speed screen change mode.	It doesn't support this function.	
[Initial] – [System Memory]	It supports NT compatible System Memory.	It doesn't support NT compatible System Memory.	-
[Initial] – [Option]	It supports [Initialize System Memory at startup] function. By this function, NS can keep the value which is saved in the PLC memory.	It doesn't support [Initialize System Memory at startup] function. NS-Runtime overwrites the value which is saved in the PLC memory.	-
[History] – [Save destination of history data]	It doesn't support this function. Destination is fixed to CF memory card.	The fields for setting the drive and path to save the history data are valid.	-
[History] – [Save Cycle]	It doesn't support this function. When a NS writes history data, it is saved in non-volatile memory.	It enables to set the retention memory $ HB, $ HW and the interval for saving historical data.	If unchecked, saving will be executed at the end of NS-Runtime.
[Video]	It supports Video relating functions.	It doesn't support Video relating functions.	

Item	NS Project	NS-Runtime	Details
[Printer]	It supports Printer relating unctions.	It doesn't support Printer relating functions.	For NS-Runtime, follow the printer settings on the operating PC.
[Function Key]	It supports Function Key only on the NS15.	It doesn't support Function Key.	-
[Maximum Screen Size]	It doesn't support screen resizing function.	It supports screen resizing function.	-

● **System Menu - Initialize**

Overview of the differences between NS Projects and NS-Runtime.

NS System Menu	Support	NS-Runtime System Menu
Memory Card	Yes	[Initialization/Setting]-[Initialize]
Alarm/Event history	Yes	[Initialization/Setting]-[Initialize]
Data Log	Yes	[Initialization/Setting]-[Initialize]
Operation Log	Yes	[Initialization/Setting]-[Initialize]
Error Log	Yes	[Initialization/Setting]-[Initialize]
Retentation Memory	Yes	[Initialization/Setting]-[Initialize]
Screen Data	No	-
Language	Yes	[System language]-[Select Language]

● **System Menu - PT Settings**

Overview of the differences between NS Projects and NS-Runtime.

NS System Menu	Support	NS-Runtime System Menu
Start-up Wait Time	No	-
Screen Saver	Yes	[Initialization/Setting]-[PT Settings]
Key Press Sound	Yes	[Initialization/Setting]-[PT Settings]
Buzzer Sound	No	[Initialization/Setting]-[PT Settings]
Back Light Brightness	No	-
Date / Time	Yes	[Initialization/Setting]-[PT Settings]
Printer	No	-
Device Monitor	No	-
Contrast	No	-
CJK priority	No	-
Alarm Monitor Registering method	No	-
Device Monitor invoking from Alarm / Event Summary	No	-
Operation When Updating Tags	Yes	[Initialization/Setting]-[PT Settings]
Wait time for Entering System menu	No	-
Double touch interval (NS15)	No	-
Analog RGB output (NS15)	No	-

● **System Menu - Project**

Overview of the differences between NS Projects and NS-Runtime.

NS System Menu	Support	NS-Runtime System Menu
Initial Screen	Yes	[Initialization/Setting]-[Project]
Initial Label	Yes	[Initialization/Setting]-[Project]
Barcode input when using keypad	No	-

● **System Menu - Password**

Overview of the differences between NS Projects and NS-Runtime.

NS System Menu	Support	NS-Runtime System Menu
Password	Yes	[Initialization/Setting]-[Project]
Password Level	Yes	[Initialization/Setting]-[Project]

● **System Menu - Communication**

Overview of the differences between NS Projects and NS-Runtime.

NS System Menu	Support	NS-Runtime System Menu
Comm. Auto-return	Yes	[Initialization/Setting]-[Comm.]
Time-out Intervals	Yes	[Initialization/Setting]-[Comm.]
Retry Counts	Yes	[Initialization/Setting]-[Comm.]
Serial A	Yes	[Initialization/Setting]-[Comm.]
Serial B	Yes	[Initialization/Setting]-[Comm.]
Ethernet	Yes	[Initialization/Setting]-[Comm.]
Controller Link	No	-

● **System Menu - Data Check**

Overview of the differences between NS Projects and NS-Runtime.

NS System Menu	Support	NS-Runtime System Menu
Screen No.	Yes	[Data Check]-[Screen No.]
Address Display	Yes	[Data Check]-[Address Display]
Options (Host Name)	No	

● **System Menu - Special Screen**

Overview of the differences between NS Projects and NS-Runtime.

NS System Menu	Support	NS-Runtime System Menu
Alarm/Event history (Occurrence)	Yes	[Special Screen]-[Alarm/Event history]
Alarm/Event history (Frequency)	Yes	[Special Screen]-[Alarm/Event history]
Operation Log (Occurrence)	Yes	[Special Screen]-[Operation Log]
Operation Log (Frequency)	Yes	[Special Screen]-[Operation Log]
Error Log (Occurrence)	Yes	[Special Screen]-[Error Log]
Error Log (Frequency)	Yes	[Special Screen]-[Error Log]
System Version	Yes	[Special Screen]-[System Version]
Screen Transfer	No	-
Capture Data Display	No	-

NS System Menu	Support	NS-Runtime System Menu
Device Monitor	No	-
Video	No	-
Communication Test	Yes	[Special Screen]-[Communication Test] [*1]
USB device list	No	-
Ladder Monitor	No	-
Pro-Con	No	-
NJ Troubleshooter	No	-

*1.   Supporting FINS only

● **System Menu - Hardware Check**

The hardware check difference depend on the installed hardware.

● **System Menu - System Memory**

Overview of the differences between NS Projects and NS-Runtime.

Address	Support	Details
$SB4	Disabled	-
$SB6〜$SB8	Disabled	Please change the settings from NYE configuration menu
$SB9	Disabled	-
$SB10	Disabled	-
$SB11	Disabled	-
$SB12〜$SB14	Disabled	-
$SB15	Disabled	-
$SB16, $SB17	Disabled	-
$SB20〜$SB23	Disabled	-
$SB24	Disabled	-
$SB25	Different	Capture area is whole PC's desktop area.
$SB26	Disabled	-
$SB27	Disabled	Please use PC's printer function.
$SB28	Disabled	Please use PC's printer function.
$SB29	Disabled	Please use PC's printer function.
$SB30	Disabled	-
$SB31	Disabled	-
$SB49	Different	Remove USB memory which is set in [System Setting]-[History] Tab
$SB53	Disabled	-

● **External Applications**

Overview of the availability of external applications in NS-Runtime.

Application	Support	Details
Device Monitor	No	CX-Programmer、SwitchBox Utility should be used.
Ladder Monitor	No	CX-Programmer should be used.
PLC Data Trace	No	-
Pro-Con	No	CX-Programmer、SwitchBox Utility should be used.
NJ Troubleshooter	No	-
Video	No	-
Comm. Test	Yes	FINS：Support CIP：Not Support
FTP	No	Please install FTP application in the PC.
Capture Screen	No	Please use PC's Capture function
Printer Control	No	Please configure PC's printer configuration

Functions in NS-Runtime

There are differences in the functions beween NS Projects and NS-Runtime.

In this section an overview of the function differences.

● Functional and Fixed Objects

Overview of the functional differences of functional objects and fixed objects.

Parts / Functions	Details
Video part	The parts themselves are not supported by NS-Runtime. When converting to NS-Runtime, the video display parts will be deleted. Even if you copy from an NS series project to an NS-Runtime project, the video display parts will not be pasted.
Command Button – Video Control – Video Capture	If you convert or copy a part for which this function is registered, the function will change without processing.
Command Button – Video Control – Contrast Adjustment	
Command Button – Video Control – Vision Sensor Console Output	
Multifunction – Capture Data Display	If you convert or copy a part for which this function is registered, the corresponding function will be deleted.
Multifunction – Ladder Monitor	
Multifunction – Pro-Con	
Multifunction – Pro-Con(CS)	
Multifunction – Data Trace	
Fixed Objects - Polygon	The positions of the vertices may shift a little.

● Macros

Overview of the functional differences for macros in NS-Runtime.

Macro function	Details
SETTIME	As with writing the time from the date / time component, writing the time with this function requires administrator's right.
WRITECF READCF	Data is read / written from / to specified folder which is set in System Settings – History tab.

● **SAP in NS-Runtime**

Overview of the functional differences for macros in NS-Runtime.

Folder	SAP name	Details
PLC	Time	If you do not start NS-Runtime with administrator right, you will not be able to change the time of the PC.
PLC	Synchronize time	
PLC	PLC→NS clock adjust	
Thermo	E5 series, EJ series, SAP	NS-Runtime doesn't support direct connection with the thermo controller. Replace with SAP for serial communication.

5-2-4 Modify Object Dimensions, Fonts and Screen Resolution

This section provides details on how to modify Object Dimensions, Fonts and the Screen Resolution. NS Projects have an original resolution of 320 x 240 pixels where the Panel PC will be much higher. As a result the original content will, after conversion, be displayed in an unusable small area on the screen.

During the conversion procedure the NS Project is converted to a model with a screen resolution similar to the target screen resolution. Refer to *5-2-2 Convert Model of an NS Project to NS-Runtime* on page 5-5 for details.

The fontsize does not change, so please enlarge it manually.

To correct dimensions and the screen resolution:

1 Modify the object dimensions.
Use the Property List of the objects to set Width, Height, X and Y.

2 Modify the font sizes.
Use the Property List of the Label to set font type and font size.
Use the Text tab of the Numeral Display & Input objects to set Text Attributes.

3 Modify the screen resolution.
Refer to *5-2-5 Modify Screen Resolution for an NS-Runtime Project* on page 5-18 for details.

The object dimensions, fonts and screen resolution are modified for the NS-Runtime project.

5-2-5   Modify Screen Resolution for an NS-Runtime Project

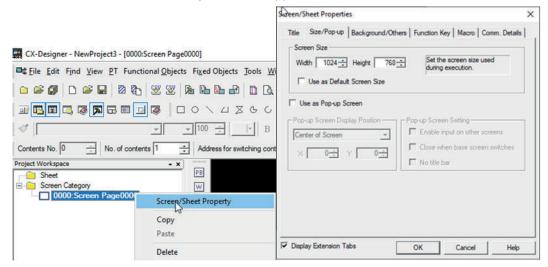NS-Runtime projects display content with following specifications:
• Resolution 3830 x 2400 pixels
  The background will also use this resolution.
• Alignment at the top left corner

To modify an NS-Runtime project to the correct resolution:

1 Open CX-Designer

2 Open the project

3 Right-click in **Screen Category** the screen to convert
A submenu will appear.
Select **Screen/Sheet Property**.
The window **Screen/Sheet Properties** will appear.

4 Select the correct resolution.
Refer to *3-3 Display Specifications* on page 3-9 for the target resolution.

The NS-Runtime project screen resolution is modified for the Panel PC.

5-2-6   Correct Screen Resolution Issues

With a low resolution screen only limited content can be displayed.

Limited content can give problems when e.g. an OK button is not visible.

Refer to following solutions to overcome low resolution issues:

- Use the arrow keys or the scroll button to check if more options or more of the active screen can be displayed.

  This can be used to display other languages in the language setting window.

- Use another method to achieve the same result.

  Example are the IP settings, there is a PowerShell script to set all IP settings.

  Refer to *Modify IP Settings using PowerShell* on page 5-19 for details.

- Use portrait mode instead of landscape mode.

  This will show buttons that were not visible because of the limited display length.

  Refer to *Use Portrait Mode* on page 5-20 for details.

Modify IP Settings using PowerShell

This section provides details on setting the IP address using PowerShell.

Setting an IP address can be done in the Windows **Control Panel** - **Network Connections**.

For a very limited User Interface area (< 10 inch) it is possible that for some languages and some specific screens part of the User Interface is not visible. An example is setting the IP address in a Japanese screen of Windows 10.

For this situation a PowerShell script is available to set the IP address.

To set the IP address using the PowerShell script:

1   Use the Windows search bar to search for **power** and select the arrow behind the match **Power Shell ISE**.

       Select the option **Run as Administrator**.

       A PowerShell window will open.

2   Select **File** - **Open** and browse to **D:\OMRON-NY\Scripts\IPConfigure.ps1**

       Select **Open**

       The PowerShell file will open with all changeable parameters available in the upper part of the script.

3   Check and if necessary change the IP settings in the script.

```
# Configuring IPv4 settings for network adapter
# For Network name, select between X1 and X2
# X1 = Hardware ID with SUBSYS_00008086
# X2 = Hardware ID with SUBSYS_003A10CB
$PortID = "X1"

# define source to "static" to use static IP
# define source to "dhcp" to use dynamic IP
# when define to dhcp, the network cable must be conntected
$source="static"

# define ip, subnet mask and default gateway
# If dhcp, then please set static_ip and subnet_mask values to 0.0.0.0
$static_ip="192.168.1.5"
$subnet_mask="255.255.255.0"
$gateway="none"
```

- Select port X1 or X2, default is "X1"
- Select DHCP or Static, default is "static"
- Set the IP address, subnet mask and gateway

4 Run the script.
A message **The execution policy helps … Do you want to change the execution policy?** appears.

5 If you agree in changing the execution policy then select **Yes**. The IP settings are applied to Windows.

If the script does not start PowerShell then the ExecutionPolicy has to be set manually:

1) Open an new window in the PowerShell and copy the line of the ExecutionPolicy to this new file.

2) Run this new file. The ExecutionPolicy is applied.

3) Run **D:\OMRON-NY\Scripts\IPConfigure.ps1**
The IP settings are set in the Windows settings.

The settings in IPConfigure.ps1 are applied to Windows.

Use Portrait Mode

To change your display from Landscape orientation to Portrait orientation:

1 Rightclick on the desktop and select **Display settings**.
The Display Settings window opens.

2 Select the Display orientation **Portrait** .

The display rotates to Portrait mode.

5-2-7   Create Backup and Repair Data

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

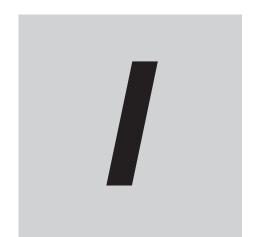There are different software tools to create a backup and repair data.

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

Precautions for Correct Use

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

I

Index

Index

V

W

I