Industrial PC Platform

NY-series

IPC Machine Controller

Industrial Panel PC / Industrial Box PC

Setup
User’s Manual

NY532-1500
NY532-1400
NY532-1300
NY532-5400
NY512-1500
NY512-1400
NY512-1300
Introduction

Thank you for purchasing an NY-series IPC Machine Controller Industrial Panel PC / Industrial Box PC.
This manual provides a collective term of Industrial Panel PC and Industrial Box PC which are applicable products as the NY-series Industrial PC. This manual also provides the range of devices that are directly controlled by the Machine Automation Control Software embedded in the NY-series Industrial PC as the Controller.
This manual contains information that is necessary to use the NY-series Controller. Please read this manual and make sure you understand the functionality and performance of the NY-series Controller before you attempt to use it in a control system.
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 FA systems.
• Personnel in charge of designing FA systems.
• Personnel in charge of installing and maintaining FA systems.
• Personnel in charge of managing FA systems and facilities.
For programming, this manual is intended for personnel who understand the programming language specifications in international standard IEC 61131-3 or Japanese standard JIS B 3503.

Applicable Products

This manual covers the following products.
• NY-series IPC Machine Controller Industrial Panel PC
  • NY532-15□□
  • NY532-14□□
  • NY532-13□□
  • NY532-54□□
• NY-series IPC Machine Controller Industrial Box PC
  • NY512-15□□
  • NY512-14□□
  • NY512-13□□
Part of the specifications and restrictions for the Industrial PC are given in other manuals.
Refer to Relevant Manuals on page 2 and Related Manuals on page 20.
Relevant Manuals

The following table provides the relevant manuals for the NY-series Controller. Read all of the manuals that are relevant to your system configuration and application before you use the NY-series Controller. Most operations are performed from the Sysmac Studio Automation Software. Refer to the *Sysmac Studio Version 1 Operation Manual (Cat. No. W504)* for information on the Sysmac Studio.

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<td>NY-series Built-in EtherCAT Port User’s Manual</td>
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<sup>1</sup> NY-series Built-in EtherCAT Port User’s Manual

<sup>2</sup> NY-series Built-in EtherCAT Port User’s Manual
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<td>NY-series Software User’s Manual Industrial Box PC</td>
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<td></td>
</tr>
<tr>
<td>NY-series Built-in EtherCAT Port User’s Manual</td>
<td></td>
</tr>
</tbody>
</table>

### Maintenance

- Using motion control: O
- Using EtherCAT: O
- Using EtherNet/IP: O

*1. Refer to the NY-series Industrial Panel PC / Industrial Box PC Setup User’s Manual (Cat. No. W568) for how to set up and how to use the utilities on Windows.

*2. Refer to the NY-series Troubleshooting Manual (Cat. No. W564) for the error management concepts and the error items.
Some of the descriptions of functions in this manual are common to NJ/NX-series. Therefore, note the following conditions.

- The same function names are used for the common functions of the NJ/NX/NY-series. If the term “CPU Unit” is included in the function names, such as the CPU Unit names, CPU Unit write protection, and other functions, it indicates the “Controller” in the NY-series.
- The “CPU Unit” that is described in a list of function specifications in this manual also indicates the “Controller” in the NY-series.

Page Structure

The following page structure is used in this manual.

Level 1 heading

Level 2 heading

Level 3 heading

A step in a procedure
Indicates a procedure.

Special information
Icons indicate precautions, additional information, or reference information.

Manual name

This illustration is provided only as a sample. It may not literally appear in this manual.
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 for Controller with different unit versions and for different versions of the Sysmac Studio is given.

Precaution on Terminology

In this manual, “download” refers to transferring data from the Sysmac Studio to the physical Controller and “upload” refers to transferring data from the physical Controller to the Sysmac Studio.

For the Sysmac Studio, synchronization is used to both upload and download data. Here, “synchronize” means to automatically compare the data for the Sysmac Studio on the computer with the data in the physical Controller and transfer the data in the direction that is specified by the user.
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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.

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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.

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 estab-
lish 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; how-
ever, no responsibility is assumed for clerical, typographical or proofreading errors or omissions.
Safety Precautions

Refer to the following manuals for safety precautions.

• *NY-series Industrial Box PC Hardware User’s Manual* (Cat. No. W556)
• *NY-series Industrial Panel PC Hardware User’s Manual* (Cat. No. W557)
• *NY-series Industrial Panel PC / Industrial Box PC Software User’s Manual* (Cat. No. W558)
Precautions for Safe Use

Refer to the following manuals for precautions for safe use.

- NY-series Industrial Box PC Hardware User’s Manual (Cat. No. W556)
- NY-series Industrial Panel PC Hardware User’s Manual (Cat. No. W557)
- NY-series Industrial Panel PC / Industrial Box PC Software User’s Manual (Cat. No. W558)
Precautions for Correct Use

Refer to the following manuals for precautions for correct use.

- *NY-series Industrial Box PC Hardware User’s Manual* (Cat. No. W556)
- *NY-series Industrial Panel PC / Industrial Box PC Software User’s Manual* (Cat. No. W558)
Regulations and Standards

Conformance to EU Directives

Applicable Directives

- EMC Directive

Concepts

- 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.*

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.

*1. 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

- Conformance to EU Directives
The NY-series Controllers comply with EU Directives. To ensure that the machine or device in which the NY-series Controller is used complies with EU Directives, the Controller must be installed as follows:
- The NY-series Controller must be installed within a control panel.
- You must use the power supply in SELV specifications for the DC power supplies connected to DC Power Supply Units and I/O Units.
- NY-series Controllers that comply with EU Directives also conform to the Common Emission Standard (EN 61000-6-4). 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 complies with EC Directives.

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/.
Hardware revisions and unit versions are used to manage the hardware and software in NY-series Controllers and EtherCAT slaves. The hardware revision or unit version is updated each time there is a change in hardware or software specifications. Even when two Units or EtherCAT slaves have the same model number, they will have functional or performance differences if they have different hardware revisions or unit versions.

## Checking Versions

You can check versions on the ID information indications or with the Sysmac Studio.

### Checking Unit Versions on ID Information Indications

The unit version is given on the ID information indication on the back side of the product. The ID information on an NY-series NY5 Controller is shown below.

![ID information indication](image)

### Checking Unit Versions with the Sysmac Studio

You can use the Sysmac Studio to check unit versions. The procedure is different for Units and for EtherCAT slaves.

- **Checking the Unit Version of an NY-series Controller**
  
  You can use the Production Information while the Sysmac Studio is online to check the unit version of a Unit. You can only do this for the Controller.

  1. Right-click CPU Rack under Configurations and Setup - CPU/Expansion Racks in the Multi-view Explorer and select Production Information. The Production Information Dialog Box is displayed.

- **Changing Information Displayed in Production Information Dialog Box**

  1. Click the Show Detail or Show Outline Button at the lower right of the Production Information Dialog Box. The view will change between the production information details and outline.
The information that is displayed is different for the Outline View and Detail View. The Detail View displays the unit version, hardware revision, and other versions. The Outline View displays only the unit version.

**Checking the Unit Version of an EtherCAT Slave**

You can use the Production Information while the Sysmac Studio is online to check the unit version of an EtherCAT slave.

Use the following procedure to check the unit version.

1. Double-click **EtherCAT** under **Configurations and Setup** in the Multiview Explorer. Or, right-click **EtherCAT** under **Configurations and Setup** and select **Edit** from the menu. The EtherCAT Tab Page is displayed.
2. Right-click the master on the EtherCAT Tab Page and select **Display Production Information**. The Production Information Dialog Box is displayed. The unit version is displayed after “Rev.”

**Changing Information Displayed in Production Information Dialog Box**

1. Click the **Show Detail** or **Show Outline** Button at the lower right of the Production Information Dialog Box. The view will change between the production information details and outline.
## Related Manuals

The following are the manuals related to this manual. Use these manuals for reference.

<table>
<thead>
<tr>
<th>Manual name</th>
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| NY-series
IPC Machine Controller
Industrial Panel PC
Hardware
User's Manual                                                                | W557     | NY532-□□□□□□  | Learning the basic specifications of the NY-series Industrial Panel PCs, including introductory information, designing, installation, and maintenance. Mainly hardware information is provided. | An introduction to the entire NY-series system is provided along with the following information on the Industrial Panel PC.
• Features and system configuration
• Introduction
• Part names and functions
• General specifications
• Installation and wiring
• Maintenance and inspection                                                                 |
| NY-series
IPC Machine Controller
Industrial Box PC
Hardware
User's Manual                                                                | W556     | NY512-□□□□□□  | Learning the basic specifications of the NY-series Industrial Box PCs, including introductory information, designing, installation, and maintenance. Mainly hardware information is provided. | An introduction to the entire NY-series system is provided along with the following information on the Industrial Box PC.
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| NY-series
IPC Machine Controller
Industrial Panel PC / Industrial Box PC
Setup
User’s Manual                                                              | W568     | NY532-□□□□□□ NY512-□□□□□□  | Learning the initial settings of the NY-series Industrial PCs and preparations to use Controllers. | The following information is provided on an introduction to the entire NY-series system.
• Two OS systems
• Initial settings
• Industrial PC Support Utility
• NYCompolet
• Industrial PC API
• Backup and recovery                                                                 |
| NY-series
IPC Machine Controller
Industrial Panel PC / Industrial Box PC
Software
User’s Manual                                                              | W558     | NY532-□□□□□□ NY512-□□□□□□  | Learning how to program and set up the Controller functions of an NY-series Industrial PC. | The following information is provided on the Controller function of an NY-series Controller.
• Controller operation
• Controller features
• Controller settings
• Programming based on IEC 61131-3 language specifications                                                                 |
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<tr>
<td>NY-series</td>
<td>W560</td>
<td>NY532-xxxx</td>
<td>Learning detailed specifications on the basic instructions of an NY-series Industrial PC.</td>
<td>The instructions in the instruction set (IEC 61131-3 specifications) are described.</td>
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<td>Instructions Reference Manual</td>
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<td>W559</td>
<td>NY532-xxxx</td>
<td>Learning about motion control settings and programming concepts of an NY-series Industrial PC.</td>
<td>The settings and operation of the Controller and programming concepts for motion control are described.</td>
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<td>NY532-xxxx</td>
<td>Using the built-in EtherCAT port in an NY-series Industrial PC.</td>
<td>Information on the built-in EtherCAT port is provided.</td>
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<td>Information on the built-in EtherNet/IP port is provided.</td>
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</tr>
<tr>
<td>Industrial Panel PC / Industrial Box PC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Built-in EtherNet/IP™ Port User’s Manual</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NC Integrated Controller User’s Manual</td>
<td></td>
<td>NJ532-54□□□□</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G code Instructions Reference Manual</td>
<td></td>
<td>NJ532-54□□□□</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NY-series</td>
<td>W564</td>
<td>NY532-xxxx</td>
<td>Learning about the errors that may be detected in an NY-series Industrial PC.</td>
<td>Concepts on managing errors that may be detected in an NY-series Controller and information on individual errors are described.</td>
</tr>
<tr>
<td>Troubleshooting Manual</td>
<td></td>
<td>NY512-xxxx</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manual name</td>
<td>Cat. No.</td>
<td>Model numbers</td>
<td>Application</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>----------</td>
<td>---------------</td>
<td>-------------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Sysmac Studio Version 1 Operation Manual</td>
<td>W504</td>
<td>SYMAC-SE2</td>
<td>Learning about the operating procedures and functions of the Sysmac Studio.</td>
<td>Describes the operating procedures of the Sysmac Studio.</td>
</tr>
<tr>
<td>CNC Operator Operation Manual</td>
<td>O032</td>
<td>SYMAC-RTNC0</td>
<td>Learning an introduction of the CNC Operator and how to use it.</td>
<td>An introduction of the CNC Operator, installation procedures, basic operations, connection operations, and operating procedures for main functions are described.</td>
</tr>
<tr>
<td>NX-series EtherCAT® Coupler Unit User’s Manual</td>
<td>W519</td>
<td>NX-ECC</td>
<td>Learning how to use an NX-series EtherCAT Coupler Unit and EtherCAT Slave Terminals.</td>
<td>The following items are described: the overall system and configuration methods of an EtherCAT Slave Terminal (which consists of an NX-series EtherCAT Coupler Unit and NX Units), and information on hardware, setup, and functions to set up, control, and monitor NX Units through EtherCAT.</td>
</tr>
<tr>
<td>NX-series Safety Control Unit User’s Manual</td>
<td>Z930</td>
<td>NX-SL</td>
<td>Learning how to use NX-series Safety Control Units</td>
<td>Describes the hardware, setup methods, and functions of the NX-series Safety Control Units.</td>
</tr>
<tr>
<td>Displacement Sensor ZW series Confocal Fiber Type Displacement Sensor User’s Manual</td>
<td>Z332</td>
<td>ZW-CE1</td>
<td>Learning how to use the ZW-series Displacement Sensors.</td>
<td>Describes the hardware, setup methods and functions of the ZW-series Displacement Sensors.</td>
</tr>
<tr>
<td>NS-series Programmable Terminals Programming Manual</td>
<td>V073</td>
<td>NS15, NS12, NS10, NS8, NS5</td>
<td>Learning how to use the NS-series Programmable Terminals.</td>
<td>Describes the setup methods, functions, etc. of the NS-series Programmable Terminals.</td>
</tr>
<tr>
<td>Manual name</td>
<td>Cat. No.</td>
<td>Model numbers</td>
<td>Application</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------</td>
<td>----------</td>
<td>---------------</td>
<td>-------------------------------------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>CX-Designer</td>
<td>V099</td>
<td>---</td>
<td>Learning to create screen data for NS-series Programmable Terminals.</td>
<td>Describes operating procedures for the CX-Designer.</td>
</tr>
<tr>
<td>User's Manual</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
A manual revision code appears as a suffix to the catalog number on the front and back covers of the manual.

<table>
<thead>
<tr>
<th>Revision code</th>
<th>Date</th>
<th>Revised content</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>September 2016</td>
<td>Original production</td>
</tr>
<tr>
<td>02</td>
<td>April 2017</td>
<td>• Made changes in specifications of Rescue Disk Utility.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Corrected mistakes.</td>
</tr>
<tr>
<td>03</td>
<td>October 2017</td>
<td>Added information on the functions supported by unit version 1.16 of the Controllers.</td>
</tr>
<tr>
<td>04</td>
<td>April 2019</td>
<td>• Made changes in specifications of Rescue Disk Utility.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Added information on Industrial PC API.</td>
</tr>
</tbody>
</table>
Sections in this Manual

1 Introduction to Industrial PC
2 Initial Settings
3 Controller Preparation
4 Industrial PC Support Utility
5 NYCompolet
6 Industrial PC API
7 Backup and Recovery
8 Troubleshooting during Setup
A Appendices
Introduction to the Industrial PC

This section describes the features, basic system, product models, and operating procedure of an Industrial PC Platform NY-series IPC Machine Controller Industrial Panel PC / Industrial Box PC.

1-1 Features ........................................................................................................1 - 2
1-2 Operation of the Operating System............................................................ 1 - 3
   1-2-1 Overview of Operating System Operation .............................................. 1 - 3
   1-2-2 Data Exchange between Operating Systems .......................................... 1 - 3
   1-2-3 External Interface for Each Operating System ....................................... 1 - 5
1-3 Product Model Numbers.............................................................................. 1 - 6
1-4 Application Procedures............................................................................... 1 - 7
   1-4-1 Overall Procedure..................................................................................... 1 - 7
1-5 Monitoring Function..................................................................................... 1 - 9
   1-5-1 Monitoring System Information ............................................................. 1 - 9
   1-5-2 Monitoring Controller Status .................................................................. 1 - 10
1-1 Features

Industrial PC Platform NY-series IPC Machine Controller Industrial Panel PC / Industrial Box PC (hereafter Industrial PC) is an industrial PC of the next generation. It accomplishes both high speed and high precision Controller function that is necessary for machine control, and safety, reliability, and maintainability as an industrial PC.

The Industrial PC provides the following features.

● Concurrent Operation of Windows and Real-Time OS

The Industrial PC is provided with two operating systems: Windows and Real-Time OS. It can concurrently perform both machine controls by using the Controller function on the Real-Time OS and the application processing on Windows. With one Industrial PC, you can control the equipment with the Controller, get the equipment data from the Windows application, and send it to the host PC.

● Ensuring Operating System Independency

Each of Windows and the Real-Time OS runs independently. The Controller on the Real-Time OS is not affected by the Windows operation. The Controller continues controlling even if Windows makes an unexpected stop.

● Data Exchange between Windows and Controller

Windows and the Controller on the Real-Time OS can exchange data while each makes an independent operation.

Through the shared folder on Windows, you can get data from and write data into the Controller. Also, you can shut down or restart Windows from the Controller.
1-2 Operation of the Operating System

This section describes how the operating systems of the Industrial PC operate and how the two operating systems relate to.

1-2-1 Overview of Operating System Operation

An Industrial PC has two operating systems: Windows and Real-Time OS. Separate processor cores are allocated to each OS.

The Controller function is operated over Real-Time OS. Refer to the NY-series Industrial Panel PC / Industrial Box PC Software User’s Manual (Cat. No. W558) for details on the Controller function and usage.

The Real-Time OS does not need any maintenance and settings.

1-2-2 Data Exchange between Operating Systems

This section describes data exchange between Windows and the Real-Time OS.

There is a virtual network adapter for Windows. Each of Windows and the Real-Time OS (Controller function) has an internal port. The two OSs exchange data through the internal port and the internal network.

Accessing Windows from the Controller

You can use Windows shared folder as a Virtual SD Memory Card from the Controller, and backup and restore the Controller data.

You can access the shared folder, as usual, from Windows.

Also, you can shut down or restart Windows by using instructions in the Controller programs.
Accessing the Controller from Windows

You can get the Controller data with the support software or application that runs on Windows.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial PC Support Utility</td>
<td>Displays the production information of the Industrial PC, and the status. Also, you can change the operating mode of the Controller, and back up the data. Refer to Section 4 Industrial PC Support Utility on page 4 - 1 for details.</td>
</tr>
<tr>
<td>Applications with the NYCompolet</td>
<td>The NYCompolet is a software component that provides the Windows application the functions to get and refresh the Controller data. You can get the Controller data by creating and using applications with the NYCompolet. Refer to Section 5 NYCompolet on page 5 - 1 for details on the NYCompolet.</td>
</tr>
</tbody>
</table>
External interfaces for Industrial PCs that are supported by Windows and Real-Time OS (Controller function) are given below.
You cannot access an interface which is supported by the other Operating System.

- Ethernet port
- USB port
- SD Memory Card slot
- EtherNet/IP port
- EtherCAT port
- Real-Time OS
- Controller (Internal port)
- Windows (Internal port)
1-3  Product Model Numbers

The model numbers of Industrial PCs indicate a used operating system, the number of controlled axes on the Controller, and hardware configuration.

NY  5 3 2 - 1 5 0 0 - 1 1 2 2 1 3 C 2 2
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

<table>
<thead>
<tr>
<th>Number</th>
<th>Item</th>
<th>Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Series</td>
<td>NY : NY-series Industrial PC Platform</td>
</tr>
<tr>
<td>2</td>
<td>Controller specifications</td>
<td>5 : Large-scale, high-speed and high-precision controls with up to 64 axes</td>
</tr>
<tr>
<td>3</td>
<td>Model type</td>
<td>1 : Industrial Box PC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 : Industrial Panel PC</td>
</tr>
<tr>
<td>4</td>
<td>Sequential number</td>
<td>2 : Latest version</td>
</tr>
<tr>
<td>5</td>
<td>Function module</td>
<td>1 : Standard</td>
</tr>
<tr>
<td>6</td>
<td>Number of axes for motion control</td>
<td>3 : 16 axes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 : 32 axes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 : 64 axes</td>
</tr>
<tr>
<td>7</td>
<td>Additional function software module</td>
<td>0 : ---</td>
</tr>
<tr>
<td>8</td>
<td>Reserved</td>
<td>0 : ---</td>
</tr>
<tr>
<td>9</td>
<td>Expansion slots</td>
<td>1 : PCIe slot × 1</td>
</tr>
<tr>
<td>10</td>
<td>Frame type</td>
<td>1 : Aluminum frame, black, Projected Capacitive Touch type</td>
</tr>
<tr>
<td></td>
<td></td>
<td>X : Without display (Industrial Box PC)</td>
</tr>
<tr>
<td>11</td>
<td>Display size</td>
<td>1 : 12.1 inches</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 : 15.4 inches</td>
</tr>
<tr>
<td></td>
<td></td>
<td>X : Without display (Industrial Box PC)</td>
</tr>
<tr>
<td>12</td>
<td>OS</td>
<td>1 : Windows Embedded Standard 7 32-bit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 : Windows Embedded Standard 7 64-bit</td>
</tr>
<tr>
<td>13</td>
<td>Processor</td>
<td>1 : Intel® Core ™ i7-4700EQ Processor</td>
</tr>
<tr>
<td>14</td>
<td>Main memory</td>
<td>3 : 8GB Non-ECC</td>
</tr>
<tr>
<td>15</td>
<td>Storage</td>
<td>8 : 32GB SSD SLC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9 : 64GB SSD SLC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C : 320GB HDD</td>
</tr>
<tr>
<td></td>
<td></td>
<td>K : 128GB SSD iMLC</td>
</tr>
<tr>
<td>16</td>
<td>Interface option</td>
<td>1 : RS-232C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 : DVI-D</td>
</tr>
<tr>
<td>17</td>
<td>Logo mark</td>
<td>0 : Omron</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 : Custom</td>
</tr>
<tr>
<td></td>
<td></td>
<td>X : Without display (Industrial Box PC)</td>
</tr>
</tbody>
</table>
1-4 Application Procedures

This section gives the operating procedure of the Industrial PCs. This manual gives the detailed descriptions in the same order as the following operating procedure.

1-4-1 Overall Procedure

1 Preparations
Perform procedures that are required to use the Industrial PC such as assembling, installation, and connection with peripheral devices including a UPS.
Refer to the NY-series Industrial Box PC Hardware User’s Manual (Cat. No. W556) or the NY-series Industrial Panel PC Hardware User’s Manual (Cat. No. W557) for details on assembling, installation, and wiring for the Industrial PC, and on the parts of the Industrial PC.

2 Initial Settings
Make the initial settings for Windows and settings for the Industrial Monitor.

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial settings for the Windows</td>
<td>Make the settings including the Windows setup when Windows is started up for the first time. Also, back up the status immediately after the Windows setup is completed.</td>
<td>2-1 Initial Settings for Windows on page 2 - 2</td>
</tr>
<tr>
<td>Turning ON or OFF the power supply</td>
<td>Turn ON the power or shut down.</td>
<td>2-2 Starting and Exiting on page 2 - 5</td>
</tr>
<tr>
<td>UPS settings</td>
<td>Make the required UPS settings.</td>
<td>2-3 UPS Settings on page 2 - 8</td>
</tr>
<tr>
<td>Industrial Monitor settings*1</td>
<td>Adjust the brightness and contrast of the Industrial Monitor.</td>
<td>2-4 Industrial Monitor Settings on page 2 - 9</td>
</tr>
</tbody>
</table>

*1. The settings are required when you use the Industrial Panel PC or Industrial Monitor.

3 Preparing for the Controller
Make the settings required for the Controller to use Windows shared folder as a Virtual SD Memory Card.

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal port settings</td>
<td>Make the settings required for the Controller and Windows to communicate.</td>
<td>3-1 Internal Port Settings on page 3 - 2</td>
</tr>
<tr>
<td>Shared folder settings</td>
<td>Set a shared folder used by the Controller as a Virtual SD Memory Card.</td>
<td>3-2 Shared Folder Settings on page 3 - 3</td>
</tr>
</tbody>
</table>

4 Controller Setup and Programming
Set up the Controller and create control programs. Refer to the NY-series Industrial Panel PC / Industrial Box PC Software User’s Manual (Cat. No. W558) for details on the setting and programming methods.

5 Creating Applications that Run on Windows
Create required applications that run on Windows.
**Step Description Reference**

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creating applications with the NYCompolet</td>
<td>Use the API that operates the Controller, and create an application to obtain variable data of the Controller. Also, use the created application, and make the required communications settings to operate the Controller.</td>
<td>Section 5 NYCompolet on page 5 - 1</td>
</tr>
<tr>
<td>Creating applications with the Industrial PC API</td>
<td>Use the API prepared for the Industrial PC, and create an application that gets the system status information of the Industrial PC as well as the status information of the Controller.</td>
<td>Section 6 Industrial PC API on page 6 - 1</td>
</tr>
</tbody>
</table>

### 6 Backup and Recovery

Back up and recover the Windows data and the Controller data.

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backing up and recovering the entire Industrial PC system</td>
<td>Back up the data on the hard disk drive of the Industrial PC, and restore it in the USB storage.</td>
<td>7-1 Backing up and Recovering the Industrial PC System on page 7 - 2</td>
</tr>
<tr>
<td>Backing up and restoring the Controller</td>
<td>Use the backup and restore function of the Controller, and back up and restore the Controller setup, user programs, and variable data.</td>
<td>7-2 Backing Up, Restoring, and Comparing Controller Data on page 7 - 9</td>
</tr>
</tbody>
</table>
1-5 Monitoring Function

This section describes the monitoring function of the Industrial PC.
The function is used to monitor the system status and Controller status of the Industrial PC.
The Industrial PC Support Utility is used to obtain and display the system information of the Industrial PC and the status information of the Controller function.
Refer to Section 4 Industrial PC Support Utility on page 4 - 1 for details on the displaying procedures of and the displayed items by the Industrial PC Support Utility.

Precautions for Correct Use

The Industrial PC Support Utility obtains and displays the system information of the Industrial PC as well as the status information of the Controller function. But it does not support continuous monitoring. To obtain information continuously, use the Industrial PC API and separately create an application that obtains required information. Also, to obtain more information than the Industrial PC Support Utility can obtain and display, you have to create an application as well.

1-5-1 Monitoring System Information

To display the system status of the Industrial PC, start up the Industrial PC Support Utility and click the System Status tab.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Temperature</td>
<td>Displays the present internal temperature of the Industrial PC.</td>
</tr>
<tr>
<td>Fan Revolution</td>
<td>Displays the present revolution of the Fan Unit.</td>
</tr>
<tr>
<td>Fan status</td>
<td>Indicates the fan status. Displays “Low revolution speed” when the fan is disconnected or the fan revolution is decreased.</td>
</tr>
<tr>
<td>Battery status</td>
<td>Indicates the battery voltage status. Indicates “Low” when the battery is disconnected or the battery voltage is dropped.</td>
</tr>
<tr>
<td>Power Supply</td>
<td>Indicates the type of the power supply.</td>
</tr>
</tbody>
</table>

Refer to 4-4 System Monitor on page 4 - 7 for details on each item.
To display the Controller status, start up the Industrial PC Support Utility and click the Controller Status tab.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit name of the Controller</td>
<td>Displays the unit name that is set for the Controller.</td>
</tr>
<tr>
<td>Controller operation Mode</td>
<td>Displays the present operating mode of the Controller.</td>
</tr>
<tr>
<td>Controller Error</td>
<td>Displays current Controller errors.</td>
</tr>
<tr>
<td>User-defined Error</td>
<td>Displays current user-defined errors.</td>
</tr>
<tr>
<td>Built-in EtherNet/IP port</td>
<td>Displays the settings of the built-in EtherNet/IP port through which the Controller communicates with an external device of the Industrial PC.</td>
</tr>
<tr>
<td>IP address</td>
<td>Displays the present IP address, subnet mask, and MAC address.</td>
</tr>
<tr>
<td>Subnet mask</td>
<td></td>
</tr>
<tr>
<td>MAC address</td>
<td></td>
</tr>
<tr>
<td>NET RUN</td>
<td>Displays the CIP connection status of the EtherNet/IP network.</td>
</tr>
<tr>
<td>NET ERR</td>
<td>Displays the communications error status of the EtherNet/IP network.</td>
</tr>
<tr>
<td>LINK</td>
<td>Displays the link establishment status of the EtherNet/IP network.</td>
</tr>
<tr>
<td>Internal Port</td>
<td>Displays the settings of the internal port through which the Controller communicates with Windows on the Industrial PC.</td>
</tr>
<tr>
<td>IP address</td>
<td>Displays the present IP address, subnet mask, and MAC address.</td>
</tr>
<tr>
<td>Subnet mask</td>
<td></td>
</tr>
<tr>
<td>Default Gateway</td>
<td>Displays the present default gateway.</td>
</tr>
</tbody>
</table>

Refer to 4-5 Controller Monitor on page 4 - 9 for details on each item.

Additional Information

You can use the Controller Status function of the Sysmac Studio to monitor more detailed status of the Controller. Refer to the Sysmac Studio Version 1 Operation Manual (Cat. No. W504) for details on the Controller status of the Sysmac Studio.
Initial settings

This section describes the basic operation and initial settings of the Industrial PC. It also describes starting and exiting the Industrial PC, the initial settings for Windows after turning ON the power for the first time, the UPS settings, and the Industrial Monitor settings.

2-1 Initial Settings for Windows ................................................................. 2 - 2
  2-1-1 Windows Settings .......................................................................... 2 - 2
  2-1-2 Creating Recovery Image of Initial State ..................................... 2 - 3
  2-1-3 Installing Software ..................................................................... 2 - 3
  2-1-4 User Account Settings ............................................................... 2 - 4
  2-1-5 Customize Windows .................................................................. 2 - 4

2-2 Starting and Exiting ........................................................................ 2 - 5
  2-2-1 Starting ...................................................................................... 2 - 5
  2-2-2 Exiting ...................................................................................... 2 - 6
  2-2-3 Restarting .................................................................................. 2 - 6

2-3 UPS Settings .................................................................................. 2 - 8

2-4 Industrial Monitor Settings ............................................................ 2 - 9
  2-4-1 Industrial Monitor Utility .......................................................... 2 - 9
  2-4-2 Industrial Monitor Brightness Utility ....................................... 2 - 11
2 Initial Settings for Windows

This section describes the setting items and procedures for Windows when the Industrial PC is started up for the first time.

A keyboard and mouse are required to make settings. Before turning on the power supply to the Industrial PC, connect a keyboard and mouse to the USB ports. Also, connect the Industrial Monitor when you use an Industrial Box PC.

Refer to A-4 Windows of Industrial PC on page A - 5 for the specifications of Windows for Industrial PCs.

2-1-1 Windows Settings

Perform the Windows setup when the Industrial PC is started up for the first time.

You can set the Windows language, region, and computer name in the following procedure. It takes about 20 to 30 minutes to complete this procedure.

Press and release the power button on the Industrial PC within 1 second. The Industrial PC is started up and the Set Up Windows dialog box is displayed.

Select a language to use on the first page of the Set Up Windows dialog box, and then click the Next button. The regional information page is displayed.

On the regional information page, select Country or region, Time and currency, and Keyboard layout, and then click the Next button. The Create a new account page is displayed.

Enter User name and Computer name, and click the Next button. The Set a password for your account page is displayed.

Enter a password and password hint, and click the Next button. The Please read the license terms page is displayed.

Read the license terms carefully. Then, select the I accept the license terms check box and click the Next button. The Help protect your computer and improve Windows automatically page is displayed.
7 Click Use recommended settings.
The Review your time and date settings page is displayed.

8 Set Time zone, Date and Time, and click Next button.
The Select your computer’s current location page is displayed.

9 Click the network in which you use the computer.
After the computer is restarted automatically, the login screen is displayed. This completes the setup procedure.

2-1-2 Creating Recovery Image of Initial State

You can back up the Industrial PC in the state immediately after the Windows setup is completed. If Windows or Real-Time OS (Controller function) malfunctions while the Industrial PC is operated, with the backup data you can restore the Industrial PC to the state immediately after the Windows setup is completed.

You can use the Rescue Disk Utility for backing up. Refer to 7-1 Backing up and Recovering the Industrial PC System on page 7 - 2 for details and procedures on backing up and recovering with the Rescue Disk Utility.

2-1-3 Installing Software

When there is any software required for using the Industrial PC, you can install it.
- Internet browser
- Firewall software
- Anti-virus software

Precautions for Safe Use
To ensure security, it is strongly recommended to install firewall and anti-virus software and keep them updated in the latest state.

Precautions for Correct Use
Confirm the IT policy at your company for available software as well as for the security requirements and environment for the Industrial PC.

Installing Internet Browser

The Industrial PC does not have an internet browser pre-installed for security reasons. An executable file for browser installation is provided in D:\OMRON-NY\Installers.
Execute an installer that corresponds to the type of your Windows (32 or 64 bit) and your language (Japanese or English).

Precautions for Safe Use
Install all updates and ensure the browser stays up-to-date.
Installing Firewall Software

Install the firewall software that you are permitted to use in your company. The Industrial PC network must be separated from the office network.

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.

Installing Anti-virus Software

Windows is vulnerable for viruses. Anti-virus software should be installed on Windows.

Precautions for Safe Use

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

2-1-4 User Account Settings

The Controller function uses the Windows shared folder as a Virtual SD Memory Card. To use this function, you must log onto Windows with the user account of the administrator, and access the shared folder. When you create and use a user account other than one you set in Windows Settings, be sure to add the administrator’s access right to it.

2-1-5 Customize Windows

Windows provides customization tools. Using these tools is only allowed for experienced software engineers. Refer to A-7 Customize Windows on page A - 9 for details on the tools.
2-2 Starting and Exiting

This section gives the basic starting up and exiting operations of the Industrial PC, and the operation sequences.

2-2-1 Starting

During starting up, the Monitor displays the startup status. The following description assumes that you are using an Industrial Panel PC, or an Industrial Box PC to which a Monitor is connected.

Startup Operating Modes

The Industrial PC has the following startup operating modes.

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal mode</td>
<td>The mode is used for normal startup. The Controller is started up in RUN mode.</td>
</tr>
<tr>
<td>Safe mode</td>
<td>The Controller is started up in PROGRAM mode. This mode is used to start up the Controller in PROGRAM mode even if the operating mode at power ON is set to RUN mode.</td>
</tr>
</tbody>
</table>

The Normal mode operation procedure is given below.

Refer to 8-1 Starting in Safe Mode on page 8 - 2 for information on the Safe mode.

Normal Mode

1. Press and release the power button on the Industrial PC within 1 second.
   The PWR LED lights, and the BIOS startup view is displayed on the Monitor.

2. Wait for the RUN LED to light.
   The RUN LED flashes, and the Real-Time OS (Controller function) starts up in RUN mode.
   When the Controller function is completely started up, the RUN LED lights, and then Windows starts up.

Additional Information

- The startup state of the Real-Time OS (Controller function) is not shown on the Monitor. The startup process of the Real-Time OS is completed at the time when the Windows startup view is displayed.
- Refer to Section 8 Troubleshooting during Setup on page 8 - 1 for details on errors that occur during startup.
- Other than pressing the power button, you can use an external input signal to start up the Industrial PC in Normal mode. After the external input signal is turned ON, the same operations as after the power button is pressed follow. Refer to the NY-series Industrial Box PC Hardware User’s Manual (Cat. No. W556) or the NY-series Industrial Panel PC Hardware User’s Manual (Cat. No. W557) for details on the startup procedure with an external input signal.
2-2-2 Exiting

This section gives procedures to shut down Windows and Real-Time OS (Controller function), and turn OFF the power supply to the Industrial PC.

Precautions for Safe Use

Before turning OFF the power supply to the Industrial PC, you must ensure that there is no program running on Windows, and that it is safe to shut down the system while the current program is running.

How to turn OFF the power supply to the Industrial PC depends on the trigger types as follows.

<table>
<thead>
<tr>
<th>Trigger type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power button</td>
<td>Shutting down by pressing the power button on the Industrial PC. *1</td>
</tr>
<tr>
<td>Input signal from UPS</td>
<td>Shutting down with a signal input from UPS to the Industrial PC. The signal input is caused by an interruption of power supply which is connected to the UPS. *1</td>
</tr>
<tr>
<td>Shutdown instruction from the Controller</td>
<td>Shutting down in a desired timing when the shutdown instruction is executed in the Controller program. *2</td>
</tr>
</tbody>
</table>

*1. You can set the shutdown processing time on the Controller Setup. Refer to the NY-series Industrial Panel PC / Industrial Box PC Software User’s Manual (Cat. No. W558) for details on the settings and shutdown processing.

*2. Refer to the NY-series Instructions Reference Manual (Cat. No. W560) for details on using the shutdown instruction.

The exiting procedure when the trigger is pressing the power button is given below.

1. Press and release the power button on the Industrial PC within 1 second.
   The program running on the Controller is stopped, and the Real-Time OS (Controller function) is shut down. Then Windows is shut down, and the power supply to the Industrial PC is turned OFF.

Precautions for Correct Use

When you press the power button for five seconds or longer, the power is forcibly turned OFF without going through the normal shutting down process. Be careful to use this procedure. It may cause a loss of a program running on the Controller or data in a Windows application.

Additional Information

- You cannot shut down from the Windows start menu.
- Refer to the NY-series Industrial Box PC Hardware User’s Manual (Cat. No. W556) or the NY-series Industrial Panel PC Hardware User’s Manual (Cat. No. W557) for details on abnormal shutdowns by an interruption of power supply when a UPS is not used, or by overheating.

2-2-3 Restarting

The procedures to restart the Industrial PC are given below. The types of restarting depend on what is restarted as follows. Each is for a different target to restart.

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restarting Windows</td>
<td>Restarts only Windows. The Controller is not affected by the Windows restart.</td>
</tr>
</tbody>
</table>
### Restarting Windows

To restart Windows, use the Restart OS instruction on the Controller. Refer to the *NY-series Instructions Reference Manual* (Cat. No. W560) for details on using the Restart OS instruction.

### Restarting the Controller

Use the Sysmac Studio or Industrial PC Support Utility to restart the Controller.

- **Restarting the Controller with Sysmac Studio**
  For how to restart (reset) the Controller with the Sysmac Studio, refer to the *Sysmac Studio Version 1 Operation Manual* (Cat. No. W504).

- **Restarting the Controller with Industrial PC Support Utility**
  When you restart (reset) the Controller from the Industrial PC Support Utility, use the Reset button in the **Controller Operation** tab page. Refer to 4-6-2 *Resetting the Controller* on page 4 - 12 for details on the procedure.
2-3 UPS Settings

If necessary, set the UPS operating mode, Industrial PC's exiting processing during a power interruption, and I/O signal processing.
Refer to the manual for the UPS you use for details on the UPS settings.
2-4 Industrial Monitor Settings

This section describes how to set up the Industrial Panel PC and Industrial Monitor, and how to adjust their screens.

Use the following applications to set the screen of the Industrial Panel PC or Industrial Monitor.

• Industrial Monitor Utility
• Industrial Monitor Brightness Utility

The Industrial Panel PC and Industrial Monitor may collectively be called “the monitor” hereafter in this section.

Precautions for Correct Use

When you use the Industrial Monitor Utility or Industrial Monitor Brightness Utility to adjust the Industrial Monitors, connect them to the Industrial PC with a USB cable in advance.

2-4-1 Industrial Monitor Utility

The Industrial Monitor Utility is the application which displays the information on the model of the Industrial Panel PC screen and Industrial Monitor. It also changes the brightness of the screens and front LEDs.

You can start up the Industrial Monitor Utility with the following screen or menu.

• Start menu
• System tray (Industrial PC Tray Utility)

Refer to A-6 Industrial PC Tray Utility on page A-7 for details on the Industrial PC Tray Utility.

Application Procedures

As an example, the procedure to start up from the Start menu is given below.

1. Select OMRON - Industrial Monitor - Industrial Monitor Utility from the Start menu.

The Industrial Monitor Utility dialog box is displayed.
Refer to Industrial Monitor Utility Dialog Box on page 2 - 10 for details on the screens of the Industrial Monitor Utility as follows.

2 Select an Industrial Panel PC or Industrial Monitor and make the necessary setting. Click the Apply button.
   The setting is applied to the Industrial Panel PC or Industrial Monitor.

**Industrial Monitor Utility Dialog Box**

The Industrial Monitor Utility dialog box provides the following functions.

<table>
<thead>
<tr>
<th>Item</th>
<th>Details</th>
<th>Displayed information</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>Connected Monitors</td>
<td>Displays monitors that are connected to the Industrial PC. Click the icon of a monitor to display the monitor information and settings.</td>
</tr>
<tr>
<td>(b)</td>
<td>Product Information</td>
<td>Displays the product information of the monitor.</td>
</tr>
<tr>
<td>(c)</td>
<td>Monitor Settings</td>
<td>Sets the brightness of the Monitors and front LEDs.</td>
</tr>
<tr>
<td></td>
<td>Backlight</td>
<td>Adjusts the brightness of the screen backlights.</td>
</tr>
<tr>
<td></td>
<td>Logo</td>
<td>Adjusts the brightness of the front Logo LED.</td>
</tr>
</tbody>
</table>
### 2-4-2 Industrial Monitor Brightness Utility

The Industrial Monitor Brightness Utility simultaneously changes the brightness of multiple monitors that are connected to the Industrial PC.

You can start up the Industrial Monitor Brightness Utility with the following screen or menu.
- System tray (Industrial PC Tray Utility)

Refer to A-6 *Industrial PC Tray Utility* on page A - 7 for details on the Industrial PC Tray Utility.

#### Application Procedures

1. Right-click the Industrial PC Tray Utility icon to select **Monitor Brightness Utility**.
   The Industrial Monitor Brightness Utility is displayed.
2 Adjust with the slider.
The brightness of the screen of the Industrial Panel PC and all Industrial Monitors connected to
the Industrial PC are adjusted simultaneously.

Additional Information

You can start the Industrial Monitor Utility by clicking the Industrial Monitor Utility button. Refer to 2-4-1 Industrial Monitor Utility on page 2 - 9 for details.
Controller Preparation

This section describes the settings and procedures for Windows and Controller that are required for using the Controller.

3-1 Internal Port Settings ................................................................. 3 - 2
3-2 Shared Folder Settings ............................................................... 3 - 3
   3-2-1 Windows Settings ................................................................. 3 - 3
   3-2-2 Controller Setup ................................................................. 3 - 7
3-1 Internal Port Settings

This section describes the settings of the internal port through which the Controller communicates with Windows.
Refer to 1-2-2 Data Exchange between Operating Systems on page 1 - 3.

Windows Settings

An internal port is set on Windows by default as a virtual network adapter port. The factory setting for the internal port is given below.

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network adapter name</td>
<td>Real-Time Hypervisor PCI Network Adapter</td>
</tr>
<tr>
<td>IP address</td>
<td>192.168.254.2</td>
</tr>
<tr>
<td>Subnet mask</td>
<td>255.255.255.0</td>
</tr>
<tr>
<td>Public range of Windows file shared service</td>
<td>Internal network only</td>
</tr>
</tbody>
</table>

Controller Setup

The factory setting for the internal port on the Controller is given below.

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP address</td>
<td>192.168.254.1</td>
</tr>
<tr>
<td>Subnet mask</td>
<td>255.255.255.0</td>
</tr>
</tbody>
</table>
3-2 Shared Folder Settings

This section describes the settings required for the Controller to use the Windows shared folder as a Virtual SD Memory Card. Refer to the NY-series Industrial Panel PC / Industrial Box PC Software User’s Manual (Cat. No. W558) for details on the function of a Virtual SD Memory Card.

3-2-1 Windows Settings

Prepare a Windows user account with which you access the shared folder directly or through the Controller.

Create a user account first.

Creating a User Account

Create a new user account with which you access the shared folder through the Controller. First log onto Windows with a user account of administrator level that was created at the Windows settings, and then perform the following procedures.

1. Select Control Panel from the Windows start menu.

The Controller Panel is displayed.

2. Select Add or remove user accounts on the Control Panel.
3 Controller Preparation

The Manage accounts view is displayed.

3 Select Create a new account.

The Create a new account view is displayed.

4 Enter an account, select Administrator, and click the Create Account button. In the following example, enter MachineController as an account.
The new account is created.

5 Click the account that you created on the Manage accounts view. Select Created a password on the displayed Change account view.

The Create a password view is displayed.
6 Enter a password, and then click the **Create a password** button. Enter a hint to the password, if necessary.

This completes an account creation.

**Precautions for Correct Use**

- Characters that you can use for an account name range from 0 to 9, A to Z, a to z, and single-byte symbols (`, !, #, $, &), and the number of characters for an account is 1 to 274 (without Null). Case insensitive.
- Characters that you can use for a password range from 0 to 9, A to Z, a to z, and single-byte symbols (`, !, @, #, $, %, ^, &, *, (, ), _, -, +, =, {, }, \, ¦, :, ;, ', <, >, ., ?, and /). The number of characters for a password is 8 to 32 (without Null). Case sensitive.

**Shared Folder Settings**

A shared folder that is used as a Virtual SD Memory Card is created by default. You can access the folder from a new account that you create.

The factory setting for the shared folder is given below.

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>The path for the shared folder</td>
<td>D:\OMRON-NY\VirtualSDCard</td>
</tr>
</tbody>
</table>
# Precautions for Correct Use

When you enable file sharing on external networks, change the accounts that are given access to the shared folder from **Everyone** to properly authorized accounts in order to protect the shared folder against information leaks or data modification. Refer to A-3 Changing Windows File Sharing Setting on page A-4 for file sharing on external networks.

## 3-2-2 Controller Setup

With **Controller Setup** on the Sysmac Studio, you can set a shared folder that is used by the Controller as a Virtual SD Memory Card.

The setting items are given below.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Set value</th>
<th>Initial value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virtual SD Memory Card</td>
<td>Specify whether to use the Windows shared folder as a Virtual SD Memory Card.</td>
<td>Do not use. Use.</td>
<td>Do not use.</td>
</tr>
<tr>
<td>Computer name</td>
<td>Specify the Windows computer name.</td>
<td>Text string(\textsuperscript{1})</td>
<td>Blank</td>
</tr>
<tr>
<td>IP address</td>
<td>Specify the IP address of the Windows internal port.</td>
<td>IPv4(\textsuperscript{2})</td>
<td>192.168.254.2</td>
</tr>
<tr>
<td>Shared folder name</td>
<td>Specify a shared folder name used as a Virtual SD Memory Card.</td>
<td>Text string(\textsuperscript{3})</td>
<td>VirtualSDCard</td>
</tr>
<tr>
<td>User name</td>
<td>Specify a shared name of the user who uses the shared folder as a Virtual SD Memory Card. Enter the account name that you set at &quot;Account Settings&quot; of &quot;Windows Settings&quot;.</td>
<td>Text string(\textsuperscript{4})</td>
<td>Blank</td>
</tr>
<tr>
<td>Password</td>
<td>Specify a password for the account you set for &quot;User name&quot;.</td>
<td>Text string(\textsuperscript{6})</td>
<td>Blank</td>
</tr>
</tbody>
</table>

*\(\textsuperscript{1}\)* Characters that you can use range from 0 to 9, A to Z, a to z, and a single-byte symbol (-). The number of characters is 1 to 15 (without Null). Case insensitive.

*\(\textsuperscript{2}\)* You cannot specify the following IP addresses.

- IP addresses that start with 127 (decimal)
- Class-D IP addresses (224.0.0.0 to 239.255.255.255)
- Class-E IP addresses (240.0.0.0 to 255.255.255.255)

*\(\textsuperscript{3}\)* Characters that you can use range from 0 to 9, A to Z, a to z, and a single-byte symbol (-). The number of characters is 1 to 32 (without NULL). Case insensitive.

*\(\textsuperscript{4}\)* Enter &lt;domain name&gt;&lt; user name&gt; to specify a domain. You can omit specifying a domain when users with the same name do not exist as a domain user and local user.

*\(\textsuperscript{5}\)* Characters that you can use range from 0 to 9, A to Z, a to z, and single-byte symbols (', !, #, $, ^, &, (, ), _,-, \{, \}, \, and "). The number of characters is 1 to 274 (without Null). Case insensitive.

*\(\textsuperscript{6}\)* Characters that you can use range from 0 to 9, A to Z, a to z, and single-byte symbols (', !, @, #, $, %, ^, &, *, (, ), _, +, =, {, }, \, \, ;, ":", ", <, >, ., ?, and /). The number of characters is 8 to 32 (without NULL). Case sensitive.

The setting procedure is given below.

1. Start the Sysmac Studio, and create a project for the target NY-series Controller.
2 Double-click or right-click **Operation Settings** under **Configurations and Setup - Controller Setup** in the Multiview Explorer, and select **Edit** from the menu. The **Operation Settings** view is displayed.

3 On the **Virtual SD Memory Card Settings** field of the **Basic Settings** view, select **Use** for **Virtual SD Memory Card** option, and enter required fields.

4 Go online with the target Controller from the Sysmac Studio, and transfer the Controller setup to the Controller by using the Synchronization function. Refer to the *Sysmac Studio Version 1 Operation Manual (Cat. No. W504)* for details on how to create projects, to go online, and to synchronize on the Sysmac Studio.

**Additional Information**

You can perform Virtual SD Memory Card settings for the Controller with the Industrial PC Support Utility. Refer to 4-8 **Virtual SD Memory Card Settings** on page 4 - 21 for details on the setting procedure with the Industrial PC Support Utility.
This section describes the functions and usage of the Industrial PC Support Utility.

| 4-1 | Outline of Industrial PC Support Utility | 4 - 2 |
| 4-2 | Starting the Industrial PC Support Utility | 4 - 3 |
| 4-2-1 | Starting the Industrial PC Support Utility | 4 - 3 |
| 4-2-2 | Screen of Industrial PC Support Utility | 4 - 4 |
| 4-3 | Displaying Production Information | 4 - 6 |
| 4-4 | System Monitor | 4 - 7 |
| 4-5 | Controller Monitor | 4 - 9 |
| 4-6 | Controller Operation | 4 - 11 |
| 4-6-1 | Mode Change | 4 - 11 |
| 4-6-2 | Resetting the Controller | 4 - 12 |
| 4-6-3 | Controller Backup | 4 - 13 |
| 4-7 | Network Settings for Controller | 4 - 18 |
| 4-8 | Virtual SD Memory Card Settings | 4 - 21 |
| 4-9 | Operation Authority Verification | 4 - 23 |
| 4-10 | Report Log | 4 - 25 |
4-1 Outline of Industrial PC Support Utility

An Industrial PC Support Utility displays the production information of the Industrial PC, and the system status as well as the Controller status, and it also backs up the Controller programs. It is pre-installed on Windows of the Industrial PC.
4-2 Starting the Industrial PC Support Utility

This section gives the procedures to start up the Industrial PC Support Utility, and also describes the screens.

4-2-1 Starting the Industrial PC Support Utility

You can start up the Industrial PC Support Utility with the following screen or menu.
- Start menu
- Control Panel
- Shortcut icon on the desktop
- System tray (Industrial PC Tray Utility)

Refer to A-6 Industrial PC Tray Utility on page A - 7 for details on the Industrial PC Tray Utility.

Procedure

As an example, the procedure to start up from the Start menu is given below.

1. Select OMRON - Industrial PC - Industrial PC Support Utility from the Start menu.
   The Network Connection dialog box is displayed.

2. Enter the IP address of the internal port on the Controller, and click the Connect button.

The Industrial PC Support Utility is connected to the Controller, and the Industrial PC Support Utility dialog box is displayed.
Refer to 3-1 Internal Port Settings on page 3-2 for details on the IP address of the internal port on the Controller.

Additional Information

If the operation authority verification is set for the Controller, from the Sysmac Studio, you must enter the operation authority level and password to start up. Refer to 4-9 Operation Authority Verification on page 4-23 for details.

4-2-2 Screen of Industrial PC Support Utility

When the Industrial PC Support Utility is started up, the following screen is displayed.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>Language selection</td>
<td>Select a language to display the Industrial PC Support Utility from Japanese and English.</td>
</tr>
<tr>
<td>(b)</td>
<td>Display area</td>
<td>The Industrial PC Support Utility displays the model number, lot number, hardware version, and software version of the Industrial PC.</td>
</tr>
<tr>
<td></td>
<td>Product Information</td>
<td>Displays the internal temperature of the Industrial PC, fan revolution, and battery and UPS status.</td>
</tr>
<tr>
<td></td>
<td>System Status</td>
<td>The Industrial PC Support Utility displays the Controller status such as operating mode and current errors.</td>
</tr>
<tr>
<td></td>
<td>Controller Status</td>
<td>Perform operations such as operating mode change, backup and restore for the Controller.</td>
</tr>
<tr>
<td></td>
<td>Controller Operation</td>
<td>Change the network settings such as EtherNet/IP port and internal port settings.</td>
</tr>
<tr>
<td></td>
<td>Network Setting</td>
<td>Change the Virtual SD Memory Card settings.</td>
</tr>
<tr>
<td>(c)</td>
<td>Close</td>
<td>Closes the Industrial PC Support Utility.</td>
</tr>
<tr>
<td>(d)</td>
<td>Disconnect</td>
<td>Disconnects from the Controller.</td>
</tr>
</tbody>
</table>
### 4-2-2 Screen of Industrial PC Support Utility

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e)</td>
<td>Connect</td>
<td>Connect to the Controller again. The <strong>Network Connection</strong> dialog box is displayed.</td>
</tr>
<tr>
<td>(f)</td>
<td>Update Screen</td>
<td>Gets information from the Industrial PC, and updates the contents to be displayed.</td>
</tr>
</tbody>
</table>
4-3 Displaying Production Information

The Industrial PC Support Utility displays the model number, lot number, hardware version, and software version of the Industrial PC. To display the information, click the Product Information tab.

<table>
<thead>
<tr>
<th>Item</th>
<th>Displayed information</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model Name</td>
<td>The model number of the Industrial PC</td>
<td>NY512-1500-131513F10</td>
</tr>
<tr>
<td>Lot number</td>
<td>The lot number of the Industrial PC</td>
<td>14116</td>
</tr>
<tr>
<td>Serial number</td>
<td>The serial number of the Industrial PC</td>
<td>0264</td>
</tr>
<tr>
<td>Hardware Version</td>
<td>The hardware version of the Industrial PC</td>
<td>1.0</td>
</tr>
<tr>
<td>BIOS Version</td>
<td>The BIOS version of the Industrial PC</td>
<td>American Megatrend Inc. AQ27R013. 07/08/2016</td>
</tr>
<tr>
<td>BMC Version</td>
<td>The BMC version of the Industrial PC</td>
<td>0000.0039</td>
</tr>
<tr>
<td>Unit Version</td>
<td>The software version of the Controller</td>
<td>1.12.02</td>
</tr>
<tr>
<td>Industrial PC API Version</td>
<td>The version of API installed in Windows</td>
<td>---</td>
</tr>
<tr>
<td>IPC.System</td>
<td>The API for the Industrial PC system</td>
<td>9</td>
</tr>
<tr>
<td>IPC.Controller</td>
<td>The API for the Controller</td>
<td>1</td>
</tr>
<tr>
<td>Industrial PC Product Version</td>
<td>The product version of the library installed in Windows</td>
<td>---</td>
</tr>
<tr>
<td>IPC.System.dll</td>
<td>The library for the Industrial PC system</td>
<td>1.0.0.0</td>
</tr>
<tr>
<td>IPC.Controller.dll</td>
<td>The library for the Controller</td>
<td>1.0.0.0</td>
</tr>
<tr>
<td>Industrial PC Support Utility Version</td>
<td>The version of the Industrial PC Support Utility</td>
<td>1.0.0.0</td>
</tr>
<tr>
<td>HyperVisor Version</td>
<td>The version of the software that exchanges data between Windows and the Controller.</td>
<td>---</td>
</tr>
</tbody>
</table>

Each row of the displayed information can be copied, and pasted to a text editor. Right-click on a target row, and select Copy from the menu, or press the Ctrl+C key.
4-4 System Monitor

The Industrial PC Support Utility displays the internal temperature of the Industrial PC, fan revolution, and battery and UPS status.

To display the information, click the **System status** tab.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Displayed information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Temperature</td>
<td>Displays the present internal temperature of the Industrial PC.</td>
<td>Current temperature [°C]</td>
</tr>
<tr>
<td>Fan Revolution</td>
<td>Displays the present revolution of the Fan Unit.</td>
<td>Revolution of the Fan Unit [r/min]</td>
</tr>
<tr>
<td>Fan status</td>
<td>Indicates the fan status. Displays “Low revolution speed” when the power supply connector of both or one of the fans is disconnected or the fan revolution is decreased.</td>
<td>OK, or Low revolution speed</td>
</tr>
<tr>
<td>Battery status</td>
<td>Indicates the battery voltage status. Indicates “Low” when the battery is disconnected or the battery voltage is dropped.</td>
<td>OK, or Low</td>
</tr>
<tr>
<td>Power Supply</td>
<td>Indicates the type of the power supply. &quot;NormalPowerSupply&quot; indicates that the power is supplied to the Industrial PC by the 24V power supply. &quot;UpsPowerSupply&quot; indicates that the power is supplied to the Industrial PC by the UPS battery.</td>
<td>NormalPowerSupply, or UpsPowerSupply</td>
</tr>
</tbody>
</table>

### Display in Industrial PC Tray Utility

For the following items displayed on the **System Status** tab page, you can check the status by the icon in the Industrial PC Tray Utility.

<table>
<thead>
<tr>
<th>Item</th>
<th>Status</th>
<th>Icon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fan status</td>
<td>OK</td>
<td>Normal</td>
</tr>
<tr>
<td></td>
<td>Low revolution speed</td>
<td>Warning</td>
</tr>
<tr>
<td>Battery status</td>
<td>OK</td>
<td>Normal</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>Warning</td>
</tr>
<tr>
<td>Item</td>
<td>Status</td>
<td>Icon</td>
</tr>
<tr>
<td>----------------</td>
<td>-------------------</td>
<td>--------</td>
</tr>
<tr>
<td>Power Supply</td>
<td>NormalPowerSupply</td>
<td>Normal</td>
</tr>
<tr>
<td></td>
<td>UpsPowerSupply</td>
<td>Warning</td>
</tr>
</tbody>
</table>

Refer to A-6 *Industrial PC Tray Utility* on page A - 7 for details on the Industrial PC Tray Utility.
4-5 Controller Monitor

The Industrial PC Support Utility displays the Controller status such as operating mode and current errors.

To display the information, click the **Controller Status** tab.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Displayed information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controller unit name</td>
<td>Displays the unit name that is set for the Controller.</td>
<td>Controller name</td>
</tr>
<tr>
<td>Controller operation Mode</td>
<td>Displays the present operating mode of the Controller.</td>
<td>PROGRAM Mode or RUN Mode</td>
</tr>
<tr>
<td>Controller Error</td>
<td>Displays current Controller errors.</td>
<td>No Controller error, Partial or minor fault level Controller error occurs, or Major fault level Controller error occurs</td>
</tr>
<tr>
<td>User-defined Error</td>
<td>Displays current user-defined errors.</td>
<td>No user-defined error, or User-defined error occurs</td>
</tr>
<tr>
<td>Built-in EtherNet/IP port</td>
<td>Displays the settings of the built-in EtherNet/IP port through which the Controller communicates with an external device of the Industrial PC.</td>
<td>---</td>
</tr>
<tr>
<td>IP address</td>
<td>Displays the present IP address, subnet mask, and MAC address.</td>
<td>IP address</td>
</tr>
<tr>
<td>Subnet mask</td>
<td>Subnet mask</td>
<td>IP address</td>
</tr>
<tr>
<td>MAC address</td>
<td>MAC address</td>
<td>IP address</td>
</tr>
<tr>
<td>NET RUN</td>
<td>Displays the CIP connection status of the EtherNet/IP network.</td>
<td>Running/Connecting/Stop</td>
</tr>
<tr>
<td>NET ERR</td>
<td>Displays the communications error status of the EtherNet/IP network.</td>
<td>Critical Error/Error/No Error</td>
</tr>
<tr>
<td>LINK</td>
<td>Displays the link establishment status of the EtherNet/IP network.</td>
<td>Up/Down</td>
</tr>
<tr>
<td>Internal Port</td>
<td>Displays the settings of the internal port through which the Controller communicates with Windows on the Industrial PC.</td>
<td>---</td>
</tr>
</tbody>
</table>
### Display in Industrial PC Tray Utility

For the following items displayed on the **Controller Status** tab page, you can check the status by the icon in the Industrial PC Tray Utility.

<table>
<thead>
<tr>
<th>Item</th>
<th>Status</th>
<th>Icon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controller operation Mode</td>
<td>RUN Mode</td>
<td>Normal</td>
</tr>
<tr>
<td></td>
<td>PROGRAM Mode</td>
<td>Warning</td>
</tr>
<tr>
<td>Controller Error</td>
<td>No Controller error</td>
<td>Normal</td>
</tr>
<tr>
<td></td>
<td>Partial or minor fault level Controller error occurs</td>
<td>Warning</td>
</tr>
<tr>
<td></td>
<td>Major fault level Controller error occurs</td>
<td>Error</td>
</tr>
<tr>
<td>User-defined Error</td>
<td>No user-defined error</td>
<td>Normal</td>
</tr>
<tr>
<td></td>
<td>User-defined error occurs</td>
<td>Error</td>
</tr>
<tr>
<td>NET ERR</td>
<td>No Error</td>
<td>Normal</td>
</tr>
<tr>
<td></td>
<td>Error</td>
<td>Warning</td>
</tr>
<tr>
<td></td>
<td>Critical Error</td>
<td>Error</td>
</tr>
</tbody>
</table>

Refer to *A-6 Industrial PC Tray Utility* on page A - 7 for details on the Industrial PC Tray Utility.

### Report Log

If a problem occurs in the Controller, you can use the Report Log function to save information in a file to help solve the problem. You can start the Report Log function from the **Uploading Report Logs** button. Refer to *4-10 Report Log* on page 4 - 25 for details.
4-6  Controller Operation

You can perform operations such as operating mode change, backup and restore for the Controller. To display the operation screen, click the **Controller Operation** tab.

![Controller Operation Tab](image)

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Displayed information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mode</td>
<td>You can change the operating mode of the Controller. The present operating mode on the right.</td>
<td>RUN Mode, or PROGRAM Mode</td>
</tr>
<tr>
<td>Reset Controller</td>
<td>You can reset the Controller.</td>
<td>---</td>
</tr>
<tr>
<td>Backup Controller</td>
<td>You can back up and restore the Controller data, and compare the backed up data.</td>
<td>---</td>
</tr>
</tbody>
</table>

Refer to the *NY-series Industrial Panel PC / Industrial Box PC Software User’s Manual (Cat. No. W558)* for details on the Controller operations.

4-6-1  Mode Change

You can change the Controller operating mode from RUN to PROGRAM mode or from PROGRAM to RUN mode. The procedure to change the operating mode is given below.

1. To change the operating mode from RUN to PROGRAM mode, click the **Program** button. A message box appears to confirm the change of the operating mode.

![Confirmation Message](image)

2. Confirm that no problem will occur even if you change the operating mode, and then click the **Yes** button.
The Controller is changed to PROGRAM mode, and the PROGRAM Mode is displayed for the operating mode.

To change PROGRAM mode to RUN mode, click the Run button.

### 4-6-2 Resetting the Controller

When the Controller stops due to a major fault level Controller error, you can reset the Controller to restore from the error.

Always confirm the safety of the system before you reset the Controller.

The procedure to reset the Controller is given below.

1. Click the Reset button under Reset Controller.
   The following dialog box is displayed if the Controller is in RUN mode.

2. Confirm that no problem will occur even if you change the operating mode, and then click the Yes button.
   A message box appears to confirm resetting the Controller.

3. Confirm that no problem will occur even if you reset the Controller, and then click the Yes button.
   A message box appears again to confirm the resetting. Click the Yes button.
   When the Controller reset is completed, a completion message box is displayed.

4. Enter the IP address again, and then click the Connect button.
Additional Information

When the Controller reset is executed, the Controller is restarted, and the connection between the Industrial PC Support Utility and the Controller is disconnected.

4-6-3 Controller Backup

You can back up the data from the Controller to a file, and compare or restore the contents of the backup file. Refer to the NY-series Industrial Panel PC / Industrial Box PC Software User’s Manual (Cat. No. W558) for details on the backup function and target data.

Additional Information

You can also back up the Controller from the Sysmac Studio. Refer to the Sysmac Studio Version 1 Operation Manual (Cat. No. W504) for details.

Backup

The procedure is given below.

1 Click the Backup button under the Backup Controller. The Browse For Folder dialog box is displayed.

2 Select the folder in which to save the backup file and click the OK button. The Backup dialog box is displayed.
If there is already a backup file in the selected folder, a dialog box is displayed to confirm overwriting the backup file. Click the Yes button to overwrite. If you do not want to overwrite, click the No button to select another folder.

3 Select the check box for the target data to back up, and then click the Execute button. The backup is started. When the backup is completed, a message box is displayed.

**Additional Information**

The name of the backup file is always "NYBackup.dat". You cannot change the file name.

### Restoring

You can perform the restore operation only when the Controller is in PROGRAM mode. The procedure is given below.

1 Click the Restore button under the Backup Controller. The Browse For Folder dialog box is displayed.

2 Select the folder that contains the backup file and click the OK button. The Restore dialog box is displayed.
If there is no backup file in the selected folder, the following dialog box is displayed. Click the **OK** button to close the message box, and then select another folder.

3 Select the check box for the target data to restore, and then click the **Execute** button. The following dialog box is displayed if the Controller is in RUN mode.

4 Confirm that no problem will occur even if you change the operating mode, and then click the **Yes** button. A message box appears to indicate the absolute encoder home offset that will be applied.

5 To start restoring the data, click the **Yes** button. The restore operation is started. When the restore operation is completed, a message box is displayed.

When you click the **OK** button, the **Network Connection** dialog box is displayed.

6 Enter the IP address again, and then click the **Connect** button.
**Additional Information**

- If restoring the data results in changing the IP address of the EtherNet/IP port or internal port, communications may be disconnected. Confirm that the system will not be adversely affected even if the IP address is changed, before you restore the data.
- You cannot cancel the operation once you started to restore the data.

**Comparing**

The procedure is given below.

1. Click the **Compare** button under the **Backup Controller**. The **Browse For Folder** dialog box is displayed.

2. Select the folder that contains the backup file to compare and click the **OK** button. The **Compare** dialog box is displayed.

If there is no backup file in the selected folder, the following dialog box is displayed. Click the **OK** button to close the message box, and then select another folder.

3. Select the check box for the target data to compare, and then click the **Execute** button.
The comparison is started. When the comparison is completed, the comparison result is displayed in the dialog box.
4-7 Network Settings for Controller

You can change the network settings for the Controller, such as EtherNet/IP port settings and internal port settings, that were set on the Sysmac Studio. This function is convenient to change the network settings alone without using the Sysmac Studio after you transferred programs or the network settings from the Sysmac Studio to the Controller.

You can make the change only when the Controller is in PROGRAM mode.

To display the screen, click the Network Settings tab.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Set value</th>
<th>Initial value</th>
</tr>
</thead>
<tbody>
<tr>
<td>EtherNet/IP port</td>
<td>Change the settings of the built-in EtherNet/IP port through which the Controller communicates with an external device of the Industrial PC.</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>IP Address*1</td>
<td>Enter the IP address to change to. The current IP address is displayed on the right of the entry box. If the IP address setting method is not the fixed setting, Not fixed setting is displayed and you cannot change this item.</td>
<td>Value as the address<em>2</em>3</td>
<td>Blank</td>
</tr>
<tr>
<td>Subnet Mask*1</td>
<td>Enter the subnet mask to change to. The current subnet mask is displayed on the right of the entry box. If the IP address setting method is not the fixed setting, Not fixed setting is displayed and you cannot change this item.</td>
<td>Subnet mask</td>
<td>Blank</td>
</tr>
<tr>
<td>Internal Port</td>
<td>Change the settings of the internal port through which the Controller communicates with Windows on the Industrial PC.</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>IP Address</td>
<td>Enter the IP address to change to. The current IP address is displayed on the right of the entry box.</td>
<td>Value as the address<em>2</em>3</td>
<td>Blank</td>
</tr>
<tr>
<td>Subnet Mask</td>
<td>Enter the subnet mask to change to. The current subnet mask is displayed on the right of the entry box.</td>
<td>Subnet mask</td>
<td>Blank</td>
</tr>
</tbody>
</table>
Item Description Set value Initial value

Default Gateway Enter the IP address of the default gateway to change to. This setting is not required when the default gateway is not used. The IP address of the current default gateway is displayed on the right of the entry box. Value as the address

Update settings button The values entered for the built-in EtherNet/IP port, internal port, and default gateway are reflected on the Controller. -- --

*1. It can be entered only when the IP address setting method is "Fixed setting". You can change the IP address setting method on the Sysmac Studio.
*2. If the IP address is duplicated or not set correctly, communications are not possible via the built-in EtherNet/IP port or internal port.
*3. The IP address range shown below is used by the system and cannot be specified.

169.254.0.0 to 169.254.255.255
192.168.255.0 to 192.168.255.255

Due to Ethernet restrictions, you also cannot specify the IP addresses that are described below.
An IP address that is all 0s or all 1s
IP addresses that start with 127, 0, or 255 (decimal)
Class-D IP addresses (224.0.0.0 to 239.255.255.255)
Class-E IP addresses (240.0.0.0 to 255.255.255.255)

Refer to the NY-series Industrial Panel PC / Industrial Box PC Built-in EtherNet/IP Port User’s Manual (Cat. No. W563) for details on each item.

Precautions for Correct Use

• Normally, you don’t have to change the default internal port settings for the Controller. If you change the default settings, communication with the internal port for Windows may be disturbed or you may not be able to use the Virtual SD Memory Card. In this case, you must perform the internal port settings for Windows and the Virtual SD Memory Card settings again. Refer to A-2 Changing the Internal Port Settings on page A - 3 for details on the precautions and methods for changing the internal port settings for the Controller.
• Set IP addresses in such a way that the built-in EtherNet/IP port and the internal port belong to different networks.

Procedure to Change IP Addresses

The procedure to change an IP address is given below.
Before you change the address for the EtherNet/IP port, you must change the operating mode of the Controller to PROGRAM mode.

1. Enter the IP address and subnet mask for the target port to change, or the IP address of the default gateway, and click the **Update settings** button.
The IP address and subnet mask for the target port, or the IP address of the default gateway is reflected to the Controller. If there is an error for the entered IP address or subnet mask, the change is not reflected to the Controller, and an error message is displayed instead.
Industrial PC Support Utility

IP address you entered is invalid.
Please enter the correct IP address.

OK
### Virtual SD Memory Card Settings

You can change the Virtual SD Memory Card settings for the Controller. The function is convenient to change the Virtual SD Memory Card settings alone without using the Sysmac Studio.

You can make the change only when the Controller is in PROGRAM mode.

To display the screen, click the **Virtual SD Memory Card Setting** tab.

![Image of Virtual SD Memory Card Setting tab](image.png)

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Set value</th>
<th>Initial value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virtual SD Memory Card</td>
<td>Specify whether to use the Virtual SD Memory Card function or not. If you select <strong>Do not use</strong>, the Windows shared folder is not recognized as a Virtual SD Memory Card.</td>
<td>Use. Do not use.</td>
<td>Do not use.</td>
</tr>
<tr>
<td>Computer Name</td>
<td>Specify the Windows computer name.</td>
<td>Text string</td>
<td>Blank</td>
</tr>
<tr>
<td>IP Address</td>
<td>Specify the IP address of the Windows internal port.</td>
<td>IPv4 192.168.254.2</td>
<td>192.168.254.2</td>
</tr>
<tr>
<td>Shared Folder Name</td>
<td>Specify the Windows shared folder name used as a Virtual SD Memory Card.</td>
<td>Text string</td>
<td>VirtualSDCard</td>
</tr>
<tr>
<td>User Name</td>
<td>Specify a shared name of the user who uses the shared folder as a Virtual SD Memory Card.</td>
<td>Text string</td>
<td>Blank</td>
</tr>
<tr>
<td>Password</td>
<td>Set a password for the shared user who uses the shared folder.</td>
<td>Text string</td>
<td>Blank</td>
</tr>
</tbody>
</table>

**Update settings button**

The values that are input are reflected in the Controller.

**Check recognition button**

Check whether the Virtual SD Memory Card is recognized by the Controller.

---

*1. Characters that you can use range from 0 to 9, A to Z, a to z, and a single-byte symbol (-). The number of characters is 1 to 15 (without Null). Case insensitive.

*2. You cannot specify the following IP addresses.
   - IP addresses that start with 127 (decimal)
   - Class-D IP addresses (224.0.0.0 to 239.255.255.255)
   - Class-E IP addresses (240.0.0.0 to 255.255.255.255)

*3. Characters that you can use range from 0 to 9, A to Z, a to z, and a single-byte symbol (-). The number of characters is 1 to 32 (without NULL). Case insensitive.
*4. Enter `<domain name>`< user name> to specify a domain. You can omit specifying a domain name when users with the same name do not exist as a domain user and local user.

*5. Characters that you can use range from 0 to 9, A to Z, a to z, and single-byte symbols (`, !, $, ^, &, (, ), _,-, {, }, \, and `). The number of characters is 1 to 274 (without NULL). Case insensitive.

*6. Characters that you can use range from 0 to 9, A to Z, a to z, and single-byte symbols (`, !, @, $, %, ^, &, *, (, ), _,-, +, =, {, }, [ ], \, :, ;", ', <, >, ., ?, and `/). The number of characters is 8 to 32 (without NULL). Case sensitive.

The current value set for the Controller is displayed on the right of each entry box.

## Procedure to Change Settings

The procedure to change the settings is given below.

1. Enter a set value to change to in each of the applicable entry boxes, and click the **Update settings** button.
   The Virtual SD Memory Card settings for the Controller are updated.
4-9 Operation Authority Verification

The operation authority verification is the function to restrict the operations of the Industrial PC Support Utility according to the operation authority, and then to protect the user programs and data on the Controller.

The operation authority verification can be set for the Controller from the Sysmac Studio. Refer to the Sysmac Studio Version 1 Operation Manual (Cat. No. W504) for details on the function and setting method of the operation authority verification on the Sysmac Studio.

Operation Authority Types and Operable Functions

Operable functions depend on the types of operation authorities.
Operable functions for each type of operation authorities are given below.

O: Allowed, ×: Not allowed

<table>
<thead>
<tr>
<th>Function</th>
<th>Administrator</th>
<th>Designer</th>
<th>Maintainer</th>
<th>Operator</th>
<th>Observer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Displaying the production information tab page</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Displaying the system status tab page</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Displaying the Controller status tab page</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Getting a report log</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Displaying the Controller Operation tab page</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Changing the operating mode</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Resetting the Controller</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Backup, restore, and compare operations</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Changing the network settings</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Changing the Virtual SD Memory Card settings</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>×</td>
<td>×</td>
</tr>
</tbody>
</table>

Operation Authority Verification at Startup

If the operation authority verification is set for the Controller from the Sysmac Studio, a dialog box is displayed to verify the operation authority when the Industrial PC Support Utility is started up. To continue the operation, you must select an operation authority and enter a password.

The procedure is given below.

1. Connect the Industrial PC Support Utility to the Controller.
   The Verification dialog box is displayed.
2 Select an applicable operation authority from the Operation authority, enter a correct password, and click the OK button.
When you pass the verification, the Industrial PC Support Utility dialog box is displayed. If the password is incorrect, the following error message is displayed. After that, you can operate only in the range allowed for "Observer".

When you click the Cancel button on the Verification dialog box, the Industrial PC Support Utility starts up with the operation authority set for the "Operation authority when a password entry is omitted" on the Sysmac Studio.

Additional Information
To change to another operation authority, click the Disconnect button to disconnect from the Controller once. When you reconnect, the Verification dialog box is displayed.

Operation Lock
If you don’t operate the Industrial PC Support Utility for a certain period, you can keep it locked to disable its operations. This function prevents users of different operation authorities from mistakenly performing operations.
When the Industrial PC Support Utility is in the locked state, the Verification dialog box is displayed. Enter the password to unlock.
You can enable operation locking and set the time to start locking from the Sysmac Studio. Refer to the Sysmac Studio Version 1 Operation Manual (Cat. No. W504) for details.
4-10 Report Log

If a problem occurs in the Controller, you can use the Report Log function to save information in a file to help solve the problem. Please provide the files that are saved to the OMRON support center when you request support.

Types of Available Logs

The types of log information that you can get are given below. Each of the following information is saved in a log file with an extension .zip.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controller Event Log</td>
<td>This is the Controller event log. The user-defined events are not included.</td>
</tr>
<tr>
<td>Controller Analysis Log</td>
<td>This is the log to analyze the Controller errors.</td>
</tr>
<tr>
<td>Industrial PC Support Utility</td>
<td>This is the log that records the operation of the Industrial PC Support Utility. It is recorded in the Windows event log.</td>
</tr>
<tr>
<td>Operation Log</td>
<td>This is the log that records the communication middleware. It is recorded in the Windows event log.</td>
</tr>
</tbody>
</table>

A log file always save the following information.
- Information on the Production Information tab
- Information on the System Status tab
- Information on the Controller Status tab
- Information on the Virtual SD Memory Card Setting tab

Operation Procedure

The procedure to get a report log is given below.

1. Click the Uploading Report Logs button on the Controller Status tab page.

   ![Image of the Controller Status tab]

   The Report Log dialog box is displayed.

2. Select the check box for the log to get, and click the Save button. Select the checkbox for the files to get according to the instructions provided by the OMRON support center.
3 Select the folder in which to save the log files and click the **Save** button.

The log files are saved, and the contents saved in the folder are displayed. Send the log files to the support center.

**Additional Information**

- The obtained log files do not contain any information that can be used to identify you or any project files of yours (e.g., settings, configurations, and programs).
- The obtained log files will never be sent from your computer to any external party without getting your approval.
This section describes the NYCompolet which is a software component used to create applications for operating the Controller.

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5-2 How to Use the NYCompolet ...................................................... 5 - 3
5-3 Communications Setup .............................................................. 5 - 4
   5-3-1 Communications Setup Procedure ...................................... 5 - 4
   5-3-2 Additional Functions to Communications Setup .............. 5 - 4
5-4 NYCompolet Interface .............................................................. 5 - 6
   5-4-1 Interface Members ............................................................. 5 - 6
   5-4-2 Usage Method ................................................................. 5 - 7
5-1 Outline of NYCompolet

The NYCompolet is a software component with which you can create applications to read variables from the Controller and write them to the Controller. With the NYCompolet, you can create an application to get data such as the OK product ratio that is collected by the Controller and another application to overwrite the recipe data, in the Controller, for the production line. As the communications protocol between Windows and Controller are already provided, there is no need to build a communications command.

The NYCompolet is pre-installed in Windows of the Industrial PC. You can use it in development environment where Visual Basic or Visual C# is supported.

Development Environment

The following development environment is required to create applications with the NYCompolet.

- Integrated Development Environment

- Programming Languages
  - Visual Basic
  - Visual C#

Created applications can operate in an environment where Microsoft .NET Framework 4.0 or higher is installed.
5-2 How to Use the NYCompolet

This section gives the operating procedure of the NYCompolet.

1 Preparation
   Install the Microsoft Visual Studio to Windows of the Industrial PC.

2 Creating an Application
   On the Microsoft Visual Studio, create an application program in Visual Basic or Visual C#. Use a method or property of the NYCompolet in the program, when necessary for the purpose. Refer to 5-4 NYCompolet Interface on page 5 - 6 for the method and property types.

3 Communications Setup
   Use the additional console function to make the required settings for the created application to communicate with the Controller. Refer to 5-3 Communications Setup on page 5 - 4 for details.
5-3 Communications Setup

This section describes how to set up the communications between the Controller and the application that you created with the NYCompolet, as well as additional functions. The SYSMAC Gateway Console is used to make the communications setup.

To start the SYSMAC Gateway Console, select OMRON - SYSMAC Gateway - SYSMAC Gateway Console from the Windows start menu.

5-3-1 Communications Setup Procedure

The communications setup procedures are given below.

1. Click the Communication Network tab on the left on the SYSMAC Gateway Console dialog box.
   The Communication Network tab page is displayed.

2. Click the Start button for the Communications service.
   The communications service starts to allow communications between the Controller and the application that you created with the NYCompolet. To start the communications service automatically at Windows startup, select Automatic from the Startup drop-down list.

3. Select the Port ID: 2 Network Port from the Network Port list, and click the Open button.
   The internal port on the Controller becomes open, and the communications between the application and the Controller start.

5-3-2 Additional Functions to Communications Setup

The SYSMAC Gateway Console is accompanied with the following additional functions.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication Test</td>
<td>You can confirm whether communications with the port selected on the Communication Network tag page is possible or not.</td>
</tr>
<tr>
<td>Tag Monitor</td>
<td>You can monitor or change variable values for the Controller.</td>
</tr>
<tr>
<td>Display Data Monitor</td>
<td>You can display the communications message log.</td>
</tr>
</tbody>
</table>
To display these items, click the Control Panel tab on the left on the SYSMAC Gateway Console dialog box.

Refer to the help for the SYSMAC Gateway Console for details on each function. To display the help, select OMRON - Industrial PC - SYSMAC Gateway Console - SYSMAC Gateway Console help from the Windows start menu.
This section describes the NYCompolet interface members and the procedures to use them.

### Interface Members

The NYCompolet interface is provided as the NYCompolet class that operates on the Microsoft NET Framework.

The NYCompolet class members are given below.

Refer to the NYCompolet help for details on each member.

To display the help, select **OMRON - Industrial PC - SYSMAC Gateway Console - NYCompolet help** from the Windows start menu.

#### Properties

<table>
<thead>
<tr>
<th>Name</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active</td>
<td>The value that indicates whether it is currently active or not.</td>
</tr>
<tr>
<td>ReceiveTimeLimit</td>
<td>Time until connection timeout</td>
</tr>
<tr>
<td>PeerAddress</td>
<td>IP address for the Controller</td>
</tr>
<tr>
<td>LocalPort</td>
<td>Port ID of the network port for the Controller</td>
</tr>
<tr>
<td>IsConnected</td>
<td>Indicates whether it is connected to the Controller or not.</td>
</tr>
<tr>
<td>DontFragment</td>
<td>Indicates whether fragments are prohibited in Read or Write.</td>
</tr>
<tr>
<td>TypeName</td>
<td>Controller model</td>
</tr>
<tr>
<td>Clock</td>
<td>Clock time of the Controller</td>
</tr>
<tr>
<td>UnitName</td>
<td>Unit name of the Controller</td>
</tr>
<tr>
<td>RunMode</td>
<td>Controller operation Mode</td>
</tr>
<tr>
<td>RunStatus</td>
<td>Operating status of the Controller</td>
</tr>
<tr>
<td>VariableNames</td>
<td>List of user-defined variable names for the Controller</td>
</tr>
<tr>
<td>SystemVariableNames</td>
<td>List of system-defined variable names for the Controller</td>
</tr>
<tr>
<td>PLCEncoding</td>
<td>Text string encoding for the Controller variables</td>
</tr>
</tbody>
</table>

#### Methods

<table>
<thead>
<tr>
<th>Name</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>ReadVariable</td>
<td>Reads the value of a variable.</td>
</tr>
<tr>
<td>ReadVariableMultiple</td>
<td>Read the values of multiple variables.</td>
</tr>
<tr>
<td>WriteVariable</td>
<td>Writes a value to a variable.</td>
</tr>
<tr>
<td>ReadRawData</td>
<td>Reads the binary data of a variable.</td>
</tr>
<tr>
<td>ReadRawDataMultiple</td>
<td>Reads the binary data of multiple variables.</td>
</tr>
<tr>
<td>WriteRawData</td>
<td>Writes a binary data to a variable.</td>
</tr>
<tr>
<td>GetVariableInfo</td>
<td>Reads the data type of a variable.</td>
</tr>
</tbody>
</table>
To use the NYCompolet members, you must declare the NYCompolet class in Visual Basic or Visual C#.
Refer to the manual or help for the Microsoft Visual Studio for the procedure to declare the class in Visual Basic or Visual C#.
Refer to the NYCompolet help for details on how to use each member of the NYCompolet.
Industrial PC API

This section describes the API prepared for the Industrial PC. The API is used to create an application that gets the system status information of the Industrial PC as well as the status information of the Controller.

6-1 Outline of Industrial PC API ................................................................. 6 - 2
6-2 How to Use the Industrial PC API ......................................................... 6 - 3
6-3 Industrial PC System API ................................................................. 6 - 4
6-4 Industrial Monitor API ................................................................. 6 - 5
6-5 Industrial PC Controller API ................................................................. 6 - 6
6-1 Outline of Industrial PC API

The Industrial PC API is an API used to create an application that gets the system status information of the Industrial PC and operates the Controller.

The Industrial PC API is the collective term for the following three APIs.

<table>
<thead>
<tr>
<th>Type of API</th>
<th>Description</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial PC System API</td>
<td>Gets information on the Industrial PC, such as production information, temperature, and battery status.</td>
<td>6-3 Industrial PC System API on page 6 - 4</td>
</tr>
<tr>
<td>Industrial Monitor API</td>
<td>Controls the hardware features and gets information from connected Industrial Monitors.</td>
<td>6-4 Industrial Monitor API on page 6 - 5</td>
</tr>
<tr>
<td>Industrial PC Controller API</td>
<td>Gets the operating status of the Controller, and resets the Controller.</td>
<td>6-5 Industrial PC Controller API on page 6 - 6</td>
</tr>
</tbody>
</table>

The Industrial PC API is pre-installed in Windows of the Industrial PC. You can use it in the development environment where Visual C# is supported.

Development Environment

The following development environment is required to create applications with the Industrial PC API.

- **Integrated Development Environment**
  
  Microsoft Visual Studio 2010, 2012, or 2013

- **Programming Languages**
  
  Visual C#
6-2 How to Use the Industrial PC API

This section gives the operating procedure of the Industrial PC API.

1 Preparation
   Install the Microsoft Visual Studio to Windows of the Industrial PC.

2 Creating an Application
   On the Microsoft Visual Studio, create an application program in Visual C#. Call a method or property of the Industrial PC API in the program, when necessary for the purpose. Refer to 6-3 Industrial PC System API on page 6 - 4, 6-4 Industrial Monitor API on page 6 - 5, and 6-5 Industrial PC Controller API on page 6 - 6 for the method and property types.
6-3 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 such as the product information. 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

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.
6-4 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 OMRON 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.
This section describes some of the Industrial PC Controller API functions. The Industrial PC Controller API allows programmers to create programs that can reset the Controller and retrieve the default gateway.

**Features**

The Industrial PC Controller API can:

- Reset the Controller
- Retrieve and set the default gateway
- Retrieve and set an IP address and subnet mask of the specified port

**Installation**

The Industrial PC Controller API is part of the SDK download. The Industrial PC Controller API is pre-installed on the NY5□□□-□□□ Industrial Panel PC and the NY5□□□-□□□ Industrial Box PC.

Install the Industrial PC Controller SDK to use the Industrial PC Controller API on development PCs. The Industrial PC Controller API (Omron.lpc.Controller.dll) is included in the installer for custom applications.

The API needs to be referenced in your development project to use the Industrial PC Controller API.
Backup and Recovery

This section describes backup and recovery procedures for the Industrial PC system, and backup, restoration, and comparison procedures for the Controller.

7-1 Backing up and Recovering the Industrial PC System ......................... 7 - 2
  7-1-1 Outline of Rescue Disk Utility ............................................................... 7 - 2
  7-1-2 Applicable Range of Backup Functions with the Rescue Disk Utility .... 7 - 2
  7-1-3 Preparing the Rescue Disk Utility .......................................................... 7 - 3
  7-1-4 Backup with the Rescue Disk Utility .................................................... 7 - 4
  7-1-5 Recovery with the Rescue Disk Utility ................................................ 7 - 5
  7-1-6 Display the Backup Information with the Rescue Disk Utility ............ 7 - 7

7-2 Backing Up, Restoring, and Comparing Controller Data ..................... 7 - 9
7-1 Backing up and Recovering the Industrial PC System

This section describes how to back up and recover the Industrial PC system. You can use the Rescue Disk Utility for backing up and recovery.

7-1-1 Outline of Rescue Disk Utility

The Rescue Disk Utility is a tool used to back up and recover data of Windows and Real-Time OS (Controller function) of the Industrial PC. The Rescue Disk Utility creates image files of HDD or SSD of the Industrial PC, and backs them up in a USB memory or other USB storage devices such as an external hard disk connected via USB. When Windows or Real-Time OS of the Industrial PC malfunctions, you can recover the Industrial PC with the backed up data. The Rescue Disk Utility is installed using the Rescue Disk Creator.

Precautions for Correct Use

- The unit version of Industrial PCs that create the backup data with the Rescue Disk Utility and the unit version of Industrial PCs to be recovered must match. If the unit version does not match, the relevant Industrial PCs may not start after the recovery. If you updated the unit version of Industrial PCs, always create the new backup data for Industrial PCs with the Rescue Disk Utility. Do not use the backup data that was created before updating to recover Industrial PCs for which the unit version was updated. To confirm the unit version of Industrial PCs, refer to Checking Versions on page 18 or 4-3 Displaying Production Information on page 4 - 6.
- You can start the Rescue Disk Utility from the USB storage device. To use the Rescue Disk Utility, you must prepare an empty USB storage device. Refer to 7-1-3 Preparing the Rescue Disk Utility on page 7 - 3 for details.
- The data that was backed up with the Rescue Disk Utility installed with Rescue Disk Creator version 1.0.830 can be used only to recover the Industrial PC from which you backed up the data. You cannot use the data to recover other Industrial PCs. You can select Control Panel - Programs - Programs and Features to confirm the version of Rescue Disk Creator. The data that was backed up with the Rescue Disk Utility installed with Rescue Disk Creator version 1.1.1257 or higher can be recovered for an Industrial PC with the same unit version and the completely same model number. Refer to 1-3 Product Model Numbers on page 1 - 6 for details on the model numbers.

7-1-2 Applicable Range of Backup Functions with the Rescue Disk Utility

The range of the Industrial PC system from which you can back up data with the Rescue Disk Utility is given below.

In a backup process, all data in the applicable range is backed up in a single backup file. In a recovery process, you can select data to restore.

<table>
<thead>
<tr>
<th>Applicable range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master Boot Record</td>
<td>The master boot record (MBR) for the Industrial PC</td>
</tr>
<tr>
<td>Boot Partition</td>
<td>The boot partition for the Industrial PC</td>
</tr>
<tr>
<td>Machine Control Partition</td>
<td>The data of the Real-Time OS (Controller function). The user data in the Controller is included.</td>
</tr>
</tbody>
</table>
### Applicable range

<table>
<thead>
<tr>
<th>Applicable range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows Partition</td>
<td>The data of Windows OS*1</td>
</tr>
</tbody>
</table>

*1. User data on Windows is not a target of this backup function. You must use another backup software to back up user data.

#### 7-1-3 Preparing the Rescue Disk Utility

Preparation required for backing up data with the Rescue Disk Utility is given below.

### Media Required for Backup

To use the Rescue Disk Utility, you must prepare a USB storage device with the following capacity.

- Capacity of Windows partition of the Industrial PC to be backed up + 16 GB

For example, if you back up an Industrial PC which has the 200 GB Windows partition, you need a USB storage device of 216 GB or greater capacity.

### Installing the Rescue Disk Utility

Install the Rescue Disk Utility to the USB storage device. The procedure is given below.

**Precautions for Correct Use**

- We recommend that you start the Rescue Disk Creator from Run as administrator. Otherwise, the Rescue Disk Creator cannot be installed correctly.
- Be aware that all data existing in the USB storage device to which you installed the Rescue Disk Utility will be lost by installing the Rescue Disk Utility.

1. Connect the USB storage device to the USB port on the Industrial PC.

2. From the Windows start menu, select **OMRON - Industrial PC**, right-click **Rescue Disk Creator**, and select **Run as administrator**.

   The Rescue Disk Creator dialog box is displayed.

3. Select a USB storage device under **Target disk**, and click the **Create Rescue Disk** button.

   The Rescue Disk Utility is installed in the USB storage device.
4 Click the Close button to close the Rescue Disk Creator dialog box.

7-1-4 Backup with the Rescue Disk Utility

The backup procedure with the Rescue Disk Utility is given below.

1 Connect the USB storage device in which the Rescue Disk Utility is installed to the Industrial PC while the power to the Industrial PC is not supplied.

2 Press the power button on the Industrial PC and then the F11 key. The screen to select the device to start up is displayed.

A name of a displayed USB storage device depends on the storage device. In this example, the screen displays the name as My Rescue Disk.

3 Select the USB storage device in which the Rescue Disk Utility was installed and press the Enter key.

The Rescue Disk Utility starts up and the main menu is displayed.

4 Select Create Backup, and press the Enter key.

The screen shows a backup confirmation message.

5 Select Continue, and press the Enter key.

The screen shows the backup processing.

When the backup is completed, the screen shows Backup finished.
6 Press the Enter key.
You return to the main menu. This completes the backup process.

7 Select Exit, and press the Enter key.

The power supply to the Industrial PC is turned OFF. Remove the USB storage device with the backup data and keep it in a safe place.

Additional Information

You can save only one set of backup data to one USB storage device. If a USB storage device already has a backup file and you select the backup file and press the Enter key, a screen shows to confirm overwriting the backup file.

7-1-5 Recovery with the Rescue Disk Utility

The recovery procedure with the Rescue Disk Utility is given below.

Precautions for Correct Use

• The unit version of Industrial PCs that create the backup data with the Rescue Disk Utility and the unit version of Industrial PCs to be recovered must match. If the unit version does not match, the relevant Industrial PCs may not start after the recovery.
If you updated the unit version of Industrial PCs, always create the new backup data for Industrial PCs with the Rescue Disk Utility. Do not use the backup data that was created before updating to recover Industrial PCs for which the unit version was updated.
To confirm the unit version of Industrial PCs, refer to Checking Versions on page 18 or 4-3 Displaying Production Information on page 4 - 6.
• There are limits on recovery using the Rescue Disk Utility that is installed with Rescue Disk Creator version 1.0.830 as follows:
Recovery using the data that was backed up with the Rescue Disk Utility is possible only on the "individual" Industrial PC from which the data was backed up.
You cannot perform recovery using the backup data from an Industrial PC other than the Industrial PC to be recovered.
Differences in removable parts such as storage devices are not included in the meaning of "individual" Industrial PC. Even if the hard disk drive of a PC is replaced, it is recognized as the same PC.
• The data that was backed up with the Rescue Disk Utility installed with Rescue Disk Creator version 1.1.1257 or higher can be recovered for an Industrial PC with the same unit version and the completely same model number.

1 Connect the USB storage device which contains the backup data to the Industrial PC while the power to the Industrial PC is not supplied.
2 Press the power button on the Industrial PC and then the F11 key. The screen to select the device to start up is displayed.

3 Select the USB storage device with the backup data and press the Enter key. The Rescue Disk Utility starts up and the main menu is displayed.

4 Select **Restore Backup**, and press the Enter key.

```
Select the restore option:
  MBR
  MBR and Boot Partition
  MBR and Windows Partition
  MBR, Boot and Machine Control Partitions
  MBR, Boot, Windows and Machine Control Partitions
  Return
```

The screen to select the item to restore is displayed.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBR</td>
<td>Restores the MBR of the Industrial PC.</td>
</tr>
<tr>
<td>Boot Partition</td>
<td>Restores the boot partition for the Industrial PC.</td>
</tr>
<tr>
<td>Machine Control Partition</td>
<td>Restores the data of the Real-Time OS (Controller function). The user data in the Controller is included.</td>
</tr>
<tr>
<td>Windows Partition</td>
<td>Restores the data of the Windows system.</td>
</tr>
</tbody>
</table>

5 Select the item to restore and press the Enter key. The screen shows a restoration confirmation message.

```
The target device will be overwritten. Would you like to continue?

Yes
No
```

6 Select **Yes**, and press the Enter key. The screen shows the restoration processing.

```
Restoring Windows partition.
```

When the restoration is completed, the screen shows Restoration finished.

```
Restoration finished.
OK
```

7 Press the Enter key. You return to the main menu. This completes the recovery process.
8 Select Exit, and press the Enter key.

The power supply to the Industrial PC is turned OFF.

9 Remove the USB storage device and press the power button to start the Industrial PC.

7-1-6 Display the Backup Information with the Rescue Disk Utility

The following gives the procedure to display the backup information with the Rescue Disk Utility. You can use this function with Rescue Disk Creator version 1.1.2004.010000040 or higher.

1 Connect the USB storage device which contains the backup data to the Industrial PC while the power to the Industrial PC is not supplied.

2 Press the power button on the Industrial PC and then the F11 key.
The screen to select the device to start up is displayed.

3 Select the USB storage device with the backup data and press the Enter key.
The Rescue Disk Utility starts up and the main menu is displayed.

4 Select Backup information and press the Enter key.
The following screen is displayed.

```
Welcome to the Rescue Disk Utility 0000.000x, what would you like to do?  
Create Backup  
Restore backup  
Backup information  
Exit
```

Backup created on Fri Dec 1 12:34:56

- Model name: NY322-1300
- Serial number: 0123
- Lot number: 01234N
- Content: WIN. boot, Windows and Machine Control partitions
- Unit version: V1.16.00
- OS version: 0000.001b
- Comment by user: demo for manual - your content will be different

Current System:

- Model name: NY322-1300
- Serial number: 0123
- Lot number: 01234N
- Unit version: V1.16.00
- OS version: 0000.001b

OK
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backup created on ***</td>
<td>The model number of the Industrial PC when the backup data was created in the USB storage device. *2</td>
</tr>
<tr>
<td>Serial number</td>
<td>The serial number of the Industrial PC when the backup data was created in the USB storage device. *2</td>
</tr>
<tr>
<td>Lot number</td>
<td>The lot number of the Industrial PC when the backup data was created in the USB storage device. *2</td>
</tr>
<tr>
<td>Content</td>
<td>The contents of the backup data in the USB storage device. *2</td>
</tr>
<tr>
<td>Unit version</td>
<td>The unit version of the backup data in the USB storage device. *2</td>
</tr>
<tr>
<td>OSB version</td>
<td>The OSB version of the backup data in the USB storage device. *2</td>
</tr>
<tr>
<td>Comment by user</td>
<td>The comment that was written when the backup data was created in the USB storage device. *2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Current System</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model name</td>
<td>The model number of the Industrial PC that the Rescue Disk Utility is started.</td>
</tr>
<tr>
<td>Serial number</td>
<td>The serial number of the Industrial PC that the Rescue Disk Utility is started.</td>
</tr>
<tr>
<td>Lot number</td>
<td>The lot number of the Industrial PC that the Rescue Disk Utility is started.</td>
</tr>
<tr>
<td>Unit version</td>
<td>The unit version of the Industrial PC that the Rescue Disk Utility is started.</td>
</tr>
<tr>
<td>OSB version</td>
<td>The OSB version of the Industrial PC that the Rescue Disk Utility is started.</td>
</tr>
</tbody>
</table>

*1. The date and time of the backup data that was created in the USB storage device are displayed on ***.

*2. Nothing is displayed if the backup data is not saved in the USB storage device.

5 Confirm the contents that are displayed in Content.
The backup data is not saved in the USB storage device if nothing is displayed in Content.

6 Press the Enter key.
You return to the main menu. This completes the display of the backup information.

7 Select Exit and press the Enter key.
![Welcome to the Rescue disk utility 0000.0xxx, what would you like to do?](image)
The power supply to the Industrial PC is turned OFF.

8 Remove the USB storage device and press the power button to start the Industrial PC.
## 7-2 Backing Up, Restoring, and Comparing Controller Data

You can use the Controller function to back up all of the data on the settings and user programs in the Controller to a Virtual SD Memory Card or a computer, and restore or compare the backed up data. Refer to the *NY-series Industrial Panel PC / Industrial Box PC Software User’s Manual (Cat. No. W558)* for details on the Controller backup function.

You can back up, restore, and compare data in the Controller with the following procedures.

<table>
<thead>
<tr>
<th>Type of function</th>
<th>Description</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial PC Support Utility backup function</td>
<td>Backs up the Controller data to Windows of the Industrial PC.</td>
<td>4-6-3 Controller Backup on page 4 - 13</td>
</tr>
<tr>
<td>Controller to SD Memory Card backup function</td>
<td>Backs up the Controller data to a Virtual SD Memory Card.</td>
<td><em>NY-series Industrial Panel PC / Industrial Box PC Software User’s Manual (Cat. No. W558)</em></td>
</tr>
<tr>
<td>Sysmac Studio backup function</td>
<td>Backs up the Controller data to a computer on which the Sysmac Studio operates.</td>
<td><em>Sysmac Studio Version 1 Operation Manual (Cat. No. W504)</em></td>
</tr>
</tbody>
</table>
Troubleshooting during Setup

This section describes the typical errors that may occur during setup and the procedure for troubleshooting.

8-1 Starting in Safe Mode

8 - 2
8-1 Starting in Safe Mode

In Safe mode, the Controller is started up in PROGRAM mode. The mode is used when the Sysmac Studio or the Industrial PC Support Utility cannot connect to the Controller and the Controller operating mode cannot be changed.

Use the following procedure for starting in Safe mode.

1. Pull out the power connector from the Industrial PC.
2. Press and hold the power button and connect the power connector.
3. Continue to hold down the power button for 10 seconds.
   The PWR LED lights, and the BIOS startup view is displayed on the Monitor. Then, start the Controller and Windows in the same order as Normal mode. In this case, the Controller is started in PROGRAM mode.
Appendices

This section describes methods for updating the Industrial PC and for changing the internal port settings, and other supplemental information for the body of this manual.

A-1 Updating

A-1-1 Updating Windows Software

A-2 Changing the Internal Port Settings

A-3 Changing Windows File Sharing Setting

A-3-1 Procedure to Change

A-3-2 Cautions When Using Virtual SD Memory Card

A-4 Windows of Industrial PC

A-4-1 Windows Operating System

A-4-2 Supported Languages

A-5 Software / Utilities

A-5-1 Available Utilities

A-5-2 Installed Software and Utilities

A-6 Industrial PC Tray Utility

A-6-1 Outline of Industrial PC Tray Utility

A-6-2 Starting the Industrial PC Tray Utility

A-6-3 Status Display on Icon

A-6-4 Industrial PC Tray Utility Menu

A-6-5 Notification Message Display

A-7 Customize Windows

A-7-1 Enhanced Write Filter

A-7-2 File-Based Write Filter
A-1 Updating

This section describes the Industrial PC software update.

A-1-1 Updating Windows Software

Always keep software installed on Windows at the latest released version to ensure stable operation. Especially, make sure that the following software stays up-to-date.

- 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 Industrial PC is executed, the PC behavior might be different. Confirm that operation is correct before you start actual operation.
Changing the Internal Port Settings

Communications between the Controller and Windows are enabled in the default setting for the internal ports on the Controller and Windows. Normally, you do not have to change the internal port setting. However, you may need to change the initial IP address (192.168.254.***/24) in the following case.

- An IP address on an external network connected to the Industrial PC is the same as a network address in the internal network.

This section explains the method and precautions for changing the internal port settings for the Controller and Windows.

When you change the internal port setting for the Controller, you must also change the internal port setting for Windows to ensure communications between the Controller and Windows.

The procedure to change the settings is given below.

1. Changing Internal Port Setting for Controller
   - Change the IP address of the internal port for the Controller so that it does not overlap with a network address used on an external network.
   - Use the Industrial PC Support Utility or Sysmac Studio to change the internal port setting for the Controller.
   - Refer to 4-7 Network Settings for Controller on page 4 - 18 or the Sysmac Studio Version 1 Operation Manual (Cat. No. W504) for details on the changing method.

2. Changing Internal Port Setting for Windows
   - Change the IP address of the internal port for Windows so that it is the same as the new network address of the internal port for the Controller.
   - To change the internal port setting for Windows, change the setting of a virtual network adapter. Refer to 3-1 Internal Port Settings on page 3 - 2 for details on virtual network adapters.

3. Changing Virtual SD Memory Card Settings
   - When a Virtual SD Memory Card is used, the IP address setting for the Virtual SD Memory Card is updated with the new IP address of the internal port for Windows. Use the Industrial PC Support Utility or Sysmac Studio to change the Virtual SD Memory Card settings.
   - Refer to 4-8 Virtual SD Memory Card Settings on page 4 - 21 or the Sysmac Studio Version 1 Operation Manual (Cat. No. W504) for details on the changing method.

Additional Information

When the IP address of the internal port for the Controller is changed, the connection with the Industrial PC Support Utility is disconnected. In the Network Connection dialog box of the Industrial PC Support Utility, enter the new IP address of the internal port to establish the connection again.
A-3  Changing Windows File Sharing Setting

In the factory setting, Windows file sharing is enabled only between Windows and Controllers. To share files on external networks to the Industrial PC, change the setting of the network adapter to use.

A-3-1  Procedure to Change

In the properties dialog box of the external network to use, select the network adapter, and select the File and Printer Sharing for Microsoft Networks check box.

A-3-2  Cautions When Using Virtual SD Memory Card

When file sharing on an external network is enabled, the shared folder which is used by the Controller as a Virtual SD Memory Card is also published on the external network. The shared folder used as a Virtual SD Memory Card is set to be shared with Everyone by default. Everyone means there is no limit on access from external networks. To prevent unauthorized access to the Virtual SD Memory Card from terminals on external networks, perform proper management of the settings and accounts for terminals that are given access to the file.

For example, you can delete Everyone from the sharing settings for the shared folder used as a Virtual SD Memory Card, and register only accounts created with Creating a User Account on page 3 - 3 for Controllers.
The types of Windows Operating Systems for the Industrial PC and supported languages are given below.

A-4-1 Windows Operating System

The available Windows Operating Systems are:
- Windows Embedded Standard 7 SP1 - 32 bit
- Windows Embedded Standard 7 SP1 - 64 bit

A-4-2 Supported Languages

The supported languages are:
- JA
- EN
- DE
- FR
- IT
- ES
- CN Traditional (zh-tw)
- CN Simplified (zh-cn)
A-5  Software / Utilities

A-5-1  Available Utilities

The settings for an NY-series Industrial PC or Industrial Monitor and the utilities used for monitors are given below.

<table>
<thead>
<tr>
<th>Product name</th>
<th>Utility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial Panel PC</td>
<td>Industrial Monitor Utility</td>
</tr>
<tr>
<td></td>
<td>Industrial Monitor Brightness Utility</td>
</tr>
<tr>
<td></td>
<td>Industrial PC Support Utility</td>
</tr>
<tr>
<td></td>
<td>Industrial PC Tray Utility</td>
</tr>
<tr>
<td>Industrial Box PC</td>
<td>Industrial PC Support Utility</td>
</tr>
<tr>
<td></td>
<td>Industrial PC Tray Utility</td>
</tr>
<tr>
<td>Industrial Monitor</td>
<td>Industrial Monitor Utility</td>
</tr>
<tr>
<td></td>
<td>Industrial Monitor Brightness Utility</td>
</tr>
<tr>
<td></td>
<td>Industrial PC Tray Utility</td>
</tr>
</tbody>
</table>

A-5-2  Installed Software and Utilities

The software and utilities that are installed in an NY-series Industrial PC are given below.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial PC Support Utility</td>
<td>This is the utility to display the system status of Industrial PC and perform the settings of Industrial PC. Refer to  Section 4 Industrial PC Support Utility on page 4 - 1 for details.</td>
</tr>
<tr>
<td>Industrial Monitor Utility</td>
<td>This is the utility to set the screen of the Industrial Panel PC and Industrial Monitor. Refer to 2-4-1 Industrial Monitor Utility on page 2 - 9 for details.</td>
</tr>
<tr>
<td>Industrial Monitor Brightness Utility</td>
<td>This is the utility to adjust the brightness of Industrial Panel PC and Industrial Monitor. Refer to 2-4-2 Industrial Monitor Brightness Utility on page 2 - 11 for details.</td>
</tr>
<tr>
<td>Industrial PC Tray Utility</td>
<td>This is the utility to be resident in the task tray and display the status of the Industrial PC. Refer to A-6 Industrial PC Tray Utility on page A - 7 for details.</td>
</tr>
<tr>
<td>Industrial Rescue Disk Creator</td>
<td>This is the utility to install Rescue Disk Utility. Refer to Installing the Rescue Disk Utility on page 7 - 3 for details.</td>
</tr>
<tr>
<td>Industrial PC System API</td>
<td>This is the API to get and set the system information of the Industrial PC. Refer to 6-3 Industrial PC System API on page 6 - 4 for details.</td>
</tr>
<tr>
<td>Industrial PC Controller API</td>
<td>This is the API to get and set the Controller information of the Industrial PC. Refer to 6-5 Industrial PC Controller API on page 6 - 6 for details.</td>
</tr>
<tr>
<td>NYCompolet</td>
<td>This is the software component to change values of the Controller variables for the Industrial PC. Refer to  Section 5 NYCompolet on page 5 - 1 for details.</td>
</tr>
<tr>
<td>SYSMAC Gateway</td>
<td>This is the software used for communications of the NYCompolet. Refer to 5-3 Communications Setup on page 5 - 4 for details.</td>
</tr>
<tr>
<td>congatec CGOS API</td>
<td>This is the API to operate the Industrial PC System API.</td>
</tr>
<tr>
<td>Microsoft .NET Framework 4.6</td>
<td>This is the software to operate the Industrial PC Tray Utility.</td>
</tr>
</tbody>
</table>
A-6   Industrial PC Tray Utility

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

A-6-1 Outline of Industrial PC Tray Utility

The Industrial PC Tray Utility is an application that provides information about current status of the Industrial PC, related devices, and utilities such as the Industrial PC Support Utility and Industrial Monitor Utility.

The Industrial PC Tray Utility is pre-installed on Windows of the Industrial PC.

The Industrial PC Tray Utility provides the following features:

• Display the state of all utilities installed in the Industrial PC in the icon in the system tray area.
• Display a menu that can start utilities installed in the Industrial PC.
• Display notification messages in popup windows that inform the user about the state of utilities or hardware.

A-6-2 Starting the Industrial PC Tray Utility

The Industrial PC Tray Utility is configured to start automatically at Windows startup.

To manually (re)start the Industrial PC Tray Utility, select **OMRON - Omron Tray Application Framework** from the Windows start menu.

When the Industrial PC Tray Utility is active, its status icon is always displayed on the Windows system tray.

A-6-3 Status Display on Icon

The icon of the Industrial PC Tray Utility displays the following status.

<table>
<thead>
<tr>
<th>Type of status</th>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td><img src="image" alt="Icon" /></td>
<td>No utility of the Industrial PC has issued warning or error notifications.</td>
</tr>
<tr>
<td>Warning</td>
<td><img src="image" alt="Icon" /></td>
<td>At least one utility of the Industrial PC has issued a warning notification.</td>
</tr>
<tr>
<td>Error</td>
<td><img src="image" alt="Icon" /></td>
<td>At least one utility of the Industrial PC has issued an error notification.</td>
</tr>
</tbody>
</table>

A-6-4 Industrial PC Tray Utility Menu

Right-click the Industrial PC Tray Utility icon to display the menu.
<table>
<thead>
<tr>
<th></th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>Displays the available utilities. Click any of the utilities to start.</td>
</tr>
<tr>
<td>(b)</td>
<td>Display the details on the Industrial PC Tray Utility.</td>
</tr>
<tr>
<td>(c)</td>
<td>Closes the Industrial PC Tray Utility.</td>
</tr>
</tbody>
</table>

### A-6-5 Notification Message Display

Click the icon that shows a warning or error to display a popup message. Correct the warning or error by following the instruction given in the message.
A-7 Customise Windows

This section provides an overview of the tools to customise Windows.

A-7-1 Enhanced Write Filter

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 the EWF Manager, open the Command Prompt with Administrator rights.

<table>
<thead>
<tr>
<th>Command</th>
<th>Function</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>ewfmgr</td>
<td>Shows an overview with current status.</td>
<td>---</td>
</tr>
<tr>
<td>ewfmgr c:-enable</td>
<td>Enables the write filter for the drive C:.</td>
<td>The protection is not effective until the system is restarted.</td>
</tr>
<tr>
<td>ewfmgr c:-commit</td>
<td>Writes all the changes in the memory overlay to the physical disk during the next restart.</td>
<td>Committing the overlay can affect the speed of the boot process.</td>
</tr>
<tr>
<td>ewfmgr c:-commitanddisable</td>
<td>Writes all the changes in the memory overlay to the physical disk during the next restart, and disables the disk protection.</td>
<td>Committing the overlay can affect the speed of the boot process. The protection is not disabled until the system is restarted.</td>
</tr>
<tr>
<td>Command</td>
<td>Function</td>
<td>Remarks</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>ewfmgr c:-commitanddisable -live</td>
<td>Writes all the changes in the memory overlay to the physical disk immedi-</td>
<td>Protection is also disabled immediately. No restart is required.</td>
</tr>
<tr>
<td></td>
<td>ately, and disables the disk protection.</td>
<td></td>
</tr>
<tr>
<td>ewfmgr c:-disable</td>
<td>Disables the disk protection.</td>
<td>The protection is not disabled until the system is restarted.</td>
</tr>
<tr>
<td>ewfmgr /h</td>
<td>Displays a helpscreen that explains all commands and options available.</td>
<td>A complete reference can be found at the Microsoft Developer Network (MSDN).</td>
</tr>
</tbody>
</table>

**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-7-2 File-Based Write Filter**

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 the FBWF Manager, open the Command Prompt with Administrator rights.

<table>
<thead>
<tr>
<th>Command</th>
<th>Function</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>fbwfmgr</td>
<td>Shows an overview with current status.</td>
<td>---</td>
</tr>
<tr>
<td>fbwfmgr /displayconfig</td>
<td>Shows current configuration.</td>
<td>---</td>
</tr>
<tr>
<td>fbwfmgr /enable</td>
<td>Enables the write filter.</td>
<td>The protection is not effective until the system is restarted.</td>
</tr>
<tr>
<td>fbwfmgr /addvolume c:</td>
<td>Adds a volume to the protected volume list.</td>
<td>That volume will be protected after the next restart.</td>
</tr>
<tr>
<td>fbwfmgr /commit c:\Test.txt</td>
<td>Writes the changes to the protected file/folder.</td>
<td>---</td>
</tr>
<tr>
<td>fbwfmgr /addexclusion C:\Test.txt</td>
<td>Adds a write-through path to the exclusion list (file/folder).</td>
<td>The exclusion is active after the next restart.</td>
</tr>
<tr>
<td>fbwfmgr /removeexclusion C:\Test.txt</td>
<td>Removes the write-through path from the exclusion list (file/folder).</td>
<td>The exclusion is removed after the next restart.</td>
</tr>
<tr>
<td>fbwfmgr /h</td>
<td>Displays a help screen that explains all commands and options available.</td>
<td>A complete reference can be found at the Microsoft Developer Network (MSDN).</td>
</tr>
</tbody>
</table>

### 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.
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- Programmable Logic Controllers (PLC) • Temperature Controllers • Remote I/O

Robotics
- Industrial Robots • Mobile Robots

Operator Interfaces
- Human Machine Interface (HMI)

Motion & Drives
- Machine Automation Controllers (MAC) • Motion Controllers • Servo Systems
- Frequency Inverters

Vision, Measurement & Identification
- Vision Sensors & Systems • Measurement Sensors • Auto Identification Systems

Sensing
- Photoelectric Sensors • Fiber-Optic Sensors • Proximity Sensors
- Rotary Encoders • Ultrasonic Sensors

Safety
- Safety Light Curtains • Safety Laser Scanners • Programmable Safety Systems
- Safety Mats and Edges • Safety Door Switches • Emergency Stop Devices
- Safety Switches & Operator Controls • Safety Monitoring/Force-guided Relays

Control Components
- Power Supplies • Timers • Counters • Programmable Relays
- Digital Panel Meters • Monitoring Products

Switches & Relays
- Limit Switches • Pushbutton Switches • Electromechanical Relays
- Solid State Relays

Software
- Programming & Configuration • Runtime