

## The future will be IT driven, we make you part of it

Our IPC Machine Controller combines proven machine automation with the freedom to use PC technology: working together but independently. So you can leverage Big Data, NUI and IoT to explore manufacturing innovation with no compromise on traditional PLC reliability and robustness. It makes engineers unstoppable and machines innovative yet reliable.



NY512



NY532

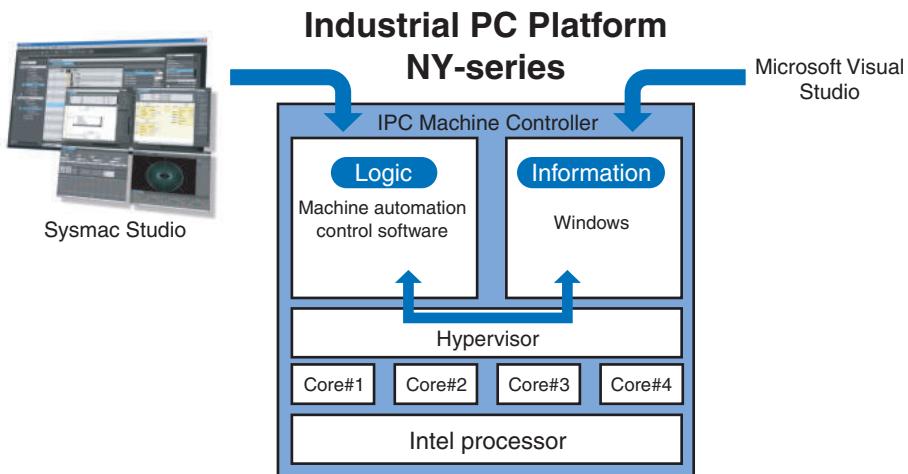
## Features

### Standard models

- OS independency allows controller to continue to control if a Windows OS crashes
- Primary task period 500 ms/24 axes
- Retain/non-retain variables 4 MB/64 MB
- 16 to 64 axes
- 192 EtherCAT slaves
- Secure boot and recovery methods
- Powerful 7th-generation CPU technology for optimum performance
- No internal cables in the PC part eliminates faults, maximizes uptime
- Unique simplified thermal design to cut downtime
- Two Gbps Ethernet, one EtherCAT, one DVI, one UPS I/O connector
- Two USB2.0 and two USB3.0 for fast data-transmission

### NC integrated models

- Integrate NY-series IPC Machine Controller with Numerical Control (NC) functions.
- Realize high-accuracy synchronization motion control (MC) and numerical control (NC) functions by ONE controller.
- Realize the collaboration of machining process and other processes (loader/unloader, press, assembly).
- Support G codes for numerical control.



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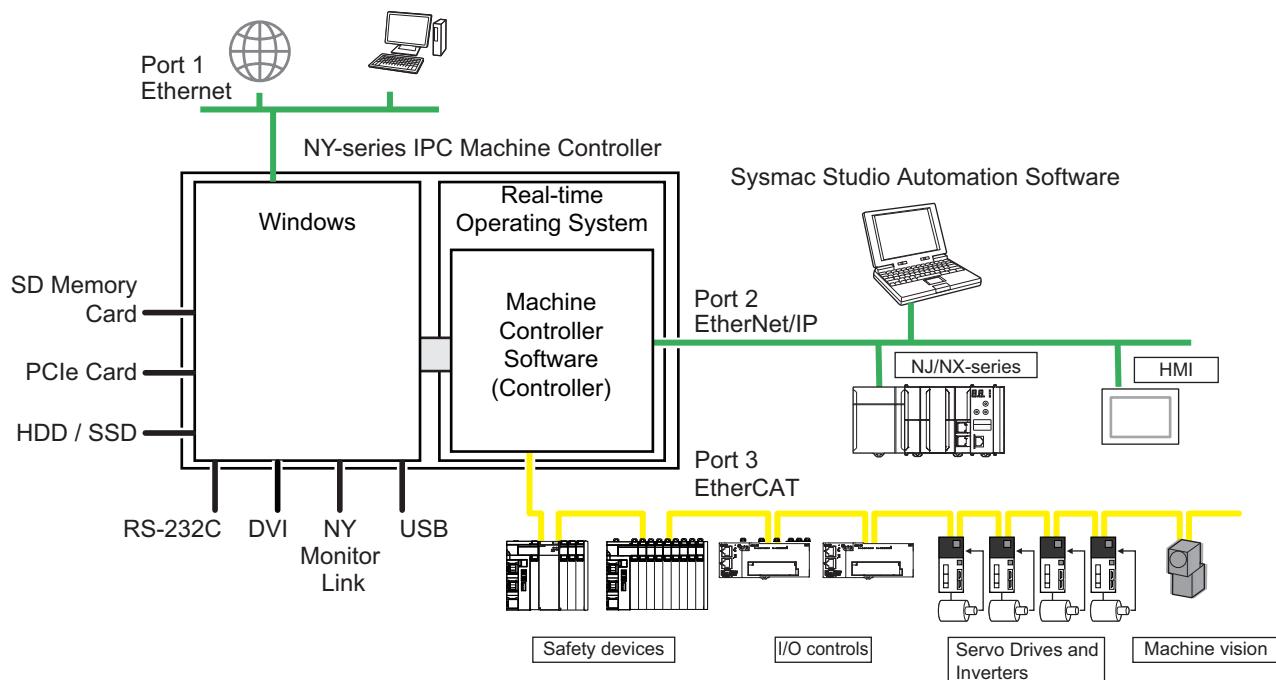
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## System Configuration



## Model Number Structure

The purpose of this model number structure is to provide understanding of the meaning of specifications from the model number.  
Models are not available for all combinations of code numbers.

NY 5 □ □ - □ □ 0 0 - □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □

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

Item	Description	Option	Standard model	NC Integrated model
1	Series name	NY	NY-series Industrial PC Platform	Yes
2	Controller specifications	5	Large scale, high speed and high precision control application for up to 64 axes.	Yes
3	Model type	1	Industrial Box PC	Yes
		3	Industrial Panel PC	Yes
4	Sequential number	2 or more		Yes
5	Function module	1	Standard	Yes
		5	Numerical Control (NC)	No
6	Number of axes for motion control	3	16 axes	Yes
		4	32 axes	Yes
		5	64 axes	No
7	Additional function software module	0	---	Yes
8	Reserved	0	---	Yes
9	Expansion slots	0	No PCIe slot	Yes
		1	1 PCIe slots	Yes
10	Frame type	1	Aluminum frame, black, and projected capacitive touch type	Yes
		2	Aluminum frame, Nickel plating, and projected capacitive touch type	No
		X	No display (Industrial Box PC)	No
11	Display size	1	12.1 inch model	Yes
		2	15.4 inch model	Yes
		3	18.5 inch model	No
		X	No display (Industrial Box PC)	No
12	OS	2	Windows Embedded Standard 7 - 64 bit	No *2
		4	Windows 10 IoT Enterprise 2019 LTSC - 64 bit	Yes
13	Processor	1	Intel® Core™ i7-4700EQ 4th generation CPU with Fan Unit for active cooling	No *2
		4	Intel® Core™ i5-7440EQ 7th generation CPU with Fan Unit for active cooling	Yes
14	Main memory	3	8 GB, non-ECC	Yes
		5	32 GB, non-ECC	No
15	Storage	6	128 GB, CFast MLC	Yes
		7	256 GB, CFast MLC	Yes
		8	32 GB, SSD SLC	No *2
		9	64 GB, SSD SLC	Yes
		C	320 GB, HDD	No *2
		K	128 GB, SSD MLC	Yes
		P	1 TB, SSD 3DTLC	No
16	Optional interface	0	No optional interface	Yes
		1	RS-232C	Yes
		2	DVI-D	No
		6	NY Monitor Link	Yes
17	Logo	0	OMRON	Yes
		2	Customized logo *1	Yes
		X	No display (Industrial Box PC)	No

\*1. Customization only available in Europe.

\*2. End of Life products: only available for service purpose

## Ordering Information

### Recommended models

The industrial PC Platform has extended configuration possibilities to meet your requirements, below an overview of the most used and recommended models. Selecting one of the models below will bring the benefit of faster delivery times.

In case your preferred model is not listed below, please contact your Omron representative to discuss the possibilities.

### NY-series IPC Machine Controller

Product name	Specifications						Model
	Operating system	CPU type	Number of motion axes	RAM memory (non-ECC type)	Storage size	Interface option	
Industrial Box PC	Windows 10 IoT Enterprise 2019 LTSC 64bit	Intel® Core™ i5-7440EQ	64	32 GB	128 GB SSD MLC	RS-232C	NY512-1500-1XX445K1X
				8 GB	256 GB CFast MLC	No	NY512-1500-0XX44370X
			32	32 GB	128 GB SSD MLC	RS-232C	NY512-1400-1XX445K1X
				8 GB	256 GB CFast MLC	No	NY512-1400-0XX44370X
			16	32 GB	128 GB SSD MLC	RS-232C	NY512-1300-1XX445K1X
				8 GB	256 GB CFast MLC	No	NY512-1300-0XX44370X
			Industrial Panel PC	32 GB	256 GB CFast MLC	No	NY532-1500-011445700
				8 GB	128 GB CFast MLC		NY532-1500-011443600
				32 GB	256 GB CFast MLC		NY532-1400-011445700
				8 GB	128 GB CFast MLC		NY532-1400-011443600
				32 GB	256 GB CFast MLC		NY532-1300-011445700
				8 GB	128 GB CFast MLC		NY532-1300-011443600

### NY-series IPC Machine Controller NC Integrated Controller

Product name	Specifications							Model
	Operating system	CPU type	Number of motion axes	NC Function	RAM memory (non-ECC type)	Storage size	Interface option	
Industrial Panel PC	Windows Embedded Standard 7 64 bit	Intel® Core™ i7-4700EQ	32 *1	Enable *2	8 GB	64 GB SSD (SLC)	RS-232C	12.1 inches, 1,280 x 800 pixels, 24-bit full color
						128 GB SSD (MLC)		NY532-5400-111213K10
						64 GB SSD (SLC)		NY532-5400-112213910
						128 GB SSD (MLC)		NY532-5400-112213K10

\*1. The number of controlled axes of the MC Control Function Module is included.

\*2. One CNC Operator License (SYSMAC-RTNC0001L) is attached with the CPU Unit.

### Automation Software Sysmac Studio

Please purchase a DVD and required number of licenses the first time you purchase the Sysmac Studio. DVDs and licenses are available individually. Each model of licenses does not include any DVD.

Product name	Specifications				Number of licenses	Media	Model
Sysmac Studio Standard Edition Ver.1.□□	The Sysmac Studio is the software that provides an integrated environment for setting, programming, debugging and maintenance of machine automation controllers including the NJ/NX-series CPU Units, NY-series Industrial PC, EtherCAT Slave, and the HMI.				---	Sysmac Studio (32-bit) DVD	SYSMAC-SE200D
	Sysmac Studio runs on the following OS. Windows 7 (32-bit/64-bit version)/Windows 8 (32-bit/64-bit version)/Windows 8.1 (32-bit/64-bit version)/Windows 10 (32-bit/64-bit version) *1					Sysmac Studio (64-bit) DVD	SYSMAC-SE200D-64
	The Sysmac Studio Standard Edition DVD includes Support Software to set up EtherNet/IP Units, DeviceNet slaves, Serial Communications Units, and Support Software for creating screens on HMIs (CX-Designer). Refer to your OMRON website for details.				1 license *2	---	SYSMAC-SE201L

\*1. Model "SYSMAC-SE200D-64" runs on Windows 10 (64 bit).

\*2. Multi licenses are available for the Sysmac Studio (3, 10, 30, or 50 licenses).

## Collection of software functional components Sysmac Library

Please download it from following URL and install to Sysmac Studio.

[http://www.ia.omron.com/sysmac\\_library/](http://www.ia.omron.com/sysmac_library/)

### Typical Models

Product	Features	Model
Vibration Suppression Library	The Vibration Suppression Library is used to suppress residual vibration caused by the operation of machines.	<b>SYSMAC-XR006</b>
Device Operation Monitor Library	The Device Operation Monitor Library is used to monitor the operation of devices such as air cylinders, sensors, motors, and other devices.	<b>SYSMAC-XR008</b>
Dimension Measurement Library	The Dimension Measurement Library is used to dimension measurement with ZW-7000/5000 Confocal Fiber Displacement Sensor, or E9NC-TA0 Contact-Type Smart Sensor.	<b>SYSMAC-XR014</b>

## Operation Software CNC Operator

Please purchase a DVD or download it from following URL.

<http://www.ia.omron.com/cnc-operator/>

One CNC Operator License (SYSMAC – RTNC0001L) is attached with the CPU Unit.

Product name	Specifications	Number of licenses	Media	Model
		---	---	
<b>CNC Operator</b>	The CNC Operator is the software that provides a operation interface for NC programming, debugging and maintenance of CNC machine.	---	(Installer only)	<b>SYSMAC-RTNC0000</b>
	CNC Operator runs on the following OS. Windows 7 (32-bit/64-bit version)/Windows 8 (32-bit/64-bit version)/ Windows 8.1 (32-bit/64-bit version)/Windows 10 (32-bit/64-bit version)	---	(Media only)	<b>SYSMAC-RTNC0000D</b>
<b>CNC Operator License</b>	The one license key ( hardware key, USB dongle). The CNC Operator needs license key.	1 license	---	<b>SYSMAC-RTNC0001L</b>
<b>CNC Operator Software Development Kit</b>	The CNC Operator Software Development Kit provides a environment for customization of CNC Operator.  Supported execution environment: .NET Framework (4.6.1) Development environment: Visual Studio 2013/2015 Development languages: C#	---	DVD	<b>SYSMAC-RTNC0101D</b>

## Accessories

### Optional Hardware

Product name	Specifications	Model
Mounting Brackets *1	Book mount	NY000-AB00 NY000-AB05
	Wall mount	NY000-AB01
SD Memory Cards	Card type: SD Card Capacity: 2 GB Format: FAT16	HMC-SD291
	Card type: SDHC Card Capacity: 4 GB Format: FAT32	HMC-SD492
	Card type: SDHC Card Capacity: 16 GB Format: FAT32	HMC-SD1A1
USB Flash Drives	Capacity: 2 GB	FZ-MEM2G
	Capacity: 8 GB	FZ-MEM8G
Storage Devices	Storage type: HDD Capacity: 320 GB	NY000-AH00 *3
	Storage type: SSD SLC Capacity: 32 GB	NY000-AS00 *3
	Storage type: SSD SLC Capacity: 64 GB	NY000-AS01
	Storage type: SSD SLC Capacity: 64 GB	NY000-AS03
	Storage type: SSD MLC Capacity: 128 GB	NY000-AS04
	Storage type: SSD 3DTLC Capacity: 1 TB	NY000-AS07
	Storage type: CFast MLC Capacity: 128 GB	NY000-AT01
	Storage type: CFast MLC Capacity: 256 GB	NY000-AT02
	Cable length: 2 m Supports DVI-D Minimum bend radius: 36 mm	NY000-AC00 2M
DVI Cables	Cable length: 5 m Supports DVI-D Minimum bend radius: 36 mm	NY000-AC00 5M
	• LCD touchscreen • Multi-touch functionality • Supply voltage: 24 VDC • Up to 1,280 x 800 pixels at 60 Hz • 2 USB Type-A Connectors • Programmable brightness control • Standard and 100 m cable models are available.	NYM1□W-C1□□□
Power Supply	• Output voltage: 24 VDC • Push-In Plus terminal blocks	S8VK-G□□□24
	• Output voltage: 24 VDC • EtherNet/IP, Modbus TCP-Compatible	S8VK-X□□□24A-EIP
	• Output voltage: 24 VDC • Compact	S8VK-S□□□24
	• Output voltage: 24 VDC • Three-phase 200-V Power Supplies	S8VK-WA□□□24
UPS *2	Output voltage during backup operation: 24 VDC ± 5%	S8BA
UPS Communication Cable	Cable length: 2 m Signals for • Signal output (BL, TR, BU, WB) • Remote ON/OFF input • UPS Stop Signal input (BS)	S8BW-C02

**Note:** Orders for NY000-AS02 are no longer accepted, as of November 30, 2018.

\*1. Select the required type. Industrial Box PC type only.

NY000-AB00: for NY51□-1□00-1□

NY000-AB05: for NY51□-1□00-0□

\*2. Revision number 04 or higher.

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

A3□ □□□□□□□□□□ □□ □  
1 2 3 4

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

\*3. End of Life: only available for support purpose

## Spare Parts

The following spare parts for the Industrial PC are available.

Product name	Specifications	Model
<b>Battery</b>	One battery is supplied with the Industrial PC. The battery supplies power to the real-time clock. The battery is located inside the Industrial PC. Service life: 5 years at 25°C	CJ1W-BAT01
<b>Fan Unit</b>	The Fan Unit is available for the Industrial PC that has active cooling. Service life: 70,000 hours of continuous operation at 40°C with 15% to 65% relative humidity. Shelf life: 6 months This is the storage limitation with no power supplied.	NY000-AF00
<b>Accessory Kit</b>	Replacement kit containing all accessories supplied with Industrial PC. <ul style="list-style-type: none"><li>• Power connector</li><li>• I/O connector</li><li>• Drive bracket for drive installation</li><li>• 4 mounting screws for drive installation</li><li>• PCIe Card support for PCIe Card installation</li><li>• PCIe Card clip for PCIe Card installation</li></ul>	NY000-AK00
	Power connectors (10 pcs) for Industrial Box PC and Industrial Panel PC	NY000-AK01

## Installed Support Software

Item	Specifications
Industrial PC Support Utility	The Industrial PC Support Utility is a software utility to assist in diagnosing and resolving problems of the Industrial PC. It is pre-installed on the Industrial Box PC and the Industrial Panel PC.
Industrial PC Tray Utility	The Industrial PC Tray Utility is a software utility that provides information about the current state of the Industrial PC, its related devices, and associated software. It is pre-installed on the Industrial Box PC and the Industrial Panel PC.
Industrial PC System API	The Industrial PC System API allows programmers to create programs that can retrieve information or set an indicator status of the Industrial PC. The API makes use of the included IPC System Service to manage the hardware. It is pre-installed on the Industrial Box PC and the Industrial Panel PC.
Industrial Monitor Utility	The Industrial Monitor Utility provides a user interface to control settings and display details of connected Industrial Monitors. It is pre-installed on the Industrial Box PC and the Industrial Panel PC.
Industrial Monitor Brightness Utility	The Industrial Monitor Brightness Utility is a small software utility that allows you to control the brightness of the screen backlight of all connected Industrial Monitors. It is pre-installed on the Industrial Box PC and the Industrial Panel PC.
Industrial Monitor API	The Industrial Monitor API allows programmers to create applications that can control the hardware features and retrieve information from connected Industrial Monitors. It is pre-installed on the Industrial Box PC and the Industrial Panel PC.
Industrial PC Rescue Disk Creator	The Industrial PC Rescue Disk Creator creates a USB Rescue Disk which can be used to back-up and restore the Omron IPC Operating System. It is pre-installed on the Industrial Box PC and the Industrial Panel PC.

## Recommended EtherCAT and EtherNet/IP Communications Cables

Use a straight STP (shielded twisted-pair) cable of category 5 or higher with double shielding (aluminum tape and braiding) for EtherCAT. For EtherNet/IP, required specification for the communications cables varies depending on the baud rate. For 100BASE-TX/10BASE-T, use a straight or cross STP (shielded twisted-pair) cable of category 5 or higher. For 1000BASE-T, use a straight or cross STP cable of category 5e or higher with double shielding (aluminum tape and braiding).

### Cable with Connectors

Item	Appearance	Recommended manufacturer	Cable length (m)	Model
Cable with Connectors on Both Ends (RJ45/RJ45) Standard RJ45 plugs type *1 Wire Gauge and Number of Pairs: AWG26, 4-pair Cable Cable Sheath material: LSZH *2 Cable color: Yellow *3		OMRON	0.3	XS6W-6LSZH8SS30CM-Y
			0.5	XS6W-6LSZH8SS50CM-Y
			1	XS6W-6LSZH8SS100CM-Y
			2	XS6W-6LSZH8SS200CM-Y
			3	XS6W-6LSZH8SS300CM-Y
			5	XS6W-6LSZH8SS500CM-Y
Cable with Connectors on Both Ends (RJ45/RJ45) Rugged RJ45 plugs type *1 Wire Gauge and Number of Pairs: AWG22, 2-pair Cable Cable color: Right blue		OMRON	0.3	XS5W-T421-AMD-K
			0.5	XS5W-T421-BMD-K
			1	XS5W-T421-CMD-K
			2	XS5W-T421-DMD-K
			5	XS5W-T421-GMD-K
			10	XS5W-T421-JMD-K
Cable with Connectors on Both Ends (M12 Straight/M12 Straight) Shield Strengthening Connector cable *4 M12/Smartclick Connectors Wire Gauge and Number of Pairs: AWG22, 2-pair Cable Cable color: Black		OMRON	0.5	XS5W-T421-BM2-SS
			1	XS5W-T421-CM2-SS
			2	XS5W-T421-DM2-SS
			3	XS5W-T421-EM2-SS
			5	XS5W-T421-GM2-SS
			10	XS5W-T421-JM2-SS
Cable with Connectors on Both Ends (M12 Straight/RJ45) Shield Strengthening Connector cable *4 M12/Smartclick Connectors Rugged RJ45 plugs type Wire Gauge and Number of Pairs: AWG22, 2-pair Cable Cable color: Black		OMRON	0.5	XS5W-T421-BMC-SS
			1	XS5W-T421-CMC-SS
			2	XS5W-T421-DMC-SS
			3	XS5W-T421-EMC-SS
			5	XS5W-T421-GMC-SS
			10	XS5W-T421-JMC-SS

\*1. Cables with standard RJ45 plugs are available in the following lengths: 0.2 m, 0.3 m, 0.5 m, 1 m, 1.5 m, 2 m, 3 m, 5 m, 7.5 m, 10 m, 15 m, 20 m. Cables with rugged RJ45 plugs are available in the following lengths: 0.3 m, 0.5 m, 1 m, 2 m, 3 m, 5 m, 10 m, 15 m.

For details, refer to the *Industrial Ethernet Connectors Catalog* (Cat. No. G019).

\*2. The lineup features Low Smoke Zero Halogen cables for in-cabinet use and PUR cables for out-of-cabinet use. Although the LSZH cable is single shielded, its communications and noise characteristics meet the standards.

\*3. Cable colors are available in yellow, green, and blue.

\*4. For details, contact your OMRON representative.

### Cables / Connectors

Item	Recommended manufacturer	Model
Products for EtherCAT or EtherNet/IP (1000BASE-T *3/ 100BASE-TX)	Cables Wire Gauge and Number of Pairs: AWG24, 4-pair Cable	Hitachi Metals, Ltd. NETSTAR-C5E SAB
		0.5 4P CP *1
	RJ45 Connectors	Kuramo Electric Co. KETH-SB *1
		Panduit Corporation MPS588-C *1
Products for EtherCAT or EtherNet/IP (100BASE-TX/10BASE-T)	Cables Wire Gauge and Number of Pairs: AWG22, 2-pair Cable	Kuramo Electric Co. KETH-PSB-OMR *2
		JMACS Japan Co., Ltd. PNET/B *2
	RJ45 Assembly Connector 	OMRON
		XS6G-T421-1 *2

\*1. We recommend you to use above Cable, and RJ45 Connector together.

\*2. We recommend you to use above Cable, and RJ45 Assembly Connector together.

\*3. The products can be used only with thes NX701.

**Note:** Connect both ends of cable shielded wires to the connector hoods.

## Specifications

### Performance Specifications Supported by NY5□□-1/NY5□□-5

Item			NY5□□-				
			15□□	14□□/5400	13□□		
Processing time	Instruction execution times	LD instruction	0.33 ns				
		Math instructions (for Long Real Data)	1.2 ns or more				
Programming	Program capacity *1	Size	40 MB				
		Number	POU definition	3,000			
	Variables capacity	POU instance	24,000				
		No retain attribute	Size	64 MB			
		Number	180,000				
		Retain attribute	Size	4 MB			
		Number	40,000				
	Data type	Number	4,000				
Unit configuration	Maximum number of connectable units	Maximum number of NX unit on the system	4,096 (on NX series EtherCAT slave terminal)				
Motion control	Number of controlled axes	Maximum number of controlled axes		Maximum number of axes which can be defined. The number of controlled axes = The number of motion control axes + The number of single-axis position control axes.			
		Motion control axes		64 axes 32 axes 16 axes			
		Maximum number of used real axes		Maximum number of motion control axes which can be defined. All motion control function is available. 64 axes 32 axes 16 axes			
		Used motion control servo axes		Maximum number of used real axes. The Number of used real axes includes following servo axes and encoder axes.			
		Maximum number of axes for linear interpolation axis control		Maximum number of servo axes which all motion control function is available. The number of used motion control servo axes = The number of motion control axes whose axis type is set to servo axis and axis use is set to used axis.			
		Number of axes for circular interpolation axis control		64 axes 32 axes 16 axes			
		Maximum number of axes groups		4 axes per axes group			
		Motion control period		2 axes per axes group			
		Cams	Number of cam data points	Maximum points per cam table	32 axes groups		
			Maximum points for all cam tables	The same control period as that is used for the process data communications cycle for EtherCAT.			
Position units		Maximum number of cam tables		65,535 points			
Override factors				1,048,560 points			
				640 tables			
				Pulses, millimeters, micrometers, nanometers, degrees and inches			
				0.00% or 0.01% to 500.00%			

\*1. This is the capacity for the execution objects and variable tables (including variable names).

Item	NY5□□-		
	15□□	14□□/5400	13□□
Built-in EtherNet/IP Port	<b>Number of port</b>	1	
	<b>Physical layer</b>	10BASE-T/100BASE-TX/1000BASE-T	
	<b>Frame length</b>	1,514 max.	
	<b>Media access method</b>	CSMA/CD	
	<b>Modulation</b>	Baseband	
	<b>Topology</b>	Star	
	<b>Baud rate</b>	1Gbps (1000BASE-T)	
	<b>Transmission media</b>	STP (shielded, twisted-pair) cable of Ethernet category 5, 5e or higher	
	<b>Maximum transmission distance between Ethernet switch and node</b>	100 m	
	<b>Maximum number of cascade connections</b>	There are no restrictions if Ethernet switch is used.	
	<b>Maximum number of connections</b>	128	
	<b>Packet interval *2</b>	1 to 10,000 ms in 1.0-ms increments Can be set for each connection.	
	<b>Permissible communications band *3</b>	20,000 pps including heartbeat	
	<b>Maximum number of tag sets</b>	128	
	<b>Tag types</b>	Network variables	
	<b>Number of tags per connection (i.e., per tag set)</b>	8 (7 tags if Controller status is included in the tag set.)	
	<b>Maximum link data size per node (total size for all tags)</b>	184,832 byte	
	<b>Maximum number of tag</b>	256	
CIP service: Tag data links (Cyclic communications)	<b>Maximum data size per connection</b>	1,444 bytes	
	<b>Maximum number of registerable tag sets</b>	128 (1 connection = 1 tag set)	
	<b>Maximum tag set size</b>	1,444 bytes (Two bytes are used if Controller status is included in the tag set.)	
	<b>Multi-cast packet filter *4</b>	Supported.	
	<b>Class 3 (number of connections)</b>	64 (clients plus server)	
	<b>Cip Message Service: explicit messages</b>	<b>UCMM (non-connection type)</b>	Maximum number of clients that can communicate at one time
			32
			Maximum number of servers that can communicate at one time
			32
	<b>Maximum number of TCP socket service</b>	30	
Built-in EtherCAT port	<b>Number of port</b>	1	
	<b>Communications standard</b>	IEC 61158 Type12	
	<b>EtherCAT master specifications</b>	Class B (Feature Pack Motion Control compliant)	
	<b>Physical layer</b>	100BASE-TX	
	<b>Modulation</b>	Baseband	
	<b>Baud rate</b>	100 Mbps (100Base-TX)	
	<b>Duplex mode</b>	Auto	
	<b>Topology</b>	Line, daisy chain, and branching	
	<b>Transmission media</b>	Twisted-pair cable of category 5 or higher (double-shielded straight cable with aluminum tape and braiding)	
	<b>Maximum transmission distance between nodes</b>	100 m	
	<b>Maximum number of slaves</b>	192	
	<b>Range of node address</b>	1-512	
	<b>Maximum process data size</b>	Inputs: 5,736 bytes Outputs: 5,736 bytes (However, the maximum number of process data frames is 4.)	
	<b>Maximum process data size per slave</b>	Inputs: 1,434 bytes Outputs: 1,434 bytes	
	<b>Communications cycle</b>	500 µs to 8 ms (in 250-µs increments)	
	<b>Sync jitter</b>	1 µs max.	
Unit configuration	<b>Maximum number of connectable Units</b>	<b>Maximum number of NX Units for entire controller</b>	4,096 (On EtherCAT Slave Terminals)
	<b>Maximum number of Expansion Racks</b>		0
<b>Internal clock</b>		At ambient temperature of 55°C: -3.5 to +0.5 min error per month At ambient temperature of 25°C: -1.5 to +1.5 min error per month At ambient temperature of 0°C: -3 to +1 min error per month	

\*2. Data will be refreshed at the set interval, regardless of the number of nodes.

\*3. "pps" means packets per second, i.e., the number of communications packets that can be sent or received in one second.

\*4. As the EtherNet/IP port implements the IGMP client, unnecessary multi-cast packets can be filtered by using a switching hub that supports IGMP Snooping.

## Performance Specifications Supported by NY5□□-5

Item			NY532- 5400
Numerical Control	Task period	Primary periodic cycle	500/1,000/2,000/4,000/8,000 μs
		CNC Planner Service period	500 μs to 16 ms
	Number of CNC motors	Maximum number of CNC motors *1	32
	CNC coordinate system	Maximum number of CNC coordinate systems	8
		Maximum number of CNC motor configurations that are included in a CNC coordinate system (excluding spindle axes)	8
		Number of spindle axes that are included in a CNC coordinate system	1
	Number of simultaneous interpolation axes		4
	NC Program	Program buffer size *2	64 MB
		Maximum number of programs	Upper limit of main registrations
			512
	NC program variables	P variable	Double-precision floating point 65536 *3
		Q variable	Double-precision floating point 8192 *3
		L variable	Double-precision floating point 256
	CNC motor compensation table	Maximum number of CNC motor compensation tables	64
		Maximum size of all compensation tables	2 MB

\*1. The number of controlled axes of the MC Control Function Module is included.

\*2. The number of programs and their capacities that can be loaded into the CPU Unit at the same time. The program capacity is the maximum size available. As fragmentation will occur, the size that is actually available will be smaller than the maximum size.

\*3. Some parts of the area are reserved by the system.

Some function specifications are common with the NJ/NX-series Machine Automation Controller.

"CPU Unit" described in the *Function Specifications Supported by NY5□□-1/NY5□□-5* means "Controller" in the NY Series.

## Function Specifications Supported by NY5□□-1/NY5□□-5

Item			NY5□□-1/NY5□□-5
Tasks	Function		
		Periodically executed tasks	Maximum number of primary periodic tasks
			1
			Maximum number of periodic tasks
Programming	POU (program organization units)		
		Programs	POUs that are assigned to tasks.
		Function blocks	POUs that are used to create objects with specific conditions.
	Functions		
		Maximum number of event tasks	32
	Programming languages	Execution conditions	When Activate Event Task instruction is executed or when condition expression for variable is met.
		Types	Ladder diagrams *1 and structured text (ST)
	Namespaces		
Data types	Variables	External access of variables	Network variables
			The function which allows access from the HMI, host computers, or other Controllers
		Boolean	BOOL
		Bit strings	BYTE, WORD, DWORD, LWORD
		Integers	INT, SINT, DINT, LINT, UINT, USINT, UDINT, ULINT
		Real numbers	REAL, LREAL
		Durations	TIME
		Dates	DATE
		Times of day	TIME_OF_DAY
		Date and time	DATE_AND_TIME
	Data types	Text strings	STRING
		Derivative data types	Structures, unions, enumerations
		Function	A derivative data type that groups together data with different variable types.
		Maximum number of members	2048
		Nesting maximum levels	8
		Member data types	Basic data types, structures, unions, enumerations, array variables
Motion control	Data type attributes	Specifying member offsets	
			You can use member offsets to place structure members at any memory locations.
		Function	A derivative data type that groups together data with different variable types.
		Maximum number of members	4
		Member data types	BOOL, BYTE, WORD, DWORD, LWORD
	Data type specifications	Enumerations	Function
			A derivative data type that uses text strings called enumerators to express variable values.
		Function	An array is a group of elements with the same data type. You specify the number (subscript) of the element from the first element to specify the element.
		Maximum number of dimensions	3
		Maximum number of elements	65535
Positioning	Positioning	Array specifications for FB instances	
			Supported.
		Range specifications	You can specify a range for a data type in advance. The data type can take only values that are in the specified range.
			User libraries
		Libraries	
	Positioning	Control modes	position control, velocity control, torque control
		Axis types	Servo axes, virtual servo axes, encoder axes, and virtual encoder axes
		Positions that can be managed	Command positions and actual positions
		Absolute positioning	Positioning is performed for a target position that is specified with an absolute value.
		Relative positioning	Positioning is performed for a specified travel distance from the command current position.
Positioning	Positioning	Interrupt feeding	Positioning is performed for a specified travel distance from the position where an interrupt input was received from an external input.
		Cyclic synchronous absolute positioning	A positioning command is output each control period in Position Control Mode.
		Velocity control	Velocity control is performed in Position Control Mode.
		Cyclic synchronous velocity control	A velocity command is output each control period in Velocity Control Mode.
	Positioning	Torque control	The torque of the motor is controlled.

\*1. Inline ST is supported. (Inline ST is ST that is written as an element in a ladder diagram.)

Item		NY5□□-1/NY5□□-5
Motion control	Single-axis	<b>Starting cam operation</b> A cam motion is performed using the specified cam table.
		<b>Ending cam operation</b> The cam motion for the axis that is specified with the input parameter is ended.
		<b>Starting gear operation</b> A gear motion with the specified gear ratio is performed between a master axis and slave axis.
		<b>Positioning gear operation</b> A gear motion with the specified gear ratio and sync position is performed between a master axis and slave axis.
		<b>Ending gear operation</b> The specified gear motion or positioning gear motion is ended.
		<b>Synchronous positioning</b> Positioning is performed in sync with a specified master axis.
		<b>Master axis phase shift</b> The phase of a master axis in synchronized control is shifted.
		<b>Combining axes</b> The command positions of two axes are added or subtracted and the result is output as the command position.
		<b>Single-axis manual operation</b>
		<b>Powering the servo</b> The Servo in the Servo Drive is turned ON to enable axis motion.
		<b>Jogging</b> An axis is jogged at a specified target velocity.
		<b>Resetting axis errors</b> Axes errors are cleared.
		<b>Homing</b> A motor is operated and the limit signals, home proximity signal, and home signal are used to define home.
	Auxiliary functions for single-axis control	<b>Homing with parameter</b> Specifying the parameter, a motor is operated and the limit signals, home proximity signal, and home signal are used to define home.
		<b>High-speed homing</b> Positioning is performed for an absolute target position of 0 to return to home.
		<b>Stopping</b> An axis is decelerated to a stop at the specified rate.
		<b>Immediately stopping</b> An axis is stopped immediately.
		<b>Setting override factors</b> The target velocity of an axis can be changed.
		<b>Changing the current position</b> The command current position or actual current position of an axis can be changed to any position.
		<b>Enabling external latches</b> The position of an axis is recorded when a trigger occurs.
		<b>Disabling external latches</b> The current latch is disabled.
		<b>Zone monitoring</b> You can monitor the command position or actual position of an axis to see when it is within a specified range (zone).
		<b>Enabling digital cam switches</b> You can turn a digital output ON and OFF according to the position of an axis.
		<b>Monitoring axis following error</b> You can monitor whether the difference between the command positions or actual positions of two specified axes exceeds a threshold value.
	Axes groups	<b>Resetting the following error</b> The error between the command current position and actual current position is set to 0.
		<b>Torque limit</b> The torque control function of the Servo Drive can be enabled or disabled and the torque limits can be set to control the output torque.
		<b>Slave Axis Position Compensation</b> This function compensates the position of the slave axis currently in synchronized control.
		<b>Cam monitor</b> Outputs the specified offset position for the slave axis in synchronous control.
		<b>Start velocity</b> You can set the initial velocity when axis motion starts.
		<b>Absolute linear interpolation</b> Linear interpolation is performed to a specified absolute position.
		<b>Relative linear interpolation</b> Linear interpolation is performed to a specified relative position.
		<b>Circular 2D interpolation</b> Circular interpolation is performed for two axes.
		<b>Axes group cyclic synchronous absolute positioning</b> A positioning command is output each control period in Position Control Mode.
	Auxiliary functions for multi-axes coordinated control	<b>Resetting axes group errors</b> Axes group errors and axis errors are cleared.
		<b>Enabling axes groups</b> Motion of an axes group is enabled.
		<b>Disabling axes groups</b> Motion of an axes group is disabled.
		<b>Stopping axes groups</b> All axes in interpolated motion are decelerated to a stop.
		<b>Immediately stopping axes groups</b> All axes in interpolated motion are stopped immediately.
		<b>Setting axes group override factors</b> The blended target velocity is changed during interpolated motion.
		<b>Reading axes group positions</b> The command current positions and actual current positions of an axes group can be read.
Common items	Cams	<b>Changing the axes in an axes group</b> The Composition Axes parameter in the axes group parameters can be overwritten temporarily.
		<b>Setting cam table properties</b> The end point index of the cam table that is specified in the input parameter is changed.
		<b>Saving cam tables</b> The cam table that is specified with the input parameter is saved in non-volatile memory in the CPU Unit.
	Parameters	<b>Generating cam tables</b> The cam table that is specified with the input parameter is generated from the cam property and cam node.
		<b>Writing MC settings</b> Some of the axis parameters or axes group parameters are overwritten temporarily.
		<b>Changing axis parameters</b> You can access and change the axis parameters from the user program.

Item			NY5□□-1/NY5□□-5
Motion control	Auxiliary functions	Count modes	You can select either Linear Mode (finite length) or Rotary Mode (infinite length).
		Unit conversions	You can set the display unit for each axis according to the machine.
		Acceleration/ deceleration control	Acceleration/ deceleration control
			Changing the acceleration and deceleration rates
		In-position check	You can set an in-position range and in-position check time to confirm when positioning is completed.
		Stop method	You can set the stop method to the immediate stop input signal or limit input signal.
		Re-execution of motion control instructions	You can change the input variables for a motion control instruction during execution and execute the instruction again to change the target values during operation.
		Multi-execution of motion control instructions (Buffer mode)	You can specify when to start execution and how to connect the velocities between operations when another motion control instruction is executed during operation.
		Continuous axes group motions (Transition mode)	You can specify the Transition Mode for multi-execution of instructions for axes group operation.
		Monitoring functions	Software limits
			Following error
		Velocity, acceleration rate, deceleration rate, torque, interpolation velocity, interpolation acceleration rate, and interpolation deceleration rate	You can set and monitor warning values for each axis and each axes group.
		Absolute encoder support	You can use an OMRON 1S-series Servomotor or G5-Series Servomotor with an Absolute Encoder to eliminate the need to perform homing at startup.
		Input signal logic inversion	You can inverse the logic of immediate stop input signal, positive limit input signal, negative limit input signal, or home proximity input signal.
	External interface signals	The Servo Drive input signals listed on the right are used.	
Unit (I/O) management	EtherCAT slaves	Maximum number of slaves	192
Communications	Built-in EtherNet/IP port Internal Port	Communications protocol	TCP/IP, UDP/IP
		TCP/IP functions	CIDR
			The function which performs IP address allocations without using a class (class A to C) of IP address.
			IP Forwarding
			The function which forward IP packets between interfaces.
			Packet Filter #2
			Check the IP packet, the function to determine whether to receive the source IP address and TCP port number.
			NAT
		CIP communications service	Function for transfer by converting the two IP address.
			Tag data links
		TCP/IP applications	Programless cyclic data exchange is performed with the devices on the EtherNet/IP network.
			Message communications
			CIP commands are sent to or received from the devices on the EtherNet/IP network.
			Socket services
			Data is sent to and received from any node on Ethernet using the UDP or TCP protocol. Socket communications instructions are used.
			FTP client
			File can be read from or written to computers at other Ethernet nodes from the CPU Unit. FTP client communications instructions are used.
			FTP server
			Files can be read from or written to the SD Memory Card in the CPU Unit from computers at other Ethernet nodes.
			SNMP agent
	EtherCAT port	Supported services	Built-in EtherNet/IP port internal status information is provided to network management software that uses an SNMP manager.
		Process data communications	A communications method to exchange control information in cyclic communications between the EtherCAT master and slaves. This communications method is defined by CoE.
		SDO communications	A communications method to exchange control information in noncyclic event communications between EtherCAT master and slaves. This communications method is defined by CoE.
		Network scanning	Information is read from connected slave devices and the slave configuration is automatically generated.
		DC (distributed clock)	Time is synchronized by sharing the EtherCAT system time among all EtherCAT devices (including the master).
		Packet monitoring	The frames that are sent by the master and the frames that are received by the master can be saved. The data that is saved can be viewed with Wireshark or other applications.
		Enable/disable settings for slaves	The slaves can be enabled or disabled as communications targets.
		Disconnecting/connecting slaves	Temporarily disconnects a slave from the EtherCAT network for maintenance, such as for replacement of the slave, and then connects the slave again.
		Supported application protocol	CoE
Communications instructions			The following instructions are supported. CIP communications instructions, socket communications instructions, SDO message instructions, FTP client instructions, and Modbus RTU protocol instructions.

\*2. Internal Port only.

Item				NY5□□-1/NY5□□-5
System management	Event logs	Function		Events are recorded in the logs.
		Maximum number of events	System event log	2,048
			Access event log	1,024
			User-defined event log	1,024
Debugging	Online editing	Single		Programs, function blocks, functions, and global variables can be changed online. Different operators can change different POU's across a network.
	Forced refreshing			The user can force specific variables to TRUE or FALSE.
		Maximum number of forced variables	Device variables for EtherCAT slaves	64
	MC test run		Motor operation and wiring can be checked from the Sysmac Studio.	
	Synchronizing			The project file in the Sysmac Studio and the data in the CPU Unit can be made the same when online.
	Differentiation monitoring			Rising/falling edge of contacts can be monitored.
		Maximum number of contacts		8
	Data tracing	Types	Single triggered trace	When the trigger condition is met, the specified number of samples are taken and then tracing stops automatically.
			Continuous trace	Data tracing is executed continuously and the trace data is collected by the Sysmac Studio.
		Maximum number of simultaneous data trace		4
		Maximum number of records		10,000
		Sampling	Maximum number of sampled variables	192 variables
		Timing of sampling		Sampling is performed for the specified task period, at the specified time, or when a sampling instruction is executed.
		Triggered traces	Trigger conditions	Trigger conditions are set to record data before and after an event.
				When BOOL variable changes to TRUE or FALSE Comparison of non-BOOL variable with a constant Comparison Method: Equals (=), Greater than (>), Greater than or equals (≥), Less Than (<), Less than or equals (≤), Not equal (≠)
			Delay	Trigger position setting: A slider is used to set the percentage of sampling before and after the trigger condition is met.
	Simulation			The operation of the CPU Unit is emulated in the Sysmac Studio.
Reliability functions	Self-diagnosis	Controller errors	Levels	Major fault, partial fault, minor fault, observation, and information
			Maximum number of message languages	9 (Sysmac Studio) 2 (NS-series PT)
		User-defined errors	Function	User-defined errors are registered in advance and then records are created by executing instructions.
			Levels	8 levels
			Maximum number of message languages	9
Security	Protecting software assets and preventing operating mistakes	CPU unit names and serial IDs		When going online to a CPU Unit from the Sysmac Studio, the CPU Unit name in the project is compared to the name of the CPU Unit being connected to.
		Protection	User program transfer with no restoration information	You can prevent reading data in the CPU Unit from the Sysmac Studio.
			CPU unit write protection	You can prevent writing data to the CPU Unit from the Sysmac Studio or SD Memory Card.
			Overall project file protection	You can use passwords to protect .smc files from unauthorized opening on the Sysmac Studio.
		Data protection		You can use passwords to protect POU's on the Sysmac Studio.
			Verification of operation authority	Online operations can be restricted by operation rights to prevent damage to equipment or injuries that may be caused by operating mistakes.
			Number of groups	5
		Verification of user program execution ID		The user program cannot be executed without entering a user program execution ID from the Sysmac Studio for the specific hardware (CPU Unit).
Memory card functions	Location to store			Shared folder: The folder that exists on the HDD / SSD that Windows is running.
	Application	Memory card operation instructions		You can access Memory Cards from instructions in the user program.
		File operations from the Sysmac Studio		You can perform file operations for Controller files in the Memory Card and read/write general-purpose document files on the computer.
		File operations from FTP Client/Server		You can store and read files by the FTP client function and FTP server function.
Backup functions	SD memory card backup functions	Operation	Using system-defined variables	You can use system-defined variables to backup or compare data.
			Memory card operations dialog box on Sysmac Studio	Backup and verification operations can be performed from the SD Memory Card Operations Dialog Box on the Sysmac Studio.
		Using instruction		Backup operation can be performed by using instruction.
		Protection	Prohibiting backing up data to the SD memory card	Prohibit SD Memory Card backup functions.
	Sysmac Studio controller backup functions			Backup, restore, and verification operations for Units can be performed from the Sysmac Studio.

## Functions Supported by NY5□□-5

Besides functions of the NY5□□-1, functions supported by the NY5□□-5 are as follows.

Item			NY532- 5400	
			Positioning axis, Spindle axis	
Control modes			Position control	
Spindle axis			Velocity control	
Positions that can be managed			Absolute position (command), absolute position (actual), program position, remaining travel distance.	
Numerical Control	CNC coordinate system	Axes types		
		Positioning axis		
		Spindle axis		
		Positions that can be managed		
		NC program execution	Execute	
			Resets	
			Single step execution	
			Back trace	
			Feed hold / Feed hold reset	
			Optional stop	
			Optional block stop	
			Dry run	
			Machine lock	
			Auxiliary lock	
			Override	
	G Code	Position control	Rapid Positioning	
			Linear interpolation	
			Circular interpolation	
			Skip function	
		Return to reference point		
		Canned cycle		
	Auxiliary for coordinate system	Feed function	Exact stop	
			Exact stop mode	
			Continuous-path mode	
		Dwell		
		Coordinate system selection		
	M code	Machine Coordinate System		
		Work Coordinate System		
		Local Coordinate System		
		Absolute/relative selection		
		Metric/inch selection		
	NC programming	Scaling		
		Mirroring		
		Rotation		
		Tool functions		
		Cutter compensation		
		Tool length compensation		
	Auxiliary control functions	M code/M code reset		
		Spindle axis	CW/CCW/Stop	
			Orientation	
		Subroutine call		
		Arithmetic operation		
		Branch control		
		User variables		
		P variable	System global memory area common to CNC coordinate systems.	
			Q variable	
			L variable	
		Error reset		Function that resets errors or CNC coordinate system and CNC motor.
		Immediate stop		Function that stops all the CNC motors of the CNC coordinate system.

Item			NY532- 5400
<b>Positions that can be managed</b>			Commanded positions and actual positions.
<b>Position control</b>			Positioning is performed for a target position that is specified using an absolute value.
			Positioning is performed for a specified travel distance from the command current position.
			A commanded position is output at each control period in Position Control Mode.
<b>Spindle control</b>			Outputs/stops velocity commands in velocity loop control mode.
<b>Manual operation</b>			The Servo in the servo driver is turned ON to enable CNC motor operation.
			A CNC motor is jogged at a specified target velocity.
<b>Auxiliary control functions</b>			A CNC motor is operated, and the limit signals, home proximity signal, and home signal are used to define home.
			A CNC motor is stopped immediately.
<b>CNC motor compensation table</b>			Pitch error compensation for one-dimensional ball screw.
			Compensation of one-dimensional cross-axis.
<b>Auxiliary control functions</b>			A CNC motor is operated, and the limit signals, home proximity signal, and home signal are used to define home.
			A CNC motor is stopped immediately.
<b>CNC motor compensation table</b>			Pitch error compensation for one-dimensional ball screw.
			Compensation of one-dimensional cross-axis.
<b>Editing the CNC motor compensation table</b>			Edit using sequence control program (Read/write).
<b>Auxiliary functions</b>			You can set an in-position range and in-position check time to confirm when positioning is completed.
			You can set the stop method to the immediate stop input signal or limit input signal.
			Monitors the movement range of a CNC motor.
			Monitors the error between the command current value and the actual current value for a CNC motor.
			You can use an OMRON 1S-series Servomotor or G5-series Servomotor with an Absolute Encoder to eliminate the need to perform homing at startup.
<b>External interface signals</b>			You can inverse the logic of immediate stop input signal, positive limit input signal, negative limit input signal, or home proximity input signal.
<b>Common items</b>			The Servo Drive input signals listed on the right are used. Home signal, home proximity signal, positive limit signal, negative limit signal, immediate stop signal, and interrupt input signal.
<b>Parameters</b>			You can access and change the CNC coordinate system and CNC motor parameters from the user program.

## Performance Specifications

Item		NY5□□-1□00-0□□□4	NY5□□-1□00-1□□□4	NY5□□-5□00
Main system	CPU	CPU type	Intel® Core™ i5-7440EQ	Intel® Core™ i7-4700EQ
		Cores / Threads	4 / 4	4 / 8
		CPU base frequency	2.9 GHz	2.4 GHz
		Cache	6 MB	
		Cooling details	Requires active cooling (fan)	
	Memory	Intel CPU category	Industrial (100% operation minimal 10yr)	
		Memory size *1	8 or 32 GB	8 GB
	Trusted platform module (TPM)	Memory type	DDR4 (non ECC)	DDR3L (non ECC)
		Available	Available	Available
Operating system	Graphics controller		Intel® HD Graphics. Up to two independent screens.	
			Intel® HD Graphics 630	Intel® HD Graphics 4600
	Watchdog		Yes	Yes
	Windows OS		Windows 10 IoT Enterprise 2019 LTSC - 64 bit	Windows Embedded Standard 7 - 64 bit
Storage devices	Drives *1	Hard disk drive		---
		Solid state drive	SLC type	---
			MLC type	64 GB Serial ATA 3.1
		3DTLC type	128 GB, 256 GB Serial ATA 3.1 CFast	128 GB Serial ATA 3.1
Connectors	Drive bay (HDD/SSD) *2		CFast slot	2
	Power connector		24 VDC	---
	I/O connector		2 inputs (Power ON/OFF Input and UPS Mode Input) and 1 output (Power Status Output)	
	USB 2.0 Type-A	Number of ports	2	
		Maximum current	500 mA	
		Maximum cable length	5 m	
	USB 3.0 Type-A	Number of ports	2	
		Maximum current	900 mA	
		Maximum cable length	3 m	
	Ethernet connectors	Number of available ports	3	
		Physical layer	10BASE-T, 100BASE-TX or 1000BASE-T	
	DVI-I connector	Video interface	Digital or analog	
		Resolution	Up to 1,920 x 1,200 pixels at 60 Hz	
		Maximum DVI cable length	Dependent upon connected monitor type and resolution	
Optional connector (select one per system)	RS-232C		---	Standard SUBD9 connector (Non-Isolated)
	DVI-D	Video interface		Digital only
		Resolution		Up to 1,920 x 1,200 pixels at 60 Hz
		Maximum DVI cable length		Dependent upon connected monitor type and resolution
	NY Monitor Link	Video interface	Digital only	---
		Resolution	1,280 x 800 pixels at 60 Hz	---
		Connector type	RJ45	---
		Cable shielding, type and max. length	S/FTP, Cat.6A, 100m	---
		USB data throughput	280 Mbps max.	---
PCIe Card Slot	Configuration		---	X4 (4 lanes) up to Gen 3
	Card height		---	Standard height cards, 4.20 inches (106.7 mm) *3
	Card length		---	Half length cards, 6.6 inches (167.65 mm)
Battery	Model		CJ1W-BAT01	Half length cards, 6.6 inches (167.65 mm)
	Service life		5 years at 25°C	
Fan unit	Model		NY000-AF00	
	Service life		70,000 hours of continuous operation at 40°C with 15% to 65% relative humidity	
LED		PWR, ERR, HDD, RUN		

\*1. Not all combinations are possible or standard available. Please contact your Omron representative to discuss the possibilities.

\*2. Depending on the model one or two drives are supported.

\*3. Low profile cards, 2.536 inches (64.4 mm) are not supported.

## Display Specifications

Item		Specifications		
		12.1 Inch models	15.4 Inch models	18.5 inch models
Display	Display panel *1	<b>Display device</b>	TFT LCD	
		<b>Screen size</b>	12.1 inches	15.4 inches
		<b>Surface treatment</b>	Anti glare treatment	
		<b>Surface hardness</b>	Mohs scale: 5 - 6	
		<b>Resolution</b>	1,280 × 800 pixels at 60 Hz (horizontal × vertical)	1,920 × 1,080 pixels at 60 Hz (horizontal × vertical)
		<b>Ratio</b>	16 × 10	16 × 9
		<b>Colors</b>	16,770,000 colors	
		<b>Effective display area</b>	261 × 163 mm (horizontal × vertical)	331 × 207 mm (horizontal × vertical)
		<b>View angles</b>	Left: 60°, Right: 60°, Top: 60°, Bottom: 60°	Left: 89°, Right: 89°, Top: 89°, Bottom: 89°
		<b>Typical LCD Brightness (initial)</b>	1500 cd/m <sup>2</sup>	400 cd/m <sup>2</sup>
	Touch	<b>Life</b>	50,000 hours min. *2	500 cd/m <sup>2</sup>
		<b>Brightness adjustment</b>	200 levels *3	
		<b>Technology</b>	Projected capacitive	
		<b>Touch resolution</b>	Touch accuracy 1.5% (4-5 mm)	
		<b>Multitouch</b>	Up to 5 simultaneous touches	
	Front housing	<b>Features</b>	Water detection *4, hand palm rejection *5, gloves *6	
		<b>Life</b>	50,000,000 operations min.	
		<b>EMC</b>	Correct touchscreen operation is possible within allowable EMC immunity conditions	
	<b>Material</b>	Aluminium		
	<b>Finish *7</b>	Black paint	Black paint or Nickel plating	

**Note:** Industrial Panel PC type only.

\*1. There may be some defective pixels in the display. This is not a fault as long as the numbers of defective light and dark pixels fall within the following standard range: light and dark pixels 10 or less. (There must not be 3 consecutive light/dark pixels.)

\*2. This is the estimated time before brightness is reduced by half at room temperature and humidity.

The life expectancy is drastically shortened if used at high temperatures.

\*3. If the brightness is set to very dark, it causes flickering or the screen will be too dark to use.

\*4. If water is detected the touch functionality will not be available.

\*5. If a palm is detected that specific area is neglected.

\*6. The touchscreen can be operated when wearing gloves. Check correct usage of the gloves before using them.

\*7. Black paint:

Industrial paint based on durable polyester resin with very high weathering resistance characteristics. Matt black - matching RAL9005.

Nickel Plating:

A product with 'Material Finish' being 'Aluminium, Nickel Plated' conforms to ASTM B733-15, SC2.

The nature of nickel plating on our frames can show light disturbance on the surface.

## Electrical Specifications

Item	NY51□-1□00-0□□□4	NY51□-1□00-1□□□4	NY53□-1□00-0□1□4 NY53□-1□00-0□2□4	NY53□-1□00-0□3□4	NY53□-5	
	Intel® Core™ i5-7440EQ				Intel® Core™ i7-4700EQ	
<b>Rated power supply voltage</b>	24 VDC, non-isolated					
<b>Allowable power supply voltage range</b>	20.4 to 28.8 VDC					
<b>Grounding method</b>	Ground to less than 100 Ω					
<b>Inrush current</b>	At 24 VDC: 12 A / 6 ms max. for cold start at room temperature					
<b>Oversupply category</b>	JIS B3502 and IEC 61131-2: Category II					
<b>EMC immunity level</b>	IEC 61131-2: Zone B					
<b>RTC accuracy</b>	At ambient temperature of 55°C: -3.5 to +0.5 min error per month At ambient temperature of 25°C: -1.5 to +1.5 min error per month At ambient temperature of 0°C: -3 to +1 min error per month					
<b>Power button life</b>	100,000 operations					
<b>Battery life</b>	5 years at 25°C (for battery CJ1W-BAT01)					
<b>Fan life</b>	8 years of continuous operation at 40°C					
Power consumption *	<b>Maximum power consumption including drives and expansions</b>	85 W	106 W	101 W	123 W	132 W
	<b>Maximum power consumption excluding drives and expansions</b>	70 W	73W	86 W	108 W	99 W
	Drives	SSD SLC 32 GB	–	–	–	2 W
		SSD SLC 64 GB	–	2 W	–	2 W
		SSD MLC 128 GB	–	2 W	–	2 W
		SSD 3DTLC 1 TB	–	3 W	–	–
		CFast MLC 128 GB	1 W	–	1 W	–
		CFast MLC 256 GB	1 W	–	1 W	–
Expansions	USB	14 W max. ((2 x 500 mA at 5 V) + (2 x 900 mA at 5 V))				
	PCIe	–	15 W max.	–	–	15 W max.

**Note:** Refer to the *NY-series IPC Machine Controller Industrial Panel PC Hardware User's Manual* (W557) or the *NY-series IPC Machine Controller Industrial Box PC Hardware User's Manual* (W556) for detail.

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

To guarantee S8BA UPS operation in combination with our IPC, the specified combination of UPS and power-supply must be used.

Item	Minimum power requirements				
Power supply	240 W	240 W	240 W	240 W	240 W
UPS	120 W	120 W	120 W	240 W	240 W

## Environmental Specifications

Item	Specifications	
	Industrial Box PC	Industrial Panel PC
Operation environment	<b>Ambient operating temperature *1</b>	0 to 55°C
	<b>Ambient storage temperature *1</b>	-20 to 70°C
	<b>Ambient operating humidity *1</b>	10% to 90% with no condensation
	<b>Ambient storage humidity *1</b>	10% to 90% with no condensation
	<b>Operating atmosphere</b>	No corrosive gases
	<b>Altitude</b>	2,000 m max.
	<b>Noise resistance (during operation)</b>	Conforms to IEC61000-4-4, 2 kV (power lines)
	<b>Vibration resistance (during operation)</b>	<p>Conforms to IEC 60068-2-6.</p> <ul style="list-style-type: none"> <li>For a Box PC with an SSD: 5 to 8.4 Hz with 3.5 mm single amplitude and 8.4 to 150 Hz with 9.8 m/s<sup>2</sup> for 10 times each in X, Y and Z directions.</li> <li>For a Box PC with a HDD the vibration resistance depends on the mounting orientation *2.</li> </ul>
	<b>Shock resistance (during operation)</b>	Conforms to IEC 60068-2-27. 147 m/s <sup>2</sup> , 3 times in each X, Y and Z directions
	<b>Installation method</b>	Book mount, Wall mount
	<b>Degree of protection *4</b>	—
	<b>Pollution degree</b>	Front of Monitor: IP65
	<b>Applicable standards *5</b>	EU Directives: EMC Directive 2014/30/EU (EN 61131-2) and RoHS Directive KC Registration, RCM, cULus, EAC

\*1. The allowed ambient operating temperature and ambient humidity depend on product type, CPU type, mounting orientation, and storage device type.  
 \*2. Vibration resistance depends on the Box PC's mounting orientation and storage device type.

Mounting Orientation	SSD	HDD
Book	9.8 m/s <sup>2</sup>	2.5 m/s <sup>2</sup>
Wall		4.9 m/s <sup>2</sup>

\*3. A Panel PC with one or more HDD storage devices should not be used in applications subject to vibration.

Examples of applications subject to vibration:

- AGV (Automated Guided Vehicles)
- Rail vehicle
- Stacker crane
- Elevator
- Tableting machine
- Connector pin assembling machine
- Bending machine

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

\*4. The Panel PC may not operate properly in locations subjected to oil splashes for extended periods of time. (Industrial Panel PC type only)  
 \*5. Refer to the OMRON website ([www.ia.omron.com](http://www.ia.omron.com)) or contact your OMRON representative for the most recent applicable standards for each model.

## Storage Device Specifications

Item	Specifications							
<b>Model</b>	NY000-AS00 *4	NY000-AS01	NY000-AS03	NY000-AS04	NY000-AS07	NY000-AH00 *1*4	NY000-AT01	NY000-AT02
<b>Capacity</b>	32 GB	64 GB	64 GB	128 GB	1 TB	320 GB	128 GB	256 GB
<b>Type</b>	SSD (SLC)		SSD (MLC)	SSD (3DTLC)	HDD	CFast (MLC)		
<b>S.M.A.R.T. support</b>	Yes							
<b>Rotation speed</b>	–				5,400 r/min	–		
<b>Interface</b>	Serial ATA 3.1				Serial ATA 3.0	Serial ATA 3.1		
<b>Sustained standard read speed</b>	Up to 160 MB/s		Up to 500 MB/s	Up to 530 MB/s	Up to 550 MB/s	–	Up to 530 MB/s	
<b>Sustained standard write speed</b>	Up to 150 MB/s		Up to 370 MB/s	Up to 190 MB/s	Up to 340 MB/s	–	Up to 190 MB/s	Up to 210 MB/s
<b>Operating temperature</b>	0 to 70°C				5 to 55°C	-40 to 85°C		
<b>Operating humidity</b>	10% to 95% (with no condensation)		10% to 85% (with no condensation)	10% to 95% (with no condensation)		<ul style="list-style-type: none"> <li>10% to 95% (with no condensation)</li> <li>29°C wet-bulb temperature max.</li> </ul>	10% to 95% (with no condensation)	
<b>Storage temperature</b>	-40 to 100°C		-45 to 90°C	-55 to 95°C		-40 to 65°C	-55 to 95°C	
<b>Storage humidity</b>	10% to 95% (with no condensation)				<ul style="list-style-type: none"> <li>8% to 90% (with no condensation)</li> <li>40°C wet-bulb temperature max.</li> </ul>	10% to 95% (with no condensation)		
<b>Life</b>	1,500 TB written	3,000 TB written	1,900 TB written	208 TB written	1,000 TB written	<p>Approximately 5 years or 20,000 powered-ON hours (whichever comes first) under the following conditions:</p> <ul style="list-style-type: none"> <li>25°C at 101.3 kPa</li> <li>Less than 333 powered-ON hours/month *2</li> <li>Less than 20% operation while powered-ON *3</li> <li>Less than <math>1.30 \times 10^6</math> seeks/month</li> </ul>	208 TB written	417 TB written

**Note:** Orders for NY000-AS02 are no longer accepted, as of November 30, 2018.

**\*1.** For a Panel PC with an HDD: this device can only be installed in a vibration free environment only.

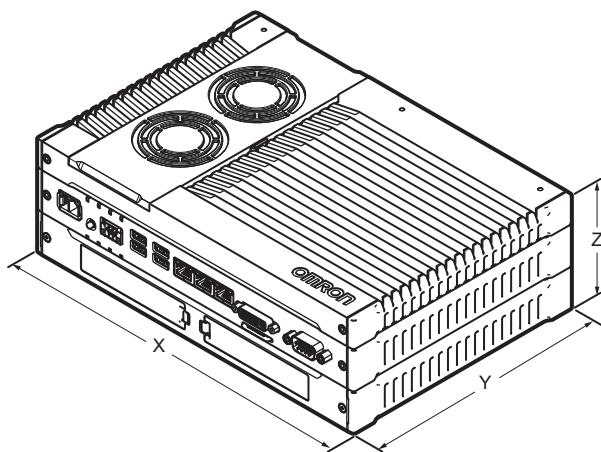
**\*2.** Powered-ON hours include sleep and standby modes.

**\*3.** Operation includes seeking, writing, and reading functions.

**\*4.** End of Life: only available for support purpose

## Dimensions

### Industrial Box PC type



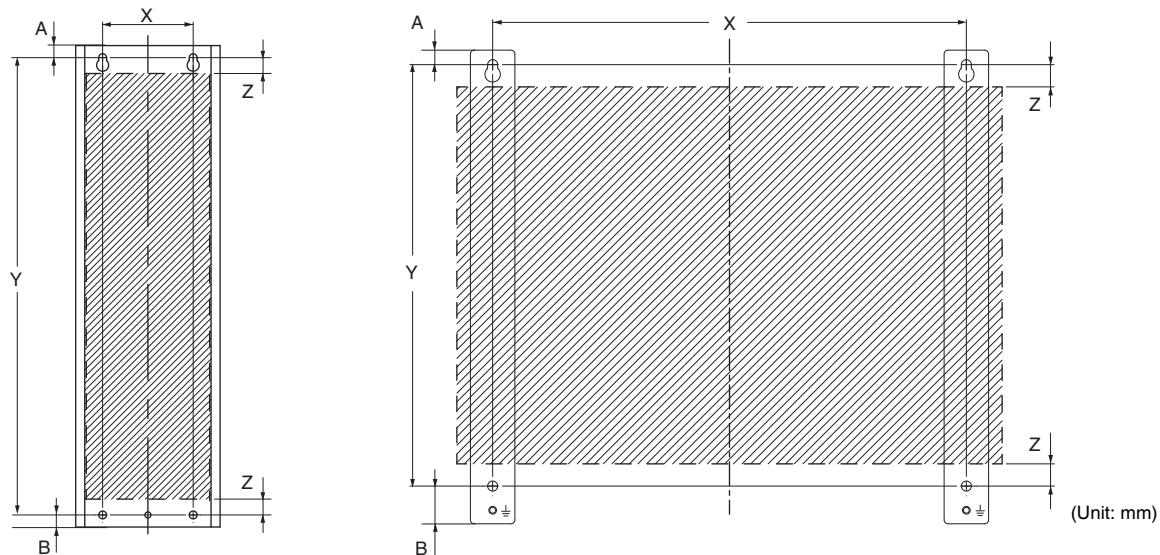
Item	NY51□-1□00-1	NY51□-1□00-0
<b>Dimensions</b>	Width X = 282 mm Depth Y = 195 mm. Y = 200 mm including the DVI connectors. Height Z = 88.75 mm	Width X = 282 mm Depth Y = 195 mm. Y = 200 mm including the DVI connectors. Height Z = 56 mm
<b>Weight</b>	3.8 kg	2.6 kg

### Bracket Specifications

The metal mounting brackets mount your Industrial Box PC and they are the connection for the functional ground.

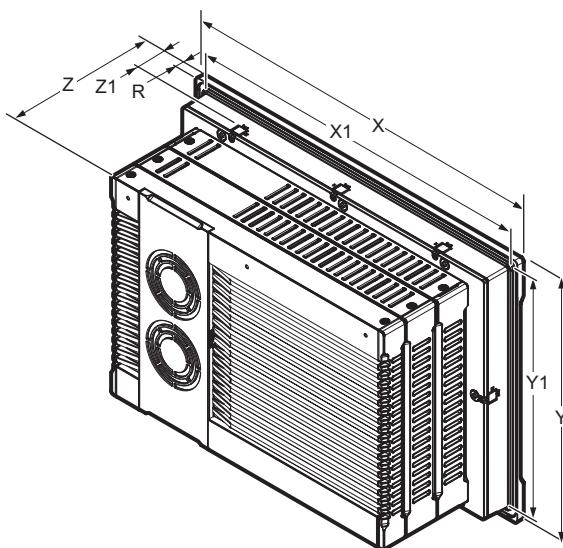
Use metal screws with a diameter of 4 mm or 5 mm to mount the brackets.

Mounting screw locations for book mount and wall mount orientation:



Model	Bracket type	Bracket ID	Drill Specifications			Product Dimensions			
			Hole Distance X	Hole Distance Y	Distance Z	Bracket Width	Bracket Height	Top to hole A	Top to hole B
All	Wall mount	NY000-AB01	245 mm	218 mm	12 mm	23 mm	245 mm	7.5 mm	19.5 mm
NY51□-□□□□-1	Book mount	NY000-AB00	60 mm	303 mm	11 mm	96 mm	319 mm	8 mm	8 mm
NY51□-□□□□-0	Book mount	NY000-AB05	25 mm	303 mm	11 mm	63 mm	339 mm	8 mm	28 mm

## Industrial Panel PC type



Item	Specifications				
	12.1 Inch		15.4 Inch		18.5 inch
	NY53□-1□00-1 / NY53□-5□00-1	NY53□-1□00-0	NY53□-1□00-1 / NY53□-5□00-1	NY53□-1□00-0	NY53□-1□00-0
Panel cutout dimensions	Cutout Width X1 = 314 <sup>0+1</sup> mm Cutout Height Y1 = 216 <sup>0+1</sup> mm		Cutout Width X1 = 383 <sup>0+1</sup> mm Cutout Height Y1 = 259 <sup>0+1</sup> mm		Cutout Width X1 = 463 <sup>0+1</sup> mm Cutout Height Y1 = 285 <sup>0+1</sup> mm
Panel thickness range *	Panel thickness range Z1 = 1.6 to 6.0 mm				
Dimensions	Width X = 332 mm Height Y = 234 mm Depth Z = 121 mm	Width X = 332 mm Height Y = 234 mm Depth Z = 87 mm	Width X = 401 mm Height Y = 277 mm Depth Z = 121 mm	Width X = 401 mm Height Y = 277 mm Depth Z = 87 mm	Width X = 481 mm Height Y = 303 mm Depth Z = 87 mm
Monitor thickness in front of panel	Rim thickness R = 8.0 mm				
Weight	6.1 kg	5.1 kg	7.2 kg	6.0 kg	7.2 kg

\* The minimum panel thickness depends on the panel material.

## Version Information

### Unit Versions

Units	Models	Unit Version
IPC Machine Controller	NY5□2-1□00-□□□□1	Unit version 1.12 or later
	NY5□2-1□00-□□□44	Unit version 1.24 or later
NC Integrated Controller	NY5□□-5	Unit version 1.16 or later

### Unit Versions and Programming Devices Supported by NY5□□-1/NY5□□-5

The following tables show the relationship between unit versions and Sysmac Studio versions.

#### Unit Versions and Programming Devices

Unit Version *	Corresponding version of Sysmac Studio
1.26	1.46 or higher
1.24	1.45 or higher
1.21	1.29 or higher
1.19	1.24 or higher
1.18	1.23 or higher
1.16	1.22 or higher
1.14	1.20 or higher
1.12	1.19 or higher
	1.18 or higher
	1.17 or higher

\*There is no NY5□2-1□00-□□□□1 with unit version 1.11 or earlier. There is no NY5□□-5 with unit version 1.16 or earlier.

There is no NY5□2-1□00-□□□□1 with unit version 1.19. There is no NY5□2-1□00-□□□44 with unit version 1.24 or earlier.

**Note:** If you use a lower version of the Sysmac Studio, you can use only the functions of the unit version of the unit that corresponds to the Sysmac Studio version.

If you use a unit with an earlier version, select the unit version of the connected unit or an earlier unit version in the Select Device Area of the Project Properties Dialog Box on the Sysmac Studio. You can use only the functions that are supported by the unit version of the connected unit.

### Unit Versions, CNC Versions and Programming Devices Supported by NY5□□-5 (NY-series NC Integrated Controller)

Unit Version	CNC Version	Corresponding version of Sysmac Studio
Ver.1.21	Ver.1.01 or higher	Ver.1.29 or higher
Ver.1.19		Ver.1.24 or higher
Ver.1.18	Ver.1.00 or higher	Ver.1.23 or higher
Ver.1.16		Ver.1.22 or higher
		Ver.1.20 or higher

**Note:** If you use a lower version of the Sysmac Studio, you can use only the functions of the unit version of the CPU Unit that corresponds to the Sysmac Studio version. If you use a CPU Unit with an earlier version, select the unit version of the connected CPU Unit or an earlier unit version in the Select Device Area of the Project Properties Dialog Box on the Sysmac Studio. You can use only the functions that are supported by the unit version of the connected CPU Unit.

### Functions That Were Added or Changed for Each Unit Version

- Additions and Changes to Basic Instructions and Motion Control Instructions  
For details, refer to the NY-series Instructions Reference Manual (Cat. No. W560) and NY-series Motion Control Instructions Reference Manual (Cat. No. W561).
- Additions and Changes to Controller Events  
For details, refer to the NY-series Troubleshooting Manual (Cat. No. W564).
- Additions and Changes to System-defined Variables  
For details, refer to the NY-series IPC Machine Controller Industrial Panel PC / Industrial Box PC Software User's Manual (Cat. No. W558).
- Additions and Changes to NC Integrated Controller Functions  
For details, refer to the NC Integrated Controller User's Manual (Cat. No. O030) and NC Integrated Controller Instructions Reference Manual (G code) (Cat. No. O031).

## Related Manuals

Refer to the *Related Manuals* in the data sheet of the NY-series Industrial Box PC or NY-series Industrial Panel PC for the Related Manuals.

Manual name	Cat. No.	Model numbers	Application	Description
Industrial Panel PC User's Manual	W555	NYP27-□□□□□-19WC1□0□ NYP27-□□□□□-15WC1□0□ NYP27-□□□□□-12WC100□ NYP35-□□□□□-15WC100□ NYP35-□□□□□-12WC100□ NYP2C-□□□□□-15WC100□ NYP2C-□□□□□-12WC100□ NYP35-□0□□□-19WC1□0□ NYP2C-□0□□□-19WC1□0□	Learning all basic information about the Industrial Panel PC. This includes introductory information with features, hardware overview, software overview, specifications, mounting, wiring, connecting, operating and maintaining the Industrial Panel PC.	An introduction to the Industrial Panel PC is provided along with the following information: <ul style="list-style-type: none"><li>• Overview</li><li>• Hardware</li><li>• Software</li><li>• Specifications</li><li>• Installation</li><li>• Operating Procedures</li><li>• Maintenance</li></ul>
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. <ul style="list-style-type: none"><li>• Features and system configuration</li><li>• Introduction</li><li>• Part names and functions</li><li>• General specifications</li><li>• Installation and wiring</li><li>• Maintenance and inspection</li></ul>
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. <ul style="list-style-type: none"><li>• Features and system configuration</li><li>• Introduction</li><li>• Part names and functions</li><li>• General specifications</li><li>• Installation and wiring</li><li>• Maintenance and inspection</li></ul>
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. <ul style="list-style-type: none"><li>• Two OS systems</li><li>• Initial settings</li><li>• Industrial PC Support Utility</li><li>• NYComplet</li><li>• Industrial PC API</li><li>• Backup and recovery</li></ul>
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 NY-series Machine Automation Control Software. <ul style="list-style-type: none"><li>• Controller operation</li><li>• Controller features</li><li>• Controller settings</li><li>• Programming based on IEC 61131-3 language specifications</li></ul>
NY-series Instructions Reference Manual	W560	NY532-□□□□□ NY512-□□□□□	Learning detailed specifications on the basic instructions of an NY-series Industrial PC.	The instructions in the instruction set (IEC 61131-3 specifications) are described.
NY-series IPC Machine Controller Industrial Panel PC / Industrial Box PC Motion Control User's Manual	W559	NY532-□□□□□ NY512-□□□□□	Learning about motion control settings and programming concepts of an NY-series Industrial PC.	The settings and operation of the Controller and programming concepts for motion control are described.
NY-series Motion Control Instructions Reference Manual	W561	NY532-□□□□□ NY512-□□□□□	Learning about the specifications of the motion control instructions of an NY-series Industrial PC.	The motion control instructions are described.
NY-series IPC Machine Controller Industrial Panel PC / Industrial Box PC Built-in EtherCAT® Port User's Manual	W562	NY532-□□□□□ NY512-□□□□□	Using the built-in EtherCAT port in an NY-series Industrial PC	Information on the built-in EtherCAT port is provided. This manual provides an introduction and provides information on the configuration, features, and setup.
NY-series IPC Machine Controller Industrial Panel PC / Industrial Box PC Built-in EtherNet/IP™ Port User's Manual	W563	NY532-□□□□□ NY512-□□□□□	Using the built-in EtherNet/ IP port in an NY-series Industrial PC.	Information on the built-in EtherNet/IP port is provided. Information is provided on the basic setup, tag data links, and other features.
NY-series Troubleshooting Manual	W564	NY532-□□□□□ NY512-□□□□□	Learning about the errors that may be detected in an NY-series Industrial PC.	Concepts on managing errors that may be detected in an NY-series Controller and information on individual errors are described.

Manual name	Cat. No.	Model numbers	Application	Description
NJ/NY-Series NC Integrated Controller User's Manual	O0300-E1	NJ501-5300 NY532-5400	For numerical control with NJ/NY-series	Describes the numerical control function. When programming, use this manual together with the G Code Instructions Reference Manual (O0301-E1).
NJ/NY-Series NC Integrated Controller Instruction Reference Manual G code	O0301-E1	NJ501-5300 NY532-5400	Learning about detailed specifications of the G code/M code instructions.	This section describes G code/M code instructions in detail. When programming, use this manual together with the User's Manual (O0301-E1).
CNC Operator Operation Manual	O0302-E1	SYSMAC-RTNC0□□□D	Learning the overview of CNC Operator and how to use it.	Describes the CNC Operator, installation procedure, basic operation, connection operation, and operating procedures for main functions.
Sysmac Studio Version 1 Operation Manual	W504	SYSMAC-SE2□□□	Learning about the operating procedures and functions of the Sysmac Studio.	Describes the operating procedures of the Sysmac Studio.
UPS S8BA User's Manual	U702	S8BA	Learning the information that is necessary to use the Uninterruptible Power Supply (UPS) Unit.	An introduction to the UPS is provided along with the following information: <ul style="list-style-type: none"> <li>• Overview</li> <li>• Preparation</li> <li>• Installation and Connection</li> <li>• Check and Start Operation</li> <li>• Maintenance and Inspection</li> <li>• Shutdown Processing</li> <li>• I/O Signal Functions</li> <li>• Troubleshooting</li> </ul>

## Terms and Conditions Agreement

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2021.12

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