Industrial PC Platform NY-series IPC Machine Controller

NY5□□-1/NY5□□-5

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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

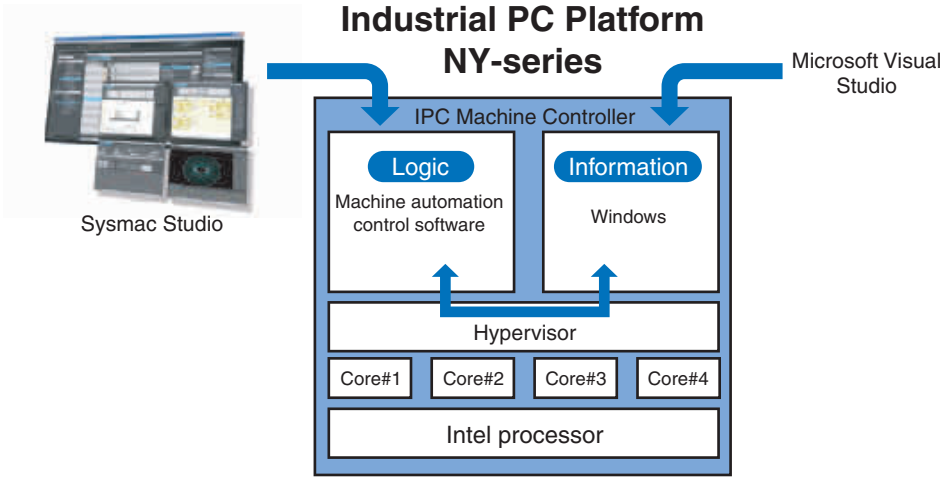
Features

Standard models

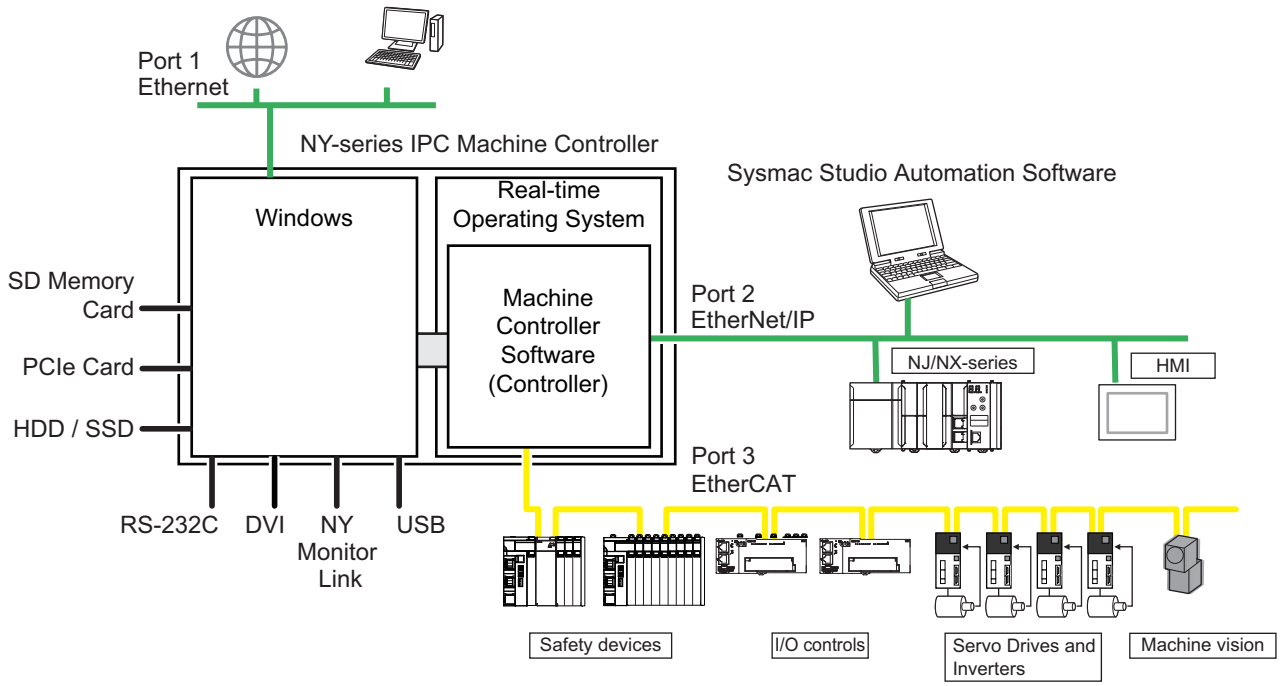
- OS independency allows controller to continue to control if a Windows OS crashes
- Primary task period 500 μs/24 axes
- Retain/non-retain variables 4 MB/64 MB
- 16 to 64 axes
- 192 EtherCAT slaves
- Secure boot and recovery methods
- Powerful 4th-generation CPU technology for optimum performance
- 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.



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

✻1. For the 32 bit version, consult your OMRON sales representative. (NY5□□-1)
✻2. Customization only available in Europe.

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 Embedded Standard 7 - 64bit	Intel® Core™ i7-4700EQ	64	8 GB	64 GB SSD type (SLC)	RS-232C	NY512-1500-1XX21391X
					320 GB HDD type		NY512-1500-1XX213C1X
			32		64 GB SSD type (SLC)		NY512-1400-1XX21391X
					320 GB HDD type		NY512-1400-1XX213C1X
			16		64 GB SSD type (SLC)		NY512-1300-1XX21391X
					320 GB HDD type		NY512-1300-1XX213C1X
Industrial Panel PC	Windows Embedded Standard 7 - 64bit	Intel® Core™ i7-4700EQ	64	8 GB	64 GB SSD type (SLC)	RS-232C	NY532-1500-111213910
					320 GB HDD type		NY532-1500-111213C10
			32		64 GB SSD type (SLC)		NY532-1400-111213910
					320 GB HDD type		NY532-1400-111213C10
			16		64 GB SSD type (SLC)		NY532-1300-111213910
					320 GB HDD type		NY532-1300-111213C10

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	Monitor	
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 × 800 pixels, 24-bit full color	NY532-5400-111213910
						128 GB SSD (MLC)			NY532-5400-111213K10
						64 GB SSD (SLC)		15.4 inches, 1,280 × 800 pixels, 24-bit full color	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 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)	DVD	SYSMAC-SE200D
	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 ✻	–	SYSMAC-SE201L

✻ 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/

Typical Models

Product	Features	Model
Vibration Suppression Library	The Vibration Suppression Library is used to suppress residual vibration caused by the operation of machines.	SYSMAC-XR006
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.	SYSMAC-XR008
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.	SYSMAC-XR014

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	Standards
CNC Operator	The CNC Operator is the software that provides a operation interface for NC programming, debugging and maintenance of CNC machine. 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)	--- (Installer only)	--- (Download)	**SYSMAC-RTNC0000**	---
		--- (Media only)	DVD	**SYSMAC-RTNC0000D**	---
CNC Operator License	The one license key (hardware key, USB dongle). The CNC Operator needs license key.	1 license	---	**SYSMAC-RTNC0001L**	---
CNC Operator Software Development Kit	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	**SYSMAC-RTNC0101D**	---

Accessories

Optional Hardware

Product name	Specifications	Model
Mounting Brackets ✻1	Book mount	NY000-AB00
	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-SD491
USB Flash Drives	Capacity: 2 GB	FZ-MEM2G
	Capacity: 8 GB	FZ-MEM8G
Storage Devices	Storage type: HDD Capacity: 320 GB	NY000-AH00
	Storage type: SSD SLC Capacity: 32 GB	NY000-AS00
	Storage type: SSD SLC Capacity: 64 GB	NY000-AS01
	Storage type: SSD MLC Capacity: 128 GB	NY000-AS04
USB Type-A to USB Type-B Cables	Cable length: 2 m USB 2.0 Minimum bend radius: 25 mm	FH-VUAB 2M
	Cable length: 5 m USB 2.0 Minimum bend radius: 25 mm	FH-VUAB 5M
DVI Cables	Cable length: 2 m Supports DVI-D Minimum bend radius: 36 mm	NY000-AC00 2M
	Cable length: 5 m Supports DVI-D Minimum bend radius: 36 mm	NY000-AC00 5M
Industrial Monitor	• 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-C10□□
Power Supply	• Output voltage: 24 VDC • Push-In Plus terminal blocks	S8VK-S□□□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.
✻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.

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

Spare Parts

The following spare parts for the Industrial PC are available.

Product name	Specifications	Model
Battery	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
Fan Unit	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
Accessory Kit	Replacement kit containing all accesories supplied with Industrial PC. • Power connector • I/O connector • Drive bracket for drive installation • 4 mounting screws for drive installation • PCIe Card support for PCIe Card installation • PCIe Card clip for PCIe Card installation	NY000-AK00

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).

Cabel 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)	Wire Gauge and Number of Pairs: AWG24, 4-pair Cable	Cables	Hitachi Metals, Ltd.	**NETSTAR-C5E SAB 0.5 × 4P ✻1**
			Kuramo Electric Co.	**KETH-SB ✻1**
			SWCC Showa Cable Systems Co.	**FAE-5004 ✻1**
		RJ45 Connectors	Panduit Corporation	**MPS588-C ✻1**
Products for EtherCAT or EtherNet/IP (100BASE-TX/10BASE-T)	Wire Gauge and Number of Pairs: AWG22, 2-pair Cable	Cables	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		
			POU instance	24,000		
	Variables capacity	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.		
				64 axes	32 axes	16 axes
			Motion control axes	Maximum number of motion control axes which can be defined. All motion control function is available.		
				64 axes	32 axes	16 axes
		Maximum number of used real axes		Maximum number of used real axes. The Number of used real axes includes following servo axes and encoder axes.		
			Used motion control servo axes	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.		
				64 axes	32 axes	16 axes
		Maximum number of axes for linear interpolation axis control		4 axes per axes group		
		Number of axes for circular interpolation axis control		2 axes per axes group		
	Maximum number of axes groups			32 axes groups		
	Motion control period			The same control period as that is used for the process data communications cycle for EtherCAT.		
	Cams	Number of cam data points	Maximum points per cam table	65,535 points		
			Maximum points for all cam tables	1,048,560 points		
		Maximum number of cam tables		640 tables		
	Position units			Pulses, millimeters, micrometers, nanometers, degrees and inches		
	Override factors			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	Number of port			1		
	Physical layer			10BASE-T/100BASE-TX/1000BASE-T		
	Frame length			1,514 max.		
	Media access method			CSMA/CD		
	Modulation			Baseband		
	Topology			Star		
	Baud rate			1Gbps (1000BASE-T)		
	Transmission media			STP (shielded, twisted-pair) cable of Ethernet category 5, 5e or higher		
	Maximum transmission distance between Ethernet switch and node			100 m		
	Maximum number of cascade connections			There are no restrictions if Ethernet switch is used.		
	CIP service: Tag data links (Cyclic communications)	Maximum number of connections		128		
		Packet interval ✻2		1 to 10,000 ms in 1.0-ms increments Can be set for each connection.		
		Permissible communications band ✻3		20,000 pps including heartbeat		
		Maximum number of tag sets		128		
		Tag types		Network variables		
		Number of tags per connection (i.e., per tag set)		8 (7 tags if Controller status is included in the tag set.)		
		Maximum link data size per node (total size for all tags)		184,832 byte		
		Maximum number of tag		256		
		Maximum data size per connection		1,444 bytes		
		Maximum number of registrable tag sets		128 (1 connection = 1 tag set)		
		Maximum tag set size		1,444 bytes (Two bytes are used if Controller status is included in the tag set.)		
		Multi-cast packet filter ✻4		Supported.		
	Cip Message Service: explicit messages	Class 3 (number of connections)		64 (clients plus server)		
		UCMM (non-connection type)	Maximum number of clients that can communicate at one time	32		
			Maximum number of servers that can communicate at one time	32		
	Maximum number of TCP socket service			30		
Built-in EtherCAT port	Number of port			1		
	Communications standard			IEC 61158 Type12		
	EtherCAT master specifications			Class B (Feature Pack Motion Control compliant)		
	Physical layer			100BASE-TX		
	Modulation			Baseband		
	Baud rate			100 Mbps (100Base-TX)		
	Duplex mode			Auto		
	Topology			Line, daisy chain, and branching		
	Transmission media			Twisted-pair cable of category 5 or higher (double-shielded straight cable with aluminum tape and braiding)		
	Maximum transmission distance between nodes			100 m		
	Maximum number of slaves			192		
	Range of node address			1-512		
	Maximum process data size			Inputs: 5,736 bytes Outputs: 5,736 bytes (However, the maximum number of process data frames is 4.)		
	Maximum process data size per slave			Inputs: 1,434 bytes Outputs: 1,434 bytes		
	Communications cycle			500 μs to 8 ms (in 250-μs increments)		
	Sync jitter			1 μs max.		
Internal clock				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
			Upper limit of sub 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			I/O refreshing and the user program are executed in units that are called tasks. Tasks are used to specify execution conditions and execution priority.
		Periodically executed tasks	Maximum number of primary periodic tasks	1
			Maximum number of periodic tasks	3
		Conditionally executed tasks	Maximum number of event tasks	32
			Execution conditions	When Activate Event Task instruction is executed or when condition expression for variable is met.
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		POUs that are used to create an object that determine unique outputs for the inputs, such as for data processing.
	Programming languages	Types		Ladder diagrams ✻1 and structured text (ST)
	Namespaces			A concept that is used to group identifiers for POU definitions.
	Variables	External access of variables	Network variables	The function which allows access from the HMI, host computers, or other Controllers
	Data types	Basic data types	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
			Text strings	STRING
		Derivative data types		Structures, unions, enumerations
		Structures	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
			Specifying member offsets	You can use member offsets to place structure members at any memory locations.
		Unions	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
		Enumerations	Function	A derivative data type that uses text strings called enumerators to express variable values.
	Data type attributes	Array specifications	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
			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.
	Libraries			User libraries
Motion control	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
	Single-axis	Single-axis position control	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.
			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.
		Single-axis velocity control	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.
		Single-axis torque control	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	Single-axis synchronized control	Starting cam operation	A cam motion is performed using the specified cam table.
			Ending cam operation	The cam motion for the axis that is specified with the input parameter is ended.
			Starting gear operation	A gear motion with the specified gear ratio is performed between a master axis and slave axis.
			Positioning gear operation	A gear motion with the specified gear ratio and sync position is performed between a master axis and slave axis.
			Ending gear operation	The specified gear motion or positioning gear motion is ended.
			Synchronous positioning	Positioning is performed in sync with a specified master axis.
			Master axis phase shift	The phase of a master axis in synchronized control is shifted.
			Combining axes	The command positions of two axes are added or subtracted and the result is output as the command position.
		Single-axis manual operation	Powering the servo	The Servo in the Servo Drive is turned ON to enable axis motion.
			Jogging	An axis is jogged at a specified target velocity.
		Auxiliary functions for single-axis control	Resetting axis errors	Axes errors are cleared.
			Homing	A motor is operated and the limit signals, home proximity signal, and home signal are used to define home.
			Homing with parameter	Specifying the parameter, a motor is operated and the limit signals, home proximity signal, and home signal are used to define home.
			High-speed homing	Positioning is performed for an absolute target position of 0 to return to home.
			Stopping	An axis is decelerated to a stop at the specified rate.
			Immediately stopping	An axis is stopped immediately.
			Setting override factors	The target velocity of an axis can be changed.
			Changing the current position	The command current position or actual current position of an axis can be changed to any position.
			Enabling external latches	The position of an axis is recorded when a trigger occurs.
			Disabling external latches	The current latch is disabled.
			Zone monitoring	You can monitor the command position or actual position of an axis to see when it is within a specified range (zone).
			Enabling digital cam switches	You can turn a digital output ON and OFF according to the position of an axis.
			Monitoring axis following error	You can monitor whether the difference between the command positions or actual positions of two specified axes exceeds a threshold value.
			Resetting the following error	The error between the command current position and actual current position is set to 0.
			Torque limit	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.
			Command position compensation	The function which compensate the position for the axis in operation.
			Start velocity	You can set the initial velocity when axis motion starts.
	Axes groups	Multi-axes coordinated control	Absolute linear interpolation	Linear interpolation is performed to a specified absolute position.
			Relative linear interpolation	Linear interpolation is performed to a specified relative position.
			Circular 2D interpolation	Circular interpolation is performed for two axes.
			Axes group cyclic synchronous absolute positioning	A positioning command is output each control period in Position Control Mode.
		Auxiliary functions for multi-axes coordinated control	Resetting axes group errors	Axes group errors and axis errors are cleared.
			Enabling axes groups	Motion of an axes group is enabled.
			Disabling axes groups	Motion of an axes group is disabled.
			Stopping axes groups	All axes in interpolated motion are decelerated to a stop.
			Immediately stopping axes groups	All axes in interpolated motion are stopped immediately.
			Setting axes group override factors	The blended target velocity is changed during interpolated motion.
			Reading axes group positions	The command current positions and actual current positions of an axes group can be read.
			Changing the axes in an axes group	The Composition Axes parameter in the axes group parameters can be overwritten temporarily.
	Common items	Cams	Setting cam table properties	The end point index of the cam table that is specified in the input parameter is changed.
			Saving cam tables	The cam table that is specified with the input parameter is saved in non-volatile memory in the CPU Unit.
			Generating cam tables	The cam table that is specified with the input parameter is generated from the cam property and cam node.
		Parameters	Writing MC settings	Some of the axis parameters or axes group parameters are overwritten temporarily.
			Changing axis parameters	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	Automatic acceleration/ deceleration control	Jerk is set for the acceleration/deceleration curve for an axis motion or axes group motion.
			Changing the acceleration and deceleration rates	You can change the acceleration or deceleration rate even during acceleration or deceleration.
		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	Software limits are set for each axis.
			Following error	The error between the command current value and the actual current value is monitored for an axis.
			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.	Home signal, home proximity signal, positive limit signal, negative limit signal, immediate stop signal, and interrupt input signal.
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	Function for transfer by converting the two IP address.
		CIP communications service	Tag data links	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.
		TCP/IP applications	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	Built-in EtherNet/IP port internal status information is provided to network management software that uses an SNMP manager.
	EtherCAT port	Supported services	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	SDO messages of the CAN application can be sent to slaves via EtherCAT.
	Communications instructions			The following instructions are supported. CIP communications instructions, socket communications instructions, SDO message instructions, FTP client instructions, and Modbus RTU protcol 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 POUs 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 are set to record data before and after an event.
			Trigger conditions	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
		User-defined errors		User-defined errors are registered in advance and then records are created by executing instructions.
			Levels	8 levels
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 POUs 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 exist on the HDD / SDD 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
Numerical Control	CNC coordinate system	Axes types			Positioning axis, Spindle axis
		Control modes	Positioning axis		Position control
			Spindle axis		Velocity control
		Positions that can be managed			Absolute position (command), absolute position (actual), program position, remaining travel distance.
		NC program execution	Execute		Executes the NC program.
			Reset		Interrupt NC program.
			Single step execution		Executes the NC program by block.
			Back trace		Executes back trace of interpolation pass.
			Feed hold / Feed hold reset		Temporarily stops the NC program, and restarts it.
			Optional stop		Stops the NC program with optional signal.
			Optional block stop		Skips one block of the NC program with optional signal.
			Dry run		Runs operation from the NC program.
			Machine lock		Locks each axis operation during execution of the NC program.
			Auxiliary lock		Locks M code output.
			Override		Overrides the feed rate and spindle velocity.
		G Code	Position control	Rapid Positioning	Rapid feed of each CNC motor according to the motor setting.
				Linear interpolation	Interpolates linearly.
				Circular interpolation	Interpolates circularly, helically, spirally, or conically.
				Skip function	Rapid feed until an external signal is input.
			Return to reference point		Returns to a specified position on the machine.
			Canned cycle	Rigid tap	Performs tapping machining.
			Feed function	Exact stop	Temporarily prevents blending of positioning operations before and after an exact stop direction.
				Exact stop mode	Mode in which anteroposterior positioning operations are not blended.
				Continuous-path mode	Mode in which anteroposterior positioning operations are blended.
				Dwell	Waits for the specified period of time.
			Coordinate system selection	Machine Coordinate System	The coordinate system uses the machine home position as the home of the system.
				Work Coordinate System	The coordinate system has work offset for the Machine Coordinate System.
				Local Coordinate System	The coordinate system has additional offset for the Work Coordinate System.
			Auxiliary for coordinate system	Absolute/relative selection	Specifies manipulated variable absolutely, or switches to the relative setting.
				Metric/inch selection	Selects metric or inch as the orthogonal axes unit system.
				Scaling	Scales the current coordinates of the orthogonal axes.
				Mirroring	Mirrors the current coordinates for the specified orthogonal axes.
				Rotation	Rotate the current coordinates around the coordinates of the specified axis.
			Tool functions	Cutter compensation	Compensation of the tool edge path according to the tool radius.
				Tool length compensation	Compensation of tool center point path according to the tool length.
		M code	M code/M code reset		Outputs M codes, and interlocks with sequence control program using reset.
			Spindle axis	CW/CCW/Stop	Outputs/stops velocity commands in velocity loop control mode.
				Orientation	Stops spindle axis to the specified phase by setting up feed back loop.
			Subroutine call		Calls a subroutine of the NC program.
		NC programming	Arithmetic operation		Performs a calculation in the NC program.
			Branch control		Branches on condition in the NC program.
			User variables		Memory area in the NC program used for processing such as data calculation.
				P variable	System global memory area common to CNC coordinate systems.
				Q variable	Global system area unique to each CNC coordinate system.
				L variable	Memory area that can be used as the primary area during execution of the NC program.
		Auxiliary control functions	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
Numerical Control	CNC motor	Positions that can be managed			Commanded positions and actual positions.
		Position control	Absolute positioning		Positioning is performed for a target position that is specified using an absolute value.
			Relative positioning		Positioning is performed for a specified travel distance from the command current position.
			Cyclic positioning		A commanded position is output at each control period in Position Control Mode.
		Spindle control	CW/CCW/Stop		Outputs/stops velocity commands in velocity loop control mode.
		Manual operation	Powering the Servo		The Servo in the servo driver is turned ON to enable CNC motor operation.
			Jogging		A CNC motor is jogged at a specified target velocity.
		Auxiliary control functions	Homing		A CNC motor is operated, and the limit signals, home proximity signal, and home signal are used to define home.
			Immediate stop		A CNC motor is stopped immediately.
		CNC motor compensation table	Ball screw compensation		Pitch error compensation for one-dimensional ball screw.
			Cross-axis compensation		Compensation of one-dimensional cross-axis.
		Auxiliary control functions	Homing		A CNC motor is operated, and the limit signals, home proximity signal, and home signal are used to define home.
			Immediate stop		A CNC motor is stopped immediately.
		CNC motor compensation table	Ball screw compensation		Pitch error compensation for one-dimensional ball screw.
			Cross-axis compensation		Compensation of one-dimensional cross-axis.
			Editing the CNC motor compensation table		Edit using sequence control program (Read/write).
		Auxiliary functions	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.
			Monitoring functions	Software limits	Monitors the movement range of a CNC motor.
				Following error	Monitors the error between the command current value and the actual current value for a CNC motor.
			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. Home signal, home proximity signal, positive limit signal, negative limit signal, immediate stop signal, and interrupt input signal.
	Common items	Parameters	Changing CNC coordinate system and CNC motor parameters		You can access and change the CNC coordinate system and CNC motor parameters from the user program.

Performance Specifications

Item				NY5□□-1/NY5□□-5
Main system	CPU	CPU type		Intel® Core™ i7-4700EQ
		Cores / Threads		4 / 8
		CPU base frequency		2.4 GHz
		Maximum turbo frequency		3.4 GHz
		Cache		6 MB
		Cooling details		Requires active cooling (fan)
	Memory	Memory size		8 GB
		Memory type		DDR3L (non ECC)
	Trusted platform module (TPM)			• Ensure the integrity of the platform • Disk encryption • Password protection and other uses of encryption
	Graphics controller			Intel® HD Graphics. Up to two independent screens.
				Intel® HD Graphics 4600
	Watchdog			Yes
Operating system	Windows OS			Windows Embedded Standard 7 - 32 bit ✻1 Windows Embedded Standard 7 - 64 bit
Storage devices	Drives	Hard disk drive		• 320 GB Serial ATA 3.0
		Solid state drive	SLC type	• 32 GB and 64 GB Serial ATA 3.1
			MLC type	• 128 GB Serial ATA 3.1
	Drive bay (HDD/SSD) ✻2			2
Connectors	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 DSUB9 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, 100 m
		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
	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. For the 32 bit version, consult your OMRON sales representative.
✻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
Display	Display panel ✻1	Display device	TFT LCD	
		Screen size	12.1 inches	15.4 inches
		Surface treatment	Anti glare treatment	
		Surface hardness	Mohs scale: 5 - 6	
		Resolution	1,280 × 800 pixels at 60 Hz (horizontal × vertical)	
		Colors	16,770,000 colors	
		Effective display area	261 × 163 mm (horizontal × vertical)	331 × 207 mm (horizontal × vertical)
		View angles	Left: 60°, Right: 60°, Top: 60°, Bottom: 60°	
		Life	50,000 hours min. ✻2	
		Brightness adjustment	200 levels ✻3	
	Touch	Technology	Projected capacitive	
		Touch resolution	Touch accuracy 1.5% (4-5 mm)	
		Multitouch	Up to 5 simultaneous touches	
		Features	Water detection ✻4, hand palm rejection ✻5, gloves ✻6	
		Life	50,000,000 operations min.	
		EMC	Correct touchscreen operation is possible within allowable EMC immunity conditions	

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.

Electrical Specifications

Item			Industrial Box PC type	Industrial Panel PC type	
			NY51□	NY53□-1	NY53□-5
Rated power supply voltage			24 VDC, non-isolated		
Allowable power supply voltage range			20.4 to 28.8 VDC		
Grounding method			Ground to less than 100 Ω		
Inrush current			At 24 VDC: 12 A / 6 ms max. for cold start at room temperature		
Overvoltage category			JIS B3502 and IEC 61131-2: Category II		
EMC immunity level			IEC 61131-2: Zone B		
RTC accuracy			At ambient temperature of 55°C: -3.5 to +0.5 min error per month At ambient temperature of 25°C: -1.5 to +1.5 min error per month At ambient temperature of 0°C: -3 to +1 min error per month		
Power button life			100,000 operations		
Battery life			5 years at 25°C (for battery CJ1W-BAT01)		
Fan life			8 years of continuous operation at 40°C		
Power consumption ✻	Maximum power consumption including drives and expansions		114 W	132 W	
	Maximum power consumption excluding drives and expansions		81 W	99 W	
	Drives	HDD 320 GB	2 W		–
		SSD SLC 32 GB	2 W		
		SSD SLC 64 GB	2 W		
		SSD MLC 128 GB	2 W		
	Expansions	USB	14 W max. ((2 x 500 mA at 5 V) + (2 x 900 mA at 5 V))		
		PCIe	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.
The required supply specifications for an Industrial Box PC.

Item	Minimum power requirements
Power supply	240 W
UPS	120 W

The required supply specifications for an Industrial Panel PC.

Item	Minimum power requirements
Power supply	240 W
UPS	240 W

Environmental Specifications

Item		Specifications	
		Industrial Box PC	Industrial Panel PC
Operation environment	Ambient operating temperature ✻1	0 to 55°C	
	Ambient storage temperature ✻1	-20 to 70°C	
	Ambient operating humidity ✻1	10% to 90% with no condensation	
	Ambient storage humidity ✻1	10% to 90% with no condensation	
	Operating atmosphere	No corrosive gases	
	Altitude	2,000 m max.	
	Noise resistance (during operation)	Conforms to IEC61000-4-4, 2 kV (power lines)	
	Vibration resistance (during operation)	Conforms to IEC 60068-2-6. • 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/s² for 10 times each in X, Y and Z directions. • For a Box PC with a HDD the vibration resistance depends on the mounting orientation ✻2.	The vibration resistance depends on the storage device(s): • For a Panel PC with only SSD storage devices: 5 to 8.4Hz with 3.5 mm single amplitude and 8.4 to 150 Hz with 9.8 m/s² for 10 times each in X, Y and Z directions. Conforms to IEC 60068-2-6. • For a Panel PC with one or more HDD storage devices the Panel PC must be installed in a vibration free environment. ✻3
	Shock resistance (during operation)	Conforms to IEC 60068-2-27. 147 m/s², 3 times in each X, Y and Z directions	
	Installation method	Book mount, Wall mount	Mount on panel
	Degree of protection ✻4	–	Front of Monitor: IP65
	Pollution degree	2 or less: Conforms to JIS B3502 and IEC 61131-2.	
Applicable standards ✻5		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/s²	2.5 m/s²
Wall		4.9 m/s²

✻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) or contact your OMRON representative for the most recent applicable standards for each model.

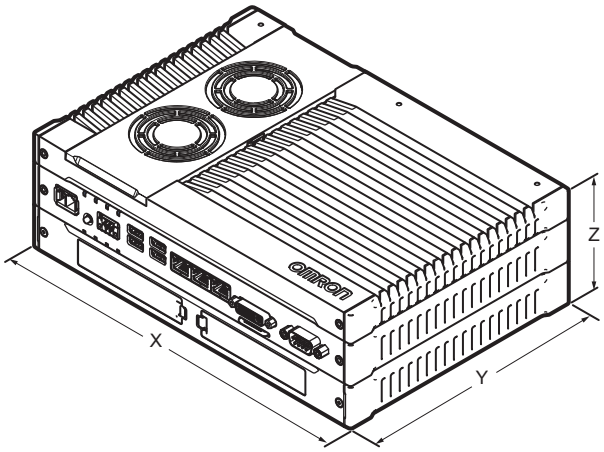
Storage Device Specifications

Item	Specifications			
Model	NY000-AS00	NY000-AS01	NY000-AS04	NY000-AH00 ✻1
Capacity	32 GB	64 GB	128 GB	320 GB
Type	SSD (SLC)		SSD (MLC)	HDD
S.M.A.R.T. support	Yes			
Rotation speed	–			5,400 r/min
Interface	Serial ATA 3.1			Serial ATA 3.0
Sustained standard read speed	Up to 160 MB/s		Up to 530 MB/s	–
Sustained standard write speed	Up to 150 MB/s		Up to190 MB/s	–
Operating temperature	0 to 70°C			5 to 55°C
Operating humidity	10% to 95% (with no condensation)			• 10% to 95% (with no condensation) • 29°C wet-bulb temperature max.
Storage temperature	-40 to 100°C		-55 to 95°C	-40 to 65°C
Storage humidity	10% to 95% (with no condensation)			• 8% to 90% (with no condensation) • 40°C wet-bulb temperature max.
Life	1,500 TB written	3,000 TB written	208 TB written	Approximately 5 years or 20,000 powered-ON hours (whichever comes first) under the following conditions: • 25°C at 101.3 kPa • Less than 333 powered-ON hours/month ✻2 • Less than 20% operation while powered-ON ✻3 • Less than 1.30 x 10⁶ seeks/month

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.

Dimensions

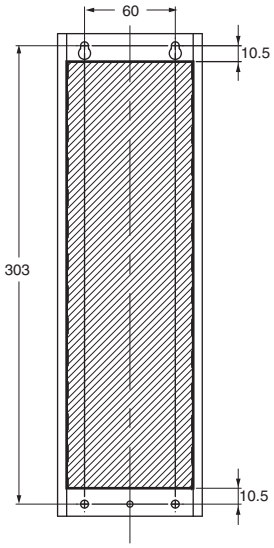
Industrial Box PC type

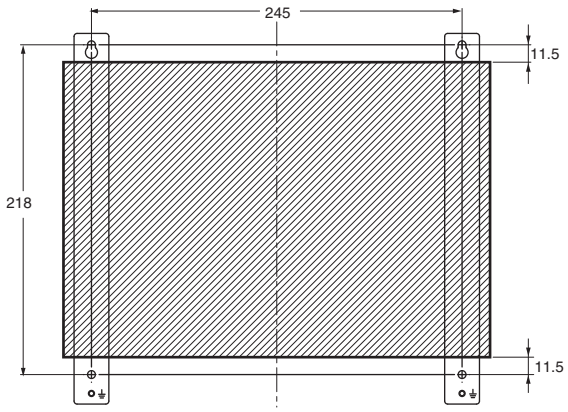


Item	Specifications
Dimensions	Width X = 282 mm Depth Y = 195 mm. Y = 200 mm including the DVI connectors. Height Z = 88.75 mm
Weight	3.8 kg

Bracket Specifications

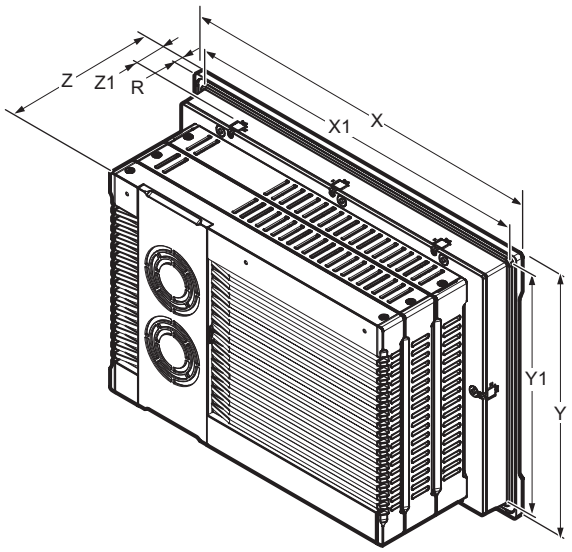
The metal mounting brackets mount your Industrial Box PC and they are the connection for the functional ground.
Use metal screws with a diameter of 4 mm or 5 mm to mount the brackets.
Mounting screw locations for book mount and wall mount orientation:





(Unit: mm)

Industrial Panel PC type



Item	Specifications	
	12.1 Inch	15.4 Inch
Panel cutout dimensions	Cutout Width X1 = $314^{-0\ +1}$ mm Cutout Height Y1 = $216^{-0\ +1}$ mm	Cutout Width X1 = $383^{-0\ +1}$ mm Cutout Height Y1 = $259^{-0\ +1}$ mm
Panel thickness range ✻	Panel thickness range Z1 = 1.6 to 6.0 mm	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 = 401 mm Height Y = 277 mm Depth Z = 121 mm
Monitor thickness in front of panel	Rim thickness R = 8.0 mm	
Weight	6.1 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**	Unit version 1.12 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
1.19	1.24
1.18	1.23
	1.22
1.16	1.20
1.14	1.19
	1.18
1.12	1.17

✻ There is no NY5□□-1 with unit version 1.11 or earlier. There is no NY5□□-5 with unit version 1.16 or earlier.
There is no NY5□□-1 with unit version 1.19.

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.1.19	Ver.1.01	Ver.1.24
Ver.1.18	Ver.1.00	Ver.1.23
		Ver.1.22
Ver.1.16		Ver.1.20

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 Contoller 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	NYP17-□1□□□-15WC100□ NYP17-□1□□□-12WC100□ NYP25-□1□□□-15WC100□ NYP25-□1□□□-12WC100□ NYP1C-□1□□□-15WC100□ NYP1C-□1□□□-12WC100□ NYP35-□□□□□-15WC100□ NYP35-□□□□□-12WC100□ NYP2C-□□□□□-15WC100□ NYP2C-□□□□□-12WC100□	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: • Overview • Hardware • Software • Specifications • Installation • Operating Procedures • Maintenance
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. • Features and system configuration • Introduction • Part names and functions • General specifications • Installation and wiring • Maintenance and inspection
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 NY-series Machine Automation Control Software. • Controller operation • Controller features • Controller settings • Programming based on IEC 61131-3 language specifications
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.
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).

Manual name	Cat. No.	Model numbers	Application	Description
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: • Overview • Preparation • Installation and Connection • Check and Start Operation • Maintenance and Inspection • Shutdown Processing • I/O Signal Functions • Troubleshooting

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