Automation Software

Sysmac Studio Ver.1.□□

CSM_Sysmac_Studio_DS_E_15_2

Sysmac Studio for machine creators

The Sysmac Studio provides an integrated development environment to set up, program, debug, and maintain NJ/NX-series Controllers and other Machine Automation Controllers, as well as EtherCAT slaves.

Features

- One software for motion, logic, safety, drives , vision and HMI
- Fully compliant with open standard IEC 61131-3 and Japanese standard JIS B3503
- Supports Ladder, Structured Text and Function Block programming with a rich instruction set
- CAM editor for easy programming of complex motion profiles
- One simulation tool for sequence and motion in a 3D environment
- Advanced security function with 32 digit security password

Ordering Information

Automation Software

Please purchase a DVD and licenses the first time you purchase the Sysmac Studio. DVDs and licenses are available individually.
The license does not include the DVD.

Product	Specifications			Model	Standards
		Number of licenses	Media		
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, EtherCAT Slave, and the HMI. Sysmac Studio runs on the following OS. Windows XP (Service Pack 3 or higher, 32-bit version) / Windows Vista (32-bit version) / 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 ✻1	**SYSMAC-SE200D**	–
		1 license	–	**SYSMAC-SE201L**	–
		3 licenses	–	**SYSMAC-SE203L**	–
		10 licenses	–	**SYSMAC-SE210L**	–
		30 licenses	–	**SYSMAC-SE230L**	–
		50 licenses	–	**SYSMAC-SE250L**	–
Sysmac Studio Vision Edition Ver.1.□□ ✻2 ✻3	Sysmac Studio Vision Edition is a limited license that provides selected functions required for FQ-M-series and FH-series Vision Sensor settings.	1 license	–	**SYSMAC-VE001L**	–
Sysmac Studio Measurement Sensor Edition Ver.1.□□ ✻3 ✻4	Sysmac Studio Measurement Sensor Edition is a limited license that provides selected functions required for ZW-series Displacement Sensor settings.	1 license	–	**SYSMAC-ME001L**	–
		3 licenses	–	**SYSMAC-ME003L**	–
Sysmac Studio NX-I/O Edition Ver.1.□□ ✻3 ✻5	Sysmac Studio NX-I/O Edition is a limited license that provides selected functions required for EtherNet/IP Coupler settings.	1 license	–	**SYSMAC-NE001L**	–
Sysmac Studio Robot Additional Option ✻3	Sysmac Studio Robot Additional Option is a license to enable the Vision & Robot integrated simulation.	1 license	–	**SYSMAC-RA401L**	–

Note: Site licenses are available for users who will run Sysmac Studio on multiple computers. Ask your OMRON sales representative for details.
✻1. The same media is used for both the Standard Edition and the Vision Edition.
✻2. With the Vision Edition, you can use only the setup functions for FQ-M-series and FH-series Vision Sensors.
✻3. This product is a license only. You need the Sysmac Studio Standard Edition DVD media to install it.
✻4. With the Measurement Sensor Edition, you can use only the setup functions for ZW-series Displacement Sensors.
✻5. With the NX-I/O Edition, you can use only the setup functions for EtherNet/IP Coupler.

Components

DVD (SYSMAC-SE200D)

Components	Details
Introduction	An introduction about components, installation/uninstallation, user registration and auto update of the Sysmac Studio is provided.
Setup disk (DVD-ROM)	1

License (SYSMAC-SE2□□L/VE0□□L/ME0□□L/NE0□□L/RA4□□L)

Components	Details
License agreement	The license agreement gives the usage conditions and warranty for the Sysmac Studio.
License card	A model number, version, license number, and number of licenses are described.
User registration card	Two cards are contained. One is for users in Japan and the other is for users in other countries.

Included Support Software

DVD media of Sysmac Studio includes the following support software.

Included Support Software		Outline
CX-Designer	**Ver.3.□**	The CX-Designer is used to create screens for NS-series PTs. ✻1
CX-Integrator	**Ver.2.□**	The CX-Integrator is used to set up FA networks.
CX-Protocol	**Ver.1.□**	The CX-Protocol is used for protocol macros for Serial Communications Units.
Network Configurator	**Ver.3.□**	The Network Configurator is used for tag data links on the built-in EtherNet/IP port.
SECS/GEM Configurator ✻2	**Ver.1.□**	The SECS/GEM Configurator is used for SECS/GEM settings.
Adept Robot IP Address Setting Tool	**Ver.1.□**	The Adept Robot IP Address Setting Tool is used for setting IP address of Adept Robot.

✻1. Please use the Sysmac Studio to create the project of the NA Series.
✻2. Please purchase the required number of SECS/GEM Configurator licenses.

System Requirements

Item	Requirement
Operating system (OS) ✻1 ✻2 ✻3	Windows XP (Service Pack 3 or higher, 32-bit version) / Windows Vista (32-bit version) / 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)
CPU ✻3	Windows computers with Intel® Celeron™ processor 540 (1.8 GHz) or faster CPU. Intel® Core™ i5 M520 processor (2.4 GHz) or equivalent or faster recommended.
Main memory ✻3 ✻4	2 GB min. 4 GB min. recommended.
Recommended video memory / video card for using 3D motion trace	Video memory: 512 MB min. Video card: Either of the following video cards: • NVIDIA® GeForce® 200 Series or higher • ATI RadeonHD5000 Series or higher
Hard disk	Minimum 4.6 GB of Hard disk space is required to install.
Display	XGA 1024 × 768, 16 million colors. WXGA 1280 × 800 min. recommended
Disk drive	DVD-ROM drive
Communications ports	USB port corresponded to USB 2.0, or Ethernet port ✻5
Supported languages ✻6	Japanese, English, German, French, Italian, Spanish, simplified Chinese, traditional Chinese, Korean

✻1. Sysmac Studio Operating System Precaution: System requirements and hard disk space may vary with the system environment.

✻2. The following restrictions apply to some application operations when Sysmac Studio is used with Microsoft Windows Vista, Windows 7, Windows 8 / Windows 8.1 or Windows10.

Application	Restriction
CX-Designer	If a new Windows Vista, Windows 7, Windows 8/Windows 8.1 or Windows 10 font (e.g., Meiryo) is used in a project, the font size on labels may be bigger and protrude from the components if the project is transferred from CX-Designer running on a Windows XP or earlier OS to the NS/NSJ.
CX-Integrator/Network Configurator	Although you can install CPS files, EDS files, Expansion Modules, and Interface Modules, the virtual store function of Windows Vista, Windows 7, Windows 8/Windows 8.1 or Windows 10 imposes the following restrictions on the use of the software after installation. • If another user logs in, the applications data will need to be installed again. • The CPS files will not be automatically updated. These restrictions will not exist if application data is installed using Run as Administrator.

✻3. If you create a user program with a memory size that exceeds 20 MB, use the 64-bit edition of the operating system and 8 GB or more of RAM. If the user program size is large, we recommend that you use the 64-bit edition of the operating system, an Intel® Core™ i7 processor or the equivalent, and 8 GB or more of RAM.
If you use Vision&Robot integrated simulation with Robot Additional Option, use the 64-bit edition of the operating system, an Intel® Core™ i5 processor or the equivalent, and 8 GB or more of RAM.

✻4. The amount of memory required varies with the Support Software used in Sysmac Studio for the following Support Software. Refer to user documentation for individual Support Software for details.
CX-Designer, CX-Protocol, and Network Configurator

✻5. Refer to the hardware manual for your CPU unit for hardware connection methods and cables to connect the computer and CPU unit.

✻6. Supported only by the Sysmac Studio version 1.01 or higher about German, French, Italian and Spanish.
Supported only by the Sysmac Studio version 1.02 or higher about simplified Chinese, traditional Chinese and Korean.

Common Function Specifications

Item			Function	Applicable versions
Setting Parameters	EtherCAT Configuration and Setup		You can create a configuration in the Sysmac Studio of the EtherCAT slaves connected to the built-in EtherCAT port of the NJ/NX-series CPU Unit and set the parameters for the EtherCAT masters and slaves.	All versions
		Registering slaves	You can set up devices by dragging slaves from the device list displayed in the Toolbox Pane to the locations where you want to connect them.	
		Changing the Coupler model	You change the model number or unit version of a Coupler Unit. Use this function to change the model number and version of the Coupler Unit registered in the project to the new model number and version when replacing a Coupler Unit.	Ver. 1.09 or higher
		Setting master parameters	You set the common parameters of the EtherCAT network (e.g., the fail-soft operation and wait time for slave startup settings).	All versions
		Setting slave parameters	You set the standard slave parameters and assign PDOs (process data objects).	
		Comparing and merging network configuration information	The EtherCAT network configuration information in the NJ/NX-series CPU Unit and in the Sysmac Studio are compared and the differences are displayed.	
		Transferring the network configuration information	The EtherCAT network configuration information is transferred to the NJ/NX-series CPU Unit. Or, the EtherCAT network configuration information in the CPU Unit is transferred to the Sysmac Studio and displayed in the EtherCAT Editor.	
		Installing ESI files	ESI (EtherCAT slave information) files are installed.	
	EtherCAT Slave Terminal Configuration and Setup		The configuration of any Slave Terminal that is connected to an EtherCAT network is created on the Sysmac Studio. The NX Units that compose the Slave Terminal are set in the configuration.	Ver. 1.06 or higher
		Registering NX Units	A Slave Terminal is built by dragging NX Units from the device list displayed in the Toolbox to the locations where you want to mount them.	
		Setting NX Units	The I/O allocations, mounting settings, and Unit operation settings of the NX Units are edited.	
		Displaying the width of a Slave Terminal configuration	The width and power consumption of a Slave Terminal are displayed based on the Unit configuration information.	
		Comparing and merging the Slave Terminal configuration information	When online, you can compare the configuration information in the project with the physical configuration. You can also select the missing Units and add them to the project.	
		Transferring the Slave Terminal configuration information	The Unit configuration information is transferred to the CPU Unit.	
	CPU/Expansion Rack Configuration and Setup		You create the configuration in the Sysmac Studio of the Units mounted in the NJ-series CPU Rack and Expansion Racks and the Special Units.	All versions
		Registering Units	A Rack is built by dragging Units from the device list displayed in the Toolbox Pane to the locations where you want to mount them.	
		Creating Racks	An Expansion Rack (Power Supply Unit, I/O Interface Unit, and End Cover) is added.	
		Switching Unit displays	The model number, unit number, and slot number are displayed.	
		Setting Special Units	The input time constants are set for Input Units and parameters are set for Special Units.	
		Displaying Rack widths, current consumption, and power consumption	The Rack widths, current consumption, and power consumption are displayed based on the Unit configuration information.	
		Comparing the CPU/ Expansion Rack configuration information with the physical configuration	When online, you can compare the configuration information in the project with the physical configuration. You can also select the missing Units and add them.	
		Transferring the CPU/ Expansion Rack configuration information	The Unit configuration information is transferred to the CPU Unit. The synchronize function is used.	
		Printing the Unit configuration information	The Unit configuration information is printed.	
	Controller Setup		The Controller Setup is used to change settings related to the operation of the Controller. The Controller Setup contains PLC Function Module operation settings and built-in EtherNet/IP Function Module port settings.	All versions
		Operation Settings	The Startup Mode, SD Memory Card diagnosis at Startup, Write Protection at Startup, Controller Error Level Changes ✻1, and other settings are made.	
		Transferring Operation Settings	Use the synchronize operation to transfer the operation settings to the NJ/NX-series CPU unit.	
		Built-in EtherNet/IP Port Settings	These settings are made to perform communications using the built-in EtherNet/IP port of the NJ/NX-series CPU unit.	
		Transferring Built-in EtherNet/IP Port Settings	Use the synchronize operation to transfer the Built-in EtherNet/IP Port Settings to the NJ/NX-series CPU unit.	
	Motion Control Setup		The Motion Control Setup is used to create the axes to use in motion control instructions, assign those axes to Servo Drives and encoders, and set axis parameters.	All versions
		Axis Settings	Axes are added to the project.	
		Axis Setting Table	The Axis Setting Table is a table of all registered axis parameters. You can edit any axis parameters here just as you can on the Axis Settings Tab Page.	
	Axes Group Settings		You can set up axes to perform interpolated motions as an axes group.	All versions
		Axes Group Basic Settings	Set the axes group number, whether to use the axes group, the composition, and the composition axes.	
		Operation Settings	Set the interpolated velocity, the maximum interpolated acceleration and deceleration, and the interpolated operation settings.	

✻1. Changing event levels for Controller errors is supported by version 1.04 or higher.

Item			Function	Applicable versions
Setting Parameters	Cam Data Settings		The Cam Data Settings are used to create electronic cam data. When you build the project for the Controller, a cam table is created according to the Cam Data Settings.	All versions
		Registering cam data settings	Cam data settings is added to the project.	
		Editing cam data settings	You can set properties and node points for cam data settings.	
		Transferring cam data settings	You can select to transfer all or part of the cam data.	
		Importing cam data settings	You can import cam data settings from a CSV file.	
		Exporting cam data settings	You can export cam data to a CSV file.	
		Registering cam definitions	You add new cam definitions to change a cam table in the program.	Ver.1.09 or higher
		Editing cam definitions	You set cam definitions.	
		Transferring cam definitions	You transfer cam definitions to the Controller.	
		Exporting cam tables	You can export a cam table to a CSV file.	All versions
		Transferring cam tables from the Controller to files	You can save a cam table in the NJ/NX-series CPU unit to a CSV file.	
		Transferring cam tables from files to the Controller	You can transfer a cam table that is saved in a CSV file to update the contents of a cam table that is already in the NJ/NXseries CPU unit.	
		Superimposing Cam Table	You can superimpose the cam table from a CSV file on the cam profile curve position graph that is currently displayed.	
	Task Setup		Programs are executed in tasks in an NJ/NX-series CPU Unit. The Task Settings define the execution period, the execution timing, the programs executed by the task, the I/O refreshing performed by the task, and which variables to share between tasks.	All versions
		Registering tasks	The tasks, which are used to execute programs, are registered.	
		Setting task I/O	The task I/O settings define what Units the task should perform I/O refreshing for.	
		Assigning programs	Program assignments define what programs a task will execute.	
		Setting exclusive control of variables in tasks	You can specify if a task can write to its own values (known as a refreshing task) or if it can only access them (an accessing task) for global variables. This ensures concurrency for global variable values from all tasks that reference them.	
	I/O Map Settings		The I/O ports that correspond to the registered EtherCAT slaves and to the registered Units on the CPU Rack and Expansion Racks are displayed. The I/O Map is edited to assign variables to I/O ports. The variables are used in the user program.	All versions
		Displaying I/O ports	I/O ports are displayed based on the configuration information of the devices (slaves and Units).	
		Assigning variables	Variables are assigned to I/O ports.	
		Creating device variables	Device variables are created in the I/O Map. You can either automatically create a device variable or manually enter the device variable to create.	
		Checking I/O assignments	The assignments of external I/O devices and variables are checked.	
	Vision Sensor Settings		You can set and calibrate Vision Sensors. Refer to "**Function Specifications of Vision Sensor Functions**".	Ver.1.01 or higher
	Displacement Sensor Settings		You can set and calibrate Displacement Sensors. Refer to "**Function Specifications of Displacement Sensor Functions**".	Ver.1.05 or higher
	DB Connection Function Settings		You can set and transfer the DB connection function settings. Refer to "**Function Specifications of DB Connection Function**".	Ver. 1.06 or higher with the NJ501-1□20 selected
	EtherNet/IP Connection Settings		You can make settings related to tag data links (connections) in an EtherNet/IP network. Refer to "**Function Specifications of EtherNet/IP Connection Settings**".	Ver. 1.10 or higher
	EtherNet/IP Slave Terminal Settings		You can make and transfer settings for EtherNet/IP Slave Terminals. Refer to "**Functional Specifications of EtherNet/IP Slave Terminal Settings**" for details.	Ver. 1.11 or higher
	NA-series Programmable Terminal (PT) Settings		You can make settings and transfer projects for NA-series Programmable Terminals. Refer to "**Functional Specifications of HMI**".	Ver. 1.11 or higher

Item			Function	Applicable versions
Programming	Instruction list (Toolbox)		A hierarchy of the instructions that you can use is displayed in the Toolbox. You can drag the required instruction to a program in the Ladder Editor or ST Editor to insert the instruction.	All versions
	Programming ladder diagrams		Ladder diagram programming involves connecting rung components with connecting lines to build algorithms. Rung components and connecting lines are entered in the Ladder Editor.	All versions
		Starting the Ladder Editor	The Ladder Editor for the program is started.	
		Adding and deleting sections	You can divide your ladder diagrams into smaller units for easier management. These units of division are called sections.	
		Inserting rung components	You insert rung components in the Ladder Editor to create an algorithm.	
		Inserting and deleting function blocks	You can insert a function block instruction or user-defined function block into the Ladder Editor.	
		Inserting and deleting functions	You can insert a function instruction or user-defined function into the Ladder Editor.	
		Inserting and deleting inline ST	You can insert a rung component in a ladder diagram to enable programming in ST. This allows you to include ST in a ladder diagram.	
		Editing rung components	You can copy and past rung components.	
		Inserting and deleting jump labels and jumps	You can insert a jump label in the rung to jump to and then specify that jump label when you insert a jump.	
		Inserting and deleting bookmarks	You can add bookmarks to the beginning of rungs and move between them.	
		Rung comments	You can add comments to rungs.	
		Displaying rung errors	When you enter a rung component, the format is always checked and any mistakes are displayed as errors. If there are any errors, a red line is displayed between the rung number and the left bus bar.	
		Entry assistance	When you enter instructions or parameters, each character that you enter from the keyboard narrows the list of candidates that is displayed for selection.	
		Displaying variable comments ✻2	A specified variable comment can be displayed with each variable of rung components on the ladder diagrams. You can change the length of the displayed variable comments to make them easier to read. ✻3	Ver.1.01 or higher
	Programming structured text		You combine different ST statements to build algorithms.	All versions
		Starting the ST Editor	The ST Editor for programs or for functions/function blocks is started.	
		Editing ST	You combine different ST statements to build algorithms.	
		Entering calls to functions and function blocks	You can enter the first character of the instance name of the function or the function block in the ST Editor to call and enter a function or function block.	
		Entering constants	You can enter constants in the ST Editor.	
		Entering comments	Enter "(*" at the beginning and "*)" at the end of any text to be treated as a comment in the ST Editor. If you only want to comment out a single line, enter a double forward slash (//) at the beginning of the line.	
		Copying, pasting, and deleting ST elements	You can copy, paste, and delete text strings.	
		Indenting	You can indent nested statements to make them easier to read.	
		Moving to a specified line	You can specify a line number to jump directly to that line.	
		Bookmarks	You can add bookmarks to any lines and move between them.	
		Entry assistance	When you enter instructions or parameters, each character that you enter from the keyboard narrows the list of candidates that is displayed for selection.	
	Namespaces		Namespaces allow you to group and nest the names of functions, function block definitions, and data types so that you can manage them. This reduces the chance of duplicated names and makes the entities easier to access.	Ver.1.02 or higher
	Variable Manager		A list of the variables in the global and local variable tables is displayed in a separate window. You can display variable usage, sort and filter the variables, edit and delete variables, or move variables while displaying another editing view.	Ver.1.04 or higher
	Changing variable comments and data type comments		You can globally change variable comments and data type comments to other comments. You can change the comments to different language for users in a different country.	
	Sorting and filtering variables		You can sort and filter the variables in each variable table.	Ver.1.08 or higher
	Searching and replacing		You can search for and replace strings in the data of a project.	All versions
	Retrace searching		You can search for the program inputs and the input parameters to functions or function blocks that use the selected variable if the selected variable is used as a program output or as the output parameter of a function or function block. Also, you can search for the program outputs and the output parameters to functions or function blocks that use the selected variable if the selected variable is used as a program input or as the input parameter of a function or function block.	Ver.1.01 or higher
	Jumping		You can jump to the specified rung number or line number in the program.	All versions
	Building	Building	The programs in the project are converted into a format that is executable in the NJ/NX-series CPU unit.	
		Rebuilding	A rebuild is used to build project programs that have already been built.	
		Aborting a build operation	You can abort a build operation.	
	Creating applications for NA-series PTs		You can create and transfer pages and subroutines for NA-series Programmable Terminals. Refer to "**Functional Specifications of HMI**".	Ver.1.11 or higher

✻**2.** Displaying comments for members of arrays, structures, and unions and displaying long comments for variables (up to five lines) are supported by version 1.04 or higher.

✻**3.** Changing the length of the displayed variable comments is supported by version 1.05 or higher.

Item			Function	Applicable versions
Reuse Functions	Library		You can create functions, function block definitions, programs ✻4, and data types in a library file to use them as objects in other projects.	Ver.1.02 or higher
		Creating libraries	You can create library files to enable using functions, function block definitions, and data types in other projects.	
		Using libraries	You can access and reuse objects from library files that were created in other projects.	
File Operations	File operations	Creating a project file	A project file is created.	All versions
		Opening a project file	A project file is opened.	
		Saving the project file	The project file is saved.	
		Saving a project file under a different name	A project file is saved under a different name.	
		Project update history management	You can assign numbers to projects to manage the project history.	Ver.1.03 or higher
		Exporting a project file	You can export a project to an .smc2 or .csm2 project file ✻5. You can also export a project to a previous project file format, i.e., .smc or .csm.✻6.	All versions
		Importing a project file	You can import a project from an .smc2 ✻5, .csm2 ✻5, .smc, or .csm ✻6 project file.	
		Importing a ST project file	Import of ST program files created by the Simulink® PLC Coder™ (version R2013a or higher) from MathWorks® Inc.	Ver.1.04 or higher
		Offline comparison	You can compare the data for an open project with the data for a project file and display the results. You can also compare the open project with an exported .smc2 ✻5 or .smc project file. Or, you can merge detailed comparison results. ✻7	Ver.1.02 or higher
	Cutting, copying, and pasting		You can cut, copy, or paste items that are selected in the Multiview Explorer or any of the editors.	All versions
	Synchronize		The project file in the computer is compared with the data in the online NJ/NX-series CPU Unit and any differences are displayed. You can specify the transfer direction for any type of data and transfer all of the data.	
	Batch transfer		You transfer data between the computer and NJ/NX-series CPU Unit that are connected online. You can select the same data to transfer as in the synchronization operation. Unlike the synchronization operation, the data is transferred in the specified direction without displaying the comparison results.	Ver.1.09 or higher
	Printing		You can print various data. You can select the items to print.	All versions
	Clear All Memory		The Clear All Memory Menu command is used to initialize the user program, Controller Configurations and Setup, and variables in the CPU Unit to the defaults from the Sysmac Studio.	
	SD Memory Cards		The following procedures are used to execute file operations for the SD Memory Card mounted in the NJ/NX-series CPU unit and to copy files between the SD Memory Card and computer.	All versions
		Formatting the SD Memory Card	The SD Memory Card is formatted.	
		Displaying properties	The properties of the selected file or folder in the SD Memory Card are displayed.	
		Copying files and folders in the SD Memory Card	The selected file or folder in the SD Memory Card is copied to the SD Memory Card.	
		Copying files and folders between the SD Memory Card and the computer	The selected file or folder in the SD Memory Card is copied to the computer. Or, the selected file or folder in the computer is copied to the SD Memory Card.	
Debugging	Monitoring		Variables are monitored during ladder program execution. You can monitor the TRUE/FALSE status of inputs and outputs and the present values of variables in the NJ/NX-series CPU unit. You can monitor operation on the Ladder Editor, ST Editor, Watch Tab Page, or I/O Map.	All versions
	Differential monitoring		You can detect the number of times the specified BOOL variable or BOOL member changes to TRUE or FALSE and display the count in the Differential Monitor Window. You can check if bits turn ON and OFF and the number of times that they turn ON and OFF.	Ver.1.04 or higher
	Changing present values and TRUE/FALSE		You can change the values of variables that are used in the user program and settings to any desired value, and you can change program inputs and outputs to TRUE or FALSE. This allows you to check the operation of the user program and settings.	All versions
	Changing the present values of variables ✻8		You can change the present values of user-defined variables, system-defined variables, and device variables as required. You can do this in the Ladder Editor, ST Editor, Watch Tab Page or I/O Map.	
	Forced refreshing		Forced refreshing allows the user to refresh external inputs and outputs with user-specified values from the Sysmac Studio. The specified value is retained even if the value of the variable is overwritten from the user program. You can use forced refreshing to force BOOL variables to TRUE or FALSE in the Ladder Editor, Watch Tab Page, or I/O Map.	
	Online editing		Online editing allows you to edit programs on systems that are currently in operation. Online editing can be used to edit only POUs and global variables. User-defined data types cannot be edited with online editing.	
	Cross Reference Tab Page		Cross references allow you to see the programs and locations where program elements (variables, data types, I/O ports, functions, or function blocks) are used. You can view all locations where an element is used from this list.	

✻4. Creating programs in a library file is supported by version 1.06 or higher.
✻5. Supported only by the Sysmac Studio version 1.08 or higher.
✻6. The .csm format is supported by version 1.04 or higher. The size of a csm file is smaller than the size of the smc file.
✻7. Merging detailed comparison results is supported by version 1.03 or higher.
✻8. Changing present values in the Ladder Editor or ST Editor is supported by version 1.03 or higher.

Item			Function	Applicable versions
Debugging	Data tracing		Data tracing allows you to sample the specified variables and store the values of the variables in trace memory without any programming. You can choose between two continuous trace methods: a triggered trace, where you set a trigger condition and data is saved before and after that condition is met, or a continuous trace, in which continuous sampling is performed without any trigger and the results are stored in a file on your computer. However, you can still display data retrieved on the Sysmac Studio and save those results to a file even if you use a triggered trace. These same functions can be used with the Simulator as well.	All versions
		Setting sampling intervals	The interval to perform sampling on the target data is set. Sampling is performed for the specified task period, at the specified time, or when a trace sampling instruction is executed.	
		Setting triggers	To perform a triggered trace, you set a condition to trigger sampling. A suitable trigger condition is set to record data before and after an event.	
		Setting a continuous trace	The method to save the data traced during a continuous trace is set.	
		Setting variables to sample	The variables to store in trace memory are registered. The sampling intervals can also be set.	
		Starting and stopping tracing	The data trace settings are transferred to the NJ/NX-series CPU unit and the tracing starts. If you selected *Trigger (Single)* as the trace type, tracing waits for the trigger to begin sampling. If you selected Continuous, sampling begins immediately and all traced data is transferred to the computer as it is gathered and saved to a file.	
		Displaying trace results	You view the results of the traced data in either a chart or the 3D Motion Monitor. After sampling begins, sample data is immediately transferred and drawn on the graph. The trace target variable table shows the maximum, minimum, and average values for each variable. You can change the line colors on the graph. ✻9 You can consecutively read and display continuous trace results from more than one file. ✻10	
		Exporting/ Importing trace results	Trace results are saved within your project automatically when you save the project on the Sysmac Studio. If you want to save this data as a separate file, you can export the data to a CSV file.You can import trace results that you have exported.	
		Printing trace results	You can print out data trace settings along with digital and analog charts.	
	Debugging Vision Sensors		You can debug the Vision Sensor offline. Refer to "**Function Specifications of Vision Sensor Functions**".	Ver.1.01 or higher
	Debugging Displacement Sensors		You can debug Displacement Sensors offline. Refer to "**Function Specifications of Displacement Sensor Functions**".	Ver.1.05 or higher
Simulation	Programs for debugging		You can create programs for debugging that are used only to execute simulations and specify virtual inputs for simulation.	All versions
	Executing a simulation	Selecting what to simulate	You can select the programs to simulate from all of the programs in the Sysmac Studio. Programs can be dragged to select them.	
		Setting breakpoints	You can set breakpoints to stop the simulation in the Program Editor.	
		Executing and stopping simulations	You can control simulation execution to monitor the user program or to check operation through data tracing. Step execution and pausing are also possible.	
			You can perform a linked simulation between sequence control and continuous control (operations controlled by Simulink) to debug the sequence control program and continuous control program. ✻11	Ver.1.09 or higher
		Changing the simulation speed	You can change the execution speed.	All versions
		Task period simulation	You can display the task periods.	
		Batch transfer of the present values of variables	You can save the values of variables at specific times during simulations in a file, or you can write the values of variables that were saved in a file back to the Simulator. This allows you to write the initial values of variables, e.g., for test applications, before you start a simulation.	Ver.1.02 or higher
		Integrated NS-series PT simulation ✻12	You can simulate the linked operation of a sequence program and an NS-series Programmable Terminal to debug the sequence program and screen data offline.	
		Simultaneous simulation of Controller and NA-series PT	You can simultaneously simulate sequence control and NA-series PT operation, including displaying pages and subroutines created with Visual Basic and debugging the sequence programming.	Ver.1.11 or higher
	Setting the virtual equipment	Creating 3D equipment models	You can create a 3D equipment model at the control target to monitor with the 3D Motion Monitor function.	All versions
		3D Motion Monitor Display Mode	You set the axis variables for each element of the 3D equipment model, and then set the 3D equipment into motion according to those axis motions.	
		Displaying 2D paths	You can display the 2D paths of the markers for the projections in the 3D display.	
Monitoring Information	Displaying unit production information		You can display the production information of the NJ/NX-series CPU unit and Special Units, including the models of the Units and unit versions.	All versions
	Monitoring task execution times		You can monitor the execution time of each task when the user program is executed on a NJ/NX-series CPU unit or in the Simulator. When you are connected to the Simulator, you can also monitor the real processing time of tasks. This allows you to perform a Controller performance test.	

✻9. Changing the colors of graph lines is supported by version 1.01 or higher.
✻10. Consecutively reading and displaying continuous trace results from more than one file is supported by version 1.05 or higher.
✻11.MATLAB®/Simulink R2013a or higher is required.
✻12.CX-Designer version 3.41 or higher is required.

Item			Function	Applicable versions
Monitoring Information	Troubleshooting		You can use troubleshooting to check the errors that occurred in the Controller, display corrections for the errors, and clear the errors.	All versions
		Controller errors	Any current Controller errors are displayed. (Observations and information are not displayed.)	
		User-defined errors	Information is displayed on current errors.	
		Controller event log	You can display a log of Controller events (including Controller errors and Controller information). (You cannot display logs from EtherCAT slaves.)	
		User-defined event log	The log of user-defined events that were stored for the Create User-defined Error (SetAlarm) instruction and the Create User-defined Information (SetInfo) instruction is displayed.	
		Event Settings Table	The Event Setting Table is used to register the contents displayed on the Sysmac Studio and on HMIs for User-defined events that occur for execution of the Create User-defined Error (SetAlarm) instruction and the Create User-defined Information (SetInfo) instruction.	
	User memory usage monitor		The space that is used by the project file you are editing in the Sysmac Studio is displayed in relation to the size of the NJ/NX-series CPU unit's memory. The file cannot be transferred to the CPU unit if the files size exceeds the available space.	All versions
	Setting clock information		You can read and set the NJ/NX-series CPU unit's clock. The computer's clock information is also displayed.	
	DB connection function		You can monitor information for the DB connection. Refer to "**Function Specifications of DB Connection Function**".	Ver. 1.06 or higher with the NJ501-1□20 selected
Communi-cations	Going online with a Controller		An online connection is established with the Controller. You also can transfer a project from the connected Controller to the computer with a simple operation without creating a new project or opening an existing project. ✻5	All versions
	Checking for forced refreshing		When you go offline, any forced refreshing is cleared.	
Maintenance	Changing the operating mode of the Controller		There are two operating modes for NJ/NX-series Controllers, depending on if control programs are executed or not. These are RUN mode and PROGRAM mode.	All versions
	Resetting the Controller		The operations and status when the power supply to the Controller is cycled are emulated. This can be performed only in PROGRAM mode. You cannot reset the Controller in RUN mode.	
	Backup functions		You can back up, restore, and compare the user program and other NJ/NX-series Controller data to replace hardware, such as the CPU Unit, or to restore device data.	
		Variables and memory backup	You can back up the contents of retained memory to a file and restore the contents of the backup file. You can individually select the retained variables to restore. ✻13	
		Controller backup	You can back up data (user program and settings, variable values, memory values, Unit settings, and slave settings) from a Controller to a file and restore the backed up data from the file to the Controller.	Ver.1.04 or higher
		SD Memory Card backup	You can backup the data in the NJ/NX-series CPU unit to an SD Memory Card mounted in the Controller or compare the data in the NJ/NX-series Controller to data in the SD Memory Card.	
		Importing/exporting to/from backup files	You can import the data in a backup file created for a Controller backup or SD Memory Card backup to a project. Also, you can export project data to a backup file.	
Security Measures	Prevention of incorrect connections	Confirming NJ/NX-series CPU unit names and serial IDs	If the name or the serial ID is different between the project and the NJ/NX-series CPU unit when an online connection is established, a confirmation dialog box is displayed.	All versions
	Prevention of incorrect operation	Operation authority verification	You can set any of five levels of operation authority (Administrator, Designer, Maintainer, Operator, and Observer) for a Sysmac Studio project file or NJ/NX-series CPU Unit to restrict the operations that can be performed according to the operation authority of the user.	
		Write protection of the CPU Unit	You can prevent rewriting of data in the CPU Unit from the Sysmac Studio.	
	Prevention of the theft of assets	Authentication of user program execution IDs	You can ensure that a user program cannot be operated on another CPU Unit even if copied.	
		User program transfer with no restoration information	The program source code is not transferred. If this option is selected, programs are not displayed even if uploaded from another computer. However, variables and settings are transferred even if this option is selected.	
		Password protection for project files	You can place a password on the file to protect your assets.	
		Data protection	You can set passwords for individual POUs (programs, functions, and function block definitions) to prohibit displaying, changing, and copying them.	Ver.1.02 or higher
Window Operation	Docking		You can dock and undock configuration tab pages, program editors, Watch Tab Pages, Cross Reference Tab Page, and other window parts to/from the main Sysmac Studio window.	Ver.1.09 or higher
Online Help	Sysmac Studio help system		You can access Sysmac Studio operating procedures.	All versions
	Instructions reference		Information is provided on how to use the instructions that are supported by the NJ-series CPU Units.	
	System-defined variable reference		You can display a list of descriptions of the system-defined variables that you can use on the Sysmac Studio.	
	Keyboard mapping reference		You can display a list of convenient shortcut keys that you can use on the Sysmac Studio.	

✻**5.** Supported only by the Sysmac Studio version 1.08 or higher.
✻**13.**Individual selection of the retained variables to restore is supported by version 1.05 or higher.

Function Specifications of DB Connection Function

Item		Function
Setting parameters		–
	DBMS settings	The database to connect is selected.
	Run mode setting of the DB connection service	The Operation Mode is selected to send SQL statements when DB connection instructions are executed or Test Mode is selected to not send SQL statements when DB connection instructions are executed.
	Spooling settings	You can set the service so that SQL statements are spooled when problems occur and resent when operation is restored.
	Operation log settings	Settings are made for the execution log for execution of the DB connection service, the debug log for execution of SQL statements for the DB connection service, and the SQL execution failure log for SQL execution failures.
	Database connection service shutdown settings	Settings are made to control operation in order to end the DB connection service after automatically storing the operation log files on an SD Memory Card.
Programming	**DB connection instructions**	You can use the following DB connection instructions to write the user program for controlling the data in the database. DB_Insert (Insert DB Record), DB_Select (Retrieve DB Record), DB_Update (Update DB Record), and DB_Delete (Delete DB Record)
Monitoring information		–
	Monitoring the DB connection service	The status of the DB connection service is monitored.
	Monitoring the DB connections	The status of each DB connection is monitored.
	Displaying the operation logs	The contents of the execution log, debug log, and SQL execution failure log are displayed.

Note: The DB connection service can be used if the NJ501-1□20 is selected with Sysmac Studio version 1.06 or higher.
The DB connection service can be used if the NJ101-□□20 is selected with Sysmac Studio version 1.14 or higher.

Function Specifications of EtherNet/IP Connection Settings

Item			Function
EtherNet/IP Connection Settings			Functions related to tag data link (connection) settings in the EtherNet/IP network are provided.
	Setting Connections	**Editing Tag Sets**	You create tags and tag sets using network variables.
		Editing Target Devices	You add target devices to connect to.
		Editing Connections	You select tag sets from a list and create connections.
		Adding EDS Files	You can add the types of EtherNet/IP devices that can be set as targets.
	Transferring Connections	**Synchronized Transfer and Batch Transfer**	All the connection settings in the Controller or the project are transferred at the same time.
		Individual Transfer and Comparison	You can transfer or compare the connection settings of each EtherNet/IP device individually.
	Monitoring Connections	**Status Monitor**	The operating status of one or more connections is displayed. You can start or stop all the connections at the same time.
		Tag/Tag Set Monitor	The detailed operation information of tags and tag sets, such as the presence or absence of tags and connection times of tag sets, is displayed.
		Ethernet Information Monitor	The detailed operation information of EtherNet/IP devices, such as bandwidth usage (pps), is displayed.

Note: Supported only by the Sysmac Studio version 1.10 or higher.

Function Specifications of EtherNet/IP Slave Terminal Settings

Item		Function
EtherNet/IP Slave Terminal Configuration and Setup		You create the configuration of Slave Terminal to be connected to the EtherNet/IP network on the Sysmac Studio and set the NX Units that compose the Slave Terminal.
	Registering the NX Units	You configure the Slave Terminal by dragging the NX Units from the device list displayed in the Toolbox to the positions where to mount the Units.
	Setting the NX Units	You edit the I/O allocation settings, mounting settings and Unit operation settings of the NX Units.
	Displaying the Width of Slave Terminal Configuration	The width and power consumption of the Slave Terminal configuration are displayed based on the Unit configuration information.
	Comparing and Merging the Slave Terminal Configuration Information	You can compare the configuration information on the project with actual configuration online, select the Units with different information to correct, and merge the information.
	Transferring the Slave Terminal Configuration Information	You transfer the Unit configuration information to the Slave Terminal.

Note: Supported only by the Sysmac Studio version 1.11 or higher.

Function Specifications of Safety Control Units

Item			Function
Setting Parameters	Safety I/O Settings		You make a setting for safety process data communications and connection with safety I/O devices.
		Safety Process Data Communications Settings	You select Safety I/O Units to perform safety process data communications (FSoE communications) and make necessary settings.
		Safety Device Allocation Settings	You set the connection between Safety I/O Units and safety devices.
	Standard I/O Settings	Exposed Variable Settings	You set whether to expose global variables of the Safety CPU Unit. The values of exposed variables can be referenced from NJ/NX-series CPU Units.
		Standard Process Data Communications ✻1	You set the devices and ports of the Standard I/O Units for the exposed variables of the Safety CPU Unit.
	Safety Task Settings		You define the execution cycle and timing of the safety task and programs to be executed in the task.
		Assigning Programs	You assign safety programs to execute to the task.
	I/O Map Settings		The ports of Safety I/O Units used in safety process data communications are displayed. You assign device variables used in safety programs to the I/O ports.
Creating Safety Programs	Instruction List (Toolbox)		A hierarchy of the functions and function blocks that you can use is displayed in the Toolbox. You can drag the required functions and function blocks onto the FBD editor to insert it to a safety program.
	FBD Programming		You connect variables, functions, and function blocks with connecting lines to build networks. The FBD editor is used to enter them.
		Adding FBD Networks	You create FBD networks on the FBD editor to create algorithms.
		Inserting and Deleting Functions and Function blocks	You insert and delete functions and function blocks on the FBD editor.
		Entry Assistance	When you enter functions, function blocks, or parameters, each character that you enter from the keyboard narrows the list of candidates that is displayed for selection.
		Commenting Out FBD Networks	You can comment out each FBD network. When a network is commented out, it is no longer executed.
	Creating Variables		You create variables used in safety programs in the global or local variable table.
	Function Blocks		You create user-defined function blocks.
		Help Reference ✻2	You can display the user-defined function block help with the popup menu or shortcut key.
		Export/Import ✻2	You can export/import user-defined function blocks.
	Searching and Replacing		You can search for and replace strings in the variable tables, programs, and function blocks of a Safety CPU Unit.
Debugging	Monitoring		Variables are monitored during safety program execution. You can monitor the present values of device variables assigned to Safety I/O Units and user-defined variables. The values can be monitored on the FBD editor or Watch Tab Page.
	Changing the Present Values of Variables		You can change the present values of user-defined variables and device variables as required. You can do this on the FBD editor or Watch Tab Page.
	Forced Refreshing		The inputs from external devices and outputs to external devices are refreshed with a specified value on the Sysmac Studio. The specified value is retained even if the value of the variable is overwritten from the user program. You can use forced refreshing on the FBD editor or Watch Tab Page.
	Offline Debugging ✻3		You can check if the control program logic works as designed in advance using a special debugging function for the Simulator without connecting online with the Safety CPU Unit.
		Initial Value Settings ✻4	You can set the initial values of variables when you start execution of simulation.
		Feedback Settings ✻4	You can set input status that is linked to changes in output status when simulator is running.
		Simple Automatic Test ✻5	You can check that expected values of the outputs to the inputs of the program are designed as intended using the Simulator functions of the Safety CPU Unit.
	User Memory Usage Monitor ✻4		The memory usage of the safety control system and usage of safety network such as I/O data size are displayed.
Safety	Safety Validation		You append the "safety-validated" information to a safety program when you can ensure safety of the program after you complete debugging.
	Changing Operating Mode		There are four operating modes; PROGRAM mode, DEBUG mode (STOPPED), DEBUG mode (RUN), and RUN mode. The RUN mode can be selected only for the validated safety programs.
Security Measures	Prevention of Incorrect Connections	Setting the Node Name	You set a unique name for each Safety CPU Unit to confirm that you operate the correct Safety CPU Unit.
	Prevention of Incorrect Operation	Safety Password	You can prevent unauthorized access to safety functions of Safety CPU Units by setting a safety password for online operations that affect the safety functions.
	Prevention of the Theft of Assets ✻2	Data Protection	You can set passwords for individual user-defined function blocks to prohibit displaying or changing them.

Note: Supported only by the Sysmac Studio version 1.07 or higher.
✻**1.** Supported if the EtherNet/IP Coupler is selected with Sysmac Studio version 1.11 or higher.
✻**2.** Supported only by the Sysmac Studio version 1.12 or higher.
✻**3.** Supported only by the Sysmac Studio version 1.08 or higher.
✻**4.** Supported only by the Sysmac Studio version 1.10 or higher.
✻**5.** Supported only by the Sysmac Studio version 1.15 or higher.

Function Specifications of HMI

NA-series Programmable Terminals

Item			Function
Parameter settings	Device references		Devices, such as Controllers, through which the NA-series PT can read and write information with communications are created on the Sysmac Studio and settings are made for them.
		Displaying internal devices	Controllers that were created in the project are displayed.
		Registering external devices	Devices, such as Controllers, that were not created in the project are registered. The communications settings of the devices to communicate with the NA-series PT and information, such as variables and addresses within the devices that the NA-series PT will read and write, are also registered.
	Mapping variables		The information on the devices registered in the device references, such as variables and addresses, are mapped to the global variables of the NA-series PT.
	HMI settings		Settings for NA-series PT operation are made.
		Device settings	Settings, such as the startup page, default language, layout of the USB keyboard, automatic logout, screen saver, screen brightness, and method to change to the System Menu, are made.
		TCP/IP settings	Settings for the Ethernet port that is built-in to the NA-series PT are made.
		FTP settings	Settings to communicate with FTP clients using the Ethernet port are made.
		NTP settings	Settings to communicate with an NTP server using the Ethernet port are made.
		FINS settings	Settings to communicate with devices that support FINS are made.
		VNC settings	Settings to communicate with VNC clients using the Ethernet port are made.
		Print settings ✻1	Print settings are made.
	Security settings		Settings, such as user registration and permissions to restrict NA-series PT operation and displays, are made.
		User account settings	The user names, login passwords, and permissions for each user to operate the NA-series PT are set.
		Permission and access level settings	The range of information that can be accessed for different permissions are set.
	Troubleshooter ✻2		Troubleshooter settings are made.
	Language settings		Language settings to perform multi-language displays on the NA-series PT are made.
Creating data and programming	Editing pages		The pages to display on the NA-series PT are edited.
		Adding and deleting pages	Pages are added, deleted, or copied with the Multiview Explorer. Pages can also be copied to other projects.
		Adding and deleting page groups	Groups to organize and manage pages on the Multiview Explorer are added and deleted. Pages can be added to or moved to the groups.
		Page properties settings	The page type, overlapping, background color, etc., are set in the Properties Window.
		Changing the display language	If using multiple languages is set in the language settings, the resources displayed on the Page Editor are displayed in the language set for each resource.
		Changing the display status of each object ✻1	You can check display status changes for lamp and other objects on the Page Editor.
		Displaying object configuration	The objects and groups that were added to each page can be confirmed in a tree structure using the Page Explorer.
		Adding objects	Objects, such as buttons or graphics, to display on a page are added by dragging them from the Toolbox to the Page Editor.
		Grouping objects	Settings to operate multiple objects together as a group are made.
		Aligning objects	Multiple objects are aligned.
		Editing objects	Objects and groups can be copied within a page or to another page. Objects can also be deleted, and locations, sizes, rotations, and position relationships with other objects can be set. Also, labels can be edited ✻1.
		Setting object entry order ✻1	Entry order of Data Edit objects can be set.
		Object property settings	Properties, such as the colors and shapes of objects and the mapped variables, can be changed. Properties are displayed and changed in the Properties Window.
		Animation settings	Animation to modify dynamically the appearance of objects are set. Animation is displayed and changed in the Animation Window.
		Event and action settings	The events that can be set for objects and the actions that can be executed when an event occurs are set.
	Programming with Visual Basic		Subroutines are created with Visual Basic.
		Language specifications	Visual Basic 2008 and .NET Compact Framework 3.5 are supported. ✻3
		Adding subroutine groups	Groups to organize and manage global subroutines on the Multiview Explorer are added or deleted. Subroutines can be added or moved to the groups.
		Editing subroutines	Subroutines are created using the Code Editor, which is optimized for Visual Basic.
		Bookmarks	Bookmark can be added to any code line and you can move between the bookmarks.
		Data entry assistance	The characters that are entered from the keyboard are used to display candidates when entering source code.

Note: These specifications are supported by Sysmac Studio version 1.11 or higher.
✻1. Supported only by the Sysmac Studio version 1.14 or higher.
✻2. Supported only by the Sysmac Studio version 1.13 or higher.
✻3. There are restrictions on the functions that can be used.

Item			Function
Creating data and programming	User alarms		Settings for detection conditions and displaying messages for user alarms are made.
		Adding and deleting user alarm groups	Groups to organize and manage user alarms on the Multiview Explorer are added or deleted. User alarms can be created in the groups.
		Registering and deleting User Alarm	Settings for detection conditions for user alarms and displaying messages or popup pages are made for user alarm groups.
		Copying user alarms	User alarms can be copied within a group or to another group.
		Event and action settings	Events and the actions that are executed when the events occur are set for the user alarms. Displaying and changing the settings for events and actions is performed in the Events and Actions Window.
	Controller events ✻1	User-defined event settings	Settings for pages that can be changed from user-defined events' display in Troubleshooter.
	Data logging		Data logging is set to log specified data in the NA-series PT at the specified times.
		Adding and deleting data sets	Data sets are added to perform data logging.
		Log condition setting	Conditions to perform data logging and target global variables are set for the data sets.
	Broken-line graph ✻1		Settings for the data that is displayed in a broken-line graph.
		Adding and deleting data groups	Data groups for which a broken-line graph is drawn are added and deleted.
		Log condition setting	Conditions to display a broken-line graph and target global variables are set for data groups.
	Recipes		Data groups that are retained in the NA-series PT and can be switched for user requests are set.
		Adding and deleting templates	Data storage locations, value ranges, and data names are added or deleted.
		Recipe data settings	The actual data is set for each recipe.
	Keypad customization ✻1		Keypads can be customized.
	Global events		The events that are detected on any page and the actions that are executed when the events occur are set.
	Resource management		All of the character strings and graphics that are displayed on pages are managed. Also, registered resources can be indirectly accessed.
		Registering and deleting general character strings	The character strings that are displayed on pages are registered and deleted, except for character stings used for user alarms.
		Registering and deleting character strings for user alarms	The character strings used for user alarms are added or deleted.
		Registering and deleting document files	Document files that are displayed with the Document Viewer are set or deleted.
		Registering and deleting image files	Image files that are displayed for objects are set or deleted.
		Registering and deleting movies	Movie files that are displayed for Media Player objects are set or deleted.
		Importing and exporting	The general character strings and alarm character strings can be imported and exported using Excel files.
	Scaling ✻1		Values of variables and objects are converted by a specified a scaling factor set for them.
	Searching and replacing		You can search all strings in a project to find and replace a specified string.
	Cross reference ✱1		Where a specified program element (variable, data type, page, or resource) is used in a project can be checked with a list. You can access the use locations of the element from the list.
	Building		The project is converted into a format that can be executed in the NA-series PT.
Reusability	IAGs (intelligent application gadgets)		Multiple objects and subroutines are combined to create a reusable object.
		Creating IAGs	An IAG that consists of multiple objects and subroutines is created as a functional unit in an IAG project.
		Creating IAG collection files	A created IAG is built and saved as a module that can be distributed and reused.
		Creating user-defined events ✱1	You can create user-defined events that can be used in an IAG.
		Using IAGs	IAG collection files are imported using the IAG Collection Manager. The imported IAGs are displayed in the Toolbox and can be used in the same way as other objects.
	Custom objects		The selected objects are registered in a reusable format in the Toolbox.
		Registering custom objects	Objects or grouped objects are dragged to the Toolbox to register them.
		Using custom objects	Custom objects are displayed on a page by dragging them from the Toolbox to the Page Editor.
File operations	Synchronization		The data in the NA-series PT that is online is compared with the data in the Sysmac Studio. You can check the differences and then transfer the data after specifying the transfer direction.
	Transferring files via storage media		The data in a storage media in the computer is compared with the data in the Sysmac Studio. You can check the differences and then transfer the data to the storage media. You can use the System Menu to transfer a saved project file to the NA-series PT.
	Clearing all memory		All of the data except for the clock information is deleted from the NA-series PT.

Note: These specifications are supported by Sysmac Studio version 1.11 or higher.
✻1. Supported only by the Sysmac Studio version 1.14 or higher.

Item			Function
Simulation	Executing simulations		A project file on the computer is virtually executed to debug it.
		Setting and clearing breakpoints	Breakpoints can be set at the specified positions in a subroutine.
		Synchronized simulation with Controller Simulator	Sequence control and NA-series PT operation, such as displaying pages and subroutine operation, is simulated together to debug the application in the NA-series PT.
Monitoring information	Setting clock information		The clock information in the NA-series PT can be checked and set.
Communications	Going online with NA-series PT		The computer can be placed online with the NA-series PT. However, information in the NA-series PT, such as the values of variables, cannot be read.
	Upgrading system program		When the Sysmac Studio is online with the NA-series PT, the system program in the NA-series PT can be upgraded as required.
Print ✻1	Printing		Settings of each project can be printed out.
Security	Preventing malfunctions		If the name or serial ID of the project and the NA-series PT are different when the Sysmac Studio goes online, a confirmation dialog box is displayed.
	Preventing incorrect operation		You can prevent data in the NA-series PT from being overwritten from the Sysmac Studio.

Note: These specifications are supported by Sysmac Studio version 1.11 or higher.
✻1. Supported only by the Sysmac Studio version 1.14 or higher.

Function Specifications of Vision Sensor Functions

FQ-M-series Vision Sensors

Item			Function
Setting Parameters			–
	Main Edit	General Settings	Displays and sets basic information of the sensor.
		Sensor connection	Changes the connection status of the Sensor, and sets the conditions for communications with the Sensor.
		Sensor control in online	Performs various controls for the sensor mode change, data transfer/save, and monitoring.
		Sensor error history	Displays and clears the error history of an online Sensor.
		Tool	Restarts and initializes the sensor, updates the firmware of the sensor, reads sensor data from a file, saves sensor data to a file, prints the sensor parameters, and displays help.
	Scene data Edit	Image condition Settings	Adjusts the image condition.
		Specifies the calibration pattern	Sets a registered calibration pattern.
		Registers inspection item	Registers the inspection item to use in the measurement. You can select from the following inspection items: Edge position, Search, Labeling, Shape search
		Calculation Settings	Makes a setting for basic arithmetic operations and function operations using inspection item judgment results and measurement data.
		Logging Settings	Makes a setting for logging measurement results of inspection items and calculation results.
		Output Settings	Makes a setting for data to output to external devices.
		Run Settings	Switch Sensor modes or monitors measurement results.
	Sensor system data Edit	Trigger condition Settings	Sets the trigger type and image timing.
		I/O Settings	Sets the conditions of output signals. You can check the status of I/O signal while online.
		Encoder Settings	Make settings for the encoder such as common encoder settings, ring counter settings, and encoder trigger settings.
		Ethernet communication Settings	Makes Ethernet communication settings. You can select data communication from no-protocol data, PLC link data, and programmable no-protocol data.
		EtherCAT communication Settings	Makes the EtherCAT communication settings according to the communication settings of the EtherCAT master.
		Logging condition Settings	Sets the conditions to log to the internal memory of sensor.
		Sensor Settings	Makes the settings for startup scene control function, password setting function, and adjustment judgment function.
	Calibration Scene Data Settings		Calculates, views, and edits the calibration parameters. The Vision Sensor supports general-purpose calibration and calibration for conveyor tracking.
Debugging		Offline debugging of sensor operation	Simulates measurements offline without connecting to the Vision Sensor. You can use external image files and perform measurements under the conditions set in the offline settings, then display the results of those measurements.
		Offline debugging of the sensor control program and sensor operation	Performs a linked simulation between the sequence control of an NJ/NX-series Controller and the operation of an FQ-M Sensor in EtherCAT configuration systems. This allows you to debug operation offline from when measurements and other processing are performed for control signals such as measurement triggers through the output of processing results.

Note: Supported only by the Sysmac Studio version 1.01 or higher.

FH-series Vision Sensors

Item			Function
Setting Parameters			–
	Main Edit	Sensor Information	Displays and sets basic information of the sensor.
		Online	Changes the connection status of the sensor, and performs various controls such as sensor restart and initialization.
	Line Edit	Operation View	Monitors the measurement images of the sensor and detailed results of each process unit.
		Scene Maintenance View	Edits, manages, and saves the scene groups and scenes.
	Scene Data Edit	Flow Edit	Creates the process flow in combination of user-specified units.
		Process Unit Edit	Edits each process unit.
	Sensor System Data Edit	Camera Settings	Checks the camera connection status and sets the camera's imaging timing and communications speed.
		Controller Settings	Makes the system environment settings for the sensor.
		Parallel I/O Settings	Sets the conditions of output signals.
		RS-232C/422 Settings	Makes the RS-232C/422 communications settings.
		Ethernet Communication Settings	Makes the Ethernet communication settings.
		EtherNet/IP Communication Settings	Makes the EtherNet/IP communications settings.
		EtherCAT Communication Settings	Makes the EtherCAT communications settings.
		Encoder Settings	Makes the encoder settings.
	Tools	Communication Command Customization Tool	Makes the settings for customized communication commands.
		File Saving Tool	Copies and transfers the files in the sensor memory.
		Calibration Support Tool	Checks the calibration information.
		User Data Tool	Edits the data (user data) that can be shared and used in sensors.
		Security Setting Tool ✻1	Edits the security settings of the sensor.
		Scene Group Save Destination Setting Tool ✻1	Sets the destination to save the scene group data.
		Image File Save Tool ✻1	Saves the logging images and image files stored in the sensor memory.
		Registered Image Management Tool ✻1	Saves the images used for model registration and reference registration as registered images.
		Reference Position Update Tool ✻1	Edits all reference positions of more than one processing unit.
		Scene Group Data Conversion Tool ✻1	Creates the scene group data with more than 128 scenes.
		Scene Control Macro Tool ✻1	Makes a setting for complementing and expanding the measurement flow and scene control.
		Conveyor Calibration Wizard Tool ✻2	Calibrates cameras, conveyors, and robots in a conveyor tracking application.
		Calibration Plate Print Tool ✻2	Prints out calibration patterns that are used in the Conveyor Calibration Wizard.
		Conveyor Panorama Display Tool ✻2	Displays a panoramic image in a conveyor tracking application.
Debugging		Offline Debugging of Sensor Operation	Simulates measurements offline without connecting to the sensor. You can use external image files and perform measurements under the conditions set in the offline settings, then display the results of those measurements.
		Offline Debugging of Sensor Control Program and Sensor Operation ✻3	Simulates the linked operation of the sequence controls in the NJ/NX-series Controller and FH-series Sensor operation for an EtherCAT system. You can debug a series of operations offline to perform the measurement and other processing and output the results when a control signal such as measurement trigger is input to the Sensor.
Security		Prevention of Incorrect Operation ✻4	Prevents unauthorized access by setting an account password for online operations.

Note: Supported only by the Sysmac Studio version 1.07 or higher.
✻1. Supported only by the Sysmac Studio version 1.10 or higher.
✻2. Supported only by the Sysmac Studio version 1.14 or higher.
✻3. Supported only by the Sysmac Studio version 1.08 or higher.
✻4. Supported only by the Sysmac Studio version 1.09 or higher.

Function Specifications of Displacement Sensor Functions

Item			Function
Setting Parameters			–
	Main Editing	General Settings	Displays and sets basic information on the Sensor.
		Sensor Connection	Changes the connection status of the Sensor, and sets the conditions for communications with the Sensor.
		Online Sensor Control	Performs various controls for the Sensor (e.g., changing the mode, controlling internal logging, and monitoring).
		Tools	Restarts and initializes the Sensor, updates the firmware in the Sensor, recovers ROM data, prints the Sensor parameters, and displays help.
	Editing Bank Data	Setting Sensing Conditions	Adjusts the light reception conditions for each measurement region.
		Setting Task Conditions	Used to select the measurement items to use in measurements. You can select from the height, thickness, or calculations. The following are set for the measurement items: scaling, filters, holding, zero-resetting, and judgement conditions.
		Setting I/O Conditions	Sets parameters for outputting judgements and analog values to external devices.
	Editing Bank Data	Sensor Settings	Sets the following: ZW Sensor Controller's key lock, number of displayed digits below the decimal point, the bank mode, the analog output mode, and timing/reset key inputs.
		Ethernet Communications Settings	Sets up Ethernet communications and field bus parameters.
		RS-232C Communications Settings	Sets up RS-232C communications.
		Data Output Settings	Sets serial output parameters for holding values.
Monitoring		Senor monitoring	Monitors the light-detection status and the measurement results of the sensor.
		Trend monitoring	Logs and monitors the measurement results that meet the specific conditions of the sensor.
Debugging		Offline Debugging of Sensor Control Programs and Sensor Operation	Performs a linked simulation between the sequence control of an NJ/NX-series Controller and the operation of a ZW Sensor in EtherCAT configuration systems. This allows you to simulate the operation of signals when timing signals and other control signals are input to the Sensor to debug the control logic offline.

Note: The ZW-series can be used with the Sysmac Studio version 1.05 or higher.
The ZW-7000-series can be used with the Sysmac Studio version 1.15 or higher.

Function Specifications of Robot Additional Option

Item			Function
3D machine models			–
	Conveyor for picking	Setting	This conveyor is for picking workpieces in a pick-and-place 3D equipment model that uses a Vision Sensor and delta robots. A workpiece is displayed at the specified coordinates in the field of vision of the Vision Sensor and the workpiece is moved on a conveyor at the set speed.
Pick-and-place 3D Equipment Model Creation Wizard		Setup with a wizard	You can easily build a pick-and-place 3D equipment model that uses a Vision Sensor and delta robots. You can select from configuration elements (such as one conveyor for picking, one conveyor for placing, and two robots) and enter the required parameters in a wizard to complete the 3D equipment model.
Calibration parameter output		Text output	The calibration parameters required in programming to operate a pick-and-place 3D equipment model are output in ST program format.

Note: This option can be used by applying the Robot Additional Option to Sysmac Studio version 1.14 or higher.

Version Information

Please refer to "Change history" in the website at: www.fa.omron.co.jp/ss_rev_e/.

Applicable Models

Series		Unit version	Model	Applicable versions
CPU	NX-series	---	NX701-□□□□	Ver.1.13 or higher
	NJ-series	---	NJ501-1□00	All versions
			NJ501-1□20	Ver.1.07 or higher
			NJ501-1340 ✻1	Ver.1.11 or higher
			NJ501-4□00/NJ501-4□10	Ver.1.04 or higher
			NJ501-4320	Ver.1.10 or higher
			NJ301-□□□□	Ver.1.02 or higher
			NJ101-□000	Ver.1.13 or higher
			NJ101-□020	Ver.1.14 or higher
Servo Drives	G5-series	Servo Drives with unit version 2.1 or later recommended	R88D-KN□-ECT R88D-KN□-ECT-L	All versions
Inverters	MX2-V1	Inverters with version 1.1 or later ✻2	3G3MX2-A□□□□-V1	Ver.1.05 or higher
	RX-V1	Inverters with version 2.0 or later ✻3	3G3RX-A□□□□-V1	Ver.1.03 or higher
Vision Sensors	FQ-series	---	FQ-MS12□-ECT FQ-MS12□-M-ECT FQ-MS12□ FQ-MS12□-M	Ver.1.01 or higher
	FH-series	---	FH-1050 FH-1050-10 FH-1050-20 FH-3050 FH-3050-10 FH-3050-20	Ver.1.07 or higher
Displacement Sensors	ZW-series	---	ZW-CE1□ ZW-CE1□T ZW-C1□ ZW-C1□T	Ver.1.05 or higher
			ZW-7000 ZW-7000T	Ver.1.15 or higher
Fiber Sensors, Laser Sensors ✻4	N-Smart E3NX E3NC	---	E3NX-FA0 E3NC-LA0/SA0	Ver.1.05 or higher
Fiber Sensors, Laser Photoelectric Sensors, Proximity Sensors ✻5	E3X E3C E2C	---	E3X-HD0/MDA0 E3C-LDA0 E2C-EDA0	Ver.1.02 or higher
Modular Temperature Controller	EJ1	---	EJ1N-HFUC-ECT	Ver.1.15 or higher
EtherCAT Coupler Unit	NX-series	---	NX-ECC20□	Ver.1.06 or higher
EtherNet/IP Coupler Unit	NX-series	---	NX-EIC202	Ver.1.11 or higher
NX Units ✻6	NX-series	---	NX-ID□□□□ NX-IA□□□□ NX-OC□□□□ NX-OD□□□□ NX-AD□□□□ NX-DA□□□□ NX-TS□□□□ NX-PD1□□□ NX-PF0□□□ NX-PC0□□□ NX-TBX□□ NX-EC0□□□ NX-ECS□□□ NX-PG0□□□ NX-PG01□□	Ver.1.06 or higher
			NX-CIF□□□	Ver.1.15 or higher ✻7
Safety Control Units ✻8	NX-series	---	NX-SL3500 ✻9 NX-SL3300 ✻10 NX-SIH400 ✻10 NX-SID800 NX-SOH200 NX-SOD400	Ver.1.07 or higher
Remote I/O Terminals	GX-series	Remote I/O Terminals with unit version 1.1 or later recommended	GX-ID16□2/OD16□2/MD16□2 GX-□D16□1/OC1601 GX-AD0471/DA0271 GX-EC0211/EC0241	All versions
HMIs	NS-series	To connect the NJ5 Controller : NS system version 8.5 or higher CX-Designer version 3.3 or higher To connect the NJ3/NJ1 Controller : NS system version 8.61 or higher CX-Designer version 3.4 or higher To connect the NX7 Controller : NS system version Ver.3.64 CX-Designer version Ver.8.9	NS5-MQ11(B)-V2/-SQ11(B)-V2/-TQ11(B)-V2 NS8-TV01(B)-V2 NS10-TV01(B)-V2 NS12-TS01(B)-V2 NS15-TX01S-V2/-TX01B-V2	All versions
	NA-series	To connect the NX7/NJ1 Controller : NA system version 1.02 or later Sysmac Studio version 1.13 or later	NA5-15W□□□□ NA5-12W□□□□ NA5-9W□□□□ NA5-7W□□□□	Ver.1.11 or higher

Note: For details, refer to "Unit Configuration" of "Machine Automation Controller NJ-Series" of System Design Guide on the Sysmac Catalogue (Cat. No. P072).

✻**1.** To use the SECS/GEM service of the SECS/GEM CPU Unit, the SECS/GEM Configurator (WS02-CGTL1) is additionally required.

✻**2.** A communications unit for connecting to EtherCAT network (3G3AX-MX2-ECT with unit version 1.1 or higher) is additionally required.

✻**3.** A communications unit for connecting to EtherCAT network (3G3AX-RX-ECT) is additionally required.

✻4. A communications unit for connecting to EtherCAT network (E3NW-ECT) is additionally required.
✻5. A communications unit for connecting to EtherCAT network (E3X-ECT) is additionally required.
✻6. The EtherCAT Coupler Unit (NX-ECC20□ with unit version 1.0 or later) or EtherNet/IP Coupler Unit (NX-EIC202 with unit version 1.0 or later) is additionally required. For details, refer to the NX-series "Version Information".
✻7. The serial communications instructions for the CIF Units are supported by the CPU Units with unit version 1.11 or later and the Sysmac Studio version 1.15 or higher. If the serial communications instructions for the CIF Units are not used, it is available for the CPU Units with unit version 1.10 or later and the Sysmac Studio version 1.12 or higher can be used. Refer to the NJ/NX-series Instructions Reference Manual (Cat. No. W502-E1-15 or later) for the serial communications instructions for the CIF Units.
✻8. The EtherCAT Coupler Unit (NX-ECC20□ with unit version 1.1 or later) or EtherNet/IP Coupler Unit (NX-EIC202 with unit version 1.0 or later. The NX-3500 cannot be connected.) is additionally required. For details, refer to the "Version Information" of NX-series Safety Control Units.
✻9. The NX-SL3500 with unit version 1.0 or later can be used with the Sysmac Studio version 1.08 or higher, and unit version 1.1 or later can be used with the Sysmac Studio version 1.10 or higher.
✻10. The Safety Control Units with unit version 1.1 can be used with the Sysmac Studio version 1.10 or higher.

Related Manuals

Cat. No.	Model	Manual name	Application	Description
W504	SYSMAC-SE2□□□	Sysmac Studio version 1 OPERATION MANUAL	Learning general information and the application methods of the Automation Software.	This manual provides an introduction to the Automation Software and describes the installation procedures, basic procedures, connection procedures, and main operating procedures.
V099	–	CX-Designer Ver.3.□ USER'S MANUAL	Installing the CX-Designer. Learning about the basic operating procedures.	This manual describes the installation procedure, basic operating procedures, and user interface of the CX-Designer.
W464	–	CX-Integrator Ver.2.□ OPERATION MANUAL	Learning how to configure a DeviceNet network (data links, routing tables, Communications Unit settings, etc.).	This manual describes the operating procedures of the CX-Integrator.
W344	–	CX-Protocol OPERATION MANUAL	Learning the operating procedures of the CX-Protocol to create protocol macros (communications sequences) for Serial Communications Units. Learning details on user-created protocol macros.	This manual describes the operating procedures of the CX-Protocol and details on protocol macros. Refer to this manual to use the CX-Protocol to create user protocols for serial communications or to customize standard system protocols.
W527	NJ501-1□20	NJ-series Database Connection CPU Units User's Manual	Learning how to use the Database connection function	This manual describes how to use the Database connection service with the Sysmac Studio.
W528	NJ501-1340	NJ-series SECS/GEM CPU Unit User's Manual	Learning general information and the operating procedures of the SECS/GEM CPU Unit.	This manual describes the functional outline, GEM instructions, and how to make the settings with the SECS/GEM Configurator.
W539	NJ501-4□□□	NJ501-4□□□ NJ-series NJ Robotics CPU Unit User's Manual	Learning how to control robots with NJ-series.	This manual describes the robot control function. For programming, please also refer to *NX-701/NJ501/301-□□□□ NJ/NX-series CPU Unit Motion Control USER'S MANUAL* (W507)/*NX-701/NJ501/301-□□□□ NJ/NX-series Motion Control Instructions Reference Manual* (W508).
W506	NJ501-□□□□ NJ301-□□□□ NJ101-□□□□ NX701-□□□□	NJ/NX-series CPU Unit Built-in EtherNet/IP Port User's Manual	Learning how to set tag data links for the built-in EtherNet/IP ports on NJ/NX-series CPU Units.	This manual describes the operating procedures of the Network Configurator.
W536	NX-EIC□□□	NX-series EtherNet/IP Coupler Unit User's Manual	Learning how to use an NX-series EtherNet/IP Coupler Unit and EtherNet/IP Slave Terminals.	Introduce the system, configuration methods, Unit hardware, setting methods, and functions of EtherNet/IP Slave Terminals that consist of an EtherNet/IP Coupler Unit and NX Units.
Z930	NX-SL□□□□ NX-SI□□□□ NX-SO□□□□	NX-series Safety Control Unit User's Manual	Learning how to use NX-series Safety Control Units.	This manual describes the hardware, setup methods, and functions of the NX-series Safety Control Units.
V118	NA5-7W□□□□ NA5-9W□□□□ NA5-12W□□□□ NA5-15W□□□□	Programmable Terminal NA-series Software User's Manual	Learning the setting procedures for NA-series PT and how to create the data and programs.	This manual describes the setting procedures and functions of NA-series PT.
Z314	FQ-MS12□(-M)-ECT FQ-MS12□(-M)	FQ-M-series Specialized Vision Sensor for Positioning User's Manual	Learning the setting procedures for FQ-M-series Vision Sensors.	This manual describes the Sysmac Studio setting procedures for FQ-M-series Vision Sensors.
Z343	FH-1□□□ FH-3□□□	Vision System FH Series Operation Manual for Sysmac Studio	Learning the setting procedures for FH-series Vision Sensors.	This manual describes the Sysmac Studio setting procedures for FH-series Vision Sensors.
Z332	ZW-CE1□□	ZW-series Confocal Fiber Type Displacement Sensor User's Manual	Learning the setting procedures for ZW-series Displacement Sensors.	This manual describes the Sysmac Studio setting procedures for ZW-series Displacement Sensors.
Z362	ZW-7000□	ZW-7000-series Confocal Fiber Type Displacement Sensor User's Manual	Learning the setting procedures for ZW-7000-series Displacement Sensors.	This manual describes the Sysmac Studio setting procedures for ZW-7000-series Displacement Sensors.
Z363		ZW-7000 series Confocal Fiber Type Displacement Sensor User's Manual for Communication Settings	Learning the communication setting procedures for ZW-7000-series Displacement Sensors.	

Terms and Conditions Agreement

Read and understand this catalog.
Please read and understand this catalog before purchasing the products. Please consult your OMRON representative if you have any questions or comments.

Warranties.
(a) Exclusive Warranty. Omron's exclusive warranty is that the Products will be free from defects in materials and workmanship for a period of twelve months from the date of sale by Omron (or such other period expressed in writing by Omron). Omron disclaims all other warranties, express or implied.
(b) Limitations. OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCTS. BUYER ACKNOWLEDGES THAT IT ALONE HAS DETERMINED THAT THE
PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE.
Omron further disclaims all warranties and responsibility of any type for claims or expenses based on infringement by the Products or otherwise of any intellectual property right. (c) Buyer Remedy. Omron's sole obligation hereunder shall be, at Omron's election, to (i) replace (in the form originally shipped with Buyer responsible for labor charges for removal or replacement thereof) the non-complying Product, (ii) repair the non-complying Product, or (iii) repay or credit Buyer an amount equal to the purchase price of the non-complying Product; provided that in no event shall Omron be responsible for warranty, repair, indemnity or any other claims or expenses regarding the Products unless Omron's analysis confirms that the Products were properly handled, stored, installed and maintained and not subject to contamination, abuse, misuse or inappropriate modification. Return of any Products by Buyer must be approved in writing by Omron before shipment. Omron Companies shall not be liable for the suitability or unsuitability or the results from the use of Products in combination with any electrical or electronic components, circuits, system assemblies or any other materials or substances or environments. Any advice, recommendations or information given orally or in writing, are not to be construed as an amendment or addition to the above warranty.
See http://www.omron.com/global/ or contact your Omron representative for published information.

Limitation on Liability; Etc.
OMRON COMPANIES SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, NEGLIGENCE OR STRICT LIABILITY.
Further, in no event shall liability of Omron Companies exceed the individual price of the Product on which liability is asserted.

Suitability of Use.
Omron Companies shall not be responsible for conformity with any standards, codes or regulations which apply to the combination of the Product in the Buyer's application or use of the Product. At Buyer's request, Omron will provide applicable third party certification documents identifying ratings and limitations of use which apply to the Product. This information by itself is not sufficient for a complete determination of the suitability of the Product in combination with the end product, machine, system, or other application or use. Buyer shall be solely responsible for determining appropriateness of the particular Product with respect to Buyer's application, product or system. Buyer shall take application responsibility in all cases.
NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY OR IN LARGE QUANTITIES WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCT(S) IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

Programmable Products.
Omron Companies shall not be responsible for the user's programming of a programmable Product, or any consequence thereof.

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

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

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

2016.4

In the interest of product improvement, specifications are subject to change without notice.

OMRON Corporation
Industrial Automation Company

http://www.ia.omron.com/

OCEAN CHIPS
Океан Электроники
Поставка электронных компонентов

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «**JONHON**», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «**FORSTAR**».

AVIC JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).

FORSTAR®

Телефон: 8 (812) 309-75-97 (многоканальный)
Факс: 8 (812) 320-03-32
Электронная почта: ocean@oceanchips.ru
Web: http://oceanchips.ru/
Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А