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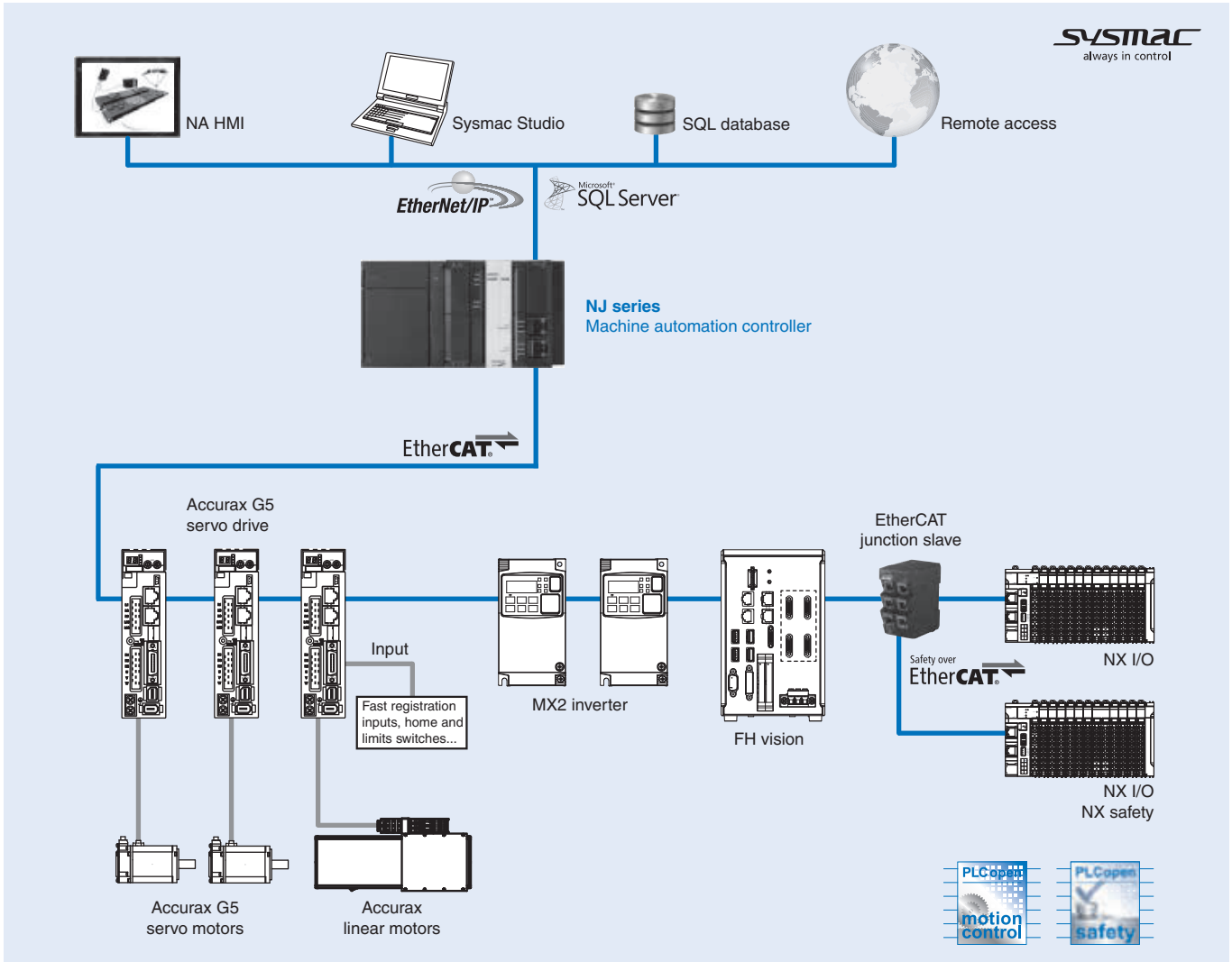
NJ3□, NJ5□

NJ series machine controller

Complete and robust machine automation
The NJ-Series is designed to meet extreme machine control requirements in terms of motion control speed and accuracy, communication, security and robustness.

- Integration of logic and motion in one Intel CPU
- Scalable control: CPUs for 4, 8, 16, 32 and 64 axes
- EtherCAT and EtherNet/IP ports embedded
- Fully conforms to IEC 61131-3 standards
- Certified PLCopen function blocks for motion control
- Linear, circular and spiral (helical) interpolation
- CPU units with SQL client and robotic functionality

System configuration



Specifications

General specifications

Item		NJ□ CPU Unit
Enclosure		Mounted in a panel
Grounding		Less than 100 Ω
CPU unit dimensions (H × D × W)		90 mm × 90 mm × 90 mm
Weight		550 g (including end cover)
Current consumption		5 VDC, 1.90 A (including SD Memory card and end cover)
Operation environment	Ambient operating temperature	0 to 55°C
	Ambient operating humidity	10% to 90% (with non condensation)
	Atmosphere	Must be free from corrosive gases
	Ambient storage temperature	–20 to 75°C (excluding battery)
	Altitude	2,000 m or less
	Pollution degree	2 or less: Conforms to JIS B3502 and IEC 61131-2.
	Noise immunity	2 kV on power supply line (conforms to IEC 61000-4-4.)
	Overvoltage category	Category II: Conforms to JIS B3502 and IEC 61131-2
	EMC immunity level	Zone B
	Vibration resistance	Conforms to IEC60068-2-6 5 to 8.4 Hz with 3.5 mm amplitude, 8.4 to 150 Hz. Acceleration of 9.8 m/s^2 for 100 min in X, Y and Z directions (10 sweeps of 10 min each = 100 min total)
	Shock resistance	Conforms to IEC60068-2-27 147 m/s^2, 3 times in X, Y and Z directions (100 m/s^2 for relay output units)
Battery	Life	5 years at 25°C
	Model	CJ1W-BAT01
Applicable standards		Conforms to cULus, NK, LR and EC directives, KC registration*1.

*1. Supported only by the CPUs with unit version 1.01 or higher.

Performance specifications

Common performance specifications

Item			NJ5□ CPU Unit			NJ3□ CPU Unit	
			NJ501-□5□0	NJ501-□4□0	NJ501-□3□0	NJ301-1200	NJ301-1100
Processing speed	Execution time	Ladder diagram instructions (LD, AND, OR and OUT)	1.9 ns min			3.0 ns min	
		Math instructions (LREAL)	26 ns min			42 ns min	
Programming	Program capacity*1	Size	20 MB			5 MB	
		POU definition	3,000			750	
		POU instance	Sysmac Studio v.1.05 or lower: 6,000 Sysmac Studio v.1.06 or higher: 9,000			Sysmac Studio v.1.04 or lower: 1,500 Sysmac Studio v.1.05 or higher: 3,000	
	Variables capacity	No retain attribute*2	Size: 4 MB Number: 90,000			Size: 2 MB Number: 22,500	
		Retain attribute*3	Size: 2 MB Number: 10,000			Size: 0.5 MB Number: 2,500 (Sysmac Studio v.1.04 or lower) / 5,000 (Sysmac Studio v.1.05 or higher)	
	Data type	Number	2,000			1,000	
	Memory for CJ-Series units (can be specified with AT specifications for variables.)	CIO area	6,144 words (CIO 0 to CIO 6143)				
		Work area	512 words (W0 to W511)				
		Holding area	1,536 words (H0 to H1535)				
		DM area	32,768 words (D0 to D32767)				
		EM area	32,768 words × 25 banks (E0_00000 to E18_32767)			32,768 words × 4 banks (E0_00000 to E3_32767)	
Unit configuration	Maximum number of connectable Units		Maximum per CPU rack or expansion rack: 10 units Entire controller: 40 units				
	Number of expansion racks		3 max.				
	I/O Capacity		2,560 points max. plus EtherCAT slave I/O capacity				
	Power supply to CPU rack and expansion racks	Model	NJ-P□3001 power supply unit				
		Power OFF detection time: AC power supply	30 to 45 ms				
		Power OFF detection time: DC power supply	22 to 25 ms				
Motion control	Number of controlled axes	Number of controlled axes*4	64 axes max.	32 axes max.	16 axes max.	15 axes max.	15 axes max.
		Number of used real axes*5	64 axes max.	32 axes max.	16 axes max.	8 axes max.	4 axes max.
		Number of axes for single-axis control*6	64 axes max.	32 axes max.	16 axes max.	15 axes max.	15 axes max.
		Linear interpolation control	4 axes max. per axes group				
		Circular interpolation control	2 axes per axes group				
	Number of axes groups		32 groups max.				
	Position units		Pulses, millimeters, micrometers, nanometers, degrees or inches				
	Override factors		0.00% or 0.01% to 500.00%				
	Motion control period		Same as process data communications period of EtherCAT communications				
	Cams	Number of cam data points	65,535 points max. per cam table 1,048,560 points max. for all cam tables			65,535 points max. per cam table 262,140 points max. for all cam tables	
		Number of cam tables	640 tables max.			160 tables max.	

Item				NJ5□ CPU Unit			NJ3□ CPU Unit	
				NJ501-□5□0	NJ501-□4□0	NJ501-□3□0	NJ301-1200	NJ301-1100
Communications	Peripheral USB port	Supported services		Sysmac Studio connection				
		Physical layer		USB 2.0-compliant B-type connector				
		Transmission distance		5 m max.				
	Built-in EtherNet/IP port	Physical layer		10 Base-T or 100 Base-TX				
		Media access method		CSMA/CD				
		Modulation		Baseband				
		Topology		Star				
		Baud rate		100 Mbps (100 Base-TX)				
		Transmission media		STP (shielded, twisted-pair) cable of Ethernet category 5, 5e or higher				
		Transmission distance		100 m max. (distance between Ethernet switch and node)				
		Number of cascade connections		There are no restrictions if an EtherNet switch is used				
		CIP service: Tag data links (cyclic communications)	Number of connections	32				
			Packet Interval*7	10 to 10,000 ms in 1.0-ms increments.*8 Can be set for each connection. (Data will be refreshed at the set interval, regardless of the number of nodes.)				
			Permissible communications band	3,000 pps*9 *10 (including heartbeat)				
			Number of tag sets	32				
			Tag types	Network variables (CIO, Work, Holding, DM and EM Areas.)				
			Number of tags	8 (7 tags if controller status is included in the tag set.)				
			Link data size per node	19,200 bytes max. (total size for all tags.)				
			Data size per connection	600 bytes max.				
			Number of registrable tag sets	32 max. (1 connection = 1 tag set)				
			Tag set size	600 bytes max. (two bytes are used if controller status is included in the tag set.)				
			Multi-cast packet filter*11	Supported.				
		CIP message service: Explicit messages	Class 3 (number of connections)	32 (clients plus server)				
			UCMM (non-connection type)	Number of clients that can communicate at one time: 32 max. Number of servers that can communicate at one time: 32 max.				
	Built-in EtherCAT port	Number of TCP socket service		30 max.*12				
		Communications standard		IEC 61158, Type 12				
		EtherCAT master specifications		Class B (feature pack motion control compliant)				
		Physical layer		100BASE-TX				
		Modulation		Baseband				
		Baud rate		100 Mbps (100BASE-TX)				
		Duplex mode		Automatic				
		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)				
		Transmission distance		Distance between nodes: 100 m max.				
		Number of slaves		192 max.				
		Process data size		Inputs/Outputs: 5,736 bytes max. (However, the maximum number of process data frames is 4)				
		Process data size per slave		Inputs/Outputs: 1,434 bytes max.				
		Communications period		500/1,000/2,000/4,000 μs			1000, 2000 or 4000 μs	
		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				

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

*2. Words for CJ-series units in the holding, DM and EM areas are not included.

*3. Words for CJ-series units in the CIO and work areas are not included.

*4. This is the total for all axis types. The maximum number of TCP socket service of the CPU unit version 1.05 or lower is 8 axes (NJ301-1200), 4 axes (NJ301-1100).

*5. This is the total number of axes that are set as servo axes or encoder axes and are also set as used axes.

*6. The maximum number of axes for single-axis control of the CPU unit version 1.05 or lower is 8 axes (NJ301-1200), 4 axes (NJ301-1100).

*7. Data is updated on the line in the specified interval regardless of the number of nodes.

*8. The packet interval of the CPU unit version 1.02 or lower is 10 to 10,000 ms in 1.0 ms increments.

*9. Means packets per second, i.e., the number of communication packets that can be sent or received in one second.

*10. The permissible communications band of the CPU unit version 1.02 or lower is 1,000 pps.

*11. An IGMP client is mounted for the EtherNet/IP port. If an Ethernet switch that supports IGMP snooping is used, filtering of unnecessary multicast packets is performed.

*12. The maximum number of TCP socket service of the CPU unit version 1.02 or lower is 16.

Performance specifications for CPU units with robotic functionality

Item			NJ5□ CPU Unit			
			NJ501-4500	NJ501-4400	NJ501-4300	NJ501-4310*1
Motion control	Robotics	Delta robot	3 + 1 (optional rotational axis) axes per robot			
		Number of Delta robots	8 Delta robots max. (depending on the number of axes supported by the CPU)			

*1. The NJ501-4310 CPU unit only supports one Delta robot.

Note: For robot control by NJ501-4□□0, use the Accurax G5 servo drive with built-in EtherCAT communications, absolute encoder and brake.

Performance specifications for CPU units with database connection

Item			NJ5□ CPU Unit		
			NJ501-1520	NJ501-1420	NJ501-1320
Programming	Memory for CJ-series units (can be specified with AT specifications for variables)	EM area	32,768 words x 25 banks*1 (E0_00000 to E18_32767)		

*1. When the spool function is enabled, the DB connection service uses E9_0 to E18_32767.

Function specifications

Common function specifications

Item				NJ□ CPU Unit
Tasks	Function	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*1		Maximum number of even tasks: 32 When active even task instruction is executed or when condition expression for variable is met.
	Setup	System service monitoring settings		The execution interval and the percentage of the total user program execution time are monitored for the system services (processes that are executed by the CPU Unit separate from task execution).
Programming	POUs (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*2 and structured text (ST).
	Namespaces*3			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		BOOL, BYTE, WORD, DWORD, LWORD, INT, SINT, DINT, LINT, UINT, USINT, UDINT, ULINT, REAL, LREAL, TIME (durations), DATE, TIME_OF_DAY, DATE_AND_TIME and STRING (text strings.)
		Derivative data types		Structures, unions, enumerations
		Structures	Function	A derivative data type that groups together data with different variable types. Number of members: 2,048 max. Nesting levels: 8 max.
			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.*3
		Unions	Function	A derivative data type that enables access to the same data with different data types. Number of members: 4 max.
			Member data types	BOOL, BYTE, WORD, DWORD and 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. Number of dimensions: 3 max. Number of elements: 65,535 max.
			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

Item				NJ□ CPU Unit
Motion control	**Single-axis**	**Single-axis position contol**	**Absolute positioning**	Positioning is performed for a target position that is specified with an absolute value.
			Relative positioning	Positioning is performed for a specified position 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 synchro-nous absolute positioning[*1]	The function which output command positions in every control period in the 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 the velocity control mode.
		Single-axis torque control	**Torque control**	The torque of the motor is controlled.
		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[*1]	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.
			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[*4]	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.
			Start velocity[*5]	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 synchro-nous absolute positioning	A positioning command is output each control period in Position control mode.[*3]

Item				NJ□ CPU Unit
Motion control	Axes groups	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.*3
			Changing the axes in a axes group	The composition axes parameter in the axes group parameters can be overwritten temporarily.*3
	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-voltage memory in the CPU unit.
			Generating cam tables*6	The cam table that is specified with the input parameter is generated from the cam property and cam mode.
		Parameters	Writing MC settings	Some of the axis parameters or axes group parameters are overwritten temporarily.
			Changing axis parameters*6	You can access and change the axis parameters from the user program.
	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 mode		You can set the stop mode to determine when the immediate stop input signal or limit input signal is valid.
		Re-execution of motion control functions		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	The movement range of an axis is monitored.
			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 warning values for each axis and each axes group to monitor them.
		Absolute encoder support		You can use an OMRON G5-series servomotor with an absolute encoder to eliminate the need to perform homing at startup.
		Input signal logic inversion*5		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 below are used. Home signal, home proximity signal, positive limit signal, negative limit signal, immediate stop signal and interrupt input signal.
Unit (I/O) management	NX units*5			You can use NX units through the communication coupler unit.
	CJ-Series units	Maximum number of units		40
		Basic I/O units	Chattering and noise countermeasures	Input response times are set.
			Load short-circuit protection and I/O disconnection detection	Alarm information for basic I/O units is read.
	EtherCAT slaves	Maximum number of slaves		192
		Basic I/O	Chattering and noise countermeasures	Input response times are set.

Item				NJ□ CPU Unit
Communications	Peripheral USB port			A port for communications with various kinds of support software running on a personal computer.
	EtherNet/IP port	Communication protocol		TCP/IP, UDP/IP
		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*6	File can be read from or written to computers to 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.
			Automatic clock adjustment	Clock information is read from the NTP server at the specified time or at specified interval after the power supply to the CPU unit is turned ON. The internal clock time in the CPU unit is updated with the read time.
			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	Control information is exchanged in cyclic communications between the EtherCAT master and slaves.
			SDO communications	Control information is exchanged in noncyclic event communications between the EtherCAT master and slaves. SDO communications that are defined in the CANopen standard are used.
		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 between all EtherCAT devices (including the master).
		Packet monitoring (only NJ5)		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 that conform to the CANopen standard can be sent to slaves via EtherCAT.
	Communications instructions			The following instructions are supported: CIP communications instructions, socket communications instructions, SDO message instructions, no-protocol communications instructions, protocol macro instructions and FTP client instructions*6.
Operation management	RUN output contacts			The output on the NJ-P□3001 power supply unit turns ON in RUN mode.
System management	Event logs	Categories		Events are recorded in the following logs: • System event log • Access event log • User-defined event log
		Number of events per event log		NJ5: 1,024 max. NJ3: 512 max.
Debugging	Online editing			Programs, function blocks, functions and global variables can be changed online, individual POUs can be changed by more than worker working across a network.
	Forced refreshing	Forced refreshing		The user can force specific variables to TRUE or FALSE.
		Number of forced variables	For EtherCAT slaves	64 max.
			For CJ-series units	64 max.
	MC test Run			Motor operation and wiring can be checked from the Sysmac Studio.
	Synchronization			The project file in the Sysmac Studio and the data in the CPU unit can be made the same when online.
	Differentiation monitoring*1	Differentiation monitoring*1		Rising/falling edge of contacts can be monitored.
		Number of contacts*1		8 max.
	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.
		Number of simultaneous data trace		NJ5: 4 max*7. NJ3: 2 max.
		Number of records		10,000 max.
		Sampling	Number of sampled variables	NJ5: 192 variables max. NJ3: 48 variables max.
		Timing of sampling		Sampling is performed for the specified task period, at the specified time or when a sampling instruction is executed.
		Triggered traces	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.
Maintenance	Connected port	HMIs connection		Built-in EtherNet/IP port.
		Sysmac Studio connection		Peripheral USB port or built-in EtherNet/IP port.

Item				NJ□ CPU Unit
Reliability	Self-diagnosis	Controller error levels		Major fault, partial fault, minor fault, observation and information.
		User-defined errors	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. *3
		Verification of operation authority	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 *8
		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).
SD memory card	Storage type			SD memory card (2GB max.), SDHC memory card
	Application	Automatic transfer from SD memory card *1		The data in the autoload folder on an SD memory card is automatically loaded when the power supply to the controller is turned ON.
		SD memory card operation instructions		You can access SD memory cards from instructions in the user program.
		File operations from the Sysmac Studio		You can perform file operations for Controller files in the SD memory card and read/write standard document files on the computer.
		SD memory card life expiration detection		Notification of the expiration of the life of the SD memory card is provided in a system-defined variable and event log.
Backup functions *1	SD memory card backup functions	Operation	Using front switch	You can use front switch to backup, compare or restore data.
			Using system-defined variable	You can use system-defined variables to backup or compare data.
			Memory card operations dialog box	Backup and verification operations can be performed from the SD memory card operations dialog box on the Sysmac Studio.
			Using instruction *6	Backup operation can be performed by using instruction.
		Protection	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.

*1. Supported only by the CPU units with unit version 1.03 or higher.

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

*3. Supported only by the CPU units with unit version 1.01 or higher.

*4. Supported only by the CPU units with unit version 1.06 or higher.

*5. Supported only by the CPU units with unit version 1.05 or higher.

*6. Supported only by the CPU units with unit version 1.08 or higher.

*7. Maximum number of simultaneous data trace of the NJ501-1□20 CPU unit version 1.08 or higher is 2.

*8. When the NJ501 CPU units with unit version 1.00 is used, this value becomes two.

Function specifications for CPU units with robotic functionality

Item				NJ501-4□□0 CPU Unit
Robot control functions	Axes group	Multi-axes coordinated control	Robot parameter settings	Sets the parameters (such as kinematics type and link length) for the robot.
			Time-specified absolute positioning command	Moves the robot to a specified position in a specified time.
			Synchronization with conveyor	Makes the active TCP follow a workpiece on the conveyor performing the conveyor tracking function.
			Robot jog	Jogs a robot defined by an axes group according the selected target velocity, coordinate system and TCP.
			Transition mode and buffering	Select the method to use between robot instructions to perform smooth trajectories.
	Auxiliary functions	Multi-axes coordinated control	User coordinate system	Two types of coordinate systems, Machine Coordinate System (MCS) and User Coordinate System (UCS) can be used for robots.
			Robot tool	Defines multiple TCP's (Tool Center Point) for the robots.
			Inverse kinematics	Transforms the coordinate values (X, Y, Z) of the robot's TCP to the coordinate values of each axis.
		Monitoring functions	Monitor	Reads the current position and current velocity of the robot.
			Workspace check	Checks if the robot is moving within the definable working volume.

Function specifications for CPU units with database connection

Item		NJ501-1□20 CPU Unit
Supported port		Built-in EtherNet/IP port
Supported DB		Microsoft Corporation: SQL Server 2008/2008 R2/2012 Oracle Corporation: Oracle Database 10g/11g International Business Machines Corporation: DB2 for Linux, UNIX and Windows 9.5/9.7/10.1/10.5 Oracle Corporation: MySQL Community Edition 5.1/5.5/5.6*1 Firebird Foundation Incorporated: Firebird 2.1/2.5
Number of DB connections (number of databases that can be connected at the same time)		3 connections max.*2
Instruction	Supported operations	The following operations can be performed by executing DB connection instructions in the NJ-series CPU units. Inserting records (INSERT), updating records (UPDATE), retrieving records (SELECT) and deleting records (DELETE)
	Number of columns in an INSERT/UPDATE/SELECT operations	SQL server: 1,024 columns max. Oracle/DB2/MySQL/Firebird: 1,000 columns max.
	Number of records in the output of a SELECT operation	65,535 elements max. 4 MB max.
	Number of DB Map Variables for which a mapping can be created	SQL server: 60 variables max. Oracle/DB2/MySQL: 30 variables max. Firebird: 15 variables max. Even if the number of DB Map Variables has not reached the upper limit, the total number of members of structures used as data type of DB Map Variables is 10,000 members max.
Run mode of the DB connection service		Operation mode or Test mode: • Operation mode: When each instruction is executed, the service actually accesses the DB. • Test mode: When each instruction is executed, the service ends the instruction normally without accessing the DB actually.
Spool function		Used to store the SQL statements when an error occurred and resend the statements when the communications are recovered from the error. Spool capacity: 1 MB*3
Operation log function		The following three types of logs can be recorded: • Execution log: Log for tracing the executions of the DB connection service. • Debug log: Detailed log for SQL statement executions of the DB connection service. • SQL execution failure log: Log for execution failures of SQL statements in the DB.
DB connection service shutdown function		Used to shut down the DB connection service after automatically saving the operation log files into the SD memory card.

*1. The supported storage engines of the DB are InnoDB and MyISAM.

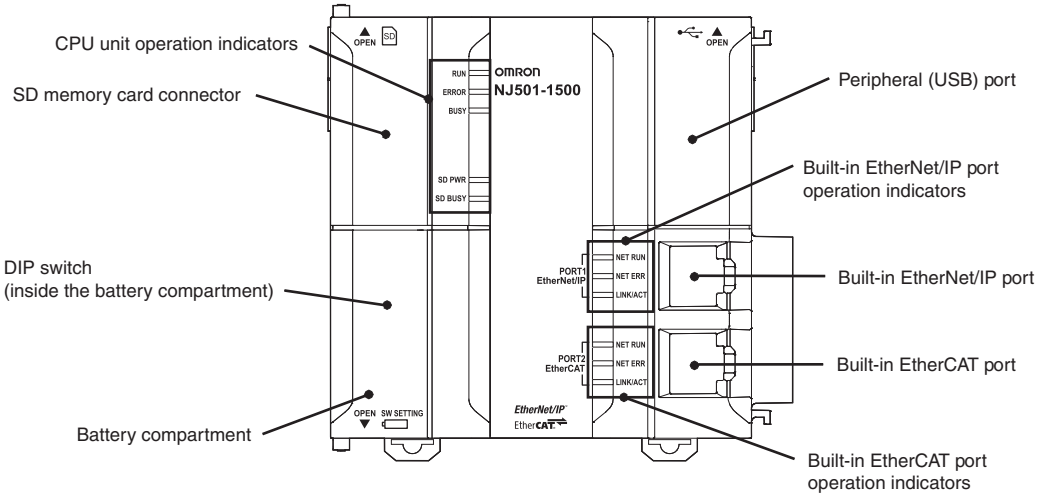
*2. When two or more DB connections are established, the operation cannot be guaranteed if you set different database types for the connections.

*3. Refer to "NJ-Series database connection CPU units user's manual (W527)" for more information.

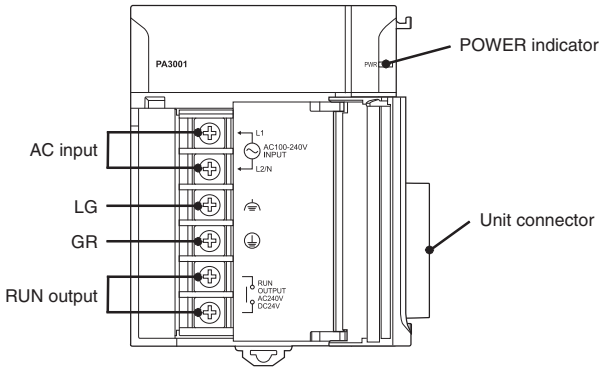
Note: DB2, MySQL and Firebird connections are supported only by the CPU units version 1.08 or higher and the Sysmac Studio version 1.09 or higher.

Nomenclature

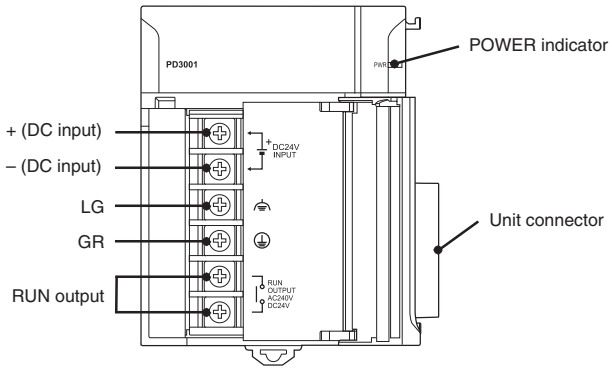
CPU unit (NJ501/301-□□□□)



100 to 240 VAC power supply unit (NJ-PA3001)

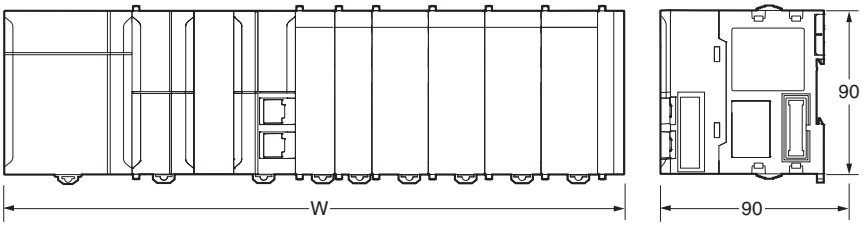


24 VDC power supply unit (NJ-PD3001)



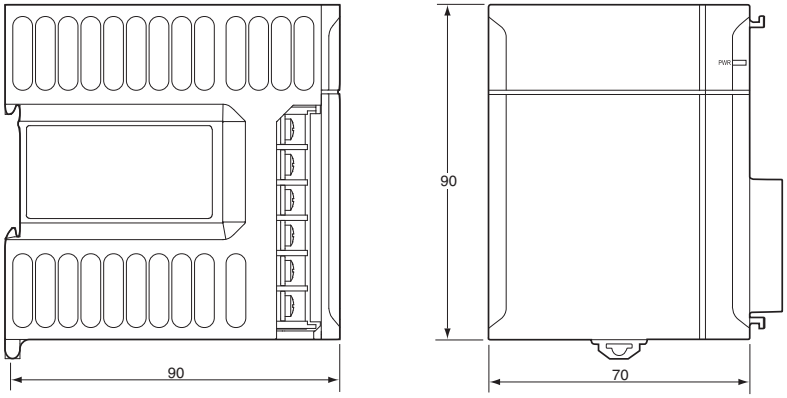
Dimensions

NJ-Series system (NJ-P□3001 + NJ501/301-□□□□ + one I/O unit + CJ1W-TER01)

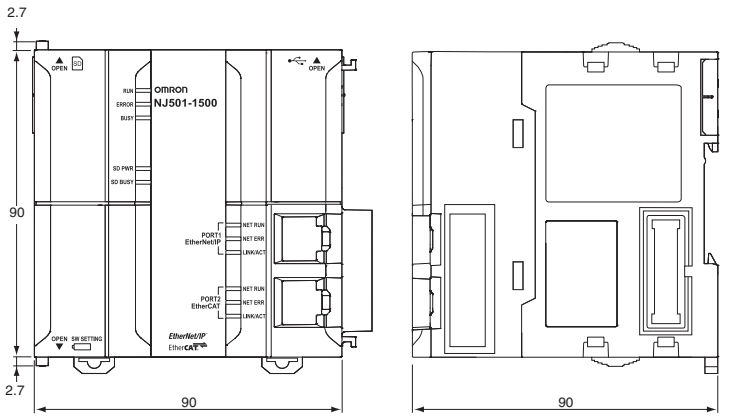


No. of units mounted with 31-mm width	Rack width (mm)
	With NJ501/301-□
1	205.7
2	236.7
3	267.7
4	298.7
5	329.7
6	360.7
7	391.7
8	422.7
9	453.7
10	484.7

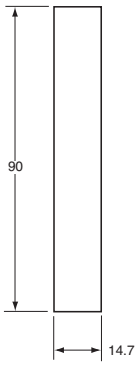
Power supply unit (NJ-PA3001/PD3001)



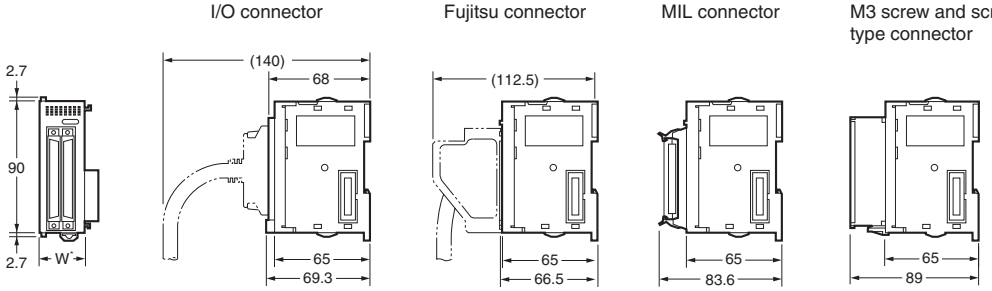
CPU unit (NJ501/301-□□□□)



End cover (CJ1W-TER01)

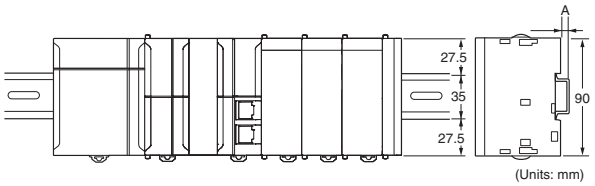


CJ units



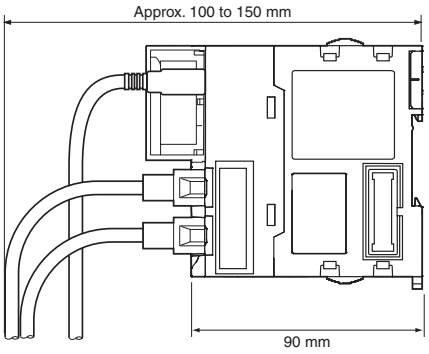
* Refer to the CJ unit tables in the ordering information section for the specific unit width.

Mounting dimensions

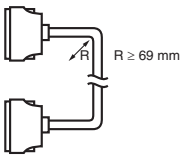


DIN track model number	A
PFP-100N2	16 mm
PFP-100N	7.3 mm
PFP-50N	7.3 mm

Mounting height



Expansion cable



Note: 1. Consider the following points when expanding the configuration:
- The total length of I/O connecting cable must not be exceed 12 m.
- I/O Connecting cables require the bending radius indicates below.

2. Outer diameter of expansion cable: 8.6 mm.

Power supply units current consumption

Checking current and power consumption

After selecting a power supply unit based on considerations such as the power supply voltage, calculate the current and power requirements for each rack.

Condition 1: Current requirements
There are two voltage groups for internal power consumption: 5 V and 24 V.
Current consumption at 5 V (internal logic power supply)
Current consumption at 24 V (relay driving power supply)

Condition 2: Power requirements
For each rack, the upper limits are determined for the current and power that can be provided to the mounted units. Design the system so that the total current consumption for all the mounted units does not exceed the maximum total power or the maximum current supplied for the voltage groups shown in the following tables.
The maximum current and total power supplied for CPU racks and expansion racks according to the power supply unit model are shown below.

Power supply Units	Max. current supplied			(C) Max. total power supplied
	(A) 5-VDC CPU Racks*	(A) 5-VDC expansion rack	(B) 24 VDC	
NJ-PA3001	6.0 A	6.0 A	1.0 A	30 W
NJ-PD3001	6.0 A	6.0 A	1.0 A	30 W

Conditions 1 and 2 are below must be satisfied.
Condition 1: Maximum current
(1) Total unit current consumption at 5 V ≤ (A) value
(2) Total unit current consumption at 24 V ≤ (B) value
Condition 2: Maximum power
(1) x 5 V + (2) x 24 V ≤ (C) value

* Including supply to the CPU unit.

Note: 1. For CPU racks, include the CPU unit current and power consumption in the calculations. When expanding, also include the current and power consumption of the I/O control unit in the calculations.

2. For expansion racks, include the I/O interface unit current and power consumption in the calculations.

Example: Calculating total current and power consumption

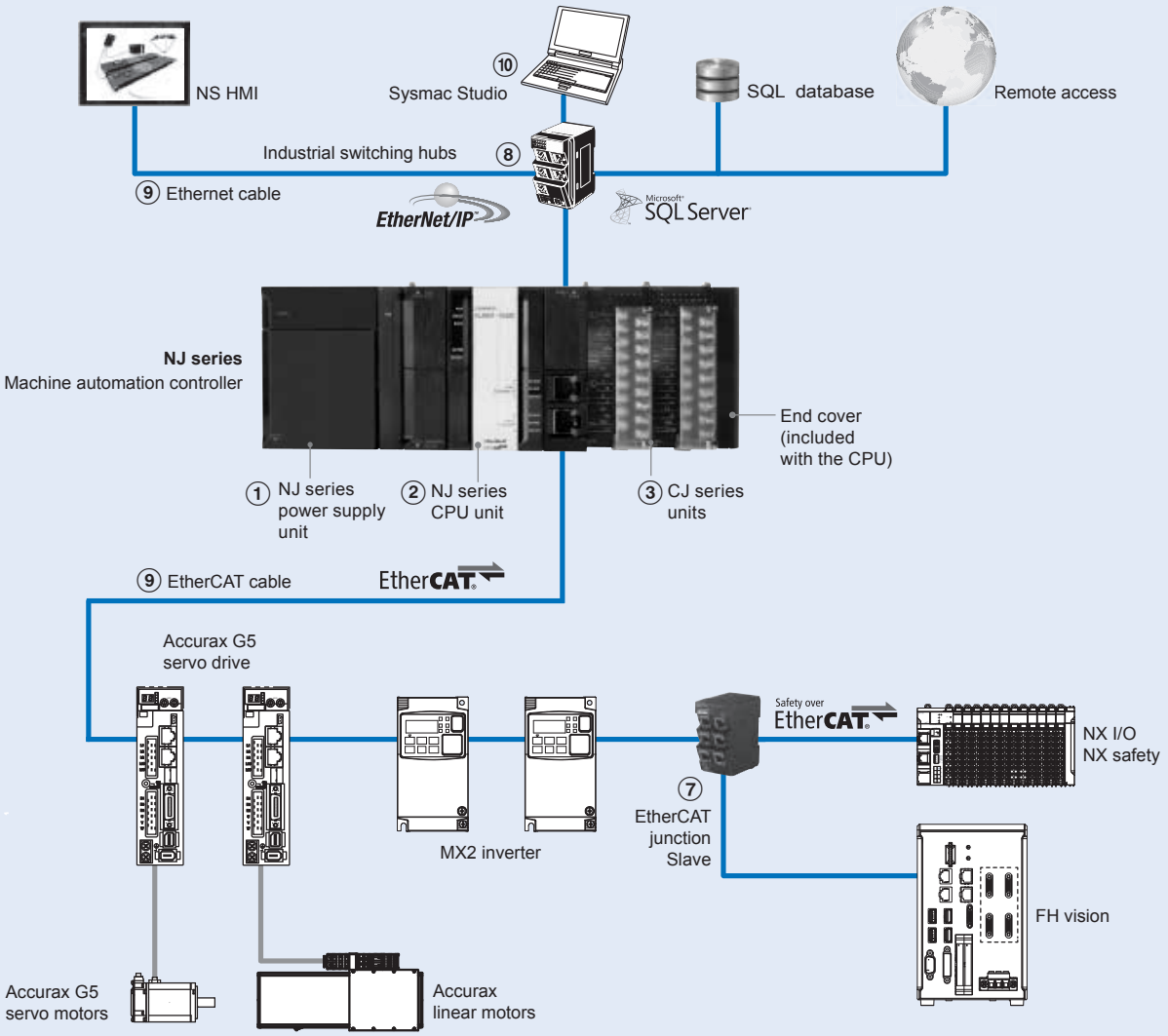
When the following units are mounted to a NJ-Series CPU rack using a NJ-PA3001 power supply unit.

Unit type	Model	Quantity	Voltage group	
			5 V	24 V
CPU unit	NJ501-1500	1	1.90 A	–
I/O control unit	CJ1W-IC101	1	0.02 A	–
Basic I/O units (input units)	CJ1W-ID211	2	0.08 A	–
	CJ1W-ID231	2	0.09 A	–
Basic I/O units (output units)	CJ1W-OC201	2	0.09 A	0.048 A
Special I/O unit	CJ1W-DA041	1	0.12 A	–
CPU bus unit	CJ1W-SCU22	1	0.29 A	–
Current consumption	Total		1.9 A + 0.02 A + 0.08 A x 2 + 0.09 A x 2 + 0.09 A x 2 + 0.12 A + 0.29	0.048 A × 2
	Result		2.85 A (≤ 6.0 A)	0.096 A (≤ 1.0 A)
Power consumption	Total		2.85 A x 5 V = 14.25 W	0.096 A x 24 V = 2.3 W
	Result		14.25 W + 2.3 W = 16.5 W (≤ 30 W)	

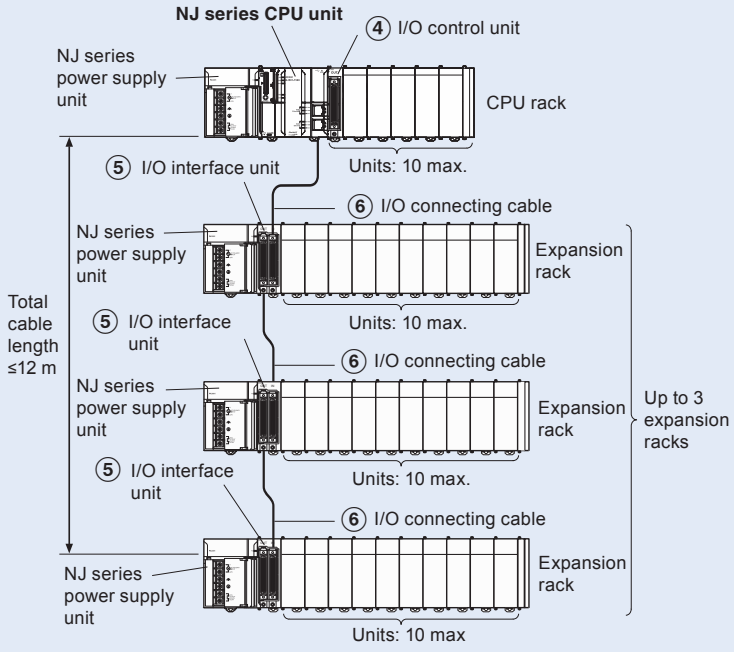
Note: For details on unit current consumption, refer to ordering information.

Ordering information

NJ series system



NJ series expansion racks



Power supply units

Symbol	Name	Output capacity			RUN output	Model
		5 VDC	24 VDC	Total		
①	100 to 240 VAC power supply unit for NJ-Series	6.0 A	1.0 A	30 W	Supported	NJ-PA3001
	24 VDC power supply unit for NJ-Series					NJ-PD3001

Note: Power supply units for the CJ Series cannot be used as a power supply for a CPU rack of the NJ System or as a power supply for an expansion rack.

NJ series machine controller CPU units

Standard CPU units

Symbol	Name	Program capacity	Variables capacity	I/O capacity	No. of units	Current consumption		Number of axes	Model
						5 VDC	24 VDC		
②	NJ501 CPU unit	20 MB	2 MB: Retained 4 MB: Not retained	2,560 points	CPU rack: 10 units max. Expansion rack: 40 units max. (Up to 3 expansion racks)	1.90 A	–	64	NJ501-1500
								32	NJ501-1400
								16	NJ501-1300
	NJ301 CPU unit	5 MB	0.5 MB: Retained 2 MB: Not retained					8	NJ301-1200
								4	NJ301-1100

CPU units with robotic functionality

Symbol	Name	Program capacity	Variables capacity	I/O capacity	No. of units	Current consumption		Number of axes	Model
						5 VDC	24 VDC		
②	NJ501 CPU Unit	20 MB	2 MB: Retained 4 MB: Not retained	2,560 points	CPU rack: 10 units max. Expansion rack: 40 units max. (Up to 3 expansion racks)	1.90 A	–	64	NJ501-4500
								32	NJ501-4400
								16	NJ501-4300
									NJ501-4310*1

*1. The NJ501-4310 CPU unit only supports one Delta robot.

CPU units with database connection

Symbol	Name	Program capacity	Variables capacity	I/O capacity	No. of units	Current consumption		Number of axes	Model
						5 VDC	24 VDC		
②	NJ501 CPU Unit	20 MB	2 MB: Retained 4 MB: Not retained	2,560 points	CPU Rack: 10 units max. Expansion rack: 40 units max. (Up to 3 expansion racks)	1.90 A	–	64	NJ501-1520
								32	NJ501-1420
								16	NJ501-1320

Note: The end cover unit CJ1W-TER01 is included with the CPU unit.

CJ series digital I/O units

Symbol	Points	Type	Rated voltage	Rated current	Width	Remarks	Current consumption (A)		Connection type	Model
							5 VDC	24 VDC		
③	8	AC input	240 VAC	10 mA	31 mm	–	0.08	–	M3	CJ1W-IA201
	16		120 VAC	7 mA	31 mm	–	0.09	–	M3	CJ1W-IA111
	8	DC input	24 VDC	10 mA	31 mm	–	0.08	–	M3	CJ1W-ID201
	16		24 VDC	7 mA	31 mm	–	0.08	–	M3	CJ1W-ID211
					31 mm				Screwless	CJ1W-ID211(SL)
	16		24 VDC	7 mA	31 mm	Fast-response (15 μs is ON, 90 μs is OFF)	0.13	–	M3	CJ1W-ID212
	16		24 VDC	7 mA	31 mm	Inputs start interrupt tasks in PLC program	0.08	–	M3	CJ1W-INT01
	16		24 VDC	7 mA	31 mm	Latches pulses down to 50 μs pulse width	0.08	–	M3	CJ1W-IDP01
	32		24 VDC	4.1 mA	20 mm	–	0.09	–	Fujitsu	CJ1W-ID231
	32		24 VDC	4.1 mA	20 mm	–	0.09	–	MIL	CJ1W-ID232
	32		24 VDC	4.1 mA	20 mm	Fast-response (15 μs is ON, 90 μs is OFF)	0.20	–	MIL	CJ1W-ID233
	64		24 VDC	4.1 mA	31 mm	–	0.09	–	Fujitsu	CJ1W-ID261
	64		24 VDC	4.1 mA	31 mm	–	0.09	–	MIL	CJ1W-ID262
	8	Triac output	250 VAC	0.6 mA	31 mm	–	0.22	–	M3	CJ1W-OA201
	8	Relay contact output	250 VAC	2 A	31 mm	–	0.09	0.048	M3	CJ1W-OC201
					31 mm				Screwless	CJ1W-OC201(SL)
	16		250 VAC	2 A	31 mm	–	0.11	0.096	M3	CJ1W-OC211
					31 mm				Screwless	CJ1W-OC211(SL)
	8	DC output (sink)	12 to 24 VDC	2 A	31 mm	–	0.09	–	M3	CJ1W-OD201
	8		12 to 24 VDC	0.5 A	31 mm	–	0.10	–	M3	CJ1W-OD203
	16		12 to 24 VDC	0.5 A	31 mm	–	0.10	–	M3	CJ1W-OD211
					31 mm				Screwless	CJ1W-OD211(SL)
	16		24 VDC	0.5 A	31 mm	Fast-response (15 μs is ON, 80 μs is OFF)	0.15	–	M3	CJ1W-OD213
	32		12 to 24 VDC	0.5 A	20 mm	–	0.14	–	Fujitsu	CJ1W-OD231
	32		12 to 24 VDC	0.5 A	20 mm	–	0.14	–	MIL	CJ1W-OD233
	32		24 VDC	0.5 A	20 mm	Fast-response (15 μs is ON, 80 μs is OFF)	0.22	–	MIL	CJ1W-OD234
	64		12 to 24 VDC	0.3 A	31 mm	–	0.17	–	Fujitsu	CJ1W-OD261
	64		12 to 24 VDC	0.3 A	31 mm	–	0.17	–	MIL	CJ1W-OD263

Symbol	Points	Type	Rated voltage	Rated current	Width	Remarks	Current consumption (A)		Connection type	Model
							5 VDC	24 VDC		
③	8	DC output (source)	24 VDC	2 A	31 mm	Short-circuit protection	0.11	–	M3	CJ1W-OD202
	8		24 VDC	0.5 A	31 mm	Short-circuit protection	0.10	–	M3	CJ1W-OD204
	16		24 VDC	0.5 A	31 mm	Short-circuit protection	0.10	–	M3	CJ1W-OD212
					31 mm				Screwless	CJ1W-OD212(SL)
	32		24 VDC	0.3 A	20 mm	Short-circuit protection	0.15	–	MIL	CJ1W-OD232
	64		24 VDC	0.3 A	31 mm	–	0.17	–	MIL	CJ1W-OD262
	16 + 16	DC in + out (source)	24 VDC	0.5 A	31 mm	–	0.13	–	MIL	CJ1W-MD232
	16 + 16	DC in + out (sink)	24 VDC	0.5 A	31 mm	–	0.13	–	Fujitsu	CJ1W-MD231
	16 + 16		24 VDC	0.5 A	31 mm	–	0.13	–	MIL	CJ1W-MD233
	32 + 32		24 VDC	0.3 A	31 mm	–	0.14	–	Fujitsu	CJ1W-MD261
	32 + 32		24 VDC	0.3 A	31 mm	–	0.14	–	MIL	CJ1W-MD263
	32 + 32	DC in + out (TTL)	5 VDC	35 mA	31 mm	–	0.19	–	MIL	CJ1W-MD563

Note: MIL = Connector according to MIL-C-83503 (compatible with DIN 41651/IEC 60603-1).

CJ series analogue I/O and control units

Symbol	Points	Type	Ranges	Resolution	Accuracy*	Conversion time	Width	Remarks	Current (A)		Connection type	Model
									5 V	24 V		
③	4	Universal analogue input	0 to 5 V, 1 to 5 V, 0 to 10 V, 0 to 20 mA, 4 to 20 mA, K, J, T, L, R, S, B, Pt100, Pt1000, JPt100	V/I: 1/12,000 T/C: 0.1°C RTD: 0.1°C	V: 0.3% I: 0.3% T/C: 0.3% RTD: 0.3%	250 ms/4 points	31 mm	Universal inputs, with zero/span adjustment, configurable alarms, scaling, sensor error detection	0.32	–	M3	CJ1W-AD04U
											Screwless	CJ1W-AD04U(SL)
	4	Analogue input	0 to 5 V, 0 to 10 V, –10 to 10 V, 1 to 5 V, 4 to 20 mA	1/8,000	V: 0.2% I: 0.4%	250 μs/point	31 mm	Offset/gain adjustment, peak hold, moving average, alarms	0.42	–	M3	CJ1W-AD041-V1
											Screwless	CJ1W-AD041-V1(SL)
	4	High-speed analogue input	1 to 5 V, 0 to 10 V, –5 to 5 V, –10 to 10 V, 4 to 20 mA	1/40,000	V: 0.2% I: 0.4%	35 μs/4 points	31 mm	Direct conversion (CJ2H special instruction)	0.52	–	M3	CJ1W-AD042
	8	Analogue input	1 to 5 V, 0 to 10 V, –10 to 10 V, 1 to 5 V, 4 to 20 mA	1/8,000	V: 0.2% I: 0.4%	250 μs/point	31 mm	Offset/gain adjustment, peak hold, moving average, alarms	0.42	–	M3	CJ1W-AD081-V1
											Screwless	CJ1W-AD081-V1(SL)
	2	Analogue output	0 to 5 V, 0 to 10 V, –10 to 10 V, 1 to 5 V, 4 to 20 mA	1/4,000	V: 0.3% I: 0.5%	1 ms/point	31 mm	Offset/gain adjustment, output hold	0.12	0.14	M3	CJ1W-DA021
											Screwless	CJ1W-DA021(SL)
	4	Analogue output	1 to 5 V, 0 to 10 V, –10 to 10 V, 1 to 5 V, 4 to 20 mA	1/4,000	V: 0.3% I: 0.5%	1 ms/point	31 mm	Offset/gain adjustment, output hold	0.12	0.2	M3	CJ1W-DA041
											Screwless	CJ1W-DA041(SL)
	4	High-speed analogue output	1 to 5 V, 0 to 10 V, –10 to 10 V	1/40,000	0.3%	35 μs/4 points	31 mm	Direct conversion (CJ2H special instruction)	0.40	–	M3	CJ1W-DA042V
	8	Voltage output	1 to 5 V, 0 to 10 V, –10 to 10 V, 1 to 5 V	1/8,000	0.3%	250 μs/point	31 mm	Offset/gain adjustment, output hold	0.14	0.14	M3	CJ1W-DA08V
											Screwless	CJ1W-DA08V(SL)
	8	Current output	4 to 20 mA	1/8,000	0.5%	250 μs/point	31 mm	Offset/gain adjustment, output hold	0.14	0.17	M3	CJ1W-DA08C
											Screwless	CJ1W-DA08C(SL)
	4 + 2	Analogue in + out	1 to 5 V, 0 to 10 V, –10 to 10 V, 1 to 5 V, 4 to 20 mA	1/8,000	in: 0.2% out: 0.3%	1 ms/point	31 mm	Offset/gain adjustment, scaling, peak hold, moving average, alarms, output hold	0.58	–	M3	CJ1W-MAD42
											Screwless	CJ1W-MAD42(SL)
	4	Universal analogue input	DC voltage, DC current, thermocouple, Pt100/Pt1000, potentiometer	1/256,000	0.05%	60 ms/4 points	31 mm	All inputs individually isolated, configurable alarms, maintenance functions, user-defined scaling, zero/span adjustment	0.30	–	M3	CJ1W-PH41U
	2	Process input	4 to 20 mA, 0 to 20 mA, 0 to 10 V, –10 to 10 V, 0 to 5 V, –5 to 5 V, 1 to 5 V, 0 to 1.25 V, 1.25 to 1.25 V	1/64,000	0.05%	5 ms/point	31 mm	Configurable alarms, maintenance functions, user-defined scaling, zero/span adjustment, square root, totaliser	0.18	0.09	M3	CJ1W-PDC15

Symbol	Points	Type	Ranges	Resolution	Accuracy*	Conversion time	Width	Remarks	Current (A)		Connection type	Model
									5 V	24 V		
③	6	Temperature control loops, thermocouple	K-type (–200 to 1,300°C) J-type (–100 to 850ºC)	0.1°C	0.5%	40 ms/point	31 mm	Basic I/O unit, setup by DIP switches, adjustable filtering 10/50/60 Hz	0.22	–	M3	CJ1W-TS561
											Screwless	CJ1W-TS561 (SL)
	6	Temperature control loops	Pt100 (–200 to 650°C) Pt1000 (–200 to 650°C)	0.1°C	0.5%	40 ms/point	31 mm	Basic I/O unit, setup by DIP switches, adjustable filtering 10/50/60 Hz	0.25	–	M3	CJ1W-TS562
											Screwless	CJ1W-TS562 (SL)
	2	Temperature control loops, thermocouple	B, J, K, L, R, S, T	0.1°C	0.3%	500 ms total	31 mm	Open collector NPN outputs	0.25	–	M3	CJ1W-TC003
	2	Temperature control loops, thermocouple	B, J, K, L, R, S, T	0.1°C	0.3%	500 ms total	31 mm	Open collector PNP outputs	0.25	–	M3	CJ1W-TC004
	2	Temperature control loops	Pt100, JPt100	0.1°C	0.3%	500 ms total	31 mm	Open collector NPN outputs	0.25	–	M3	CJ1W-TC103
	2	Temperature control loops	Pt100, JPt100	0.1°C	0.3%	500 ms total	31 mm	Open collector PNP outputs	0.25	–	M3	CJ1W-TC104

* Accuracy for voltage and current inputs/outputs as percentage of full scale and typical value at 25°C ambient temperature (consult the operation manual for details)
Accuracy for temperature inputs/outputs as percentage of process value and typical value at 25°C ambient temperature (consult the operation manual for details)

CJ series special I/O units

Symbol	Channels	Type	Signal type	Width	Remarks	Current consumption (A)		Connection type	Model
						5 V	24 V		
③	2	500 kHz Counter	24 V, line driver	31 mm	2 configurable digital inputs + outputs	0.28	–	Fujitsu	CJ1W-CT021
	4	100 kHz Counter	Line driver, 24 V via terminal block		Target values trigger interrupt to CPU	0.32	–	1 × MIL (40 pt)	CJ1W-CTL41-E

CJ series communication units

Symbol	Type	Ports	Data transfer	Protocols	Width	Current consumption (A)		Connection type	Model
						5 V	24 V		
③	Serial communications units	2 × RS-232C	High-speed	CompoWay/F, host link, NT link, Modbus, user-defined	31 mm	0.28	–	9 pin D-Sub	CJ1W-SCU22
		2 × RS-422A/RS-485			31 mm	0.28	–	9 pin D-Sub	CJ1W-SCU32
		1 × RS-232C + 1 × RS-422/RS-485			31 mm	0.28	–	9 pin D-Sub	CJ1W-SCU42
	EtherNet/IP	1 × 100 Base-Tx	–	EtherNet/IP, UDP, TCP/IP, FTP server, SNTP, SNMP	31 mm	0.41	–	RJ45	CJ1W-EIP21*1
	DeviceNet	1 × CAN	–	DeviceNet	31 mm	0.29	–	5-p detachable	CJ1W-DRM21
	CompoNet	4-wire, data + power to slaves (Master)	–	CompoNet (CIP-based)	31 mm	0.4	–	4-p detachable IDC or screw	CJ1W-CRM21*2
	PROFIBUS-DP	1 × RS-485 (Master)	–	DP, DPV1	31 mm	0.40	–	9 pin D-Sub	CJ1W-PRM21
		1 × RS-485 (Slave)	–	DP	31 mm	0.40	–		CJ1W-PRT21
	PROFINET-IO	1 × 100 Base-Tx	–	PROFINET-IO controller, FINS/UDP	31 mm	0.42	–	RJ45	CJ1W-PNT21
	RS-422A converter accessory	RS-232C to RS-422A/RS-485 signal converter. Mounts directly on serial port						9 pin D-Sub to screw clamp terminals	CJ1W-CIF11

*1. Supported only by the EtherNet/IP units with unit version 2.1 or later, CPU units with unit version 1.01 or later and the Sysmac Studio version 1.02 or higher.

*2. Supported only by the CPU units with unit version 1.01 or higher and the Sysmac Studio version 1.02 or higher.

CJ series ID sensor units

Symbol	Type	Specifications				Current consumption (A)		Model
		Connected ID systems	No. of connected R/W heads	External power supply	No. of unit numbers allocated	5 V	24 V	
③	ID sensor units	V680-Series RFID system	1	Not required	1	0.26*1	0.13*1	CJ1W-V680C11
			2		2	0.32	0.26	CJ1W-V680C12

*1. To use a V680-H01 antenna, refer to the V680 Series RFID system catalog (Cat. No. Q151)

Note: The data transfer function using intelligent I/O commands can not be used.

Expansion racks

CJ series I/O control unit (mounted on CPU rack when connecting expansion racks)

Symbol	Name	Connecting cable	Connected Unit	Width	Current consumption (A)		Model
					5 V	24 V	
④	CJ-Series I/O control unit	CS1W-CN□□3	CJ1W-II101	20 mm	0.02 A	–	CJ1W-IC101

Note: Mount to the right of the power supply unit.

CJ series I/O interface unit (mounted on expansion rack)

Symbol	Name	Connecting cable	Width	Current consumption (A)		Model
				5 V	24 V	
⑤	CJ-Series I/O interface unit	CS1W-CN□□3	31 mm	0.13 A	-	CJ1W-II101

Note: Mount to the right of the power supply unit.

I/O connecting cables

Symbol	Name	Specifications		Model
⑥	I/O connecting cable	• Connects an I/O control unit on NJ-Series CPU rack to an I/O interface unit on a NJ-Series expansion rack. or • Connects an I/O interface unit on NJ-Series expansion rack to an I/O interface unit on another NJ-Series expansion rack.	Cable length: 0.3 m	CS1W-CN313
			Cable length: 0.7 m	CS1W-CN713
			Cable length: 2 m	CS1W-CN223
			Cable length: 3 m	CS1W-CN323
			Cable length: 5 m	CS1W-CN523
			Cable length: 10 m	CS1W-CN133
			Cable length: 12 m	CS1W-CN133-B2

EtherCAT junction slave

Symbol	Name	No. of ports	Power supply voltage	Current consumption (A)	Dimensions (W x D x H)	Weight	Model	Appearance
⑦	EtherCAT junction slave	3	20.4 to 28.8 VDC (24 VDC –15 to 20%)	0.08	25 mm × 78 mm × 90 mm	165 g	GX-JC03	
		6		0.17	48 mm × 78 mm × 90 mm	220 g	GX-JC06	

Note: **1.** Please do not connect EtherCAT junction slave with OMRON position control unit, Model CJ1W-NC□81/□82
2. EtherCAT junction slave cannot be used for Ethernet/IP and Ethernet.

Industrial switching hubs

Symbol	Specifications			Accessories	Current consumption (A)	Model	Appearance
	Functions	No. of ports	Failure detection				
⑧	Quality of Service (QoS): EtherNet/IP control data priority. Failure detection: Broadcast storm and LSI error detection 10/100 BASE-TX, Auto-Negotiation	3	No	Power supply connector	0.22	W4S1-03B	
		5	No		0.22	W4S1-05B	
		5	Yes	Power supply connector and connector for informing error	0.22	W4S1-05C	

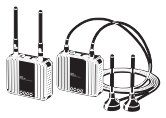
Recommended EtherCAT and EtherNet/IP communication cables

Symbol	Item			Manufacturer	Cable colour	Cable length (m)	Model
⑨	Ethernet patch cable	Cat 6a, AWG27, 4-pair cable Cable sheath material: LSZH*1 **Note:** This cable is available in yellow, green and blue colours.	Standard type Cable with connectors on both ends (RJ45/RJ45) 	OMRON	Yellow	0.2	XS6W-6LSZH8SS20CM-Y
						0.3	XS6W-6LSZH8SS30CM-Y
						0.5	XS6W-6LSZH8SS50CM-Y
						1	XS6W-6LSZH8SS100CM-Y
						1.5	XS6W-6LSZH8SS150CM-Y
						2	XS6W-6LSZH8SS200CM-Y
						3	XS6W-6LSZH8SS300CM-Y
						5	XS6W-6LSZH8SS500CM-Y
						7.5	XS6W-6LSZH8SS750CM-Y
						10	XS6W-6LSZH8SS1000CM-Y
						15	XS6W-6LSZH8SS1500CM-Y
						20	XS6W-6LSZH8SS2000CM-Y
					Green	0.2	XS6W-6LSZH8SS20CM-G
						0.3	XS6W-6LSZH8SS30CM-G
						0.5	XS6W-6LSZH8SS50CM-G
						1	XS6W-6LSZH8SS100CM-G
						1.5	XS6W-6LSZH8SS150CM-G
						2	XS6W-6LSZH8SS200CM-G
						3	XS6W-6LSZH8SS300CM-G
						5	XS6W-6LSZH8SS500CM-G
						7.5	XS6W-6LSZH8SS750CM-G
						10	XS6W-6LSZH8SS1000CM-G
						15	XS6W-6LSZH8SS1500CM-G
						20	XS6W-6LSZH8SS2000CM-G
		Cat 5, AWG26, 4-pair cable Cable sheath material: PUR*1	Standard type Cable with connectors on both ends (RJ45/RJ45) 		Green	0.5	XS6W-5PUR8SS50CM-G
						1	XS6W-5PUR8SS100CM-G
						1.5	XS6W-5PUR8SS150CM-G
						2	XS6W-5PUR8SS200CM-G
						3	XS6W-5PUR8SS300CM-G
						5	XS6W-5PUR8SS500CM-G
						7.5	XS6W-5PUR8SS750CM-G
						10	XS6W-5PUR8SS1000CM-G
						15	XS6W-5PUR8SS1500CM-G
						20	XS6W-5PUR8SS2000CM-G
		Cat5, AWG22, 2-pair cable	Rugged type Cable with connectors on both ends (RJ45/RJ45) 		Grey	0.3	XS5W-T421-AMD-K
						0.5	XS5W-T421-BMD-K
						1	XS5W-T421-CMD-K
						2	XS5W-T421-DMD-K
						3	XS5W-T421-EMD-K
						5	XS5W-T421-GMD-K
						10	XS5W-T421-JMD-K
						15	XS5W-T421-KMD-K
			Rugged type Cable with connectors on both ends (M12 straight/RJ45) 		Grey	0.3	XS5W-T421-AMC-K
						0.5	XS5W-T421-BMC-K
						1	XS5W-T421-CMC-K
						2	XS5W-T421-DMC-K
						3	XS5W-T421-EMC-K
						5	XS5W-T421-GMC-K
						10	XS5W-T421-JMC-K
						15	XS5W-T421-KMC-K
			Rugged type Cable with connectors on both ends (M12 L right angle/RJ45) 		Grey	0.3	XS5W-T422-AMC-K
						0.5	XS5W-T422-BMC-K
						1	XS5W-T422-CMC-K
						2	XS5W-T422-DMC-K
						3	XS5W-T422-EMC-K
						5	XS5W-T422-GMC-K
						10	XS5W-T422-JMC-K
						15	XS5W-T422-KMC-K
	Ethernet installation cable	Cat 5, SF/UTP, 4 × 2 × AWG 24/1 (solid core), Polyurethane (PUR)		Weidmüller	Green	100	WM IE-5IC4x2xAWG24/1-PUR
		Cat 5, SF/UTP, 4 × 2 × AWG 26/7 (stranded core), Polyurethane (PUR)			Green	100	WM IE-5IC4x2xAWG26/7-PUR
	Connectors	RJ45 metallic connector For AWG22 to AWG26			–	–	WM IE-T0-RJ45-FH-BK
		RJ45 plastic connector For AWG22 to AWG24		OMRON	–	–	XS6G-T421-1
	RJ45 socket	DIN-rail mount socket to terminate installation cable in the cabinet		Weidmüller	–	–	WM IE-T0-RJ45-FJ-B

*1. The lineup features low smoke zero halogen cables for in-cabinet use and PUR cables for out-of-cabinet use.

Note: Please be careful while cable processing, for EtherCAT, connectors on both ends should be shield connected and for EtherNet/IP, connectors on only one end should be shield connected.

WE70 FA wireless LAN units

Name	Area	Type	Model	Appearance
WE70 FA wireless LAN units	Europe	Access point (Master)	WE70-AP-EU	
		Client (Slave)	WE70-CL-EU	
Directional magnetic-base antenna		1 set with two antennas, 2.4 GHz/5 GHz Dual-band compatible	WE70-AT001H	
DIN rail mounting bracket		For TH35 7.5	WT30-FT001	
		For TH35 15	WT30-FT002	
Antenna extension cable		5 m	WE70-CA5M	

Note: Special versions are available for USA, Canada, China and Japan.

NJ series options and accessories

Specifications		Model	Appearance
SD memory card	2 GB	HMC-SD291	
	4 GB	HMC-SD491	
DIN track	Length: 0.5 m; height: 7.3 mm	PFP-50N	
	Length: 1 m; height: 7.3 mm	PFP-100N	
	Length: 1 m; height: 16 mm	PFP-100N2	
End plate to secure the units on the DIN track (2 pieces are included with the CPU unit and I/O interface unit)		PFP-M (2 pcs)	
Battery for NJ-Series CPU unit (The battery is included with the CPU unit)		CJ1W-BAT01	
End cover (The end cover is included with each CPU unit and I/O interface unit)		CJ1W-TER01	

Computer software

Symbol	Specifications	Model
⑩	Sysmac Studio	SYSMAC-SE2□□□

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. SysCat_I180E-EN-04A In the interest of product improvement, specifications are subject to change without notice.

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Product	Code	Reference	Product link
Control system, Temperature Control Module 2 Pt100 PNP Break Ties	135992	CJ1W-TC104	Buy on EAN
Control system, module 64 outputs PNP MIL	136029	CJ1W-OD262	Buy on EAN
Control system, Profibus DP Slave Module	136031	CJ1W-PRT21	Buy on EAN
Miniature Race Final, Embolo 5A Fomax: 150g Term. Weld	150073	SS-5	Buy on EAN
Control System, Module 2 analog outputs	151233	CJ1W-DA021	Buy on EAN
Control system, Temperature Control Module 2 loops Thermocouple PNP Break	155601	CJ1W-TC004	Buy on EAN
Control System, 16/16 Module E / S PNP MIL	156708	CJ1W-MD232	Buy on EAN
Control System, 32/32 Module E / S NPN MIL	156856	CJ1W-MD263	Buy on EAN
Control System, 6 Inputs Thermocouple Module	168013	CJ1W-TS561	Buy on EAN
Control System, Module 6 Inputs Pt100 / Pt1000	168014	CJ1W-TS562	Buy on EAN
Control system, Profibus DP Master Module	168022	CJ1W-PRM21	Buy on EAN
Control System, Module 16 inputs 24 VDC Screwless	171731	CJ1W-ID211	Buy on EAN
Control System, Module 8 relay outputs Screwless	171732	CJ1W-OC201	Buy on EAN
Control System, Module 16 Relay outputs Screwless	171733	CJ1W-OC211	Buy on EAN
	171734	CJ1W-OD211	Buy on EAN

	171735	CJ1W-OD212	Buy on EAN
Control system, Analog Mixed Module 4 Input / 2 Output	171895	CJ1W-MAD42	Buy on EAN
	171897	CJ1W-DA08C	Buy on EAN
	172001	CJ1W-DA021	Buy on EAN
	172003	CJ1W-DA08C	Buy on EAN
Control system, Analog Mixed Module 4 Input / 2 Output Screwless	172005	CJ1W-MAD42	Buy on EAN
Control System, Module 6 Inputs Pt100 / Pt1000 Screwless	172733	CJ1W-TS562	Buy on EAN
Control System, Module 32 inputs 24VDC MIL	177394	CJ1W-ID232	Buy on EAN
Control System, Fujitsu Module 64 inputs 24VDC	177395	CJ1W-ID261	Buy on EAN
Control System, Module 64 inputs 24 Vdc MIL	177396	CJ1W-ID262	Buy on EAN
Control System, Fujitsu Module 32 NPN	177398	CJ1W-OD231	Buy on EAN
Control System, Module 32 NPN MIL	177400	CJ1W-OD233	Buy on EAN
Control System, Fujitsu Module 64 NPN	177401	CJ1W-OD261	Buy on EAN
Systems Control Module MIL 64 NPN	177402	CJ1W-OD263	Buy on EAN
Control System, Inputs Thermocouple Module 6 Screwless	180447	CJ1W-TS561	Buy on EAN
Control System, Module 4 High Speed Counter	180688	CJ1W-CTL41-E	Buy on EAN
Control system, Isolated Analog Input Module 2 16 bits	183665	CJ1W-PDC15	Buy on EAN
Control System, Universal Analog Input Module 4 1/12000	235350	CJ1W-AD04U	Buy on EAN
Control System, Universal Analog Input Module 4 1/12000 Screwless	235351	CJ1W-AD04U	Buy on EAN
Control system, RFID Module 1 Antenna 13.56MHz CJ1	244991	CJ1W-V680C11	Buy on EAN
Control System, Universal Analog Input Module 4 Isolated	247114	CJ1W-PH41U	Buy on EAN
Control System, Module Ethernet / IP	258403	CJ1W-EIP21	Buy on EAN
Control system, PROFINET-IO Controller Module	291927	CJ1W-PNT21	Buy on EAN
Control System, Control Expansion Module E / S	315594	CJ1W-IC101	Buy on EAN

Control System, Expansion Interface Module I / S	315595	CJ1W-II101	Buy on EAN
Systems Control, Interrupt Module 16 inputs Term.	315596	CJ1W-INT01	Buy on EAN
Control system, 100-120VAC Term Module 16 inputs.	315597	CJ1W-IA111	Buy on EAN
Control System, Module 8 Outputs Triac Term.	315599	CJ1W-OA201	Buy on EAN
Control System, Module 8 NPN Term.	315600	CJ1W-OD201	Buy on EAN
Control System, Module 8 PNP outputs Term.	315601	CJ1W-OD202	Buy on EAN
Control System, Inputs Module 16 Rapid Response	315602	CJ1W-IDP01	Buy on EAN
Control System, Module 8 outputs PNP 0.5A Term.	315603	CJ1W-OD204	Buy on EAN
High Speed Control System, Module 2 Inputs Counter 500KHz	315605	CJ1W-CT021	Buy on EAN
Control System, Analog Input Module 4 High Speed	318067	CJ1W-AD042	Buy on EAN
Control System, Module 2 high speed RS232	323397	CJ1W-SCU22	Buy on EAN
Control System, Module 2 RS422 / 485 High Speed	323398	CJ1W-SCU32	Buy on EAN
Control System, Module 1 + 1 RS232 RS422 / 485 High Speed	323399	CJ1W-SCU42	Buy on EAN
Control System, Module 16 24Vdc inputs Term.	382929	CJ1W-ID211	Buy on EAN
Control System, Module 8 Inputs 24Vdc - Connector M3	382928	CJ1W-ID201	Buy on EAN
Control System, 32/32 Module E / S TTL 5Vdc MIL	151272	CJ1W-MD563	Buy on EAN
Control System, 16/16 Module E / S NPN MIL	136023	CJ1W-MD233	Buy on EAN
Control System, Module 8 NPN 0.5A Term.	143440	CJ1W-OD203	Buy on EAN
Control system, Ethernet cable SF / UTP Cat. 5 PUR coating. Green. 10m	374597	XS6W-5PUR8SS1000CM-G	Buy on EAN
Control system, Ethernet cable SF / UTP Cat. 5 PUR coating. Green. 5m	374595	XS6W-5PUR8SS500CM-G	Buy on EAN
Control system, Ethernet cable SF / UTP Cat. 5 PUR coating. Green. 2m	374593	XS6W-5PUR8SS200CM-G	Buy on EAN
Control system, Ethernet cable SF / UTP Cat. 5 PUR coating. Green. 1m	374591	XS6W-5PUR8SS100CM-G	Buy on EAN
Control System, Module 16 Term PNP outputs.	382934	CJ1W-OD212	Buy on EAN
Control system, Cable-CS1 CS1 30cm	224548	CS1W-CN313	Buy on EAN

Control system, Cable-CS1 CS1 70cm	224549	CS1W-CN713	Buy on EAN
	111556	SS-10	Buy on EAN
Control system, Ethernet Cable S / FTP Cat. 6. LSZH coating. Yellow. 20m	374589	XS6W-6LSZH8SS2000CM-Y	Buy on EAN
Control system, Ethernet Cable S / FTP Cat. 6. LSZH coating. Yellow. 0.3m	374579	XS6W-6LSZH8SS30CM-Y	Buy on EAN
Control system, Ethernet Cable S / FTP Cat. 6. LSZH coating. Yellow. 0.2m	374578	XS6W-6LSZH8SS20CM-Y	Buy on EAN
Machine Controllers, NJ501 Axis Machine Controller 16	355309	NJ501-1300	Buy on EAN
Machine Controllers, NJ501 Machine Robot Controller + 1 - 16 Shafts	374968	NJ501-4310	Buy on EAN
Machine Controllers, NJ301 4 Axis Machine Controller	363842	NJ301-1100	Buy on EAN
Control system, Cable-CS1 CS1 3m	224551	CS1W-CN323	Buy on EAN
Machine Controllers, NJ501 Robotics Machine Controller + 64 Axles	368569	NJ501-4500	Buy on EAN
Machine Controllers, NJ501 Machine Controller + Robotics 16 Axles	368567	NJ501-4300	Buy on EAN
Wireless Ethernet Access Point, 2.4GHz and 5GHz supported	239023	WE70-AP-EU	Buy on EAN
Control system, Ethernet cable SF / UTP Cat. 5 PUR coating. Green. 3m	374594	XS6W-5PUR8SS300CM-G	Buy on EAN
Control system, Ethernet cable SF / UTP Cat. 5 PUR coating. Green. 1.5M	374592	XS6W-5PUR8SS150CM-G	Buy on EAN
Control system, Ethernet cable SF / UTP Cat. 5 PUR coating. Green. 0.5m	374590	XS6W-5PUR8SS50CM-G	Buy on EAN
Control system, Wireless Ethernet Client	239024	WE70-CL-EU	Buy on EAN
Control system, Ethernet cable SF / UTP Cat. 5 PUR coating. Green. 20m	374599	XS6W-5PUR8SS2000CM-G	Buy on EAN
Control system, Ethernet cable SF / UTP Cat. 5 PUR coating. Green. 15m	374598	XS6W-5PUR8SS1500CM-G	Buy on EAN
Control system, Ethernet Cable S / FTP Cat. 6. LSZH coating. Green. 2m	374617	XS6W-6LSZH8SS200CM-G	Buy on EAN
Control System, Analog Output Module 4 High Speed	318068	CJ1W-DA042V	Buy on EAN
Machine Controllers, NJ301 Machine Controller 8 Axles	363924	NJ301-1200	Buy on EAN
Machine Controllers, NJ501 SQL Client Machine Controller + 64 Axles	375710	NJ501-1520	Buy on EAN
Control system, Ethernet Cable S / FTP Cat. 6. LSZH coating. Yellow. 15m	374588	XS6W-6LSZH8SS1500CM-Y	Buy on EAN
Control system, Tapa Completion	136072	CJ1W-TER01	Buy on EAN

Machine Controllers, NJ501 SQL Client Machine Controller + 16 Axles	375708	NJ501-1320	Buy on EAN
Control system, Ethernet Cable S / FTP Cat. 6. LSZH coating. Green. 3m	374618	XS6W-6LSZH8SS300CM-G	Buy on EAN
Control system, Ethernet Cable S / FTP Cat. 6. LSZH coating. Green. 5m	374619	XS6W-6LSZH8SS500CM-G	Buy on EAN
Control System, Module 16 NPN High Speed Screwless	270548	CJ1W-OD213	Buy on EAN
Control system, High Speed Inputs Module 32 MIL	270545	CJ1W-ID233	Buy on EAN
E / S Remote, Shunt line 6-port EtherCAT	355831	GX-JC06	Buy on EAN
E / S Remote, Shunt 3-port EtherCAT line	355830	GX-JC03	Buy on EAN
Control system, Ethernet Cable S / FTP Cat. 6. LSZH coating. Green. 1.5M	374616	XS6W-6LSZH8SS150CM-G	Buy on EAN
Control system, High Speed Inputs Module 16 - Connector M3	382930	CJ1W-ID212	Buy on EAN
Control System, Module 8 Outputs Relay - Connector M3	382931	CJ1W-OC201	Buy on EAN
Control system, NPN output module 16 - Connector M3	382933	CJ1W-OD211	Buy on EAN
Control System, 16/16 Module E / S NPN Fujitsu	104549	CJ1W-MD231	Buy on EAN
Control system, RFID Module for CJ1 2 antennas 13.56MHz	244992	CJ1W-V680C12	Buy on EAN
Control system, Ethernet Cable S / FTP Cat. 6. LSZH coating. Green. 15m	374622	XS6W-6LSZH8SS1500CM-G	Buy on EAN
Control system, Temperature Control Module 2 loops Thermocouple NPN Break	135990	CJ1W-TC003	Buy on EAN
Control System, Module 32 NPN High Speed MIL	270546	CJ1W-OD234	Buy on EAN
Control system, Cable-CS1 CS1 2m	224550	CS1W-CN223	Buy on EAN
Control system, Cable-CS1 CS1 5m	224552	CS1W-CN523	Buy on EAN
Control system, 200-240VAC Module 8 Inputs Term.	315598	CJ1W-IA201	Buy on EAN
Machine Controllers, Controller 32 Machine NJ501 Axles	355310	NJ501-1400	Buy on EAN
Machine Controllers, Controller 64 Machine NJ501 Axles	355311	NJ501-1500	Buy on EAN
Machine Controllers, CPU Sysmac NJ Power Supply 100-240 VAC	355312	NJ-PA3001	Buy on EAN
Machine Controllers, SD Memory Card 2GB	355818	HMC-SD291	Buy on EAN
Machine Controllers, NJ501 Machine Controller + Robotics 32 Axles	368568	NJ501-4400	Buy on EAN

Control system, Cable-CS1 CS1 10m	224537	CS1W-CN133	Buy on EAN
Control system, Ethernet cable SF / UTP Cat. 5 PUR coating. Green. 7.5m	374596	XS6W-5PUR8SS750CM-G	Buy on EAN
Machine Controllers, CPU Sysmac NJ 24 VDC Power Supply	355313	NJ-PD3001	Buy on EAN
Control system, Ethernet Cable S / FTP Cat. 6. LSZH coating. Yellow. 0.5m	374580	XS6W-6LSZH8SS50CM-Y	Buy on EAN
Control system, Ethernet Cable S / FTP Cat. 6. LSZH coating. Yellow. 1m	374581	XS6W-6LSZH8SS100CM-Y	Buy on EAN
Control system, Ethernet Cable S / FTP Cat. 6. LSZH coating. Yellow. 1.5M	374582	XS6W-6LSZH8SS150CM-Y	Buy on EAN
Control system, Ethernet Cable S / FTP Cat. 6. LSZH coating. Yellow. 2m	374583	XS6W-6LSZH8SS200CM-Y	Buy on EAN
Control system, Ethernet Cable S / FTP Cat. 6. LSZH coating. Yellow. 3m	374584	XS6W-6LSZH8SS300CM-Y	Buy on EAN
Control system, Ethernet Cable S / FTP Cat. 6. LSZH coating. Yellow. 5m	374585	XS6W-6LSZH8SS500CM-Y	Buy on EAN
Control system, Ethernet Cable S / FTP Cat. 6. LSZH coating. Yellow. 7.5m	374586	XS6W-6LSZH8SS750CM-Y	Buy on EAN
Control system, Ethernet Cable S / FTP Cat. 6. LSZH coating. Yellow. 10m	374587	XS6W-6LSZH8SS1000CM-Y	Buy on EAN
Control System, Set 2 Antennas Magnetic for WE70	239025	WE70-AT001H	Buy on EAN
Control system, Ethernet Cable S / FTP Cat. 6. LSZH coating. Green. 0.5m	374614	XS6W-6LSZH8SS50CM-G	Buy on EAN
Control system, Ethernet Cable S / FTP Cat. 6. LSZH coating. Green. 1m	374615	XS6W-6LSZH8SS100CM-G	Buy on EAN
Control system, Ethernet Cable S / FTP Cat. 6. LSZH coating. Green. 0.2m	374612	XS6W-6LSZH8SS20CM-G	Buy on EAN
Control system, Ethernet Cable S / FTP Cat. 6. LSZH coating. Green. 0.3m	374613	XS6W-6LSZH8SS30CM-G	Buy on EAN
Control system, Outputs Relay Module 16 - Connector M3	382932	CJ1W-OC211	Buy on EAN
Machine Controllers, NJ501 SQL Client Machine Controller + 32 Axles	375709	NJ501-1420	Buy on EAN
Control system, Cable-CS1 CS1 12m	224538	CS1W-CN133-B2	Buy on EAN
Control system, Ethernet Cable S / FTP Cat. 6. LSZH coating. Green. 10m	374621	XS6W-6LSZH8SS1000CM-G	Buy on EAN
Control system, Ethernet Cable S / FTP Cat. 6. LSZH coating. Green. 7.5m	374620	XS6W-6LSZH8SS750CM-G	Buy on EAN
Control system, Ethernet Cable S / FTP Cat. 6. LSZH coating. Green. 20m	374623	XS6W-6LSZH8SS2000CM-G	Buy on EAN
Control system, Ethernet Cable Cat. 5. Straight M12 to RJ45 connector. 3m	375725	XS5W-T421-EMC-K	Buy on EAN

Control system, Ethernet Cable Cat. 5. Straight M12 to RJ45 connector. 1m	375724	XS5W-T421-CMC-K	Buy on EAN