OMRON

NJ/NX-series Machine Automation Controller Database Connection CPU Unit

NX701-1□20/NX102-□□20/NJ501-□□20/NJ101-□□20

SYSMAC
always in control

Advanced direct access to database boosts

Values required for information utilization

Reliable

Send all data

Rapid

Monitor machine behavior in synchronization with production cycle time

Easy

Utilize data without any SQL knowledge

Upgraded to directly access databases and utilize production data more reliably, rapidly, and easily

Existing features

- Spool function to send data efficiently
- Saving data and images together
- Data collection every millisecond
- No gateway computer needed. Pre-defined Function Blocks provided

+

NEW **New functions added to version 2.0 bring further innovation**

- Stored Procedure Call
- Secure communications
- Batch Insert of data
- Automatic generation of tables from structures and vice versa

▶ For details, see page 4-5

manufacturing innovation

Supported database[*1]

- Microsoft SQL server
- Oracle Database
- IBM DB2
- MySQL
- PostgreSQL
- Firebird

Database Connection CPU Unit

- No PC, special unit, or middleware needed
- Conforms to IEC 61131-3 standards

*1. Databases supported by version 2.0 : SQL server, Oracle Database, MySQL, and PostgreSQL.

New functionality makes direct access to database more powerful

Reliable・Easy

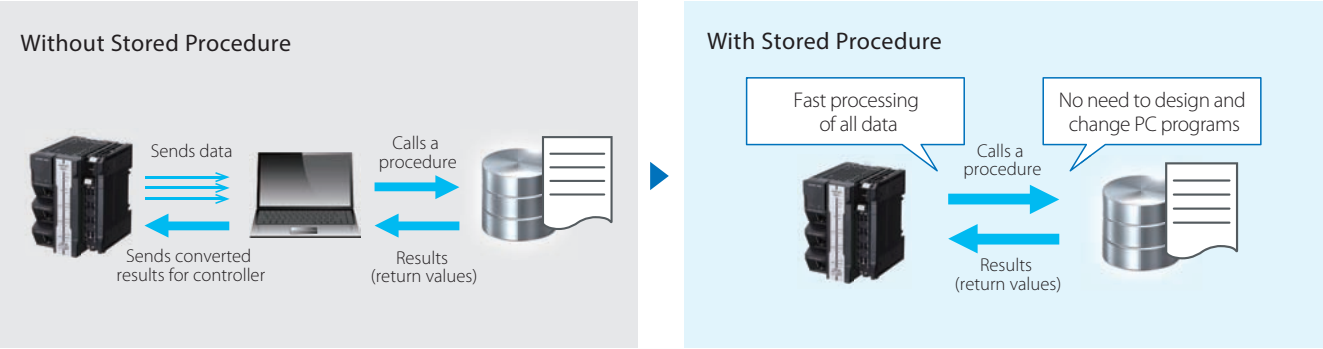
Data check before the next step to produce traceable products

Stored Procedure enables complex processing to be carried out on powerful servers. This function performs all data check processing at once after each step, providing reliable traceability while maintaining productivity. No PC is required, which eliminates the need for software updates or virus protection maintenance.

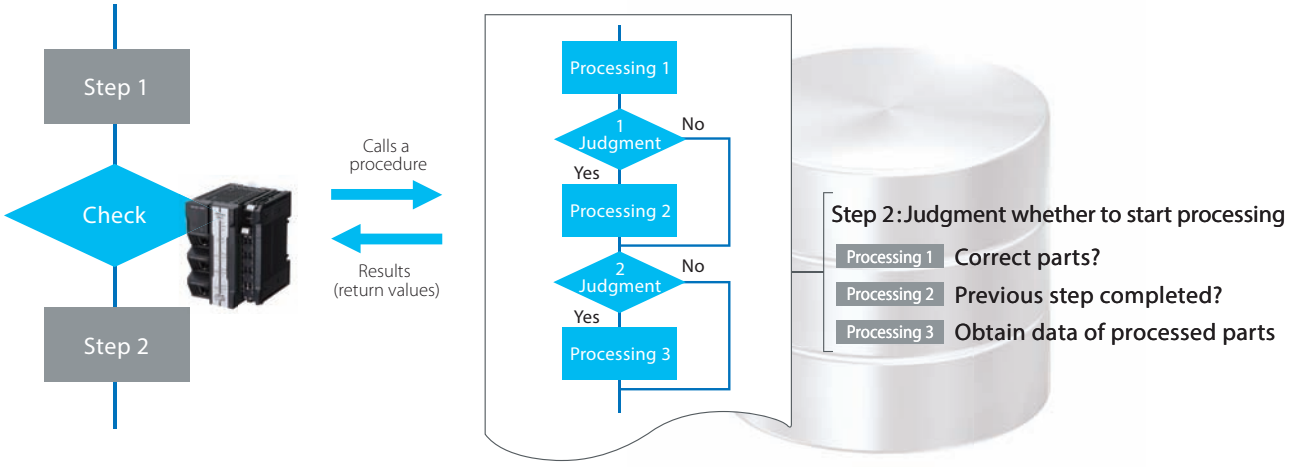
Stored Procedure

■ What is Stored Procedure?

Stored Procedure is one of the database functions. A group of SQL statements is stored in a database, enabling complex processing to be executed with one call.
The Stored Procedure Call function to call a stored procedure in a database from the controller has been added to version 2.0.



■ Usage example: Data check before process



Reliable

Secure connection between FA and IT

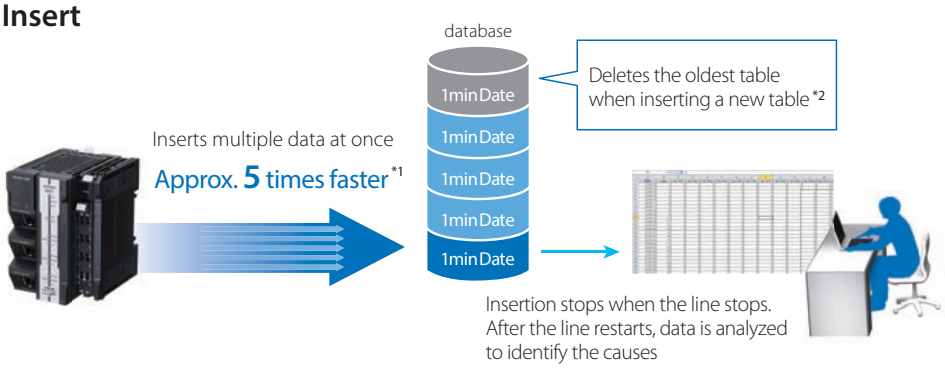
Authentication based on server certificates and encrypted communications ensure safe connection between a database server and the CPU unit.

Rapid

5 times faster data collection than the previous method

Batch Insert can store various types of data for a long time, just like an event data recorder.
This allows you to identify the causes of line stoppages by analyzing data collected every scan.

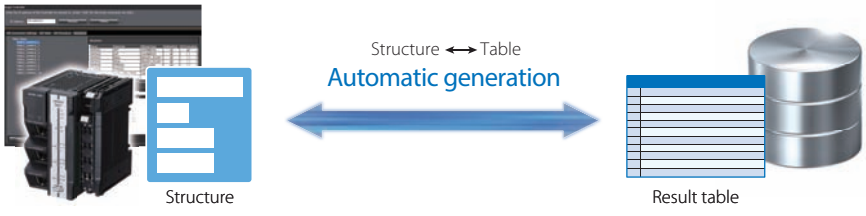
Batch Insert



Easy

Automatic generation of tables from structures and vise versa

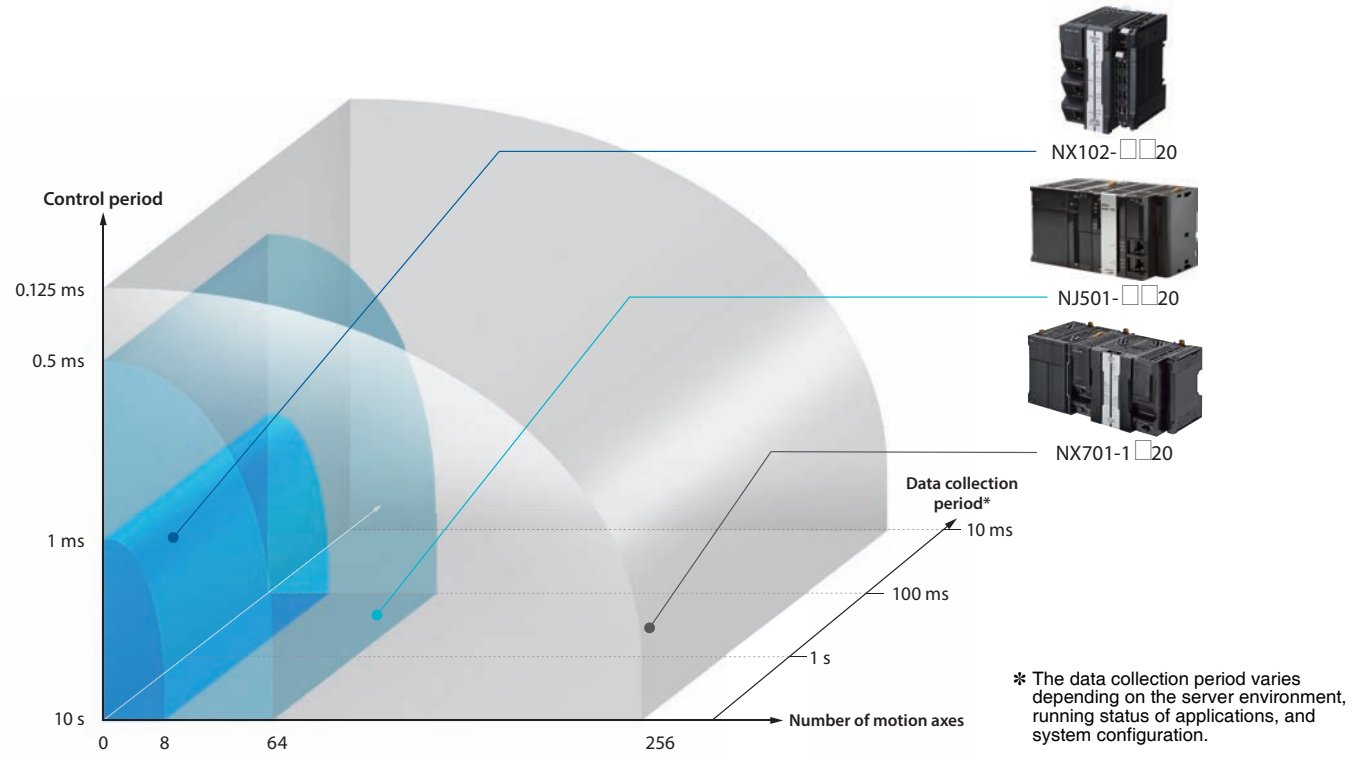
A database table can be automatically generated from a structure, and a structure can be automatically generated from a database table. Mapping time can be reduced.



Note.The database connection utility is required.
Ask your Omron sales representative.

*1. Compared with when multiple insertions are performed.
*2. A stored procedure is required to delete tables.

Product lineup



* The data collection period varies depending on the server environment, running status of applications, and system configuration.

Ordering Information

International Standards

- The standards are abbreviated as follows: U: UL, U1: UL (Class I Division 2 Products for Hazardous Locations), C: CSA, UC: cULus, UC1: cULus (Class I Division 2 Products for Hazardous Locations), CU: cUL, N: NK, L: Lloyd, and CE: EU Directives, RCM: Regulatory Compliance Mark, KC: KC Registration, and EAC: EAC mark.
- Contact your OMRON representative for further details and applicable conditions for these standards.

NX701 CPU Units

Product name	Specifications			Power consumption	Model	Standards
	Program capacity	Memory capacity for variables	Number of motion axes			
NX701 CPU Units	80 MB	4 MB: Retained during power interruption 256 MB: Not retained during power interruption	256	40 W (including SD Memory Card and End Cover)	**NX701-1720 ✻1**	UC1, CE, RCM, KC
			128		**NX701-1620 ✻1**	

✻1. NX701-1720-DH, NX701-1620-DH are products equipped with time series data collection system. Consult your Omron sales representative for details.

NX102 CPU Units

Product name	Specifications					Model	Standards
	Program capacity	Memory capacity for variables	Maximum number of used real axes				
				Number of motion axes	Single-axis position control axes		
NX102 CPU Units	5 MB	1.5 MB: Retained during power interuption 32 MB: Not retained during power interuption	12	8	4	**NX102-1220 ✻1**	UC1, N, L, CE, RCM, KC, EAC
			8	4	4	**NX102-1120 ✻1**	
			6	2	4	**NX102-1020 ✻1**	
			4	0	4	**NX102-9020 ✻1**	

✻1. NX102-1220-DH, NX102-1120-DH, NX102-1020-DH, NX102-9020-DH are products equipped with time series data collection system. Consult your Omron sales representative for details.

NJ-series CPU Units

Product Name	Specifications				Current consumption (A)		Model	Standards
	I/O capacity / maximum Model Standards number of configuration Units (Expansion Racks)	Program capacity	Memory capacity for variables	Number of motion axes	5 VDC	24 VDC		
CPU Units	2,560 points / 40 Units (3 Expansion Racks)	20 MB	2 MB: Retained during power interruption 4 MB: Not retained during power interruption	64	1.90	–	**NJ501-1520**	UC1, N, L, CE, RCM, KC
				32			**NJ501-1420**	
				16			**NJ501-1320**	
		3 MB	0.5 MB: Retained during power interruption 2 MB: Not retained during power interruption	2			**NJ101-1020**	
				0			**NJ101-9020**	
Robot Integrated CPU Units		20 MB	2 MB: Retained during power interruption 4 MB: Not retained during power interruption	64			**NJ501-R520**	
				32			**NJ501-R420**	
				16			**NJ501-R320**	

Automation Software Sysmac Studio

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

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

✻1. Model "SYSMAC-SE200D-64" runs on Windows 10 (64 bit).
✻2. Multi licenses are available for the Sysmac Studio (3, 10, 30, or 50 licenses).

Accessories

The following accessories come with the CPU Unit.

Item model	NX701-1□20	NX102-□□20	NJ□01-□□20
Battery	CJ1W-BAT01	–	CJ1W-BAT01
End Cover ✻	NX-END01	NX-END02	CJ1W-TER01
End Plate	–		PFP-M (2 pcs)
SD Memory Card (Flash Memory)	HMC-SD492	HMC-SD292	NJ501-□□20: HMC-SD492 NJ101-□□20: HMC-SD292

✻ Necessary to be connected to the right end of the CPU Rack.

For details, refer to the data sheet of the Machine Automation Controller NX7 (Cat. No. P141), the data sheet of the Machine Automation Controller NX1 (Cat. No. P130), and the data sheet of the Machine Automation Controller NJ-series (Cat. No. P140).

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Note: Do not use this document to operate the Unit.

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CSM_13_2
Cat. No. P088-E1-19 1021(1214)