OMRON

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

NX701-1□20/NX502-1□00/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 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

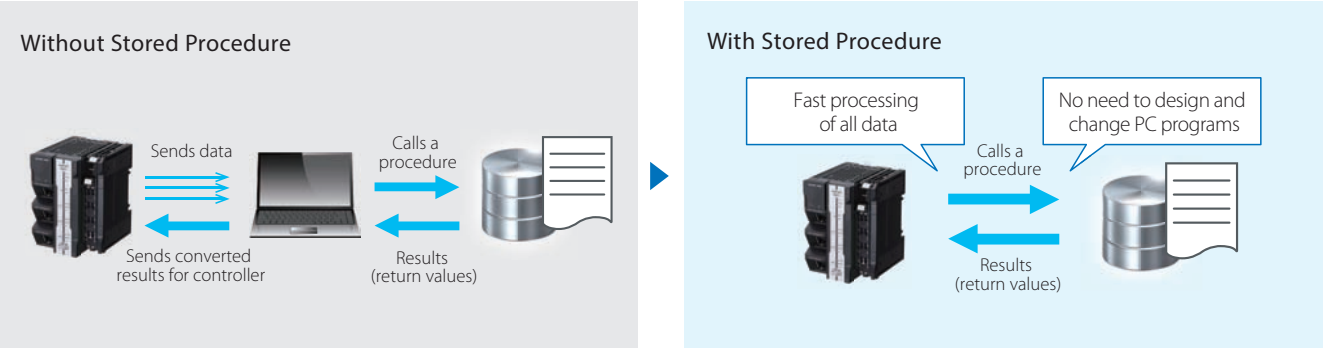
Data check before the next step to produce traceable products

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.

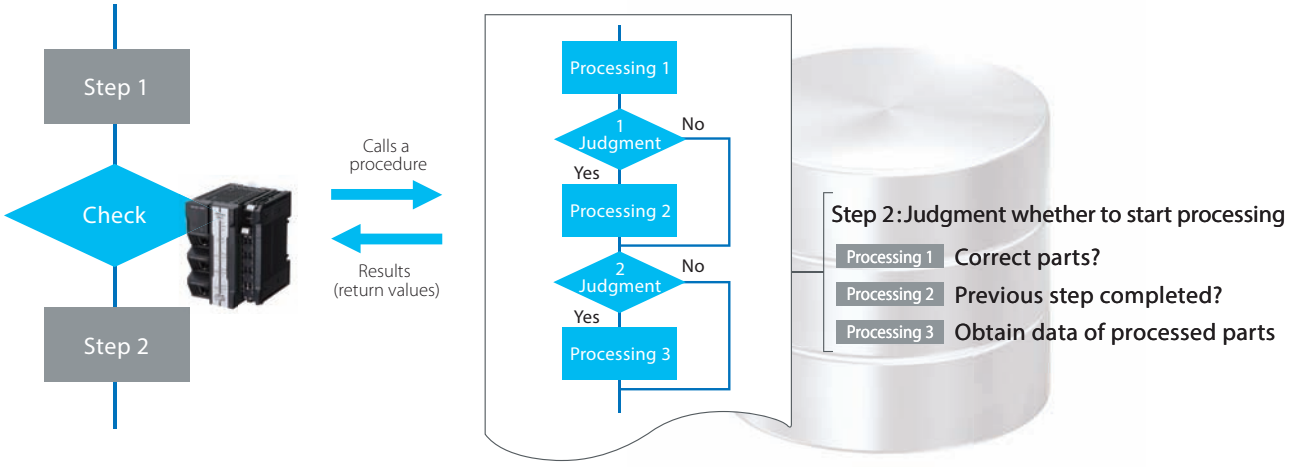
Stored Procedure

■ 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.

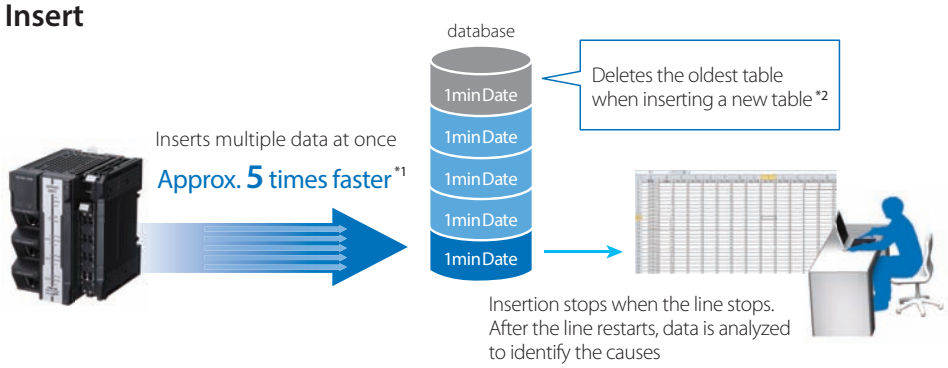


Rapid

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.

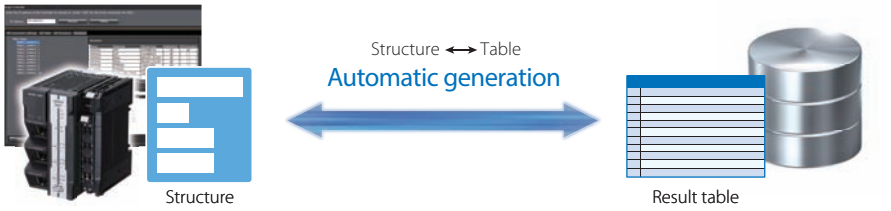
Batch Insert



Easy

Automatic generation of tables from structures and vise versa

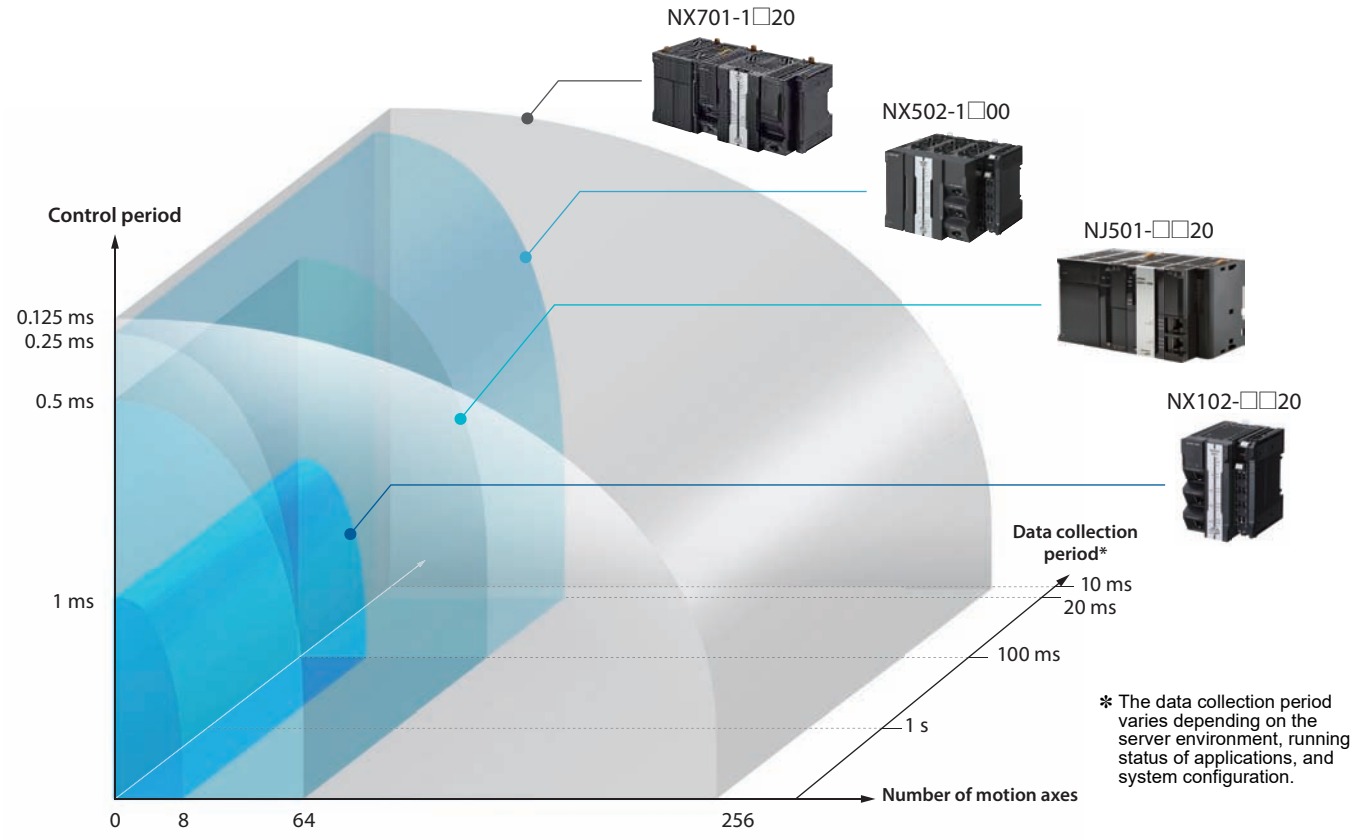
A database table can be automatically generated from a structure, and a structure can be automatically generated from a database table. Mapping time can be reduced.



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



Ordering Information

Applicable standards

Refer to the OMRON website (www.ia.omron.com) or ask your OMRON representative for the most recent applicable standards for each model.

NX701 CPU Units

Product name	Specifications			Power consumption	Model
	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**
			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.

NX502 CPU Units

Product name	Specifications				Model
	Program capacity	Memory capacity for variables	Maximum number of used real axes		
				Used motion control servo axes	
NX502 CPU Units 	80 MB	4 MB: Retained during power interruption 256 MB: Not retained during power interruption	256	256	**NX502-1700**
			128	128	**NX502-1600**
			64	64	**NX502-1500**
			32	32	**NX502-1400**
			16	16	**NX502-1300**

NX102 CPU Units

Product name	Specifications					Model
	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**
			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
	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**
				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**

Accessories

The following accessories come with the CPU Unit.

Item model	NX701-1□20	NX502-□□□□	NX102-□□20	NJ□01-□□20
Battery	CJ1W-BAT01	–		CJ1W-BAT01
End Cover ✻1	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

✻1. 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 NX5 (Cat. No. P159), 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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