

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

NX701-1□20/NX502-1□00/NX102-□□20/NJ501-□□20/NJ101-□□20

Advanced direct access to database boosts manufacturing innovation

Information Control



Machine 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 bringing 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**

- 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

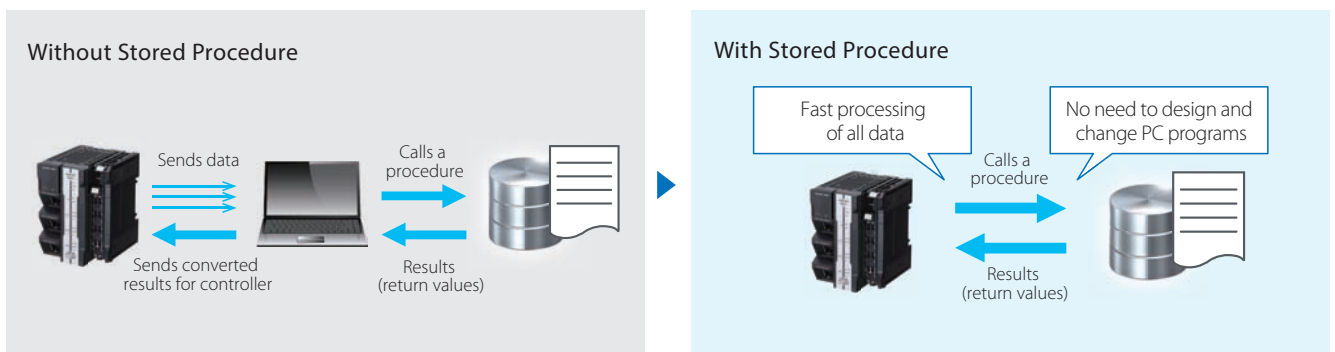
Stored Procedure enables complex processing to be carried out on powerful servers. This function performs all data check processing at once after each step, providing reliable traceability while maintaining productivity. No PC is required, which eliminates the need for software updates or virus protection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

Stored Procedure

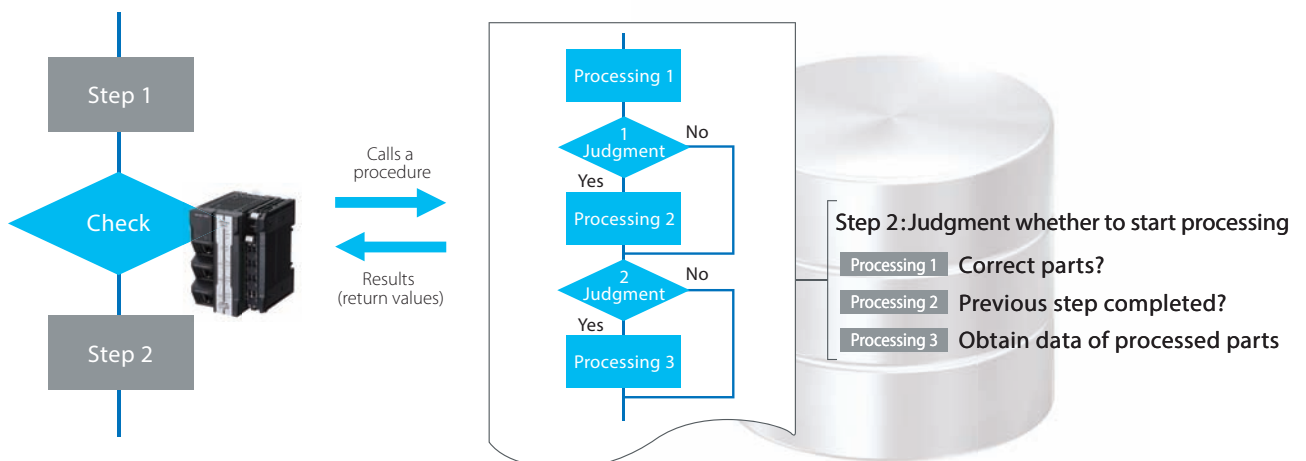
What is Stored Procedure?

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.

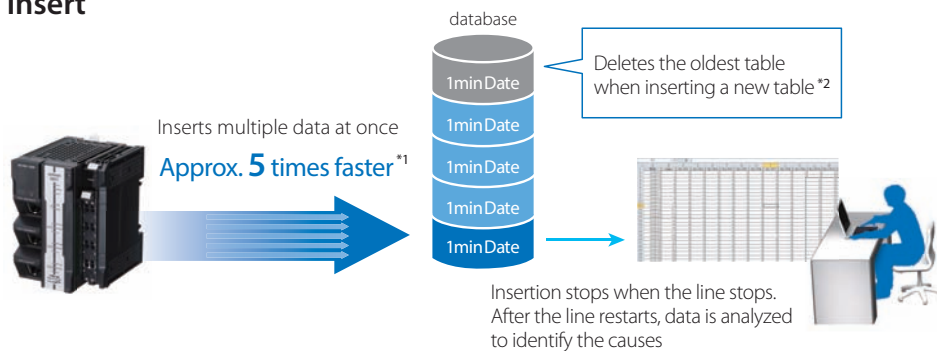


Rapid

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.

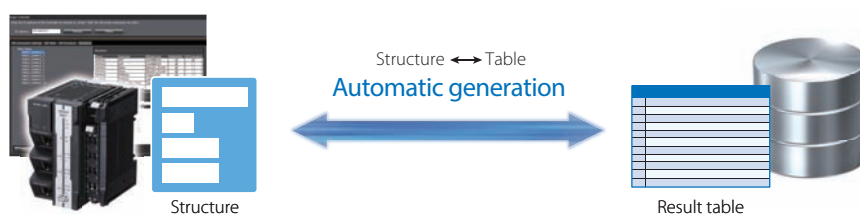
Batch Insert



Easy

Automatic generation of tables from structures and vice versa

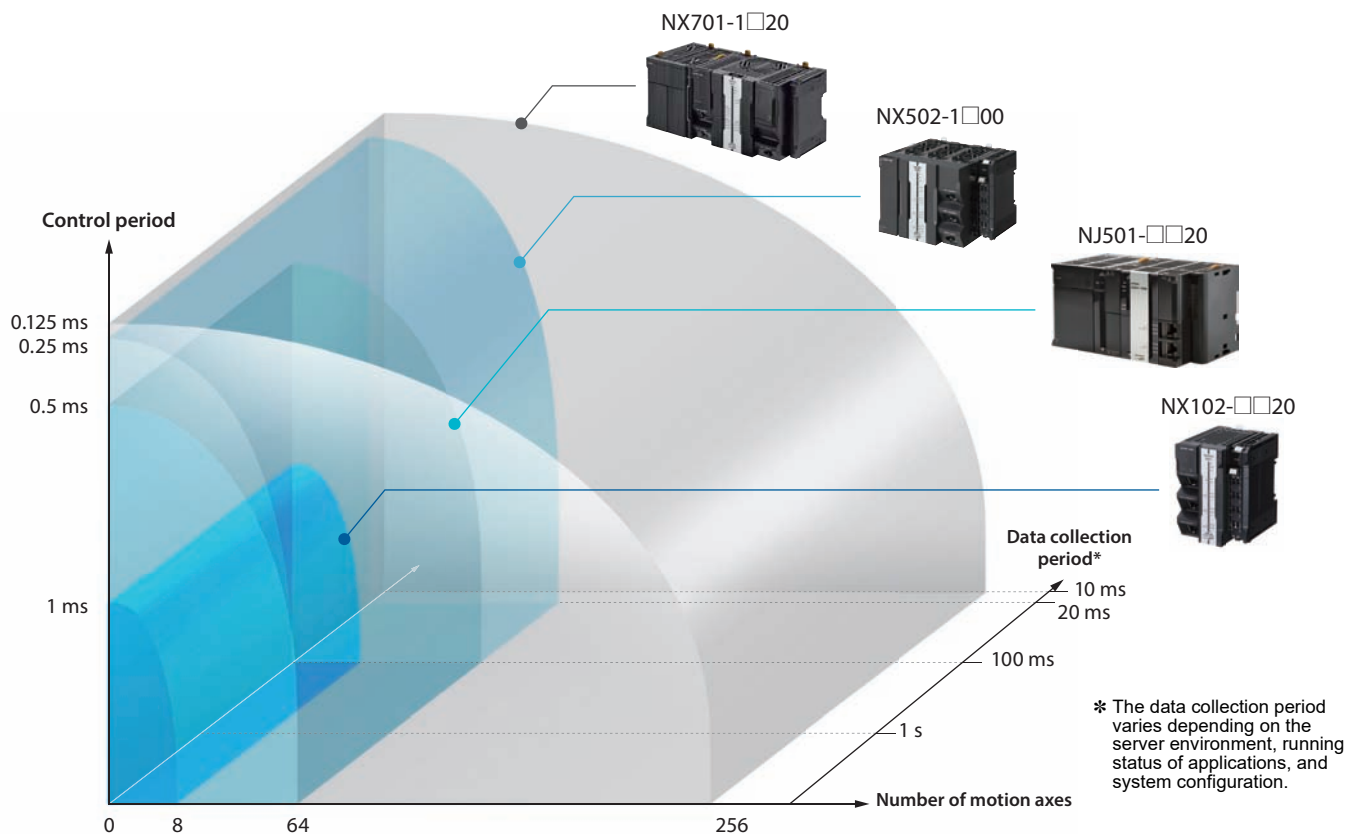
A database table can be automatically generated from a structure, and a structure can be automatically generated from a database table. Mapping time can be reduced.



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 interruption 32 MB: Not retained during power interruption	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
Robot Integrated CPU Units 		3 MB	0.5 MB: Retained during power interruption 2 MB: Not retained during power interruption	2			NJ101-1020
				0			NJ101-9020
				20 MB			2 MB: Retained during power interruption 4 MB: Not retained during power interruption
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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