

NJ-series Machine Automation Controller Database Connection CPU Unit

NJ501-1□20/NJ101-□□20

Aiming for zero defect, non-stop production



One CPU



- Direct access to databases
- Real-time data collection and analysis
- Reliable traceability



Facts visualized using data bring changes

Productivity Improvement

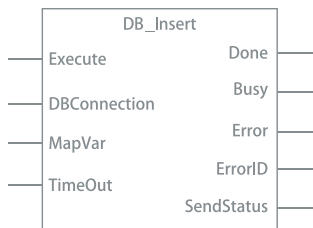
Visualized quality and productivity

Operating status can be displayed in real time using familiar software such as Microsoft® Excel.

Easily leveraging big data

The CPU Unit can directly access databases without a separate computer.

Function Blocks allow PLC engineers to smoothly introduce the CPU Unit.



✓ Supported database

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



✓ New entry model NJ101 with database connection

The database connection model is available to the NJ101 that is ideal for machines with or without a low number of axes.

Real-time data collected from various machines and production lines helps improve the quality and productivity.



NJ-series Database Connection CPU Unit
 NJ101-1020/9020
 NJ501-1□20

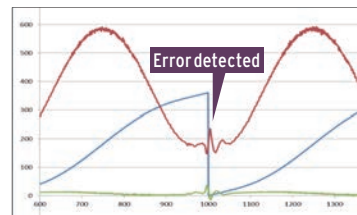
to factories



Predictive Maintenance

Fast data collection

Data is sampled every millisecond and written to the database. Machine behavior can be monitored more accurately.



Quality Traceability

Manufacturing traceability

Data, such as production conditions, production results, and inspection results, can be managed at the individual product level.

Saving data and images together

The process data is linked to inspection images and saved together with the images. This improves the level of quality management.



Application: Increased productivity by 30%

The logs, which are collected from devices on a production line and linked with each product, are consolidated into the database. Visualization of the entire process leads to effective improvements, boosting productivity by 30% a year.

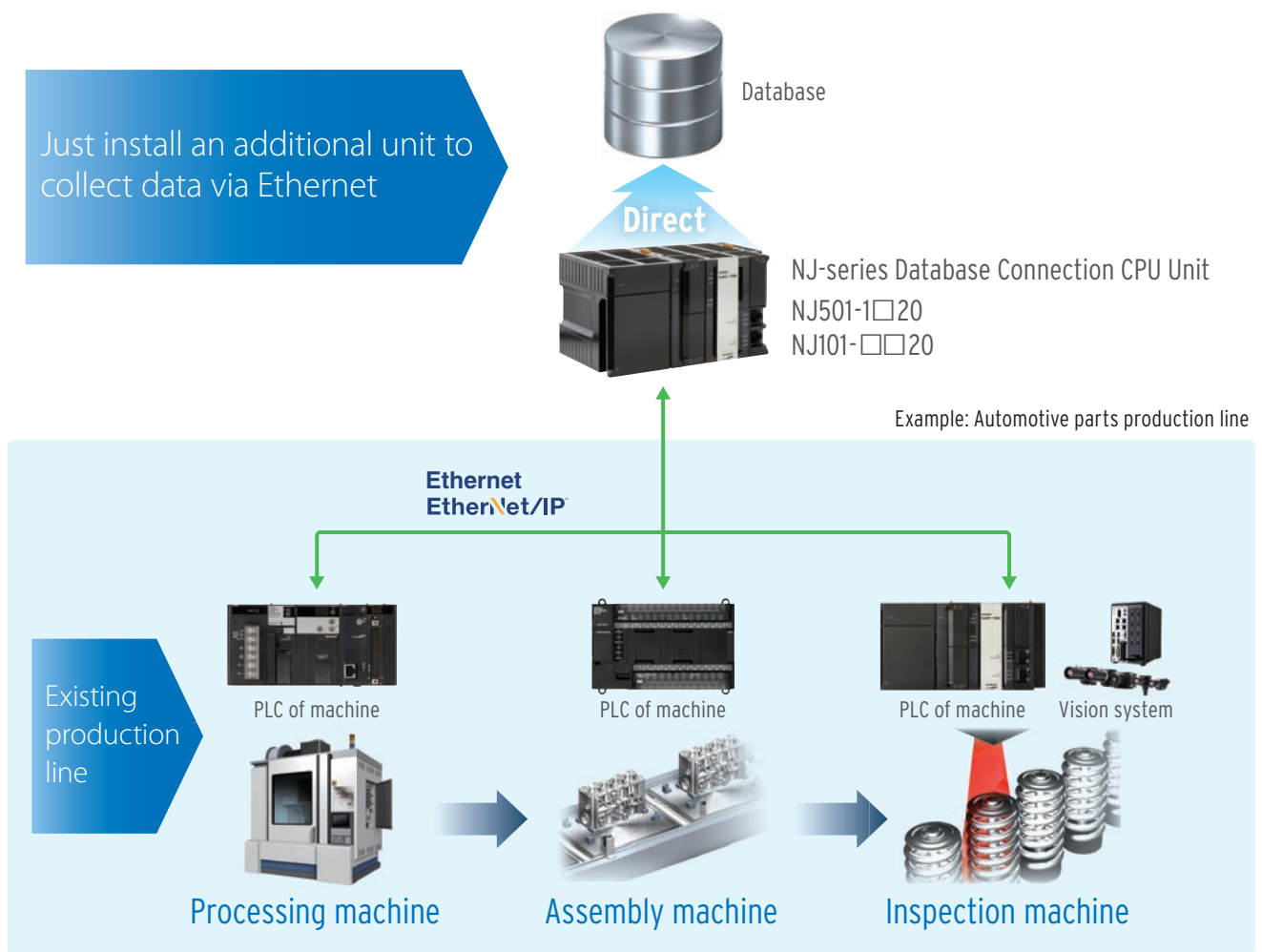


For details visit http://www.fa.omron.co.jp/dbo_e/

Data can further improve manufacturing

Facts visualized using data can change manufacturing.
Demand for leveraging manufacturing data is increasing.

Start small with big data for your system



Add to existing system

The data in the PLC used for each machine can be stored in a database. Even if you are using other company's PLC, consult your Omron representative.

Simple configuration

Direct access eliminates the need to connect a separate computer. Function Blocks allow PLC engineers to smoothly access the database from the CPU Unit.

Data visualization

Data collected in the database can be visualized using familiar software such as Microsoft® Excel. You can easily identify improvement points, quickly making improvements.

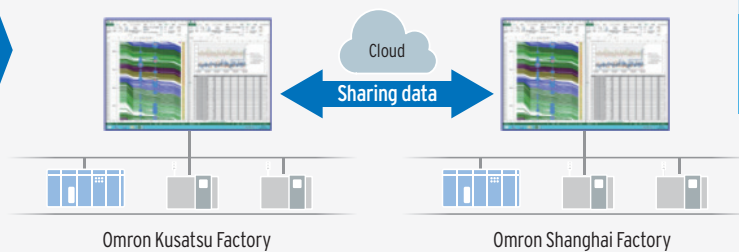
Omron factories have proven the benefits of using big data

Productivity Improvement

- Omron Kusatsu Factory
- Omron Shanghai Factory

Improving operating efficiency thanks to high-speed data collection

The system to visualize the productivity of the PCB surface mounting line in time series was built in Kusatsu Factory, and overseas factories are also using this system. The systems in each factory are connected via the cloud to share the data. This will help share the know-how between factories and improve productivity and



Benefits

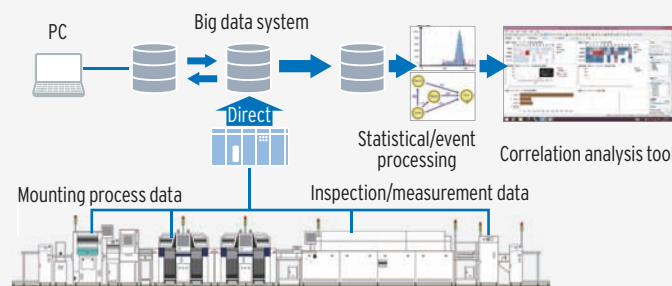
- 6 times faster to identify improvement points*
- Increased productivity by 30%*

Quality Innovation

- Omron Kusatsu Factory

Improving analysis accuracy aiming for a failure rate of 1 ppb

The system implemented in the PCB surface mounting line obtains the inspection data in addition to the object passing time and analyzes the correlation between the process and causes of failure. This system will obtain more data and increase the analysis accuracy, aiming for extraordinary quality innovation.



Benefits

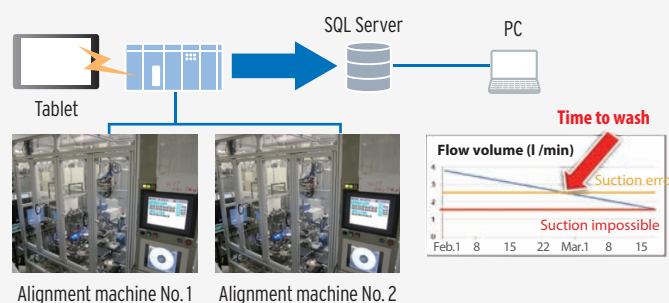
- Collected about 6 times the amount of data*
- Failure rate of 1 ppm*

Predictive Maintenance

- Omron Ayabe Factory

Improving maintenance by leveraging big data

The system to collect machine data and visualize operating status was built for the high-efficiency coupling element alignment machines. The workflow where the vacuum nozzle is washed when a measured value exceeds the specified threshold is achieved by collecting the data from the process and analyzing it. Efficient and timely, not periodic, checks will lead to improvement of operating efficiency.



Benefits

- Improved productivity by avoiding intermittent stops
- Reduced cost due to timely parts replacement

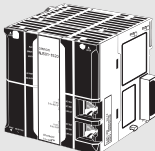
* In-house comparison. Based on Omron investigation in November 2015.

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 and KC: KC Registration.
- Contact your OMRON representative for further details and applicable conditions for these standards.

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		
NJ-series CPU Units 	2,560 points / 40 Units (3 Expansion Racks)	20 MB	2 MB: Retained during power interruption	64	1.90	-	NJ501-1520	UC1, N, L, CE, RCM, KC
			4 MB: Not retained during power interruption	32			NJ501-1420	
				16			NJ501-1320	
		3 MB	0.5 MB: Retained during power interruption	2			NJ101-1020	
			2 MB: Not retained during power interruption	0			NJ101-9020	

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)	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) 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 the Sysmac Integrated Catalogue (P072).	1 license *	-	SYSMAC-SE201L	-

* Multi licenses are available for the Sysmac Studio (3, 10, 30, or 50 licenses).

Accessories

The following accessories come with the CPU Unit.

Item	Specifications
Battery	CJ1W-BAT01
End Cover	CJ1W-TER01 (necessary to be connected to the right end of the CPU Rack.)
End Plate	PFP-M (2 pcs)
SD Memory Card (Flash Memory 2 GB)	HMC-SD291 *

* HMC-SD491 is provided with NJ501-□□20 hardware revision A/unit version 1.15 or later.

For details, refer to the data sheet of the Machine Automation Controller NJ/NX-Series.

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

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