OMRON

NJ/NX-series Machine Automation Controller CPU Unit

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

SYSMAC
always in control

Reliable, secure, easy - International standard communication protocol

Reliable

IEC communication protocol for Industrie 4.0 and PackML

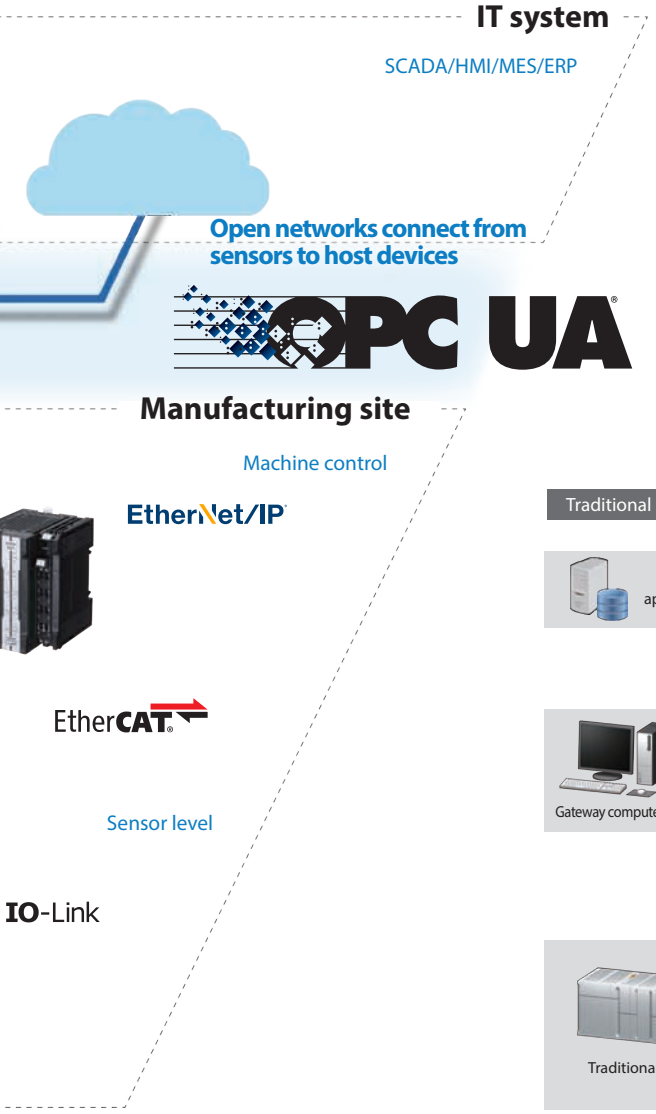
OPC UA is an industrial communication protocol that enables data exchange between products from different manufacturers and across operating systems. This international standard (IEC 62541) is integrated with the IEC 61131-3 PLC programming standard. OPC UA is listed as a recommendation for the communication technology in RAMI 4.0 (Reference Architecture Model Industrie 4.0) and also serves as a basis for the packaging standard PackML (ANSI/ISA-TR88)* and the standard for exchange of data between injection molding machines (EUROMAP 77). The adoption of this open standard for manufacturing machines is increasing worldwide. In such circumstances, Omron added an OPC UA server interface to the NX701-1□□□/NX502-□□□□/NX102-□□□□/NJ501-1□00.

Secure

Authentication and encryption technologies

Security is a crucial issue for connection between industrial automation systems and the host IT system, remote access maintenance, and use of the internet. OPC UA security is based on recognized standards that are also used for secure communication in the internet and satisfies the three security requirements: confidentiality, integrity, and availability. Integrity by digitally signing the messages and confidentiality by encrypting the messages ensure secure connection between automation systems and IT systems.

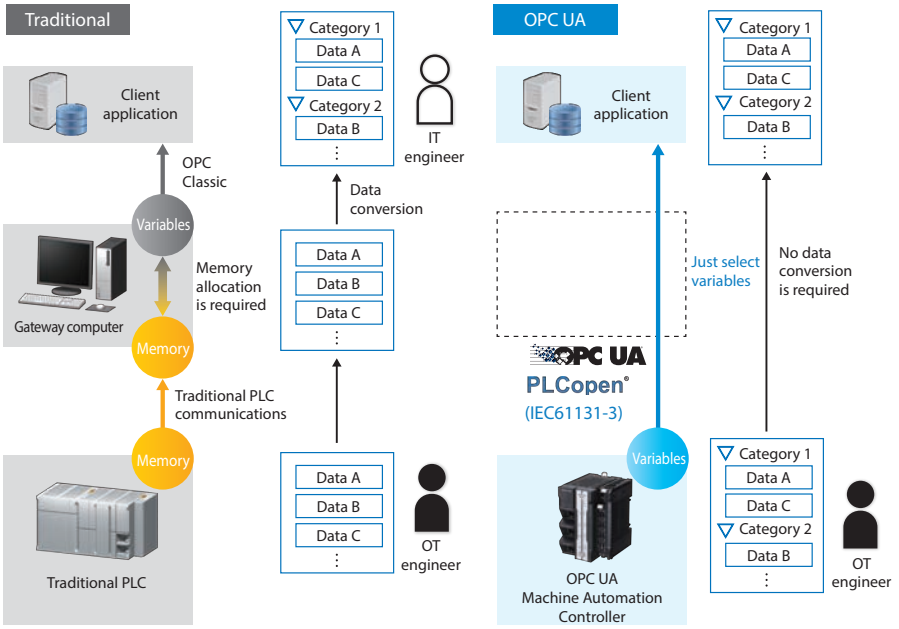
OPC UA directly connects automation and IT



Easy

Simple connection to host system

A gateway computer is required to connect the traditional PLC to the host system. The user must register variables and allocate memory to them. Omron's OPC UA CPU Unit eliminates the need for a computer. Just select variables to directly connect the controller to the host system.
In addition, since its OPC UA Server function allows variables to be structured, a data structure can be created tailored to the manufacturing site's needs and additional complex data conversion in the host system is no longer required. This facilitates preparing a data utilization environment and sharing it with other machines without any error.



What is OPC UA (OPC Unified Architecture)?

- An interoperability standard for the secure and reliable exchange of data in the industrial automation space and in other industries
- An OS and hardware independent service-oriented architecture
- Secure connection between higher-level systems like MES or ERP and automation systems at production floor

Omron is contributing to the distribution of the OPC technology since OPC Foundation was established.
OPC Foundation https://opcfoundation.org/

＊What is PackML (ANSI/ISA-TR88)?

PackML (Packaging Machine Language) developed by OMAC (Organization for Machine Automation and Control) is a standard for packaging machines that defines mode and state of devices and interface with host devices. In September 2016, it was announced that OMAC, PLCopen and OPC Foundation would work together to promote this standard.
Omron offers OPC UA CPU units, Function Blocks for PackML in the Packaging Machine Library (SYSMAC-XR012), and sample programs to use the Function Blocks, helping you comply with PackML.

Ordering Information

International Standards

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

Product name	Specifications			Model
	Program capacity	Memory capacity for variables	Motion control axes	
NX701 CPU Unit 	80 MB	4 MB: Retain attributes 256 MB: No Retain attributes	256	**NX701-1700**
			128	**NX701-1600**
NX701 Database Connection CPU Unit 		4 MB: Retain attributes 256 MB: No Retain attributes (including Memory for CJ-series Units)	256	**NX701-1720**
			128	**NX701-1620**
NX502 CPU Unit 	80 MB	4 MB: Retain attributes 256 MB: No Retain attributes	64	**NX502-1500**
			32	**NX502-1400**
			16	**NX502-1300**
NX102 CPU Unit 	5 MB	1.5 MB: Retain attributes 32 MB: No Retain attributes	8	**NX102-1200**
			4	**NX102-1100**
			2	**NX102-1000**
			0	**NX102-9000**
NX102 Database Connection CPU Unit 			8	**NX102-1220**
			4	**NX102-1120**
			2	**NX102-1020**
			0	**NX102-9020**
NJ501 CPU Unit 	20 MB	2 MB: Retain attributes 4 MB: No Retain attributes	64	**NJ501-1500**
			32	**NJ501-1400**
			16	**NJ501-1300**

Specifications

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).

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

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