Ordering Information

Model	Analog input section					Trigger input section	
	Number of points	Input range	Resolution	Input method	Conversion time	Number of points	Internal I/O common
NX-HAD401	4 points	Voltage: • -10 to 10 V (-32000～32000) • -5 to 5 V (-32000～32000) • 0 to 10 V (0～32000) • 0 to 5 V (0～32000) • 1 to 5 V (0～32000) Current: • 0 to 20 mA (0～32000) • 4 to 20 mA (0～32000)	• Input range of -10 to 10 V or -5 to 5 V 1/64000 (full scale) • Other input range 1/32000 (full scale)	Differential input	5 μs/4 Ch	4 points	NPN
NX-HAD402						4 points	PNP

Collection of software functional components Sysmac Library

Please download it from following URL and install to Sysmac Studio.
http://www.ia.omron.com/sysmac_library/

Typical Model

Product	Features	Model
High-Speed Analog Inspection Library	The High-speed Analog Inspection Library records analog input values acquired by the NX series High-speed Analog Input Units in time. This library provides functions required for product inspections during production processes, including calculation of feature values (e.g., maximum, minimum, and mean), comparison with master data, and data file storage.	SYSMAC-XR016

Combination Table

Model	Unit version	
	CPU Unit or Industrial PC	EtherCAT® Coupler Unit
NX-HAD401 Ver.1.0 NX-HAD402 Ver.1.0	NX701-□□□□ Ver.1.18 or later	NX-ECC203 Ver.1.0 or later
	NX102-□□□□ Ver.1.30 or later	
	NJ501-□□□□ Ver.1.18 or later	
	NJ301-□□□□ Ver.1.18 or later	
	NJ101-□□□□ Ver.1.18 or later	
	NX1P2-□□□□□□(1) Ver.1.18 or later	
	NY5□□-1 Ver.1.18 or later	

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

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Printed in Japan
Cat. No. P128-E1-01 0315-?M (0315) (?)

OMRON

High-speed Analog Input Unit

NX Series NX-HAD401/402

Analog inspection without PC

- PLC systems can acquire analog data at high speeds
- Easy system configuration and maintenance

High-speed analog inspection with PLC system —No special devices and no PC required

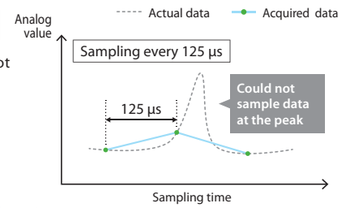
Improving quality in parts inspections requires as detailed analog data as possible. Most automotive and other manufacturers are using PC and special measuring devices such as data loggers for measurements. Being among the first to work on IoT at manufacturing sites, Omron now offers the High-speed Analog Input Unit that can reliably, precisely, and easily acquire synchronized analog data. It will help you improve quality.

Reliable

Industry's fastest*1 sampling speed of 5 µs to catch every minute change

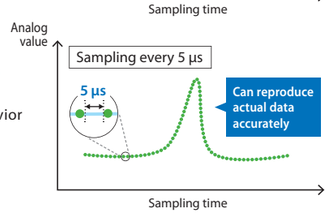
Conventional PLC

Some data could not be obtained when an error occurred



NX-HAD

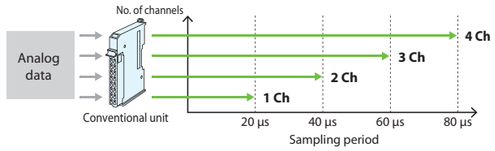
Sampling **as fast as every 5 µs** catches all changes in behavior



Industry's fastest sampling speed*1: Same speed*2 regardless of the number of channels

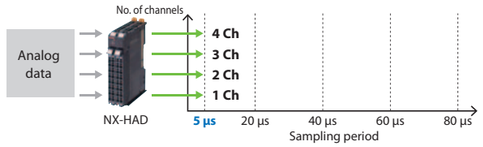
Conventional PLC

Sampling period becomes longer as data is obtained from multiple channels



NX-HAD

Achieves high-speed sampling every 5µs from 4 channels at the same time



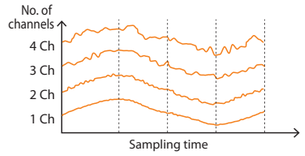
*1. Based on Omron's surveys as of January 2018. *2. When using 4 channels.

Precise

Fully insulated channels to obtain precise data without noise

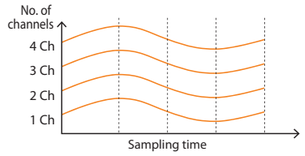
Conventional PLC

Mutual interference occurred between channels



NX-HAD

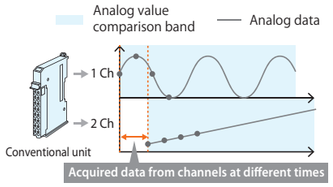
Precise data can be obtained from multiple channels



Easy comparative analysis of data obtained synchronously from multiple channels

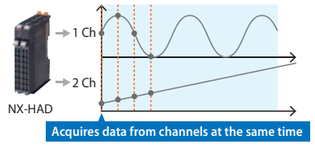
Conventional PLC

Difficult to compare data obtained at different times

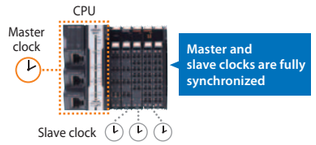


NX-HAD

Precise data can be obtained from multiple channels



Furthermore, the Time-Stamp function in EtherCAT® ensures accurate synchronization between units



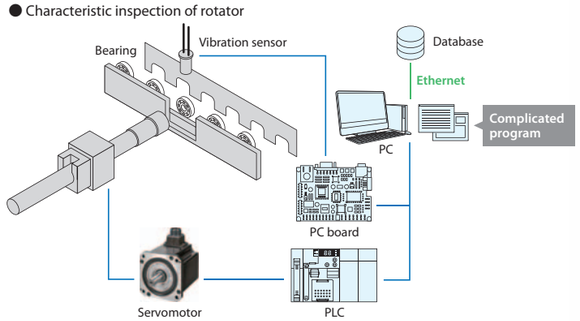
Easy

Simple system configuration ideal for global manufacturing

Conventional system

- Special measuring devices don't have flexibility in configuration
- PC requires programming skills in C
- Difficult to change programs concealed in dedicated controllers
- Some technical skills are required to configure PC that is connected to database

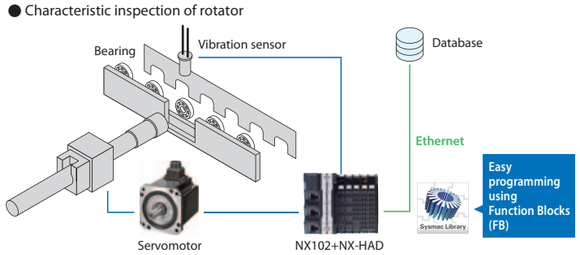
● Characteristic inspection of rotator



NX-HAD

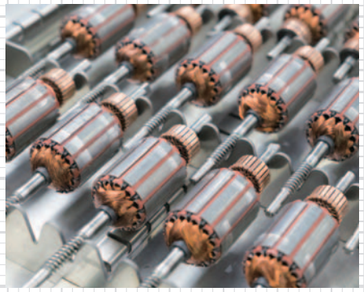
- PLC system **reduces initial costs**
- **Programs can be created without any special knowledge** of PC
- **Programs can be changed** for additional inspection items
- Database connection controller*3 brings **IoT** into manufacturing sites **without connecting PC**

● Characteristic inspection of rotator



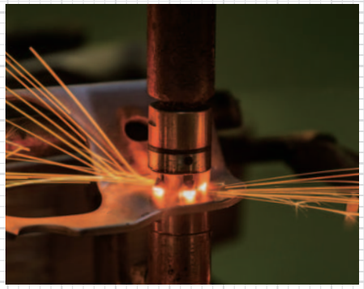
*3. When using the NJ/NX Machine Automation Controller Database Connection CPU Unit or the Industrial PC Platform NY IPC Machine Controller.

Applications



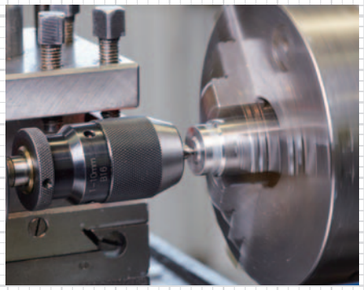
Characteristic inspection of rotator

PLC systems can be used for machines to inspect characteristics of bearings, motors, and other rotators



Welding quality inspection

Quality can be inspected using the data acquired at the moment of welding. The data linked to individual products can be used for traceability



Machine vibration inspection

Vibration data of machining tools is acquired and monitored to maintain machining quality