

NEW

N-Smart

Sensor Communications Unit Distributed Sensor Unit E3NW

Revolutionize the Workplace

Introducing the Next-generation E3NW Sensor Networking Units





Revolutionize the Workplace

The Next-generation Sensor Networking Units

E3NW

A new Distributed Sensor Unit appears as a slave to the Sensor Communications Unit master.Use these two next-generation Sensor Networking Units to connect distributed N-Smart Sensors to an open-network controller.Implementing a Sensor Network solves many workplace issues from introduction to commissioning and operation.



Point

Industry's Fastest *2 Reading Time for Present Values Ideal for high-speed workpieces and high-precision position feedback control.

Ultra-high speed, such as 0.2 ms for I/O data between the Sensor Amplifier Units and Sensor Communications Unit, 1 ms for present value data. A network also allows you to easily control applications that previously required Analog Units. At 5 ms, high speed is also provided between the Distributed Sensor Units and Sensor Communications Unit.

*2. As of February 2013. According to OMRON investigation.



Detecting Snaking in Wrapping Sheets



Detecting Wafer Notch Positions

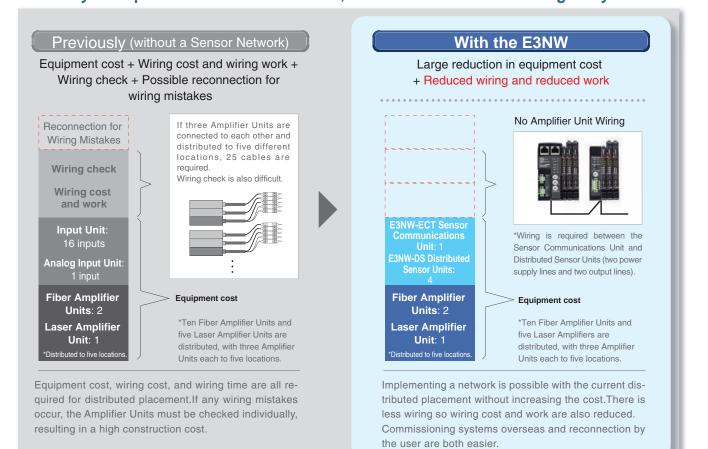


I/O data: 0.2 ms Present value data: 1 ms

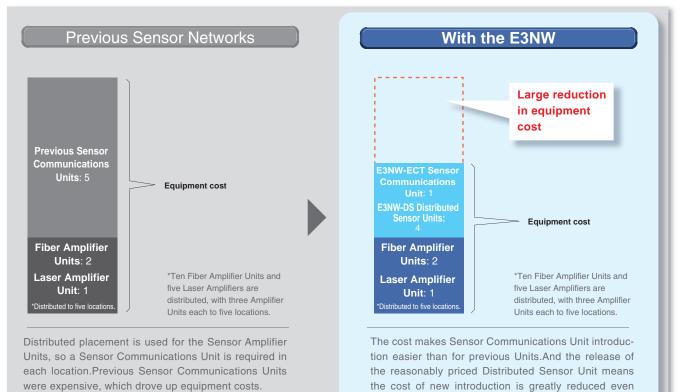
I/O data and present value data: 5ms



Radically Reduce Manufacturing Costs Even if you implement a Sensor Network, the cost of introduction is greatly reduced.



Greatly Reduce Introduction Cost in Comparison to Previous Sensor Networks



more

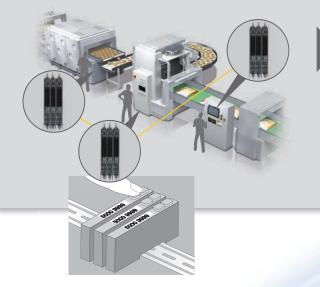
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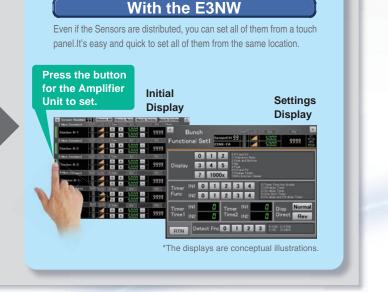
Radically Reduce System Commissioning Time

Easy Batch Setting from a Touch Panel

Previously (without a Sensor Network)

When Sensor Amplifier Units must be distributed to narrow locations, the Units had to be set individually, creating extensive work and requiring time to make the settings.





Line Changeovers Are Also Easy with a Setup Backup Function

Previously (without a Sensor Network)

The Sensor Amplifier Units must be set whenever the workpiece changes.Sometimes adjustments are difficult and the setup is time consuming, which can reduce productivity.



With the E3NW

The setup data is saved in the Controller. If the workpiece changes, just select the correct setup. This also makes Amplifier Unit replacement easier and more reliable should it ever be necessary.

Function Settings Display Setup Selection Display



Radically Increase Machine Productivity

Monitoring for Predictive Maintenance

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You can use E3NW communications to create controller programming or touch panel displays to perform all of the settings and monitoring that are described on pages 4 and 5. Display samples for OMRON NS-series Programmable Terminals (touch panels) and sample programming for OMRON NJ-series Controllers are available. For details, please contact your OMRON sales representative.

Reduced Downtime When Troubles Occur

Previously (without a Sensor Network)

If the equipment stopped due to a problem with a Sensor, time was required to isolate the Sensor where the problem occurred and find the cause.



With the E3NW

You can immediately find the location, the Sensor, and the type of error to quickly recover normal operation and reduce downtime.

Initial Display for Errors



Ordering Information



Distributed Sensor Unit

	Appearance		Model
		E3NW-DS	
Note:	Use the following DS-Bus communication cable (recommended) when connecting a sensor communications unit and a distributed sensor unit.		
	Item	Manufacturer	Model
	Communication cable	BANDO DENSEN Co., Ltd.	ESVC 0.5X2C, black

Connectable Sensor Amplifier Units

Туре	Model
Smart Fiber Amplifier Unit	E3NX-FA0
Smart Fiber Amplifier Unit (Infrared models)	E3NX-FAH0
Smart Fiber Amplifier Unit (2-channel models)	E3NX-MA0
Color Fiber Amplifier Unit	E3NX-CA0
Smart Laser Amplifier Unit	E3NC-LA0
Smart Laser Amplifier Unit (CMOS type)	E3NC-SA0
	E2NC-EA0
Smart Proximity Amplifier Unit	E2NC-EA10
	E2NC-EA40
Contact-Type Smart Amplifier Unit	E9NC-TA0

Connector cover for Sensor Communications Unit and Distributed Sensor Unit (provided) Order a Cover when required, e.g., if you lose the covers.

	-	
	Model	
		-
E39-G27		

Ratings and Specifications

Power and current consumption 100 mA max. (Not including the current supplied to Sensors.) 80 mA max. (Not including the current supplied to Sensors.) Indicators L/A IN indicator (green), L/A OUT indicator (green), PWR indicator (green), RUN indicator (green), ERROR indicator (green) and SS (Sensor Status) indicator (green/red) RUN indicator (green) and SS (Sensor Status) indicator (green/red) Vibration resistance (destruction) 10 to 60 Hz with a 0.7-mm double amplitude, 50 m/s² at 60 to 150 Hz, for 1.5 hours each in X, Y, and Z directions Shock resistance (destruction) 150 m/s² for 3 times each in X, Y, and Z directions Ambient temperature range Operating and storage: 25% to 85% (with no condensation) To condensation) Maximum connectable Sensors*4 30 (when connected to an OMRON NJ-series Controller, 16 for E2NC-EA10/EA40) 10 Maximum connectable Distributed Sensor Status 80 mZ min. (at 500 VDC) 10 Dielectric strength 500 VAC at 50/60 Hz for 1 minute - Mounting method 35-mm DIN track - mounting Approx. 160 g/approx. 40 g Weight (packed state/Unit only) Approx. 185 g/approx. 95 g Approx. 160 g/approx. 40 g Power supply/communications connector, Power supply/communications connector,	Туре	Sensor Communications Unit	Distributed Sensor Unit
Somar Fiber Amplifier Unit: E3NX-FA0 Smart Laser Amplifier Unit: E3NX-FA0 Smart Laser Amplifier Unit: E3NX-CA0 Smart Laser Amplifier Unit: E3NX-FA0 Smart Laser Amplifier Unit: E3NX-CA0 Smart Laser Amplifier Unit: E3NX-FA0 Smart Laser Amplifier Unit: E3NX-CA0 Smart Laser Amplifier Unit: E3NX-FA0 Smart Fiber Mmplifier Unit: E3NX-FA0 Smart Fiber Mmplifier Unit: E3NX-FA0 Smart East Amplifier Unit: E3NX-FA0 Smart East Amplifier Unit: E3NX-FA0 Smart East Amplifier Unit: E3NX-FA0 Contact-Type Smart Amplifier Unit: E3NX-FA0 Mait Contaco	Item Model	E3NW-ECT	E3NW-DS
Power supply voltage 24 VDC (20.4 to 26.4 V) Power and current consumption 2.4 W max. (Not including the power supplied to Sensors.), 100 mA max. (Not including the current supplied to Sensors.), 100 max. (Not including the current supplied to Sensors.), 100 mA max. (Not including the current supplied to Sensors.), 100 mA max. (Not including the current supplied to Sensors.), 100 mA max. (Not including the current supplied to Sensors.), 100 mA max. (Not including the current supplied to Sensors.), 100 mA max. (Not including the current supplied to Sensors.), 100 mA max. (Not including the current supplied to Sensors.), 100 mA max. (Not including the current supply connector, E3NW-DS Communications conne	Connectable Sensor Amplifier Units	Smart Fiber Amplifier Unit: E3NX-FA Smart Fiber Amplifier Unit (Infrared models): E3NX-FA Smart Fiber Amplifier Unit (2-channel models): E3NX-FA Color Fiber Amplifier Unit (2-channel models): E3NX-CA Smart Laser Amplifier Unit: E3NX-CA Smart Laser Amplifier Unit: E3NC-CA Smart Proximity Amplifier Unit: E2NC-EA E2NC-EA E2NC-EA	H0 0 0 *1 0 0 0 0 10 40
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	Accessories		DIN Track End Plates (2), ferrite cores (2), and Instruction

*1. The E3NX-CA0 is supported for firmware version 1.06 or higher (Sensor Communications Units manufactured in June 2016 or later).

*2. The E9NC-TA0 is supported for firmware version 1.03 or higher (Sensor Communications Units manufactured in July 2014 or later).

*3. Temperature Limitations Based on Number of Connected Amplifier Units:

Groups of 1 or 2 Amplifier Units: 0 to 55°C, Groups of 3 to 10 Amplifier Units: 0 to 50°C, Groups of 11 to 16 Amplifier Units: 0 to 45°C, Groups of 17 to 30 Amplifier Units: 0 to 40°C *4. This is the total number of Sensors that can be connected to the Sensor Communications Unit and Distributed Sensor Units.

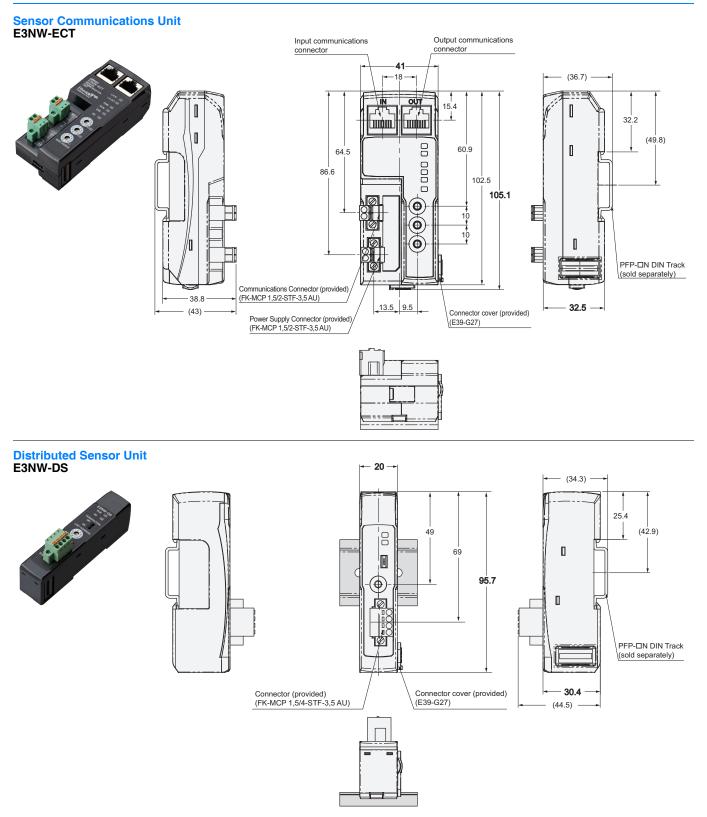
Communications Specifications

Item	Specification
Communication protocol	Dedicated protocol for EtherCAT
Modulation	Base band
Baud rate	100 Mbps
Physical layer	100BASE-TX (IEEE 802.3u)
Topology	Daisy chain
Communications media	STP category 5 or higher
Communications distance	Distance between nodes: 100 m max.
Noise resistance	Conforms to IEC 61000-4-4, 1 kV or higher
Node address setting method	Set with decimal rotary switches or software*1
Node address range	000 to 192*2

*1. The software setting is used when the node address setting switches are set to 0.

*2. The range depends on the EtherCAT master that is used. Refer to the E3NW-ECT EtherCAT Sensor Communications Unit Operation Manual for details.

Dimensions



N-Smart Introduction to the N-Smart Series



* For performance (sensing distance and minimum sensing object) based on November 2017 OMRON investigation.

Fiber Amplifier Units and Laser Sensors

A New Level of Detection Performance for More-stable Equipment Operation

Smart Fiber Amplifier Units E3NX-FA Cat.No.E426



Select the Best Laser Sensor at the Best Price for Your Application

Smart Laser Sensors E3NC-L/E3NC-S Cat.No.E427

