NanoView Series Sensors

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NanoView Series Sensors

Product Description

The NanoView™ Series from Eaton is a family of miniature rectangular photoelectric sensors designed for optimum value and sensing performance in a wide range of applications.

These small sensors are available in a variety of optical modes: polarized reflex; diffuse reflective; fixed-focus diffuse; thru-beam with narrow-beam option; and even a clear object detector.

NanoView sensors are housed in ABS enclosures rated IP66 or better. Two top-mounted indicator LEDs communicate power and output status. Each model includes both light operate and dark operate modes. Termination options include a 4-pin M8 connector cable or a built-in 6 ft (2m) cable.

NanoView is the ultimate solution to sensing challenges that require reduced dimensions and costs.

Features

- A Complete Family of Solutions—Models include an 8.2 ft (2.5m) polarized reflex, a 13 in (35 cm) diffuse reflective, a 4 in (10 cm) fixed-focus diffuse, a 20 ft (6m) thru-beam; and a 2.6 ft (80 cm) clear object detector for sensing plastic bottles, molds, cartons and films
- Small Size—At less than 1.5 in long and half an in deep, NanoView can fit into the smallest of spaces
- Fixed Focus Diffuse Models—Perfect for sensing very small targets at a 4-in focal point. A visible red LED beam makes it easy to set up
- Clear Object Detection Models—Ideal for sensing plastic bottles, molds, cartons, films and glass objects

Standards and Certifications

- UL Listed
- cUL Listed
- CE Approved

Listed

⚠ DANGER

THIS SENSOR IS NOT A SAFETY DEVICE AND IS NOT INTENDED TO BE USED AS A SAFETY DEVICE. This sensor is designed only to detect and read certain data in an electronic manner and perform no use apart from that, specifically no safety-related use. This sensor product does not include self-checking redundant circuitry, and the failure of this sensor product could cause either an energized or de-energized output condition, which could result in death, serious bodily injury, or property damage.

For the most current information on this product, visit our Web site: www.eaton.com

For Customer Service in the U.S. call 1-877-ETN CARE (386-2273), in Canada call 1-800-268-3578.
For Application Assistance in the U.S. and Canada call 1-800-426-9184.

Product Selection

NanoView Series Sensors—Four-Wire Sensors

Voltage Range	Sensing Mode	Sensing Range	Output Type	Connection Type	Catalog Number
Thru-Beam					
					
10–30 Vdc	Thru-beam detector	19 ft (6m)	NPN, light operate or dark operate (selectable)	6 ft cable	**E71-TBRN-CA**
				4-pin nano-connector ①	**E71-TBRN-M8**
			PNP, light operate or dark operate (selectable)	6 ft cable	**E71-TBRP-CA**
				4-pin nano-connector ①	**E71-TBRP-M8**
	Thru-beam source	19 ft (6m)	N/A	6 ft cable	**E71-TBS-CA**
				4-pin nano-connector ①	**E71-TBS-M8**
	Narrow beam Thru-beam source	4.9 ft (1.5m)	N/A	6 ft cable	**E71-NTBS-CA**
				4-pin nano-connector ①	**E71-NTBS-M8**
Polarized Reflex					
					
10–30 Vdc	Polarized reflex	8.2 ft (2.5m)	NPN, light operate or dark operate (selectable)	6 ft cable	**E71-PRN-CA**
				4-pin nano-connector ①	**E71-PRN-M8**
			PNP, light operate or dark operate (selectable)	6 ft cable	**E71-PRP-CA**
				4-pin nano-connector ①	**E71-PRP-M8**
Diffuse Reflective					
					
10–30 Vdc	Diffuse reflective	13.8 in (35 cm)	NPN, light operate or dark operate (selectable)	6 ft cable	**E71-SDN-CA**
				4-pin nano-connector ①	**E71-SDN-M8**
			PNP, light operate or dark operate (selectable)	6 ft cable	**E71-SDP-CA**
				4-pin nano-connector ①	**E71-SDP-M8**
Fixed Focus Diffuse Reflective					
					
10–30 Vdc	Fixed-focus Diffuse reflective	3.9 in (10 cm) focal point	NPN, light operate or dark operate (selectable)	6 ft cable	**E71-FFDN-CA**
				4-pin nano-connector ①	**E71-FFDN-M8**
			PNP, light operate or dark operate (selectable)	6 ft cable	**E71-FFDP-CA**
				4-pin nano-connector ①	**E71-FFDP-M8**
Clear Object Detector					
					
10–30 Vdc	Clear object detector	31.5 in (80 cm)	NPN, light operate or dark operate (selectable)	6 ft cable	**E71-CON-CA**
				4-pin nano-connector ①	**E71-CON-M8**
			PNP, light operate or dark operate (selectable)	6 ft cable	**E71-COP-CA**
				4-pin nano-connector ①	**E71-COP-M8**

Note

① For compatible connector cables, see **Page V8-T5-29**.

Technical Data and Specifications

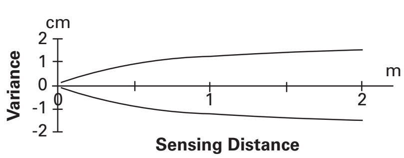
NanoView Series Sensors

Description	For E71-T/N (Thru-Beam) Specification	For E71-P (Polarized Reflex) Specification	For E71-S (Diffuse Reflective) Specification	For E71-F (Fixed Focus Diffuse) Specification	For E71-C (Clear Object Detector) Specification
Input voltage	10–30 Vdc	10–30 Vdc	10–30 Vdc	10–30 Vdc	10–30 Vdc
Current consumption (Output current excluded)	35 mA max.	35 mA max.	35 mA max.	35 mA max.	35 mA max.
Outputs	Light operate and dark operate; PNP or NPN by model; 30 Vdc max.	Light operate and dark operate; PNP or NPN by model; 30 Vdc max.	Light operate and dark operate; PNP or NPN by model; 30 Vdc max.	Light operate and dark operate; PNP or NPN by model; 30 Vdc max.	Light operate and dark operate; PNP or NPN by model; 30 Vdc max.
Output current	100 mA max.	100 mA max.	100 mA max.	100 mA max.	100 mA max.
Output saturation voltage	2V max.	2V max.	2V max.	2V max.	2V max.
Electrical protection	Short circuit and reverse polarity protection	Short circuit and reverse polarity protection	Short circuit and reverse polarity protection	Short circuit and reverse polarity protection	Short circuit and reverse polarity protection
Response time	1 ms max.	1 ms max.	1 ms max.	1 ms max.	1 ms max.
Switching frequency	500 Hz max.	500 Hz max.	500 Hz max.	500 Hz max.	500 Hz max.
Indicator LEDs	Output LED (yellow), stability LED (green), power LED (green)	Output LED (yellow), stability LED (green), power LED (green)	Output LED (yellow), stability LED (green), power LED (green)	Output LED (yellow), stability LED (green), power LED (green)	Output LED (yellow), stability LED (green), power LED (green)
Sensing adjustment	None	Adjustment pot	Adjustment pot	None	Adjustment pot
Temperature range					
Operating	–25° to 55°C (–13° to 131°F)	–25° to 55°C (–13° to 131°F)	–25° to 55°C (–13° to 131°F)	–25° to 55°C (–13° to 131°F)	–25° to 55°C (–13° to 131°F)
Storage	–25° to 70°C (–13° to 158°F)	–25° to 70°C (–13° to 158°F)	–25° to 70°C (–13° to 158°F)	–25° to 70°C (–13° to 158°F)	–25° to 70°C (–13° to 158°F)
Sensing range	Standard beam: 19.7 ft (6.0m) Narrow beam: 4.9 ft (1.5m)	8.2 ft (2.5m)	13.8 in (35 cm)	3.9 in (10 cm)	31.5 in (80 cm)
Beam type	Infrared LED (880 nm)	Visible red LED (660 nm)	Infrared LED (880 nm)	Visible red LED (660 nm)	Visible red LED (660 nm)
Vibration and shock	Vibration: 0.5 mm amplitude, 10–55 Hz for every axis (EN60068-2-6); Half sine, 30 g_n, 11 ms, 3 axes	Vibration: 0.5 mm amplitude, 10–55 Hz for every axis (EN60068-2-6); Half sine, 30 g_n, 11 ms, 3 axes	Vibration: 0.5 mm amplitude, 10–55 Hz for every axis (EN60068-2-6); Half sine, 30 g_n, 11 ms, 3 axes	Vibration: 0.5 mm amplitude, 10–55 Hz for every axis (EN60068-2-6); Half sine, 30 g_n, 11 ms, 3 axes	Vibration: 0.5 mm amplitude, 10–55 Hz for every axis (EN60068-2-6); Half sine, 30 g_n, 11 ms, 3 axes
Housing material	ABS UL 94V-0	ABS UL 94V-0	ABS UL 94V-0	ABS UL 94V-0	ABS UL 94V-0
Lens material	PMMA	PMMA	PMMA	PMMA	PMMA
Mechanical protection	IP67	IP66	IP66	IP67	IP66
Connections	M8 4-pin nano-connector; 6 ft (2m) cable	M8 4-pin nano-connector; 6 ft (2m) cable	M8 4-pin nano-connector; 6 ft (2m) cable	M8 4-pin nano-connector; 6 ft (2m) cable	M8 4-pin nano-connector; 6 ft (2m) cable
Weight	Connector models: 40g max. Cable models: 10g max.	Connector models: 40g max. Cable models: 10g max.	Connector models: 40g max. Cable models: 10g max.	Connector models: 40g max. Cable models: 10g max.	Connector models: 40g max. Cable models: 10g max.

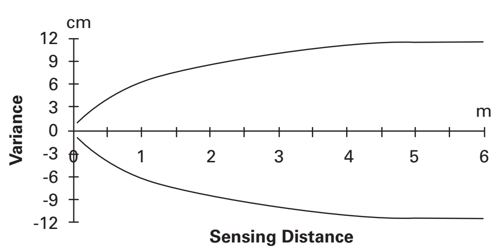
Detection Diagrams

Thru-Beam Models

E71-N

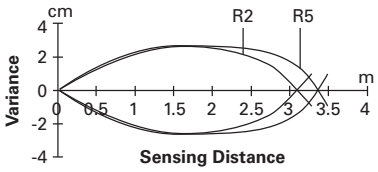


E71-T



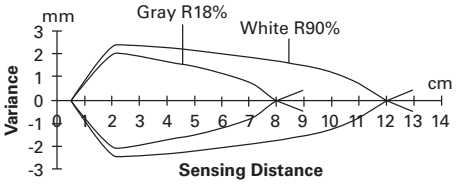
Polarized Reflex Models

E71-P



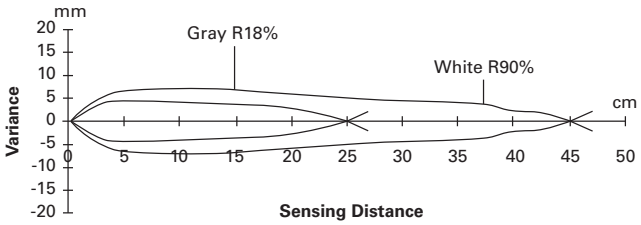
Fixed Focus Diffuse Models

E71-F ①



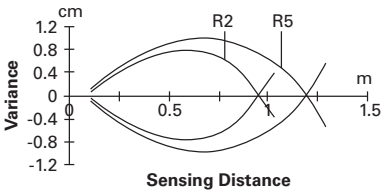
Diffuse Reflective Models

E71-S ①



Clear Object Detector Models

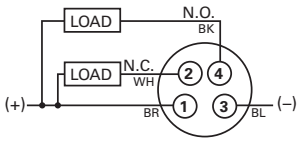
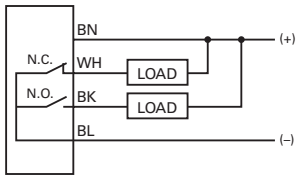
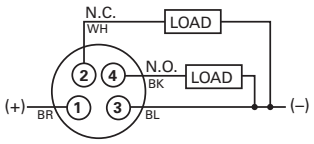
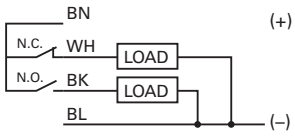
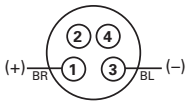
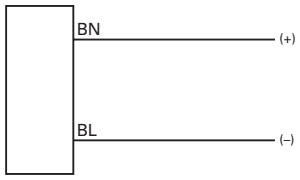
E71-C



Wiring Diagrams

Pin numbers are for reference, rely on pin location when wiring.

NanoView Series Sensors

Model	Nano-Connector Diagram (Face View Male Shown)	Cable Diagram
All NPN models except thru-beam source		
All PNP models except thru-beam source		
All thru-beam source models		

Note

① These diagrams depict the width of the sensing beam over distance. These diagrams also show the sensing difference between white and gray targets. Because gray is less reflective than white, gray targets will typically need to come closer to the beam centerpoint to be detected.

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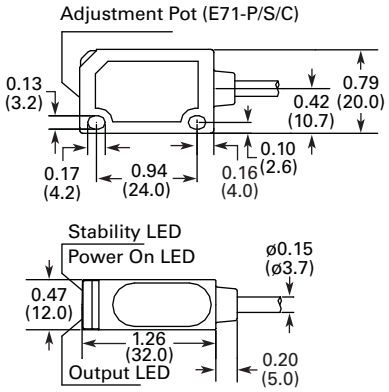
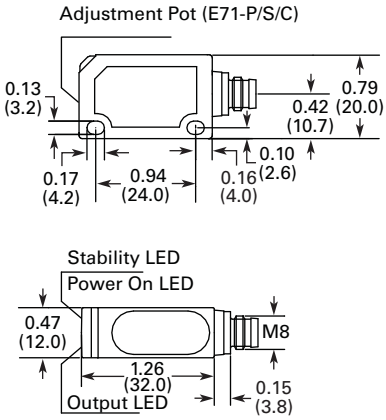
Dimensions

Approximate Dimensions in Inches (mm)

Cable Models



Nano-Connector Models



Accessories

E71-MTB1—Mounting Bracket