**NanoView™ Series**
**Photoelectric Sensors**

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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-foot (2 m) cable.

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

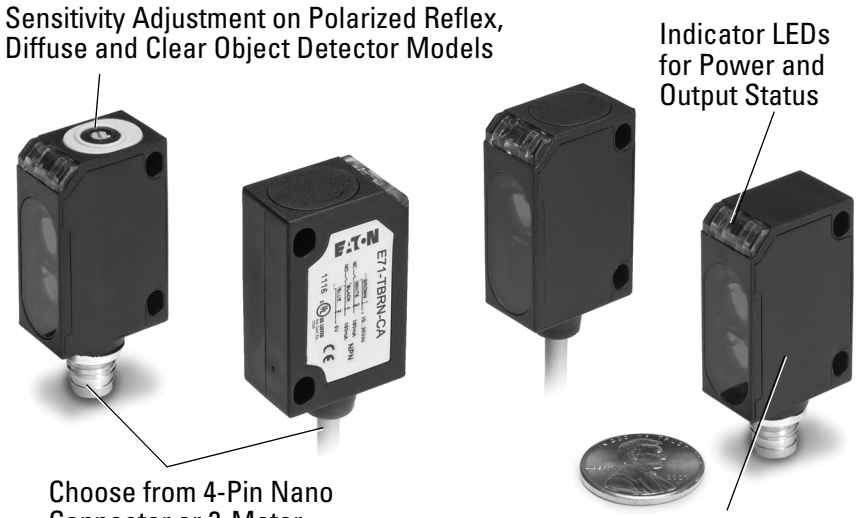
## Approvals

- UL Listed
- C-UL Listed

CE

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

## A Full Line of Miniature Photoelectric Sensors Built for Performance and Value




## Product Features

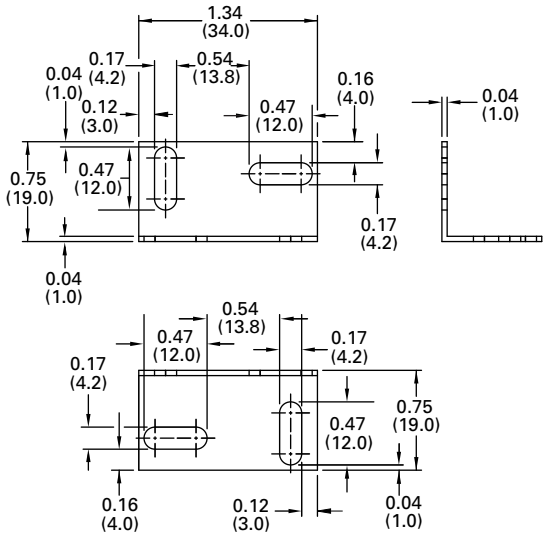
- **A Complete Family of Solutions** — Models include an 8.2 ft. (2.5 m) polarized reflex, a 13 in. (35 cm) diffuse reflective, a 4 in. (10 cm) fixed-focus diffuse, a 20 ft. (6 m) thru-beam; and a 2.6 ft. (80 cm) clear object detector for sensing plastic bottles, molds, cartons and films
- **Small Size** — At less than 1.5 inches long and half an inch deep, NanoView can fit into the smallest of spaces
- **Fixed Focus Diffuse Models** — Perfect for sensing very small targets at a 4-inch 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
- **UL and C-UL Listed, CE Approved**

## Model Selection — NanoView Series

| | Voltage Range | Sensing Mode | Sensing Range | Output Type | Connection Type | Catalog Number |
|---|---|---|---|---|---|---|
| **4-Wire Sensors** | | | | | | |
| Thru-Beam | 10 – 30V DC | Thru-Beam Detector | 19 feet (6 m) | NPN, Light Operate or Dark Operate (Selectable) | 6-foot Cable | **E71-TBRN-CA** |
| | | | | | 4-pin Nano Connector ① | **E71-TBRN-M8** |
| | | | | PNP, Light Operate or Dark Operate (Selectable) | 6-foot Cable | **E71-TBRP-CA** |
| | | | | | 4-pin Nano Connector ① | **E71-TBRP-M8** |
| | | Thru-Beam Source | | N/A | 6-foot Cable | **E71-TBS-CA** |
| | | | | | 4-pin Nano Connector ① | **E71-TBS-M8** |
| | | Narrow Beam Thru-Beam Source | 4.9 feet (1.5 m) | N/A | 6-foot Cable | **E71-NTBS-CA** |
| | | | | | 4-pin Nano Connector ① | **E71-NTBS-M8** |
| Polarized Reflex | | Polarized Reflex | 8.2 feet (2.5 m) | NPN, Light Operate or Dark Operate (Selectable) | 6-foot Cable | **E71-PRN-CA** |
| | | | | | 4-pin Nano Connector ① | **E71-PRN-M8** |
| | | | | PNP, Light Operate or Dark Operate (Selectable) | 6-foot Cable | **E71-PRP-CA** |
| | | | | | 4-pin Nano Connector ① | **E71-PRP-M8** |
| Diffuse Reflective | | Diffuse Reflective | 13.8 inches (35 cm) | NPN, Light Operate or Dark Operate (Selectable) | 6-foot Cable | **E71-SDN-CA** |
| | | | | | 4-pin Nano Connector ① | **E71-SDN-M8** |
| | | | | PNP, Light Operate or Dark Operate (Selectable) | 6-foot Cable | **E71-SDP-CA** |
| | | | | | 4-pin Nano Connector ① | **E71-SDP-M8** |
| Fixed Focus Diffuse Reflective | | Fixed-Focus Diffuse Reflective | 3.9 inches (10 cm) focal point | NPN, Light Operate or Dark Operate (Selectable) | 6-foot Cable | **E71-FFDN-CA** |
| | | | | | 4-pin Nano Connector ① | **E71-FFDN-M8** |
| | | | | PNP, Light Operate or Dark Operate (Selectable) | 6-foot Cable | **E71-FFDP-CA** |
| | | | | | 4-pin Nano Connector ① | **E71-FFDP-M8** |
| Clear Object Detector | | Clear Object Detector | 31.5 inches (80 cm) | NPN, Light Operate or Dark Operate (Selectable) | 6-foot Cable | **E71-CON-CA** |
| | | | | | 4-pin Nano Connector ① | **E71-CON-M8** |
| | | | | PNP, Light Operate or Dark Operate (Selectable) | 6-foot Cable | **E71-COP-CA** |
| | | | | | 4-pin Nano Connector ① | **E71-COP-M8** |

① For compatible connector cables, see **Page 21**.

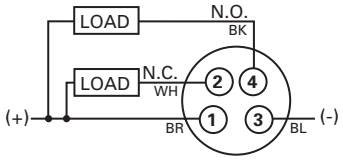
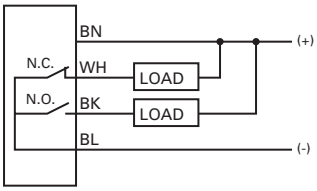
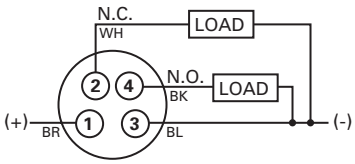
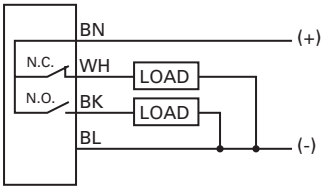
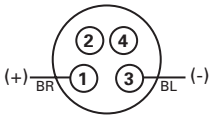
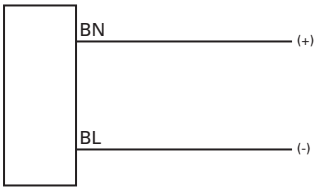
## Model Selection — Accessories

| | Description | Catalog Number | Price U.S. $ | Approximate Dimensions |
|---|---|---|---|---|
| Mounting Bracket | L-shaped mounting bracket for NanoView sensors. | **E71-MTB1** | 5.00 |   |

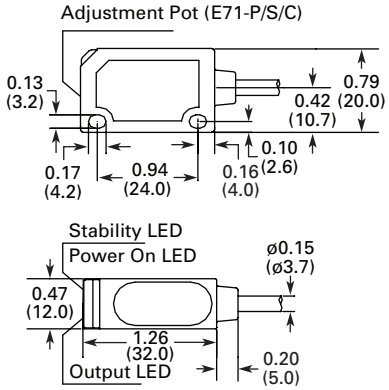
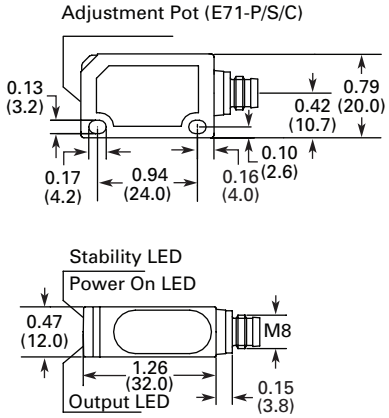
## Model Selection — Compatible Connector Cables

| | Voltage Style | Number of Pins | Gauge | Length | Catalog Number PVC Yellow Jacket | Pins |
|---|---|---|---|---|---|---|
| M8 Nano Connector Cable, Straight Female | DC | 4-pin, 4-wire | 24 AWG | 6.5 ft. (2 m) | **CSNS4A4CY2402** | 1-Brown 2-White 3-Blue 4-Black |
| | | | | 16.4 ft. (5 m) | **CSNS4A4CY2405** | |
| | | | | 32.8 ft. (10 m) | **CSNS4A4CY2410** | |
| M8 Nano Connector Cable, Right Angle Female | DC | 4-pin, 4-wire | 24 AWG | 6.5 ft. (2 m) | **CSNR4A4CY2402** | 1-Brown 2-White 3-Blue 4-Black |
| | | | | 16.4 ft. (5 m) | **CSNR4A4CY2405** | |
| | | | | 32.8 ft. (10 m) | **CSNR4A4CY2410** | |

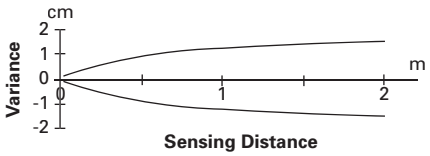
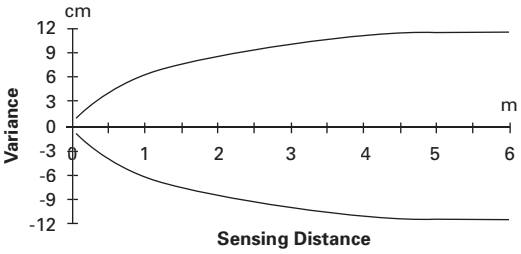
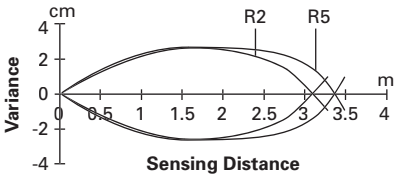
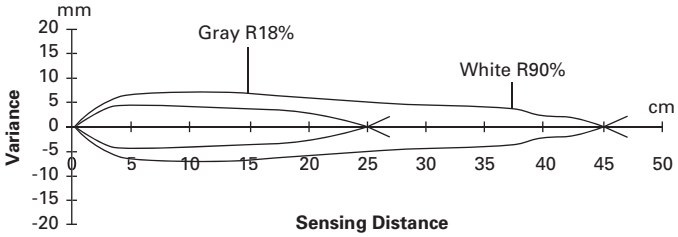
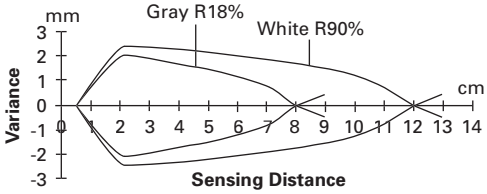
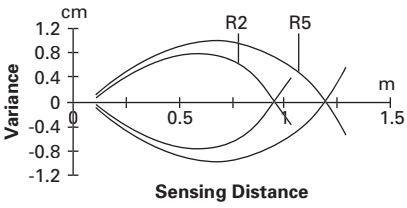
## Wiring Diagrams

| Models | 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 |   |   |

## Approximate Dimensions — NanoView Series

| Models | Diagram |
|---|---|
| Cable Models |  |
| Nano Connector Models |  |

## Detection Diagrams — NanoView Series

| Models | Diagram |
|---|---|
| Thru-Beam Models | E71-N ①   E71-T ①   |
| Polarized Reflex Models | E71-P ①   |
| Diffuse Reflective Models | E71-S ①   |
| Fixed Focus Diffuse Models | E71-F ①   |
| Clear Object Detector Models | E71-C ①   |

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.

## Specifications — NanoView Series

| | For E71-T/N (Thru-Beam) | For E71-P (Polarized Reflex) | For E71-S (Diffuse Reflective) | For E71-F (Fixed Focus Diffuse) | For E71-C (Clear Object Detector) |
|---|---|---|---|---|---|
| Input Voltage | 10-30V DC | | | | |
| Current Consumption (Output Current Excluded) | 35 mA max. | | | | |
| Outputs | Light Operate and Dark Operate;<br>PNP or NPN by model;<br>30V DC max. | | | | |
| Output Current | 100 mA max. | | | | |
| Output Saturation Voltage | 2V max. | | | | |
| Electrical Protection | Short Circuit and Reverse Polarity Protection | | | | |
| Response Time | 1 ms max. | | | | |
| Switching Frequency | 500 Hz max. | | | | |
| Indicator LEDs | Output LED (yellow), Stability LED (green), Power LED (green) | | | | |
| Sensing Adjustment | None | Adjustment Pot | | None | Adjustment Pot |
| Operating Temperature | -25 to +55°C (-13 to +131°F) | | | | |
| Storage Temperature | -25 to +70°C (-13 to +158°F) | | | | |
| Sensing Range | Standard Beam: 19.7 ft. (6.0 m)<br>Narrow Beam: 4.9 ft. (1.5 m) | 8.2 ft. (2.5 m) | 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) | |
| Vibration and Shock | Vibration: 0.5 mm Amplitude, 10-55 Hz for every axis (EN60068-2-6);<br>Half sine, 30 $g_n$, 11 ms, 3 axes | | | | |
| Housing Material | ABS UL 94V-0 | | | | |
| Lens Material | PMMA | | | | |
| Mechanical Protection | IP67 | IP66 | | IP67 | IP66 |
| Connections | M8 4-Pin Nano Connector;<br>6-Foot (2 m) Cable | | | | |
| Weight | Connector Models: 40g max.<br>Cable Models: 10g max. | | | | |
| Approvals | UL, C-UL, CE | | | | |

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