



Specifications

Environmental

| | |
|-------------------------------|--|
| Certifications | cULus and CE Marked for all applicable directives |
| Operating Environment | IP67 |
| Operating Temperature [C (F)] | -25...+70° (-13...+158°) |
| Vibration | 10...55 Hz, 1 mm amplitude, meets or exceeds IEC 60068-2-6 |
| Shock | 30 g with 1 ms pulse duration, meets or exceeds IEC 60068-2-27 |
| Relative Humidity | 5...95% |
| Ambient Light Immunity | Incandescent light 3000 lux |

Optical

| | |
|----------------|---|
| Sensing Modes | Retroreflective, polarized retroreflective, diffuse, background suppression, transmitted beam |
| Sensing Range | See Product Selection table on page 1-60 |
| Field of View | See Product Selection table on page 1-60 |
| Light Source | Visible red LED (660 nm) or infrared LED (880 nm) |
| LED Indicators | Yellow LED for output indication |
| Adjustments | Sensitivity potentiometer (diffuse models only) |

Electrical

| | |
|---------------------|---|
| Voltage | 10...30V DC |
| Current Consumption | 30 mA max |
| Sensor Protection | Reverse polarity, overload, short circuit |

Outputs

| | |
|------------------------|---|
| Response Time | 2 ms (0.5 ms for background suppression) |
| Output Type | PNP or NPN by cat. no. |
| Output Mode | Complementary light operate or dark operate, selectable light operate or dark operate for background suppression models |
| Output Current | 100 mA |
| Output Leakage Current | 10 µA max |

Mechanical

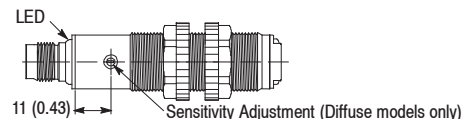
| | |
|----------------------|--|
| Housing Material | Nickel-plated brass |
| Lens Material | PMMA/PC |
| Connection Types | 2 m cable, 4-pin DC micro (M12) QD |
| Supplied Accessories | 18 mm fastening nuts |
| Optional Accessories | See mounting brackets, reflectors, and cordsets on page 1-61 |

Features

- 18 mm industry standard package
- Wide selection of sensing modes
- 30V DC operation
- NPN or PNP outputs
- Fast response time
- Variety of connection types
- Laser models available (see page 1-115)

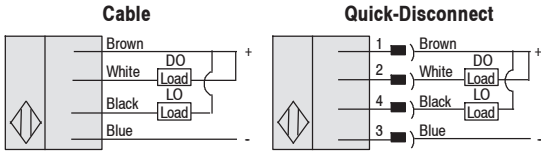
User Interface Panel

| Label | Color | State | Status |
|--------|--------|-------|----------------------------|
| Output | Yellow | OFF | Sensor output de-activated |
| | | ON | Sensor output activated |



Wiring Diagrams

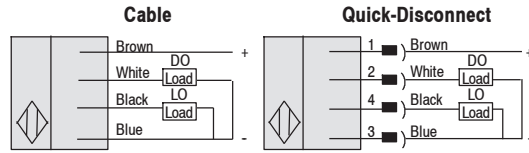
Diffuse
NPN Output



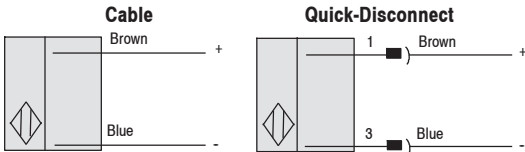
Face View Male
Receptacle (Sensor)
DC Micro



PNP Output



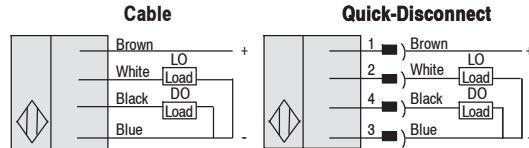
Transmitted Beam, Retroreflective, Polarized Retroreflective



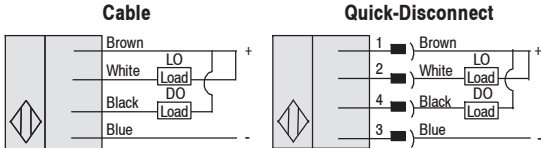
Face View Male
Receptacle (Sensor)
DC Micro



PNP Output

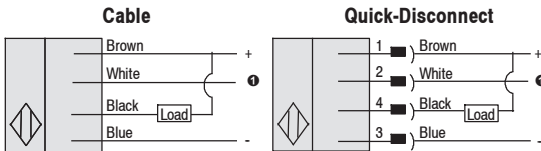


NPN Output



Background Suppression

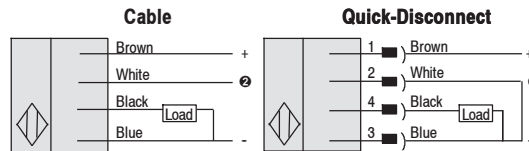
NPN Output



Face View Male
Receptacle (Sensor)
DC Micro

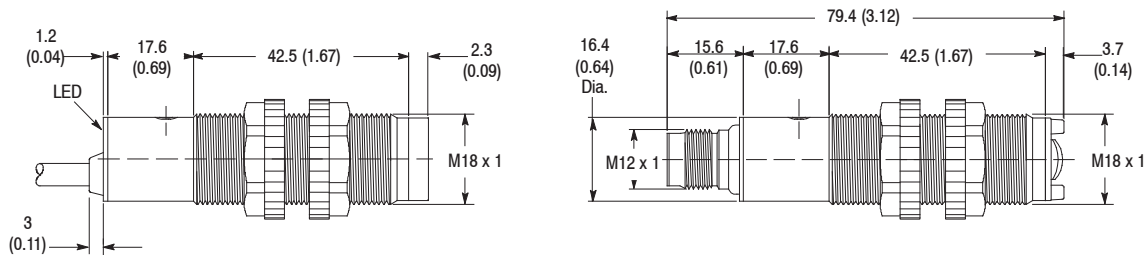


PNP Output



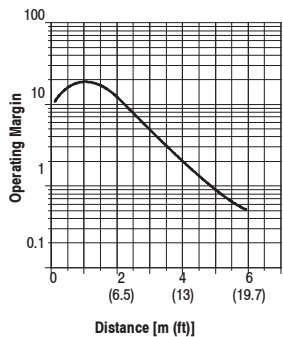
- ❶ Open circuit or tie white (2) and brown (1) conductors together for L.O. Tie white (2) and blue (3) conductors together for D.O.
- ❷ Tie white (2) and brown (1) conductors together for L.O. or tie white (2) and blue (3) conductors together for D.O.

Approximate Dimensions [mm (in.)]

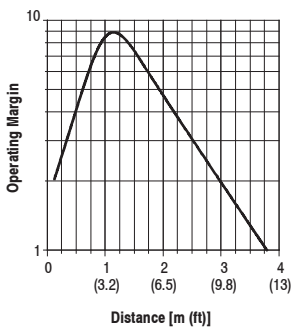


Typical Response Curve

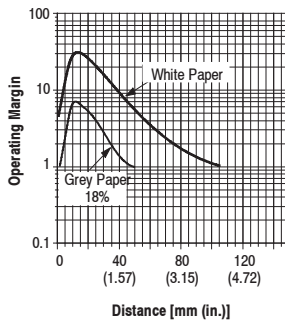
Retroreflective



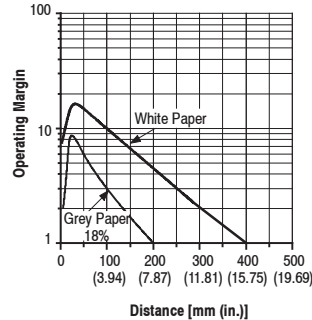
Polarized Retroreflective



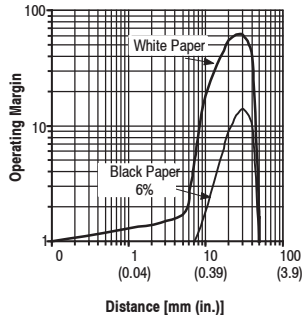
Standard Diffuse 100 mm



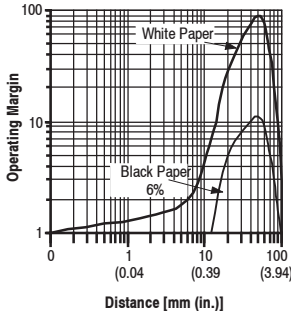
Standard Diffuse 400 mm



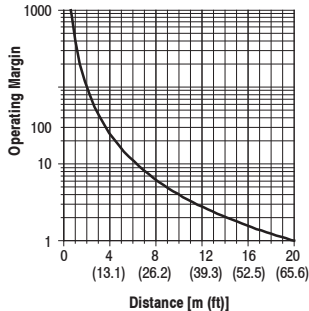
Background Suppression 50 mm



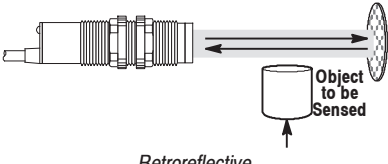
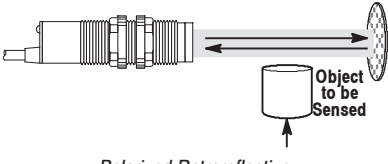
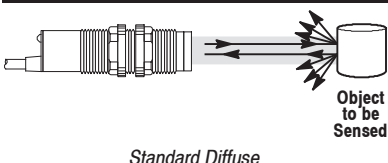
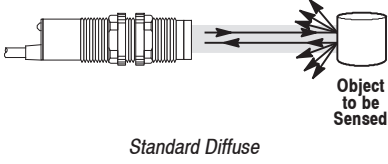
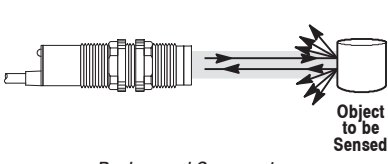
Background Suppression 100 mm



Transmitted Beam

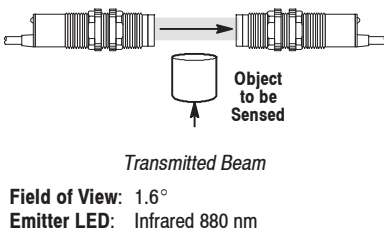


Product Selection

| Sensing Mode | Operating Voltage Supply Current | Sensing Distance @ 1X Margin | Output Energized | Output Type Capacity Response Time | Connection Type | Cat. No. |
|---|-------------------------------------|---------------------------------------|-------------------------|--|--------------------|-----------------------|
|  <p><i>Retroreflective</i> Field of View: 1.9° Emitter LED: Infrared 880 nm</p> | 10...30V DC 30 mA | 3 mm...4 m (0.12 in... 13.2 ft) | LO/DO Complementary | NPN 100 mA 4 ms | 2 m 300V cable | 42CM-U1MNB-A2 |
| | | | | | 4-pin DC micro | 42CM-U1MNB-D4 |
| | | | | PNP 100 mA 4 ms | 2 m 300V cable | 42CM-U1MPB-A2 |
| | | | | | 4-pin DC micro | 42CM-U1MPB-D4 |
|  <p><i>Polarized Retroreflective</i> Field of View: 1.8° Emitter LED: Visible red 660 nm</p> | 10...30V DC 30 mA | 3 mm...3 m (0.12 in...9.9 ft) | LO/DO Complementary | NPN 100 mA 4 ms | 2 m 300V cable | 42CM-P2MNB-A2 |
| | | | | | 4-pin DC micro | 42CM-P2MNB-D4 |
| | | | | PNP 100 mA 4 ms | 2 m 300V cable | 42CM-P2MPB-A2 |
| | | | | | 4-pin DC micro | 42CM-P2MPB-D4 |
|  <p><i>Standard Diffuse</i> Field of View: 6.6° Emitter LED: Visible Red 660 nm</p> | 10...30V DC 30 mA | 100 mm (3.9 in.) (Adjustable) | LO/DO Complementary | NPN 100 mA 2 ms | 2 m 300V cable | 42CM-D2MNAE-A2 |
| | | | | | 4-pin DC micro | 42CM-D2MNAE-D4 |
| | | | | PNP 100 mA 2 ms | 2 m 300V cable | 42CM-D2MPAE-A2 |
| | | | | | 4-pin DC micro | 42CM-D2MPAE-D4 |
|  <p><i>Standard Diffuse</i> Field of View: 6.6° Emitter LED: Infrared 880 nm</p> | 10...30V DC 30 mA | 400 mm (13.6 in.) (Adjustable) | LO/DO Complementary | NPN 100 mA 2 ms | 2 m 300V cable | 42CM-D1MNAL-A2 |
| | | | | | 4-pin DC micro | 42CM-D1MNAL-D4 |
| | | | | PNP 100 mA 2 ms | 2 m 300V cable | 42CM-D1MPAL-A2 |
| | | | | | 4-pin DC micro | 42CM-D1MPAL-D4 |
|  <p><i>Background Suppression</i> Field of View: 50 mm = 5.7° 100 mm = 3.4° Emitter LED: Visible red 660 nm</p> | 10...30V DC 30 mA | 50 mm (1.97 in.) | L.O./D.O. Selectable | NPN 100 mA 0.5 ms | 2 m 300V cable | 42CM-B2LNBC-A2 |
| | | | | | 4-pin DC micro | 42CM-B2LNBC-D4 |
| | | | | PNP 100 mA 0.5 ms | 2 m 300V cable | 42CM-B2LPBC-A2 |
| | | | | | 4-pin DC micro | 42CM-B2LPBC-D4 |
| | | 100 mm (3.9 in.) | | NPN 100 mA 0.5 ms | 2 m 300V cable | 42CM-B2LNBE-A2 |
| | | | | | 4-pin DC micro | 42CM-B2LNBE-D4 |
| | | | | PNP 100 mA 0.5 ms | 2 m 300V cable | 42CM-B2LPBE-A2 |
| | | | | | 4-pin DC micro | 42CM-B2LPBE-D4 |

Refer to page 1-61 for cordsets and accessories.

Product Selection (continued)

| Sensing Mode | Operating Voltage Supply Current | Sensing Distance | Output Energized | Output Type Capacity Response Time | Connection Type | Cat. No. |
|---|-------------------------------------|--|----------------------------|--|--------------------|----------------------|
|  | 10...30V DC 25 mA | 3 mm...20 m (0.12 in... 65.6 ft) | NA Light Source | | 2 m 300V cable | 42CM-E1EZB-A2 |
| | | | | | 4-pin DC micro | 42CM-E1EZB-D4 |
| | | | L.O./D.O. Complementary | NPN 100 mA 2 ms | 2 m 300V cable | 42CM-R1MNB-A2 |
| | | | | | 4-pin DC micro | 42CM-R1MNB-D4 |
| | | | | PNP 100 mA 2 ms | 2 m 300V cable | 42CM-R1MPB-A2 |
| | | | | | 4-pin DC micro | 42CM-R1MPB-D4 |

Cordsets and Accessories

| Cordset | | Accessories | | | |
|------------------------------------|-------------|---------------------------------|-------------|-------------------|----------|
| Description | Cat. No. | Description | Cat. No. | Description | Cat. No. |
| DC Micro QD Cordset, 4-pin, 2 m | 889D-F4AC-2 | Mounting Brackets | 60-2657 | Reflectors | 92-39 |
| DC Micro QD Cordset, 4-pin, 2 m | 889D-F4AC-2 | Mounting Brackets | 60-2649 | Mounting Brackets | 60-2664 |
| | | Snap-Clamp Mounting Brackets | 871A-SCBP18 | | |