

Leuze M18 Plastic Photoelectric Sensors

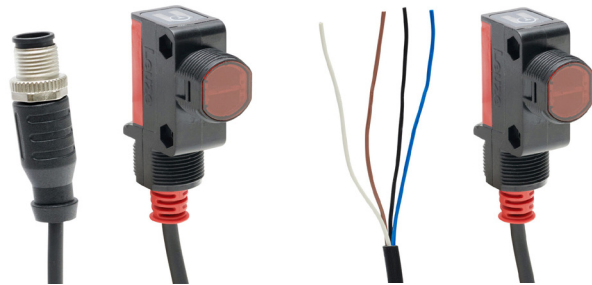
M18 (18mm) Rectangular Plastic Photoelectric Sensors – 28 Series

Overview

The Leuze 28 series photoelectric sensors are reliable and powerful for standard detection tasks in material handling, packaging, and other applications. The 28 series offers large ranges, highly visible red LED and Infrared models, and the ultimate in mounting flexibility with front and bottom 18mm threads or rugged through-holes. Strong opto performance and various electrical options make the 28 series photoelectric sensors a solid performer even in rough industrial environments.

Features

- Diffuse, polarized retroreflective, and through-beam models available
- Operating voltage 10-30VDC
- Complete overload protection
- IP67 rated
- M12 quick-disconnect (purchase cable separately) or pigtail models
- Includes mounting hardware
- 2-year warranty



ET28.3-4P-200-M12

ET28.3-4P



M18 (18mm) Rectangular Plastic Photoelectric Sensors - 28 Series

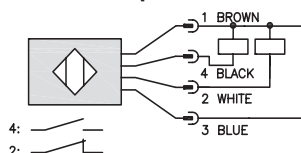
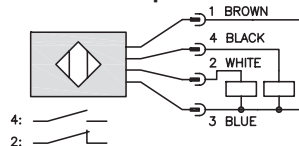
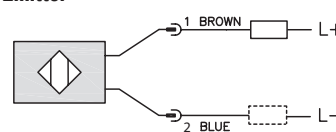
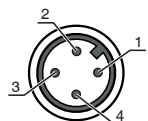
| Part Number | Price | Sensing Distance | Light Emission | Logic | Output Function | Connection Type | Wiring | Drawing Link |
|-----------------------------------|---------|------------------------------|--------------------------|-------|-------------------------------------|--|-----------|---------------------|
| Diffuse, Teach-in Button | | | | | | | | |
| ET28.3-4P-200-M12 | \$68.00 | 1-650mm [0.03-25.59 in] | visible red LED 620nm | PNP | Complementary Light-on / Dark-on | 4-wire, 4-pin M12 quick-disconnect, 0.2m [0.6 ft] cable, PUR | Diagram 2 | PDF |
| ET28.3-4P | \$62.00 | | | PNP | | 4-wire, pigtail 2m [6.5 ft] cable, PUR | Diagram 2 | PDF |
| ET28.3-2N-200-M12 | \$68.00 | | | NPN | | 4 wire, 4-pin M12 quick-disconnect, 0.2m [0.6 ft] cable, PUR | Diagram 1 | PDF |
| ET28.3-2N | \$62.00 | | | NPN | | 4-wire, pigtail, 2m [6.5 ft] cable, PUR | Diagram 1 | PDF |
| Polarized Retroreflective * | | | | | | | | |
| PRK28-4P-200-M12 | \$68.00 | 0.02-4.5m [0.06-14.76 ft] | visible red LED 620nm | PNP | Complementary Light-on / Dark-on | 4-wire, 4-pin M12 quick-disconnect, 0.2m [0.6 ft] cable, PUR | Diagram 2 | PDF |
| PRK28-4P | \$62.00 | | | PNP | | 4-wire, pigtail, 2m [6.5 ft] cable, PUR | Diagram 2 | PDF |
| PRK28-2N-200-M12 | \$68.00 | | | NPN | | 4-wire, 4-pin M12 quick-disconnect, 0.2m [0.6 ft] cable, PUR | Diagram 1 | PDF |
| PRK28-2N | \$62.00 | | | NPN | | 4-wire, pigtail, 2m [6.5 ft] cable, PUR | Diagram 1 | PDF |
| * Purchase reflector separately. | | | | | | | | |
| Through-beam Emitters | | | | | | | | |
| LS28-9D-M12 | \$42.00 | 0-10m [0 to 32.80 ft] | visible red | — | — | 2-wire, 4-pin M12 quick-disconnect | Diagram 3 | PDF |
| LS28-9D | \$49.00 | | LED 620nm | — | — | 2-wire, pigtail, 2m [6.5 ft] cable, PUR | Diagram 3 | PDF |
| LS28I | \$55.00 | | infrared | — | — | 2-wire, pigtail, 2m [6.5 ft] cable, PUR | Diagram 3 | PDF |
| Through-beam Receivers | | | | | | | | |
| LE28-4P-M12 | \$54.00 | 0-10m [0 to 32.80 ft] | — | PNP | Complementary Light-on / Dark-on | 4-wire, 4-pin M12 quick-disconnect | Diagram 2 | PDF |
| LE28-4P | \$62.00 | | | PNP | | 4-wire, pigtail, 2m [6.5 ft] cable, PUR | Diagram 2 | PDF |
| LE28-2N-M12 | \$54.00 | | | NPN | | 4-wire, 4-pin M12 quick-disconnect | Diagram 1 | PDF |
| LE28-2N | \$62.00 | | | NPN | | 4-wire, pigtail, 2m [6.5 ft] cable, PUR | Diagram 1 | PDF |

Note: Purchase cable separately for the M12 quick-disconnect models.

The 28 Series Photoelectric Sensors are not intended for safety applications.

M18 (18mm) Rectangular Plastic Photoelectric Sensors - 28 Series Specifications

| Sensor type | Diffuse, teach-in button | Polarized Retroreflective | Through-beam Emitters | Through-beam Receivers |
|-------------------------------------|---|--|---|--|
| Operating Voltage | 10-30 VDC | | | |
| Residual Ripple | 0 to 15%, From U_B | | | |
| Open-circuit Current | 0-20mA | | 0-15mA | |
| Switching Current (maximum) | 100mA | | – | 100mA |
| Switching Voltage High | $\geq(U_B - 2.5V)$ | | – | $\geq(U_B - 2.5V)$ |
| Switching Voltage Low | $\leq 2.5 V$ | | – | $\leq 2.5 V$ |
| Switching Frequency | 500Hz | 500Hz | – | 500Hz |
| Response Time | 1ms | | – | 1ms |
| Time Delay Before Availability (tv) | 300ms | | | |
| Voltage Reversal Protection | Yes | | | |
| Short-circuit Protection | Yes | | | |
| Operating Temperature | -40 to 60°C [-40 to 140°F] | | | |
| Storage Temperature | -40 to 70°C [-40 to 158°F] | | | |
| Degree of Protection | IP67 | | | |
| Protection Class | III | | | |
| LED Indicators - Switching Status | Green LED: Operation ready Yellow LED: Object detected | Green LED: Operation ready Yellow continuous LED: Light path free Yellow flashing LED: No function reserve | Green LED: Operation ready Yellow LED: Transmitted beam active | Green LED: Operation ready Yellow continuous LED: Light path free Yellow flashing LED: No function reserve |
| Housing Material | ABS plastic (Acrylonitrile butadiene styrene) | | | |
| Lens Material | Plastic | | | |
| Shock/Vibration | See terminology section | | | |
| Tightening Torque | 1 N·m [0.74 ft·lb] | | | |
| Weight | 75g [2.64 oz] Connector models 40g [1.41 oz] Cable models | | | |
| Connectors | 4-pin M12 quick-disconnect, wire cross 0.2 mm ² or 4-wire, pigtail, A-coded, wire cross 0.2 mm ² 24 AWG | | | |
| Agency Approvals | cULus File: E203683, CE | | | |

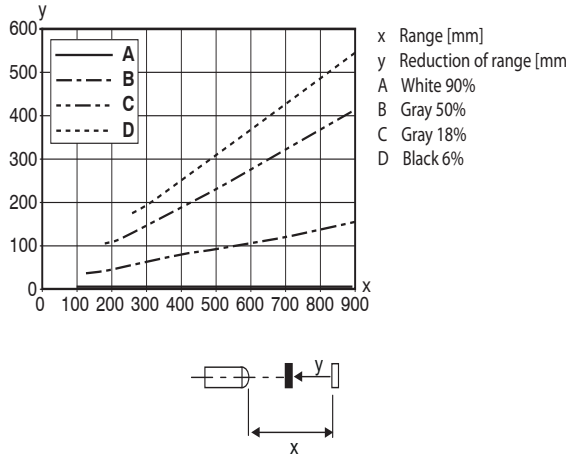
Wiring Diagrams**Diagram 1**
4-Wire NPN Output**Diagram 2**
4-Wire PNP Output**Diagram 3**
Emitter**M12 connector**

Leuze M18 Plastic Photoelectric Sensors

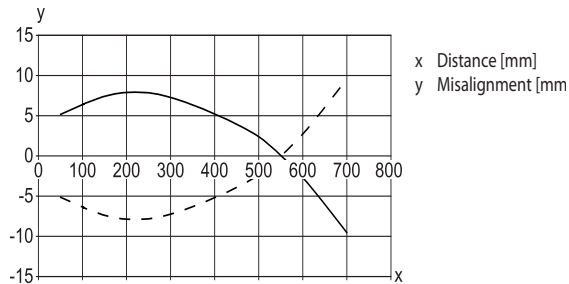
Characteristic Curves

Diffuse Models

Typical black/white behavior

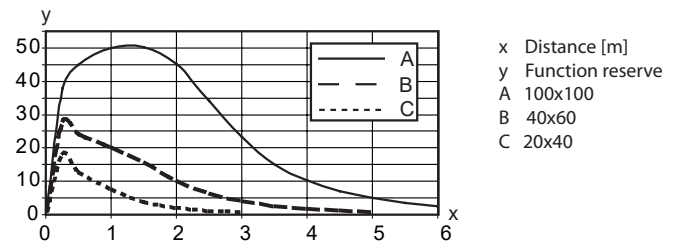
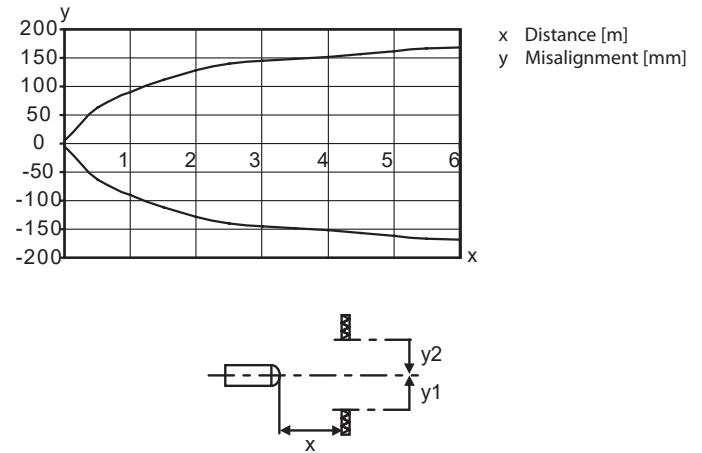


Typical response behavior (white 90%)



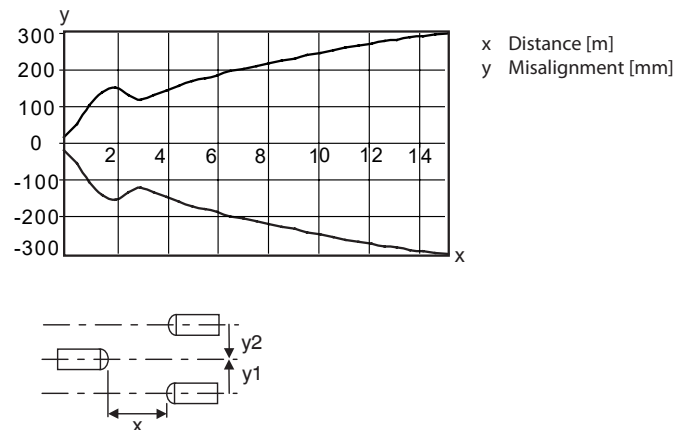
Polarized Retroreflective Models

Typical response behavior 100x100



Through-beam Models

Typical response behavior



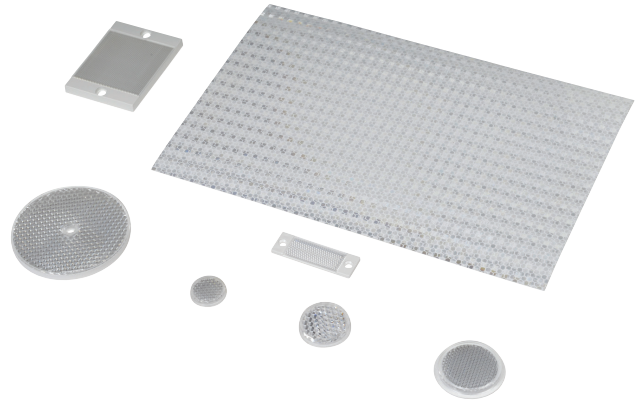
Reflectors

RL Series Reflectors for Polarized Reflective Photoelectric Sensors (All Models)

- Suitable for use with polarized light photoelectric sensors
- Shapes and sizes for most applications
- Miniature types for close mounting in multiple sensor installations
- Single hole, dual hole and self-adhesive mounting types available
- Single and 10-packs available

Installation Notes

- Keep the reflector surface clean to ensure peak detection performance. This is especially true when the maximum sensing range is being used. Clean using a damp cloth.
- When selecting a reflector, it is important to consider the ambient conditions it will be exposed to. Dusty or high humidity conditions may reduce the sensing range as much as 90%.
- Reflectors should be positioned at a 90° angle to the optical axis with a tolerance of $\pm 15^\circ$.



| Reflector Specifications | | | | | | | |
|--------------------------|---------|---------------------|----------|--------------------|----------------------|--|---|
| Part number | Price | Drawing Link | Quantity | Dimensions mm [in] | Degree of Protection | Mounting | Materials |
| RL102 | \$38.00 | PDF | 10 | 25 | IEC IP67 | Customer-supplied adhesive or other mounting method required | Reflective face: PMMA Polymethylmethacrylate (acrylic) Base material: ABS (Acrylonitrile-butadiene-styren) |
| RL102-1 | \$4.25 | | 1 | [0.98] | | | |
| RL103 | \$42.50 | PDF | 10 | 34.5 | | | |
| RL103-1 | \$4.75 | | 1 | [1.36] | | | |
| RL104 | \$42.50 | PDF | 10 | 46 | | | |
| RL104-1 | \$4.75 | | 1 | [1.81] | | | |
| RL105G | \$38.00 | PDF | 10 | 95 x 38 | | Two 4.3 mm holes | |
| RL105G-1 | \$4.25 | | 1 | [3.74 x 1.50] | | | |
| RL106G | \$42.50 | PDF | 10 | 182 x 42 | | Two 6mm holes | |
| RL106G-1 | \$4.75 | | 1 | [7.17 x 1.65] | | | |
| RL110 | \$19.00 | PDF | 10 | 84 | | One 5mm hole | |
| RL110-1 | \$2.00 | | 1 | [3.31] | | | |
| RL116 | \$19.00 | PDF | 10 | 41 x 60 | | Two 3mm holes | |
| RL116-1 | \$2.00 | | 1 | [3.54 x 2.36] | | | |
| RL100DA4 | \$38.50 | NA | 1 | 200 x 300 | | Self-adhesive | Paper (Acrylic tape with micro prism) |
| RL100DC4 | \$12.00 | NA | 1 | 50 x 300 | | | |
| RL100DQ1 | \$8.75 | NA | 1 | 100 x 100 | | | |
| RL111G | \$60.00 | PDF | 10 | 22.5 x 47 | | Two 3mm slots | Reflective face: PMMA Polymethylmethacrylate (acrylic) Base material: ABS (Acrylonitrile-butadiene-styren) |
| RL111G-1 | \$7.25 | | 1 | [0.89 x 1.85] | | | |
| RL112G | \$44.00 | PDF | 10 | 19 x 73 | | | |
| RL112G-1 | \$4.75 | | 1 | [0.75 x 2.87] | | | |
| RL113G | \$53.00 | PDF | 10 | 51.4 x 60.3 | | Two 4mm slots | |
| RL113G-1 | \$6.00 | | 1 | [2.02 x 2.37] | | | |

Not recommended for applications involving moist air environments or water immersion.