

# C18 Series Photoelectric Sensors



## M18 (18 mm) metal – DC

- 36 models available
- Polarized reflective and background suppression models
- Long operating distances
- Scratch resistant and easy to clean glass lens
- Axial cable or 12 mm quick-disconnect models
- Complete overload protection
- IP67 rated

### Cables and Accessories

Cables and accessories can be found starting on page 18–64

**C18 Series Photoelectric Sensor Selection Chart**

| Part Number                                                                                                         | Sensing Range                | Output State          | Optics             | Logic       | Connection            | Wiring                | Dimensions | Characteristic Curves | Price   |      |
|---------------------------------------------------------------------------------------------------------------------|------------------------------|-----------------------|--------------------|-------------|-----------------------|-----------------------|------------|-----------------------|---------|------|
| Diffuse                                                                                                             |                              |                       |                    |             |                       |                       |            |                       |         |      |
| C18D-AN-1A                                                                                                          | Up to 600mm<br>(23.62in)     | N.O.                  | Axial              | NPN         | 2m (6.5') axial cable | Diagram 1             | Figure 1   | Chart 1               | <---    |      |
| C18D-AP-1A                                                                                                          |                              |                       | Axial              | PNP         | 2m (6.5') axial cable | Diagram 1             | Figure 1   | Chart 1               | <---    |      |
| C18D-AN-1E                                                                                                          |                              |                       | Axial              | NPN         | M12 (12mm) connector  | Diagram 1             | Figure 2   | Chart 1               | <---    |      |
| C18D-AP-1E                                                                                                          |                              |                       | Axial              | PNP         | M12 (12mm) connector  | Diagram 1             | Figure 2   | Chart 1               | <---    |      |
| C18D-AN-2A                                                                                                          | Up to 600mm<br>(23.62in)     | N.O.                  | Right-angle        | NPN         | 2m (6.5') axial cable | Diagram 1             | Figure 3   | Chart 2               | <---    |      |
| C18D-AP-2A                                                                                                          |                              |                       | Right-angle        | PNP         | 2m (6.5') axial cable | Diagram 1             | Figure 3   | Chart 2               | <---    |      |
| C18D-AN-2E                                                                                                          |                              |                       | Right-angle        | NPN         | M12 (12mm) connector  | Diagram 1             | Figure 4   | Chart 2               | <---    |      |
| C18D-AP-2E                                                                                                          |                              |                       | Right-angle        | PNP         | M12 (12mm) connector  | Diagram 1             | Figure 4   | Chart 2               | <---    |      |
| Diffuse with background suppression                                                                                 |                              |                       |                    |             |                       |                       |            |                       |         |      |
| C18B-AN-1A                                                                                                          | 10-120mm<br>(0.39 to 4.72in) | N.O.                  | Axial              | NPN         | 2m (6.5') axial cable | Diagram 1             | Figure 1   | Chart 3               | <---    |      |
| C18B-AP-1A                                                                                                          |                              |                       | Axial              | PNP         | 2m (6.5') axial cable | Diagram 1             | Figure 1   | Chart 3               | <---    |      |
| C18B-AN-1E                                                                                                          |                              |                       | Axial              | NPN         | M12 (12mm) connector  | Diagram 1             | Figure 2   | Chart 3               | <---    |      |
| C18B-AP-1E                                                                                                          |                              |                       | Axial              | PNP         | M12 (12mm) connector  | Diagram 1             | Figure 2   | Chart 3               | <---    |      |
| C18B-AN-2A                                                                                                          | 10-120mm<br>(0.39 to 4.72in) | N.O.                  | Right-angle        | NPN         | 2m (6.5') axial cable | Diagram 1             | Figure 3   | Chart 3               | <---    |      |
| C18B-AP-2A                                                                                                          |                              |                       | Right-angle        | PNP         | 2m (6.5') axial cable | Diagram 1             | Figure 3   | Chart 3               | <---    |      |
| C18B-AN-2E                                                                                                          |                              |                       | Right-angle        | NPN         | M12 (12mm) connector  | Diagram 1             | Figure 4   | Chart 3               | <---    |      |
| C18B-AP-2E                                                                                                          |                              |                       | Right-angle        | PNP         | M12 (12mm) connector  | Diagram 1             | Figure 4   | Chart 3               | <---    |      |
| Polarized reflective *Receivers include one round (84mm dia.) reflector. Purchase additional reflectors separately. |                              |                       |                    |             |                       |                       |            |                       |         |      |
| C18P-AN-1A                                                                                                          | Up to 2m<br>(6.6 ft)         | N.O.                  | Axial              | NPN         | 2m (6.5') axial cable | Diagram 1             | Figure 1   | Chart 4               | <---    |      |
| C18P-AP-1A                                                                                                          |                              |                       | Axial              | PNP         | 2m (6.5') axial cable | Diagram 1             | Figure 1   | Chart 4               | <---    |      |
| C18P-AN-1E                                                                                                          |                              |                       | Axial              | NPN         | M12 (12mm) connector  | Diagram 1             | Figure 2   | Chart 4               | <---    |      |
| C18P-AP-1E                                                                                                          |                              |                       | Axial              | PNP         | M12 (12mm) connector  | Diagram 1             | Figure 2   | Chart 4               | <---    |      |
| C18P-AN-2A                                                                                                          | Up to 2m<br>(6.6 ft)         | N.O.                  | Right-angle        | NPN         | 2m (6.5') axial cable | Diagram 1             | Figure 3   | Chart 5               | <---    |      |
| C18P-AP-2A                                                                                                          |                              |                       | Right-angle        | PNP         | 2m (6.5') axial cable | Diagram 1             | Figure 3   | Chart 5               | <---    |      |
| C18P-AN-2E                                                                                                          |                              |                       | Right-angle        | NPN         | M12 (12mm) connector  | Diagram 1             | Figure 4   | Chart 5               | <---    |      |
| C18P-AP-2E                                                                                                          |                              |                       | Right-angle        | PNP         | M12 (12mm) connector  | Diagram 1             | Figure 4   | Chart 5               | <---    |      |
| Through-beam **Purchase one receiver and one emitter for a complete set.                                            |                              |                       |                    |             |                       |                       |            |                       |         |      |
| C18R-AN-1A                                                                                                          | Receiver                     | Up to 6m<br>(19.7 ft) | N.O.               | Axial       | NPN                   | 2m (6.5') axial cable | Diagram 1  | Figure 1              | Chart 6 | <--- |
| C18R-AP-1A                                                                                                          | Receiver                     |                       |                    | Axial       | PNP                   | 2m (6.5') axial cable | Diagram 1  | Figure 1              | Chart 6 | <--- |
| C18R-AN-1E                                                                                                          | Receiver                     |                       |                    | Axial       | NPN                   | M12 (12mm) connector  | Diagram 1  | Figure 2              | Chart 6 | <--- |
| C18R-AP-1E                                                                                                          | Receiver                     |                       |                    | Axial       | PNP                   | M12 (12mm) connector  | Diagram 1  | Figure 2              | Chart 6 | <--- |
| C18E-ON-1A                                                                                                          | Emitter                      | Receiver dependent    | Receiver dependent | Axial       | 2m (6.5') axial cable | Diagram 2             | Figure 1   | Chart 6               | <---    |      |
| C18E-OP-1E                                                                                                          | Emitter                      |                       |                    | Axial       |                       | M12 (12mm) connector  | Diagram 2  | Figure 2              | Chart 6 | <--- |
| C18R-AN-2A                                                                                                          | Receiver                     | Up to 6m<br>(19.7 ft) | N.O.               | Right-angle | NPN                   | 2m (6.5') axial cable | Diagram 1  | Figure 3              | Chart 7 | <--- |
| C18R-AP-2A                                                                                                          | Receiver                     |                       |                    | Right-angle | PNP                   | 2m (6.5') axial cable | Diagram 1  | Figure 3              | Chart 7 | <--- |
| C18R-AN-2E                                                                                                          | Receiver                     |                       |                    | Right-angle | NPN                   | M12 (12mm) connector  | Diagram 1  | Figure 4              | Chart 7 | <--- |
| C18R-AP-2E                                                                                                          | Receiver                     |                       |                    | Right-angle | PNP                   | M12 (12mm) connector  | Diagram 1  | Figure 4              | Chart 7 | <--- |
| C18E-ON-2A                                                                                                          | Emitter                      | Receiver dependent    | Receiver dependent | Right-angle | 2m (6.5') axial cable | Diagram 2             | Figure 3   | Chart 7               | <---    |      |
| C18E-OP-2E                                                                                                          | Emitter                      |                       |                    | Right-angle |                       | M12 (12mm) connector  | Diagram 2  | Figure 4              | Chart 7 | <--- |

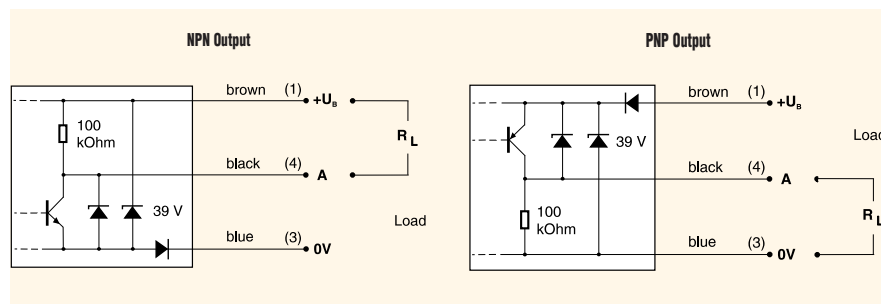
# C18 Series Photoelectric Sensors

| Specifications                                  | Diffuse Models with Background Suppression                               | Reflective Models         |
|-------------------------------------------------|--------------------------------------------------------------------------|---------------------------|
| <b>Type</b>                                     | Diffuse reflection with background suppression                           | Polarized reflection      |
| <b>Sensing Distance</b>                         | 10 to 120mm (0.39 to 4.72in) <sup>3</sup>                                | 2m (6.6 ft)               |
| <b>Emission</b>                                 | LED red (660nm)                                                          | LED red polarized (660nm) |
| <b>Differential Travel</b>                      | ≤10%                                                                     |                           |
| <b>Operating Voltage</b>                        | 10-36VDC                                                                 |                           |
| <b>Ripple</b>                                   | ≤20%                                                                     |                           |
| <b>Power Consumption (axial/right-angle)</b>    | 20mA/25mA                                                                | 20mA/15mA                 |
| <b>Load Current</b>                             | ≤200mA                                                                   |                           |
| <b>Leakage Current</b>                          | ≤10μA                                                                    |                           |
| <b>Voltage Drop</b>                             | ≤2.0V                                                                    |                           |
| <b>Output Type</b>                              | NPN or PNP; N.O. only                                                    |                           |
| <b>Switching Frequency</b>                      | 500Hz                                                                    | 1kHz                      |
| <b>(tv) Time Delay Before Availability</b>      | 60ms                                                                     | 20ms                      |
| <b>Input Voltage Transients Protection</b>      | Up to 36VDC                                                              |                           |
| <b>Input Power Polarity Reversal Protection</b> | Yes                                                                      |                           |
| <b>Output Power Short-Circuit Protection</b>    | Yes (switch autoresets after overload is removed)                        |                           |
| <b>Temperature Range</b>                        | -25° to +55° C (-13° to 131° F)                                          |                           |
| <b>Temperature Drift</b>                        | ≤5%                                                                      |                           |
| <b>Interference to External Light</b>           | 5,000 lux (incandescent lamp) 10,000 lux (sunlight)                      |                           |
| <b>Protection Degree (DIN 40050)</b>            | IEC IP67                                                                 |                           |
| <b>LED Indicators</b>                           | Yellow (output state, output energized), green (excess light indication) |                           |
| <b>Housing Material</b>                         | Chrome-plated brass                                                      |                           |
| <b>Lens Material</b>                            | Glass                                                                    |                           |
| <b>Weight (cable/connector)</b>                 | 115g (4.05 oz)/40g (1.41 oz)                                             |                           |

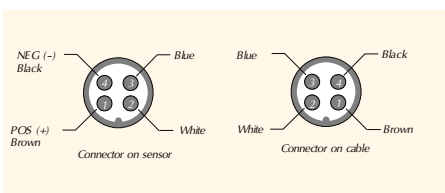
<sup>1</sup>Through-beam sensors must be used in pairs consisting of one receiver and one emitter <sup>2</sup>With 200x200mm white matte paper  
<sup>3</sup>With 100x100mm white matte paper

## Wiring diagrams

Diagram 1



## M12 Connector



**Warning: These products are not safety sensors and are not suitable for use in personal safety applications.**

# C18 Series Photoelectric Sensors

## Dimensions (mm)

Figure 1

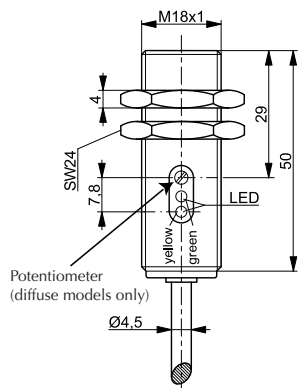


Figure 2

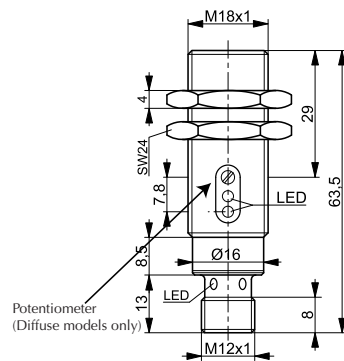


Figure 3

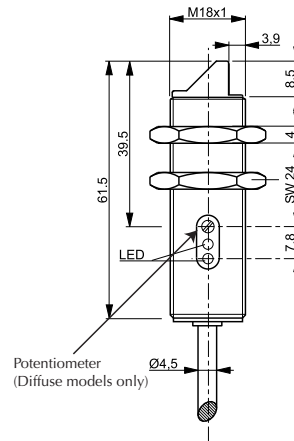
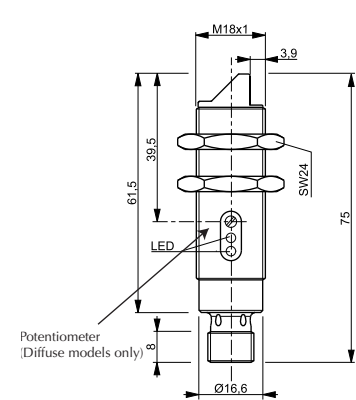


Figure 4



## Characteristic Curves

Chart 1

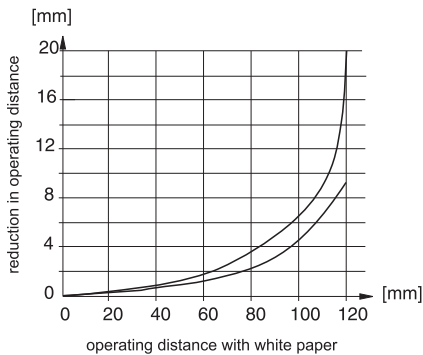


Chart 2

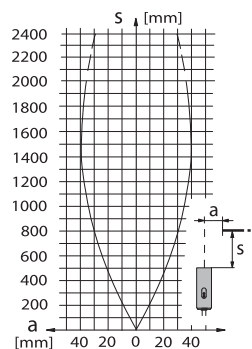


Chart 3

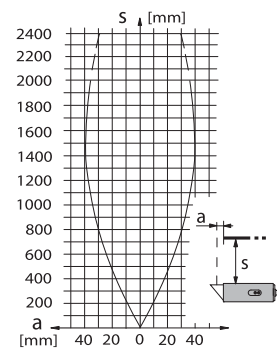


Chart 4

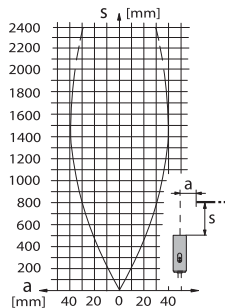


Chart 5

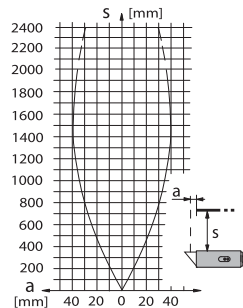


Chart 6

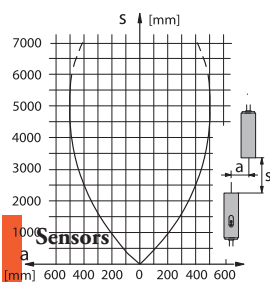
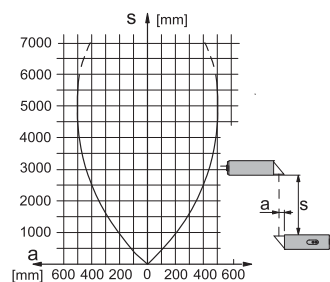


Chart 7



# Photoelectric Sensors Accessories: Cables

## Cables with quick-disconnect plugs

- Industry standard axial and right-angle M8/M12 screw-lock connectors. The cables listed below can be used with extension cables
- 2m, 5m, and 7m cable lengths
- PVC (polyvinyl chloride) jacket for typical industrial applications
- PUR (polyurethane) jacket for oily and direct sunlight applications
- IP67 rated



### M8 Quick-Disconnect Cables

| Part Number                 | Price | Length       | Poles | Connector   | Jacket | Dimensions |
|-----------------------------|-------|--------------|-------|-------------|--------|------------|
| <b>M8 Quick-Disconnects</b> |       |              |       |             |        |            |
| CD08-0A-020-A1              | <---> | 2m (6.5ft.)  | 3     | Axial       | PVC    | Figure 1   |
| CD08-0A-020-C1              | <---> | 2m (6.5ft.)  | 3     | Right-angle | PVC    | Figure 2   |
| CD08-0A-050-A1              | <---> | 5m (16.4ft.) | 3     | Axial       | PVC    | Figure 3   |
| CD08-0C-050-A1              | <---> | 5m (16.4ft.) | 3     | Axial       | PUR    | Figure 3   |
| CD08-0A-050-C1              | <---> | 5m (16.4ft.) | 3     | Right-angle | PVC    | Figure 4   |
| CD08-0C-050-C1              | <---> | 5m (16.4ft.) | 3     | Right-angle | PUR    | Figure 4   |
| CD08-0A-070-A1              | <---> | 7m (23ft.)   | 3     | Axial       | PVC    | Figure 1   |
| CD08-0A-070-C1              | <---> | 7m (23ft.)   | 3     | Right-angle | PVC    | Figure 2   |

### M12 Quick-Disconnect Cables

| Part Number                  | Price | Length       | Poles | Connector   | Jacket | Dimensions |
|------------------------------|-------|--------------|-------|-------------|--------|------------|
| <b>M12 Quick-Disconnects</b> |       |              |       |             |        |            |
| CD12L-0B-020-A0              | <---> | 2m (6.5ft.)  | 4     | Axial       | PVC    | Figure 5   |
| CD12L-0B-020-C0              | <---> | 2m (6.5ft.)  | 4     | Right-angle | PVC    | Figure 6   |
| CD12M-0B-050-A1*             | <---> | 5m (16.4ft.) | 3     | Axial       | PVC    | Figure 7   |
| CD12M-0D-050-A1*             | <---> | 5m (16.4ft.) | 3     | Axial       | PUR    | Figure 7   |
| CD12M-0B-050-C1*             | <---> | 5m (16.4ft.) | 3     | Right-angle | PVC    | Figure 8   |
| CD12M-0D-050-C1*             | <---> | 5m (16.4ft.) | 3     | Right-angle | PUR    | Figure 8   |
| CD12M-0B-070-A1              | <---> | 7m (23ft.)   | 4     | Axial       | PVC    | Figure 5   |
| CD12M-0B-070-C1              | <---> | 7m (23ft.)   | 4     | Right-angle | PVC    | Figure 6   |

\* Note: Do not use with: DM, FA, QX, SS, SSF, MS and MSF series photoelectric sensors. These sensors require 4-pole cables.

| Cable Specifications         | M8                            |              | M12                           |              |
|------------------------------|-------------------------------|--------------|-------------------------------|--------------|
| <b>Length</b>                | 2m (6.5ft.) / 7m (23ft.)      | 5m (16.4ft.) | 2m (6.5ft.) / 7m (23ft.)      | 5m (16.4ft.) |
| <b>Nominal Voltage</b>       | 50VAC/75VDC                   | 60VAC/75VDC  | 300VAC                        | 60VAC/75VDC  |
| <b>Nominal Current</b>       | 4A                            | 1.5A         | 4A                            | 1.5A         |
| <b>Protection Degree</b>     | IEC IP67                      |              | IEC IP67                      |              |
| <b>Contact Body Material</b> | ABS                           | PUR          | ABS                           | PUR          |
| <b>Housing Material</b>      | PUR                           |              | PUR                           |              |
| <b>Contacts Material</b>     | CuSn                          | CuZn         | CuSn                          | CuZn         |
| <b>Conductors Section</b>    | 0.34mm <sup>2</sup>           |              | 0.34mm <sup>2</sup>           |              |
| <b>Ø Outer Cable</b>         | 5mm                           |              | 5mm                           |              |
| <b>Temperature Range</b>     | -25° to +70°C (-13° to 158°F) |              | -25° to +70°C (-13° to 158°F) |              |

## Dimensions

Figure 1

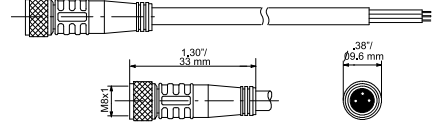


Figure 2

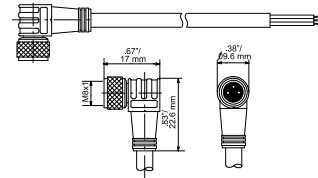


Figure 3

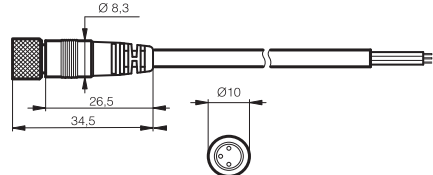


Figure 4

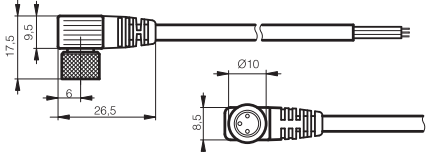


Figure 5

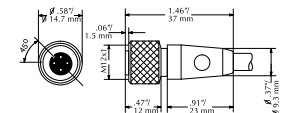
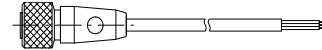


Figure 6

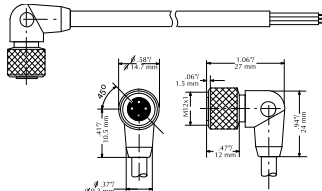


Figure 7

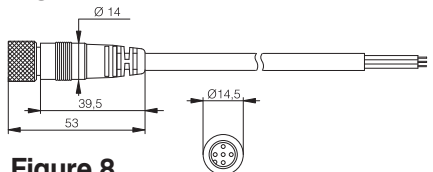
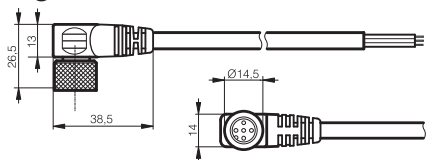


Figure 8



# Photoelectric Sensors Accessories: Extension Cables



## Extension cables with quick-disconnect plugs on each end

Available extension cables include:

- Industry standard M8 and M12 screw-lock connectors
- Axial and right-angle connector models
- 1m and 3m cable lengths
- PVC (polyvinyl chloride) jacket for typical industrial applications
- IP67 rated

## Dimensions

Figure 1

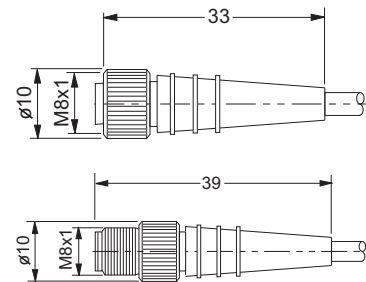


Figure 2

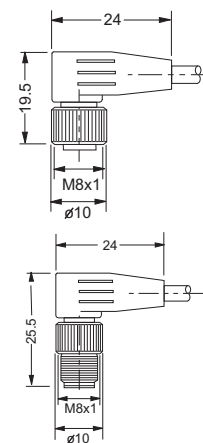


Figure 3

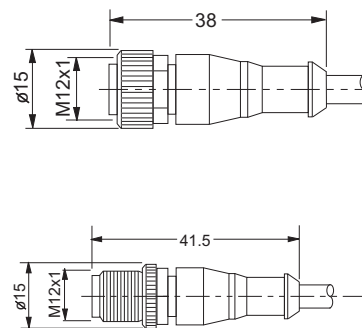
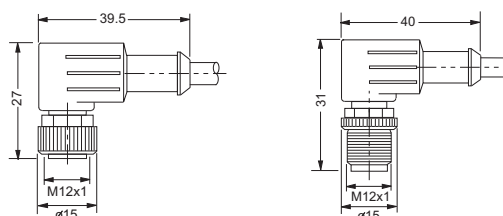


Figure 4



| M8 Extension Cables with Quick-Disconnect on each end |       |              |       |               |        |            |
|-------------------------------------------------------|-------|--------------|-------|---------------|--------|------------|
| Part Number                                           | Price | Length       | Poles | Connectors    | Jacket | Dimensions |
| <b>M8 Quick-Disconnect Extension Cables</b>           |       |              |       |               |        |            |
| CDP08-0A-010-AA                                       | <---> | 1m (3.28ft.) | 3     | 2 Axial       | PVC    | Figure 1   |
| CDP08-0A-010-BB                                       | <---> | 1m (3.28ft.) | 3     | 2 Right-angle | PVC    | Figure 2   |
| CDP08-0A-030-AA                                       | <---> | 3m (9.84ft.) | 3     | 2 Axial       | PVC    | Figure 1   |
| CDP08-0A-030-BB                                       | <---> | 3m (9.84ft.) | 3     | 2 Right-angle | PVC    | Figure 2   |

| M12 Extension Cables with Quick-Disconnect on each end |       |              |       |               |        |            |
|--------------------------------------------------------|-------|--------------|-------|---------------|--------|------------|
| Part Number                                            | Price | Length       | Poles | Connectors    | Jacket | Dimensions |
| <b>M12 Quick-disconnect Extension Cables</b>           |       |              |       |               |        |            |
| CDP12-0B-010-AA                                        | <---> | 1m (3.28ft.) | 4     | 2 Axial       | PVC    | Figure 3   |
| CDP12-0B-010-BB                                        | <---> | 1m (3.28ft.) | 4     | 2 Right-angle | PVC    | Figure 4   |
| CDP12-0B-030-AA                                        | <---> | 3m (9.84ft.) | 4     | 2 Axial       | PVC    | Figure 3   |
| CDP12-0B-030-BB                                        | <---> | 3m (9.84ft.) | 4     | 2 Right-angle | PVC    | Figure 4   |

| Cable Specifications  | M8 / M12                      |
|-----------------------|-------------------------------|
| Length                | 1m (3.28ft.)/<br>3m (9.84ft.) |
| Nominal Voltage       | 50VAC/75VDC                   |
| Nominal Current       | 4A                            |
| Protection Degree     | IEC IP67                      |
| Contact Body Material | ABS                           |
| Housing Material      | PUR                           |
| Contacts Material     | CuSn                          |
| Conductors Section    | 0.34mm <sup>2</sup>           |
| Ø Outer Cable         | 5mm                           |
| Temperature Range     | -25° to +70°C (-13° to 158°F) |

# Photoelectric Sensors Accessories: Cables

## Cables with quick-disconnect plugs for DFT/DFP Models

Do not use extension cables with the cable listed below. The physical pin configurations do not match.

Available cables include:

- Industry standard M8 screw-lock connectors
- Axial and right-angle connector models
- 2m, 5m and 10m cable lengths
- PVC (polyvinyl chloride) jacket for typical industrial applications
- IP68 rated



| M8 Cables with Quick-Disconnect |       |               |       |             |        |            |
|---------------------------------|-------|---------------|-------|-------------|--------|------------|
| Part Number                     | Price | Length        | Poles | Connectors  | Jacket | Dimensions |
| <b>M8 Quick-Disconnects</b>     |       |               |       |             |        |            |
| <b>CD08-0G-020-A1</b>           | <---> | 2m (6.56ft.)  | 4     | Axial       | PVC    | Figure 1   |
| <b>CD08-0W-020-C1</b>           | <---> | 2m (6.56ft.)  | 4     | Right-angle | PVC    | Figure 2   |
| <b>CD08-0G-050-A1</b>           | <---> | 5m (16.4ft.)  | 4     | Axial       | PVC    | Figure 1   |
| <b>CD08-0W-050-C1</b>           | <---> | 5m (16.4ft.)  | 4     | Right-angle | PVC    | Figure 2   |
| <b>CD08-0G-100-A1</b>           | <---> | 10m (32.8ft.) | 4     | Axial       | PVC    | Figure 1   |
| <b>CD08-0W-100-C1</b>           | <---> | 10m (32.8ft.) | 4     | Right-angle | PVC    | Figure 2   |

| Cable Specifications         | M8                                            |
|------------------------------|-----------------------------------------------|
| <b>Length</b>                | 2m (6.56ft.)<br>5m (16.4ft.)<br>10m (32.8ft.) |
| <b>Nominal Voltage</b>       | 30VAC/30VDC                                   |
| <b>Nominal Current</b>       | 4A                                            |
| <b>Protection Degree</b>     | IEC IP67                                      |
| <b>Contact Body Material</b> | ABS                                           |
| <b>Housing Material</b>      | PUR                                           |
| <b>Contacts Material</b>     | CuSn                                          |
| <b>Conductors Section</b>    | 0.25mm <sup>2</sup>                           |
| <b>Ø Outer Cable</b>         | 4.5mm                                         |
| <b>Temperature Range</b>     | -5° to +70°C (23° to 158°F)                   |

## Dimensions (mm)

Figure 1

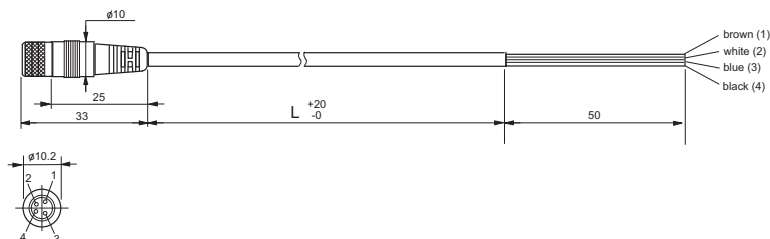
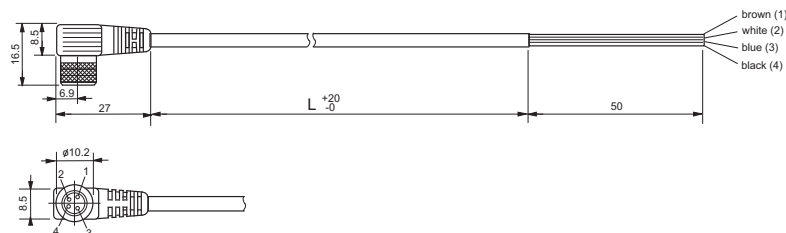
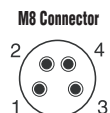


Figure 2



Use these cables if the sensor pin configuration looks like the connector pin-out below.





# Accessories: Reflectors and Shutters

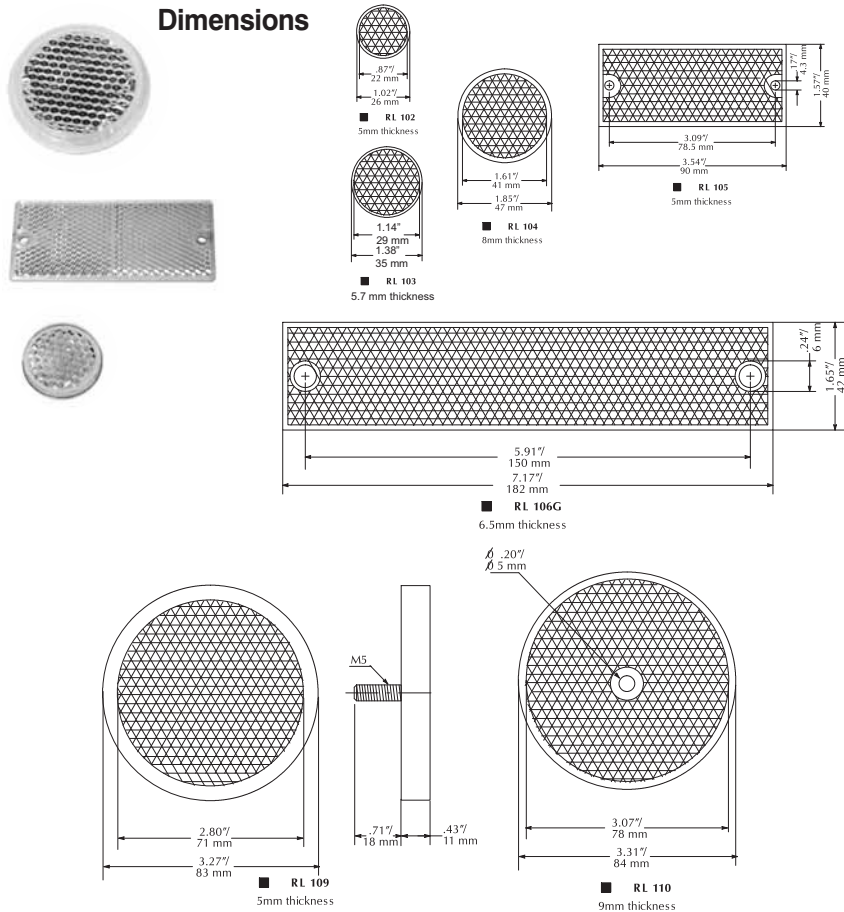
## RL series reflectors for polarized reflective photoelectric sensors (all models)

- 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 stud mounting types available
- 10 reflectors per package

## 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  $\pm 15^\circ$ .

## Dimensions



| Specifications                                                                                       |                                                              |       |       |                  |                |             |                    |
|------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|-------|-------|------------------|----------------|-------------|--------------------|
| Model                                                                                                | RL102                                                        | RL103 | RL104 | RL105            | RL106G         | RL109       | RL110 <sup>3</sup> |
| Price (10 per pack)                                                                                  | <--->                                                        | <---> | <---> | <--->            | <--->          | <--->       | <--->              |
| % Sensing Range Using SSP <sup>1</sup>                                                               | 50%                                                          | 40%   | 50%   | 50%              | 50%            | 50%         | 100%               |
| % Sensing Range Using QXP <sup>1</sup>                                                               | --                                                           | 35%   | 60%   | 50%              | 45%            | 30%         | 100%               |
| Dimensions                                                                                           | Ø26mm                                                        | Ø36mm | Ø47mm | 90x40mm          | 182x42mm       | Ø83mm       | Ø84mm              |
| Degree of Protection <sup>2</sup>                                                                    | IEC IP67                                                     |       |       |                  |                |             |                    |
| Mounting                                                                                             | Customer-supplied adhesive or other mounting method required |       |       | two Ø4.3mm holes | two Ø6mm holes | one M5 stud | one Ø5mm hole      |
| Materials                                                                                            | Acrylic/polycarbonate                                        |       |       |                  |                |             |                    |
| <b>1 Refer to individual catalog pages for detailed explanations of these photoelectric sensors.</b> |                                                              |       |       |                  |                |             |                    |
| <b>2 Not recommended for applications involving moist air environments or water immersion.</b>       |                                                              |       |       |                  |                |             |                    |
| <b>3 All reflective sensors are shipped with an RL110 reflector.</b>                                 |                                                              |       |       |                  |                |             |                    |

## ST0S1 through ST0S8 shutters for M18 (18 mm) through-beam sensors (SSE / SSR)



- Reduces the emitted beam, allowing the detection of small targets
- Shutter consists of a threaded ring-nut, a protective lens, an O-ring and an aperture, which can screw onto the optical head of either the emitter or receiver. The table above shows the sensing distance and minimal detectable object.

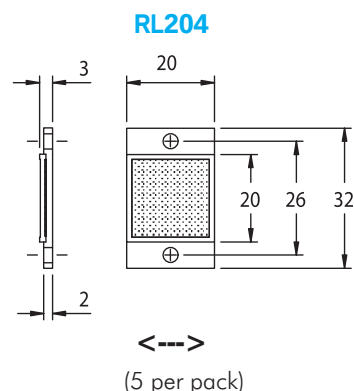
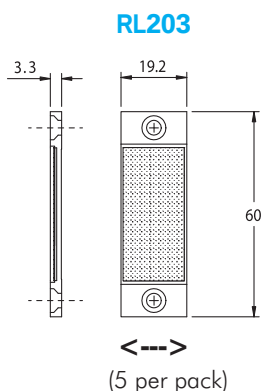
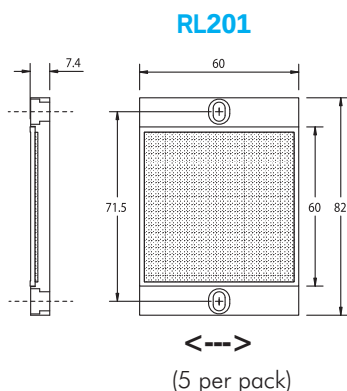
| Sensing Distance (when used with SSE / SSR Model Photoelectric switches) |       |       |       |       |       |       |
|--------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|
| Model                                                                    | ST0S1 | ST0S2 | ST0S3 | ST0S4 | ST0S6 | ST0S8 |
| Pieces Per Pack                                                          | 1     | 1     | 1     | 1     | 1     | 1     |
| Price                                                                    | <---> | <---> | <---> | <---> | <---> | <---> |
| Ø x shutter (mm)                                                         | 1     | 2     | 3     | 4     | 6     | 8     |
| Distance (m)                                                             | N/A   | N/A   | 1     | 1.5   | 3.5   | 6.5   |
| object (mm)                                                              | N/A   | N/A   | 1.5   | 2     | 3     | 4     |

# Accessories: Reflectors, Adapters & Mounting Brackets

## RL series reflectors for polarized reflective Laser photoelectric sensors (FALN series)

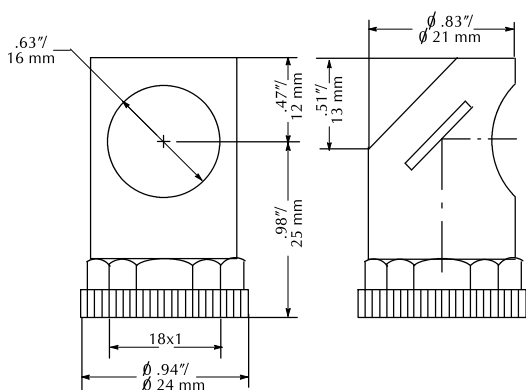
- Suitable for use with polarized light Laser photoelectric sensors
- Sizes for most applications
- Miniature types for close mounting in multiple sensor installations
- 5 reflectors per package

| Specifications                                                                                                      |                       |                |                |
|---------------------------------------------------------------------------------------------------------------------|-----------------------|----------------|----------------|
| Model                                                                                                               | RL201                 | RL203          | RL204          |
| Sensing Range Using FALN <sup>1</sup>                                                                               | 30m                   | 7m             | 7m             |
| Dimensions                                                                                                          | 60mm x 82mm           | 19mm x 60mm    | 20mm x 32mm    |
| Mounting                                                                                                            | two Ø4mm holes        | two Ø6mm holes | two Ø3mm holes |
| Degree of Protection <sup>2</sup>                                                                                   | IEC IP67              |                |                |
| Materials                                                                                                           | Acrylic/polycarbonate |                |                |
| <i>1 Refer to individual catalog pages for detailed explanations of these photoelectric sensors.</i>                |                       |                |                |
| <i>2 Not recommended for applications involving moist air environments or water immersion.</i>                      |                       |                |                |
| <i>Note: All reflective sensors are shipped with an RL110 reflector. Purchase additional reflectors separately.</i> |                       |                |                |



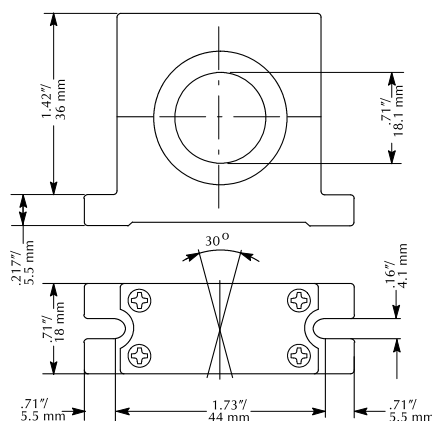
## ST03 right-angle M18 (18 mm) beam adapter

For use with M18 retroreflective and through-beam photoelectric switches (not for use with diffuse reflection sensors). Allows 90° light detection using an internal mirror set at 45° to the optical axis. Sensitivity loss is about 20-30%.



## ST02 plastic swivel bracket M18 (18 mm)

Plastic mounting bracket for use with M18 photoelectric switches. Has a ball-joint and set screws to adjust sensor orientation. Allows orientation in all directions for retroreflective and through-beam sensors. (Will not work with C18 series).



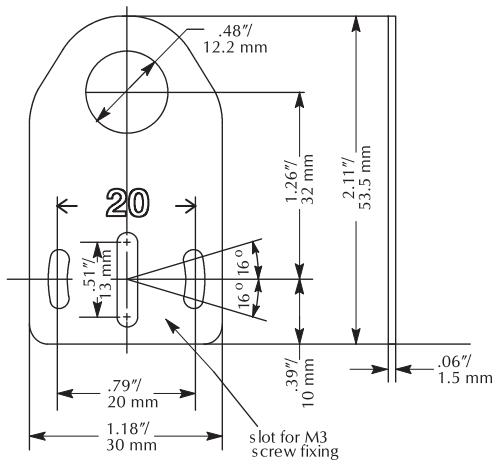


# Accessories: Mounting Brackets

## ST12A metal axial bracket

For mounting M12 (12 mm) sensors. Has two mounting holes (use 3 mm screws) and allows the rotation of an optical axis for right-beam angle adapter sensors.

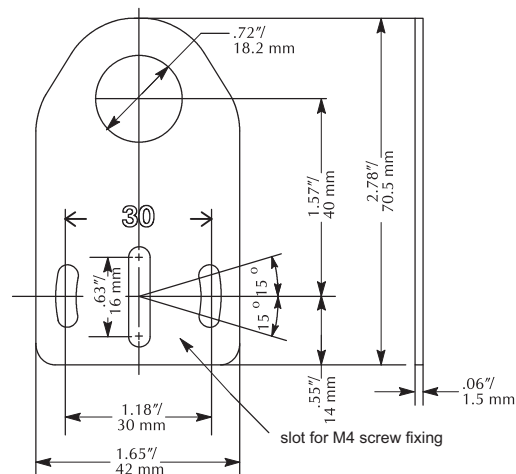
<--->  
(1 per pack)



## ST18A metal axial bracket

Metal mounting bracket for M18 (18mm) sensors. Has two mounting holes (use 4 mm screws) and allows the rotation of an optical axis for right-beam-angle-adapter sensors.

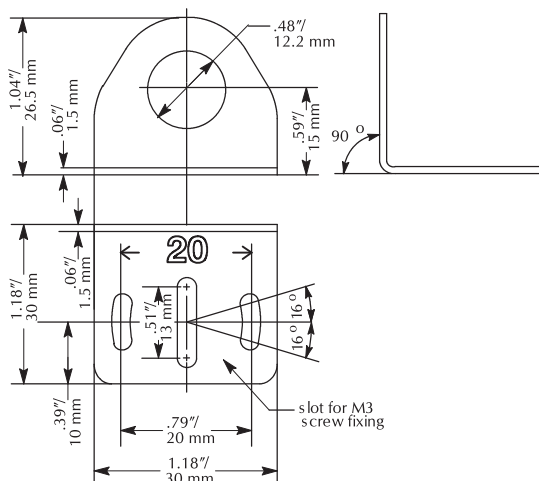
<--->  
(1 per pack)



## ST12C metal right-angle bracket

Metal angular mounting bracket for use with M12 (12 mm) sensors. Has two mounting holes (use 3 mm screws) and allows the rotation of an optical axis for axial sensors.

<--->  
(1 per pack)



## ST18C metal right-angle bracket

Metal angular mounting bracket for M18 (18 mm) sensors. Has two mounting holes (use 4 mm screws) and allows the rotation of an optical axis for axial sensors.

<--->  
(1 per pack)

