



Photoelectric sensors  
V180-2, Photoelectric retro-reflective sensor,  
Standard optics

VL180-2F32331

im0036730

**Model Name** > [VL180-2F32331](#)  
**Part No.** > [6043458](#)



im0036730

*Illustration may differ*

#### At a glance

- Lowest-cost M18 housing sensor on the market
- Sensing distance up to 7 m
- Polarizing filter ensures reliable detection of highly-reflective objects
- Bright power and signal LEDs with 360° visibility
- Includes reflector
- High switching frequencies up to 1000 Hz
- Available in a metal housing for applications in harsh environments
- Optical axis selectively axial or radial (90°)

#### Your benefits

- Lowest-cost M18 cylindrical sensor on the market reduces installation costs
- Bright red sender LED simplifies alignment and saves installation time
- Bright power and signal LEDs with 360° visibility offer quick and simple troubleshooting, reducing maintenance time and costs
- The flat and smooth lens reduces the collection of dust and dirt, ensuring safe operation with less maintenance and fewer costs
- Polarizing filter prevents false readings on reflective surfaces, reducing downtime



#### Features

|                                  |                                                        |
|----------------------------------|--------------------------------------------------------|
| Sensor/detection principle:      | Photoelectric retro-reflective sensor, Standard optics |
| Housing design (light emission): | Cylindrical, straight                                  |
| Housing length:                  | 70.2 mm                                                |
| Thread diameter (housing):       | M18 x 1                                                |
| Optical axis:                    | Axial                                                  |
| Sensing range max.:              | 0.05 m ... 7 m <sup>1)</sup>                           |
| Sensing range:                   | 0.05 m ... 6 m <sup>2)</sup>                           |
| Type of light:                   | Visible red light                                      |
| Light source:                    | LED <sup>3)</sup>                                      |
| Wave length:                     | 645 nm                                                 |
| Angle of dispersion:             | Ca. 4.5 °                                              |
| Adjustment:                      | Potentiometer, 270°                                    |
| Light spot size (distance):      | Ø 400 mm (6 m)                                         |

<sup>1) 2)</sup> PL80A <sup>3)</sup> Average service life of 100,000 h at T<sub>A</sub> = +25 °C

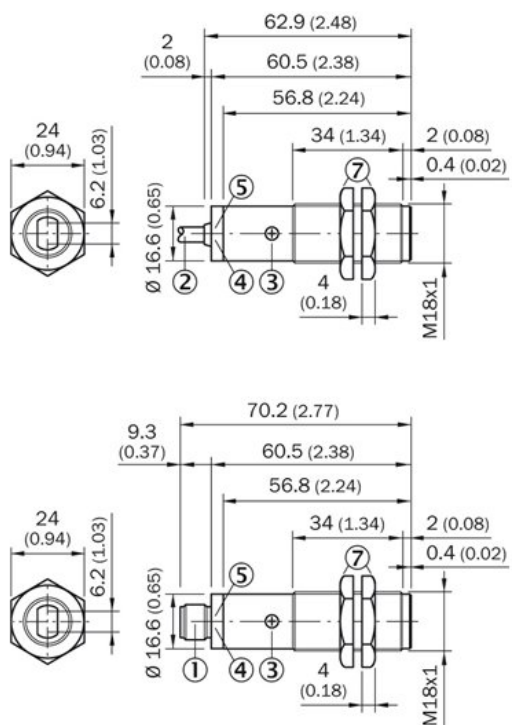
## Mechanics/electronics

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|                                   |                                      |
|-----------------------------------|--------------------------------------|
| Supply voltage:                   | 10 V DC ... 30 V DC <sup>1)</sup>    |
| Ripple:                           | ± 10 %                               |
| Power consumption:                | ≤ 30 mA <sup>2)</sup>                |
| Output type:                      | PNP, open collector                  |
| Switching mode:                   | Light switching                      |
| Signal voltage PNP HIGH/LOW:      | Approx. VS - 1.8 V / 0 V             |
| Output current I <sub>max</sub> : | ≤ 100 mA                             |
| Response time:                    | ≤ 0.5 ms <sup>3)</sup>               |
| Switching frequency:              | 1,000 Hz <sup>4)</sup>               |
| Connection type:                  | Connector M12, 4-pin                 |
| Circuit protection:::             | A, B, D <sup>5) 6) 7)</sup>          |
| Protection class:                 | III                                  |
| Weight:                           | 47 g                                 |
| Polarisation filter:              | ✓                                    |
| Special device:                   | -                                    |
| Housing material:                 | Nickel-plated brass and PC, Metal    |
| Optics material:                  | PMMA                                 |
| Enclosure rating:                 | IP 67                                |
| Items supplied:                   | Fastening nuts (2 x), Reflector P250 |
| Ambient operating temperature:    | -25 °C ... 55 °C                     |
| Ambient storage temperature:      | -40 °C ... 70 °C                     |

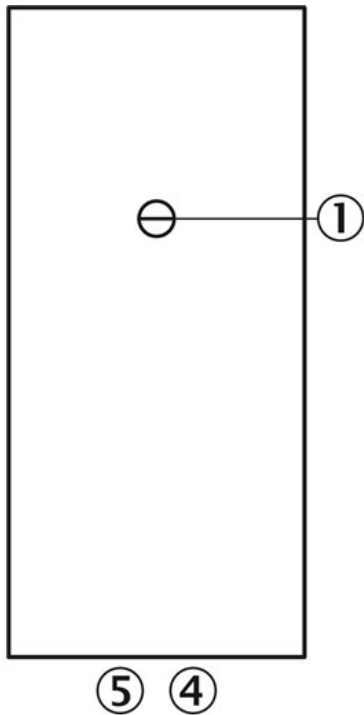
<sup>1)</sup> Limit values, operation in short-circuit protected network max. 8 A <sup>2)</sup> Without load <sup>3)</sup> Signal transit time with resistive load <sup>4)</sup> With light/dark ratio 1:1 <sup>5)</sup> A = V<sub>S</sub>  
connections reverse-polarity protected <sup>6)</sup> B = inputs and output reverse-polarity protected <sup>7)</sup> D = outputs overcurrent and short-circuit protected

Dimensional drawing



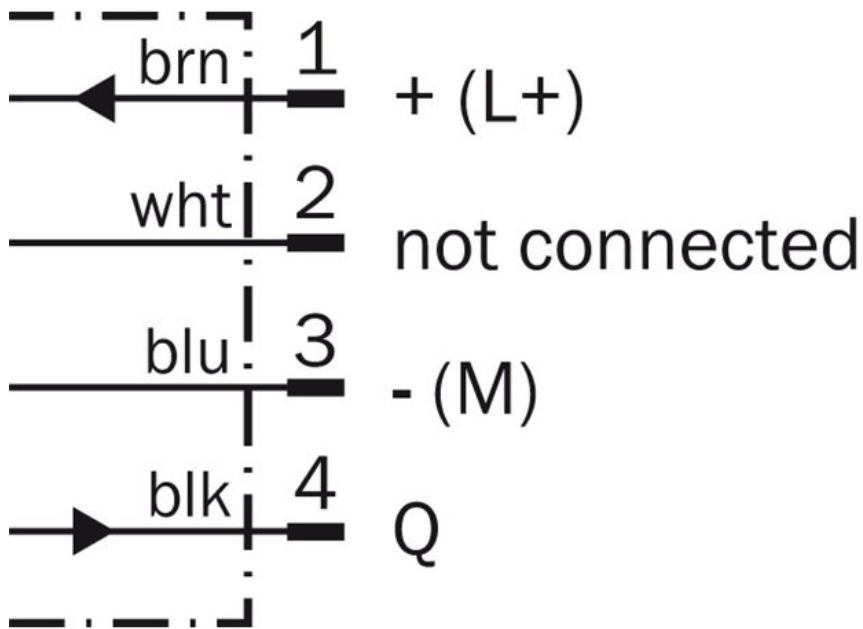
- [1] Connector M12, 4-pin
- [2] Connection cable 2 m
- [3] Sensitivity adjustment 270°
- [4] LED indicator orange: switching output active
- [5] LED indicator green: strength indicator
- [7] fastening nuts (2 x); 24 mm hex, metal

Adjustments possible

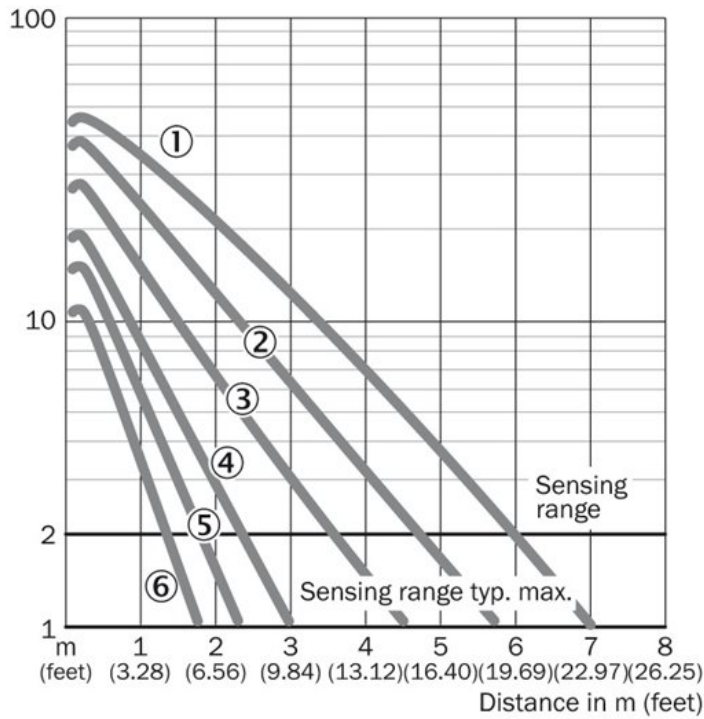


- [3] Sensitivity adjustment 270°
- [4] LED indicator orange: switching output active
- [5] LED indicator green

## Connection diagram

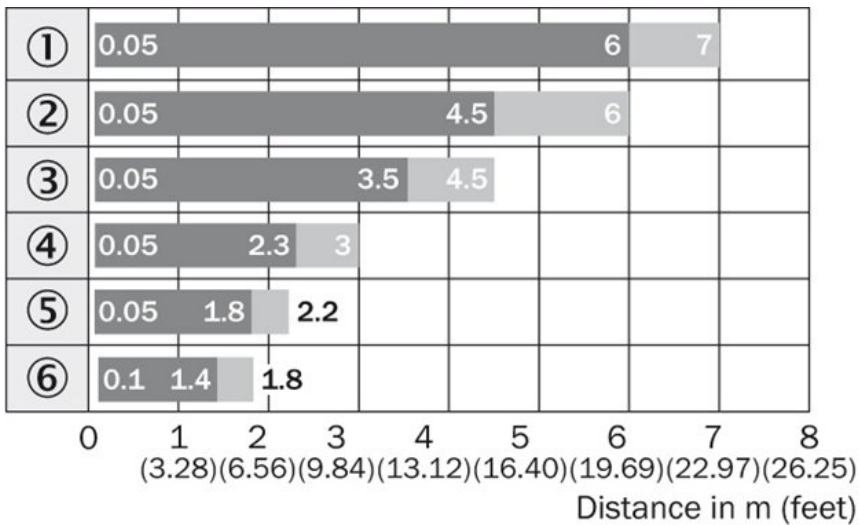


## Characteristic curve



- [1] PL80A
- [2] P250, PL40A, PL50A, C110A
- [3] PL30A, PL31A
- [4] PL20A
- [5] P45
- [6] Reflective tape Diamond Grade

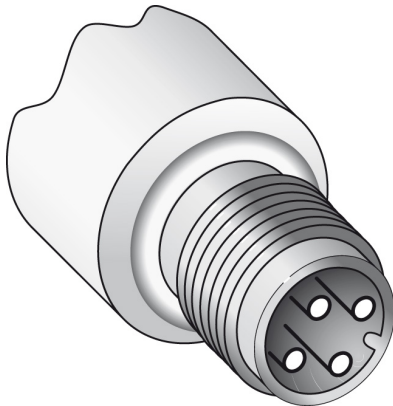
## Sensing range diagram



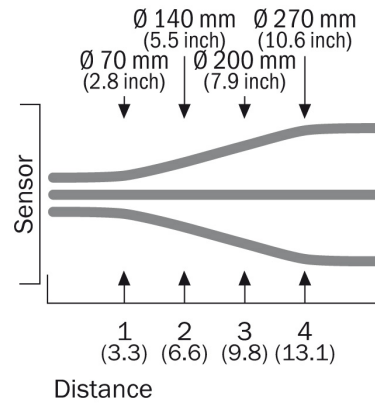
- |1| PL80A
- |2| P250, PL40A, PL50A, C110A
- |3| PL30A, PL31A
- |4| PL20A
- |5| P45
- |6| Reflective tape Diamond Grade

■ Sensing range      ■ Sensing range max.

## Connection type



## Light spot size



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