



## Photoelectric sensors V180-2, Photoelectric proximity sensor, Background blanking

VTF180-2P41112



**Model Name** > [VTF180-2P41112](#)  
**Part No.** > [6041802](#)



*Illustration may differ*

#### At a glance

- Lowest-cost M18 housing sensor on the market
- Sensing distance up to 140 mm
- Bright power and signal LEDs with 360° visibility
- High switching frequencies up to 1000 Hz
- Available in a metal housing for applications in harsh environments
- Optical axis selectively axial or radial (90°)
- Wide product portfolio solves a broad range of applications

#### 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



#### Features

|                                  |                                                     |
|----------------------------------|-----------------------------------------------------|
| Sensor/detection principle:      | Photoelectric proximity sensor, Background blanking |
| Housing design (light emission): | Cylindrical, straight                               |
| Housing length:                  | 62.5 mm                                             |
| Thread diameter (housing):       | M18 x 1                                             |
| Optical axis:                    | Axial                                               |
| Sensing range max.:              | 1 mm ... 140 mm <sup>1)</sup>                       |
| Sensing range:                   | 1 mm ... 100 mm <sup>2)</sup>                       |
| Type of light:                   | Visible red light                                   |
| Light source:                    | LED <sup>3)</sup>                                   |
| Wave length:                     | 645 nm                                              |
| Focus:                           | Focused, focus approx. 7 mm at 60 mm                |
| Adjustment:                      | Potentiometer, 270 °                                |
| Light spot size (distance):      | Ø 8 mm (100 mm)                                     |

<sup>1) 2)</sup> Object with 90 % reflectance (referred to standard white, DIN 5033) <sup>3)</sup> Average service life of 100,000 h at T<sub>A</sub> = +25 °C

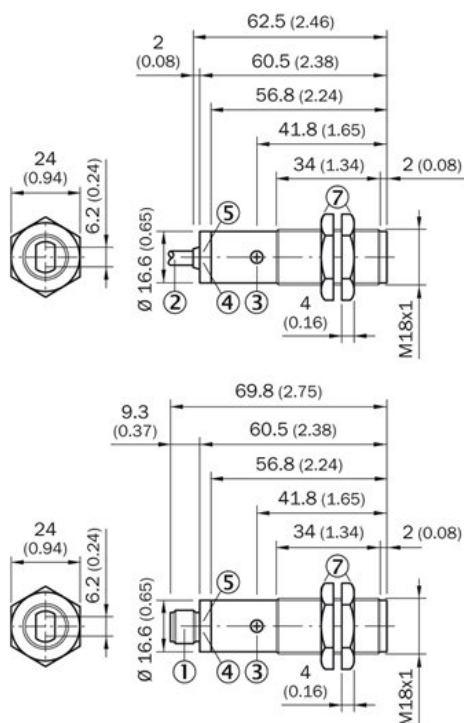
#### Mechanics/electronics

|                 |                                   |
|-----------------|-----------------------------------|
| Supply voltage: | 10 V DC ... 30 V DC <sup>1)</sup> |
| Ripple:         | ± 10 % <sup>2)</sup>              |

|                                    |                                                     |
|------------------------------------|-----------------------------------------------------|
| Power consumption:                 | $\leq 30 \text{ mA}$ <sup>3)</sup>                  |
| Switching output:                  | PNP, open collector <sup>4)</sup>                   |
| Switching output:                  | Light/dark switching <sup>5)</sup>                  |
| Switching mode selector:           | Selectable via L/D control wire                     |
| Output current I <sub>max.</sub> : | $\leq 100 \text{ mA}$                               |
| Response time:                     | $\leq 0.5 \text{ ms}$ <sup>6)</sup>                 |
| Switching frequency:               | 1,000 Hz <sup>7)</sup>                              |
| Connection type:                   | Cable, 4-wire, 2 m <sup>8)</sup>                    |
| Cable material:                    | PVC                                                 |
| Conductor cross-section:           | 0.18 mm <sup>2</sup>                                |
| Cable diameter:                    | Ø 3.8 mm                                            |
| Circuit protection:::              | A, B, D <sup>9)</sup> <sup>10)</sup> <sup>11)</sup> |
| Protection class:                  | III                                                 |
| Weight:                            | 95 g                                                |
| Housing material:                  | Nickel-plated brass and PC, Metal                   |
| Optics material:                   | PMMA                                                |
| Enclosure rating:                  | IP 67                                               |
| Items supplied:                    | Fastening nuts (2 x)                                |
| Special feature:                   | Focused optics                                      |
| Ambient operating temperature:     | -25 °C ... +55 °C                                   |
| Ambient storage temperature:       | -40 °C ... +70 °C                                   |
| Signal voltage PNP HIGH/LOW:       | Approx. V <sub>S</sub> - 1.8 V / 0 V                |

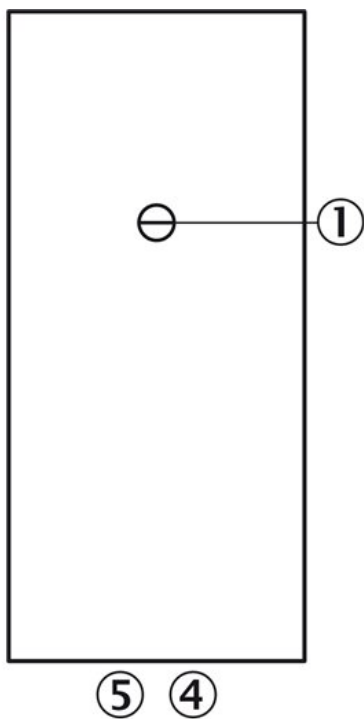
<sup>1)</sup> Limit values, operation in short-circuit protected network max. 8 A    <sup>2)</sup> May not exceed or fall short of V<sub>S</sub> tolerances    <sup>3)</sup> Without load    <sup>4)</sup> <sup>5)</sup> Control wire open: dark-switching D.ON    <sup>6)</sup> Signal transit time with resistive load    <sup>7)</sup> With light/dark ratio 1:1    <sup>8)</sup> Do not bend below 0 °C    <sup>9)</sup> A = V<sub>S</sub> connections reverse-polarity protected    <sup>10)</sup> B = inputs and output reverse-polarity protected    <sup>11)</sup> D = outputs overcurrent and short-circuit protected

## Dimensional drawing



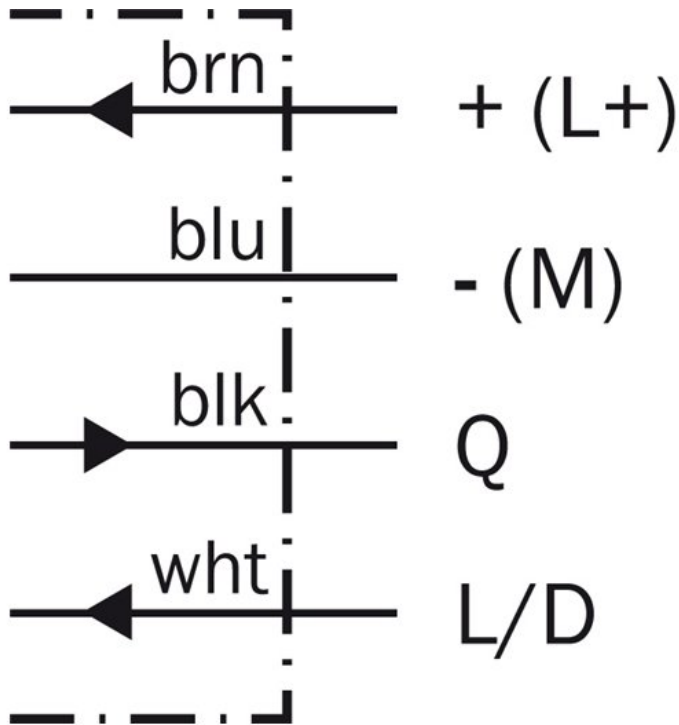
- [1] Connector M12, 4-pin
- [2] Connection cable 2 m
- [3] Sensitivity adjustment 270°
- [4] LED indicator orange: switching output active
- [5] LED indicator green: strength indicator
- [7] fastening nuts (2 x); 24 mm hex, metal

## Adjustments possible

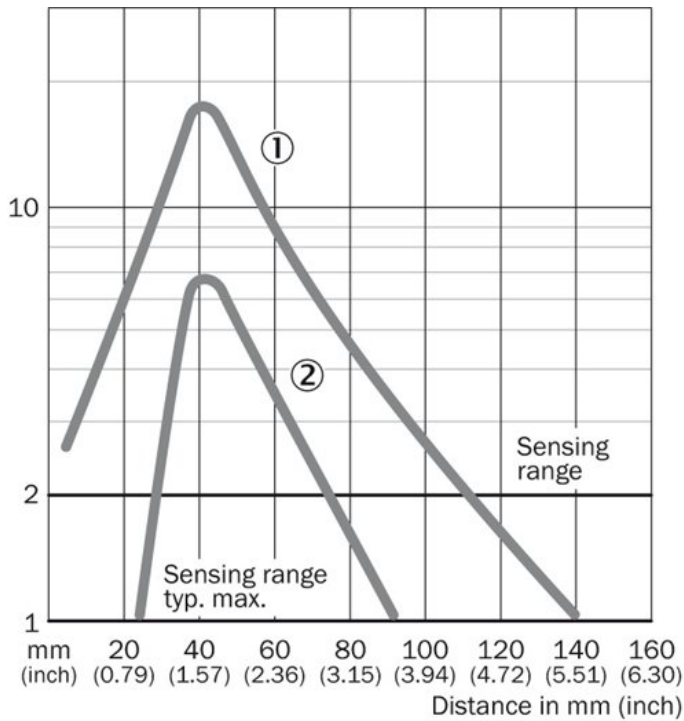


- [3] Sensitivity adjustment 270°
- [4] LED indicator orange: switching output active
- [5] LED indicator green

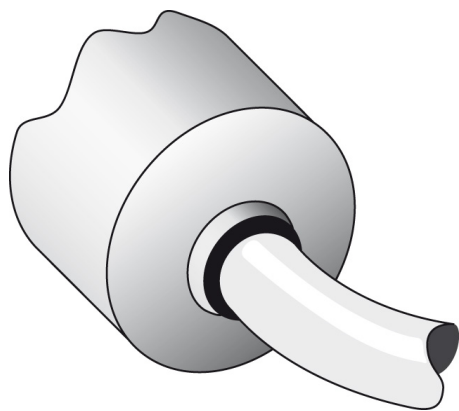
### Connection diagram



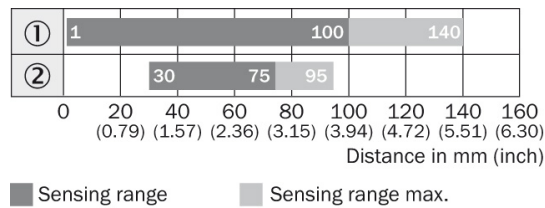
### Characteristic curve



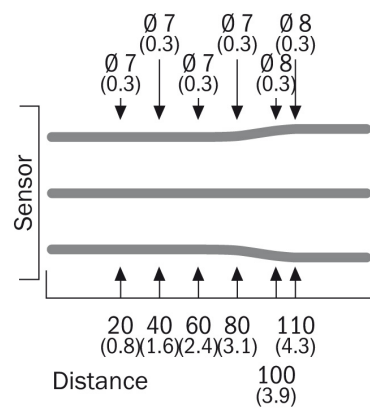
Connection type



Sensing range diagram



Light spot size



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