



Photoelectric sensors  
W100-2, Photoelectric retro-reflective sensor

WL100-2P1409S31



**Type** > [WL100-2P1409S31](#)  
**Part No.** > [6052404](#)



Illustration may differ

**At a glance**

- Standard miniature housing with integrated M3 threaded mounting holes
- Bright emitted light spot and clearly visible indicator LEDs
- Light/dark switching and sensitivity adjustment possible
- Long sensing ranges of up to 7.2 m on PL80A reflector

**Your benefits**

- Long sensing ranges of up to 7.2 m thanks to a high functional reserve
- Straightforward alignment thanks to bright light spot and clearly visible indicator LEDs
- Compatibility with a number of common mounting systems due to standard housing with 1-inch hole spacing and integrated M3 threaded mounting hole
- Highly reliable and durable despite optical interference and mechanical loads



**Features**

|                                  |                                       |
|----------------------------------|---------------------------------------|
| Sensor/detection principle:      | Photoelectric retro-reflective sensor |
| Dimensions (W x H x D):          | 11 mm x 31 mm x 20 mm                 |
| Housing design (light emission): | Rectangular                           |
| Sensing range max.:              | 0.01 m ... 7.2 m <sup>1)</sup>        |
| Sensing range:                   | 0.01 m ... 5.5 m <sup>2)</sup>        |
| Type of light:                   | Visible red light                     |
| Light source:                    | LED <sup>3)</sup>                     |
| Wave length:                     | 632 nm                                |
| Adjustment:                      | Potentiometer                         |
| Light spot size (distance):      | Ø 280 mm (4 m)                        |

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

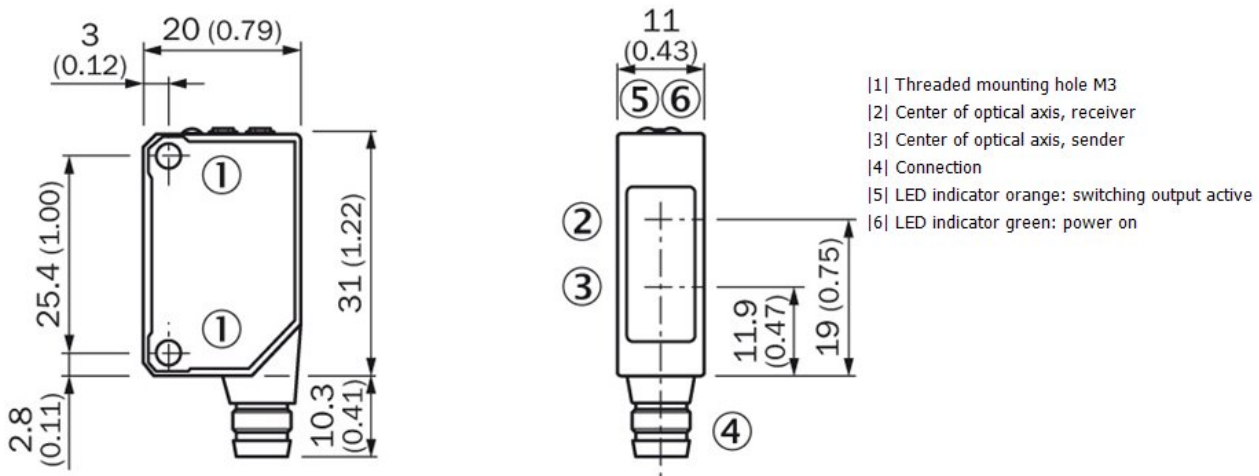
**Mechanics/electronics**

|                                    |                                         |
|------------------------------------|-----------------------------------------|
| Supply voltage:                    | 10 V DC ... 30 V DC <sup>1)</sup>       |
| Ripple:                            | ± 10 % <sup>2)</sup>                    |
| Current consumption:               | ≤ 30 mA <sup>3)</sup>                   |
| Output type:                       | PNP                                     |
| Switching mode:                    | Light/dark switching                    |
| Switching mode selector:           | Selectable via light/dark rotary switch |
| Output current I <sub>max.</sub> : | 100 mA                                  |
| Response time:                     | ≤ 0.5 ms <sup>4)</sup>                  |

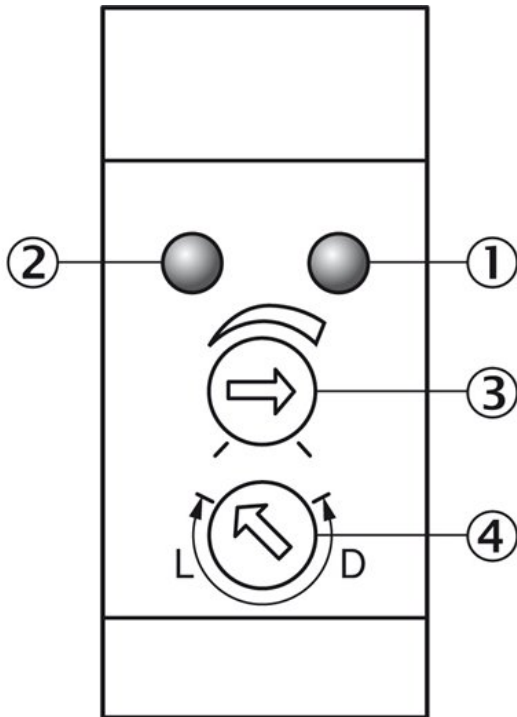
|                                |                                                            |
|--------------------------------|------------------------------------------------------------|
| Switching frequency:           | 1,000 Hz <sup>5)</sup>                                     |
| Connection type:               | Cable with M12 male connector, 4-pin, 300 mm <sup>6)</sup> |
| Circuit protection:::          | A, B, D <sup>7) 8) 9)</sup>                                |
| Protection class:              | III                                                        |
| Polarisation filter:           | ✓                                                          |
| Special device:                | -                                                          |
| Optics material:               | PMMA                                                       |
| Enclosure rating:              | IP 67                                                      |
| Items supplied:                | Mounting bracket BEF-W100-A, Reflector P250                |
| Ambient operating temperature: | -25 °C ... +55 °C                                          |
| Ambient storage temperature:   | -40 °C ... +70 °C                                          |
| Signal voltage PNP HIGH/LOW:   | UV - 1,8 V/ca. 0 V                                         |
| Housing material:              | ABS/PC/POM, Plastic                                        |

1) Limit values 2) May not exceed or fall short of  $V_S$  tolerances 3) Without load 4) Signal transit time with resistive load 5) With light/dark ratio 1:1 6) Do not bend below 0 °C 7) A =  $V_S$  connections reverse-polarity protected 8) B = output reverse-polarity protected 9) D = outputs overcurrent and short-circuit protected

### Dimensional drawing

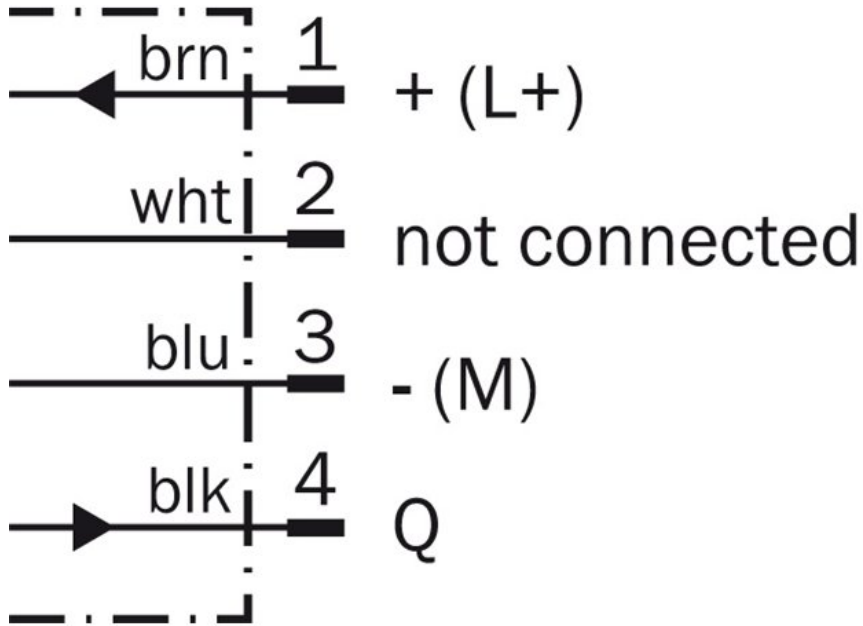


## Adjustments possible

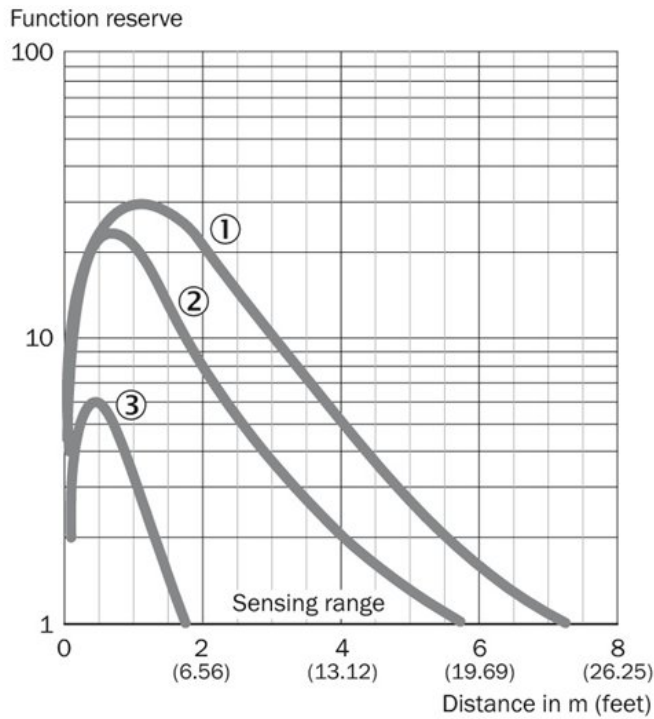


- |1| LED indicator orange: switching output active
- |2| LED indicator green: power on
- |3| Sensing range adjustment: potentiometer
- |4| Light/ dark rotary switch: L = light switching, D = dark switching

## Connection diagram

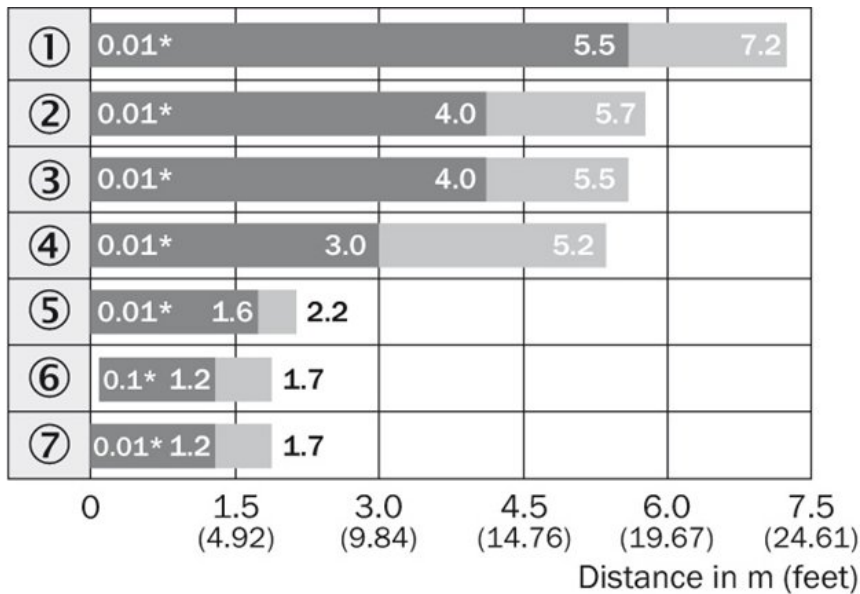


## Characteristic curve



- |1| PL80A
- |2| P250
- |3| Reflective tape Diamond Grade  
(100 mm x 100 mm/3.94 inch x 3.94 inch)

## Sensing range diagram

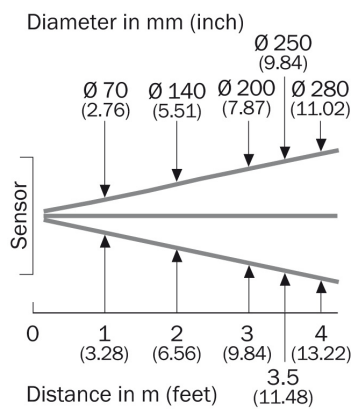


- |1| PL80A
- |2| P250
- |3| PL50A, PL40A
- |4| PL30A, PL31A
- |5| PL20A
- |6| Reflective tape Diamond Grade
- |7| P45

■ Sensing range      ■ Sensing range max.

\*Close-up range at maximum sensitivity

## Light spot size



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