



Photoelectric sensors  
W100, Photoelectric retro-reflective sensor,  
Standard optics

WL100-N4420



**Model Name** > [WL100-N4420](#)  
**Part No.** > [6028608](#)



*Illustration may differ*

#### At a glance

- Standard miniature housing with M3 threaded mounting holes
- Optics with standard red LED or bright light LED
- Polarizing filter
- Light/dark switching and sensitivity adjustment via rotary switch possible
- All necessary accessories (BEF-W100-A and P250) are included with delivery (depending on type)

#### Your benefits

- Highly visible light spot simplifies alignment
- Less contamination due to high optical operating reserve
- Polarization filter allows reliable detection of objects with shiny surfaces and prevents false switching
- M3 threaded mounting holes provide easy installation
- Variants available for reliably detecting clear materials, min. attenuation 20 %
- All necessary accessories (bracket and reflector) are included with delivery, reducing installation and procurement costs (depending on type)

**Product will be phased out and can be ordered until 31.12.2015.**



#### Features

|                                  |                                                        |
|----------------------------------|--------------------------------------------------------|
| Sensor/detection principle:      | Photoelectric retro-reflective sensor, Standard optics |
| 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 ... 3 m <sup>1)</sup>                           |
| Sensing range:                   | 0.01 m ... 2.6 m <sup>2)</sup>                         |
| Type of light:                   | Visible red light                                      |
| Light source:                    | LED <sup>3)</sup>                                      |
| Wave length:                     | 680 nm                                                 |
| Angle of dispersion:             | Ca. 4 °                                                |
| Focus adjustable:                | -                                                      |
| Adjustment:                      | Potentiometer, 270 °                                   |
| Light spot size (distance):      | Ø 200 mm (2 m)                                         |

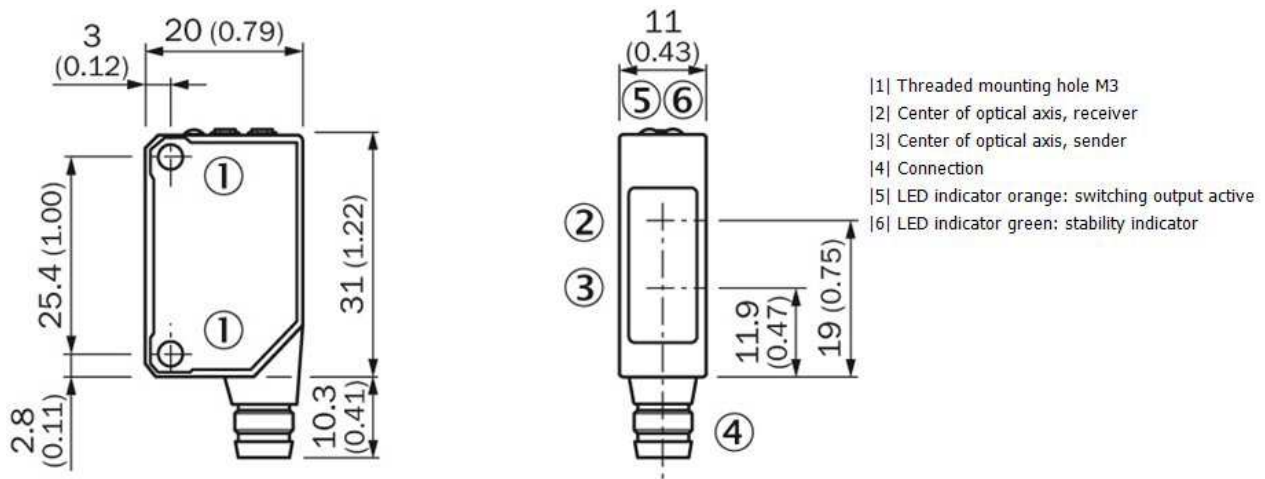
<sup>1) 2)</sup> PL80A <sup>3)</sup> Average service life of 100,000 h at T<sub>A</sub> = +25 °C

#### Mechanics/electronics

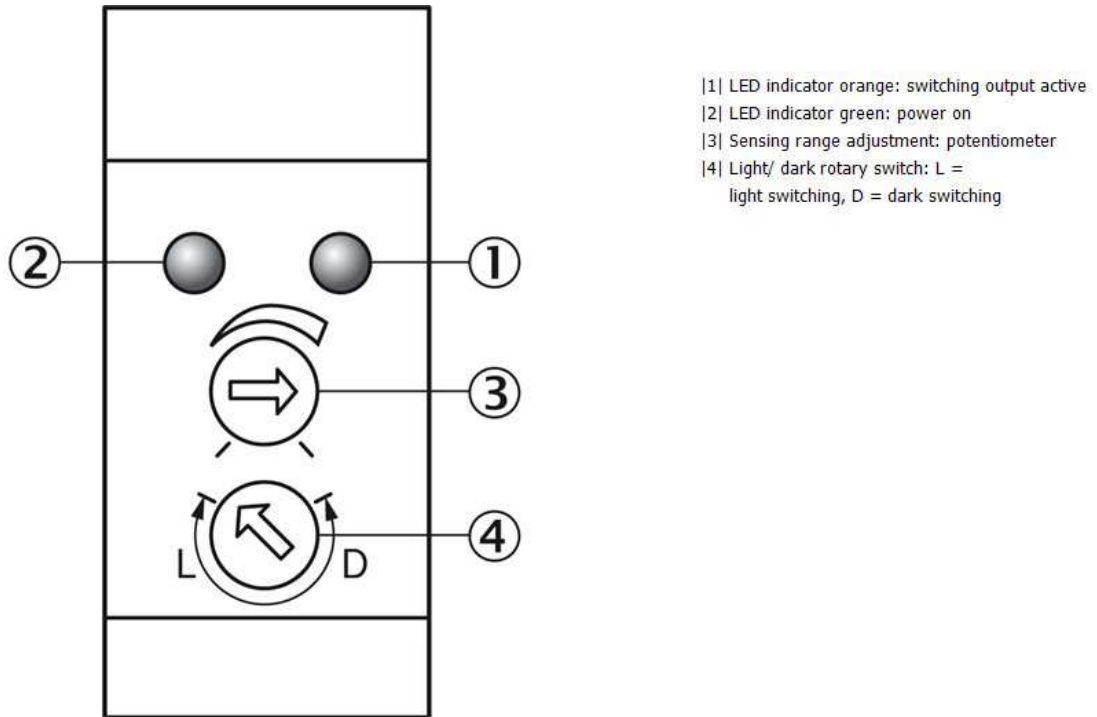
|                                   |                                                   |
|-----------------------------------|---------------------------------------------------|
| Supply voltage:                   | 10 V DC ... 30 V DC <sup>1)</sup>                 |
| Residual ripple:                  | $\pm 10\%$ <sup>2)</sup>                          |
| Power consumption:                | $\leq 30\text{ mA}$ <sup>3)</sup>                 |
| Output type:                      | NPN, open collector                               |
| Switching mode:                   | Light/dark switching                              |
| Switching mode selector:          | Manually selectable                               |
| Output current I <sub>max</sub> : | $\leq 100\text{ mA}$                              |
| Response time:                    | $\leq 0.5\text{ ms}$ <sup>4)</sup>                |
| Switching frequency:              | 1,000 Hz <sup>5)</sup>                            |
| Attenuation along light beam:     | $> 20\%$                                          |
| Electrical connection:            | Connector M8, 4-pin                               |
| Circuit protection:::             | A, B, D <sup>6)</sup> <sup>7)</sup> <sup>8)</sup> |
| Weight:                           | 9 g                                               |
| Polarisation filter:              | -                                                 |
| Special device:                   | -                                                 |
| Optics material:                  | PMMA                                              |
| Enclosure rating:                 | IP 65                                             |
| Special feature:                  | Detection of transparent objects                  |
| Ambient temperature operation:    | -25 °C ... +55 °C                                 |
| Ambient storage temperature:      | -40 °C ... +70 °C                                 |
| Signal voltage NPN HIGH/LOW:      | Approx. VS / < 1.8 V                              |
| Housing material:                 | ABS/PC/POM, Plastic                               |

<sup>1)</sup> Limit values, operation in short-circuit protected network max. 8 A   
 <sup>2)</sup> May not exceed or fall short of  $V_S$  tolerances   
 <sup>3)</sup> Without load   
 <sup>4)</sup> Signal transit time with resistive load   
 <sup>5)</sup> With light/dark ratio 1:1   
 <sup>6)</sup> A =  $V_S$  connections reverse-polarity protected   
 <sup>7)</sup> B = inputs and output reverse-polarity protected   
 <sup>8)</sup> D = outputs overcurrent and short-circuit protected

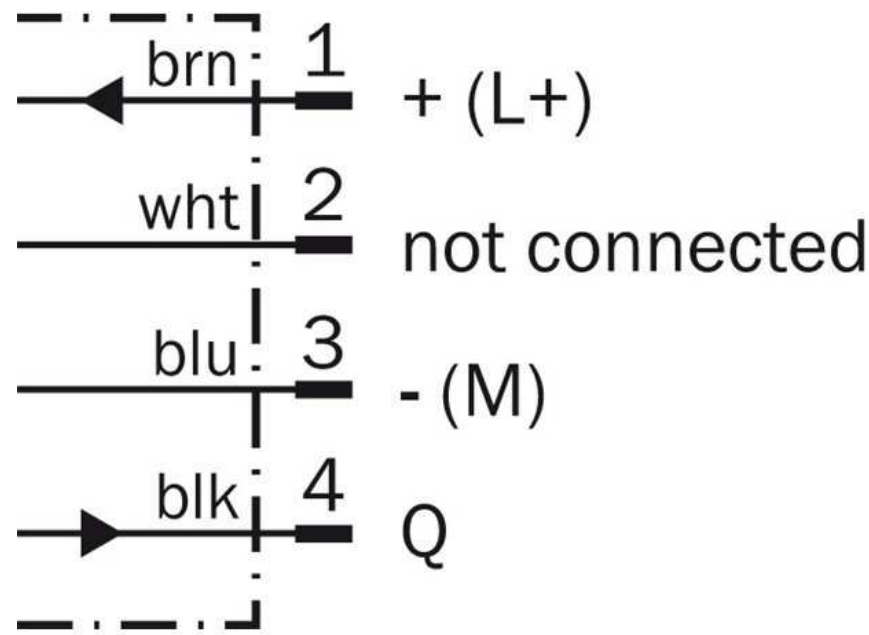
## Dimensional drawing



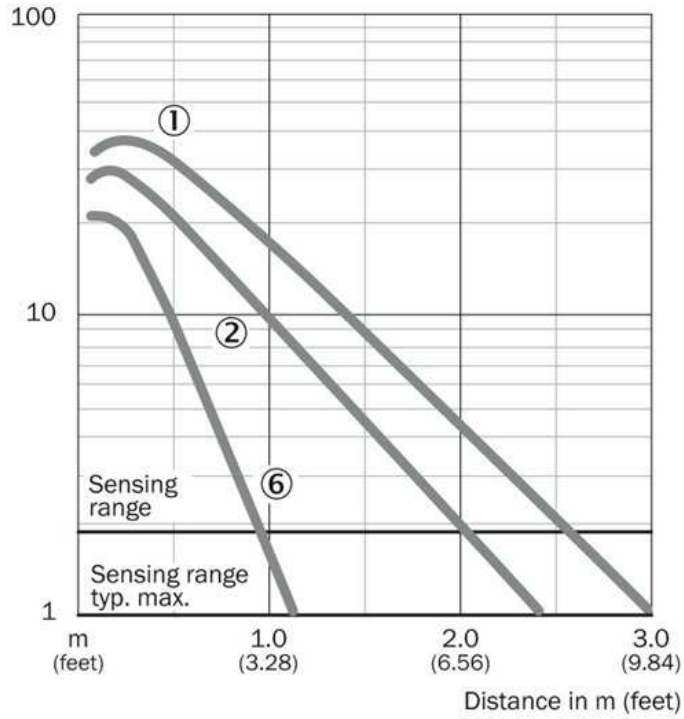
## Adjustments possible



Connection diagram

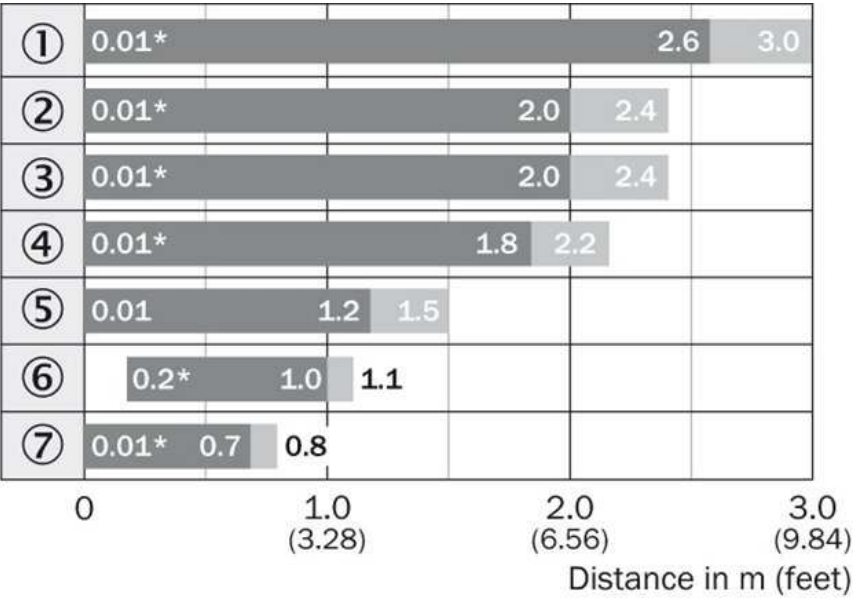


Characteristic curve



- ① PL80A
- ② P250
- ⑥ Reflective tape Diamond Grade

Sensing range diagram

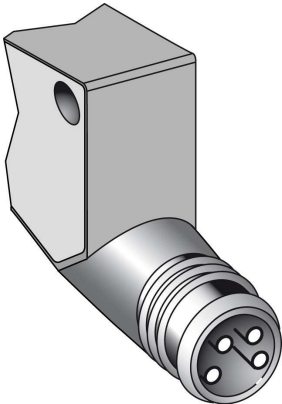


- |1| PL80A
- |2| P250
- |3| PL50A, PL40A
- |4| PL30A, PL31A
- |5| PL20A
- |6| Reflective tape Diamond Grade
- |7| P45

■ Sensing range      ■ Sensing range max.

\*Close-up range at maximum sensitivity

Connection type



**Australia**

Phone +61 3 9457 0600  
1800 33 48 02 – tollfree  
E-Mail sales@sick.com.au

**Belgium/Luxembourg**

Phone +32 (0)2 466 55 66  
E-Mail info@sick.be

**Brasil**

Phone +55 11 3215-4900  
E-Mail marketing@sick.com.br

**Canada**

Phone +1 905 771 14 44  
E-Mail information@sick.com

**Česká republika**

Phone +420 2 57 91 18 50  
E-Mail sick@sick.cz

**China**

Phone +86 4000 121 000  
E-Mail info.china@sick.net.cn  
Phone +852-2153 6300  
E-Mail ghk@sick.com.hk

**Danmark**

Phone +45 45 82 64 00  
E-Mail sick@sick.dk

**Deutschland**

Phone +49 211 5301-301  
E-Mail info@sick.de

**España**

Phone +34 93 480 31 00  
E-Mail info@sick.es

**France**

Phone +33 1 64 62 35 00  
E-Mail info@sick.fr

**Great Britain**

Phone +44 (0)1727 831121  
E-Mail info@sick.co.uk

**India**

Phone +91-22-4033 8333  
E-Mail info@sick-india.com

**Israel**

Phone +972-4-6881000  
E-Mail info@sick-sensors.com

**Italia**

Phone +39 02 27 43 41  
E-Mail info@sick.it

**Japan**

Phone +81 (0)3 5309 2112  
E-Mail support@sick.jp

**Magyarország**

Phone +36 1 371 2680  
E-Mail office@sick.hu

**Nederland**

Phone +31 (0)30 229 25 44  
E-Mail info@sick.nl

**Norge**

Phone +47 67 81 50 00  
E-Mail sick@sick.no

**Österreich**

Phone +43 (0)22 36 62 28 8-0  
E-Mail office@sick.at

**Polska**

Phone +48 22 837 40 50  
E-Mail info@sick.pl

**România**

Phone +40 356 171 120  
E-Mail office@sick.ro

**Russia**

Phone +7-495-775-05-30  
E-Mail info@sick.ru

**Schweiz**

Phone +41 41 619 29 39  
E-Mail contact@sick.ch

**Singapore**

Phone +65 6744 3732  
E-Mail sales.gsg@sick.com

**Slovenija**

Phone +386 (0)1-47 69 990  
E-Mail office@sick.si

**South Africa**

Phone +27 11 472 3733  
E-Mail info@sickautomation.co.za

**South Korea**

Phone +82 2 786 6321/4  
E-Mail info@sickkorea.net

**Suomi**

Phone +358-9-25 15 800  
E-Mail sick@sick.fi

**Sverige**

Phone +46 10 110 10 00  
E-Mail info@sick.se

**Taiwan**

Phone +886 2 2375-6288  
E-Mail sales@sick.com.tw

**Türkiye**

Phone +90 (216) 528 50 00  
E-Mail info@sick.com.tr

**United Arab Emirates**

Phone +971 (0) 4 88 65 878  
E-Mail info@sick.ae

**USA/México**

Phone +1(952) 941-6780  
1 (800) 325-7425 – tollfree  
E-Mail info@sickusa.com

More representatives and agencies  
at [www.sick.com](http://www.sick.com)