



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

VL180-2P32436



**Model Name** > [VL180-2P32436](#)  
**Part No.** > [6044031](#)



*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

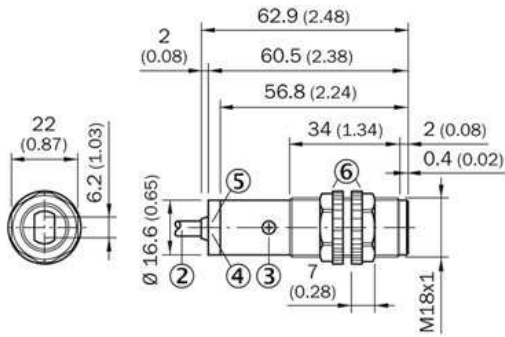
## Mechanics/electronics

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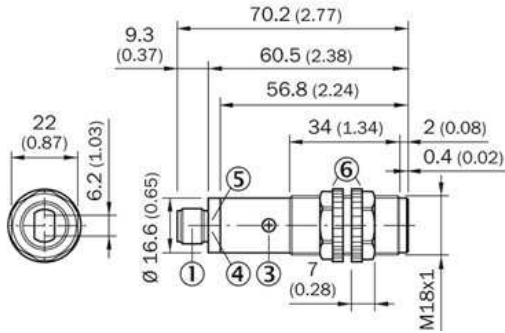
Supply voltage:	10 V DC ... 30 V DC <sup>1)</sup>
Residual ripple:	$\pm 10\%$ <sup>2)</sup>
Power consumption:	$\leq 30\text{ mA}$ <sup>3)</sup>
Output type:	PNP, open collector <sup>4)</sup>
Switching mode:	Dark switching <sup>5)</sup>
Switching mode selector:	Selectable via L/D control wire
Output current I <sub>max.</sub> :	$\leq 100\text{ mA}$
Response time:	$\leq 0.5\text{ ms}$ <sup>6)</sup>
Switching frequency:	$\pm 1,000\text{ Hz}$ <sup>7)</sup>
Electrical connection:	Connector M12, 3-pin
Circuit protection:::	A, B, D <sup>8) 9) 10)</sup>
Protection class:	III
Weight:	18 g
Polarisation filter:	✓
Housing material:	Plastic, PBT/PC
Optics material:	PMMA
Enclosure rating:	IP 67
Items supplied:	Fastening nuts (2 x), Reflector P250
Ambient temperature operation:	-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) 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> A = V<sub>S</sub> connections reverse-polarity protected <sup>9)</sup> B = inputs and output reverse-polarity protected <sup>10)</sup> D = outputs overcurrent and short-circuit protected

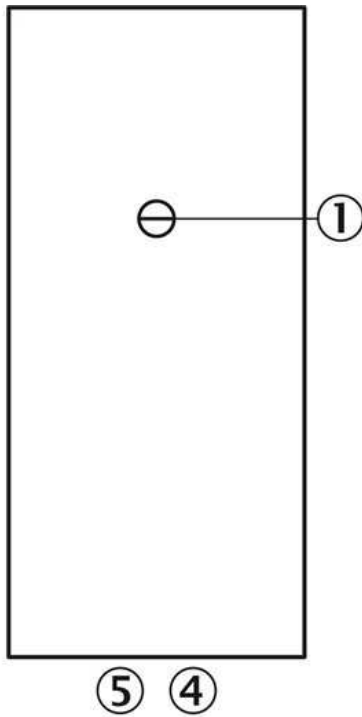
## Dimensional drawing



- |1| Connector M12, 4-pin
- |2| Connection cable 2 m
- |3| Sensitivity control (potentiometer, 270°)
- |4| LED indicator orange: switching output active
- |5| LED indicator green: strength indicator
- |6| fastening nuts (2 x); width across 22, PC

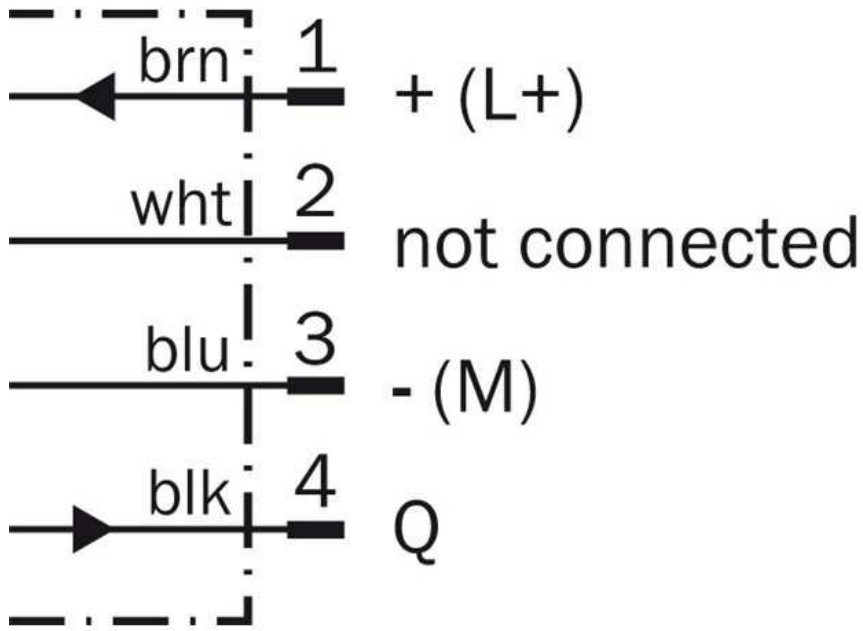


## Adjustments possible

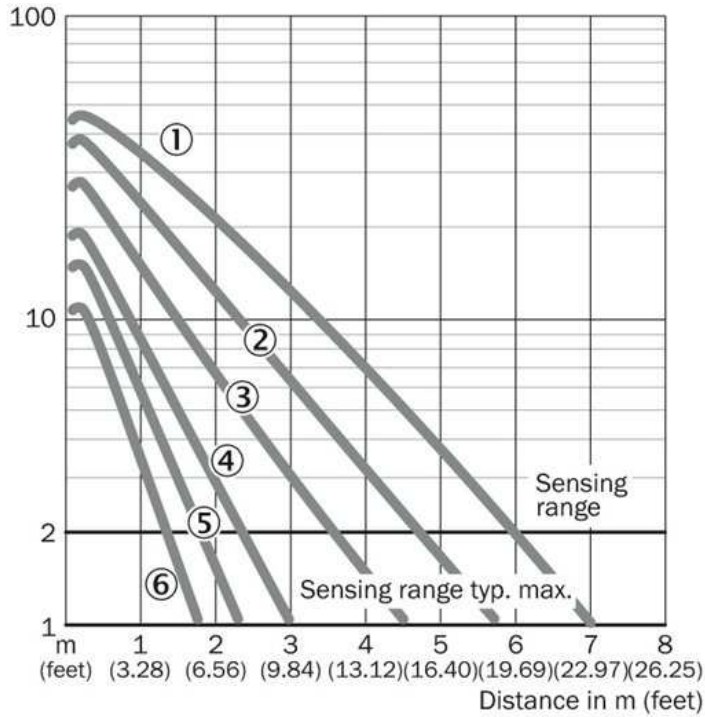


- |3| Sensitivity adjustment 270°
- |4| LED indicator orange: switching output active
- |5| LED indicator green

Connection diagram

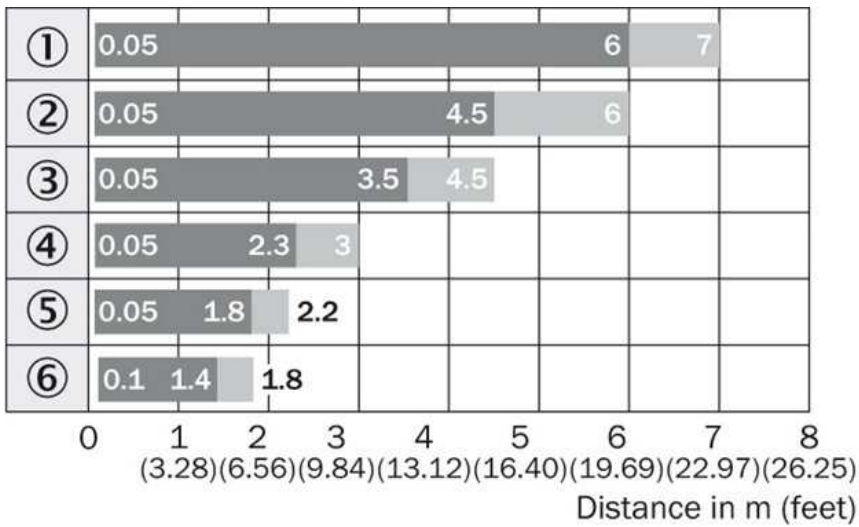


Characteristic curve



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

## Sensing range diagram



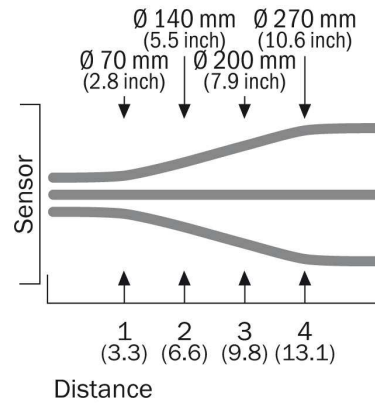
- |1| PL80A
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- |3| PL30A, PL31A
- |4| PL20A
- |5| P45
- |6| Reflective tape Diamond Grade

■ Sensing range      ■ Sensing range max.

## Connection type



## Light spot size



**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)