



# VL180-2N42433

V180-2

PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

Type	Part no.
VL180-2N42433	6043830

Other models and accessories → [www.sick.com/V180-2](http://www.sick.com/V180-2)

### Detailed technical data

#### Features

<b>Sensor/ detection principle</b>	Photoelectric retro-reflective sensor, Dual lens
<b>Housing design (light emission)</b>	Cylindrical, angled
<b>Housing length</b>	84.2 mm
<b>Optical axis</b>	Radial
<b>Sensing range max.</b>	0.05 m ... 5.5 m <sup>1)</sup>
<b>Sensing range</b>	0.05 m ... 4.5 m <sup>1)</sup>
<b>Type of light</b>	Visible red light
<b>Light source</b>	LED <sup>2)</sup>
<b>Light spot size (distance)</b>	Ø 270 mm (4 m)
<b>Angle of dispersion</b>	Approx. 4.5°
<b>Wave length</b>	645 nm
<b>Adjustment</b>	Potentiometer, 270° (Sensitivity)

<sup>1)</sup> Reflector PL80A.

<sup>2)</sup> Average service life: 100,000 h at T<sub>J</sub> = +25 °C.

#### Communication interface

<b>Communication interface</b>	-
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#### Mechanics/electronics

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

<sup>1)</sup> Limit values when operated in short-circuit protected network: max. 8 A.

<sup>2)</sup> May not exceed or fall below U<sub>V</sub> tolerances.

<sup>3)</sup> Without load.

<sup>4)</sup> Control wire open: light switching L.ON.

<sup>5)</sup> Signal transit time with resistive load.

<sup>6)</sup> With light/dark ratio 1:1.

<sup>7)</sup> A = V<sub>S</sub> connections reverse-polarity protected.

<sup>8)</sup> B = inputs and output reverse-polarity protected.

<sup>9)</sup> D = outputs overcurrent and short-circuit protected.

<b>Power consumption</b>	≤ 30 mA <sup>3)</sup>
<b>Output type</b>	NPN <sup>4)</sup>
<b>Switching mode</b>	Light/dark switching <sup>4)</sup>
<b>Signal voltage NPN HIGH/LOW</b>	Approx. $V_S / < 1.8 \text{ V}$
<b>Output current <math>I_{\text{max}}</math></b>	≤ 100 mA
<b>Response time</b>	≤ 0.5 ms <sup>5)</sup>
<b>Switching frequency</b>	1,000 Hz <sup>6)</sup>
<b>Connection type</b>	Male connector M12, 4-pin
<b>Circuit protection</b>	A <sup>7)</sup> B <sup>8)</sup> D <sup>9)</sup>
<b>Protection class</b>	III
<b>Weight</b>	47 g
<b>Polarisation filter</b>	✓
<b>Housing material</b>	Metal, Nickel-plated brass and PC
<b>Optics material</b>	Plastic, PMMA
<b>Enclosure rating</b>	IP67
<b>Items supplied</b>	Reflector P250
<b>Ambient operating temperature</b>	-25 °C ... +55 °C
<b>Ambient storage temperature</b>	-40 °C ... +70 °C

1) Limit values when operated in short-circuit protected network: max. 8 A.

2) May not exceed or fall below  $U_V$  tolerances.

3) Without load.

4) Control wire open: light switching L.ON.

5) Signal transit time with resistive load.

6) With light/dark ratio 1:1.

7) A =  $V_S$  connections reverse-polarity protected.

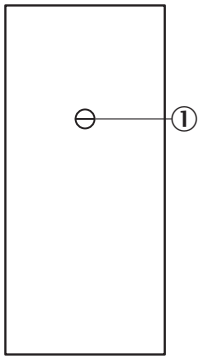
8) B = inputs and output reverse-polarity protected.

9) D = outputs overcurrent and short-circuit protected.

## Classifications

<b>ECl@ss 5.0</b>	27270902
<b>ECl@ss 5.1.4</b>	27270902
<b>ECl@ss 6.0</b>	27270902
<b>ECl@ss 6.2</b>	27270902
<b>ECl@ss 7.0</b>	27270902
<b>ECl@ss 8.0</b>	27270902
<b>ECl@ss 8.1</b>	27270902
<b>ECl@ss 9.0</b>	27270902
<b>ETIM 5.0</b>	EC002717
<b>ETIM 6.0</b>	EC002717
<b>UNSPSC 16.0901</b>	39121528

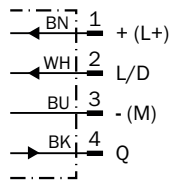
### Adjustments possible



- ① Sensitivity control 270°
- ④ LED indicator orange: switching output active
- ⑤ LED indicator green

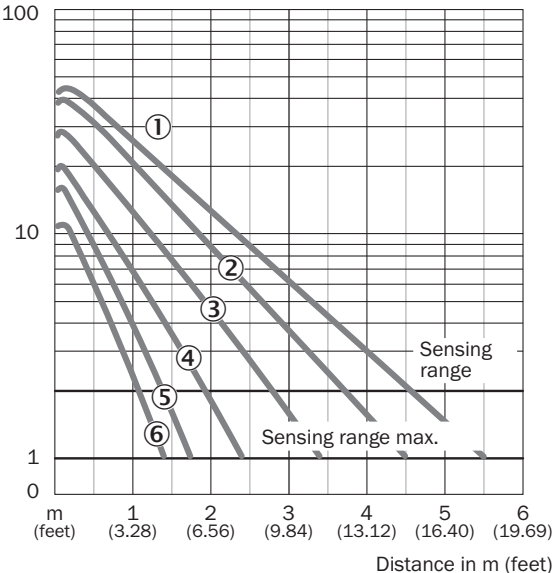
### Connection diagram

Cd-087



**Characteristic curve**

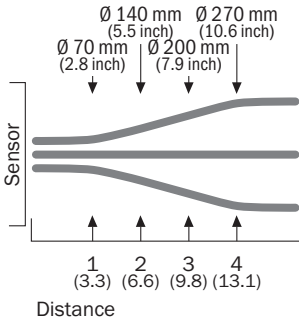
VL180-2, 5.5 m, radial



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

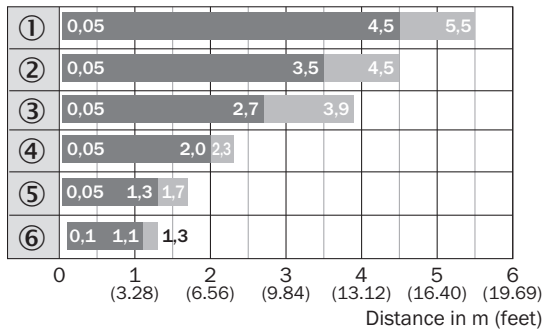
**Light spot size**

VL180-2



### Sensing range diagram

VL180-2, 5.5 m, radial

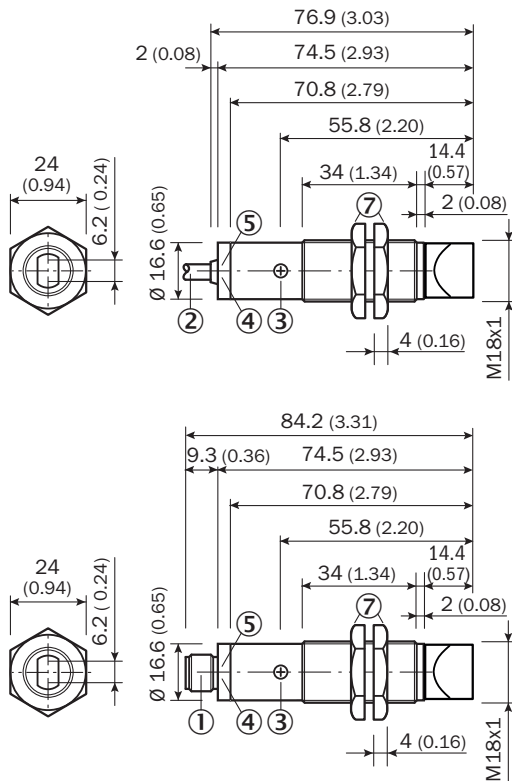


■ Sensing range      ■ Sensing range max.

- ① Reflector PL80A
- ② Reflector P250, PL40A, PL50A, C110A
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### Dimensional drawing (Dimensions in mm (inch))

VL180-2, metal, radial



- ① Connector M12, 3-pin / Connector M12, 3-pin
- ② Connection cable 2 m
- ③ Sensitivity control: potentiometer 270°
- ④ LED indicator orange: switching output active
- ⑤ LED indicator green, stability indicator: LED lights continuously = light reception < 0.9/> 1.1; LED off = light reception > 0.9 / < 1.1
- ⑦ Metal housing, fastening nuts (2 x); width across 24

**Recommended accessories**

Other models and accessories → [www.sick.com/V180-2](http://www.sick.com/V180-2)

	<b>Brief description</b>	<b>Type</b>	<b>Part no.</b>
<b>Universal bar clamp systems</b>			
	Plate N06 for universal clamp bracket, M18, Zinc plated steel (sheet), Zinc die cast (clamping bracket), Universal clamp (5322626), mounting hardware	BEF-KHS-N06	2051612
<b>Mounting brackets and plates</b>			
	Mounting plate for M18 sensors, steel, zinc coated, without mounting hardware	BEF-WG-M18	5321870
	Mounting bracket for M18 sensors, steel, zinc coated, without mounting hardware	BEF-WN-M18	5308446
<b>Terminal and alignment brackets</b>			
	Mounting bracket with ball-and-socket, Plastic, mounting hardware included	BEF-WN-M18-ST02	5312973
	Clamping block for round sensors M18, without fixed stop, plastic (PA12), glass-fiber reinforced, mounting hardware included	BEF-KH-M18	2051481
	Clamping block for round sensors M18, with fixed stop, plastic (PA12), glass-fiber reinforced, mounting hardware included	BEF-KHF-M18	2051482
	Mounting ring, Stainless steel, without mounting hardware	BEF-WN-MH15-2V	4053358
<b>Reflectors</b>			
	Rectangular, screw connection, 47 mm x 47 mm, PMMA/ABS, Screw-on, 2 hole mounting	P250	5304812
	Rectangular, screw connection, 38 mm x 15 mm, PMMA/ABS, Screw-on, 2 hole mounting	PL20A	1012719
	Rectangular, screw connection, 56 mm x 28 mm, PMMA/ABS, Screw-on, 2 hole mounting	PL30A	1002314
	Rectangular, screw connection, 37 mm x 56 mm, PMMA/ABS, Screw-on, 2 hole mounting	PL40A	1012720
	Rectangular, screw connection, 80 mm x 80 mm, PMMA/ABS, Screw-on, 2 hole mounting	PL80A	1003865
	Self-adhesive	REF-IRF-56	5314244
	Round, screw connection, PMMA/ABS, Center hole mounting, screw-on	C110A	5304549

## SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

## WORLDWIDE PRESENCE:

Contacts and other locations –[www.sick.com](http://www.sick.com)