



VL180-2P41133

V180

CYLINDRICAL PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.



Ordering information

Type	Part no.
VL180-2P41133	6043832

Included in delivery: P250 (1)

Other models and accessories → www.sick.com/V180

Illustration may differ



Detailed technical data

Features

Functional principle	Photoelectric retro-reflective sensor
Functional principle detail	With minimum distance to reflector (dual lens system)
Dimensions (W x H x D)	18 mm x 18 mm x 76.9 mm
Housing design (light emission)	Cylindrical
Housing length	76.9 mm
Optical axis	Radial
Sensing range max.	0.05 m ... 5.5 m ¹⁾
Sensing range	0.05 m ... 4.5 m ¹⁾
Focus	Approx. 4.5°
Type of light	Visible red light
Light source	LED ²⁾
Light spot size (distance)	Ø 270 mm (4 m)
Angle of dispersion	Approx. 4.5°
Wave length	645 nm
Adjustment	Potentiometer, 270° (Sensitivity)

¹⁾ Reflector PL80A.

²⁾ Average service life: 100,000 h at T_U = +25 °C.

Mechanics/electronics

Supply voltage U_B	10 V DC ... 30 V DC ¹⁾
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¹⁾ Limit values when operated in short-circuit protected network: max. 8 A.

²⁾ May not fall below or exceed U_V tolerances.

³⁾ Without load.

⁴⁾ Control wire open: dark switching D.ON.

⁵⁾ Signal transit time with resistive load.

⁶⁾ With light/dark ratio 1:1.

⁷⁾ Do not bend below 0 °C.

⁸⁾ A = V_S connections reverse-polarity protected.

⁹⁾ B = inputs and output reverse-polarity protected.

¹⁰⁾ D = outputs overcurrent and short-circuit protected.

Ripple	± 10 % ²⁾
Current consumption	30 mA ³⁾
Switching output	PNP ⁴⁾
Switching mode	Light/dark switching ⁴⁾
Signal voltage PNP HIGH/LOW	Approx. $V_S - 1.8 \text{ V} / 0 \text{ V}$
Output current I_{max}	≤ 100 mA
Response time	≤ 0.5 ms ⁵⁾
Switching frequency	1,000 Hz ⁶⁾
Connection type	Cable, 4-wire, 2 m ⁷⁾
Cable material	Plastic, PVC
Conductor cross section	0.18 mm ²
Cable diameter	Ø 3.8 mm
Circuit protection	A ⁸⁾ B ⁹⁾ D ¹⁰⁾
Protection class	III
Weight	95 g
Polarisation filter	✓
Housing material	Metal, Nickel-plated brass and PC
Optics material	Plastic, PMMA
Enclosure rating	IP67
Items supplied	Reflector P250
Ambient operating temperature	-25 °C ... +55 °C
Ambient temperature, storage	-40 °C ... +70 °C

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Safety-related parameters

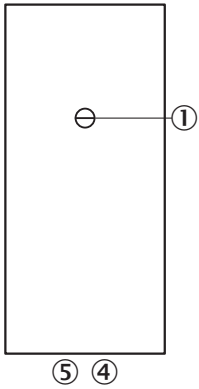
MTTF_D	2,006 years
DC_{avg}	0 %

Classifications

ECLASS 5.0	27270902
ECLASS 5.1.4	27270902
ECLASS 6.0	27270902
ECLASS 6.2	27270902
ECLASS 7.0	27270902

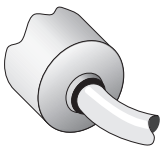
ECLASS 8.0	27270902
ECLASS 8.1	27270902
ECLASS 9.0	27270902
ECLASS 10.0	27270902
ECLASS 11.0	27270902
ECLASS 12.0	27270902
ETIM 5.0	EC002717
ETIM 6.0	EC002717
ETIM 7.0	EC002717
ETIM 8.0	EC002717
UNSPSC 16.0901	39121528

Adjustments



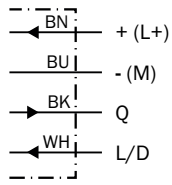
- ③ Sensitivity control 270°
- ④ LED indicator orange: switching output active
- ⑤ LED indicator green

Connection type



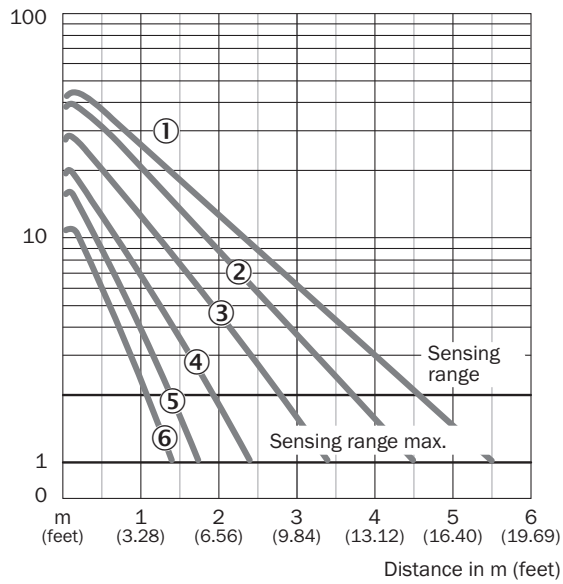
Connection diagram

Cd-089



Characteristic curve

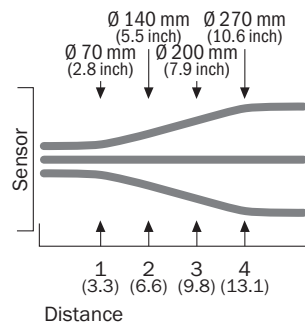
VL180-2, 5.5 m, radial



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

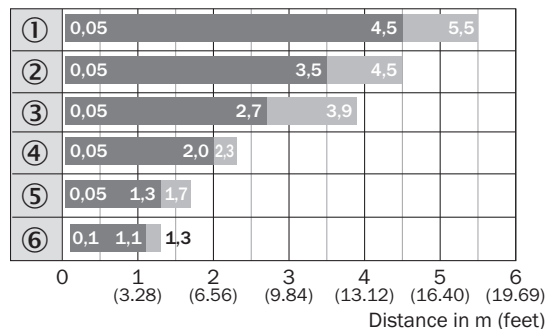
Light spot size

VL180-2



Sensing range diagram

VL180-2, 5.5 m, radial

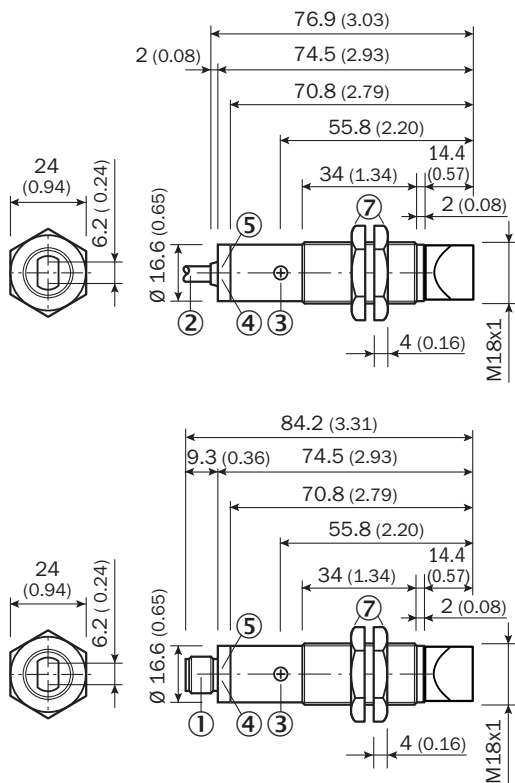


■ Sensing range ■ Sensing range max.

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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

	Brief description	Type	Part no.
Others			
	<ul style="list-style-type: none"> Description: Rectangular, screw connection Dimensions: 51 mm 61 mm Ambient operating temperature: -30 °C ... +65 °C 	P250	5304812
	<ul style="list-style-type: none"> Connection type head A: Male connector, M12, 4-pin, straight, A-coded Description: Unshielded Connection systems: Screw-type terminals Permitted cross-section: ≤ 0.75 mm² 	STE-1204-G	6009932

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.”

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