



VL180-2N41131S02

V180

PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.



Ordering information

Type	part no.
VL180-2N41131S02	6052349

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 62.9 mm
Housing design (light emission)	Cylindrical
Housing length	62.9 mm
Thread diameter (housing)	M18 x 1
Optical axis	Axial
Sensing range max.	0.05 m ... 7 m ¹⁾
Sensing range	0.05 m ... 6 m ¹⁾
Focus	Approx. 4.5°
Type of light	Visible red light
Light source	LED ²⁾
Light spot size (distance)	Ø 400 mm (6 m)
Angle of dispersion	Approx. 4.5°
Wave length	645 nm
Adjustment	Potentiometer, 270° (Sensitivity)
Special features	Fix adjustment without potentiometer

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⁾
Ripple	$\pm 10\%$ ²⁾
Current consumption	30 mA ³⁾
Switching output	NPN ⁴⁾
Switching mode	Light/dark switching ⁴⁾
Switching mode selector	Selectable via L/D control cable
Signal voltage NPN HIGH/LOW	Approx. $V_S / < 1.8\text{ V}$
Output current $I_{\max.}$	$\leq 100\text{ mA}$
Response time	$\leq 0.5\text{ ms}$ 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	$\varnothing 3.8\text{ mm}$
Circuit protection	A ⁸⁾ B ⁹⁾ D ¹⁰⁾
Protection class	III
Weight	95 g
Polarisation filter	✓
Special device	✓
Housing material	Metal, Nickel-plated brass and PC
Optics material	Plastic, PMMA
Enclosure rating	IP67
Items supplied	Reflector P250, fastening nuts (2 x)
Ambient operating temperature	$-25\text{ °C} \dots +55\text{ °C}$
Ambient temperature, storage	$-40\text{ °C} \dots +70\text{ °C}$

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: light switching L.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.

Safety-related parameters

MTTF_D	1,899.4 years
DC_{avg}	0 %

Certificates

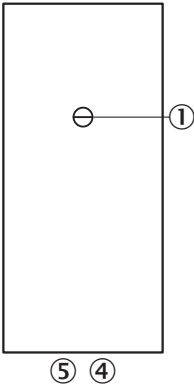
EU declaration of conformity	✓
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UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China-RoHS	✓
cRUus certificate	✓
Photobiological safety (DIN EN 62471) certificate	✓

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

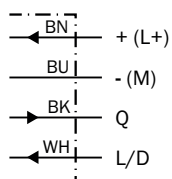


- ③ sensitivity control 270°
- ④ LED indicator orange: switching output active
- ⑤ LED indicator green

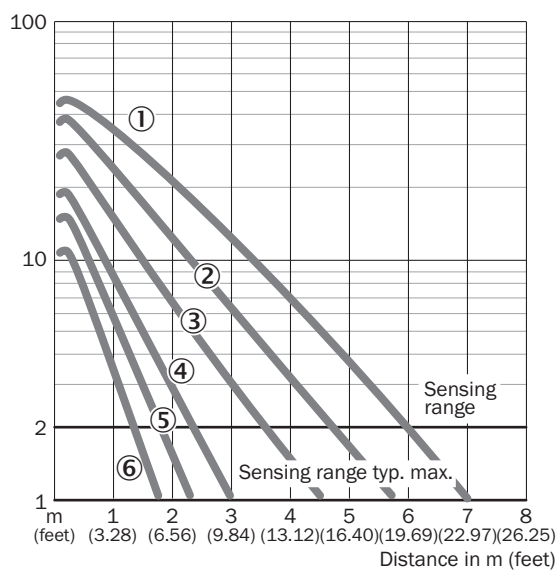
Connection type



Connection diagram Cd-089

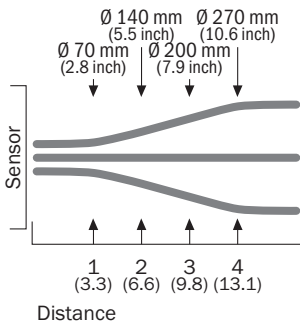


Characteristic curve VL180-2, 7 m, axial

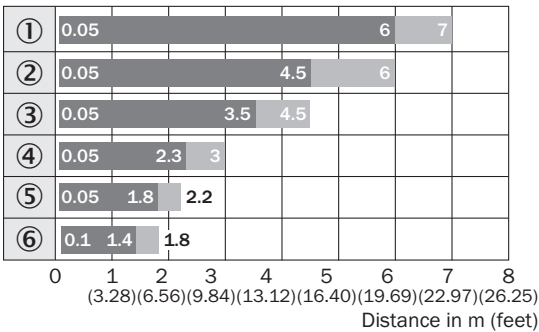


- ① Reflector PL80A
- ② Reflector P250, PL40A, PL50A, C110A
- ③ Reflector PL30A, PL31A
- ④ Reflector PL20A
- ⑤ P45
- ⑥ Reflective tape Diamond Grade

Light spot size VL180-2

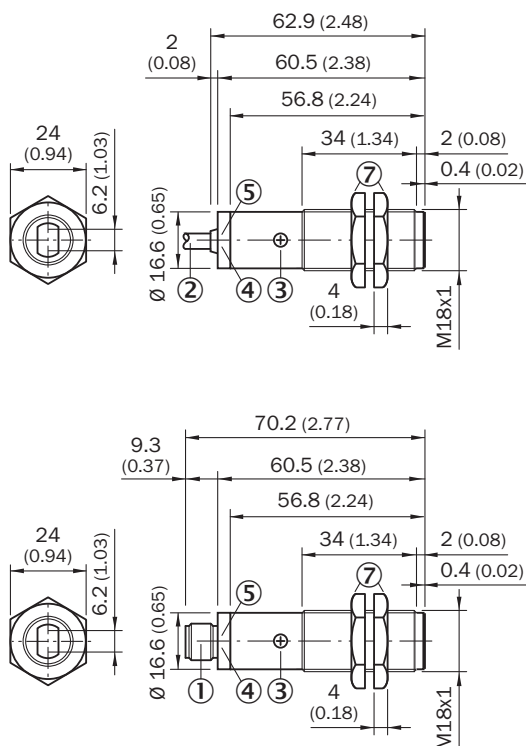


Sensing range diagram VL180-2, 7 m, axial



- Sensing range ■ Sensing range max.
- ① Reflector PL80A
 - ② Reflector P250, PL40A, PL50A, C110A
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Dimensional drawing VL180-2, metal, axial





Dimensions in mm (inch)

- ① M12 male device connector, 4-pin
- ② Connection cable 2 m
- ③ sensitivity control 270°
- ④ LED indicator orange: switching output active
- ⑤ LED indicator green: strength indicator
- ⑦ Fastening nuts (2x); width across 24, metal

Recommended accessories

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

	Brief description	Type	part no.
reflectors and optics			
	<ul style="list-style-type: none"> Description: Rectangular, screw connection Dimensions: 51 mm 61 mm Ambient operating temperature: -30 °C ... +65 °C 	P250	5304812
connectors and cables			
	<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

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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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Contacts and other locations –www.sick.com