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Product data sheet



VL180-2P41138

V180-2

CYLINDRICAL PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.

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VL180-2P41138 | V180-2

CYLINDRICAL PHOTOELECTRIC SENSORS



Illustration may differ

Ordering information

Type	Part no.
VL180-2P41138	6043837

Included in delivery: P250 (1)

Other models and accessories ➜ www.sick.com/V180-2

Detailed technical data

Features

Functional principle	Photoelectric retro-reflective sensor
Functional principle detail	Dual lens
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.

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Mechanics/electronics

Supply voltage	10 V DC ... 30 V DC [1]
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 V / 0 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	PVC
Conductor cross section	0.18 mm²
Cable diameter	Ø 3.8 mm
Circuit protection	A [8] B [9] D [10]
Protection class	III
Weight	62 g
Polarisation filter	✓
Housing material	Plastic, PBT/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

[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: 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.

Safety-related parameters

$MTTF_D$	1,982 years
DC_{avg}	0 %

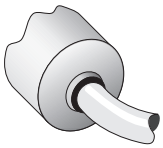
Classifications

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eCl@ss 5.1.4	27270902
eCl@ss 6.0	27270902

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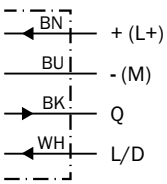
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ETIM 5.0	EC002717
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UNSPSC 16.0901	39121528

Connection type



Connection diagram

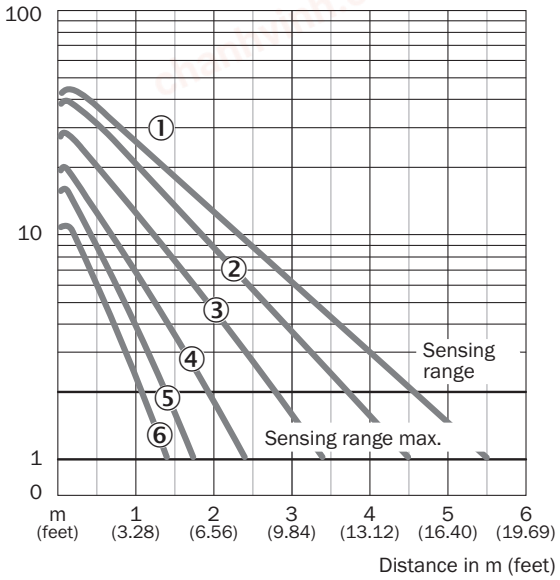
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Characteristic curve

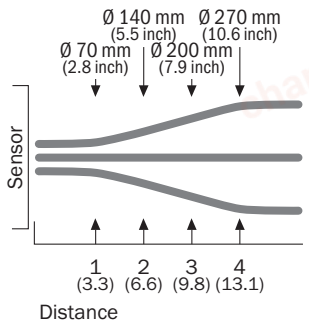
VL180-2, 5.5 m, radial



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



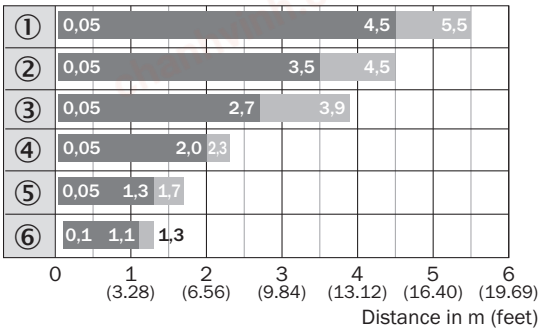
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Sensing range diagram

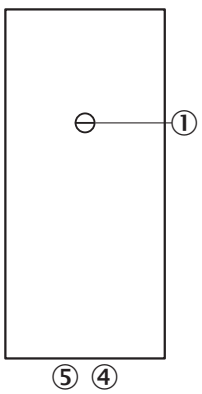
VL180-2, 5.5 m, radial



Sensing range Sensing range max.

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

Adjustments

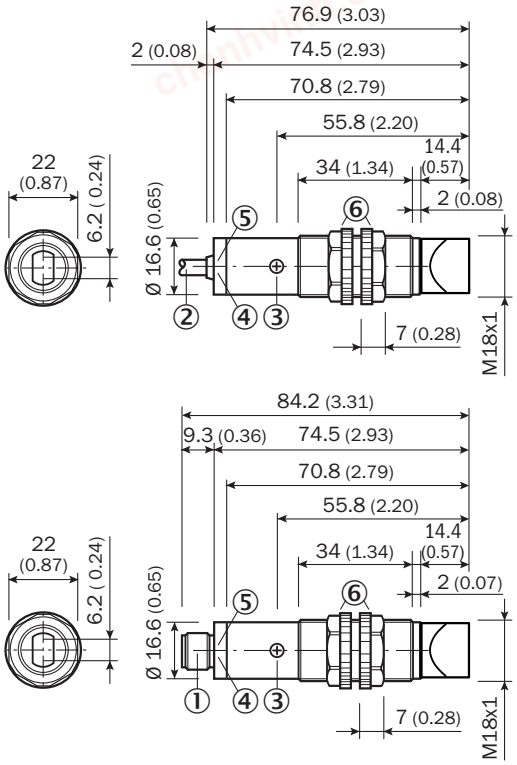


③ Sensitivity control 270°
④ LED indicator orange: switching output active
⑤ LED indicator green

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Dimensional drawing (Dimensions in mm (inch))

VL180-2, plastic, radial



① Connector M12
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
⑥ Fastening nuts (2 x); A/F 22, PC

Recommended accessories

Other models and accessories ➜ www.sick.com/V180-2

	Brief description	Type	Part no.
Plug connectors and cables			
	Head A: male connector, M12, 4-pin, straight Cable: unshielded	STE-1204-G	6009932
Reflectors			
	Rectangular, screw connection, 51 mm x 61 mm, PMMA/ABS, Screw-on, 2 hole mounting	P250	5304812

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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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