



VTB180-2N41117

V180

PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.



Ordering information

Type	part no.
VTB180-2N41117	6043871

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

Illustration may differ



Detailed technical data

Features

Functional principle	Photoelectric proximity sensor
Functional principle detail	Background suppression
Dimensions (W x H x D)	18 mm x 18 mm
Housing design (light emission)	Cylindrical
Thread diameter (housing)	M18 x 1
Optical axis	Axial
Sensing range max.	10 mm ... 350 mm ¹⁾
Sensing range	30 mm ... 200 mm ¹⁾
Focus	Approx. 2.8°
Type of light	Visible red light
Light source	LED ²⁾
Light spot size (distance)	Ø 15 mm (300 mm)
Angle of dispersion	Approx. 2.8°
Wave length	632 nm
Adjustment	Potentiometer, 4 turns (Sensing range)

¹⁾ Object with 90% remission (based on standard white, DIN 5033).

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	35 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	$\leq 1\text{ ms}$ ⁵⁾
Switching frequency	500 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	62 g
Housing material	Plastic, PBT/PC
Optics material	Plastic, PMMA
Enclosure rating	IP67
Items supplied	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_y 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	477.9 years
DC_{avg}	0 %

Certificates

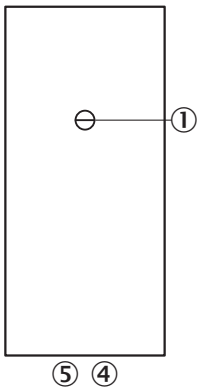
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓

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

Classifications

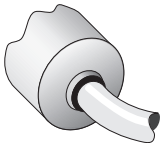
ECLASS 5.0	27270904
ECLASS 5.1.4	27270904
ECLASS 6.0	27270904
ECLASS 6.2	27270904
ECLASS 7.0	27270904
ECLASS 8.0	27270904
ECLASS 8.1	27270904
ECLASS 9.0	27270904
ECLASS 10.0	27270904
ECLASS 11.0	27270904
ECLASS 12.0	27270903
ETIM 5.0	EC002719
ETIM 6.0	EC002719
ETIM 7.0	EC002719
ETIM 8.0	EC002719
UNSPSC 16.0901	39121528

Adjustments

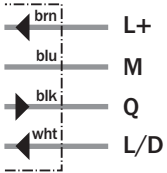


- ③ sensitivity control 270°
- ④ LED indicator orange: switching output active
- ⑤ LED indicator green

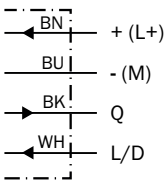
Connection type



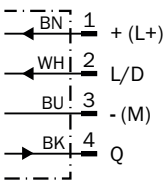
Connection diagram



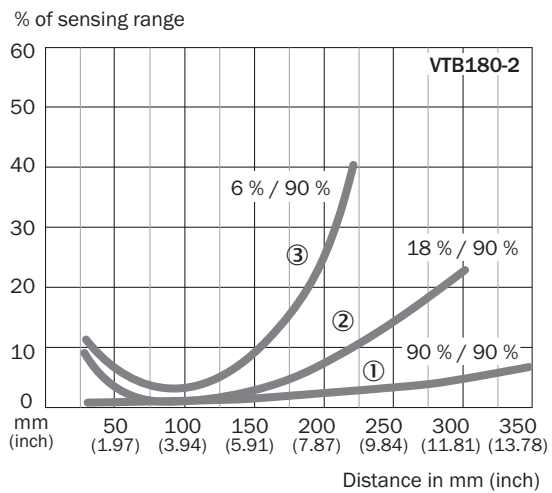
Connection diagram Cd-089



Connection diagram Cd-087

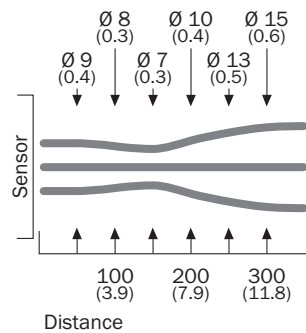


Characteristic curve VTB180-2, 350 mm

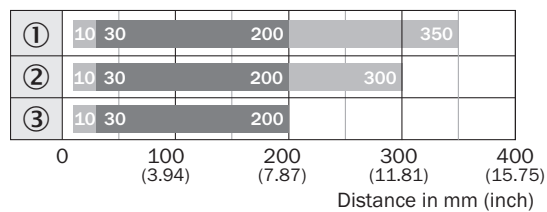


- ① Sensing range on white, 90% remission factor
- ② Sensing range on gray, 18% remission factor
- ③ Sensing range on black, 6% remission factor

Light spot size VTB180-2

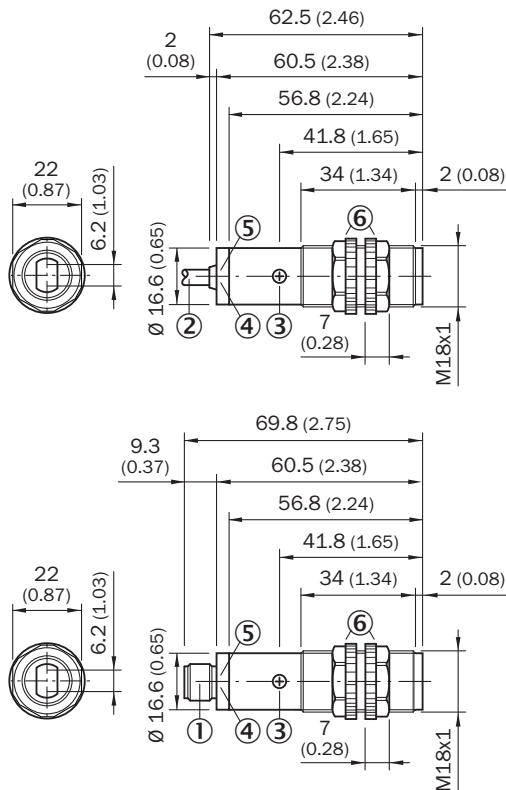


Sensing range diagram VTB180-2, 350 mm



- Sensing range
- Sensing range max.
- ① Sensing range on white, 90% remission factor
- ② Sensing range on gray, 18% remission factor
- ③ Sensing range on black, 6% remission factor

Dimensional drawing VTF180-2, VTE180-2, VTB180-2, plastic, axial





Dimensions in mm (inch)

- ① M12 male device connector, 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); A/F 22, PC

Recommended accessories

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

	Brief description	Type	part no.
Mounting systems			
	<ul style="list-style-type: none"> • Description: Mounting bracket for M18 sensors • Material: Steel • Details: Steel, zinc coated • Items supplied: Without mounting hardware • Suitable for: GR18, V180-2, V18, W15, Z1, Z2 	BEF-WN-M18	5308446
connectors and cables			
	<ul style="list-style-type: none"> • Description: Unshielded • Connection type head A: Male connector, M12, 4-pin, straight, A-coded • Connection systems: Screw-type terminals • Permitted cross-section: ≤ 0.75 mm² 	STE-1204-G	6009932

SICK AT A GLANCE

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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.”

WORLDWIDE PRESENCE:

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