



VTE180-2N41147

V180-2

CYLINDRICAL PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

| Type | Part no. |
|----------------|----------|
| VTE180-2N41147 | 6037481 |

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

Detailed technical data

Features

| | |
|----------------------------------------|-------------------------------------------|
| Sensor/ detection principle | Photoelectric proximity sensor, Energetic |
| Dimensions (W x H x D) | 18 mm x 18 mm x 62.5 mm |
| Housing design (light emission) | Cylindrical |
| Housing length | 62.5 mm |
| Thread diameter (housing) | M18 x 1 |
| Optical axis | Axial |
| Sensing range max. | 1 mm ... 500 mm ¹⁾ |
| Sensing range | 1 mm ... 350 mm ¹⁾ |
| Type of light | Visible red light |
| Light source | LED ²⁾ |
| Light spot size (distance) | Ø 20 mm (400 mm) |
| Angle of dispersion | Approx. 1.5° |
| Wave length | 645 nm |
| Adjustment | Potentiometer, 270° (Sensing range) |

¹⁾ Object with 90 % reflectance (referred to standard white, DIN 5033).

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

Mechanics/electronics

| | |
|-----------------------|-----------------------------------|
| Supply voltage | 10 V DC ... 30 V DC ¹⁾ |
| Ripple | ± 10 % ²⁾ |

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⁾ 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.

| | |
|---------------------------------------------------|--------------------------------------------------------|
| 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 | 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 °C ... +55 °C |
| Ambient storage temperature | -40 °C ... +70 °C |

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³⁾ Without load.

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⁵⁾ Signal transit time with resistive load.

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Safety-related parameters

| | |
|-------------------------|-------------|
| MTTF_D | 1,999 years |
| DC_{avg} | 0% |

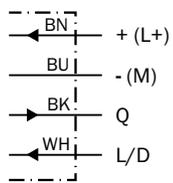
Classifications

| | |
|---------------------|----------|
| ECl@ss 5.0 | 27270903 |
| ECl@ss 5.1.4 | 27270903 |
| ECl@ss 6.0 | 27270903 |
| ECl@ss 6.2 | 27270903 |
| ECl@ss 7.0 | 27270903 |
| ECl@ss 8.0 | 27270903 |

| | |
|-----------------------|----------|
| ECl@ss 8.1 | 27270903 |
| ECl@ss 9.0 | 27270903 |
| ECl@ss 10.0 | 27270904 |
| ECl@ss 11.0 | 27270904 |
| ETIM 5.0 | EC001821 |
| ETIM 6.0 | EC001821 |
| ETIM 7.0 | EC002719 |
| UNSPSC 16.0901 | 39121528 |

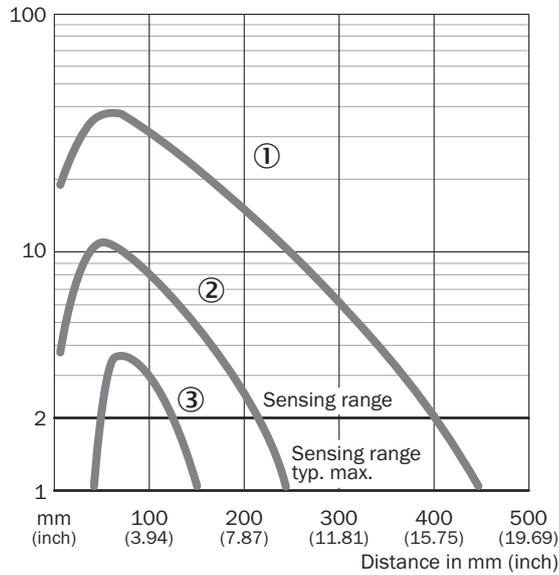
Connection diagram

Cd-089



Characteristic curve

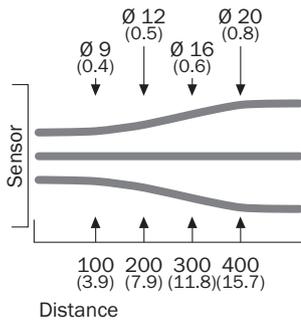
VTE180-2, 450 mm, radial



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

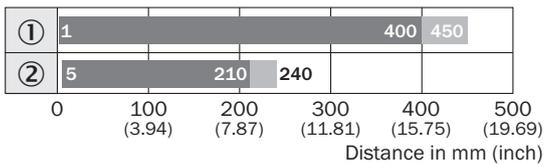
Light spot size

VTE180-2, 400 mm, 500 mm



Sensing range diagram

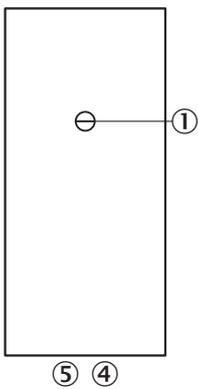
VTE180-2, 450 mm, radial



■ Sensing range ■ Sensing range max.

- ① Sensing range on white, 90% remission
- ② Sensing range on gray, 18% remission

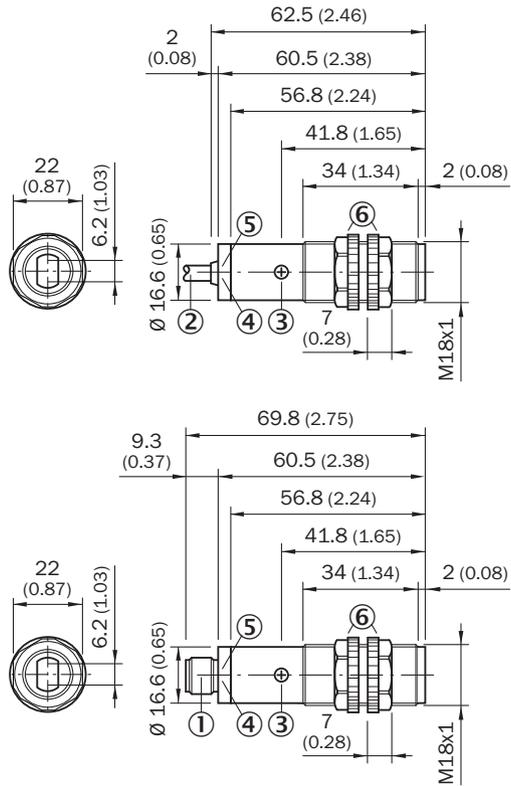
Adjustments



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

Dimensional drawing (Dimensions in mm (inch))

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



- 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/V180-2

| | Brief description | Type | Part no. |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|------------|----------|
| Plug connectors and cables | | | |
|  | Head A: male connector, M12, 4-pin, straight Head B: - Cable: unshielded | STE-1204-G | 6009932 |

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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.

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