Data sheet


# WTT12LC-B2553

## WTT12 PowerProx

**TIME-OF-FLIGHT SENSORS**

SICK
Sensor Intelligence.

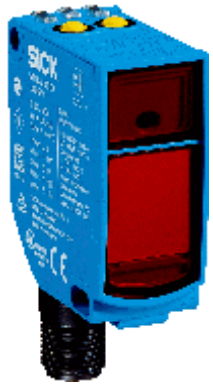

Illustration may differ

## Ordering information

| Type | part no. |
|---|---|
| WTT12LC-B2553 | 1082412 |

Other models and accessories ➜ www.sick.com/WTT12_PowerProx

## Detailed technical data

### Features

| | |
|---|---|
| **Functional principle** | Photoelectric proximity sensor |
| **Functional principle detail** | Background suppression, Optical time-of-flight |
| **Housing design (light emission)** | Rectangular |
| **Sensing range max.** | 50 mm ... 1,800 mm [1] |
| **Sensing range** | 100 mm ... 1,800 mm [2] [1] |
| **Distance value** | |
| Measuring range | 50 mm ... 1,800 mm [1] |
| Resolution | 1 mm |
| Repeatability | 1,2 mm ... 3,0 mm [3] [4] [5] |
| Accuracy | Typ. ± 20 mm, typ. ± 15 mm [6] [7] |
| **Type of light** | Visible red light |
| **Light source** | Laser [8] |

[1] Object with 6 ... 90% remission (based on standard white, DIN 5033).
[2] Adjustable.
[3] Equivalent to 1 σ.
[4] See characteristic curves repeatability.
[5] 6% ... 90% remission factor.
[6] 50 ... 1000 mm.
[7] 1000 ... 1800 mm.
[8] Average service life: 100,000 h at $T_U$ = +25 °C.

| | |
|---|---|
| **Light spot size (distance)** | Ø 12 mm (1,800 mm) |
| **Wave length** | 658 nm |
| **Laser class** | 1 (IEC 60825-1 / CDRH 21 CFR 1040.10 & 1040.11) |
| **Adjustment** | Single teach-in button (2 x), IO-Link |
| **Safety-related parameters** | |
| $MTTF_D$ | 138 years |
| $DC_{avg}$ | 0 % |
| $T_M$ (mission time) | 20 years |

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## Interfaces

| | |
|---|---|
| **Communication interface** | IO-Link V1.1 |
| **Communication Interface detail** | COM2 (38,4 kBaud) |
| **Cycle time** | 5 ms |
| **Process data length** | 32 Bit |
| **Process data structure** | Bit 0 = switching signal $Q_{01}$<br>Bit 1 = switching signal $Q_{02}$<br>Bit 2 ... 8 = BDC 2 ... 8<br>Bit 9 ... 15 = empty<br>Bit 16 ... 31 = distance value |
| **Additional features** | 8 switching points for distance to object, of which 2 can be inverted, 1 switching point as switching window or configurable with hysteresis., multifunctional input: sender off, external teach, inactive |
| **VendorID** | 26 |
| **DeviceID HEX** | 0x800147 |
| **DeviceID DEC** | 8388935 |

## Electronics

| | |
|---|---|
| **Supply voltage $U_B$** | 10 V DC ... 30 V DC [1] [2] |
| **Ripple** | < 5 $V_{pp}$ [3] |
| **Current consumption** | 70 mA [4] |

[1] Limit values. Operated in short-circuit protected network: max. 8 A.
[2] $V_S$ min at IO-Link operation = 18 V.
[3] May not fall below or exceed $U_V$ tolerances.
[4] Without load. At $V_S$ = 24 V.
[5] Q1, Q2 = 2 switching thresholds, light switching.
[6] Signal transit time with resistive load.
[7] With light/dark ratio 1:1.
[8] A = $V_S$ connections reverse-polarity protected.
[9] B = inputs and output reverse-polarity protected.
[10] C = interference suppression.
[11] Below $T_u$ = –10 °C a warm-up time is necessary.

| | |
|---|---|
| **Switching output** | Push-pull: PNP/NPN [5] |
| **Number of switching outputs** | 2 ($Q_1$, $Q_2$) [5] |
| **Switching mode** | Light switching [5] |
| **Output current $I_{max.}$** | ≤ 100 mA |
| **Response time** | ≤ 5 ms [6] |
| **Switching frequency** | 100 Hz [7] |
| **Analog output** | - |
| **Input** | $MF_{in}$ = multifunctional input programmable |
| **Circuit protection** | A [8]<br>B [9]<br>C [10] |
| **Protection class** | III |
| **Enclosure rating** | IP67 |
| **Warm-up time** | < 15 min [11] |
| **Initialization time** | < 300 ms |

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## Mechanics

| | |
|---|---|
| **Dimensions (W x H x D)** | 20 mm x 49.6 mm x 44.2 mm |
| **Housing material** | Plastic, VISTAL® |
| **Optics material** | Plastic, PMMA |
| **Weight** | 48 g |
| **Connection type** | Plug, M12, 5-pin |

## Ambient data

| | |
|---|---|
| **Ambient operating temperature** | –35 °C ... +50 °C [1] |
| **Ambient temperature, storage** | –40 °C ... +70 °C |

[1] As of $T_a$ = 45 °C, a max.load current $I_{max}$ = 50 mA is permitted.

## Certificates

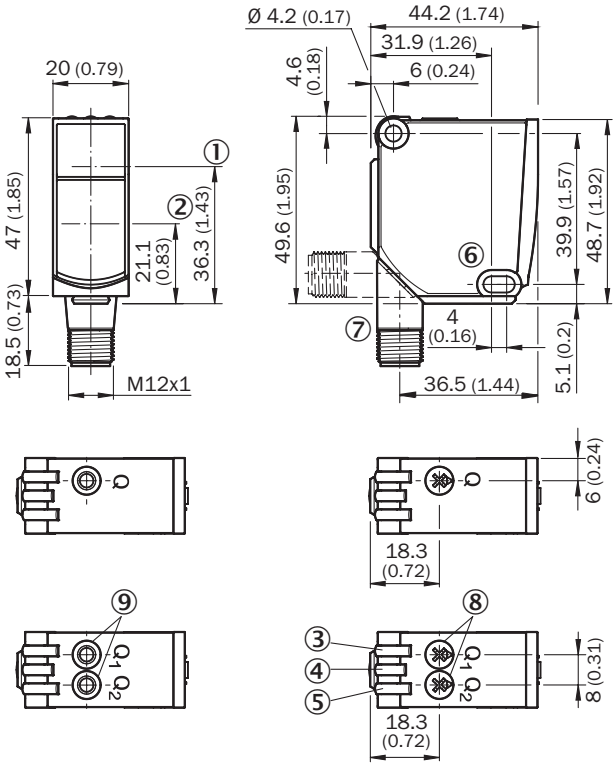
| | |
|---|---|
| **EU declaration of conformity** | ✓ |
| **UK declaration of conformity** | ✓ |
| **ACMA declaration of conformity** | ✓ |
| **Moroccan declaration of conformity** | ✓ |
| **China-RoHS** | ✓ |

| | |
|---|---|
| **cULus certificate** | ✓ |
| **IO-Link** | ✓ |
| **Laser safety (IEC 60825-1) certificate** | ✓ |

## Classifications

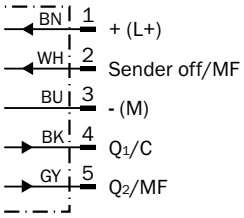
| | |
|---|---|
| **ECLASS 5.0** | 27270904 |
| **ECLASS 5.1.4** | 27270904 |
| **ECLASS 6.0** | 27270904 |
| **ECLASS 6.2** | 27270904 |
| **ECLASS 7.0** | 27270904 |
| **ECLASS 8.0** | 27270904 |
| **ECLASS 8.1** | 27270904 |
| **ECLASS 9.0** | 27270904 |
| **ECLASS 10.0** | 27270904 |
| **ECLASS 11.0** | 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 |

## Dimensional drawing

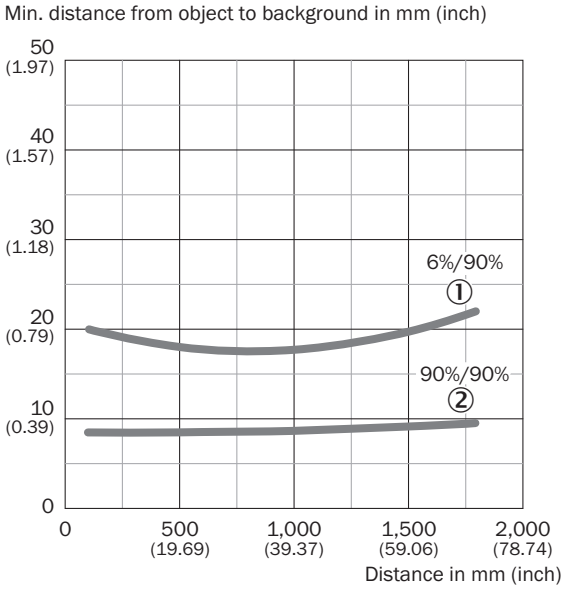



Dimensions in mm (inch)
① optical axis, sender
② optical axis, receiver
③ LED indicator yellow: Status of received light beam
④ LED indicator green: power on
⑤ LED indicator yellow: Status of received light beam
⑥ Mounting hole, Ø 4.2 mm
⑦ Connection
⑧ Potentiometer
⑨ single teach-in button

## Connection diagram Cd-290

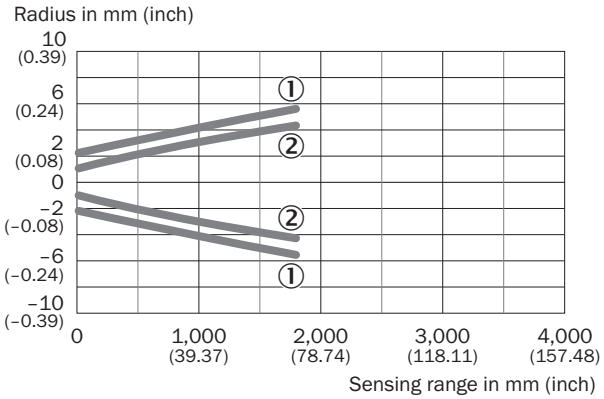


## Characteristic curve



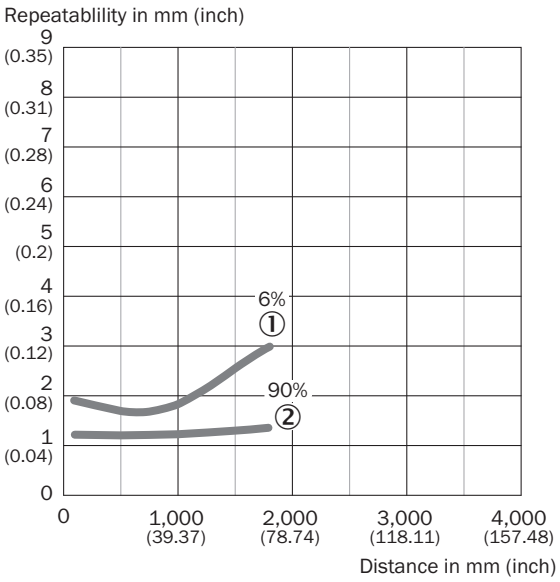

① Sensing range on black, 6% remission factor
② Sensing range on white, 90% remission factor

## Light spot size




① Light spot horizontal
② Light spot vertical

## Repeatability




① 6 % remission, on black
② 90 % remission, on white

## Recommended accessories

Other models and accessories ➜ www.sick.com/WTT12_PowerProx

| | Brief description | Type | part no. |
|---|---|---|---|
| connectors and cables | | | |
|  | • **Connection type head A:** Male connector, M12, 5-pin, straight, A-coded<br>• **Description:** Unshielded<br>• **Connection systems:** Screw-type terminals<br>• **Permitted cross-section:** ≤ 0.75 mm²<br>• **Note:** For field bus technology | STE-1205-G | 6022083 |
|  | • **Connection type head A:** Female connector, M12, 5-pin, straight, A-coded<br>• **Connection type head B:** Flying leads<br>• **Signal type:** Sensor/actuator cable<br>• **Cable:** 5 m, 5-wire, PVC<br>• **Description:** Sensor/actuator cable, unshielded<br>• **Application:** Zones with chemicals, Uncontaminated zones | YF2A15-050VB5XLEAX | 2096240 |

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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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