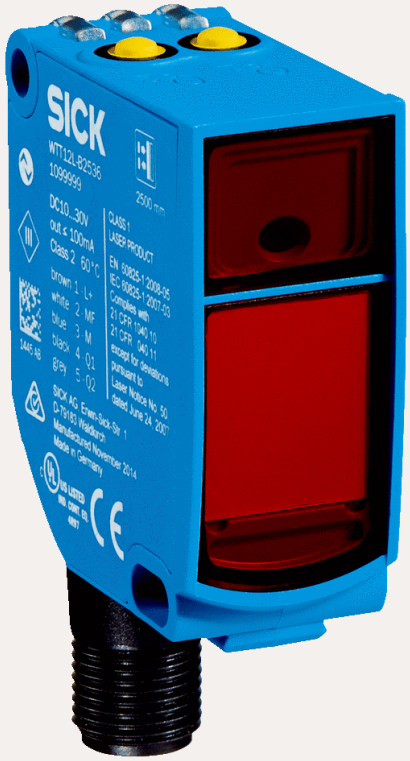
SICK.COM



DATA SHEET

WTT12LC-B2523

WTT12 PowerProx
Time-of-flight sensors

SICK Sensor Intelligence



Illustration may differ

TIME-OF-FLIGHT SENSORS

WTT12LC-B2523

ORDERING INFORMATION

Type	part no.
WTT12LC-B2523	1082414

Further device versions and accessories at www.sick.com/WTT12_PowerProx

DETAILED TECHNICAL DATA

FEATURES

Functional principle	Photoelectric proximity sensor
Functional principle detail	Background suppression, Optical time-of-flight, distance value
Housing design (light emission)	Rectangular
Sensing range max.	50 mm ... 1,400 mm [1]
Sensing range	100 mm ... 1,400 mm [2] [3]
Distance value	
Measuring range	50 mm ... 1,400 mm [1]
Resolution	1,000 µm
Repeatability	1,1 mm ... 1,5 mm [4] [5] [6]
Accuracy	Typ. ± 20 mm, typ. ± 15 mm [7] [8]
Type of light	Visible red light
Light source	Laser [9]
Light spot size (distance)	Ø 10 mm (1,400 mm)
Wave length	658 nm

[1] Object with 6 ... 90% remission (based on standard white, DIN 5033).

[2] Adjustable.

[3] Object with 90% remission (based on standard white, DIN 5033).

[4] Equivalent to 1 σ.

[5] See characteristic curves repeatability.

[6] 6% ... 90% remission factor.

[7] 50 ... 1000 mm.

[8] 1000 ... 1400 mm.

[9] Average service life: 100,000 h at T_u = +25 °C.

[10] Do not intentionally look into the laser beam. Never point the laser beam at people's eyes.

Laser class	1 (IEC 60825-1 / CDRH 21 CFR 1040.10 & 1040.11) [10]
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_{O1} Bit 1 = switching signal Q_{O2} Bit 2 ... 8 = BDC 2 ... 8 Bit 9 ... 15 = empty 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	8388934

ELECTRONICS

Supply voltage U_B	10 V DC ... 30 V DC [1] [2]
Ripple	< 5 V_{pp} [3]

[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.

Current consumption	70 mA [4]
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	≤ 16.7 ms [6]
Switching frequency	30 Hz [7]
Analog output	-
Input	MF_{in} = multifunctional input programmable
Circuit protection	A [8] B [9] C [10]
Protection class	III
Enclosure rating	IP67
Warm-up time	< 15 min [11]
Initialization time	< 300 ms

[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.

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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

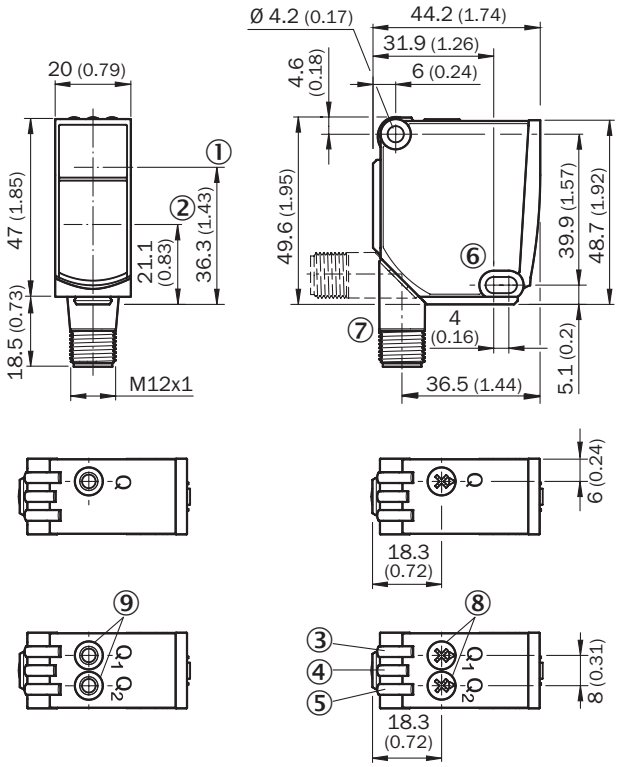
[1] As of T_a = 45 °C, a max.load current I_{max} = 50 mA is permitted.

CERTIFICATES

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

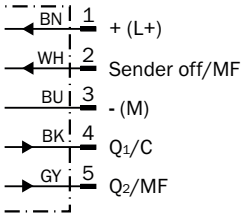
Moroccan declaration of conformity	✓
China RoHS	✓
China Compulsory Product Certification (CCC) exempt	✓
cULus certificate	✓
IO-Link certificate	✓
Laser safety (IEC 60825-1) certificate	✓
Information according to Art. 3 of Data Act (Regulation EU 2023/2854)	✓

DIMENSIONAL DRAWING

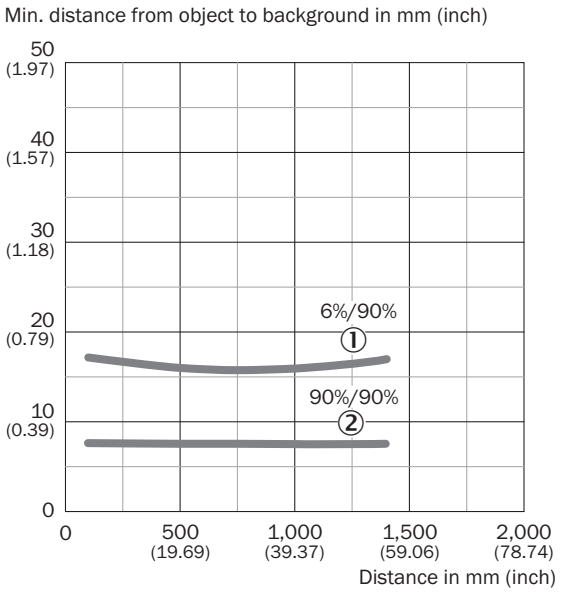


Dimensions in mm (inch)
① optical axis, sender
② optical axis, receiver
③ LED indicator yellow: Status of received light beam
④ LED indicator green: power on
⑤ LED indicator yellow: Status of received light beam
⑥ Mounting hole, Ø 4.2 mm
⑦ Connection
⑧ Potentiometer
⑨ single teach-in button

CONNECTION DIAGRAM CD-290

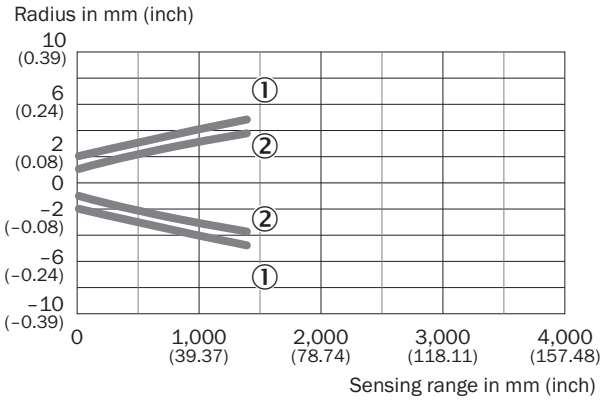


CHARACTERISTIC CURVE



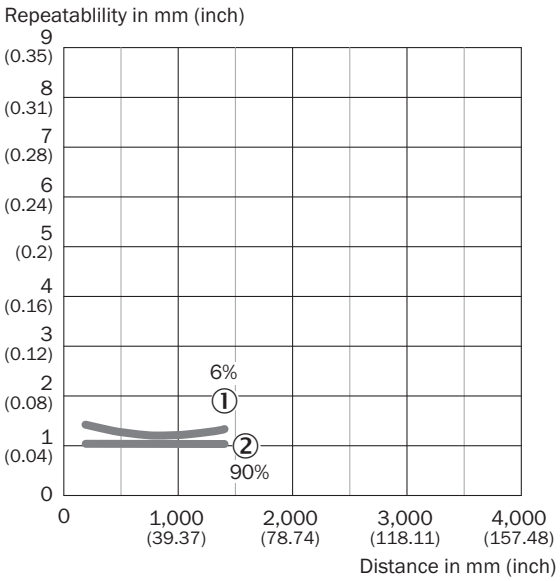
① Sensing range on black, 6% remission factor
② Sensing range on white, 90% remission factor

LIGHT SPOT SIZE



① Light spot horizontal
② Light spot vertical

REPEATABILITY



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

Further information as well as suitable accessories, example applications and downloads such as CAD dimensional models, operating instructions and software can be found at www.sick.com/1082414

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SICK AT A GLANCE

SICK is a leading global technology company for intelligent sensors and integrated solutions in industrial automation. Our technologies set benchmarks, making your industrial processes more efficient, safer and more sustainable – both in logistics and manufacturing operations.

SICK combines sensor intelligence with industry expertise and certified consulting services. We provide the ideal foundation for scalable as well as tailor-made automation solutions and create added value along the entire value chain. Our close partnerships with our customers are more than just a promise: Together, we optimize productivity, improve quality, protect health and safety, and help build a sustainable future. All with empathy and trust.

Since 1946, we have been developing innovative technologies with passion and a pioneering spirit. With a global network in around 40 countries, SICK has a global presence and is always close by. The company's headquarters are located in Waldkirch near Freiburg, Germany. Our customers benefit from our understanding of both local and global requirements, which enables us to deliver tailor-made solutions

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