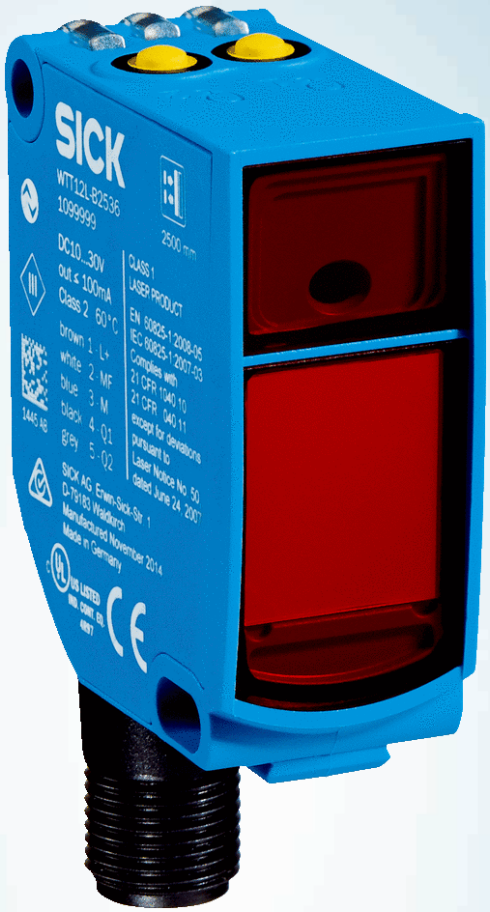
Data sheet



WTT12L-A2513

WTT12 PowerProx

TIME-OF-FLIGHT SENSORS

SICK
Sensor Intelligence.

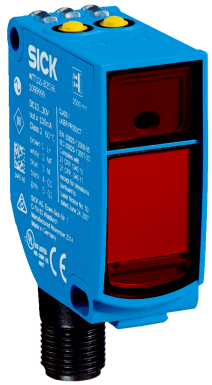


Illustration may differ

Ordering information

Type	part no.
WTT12L-A2513	1082476

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 ... 1,600 mm [1]
Sensing range	100 mm ... 1,600 mm [2]
Distance value	
Measuring range	100 mm ... 1,600 mm [1]
Resolution	1,000 µm
Repeatability	2,7 mm ... 8,0 mm [3] [4] [5]
Accuracy	Typ. ± 20 mm, typ. ± 15 mm [6] [7]
Type of light	Visible red light
Light source	Laser [8]
Light spot size (distance)	Ø 11 mm (1,600 mm)
Wave length	658 nm
Laser class	1 (IEC 60825-1 / CDRH 21 CFR 1040.10 & 1040.11) [9]
Adjustment	Single teach-in button (2 x)

[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 ... 1600 mm.
[8] Average service life: 100,000 h at T_U = +25 °C.
[9] Do not intentionally look into the laser beam. Never point the laser beam at people's eyes.

Safety-related parameters	
$MTTF_D$	124 years
DC_{avg}	0 %
T_M (mission time)	20 years

[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 ... 1600 mm.
[8] Average service life: 100,000 h at T_U = +25 °C.
[9] Do not intentionally look into the laser beam. Never point the laser beam at people's eyes.

Electronics

Supply voltage U_B	12 V DC ... 30 V DC [1] [2]
Ripple	< 5 V_{pp} [3]
Current consumption	70 mA [4]
Switching output	Push-pull: PNP/NPN [5]
Number of switching outputs	1 (Q_1) [5]
Switching mode	Light switching [5]
Output current $I_{max.}$	≤ 50 mA
Response time	≤ 0.5 ms [6]
Switching frequency	1,000 Hz [7]
Analog output	4 mA ... 20 mA (≤ 450 Ω) / 0 V ... 10 V (≥ 50 kΩ) / switchable
Resolution of analog output	12 bit
Output time	≤ 3 ms
Input	Sender off
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] Vs min when using the voltage output = 13 V.
[3] May not fall below or exceed U_V tolerances.
[4] Without load. At V_S = 24 V.
[5] Q1 = 1 switching threshold, 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.

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] For Vs ≤ 24 V. When Tu = 45 °C or above, a maximum load resistance of 300 Ω ... 450 Ω is permitted on QA.

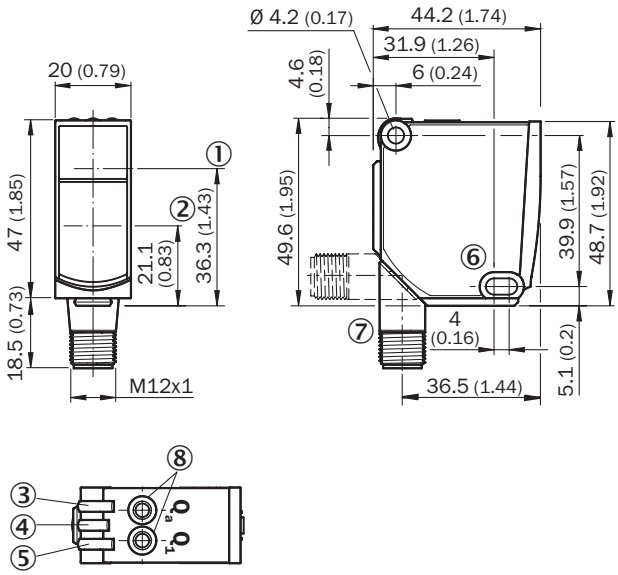
Certificates

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
cULus certificate	✓
Laser safety (IEC 60825-1) certificate	✓

Classifications

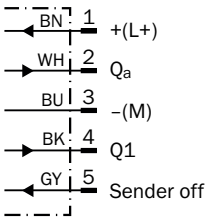
ECLASS 5.0	27270904
ECLASS 5.1.4	27270904
ECLASS 6.0	27270904
ECLASS 6.2	27270904
ECLASS 7.0	27270904
ECLASS 8.0	27270904
ECLASS 8.1	27270904
ECLASS 9.0	27270904
ECLASS 10.0	27270904
ECLASS 11.0	27270904
ECLASS 12.0	27270903
ETIM 5.0	EC002719
ETIM 6.0	EC002719
ETIM 7.0	EC002719
ETIM 8.0	EC002719
UNSPSC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

Dimensional drawing

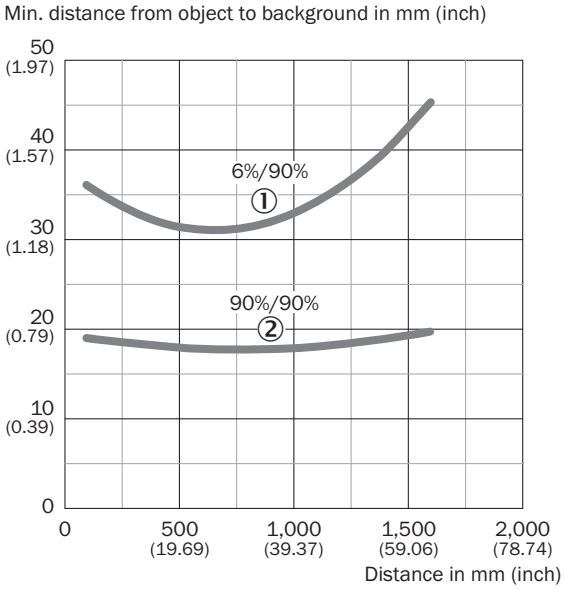


Dimensions in mm (inch)
① optical axis, sender
② optical axis, receiver
③ LED indicator yellow: Status of analog output
④ LED indicator green: power on
⑤ Status indicator LED, yellow: Status switching output
⑥ Mounting hole, Ø 4.2 mm
⑦ Connection
⑧ single teach-in button

Connection diagram Cd-375

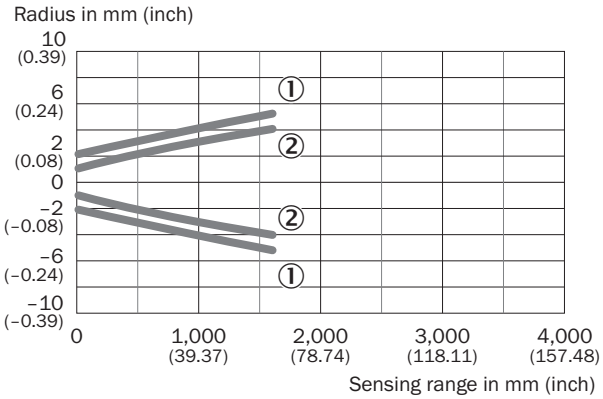


Characteristic curve



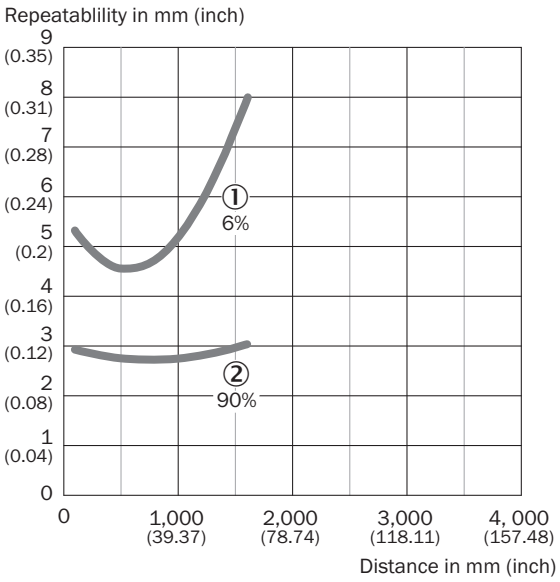
① Sensing range on black, 6% remission factor
② Sensing range on white, 90% remission factor

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			
	• **Description:** Unshielded • **Connection type head A:** Male connector, M12, 5-pin, straight, A-coded • **Connection systems:** Screw-type terminals • **Permitted cross-section:** ≤ 0.75 mm² • **Note:** For field bus technology	STE-1205-G	6022083
	• **Description:** Sensor/actuator cable, unshielded • **Connection type head A:** Female connector, M12, 5-pin, straight, A-coded • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 5 m, 5-wire, PVC • **Application:** Uncontaminated zones, Zones with chemicals	YF2A15-050VB5XLEAX	2096240
Mounting systems			
	• **Description:** Mounting brackets • **Suitable for:** PowerProx	BEF-WTT12L	2078538

SICK AT A GLANCE

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.”

WORLDWIDE PRESENCE:

Contacts and other locations –www.sick.com