



DATA SHEET

WTT190L-K2233

WTT190 PowerProx
Time-of-flight sensors

SICK

Sensor Intelligence



Illustration may differ

TIME-OF-FLIGHT SENSORS

WTT190L-K2233

ORDERING INFORMATION

Type	part no.
WTT190L-K2233	6062141

Further device versions and accessories at www.sick.com/WTT190_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.	200 mm ... 3,000 mm ¹⁾
Sensing range	200 mm ... 3,000 mm ²⁾ ¹⁾
Type of light	Visible red light
Light source	Laser ³⁾
Light spot size (distance)	Ø 12 mm (3,000 mm)
Wave length	658 nm
Laser class	1 (IEC 60825-1 / CDRH 21 CFR 1040.10 & 1040.11) ⁴⁾
Adjustment	Single teach-in button (4 x), Display
Items supplied	BEF-W190 mounting bracket
Safety-related parameters	
	MTTF ₀ 174.4 years
	DC _{avg} 0 %

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

²⁾ Adjustable.

³⁾ Average service life: 100,000 h at T_u = +25 °C.

⁴⁾ Do not intentionally look into the laser beam. Never point the laser beam at people's eyes.

ELECTRONICS

Supply voltage U_B	10 V DC ... 30 V DC ¹⁾
Ripple	< 5 V _{pp} ²⁾
Current consumption	75 mA ³⁾
Switching output	PNP ⁴⁾ NPN ⁵⁾
Number of switching outputs	2 (Q ₁ , Q ₂) ⁴⁾
Switching mode	Light/dark switching ⁴⁾
Switching mode selector	Selectable via menu
Output current I _{max}	≤ 100 mA
Response time	0.6 ms ⁶⁾ 1 ms ⁷⁾ 3.4 ms ⁸⁾ 13 ms 51.4 ms
Switching frequency	833 Hz, 500 Hz, 147 Hz, 38 Hz, 10 Hz ^{7) 8) 9)}
Time functions	Without time delay Off delay Switch-on delay One shot
Delay time	Programmable, 0 ms ... 999 ms
Analog output	-
Input	MF _{in} = multifunctional input programmable
Circuit protection	A ¹⁰⁾ B ¹¹⁾ C ¹²⁾
Protection class	III
Enclosure rating	IP67
Warm-up time	< 5 min ¹³⁾
Initialization time	< 300 ms

¹⁾ Limit values. Operated in short-circuit protected network: max. 8 A.

²⁾ May not fall below or exceed U_V tolerances.

³⁾ Without load. At $V_B = 24$ V.

⁴⁾ Q1, Q2 = 2 switching thresholds, light/dark switching selectable via light/dark selector.

⁵⁾ PNP/NPN switchable.

⁶⁾ Signal transit time with resistive load.

⁷⁾ Can be set via a mean value filter (AVG1, AVG4, AVG16, AVG64, AVG256).

⁸⁾ Depending on distance to object, distance to background and selected switching threshold.

⁹⁾ With light/dark ratio 1:1.

¹⁰⁾ A = V_B connections reverse-polarity protected.

¹¹⁾ B = inputs and output reverse-polarity protected.

¹²⁾ C = interference suppression.

¹³⁾ For optimum performance observe max. warm-up time of 5 minutes.

MECHANICS

Dimensions (W x H x D)	17.4 mm x 45.6 mm x 34.7 mm
Housing material	Plastic, ABS
Optics material	Plastic, PMMA

TIME-OF-FLIGHT SENSORS - WTT190L-K2233

Weight	25 g
Connection type	Male connector M8, 4-pin

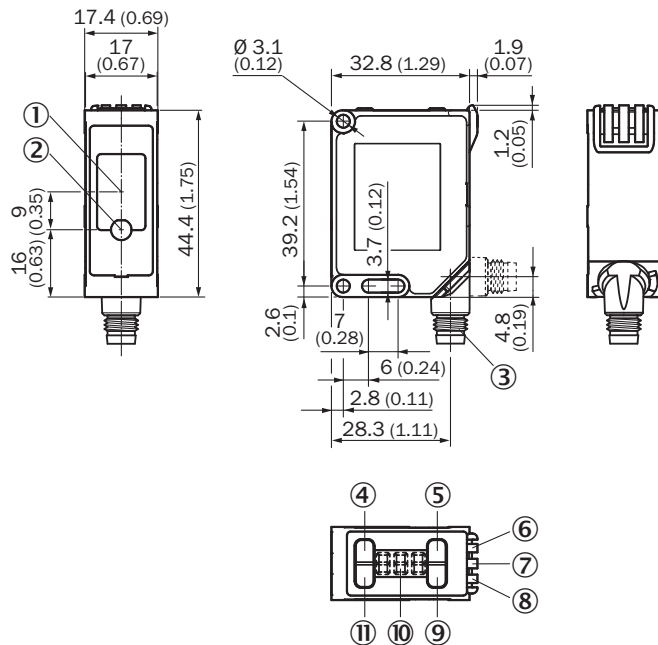
AMBIENT DATA

Ambient operating temperature	-30 °C ... +50 °C ¹⁾
Ambient temperature, storage	-40 °C ... +70 °C

¹⁾ Uv ≥ 24 V. At Tu < -10 °C warm-up time < 10 min.

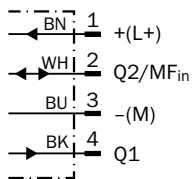
CERTIFICATES

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
China Compulsory Product Certification (CCC) ex-empt	✓
cRUus certificate	✓
Laser safety (IEC 60825-1) certificate	✓

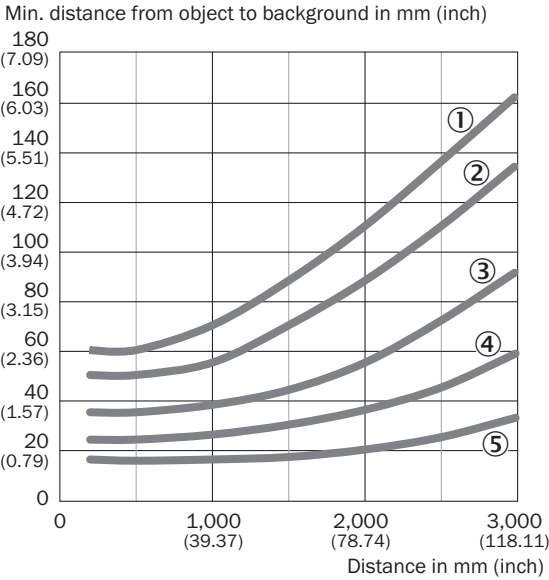
DIMENSIONAL DRAWING

Dimensions in mm (inch)

- ① receiver
- ② sender
- ③ Connection
- ④ RUN button
- ⑤ (+/Q2) button
- ⑥ Status indicator orange: Q2 output indicator
- ⑦ Status indicator LED, green/red: power on / stability indicator
- ⑧ Status indicator orange: Q1 output indicator
- ⑨ (-/Q1) button
- ⑩ Display
- ⑪ SET button

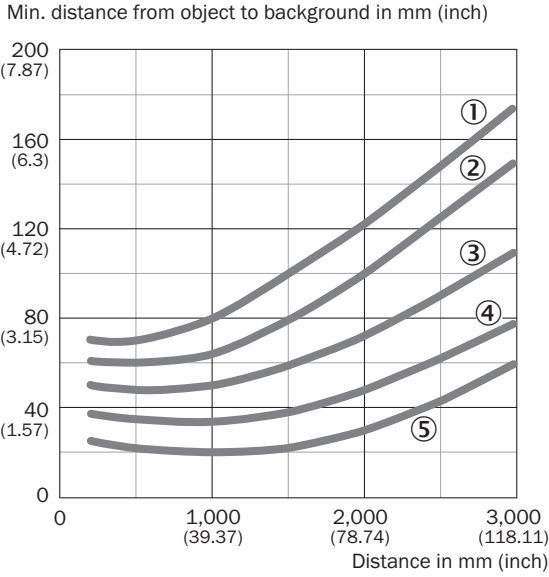
CONNECTION DIAGRAM CD-369

CHARACTERISTIC CURVE



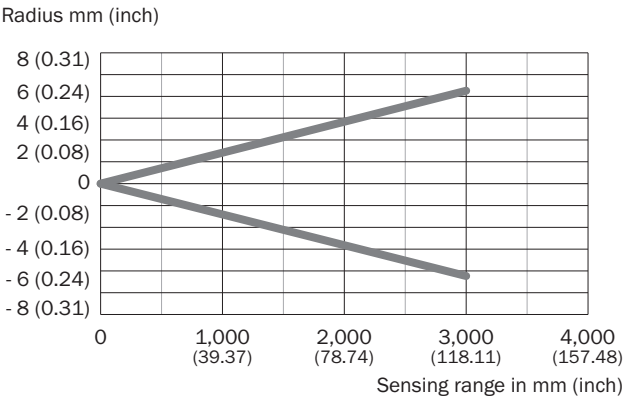
- ① 90 % / 90 % AVG1
- ② 90 % / 90 % AVG4
- ③ 90 % / 90 % AVG16
- ④ 90 % / 90 % AVG64
- ⑤ 90 % / 90 % AVG256

CHARACTERISTIC CURVE



- ① 6 % / 90 % AVG1
- ② 6 % / 90 % AVG4
- ③ 6 % / 90 % AVG16
- ④ 6 % / 90 % AVG64
- ⑤ 6 % / 90 % AVG256

LIGHT SPOT SIZE



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/6062141



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SICK AT A GLANCE

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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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