



WTT190L-A3532

PowerProx

MULTITASK PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

Type	Part no.
WTT190L-A3532	6062146

Included in delivery: BEF-W190 (1)

Other models and accessories → www.sick.com/PowerProx

Detailed technical data

Features

Device type	Photoelectric sensors
Sensor/ detection principle	Photoelectric proximity sensor, Background suppression
Dimensions (W x H x D)	17.4 mm x 45.6 mm x 34.7 mm
Housing design (light emission)	Rectangular
Sensing range max.	200 mm ... 3,000 mm ¹⁾
Sensing range	200 mm ... 3,000 mm ²⁾
Distance value	
Measuring range	200 mm ... 3,000 mm ¹⁾
Resolution	2 mm
Repeatability	5 mm ... 80 mm ^{3) 4) 5)}
Accuracy	Typ. ± 30 mm ⁶⁾ Typ. ± 50 mm ⁷⁾
Type of light	Visible red light
Light source	Laser ⁸⁾
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)

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

²⁾ Adjustable.

³⁾ Equivalent to 1 σ .

⁴⁾ See characteristic curves repeatability.

⁵⁾ 6 % ... 90 % remission.

⁶⁾ 0.2 m ... 2 m.

⁷⁾ 2 m ... 3 m.

⁸⁾ Average service life: 100,000 h at T_J = +25 °C.

Adjustment	Single teach-in button (4 x) Display
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- 2) Adjustable.
- 3) Equivalent to 1 σ .
- 4) See characteristic curves repeatability.
- 5) 6 % ... 90 % remission.
- 6) 0.2 m ... 2 m.
- 7) 2 m ... 3 m.
- 8) Average service life: 100,000 h at $T_U = +25$ °C.

Mechanics/electronics

Supply voltage	12 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	1 (Q ₁) 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 ⁹⁾ 500 Hz ⁷⁾ 147 Hz ⁸⁾ 38 Hz 10 Hz
Time functions	Without time delay Off delay On delay One shot

- 1) Limit values. Operated in short-circuit protected network: max. 8 A.
- 2) May not exceed or fall below U_v tolerances.
- 3) Without load. At V_S = 24 V.
- 4) Q₁ = 1 switching threshold, 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) External teach-in via cable, laser shutdown.
- 11) Do not bend below 0 °C.
- 12) A = V_S connections reverse-polarity protected.
- 13) B = inputs and output reverse-polarity protected.
- 14) C = interference suppression.
- 15) U_v ≥ 24 V. At T_u < -10 °C warm-up time < 10 min.
- 16) For optimum performance observe max. warm-up time of 5 minutes.

Delay time	Programmable, 0 ms ... 999 ms
Analog output	4 mA ... 20 mA ($\leq 300 \Omega$) / 0 V ... 10 V ($\geq 10 \text{ k}\Omega$) / switchable
Resolution of analog output	10 bit
Output time	0.6 ms ⁷⁾ 1 ms ⁸⁾ 3.4 ms 13 ms 51.4 ms
Input	MF _{in} = multifunctional input programmable ¹⁰⁾
Connection type	Cable with plug M12, 5-pin, 0.3 m ¹¹⁾
Cable material	PVC
Circuit protection	A ¹²⁾ B ¹³⁾ C ¹⁴⁾
Protection class	III
Weight	45 g
Housing material	Plastic, ABS
Optics material	Plastic, PMMA
Enclosure rating	IP67
Items supplied	BEF-W190 mounting bracket
Ambient operating temperature	-30 °C ... +50 °C ¹⁵⁾
Ambient temperature, storage	-40 °C ... +70 °C
Warm-up time	< 5 min ¹⁶⁾
Initialization time	< 300 ms

- 1) Limit values. Operated in short-circuit protected network: max. 8 A.
 2) May not exceed or fall below U_V tolerances.
 3) Without load. At $V_S = 24 \text{ V}$.
 4) $Q1 = 1$ switching threshold, 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.
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Safety-related parameters

MTTF_D	170.3 years
DC_{avg}	0 %

Classifications

ECl@ss 5.0	27270904
ECl@ss 5.1.4	27270904

ECI@ss 6.0	27270904
ECI@ss 6.2	27270904
ECI@ss 7.0	27270904
ECI@ss 8.0	27270904
ECI@ss 8.1	27270904
ECI@ss 9.0	27270904
ECI@ss 10.0	27270904
ECI@ss 11.0	27270904
ETIM 5.0	EC002719
ETIM 6.0	EC002719
ETIM 7.0	EC002719
ETIM 8.0	EC002719
UNSPSC 16.0901	39121528

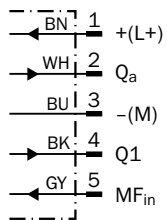
Connection/pin assignment

Connection type	Cable with plug M12, 5-pin, 0.3 m ¹⁾
Connection type Detail	
Cable material	PVC

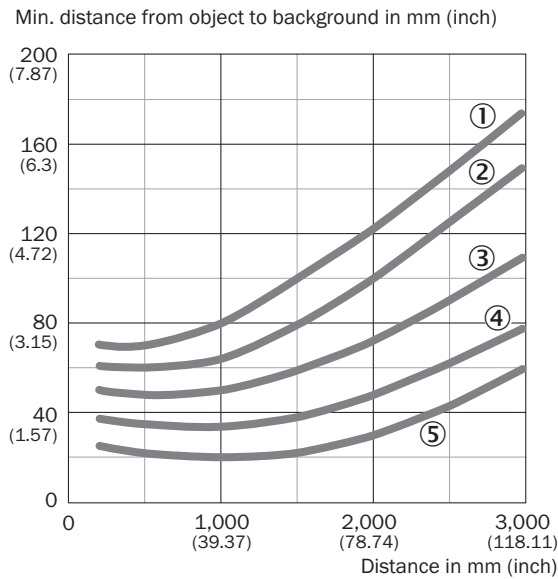
¹⁾ Do not bend below 0 °C.

Connection diagram

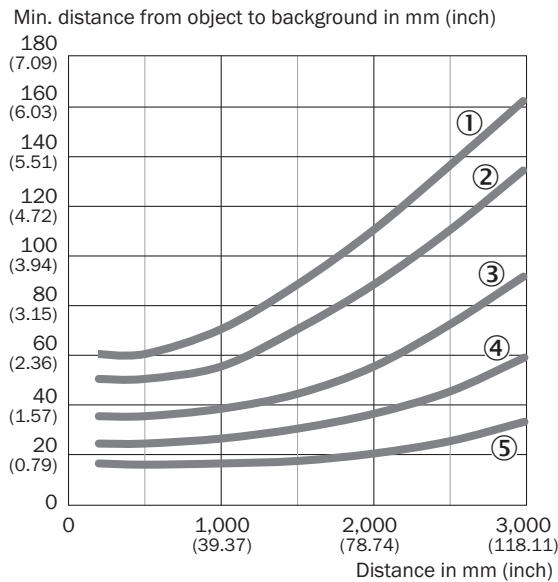
Cd-374



Characteristic curve

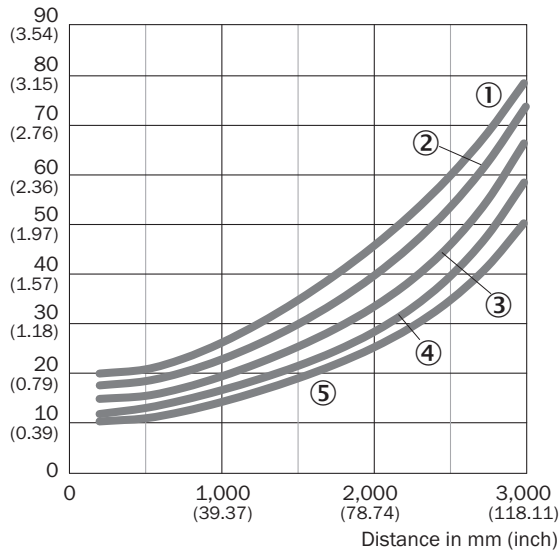


- ① 6 % / 90 % AVG1
- ② 6 % / 90 % AVG4
- ③ 6 % / 90 % AVG16
- ④ 6 % / 90 % AVG64
- ⑤ 6 % / 90 % AVG256



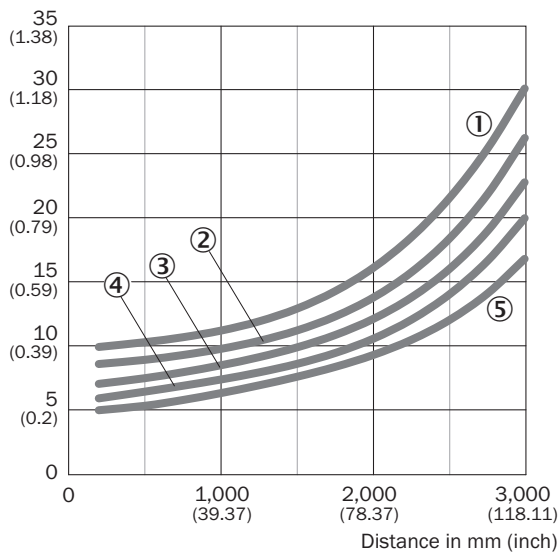
- ① 90 % / 90 % AVG1
- ② 90 % / 90 % AVG4
- ③ 90 % / 90 % AVG16
- ④ 90 % / 90 % AVG64
- ⑤ 90 % / 90 % AVG256

Reproducibility in mm (inch)



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

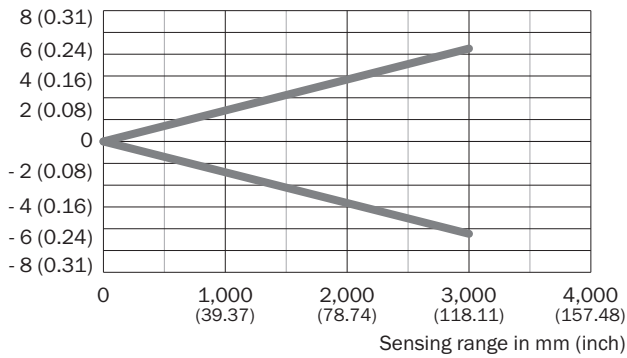
Reproducibility in mm (inch)



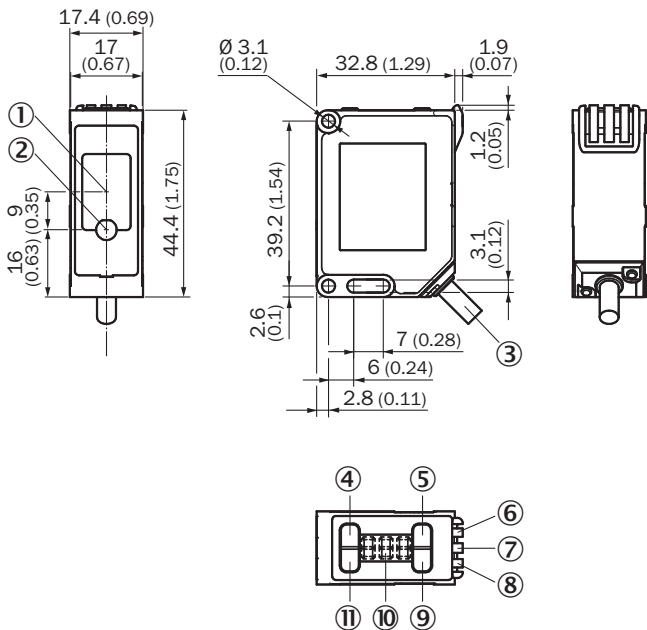
- ① 90 % AVG1
- ② 90 % AVG4
- ③ 90 % AVG16
- ④ 90 % AVG64
- ⑤ 90 % AVG256

Light spot size

Radius mm (inch)





Dimensional drawing (Dimensions in mm (inch))



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

Recommended accessories

Other models and accessories → www.sick.com/PowerProx

	Brief description	Type	Part no.
Plug connectors and cables			
	Head A: female connector, M12, 5-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 5 m	YF2A15-050VB5XLEAX	2096240
	Head A: male connector, M12, 5-pin, straight Cable: unshielded For field bus technology	STE-1205-G	6022083

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.”

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