



WTT190L-A2232

PowerProx

MULTITASK PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

Type	Part no.
WTT190L-A2232	6062144

Included in delivery: BEF-W190 (1)

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

Detailed technical data

Features

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)
Adjustment		Single teach-in button (4 x)

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_U = +25 °C.

	Display
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- 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 $T_U = +25^\circ\text{C}$.

Mechanics/electronics

Supply voltage	12 V DC ... 30 V DC ¹⁾
Ripple	$\leq 5 V_{pp}$ 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}	$\leq 100\text{ mA}$
Response time	0.6 ms, 1 ms, 3.4 ms, 13 ms, 51.4 ms ^{6) 7) 8)}
Switching frequency	833 Hz, 500 Hz, 147 Hz, 38 Hz, 10 Hz ^{7) 8) 9)}
Time functions	Without time delay Off delay On delay One shot
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

- 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.
 10) External teach-in via cable, laser shutdown.
 11) A = V_S connections reverse-polarity protected.
 12) B = inputs and output reverse-polarity protected.
 13) C = interference suppression.
 14) $V_S \geq 24\text{ V}$. Below $T_a < -10^\circ\text{C}$ warm-up time $< 10\text{ min}$.
 15) For best performance consider warm up time $\leq 5\text{ minutes}$.

Input	MF _{in} = multifunctional input programmable ¹⁰⁾
Connection type	Male connector M8, 4-pin
Circuit protection	A ¹¹⁾ B ¹²⁾ C ¹³⁾
Protection class	III
Weight	25 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 ¹⁴⁾
Ambient storage temperature	-40 °C ... +70 °C
Warm-up time	< 5 min ¹⁵⁾
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 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⁾ A = V_S connections reverse-polarity protected.
¹²⁾ B = inputs and output reverse-polarity protected.
¹³⁾ C = interference suppression.
¹⁴⁾ V_S ≥ 24 V. Below Ta < -10 °C warm-up time < 10 min.
¹⁵⁾ For best performance consider warm up time ≤ 5 minutes.

Safety-related parameters

MTTF_D	170 years
DC_{avg}	0%

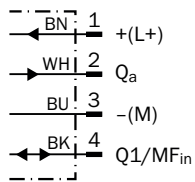
Classifications

ECl@ss 5.0	27270904
ECl@ss 5.1.4	27270904
ECl@ss 6.0	27270904
ECl@ss 6.2	27270904
ECl@ss 7.0	27270904
ECl@ss 8.0	27270904
ECl@ss 8.1	27270904
ECl@ss 9.0	27270904
ECl@ss 10.0	27270904
ECl@ss 11.0	27270904

ETIM 5.0	EC002719
ETIM 6.0	EC002719
ETIM 7.0	EC002719
UNSPSC 16.0901	39121528

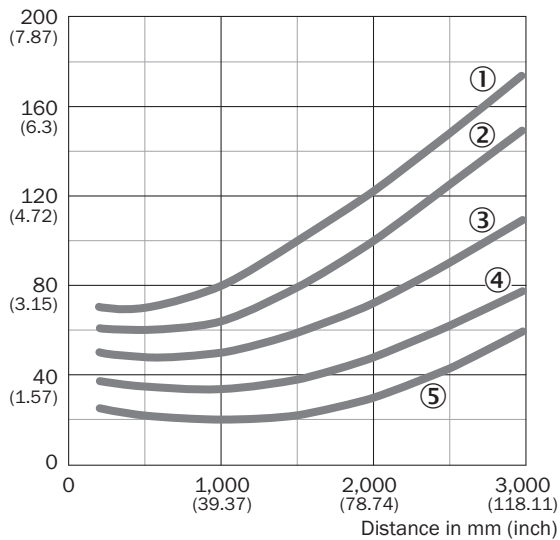
Connection diagram

Cd-372

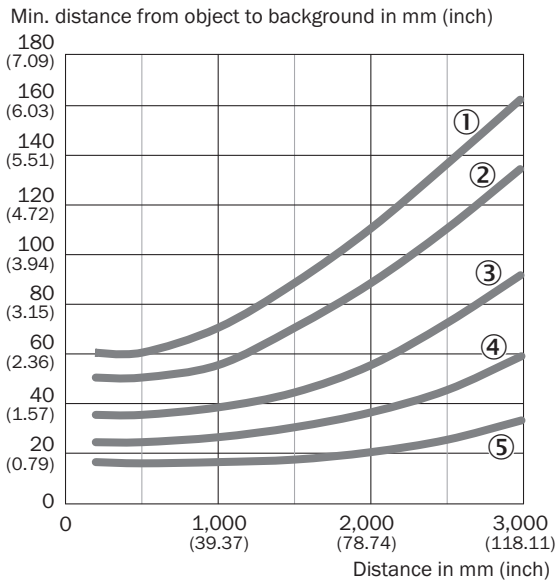


Characteristic curve

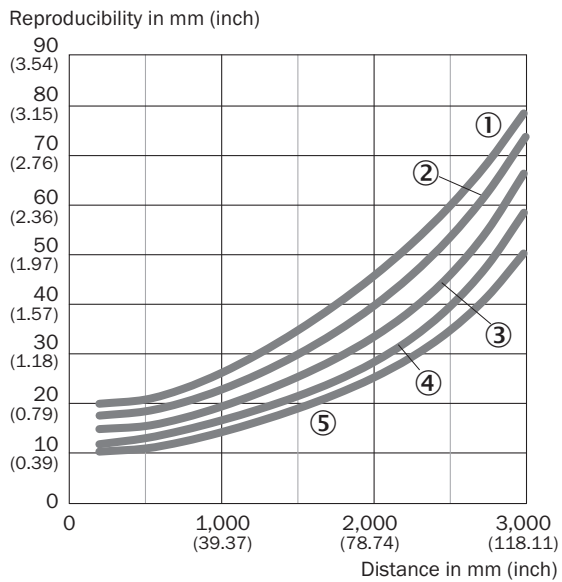
Min. distance from object to background in mm (inch)



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

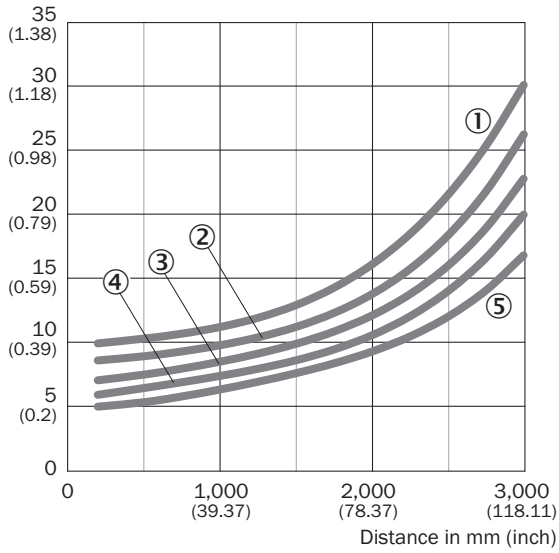


- ① 90 % / 90 % AVG1
- ② 90 % / 90 % AVG4
- ③ 90 % / 90 % AVG16
- ④ 90 % / 90 % AVG64
- ⑤ 90 % / 90 % AVG256



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

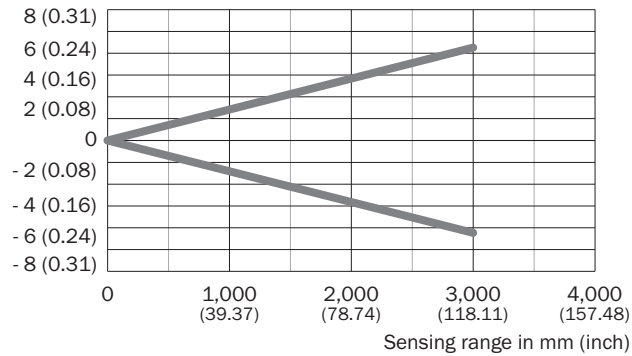
Reproducibility in mm (inch)



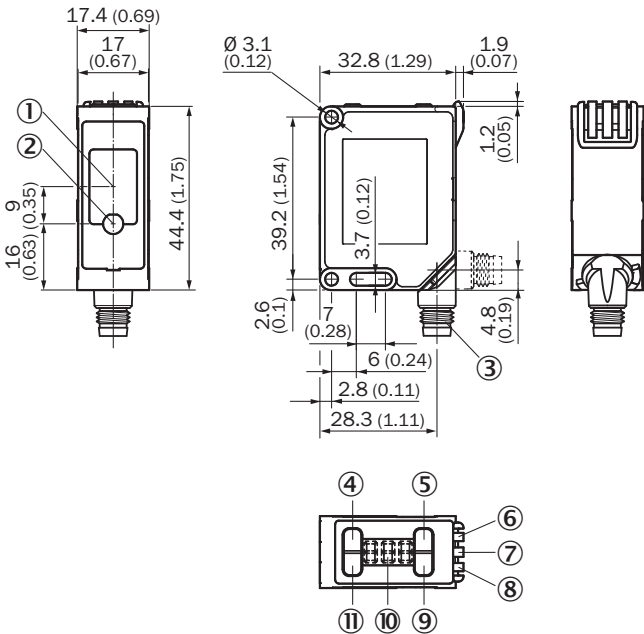
- ① 90 % AVG1
- ② 90 % AVG4
- ③ 90 % AVG16
- ④ 90 % AVG64
- ⑤ 90 % AVG256

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: output indicator
- ⑦ Status indicator LED, green/red/off: power on / stability indicator / laser off
- ⑧ Status indicator orange: 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, M8, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 5 m	YF8U14-050VA3XLEAX	2095889
	Head A: male connector, M8, 4-pin, straight Head B: - Cable: unshielded	STE-0804-G	6037323

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:

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