



# WTT190L-A2232

WTT190 PowerProx

TIME-OF-FLIGHT 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/WTT190\\_PowerProx](http://www.sick.com/WTT190_PowerProx)

### Detailed technical data

#### Features

<b>Functional principle</b>	Photoelectric proximity sensor
<b>Functional principle detail</b>	Background suppression, Optical time-of-flight
<b>Housing design (light emission)</b>	Rectangular
<b>Sensing range max.</b>	200 mm ... 3,000 mm <sup>1)</sup>
<b>Sensing range</b>	200 mm ... 3,000 mm <sup>2)</sup>
<b>Distance value</b>	
Measuring range	200 mm ... 3,000 mm <sup>1)</sup>
Resolution	2 mm
Repeatability	5 mm ... 80 mm <sup>3) 4) 5)</sup>
Accuracy	Typ. ± 30 mm, typ. ± 50 mm <sup>6) 7)</sup>
<b>Type of light</b>	Visible red light
<b>Light source</b>	Laser <sup>8)</sup>
<b>Light spot size (distance)</b>	Ø 12 mm (3,000 mm)
<b>Wave length</b>	658 nm
<b>Laser class</b>	1 (IEC 60825-1 / CDRH 21 CFR 1040.10 & 1040.11)
<b>Adjustment</b>	Single teach-in button (4 x), Display
<b>Items supplied</b>	BEF-W190 mounting bracket

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

<sup>2)</sup> Adjustable.

<sup>3)</sup> Equivalent to 1  $\sigma$ .

<sup>4)</sup> See characteristic curves repeatability.

<sup>5)</sup> 6% ... 90% remission factor.

<sup>6)</sup> 0.2 m ... 2 m.

<sup>7)</sup> 2 m ... 3 m.

<sup>8)</sup> Average service life: 100,000 h at  $T_U = +25 \text{ }^\circ\text{C}$ .

Safety-related parameters	
MTTF <sub>D</sub>	170 years
DC <sub>avg</sub>	0 %

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

2) Adjustable.

3) Equivalent to 1  $\sigma$ .

4) See characteristic curves repeatability.

5) 6% ... 90% remission factor.

6) 0.2 m ... 2 m.

7) 2 m ... 3 m.

8) Average service life: 100,000 h at T<sub>U</sub> = +25 °C.

## Electronics

Supply voltage U <sub>B</sub>	12 V DC ... 30 V DC <sup>1)</sup>
Ripple	< 5 V <sub>pp</sub> <sup>2)</sup>
Current consumption	75 mA <sup>3)</sup>
Switching output	PNP, NPN <sup>4) 5)</sup>
Number of switching outputs	1 (Q <sub>1</sub> ) <sup>4)</sup>
Switching mode	Light/dark switching <sup>4)</sup>
Switching mode selector	Selectable via menu
Output current I <sub>max.</sub>	≤ 100 mA
Response time	0.6 ms, 1 ms, 3.4 ms, 13 ms, 51.4 ms <sup>6) 7) 8)</sup>
Switching frequency	833 Hz, 500 Hz, 147 Hz, 38 Hz, 10 Hz <sup>7) 8) 9)</sup>
Time functions	Without time delayoff delayswitch-on delayone shot
Delay time	Programmable, 0 ms ... 999 ms
Analog output	4 mA ... 20 mA (≤ 300 Ω) / 0 V ... 10 V (≥ 10 kΩ) / switchable
Resolution of analog output	10 bit
Output time	≤ 0.6 ms <sup>7)</sup>
Input	MF <sub>in</sub> = multifunctional input programmable
Circuit protection	A <sup>10)</sup> B <sup>11)</sup> C <sup>12)</sup>
Protection class	III

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

2) May not fall below or exceed U<sub>y</sub> tolerances.

3) Without load. At V<sub>S</sub> = 24 V.

4) Q<sub>1</sub> = 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) A = V<sub>S</sub> 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.

<b>Enclosure rating</b>	IP67
<b>Warm-up time</b>	< 5 min <sup>13)</sup>
<b>Initialization time</b>	< 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  $V_S = 24$  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) A =  $V_S$  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

<b>Dimensions (W x H x D)</b>	17.4 mm x 45.6 mm x 34.7 mm
<b>Housing material</b>	Plastic, ABS
<b>Optics material</b>	Plastic, PMMA
<b>Weight</b>	25 g
<b>Connection type</b>	Male connector M8, 4-pin

### Ambient data

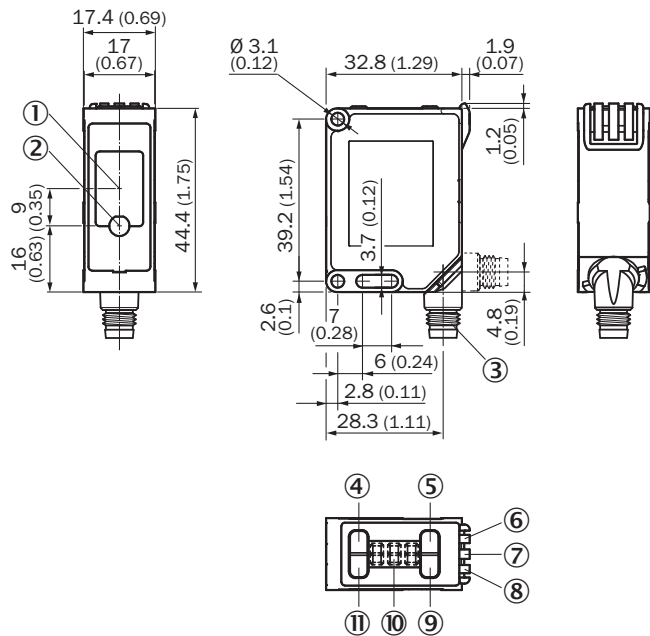
<b>Ambient operating temperature</b>	-30 °C ... +50 °C <sup>1)</sup>
<b>Ambient temperature, storage</b>	-40 °C ... +70 °C

- 1)  $U_V \geq 24$  V. At  $T_u < -10$  °C warm-up time < 10 min.

### Classifications

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

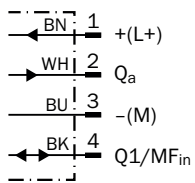
Dimensional drawing (Dimensions in mm (inch))



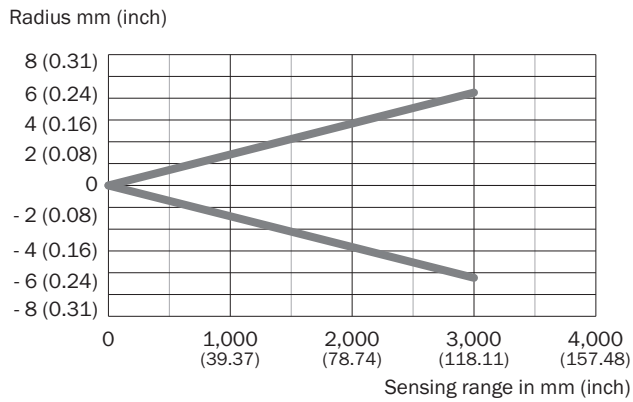
- ① Receiver
- ② Sender
- ③ Connection
- ④ RUN button
- ⑤ (+) button
- ⑥ Status indicator orange: output indicator
- ⑦ Status indicator LED, green/red/off: power on / stability indicator / laser off
- ⑧ Status indicator orange: output indicator
- ⑨ (-/Q1) button
- ⑩ Display
- ⑪ SET button

Connection diagram

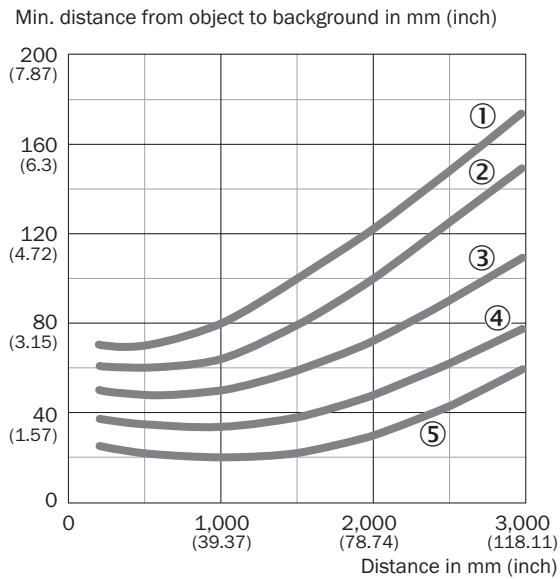
Cd-372



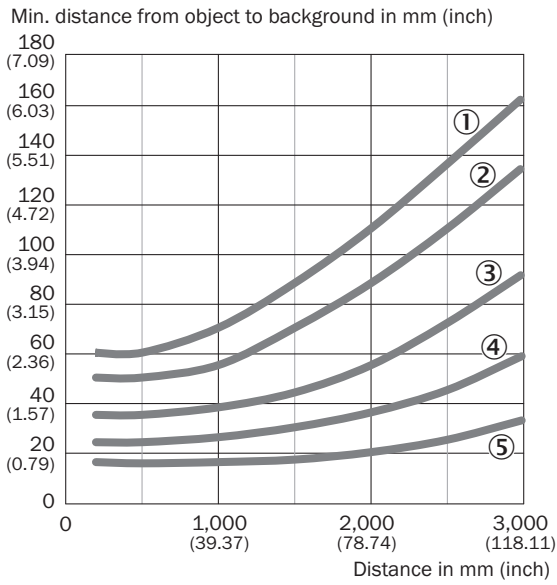
### Light spot size



### Scanning range

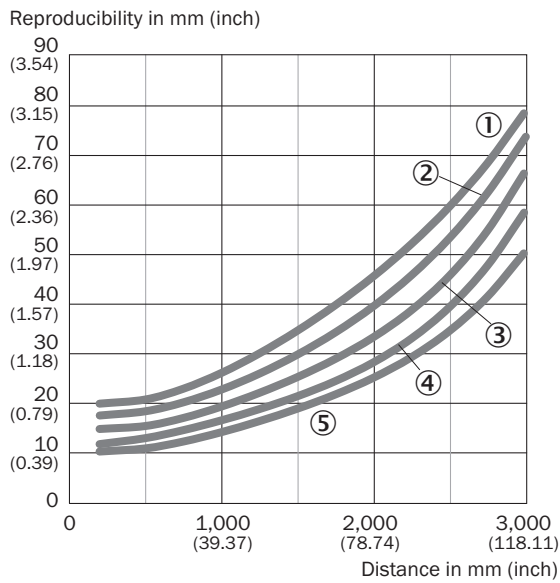


- ① 6% / 90% AVG1
- ② 6% / 90% AVG4
- ③ 6% / 90% AVG16
- ④ 6% / 90% AVG64
- ⑤ 6% / 90% AVG256



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



### Sensing distance



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

### Recommended accessories

Other models and accessories → [www.sick.com/WTT190\\_PowerProx](http://www.sick.com/WTT190_PowerProx)

	Brief description	Type	Part no.
Others			
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M8, 4-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 5 m, 4-wire, PVC</li> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Application:</b> Zones with chemicals</li> </ul>	YF8U14-050VA3XLEAX	2095889
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M8, 4-pin, straight, A-coded</li> <li>• <b>Description:</b> Unshielded</li> <li>• <b>Connection systems:</b> Screw-type terminals</li> <li>• <b>Permitted cross-section:</b> 0.14 mm<sup>2</sup> ... 0.5 mm<sup>2</sup></li> </ul>	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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