

SICK.COM



DATA SHEET

**WL27-3S1531**

W27  
Photoelectric sensors

**SICK** Sensor Intelligence

## PHOTOELECTRIC SENSORS

## WL27-3S1531

## ORDERING INFORMATION

Type	part no.
WL27-3S1531	1027775

Further device versions and accessories at [www.sick.com/W27](http://www.sick.com/W27)



Illustration may differ



## DETAILED TECHNICAL DATA

## FEATURES

Functional principle	Photoelectric retro-reflective sensor
Functional principle detail	With minimum distance to reflector (dual lens system)
Dimensions (W x H x D)	24.6 mm x 80.6 mm x 54 mm
Housing design (light emission)	Rectangular
Sensing range max.	0.1 m ... 15 m <sup>1)</sup>
Sensing range	0.1 m ... 11 m <sup>1)</sup>
Focus	Approx. 1.5°
Type of light	Visible red light
Light source	LED <sup>2)</sup>
Light spot size (distance)	Ø 220 mm (10 m)
Angle of dispersion	Approx. 1.5°
Wave length	660 nm
Adjustment	Potentiometer

<sup>1)</sup> Reflector PL80A.

<sup>2)</sup> Average service life: 100,000 h at T<sub>U</sub> = +25 °C.

**MECHANICS/ELECTRONICS**

Supply voltage $U_b$	20 V AC/DC ... 250 V AC/DC <sup>1)</sup>
Power consumption	≤ 2.5 VA
Switching output	Relay, electrically isolated <sup>2)</sup>
Output function	Change-over contacts
Switching mode	Light switching
Switching current (switching voltage)	4 A @ 250 V AC, 4 A @ 24 V DC, 0.125 A @ 250 V DC UL: 4 A @ 250 V AC, general use / 4 A @ 250 V AC, resistive (NO) / 3 A @ 250 V AC, resistive (NC) / 4 A @ 24 V DC, NO, general use / 3 A @ 24 V DC, NC, general use / R300 / B300 (NO contacts only) / 0 °C ... +60 °C
Response time	≤ 10 ms
Switching frequency	10 Hz <sup>3)</sup>
Connection type	Cable, 5-wire, 2 m <sup>4)</sup>
Cable material	Plastic, PVC
Conductor cross section	0.25 mm <sup>2</sup>
Circuit protection	A <sup>5)</sup> C <sup>6)</sup>
Protection class	II <sup>7)</sup>
Weight	200 g
Polarizing filter	✓
Housing material	Plastic, ABS
Optics material	Plastic, PMMA
Enclosure rating	IP67
Usage category	AC-15, DC-13 According to EN 60947-1
Ambient operating temperature	-40 °C ... +60 °C <sup>8)</sup>
Ambient temperature, storage	-40 °C ... +75 °C
UL File No.	NRKH.E181493 & NRKH7.E181493

<sup>1)</sup> Limit values.

<sup>2)</sup> Provide suitable spark suppression for inductive or capacitive loads.

<sup>3)</sup> With light/dark ratio 1:1.

<sup>4)</sup> Do not bend below 0 °C.

<sup>5)</sup> A =  $V_b$  connections reverse-polarity protected.

<sup>6)</sup> C = interference suppression.

<sup>7)</sup> Reference voltage: 250 V AC, overvoltage category 2.

<sup>8)</sup> UL: 0 °C ... +60 °C.

**SAFETY-RELATED PARAMETERS**

MTTF <sub>D</sub>	1,147 years
DC <sub>avg</sub>	0 %
B <sub>10D</sub>	65,693 Switching cycles <sup>1)</sup>

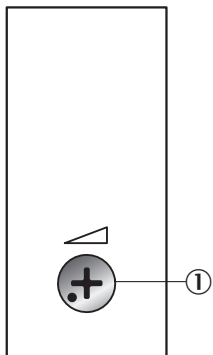
<sup>1)</sup> Only for devices containing electro-mechanical components. In this case, the MTTF<sub>D</sub> value of the entire device must be calculated from the given B<sub>10D</sub> value, the number of switching cycles and the given MTTF<sub>D</sub> value.

**CERTIFICATES**

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓

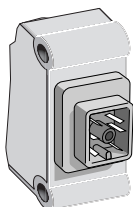
Moroccan declaration of conformity	✓
China RoHS	✓
CCC certificate	✓
ECOLAB certificate	✓
cULus certificate	✓
Photobiological safety (DIN EN 62471) certificate	✓

### ADJUSTMENTS POTENTIOMETER

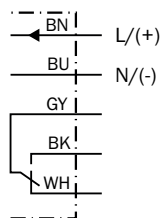


① Potentiometer

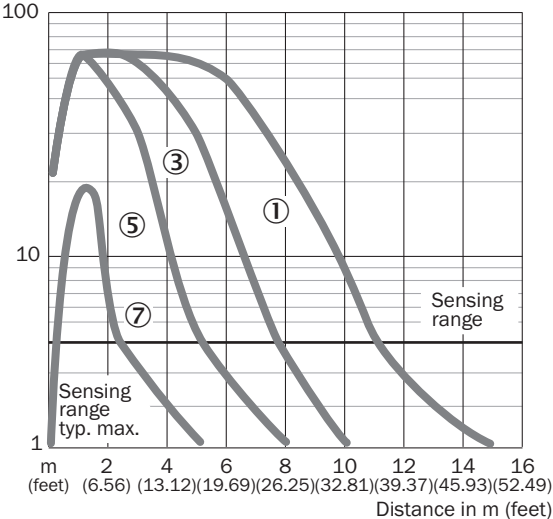
### CONNECTION TYPE



### CONNECTION DIAGRAM CD-161

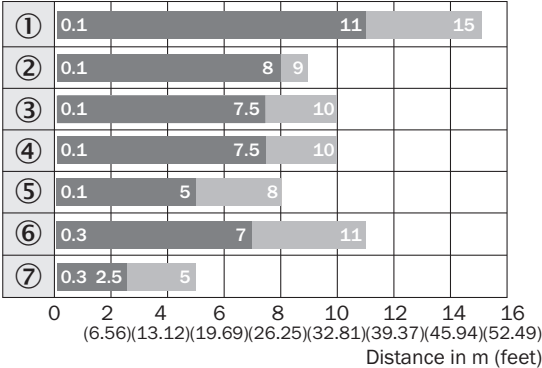


**CHARACTERISTIC CURVE WL27-3**



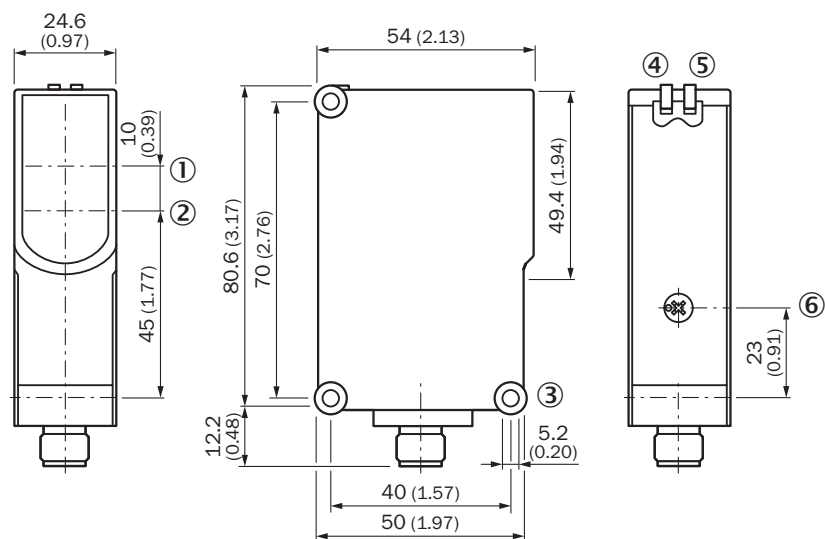
- ① Reflector PL80A
- ③ Reflector PL40A
- ⑤ Reflector PL20A
- ⑦ Reflective tape Diamond Grade

**SENSING RANGE DIAGRAM WL27-3**



- ① Reflector PL80A
- ② Reflector PL50A
- ③ Reflector PL40A
- ④ Reflector PL30A
- ⑤ Reflector PL20A
- ⑥ Reflector C110A
- ⑦ Reflective tape Diamond Grade

**DIMENSIONAL DRAWING WL27-3, POTENTIOMETER**



Dimensions in mm (inch)

- ① Optical axis, sender
- ② Optical axis, receiver
- ③ Mounting hole  $\varnothing$  5.2 mm
- ④ LED indicator green: Supply voltage active
- ⑤ LED indicator yellow: Status of received light beam
- ⑥ Sensitivity control ( 10 revolutions)

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/1027775](http://www.sick.com/1027775)



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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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