



Photoelectric sensors  
W280L-2 Long Range, Photoelectric proximity  
sensor, Background suppression

WTT280L-2N1531



**Photoelectric sensors**  
**W280L-2 Long Range, Photoelectric proximity sensor,**  
**Background suppression**

**Model Name** > [WTT280L-2N1531](#)  
**Part No.** > [6048067](#)



*Illustration may differ*

**At a glance**

- WTT280L-2 Long Range: Background suppression sensing distance up to 4 m
- Complete background suppression: very small black/white shift, insensitive against reflections from the background (e.g. shiny metal, window, safety vest)
- Ignores cross talk from adjacent sensors
- Visible red Class 1 laser
- Version 1: with 1 x switching output and light/dark switch, Version 2: with 2 x switching outputs and light/dark switch
- Reliable detection also in very fast production processes thanks to the switching frequency of 1,000 Hz
- Disable laser by wire

**Your benefits**

- Reliable target detection with difficult target colors, angles and color transitions (black/white shift)
- One sensor with two outputs and two status LEDs improves application flexibility and reduces the number of sensors needed
- Quick and easy commissioning with sensing range adjustment potentiometers and status LEDs - one for each output
- Quick and easy alignment with a red Class 1 laser
- Rotatable connector and light/dark switch for mounting and installation flexibility



**Features**

Sensor/detection principle:	Photoelectric proximity sensor, Background suppression
Dimensions (W x H x D):	23.5 mm x 76 mm x 55.8 mm
Housing design (light emission):	Rectangular
Sensing range max.:	200 mm ... 3,000 mm, 200 mm ... 4,000 mm <sup>1) 2)</sup>
Type of light:	Visible red light
Light source:	Laser <sup>3)</sup>
Laser class:	1 (EN 60825-1:2008-5, IEC 60825-1:2007-03)
Light spot diameter (distance):	Ø 12 mm (3 m)
Adjustment of operating distance:	Potentiometer

<sup>1)</sup> Object with 90 % reflectance (referred to standard white DIN 5033) <sup>2)</sup> Objects to be sensed with 6 % reflectivity (based on black) <sup>3)</sup> Average service life of 100,000 h

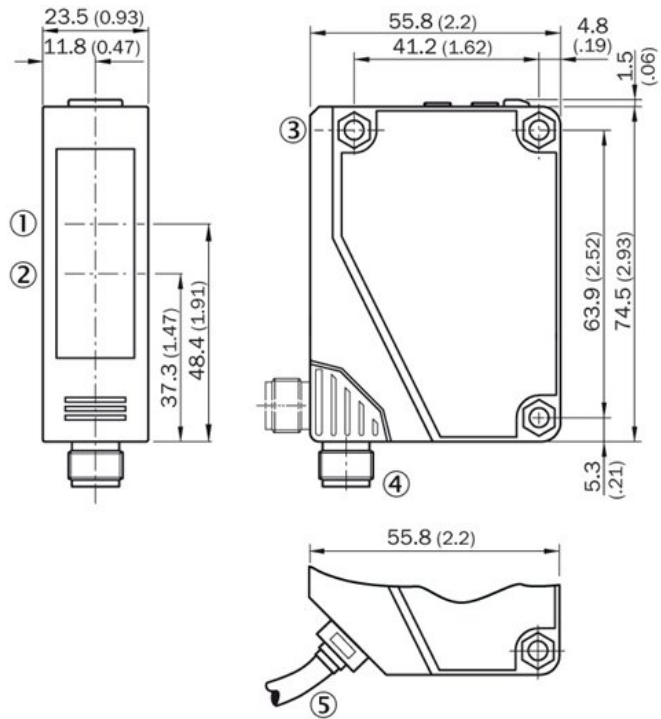
at T<sub>A</sub> = +25 °C

## Mechanics/electronics

Supply voltage:	10 V DC ... 30 V DC <sup>1)</sup>
Ripple:	$\leq 3 V_{pp}$ <sup>2)</sup>
Power consumption:	$\leq 70 \text{ mA}$ <sup>3)</sup>
Output type:	NPN, Light/dark-switching, selectable via light/dark rotary switch, open collector
Switching mode selector:	Selectable via light/dark rotary switch
Output current I <sub>max.</sub> :	$\leq 100 \text{ mA}$
Response time:	$\leq 0.5 \text{ ms}$ <sup>4)</sup>
Switching frequency:	1,000 Hz <sup>5)</sup>
Connection type:	Cable 2 m, 5-pin, 2 m <sup>6)</sup>
Cable material:	PVC
Conductor cross-section:	0.18 mm <sup>2</sup>
Cable diameter:	Ø 3.8 mm
Circuit protection:::	A, B, C, D <sup>7) 8) 9) 10)</sup>
Protection class:	III
Weight:	120 g
Housing material:	ABS
Optics material:	PMMA
Enclosure rating:	IP 67
Items supplied:	Mounting bracket BEF-W280
EMC:	EN 60947-5-2 <sup>11)</sup>
Ambient operating temperature:	-10 °C ... 50 °C
Ambient storage temperature:	-40 °C ... 70 °C
Switching mode characteristic:	Open collector

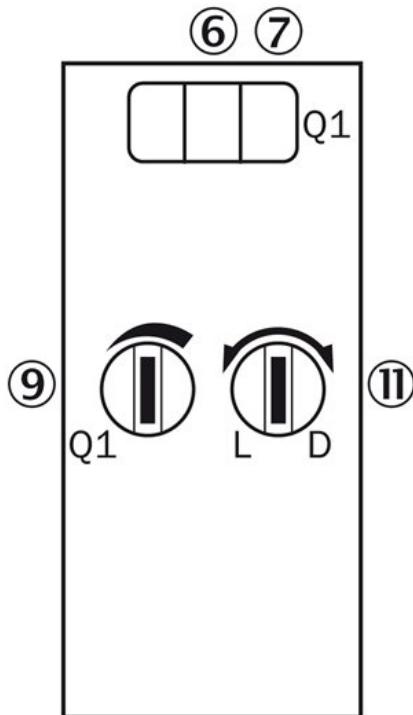
<sup>1)</sup> Limit values, operation in short-circuit protected network max. 8 A <sup>2)</sup> May not exceed or fall short of  $V_S$  tolerances <sup>3)</sup> Without load <sup>4)</sup> Signal transit time with resistive load <sup>5)</sup> With light/dark ratio 1:1 <sup>6)</sup> Do not bend below 0 °C <sup>7)</sup> A =  $V_S$  connections reverse-polarity protected <sup>8)</sup> B = output reverse-polarity protected <sup>9)</sup> C = interference suppression <sup>10)</sup> D = outputs overcurrent and short-circuit protected <sup>11)</sup> The devices meet the interference suppression requirements for industrial use (interference suppression class A). When used in residential areas it can cause interference.

## Dimensional drawing



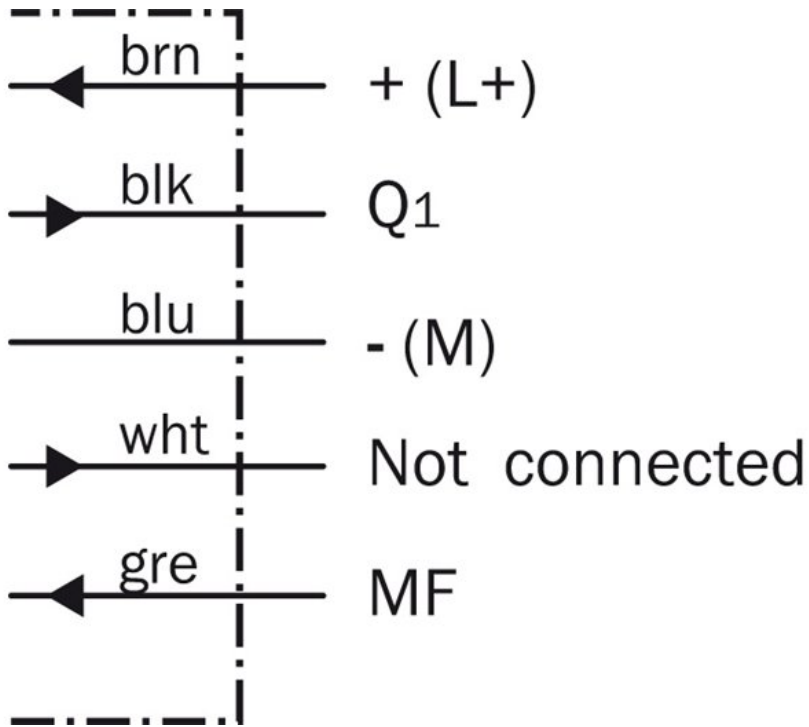
- |1| Center of optical axis, receiver
- |2| Center of optical axis, sender
- |3| Mounting hole, Ø 4.3 mm
- |4| Connector M12, 5-pin , rotatable by 90°
- |5| Cable, 2 m, 5-wire, Ø 3,8 mm

## Adjustments possible

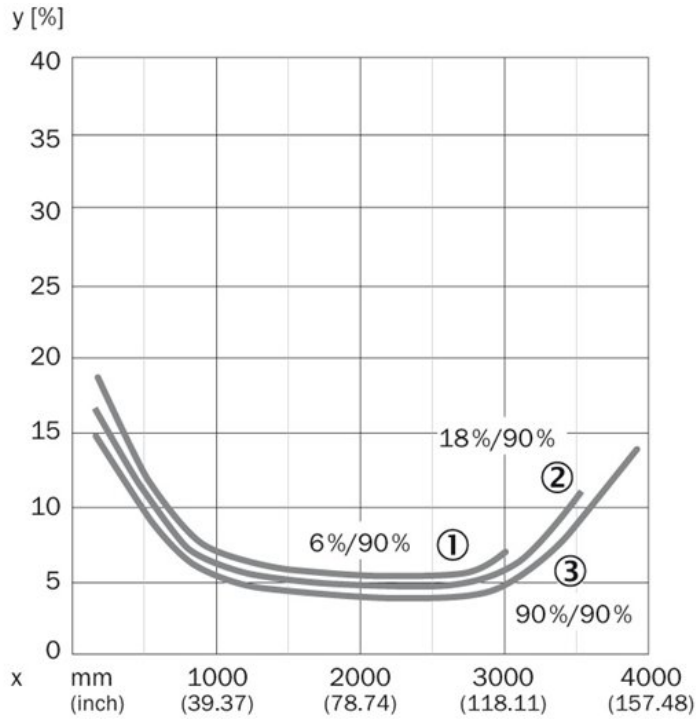


- |6| LED indicator green: Stability indicator
- |7| Status indicator LED,  
yellow: Status of received light beam
- |9| Sensing range adjustment: potentiometer
- |11| Light/dark selector

### Connection diagram

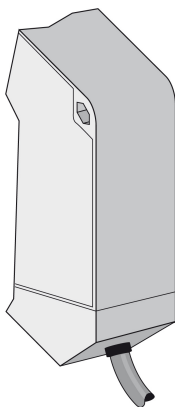


### Characteristic curve

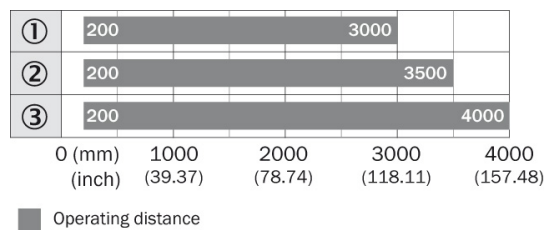


- |1| Sensing range on black, 6 % remission
- |2| Sensing range on grey, 18 % remission
- |3| Sensing range on white, 90 % remission

## Connection type



## Sensing range diagram



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