



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

WTT280L-2N1531



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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 ^{1) 2)}
Type of light:	Visible red light
Light source:	Laser ³⁾
Laser class:	1, 1 (EN 60825-1:2008-5, IEC 60825-1:2007-03)
Adjustment:	Potentiometer
Light spot size (distance):	Ø 12 mm (3 m)

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

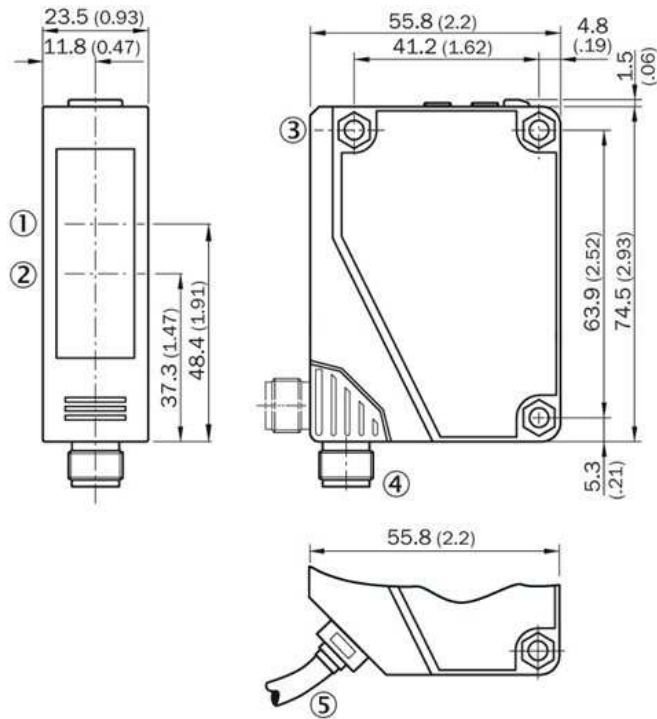
h at T_A = +25 °C

Mechanics/electronics

Supply voltage:	10 V DC ... 30 V DC ¹⁾
Residual ripple:	$\leq 3 V_{pp}$ ²⁾
Power consumption:	$\leq 70 \text{ mA}$ ³⁾
Output type:	NPN, open collector
Switching mode:	Light/dark switching
Switching mode selector:	Selectable via light/dark rotary switch
Output current I _{max.} :	$\leq 100 \text{ mA}$
Response time:	$\leq 0.5 \text{ ms}$ ⁴⁾
Switching frequency:	1,000 Hz ⁵⁾
Electrical connection:	Cable, 5-wire, 2 m ⁶⁾
Cable material:	PVC
Conductor cross-section:	0.18 mm ²
Cable diameter:	Ø 3.8 mm
Circuit protection:::::	A, B, C, D ^{7) 8) 9) 10)}
Protection class:	III
Weight:	120 g
Optics material:	PMMA
Enclosure rating:	IP 67
Items supplied:	Mounting bracket BEF-W280
EMC:	EN 60947-5-2
Ambient temperature operation:	-10 °C ... +50 °C
Ambient storage temperature:	-40 °C ... +70 °C
UL File No.:	NRKH2.E300503 & NRKH8.E300503
Housing material:	ABS, Plastic

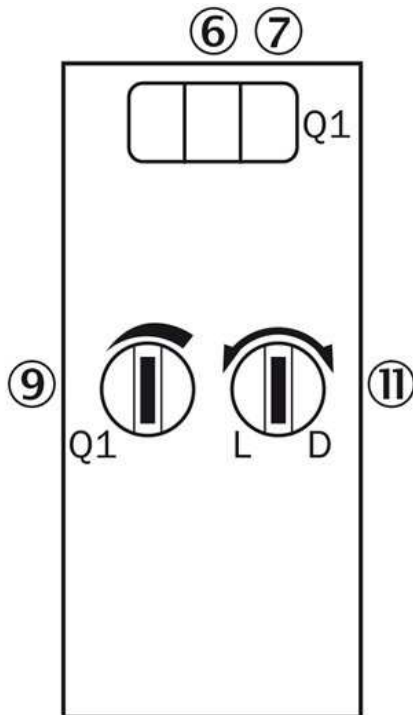
¹⁾ Limit values, operation in short-circuit protected network max. 8 A ²⁾ May not exceed or fall short of V_S tolerances ³⁾ Without load ⁴⁾ Signal transit time with resistive load ⁵⁾ With light/dark ratio 1:1 ⁶⁾ Do not bend below 0 °C ⁷⁾ A = V_S connections reverse-polarity protected ⁸⁾ B = output reverse-polarity protected ⁹⁾ C = interference suppression ¹⁰⁾ D = outputs overcurrent and short-circuit protected

Dimensional drawing



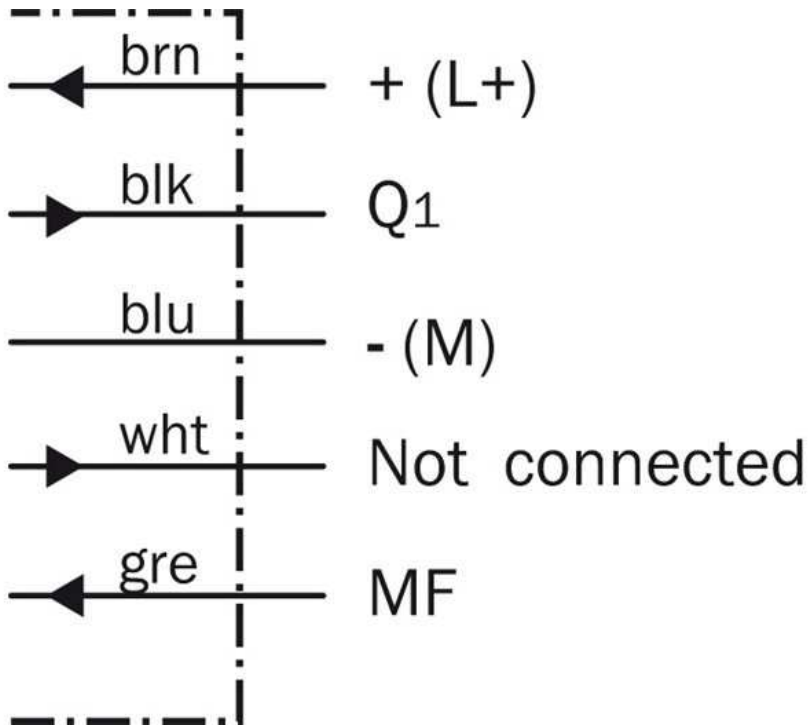
- |1| Center of optical axis, receiver
- |2| Center of optical axis, sender
- |3| Mounting hole, Ø 4.3 mm
- |4| Connector M12, 5-pin , rotatable by 90°
- |5| Cable, 2 m, 5-wire, Ø 3.8 mm

Adjustments possible

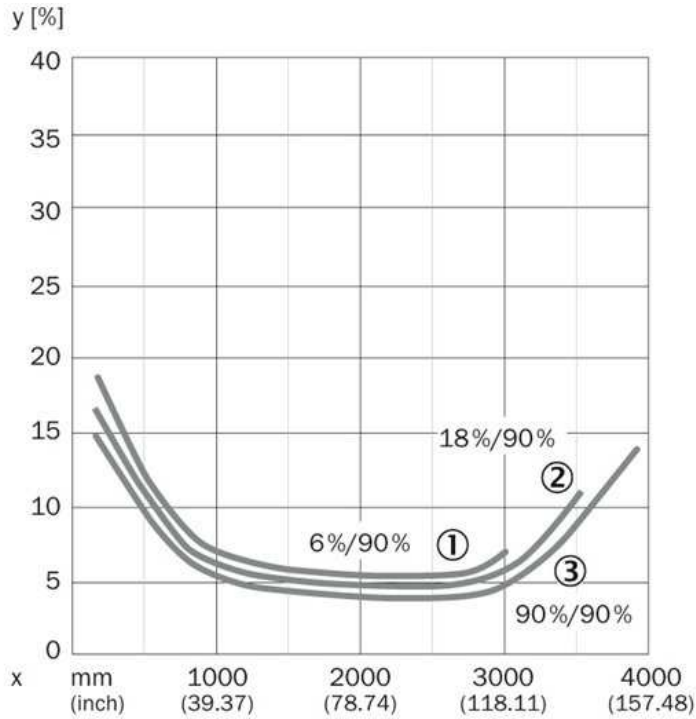


- |6| LED indicator green: Stability indicator
- |7| Status indicator LED,
yellow: Status of received light beam
- |9| Sensing range adjustment: potentiometer
- |11| Light/dark selector

Connection diagram

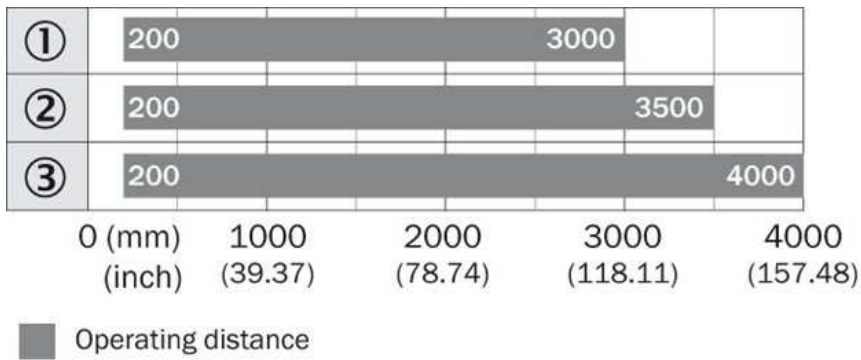


Characteristic curve



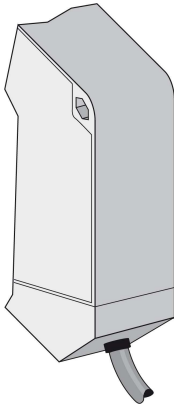
- |1| Sensing range on black, 6 % remission
- |2| Sensing range on gray, 18 % remission
- |3| Sensing range on white, 90 % remission

Sensing range diagram



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

Connection type



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