

Laser class 1 photoelectric proximity sensors
– great performance, simple operation











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Product description

The powerful photoelectric proximity sensor W280L-2 Long Range is characterized by its maximum sensing range of up to 4 m combined with extremely simple operation. The sensing range can be further extended to 18 m with the WLT280L-2 Long Range reflector version. The option of 2 independant switching outputs allows feedback of low and high detection points. Setup is easy through an intuitive sensing range adjustment

potentiometer and indicator LED for each switching output. A visible red class 1 laser light ensures that the alignment is quick and precise. An integrated protective system in the W280L-2 Long Range prevents adverse effects caused by reflections in the background, for example, resulting from reflective metal surfaces, windows and warning vests. Additionally, the W280L-2 Long Range ignores cross-talk from an adjacent sensor.

At a glance


- WTT280L-2: sensing range up to 4 m
- WLT280L-2: sensing range up to 18 m
- Complete background suppression: very small black/white shift, insensitive against reflections from the background (e.g. shiny metal, window, safety vest)
- Visible red class 1 laser light
- Version 1: with 1 x switching output and light/dark switch, version 2: with 2 x switching outputs and light/dark switch
- Disable laser by wire
- Reliable detection also in very fast production processes thanks to the switching frequency of 1000 Hz

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 comissioning with sensing range adjustment potentiometers and status LED – one for each output
- Quick and easy alignment with a red class 1 laser light
- Rotatable connector and light/dark switch for mounting and installation flexibility

→ www.mysick.com/en/W280L-2_Long_Range

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



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Detailed technical data

Features

	WTT280L-2 Long Range	WLT280L-2 Long Range
Sensor principle	Photoelectric proximity sensor	
Detection principle	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 ... 4,000 mm ¹⁾ 200 mm ... 3,000 mm ²⁾	200 mm ... 18,000 mm ³⁾
Sensing range	-	200 mm ... 18,000 mm
Type of light	Visible red light	
Light source ⁴⁾	Laser	
Light spot size (distance)	Ø 12 mm (3 m)	Ø 50 mm (18 m)
Laser class	1 (EN 60825-1:2008-5, IEC 60825-1:2007-03)	
Adjustment	Potentiometer	

¹⁾ Object with 90 % reflectance (referred to standard white, DIN 5033)

²⁾ Objects to be sensed with 6 % reflectivity (based on black)

³⁾ Reflector P250, PL80A.

⁴⁾ Average service life of 100,000 h at T_A = +25 °C.

Mechanics/electronics

	WTT280L-2 Long Range	WLT280L-2 Long Range
Supply voltage ¹⁾	10 V DC ... 30 V DC	
Ripple ²⁾	≤ 3 V _{pp}	
Power consumption ³⁾	≤ 70 mA	
Output type	PNP, open collector/NPN, open collector 2 x PNP, open collector/ 2 x NPN, open collector (depending on type)	2 x PNP, open collector 2 x NPN, open collector (depending on type)
Switching mode	Light/dark-switching (selectable via light/dark rotary switch)	
Output current I_{max.}	≤ 100 mA	
Response time ⁴⁾	≤ 0.5 ms	≤ 2 ms
Switching frequency ⁵⁾	1,000 Hz	± 250 Hz
Connection type	Cable, 2 m ⁶⁾ /Male connector (depending on type)	
Circuit protection	A ⁷⁾ , B ⁸⁾ , C ⁹⁾ , D ¹⁰⁾	
Protection class	III	
Weight	120 g	
Housing material	ABS	
Optics material	PMMA	
Enclosure rating	IP 67	
Items supplied	Mounting bracket BEF-W280	
EMC ¹¹⁾	EN 60947-5-2	
Ambient operating temperature	-10 °C ... +50 °C	
Ambient storage temperature	-40 °C ... +70 °C	

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.

¹¹⁾ The devices meet the interference suppression requirements for industrial use (interference suppression class A). When used in residential areas it can cause interference.

Ordering information

Other models available at www.mysick.com/en/W280L-2_Long_Range

WTT280L-2 Long Range

- **Sensor principle:** photoelectric proximity sensor
- **Voltage type:** DC
- **Switching mode:** light/dark-switching

Sensing range max.	Light spot size (distance)	Output type	Connection	Connection diagram	Model name	Part no.
200 mm ... 4,000 mm ¹⁾ 200 mm ... 3,000 mm ²⁾	Ø 12 mm (3 m)	PNP	Cable, 5-wire, 2 m, PVC	Cd-209	WTT280L-2P1531	6048065
			Connector M12, 5-pin	Cd-210	WTT280L-2P2531	6048061
		NPN	Cable, 5-wire, 2 m, PVC	Cd-209	WTT280L-2N1531	6048067
			Connector M12, 5-pin	Cd-210	WTT280L-2N2531	6048063
		2 x PNP	Cable, 5-wire, 2 m, PVC	Cd-208	WTT280L-2P1536	6048066
			Connector M12, 5-pin	Cd-211	WTT280L-2P2536	6048062
		2 x NPN	Cable, 5-wire, 2 m, PVC	Cd-208	WTT280L-2N1536	6048068
			Connector M12, 5-pin	Cd-211	WTT280L-2N2536	6048064

¹⁾ Object with 90 % reflectance (referred to standard white, DIN 5033)²⁾ Objects to be sensed with 6 % reflectivity (based on black)

WLT280L-2 Long Range

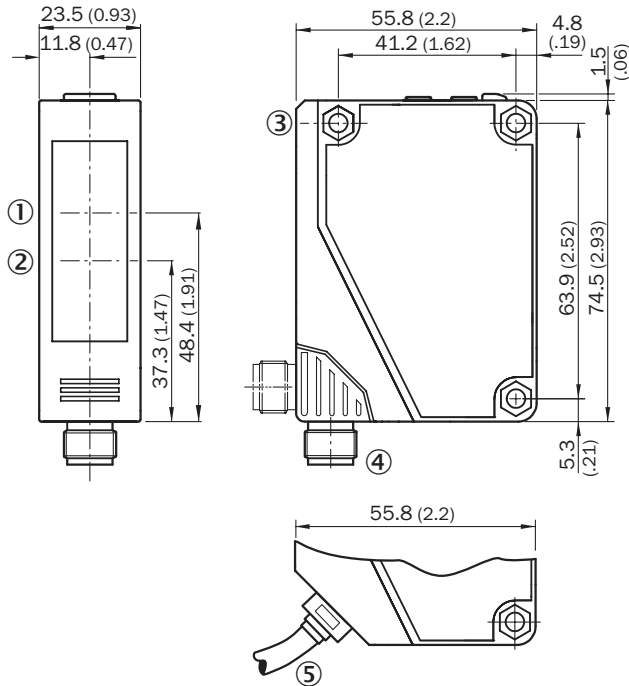
- **Sensor principle:** photoelectric proximity sensor
- **Voltage type:** DC
- **Switching mode:** light/dark-switching

Sensing range max. ¹⁾	Light spot size (distance)	Output type	Connection	Connection diagram	Model name	Part no.
200 mm ... 18,000 mm	Ø 50 mm (18 m)	2 x PNP	Cable, 5-wire, 2 m, PVC	Cd-208	WLT280L-2P1536	6048071
			Connector M12, 5-pin	Cd-211	WLT280L-2P2536	6048069
		2 x NPN	Cable, 5-wire, 2 m, PVC	Cd-208	WLT280L-2N1536	6048072
			Connector M12, 5-pin	Cd-211	WLT280L-2N2536	6048070

¹⁾ Reflector P250, PL80A.

Dimensional drawing

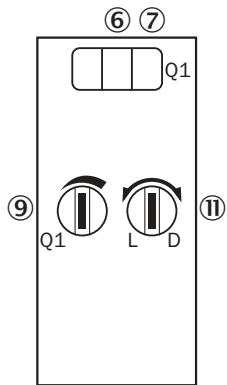
Dimensions in mm (inch)



- 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

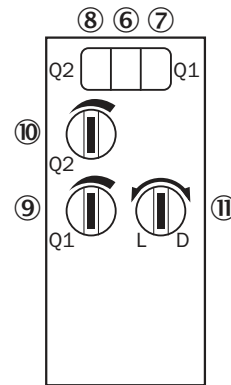
Adjustments

WTT280L-2xxxx1



- ⑥ LED indicator green: Stability indicator
- ⑦ Status indicator LED, yellow: Status of received light beam
- ⑨ Sensing range adjustment: potentiometer
- ⑩ Light/dark selector

WxT280L-2xxxx6



- ⑥ LED indicator green: Stability indicator
- ⑦ Status indicator LED, yellow: Status of received light beam (switching output 1)
- ⑧ Status indicator LED, yellow: Status of received light beam (switching output 2)
- ⑨ Sensing range adjustment: potentiometer for switching output 1
- ⑩ Sensing range adjustment: potentiometer for switching output 2
- ⑪ Light/dark selector

Bar diagrams

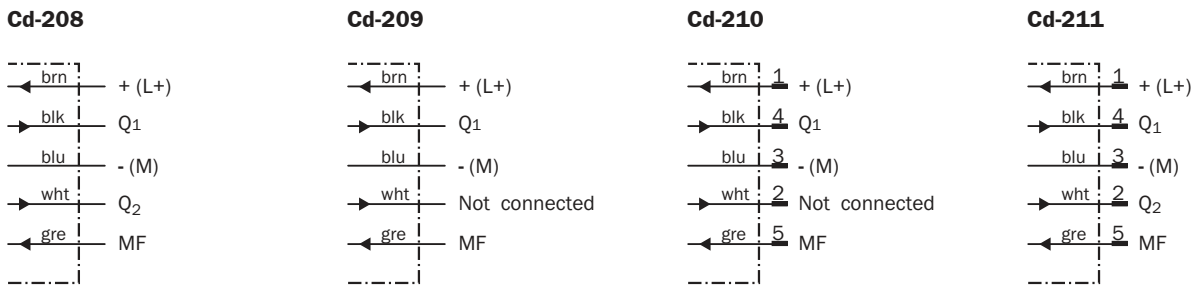
Bar diagram photoelectric proximity sensors

①	200	3000		
②	200	3500		
③	200	4000		
	0 (mm)	1000	2000	3000
	(inch)	(39.37)	(78.74)	(118.11)
				4000
				(157.48)

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

■ Sensing range max.


Connection diagram



Recommended accessories

Mounting brackets/plates


Mounting brackets

Figure	Material	Description	Model name	Part no.
	Stainless steel V2A (1.4301)	Mounting bracket	BEF-W280	5313885


Plug connectors and cables

Connecting cable (female connector-open)

- Cable material: PVC
- Connector material: TPU



Figure	Connection type head A	Connection type head B	Connecting cable	Enclosure rating	Model name	Part no.
	Female connector, M12, 5-pin, straight	Cable, open conductor heads	2 m, 5-wire	IP 67	DOL-1205-G02M	6008899
			5 m, 5-wire	IP 67	DOL-1205-G05M	6009868

Universal bar clamp systems








Figure	Material	Description	Model name	Part no.
	Zinc plated steel (sheet), Diecast zinc (clamp)	Plate N04 for universal clamp bracket	BEF-KHS-N04	2051610

Reflectors


Angular

Figure	Material	Description	Model name	Part no.
	PMMA/ABS	Rectangular, screw connection, 47 mm x 47 mm	P250	5304812
		Rectangular, screw connection, 80 mm x 80 mm	PL80A	1003865

Fine triple reflectors

Figure	Material	Description	Model name	Part no.
	PMMA/ABS	Fine triple, screw connection, suitable for laser sensors, 47 mm x 47 mm	P250F	5308843
		Fine triple, self-adhesive, suitable for laser sensors, Ø 23 mm	P25F-1	5319385
		Reflector with microprismatic reflex tape REF-AC1000, suitable for laser sensors, see alignment note, 23 mm x 23 mm	P41F	5315128
		Fine triple, screw connection, suitable for laser sensors, 18 mm x 18 mm	PL10F	5311210
		Fine triple, screw connection, suitable for laser sensors, 38 mm x 16 mm	PL20F	5308844
		Fine triple, screw connection, suitable for laser sensors, 56 mm x 28 mm	PL30F	5326523
		Fine triple, screw connection, suitable for laser sensors, 76 mm x 45 mm	PL81-1F	5325060

Reflective tape

Figure	Description	Model name	Part no.
	Suitable for laser sensors, self-adhesive, cut, see alignment note, 56.3 mm x 56.3 mm	REF-AC1000-56	4063030

→ For additional accessories, please see page L-861

