



Photoelectric sensors
W12-2 Laser, Photoelectric proximity sensor,
Background suppression

WT12L-2B540A01



Model Name > [WT12L-2B540A01](#)
Part No. > [1018474](#)



Illustration may differ

At a glance

- Laser protection class 1 or 2
- Precise background suppression
- Rugged sensors for industrial use
- Highly visible laser light spot for versatile object detection
- Rugged die-cast zinc housing with optional Teflon® coating
- Versatile mounting options due to dovetail mounting - mounting holes and oblong holes
- Highly visible status LEDs
- Sensing range adjustment via potentiometer

Your benefits

Precise background suppression reduces false readings caused by stray background reflections

High immunity to optical interference ensures fewer false readings and less downtime

Highly visible laser light spot provides quick and easy setup

Highly visible status LEDs simplify sensing distance adjustments and reduce installation time

Rugged metal housing (optional Teflon® coating available) requires fewer maintenance costs due to its resistance to high-pressure cleaning environments

Laser protection class 1 or 2 for eye safety

Rotatable connector provides easy installation



Features

Sensor/detection principle:	Photoelectric proximity sensor, Background suppression
Dimensions (W x H x D):	15 mm x 49 mm x 41.5 mm
Housing design (light emission):	Rectangular
Sensing range max.:	30 mm ... 200 mm ¹⁾
Type of light:	Visible red light
Light source:	Laser ²⁾
Laser class:	II
Focus:	80 mm

Special features: American version
 Adjustment: Potentiometer
 Light spot size (distance): Ø 0.2 mm (80 mm)

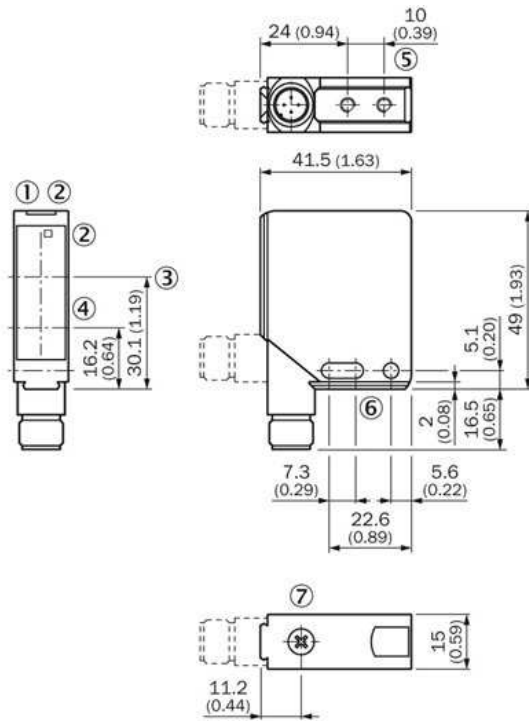
¹⁾ Object with 90 % reflectance (referred to standard white, DIN 5033) ²⁾ Average service life 50,000 h at $T_A = +25\text{ °C}$

Mechanics/electronics

Supply voltage:	10 V DC ... 30 V DC ¹⁾
Ripple:	≤ 5 Vpp ²⁾
Current consumption:	≤ 55 mA ³⁾
Output type:	NPN, PNP
Switching mode:	Dark switching, Light switching
Switching mode selector:	0 V or not connected, light switching, Uv, dark switching, Selectable via L/D control wire
Output current I _{max} :	100 mA
Response time:	≤ 200 µs ⁴⁾
Switching frequency:	2,500 Hz ⁵⁾
Connection type:	Connector M12, 5-pin
Circuit protection:::	A, C, D ^{6) 7) 8)}
Protection class:	II
Weight:	130 g
Housing material:	Metal
Enclosure rating:	IP 67 IP 69K
Ambient operating temperature:	-10 °C ... +50 °C
Ambient storage temperature:	-25 °C ... +75 °C
UL File No.:	American Version, 242362, 242361 (0312012-00)
Signal voltage PNP HIGH/LOW:	Uv - < 2 V, Uv/0 V, ≤ 1.5 V
Signal voltage NPN HIGH/LOW:	Uv - < 2 V, Uv/0 V, ≤ 1.5 V

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⁾ A = V_S connections reverse-polarity protected ⁷⁾ C = interference suppression ⁸⁾ D = outputs overcurrent and short-circuit protected

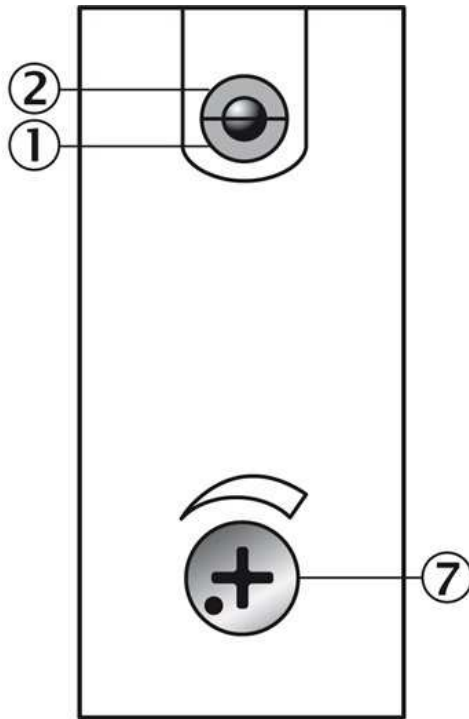
Dimensional drawing



- |1| Operating indicator, green
- |2| LED reception indicator, yellow
- |3| Optical axis, receiver
- |4| Optical axis, sender

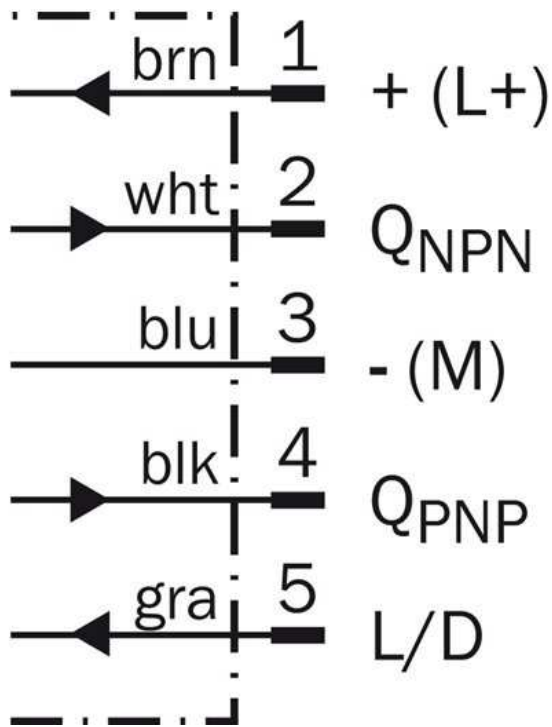
- |6| Mounting hole, \varnothing 4.2 mm
- |7| Sensing range adjustment

Adjustments possible

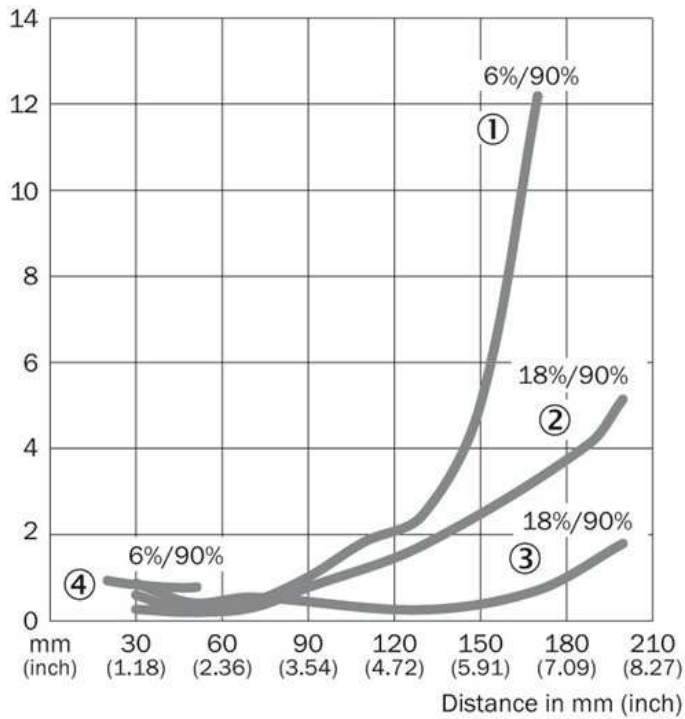


- |1| Operating indicator, green
- |2| LED reception indicator, yellow
- |7| Sensing range adjustment

Connection diagram

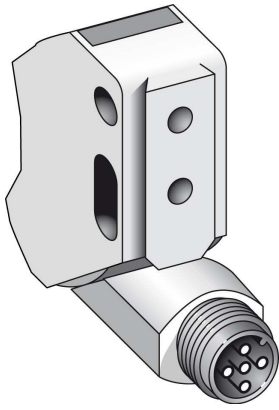


Characteristic curve

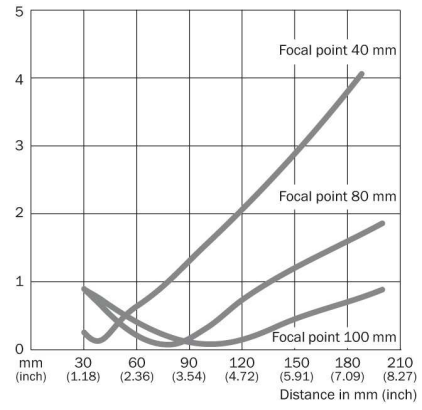


- 1| Sensing range on black, 6 % remission
- 2| Sensing range on gray, 18 % remission
- 3| Sensing range on white, 90 % remission
- 4| Sensing range on black, 6 % remission, fix

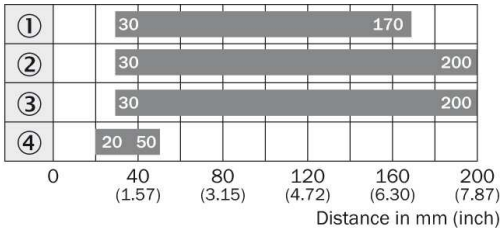
Connection type



Light spot size



Sensing range diagram



■ Sensing range

- ① Sensing range on black, 6 % remission
- ② Sensing range on gray, 18 % remission
- ③ Sensing range on white, 90 % remission
- ④ Sensing range on black, 6 % remission, fixed

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