

W24-2 for use in Category 2G explosive environments (gas)














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Product description

The W24-2Ex features a rugged metal housing which ensures reliability in harsh industrial conditions. Special electronics allows longer sensing range despite the

limited factors of the norms for Category 2G (ATEX, explosive environments). The necessary switching amplifiers are also available.

At a glance

- Classification: EX II 2G Ex ia op is IIC T4 according to Directive 2014/34/EX/EU (ATEX)
- Corresponds to Category 2G
- Output type: EN 60947-5-6 (NAMUR)
- M12 or terminal chamber connection: 90° rotatable
- Durable metal housing
- Precise background suppression

Your benefits

- The W24-2Ex features a rugged metal housing that has been IP 69K tested which ensures reliability in harsh industrial conditions
- Special electronics allows longer sensing range despite the limited factors of the norms for Category 2G (ATEX, explosive environments)
- Flexible installation due to 90° rotatable connector

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→ www.mysick.com/en/W24-2_Ex

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.



Detailed technical data

Features

	WT24-2 Ex	WL24-2 Ex
Sensor principle	Photoelectric proximity sensor	Photoelectric retro-reflective sensor
Detection principle	Background suppression	–
Dimensions (W x H x D)	27 mm x 87.5 mm x 65 mm	
Housing design (light emission)	Rectangular	
Sensing range max.	40 mm ... 2,000 mm ¹⁾	0 m ... 22 m ²⁾
Sensing range	100 mm ... 2,000 mm ¹⁾	0 mm ... 15 mm ²⁾
Type of light	Infrared light	Visible red light
Light source ³⁾	LED	
Light spot size (distance)	Ø 50 mm (2,000 mm)	Ø 250 mm (15 m)
Adjustment	Potentiometer	

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

²⁾ PL80A.

³⁾ Average service life of 100,000 h at $T_A = +25\text{ °C}$.

Mechanics/electronics

	WT24-2 Ex	WL24-2 Ex
Supply voltage ¹⁾	5 V DC ... 15.5 V DC	
Ripple ²⁾	< 0.4 V _{pp}	
Output type	NAMUR	
Switching mode	Light switching	
Response time ³⁾	≤ 10 ms	
Switching frequency ⁴⁾	50 Hz	
Connection type	Terminals with gland ⁵⁾ /Male connector, M12 ⁵⁾ (depending on type)	
Circuit protection	A ⁶⁾ , C ⁷⁾	
Protection class ⁸⁾	II	
Weight	330 g	
Polarisation filter	✓	
Housing material	Zinc diecast	
Optics material	Glass	
Enclosure rating	IP 67	
EC Approval Certificate	PTB 03 ATEX 2105	PTB 08 ATEX 2029
ATEX marking	II 2G Ex ia op is IIC T4 according to directive 2014/34/EX/EU (ATEX)	
Hazardous area category	2G	
Input voltage U_i max. ⁹⁾	≤ 15.5 V	
Input power P_i max. ⁹⁾	≤ 100 mW	
Input current I_i max. ⁹⁾	≤ 53 mA	
Internal capacitance C_i max. ⁹⁾	80 nF	
Internal inductance L_i max. ⁹⁾	0 µH	
Ambient operating temperature	–20 °C ... +60 °C	
Ambient storage temperature	–25 °C ... +70 °C	

¹⁾ Limit values, supply with switching amplifier EN2Ex (internal resistor approx. 1 kOhm)

²⁾ May not exceed or fall short of V_s tolerances.

³⁾ Signal transit time with resistive load.

⁴⁾ With light/dark ratio 1:1.

⁵⁾ Connection rotatable by 90°.

⁶⁾ A = V_s connections reverse-polarity protected.

⁷⁾ C = interference suppression.

⁸⁾ Reference voltage: 50 V DC.

⁹⁾ For connection to a sperately certified intrinsically safe circuit only.

Ordering information

Other models available at www.mysick.com/en/W24-2_Ex

WT24-2 Ex

- **Sensor principle:** photoelectric proximity sensor
- **Output type:** NAMUR

Sensing range max. ¹⁾	Light spot size (distance)	Connection	Connection diagram	Type	Part no.
40 mm ... 2,000 mm	Ø 50 mm (2,000 mm)	Terminal connection with M16 gland	Cd-050	WT24-2X200	1041910
		Connector M12, 4-pin	Cd-122	WT24-2X400	1040722

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

WL24-2 Ex

- **Sensor principle:** photoelectric retro-reflective sensor
- **Output type:** NAMUR

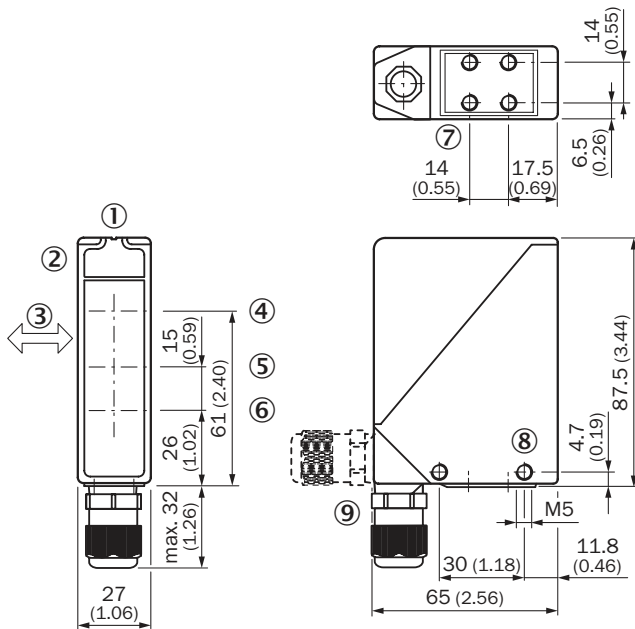
Sensing range max. ¹⁾	Light spot size (distance)	Connection	Connection diagram	Type	Part no.
0 m ... 22 m	Ø 250 mm (15 m)	Terminal connection with M16 gland	Cd-050	WL24-2X230	1026036
		Connector M12, 4-pin	Cd-122	WL24-2X430	1026037

¹⁾ PL80A.

Dimensional drawings

Dimensions in mm (inch)

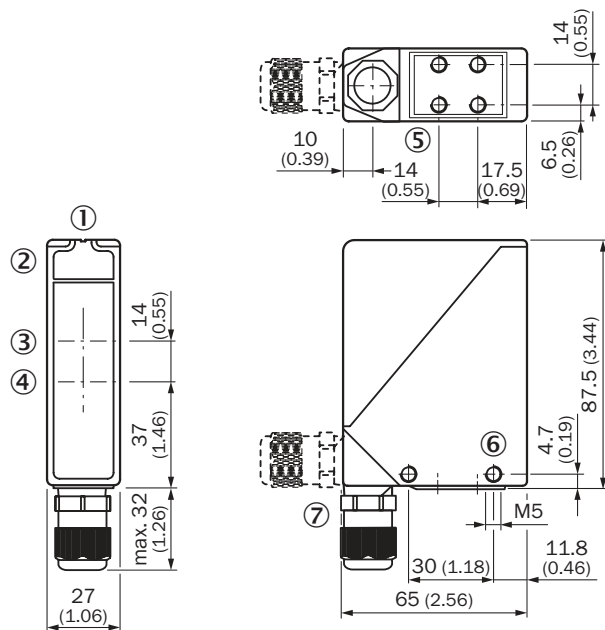
WT24-2 EX



- ① Alignment sight
- ② LED signal strength indicator
- ③ Standard direction of the material being detected
- ④ Center of optical axis, sender
- ⑤ Centre of optical axis, receiver (close range)
- ⑥ Centre of optical axis, receiver (far range)
- ⑦ M5 threaded mounting hole, 6 mm deep
- ⑧ M5 threaded mounting hole, through-hole
- ⑨ M16 screw fixing and plug rotatable by 90°

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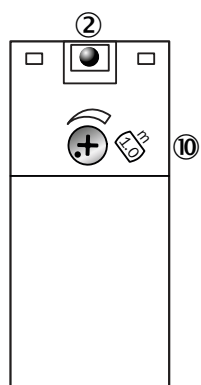
WL24-2 EX



- ① Alignment sight
- ② LED signal strength indicator
- ③ Center of optical axis, sender
- ④ Center of optical axis, receiver
- ⑤ M5 threaded mounting hole, 6 mm deep
- ⑥ M5 threaded mounting hole, through-hole
- ⑦ M16 screw fixing rotatable by 90°

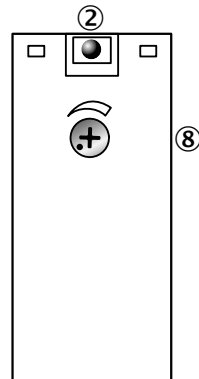
Adjustments

WT24-2 EX



- ② LED signal strength indicator
- ⑩ Sensing range adjustment

WL24-2 EX

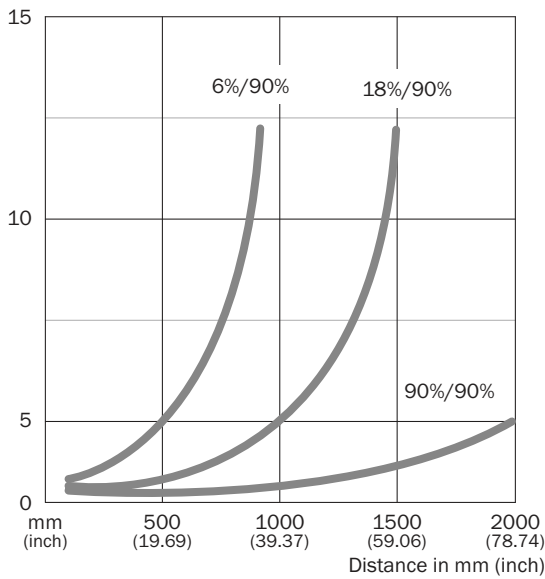


- ② LED signal strength indicator
- ⑧ Sensitivity adjustment

Characteristic curves

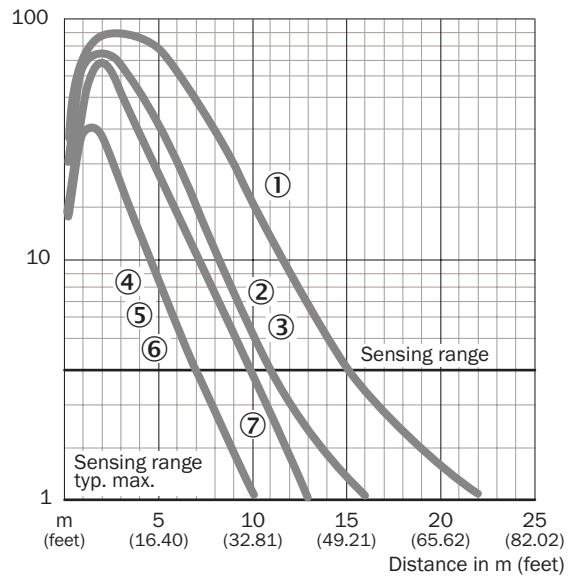
Black-white shift

WT24-2 EX



Operating reserve

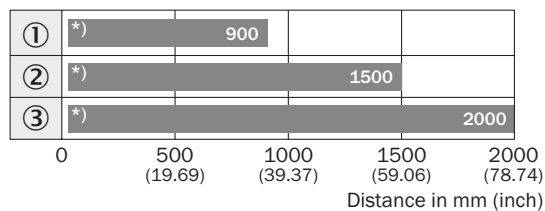
WL24-2



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

Bar diagrams

WT24-2

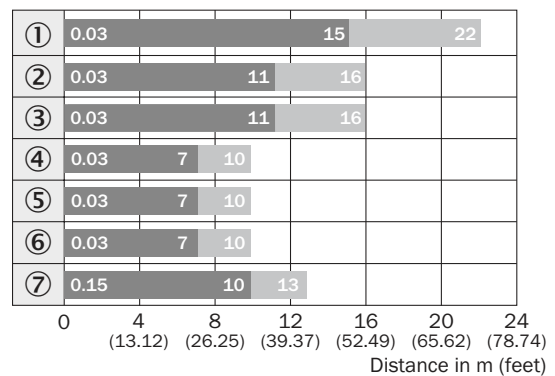


■ Sensing range

*) Lower bound of detection area depending on the adjusted sensing distance (see blind zone curve)

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

WL24-2



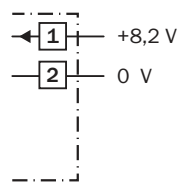
■ Sensing range ■ Sensing range max.

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

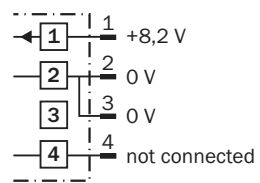
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Connection diagram

Cd-050





Cd-122




Recommended accessories

Mounting brackets/plates



Mounting brackets

Figure	Material	Description	Model name	Part no.
	Stainless steel	Mounting bracket, small	BEF-WK-W24	4027532
	Stainless steel (1.4301)	Mounting bracket	BEF-WN-W24	2015248



Alignment aids

Figure	Description	Model name	Part no.
	Adapter for alignment aid AR60	Adapter AR60 for W24-2	4032976

Others


Figure	Supply voltage	Output function	Approvals	Model name	Part no.
	AC/DC 24 V ... 230 V, 1.3 W	2 channels with invertible SPDT relay	II (1) G [Ex ia] IIC II (1) D [Ex iaD] II (3) G Ex nAC [ia] IIC T4 X	EN2-2EX-1	6041096
	DC 19.2 V ... 30 V, 1 W	2 channels with invertible NO relay	II (1) GD [Ex ia] IIC, IIB II (3) G Ex nAC II T4 X	EN2-2EX-3	6041095

Universal bar clamp systems





Figure	Material	Description	Model name	Part no.
	Zinc diecast	Universal bar clamp for mounting bars with 12 mm diameter	BEF-KHS-KH3	5322626
	Zinc plated steel (sheet), Diecast zinc (clamp)	Plate N03 for universal clamp bracket	BEF-KHS-N03	2051609
		Plate N04 for universal clamp bracket	BEF-KHS-N04	2051610

Device protection (mechanical)

Cooling elements






Figure	Description	Model name	Part no.
	Water cooling plate	BEF-KP-W24	2015071

Protective housing/tubes


Figure	Material	Description	Model name	Part no.
	Aluminum (anodised)	Dust protection tube, air-purged	OBS-W24	2015069
	Steel, zinc coated	Weather hood for universal clamp bracket	OBW-KHS-M01	2023240
	Aluminum (anodised)	Weather hood	OBW-W24	2015070
	Aluminum (anodised)	Weather hood	WSG1-01	1018470

Reflectors


Angular

Figure	Material	Description	Model name	Part no.
	PMMA/ABS	Rectangular, screw connection, 47 mm x 47 mm	P250	5304812
		Rectangular, screw connection, 38 mm x 15 mm	PL20A	1012719
		Rectangular, screw connection, 56 mm x 28 mm	PL30A	1002314
		Rectangular, screw connection, 37 mm x 56 mm	PL40A	1012720
		Rectangular, screw connection, 80 mm x 80 mm	PL80A	1003865

Reflective tape

Figure	Description	Model name	Part no.
	Self-adhesive, 50 mm x 60 mm	REF-IRF-56	5314244

Round

Figure	Material	Description	Model name	Part no.
	PMMA/ABS	Round, screw connection	C110A	5304549

→ For additional accessories, please see page L-861

