

Ready-to-install sensors compliant with ATEX category 3G/3D















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Product description

The W27 family is designed for harsh industrial environments where it copes easily with heavy vibrations, shocks and extreme temperature fluctuations. The W27-3 Ex photoelectric sensor meets category 3G/3D (ATEX) requirements for use in explosive environments. These sensors are enclosed in a rugged metal

housing that provides users with a ready-to-install solution that complies with all its aspects. For, besides limit values for temperature, performance or UV resistance, the standard also prescribes a specific mechanical stability that conventional sensors do not meet.

At a glance

- Classification: EX II 3G EX nA op is IIB T4 Gc X, EX II 3D EX tc IIIB T135 °C Dc IP67 X according to Directive 2014/34/EX/EU (ATEX)
- Corresponds to category 3D/3G
- Conform to standards and ready-to-install: Sensor and additional protective housing (stainless steel 1.4301)
- Long sensing range with IR LED
- High level of operating reserve
- Resistant to ambient light, optical reflections, and crosstalk from other photoelectric devices

Your benefits

- Ready-to-install sensors including rugged metal housing conform with the 3G/3D category for explosive zones (ATEX)
- Resistant to ambient light, optical reflections, and immune to crosstalk from other photoelectric devices, reducing false detection
- Long sensing range with high operating reserve
- Resistant to vibrations, reducing downtime
- Withstands harsh environments with temperatures between -20 °C - +50 °C

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→ www.mysick.com/en/W27-3_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

	WT27-3 Ex	WL27-3 Ex	WSE27-3 Ex
Sensor principle	Photoelectric proximity sensor	Photoelectric retro-reflective sensor	Through-beam photoelectric sensor
Detection principle	Background suppression	Standard optics	-
Dimensions (W x H x D)	31.4 mm x 112.3 mm x 70.4 mm		
Housing design (light emission)	Rectangular		
Sensing range max.	30 mm ... 1,600 mm ¹⁾	0.1 m ... 15 m ²⁾	0 m ... 35 m
Sensing range	100 mm ... 1,600 mm	0.1 m ... 11 m ²⁾	0 m ... 25 m
Type of light	Infrared light	Visible red light	
Light source ³⁾	LED		
Light spot size (distance)	Ø 25 mm (800 mm)	Ø 220 mm (10 m)	Ø 600 mm (25 m)
Angle of dispersion	-	Approx. 1.5°	
Wave length	880 nm	660 nm	645 nm
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 °C.

Mechanics/electronics

	WT27-3 Ex	WL27-3 Ex	WSE27-3 Ex
Supply voltage ¹⁾	10 V DC ... 30 V DC		
Ripple ²⁾	≤ 5 V _{pp}		
Current consumption ³⁾	≤ 40 mA	≤ 30 mA	35 mA
Current consumption, sender ³⁾	-		35 mA
Current consumption, receiver ³⁾	-		20 mA
Output type	PNP		
Output function	Complementary		
Switching mode	Light/dark-switching		
Signal voltage PNP HIGH/LOW	Approx. V _S - 2.5 V / 0 V		
Output current I _{max.}	≤ 100 mA		
Response time ⁴⁾	≤ 1.5 ms	≤ 500 µs	
Switching frequency ⁵⁾	350 Hz	1,000 Hz	
Angle of reception	-		Approx. 3°
Connection type	Cable, 10 m ⁶⁾ Cable with connector, M12 (depending on type)		
Circuit protection	A ⁷⁾ , B ⁸⁾ , C ⁹⁾		
Protection class ¹⁰⁾	II		
Weight	750 g		1,500 g
Polarisation filter	-	✓	-
Housing material			
Sensor	ABS		
Protection housing	Stainless steel V2A (1.4301)		
Optics material	PMMA		
Enclosure rating	IP 67		

	WT27-3 Ex	WL27-3 Ex	WSE27-3 Ex
ATEX marking	EX II 3G EX nA op is IIB T4 Gc X/EX II 3D EX tc IIIB T135 °C Dc		
Hazardous area category	3D, 3G		
Ambient operating temperature	-20 °C ... +50 °C		
Ambient storage temperature	-40 °C ... +75 °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 = inputs and output reverse-polarity protected.

⁹⁾ C = interference suppression.

¹⁰⁾ Reference voltage: 50 V DC.

Ordering information

Other models available at www.mysick.com/en/W27-3_Ex

WT27-3 Ex

- **Sensor principle:** photoelectric proximity sensor

Sensing range max. ¹⁾	Light spot size (distance)	Output type	Connection	Connection diagram	Type	Part no.
30 mm ... 1,600 mm	Ø 25 mm (800 mm)	PNP	Cable, 4-wire, 10 m	Cd-094	WTB27X-3P1811	1027988

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

WL27-3 Ex

- **Sensor principle:** photoelectric retro-reflective sensor

Sensing range max. ¹⁾	Light spot size (distance)	Output type	Connection	Connection diagram	Type	Part no.
0.1 m ... 15 m	Ø 220 mm (10 mm)	PNP	Cable, 4-wire, 10 m, PVC	Cd-094	WL27X-3P1831	1027989
			Cable with connector M12, 4-pin	Cd-094	WL27X-3P3431	1029955

¹⁾ PL80A.

WSE27-3 Ex

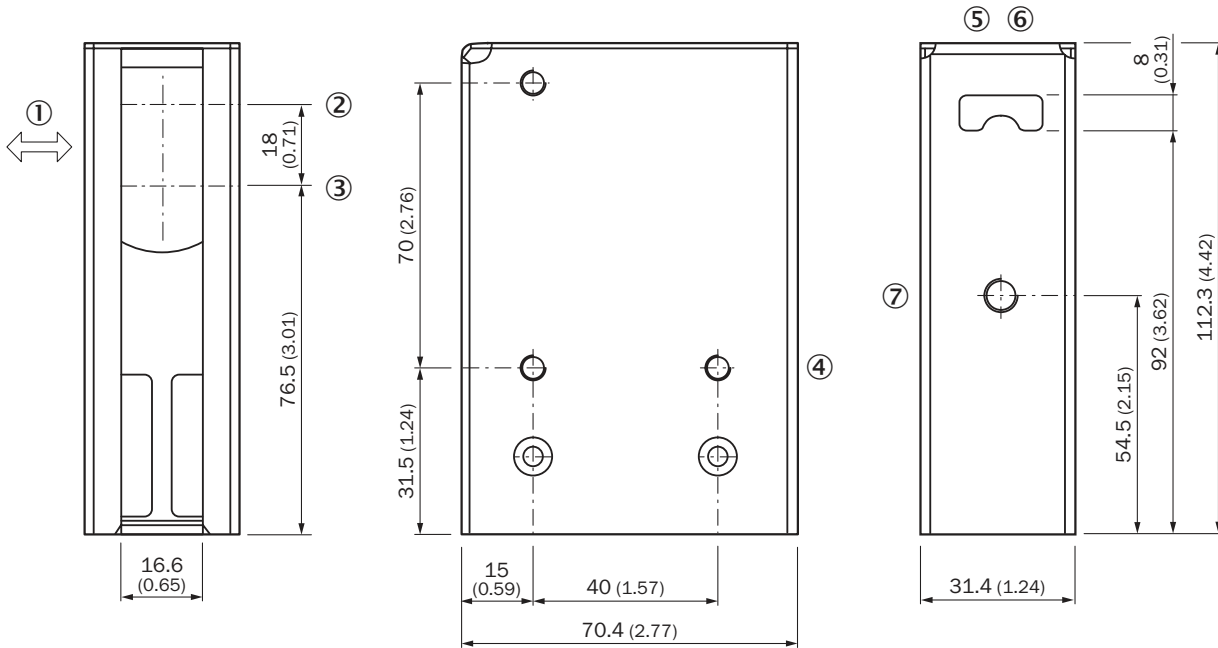
- **Sensor principle:** through-beam photoelectric sensor

Sensing range max.	Light spot size (distance)	Output type	Connection	Connection diagram	Type	Part no.
0 m ... 35 m	Ø 600 mm (25 m)	PNP	Cable, 4-wire, 10 m	Cd-088	WSE27X-3P1830	1027991

Dimensional drawings

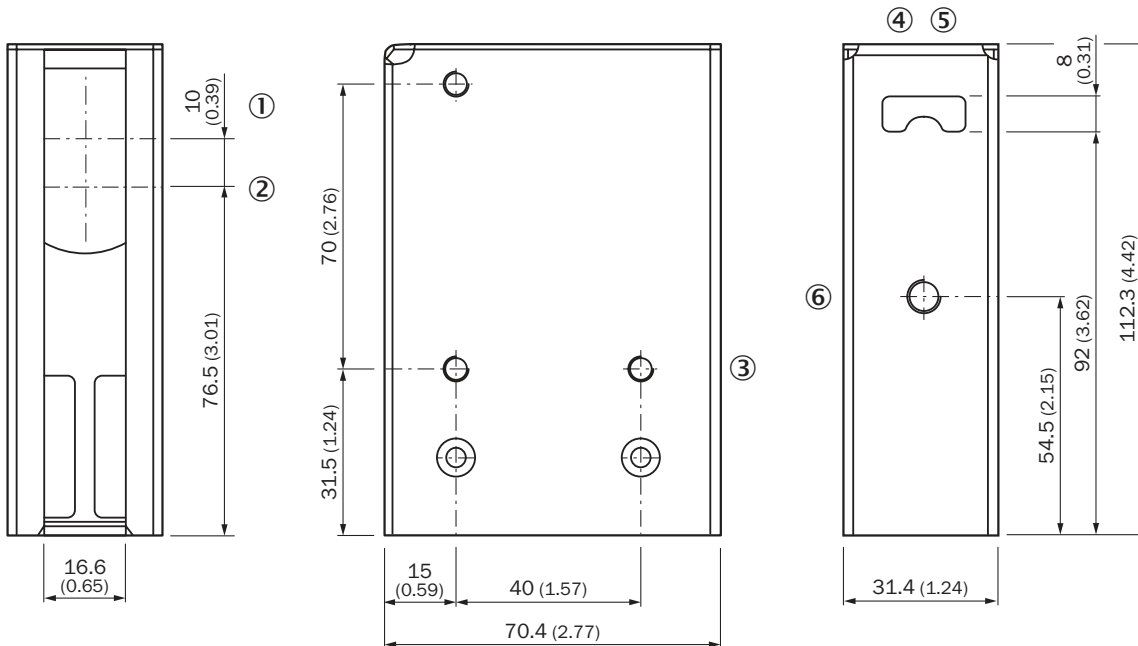
Dimensions in mm (inch)

WTB27-3 EX



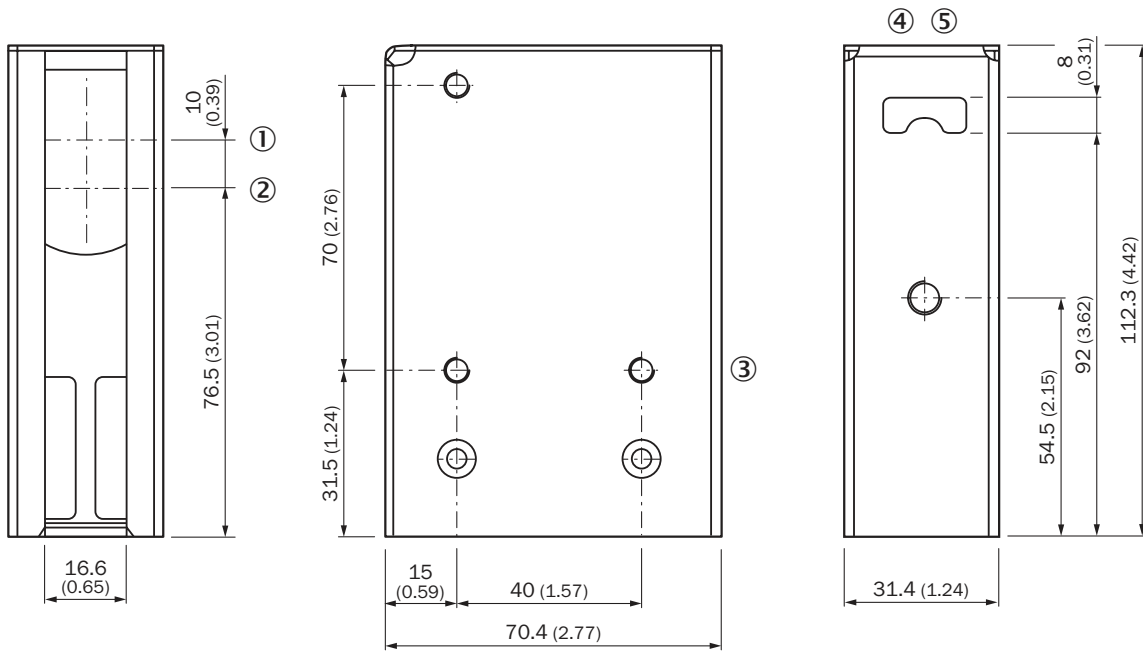
- ① Standard direction
- ② Optical axis, sender
- ③ Optical axis, receiver
- ④ Mounting hole, Ø 5.2 mm
- ⑤ Status indicator LED green: power on
- ⑥ Status indicator LED, yellow: Status of received light beam
- ⑦ Sensing range adjustment: potentiometer

WL27-3 EX



- ① Optical axis, sender
- ② Optical axis, receiver
- ③ Mounting hole, Ø 5.2 mm
- ④ Sensitivity adjustment
- ⑤ Status indicator LED, yellow: Status of received light beam

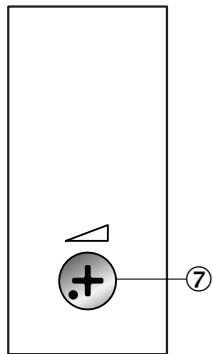
WSE27-3 EX



- ① Optical axis, sender
- ② Optical axis, receiver
- ③ Mounting hole \varnothing 5.2 mm
- ④ Status indicator LED green: power on
- ⑤ Status indicator LED, yellow: Status of received light beam

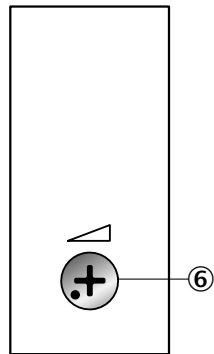
Adjustments

WTB27-3 Ex



⑦ Sensing range adjustment: potentiometer

WL27-3 Ex



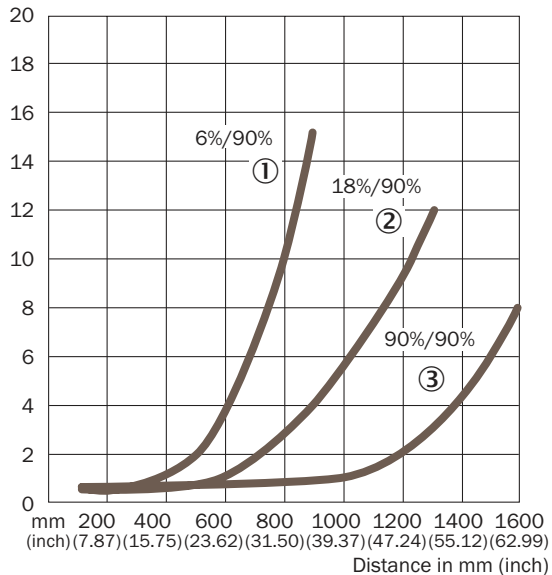
⑥ Sensitivity adjustment: potentiometer

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Characteristic curves

Black-white shift

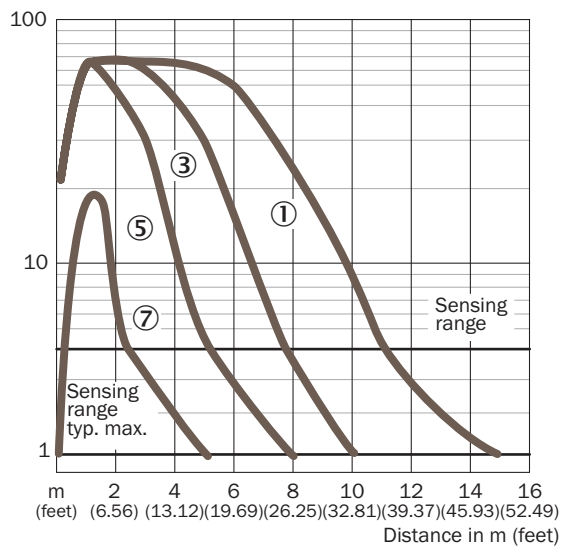
WTB27-3 EX



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

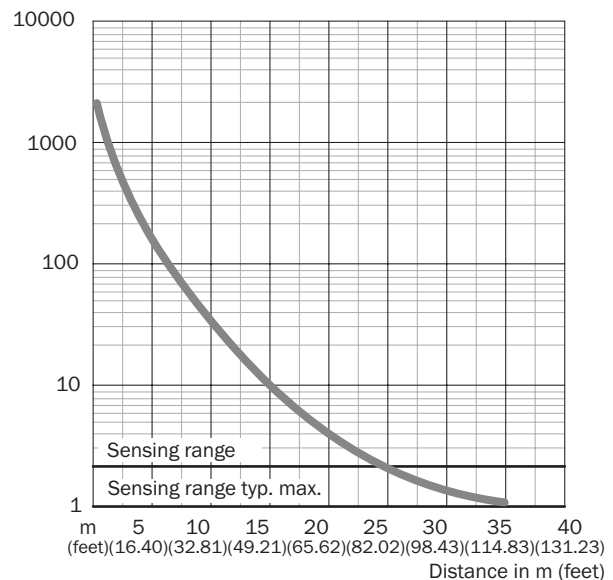
Operating reserve

WL27-3 EX



- ① PL80A
- ③ PL40A
- ⑤ PL20A
- ⑦ Reflective tape Diamond Grade

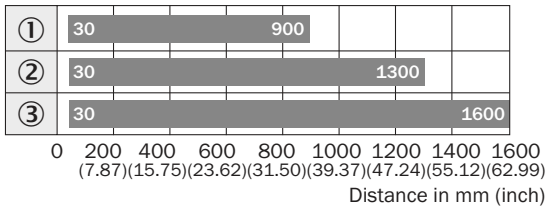
WSE27-3 EX



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Bar diagrams

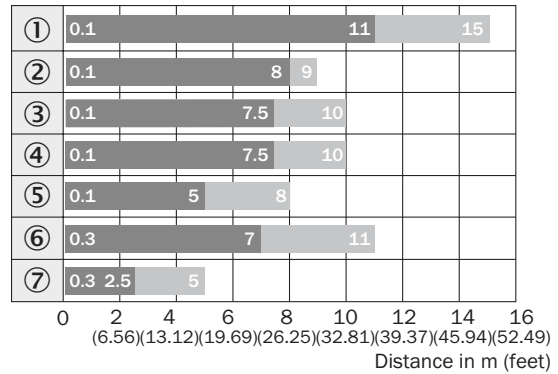
WTB27-3 EX



■ Sensing range

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

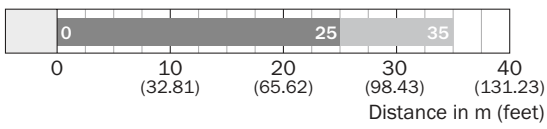
WL27-3 EX



■ Sensing range ■ Sensing range max.

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

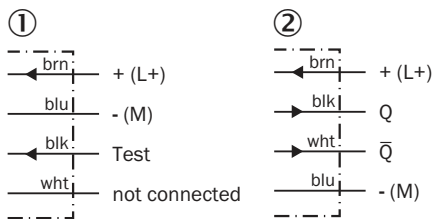
WSE27-3 Ex



■ Sensing range ■ Sensing range typ. max.

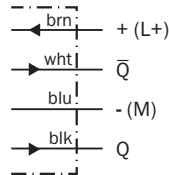
Connection diagram

Cd-088



- ① Sender
- ② Receiver

Cd-094




Recommended accessories

Mounting brackets/plates

Mounting brackets



Figure	Material	Description	Model name	Part no.
	Steel, zinc coated	Mounting bracket with hinged arm	BEF-WN-MULTI	2064469
			BEF-WN-W27	2009122

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

Device protection (mechanical)

Protective housing/tubes


Figure	Material	Description	Model name	Part no.
	Zinc plated steel (protective housing), Diecast zinc (clamp)	Protective housing for universal clamp	BEF-SG-W27	2039601
	Steel, zinc coated	Weather hood for universal clamp bracket	OBW-KHS-M01	2023240

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