

## Detailed technical data

	WTB4S-3V	WTF4S-3V	WL4S-3V	WSE4S-3V
Light spot (distance)	Ø 6.5 mm (150 mm) <sup>1)</sup> Ø 2.5 mm (100 mm) <sup>2)</sup> Ø 2.5 mm (50 mm) <sup>3)</sup>	Ø 6.5 mm (150 mm)	Ø 45 mm (1.5 m)	Ø 130 mm (2 m)
Housing design (light emission)	Cuboid, slim			
Light source <sup>4)</sup>	PinPoint LED			
Type of light	Visible red light			
Wavelength	650 nm			
Teach-in	Single teach-in button and/or teach-in via cable <sup>5)</sup>			-

<sup>1)</sup> At sensing distance max. ≤ 500 mm.

<sup>2)</sup> At sensing distance max. ≤ 280 mm.

<sup>3)</sup> At sensing distance max. ≤ 120 mm.

<sup>4)</sup> Average service life 100,000 h at T<sub>A</sub> = +25 °C.

<sup>5)</sup> Setting via cable (ET): connect white cable or PIN to L+ (PNP) or to M (NPN) in line with the desired sensitivity > 2 ... < 8 s or > 8 s.

## Mechanics/electronics

	WTB4S-3V	WTF4S-3V	WL4S-3V	WSE4S-3V
Supply voltage <sup>1)</sup>	10 V DC ... 30 V DC			
Residual ripple <sup>2)</sup>	< 5 V <sub>pp</sub>			
Power consumption <sup>3)</sup>	≤ 30 mA			
Power consumption, sender <sup>3)</sup>	-	-	-	≤ 20 mA
Power consumption, receiver <sup>3)</sup>	-	-	-	≤ 20 mA
Output current I <sub>max.</sub>	≤ 100 mA			
Response time	< 0.5 ms <sup>4)</sup>			
Switching frequency <sup>5)</sup>	1,000 Hz			
Connection type	Connector Cable with plug, 150 mm, PVC <sup>6)</sup> Connector, 4-pin Cable, 2 m, PVC, 0.14 mm <sup>2</sup> <sup>6)</sup> (depending on type)	Connector	Connector Cable with plug, 150 mm, PVC <sup>6)</sup> Cable, 2 m, PVC, 0.14 mm <sup>2</sup> <sup>6)</sup> Connector, PVC <sup>6)</sup> Cable, 5 m, PVC, 0.14 mm <sup>2</sup> <sup>6) 7)</sup> (depending on type)	Connector Cable, 2 m, PVC, 0.14 mm <sup>2</sup> <sup>6)</sup> Cable with plug, 150 mm, PVC <sup>6)</sup> (depending on type)
Circuit protection	A <sup>8)</sup> B <sup>9)</sup> C <sup>10)</sup>			
Protection class	III			
Weight				
Connector M8, 4-pin	40 g	40 g	40 g	-
Cable with plug, M12, 4-pin	60 g	60 g	-	60 g
Connector M8, 3-pin	40 g	40 g	-	40 g
Cable with plug, M8, 3-pin	50 g	50 g	-	50 g
Cable, 4-wire	80 g	80 g	-	-
Connector M12, 4-pin	45 g	60 g	-	45 g
Cable with plug, M8, 4-pin	50 g	-	-	-
Cable, 3-wire	80 g	80 g / 125 g <sup>11)</sup>	-	80 g / 125 g <sup>11)</sup>
Polarisation filter	-		✓	-

	WTB4S-3V	WTF4S-3V	WL4S-3V	WSE4S-3V
<b>IO-Link</b>	COM2	-		
<b>Housing material</b>	Stainless steel 316L/V4A			
<b>Enclosure rating</b>	IP 66, IP 67, IP 68, IP 69K <sup>12)</sup>	IP 66, IP 67, IP 68, IP 69K <sup>12)</sup>	IP 66, IP 67, IP 68, IP 69K <sup>12)</sup>	IP 66, IP 67, IP 68, IP 69K <sup>12)</sup>
<b>Test input sender off</b>	-			TE to 0 V
<b>Ambient temperature, operation</b>	-30 °C ... +70 °C <sup>13)</sup> -30 °C ... +60 °C			
<b>Ambient temperature, storage</b>	-30 °C ... +75 °C			

<sup>1)</sup> Limit values, reverse-polarity protected, operation in short-circuit protected network, max. 8 A.

<sup>2)</sup> May not exceed or fall short of  $V_S$ .

<sup>3)</sup> Without load.

<sup>4)</sup> Signal transit time with resistive load.

<sup>5)</sup> With light/dark ratio 1:1.

<sup>6)</sup> Do not bend below 0 °C.

<sup>7)</sup> Special cable lengths for WL4S-3F1432V (1055380).

<sup>8)</sup> A =  $V_S$  connections reverse-polarity protected.

<sup>9)</sup> B = inputs and output reverse-polarity protected.

<sup>10)</sup> C = interference suppression.

<sup>11)</sup> Sensor with cable, 3-wire, 5m.

<sup>12)</sup> Only in case of correctly mounted IP 69K connecting cable.

<sup>13)</sup> At  $V_S \leq 24$  V and  $I_A < 30$  mA.

## Ordering information

## WTB4S-3V

- **Sensor principle:** Photoelectric proximity sensor
- **Detection principle:** Background suppression

Sensing range max.	Sensing range	Switching output	Switching mode	Adjustment	IO-Link	Connection	Model name	Part no.
≤ 500 mm <sup>1)</sup>	10 mm ... 350 mm <sup>1)</sup>	PNP	Light-switching	Cable	-	Connector M8, 4-pin	WTB4S-3P2265V	1045091
						Cable with plug, M12, 4-pin	WTB4S-3P3465V	1046394
				Teach	-	Connector M8, 3-pin	WTB4S-3P2162V	1046384
						Cable with plug, M8, 3-pin	WTB4S-3P3162V	1046387
			Dark-switching	Cable	-	Connector M8, 4-pin	WTB4S-3F2265V	1048208
						Connector M8, 3-pin	WTB4S-3F2162V	1046389
				Teach	-	Cable with plug, M8, 3-pin	WTB4S-3F3162V	1046390
						Cable, 4-wire	WTB4S-3P1162V	1046388
			Complementary	Teach	-	Connector M8, 4-pin	WTB4S-3P2262V	1046383
						Connector M12, 4-pin	WTB4S-3P2462V	1054675
						Cable with plug, M8, 4-pin	WTB4S-3P3262V	1046385
						Cable with plug, M12, 4-pin	WTB4S-3P3462V	1046386
		Light-switching	Teach, cable	-	Connector M8, 4-pin	WTB4S-3P2264V	1047651	
					Cable with plug, M12, 4-pin	WTB4S-3P3464V	1048015	
			Complementary	Teach		Connector M8, 4-pin	WTB4SC-3P2262V	1045092
						Cable with plug, M12, 4-pin	WTB4SC-3P3462V	1046395
		NPN	Light-switching	Cable	-	Connector M8, 4-pin	WTB4S-3N2265V	1047620
						Connector M8, 3-pin	WTB4S-3N2162V	1046392
				Cable, 3-wire	WTB4S-3N1362V	1046393		
			Complementary	Teach	-	Cable, 4-wire	WTB4S-3N1162V	1046391
Connector M12, 4-pin	WTB4S-3N2462V					1054703		

Sensing range max.	Sensing range	Switching output	Switching mode	Adjustment	IO-Link	Connection	Model name	Part no.	
≤ 280 mm <sup>1)</sup>	10 mm ... 150 mm <sup>1)</sup>	PNP	Light-switching	Teach, cable	-	Connector M8, 4-pin	WTB4S-3P2204VS02	1047652	
				Cable	-	Connector M12, 4-pin	WTB4S-3P2205VS01	1046214	
				Teach	-	Connector M8, 4-pin	WTB4S-3P2234VS05	1050833	
			Dark-switching	Teach, cable	-	Connector M8, 4-pin	WTB4S-3F2234VS08	1053075	
			Complementary	Teach	-	Connector M12, 4-pin	WTB4S-3P2402VS09	1054706	
≤ 120 mm <sup>1)</sup>	10 mm ... 120 mm <sup>1)</sup>	PNP	Light-switching	Teach	-	Connector M8, 3-pin	WTB4S-3P2132V	1046397	
						Cable with plug, M8, 3-pin	WTB4S-3P3132V	1046400	
				Cable	-	Connector M8, 4-pin	WTB4S-3P2235V	1045093	
						Cable with plug, M12, 4-pin	WTB4S-3P3435V	1046407	
						Cable with plug, M12, 4-pin	WTB4S-3P3434V	1048016	
			Dark-switching	Teach	-	Connector M8, 3-pin	WTB4S-3F2132V	1046404	
						Cable with plug, M8, 3-pin	WTB4S-3F3132V	1046401	
			Complementary	Teach	-	Cable, 4-wire	WTB4S-3P1132V	1046402	
							Connector M8, 4-pin	WTB4S-3P2232V	1046396
							Cable with plug, M8, 4-pin	WTB4S-3P3232V	1046398
		Cable with plug, M12, 4-pin				WTB4S-3P3432V	1046399		
		Connector M12, 4-pin				WTB4S-3P2432V	1054672		
		✓				Connector M8, 4-pin	WTB4SC-3P2232V	1046409	
						Cable with plug, M12, 4-pin	WTB4SC-3P3432V	1046408	
		NPN	Light-switching	-	Teach	Cable, 3-wire	WTB4S-3N1332V	1046406	
						Connector M8, 3-pin	WTB4S-3N2132V	1046405	
			Complementary	-	Teach	Cable, 4-wire	WTB4S-3N1132V	1046403	
Connector M12, 4-pin	WTB4S-3N2432V					1054674			

<sup>1)</sup> Object with 90 % reflectance (referred to standard white DIN 5033)

## WL4S-3V

- **Sensor principle:** Photoelectric retro-reflective sensor
- **Detection principle:** autocollimation

Sensing range max.	Sensing range	Switching output	Switching mode	Adjustment	Alarm output	Connection	Model name	Part no.
≤ 4 m <sup>1)</sup>	0 m ... 3 m <sup>1)</sup>	PNP	Light-switching	-	-	Cable with plug, M8, 3-pin	WL4S-3P3130V	1046414
						Connector M8, 3-pin	WL4S-3P2130V	1046413
						Cable, 3-wire	WL4S-3P1330V	1048044
			Dark-switching	-	-	Connector M8, 3-pin	WL4S-3F2130V	1045096
						Cable with plug, M8, 3-pin	WL4S-3F3130V	1046416
						Cable, 3-wire	WL4S-3F1330V	1046417
		Complementary	-	-	Connector M8, 4-pin	WL4S-3P2230V	1045095	
					Cable with plug, M12, 4-pin	WL4S-3P3430V	1046415	
					Connector M12, 4-pin	WL4S-3P2430V	1054707	
		NPN	Dark-switching	-	-	Connector M8, 3-pin	WL4S-3E2130V	1045097
						Cable with plug, M8, 3-pin	WL4S-3E3130V	1048046
						Cable, 3-wire	WL4S-3E1330V	1046420
			Complementary	-	-	Cable, 4-wire	WL4S-3N1130V	1046418
						Connector M12, 4-pin	WL4S-3N2430V	1054712

Sensing range max.	Sensing range	Switching output	Switching mode	Adjustment	Alarm output	Connection	Model name	Part no.			
≤ 5 m <sup>1)</sup>	0 m ... 3 m <sup>1)</sup>	PNP	Light-switching	Teach	-	Cable, 3-wire	WL4S-3P1332V	1046427			
						Connector M8, 3-pin	WL4S-3P2132V	1046424			
						Cable with plug, M8, 3-pin	WL4S-3P3132V	1046425			
			Dark-switching	Teach	-	Cable, 3-wire	WL4S-3F1332V	1046430			
						Connector M8, 3-pin	WL4S-3F2132V	1046428			
						Cable with plug, M8, 3-pin	WL4S-3F3132V	1046429			
						Connector M8, 4-pin	WL4S-3V2232V	1046422			
						Connector M8, 4-pin	WL4S-3P2232V	1046421			
						Connector M12, 4-pin	WL4S-3P2432V	1054715			
		Complementary	Teach	-	Cable with plug, M12, 4-pin	WL4S-3P3432V	1046426				
					NPN	Light-switching	Teach	-	Cable, 3-wire	WL4S-3N1332V	1046434
									Connector M8, 3-pin	WL4S-3N2132V	1046432
		Cable with plug, M8, 3-pin	WL4S-3N3132V	1046433							
		Dark-switching	Teach	-		Cable, 3-wire	WL4S-3E1332V	1046437			
						Connector M8, 3-pin	WL4S-3E2132V	1046435			
						Cable with plug, M8, 3-pin	WL4S-3E3132V	1046436			
		Complementary	Teach	-	Cable, 4-wire	WL4S-3N1132V	1046431				
					Connector M12, 4-pin	WL4S-3N2432V	1054722				

<sup>1)</sup> Relating to the reflector PL80A.

<sup>2)</sup> Cable length: 5 m.

## WTF4S-3V

- **Sensor principle:** photoelectric proximity sensor
- **Detection principle:** foreground suppression
- **Sensing distance max.:** ≤ 200 mm
- **Switching output:** PNP
- **Connection:** connector M8, 4-pin

Switching mode	Adjustment	Model name	Part no.
Light-switching	Cable	WTF4S-3P2265V	1045094
Complementary	Teach	WTF4S-3P2262V	1046410

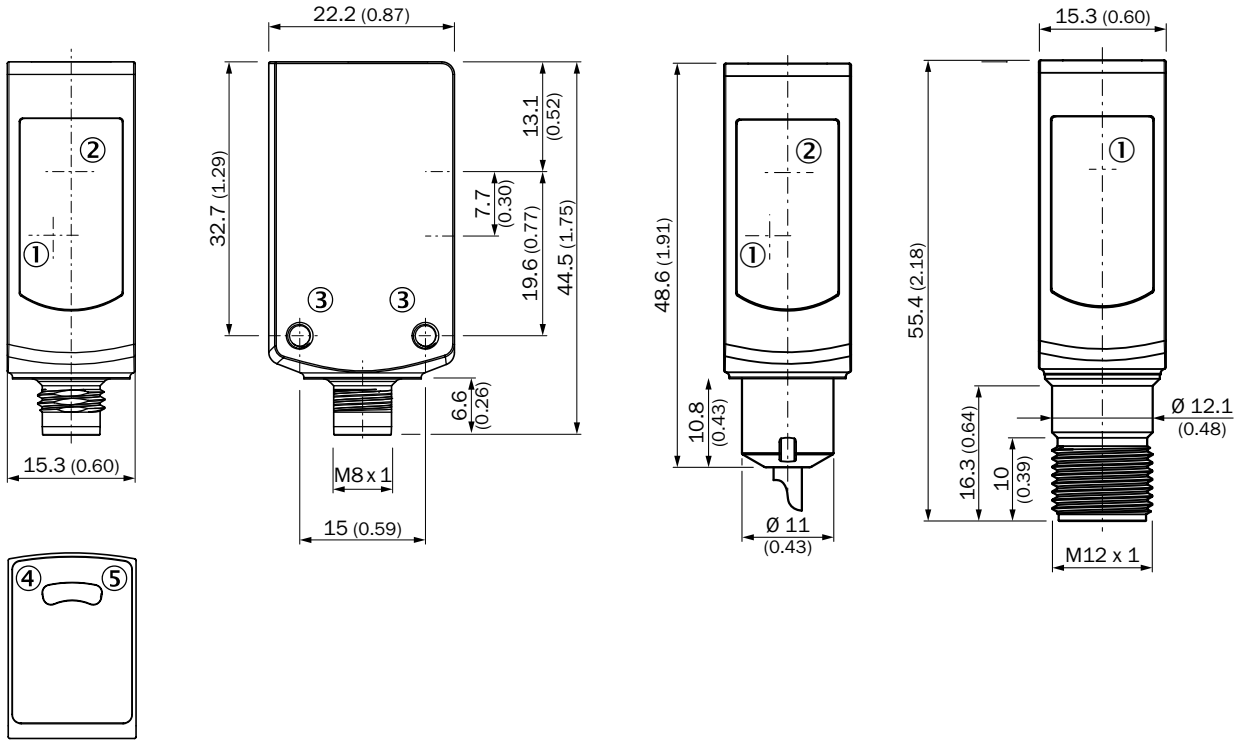
## WSE4S-3V

- **Sensor principle:** Through-beam photoelectric sensor
- **Sensing range max.:** ≤ 5 m
- **Adjustment:** no adjustment possibility

Sensing range	Switching output	Switching mode	Connection	Model name	Part no.
0 m ... 4.5 m	PNP	Light-switching	Cable, 3-wire	WSE4S-3P1330V	1052887
			Connector M8, 3-pin	WSE4S-3P2130V	1052893
			Cable with plug, M8, 3-pin	WSE4S-3P3130V	1052889
		Dark-switching	Cable, 3-wire	WSE4S-3F1330V	1052880
			Connector M8, 3-pin	WSE4S-3F2130V	1052891
			Cable with plug, M8, 3-pin	WSE4S-3F3130V	1052883
			Cable with plug, M12, 4-pin	WSE4S-3F3430V	1052885
		Complementary	Connector M12, 4-pin	WSE4S-3P2430V	1054784
		NPN	Light-switching	Cable, 3-wire	WSE4S-3N1330V
	Connector M8, 3-pin			WSE4S-3N2130V	1052878
	Dark-switching		Cable, 3-wire	WSE4S-3E1330V	1052869
			Connector M8, 3-pin	WSE4S-3E2130V	1052877
	Complementary		Connector M12, 4-pin	WSE4S-3N2430V	1054786

Dimensional drawings

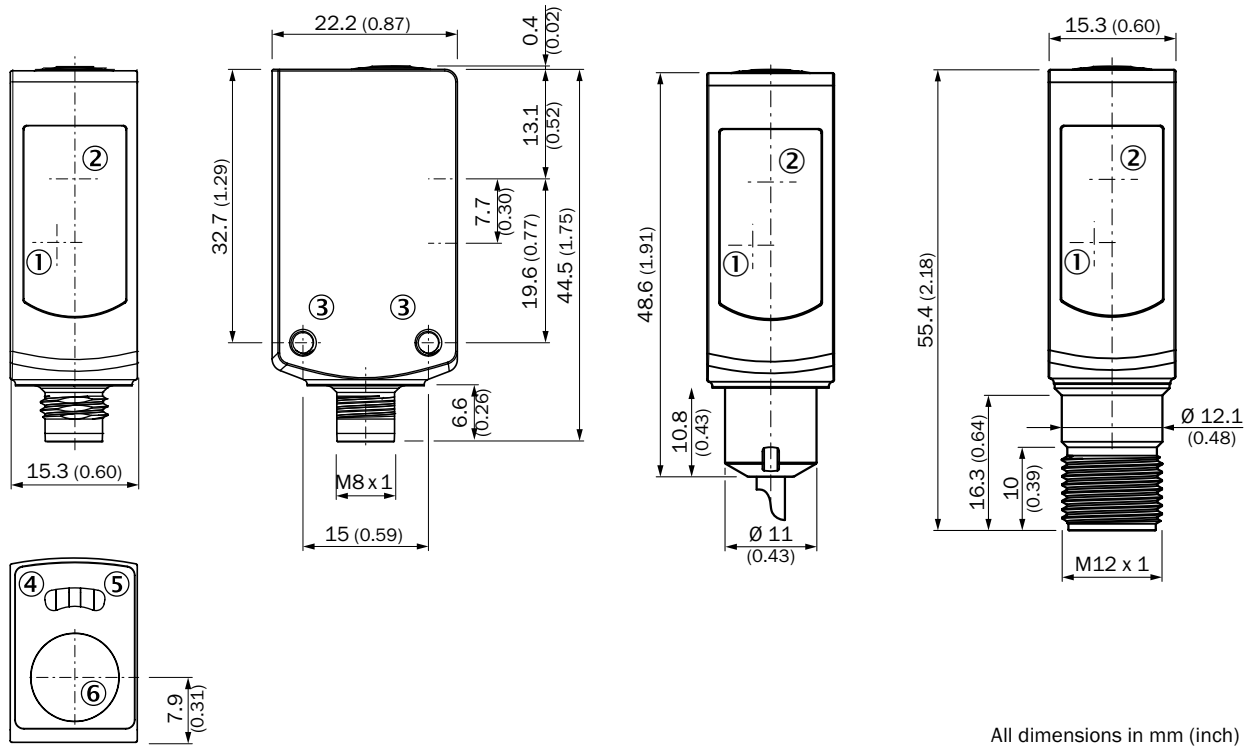
WTB4S-3V, WTF4S-3V, no single teach-in button



- ① Centre of receiver's optical axis
- ② Center of optical axis, sender
- ③ Threaded mounting hole M3
- ④ Status indicator LED, yellow: status of received light beam
- ⑤ Status indicator LED green: power on



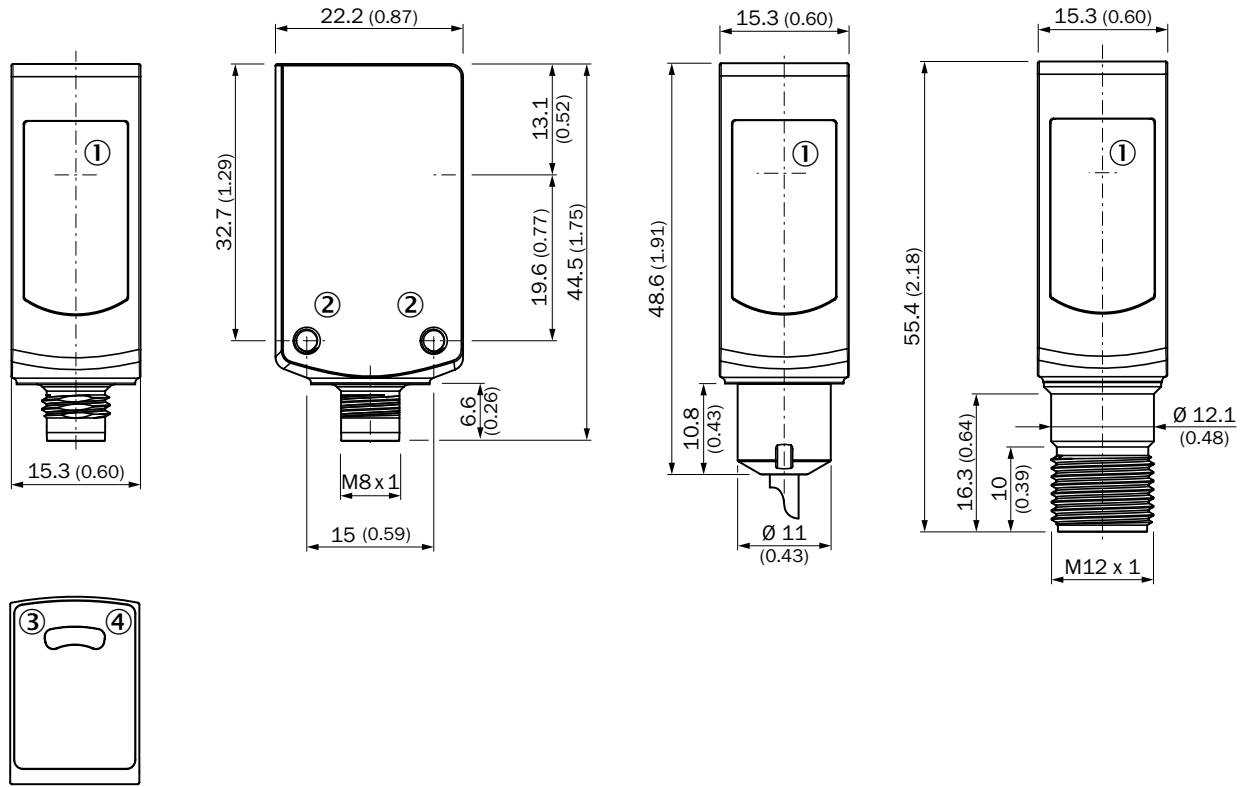
**WTB4S-3V, WTF4S-3V, with single teach-in button**



All dimensions in mm (inch)

- ① Center of optical axis, receiver
- ② Center of optical axis, sender
- ③ Threaded mounting hole M3
- ④ Status indicator LED, yellow: status of received light beam
- ⑤ Status indicator LED green: power on
- ⑥ Teach-in button

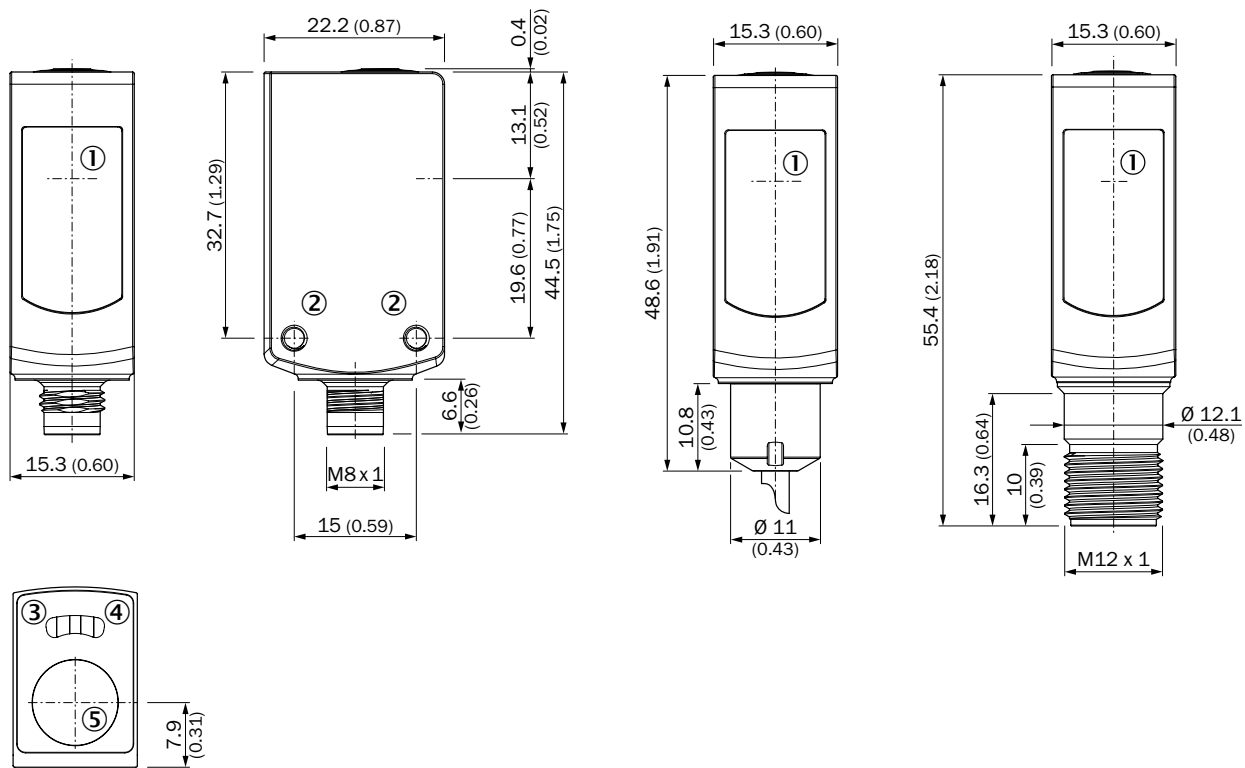
**WL4S-3V, WLG4S-3V, WSE4S-3V no single teach-in button**



All dimensions in mm (inch)

- ① Center of optical axis
- ② Threaded mounting hole M3
- ③ Status indicator LED, yellow: status of received light beam
- ④ Status indicator LED green: power on

**WL4S-3V, WLG4S-3V, WSE4S-3V with single teach-in button**



All dimensions in mm (inch)

- ① Center of optical axis
- ② Threaded mounting hole M3
- ③ Status indicator LED, yellow: status of received light beam
- ④ Status indicator LED green: power on
- ⑤ Teach-in button