

WTB26

SICK
Sensor Intelligence.



WTB26

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Sensor Intelligence.



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Described product

WTB26

Manufacturer

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Legal information

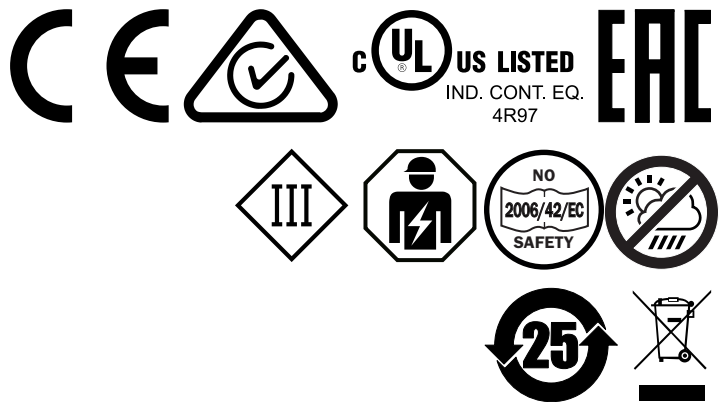
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Original document

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1 Safety information

1.1 General safety notes

- Read the operating instructions before commissioning.
-  Connection, mounting, and configuration may only be performed by trained specialists.
-  Not a safety component in accordance with the EU Machinery Directive.
-  When commissioning, protect the device from moisture and contamination.
- These operating instructions contain information required during the life cycle of the sensor.

1.2 Notes on UL approval

The device must be supplied by a Class 2 source of supply.

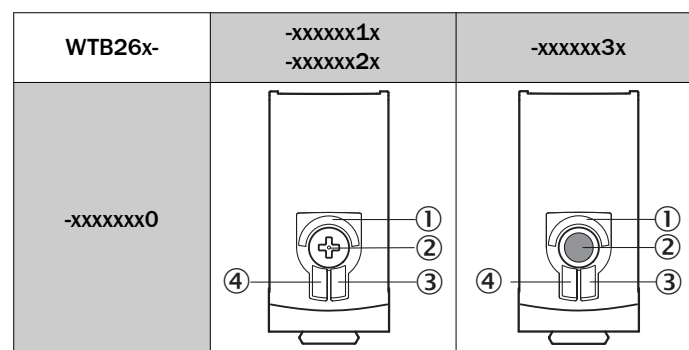
UL Environmental Rating: Enclosure type 1

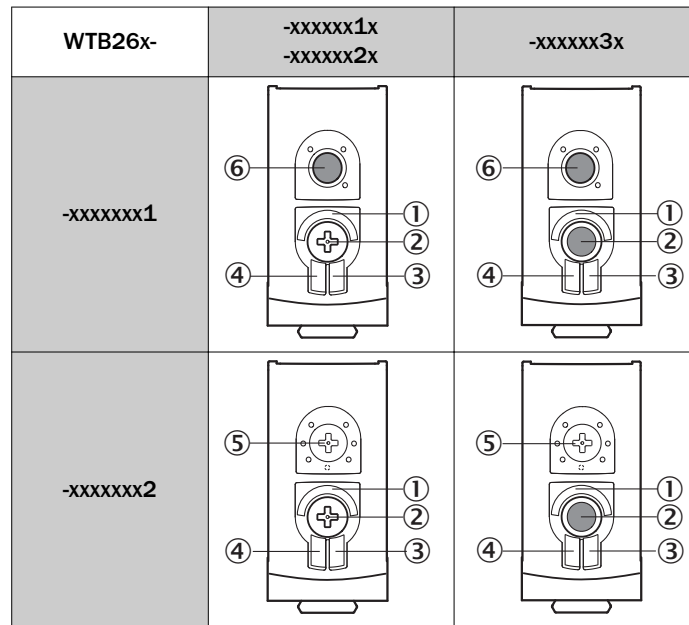
2 Intended use

The WTB26 is an opto-electronic photoelectric proximity sensor (referred to as “sensor” in the following) for the optical, non-contact detection of objects, animals, and persons. If the product is used for any other purpose or modified in any way, any warranty claim against SICK AG shall become void.

3 Operating and status indicators

Photoelectric proximity sensor with background suppression.





- ① BluePilot blue: sensing range display
- ② Press-turn element / Potentiometer / Teach-Button: adjusting the sensing range
- ③ LED indicator yellow: status of received light beam
- ④ LED indicator green: supply voltage active
- ⑤ Press-turn element: time function adjustment
- ⑥ Teach pushbutton: adjustment of light/dark switching

4 Mounting

Mount the sensor using a suitable mounting bracket (see the SICK range of accessories).

Note the sensor's maximum permissible tightening torque of < 1,3 Nm.

Note the preferred direction of the object relative to the sensor see figure 10, figure 11.

5 Electrical installation

The sensors must be connected in a voltage-free state. The following information must be observed, depending on the connection type:

- Male connector connection: Note pin assignment.
- Cable: wire color

Only supply/switch on the voltage once all electrical connections have been established.

Explanations on connection diagram (table 1 - table 4).

Alarm = alarm output

Health = alarm output

MF (pin 2 configuration) = external input, teach-in, switching signal

Q_{L1}/C = switching output, IO-Link communication

Test = test input

U_B: 10 ... 30 V DC

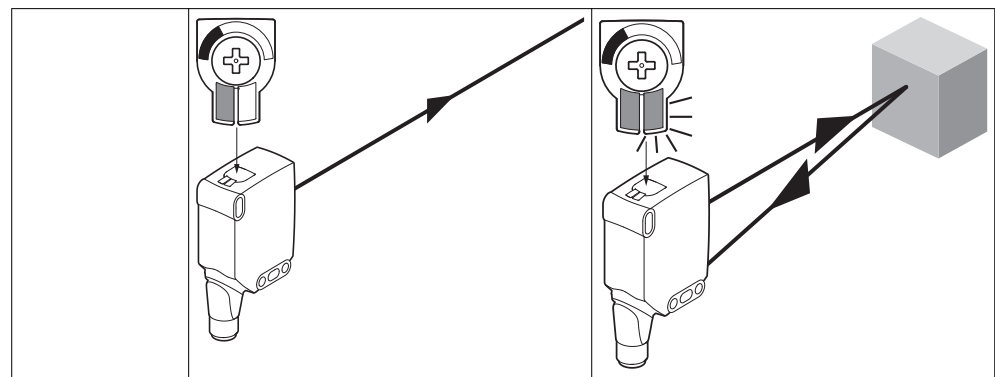
Table 1: Connections

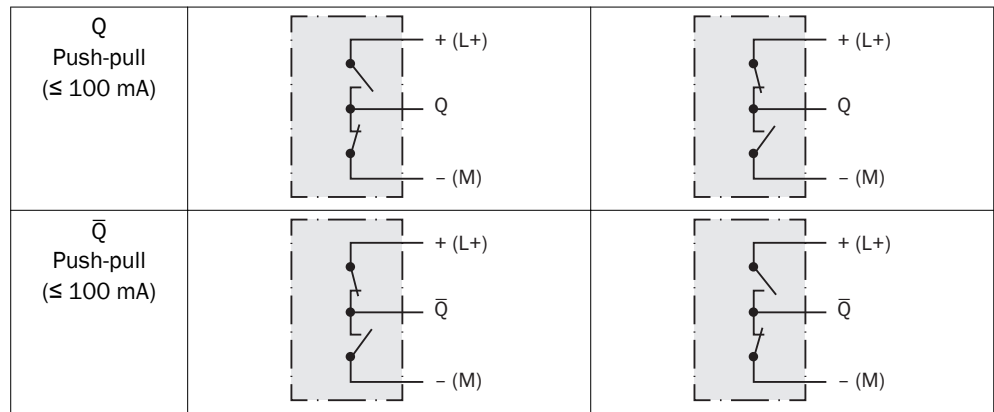
Wxx26x-	x4	xH	x5	xl
1 = BN 2 = WH 3 = BU 4 = BK 5 = GY		 0.14 mm ² AWG26	 0.14 mm ² AWG26	
Wxx26x-	x9		xB	
1 = BN 2 = BU 3 = not connected 4 = BK 5 = WH 6 = GY 7 = not connected	 I _N = 4 A		 I _N = 6 A	

Table 2: DC

WTB26	-24161xxxA00 -34161xxxA00	-1x161xxxA0 0	-24162xxxA0 0 -34162xxxA0 0	-1x162xxxA0 0	-2416xxxA01- A99 -3416xxxA01- A99
1	+ (L+)				
2	MF				
3	- (M)				
4	Q _{L1} /C				
Default: MF	Q̄	Q̄	Q	Q	www.sick.com 8022709
Default: Q _{L1} /C	Q	Q	Q̄	Q̄	www.sick.com 8022709
	 0.14 mm ² AWG26	1 = BN 2 = WH 3 = BU 4 = BK 0.14 mm ² AWG26	 0.14 mm ² AWG26	1 = BN 2 = WH 3 = BU 4 = BK 0.14 mm ² AWG26	

Table 3: Push / pull





6 Additional functions

Alarm

Alarm output: The sensor (WTB26) features a pre-failure notification output (“Alarm” in connection diagram [see table 7]), which issues a notification if the sensor is only ready for operation to a limited extent. The LED indicator flashes in this case. Possible causes: Sensor is contaminated, sensor is out of alignment. In the good state: LOW (0), if excessively contaminated HIGH (1).

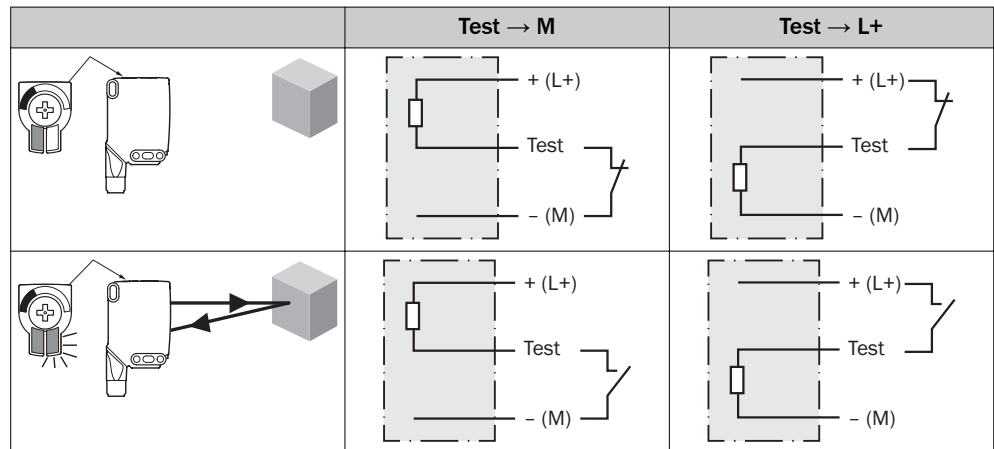
Health output: The sensor (WTB26) features a pre-failure notification output (“Health” in connection diagram [see table 7]), which issues a notification if the sensor is only ready for operation to a limited extent or the cable has been interrupted. Possible causes: Sensors are contaminated, sensors are out of alignment, cable is damaged. In the good state: HIGH (1), if excessively contaminated or in the event of cable interruption LOW (0). The LED indicator flashes in this case.

Test input

Test input: The WTB26 sensors feature a test input (“TI” or “Test” on the connection diagram [see table 2, table 7 and table 4]), which can be used to switch the sender off and, therefore, check that the sensor is functioning correctly: If female cable connectors with LED indicators are used, you have to ensure that the TI is assigned accordingly.

If an object is detected, activate the test input (see the connection diagram [see table 2, table 7 and table 4]). The send LED is shut down or no object being detected is simulated. Refer to table 4 to check the function. If the switching output fails to behave in accordance with table 4, check the application conditions. See section Fault diagnosis.

Table 4: Test



7 Commissioning

1 Alignment

WTB26 P: Align sensor on object. Select the position so that the red emitted light beam hits the center of the object. It is important to ensure that the optical opening (front screen) of the sensor is completely clear [see figure 1, figure 2].

WTB26 I: Align sensor on object. Select the position so that the infrared light (not visible) hits the center of the object. The correct alignment can only be detected via the LED indicators, see table 2, table 7 and table 3. You must ensure that the optical opening (front screen) of the sensor is completely clear.

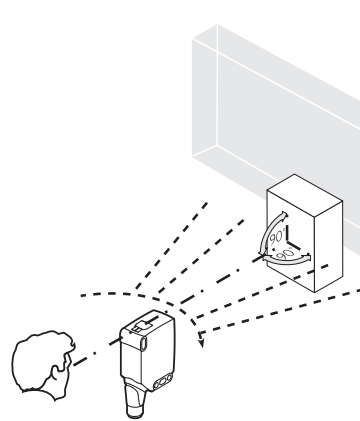


Figure 1: Alignment 1

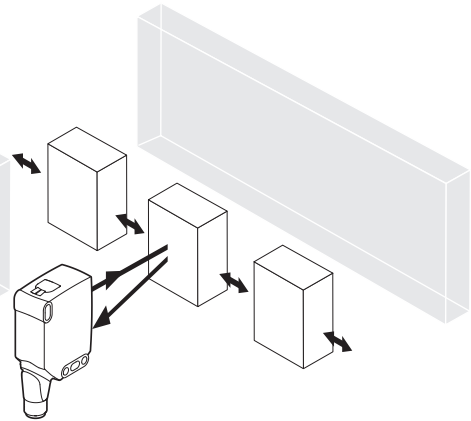


Figure 2: Alignment 2

2 Sensing range

WTBXX are photoelectric proximity sensors with background suppression. Depending on the remission of the object to be detected, and perhaps the background behind it, a minimum distance (y) between the set sensing range (x) and the background is to be maintained.

Check the application conditions: Adjust the sensing range and distance to the object or background as well as the remission capability of the object according to the corresponding diagram [see figures 5 and 6] (x = sensing range, y = minimum distance between set sensing range and background [white, 90%]) Remission: 6% = black ①, 18% = gray ②, 90% = white ③ (referring to standard white as per DIN 5033). We recommend that the adjustment be performed with an object of low remission.

The minimum distance (= y) for the background suppression can be determined from the diagram [figure 3 ①] as follows:

Example: x = 600 mm, y = 40 mm. That is, the background (white, 90%) is suppressed at a distance of > 40 mm from the sensor.

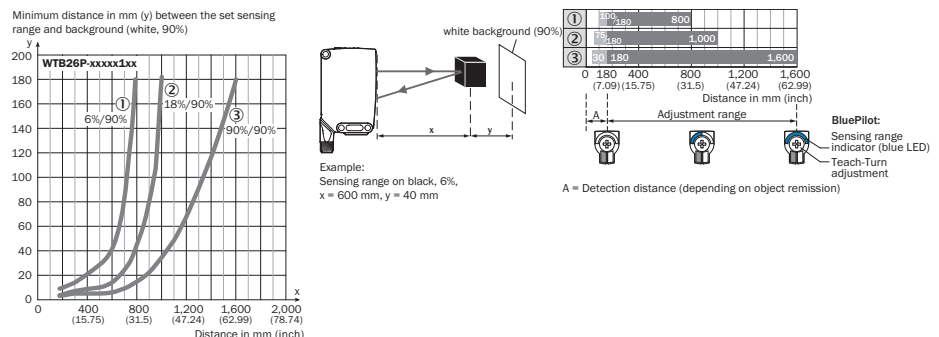


Figure 3: Characteristic line 1, WTB26P-xxxx1xx, red light

① Sensing range on black, 6% remission

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

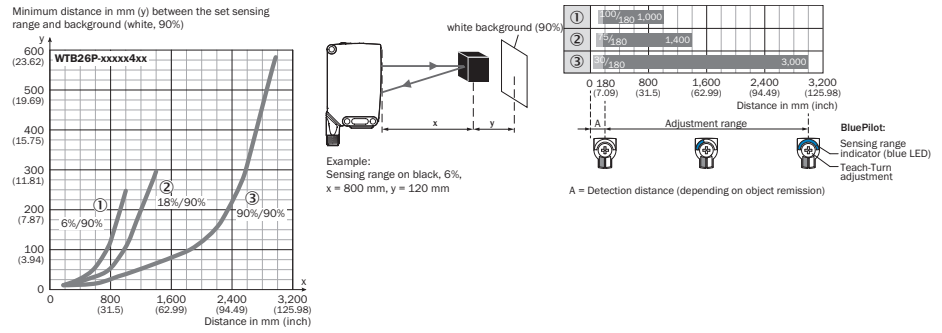


Figure 4: Characteristic line 2, WTB26 P-xxxx4 xx, red light

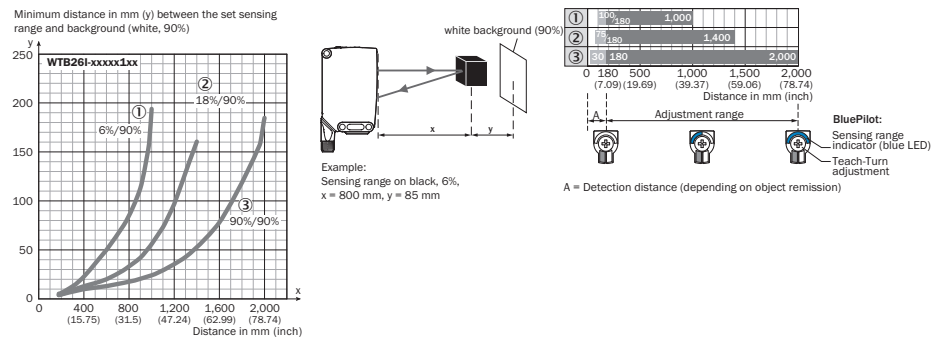


Figure 5: Characteristic line 3, WTB26 I-xxxx1 xx, infrared light

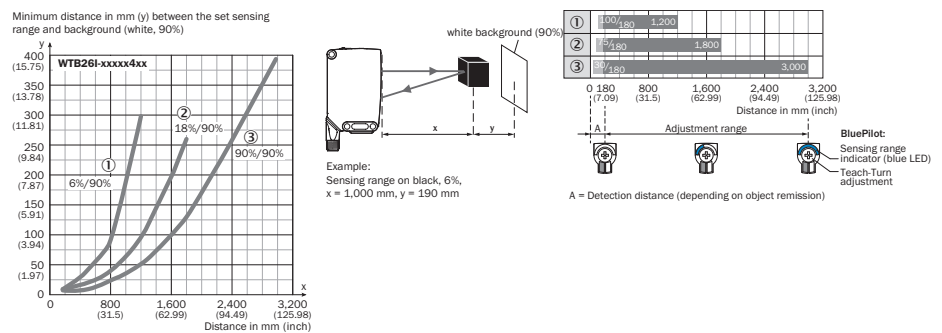


Figure 6: Characteristic line 4, WTB26 I-xxxx4 xx, infrared light

3 Sensing range setting

WTB26 x-xxxxx2 xAxx with Teach-Turn adjustment:

The sensing range is adjusted by pressing the teach-in button (approx. 1-3 sec.). Depending on the requirements, the potentiometer can be used for fine-tuning (without pressing the teach-in button).

Clockwise rotation: sensing range increased.

Counterclockwise rotation: sensing range reduced.

The sensing range can also be adjusted using just the potentiometer. We recommend placing the sensing range in the object, e.g. see figure 7. Once the sensing range has been adjusted, the object is removed from the path of the beam, which causes the background to be suppressed and the switching output to change (see table 2, table 7, table 3).

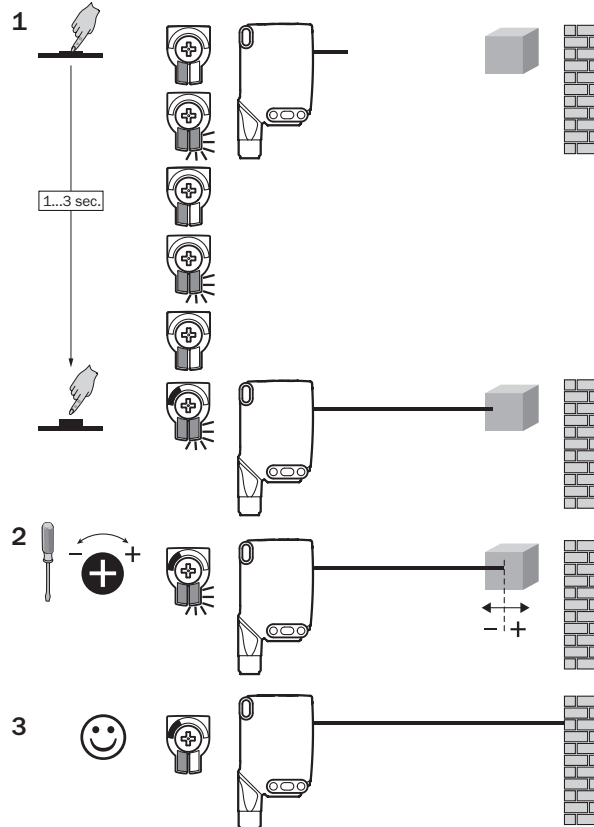


Figure 7: WTB26 x-xxxxx2 xAxx, adjusting the sensing range with press-turn element

WTB26 x-xxxxx1 xAxx with Potentiometer:

The sensing range is adjusted with the potentiometer.

Clockwise rotation: sensing range increased.

Counterclockwise rotation: sensing range reduced.

We recommend placing the sensing range in the object, e.g. [see figure 8](#). Once the sensing range has been adjusted, the object is removed from the path of the beam, which causes the background to be suppressed and the switching output to change ([see table 2, table 7, table 3](#)).

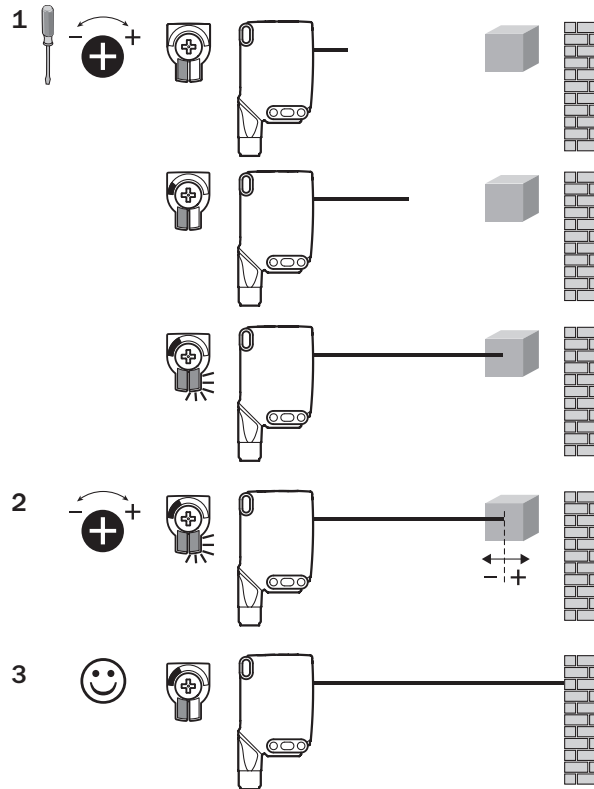


Figure 8: WTB26 x-xxxxx1 xAxx, adjusting the sensing range with potentiometer

WTB26 x-xxxxx3 xAxx with teach-in button:

The sensing range is adjusted by pressing the teach-in button (approx. 1-3 sec.). We recommend placing the sensing range in the object, e.g. see figure 9. Once the sensing range has been adjusted, the object is removed from the path of the beam, which causes the background to be suppressed and the switching output to change (see table 2, table 7, table 3).

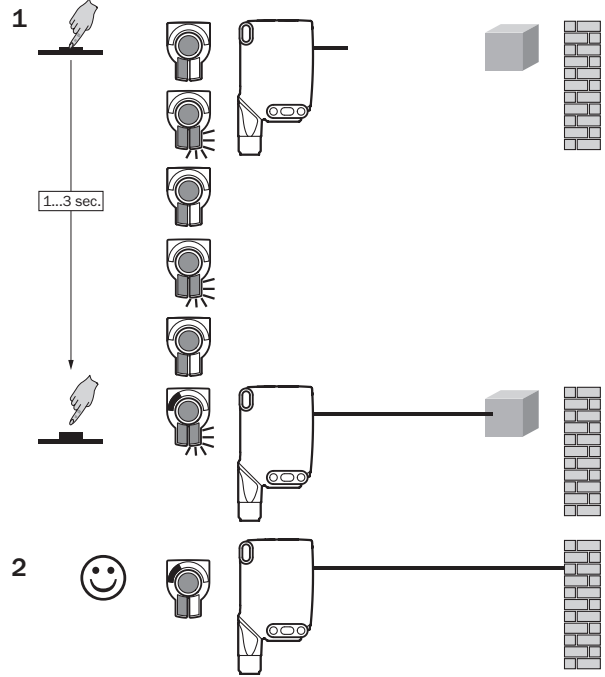
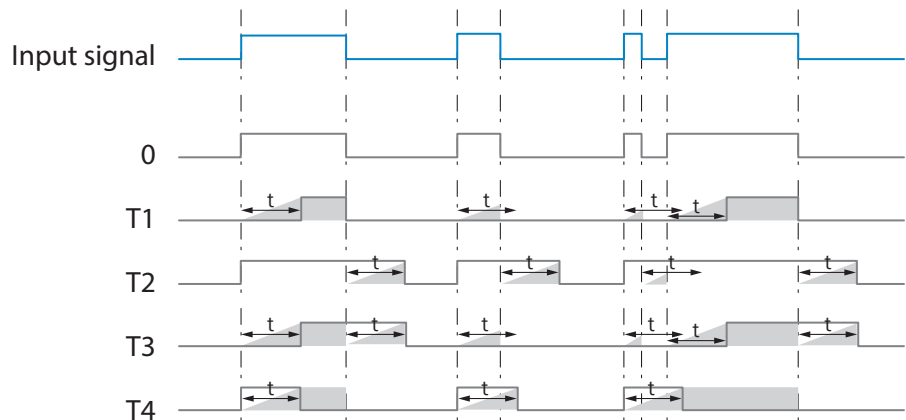
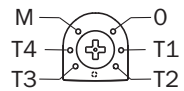
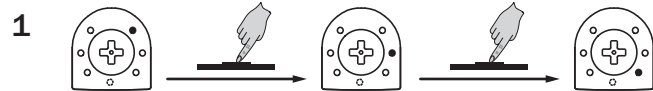
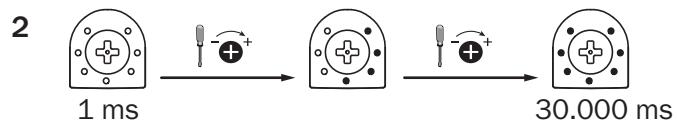


Figure 9: WTB26 x-xxxxx3 xAxx, adjusting the sensing range with teach-in button

4 Time function setting



M = Manual (specific setting via IO-Link)



5 Setting light/dark switching



- L light switching
- D Dark switching
- M manual (specific setting via IO-Link)

8 Process data structure

Process data structure (Version 1.1)

	A00	A70	A71	A72	A73	A75
IO-Link	V1.1					
Process data	2 bytes					4 bytes
	Byte 0: bits 15... 8 Byte 1: bits 7... 0					Byte 0: bits 31... 24 Byte 1: bits 13... 16 Byte 2: bits 15... 8 Byte 3: bits 7... 0
Bit 0 / Data type	Q _{L1} / Boolean					
Bit 1 / Data type	Q _{L2} / Boolean			Q _{int.1} / Boolean	Q _{L2} / Boolean	Q _{int.1} / Boolean
Bit... / Description / Data type	2 ... 15 / [empty]	2 ... 15 / [time measurement value] / UInt 14	2 ... 15 / [counter value] / UInt 14	2 ... 15 / [length / speed measurement] / SInt14	2 / Q _{int.1} / Boolean	2 ... 7 / [empty]
Bit... / Description / Data type					3 ... 15 / [time measurement value] / UInt13	8 ... 31 / [carrier load] / UInt 24

9 Troubleshooting

The Troubleshooting table indicates measures to be taken if the sensor stops working.

LED indicator/fault pattern	Cause	Measures
Green LED flashes	IO-Link communication	None

LED indicator/fault pattern	Cause	Measures
Switching outputs do not behave in accordance with table 3	1. IO-Link communication 2. Change of the configuration 3. Short-circuit	1. None 2. Adjustment of the configuration 3. Check electrical connections
Yellow LED lights up, no object in the path of the beam	The sensing range distance is too large	Reduce the sensing range
Object is in the path of the beam, yellow LED does not light up	Distance between the sensor and the object is too long or sensing range is set too short	Increase the sensing range

10 Disassembly and disposal

The sensor must be disposed of according to the applicable country-specific regulations. Efforts should be made during the disposal process to recycle the constituent materials (particularly precious metals).



NOTE

Disposal of batteries, electric and electronic devices

- According to international directives, batteries, accumulators and electrical or electronic devices must not be disposed of in general waste.
- The owner is obliged by law to return this devices at the end of their life to the respective public collection points.



■ This symbol on the product, its package or in this document, indicates that a product is subject to these regulations.

11 Maintenance

SICK sensors are maintenance-free.

We recommend doing the following regularly:

- Clean the external lens surfaces
- Check the screw connections and plug-in connections

No modifications may be made to devices.

Subject to change without notice. Specified product properties and technical data are not written guarantees.

12 Technical data

	WTB26P-xxxxx1	WTB26P-xxxxx4	WTB26I-xxxxx1	WTB26I-xxxxx4
Sensing range max.	30 mm ... 1,600 mm ⁽¹⁾	30 mm ... 3,000 mm ⁽¹⁾	30 mm ... 2,000 mm ⁽¹⁾	30 mm ... 3,000 mm ⁽¹⁾
Light spot diameter/distance	Ø 7 mm (700 mm) (type)	Ø 7 mm (700 mm) (type)	Ø 14 mm (1,000 mm)	Ø 14 mm (1,000 mm)
Supply voltage U_B	DC 10 ... 30 V	DC 10 ... 30 V	DC 10 ... 30 V	DC 10 ... 30 V
Ripple	$\leq 5 V_{SS}$	$\leq 5 V_{SS}$	$\leq 5 V_{SS}$	$\leq 5 V_{SS}$
Current consumption	$\leq 30 \text{ mA}^{(2)}$ $< 50 \text{ mA}^{(3)}$	$\leq 30 \text{ mA}^{(2)}$ $< 50 \text{ mA}^{(3)}$	$\leq 30 \text{ mA}^{(2)}$ $< 50 \text{ mA}^{(3)}$	$\leq 30 \text{ mA}^{(2)}$ $< 50 \text{ mA}^{(3)}$
Output current I_{max}	$\leq 100 \text{ mA}$	$\leq 100 \text{ mA}$	$\leq 100 \text{ mA}$	$\leq 100 \text{ mA}$
Max. response time	500 $\mu\text{s}^{(4)}$	2.5 ms ⁽⁴⁾	500 $\mu\text{s}^{(4)}$	2.5 ms ⁽⁴⁾
Switching frequency	1000 Hz ⁽⁵⁾	200 Hz ⁽⁵⁾	1000 Hz ⁽⁵⁾	200 Hz ⁽⁵⁾
Enclosure rating ⁽⁶⁾	see table 1: x4, xH, x5, xI: IP66, IP67, IP69 ⁽⁷⁾ x9, xB: IP65	see table 1: x4, xH, x5, xI: IP66, IP67, IP69 ⁽⁷⁾ x9, xB: IP65	see table 1: x4, xH, x5, xI: IP66, IP67, IP69 ⁽⁷⁾ x9, xB: IP65	see table 1: x4, xH, x5, xI: IP66, IP67, IP69 ⁽⁷⁾ x9, xB: IP65
Protection class	III	III	III	III
Circuit protection	A, B, C, D ⁽⁸⁾	A, B, C, D ⁽⁸⁾	A, B, C, D ⁽⁸⁾	A, B, C, D ⁽⁸⁾
Ambient operating temperature	-40 °C ... +60 °C ⁽⁹⁾	-40 °C ... +60 °C ⁽⁹⁾	-40 °C ... +60 °C ⁽⁹⁾	-40 °C ... +60 °C ⁽⁹⁾

1) Object with 90 % remission (based on standard white DIN 5033)

2) 16 VDC to 30 VDC, without load

3) 10 VDC to 16 VDC, without load

4) Signal transit time with resistive load in switching mode. Deviating values possible in COM2 mode.

5) With a light/dark ratio of 1:1 in switching mode. Deviating values possible in IO-Link mode.

6) Pursuant to EN 60529

7) Replaces IP69 K pursuant to ISO 20653: 2013-03

8) A = U_B -connections reverse polarity protected

B = inputs and output reverse-polarity protected

C = Interference suppression

D = outputs overcurrent and short-circuit protected

9) Do not bend cables below 0 °C.

WTB26

SICK
Sensor Intelligence.



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Beschriebenes Produkt

WTB26

Hersteller

SICK AG
Erwin-Sick-Str. 1
79183 Waldkirch
Deutschland

Rechtliche Hinweise

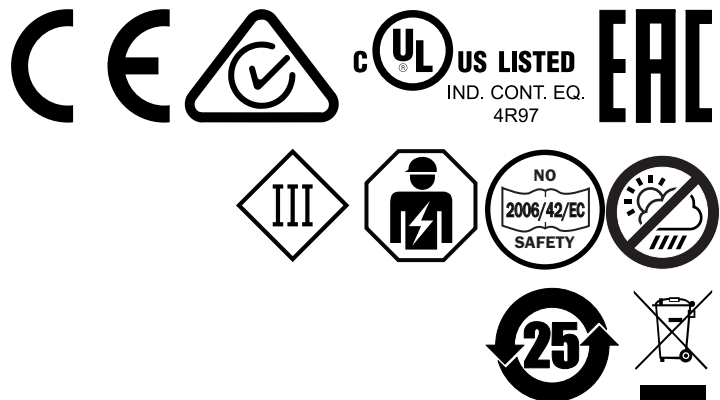
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13 Zu Ihrer Sicherheit

13.1 Allgemeine Sicherheitshinweise

- Lesen Sie vor der Inbetriebnahme des Geräts die Betriebsanleitung.
-  Der Anschluss, die Montage und die Konfiguration des Geräts dürfen nur von geschultem Fachpersonal vorgenommen werden.
-  Bei diesem Gerät handelt es sich um kein sicherheitsgerichtetes Bauteil im Sinne der EU-Maschinenrichtlinie.
-  Bei der Inbetriebnahme ist das Gerät ausreichend vor Feuchtigkeit und Verschmutzung zu schützen.
- Die vorliegende Betriebsanleitung enthält Informationen, die während des Lebenszyklus der Lichtschranke benötigt werden.

13.2 Hinweise zur UL Zulassung

The device must be supplied by a Class 2 source of supply.

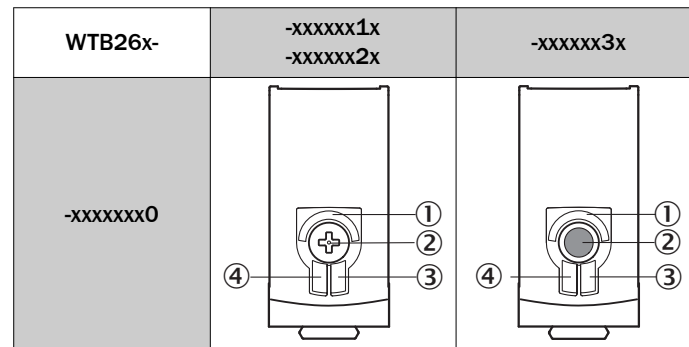
UL Environmental Rating: Enclosure type 1

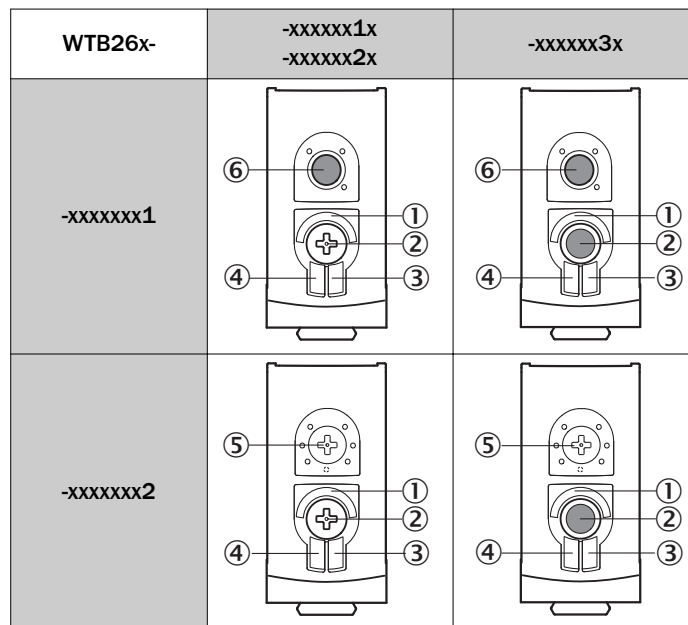
14 Bestimmungsgemäße Verwendung

Die WTB26 ist ein optoelektronischer Reflexions-Lichttaster (im Folgenden Sensor genannt) und wird zum optischen, berührungslosen Erfassen von Sachen, Tieren und Personen eingesetzt. Bei jeder anderen Verwendung und bei Veränderungen am Produkt verfällt jeglicher Gewährleistungsanspruch gegenüber der SICK AG.

15 Bedien- und Anzeigeelemente

Reflexionslichttaster mit Hintergrundausblendung.





- ① BluePilot blau: Schaltabstandsanzeige
- ② Drück-Dreh-Element / Potentiometer / Teach-Taste: Einstellung des Schaltabstands
- ③ Anzeige-LED gelb: Status Lichtempfang
- ④ Anzeige-LED grün: Betriebsspannung aktiv
- ⑤ Drück-Dreh-Element: Einstellung der Zeitfunktionen
- ⑥ Teach-Taste: Einstellung hell-/dunkelschaltend

16 Montage

Den Sensor an einen geeigneten Befestigungswinkel montieren (siehe SICK-Zubehör-Programm).

Maximal zulässiges Anzugsdrehmoment des Sensors von < 1,3 Nm beachten.

Vorzugsrichtung des Objektes zum Sensor beachten, [siehe Abbildung 21](#), [Abbildung 22](#).

17 Elektrische Installation

Anschluss der Sensoren muss spannungsfrei erfolgen. Je nach Anschlussart sind die folgenden Informationen zu beachten:

- Steckeranschluss: Pinbelegung beachten.
- Leitung: Adernfarbe

Erst nach Anschluss aller elektrischen Verbindungen die Spannungsversorgung anlegen bzw. einschalten.

Erläuterungen zum Anschlussschema ([Tabelle 5](#) - [Tabelle 4](#)).

Alarm = Alarmausgang

Health = Alarmausgang

MF (Pin-2-Konfiguration) = Externer Eingang, Teach-in, Schaltsignal

Q_{L1}/C = Schaltausgang, IO-Link Kommunikation

Test = Testeingang


U_B: 10 ... 30 V DC 

Tabelle 5: Anschlüsse

Wxx26x-	x4	xH	x5	xl
1 = BN 2 = WH 3 = BU 4 = BK 5 = GY		 0.14 mm ² AWG26		 0.14 mm ² AWG26
Wxx26x-	x9		xB	
1 = BN 2 = BU 3 = not connected 4 = BK 5 = WH 6 = GY 7 = not connected	 I _N = 4 A		 I _N = 6 A	

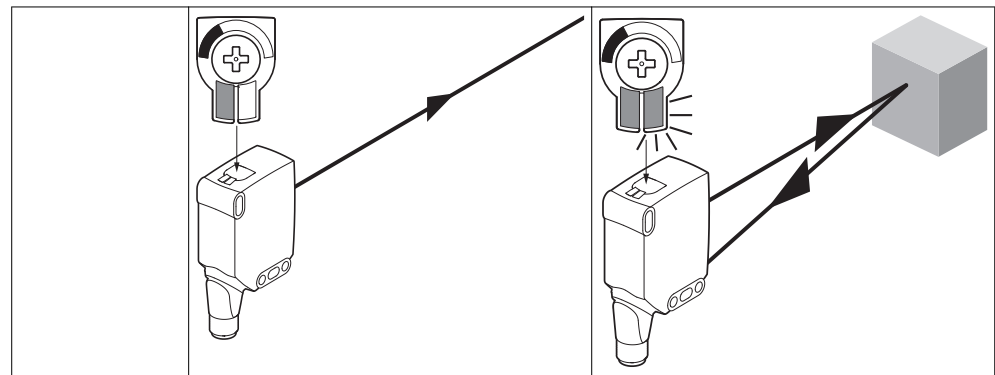
Tabelle 6: DC

WTB26x-	xx16XxxxA00						xx16XxxxA0 1-A99
	xx161	xx162	xx168	xx16A	xx16L	xx16N	xx16x
1 = BN	+ (L+)						
2 = WH	MF						
3 = BU	- (M)						
4 = BK	Q _{L1} /C						
Default: MF	Q̄	Q	Test → L +	no func- tion	Test → L +	no func- tion	www.sick.co m 8022709
Default: Q _{L1} /C	Q	Q̄	Q	Q	Q̄	Q̄	www.sick.co m 8022709

Tabelle 7: DC

WTB26 x-	xxXXXxxxZZZ									
	xx111	xx112	xx113	xx114	xx115	xx116	xx421	xx422	xx721	xx722
BN	+ (L+)									
WH	Q̄	Q	Alarm	Health	Alarm	Health	Q̄	Q	Q̄	Q
BU	- (M)									
BK	Q	Q̄	Q	Q	Q̄	Q̄	Q	Q̄	Q	Q̄
GR	-	-	-	-	-	-	Test → L+	Test → L+	Test → M	Test → M

Tabelle 8: Push / Pull



<p>Q push-pull (≤ 100 mA)</p>		
<p>\bar{Q} push-pull (≤ 100 mA)</p>		

18 Zusatzfunktionen

Alarm

Alarmausgang: Der Sensor (WTB26) verfügt über einen Vorausfallmeldeausgang ("Alarm" im Anschlussschema [siehe Tabelle 7](#)) der meldet, wenn der Sensor nur noch eingeschränkt betriebsbereit ist. Dabei blinkt die Anzeige-LED. Mögliche Ursachen: Verschmutzung des Sensors, Sensor ist dejustiert. Im Gutzustand: LOW (0), bei zu starker Verschmutzung HIGH (1).

Health-Ausgang: Der Sensor (WTB26) verfügt über einen Vorausfallmeldeausgang ("Health" im Anschlussschema [siehe Tabelle 7](#)), der meldet, wenn der Sensor nur noch eingeschränkt betriebsbereit ist oder die Leitung unterbrochen ist. Mögliche Ursachen: Verschmutzung der Sensoren, Sensoren sind dejustiert, Leitung ist beschädigt. Im Gutzustand: HIGH (1), bei zu starker Verschmutzung oder Leitungsunterbrechung LOW (0). Dabei blinkt die Anzeige-LED.

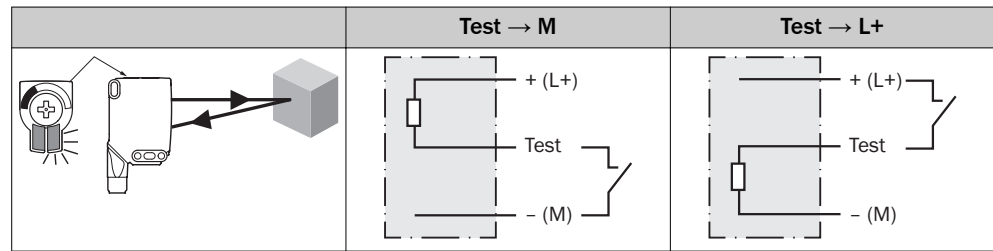
Testeingang

Testeingang: Die Sensoren WTB26 verfügen über einen Testeingang („TE“ oder „Test“ im Anschlussschema [siehe Tabelle 2](#), [Tabelle 7](#) und [Tabelle 4](#)), mit dem der Sender ausgeschaltet und somit die ordnungsgemäße Funktion des Sensors überprüft werden kann: Bei Verwendung von Leitungsdosen mit LED-Anzeigen ist darauf zu achten, dass der TE entsprechend belegt ist.

Wenn Objekt erkannt, Testeingang aktivieren (siehe Anschlussschema [siehe Tabelle 2](#), [Tabelle 7](#) und [Tabelle 4](#)). Sende-LED wird abgeschaltet, bzw. es wird simuliert, dass kein Objekt erkannt wird. Zur Überprüfung der Funktion die [Tabelle 4](#) heranziehen. Verhält sich der Schaltausgang nicht gemäß der [Tabelle 4](#), Einsatzbedingungen prüfen. Siehe Abschnitt Fehlerdiagnose.

Tabelle 9: Test

	Test → M	Test → L+



19 Inbetriebnahme

1 Ausrichtung

WTB26P: Sensor auf Objekt ausrichten. Positionierung so wählen, dass der rote Sendelichtstrahl in der Mitte des Objekts auftrifft. Es ist darauf zu achten, dass die optische Öffnung (Frontscheibe) des Sensors vollständig frei ist [siehe [Abbildung 12](#), [Abbildung 13](#)].

WTB26I: Sensor auf Objekt ausrichten. Positionierung so wählen, dass das Infrarotlicht (nicht sichtbar) in der Mitte des Objekts auftrifft. Die korrekte Ausrichtung kann nur über die Anzeige-LEDs erkannt werden, [siehe Tabelle 2](#), [Tabelle 7](#) und [Tabelle 3](#). Es ist darauf zu achten, dass die optische Öffnung (Frontscheibe) des Sensors vollständig frei ist.

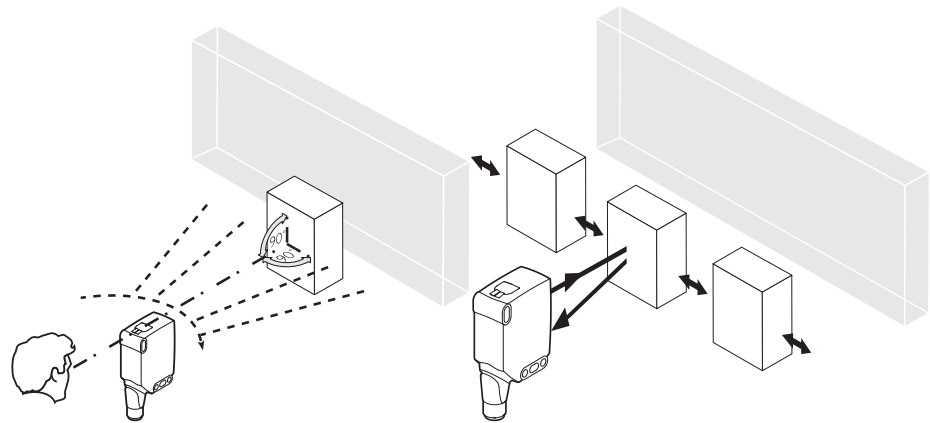


Abbildung 12: Ausrichtung 1

Abbildung 13: Ausrichtung 2

2 Schaltabstand

WTBXX sind Reflexions-Lichttaster mit Hintergrundausbldung. Abhängig von der Remission des zu detektierenden Objekts und des evtl. sich dahinter befindlichen Hintergrunds, ist ein Mindestabstand (y) zwischen eingestelltem Schaltabstand (x) und Hintergrund einzuhalten.

Einsatzbedingungen prüfen: Schaltabstand und Distanz zum Objekt bzw. Hintergrund sowie Remissionsvermögen des Objektes mit dem zugehörigen Diagramm [siehe [Abbildung 5](#) und [6](#)] abgleichen (x = Schaltabstand, y = Mindestabstand zwischen eingestelltem Schaltabstand und Hintergrund (weiß, 90%)) Remission: 6 % = schwarz ①, 18 % = grau ②, 90 % = weiß ③ (bezogen auf Standardweiß nach DIN 5033). Wir empfehlen, die Einstellung mit einem Objekt von niedriger Remission vorzunehmen.

Die minimale Distanz (= y) für die Hintergrundausbldung kann aus dem Diagramm [[Abbildung 14](#) ①] wie folgt ermittelt werden:

Beispiel: x = 600 mm, y = 40 mm. D. h. der Hintergrund (weiß, 90%) wird ab einer Distanz von > 40 mm vom Sensor ausgeblendet.

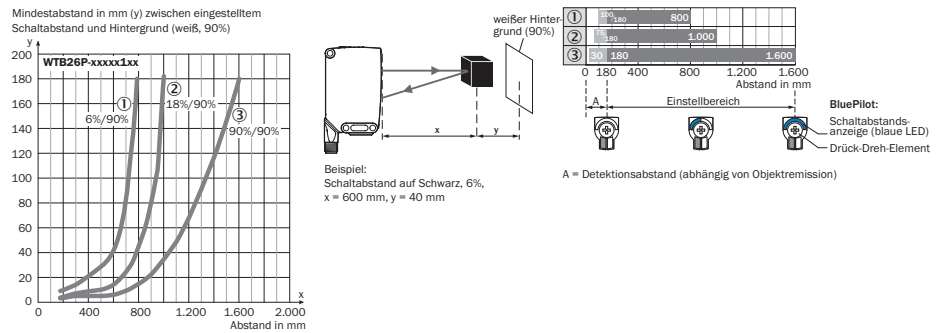


Abbildung 14: Kennlinie 1, WTB26P-xxxx1xx, Rotlicht

- ① Schaltabstand auf Schwarz, 6 % Remission
- ② Schaltabstand auf Grau, 18 % Remission
- ③ Schaltabstand auf Weiß, 90 % Remission

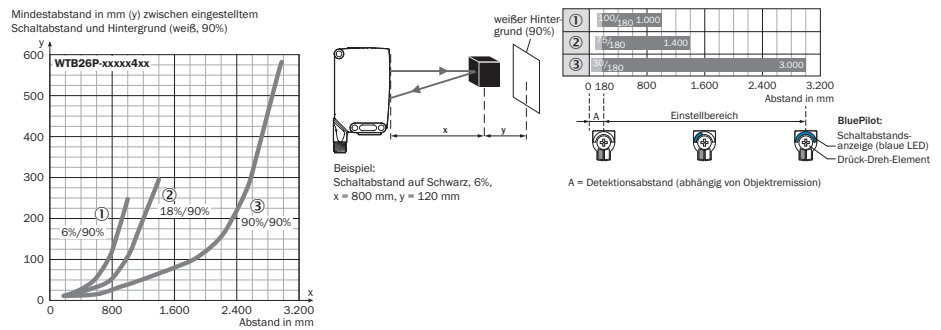


Abbildung 15: Kennlinie 2, WTB26P-xxxx4xx, Rotlicht

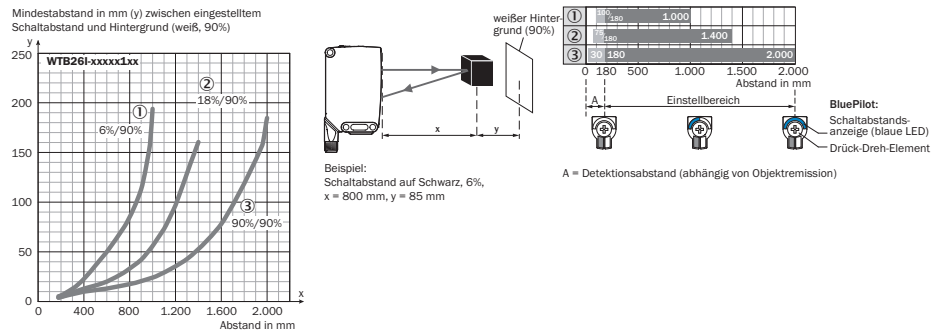


Abbildung 16: Kennlinie 3, WTB26I-xxxx1xx, Infrarotlicht

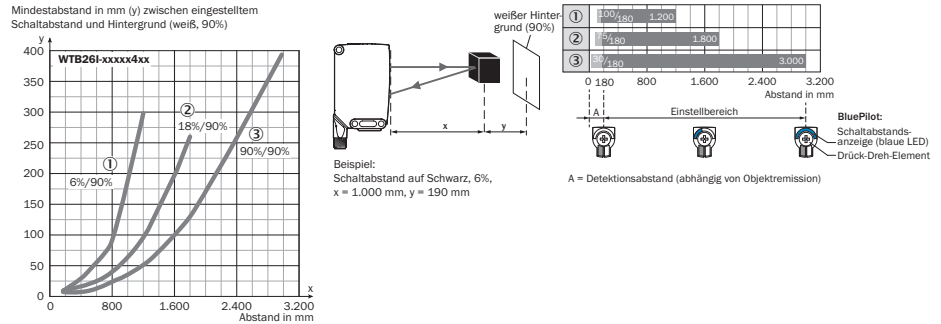


Abbildung 17: Kennlinie 4, WTB26l-xxxx4xx, Infrarotlicht

3 Einstellung Schaltabstand

WTB26x-xxxxx2xAxx mit Drück-Dreh-Element:

Durch Drücken der Teach-in-Taste (ca. 1- 3 sec.) wird der Schaltabstand eingestellt. Je nach Anforderungen kann mit dem Potentiometer (ohne Drücken der Teach-in-Taste) eine Feineinstellung vorgenommen werden.

Drehung nach rechts: Erhöhung des Schaltabstandes.

Drehung nach links: Verringerung des Schaltabstandes.

Der Schaltabstand kann auch allein mit dem Potentiometer eingestellt werden. Wir empfehlen, den Schaltabstand in das Objekt zu legen, z.B. siehe [Abbildung 18](#). Nachdem der Schaltabstand eingestellt worden ist, das Objekt aus dem Strahlengang entfernen, der Hintergrund wird dabei ausgeblendet und der Schaltausgang ändert sich (siehe [Tabelle 2](#), [Tabelle 7](#), [Tabelle 3](#)).

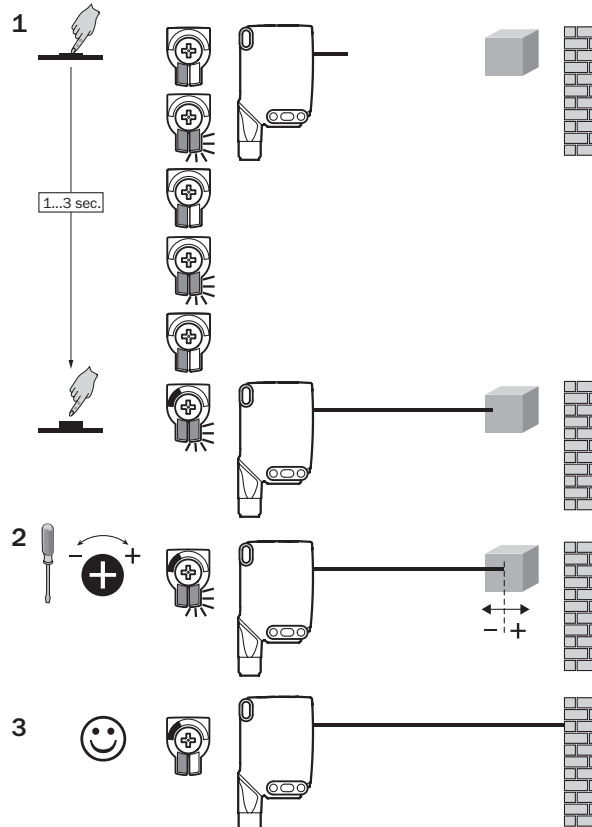


Abbildung 18: WTB26x-xxxxx2xAxx, Einstellung des Schaltabstandes mit Drück-Dreh-Element

WTB26x-xxxxx1xAxx mit Potentiometer:

Mit dem Potentiometer wird der Schaltabstand eingestellt.

Drehung nach rechts: Erhöhung des Schaltabstandes.

Drehung nach links: Verringerung des Schaltabstandes.

Wir empfehlen, den Schaltabstand in das Objekt zu legen, z.B. [siehe Abbildung 19](#). Nachdem der Schaltabstand eingestellt worden ist, das Objekt aus dem Strahlengang entfernen, der Hintergrund wird dabei ausgeblendet und der Schaltausgang ändert sich ([siehe Tabelle 2, Tabelle 7, Tabelle 3](#)).

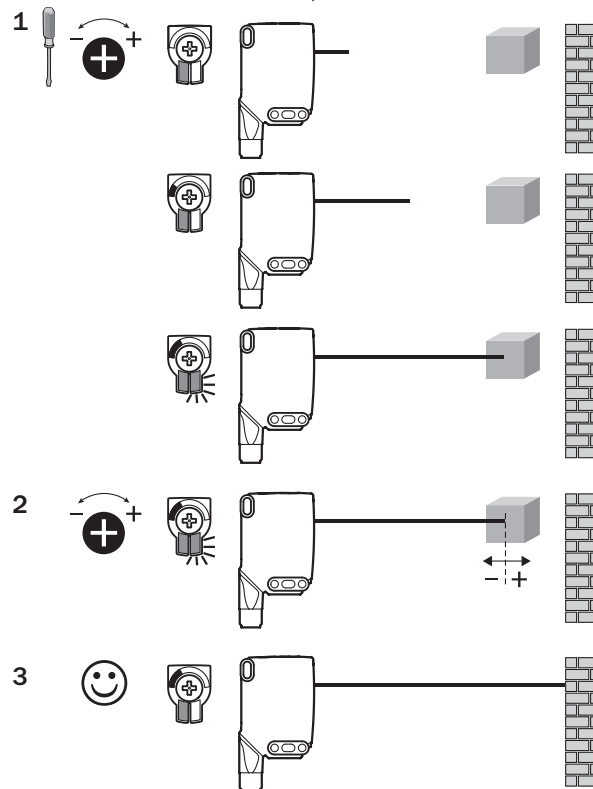


Abbildung 19: WTB26x-xxxxx1xAxx, Einstellung des Schaltabstandes mit Potentiometer

WTB26x-xxxxx3xAxx mit Teach-in-Taste:

Durch Drücken der Teach-in-Taste (ca. 1- 3 sec.) wird der Schaltabstand eingestellt. Wir empfehlen, den Schaltabstand in das Objekt zu legen, z.B. [siehe Abbildung 20](#). Nachdem der Schaltabstand eingestellt worden ist, das Objekt aus dem Strahlengang entfernen, der Hintergrund wird dabei ausgeblendet und der Schaltausgang ändert sich ([siehe Tabelle 2](#), [Tabelle 7](#), [Tabelle 3](#)).

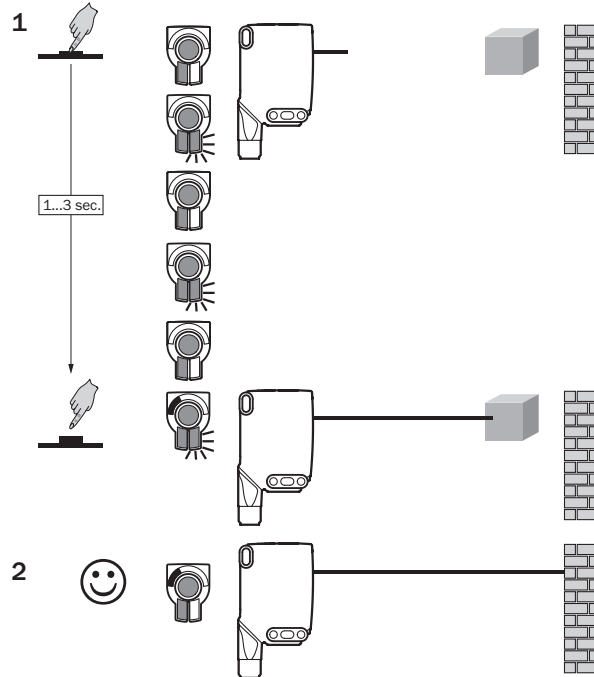
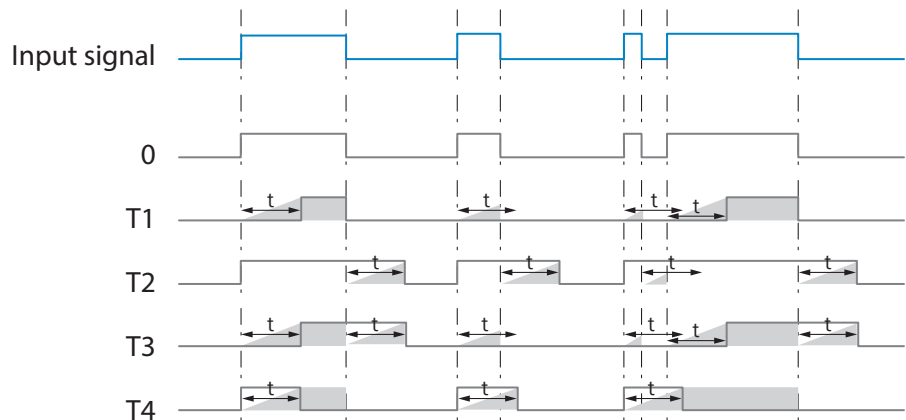
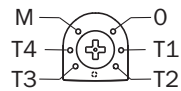
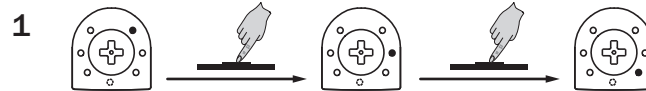
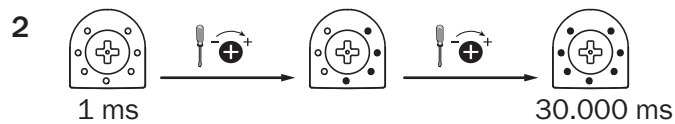


Abbildung 20: WTB26x-xxxxx3xAxx, Einstellung des Schaltabstandes mit Teach-in-Taste

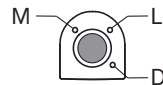
4 Einstellung Zeitfunktionen



M = Manuell (spezifische Einstellung via IO-Link)



5 Einstellung Hell-/Dunkelschaltend



- L hellschaltend
- D dunkelschaltend
- M manuell (spezifische Einstellung via IO-Link)

20 Prozessdatenstruktur

Prozessdatenstruktur (Version 1.1)

	A00	A70	A71	A72	A73	A75
IO-Link	V1.1					
Process data	2 Byte					4 Byte
	Byte 0 : Bit 15... 8 Byte 1: Bit 7... 0					Byte 0 : Bit 31... 24 Byte 1: Bit 13... 16 Byte 2: Bit 15... 8 Byte 3: Bit 7... 0
Bit 0/ Data type	Q _{L1} / Boolean					
Bit 1/ Data type	Q _{L2} / Boolean			Qint.1 / Boolean	Q _{L2} / Boolean	Qint.1 / Boolean
Bit... / Description / Data type	2...15 / [empty]	2...15 / [Time measurement value] / UInt 14	2 ... 15 / [Counter value] / UInt 14	2 ... 15 / [Length / speed measurement] / SInt14	2 / Qint.1 / Boolean	2...7 / [empty]
Bit... / Description / Data type					3 ... 15 / [Time measurement value] / UInt13	8 ... 31 / [Carrier load] / UInt 24

21 Störungsbehebung

Tabelle Störungsbehebung zeigt, welche Maßnahmen durchzuführen sind, wenn die Funktion des Sensors nicht mehr gegeben ist.

Anzeige-LED / Fehlerbild	Ursache	Maßnahme
grüne LED blinkt	IO-Link Kommunikation	keine

Anzeige-LED / Fehlerbild	Ursache	Maßnahme
Schaltausgänge verhalten sich nicht gemäß Tabelle 8	1. IO-Link Kommunikation 2. Änderung der Konfiguration 3. Kurzschluss	1. keine 2. Anpassung der Konfiguration 3. Elektrische Anschlüsse prüfen
gelbe LED leuchtet, kein Objekt im Strahlengang	Schaltabstand ist auf zu großen Abstand eingestellt	Schaltabstand verringern
Objekt ist im Strahlengang, gelbe LED leuchtet nicht	Abstand zwischen Sensor und Objekt ist zu groß oder Schaltabstand ist zu gering eingestellt	Schaltabstand vergrößern

22 Demontage und Entsorgung

Die Lichtschranke muss entsprechend den geltenden länderspezifischen Vorschriften entsorgt werden. Bei der Entsorgung sollte eine werkstoffliche Verwertung (insbesondere der Edelmetalle) angestrebt werden.



HINWEIS

Entsorgung von Batterien, Elektro- und Elektronikgeräten

- Gemäß den internationalen Vorschriften dürfen Batterien, Akkus sowie Elektro- und Elektronikgeräte nicht mit dem Hausmüll entsorgt werden.
- Der Besitzer ist gesetzlich verpflichtet, diese Geräte am Ende ihrer Lebensdauer bei den entsprechenden öffentlichen Sammelstellen abzugeben.



■ Dieses Symbol auf dem Produkt, dessen Verpackung oder im vorliegenden Dokument gibt an, dass ein Produkt den genannten Vorschriften unterliegt.

23 Wartung

SICK-Sensoren sind wartungsfrei.

Wir empfehlen, in regelmäßigen Abständen

- die optischen Grenzflächen zu reinigen
- Verschraubungen und Steckverbindungen zu überprüfen

Veränderungen an Geräten dürfen nicht vorgenommen werden.

Irrtümer und Änderungen vorbehalten. Angegebene Produkteigenschaften und technische Daten stellen keine Garantieerklärung dar.

24 Technische Daten

	WTB26P-xxxxx1	WTB26P-xxxxx4	WTB26I-xxxxx1	WTB26I-xxxxx4
Schaltabstand max.	30 mm ... 1.600 mm ⁽¹⁾	30 mm ... 3.000 mm ⁽¹⁾	30 mm ... 2.000 mm ⁽¹⁾	30 mm ... 3.000 mm ⁽¹⁾
Lichtfleckdurchmesser/Entfernung	Ø 7 mm (700 mm) (Typ)	Ø 7 mm (700 mm) (Typ)	Ø 14 mm (1.000 mm)	Ø 14 mm (1.000 mm)
Versorgungsspannung U _B	DC 10 ... 30 V	DC 10 ... 30 V	DC 10 ... 30 V	DC 10 ... 30 V
Restwelligkeit	≤ 5 V _{SS}	≤ 5 V _{SS}	≤ 5 V _{SS}	≤ 5 V _{SS}
Stromaufnahme	≤ 30 mA ⁽²⁾ < 50 mA ⁽³⁾	≤ 30 mA ⁽²⁾ < 50 mA ⁽³⁾	≤ 30 mA ⁽²⁾ < 50 mA ⁽³⁾	≤ 30 mA ⁽²⁾ < 50 mA ⁽³⁾
Ausgangsstrom I _{max.}	≤ 100 mA	≤ 100 mA	≤ 100 mA	≤ 100 mA
Ansprechzeit max.	500 µs ⁽⁴⁾	2.5 ms ⁽⁴⁾	500 µs ⁽⁴⁾	2.5 ms ⁽⁴⁾
Schaltfrequenz	1000 Hz ⁽⁵⁾	200 Hz ⁽⁵⁾	1000 Hz ⁽⁵⁾	200 Hz ⁽⁵⁾
Schutzart ⁽⁶⁾	siehe Tabelle 5: x4, xH, x5, xI: IP66, IP67, IP69 ⁽⁷⁾ x9, xB: IP65	siehe Tabelle 5: x4, xH, x5, xI: IP66, IP67, IP69 ⁽⁷⁾ x9, xB: IP65	siehe Tabelle 5: x4, xH, x5, xI: IP66, IP67, IP69 ⁽⁷⁾ x9, xB: IP65	siehe Tabelle 5: x4, xH, x5, xI: IP66, IP67, IP69 ⁽⁷⁾ x9, xB: IP65
Schutzklasse	III	III	III	III
Schutzschaltungen	A, B, C, D ⁽⁸⁾	A, B, C, D ⁽⁸⁾	A, B, C, D ⁽⁸⁾	A, B, C, D ⁽⁸⁾
Betriebsumgebungstemperatur	-40 °C ... +60 °C ⁽⁹⁾	-40 °C ... +60 °C ⁽⁹⁾	-40 °C ... +60 °C ⁽⁹⁾	-40 °C ... +60 °C ⁽⁹⁾

- 1) Tastgut mit 90 % Remission (bezogen auf Standard-Weiß DIN 5033)
- 2) 16VDC...30VDC, ohne Last
- 3) 10VDC...16VDC, ohne Last
- 4) Signallaufzeit bei ohmscher Last im Schaltmodus. Abweichende Werte im COM2-Modus möglich.
- 5) Bei Hell-Dunkel-Verhältnis 1:1 im Schaltmodus. Abweichende Werte im IO-Link-Modus möglich.
- 6) Nach EN 60529
- 7) Ersetzt IP69K nach ISO 20653: 2013-03
- 8) A = U_B-Anschlüsse verpolsicher
B = Ein- und Ausgänge verpolsicher
C = Störimpulsunterdrückung
D = Ausgänge überstrom- und kurzschlussfest
- 9) Leitungen unter 0 °C nicht verformen

24.1 Maßzeichnungen

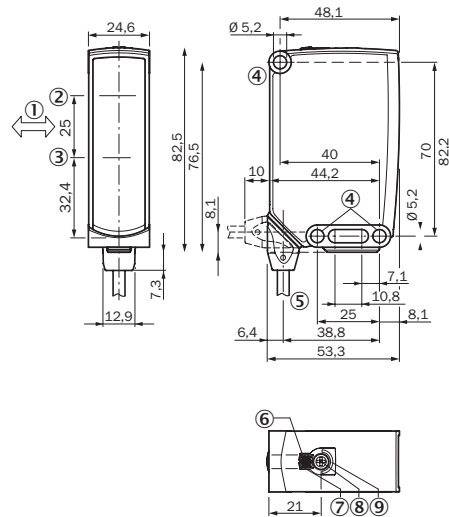


Abbildung 21: Maßzeichnung 1, Leitung

- ① Vorzugsrichtung des Tastgutes
- ② Mitte Optikachse Sender
- ③ Mitte Optikachse Empfänger
- ④ Befestigungsbohrung, $\varnothing 5,2$ mm
- ⑤ Anschluss
- ⑥ Anzeige-LED grün: Betriebsspannung aktiv
- ⑦ Anzeige-LED gelb: Status Lichttempfang
- ⑧ Drück-Dreh-Element: Einstellung des Schaltabstands
- ⑨ BluePilot blau: Schaltabstandsanzeige

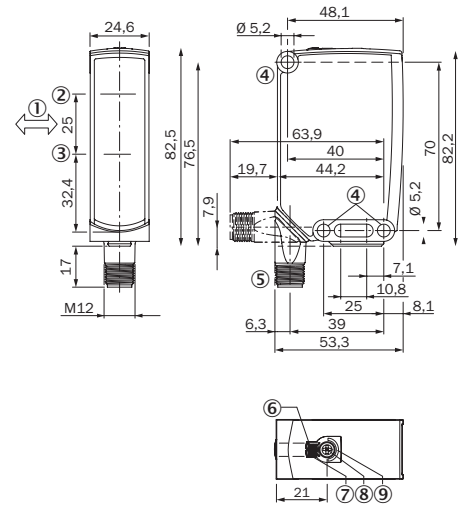


Abbildung 22: Maßzeichnung 2, Stecker

WTB26

SICK
Sensor Intelligence.



de
en
fr
it
ja
pt
ru
zh

Produit décrit

WTB26

Fabricant

SICK AG
Erwin-Sick-Straße 1
79183 Waldkirch
Allemagne

Remarques juridiques

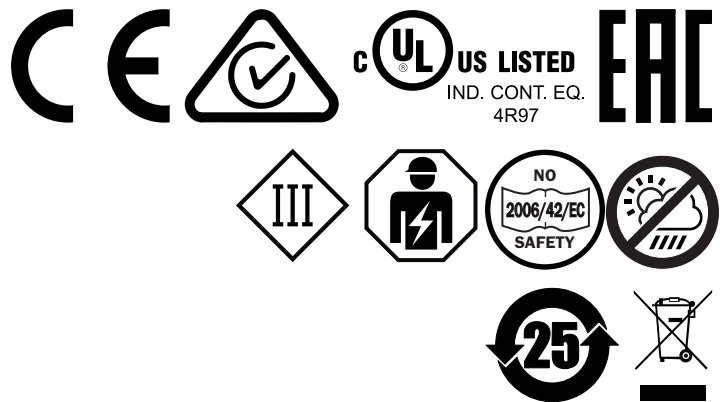
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25 Pour votre sécurité

25.1 Consignes générales de sécurité

- Lire la notice d’instruction avant la mise en service.
-  Le raccordement, le montage et la configuration ne doivent être réalisés que par un personnel qualifié.
-  N’est pas un composant de sécurité selon la Directive machines de l’UE.
-  Lors de la mise en service, protéger l’appareil contre l’humidité et la contamination.
- Cette notice d’instruction contient des informations nécessaires durant le cycle de vie du capteur.

25.2 Remarques sur l’homologation UL

The device must be supplied by a Class 2 source of supply.

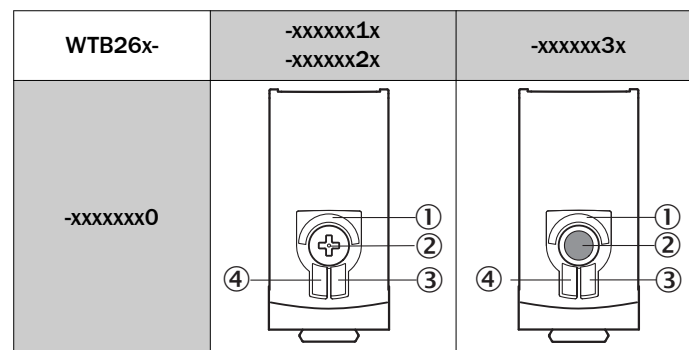
UL Environmental Rating: Enclosure type 1

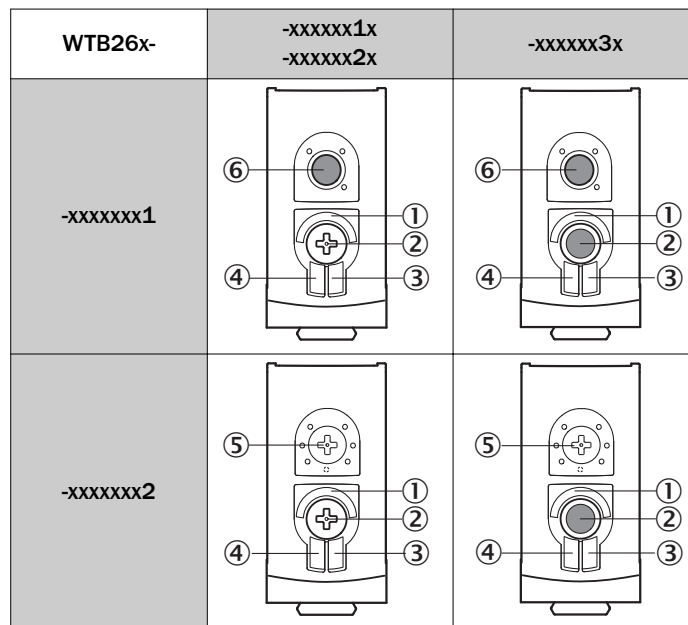
26 Utilisation conforme

WTB26 est un détecteur à réflexion directe optoélectronique (appelé capteur dans ce document) qui permet la détection optique sans contact d’objets, d’animaux et de personnes. Toute autre utilisation ou modification du produit annule la garantie de SICK AG.

27 Éléments de commande et d’affichage

Détecteur à réflexion directe avec élimination d’arrière-plan





- ① BluePilot bleu : indication de la distance de commutation
- ② Bouton poussoir rotatif / Potentiomètre / Bouton de Teach: réglage de la distance de commutation
- ③ LED d'état jaune : état réception de lumière
- ④ LED d'état verte : tension d'alimentation active
- ⑤ Bouton poussoir rotatif: réglage des fonctions temporelles
- ⑥ Touche d'apprentissage : réglage commutation claire/sombre

28 Montage

Montez le capteur sur une équerre de fixation adaptée (voir la gamme d'accessoires SICK).

Respecter le couple de serrage maximum autorisé du capteur de < 1,3 Nm.

Tenir compte de la direction préférentielle de l'objet par rapport au capteur, voir [illustration 32](#), [illustration 33](#).

29 Installation électrique

Le raccordement des capteurs doit s'effectuer hors tension. Selon le mode de raccordement, respecter les informations suivantes :

- Raccordement du connecteur : respecter l'affectation des broches.
- Câble : couleur des fils

Activer l'alimentation électrique seulement après avoir effectué les branchements électriques.

Explications relatives au schéma de raccordement ([tableau 10](#) - [tableau 4](#)).

Alarme = sortie alarme

Health = sortie alarme

MF (configuration broche 2) = entrée externe, apprentissage, signal de commutation

Q_{L1} / C = sortie de commutation, communication IO-Link

Test = entrée de test

U_B : 10 ... 30 V DC

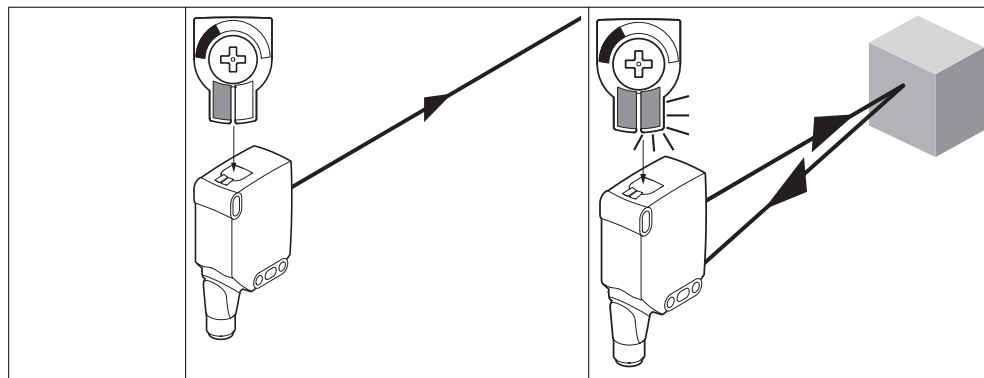
Tableau 10: Connexions

Wxx26x-	x4	xH	x5	xl
1 = BN 2 = WH 3 = BU 4 = BK 5 = GY		 0,14 mm ² AWG26	 0,14 mm ² AWG26	
Wxx26x-	x9		xB	
1 = BN 2 = BU 3 = not connected 4 = BK 5 = WH 6 = GY 7 = not connected	 I _N = 4 A		 I _N = 6 A	

Tableau 11: CC

WTB26	-24161xxxA00 -34161xxxA00	-1x161xxxAO 0	-24162xxxAO 0 -34162xxxAO 0	-1x162xxxAO 0	-2416xxxA01- A99 -3416xxxA01- A99
1	+ (L+)				
2	MF				
3	- (M)				
4	Q _{L1} /C				
Par défaut : MF	Q̄	Q̄	Sortie Q	Sortie Q	www.sick.com 8022709
Par défaut : Q _{L1} /C	Sortie Q	Sortie Q	Q̄	Q̄	www.sick.com 8022709
	 1 = BN (mar- ron) 2 = WH (blanc) 3 = BU (bleu) 4 = BK (noir)	 0,14 mm ² AWG26	 1 = BN (mar- ron) 2 = WH (blanc) 3 = BU (bleu) 4 = BK (noir)	 0,14 mm ² AWG26	

Tableau 12: Push/Pull



Sortie Q Push-pull (≤ 100 mA)		
\bar{Q} Push-pull (≤ 100 mA)		

30 Fonctions supplémentaires

Alarme

Sortie alarme : le capteur (WTB26) est équipé d'une sortie de signalisation avant panne (« Alarme » dans le schéma de raccordement [voir tableau 7]) qui indique si le fonctionnement du capteur est limité. La LED clignote. Causes possibles : encrassement du capteur, capteur dérégulé. Si l'état est correct : LOW (0), en cas d'encrassement important HIGH (1).

Sortie Health : le capteur (WTB26) est équipé d'une sortie de signalisation avant panne (« Health » dans le schéma de raccordement [voir tableau 7]) qui indique si le fonctionnement du capteur est limité ou si le câble est coupé. Causes possibles : encrassement des capteurs, les capteurs sont dérégulés, le câble est endommagé. Si l'état est correct : HIGH (1), en cas d'encrassement important ou de coupure de câble LOW (0). La LED clignote.

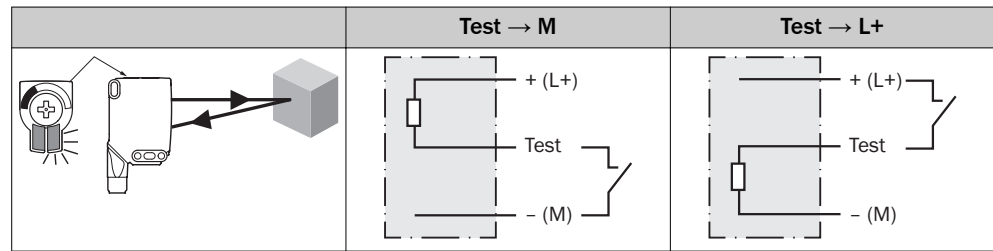
Entrée test

Entrée test : les capteurs WTB26 disposent d'une entrée test (« TE » ou « Test » dans le schéma de raccordement [voir tableau 2, tableau 7 et tableau 4]) qui permet de désactiver l'émetteur et ainsi de contrôler le bon fonctionnement du capteur : lorsque des câbles avec connecteurs femelles équipés de LED sont utilisés, s'assurer que la TE est correctement affectée.

Si l'objet est détecté, activer l'entrée test (voir le schéma de raccordement [voir tableau 2, tableau 7 et tableau 4]). La LED d'émission s'éteint ou une absence de détection d'objet est simulée. Pour vérifier le fonctionnement, utiliser tableau 4. Si la sortie de commutation ne se comporte pas comme indiqué dans tableau 4, vérifier les conditions d'utilisation. Voir la section consacrée au diagnostic.

Tableau 13: Test

	Test → M	Test → L+



31 Mise en service

1 Alignement

WTB26P : aligner le capteur sur l'objet. Choisir la position de sorte que le faisceau lumineux émis rouge touche l'objet en plein centre. S'assurer que l'ouverture optique (vitre frontale) du capteur est parfaitement dégagée [voir illustration 23, illustration 24].

WTB26I : aligner le capteur sur l'objet. Choisir la position de sorte que le faisceau infrarouge (invisible) touche l'objet en plein centre. Seules les LED permettent de savoir si l'alignement est correct, voir tableau 2, tableau 7 et tableau 3. S'assurer que l'ouverture optique (vitre frontale) du capteur est parfaitement dégagée.

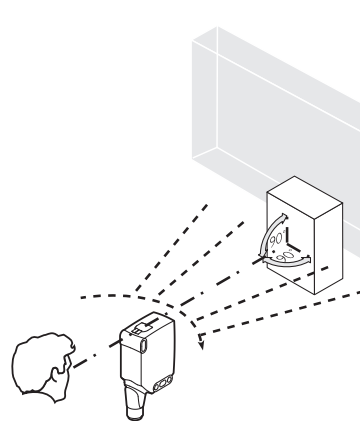


Illustration 23: Alignement 1

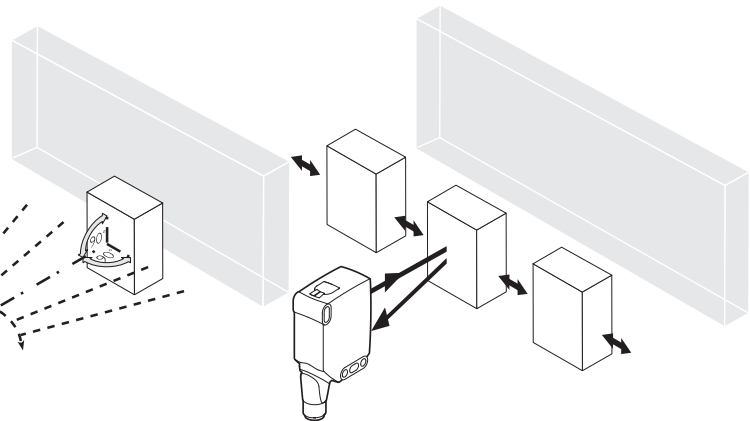


Illustration 24: Alignement 2

2 Distance de commutation

Les WTBXX sont des détecteurs à réflexion directe avec élimination d'arrière-plan. En fonction de la rémission de l'objet à détecter et de l'arrière-plan qui se trouve éventuellement derrière, une distance minimale (y) doit être respectée entre la distance de commutation (x) réglée et l'arrière-plan.

Vérifier les conditions d'utilisation : comparer la distance de commutation et la distance par rapport à l'objet ou à l'arrière-plan et les caractéristiques de rémission de l'objet avec le diagramme correspondant [voir illustrations 5 et 6] (x = distance de commutation, y = distance minimale entre la distance de commutation réglée et l'arrière-plan (blanc, 90 %) rémission : 6 % = noir ①, 18 % = gris ②, 90 % = blanc ③ (par rapport au blanc standard selon DIN 5033). Nous recommandons de procéder au réglage avec un objet de faible rémission.

La distance minimale (= y) pour l'élimination d'arrière-plan peut être déterminée à partir du diagramme [illustration 25 ①] :

exemple : x = 600 mm, y = 40 mm. En effet, l'arrière-plan (blanc, 90 %) est masqué à partir d'une distance du capteur > 40 mm.

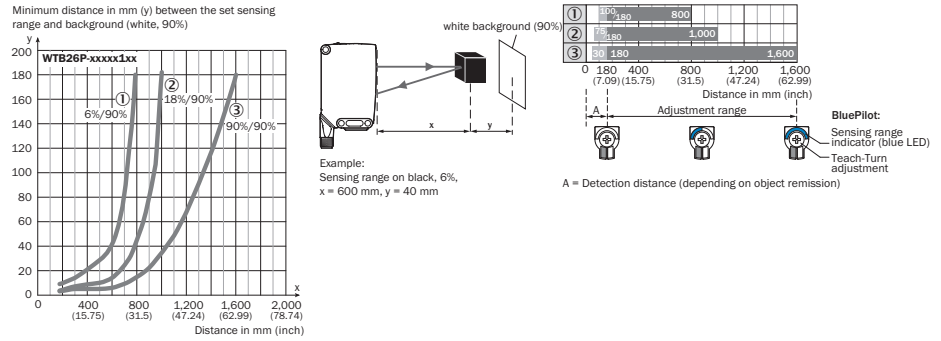


Illustration 25: Caractéristique 1, WTB26P-xxxxx1xx, lumière rouge

- ① Distance de commutation sur noir, 6 % de réflexion
- ② Distance de commutation sur gris, 18 % de réflexion
- ③ Distance de commutation sur blanc, 90 % de réflectivité

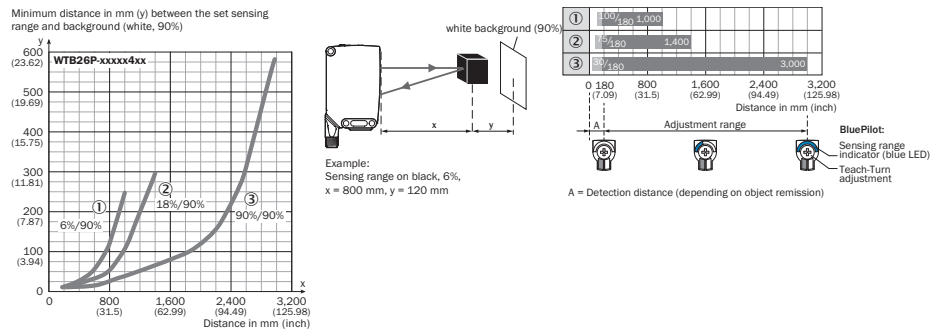


Illustration 26: Caractéristique 2, WTB26P-xxxxx4xx, lumière rouge

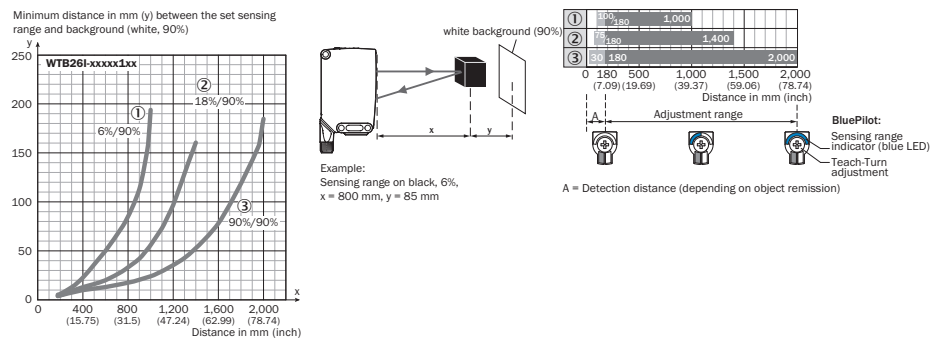


Illustration 27: Caractéristique 3, WTB26I-xxxxx1xx, lumière infrarouge

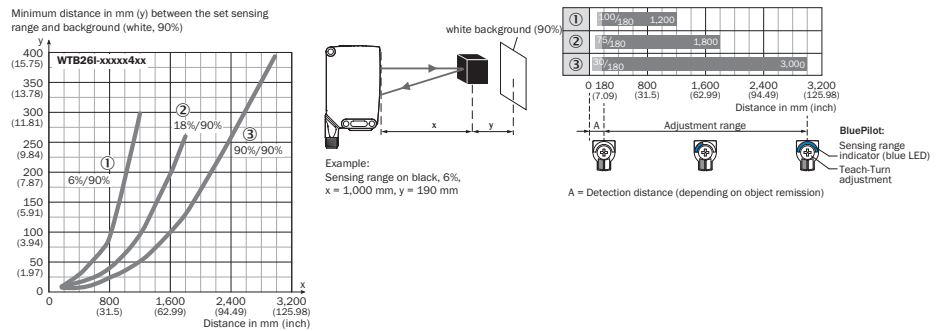


Illustration 28: Caractéristique 4, WTB26I-xxxx4xx, lumière infrarouge

3 Réglage distance de commutation

WTB26x-xxxxx2xAxx avec bouton combiné pousser ou tourner :

Appuyer sur le bouton d'apprentissage (pendant environ 1 à 3 secondes) pour régler la distance de commutation. Selon les exigences, il est possible de procéder à un réglage fin avec le potentiomètre (sans appuyer sur le bouton d'apprentissage).

Rotation vers la droite : augmentation de la distance de commutation.

Rotation vers la gauche : réduction de la distance de commutation.

La distance de commutation peut aussi être sélectionnée uniquement au moyen du potentiomètre. Nous recommandons de régler la distance de commutation dans l'objet, par ex. : voir illustration 29. Après le réglage de la distance de commutation, retirer l'objet de la trajectoire du faisceau, ce qui élimine l'arrière-plan et modifie la sortie de commutation (voir tableau 2, tableau 7, tableau 3).

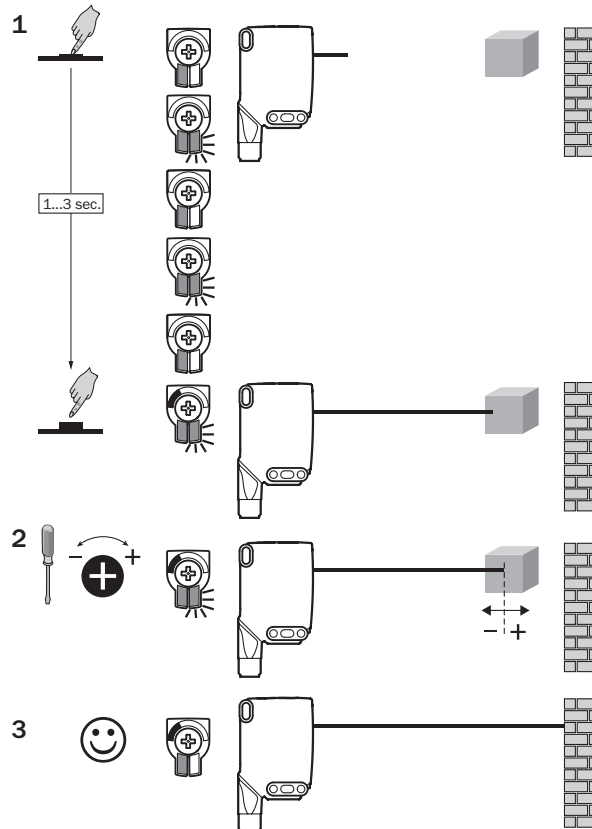


Illustration 29: WTB26x-xxxxx2xAxx, réglage de la distance de commutation avec le bouton combiné pousser ou tourner

WTB26x-xxxxx1xAxx avec potentiomètre :

le potentiomètre permet de régler la distance de commutation.

Rotation vers la droite : augmentation de la distance de commutation.

Rotation vers la gauche : réduction de la distance de commutation.

Nous recommandons de régler la distance de commutation dans l'objet, par ex. : voir [illustration 30](#). Après le réglage de la distance de commutation, retirer l'objet de la trajectoire du faisceau, ce qui élimine l'arrière-plan et modifie la sortie de commutation (voir [tableau 2](#), [tableau 7](#), [tableau 3](#)).

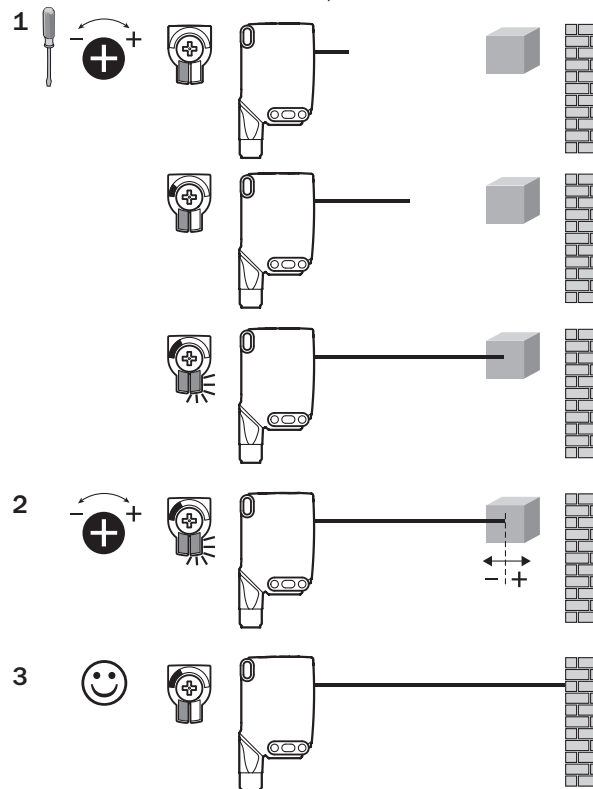


Illustration 30: WTB26x-xxxxx1xAxx, réglage de la distance de commutation avec le potentiomètre

WTB26x-xxxxx3xAxx avec bouton combiné pousser ou tourner :

Appuyer sur le bouton d'apprentissage (pendant environ 1 à 3 secondes) pour régler la distance de commutation. Nous recommandons de régler la distance de commutation dans l'objet, par ex. : voir illustration 31. Après le réglage de la distance de commutation, retirer l'objet de la trajectoire du faisceau, ce qui élimine l'arrière-plan et modifie la sortie de commutation (voir tableau 2, tableau 7, tableau 3).

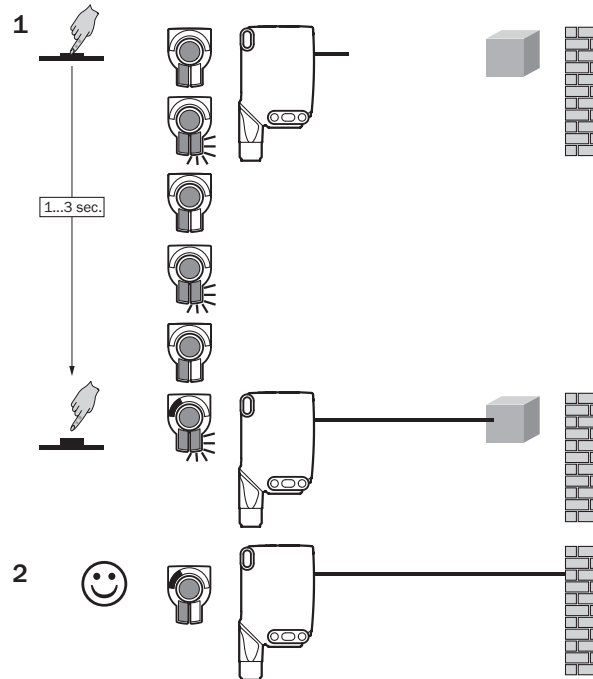
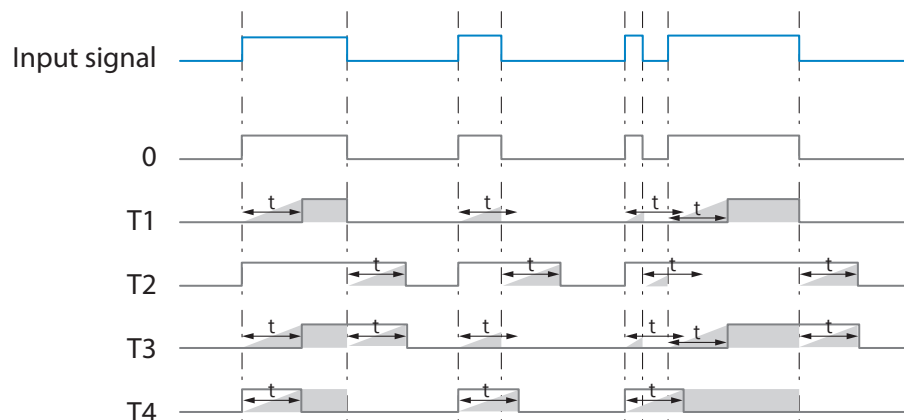
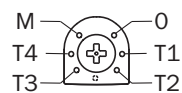
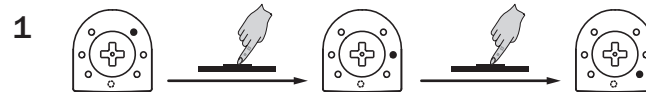
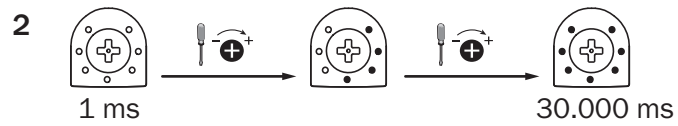


Illustration 31: WTB26x-xxxxx3xAxx, réglage de la distance de commutation avec le bouton d'apprentissage

4 Réglage des fonctions temporelles



M = Manuel (réglage spécifique via IO-Link)



5 Réglage commutation claire/sombre



- L commutation claire
- D commutation sombre
- M Manuel (réglage spécifique via IO-Link)

32 Structure de données de process

Structure de données de process (version 1.1)

	A00	A70	A71	A72	A73	A75
IO-Link	V1.1					
Données de processus	2 octets					4 octets
	Octet 0 : bit 15 ... 8 Octet 1 : bit 7 ... 0					Octet 0 : bit 31 ... 24 Octet 1 : bit 13 ... 16 Octet 2 : bit 15 ... 8 Octet 3 : bit 7 ... 0
Bit 0 / type de données	Q_{L1} / booléen					
Bit 1 / type de données	Q_{L2} / booléen			Qint.1 / booléen	Q_{L2} / booléen	Qint.1 / booléen
Bit... / description / type de données	2 ... 15 / [vide]	2 ... 15 / [valeur de mesure du temps] / Uint 14	2 ... 15 / [contrôle de valeur] / Uint 14	2 ... 15 / [longueur de mesure de la vitesse] / Sint14	2 / Qint.1 / booléen	2 ... 7 / [vide]
Bit... / description / type de données					3 ... 15 / [valeur de mesure du temps] / Uint13	8 ... 31 / [charge support] / Uint 24

33 Élimination des défauts

Le tableau Élimination des défauts présente les mesures à appliquer si le capteur ne fonctionne plus.

LED d'état / image du défaut	Cause	Mesure
La LED verte clignote	Communication IO-Link	Aucune
Les sorties de commutation ne se comportent pas selon tableau 12	1. Communication IO-Link 2. Modification de la configuration 3. Court-circuit	1. Aucune 2. Adaptation de la configuration 3. Vérifier les raccordements électriques
La LED jaune s'allume, pas d'objet dans la trajectoire du faisceau	La distance de commutation est réglée sur une distance trop grande	Réduire la portée
L'objet est dans la trajectoire du faisceau, la LED jaune ne s'allume pas	La distance entre le capteur et l'objet est trop grande ou la portée est trop faible	Augmenter la portée

34 Démontage et mise au rebut

Le capteur doit être mis au rebut selon les réglementations spécifiques au pays respectif. Dans la limite du possible, les matériaux du capteur doivent être recyclés (notamment les métaux précieux).



REMARQUE

Mise au rebut des batteries, des appareils électriques et électroniques

- Selon les directives internationales, les batteries, accumulateurs et appareils électriques et électroniques ne doivent pas être mis au rebut avec les ordures ménagères.
- Le propriétaire est obligé par la loi de retourner ces appareils à la fin de leur cycle de vie au point de collecte respectif.



■ Ce symbole sur le produit, son emballage ou dans ce document indique qu'un produit est soumis à ces réglementations.

35 Maintenance

Les capteurs SICK ne nécessitent aucune maintenance.

Nous vous recommandons de procéder régulièrement

- au nettoyage des surfaces optiques
- au contrôle des vissages et des connexions enfichables

Ne procéder à aucune modification sur les appareils.

Sujet à modification sans préavis. Les caractéristiques du produit et techniques fournies ne sont pas une déclaration de garantie.

36 Caractéristiques techniques

	WTB26P-xxxxx1	WTB26P-xxxxx4	WTB26I-xxxxx1	WTB26I-xxxxx4
Portée max.	30 mm ... 1.600 mm ⁽¹⁾	30 mm ... 3.000 mm ⁽¹⁾	30 mm ... 2.000 mm ⁽¹⁾	30 mm ... 3.000 mm ⁽¹⁾
Diamètre spot / distance	Ø 7 mm (700 mm) (type)	Ø 7 mm (700 mm) (type)	Ø 14 mm (1.000 mm)	Ø 14 mm (1.000 mm)
Tension d'alimentation U_B	DC 10 ... 30 V	DC 10 ... 30 V	DC 10 ... 30 V	DC 10 ... 30 V
Ondulation résiduelle	$\leq 5 V_{SS}$	$\leq 5 V_{SS}$	$\leq 5 V_{SS}$	$\leq 5 V_{SS}$
Consommation électrique	$\leq 30 \text{ mA}^{(2)}$ < 50 mA ⁽³⁾	$\leq 30 \text{ mA}^{(2)}$ < 50 mA ⁽³⁾	$\leq 30 \text{ mA}^{(2)}$ < 50 mA ⁽³⁾	$\leq 30 \text{ mA}^{(2)}$ < 50 mA ⁽³⁾
Courant de sortie $I_{max.}$	$\leq 100 \text{ mA}$	$\leq 100 \text{ mA}$	$\leq 100 \text{ mA}$	$\leq 100 \text{ mA}$
Temps de réponse max.	500 $\mu\text{s}^{(4)}$	2,5 ms ⁽⁴⁾	500 $\mu\text{s}^{(4)}$	2,5 ms ⁽⁴⁾
Fréquence de commutation	1.000 Hz ⁽⁵⁾	200 Hz ⁽⁵⁾	1.000 Hz ⁽⁵⁾	200 Hz ⁽⁵⁾
Indice de protection ⁽⁶⁾	voir tableau 10: x4, xH, x5, xI: IP66, IP67, IP69 ⁽⁷⁾ x9, xB : IP65	voir tableau 10: x4, xH, x5, xI: IP66, IP67, IP69 ⁽⁷⁾ x9, xB : IP65	voir tableau 10: x4, xH, x5, xI: IP66, IP67, IP69 ⁽⁷⁾ x9, xB : IP65	voir tableau 10: x4, xH, x5, xI: IP66, IP67, IP69 ⁽⁷⁾ x9, xB : IP65
Classe de protection	III	III	III	III
Protections électriques	A, B, C, D ⁽⁸⁾	A, B, C, D ⁽⁸⁾	A, B, C, D ⁽⁸⁾	A, B, C, D ⁽⁸⁾
Température de service	-40 °C ... +60 °C ⁽⁹⁾	-40 °C ... +60 °C ⁽⁹⁾	-40 °C ... +60 °C ⁽⁹⁾	-40 °C ... +60 °C ⁽⁹⁾

1) Objet avec 90 % de réémission (par rapport au blanc standard selon DIN 5033)

2) 16 V CC ... 30 V CC, sans charge

3) 10 V CC ... 16 V CC, sans charge

4) Durée du signal sur charge ohmique en mode commutation. Valeurs différentes possibles en mode COM2.

5) Pour un rapport clair/sombre de 1:1 en mode de commutation. Valeurs différentes possibles en mode IO-Link.

6) Selon EN 60529

7) Remplace IP69K selon ISO 20653: 2013-03

8) A = raccordements U_B protégés contre les inversions de polarité

B = entrées et sorties protégées contre les inversions de polarité

C = Suppression des impulsions parasites

D = sorties protégées contre les courts-circuits et les surcharges

9) Ne pas déformer les câbles sous 0 °C

36.1 Plans cotés

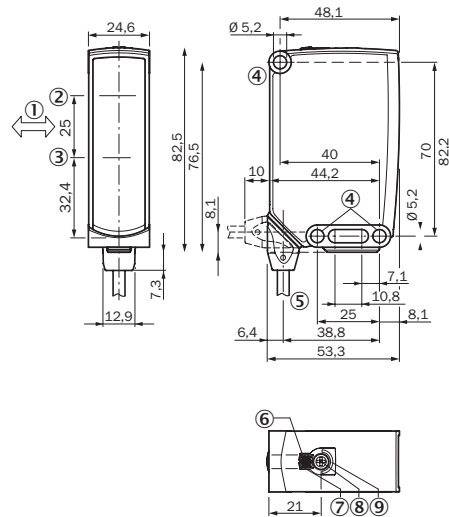


Illustration 32: Plan coté 1, câble

- ① Sens recommandé de l'objet à détecter
- ② Centre de l'axe optique émetteur
- ③ Centre de l'axe optique récepteur
- ④ Trou de fixation, Ø5,2 mm
- ⑤ Raccordement
- ⑥ LED d'état verte : tension d'alimentation active
- ⑦ LED d'état jaune : état réception de lumière
- ⑧ Bouton poussoir rotatif : réglage de la distance de commutation
- ⑨ BluePilot bleu : indication de la distance de commutation

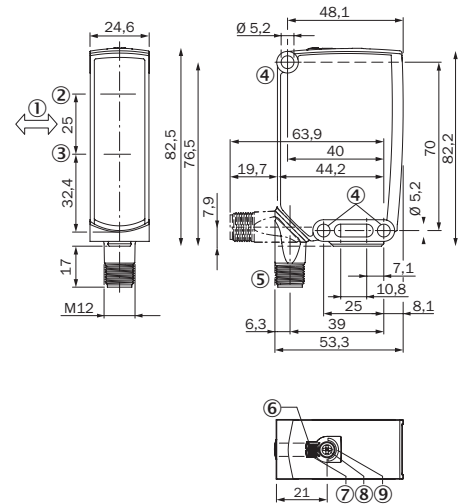


Illustration 33: Plan coté 2, connecteur mâle

WTB26

SICK
Sensor Intelligence.



de
en
fr
it
ja
pt
ru
zh

Produto descrito

WTB26

Fabricante

SICK AG
Erwin-Sick-Str. 1
79183 Waldkirch
Alemanha

Notas legais

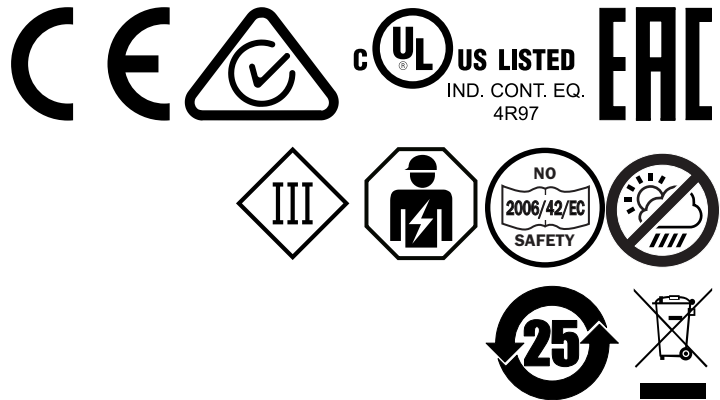
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Documento original

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37 Para a sua segurança

37.1 Instruções gerais de segurança

- Leia o manual de instruções antes de colocar em operação.
-  Conexão, montagem e configuração só podem ser realizadas por especialistas treinados.
-  Não é um componente de segurança em conformidade com a Diretriz de Máquinas da UE.
-  Ao colocar em operação, proteja o dispositivo de umidade e contaminação.
- Esse manual de instruções contém informações necessárias durante o ciclo de vida do sensor.

37.2 Indicações sobre a homologação UL

The device must be supplied by a Class 2 source of supply.

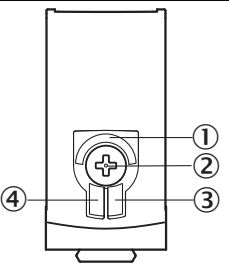
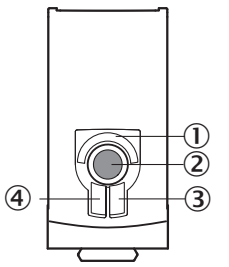
UL Environmental Rating: Enclosure type 1

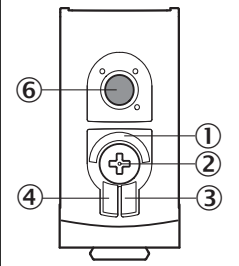
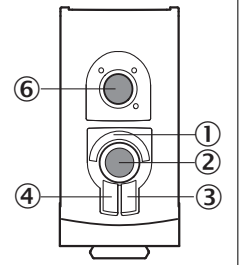
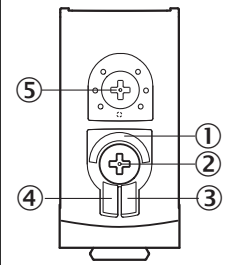
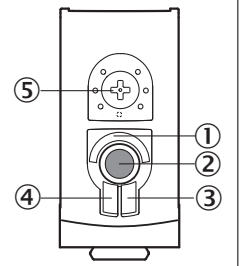
38 Especificações de uso

O WTB26 é um sensor fotoelétrico de proximidade utilizado para a detecção óptica, sem contato, de objetos, animais e pessoas. Qualquer utilização diferente ou alterações do produto ocasionam a perda da garantia da SICK AG.

39 Elementos de comando e indicação

Sensor fotoelétrico de reflexão com supressão do fundo

WTB26-	-xxxxx1x -xxxxx2x	-xxxxx3x
-xxxxxx0		

WTB26x-	-xxxxxx1x -xxxxxx2x	-xxxxxx3x
-xxxxxx1		
-xxxxxx2		

- ① BluePilot azul: indicação da distância de comutação
- ② Elemento de pressão e giro/potenciômetro/tecla teach: ajuste da distância de comutação
- ③ Indicador LED amarelo: status recepção luminosa
- ④ LED indicador verde: tensão de alimentação ativa
- ⑤ Elemento de pressão e giro: ajuste das funções de tempo
- ⑥ Tecla teach: ajuste de comutação por sombra/luz

40 Montagem

Montar o sensor e o refletor em uma cantoneira de fixação adequada (ver a linha de acessórios SICK).

Observar o torque de aperto máximo permitido de < 1,3 Nm para o sensor.

Observar a direção preferencial do objeto em relação ao sensor, [ver figura 43](#), [figura 44](#).

41 Instalação elétrica

A conexão dos sensores deve ser realizada em estado desenergizado. Conforme o tipo de conexão, devem ser observadas as seguintes informações:

- Conector: observar a disposição dos pinos.
- Cabo: Cor dos fios

Instalar ou ligar a alimentação de tensão somente após a conexão de todas as conexões elétricas.

Explicações relativas ao esquema de conexões: ([tabela 14](#) - [tabela 4](#)).

Alarm = saída de alarme

Health = saída de alarme

MF (configuração do pino 2) = entrada externa, Teach-in, sinal de comutação

Q_{L1}/C = saída de comutação, comunicação IO-Link

Test = Entrada de teste


U_B: 10 ... 30 V CC 

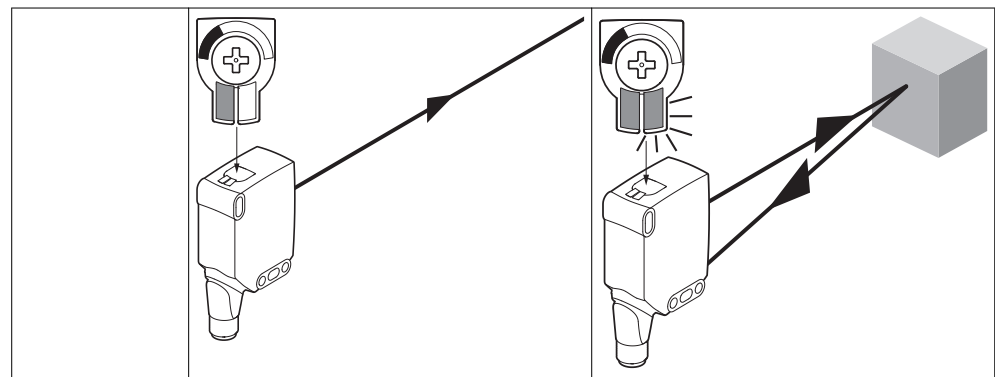
Tabela 14: Conexões

Wxx26x-	x4	xH	x5	xl
1 = BN 2 = WH 3 = BU 4 = BK 5 = GY		 0,14 mm ² AWG26	 0,14 mm ² AWG26	
Wxx26x-	x9		xB	
1 = BN 2 = BU 3 = not connected 4 = BK 5 = WH 6 = GY 7 = not connected	 I _N = 4 A		 I _N = 6 A	

Tabela 15: CC

WTB26	-24161xxxA00 -34161xxxA00	-1x161xxxAO 0	-24162xxxAO 0	-1x162xxxAO 0	-2416xxxA01- A99 -3416xxxA01- A99
1	+ (L+)				
2	MF				
3	- (M)				
4	Q _{L1} /C				
Default: MF	Q̄	Q̄	Q	Q	www.sick.com 8022709
Default: Q _{L1} /C	Q	Q	Q̄	Q̄	www.sick.com 8022709
		1 = BN (marrom) 2 = WH (branco) 3 = BU (azul) 4 = BK (preto)		1 = BN (marrom) 2 = WH (branco) 3 = BU (azul) 4 = BK (preto)	
		 0,14 mm ² AWG26		 0,14 mm ² AWG26	

Tabela 16: Push / Pull



<p>Q push-pull (≤ 100 mA)</p>		
<p>\bar{Q} push-pull (≤ 100 mA)</p>		

42 Funções adicionais

Alarme

Saída de alarme: o sensor (WTB26) dispõe de uma saída de pré-aviso de falha (“Alarme” no esquema de conexões [ver tabela 7]) que avisa quando o sensor está com operacionalidade restrita. O indicador LED está intermitente, neste caso. Causas possíveis: contaminação do sensor, sensor desajustado. No estado OK: LOW (0), em caso de forte contaminação HIGH (1).

Saída Health: O sensor (WTB26) dispõe de uma saída de aviso de pré-falha (“Health” no esquema de conexões [ver tabela 7]), que avisa quando o sensor estiver com operacionalidade restrita ou se o cabo estiver interrompido. Causas possíveis: sujeira dos sensores, sensores desajustados, cabo danificado. No estado OK: HIGH (1), em caso de forte enjuntamento ou interrupção do cabo LOW (0). O indicador LED está intermitente, neste caso.

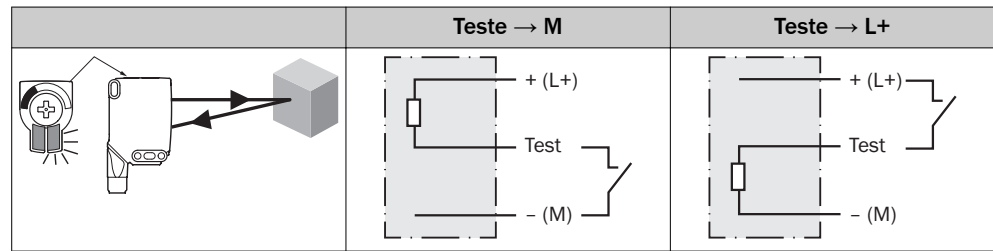
Entrada de teste

Entrada de teste: os sensores WTB26 dispõem de uma entrada de teste (“ET” ou “Teste” no esquema de conexões [ver tabela 2, tabela 7 e tabela 4]), através da qual o emissor é desligado, permitindo assim verificar o seu funcionamento correto: ao utilizar conectores fêmea do cabo com indicadores LED, certificar-se de que a ET tenha o pin-out adequado.

Quando o objeto for detectado, ativar a entrada de teste (ver o esquema de conexões [ver tabela 2, tabela 7 e tabela 4]). O LED de emissão é desligado ou há a simulação, de que nenhum objeto foi detectado. Utilizar os tabela 4 para verificar a função. Se a saída de comutação não se comportar de acordo com tabela 4, verificar as condições de uso. Ver o item Diagnóstico de erros.

Tabela 17: Teste

	Teste → M	Teste → L+



43 Colocação em operação

1 Alinhamento

WTB26P: alinhar o sensor ao objeto. Selecionar o posicionamento de forma que o feixe da luz de emissão vermelha incida sobre o centro do objeto. Certificar-se de que a abertura óptica (vidro frontal) do sensor esteja completamente livre [ver figura 34, figura 35].

WTB26I: alinhar o sensor ao objeto. Selecionar o posicionamento de forma que a luz infravermelha (invisível) incida sobre o centro do objeto. O alinhamento correto só pode ser reconhecido através dos indicadores LED, ver tabela 2, tabela 7 e tabela 3. Certificar-se de que a abertura óptica (vidro frontal) do sensor esteja completamente livre.

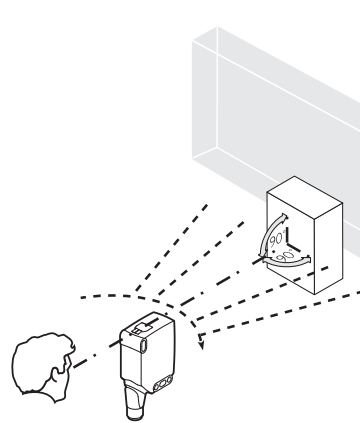


Figura 34: Alinhamento 1

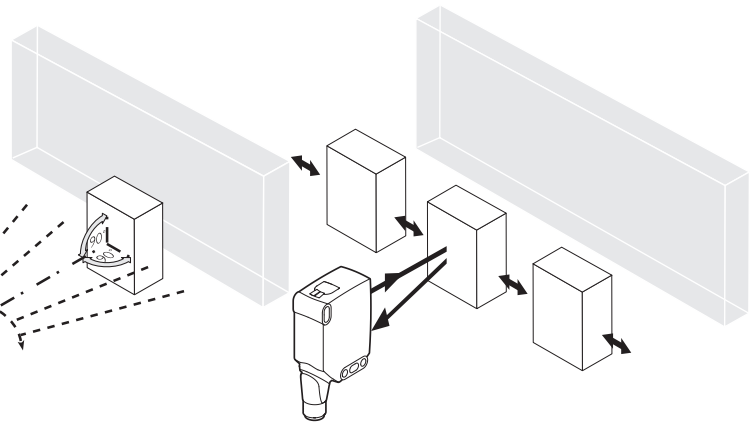


Figura 35: Alinhamento 2

2 Distância de comutação

WTBXX são sensores fotoelétricos de reflexão com supressão do fundo. Dependendo da luminescência do objeto a ser detectado e do fundo que eventualmente se encontra atrás dele, deve ser mantida uma distância mínima (y) entre a distância de comutação ajustada (x) e o plano de fundo.

Verificar as condições de uso: equiparar a distância de comutação e distância até o objeto ou plano de fundo, bem como a refletividade do objeto, com o respectivo diagrama [ver a figura 5 e 6] (x = distância de comutação, y = distância mínima entre a distância de comutação ajustada e o plano de fundo (branco, 90%) luminescência: 6% = preto ①, 18% = cinza ②, 90% = branco ③ (com base no padrão branco da norma DIN 5033). Recomendamos realizar o ajuste com um objeto de baixa luminescência.

A distância mínima ($=y$) para a supressão do fundo pode ser determinada a partir do gráfico [figura 36 ①] do seguinte modo:

exemplo: $x = 600$ mm, $y = 40$ mm. Isto significa, que o sensor suprime o plano de fundo (branco, 90%) a partir de uma distância > 40 mm.

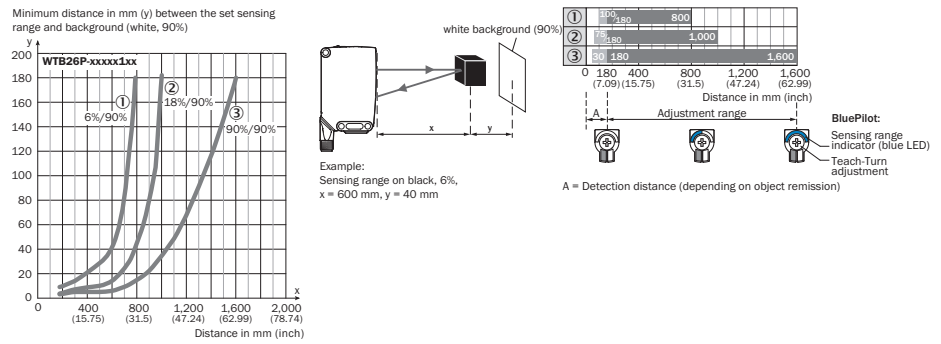


Figura 36: Curva característica 1, WTB26P-xxxx1xx, luz vermelha

- ① Distância de comutação sobre preto, luminiscência 6%
- ② Distância de comutação sobre cinza, luminiscência 18%
- ③ Distância de comutação sobre branco, remissão 90%

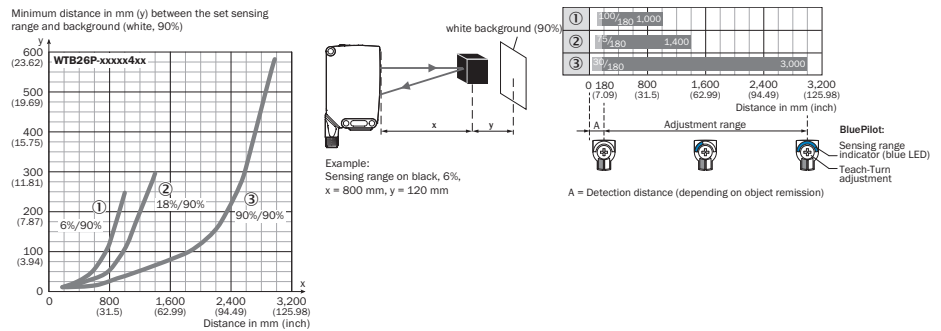


Figura 37: Curva característica 2, WTB26P-xxxx4xx, luz vermelha

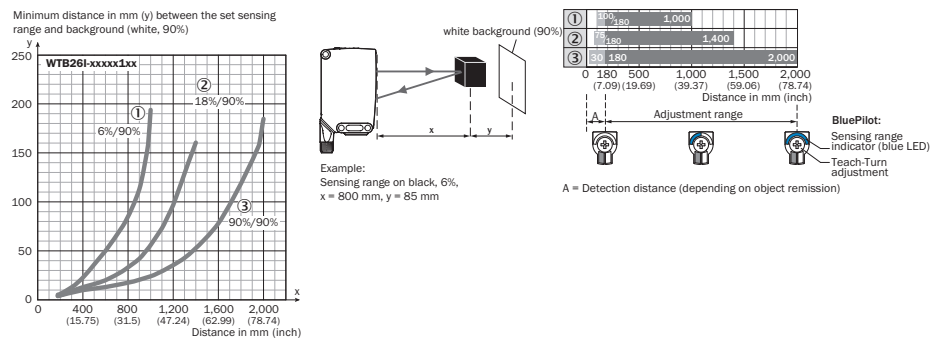


Figura 38: Curva característica 3, WTB26I-xxxx1xx, luz vermelha

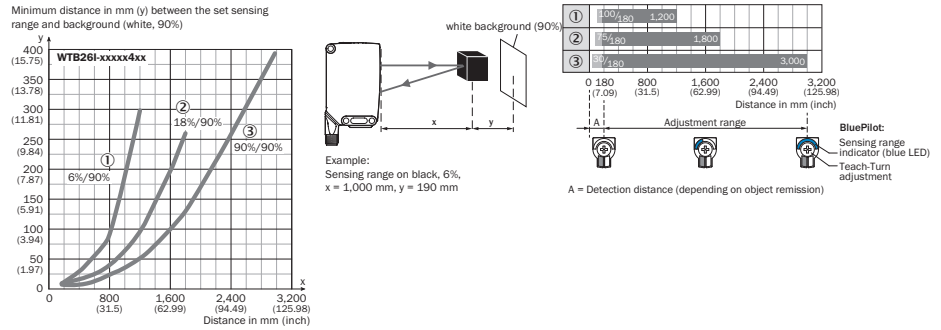


Figura 39: Curva característica 4, WTB26I-xxxxx4xx, luz infravermelha

3 Ajuste da distância de comutação

WTB26x-xxxxx2xAxx com elemento de pressão e giro:

Ao pressionar a tecla teach-in (aprox. 1- 3 s.), é ajustada a distância de comutação. Dependendo dos requisitos, é possível fazer um ajuste fino com o potenciômetro (sem apertar a tecla teach-in).

Giro para direita: aumento da distância de comutação.

Giro para esquerda: redução da distância de comutação.

A distância de comutação também pode ser ajustada somente com o potenciômetro.

Recomendamos posicionar a distância de comutação no objeto, p. ex. [ver figura 40](#). Após o ajuste da distância de comutação, remover o objeto do caminho óptico; o fundo é suprimido e a saída de comutação se altera ([ver tabela 2](#), [tabela 7](#), [tabela 3](#)).

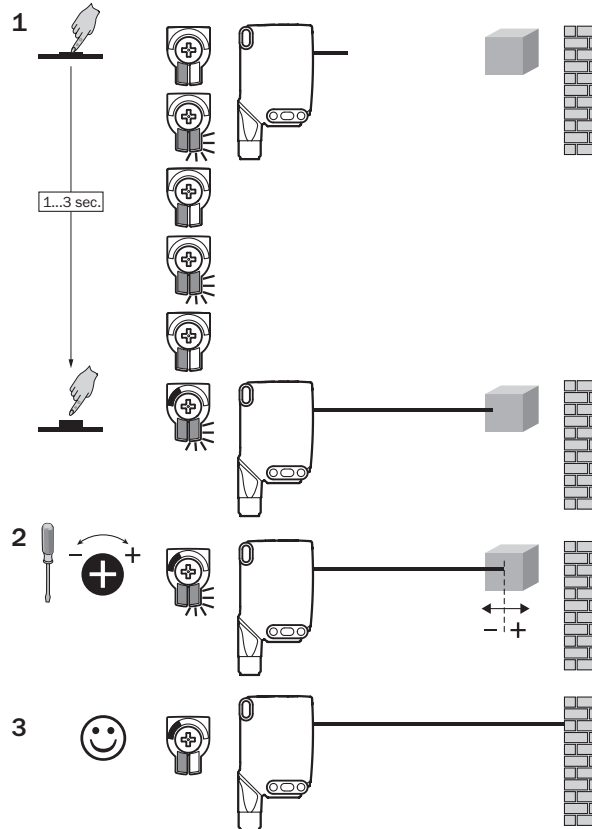


Figura 40: WTB26x-xxxxx2xAxx, ajuste da distância de comutação com elemento de pressão e giro

WTB26x-xxxxx1xAxx com potenciômetro

Com o potenciômetro é ajustada a distância de comutação.

Giro para direita: aumento da distância de comutação.

Giro para esquerda: redução da distância de comutação.

Recomendamos posicionar a distância de comutação no objeto, p. ex. [ver figura 41](#). Após o ajuste da distância de comutação, remover o objeto do caminho óptico; o fundo é suprimido e a saída de comutação se altera ([ver tabela 2](#), [tabela 7](#), [tabela 3](#)).

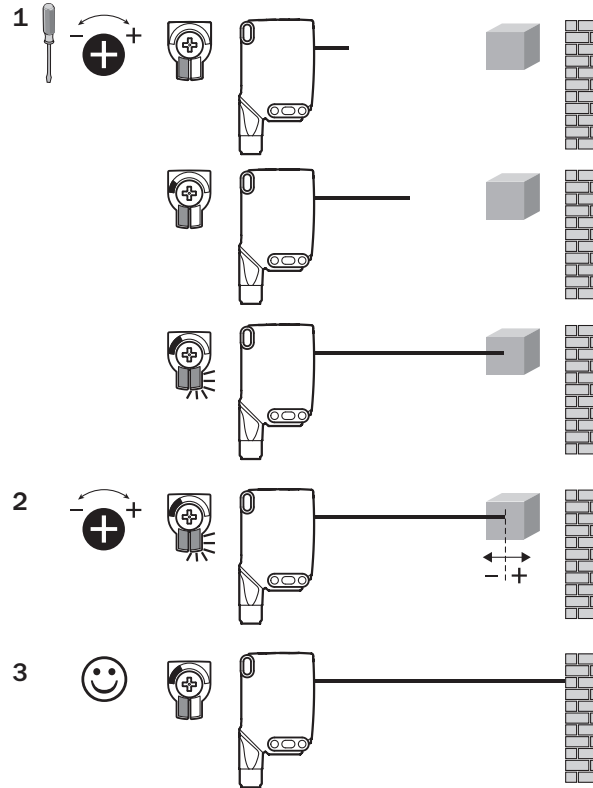


Figura 41: WTB26x-xxxxx1xAxx, ajuste da distância de comutação com potenciômetro

WTB26x-xxxxx3xAxx com a tecla teach-in:

Ao pressionar a tecla teach-in (aprox. 1- 3 s.) é ajustada a distância de comutação. Recomendamos posicionar a distância de comutação no objeto, p. ex. [ver figura 42](#). Após o ajuste da distância de comutação, remover o objeto do caminho óptico; o fundo é suprimido e a saída de comutação se altera ([ver tabela 2](#), [tabela 7](#), [tabela 3](#)).

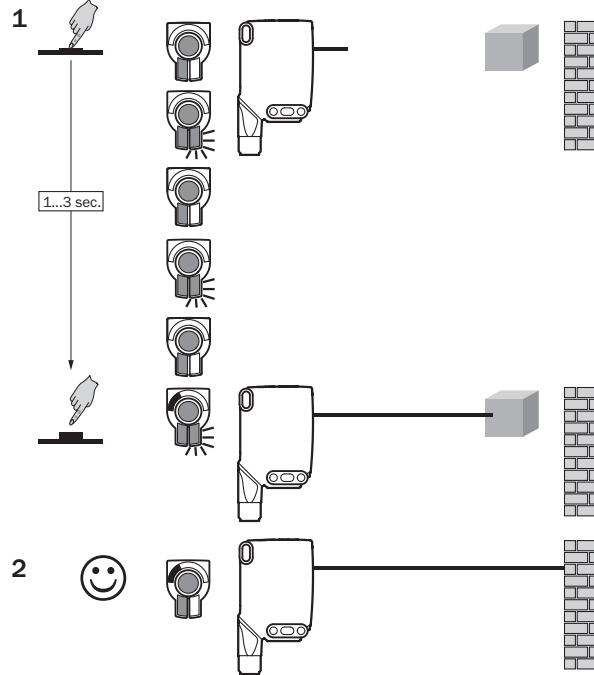
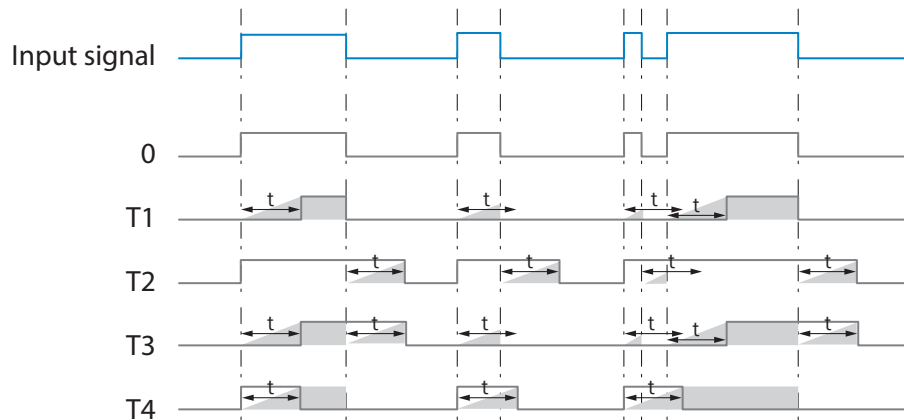
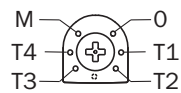
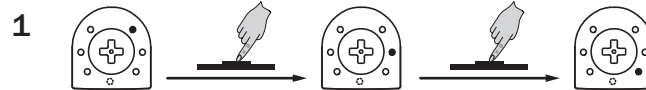
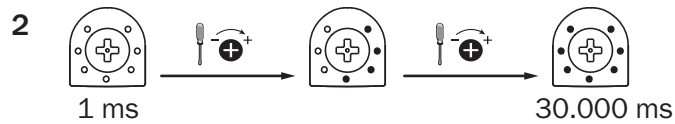


Figura 42: WTB26x-xxxxx3xAxx, ajuste da distância de comutação com tecla teach-in

4 Configuração funções de tempo



M = Manual (configuração específica via IO-Link)



5 Ajuste comutação por sombra/luz



- L Comutação por luz
- D Comutação por sombra
- M manualmente (configuração específica via IO-Link)

44 Estrutura de dados de processos

Estrutura de dados de processos (versão 1.1)

	A00	A70	A71	A72	A73	A75
IO-Link	V1.1					
Process data	2 Byte					4 Byte
	Byte 0 : Bit 15... 8 Byte 1: Bit 7... 0					Byte 0 : Bit 31... 24 Byte 1: Bit 13... 16 Byte 2: Bit 15... 8 Byte 3: Bit 7... 0
Bit 0/ Data type	Q _{L1} / Boolean					
Bit 1/ Data type	Q _{L2} / Boolean			Q _{int.1} / Boolean	Q _{L2} / Boolean	Q _{int.1} / Boolean
Bit... / Description / Data type	2...15 / [empty]	2...15 / [Time measurement value] / UInt 14	2 ... 15 / [Counter value] / UInt 14	2 ... 15 / [Length / speed measurement] / SInt14	2 / Q _{int.1} / Boolean	2...7 / [empty]
Bit... / Description / Data type					3 ... 15 / [Time measurement value] / UInt13	8 ... 31 / [Carrier load] / UInt 24

45 Eliminação de falhas

A tabela Eliminação de falhas mostra as medidas a serem executadas, quando o sensor não estiver funcionando.

Indicador LED / padrão de erro	Causa	Medida
LED verde intermitente	Comunicação IO-Link	Nenhuma
As saídas de comutação não se comportam de acordo com a tabela 16	1. Comunicação IO-Link 2. Alteração da configuração 3. Curto-circuito	1. Nenhuma 2. Adaptação da configuração 3. Verificar as conexões elétricas
LED amarelo aceso, nenhum objeto no caminho óptico	A distância de comutação é ajustada com uma distância grande demais	Reduzir a distância de comutação
Objeto está no caminho óptico, LED amarelo apagado	Distância entre sensor e objeto é grande demais ou distância de comutação foi ajustada para um valor baixo demais	Aumentar a distância de comutação

46 Desmontagem e descarte

O sensor deve ser descartado de acordo com os regulamentos específicos por país aplicáveis. Deve-se realizar um esforço durante o processo de descarte para reciclar os materiais constituintes (particularmente metais preciosos).



NOTA

Descarte de pilhas e dispositivos elétricos e eletrônicos

- De acordo com diretrizes internacionais, pilhas, acumuladores e dispositivos elétricos ou eletrônicos não devem ser descartados junto do lixo comum.
- O proprietário é obrigado por lei a retornar esses dispositivos ao fim de sua vida útil para os pontos de coleta públicos respectivos.



Este símbolo sobre o produto, seu pacote ou neste documento, indica que um produto está sujeito a esses regulamentos.

47 Manutenção

Os sensores SICK não requerem manutenção.

Recomendamos que se efetue em intervalos regulares

- uma limpeza das superfícies ópticas
- uma verificação das conexões roscadas e dos conectores

Não são permitidas modificações no aparelho.

Sujeito a alterações sem aviso prévio. As propriedades do produto e os dados técnicos especificados não constituem nenhum certificado de garantia.

48 Dados técnicos

	WTB26P-xxxxx1	WTB26P-xxxxx4	WTB26I-xxxxx1	WTB26I-xxxxx4
Distância de comutação máx.	30 mm ... 1.600 mm ⁽¹⁾	30 mm ... 3.000 mm ⁽¹⁾	30 mm ... 2.000 mm ⁽¹⁾	30 mm ... 3.000 mm ⁽¹⁾
Diâmetro do ponto de luz/distância	Ø 7 mm (700 mm) (tipo)	Ø 7 mm (700 mm) (tipo)	Ø 14 mm (1.000 mm)	Ø 14 mm (1.000 mm)
Tensão de alimentação U _B	DC 10 ... 30 V	DC 10 ... 30 V	DC 10 ... 30 V	DC 10 ... 30 V
Ondulação residual	≤ 5 V _{SS}	≤ 5 V _{SS}	≤ 5 V _{SS}	≤ 5 V _{SS}
Consumo de corrente	≤ 30 mA ⁽²⁾ < 50 mA ⁽³⁾	≤ 30 mA ⁽²⁾ < 50 mA ⁽³⁾	≤ 30 mA ⁽²⁾ < 50 mA ⁽³⁾	≤ 30 mA ⁽²⁾ < 50 mA ⁽³⁾
Corrente de saída I _{max} .	≤ 100 mA	≤ 100 mA	≤ 100 mA	≤ 100 mA
Tempo máx. de resposta	500 µs ⁽⁴⁾	2.5 ms ⁽⁴⁾	500 µs ⁽⁴⁾	2.5 ms ⁽⁴⁾
Frequência de comutação	1.000 Hz ⁽⁵⁾	200 Hz ⁽⁵⁾	1.000 Hz ⁽⁵⁾	200 Hz ⁽⁵⁾
Tipo de proteção ⁽⁶⁾	ver tabela 14: x4, xH, x5, xI: IP66, IP67, IP69 ⁽⁷⁾ x9, xB: IP65	ver tabela 14: x4, xH, x5, xI: IP66, IP67, IP69 ⁽⁷⁾ x9, xB: IP65	ver tabela 14: x4, xH, x5, xI: IP66, IP67, IP69 ⁽⁷⁾ x9, xB: IP65	ver tabela 14: x4, xH, x5, xI: IP66, IP67, IP69 ⁽⁷⁾ x9, xB: IP65
Classe de proteção	III	III	III	III
Circuitos de proteção	A, B, C, D ⁽⁸⁾	A, B, C, D ⁽⁸⁾	A, B, C, D ⁽⁸⁾	A, B, C, D ⁽⁸⁾
Temperatura ambiente de funciona- mento	-40 °C ... +60 °C ⁽⁹⁾	-40 °C ... +60 °C ⁽⁹⁾	-40 °C ... +60 °C ⁽⁹⁾	-40 °C ... +60 °C ⁽⁹⁾

1) Objeto a ser detectado com 90% de luminância (com base no padrão branco DIN 5033)

2) 16VCC...30VCC, sem carga

3) 10VCC...16VCC, sem carga

4) Tempo de duração do sinal em carga ôhmica no modo de comutação. Valores diferentes possíveis no modo COM2.

5) Na proporção claro-escuro 1:1 no modo de comutação. Valores diferentes possíveis no modo IO-Link.

6) Conforme EN 60529

7) Substitui IP69K conforme ISO 20653: 2013-03

8) A = conexões protegidas contra inversão de pólos U_B
B = Entradas e saídas protegidas contra polaridade inversa
C = Supressão de impulsos parasitas

D = Saídas protegidas contra sobrecorrente e curto-circuito

9) Não deformar cabos abaixo de 0 °C

48.1 Desenhos dimensionais

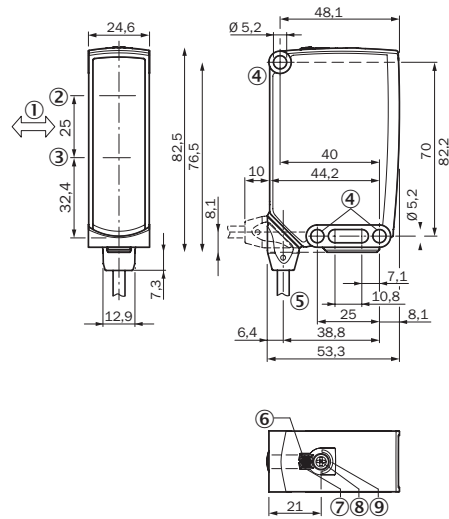


Figura 43: Desenho dimensional 1, cabo

- ① Direção preferencial do material a ser detectado
- ② Centro do eixo do sistema óptico, emissor
- ③ Centro do eixo do sistema óptico receptor
- ④ Furo de fixação, Ø5,2 mm
- ⑤ Conexão
- ⑥ LED indicador verde: tensão de alimentação ativa
- ⑦ Indicador LED amarelo: status recepção luminosa
- ⑧ Elemento de pressão e giro: configuração da distância de comutação
- ⑨ BluePilot azul: indicação da distância de comutação

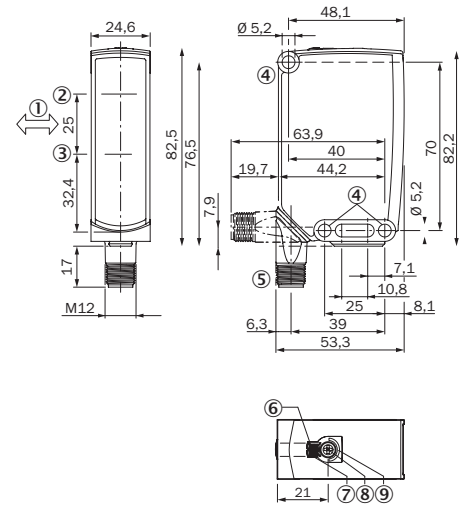


Figura 44: Desenho dimensional 2, conector macho

WTB26

ISTRUZIONI PER L'USO

SICK
Sensor Intelligence.



de
en
fr
it
ja
pt
ru
zh

Descrizione prodotto

WTB26

Produttore

SICK AG
Erwin-Sick-Str. 1
79183 Waldkirch
Germania

Note legali

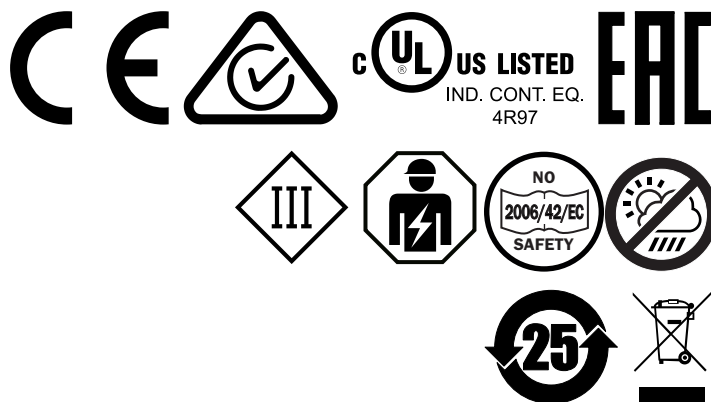
Questo manuale è protetto dai diritti d'autore. I diritti che ne conseguono rimangono alla ditta SICK. Il manuale o parti di esso possono essere fotocopiati esclusivamente entro i limiti previsti dalle disposizioni di legge in materia di diritti d'autore. Non è consentito modificare, abbreviare o tradurre il presente manuale senza previa autorizzazione scritta della ditta SICK AG.

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Documento originale

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49 Norme di sicurezza

49.1 Avvertenze di sicurezza generali

- Prima di eseguire la messa in servizio, leggere le istruzioni per l'uso.
-  Il collegamento, il montaggio e la configurazione devono essere eseguiti esclusivamente da personale tecnico qualificato.
-  Non è un componente di sicurezza ai sensi della Direttiva Macchine UE.
-  Durante la messa in servizio, proteggere il dispositivo dall'umidità e da possibili contaminazioni.
- Le presenti Istruzioni per l'uso contengono informazioni necessarie durante il ciclo di vita del sensore.

49.2 Indicazioni sull'omologazione UL

The device must be supplied by a Class 2 source of supply.

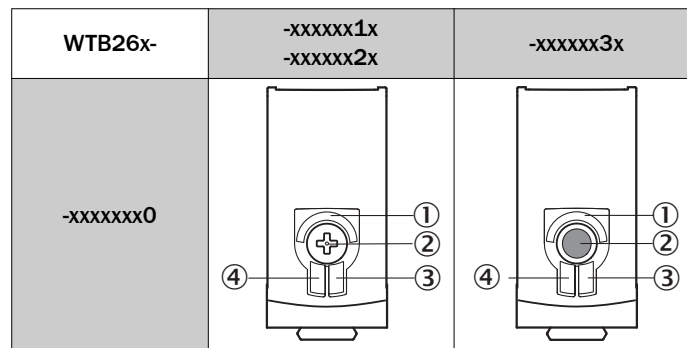
UL Environmental Rating: Enclosure type 1

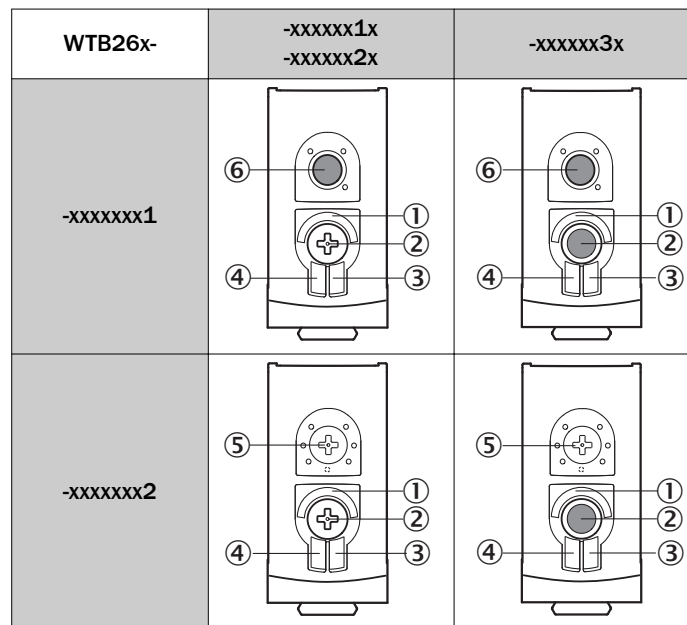
50 Uso conforme alle disposizioni

WTB26 è un sensore fotoelettrico energetico (di seguito detto sensore) utilizzato per il rilevamento ottico senza contatto di oggetti, animali e persone. Se viene utilizzato diversamente e in caso di modifiche del prodotto, decade qualsiasi diritto alla garanzia nei confronti di SICK.

51 Elementi di comando e di visualizzazione

Sensore fotoelettrico energetico con soppressione di sfondo.





- ① BluePilot blu: visualizzazione distanza di lavoro
- ② Elemento a pressione-rotazione / Potenzimetro / Tasto Teach: impostazione della distanza di lavoro
- ③ Indicatore LED giallo: stato ricezione luce
- ④ Indicatore LED verde: tensione di alimentazione attiva
- ⑤ Elemento a pressione-rotazione: impostazione delle funzioni temporali
- ⑥ Pulsante teach: Impostazione funzionamento light on/dark on

52 Montaggio

Montare il sensore su una staffa di fissaggio adatta (vedi il programma per accessori SICK).

Rispettare la coppia di serraggio massima consentita del sensore di < 1,3 Nm.

Rispettare la direzione preferenziale dell'oggetto in relazione al sensore, v. [figura 54](#), [figura 55](#).

53 Installazione elettrica

Il collegamento dei sensori deve avvenire in assenza di tensione. In base al tipo di collegamento si devono rispettare le seguenti informazioni:

- Collegamento a spina: osservare la configurazione dei pin.
- Cavo: colore filo

Solamente in seguito alla conclusione di tutti i collegamenti elettrici, ripristinare o accendere l'alimentazione di tensione.

Spiegazioni per lo schema di collegamento ([tabella 18](#) - [tabella 4](#)).

Allarme = uscita allarme

Health = uscita allarme

MF (configurazione pin 2) = ingresso esterno, teach-in, segnale di commutazione

Q_{L1} / C = uscita di commutazione, comunicazione IO-Link

Test = entrata di prova

U_B: 10 ... 30 V DC



Tabella 18: Collegamenti

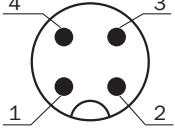
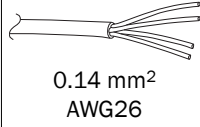
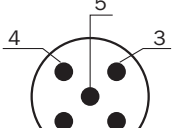
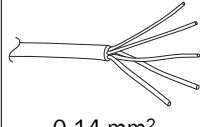
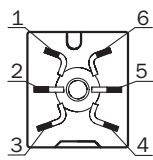
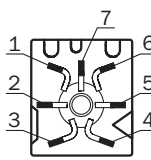
Wxx26x-	x4	xH	x5	xl
1 = BN 2 = WH 3 = BU 4 = BK 5 = GY		 <p>0.14 mm² AWG26</p>		 <p>0.14 mm² AWG26</p>
Wxx26x-	x9		xB	
1 = BN 2 = BU 3 = not connected 4 = BK 5 = WH 6 = GY 7 = not connected	 <p>I_N = 4 A</p>		 <p>I_N = 6 A</p>	

Tabella 19: DC

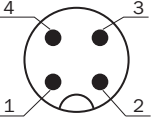
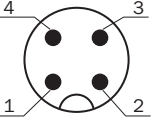
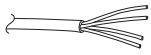
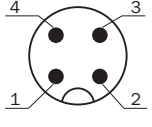
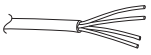
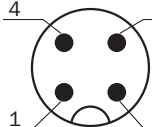
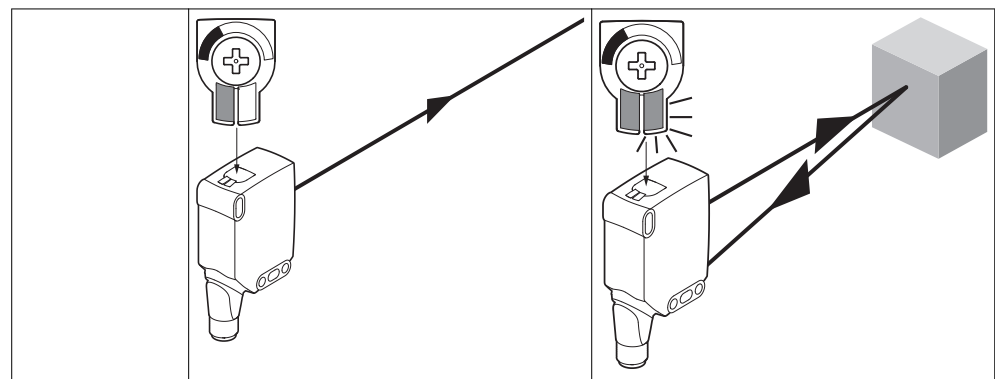
WTB26	-24161xxxA00 -34161xxxA00	-1x161x- xxA00	-24162x- xxA00 -34162x- xxA00	-1x162x- xxA00	-2416xxxA01- A99 -3416xxxA01- A99
1	+ (L+)				
2	MF				
3	- (M)				
4	Q _{L1} /C				
Default: MF	Q̄	Q̄	Q	Q	www.sick.com 8022709
Default: Q _{L1} /C	Q	Q	Q̄	Q̄	www.sick.com 8022709
		1 = BN 2 = WH 3 = BU 4 = BK  <p>0,14 mm² AWG26</p>		1 = BN 2 = WH 3 = BU 4 = BK  <p>0,14 mm² AWG26</p>	

Tabella 20: Push/Pull



Q push-pull (≤ 100 mA)		
\bar{Q} push-pull (≤ 100 mA)		

54 Funzioni supplementari

Allarme

Uscita allarme: il sensore (WTB26) dispone di un'uscita di comunicazione di prevista avaria ("allarme" nello schema di collegamento [v. [tabella 7](#)]) che indica quando il sensore è ancora pronto per il funzionamento, ma solo in modo limitato. In questo caso l'indicatore LED lampeggia. Possibili cause: sensore sporco, sensore disallineato. In buono stato: LOW (0), in caso di molto sporco HIGH (1).

Uscita Health: il sensore (WTB26) dispone di un'uscita di comunicazione di prevista avaria ("Health" nello schema di collegamento [v. [tabella 7](#)]), che indica quando il sensore è ancora solo pronto per il funzionamento, ma solo in modo limitato o la linea è interrotta. Possibili cause: sensori sporchi, i sensori sono disallineati, la linea è danneggiata. In buono stato: HIGH (1), in caso di sporco elevato o interruzione della linea LOW (0). In questo caso l'indicatore LED lampeggia.

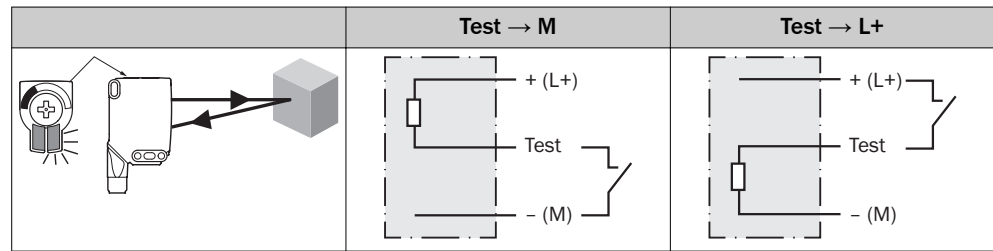
Ingresso test

Entrata di prova: i sensori WTB26 dispongono di un'entrata di prova ("TE" o "test" nello schema di collegamento [v. [tabella 2](#), [tabella 7](#) e [tabella 4](#)]), tramite la quale l'emettitore può essere disattivato e in questo modo il funzionamento regolare del sensore può venire controllato. In caso di uso di connettori femmina con indicatori LED si deve prestare attenzione che TE sia occupata nella relativa modalità.

Se l'oggetto viene rilevato, attivare l'ingresso di prova (vedere schema di collegamento [v. [tabella 2](#), [tabella 7](#) e [tabella 4](#)]). Il LED di emissione si spegne, ovvero viene simulato il rilevamento di nessun oggetto. Per verificare il funzionamento, fare riferimento a [tabella 4](#). Se l'uscita di commutazione non si comporta conformemente a [tabella 4](#), verificare le condizioni d'impiego. Vedi paragrafo Diagnostica delle anomalie.

Tabella 21: Test

	Test → M	Test → L+



55 Messa in servizio

1 Orientamento

WTB26P: orientare il sensore sul rispettivo oggetto. Scegliere la posizione in modo tale che il raggio di luce rosso emesso colpisca il centro dell'oggetto. Fare attenzione che l'apertura ottica (frontalino) del sensore sia completamente libera [v. figura 45, figura 46].

WTB26I: orientare il sensore sul rispettivo oggetto. Scegliere la posizione in modo tale che la luce infrarossa (non visibile) colpisca il centro dell'oggetto. L'orientamento corretto può essere rilevato solo tramite l'indicatore LED, v. tabella 2, tabella 7 e tabella 3. Si deve fare attenzione che l'apertura ottica del sensore (frontalino) sia completamente libera.

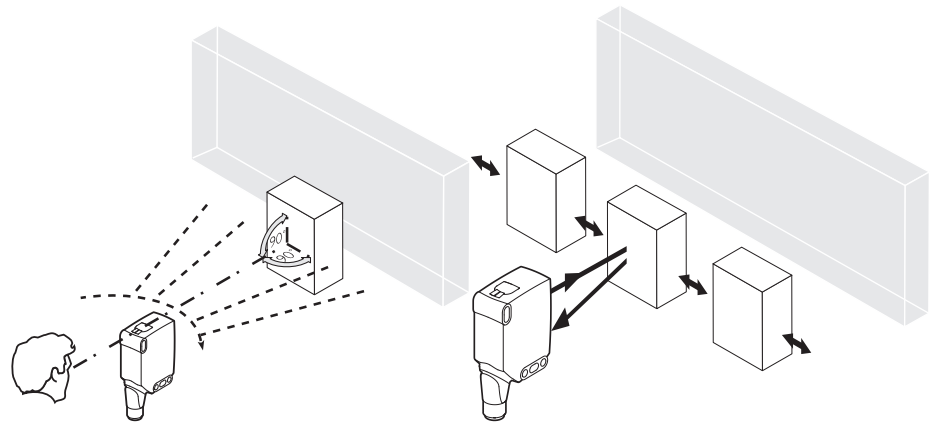


Figura 45: Orientamento 1

Figura 46: Orientamento 2

2 Distanza di lavoro

La serie WTBXX comprende sensori fotoelettrici energetici con soppressione di sfondo. In funzione del coefficiente di riflessione dell'oggetto da rilevare e dell'eventuale sfondo presente deve essere rispettata una distanza minima (y) tra la distanza di lavoro impostata (x) e lo sfondo.

Controllare le condizioni d'impiego: bilanciare distanza di lavoro e distanza dall'oggetto ossia dallo sfondo e coefficiente di riflessione dell'oggetto con il diagramma corrispondente [vedere immagini 5 e 6] (x= distanza di lavoro, y = distanza minima tra distanza di lavoro impostata e sfondo (bianco, 90%), coefficiente di riflessione 6% = nero ①, 18% = grigio ②, 90% = bianco ③ (con riferimento al bianco standard secondo DIN 5033)). Si consiglia di effettuare l'impostazione con un oggetto a basso coefficiente di riflessione.

La distanza minima (= y) per la soppressione di sfondo può essere determinata in base al diagramma [figura 47 ①] nel modo seguente:

Esempio: x = 600 mm, y = 40 mm. Questo significa che lo sfondo (bianco 90%) viene soppresso a partire da una distanza > 40 mm dal sensore.

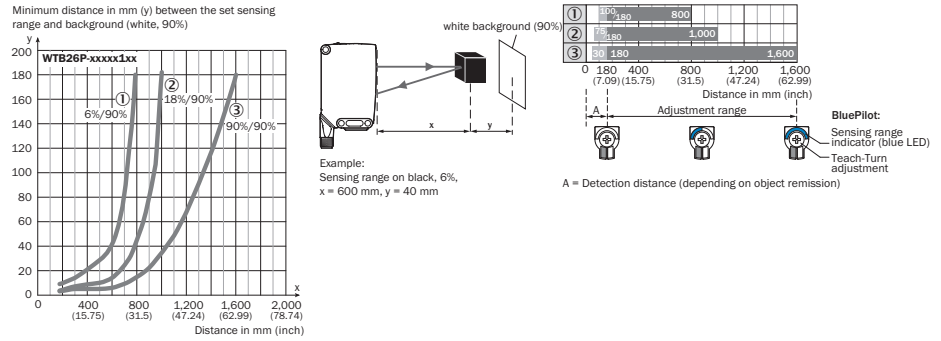


Figura 47: Linea caratteristica 1, WTB26P-xxxxx1xx, luce rossa

- ① Distanza di lavoro su nero, 6% di coefficiente di riflessione
- ② Distanza di lavoro su grigio, 18% di coefficiente di riflessione
- ③ Distanza di lavoro su bianco, 90% di coefficiente di riflessione

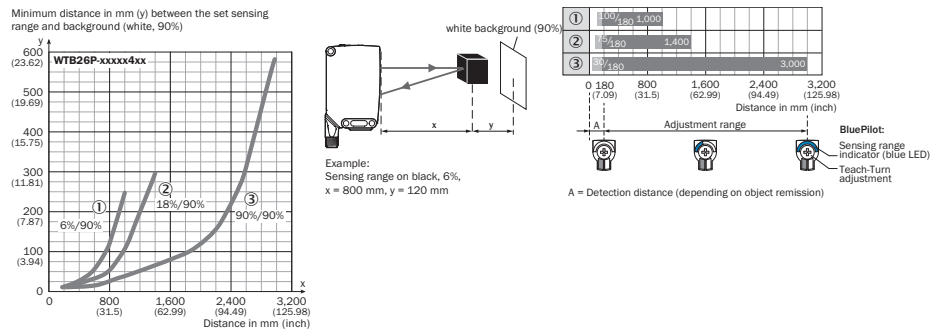


Figura 48: Curva caratteristica 2, WTB26P-xxxxx4xx, luce rossa

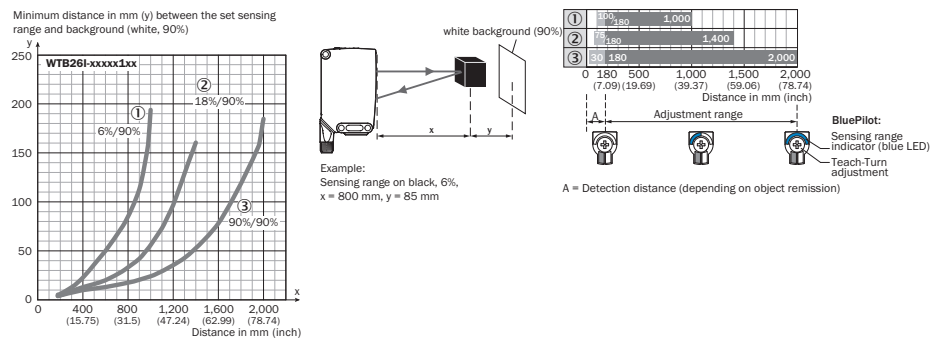


Figura 49: Curva caratteristica 3, WTB26I-xxxxx1xx, luce infrarossa

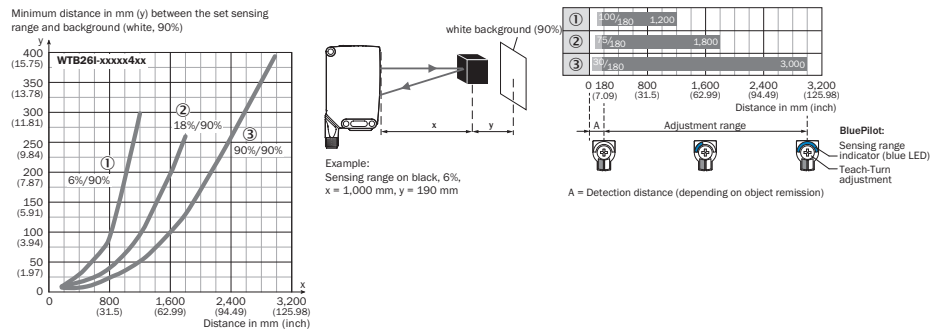


Figura 50: Curva caratteristica 4, WTB26I-xxxx4xx, luce infrarossa

3 Regolazione distanza di lavoro

WTB26x-xxxxx2xAxx con elemento a pressione-rotazione:

Premendo il pulsante teach-in (circa 1-3 sec.) viene impostata la distanza di lavoro. A seconda delle esigenze, con il potenziometro (senza premere il pulsante teach-in) è possibile eseguire un'impostazione di precisione.

Rotazione verso destra: aumento della distanza di lavoro.

Rotazione verso sinistra: riduzione della distanza di lavoro.

La distanza di lavoro può anche essere impostata unicamente con il potenziometro. Si consiglia di inserire nell'oggetto la distanza di lavoro, ad es. v. figura 51. In seguito all'impostazione della distanza di lavoro, allontanare l'oggetto dalla traiettoria del raggio, lo sfondo viene quindi soppresso e l'uscita di commutazione cambia (v. tabella 2, tabella 7, tabella 3).

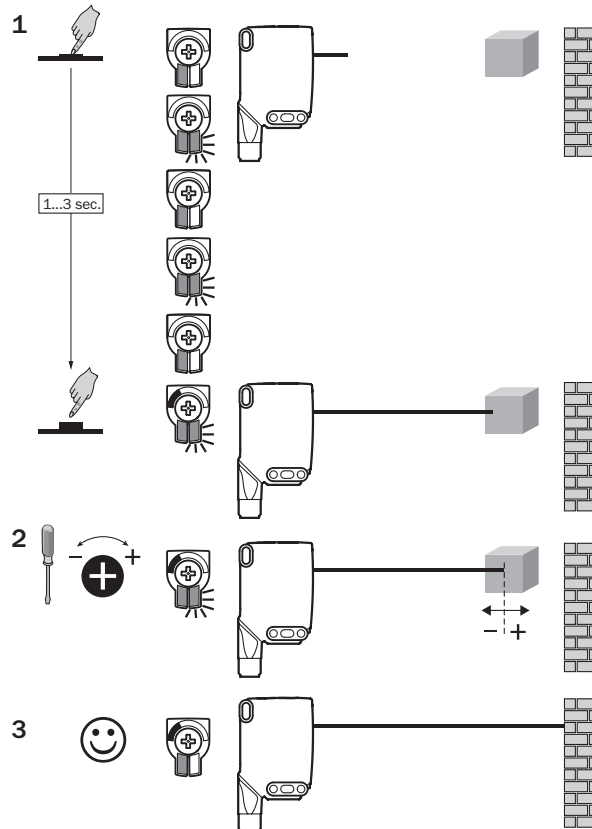


Figura 51: WTB26x-xxxxx2xAxx, impostazione della distanza di lavoro con l'elemento a pressione-rotazione

WTB26x-xxxxx1xAxx con potenziometro:

Con il potenziometro viene impostata la distanza di lavoro.

Rotazione verso destra: aumento della distanza di lavoro.

Rotazione verso sinistra: riduzione della distanza di lavoro.

Si consiglia di inserire nell'oggetto la distanza di lavoro, ad es. v. figura 52. In seguito all'impostazione della distanza di lavoro, allontanare l'oggetto dalla traiettoria del raggio, lo sfondo viene quindi soppresso e l'uscita di commutazione cambia (v. tabella 2, tabella 7, tabella 3).

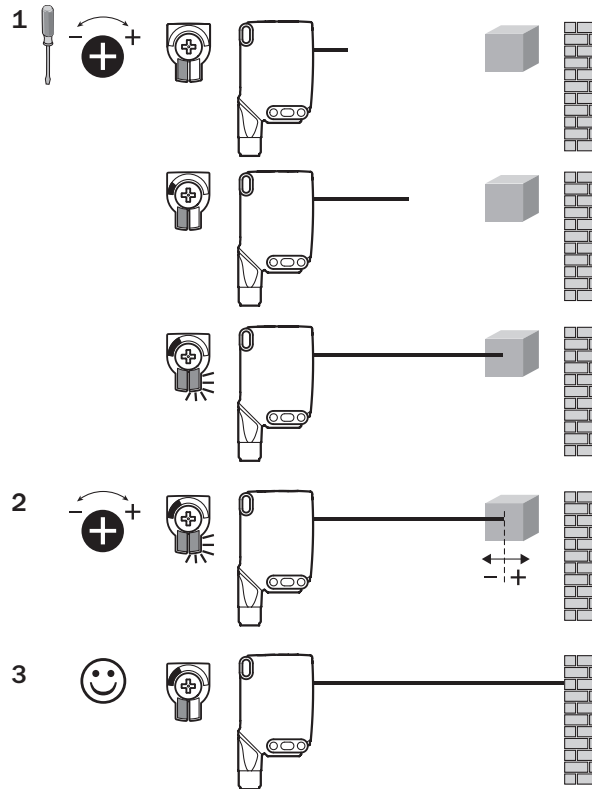


Figura 52: WTB26x-xxxxx1xAxx, impostazione della distanza di lavoro con il potenziometro

WTB26x-xxxxx3xAxx con pulsante teach-in:

Premendo il pulsante teach-in (circa 1-3 sec.) viene impostata la distanza di lavoro. Si consiglia di inserire nell'oggetto la distanza di lavoro, ad es. v. figura 53. In seguito all'impostazione della distanza di lavoro, allontanare l'oggetto dalla traiettoria del raggio, lo sfondo viene quindi soppresso e l'uscita di commutazione cambia (v. tabella 2, tabella 7, tabella 3).

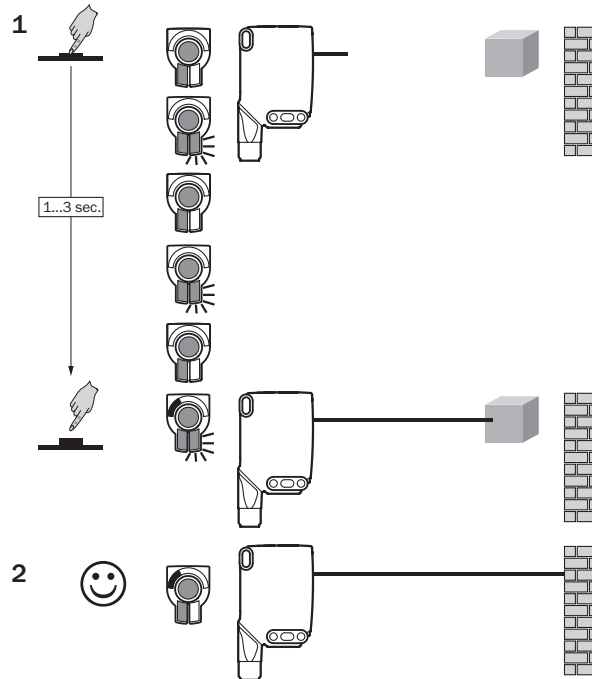
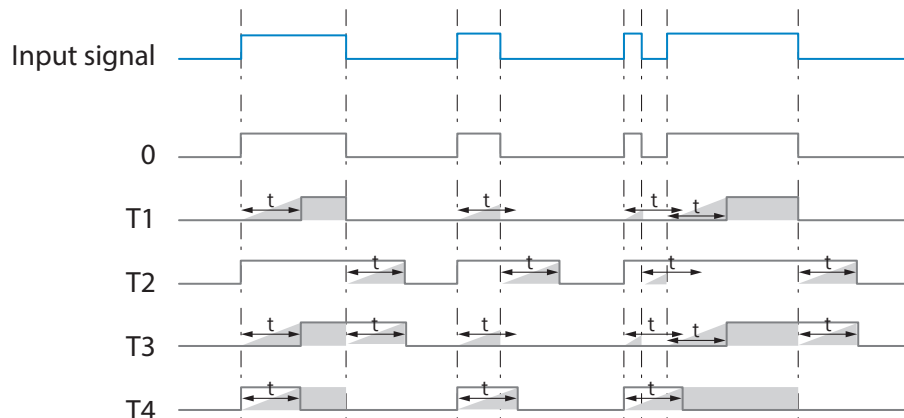
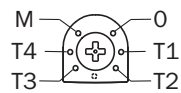
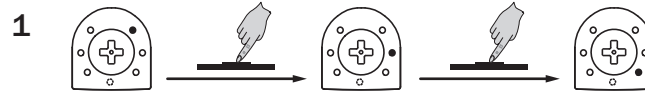
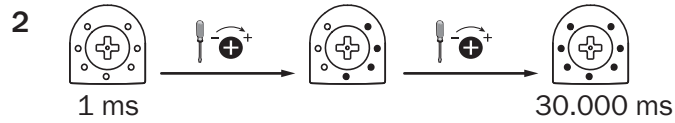


Figura 53: WTB26x-xxxxx3xAxx, impostazione della distanza di lavoro con il pulsante teach-in

4 Regolazione funzioni temporali



M = Manuale (impostazione specifica tramite IO-Link)



5 Impostazione funzionamento light on/dark on



- L funzionamento light on
- D funzionamento dark on
- M manuale (impostazione specifica tramite IO-Link)

56 Struttura dati di processo

Struttura dati di processo (versione 1.1)

	A00	A70	A71	A72	A73	A75
IO-Link	V1.1					
Process data	2 byte					4 byte
	Byte 0 : bit 15... 8 Byte 1: bit 7... 0					Byte 0: bit 31... 24 Byte 1: bit 13... 16 Byte 2: bit 15... 8 Byte 3: bit 7... 0
Bit 0/ Data type	Q _{L1} / Boolean					
Bit 1/ Data type	Q _{L2} / Boolean			Qint.1 / Boolean	Q _{L2} / Boolean	Qint.1 / Boolean
Bit... / Description / Data type	2...15 / [empty]	2...15 / [Time measurement value] / UInt 14	2 ... 15 / [Counter value] / UInt 14	2 ... 15 / [Length / speed measurement] / SInt14	2 / Qint.1 / Boolean	2...7 / [empty]
Bit... / Description / Data type					3 ... 15 / [Time measurement value] / UInt13	8 ... 31 / [Carrier load] / UInt 24

57 Eliminazione difetti

La tabella di rimozione dei disturbi mostra quali provvedimenti si devono adottare quando il sensore non funziona più.

Indicatore LED / figura di errore	Causa	Provvedimento
Il LED verde lampeggia	Comunicazione IO-Link	Nessuno
Le uscite di commutazione non si comportano conformemente alle tabella 20	1. Comunicazione IO-Link 2. Modifica della configurazione 3. Corto circuito	1. Nessuno 2. Adattamento della configurazione 3. Controllare i collegamenti elettrici
Il LED giallo si accende, nessun oggetto nella traiettoria del raggio	La distanza di lavoro è impostata a una distanza eccessiva	Diminuire la distanza di commutazione
L'oggetto è nella traiettoria del raggio, il LED giallo non si accende	La distanza tra sensore e oggetto è troppo grande o la distanza di commutazione ha un'impostazione troppo bassa	Aumentare la distanza di commutazione

58 Smontaggio e smaltimento

Il sensore deve essere smaltito in conformità con le leggi nazionali vigenti in materia. Durante il processo di smaltimento, riciclare se possibile i materiali che compongono il sensore (in particolare i metalli nobili).



INDICAZIONE

Smaltimento di batterie, dispositivi elettrici ed elettronici

- In base a direttive internazionali, le batterie, gli accumulatori e i dispositivi elettrici ed elettronici non devono essere smaltiti tra i rifiuti generici.
- Il titolare è tenuto per legge a riconsegnare questi dispositivi alla fine del loro ciclo di vita presso i rispettivi punti di raccolta pubblici.



Questo simbolo presente sul prodotto, nella sua confezione o nel presente documento, indica che un prodotto è soggetto a tali regolamentazioni.

59 Manutenzione

I sensori SICK sono esenti da manutenzione.

A intervalli regolari si consiglia di

- pulire le superfici lente ottiche
- Verificare i collegamenti a vite e gli innesti a spina

Non è consentito effettuare modifiche agli apparecchi.

Contenuti soggetti a modifiche senza preavviso. Le proprietà del prodotto e le schede tecniche indicate non costituiscono una dichiarazione di garanzia.

60 Dati tecnici

	WTB26P-xxxxx1	WTB26P-xxxxx4	WTB26I-xxxxx1	WTB26I-xxxxx4
Distanza max. di commutazione	30 mm ... 1.600 mm ⁽¹⁾	30 mm ... 3.000 mm ⁽¹⁾	30 mm ... 2.000 mm ⁽¹⁾	30 mm ... 3.000 mm ⁽¹⁾
Diametro punto luminoso/distanza	Ø 7 mm (700 mm) (tipo)	Ø 7 mm (700 mm) (tipo)	Ø 14 mm (1.000 mm)	Ø 14 mm (1.000 mm)
Tensione di alimentazione U _B	DC 10 ... 30 V	DC 10 ... 30 V	DC 10 ... 30 V	DC 10 ... 30 V
Ripple residuo	≤ 5 V _{SS}	≤ 5 V _{SS}	≤ 5 V _{SS}	≤ 5 V _{SS}
Consumo di corrente	≤ 30 mA ⁽²⁾ < 50 mA ⁽³⁾	≤ 30 mA ⁽²⁾ < 50 mA ⁽³⁾	≤ 30 mA ⁽²⁾ < 50 mA ⁽³⁾	≤ 30 mA ⁽²⁾ < 50 mA ⁽³⁾
Corrente di uscita I _{max.}	≤ 100 mA	≤ 100 mA	≤ 100 mA	≤ 100 mA
Tempo di reazione max.	500 µs ⁽⁴⁾	2.5 ms ⁽⁴⁾	500 µs ⁽⁴⁾	2.5 ms ⁽⁴⁾
Frequenza di commutazione	1.000 Hz ⁽⁵⁾	200 Hz ⁽⁵⁾	1.000 Hz ⁽⁵⁾	200 Hz ⁽⁵⁾
Tipo di protezione ⁽⁶⁾	v. tabella 18: x4, xH, x5, xI: IP66, IP67, IP69 ⁽⁷⁾ x9, xB: IP65	v. tabella 18: x4, xH, x5, xI: IP66, IP67, IP69 ⁽⁷⁾ x9, xB: IP65	v. tabella 18: x4, xH, x5, xI: IP66, IP67, IP69 ⁽⁷⁾ x9, xB: IP65	v. tabella 18: x4, xH, x5, xI: IP66, IP67, IP69 ⁽⁷⁾ x9, xB: IP65
Classe di protezione	III	III	III	III
Commutazioni di protezione	A, B, C, D ⁽⁸⁾	A, B, C, D ⁽⁸⁾	A, B, C, D ⁽⁸⁾	A, B, C, D ⁽⁸⁾
Temperatura ambientale di funzionamento	-40 °C ... +60 °C ⁽⁹⁾	-40 °C ... +60 °C ⁽⁹⁾	-40 °C ... +60 °C ⁽⁹⁾	-40 °C ... +60 °C ⁽⁹⁾

1) Oggetto con il 90% di remissione (riferito al bianco standard DIN 5033)

2) 16 V DC ... 30 V DC, senza carico

3) 10 V DC ... 16 V DC, senza carico

4) Durata segnale con carico ohmico in modalità di commutazione. Possibilità di valori diversi in modalità COM2.

5) Con rapporto chiaro/scuro 1:1 in modalità di commutazione. Possibilità di valori diversi in modalità IO-Link

6) A norma EN 60529

7) sostituisce IP69K secondo ISO 20653: 2013-03

8) A = U_V-Allacciamenti protetti dall'inversione di polarità

B = entrate e uscite protette da polarità inversa

C = Soppressione impulsi di disturbo

D = uscite protette da sovracorrente e da cortocircuito.

9) Non deformare i conduttori sotto i 0 °C

60.1 Disegni quotati

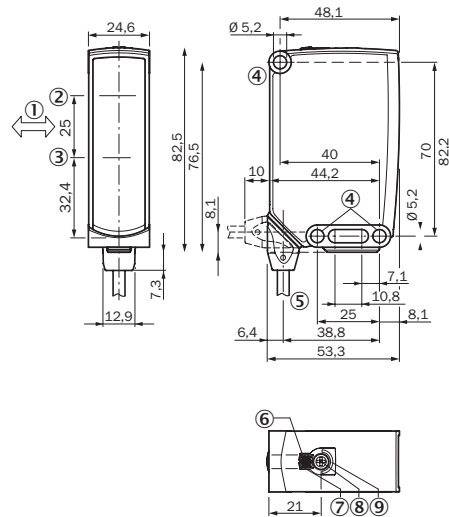


Figura 54: Disegno quotato 1, cavo

- ① Direzione preferenziale dell'oggetto
- ② Centro asse ottico trasmettitore
- ③ Centro asse ottico ricevitore
- ④ Foro di fissaggio, Ø5,2 mm
- ⑤ Collegamento
- ⑥ Indicatore LED verde: tensione di alimentazione attiva
- ⑦ Indicatore LED giallo: stato ricezione luce
- ⑧ Elemento a pressione-rotazione: impostazione della distanza di lavoro
- ⑨ BluePilot blu: visualizzazione distanza di lavoro

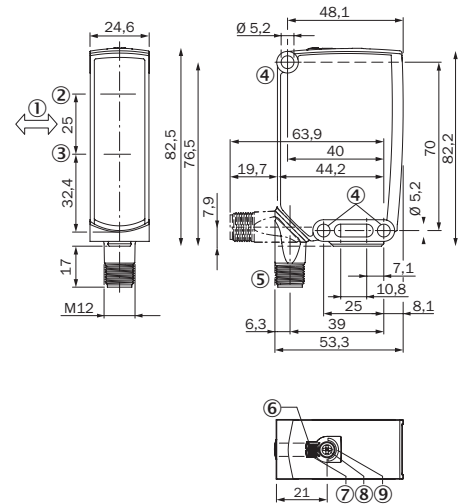


Figura 55: Disegno quotato 2, connettore maschio

WTB26

SICK
Sensor Intelligence.



de
en
fr
it
ja
pt
ru
zh

Described product

WTB26

Manufacturer

SICK AG
Erwin-Sick-Str. 1
79183 Waldkirch
Germany

Legal information

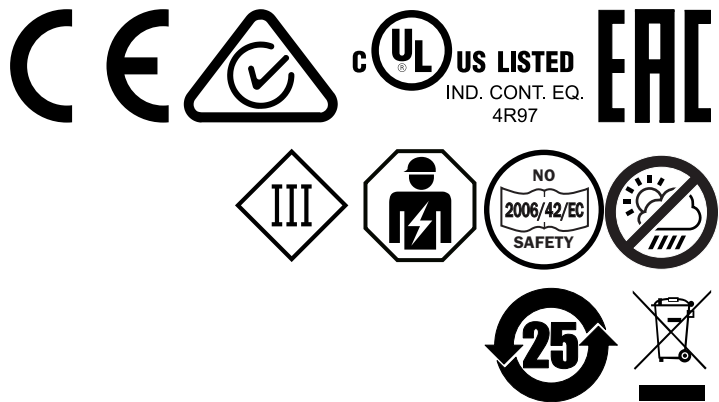
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Original document

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61 Safety information

61.1 General safety notes

- Read the operating instructions before commissioning.
-  Connection, mounting, and configuration may only be performed by trained specialists.
-  Not a safety component in accordance with the EU Machinery Directive.
-  When commissioning, protect the device from moisture and contamination.
- These operating instructions contain information required during the life cycle of the sensor.

61.2 Notes on UL approval

The device must be supplied by a Class 2 source of supply.

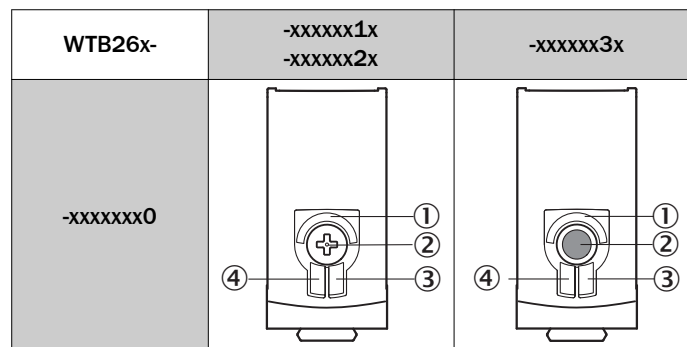
UL Environmental Rating: Enclosure type 1

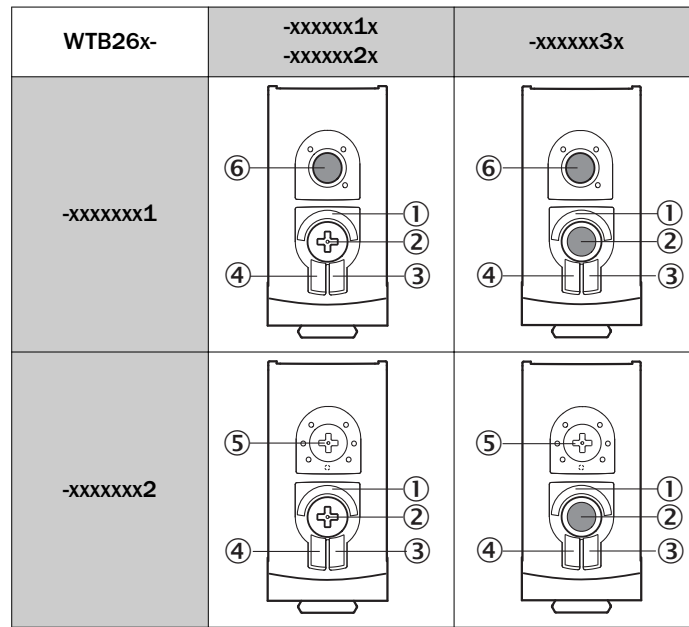
62 Intended use

The WTB26 is an opto-electronic photoelectric proximity sensor (referred to as “sensor” in the following) for the optical, non-contact detection of objects, animals, and persons. If the product is used for any other purpose or modified in any way, any warranty claim against SICK AG shall become void.

63 Operating and status indicators

Photoelectric proximity sensor with background suppression.





- ① BluePilot blue: sensing range display
- ② Press-turn element / Potentiometer / Teach-Button: adjusting the sensing range
- ③ LED indicator yellow: status of received light beam
- ④ LED indicator green: supply voltage active
- ⑤ Press-turn element: time function adjustment
- ⑥ Teach pushbutton: adjustment of light/dark switching

64 Mounting

Mount the sensor using a suitable mounting bracket (see the SICK range of accessories).

Note the sensor's maximum permissible tightening torque of < 1,3 Nm.

Note the preferred direction of the object relative to the sensor see [figure 10](#), [figure 11](#).

65 Electrical installation

The sensors must be connected in a voltage-free state. The following information must be observed, depending on the connection type:

- Male connector connection: Note pin assignment.
- Cable: wire color

Only supply/switch on the voltage once all electrical connections have been established.

Explanations on connection diagram ([table 1](#) - [table 4](#)).

Alarm = alarm output

Health = alarm output

MF (pin 2 configuration) = external input, teach-in, switching signal

Q_{L1}/C = switching output, IO-Link communication

Test = test input


U_B: 10 ... 30 V DC 

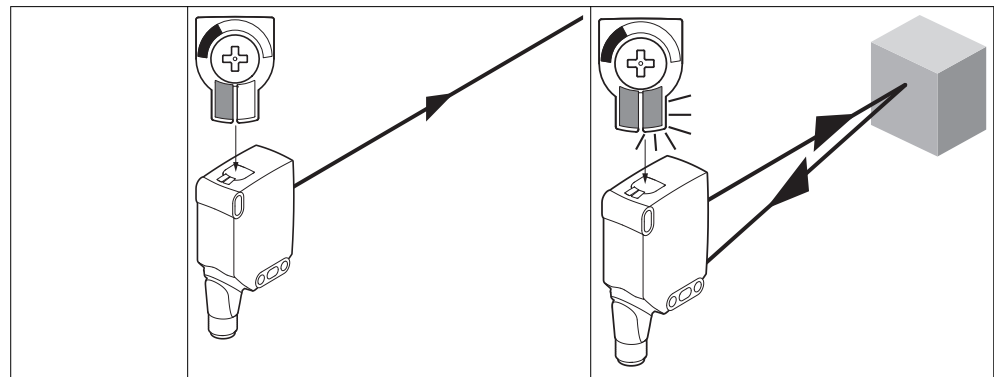
Table 22: Connections

Wxx26x-	x4	xH	x5	xl
1 = BN 2 = WH 3 = BU 4 = BK 5 = GY		 0.14 mm ² AWG26	 0.14 mm ² AWG26	
Wxx26x-	x9	xB		
1 = BN 2 = BU 3 = not connected 4 = BK 5 = WH 6 = GY 7 = not connected	 I _N = 4 A	 I _N = 6 A		

Table 23: DC

WTB26	-24161xxxA00 -34161xxxA00	-1x161xxxA0 0	-24162xxxA0 0	-1x162xxxA0 0	-2416xxxxA01- A99 -3416xxxxA01- A99
1	+ (L+)				
2	MF				
3	- (M)				
4	Q _{L1} /C				
Default: MF	Q̄	Q̄	Q	Q	www.sick.com 8022709
Default: Q _{L1} /C	Q	Q	Q̄	Q̄	www.sick.com 8022709
	 1 = BN 2 = WH 3 = BU 4 = BK 0.14 mm ² AWG26	 1 = BN 2 = WH 3 = BU 4 = BK 0.14 mm ² AWG26	 1 = BN 2 = WH 3 = BU 4 = BK 0.14 mm ² AWG26	 1 = BN 2 = WH 3 = BU 4 = BK 0.14 mm ² AWG26	

Table 24: Push / pull



<p>Q Push-pull (≤ 100 mA)</p>		
<p>\bar{Q} Push-pull (≤ 100 mA)</p>		

66 Additional functions

Alarm

Alarm output: The sensor (WTB26) features a pre-failure notification output (“Alarm” in connection diagram [see table 7]), which issues a notification if the sensor is only ready for operation to a limited extent. The LED indicator flashes in this case. Possible causes: Sensor is contaminated, sensor is out of alignment. In the good state: LOW (0), if excessively contaminated HIGH (1).

Health output: The sensor (WTB26) features a pre-failure notification output (“Health” in connection diagram [see table 7]), which issues a notification if the sensor is only ready for operation to a limited extent or the cable has been interrupted. Possible causes: Sensors are contaminated, sensors are out of alignment, cable is damaged. In the good state: HIGH (1), if excessively contaminated or in the event of cable interruption LOW (0). The LED indicator flashes in this case.

Test input

Test input: The WTB26 sensors feature a test input (“TI” or “Test” on the connection diagram [see table 2, table 7 and table 4]), which can be used to switch the sender off and, therefore, check that the sensor is functioning correctly: If female cable connectors with LED indicators are used, you have to ensure that the TI is assigned accordingly.

If an object is detected, activate the test input (see the connection diagram [see table 2, table 7 and table 4]). The send LED is shut down or no object being detected is simulated. Refer to table 4 to check the function. If the switching output fails to behave in accordance with table 4, check the application conditions. See section Fault diagnosis.

Table 25: Test

	Test → M	Test → L+

67 Commissioning

1 Alignment

WTB26 P: Align sensor on object. Select the position so that the red emitted light beam hits the center of the object. It is important to ensure that the optical opening (front screen) of the sensor is completely clear [see figure 1, figure 2].

WTB26 I: Align sensor on object. Select the position so that the infrared light (not visible) hits the center of the object. The correct alignment can only be detected via the LED indicators, see table 2, table 7 and table 3. You must ensure that the optical opening (front screen) of the sensor is completely clear.

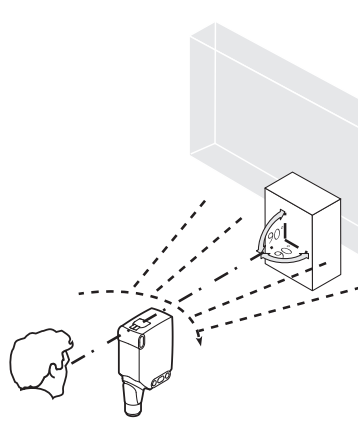


Figure 56: Alignment 1

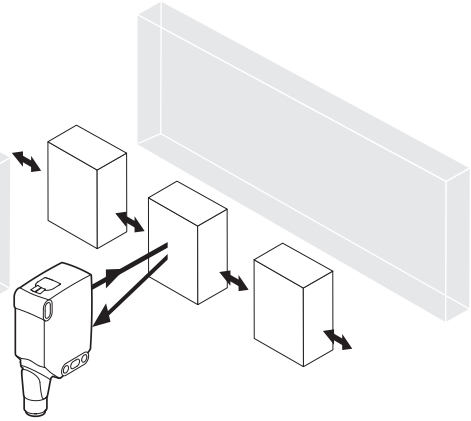


Figure 57: Alignment 2

2 Sensing range

WTBXX are photoelectric proximity sensors with background suppression. Depending on the remission of the object to be detected, and perhaps the background behind it, a minimum distance (y) between the set sensing range (x) and the background is to be maintained.

Check the application conditions: Adjust the sensing range and distance to the object or background as well as the remission capability of the object according to the corresponding diagram [see figures 5 and 6] (x = sensing range, y = minimum distance between set sensing range and background [white, 90%]) Remission: 6% = black ①, 18% = gray ②, 90% = white ③ (referring to standard white as per DIN 5033). We recommend that the adjustment be performed with an object of low remission.

The minimum distance (= y) for the background suppression can be determined from the diagram [figure 3 ①] as follows:

Example: x = 600 mm, y = 40 mm. That is, the background (white, 90%) is suppressed at a distance of > 40 mm from the sensor.

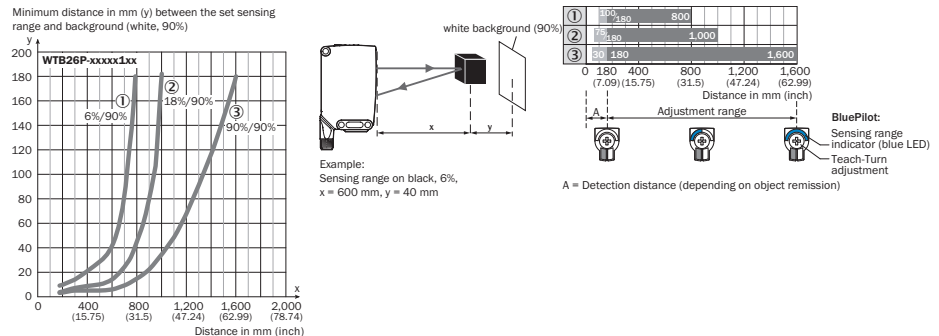


Figure 58: Characteristic line 1, WTB26P-xxxx1xx, red light

- ① Sensing range on black, 6% remission

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

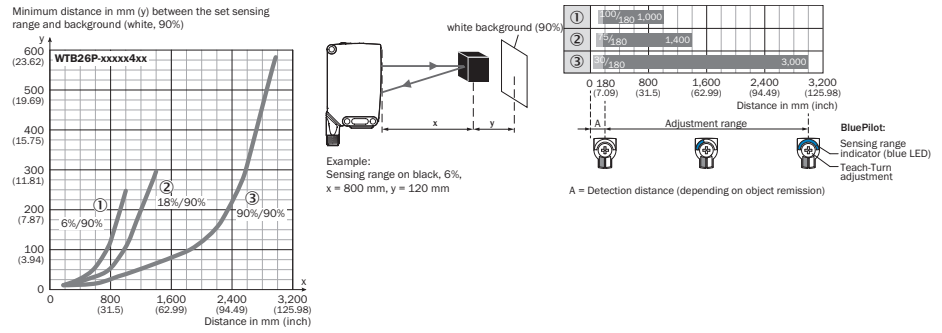


Figure 59: Characteristic line 2, WTB26 P-xxxx4 xx, red light

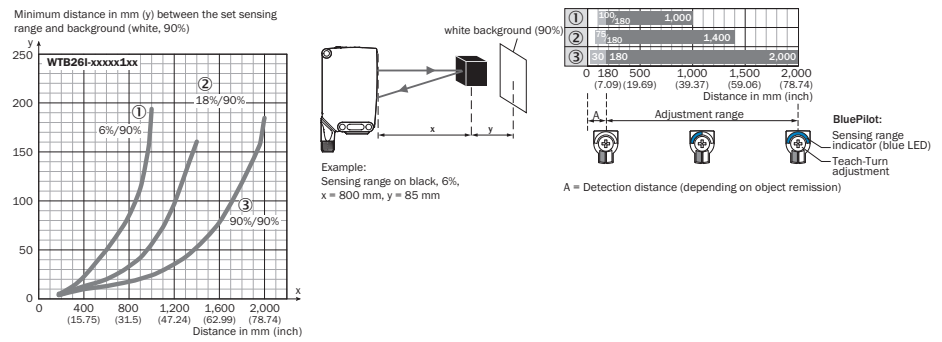


Figure 60: Characteristic line 3, WTB26 I-xxxx1 xx, infrared light

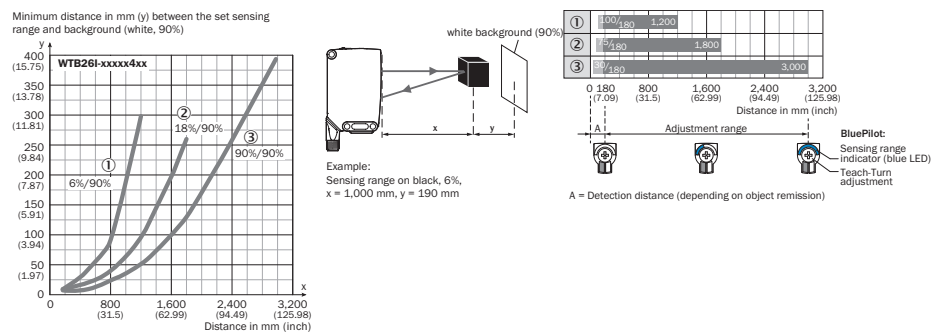


Figure 61: Characteristic line 4, WTB26 I-xxxx4 xx, infrared light

3 Sensing range setting

WTB26 x-xxxxx2 xAxx with Teach-Turn adjustment:

The sensing range is adjusted by pressing the teach-in button (approx. 1-3 sec.). Depending on the requirements, the potentiometer can be used for fine-tuning (without pressing the teach-in button).

Clockwise rotation: sensing range increased.

Counterclockwise rotation: sensing range reduced.

The sensing range can also be adjusted using just the potentiometer. We recommend placing the sensing range in the object, e.g. see figure 7. Once the sensing range has been adjusted, the object is removed from the path of the beam, which causes the background to be suppressed and the switching output to change (see table 2, table 7, table 3).

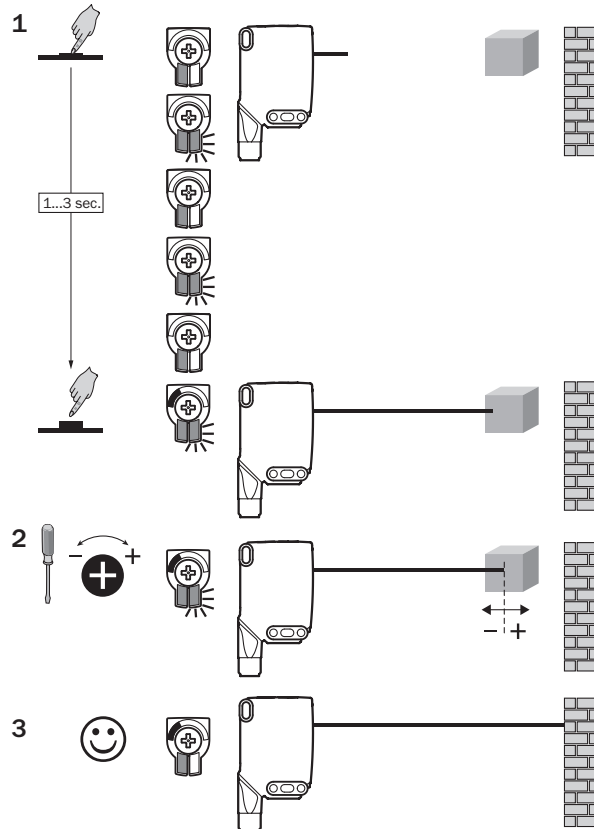


Figure 62: WTB26 x-xxxxx2 xAxx, adjusting the sensing range with press-turn element

WTB26 x-xxxxx1 xAxx with Potentiometer:

The sensing range is adjusted with the potentiometer.

Clockwise rotation: sensing range increased.

Counterclockwise rotation: sensing range reduced.

We recommend placing the sensing range in the object, e.g. [see figure 8](#). Once the sensing range has been adjusted, the object is removed from the path of the beam, which causes the background to be suppressed and the switching output to change ([see table 2, table 7, table 3](#)).

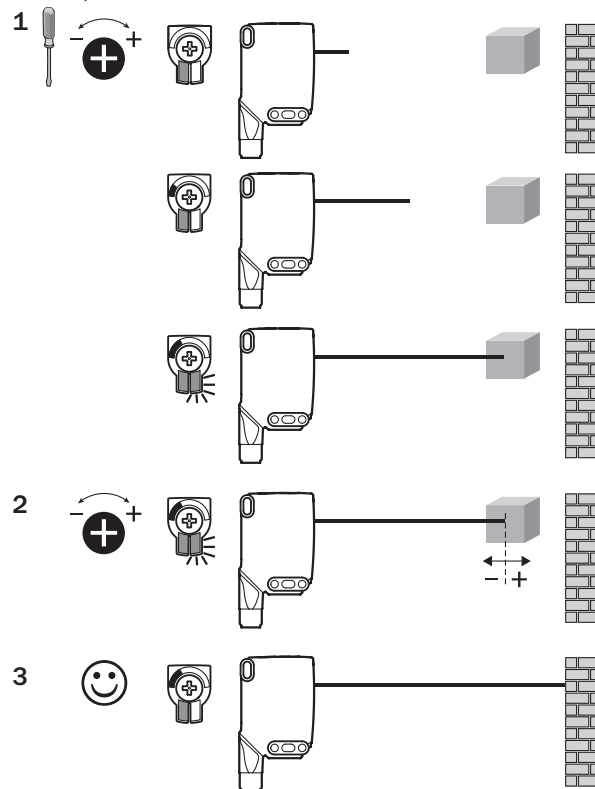


Figure 63: WTB26 x-xxxxx1 xAxx, adjusting the sensing range with potentiometer

WTB26 x-xxxxx3 xAxx with teach-in button:

The sensing range is adjusted by pressing the teach-in button (approx. 1-3 sec.). We recommend placing the sensing range in the object, e.g. see figure 9. Once the sensing range has been adjusted, the object is removed from the path of the beam, which causes the background to be suppressed and the switching output to change (see table 2, table 7, table 3).

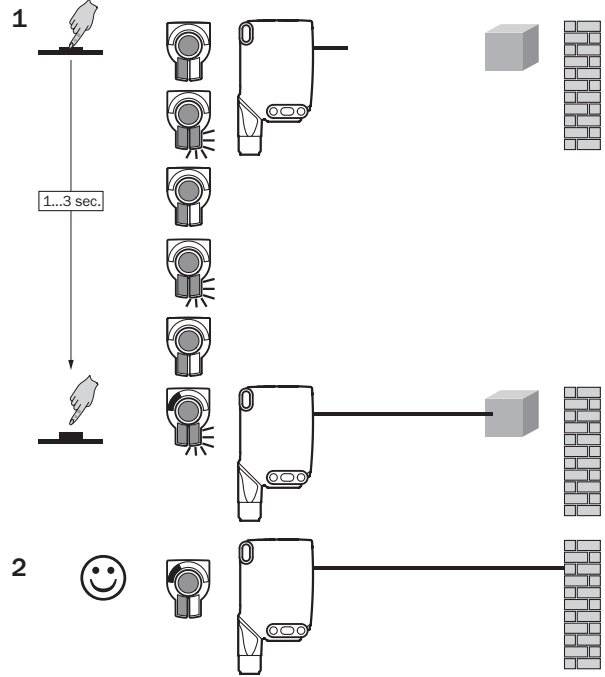
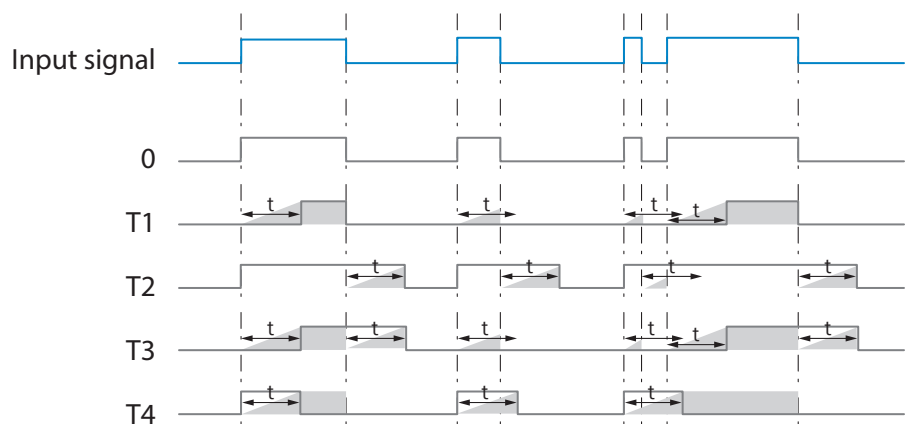
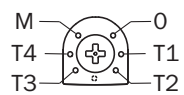
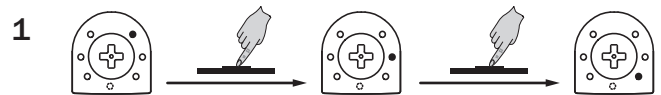
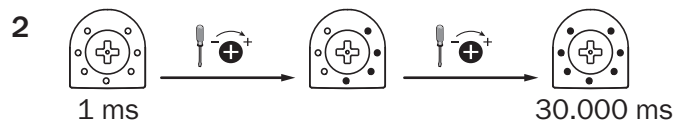


Figure 64: WTB26 x-xxxxx3 xAxx, adjusting the sensing range with teach-in button

4 Time function setting



M = Manual (specific setting via IO-Link)



5 Setting light/dark switching



- L light switching
- D Dark switching
- M manual (specific setting via IO-Link)

68 Process data structure

Process data structure (Version 1.1)

	A00	A70	A71	A72	A73	A75
IO-Link	V1.1					
Process data	2 bytes					4 bytes
	Byte 0: bits 15... 8 Byte 1: bits 7... 0					Byte 0: bits 31... 24 Byte 1: bits 13... 16 Byte 2: bits 15... 8 Byte 3: bits 7... 0
Bit 0 / Data type	Q _{L1} / Boolean					
Bit 1 / Data type	Q _{L2} / Boolean			Qint.1 / Boolean	Q _{L2} / Boolean	Qint.1 / Boolean
Bit... / Description / Data type	2 ... 15 / [empty]	2 ... 15 / [time measurement value] / UInt 14	2 ... 15 / [counter value] / UInt 14	2 ... 15 / [length / speed measurement] / SInt14	2 / Qint. 1 / Boolean	2 ... 7 / [empty]
Bit... / Description / Data type					3 ... 15 / [time measurement value] / UInt13	8 ... 31 / [carrier load] / UInt 24

69 Troubleshooting

The Troubleshooting table indicates measures to be taken if the sensor stops working.

LED indicator/fault pattern	Cause	Measures
Green LED flashes	IO-Link communication	None

LED indicator/fault pattern	Cause	Measures
Switching outputs do not behave in accordance with table 3	1. IO-Link communication 2. Change of the configuration 3. Short-circuit	1. None 2. Adjustment of the configuration 3. Check electrical connections
Yellow LED lights up, no object in the path of the beam	The sensing range distance is too large	Reduce the sensing range
Object is in the path of the beam, yellow LED does not light up	Distance between the sensor and the object is too long or sensing range is set too short	Increase the sensing range

70 Disassembly and disposal

The sensor must be disposed of according to the applicable country-specific regulations. Efforts should be made during the disposal process to recycle the constituent materials (particularly precious metals).



NOTE

Disposal of batteries, electric and electronic devices

- According to international directives, batteries, accumulators and electrical or electronic devices must not be disposed of in general waste.
- The owner is obliged by law to return this devices at the end of their life to the respective public collection points.



■ This symbol on the product, its package or in this document, indicates that a product is subject to these regulations.

71 Maintenance

SICK sensors are maintenance-free.

We recommend doing the following regularly:

- Clean the external lens surfaces
- Check the screw connections and plug-in connections

No modifications may be made to devices.

Subject to change without notice. Specified product properties and technical data are not written guarantees.

72 Technical data

	WTB26P-xxxxx1	WTB26P-xxxxx4	WTB26I-xxxxx1	WTB26I-xxxxx4
Sensing range max.	30 mm ... 1,600 mm ⁽¹⁾	30 mm ... 3,000 mm ⁽¹⁾	30 mm ... 2,000 mm ⁽¹⁾	30 mm ... 3,000 mm ⁽¹⁾
Light spot diameter/distance	Ø 7 mm (700 mm) (type)	Ø 7 mm (700 mm) (type)	Ø 14 mm (1,000 mm)	Ø 14 mm (1,000 mm)
Supply voltage U_B	DC 10 ... 30 V	DC 10 ... 30 V	DC 10 ... 30 V	DC 10 ... 30 V
Ripple	$\leq 5 V_{SS}$	$\leq 5 V_{SS}$	$\leq 5 V_{SS}$	$\leq 5 V_{SS}$
Current consumption	$\leq 30 \text{ mA}^{(2)}$ $< 50 \text{ mA}^{(3)}$	$\leq 30 \text{ mA}^{(2)}$ $< 50 \text{ mA}^{(3)}$	$\leq 30 \text{ mA}^{(2)}$ $< 50 \text{ mA}^{(3)}$	$\leq 30 \text{ mA}^{(2)}$ $< 50 \text{ mA}^{(3)}$
Output current I_{max}	$\leq 100 \text{ mA}$	$\leq 100 \text{ mA}$	$\leq 100 \text{ mA}$	$\leq 100 \text{ mA}$
Max. response time	500 $\mu\text{s}^{(4)}$	2.5 ms ⁽⁴⁾	500 $\mu\text{s}^{(4)}$	2.5 ms ⁽⁴⁾
Switching frequency	1000 Hz ⁽⁵⁾	200 Hz ⁽⁵⁾	1000 Hz ⁽⁵⁾	200 Hz ⁽⁵⁾
Enclosure rating ⁽⁶⁾	see table 1: x4, xH, x5, xl: IP66, IP67, IP69 ⁽⁷⁾ x9, xB: IP65	see table 1: x4, xH, x5, xl: IP66, IP67, IP69 ⁽⁷⁾ x9, xB: IP65	see table 1: x4, xH, x5, xl: IP66, IP67, IP69 ⁽⁷⁾ x9, xB: IP65	see table 1: x4, xH, x5, xl: IP66, IP67, IP69 ⁽⁷⁾ x9, xB: IP65
Protection class	III	III	III	III
Circuit protection	A, B, C, D ⁽⁸⁾	A, B, C, D ⁽⁸⁾	A, B, C, D ⁽⁸⁾	A, B, C, D ⁽⁸⁾
Ambient operating temperature	-40 °C ... +60 °C ⁽⁹⁾	-40 °C ... +60 °C ⁽⁹⁾	-40 °C ... +60 °C ⁽⁹⁾	-40 °C ... +60 °C ⁽⁹⁾

- 1) Object with 90 % remission (based on standard white DIN 5033)
- 2) 16 VDC to 30 VDC, without load
- 3) 10 VDC to 16 VDC, without load
- 4) Signal transit time with resistive load in switching mode. Deviating values possible in COM2 mode.
- 5) With a light/dark ratio of 1:1 in switching mode. Deviating values possible in IO-Link mode.
- 6) Pursuant to EN 60529
- 7) Replaces IP69 K pursuant to ISO 20653: 2013-03
- 8) A = U_B -connections reverse polarity protected
B = inputs and output reverse-polarity protected
C = Interference suppression
D = outputs overcurrent and short-circuit protected
- 9) Do not bend cables below 0 °C.

72.1 Dimensional drawings

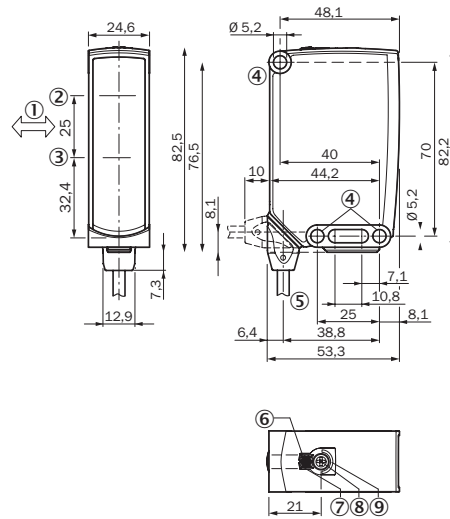


Figure 65: Dimensional drawing 1, cable

- ① Preferred direction of the target object
- ② Center of optical axis, sender
- ③ Center of optical axis, receiver
- ④ Fixing hole, Ø5.2 mm
- ⑤ Connection
- ⑥ LED indicator green: Supply voltage active
- ⑦ LED indicator yellow: Status of received light beam
- ⑧ Press-turn element: Adjusting the sensing range
- ⑨ BluePilot blue: Sensing range display

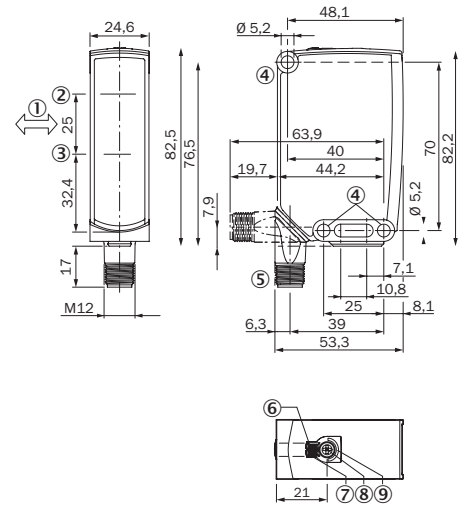


Figure 66: Dimensional drawing 2, male connector

WTB26

SICK
Sensor Intelligence.



de
en
fr
it
ja
pt
ru
zh

所说明的产品

WTB26

制造商

SICK AG
Erwin-Sick-Str. 1
79183 Waldkirch, Germany
德国

法律信息

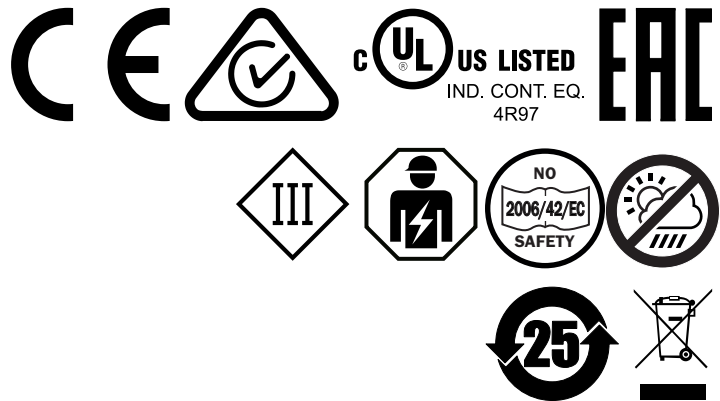
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原始文档

本档为西克股份公司的原始文档。






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73 安全信息

73.1 一般安全提示

- 调试之前阅读本操作指南。
-  只有经过培训的专业人员才能执行连接、安装和配置工作。
-  非符合欧盟机械指令的安全组件。
-  调试时防止设备受到潮湿和污染影响。
- 这些操作指南包含传感器寿命周期内所必需的信息。

73.2 关于 UL 认证的提示

The device must be supplied by a Class 2 source of supply.

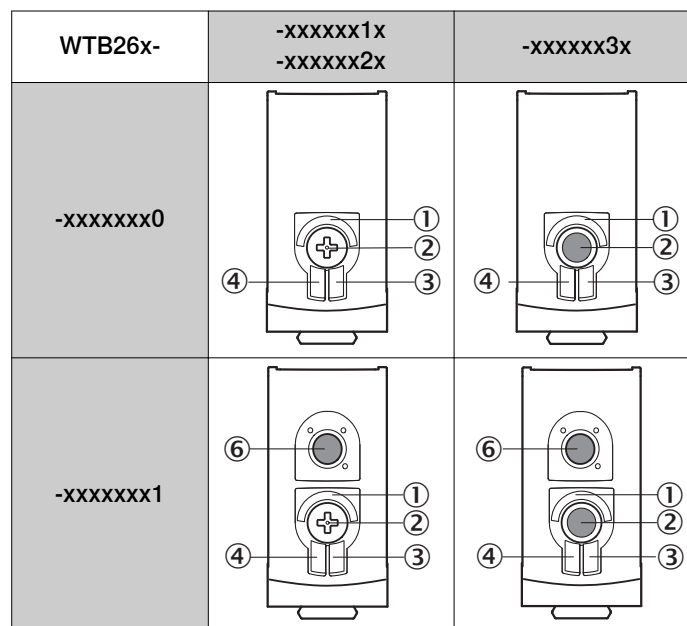
UL Environmental Rating: Enclosure type 1

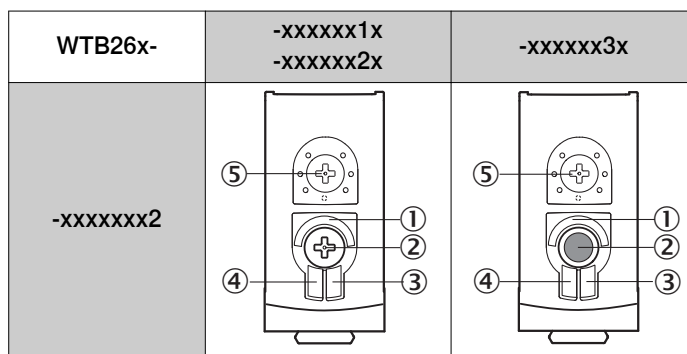
74 规定用途

WTB26 是一种漫反射式光电传感器（下文简称为“传感器”），用于物体、动物和人体的非接触式光学检测。如滥用本产品或擅自对其改装，则 SICK 公司的所有质保承诺均将失效。

75 操作及显示元件

带背景抑制功能的漫反射式光电传感器





- ① BluePilot 蓝色: 触发感应距离显示
- ② 按转元件 / 电位计 / 钮 Teach: 用于调节触发感应距离
- ③ 黄色 LED 指示灯: 光接收状态
- ④ 绿色 LED 指示灯: 工作电压激活
- ⑤ 按转元件: 用于调节时间功能
- ⑥ 示教键: 明通/暗通开关设置

76 安装

将传感器安装在合适的安装支架上（参见 SICK 配件目录）。

注意传感器的最大允许拧紧力矩为 < 1,3 Nm。

以传感器为参照，注意物体的优选方向，参见插图 76, 插图 77。

77 电气安装

必须在断电状态连接传感器。依据不同连接类型，注意下列信息：

- 插头连接：注意引脚分配。
- 电缆：芯线颜色

一旦完成所有电气连接，则应加上或接通电源。

接线图说明（表格 26 - 表格 4）。


Alarm = 警报输出端

Health = 警报输出端

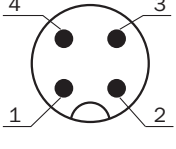
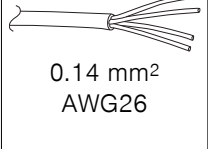
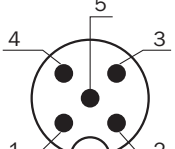
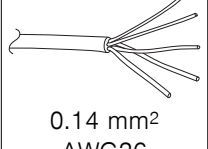
MF（针脚 2 配置）= 外部输入端，示教功能，开关信号

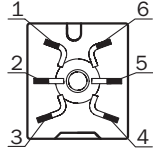
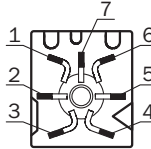
Q_{L1}/C = 开关量输出，IO-Link 通信

Test = 测试输入端

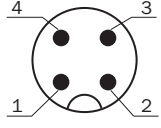
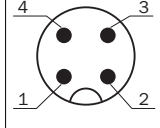
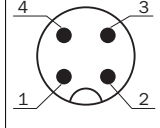
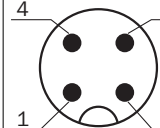
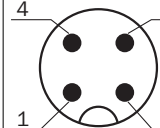
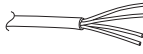
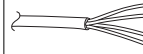
U_B: 10 ... 30 V DC 

表格 26: 接口

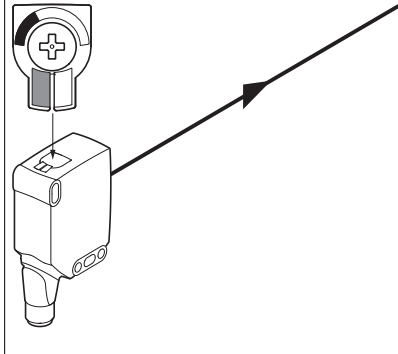
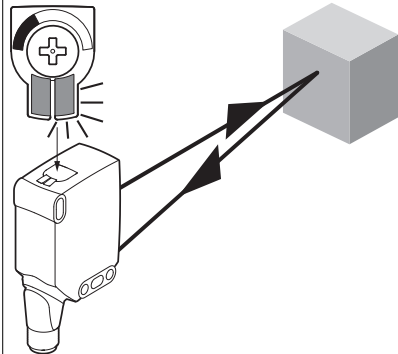
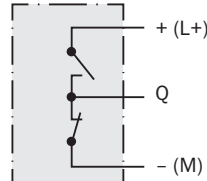
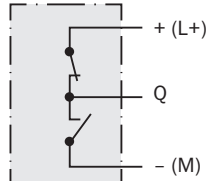
Wxx26x-	x4	xH	x5	xI
1 = BN 2 = WH 3 = BU 4 = BK 5 = GY		 0.14 mm ² AWG26		 0.14 mm ² AWG26

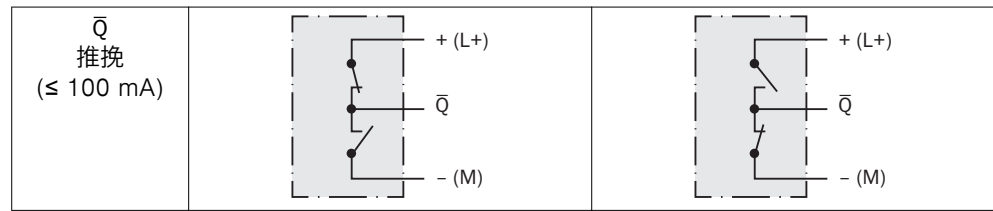
Wxx26x-	x9	xB
1 = BN 2 = BU 3 = not connected 4 = BK 5 = WH 6 = GY 7 = not connected	 $I_N = 4 \text{ A}$	 $I_N = 6 \text{ A}$

表格 27: DC

WTB26	-24161xxxA0 0	-1x161xxxA 00	-24162xxxA 00	-1x162xxxA 00	-2416xxxxA01- A99	-3416xxxxA01- A99
1	+ (L+)					
2	MF					
3	- (M)					
4	Q_{L1}/C					
默认: MF	\bar{Q}	\bar{Q}	Q	Q	www.sick.com 8022709	
默认: Q_{L1}/C	Q	Q	\bar{Q}	\bar{Q}	www.sick.com 8022709	
		1 = BN (棕) 2 = WH (白) 3 = BU (蓝) 4 = BK (黑)		1 = BN (棕) 2 = WH (白) 3 = BU (蓝) 4 = BK (黑)		
		 0.14 mm ² AWG26		 0.14 mm ² AWG26		

表格 28: 推/挽

		
Q 推挽 ($\leq 100 \text{ mA}$)		



78 附加功能

Alarm

警告输出端: 传感器 (WTB26) 具有一个预先停机输出端 (接线图 [参见 表格 7] 中的“警报”), 该输出端仅在传感器准备就绪受限时发送消息。此时, LED 指示灯闪烁。潜在原因: 传感器脏污, 未调节传感器。状态良好: LOW (0), 脏污严重时则为 HIGH (1)。

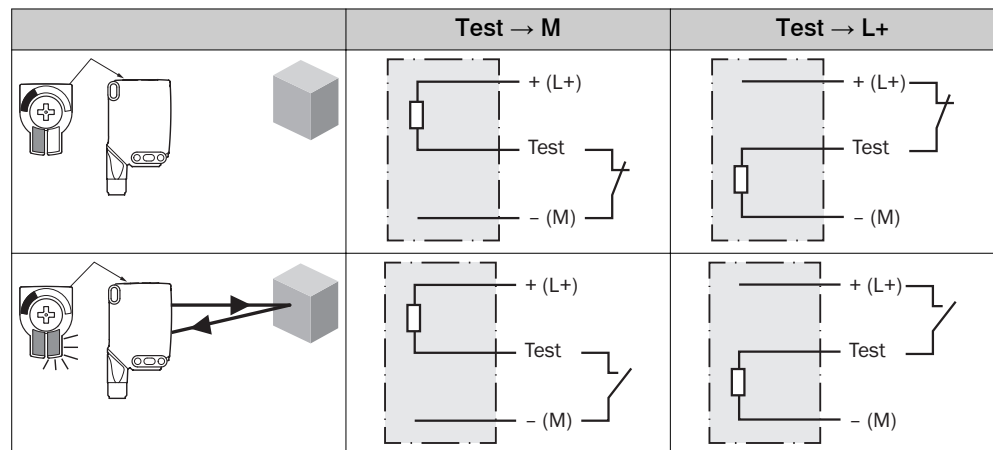
Health 输出端: 传感器 (WTB26) 具有一个预先停机输出端 (接线图 [参见 表格 7] 中的“Health”), 该输出端仅在传感器准备就绪受限或电缆断裂时发送消息。潜在原因: 传感器脏污, 未调节传感器, 电缆受损。状态良好: HIGH (1), 脏污严重或电缆断裂时则为 LOW (0)。此时, LED 指示灯闪烁。

测试输入端

测试输入端: 传感器 WTB26 具有一个测试输出端 (接线图 [参见 表格 2, 表格 7 和 表格 4] 中的“TE”或者“Test”), 使用该输入端关闭发射器及检查传感器功能是否正确: 使用配备 LED 指示灯的电缆插口时应注意相应分配 TE。

物体已识别时, 激活测试输入端 (参见接线图 [参见 表格 2, 表格 7 和 表格 4]。发送 LED 关闭或者模拟没有检测到物体。参照 表格 4 检查功能。如果开关量输出的表现不符合 表格 4, 则检查使用条件。参见故障诊断章节。

表格 29: 测试



79 调试

1 校准

WTB26P: 将传感器对准物体。选择定位, 确保红色发射光束射中物体的中间。此时, 应注意传感器的光学开口 (透明保护盖) 处应无任何遮挡 [参见 插图 67, 插图 68]。

WTB26I: 将传感器对准物体。选择定位, 确保红外光 (不可见光) 射中物体的中间。仅可通过 LED 指示灯辨别校准是否正确, 参见 表格 2, 表格 7 和 表格 3。此时, 应注意传感器的光学开口 (透明保护盖) 处应无任何遮挡。

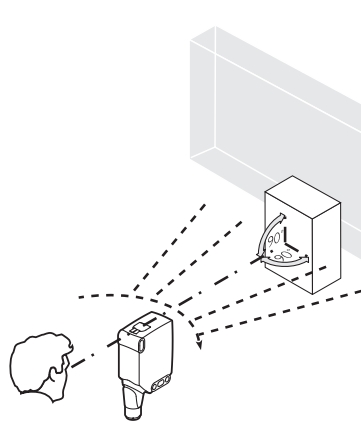


插图 67: 校准 1

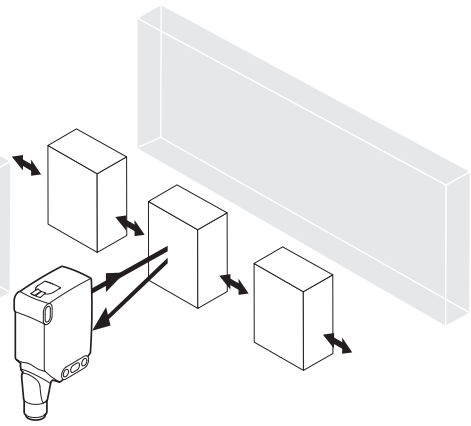


插图 68: 校准 2

2 触发感应距离

WTBXX 为带背景抑制功能的漫反射式光电传感器。根据待检物体及其可能有的位于后面的背景的反射比，在已设置触发感应距离 (x) 与背景之间保持最小距离 (y)。

检查使用条件：使用随附的图表 [参见插图 5 和 6] 调整触发感应距离和与物体或背景的距离及物体的反射能力 (x = 触发感应距离, y = 已设置的触发感应距离和背景 (白色, 90%) 之间的最小距离, 反射比: 6% = 黑色 ①, 18% = 灰色 ②, 90% = 白色 ③ (DIN 5033 规定的标准白))。我们建议您使用低反射比的物体进行设置。

背景抑制功能的最小距离 (= y) 可以从图表 [插图 69 ①] 中如下确定：
 示例: x 600 = mm, y 40 = mm。即，当与传感器距离 > 40 mm 时，才能抑制背景 (白色, 90%)。

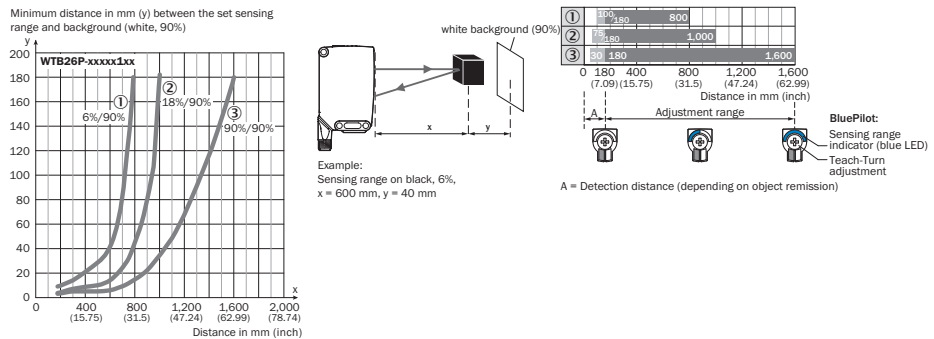


插图 69: 特征曲线 1, WTB26P-xxxxx1xx, 红光

- ① 触发感应距离，基于黑色，6% 反射比
- ② 触发感应距离，基于灰色，18% 反射比
- ③ 触发感应距离，基于白色，90% 反射比

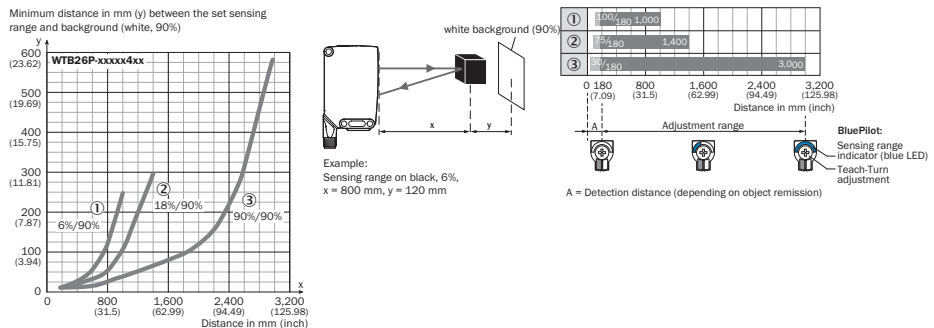


插图 70: 特征曲线 2, WTB26P-xxxxx4xx, 红光

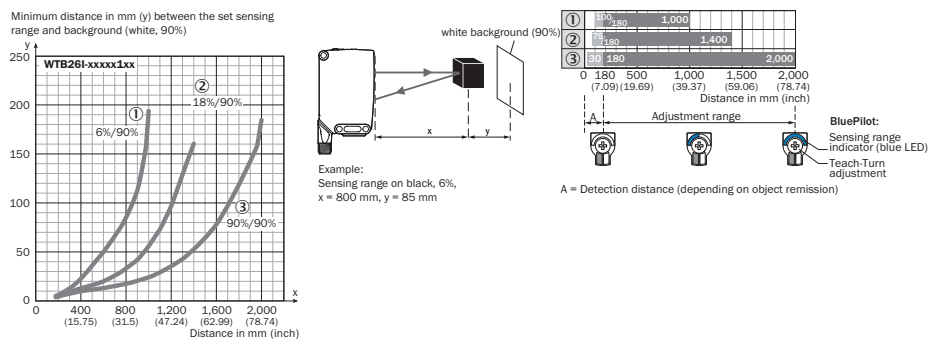


插图 71: 特征曲线 3, WTB26I-xxxxx1xx, 红外光

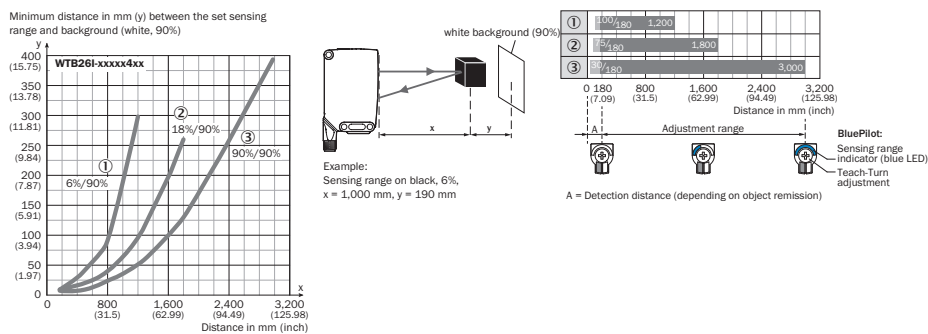


插图 72: 特征曲线 4, WTB26I-xxxxx4xx, 红外光

3 触发感应距离设置

WTB26x-xxxxxx2xAxx, 带有按转元件:

通过按下示教键（约 1-3 秒）设置触发感应距离。根据要求，可使用电位计（不要按压示教键）进行微调。

向右旋转：提高触发感应距离。

向左旋转：降低触发感应距离。

也可仅通过电位计设置触发感应距离。我们建议使触发感应距离涵盖物体，例如 参见插图 73。触发感应距离设置完成后，将物体从光路中移除，同时，将抑制背景并改变开关量输出（参见 表格 2, 表格 7, 表格 3）。

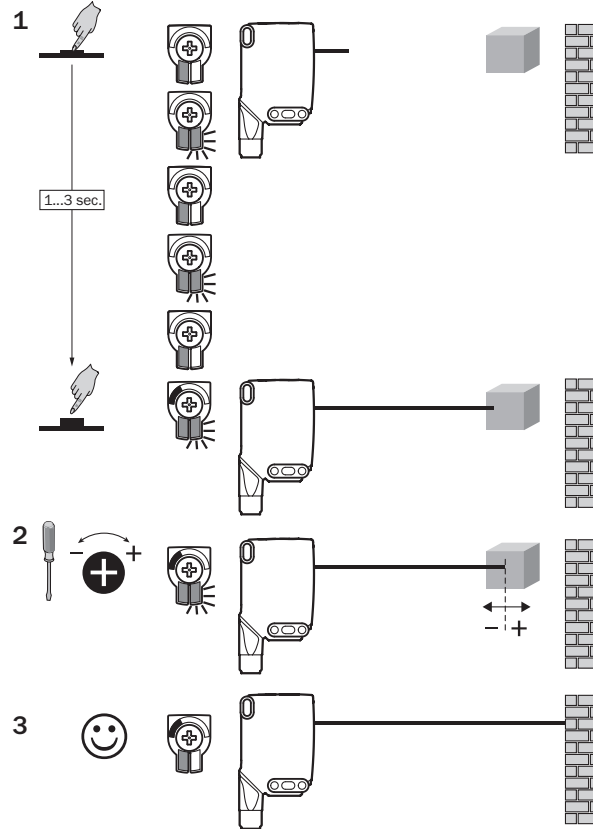


插图 73: WTB26x-xxxxxx2xAxx, 利用按转元件设置触发感应距离

WTB26x-xxxxxx1xAxx, 带有电位计:

使用电位计设置触发感应距离。

向右旋转: 提高触发感应距离。

向左旋转: 降低触发感应距离。

我们建议使触发感应距离涵盖物体, 例如 参见 插图 74。触发感应距离设置完成后, 将物体从光路中移除, 同时, 将抑制背景并改变开关量输出 (参见 表格 2, 表格 7, 表格 3)。

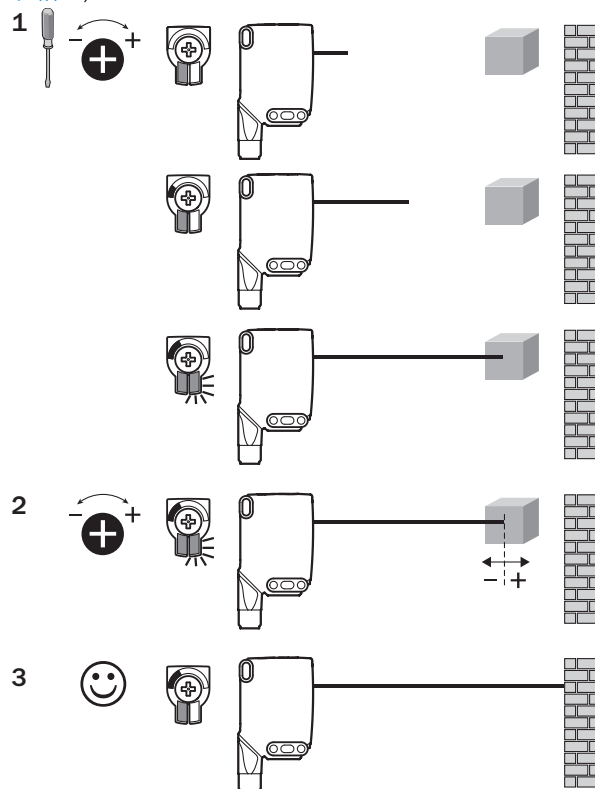


插图 74: WTB26x-xxxxxx1xAxx, 利用电位计设置触发感应距离

WTB26x-xxxxxx3xAxx, 带示教键:

通过按下示教键 (约 1-3 秒) 设置触发感应距离。我们建议使触发感应距离涵盖物体, 例如 参见 插图 75。触发感应距离设置完成后, 将物体从光路中移除, 同时, 将抑制背景并改变开关量输出 (参见 表格 2, 表格 7, 表格 3)。

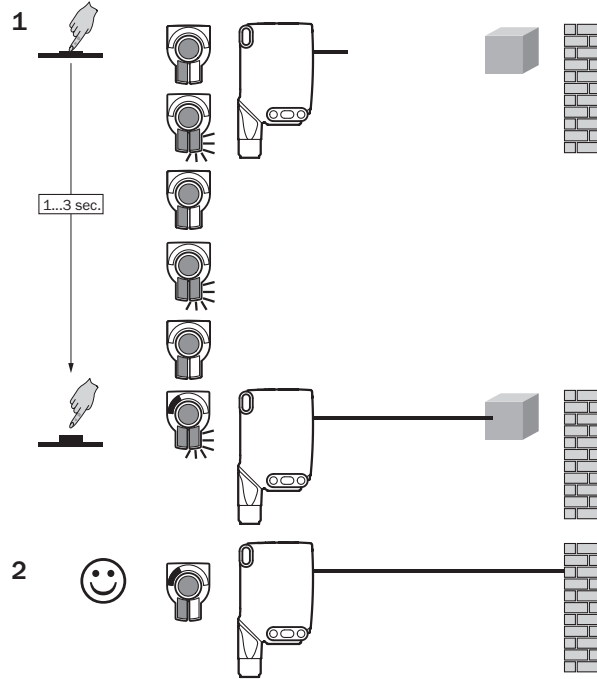
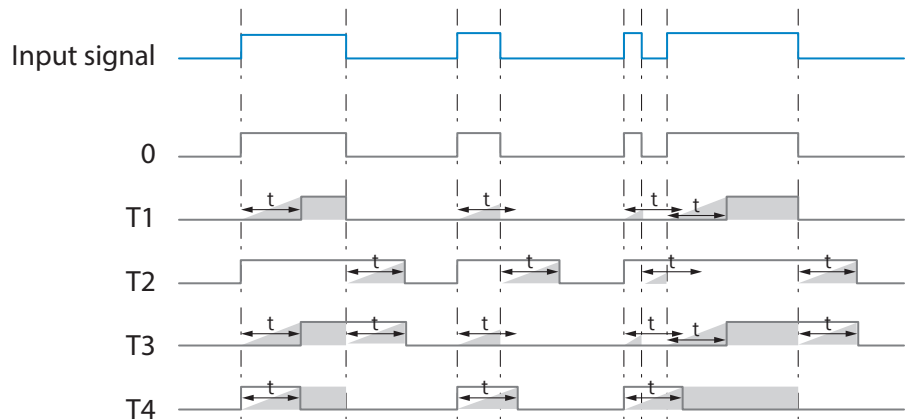
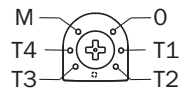
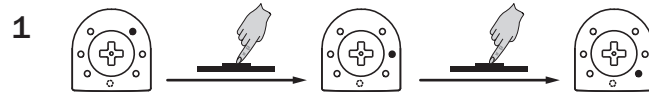
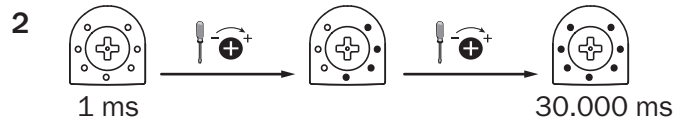


插图 75: WTB26x-xxxxxx3xAxx, 利用示教键设置触发感应距离

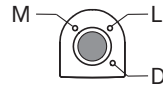
4 时间功能设置



M = 手动 (通过 IO-Link 进行特定设置)



5 明通/暗通开关设置



- L 亮通
- D 暗通
- M 手动 (通过 IO-Link 进行特定设置)

80 过程数据结构

过程数据结构 (版本 1.1)

	A00	A70	A71	A72	A73	A75
IO-Link	V1.1					
流程数据	2 Byte					4 Byte
	Byte 0: Bit 15... 8 Byte 1: Bit 7... 0					Byte 0: Bit 31... 24 Byte 1: Bit 13... 16 Byte 2: Bit 15... 8 Byte 3: Bit 7... 0
Bit 0/ 数据类型	Q _{L1} / Boolean					
Bit 1/ 数据类型	Q _{L2} / Boolean			Qint.1 / Boolean	Q _{L2} / Boolean	Qint.1 / Boolean
Bit... / 描述/ 数据类型	2...15 / [empty]	2...15 / [Time measurement value] / UInt 14	2 ... 15 / [Counter value] / UInt 14	2 ... 15 / [Length / speed measurement] / SInt14	2 / Qint.1 / Boolean	2...7 / [empty]
Bit... / 描述/ 数据类型					3 ... 15 / [Time measurement value] / UInt13	8 ... 31 / [Carrier load] / UInt 24

81 故障排除

故障排除表格中罗列了传感器无法执行某项功能时应采取的各项措施。

LED 指示灯 / 故障界面	原因	措施
绿色 LED 闪烁	IO-Link 通信	无

LED 指示灯 / 故障界面	原因	措施
开关量输出的表现不符合表 表格 28	1. IO-Link 通信 2. 配置变化 3. 短路	1. 无 2. 配置调整 3. 检查电气连接
黄色 LED 亮起, 光路中无物 体	触发感应距离设置过大	降低开关距离
光路中有物体, 黄色 LED 未 亮起	传感器和物体之间的间距过 大或开关距离设置的过小	增大开关距离

82 拆卸和废弃处置

必须根据适用的国家/地区特定法规处理传感器。在废弃处置过程中应努力回收构成材料（特别是贵金属）。



提示

电池、电气和电子设备的废弃处置

- 根据国际指令，电池、蓄电池和电气或电子设备不得作为一般废物处理。
- 根据法律，所有者有义务在使用寿命结束时将这些设备返还给相应的公共收集点。



■ 产品、其包装或本文档中的此符号表示产品受这些法规约束。

83 保养

SICK 传感器无需保养。

我们建议，定期：

- 清洁镜头检测面
- 检查螺栓连接和插头连接

不得对设备进行任何改装。

如有更改,不另行通知。所给出的产品特性和技术参数并非质保声明。

84 技术数据

	WTB26P-xxxxx1	WTB26P-xxxxx4	WTB26I-xxxxx1	WTB26I-xxxxx4
最大开关距离	30 mm ... 1,600 mm ⁽¹⁾	30 mm ... 3,000 mm ⁽¹⁾	30 mm ... 2,000 mm ⁽¹⁾	30 mm ... 3,000 mm ⁽¹⁾
光斑直径/距离	Ø 7 mm (700 mm) (类型)	Ø 7 mm (700 mm) (类型)	Ø 14 mm (1,000 mm)	Ø 14 mm (1,000 mm)
供电电压 U_B	DC 10 ... 30 V	DC 10 ... 30 V	DC 10 ... 30 V	DC 10 ... 30 V
残余纹波	$\leq 5 V_{SS}$	$\leq 5 V_{SS}$	$\leq 5 V_{SS}$	$\leq 5 V_{SS}$
消耗电流	$\leq 30 \text{ mA}^{(2)}$ $< 50 \text{ mA}^{(3)}$	$\leq 30 \text{ mA}^{(2)}$ $< 50 \text{ mA}^{(3)}$	$\leq 30 \text{ mA}^{(2)}$ $< 50 \text{ mA}^{(3)}$	$\leq 30 \text{ mA}^{(2)}$ $< 50 \text{ mA}^{(3)}$
输出电流 I_{\max}	$\leq 100 \text{ mA}$	$\leq 100 \text{ mA}$	$\leq 100 \text{ mA}$	$\leq 100 \text{ mA}$
最长响应时间	500 $\mu\text{s}^{(4)}$	2.5 ms ⁽⁴⁾	500 $\mu\text{s}^{(4)}$	2.5 ms ⁽⁴⁾
开关频率	1,000 Hz ⁽⁵⁾	200 Hz ⁽⁵⁾	1,000 Hz ⁽⁵⁾	200 Hz ⁽⁵⁾
防护类型 ⁽⁶⁾	参见 表格 26: x4, xH, x5, xI: IP66, IP67, IP69 ⁽⁷⁾ x9, xB: IP65	参见 表格 26: x4, xH, x5, xI: IP66, IP67, IP69 ⁽⁷⁾ x9, xB: IP65	参见 表格 26: x4, xH, x5, xI: IP66, IP67, IP69 ⁽⁷⁾ x9, xB: IP65	参见 表格 26: x4, xH, x5, xI: IP66, IP67, IP69 ⁽⁷⁾ x9, xB: IP65
防护等级	III	III	III	III
保护电路	A, B, C, D ⁽⁸⁾	A, B, C, D ⁽⁸⁾	A, B, C, D ⁽⁸⁾	A, B, C, D ⁽⁸⁾
工作环境温度	-40 °C ... +60 °C ⁽⁹⁾	-40 °C ... +60 °C ⁽⁹⁾	-40 °C ... +60 °C ⁽⁹⁾	-40 °C ... +60 °C ⁽⁹⁾

- 1) 具有 90 % 反射比的扫描对象 (指 DIN 5033 规定的标准白)
- 2) 16VDC...30VDC, 无负荷
- 3) 10VDC...16VDC, 无负荷
- 4) 信号传输时间 (开启模式中的电阻性负荷时)。在 COM2-模式下允许偏差值。
- 5) 明暗比 1:1, 在开启模式时。在 IO-Link 模式下允许偏差值。
- 6) 符合 EN 60529
- 7) 代替 IP69K, 根据 ISO 20653: 2013-03
- 8) A = U_B 接口 (已采取反极性保护措施)
B = 具有反极性保护的输入端和输出端
C = 抑制干扰脉冲
D = 抗过载电流和抗短路输出端
- 9) 在 0 °C 以下不要弯曲线缆

84.1 尺寸图

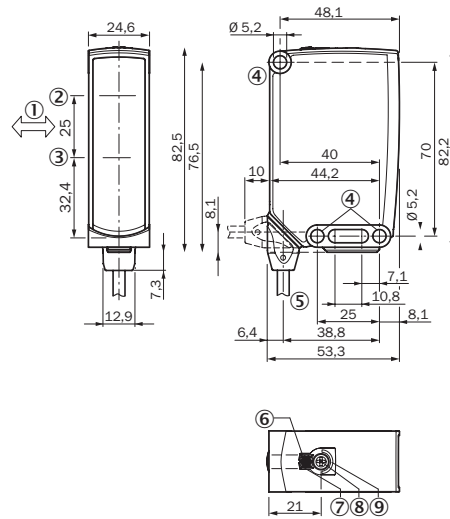


插图 76: 尺寸图 1, 电缆

- ① 待测物体的优选方向
- ② 发射器光轴中心
- ③ 接收器光轴中心
- ④ 安装孔, $\text{Ø}5.2 \text{ mm}$
- ⑤ 接口
- ⑥ 绿色 LED 指示灯: 工作电压激活
- ⑦ 黄色 LED 指示灯: 光接收状态
- ⑧ 按转元件: 设置触发感应距离
- ⑨ BluePilot 蓝色: 触发感应距离指示灯

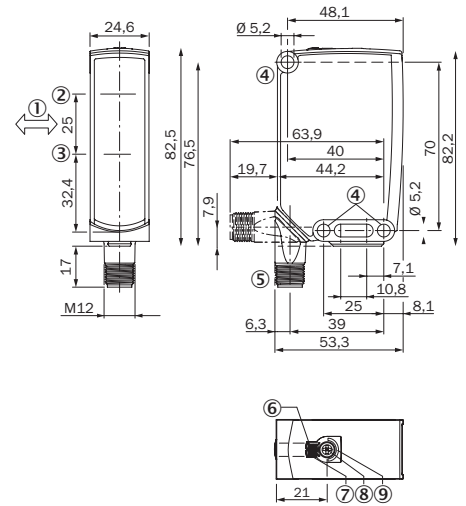


插图 77: 尺寸图 2, 插头

WTB26

SICK
Sensor Intelligence.



de
en
fr
it
ja
pt
ru
zh

説明されている製品

WTB26

メーカー

SICK AG
Erwin-Sick-Str. 1
79183 Waldkirch
Germany

法律情報

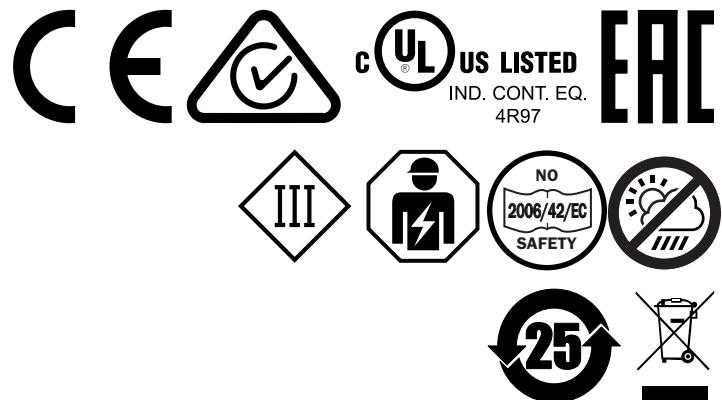
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85 安全情報

85.1 一般的な安全上の注意事項

- コミッショニング前に取扱説明書をよくお読みください。
-  本製品の接続・取付・コンフィグレーションは、訓練を受けた技術者が行ってください。
-  本製品は、EU の機械指令を満たす人体保護用の安全コンポーネントではありません。
-  コミッショニング前に、湿気や汚れから機器を保護してください。
- 本取扱説明書には、センサのライフサイクル中に必要となる情報が記載されています。

85.2 UL 認証に関する注意事項

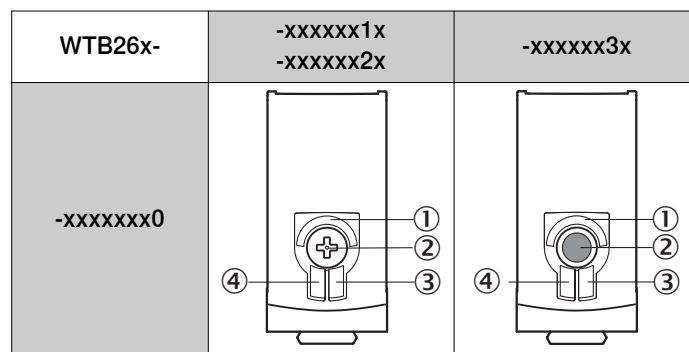
The device must be supplied by a Class 2 source of supply.
UL Environmental Rating: Enclosure type 1

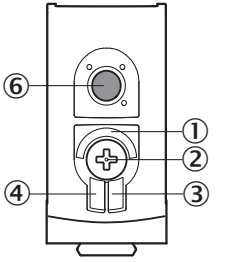
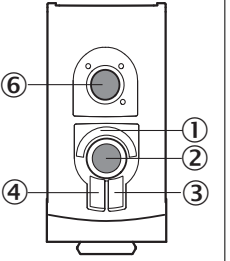
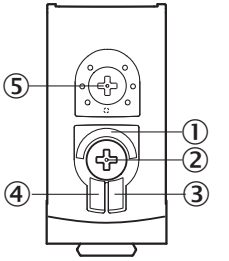
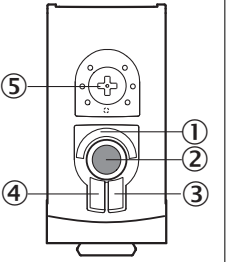
86 正しいご使用方法

WTB26 とはリフレクタ形光電スイッチ (以下センサと呼ぶ) で、物体、動物または人物などを光学技術により非接触で検知するための装置です。製品を用途以外の目的で使用したり改造したりした場合は、SICK AG に対する一切の保証請求権が無効になります。

87 操作/表示要素

背景抑制付きリフレクタ形光電スイッチ



WTB26x-	-xxxxxx1x -xxxxxx2x	-xxxxxx3x
-xxxxxx1		
-xxxxxx2		

- ① BluePilot 青色: 検出距離表示灯
- ② プッシュボタン操作部 / ポテンショメータ / ティーチボタン: 検出距離の設定
- ③ 黄色の LED 表示: 受光状態
- ④ 緑色の LED 表示: 動作電圧有効
- ⑤ プッシュボタン操作部: タイマー機能の設定
- ⑥ ティーチボタン: ライト/ダークオンの設定

88 取り付け

センサを適切な取付ブラケットに取り付けます (SICK 付属品カタログを参照)。
 センサの締付トルクの最大許容値 < 1,3 Nm を遵守してください。
 センサに対して対象物が検出可能な方向にあることを確認してください: 参照
 図 87、図 88。

89 電氣的設置

センサの接続は無電圧状態で行う必要があります。接続タイプに応じて以下の情報を遵守してください:

- コネクタ接続: ピン割り当てに注意。
- ケーブル: 芯線色

すべての電氣的接続部を接続してから供給電圧を印加、あるいは電源を入れてください。

配線図に関する説明 (表 30 - 表 4)。

アラーム = アラーム出力

ヘルス = アラーム出力

MF (ピン 2 設定) = 外部入力、ティーチイン、スイッチング信号

Q_{L1} / C = スwitching出力、IO-Link 通信

テスト = テスト入力


U_B: 10 ... 30 V DC 

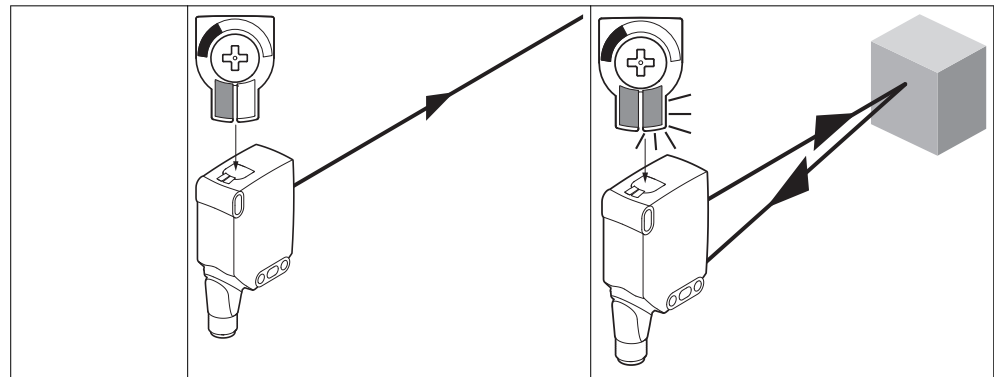
表 30: 接続

Wxx26x-	x4	xH	x5	xl
1 = BN 2 = WH 3 = BU 4 = BK 5 = GY		<p>0.14 mm² AWG26</p>		<p>0.14 mm² AWG26</p>
Wxx26x-	x9	xB		
1 = BN 2 = BU 3 = not connected 4 = BK 5 = WH 6 = GY 7 = not connected	<p>I_N = 4 A</p>	<p>I_N = 6 A</p>		

表 31: DC

WTB26	-24161xxxA00	-1x161xxxA00	-24162xxxA00	-1x162xxxA00	-2416xxxxA01-A99	-3416xxxxA01-A99
1	+ (L+)					
2	MF					
3	- (M)					
4	Q _{L1} /C					
デフォルト: MF	Q̄	Q̄	Q	Q	www.sick.com 8022709	
デフォルト: Q _{L1} /C	Q	Q	Q̄	Q̄	www.sick.com 8022709	
		1 = 茶 2 = 白 3 = 青 4 = 黒 <p>0.14 mm² AWG26</p>		1 = 茶 2 = 白 3 = 青 4 = 黒 <p>0.14 mm² AWG26</p>		

表 32: プッシュ / プル



Q プッシュプル (≤ 100 mA)		
\bar{Q} プッシュプル (≤ 100 mA)		

90 追加機能

Alarm

アラーム出力: センサ (WTB26) には、センサ能力が低下している場合に通知する、故障前通知出力 (配線図 [参照表 7] の「アラーム」) が備わっています。その際 LED 表示灯が点滅します。想定される原因: センサの汚れ、センサ調整不良。良好状態: LOW (0)、汚れがひどい場合: HIGH (1)。

ヘルス出力: センサ (WTB26) には故障前通知出力 (配線図 [参照表 7] の「ヘルス」) が搭載されており、センサ能力低下時またはケーブル断線時にこの出力から通知が寄せられます。考えられる原因: センサの汚れ、センサの調整不良、ケーブルの損傷。良好状態: HIGH (1)、汚れがひどい場合、またはケーブル断線時: LOW (0)。その際 LED 表示灯が点滅します。

テスト入力

テスト入力: センサ WTB26 にはテスト入力 (配線図 [参照表 2、表 7 および表 4] の「TE」または「Test」) が搭載されており、これを使用して投光器をオフにして、センサが正しく機能しているかどうかを点検することができます。LED 表示灯付きのメスケابلコネクタを使用する場合は、TE が適切に割り当てられていることに注意してください。

対象物が検出されたら、テスト入力をアクティブにします (配線図 [参照表 2、表 7 および表 4] を参照)。投光 LED がオフになるか、または対象物が検出されないというシミュレーションが行われます。機能を点検するには、表 4 を参照します。スイッチング出力が表 4 に従った動作を示さない場合は、使用条件を点検してください。故障診断の項目を参照。

表 33: テスト

	Test → M	Test → L+

91 コミッショニング

1 光軸調整

WTB26P: センサを対象物に合わせて光軸調整します。赤色の投光軸が対象物の中央に照射されるように位置決めします。センサの光開口部 (フロントカバー) を遮るものが全くないことを確認してください [参照 図 78、図 79]。

WTB26I: センサを対象物に合わせて光軸調整します。赤外線 (不可視) が対象物の中央に照射されるように位置決めします。向きが正しいことは、表示 LED でしか認識できません: 参照表 2、表 7 および表 3。センサの光開口 (フロントカバー) が全く遮らざれることがないように注意してください。

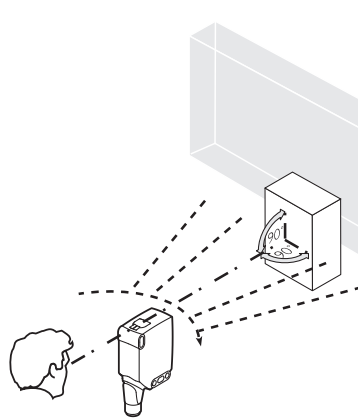


図 78: 光軸調整 1

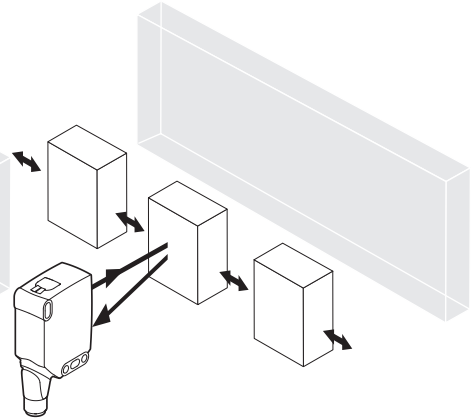


図 79: 光軸調整 2

2 検出距離

WTBXX は背景抑制機能付きリフレクタ形光电スイッチです。検出対象物の反射率と、その後ろに背景がある場合にはその反射率に応じて、設定した検出距離 (x) と背景間の最小距離 (y) を維持する必要があります。

使用条件の点検: 検出距離と対象物または背景までの間隔、ならびに対象物の反射率を対応する図 [図 5 と 6 を参照] と照らし合わせます (x = 検出距離、y = 設定した検出距離と背景 (白、90%) 間の最小距離) 反射率: 6% = 黒 ①、18% = グレー ②、90% = 白 ③ (DIN 5033 に準拠した標準白を基準とした数値)。当社では、反射率が低い対象物を使用して設定を行うことを推奨しています。

背景抑制用の最小間隔 (= y) は、図 [図 80 ①] に基づいて以下の通り求めることができます:

例: x = 600 mm、y = 40 mm。つまりセンサからの間隔が 40 mm より大きい場合に背景 (白、90%) が抑制されます。

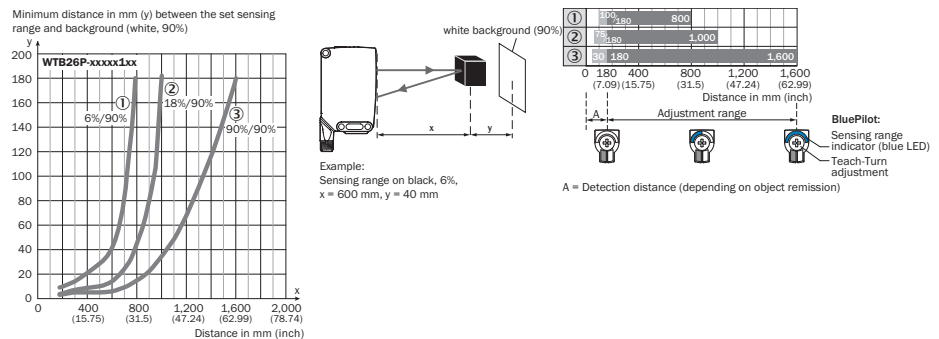


図 80: 特性曲線 1、WTB26P-xxxxx1xx、赤色光

- ① 黒色の検出距離、反射率 6%
- ② グレーの検出距離、反射率 18%
- ③ 白色の検出距離、反射率 90%

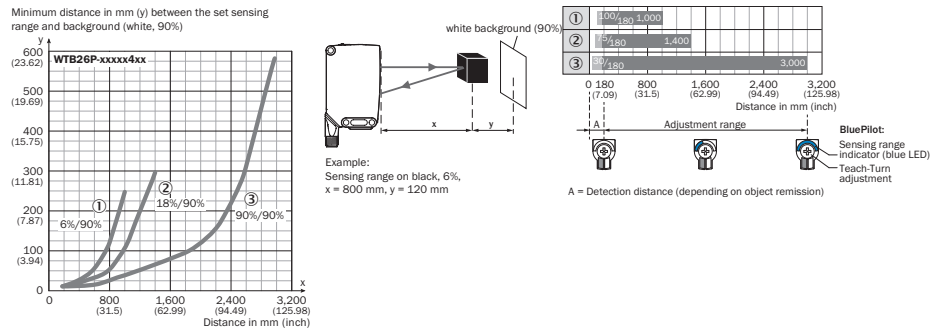


図 81: 特性曲線 2、WTB26P-xxxxx4xx、赤色光

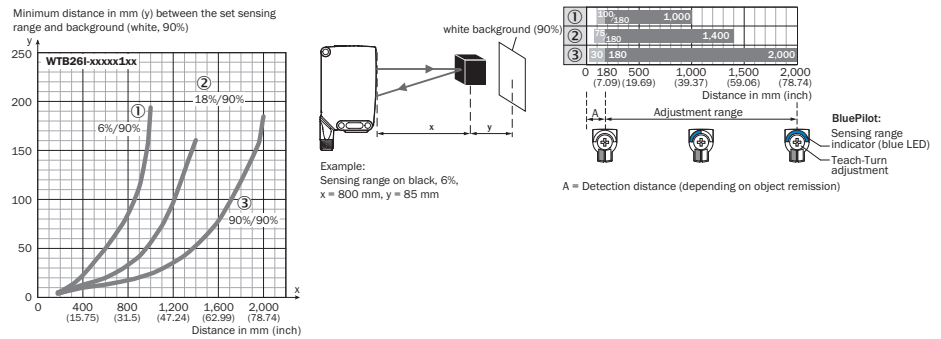


図 82: 特性曲線 3、WTB26I-xxxxx1xx、赤外光

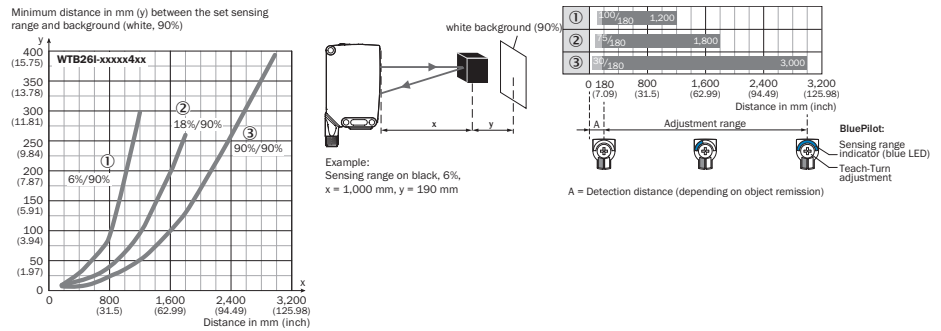


図 83: 特性曲線 4、WTB26I-xxxxx4xx、赤外光

3 検出距離の設定

WTB26x-xxxxxx2xAxx、プッシュターン操作部付き:

ティーチンボタンを押して (約 1~3 秒) 検出距離を設定します。要件に応じて、ポテンシオメータで (ティーチンボタンを押さずに) 微調整することができます。

右へ回すと検出距離が増大します。

左へ回すと検出距離が減少します。

検出距離はポテンシオメータのみで設定できます。検出距離を対象物内に入れることをお勧めします。例: 参照 図 84。検出距離を設定した後、対象物を光路から取り除きます。この際、背景は抑制され、スイッチング出力が変化します (参照 表 2、表 7、表 3)。

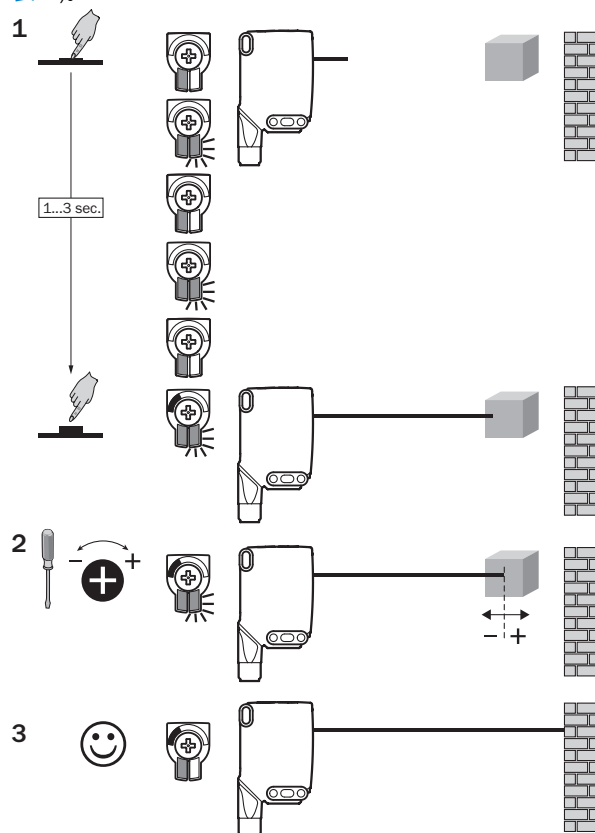


図 84: WTB26x-xxxxxx2xAxx、プッシュターン要素による検出距離の設定

WTB26x-xxxxxx1xAxx、ポテンシオメータ付き:

ポテンシオメータで検出距離を設定します。

右へ回すと検出距離が増大します。

左へ回すと検出距離が減少します。

検出距離を対象物内に入れることをお勧めします。例: 参照 図 85。検出距離を設定した後、対象物を光路から取り除きます。この際、背景は抑制され、スイッチング出力が変化します (参照 表 2、表 7、表 3)。

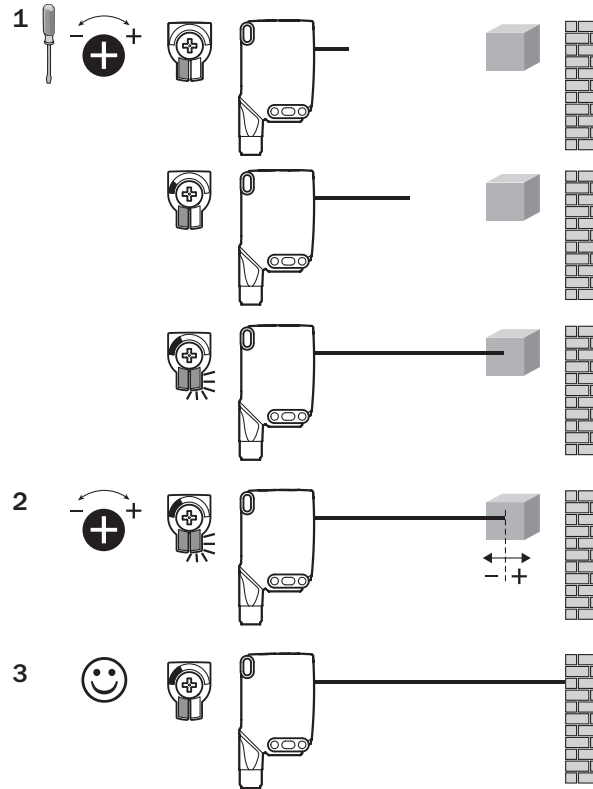


図 85: WTB26x-xxxxxx1xAxx、ポテンシオメータによる検出距離の設定

WTB26x-xxxxxx3xAxx、ティーチインボタン付き:

ティーチインボタンを押して (約 1~3 秒) 検出距離を設定します。検出距離を対象物内に入れることをお勧めします。例: 参照 図 86。検出距離を設定した後、対象物を光路から取り除きます。この際、背景は抑制され、スイッチング出力が変化します (参照 表 2、表 7、表 3)。

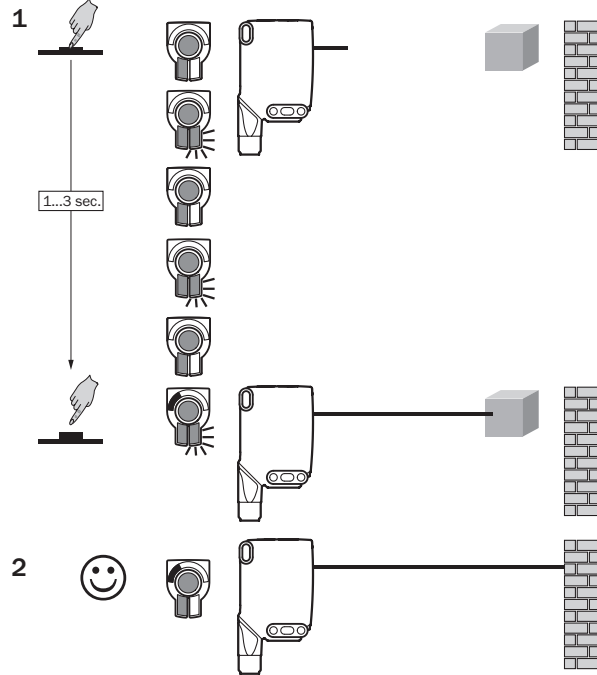
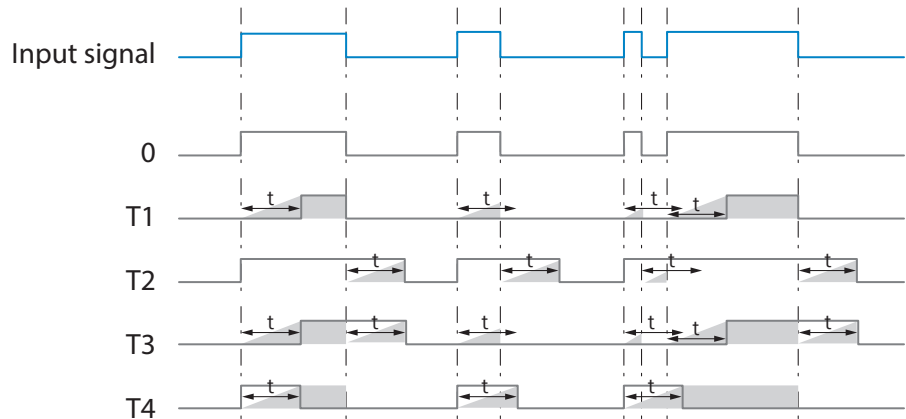
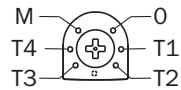
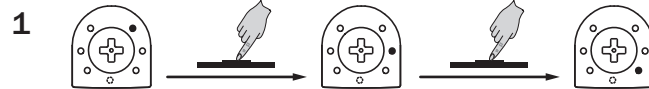
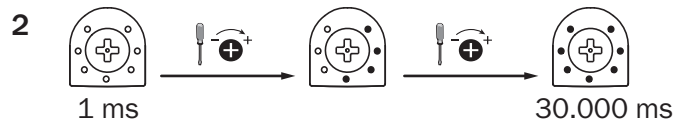


図 86: WTB26x-xxxxxx3xAxx、ティーチインボタンによる検出距離の設定

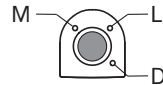
4 タイマー機能設定



M = 手動 (IO-Link を介した特定の設定)



5 ライト/ダークオンの設定



- L ライトオン
- D ダークオン
- M 手動 (IO-Link を介した特定の設定)

92 プロセスデータ構造

プロセスデータ構造 (バージョン 1.1)

	A00	A70	A71	A72	A73	A75
IO-Link	V1.1					
プロセスデータ	2 バイト					4 バイト
	バイト 0: ビット 15... 8 バイト 1: ビット 7... 0					バイト 0: ビット 31... 24 バイト 1: ビット 13... 16 バイト 2: ビット 15... 8 バイト 3: ビット 7... 0
ビット 0 / データタイプ	Q _{L1} / ブール型					
ビット 1 / データタイプ	Q _{L2} / ブール型			Q _{int.1} / ブール型	Q _{L2} / ブール型	Q _{int.1} / ブール型
ビット... / 説明 / データタイプ	2...15 / [空]	2...15 / [時間測定値] / UInt 14	2 ... 15 / [カウンタ値] / UInt 14	2 ... 15 / [長さ / 速度測定] / SInt14	2 / Q _{int.1} / ブール型	2...7 / [空]
ビット... / 説明 / データタイプ					3 ... 15 / [時間測定値] / UInt13	8 ... 31 / [キャリアロード] / UInt 24

93 トラブルシューティング

トラブルシューティングの表は、センサが機能しなくなった場合に、どのような対策を講じるべきかを示しています。

LED 表示灯/故障パターン	原因	対策
緑色の LED が点滅	IO リンク通信	なし
スイッチング出力がにらった動作を示さない。 表 32	1. IO リンク通信 2. 設定の変更 3. 短絡	1. なし 2. 設定の調整 3. 電氣的接続を点検する
黄色い LED が点灯、光軸に対象物がない	検出距離が長すぎる距離に合わせて設定されています	検出範囲を縮小します。
対象物は光軸にある、黄色い LED は点灯しない	センサと対象物の間隔が長すぎる、または検出範囲の設定が短すぎる	検出範囲を拡大します。

94 分解および廃棄

センサは必ず該当国の規制にしたがって処分してください。廃棄処理の際には、できるだけ構成材料をリサイクルするよう努めてください（特に貴金属類）。



注意事項

バッテリー、電気および電子デバイスの廃棄

- ・ 国際的指令に従い、バッテリー、アキュムレータ、および電気または電子デバイスは、一般廃棄物として廃棄することはできません。
- ・ 法律により、所有者は、本デバイスの耐用年数の終了時に本デバイスをそれぞれの公的な回収場所まで返却することが義務付けられています。



■ 製品、梱包または本文書に記載されているこの記号は、製品がこれらの規制の対象であることを示します。

95 メンテナンス

SICK センサはメンテナンスフリーです。

定期的に以下を行うことをお勧めしています：

- ・ レンズ境界面の清掃
- ・ ネジ締結と差込み締結の点検

機器を改造することは禁止されています。

記載内容につきましては予告なしに変更する場合がございますのであらかじめご了承ください。指定された製品特性および技術データは保証書ではありません。

96 技術仕様 (抜粋)

	WTB26P-xxxxx1	WTB26P-xxxxx4	WTB26I-xxxxx1	WTB26I-xxxxx4
最大検出範囲	30 mm ... 1,600 mm ⁽¹⁾	30 mm ... 3,000 mm ⁽¹⁾	30 mm ... 2,000 mm ⁽¹⁾	30 mm ... 3,000 mm ⁽¹⁾
光点のスポット径/距離	Ø 7 mm (700 mm) (タイプ)	Ø 7 mm (700 mm) (タイプ)	Ø 14 mm (1,000 mm)	Ø 14 mm (1,000 mm)
供給電圧 U_B	DC 10 ... 30 V	DC 10 ... 30 V	DC 10 ... 30 V	DC 10 ... 30 V
残留リップル	$\leq 5 V_{SS}$	$\leq 5 V_{SS}$	$\leq 5 V_{SS}$	$\leq 5 V_{SS}$
消費電流	$\leq 30 \text{ mA}^{(2)}$ < 50 mA ⁽³⁾	$\leq 30 \text{ mA}^{(2)}$ < 50 mA ⁽³⁾	$\leq 30 \text{ mA}^{(2)}$ < 50 mA ⁽³⁾	$\leq 30 \text{ mA}^{(2)}$ < 50 mA ⁽³⁾
出力電流 I_{max}	$\leq 100 \text{ mA}$	$\leq 100 \text{ mA}$	$\leq 100 \text{ mA}$	$\leq 100 \text{ mA}$
最大応答時間	500 $\mu\text{s}^{(4)}$	2.5 ms ⁽⁴⁾	500 $\mu\text{s}^{(4)}$	2.5 ms ⁽⁴⁾
スイッチング周波数	1,000 Hz ⁽⁵⁾	200 Hz ⁽⁵⁾	1,000 Hz ⁽⁵⁾	200 Hz ⁽⁵⁾
保護等級 ⁽⁶⁾	参照表 30: x4, xH, x5, xI: IP66, IP67, IP69 ⁽⁷⁾ x9, xB: IP65	参照表 30: x4, xH, x5, xI: IP66, IP67, IP69 ⁽⁷⁾ x9, xB: IP65	参照表 30: x4, xH, x5, xI: IP66, IP67, IP69 ⁽⁷⁾ x9, xB: IP65	参照表 30: x4, xH, x5, xI: IP66, IP67, IP69 ⁽⁷⁾ x9, xB: IP65
保護クラス	III	III	III	III
回路保護	A, B, C, D ⁽⁸⁾	A, B, C, D ⁽⁸⁾	A, B, C, D ⁽⁸⁾	A, B, C, D ⁽⁸⁾
周辺温度 (作動中)	-40 °C ... +60 °C ⁽⁹⁾	-40 °C ... +60 °C ⁽⁹⁾	-40 °C ... +60 °C ⁽⁹⁾	-40 °C ... +60 °C ⁽⁹⁾

- 1) 反射率 90 % の対象物 (DIN 5033 に準拠した白色)
- 2) 16VDC...30VDC、負荷なし
- 3) 10VDC...16VDC、負荷なし
- 4) 切替モードでの抵抗負荷における信号遷移時間。COM2 モードでは値が異なる場合があります。
- 5) 切替モードで明暗比率 1:1 の場合 IO-Link モードでは値が異なる場合があります。
- 6) EN 60529 準拠
- 7) ISO 20653: 2013-03 準拠の IP69K の代わり
- 8) A = U_B 電源電圧逆接保護
B = 出力 逆接保護
C = 干渉パルス抑制
D = 出力の過電流保護および短絡保護
- 9) 0°C を下回る場合はケーブルを曲げないでください。

96.1 寸法図

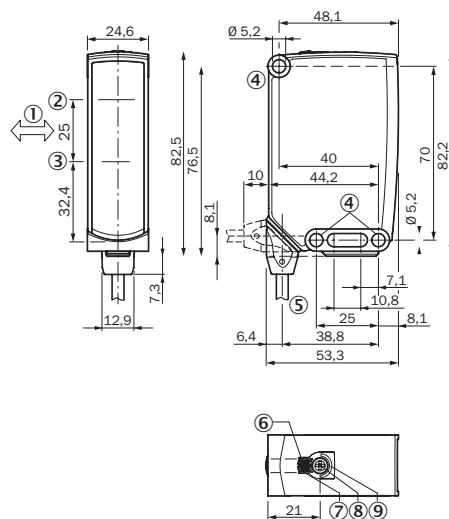


図 87: 寸法図 1、ケーブル

- ① 検出対象物の優先方向
- ② 投光器光軸の中心
- ③ 受光器光軸の中心
- ④ 固定穴、 $\varnothing 5.2$ mm
- ⑤ 接続
- ⑥ 緑色の LED 表示: 動作電圧有効
- ⑦ 黄色 LED 表示: 受光ステータス
- ⑧ プッシュターン要素: 検出距離の設定
- ⑨ BluePilot 青色: 検出距離表示灯

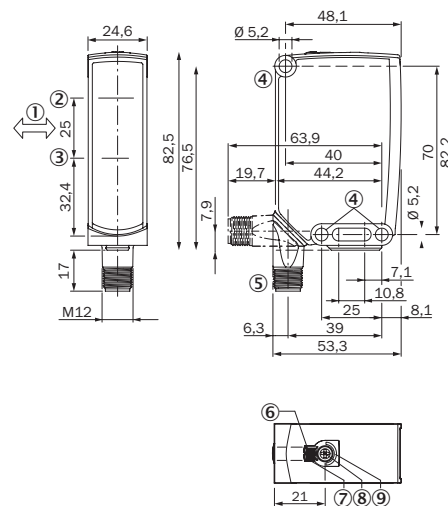


図 88: 寸法図 2、オスコネクタ

WTB26

SICK
Sensor Intelligence.



de
en
fr
it
ja
pt
ru
zh

Описание продукта

WTB26

Изготовитель

SICK AG
Erwin-Sick-Str. 1
79183 Waldkirch
Deutschland (Германия)

Правовые примечания

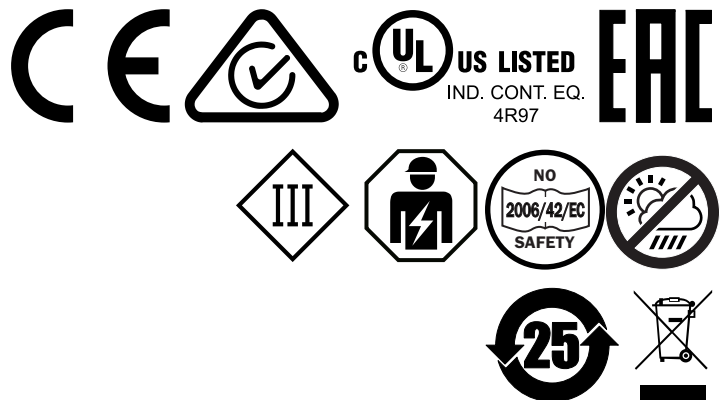
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97 Безопасность

97.1 Общие указания по технике безопасности

- Перед вводом в эксплуатацию прочитайте инструкции по эксплуатации.
-  Подключение, монтаж и настройку могут выполнять только квалифицированные специалисты.
-  Не является компонентом безопасности в соответствии с Директивой ЕС по работе с машинным оборудованием.
-  При вводе в эксплуатацию защищайте устройство от влаги и загрязнений.
- Настоящие инструкции по эксплуатации содержат информацию, необходимую в течение срока эксплуатации датчика.

97.2 Указания по допуску к эксплуатации UL

The device must be supplied by a Class 2 source of supply.

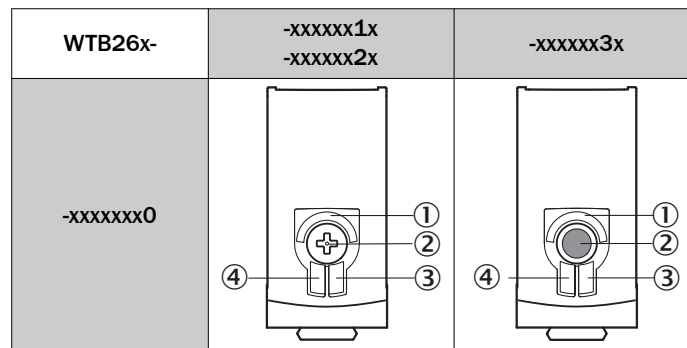
UL Environmental Rating: Enclosure type 1

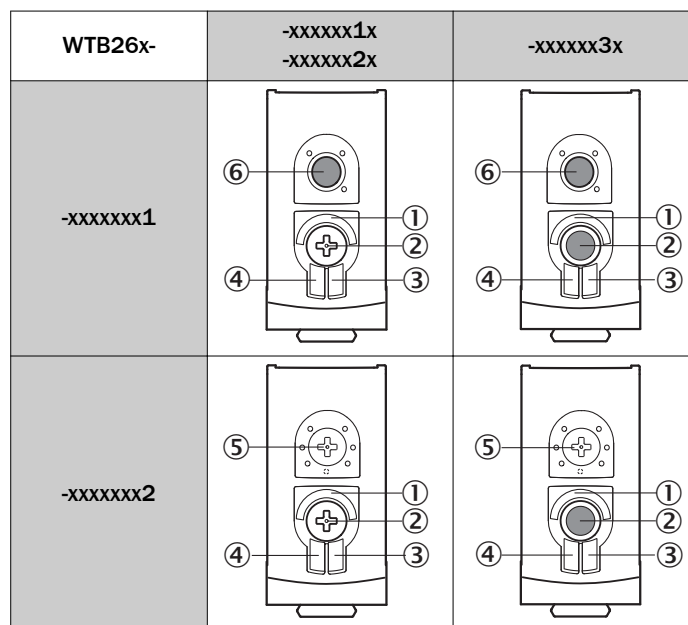
98 Применение по назначению

WTB26 является фотоэлектрическим датчиком диффузионного типа (в дальнейшем называемым «датчик») и используется для оптической бесконтактной регистрации предметов, животных и людей. В случае использования устройства для иных целей, а также в случае внесения в изделие изменений, любые претензии к компании SICK AG на предоставление гарантии исключаются.

99 Элементы управления и индикаторы

Фотоэлектрический датчик диффузионного типа с подавлением заднего фона.





- ① BluePilot, синий: индикатор расстояния срабатывания
- ② Поворотно-нажимной элемент / Потенциометр / Кнопка обучения: настройка расстояния срабатывания
- ③ СД-индикатор желтый: состояние приема света
- ④ Светодиодный индикатор, зелёный: напряжение питания включено
- ⑤ Кнопка настройки в сочетании с потенциометром в одном элементе обучения: настройка функций времени
- ⑥ Кнопка обучения: настройка срабатывания при наличии/отсутствии света

100 Монтаж

Установите датчик на подходящем крепёжном уголке (см. программу принадлежностей от SICK).

Выдерживайте максимально допустимый момент затяжки датчика в < 1,3 Нм.

Учитывать предпочтительное направление объекта относительно датчика, см. рисунок 98, рисунок 99.

101 Электрическое подключение

Подключайте сенсоры при отключенном напряжении питания В зависимости от типа подключения следует принять во внимание следующую информацию:

- Штекерное соединение: соблюдать расположение выводов.
- Кабель: цвет жилы

Подавайте и включайте напряжение питания только после подключения всех электрических соединений.

Пояснения к схеме подключений (таблица 34 - таблица 4).

Alarm = выход сигнала тревоги

Health = выход сигнала тревоги

MF = (конфигурация контакта 2) внешний вход, обучение, коммутационный сигнал

Q_{L1} / C = переключающий выход, коммуникация IO-Link

Test = тестовый вход


U_B: 10 ... 30 В пост. тока 

Таблица 34: Соединения

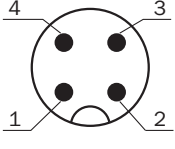
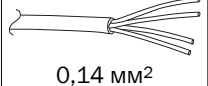
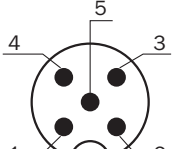
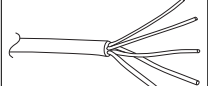
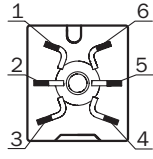
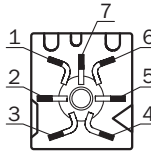
Wxx26x-	x4	xH	x5	xI
1 = BN 2 = WH 3 = BU 4 = BK 5 = GY		 0,14 мм ² AWG26		 0,14 мм ² AWG26
Wxx26x-	x9	xB		
1 = BN 2 = BU 3 = not connected 4 = BK 5 = WH 6 = GY 7 = not connected	 I _N = 4 A	 I _N = 6 A		

Таблица 35: пост. ток


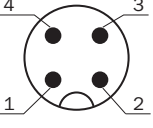

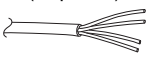
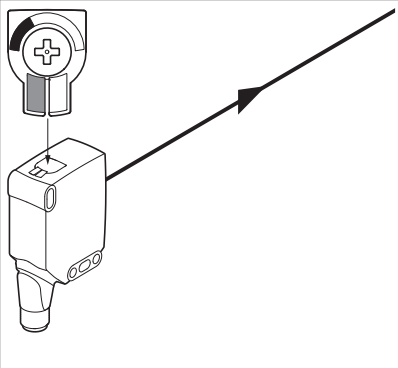
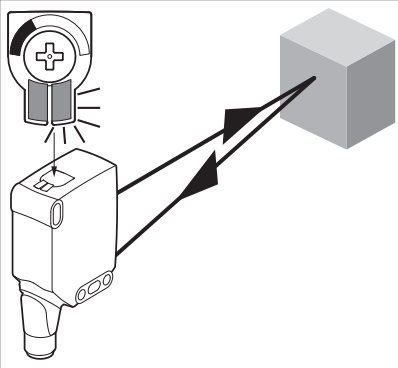
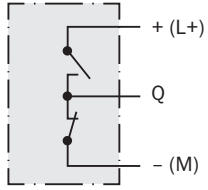
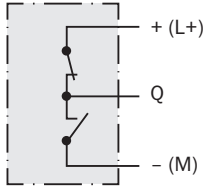
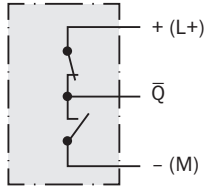
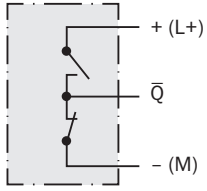
WTB26	-24161xxxA00 -34161xxxA00	-1x161xxxA0 0	-24162xxxA0 0 -34162xxxA0 0	-1x162xxxA0 0	-2416xxxxA01- A99 -3416xxxxA01- A99
1	+ (L+)				
2	MF				
3	- (M)				
4	Q _{L1} /C				
По умолчанию: MF	\bar{Q}	\bar{Q}	Q	Q	www.sick.com 8022709
По умолчанию: Q_{L1}/C	Q	Q	\bar{Q}	\bar{Q}	www.sick.com 8022709
		1 = BN (коричневый) 2 = WH (белый) 3 = BU (синий) 4 = BK (черный)	 0,14 мм ² AWG26	1 = BN (коричневый) 2 = WH (белый) 3 = BU (синий) 4 = BK (черный)	 0,14 мм ² AWG26

Таблица 36: Push / Pull

		
Q push-pull (≤ 100 mA)		
\bar{Q} push-pull (≤ 100 mA)		

102 Дополнительные функции

Alarm/Сигнал тревоги

Выход сигнала тревоги: датчик (WTB26) оснащен выходом сигнала сообщения о предварительном сбое («Alarm» на схеме электрических соединений [см. таблица 7]), который извещает об ограниченной эксплуатационной готовности сенсора. При этом мигает светодиодный индикатор. Возможные причины: загрязнение датчика, датчик разрегулирован. В исправном состоянии: НИЗКИЙ (0), при слишком сильном загрязнении ВЫСОКИЙ (1).

Выход Health: датчик (WTB26) оснащен выходом сигнала сообщения о предварительном сбое («Health» на схеме электрических соединений [см. таблица 7]), который извещает об ограниченной эксплуатационной готовности датчика или обрыве кабеля. Возможные причины: загрязнение датчиков, датчики разрегулированы, повреждение проводов. В хорошем состоянии: ВЫСОКИЙ (1), при сильном загрязнении или при обрыве кабеля НИЗКИЙ (0). При этом мигает светодиодный индикатор.

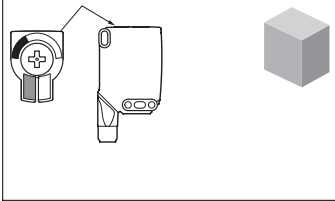
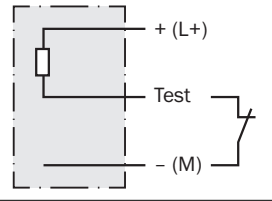
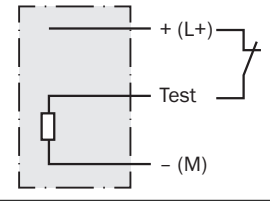
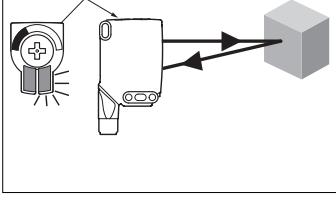
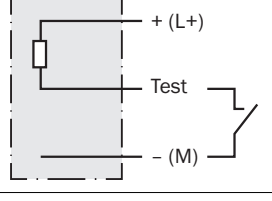
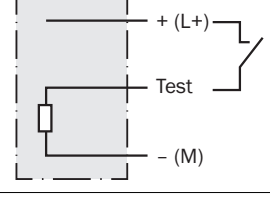
Тестовый вход

Тестовый вход: датчики WTB26 имеют тестовый вход («TE» или «Test» на схеме электрических соединений [см. таблица 2, таблица 7 и таблица 4]), с помощью которого можно выключить датчик и тем самым проверить исправность его функционирования: при использовании розеток со светодиодными индикаторами следите за правильным подключением TE.

При обнаружении объекта активируйте тестовый вход (см. схему электрических соединений [см. таблица 2, таблица 7 и таблица 4]). Светодиод передатчика отключается, или моделируется отсутствие объекта. Для проверки

функционирования использовать [таблица 4](#). Если характер поведения переключающего выхода не соответствует [таблица 4](#), проверить условия эксплуатации. См. раздел «Диагностика неисправностей».

Таблица 37: Проверка

	Проверка → M	Проверка → L+
		
		

103 Ввод в эксплуатацию

1 Выравнивание

WTB26P: направить датчик на объект. Выберите такую позицию, чтобы красный луч передатчика попадал в центр объекта. Оптическое отверстие (фронтальное стекло) на датчике должно быть полностью свободным [\[см. рисунок 89, рисунок 90\]](#).

WTB26I: направить датчик на объект. Выберите такую позицию, чтобы инфракрасный луч передатчика (он не виден) попадал в центр объекта. Правильность выверки можно определить с помощью светодиодных индикаторов, [см. таблица 2, таблица 7 и таблица 3](#). Оптическое отверстие (фронтальное стекло) на датчике должно быть полностью свободным.

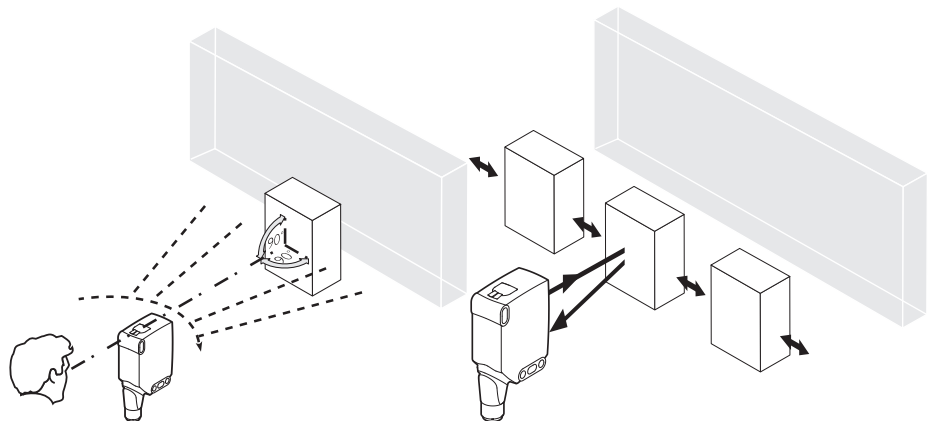


Рисунок 89: Выверка 1

Рисунок 90: Выверка 2

2 Расстояние срабатывания

WTBXX — это фотозлектрические датчики диффузного типа с функцией подавления заднего фона В зависимости от коэффициента диффузного отражения обнаруживаемого объекта и находящегося за ним фона необходимо соблюдать минимальное расстояние (y) между настроенным расстоянием срабатывания (x) и фоном.

Проверить условия применения: сравнить расстояние срабатывания и дистанцию до объекта или фона, а также яркость объекта с соответствующей диаграммой [\[см. Рисунки 5 и 6\]](#) (x = расстояние срабатывания, y = минимальная дистанция между установленным расстоянием срабатывания и фоном (белый, 90)) коэффициент

диффузного отражения: 6 % = чёрный ①, 18 % = серый ②, 90 % = белый ③ (относительно стандартного белого по DIN 5033). Мы рекомендуем выполнять настройку с объектом, имеющим низкий коэффициент диффузного отражения. Минимальную дистанцию (= y) для подавления заднего фона можно определить по диаграмме [рисунок 91 ①] следующим образом:

Пример: x = 600 мм, y = 40 мм. То есть, фон (белый, 90%) затемняется при расстоянии > 40 мм от датчика.

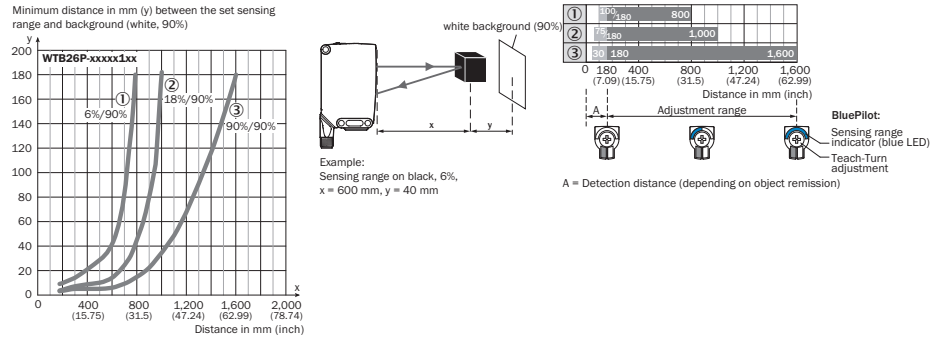


Рисунок 91: Характеристика 1, WTB26P-xxxx1xx, красный свет

- ① Расстояние срабатывания на черном, коэф. диффузного отражения 6 %
- ② Расстояние срабатывания на сером, коэф. диффузного отражения 18 %
- ③ Расстояние срабатывания на белом, коэф. диффузного отражения 90 %

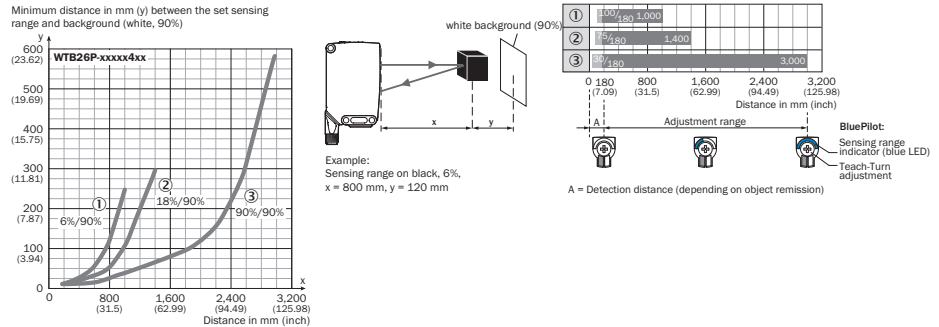


Рисунок 92: Характеристика 2, WTB26P-xxxx4xx, красный свет

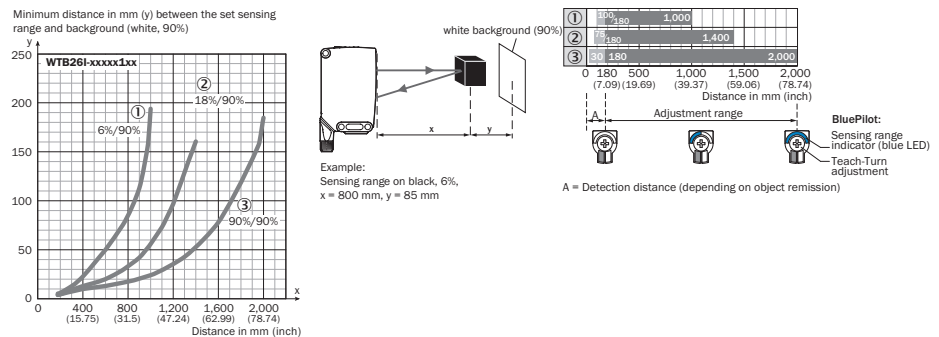


Рисунок 93: Характеристика 3, WTB26I-xxxx1xx, инфракрасный свет

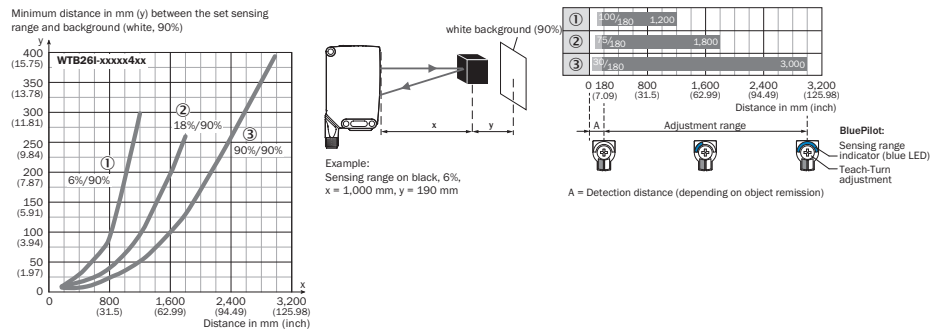


Рисунок 94: Характеристика 4, WTB261-xxxxx4xx, инфракрасный свет

3 Настройка расстояния срабатывания

WTB26x-xxxxx2xAxx с поворотным-нажимным элементом:

Регулировка расстояния срабатывания производится нажатием кнопки Teach-in (примерно 1–3 сек). В зависимости от требований плавная регулировка может производиться с помощью потенциометра (без нажатия кнопки обучения).

Поворот вправо: увеличение расстояния срабатывания.

Поворот влево: уменьшение расстояния срабатывания.

Расстояние срабатывания может быть установлено также исключительно с помощью потенциометра. Мы рекомендуем устанавливать расстояние срабатывания в объекте, например, см. рисунок 95. После настройки расстояния срабатывания, удалить объект с траектории луча, при этом затемняется фон и изменяется переключающий выход (см. таблица 2, таблица 7, таблица 3).

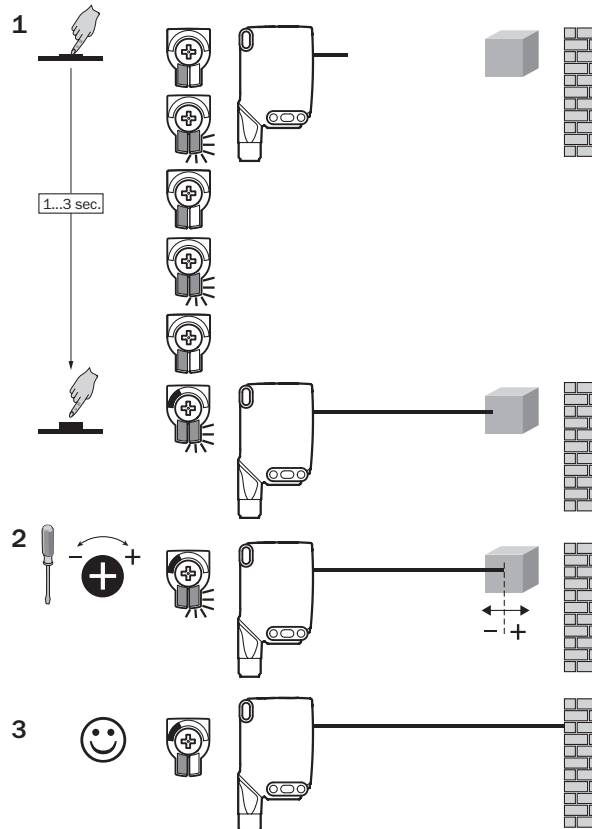


Рисунок 95: WTB26x-xxxxx2xAxx, настройка расстояния срабатывания с помощью поворотного-нажимного элемента

WTV26x-xxxxx1xAxx с потенциометром:

С помощью потенциометра регулируется расстояние срабатывания.

Поворот вправо: увеличение расстояния срабатывания.

Поворот влево: уменьшение расстояния срабатывания.

Мы рекомендуем устанавливать расстояние срабатывания в объекте, например, см. [рисунок 96](#). После настройки расстояния срабатывания, удалить объект с траектории луча, при этом затемняется фон и изменяется переключающий выход (см. [таблица 2](#), [таблица 7](#), [таблица 3](#)).

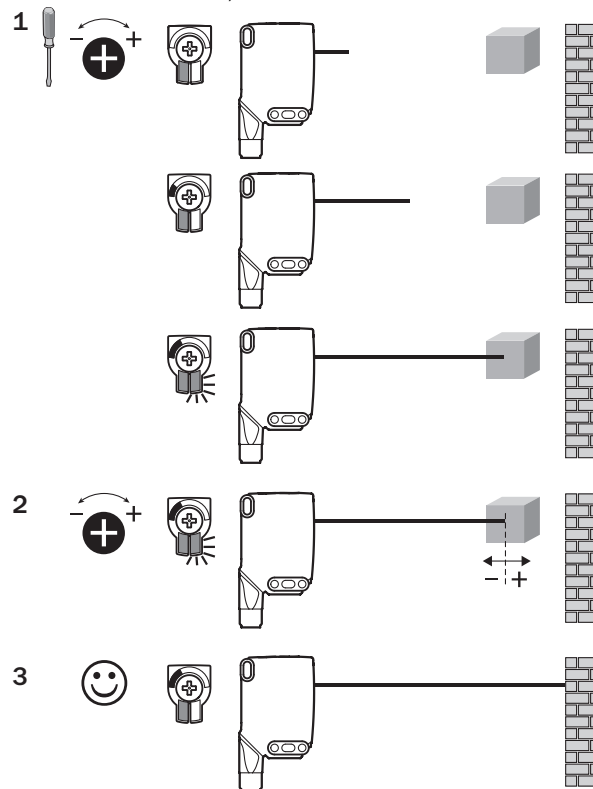


Рисунок 96: WTV26x-xxxxx1xAxx, настройка расстояния срабатывания с помощью потенциометра

WTB26x-xxxxx3xAxx с кнопкой обучения:

Регулировка расстояния срабатывания производится нажатием кнопки Teach-in (примерно 1–3 сек). Мы рекомендуем устанавливать расстояние срабатывания в объекте, например, см. рисунок 97. После настройки расстояния срабатывания, удалить объект с траектории луча, при этом затемняется фон и изменяется переключающий выход (см. таблица 2, таблица 7, таблица 3).

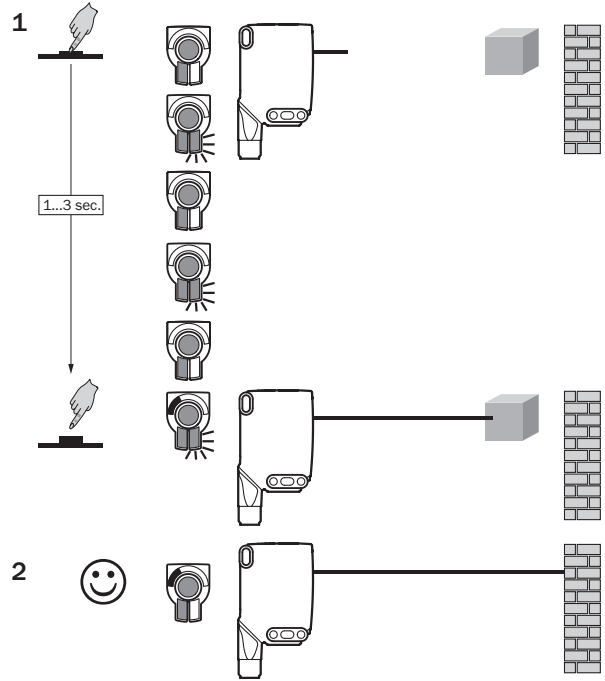
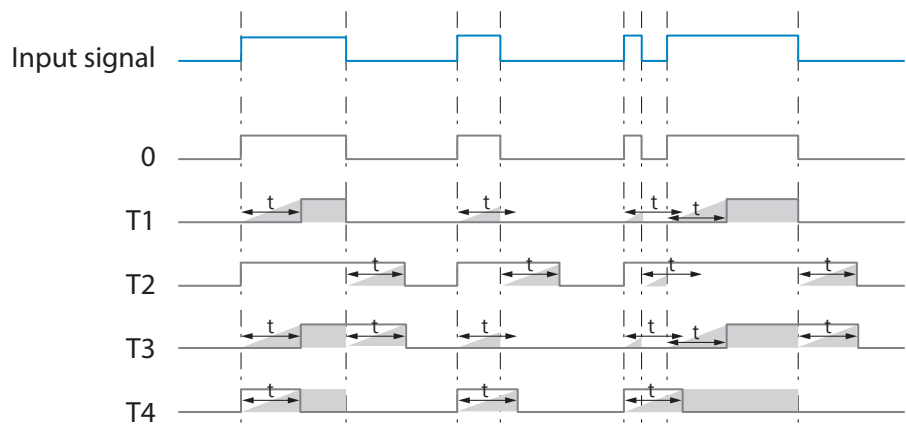
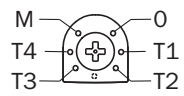
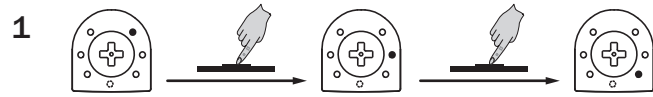
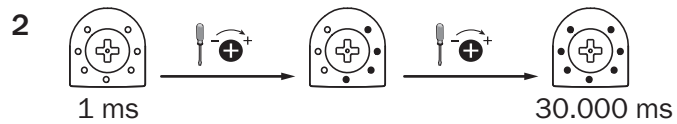


Рисунок 97: WTB26x-xxxxx3xAxx, настройка расстояния срабатывания с помощью кнопки обучения

4 Настройка функций времени



M = Вручную (специфические настройки через IO-Link)



5 Настройка срабатывания при наличии/отсутствии света



- L** активация при наличии отраженного света
D активация при отсутствии отраженного света
M вручную (специфические настройки через IO-Link)

104 Структура технологических данных

Структура технологических данных (Версия 1.1)

	A00	A70	A71	A72	A73	A75
IO-Link	V1.1					
Данные процесса	2 байта					4 байта
	0 байт: бит 15... 8 1 байт: бит 7... 0					0 байт : бит 31... 24 1 байт: бит 13... 16 2 байта: бит 15... 8 3 байта: бит 7... 0
0 бит / тип данных	Q _{L1} / Boolean					
1 бит / тип данных	Q _{L2} / Boolean			Q _{int.1} / Boolean	Q _{L2} / Boolean	Q _{int.1} / Boolean
Бит... / описание / тип данных	2... 15 / [пусто]	2... 15 / [значение измерения времени] / UInt 14	2... 15 / [значение счётчика] / UInt 14	2... 15 / [измерение длины / скорости] / SInt14	2 / Q _{int.1} / Boolean	2... 7 / [пусто]
Бит... / описание / тип данных					3... 15 / [значение измерения времени] / UInt13	8 ... 31 / [пропускная способность] / UInt 24

105 Устранение неисправностей

В таблице Устранение неисправностей показано, какие меры необходимо предпринять, если датчики не работают.

Светодиодный индикатор / картина неисправности	Причина	Меры по устранению
зеленый светодиод мигает	Коммуникация IO-Link	Нет
Коммутационные выходы ведут себя не согласно таблица 36	1. Коммуникация IO-Link 2. Изменение конфигурации 3. Короткое замыкание	1. Нет 2. Адаптация конфигурации 3. Проверка электрических подключений
желтый светодиод горит, объект на пути луча отсутствует	Расстояние срабатывания настроено на слишком большое расстояние	Уменьшить расстояние срабатывания
Объект на пути луча, желтый светодиод не горит	Слишком большое расстояние между сенсором и объектом или установлена слишком малая дистанция переключения	Увеличить расстояние срабатывания

106 Демонтаж и утилизация

Датчик должен быть утилизирован в соответствии с действующим законодательством конкретной страны. В процессе утилизации следует прилагать усилия для переработки составляющих материалов (особенно драгоценных металлов).



УКАЗАНИЕ

Утилизация батарей, электрических и электронных устройств

- В соответствии с международными директивами батареи, аккумуляторы и электрические или электронные устройства не должны выбрасываться в общий мусор.
- По закону владелец обязан вернуть эти устройства в конце срока их службы в соответствующие пункты общественного сбора.



Этот символ на изделии, его упаковке или в данном документе указывает на то, что изделие подпадает под действие настоящих правил.

107 Техобслуживание

Датчики SICK не нуждаются в техобслуживании.

Рекомендуется регулярно

- очищать оптические ограничивающие поверхности
- проверять прочность резьбовых и штекерных соединений

Запрещается вносить изменения в устройства.

Право на ошибки и внесение изменений сохранено. Указанные свойства изделия и технические характеристики не являются гарантией.

108 Технические характеристики

	WTB26P-xxxxx1	WTB26P-xxxxx4	WTB26I-xxxxx1	WTB26I-xxxxx4
Расстояние срабатывания, макс.	30 мм ... 1600 мм ⁽¹⁾	30 мм ... 3000 мм ⁽¹⁾	30 мм ... 2000 мм ⁽¹⁾	30 мм ... 3000 мм ⁽¹⁾
Диаметр светового пятна/ расстояние	Ø 7 мм (700 мм) (тип)	Ø 7 мм (700 мм) (тип)	Ø 14 мм (1000 мм)	Ø 14 мм (1000 мм)
Напряжение питания U _B	10 ... 30 В пост. тока	10 ... 30 В пост. тока	10 ... 30 В пост. тока	10 ... 30 В пост. тока
Остаточная пульсация	≤ 5 B _{SS}	≤ 5 B _{SS}	≤ 5 B _{SS}	≤ 5 B _{SS}
Потребляемый ток	≤ 30 мА ⁽²⁾ < 50 мА ⁽³⁾	≤ 30 мА ⁽²⁾ < 50 мА ⁽³⁾	≤ 30 мА ⁽²⁾ < 50 мА ⁽³⁾	≤ 30 мА ⁽²⁾ < 50 мА ⁽³⁾
Выходной ток I _{макс.}	≤ 100 мА	≤ 100 мА	≤ 100 мА	≤ 100 мА
Время отклика макс.	500 мкс ⁽⁴⁾	2,5 мс ⁽⁴⁾	500 мкс ⁽⁴⁾	2,5 мс ⁽⁴⁾
Частота переключения	1000 Гц ⁽⁵⁾	200 Гц ⁽⁵⁾	1000 Гц ⁽⁵⁾	200 Гц ⁽⁵⁾
Класс защиты ⁽⁶⁾	см. таблица 34: x4, xH, x5, xI: IP66, IP67, IP69 ⁽⁷⁾ x9, xB: IP65	см. таблица 34: x4, xH, x5, xI: IP66, IP67, IP69 ⁽⁷⁾ x9, xB: IP65	см. таблица 34: x4, xH, x5, xI: IP66, IP67, IP69 ⁽⁷⁾ x9, xB: IP65	см. таблица 34: x4, xH, x5, xI: IP66, IP67, IP69 ⁽⁷⁾ x9, xB: IP65
Класс защиты	III	III	III	III
Схемы защиты	A, B, C, D ⁽⁸⁾	A, B, C, D ⁽⁸⁾	A, B, C, D ⁽⁸⁾	A, B, C, D ⁽⁸⁾
Диапазон рабочих температур	-40 °C ... +60 °C ⁽⁹⁾	-40 °C ... +60 °C ⁽⁹⁾	-40 °C ... +60 °C ⁽⁹⁾	-40 °C ... +60 °C ⁽⁹⁾

- 1) Сканируемый объект – ремиссия 90 % (относительно стандартного белого по DIN 5033)
- 2) 16 ... 30 В пост. тока, без нагрузки
- 3) 10 ... 16 В пост. тока, без нагрузки
- 4) Продолжительность сигнала при омической нагрузке в режиме переключения. Возможны другие значения в режиме COM2.
- 5) При соотношении «светло/темно» 1:1, в режиме переключения. Возможны другие значения в режиме IO-Link.
- 6) по EN 60529
- 7) Заменяет IP69K согласно ISO 20653: 2013-03
- 8) A = U_B-подключения с защитой от перепутывания полюсов
B = входы и выходы с защитой от перепутывания полюсов
C = подавление импульсных помех
D = выходы защищены от перенапряжения и короткого замыкания
- 9) Не деформировать кабели при температуре ниже 0 °C

108.1 Габаритные чертежи

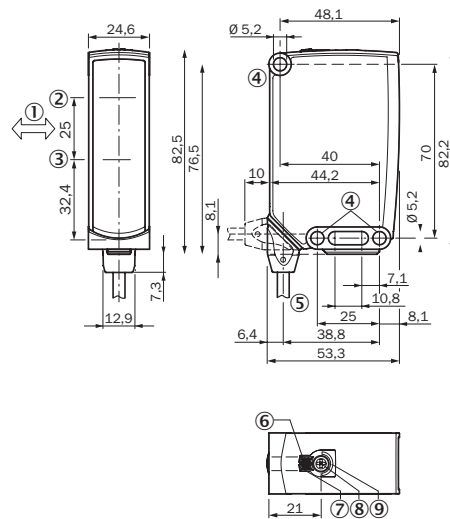


Рисунок 98: Масштабный чертёж 1, кабель

- ① Предпочтительное направление распознаваемого объекта
- ② Середина оптической оси передатчика
- ③ Середина оптической оси приемника
- ④ Крепёжное отверстие, Ø 5,2 мм
- ⑤ Соединение
- ⑥ Светодиодный индикатор, зелёный: напряжение питания включено
- ⑦ СД-индикатор жёлтый: состояние приёма света
- ⑧ Поворотно-нажимной элемент: настройка расстояния срабатывания
- ⑨ BluePilot, синий: индикатор расстояния срабатывания

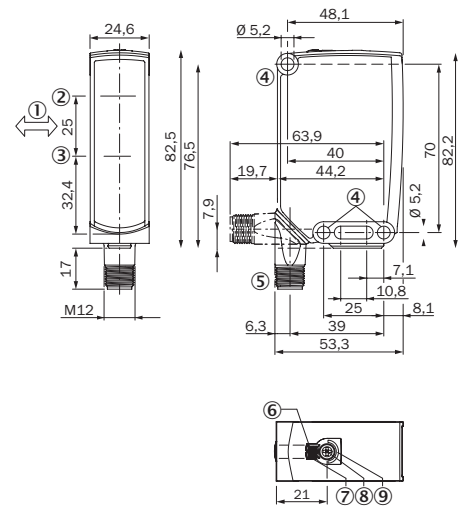


Рисунок 99: Масштабный чертёж 2, штекер

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