

ENGLISH

Through-beam Photoelectric Sensor
with visible red light
Operating Instructions

Safety specifications

- Read the operating instructions before commissioning.
- Connection, mounting, and setting may only be performed by trained specialists.
- Not a safety component in accordance with the EU Machinery Directive.
- UL: The device shall be supplied from an isolating transformer having a secondary overcurrent protective device that complies with UL 248 to be installed in the field rated either:
a) max 5 amps for voltages 0 – 20 V (0 – 28.3 V peak), or
b) 100 / Vp for voltages of 20 – 30 V (28.3 – 42.4 V peak). Alternatively, they can be supplied from a Class 2 power supply.
- UL Environmental Rating: Enclosure type 1.
- When commissioning, protect the device from moisture and contamination.
- These operating instructions contain information required during the life cycle of the sensor.

Proper use

The WSE12-3 through-beam photoelectric sensor is an opto-electronic sensor, that operates using a transmission unit (WS) and reception unit (WE). It is used for optical, non-contact detection of objects, animals, and people.

Starting operation

1 The devices WSE12-3 have complementary switching outputs:

- WSE12-3P only:
Q̄: dark-switching, if light interrupted, output HIGH,
Q: light-switching, if light received, output HIGH.
- WSE12-3N only:
Q̄: dark-switching, if light interrupted, output LOW,
Q: light-switching, if light received, output LOW.

Select desired operating mode externally and connect as per connection diagram **B** (Q / Q̄).

2 With following connectors only:

- Connect and secure cable receptacle tension-free.
- Only for versions with connecting cable:**
The following apply for connection in **B**:
brn = brown, blu = blue, blk = black, wht = white.
- Connect cables.

3 Mount WS and WE using the mounting holes to the bracket (e.g., SICK mounting bracket) and align approximately. Pay attention to scanning range for this (see the technical data and the chart x = scanning range, y = relative sensitivity, yb = operating range)

Connect WS and WE to operating voltage (see type label). Status indicator (WS and WE) lights up.

Adjustment of light reception:
Set >Sensitivity< switch to Max.

Determine on / off points of signal strength indicator (WE) by swivelling photoelectric sensor horizontally and vertically. With optimum light reception, signal strength indicator (WE) lights up. If it does not light up or if it flashes, not enough light is being received: readjust and / or clean WS and WE.

4 Object detection check:

Move the object into the beam; the signal strength indicator (WE) should switch off. If it does not switch off or continues to blink, reduce the sensitivity using the control knob until it switches off. It should switch on again when the object is removed. If it does not switch on again, adjust the sensitivity until the switching threshold is set correctly.

Options

The WSE12-3 devices have a **test input (TE)**, with which proper functioning of the device can be checked. When the light path is clear between WS and WE (the LED signal strength indicator is lit), activate the test input (see the **B** connection diagram). This switches off the sender TE blank or U_i = test inactive (sender on). TE 0 V = test active (sender off).

At the same time, the LED signal strength indicator must switch off, and the switching state at the output must change.

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.

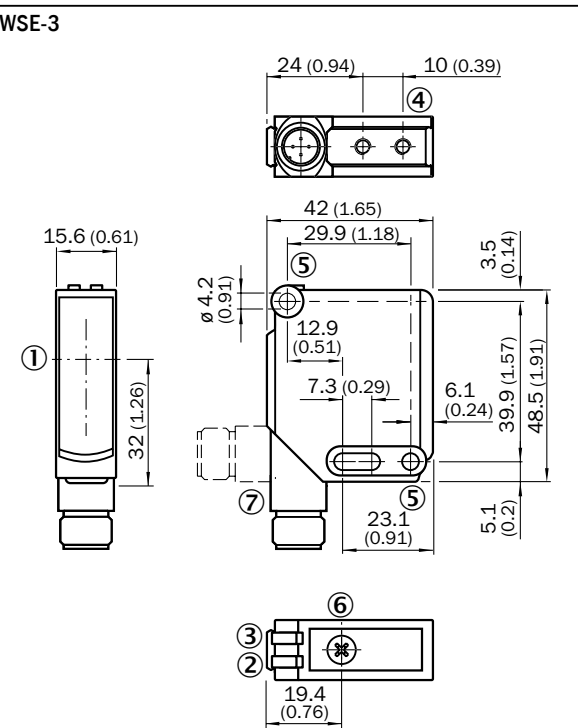
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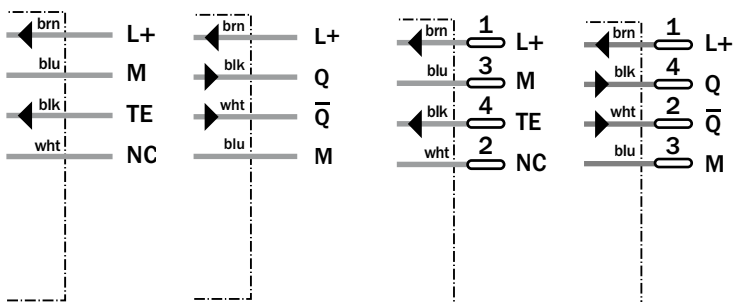
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WSE12-3

Australia Phone +61 (3) 9457 0600 1800 33 48 02 – tollfree	Netherlands Phone +31 (0) 30 229 25 44 New Zealand Phone +64 9 415 0459 0800 222 278 – tollfree
Austria Phone +43 (0) 2236 62288-0	Norway Phone +47 67 81 50 00
Belgium/Luxembourg Phone +32 (0) 2 466 55 66	Poland Phone +48 22 539 41 00
Brazil Phone +55 11 3215-4900	Romania Phone +40 356-17 11 20
Canada Phone +1 905.771.1444	Russia Phone +7 495 283 09 90
Czech Republic Phone +420 234 719 500	Singapore Phone +65 6744 3732
Chile Phone +56 (2) 2274 7430	Slovakia Phone +421 482 901 201
China Phone +86 20 2882 3600	Slovenia Phone +386 591 78849
Denmark Phone +45 45 82 64 00	South Africa Phone +27 10 060 0550
Finland Phone +358-9-25 15 800	South Korea Phone +82 2 786 6321/4
France Phone +33 1 64 62 35 00	Spain Phone +34 93 480 31 00
Germany Phone +49 (0) 2 11 53 010	Sweden Phone +46 10 110 10 00
Greece Phone +30 210 6825100	Switzerland Phone +41 41 619 29 39
Hong Kong Phone +852 2153 6300	Taiwan Phone +886 2 2375-6288
Hungary Phone +36 1 371 2680	Thailand Phone +66 2 645 0009
India Phone +91-22-6119 8900	Turkey Phone +90 (216) 528 50 00
Israel Phone +972 97110 11	United Arab Emirates Phone +971 (0) 4 88 65 878
Italy Phone +39 02 27 43 41	USA Phone +1 800.325.7425
Japan Phone +81 3 5309 2112	Vietnam Phone +65 6744 3732
Malaysia Phone +603-8080 7425	
Mexico Phone +52 (472) 748 9451	
SICK AG , Erwin-Sick-Strasse 1, D-79183 Waldkirch Detailed addresses and further locations at www.sick.com	



B WSE12-3x1111 WSE12-3x1131 WSE12-3x2411 WSE12-3x2431



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3 WS und WE mit Befestigungsbohrungen an Halter (z. B. SICK-Haltewinkel) gegenüberliegend montieren und grob ausrichten. Dabei Reichweite beachten (s. technische Daten und Diagramm; x = Reichweite, y = Relative Empfindlichkeit, yg = Grenzreichweite, yb = Betriebsreichweite).

WS und WE an Betriebsspannung legen (s. Typenaufdruck). Betriebsanzeige bei WS und WE leuchtet.

Justage Lichtempfang:
Drehknopf >Sensitivity< auf Max. stellen.
Ein- und Ausschaltpunkte der Empfangsanzeige (WE) durch horizontales und vertikales Schwenken der Lichtschranke ermitteln. Bei optimalem Lichtempfang leuchtet die Empfangsanzeige (WE) permanent. Leuchtet sie nicht oder blinkt sie, wird kein oder zu wenig Licht empfangen: WS und WE neu justieren bzw. reinigen.

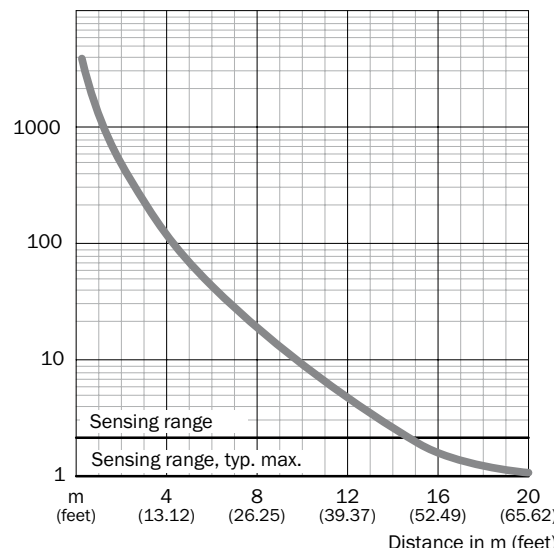
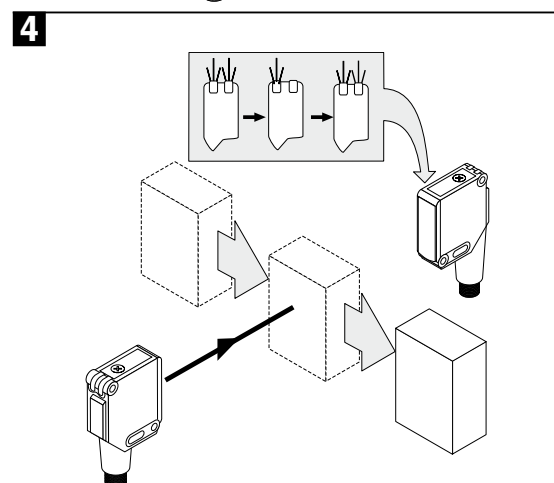
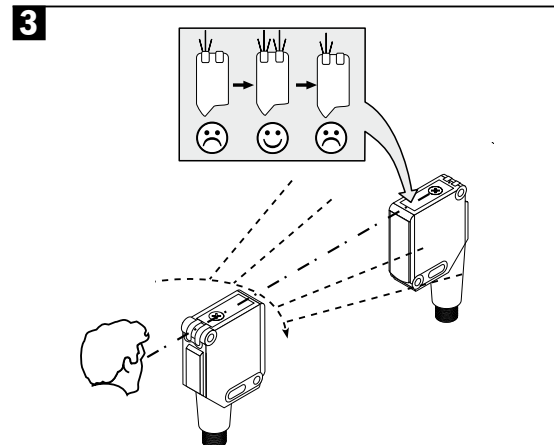
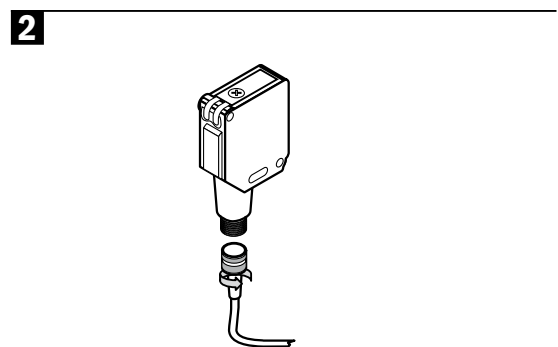
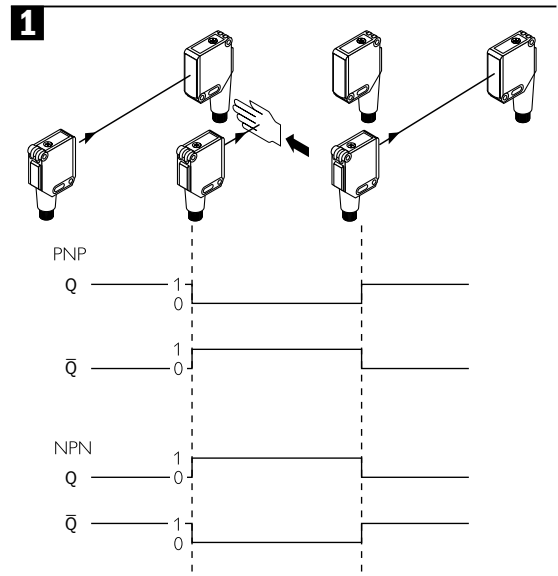
4 Kontrolle Objekterfassung:
Objekt in den Strahlengang bringen; die Empfangsanzeige (WE) muss erlöschen. Leuchtet sie weiterhin oder blinkt sie, die Empfindlichkeit am Drehknopf so lange reduzieren, bis sie erlischt. Nach Entfernen des Objektes muss sie wieder aufleuchten; ist dies nicht der Fall, Empfindlichkeit so lange verändern, bis die Schaltschwelle korrekt eingestellt ist.

Optionen

Die Geräte WSE12-3 verfügen über einen **Testeingang (TE)**, mit dem die ordnungsgemäße Funktion der Geräte überprüft werden kann. Bei freiem Lichtweg zwischen WS und WE (Empfangsanzeige leuchtet) den Testeingang aktivieren (s. Anschlussschema B); dadurch wird der Sender abgeschaltet. TE unbeschaltet oder U_i = Test inaktiv (Sender ein). Gleichzeitig muss die Empfangsanzeige erlöschen und der Schaltzustand am Ausgang muss sich ändern.

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.



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Sensing range (with reflector PL80A)	Schaltabstand (mit Reflektor PL80A)	Portée (avec réflecteur PL80A)	Distância de comutação (com refletor PL80A)
Light spot diameter / distance	Lichtfleckdurchmesser / Entfernung	Diamètre de la tache lumineuse / Distance	Diâmetro do ponto de luz
Supply voltage	Versorgungsspannung	Tension d'alimentation	Tensão de força
Output current I _{max}	Ausgangsstrom I _{max}	Courant de sortie I _{max}	Corrente de saída I _{max}
Signal sequence min.	Signalfolge min.	Fréquence mini	Sequência min. de sinais
Response time	Ansprechzeit	Temps de réponse	Tempo de reação
Enclosure rating (IEC 60529)	Schutzart (IEC 60529)	Type de protection (IEC 60529)	Tipo de proteção (IEC 60529)

Protection class	Schutzklasse	Classe de protection	Classe de proteção
Circuit protection	Schutzschaltungen	Circuits de protection	Circuitos protetores
Ambient operating temperature	Betriebsumgebungstemperatur	Température ambiante	Temperatura ambiente de operação
¹ Limit values residual ripple max. 5 Vss operation in short-circuit protected network max. 8 A	¹ Grenzwerte Restwelligkeit max. 5 Vss Betrieb im kurzschlussgeschützten Netz max. 8 A	¹ Valeurs limites ondulation résiduelle max. 5 Vcc Fonctionnement sous secteur protégé des courts-circuits à 8 A maxi	¹ Valores limite ondulação residual máx. 5 Vss operação em rede protegida contra curto-circuitos máx. 8 A
² Reference voltage DC 50 V ³ A = V _e connections reverse polarity protected B = Inputs and outputs reverse C = Polarity protected	² Bemessungsspannung DC 50 V ³ A = V _e Anschlüsse verpolsicher B = Ausgänge kurzschlussfest C = Störimpulsunterdrückung	² Tension assignée 50 V CC ³ A = V _e connexions U _i protégées contre les inversions de polarité B = Sorties protégées contre les C = Inversions de polarité	² Tensão de dimensionamento CC 50 V ³ A = Conexões U _i protegidas contra inversão de polos B = Saídas Q e Q̄ protegidas C = Contra curto-circuito

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Distanza di lavoro (con riflettore PL80A)	Distancia de comutación (con reflector PL80A)	触发感应距离 (带反射器 PL80A)	検出距離 (リフレクタPL80A使用)	Расстояние срабатывания (с отражателем PL80A)
Diámetro punto luminoso	Diámetro / distancia de mancha de luz	光点直径	スポット径 / 距離	Диаметр светового пятна / расстояние
Tensione di alimentazione	Tensión de alimentación	电源电压	供給電圧	Напряжение питания
Corrente di uscita max. I _{max}	Corriente de salida I _{max}	输出电流 I _{max}	最大出力電流 I _{max}	Выходной ток I _{max}
Sequenza segnali min.	Secuencia de señales min.i	信号号/min	信号伝達時間 min.	Последовательность сигналов мин.
Tempo di risposta	Tiempo de reacción	触发时间	応答時間	Время отклика макс.
Tipo di protezione (IEC 60529)	Tipo de protección (IEC 60529)	保护种类 (IEC 60529)	保護等級 (IEC 60529)	Класс защиты (IEC 60529)
Classe di protezione	Protección clase	保护级别	保護クラス	Класс защиты
Commutazioni di protezione	Circuitos de protección	保护电路	保護回路	Схемы защиты
Temperatura ambiente circostante	Temperatura ambiente de servicio	工作环境 温度	動作周囲温度	Диапазон рабочих температур

- | | | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|-------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ¹ Valori limite
ondulazione residua max. 5 Vss
Funzionamento in rete con
protezione dai cortocircuiti máx 8 A | ¹ Valores limite
ondulacion residual máx. 5 Vss
Servicio en red a prueba
de cortocircuito máx 8 A | ¹ 极限值
最大余波 5 Vss
操作电流：在防短路
的网络里，最大 8 A | ¹ 界限値
残留リップルは最大 5 Vss
短絡保護された回路での使用
最大 8 A | ¹ Предельные значения
остаточная воиность макс. 5 Bss
эксплуатация в защищено от короткого замыкания
сети макс. 8 A |
| ² Tension assignada DC 50 V | ² Bemessungsspannung DC 50 V | ² Tension assignada DC 50 V | ² Tensão de dimensionamento DC 50 V | ² Расчетное напряжение постоянного тока 50 В |
| ³ A = V _e collegamenti con protez contro inversione di poli
B = uscite Q a Q̄ a prova di corto circuito
C = soppressione impulsi di disturbo | ³ A = V _e conexiones U _i a prueba de inversión de polaridad
B = Salida Q and Q̄ protegida contra cortocircuito
C = Represión de impulso de interferencia | ³ A = U _i -接头防反接
B = 输入 / 输出防反接
C = 消除干扰脉冲 | ³ A = U _i -コネクタ 逆接保護
B = 入力および出力 逆接保護
C = 干渉パルス抑制 | ³ A = U _i -подключения с защитой от перепутывания полюсов
B = входы и выходы с защитой от перепутывания полюсов
C = подавление импульсных помех |

