

Photoelectric Reflex Sensor  
with automatic switching threshold adjustment  
Operating Instructions

Safety notes

- 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.

Correct use

The WL12G-3 photoelectric retro-reflective sensor is an optoelectronic sensor for the optical, non-contact detection of objects. A reflector is required for operation. The WL12G-3 is for the detection of transparent objects, e.g. suitable for bottles, film with >10% attenuation.

Starting Operation

- WL12G-3**  
Align photoelectric sensor and reflector with each other. In the horizontal/vertical direction, determine the on/off switching point of the receive indicator and select the central position. The yellow receive indicator must be lit.
- Object detection**  
Move object into the beam path.  
Yellow LED must switch off.  
If the LED is lit or flashing, repeat the Teach procedure until the LED goes out.  
Once the object is removed, the LED must light up again.  
If this does not happen, repeat the Teach procedure until the switching threshold is correctly adjusted.

- 3a Carrying out Teach-in**  
Align WL12G-3 with the reflector  
Press Teach button until yellow status LED flashes = Teach-in finished.
- 3b Operating mode I:**  
Press Teach button = 1 to 5 secs, status LED is green  
Status LED flashes yellow = Teach-in process active "on"  
Release Teach button = Teach mode I confirmation
- 3c Operating mode II:**  
Press Teach button > 5 secs, status LED is blue  
Status LED flashes yellow = Teach-in process active "on"  
Release Teach button = Teach mode II confirmation"
- 3d Wait until yellow status LED on is "on"** (approx. 50 ms)  
Teach-in via external TE.  
Activate TE input.  
Carry out the process described above"

Maintenance

SICK light barriers 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.

Reflexions-Lichtschranke  
mit automatischer Schaltwellenregelung  
Betriebsanleitung

Sicherheitshinweise

- Vor der Inbetriebnahme die Betriebsanleitung lesen.
- Anschluss, Montage und Einstellung nur durch Fachpersonal.
- Kein Sicherheitsbauteil gemäß EU-Maschinenrichtlinie.
- 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.
- Gerät bei Inbetriebnahme vor Feuchte und Verunreinigung schützen.
- Diese Betriebsanleitung enthält Informationen, die während des Lebenszyklus des Sensors notwendig sind.

Bestimmungsgemäße Verwendung

Die Reflexions-Lichtschranke WL12G-3 ist ein optoelektronischer Sensor und wird zum optischen, berührungslosen Erfassen von Sachen eingesetzt. Zum Betrieb ist ein Reflektor erforderlich.  
Der WL12G-3 ist zur Erfassung von transparenten Objekten, z. B. Flaschen, Folien mit Dämpfung > 10 % geeignet.

Inbetriebnahme

- WL12G-3**  
Lichtschranke und Reflektor aufeinander ausrichten. In horizontaler/vertikaler Richtung Ein-/ Ausschaltpunkt der Empfangsanzeige ermitteln und Mittelstellung wählen. Gelbe Empfangsanzeige muss leuchten.
- Objekterfassung**  
Objekt in Strahlengang bringen.  
Gelbe LED muss erlöschen.  
Leuchtet oder blinkt LED, Teach-Vorgang wiederholen bis LED erlischt.  
Nach Entfernen des Objekts muss sie wieder aufleuchten.



# WL12G-3

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Australia</b><br>Phone +61 (3) 9457 0600<br>1800 33 48 02 ~<br><b>Austria</b><br>Phone +43 (0) 2236 62288-0<br><b>Belgium/Luxembourg</b><br>Phone +32 (0) 2 466 55 66<br><b>Brazil</b><br>Phone +55 11 3215-4900<br><b>Canada</b><br>Phone +1 905.771.1444<br><b>Czech Republic</b><br>Phone +420 234 719 500<br><b>Chile</b><br>Phone +56 (2) 2274 7430<br><b>China</b><br>Phone +86 20 2882 3600<br><b>Denmark</b><br>Phone +45 45 82 64 00<br><b>Finland</b><br>Phone +358-9-25 15 800<br><b>France</b><br>Phone +33 1 64 62 35 00<br><b>Germany</b><br>Phone +49 (0) 2 11 53 010<br><b>Greece</b><br>Phone +30 210 6825100<br><b>Hong Kong</b><br>Phone +852 2153 6300<br><b>Hungary</b><br>Phone +36 1 371 2680<br><b>India</b><br>Phone +91-22-6119 8900<br><b>Israel</b><br>Phone +972 97110 11<br><b>Italy</b><br>Phone +39 02 27 43 41<br><b>Japan</b><br>Phone +81 3 5309 2112<br><b>Malaysia</b><br>Phone +603-8080 7425<br><b>Mexico</b><br>Phone +52 (472) 748 9451 | <b>Netherlands</b><br>Phone +31 (0) 30 229 25 44<br><b>New Zealand</b><br>Phone +64 9 415 0459<br>0800 222 278 ~ tollfree<br><b>Norway</b><br>Phone +47 67 81 50 00<br><b>Poland</b><br>Phone +48 22 539 41 00<br><b>Romania</b><br>Phone +40 356-17 11 20<br><b>Russia</b><br>Phone +7 495 283 09 90<br><b>Singapore</b><br>Phone +65 6744 3732<br><b>Slovakia</b><br>Phone +421 482 901 201<br><b>Slovenia</b><br>Phone +386 591 78849<br><b>South Africa</b><br>Phone +27 10 060 0550<br><b>South Korea</b><br>Phone +82 2 786 6321/4<br><b>Spain</b><br>Phone +34 93 480 31 00<br><b>Sweden</b><br>Phone +46 10 110 10 00<br><b>Switzerland</b><br>Phone +41 41 619 29 39<br><b>Taiwan</b><br>Phone +886-2-2375-6288<br><b>Thailand</b><br>Phone +66 2 645 0009<br><b>Turkey</b><br>Phone +90 (216) 528 50 00<br><b>United Arab Emirates</b><br>Phone +971 (0) 4 88 65 878<br><b>United Kingdom</b><br>Phone +44 (0)17278 31121<br><b>USA</b><br>Phone +1 800.325.7425<br><b>Vietnam</b><br>Phone +65 6744 3732 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

SICK AG, Erwin-Sick-Strasse 1, DE-79183 Waldkirch  
Detailed addresses and further locations at [www.sick.com](http://www.sick.com)

More representatives and agencies at [www.sick.com](http://www.sick.com) · Subject to change without notice · The specified product features and technical data do not represent any guarantee.  
Weitere Niederlassungen finden Sie unter [www.sick.com](http://www.sick.com) · Irrtümer und Änderungen vorbehalten · Angegebene Produkteigenschaften und technische Daten stellen keine Garantieerklärung dar.  
Plus de représentations et d'agences à l'adresse [www.sick.com](http://www.sick.com) · Sujet à modification sans préavis · Les caractéristiques de produit et techniques indiquées ne constituent pas de déclaration de garantie.  
Para mais representantes e agências, consulte [www.sick.com](http://www.sick.com) · Alterações poderão ser feitas sem prévio aviso · As características do produto e os dados técnicos apresentados não constituem declaração de garantia.  
Altri rappresentanti ed agenzie si trovano su [www.sick.com](http://www.sick.com) · Contenuti soggetti a modifiche senza preavviso · Le caratteristiche del prodotto e i dati tecnici non rappresentano una dichiarazione di garanzia.  
Más representantes y agencias en [www.sick.com](http://www.sick.com) · Sujeto a cambio sin previo aviso · Las características y los datos técnicos especificados no constituyen ninguna declaración de garantía.

欲了解更多代表机构和代理商信息, 请登录 [www.sick.com](http://www.sick.com) · 如有更改, 不另行通知 · 对所给出的产品特性和技术参数 的正确性不予保证。  
その他の営業所は[www.sick.com](http://www.sick.com) よりご覧下さい · 予告なしに変更される ことがあります · 記載されている製品機能および技術データは保証を明示するも のではありません。



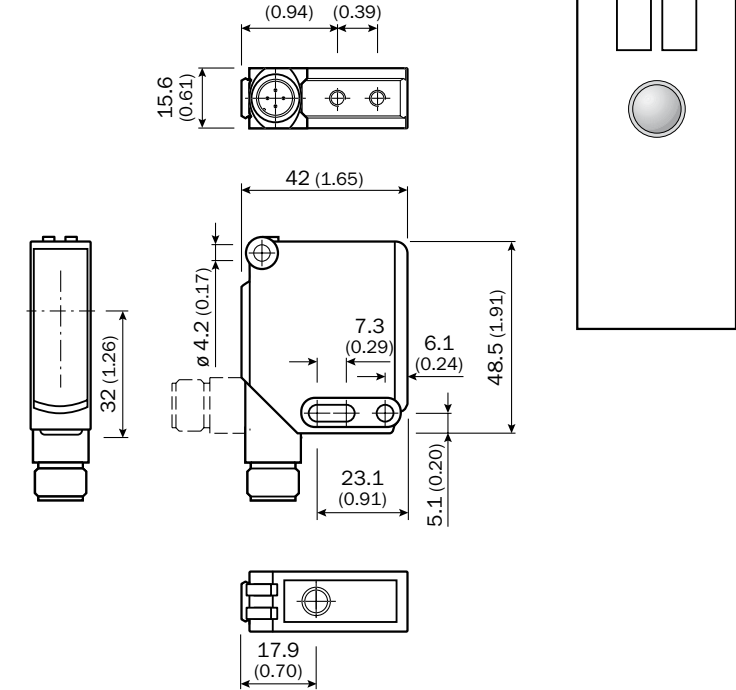
Ist das nicht der Fall, Teach-Vorgang so lange wiederholen, bis Schaltschwelle korrekt eingestellt ist.

- 3a Durchführung Teach-in**  
WL12G-3 auf Reflektor ausrichten.  
Teach-Knopf drücken.  
Bis gelbe Status-LED blinkt = Teach-in beendet.
- 3b Betriebs-Modus I:**  
Teach-Knopf drücken = 1 ... 5 s., Status-LED ist grün  
Status-LED gelb blinkt = Teach-in-Vorgang aktiv „on“  
Teach-Knopf freigeben = Teach-Modus I Bestätigung
- 3c Betriebs-Modus II:**  
Teach-Knopf drücken > 5 s,  
Status-LED ist blau  
Status-LED gelb blinkt = Teach-in-Vorgang aktiv „on“  
Teach-Knopf freigeben = Teach-Modus II Bestätigung
- 3d Warten bis gelbe Status-LED an ist „on“** (ca. 50 ms)  
Teach-in via externen TE.  
Eingang TE aktivieren.  
Durchführung wie oben beschrieben durchführen

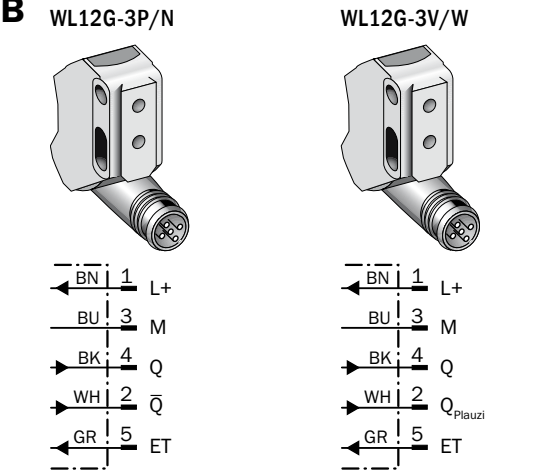
Wartung

SICK-Lichtschranken sind wartungsfrei. Wir empfehlen, in regelmäßigen Abständen  
– die optischen Grenzflächen zu reinigen,  
– Verschraubungen, Steckverbindungen und Justage zu überprüfen.  
Veränderungen an Geräten dürfen nicht vorgenommen werden.

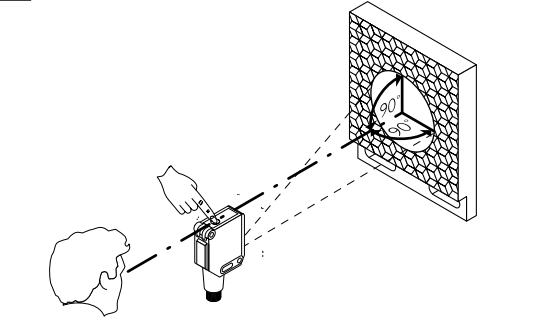
## A



## B



## 1



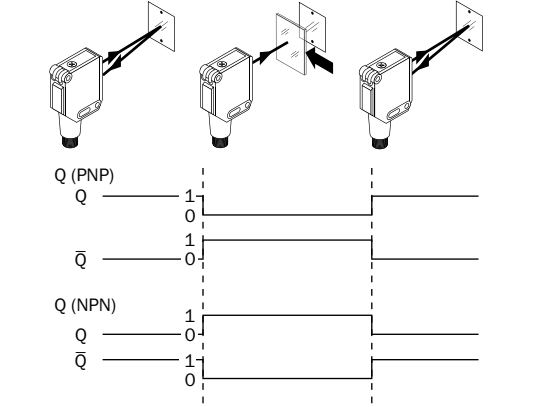
Reichweiten 0 ... 4 m/PL80A  
Bei Reichweite < 0,5 m Feintripel-Reflektor verwenden  
Operating range 0 ... 4 m/PL80A  
At operating range < 0.5 m use finetripel reflector

| WL12G-3                                                                 |                                                                          |                                                                         |                                                                          | P/Nxx7x                           | P/Nxx8x   | V/Wxx7x1    |
|-------------------------------------------------------------------------|--------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|-----------------------------------|-----------|-------------|
| Operating distance<br>(* with reflector PL80A) adjustable <sup>1)</sup> | Betriebsreichweite<br>(* mit Reflektor PL80A), einstellbar <sup>1)</sup> | Portée pratique<br>(* avec le réflecteur PL80A), réglable <sup>1)</sup> | Alcance operacional<br>(* com refletor o PL80A), ajustável <sup>1)</sup> | 0 ... 4m                          |           |             |
| Threshold operation mode                                                | Schaltschwellennachregelung                                              | Régulation du seuil de commutation                                      | Regulação do limiar de comutação                                         | Teach-in                          |           |             |
| Threshold mode                                                          | Schaltschwellenpegel                                                     | Niveau du seuil de commutation                                          | Nível do limiar de comutação                                             | Mode I = 10 %,<br>Mode II = 18 %, |           |             |
| Light spot diameter/distance                                            | Lichtfleckdurchmesser/Entfernung                                         | Diamètre de la tache lumineuse/distance                                 | Diâmetro do ponto de luz/distância                                       | 25 mm/1,5 mm                      | 50 mm/3 m | 25 mm/1,5 m |
| Supply voltage U <sub>s</sub> <sup>2)</sup>                             | Versorgungsspannung U <sub>s</sub> <sup>2)</sup>                         | Tension d'alimentation U <sub>s</sub> <sup>2)</sup>                     | Tensão de força U <sub>s</sub> <sup>2)</sup>                             | 10 ... 30 V DC <sup>2)</sup>      |           |             |
| Output current I <sub>max</sub>                                         | Ausgangsstrom I <sub>max</sub>                                           | Courant de sortie I <sub>max</sub>                                      | Corrente de saída I <sub>max</sub>                                       | 100 mA                            |           |             |
| Response time                                                           | Anspruchszeit                                                            | Temps de réponse                                                        | Tempo de reação                                                          | < 333µs <sup>3)</sup>             |           |             |
| Switching frequency                                                     | Schaltfolge max.                                                         | Commutation max.                                                        | Sequência máx. de comutação                                              | < 1500 Hz <sup>4)</sup>           |           |             |
| Plausibility output                                                     | Plausibilitätäusgang                                                     | Plausibilité initiale                                                   | Saída de plausibilidade                                                  |                                   |           | ✓           |
| Enclosure rating (IEC60529)                                             | Schutzart (IEC60529)                                                     | Type de protection (IEC60529)                                           | Tipo de proteção (IEC60529)                                              | IP 67, IP 66;                     |           |             |
| protection class <sup>5)</sup>                                          | Schutzklasse <sup>5)</sup>                                               | Classe de protection <sup>5)</sup>                                      | Classe de proteção <sup>5)</sup>                                         | ◇                                 |           |             |
| Circuit protection <sup>6)</sup>                                        | Schutzschaltungen <sup>6)</sup>                                          | Circuits de protection <sup>6)</sup>                                    | Circuitos protetores <sup>6)</sup>                                       | A, C, D                           |           |             |
| Ambient operating temperature                                           | Betriebsumgebungstemperatur                                              | Température ambiante                                                    | Temperatura ambiente de operação                                         | -40 ... +60°C                     |           |             |

| WL12G-3                                                                  |                                                                         |                                             |                                               | P/Nxx7x                           | P/Nxx8x   | V/Wxx7x1    |
|--------------------------------------------------------------------------|-------------------------------------------------------------------------|---------------------------------------------|-----------------------------------------------|-----------------------------------|-----------|-------------|
| Distanza di lavoro<br>(* con riflettore PL80A), regolabile <sup>1)</sup> | Alcance de servicio ajustable<br>(* con reflector PL80A), <sup>1)</sup> | 运行有效距离<br>(* 带反射器 PL80A), 可调节 <sup>1)</sup> | 動作範囲<br>(* リフレクタ PL80A 使用)、調節可能 <sup>1)</sup> | 0 ... 4m                          |           |             |
| Ultérieure regolazione della soglia di commutazione                      | Reajuste del umbral de conmutación                                      | 开关阈重新调节装置                                   | スイッチング閾値再調整                                   | Teach-in                          |           |             |
| Parametri della soglia di commutazione                                   | Nivel del umbral de conmutación                                         | 开关阈检测仪                                      | スイッチング閾値レベル                                   | Mode I = 10 %,<br>Mode II = 18 %, |           |             |
| Diametro punto luminoso/distanza                                         | Diámetro/distancia de mancha de luz                                     | 光点直径/距离                                     | スポット径/距離                                      | 25 mm/1,5 mm                      | 50 mm/3 m | 25 mm/1,5 m |
| Tensione di alimentazione U <sub>s</sub> <sup>2)</sup>                   | Tensión de alimentación U <sub>s</sub> <sup>2)</sup>                    | 电源电压 U <sub>s</sub> <sup>2)</sup>           | 供給電圧 U <sub>s</sub> <sup>2)</sup>             | 10 ... 30 V DC <sup>2)</sup>      |           |             |
| Corrente di uscita max. I <sub>max</sub>                                 | Corriente de salida I <sub>max</sub>                                    | 输出电流 I <sub>max</sub>                       | 最大出力電流 I <sub>max</sub>                       | 100 mA                            |           |             |
| Tempo di risposta                                                        | Tiempo de reacción                                                      | 触发时间                                        | 応答時間                                          | < 333µs <sup>3)</sup>             |           |             |
| Sequenza di commutazione max.                                            | Secuencia de conmutación máx.                                           | 最大开关操作顺序                                    | 切替順序 max.                                     | < 1500 Hz <sup>4)</sup>           |           |             |
| Uscita di plausibilità                                                   | Salida de plausibilidad                                                 | 合理性输出                                       | 妥当性出力                                         |                                   |           | ✓           |
| Tipo di protezione (IEC60529)                                            | Tipo de protección (IEC60529)                                           | 保护种类 (IEC60529)                             | 保護等級 (IEC60529)                               | IP 67, IP 66;                     |           |             |
| Classe di protezione <sup>5)</sup>                                       | Protección clase <sup>5)</sup>                                          | 保护级别 <sup>5)</sup>                          | 保護クラス <sup>5)</sup>                           | ◇                                 |           |             |
| Commutazioni di protezione <sup>6)</sup>                                 | Circuitos de protección <sup>6)</sup>                                   | 保护电路 <sup>6)</sup>                          | 保護回路 <sup>6)</sup>                            | A, C, D                           |           |             |
| Temperatura ambiente circostante                                         | Temperatura ambiente de servicio                                        | 工作环境-温度                                     | 動作周囲温度                                        | -40 ... +60°C                     |           |             |

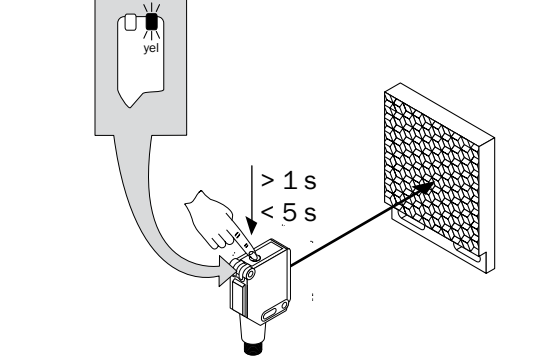
- Teach-in
- Valori limite: Funzionamento en la red protegida contra corto-circuito, máx. 8 A ondulación residual máx. 5 V<sub>SS</sub>
- Con una relación claro/oscuro de 1:1
- Duración de la señal con carga óhmica
- Tensión tolerable DC 50 V
- A = conexiones U<sub>s</sub> con protección contra polarización inversa
- A = U<sub>s</sub>-collegamenti con protezione contro inversione di poli
- C = soppressione impulsi
- D = uscite a prova di sovracorrente e corto circuito
- Teach-in
- Valores límite: Funcionamiento en la red protegida contra corto-circuito, máx. 8 A ondulación residual máx. 5 V<sub>SS</sub>
- Con una relación claro/oscuro de 1:1
- Duración de la señal con carga óhmica
- Tensión tolerable DC 50 V
- A = conexiones U<sub>s</sub> con protección contra polarización inversa
- A = U<sub>s</sub>-collegamenti con protezione contro inversione di poli
- C = soppressione impulsi
- D = uscite a prova di sovracorrente e corto circuito
- Teach-in
- Valores límite: Funcionamento en la red protegida contra corto-circuito, máx. 8 A ondulación residual máx. 5 V<sub>SS</sub>
- Con una relación claro/oscuro de 1:1
- Duración de la señal con carga óhmica
- Tensión tolerable DC 50 V
- A = conexiones U<sub>s</sub> con protección contra polarización inversa
- A = U<sub>s</sub>-collegamenti con protezione contro inversione di poli
- C = soppressione impulsi
- D = uscite a prova di sovracorrente e corto circuito
- Teach-in
- Valores límite: Funcionamento en la red protegida contra corto-circuito, máx. 8 A ondulación residual máx. 5 V<sub>SS</sub>
- Con una relación claro/oscuro de 1:1
- Duración de la señal con carga óhmica
- Tensión tolerable DC 50 V
- A = conexiones U<sub>s</sub> con protección contra polarización inversa
- A = U<sub>s</sub>-collegamenti con protezione contro inversione di poli
- C = soppressione impulsi
- D = uscite a prova di sovracorrente e corto circuito

## 2

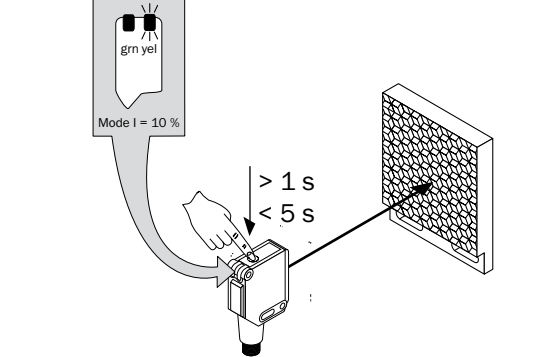


$\bar{Q}$  = dunkelschaltend/dark-switching  
Q = hellschaltend/light-switching

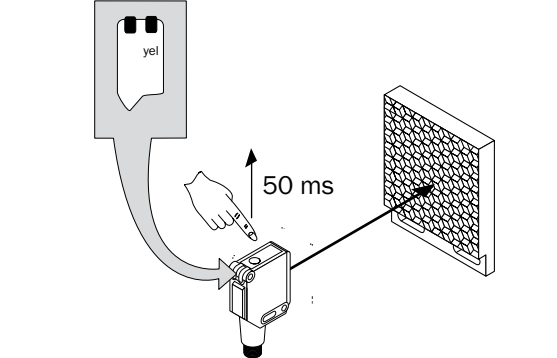
## 3a



## 3b



## 3c



## 3d

