

WL12G-3P3572S12

Small photoelectric sensor

en / de / fr / pt / it / es / zh / ja / ru



Photoelectric retro-reflective sensor

Operating instructions

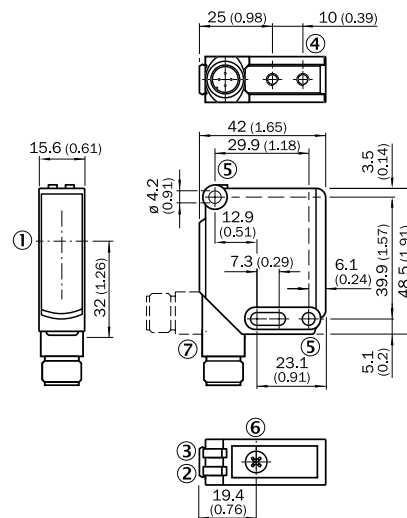
1 Safety notes

- 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: Only for use in applications in accordance with NFPA 79. Adapters listed by UL with connection cables are available. 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.

2 Correct use

The WL12G-3P3572S12 is an opto-electronic photoelectric retro-reflective sensor (referred to as "sensor" in the following) for the optical, non-contact detection of objects, animals, and persons. A reflector is required for this product to function. If the product is used for any other purpose or modified in any way, any warranty claim against SICK AG shall become void.

Photoelectric retro-reflective sensor with additional option for the detection of transparent objects.



- | 1 | Optical axis, sender and receiver
- | 2 | Status indicator LED, yellow: Status of received light beam
- | 3 | LED indicator green: power on, mode I is set
LED indicator blue: power on, mode II is set
LED indicator bright blue: power on, mode III is set
- | 4 | M4 threaded mounting hole, 4 mm deep
- | 5 | Mounting holes 4.2 mm
- | 6 | Teach-in: single teach-in button,
Function 1 Teach-in sensitivity adjustment
Function 1 Teach-in operating mode setting
- | 7 | Connection type: Cable with connector M12, 5-pin, 200 mm

3 Commissioning

- 1 Check the distance between sensor and reflector. There is a max. sensing range of 500 mm with reflector P250F.
- 2 Mount the sensor and the reflector using suitable mounting brackets (see the SICK range of accessories). Align the sensor and reflector with each other.
Note the sensor's maximum permissible tightening torque of Nm.

- 3 The sensors must be connected in a voltage-free state ($V_S = 0\text{ V}$). The information in the graphics [B] must be observed, depending on the type of connection:
- Male connector connection: pin assignment

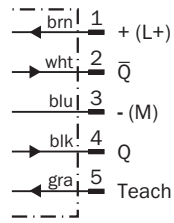


Image: B

Only apply voltage / switch on the power supply ($V_S > 0\text{ V}$) once all electrical connections have been completed. The green LED indicator lights up on the sensor.

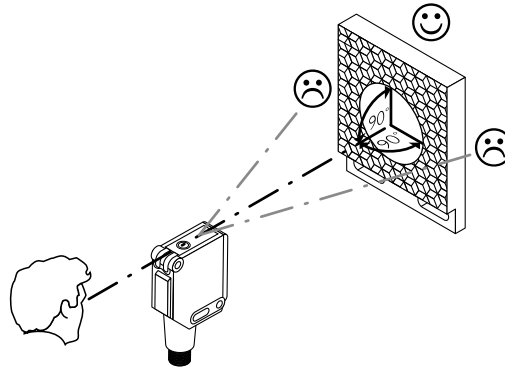
Explanations of the connection diagram (graphic B):

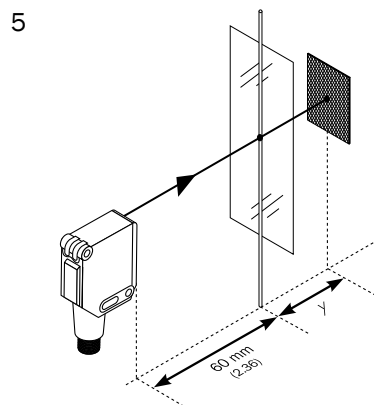
Switching outputs Q and /Q (according to graphic B):

WL12G-3P3572S12 (PNP: load -> M)

ET = external teach-in (see Adjustment)

- 4 Align the sensor with a suitable reflector. Select the position so that the red emitted light beam hits the center of the reflector. The sensor must have a clear view of the reflector, with no object in the path of the beam [see E]. You must ensure that the optical openings of the sensor and reflector are completely clear. Place clear off tape on clear foil at a distance of 60 mm between sensor and reflector.





Sensor with teach-in via pushbutton and / or cable:

The sensor must be taught to detect transparent objects.

The sensitivity can be adjusted in accordance with Table J by pressing the teach-in button or by activating the teach function via cable. Do not operate the teach-in button using sharp objects.

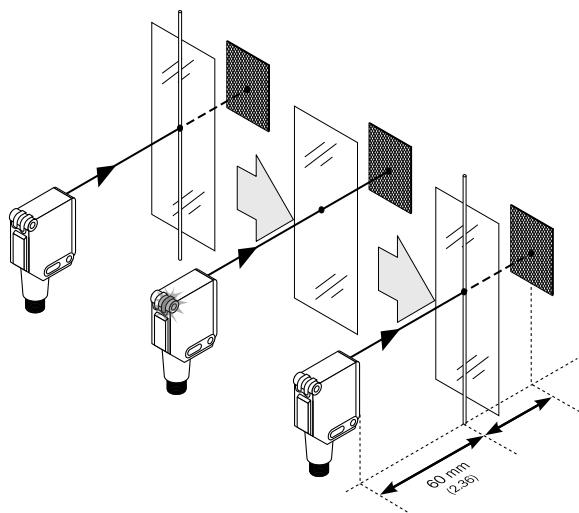


Image: G

Teach-in mode for objects / Teach-in mode for objects	Light damping / Light damping	Object type / Object type	Teach-in time / Teach-in time	Ext. Cable teach-in / Ext. Cable teach-in	LED indicator / LED indicator
I	6%	PET bottle/ Clear tear off tape on clear foil / PET bottle/ Clear tear off tape on clear foil	1 to 5 s	30 to 100 ms	yellow / yellow
II	10%	Glass / Glass	5 to 10 s	100 to 200 ms	Blue / Blue
III	18%	Colored bottles / Colored bottles	> 10 s	> 200 ms	Light blue / Light blue

5 Fault diagnosis

Table indicates which measures are to be taken if the sensor stops working.

6 Table Fault diagnosis

LED indicator/fault pattern / LED indicator/fault pattern	Cause / Cause	Measures / Measures
Green LED does not light up / Green LED does not light up	No voltage or voltage below the limit values / No voltage or voltage below the limit values	Check the power supply, check all electrical connecti- ons (cables and plug connecti- ons) / Check the power supply, check all electrical connecti- ons (cables and plug connecti- ons)
Green LED does not light up / Green LED does not light up	Voltage interruptions / Voltage interruptions	Ensure there is a stable power supply without interruptions / Ensure there is a stable power supply without interruptions
Green LED does not light up / Green LED does not light up	Sensor is faulty / Sensor is faulty	If the power supply is OK, re- place the sensor / If the power supply is OK, re- place the sensor
Yellow LED flashes / Yellow LED flashes	Sensor is still ready for opera- tion, but the operating condi- tions are not ideal / Sensor is still ready for opera- tion, but the operating condi- tions are not ideal	Check the operating condi- tions: Fully align the beam of light (light spot) with the re- flector. / Clean the optical sur- faces (sensor and reflector). / Readjust the sensitivity / Re- flector is not suitable for the application in question (we re- commend only using SICK re- flectors) / Check sensing ran- ge and adjust if necessary; see graphic H. / Distance bet- ween the sensor and the re- flector is too long / Check the operating condi- tions: Fully align the beam of light (light spot) with the re- flector. / Clean the optical sur- faces (sensor and reflector). / Readjust the sensitivity / Re- flector is not suitable for the application in question (we re- commend only using SICK re- flectors) / Check sensing ran- ge and adjust if necessary; see graphic H. / Distance bet- ween the sensor and the re- flector is too long

LED indicator/fault pattern / LED indicator/fault pattern	Cause / Cause	Measures / Measures
Signal interruptions when object is detected / Signal interruptions when object is detected	Depolarizing property of the object surface (e.g., tape), reflection / Depolarizing property of the object surface (e.g., tape), reflection	Reduce sensitivity or change the position of the sensor / Reduce sensitivity or change the position of the sensor

7 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).

8 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.

Reflexions-Lichtschanke

Betriebsanleitung

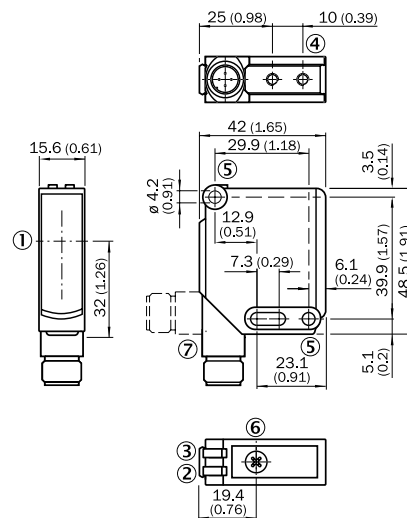
9 Sicherheitshinweise

- Vor der Inbetriebnahme die Betriebsanleitung lesen.
- Anschluss, Montage und Einstellung nur durch Fachpersonal.
- Kein Sicherheitsbauteil gemäß EU-Maschinenrichtlinie.
- UL: Nur zur Verwendung in Anwendungen gemäß NFPA 79. Von UL gelistete Adapter mit Anschlusskabeln sind verfügbar. Enclosure type 1.
- Gerät bei Inbetriebnahme vor Feuchte und Verunreinigung schützen.
- Diese Betriebsanleitung enthält Informationen, die während des Lebenszyklus des Sensors notwendig sind.

10 Bestimmungsgemäße Verwendung

Die WL12G-3P3572S12 ist eine optoelektronische Reflexions-Lichtschanke (im Folgenden Sensor genannt) und wird zum optischen, berührungslosen Erfassen von Sachen, Tieren und Personen eingesetzt. Zur Funktion wird ein Reflektor benötigt. Bei jeder anderen Verwendung und bei Veränderungen am Produkt verfällt jeglicher Gewährleistungsanspruch gegenüber der SICK AG.

Reflexions-Lichtschanke mit Zusatzoption zur Erkennung transparenter Objekte (WLxxG-xxxx).



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11 Inbetriebnahme

- 1 Distanz zwischen Sensor und Reflektor prüfen. Der max. Schaltabstand beträgt 500 mm mit dem Reflektor P250F.
- 2 Sensor und Reflektor an geeignete Befestigungswinkel montieren (siehe SICK-Zubehör-Programm). Sensor und Reflektor zueinander ausrichten.
Maximal zulässiges Anzugsdrehmoment des Sensors von Nm beachten.

- 3 Anschluss der Sensoren muss spannungsfrei ($V_S = 0\text{ V}$) erfolgen. Je nach Anschlussart sind die Informationen in den Grafiken [vgl. B] zu beachten:
- Steckeranschluss: Pinbelegung

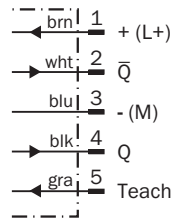


Abb.: B

Erst nach Anschluss aller elektrischen Verbindungen die Spannungsversorgung ($V_S > 0\text{ V}$) anlegen bzw. einschalten. Am Sensor leuchtet die grüne Anzeige-LED.

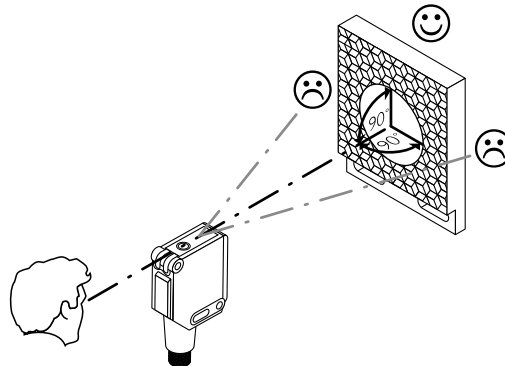
Erläuterungen zum Anschlussschema (Grafik B):

Schaltausgänge Q bzw. /Q (gemäß Grafik B):

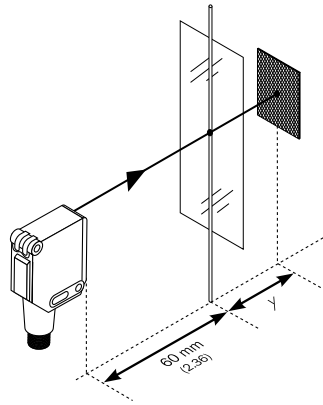
WL12G-3P3572S12 (PNP: Last -> M)

ET = externer Teach (siehe Einstellung)

- 4 Sensor auf geeigneten Reflektor ausrichten. Positionierung so wählen, dass der rote Sendelichtstrahl in der Mitte des Reflektors auftrifft. Der Sensor muss freie Sicht auf den Reflektor haben, es darf sich kein Objekt im Strahlengang befinden [vgl. E]. Es ist darauf zu achten, dass die optischen Öffnungen von Sensor und Reflektor vollständig frei sind. Transparente Folie mit Faden im Abstand 60 mm in den Strahlengang bringen.



5



Sensor mit Teach-in über Taste und / oder über Leitung:

Zur Erkennung transparenter Objekte ist ein Teachen des Sensors erforderlich.

Durch Drücken der Teach-in-Taste bzw. Aktivierung der Teach-Funktion über Leitung wird die Empfindlichkeit gemäß Tabelle J eingestellt.

Teach-in-Taste nicht mit spitzen Gegenständen betätigen.

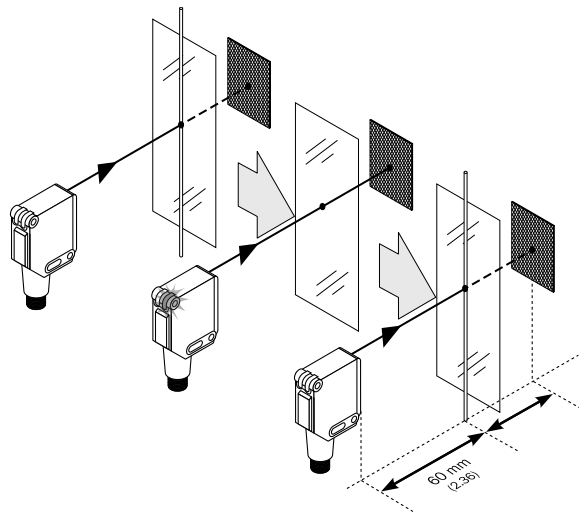


Abb.: G

Teach-in-Modus für Objekte / Teach-in mode for objects	Lichtdämpfung / Light damping	Objekttyp / Object type	Teach-in-Zeit / Teach-in time	Ext. Teach-in über Leitung / Ext. Cable teach-in	Anzeige-LED / LED indicator
I	6 %	PET-Flasche / Transparenter Faden mit Folie / PET-Flasche / Transparenter Faden mit Folie	1 ... 5 s	30 ... 100 ms	gelb / yellow
II	10 %	Glas / Glass	5 ... 10 s	100 ... 200 ms	blau / Blue
III	18 %	Farbige Flaschen / Colored bottles	> 10 s	> 200 ms	hellblau / Light blue

13 Fehlerdiagnose

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

14 Tabelle Fehlerdiagnose

Anzeige-LED / Fehlerbild / LED indicator/fault pattern	Ursache / Cause	Maßnahme / Measures
grüne LED leuchtet nicht / Green LED does not light up	keine Spannung oder Spannung unterhalb der Grenzwerte / No voltage or voltage below the limit values	Spannungsversorgung prüfen, den gesamten elektrischen Anschluss prüfen (Leitungen und Steckerverbindungen) / Check the power supply, check all electrical connections (cables and plug connections)
grüne LED leuchtet nicht / Green LED does not light up	Spannungsunterbrechungen / Voltage interruptions	Sicherstellen einer stabilen Spannungsversorgung ohne Unterbrechungen / Ensure there is a stable power supply without interruptions
grüne LED leuchtet nicht / Green LED does not light up	Sensor ist defekt / Sensor is faulty	Wenn Spannungsversorgung in Ordnung ist, dann Sensor austauschen / If the power supply is OK, replace the sensor

Anzeige-LED / Fehlerbild / LED indicator/fault pattern	Ursache / Cause	Maßnahme / Measures
gelbe LED blinkt / Yellow LED flashes	Sensor ist noch betriebsbe- reit, aber die Betriebsbedin- gungen sind nicht optimal / Sensor is still ready for opera- tion, but the operating condi- tions are not ideal	Betriebsbedingungen prüfen: Lichtstrahl (Lichtfleck) voll- ständig auf den Reflektor aus- richten / Reinigung der opti- schen Flächen(Sensor und Reflektor) / Empfindlichkeit neu einstellen / Reflektor eig- net sich nicht für gewählte Ap- plikation (wir empfehlen, aus- schließlich SICK-Reflektoren zu verwenden) / Schaltab- stand überprüfen und ggf. an- passen, siehe Grafik H. / Ab- stand zwischen Sensor und Reflektor ist zu groß / Check the operating condi- tions: Fully align the beam of light (light spot) with the re- flector. / Clean the optical sur- faces (sensor and reflector). / Readjust the sensitivity / Re- flector is not suitable for the application in question (we re- commend only using SICK re- flectors) / Check sensing ran- ge and adjust if necessary; see graphic H. / Distance bet- ween the sensor and the re- flector is too long
Signalunterbrechungen bei Ob- jekt detektion / Signal interruptions when ob- ject is detected	Depolarisierende Eigenschaft der Objektoberfläche (z. B. Folie), Umspiegelung / Depolarizing property of the object surface (e.g., tape), re- flection	Empfindlichkeit reduzieren oder Sensorposition verän- dern / Reduce sensitivity or change the position of the sensor

15 Demontage und Entsorgung

Die Entsorgung des Sensors hat gemäß den länderspezifisch anwendbaren Vorschriften zu erfolgen. Für die enthaltenen Wertstoffe (insbesondere Edelmetalle) ist im Rahmen der Entsorgung eine Verwertung anzustreben.

16 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.

Barrière réflexe

Notice d'instruction

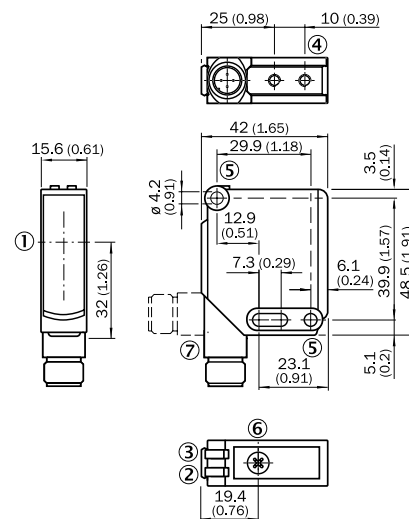
17 Consignes de sécurité

- Lire la notice d'instruction avant la mise en service.
- Confier le raccordement, le montage et le réglage uniquement à un personnel spécialisé.
- Il ne s'agit pas d'un composant de sécurité au sens de la directive machines CE.
- UL : utilisation uniquement dans des applications selon la NFPA 79. Des adaptateurs listés UL avec câbles de connexion sont disponibles. Enclosure type 1.
- Protéger l'appareil contre l'humidité et les impuretés lors de la mise en service.
- Cette notice d'instruction contient des informations nécessaires pendant toute la durée de vie du capteur.

18 Utilisation conforme

WL12G-3P3572S12 est une barrière réflexe optoélectronique (appelée capteur dans ce document) qui permet la détection optique sans contact d'objets, d'animaux et de personnes. Un réflecteur est nécessaire à son fonctionnement. Toute autre utilisation ou modification du produit annule la garantie de SICK AG.

Détecteur à réflexion directe avec option de détection d'objets transparents.



- | 1| Optical axis, sender and receiver
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- | 4| M4 threaded mounting hole, 4 mm deep
- | 5| Mounting holes 4.2 mm
- | 6| Teach-in: single teach-in button,
Function 1 Teach-in sensitivity adjustment
Function 1 Teach-in operating mode setting
- | 7| Connection type: Cable with connector M12, 5-pin, 200 mm

19 Mise en service

- 1 Contrôler la distance entre le capteur et le réflecteur. La portée max. avec le réflecteur P250F est de 500 mm.
- 2 Monter le capteur et le réflecteur sur des équerres de fixation adaptées (voir la gamme d'accessoires SICK). Aligner le capteur sur le réflecteur.
Respecter le couple de serrage maximum autorisé du capteur de Nm

- 3 Le raccordement des capteurs doit s'effectuer hors tension ($V_S = 0\text{ V}$). Selon le mode de raccordement, respecter les informations contenues dans les schémas [B] :
- Raccordement du connecteur : affectation des broches

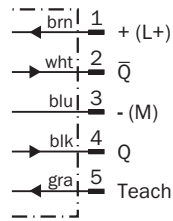


Image: B

Après avoir terminé tous les raccordements électriques, enclencher l'alimentation électrique ($V_S > 0\text{ V}$). La DEL verte s'allume sur le capteur.

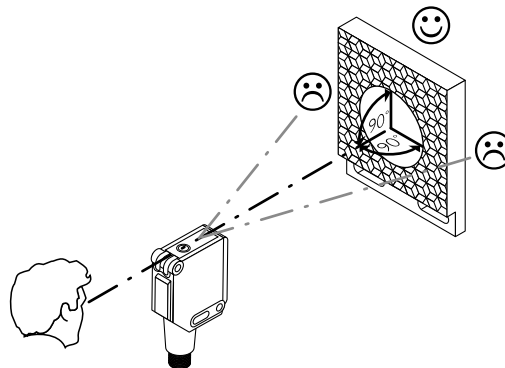
Explications relatives au schéma de raccordement (schéma B) :

Sorties de commutation Q ou \bar{Q} (selon le schéma B) :

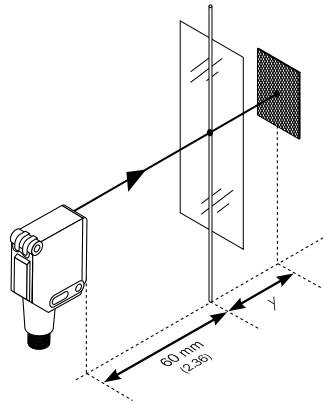
WL12G-3P3572S12 (PNP : charge → M)

ET = apprentissage externe (voir le réglage)

- 4 Aligner le capteur sur un réflecteur adéquat. Sélectionner la position de sorte que le faisceau lumineux émis rouge touche le réflecteur en plein milieu. Le capteur doit disposer d'un champ de vision dégagé sur le réflecteur, il ne doit donc y avoir aucun objet dans la trajectoire du faisceau [voir E]. S'assurer que les ouvertures optiques du capteur et du réflecteur sont parfaitement dégagées. Introduire un film transparent avec un fil dans la trajectoire du faisceau, à une distance de 60 mm.



5



Capteur avec apprentissage via touche et/ou câble :
 L'apprentissage du capteur est nécessaire pour la détection d'objets transparents.
 Régler la portée selon le tableau J en appuyant sur la touche d'apprentissage ou
 en activant la fonction apprentissage via l'entrée dédiée. Ne pas appuyer sur la
 touche apprentissage avec des objets pointus.

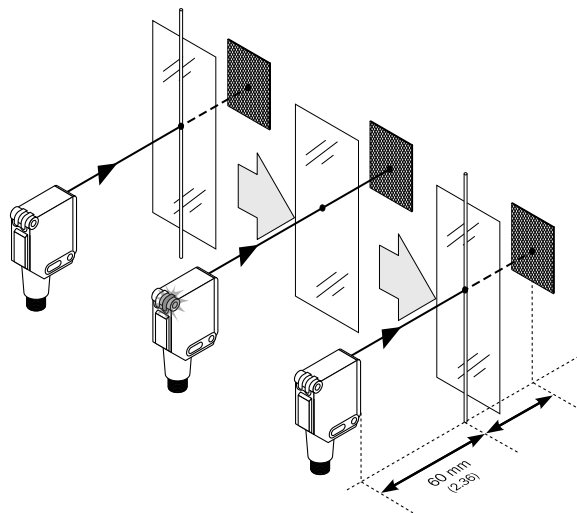


Image: G

Mode d'apprentissage pour les objets / Teach-in mode for objects	Atténuation de la lumière / Light damping	Type d'objet / Object type	Durée d'apprentissage / Teach-in time	Apprentissage ext. par câble / Ext. Cable teach-in	LED d'état / LED indicator
I	6 %	Bouteille en plastique / fil transparent avec film / Bouteille en plastique / fil transparent avec film	1 à 5 s	30 à 100 ms	jaune / yellow
II	10 %	Verre / Glass	5 à 10 s	100 à 200 ms	bleu / Blue
III	18 %	Bouteilles de couleur / Colored bottles	> 10 s	> 200 ms	bleu clair / Light blue

21 Diagnostic

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

22 Tableau Diagnostic

LED d'état / image du défaut / LED indicator/fault pattern	Cause / Cause	/ Mesures
La LED verte ne s'allume pas / Green LED does not light up	Pas de tension ou tension inférieure aux valeurs limites / No voltage or voltage below the limit values	Contrôler l'alimentation électrique, contrôler tous les branchements électriques (câbles et connexions) / Check the power supply, check all electrical connections (cables and plug connections)
La LED verte ne s'allume pas / Green LED does not light up	Coupures d'alimentation électrique / Voltage interruptions	S'assurer que l'alimentation électrique est stable et ininterrompue / Ensure there is a stable power supply without interruptions
La LED verte ne s'allume pas / Green LED does not light up	Le capteur est défectueux / Sensor is faulty	Si l'alimentation électrique est en bon état, remplacer le capteur / If the power supply is OK, replace the sensor

LED d'état / image du défaut / LED indicator/fault pattern	Cause / Cause	/ Measures
La LED jaune clignote / Yellow LED flashes	Le capteur est encore opérationnel, mais les conditions d'utilisation ne sont pas idéales / Sensor is still ready for operation, but the operating conditions are not ideal	Vérifier les conditions d'utilisation : Diriger le faisceau lumineux (spot lumineux) entièrement sur le réflecteur / Nettoyer des surfaces optiques (capteur et réflecteur) / Régler à nouveau la sensibilité / Le réflecteur ne convient pas à l'application sélectionnée (nous recommandons d'utiliser exclusivement des réflecteurs SICK) / Contrôler la portée et éventuellement l'adapter, voir le schéma et H. / La distance entre le capteur et le réflecteur est trop grande / Check the operating conditions: Fully align the beam of light (light spot) with the reflector. / Clean the optical surfaces (sensor and reflector). / Readjust the sensitivity / Reflector is not suitable for the application in question (we recommend only using SICK reflectors) / Check sensing range and adjust if necessary; see graphic H. / Distance between the sensor and the reflector is too long
Coupures de signal lors de détection d'objet / Signal interruptions when object is detected	Propriété dépolarisante de la surface de l'objet (par ex. film), réflexions / Depolarizing property of the object surface (e.g., tape), reflection	Réduire la sensibilité ou changer la position du capteur / Reduce sensitivity or change the position of the sensor

23 Démontage et mise au rebut

La mise au rebut du capteur doit respecter la réglementation nationale en vigueur. Dans le cadre de la mise au rebut, veiller à recycler les matériaux (notamment les métaux précieux).

24 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.

Barreira de luz de reflexão

Manual de instruções

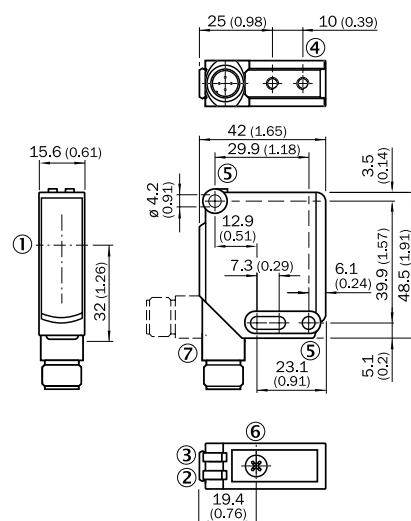
25 Notas de segurança

- Ler as instruções de operação antes da colocação em funcionamento.
- A conexão, a montagem e o ajuste devem ser executados somente por pessoal técnico qualificado.
- Os componentes de segurança não se encontram em conformidade com a Diretiva Europeia de Máquinas.
- UL: Somente na utilização em aplicações de acordo com NFPA 79. Estão disponíveis adaptadores listados pela UL com cabos de conexão. Enclosure type 1.
- Durante o funcionamento, manter o aparelho protegido contra impurezas e umidade.
- Este manual de instruções contém informações necessárias para toda a vida útil do sensor.

26 Especificações de uso

O WL12G-3P3572S12 é uma barreira de luz de reflexão optoeletrônica (doravante denominada "sensor") utilizada para a detecção óptica, sem contato, de objetos, animais e pessoas. É necessário um refletor para o funcionamento. Qualquer utilização diferente ou alterações do produto provocam a perda da garantia da SICK AG.

Barreira de luz de reflexão com opção adicional para a detecção de objetos transparentes.



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27 Colocação em funcionamento

- 1 Verificar a distância entre o sensor e o refletor. A distância de comutação máxima é de 500 mm com o refletor P250F.
- 2 Montar o sensor e o refletor em cantoneiras de fixação adequadas (ver linha de acessórios da SICK). Alinhar o sensor e o refletor entre si.
Observar o torque de aperto máximo permitido de Nm para o sensor.

- 3 A conexão dos sensores deve ser realizada em estado desenergizado ($V_S = 0\text{ V}$). Conforme o tipo de conexão, devem ser observadas as informações contidas nos gráficos [cp. B]:

- Conector: Pin-out

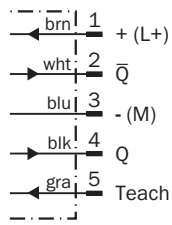


Image: B

Instalar ou ligar a alimentação de tensão ($V_S > 0\text{ V}$) somente após a conclusão de todas as conexões elétricas. O indicador LED verde está aceso no sensor.

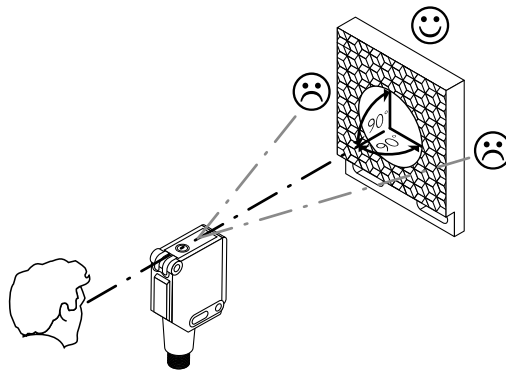
Explicações relativas ao esquema de conexões (Gráfico B):

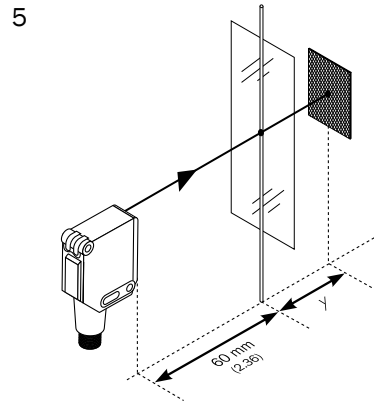
Saídas de comutação Q ou /Q (conforme o gráfico B):

WL12G-3P3572S12 (PNP: carga -> M)

TE = Teach externo (ver Ajuste)

- 4 Alinhar o sensor ao refletor adequado. Posicionar, de forma que o feixe da luz de emissão vermelha incida sobre o centro do refletor. O espaço entre o sensor e o refletor deve estar desimpedido; não pode haver objetos no caminho óptico [cp. E]. Certificar-se de que as aberturas ópticas do sensor e do refletor estejam completamente livres. Colocar a película transparente com fio no caminho óptico com uma distância de 60 mm.





Sensor com Teach-in através da tecla e / ou do cabo:

Para a detecção de objetos transparentes, é necessário um processo de teach do sensor.

O ajuste da sensibilidade é efetuado de acordo com a tabela J apertando a tecla Teach-in ou ativando a função Teach através do cabo. Não acionar a tecla Teach-in com objetos pontiagudos.

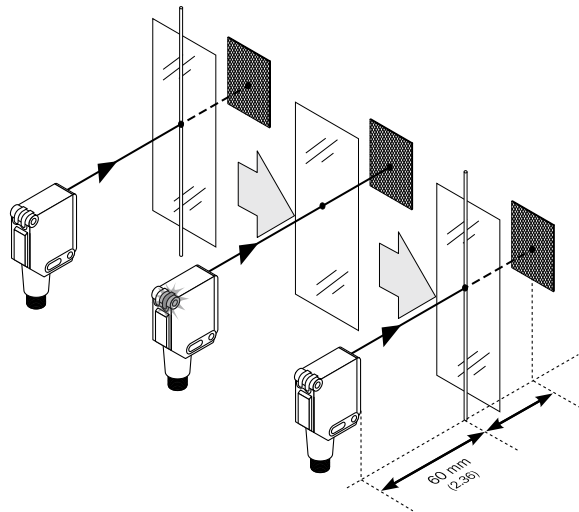


Image: G

Modo Teach-in para objetos / Teach-in mode for objects	Atenuação de luz / Light damping	Tipo de objeto / Object type	Tempo de Teach-in / Teach-in time	Ext. Teach-in através de cabo / Ext. Cable teach-in	Indicador LED / LED indicator
I	6 %	Garrafa PET / fio transparente com película / Garrafa PET / fio transparente com película	1 ... 5 s	30 ... 100 ms	Amarelo / yellow
II	10%	Vidro / Glass	5 ... 10 s	100 ... 200 ms	azul / Blue
III	18 %	Garrafas coloridas / Colored bottles	> 10 s	> 200 ms	azul claro / Light blue

29 Diagnóstico de erros

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

30 Tabela Diagnóstico de erros

Indicador LED / padrão de erro / LED indicator/fault pattern	Causa / Cause	Medida / Measures
LED verde apagado / Green LED does not light up	Sem tensão ou tensão abaixo dos valores-limite / No voltage or voltage below the limit values	Verificar a alimentação de tensão, verificar toda a conexão elétrica (cabos e conectores) / Check the power supply, check all electrical connections (cables and plug connections)
LED verde apagado / Green LED does not light up	Interrupções de tensão / Voltage interruptions	Assegurar uma alimentação de tensão estável sem interrupções / Ensure there is a stable power supply without interruptions
LED verde apagado / Green LED does not light up	Sensor está com defeito / Sensor is faulty	Se a alimentação de tensão estiver em ordem, substituir o sensor / If the power supply is OK, replace the sensor

Indicador LED / padrão de erro / LED indicator/fault pattern	Causa / Cause	Medida / Measures
LED amarelo intermitente / Yellow LED flashes	Sensor ainda está operacional, mas as condições de operação não são ideais / Sensor is still ready for operation, but the operating conditions are not ideal	Verificar as condições de operação: Alinhar o feixe de luz (ponto de luz) completamente ao refletor / Limpeza das superfícies ópticas (sensor e refletor) / reajustar a sensibilidade / Refletor não é adequado para a aplicação selecionada (recomendamos utilizar apenas refletores SICK) / Verificar e, se necessário, adaptar a distância de comutação, ver gráfico H. / Distância entre sensor e refletor é grande demais / Check the operating conditions: Fully align the beam of light (light spot) with the reflector. / Clean the optical surfaces (sensor and reflector). / Readjust the sensitivity / Reflector is not suitable for the application in question (we recommend only using SICK reflectors) / Check sensing range and adjust if necessary; see graphic H. / Distance between the sensor and the reflector is too long
Interrupções de sinal na detecção de objetos / Signal interruptions when object is detected	Propriedade despolarizante da superfície do objeto (por ex., película), reflexos de superfície / Depolarizing property of the object surface (e.g., tape), reflection	Reduzir a sensibilidade ou modificar a posição do sensor / Reduce sensitivity or change the position of the sensor

31 Desmontagem e descarte

O descarte do sensor deve ser efetuado de acordo com as normas aplicáveis específicas de cada país. No âmbito do descarte, deve-se procurar o aproveitamento dos materiais recicláveis contidos (principalmente dos metais nobres).

32 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.

Relè fotoelettrico a riflessione

Istruzioni per l'uso

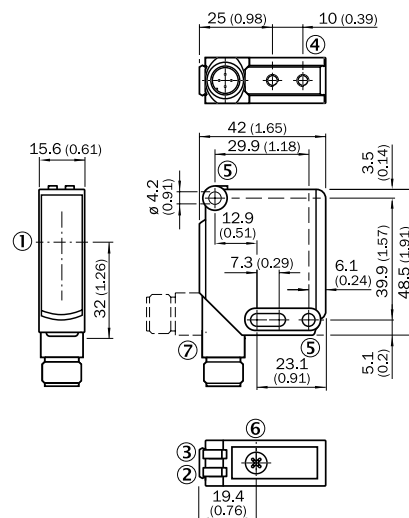
33 Avvertenze sulla sicurezza

- Prima della messa in funzionamento leggere le istruzioni per l'uso.
- Allacciamento, montaggio e regolazione solo a cura di personale tecnico specializzato.
- Nessun componente di sicurezza ai sensi della direttiva macchine UE.
- UL: Solo per l'utilizzo in applicazioni ai sensi di NFPA 79. Sono disponibili adattatori elencati da UL con cavi di collegamento. Enclosure type 1.
- Alla messa in funzionamento proteggere l'apparecchio dall'umidità e dalla sporcizia.
- Queste istruzioni per l'uso contengono le informazioni che sono necessarie durante il ciclo di vita del sensore fotoelettrico. deTec4 core

34 Uso conforme alle prescrizioni

La WL12G-3P3572S12 è un relè fotoelettrico a riflessione optoelettronica (di seguito nominato sensore) utilizzato per il rilevamento ottico senza contatto di oggetti, animali e persone. Per il funzionamento è necessario un riflettore. Se viene utilizzata diversamente e in caso di modifiche sul prodotto, decade qualsiasi diritto alla garanzia nei confronti di SICK.

Relè fotoelettrico a riflessione optoelettronica con opzione supplementare per il riconoscimento degli oggetti trasparenti.



- [1] Optical axis, sender and receiver
- [2] Status indicator LED, yellow: Status of received light beam
- [3] LED indicator green: power on, mode I is set
LED indicator blue: power on, mode II is set
LED indicator bright blue: power on, mode III is set
- [4] M4 threaded mounting hole, 4 mm deep
- [5] Mounting holes 4.2 mm
- [6] Teach-in: single teach-in button,
Function 1 Teach-in sensitivity adjustment
Function 1 Teach-in operating mode setting
- [7] Connection type: Cable with connector M12, 5-pin, 200 mm

35 Messa in funzione

- 1 Controllare la distanza tra sensore e riflettore. La max. distanza di commutazione è 500 mm con il riflettore P250F.
- 2 Montare il sensore e il riflettore su dei punti di fissaggio adatti (vedi il programma per accessori SICK). Orientare reciprocamente il sensore e il rispettivo riflettore. Rispettare il momento torcente massimo consentito del sensore di Nm.

- 3 Il collegamento dei sensori deve avvenire in assenza di tensione ($V_S = 0\text{ V}$). In base al tipo di collegamento si devono rispettare le informazioni nei grafici [cfr. B]:

- Collegamento a spina: assegnazione pin

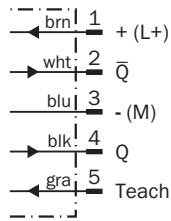


Image: B

Solamente in seguito alla conclusione di tutti i collegamenti elettrici, ripristinare o accendere l'alimentazione di tensione ($V_S > 0\text{ V}$). Sul sensore si accende l'indicatore LED verde.

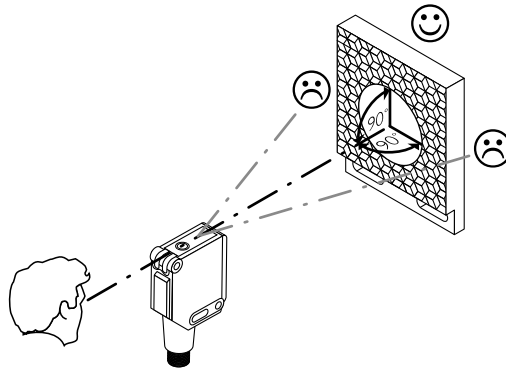
Spiegazioni dello schema di collegamento (grafico B):

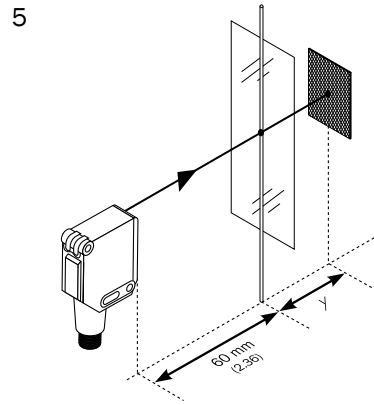
Uscite di commutazione Q ovvero /Q (conformemente al grafico B):

WL12G-3P3572S12 (PNP: carico -> M)

ET = Teach esterno (vedi impostazione)

- 4 Orientare il sensore sul relativo riflettore. Scegliere la posizione in modo tale che il raggio di luce rosso emesso colpisca il centro del riflettore. Il sensore deve avere una visuale libera sul riflettore, non ci deve essere nessun oggetto nella traiettoria del raggio [cfr. E]. Si deve fare attenzione affinché le aperture ottiche del sensore e del riflettore siano completamente libere. Portare la pellicola trasparente con il filamento alla distanza di 60 mm nella traiettoria del raggio.





Sensore con Teach-in tramite tasto e/o via cavo:

Per il riconoscimento degli oggetti trasparenti è necessaria una regolazione Teach del sensore.

Premendo il tasto Teach-in o attivando la funzione via cavo, viene impostata la sensibilità secondo la tabella J. Non azionare il tasto Teach-in con oggetti appuntiti.

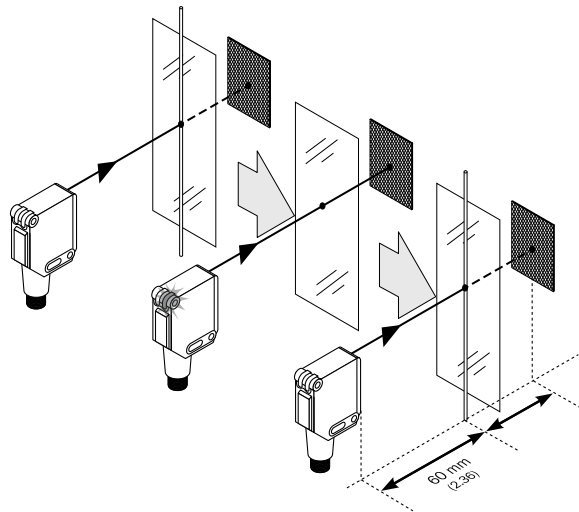


Image: G

Modalità Teach-in per oggetti / Teach-in mode for objects	Attenuazione della luce / Light damping	Tipo do oggetto / Object type	Tempo Teach-in / Teach-in time	Est. Teach-in tramite conduttore / Ext. Cable teach-in	Indicatore - LED / LED indicator
I	6 %	Bottiglia in PET / filamento trasparente con pellicola / Bottiglia in PET / filamento trasparente con pellicola	1 ... 5 s	30 ... 100 ms	giallo / yellow
II	10%	Vetro / Glass	5 ... 10 s	100 ... 200 ms	blu / Blue
III	18 %	Bottiglie colorate / Colored bottles	> 10 s	> 200 ms	azzurro / Light blue

37 Diagnostica delle anomalie

La tabella mostra quali provvedimenti si devono adottare quando il sensore non funziona più.

38 Tabella diagnostica delle anomalie

Indicatore LED / figura di errore / LED indicator/fault pattern	Causa / Cause	Provvedimento / Measures
Il LED verde non si accende / Green LED does not light up	nessuna tensione o tensione al di sotto del valore soglia / No voltage or voltage below the limit values	Verificare la tensione di alimentazione e/o il collegamento elettrico / Check the power supply, check all electrical connections (cables and plug connections)
Il LED verde non si accende / Green LED does not light up	Interruzioni di tensione / Voltage interruptions	Assicurarsi che ci sia un'alimentazione di tensione stabile / Ensure there is a stable power supply without interruptions
Il LED verde non si accende / Green LED does not light up	Il sensore è guasto / Sensor is faulty	Se l'alimentazione di tensione è regolare, allora chiedere una sostituzione del sensore / If the power supply is OK, replace the sensor

Indicatore LED / figura di errore / LED indicator/fault pattern	Causa / Cause	Provvedimento / Measures
Il LED giallo lampeggia / Yellow LED flashes	Il sensore è ancora pronto per il funzionamento, ma le condizioni di esercizio non sono ottimali / Sensor is still ready for operation, but the operating conditions are not ideal	Controllare le condizioni di esercizio: Dirigere il raggio di luce (il punto luminoso) completamente sul riflettore / Pulizia delle superfici ottiche (sensore e riflettore) / Sensibilità / se il riflettore non è adatto per l'applicazione selezionata (si consiglia, di usare esclusivamente riflettori SICK) / controllare la distanza di commutazione e, se necessario, adattarla, vedi grafico H. / La distanza tra sensore e riflettore è troppo grande / Check the operating conditions: Fully align the beam of light (light spot) with the reflector. / Clean the optical surfaces (sensor and reflector). / Readjust the sensitivity / Reflector is not suitable for the application in question (we recommend only using SICK reflectors) / Check sensing range and adjust if necessary; see graphic H. / Distance between the sensor and the reflector is too long
Interruzioni di segnale al momento del rilevamento dell'oggetto / Signal interruptions when object is detected	Proprietà depolarizzante della superficie dell'oggetto (ad es. pellicola), riflesso / Depolarizing property of the object surface (e.g., tape), reflection	Ridurre la sensibilità o variare la posizione del sensore / Reduce sensitivity or change the position of the sensor

39 Smontaggio e smaltimento

Lo smaltimento del sensore deve avvenire conformemente alle direttive previste specificatamente dal paese. Per i materiali riciclabili in esso contenuti (in particolare metalli nobili) si auspica un riciclaggio nell'ambito dello smaltimento.

40 Manutenzione

I sensori SICK sono esenti da manutenzione.

A intervalli regolari si consiglia di

- pulire le superfici limite 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.

Barrera fotoeléctrica de reflexión

Instrucciones de uso

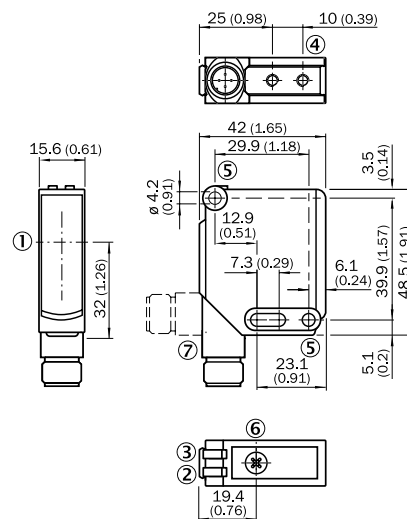
41 Instrucciones de seguridad

- Lea las instrucciones de uso antes de efectuar la puesta en servicio.
- La conexión, el montaje y el ajuste deben ser efectuados exclusivamente por técnicos especialistas.
- No se trata de un componente de seguridad según la Directiva de máquinas de la UE.
- UL: solo para utilizar en aplicaciones según NFPA 79. Se encuentran disponibles adaptadores listados por UL con cable de conexión. Enclosure type 1.
- Proteja el equipo contra la humedad y la suciedad durante la puesta en servicio.
- Las presentes instrucciones de uso contienen información que puede serle necesaria durante todo el ciclo de vida del sensor.

42 Uso conforme a lo previsto

La WL12G-3P3572S12 es una barrera optoelectrónica de reflexión (en lo sucesivo llamada sensor) empleada para la detección óptica y sin contacto de objetos, animales y personas. Para que funcione es necesario un reflector. Cualquier uso diferente al previsto o modificación en el producto invalidará la garantía por parte de SICK AG.

Barrera fotoeléctrica de reflexión con opción adicional para detectar objetos transparentes.



- 1| Optical axis, sender and receiver
- 2| Status indicator LED, yellow: Status of received light beam
- 3| LED indicator green: power on, mode I is set
LED indicator blue: power on, mode II is set
LED indicator bright blue: power on, mode III is set
- 4| M4 threaded mounting hole, 4 mm deep
- 5| Mounting holes 4.2 mm
- 6| Teach-in: single teach-in button,
Function 1 Teach-in sensitivity adjustment
Function 1 Teach-in operating mode setting
- 7| Connection type: Cable with connector M12, 5-pin, 200 mm

43 Puesta en servicio

- 1 Verificar la distancia entre el sensor y el reflector. La distancia máx. de conmutación es de 500 mm con el reflector P250F.
- 2 Montar el sensor y el reflector en escuadras de fijación adecuadas (ver programa de accesorios SICK). Alinear el sensor y el reflector entre sí.
Respetar el par de apriete máximo admisible del sensor de Nm.

- 3 Los sensores deben conectarse sin tensión ($V_S = 0\text{ V}$). Debe tenerse en cuenta la información de las figuras [B] en función de cada tipo de conexión:

- Conexión de enchufes: asignación de pines

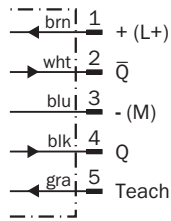


Image: B

No conectar o aplicar la fuente de alimentación ($V_S > 0\text{ V}$) hasta que no se hayan realizado todas las conexiones eléctricas. En el sensor se ilumina el LED indicador verde.

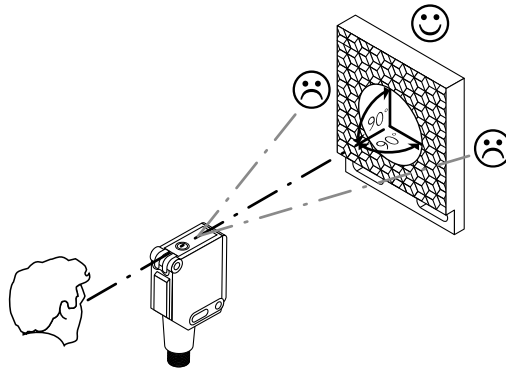
Explicaciones relativas al esquema de conexión (figura B)

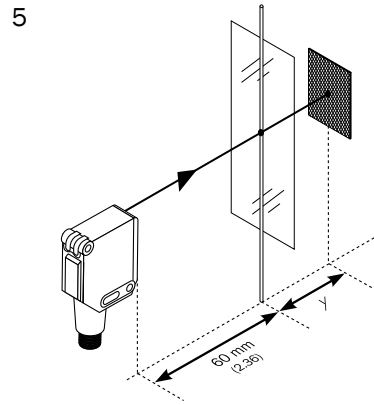
Salidas conmutadas Q o /Q (según figura B):

WL12G-3P3572S12 (PNP: carga -> M)

ET = Aprendizaje externo (véase configuración)

- 4 Oriente el sensor hacia el reflector adecuado. Seleccione una posición que permita que el haz de luz roja del transmisor incida en el centro del reflector. El sensor debe tener una visión despejada del reflector, no puede haber ningún objeto en la trayectoria del haz [véase Figura E]. Hay que procurar que las aperturas ópticas del sensor y del reflector estén completamente libres. Colocar en la trayectoria del haz una lámina transparente con hilo a una distancia de 60 mm.





Sensor con aprendizaje mediante botón o cable:

Para detectar objetos transparentes, se requiere enseñar al sensor.

Pulsando el botón de aprendizaje o activando la función de aprendizaje por cable, se ajusta la sensibilidad según tabla J. No accione el botón de aprendizaje con objetos puntiagudos.

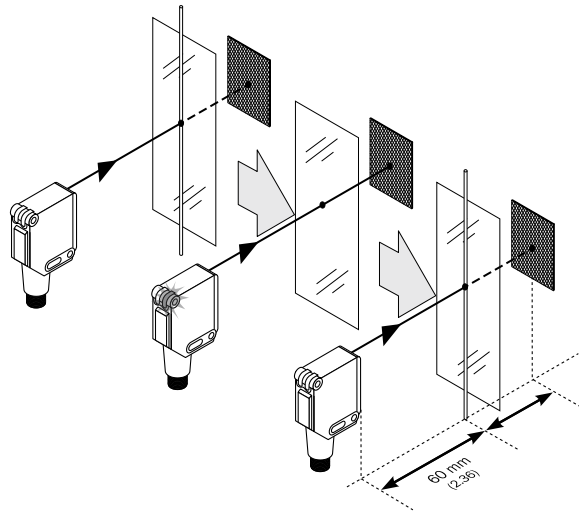


Image: G

Modo de aprendizaje (Teach-in) para objetos / Teach-in mode for objects	Atenuación de la luz / Light damping	Tipo de objeto / Object type	Tiempo de aprendizaje (Teach-in) / Teach-in time	Aprendizaje (Teach-in) ext. por cable / Ext. Cable teach-in	LED indicador / LED indicator
I	6 %	Botella de PET / hilo transparente con lámina / Botella de PET / hilo transparente con lámina	1 ... 5 s	30 ... 100 ms	amarillo / yellow
II	10 %	Vidrio / Glass	5 ... 10 s	100 ... 200 ms	azul / Blue
III	18 %	Botellas de color / Colored bottles	> 10 s	> 200 ms	azul claro / Light blue

45 Diagnóstico de fallos

La tabla muestra las medidas que hay que tomar cuando ya no está indicado el funcionamiento del sensor.

46 Tabla Diagnóstico de fallos

LED indicador / imagen de error / LED indicator/fault pattern	Causa / Cause	Acción / Measures
El LED verde no se ilumina / Green LED does not light up	Sin tensión o tensión por debajo de los valores límite / No voltage or voltage below the limit values	Comprobar la fuente de alimentación, comprobar toda la conexión eléctrica (cables y conectores) / Check the power supply, check all electrical connections (cables and plug connections)
El LED verde no se ilumina / Green LED does not light up	Interrupciones de tensión / Voltage interruptions	Asegurar una fuente de alimentación estable sin interrupciones de tensión / Ensure there is a stable power supply without interruptions
El LED verde no se ilumina / Green LED does not light up	El sensor está defectuoso / Sensor is faulty	Si la fuente de alimentación no tiene problemas, cambiar el sensor / If the power supply is OK, replace the sensor

LED indicador / imagen de error / LED indicator/fault pattern	Causa / Cause	Acción / Measures
El LED amarillo parpadea / Yellow LED flashes	El sensor aún está operativo, pero las condiciones de servicio no son óptimas / Sensor is still ready for operation, but the operating conditions are not ideal	Comprobar las condiciones de servicio: Alinear el haz de luz (punto de luz) completamente con el reflector / Limpieza de las superficies ópticas (sensor y reflector) / Reajustar la sensibilidad / El reflector no es adecuado para la aplicación seleccionada (recomendamos utilizar exclusivamente reflectores SICK) / Comprobar la distancia de conmutación y, si es necesario, adaptarla, véase Figura H. La distancia entre el sensor y el reflector es excesiva / Check the operating conditions: Fully align the beam of light (light spot) with the reflector. / Clean the optical surfaces (sensor and reflector). / Readjust the sensitivity / Reflector is not suitable for the application in question (we recommend only using SICK reflectors) / Check sensing range and adjust if necessary; see graphic H. / Distance between the sensor and the reflector is too long
Interrupciones de la señal al detectar objetos / Signal interruptions when object is detected	Propiedad despolarizante de la superficie del objeto (p. ej., lámina plástica), reflexión / Depolarizing property of the object surface (e.g., tape), reflection	Reducir la sensibilidad o modificar la posición del sensor / Reduce sensitivity or change the position of the sensor

47 Desmontaje y eliminación

El sensor tiene que eliminarse siguiendo la normativa aplicable específica de cada país. Los materiales valiosos que contenga (especialmente metales nobles) deben ser eliminados considerando la opción del reciclaje.

48 Mantenimiento

Los sensores SICK no precisan mantenimiento.

A intervalos regulares, recomendamos:

- Limpiar las superficies ópticas externas
- Comprobar las uniones roscadas y las conexiones.

No se permite realizar modificaciones en los aparatos.

Sujeto a cambio sin previo aviso. Las propiedades y los datos técnicos del producto no suponen ninguna declaración de garantía.

镜反射式光电传感器 操作说明

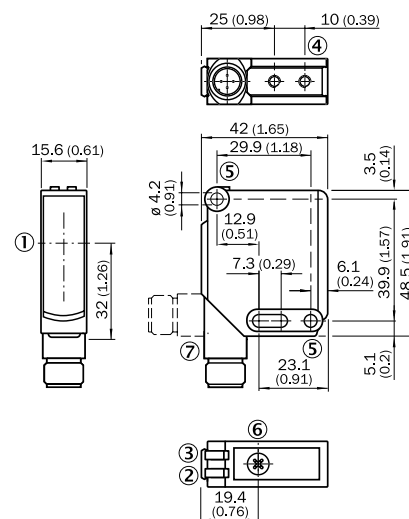
49 安全须知

- 调试前请阅读操作说明。
- 仅允许由专业人员进行接线、安装和设置。
- 本设备非欧盟机械指令中定义的安全部件。
- UL: 仅限用于符合 NFPA 79 的应用。可用 UL 所列出的含连接线缆的连接器. Enclosure type 1.
- 调试前防止设备受潮或污染。
- 本操作说明中包含了传感器生命周期中必需的各项信息。

50 拟定用途

WL12G-3P3572S12 是一种光电反射式光栅（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。配备反射镜或者胶贴。如果滥用本产品或擅自更改产品，则 SICK AG 公司所作之质保承诺均将失效。

配有可识别透明物体的选配件。



- | 1| Optical axis, sender and receiver
- | 2| Status indicator LED, yellow: Status of received light beam
- | 3| LED indicator green: power on, mode I is set
LED indicator blue: power on, mode II is set
LED indicator bright blue: power on, mode III is set
- | 4| M4 threaded mounting hole, 4 mm deep
- | 5| Mounting holes 4.2 mm
- | 6| Teach-in: single teach-in button,
Function 1 Teach-in sensitivity adjustment
Function 1 Teach-in operating mode setting
- | 7| Connection type: Cable with connector M12, 5-pin, 200 mm

51 调试

- 1 检查传感器和反射器之间的间距。与反射器 P250F 之间的最大开关距离为 500 mm。
- 2 将传感器和反射器安装在合适的安装托架上（参见 SICK 附件说明书）。相互对准传感器和反射器。
注意传感器的最大允许拧紧扭矩为 Nm。

- 3 必须在无电压状态 ($V_S = 0\text{ V}$) 连接传感器。依据不同连接类型, 注意图 [参照 B] 中的信息:

- 插头连接: 引线分配

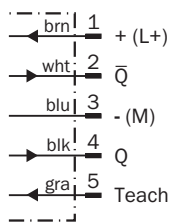


Image: B

完成所有电子连接后, 才敷设或接通电源 ($V_S > 0\text{ V}$)。传感器上的绿色 LED 指示灯亮起。

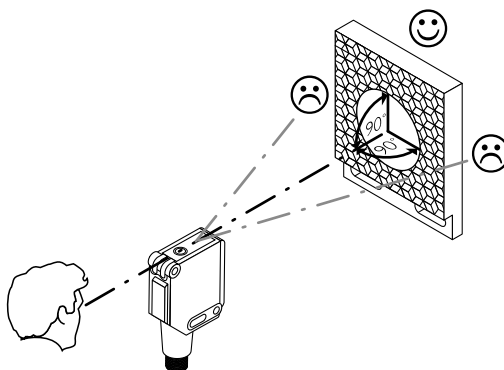
接线图 (图 B) 说明:

开关输出端 Q 或 /Q (根据图 B) :

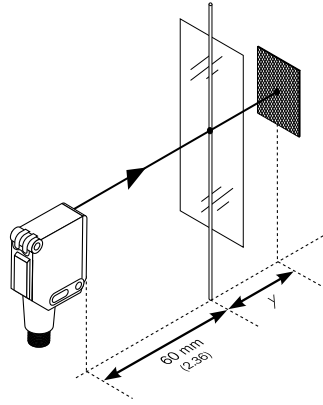
WL12G-3P3572S12 (PNP: 负载 -> M)

ET = 外部示教 (参见设置)

- 4 将传感器对准合适的反射器。选择定位, 确保红色发射光束射中反射器的中间。传感器应无遮挡地观察到反射器, 光路中不得有任何物体 [参照 E]。此时应注意传感器和反射器的光学开口处应无任何遮挡。保持光路中透明薄膜与绞线之间的距离为 60 mm。



5



带示教功能（按键和/或电缆）的传感器：

如需识别透明物体，则须传感器示教功能。

通过按下示教按键或通过电缆激活示教功能，可根据表 J 设置灵敏度。不得使用尖锐物操作示教按键。

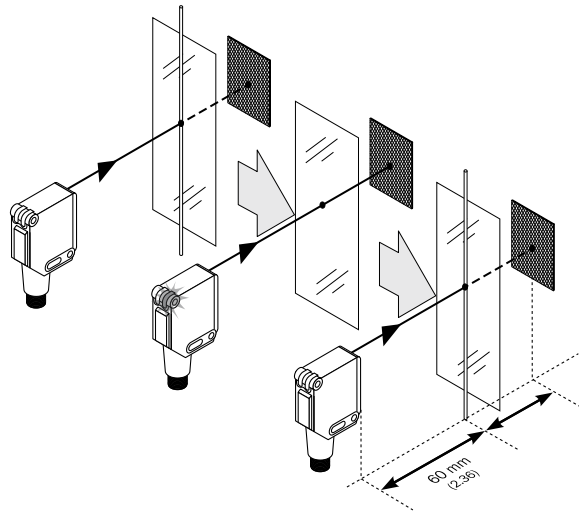


Image: G

物体示教模式 / Teach-in mode for objects	光衰减 / Light damping	物体型号 / Object type	示教时间 / Teach-in time	外部通过导线示教: / Ext. Cable teach-in	LED 指示灯 / LED indicator
I	6 %	PET-瓶 / 透明绞线及薄膜 / PET-瓶 / 透明绞线及薄膜	1 ... 5 s	30 ... 100 ms	黄色 / yellow
II	10 %	玻璃 / Glass	5 ... 10 s	100 ... 200 ms	蓝色 / Blue
III	18 %	彩色瓶子 / Colored bottles	> 10 s	> 200 ms	浅蓝色 / Light blue

53 故障诊断

表 I 中罗列了传感器无法执行某项功能时应采取的各项措施。

54 表故障诊断

LED 指示灯 / 故障界面 / LED indicator/fault pattern	原因 / Cause	措施 / Measures
绿色 LED 未亮起 / Green LED does not light up	无电压或电压低于极限值 / No voltage or voltage below the limit values	检查电源, 检查整体电气连接 (导线和插头连接) / Check the power supply, check all electrical connections (cables and plug connections)
绿色 LED 未亮起 / Green LED does not light up	电压中断 / Voltage interruptions	确保电源稳定无中断 / Ensure there is a stable power supply without interruptions
绿色 LED 未亮起 / Green LED does not light up	传感器损坏 / Sensor is faulty	如果电源正常, 则更换传感器 / If the power supply is OK, replace the sensor

LED 指示灯 / 故障界面 / LED indicator/fault pattern	原因 / Cause	措施 / Measures
, 黄色 LED 闪烁 / Yellow LED flashes	尽管传感器准备就绪, 但运行条件不佳 / Sensor is still ready for operation, but the operating conditions are not ideal	检查运行条件: 光束 (光斑) 完全对准反射器 / 清洁光学表面 (传感器和反射器) / 重新设置灵敏度 / 反射器不适用于所选应用 (我们建议仅使用 SICK 反射器) / 检查开关距离, 必要时调整; 参见图 H. / 传感器和反射器之间的间距过大 / Check the operating conditions: Fully align the beam of light (light spot) with the reflector. / Clean the optical surfaces (sensor and reflector). / Readjust the sensitivity / Reflector is not suitable for the application in question (we recommend only using SICK reflectors) / Check sensing range and adjust if necessary; see graphic H. / Distance between the sensor and the reflector is too long
探测物体时信号中断 / Signal interruptions when object is detected	物体表面的去极化特性 (例如: 薄膜), 折射 / Depolarizing property of the object surface (e.g., tape), reflection	降低灵敏度或更改传感器位置 / Reduce sensitivity or change the position of the sensor

55 拆卸和废弃处理

必须根据当地特定的法律法规废弃处理传感器。如果其中含有可回收材料 (尤其是贵金属), 则必须在废弃处理时回收利用。

56 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。

リフレクタ形光電センサ 取扱説明書

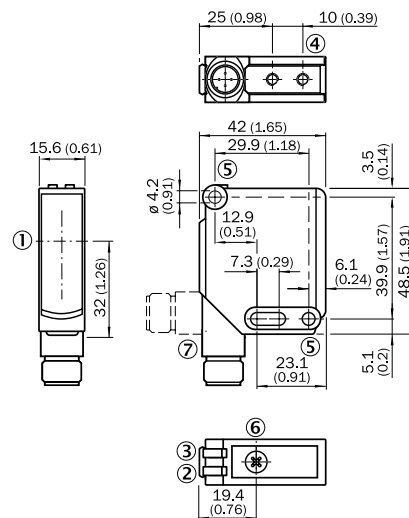
57 安全上の注意事項

- ご使用前に必ず取扱説明書をお読みください。
- 本製品の接続・取り付け・設定は、訓練を受けた技術者が行って下さい。
- 本製品は EU 機械指令の要件を満たす安全コンポーネントではありません。
- UL : NFPA79 に準拠した用途においてのみご使用ください。UL 規格によってリストアップされた接続ケーブル付きのアダプターを使用できます。 Enclosure type 1.
- 使用開始前に、湿気や汚れから機器を保護して下さい。
- 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。

58 正しいご使用方法

WL12G-3P3572S12 はリフレクタ形光電センサ（以下「センサ」）で、物体、動物または人物などを光学的技術により非接触で検知するための装置です。この製品が機能するためにはリフレクタが必要です。本製品が本来の使用用途以外の目的に使用されたり、何らかの方法で改造された場合、SICK AG に対するいかなる保証要求も無効になります。

透明体検出の追加オプション付きリフレクタ形光電センサ。



- [1] Optical axis, sender and receiver
- [2] Status indicator LED, yellow: Status of received light beam
- [3] LED indicator green: power on, mode I is set
LED indicator blue: power on, mode II is set
LED indicator bright blue: power on, mode III is set
- [4] M4 threaded mounting hole, 4 mm deep
- [5] Mounting holes 4.2 mm
- [6] Teach-in: single teach-in button,
Function 1 Teach-in sensitivity adjustment
Function 1 Teach-in operating mode setting
- [7] Connection type: Cable with connector M12, 5-pin, 200 mm

59 使用開始

- 1 センサとリフレクタの間隔を点検します。リフレクタ P250F では、最大検出距離は 500 mm です。
- 2 適切なブラケットを使用してセンサとリフレクタを取り付けます（SICK 付属品カタログを参照）。センサとリフレクタを互いに方向調整します。センサの締め付けトルクの最大許容値 Nm に注意してください。

- 3 センサの接続は必ず無電圧状態 ($V_S = 0\text{ V}$) で行ってください。接続タイプに応じて、図 [B] の情報に注意する必要があります：

– オスコネクタ接続：ピン割り当て

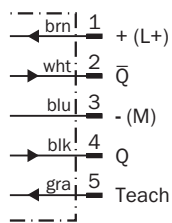


Image: B

まずすべての電気接続を確立してから、電源 ($V_S > 0\text{ V}$) をオンにしてください。緑色の LED 表示灯がセンサ上で点灯します。

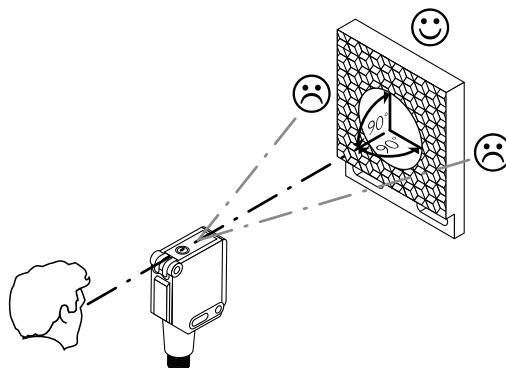
接続図の説明 (図 B)。

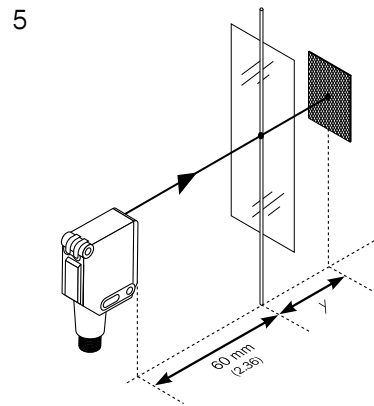
スイッチング出力 Q および \bar{Q} (図 B に準拠)：

WL12G-3P3572S12 (PNP：負荷 → M)

ET = 外部ティーチイン (調整方法を参照)

- 4 センサを適切なリフレクタの方向に合わせます。赤色の投光軸がリフレクタの中央に照射されるように位置を選択します。センサでの読み取りを可能にするため、リフレクタが遮らざられたり、照射経路に対象物があったりしてはなりません [E を参照]。センサとリフレクタの光開口部が全く遮らざられることがないように、注意してください。60 mm の間隔で透明フィルムと繊維を光軸に移動させます。





ボタンおよび/またはケーブルを介したティーチイン機能付きセンサ
透明な対象物を検出するには、センサのティーチングが必要です。
ティーチインボタンを押して、またはケーブルからティーチイン機能を有効に
し、感度をJ表に従って設定します。ティーチインボタンを尖った物体で操作
しないでください。

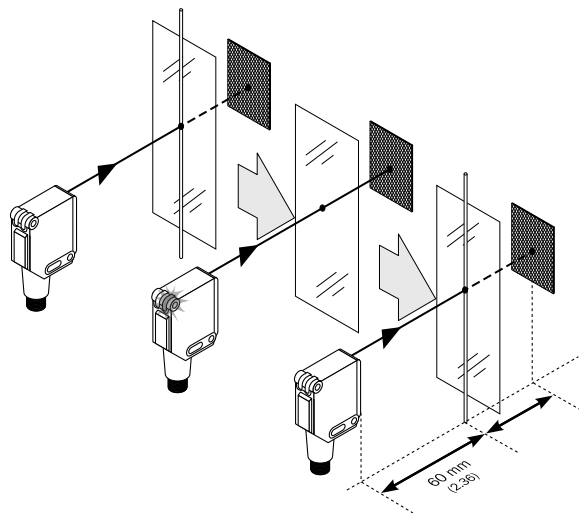


Image: G

対象物のためのティーチンモード / 対象物のためのティーチンモード	光減衰 / 光減衰	対象物のタイプ / 対象物のタイプ	ティーチン時間 / ティーチン時間	外部ケーブルティーチン / 外部ケーブルティーチン	LED 表示灯 / LED 表示灯
I	6%	PET ボトル / 透明繊維フィルム / PET ボトル / 透明繊維フィルム	1 ~ 5 秒	30 ~ 100 ミリ秒	黄色 / yellow
II	10%	ガラス / ガラス	5 ~ 10 秒	100 ~ 200 ミリ秒	青色 / 青色
III	18%	色付きボトル / 色付きボトル	> 10 秒	> 200 ミリ秒	ライトブルー / ライトブルー

61 故障診断

表 I 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。

62 表エラー診断

LED 表示灯/故障パターン / LED indicator/fault pattern	原因 / Cause	対策 / Acción
緑色の LED が点灯しない / Green LED does not light up	無電圧、または電圧が限界値以下 / No voltage or voltage below the limit values	電源を確認し、すべての電気接続（ケーブルおよびプラグ接続）を確認します / Check the power supply, check all electrical connections (cables and plug connections)
緑色の LED が点灯しない / Green LED does not light up	電圧がきていない又は不安定 / Voltage interruptions	安定した電源電圧が供給されていることを確認します / Ensure there is a stable power supply without interruptions
緑色の LED が点灯しない / Green LED does not light up	センサの異常 / Sensor is faulty	電源に問題がなければ、センサを交換します / If the power supply is OK, replace the sensor

LED 表示灯/故障パターン / LED indicator/fault pattern	原因 / Cause	対策 / Acción
黄色い LED が点滅 / Yellow LED flashes	センサの動作準備はまだ整っているが、動作条件が最適ではない / Sensor is still ready for operation, but the operating conditions are not ideal	動作条件を確認します：投光光軸（投光スポット）をリフレクタに完全に合わせます。 / 光学面の洗浄（センサおよびリフレクタ） / 感度を再調整する / このリフレクタは本アプリケーションに適していません（SICK 製リフレクタのみを使用することをお勧めします） / 検出距離を点検し必要に応じて調整する、グラフィック H 参照。 / センサとリフレクタの間隔が長すぎる / Check the operating conditions: Fully align the beam of light (light spot) with the reflector. / Clean the optical surfaces (sensor and reflector). / Readjust the sensitivity / Reflector is not suitable for the application in question (we recommend only using SICK reflectors) / Check sensing range and adjust if necessary; see graphic H. / Distance between the sensor and the reflector is too long
対象物検出時の出力信号が不安定 / Signal interruptions when object is detected	反射に偏りのある対象物表面（例：テープ等）からの反射光を無くします / Depolarizing property of the object surface (e.g., tape), reflection	感度を下げるか、またはセンサの位置を変えて下さい / Reduce sensitivity or change the position of the sensor

63 解体および廃棄

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）。

64 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。

Отражательный фоторелейный барьер

Руководство по эксплуатации

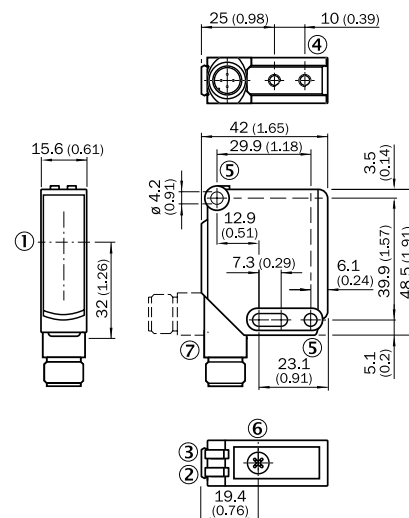
65 Указания по безопасности

- Перед вводом в эксплуатацию изучите руководство по эксплуатации.
- Подключение, монтаж и установку поручать только специалистам.
- Не является оборудованием для обеспечения безопасности в соответствии с Директивой ЕС по работе с машинным оборудованием.
- UL: Только для использования в областях применения согласно NFPA 79. Доступны адаптеры с соединительными кабелями, перечисленные UL. Enclosure type 1.
- При вводе в эксплуатацию защищать устройство от попадания грязи и влаги.
- Данное руководство по эксплуатации содержит информацию, которая необходима во время всего жизненного цикла сенсора.

66 Использование по назначению

WL12G-3P3572S12 является оптоэлектронным отражательным световым барьером (в дальнейшем называемым "сенсор") и используется для оптической бесконтактной регистрации вещей, животных и людей. Для функционирования необходим отражатель. При ином использовании и при внесении изменений в изделие подача любых гарантийных претензий к SICK AG исключена.

Отражательный световой барьер с дополнительной опцией распознавания прозрачных объектов.



- [1] Optical axis, sender and receiver
- [2] Status indicator LED, yellow: Status of received light beam
- [3] LED indicator green: power on, mode I is set
LED indicator blue: power on, mode II is set
LED indicator bright blue: power on, mode III is set
- [4] M4 threaded mounting hole, 4 mm deep
- [5] Mounting holes 4.2 mm
- [6] Teach-in: single teach-in button,
Function 1 Teach-in sensitivity adjustment
Function 1 Teach-in operating mode setting
- [7] Connection type: Cable with connector M12, 5-pin, 200 mm

67 Ввод в эксплуатацию

- 1 Скорректировать дистанцию между сенсором и отражателем с помощью соответствующей диаграммы (x = дистанция переключения, y = функциональный резерв).

- 2 Установите сенсор и отражатель на подходящем крепежном уголке (см. программу принадлежностей от SICK). Выровняйте сенсор и отражатель друг относительно друга.
Выдерживайте максимально допустимый момент затяжки сенсора в Нм.
- 3 Подключайте сенсоры при отключенном напряжении питания ($U_V = 0$ В). В зависимости от типа подключения следует принять во внимание информацию с графиков [см. В]:

– Штекерный разъем: назначение контактов

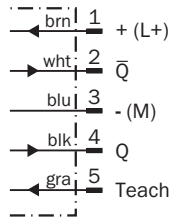


Image: B

Подавайте и включайте напряжение питания только после завершения подключения всех электрических соединений ($U_V > 0$ В). На сенсоре включается зеленый светодиодный индикатор.

Пояснения к схеме электрических соединений (график В):

Коммутирующие выходы Q или \bar{Q} (согласно графику В):

WL12G-3P3572S12P (PNP: нагрузка -> M)

Teach = внешняя калибровка (ET) (см. настройку)

- 4 Направьте сенсор на подходящий отражатель. Выберите такую позицию, чтобы красный луч передатчика попадал в центр отражателя. Сенсор должен иметь свободную траекторию до отражателя, нахождение объектов на пути луча не допускается [см. Е]. Оптические отверстия на сенсоре и отражателе должны быть свободными.

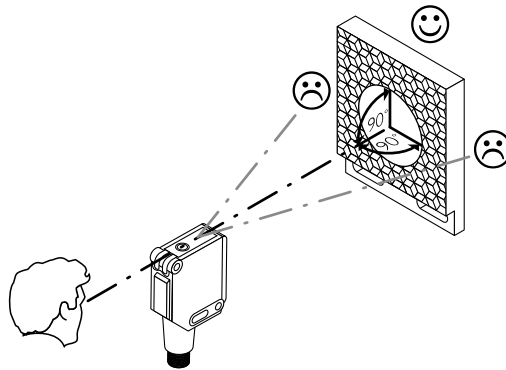
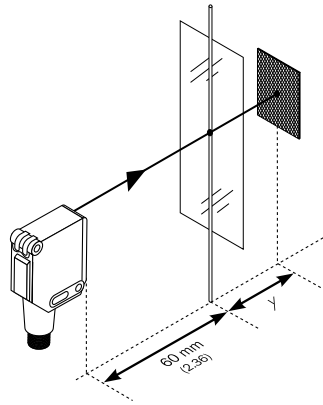


Image: E

5



Сенсор в режиме калибровки с помощью переключателя и/или по кабелю:
 Для распознавания прозрачных объектов требуется калибровка сенсора.
 Путем нажатия кнопки калибровки или же активирования функции калибровки
 по кабелю устанавливается чувствительность согласно таблице J.. Не нажимайте
 кнопку Teach-in острыми предметами.

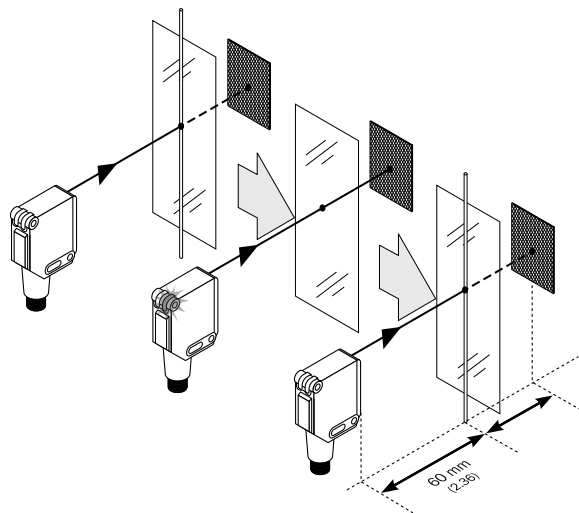


Image: G

Режим калибровки для объектов / Teach-in mode for objects	Калибровка времени / Teach-in time	Внешн. калибровка по кабелю / Ext. Cable teach-in	Выравнивание / Alignment	Светодиодный индикатор / LED indicator	Настройка / Adjustment	Автоматическая адаптация уровня срабатывания / Continuous threshold adaptation
1 (прозрачный) / 1 (transparent)	> 1 ... 5 s ... < 5 ... 10 s c	ET: подключите Pin 2 или белую жилу кабеля для > 1 ... 5 s ... < 5 ... 10 s c к UV (PNP). / ET: Connect pin 2 or white wire to UV for > 1 ... 5 s to < 5 ... 10 s s (PNP).	Сенсор на отражателе / Sensor to reflector	●	Сенсор распознает объекты, которые демпфируют свет не менее, чем на 6% / The sensor detects objects that dampen the light by at least 6% %	да / Yes
2 (прозрачный или непрозрачный) / 2 (transparent or non-transparent)	> > 10 s c	ET: подключите Pin 2 или белую жилу кабеля для > > 10 s c к M (PNP). / ET: Connect pin 2 or white wire to M for > > 10 s s (PNP).	Сенсор на отражателе / Sensor to reflector	☉	50% порог срабатывания / 50% of the switching threshold	нет / No
3 (непрозрачный) / 3 (non-transparent)	> > 10 s c	ET: подключите Pin 2 или белую жилу кабеля для > > 10 s c к M (PNP). / ET: Connect pin 2 or white wire to M for > > 10 s s (PNP).	Сенсор направлен в сторону, не на рефлектор / Sensor to outside, not to reflector	☉	максимальная чувствительность / Maximum sensitivity	нет / No

69 Диагностика неисправностей

В таблице показано, какие меры нужно предпринять, если сенсоры не работают.

70 таблице диагностики неисправностей

Светодиодный индикатор / картина неисправности / LED indicator/fault pattern	Причина / Cause	Меры по устранению / Measures
зеленый светодиод не горит / Green LED does not light up	нет напряжения питания или оно ниже нижнего предельного значения / No voltage or voltage below the limit values	Проверить напряжения питания, всю схему электроподключения (проводку и разъемные соединения) / Check the power supply, check all electrical connections (cables and plug connections)
зеленый светодиод не горит / Green LED does not light up	Пропадание напряжения питания / Voltage interruptions	Обеспечить надежную подачу напряжения питания без его пропадания / Ensure there is a stable power supply without interruptions
зеленый светодиод не горит / Green LED does not light up	Сенсор неисправен / Sensor is faulty	Если напряжение питания в порядке, то заменить сенсор / If the power supply is OK, replace the sensor
желтый светодиод мигает / Yellow LED flashes	Сенсор пока еще готов к работе, но эксплуатационные условия не оптимальны / Sensor is still ready for operation, but the operating conditions are not ideal	Проверка эксплуатационных условий: Полностью сориентировать световой луч (световое пятно) на отражатель / чистка оптических поверхностей (сенсор и отражатель) / заново настроить чувствительность / отражатель не подходит для выбранного применения (рекомендуется использовать исключительно отражатели SICK) / проверить и, при необходимости, скорректировать расстояние срабатывания, см. график H. / слишком велико расстояние между сенсором и отражателем / Check the operating conditions: Fully align the beam of light (light spot) with the reflector. / Clean the optical surfaces (sensor and reflector). / Readjust the sensitivity / Reflector is not suitable for the application in question (we recommend only using SICK reflectors) / Check sensing range and adjust if necessary; see graphic H. / Distance between the sensor and the reflector is too long

Светодиодный индикатор / картина неисправности / LED indicator/fault pattern	Причина / Cause	Меры по устранению / Measures
Пропадание сигнала при детектировании объекта / Signal interruptions when object is detected	Деполаризующие свойства поверхности объекта (например, пленка), переотражение / Depolarizing property of the object surface (e.g., tape), reflection	Уменьшить чувствительность или изменить позицию сенсора / Reduce sensitivity or change the position of the sensor

71 Демонтаж и утилизация

Утилизацию сенсоров следует проводить согласно национальным предписаниям по утилизации. Следует стремиться к повторному использованию содержащихся в них материалов (прежде всего, драгоценных металлов).

72 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.

Sensing range (with reflector P250F)	Schaltabstand (mit Reflektor P250F)	Portée (avec réflecteur P250F)	Distância de comutação (com refletor P250F)	Distanza di commutazione (con riflettore P250F)	Distancia de conmutación (con reflector P250F)	开关距离 (带反射器 P250F)	最大検出範囲	
Sensing range max. (with reflector P250F)	Schaltabstand max. (mit Reflektor P250F)	Portée max. (avec réflecteur P250F)	Distância de comutação máx. (com refletor P250F)	Distanza max. di commutazione (con riflettore P250F)	Distancia de conmutación máx. (con reflector P250F)	最大开关距离 (带反射器 P250F)	最大検出範囲 (リフレクタを用いた場合 P250F)	0 ... 500 mm
Light spot diameter/distance	Lichtfleckdurchmesser/Entfernung	Diamètre spot / distance	Diâmetro do ponto de luz/distância	Diametro punto luminoso/distanza	Diámetro del punto luminoso/distancia	光斑直径/距离	光点のスポット径/距離	1.5 mm x 9 mm / 60 mm
Supply voltage V_S	Versorgungsspannung U_V	Tension d'alimentation U_V	Tensão de alimentação U_V	Tensione di alimentazione U_V	Tensión de alimentación U_V	供电电压 U_V	供給電圧 U_V	DC 10 ... 30 V ¹⁾
Output current I_{max}	Ausgangsstrom I_{max}	Courant de sortie I_{max}	Corrente de saída I_{max}	Corrente di uscita I_{max}	Intensidad de salida I_{max}	输出电流 I_{max}	出力電流 I_{max}	100 mA
Max. switching frequency	Schaltfolge max.	Commutation max.	Sequência máx. de comutação	Sequenza di commutazione max.	Secuencia de conmutación máx.	最大开关操作顺序	最大スイッチング周波数	< 1,500 Hz ²⁾

Max. response time	Ansprechzeit max.	Temps de réponse max.	Tempo máx. de resposta	Tempo di reazione max.	Tiempo de respuesta máx.	最长响应时间	最大応答時間	< 0,333 ms ³⁾
Enclosure rating	Schutzart	Indice de protection	Tipo de proteção	Tipo di protezione	Tipo de protección	防护类型	保護等級	IP66,IP67
Protection class	Schutzklasse	Classe de protection	Classe de proteção	Classe di protezione	Clase de protección	防护等級	保護クラス	II
Circuit protection	Schutzschaltungen	Protections électriques	Circuitos de proteção	Commutazioni di protezione	Circuitos de protección	保护电路	回路保護	A,C,D ⁴⁾
Ambient operating temperature	Betriebsumgebungstemperatur	Température de service	Temperatura ambiente de funcionamento	Temperatura ambiente di funzionamento	Temperatura ambiente de servicio	工作环境温度	周辺温度 (作動中)	-40 ... +60 °C
¹⁾ Limit value: operation in short-circuit protection mains max. 8 A; residual ripple max. 5 Vss ²⁾ With light / dark ratio 1:1 ³⁾ Signal transit time with resistive load ⁴⁾ A = UV-connections reverse polarity protected C = Interference suppression D = outputs overcurrent and short-circuit protected	¹⁾ Grenzwerte: Betrieb im kurzschlussgeschützten Netz max. 8 A; Restwelligkeit max. 5 Vss ²⁾ Mit Hell- / Dunkelverhältnis 1:1 ³⁾ Signallaufzeit bei ohmscher Last ⁴⁾ A = UV-Anschlüsse verpolsicher C = Störimpulsunterdrückung D = Ausgänge überstrom- und kurzschlussfest	¹⁾ Valeurs limites : fonctionnement sur réseau protégé contre les courts-circuits max. 8 A ; ondulation résiduelle max. 5 Vcc ²⁾ Pour un rapport clair/sombre de 1:1 ³⁾ Temps de propagation du signal sur charge ohmique ⁴⁾ A = raccords UV protégés contre les inversions de polarité C = Suppression des impulsions parasites D = sorties protégées contre les surcharges	¹⁾ Valores limite: funcionamento com rede à prova de curto-circuito máx. 8 A; ondulação residual máx. 5 Vss ²⁾ Com proporção sombra/luz 1:1 ³⁾ Tempo de funcionamento do sinal com carga ôhmica ⁴⁾ A = conexões protegidas contra inversão de pólos UV C = Supressão de impulsos parasitas D = Saídas protegidas contra sobrecorrente e curto-circuito	¹⁾ Valori limite: funzionamento in rete protetta da cortocircuito máx. 8 A; ondula-zione residua máx. 5 Vss ²⁾ Con rapporto chiaro / scuro 1:1 ³⁾ Durata segnale con carico ohmico ⁴⁾ A = UV-Allacciamenti protetti dall'inversione di polarità C = Soppressione impulsi di disturbo D = uscite protette da sovracorrente e da cortocircuito.	¹⁾ Valores límite: funcionamiento en red protegida contra cortocircuitos máx. 8 A; ondula-ción residual máx. 5 Vss ²⁾ Con una relación claro/oscu-ro de 1:1 ³⁾ Duración de la señal con carga óhmica ⁴⁾ Conexiones A = UV protegidas contra polarización inversa C = Supresión de impulsos parásitos D=Salidas a prueba de sobrecorriente y cortocircuitos.	¹⁾ 极限值：在防短路电网中运行；最大 8 A；最大余波 5 Vss ²⁾ 明暗比为 1:1 ³⁾ 信号传输时间（电阻负载时） ⁴⁾ A = UV 接口（已采取反极性保护措施） C = 抑制干扰脉冲 D = 抗过载电流和抗短路输出端	¹⁾ 限界値：短絡保護の操作は最大 8 A；残留リップルは最大 5 Vss ²⁾ ライト/ダークの比率 1:1 ³⁾ A = UV 接続は逆接保護 C = 干渉抑制 D = 出力過電流および短絡保護	