



GRTE18

Operating Instruction
DE/EN/FR/PT/IT/ES/ZH/JA/RU

8016953

SICK
Sensor Intelligence.

Photoelectric proximity sensor
Operating instructions

2 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. Only for use in applications in accordance with NFPA 79. UL-listed adapters with connecting 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.

3 Correct use

The GRTE18 is an opto-electronic photoelectric proximity sensor (referred to as "sensor" in the following) for the optical, non-contact detection of objects, animals, and persons. If the product is used for any other purpose or modified in any way, any warranty claim against SICK AG shall become void.

Energetic photoelectric proximity sensor

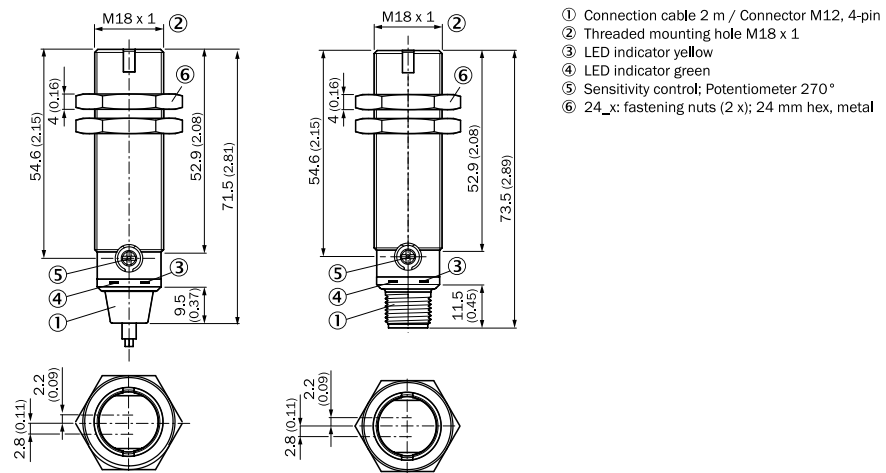


Image 1: GRTE18-xxx2

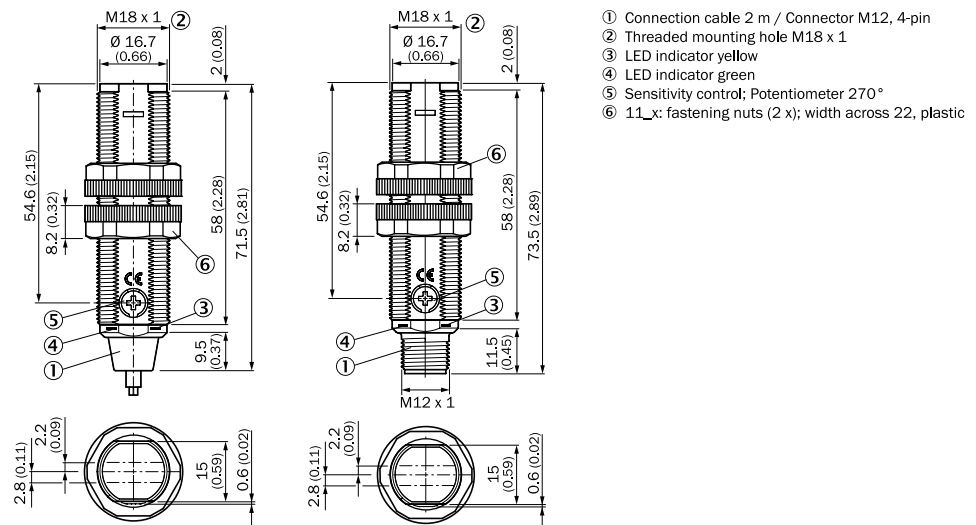


Image 2: GRTE18-xxx7

4 Commissioning

- 1 Check the application conditions: Adjust the sensing range and the remission capability of the object according to the corresponding diagram [H] (x = sensing range, y = operating reserve).
During this process, an object can only be detected in front of a background if the remission capability of the object is significantly higher than that of the background or if the distance between the object and the background is sufficiently long.

Operating reserve

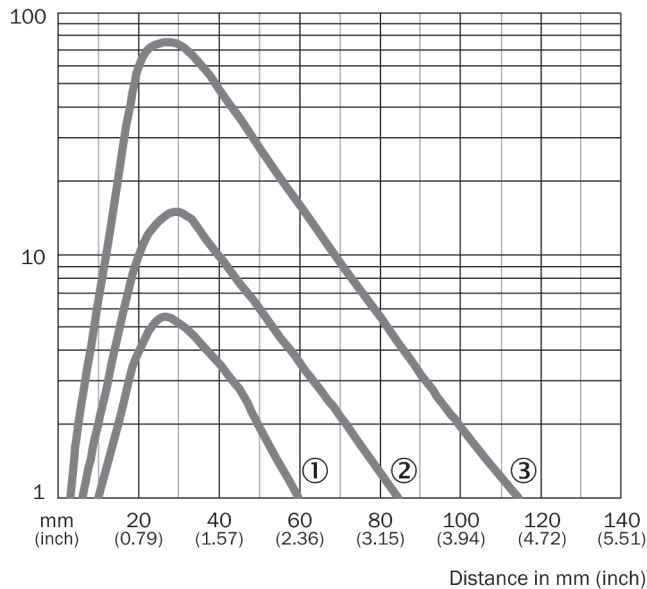


Image 3: H: Sensing range 115 mm

- 1) Sensing range on black, 6 % remission
- 2) Sensing range on gray, 20 % remission
- 3) Sensing range on white, 90 % remission

Operating reserve

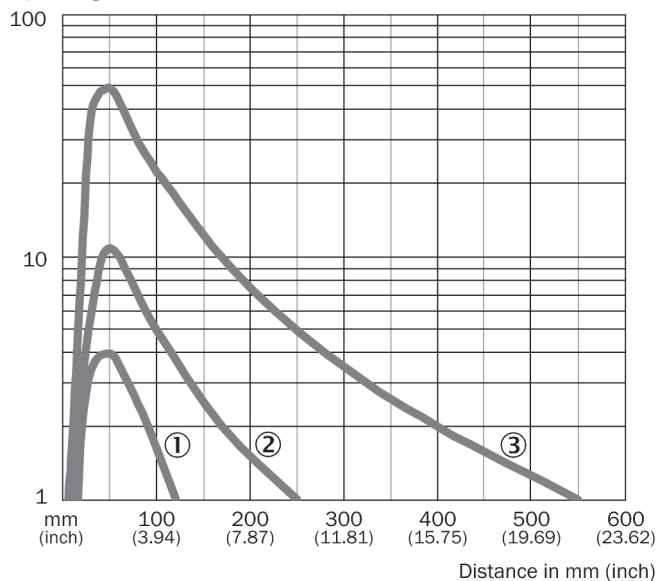


Image 4: H: Sensing range 550 mm

- 1) Sensing range on black, 6 % remission

2) Sensing range on gray, 20 % remission

3) Sensing range on white, 90 % remission

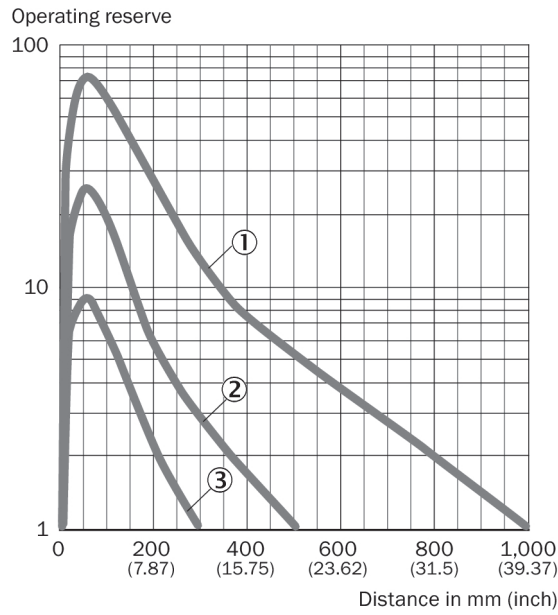


Image 5: H: Sensing range 800 mm

1) Sensing range on black, 6 % remission

2) Sensing range on gray, 20 % remission

3) Sensing range on white, 90 % remission

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

Observe the maximum permissible tightening torque of the sensor of 2.0 Nm for metal/0.9 Nm for plastic [K].

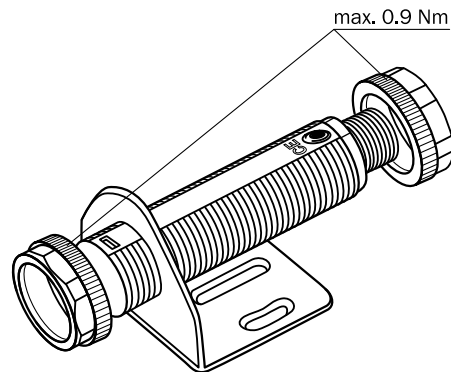


Image: K: GRTE18-x24x7

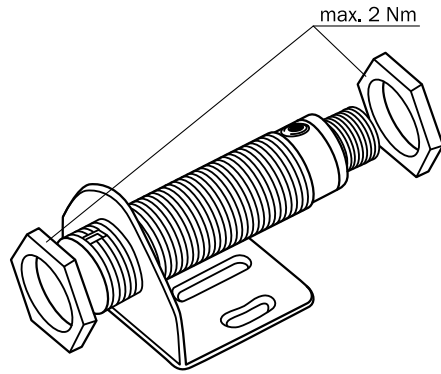


Image: K: GRTE18-x24x2

- 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
 - Cable: core color

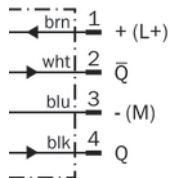


Image: B: GRTE18-x24xx

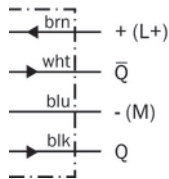


Image: B: GRTE18-x11xx

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 \bar{Q} (according to Graphic B):

GRTE18-P (PNP: load \rightarrow M)
GRTE18-N (NPN: load \rightarrow L+)

- 4 Align the sensor with the object. Select the position so that the red emitted light beam hits the center of the object. You must ensure that the optical opening (front screen) of the sensor is completely clear [E].

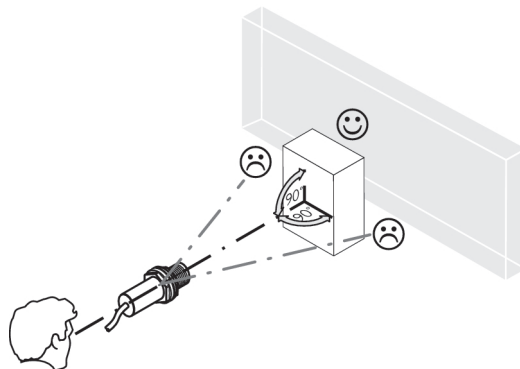
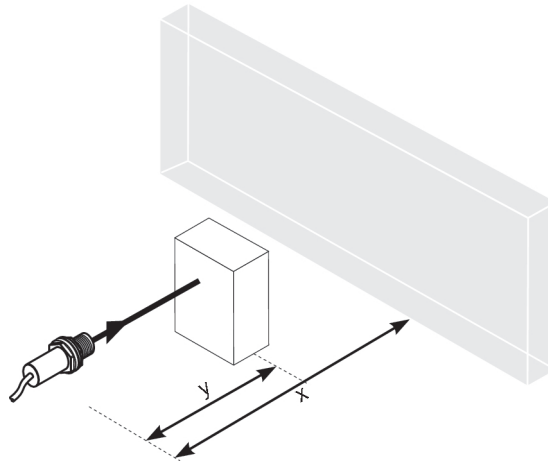


Image 6: E

5



Sensor with potentiometer:

The sensitivity (sensing range) is adjusted with the potentiometer (type: 270°). Clockwise rotation: sensitivity (sensing range) increased; counterclockwise rotation: sensitivity (sensing range) reduced. We recommend placing the switching state in the object, e.g., see Graphic F. Once the sensitivity has been adjusted, the object is removed from the path of the beam. The switching output changes (see Graphic C).

The sensor is adjusted and ready for operation. Refer to Graphics C and G to check the function. If the switching output fails to behave in accordance with Graphic C, check application conditions. See section Fault diagnosis.

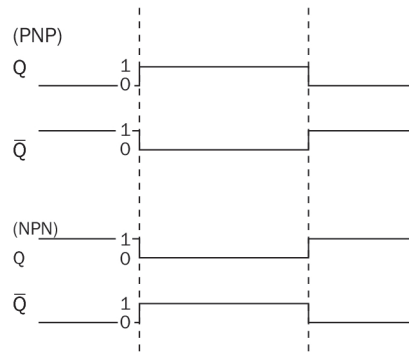
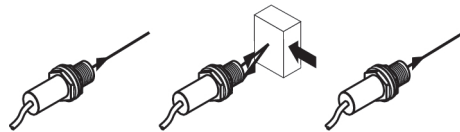


Image 7: C

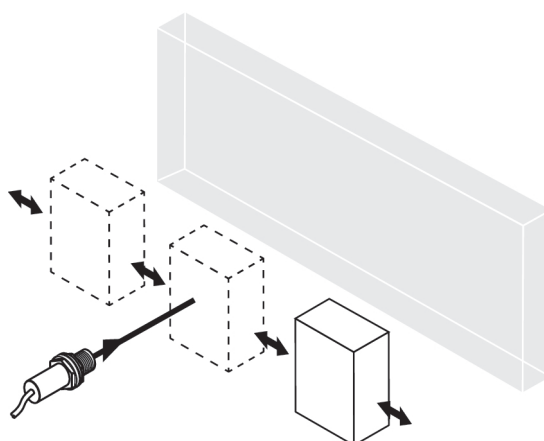


Image 8: G

6 Fault diagnosis

Table 7 indicates which measures are to be taken if the sensor stops working.

7 Tab_Fault diagnosis

LED indicator/fault pattern / <i>LED indicator/fault pattern</i>	Cause / <i>Cause</i>	Measures / <i>Measures</i>
Green LED does not light up / <i>Green LED does not light up</i>	No voltage or voltage below the limit values / <i>No voltage or voltage below the limit values</i>	Check the power supply, check all electrical connections (cables and plug connections) / <i>Check the power supply, check all electrical connections (cables and plug connections)</i>
Green LED does not light up / <i>Green LED does not light up</i>	Voltage interruptions / <i>Voltage interruptions</i>	Ensure there is a stable power supply without interruptions / <i>Ensure there is a stable power supply without interruptions</i>
Green LED does not light up / <i>Green LED does not light up</i>	Sensor is faulty / <i>Sensor is faulty</i>	If the power supply is OK, replace the sensor / <i>If the power supply is OK, replace the sensor</i>
Yellow LED flashes / <i>Yellow LED flashes</i>	Sensor is still ready for operation, but the operating conditions are not ideal / <i>Sensor is still ready for operation, but the operating conditions are not ideal</i>	Check the operating conditions: Fully align the beam of light (light spot) with the object. / Clean the optical surfaces / Readjust the sensitivity (potentiometer) / Check sensing range and adjust if necessary, see Graphic E / <i>Check the operating conditions: Fully align the beam of light (light spot) with the object. / Clean the optical surfaces / Readjust the sensitivity (potentiometer) / Check sensing range and adjust if necessary, see Graphic E</i>

LED indicator/fault pattern / LED indicator/fault pattern	Cause / Cause	Measures / Measures
Yellow LED lights up, no object in the path of the beam / <i>Yellow LED lights up, no object in the path of the beam</i>	Remission capability of the background is excessive / <i>Remission capability of the background is excessive</i>	Check changes to the background. Reduce the sensitivity of the sensor or use sensors with background suppression / <i>Check changes to the background. Reduce the sensitivity of the sensor or use sensors with background suppression</i>
Object is in the path of the beam, yellow LED does not light up / <i>Object is in the path of the beam, yellow LED does not light up</i>	Sensitivity is set too low or distance between the sensor and the object is too long / <i>Sensitivity is set too low or distance between the sensor and the object is too long</i>	Increase the sensing range, take note of the distance between the sensor and the background, see Graphic E / <i>Increase the sensing range, take note of the distance between the sensor and the background, see Graphic E</i>
Object is in the path of the beam, yellow LED does not light up / <i>Object is in the path of the beam, yellow LED does not light up</i>	Remission capability of the object is insufficient / <i>Remission capability of the object is insufficient</i>	Increase the sensing range, take note of the distance between the sensor and the background, see Graphic E / <i>Increase the sensing range, take note of the distance between the sensor and the background, see Graphic E</i>

8 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).

9 Maintenance

SICK sensors are maintenance-free.

We recommend doing the following regularly:

1. Clean the external lens surfaces
2. 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-Lichttaster Betriebsanleitung

12 Sicherheitshinweise

- Vor der Inbetriebnahme die Betriebsanleitung lesen.
- Anschluss, Montage und Einstellung nur durch Fachpersonal.
- Kein Sicherheitsbauteil gemäß EU-Maschinenrichtlinie. 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.

13 Bestimmungsgemäße Verwendung

Die GRTE18 ist ein optoelektronischer Reflexions-Lichttaster (im Folgenden Sensor genannt) und wird zum optischen, berührungslosen Erfassen von Sachen, Tieren und Personen eingesetzt. Bei jeder anderen Verwendung und bei Veränderungen am Produkt verfällt jeglicher Gewährleistungsanspruch gegenüber der SICK AG.

Energetischer Reflexionslichttaster

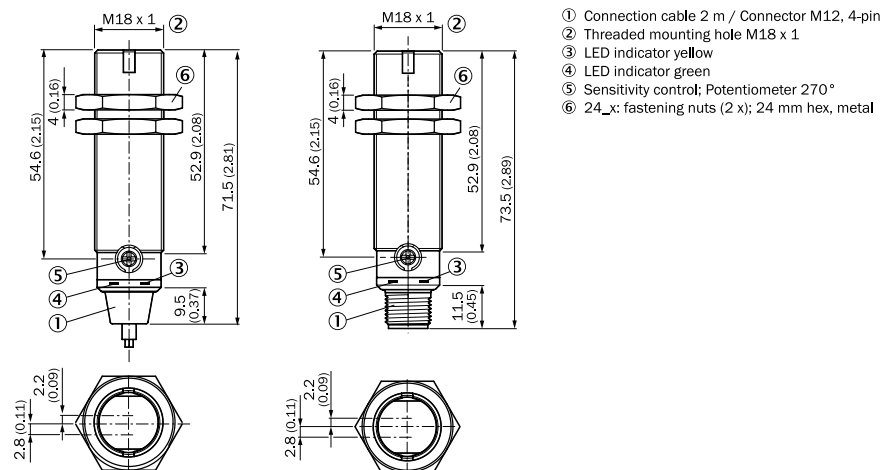


Abb. 9: GRTE18-xxx2

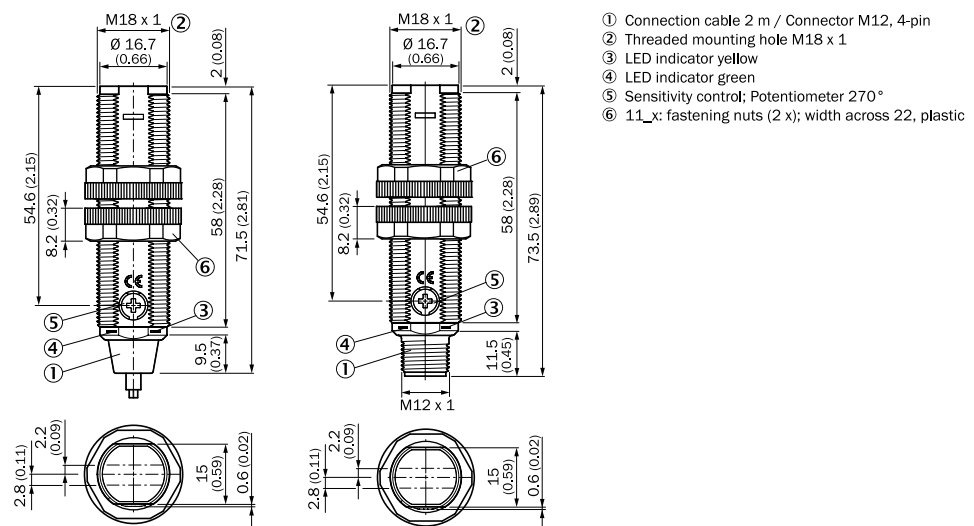


Abb. 10: GRTE18-xxx7

14 Inbetriebnahme

- 1 Einsatzbedingungen prüfen: Schaltabstand und Remissionsvermögen des Objektes mit dem zugehörigen Diagramm [vgl. H] abgleichen. (x = Schaltabstand, y = Funktionsreserve). Dabei kann ein Objekt vor einem Hintergrund nur detektiert werden, wenn das Remissionsvermögen des Objektes deutlich größer ist als das Remissionsvermögen des Hintergrundes oder der Abstand zwischen Objekt und Hintergrund ausreichend groß ist.

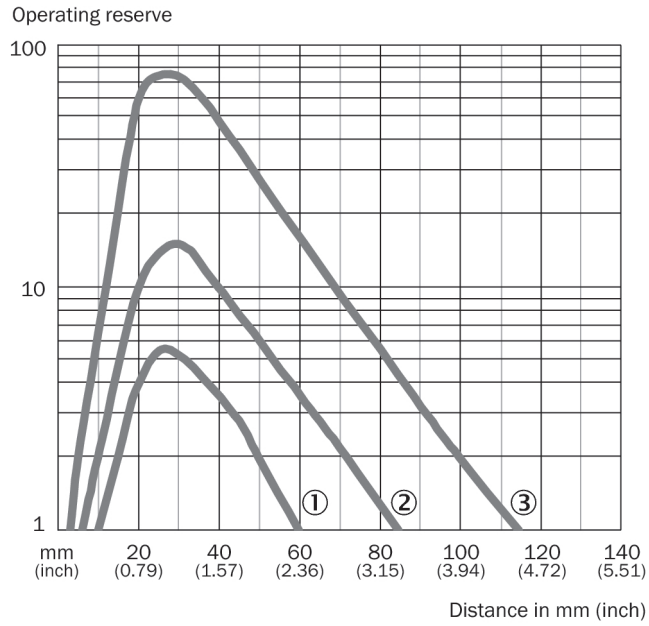


Abb. 11: H: Sensing range 115 mm

- 1) Sensing range on black, 6 % remission
- 2) Sensing range on gray, 20 % remission
- 3) Sensing range on white, 90 % remission

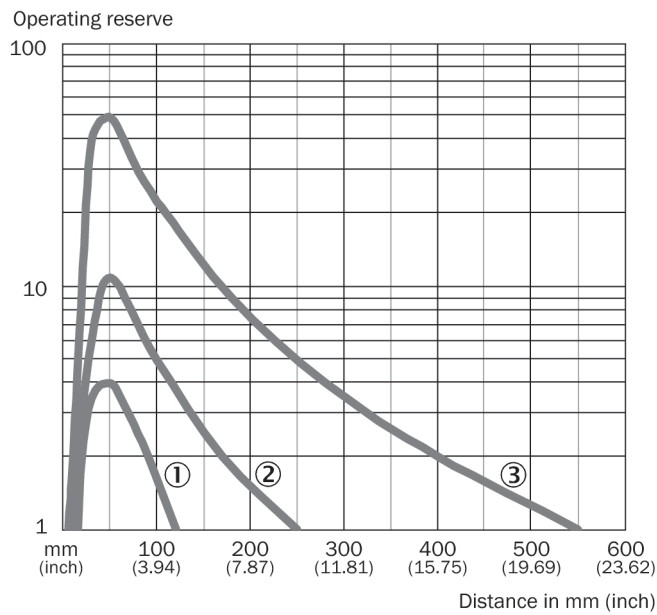


Abb. 12: H: Sensing range 550 mm

- 1) Sensing range on black, 6 % remission
- 2) Sensing range on gray, 20 % remission
- 3) Sensing range on white, 90 % remission

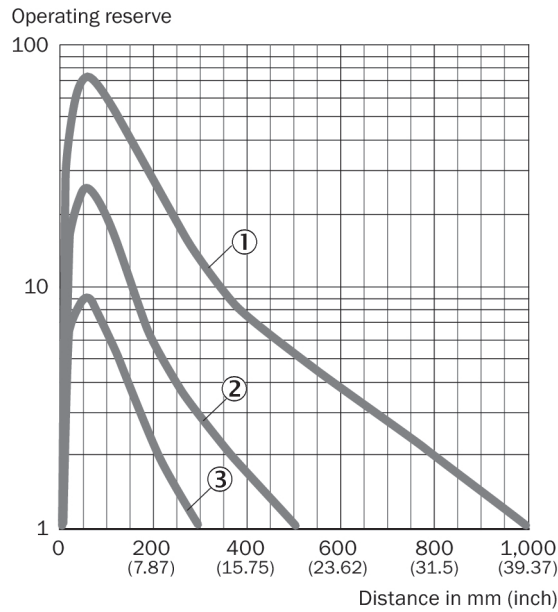


Abb. 13: H: Sensing range 800 mm

1) Sensing range on black, 6 % remission

2) Sensing range on gray, 20 % remission

3) Sensing range on white, 90 % remission

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

Maximal zulässiges Anzugsdrehmoment des Sensors von 2,0 Nm für Metall / 0,9 Nm für Kunststoff beachten [vgl. K].

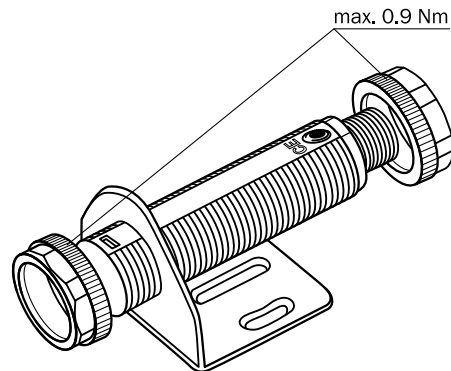


Abb.: K: GRTE18-x24x7

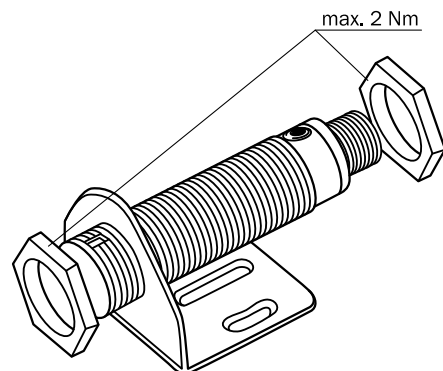


Abb.: K: GRTE18-x24x2

- 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
 - Leitung: Adernfarbe

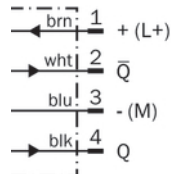


Abb.: B: GRTE18-x24xx

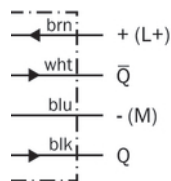


Abb.: B: GRTE18-x11xx

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):

GRTE18-P (PNP: Last -> M)

GRTE18-N (NPN: Last -> L+)

- 4 Sensor auf Objekt ausrichten. Positionierung so wählen, dass der rote Sendelichtstrahl in der Mitte des Objekts auftrifft. Es ist darauf zu achten, dass die optische Öffnung (Frontscheibe) des Sensors vollständig frei ist [vgl. E].

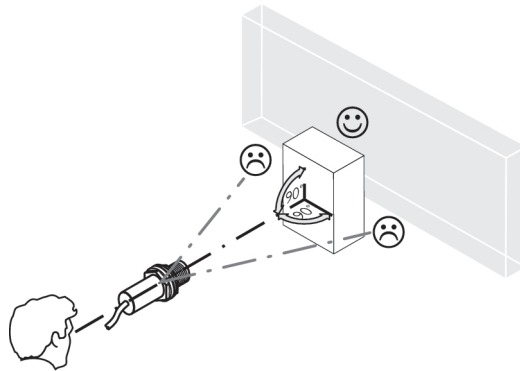
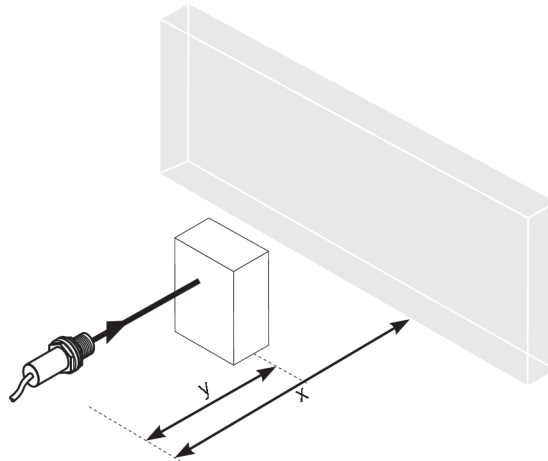


Abb. 14: E

5



Sensor mit Potentiometer:

Mit dem Potentiometer (Art: 270°) wird die Empfindlichkeit (Schaltabstand) eingestellt. Drehung nach rechts: Erhöhung der Empfindlichkeit (Schaltabstand), Drehung nach links: Verringerung der Empfindlichkeit (Schaltabstand). Wir empfehlen, den Schaltabstand in das Objekt zu legen, z.B. siehe Grafik F. Nachdem die Empfindlichkeit eingestellt worden ist, das Objekt aus dem Strahlengang entfernen. Der Schaltausgang ändert sich (siehe Grafik C).

Sensor ist eingestellt und betriebsbereit. Zur Überprüfung der Funktion Grafik C und G heranziehen. Verhält sich der Schaltausgang nicht gemäß Grafik C, Einsatzbedingungen prüfen. Siehe Abschnitt Fehlerdiagnose.

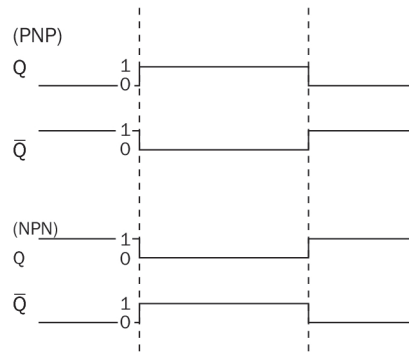
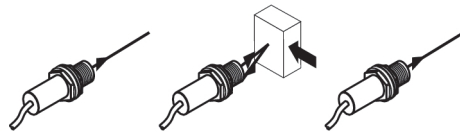


Abb. 15: C

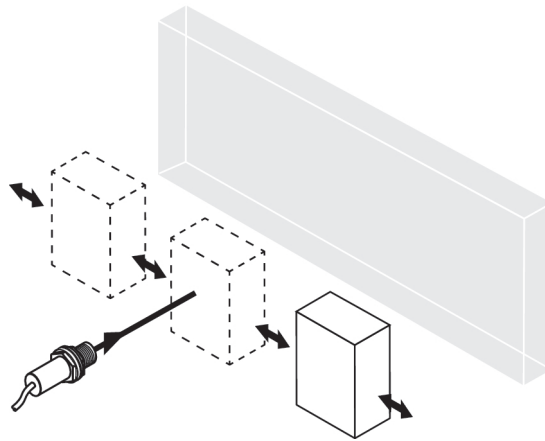


Abb. 16: G

16 Fehlerdiagnose

Tabelle 17 zeigt, welche Maßnahmen durchzuführen sind, wenn die Funktion des Sensors nicht mehr gegeben ist.

17 Tab_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
gelbe LED blinkt / Yellow LED flashes	Sensor ist noch betriebsbereit, aber die Betriebsbedingungen sind nicht optimal / Sensor is still ready for operation, but the operating conditions are not ideal	Betriebsbedingungen prüfen: Lichtstrahl (Lichtfleck) vollständig auf das Objekt ausrichten / Reinigung der optischen Flächen / Empfindlichkeit (Potentiometer) neu einstellen / Schaltabstand überprüfen und ggfs. anpassen, siehe Grafik E / Check the operating conditions: Fully align the beam of light (light spot) with the object. / Clean the optical surfaces / Readjust the sensitivity (potentiometer) / Check sensing range and adjust if necessary, see Graphic E

Anzeige-LED / Fehlerbild / LED indicator/fault pattern	Ursache / Cause	Maßnahme / Measures
gelbe LED leuchtet, kein Objekt im Strahlengang / <i>Yellow LED lights up, no object in the path of the beam</i>	Remissionsvermögen des Hintergrundes zu hoch / <i>Remission capability of the background is excessive</i>	Veränderungen des Hintergrundes prüfen. Empfindlichkeit des Sensors reduzieren oder Taster mit Hintergrundausblendung verwenden / <i>Check changes to the background. Reduce the sensitivity of the sensor or use sensors with background suppression</i>
Objekt ist im Strahlengang, gelbe LED leuchtet nicht / <i>Object is in the path of the beam, yellow LED does not light up</i>	Empfindlichkeit ist zu gering eingestellt oder Abstand zwischen Sensor und Objekt ist zu groß / <i>Sensitivity is set too low or distance between the sensor and the object is too long</i>	Schaltabstand vergrößern, Abstand zwischen Sensor und Hintergrund beachten, siehe Grafik E / <i>Increase the sensing range, take note of the distance between the sensor and the background, see Graphic E</i>
Objekt ist im Strahlengang, gelbe LED leuchtet nicht / <i>Object is in the path of the beam, yellow LED does not light up</i>	Remissionsvermögen des Objektes ist zu gering / <i>Remission capability of the object is insufficient</i>	Schaltabstand vergrößern, Abstand zwischen Sensor und Hintergrund beachten, siehe Grafik E / <i>Increase the sensing range, take note of the distance between the sensor and the background, see Graphic E</i>

18 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.

19 Wartung

SICK-Sensoren sind wartungsfrei.

Wir empfehlen, in regelmäßigen Abständen

1. die optischen Grenzflächen zu reinigen
2. Verschraubungen und Steckverbindungen zu überprüfen

Veränderungen an Geräten dürfen nicht vorgenommen werden.

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

Détecteur à réflexion directe Notice d'instruction

22 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. Utilisation uniquement pour 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.

23 Utilisation conforme

GRTE18 est un détecteur à réflexion directe optoélectronique (appelé capteur dans ce document) qui permet la détection optique sans contact d'objets, d'animaux et de personnes. Toute autre utilisation ou modification du produit annule la garantie de SICK AG.

Détecteur énergétique à réflexion directe

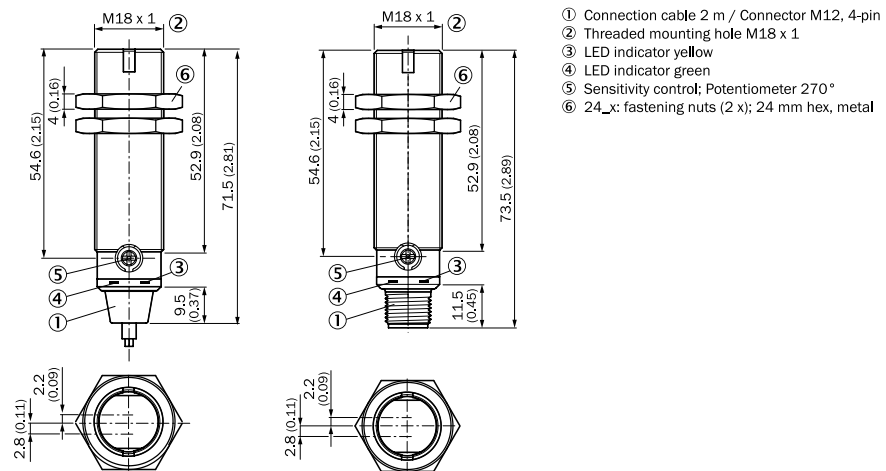


Image 17: GRTE18-xxx2

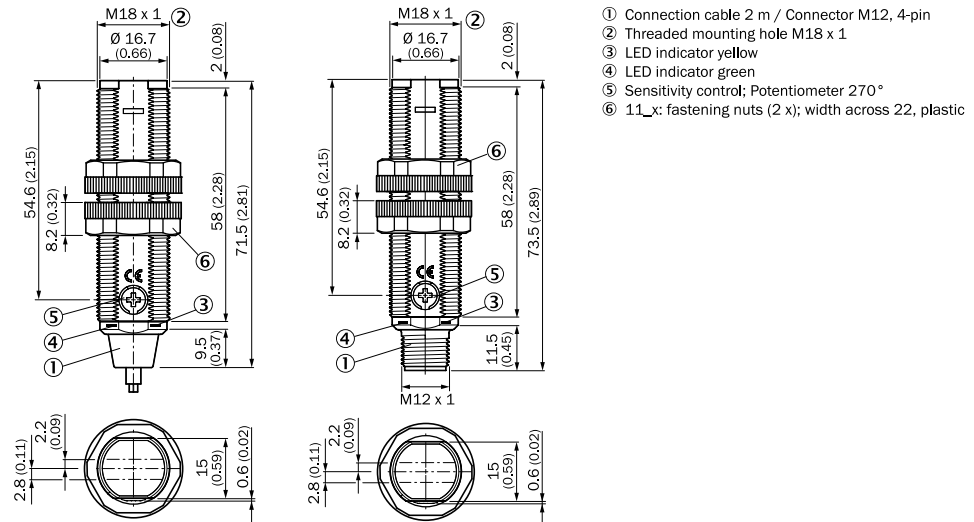


Image 18: GRTE18-xxx2

24 Mise en service

- 1 Vérifier les conditions d'utilisation : comparer la portée et les caractéristiques de réflectivité de l'objet à l'aide du diagramme [E] correspondant. (x = portée, y = réserve de fonctionnement).

Ce faisant, il n'est possible de détecter un objet devant un arrière-plan que si les caractéristiques de réflectivité de l'objet sont largement supérieures à celles de l'arrière-plan en question ou si la distance entre l'objet et l'arrière-plan est suffisante.

Operating reserve

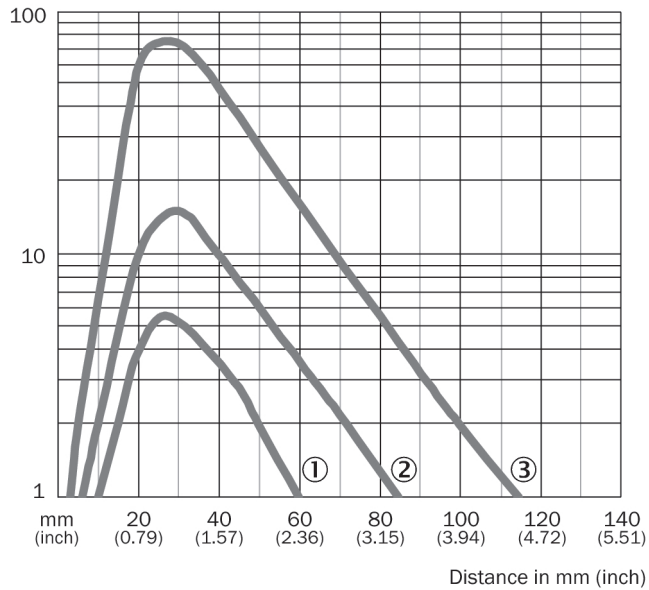


Image 19: H: Sensing range 115 mm

- 1) Sensing range on black, 6 % remission
- 2) Sensing range on gray, 20 % remission
- 3) Sensing range on white, 90 % remission

Operating reserve

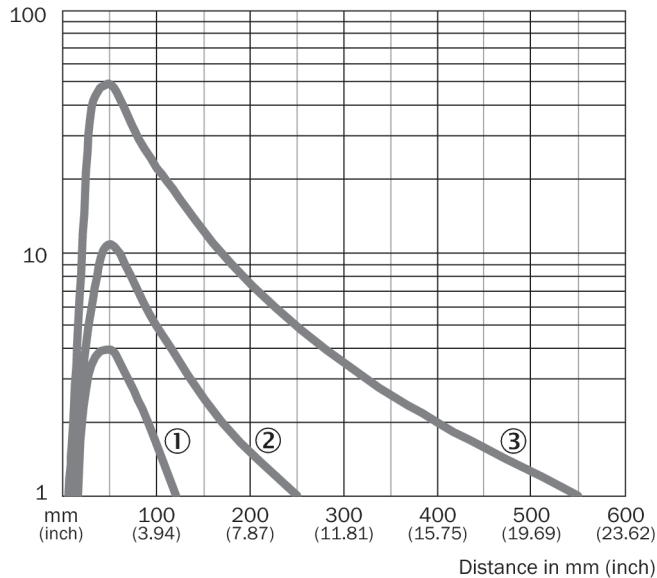


Image 20: H: Sensing range 550 mm

- 1) Sensing range on black, 6 % remission
- 2) Sensing range on gray, 20 % remission
- 3) Sensing range on white, 90 % remission

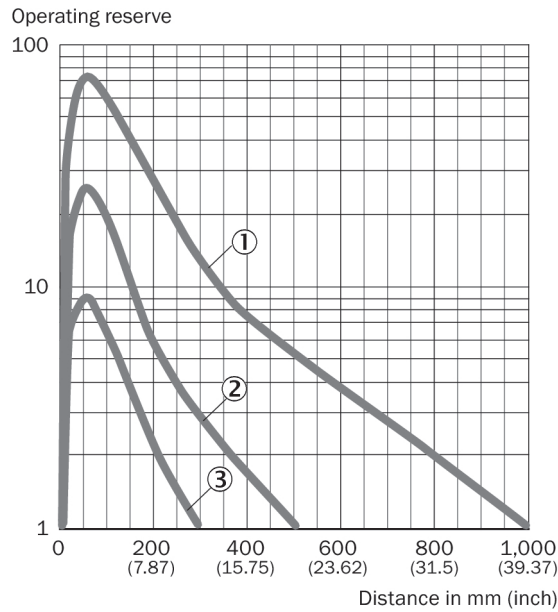


Image 21: H: Sensing range 800 mm

- 1) Sensing range on black, 6 % remission
 - 2) Sensing range on gray, 20 % remission
 - 3) Sensing range on white, 90 % remission
- 2 Monter le capteur sur une équerre de fixation adaptée (voir la gamme d'accessoires SICK).
Respecter le couple de serrage maximal admissible du capteur de 2,0 Nm pour métal / 0,9 Nm pour plastique [voir K].

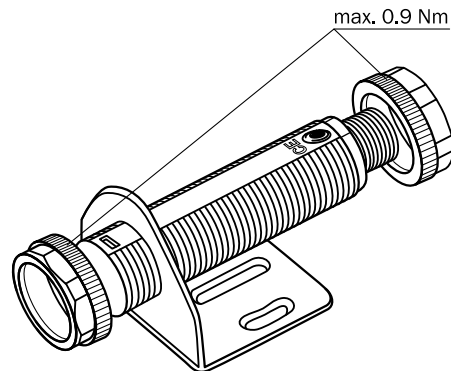


Image: K: GRTE18-x24x7

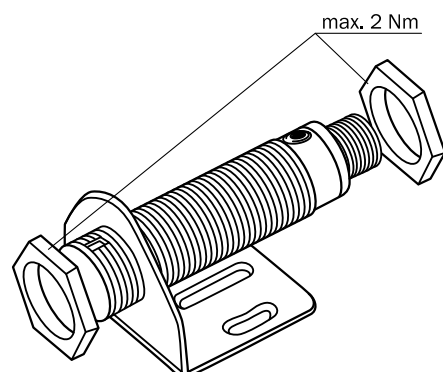


Image: K: GRTE18-x24x2

- 3 Le raccordement des capteurs doit s'effectuer hors tension ($V_S = 0$ V). Selon le mode de raccordement, respecter les informations contenues dans les schémas [B] :

- Raccordement du connecteur : affectation des broches
- Câble : couleur des fils

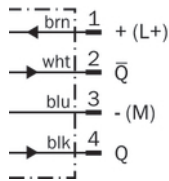


Image: B: GRTE18-x24xx

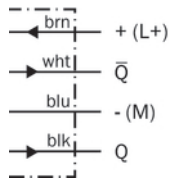


Image: B: GRTE18-x11xx

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 /Q (selon le schéma B) :

GRTE18-P (PNP : charge -> M)

GRTE18-N (NPN : charge -> L+)

- Aligner le capteur sur l'objet. Sélectionner la position de sorte que le faisceau lumineux émis rouge touche l'objet en plein milieu. S'assurer que l'ouverture optique (vitre frontale) du capteur est parfaitement dégagée [voir E].

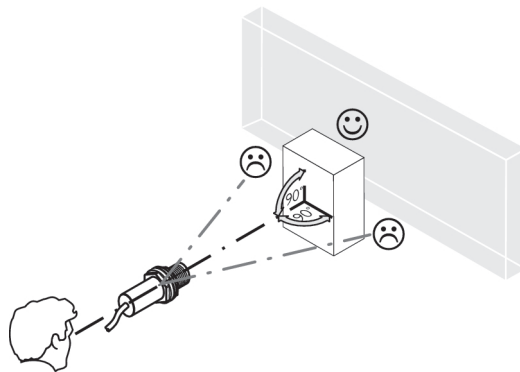
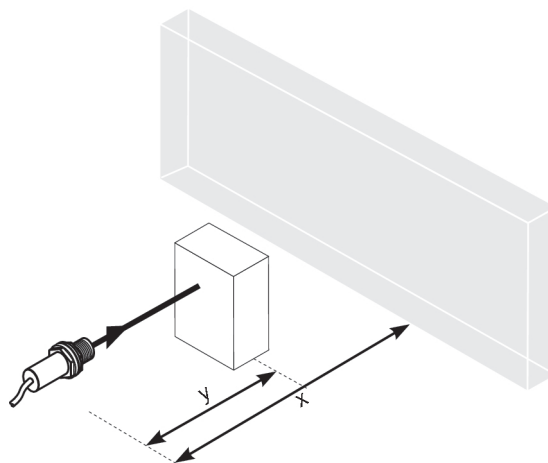


Image 22: E

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- 5



Capteur avec potentiomètre :

Le potentiomètre (réf. : 270°) permet de régler la sensibilité (portée). Rotation vers la droite : augmentation de la sensibilité (portée), rotation vers la gauche : réduction de la sensibilité (portée). Nous recommandons de régler la portée sur l'objet, par ex. voir schéma F. Après le réglage de la sensibilité, retirer l'objet de la trajectoire du faisceau. La sortie de commutation bascule (voir schéma C).

Le capteur est réglé et prêt à être utilisé. Pour contrôler le fonctionnement, utiliser les schémas C et G. Si la sortie de commutation ne se comporte pas comme indiqué sur le schéma C, vérifier les conditions d'utilisation. Voir la section consacrée au diagnostic.

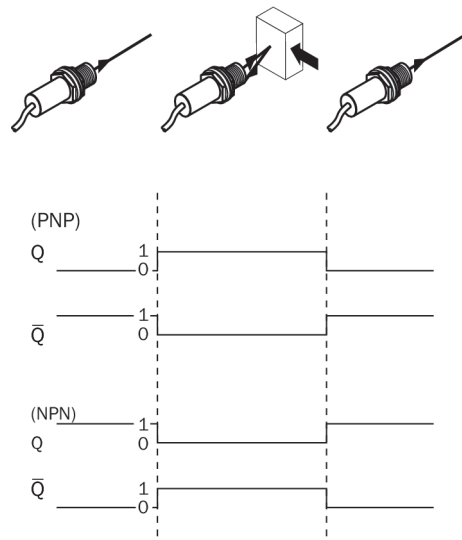


Image 23: C

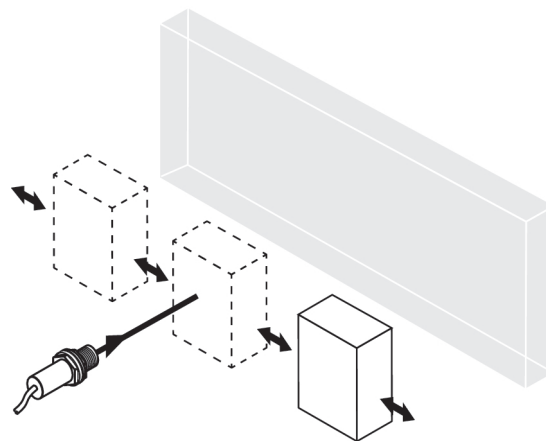


Image 24: G

26 Diagnostic

Le tableau 27 présente les mesures à appliquer si le capteur ne fonctionne plus.

27 Tab_Diagnostic

LED d'état / image du défaut / LED indicator/fault pattern	Cause / Cause	/ Measures
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
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 l'objet / Nettoyage des surfaces optiques / Régler à nouveau la sensibilité (potentiomètre) / Contrôler la portée et éventuellement l'adapter, voir le schéma E / Check the operating conditions: Fully align the beam of light (light spot) with the object. / Clean the optical surfaces / Readjust the sensitivity (potentiometer) / Check sensing range and adjust if necessary, see Graphic E
La LED jaune s'allume, pas d'objet dans la trajectoire du faisceau / Yellow LED lights up, no object in the path of the beam	Le pouvoir réfléchissant de l'arrière-plan est trop élevé / Remission capability of the background is excessive	Contrôler les variations de l'arrière-plan Diminuer la sensibilité du capteur ou utiliser un capteur à élimination d'arrière-plan / Check changes to the background. Reduce the sensitivity of the sensor or use sensors with background suppression
L'objet est dans la trajectoire du faisceau, la LED jaune ne s'allume pas / Object is in the path of the beam, yellow LED does not light up	La sensibilité est trop faible ou la distance entre le capteur et l'objet est trop grande / Sensitivity is set too low or distance between the sensor and the object is too long	Augmenter la portée, tenir compte de la distance entre le capteur et l'arrière-plan, voir le schéma E / Increase the sensing range, take note of the distance between the sensor and the background, see Graphic E
L'objet est dans la trajectoire du faisceau, la LED jaune ne s'allume pas / Object is in the path of the beam, yellow LED does not light up	Le pouvoir réfléchissant de l'arrière-plan est trop faible / Remission capability of the object is insufficient	Augmenter la portée, tenir compte de la distance entre le capteur et l'arrière-plan, voir le schéma E / Increase the sensing range, take note of the distance between the sensor and the background, see Graphic E

28 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).

29 Maintenance

Les capteurs SICK ne nécessitent aucune maintenance.

Nous vous recommandons de procéder régulièrement

1. au nettoyage des surfaces optiques
2. 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.

Interruptor fotoelétrico de reflexão Manual de instruções

32 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. 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.

33 Especificações de uso

O GRTE18 é um sensor fotoelétrico de proximidade utilizado para a detecção óptica, sem contato, de objetos, animais e pessoas. Qualquer utilização diferente ou alterações do produto provocam a perda da garantia da SICK AG.

Interruptor fotoelétrico de reflexão energético

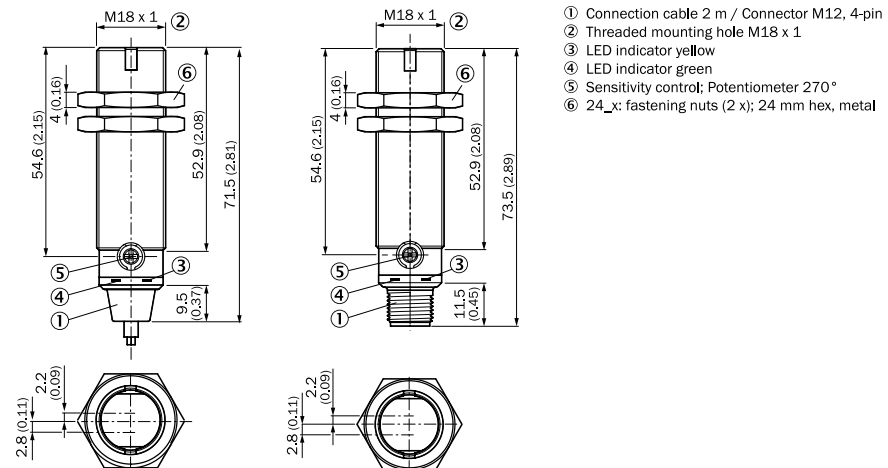


Image 25: GRTE18-xxxx2

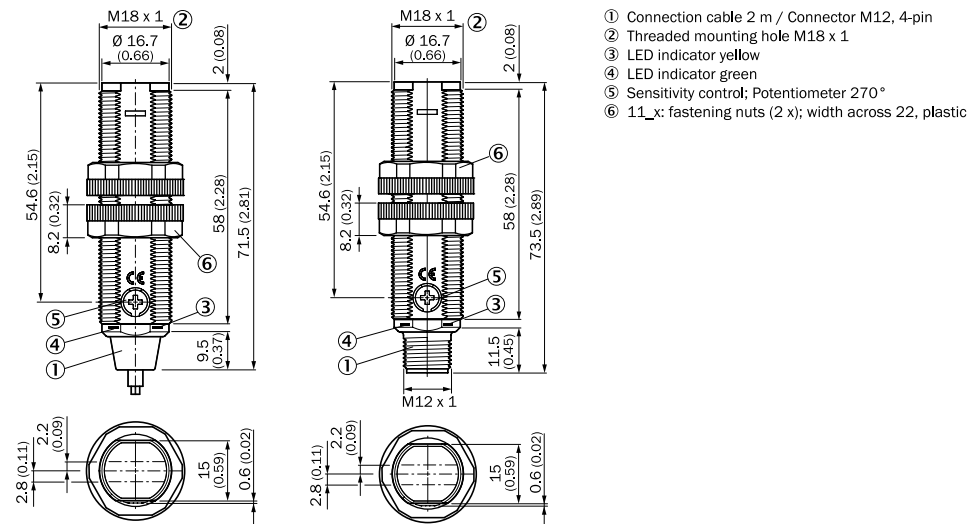


Image 26: GRTE18-xxxx7

34 Colocação em funcionamento

- 1 Verificar as condições de uso: equiparar a distância de comutação e a refletividade do objeto com o respectivo diagrama [cp. H]. (x = distância de comutação, y = reserva de função).
Um objeto só pode ser detectado à frente de um fundo, se a refletividade do objeto for significativamente maior do que a refletividade do fundo ou se a distância entre o objeto e o fundo for suficientemente grande.

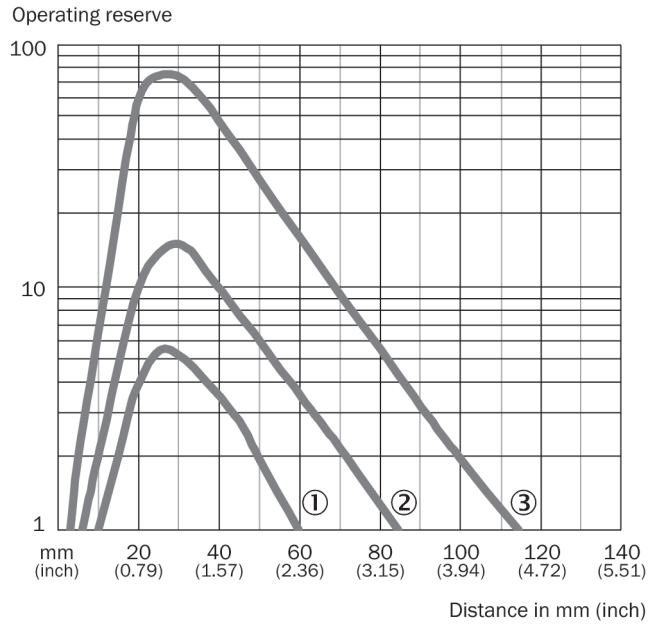


Image 27: H: Sensing range 115 mm

- 1) Sensing range on black, 6 % remission
- 2) Sensing range on gray, 20 % remission
- 3) Sensing range on white, 90 % remission

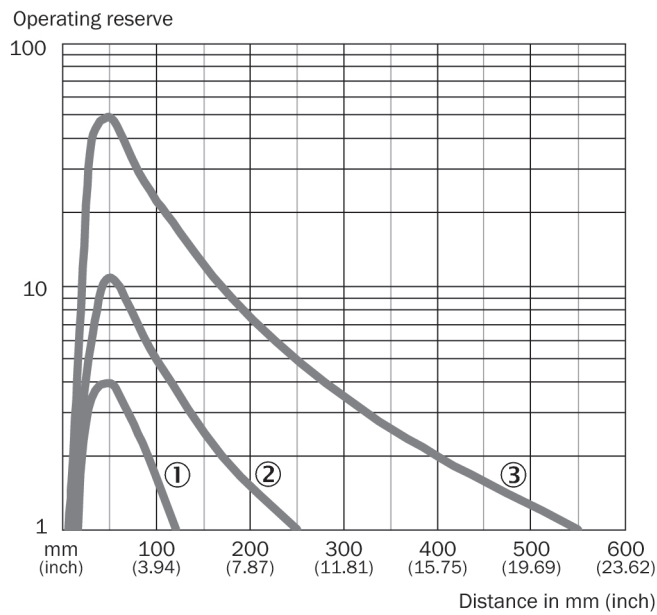


Image 28: H: Sensing range 550 mm

- 1) Sensing range on black, 6 % remission
- 2) Sensing range on gray, 20 % remission
- 3) Sensing range on white, 90 % remission

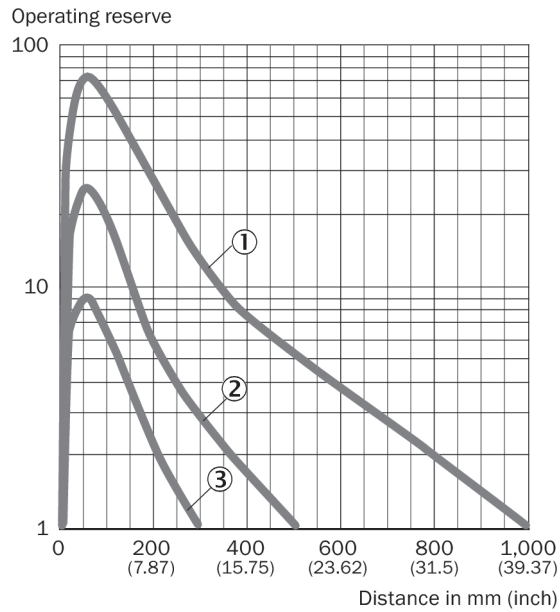


Image 29: H: Sensing range 800 mm

- 1) Sensing range on black, 6 % remission
 - 2) Sensing range on gray, 20 % remission
 - 3) Sensing range on white, 90 % remission
- 2) Montar o sensor numa cantoneira de fixação adequada (ver linha de acessórios da SICK). Observar o torque de aperto máximo permitido do sensor de 2,0 Nm para metal / 0,9 Nm para plástico [cp. K].

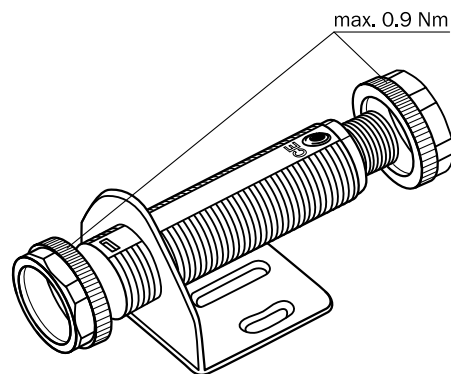


Image: K: GRTE18-x24x7

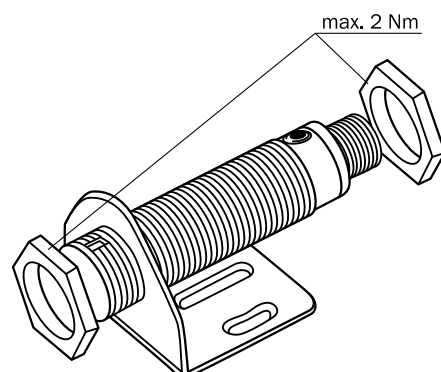


Image: K: GRTE18-x24x2

- 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
- Cabo: Cor dos fios

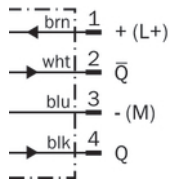


Image: B: GRTE18-x24xx

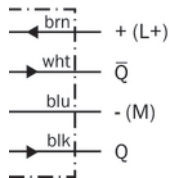


Image: B: GRTE18-x11xx

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):

GRTE18-P (PNP: carga -> M)

GRTE18-N (NPN: carga -> L+)

- 4 Alinhar o sensor ao objeto. Posicionar, de forma que o feixe da luz de emissão vermelha incida sobre o centro do objeto. Certificar-se de que a abertura óptica (vidro frontal) do sensor esteja completamente livre [cp. E].

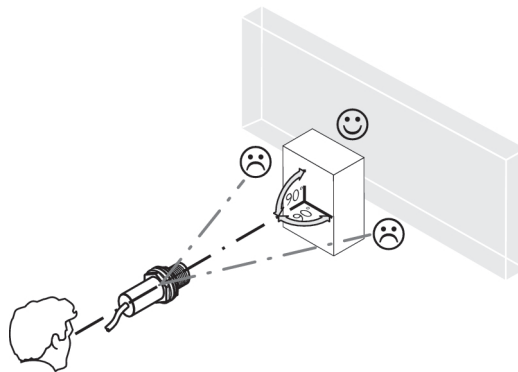
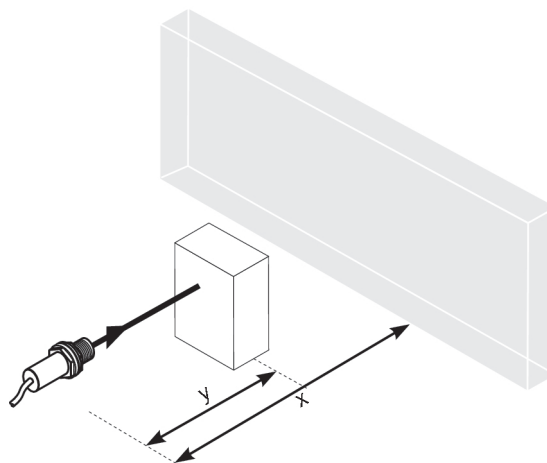


Image 30: E

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Sensor com potenciômetro:

O potenciômetro (tipo: 270°) permite o ajuste da sensibilidade (distância de comutação). Giro para direita: aumento da sensibilidade (distância de comutação); giro para esquerda: redução da sensibilidade (distância de comutação). Recomendamos posicionar a distância de comutação no objeto, por ex., como no gráfico F. Após o ajuste da sensibilidade, remover o objeto do caminho óptico. A saída de comutação se modifica (ver gráfico C).

O sensor está ajustado e operacional. Utilizar os gráficos C e G para verificar o funcionamento. Se a saída de comutação não se comportar de acordo com o gráfico C, verificar as condições de uso. Ver seção Diagnóstico de erros.

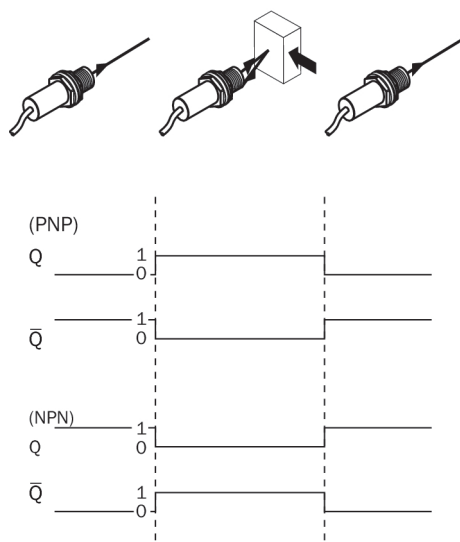


Image 31: C

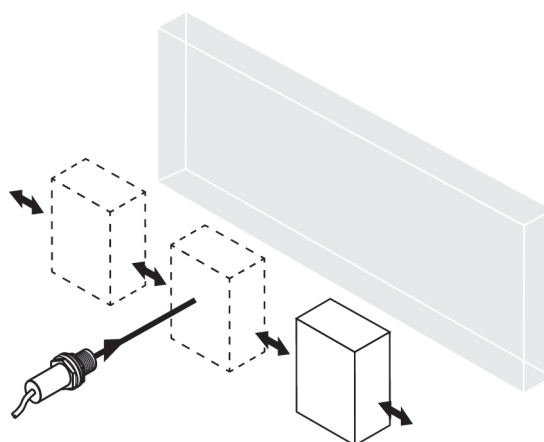


Image 32: G

36 Diagnóstico de erros

A tabela 37 mostra as medidas a serem executadas, quando o sensor não estiver funcionando.

37 Tab_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
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 objeto / Limpeza das superfícies ópticas / reajustar a sensibilidade (potenciômetro) / Verificar e, se necessário, adaptar a distância de comutação, ver gráfico E / Check the operating conditions: Fully align the beam of light (light spot) with the object. / Clean the optical surfaces / Readjust the sensitivity (potentiometer) / Check sensing range and adjust if necessary, see Graphic E
LED amarelo aceso, nenhum objeto no caminho óptico / Yellow LED lights up, no object in the path of the beam	Refletividade do fundo alta demais / Remission capability of the background is excessive	Verificar as modificações do fundo. Reduzir a sensibilidade do sensor ou usar o botão com a supressão de fundo / Check changes to the background. Reduce the sensitivity of the sensor or use sensors with background suppression
Objeto está no caminho óptico, LED amarelo apagado / Object is in the path of the beam, yellow LED does not light up	Sensibilidade foi ajustada para um valor baixo demais ou a distância entre sensor e objeto é grande demais / Sensitivity is set too low or distance between the sensor and the object is too long	Aumentar a distância de comutação, observar a distância entre sensor e fundo, ver gráfico E / Increase the sensing range, take note of the distance between the sensor and the background, see Graphic E
Objeto está no caminho óptico, LED amarelo apagado / Object is in the path of the beam, yellow LED does not light up	Refletividade do fundo baixa demais / Remission capability of the object is insufficient	Aumentar a distância de comutação, observar a distância entre sensor e fundo, ver gráfico E / Increase the sensing range, take note of the distance between the sensor and the background, see Graphic E

38 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).

39 Manutenção

Os sensores SICK não requerem manutenção.

Recomendamos que se efetue em intervalos regulares

1. uma limpeza das superfícies ópticas
2. 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.

Sensore di luce a riflessione Istruzioni per l'uso

42 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. Solo per l'utilizzo in applicazioni ai sensi di NFPA 79. Sono a disposizione adattatori con cavo di connessione dell'elenco UL. 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

43 Uso conforme alle prescrizioni

La GRTE18 è una fotocellula a riflessione optoelettronica (di seguito nominato sensore) utilizzata per il rilevamento ottico senza contatto di oggetti, animali e persone. Se viene utilizzata diversamente e in caso di modifiche sul prodotto, decade qualsiasi diritto alla garanzia nei confronti di SICK.

Relè fotoelettrico a riflessione a energia

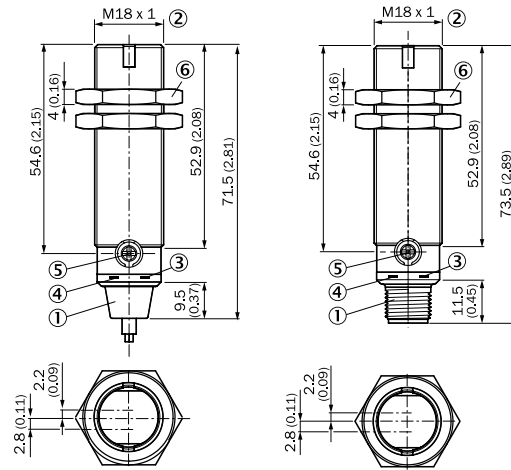


Image 33: GRTE18-xxxx2

- ① Connection cable 2 m / Connector M12, 4-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Sensitivity control; Potentiometer 270°
- ⑥ 24_x: fastening nuts (2 x); 24 mm hex, metal

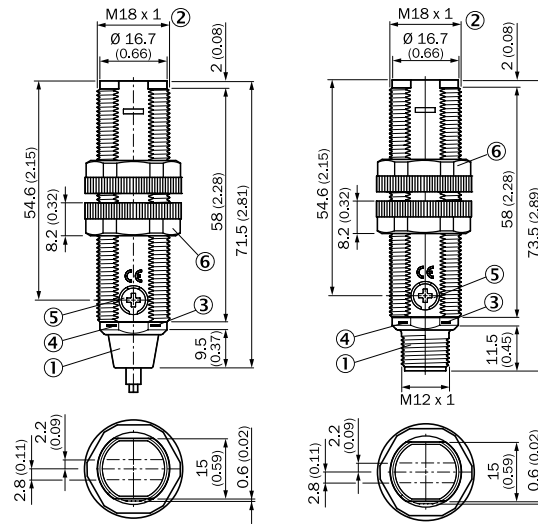


Image 34: GRTE18-xxxx7

- ① Connection cable 2 m / Connector M12, 4-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Sensitivity control; Potentiometer 270°
- ⑥ 11_x: fastening nuts (2 x); width across 22, plastic

44 Messa in funzionamento

- 1 Verificare le condizioni d'impiego: predisporre la distanza di commutazione e il fattore di riflessione dell'oggetto in base al relativo diagramma [cfr. H] . (x = distanza di commutazione, y = riserva di funzionamento).

Inoltre la rilevazione di un oggetto da uno sfondo è possibile soltanto qualora il fattore di riflessione dell'oggetto superi nettamente quello dello sfondo o la distanza tra oggetto e sfondo sia sufficientemente grande.

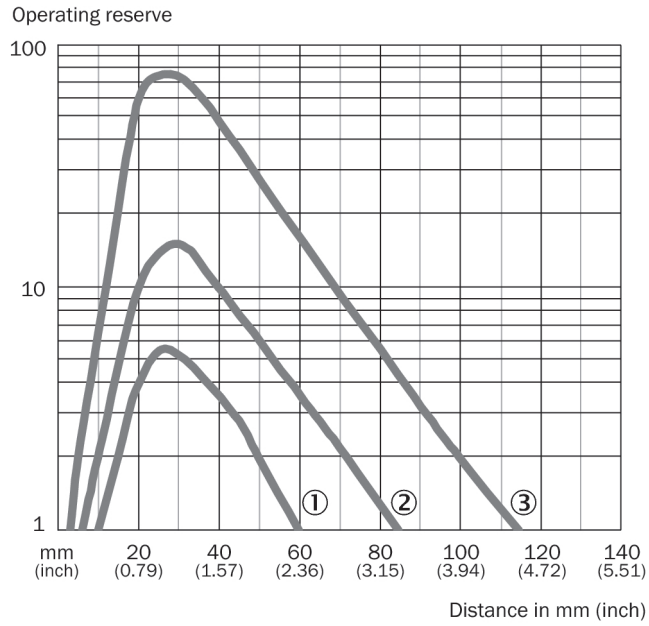


Image 35: H: Sensing range 115 mm

- 1) Sensing range on black, 6 % remission
- 2) Sensing range on gray, 20 % remission
- 3) Sensing range on white, 90 % remission

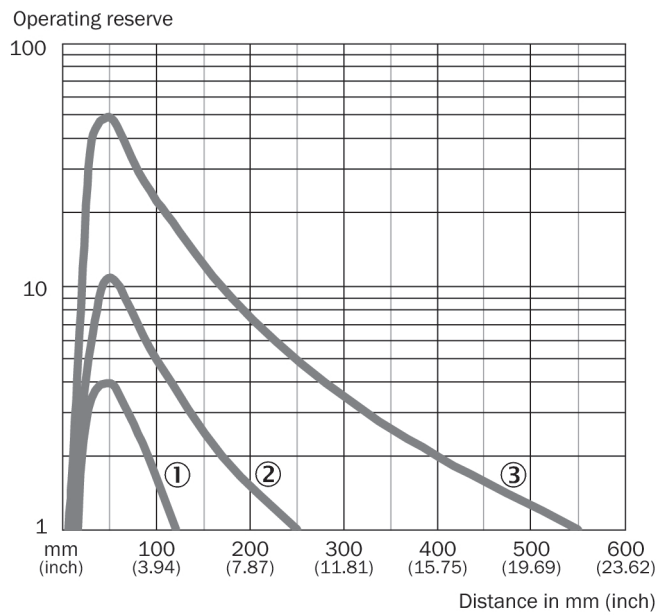


Image 36: H: Sensing range 550 mm

- 1) Sensing range on black, 6 % remission
- 2) Sensing range on gray, 20 % remission
- 3) Sensing range on white, 90 % remission

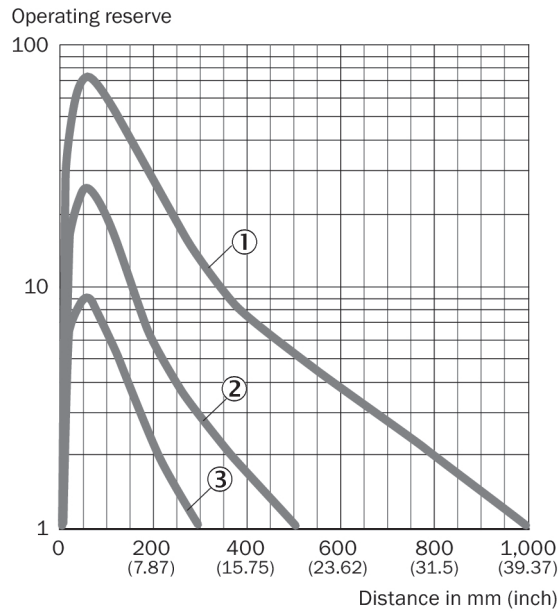


Image 37: H: Sensing range 800 mm

- 1) Sensing range on black, 6 % remission
 - 2) Sensing range on gray, 20 % remission
 - 3) Sensing range on white, 90 % remission
- 2 Montare il sensore su un punto di fissaggio adatto (vedi il programma per accessori SICK). Rispettare il momento torcente massimo consentito del sensore di 2,0 Nm per il metallo / 0,9 Nm per la plastica [cfr. K].

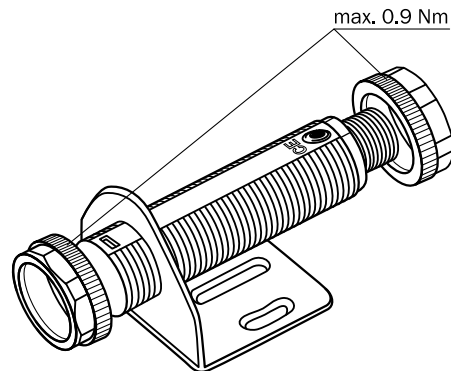


Image: K: GRTE18-x24x7

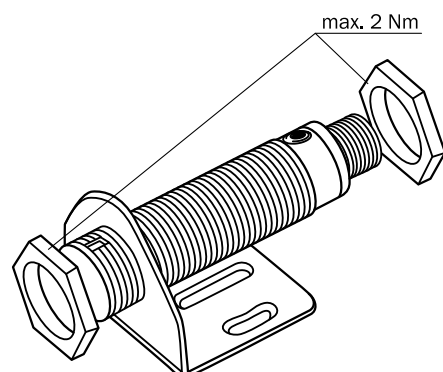


Image: K: GRTE18-x24x2

- 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
- Conduttore: colore filo

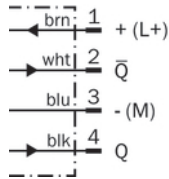


Image: B: GRTE18-x24xx

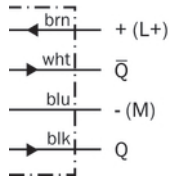


Image: B: GRTE18-x11xx

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):

GRTE18-P (PNP: carico -> M)

GRTE18-N (NPN: carico -> L+)

- Orientare reciprocamente il sensore sul rispettivo oggetto. Scegliere la posizione in modo tale che il raggio di luce rosso emesso colpisca il centro dell'oggetto. Fare attenzione che l'apertura ottica del sensore (finestrella frontale) sia completamente libera [cfr. E].

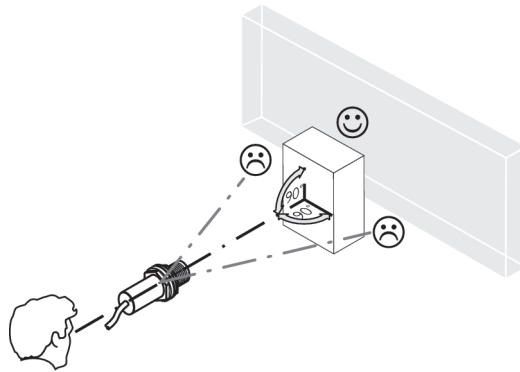
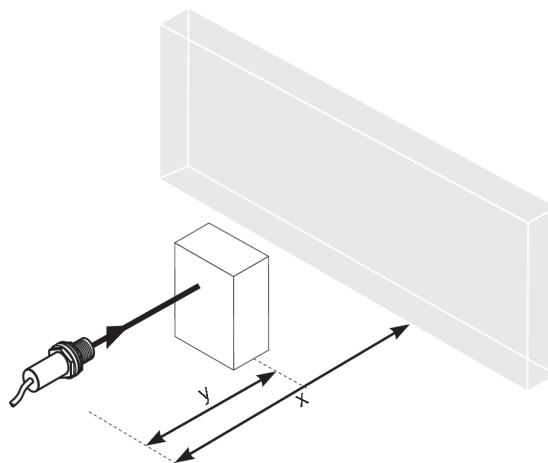


Image 38: E

-



Sensore con potenziometro:

Con il potenziometro (tipo: 270°) viene impostata la sensibilità (distanza di commutazione). Rotazione verso destra: innalzamento della sensibilità (distanza di commutazione), rotazione verso sinistra: riduzione della sensibilità (distanza di commutazione). Si consiglia di fissare la distanza di commutazione nell'oggetto, ad es. vedi grafico F. Dopo l'impostazione della sensibilità, allontanare l'oggetto dalla traiettoria del raggio. L'uscita di commutazione cambia (vedi grafico C).

Il sensore è impostato e pronto per il funzionamento. Per verificare il funzionamento, osservare i grafici C e G. Se l'uscita di commutazione non si comporta conformemente al grafico C, verificare le condizioni d'impiego. Vedi paragrafo diagnostica delle anomalie.

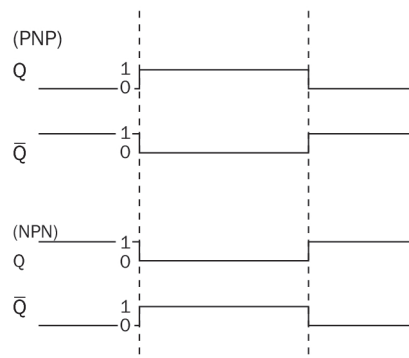
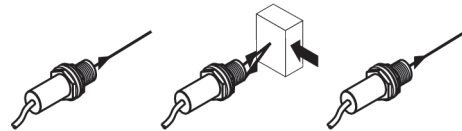


Image 39: C

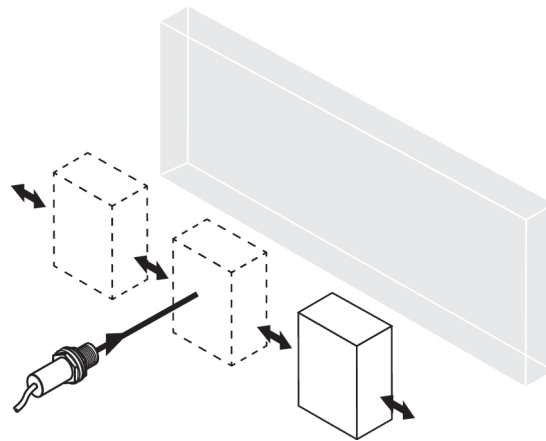


Image 40: G

46 Diagnostica delle anomalie

Tabella 47 mostra quali provvedimenti si devono adottare quando il sensore non funziona più.

47 Tabulatore_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
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 sull'oggetto / Pulizia delle superfici ottiche / Sensibilità (potenziometro) / Controllare la distanza di commutazione e, se necessario, adattarla, vedi grafico E / Check the operating conditions: Fully align the beam of light (light spot) with the object. / Clean the optical surfaces / Readjust the sensitivity (potentiometer) / Check sensing range and adjust if necessary, see Graphic E
il LED giallo si accende, nessun oggetto nella traiettoria del raggio / Yellow LED lights up, no object in the path of the beam	Fattore di riflessione dello sfondo troppo alto / Remission capability of the background is excessive	Controllare le variazioni dello sfondo. Ridurre la sensibilità del sensore oppure utilizzare il tasto con soppressione dello sfondo / Check changes to the background. Reduce the sensitivity of the sensor or use sensors with background suppression
L'oggetto è nella traiettoria del raggio, il LED giallo non si accende / Object is in the path of the beam, yellow LED does not light up	La sensibilità ha un'impostazione troppo bassa o la distanza tra sensore e oggetto è troppo grande / Sensitivity is set too low or distance between the sensor and the object is too long	Aumentare la distanza di commutazione, rispettare la distanza tra sensore e sfondo, vedi grafico E / Increase the sensing range, take note of the distance between the sensor and the background, see Graphic E
L'oggetto è nella traiettoria del raggio, il LED giallo non si accende / Object is in the path of the beam, yellow LED does not light up	Il fattore di riflessione dell'oggetto è troppo basso / Remission capability of the object is insufficient	Aumentare la distanza di commutazione, rispettare la distanza tra sensore e sfondo, vedi grafico E / Increase the sensing range, take note of the distance between the sensor and the background, see Graphic E

48 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.

49 Manutenzione

I sensori SICK sono esenti da manutenzione.

A intervalli regolari si consiglia di

1. pulire le superfici limite ottiche
2. 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.

Sensor fotoeléctrico de reflexión Instrucciones de uso

52 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. Solo para utilizar en aplicaciones según NFPA 79. Se encuentran disponibles adaptadores con cables de conexión listados por UL. 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.

53 Uso conforme a lo previsto

El GRTE18 es un sensor optoelectrónico de reflexión (en lo sucesivo llamado sensor) empleado para la detección óptica y sin contacto de objetos, animales y personas. Cualquier uso diferente al previsto o modificación en el producto invalidará la garantía por parte de SICK AG.

Sensor fotoeléctrico de reflexión energético

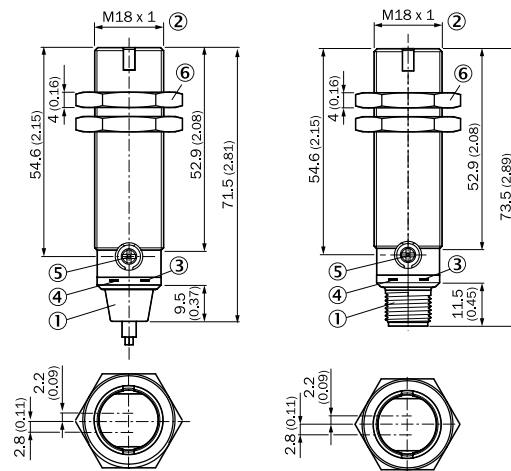


Image 41: GRTE18-xxxx2

- ① Connection cable 2 m / Connector M12, 4-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Sensitivity control; Potentiometer 270°
- ⑥ 24_x: fastening nuts (2 x); 24 mm hex, metal

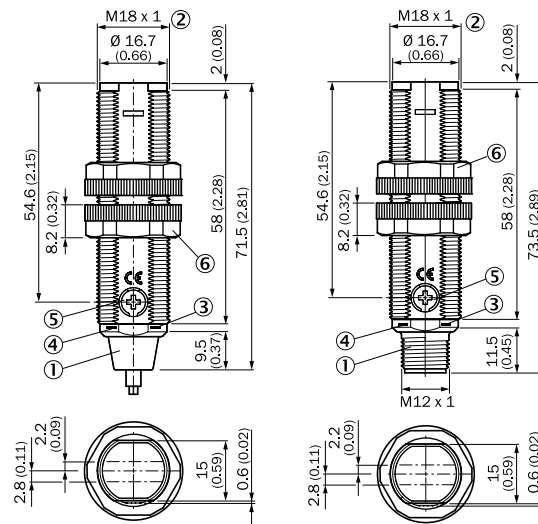


Image 42: GRTE18-xxxx2

- ① Connection cable 2 m / Connector M12, 4-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Sensitivity control; Potentiometer 270°
- ⑥ 11_x: fastening nuts (2 x); width across 22, plastic

54 Puesta en servicio

- 1 Comprobar las condiciones de aplicación: comparar la distancia de conmutación y la capacidad de remisión del objeto con el diagrama correspondiente [véase fig. H]. (x = distancia de conmutación, y = reserva de funcionamiento.)

En este caso, los objetos situados delante de un fondo solo se podrán detectar si la capacidad de remisión del objeto es considerablemente superior a la del fondo o la distancia entre el objeto y el fondo es suficientemente grande.

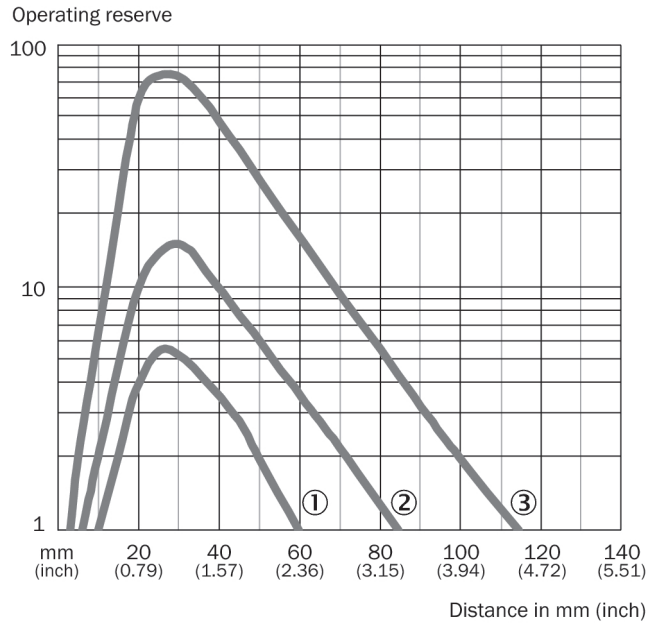


Image 43: H: Sensing range 115 mm

- 1) Sensing range on black, 6 % remission
- 2) Sensing range on gray, 20 % remission
- 3) Sensing range on white, 90 % remission

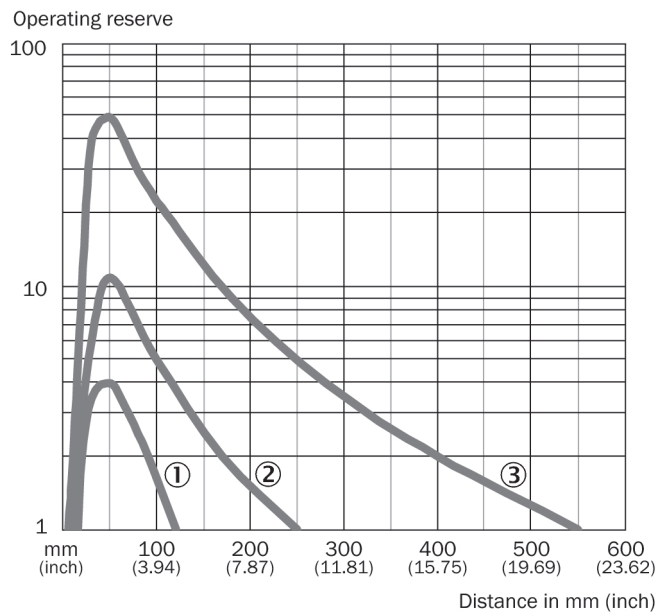


Image 44: H: Sensing range 550 mm

- 1) Sensing range on black, 6 % remission
- 2) Sensing range on gray, 20 % remission
- 3) Sensing range on white, 90 % remission

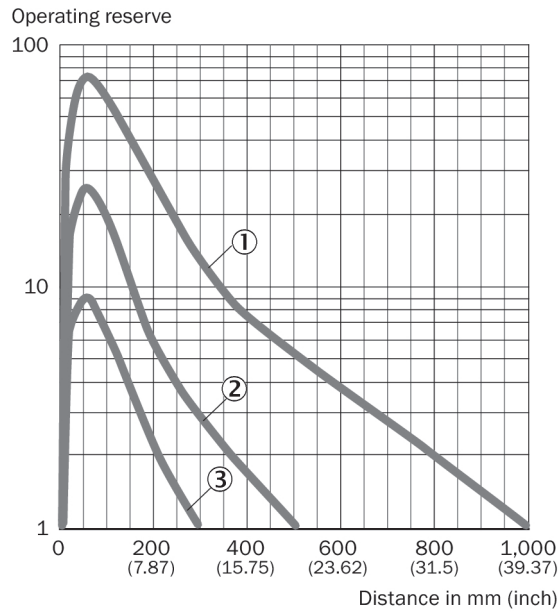


Image 45: H: Sensing range 800 mm

1) Sensing range on black, 6 % remission

2) Sensing range on gray, 20 % remission

3) Sensing range on white, 90 % remission

2 Montar el sensor en una escuadra de fijación adecuada (véase el programa de accesorios SICK).

Respetar el par de apriete máximo admisible del sensor de 2,0 Nm para metal y 0,9 Nm para plástico [véase K].

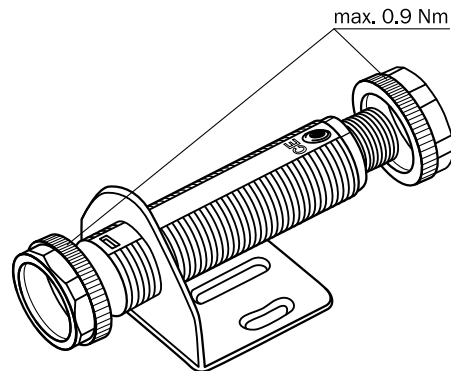


Image: K: GRTE18-x24x7

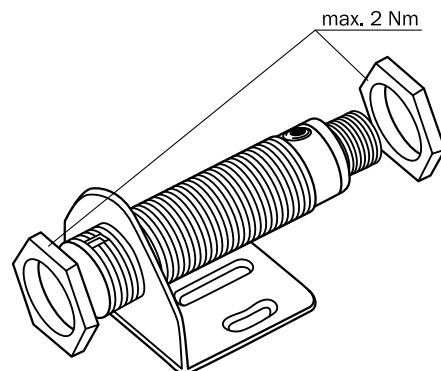


Image: K: GRTE18-x24x2

- 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
 - Cable: color del hilo

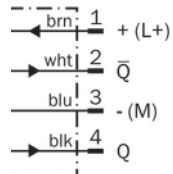


Image: B: GRTE18-x24xx

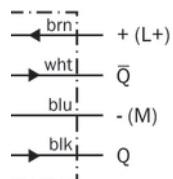


Image: B: GRTE18-x11xx

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):

GRTE18-P (PNP: carga -> M)

GRTE18-N (NPN: carga -> L+)

- 4 Oriente el sensor hacia el objeto. Seleccione una posición que permita que el haz de luz roja del transmisor incida en el centro del objeto. Hay que procurar que la apertura óptica (pantalla frontal) del sensor esté completamente libre [véase figura E].

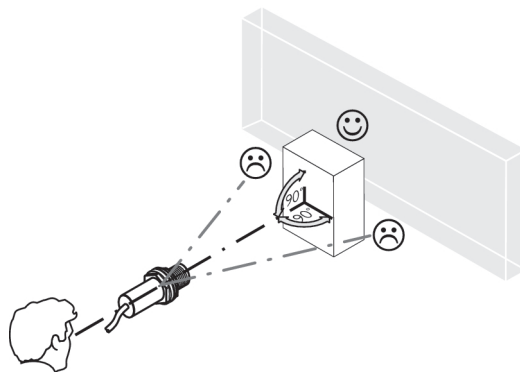
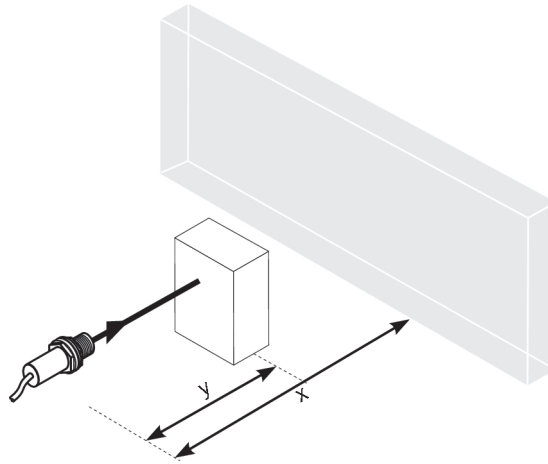


Image 46: E

5



Sensor con potenciómetro:

Con el potenciómetro (tipo: 270°) se ajusta la sensibilidad (distancia de conmutación). Giro hacia la derecha: aumenta la sensibilidad (distancia de conmutación); giro hacia la izquierda: se reduce la sensibilidad (distancia de conmutación). Recomendamos poner la distancia de conmutación en el objeto, p. ej., véase figura F. Una vez ajustada la sensibilidad, retirar el objeto de la trayectoria del haz. La salida conmutada cambia (véase figura C).

El sensor está ajustado y listo para su uso. Para verificar el funcionamiento, véanse las figuras C y G. Si la salida conmutada no se comporta según la figura C, comprobar las condiciones de aplicación. Véase la sección "Diagnóstico de fallos".

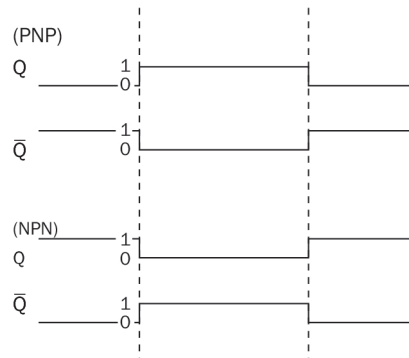
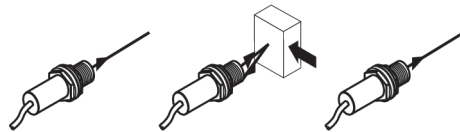


Image 47: C

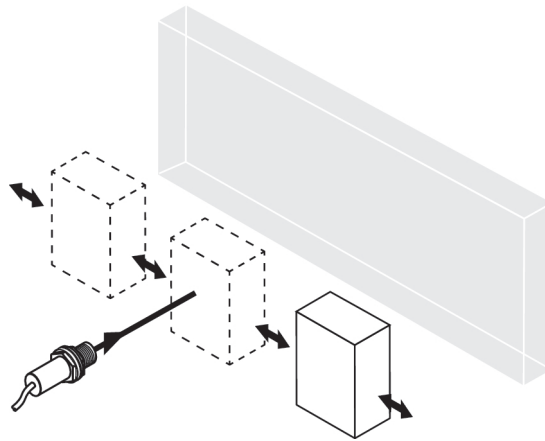


Image 48: G

56 Diagnóstico de fallos

La tabla 57 muestra las acciones que hay que tomar cuando ya no está indicado el funcionamiento del sensor.

57 Tabla_Diagnóstico de fallos

LED indicador / imagen de error / <i>LED indicator/fault pattern</i>	Causa / <i>Cause</i>	Acción / <i>Measures</i>
El LED verde no se ilumina / <i>Green LED does not light up</i>	Sin tensión o tensión por debajo de los valores límite / <i>No voltage or voltage below the limit values</i>	Comprobar la fuente de alimentación, comprobar toda la conexión eléctrica (cables y conectores) / <i>Check the power supply, check all electrical connections (cables and plug connections)</i>
El LED verde no se ilumina / <i>Green LED does not light up</i>	Interrupciones de tensión / <i>Voltage interruptions</i>	Asegurar una fuente de alimentación estable sin interrupciones de tensión / <i>Ensure there is a stable power supply without interruptions</i>
El LED verde no se ilumina / <i>Green LED does not light up</i>	El sensor está defectuoso / <i>Sensor is faulty</i>	Si la fuente de alimentación no tiene problemas, cambiar el sensor / <i>If the power supply is OK, replace the sensor</i>
El LED amarillo parpadea / <i>Yellow LED flashes</i>	El sensor aún está operativo, pero las condiciones de servicio no son óptimas / <i>Sensor is still ready for operation, but the operating conditions are not ideal</i>	Comprobar las condiciones de servicio: Alinear el haz de luz (punto de luz) completamente con el objeto / Limpieza de las superficies ópticas / Reajustar la sensibilidad (potenciómetro) / Comprobar la distancia de conmutación y, si es necesario, adaptarla, véase figura E / <i>Check the operating conditions: Fully align the beam of light (light spot) with the object. / Clean the optical surfaces / Readjust the sensitivity (potentiometer) / Check sensing range and adjust if necessary, see Graphic E</i>

LED indicador / imagen de error / <i>LED indicator/fault pattern</i>	Causa / <i>Cause</i>	Acción / <i>Measures</i>
El LED amarillo se ilumina, no hay ningún objeto en la trayectoria del haz / <i>Yellow LED lights up, no object in the path of the beam</i>	Capacidad de remisión del fondo excesiva / <i>Remission capability of the background is excessive</i>	Verificar los cambios del fondo. Reducir la sensibilidad del sensor o utilizar sensor con supresión de fondo / <i>Check changes to the background. Reduce the sensitivity of the sensor or use sensors with background suppression</i>
El objeto se encuentra en la trayectoria del haz, el LED amarillo no se ilumina / <i>Object is in the path of the beam, yellow LED does not light up</i>	La sensibilidad ajustada es insuficiente o la distancia entre el sensor y el objeto es excesiva / <i>Sensitivity is set too low or distance between the sensor and the object is too long</i>	Aumentar la distancia de conmutación, tener en cuenta la distancia entre el sensor y el fondo, véase figura E / <i>Increase the sensing range, take note of the distance between the sensor and the background, see Graphic E</i>
El objeto se encuentra en la trayectoria del haz, el LED amarillo no se ilumina / <i>Object is in the path of the beam, yellow LED does not light up</i>	La capacidad de remisión del objeto es insuficiente / <i>Remission capability of the object is insufficient</i>	Aumentar la distancia de conmutación, tener en cuenta la distancia entre el sensor y el fondo, véase figura E / <i>Increase the sensing range, take note of the distance between the sensor and the background, see Graphic E</i>

58 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.

59 Mantenimiento

Los sensores SICK no precisan mantenimiento.

A intervalos regulares, recomendamos:

1. Limpiar las superficies ópticas externas
2. 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.

反射式光电传感器 操作说明

62 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。仅限于符合 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。

63 拟定用途

GRTE18 是一种漫反射式光电传感器（下文简称为“传感器”），用于物体、动物和人体的非接触式光学检测。如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。

能量型光电传感器

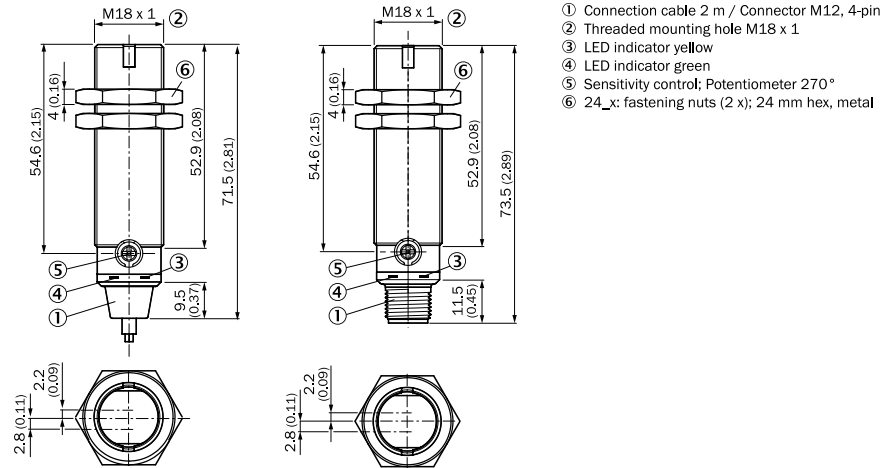


Image 49: GRTE18-xxxx2

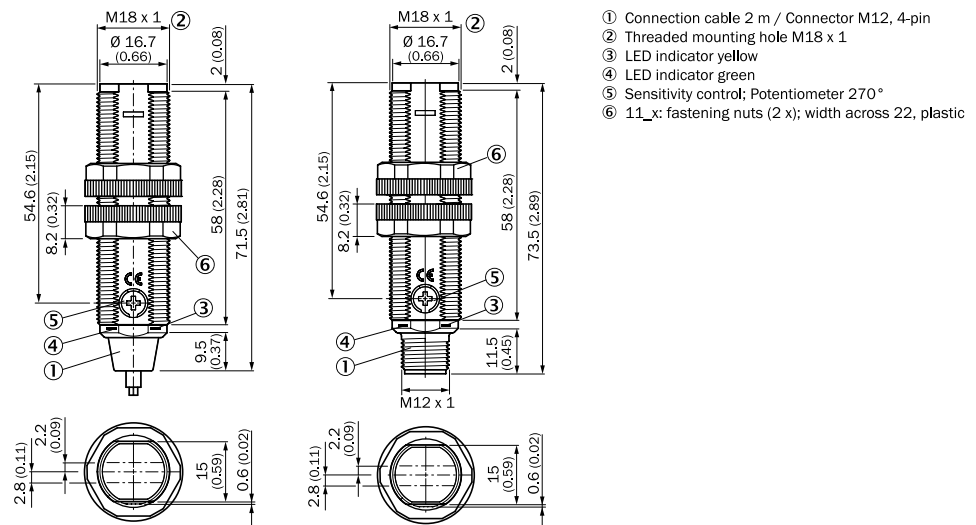


Image 50: GRTE18-xxxx7

64 调试

- 1 检查使用条件：使用随附的图表 [参照 H] 调整开关距离和物体的反射能力。（x = 开关距离，y = 信号冗余）。
仅当物体的反射能力明显大于背景的反射能力或物体和背景之间的间距足够大时，才能检测到位于背景前的物体。

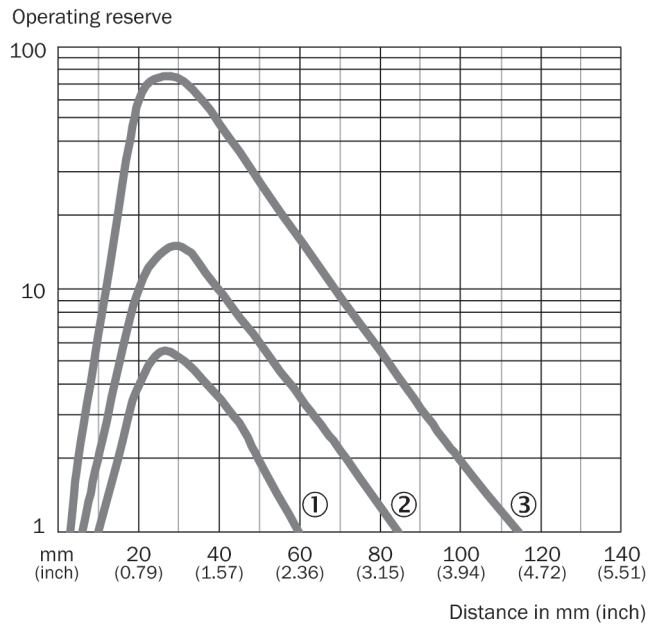


Image 51: H: Sensing range 115 mm

- 1) Sensing range on black, 6 % remission
- 2) Sensing range on gray, 20 % remission
- 3) Sensing range on white, 90 % remission

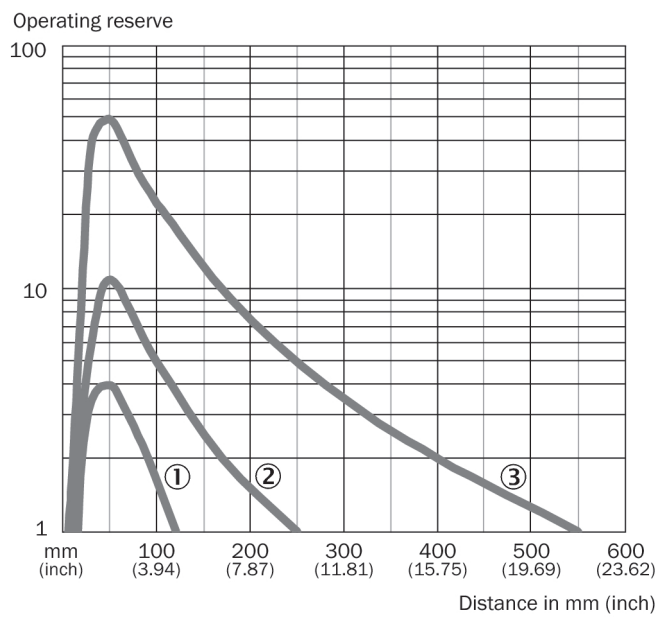


Image 52: H: Sensing range 550 mm

- 1) Sensing range on black, 6 % remission
- 2) Sensing range on gray, 20 % remission
- 3) Sensing range on white, 90 % remission

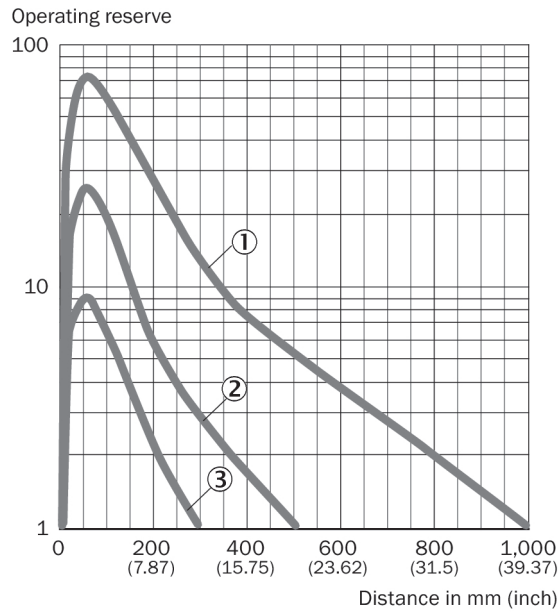


Image 53: H: Sensing range 800 mm

1) Sensing range on black, 6 % remission

2) Sensing range on gray, 20 % remission

3) Sensing range on white, 90 % remission

- 2 将传感器安装在合适的安装托架上（参见 SICK 附件说明书）。
传感器金属部件的拧紧扭矩为 2.0 NM，塑料部件的拧紧扭矩为 0.9 NM [根据 K]。

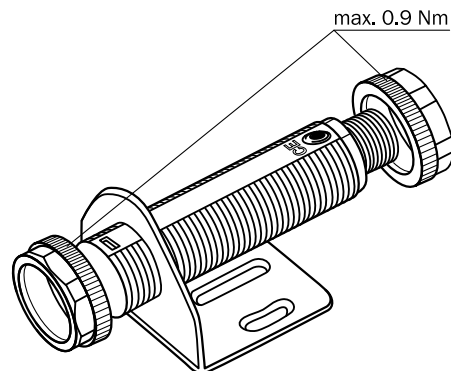


Image: K: GRTE18-x24x7

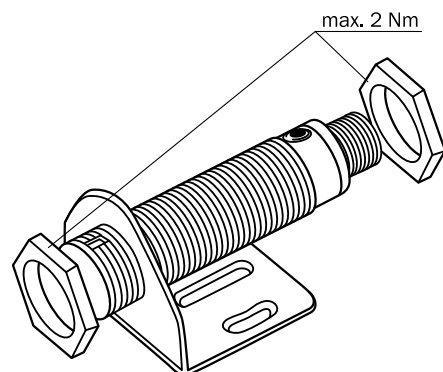


Image: K: GRTE18-x24x2

- 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
- 导线：芯线颜色

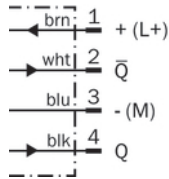


Image: B: GRTE18-x24xx

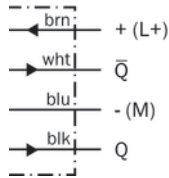


Image: B: GRTE18-x11xx

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)：

GRTE18-P (PNP：负载 -> M)

GRTE18-N (NPN：负载 -> L+)

- 4 将传感器对准物体。选择定位，确保红色发射光束射中物体的中间。此时，应注意传感器的光学开口（前部玻璃）处无任何遮挡 [参照 E]。

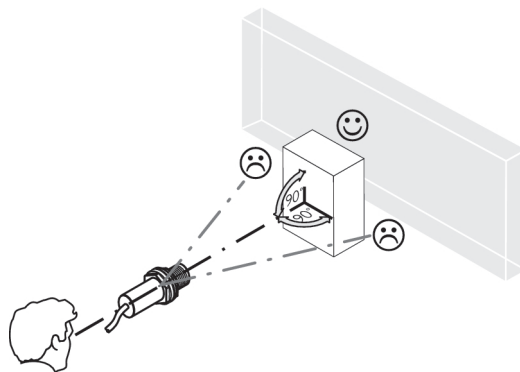
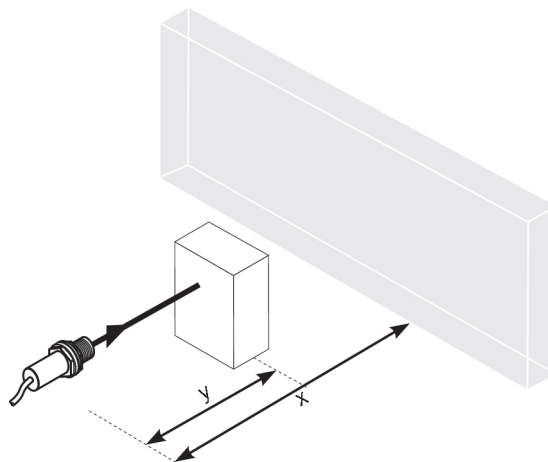


Image 54: E

- 5



配电位计的传感器：

使用电位计（型号：270°）设置灵敏度（开关距离）。向右旋转：提高灵敏度（开关距离），向左旋转：降低灵敏度（开关距离）。我们建议开关距离应涵盖物体；例如，参见图 F。灵敏度设置完成后，将物体从光路中移出。改变开关输出端（参见图 C）。

传感器已设置并准备就绪。参照图 C 和 G 检查功能。如果开关输出端的动作不符合图 C，则须检查使用条件。参见故障诊断章节。

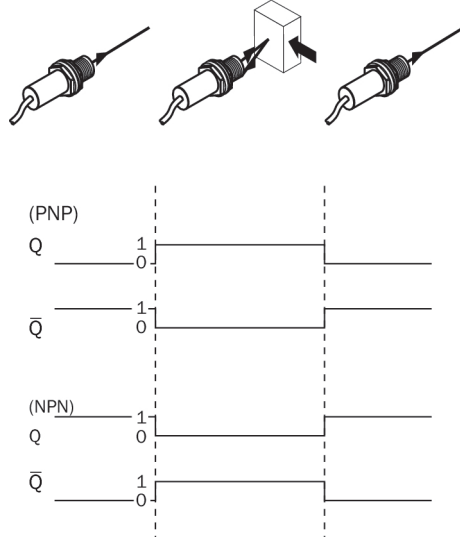


Image 55: C

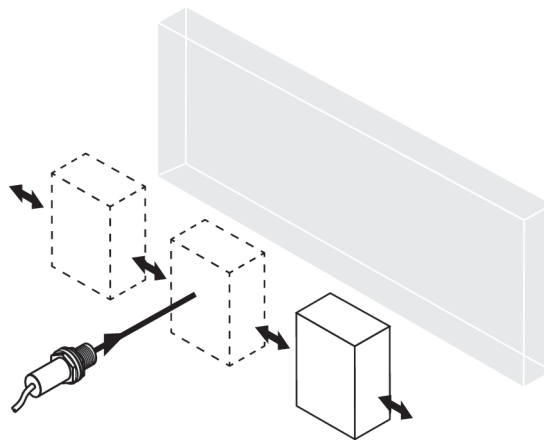


Image 56: G

66 故障诊断

表 67 中罗列了传感器无法执行某项功能时应采取的各项措施。

67 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)

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	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
，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）完全对准物体 / 清洁光学表面 / 重新设置灵敏度（电位计） / 检查开关距离，必要时调整；参见图 E / Check the operating conditions: Fully align the beam of light (light spot) with the object. / Clean the optical surfaces / Readjust the sensitivity (potentiometer) / Check sensing range and adjust if necessary, see Graphic E
黄色 LED 亮起，光路中无物体 / Yellow LED lights up, no object in the path of the beam	背景的反射能力过高 / Remission capability of the background is excessive	检查背景的变化。降低传感器灵敏度或使用带背景抑制功能的探测器 / Check changes to the background. Reduce the sensitivity of the sensor or use sensors with background suppression
光路中有物体，黄色 LED 未亮起 / Object is in the path of the beam, yellow LED does not light up	灵敏度的设置过低或传感器和物体之间的间距过大 / Sensitivity is set too low or distance between the sensor and the object is too long	增大开关距离，注意传感器和背景之间的间距，参见图 E / Increase the sensing range, take note of the distance between the sensor and the background, see Graphic E
光路中有物体，黄色 LED 未亮起 / Object is in the path of the beam, yellow LED does not light up	物体的反射能力过低 / Remission capability of the object is insufficient	增大开关距离，注意传感器和背景之间的间距，参见图 E /

68 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。

69 保养

SICK 传感器无需保养。

我们建议，定期：

1. 清洁镜头检测面
2. 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。

光電近接センサ

取扱説明書

72 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の機械指令を満たす人体保護の為の安全コンポーネントではありません。NFFPA 79に準拠した用途にのみ使用してください。接続ケーブル付き UL 規格のアダプタも使用できます。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。

73 正しいご使用方法

GRTE18は反射形光電センサ（以下「センサ」）で、物体、動物または人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。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。

エネルギー性光電近接センサ

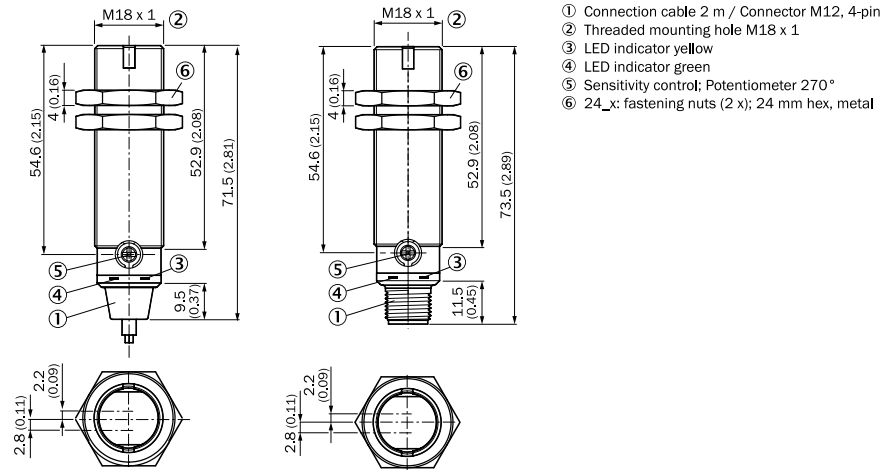


Image 57: GRTE18-xxxx2

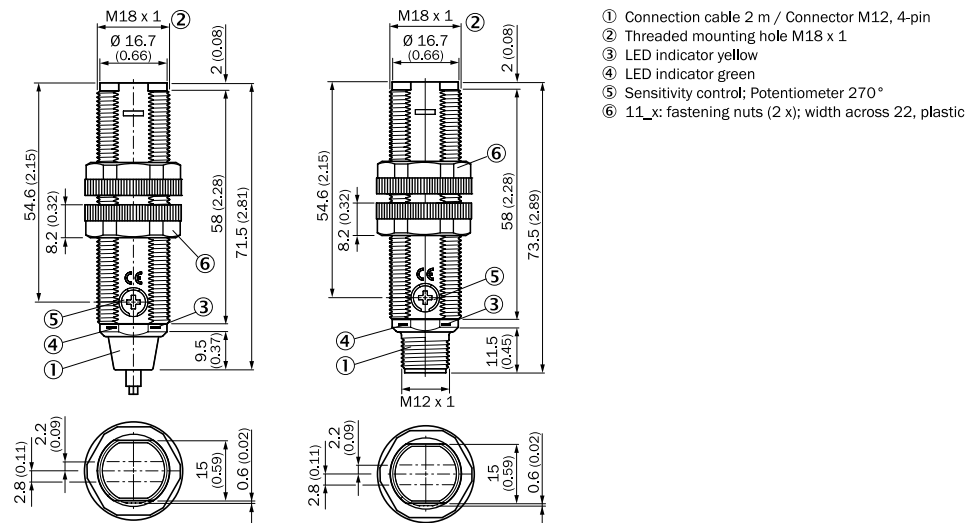


Image 58: GRTE18-xxxx7

74 コミッショニング

- 1 使用条件に従ってください：対応する図 [H] に従って、検出範囲および対象物の反射率を設定します (x = 検出範囲、y = 動作余裕度)。この際、対象物を背景前で検出することができるのは、対象物の反射率が背景のそれよりも高い場合、または対象物と背景との距離が十分に確保出来ている場合のみです。

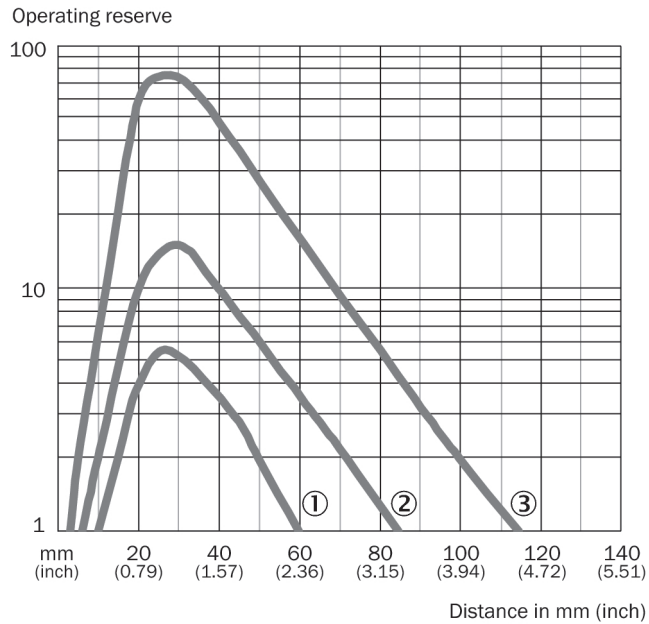


Image 59: H: Sensing range 115 mm

- 1) Sensing range on black, 6 % remission
- 2) Sensing range on gray, 20 % remission
- 3) Sensing range on white, 90 % remission

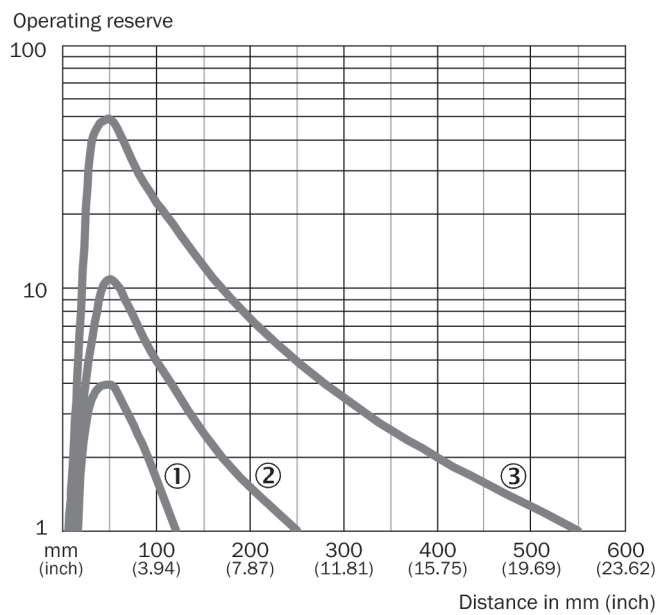


Image 60: H: Sensing range 550 mm

- 1) Sensing range on black, 6 % remission
- 2) Sensing range on gray, 20 % remission

3) Sensing range on white, 90 % remission

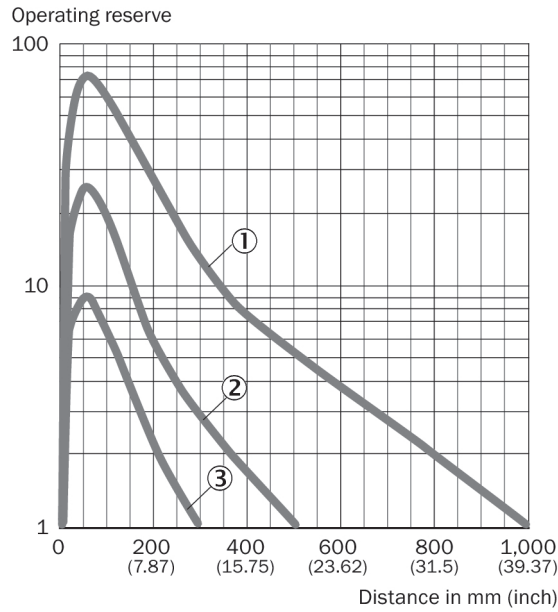


Image 61: H: Sensing range 800 mm

1) Sensing range on black, 6 % remission

2) Sensing range on gray, 20 % remission

3) Sensing range on white, 90 % remission

- 2 適切なブラケットを使用してセンサを取り付けます (SICK 付属品カタログを参照)。
センサの最大許容締付トルク 2.0 Nm (金属) / 0.9 Nm (プラスチック) に注意してください [K]。

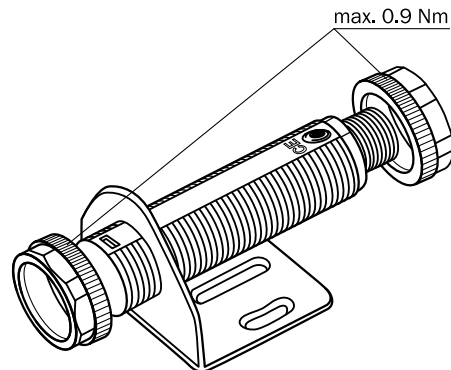


Image: K: GRTE18-x24x7

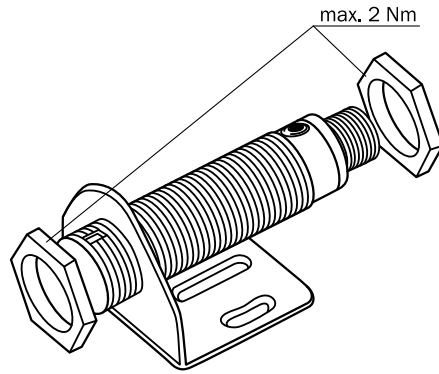


Image: K: GRTE18-x24x2

- 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
 - ケーブル：芯の色

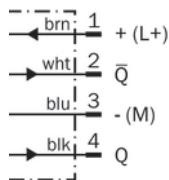


Image: B: GRTE18-x24xx

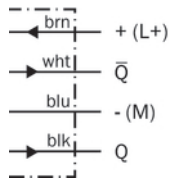


Image: B: GRTE18-x11xx

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)：

GRTE18-P (PNP：負荷 → M)

GRTE18-N (NPN：負荷 → L+)

- 4 センサを対象物に合わせます。赤色光投光スポットが対象物の中央に照射されるように位置を選択します。センサの光学面 (フロントスクリーン) の視界を遮るものが一切ないことを確認してください [E]。

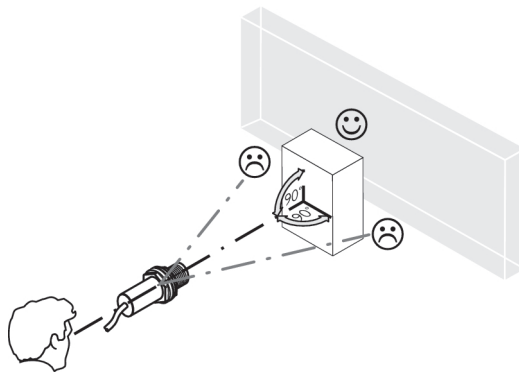
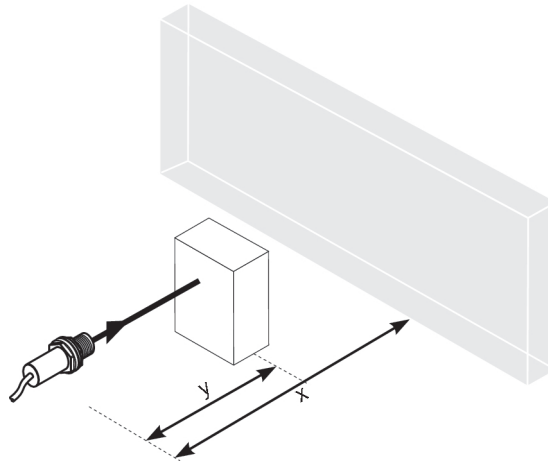


Image 62: E

5



感度調整ボリューム付きセンサ :

感度（検出範囲）は感度調整ボリューム（タイプ：270°）で調整します。右回転：感度（検出範囲）を増加；左回転：感度（検出範囲）を減少。対象物のスイッチング状態を正確に設定することをお勧めします。例えば図 F を参照。感度調整後、対象物が光軸から取り除かれます。スイッチング出力が変化します（図 C を参照）。

センサは調整済みで、操作できる状態です。図 C および G を参照し、機能点検してください。スイッチング出力が図 C のように動作しない場合、使用条件を確認してください。故障診断の項を参照してください。

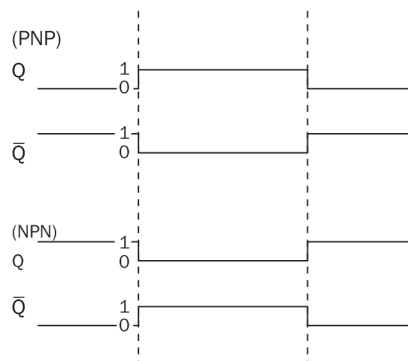
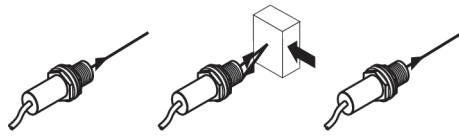


Image 63: C

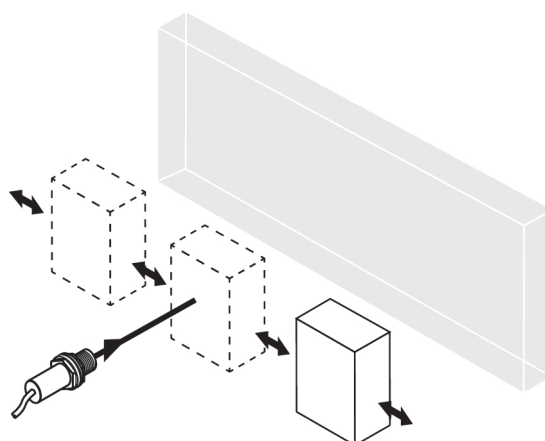


Image 64: G

76 故障診断

表 77 には、センサが動作しなくなった場合の対策が示されています。

77 Tab_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
黄色い LED が点滅 / Yellow LED flashes	センサは操作可能状態ですが、動作条件に問題があります / 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）を対象物に完全に合わせます / 光学面を清掃する / 感度を再調整する（感度調整ボリューム） / 検出範囲を確認し必要に応じて調整します、図 E を参照 / Check the operating conditions: Fully align the beam of light (light spot) with the object. / Clean the optical surfaces / Readjust the sensitivity (potentiometer) / Check sensing range and adjust if necessary, see Graphic E

LED 表示灯/故障パターン / LED indicator/fault pattern	原因 / Cause	対策 / Acción
黄色い LED が点灯、光軸に対象物がない / Yellow LED lights up, no object in the path of the beam	背景からの反射が過剰状態です / Remission capability of the background is excessive	背景の変更を確認してください。センサの感度を下げるか、または BGS 機能付きのセンサを使用してください / Check changes to the background. Reduce the sensitivity of the sensor or use sensors with background suppression
対象物は光軸にある、黄色い LED は点灯しない / Object is in the path of the beam, yellow LED does not light up	センサの設定感度が低すぎるか、またはセンサと対象物との距離が長すぎる / Sensitivity is set too low or distance between the sensor and the object is too long	検出範囲を拡大し、センサと背景の間隔に注意します、図 E を参照 / Increase the sensing range, take note of the distance between the sensor and the background, see Graphic E
対象物は光軸にある、黄色い LED は点灯しない / Object is in the path of the beam, yellow LED does not light up	検出対象物の反射率が不十分 / Remission capability of the object is insufficient	検出範囲を拡大し、センサと背景の間隔に注意します、図 E を参照 / Increase the sensing range, take note of the distance between the sensor and the background, see Graphic E

78 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）。

79 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：

1. 外部レンズの表面を清掃する
2. ねじ接続およびコネクタプラグの接続状態を点検する

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 световой датчик Руководство по эксплуатации

82 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 «Машины и машинное оборудование». Только для использования в областях применения согласно NFPA 79. Адаптеры с соединительными кабелями из списка UL доступны. 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.

83 Использование по назначению

GRTE18 является оптоэлектронным отражательным световым датчиком (в дальнейшем называемым "сенсор") и используется для оптической бесконтактной регистрации вещей, животных и людей. При ином использовании и при внесении изменений в изделие подача любых гарантийных претензий к SICK AG исключена.

Энергетический отражательный световой датчик

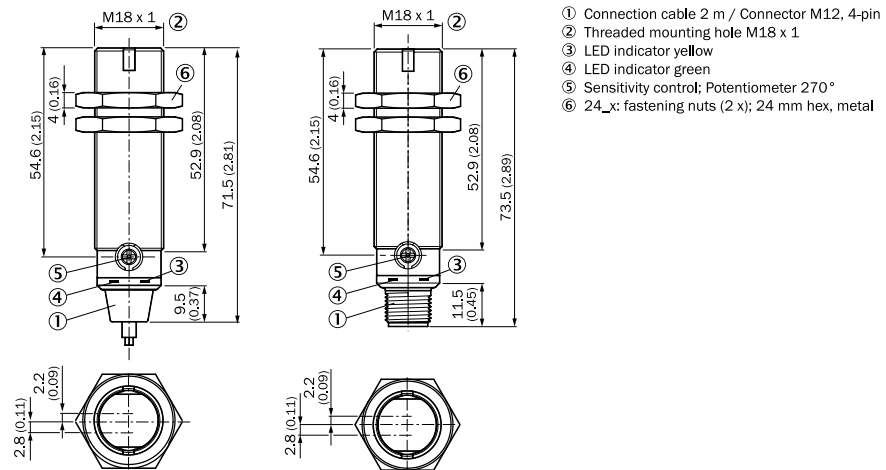


Image 65: GRTE18-xxxx2

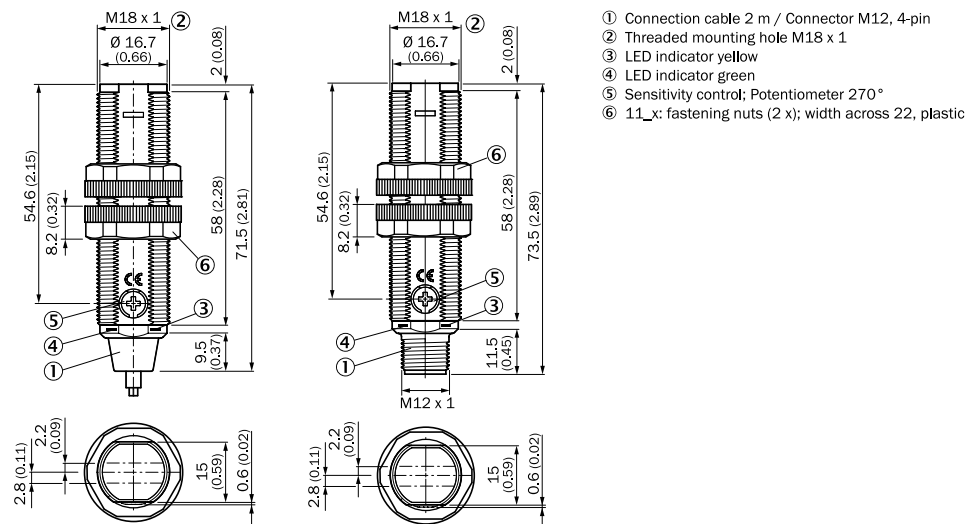


Image 66: GRTE18-xxxx7

84 Ввод в эксплуатацию

- 1 Проверить условия применения: скорректировать дистанцию переключения и яркость объекта с помощью соответствующей диаграммы [см. Н]. (x = дистанция переключения, y = функциональный резерв).
При этом можно детектировать объект на фоне лишь в том случае, если яркость объекта существенно выше, чем яркость фона или расстояние между объектом и фоном достаточно велико.

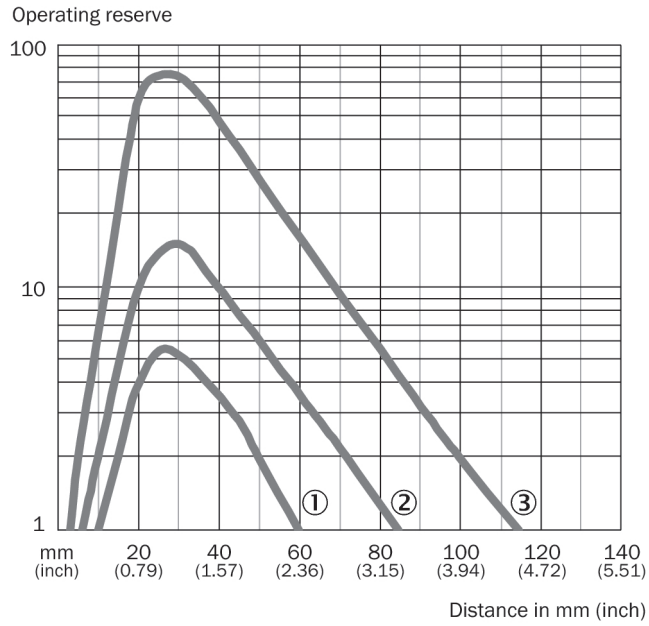


Image 67: H: Sensing range 115 mm

- 1) Sensing range on black, 6 % remission
- 2) Sensing range on gray, 20 % remission
- 3) Sensing range on white, 90 % remission

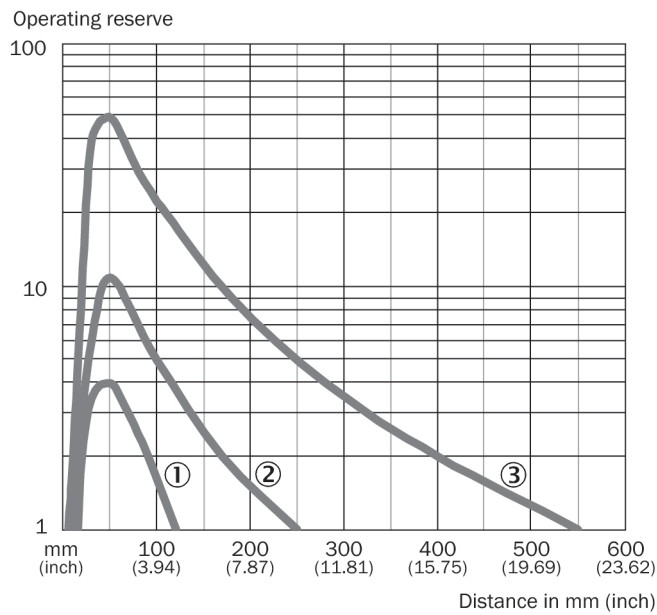


Image 68: H: Sensing range 550 mm

- 1) Sensing range on black, 6 % remission
- 2) Sensing range on gray, 20 % remission
- 3) Sensing range on white, 90 % remission

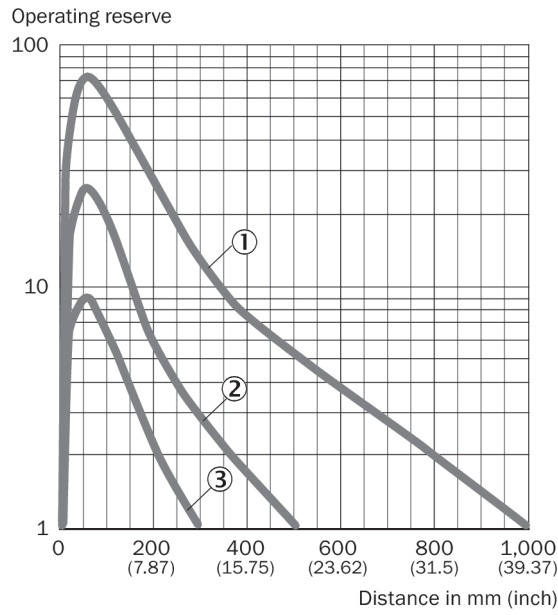


Image 69: H: Sensing range 800 mm

1) Sensing range on black, 6 % remission

2) Sensing range on gray, 20 % remission

3) Sensing range on white, 90 % remission

2 Установите сенсор на подходящем крепежном уголке (см. программу принадлежностей от SICK).

Выдерживайте максимально допустимый момент затяжки сенсора в 2,0 Нм для металла / 0,9 Нм для пластмассы [см. К].

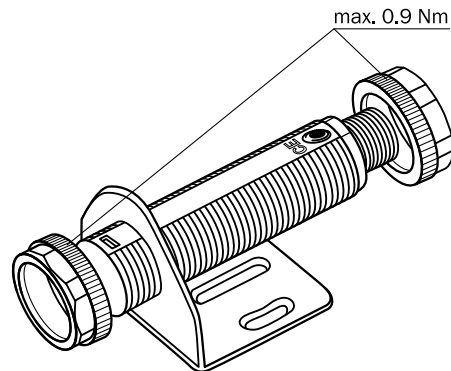


Image: K: GRTE18-x24x7

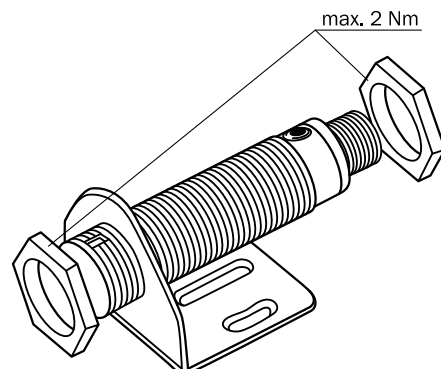


Image: K: GRTE18-x24x2

- 3 Подключайте сенсоры при отключенном напряжении питания ($V_S = 0\text{ В}$). В зависимости от типа подключения следует принять во внимание информацию с графиков [см. В]:
- Штекерный разъем: назначение контактов
 - Проводник: цвет жилы

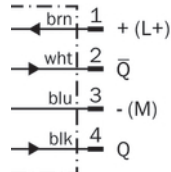


Image: B: GRTE18-x24xx

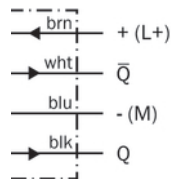


Image: B: GRTE18-x11xx

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

Пояснения к схеме электрических соединений (график В):
Коммутирующие выходы Q или /Q (согласно графику В):

GRTE18-P (PNP: нагрузка -> M)

GRTE18-N (NPN: нагрузка -> L+)

- 4 Направьте сенсор на объект. Выберите такую позицию, чтобы красный луч передатчика попал в центр объекта. Оптическое отверстие (фронтальное стекло) на сенсоре должно быть полностью свободным [см. Е].

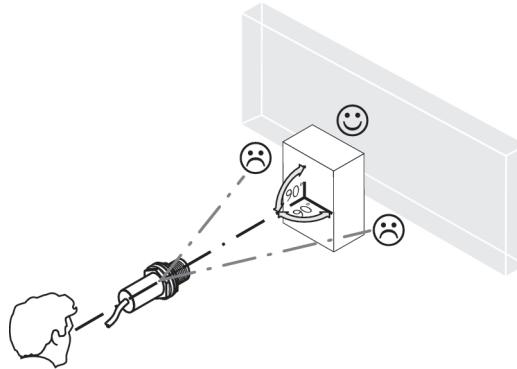
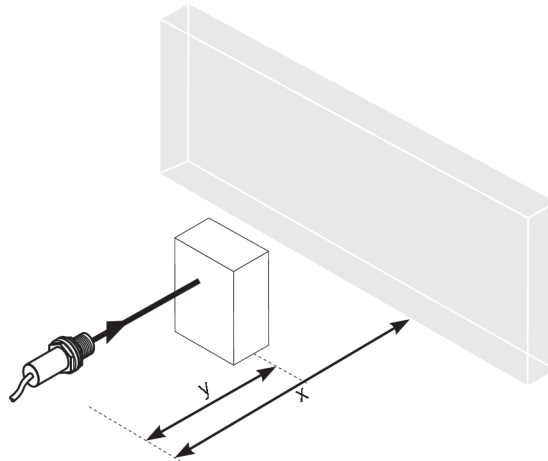


Image 70: E

5



Сенсор с потенциометром:

С помощью потенциометра (тип: 270°) регулируется чувствительность (дистанция переключения). Вращение вправо: увеличение чувствительности (дистанции переключения), вращение влево: уменьшение чувствительности (дистанции переключения). Рекомендуется установить дистанцию срабатывания в объекте, например, см. график F. После регулировки чувствительности удалить объект с пути луча. Состояние коммутирующего выхода изменяется (см. график C).

Сенсор настроен и готов к эксплуатации. Для проверки функционирования воспользуйтесь графиками C и G. Если характер поведения коммутирующего выхода не соответствует графику C, проверить условия применения. См. раздел "Диагностика неисправностей".

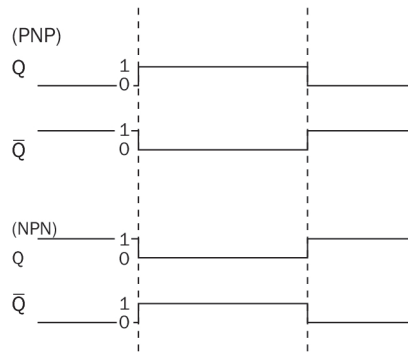
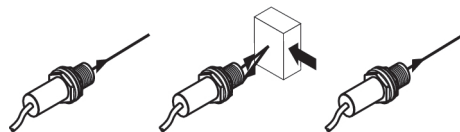


Image 71: C

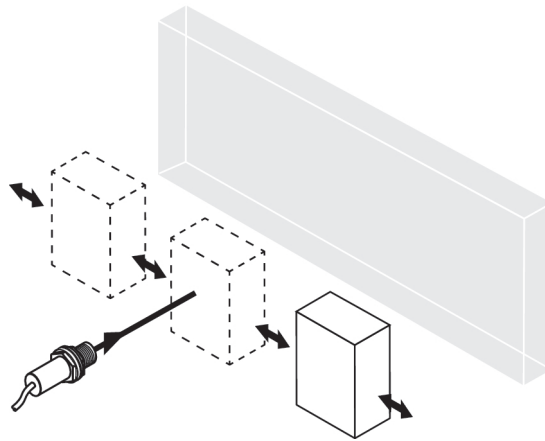


Image 72: G

86 Диагностика неисправностей

В таблице 87 показано, какие меры нужно предпринять, если сенсоры не работают.

87 Таб_диагностики неисправностей

Светодиодный индикатор / картина неисправности / <i>LED indicator/fault pattern</i>	Причина / <i>Cause</i>	Меры по устранению / <i>Measures</i>
зеленый светодиод не горит / <i>Green LED does not light up</i>	нет напряжения питания или оно ниже нижнего предельного значения / <i>No voltage or voltage below the limit values</i>	Проверить напряжения питания, всю схему электроподключения (проводку и разъемные соединения) / <i>Check the power supply, check all electrical connections (cables and plug connections)</i>
зеленый светодиод не горит / <i>Green LED does not light up</i>	Пропадание напряжения питания / <i>Voltage interruptions</i>	Обеспечить надежную подачу напряжения питания без его пропадания / <i>Ensure there is a stable power supply without interruptions</i>
зеленый светодиод не горит / <i>Green LED does not light up</i>	Сенсор неисправен / <i>Sensor is faulty</i>	Если напряжение питания в порядке, то заменить сенсор / <i>If the power supply is OK, replace the sensor</i>

Светодиодный индикатор / картина неисправности / LED indicator/fault pattern	Причина / Cause	Меры по устранению / Measures
желтый светодиод мигает / Yellow LED flashes	Сенсор пока еще готов к работе, но эксплуатационные условия неоптимальны / <i>Sensor is still ready for operation, but the operating conditions are not ideal</i>	Проверка эксплуатационных условий: Полностью сориентировать световой луч (световое пятно) на объект / чистка оптических поверхностей / заново настроить чувствительность (потенциометром) / проверить и, при необходимости, скорректировать дистанцию срабатывания, см. график E / <i>Check the operating conditions: Fully align the beam of light (light spot) with the object. / Clean the optical surfaces / Readjust the sensitivity (potentiometer) / Check sensing range and adjust if necessary, see Graphic E</i>
желтый светодиод горит, объект на пути луча отсутствует / Yellow LED lights up, no object in the path of the beam	Слишком высокая характеристика яркости основания / <i>Remission capability of the background is excessive</i>	Проверить изменения фона. Уменьшить чувствительность сенсора или использовать датчик с подавлением заднего фона. / <i>Check changes to the background. Reduce the sensitivity of the sensor or use sensors with background suppression</i>
Объект на пути луча, желтый светодиод не горит / Object is in the path of the beam, yellow LED does not light up	Установлена слишком малая чувствительность или расстояние между сенсором и объектом слишком велико / <i>Sensitivity is set too low or distance between the sensor and the object is too long</i>	Увеличить дистанцию переключения, соблюдать расстояние между сенсором и фоном, см. график E / <i>Increase the sensing range, take note of the distance between the sensor and the background, see Graphic E</i>
Объект на пути луча, желтый светодиод не горит / Object is in the path of the beam, yellow LED does not light up	Характеристика яркости объекта слишком мала / <i>Remission capability of the object is insufficient</i>	Увеличить дистанцию переключения, соблюдать расстояние между сенсором и фоном, см. график E / <i>Increase the sensing range, take note of the distance between the sensor and the background, see Graphic E</i>

88 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).

89 Техобслуживание

Датчики SICK не нуждаются в техобслуживании.

Рекомендуется регулярно

1. очищать оптические ограничивающие поверхности
2. 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.

								GRTE18-xxx1x	GRTE18-xxx4x	GRTE18-xxx6x
Sensing range	Schaltabstand	Distance de commutation	Distância de comutação	Distanza di commutazione	Distancia de comutación	开关距离	検出範囲	5 ... 100 mm	10 ... 400 mm	10 ... 800 mm
Sensing range max.	Schaltabstand max.	Por-tée max.	Distância de comutação máx.	Distanza di commutazione max.	Distancia de comutación máx.	最大开关距离	最大検出範囲	3 ... 115 mm ¹⁾	5 ... 550 mm ¹⁾	5 ... 1,000 mm ¹⁾
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	8 mm / 100 mm	9 mm / 400 mm	45 mm / 800 mm
Supply voltage U _v	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 ²⁾	DC 10 ... 30 V ²⁾	DC 10 ... 30 V ²⁾
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 ³⁾	100 mA ³⁾	100 mA ³⁾
Max. switching frequency	Schaltfolge max.	Commutation max.	Sequência máx. de comutação	Sequenza di commutazione max.	Secuencia de comutación máx.	最大开关操作顺序	最大スイッチング周波数	500 / s ⁴⁾	500 / s ⁴⁾	500 / s ⁴⁾
Response time	Ansprechzeit	Temps de réponse	Tempo de resposta	Tempo di reazione	Tiempo de respuesta	响应时间	応答時間	< 1 ms ⁵⁾	< 1 ms ⁵⁾	< 1 ms ⁵⁾
Enclosure rating	Schutzart	Indice de protection	Tipo de proteção	Tipo di protezione	Tipo de protección	防护类型	保護等級	IP 67	IP 67	IP 67
Protection class	Schutzklasse	Classe de protection	Classe de proteção	Classe di protezione	Clase de protección	防护等级	保護クラス	III	III	III
Circuit protection	Schutzschaltungen	Protections électriques	Circuitos de proteção	Commutazioni di protezione	Circuitos de protección	保护电路	回路保護	A,B,D ⁶⁾	A,B,D ⁶⁾	A,B,D ⁶⁾
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)	-25 °C ... +55 °C ⁷⁾	-25 °C ... +55 °C ⁷⁾	-25 °C ... +55 °C ⁷⁾
1) Object with 90 % remission (based on standard white DIN 5033)	1) Tastgut mit 90 % Remission (bezogen auf Standard-Weiß DIN 5033)	1) Objet avec 90 % de réémission (par rapport au blanc standard selon DIN 5033)	1) Objeto a ser detectado com 90% de luminância (com base no padrão branco DIN 5033)	1) Oggetto con il 90% di remissione (riferito al bianco standard DIN 5033)	1) Material con un 90% de reflexión (sobre el blanco estándar según DIN 5033)	1) 具有 90 % 反射比的扫描对象 (指 DIN 5033 规定的标准白)	1) 反射率 90 % の対象物 (DIN 5033 に準拠した白色)			
2) Limit value: operation in short-circuit protection mains max. 8 A; residual ripple max. 5 Vss	2) Grenzwerte: Betrieb im kurzschlussgeschützten Netz max. 8 A; Restwelligkeit max. 5 Vss	2) Valeurs limites : fonctionnement sur réseau protégé contre les courts-circuits max. 8 A ; ondu-	2) Valores limite: funcionamento com rede à prova de curto-circuito max. 8 A; ondu-	2) Valori limite: funzionamento in rete protetta da cortocircuito max. 8 A; ondu-	2) Valores límite: funcionamiento en red protegida contra cortocircuitos máx. 8 A; ondu-	2) 极限值: 在防短路电网中运行, 最大 8 A ; 最大余波 5 Vss	2) 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			
						3) UV > 24 V, 且环境温度 >	3) UV > 24 V、および周囲温度 > 49 °C			

								GRTE18-xxx1x	GRTE18-xxx4x	GRTE18-xxx6x
<p>3) When UV > 24 V and ambient temperature > 49°C IAmax. = 50 mA.</p> <p>4) With light / dark ratio 1:1</p> <p>5) Signal transit time with resistive load</p> <p>6) A = UV-connecti- ons reverse polarity protected B = inputs and output reverse-polarity protected</p> <p>D = out- puts over- current and short-circuit pro- tected</p> <p>7) When UV 24 V and IA < 50 mA</p>	<p>3) Bei UV > 24 V und Umge- bungstem- peratur > 49°C IAmax. = 50 mA.</p> <p>4) Mit Hell- / Dunkelver- hältnis 1:1</p> <p>5) Signal- laufzeit bei ohmscher Last</p> <p>6) A = UV- Anschlüss e verpolsi- cher B = Ein- und Aus- gänge ver- polsicher</p> <p>D = Aus- gänge überstrom- und kurz- schlussfest</p> <p>7) Bei UV 24 V und IA < 50 mA</p>	<p>lacion rési- duelle max. 5 Vcc</p> <p>3) Pour Uv > 24 V ou tempéra- ture ambi- ante > 49 °C, IAmax. = 50 mA.</p> <p>4) Pour un rapport clair/ sombre de 1:1</p> <p>5) Temps de propa- gation du signal sur charge ohmique</p> <p>6) A = rac- corde- ments UV protégés contre les inversions de polarité B = ent- rées et sor- ties proté- gées contre les inversions de polarité</p> <p>D = sorties protégées contre les courts-cir- cuits et les surcharges</p> <p>7) Pour Uv 24 V et IA < 50 mA</p>	<p>lação resi- dual máx. 5 Vss</p> <p>3) Com UV > 24 V e tempera- tura ambi- ente > 49°C IAmax. = 50 mA.</p> <p>4) Com pro- porção sombra/lu z 1:1</p> <p>5) Tempo de funcio- namento do sinal com carga ôhmica</p> <p>6) A = conexões protegidas contra inversão de pólos UV B = Entra- das e saí- das prote- gidas contra polaridade inversa</p> <p>D = Saídas protegidas contra sobrecor- rente e curto-cir- cuito</p> <p>7) Com UV 24 V e IA < 50 mA</p>	<p>lazione residua max. 5 Vss</p> <p>3) Con UV > 24 V e tempera- tura d'am- biente > 49°C IAmax. = 50 mA.</p> <p>4) Con rap- porto chiaro / scuro 1:1</p> <p>5) Durata segnale con carico ohmico</p> <p>6) A = UV- Allaccia- menti pro- tetti dall'in- versione di polarità B = entrate e uscite protette da polarità inversa</p> <p>D = uscite protette da sovracor- rente e da cortocir- cuito.</p> <p>7) Con UV 24 V e IA < 50 mA</p>	<p>lación resi- dual máx. 5 Vss</p> <p>3) Con UV > 24 V y tempera- tura ambi- ente > 49 °C IAmax. = 50 mA.</p> <p>4) Con una relación claro/ oscuro de 1:1</p> <p>5) Duración de la señal con carga óhmica</p> <p>6) Conexio- nes A = UV protegidas contra polariza- ción inversa B = Entra- das y sali- das prote- gidas contra polariza- ción incor- recta</p> <p>D=Salidas a prueba de sobre- corriente y cortocircui- tos.</p> <p>7) Con UV 24 V e IA < 50 mA</p>	<p>49°C IAmax.= 50 mA。</p> <p>4) 明暗比 为 1:1</p> <p>5) 信号传 输时间 (电阻负 载时)</p> <p>6) A = UV 接口 (已 采取反极 性保护措 施) B = 具有反 极性保护 的输入端 和输出端</p> <p>D = 抗过载 电流和抗 短路输出 端</p> <p>7) 当 UV 24 V 和 IA < 50 mA 时</p>	<p>IAmax.= 50 mA の 場合。</p> <p>4) ライト/ ダークの 比率 1:1</p> <p>5) 負荷の ある信号 経過時間</p> <p>6) A = UV 接続は逆 接保護 B = 入力お よび出力 は逆接保 護 D = 出力過 電流およ び短絡保 護</p> <p>7) UV 24 V、IA < 50 mA の場合</p>			