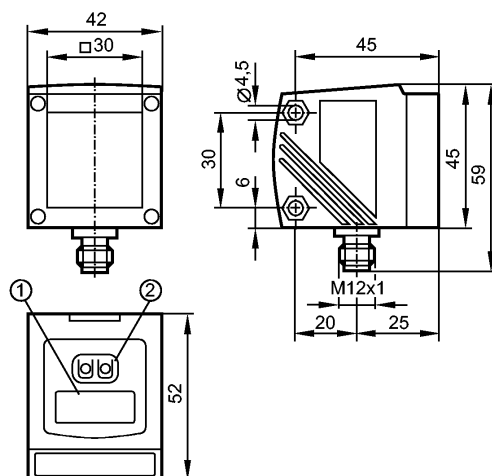


**O1D104**

O1DLFNKG

Optische Sensoren



1: 4-stellige alphanumerische Anzeige  
2: Programmier Tasten


**Produktmerkmale**

Optischer Abstandssensor

Steckverbindung

Hintergrundausblendung

Sichtbares Laserlicht, Laserschutzklasse 2

4-stellige alphanumerische Anzeige

Messbereich 0,2...10 m (bezogen auf weißes Papier 200x200 mm, 90% Remission)

Hintergrundausblendung &gt;10...100 m

**Elektrische Daten**

|                        |            |
|------------------------|------------|
| Elektrische Ausführung | DC NPN     |
| Betriebsspannung [V]   | 10...30 DC |
| Stromaufnahme [mA]     | < 150      |
| Lebensdauer typ. [h]   | 50000      |
| Schutzklasse           | III        |
| Verpolungsschutz       | ja         |

**Ausgänge**

|                         |                                   |
|-------------------------|-----------------------------------|
| Ausgangsfunktion        | Schließer / Öffner programmierbar |
| Strombelastbarkeit [mA] | 200                               |
| Kurzschlussschutz       | getaktet                          |
| Überlastfest            | ja                                |

**Erfassungsbereich**

|                            |                            |
|----------------------------|----------------------------|
| Hintergrundausblendung     | >10...100 m                |
| Lichtfleckdurchmesser [mm] | < 15 x 15 (Tastweite 10 m) |

**Mess- / Einstellbereich**

|                     |                                                                |
|---------------------|----------------------------------------------------------------|
| Messbereich [m]     | 0,2...10 (bezogen auf weißes Papier 200x200 mm, 90% Remission) |
| Schaltfrequenz [Hz] | 5                                                              |

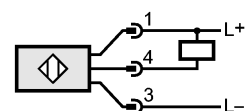
**Umgebungsbedingungen**

|                          |          |
|--------------------------|----------|
| Umgebungstemperatur [°C] | -10...60 |
| Schutzart                | IP 67    |

**O1D104**

O1DLFNKG

Optische Sensoren

| Zulassungen / Prüfungen                                                                                                                                                       |                                                                                                                                                                                                                                                                              |          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| MTTF                                                                                                                                                                          | [Jahre]                                                                                                                                                                                                                                                                      | 228      |
| Mechanische Daten                                                                                                                                                             |                                                                                                                                                                                                                                                                              |          |
| Gehäusewerkstoffe                                                                                                                                                             | Gehäuse: Zinkdruckguss; Frontscheibe: Glas; LED-Fenster: Polycarbonat                                                                                                                                                                                                        |          |
| Gewicht                                                                                                                                                                       | [kg]                                                                                                                                                                                                                                                                         | 0,258    |
| Anzeigen / Bedienelemente                                                                                                                                                     |                                                                                                                                                                                                                                                                              |          |
| Anzeige                                                                                                                                                                       | Schaltzustand                                                                                                                                                                                                                                                                | LED gelb |
|                                                                                                                                                                               | Betrieb                                                                                                                                                                                                                                                                      | LED grün |
|                                                                                                                                                                               | Abstandswert, Programmierung 4-stellige alphanumerische Anzeige                                                                                                                                                                                                              |          |
| Elektrischer Anschluss                                                                                                                                                        |                                                                                                                                                                                                                                                                              |          |
| Anschluss                                                                                                                                                                     | M12-Steckverbindung                                                                                                                                                                                                                                                          |          |
| <b>Anschlussbelegung</b>                                                                                                                                                      |                                                                                                                                                                                                                                                                              |          |
| <div></div> |                                                                                                                                                                                                                                                                              |          |
| Zubehör                                                                                                                                                                       |                                                                                                                                                                                                                                                                              |          |
| Zubehör (optional)                                                                                                                                                            | Abdeckscheibe E21133                                                                                                                                                                                                                                                         |          |
| Bemerkungen                                                                                                                                                                   |                                                                                                                                                                                                                                                                              |          |
| Bemerkungen                                                                                                                                                                   | <p>Achtung: Laserlicht</p> <p>Leistung &lt;= 4,1 mW Wellenlänge 650 nm</p> <p>Puls 1,3 ns</p> <p>Nicht in den Strahl blicken</p> <p>Kontakt mit Laserlicht vermeiden</p> <p>Laserklasse 2</p> <p>EN 60825-1:2003-10</p> <p>Betriebsspannung "supply class 2" gemäß cULus</p> |          |
| Verpackungseinheit                                                                                                                                                            | [Stück]                                                                                                                                                                                                                                                                      | 1        |
| Weitere Daten                                                                                                                                                                 |                                                                                                                                                                                                                                                                              |          |

**Reproduzierbarkeit / Genauigkeit**

- Fremdlicht auf dem Objekt max.: 40 klx

|                 | Reproduzierbarkeit der Messwerte |                       | Genauigkeit           |                       |
|-----------------|----------------------------------|-----------------------|-----------------------|-----------------------|
|                 | weiß (90 % Remission)            | grau (18 % Remission) | weiß (90 % Remission) | grau (18 % Remission) |
| 200...1000 mm   | $\pm 4,5$ mm                     | $\pm 6,0$ mm          | $\pm 15,0$ mm         | $\pm 16,0$ mm         |
| 1000...2000 mm  | $\pm 5,0$ mm                     | $\pm 8,0$ mm          | $\pm 15,0$ mm         | $\pm 18,0$ mm         |
| 2000...4000 mm  | $\pm 16,0$ mm                    | $\pm 19,0$ mm         | $\pm 25,0$ mm         | $\pm 30,0$ mm         |
| 4000...6000 mm  | $\pm 24,0$ mm                    | $\pm 33,0$ mm         | $\pm 35,0$ mm         | $\pm 45,0$ mm         |
| 6000...10000 mm | $\pm 50,0$ mm                    | --                    | $\pm 65,0$ mm         | --                    |

**Reproduzierbarkeit / Genauigkeit**

- Fremdlicht auf dem Objekt max.: 40...100 klx

|                | Reproduzierbarkeit der Messwerte |                       | Genauigkeit           |                       |
|----------------|----------------------------------|-----------------------|-----------------------|-----------------------|
|                | weiß (90 % Remission)            | grau (18 % Remission) | weiß (90 % Remission) | grau (18 % Remission) |
| 200...2000 mm  | $\pm 14,0$ mm                    | $\pm 14,0$ mm         | $\pm 24,0$ mm         | $\pm 24,0$ mm         |
| 2000...4000 mm | $\pm 25,0$ mm                    | $\pm 30,0$ mm         | $\pm 35,0$ mm         | $\pm 40,0$ mm         |

**O1D104**

O1DLFNKG

**Optische Sensoren**

|                 |           |           |           |           |
|-----------------|-----------|-----------|-----------|-----------|
| 4000...6000 mm  | ± 31,0 mm | ± 45,0 mm | ± 41,0 mm | ± 55,0 mm |
| 6000...10000 mm | ± 60,0 mm | --        | ± 70,0 mm | --        |

Tastweite auf Schwarz (6 % Remission) ≤ 4000 mm

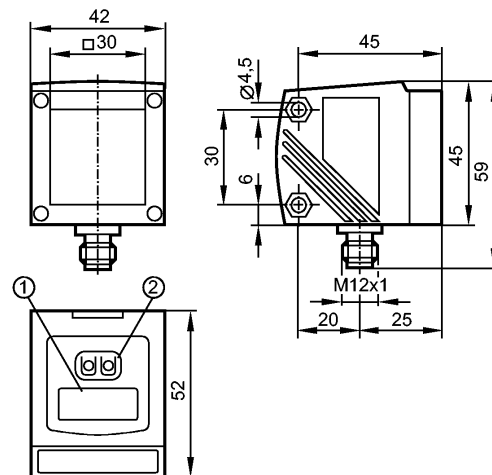
Die Werte gelten für

- konstante Umweltbedingungen: 23 °C / 960 hPa
- minimale Einschaltdauer in Minuten: 10

**O1D104**

O1DLFNKG

Photoelectric sensors



1: 4-digit alphanumeric display  
2: Programming buttons


**Product characteristics**

Photoelectric distance sensor

Connector

Background suppression

Visible laser light, protection class 2 laser

4-digit alphanumeric display

Measuring range 0.2...10 m (Range referred to white paper 200 x 200 mm, 90 % remission)

Background suppression &gt;10...100 m

**Electrical data**

|                             |            |
|-----------------------------|------------|
| Electrical design           | DC NPN     |
| Operating voltage [V]       | 10...30 DC |
| Current consumption [mA]    | < 150      |
| Life expectancy typ. [h]    | 50000      |
| Protection class            | III        |
| Reverse polarity protection | yes        |

**Outputs**

|                          |                                     |
|--------------------------|-------------------------------------|
| Output function          | normally open / closed programmable |
| Current rating [mA]      | 200                                 |
| Short-circuit protection | pulsed                              |
| Overload protection      | yes                                 |

**Range**

|                          |                          |
|--------------------------|--------------------------|
| Background suppression   | >10...100 m              |
| Light spot diameter [mm] | < 15 x 15 ( Range 10 m ) |

**Measuring / setting range**

|                          |                                                                       |
|--------------------------|-----------------------------------------------------------------------|
| Measuring range [m]      | 0.2...10 (Range referred to white paper 200 x 200 mm, 90 % remission) |
| Switching frequency [Hz] | 5                                                                     |

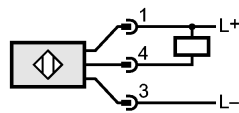
**Environment**

|                          |          |
|--------------------------|----------|
| Ambient temperature [°C] | -10...60 |
| Protection               | IP 67    |

# O1D104

O1DLFNKG

Photoelectric sensors

| Tests / approvals                                                                 |                                                                                                                                                                                                           |                              |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| MTTF                                                                              | [Years]                                                                                                                                                                                                   | 228                          |
| Mechanical data                                                                   |                                                                                                                                                                                                           |                              |
| Housing materials                                                                 | housing: diecast zinc; window: glass; LED window: polycarbonate                                                                                                                                           |                              |
| Weight                                                                            | [kg]                                                                                                                                                                                                      | 0.258                        |
| Displays / operating elements                                                     |                                                                                                                                                                                                           |                              |
| Display                                                                           | Switching status                                                                                                                                                                                          | LED yellow                   |
|                                                                                   | Operation                                                                                                                                                                                                 | LED green                    |
|                                                                                   | Distance, programming                                                                                                                                                                                     | 4-digit alphanumeric display |
| Electrical connection                                                             |                                                                                                                                                                                                           |                              |
| Connection                                                                        | M12 connector                                                                                                                                                                                             |                              |
| <b>Wiring</b>                                                                     |                                                                                                                                                                                                           |                              |
|  |                                                                                                                          |                              |
| Accessories                                                                       |                                                                                                                                                                                                           |                              |
| Accessories (optional)                                                            | Protective cover E21133                                                                                                                                                                                   |                              |
| Remarks                                                                           |                                                                                                                                                                                                           |                              |
| Remarks                                                                           | Caution: Laser Light<br>Power <= 4.1 mW wavelength = 650 nm<br>pulse 1.3 ns<br>Do not stare into beam<br>Avoid exposure<br>Class 2 laser product<br>EN 60825-1:2003-10<br>cULus - Class 2 source required |                              |
| Pack quantity                                                                     | [piece]                                                                                                                                                                                                   | 1                            |
| Other data                                                                        |                                                                                                                                                                                                           |                              |

## Repeatability / Accuracy

- extraneous light on the object max.: 40 klx

|                 | Repeatability of the measured values |                       | Accuracy               |                       |
|-----------------|--------------------------------------|-----------------------|------------------------|-----------------------|
|                 | white (90 % remission)               | grey (18 % remission) | white (90 % remission) | grey (18 % remission) |
| 200...1000 mm   | ± 4.5 mm                             | ± 6.0 mm              | ± 15.0 mm              | ± 16.0 mm             |
| 1000...2000 mm  | ± 5.0 mm                             | ± 8.0 mm              | ± 15.0 mm              | ± 18.0 mm             |
| 2000...4000 mm  | ± 16.0 mm                            | ± 19.0 mm             | ± 25.0 mm              | ± 30.0 mm             |
| 4000...6000 mm  | ± 24.0 mm                            | ± 33.0 mm             | ± 35.0 mm              | ± 45.0 mm             |
| 6000...10000 mm | ± 50.0 mm                            | --                    | ± 65.0 mm              | --                    |

## Repeatability / Accuracy

- extraneous light on the object max.: 40...100 klx

|                | Repeatability of the measured values |                       | Accuracy               |                       |
|----------------|--------------------------------------|-----------------------|------------------------|-----------------------|
|                | white (90 % remission)               | grey (18 % remission) | white (90 % remission) | grey (18 % remission) |
| 200...2000 mm  | ± 14.0 mm                            | ± 14.0 mm             | ± 24.0 mm              | ± 24.0 mm             |
| 2000...4000 mm | ± 25.0 mm                            | ± 30.0 mm             | ± 35.0 mm              | ± 40.0 mm             |

**O1D104**

O1DLFNKG

**Photoelectric sensors**

|                 |           |           |           |           |
|-----------------|-----------|-----------|-----------|-----------|
| 4000...6000 mm  | ± 31.0 mm | ± 45.0 mm | ± 41.0 mm | ± 55.0 mm |
| 6000...10000 mm | ± 60.0 mm | --        | ± 70.0 mm | --        |

Range on black (6 % remission) ≤ 4000 mm

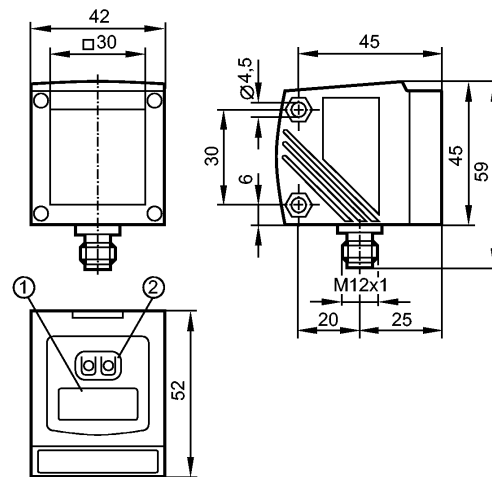
The values apply at

- constant ambient conditions: 23 °C / 960 hPa
- minimum power-on time in minutes: 10

# O1D104

O1DLFNKG

## Détecteurs optoélectroniques



- 1: Visualisation alphanumérique à 4 digits
- 2: Boutons-poussoirs de programmation



## Caractéristiques du produit

## Détecteur de distance optique

### Raccordement par connecteur

## Suppression de l'arrière-plan

Lumière laser visible, protection classe 2

### Visualisation alphanumérique à 4 digits

Etendue de mesure 0,2...10 m (Portée sur papier blanc 200 x 200 mm, 90 % rémission)

Suppression de l'arrière-plan >10...100 m

## Données électriques

|                                           |            |
|-------------------------------------------|------------|
| Technologie                               | DC NPN     |
| Tension d'alimentation [V]                | 10...30 DC |
| Consommation [mA]                         | < 150      |
| Longévité typ. [h]                        | 50000      |
| Classe de protection                      | III        |
| Protection contre l'inversion de polarité | oui        |

## Sorties

|                            |                                         |
|----------------------------|-----------------------------------------|
| Sortie                     | normalement ouvert / fermé programmable |
| Courant de sortie [mA]     | 200                                     |
| Protection courts-circuits | pulsé                                   |
| Protection surcharges      | oui                                     |

## Portée

|                                |                           |
|--------------------------------|---------------------------|
| Suppression de l'arrière-plan  | >10...100 m               |
| Diamètre du spot lumineux [mm] | < 15 x 15 ( Portée 10 m ) |

### Etendue de mesure / plage de réglage

|                          |      |                                                                 |
|--------------------------|------|-----------------------------------------------------------------|
| Etendue de mesure        | [m]  | 0,2...10 (Portée sur papier blanc 200 x 200 mm, 90 % rémission) |
| Fréquence de commutation | [Hz] | 5                                                               |

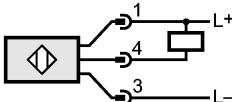
## Conditions d'utilisation

|                      |      |          |
|----------------------|------|----------|
| Température ambiante | [°C] | -10...60 |
| Protection           |      | IP 67    |

**O1D104**

O1DLFNKG

**Détecteurs optoélectroniques**

| Tests / Homologations                                                                                                                                              |                                                                                                                                                                                                                                                                 |       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| MTTF                                                                                                                                                               | [Années]                                                                                                                                                                                                                                                        | 228   |
| Données mécaniques                                                                                                                                                 |                                                                                                                                                                                                                                                                 |       |
| Matières boîtier                                                                                                                                                   | boîtier: zamac; panneau avant : verre; fenêtre LED: polycarbonate                                                                                                                                                                                               |       |
| Poids                                                                                                                                                              | [kg]                                                                                                                                                                                                                                                            | 0,258 |
| Afficheurs / éléments de service                                                                                                                                   |                                                                                                                                                                                                                                                                 |       |
| Indication                                                                                                                                                         | Indication de commutation LED jaune<br>Disponibilité LED vert<br>Distance, programmation Visualisation alphanumérique à 4 digits                                                                                                                                |       |
| Raccordement électrique                                                                                                                                            |                                                                                                                                                                                                                                                                 |       |
| Raccordement                                                                                                                                                       | Connecteur M12                                                                                                                                                                                                                                                  |       |
| <b>Branchement</b>                                                                                                                                                 |                                                                                                                                                                                                                                                                 |       |
| <div><div><div>2</div><div>1</div><div>3</div><div>4</div></div><div></div></div> |                                                                                                                                                                                                                                                                 |       |
| Accessoires                                                                                                                                                        |                                                                                                                                                                                                                                                                 |       |
| Accessoires (option)                                                                                                                                               | Fenêtre de protection E21133                                                                                                                                                                                                                                    |       |
| Remarques                                                                                                                                                          |                                                                                                                                                                                                                                                                 |       |
| Remarques                                                                                                                                                          | Lumière laser<br>Puissance <= 4,1 mW longueur d'onde = 650 nm<br>Impulsion 1,3 ns<br>Ne pas regarder dans le faisceau<br>Eviter l'exposition au faisceau<br>Produit laser classe 2<br>EN 60825-1:2003-10<br>Tension d'alimentation "supply class 2" selon cULus |       |
| Quantité                                                                                                                                                           | [pièce]                                                                                                                                                                                                                                                         | 1     |
| Données supplémentaires                                                                                                                                            |                                                                                                                                                                                                                                                                 |       |

**Répétabilité du seuil / Précision**

- lumière parasite sur l'objet max.: 40 klx

|                 | répétabilité des valeurs mesurées |                       | Précision              |                       |
|-----------------|-----------------------------------|-----------------------|------------------------|-----------------------|
|                 | blanc (90 % rémission)            | gris (18 % rémission) | blanc (90 % rémission) | gris (18 % rémission) |
| 200...1000 mm   | $\pm 4,5$ mm                      | $\pm 6,0$ mm          | $\pm 15,0$ mm          | $\pm 16,0$ mm         |
| 1000...2000 mm  | $\pm 5,0$ mm                      | $\pm 8,0$ mm          | $\pm 15,0$ mm          | $\pm 18,0$ mm         |
| 2000...4000 mm  | $\pm 16,0$ mm                     | $\pm 19,0$ mm         | $\pm 25,0$ mm          | $\pm 30,0$ mm         |
| 4000...6000 mm  | $\pm 24,0$ mm                     | $\pm 33,0$ mm         | $\pm 35,0$ mm          | $\pm 45,0$ mm         |
| 6000...10000 mm | $\pm 50,0$ mm                     | --                    | $\pm 65,0$ mm          | --                    |

**Répétabilité du seuil / Précision**

- lumière parasite sur l'objet max.: 40...100 klx

|                | répétabilité des valeurs mesurées |                       | Précision              |                       |
|----------------|-----------------------------------|-----------------------|------------------------|-----------------------|
|                | blanc (90 % rémission)            | gris (18 % rémission) | blanc (90 % rémission) | gris (18 % rémission) |
| 200...2000 mm  | $\pm 14,0$ mm                     | $\pm 14,0$ mm         | $\pm 24,0$ mm          | $\pm 24,0$ mm         |
| 2000...4000 mm | $\pm 25,0$ mm                     | $\pm 30,0$ mm         | $\pm 35,0$ mm          | $\pm 40,0$ mm         |

**O1D104**

O1DLFNKG

**Détecteurs optoélectroniques**

|                 |           |           |           |           |
|-----------------|-----------|-----------|-----------|-----------|
| 4000...6000 mm  | ± 31,0 mm | ± 45,0 mm | ± 41,0 mm | ± 55,0 mm |
| 6000...10000 mm | ± 60,0 mm | --        | ± 70,0 mm | --        |

Portée sur noir (6 % rémission) ≤ 4000 mm

Les valeurs sont valables pour les conditions suivantes :

- conditions environnementales constantes : 23 °C / 960 hPa
- temps minimum de mise sous tension en minutes : 10