# KTL180-MN4P71ZZZZZ

KTL180

**CONTRAST SENSORS**

**SICK**
Sensor Intelligence.

# KTL180-MN4P71ZZZZZ | KTL180

## CONTRAST SENSORS

### Ordering information

| Type | part no. |
|------|----------|
| KTL180-MN4P71ZZZZZ | 6071999 |

Other models and accessories ➔ www.sick.com/KTL180

Illustration may differ

## Detailed technical data

### Features

| | |
|------|------|
| Parameter presettings | None |
| Special applications | - |
| Device type | Stand-alone |
| Housing design | For fiber-optic |
| Dimensions (W x H x D) | 10.5 mm x 33.2 mm x 71.9 mm |
| Light source | LED, White [1] |
| Wave length | 400 nm … 750 nm |
| Angle of dispersion | Approx. 65° [2] |
| Sensing range | 0 mm … 30 mm, Proximity system [3] |
| Sensing distance | ≤ 30 mm [4] |
| Display | Display |
| Display | LED status display / 2x 4-character digital dual displays, Set value (green indicator) and actual value (red indicator) are displayed simultaneously, display of parameters |
| Teach-in mode | 1-point teach-in, 2-point teach-in, teach-in dynamic |
| Delay time | Adjustable |
| Special features | Multi-function input, stand-alone mode |
| Delivery status | Teach-in dynamic |

[1] Average service life: 100,000 h at $T_U$ = +25 °C.

[2] See LL3 fiber-optic data.

[3] Objects to be sensed with 90% reflectivity (based on DIN 5033 white standard). Sensing range depends on fiber-optic cable.

[4] Depending on the optical fiber cable used.

## Electronics

| | |
|---|---|
| **Supply voltage** | 12 V DC ... 24 V DC [1] |
| **Ripple** | ≤ 10 % [2] |
| **Current consumption** | ≥ 50 mA (at 24 V) |
| **Switching frequency** | 31.2 kHz |
| **Response time** | |
| | 16 µs |
| **Jitter** | 8 µs |
| **Number of switching outputs** | 1 |
| **Switching output** | NPN |
| **Switching mode** | Light/dark switching |
| **Output current $I_{max.}$** | 100 mA [3] |
| **Input, blanking input (AT)** | Blanked: U < 1 V: free-running: U = 1.5 V ... < Uv [4] |
| **Input, light/dark (L/D)** | Light: U = 1.5 V: light: U < 1 V [4] |
| **Retention time (ET)** | 25 ms, non-volatile memory |
| **Time delay** | None |
| **Protection class** | III |
| **Circuit protection** | $U_V$ connections, reverse polarity protected<br>In-/outputs short-circuit protected<br>Interference pulse suppression<br>Outputs overcurrent and short-circuit protected |
| **Connection type** | |
| | Cable open end, 4-wire, 2 m |

[1] +- 10%.

[2] May not fall below or exceed $U_V$ tolerances.

[3] Total current of all Outputs.

[4] Minimum pulse 300 µs.

## Mechanics

| | |
|---|---|
| **Housing material** | VISTAL® |
| **Weight** | 25 g |

## Ambient data

| | |
|---|---|
| **Ambient operating temperature** | –25 °C ... +55 °C |
| **Ambient temperature, storage** | –40 °C ... +70 °C |
| **Shock load** | IEC 60068-2-27 |
| **Enclosure rating** | IP50 |
| **UL File No.** | EN 60947-5-2 |

## Classifications

| | |
|---|---|
| **ECLASS 5.0** | 27270906 |
| **ECLASS 5.1.4** | 27270906 |
| **ECLASS 6.0** | 27270906 |
| **ECLASS 6.2** | 27270906 |
| **ECLASS 7.0** | 27270906 |

| | |
|---|---|
| **ECLASS 8.0** | 27270906 |
| **ECLASS 8.1** | 27270906 |
| **ECLASS 9.0** | 27270906 |
| **ECLASS 10.0** | 27270906 |
| **ECLASS 11.0** | 27270906 |
| **ECLASS 12.0** | 27270906 |
| **ETIM 5.0** | EC001820 |
| **ETIM 6.0** | EC001820 |
| **ETIM 7.0** | EC001820 |
| **ETIM 8.0** | EC001820 |
| **UNSPSC 16.0901** | 39121528 |

## Certificates

| | |
|---|---|
| **EU declaration of conformity** | ✓ |
| **UK declaration of conformity** | ✓ |
| **ACMA declaration of conformity** | ✓ |
| **Moroccan declaration of conformity** | ✓ |
| **China RoHS** | ✓ |
| **cULus certificate** | ✓ |
| **Photobiological safety (IEC EN 62471)** | ✓ |
| **Information according to Art. 3 of Data Act (Regulation EU 2023/2854)** | ✓ |

## Dimensional drawing Stand-alone
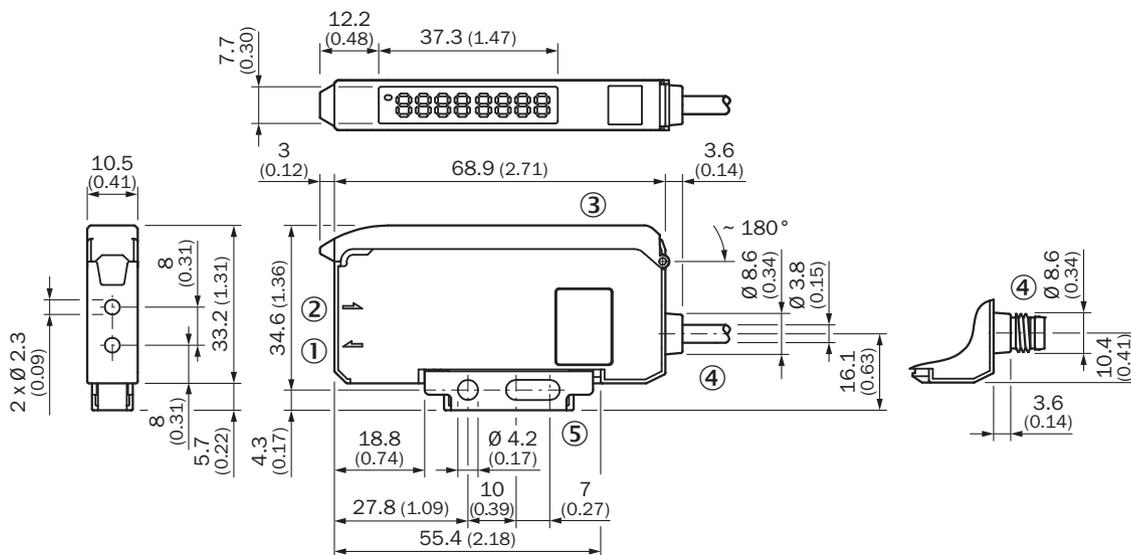
Dimensions in mm (inch)
① Sender LED, installation of LL3 fibre-optic cable (sender fibre)
② Receiver, installation of LL3 fibre optic cable (receiver fibre)
③ protective hood opens approx. 180°
④ Connection

⑤ Mounting bracket, included with delivery

## Adjustments
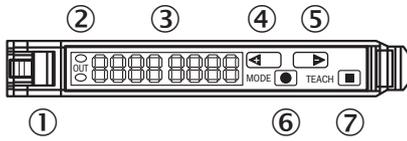


① Locking the fiber-optic cables
② LED indicator orange, lights up when switching output is active
③ Numeric display 2 x 4-digit; green: switching threshold, operating mode; red: actual value, Teach-in and function parameter
④ step pushbutton > (manual switching threshold: higher/next function parameter)
⑤ step pushbutton < (manual switching threshold: lower/previous function parameter)
⑥ Mode/Enter-button
⑦ Teach-in button

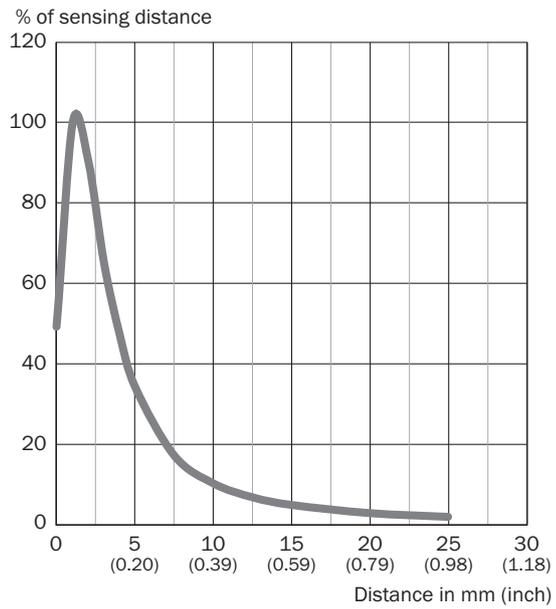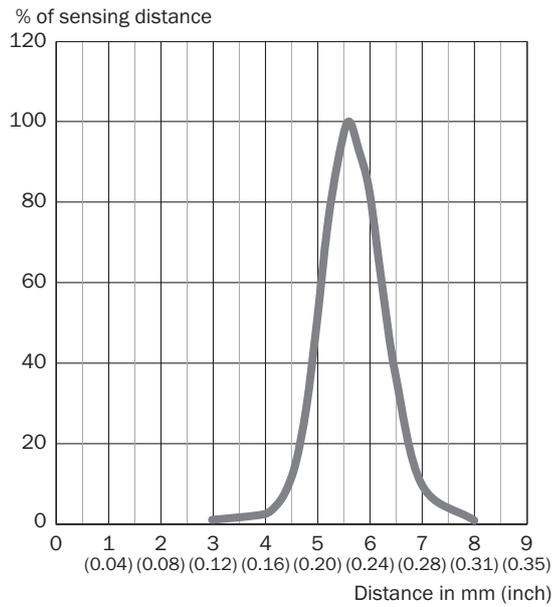## Connection diagram Cd-423



BN — + (L+)
WH — Teach (ET)
BU — - (M)
BK — Q
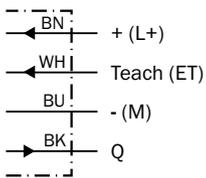
## Sensing distance LL3-DB01, LL3-DB04, LL3DM02



% of sensing distance

Distance in mm (inch)
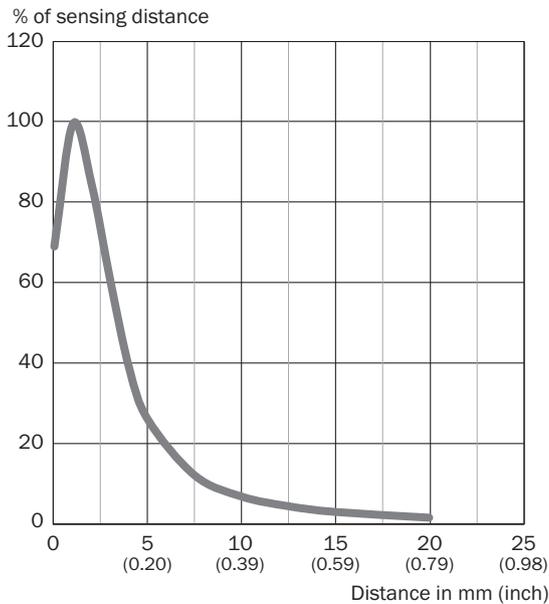
## Sensing distance LL3-DB09, LL3-DK04, LL3-DY01

% of sensing distance



Distance in mm (inch)

## Sensing distance LL3-DC38

% of sensing distance



Distance in mm (inch)

### Sensing distance LL3-DM02 (LL3-DA06)

% of sensing distance



Distance in mm (inch)
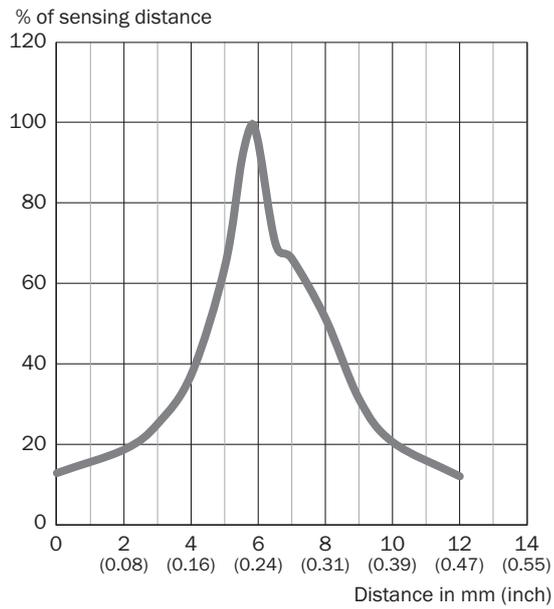
### Sensing distance LL3-DM02 (LL3-DA06)
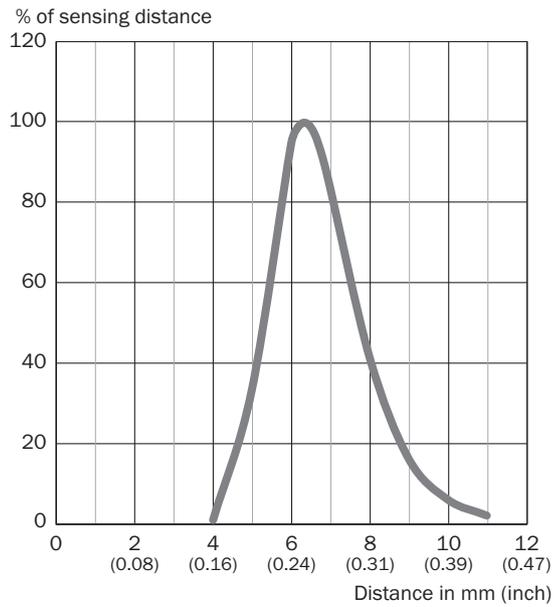
% of sensing distance



Distance in mm (inch)
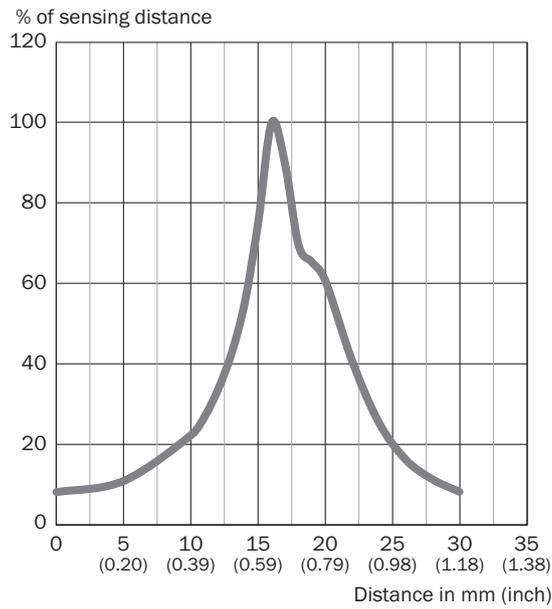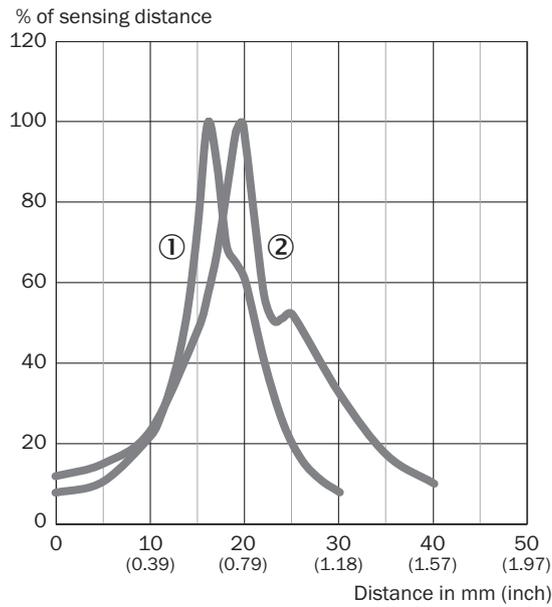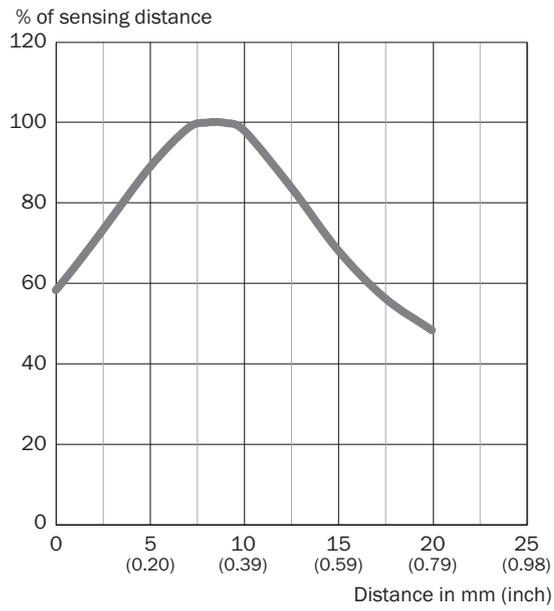
① thread with 3 mm distance
② Thread screwed flush with the nut

## Sensing distance LL3-DM02 (LL3-DA09)

% of sensing distance

Distance in mm (inch)
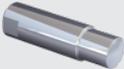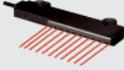
## Sensing distance LL3-DC09

% of sensing distance

Distance in mm (inch)

## Sensing distance LL3-DZ01

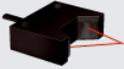% of sensing distance



Distance in mm (inch)

## Recommended accessories

Other models and accessories ➜ www.sick.com/KTL180

| Brief description | Type | part no. |
|---|---|---|
| **fiber-optic sensors** | | |
| • **Functional principle:** Proximity system<br>• **Thread diameter (housing):** M4 | LL3-DA09 | 5334040 |
| • **Functional principle:** Proximity system<br>• **Thread diameter (housing):** M4 | LL3-DA06 | 5326468 |
| • **For fiber optic amplifiers:** GLL70, WLL80, WLL180, GLL170(T), WLL24 Ex<br>• **Functional principle:** Through-beam system<br>• **Fiber length:** 2,000 mm<br>• **Fiber-optic head array width:** 40 mm<br>• **Fiber material:** Plastic<br>• **Jacket material:** Plastic<br>• **Fiber head material:** Plastic<br>• **Included with delivery:** Mounting, 4 x M3 Phillips-head screw, FC fiber cutter (5304141), protective cladding for fiber head | LL3-TS40 | 5323971 |
| • **For fiber optic amplifiers:** GLL70, WLL80, WLL180, GLL170(T), WLL24 Ex, KTL180<br>• **Functional principle:** Proximity system<br>• **Fiber length:** 2,000 mm<br>• **Fiber material:** Plastic<br>• **Jacket material:** Plastic<br>• **Fiber head material:** Plastic<br>• **Included with delivery:** Adapter sleeves, BF-WLL160-10 (1.0 mm) adapter sleeves, FC fiber cutter (5304141) | LL3-DC38 | 5322472 |
| • **For fiber optic amplifiers:** GLL70, WLL80, WLL180, GLL170(T), WLL24 Ex, KTL180<br>• **Functional principle:** Proximity system<br>• **Fiber length:** 2,000 mm<br>• **Smooth sleeve diameter:** 6 mm<br>• **Fiber material:** Plastic<br>• **Jacket material:** Chemical-resistant plastic<br>• **Fiber head material:** Chemical-resistant plastic<br>• **Included with delivery:** FC fiber cutter (5304141) | LL3-DY01 | 5308093 |
| • **For fiber optic amplifiers:** GLL70, WLL80, WLL180, GLL170(T), WLL24 Ex<br>• **Functional principle:** Proximity system<br>• **Fiber length:** 2,000 mm<br>• **Fiber-optic head array width:** 4 mm<br>• **Fiber material:** Plastic<br>• **Jacket material:** Plastic<br>• **Fiber head material:** Plastic<br>• **Included with delivery:** FC fiber cutter (5304141) | LL3-DZ01 | 5326013 |
| • **For fiber optic amplifiers:** GLL70, WLL80, WLL180, GLL170(T), WLL24 Ex<br>• **Functional principle:** Proximity system<br>• **Fiber length:** 2,000 mm<br>• **Smooth sleeve diameter:** 5 mm<br>• **Fiber material:** Plastic<br>• **Jacket material:** Plastic<br>• **Fiber head material:** Stainless steel<br>• **Included with delivery:** FC fiber cutter (5304141) | LL3-DV01 | 5308088 |
| • **For fiber optic amplifiers:** GLL70, WLL80, WLL180, GLL170(T), WLL24 Ex, KTL180<br>• **Functional principle:** Proximity system<br>• **Fiber length:** 2,000 mm<br>• **Fiber material:** Plastic<br>• **Jacket material:** Plastic<br>• **Fiber head material:** Plastic<br>• **Included with delivery:** Mounting, 2 x M2 hexagon nut, 4 x washer, 2 x M2 Phillips-head screw, adapter sleeves, BF-WLL160-10 (1.0 mm) adapter sleeves, FC fiber cutter (5304141) | LL3-DC09 | 5326028 |
| • **For fiber optic amplifiers:** GLL70, WLL80, WLL180, GLL170(T), WLL24 Ex, KTL180<br>• **Functional principle:** Proximity system<br>• **Fiber length:** 2,000 mm<br>• **Thread diameter (housing):** M6<br>• **Fiber material:** Plastic<br>• **Jacket material:** Plastic<br>• **Fiber head material:** Stainless steel | LL3-DB09 | 5325991 |

| | Brief description | Type | part no. |
|---|---|---|---|
| | • **Included with delivery:** Mounting, 2 x M6 hexagon nut, 1 x washer, FC fiber cutter (5304141) | | |
| | • **For fiber optic amplifiers:** GLL70, WLL80, WLL180, GLL170(T), WLL24 Ex, KTL180<br>• **Functional principle:** Proximity system<br>• **Fiber length:** 2,000 mm<br>• **Smooth sleeve diameter:** 3 mm<br>• **Fiber material:** Plastic<br>• **Jacket material:** Plastic<br>• **Fiber head material:** Stainless steel<br>• **Included with delivery:** Adapter sleeves, BF-WLL160-13 (1.3 mm) adapter sleeves, FC fiber cutter (5304141) | LL3-DK04 | 5313020 |
| | • **For fiber optic amplifiers:** GLL70, WLL80, WLL180, GLL170(T), WLL24 Ex, KTL180<br>• **Functional principle:** Proximity system<br>• **Fiber length:** 2,000 mm<br>• **Thread diameter (housing):** M4<br>• **Fiber material:** Plastic<br>• **Jacket material:** Plastic<br>• **Fiber head material:** Stainless steel<br>• **Included with delivery:** Mounting, 2 x M4 hexagon nut, 2 x washer, adapter sleeves, BF-WLL160-13 (1.3 mm) adapter sleeves, FC fiber cutter (5304141) | LL3-DM02 | 5308077 |
| | • **For fiber optic amplifiers:** GLL70, WLL80, WLL180, GLL170(T), KTL180<br>• **Functional principle:** Proximity system<br>• **Fiber length:** 2,000 mm<br>• **Thread diameter (housing):** M6<br>• **Fiber material:** Plastic<br>• **Jacket material:** Plastic<br>• **Fiber head material:** Stainless steel<br>• **Included with delivery:** Mounting, 2 x M6 hexagon nut, 2 x washer, FC fiber cutter (5304141) | LL3-DB04 | 5325990 |
| | • **For fiber optic amplifiers:** GLL70, WLL80, WLL180, GLL170(T), WLL24 Ex, KTL180<br>• **Functional principle:** Proximity system<br>• **Fiber length:** 2,000 mm<br>• **Thread diameter (housing):** M6<br>• **Fiber material:** Plastic<br>• **Jacket material:** Plastic<br>• **Fiber head material:** Stainless steel<br>• **Included with delivery:** Mounting, 2 x M6 hexagon nut, 2 x washer, FC fiber cutter (5304141) | LL3-DB01 | 5308074 |

### Mounting systems

| | Brief description | Type | part no. |
|---|---|---|---|
| | • **Description:** Rail end piece for block mounting<br>• **Material:** Stainless steel<br>• **Details:** Stainless steel<br>• **Items supplied:** Mounting hardware included | BEF-EB01-W190 | 5313011 |
| | • **Description:** Mounting bracket<br>• **Material:** Steel<br>• **Details:** Steel, zinc coated<br>• **Items supplied:** Without mounting hardware<br>• **Usable for:** Fiber-optic sensors<br>• **Suitable for:** WLL180T, GLL170(T) | BEF-WLL180 | 5325812 |
| | • **Description:** Fiber cutter, included with delivery of selected fibers<br>• **Dimensions (W x H x L):** 10 mm x 37 mm x 65 mm | FC | 5304141 |
| | • **Description:** Adapter sleeve for LBS/LIS fibers with Ø 4.8 mm for adaptation to Ø 2.2 mm<br>• **Items supplied:** 2 pieces | Fiber Optic Adaptor Kit | 2062854 |

## SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

**For us, that is "Sensor Intelligence."**

## WORLDWIDE PRESENCE:

Contacts and other locations –**www.sick.com**

SICK AG  |  Waldkirch  |  Germany  |  www.sick.com

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Sensor Intelligence.