# IQG
## EXCHANGING HAS NEVER BEEN EASIER

Inductive proximity sensors

**SICK**
Sensor Intelligence.

# IQG: EXCHANGING HAS NEVER BEEN EASIER.



The IQG inductive proximity sensor allows you to enjoy all of the advantages offered by SICK in a matter of seconds. This is thanks to its unique, patented sturdy push-lock system, which is compatible with a large number of brackets. It has never been quicker or easier to exchange corner LEDs, enclosure rating IP 68/IP 69K, and the latest ASIC technology from SICK. And as this high-performance sensor offers such high levels of reliability and sturdiness, long-lasting use is guaranteed.

The IQG is also extremely flexible, available in both a short body version for use in factory automation and a long body version for outdoor applications.

**www.sick.de/IQG**

# EXCHANGE NOW AND IMMEDIATELY BENEFIT FROM THE ADVANTAGES OF THE IQG

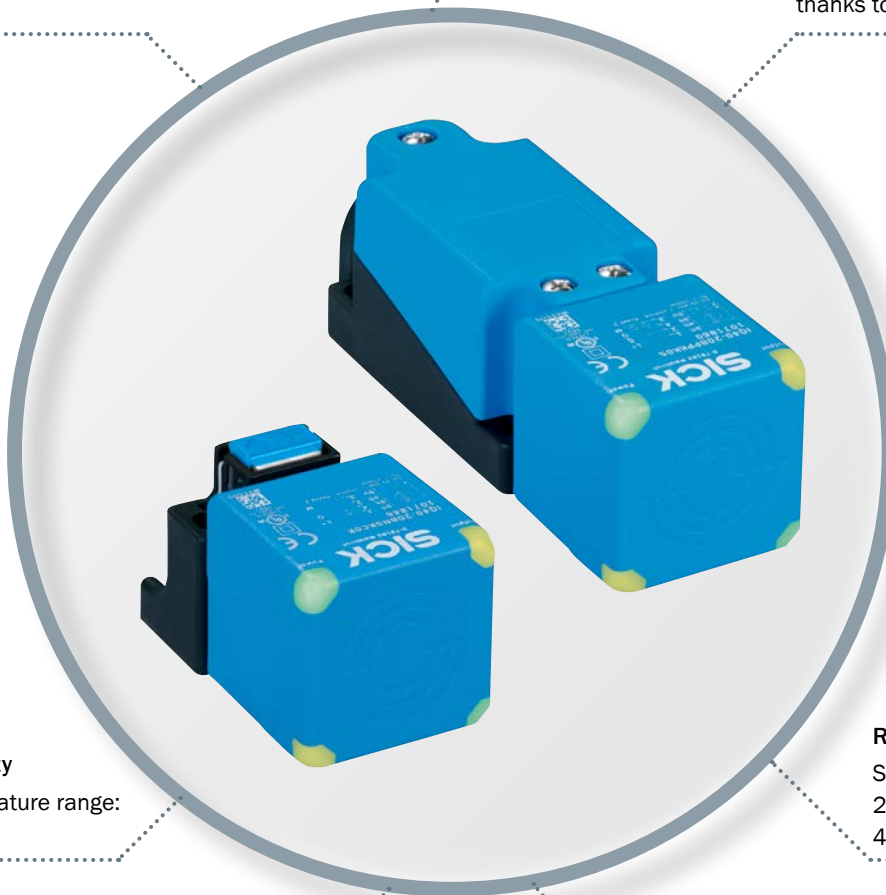**Flexible adjustment**

The sensor head can be turned in five directions

**All-round visibility**

Sensor status can be seen from all directions thanks to the four corner LEDs

**Quick installation**

Mounting takes just 2 seconds thanks to the push-lock system

**Climate flexibility**

Ambient temperature range: −25 °C to 85 °C

**Reliable detection**

Sensing ranges: 20 mm if flush and 40 mm if non-flush

**Watertight**

Enclosure rating: IP 68, IP 69K

**Wind and weather resistant**

Can withstand UV light, aggressive media, impacts, and vibration

# QUICK, RELIABLE, UNIQUE – THE PUSH-LOCK SYSTEM FROM SICK

Mounting in just two seconds with no need for tools: SICK's push-lock system makes exchanging the sensor incredibly straightforward. Plus, SICK has taken special care over the interlocking system, which ensures that the IQG stays in position and does not become detached from the bracket.
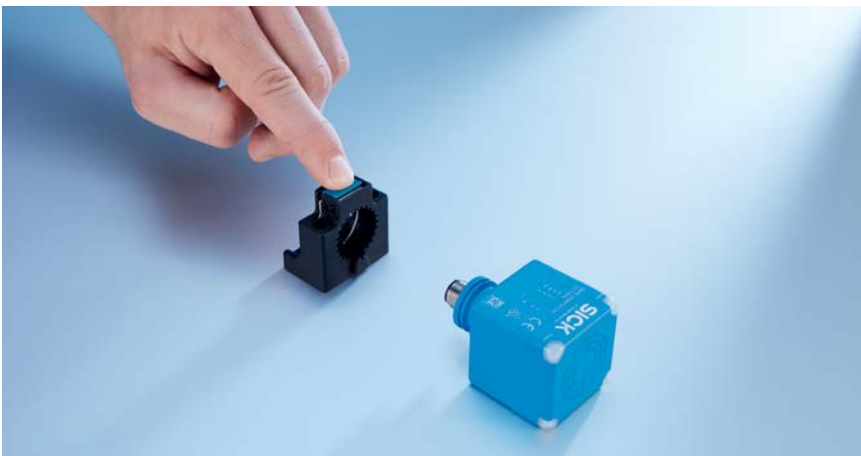


### 1. Quick exchange

With the IQG it all clicks into place: Simply press it into the bracket and the IQG locks in place automatically, protecting it against shock and vibration.



### 2. Safe sealing

Extra safety is provided by an additional locking mechanism, preventing the IQG from being unlocked unintentionally.



### 3. Rapid replacement

It doesn't get any quicker: Apply significant pressure to the push-lock button and the sensor springs out of the bracket automatically.

# IQG: FLEXIBLE AND RELIABLE

The IQG shows off its strengths in a wide range of applications – both indoors and outdoors.

## The automotive industry: positioning a skid conveyor

High system throughput and reliable processes are key in ensuring efficiency in modern-day car manufacturing. IQG has been specifically developed to meet these requirements.

## Theme parks: presence detection on roller coasters

Roller coasters promise lots of fun for the whole family, and, of course, sun, water, and high speeds all have their part to play here. Safety requirements for the operation of roller coasters are extremely high, particularly for the sensors involved. The IQG can be relied upon for detection even in the face of these challenging conditions.
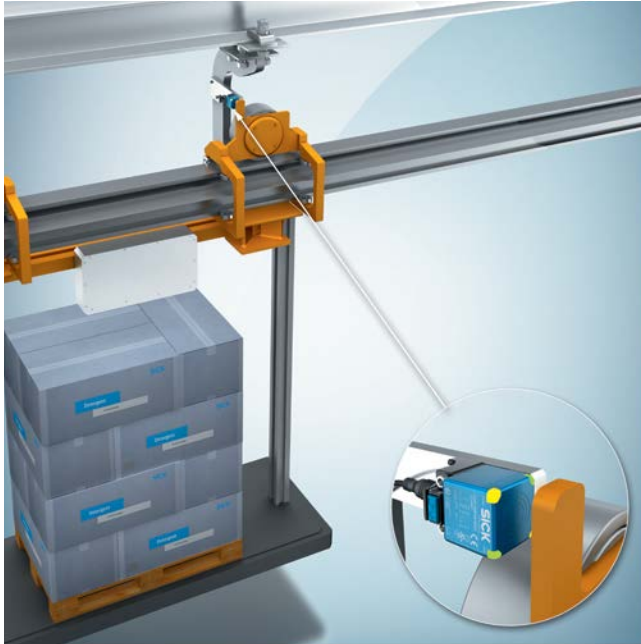




Advantages:

- Reliable switching performance, even in harsh environments
- Easy to adapt to suit any application
- Quick to mount with no need for tools
- Sensor status can be seen from all directions regardless of the mounting position thanks to the four corner LEDs

Advantages:

- High level of reliability, even in harsh environments
- Ambient temperature range: –25 °C to 85 °C
- Enclosure rating: IP 68, IP 69K

## Storage and conveyor systems: positioning of an electrical overhead conveyor (OHC)

High levels of efficiency, flexibility, and reliability are requirements of modern material flow systems. The IQG overcomes challenging conditions with ease – whether it is put to use in the low-temperature sector, at dizzying heights on an electrical overhead conveyor, or on a constantly vibrating conveying line.

## The automotive industry: positioning a skid conveyor

High system throughput and reliable processes are key in ensuring efficiency in modern-day car manufacturing. IQG has been specifically developed to meet these requirements.





Advantages:

- Reliable and cost-effective sensor solution
- Quick to mount with no need for tools
- Sensor status can be seen from all directions regardless of the mounting position thanks to the four corner LEDs
- Ambient temperature range: –25 °C to 85 °C, meaning it is also suitable for use within the low-temperature sector

Advantages:

- Reliable switching performance, even in harsh environments
- Easy to adapt to suit any application
- Quick to mount with no need for tools
- Sensor status can be seen from all directions regardless of the mounting position thanks to the four corner LEDs

# SICK – WE UNDERSTAND

In addition to their high performance capacity, the inductive sensors by SICK also fulfill the basic conditions. The inductive sensors are characterized by their worldwide availability, the best delivery performance and an extensive portfolio – and make SICK the right partner for you.

If, despite the extensive portfolio selection, no suitable sensor is available, our customer-specific adaptations provide an even higher degree of flexibility. Our goal: the right sensor for your application – and at the right time.

Even for tricky tasks. Thanks to worldwide support in over 88 countries, SICK will work with you to always find a solution.



Local contact persons
A strong partner
High performance
Customer-oriented
Customer-specific adaptations
Worldwide availability
Extensive portfolio
Best delivery performance
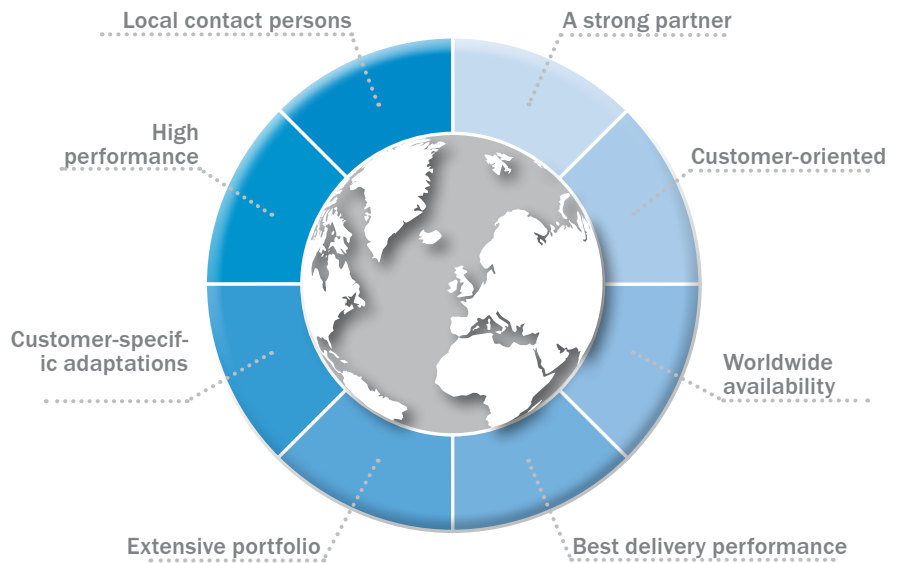


As a major player in automation technology, partnership with SICK offers you many benefits. Our goal is to continue driving innovation in the industry, even in areas neglected by others – and we want to do this across all sectors. Our global network of production plants with unified quality standards guarantees a safe and reliable supply. Our elaborate logistics concept ensures rapid availability on site, regardless of which of our over 40,000 products you require. The individual needs of our customers are paramount to SICK. Our local sales department will advise and support you with your automation projects. Together with our regional development and competence centers, we thus create added value for our customers.

# COMPACT AND QUICK TO MOUNT –
# FOR USE IN HARSH ENVIRONMENTS

## Product description

The new IQG inductive proximity sensor can be mounted in a matter of seconds, offers flexible adjustment options, and is easy to monitor. The innovative push-lock system enables mounting without tools in one second flat and makes replacing sensors child's play. Thanks to the rotating sensor head, the IQG can be adapted to suit a whole range of applications. The four corner LEDs enable straightforward sensor status monitoring, whatever the mounting position. With state-of-the-art ASIC technology and SICK's many years of experience behind it, the proximity sensor features an extensive ambient temperature range, excellent resistance to shocks and vibrations, plus electromagnetic compatibility. Even in extremely harsh environments with severe weather conditions, it operates reliably at all times.

## At a glance

- Housing design: 40 mm x 40 mm
- Increased sensing ranges: 20 mm, flush and 40 mm, non-flush
- Electrical configuration: DC 3-wire, DC 4-wire
- Ambient temperature range: –25 °C to 85 °C
- Enclosure rating: IP 68, IP 69K
- Push-lock mounting system
- Four corner LEDs
- Sensor head can be rotated in five directions

## Your benefits

- Reliable, cost-effective detection
- Easy to mount in one second flat without the need for additional tools
- The four corner LEDs ensure that the sensor status can be identified from any viewing direction, whatever the mounting position
- Can be easily adapted to numerous applications
- Long sensor service life, even in harsh environments that are subjected to severe weather conditions
- Stable processes thanks to extensive sensing ranges
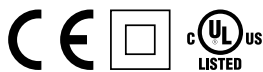
## Additional information

➔  **www.mysick.com/en/IQG**

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

## Detailed technical data

### Features

| | Short-body | Standard-body |
|---|---|---|
| Housing | Rectangular | |
| Dimensions (W x H x D) | 40 mm x 40 mm x 66 mm | 40 mm x 40 mm x 118 mm<br>40 mm x 40 mm x 132 mm<br>(depending on type) |
| Sensing range $S_n$ | | |
|     Flush | 20 mm | |
|     Non-flush | 40 mm | |
| Assured sensing range $S_a$ | | |
|     Flush | 16.2 mm | |
|     Non-flush | 32.4 mm | |
| Installation type | Flush / non-flush  (depending on type) | |
| Switching frequency | 150 Hz | |
| Output type | PNP / NPN  (depending on type) | |
| Output function | NC / NO / Complementary  (depending on type) | |
| Electrical wiring | DC 3-wire / DC 4-wire  (depending on type) | |
| Enclosure rating | IP 67, IP 68, IP 69K | |

### Mechanics/electronics

| | Short-body | Standard-body |
|---|---|---|
| Supply voltage | 10 V DC ... 30 V DC | |
| Ripple [1] | ≤ 10 $V_{pp}$ | |
| Voltage drop | ≤ 2 V | |
| Current consumption | ≤ 20 mA | |
| Time delay before availability | | |
|     Flush | ≤ 50 ms | |
|     Non-flush | ≤ 200 ms | |
| Hysteresis [3] | 3 % ... 15 % | |
| Temperature drift (of $S_r$) | ± 10 % | |
| Continuous current $I_a$ | ≤ 200 mA | |
| Connection type | Male connector, M12 | Cable gland<br>Male connector, M12<br>(depending on type) |
| Short-circuit protection | ✔ | |
| Reverse polarity protection | ✔ | |
| Power-up pulse protection | ✔ | |
| Shock and vibration resistance | 30 g, 11 ms / 10 ... 55 Hz, 1 mm | |
| Ambient operating temperature | –25 °C ... +85 °C | |
| Ambient storage temperature | –40 °C ... +85 °C | |
| Housing material | Plastic, PA 66 | |
| Sensing face material | Plastic, PA 66 | |
| Tightening torque, max. | 1.8 Nm | |
| Protection class | II [4] | |
| UL-File-No. [4] | E348498 | |

[1] Of Ub.

[2] Without load.

[3] Of $S_r$.

[4] Reference voltage: 50 V DC.

## Reduction factors

| Note | The values are reference values which may vary | | |
|---|---|---|---|
| **Stainless steel (V2A, 304)** | | | |
| Flush | Approx. 0.71 | | |
| Non-flush | Approx. 0.8 | | |
| **Aluminum (Al)** | | | |
| Flush | Approx. 0.3 | | |
| Non-flush | Approx. 0.34 | | |
| **Copper (Cu)** | | | |
| Flush | Approx. 0.25 | | |
| Non-flush | Approx. 0.27 | | |
| **Brass (Br)** | | | |
| Flush | Approx. 0.36 | | |
| Non-flush | Approx. 0.38 | | |

## Ordering information

Other models ➜ **www.mysick.com/en/IQG**

### Short-body

- **Connection:** connector M12, 4-pin
- **Dimensions (W x H x D):** 40 mm x 40 mm x 66 mm

| Sensing range $S_n$ | Installation type | Electrical wiring | Output function | Output type | Connection diagram | Type | Part no. |
|---|---|---|---|---|---|---|---|
| 20 mm | Flush | DC 3-wire | NC | PNP | Cd-008 | IQ40-20BPOKC0K | 1071844 |
| | | | NC | NPN | Cd-008 | IQ40-20BNOKC0K | 1071848 |
| | | | NO | PNP | Cd-011 | IQ40-20BPSKC0K | 1071840 |
| | | | NO | NPN | Cd-011 | IQ40-20BNSKC0K | 1071846 |
| | | DC 4-wire | Complementary | NPN | Cd-009 | IQ40-20BNPKC0K | 1071560 |
| | | | Complementary | PNP | Cd-009 | IQ40-20BPPKC0K | 1071553 |
| 40 mm | Non-flush | DC 3-wire | NC | PNP | Cd-008 | IQ40-40NPOKC0K | 1071852 |
| | | | NC | NPN | Cd-008 | IQ40-40NNOKC0K | 1071856 |
| | | | NO | PNP | Cd-011 | IQ40-40NPSKC0K | 1071850 |
| | | | NO | NPN | Cd-011 | IQ40-40NNSKC0K | 1071854 |
| | | DC 4-wire | Complementary | PNP | Cd-009 | IQ40-40NPPKC0K | 1071552 |
| | | | Complementary | NPN | Cd-009 | IQ40-40NNPKC0K | 1071864 |

## Standard-body

- **Connection:** Cable gland
- **Dimensions (W x H x D):** 40 mm x 40 mm x 118 mm

| Sensing range S_n | Installation type | Electrical wiring | Output function | Output type | Connection diagram | Type | Part no. |
|---|---|---|---|---|---|---|---|
| 20 mm | Flush | DC 3-wire | NC | PNP | Cd-341 | IQ40-20BPOKK0S | 1071845 |
| | | | | NPN | Cd-341 | IQ40-20BNOKK0S | 1071849 |
| | | | NO | PNP | Cd-342 | IQ40-20BPSKK0S | 1071843 |
| | | | | NPN | Cd-342 | IQ40-20BNSKK0S | 1071847 |
| | | DC 4-wire | Complementary | NPN | Cd-030 | IQ40-20BNPKK0S | 1071861 |
| | | | | PNP | Cd-030 | IQ40-20BPPKK0S | 1071860 |
| 40 mm | Non-flush | DC 3-wire | NC | PNP | Cd-341 | IQ40-40NPOKK0S | 1071853 |
| | | | | NPN | Cd-341 | IQ40-40NNOKK0S | 1071857 |
| | | | NO | PNP | Cd-342 | IQ40-40NPSKK0S | 1071851 |
| | | | | NPN | Cd-342 | IQ40-40NNSKK0S | 1071855 |
| | | DC 4-wire | Complementary | PNP | Cd-030 | IQ40-40NPPKK0S | 1071863 |
| | | | | NPN | Cd-030 | IQ40-40NNPKK0S | 1071865 |

## Standard-body

- **Connection:** connector M12, 4-pin
- **Dimensions (W x H x D):** 40 mm x 40 mm x 132 mm

| Sensing range S_n | Installation type | Electrical wiring | Output function | Output type | Connection diagram | Type | Part no. |
|---|---|---|---|---|---|---|---|
| 20 mm | Flush | DC 3-wire | NO | PNP | Cd-011 | IQ40-20BPSKC0S | 1071858 |
| | | DC 4-wire | Complementary | PNP | Cd-009 | IQ40-20BPPKC0S | 1071862 |
| 40 mm | Non-flush | DC 3-wire | NO | PNP | Cd-011 | IQ40-40NPSKC0S | 1071859 |
| | | DC 4-wire | Complementary | PNP | Cd-009 | IQ40-40NPPKC0S | 1071866 |

## Dimensional drawings (Dimensions in mm (inch))

IQG Short-body housing
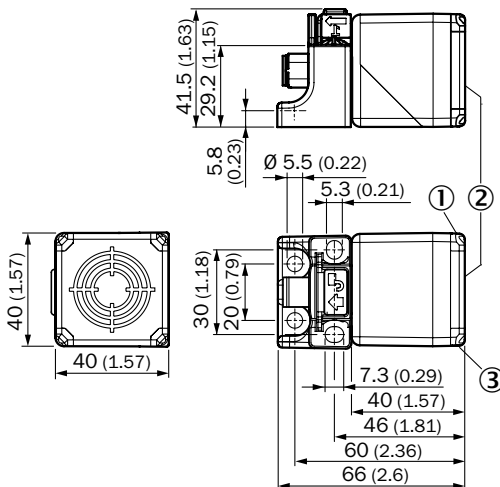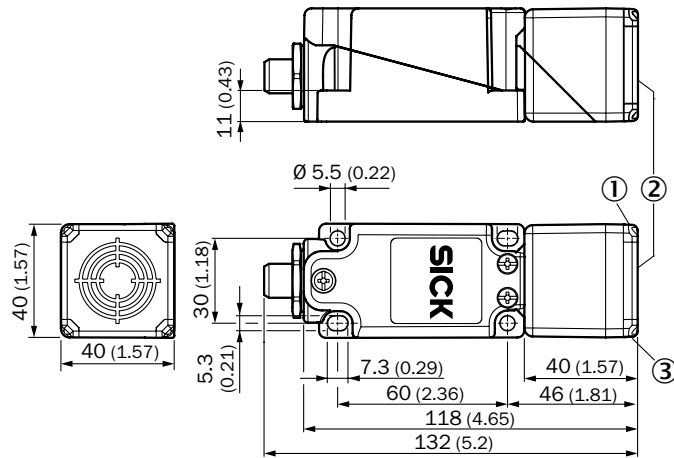


① Status LED, yellow
② Sensing face
③ Operation status LED, green

IQG Standard, cable gland
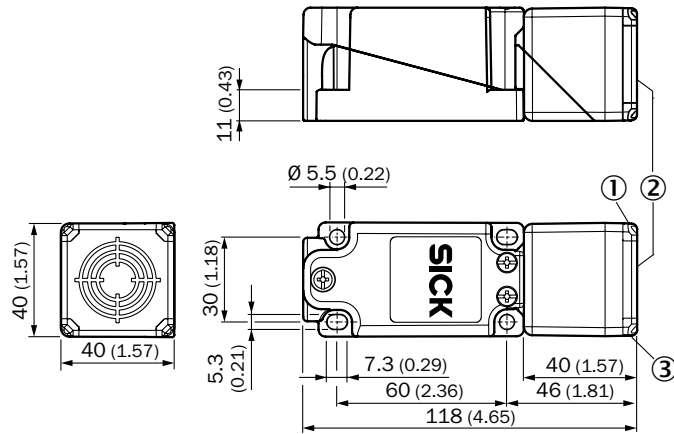
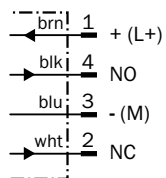① Status LED, yellow
② Sensing face
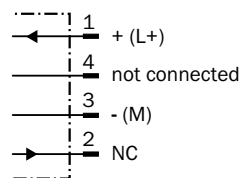③ Operation status LED, green

IQG Standard, connector M12

① Status LED, yellow
② Sensing face
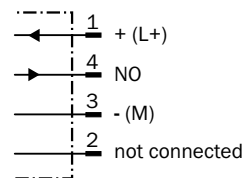③ Operation status LED, green

## Connection diagram

### Cd-009

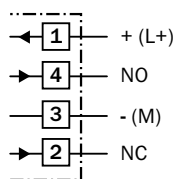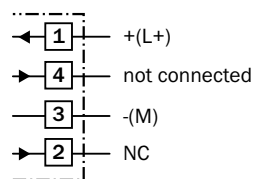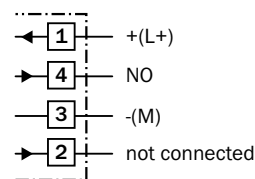| brn | 1 | + (L+) |
|-----|---|--------|
| blk | 4 | NO |
| blu | 3 | - (M) |
| wht | 2 | NC |

### Cd-008

| | 1 | + (L+) |
|--|---|--------|
| | 4 | not connected |
| | 3 | - (M) |
| | 2 | NC |

### Cd-011

| | 1 | + (L+) |
|--|---|--------|
| | 4 | NO |
| | 3 | - (M) |
| | 2 | not connected |

### Cd-030

| 1 | + (L+) |
|---|--------|
| 4 | NO |
| 3 | - (M) |
| 2 | NC |

### Cd-341

| 1 | +(L+) |
|---|--------|
| 4 | not connected |
| 3 | -(M) |
| 2 | NC |

### Cd-342

| 1 | +(L+) |
|---|--------|
| 4 | NO |
| 3 | -(M) |
| 2 | not connected |

## Installation note
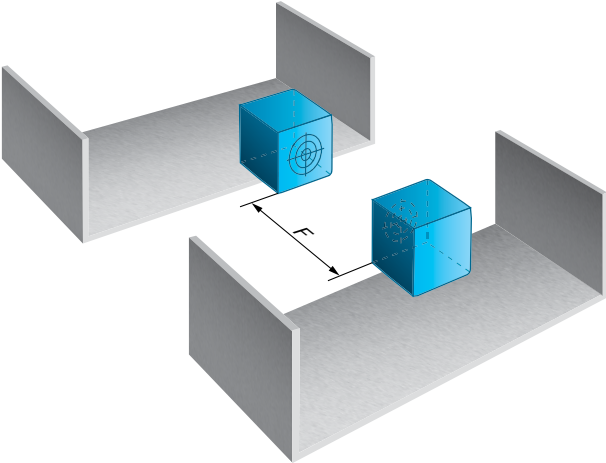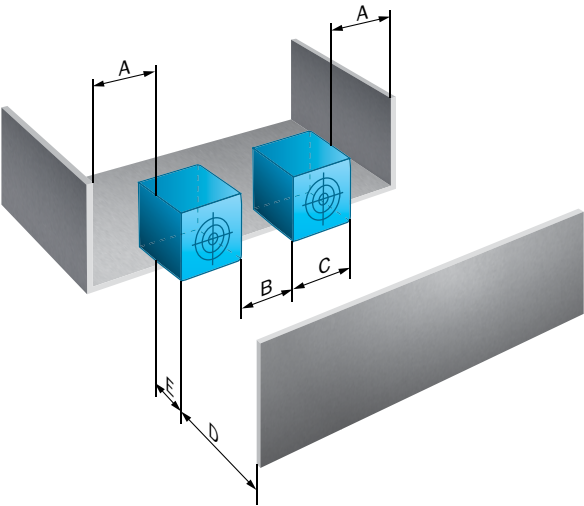


| | Installation | Ssensing range Sn | A | B | C | D | E | F |
|---|---|---|---|---|---|---|---|---|
| IQ40-20Bxxxxxx | Flush | 20 mm | 0 mm | 40 mm | 40 mm | 60 mm | 0 mm | 70 mm |
| IQ40-40Nxxxxxx | Non-flush | 40 mm | 42 mm | 100 mm | 40 mm | 120 mm | 40 mm | 150 mm |

## Response curve

IQ40-20Bxxxxxx
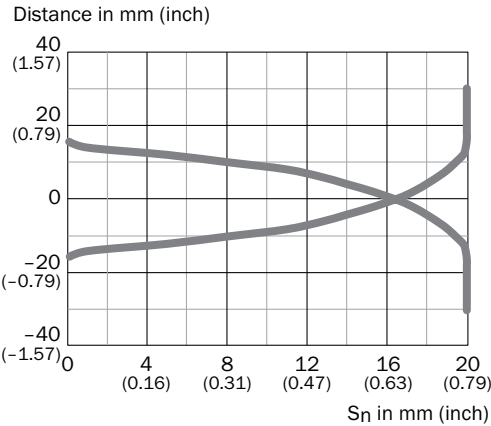


IQ40-40Nxxxxxx
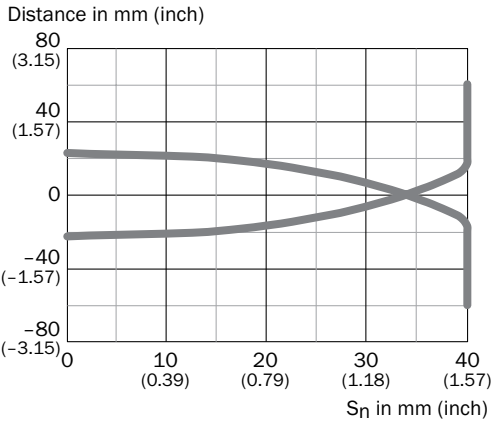
## Recommended accessories

### Connection systems

Plug connectors and cables

Connecting cables with female connectorM12, 4-pin, PVC, chemical resistant

- **Cable material:** PVC
- **Connector material:** TPU

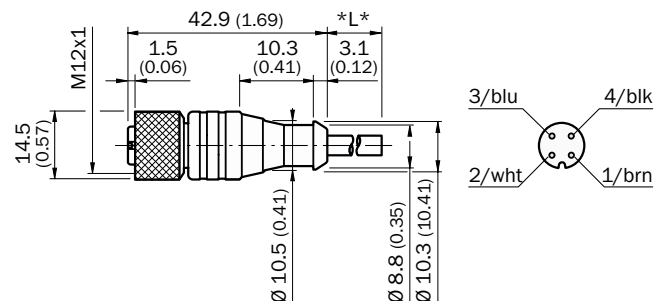| Figure | Connection type head A | Connection type head B | Connecting cable | Type | Part no. |
|--------|------------------------|------------------------|------------------|------|----------|
| | Female connector, M12, 4-pin, straight, unshielded | Cable, open conductor heads | 2 m, 4-wire | DOL-1204-G02M | 6009382 |
| | | | 5 m, 4-wire | DOL-1204-G05M | 6009866 |
| | | | 10 m, 4-wire | DOL-1204-G10M | 6010543 |
| | Female connector, M12, 4-pin, angled, with 3 LEDs, unshielded | Cable, open conductor heads | 2 m, 4-wire | DOL-1204-L02M | 6027945 |
| | | | 5 m, 4-wire | DOL-1204-L05M | 6027944 |
| | | | 10 m, 4-wire | DOL-1204-L10M | 6027946 |
| | Female connector, M12, 4-pin, angled, unshielded | Cable, open conductor heads | 2 m, 4-wire | DOL-1204-W02M | 6009383 |
| | | | 5 m, 4-wire | DOL-1204-W05M | 6009867 |
| | | | 10 m, 4-wire | DOL-1204-W10M | 6010541 |

Female connectors (ready to assemble)M12, 4-pin

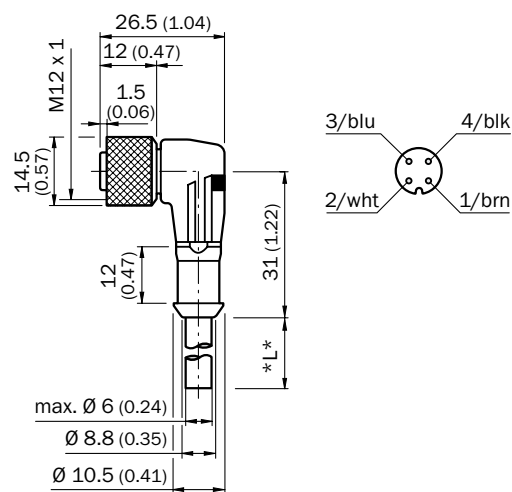| Figure | Connection type head A | Connection type head B | Connector material | Type | Part no. |
|--------|------------------------|------------------------|--------------------|------|----------|
| | Female connector, M12, 4-pin, straight, unshielded | Screw-type terminals | PA | DOS-1204-G | 6007302 |
| | Female connector, M12, 4-pin, angled, unshielded | Screw-type terminals | PBT | DOS-1204-W | 6007303 |

## Dimensional drawings for accessories (Dimensions in mm (inch))
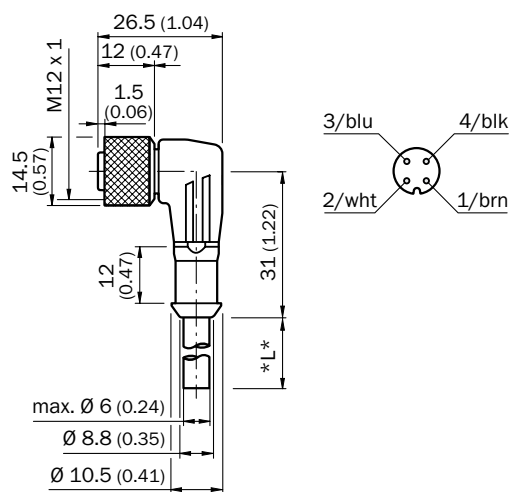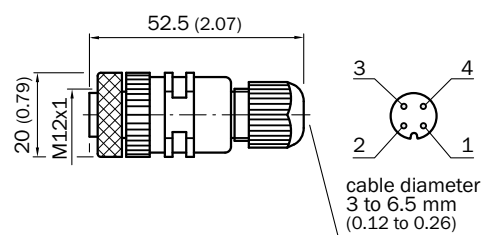
### Plug connectors and cables

#### DOL-1204-GxxM



#### DOL-1204-LxxM



#### DOL-1204-WxxM



#### DOS-1204-G



cable diameter
3 to 6.5 mm
(0.12 to 0.26)

#### DOS-1204-W



cable diameter
3 to 6.5 mm
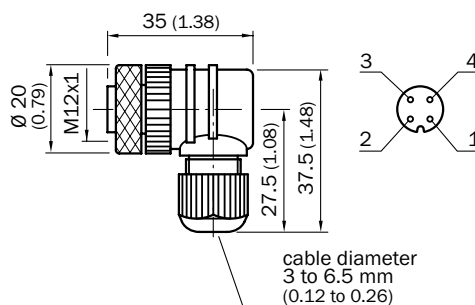(0.12 to 0.26)

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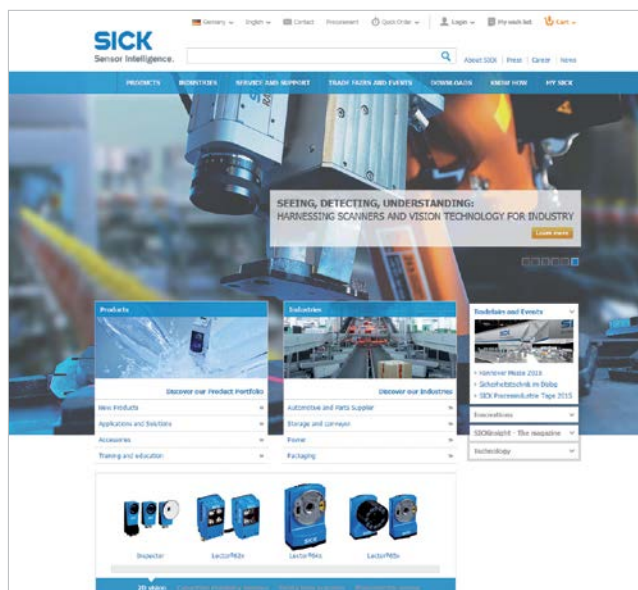
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# SICK AT A GLANCE

SICK is a leading manufacturer of intelligent sensors and sensor solutions for industrial applications. With almost 7,000 employees and over 50 subsidiaries and equity investments as well as numerous representative offices worldwide, we are always close to our customers. 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 various 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 round out 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:**

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Detailed addresses and additional representatives ➜ **www.sick.com**

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