PRODUCT INFORMATION

# GLL170

## FIBER-OPTIC SENSORS AND FIBERS

**Photoelectric sensors**

SICK
Sensor Intelligence.

# SIMPLE, FLEXIBLE DETECTION

## Product description

The GLL170 fiber-optic sensor is the reliable solution for all detection tasks in combination with the fibers in the LL3 product family. With its simple operating concept, the sensor is ideal for applications in harsh environments as well as when rapid response times are crucial. Different variants are available to suit all requirements: The GLL170 variant with potentiometer enables quick and easy commissioning thanks to its intuitive operation. The GLL170T variant with teach-in function features a display for direct sensor feedback and provides solutions for numerous applications with its range of adjustments. With a switching frequency of up to 10 kHz, this sensor can even handle rapid processes with ease.

## At a glance

- Intuitive operating concept
- Rapid response time of 50 µs
- Switching threshold adjustment via potentiometer, or teach-in via push-button or cable
- IP 66 enclosure rating for high degree of ruggedness
- PNP/NPN switchover (teach-in variant)
- 4-digit digital display (teach-in variant)
- Variable fixing concept
- Various connection types available

## Your benefits

- User-friendly handling enables fast commissioning
- Reliable detection even in rapid processes
- Easy to adjust with intuitive potentiometer or teach-in button
- Rugged sensor housing enables mounting outside the control cabinet
- Sensor parameters can be flexibly adapted to a diverse range of applications (teach-in variant)
- Easy monitoring of process parameters (teach-in variant)
- Quick and easy mounting on a mounting rail or using the fixing holes on the sensor
- Can be combined with fibers from the extensive SICK portfolio to form solutions for numerous applications

## Additional information

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→ www.sick.com/GLL170

For more information, simply 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.



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## Detailed technical data

### Features

| | GLL170 | GLL170T |
|---|---|---|
| **Sensor principle** | Fiber-optic photoelectric sensor | |
| **Device type** | Stand-alone | |
| **Dimensions (W x H x D)** | 10 mm x 31.7 mm x 72.5 mm | |
| **Housing design (light emission)** | Rectangular | |
| **Sensing range max.** | 0 mm ... 190 mm, Proximity system [1) 2)]<br>0 mm ... 800 mm, Through-beam system [3)] | 0 mm ... 400 mm, Proximity system [1) 2)]<br>0 mm ... 1,320 mm, Through-beam system [3)] |
| **Sensing range** | 0 mm ... 160 mm, Proximity system [1) 2)]<br>0 mm ... 700 mm, Through-beam system [3)] | 0 mm ... 350 mm, Proximity system [1) 2)]<br>0 mm ... 1,100 mm, Through-beam system [3)] |
| **Type of light** | Visible red light | |
| **Light source** [4)] | LED | |
| **Wave length** | 632 nm | |
| **Adjustment** | Potentiometer, 8 turns [5)] | Teach-in button, Cable, Plus/minus button |
| **Time type** | Without time delay, off delay | On delay, off delay, one shot, Without time delay |
| **Delay time** | Selectable via rotary switch, 0 ms, 40 ms | Programmable, 0 ms, 9999 ms |
| **Indication** | LED | Display |
| **Display** | Status LEDs | Status LEDs, 4-digit digital display, display selectable between percentage value, absolute digit value and bar display / display of parameters |

[1)] Object with 90 % reflectance (referred to standard white, DIN 5033).

[2)] LL3-DK06.

[3)] LL3-TB02.

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

[5)] Sensitivity scale 230°.

### Mechanics/electronics

| | GLL170 | GLL170T |
|---|---|---|
| **Supply voltage** [1)] | 10 V DC ... 30 V DC | |
| **Ripple** [2)] | ≤ 10 % | |
| **Power consumption** [3)] | ≤ 30 mA | ≤ 40 mA |
| **Output type** | PNP, Open Collector/NPN, Open Collector (depending on type) | PNP, Open Collector, NPN, Open Collector Selectable via menu |
| **Number of switching outputs** | 1 | |
| **Input** | – | Teach-in input |
| **Switching mode** | Light/dark switching | |
| **Switching mode selector** | Selectable via rotary switch | Selectable via menu |
| **Output current $I_{max.}$** | ≤ 100 mA | |
| **Response time** [4)] | ≤ 250 µs | ≤ 250 µs, ≤ 50 µs (selectable via menu) |
| **Switching frequency** | 2 kHz | 2 kHz, 10 kHz |
| **Connection type** | Cable, 2 m [5)] / Male connector, M8, 3-pin / Male connector, M8, 4-pin (depending on type) | |
| **Circuit protection** | A [6)], B [7)], C [8)], D [9)] | |
| **Protection class** | III | |
| **Weight** | | |
| Cable, 3-wire | 63 g | 66 g |
| Connector M8, 4-pin | 19 g | 22 g |
| Connector M8, 3-pin | 19 g | 22 g |

| | GLL170 | GLL170T |
|---|---|---|
| **Housing material** | PC/POM | |
| **Tightening torque, max.** | 0.5 Nm | |
| **Enclosure rating** [10] | IP 66 | |
| **Ambient operating temperature** | –25 °C ... +55 °C | |
| **Ambient storage temperature** | –40 °C ... +70 °C | |

[1] Limit values.
[2] May not exceed or fall below $U_v$ tolerances.
[3] Without load.
[4] Signal transit time with resistive load.
[5] Do not bend below 0 °C.
[6] A = $V_S$ connections reverse-polarity protected.
[7] B = inputs and output reverse-polarity protected.
[8] C = interference suppression.
[9] D = outputs overcurrent and short-circuit protected.
[10] With correctly attached fibre-optic cable LL3.

## Ordering information

Other models ➜ www.sick.com/GLL170

### GLL170

| Response time | Sensing range max. | Switching mode | Adjustment | Connection | Connection diagram | Type | Part no. |
|---|---|---|---|---|---|---|---|
| ≤ 250 µs | 0 mm ... 190 mm, Proximity system [1] [2]<br>0 mm ... 800 mm, Through-beam system [3] | PNP | Potentiometer, 8 turns | Cable, 3-pin, 2 m | cd-043 | GLL170-P332 | 6063334 |
| | | | | Male connector, M8, 4-pin | cd-066 | GLL170-P334 | 6063335 |
| | | | | Male connector, M8, 3-pin | cd-045 | GLL170-P333 | 6063336 |
| | | NPN | Potentiometer, 8 turns | Cable, 3-pin, 2 m | cd-043 | GLL170-N332 | 6063337 |
| | | | | Male connector, M8, 4-pin | cd-066 | GLL170-N334 | 6063338 |
| | | | | Male connector, M8, 3-pin | cd-045 | GLL170-N333 | 6063339 |

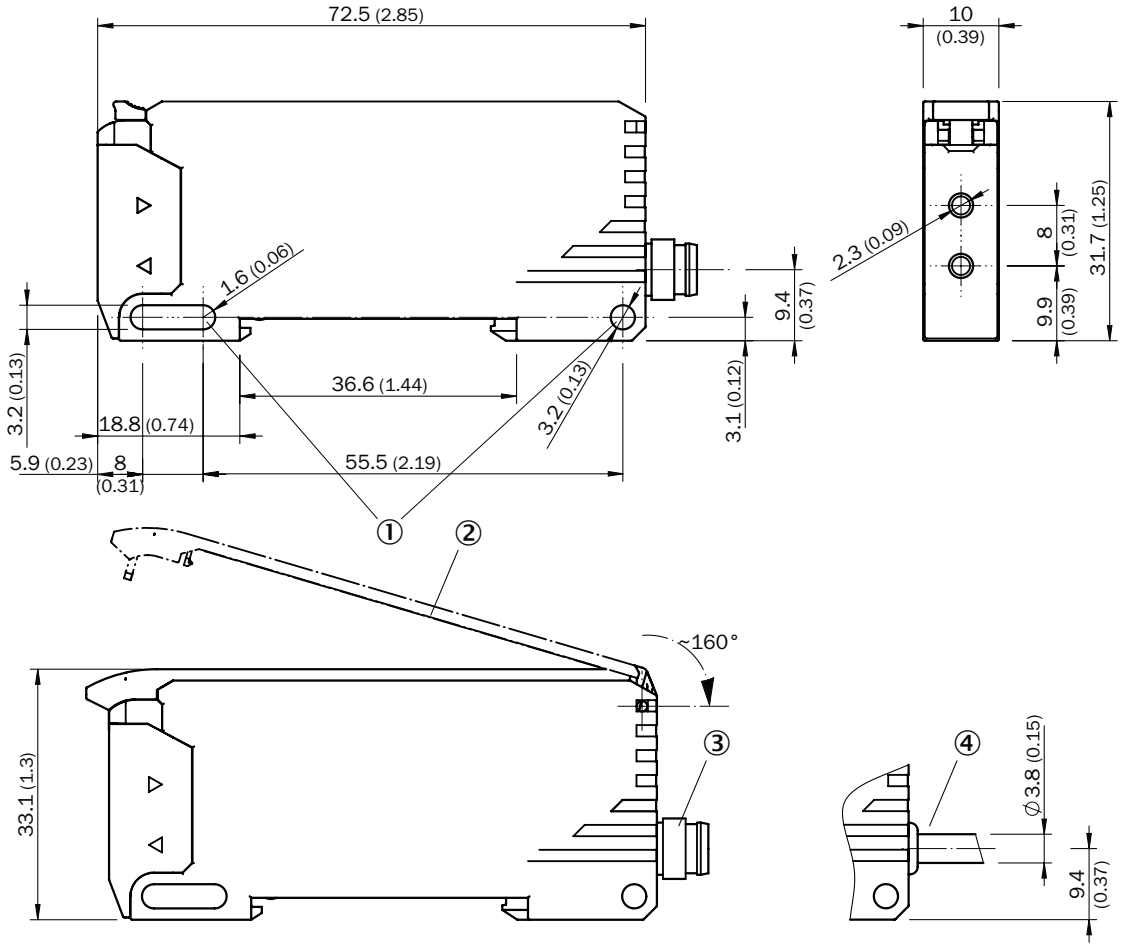
[1] Object with 90 % reflectance (referred to standard white, DIN 5033)
[2] LL3-DK06.
[3] LL3-TB02.

### GLL170T

| Response time | Sensing range max. | Switching mode | Adjustment | Connection | Connection diagram | Type | Part no. |
|---|---|---|---|---|---|---|---|
| ≤ 250 µs, ≤ 50 µs | 0 mm ... 400 mm, Proximity system [1] [2]<br>0 mm ... 1,320 mm, Through-beam system [3] | PNP, NPN | Teach-in button Cable Plus/minus buttons | Cable, 4-pin, 2 m | cd-093 | GLL170T-B432 | 6063340 |
| | | | | Male connector, M8, 4-pin | cd-092 | GLL170T-B434 | 6063341 |
| | | | | Male connector, M8, 3-pin | cd-045 | GLL170T-B333 | 6063342 |

[1] Object with 90 % reflectance (referred to standard white, DIN 5033)
[2] LL3-DK06.
[3] LL3-TB02.

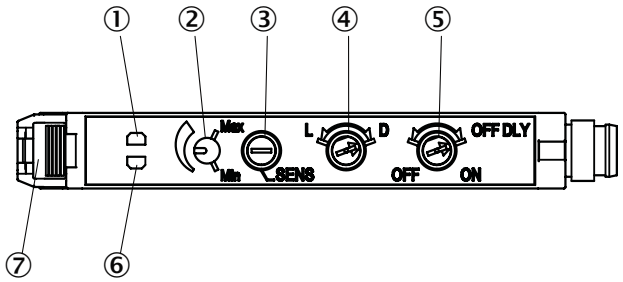
## Dimensional drawings (Dimensions in mm (inch))




① Mounting holes
② Protective hood (optional), opens approx. 160°
③ Connector M8
④ Cable

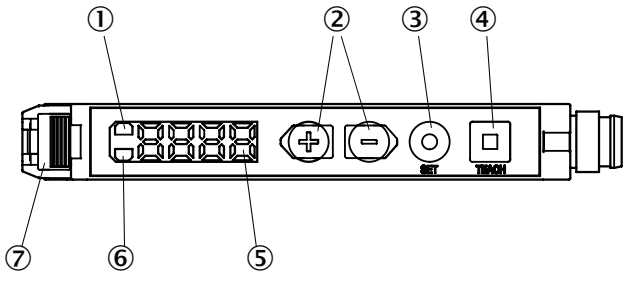
## Adjustments

GLL170




① LED indicator orange, lights up when switching output is active
② Sensitivity scale 230°
③ Sensitivity control: potentiometer, 8 turns
④ Selector switch: “L.ON” ( light switching) /”D.ON” ( dark switching)
⑤ OFF delay selector switch: “ON” (on)/“OFF” (off), 40 ms fixed
⑥ LED signal strength indicator green, lights up, when light received< 0.9 or >1.1 (switching threshold = 1)
⑦ Locking the fiber-optic cables

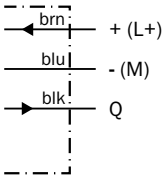
GLL170T



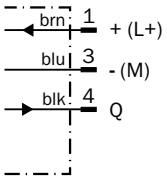

① LED indicator orange, lights up when switching output is active
② Plus/minus button
③ SET button
④ Teach-in button
⑤ Display
⑥ LED indicator green: Supply voltage active
⑦ Locking the fiber-optic cables

## Connection diagram

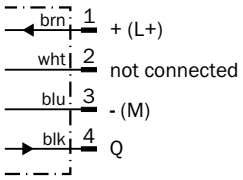
Cd-043



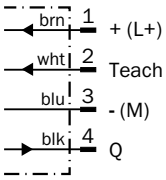

Cd-045



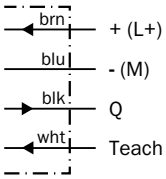

Cd-066




Cd-092




Cd-093




## Recommended accessories

### Mounting systems

| Figure | Brief description | Type | Part no. |
|---|---|---|---|
| | Mounting bracket, steel, zinc coated, without mounting hardware | BEF-WLL170 | 5306574 |
| | Protective Hood for GLL170 | BF-GLL170 | 5336263 |

Other mounting accessories

| Figure | Brief description | Type | Part no. |
|---|---|---|---|
| | Cutter for fibers, supplied with LL3 | FC | 5304141 |

### Connection systems

Connecting cables with female connector

| Figure | Brief description | Cable length | Type | Part no. |
|---|---|---|---|---|
| | Head A: female connector, M8, 3-pin, straight<br>Head B: cable<br>Cable: PVC, unshielded, Ø 5 mm | 2 m | DOL-0803-G02M | 6010785 |
| | | 5 m | DOL-0803-G05M | 6022009 |
| | | 10 m | DOL-0803-G10M | 6022011 |
| | Head A: female connector, M8, 3-pin, angled<br>Head B: cable<br>Cable: PVC, unshielded, Ø 5 mm | 2 m | DOL-0803-W02M | 6008489 |
| | | 5 m | DOL-0803-W05M | 6022010 |
| | | 10 m | DOL-0803-W10M | 6022012 |
| | Head A: female connector, M8, 4-pin, straight<br>Head B: cable<br>Cable: PVC, unshielded, Ø 5 mm | 2 m | DOL-0804-G02M | 6009870 |
| | | 5 m | DOL-0804-G05M | 6009872 |
| | | 10 m | DOL-0804-G10M | 6010754 |
| | Head A: female connector, M8, 4-pin, angled<br>Head B: cable<br>Cable: PVC, unshielded, Ø 5 mm | 2 m | DOL-0804-W02M | 6009871 |
| | | 5 m | DOL-0804-W05M | 6009873 |
| | | 10 m | DOL-0804-W10M | 6010755 |

Female connectors (ready to assemble)

| Figure | Brief description | Type | Part no. |
|---|---|---|---|
| | Head A: female connector, M8, 3-pin, straight<br>Head B: -<br>Cable: unshielded | DOS-0803-G | 7902077 |
| | Head A: female connector, M8, 3-pin, angled<br>Head B: -<br>Cable: unshielded | DOS-0803-W | 7902078 |
| | Head A: female connector, M8, 4-pin, straight<br>Head B: -<br>Cable: unshielded | DOS-0804-G | 6009974 |
| | Head A: female connector, M8, 4-pin, angled<br>Head B: -<br>Cable: unshielded | DOS-0804-W | 6009975 |

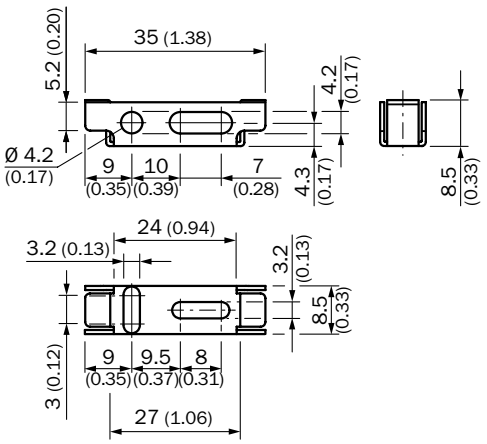
Male connectors (ready to assemble)

| Figure | Brief description | Type | Part no. |
|---|---|---|---|
| | Head A: male connector, M8, 3-pin, straight<br>Head B: -<br>Cable: unshielded | STE-0803-G | 6037322 |
| | Head A: male connector, M8, 4-pin, straight<br>Head B: -<br>Cable: unshielded | STE-0804-G | 6037323 |

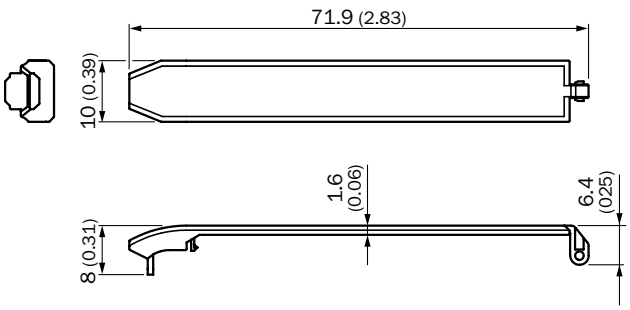
## Dimensional drawings for accessories (Dimensions in mm (inch))

### Mounting systems

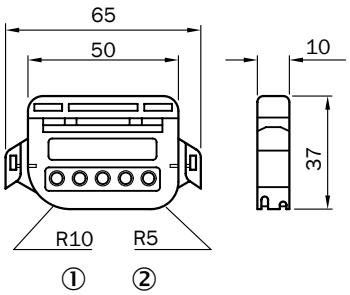
BEF-WLL170




BF-GLL170



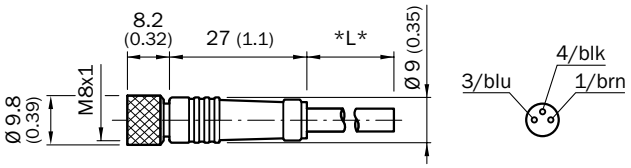

FC



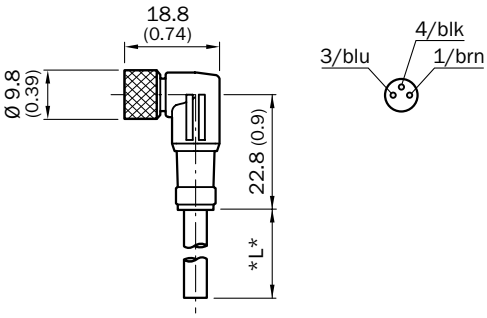

① Template for R10 mm bend radius
② Template for R5 mm bend radius

## Connection systems

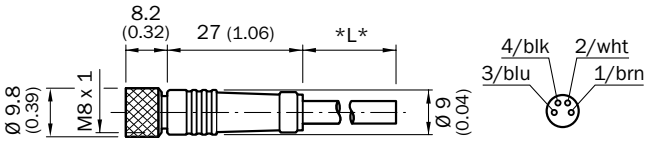
DOL-0803-G02M
DOL-0803-G05M
DOL-0803-G10M



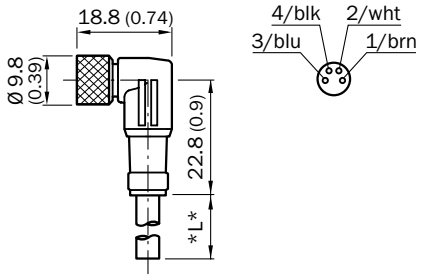

DOL-0803-W02M
DOL-0803-W05M
DOL-0803-W10M



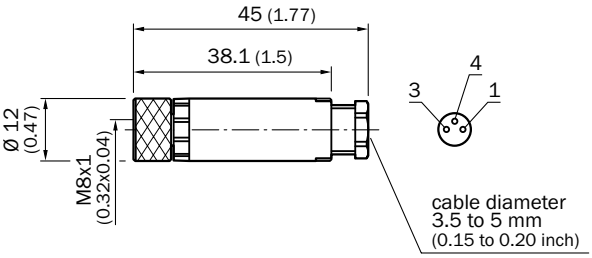

DOL-0804-G02M
DOL-0804-G05M
DOL-0804-G10M




DOL-0804-W02M
DOL-0804-W05M
DOL-0804-W10M




DOS-0803-G

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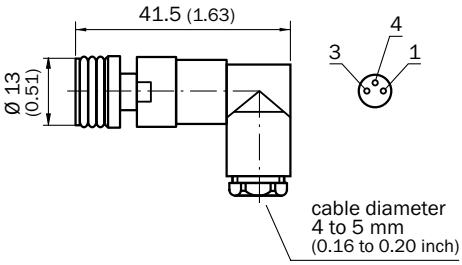
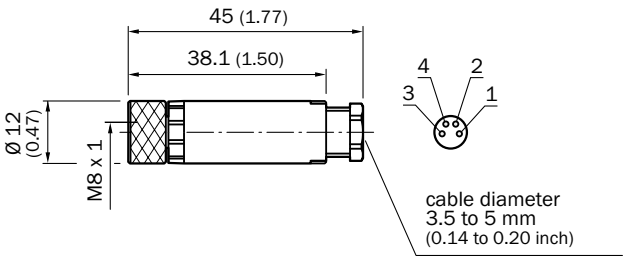
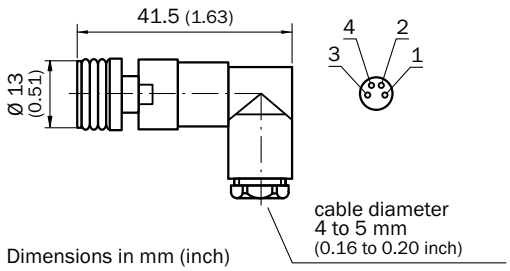



DOS-0804-G

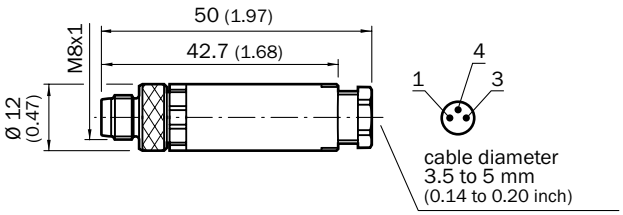



DOS-0804-W

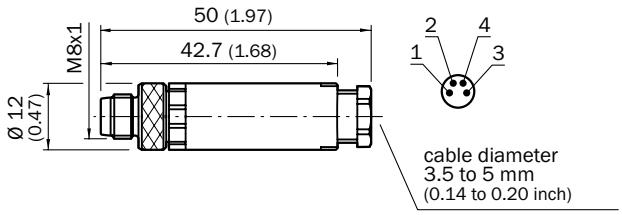



Dimensions in mm (inch)

STE-0803-G




STE-0804-G



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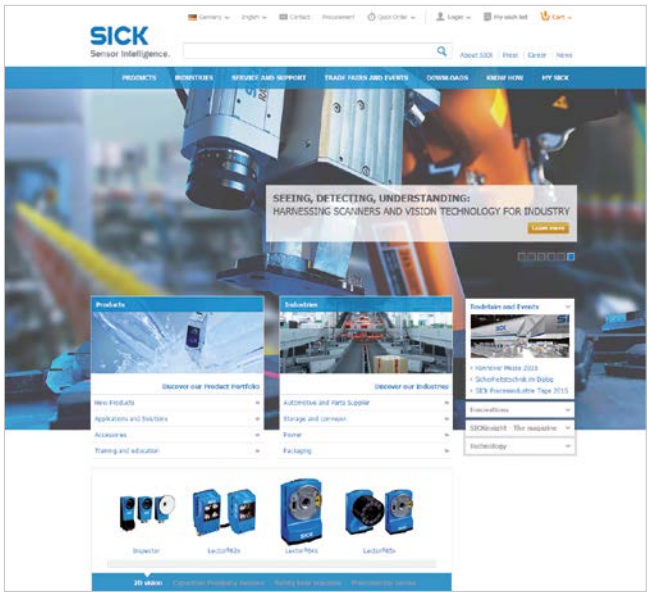


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# SICK AT A GLANCE

SICK is a leading manufacturer of intelligent sensors and sensor solutions for industrial applications. With more than 7,400 employees and over 50 subsidiaries and equity investments as well as numerous agencies 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.

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Detailed addresses and further locations → www.sick.com



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