



# MLG20A-0140B50501

MLG-2

MEASURING AUTOMATION LIGHT GRIDS

**SICK**  
Sensor Intelligence.



Illustration may differ

### Ordering information

| Type              | Part no. |
|-------------------|----------|
| MLG20A-0140B50501 | 1107786  |

Other models and accessories → [www.sick.com/MLG-2](http://www.sick.com/MLG-2)



### Detailed technical data

#### Features

|  |   |                 |                            |                 |                                    |                              |                    |         |             |       |               |
|--|---|-----------------|----------------------------|-----------------|------------------------------------|------------------------------|--------------------|---------|-------------|-------|---------------|
| <b>Device version</b>                  | Pro - Advanced functionality  |                 |                            |                 |                                    |                              |                    |         |             |       |               |
| <b>Sensor principle</b>                | Sender/receiver   |                 |                            |                 |                                    |                              |                    |         |             |       |               |
| <b>Minimum detectable object (MDO)</b> | 20 mm, 24 mm <sup>1) 2) 3)</sup>  |                 |                            |                 |                                    |                              |                    |         |             |       |               |
| <b>Beam separation</b>                 | 20 mm   |                 |                            |                 |                                    |                              |                    |         |             |       |               |
| <b>Type of synchronization</b>         | Cable   |                 |                            |                 |                                    |                              |                    |         |             |       |               |
| <b>Number of beams</b>                 | 8   |                 |                            |                 |                                    |                              |                    |         |             |       |               |
| <b>Detection height</b>                | 140 mm  |                 |                            |                 |                                    |                              |                    |         |             |       |               |
| <b>Software features (default)</b>     | <table border="0"> <tr> <td>Q<sub>A1</sub></td> <td>Number of broken beams/NBB</td> </tr> <tr> <td>Q<sub>A2</sub></td> <td>Height measurement (last beam)/LBB</td> </tr> <tr> <td>Q<sub>1</sub></td> <td>Presence detection</td> </tr> <tr> <td>Q2 / IN</td> <td>Teach input</td> </tr> <tr> <td>Teach</td> <td>Standard mode</td> </tr> </table> | Q <sub>A1</sub> | Number of broken beams/NBB | Q <sub>A2</sub> | Height measurement (last beam)/LBB | Q <sub>1</sub>               | Presence detection | Q2 / IN | Teach input | Teach | Standard mode |
| Q <sub>A1</sub>                        | Number of broken beams/NBB  |                 |                            |                 |                                    |                              |                    |         |             |       |               |
| Q <sub>A2</sub>                        | Height measurement (last beam)/LBB  |                 |                            |                 |                                    |                              |                    |         |             |       |               |
| Q <sub>1</sub>                         | Presence detection  |                 |                            |                 |                                    |                              |                    |         |             |       |               |
| Q2 / IN                                | Teach input   |                 |                            |                 |                                    |                              |                    |         |             |       |               |
| Teach                                  | Standard mode   |                 |                            |                 |                                    |                              |                    |         |             |       |               |
| <b>Operating mode</b>                  | <table border="0"> <tr> <td>Standard</td> <td>✓</td> </tr> <tr> <td>Transparent</td> <td>✓</td> </tr> <tr> <td>Dust- and sunlight-resistant</td> <td>✓</td> </tr> </table>  | Standard        | ✓                          | Transparent     | ✓                                  | Dust- and sunlight-resistant | ✓                  |         |             |       |               |
| Standard                               | ✓   |                 |                            |                 |                                    |                              |                    |         |             |       |               |
| Transparent                            | ✓   |                 |                            |                 |                                    |                              |                    |         |             |       |               |
| Dust- and sunlight-resistant           | ✓   |                 |                            |                 |                                    |                              |                    |         |             |       |               |
| <b>Function</b>                        | <table border="0"> <tr> <td>Cross beam</td> <td>✓</td> </tr> </table>   | Cross beam      | ✓                          |                 |                                    |                              |                    |         |             |       |               |
| Cross beam                             | ✓   |                 |                            |                 |                                    |                              |                    |         |             |       |               |

<sup>1)</sup> MDO min. detectable object at high measurement accuracy.

<sup>2)</sup> MDO min. detectable object for standard measurement accuracy.

<sup>3)</sup> Depending on beam separation without cross beam setting.

|                               |   |
|-------------------------------|---|
| Beam blanking                 | ✓   |
| High measurement accuracy     | ✓   |
| <b>Applications</b>           |   |
| Switching output              | Object recognition/object width<br>Object recognition<br>Height classification<br>Hole detection/hole size<br>Outside dimension/inside dimension<br>Object position<br>Hole position<br>Zone definition   |
| Data interface                | Object detection<br>Hole detection<br>Object height measurement<br>Measurement of external dimension<br>Measurement of inside dimension<br>Measurement of object position<br>Measurement of hole position |
| <b>Included with delivery</b> | 1 × sender (in IP69K protective pipes)<br>1 × receiver (in IP69K protective pipes)<br>1 × IP69K mounting instructions<br>1 × Quick Start Guide  |

- 1) MDO min. detectable object at high measurement accuracy.  
 2) MDO min. detectable object for standard measurement accuracy.  
 3) Depending on beam separation without cross beam setting.

### Mechanics/electronics

|   |  |
|---|--|
| <b>Light source</b>                         | LED, Infrared light  |
| <b>Wave length</b>                          | 850 nm   |
| <b>Supply voltage <math>V_s</math></b>      | DC 19.2 V ... 28.8 V <sup>1)</sup>   |
| <b>Power consumption sender</b>             | 55.4 mA <sup>2)</sup>  |
| <b>Power consumption receiver</b>           | 121.6 mA <sup>2)</sup>   |
| <b>Ripple</b>                               | < 5 V <sub>pp</sub>  |
| <b>Output current <math>I_{max.}</math></b> | 100 mA   |
| <b>Output load, capacitive</b>              | 100 nF   |
| <b>Output load, Inductive</b>               | 1 H  |
| <b>Initialization time</b>                  | < 1 s  |
| <b>Switching output</b>                     | Push-pull: PNP/NPN   |
| <b>Connection type</b>                      | Male connector M12, 5-pin, 0.39 m<br>Male connector M12, 8-pin, 0.39 m   |
| <b>Housing material</b>                     | Aluminum (light grid)<br>PMMA Plexiglas XT Food Contact DoC (protective pipe)<br>Polypropylene, stainless steel 1.4404 (cable)<br>VA 1.4305 (pressure compensation element)<br>Stainless steel 1.4404 (end caps)<br>Stainless steel V4A 1.4404 DIN EN 1672-2 (cable gland) |
| <b>Indication</b>                           | LED  |
| <b>Enclosure rating</b>                     | IP69K<br><sup>3)</sup>   |

- 1) Without load.  
 2) , Without load with 24 V.  
 3) Operating in outdoor condition only with a external protection housing.

|                           |  |
|---------------------------|--|
| <b>Circuit protection</b> | U <sub>V</sub> connections, reverse polarity protected<br>Output Q short-circuit protected<br>Interference pulse suppression |
| <b>Protection class</b>   | III  |
| <b>Weight</b>             | 0.86 kg  |
| <b>Option</b>             | Protective housing IP69K   |
| <b>UL File No.</b>        | NRKH.E181493   |

<sup>1)</sup> Without load.

<sup>2)</sup> , Without load with 24 V.

<sup>3)</sup> Operating in outdoor condition only with a external protection housing.

## Performance

|                        |                      |
|------------------------|----------------------|
| <b>Maximum range</b>   | 5.25 m <sup>1)</sup> |
| <b>Minimum range</b>   | ≥ 0 m                |
| <b>Operating range</b> | 3.75 m               |
| <b>Response time</b>   | 3.5 ms <sup>2)</sup> |

<sup>1)</sup> No reserve for environmental issue and deterioration of the diode.

<sup>2)</sup> Without high speed.

## Communication interface

|                                |                                   |
|--------------------------------|-----------------------------------|
| <b>IO-Link</b>                 | ✓, IO-Link V1.1                   |
| Data transmission rate         | 230,4 kbit/s (COM3)               |
| Maximum cable length           | 20 m                              |
| Cycle time                     | 2.3 ms                            |
| VendorID                       | 26                                |
| DeviceID HEX                   | 800068                            |
| DeviceID DEC                   | 8388712                           |
| Process data length            | 32 Byte (TYPE_2_V) <sup>1)</sup>  |
| <b>Analog</b>                  | ✓, Current                        |
| <b>Inputs/outputs</b>          | 2 x analog + 2 x Q (IO-Link)      |
| <b>Analog output (current)</b> | 4 mA ... 20 mA                    |
| <b>Analog output</b>           | Q <sub>A1</sub> , Q <sub>A2</sub> |
| Number                         | 2                                 |
| Type                           | Current output                    |
| Current                        | 4 mA ... 20 mA                    |
| <b>Digital output</b>          | Q <sub>1</sub> , Q <sub>2</sub>   |
| Number                         | 2                                 |
| <b>Digital input</b>           | In <sub>1</sub>                   |
| Number                         | 1                                 |

<sup>1)</sup> With an IO-Link master with V1.0, fall back to interleaved mode (consisting of TYPE\_1\_1 (ProcessData) and TYPE\_1\_2 (On-request Data)).

## Ambient data

|                         |  |
|-------------------------|--|
| <b>Shock resistance</b> | Continuous shocks 10 g, 16 ms, 1000 shocks |
|-------------------------|--|

<sup>1)</sup> Outdoor mode.

<sup>2)</sup> Light resistance indirect.

|                                      |  |
|--------------------------------------|--|
|                                      | Single shocks 15 g, 11 ms 3 per axle                                   |
| <b>Vibration resistance</b>          | Sinusoidal oscillation 10-150 Hz 5 g                                   |
| <b>EMC</b>                           | EN 60947-5-2   |
| <b>Ambient light immunity</b>        | Direct: 150,000 lx <sup>1)</sup><br>Indirect: 200,000 lx <sup>2)</sup> |
| <b>Ambient operating temperature</b> | -20 °C ... +55 °C  |
| <b>Ambient temperature, storage</b>  | -40 °C ... +70 °C  |

<sup>1)</sup> Outdoor mode.

<sup>2)</sup> Light resistance indirect.

### Smart Task

|                        |             |
|------------------------|-------------|
| <b>Smart Task name</b> | Base logics |
|------------------------|-------------|

### Classifications

|                       |          |
|-----------------------|----------|
| <b>ECLASS 5.0</b>     | 27270910 |
| <b>ECLASS 5.1.4</b>   | 27270910 |
| <b>ECLASS 6.0</b>     | 27270910 |
| <b>ECLASS 6.2</b>     | 27270910 |
| <b>ECLASS 7.0</b>     | 27270910 |
| <b>ECLASS 8.0</b>     | 27270910 |
| <b>ECLASS 8.1</b>     | 27270910 |
| <b>ECLASS 9.0</b>     | 27270910 |
| <b>ECLASS 10.0</b>    | 27270910 |
| <b>ECLASS 11.0</b>    | 27270910 |
| <b>ECLASS 12.0</b>    | 27270910 |
| <b>ETIM 5.0</b>       | EC002549 |
| <b>ETIM 6.0</b>       | EC002549 |
| <b>ETIM 7.0</b>       | EC002549 |
| <b>ETIM 8.0</b>       | EC002549 |
| <b>UNSPSC 16.0901</b> | 39121528 |

Dimensional drawing (Dimensions in mm (inch))

Dimensional drawing



|                               |   |             |
|-------------------------------|---|-------------|
| <b>Beam separation 2.5 mm</b> | 94.25 (3.71)                            | 84.7 (3.33) |
| <b>Beam separation 5 mm</b>   | 95.5 (3.76)                             | 83.6 (3.29) |
| <b>Beam separation 10 mm</b>  | 100.5 (3.96)                            | 83.6 (3.29) |
| <b>Beam separation 20 mm</b>  | 100.5 (3.96)/110.5 (4.35) <sup>3)</sup> | 83.6 (3.29) |
| <b>Beam separation 25 mm</b>  | 115.5 (4.55)                            | 83.6 (3.29) |
| <b>Beam separation 30 mm</b>  | 120.5 (4.74)                            | 83.6 (3.29) |
| <b>Beam separation 50 mm</b>  | 140.5 (5.53)                            | 83.6 (3.29) |

<sup>1)</sup> Distance: MLG-2 edge - first beam

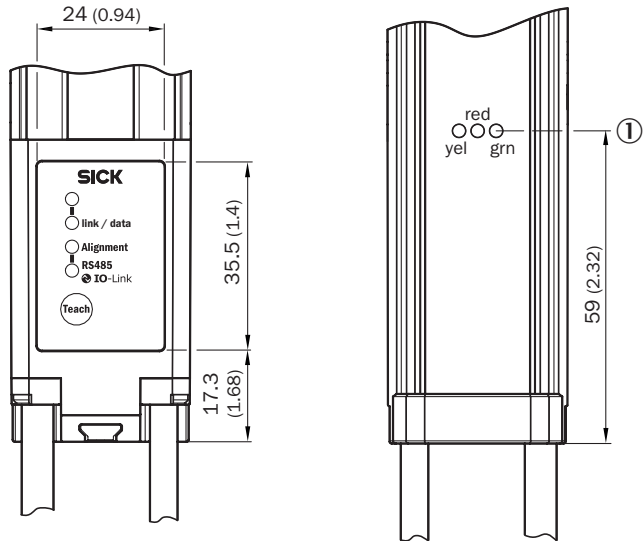
<sup>2)</sup> Distance: MLG-2 edge - last beam

<sup>3)</sup> MLG20x-xx**40**: 100.5 mm  
MLG20x-xx**80**: 110.5 mm

- ① First beam
- ② Last beam
- ③ Detection height (see technical data)
- ④ Beam separation
- ⑤ Optical axis
- ⑥ Status indicator: green, yellow, red LEDs
- ⑦ Connection

## Adjustments

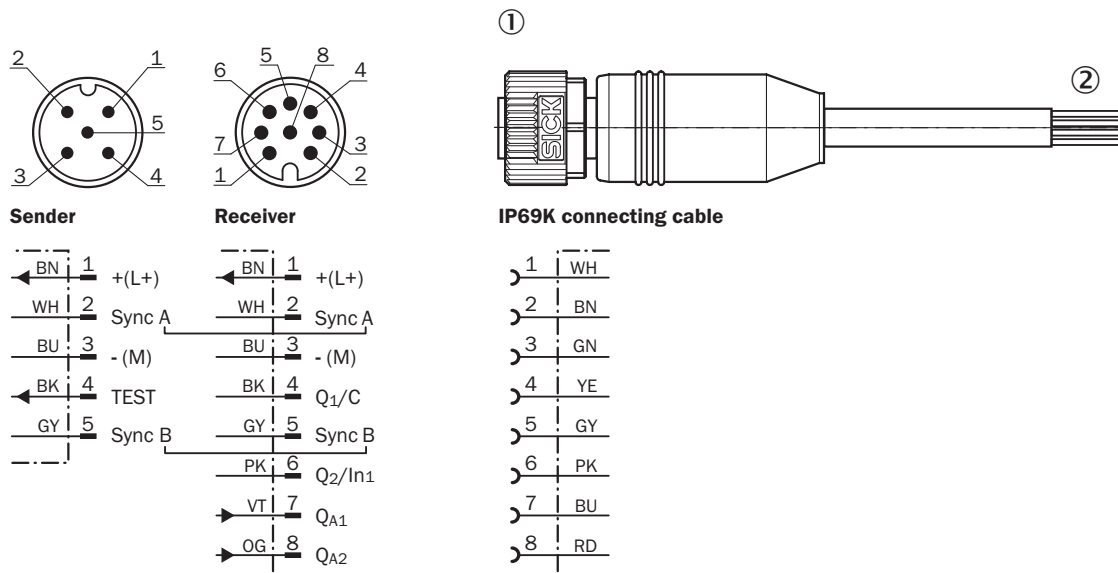
### Adjustments



① Status indicator: green, yellow, red LEDs

## Connection type and diagram

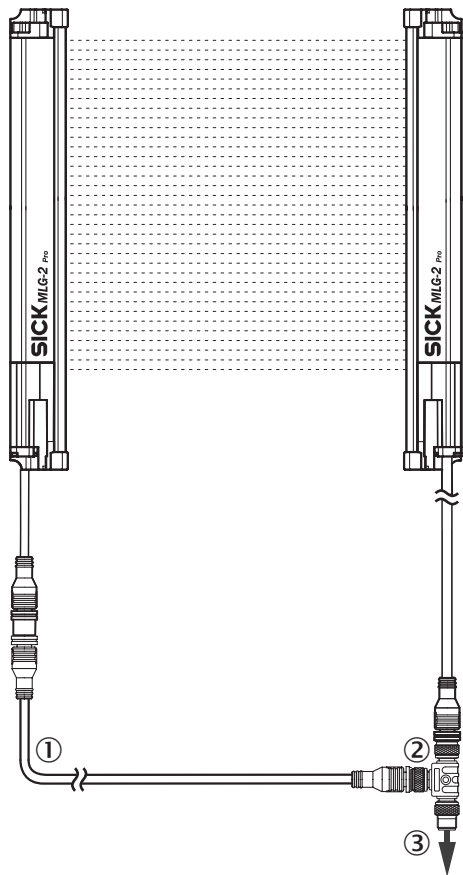
M12 male connector, 5/8-pin, analog outputs Q<sub>A</sub> | YF2AP8-xxxPA4XLEAX (IP69K connecting cable)



① Valid for: YF2AP8-250PA4XLEAX (2116447), YF2AP8-020PA4XLEAX (2111888)

② For 8-pin sensor-actuator cables, the wire colors are not standardized. Therefore, please observe the pin assignment of the sensor and the cable in the respective data sheet.

Pin assignment

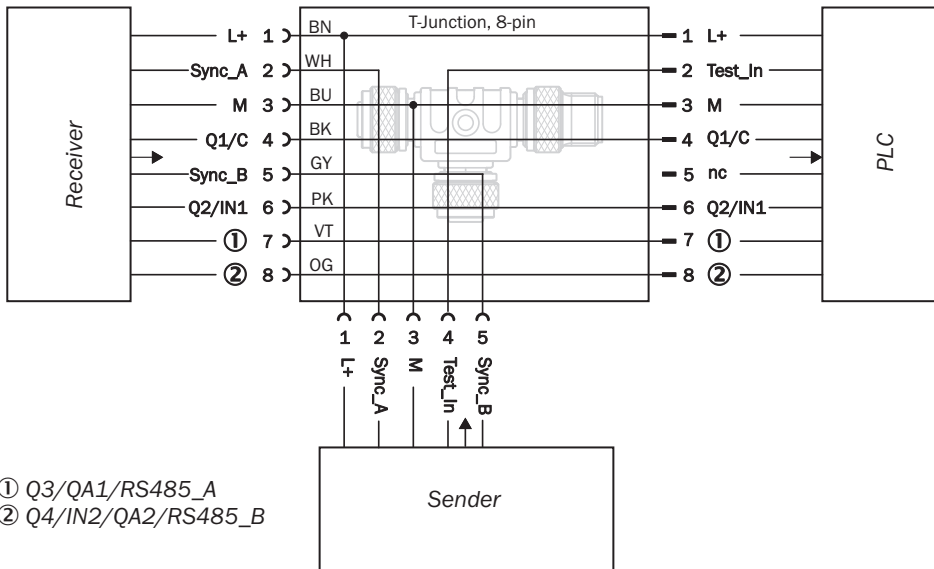


- ① Connection cable receiver (2096010)
- ② T-junctions
- ③ Connection cable (6020664)

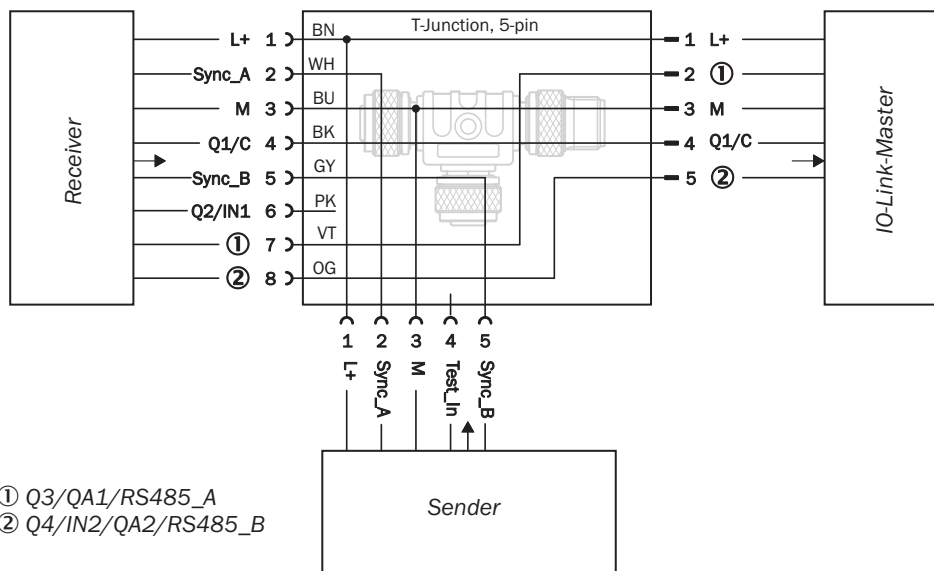


Connection diagram

T-junction, PLC



T-junction, IO-Link-Master



Recommended accessories

Other models and accessories → [www.sick.com/MLG-2](http://www.sick.com/MLG-2)

|   | Brief description  | Type               | Part no. |
|---|--|--------------------|----------|
| <b>Distributors</b>   |  |                    |          |
|    | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 5-pin, A-coded</li> <li>• <b>Connection type head B:</b> Female connector, M12, 8-pin, A-coded</li> <li>• <b>Connection type head C:</b> Male connector, M12, 8-pin, A-coded</li> <li>• <b>Note:</b> Male connector M12, 8-pin, to 1 x female connector M12, 8-pin, to 1 x female connector M12, 5-pin, for connecting of a PLC</li> </ul>  | SBO-02F12-SM1      | 6053172  |
| <b>Plug connectors and cables</b>   |  |                    |          |
|    | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 8-pin, straight</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 5 m, 8-wire, PVC</li> <li>• <b>Description:</b> Sensor/actuator cable, special color code, shielded</li> <li>• <b>Connection systems:</b> Flying leads</li> </ul>  | DOL-1208-G05MF     | 6020664  |
|   | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 8-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 2 m, 8-wire</li> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Application:</b> Drag chain operation, Robot</li> </ul>  | YF2AP8-020PA4XLEAX | 2111888  |
|   | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 8-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 25 m, 8-wire</li> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Application:</b> Drag chain operation, Robot</li> </ul>   | YF2AP8-250PA4XLEAX | 2116447  |
|  | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Male connector, M12, 5-pin, straight, A-coded</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 5 m, 5-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Application:</b> Zones with oils and lubricants, Drag chain operation, Robot</li> </ul>  | YF2A15-050UB5M2A15 | 2096010  |
| <b>Terminal and alignment brackets</b>  |  |                    |          |
|  | 4 pieces, Stainless steel bracket, rotatable, stainless steel 1.4350, stainless steel 1.4301   | BEF-2SMMEAES4      | 2023708  |
| <b>Sensor Integration Gateway</b>   |  |                    |          |
|  | <ul style="list-style-type: none"> <li>• <b>Further functions:</b> Web server integrated, USB connection for easy configuration of the SIG200 Sensor Integration Gateway with SOPAS ET, the engineering tool from SICK, logic editor is available for easy configuration of logic functions</li> <li>• <b>Connection CONFIG:</b> 1 x M8, 4-pin female connector, USB 2.0 (USB-A)</li> <li>• <b>Logic editor:</b> yes</li> <li>• <b>Communication interface:</b> IO-Link, USB, Ethernet, PROFINET, REST API</li> <li>• <b>Product category:</b> IO-Link Master</li> </ul> | SIG200-0A0412200   | 1089794  |
|  | <ul style="list-style-type: none"> <li>• <b>Further functions:</b> Web server integrated, USB connection for easy configuration of the SIG200 Sensor Integration Gateway with SOPAS ET, the engineering tool from SICK, logic editor is available for easy configuration of logic functions</li> <li>• <b>Connection CONFIG:</b> 1 x M8, 4-pin female connector, USB 2.0 (USB-A)</li> <li>• <b>Logic editor:</b> yes</li> <li>• <b>Communication interface:</b> IO-Link, USB, Ethernet, REST API</li> <li>• <b>Product category:</b> IO-Link Master</li> </ul>           | SIG200-0A0G12200   | 1102605  |

## 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](http://www.sick.com)