



# MLG20A-1780R10501

MLG-2

MEASURING AUTOMATION LIGHT GRIDS

**SICK**  
Sensor Intelligence.



### Ordering information

| Type              | Part no. |
|-------------------|----------|
| MLG20A-1780R10501 | 1220069  |

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>Number of beams</b>                 | 90                                                                                                                                                                                                                 |
| <b>Detection height</b>                | 1,780 mm                                                                                                                                                                                                           |
| <b>Software features (default)</b>     | <div>Q<sub>1</sub> Presence detection</div> <div>Q<sub>2</sub> / IN Teach input</div> <div>Q<sub>3</sub> Presence detection</div> <div>Q<sub>4</sub> / IN2 Presence detection</div> <div>Teach Standard mode</div> |
| <b>Operating mode</b>                  | <div>Standard ✓</div> <div>Transparent ✓</div> <div>Dust- and sunlight-resistant ✓</div>                                                                                                                           |
| <b>Function</b>                        | <div>Cross beam ✓</div> <div>Beam blanking ✓</div> <div>High-speed scan ✓</div>                                                                                                                                    |

<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.

|                               |                  |                                                                                                                                                                                                                        |
|-------------------------------|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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 recognition<br>Object height measurement<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<br>1 × receiver<br>4/6 x QuickFix brackets (6 x QuickFix brackets for monitoring heights above 2 m)<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 18 V ... 30 V <sup>1)</sup>                                                                                               |
| <b>Power consumption sender</b>            | 59.5 mA <sup>2)</sup>                                                                                                        |
| <b>Power consumption receiver</b>          | 138 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, 0.22 m<br>Male connector M12, 8-pin, 0.27 m<br>M12 female connector, 4-pin, D-coded, 0.19 m       |
| <b>Housing material</b>                    | Aluminum                                                                                                                     |
| <b>Indication</b>                          | LED                                                                                                                          |
| <b>Enclosure rating</b>                    | IP65, IP67<br><sup>3)</sup>                                                                                                  |
| <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                                                                                                                          |

1) Without load.

2) , Without load with 24 V.

3) Operating in outdoor condition only with a external protection housing.

|                     |          |
|---------------------|----------|
| <b>Weight</b>       | 3.849 kg |
| <b>Front screen</b> | PMMA     |
| <b>Option</b>       | None     |

<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>   | 7 m <sup>1)</sup>    |
| <b>Minimum range</b>   | ≥ 0 m                |
| <b>Operating range</b> | 5 m                  |
| <b>Response time</b>   | 8.2 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>Digital output</b>  | Q <sub>1</sub> ... Q <sub>4</sub> |
| Number                 | 4                                 |
| <b>Digital input</b>   | In <sub>1</sub> , In <sub>2</sub> |
| Number                 | 2                                 |

<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>EMC</b>                           | EN 60947-5-2                                                                       |
| <b>Ambient operating temperature</b> | -30 °C +55 °C                                                                      |
| <b>Ambient storage temperature</b>   | -40 °C +70 °C                                                                      |
| <b>Ambient light immunity</b>        | Direct: 150,000 lx <sup>1)</sup><br>Indirect: 200,000 lx <sup>2)</sup>             |
| <b>Vibration resistance</b>          | Sinusoidal oscillation 10-150 Hz 5 g                                               |
| <b>Shock load</b>                    | Continuous shocks 10 g, 16 ms, 1000 shocks<br>Single shocks 15 g, 11 ms 3 per axle |
| <b>UL File No.</b>                   | NRKH.E181493                                                                       |

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

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

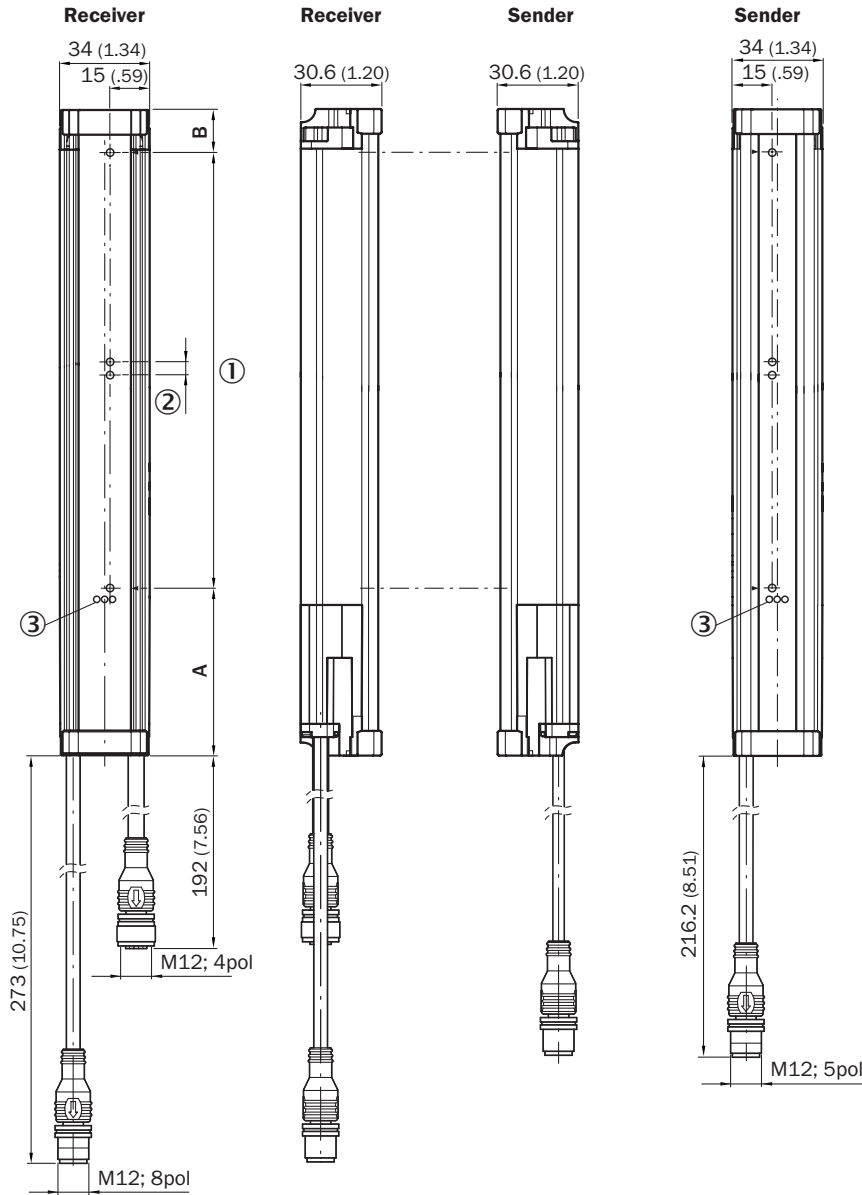
### Classifications

|                   |          |
|-------------------|----------|
| <b>ECI@ss 5.0</b> | 27270910 |
|-------------------|----------|

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

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

## Dimensional drawing



|                               | <b>A <sup>1)</sup></b>                | <b>B <sup>2)</sup></b> |
|-------------------------------|---------------------------------------|------------------------|
| <b>Beam separation 2.5 mm</b> | 62.25 (2.45)                          | 17.15 (0.68)           |
| <b>Beam separation 5 mm</b>   | 63.3 (2.49)                           | 16.1 (0.63)            |
| <b>Beam separation 10 mm</b>  | 68.3 (2.69)                           | 16.1 (0.63)            |
| <b>Beam separation 20 mm</b>  | 68.3 (2.69)/78.3 (3.08) <sup>3)</sup> | 16.1 (0.63)            |
| <b>Beam separation 25 mm</b>  | 83.3 (3.28)                           | 16.1 (0.63)            |
| <b>Beam separation 30 mm</b>  | 88.3 (2.69)                           | 16.1 (0.63)            |
| <b>Beam separation 50 mm</b>  | 108.3 (4.26)                          | 16.1 (0.63)            |

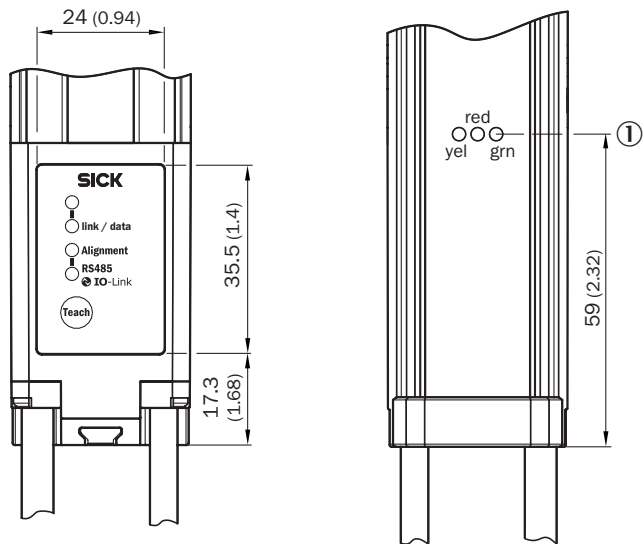
<sup>1)</sup> Distance: MLG-2 edge - first beam<sup>2)</sup> Distance: MLG-2 edge - last beam

3) MLG20x-xx**40**: 68.3 mm  
MLG20x-xx**80**: 78.3 mm

- ① Detection height (see optical performance)
- ② Beam separation (RM)
- ③ Status indicator: green, yellow, red LEDs

## Adjustments

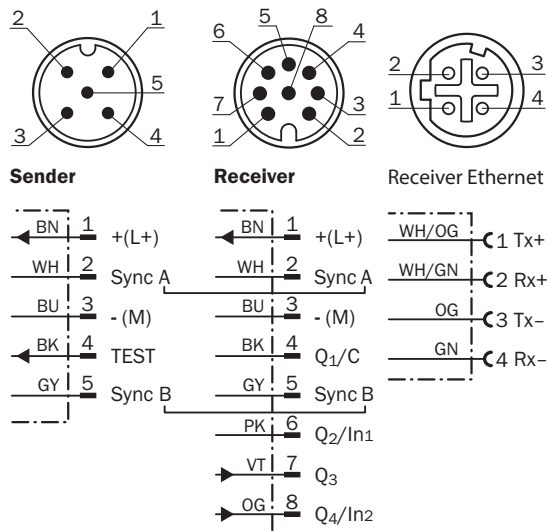
### Adjustments



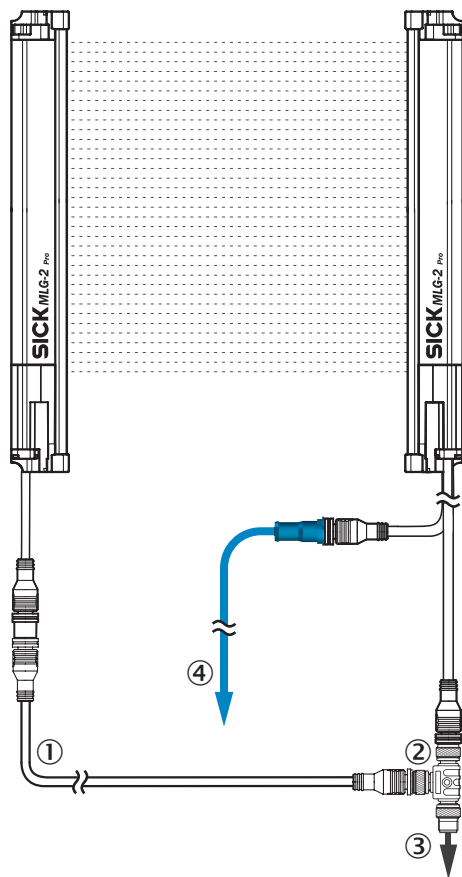
① Status indicator: green, yellow, red LEDs

## Connection type and diagram

Connector M12, 5/8-pin, switching outputs Q



## Connection type

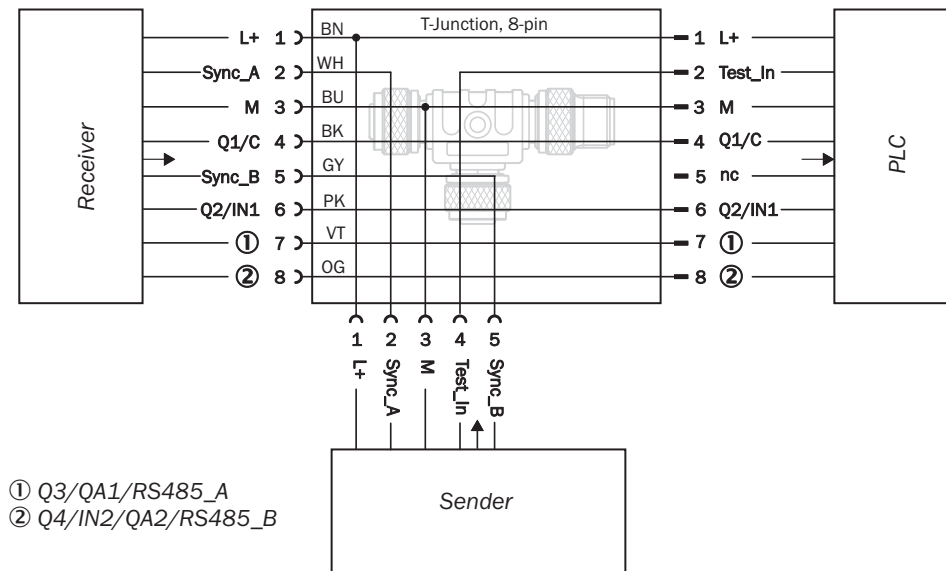


- ① Connection cable receiver (2096010)
- ② T-piece
- ③ Connection cable (6020664)
- ④ Ethernet Connection cable



## Connection diagram

Connection diagram T-junction



## Recommended accessories

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

|                            | Brief description                                                                                                                                                                                                            | Type               | Part no. |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------|
| SIG200                     |                                                                                                                                                                                                                              |                    |          |
|                            | SIG200-0A0412200                                                                                                                                                                                                             | SIG200-0A0412200   | 1089794  |
|                            | SIG200-0A0G12200                                                                                                                                                                                                             | SIG200-0A0G12200   | 1102605  |
| Distributors               |                                                                                                                                                                                                                              |                    |          |
|                            | Head A: female connector, M12, 5-pin, A-coded<br>Head B: female connector, M12, 8-pin, A-coded<br>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 | SB0-02F12-SM1      | 6053172  |
| Plug connectors and cables |                                                                                                                                                                                                                              |                    |          |
|                            | Head A: female connector, M12, 8-pin, straight<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, special color code, PVC, shielded, 5 m                                                                               | DOL-1208-G05MF     | 6020664  |
|                            | Head A: female connector, M12, 5-pin, straight, A-coded<br>Head B: male connector, M12, 5-pin, straight, A-coded<br>Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 5 m                                         | YF2A15-050UB5M2A15 | 2096010  |
|                            | Head A: male connector, M12, 4-pin, straight, D-coded<br>Head B: male connector, RJ45, 8-pin, straight<br>Cable: Ethernet, twisted pair, PUR, halogen-free, shielded, 5 m                                                    | YM2D24-050EA1MRJA4 | 6034415  |

## 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.”**

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