



# MLG02N-0145E53201

## MLG-2

AUTOMATION LIGHT GRIDS

**SICK**  
Sensor Intelligence.



Illustration may differ



Ordering information

Type	part no.
MLG02N-0145E53201	1138504

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

Detailed technical data

Features

<b>Device version</b>		ProNet – extended functionality including fieldbus
<b>Sensor principle</b>		Sender/receiver
<b>Minimum detectable object (MDO)</b>		2.5 mm <sup>1)</sup> 4.5 mm <sup>2)</sup> <sup>3)</sup>
<b>Beam separation</b>		2.5 mm
<b>Type of synchronization</b>		Cable
<b>Number of beams</b>		59
<b>Detection height</b>		145 mm
<b>Software features (default)</b>		Q <sub>1</sub> Presence detection
<b>Operating mode</b>		
Standard		✓
Transparent		✓
Dust- and sunlight-resistant		✓
<b>Function</b>		
Cross beam		✓
Beam blanking		✓
High measurement accuracy		✓
<b>Applications</b>		
Switching output		Object detection/object width Object recognition

<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.

Data interface	Height classification Hole detection/hole size Outside/inside dimension Object position Hole position Zone definition
	Object detection Hole detection Object height measurement Measurement of the outside dimension Measurement of the inside dimension Measurement of the object position Measurement of the hole position
Included with delivery	1 × sender (in IP69K protective pipes) 1 × receiver (in IP69K protective pipes) 1 × Fieldbus module 1 × IP69K mounting instructions 1 × Quick Start Guide

<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.

## Mechanics/electronics

Light source	LED, Infrared light
Wave length	850 nm
Supply voltage $V_s$	DC 19.2 V ... 28.8 V <sup>1)</sup>
Power consumption sender	58.9 mA <sup>2)</sup>
Power consumption receiver	132.6 mA <sup>2)</sup>
Fieldbus module current consumption	115 mA
Ripple	< 5 V <sub>pp</sub>
Output current $I_{max}$	100 mA
Output load, capacitive	100 nF
Output load, Inductive	1 H
Initialization time	< 1 s
Switching output	Push-pull: PNP/NPN
Connection type	Plug, M12, 5-pin, 1.4 m Connector M12, 12-pin, 1.4 m
Housing material	Aluminum (light grid) PMMA Plexiglas XT Food Contact DoC (protective pipe) Polypropylene, stainless steel 1.4404 (cable) VA 1.4305 (pressure compensation element) Stainless steel 1.4404 (end caps) Stainless steel V4A 1.4404 DIN EN 1672-2 (cable gland)
Display	LED
Enclosure rating	IP69K <sup>3)</sup>
Circuit protection	U <sub>V</sub> connections, reverse polarity protected Output Q short-circuit protected Interference pulse suppression

<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.

<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>	2.1 m <sup>1)</sup>
<b>Minimum range</b>	≥ 0 m
<b>Operating range</b>	1.5 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.

## Interfaces

<b>EtherCAT®</b>	✓
<b>Digital output</b>	Q <sub>1</sub>
Number	1

## Ambient data

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

## Certificates

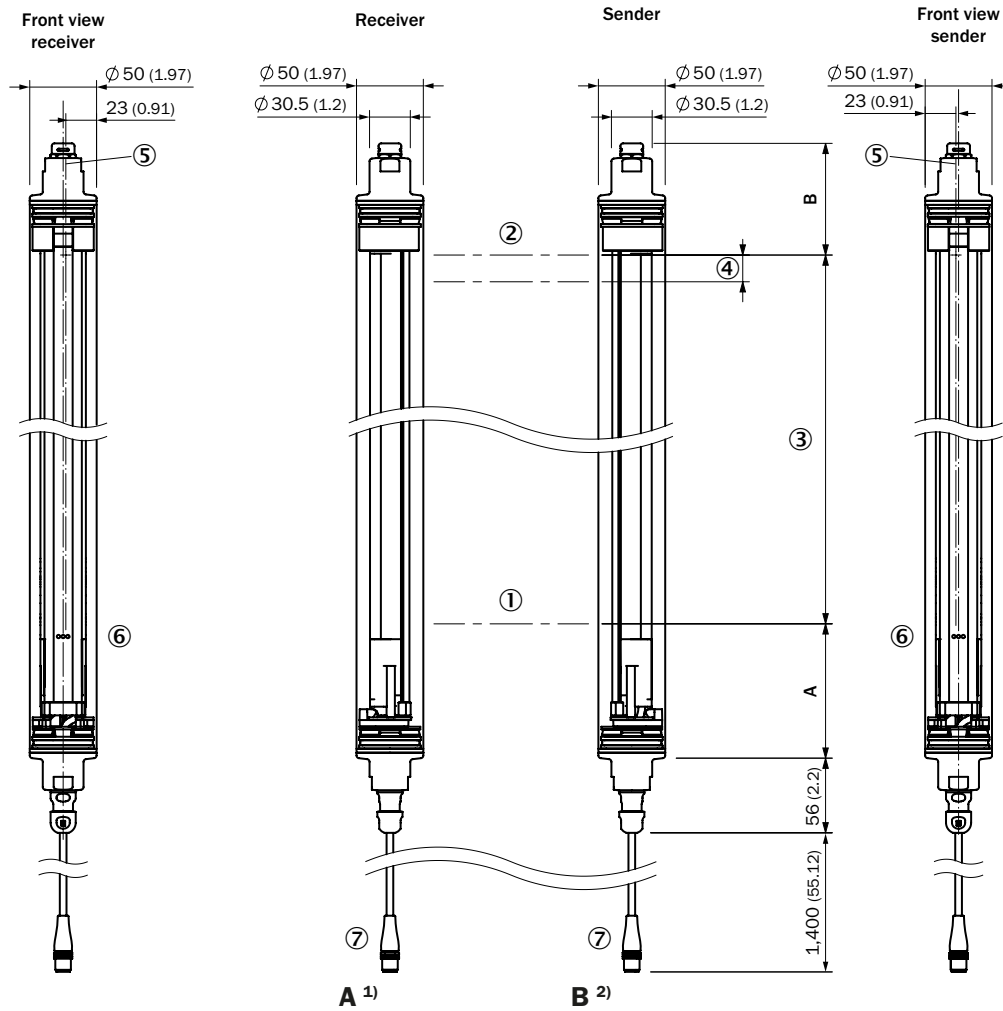
<b>EU declaration of conformity</b>	✓
<b>UK declaration of conformity</b>	✓
<b>ACMA declaration of conformity</b>	✓
<b>Moroccan declaration of conformity</b>	✓
<b>China RoHS</b>	✓
<b>cULus certificate</b>	✓
<b>Photobiological safety (IEC EN 62471)</b>	✓
<b>Information according to Art. 3 of Data Act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

## Classifications

<b>ECLASS 5.0</b>	27270910
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<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



<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

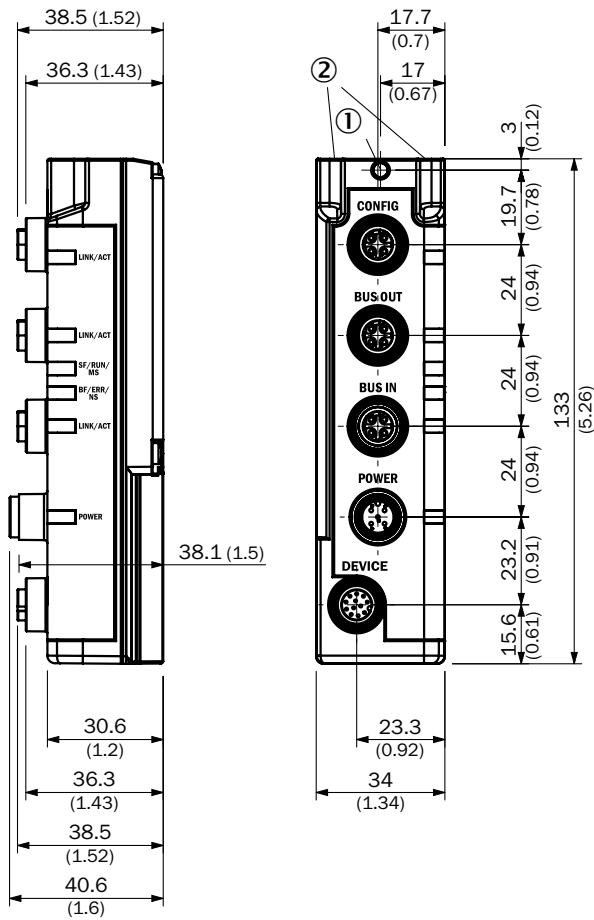
<sup>2)</sup> Distance: MLG-2 edge - last beam

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

Dimensions in mm (inch)

- 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

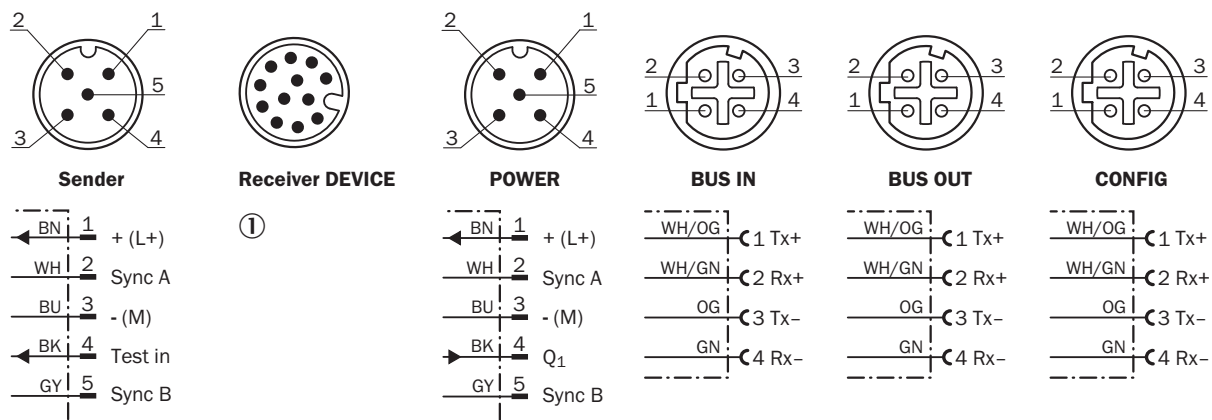
## Dimensional drawing PROFINET, EtherCAT<sup>®</sup>, EtherNet/IP



Dimensions in mm (inch)

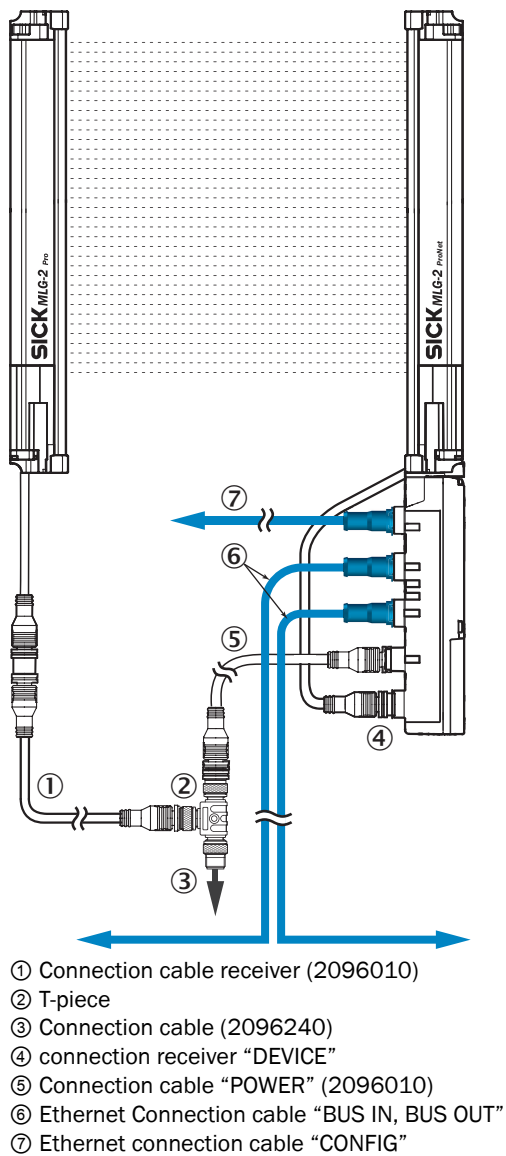
- ① safety screw M4; turning moment 0,5 Nm
- ② for thread bold M4; turning moment 0,5 Nm

## Connection type and diagram PROFINET, EtherCAT<sup>®</sup>, EtherNet/IP



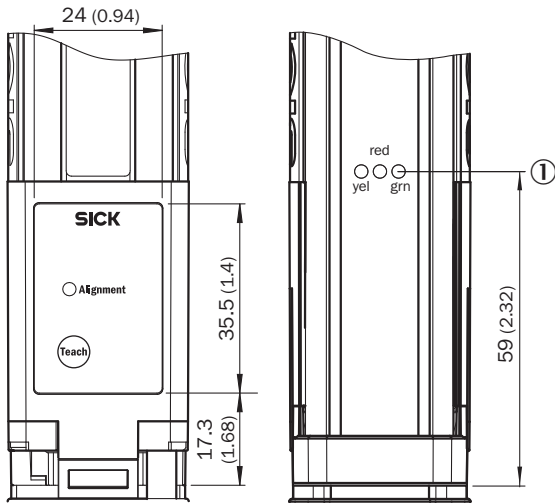
① Connection to fieldbus module

### Pinouts Ethernet



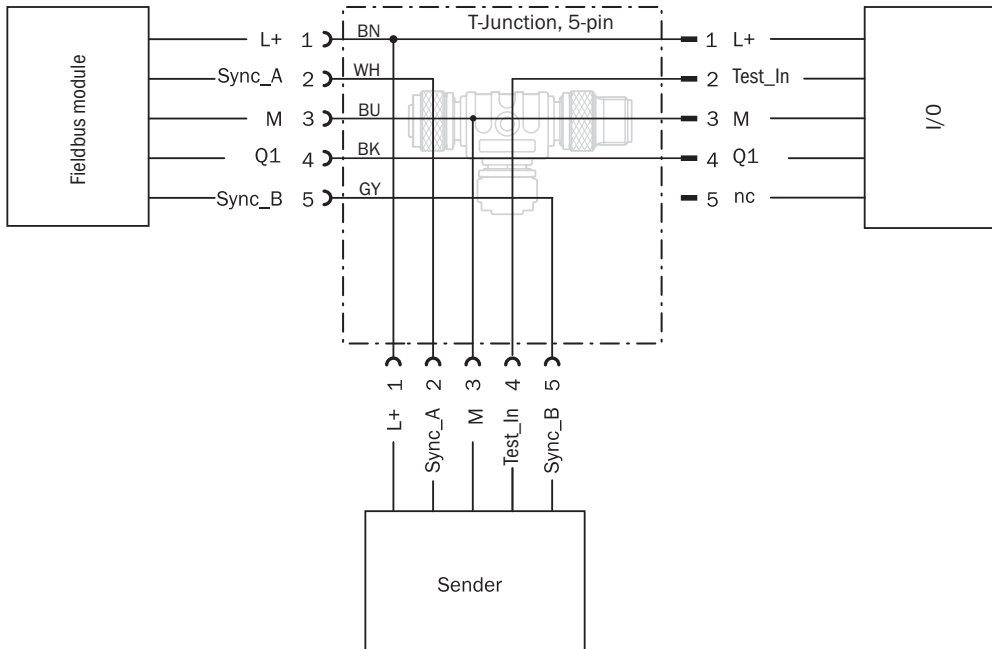


## Adjustments



① status indicator: green, yellow, red LEDs

## Connection diagram T-piece



### Recommended accessories

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

	Brief description	Type	part no.
connectors and cables			
	<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, 5-pin, A-coded</li> <li>• <b>Connection type head C:</b> Male connector, M12, 4-pin, A-coded</li> <li>• <b>Description:</b> Unshielded</li> </ul>	SB0-02G12-SM	6029305
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M12, 4-pin, D-coded</li> <li>• <b>Connection type head B:</b> Male connector, M12, 4-pin, D-coded</li> <li>• <b>Signal type:</b> Ethernet</li> <li>• <b>Cable:</b> 5 m, 4-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Ethernet, twisted pair, shielded</li> <li>• <b>Permitted cross-section:</b> ≥ 0.25 mm²</li> <li>• <b>Application:</b> Zones with oils and lubricants</li> </ul>	YM2D24-050EA2M2D24	6034422
	<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> Flying leads</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 5 m, 5-wire, PVC</li> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Application:</b> Zones with chemicals, Uncontaminated zones</li> </ul>	YF2A15-050VB5XLEAX	2096240
	<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> Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A15-050UB5M2A15	2096010
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M12, 4-pin, straight, D-coded</li> <li>• <b>Connection type head B:</b> Male connector, RJ45, 4-pin, straight</li> <li>• <b>Signal type:</b> Ethernet, PROFINET</li> <li>• <b>Cable:</b> 5 m, 4-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Ethernet, shielded, PROFINET</li> <li>• <b>Application:</b> Drag chain operation, Zones with oils and lubricants</li> </ul>	YM2D24-050P-N1MRJA4	2106184
Mounting systems			
	<ul style="list-style-type: none"> <li>• <b>Description:</b> Mounting bracket for external mounting of the fieldbus module, 1 × mounting bracket and 1 × M5 × 6 screw</li> <li>• <b>Material:</b> Stainless steel</li> <li>• <b>Details:</b> Stainless steel V2A (1.4301)</li> </ul>	BEF-WN-FBM-SET1	2082322
	<ul style="list-style-type: none"> <li>• <b>Description:</b> Stainless steel bracket, rotatable</li> <li>• <b>Material:</b> Stainless steel</li> <li>• <b>Details:</b> Stainless steel 1.4350, stainless steel 1.4301</li> <li>• <b>Packing unit:</b> 4 pieces</li> </ul>	BEF-2SMMEAES4	2023708

## 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)