SICK.COM



DATA SHEET

# SLG10S-050SER21D40

SLG-2
Automation light grids

SICK Sensor Intelligence



Illustration may differ

## AUTOMATION LIGHT GRIDS

# SLG10S-050SER21D40

### ORDERING INFORMATION

| Type | part no. |
|---|---|
| SLG10S-050SER21D40 | 1123179 |

Further device versions and accessories at www.sick.com/SLG-2

## DETAILED TECHNICAL DATA

### FEATURES

| | |
|---|---|
| Included with delivery | 1 × sender<br>1 × receiver<br>1 x safety notes |
| Functional principle | Sender/receiver |
| Sensing range | |
| Limit values | 70 mm ... 2,150 mm |
| Parallel beam (recommended) | 70 mm ... 1,500 mm |
| 9 x cross beam (recommended) | 250 mm ... 1,500 mm |
| Blind zone | |
| Distance from 1st Beam to leading edge of housing (connection side) | 4.6 mm |
| Distance from last beam to leading edge of housing (top) | 4.6 mm [1] |
| Detection height | 500 mm |
| Beam separation | 10 mm |
| Optical light exit | Slim |
| Detection capability | |
| Minimum detectable object (MDO), parallel beam | 15 mm [2] |
| Minimum detectable object (MDO), 9 x cross beam | ≥ 6.5 mm [2] |
| Minimum object width (MOW), 9 x cross beam | 26 % [3] |

[1] For a detection height < 700 mm, the measured value can vary by up to 1 mm from the measured values specified here.

[2] MDO: Minimum detectable size of an arbitrarily shaped object.

[3] MOW: Minimum detectable width of an arbitrarily thin object.

[4] % value relates to the installed distance between the sender and receiver.

[5] Depends on the sensing range / number of beams / cross beam.

| | | |
|---|---|---|
| | | [4] |
| Factory setting | | |
| | Beam function | 9 x cross beam |
| | Pin 2 (MF) | Teach-in input |
| | Pin 4 (OUT) | Object detection output = “HIGH” |
| | IO-Link (process data) | $Q_L$/$Q_{int}$ Status, System status, Beam status |
| | Teach-in (default) | Auto teach-in |
| Adjustment | | |
| | IO-Link | For configuring the sensor parameters and Smart Task functions |
| Emitted beam | | |
| | Light source | LED |
| | Type of light | Infrared light |
| | Number of beams | 50 |
| LED key figures | | |
| | Normative reference | EN 62471:2008-09 \| IEC 62471:2006, modified |
| | LED risk group marking | Free group |
| | Wave length | 850 nm |
| | Average service life | Average service life: 100,000 h at $T_U$ = +25 °C |
| Time specifications | | |
| | Initialization time | 0.4 s ... 2 s [5] |
| | Teach-in time | 0.75 s ... 50 s [5] |
| | Scan time, parallel beam | 2.8 ms |
| | Scan time, cross beam | 5.6 ms |
| | Repeatability, parallel beam | 2.8 ms |
| | Repeatability, cross beam | 8.4 ms |
| | Minimum dwell time, parallel beam | 5.6 ms |
| | Minimum dwell time, cross beam | 11.2 ms |
| | Max. response time, parallel beam | 8.9 ms |
| | Max. response time, cross beam | 17 ms |
| Type of synchronization | | Optical (2 beams) |

[1] For a detection height < 700 mm, the measured value can vary by up to 1 mm from the measured values specified here.

[2] MDO: Minimum detectable size of an arbitrarily shaped object.

[3] MOW: Minimum detectable width of an arbitrarily thin object.

[4] % value relates to the installed distance between the sender and receiver.

[5] Depends on the sensing range / number of beams / cross beam.

## INTERFACES

| | | |
|---|---|---|
| IO-Link | | ✓ , V1.1 |
| | Data transmission rate | COM3 (230,4 kBaud) |
| | Maximum cable length | 20 m |
| | Cycle time | 2.3 ms |
| | Process data length | 32 Byte |

## ELECTRONICS

| | | |
|---|---|---|
| Supply voltage $U_B$ | | DC 18 V DC ... 30 V DC [1] |
| Ripple | | ≤ 1.3 $V_{pp}$ |
| Power consumption | | |
| | Sender | ≤ 38.75 mA [2] |

[1] Without load.

[2] At 24 V.

[3] EN 61140.

| | |
|---|---|
| Receiver | ≤ 69 mA [2] |
| Digital output | |
| Number | 2 |
| Type | Push-pull: PNP/NPN |
| Output signal voltage HIGH/LOW | $U_B$-3 V/<3 V |
| Output load, Inductive | 1 H |
| Output load, capacitive | 100 nF |
| Output current $I_{max.}$ | 100 mA |
| Output current, rest | < 0.5 mA |
| Digital input | |
| Number | 1 |
| Input signal voltage HIGH/LOW | >15 V/<5 V |
| Protection class | III [3] |
| UL File No. | NRKH.E181493 & NRKH7.E181493 |
| Circuit protection | $U_V$ connections, reverse polarity protected<br>Output Q short-circuit protected<br>Outputs overcurrent and short-circuit protected |

[1] Without load.

[2] At 24 V.

[3] EN 61140.

## MECHANICS

| | |
|---|---|
| Dimensions (W x H x D) | |
| Width | 11.8 mm |
| Height | 499.2 mm |
| Depth | 24.1 mm |
| Connection type | Cable with plug, M12, 4-pin |
| Connection type Detail | |
| Cable diameter | 3.4 mm |
| Conductor cross section | 0.14 mm² |
| Length of cable | 150 mm |
| Cable material | PVC |
| Material | |
| Housing | Aluminum<br>Plastic |
| Front screen | PMMA |
| Weight | 1,060 g |
| Overvoltage protection (required) | 1 |

## AMBIENT DATA

| | |
|---|---|
| Enclosure rating | IP65 [1]<br>IP67 |
| Ambient temperature, operation | –30 °C ... +55 °C |
| Ambient temperature, storage | –30 °C ... +70 °C |
| Ambient light immunity | Indirect: 50,000 lx [2] |
| Shock resistance | 10 g, 16 ms, DIN EN 60068-2-27 |
| Vibration resistance | 10-150 Hz 0.5 mm, IEC 60068-2-6 |
| Air humidity | ≤ 96 %, relative humidity (no condensation) |
| Electromagnetic compatibility (EMC) | EN 61000-6-2, EN 61000-6-4 |

[1] Operating in outdoor condition only with a external protection housing.

[2] Sunlight.

## SMART TASK

| | |
|---|---|
| Smart Task name | Base logics |
| Logic function | Direct<br>AND<br>OR |
| Timer function | Deactivated<br>Switch-on delay<br>Off delay<br>ON and OFF delay<br>Impulse (one shot) |
| Switching signal | |
| Switching signal $Q_{L1}$ | Switching output |
| Switching signal $Q_{L2}$ | Switching output, external input |

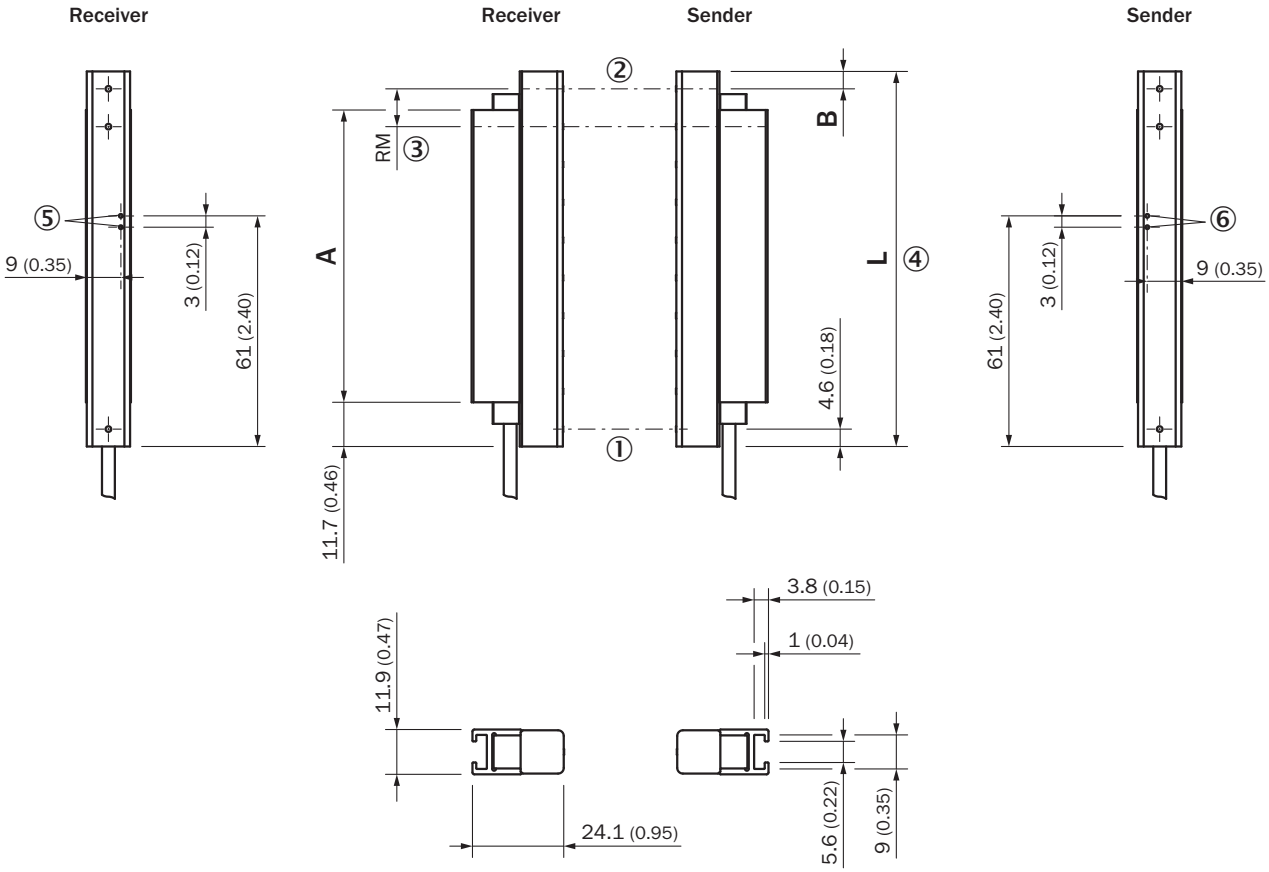
## DIAGNOSIS

| | |
|---|---|
| Diagnostics functions | |
| Device state | Hardware error, temperature warning, operating hours warning |
| Communication state | Pin short-circuit error, invalid process data |
| Status of the light signal | Teach error, synchronization error, quality-of-run alarm |
| Alarm output | Yes |

## CERTIFICATES

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

**DIMENSIONAL DRAWING, SENSOR**



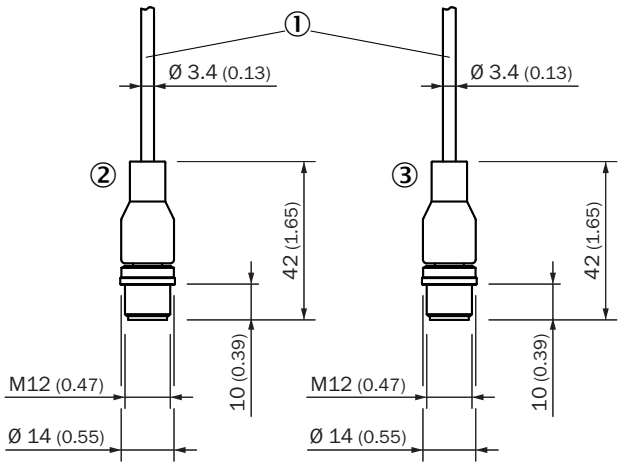

Dimensions in mm (inch)
SLGxxx-xxxSxxxxxxx
① First beam
② last beam
③ beam separation (RM)
④ Housing length
⑤ LED display receiver
⑥ LED display sender

| Dimensions in mm (inch) | | |
|---|---|---|
| – | Length of stabilizer | Housing length |
| | **A** | **L** |
| SLGxxx-**0 10**xxxxxxxx | 77 (3.03) | 99,2 (3.91) |
| SLGxxx-**02 0**xxxxxxxx | 178 (7.01) | 199,2 (7.84) |
| SLGxxx-**03 0**xxxxxxxx | 276 (10.87) | 299,2 (11.78) |
| SLGxxx-**04 0**xxxxxxxx | 376 (14.8) | 399,2 (15.72) |
| SLGxxx-**05 0**xxxxxxxx | 475 (18.7) | 499,2 (19.65) |
| SLGxxx-**06 0**xxxxxxxx | 576 (22.68) | 599,2 (23.6) |
| SLGxxx-**07 0**xxxxxxxx | 676 (26.61) | 699,2 (27.53) |
| SLGxxx-**08 0**xxxxxxxx | 776 (30.55) | 799,2 (31.46) |
| SLGxxx-**100**xxxxxxxx | 975 (38.39) | 999,2 (39.34) |
| SLGxxx-**120**xxxxxxxx | 1.175 (46.26) | 1.199,2 (47.21) |
| SLGxxx-**140**xxxxxxxx | 1.374 (54.09) | 1.399,2 (55.09) |
| SLGxxx-**160**xxxxxxxx | 1.574 (61.97) | 1.599,2 (62.96) |
| SLGxxx-**180**xxxxxxxx | 1.774 (69.84) | 1.799,2 (70.83) |
| SLGxxx-**20 0**xxxxxxxx | 1.973 (77.68) | 1.999,2 (78.71) |
| SLGxxx-**220**xxxxxxxx | 2.173 (85.55) | 2.199,2 (86.58) |

| | Dimensions in mm (inch) | |
|---|---|---|
| SLGxxx-**240**xxxxxxxx | 2.372 (93.39) | 2.399,2 (94.46) |
| | – | |
| – | Distance: Housing edge - last beam | – |
| | **B** [1] | |
| SLG**10**x-xxxxxxxxxx | 4,6 (0.18) | |
| SLG**25**x-xxxxxxxxxx | 19,6 (0.77) | |
| SLG**50**x-xxxxxxxxxx | 44,6 (1.76) | |

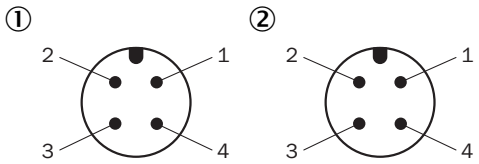
[1] for detection height less than 700 mm, the dimension deviates up to 1 mm from the dimensions specified here.

## DIMENSIONAL DRAWING, CONNECTION TYPE



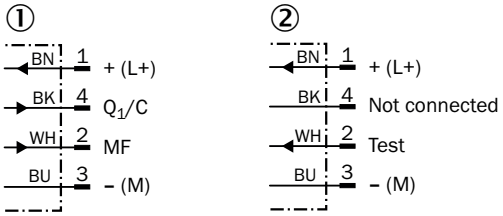

Dimensions in mm (inch)
Cable with M12 male connector
① connection (see technical data for length of cable)
② receiver
③ sender

## PINOUTS



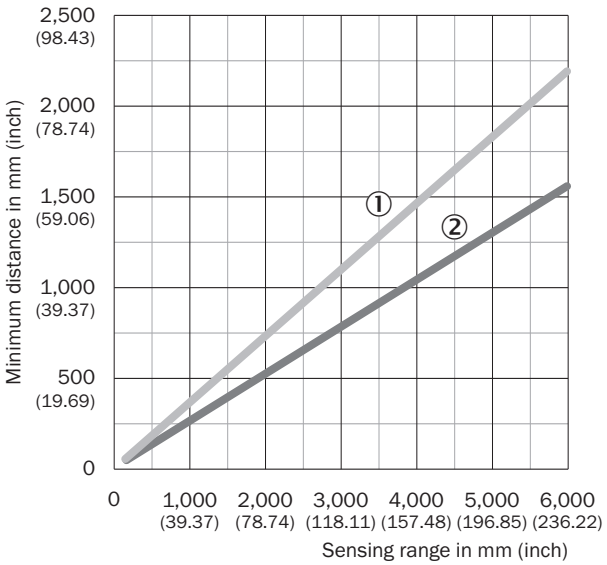

M12 male connector, 4-pin, A-coding
① receiver
② sender

**CONNECTION DIAGRAM**



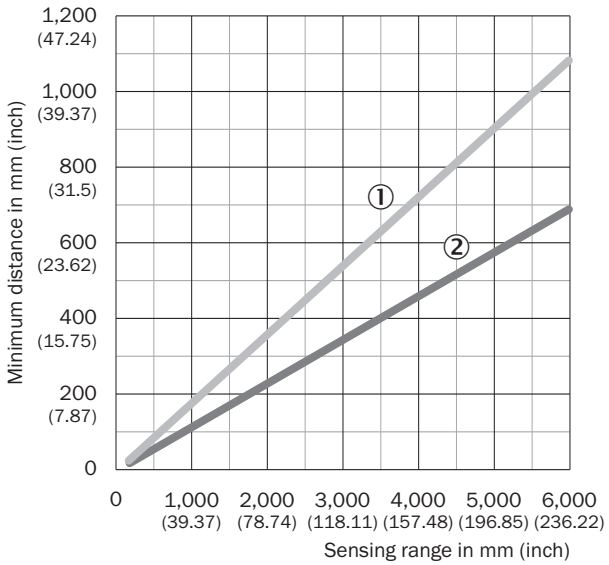

cd-543
① receiver
② sender

**INSTRUCTION FOR INSTALLATION MINIMUM DISTANCE BETWEEN 2 LIGHT GRIDS**



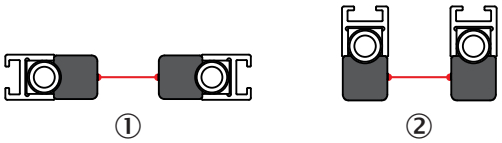

If not installed in opposition, make sure the minimum distance between the two light grid pairs is adhered to
① Minimum distance (safe)
② Minimum distance (typical)

**INSTRUCTION FOR INSTALLATION MINIMUM DISTANCE TO REFLECTIVE MATERIALS**



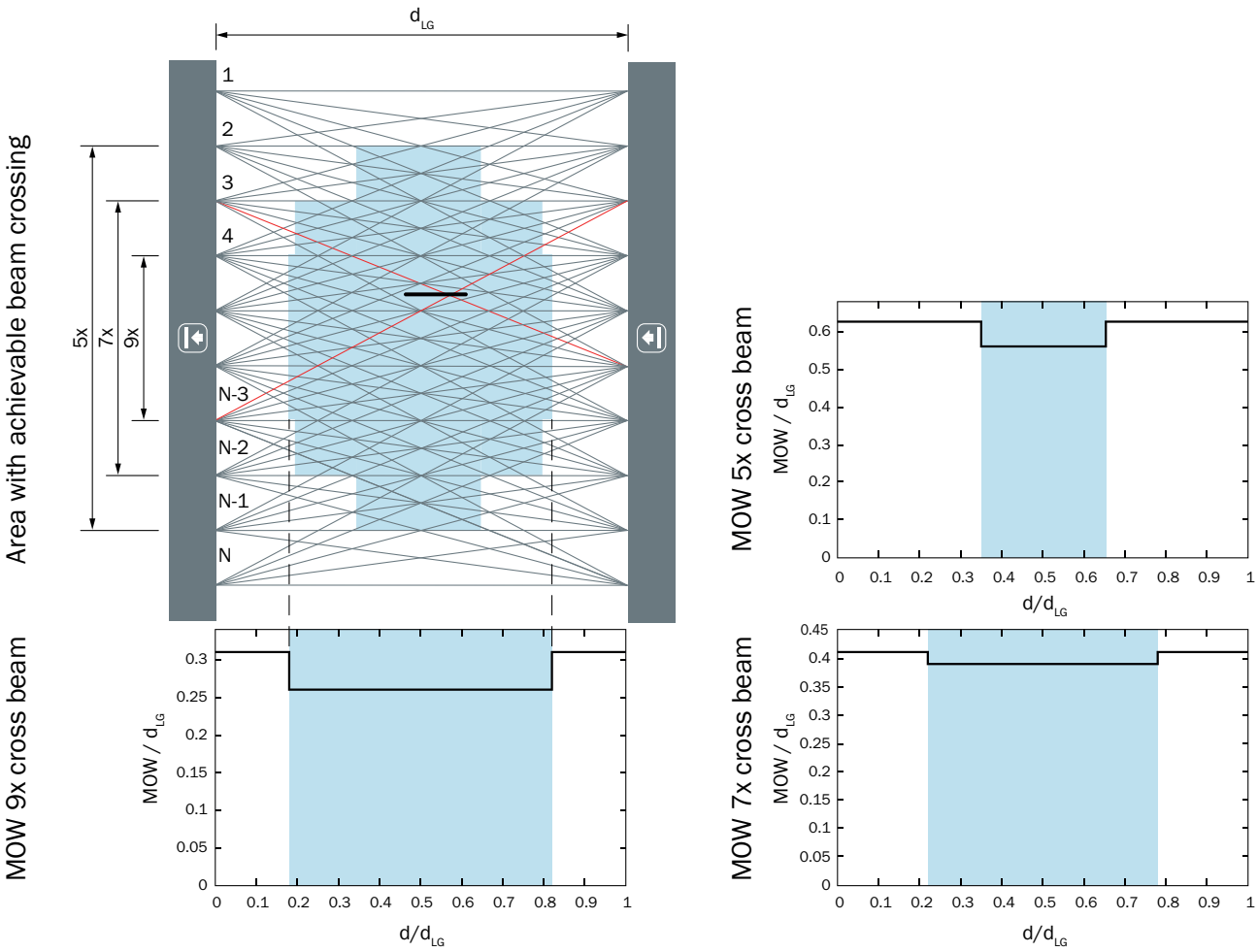

Depending on the sensing range, make sure that there are no reflective objects in the field of view of the light grid pair
① Minimum distance (safe)
② Minimum distance (typical)

**INSTRUCTION FOR INSTALLATION SLIM & FLAT**




① Slim model = light emission on narrow side
② Flat model = light emission on broad side

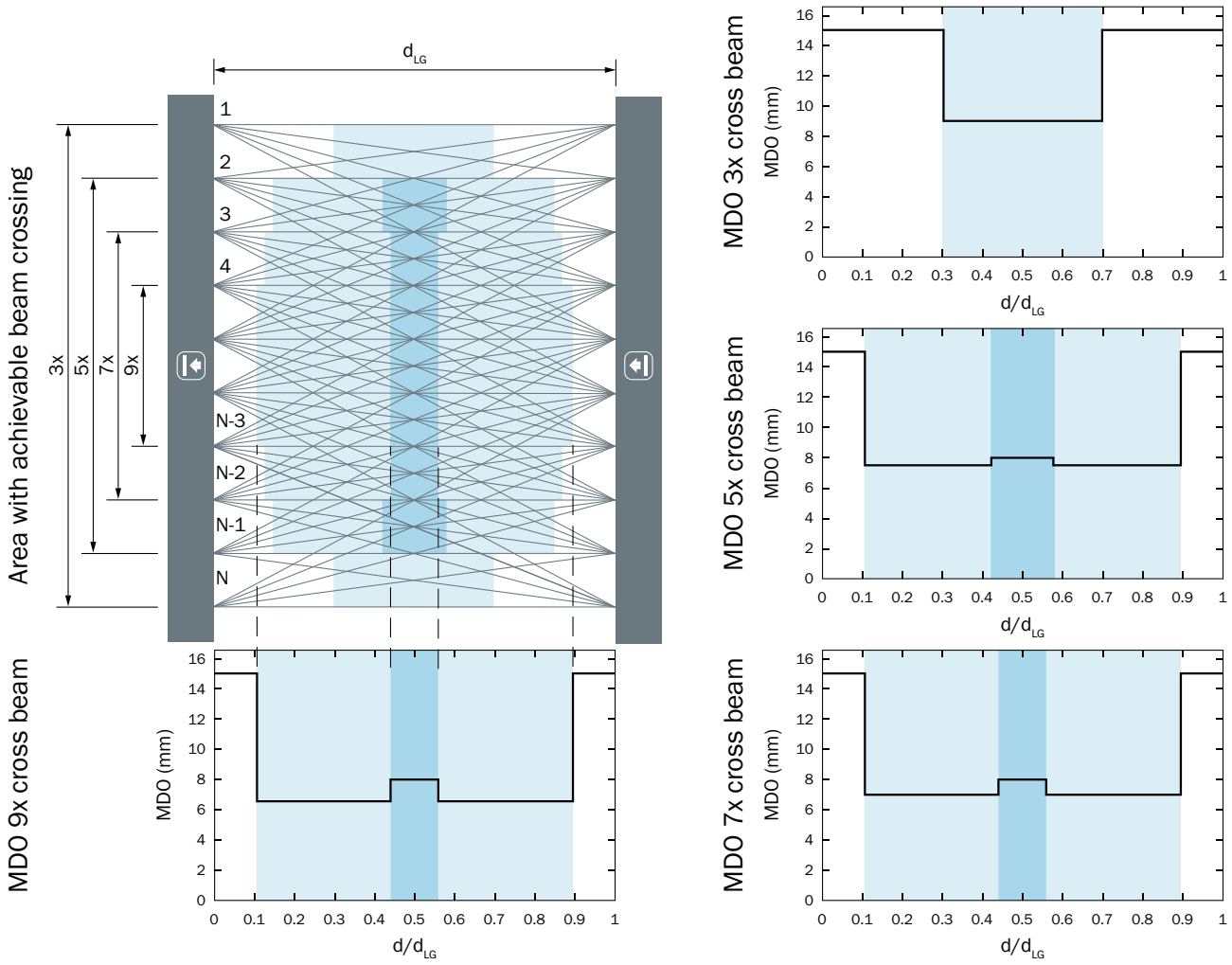
**DETECTION CAPABILITY MINIMUM OBJECT WIDTH (MOW)**




$d_{LG}$ = Installed working distance between sender and receiver

d = Distance to sender or receiver related to the installed working distance

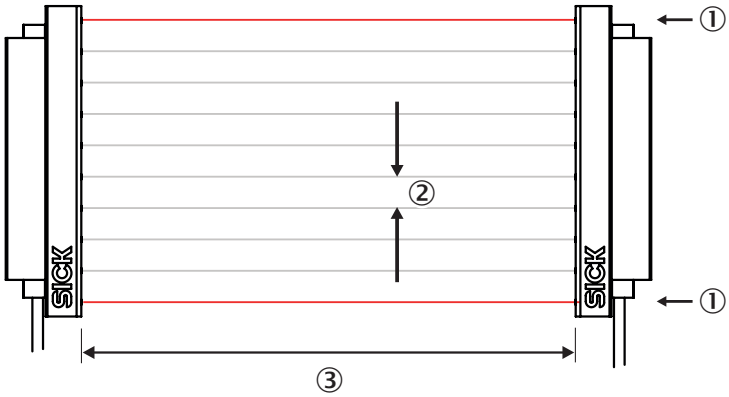
**DETECTION CAPABILITY MINIMUM DETECTABLE OBJECT (MDO)**




$d_{LG}$ = Installed working distance between sender and receiver

d = Distance to sender or receiver related to the installed working distance

**FUNCTIONAL PRINCIPLE OPTICAL SYNCHRONIZATION**




The sender and receiver synchronize with each other optically, so no electrical connection is necessary.
For this reason, either the first or the last beam of the automation light grid must remain clear.
If both beams are interrupted, no measurements can be taken.
① Optical synchronization
② Beam separation
③ scanning range

Further information as well as suitable accessories, example applications and downloads such as CAD dimensional models, operating instructions and software can be found at www.sick.com/1123179

SICK AG
WALDKIRCH
GERMANY
SICK.COM

# SICK AT A GLANCE

SICK is a leading global technology company for intelligent sensors and integrated solutions in industrial automation. Our technologies set benchmarks, making your industrial processes more efficient, safer and more sustainable – both in logistics and manufacturing operations.

SICK combines sensor intelligence with industry expertise and certified consulting services. We provide the ideal foundation for scalable as well as tailor-made automation solutions and create added value along the entire value chain. Our close partnerships with our customers are more than just a promise: Together, we optimize productivity, improve quality, protect health and safety, and help build a sustainable future. All with empathy and trust.

Since 1946, we have been developing innovative technologies with passion and a pioneering spirit. With a global network in around 40 countries, SICK has a global presence and is always close by. The company's headquarters are located in Waldkirch near Freiburg, Germany. Our customers benefit from our understanding of both local and global requirements, which enables us to deliver tailor-made solutions

SICK

Sensor Intelligence