



## FLG Standard automation light grids

Two in one: sender and receiver in one housing

***SENSORS***  
**INCORPORATED**

507 Kelsey Street • Delano, MN 55328  
Phone 763-972-1040 Fax 763-972-1041  
Toll Free 888-920-0939  
Sensorsincorporated.com

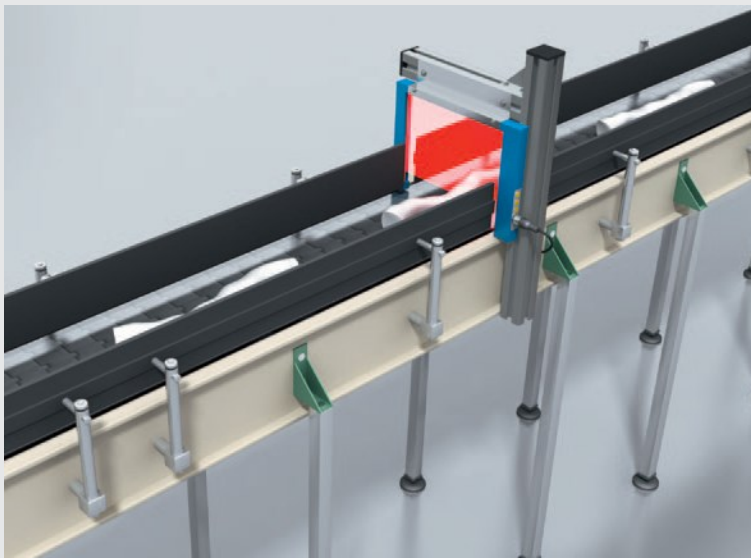
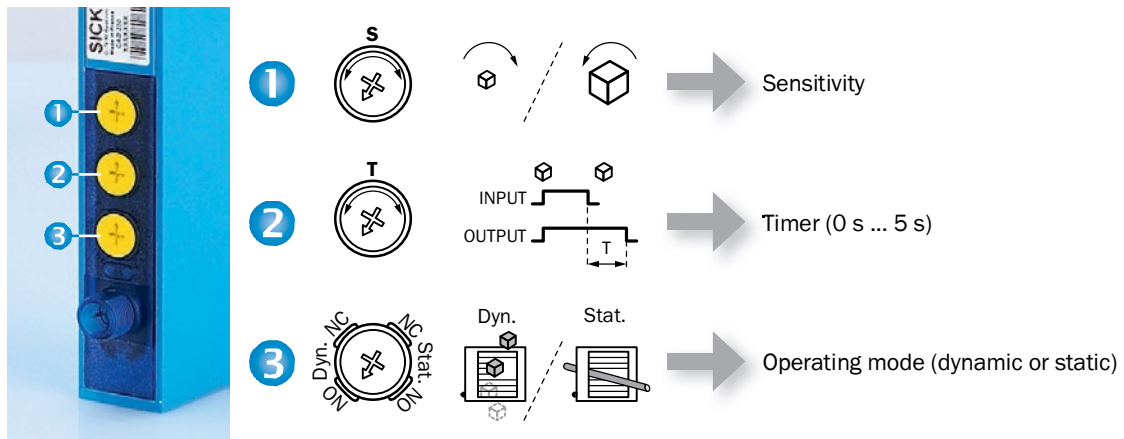
**SICK**  
Sensor Intelligence.

## Standard automation light grids FLG: Two in one: sender and receiver in one housing

The FLG (Frame Light Grid) from SICK is a precise, installation-friendly solution for detecting free-falling objects.

The FLG is a one-way system in which the sender and receiver are permanently installed in a frame. It is available in three sizes for three different detection ranges and can detect small items down to 2 mm in size.

### Various adjustments - integrated pushbutton lock

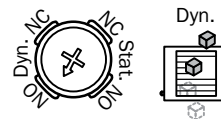
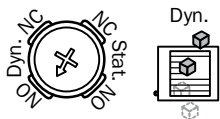
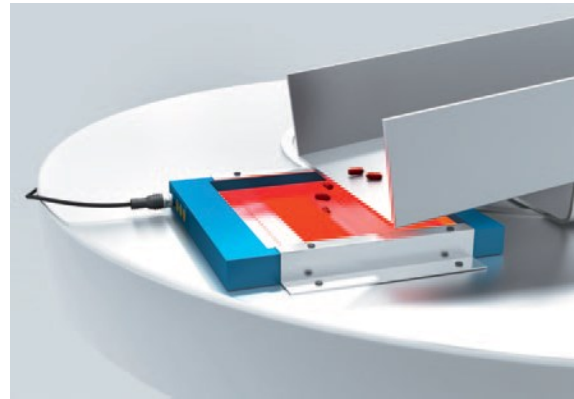
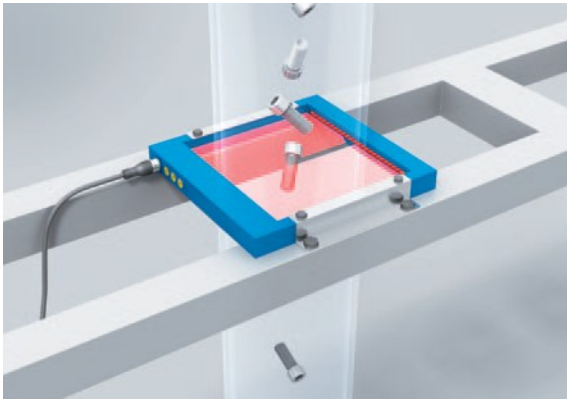


### So easy to integrate

Sender and receiver are permanently installed into the FLG and aligned at the factory. This avoids costly assembly and adjustment on site. This also applies to the "open" fork-type sensor version of the FLG, which is available on request.

## Example applications

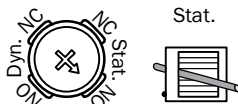
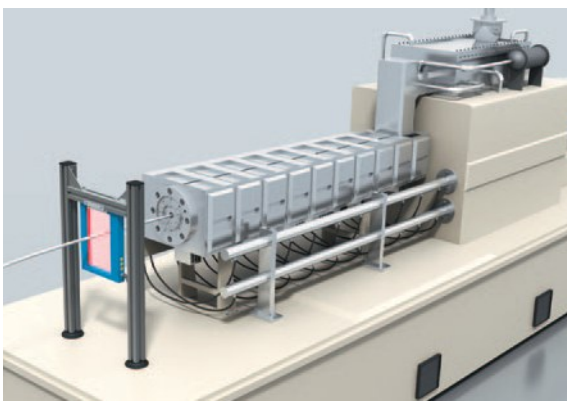
### Ejection control for small components



Even when speed is required for large quantities – in dynamic mode, the FLG detects everything that falls through the grid:

Metal parts at punching machines, parts ejected from conveyor systems, tablets in the primary packaging of pharmaceutical products or screw connections in bottling plants. It is important to isolate the parts beforehand, since the FLG can only detect one part at a time.

### Wide range of applications



In static operation, it can also be used to monitor thread or cable breaks.

Furthermore, the sensor is a solution that is easy to install for pick-to-light access control.

Two in one: sender and receiver in one housing



### Product description

The FLG (frame light grid) standard automation light grid is an innovative solution that combines sender and receiver in one housing to detect small parts. The individual adjustment of sender and receiver is no longer necessary. In dynamic operating mode, the FLG performs reject and removal control of work pieces in

press and punch machines and also can be used in packaging applications. In static operating mode, it can be used to monitor thread continuity. With a monitored area of 250, 180 or 120 mm x 200 mm, it allows detection of small parts over a large area down to minimum dimensions of 2 mm.

### At a glance

- Dynamic or static operating mode, switchable
- Simple adjustment
- Adjustable sensitivity
- Adjustable pushbutton lock
- Rugged metal housing
- Adjustable pulse lengthening
- Switchable NO/NC

### Your benefits

- Simple installation and alignment due to sender and receiver in one housing
- The adjustable pushbutton lock protects against unwanted changes to parameters and manipulation during operation
- The device's adjustable sensitivity, operating mode and pulse lengthening features enable individual parameter changes to fit the requirements of your application
- Also available as an one side open version for simple integration into your application environment
- Large monitoring area, so only one device is required for monitoring small and large parts
- Using the sensitivity setting, it is possible to hide falling debris and only recognize objects that are relevant to detect



### Additional information

Detailed technical data. . . . .5

Ordering information. . . . .6

Dimensional drawing . . . . .7

Adjustments . . . . .7

Connection type and diagram . . . . .8

Setting the key lock. . . . .8

Limited detection area . . . . .8

Recommended accessories . . . . .9

→ [www.mysick.com/en/FLG](http://www.mysick.com/en/FLG)  
 For more information, just 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.



## Detailed technical data

### Features

<b>Technology</b>	Sender/receiver
<b>Task <sup>1)</sup></b>	Switching light grid
<b>Switching function</b>	Light/dark switching adjustable by means of rotary switch

<sup>1)</sup> Dynamic or static function adjustable by means of rotary switch.

### Performance

<b>Response time</b>	< 0.1 ms
----------------------	----------

### Mechanics/electronics

<b>Wave length</b>	880 nm
<b>Supply voltage <math>V_s</math> <sup>1)</sup></b>	DC 18 V ... 30 V
<b>Power consumption <sup>2)</sup></b>	< 150 mA
<b>Residual ripple</b>	< 10 %
<b>Output current <math>I_{max}</math></b>	100 mA
<b>Delay <sup>3)</sup></b>	0 s ... 5 s
<b>Initialization time</b>	0.3 s
<b>Dimensions (W x H x D)</b>	182 mm x 230 mm x 25 mm ... 312 mm x 230 mm x 25 mm
<b>Housing material</b>	Aluminum, painted
<b>Indication</b>	LED
<b>Enclosure rating</b>	IP 65
<b>Circuit protection</b>	$V_s$ connections reverse-polarity protected Output Q short-circuit protected Interference suppression
<b>Weight</b>	0.86 kg ... 1.12 kg
<b>Switching frequency</b>	≤ 5,000 Hz

<sup>1)</sup> Limit values, reverse-polarity protected, operation in short-circuit protected network, max. 8 A.

<sup>2)</sup> Without load.

<sup>3)</sup> Adjustable.

### Ambient data

<b>Protection class</b>	III
<b>EMC</b>	EN 60947-5-2
<b>Ambient temperature <sup>1)</sup></b>	Operation: 0 °C ... +60 °C Storage: -20 °C ... +80 °C
<b>Ambient light safety</b>	Sunlight: 10,000 lx
<b>Vibration resistance</b>	EN 60068-2-6
<b>Shock load</b>	EN 60068-2-27

<sup>1)</sup> In static mode: constant temperature around teaching point will be assumed.

### Specific data

Version	Connection type	Model name	Ordering information
Close	Connector M12, 4-pin	FLGx-200xxx1x	6
Open	Connector M12, 4-pin	FLGx-200xxx2x	6

## Ordering information

### FLGx-200xxx1x

- **Version:** close
- **Connection type:** Connector M12, 4-pin

Beam separation	Minimum detectable object (MDO)	Detection area (W x H)	Model name	Part no.
2 mm	Dynamic: 2 mm <sup>1)</sup> Static: 6 mm	120 mm x 200 mm <sup>1)</sup>	FLG2-20012011	6049334
		180 mm x 200 mm <sup>1)</sup>	FLG2-20018011	6049333
		250 mm x 200 mm <sup>1)</sup>	FLG2-20025011	6049138
4 mm	Dynamic: 4 mm Static: 6 mm	120 mm x 200 mm	FLG4-20012011	6049135
		180 mm x 200 mm	FLG4-20018011	6049136
		250 mm x 200 mm	FLG4-20025011	6049137

<sup>1)</sup> 2 mm MDO in limited detection area.

### FLGx-200xxx2x

- **Version:** open
- **Connection type:** Connector M12, 4-pin

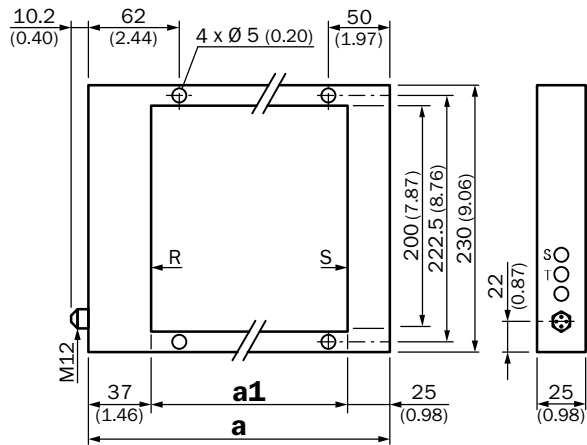
Beam separation	Minimum detectable object (MDO)	Detection area (W x H)	Model name	Part no.
2 mm	Dynamic: 2 mm <sup>1)</sup> Static: 6 mm	120 mm x 200 mm <sup>1)</sup>	FLG2-20012021	6050064
		180 mm x 200 mm <sup>1)</sup>	FLG2-20018021	6050065
		250 mm x 200 mm <sup>1)</sup>	FLG2-20025021	6050066
4 mm	Dynamic: 4 mm Static: 6 mm	120 mm x 200 mm	FLG4-20012021	6050067
		180 mm x 200 mm	FLG4-20018021	6050068
		250 mm x 200 mm	FLG4-20025021	6050069

<sup>1)</sup> 2 mm MDO in limited detection area.

### Dimensional drawing

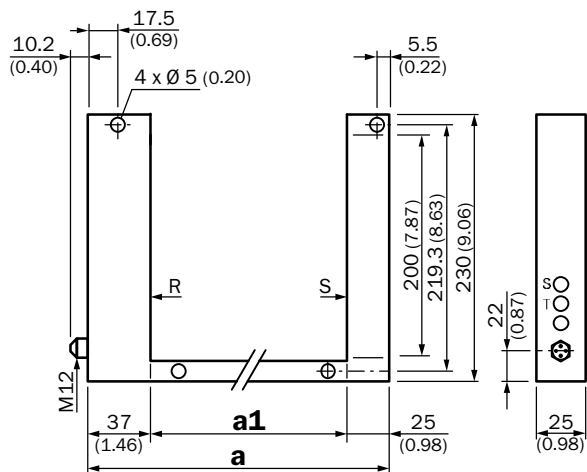
dimensions in mm

#### FLGx-200xxx1x



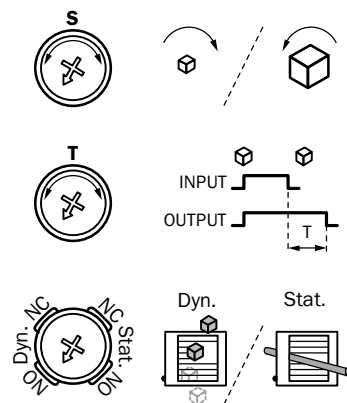
	a	a1
<b>FLGx-200120xx</b>	182 (7.17)	120 (4.72)
<b>FLGx-200180xx</b>	242 (9.53)	180 (7.09)
<b>FLGx-200250xx</b>	312 (12.28)	250 (9.84)

#### FLGx-200xxx2x

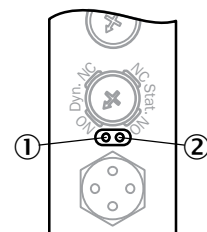


	a	a1
<b>FLGx-200120xx</b>	182 (7.17)	120 (4.72)
<b>FLGx-200180xx</b>	242 (9.53)	180 (7.09)
<b>FLGx-200250xx</b>	312 (12.28)	250 (9.84)

### Adjustments



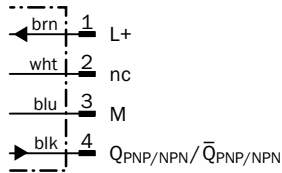
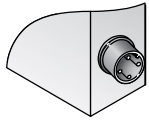
#### LED display



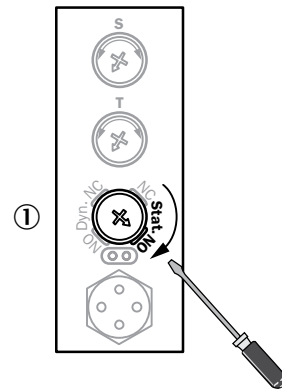
- ① Yellow LED: Output state
- ② Red LED: Error or key lock function active (blinking)

### Connection type and diagram

**Connector**  
**M12, 4-pin**



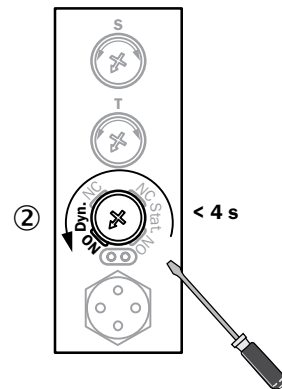
### Setting the key lock



**Setting key lock**

**Locking:**  
After the last setting, the frame waits 15 minutes then locks the potentiometer. When the potentiometers are locked, the red LED flashes every time you turn any button.

**Unlocking:**  
① To unlock the potentiometers, turn the mode button on the "Stat. NO" position.

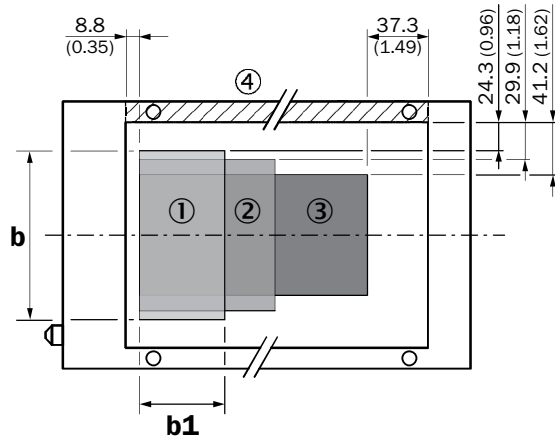


② Turn in less than 4 seconds, on the "Dyn. NO" position.

The potentiometers are then unlocked and the settings are updated with the current position of the potentiometers.

**Notice:**  
If the mode button is already in the "Stat. NO" position, change mode previously and then apply the standard unlocking procedure.

### Limited detection area for 2 mm resolution



All dimensions in mm (inch)

④ Side is missing in open version




**Dimensions in mm (inch)**

	<b>b</b>	<b>b1</b>
① FLG2-xxx120xx	151.4 (5.96)	73.9 (2.91)
② FLG2-xxx180xx	140.2 (5.52)	133.9 (5.27)
③ FLG2-xxx250xx	117.6 (4.63)	203.9 (8.03)

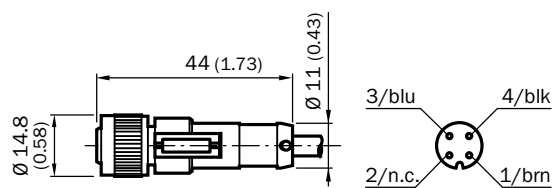


### Recommended accessories

#### Plug connectors and cables

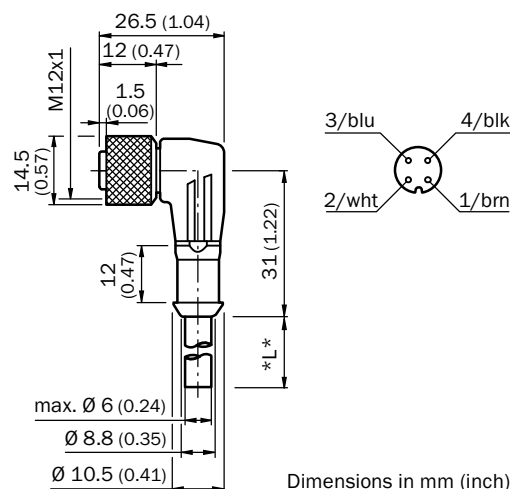
	Brief description	Model name	Part no.
 Illustration may differ	Female connector, M12, 4-pin, straight, 2 m, PVC	DOL-1204-G02M	6009382
	Female connector, M12, 4-pin, straight, 5 m, PVC	DOL-1204-G05M	6009866
	Female connector, M12, 4-pin, straight, 10 m, PVC	DOL-1204-G10M	6010543
	Female connector, M12, 4-pin, straight, 15 m, PVC	DOL-1204-G15M	6010753
	Female connector, M12, 4-pin, straight, 2 m, PUR halogen free	DOL-1204-G02MC	6025900
	Female connector, M12, 4-pin, straight, 5 m, PUR halogen free	DOL-1204-G05MC	6025901
	Female connector, M12, 4-pin, straight, 10 m, PUR halogen free	DOL-1204-G10MC	6025902
	Female connector, M12, 4-pin, straight, 15 m, PUR halogen free	DOL-1204-G15MC	6034749
 Illustration may differ	Female connector, M12, 4-pin, angled, 2 m, PVC	DOL-1204-W02M	6009383
	Female connector, M12, 4-pin, angled, 5 m, PVC	DOL-1204-W05M	6009867
	Female connector, M12, 4-pin, angled, 10 m, PVC	DOL-1204-W10M	6010541
	Female connector, M12, 4-pin, angled, 2 m, PUR halogen free	DOL-1204-W02MC	6025903
	Female connector, M12, 4-pin, angled, 5 m, PUR halogen free	DOL-1204-W05MC	6025904
	Female connector, M12, 4-pin, angled, 10 m, PUR halogen free	DOL-1204-W10MC	6025905
	Female connector, M12, 4-pin, angled, 15 m, PUR halogen free	DOL-1204-W15MC	6034752

**DOL-1204-G02M/DOL-1204-G02MC**  
**DOL-1204-G05M/DOL-1204-G05MC**  
**DOL-1204-G10M/DOL-1204-G10MC**  
**DOL-1204-G15M/DOL-1204-G15MC**



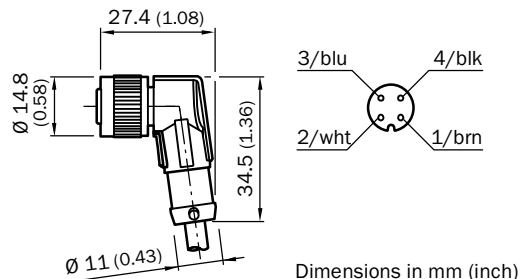
Dimensions in mm (inch)

**DOL-1204-W02M**  
**DOL-1204-W05M**  
**DOL-1204-W10M**



Dimensions in mm (inch)

**DOL-1204-W02MC/DOL-1204-W05MC**  
**DOL-1204-W10MC/DOL-1204-W15MC**



Dimensions in mm (inch)