

REFERENCE GUIDE



>Safety



Information in this publication is provided to guide customers in the choice of products in DATALOGIC portfolio. It has to be considered indicative and concise. For the correct use of safety components described, please always refer to additional information you can find on products datasheets and manuals, as well as to the legislation in force at the moment and in the country of their use.

You can find more detailed informations (manuals and datasheets) about products described in this reference guide on the DATALOGIC website (www.datalogic.com).

DATALOGIC: SOLUTIONS FOR INDUSTRIAL AUTOMATION

Datalogic Industrial Automation is an industry-leader in products and solutions for material handling, traceability, inspection and detection applications.

With the acquisitions of Accu-Sort and PPT Vision in 2012, the company offers a comprehensive portfolio of products, technologies and solutions delivered by a team of skilled professionals dedicated to providing superior service to customers.

Datalogic is the partner of choice for organizations in the Industrial Automation market.

Factory Automation

- AUTOMOTIVE
- ELECTRONICS
- FOOD & BEVERAGE
- GENERAL MANUFACTURING
- HEALTHCARE - PHARMACEUTICAL

Transportation & Logistics

- AIRPORTS
- COURIER, EXPRESS PARCEL (CEP)
- POSTAL
- RETAIL DISTRIBUTION

Product portfolio

Datalogic Industrial Automation has the most comprehensive offering of products and solutions for traceability, inspection and detection applications in factory automation and logistics processes: industrial laser scanners, cameras and vision systems, sensors, machine safety devices and laser markers.

Identification

Even the most demanding and efficient automation of identification processes can leverage Datalogic Industrial Automation's leadership in the market. We manufacture the world's most comprehensive family of fixed-mount line and omnidirectional scanners.

We also offer the latest CCD vision technology with the world's largest installed base of CCD systems for bar code reading and dimensioning.

All of our AUTO-ID products and solutions leverage the broadest decoding library that has been developed through the years. Datalogic's comprehensive AUTO-ID portfolio is used in a wide range of applications and machines which are behind many of the everyday processes that keeps the global economy running.

Sensors & Safety

Datalogic Industrial Automation offers a best-in-class, comprehensive product portfolio of photoelectric and proximity sensors, rotary encoders, temperature controllers and measurement devices, as well as type 2 and type 4 safety light curtains.

These product lines provide solutions for applications involving color, contrast and luminescence, label detection, dimensional and distance measurement, in addition to machine safeguarding and access control in dangerous areas.

Machine Vision

The Datalogic Industrial Automation machine vision product line encompasses both hardware and software while covering a wide range of performance and price point requirements. The vision portfolio of products and solutions ranges from simple vision sensors to smart cameras and embedded vision systems.

Laser Marking

Laser Marking sources and systems provide value driven marking solutions for automotive, metal tools, medical, electronics and packaging. Datalogic Industrial Automation offers an extensive range of state-of-the-art technology, excellent performance and high reliability marking equipment.



SAFETY

Datalogic has more than 40 years of experience in the sensors and safety sector, developing their first product, a **Photoelectric Sensor**, in 1972. Today, Datalogic is one of the largest manufacturers of sensor and safety products worldwide.

Datalogic is the market leader in Italy for photoelectric sensors and safety light curtains, ranking among the **top-10 manufacturers** in Europe by market share*

Datalogic's **Sensors and Safety** portfolio solves customer applications in **Factory Automation**, specializing in Processing and Packaging machinery, and Automated Material Handling Systems related to Manufacturing Industries such as Automotive, Electronics, Pharmaceutical, Food & Beverage, Paper and Printing, Wood-working, Ceramics, Glass, Textiles etc.

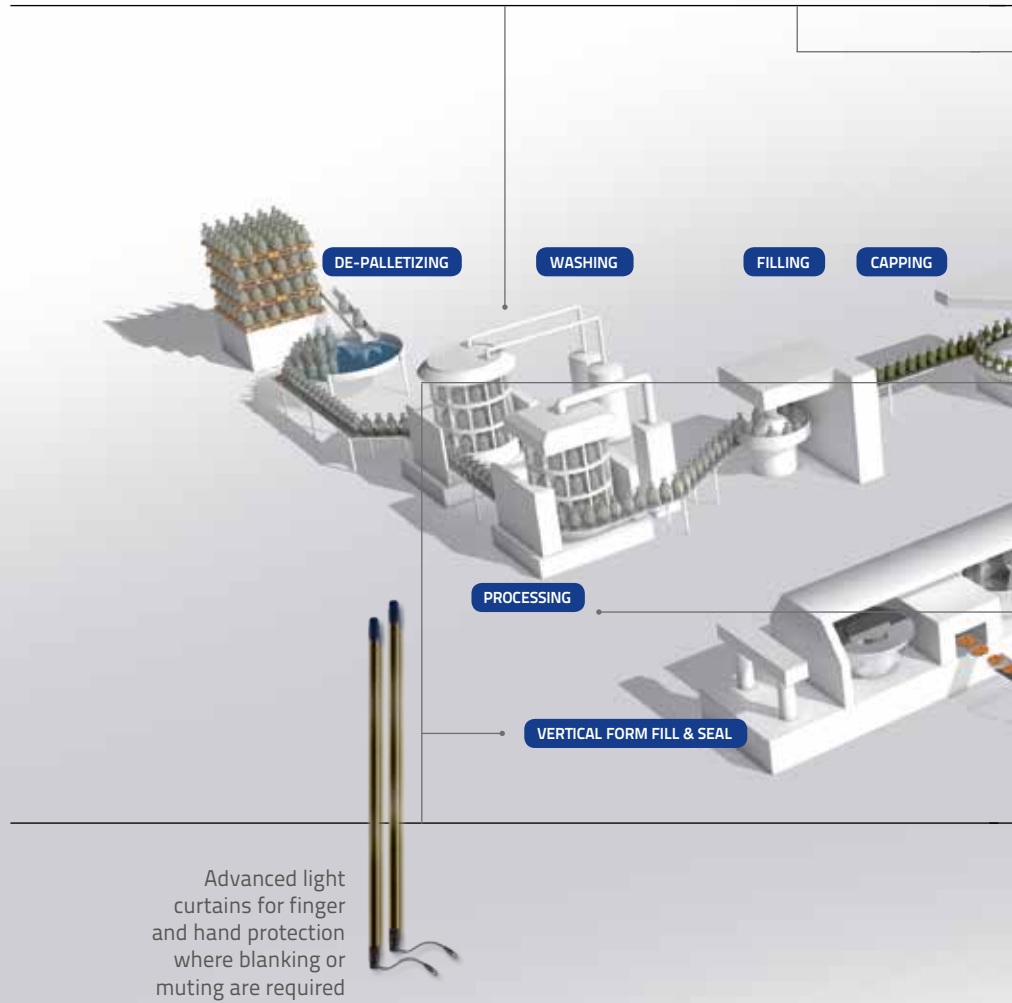
* (source: based on VDC 2010 - 2011)

APPLICATIONS

| | |
|------------------|---------------------------|
| De-Palletizing | Storage & Retrieval |
| Washing | Cartoning |
| Filling | Wrapping |
| Capping | Vertical Form Fill & Seal |
| Labeling | Processing |
| Case Packing | |
| Stretch-wrapping | |
| Palletizing | |



High performance protection tube for harsh environments



Advanced light curtains for finger and hand protection where blanking or muting are required



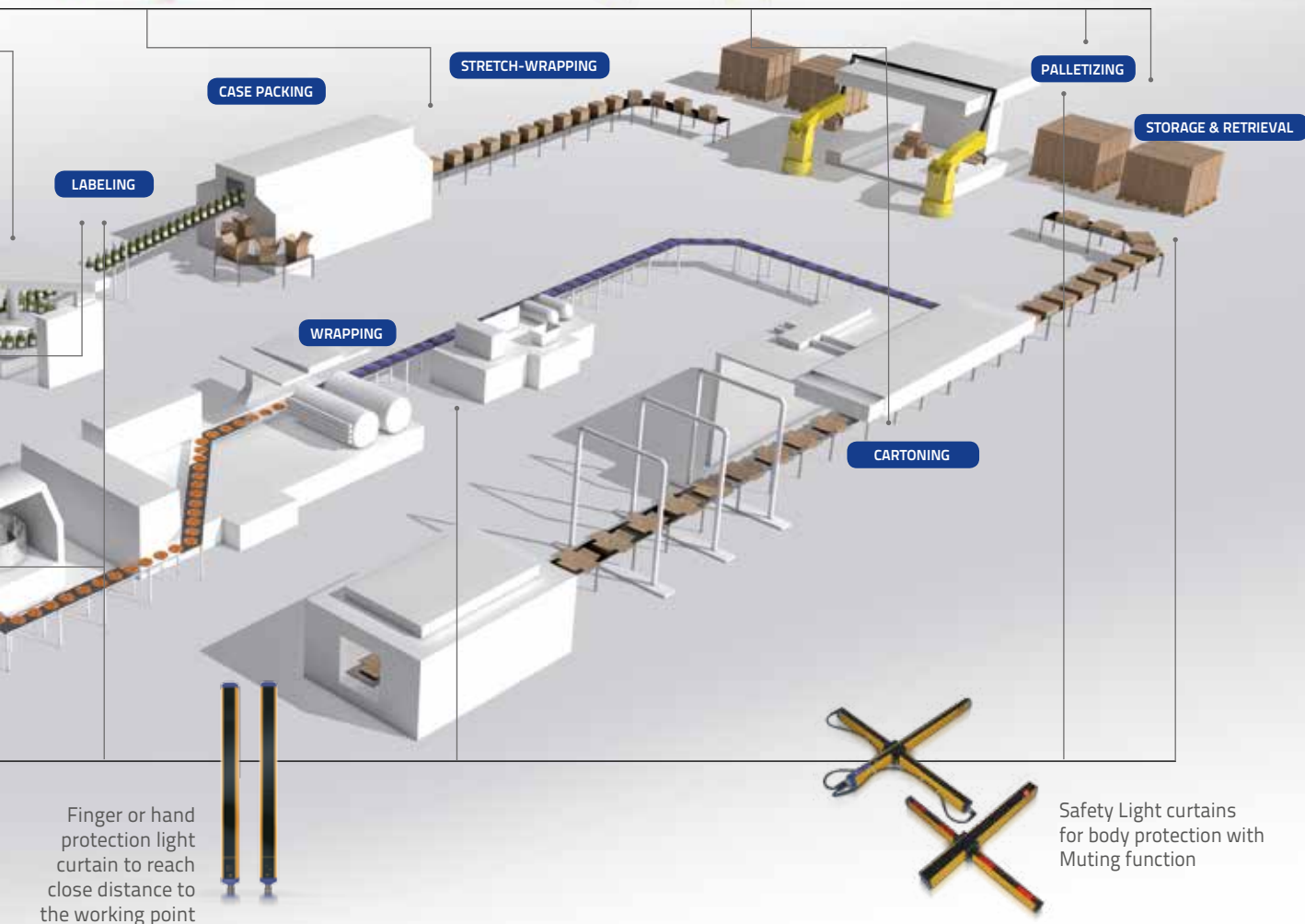


Interfaces between light curtains and safety system

Long distance light curtains, stands and mirrors for perimetral protection



Operator interfaces to control light curtains and indicate muting status



SAFETY PRODUCTS

SAFETY PRODUCT RANGE

Safety Light Curtains Type 2 and Type 4

HIGH/LOW RESOLUTION

FINGER PROTECTION

HAND PROTECTION

BODY PROTECTION

PRESENCE CONTROL

BASE/EXTENDED FUNCTIONALITIES

AUTO/MAN RESTART

EXT DEVICE MONITORING

MUTING

OVERRIDE

BLANKING

CASCADABLE

other safety products

Controllers
Single beam sensors
Relay units
Accessories

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- Performance level (pl)
- Type
- Detection capability (or resolution)
- Detection zone
- Retroreflective light curtains
- Cascading
- Response time
- Manual or automatic restart
- External device monitoring (edm)
- Muting
- Override
- Blanking
- Software configuration

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- ACCESSORIES FOR MUTING 82
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- SG-M muting kit, SG-M connection box
 - SG-M-ARM, SG-M bracket



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SELECTION GUIDE



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The selection of safety sensors for use in machinery is part of the overall risk reduction process, which starts with the analysis and evaluation of all possible risks the machine presents and ends with the validation and testing of the safety system. The sensors chosen should fulfill any safety requirements specific to the machine they will be mounted on. If there are no machine-specific requirements, the safety system should be designed to comply with all general safety and health standards. The overall system design dictates the parameters the safety sensors must meet. The following list of parameters and functions related to safety sensors can serve as a checklist to help in the selection process.

| NUMBER | DEFINITION | VALUES | | | | | |
|--------|----------------------------------|------------------------|-------|-------------------|-------------------|--------------------|---|
| 1 | Performance level required | a | b | | c | d | e |
| 2 | Type | 2 | | | 4 | | |
| 3 | DETECTION CAPABILITY | | | | | | |
| | Finger protection | 14 mm | | | | | |
| | Hand protection | 14 mm | 24 mm | 30 mm | 34 mm | | |
| | Arm protection/Presence | | | | 50 mm | 90 mm | |
| | Body protection | 2 beams 500 mm | | 3 beams 800 mm | 4 beams 900 mm | 4 beams 1200 mm | |
| 4 | DETECTION ZONE | | | | | | |
| | Height | from 150 mm to 1800 mm | | | | | |
| | Operating range | from 0.2 m to 60 m | | | | | |
| | Zero dead zone | yes | | | | no | |
| 5 | Retroreflective light curtains | yes | | | | no | |
| 6 | Cascading | yes | | | | no | |
| 7 | Response time | from 7 ms to 33 ms | | | | | |
| 8 | Manual or automatic restart | Manual | | | | Automatic | |
| 9 | External Device Monitoring (EDM) | yes | | | | no | |
| 10 | MUTING | | | | | | |
| | Type of muting | T | | | | L | |
| | Integrated muting lamp | yes | | | | no | |
| | Partial muting | yes | | | | no | |
| 11 | Override | yes | | | | no | |
| 12 | BLANKING | | | | | | |
| | Fixed Blanking | yes | | | | no | |
| | Floating Blanking | yes | | | | no | |
| | Reduced resolution | yes | | | | no | |
| 13 | Software configuration | yes | | | | no | |

SELECTION GUIDE

1. Performance Level (PL) and required Performance Level (PL_r)

Performance level is one of five discrete levels (a, b, c, d, e) that specify the ability of the safety-related part of a control system to perform a specific safety function. The performance level depends on the system design, the reliability of components used, the diagnostic coverage of dangerous faults, and on the ability of the safety parts to avoid common cause and systematic faults.

The minimum required Performance Level (PL_r) to reduce a risk is determined by following the diagram in fig. 1, which takes into account three factors: the severity of injury, the frequency of exposure to hazard, and the possibility to avoid the hazard. Performance level and its calculation methods are described in EN ISO 13849-1.

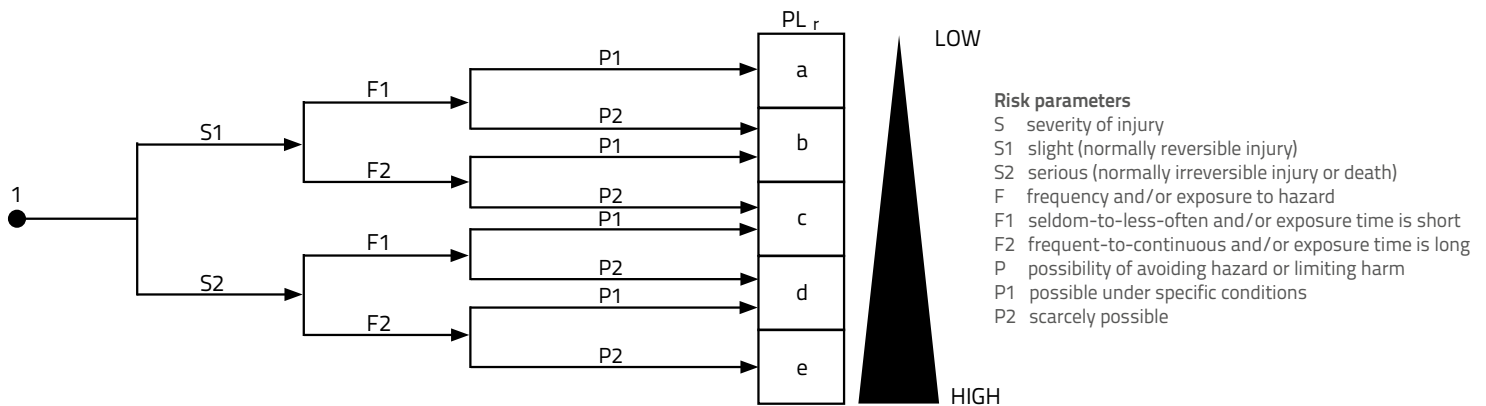


Fig. 1 Required Performance Level

2. Type

Safety sensors whose function is to detect the interruption of beams by an object are called Active Optoelectronic Protective Devices (AOPD). AOPDs are classified in two Types (Type 2 and Type 4) depending on their design and optical performance.

The optical performance is dependent on the maximum limit of the effective aperture angle (EAA), that is $-/+5^\circ$ for Type 2, and $-/+2.5^\circ$ for Type 4. A lower EAA results in a more focused beam.

Type and Performance Level are directly correlated.

The maximum PL that can be reached for a safety function that includes the use of a Type 2 AOPD is PL c, while for a Type 4 AOPD, the maximum is PL e.

Based on these considerations, to reduce the highest risks on machines, Type 4 AOPDs should be used (see Fig. 2).

Active optoelectronic protective devices and corresponding Types are described in IEC 61496-1 and IEC 61496-2.

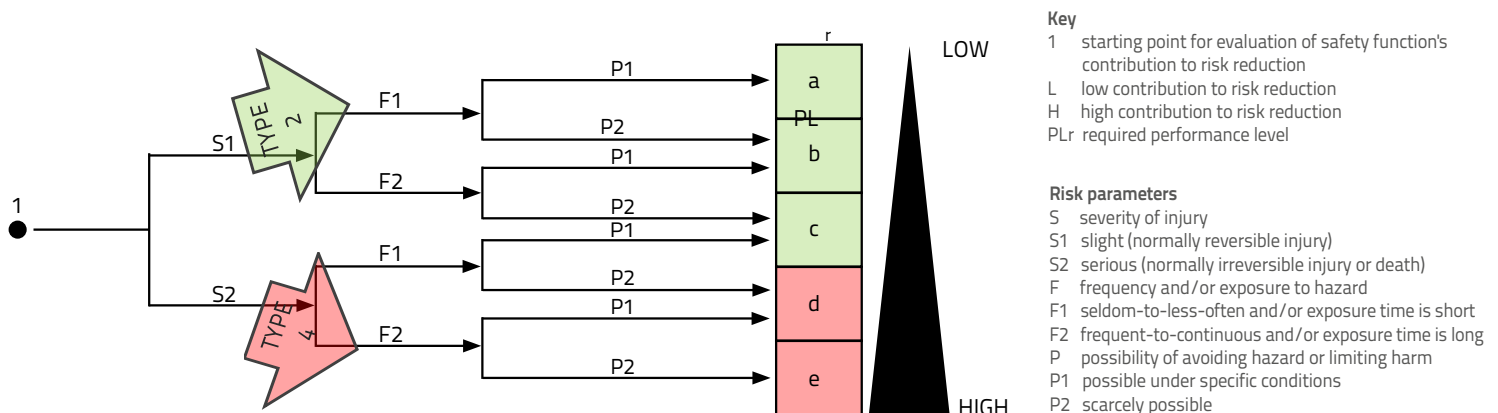


Fig. 2 AOPD Type and Performance Level

SELECTION GUIDE

3. Detection Capability (or Resolution)

The detection capability of a light curtain is the diameter of the smaller object that will activate the device when it's placed in any point of the detection zone.

The value of the detection capability, together with response time, is crucial to calculating the minimum safety distance required between the light curtain and the dangerous zone.

For single light beam sensors and for multiple light beams sensors (2, 3 or 4 beams), in place of detection capability, it's common to use the number of light beams. In this case, their purpose is to provide 'body protection', detecting the passage of the entire body of a person.

For an introduction to the minimum safety distance calculation rules (described in EN 13855) see page 94 and the light curtain's technical documentation.

4. Detection zone

The detection zone is the area where any object whose dimensions are at least equal to the detection capability activates the light curtain.

It is defined by its **height** and by the distance between the emitter and the receiver element ("**operating range**").

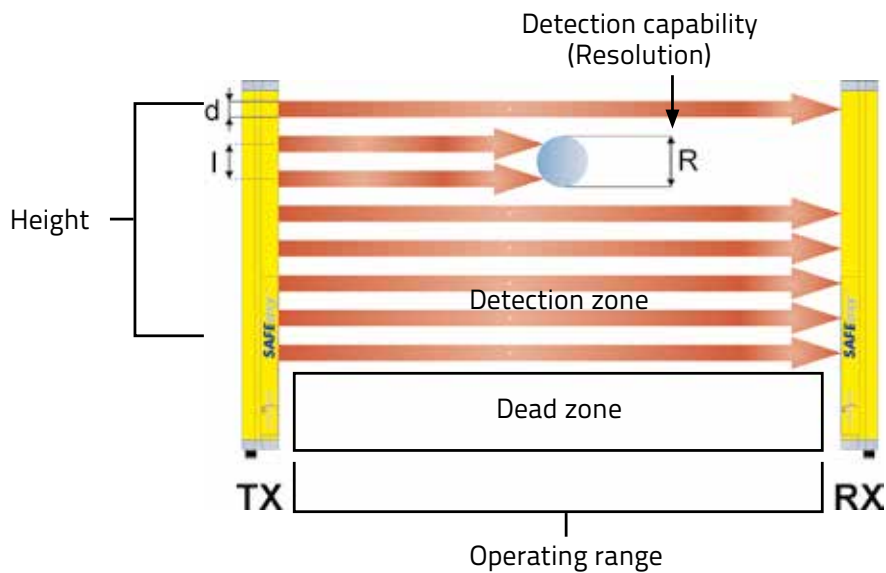


Fig. 3 Detection Zone

If the light curtain is retroreflective, the operating range is the distance between the active and the passive element. Light curtains can have a 'dead zone', in which they are not able to detect the object due to the absence of beams. When it is required that the dimension of the light curtain corresponds exactly to the height of its detection zone, the light curtain is said to have **zero dead zone**.

SELECTION GUIDE

5. Retroreflective light curtains

2, 3 and 4 beams light curtains can be manufactured with all emitters and receivers on one side, and passive elements (mirrors) on the other side. The advantage of using a retroreflective light curtain is that only one side needs to be powered on.

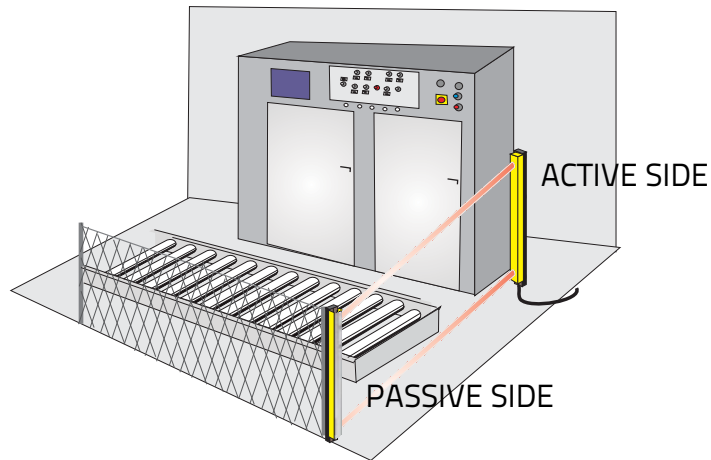


Fig. 4 Retroreflective Light Curtain

6. Cascading

Cascading is when two or more light curtains are connected to each other, resulting in one system that functions as a single light curtain.

Advantages of cascading are: better monitoring of dangerous areas with presence detection beyond the vertical detection zone and space and cost savings by using a single safety unit.

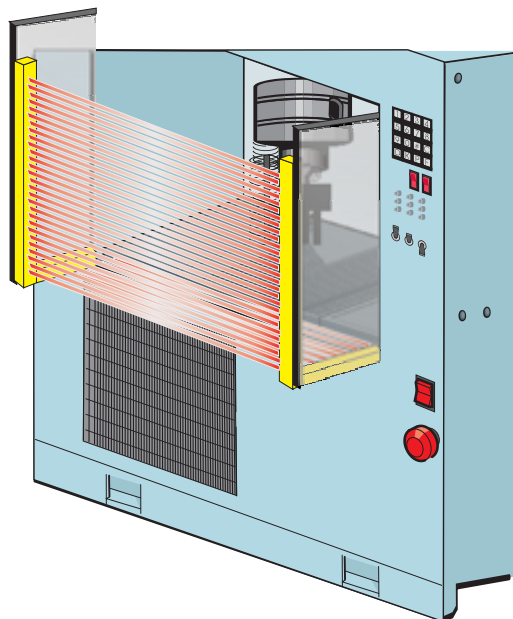


Fig. 5 Cascading

SELECTION GUIDE

7. Response time

The response time is the maximum time occurring between the detection of the test object in the detection zone and the activation of the light curtain's outputs.

It is a safety relevant parameter, and its value must be taken in account when calculating the position in which the safety sensor will be placed in relation to the dangerous area.

8. Manual or automatic restart

Depending on the initial risk analysis of the machine, a start or restart interlock can be a safety requirement of the control system. It prevents an automatic restart of the machine during a dangerous part of the operating cycle after activation of the sensing device, or when the electrical supply of the sensor is switched on or restored after interruption. This interlock can be implemented by a manual restart of the safety controller or by the light curtain itself.

9. External Device Monitoring (EDM)

EDM is a function that allows the electro-sensitive protective equipment (ESPE) to monitor the state of control devices (i.e. contactors, actuators) that are driven by its outputs.

This function can be achieved by the safety controller or directly by the light curtain.

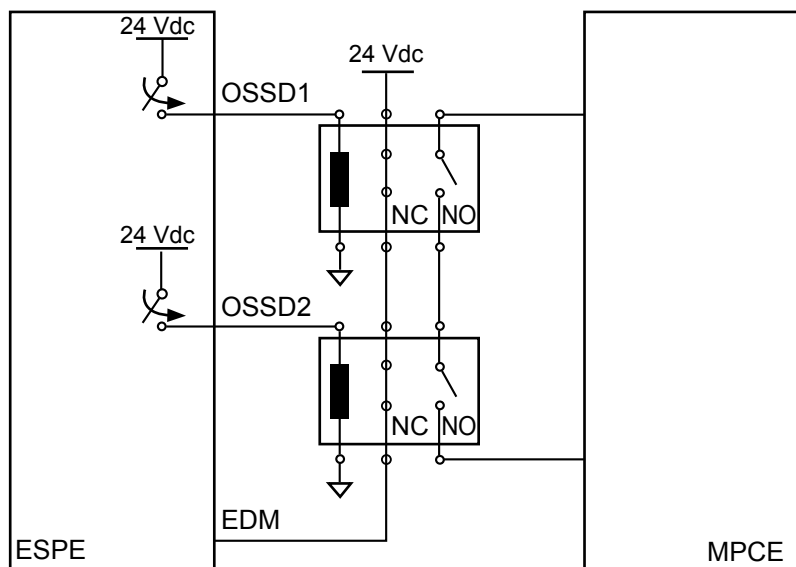


Fig. 6 External Device Monitoring wiring diagram

SELECTION GUIDE

10. Muting

Muting is the temporary automatic suspension of a safety function. When a light curtain is muted, its outputs will remain ON even if an object is detected in the detection zone.

Because muting suspends a safety function, it must be implemented with all necessary precautions and in compliance with the machine-specific safety requirements.

T muting is a specific kind of muting that can be used to allow the passage of material through an opening in direction of the dangerous area or in both directions. L muting can be used only if material exits the dangerous area.

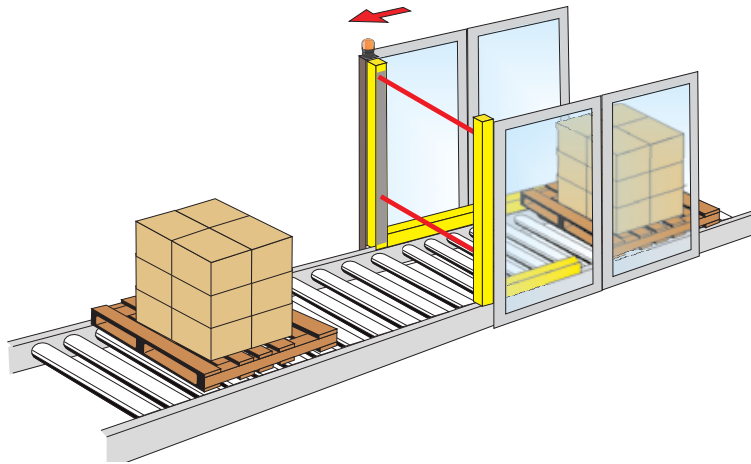


Fig. 7 Safety Light Curtain with Integrated L muting actuator

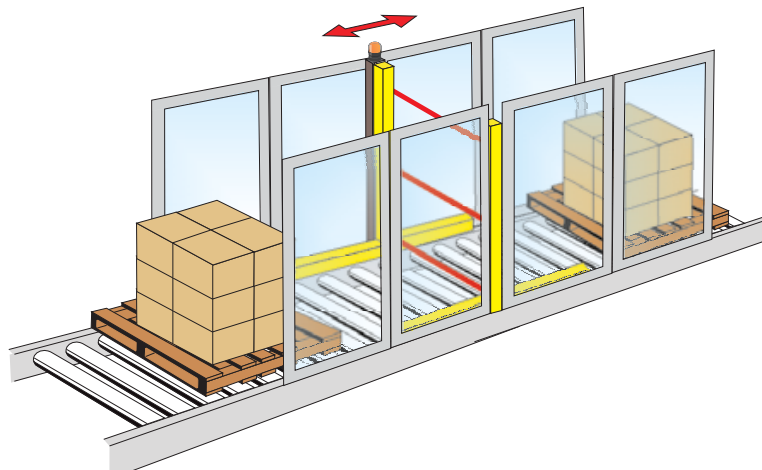


Fig. 8 Safety Light Curtain with Integrated T muting actuator

Light curtains can be provided with muting arms, with pre-wired sensors detecting the passage of material, or can be used with external muting sensors.

SELECTION GUIDE

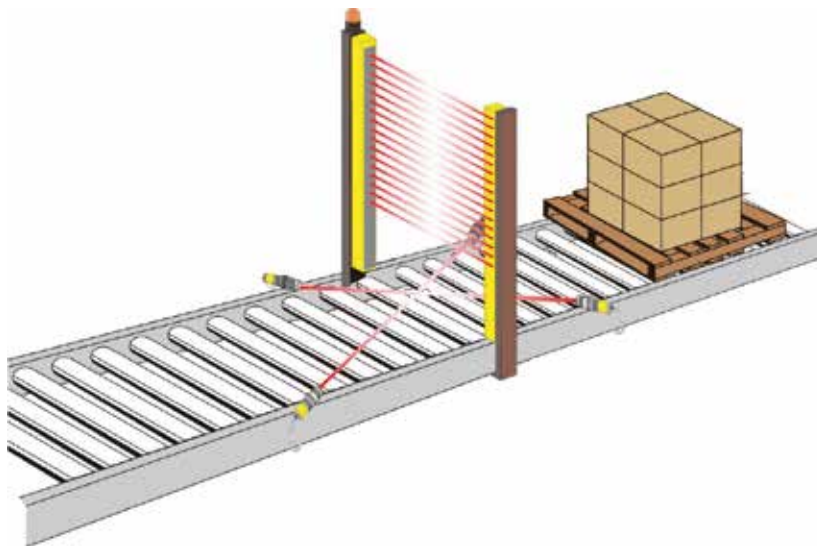


Fig. 9 Safety light curtain with external crossed beams muting sensors

Muting lamps integrated in the light curtains, or installed external to them, are designed to flash as long as the muting is active.



Fig. 10 Integrated muting lamps

To maintain the safety of the application, light curtains can be configured to perform the muting function only on the number of beams needed for the passage of the material (**Partial Muting**), keeping the others active.

11. Override

Override function is a mute dependent bypass of the light curtain, that can be provided for some applications (for example conveyor and packaging machinery) in order to clear a blockage in the area of the machine where sensors are located. The activation of the bypass function should be possible for a limited amount of time, only when at least one muting sensor is activated, and will require the use of a device located where operator can see the point of hazard.

SELECTION GUIDE

12. Blanking

The blanking function is used when an object detected in a defined part of the detection zone must not cause an OFF-state of the light curtains outputs.

Blanked beams are monitored so that the absence or a change in the size or location of the object causes the light curtain's outputs to go to the OFF-state.

Fixed blanking is when the object must remain in a fixed position, with a given tolerance.

Floating blanking is when the object can move along the detection zone.

Depending on the configuration of the light curtain, in floating blanking the object can also leave the detection zone or not.

Reduced resolution is a particular kind of floating blanking, with light curtain outputs going OFF-state only when a pre-defined number of beams adjacent are interrupted, in any position along the light curtain.

When reduced resolution is active, more than one small object can interrupt the light curtain beams without its output going OFF.

Blanking can affect the detection capability of the light curtain and can result in a recalculation of the minimum safety distance.

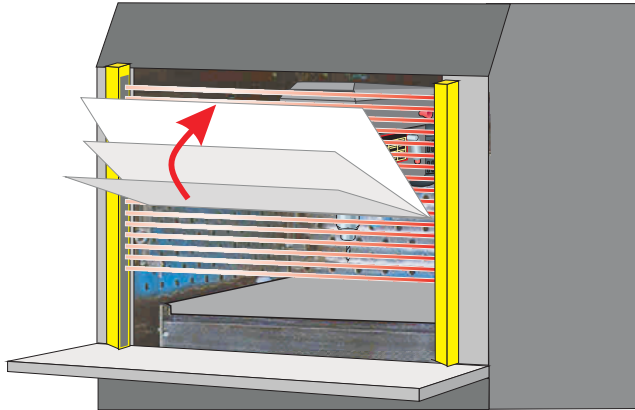


Fig. 11 Floating blanking

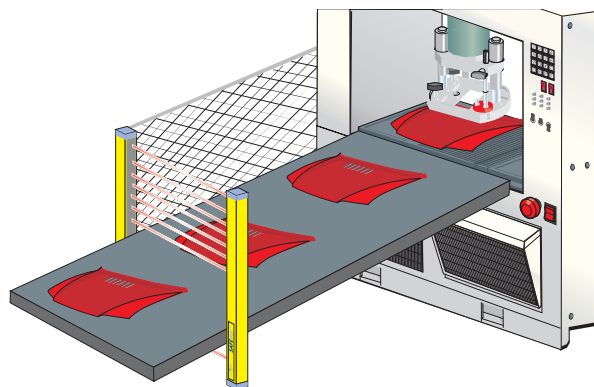


Fig. 12 Fixed blanking with tolerance

13. Software configuration

Setting DIP-Switch or through wiring, it is possible to set typical parameters like manual or auto reset, EDM enable or disable, muting type selection, as well as auto-teach blanking function.

A software configurator (**Graphic User Interface, GUI**) is required for more advanced functionality, such as setting the muting timeout with 1-second steps, or designing complex patterns for floating or fixed blanking.

SELECTION TABLE

| Resolution (mm) | Type | Range (m) | Height (mm) |
|-----------------|------|-----------------------------------------|------------------|
| 14 | 2/4 | 0.2 ... 6 | 150 ... 1200 |
| | 4 | 0.2 ... 6 | 150 ... 1800 |
| | | 0.2 ... 7 | 300 ... 1800 |
| | | 0.2 ... 6 | 150 ... 450 |
| 24 | 2/4 | 0.2 ... 6 | 150 ... 1200 |
| 30 | 2 | 0.2 ... 19 | 150 ... 1800 |
| | | 0.2 ... 19 | 150 ... 1800 |
| | | 0.2 ... 20 | 300 ... 1800 |
| | 4 | 0.2 ... 19 | 150 ... 1800 |
| | | 0.2 ... 20 | 300 ... 1800 |
| | | | |
| 34 | 2/4 | 0.2 ... 6 | 150 ... 1200 |
| 40 | 4 | 6 ... 60 | 660/960/1260 |
| 50/90 | 2 | 0.2 ... 19 | 150 ... 1800 |
| | | 0.2 ... 19 | 150 ... 1800 |
| 2/3/4 beams | 2/4 | 0.5 ... 50 | 500/800/900/1200 |
| | | 0.5 ... 50 0.5 ... 3* 0.5 ... 7** | 500/800/900/1200 |
| | | 0.5 ... 60 | 500/800/900/1200 |
| | | 0.5 ... 60 0.5 ... 3* 0.5 ... 7** | 500/800/900/1200 |
| | | 0.5 ... 8 | 500/800/900/1200 |
| | | 0.5 ... 8 0.5 ... 3* | 500/800/900/1200 |
| | | 0 ... 8*** 0 ... 40*** | flexible |

NOTES

- * With retroreflective muting arms
- ** With emitter / receiver muting arms
- *** Depending on models

SELECTION TABLE

| Functions | Additional HW features | Family | Page |
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| Manual / Auto Restart | Zero dead zone Cascade | SLIM | 32 |
| External Device Monitoring (EDM) | | | |
| Manual / Auto Restart | | SG4 BASE | 22 |
| External Device Monitoring (EDM) | | | |
| Manual / Auto Restart | Zero dead zone Cascade Advanced Programmable Configuration Monitoring via Ethernet/IP Error logging | SG4 EXTENDED | 58 |
| External Device Monitoring (EDM) | | | |
| T, L Muting function | | | |
| Partial Muting | | | |
| Override | | | |
| Fixed blanking | | | |
| Floating Blanking | | | |
| Auto restart | Stainless stees housing Glass window | SG4-H (PHARMA) | 28 |
| Manual / Auto Restart | Zero dead zone Cascade | SLIM | 32 |
| External Device Monitoring (EDM) | | | |
| Auto restart | | SG2 BASE | 22 |
| Manual / Auto Restart | | SG2 EXTENDED | 22 |
| External Device Monitoring (EDM) | | | |
| Manual / Auto Restart | Zero dead zone | SG2 MUTING | 58 |
| External Device Monitoring (EDM) | | | |
| T, L Muting function | | | |
| Partial Muting | | | |
| Override | | SG4 BASE | 58 |
| Manual / Auto Restart | | | |
| External Device Monitoring (EDM) | Zero dead zone Cascade Advanced Programmable Configuration Monitoring via Ethernet/IP Error logging | SG4 EXTENDED | 58 |
| Manual / Auto Restart | | | |
| External Device Monitoring (EDM) | | | |
| T, L Muting function | | | |
| Partial Muting | | | |
| Override | | | |
| Fixed blanking | | | |
| Floating Blanking | | | |
| Manual / Auto Restart | Zero dead zone Cascade | SLIM | 32 |
| External Device Monitoring (EDM) | | | |
| Manual / Auto Restart | | SG4 LONG RANGE BASE | 44 |
| External Device Monitoring (EDM) | | | |
| Auto restart | | SG2 BASE | 22 |
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| Manual / Auto Restart | | SG BODY COMPACT BASE | 38 |
| External Device Monitoring (EDM) | | | |
| Manual / Auto Restart | Integrated muting lamp Integrated muting arms*** | SG BODY COMPACT MUTING | 38 |
| External Device Monitoring (EDM) | | | |
| T, L Muting function | | | |
| Override | | SG BODY BIG BASE | 44 |
| Manual / Auto Restart | | | |
| External Device Monitoring (EDM) | Integrated muting lamp | SG BODY BIG MUTING | 44 |
| Manual / Auto Restart | | | |
| External Device Monitoring (EDM) | | | |
| T, L Muting function | | SG BODY REFLECTOR BASE | 50 |
| Override | | | |
| Manual / Auto Restart | Retroreflective | SG BODY REFLECTOR BASE | 50 |
| External Device Monitoring (EDM) | | | |
| Manual / Auto Restart | Retroreflective Integrated muting lamp Integrated mugin arms*** | SG BODY REFLECTOR MUTING | 50 |
| External Device Monitoring (EDM) | | | |
| T, L Muting function | | | |
| Override | Double muting function Low temperature Defogging Separated control unit | SINGLE BEAM SENSORS | 64 |
| Manual / Auto Restart | | | |
| External Device Monitoring (EDM) | | | |
| T, L Muting function | | | |
| Override | | | |

SAFETY SENSORS



SAFETY SENSORS

SG2 BASE / SG2 EXTENDED SG4 BASE



High reliability
Easy installation and alignment
Cost effective

- Finger, hand, arm detection with basic functions
- 90 mm version for presence detection
- Up to 19 m operating distance
- Compact dimensions (32.3 x 36.9 mm section)
- Anti-interference coding
- IP65 Protection; IP69K with optional tube
- Unshielded cables
- Rotating and anti-vibration brackets



SAFETY

APPLICATIONS

- Automatic machines: cutting, packaging, material handling and storing.
- Automatic and semi-automatic assembling lines;
- Milling, lathe and shearing machines
- Bending and metal-working machines



INDUSTRIES

Food & Beverage, Textile, Wood, Ceramic, Metal, Automotive, Electronics.

| | FINGER | HAND | ARM | BODY |
|--------|--------|------|-----|------|
| TYPE 2 | | ▪ | ▪ | |
| TYPE 4 | ▪ | ▪ | | |

SG2-30-015-00-E

| TYPE | |
|------|--------|
| 2 | Type 2 |
| 4 | Type 4 |

| RESOLUTION | |
|------------|--------------------------|
| 14 | Finger: 14 mm |
| 30 | Hand: 30 mm |
| 50 | Arm: 50 mm (only Type 2) |
| 90 | Arm: 90 mm (only Type 2) |

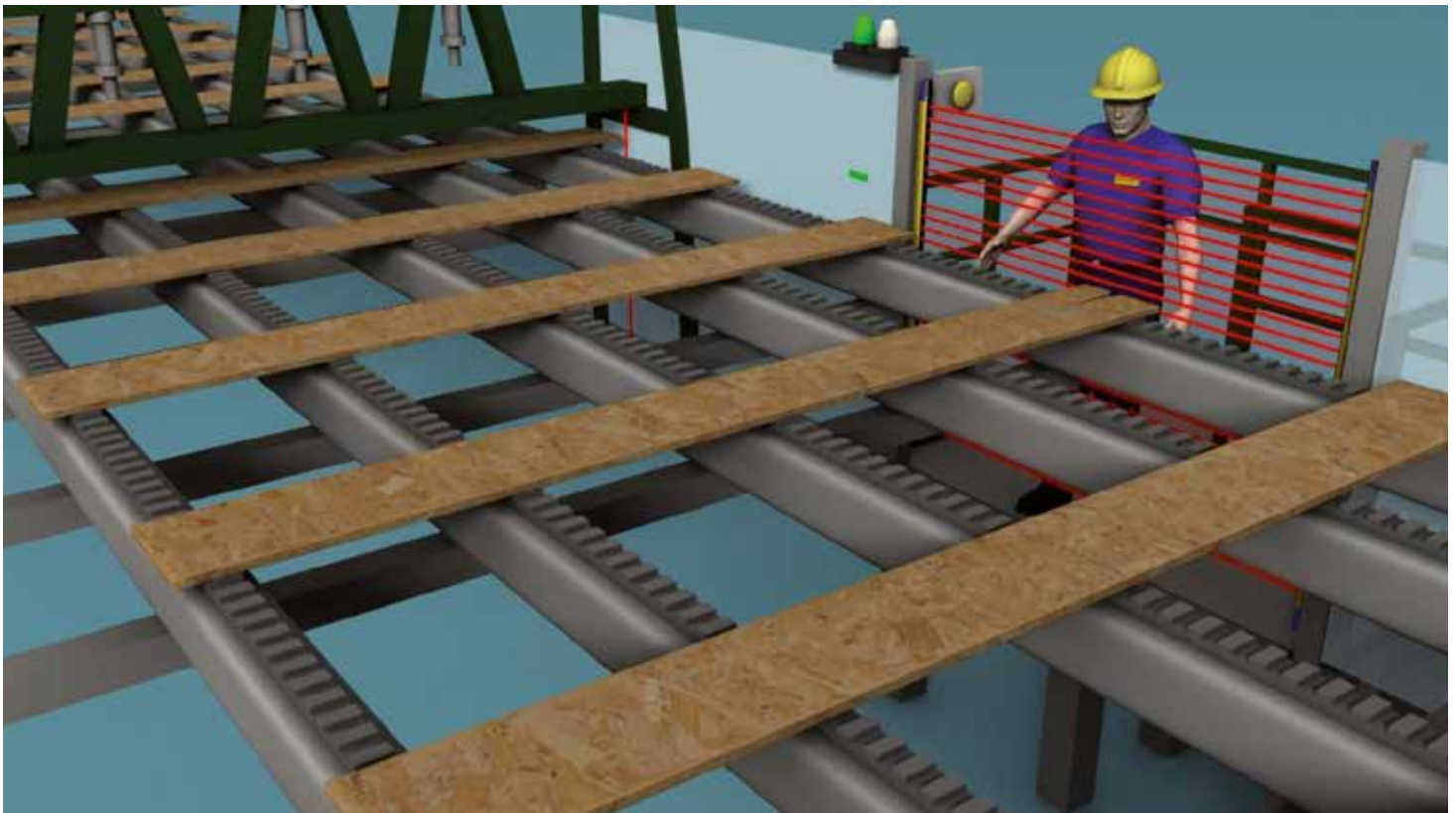
| MONITORED HEIGHT | |
|------------------|--------|
| 15 | 150 mm |
| 30 | 300 mm |
| ... | ... |
| 180 | 1800mm |

| VERSION | |
|---------|-------------------|
| E | Type4, EDM, Coded |
| E-C | Type2, EDM, Coded |
| X | Basic Function |

TECHNICAL DATA

| | SG2 BASE [SG2-xx-xxx-00-X] | SG2 EXTENDED [SG2-xx-xxx-00-E-C] | SG4 BASE [SG4-xx-xxx-00-X] | SG4 BASE [SG4-xx-xxx-00-E] |
|-----------------------------------|------------------------------------|-------------------------------------|------------------------------------------------------------------|-------------------------------|
| GENERAL DATA | | | | |
| Type (EN61496-1) | 2 | | 4 | |
| PL (EN ISO 13849-1) | c | | e | |
| SIL (IEC 61508) | 1 | | 3 | |
| Resolution | 30 - 50 - 90 mm | | 14 - 30 mm | |
| Protected height | 150 ...1800 mm (with 150 mm steps) | | | |
| Operating distance | 0.2 ...19 m | | 0.2 ... 6 m (resolution 14 mm) 0.2 ...19 m (resolution 30 mm) | |
| ELECTRICAL DATA | | | | |
| Power supply (Vdd) | 24 Vdc ± 20 | | | |
| Outputs | 2 PNP | | | |
| Output current | 0.5 A max / each output | | | |
| Capacitive load | 2.2 uF @ 24Vdc max | | | |
| Response time | 8 ... 19 ms depending on model * | | | |
| Cables length (for power supply) | 50 m max | | | |
| MECHANICAL AND ENVIRONMENTAL DATA | | | | |
| Operating temperature | -10 ...+55 °C | | 0 ...+55 °C | |
| Humidity | 15 ... 95 % (no condensation) | | | |
| Mechanical protection | IP 65 (EN 60529) | | | |
| FUNCTIONS | | | | |
| Test Input | On Receiver | On Emitter | N/A | On Emitter |
| Restart | Automatic | Manual / Automatic | Automatic | Manual / Automatic |
| EDM (External Device Monitoring) | N/A | On Receiver | N/A | On Receiver |
| Selectable Operating Distance | N/A | On Emitter | N/A | |

* For detailed informations refer to related Manual



CONNECTION

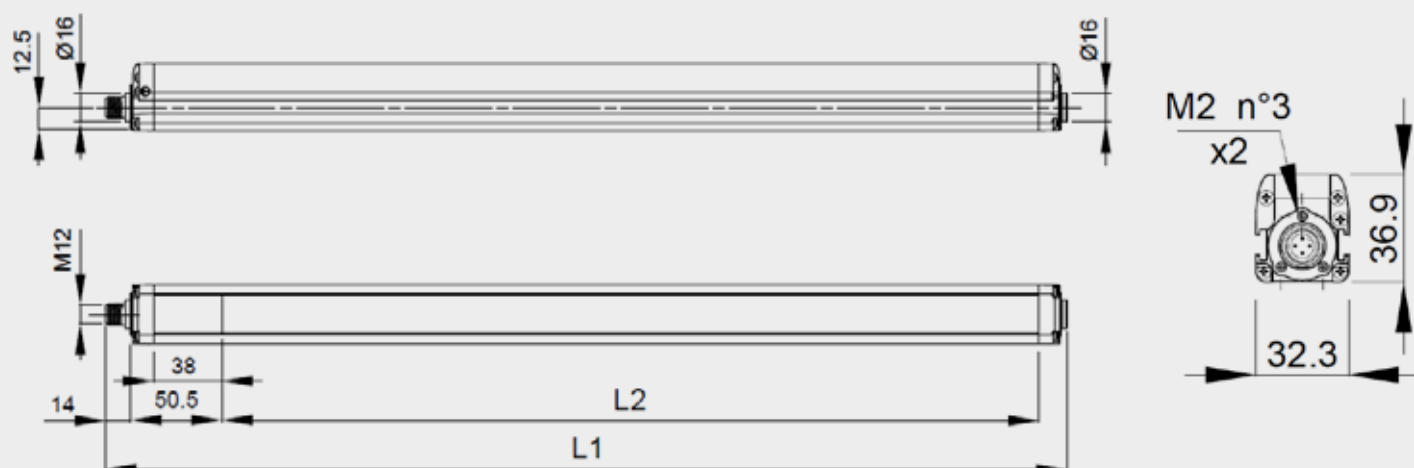
| | SG2 BASE [SG2-XX-XXX-00-X] | SG4 BASE [SG4-XX-XXX-00-X] |
|----------|---------------------------------------|---------------------------------|
| EMITTER | | |
| RECEIVER | | |
| | SG2 EXTENDED [SG2-XX-XXX-00-E-C] | SG4 BASE [SG4-XX-XXX-00-E] |
| EMITTER | | |
| RECEIVER | | |

NOTES

To set manual restart, connect Pin 8 (MAN/AUTO) with Pin 6 (OSSD2)

To deactivate EDM function, connect Rx Pin 3 to 24Vdc on Receiver

DIMENSIONS



| MODEL | L1 (MM) | L2 (MM) |
|-------------------|---------|---------|
| SGx-yy-150-00-kkk | 233.3 | 153.3 |
| SGx-yy-030-00-kkk | 383.2 | 303.2 |
| SGx-yy-045-00-kkk | 533.2 | 453.3 |
| SGx-yy-060-00-kkk | 683.2 | 603.2 |
| SGx-yy-075-00-kkk | 833.2 | 753.3 |
| SGx-yy-090-00-kkk | 983.2 | 903.2 |
| SGx-yy-105-00-kkk | 1133.2 | 1053.2 |
| SGx-yy-120-00-kkk | 1283.3 | 1203.3 |
| SGx-yy-135-00-kkk | 1433.2 | 1353.2 |
| SGx-yy-150-00-kkk | 1583.3 | 1503.3 |
| SGx-yy-165-00-kkk | 1733.3 | 1653.3 |
| SGx-yy-180-00-kkk | 1883.3 | 1803.3 |

INDICATORS



MODEL SELECTION AND ORDER INFORMATION

| | SG2 BASE [SG2-XX-XXX-00-X] | ORDER CODE | SG2 EXTENDED [SG2-XX-XXX-00-E-C] | ORDER CODE | SG4-XX-XXX-00-X | ORDER CODE | SG4 BASE [SG4-XX-XXX-00-E] | ORDER CODE |
|--------------------------|---------------------------------|------------|---------------------------------------|------------|-----------------|------------|---------------------------------|------------|
| FINGER PROTECTION | --- | --- | --- | --- | SG4-14-015-00-X | 957901460 | SG4-14-015-00-E | 957901000 |
| | --- | --- | --- | --- | SG4-14-030-00-X | 957901470 | SG4-14-030-00-E | 957901010 |
| | --- | --- | --- | --- | SG4-14-045-00-X | 957901480 | SG4-14-045-00-E | 957901020 |
| | --- | --- | --- | --- | SG4-14-060-00-X | 957901490 | SG4-14-060-00-E | 957901030 |
| | --- | --- | --- | --- | SG4-14-075-00-X | 957901500 | SG4-14-075-00-E | 957901040 |
| | --- | --- | --- | --- | SG4-14-090-00-X | 957901510 | SG4-14-090-00-E | 957901050 |
| | --- | --- | --- | --- | SG4-14-105-00-X | 957901520 | SG4-14-105-00-E | 957901060 |
| | --- | --- | --- | --- | SG4-14-120-00-X | 957901530 | SG4-14-120-00-E | 957901070 |
| | --- | --- | --- | --- | SG4-14-135-00-X | 957901540 | SG4-14-135-00-E | 957901080 |
| | --- | --- | --- | --- | SG4-14-150-00-X | 957901550 | SG4-14-150-00-E | 957901090 |
| | --- | --- | --- | --- | SG4-14-165-00-X | 957901560 | SG4-14-165-00-E | 957901100 |
| HAND PROTECTION | --- | --- | --- | --- | SG4-14-180-00-X | 957901570 | SG4-14-180-00-E | 957901110 |
| | SG2-30-015-00-X | 957801000 | SG2-30-015-00-E-C | 957801340 | SG4-30-015-00-X | 957901690 | SG4-30-015-00-E | 957901120 |
| | SG2-30-030-00-X | 957801010 | SG2-30-030-00-E-C | 957801350 | SG4-30-030-00-X | 957901580 | SG4-30-030-00-E | 957901130 |
| | SG2-30-045-00-X | 957801020 | SG2-30-045-00-E-C | 957801360 | SG4-30-045-00-X | 957901590 | SG4-30-045-00-E | 957901140 |
| | SG2-30-060-00-X | 957801030 | SG2-30-060-00-E-C | 957801370 | SG4-30-060-00-X | 957901600 | SG4-30-060-00-E | 957901150 |
| | SG2-30-075-00-X | 957801040 | SG2-30-075-00-E-C | 957801380 | SG4-30-075-00-X | 957901610 | SG4-30-075-00-E | 957901160 |
| | SG2-30-090-00-X | 957801050 | SG2-30-090-00-E-C | 957801390 | SG4-30-090-00-X | 957901620 | SG4-30-090-00-E | 957901170 |
| | SG2-30-105-00-X | 957801060 | SG2-30-105-00-E-C | 957801400 | SG4-30-105-00-X | 957901630 | SG4-30-105-00-E | 957901180 |
| | SG2-30-120-00-X | 957801070 | SG2-30-120-00-E-C | 957801410 | SG4-30-120-00-X | 957901640 | SG4-30-120-00-E | 957901190 |
| | SG2-30-135-00-X | 957801080 | SG2-30-135-00-E-C | 957801420 | SG4-30-135-00-X | 957901650 | SG4-30-135-00-E | 957901200 |
| | SG2-30-150-00-X | 957801090 | SG2-30-150-00-E-C | 957801430 | SG4-30-150-00-X | 957901660 | SG4-30-150-00-E | 957901210 |
| PRESENCE / ARM DETECTION | SG2-30-165-00-X | 957801100 | SG2-30-165-00-E-C | 957801440 | SG4-30-165-00-X | 957901670 | SG4-30-165-00-E | 957901220 |
| | SG2-30-180-00-X | 957801110 | SG2-30-180-00-E-C | 957801450 | SG4-30-180-00-X | 957901680 | SG4-30-180-00-E | 957901230 |
| | SG2-50-030-00-X | 957801120 | SG2-50-030-00-E-C | 957801460 | --- | --- | --- | --- |
| | SG2-50-045-00-X | 957801130 | SG2-50-045-00-E-C | 957801470 | --- | --- | --- | --- |
| | SG2-50-060-00-X | 957801140 | SG2-50-060-00-E-C | 957801480 | --- | --- | --- | --- |
| | SG2-50-075-00-X | 957801150 | SG2-50-075-00-E-C | 957801490 | --- | --- | --- | --- |
| | SG2-50-090-00-X | 957801160 | SG2-50-090-00-E-C | 957801500 | --- | --- | --- | --- |
| | SG2-50-105-00-X | 957801170 | SG2-50-105-00-E-C | 957801510 | --- | --- | --- | --- |
| | SG2-50-120-00-X | 957801180 | SG2-50-120-00-E-C | 957801520 | --- | --- | --- | --- |
| | SG2-50-135-00-X | 957801190 | SG2-50-135-00-E-C | 957801530 | --- | --- | --- | --- |
| | SG2-50-150-00-X | 957801200 | SG2-50-150-00-E-C | 957801540 | --- | --- | --- | --- |
| | SG2-50-165-00-X | 957801210 | SG2-50-165-00-E-C | 957801550 | --- | --- | --- | --- |
| | SG2-50-180-00-X | 957801220 | SG2-50-180-00-E-C | 957801560 | --- | --- | --- | --- |
| | SG2-90-030-00-X | 957801230 | SG2-90-030-00-E-C | 957801570 | --- | --- | --- | --- |
| | SG2-90-045-00-X | 957801240 | SG2-90-045-00-E-C | 957801580 | --- | --- | --- | --- |
| | SG2-90-060-00-X | 957801250 | SG2-90-060-00-E-C | 957801590 | --- | --- | --- | --- |
| | SG2-90-075-00-X | 957801260 | SG2-90-075-00-E-C | 957801600 | --- | --- | --- | --- |
| | SG2-90-090-00-X | 957801270 | SG2-90-090-00-E-C | 957801610 | --- | --- | --- | --- |
| | SG2-90-105-00-X | 957801280 | SG2-90-105-00-E-C | 957801620 | --- | --- | --- | --- |
| | SG2-90-120-00-X | 957801290 | SG2-90-120-00-E-C | 957801630 | --- | --- | --- | --- |
| | SG2-90-135-00-X | 957801300 | SG2-90-135-00-E-C | 957801640 | --- | --- | --- | --- |
| | SG2-90-150-00-X | 957801310 | SG2-90-150-00-E-C | 957801650 | --- | --- | --- | --- |
| | SG2-90-165-00-X | 957801320 | SG2-90-165-00-E-C | 957801660 | --- | --- | --- | --- |
| | SG2-90-180-00-X | 957801330 | SG2-90-180-00-E-C | 957801670 | --- | --- | --- | --- |

CABLES

| | POLES | TRANSMITTER CABLE | LENGTH (M) | ORDER CODE |
|------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------|------------|------------|
| SG2 BASE [SG2-xx-xxx-00-X] SG2 EXTENDED [SG2-xx-xxx-00-E-C] SG4 BASE [SG4-xx-xxx-00-X] [SG4-xx-xxx-00-E] | 4 | CS-A1-02-U-03 | 3 | 95ASE1120 |
| | | CS-A1-02-U-05 | 5 | 95ASE1130 |
| | | CS-A1-02-U-10 | 10 | 95ASE1140 |
| | | CS-A1-02-U-15 | 15 | 95ASE1150 |
| | | CS-A1-02-U-25 | 25 | 95ASE1160 |
| | | RECEIVER CABLE | LENGTH (M) | ORDER CODE |
| SG4 BASE [SG4-xx-xxx-00-X] | 4 | CS-A1-02-U-03 | 3 | 95ASE1120 |
| | | CS-A1-02-U-05 | 5 | 95ASE1130 |
| | | CS-A1-02-U-10 | 10 | 95ASE1140 |
| | | CS-A1-02-U-15 | 15 | 95ASE1150 |
| SG2 BASE [SG2-xx-xxx-00-X] | 5 | CS-A1-03-U-03 | 3 | 95ASE1170 |
| | | CS-A1-03-U-05 | 5 | 95ASE1180 |
| | | CS-A1-03-U-10 | 10 | 95ASE1190 |
| | | CS-A1-03-U-15 | 15 | 95ASE1200 |
| | | CS-A1-03-U-25 | 25 | 95ASE1210 |
| | | CS-A1-06-U-03 | 3 | 95ASE1220 |
| SG2 EXTENDED [SG2-xx-xxx-00-E-C] SG4 BASE [SG4-xx-xxx-00-E] | 8 | CS-A1-06-U-05 | 5 | 95ASE1230 |
| | | CS-A1-06-U-10 | 10 | 95ASE1240 |
| | | CS-A1-06-U-15 | 15 | 95ASE1250 |
| | | CS-A1-06-U-25 | 25 | 95ASE1260 |

NOTE

All cables have axial connectors

ACCESSORIES

| | SG2 BASE [SG2-xx-xxx-00-X] | SG2 EXTENDED [SG2-xx-xxx-00-E-C] | SG4 BASE [SG4-xx-xxx-00-X] | SG4 BASE [SG4-xx-xxx-00-E] |
|---------------------------------------------------------|--------------------------------------------|---------------------------------------|---------------------------------|---------------------------------|
| BRACKETS | | | | |
| Standard angled brackets | ST-KSTD (outfit for SG2 Base and SG4 Base) | | | |
| Rotating brackets | ST-K4ROT (outfit for SG2 Extended) | | | |
| Antivibration support (4 pcs / 6 pcs)* | ST-K4AV | | | |
| | ST-K6AV | | | |
| Plastic brackets (4 pcs / 6 pcs)* | ST-KP4MP | | | |
| | ST-KP6MP | | | |
| PROTECTION TUBES AND STANDS | | | | |
| IP67/IP69K Tubes | SG-IP69K series | | | |
| Protective Stands | SG-PSB series | | | |
| Stand Plate for SG-PSB | SG-P | | | |
| Protective Stands Mounting Brackets (4 pcs / 6 pcs)* | ST-PS4-SG-SE | | | |
| | ST-PS6-SG-SE | | | |
| Floor Columns | SE-S Series | | | |
| MIRRORS | | | | |
| Deviating Mirrors | SG-DM Series | | | |
| Deviating Mirrors mounting kit for SG-PSB | ST-PS-DM | | | |
| Mirror Mounting Bracket | ST-DM | | | |
| SAFETY UNITS | | | | |
| Safety Unit | SE-SR2 | | | |
| EDM Relay Box** | ----- | CS ME-03VU24-Y14 | ----- | CS ME-03VU24-Y14 |
| Safety control unit for single beams and SLC | SG-BWS-T4-MT | | | |
| ALIGNMENT TOOL | | | | |
| LASER Pointer | SG-LP | | | |

NOTES

* Use 6 brackets for light curtains with length ≥ 1200 mm

** When using EDM Relay Box or Muting connection box, connect EDM input, and be sure EDM function is active on the safety light curtain

For accessories part number, please refer to **Safety Reference Guide**

Stainless steel housing Hygienic design No need for additional protection tubes

- IP69K full protection
- Housing: AISI316L stainless steel with roughness under 0.8 micron
- Window: Optical glass
- Rounded surfaces with no gaps or sharp edges
- No labels: All information laser marked
- Maximum safety: Type 4, finger resolution
- Three protection heights: 150, 300 and 450 mm
- 50 x 30 mm profile
- 4 LEDs and 7-segment display alignment aiding

APPLICATIONS

- Primary packaging and filling machinery
- Liquid aseptic processing: syringe filling
- Solid dose processing: tablet blistering
- RABS (Restricted Access Barrier Systems)



SAFETY



INDUSTRIES

Pharmaceutical Industry

| | FINGER | HAND | ARM | BODY |
|--------|--------|------|-----|------|
| TYPE 2 | | | | |
| TYPE 4 | ▪ | | | |

SG4-H14-015-00-X-B

| TYPE | |
|------|--------|
| 4 | Type 4 |

| RESOLUTION | |
|------------|---------------|
| 14 | Finger: 14 mm |

| MONITORED HEIGHT | |
|------------------|--------|
| 015 | 150 mm |
| 030 | 300 mm |
| 045 | 450 mm |

| FUNCTIONAL VERSION | |
|--------------------|---------------------------|
| X | Only Auto-restart, no EDM |

| MECHANICAL VERSION | |
|--------------------|----------------------------------|
| B | Mechanical fixing only at bottom |
| G | Top-bottom fixing |

TECHNICAL DATA

SG4-H
[SG4-14-xxx-00-X-B]

GENERAL DATA

| | |
|-----------------------|--------------------|
| Type (EN61496-1) | 4 |
| PL (EN ISO 13849-1) | e |
| SIL (IEC 61508) | 3 |
| Resolution | 14 mm |
| Protected height | 150 / 300 / 450 mm |
| Operating distance | 0.2 ... 6 m |

ELECTRICAL DATA

| | |
|----------------------------------|--------------------------------------|
| Power supply (Vdd) | 24 Vdc \pm 20 |
| Outputs | 2 PNP, with short circuit protection |
| Output current | 0.5 A max / each output |
| Capacitive load | 2.2 μ F @ 24Vdc max |
| Response time | 11 / 15 / 18 ms depending on model |
| Cables length (for power supply) | 50 m max |

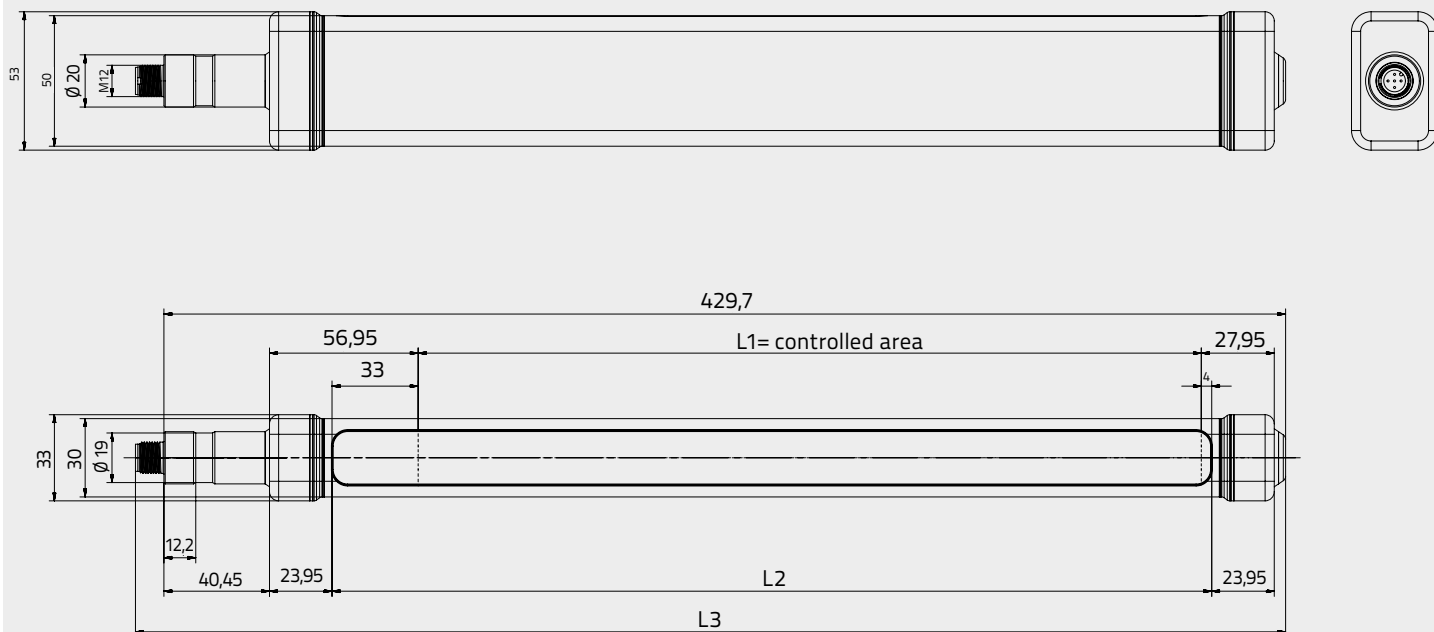
MECHANICAL AND ENVIRONMENTAL DATA

| | |
|-----------------------|-------------------------------|
| Operating temperature | -10 ... +55 °C |
| Humidity | 15 ... 95 % (no condensation) |
| Mechanical protection | IP 65 / IP 69K |

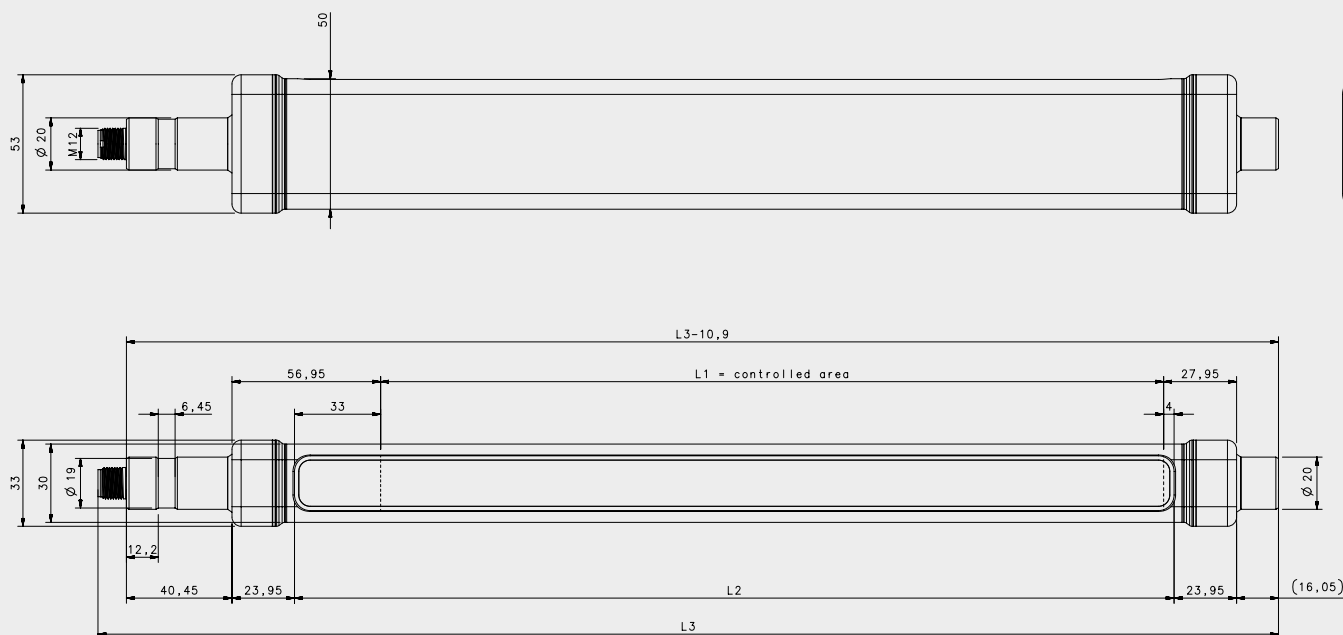
FUNCTIONS

| | |
|--|-------------------|
| | Automatic Restart |
|--|-------------------|

DIMENSIONS SG4-14-xxx-00-X-B



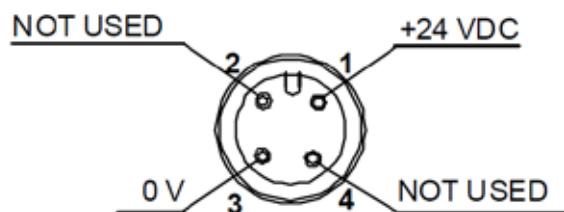
DIMENSIONS SG4-14-xxx-00-X-G



| SG4-H | L1 (mm) | L2 (mm) | L3 (mm) |
|-------------------|---------|---------|---------|
| SG4-14-150-00-X-B | 150 | 187 | 290.6 |
| SG4-14-300-00-X-B | 300 | 337 | 440.6 |
| SG4-14-450-00-X-B | 450 | 487 | 590.6 |
| SG4-14-150-00-X-G | 150 | 187 | 302.3 |
| SG4-14-300-00-X-G | 300 | 337 | 487 |
| SG4-14-450-00-X-G | 450 | 487 | 602.3 |

CONNECTION

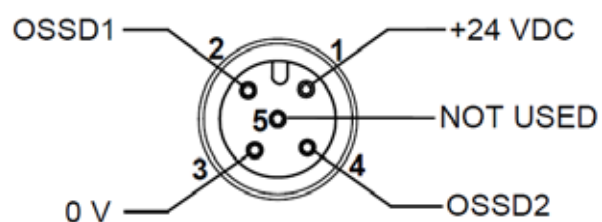
EMITTER



M12, 4 poles, male

1 = brown = 24Vdc
3 = blue = 0V

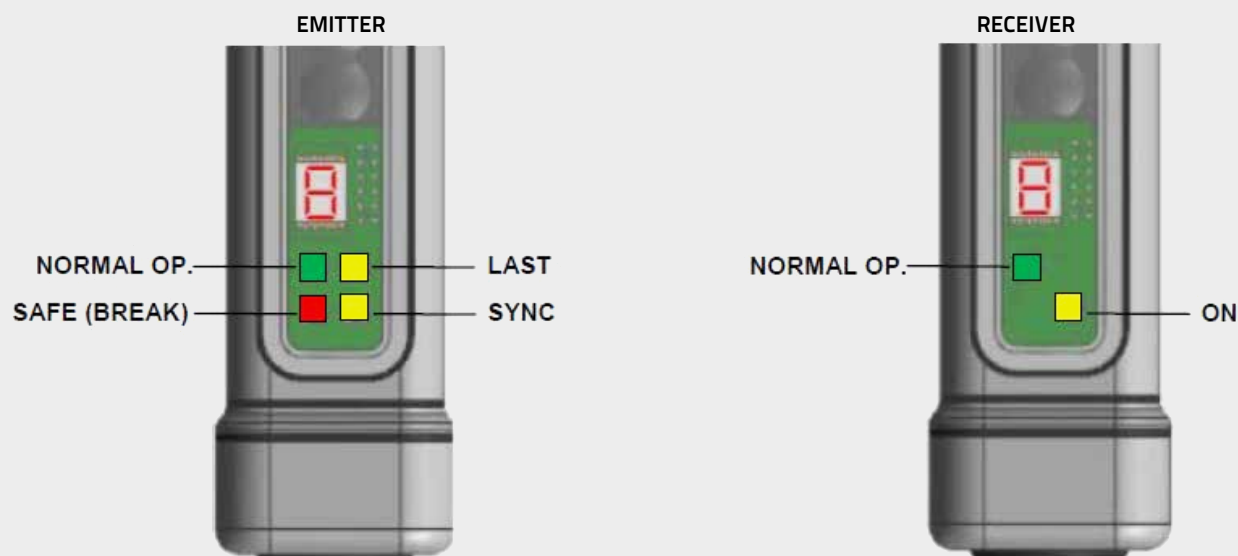
RECEIVER



M12, 5 poles, male

1 = brown = 24Vdc
2 = blue = OSSD1
3 = white = 0V
4 = green = OSSD2

INDICATORS



MODEL SELECTION AND ORDER INFORMATION

| DESCRIPTION | ORDER No. |
|--------------------|-----------|
| SG4-H14-015-00-X-B | 957901760 |
| SG4-H14-030-00-X-B | 957901700 |
| SG4-H14-045-00-X-B | 957901710 |
| SG4-H14-015-00-X-G | 957902330 |
| SG4-H14-030-00-X-G | 957901720 |
| SG4-H14-045-00-X-G | 957901730 |

ACCESSORIES SELECTION AND ORDER INFORMATION

| BRACKETS | |
|---------------------------------------------------------------------------------------------------------------------------|--------------|
| SG4-H-14-XXX-00-X-x is sold without brackets. Its bottom and top shape is designed to be hold by a cylindrical holder. | |
| MIRRORS | |
| Deviating Mirrors | SG-DM Series |
| SAFETY UNITS AND INTERFACES | |
| Safety Unit | SE-SR2 |
| OTHERS | |
| Test Piece | TP-14 |

CABLES

| | TRANSMITTER/RECEIVER CABLE | DESCRIPTION * | LENGTH (m) | ORDER CODE |
|-------|----------------------------|---------------|------------|------------|
| SG4-H | CS-A1-02-U-03 | M12, 4 Poles | 3 | 95ASE1120 |
| | CS-A1-02-U-05 | M12, 4 Poles | 5 | 95ASE1130 |
| | CS-A1-02-U-10 | M12, 4 Poles | 10 | 95ASE1140 |
| | CS-A1-02-U-15 | M12, 4 Poles | 15 | 95ASE1150 |
| | CS-A1-02-U-25 | M12, 4 Poles | 25 | 95ASE1160 |

NOTE

* M12 connector has a fifth hole not used, in order to be compatible with 5 pins connectors

Highest mechanical flexibility for a perfect fit into machine structures
Simple commissioning and maintenance
High functional performance

- SLIM profile: 15 x 32 mm
- Pigtail cable with 5-pole M12 connectors
- Same cable for Emitter and Receiver
- No Dead Zone
- 14, 24 and 34 mm resolution
- 34 different protection lengths, with 30 mm modularity
- 3 different brackets shapes
- Cascadable up to 3 units
- Auto/Manual restart and EDM function configuration by wiring
- LED display messages diagnosis

APPLICATIONS

- Primary packaging machinery (packing, filling, labelling, etc...)
- Cutting machinery
- Automatic assembly machines and lines
- Automatic and semi-automatic quality inspection machinery
- Material handling machinery
- Bending and metal-working machinery
- Process lines

INDUSTRIES

Food & Beverage
 Electronics
 Automotive
 Metal working



SAFETY



| | FINGER | HAND | ARM | BODY |
|--------|--------|------|-----|------|
| TYPE 2 | ▪ | ▪ | | |
| TYPE 4 | ▪ | ▪ | | |

SL2 - 14 - 0150 - E

| TYPE | |
|------|--------|
| 2 | Type 2 |
| 4 | Type 4 |

| RESOLUTION | |
|------------|----------------|
| 14 | Finger : 14 mm |
| 24 | Hand: 24 mm |
| 34 | Hand: 34 mm |

| MONITORED HEIGHT | |
|------------------|---------|
| 0150 | 150 mm |
| 0210 | 210 mm |
| 0270 | 270 mm |
| 0300 | 300 mm |
| ... | |
| 1200 | 1200 mm |

| VERSION | |
|---------|--------------|
| E | EDM, Restart |

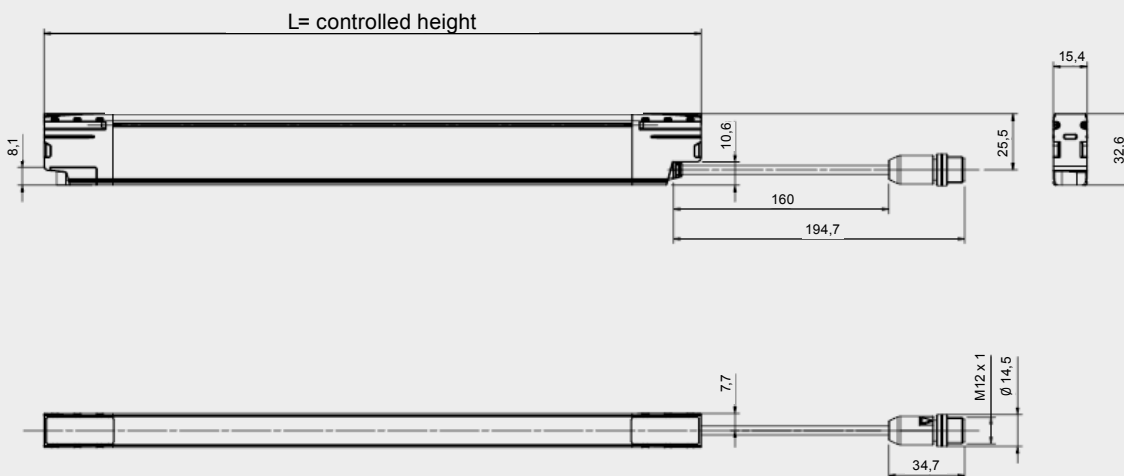
TECHNICAL DATA

| | SL2 [SL2-xx-xxxx-E] | SL4 [SL4-xx-xxx-E] |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| GENERAL DATA | | |
| Type (EN61496-1) | 2 | 4 |
| PL (EN ISO 13849-1) | c | e |
| SIL (IEC 61508) | 1 | 3 |
| Resolution | 14 - 24 - 34 mm | |
| Protected heights | 150 210 | |
| Operating distance | 270 ... 1200 (with 30 mm steps) 0.2 ...6 m | |
| ELECTRICAL DATA | | |
| Power supply (V _{dd}) | 24 Vdc ± 20% | |
| Outputs | 2 PNP | |
| Output current | 0.3 A max / each output | |
| Capacitive load | 1 uF @ 24Vdc max | |
| Response time* | RT = 7 ... 17 ms (14 mm resolution) RT = 7 ... 13 ms (24 mm resolution) RT = 7 ... 15 ms (34 mm resolution) Cascade Response time (up to 3 units) <= 20ms | |
| Cables length (for power supply) | 20 m max | |
| MECHANICAL AND ENVIRONMENTAL DATA | | |
| Operating temperature | -10 ...+55 °C | |
| Storage temperature | -25° ... 70°C | |
| Humidity | 15 ... 95 % (no condensation) | |
| Mechanical protection | IP65 (EN 60529) | |
| FUNCTIONS | | |
| | Manual/Automatic restart | |
| | External Device Monitoring (EDM) | |
| | Alignment mode | |

NOTE

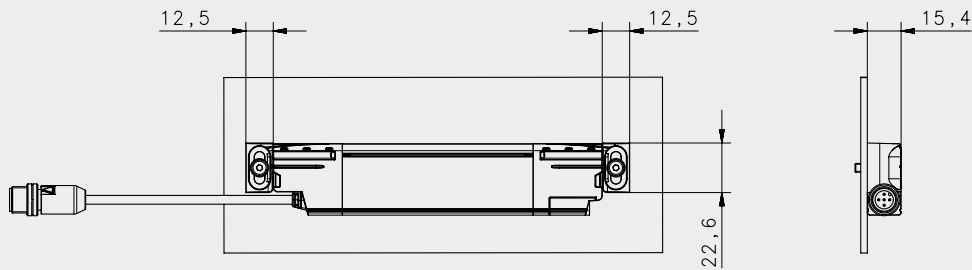
* Response time is dependent on height: for more details refer to product manual

DIMENSIONS

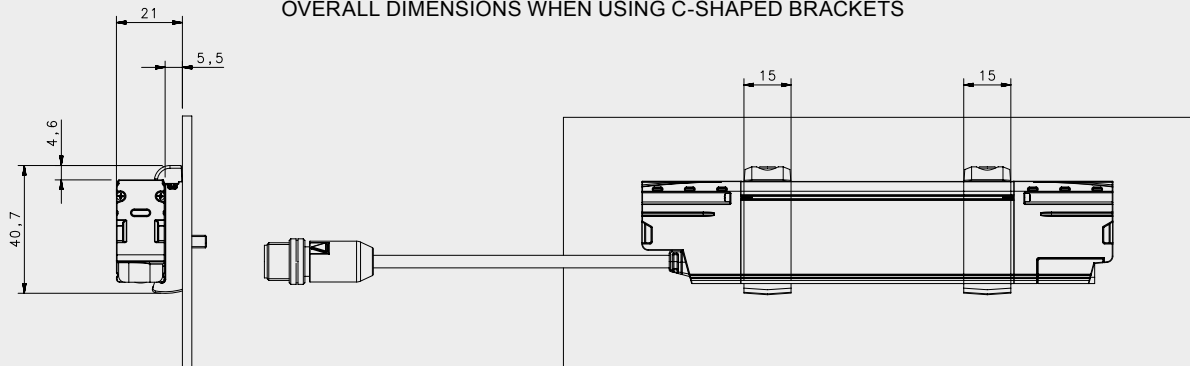


| Model | L (mm) |
|---------------|--------|
| SLx-yy-0150-E | 150 |
| SLx-yy-0210-E | 210 |
| SLx-yy-0270-E | 270 |
| SLx-yy-0300-E | 300 |
| SLx-yy-0330-E | 330 |
| SLx-yy-0360-E | 360 |
| SLx-yy-0390-E | 390 |
| SLx-yy-0420-E | 420 |
| SLx-yy-0450-E | 450 |
| SLx-yy-0480-E | 480 |
| SLx-yy-0510-E | 510 |
| SLx-yy-0540-E | 540 |
| SLx-yy-0570-E | 570 |
| SLx-yy-0600-E | 600 |
| SLx-yy-0630-E | 630 |
| SLx-yy-0660-E | 660 |
| SLx-yy-0690-E | 690 |
| SLx-yy-0720-E | 720 |
| SLx-yy-0750-E | 750 |
| SLx-yy-0780-E | 780 |
| SLx-yy-0810-E | 810 |
| SLx-yy-0840-E | 840 |
| SLx-yy-0870-E | 870 |
| SLx-yy-0900-E | 900 |
| SLx-yy-0930-E | 930 |
| SLx-yy-0960-E | 960 |
| SLx-yy-0990-E | 990 |
| SLx-yy-1020-E | 1020 |
| SLx-yy-1050-E | 1050 |
| SLx-yy-1080-E | 1080 |
| SLx-yy-1110-E | 1110 |
| SLx-yy-1140-E | 1140 |
| SLx-yy-1170-E | 1170 |
| SLx-yy-1200-E | 1200 |

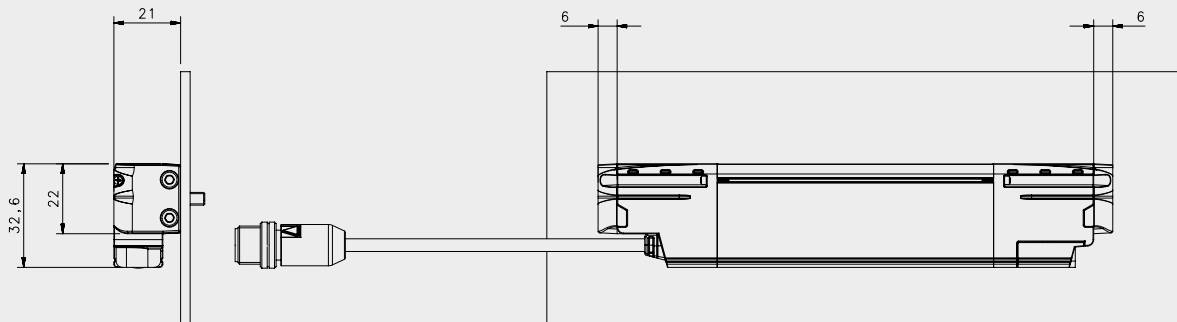
OVERALL DIMENSIONS WHEN USING O-SHAPED BRACKETS



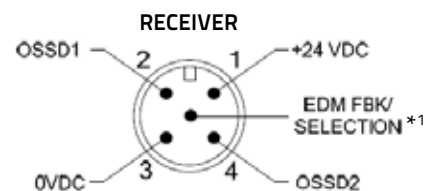
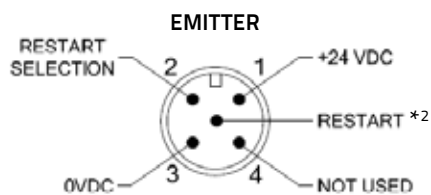
OVERALL DIMENSIONS WHEN USING C-SHAPED BRACKETS



OVERALL DIMENSIONS WHEN USING L-SHAPED BRACKETS



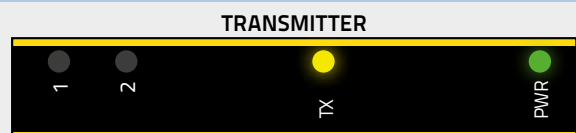
CONNECTIONS



NOTES:

1. EDM : If connected to NC contact of a forced-guided relay, EDM function is ON; if connected to OSSD1, EDM function is OFF.
2. RESTART: if connected through NC contact to 24Vdc: MANUAL RESTART; if connected to RESTART SELECTION: AUTOMATIC RESTART; if left unconnected (floating): ALIGNMENT MODE.

INDICATORS



MODEL SELECTION AND ORDER INFORMATION

| | FINGER PROTECTION - 14 mm RESOLUTION | | HAND PROTECTION - 24 mm RESOLUTION | | HAND PROTECTION - 34 mm RESOLUTION | |
|--------|--------------------------------------|--------------|------------------------------------|--------------|------------------------------------|--------------|
| | SL2 [SL2-14-xxxx-E] | Order number | SL2 [SL2-24-xxxx-E] | Order number | SL2 [SL2-34-xxxx-E] | Order number |
| TYPE 2 | SL2-14-0150-E | 957911020 | SL2-24-0150-E | 957911360 | SL2-34-0150-E | 957911700 |
| | SL2-14-0210-E | 957911030 | SL2-24-0210-E | 957911370 | SL2-34-0210-E | 957911710 |
| | SL2-14-0270-E | 957911040 | SL2-24-0270-E | 957911380 | SL2-34-0270-E | 957911720 |
| | SL2-14-0300-E | 957911050 | SL2-24-0300-E | 957911390 | SL2-34-0300-E | 957911730 |
| | SL2-14-0330-E | 957911060 | SL2-24-0330-E | 957911400 | SL2-34-0330-E | 957911740 |
| | SL2-14-0360-E | 957911070 | SL2-24-0360-E | 957911410 | SL2-34-0360-E | 957911750 |
| | SL2-14-0390-E | 957911080 | SL2-24-0390-E | 957911420 | SL2-34-0390-E | 957911760 |
| | SL2-14-0420-E | 957911090 | SL2-24-0420-E | 957911430 | SL2-34-0420-E | 957911770 |
| | SL2-14-0450-E | 957911100 | SL2-24-0450-E | 957911440 | SL2-34-0450-E | 957911780 |
| | SL2-14-0480-E | 957911110 | SL2-24-0480-E | 957911450 | SL2-34-0480-E | 957911790 |
| | SL2-14-0510-E | 957911120 | SL2-24-0510-E | 957911460 | SL2-34-0510-E | 957911800 |
| | SL2-14-0540-E | 957911130 | SL2-24-0540-E | 957911470 | SL2-34-0540-E | 957911810 |
| | SL2-14-0570-E | 957911140 | SL2-24-0570-E | 957911480 | SL2-34-0570-E | 957911820 |
| | SL2-14-0600-E | 957911150 | SL2-24-0600-E | 957911490 | SL2-34-0600-E | 957911830 |
| | SL2-14-0630-E | 957911160 | SL2-24-0630-E | 957911500 | SL2-34-0630-E | 957911840 |
| | SL2-14-0660-E | 957911170 | SL2-24-0660-E | 957911510 | SL2-34-0660-E | 957911850 |
| | SL2-14-0690-E | 957911180 | SL2-24-0690-E | 957911520 | SL2-34-0690-E | 957911860 |
| | SL2-14-0720-E | 957911190 | SL2-24-0720-E | 957911530 | SL2-34-0720-E | 957911870 |
| | SL2-14-0750-E | 957911200 | SL2-24-0750-E | 957911540 | SL2-34-0750-E | 957911880 |
| | SL2-14-0780-E | 957911210 | SL2-24-0780-E | 957911550 | SL2-34-0780-E | 957911890 |
| | SL2-14-0810-E | 957911220 | SL2-24-0810-E | 957911560 | SL2-34-0810-E | 957911900 |
| | SL2-14-0840-E | 957911230 | SL2-24-0840-E | 957911570 | SL2-34-0840-E | 957911910 |
| | SL2-14-0870-E | 957911240 | SL2-24-0870-E | 957911580 | SL2-34-0870-E | 957911920 |
| | SL2-14-0900-E | 957911250 | SL2-24-0900-E | 957911590 | SL2-34-0900-E | 957911930 |
| | SL2-14-0930-E | 957911260 | SL2-24-0930-E | 957911600 | SL2-34-0930-E | 957911940 |
| | SL2-14-0960-E | 957911270 | SL2-24-0960-E | 957911610 | SL2-34-0960-E | 957911950 |
| | SL2-14-0990-E | 957911280 | SL2-24-0990-E | 957911620 | SL2-34-0990-E | 957911960 |
| | SL2-14-1020-E | 957911290 | SL2-24-1020-E | 957911630 | SL2-34-1020-E | 957911970 |
| | SL2-14-1050-E | 957911300 | SL2-24-1050-E | 957911640 | SL2-34-1050-E | 957911980 |
| | SL2-14-1080-E | 957911310 | SL2-24-1080-E | 957911650 | SL2-34-1080-E | 957911990 |
| | SL2-14-1110-E | 957911320 | SL2-24-1110-E | 957911660 | SL2-34-1110-E | 957912000 |
| | SL2-14-1140-E | 957911330 | SL2-24-1140-E | 957911670 | SL2-34-1140-E | 957912010 |
| | SL2-14-1170-E | 957911340 | SL2-24-1170-E | 957911680 | SL2-34-1170-E | 957912020 |
| | SL2-14-1200-E | 957911350 | SL2-24-1200-E | 957911690 | SL2-34-1200-E | 957912030 |
| TYPE 4 | SL4 [SL4-14-xxxx-E] | Order number | SL4 [SL4-24-xxxx-E] | Order number | SL4 [SL4-34-xxxx-E] | Order number |
| | SL4-14-0150-E | 957910000 | SL4-24-0150-E | 957910340 | SL4-34-0150-E | 957910680 |
| | SL4-14-0210-E | 957910010 | SL4-24-0210-E | 957910350 | SL4-34-0210-E | 957910690 |
| | SL4-14-0270-E | 957910020 | SL4-24-0270-E | 957910360 | SL4-34-0270-E | 957910700 |
| | SL4-14-0300-E | 957910030 | SL4-24-0300-E | 957910370 | SL4-34-0300-E | 957910710 |
| | SL4-14-0330-E | 957910040 | SL4-24-0330-E | 957910380 | SL4-34-0330-E | 957910720 |
| | SL4-14-0360-E | 957910050 | SL4-24-0360-E | 957910390 | SL4-34-0360-E | 957910730 |
| | SL4-14-0390-E | 957910060 | SL4-24-0390-E | 957910400 | SL4-34-0390-E | 957910740 |
| | SL4-14-0420-E | 957910070 | SL4-24-0420-E | 957910410 | SL4-34-0420-E | 957910750 |
| | SL4-14-0450-E | 957910080 | SL4-24-0450-E | 957910420 | SL4-34-0450-E | 957910760 |
| | SL4-14-0480-E | 957910090 | SL4-24-0480-E | 957910430 | SL4-34-0480-E | 957910770 |
| | SL4-14-0510-E | 957910100 | SL4-24-0510-E | 957910440 | SL4-34-0510-E | 957910780 |
| | SL4-14-0540-E | 957910110 | SL4-24-0540-E | 957910450 | SL4-34-0540-E | 957910790 |
| | SL4-14-0570-E | 957910120 | SL4-24-0570-E | 957910460 | SL4-34-0570-E | 957910800 |
| | SL4-14-0600-E | 957910130 | SL4-24-0600-E | 957910470 | SL4-34-0600-E | 957910810 |
| | SL4-14-0630-E | 957910140 | SL4-24-0630-E | 957910480 | SL4-34-0630-E | 957910820 |
| | SL4-14-0660-E | 957910150 | SL4-24-0660-E | 957910490 | SL4-34-0660-E | 957910830 |
| | SL4-14-0690-E | 957910160 | SL4-24-0690-E | 957910500 | SL4-34-0690-E | 957910840 |
| | SL4-14-0720-E | 957910170 | SL4-24-0720-E | 957910510 | SL4-34-0720-E | 957910850 |
| | SL4-14-0750-E | 957910180 | SL4-24-0750-E | 957910520 | SL4-34-0750-E | 957910860 |
| | SL4-14-0780-E | 957910190 | SL4-24-0780-E | 957910530 | SL4-34-0780-E | 957910870 |
| | SL4-14-0810-E | 957910200 | SL4-24-0810-E | 957910540 | SL4-34-0810-E | 957910880 |
| | SL4-14-0840-E | 957910210 | SL4-24-0840-E | 957910550 | SL4-34-0840-E | 957910890 |
| | SL4-14-0870-E | 957910220 | SL4-24-0870-E | 957910560 | SL4-34-0870-E | 957910900 |
| | SL4-14-0900-E | 957910230 | SL4-24-0900-E | 957910570 | SL4-34-0900-E | 957910910 |
| | SL4-14-0930-E | 957910240 | SL4-24-0930-E | 957910580 | SL4-34-0930-E | 957910920 |
| | SL4-14-0960-E | 957910250 | SL4-24-0960-E | 957910590 | SL4-34-0960-E | 957910930 |
| | SL4-14-0990-E | 957910260 | SL4-24-0990-E | 957910600 | SL4-34-0990-E | 957910940 |
| | SL4-14-1020-E | 957910270 | SL4-24-1020-E | 957910610 | SL4-34-1020-E | 957910950 |
| | SL4-14-1050-E | 957910280 | SL4-24-1050-E | 957910620 | SL4-34-1050-E | 957910960 |
| | SL4-14-1080-E | 957910290 | SL4-24-1080-E | 957910630 | SL4-34-1080-E | 957910970 |
| | SL4-14-1110-E | 957910300 | SL4-24-1110-E | 957910640 | SL4-34-1110-E | 957910980 |
| | SL4-14-1140-E | 957910310 | SL4-24-1140-E | 957910650 | SL4-34-1140-E | 957910990 |
| | SL4-14-1170-E | 957910320 | SL4-24-1170-E | 957910660 | SL4-34-1170-E | 957911000 |
| | SL4-14-1200-E | 957910330 | SL4-24-1200-E | 957910670 | SL4-34-1200-E | 957911010 |

ACCESSORIES SELECTION AND ORDER INFORMATION

| BRACKETS | | ORDER NUMBER |
|------------------------------------------------------------|---------------|--------------|
| C-shaped Brackets (included): 2 pcs kit | ST-K2-SL-C | 95ASE2510 |
| O-shaped Brackets (included): 4 pcs kit | ST-K4-SL-O | 95ASE2520 |
| L-shaped Brackets: 2 pcs kit | ST-K2-SL-L | 95ASE2540 |
| C-shaped Orientable Brackets: 2 pcs kit | ST-K2-SL-C-OR | 95ASE2530 |
| MIRRORS | | |
| Deviating Mirrors | SG-DM Series | See NOTE 1 |
| Deviating Mirrors mounting kit for SG-PSB | ST-PS-DM | See NOTE 1 |
| Mirror Mounting Bracket | ST-DM | See NOTE 1 |
| SAFETY UNITS | | |
| Safety Unit | SE-SR2 | 95ACC6170 |
| EDM Relay Box** | CS-ME | 95ASE1270 |
| Safety control unit for single beams and SLC (with muting) | SG-BWS-T4-MT | 957051010 |
| TEST PIECES | | |
| Test Piece 14mm L=300mm | TP-14 | 95ACC1630 |
| Test Piece 24mm L=200mm | TP-24 | 95ASE2570 |
| Test Piece 34mm L=200mm | TP-34 | 95ASE2580 |

NOTES

NOTE 1 : For order numbers of these accessories refer to SAFETY REFERENCE GUIDE or to datasheets of SG-DM accessories

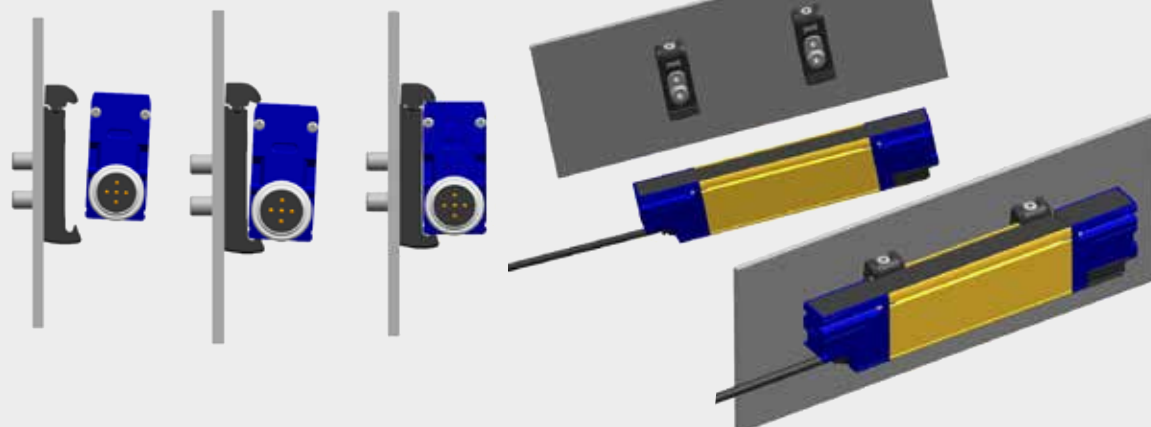
NOTE 2: When using EDM Relay Box or Muting connection box, connect EDM input, and be sure EDM function is active on the safety light curtain

BRACKETS

C-shaped bracket



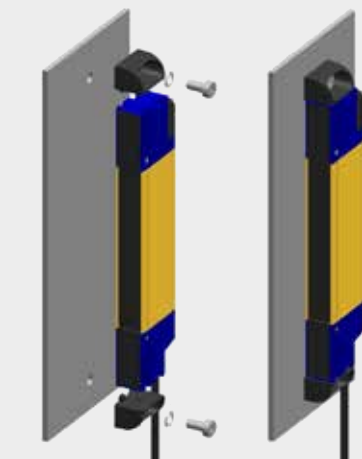
C-shaped brackets fixing



O-shaped bracket



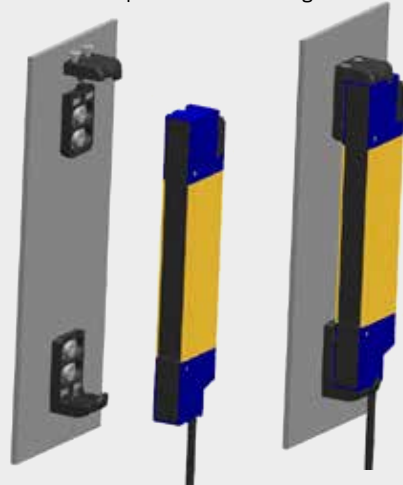
O-shaped brackets fixing



L-shaped bracket



L-shaped brackets fixing



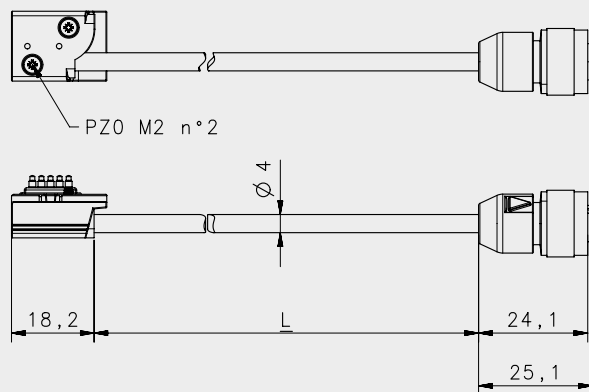
CABLES

| | RECEIVER/TRANSMITTER CABLE | LENGTH (M) | ORDER NUMBER |
|----------------------------|----------------------------|------------|--------------|
| SL2/SL4 [SLx-xx-xxxx-E] | CS-A1-03-U-03 | 3 | 95ASE1170 |
| | CS-A1-03-U-05 | 5 | 95ASE1180 |
| | CS-A1-03-U-10 | 10 | 95ASE1190 |
| | CS-A1-03-U-15 | 15 | 95ASE1200 |
| | CASCADE CABLES | LENGTH (m) | ORDER NUMBER |
| SL2/SL4 [SLx-xx-xxxx-E] | CS-H1-03-B-001 | 0.1 | 95A252950 |
| | CS-H1-03-B-005 | 0.5 | 95ASE2550 |
| | CS-H1-03-B-01 | 1 | 95ASE2560 |

NOTE

All cables have axial connectors

CASCADE CABLE DIMENSIONS



| CASCADE CABLES | L +/- 10 (mm) |
|----------------|---------------|
| CS-H1-03-B-001 | 90 |
| CS-H1-03-B-005 | 490 |
| CS-H1-03-B-01 | 990 |

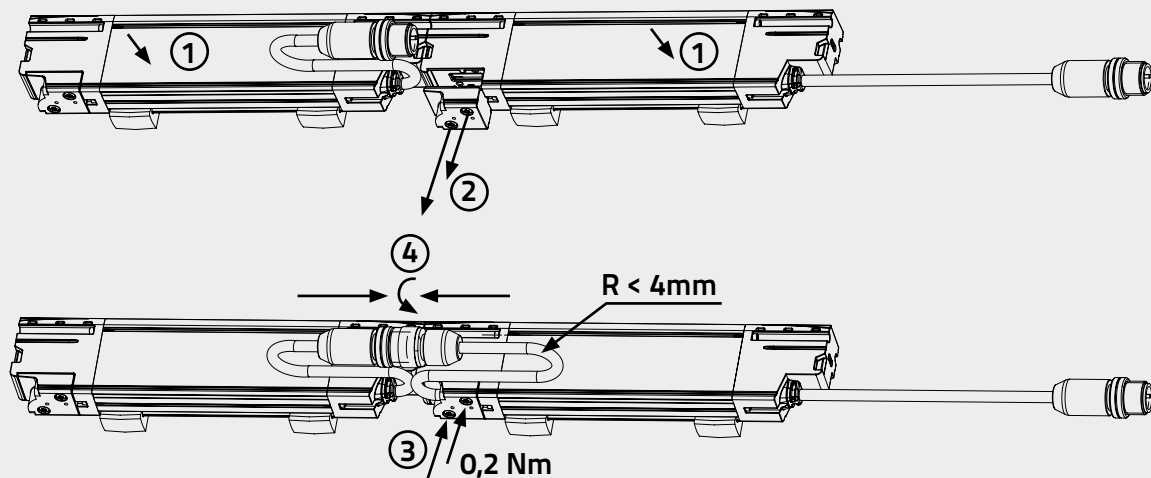
To connect cascade unit:

Fix all cascade units with proper brackets. (1)

Remove Terminator Caps at the end of Master by loosening the two fixing screws for both emitter and receiver. (2)

Fasten the cascade cables in place of removed terminator caps, ensure all cables bend radius it's not less than 4mm. (3)

Connect Slaves M12 male connectors to M12 Female connectors from cascade cables. (4)



SG BODY COMPACT BASE SG BODY COMPACT MUTING



SAFETY

Body access detection

Perimeter control

Rapid solution for access control with muting

Easy installation and alignment

L and T muting models provided with Retroreflective Muting Arms

- Two, three or four beams for body protection
- Controlled heights of 500, 800, 900 and 1200 mm
- Long operating distance: up to 50 m
- Simple configuration through DIP switches
- Integrated muting lamp (only on muting models)



APPLICATIONS

- Automatic machines
- Robots
- Automatic assembly lines
- Palletizers and depalletizers
- Material handling



INDUSTRIES

Food & Beverage, Metalworking, Automotive, Wood, Ceramics

| | FINGER | HAND | ARM | BODY |
|--------|--------|------|-----|------|
| TYPE 2 | | | | ▪ |
| TYPE 4 | | | | ▪ |

SG2-S2-050-PP-E

| TYPE | |
|------|--------|
| 2 | Type 2 |
| 4 | Type 4 |

| BEAMS AND MUTING ARMS | |
|-----------------------|----------------------------------|
| S2 | 2 Beams |
| S3 | 3 Beams |
| S4 | 4 Beams |
| T2 | 2 Beams with T muting arms (RRX) |
| T3 | 3 Beams with T muting arms (RRX) |
| L2 | 2 Beams with L muting arms (RRX) |
| L3 | 3 Beams with L muting arms (RRX) |

| MONITORED HEIGHT | |
|------------------|-------------------|
| 050 | 500 mm (2 beams) |
| 080 | 800 mm (3 beams) |
| 090 | 900 mm (4 beams) |
| 120 | 1200 mm (4 beams) |

| VERSION | |
|---------|------------------------------|
| X | Base: only automatic restart |
| E | Base: auto/man restart, EDM |
| W | Muting: with muting function |

SG BODY COMPACT BASE SG BODY COMPACT MUTING



TECHNICAL DATA

| | SG2 BODY COMPACT BASE [SG2-Sx-xxx-PP-E] | SG2 BODY COMPACT MUTING [SG2-S/L/Tx-xxx-PP-W] | SG4 BODY COMPACT BASE [SG4-Sx-xxx-PP-X] | SG4 BODY COMPACT BASE [SG4-Sx-xxx-PP-E] | SG4 BODY COMPACT MUTING [SG4-S/L/Tx-xxx-PP-W] |
|--|--------------------------------------------|--------------------------------------------------|--------------------------------------------|--------------------------------------------|--------------------------------------------------|
|--|--------------------------------------------|--------------------------------------------------|--------------------------------------------|--------------------------------------------|--------------------------------------------------|

GENERAL DATA

| | | | | |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------|-------------|-------|-------------|
| Type (EN61496-1) | 2 | | 4 | |
| PL (EN ISO 13849-1) | c | | e | |
| SIL (IEC 61508) | 1 | | 3 | |
| Resolution | 315 mm (4 beams) 415 mm (3 and 4 beams) 515 mm (2 beams) | | | |
| Protected height | 515 mm (2 beams) 815 mm (3 beams) 915 mm or 1215 (4 beams) | | | |
| Operating distance | 0.5 ...50 m | | | |
| Retroreflective muting arms operating distance (included in L and T versions) | ----- | 0.5 ... 3 m | ----- | 0.5 ... 3 m |
| Emitter-Receiver muting arms operating distance | ----- | 0.5 ... 7 m | ----- | 0.5 ... 7 m |

ELECTRICAL DATA

| | | | | | |
|----------------------------------|-----------------------------------|--|--|--|--|
| Power supply (Vdd) | 24 Vdc \pm 20% | | | | |
| Outputs | 2 PNP | | | | |
| Output current | 0.5 A max / each output | | | | |
| Capacitive load | 65 nF max at 25°C | | | | |
| Response time | 14 ... 16 ms depending on model * | | | | |
| Cables length (for power supply) | 50 m max. | | | | |

MECHANICAL AND ENVIRONMENTAL DATA

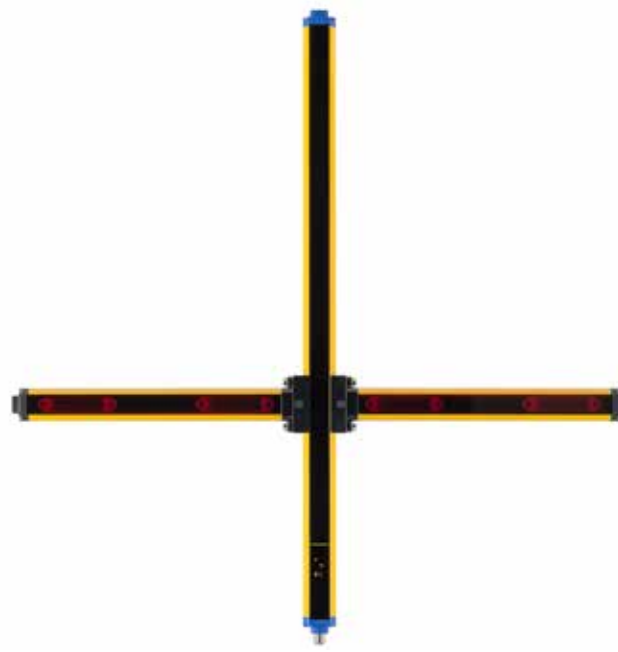
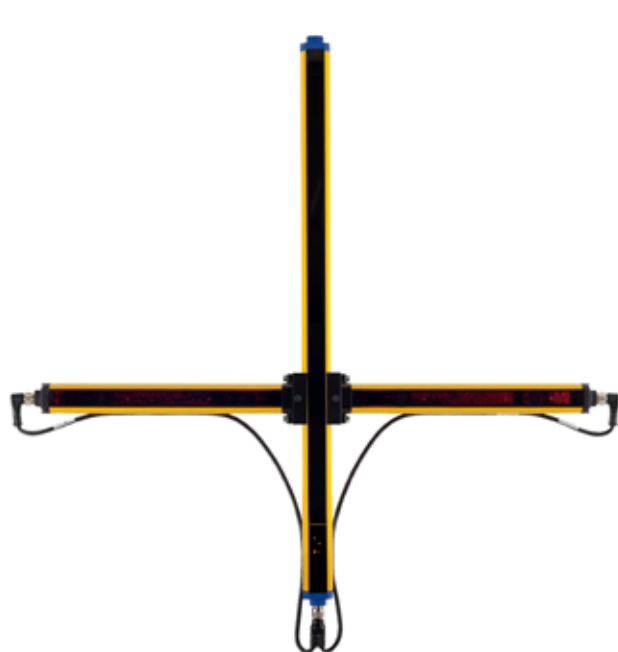
| | | | | | |
|-----------------------|-------------------------------|--|--|--|--|
| Operating temperature | 0 ... +55 °C | | | | |
| Humidity | 15 ... 95 % (no condensation) | | | | |
| Mechanical protection | IP 65 (EN 60529) | | | | |

FUNCTIONS

| | | | | | |
|-------------------------------------------|--------------------|---------------------|-----------|--------------------|---------------------|
| Test Input | On Receiver | | N/A | On Receiver | |
| Restart | Automatic / Manual | | Automatic | Automatic / Manual | |
| EDM (External Device Monitoring) | On Receiver | | N/A | On Receiver | |
| Muting type (Selectable with DIP-sw)* | ----- | T-Muting / L-Muting | N/A | ----- | T-Muting / L-Muting |
| Muting time-out (Selectable with DIP-sw)* | ----- | 10 min. or ∞ | N/A | ----- | 10 min. or ∞ |
| Override | ----- | On Receiver | N/A | ----- | On Receiver |

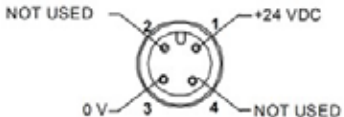
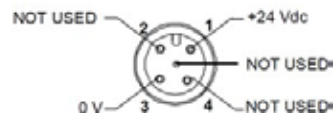
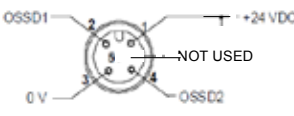
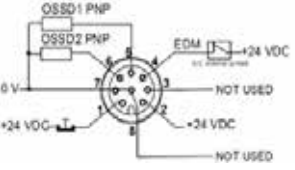
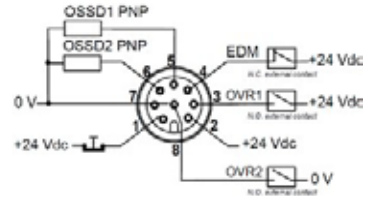
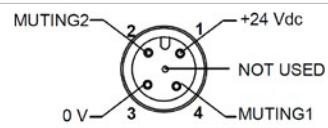
NOTES

* For detailed informations refer to related Product Manual

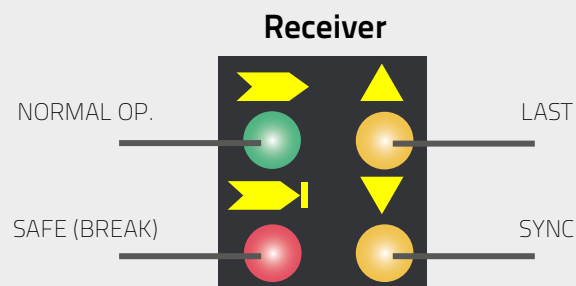
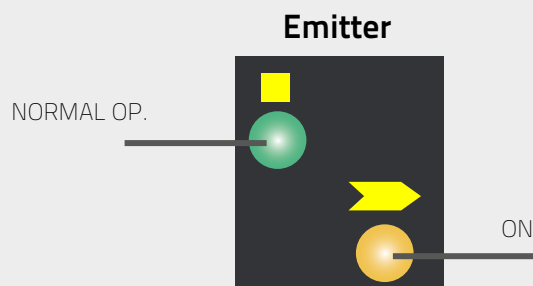


SG BODY COMPACT BASE SG BODY COMPACT MUTING

CONNECTIONS

| | SG4 BODY COMPACT BASE [SG4-SX-XXX-PP-X] | SG2 BODY COMPACT BASE [SG2-SX-XXX-PP-E] SG4 BODY COMPACT BASE [SG4-SX-XXX-PP-E] | SG2 BODY COMPACT MUTING [SG2-S/L/TX-XXX-PP-W] | SG4 BODY COMPACT MUTING [SG4-S/L/TX-XXX-PP-W] |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| EMITTER MAIN CONNECTOR | <p>M12, 4 poles, male 1 = Brown = 24Vdc 3 = Blue = 0 V</p>  | | | |
| EMITTER SECONDARY CONNECTOR | ----- | | <p>M12, 5 poles, male 1 = Brown = 24 Vdc 3 = Blue = 0 V</p>  | |
| RECEIVER MAIN CONNECTOR | <p>M12, 5 poles, male 1 = Brown = 24Vdc 2 = White = OSSD1 3 = Blue = 0 V 4 = Black = OSSD2</p>  | <p>M12, 8 poles, male 1 = white = TEST /START 2 = brown = 24 Vdc 4 = yellow = EDM 5 = grey = OSSD 1 6 = pink = OSSD 2 7 = blue = 0V</p>  | <p>M12, 8 poles, male 1 = white = TEST /START 2 = brown = 24 VDC 3 = green = OVERRIDE 1 4 = yellow = EDM 5 = grey = OSSD 1 6 = pink = OSSD 2 7 = blue = 0V 8 = red = OVERRIDE 2</p>  | |
| EMITTER SECONDARY CONNECTOR | ----- | | <p>M12, 5 poles, male 1 = Brown = 24 Vdc 2 = White = MUTING2 3 = Blue = 0 V 4 = Black = MUTING1</p>  | |

INDICATORS AND DIP SWITCHES



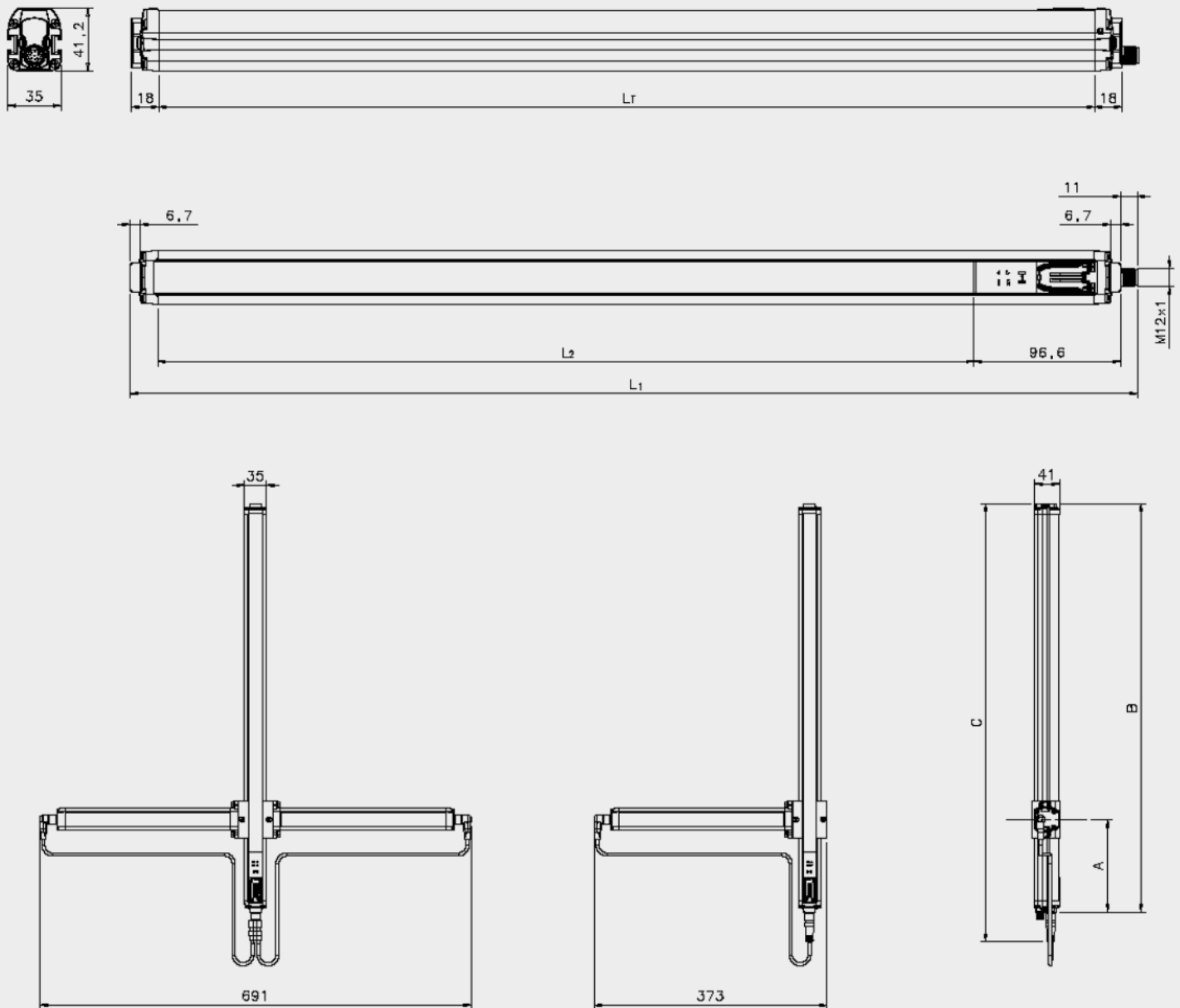
| DIP-SW | FUNCTION | ON | OFF |
|--------|----------|-------------|-----------|
| 1, 5 | | | |
| 2, 6 | | | |
| 3, 7 | EDM | Deactivated | Activated |
| 4, 8 | Restart | Automatic | Manual |

NOTE

DIP SW are not present on SG4 BODY COMPACT BASE models with -X final: [SGx-Sx-xxx-PP-X]

SG BODY COMPACT BASE SG BODY COMPACT MUTING

DIMENSIONS



| MODEL | L1 (MM) | L2 (MM) | A (MM) | B (MM) | C (MM) |
|---------------------|---------|---------|---------|--------|--------|
| SGx-S/L/Tx-050-PP-x | 662 | 538.4 | 120-260 | 653 | 700 |
| SGx-S/L/Tx-080-PP-x | 962 | 838.4 | 120-260 | 953 | 1000 |
| SGx-S/L/Tx-090-PP-x | 1062.5 | 938.4 | 120-260 | 1053 | 1100 |
| SGx-S/L/Tx-120-PP-x | 1362.5 | 1238.4 | 120-260 | 1353 | 1400 |

SG BODY COMPACT BASE SG BODY COMPACT MUTING



MODEL SELECTION AND ORDER INFORMATION

| | SG2 BODY COMPACT BASE [SG2-SX-XXX-PP-E] | | ORDER CODE | SG4 BODY COMPACT BASE [SG4-SX-XXX-PP-E] | ORDER CODE |
|----------------------------------------|--------------------------------------------|--------------------------------------------------|------------|--------------------------------------------------|------------|
| ONLY AUTOMATIC RESTART NO EDM | | | | SG4-S2-050-PP-X | 957851600 |
| | | | | SG4-S3-080-PP-X | 957851610 |
| | | | | SG4-S4-090-PP-X | 957851620 |
| | | | | SG4-S4-120-PP-X | 957851630 |
| WITH EDM AND MANUAL RESTART | SG2-S2-050-PP-E | | 957851000 | SG4-S2-050-PP-E | 957851040 |
| | SG2-S3-080-PP-E | | 957851010 | SG4-S3-080-PP-E | 957851050 |
| | SG2-S4-090-PP-E | | 957851020 | SG4-S4-090-PP-E | 957851060 |
| | SG2-S4-120-PP-E | | 957851030 | SG4-S4-120-PP-E | 957851070 |
| WITH INTEGRATED MUTING | WITHOUT MUTING ARMS | SG2 BODY COMPACT MUTING [SG2-S/L/TX-XXX-PP-W] | ORDER CODE | SG4 BODY COMPACT MUTING [SG4-S/L/TX-XXX-PP-W] | ORDER CODE |
| | | SG2-S2-050-PP-W | 957851080 | SG4-S2-050-PP-W | 957851160 |
| | | SG2-S3-080-PP-W | 957851090 | SG4-S3-080-PP-W | 957851170 |
| | | SG2-S4-090-PP-W | 957851100 | SG4-S4-090-PP-W | 957851180 |
| | | SG2-S4-120-PP-W | 957851110 | SG4-S4-120-PP-W | 957851190 |
| | WITH L MUTING ARMS | SG2-L2-050-PP-W | 957851120 | SG4-L2-050-PP-W | 957851200 |
| | | SG2-L3-080-PP-W | 957851130 | SG4-L3-080-PP-W | 957851210 |
| | WITH T MUTING ARMS | SG2-T2-050-PP-W | 957851140 | SG4-T2-050-PP-W | 957851220 |
| | | SG2-T3-080-PP-W | 957851150 | SG4-T3-080-PP-W | 957851230 |

CABLES

| | POLES | CONNECTOR | LENGHT (M) | MODEL | ORDER NUMBER |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----------|------------|---------------|--------------|
| SG BODY COMPACT BASE EMITTER MAIN CONNECTOR [SG2\4-SX-XXX-PP-X\E] SG BODY COMPACT BASE RECEIVER MAIN CONNECTOR [SG2\4-SX-XXX-PP-X] SG BODY COMPACT MUTING EMITTER AND RECEIVER MAIN CONNECTORS [SG2\4-S/L/TX-XXX-PP-W] | 4 | Axial | 3 | CV-A1-22-B-03 | 95ACC1480 |
| | | | 5 | CV-A1-22-B-05 | 95ACC1490 |
| | | | 10 | CV-A1-22-B-10 | 95ACC1500 |
| | | | 15 | CV-A1-22-B-15 | 95ACC2070 |
| | | | 25 | CV-A1-22-B-25 | 95ACC2090 |
| | | Radial | 3 | CV-A2-22-B-03 | 95ACC1540 |
| | | | 5 | CV-A2-22-B-05 | 95ACC1550 |
| | | | 10 | CV-A2-22-B-10 | 95ACC1560 |
| SG BODY COMPACT BASE [SG2-SX-XXX-PP-E] [SG4-SX-XXX-PP-E] SG BODY COMPACT MUTING [SG2-S/L/TX-XXX-PP-W] [SG4-S/L/TX-XXX-PP-W] | 8 | Axial | 3 | CV-A1-26-B-03 | 95ACC1510 |
| | | | 5 | CV-A1-26-B-05 | 95ACC1520 |
| | | | 10 | CV-A1-26-B-10 | 95ACC1530 |
| | | | 15 | CV-A1-26-B-15 | 95ACC2080 |
| | | | 25 | CV-A1-26-B-25 | 95ACC2100 |
| | | Radial | 3 | CV-A2-26-B-03 | 95ACC1600 |
| | | | 5 | CV-A2-26-B-05 | 95ACC1610 |
| | | | 10 | CV-A2-26-B-10 | 95ACC1620 |
| SG BODY COMPACT MUTING (LINEAR) [SG2-SX-XXX-PP-W] [SG4-SX-XXX-PP-W] | 5 | Axial | 3 | CS-A1-03-U-03 | 95ASE1170 |
| | | | 5 | CS-A1-03-U-05 | 95ASE1180 |
| | | | 10 | CS-A1-03-U-10 | 95ASE1190 |
| | | | 15 | CS-A1-03-U-15 | 95ASE1200 |
| | | | 25 | CS-A1-03-U-25 | 95ASE1210 |

NOTES

* For detailed informations refer to related Product Manual

SG BODY COMPACT BASE SG BODY COMPACT MUTING



ACCESSORIES

| | SG4 BODY COMPACT BASE [SG4-SX-XXX-PP-X] | SG2 BODY COMPACT BASE SG4 BODY COMPACT BASE [SG2/4-SX-XXX-PP-E] | SG2 BODY COMPACT MUTING SG4 BODY COMPACT MUTING [SG2/4-S/L/TX-XXX-PP-W] |
|------------------------------------------------------------------|--------------------------------------------|-----------------------------------------------------------------------|-------------------------------------------------------------------------------|
| BRACKETS | | | |
| Standard angled brackets (4 pcs) ¹ | ST-KSTD (included) | | |
| Rotating brackets (4 pcs) | ST-K4ROT-SG BODY COMPACT | | |
| Antivibration support (4 Pcs / 6 pcs) ³ | ST-K4AV ST-K6AV | | |
| Orientable support (4 pcs / 6 pcs) ³ | ST-K4OR ST-K6OR | | |
| Plastic brackets (4 pcs / 6 pcs) ³ | ST-KP4MP ST-KP6MP | | |
| PROTECTION TUBES AND STANDS | | | |
| IP67/IP69K tubes | ----- | | |
| Protective stands | SG-PSB series ² | | |
| Stand plate for SG-PSB | SG-P | | |
| Protective stands mounting brackets (4 pcs / 6 pcs) ³ | ST-PS4-SG-SE ST-PS6-SG-SE | | |
| Floor columns | SE-S Series | | |
| MIRRORS | | | |
| Protective stands with single mirrors | SG-PSM series | | |
| Deviating mirrors mounting kit for SG-PSB | ST-PS-DM | | |
| Deviating mirrors | SG-DM series | | |
| Mirror mounting bracket | ST-DM | | |
| SAFETY UNITS | | | |
| Safety unit | SE-SR2 | | |
| Edm relay box ⁴ | --- | CS ME-03VU24-Y14 | |
| Safety control unit for single beams and SLC | SG-BWS-T4-MT | | |
| ALIGNMENT TOOL | | | |
| Laser pointer | P | | |
| ACCESSORIES FOR MUTING | | | |
| Muting arms, brackets and cables | --- | | See page 77 of safety reference guide |
| Muting connection box | --- | | SG-SRT-1 ⁴ |
| External muting lamps | --- | | LMS Series |

NOTES

¹ 1200 mm models are provided with 6 pcs standard brackets

² Not possible with T or L muting arms mounted

³ Use 6 brackets for light curtains with length ≥ 1200 mm

⁴ When using EDM Relay Box or Muting connection box, connect EDM input, and be sure EDM function is active on the safety light curtain

SG BODY BIG BASE SG BODY BIG MUTING



*Robust housing for harsh environments
Long operating range for perimeter control
Rapid solution for access control with muting
Easy installation and alignment*

- 2, 3, 4 beams for body protection
- 40 mm resolution for arm protection and presence detection
- Controlled heights 500, 800, 900 and 1200 mm
- Long operating distance: up to 60 m
- Simple configuration through DIP switches
- Integrated muting lamp (only muting models)
- Anti-interference coding
- External muting enable signal
- Edged or triggered muting dependent override



SAFETY



APPLICATIONS

- Automatic machines
- Robots
- Automatic assembling lines
- Palletizers and Depalletizers
- Automatic warehouses
- Protecting perimeter areas

INDUSTRIES

Food & Beverage, Metalworking, Automotive, Wood, Ceramics



| | FINGER | HAND | ARM | BODY |
|--------|--------|------|-----|------|
| TYPE 2 | | | | ▪ |
| TYPE 4 | | | ▪ | ▪ |

SG2-B2-050-00-E

| TYPE | |
|------|--------|
| 2 | Type 2 |
| 4 | Type 4 |

| MONITORED HEIGHT | |
|------------------|-------------------|
| 050 | 500 mm (2 beams) |
| 080 | 800 mm (3 beams) |
| 090 | 900 mm (4 beams) |
| 120 | 1200 mm (4 beams) |

| VERSION | |
|---------|-----------------------------------------|
| E | Base: without muting function |
| W-C | Muting: with integrated muting function |

| BEAMS AND RANGE | |
|-----------------|-----------------------------------|
| B2 | 2 Beams |
| B3 | 3 Beams |
| B4 | 4 Beams |
| BSR2 | 2 Beams Short Range (only type 4) |
| BSR3 | 3 Beams Short Range (only type 4) |
| BSR4 | 4 Beams Short Range (only type 4) |
| BLR2 | 2 Beams Long Range (only type 4) |
| BLR3 | 3 Beams Long Range (only type 4) |
| BLR4 | 4 Beams Long Range (only type 4) |

SG4-40-060-00-E

| MONITORED HEIGHT | |
|------------------|---------|
| 060 | 660 mm |
| 090 | 960 mm |
| 120 | 1260 mm |

TECHNICAL DATA

| | SG2 BODY BIG BASE [SG2-Bx-xxx-00-E] | SG2 BODY BIG MUTING [SG2-Bxxx-xxx-00-W-C] | SG4 BODY BIG BASE [SG4-Bx-xxx-00-E] | SG4 BODY BIG MUTING [SG4-Bxxx-xxx-00-W-C] | SG4 LONG RANGE BASE [SG4-40-xxx-00-E] |
|---------------------------------------------------------------------|-------------------------------------------------------------------------|------------------------------------------------|------------------------------------------|-------------------------------------------------------------------------|-------------------------------------------------|
| GENERAL DATA | | | | | |
| Type (EN61496-1-2) | 2 | | 4 | | |
| PL (EN ISO 13849-1) | c | | e | | |
| SIL (IEC 61508) | 1 | | 3 | | |
| Resolution | 319,75 mm (4 beams) 419,75 mm (3 and 4 beams) 519,75 mm (2 beams) | | | | 40 mm |
| Operating distance | 0.5 ... 60 m | | 6 ... 60 m | 0.5 ... 30 m (Short Range model) 6 ... 60 m (Long Range model) | 6 ... 60 m |
| Retroreflective muting arms operating distance (not included) | --- | 0.5 ... 3 m | --- | 0.5 ... 3 m (Only for Short Range model) | --- |
| Emitter-Receiver muting arms operating distance | --- | 0.5 ... 7 m | --- | 0.5 ... 7 m | --- |
| Protected height | 500 mm (2 beams) 800 mm (3 beams) 900 mm or 1200 (4 beams) | | | | 660 mm 960 mm 1260 mm |
| ELECTRICAL DATA | | | | | |
| Power supply (Vdd) | 24 Vdc ± 20% | | | | |
| Outputs | 2 PNP | | | | |
| Output current | 0.5 A max/each output | | | | |
| Capacitive load | 2,2 uF max at 25°C | | | | |
| Response time | 11 ... 24 ms depending on model ^A | | | | 20 ... 24 ms depending on model ^A |
| Cables length (for power supply) | 70 m max. | | | | |
| MECHANICAL AND ENVIRONMENTAL DATA | | | | | |
| Operating temperature | 0 ...+55 °C | | | | |
| Humidity | 15 ... 95 % (no condensation) | | | | |
| Mechanical protection | IP 65 (EN 60529) | | | | |
| FUNCTIONS | | | | | |
| | Test input | | | | |
| | Manual/Automatic restart | | | | |
| | External Device Monitoring (EDM) | | | | |
| | Coding selection with DIP-SW | | | | |
| | --- | T-Muting/L-Muting | --- | T-Muting/L-Muting | --- |
| | --- | Muting timeout: 10 min. or ∞ | --- | Muting timeout: 10 min. or ∞ | --- |
| | --- | Integrated muting lamp | | Integrated muting lamp | --- |
| | --- | Override | --- | Override | --- |
| | --- | Muting engage input | --- | Muting engage input | --- |
| | --- | Override status output | --- | Override status output | --- |
| | --- | Muting lamp output | --- | Muting lamp output | --- |



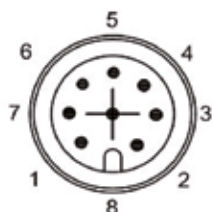
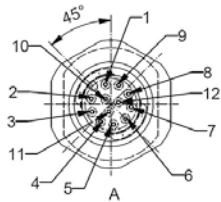
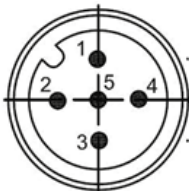
NOTES

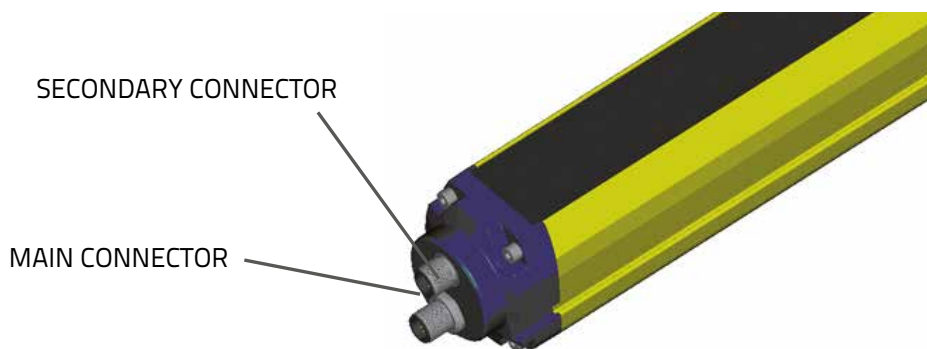
^A For detailed informations refer to related Product Datasheet or Manual



SG BODY BIG BASE SG BODY BIG MUTING

CONNECTIONS

| | SG BODY BIG BASE [SG2/4-Bx-xxx-00-E] SG4 LONG RANGE BASE [SG4-40-xxx-00-E] | SG BODY BIG MUTING [SG2/4-Bxxx-xxx-00-W-C] |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | M12, 5 poles, male 1 = brown = 24Vdc; 2 = white = TEST; 3 = blue = 0V; 4 = black = EARTH | |
| EMITTER MAIN CONNECTOR |  | |
| EMITTER SECONDARY CONNECTOR | --- | M12, 5 poles, male 1 = brown = 24Vdc; 3 = blue = 0V  |
| RECEIVER MAIN CONNECTOR | M12, 8 poles, male 1 = white = RESET/RESTART/RESTART MODE; 2 = brown = 24Vdc; 3 = green = EDM ENABLE; 4 = yellow = EDM; 5 = grey = OSSD1; 6 = pink = OSSD2; 7 = blue = 0V; 8 = red = EARTH  | M12 12-pole connector 1 = Brown = 24Vdc; 2 = Blue = 0V; 3 = White = RESET/RESTART/RESTART MODE; 4 = Green = OVERRIDE 1; 5 = Pink = OSSD 2; 6 = Yellow = EDM; 7 = Black = MUTING ENABLE; 8 = Grey = OSSD 1; 9 = Red = OVERRIDE 2; 10 = Violet = LAMP OUTPUT; 11 = Grey-Pink = OVERRIDE STATUS; 12 = Red-Blue = EARTH  |
| RECEIVER SECONDARY CONNECTOR | --- | M12, 5 poles, male 1 = brown = 24Vdc; 2 = white = MUTING2; 3 = blue = 0V; 4 = black = MUTING 1  |



ACCESSORIES

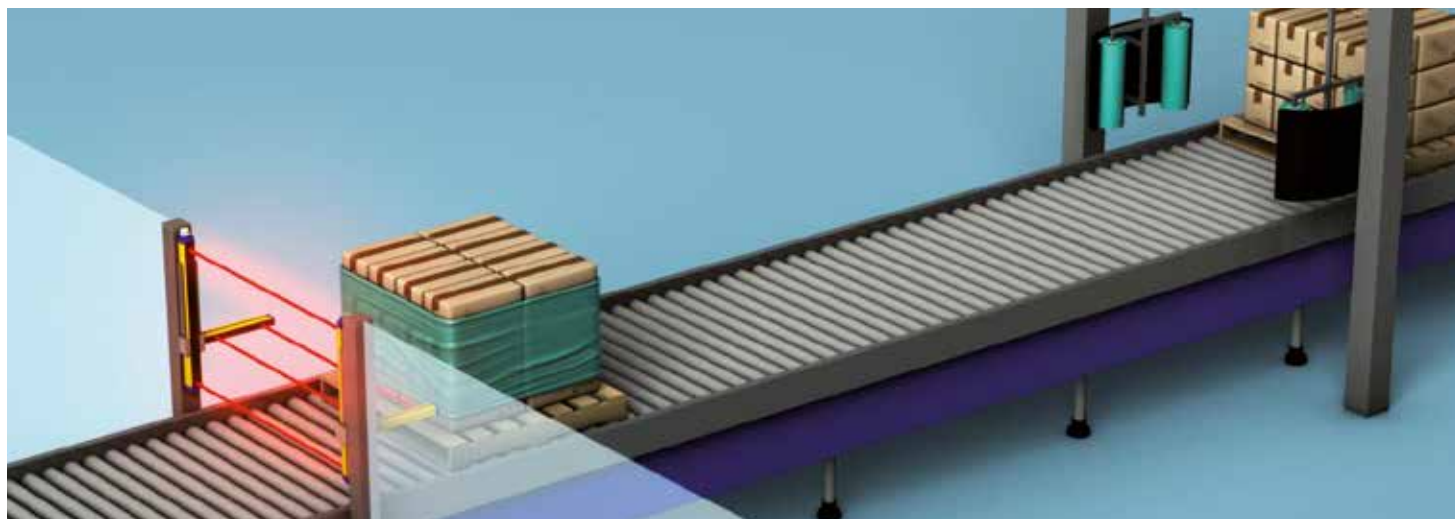
| | SG BODY BIG BASE [SG2/4-Bx-xxx-00-E] | SG BODY BIG MUTING [SG2/4-Bxxx-xxx-00-W-C] | SG4 LONG RANGE BASE [SG4-40-xxx-00-E] |
|-------------------------------------------------------------------|-------------------------------------------|-------------------------------------------------|--------------------------------------------|
| BRACKETS | | | |
| Included with the light curtain | | None | |
| Standard angled brackets (4 pcs) | | ST-K4STD-SG-BODY BIG | |
| Rear fixing bracket mounting (4 pcs) | | ST-K4REAR-SG BODY BIG | |
| Rotating brackets (4 pcs) | | ST-K4ROT-SG BODY BIG | |
| Antivibration support (4 pcs/6 pcs) ^c | | ST-K4AV ST-K6AV | |
| Plastic brackets (4 pcs/6 pcs) ^c | | ST-KP4MP ST-KP6MP | |
| PROTECTION TUBES, STANDS | | | |
| IP67/IP69K tubes | | --- | |
| Protective stands | | SG-PSB series ^B | |
| Stand plate for SG-PSB | | SG-P | |
| Protective stands mounting brackets (4 Pcs/6 pcs) ^c | | ST-PS4-SG BODY ST-PS6-SG BODY | |
| Floor columns | | SE-S Series | |
| MIRRORS | | | |
| Protective stands with single mirrors | SG-PSM series | | --- |
| Deviating mirrors mounting kit for SG-PSB | | ST-PS-DM | |
| Deviating mirrors | | SG-DM series | |
| Mirror mounting bracket | | ST-DM | |
| SAFETY UNIT | | | |
| Safety unit | | SE-SR2 | |
| Edm relay box ^d | | CS ME-03VU24-Y14 | |
| Safety control unit for single beams and SLC | | SG-BWS-T4-MT | |
| ALIGNMENT TOOL | | | |
| Laser pointer | | SG-LP | |
| ACCESSORIES FOR MUTING | | | |
| Muting arms, brackets and cables | --- | See page 70 | --- |
| Muting connection box ^d | --- | SG-SRT-1 | --- |
| External muting lamps | --- | LMS series | |

NOTES

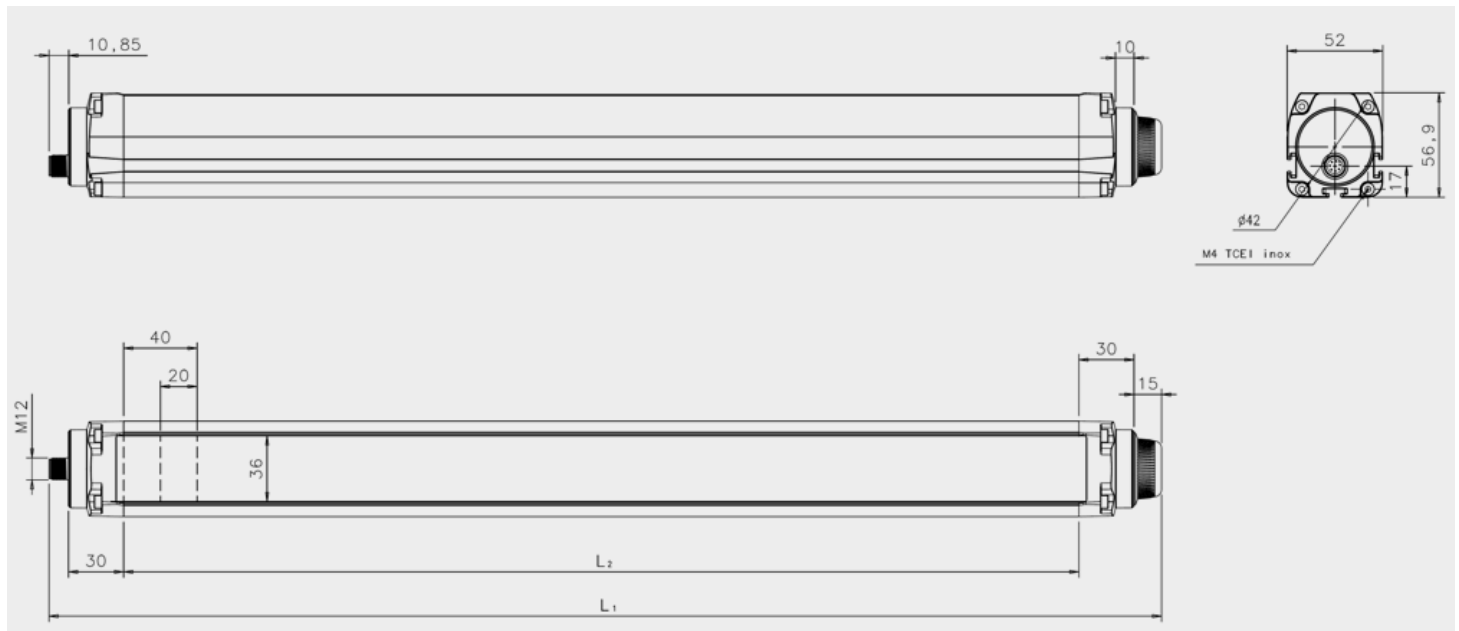
^B Not possible with T or L muting arms mounted

^C Use 6 brackets for light curtains with length ≥ 1200 mm

^D When using EDM Relay Box or Muting connection box, connect EDM input, and be sure EDM function is active on the safety light curtain

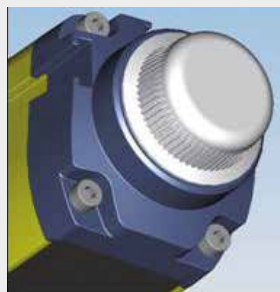
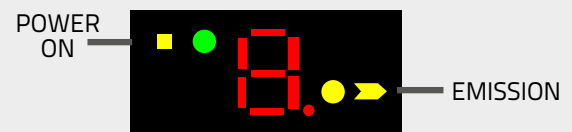
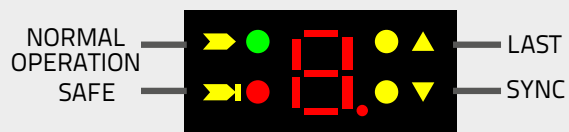


DIMENSIONS (mm)



| MODEL | L1 [mm] | L2 [mm] |
|---------------------|---------|---------|
| SGx-B2-050-00-E | 606,35 | 520,5 |
| SGx-B3-080-00-E | 906,35 | 820,5 |
| SGx-B4-090-00-E | 1006,35 | 920,5 |
| SGx-B4-120-00-E | 1306,35 | 1220,5 |
| SG4-40-060-00-E | 783,35 | 700,5 |
| SG4-40-090-00-E | 1083,35 | 1000,5 |
| SG4-40-120-00-E | 1383,35 | 1300,5 |
| SGx-Byy2-050-00-W-C | 609,35 | 520,5 |
| SGx-Byy3-080-00-W-C | 909,35 | 820,5 |
| SGx-Byy4-090-00-W-C | 1009,35 | 920,5 |
| SGx-Byy4-120-00-W-C | 1309,35 | 1220,5 |

INDICATORS



SG BODY BIG BASE SG BODY BIG MUTING



MODEL SELECTION AND ORDER INFORMATION

| BODY PROTECTION | | | | | | ARM PROTECTION PRESENCE DETECTION | | |
|------------------------|------------------------------------------------|------------|----------------|------------------------------------------------|------------|--------------------------------------|--------------------------------------------|------------|
| WITHOUT MUTING | SG2 BODY BIG BASE [SG2-BX-XXX-00-E] | ORDER CODE | WITHOUT MUTING | SG4 BODY BIG BASE [SG4-BX-XXX-00-E] | ORDER CODE | LONG RANGE | SG4 LONG RANGE BASE [SG4-40-XXX-00-E] | ORDER CODE |
| | SG2-B2-050-00-E | 957851240 | | SG4-B2-050-00-E | 957851280 | | SG4-40-060-00-E | 957851570 |
| | SG2-B3-080-00-E | 957851250 | | SG4-B3-080-00-E | 957851290 | | SG4-40-090-00-E | 957851580 |
| | SG2-B4-090-00-E | 957851260 | | SG4-B4-090-00-E | 957851300 | | SG4-40-120-00-E | 957851590 |
| | SG2-B4-120-00-E | 957851270 | | SG4-B4-120-00-E | 957851310 | | --- | --- |
| WITH INTEGRATED MUTING | SG2 BODY BIG MUTING [SG2-BXXX-XXX-00-W-C] | ORDER CODE | SHORT RANGE | SG4 BODY BIG MUTING [SG4-BXXX-XXX-00-W-C] | ORDER CODE | | | |
| | SG2-B2-050-00-W-C | 957851320 | | SG4-BSR2-050-00-W-C | 957851400 | --- | --- | |
| | SG2-B3-080-00-W-C | 957851330 | | SG4-BSR3-080-00-W-C | 957851410 | --- | --- | |
| | SG2-B4-090-00-W-C | 957851340 | | SG4-BSR4-090-00-W-C | 957851420 | --- | --- | |
| | SG2-B4-120-00-W-C | 957851350 | | SG4-BSR4-120-00-W-C | 957851430 | --- | --- | |
| | --- | --- | LONG RANGE | SG4-BLR2-050-00-W-C | 957851360 | --- | --- | |
| | --- | --- | | SG4-BLR3-080-00-W-C | 957851370 | --- | --- | |
| | --- | --- | | SG4-BLR4-090-00-W-C | 957851380 | --- | --- | |
| | --- | --- | | SG4-BLR4-120-00-W-C | 957851390 | --- | --- | |

CABLES

| | TRANSMITTER CABLE (MAIN CONNECTOR) | LENGTH (m) | ORDER CODE |
|------------------------------------------------------------------------|--------------------------------------------|------------|------------|
| SG BODY BIG BASE [SG2-Bx-xxx-00-E] [SG4-Bx-xxx-00-E] | CS -A1-03-U-03 | 3 | 95ASE 1170 |
| | CS -A1-03-U-05 | 5 | 95ASE 1180 |
| SG4 LONG RANGE BASE [SG4-40-xxx-00-E] | CS -A1-03-U-10 | 10 | 95ASE 1190 |
| | CS -A1-03-U-15 | 15 | 95ASE 1200 |
| SG BODY BIG MUTING [SG2-Bx-xxx-00-W-C] [SG4-Bxxx-xxx-00-W-C] | CS -A1-03-U-25 | 25 | 95ASE 1210 |
| | CS -A1-03-U-50 | 50 | 95A252700 |
| | RECEIVER CABLE (MAIN CONNECTOR) | LENGTH (m) | ORDER CODE |
| SG BODY BIG BASE [SG2-Bx-xxx-00-E] [SG4-Bx-xxx-00-E] | CS -A1-06-U-03 | 3 | 95ASE1220 |
| | CS -A1-06-U-05 | 5 | 95ASE1230 |
| | CS -A1-06-U-10 | 10 | 95ASE1240 |
| SG4 LONG RANGE BASE [SG4-40-xxx-00-E] | CS -A1-06-U-15 | 15 | 95ASE1250 |
| | CS -A1-06-U-25 | 25 | 95ASE1260 |
| | CS -A1-06-U-50 | 50 | 95A252710 |
| SG BODY BIG MUTING [SG2-Bx-xxx-00-W-C] [SG4-Bxxx-xxx-00-W-C] | CS -A1-10-U-03 | 3 | 95A252720 |
| | CS -A1-10-U-05 | 5 | 95A252730 |
| | CS -A1-10-U-10 | 10 | 95A252740 |
| | CS -A1-10-U-15 | 15 | 95A252750 |
| | CS -A1-10-U-25 | 25 | 95A252760 |
| | CS -A1-10-U-50 | 50 | 95A252770 |
| | TRANSMITTER CABLE (SECONDARY CONNECTOR) | LENGTH (m) | ORDER CODE |
| | RECEIVER CABLE (SECONDARY CONNECTOR) | | |
| SG BODY BIG MUTING [SG2-Bx-xxx-00-W-C] [SG4-Bxxx-xxx-00-W-C] | CS -A1-03-U-03 | 3 | 95ASE 1170 |
| | CS -A1-03-U-05 | 5 | 95ASE 1180 |
| | CS -A1-03-U-10 | 10 | 95ASE 1190 |
| | CS -A1-03-U-15 | 15 | 95ASE 1200 |
| | CS -A1-03-U-25 | 25 | 95ASE 1210 |
| | CS -A1-03-U-50 | 50 | 95A252700 |

NOTES

All cables have axial connectors

SG BODY REFLECTOR BASE SG BODY REFLECTOR MUTING



One active and one passive unit to reduce wiring and installation costs

Robust housing for harsh environments

Easy installation and alignment

Reflective muting arms included in L and T muting version

All advanced features associated to muting function

- 2, 3, 4 beams for body protection
- Controlled heights 500, 800, 900 and 1200 mm
- Up to 8 m operating distance
- Simple configuration through DIP switches
- Integrated muting lamp (muting models)
- Anti-interference coding
- External muting enable signal
- Edged or triggered muting dependent override

APPLICATIONS

- Automatic machines
- Robots
- Automatic assembling lines
- Palletizers and Depalletizers

INDUSTRIES

Food & Beverage, Metalworking, Automotive, Wood, Ceramics



SAFETY

| | FINGER | HAND | ARM | BODY |
|--------|--------|------|-----|------|
| TYPE 2 | | | | |
| TYPE 4 | | | | ▪ |

Active unit

SG4-RB2L-050-00-W

| TYPE | | MUTING ARMS | | MONITORED HEIGHT | | VERSION | |
|------|--------|-------------|-----------------------------------------|------------------|-------------------|---------|------------------------------------------|
| 4 | Type 4 | --- | Linear version: no muting arms included | 050 | 500 mm (2 beams) | E | Base: without integrated muting function |
| | | L | L muting arms included | 080 | 800 mm (3 beams) | | |
| | | T | T muting arms included | 090 | 900 mm (4beams) | | |
| | | | | 120 | 1200 mm (4 beams) | W | Muting: with integrated muting function |

Passive unit

SG4-RDB2L-090

| TYPE | | MUTING ARMS | | MONITORED HEIGHT | |
|------|--------|-------------|-----------------------------------------|------------------|--------------------------------------|
| 4 | Type 4 | --- | Linear version: no muting arms included | --- | 500 mm (2 beams) or 800 mm (3 beams) |
| | | L | L muting arms included | 090 | 900 mm (4 beams) |
| | | T | T muting arms included | 120 | 1200 mm (4 beams) |

SG BODY REFLECTOR BASE

SG BODY REFLECTOR MUTING



TECHNICAL DATA

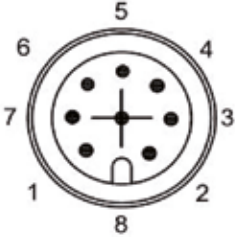
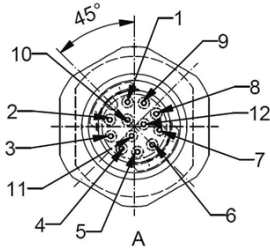
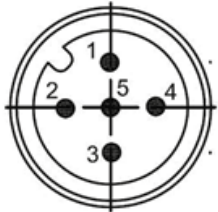
| | SG BODY REFLECTOR BASE [SG4-RBx-xxx-00-E] + [SG4-RDBx] | SG BODY REFLECTOR MUTING [SG4-RBx-xxx-00-W] + [SG4-RDBx] [SG4-RBxL/T-xxx-00-W] + [SG4-RDBxL/T] |
|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| GENERAL DATA | | |
| Type (EN61496-1) | 4 | |
| PL (EN ISO 13849-1) | e | |
| SIL (IEC 61508) | 3 | |
| Resolution | 319,75 mm (4 beams) 419,75 mm (3 and 4 beams) 519,75 mm (2 beams) | |
| Protected height | 500 mm (2 beams) 800 mm (3 beams) 900 mm or 1200 (4 beams) | |
| Operating distance | 0.5 ... 8 m 0.5 ... 6.5 m (for SG4-RB4-090-00-E) | 0.5 ... 8 m (for SG4-RBx-xxx-00-W) 0.5 ... 6.5 m (for SG4-RB4-090-00-W) 0.5 ... 3 m (for SG4-RBxL/T-00-W) |
| Retroreflective muting arms operating distance (included in T and L models) | 0.5 ... 3 m | |
| Emitter-Receiver muting arms operating distance (not included) | --- | 0.5 ... 7 m |
| ELECTRICAL DATA | | |
| Power supply (Vdd) | 24 Vdc ± 20% | |
| Outputs | 2 PNP | |
| Output current | 0.5 A max/each output | |
| Capacitive load | 2,2 uF max at 25°C | |
| Response time | 11 ... 12 ms depending on model ^A | |
| Cables length (for power supply) | 70 m max. | |
| MECHANICAL AND ENVIRONMENTAL DATA | | |
| Operating temperature | 0 ...+55 °C | |
| Humidity | 15 ... 95 % (no condensation) | |
| Mechanical protection | IP 65 (EN 60529) | |
| FUNCTIONS | | |
| | Manual/Automatic restart | |
| | External Device Monitoring (EDM) | |
| | Coding selection with DIP-SW | |
| | --- | T-Muting/L-Muting |
| | | Integrated muting lamp |
| | --- | Muting timeout: 10 min. or ∞ |
| | | Integrated muting lamp |
| | --- | Override |
| | --- | Muting enable input |
| | --- | Override status output |
| | --- | Muting filter |
| | --- | Externa muting lamp output |

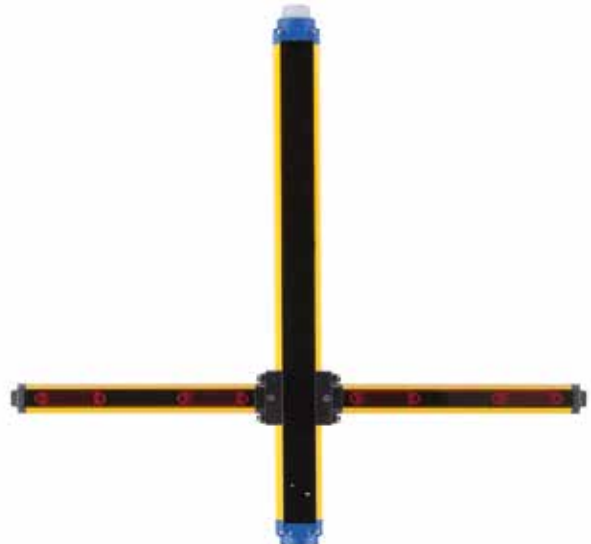
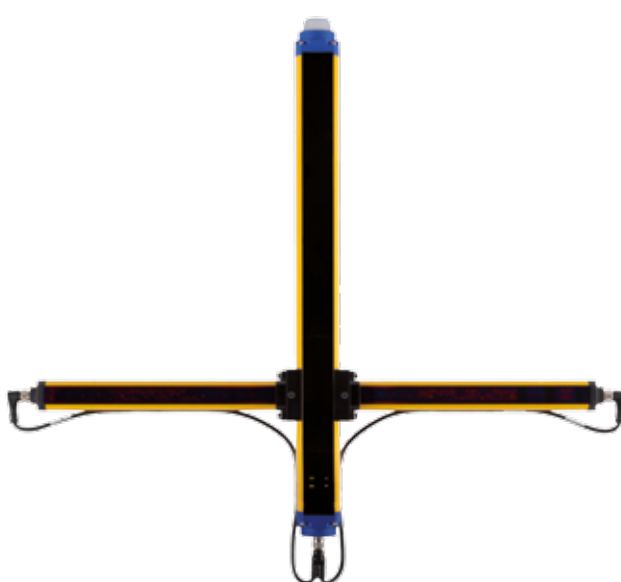
NOTES

^A For detailed informations refer to related Product Datasheet or Manual

SG BODY REFLECTOR BASE SG BODY REFLECTOR MUTING

CONNECTIONS

| | SG BODY REFLECTOR BASE [SG4-RBX-XXX-00-E] | SG BODY REFLECTOR MUTING [SG4-RBX-XXX-00-W] [SG4-RBXL/T-XXX-00-W] |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ACTIVE UNIT MAIN CONNECTOR | <p>M12, 8 poles, male</p> <p>1 = white = RESET/RESTART/RESTART MODE 2 = brown = 24V 3 = green = EDM ENABLE 4 = yellow = EDM 5 = grey = OSSD1 6 = pink = OSSD2 7 = blue = 0V 8 = red = EARTH</p>  | <p>M12, 12 poles, male</p> <p>1 = brown = 24Vdc 2 = blue = 0 V 3 = white = RESET/RESTART/RESTART MODE 4 = green = OVERRIDE1 5 = pink = OSSD2 6 = yellow = EDM 7 = black = MUTING ENABLE 8 = grey = OSSD1 9 = red = OVERRIDE2 10 = violet = LAMP INPUT 11 = grey-pink = OVERRIDE STATUS 12 = red-blue = EARTH</p>  |
| ACTIVE UNIT SECONDARY CONNECTOR | <p>---</p> <p>---</p> | <p>M12, 5 poles, male</p> <p>1 = brown = 24Vdc 2 = white = MUTING2 3 = blue = 0V 4 = black = MUTING1</p>  |



SG BODY REFLECTOR BASE SG BODY REFLECTOR MUTING



ACCESSORIES

| | SG BODY REFLECTOR BASE [SG4-RBX-XXX-00-E] + [SG4-RDBX] | SG BODY REFLECTOR MUTING [SG4-RBX-XXX-00-W] + [SG4-RDBX] [SG4-RBXL/T-XXX-00-W] + [SG4-RDBXL/T] |
|----------------------------------------------------------------|--------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| BRACKETS | | |
| Included with the light curtain | None | |
| Standard angled brackets (4 pcs) | ST-K4STD-SG-BODY BIG | |
| Rear fixing bracket mounting (4 pcs) | ST-K4REAR-SG BODY BIG | |
| Rotating brackets (4 pcs) | ST-K4ROT-SG BODY BIG | |
| Antivibration support (4 pcs/6 pcs) ^B | ST-K4AV ST-K6AV | |
| Plastic brackets (4 pcs/6 pcs) ^B | ST-KP4MP ST-KP6MP | |
| PROTECTION TUBES, STANDS | | |
| IP67/IP69K Tubes | --- | |
| Protective Stands | SG-PSB series ^A | |
| Stand Plate for SG-PSB | SG-P | |
| Protective Stands Mounting Brackets (4 pcs/6 pcs) ^B | ST-PS4-SG BODY ST-PS6-SG BODY | |
| Floor columns | SE-S Series | |
| SAFETY UNITS | | |
| Safety Unit | SE-SR2 | |
| EDM Relay Box ^C | CS ME-03VU24-Y14 | |
| Safety control unit for single beams and SLC | SG-BWS-T4-MT | |
| ALIGNMENT TOOL | | |
| LASER Pointer | SG-LP | |
| ACCESSORIES FOR MUTING | | |
| Muting arms, brackets and cables | --- | See page 70 |
| Muting Connection box ^C | --- | SG-SRT-1 or SG-SRT-2 |
| External muting lamps | --- | LMS Series |

NOTES

^A Not possible with T or L muting arms mounted

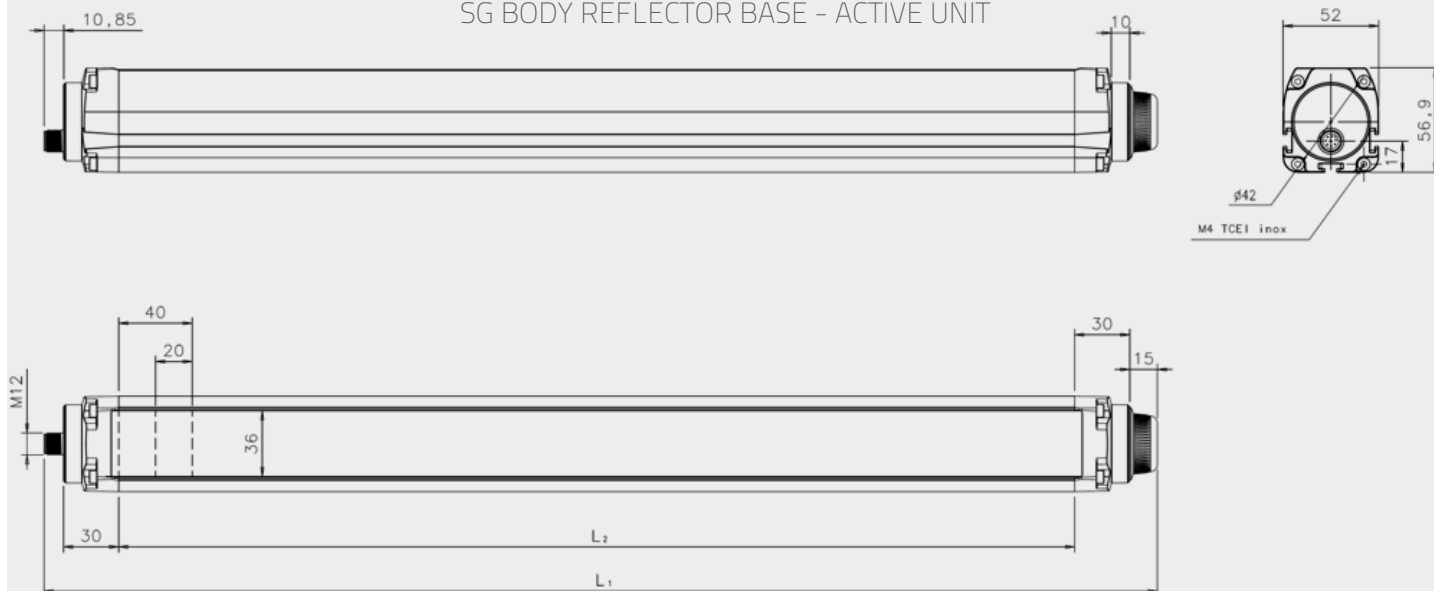
^B Use 6 brackets for light curtains with length ≥ 1200 mm

^C When using EDM Relay Box or Muting connection boxes, connect EDM input, and be sure EDM function is active on the safety light curtain

SG BODY REFLECTOR BASE SG BODY REFLECTOR MUTING

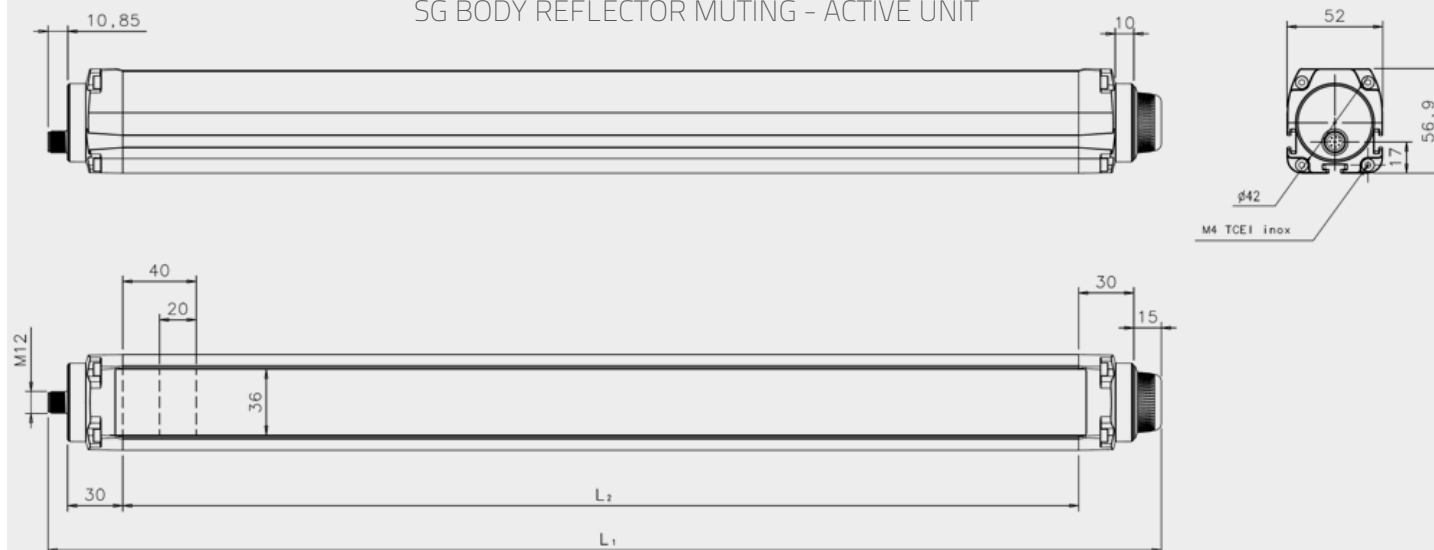
DIMENSIONS

SG BODY REFLECTOR BASE - ACTIVE UNIT



| MODEL | L1 [mm] | L2 [mm] |
|------------------|---------|---------|
| SGx-RB2-050-00-E | 606,35 | 520,5 |
| SGx-RB3-080-00-E | 906,35 | 820,5 |
| SGx-RB4-090-00-E | 1006,35 | 920,5 |
| SGx-RB4-120-00-E | 1306,35 | 1220,5 |

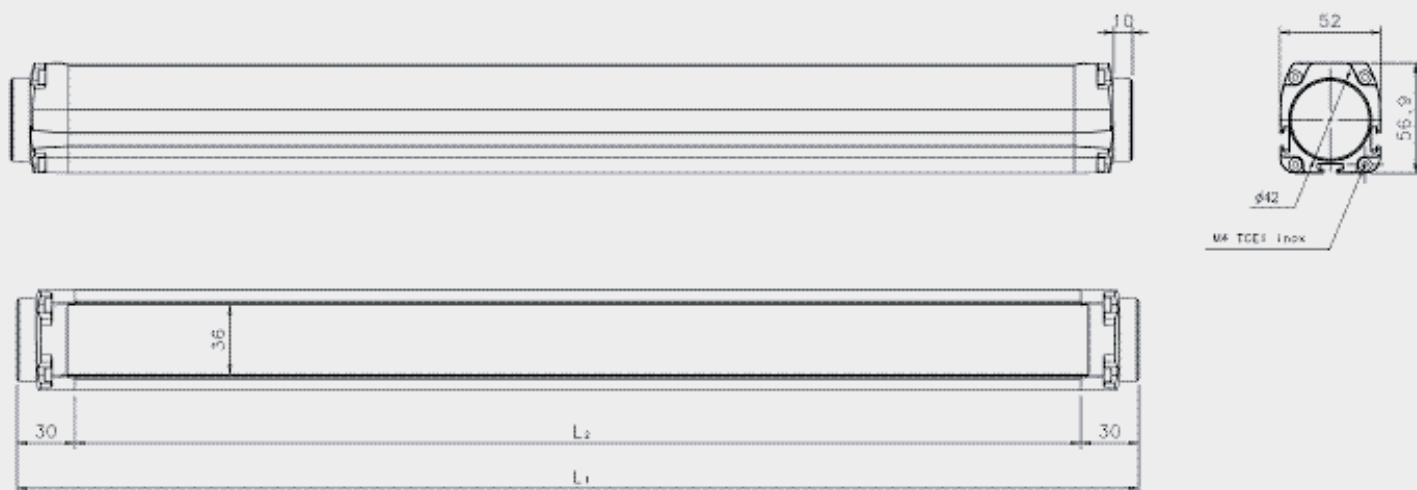
SG BODY REFLECTOR MUTING - ACTIVE UNIT



| MODEL | L1 [mm] | L2 [mm] |
|-------------------|---------|---------|
| SGx-RB2y-050-00-W | 609,35 | 520,5 |
| SGx-RB3y-080-00-W | 909,35 | 820,5 |
| SGx-RB4y-090-00-W | 1009,35 | 920,5 |
| SGx-RB4y-120-00-W | 1309,35 | 1220,5 |

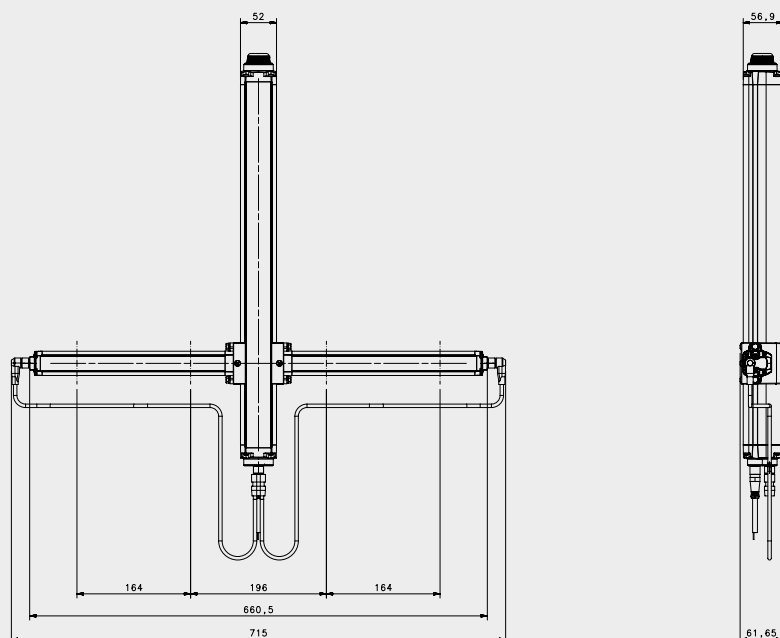
DIMENSIONS

SG BODY REFLECTOR BASE - PASSIVE UNIT ■ SG BODY REFLECTOR MUTING - PASSIVE UNIT



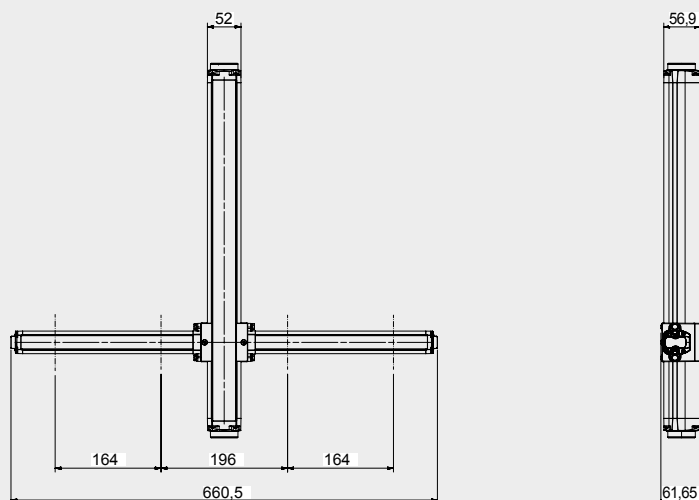
| MODEL | L1 [mm] | L2 [mm] |
|--------------|---------|---------|
| SG4-RDB2 | 580,5 | 520,5 |
| SG4-RDB2L | 580,5 | 520,5 |
| SG4-RDB2T | 580,5 | 520,5 |
| SG4-RDB3 | 880,5 | 820,5 |
| SG4-RDB3L | 880,5 | 820,5 |
| SG4-RDB3T | 880,5 | 820,5 |
| SG4-RDB4-090 | 980,5 | 920,5 |
| SG4-RDB4-120 | 1280,5 | 1220,5 |

SG BODY REFLECTOR BASE WITH T MUTING ARMS - ACTIVE SIDE

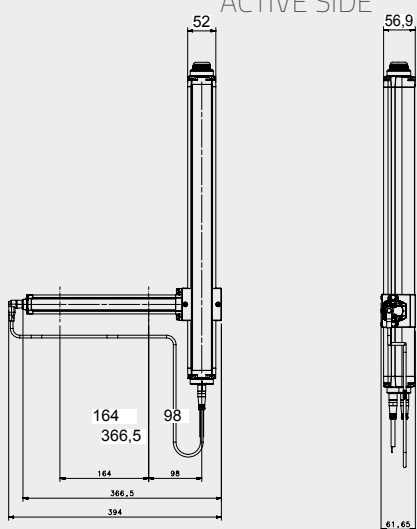


DIMENSIONS

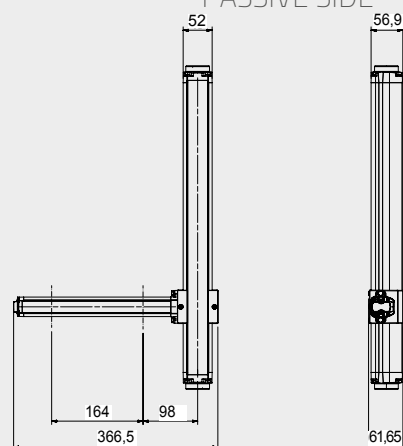
SG BODY REFLECTOR MUTING WITH T MUTING ARMS - PASSIVE SIDE



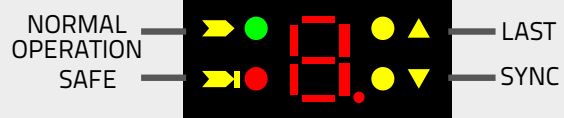
SG BODY REFLECTOR MUTING WITH L MUTING ARM
ACTIVE SIDE



PASSIVE SIDE



INDICATORS



SG BODY REFLECTOR BASE SG BODY REFLECTOR MUTING



MODEL SELECTION AND ORDER INFORMATION

| SG4 BODY REFLECTOR BASE [SG4-RBX-XXX-OO-E] | | ORDER NUMBER | SG4 BODY REFLECTOR MUTING [SG4-RBX-XXX-OO-W] | | ORDER NUMBER |
|-------------------------------------------------|-------------------------------------------------------------|--------------|--------------------------------------------------------|--|--------------|
| ACTIVE SIDE | SG4-RB2-050-00-E | 957951000 | LINEAR (WITHOUT MUTING ARMS) | | |
| | SG4-RB3-080-00-E | 957951010 | SG4-RB2-050-00-W | | 957951030 |
| | SG4-RB4-090-00-E | 957951190 | SG4-RB3-080-00-W | | 957951040 |
| | SG4-RB4-120-00-E | 957951020 | SG4-RB4-090-00-W | | 957951180 |
| | --- | --- | SG4-RB4-120-00-W | | 957951050 |
| | --- | --- | WITH T MUTING ARMS | | |
| | --- | --- | SG4-RB2T-050-00-W | | 957951080 |
| | --- | --- | SG4-RB3T-080-00-W | | 957951090 |
| | --- | --- | WITH L MUTING ARMS | | |
| | --- | --- | SG4-RB2L-050-00-W | | 957951060 |
| | --- | --- | SG4-RB3L-080-00-W | | 957951070 |
| PASSIVE SIDE | SG4 BODY REFLECTOR BASE [SG4-RDBX] [SG4-RDBX-XXX] | | SG4 BODY BIG MUTING [SG4-RDBX] [SG4-RDBXL/T] | | ORDER CODE |
| | SG4-RDB2 | | LINEAR (WITHOUT MUTING ARMS) | | |
| | SG4-RDB3 | | SG4-RDB2 | | 957951100 |
| | SG4-RDB4-090 | | SG4-RDB3 | | 957951110 |
| | SG4-RDB4-120 | | SG4-RDB4-090 | | 957951170 |
| | --- | | SG4-RDB4-120 | | 957951120 |
| | --- | | WITH T MUTING ARMS | | |
| | --- | | SG4-RDB2T | | 957951150 |
| | --- | | SG4-RDB3T | | 957951160 |
| | --- | | WITH L MUTING ARMS | | |
| | --- | | SG4-RDB2L | | 957951130 |
| | --- | | SG4-RDB3L | | 957951140 |

IMPORTANT NOTES

- 1) Active and passive sides must be ordered separately
- 2) Brackets are not included in the SG4 BODY REFLECTOR packing and must be ordered separately (see accessories table)

CABLES

| | ACTIVE UNIT (MAIN CONNECTOR) | LENGTH (m) | ORDER CODE |
|---------------------------------------------------|--------------------------------------|------------|------------|
| SG4 BODY REFLECTOR BASE [SG4-RBX-xxx-OO-E] | CS-A1-06-U-03 | 3 | 95ASE1220 |
| | CS-A1-06-U-05 | 5 | 95ASE1230 |
| | CS-A1-06-U-10 | 10 | 95ASE1240 |
| | CS-A1-06-U-15 | 15 | 95ASE1250 |
| | CS-A1-06-U-25 | 25 | 95ASE1260 |
| | CS-A1-06-U-50 | 50 | 95A252710 |
| SG4 BODY REFLECTOR MUTING [SG4-RBX-xxx-OO-W] | CS-A1-10-U-03 | 3 | 95A252720 |
| | CS-A1-10-U-05 | 5 | 95A252730 |
| | CS-A1-10-U-10 | 10 | 95A252740 |
| | CS-A1-10-U-15 | 15 | 95A252750 |
| | CS-A1-10-U-25 | 25 | 95A252760 |
| | CS-A1-10-U-50 | 50 | 95A252770 |
| | ACTIVE UNIT (SECONDARY CONNECTOR) | LENGTH (m) | ORDER CODE |
| SG4 BODY REFLECTOR MUTING [SG4-RBX-xxx-OO-W] | CS-A1-03-U-03 | 3 | 95ASE1170 |
| | CS-A1-03-U-05 | 5 | 95ASE1180 |
| | CS-A1-03-U-10 | 10 | 95ASE1190 |
| | CS-A1-03-U-15 | 15 | 95ASE1200 |
| | CS-A1-03-U-25 | 25 | 95ASE1210 |
| | CS-A1-03-U-50 | 50 | 95A252700 |

NOTES

All cables have axial connectors

SG2 MUTING SG4 EXTENDED



State-of-the-art technology and versatility
Easily adaptable to the machine structure
Maximum application flexibility with
configurable advanced functions
Complete diagnostic and monitoring online

- No dead zone
- Pigtail cable with M12 connector
- Cascade connection of up to 3 units
- Up to 20m operating range and 1800m protected height
- Compact dimensions (35 x 41 mm section)
- Anti-interference coding
- Integrated Muting function
- Floating Blanking, Fixed Blanking and Reduced Resolution
- Configurable with
 - Autoteaching
 - Pushbuttons for common configuration
 - Graphic User Interface for complete parametrisation
- Ethernet Interface for programming, monitoring and error logging



SAFETY

APPLICATIONS

- Automatic machines
- Robots
- Automatic assembling lines
- Palletizers and Depalletizers

INDUSTRIES

Food & Beverage, Metalworking, Automotive,
Wood, Ceramics



| | FINGER | HAND | ARM | BODY |
|--------|--------|------|-----|------|
| TYPE 2 | | ▪ | | |
| TYPE 4 | ▪ | ▪ | | |

SG4-14-030-00-P

| TYPE | |
|------|--------|
| 2 | Type 2 |
| 4 | Type 4 |

| MONITORED HEIGHT | |
|------------------|---------|
| 030 | 300 mm |
| 045 | 450 mm |
| ... | |
| 180 | 1800 mm |

| RESOLUTION | |
|------------|-----------------------------|
| 14 | Finger: 14 mm (only Type 4) |
| 30 | Hand: 30 mm |

| VERSION | |
|---------|-------------------------------------------|
| W | Basic Configuration Mode |
| P | Cascadable Advanced Configuration Mode |

TECHNICAL DATA

| | SG2 MUTING [SG2-30-xxx-00-W] | SG4 EXTENDED [SG4-xx-xxx-00-P] |
|----------------------------------|-----------------------------------------------|-------------------------------------------------------------------|
| | GENERAL DATA | |
| Type (EN61496-1-2) | 2 | 4 |
| PL (EN ISO 13849-1) | c | e |
| SIL (IEC 61508) | 1 | 3 |
| Resolution | 30 mm | 14, 30 mm |
| Protected height | 300 ... 1800 mm (with 150 mm steps) | |
| Operating distance | 0.2 ... 20 m | 0.2 ... 7 m (14 mm resolution) 0.2 ... 20 m (30 mm resolution) |
| Dead Zone | No dead zone | |
| Cascade connection | --- | Up to 3 units ^B |
| | ELECTRICAL DATA | |
| Power supply (Vdd) | 24 Vdc ± 20 | |
| Outputs | 2 PNP, with short circuit protection 2 PNP | |
| Output current | 0.5 A max/each output | |
| Capacitive load | 2.2 uF @ 24Vdc max | |
| Response time | 13 ... 22 ms depending on model A | 13 ... 33 ms depending on model A |
| Cables length (for power supply) | 50 m max | |
| | MECHANICAL AND ENVIRONMENTAL DATA | |
| Operating temperature | 0 ...+50 °C | |
| Humidity | 15 ... 95 % (no condensation) | |
| Mechanical protection | IP 65 (EN 60529) | |
| | FUNCTIONS | |
| | Test input | |
| | Manual/Automatic Restart | |
| | External Device Monitoring (EDM) | |
| | --- | Anti-interference coding |
| | Range reduction | |
| | T Muting/L Muting | |
| | --- | Partial Muting |
| | --- | Filter on muting signals |
| | Muting dependent Override | |
| | --- | Floating Blanking |
| | --- | Fixed Blanking |
| Max. Number of Blanking Areas | --- | 5 |
| | --- | Reduced Resolution |

NOTES

^A The response time depends on model; when a cascaded system is used, depends also on the number of units connected.
For detailed informations refer to related Product Datasheet or Manual.

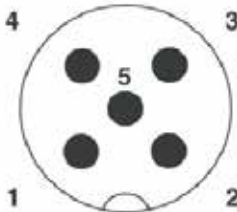
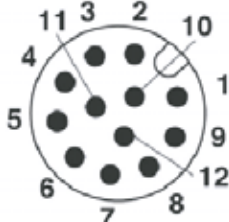
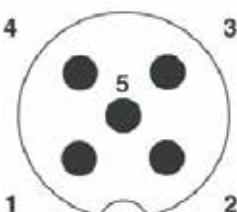
^B The three units can be one "master" and two "slaves". The maximum "slaves" length can't exceed 1200 mm. The maximum number of beams of the overall system is 160 beams for 30 mm resolution, and 320 beams for 14 mm resolution.

IMPORTANT NOTES:

- 1) The use of any type of blanking is not compatible with the use of Muting and Muting dependent Override.
- 2) In order to use Muting or Blanking with SG4 EXTENDED, the correct pigtail cable must be used (see accessories table)

SG2 MUTING SG4 EXTENDED

CONNECTIONS

| | SG2 MUTING [SG2-30-XXX-00-W] | SG4 EXTENDED [SG4-XX-XXX-00-P] | SG4 EXTENDED [SG4-XX-XXX-00-P] |
|-----------------------------------------|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|
| | | CONFIGURATION FOR MUTING | CONFIGURATION FOR BLANKING |
| PIGTAIL CABLE FOR EMITTER ^A | | CS-G1-50-B-002 (Order Number 95A252820) | |
| EMITTER | | <p>M12, 5 poles, male</p> <p>1 = brown = 24Vdc; 2 = white = TEST; 3 = blue = 0V; 4 = black = EARTH; 5 = grey = RANGE REDUCTION.</p>  | |
| PIGTAIL CABLE FOR RECEIVER ^A | | CS -R1-75-B-002 (Order Number 95A252810) | CS -G1-70-B-002 (Order Number 95A252830) |
| RECEIVER MAIN CONNECTOR | | <p>M12, 12 poles, male</p> <p>1 = brown = 24Vdc 2 = blue = 0V 3 = white = RESET/RESTART/ALIGN 4 = green = OVERRIDE1 5 = pink = OSSD2 6 = yellow = EDM 7 = black = MUTING DISABLE 8 = grey = OSSD1 9 = red = OVERRIDE2 10 = violet = MUTING LAMP 11 = grey-pink = OVERRIDE STATUS 12 = red-blue = EARTH</p>  | |
| RECEIVER SECONDARY CONNECTOR | | <p>M12, 5 poles, male</p> <p>1 = brown = 24Vdc 2 = white = MUTING2 3 = blue = 0V 4 = black = MUTING1</p>  | --- |

^A IMPORTANT NOTES

- 1) The light curtain is sold without pigtail cables: they must be ordered separately for Transmitter and Receiver.
- 2) In case of SG4 EXTENDED, the choice of the Receiver pigtail determines if it will work in Muting configuration or in Blanking configuration.
- 3) In case the SG4 EXTENDED will be installed together with the programming and monitoring interface (DONGLE), the pigtail cable for Receiver isn't needed.
See accessories table for more informations about DONGLE

ACCESSORIES

| | SG2 MUTING [SG2-30-XXX-00-W] | SG4 EXTENDED [SG4-XX-XXX-00-P] |
|----------------------------------------------------------------|-----------------------------------|-------------------------------------------------|
| BRACKETS | | |
| Standard angled brackets (included) | | ST-KSTD |
| Antivibration support (4 pcs/6 pcs) ^A | | ST-K4AV ST-K6AV |
| Plastic brackets (4 pcs/6 pcs) ^A | | ST-KP4MP ST-KP6MP |
| Orientable brackets (4 pcs/6 pcs) ^A | | ST-K4OR ST-K6OR |
| STANDS | | |
| Protective Stands | | SG-PSB series |
| Stand Plate for SG-PSB | | SG-P |
| Protective Stands Mounting Brackets (4 pcs/6 pcs) ^A | | ST-PS4-SG-SE ST-PS6-SG-SE |
| Floor columns | | SE-S Series |
| MIRRORS | | |
| Deviating Mirrors | | SG-DM Series |
| Deviating Mirrors mounting kit for SG-PSB | | ST-PS-DM |
| Mirror Mounting Bracket | | ST-DM |
| SAFETY UNITS | | |
| Safety Unit | | SE-SR2 |
| EDM Relay Box ^B | | CS-ME-03VU24-Y14 |
| Safety control unit for single beams and SLC | | SG-BWS-T4-MT |
| ALIGNMENT TOOL | | |
| LASER Pointer | | SG-LP |
| COMMUNICATION TOOLS | | |
| Ethernet Adaptor (Dongle) | --- | SG4-DONGLE |
| Ethernet Cable | --- | CAB-ETH-M01 |
| CONFIGURATION SOFTWARE | | |
| Monitoring and Programming Software ^C | | SG EXTENDED Graphic User Interface ^C |
| MUTING ACCESSORIES | | |
| External muting lamps | | LMS series |
| Muting arms, brackets and cables | | See muting accessories section |

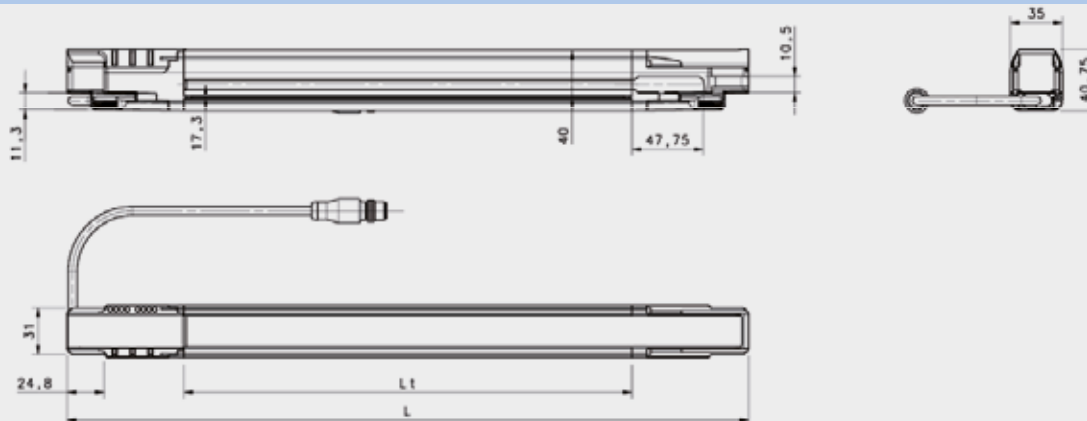
NOTES

^A Use 6 brackets for light curtains with length ≥ 1200 mm

^B When using EDM Relay Box, connect EDM input, and be sure EDM function is active on the safety light curtain

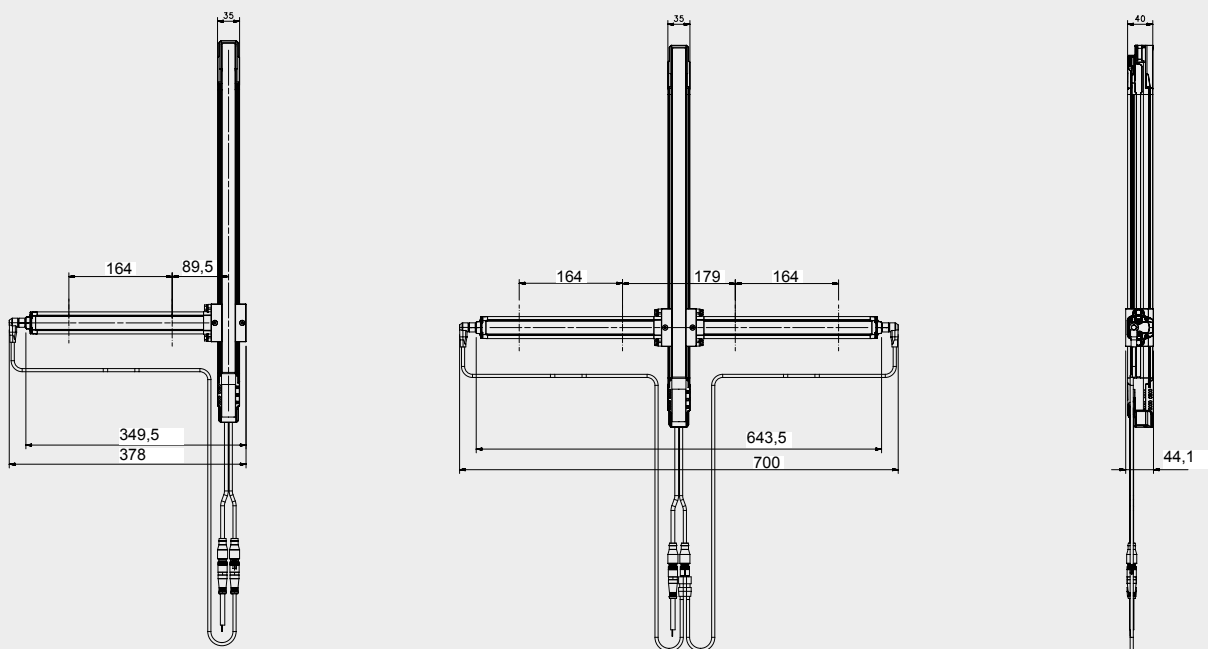
^C SG EXTENDED GUI is available from DATALOGIC website

DIMENSIONS

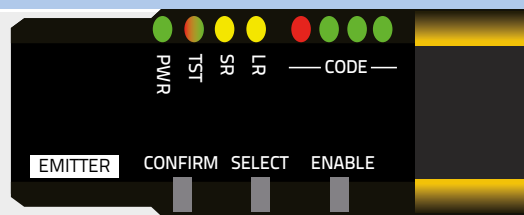
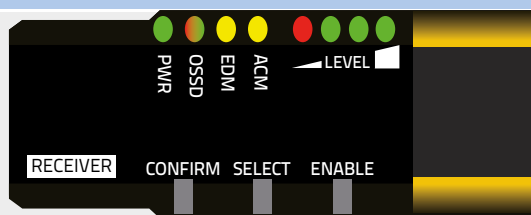


| SG2 MUTING | SG4 EXTENDED | Lt (mm) | L (mm) |
|-----------------|-----------------|---------|--------|
| SG2-xx-030-00-W | SG4-xx-030-00-P | 150 | 306,3 |
| SG2-xx-045-00-W | SG4-xx-045-00-P | 300 | 456,3 |
| SG2-xx-060-00-W | SG4-xx-060-00-P | 450 | 606,3 |
| SG2-xx-075-00-W | SG4-xx-075-00-P | 600 | 756,3 |
| SG2-xx-090-00-W | SG4-xx-090-00-P | 750 | 906,3 |
| SG2-xx-105-00-W | SG4-xx-105-00-P | 900 | 1056,3 |
| SG2-xx-120-00-W | SG4-xx-120-00-P | 1050 | 1206,3 |
| SG2-xx-135-00-W | SG4-xx-135-00-P | 1200 | 1356,3 |
| SG2-xx-150-00-W | SG4-xx-150-00-P | 1350 | 1506,3 |
| SG2-xx-165-00-W | SG4-xx-165-00-P | 1500 | 1656,3 |
| SG2-xx-180-00-W | SG4-xx-180-00-P | 1650 | 1806,3 |

SG2 MUTING SG4 EXTENDED



INDICATORS



AVAILABLE MODELS AND ORDER CODES

| SG2 MUTING [SG2-30-XXX-00-W] | | ORDER NUMBER | SG4 EXTENDED [SG4-XX-XXX-00-P] | | ORDER NUMBER |
|--------------------------------|-----------------|--------------|----------------------------------|--|--------------|
| FINGER PROTECTION | --- | | SG4-14-030-00-P | | 957901240 |
| | --- | | SG4-14-045-00-P | | 957901250 |
| | --- | | SG4-14-060-00-P | | 957901260 |
| | --- | | SG4-14-075-00-P | | 957901270 |
| | --- | | SG4-14-090-00-P | | 957901280 |
| | --- | | SG4-14-105-00-P | | 957901290 |
| | --- | | SG4-14-120-00-P | | 957901300 |
| | --- | | SG4-14-135-00-P | | 957901310 |
| | --- | | SG4-14-150-00-P | | 957901320 |
| | --- | | SG4-14-165-00-P | | 957901330 |
| HAND PROTECTION | --- | | SG4-14-180-00-P | | 957901340 |
| | SG2-30-030-00-W | 957801700 | SG4-30-030-00-P | | 957901350 |
| | SG2-30-045-00-W | 957801710 | SG4-30-045-00-P | | 957901360 |
| | SG2-30-060-00-W | 957801720 | SG4-30-060-00-P | | 957901370 |
| | SG2-30-075-00-W | 957801730 | SG4-30-075-00-P | | 957901380 |
| | SG2-30-090-00-W | 957801740 | SG4-30-090-00-P | | 957901390 |
| | SG2-30-105-00-W | 957801750 | SG4-30-105-00-P | | 957901400 |
| | SG2-30-120-00-W | 957801760 | SG4-30-120-00-P | | 957901410 |
| | SG2-30-135-00-W | 957801770 | SG4-30-135-00-P | | 957901420 |
| | SG2-30-150-00-W | 957801780 | SG4-30-150-00-P | | 957901430 |
| | SG2-30-165-00-W | 957801790 | SG4-30-165-00-P | | 957901440 |
| | SG2-30-180-00-W | 957801800 | SG4-30-180-00-P | | 957901450 |

NOTES

A The light curtain is sold without pigtail cables; they must be ordered separately for Transmitter and Receiver. In case of SG4 EXTENDED, the choice of the Receiver pigtail determines in Muting configuration or Blanking configuration. For cascade configurations, other cables are available to connect the cascaded units: refer to the accessories table.

CABLE ORDER CODES

| PIGTAIL CABLES/INTERFACE SELECTION TABLE | | | | |
|------------------------------------------|-------------|-------------------------|------------|------------|
| | | PIGTAIL CABLE/INTERFACE | LENGTH (m) | ORDER CODE |
| SG2 MUTING [SG2-30-XXX-00-W] | TRANSMITTER | CS-G1-50-B-002 | 0.2 | 95A252820 |
| | RECEIVER | CS-R1-75-B-002 | 0.2 | 95A252810 |
| SG4 EXTENDED [SG4-XX-XXX-00-P] | TRANSMITTER | CS-G1-50-B-002 | 0.2 | 95A252820 |
| | RECEIVER | BLANKING CONFIGURATION | | |
| | | CS-G1-70-B-002 | 0.2 | 95A252830 |
| | | MUTING CONFIGURATION | | |
| | | CS-R1-75-B-002 | 0.2 | 95A252810 |
| | | DONGLE | | |
| | | SG4-DONGLE | --- | 95ASE2080 |

NOTES

- 1) The light curtain is sold without pigtail cables: they must be ordered separately for Transmitter and Receiver.
- 2) For SG4 EXTENDED, the pigtail cable used determines if the light curtain will work in Muting configuration or in Blanking configuration. If, in place of the pigtail cable, the Dongle is used for receiver, the light curtain can work in both configurations. When muting and blanking are not needed, Dongle or pigtail cable CS-G1-70-B-002 are suggested
- 3) If SG4 EXTENDED receiver is connected to the programming and monitoring interface (DONGLE), the pigtail cable for Receiver isn't needed.
- 4) In order to install SG4 EXTENDED or SG2 MUTING in place of SE series safety light curtains, without changing any wiring, it can be used the cable CS-G1-60-B-002 (order n. 95A252910) for receiver. All functions of SE will be available, except Override.



CS-G1-50-B-002



CS-G1-70-B-002



CS-R1-75-B-002

| CABLES SELECTION TABLE | | | |
|------------------------------------------------------------------------------|------------------------------------------|------------|------------|
| | TRANSMITTER/RECEIVER SECONDARY CONNECTOR | LENGTH (m) | ORDER CODE |
| SG2 MUTING [SG2-30-xxx-00-W] SG4 EXTENDED [SG4-xx-xxx-00-P] | CS-A1-03-U-03 | 3 | 95ASE1170 |
| | CS-A1-03-U-05 | 5 | 95ASE1180 |
| | CS-A1-03-U-10 | 10 | 95ASE1190 |
| | CS-A1-03-U-15 | 15 | 95ASE1200 |
| | CS-A1-03-U-25 | 25 | 95ASE1210 |
| | CS-A1-03-U-50 | 50 | 95A252700 |
| | RECEIVER MAIN CONNECTOR | | ORDER CODE |
| | CS-A1-10-U-03 | 3 | 95A252720 |
| | CS-A1-10-U-05 | 5 | 95A252730 |
| | CS-A1-10-U-10 | 10 | 95A252740 |
| | CS-A1-10-U-15 | 15 | 95A252750 |
| | CS-A1-10-U-25 | 25 | 95A252760 |
| | CS-A1-10-U-50 | 50 | 95A252770 |

| CASCADE CABLES | | |
|-----------------|------------|------------|
| MODEL | LENGTH (m) | ORDER CODE |
| CS-F1-80-B-01 | 1 | 95A252840 |
| CS-F1-80-B-005 | 0.5 | 95A252850 |
| CS-F1-80-B-0005 | 0.05 | 95A252860 |



| ETHERNET CABLES | | |
|----------------------|------------|------------|
| MODEL | LENGTH (m) | ORDER CODE |
| CAB-ETH-M01 M12-IP67 | 1 | 93A051346 |
| CAB-ETH-M03 M12-IP67 | 3 | 93A051347 |
| CAB-ETH-M05 M12-IP67 | 5 | 93A051348 |



SINGLE BEAM SAFETY SENSORS SAFETY CONTROL UNITS



Installation Flexibility

Long distance

Low temperature with defogging function

4 safety areas controlled with one unit

Double muting

SENSORS:

- Emitter-receiver photocells with test input
- Type 2 and Type 4 models
- Plastic tubular and MAXI formats
- Up to 50m operating distance
- Class 1 red laser emission models up to 40
- Standard M12 connectors

CONTROL UNITS:

- Integrated control of 4 single beams and 2 light curtains
- Simple DIP Switch configuration
- Muting functions can be assigned to light curtains or single beams



SAFETY

APPLICATIONS

- Robots
- Automatic assembling lines
- Palletizers and Depalletizers

INDUSTRIES

Food & Beverage, Metalworking, Automotive, Wood, Ceramics



S5-5-G8-62-SG-ST2

| EMITTER/RECEIVER | | TYPE | |
|------------------|----------|------|--------|
| G8-62 | Emitter | 2 | Type 2 |
| F8-92 | Receiver | 4 | Type 4 |

SL5-5-G-82-SG-ST4

| EMITTER/RECEIVER | |
|------------------|----------|
| G-82 | Emitter |
| F-92 | Receiver |

S300-PR-5-G00-EX-M-SG-ST2

| EMITTER/RECEIVER | | DEFOGGING FUNCTION | | TYPE | |
|------------------|----------|--------------------|-----------|------|--------|
| G00-EX | Emitter | ... | Standard | 2 | Type 2 |
| F00-OC | Receiver | M | Defogging | 4 | Type 4 |

SINGLE BEAM SAFETY SENSORS

SAFETY CONTROL UNITS



TECHNICAL DATA

| | S5 | SL5 | S300 |
|--------------------------------------|--------------------------------------------------------|----------------------------|----------------------------------------------------|
| GENERAL DATA | | | |
| Format | M18 Tubular | | Rectangular |
| Light Emission | Infrared LED 880 nm | Class 1 Red laser (650 nm) | Infrared LED 880 nm |
| Type (EN61496-1) | 2/4 depending on model | 4 | 2/4 depending on model |
| Effective Aperture Angle (EN61496-2) | -/+ 2.5° for Type 4 models -/+ 5° for Type 2 models | | |
| Operating distance | 0 ... 8 m | 0 ... 40 m | 0 ... 50 m (S300...ST2) 9 ... 40 m (S300...ST4) |

| | | | |
|--------------------|--------------------------------|--|--|
| ELECTRICAL DATA | | | |
| Power supply (Vdc) | 24 Vdc ± 15% | | |
| Outputs | PNP (short circuit protection) | | |
| Output current | 100 mA max. | | |
| Response time | 1 ms max. | | |

| | | | |
|-----------------------------------|---------------|---------------|---------------|
| MECHANICAL AND ENVIRONMENTAL DATA | | | |
| Operating temperature | -25 ... 55 °C | -10 ... 50 °C | -40 ... 55 °C |
| Mechanical protection (EN 60529) | IP 67 | | |

| | SG-BWS-T4 | SG-BWS-T4-MT |
|--|-----------|--------------|
|--|-----------|--------------|

| | | |
|---------------------|---|--|
| GENERAL DATA | | |
| PL (EN ISO 13849-1) | e | |
| SIL (IEC 61508) | 3 | |

| | | |
|-----------------------------------------------------------------|-----------------|-------|
| | ELECTRICAL DATA | |
| Power supply | 24 Vdc -15/+10% | |
| INPUTS | | |
| PNP Outputs from S5/SL5/S300 | 4 | 4 |
| OSSDs couples from SLC | --- | 2 |
| Muting inputs | --- | 4 |
| Test, Reset, Override, EDM, Muting enable, Auto/Man Selector | 3 | 9 |
| OUTPUTS | | |
| Safety outputs | 2 PNP | 2 NO |
| Muting lamps | --- | 2 |
| Test outputs | 4 | 4 |
| Response time ^A | 29 ms | 39 ms |

| | | |
|-----------------------------------|-------------------------------|--|
| MECHANICAL AND ENVIRONMENTAL DATA | | |
| Operating temperature | 0 ... +55 °C | |
| Humidity | 15 ... 95 % (no condensation) | |
| Mechanical protection | IP20 | |

| | | |
|----------------------------|----------------|--|
| FUNCTIONS ^B | | |
| Automatic/Manual reset | | |
| External Device Monitoring | | |
| --- | L/T Muting | |
| --- | Double muting | |
| --- | Muting Enable | |
| --- | Muting timeout | |
| --- | Override | |

| | | |
|------------------------|-------------|-------------------|
| COMPATIBILITY | | |
| Single beam photocells | S5/SL5/S300 | |
| Safety light curtains | --- | All DATALOGIC SLC |

NOTES

^A includes response time of photocells

^B Functions setting is done through DIP switches in SG-BWS-T4-MT and through wiring in SG-BWS-T4

SINGLE BEAM SAFETY SENSORS SAFETY CONTROL UNITS



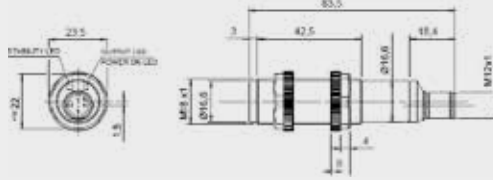
CONNECTIONS

| | EMITTER | RECEIVER |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| S5 SL5 S300 | <p>NOT USED (WHITE) 2 ● 1 ●</p> <p>+ 24 VDC (BROWN) 3 ● 4 ●</p> <p>0V- (BLUE)</p> <p>TEST (BLACK)</p> | <p>NOT USED (WHITE) 2 ● 1 ●</p> <p>+ 24 VDC (BROWN) 3 ● 4 ●</p> <p>0V- (BLUE)</p> <p>PNP 100mA (BLACK)</p> |

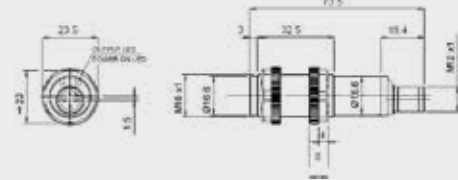
DIMENSIONS (mm)

S5

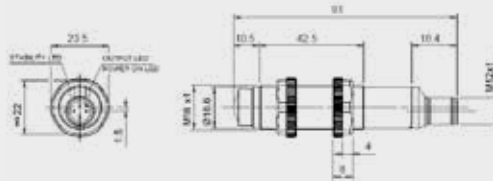
S5-5-F8-SG-ST2



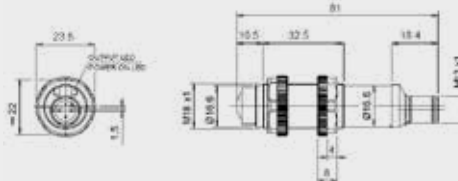
S5-5-G8-62-SG-ST2



S5-5-F8-92-SG-ST4

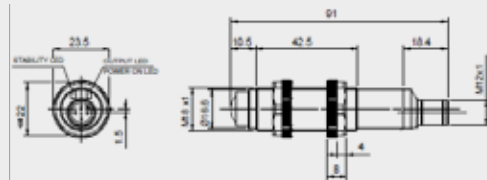


S5-5-G8-62-SG-ST4

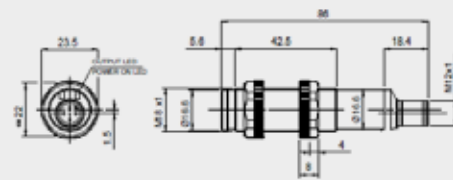


SL5

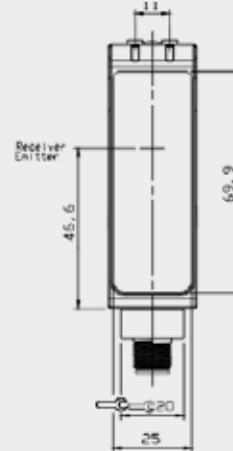
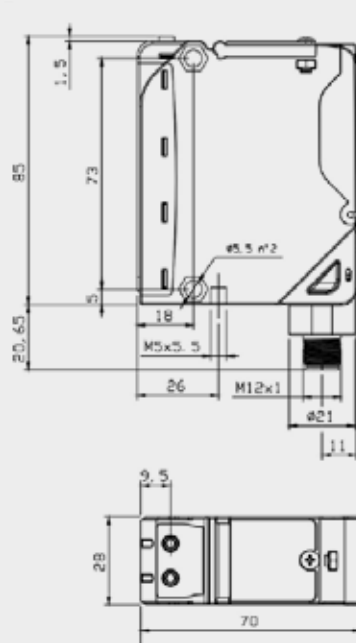
SL5-5-F-92-SG-ST4



SL5-5-G-82-SG-ST4



S300



SINGLE BEAM SAFETY SENSORS

SAFETY CONTROL UNITS



ACCESSORIES

| MODEL | DESCRIPTION | ORDER NUMBER |
|--------------|-------------------------------------------------------------|--------------|
| SP-40 | Fixed support for tubular M18 sensors | 95ACC1370 |
| SWING-18 | Adjustable support for plastic tubular M18 sensors | 895000006 |
| MICRO-18 | Support with micrometric regulation for tubular M18 sensors | 95ACC1380 |
| ST-5099 | S300 Fixed bracket | 95ACC2830 |
| ST-5100 | S300 Fixed bracket | 95ACC2840 |
| DataVS-MK-01 | S300 Mounting kit | 95A901380 |

ORDER CODES

SAFETY CONTROL UNITS

| MODEL | DESCRIPTION | ORDER NUMBER |
|--------------|----------------------------------------|--------------|
| SG-BWS-T4 | Safety control unit pl=e auto/man edm | 957051000 |
| SG-BWS-T4-MT | Safety control unit pl=e double muting | 957051010 |

SINGLE BEAM SAFETY SENSORS

| | TYPE | MODEL | EMITTER/RECEIVER | ORDER NUMBER |
|-------------------|------|---------------------------|------------------|--------------|
| S5 | 2 | S5-5-G8-62-SG-ST2 | Emitter | 952051870 |
| | | S5-5-F8-92-SG-ST2 | Receiver | 952051890 |
| | 4 | S5-5-G8-62-SG-ST4 | Emitter | 952051910 |
| | | S5-5-F8-92-SG-ST4 | Receiver | 952051930 |
| SL5 | 4 | SL5-5-G-82-SG-ST4 | Emitter | 952501160 |
| | | SL5-5-F-92-SG-ST4 | Receiver | 952501170 |
| S300 | 2 | S300-PR-5-G00-EX-SG-ST2 | Emitter | 951451320 |
| | | S300-PR-5-F00-OC-SG-ST2 | Receiver | 951451340 |
| | 4 | S300-PR-5-G00-EX-SG-ST4 | Emitter | 951451360 |
| | | S300-PR-5-F00-OC-SG-ST4 | Receiver | 951451380 |
| S300 DEFOGGING | 2 | S300-PR-5-G00-EX-M-SG-ST2 | Emitter | 951451330 |
| | | S300-PR-5-F00-OC-M-SG-ST2 | Receiver | 951451350 |
| | 4 | S300-PR-5-F00-OC-M-SG-ST4 | Emitter | 951451390 |
| | | S300-PR-5-G00-EX-M-SG-ST4 | Receiver | 951451370 |

NOTES

1) The photocells listed above are certified and must be used only with safety control units SG-BWS-T4 and SG-BWS-T4-MT. Neither technical and functioning compatibility nor certifications are guaranteed if they are used with other brand control units or old/obsolete DATALOGIC control units.

CABLE ORDER CODES

| MODEL | DESCRIPTION | ORDER NUMBER |
|----------------|-------------------------------|--------------|
| CS -A1-02-U-03 | 4-pole M12 cable (axial) 3 m | 95ASE 1120 |
| CS -A1-02-U-05 | 4-pole M12 cable (axial) 5 m | 95ASE 1130 |
| CS -A1-02-U-10 | 4-pole M12 cable (axial) 10 m | 95ASE 1140 |
| CS -A1-02-U-15 | 4-pole M12 cable (axial) 15 m | 95ASE 1150 |
| CS -A1-02-U-25 | 4-pole M12 cable (axial) 25 m | 95ASE 1160 |

ACCESSORIES



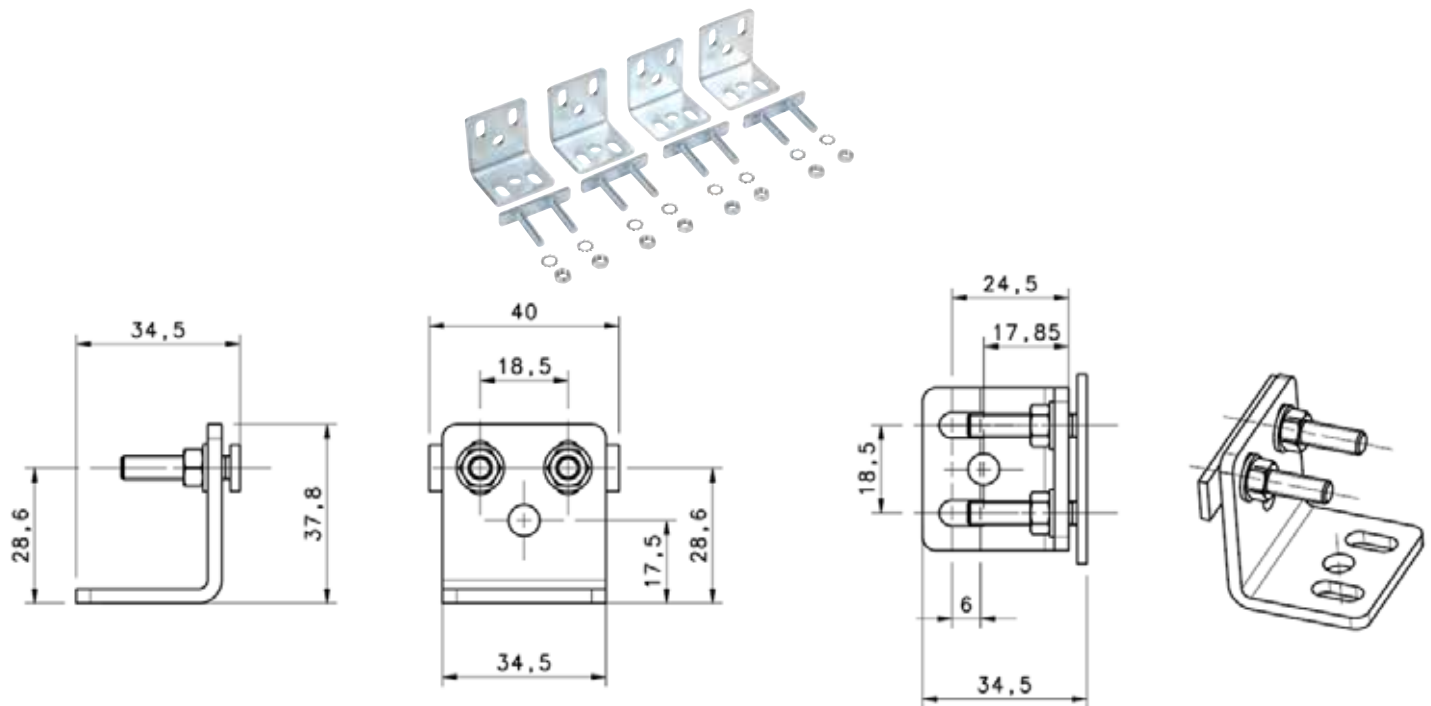
ACCESSORIES

ACCESSORIES

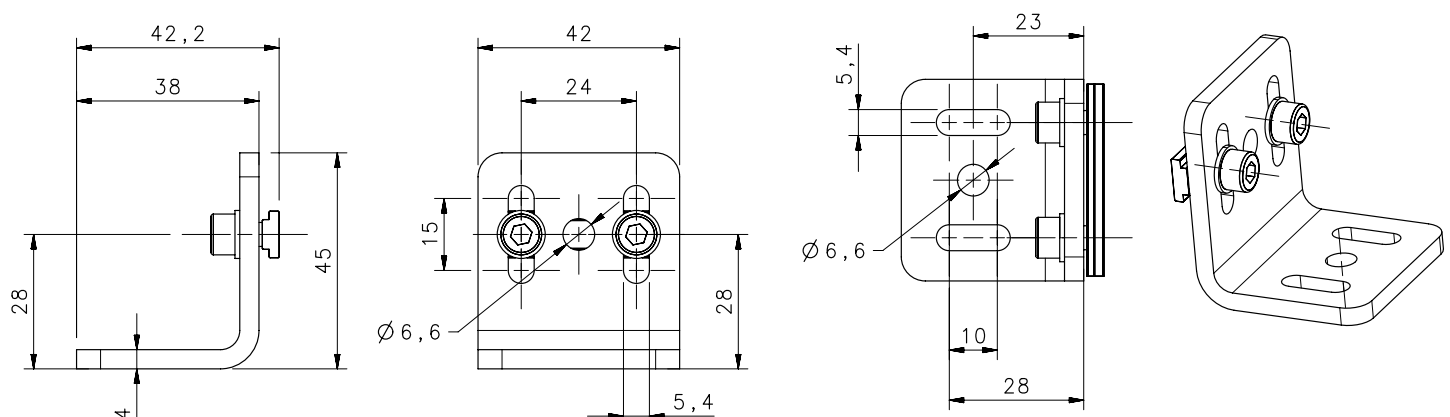
BRACKETS

Metal angled brackets

| MODEL | DESCRIPTION | ORDER NUMBER |
|--------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| ST-KSTD | Fixing brackets (4 pcs kit) COMPATIBILITY SG2 BASE, SG4 BASE SG2 EXTENDED, SG4 EXTENDED SG2/4 COMPACT BODY SG2 MUTING SG2/4 BODY BIG, SG4 BODY REFLECTOR, SG4 LONG RANGE BASE. | 95ACC1670 |
| NOTES They can be used in combination with orientable (ST-K4OR/K6OR) or antivibration (ST-K4AV/K6AV) supports. | | |



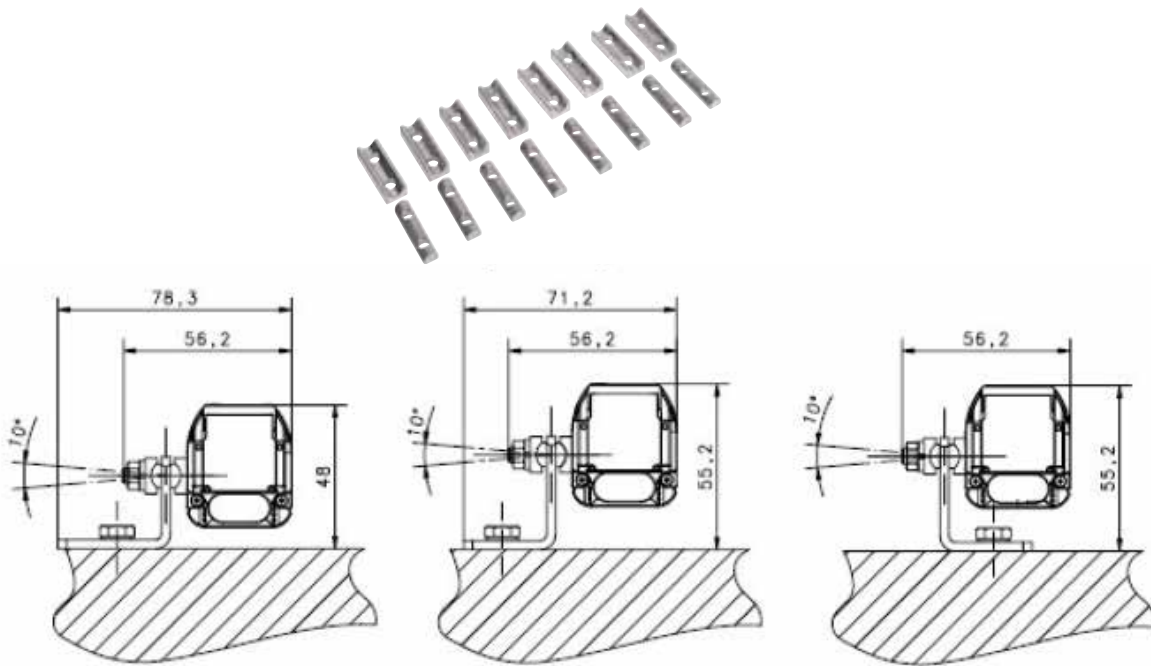
| MODEL | DESCRIPTION | ORDER NUMBER |
|----------------------|-----------------------------------------------------------------------------|--------------|
| ST-K4STD-SG BODY BIG | Fixing brackets (4 pcs kit) for SG BODY BIG COMPATIBILITY SG BODY BIG | 95ASE1950 |



ACCESSORIES | BRACKETS

| MODEL | DESCRIPTION | ORDER NUMBER |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|--------------|
| ST-K4OR | Orientable supports (4 pcs kit) | 95ACC1680 |
| ST-K6OR | Orientable supports (6 pcs kit) | 95ACC1690 |
| COMPATIBILITY | | |
| SG2 BASE, SG4 BASE SG2 EXTENDED, SG4 EXTENDED SG2/4 COMPACT BODY SG2 MUTING SG2/4 BODY BIG, SG4 BODY REFLECTOR, SG4 LONG RANGE BASE. | | |
| NOTES | | |

They can be used together with metal angled fixing brackets (ST-KSTD) or plastic angled mounting brackets (ST-KP4MP/KP6MP), also in combination with antivibration supports (ST-K4AV/K6AV)



Angled mounting bracket

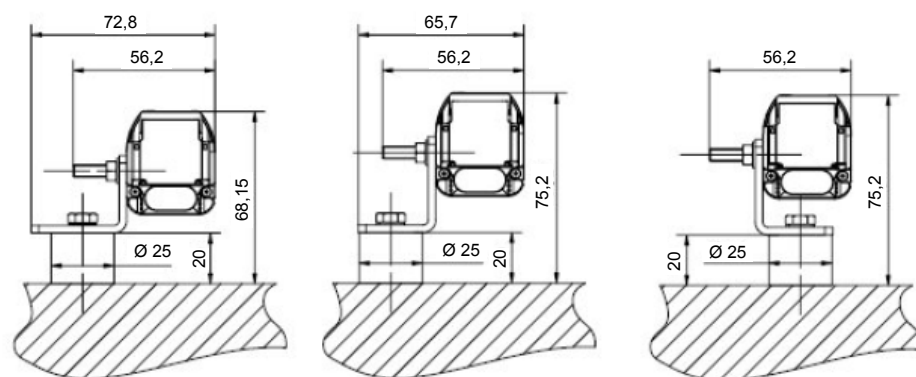
NOTE: the dimensions are related to SG4 EXTENDED. For other models of light curtains, refer to their manual.

| MODEL | DESCRIPTION | ORDER NUMBER |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|--------------|
| ST-K4AV | Anti-vibration supports (4 pcs kit) | 95ACC1700 |
| ST-K6AV | Anti-vibration supports (6 pcs kit) | 95ACC1710 |
| COMPATIBILITY | | |
| SG2 BASE, SG4 BASE SG2 EXTENDED, SG4 EXTENDED SG2/4 COMPACT BODY SG2 MUTING SG2/4 BODY BIG, SG4 BODY REFLECTOR, SG4 LONG RANGE BASE. | | |
| NOTES | | |

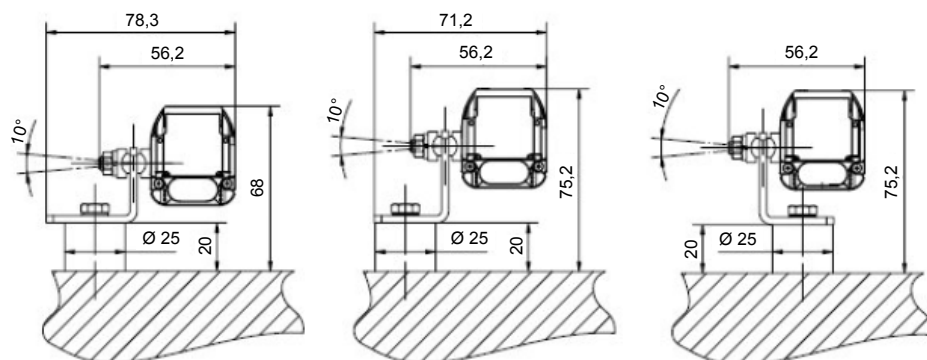
Anti-vibration supports to be used together with metal angled mounting brackets (ST-KSTD, ST-K4STD-SG BODY BIG) or plastic angled mounting brackets (ST-KP4MP/KP6MP), also in combination with orientable supports (ST-K4OR/K6OR).



ACCESSORIES | BRACKETS



Angled fixing bracket + Antivibration support



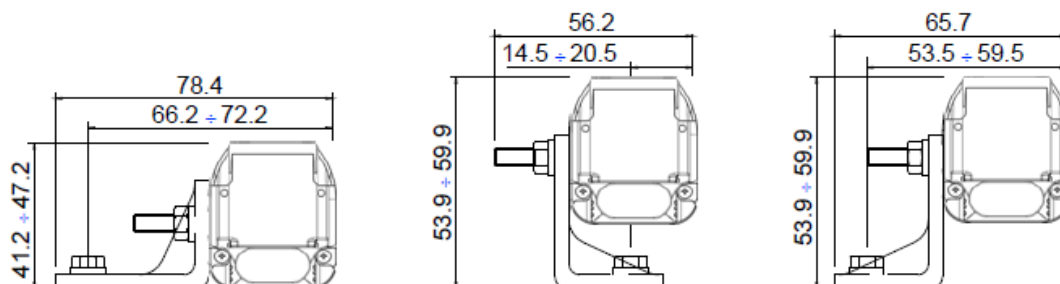
Angled mounting bracket + Orientable support + Anti-vibration support

NOTE: the dimensions (mm) are related to SG4 EXTENDED. For other models of light curtains, refer to their manual.

Plastic angled brackets

| MODEL | DESCRIPTION | ORDER NUMBER |
|------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|--------------|
| ST-KP4MP | Fixing brackets (4 pcs kit) | 95ASE1100 |
| ST-KP6MP | Fixing brackets (6 pcs kit) | 95ASE1110 |
| COMPATIBILITY | | |
| SG2 BASE, SG4 BASE SG2 EXTENDED, SG4 EXTENDED SG2/4 BODY COMPACT SG2 MUTING SG2/4 BODY BIG SG4 BODY REFLECTOR SG4 LONG RANGE BASE. | | |
| NOTES | | |

They can be used in combination with orientable (ST-K4OR/K6OR) or antivibration (ST-K4AV/K6AV) supports.

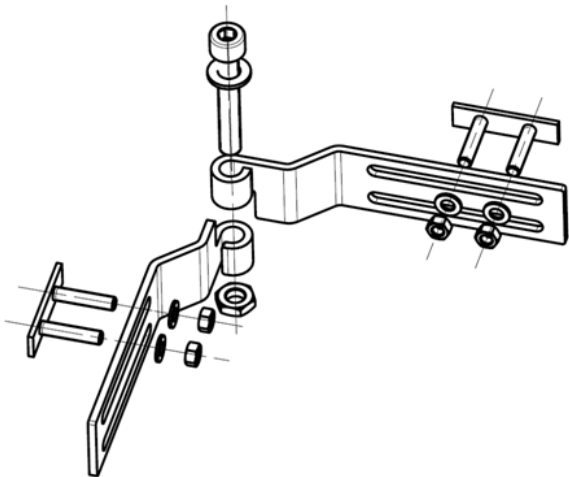


NOTE: the dimensions (mm) are related to SG4 EXTENDED. For other models of light curtains, refer to their manual.

ACCESSORIES | BRACKETS

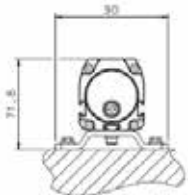
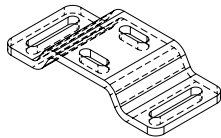
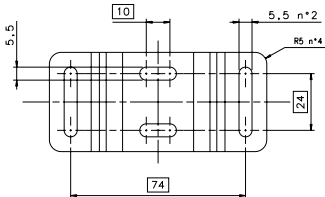
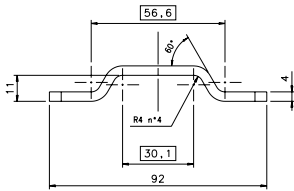
Cascade brackets

| MODEL | DESCRIPTION | ORDER NUMBER |
|-------------------------|---------------------------------------------|--------------|
| ST-KCASCAD-SEG EXTENDED | Connection Bracket for SG4 EXTENDED Cascade | 95ASE2110 |
| COMPATIBILITY | | SG4 EXTENDED |



Rear brackets

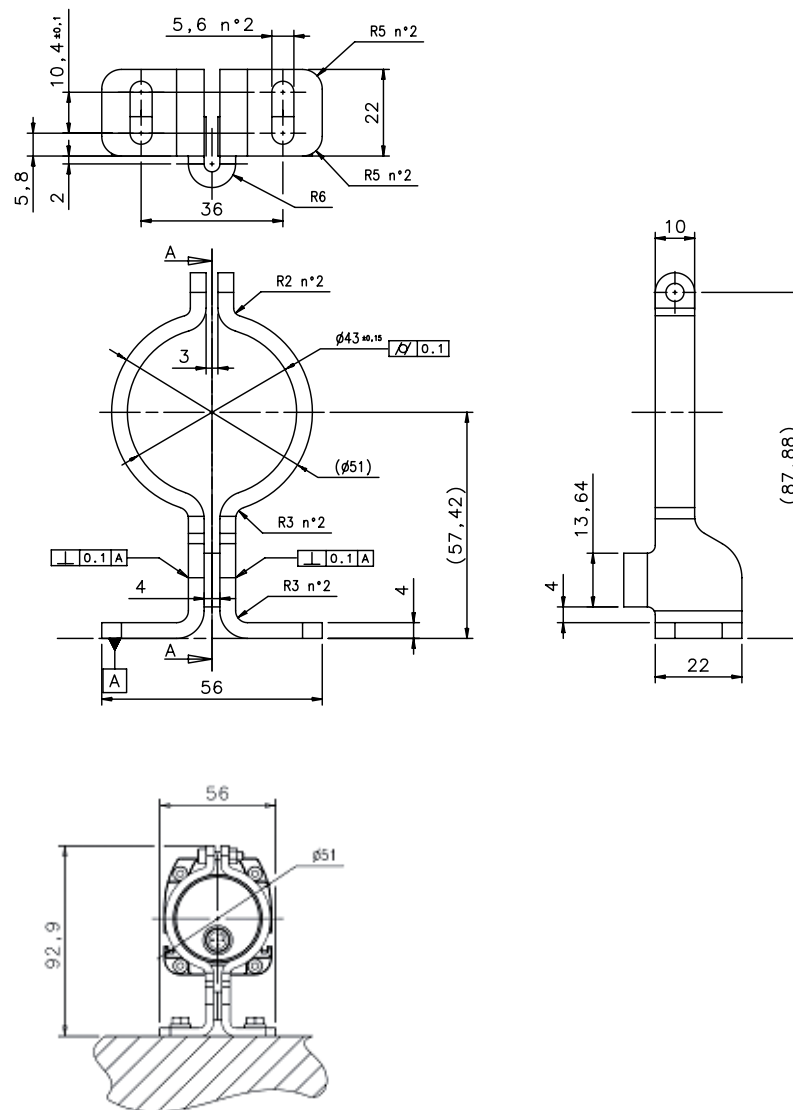
| MODEL | DESCRIPTION | ORDER NUMBER |
|------------------------|----------------------------------------------|----------------------------------------------------------|
| ST-K4REAR-SEG BODY BIG | Metal rear bracket mounting kit (4 brackets) | 95ASE1970 |
| COMPATIBILITY | | SG BODY BIG SG BODY REFLECTOR SG4 LONG RANGE BASE. |



ACCESSORIES | BRACKETS

Rotative brackets

| MODEL | DESCRIPTION | ORDER NUMBER |
|----------------------------------------------------------|-----------------------------------------------------------------------|--------------|
| ST-K4ROT-SG BODY BIG | Metal top-bottom rotative fixing bracket mounting kit (4 brackets) | 95ASE1960 |
| COMPATIBILITY | | |
| SG BODY BIG SG BODY REFLECTOR SG4 LONG RANGE BASE. | | |

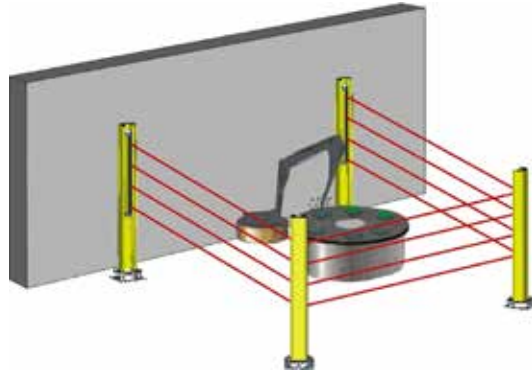


ACCESSORIES

MIRRORS AND STANDS

In applications where the monitoring of an area is required, safety light curtains can be used together with mirror for perimetral protection.

DATALOGIC offers a series of stands with adjustable mirrors already in place for 2, 3, 4 beam safety light curtains (SG-PSM), or the option to build a configuration, applying SG-DM mirrors to SE-S or SG-PSB stands.



GUIDELINE FOR THE USE OF MIRRORS WITH SAFETY LIGHT CURTAINS

The alignment of safety light curtains can sometimes be critical because of the long distance that beams have to cover or because of environmental conditions like for example the presence of dust or the irregularity of the floor on which the stands are placed.

The reason behind this difficulty is that the beams of a safety light curtain can span in an angle that must be, for safety reasons, limited to values defined by technical standards, harmonized with Machine Directive (i.e. at 3 meters, the angle is 2.5° for a Type 4 safety light curtain).

If mirrors are used to deflect the beams between emitter and receiver, the intensity of the beams is reduced, and by consequence also the maximum reachable distance. Moreover, for inevitable tolerances in opto-mechanical assembly, it's not possible to guarantee that all light curtains beams are parallel to each other, and the use of mirrors always amplifies those unevennesses.

By consequence, the higher is the number of the beams, the bigger is the risk to lose alignment of one of them and, even if alignment is reached, to have an unstable alignment: if the light curtain or a mirror is hit, the alignment can be lost. Finger and hand protection safety light curtains have so many beams that in case of several mirrors reflections, the risk of losing alignment is extremely high.

For all these reasons, since for finger or hand protection safety light curtains it is impossible to guarantee a stable alignment with more than one mirror, we exclude in these cases the use of more than one mirror.

The use of more than one mirror is possible only for body protection safety light curtains (that is, with 2, 3 or 4 beams), and when the mirrors used are belonging to DATALOGIC SG-PSM series, that allow the orientation of each single mirror independently.

The correct operating distance calculation (i.e. the maximum trajectory length of the beams between emitter and receiver, passing by the mirrors, in condition of perfect alignment and without presence of dust and fog), must consider a reflection factor of 80%, like in the following table:

| MIRRORS | RANGE BETWEEN TRANSMITTER AND RECEIVER | | | | | |
|---------|------------------------------------------------|-----|------|------------------------------------------|------|------|
| | FINGER/HAND RESOLUTION (SG-DM MIRRORS USED) | | | BODY RESOLUTION (SG-PSM MIRRORS USED) | | |
| 0 | 6,0 | 7,0 | 19,0 | 20,0 | 50,0 | 60,0 |
| 1 | 4,8 | 5,6 | 15,2 | 16,0 | 40,0 | 48,0 |
| 2 | N/A | N/A | N/A | N/A | 32,0 | 38,4 |
| 3 | N/A | N/A | N/A | N/A | 25,6 | 30,7 |

ACCESSORIES | MIRRORS AND STANDS

Stands with adjustable mirrors (SG-PSM)

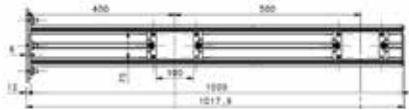
Stands with adjustable pre-mounted mirrors, to protect them from accidental collisions.

An industrial steel base made with 2 plates, dowels and spheric level for adjustment of the vertical axis, slots for angular adjustment.

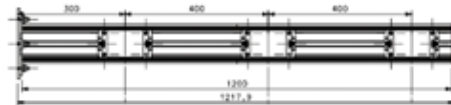
The effect of collisions, vibrations and uneven floor surfaces can be compensated by using SG-P plate kit (to be ordered separately).

| MODEL | DESCRIPTION | ORDER NUMBER |
|---------------|-------------------------------------------|--------------|
| SG-PSM-2-500 | Protective stand with 2 mirrors H=500 mm | 95ASE2300 |
| SG-PSM-3-800 | Protective stand with 3 mirrors H=800 mm | 95ASE2310 |
| SG-PSM-4-900 | Protective stand with 4 mirrors H=900 mm | 95ASE2320 |
| SG-PSM-4-1200 | Protective stand with 4 mirrors H=1200 mm | 95ASE2330 |

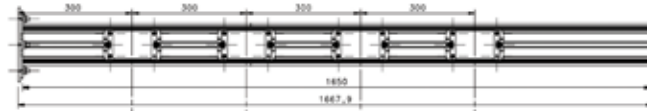
SG-PSM-2-500



SG-PSM-3-800



SG-PSM-4-900



SG-PSM-4-1200

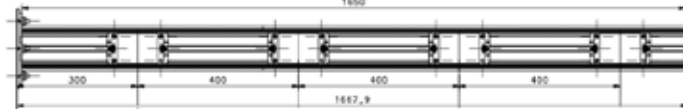


PLATE KIT SG-P

| MODEL | DESCRIPTION | ORDER NUMBER |
|-----------------------------------------------|---------------------------------|--------------|
| SG-P | Plate kit for protective stands | 95ASE2290 |
| COMPATIBILITY | | |
| protection stands SG-PSB mirror stands SG-PSM | | |

NOTES

The kit includes two plates and three springs, to compensate the effect of collisions, vibrations and uneven floor surfaces.

The plate kit can be used with protection stands SG-PSB and with mirror stands SG-PSM



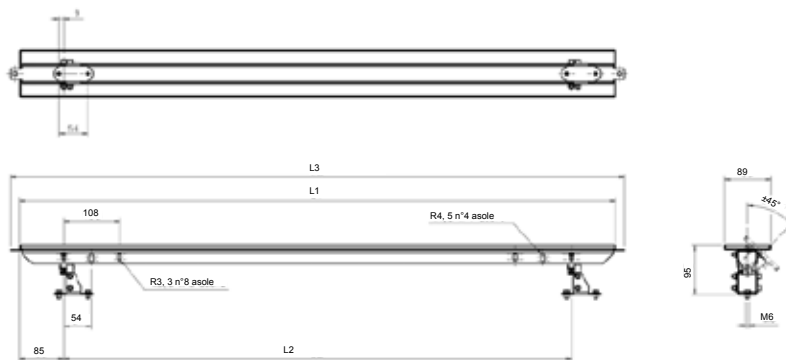
ACCESSORIES | MIRRORS AND STANDS

Mirrors

MIRRORS FOR FINGER AND HAND PROTECTION SAFETY LIGHT CURTAINS (SG-DM)

| MODEL | DESCRIPTION | ORDER NUMBER |
|------------|----------------------------------|--------------|
| SG-DM 600 | Deviating mirror version 600 mm | 95ASE1680 |
| SG-DM 900 | Deviating mirror version 900 mm | 95ASE1690 |
| SG-DM 1200 | Deviating mirror version 1200 mm | 95ASE1700 |
| SG-DM 1650 | Deviating mirror version 1650 mm | 95ASE1710 |
| SG-DM 1900 | Deviating mirror version 1900 mm | 95ASE1720 |

- NOTES**
1. To mount these mirrors into the stands SG-PSB, order ST-PS-DM mounting kit
 2. To mount these mirrors to columns SE-S, order one ST-DM mounting kit
 3. The mirror length has to be at least 100 mm greater than the length of the light curtain's protected area.
Ex. For a SG2-30-090-00-E (protection height = 900 mm), choose a SG-DM 1200



The image includes the mirror SG-DM and the bracket mounting kits ST-DM that includes two brackets.



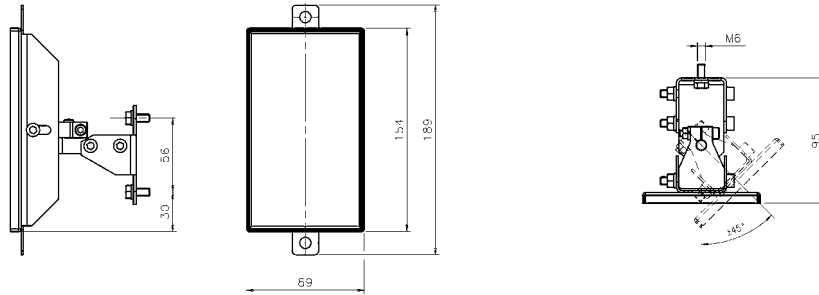
| | L1 (mm) | L2 (mm) | L3 (mm) |
|-------------|---------|---------|---------|
| SG -DM 600 | 545 | 376 | 580 |
| SG -DM 900 | 845 | 676 | 880 |
| SG -DM 1200 | 1145 | 976 | 1180 |
| SG -DM 1650 | 1595 | 1426 | 1630 |
| SG -DM 1900 | 1845 | 1676 | 1880 |

ACCESSORIES | MIRRORS AND STANDS

| MODEL | DESCRIPTION | ORDER NUMBER |
|-----------|---------------------------------|--------------|
| SG-DM 150 | Deviating mirror version 150 mm | 95ASE1670 |

NOTES

1. To mount this mirror into the stands SG-PSB order ST-PS-DM mounting kit
2. To mount this mirrors to columns SE-S, order ST-DM mounting kit



Stands

PROTECTIVE STANDS (SG-PSB) AND ACCESSORIES

| MODEL | DESCRIPTION | ORDER NUMBER |
|-------------|----------------------------|--------------|
| SG-PSB 600 | Protective Stand H=600 mm | 95ASE2240 |
| SG-PSB 1000 | Protective Stand H=1000 mm | 95ASE2250 |
| SG-PSB 1200 | Protective Stand H=1200 mm | 95ASE2260 |
| SG-PSB 1650 | Protective Stand H=1650 mm | 95ASE2270 |
| SG-PSB 1900 | Protective Stand H=1900 mm | 95ASE2280 |

COMPATIBILITY

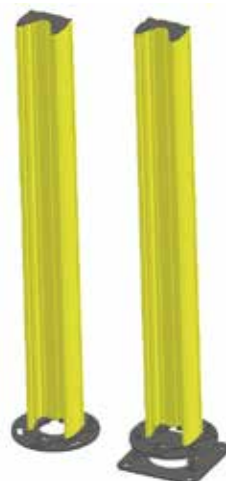
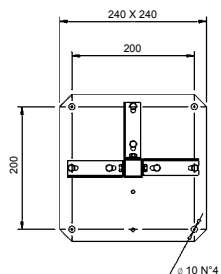
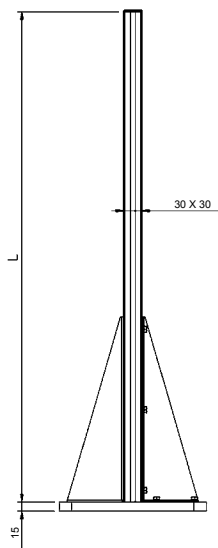
All SG Series Light Curtains SG-DM Mirrors

FLOOR COLUMNS (SE-S) AND ACCESSORIES

| MODEL | DESCRIPTION | ORDER NUMBER |
|-----------|------------------------------------|--------------|
| SE-S 800 | Column and floor stand H = 800 mm | 95ACC1730 |
| SE-S 1000 | Column and floor stand H = 1000 mm | 95ACC1740 |
| SE-S 1200 | Column and floor stand H = 1200 mm | 95ACC1750 |
| SE-S 1500 | Column and floor stand H = 1500 mm | 95ACC1760 |
| SE-S 1800 | Column and floor stand H = 1800 mm | 95ACC1770 |

COMPATIBILITY

All SG Series Light Curtains SG-DM Mirrors



Stands SE-S

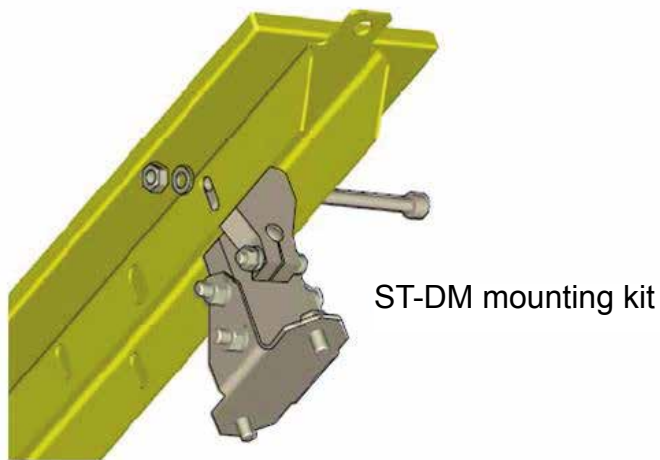
Stands SG-PSB

ACCESSORIES | MIRRORS AND STANDS

Mounting kits for mirrors

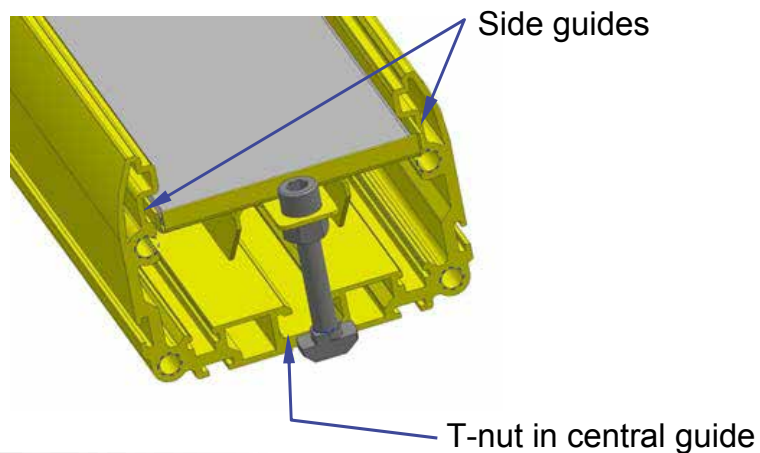
MOUNTING KIT FOR SG-DM MIRRORS ON SE-S FLOOR COLUMNS

| MODEL | DESCRIPTION | ORDER NUMBER |
|-----------------------------------------|-------------------------------------|--------------|
| ST-DM | Deviating mirror SG-DM mounting kit | 95ASE1940 |
| COMPATIBILITY | | |
| | SG-DM Mirrors on SE-S floor columns | |
| NOTE | | |
| For each mirror (SG-DMxxx) order 1 kit. | | |



MOUNTING KIT FOR SG-DM MIRRORS AND SG-PSB PROTECTIVE STANDS

| MODEL | DESCRIPTION | ORDER NUMBER |
|------------------------------------------|---------------------------------------------------|--------------|
| ST-PS-DM | Deviating mirror mounting kit (contains 2 T-nuts) | 95ASE1770 |
| COMPATIBILITY | | |
| | SG-DM Mirrors in SG-PSB protective stands | |
| NOTE | | |
| For each mirror (SG-DM xxx) order 1 kit. | | |



ACCESSORIES | MIRRORS AND STANDS

Mounting kits for safety light curtains

| MODEL | DESCRIPTION | ORDER NUMBER |
|----------------|---------------------------------------------------------------------------------------|--------------|
| ST-PS4-SG BODY | Protective stand mounting kit for SG BODY BIG (4 brackets) | 95ASE1730 |
| ST-PS6-SG BODY | Protective stand mounting kit for SG BODY BIG (6 brackets) | 95ASE1740 |
| ST-PS4-SG-SE | Protective stands mounting kit for SG/SE (4 brackets) | 95ASE1750 |
| ST-PS6-SG-SE | Protective stands mounting kit for SG/SE (6 brackets) | 95ASE1760 |
| COMPATIBILITY | | |
| ST-PSx-SG-SE | SG2 BASE SG2 EXTENDED SG2 MUTING SG4 BASE SG4 EXTENDED SG BODY COMPACT | |
| ST-PSx-SG BODY | SG BODY BIG SG BODY REFLECTOR | |

NOTES

- 1) Each kit allows to install an element (emitter or receiver, active part or passive part) of a light curtain.
To install both elements of the light curtain, order 2 kits of the same type.
- 2) For light curtains with height ≥ 1200 mm, order the 6 brackets kits (ST-PS6-SG xxxx)

ACCESSORIES

ACCESSORIES FOR MUTING

Some models of Safety Light Curtains series SG BODY COMPACT MUTING and SG BODY REFLECTOR MUTING are provided with active/passive muting arms in the packaging, but it's also possible to add muting arms as accessories (if the light curtain has integrated muting function).

Instead of using the active/passive arm couple, in which on side is an active sensor, and the other is a passive reflector, in order to reach longer operating distance or to contrast the effect of environmental conditions, is possible to order also 'F/G' muting arm couples, composed by an emitter and a receiver arm.

IMPORTANT NOTICE: For safety reasons, L muting arms should be used only for openings through which goods must exit from the dangerous area: for openings in which goods must enter the dangerous area, as well as for bi-directional movements, use T muting arms.



Integrated Muting Arms

ACTIVE/PASSIVE ARMS

| MODEL | DESCRIPTION | ORDER NUMBER |
|--------------|-----------------------------------------|--------------|
| SG-L-ARMS V2 | Active/Passive arms Couple for L muting | 95ASE1861 |
| SG-T-ARMS V2 | Active/Passive arms Couple for T muting | 95ASE1871 |
| SG-AS-ARM V2 | Active sensor single arm | 95ASE1841 |
| SG-PR-ARM V2 | Passive reflector single arm | 95ASE1851 |

EMITTER/RECEIVER ARMS

| | | |
|---------------|----------------------------------------------|-----------|
| SG-F1-G1-ARMS | Emitter/Receiver arms couple (first couple) | 95ASE1880 |
| SG-F2-G2-ARMS | Emitter/Receiver arms couple (second couple) | 95ASE1890 |



SG-L-ARMS



SG-T-ARMS

ACCESSORIES | MIRRORS AND STANDS

BRACKETS AND CABLES

| MODEL | DESCRIPTION | ORDER NUMBER |
|----------------|-----------------------------------------------------|--------------|
| SG-CB-B | Muting arms mounting bracket kit for BIG series | 95ASE1920 |
| SG-CB-C | Muting arms mounting bracket kit for COMPACT series | 95ASE1930 |
| CV-Y1-02-B-007 | M12 4 pole T muting cable | 95ACC2560 |
| CV-L1-02-B-007 | M12 4 pole L muting cable | 95ACC2570 |



CV-L1-02-B-007



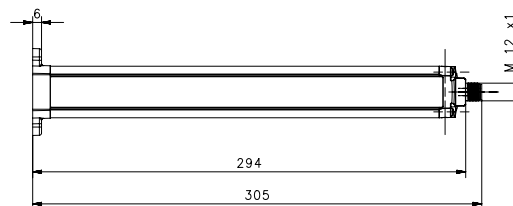
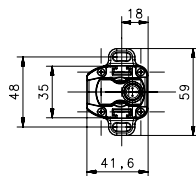
CV-Y1-02-B-007

COMPATIBILITY AND OPERATING DISTANCES

| MUTING ARM | LIGHT CURTAIN | OPERATING DISTANCE |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------|--------------------|
| SG-L-ARMS V2 SG-T-ARMS V2 | SG BODY COMPACT MUTING SG2 MUTING SG4 EXTENDED | 0.5 ... 3 m |
| SG-AS-ARM V2 SG-PR-ARM V2 | SG BODY COMPACT MUTING SG BODY REFLECTOR MUTING SG2 MUTING SG4 EXTENDED SG4 BODY BIG MUTING SHORT RANGE ^A | 0.5 ... 3 m |
| SG-F1-G1-ARMS SG-F2-G2-ARMS | SG2 BODY BIG MUTING SG4 BODY BIG MUTING SHORT RANGE ^A SG BODY COMPACT MUTING | 0.5 ... 7 m |

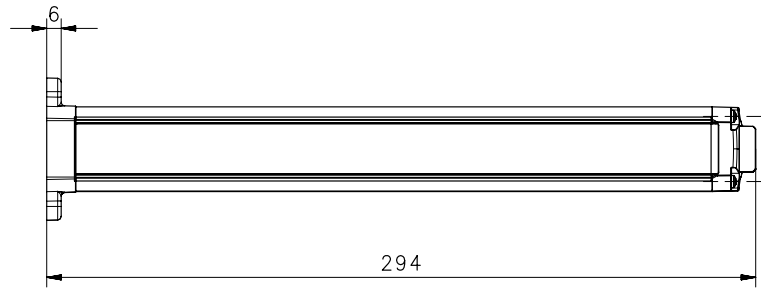
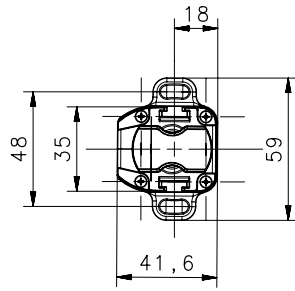
NOTES

^A SG4 BODY MUTING LONG RANGE (whose operating range is 6 ... 60 m) can't be used in combination with muting arms.



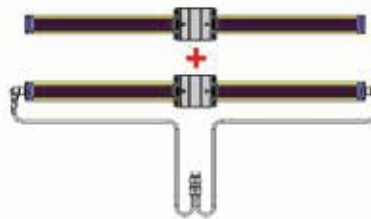
SG-AS-ARM V2

ACCESSORIES | MIRRORS AND STANDS

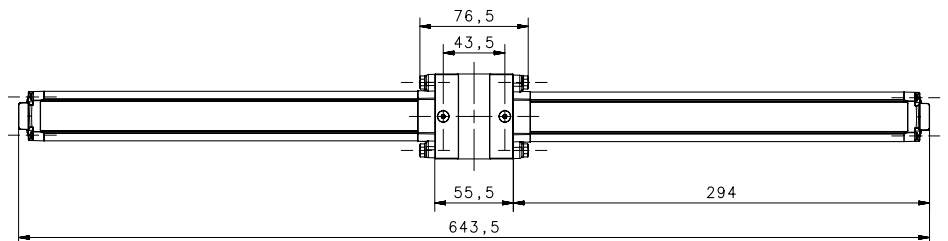
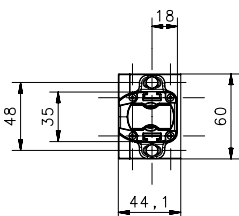
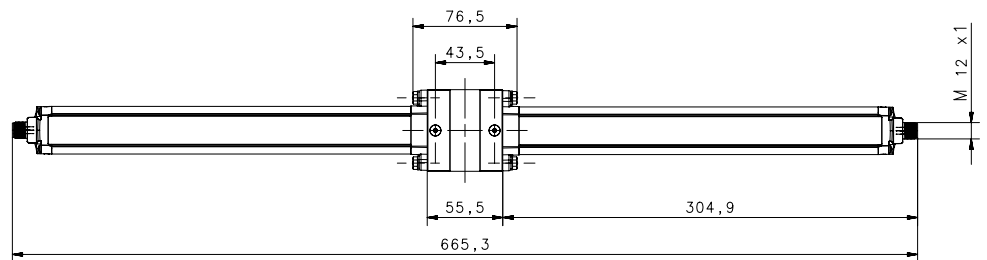
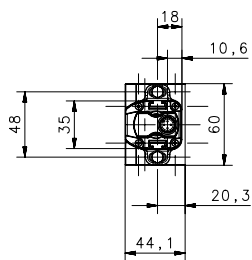
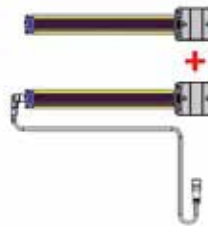


SG-PR-ARM V2

SG-T-ARMS
T COUPLE ARMS
95ASE1871

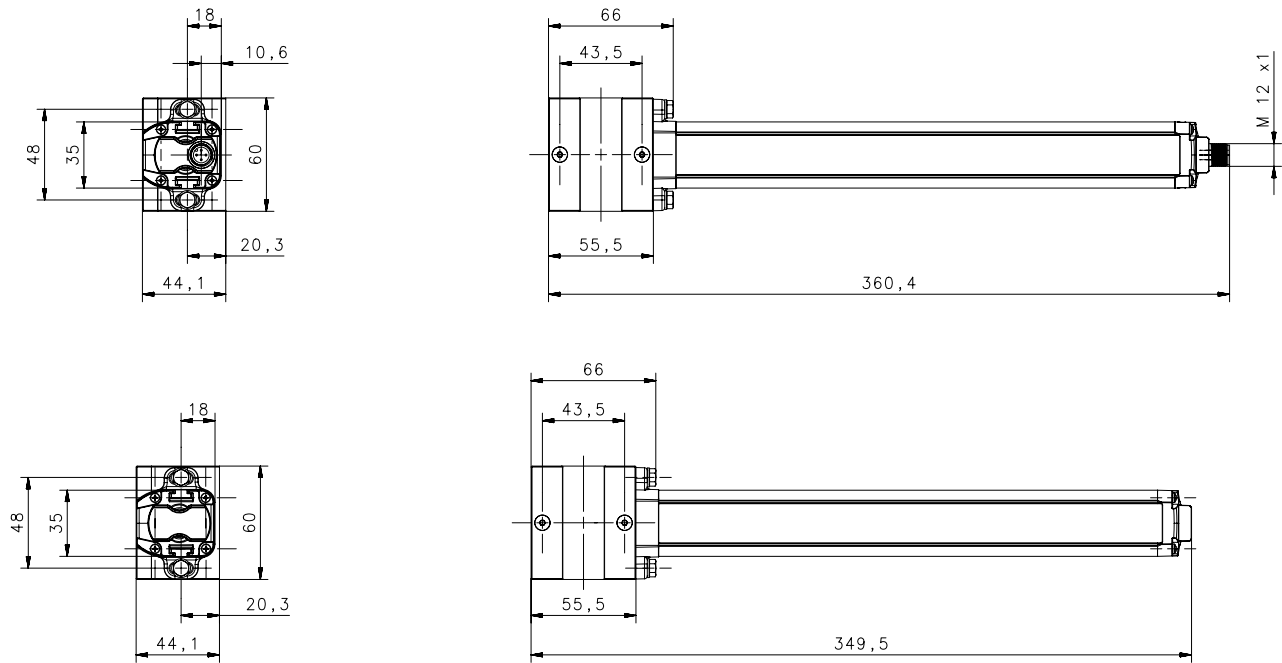


SG-L-ARMS
L COUPLE ARMS
95ASE1861



SG-PR-ARM V2 (T muting cable CV-Y1-02-B-007 is included)

ACCESSORIES | MIRRORS AND STANDS



SG-L-ARMS V2 (L muting cable CV-L1-02-B-007 is included)

ORDERING SUMMARY TABLE FOR MUTING ACCESSORIES

| SAFETY LIGHT CURTAIN | MUTING | TYPE | SG-L-ARMS V2 | SG-T-ARMS V2 | SG-AS-ARM V2 | SG-PR-ARM V2 | SG-CB-B | SG-CB-C | CV-L1-02-B-007 | CV-Y1-02-B-007 | SG-F1G1-ARMS | SG-F2G2-ARMS |
|----------------------------------------------|--------|------|--------------|--------------|--------------|--------------|---------|---------|----------------|----------------|--------------|--------------|
| SG BODY BIG MUTING | L | RRX | | | 1 | 1 | 2 | | 1 | | | |
| | T | RRX | | | 2 | 2 | 2 | | | 1 | | |
| | L | F/G | | | | | 2 | | 2 | | 1 | |
| | T | F/G | | | | | 2 | | | 2 | 1 | 1 |
| SG BODY REFLECTOR (ACTIVE AND PASSIVE SIDES) | L | RRX | | | 1 | 1 | 2 | | 1 | | | |
| | T | RRX | | | 2 | 2 | 2 | | | 1 | | |
| SG BODY COMPACT MUTING | L | RRX | 1 | | | | | | | | | |
| | L | RRX | | | 1 | 1 | | 2 | 1 | | | |
| | T | RRX | | 1 | | | | | | | | |
| | T | RRX | | | 2 | 2 | | 2 | | 1 | | |
| | L | F/G | | | | | | 2 | 2 | | 1 | |
| | T | F/G | | | | | | 2 | | 2 | 1 | 1 |
| SG2 MUTING SG4 EXTENDED | L | RRX | 1 | | | | | | | | | |
| | T | RRX | | 1 | | | | | | | | |

NOTES

RRX = Active/Passive retroreflective muting arms
F/G = Emitter/Receiver muting arms

EXAMPLES

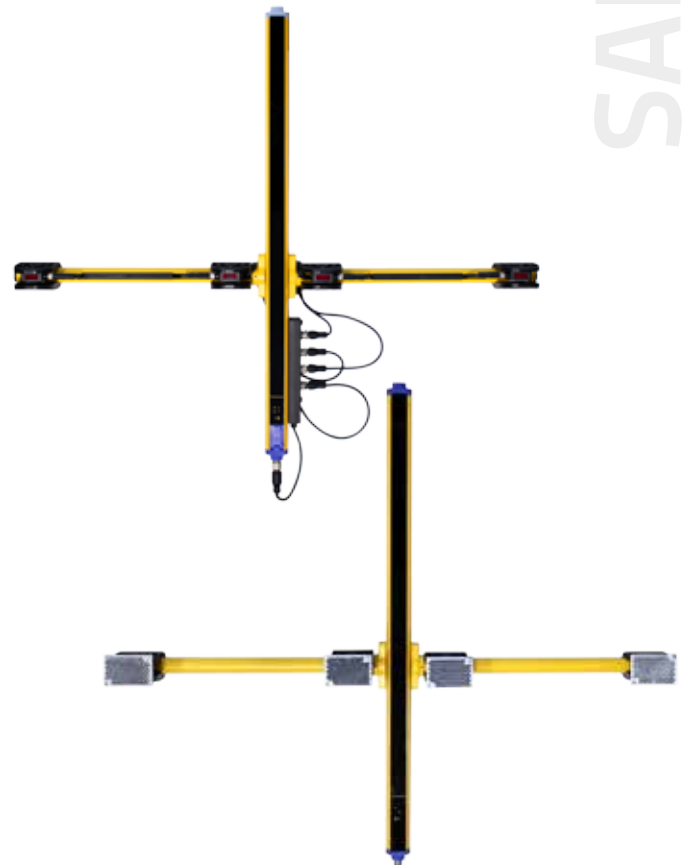
- 1) To realize an L muting with retroreflective arms starting from a SG BODY COMPACT MUTING, order the complete kit SG-L-ARMS or, in alternative, the following: 1x SG-AS-ARM, 1x SG-PR-ARM, 2x SG-CB-C, 1x CV-L1-02-B-007 .
- 2) To realize a T muting with emitter/receiver arms, starting from a SG BODY BIG MUTING, order the following: 2x SG-CB-B, 2x CV-Y1-02-B-007, 1x SG-F1G1-ARMS, 1x SG-F2G2-ARMS.

EXTERNAL SENSORS MUTING ARMS: SG-M

Modular, ready-to-use muting sensor kit for flexible installation

The SG-M muting sensors kit regulates the position and orientation of muting beams in order to adapt quickly and easily to any kind of situation.

- Ready-to-use muting kits with pre-installed sensors
- T or X configuration (bi-directional) and L configuration (mono-directional)
- Retroreflective, dark-on photocells, with the ability to regulate the intensity of the beam
- Maximum reachable distance: 3 m
- Sensors and reflectors can be positioned along the arms and orientated both horizontally and vertically
- Fast connection of up to 4 sensors to one safety light curtain through a connection box with M12 connectors
- 700 mm or 2000 mm cables for installation of the kit on the light curtains or on protective stands



SAFETY

APPLICATIONS

- Palletizers / Depalletizers
- Conveyor lines

INDUSTRIES

Material Handling, Food & Beverage, Metal working, Automotive, Wood, Ceramics

CE

SG-M L-S8-200-L

| MUTING CONFIGURATION | |
|----------------------|----------------------------------------------------------------------------------------|
| L | L configuration: 2 sensors, 2 reflectors. Parallel beams. Monodirectional (Exit only). |
| T | T configuration: 4 sensors, 4 reflectors. Parallel beams. Bidirectional. |
| X | X configuration: 2 sensors, 2 reflectors. Crossed beams. Bidirectional. |

| CABLE LENGTH | |
|--------------|---------|
| -- | 700 mm |
| 200 | 2000 mm |

| MUTING SENSOR | |
|---------------|----------------------|
| S8 | 2 x S8-PR-5-B01-PP |
| S100 | 2 x S100-PR-5-B10-PK |

| ARM ORIENTATION | |
|-----------------|------------------------------------------------------------------------|
| L | Left: the muting arm is to the left, looking at light curtain receiver |
| R | Right: muting arm is to the right, looking at light curtain receiver |

A FLEXIBLE SOLUTION FOR MUTING

In some access guarding applications, like in palletizing/depalletizing machines, safety light curtains are muted while a load passes through their monitored area.

When the load has an irregular shape, or has holes in it, muting can end before the load has completely passed the light curtain, causing the unnecessary stop of the machine. In cases like this, the ability to regulate the position and orientation the position and orientation of muting beams with increased flexibility, allows the system to adapt quickly and easily to any kind of situation. To simplify the installation of muting sensors in these kind of applications, Datalogic has developed the new SG-M muting sensors modular Kits. The SG-M includes retroreflective photocells as muting sensors, reflectors, cylindrical metallic arms, orientable plastic brackets, cables with M12 connectors, and a connection box for the quick wiring of the sensor outputs to the safety light curtain dedicated muting connector.

The SG-M is the newest addition to a safety portfolio that includes integrated muting arms (SG-T-ARM and SG-L-ARM).

The arms with external sensors can be attached directly to the light curtains of SG Series (fig. 1) or to their protective stands SG-PSB (fig. 2).

With SG-M, three standard configurations for muting beams can be easily installed: T Muting (fig.3), L Muting (fig. 4 and 5) and X Muting (fig. 6).

Sensors provided with the kit are retroreflective, dark on photocells, and come in two versions:

- S100-PR-5-B10-PK, for standard applications with no specific requirements
- S8-PR-5-B01-PP for applications where beam intensity regulation is required.

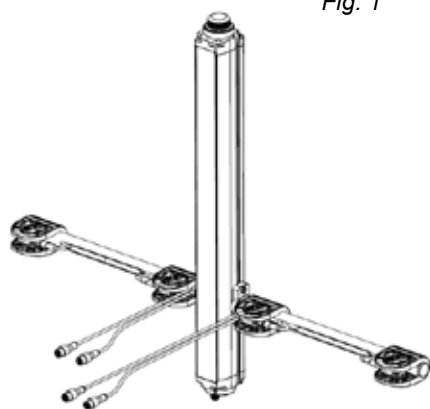
On the opposite side of the sensors, an R6 reflector is mounted.

Sensors and reflectors can be positioned along the arms and orientated both horizontally and vertically thanks to their brackets shape.

Sensors have detachable cables (in T and L muting kits) or pigtails. Both cables have an M12 connector M12 connector, for a quick connection to the safety light curtains through a dedicated connection box (SG-M-CB), or to an external safety controller through normal cables.

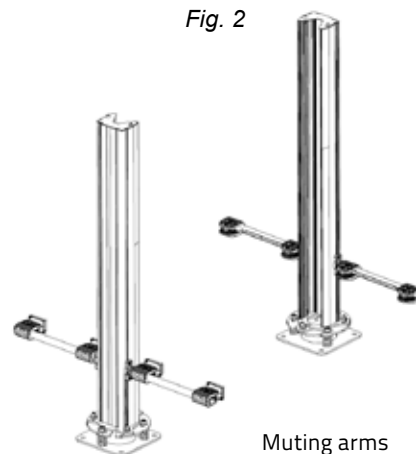
The cables are protected inside the metallic arms and have different lengths (700 and 2000 mm), for easy installation on the light curtains, or on the protective stands.

Fig. 1



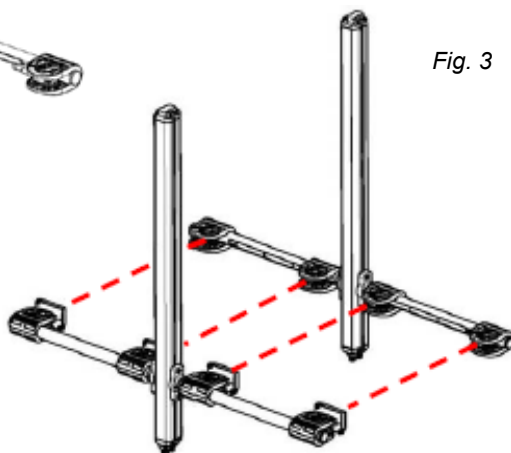
Muting arms
attached on the
light curtain

Fig. 2



Muting arms
attached to the
protective stands

Fig. 3



T muting
configuration

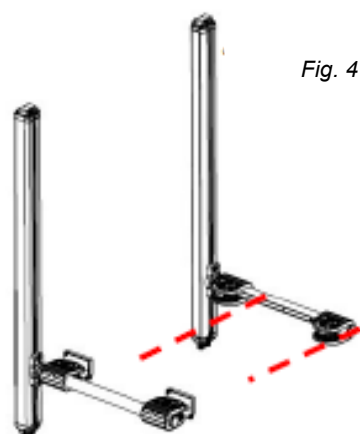


Fig. 4

L muting configuration with orientation to the right.

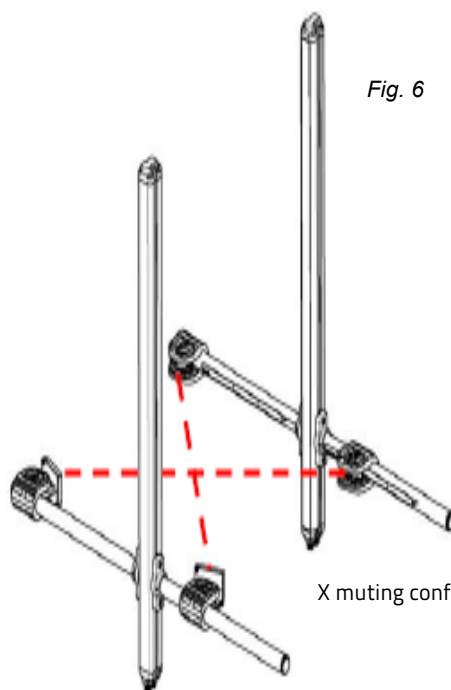


Fig. 6

X muting configuration

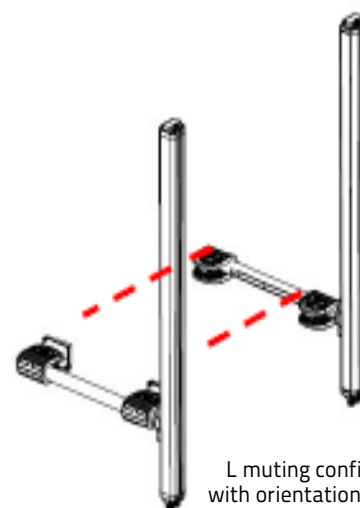


Fig. 5

L muting configuration with orientation to the left

SG-M MUTING KITS

| MUTING CONFIGURATION | MODEL | DIRECTION ^{*1} | SENSOR ADJUSTMENT TRIMMER | MIN/MAX DISTANCE ^{*4} | SENSORS ^{*2} | CABLES ^{*3} | ORDER NUMBER |
|----------------------|------------------|-------------------------|---------------------------|--------------------------------|-----------------------------|-----------------------------|--------------|
| L Muting | SG-ML-S100-L | left side | No | 0.2 ... 3 m | 2 x S100-PR-5-B10-PK | 2 x CS-M1-02-B-007 (700 mm) | 95ASE2620 |
| | SG-ML-S100-R | right side | No | 0.2 ... 3 m | 2 x S100-PR-5-B10-PK | 2 x CS-M1-02-B-007 (700 mm) | 95ASE2430 |
| | SG-ML-S100-200-L | left side | No | 0.2 ... 3 m | 2 x S100-PR-5-B10-PK | 2 x CS-M1-02-B-02 (2000 mm) | 95ASE2610 |
| | SG-ML-S100-200-R | right side | No | 0.2 ... 3 m | 2 x S100-PR-5-B10-PK | 2 x CS-M1-02-B-02 (2000 mm) | 95ASE2400 |
| | SG-ML-S8-L | left side | Yes | 0.2 ... 3 m | 2 x S8-PR-5-B01-PP | 2 x CS-M1-02-B-007 (700 mm) | 95ASE2600 |
| | SG-ML-S8-R | right side | Yes | 0.2 ... 3 m | 2 x S8-PR-5-B01-PP | 2 x CS-M1-02-B-007 (700 mm) | 95ASE2370 |
| | SG-ML-S8-200-L | left side | Yes | 0.2 ... 3 m | 2 x S8-PR-5-B01-PP | 2 x CS-M1-02-B-02 (2000 mm) | 95ASE2590 |
| | SG-ML-S8-200-R | right side | Yes | 0.2 ... 3 m | 2 x S8-PR-5-B01-PP | 2 x CS-M1-02-B-02 (2000 mm) | 95ASE2340 |
| T Muting | SG-MT-S100 | | No | 0.2 ... 3 m | 4 x S100-PR-5-B10-PK | 4 x CS-M1-02-B-007 (700 mm) | 95ASE2440 |
| | SG-MT-S100-200 | | No | 0.2 ... 3 m | 4 x S100-PR-5-B10-PK | 4 x CS-M1-02-B-02 (2000 mm) | 95ASE2410 |
| | SG-MT-S8 | | Yes | 0.2 ... 3 m | 4 x S8-PR-5-B01-PP | 4 x CS-M1-02-B-007 (700 mm) | 95ASE2380 |
| | SG-MT-S8-200 | | Yes | 0.2 ... 3 m | 4 x S8-PR-5-B01-PP | 4 x CS-M1-02-B-02 (2000 mm) | 95ASE2350 |
| X Muting | SG-MX-S100 | | No | 0.45 ... 3 m | 2 x S100-PR-2-B10-PK SV4973 | pigtail 700 mm | 95ASE2450 |
| | SG-MX-S100-200 | | No | 0.45 ... 3 m | 2 x S100-PR-2-B10-PK SV4974 | pigtail 2000 mm | 95ASE2420 |
| | SG-MX-S8 | | Yes | 0.6 ... 3 m | 2 x S8-PR-5-B01-PP SV4973 | pigtail 700 mm | 95ASE2390 |
| | SG-MX-S8-200 | | Yes | 0.6 ... 3 m | 2 x S8-PR-5-B01-PP SV4974 | pigtail 2000 mm | 95ASE2360 |

NOTE

*1 "Left side" and "Right side", related to L muting kits, refers to the position of the arm looking towards the receiver of the light curtain.

"Left side" and "Right side" kits differ only mechanically, in order to keep the regulating screws upside.

*2 In X Muting Kits, special versions of photocells with pigtails and M12 connectors have been used.

*3 Cables used in T and L muting kits have M8 connectors on the sensors side, and M12 connectors at the external side.

*4 Minimum distance of 0.2 m is determined by the light curtain. Maximum distance of 3 m is to avoid interferences between muting sensors

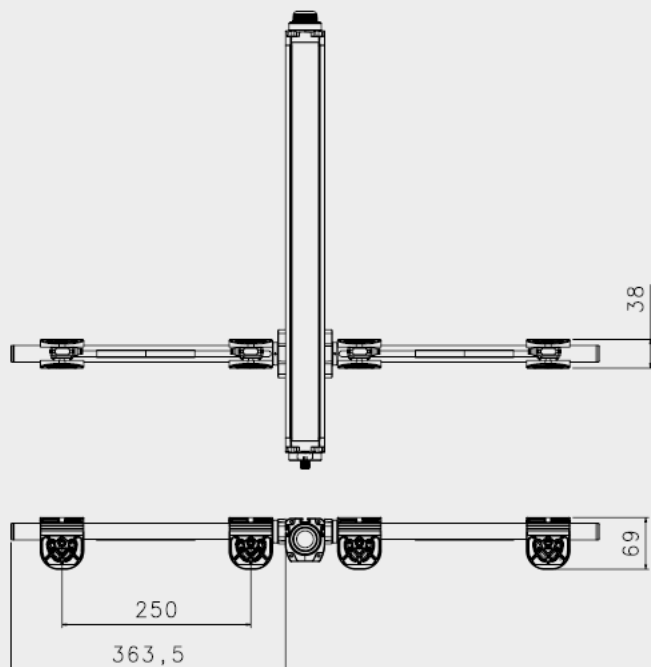
COMPATIBILITY

SG BODY COMPACT MUTING
SG BODY BIG MUTING
SG BODY REFLECTOR MUTING
SG2 MUTING
SG4 EXTENDED

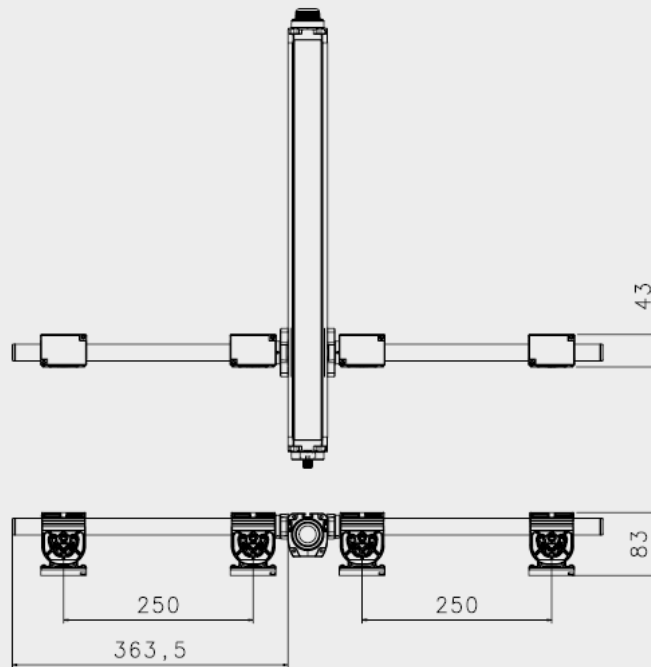
SG-PSB (only models with 2000 mm cables (SG-Mx-xxx-200-x))

DIMENSIONS

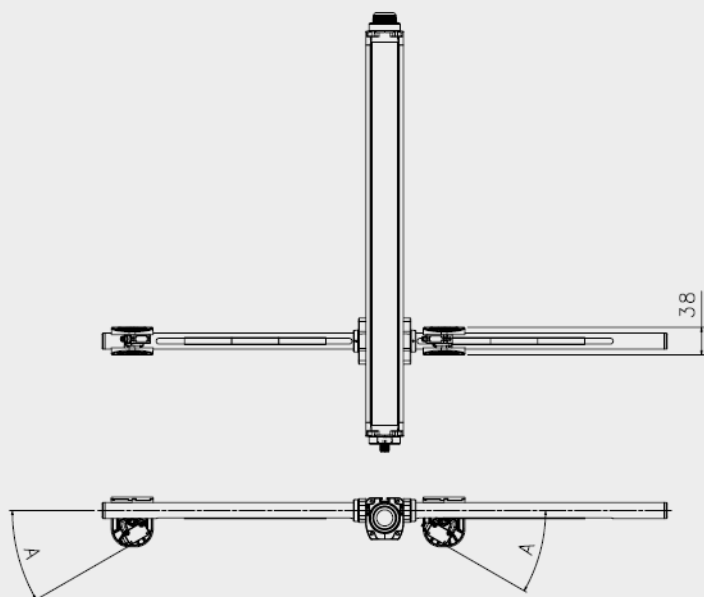
SG-M-T Active Side



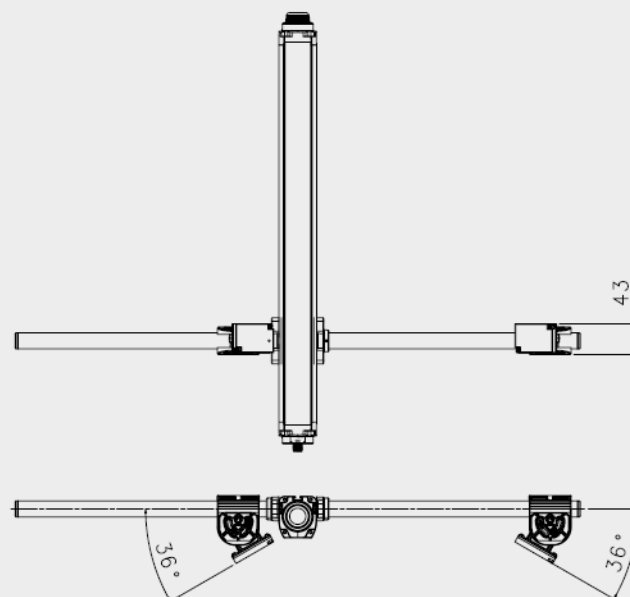
SG-M-T Passive Side



SG-M-X Active Side



SG-M-X Passive Side



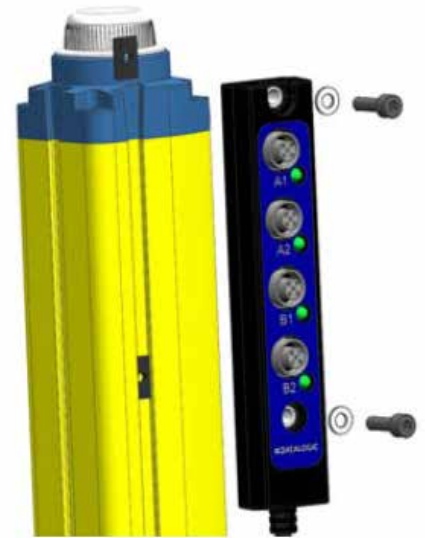
| Angle/Sensor Type | S100 | S8 |
|-------------------|------|-----|
| A | 38° | 31° |

SG-M CONNECTION BOX

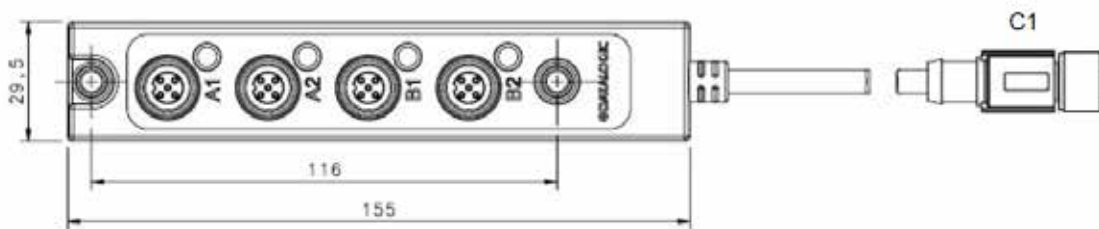
The SG-M connection box has 4 M12 connectors on board, one for each muting sensor to be connected to an SG Series light curtain. Unused connectors need to be covered by a cap, in order to maintain IP65 protection.

A green LED indicator signals when the muting sensor is generating the corresponding muting signal towards the safety light curtain.

Inside the connection box, signals are put in parallel: A1 with A2 and B1 with B2, and forwarded to the pigtail connector, that has to be inserted into the muting connector of the light curtain.



| MODEL | DESCRIPTION | ORDER NUMBER |
|------------------------------------------------------------------------------------------------------------------|------------------------------|--------------|
| SG-M-CB | Connection Box for SG-M kits | 95ASE2500 |
| SG-M-CB-KIT | SG-M-CB Mounting Kit | 95ASE2830 |
| COMPATIBILITY | | |
| SG BODY COMPACT MUTING SG BODY BIG MUTING SG BODY REFLECTOR MUTING SG2 MUTING SG4 EXTENDED SG-PSB | | |



| PIN # | S8 | S100 |
|-------|--------------|----------------------|
| 1 | +24 Vdc | |
| 2 | Alarm output | Light/Dark selection |
| 3 | 0 Vdc | |
| 4 | PnP Output | |

S100 AND S8 SENSORS

| MODEL | CHARACTERISTICS | REGULATIONS | MAX. OPERATING DISTANCE | CONNECTION | ORDER NUMBER |
|-------------------------|---------------------------------------------------------|--------------------------------------------------------|-------------------------|---------------------|--------------|
| S100-PR-5-B10-PK | Polarized retroreflective, red LED, PnP Output, Plastic | Dark/Light | 6 m | M8 | 950811310 |
| S100-PR-2-B10-PK SV4972 | | | | 400 mm pigtail M12 | 950815060 |
| S100-PR-2-B10-PK SV4973 | | | | 700 mm pigtail M12 | 950815070 |
| S100-PR-2-B10-PK SV4974 | | | | 2000 mm pigtail M12 | 950815080 |
| S8-PR-5-B01-PP | | Dark/Light Mono-turn sensitivity adjustment trimmer | 7 m | M8 | 950801160 |
| S8-PR-5-B01-PP SV4972 | | | | 400 mm pigtail M12 | 950805340 |
| S8-PR-5-B01-PP SV4973 | | | | 700 mm pigtail M12 | 950805350 |
| S8-PR-5-B01-PP SV4974 | | | | 2000 mm pigtail M12 | 950805360 |

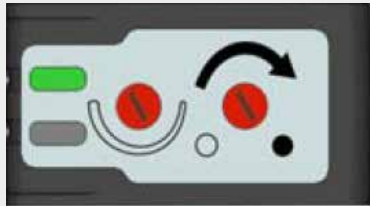
NOTES

1* With reflector R6

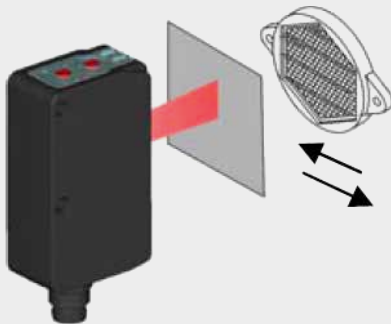
For more detailed technical information about the sensors, refer to Datasheet of S100 or S8 families.

S8 SETTINGS

DARK



Rotate trimmer in a clockwise direction to set the DARK mode (output ON in presence of the object).



Position the sensor in front of its reflector



If needed, regulate the intensity of the beam by rotating the adjustment trimmer

SPARE PARTS

| MODEL | NOTES | ORDER NUMBER |
|----------------|---------------------------------------------------------------|--------------|
| SG-M-ARM | Cylindrical Metallic Arm | 95ASE2460 |
| CS-M1-02-B-004 | 4 poles M8 female M12 male cable 400mm | 95ASE2470 |
| CS-M1-02-B-007 | 4 poles M8 female M12 male 700mm | 95ASE2480 |
| CS-M1-02-B-02 | 4 poles M8 female M12 male 2000mm | 95ASE2490 |
| SG-M BRACKET | Single plastic orientable bracket, to mount S8, S100, or R6 | 95ASE2630 |
| R6 | Prismatic reflector 36 x 55 mm – plastic support 40.5 x 60 mm | 95A151350 |

ACCESSORIES | MIRRORS AND STANDS

Muting lamps

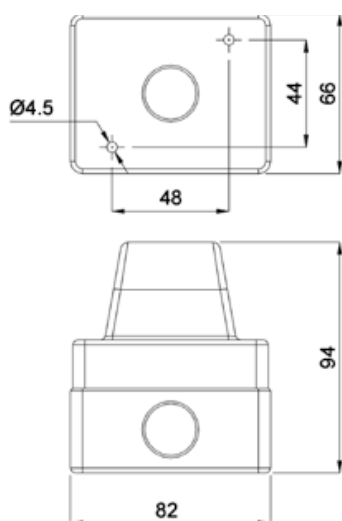
Depending on the risk assessment, an indicator to show when the muting function is active can be necessary. This indicator shows that the normal protective function of the light curtain is temporary suspended. The muting indicator should have sufficient brightness and be installed so as to be readily visible from any foreseeable position where a person can attempt to access the hazard zone.



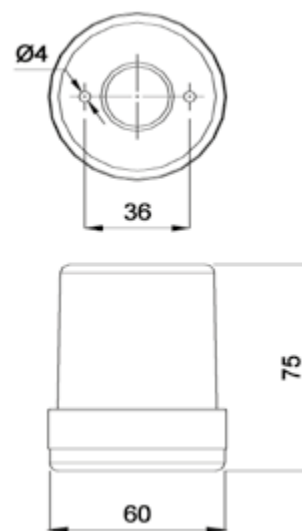
| MODEL | DESCRIPTION | ORDER NUMBER |
|-----------|-----------------------------------|--------------|
| LMS | Muting lamp | 95ASE1830 |
| LMS-1 | Modular Muting lamp | 95ACC1990 |
| LMS-2 | Muting lamp - horizontal mounting | 95ACC2000 |
| LMS-3 | Muting lamp - vertical mounting | 95ACC2010 |
| SU-LMS-1A | Basic support for LMS-1 | 95ACC2020 |
| SU-LMS-1B | Tower module for LMS-1 | 95ACC2030 |

NOTES

- 1) LMS, LMS-1, LMS-2 and LMS-3 are provided with incandescent light bulbs (3W, 24V)
- 2) LMS-1 has to be ordered with one of the two supports: SU-LMS-1A or SU-LMS-1B
- 3) External muting lamp is also available con Muting Connection Box SG-SRT2

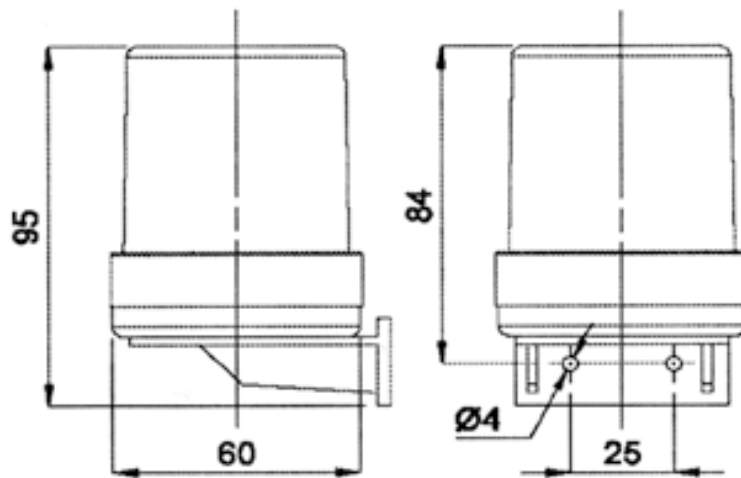


LAMP LMS

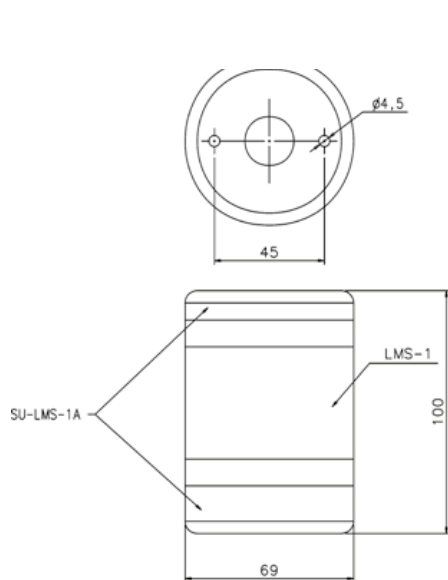


LAMP LMS-2

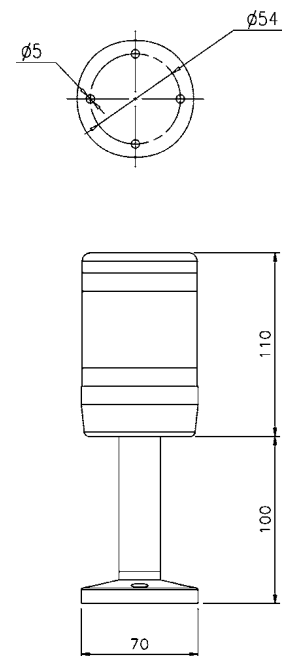
ACCESSORIES | MIRRORS AND STANDS



LAMP LMS-3



SUPPORT SU-LMS-1A
LAMP LMS-1



SUPPORT SU-LMS-1B
LAMP LMS-1

ACCESSORIES

SAFETY UNITS AND INTERFACES

SE-SR2 is a safety unit that can be used in combination with every DATALOGIC Safety Light Curtains.

It provides dual-channel operation without detection of shorts across contacts.

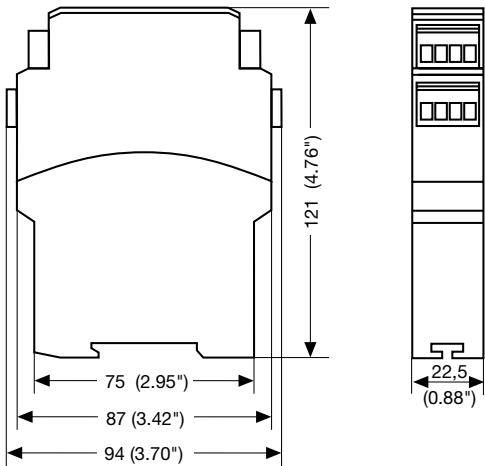
Short circuits and earth faults in the pushbutton circuit are detected.

CS-ME is an interface with two forcibly guided relays, providing 3 NO contacts. The diagnostic function must be performed by the Safety Light Curtains through External Device Monitoring function.

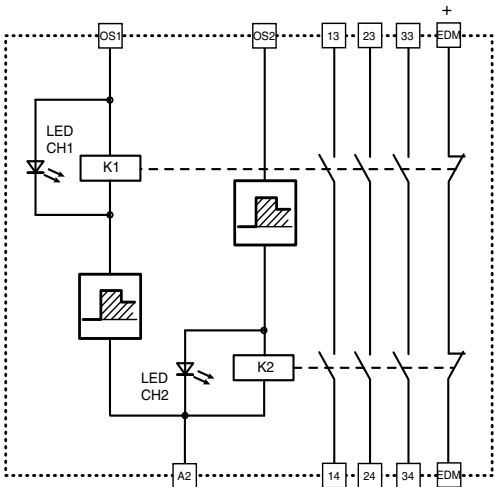


| | SE-SR2 | CS-ME |
|-----------------------------------|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| GENERAL DATA | | |
| PL (EN ISO 13849-1) | e | up to e (depending on ESPE) |
| SIL (IEC 61508) | 3 | up to 3 (depending on ESPE) |
| ELECTRICAL DATA | | |
| Power supply | 24 Vdc -15/+10% | 24 Vdc -/+20% |
| Outputs | | |
| Safe outputs (Cat. 4) | 3 NO | 3 NO |
| Auxiliary outputs | 1 NC | 1 NC |
| Response time | | |
| Following input going OFF | typ. 10 ms, max. 20 ms | 15 ms |
| With power failure | typ. 70 ms, max. 120 ms | 15 ms |
| Recovery time | | |
| Following inputs going ON | 50 ms | 40 ms |
| After power on | 150 ms | 40 ms |
| MECHANICAL AND ENVIRONMENTAL DATA | | |
| Operating temperature | -10 ... +55°C | -25 ... +55°C |
| Humidity | 15 ... 95 % (no condensation) | 15 ... 95 % (no condensation) |
| Mechanical protection | IP20 | IP20 |
| FUNCTIONS | | |
| Reset modes | Automatic/Manual/Monitored | Automatic |
| External Device Monitoring | Available on SE-SR2 | Must be activated on Safety Light Curtain (ESPE) |
| COMPATIBILITY | | |
| | All DATALOGIC Safety Light Curtains | All DATALOGIC Safety Light Curtains with EDM function: SG2 EXTENDED SG2 MUTING SG2 BASE, SG4 BASE SG BODY COMPACT SG BODY BIG SG BODY REFLECTOR SG BODY COMPACT SG4 EXTENDED SLIM |

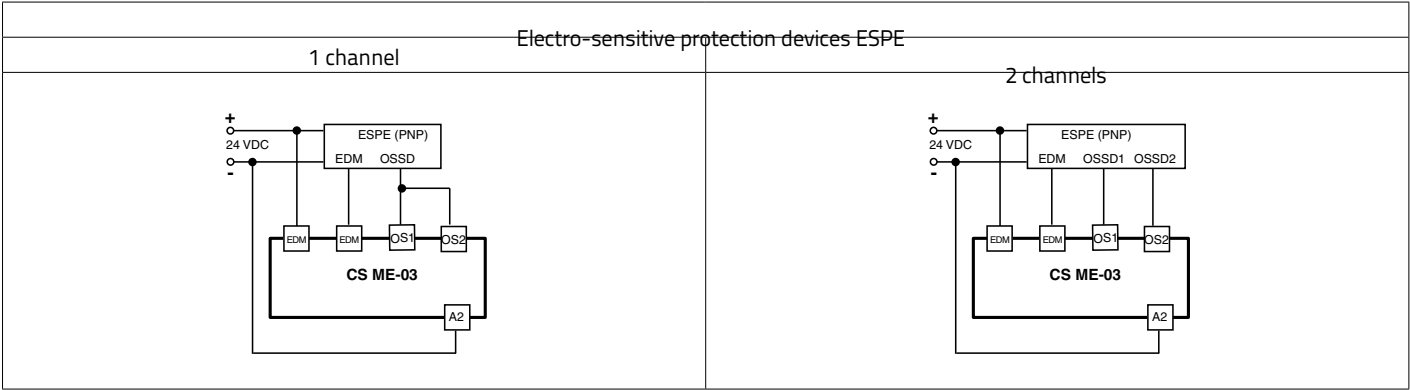
ACCESSORIES | SAFETY UNITS AND INTERFACES



CS-ME INTERNAL DIAGRAM



CS-ME WIRING DIAGRAM



| MODEL | DESCRIPTION | ORDER NUMBER |
|-----------------|---------------------------------|--------------|
| SE-SR2 | Safety Unit | 95ACC6170 |
| CSME-03VU24-Y14 | Forcibly guided relay interface | 95ASE1270 |

ACCESSORIES | SAFETY UNITS AND INTERFACES

Connection Boxes

SG-SRT1 and SG-SRT2 are interfaces provided with redundant forcibly guided relays, supplying a ready operator interface to restart or override the Safety Light Curtain, and have muting indication.



SG-SRT-1



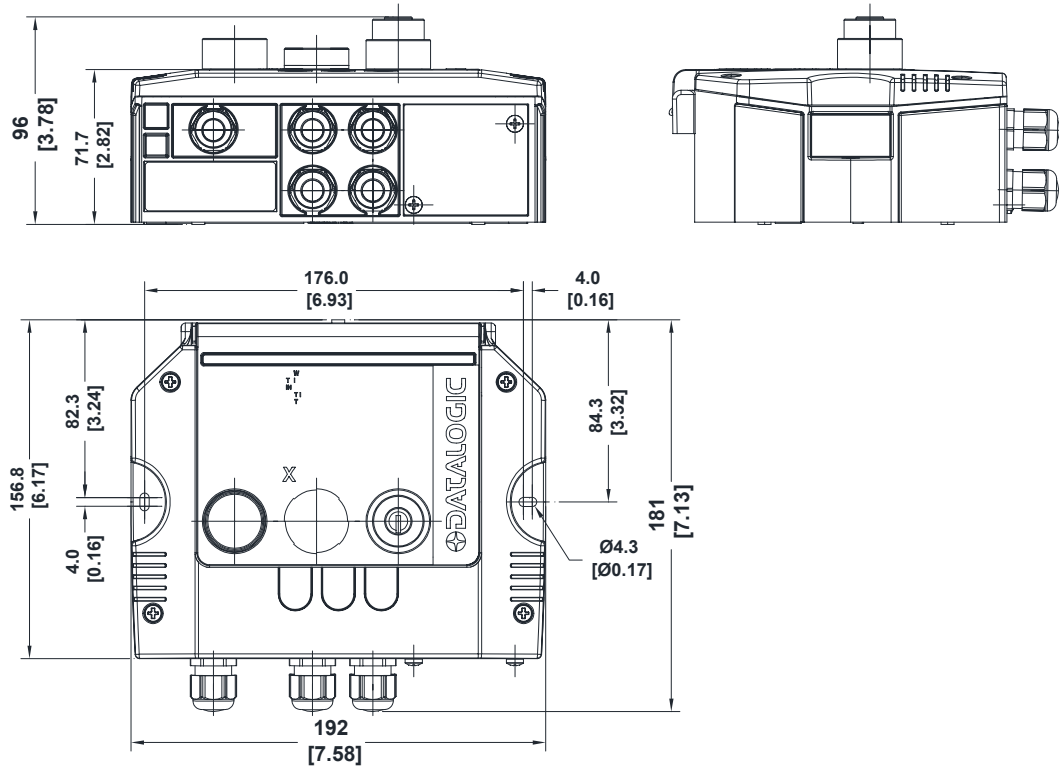
SG-SRT-2

| | SG-SRT1 | SG-SRT2 |
|-------------------------|--------------------------------------------------------------------------|------------------------------------------------|
| ELECTRICAL DATA | | |
| Power supply | 24 Vdc +/- 20% | |
| Safe outputs | 2 NO | |
| Max. switchable voltage | 250 Vac | |
| Max. switchable current | 2 A | |
| FUNCTIONS | | |
| Reset mode | Automatic/Manual | |
| | Test | |
| | Reset | |
| | Restart | |
| | Override | |
| | --- | Muting state indication |
| COMPATIBILITY | | |
| | SG BODY COMPACT MUTING SG BODY BIG MUTING SG BODY REFLECTOR MUTING | SG BODY BIG MUTING SG BODY REFLECTOR MUTING |

NOTE

SG-SRT1 and SG-SRT2 provide internal or external EDM signal to the Safety Light Curtain: to operate safely, EDM monitoring function must be activated on the Safety Light Curtain and correct wiring must be followed.
For further information refer to SG-SRT1/2 manual and the used Safety Light Curtain manual.

ACCESSORIES | SAFETY UNITS AND INTERFACES



| MODEL | DESCRIPTION | ORDER NUMBER |
|-----------|---------------------------------|--------------|
| SG -SRT-1 | Muting connection box | 95ASE2050 |
| SG -SRT-2 | Muting connection box with lamp | 95ASE2060 |

ACCESSORIES

OTHER ACCESSORIES

Protection tubes

SG-IP69K are PMMA acrylic tubes used to protect and seal safety light curtains.

The IP protection of the safety light curtain is increased to IP67, IP68 and IP69K.

A Gore-Tex membrane on the caps prevents water or dirt entering as well as internal condensation.

| MODEL | DESCRIPTION | ORDER NUMBER |
|----------------|----------------------------------|--------------|
| SG -IP69K 150 | Tubular IP69K H=150mm | 95ASE 1290 |
| SG -IP69K 300 | Tubular IP69K H=300mm | 95ASE 1300 |
| SG -IP69K 450 | Tubular IP69K H=450mm | 95ASE 1310 |
| SG -IP69K 600 | Tubular IP69K H=600mm | 95ASE 1320 |
| SG -IP69K 750 | Tubular IP69K H=750mm | 95ASE 1330 |
| SG -IP69K 900 | Tubular IP69K H=900mm | 95ASE 1340 |
| SG -IP69K 1050 | Tubular IP69K H=1050mm | 95ASE 1350 |
| SG -IP69K 1200 | Tubular IP69K H=1200mm | 95ASE 1360 |
| SG -IP69K 1350 | Tubular IP69K H=1350mm | 95ASE 1370 |
| SG -IP69K 1500 | Tubular IP69K H=1500mm | 95ASE 1380 |
| SG -IP69K 1650 | Tubular IP69K H=1650mm | 95ASE 1390 |
| SG -IP69K 1800 | Tubular IP69K H=1800mm | 95ASE 1400 |
| COMPATIBILITY | | |
| | SG2 BASE, SG2 EXTENDED, SG4 BASE | |
| MODEL | DESCRIPTION | ORDER NUMBER |
| SG-IP69K-2-050 | Tubular IP69K H=500mm | 95ASE1410 |
| SG-IP69K-3-080 | Tubular IP69K H=800mm | 95ASE1420 |
| SG-IP69K-4-090 | Tubular IP69K H=900mm | 95ASE1430 |
| SG-IP69K-4-120 | Tubular IP69K H=1200mm z | 95ASE1440 |
| COMPATIBILITY | | |
| | SG BODY COMPACT | |
| NOTES | | |

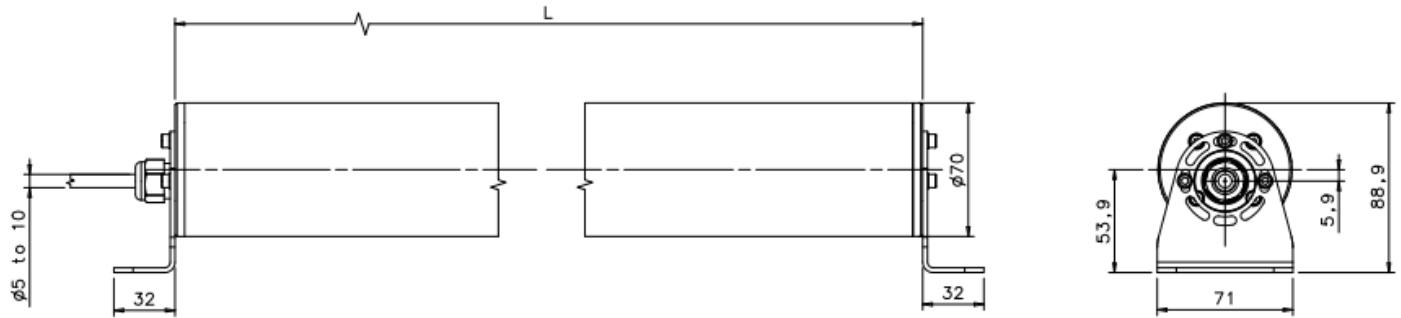
1) Each package contains the necessary to protect a single unit (emitter or receiver).

To protect both elements of a couple, order two pieces

2) Tubular PMMA POLICRIL material chemical resistance table is available on product's datasheet.



ACCESSORIES | OTHER ACCESSORIES



| MODEL | L (mm) |
|----------------|--------|
| SG-IP69K 150 | 373.5 |
| SG-IP69K 300 | 520.7 |
| SG-IP69K 450 | 670.8 |
| SG-IP69K 600 | 820.7 |
| SG-IP69K 750 | 970.8 |
| SG-IP69K 900 | 1120.7 |
| SG-IP69K 1050 | 1270.7 |
| SG-IP69K 1200 | 1420.8 |
| SG-IP69K 1350 | 1570.7 |
| SG-IP69K 1500 | 1720.8 |
| SG-IP69K 1650 | 1870.8 |
| SG-IP69K 1800 | 2020.8 |
| SG-IP69K-2-050 | 808 |
| SG-IP69K-3-080 | 1108 |
| SG-IP69K-4-090 | 1208.5 |
| SG-IP69K-4-120 | 1508.5 |

ACCESSORIES | OTHER ACCESSORIES

The LENS SHIELD accessory for safety light curtains is composed of a PMMA Altuglas plate that can be mounted on the front glass of the safety light, ensuring an effective protection against dust, chips and incandescent drops deriving from material working near the safety light curtain.



| MODEL | DESCRIPTION | ORDER NUMBER |
|---------------|--------------------------------------------------|--------------------------------------|
| SG -LS 150 | Lens shield 150 mm | 95ASE 1450 |
| SG -LS 300 | Lens shield 300 mm | 95ASE 1460 |
| SG -LS 450 | Lens shield 450 mm | 95ASE 1470 |
| SG -LS 600 | Lens shield 600 mm | 95ASE 1480 |
| SG -LS 750 | Lens shield 750 mm | 95ASE 1490 |
| SG -LS 900 | Lens shield 900 mm | 95ASE 1500 |
| SG -LS 1050 | Lens shield 1050 mm | 95ASE 1510 |
| SG -LS 1200 | Lens shield 1200 mm | 95ASE 1520 |
| SG -LS 1350 | Lens shield 1350 mm | 95ASE 1530 |
| SG -LS 1500 | Lens shield 1500 mm | 95ASE 1540 |
| SG -LS 1650 | Lens shield 1650 mm | 95ASE 1550 |
| SG -LS 1800 | Lens shield 1800 mm | 95ASE 1560 |
| SG -LS 2 | Lens shield 2 beams 500 mm | 95ASE 1570 |
| SG -LS 3 | Lens shield 3 beams 800 mm | 95ASE 1580 |
| SG -LS 4-900 | Lens shield 4 beams 900 mm | 95ASE 1590 |
| SG -LS 4-120 | Lens shield 4 beams 1200 mm | 95ASE 1600 |
| SG -LS-MC 4 | Elastic fastner for lens shield (kit 4pcs.) | 95ASE 1810 |
| COMPATIBILITY | | |
| | SG-LS xxxx | SG2 BASE SG2 EXTENDED SG4 BASE |
| | SG-LS 2 SG-LS 3 SG-LS 4-900 SG-LS 4-120 | SG BODY COMPACT |
| NOTES | | |

- 1) Each package contains the necessary to protect a single unit (emitter or receiver). To protect both elements of a couple, order two pieces
- 2) Five plates are supplied in the package for replacements
- 3) The length indicated in the description is the height of the light curtains that can be used with the lens shield, for the actual dimension, refer to the technical datasheet.

ACCESSORIES | OTHER ACCESSORIES



LASER POINTER

| MODEL | DESCRIPTION | ORDER NUMBER |
|---------------|---------------|-----------------------------------------------------------|
| SG-LP | Laser pointer | 95ASE5590 |
| COMPATIBILITY | | All SG Series Safety Light Curtains except SG4-H and SLIM |

Communication interface

DONGLE



| MODEL | DESCRIPTION | ORDER NUMBER |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------|
| SG4-DONGLE | Ethernet adaptor | 95ASE2080 |
| FUNCTIONS | | |
| 1) Ethernet connection (TCP/IP) to Monitoring and Configuration Software SG4-E GUI. 2) Configuration cloning 3) Error logging 4) Configuration logging | | |
| NOTE | | |
| To connect SG-DONGLE directly to a PC, order Ethernet cable CAB-ETH-M01 | | |
| COMPATIBILITY | | |
| | | SG4 EXTENDED |

DONGLE - PC ETHERNET CABLE



| MODEL | DESCRIPTION | ORDER NUMBER |
|-------------|-----------------------------|--------------|
| CAB-ETH-M01 | M12-IP67 ETHERNET CAB. (1M) | 93A051346 |
| CAB-ETH-M03 | M12-IP67 ETHERNET CAB. (3M) | 93A051347 |
| CAB-ETH-M05 | M12-IP67 ETHERNET CAB. (5M) | 93A051348 |

Test pieces



| MODEL | DESCRIPTION | ORDER NUMBER |
|-------|--------------------|--------------|
| TP-14 | Test piece Ø 14 mm | 95ACC 1630 |
| TP-20 | Test piece Ø 20 mm | 95ACC 1640 |
| TP-24 | Test piece Ø 24 mm | 95ASE2570 |
| TP-30 | Test Piece Ø 30 mm | 95ACC 1650 |
| TP-34 | Test Piece Ø 34mm | 95ASE2580 |
| TP-35 | Test piece Ø 35 mm | 95ACC 1660 |

COMPATIBILITY

All Safety Light Curtains with corresponding resolution

ACCESSORIES | OTHER ACCESSORIES

CABLES

| MODEL | DESCRIPTION | START | END | #POLES | LENGTH (m) | SHIELD | ORDER NUMBER |
|-------------------------------|-------------------------------------------------------------------------|--------------|-----------------|--------|------------|--------|--------------|
| CABLES FOR EMITTERS/RECEIVERS | | | | | | | |
| CS-A1-02-U-03 | CS Cable 4-p axial 3m | M12 axial F | free wires | 4 | 3 | No | 95ASE1120 |
| CS-A1-02-U-05 | CS Cable 4-p axial 5m | M12 axial F | free wires | 4 | 5 | No | 95ASE1130 |
| CS-A1-02-U-10 | CS Cable 4-p axial 10m | M12 axial F | free wires | 4 | 10 | No | 95ASE1140 |
| CS-A1-02-U-15 | CS Cable 4-p axial 15m | M12 axial F | free wires | 4 | 15 | No | 95ASE1150 |
| CS-A1-02-U-25 | CS Cable 4-p axial 25m | M12 axial F | free wires | 4 | 25 | No | 95ASE1160 |
| CS-A1-03-U-03 | CS Cable 5-p axial 3m | M12 axial F | free wires | 5 | 3 | No | 95ASE1170 |
| CS-A1-03-U-05 | CS Cable 5-p axial 5m | M12 axial F | free wires | 5 | 5 | No | 95ASE1180 |
| CS-A1-03-U-10 | CS Cable 5-p axial 10m | M12 axial F | free wires | 5 | 10 | No | 95ASE1190 |
| CS-A1-03-U-15 | CS Cable 5-p axial 15m | M12 axial F | free wires | 5 | 15 | No | 95ASE1200 |
| CS-A1-03-U-25 | CS Cable 5-p axial 25m | M12 axial F | free wires | 5 | 25 | No | 95ASE1210 |
| CS-A1-06-U-03 | CS Cable 8-p axial 3m | M12 axial F | free wires | 8 | 3 | No | 95ASE1220 |
| CS-A1-06-U-05 | CS Cable 8-p axial 5m | M12 axial F | free wires | 8 | 5 | No | 95ASE1230 |
| CS-A1-06-U-10 | CS Cable 8-p axial 10m | M12 axial F | free wires | 8 | 10 | No | 95ASE1240 |
| CS-A1-06-U-15 | CS Cable 8-p axial 15m | M12 axial F | free wires | 8 | 15 | No | 95ASE1250 |
| CS-A1-06-U-25 | CS Cable 8-p axial 25m | M12 axial F | free wires | 8 | 25 | No | 95ASE1260 |
| CS-A1-10-U-03 | CS Cable 12-p axial 3m | M12 axial F | free wires | 12 | 3 | No | 95A252720 |
| CS-A1-10-U-05 | CS Cable 12-p axial 5m | M12 axial F | free wires | 12 | 5 | No | 95A252730 |
| CS-A1-10-U-10 | CS Cable 12-p axial 10m | M12 axial F | free wires | 12 | 10 | No | 95A252740 |
| CS-A1-10-U-15 | CS Cable 12-p axial 15m | M12 axial F | free wires | 12 | 15 | No | 95A252750 |
| CS-A1-10-U-25 | CS Cable 12-p axial 25m | M12 axial F | free wires | 12 | 25 | No | 95A252760 |
| CV-A1-22-B-03 | CV Cable 4-p axial 3m | M12 axial F | free wires | 4 | 3 | Yes | 95ACC1480 |
| CV-A1-22-B-05 | CV Cable 4-p axial 5m | M12 axial F | free wires | 4 | 5 | Yes | 95ACC1490 |
| CV-A1-22-B-10 | CV Cable 4-p axial 10m | M12 axial F | free wires | 4 | 10 | Yes | 95ACC1500 |
| CV-A1-22-B-15 | CV Cable 4-p axial 15m | M12 axial F | free wires | 4 | 15 | Yes | 95ACC2070 |
| CV-A1-22-B-25 | CV Cable 4-p axial 25m | M12 axial F | free wires | 4 | 25 | Yes | 95ACC2090 |
| CV-A1-23-B-005-2F | CV Cable 5-p axial 0,5m | M12 axial F | free wires | 5 | 0,5 | Yes | 95ACC2440 |
| CV-A1-23-B-01-2F | CV Cable 5-p axial 1m | M12 axial F | free wires | 5 | 1 | Yes | 95ACC2450 |
| CV-A1-26-B-03 | CV Cable 8-p axial 3m | M12 axial F | free wires | 8 | 3 | Yes | 95ACC1510 |
| CV-A1-26-B-05 | CV Cable 8-p axial 5m | M12 axial F | free wires | 8 | 5 | Yes | 95ACC1520 |
| CV-A1-26-B-10 | CV Cable 8-p axial 10m | M12 axial F | free wires | 8 | 10 | Yes | 95ACC1530 |
| CV-A1-26-B-15 | CV Cable 8-p axial 15m | M12 axial F | free wires | 8 | 15 | Yes | 95ACC2080 |
| CV-A1-26-B-25 | CV Cable 8-p axial 25m | M12 axial F | free wires | 8 | 25 | Yes | 95ACC2100 |
| CV-A2-22-B-03 | CV Cable 4-p radial 3m | M12 radial F | free wires | 4 | 3 | Yes | 95ACC1540 |
| CV-A2-22-B-05 | CV Cable 4-p radial 5m | M12 radial F | free wires | 4 | 5 | Yes | 95ACC1550 |
| CV-A2-22-B-10 | CV Cable 4-p radial 10m | M12 radial F | free wires | 4 | 10 | Yes | 95ACC1560 |
| CV-A2-26-B-03 | CV Cable 8-p radial 3m | M12 radial F | free wires | 8 | 3 | Yes | 95ACC1600 |
| CV-A2-26-B-05 | CV Cable 8-p radial 5m | M12 radial F | free wires | 8 | 5 | Yes | 95ACC1610 |
| CV-A2-26-B-10 | CV Cable 8-p radial 10m | M12 radial F | free wires | 8 | 10 | Yes | 95ACC1620 |
| CASCADING CABLES | | | | | | | |
| CS-F1-80-B-0005SG | SG EXTENDED Cascade cable 0.05m | custom | custom | N/A | 0,05 | No | 95A252860 |
| CS-F1-80-B-005 | SG EXTENDED Cascade cable 0.5m | custom | custom | N/A | 0,5 | No | 95A252850 |
| CS-F1-80-B-01 | SG EXTENDED Cascade cable 1m | custom | custom | N/A | 1 | No | 95A252840 |
| CS-H1-03-B-001 | SLIM Cascade cable 0.1m | custom | M12 axial F | 5 | 0,1 | No | 95A252950 |
| CS-H1-03-B-005 | SLIM Cascade cable 0.5m | custom | M12 axial F | 5 | 0,5 | No | 95ASE2550 |
| CS-H1-03-B-01 | SLIM Cascade cable 1m | custom | M12 axial F | 5 | 1 | No | 95ASE2560 |
| SG EXTENDED PIGTAIL CABLES | | | | | | | |
| CS-G1-50-B-002 | SG EXTENDED TX 0,2m | custom | M12 axial M | 5 | 0,2 | No | 95A252820 |
| CS-G1-70-B-002 | SG EXTENDED BLANK RX 0.2m | custom | M12 axial M | 12 | 0,2 | No | 95A252830 |
| CS-R1-75-B-002 | SG EXTENDED MUTING RX 0.2 | custom | 2x M12 axial M | 5 + 12 | 0,2 | No | 95A252810 |
| MUTING SYSTEMS CABLES | | | | | | | |
| CS-M1-02-B-004 | Cable 4 poles, unshielded, black, M8 F straight, M12 M straight, 400mm | M8 axial F | M12 axial M | 4 | 0,4 | No | 95ASE2470 |
| CS-M1-02-B-007 | Cable 4 poles, unshielded, black, M8 F straight, M12 M straight, 700mm | M8 axial F | M12 axial M | 4 | 0,7 | No | 95ASE2480 |
| CS-M1-02-B-02 | Cable 4 poles, unshielded, black, M8 F straight, M12 M straight, 2000mm | M8 axial F | M12 axial M | 4 | 2 | No | 95ASE2490 |
| CV-L1-02-B-007 | M12 4-pole L Muting cable | M12 axial F | M12 radial F | 4 | 0,7 | No | 95ACC2570 |
| CV-Y1-02-B-007 | M12 4-pole T Muting cable | M12 axial F | 2x M12 radial F | 4 | 0,7 | No | 95ACC2560 |

APPENDIX



APPENDIX



SAFETY STANDARDS REFERENCE LIST

The following is a list of international standards for Safety of Machinery and correct design use of safety systems.

1. General principles

EN ISO 12100: 2010 Safety of machinery – General principles for design – Risk assessment and risk reduction.

2. Safety systems design and validation

EN ISO 13849-1: 2008 Safety of machinery – Safety-related parts of control systems. Part 1: General principles for design

EN ISO 13849-2: 2012 Safety of machinery – Safety-related parts of control systems. Part 2: Validation.

EN 62061/AC 2010 Safety of machinery. Functional safety of safety-related electrical/electronic/programmable electronic control systems.

3. Electrosensitive protective equipment

EN 61496-1/AC: 2010 Safety of machinery: electrosensitive protective equipment. Part 1: General prescriptions and tests.

IEC 61496-2: 2006 Safety of machinery: electrosensitive protective equipment – Part 2: Particular requirements for equipment using active optoelectronic protective devices.

4. Safety distances

EN ISO 13855: 2010 Safety of machinery – Positioning of safeguards with respect to the approach speeds of parts of the human body.

APPENDIX

DEFINITIONS

1. AOPD: Active Optoelectronic Protective Device

Device whose sensing function is performed by opto-electronic emitting and receiving elements detecting the interruption of optical radiations generated, within the device, by an opaque object present in the specified detection zone (or for a light beam device, on the axis of the light beam).

2. EAA: Effective Aperture Angle

Maximum angle of deviation from the optical alignment of the emitting element(s) and the receiving element(s) within which the AOPD continues in normal operation.

3. EDM: External Device Monitoring

Means by which the electro-sensitive protective equipment (ESPE) monitors the state of control devices which are external to the ESPE.

4. ESPE: Electro-Sensitive Protective Equipment

Assembly of devices and/or components working together for protective tripping or presence sensing purposes and comprising as a minimum

- a sensing device;
- controlling/monitoring devices;
- output signal switching devices and/or a safety-related data interface.

5. Light curtain

AOPD comprising an integrated assembly of one or more emitting element(s) and one or more receiving element(s) forming a detection zone with a detection capability specified by the supplier. A light curtain with a large detection capability is sometimes referred to as a light grid.

6. OSSD: Output Signal Switching Device

Component of the electro-sensitive protective equipment (ESPE) connected to the machine control system which, when the sensing device is actuated during normal operation, responds by going to the OFF-state.

7. PL: Performance Level

Discrete level used to specify the ability of safety-related parts of control systems to perform a safety function under foreseeable conditions.

8. Response time

Maximum time between the occurrence of the event leading to the actuation of the sensing device and the output signal switching devices (OSSD) achieving the OFF-state.

9. SIL: Safety Integrity Level

Discrete level for specifying the safety integrity requirements of the safety functions to be allocated to the Electric / Electronic / Programmable Electronic safety-related systems, where safety integrity level 4 has the highest level of safety integrity and safety integrity level 1 has the lowest.

SAFETY DISTANCE CALCULATION



- Properly install the light curtains in accordance with the user manual and applicable local safety regulations (OSHA, ANSI, European standards as EN ISO 13855 'Safety of Machinery - Positioning of safeguards with respect to the approach speeds of parts of the human body').
- Consult DLIA Technical support before installing light curtains if you have questions, need information or assistance about the products.

Failure to comply with these instructions could result serious injury

The positioning of light curtains and light grids must comply with the international standard EN ISO13855, that provides a methodology to determine the minimum distance to a hazard zone from the detection zone, based on values for approach speeds of parts of the human body.

If a type-C standard exists for the machine, the distance specified should be used. If there is no type-C standard, the equations in EN ISO 13855 can be used to calculate it.

The factors to be taken in account are:

| | |
|----|--------------------------------------------------------------------------|
| T1 | Response time of the light curtain |
| T2 | Machine stopping time |
| d | Resolution of the light curtain |
| K | Speed of the body or parts of the body (parameter given by the standard) |

1. Vertical installation

1.1 Equation for the calculation of the minimum distance

The detection zone is horthogonal to the direction of approach to the hazard zone

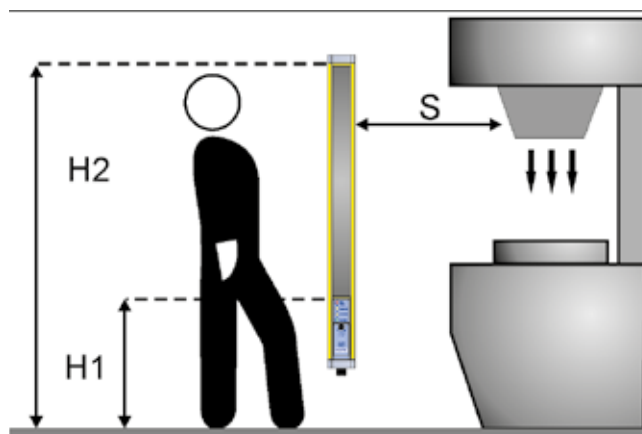


Fig. 3 – Minimum installation distance (vertical)

APPENDIX

For light curtains with detection capability $d \leq 40$ mm, the equation used to calculate the minimum distance S from a vertical detection zone horthogonal to the direction of approach to the hazard zone is:

$$S = K (T1 + T2) + C$$

Where C is an additional intrusion distance:

$$C = 8 (d - 14) \text{ mm if resolution } \leq 40 \text{ mm}$$
$$C = 850 \text{ mm if resolution } > 40 \text{ mm}$$

The equation must be first calculated using $K = 2000$ mm/s.
If the result $S > 500$ mm, it can be recalculated with $K = 1600$ mm/s.

The result S must in any case be:

$$S \geq 100 \text{ mm if } K = 2000 \text{ mm/s is used;}$$
$$S \geq 500 \text{ mm if } K = 1600 \text{ mm/s is used}$$

For light curtains with detection capability $d > 40$ mm and multiple separate beams (body detection) the following values can be used:

$$C = 850 \text{ mm}$$
$$K = 1600 \text{ mm/s}$$

1.2 Positions of the beams above reference plane

When the safeguard is used only for the detection of whole body access:

- a) the height of the lowest beam shall be ≤ 300 mm to prevent access under the detection zone
- b) the height of the uppermost beam shall be ≥ 900 mm to prevent stepping over the detection zone.

EN13855 states that the heights for 2, 3 and 4 beams given in the following table have been found to be the best compromise between an adequate risk reduction and the most practical in application.
Further protective measures to prevent access to the hazard zone can be required. For the lowest beam 400 mm can only be used when the risk assessment allows it.

| NUMBERS OF BEAMS | HEIGHTS ABOVE REFERENCE PLANE (MM) |
|------------------|------------------------------------|
| 4 | 300, 600, 900, 1200 |
| 3 | 300, 700, 1100 |
| 2 | 400, 900 |

1.3 Circumventing of ESPE by reaching over the detection zone

If access to the hazard zone by reaching over the detection zone of vertically mounted electro-sensitive protective equipment cannot be excluded, an additional distance must be applied, depending on the height of the hazard zone and the height of upper edge of the ESPE detection zone. For reference, apply EN ISO 13855 Par. 6.5.

APPENDIX

2. Horizontal installation

2.1 Equation for the calculation of the minimum distance

The detection zone is parallel to the direction of approach to the hazard zone

If the safety light curtain must be mounted in a horizontal position (Fig. 4), the distance between the dangerous area and the most distant optical beam must be equal to the value calculated using the following equation:

$$S = 1600 \text{ mm/s } (T1 + T2) + (1200 \text{ mm} - 0.4 H)$$

where:

T1 = Response time of the ESPE in seconds

T2 = Machine stopping time in seconds.

H = Beam height from ground

H shall not be greater than 1000 mm, and however for values greater than 300 mm the risk of an undetected access beneath the detection zone shall be taken in account during the risk assessment.

Furthermore, the lowest allowable height of the detection zone must satisfy this equation:

$$H_{\min} = 15 (d - 50)$$

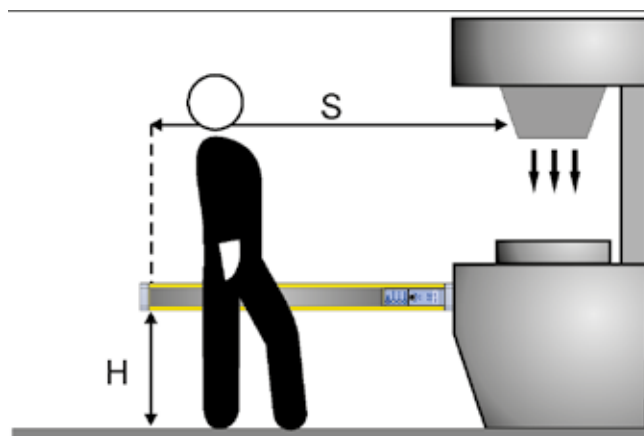


Fig. 4 – Minimum installation distance (horizontal)

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