SAFEasy™ TYPE 4 LIGHT CURTAINS

Type 4

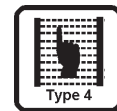## SG4 Lion

SAFEasy™: safety in your hands

- *Integrated light curtain for FINGER PROTECTION (14 mm resolution)*
- *Maximum operating distance reaching 6 m*
- *Controlled heights ranging from 150 to 1800 mm*
- *Compact 32x37 mm profile*
- *Selectable EDM and Manual/Automatic Restart*

SG4-FINGER SERIES

The new series of *SAFEasy*™ **SG4-B FINGER** safety light curtains widens the existing **SG** range, whilst representing an evolution of the SE4-PLUS line, offering a Type 4 safety light device for finger protection with base functions. Ideal for applications that do not require complementary functions such as Muting, Cascade and blanking.

The new **SG4-B** series has been especially developed to simplify:
- installation (new rotating TOP-BOTTOM fixing brackets to ease alignment);
- connection (use of standard connectors, no connection between emitter and receiver necessary);
- configuration (no external control units and / or supplementary cables necessary);
- use (alignment guided by a 7 segment double display on both units).

Improved response time and operating distance, respect to the SE4-PLUS series distinguish this series and make it one of the best performing light curtains available today on the market.

DATASENSOR
value through detection

SAFETY DEVICES

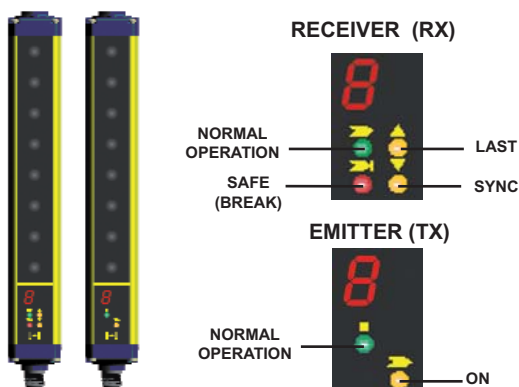The main characteristics of the SG4-B FINGER are:

- Operating distance reaching 6 m
- Controlled heights ranging from 150 to 1800 mm
- Reduced response times, 25% less than SF2
- New sturdy and more functional profile
- Compatibility with the entire SE accessory range
- Selectable EDM and Manual/Automatic Restart
- User interface equipped with a 7 segment display on both TX and RX units
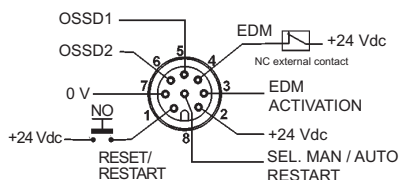- Alignment aid function

DIMENSIONS
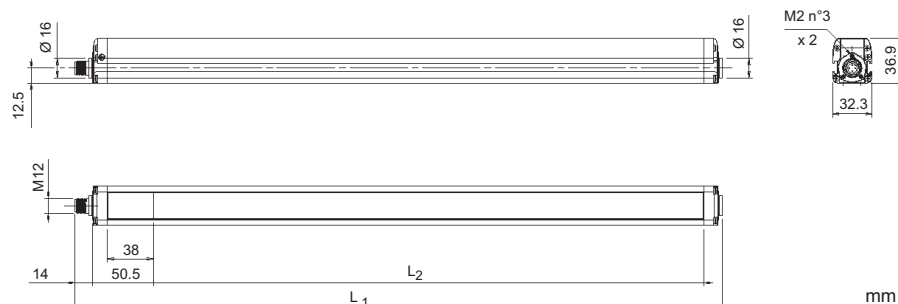
VERSIONS	L_1	L_2
SG4-14-015-OO-E	233.3	153.3
SG4-14-030-OO-E	383.2	303.2
SG4-14-045-OO-E	533.2	453.3
SG4-14-060-OO-E	683.2	603.2
SG4-14-075-OO-E	833.2	753.3
SG4-14-090-OO-E	983.2	903.2
SG4-14-105-OO-E	1133.2	1053.2
SG4-14-120-OO-E	1283.3	1203.3
SG4-14-135-OO-E	1433.2	1353.2
SG4-14-150-OO-E	1583.3	1503.3
SG4-14-165-OO-E	1733.3	1653.3
SG4-14-180-OO-E	1883.3	1803.3

INDICATORS AND SETTINGS

RECEIVER (RX)

NORMAL OPERATION

SAFE (BREAK)

LAST

SYNC

EMITTER (TX)

NORMAL OPERATION

ON

CONNECTIONS

M12 8-POLE CONNECTOR

OSSD1
OSSD2
0 V
NO
+24 Vdc
RESET/RESTART

EDM
+24 Vdc
NC external contact
EDM ACTIVATION
+24 Vdc
SEL. MAN / AUTO RESTART

1 = white = RESET (*)
2 = brown = +24 Vdc
3 = green = EDM ACTIVATION (**)
4 = yellow = EDM
5 = grey = OSSD1
6 = pink = OSSD2
7 = blue = 0 V
8 = red = SEL. MAN. / AUTO RESTART

M12 4-POLE CONNECTOR

+24 Vdc
NO
TEST
+24 Vdc
0 V
NOT USED
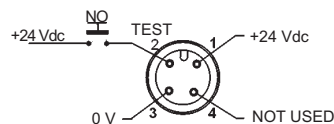
1 = brown = +24 Vdc
2 = white = TEST
3 = blue = 0 V
4 = black = NOT USED

* automatic RESTART - RESET function
manual RESTART - RESET/RESTART function
** Refer to "SG4-B: funzioni PLUS"

DATASENSOR

TECHNICAL DATA

ELECTRICAL DATA

Power supply (Vdd)	24 Vdc ± 20%
Consumption (TX):	2.5 W max
Consumption (RX):	4 W max (without load)
OSSD outputs:	2 PNP
Short-circuit protection:	1.4 A max
Output current:	0.5 A max on each output
Output voltage – ON status:	Vdd-1 V
Output voltage – OFF status:	0.2 V
Leakage current:	< 1mA
Capacitive load:	2.2 uF @ 24Vdc (*)
Response time:	*Refer to table*
Controlled height:	150 ... 1800 mm
Safety category:	Type 4
Auxiliary functions:	Reset/Test
	Selectable Man./ Auto. Restart
	Selectable EDM
Electrical protection:	Class I / Class III
Connections:	M12 4-pole for emitter
	M12 8-pole for receiver
Cable length (for powering)	50 m. max (*)

OPTICAL DATA

Light emission:	Infrared LED (950 nm)
Resolution:	14 mm
Operating distance:	0.2…6 m
Aperture angle (EAA):	±2.5°
Ambient light rejection:	IEC 61496-2

MECHANICAL AND ENVIRONMENTAL DATA

Operating temperature:	0…55°C
Storage temperature:	-25…+ 70 °C
Temperature class:	T6
Humidity:	15…95 % (non condensating)
Mechanical protection:	IP65 (EN 60529)
Vibrations:	Width 0.35 mm
	Frequency 10 … 55 Hz 20 sweep per axis, 1 octave/min (EN 60068-2-6)
Shock resistance:	16 ms (10g) 1.000 shock per axis (EN 60068-2-29)
Housing material:	Painted aluminium (yellow RAL 1003)
Protective shield material:	PMMA
Cap material:	PC MAKROLON
Weight:	1.3 Kg / m

*   If a longer cable has to be used, please verify that the capacitive load specifications are respected

TABLES

Model	
SG4 *height 150*	16
SG4 *height 300*	32
SG4 *height 450*	48
SG4 *height 600*	64
SG4 *height 750*	80
SG4 *height 900*	96
SG4 *height 1050*	112
SG4 *height 1200*	128
SG4 *height 1350*	144
SG4 *height 1500*	160
SG4 *height 1650*	176
SG4 *height 1800*	192

Table 1: NUMBER OF CONTROLLED BEAMS

Model	
SG4 *height 150*	150
SG4 *height 300*	300
SG4 *height 450*	450
SG4 *height 600*	600
SG4 *height 750*	750
SG4 *height 900*	900
SG4 *height 1050*	1050
SG4 *height 1200*	1200
SG4 *height 1350*	1350
SG4 *height 1500*	1500
SG4 *height 1650*	1650
SG4 *height 1800*	1800

Table 2: CONTROLLED HEIGHT (mm)

Model	
SG4 *height 150*	11
SG4 *height 300*	15
SG4 *height 450*	18
SG4 *height 600*	22
SG4 *height 750*	25
SG4 *height 900*	29
SG4 *height 1050*	33
SG4 *height 1200*	36
SG4 *height 1350*	40
SG4 *height 1500*	43
SG4 *height 1650*	47
SG4 *height 1800*	50

Table 3: RESPONSE TIME (ms)

3 YEARS   CE   TÜV   c UL US LISTED

DATASENSOR

NEW FEATURES INTRODUCED

Respect to the SE4-PLUS series, the **SG4-B FINGER** light curtains present some new improvements:

■ **Controlled height range extended from 150 to 1800 mm**
The controlled height extended to 1800 mm allows **SG4-B FINGER** to be used in applications where high areas have to be protected.
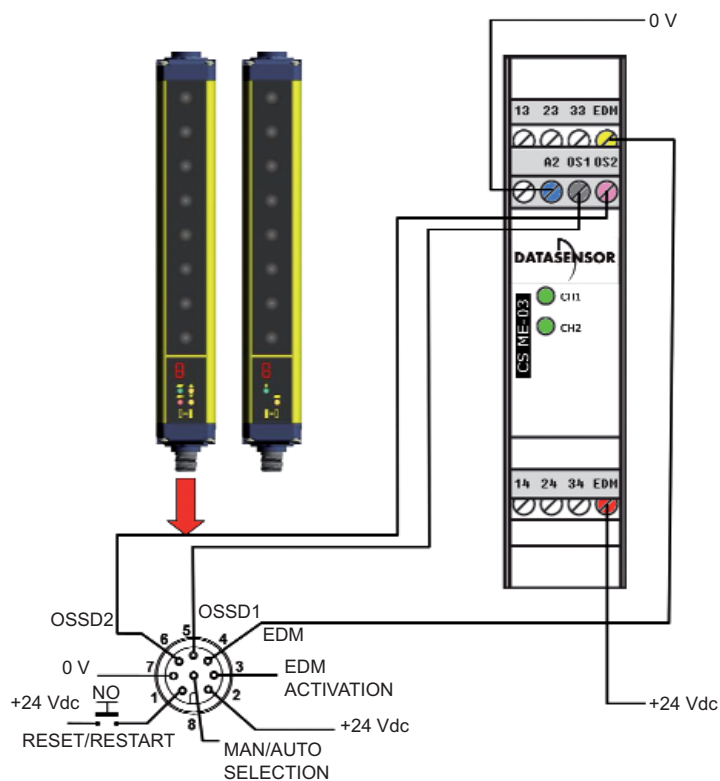
1800 mm

150 mm
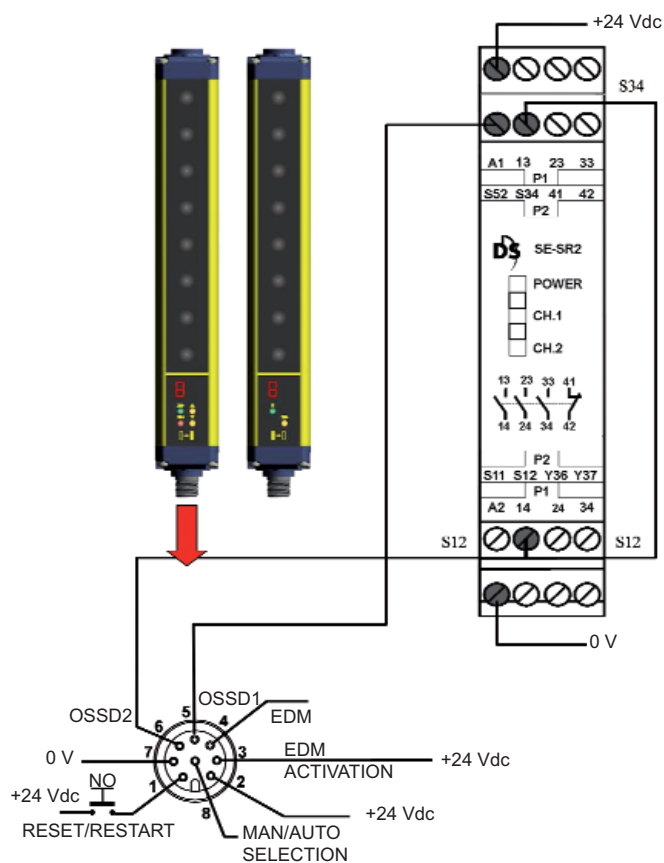
SG4-B: FUNCTIONS

■ EDM

The **EDM** function allows to connect the light barrier to a couple of simple forced-guided safety relays instead to a Type 4 safety relay and thus guaranteeing an enormous economical advantage.

Connection with EDM function

Connection without EDM function

DATASENSOR

APPLICATIONS

The **SG4-B FINGER** safety light curtains provide solutions in all automation fields where the access to dangerous areas has to be controlled.

In particular, the safety curtains can be used in stopping moving parts in:
- Automatic machines;
- Packaging and cutting machines;
- Textile, wood-working and ceramic machines;
- Automatic assembling lines;
- Milling, lathe and shearing machines;
- Bending and metal-working machines.

Example 1: Operating point protection on drilling machines
The operator positions the part and takes it back after machining. The operator must be protected against possible abrasions while working.

Solution: The **SG4-B FINGER** safety light curtain, thanks to the 14 mm resolution particularly suits these applications where the device has to be installed directly on the machine.

Advantages: The extremely reduced profile guarantees installation flexibility adapting itself to the machine dimensions. The rotating fixing brackets, supplied as accessories, speed up and facilitate mounting.

Example 2: Bending machine
The safety device has to protect the operator from being squashed between the top and bottom parts or the machined part during the fast approaching phase.

Solution: If only one beam of the **SG4-B FINGER** safety light curtain is interrupted by an operator's hand or finger, while the press is moving down, the mobile tool bar will stop.

Advantages: The safety light curtain can be used in most bending operations thanks to its easy installation and compact dimensions. As well as offering excellent reliability, **SG4-B FINGER** ensures increased plant productivity as it reduces the dead times necessary for machine accessing, adjustment and maintenance.
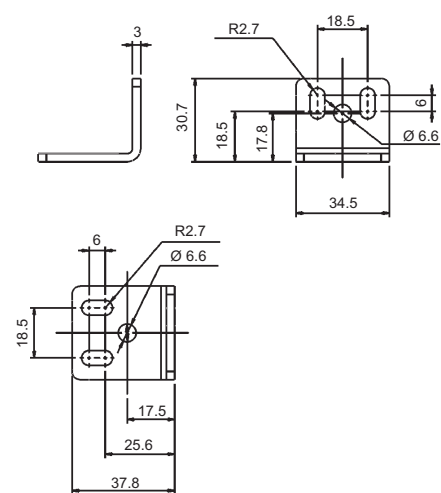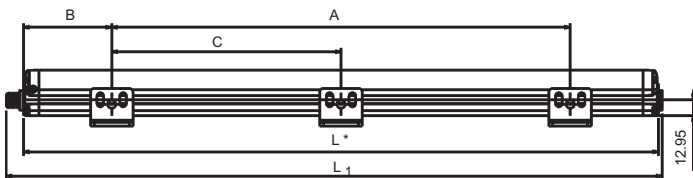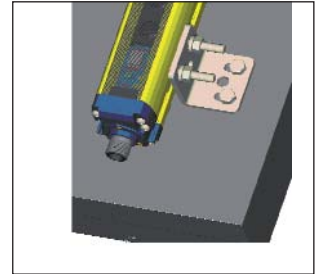
DATASENSOR

FIXING BRACKETS

Rotating fixing bracket[1]
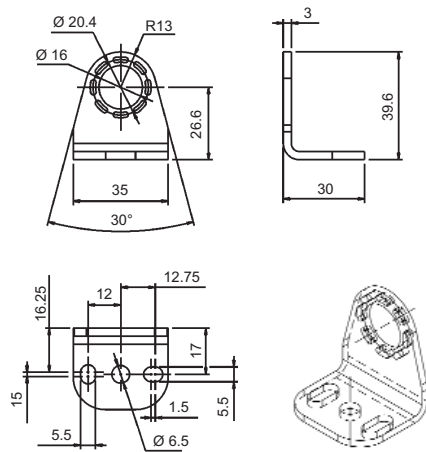
[1] Accessory sold separately

Angled fixing bracket[2]

[2] Supplied in the package
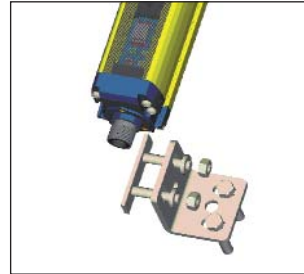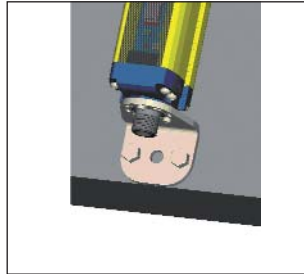
MODELS	L (mm)	A (mm)	B (mm)	C (mm)
SG4-14-015-OO-E	216.3	108	54	-
SG4-14-030-OO-E	366.2	216	75	-
SG4-14-045-OO-E	516.3	316	100	-
SG4-14-060-OO-E	666.2	366	150	-
SG4-14-075-OO-E	816.3	466	175	-
SG4-14-090-OO-E	966.2	566	200	-
SG4-14-105-OO-E	1116.2	666	225	-
SG4-14-120-OO-E	1266.3	966	150	483
SG4-14-135-OO-E	1416.2	1066	175	533
SG4-14-150-OO-E	1566.3	1166	200	583
SG4-14-165-OO-E	1716.3	1266	225	633
SG4-14-180-OO-E	1866.3	1366	250	683

Installation with anti-vibration supports

DATASENSOR
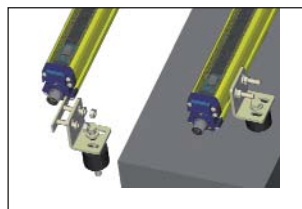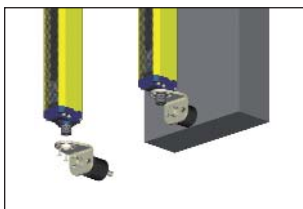
MODEL SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
SG4-14-015-OO-E	Type 4 safety light curtain h=150 mm	957901000
SG4-14-030-OO-E	Type 4 safety light curtain h=300 mm	957901010
SG4-14-045-OO-E	Type 4 safety light curtain h=450 mm	957901020
SG4-14-060-OO-E	Type 4 safety light curtain h=600 mm	957901030
SG4-14-075-OO-E	Type 4 safety light curtain h=750 mm	957901040
SG4-14-090-OO-E	Type 4 safety light curtain h=900 mm	957901050
SG4-14-105-OO-E	Type 4 safety light curtain h=1050 mm	957901060
SG4-14-120-OO-E	Type 4 safety light curtain h=1200 mm	957901070
SG4-14-135-OO-E	Type 4 safety light curtain h=1350 mm	957901080
SG4-14-150-OO-E	Type 4 safety light curtain h=1500 mm	957901090
SG4-14-165-OO-E	Type 4 safety light curtain h=1650 mm	957901100
SG4-14-180-OO-E	Type 4 safety light curtain h=1800 mm	957901110

ACCESSORYSELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
CS-A1-02-U-03	M12 4-pole unshielded axial 3 m connector, UL 2464	95ASE1120
CS-A1-02-U-05	M12 4-pole unshielded axial 5 m connector, UL 2464	95ASE1130
CS-A1-02-U-10	M12 4-pole unshielded axial 10 m connector, UL 2464	95ASE1140
CS-A1-02-U-15	M12 4-pole unshielded axial 15 m connector, UL 2464	95ASE1150
CS-A1-02-U-25	M12 4-pole unshielded axial 25 m connector, UL 2464	95ASE1160
CS-A1-06-U-03	M12 8-pole unshielded axial 3 m connector, UL 2464	95ASE1220
CS-A1-06-U-05	M12 8-pole unshielded axial 5 m connector, UL 2464	95ASE1230
CS-A1-06-U-10	M12 8-pole unshielded axial 10 m connector, UL 2464	95ASE1240
CS-A1-06-U-15	M12 8-pole unshielded axial 15 m connector, UL 2464	95ASE1250
CS-A1-06-U-25	M12 8-pole unshielded axial 25 m connector, UL 2464	95ASE1260
ST-KSTD	Angled fixing brackets (4 pc kit)	95ACC1670
ST-K4AV	Anti-vibration supports (4 pc kit)	95ACC1700
ST-K6AV	Anti-vibration supports (6 pc kit)	95ACC1710
ST-K4ROT	Top-Bottom rotating fixing brackets (4 pc kit)	95ASE1280

*Please refer also to **Safey Device Accessories***

Distributed by: