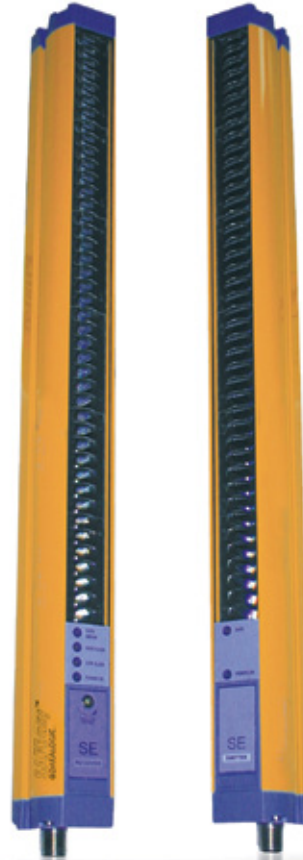SAFETY

SE4-PLUS FINGER SERIES

The SAFEasy™ light curtains, according to the IEC 61496-1 and IEC 61496-2, are particularly suitable for finger protection of operators exposed to risks.

Different models are available with heights ranging from 150 to 1200 mm, 14 mm resolution and operating distance reaching 6 m. Each model has one or more advanced functions: EDM, Blanking and Cascade. The light curtains are able to verify the integrity of external monitoring devices thanks to the EDM (External Device Monitoring) function. The Blanking function allows to deactivate a part of the detection area during functioning, allowing material passage or mechanical obstacle presence without causing machine interruption. Fixed Blanking and Floating Blanking can be selected. The Cascade configuration allows to combine the functioning of a couple of light curtains positioned in different areas.

Specific dip-switches, that can be reached through a slot present on the front of the active unit protected by a lid and opened with a simple screwdriver, guarantee a rapid and safe configuration.

The compact dimensions (35 x 40 mm), easy installation and excellent performances make the SAFEasy™ light curtains suitable to industrial applications requiring operator safety.

Type 4

HIGHLIGHTS

• Integrated light curtains for FINGER PROTECTION (14 mm resolution)
• EDM and Blanking functions
• Cascade configuration
• 35 x 40 mm compact profile

APPLICATIONS

Wood working machines

Packaging lines
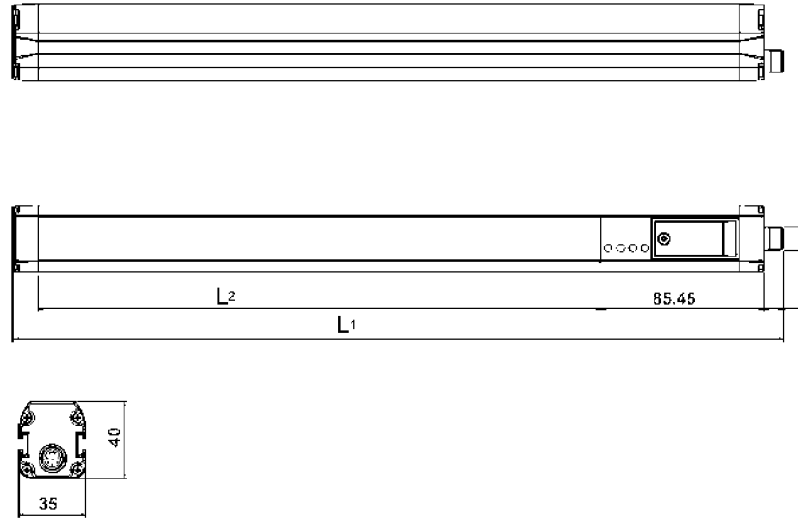
Automatic machines

The features introduced by the safety light curtains of the SE4-PLUS FINGER series are given below:
- EDM function: allows to verify the status of the external monitoring devices (typically safety relays), avoiding external malfunctions jeopardising correct device functioning.
- Fixed Blanking: allows the operator to exclude the control of beams in a pre-set position.
- Floating Blanking: allows the operator to exclude the control of a pre-set number of beams in any position within the detection area.
- Cascade configuration: a couple of light curtains can function connected to each other in accordance to a Master-Slave protocol and combining the safety information relative to the two different sections of the controlled machine. The Master unit has a Blanking function and can be used without the Slave unit.

Models with the Muting function are not available in the SE4-PLUS FINGER series.

DIMENSIONS

L₂

85.45

L₁

40

35

mm

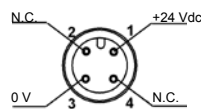| VERSIONS	L_1	L_2
SE4-xx-015-PP-y	256	147
SE4-xx-030-PP-y	403	294
SE4-xx-045-PP-y	550	441
SE4-xx-060-PP-y	697	588
SE4-xx-075-PP-y	844	735
SE4-xx-090-PP-y	991	882
SE4-xx-105-PP-y	1138	1029
SE4-xx-120-PP-y	1285	1176

xx= 14 o 30
y: B= BLANKING, M= MASTER, N= MASTER BLANKING, S= SLAVE

CONNECTIONS

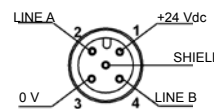| MODEL	EMITTER	RECEIVER
EMD+Blanking	M12 4-pole	M12 8-pole
EDM+Cascade (Master)*	M12 4-pole +M12 5-pole	M12 8-pole +M12 5-pole
EDM+Cascade (Slave)	M12 5-pole	M12 5-pole
EDM + Cascade + Blanking (Master)*	M12 4-pole +M12 5-pole	M12 8-pole +M12 5-pole

* an electric terminal is supplied for the Master Cascade models for the M12 5-pole connection in order to use the Master unit without connecting the Slave unit
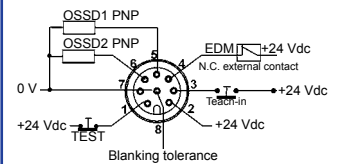
M12 CONNECTOR 4-POLE

N.C. +24 Vdc
0 V N.C.

1 = brown = +24 Vdc
2 = white = N.C.
3 = blue = 0 V
4 = black = N.C.

M12 CONNECTOR 5-POLE

LINE A +24 Vdc
SHIELD
0 V LINE B

1 = brown = +24 Vdc
2 = white = LINE A
3 = blue = 0 V
4 = black = LINE B
5 = grey = SHIELD

M12 CONNECTOR 8-POLE

OSSD1 PNP
OSSD2 PNP
EDM +24 Vdc
N.C. external contact
0 V
Teach-in +24 Vdc
+24 Vdc TEST +24 Vdc
Blanking tolerance

1 = white = TEST/START
2 = brown = +24 Vdc
3 = green = TEACH-IN
4 = yellow = EDM
5 = grey = OSSD1
6 = pink = OSSD2
7 = blue = 0 V
8 = red = BLANKING TOLERANCE

TECHNICAL DATA

Power supply:	24 Vdc ± 20% (SELV / PELV)
Consumption:	55 mA max. / 1.5. W (emitter)
	125 mA max. / 3.75 W (receiver without load)
Light emission:	infrared LED 880 nm
Number of controlled beams:	refer to table 1
Optic interaxis:	7 mm
Resolution:	14 mm
Controlled height:	refer to table 2
Through beam operating distance:	0.2 ... 6 m
Receiver indicators:	green / red SAFE/ BREAK LED
	2 yellow ALIGNMENT LEDs
	green POWER ON LED
Emitter indicators:	yellow blinking FAILURE LED
	greeen POWER ON LED
Output type:	2 PNP
Output current:	0.5 A max., short-circuit protection
Response time:	refer to tables 3 and 4
Selectable functions:	refer dip-switches
Receiver connection:	refer to connections
Emitter connection:	refer to connections
Cable length:	50 m max. (with 50 nF capacitive load)
Safety category:	Type 4
Electrical protection:	class 1
Mechanical protection:	IP65
Housing material:	aluminium with PC Makrolon plastic caps
Weight:	1.2 Kg max. / m of total height
Operating temperature:	-10 ... +55 °C
Storage temperature:	-25 ... +70 °C
Reference standards:	EN 954-1, IEC 61496-1, IEC 61496-2

C€ TÜV c(UL)us LISTED 3 YEARS ✓

SELECTION TABLE

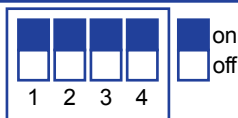| MODEL	BEAMS
SE4 height 150	21
SE4 height 300	42
SE4 height 450	63
SE4 height 600	84
SE4 height 750	105
SE4 height 900	126
SE4 height 1050	147
SE4 height 1200	168
Table 1: NUMBER OF BEAMS	

MODEL	mm
SE4 height 150	161
SE4 height 300	308
SE4 height 450	455
SE4 height 600	602
SE4 height 750	749
SE4 height 900	896
SE4 height 1050	1043
SE4 height 1200	1190
Table 2: CONTROLLED HEIGHT	

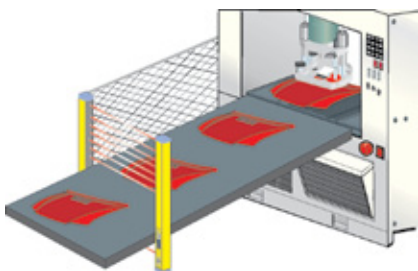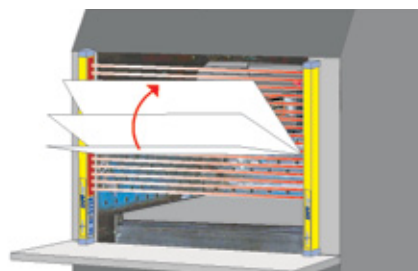| MODEL	ms
SE4 height 150	21
SE4 height 300	28
SE4 height 450	35
SE4 height 600	41
SE4 height 750	48
SE4 height 900	55
SE4 height 1050	62
SE4 height 1200	68
Table 3: RESPONSE TIME	

on
off
1 2 3 4

DIP-SWITCHES
1 - Floating function: refer to table
2 - Floating function: refer to table
3 - EDM inactive (ON) / EDM active (OFF)
4 - Automatic (ON) / manual (OFF) reset

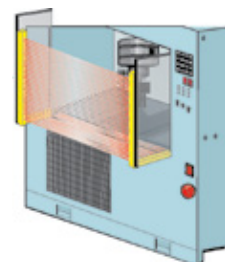| DIP1	DIP2	FUNCTION
ON	ON	Floating function deactivated,
ON	OFF	Floating function active, 1 Blanking beam
OFF	ON	Floating function active, 2 adjiacent Blanking beams
OFF	OFF	Floating function active, 1, 2 or 3 adjacent Blanking beams

FUNCTIONING MODE

Example of 'Fixed Blanking'

Example of 'Floating Blanking'

Example of 'Cascade' configuration

MODEL SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	FUNCTION	ORDER N°
SE4-14-015-PP-B	Type 4 safety light curtain	EDM, Blanking	957202000
SE4-14-030-PP-B	Type 4 safety light curtain	EDM, Blanking	957202010
SE4-14-045-PP-B	Type 4 safety light curtain	EDM, Blanking	957202020
SE4-14-060-PP-B	Type 4 safety light curtain	EDM, Blanking	957202030
SE4-14-075-PP-B	Type 4 safety light curtain	EDM, Blanking	957202040
SE4-14-090-PP-B	Type 4 safety light curtain	EDM, Blanking	957202050
SE4-14-105-PP-B	Type 4 safety light curtain	EDM, Blanking	957202060
SE4-14-120-PP-B	Type 4 safety light curtain	EDM, Blanking	957202070
SE4-14-015-PP-M	Type 4 safety light curtain	EDM, Master	957202200
SE4-14-030-PP-M	Type 4 safety light curtain	EDM, Master	957202210
SE4-14-045-PP-M	Type 4 safety light curtain	EDM, Master	957202220
SE4-14-060-PP-M	Type 4 safety light curtain	EDM, Master	957202230
SE4-14-075-PP-M	Type 4 safety light curtain	EDM, Master	957202240
SE4-14-090-PP-M	Type 4 safety light curtain	EDM, Master	957202250
SE4-14-105-PP-M	Type 4 safety light curtain	EDM, Master	957202260
SE4-14-120-PP-M	Type 4 safety light curtain	EDM, Master	957202270
SE4-14-015-PP-N	Type 4 safety light curtain	EDM, Master Blanking	957202400
SE4-14-030-PP-N	Type 4 safety light curtain	EDM, Master Blanking	957202410
SE4-14-045-PP-N	Type 4 safety light curtain	EDM, Master Blanking	957202420
SE4-14-060-PP-N	Type 4 safety light curtain	EDM, Master Blanking	957202430
SE4-14-075-PP-N	Type 4 safety light curtain	EDM, Master Blanking	957202440
SE4-14-090-PP-N	Type 4 safety light curtain	EDM, Master Blanking	957202450
SE4-14-105-PP-N	Type 4 safety light curtain	EDM, Master Blanking	957202460
SE4-14-120-PP-N	Type 4 safety light curtain	EDM, Master Blanking	957202470
SE4-14-015-PP-S	Type 4 safety light curtain	Slave	957202600
SE4-14-030-PP-S	Type 4 safety light curtain	Slave	957202610
SE4-14-045-PP-S	Type 4 safety light curtain	Slave	957202620
SE4-14-060-PP-S	Type 4 safety light curtain	Slave	957202630
SE4-14-075-PP-S	Type 4 safety light curtain	Slave	957202640
SE4-14-090-PP-S	Type 4 safety light curtain	Slave	957202650
SE4-14-105-PP-S	Type 4 safety light curtain	Slave	957202660
SE4-14-120-PP-S	Type 4 safety light curtain	Slave	957202670

ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
CV-A1-23-B-005-2F	M12 5-pole shielded axial 0.5 m connector (supplied with the Slave)	95ACC2440
CV-A1-23-B-01-2F	M12 5-pole shielded axial 1 m connector (to be ordered separately)	95ACC2450
SE-C	5 pole-connector cap (supplied with the Master)	95ACC2460
Please refer also to **Safey Device Accessories**		