

# Safety Light Curtain Type SC4 Finger Series

CARLO GAVAZZI



- Integrated light curtain for finger protection (14 mm resolution)
- Up to 6m operating distance
- Controlled heights ranging from 150 to 1200 mm
- Compact profile 32 x 37mm
- Selectable EDM and Manual / Automatic Restart
- Ideal for Industrial Applications, such as:
  - 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

## Approvals



## Ordering Key

**SC 4 ED 14 300 D6**

Safety Light Curtains \_\_\_\_\_  
 Category \_\_\_\_\_  
 Function (ED: External Device Monitoring) \_\_\_\_\_  
 Resolution \_\_\_\_\_  
 Protected height \_\_\_\_\_  
 Operating distance \_\_\_\_\_

## Product Description

The SC4 range of 14mm finger resolution simplifies installation, connection and use.

**Installation simplification**, via new rotating fixing brackets to ease alignment.

**Connection simplification**, using standard connectors, making no connection between emitter and receiver necessary.

**Use simplification**, featuring alignment guided by a 7

segment double display on both the emitter and the receiver. Its new sturdy and more functional compact body (32x37mm profile) together with the selectable EDM and Manual/Automatic

Restart function, its improved response time, and the full compatibility with the former SB range make the new SC4 range one of the best performing safety light curtains for industrial applications.

## Model Selection

Model	Description
<b>SC4</b>	
SC4-ED-14-150-D6	Type 4 safety light curtain h=150mm
SC4-ED-14-300-D6	Type 4 safety light curtain h=300mm
SC4-ED-14-450-D6	Type 4 safety light curtain h=450mm
SC4-ED-14-600-D6	Type 4 safety light curtain h=600mm
SC4-ED-14-750-D6	Type 4 safety light curtain h=750mm
SC4-ED-14-900-D6	Type 4 safety light curtain h=900mm
SC4-ED-14-1050-D6	Type 4 safety light curtain h=1050mm
SC4-ED-14-1200-D6	Type 4 safety light curtain h=1200mm

## General Data

<b>Power Supply</b>	24VDC $\pm$ 20%	<b>Response time</b>	Refer to table in page 4
<b>Consumption (emitter)</b>	2.5W max	<b>Controlled height</b>	150... 1200 mm
<b>Consumption (receiver)</b>	4 max (without load)	<b>Safety category</b>	Type 4
<b>OSSD output</b>	2 PNP	<b>Auxiliary functions</b>	Reset / Test Selectable Man./Auto Restart Selectable EDM
<b>Short-circuit protection</b>	1.4 A max	<b>Electrical protection</b>	Class I / Class II
<b>Output current</b>	0.5A max on each output	<b>Connection</b>	M12 4-pole for emitter M12 8-pole for receiver
<b>Output voltage - ON status</b>	Vdd - 1V min	<b>Cable length</b>	50m max
<b>Output voltage - OFF status</b>	0.2 V		
<b>Leakage current</b>	< 1mA		
<b>Capacitive load</b>	2.2uF @ 24VDC max		

## Optical Data

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

## Mechanical and Environmental Data

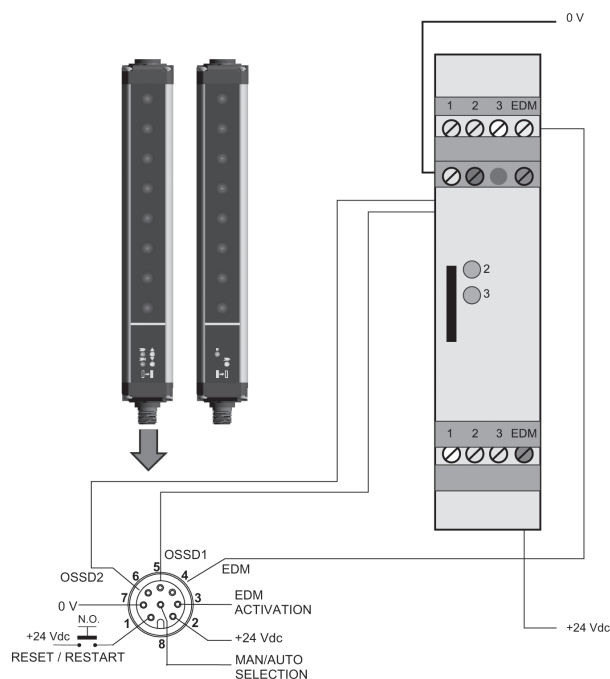
<b>Operating temperature</b>	0... + 55°C	<b>Shock resistance</b>	16 ms (10 G) 1.000 shock per axis
<b>Storage temperature</b>	-25°... +70°C	<b>Housing material</b>	Aluminium
<b>Temperature class</b>	T6	<b>Protective shield material</b>	PMMA
<b>Humidity</b>	15... 95% (non condensing)	<b>Cap material</b>	PC MAKROLON
<b>Mechanical protection</b>	IP65 (EN 60529)	<b>Weight</b>	1.3 KG / m
<b>Vibration</b>	Width 0.35mm Frequency 10... 55 Hz 20 swep per axis, 1 octave/min (EN 60068-2-6)		

## Function

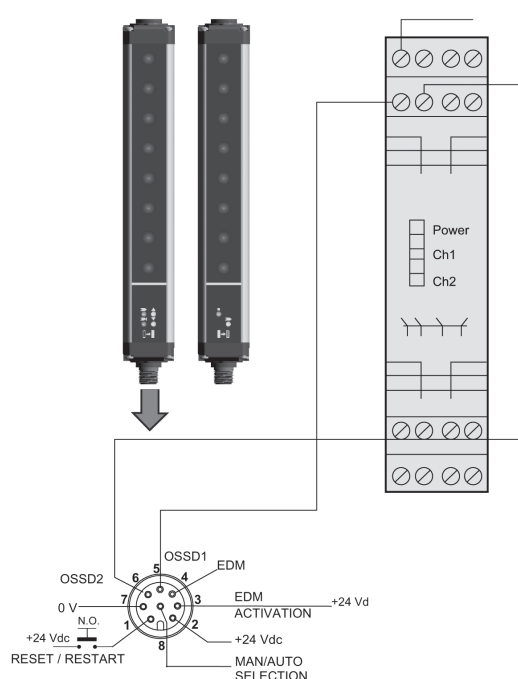
### EDM

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 economical advantage.

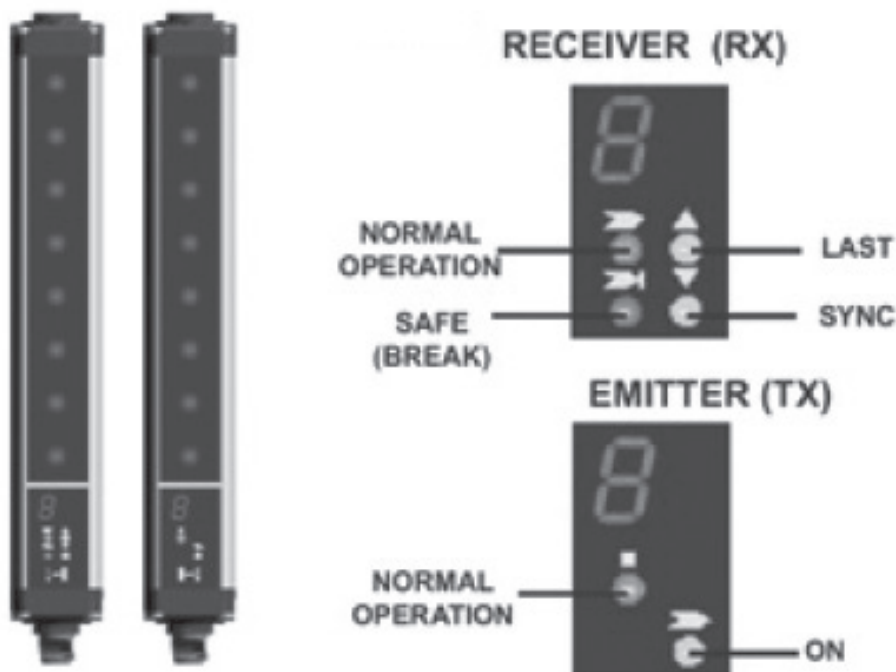
#### Connection with EDM function



#### Connection without EDM function



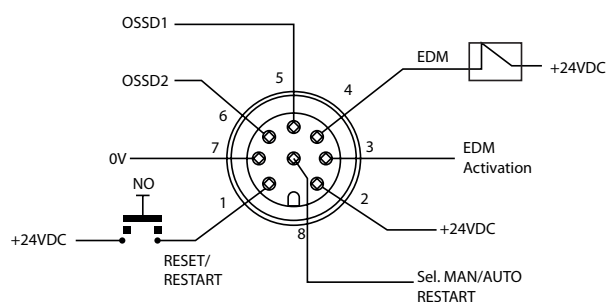
## Indicators and Settings



## Connections

RX: M12 8-POLE CONNECTOR

TX: M12 4-POLE CONNECTOR

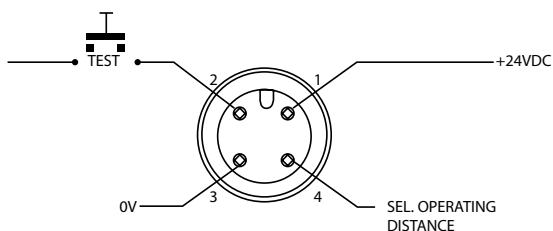


- 1 = White = RESET\*
- 2 = Brown = +24VDC
- 3 = Green = EDM Activation\*\*
- 4 = Yellow = EDM
- 5 = Grey = OSSD1
- 6 = Pink = OSSD2
- 7 = Blue = 0 V
- 8 = Red = SEL MAN / AUTO RESTART

\*Automatic RESTART - RESET function  
Manual RESTART - RESET /RESTART function

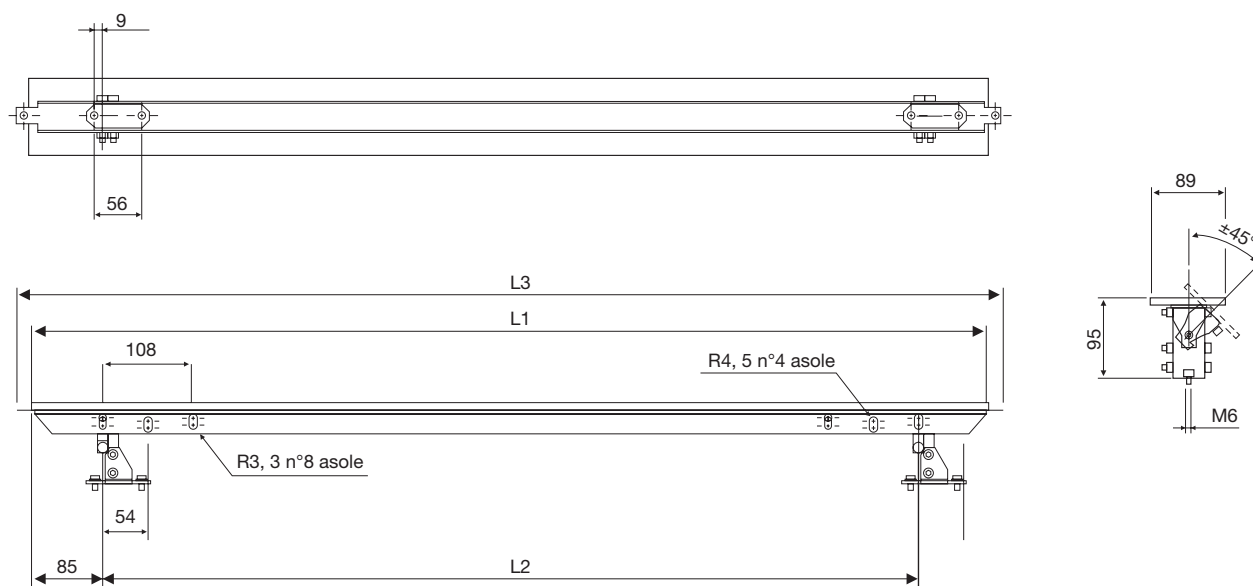
\*\*Refer to "SC4: functions"

**NOTE:** For MANUAL RESTART CONNECT TOGETHER Pin8 with Pin6.  
For Automatic Restart connect together Pin8 with Pin5



- 1 = Brown = +24VDC
- 2 = White = TEST
- 3 = Blue = 0 V
- 4 = Black = NOT USED

## Dimensions



Version	L <sub>1</sub>	L <sub>2</sub>
SC4-ED-14-150-D6	233.3	153.3
SC4-ED-14-300-D6	383.2	303.2
SC4-ED-14-450-D6	533.2	453.3
SC4-ED-14-600-D6	683.2	603.2
SC4-ED-14-750-D6	833.2	753.3
SC4-ED-14-900-D6	983.2	903.2
SC4-ED-14-1050-D6	1133.2	1053.2
SC4-ED-14-1200-D6	1283.2	1203.3

Number of Controlled Beams	
SC4 height 150	16
SC4 height 300	32
SC4 height 450	48
SC4 height 600	64
SC4 height 750	80
SC4 height 900	96
SC4 height 1050	112
SC4 height 1200	128

Controlled Height (mm)	
SC4 height 150	150
SC4 height 300	300
SC4 height 450	450
SC4 height 600	600
SC4 height 750	750
SC4 height 900	900
SC4 height 1050	1050
SC4 height 1200	1200

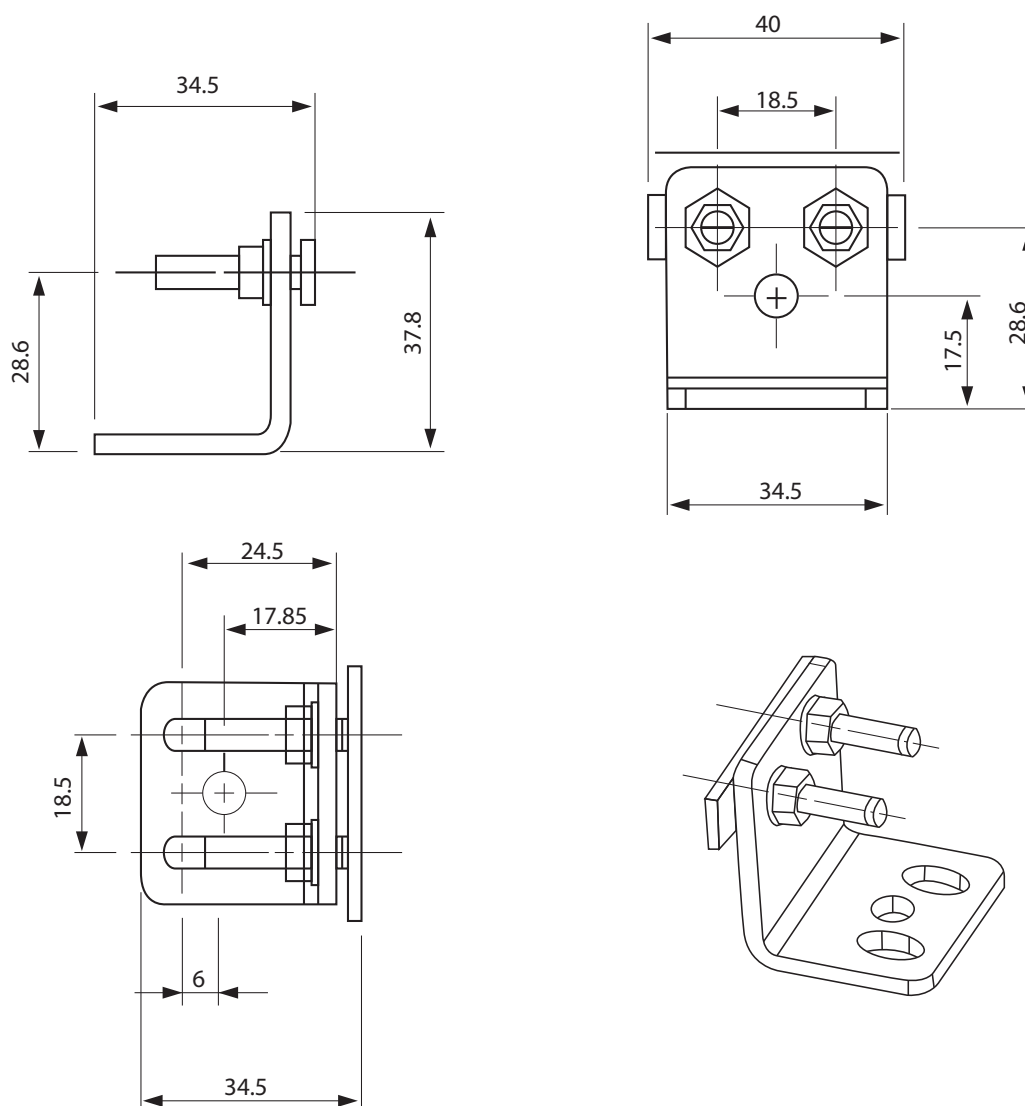
Response Time (ms)	
SC4 height 150	11
SC4 height 300	15
SC4 height 450	18
SC4 height 600	22
SC4 height 750	25
SC4 height 900	29
SC4 height 1050	33
SC4 height 1200	36

Reliability Data SC4	
PL (Ref. EN ISO 13849-1)	e
CAT (Ref. EN 954-1)	4
SIL (Ref. EN 954-1)	3
SIL CL (Ref. EN IEC 62061)	3
PHFD - Probability of Danger Failure (1/h)	2.64E-09
T1 - Life Time (years)	20
MTTFD - Mean Time to Danger Failure (years)	444
DC - Diagnostic Coverage (%)	98.80%
SFF - Safe Failure Fraction (%)	99.30%
HTF - Hardware Fault Tolerance	1

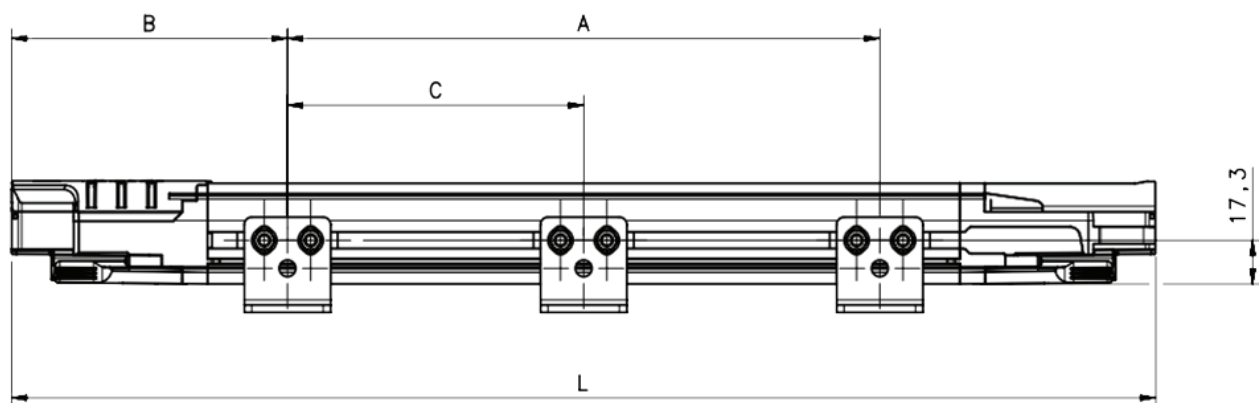
## Accessory Table

<b>SC FB4P</b>	Std mounting brackets 4 pcs kit
<b>SC AV4P</b>	Anti Vibration supports 4 pcs kit
<b>SC AV6P</b>	Anti Vibration supports 6 pcs kit
<b>SC OS4P</b>	Orientable Supports 4 pcs kit
<b>SC OS6P</b>	Orientable Supports 6 pcs kit
<b>SC TP14</b>	Test Piece Ø 14mm L = 300mm
<b>SC TP30</b>	Test Piece Ø 30mm L = 300mm

## Standard Mounting Brackets

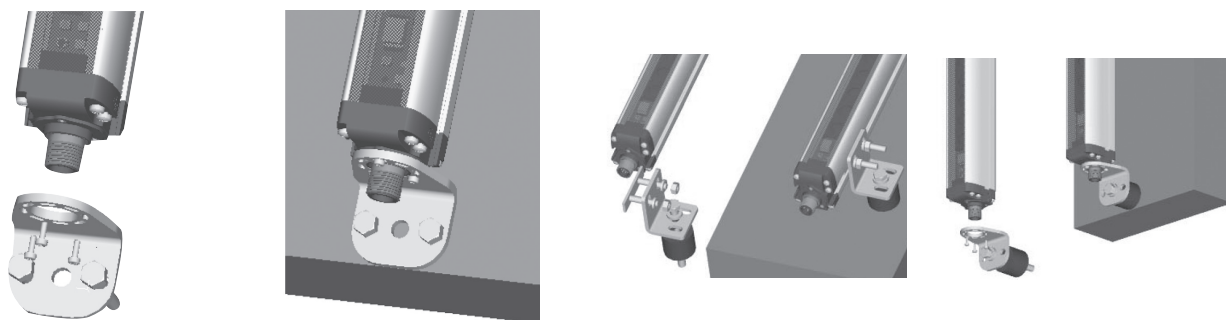


## Installation with Anti-Vibration Supports



Models	L (mm)	A (mm)	B (mm)	C (mm)
SC4-ED-14-150-D6	216.3	108	54	-
SC4-ED-14-300-D6	366.2	216	75	-
SC4-ED-14-450-D6	516.3	316	100	-
SC4-ED-14-600-D6	666.2	366	150	-
SC4-ED-14-750-D6	816.3	466	175	-
SC4-ED-14-900-D6	966.2	566	200	-
SC4-ED-14-1050-D6	1116.2	666	225	-
SC4-ED-14-1200-D6	1266.3	1066	150	483

### Installation with anti-vibration supports



## Connection Cables

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Cable part number	Description
<b>CONGSC-4P-5M</b>	4 poles, 5m cable
<b>CONGSC-4P-7M</b>	4 poles, 7m cable
<b>CONGSC-5P-5M</b>	5 poles, 5m cable
<b>CONGSC-5P-7M</b>	5 poles, 7m cable
<b>CONGSC-8P-5M</b>	8 poles, 5m cable
<b>CONGSC-8P-7M</b>	8 poles, 7m cable

### Ordering key:

**CONG** = cable group  
**SC** = safety light curtains  
**xP** = number of poles  
**xM** = cable length

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[SC4ED141050D6](#) [SC4ED141200D6](#) [SC4ED14150D6](#) [SC4ED14300D6](#) [SC4ED14450D6](#) [SC4ED14600D6](#)  
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