

Safety Light Curtain Type SC4 Hand Series

CARLO GAVAZZI



- Integrated light curtain for hand protection (30 mm resolution)
- Up to 19m operating distance
- Controlled heights ranging from 150 to 1650 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 30 300 D19

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

Product Description

The SC4 range of 30mm 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
SC4	
SC4-ED-30-150-D19	Type 4 safety light curtain h=150mm
SC4-ED-30-300-D19	Type 4 safety light curtain h=300mm
SC4-ED-30-450-D19	Type 4 safety light curtain h=450mm
SC4-ED-30-600-D19	Type 4 safety light curtain h=600mm
SC4-ED-30-750-D19	Type 4 safety light curtain h=750mm
SC4-ED-30-900-D19	Type 4 safety light curtain h=900mm
SC4-ED-30-1050-D19	Type 4 safety light curtain h=1050mm
SC4-ED-30-1200-D19	Type 4 safety light curtain h=1200mm
SC4-ED-30-1350-D19	Type 4 safety light curtain h=1350mm
SC4-ED-30-1500-D19	Type 4 safety light curtain h=1500mm
SC4-ED-30-1650-D19	Type 4 safety light curtain h=1650mm

General Data

Power Supply	24VDC ± 20%	Response time	Refer to table in page 4
Consumption (emitter)	2.5W max	Controlled height	300... 1650 mm
Consumption (receiver)	4 max (without load)	Safety category	Type 4
OSSD output	2 PNP	Auxiliary functions	Reset / Test Selectable Man./Auto Restart Selectable EDM
Short-circuit protection	1.4 A max	Electrical protection	Class I / Class II
Output current	0.5A max on each output	Connection	M12 4-pole for emitter M12 8-pole for receiver
Output voltage - ON status	Vdd - 1V min	Cable length	50m max
Output voltage - OFF status	0.2 V		
Leakage current	< 1mA		
Capacitive load	2.2uF @ 24VDC max		

Optical Data

Light emission	Infrared LED (950 nm)	Aperture angle (EAA)	± 2.5° max
Resolution	30mm	Ambient light rejection	IEC-61496-2
Operating distance	0.2... 19m		

Mechanical and Environmental Data

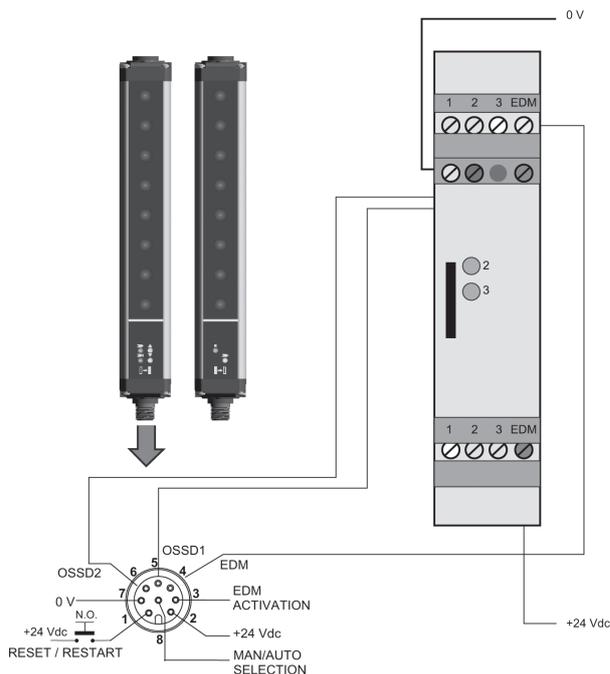
Operating temperature	0... + 55°C	Shock resistance	16 ms (10 G) 1.000 shock per axis
Storage temperature	-25°... +70°C	Housing material	Painted alluminium
Temperature class	T6	Protective shield material	PMMA
Humidity	15... 95% (non condensing)	Cap material	PC MAKROLON
Mechanical protection	IP65 (EN 60529)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

Function

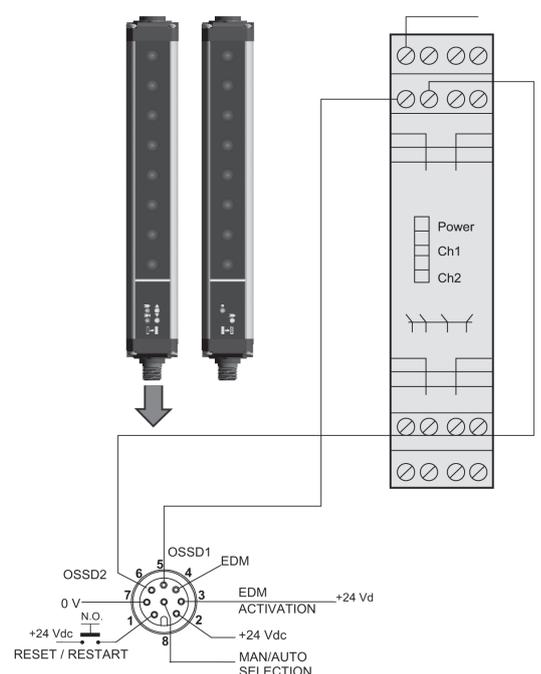
EDM

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.

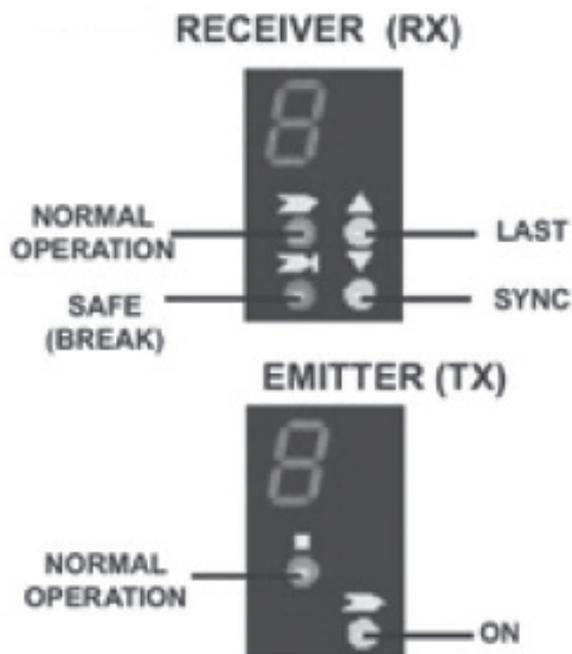
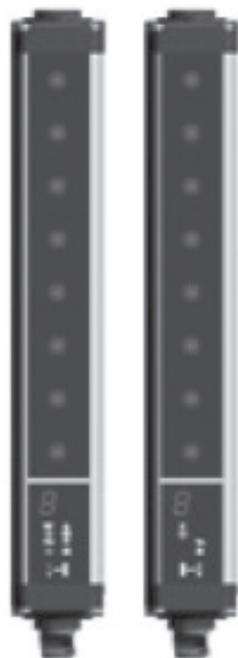
Connection with EDM function



Connection without EDM function



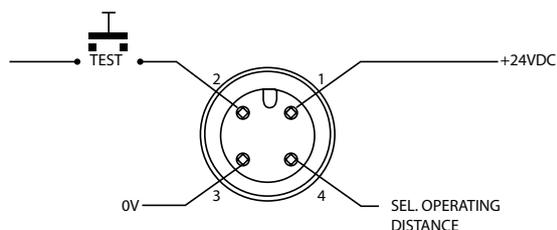
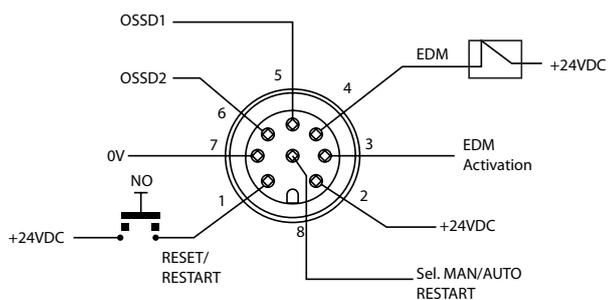
Indicators and Settings



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

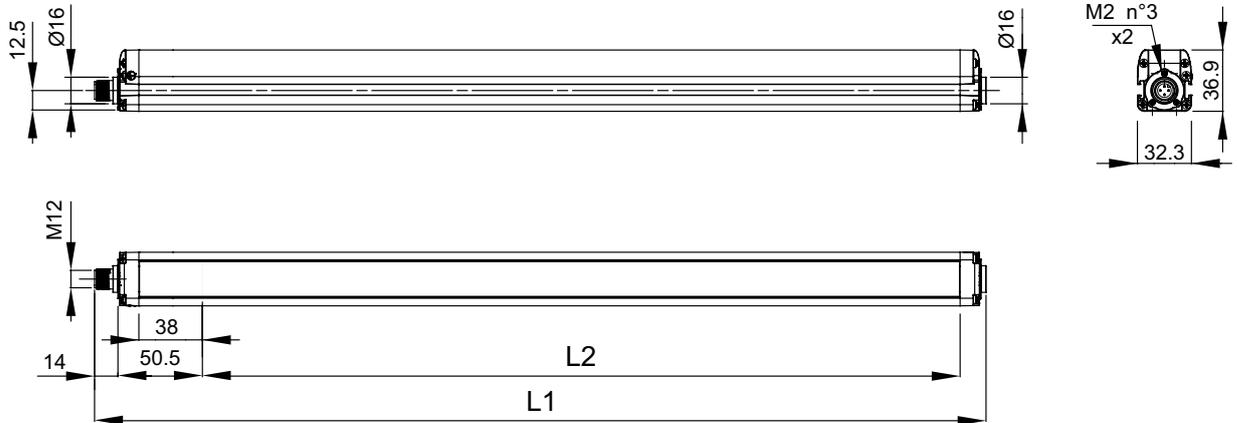
- 1 = Brown = +24VDC
- 2 = White = TEST
- 3 = Blue = 0 V
- 4 = Black = NOT USED

*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

Dimensions



Version	L ₁	L ₂
SC4-ED-30-300-D19	383.2	303.2
SC4-ED-30-450-D19	533.2	453.3
SC4-ED-30-600-D19	683.2	603.2
SC4-ED-30-750-D19	833.2	753.3
SC4-ED-30-900-D19	983.2	903.2
SC4-ED-30-1050-D19	1133.2	1053.2
SC4-ED-30-1200-D19	1283.2	1203.3
SC4-ED-30-1350-D19	1433.2	1353.2
SC4-ED-30-1500-D19	1583.3	1503.3
SC4-ED-30-1650-D19	1733.3	1653.3

Number of Controlled Beams	
SC4 height 300	16
SC4 height 450	24
SC4 height 600	32
SC4 height 750	40
SC4 height 900	48
SC4 height 1050	56
SC4 height 1200	64
SC4 height 1350	72
SC4 height 1500	80
SC4 height 1650	88

Controlled Height (mm)	
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
SC4 height 1350	1350
SC4 height 1500	1500
SC4 height 1650	1650

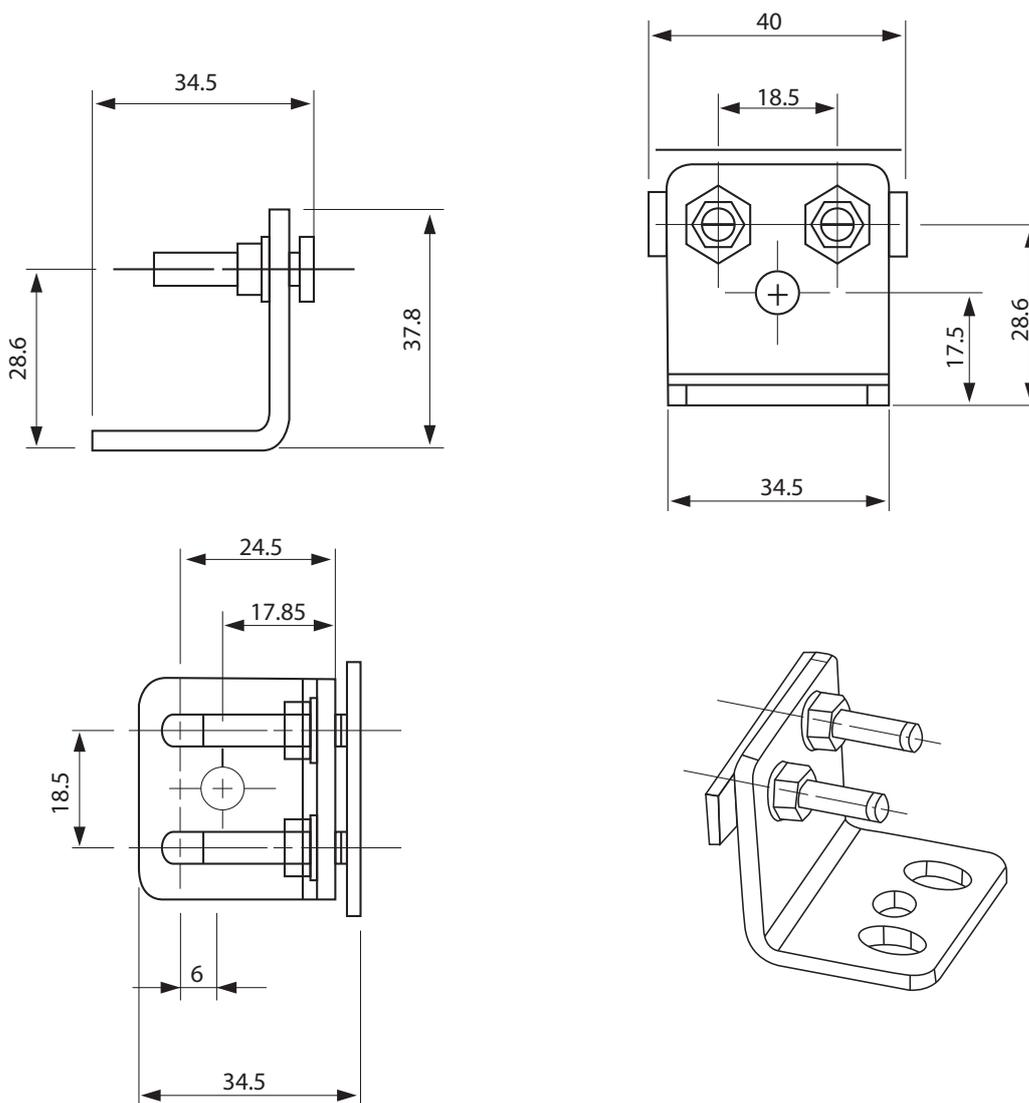
Response Time (ms)	
SC4 height 300	11
SC4 height 450	13
SC4 height 600	14
SC4 height 750	16
SC4 height 900	18
SC4 height 1050	19
SC4 height 1200	21
SC4 height 1350	23
SC4 height 1500	25
SC4 height 1650	26

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

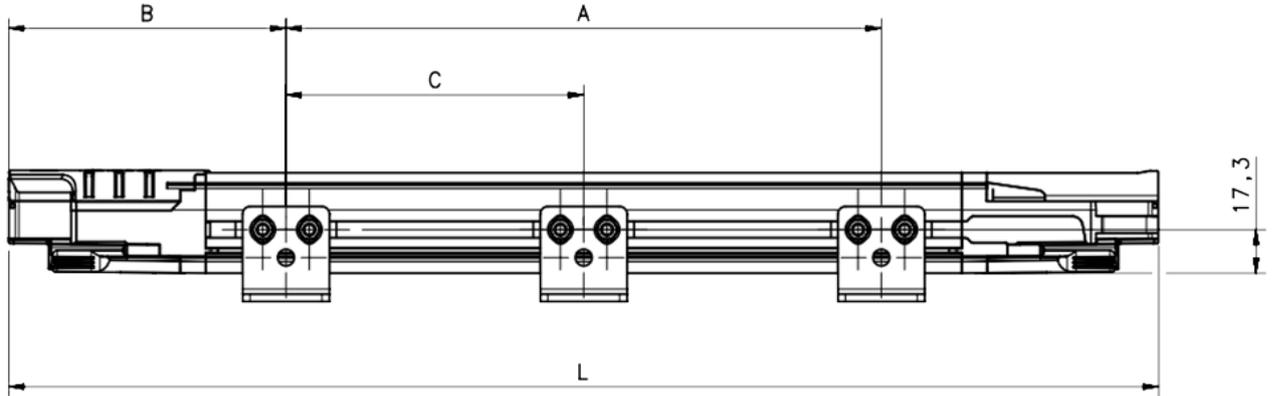
Accessory Table

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

Standard Mounting Brackets

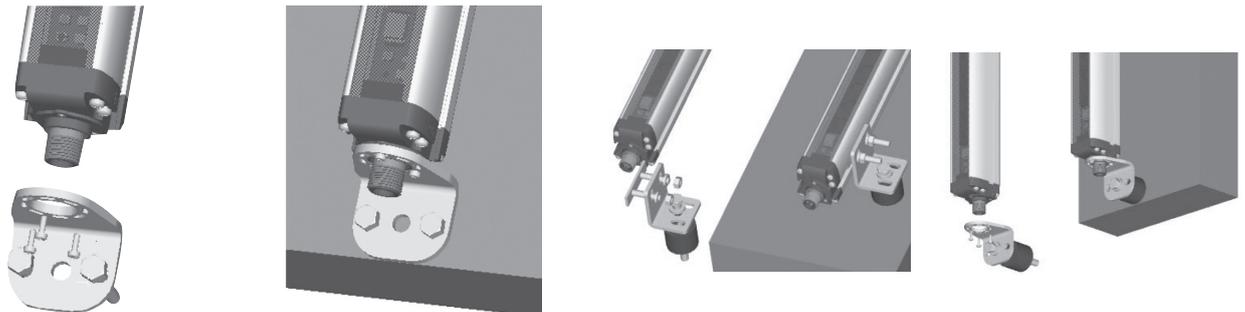


Installation with Anti-Vibration Supports



Models	L (mm)	A (mm)	B (mm)	C (mm)
SC4-ED-30-300-D19	216.3	108	54	-
SC4-ED-30-450-D19	366.2	216	75	-
SC4-ED-30-600-D19	516.3	316	100	-
SC4-ED-30-750-D19	666.2	366	150	-
SC4-ED-30-900-D19	816.3	466	175	-
SC4-ED-30-1050-D19	966.2	566	200	-
SC4-ED-30-1200-D19	1116.2	666	225	-
SC4-ED-30-1350-D19	1266.3	1066	150	483
SC4-ED-30-1500-D19	1566.3	1166	200	583
SC4-ED-30-1650-D19	1866.3	1366	250	633

Installation with anti-vibration supports





Connection Cables

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

Ordering key:

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