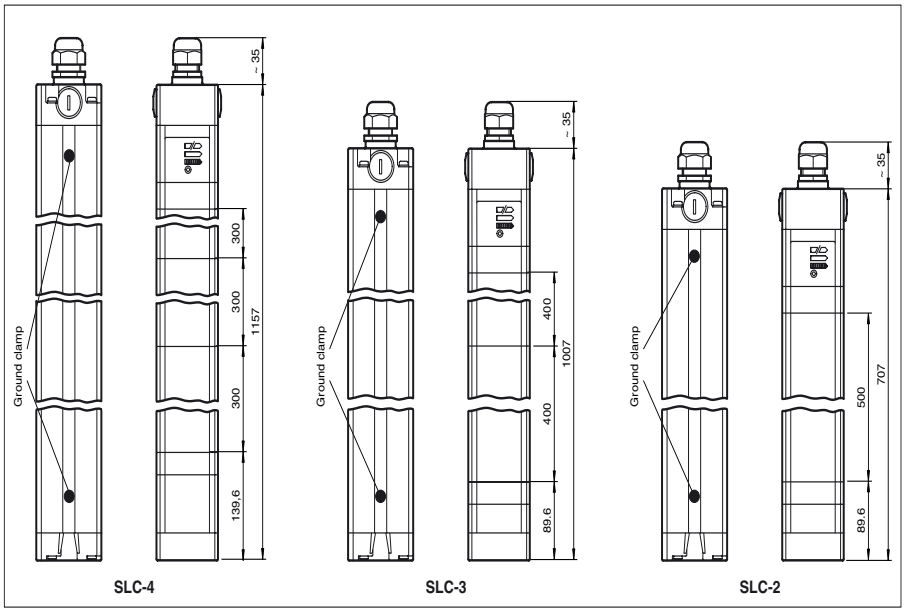
Dimensions



Model Number

SLC-4/133

Safety light grid with integrated control unit

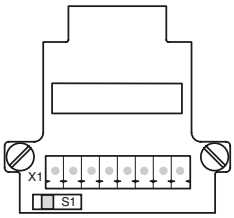
with 2 separate fail-safe semiconductor outputs

Features

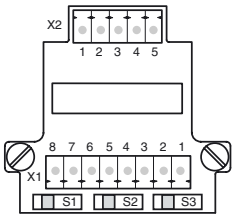
- ATEX-approval for zone 2 and zone 22
- Sensing range up to 20 m
- Beam spacing 300 mm
- Self-monitoring (type 4 according to IEC/EN 61496-1)
- Safety outputs OSSD, external status displays OSSD
- Start/Restart disable
- 7-segment diagnostic display
- Pre-fault indication
- Degree of protection IP66

Electrical connection

Emitter:



Receiver:



terminal	emitter	receiver (relay output)	receiver (semiconductor output)
X1:1	Functional earth	Functional earth	Functional earth
X1:2		test (input)	Test (input)
X1:3		OSSD2.2 (output)	0 V OSSD
X1:4		OSSD1.2 (output)	24 V OSSD
X1:5		OSSD2.1 (output)	OSSD2 (output)
X1:6		OSSD1.1 (output)	OSSD1 (output)
X1:7	0 V AC/DC	0 V AC/DC	0 V DC
X1:8	24 V AC/DC	24 V AC/DC	24 V DC
X2:1	not placed on board	Start release (output)	Start release (output)
X2:2		Status OSSD (output)	Status OSSD (output)
X2:3		24 V reference potential for I/O	n. c.
X2:4		0 V reference potential for I/O	n. c.
x2:5		Startup readiness (input)	Startup readiness (input)

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Technical data

System components		
Emitter		SLC-4-T/133
Receiver		SLC-4-R/133
General specifications		
Effective detection range		0.2 ... 20 m
Light source		IRED
Light type		modulated infrared light
LED risk group labelling		exempt group
Tests		IEC/EN 61496
Safety type according to IEC/EN 61496		4
Target size		50 mm
Beam spacing		300 mm
Number of beams		4
Operating mode		can be selected with or without start/restart disable
Angle of divergence		< 5 °
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Performance level (PL)		PL e
Category		Cat. 4
Mission Time (T_M)		20 a
PFH_d		7.27 E-9
Type		4
Indicators/operating means		
Operation indicator		7-segment display in emitter
Diagnostics indicator		7-segment display in receiver
Function indicator		in receiver: LED red: OSSD off LED green: OSSD on LED yellow: Protected area free, system start-ready
Pre-fault indicator		LED orange
Control elements		switch for start/restart disable, transmission coding
Electrical specifications		
Operating voltage	U_B	24 V DC (-30 %/+25 %)
No-load supply current	I_0	Emitter: 100 mA , receiver 150 mA
Protection class		III
Input		
Activation current		approx. 10 mA
Activation time		0.03 ... 1 s
Test input		Reset-input for system test
Function input		Start release
Output		
Safety output		2 separated fail safe semiconductor outputs
Signal output		1 PNP, max. 100 mA for start readiness , short-circuit protected 1 PNP, max. 100 mA for OSSD status , short-circuit protected
Switching voltage		Operating voltage -2 V
Switching current		max. 0.5 A
Response time		10 ms
Ambient conditions		
Ambient temperature		0 ... 55 °C (32 ... 131 °F)
Storage temperature		-25 ... 70 °C (-13 ... 158 °F)
Relative humidity		max. 95 %, not condensing
Mechanical specifications		
Degree of protection		IP66
Connection		M20 cable gland , Cable diameter Ø5.5 ... 13 mm , terminal compartment with screw terminals, lead cross-section max. 1.5 mm^2
Material		
Housing		extruded aluminum profile, RAL 1021 (yellow) coated
Optical face		Plastic pane
Mass		Per 3450 g
General information		
Use in the hazardous area		see more details for the use in hazardous areas
Category		3G; 3D
Compliance with standards and directives		
Directive conformity		
Machinery Directive 2006/42/EC		EN ISO 13849-1:2008 ; EN 61496-1:2013
EMC Directive 2004/108/EC		EN 61000-6-4:2007+A1:2011
Standard conformity		
Standards		IEC 61496-2:2013
Approvals and certificates		
CE conformity		CE
CCC approval		CCC approval / marking not required for products rated ≤36 V
TÜV approval		TÜV

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Equipment protection level Gc (nA)

Instruction	**Manual electrical apparatus for hazardous areas**
Device category 3G (nA)	for use in hazardous areas with gas, vapour and mist
ATEX marking	II 3 G Ex nAc op is IIC T4
Directive conformity	94/9/EG
Standards	EN 60079-0:2009 , EN 60079-15:2010 , EN 60079-28:2007
Installation, commissioning	Laws and/or regulations and standards governing the use or intended usage goal must be observed. By fitting a suitable external fixture, the connecting cable is secured against the transmission of rotational movements and tensile loading on the connections. After opening the enclosure (connection cap) and connecting the wires, but before mounting the connection cap, ensure the seal is correctly fitted and intact. Damaged seals are to be replaced.
Maintenance	No modifications must be undertaken on apparatus, which is operated in hazardous areas. Repairs to such apparatus are not permissible.

Special conditions

Maximum permissible ambient temperature T_{Umax}	55 °C (131 °F)
Protection from mechanical danger	The cable and wire gland and end caps are to be protected from mechanical shock.
Protection of overvoltage	Precautions must be taken to prevent the rated voltage being exceeded by more than 40 % due to transient disturbances.
Protection from UV light	The sensor must be protected against harmful UV radiation. This can be achieved by using the sensor indoors.
Electrostatic charge	The enclosure is to be grounded with help of the accompanying grounding terminal EC SLC EX via a wire with a cross section of 4 mm^2.
Other conditions	Do not open or disconnect when energized! By fitting a suitable external fixture, the connecting cable is secured against the transmission of rotational movements and tensile loading on the connections. After opening the enclosure (connection cap) and connecting the wires, but before mounting the connection cap, ensure the seal is correctly fitted and intact. Damaged seals are to be replaced.

Equipment protection level Dc

Instruction	**Manual electrical apparatus for hazardous areas**
Details for use in hazardous areas	Electrical apparatus for potentially explosive atmospheres
ATEX marking	II 3 D Ex tc IIIC T90 °C
Directive conformity	94/9/EG
Standards	EN 60079-31:2009
Installation, commissioning	Laws and/or regulations and standards governing the use or intended usage goal must be observed. By fitting a suitable external fixture, the connecting cable is secured against the transmission of rotational movements and tensile loading on the connections. After opening the enclosure (connection cap) and connecting the wires, but before mounting the connection cap, ensure the seal is correctly fitted and intact. Damaged seals are to be replaced.
Maintenance	No modifications must be undertaken on apparatus, which is operated in hazardous areas. Repairs to such apparatus are not permissible.

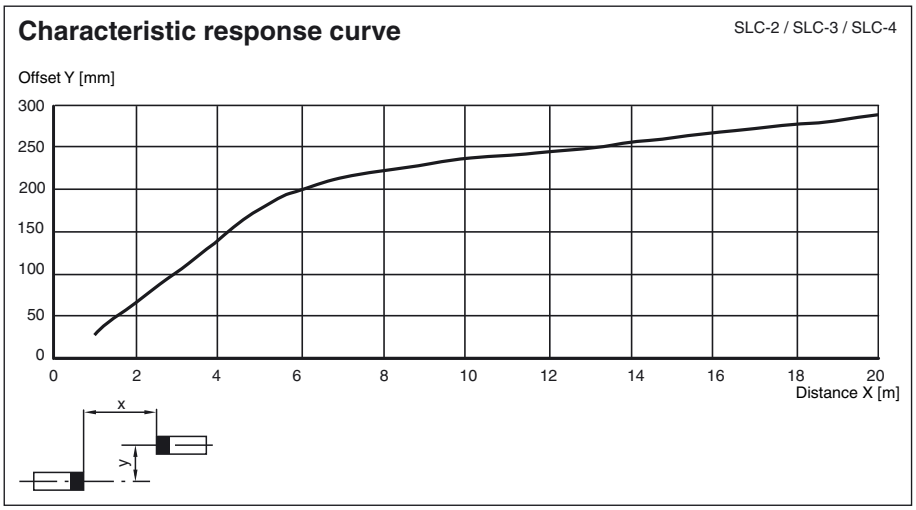
Special conditions

Protection from mechanical danger	The cable and wire gland and end caps are to be protected from mechanical shock.
Protection of overvoltage	Precautions must be taken to prevent the rated voltage being exceeded by more than 40 % due to transient disturbances.
Protection from UV light	The sensor must be protected against harmful UV radiation. This can be achieved by using the sensor indoors.
Electrostatic charge	The enclosure is to be grounded with help of the accompanying grounding terminal EC SLC EX via a wire with a cross section of 4 mm^2.

Curves/Diagrams

Characteristic response curve

SLC-2 / SLC-3 / SLC-4



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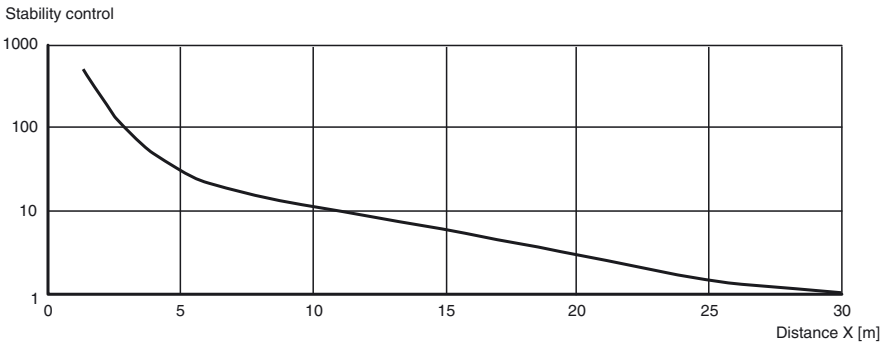
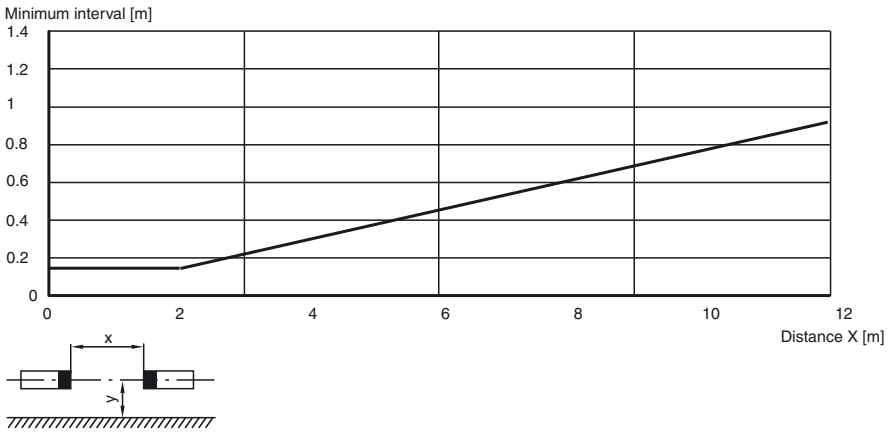
Relative received light strength

SLC-2 / SLC-3 / SLC-4



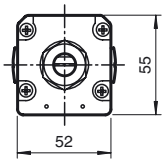
Lateral interval to mirroring surfaces

SLC-2 / SLC-3 / SLC-4



Additional information

Profile dimensions, front view



System accessories

- Mounting set SLC
- Protective glass pieces for SLC (to protect the optically functional surface)
- Lateral screwed connection SLC
- Mirror 2, 3 or 4-beam for SLC (for multi-side securing of hazardous areas)
- Laser alignment aid BA SLC
- Profile alignment aid PA SLP/SLC
- Ground pillar UC SLP/SLC
- Housing for ground pillar Enclosure UC SLP/SLC
- Collision protector Damping UC SLP/SLC

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