

Safety Light Curtains Type: SLC-F Finger (14mm)

FEATURES:

- Resolution: 14mm
- Protective height: 160mm to 1040mm
- Type 4 according to IEC61496-1 and -2
- Operating range: 0.3m to 10m
- Category 4, PLe according to EN/ISO13849-1
- Ingress protection IP67



ORDERING INFORMATION:

SALES NUMBER	NUMBER OF BEAMS	PROTECTIVE HEIGHT (mm)
SLC-F-160	15	160
SLC-F-240	23	240
SLC-F-400	39	400
SLC-F-560	55	560
SLC-F-800	79	800
SLC-F-1040	103	1040

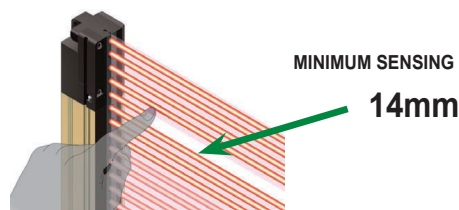
NOTE: Comes complete with SENDER, RECEIVER and STANDARD FIXING BRACKETS.



SALES NUMBER	NUMBER OF BRACKETS
SLC-SB-2	2
STANDARD BRACKETS (Supplied)	
Side mounting and backside mounting possible. Pack of two brackets included in the SLC-F package	



SALES NUMBER	NUMBER OF BRACKETS
SLC-AB-2	2
ADJUSTABLE BRACKETS (Optional extra)	
Angle adjustment range is $\pm 15^\circ$. Side mounting and backside mounting possible.	



CONNECTOR CABLE (Single-Ended)



SENDER CABLE:
M12 Connector
5-Pin, 5 Wires, Grey
RECEIVER CABLE:
M12 Connector
8 Pin, 8 Wires, Black

SINGLE-ENDED CONNECTOR CABLE			
EMITTER		RECEIVER	
SLC-CC-S3	3m	SLC-CC-R3	3m
SLC-CC-S10	10m	SLC-CC-R10	10m
SLC-CC-S20	20m	SLC-CC-R20	20m



TECHNICAL SPECIFICATIONS:

SLC-F SAFETY LIGHT CURTAINS		TECHNICAL DATA
Performance:		
Object Resolution (Detection Capability)	14mm diameter	
Beam Gap	10mm	
Protective Height	160mm to 1040mm (6.3 inch to 41 inch)	
Operating Range	300mm to 10.0m (1ft to 32.8ft)	
Electrical:		
Power Supply Voltage (Vs)	SELV/PELV 24 VDC $\pm 20\%$ (ripple p-p 10% maximum)	
Supply Outputs (OSSD)	Two PNP or NPN transistor outputs (PNP or NPN is selectable by DIP Switch.) Load current of 300 mA max.,	
Output Operation Mode - Safety Output	Light-ON (Safety output is enabled when the receiver receives an emitting signal.)	
Over-voltage Category (IEC 60664-1)	II	
Protective Circuit	Output short protection, Power supply reverse polarity protection	
Insulation Resistance	20 MOhms or higher (500 VDC megger)	
Dielectric Strength	1,000 VAC, 50/60 Hz (1 min)	
Functional:		
Test Function	Self-test (at power-on, and during operation). External test (light emission stop function by test input)	
Safety Related Functions	Interlock External device monitoring (EDM) Pre-reset Fixed blanking/Floating blanking Reduced resolution Muting/Override Scan code selection PNP/NPN selection Response time adjustment	
Environmental:		
Ambient Temperature	Operating: -10 to 55°C (14 to 131°F) (non-icing) Storage: -25 to 70°C (-13 to 158°F)	
Ambient Humidity	Operating: 35% to 85% (non-condensing) Storage: 35% to 95%	
Ambient Illuminance	Incandescent lamp: 3,000 lx max. on receiver surface. Sunlight: 10,000 lx max. on receiver surface	
Degree of Protection (IEC 60529)	IP65 and IP67	
Vibration Resistance (IEC 61496-1)	10 to 55 Hz, Multiple amplitude of 0.7 mm, 20 sweeps for all 3 axes	
Shock Resistance (IEC 61496-1)	100 m/s ² , 1000 shocks for all 3 axes	
Pollution Degree (IEC 60664-1)	Pollution Degree 3	
Material:	Housing: AluminumCap: PBT Front window: PMMA Cable: Oil resistant PVC Mounting Bracket: ZDC2 FE plate: SUS	
Conformity:		
Type of ESPE (IEC 61496-1)	Type 4	
Performance Level (PL) Safety Category	Type 4: PL e/Category 4 (EN ISO 13849-1:2008)	
PFHd	$\leq 9.9 \times 10^{-8}$ (IEC 61508)	
Proof test interval TM	Every 20 years (IEC 61508)	
SFF	99% (IEC 61508)	
HFT	1 (IEC 61508)	
Classification	Type B (IEC 61508-2)	

Safety Light Curtains Type: SLC-H Hand (30mm)

FEATURES:

- Resolution: 30mm
- Protective height: 270mm to 1710mm
- Type 4 according to IEC61496-1 and -2
- Operating range: 0.3m to 20m
- Category 4, PLe according to EN/ISO13849-1
- Ingress protection IP67



ORDERING INFORMATION:

SALES NUMBER	NUMBER OF BEAMS	PROTECTIVE HEIGHT (mm)
SLC-H-270	12	270
SLC-H-430	20	430
SLC-H-750	36	750
SLC-H-1070	52	1070
SLC-H-1470	72	1470
SLC-H-1710	84	1710

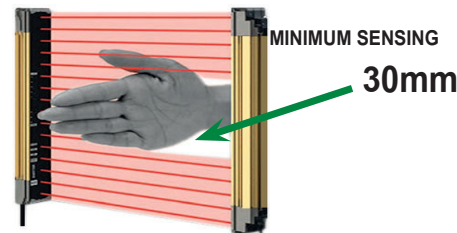
NOTE: Comes complete with SENDER, RECEIVER and STANDARD FIXING BRACKETS.



SALES NUMBER	NUMBER OF BRACKETS
SLC-SB-2	2
STANDARD BRACKETS (Supplied)	
Side mounting and backside mounting possible. Pack of two brackets included in the SLC-F package	



SALES NUMBER	NUMBER OF BRACKETS
SLC-AB-2	2
ADJUSTABLE BRACKETS (Optional extra)	
Angle adjustment range is $\pm 15^\circ$. Side mounting and backside mounting possible.	



CONNECTOR CABLE (Single-Ended)



SENDER CABLE:
M12 Connector
5-Pin, 5 Wires, Grey
RECEIVER CABLE:
M12 Connector
8 Pin, 8 Wires, Black

SINGLE-ENDED CONNECTOR CABLE			
EMITTER		RECEIVER	
SLC-CC-S3	3m	SLC-CC-R3	3m
SLC-CC-S10	10m	SLC-CC-R10	10m
SLC-CC-S20	20m	SLC-CC-R20	20m



TECHNICAL SPECIFICATIONS:

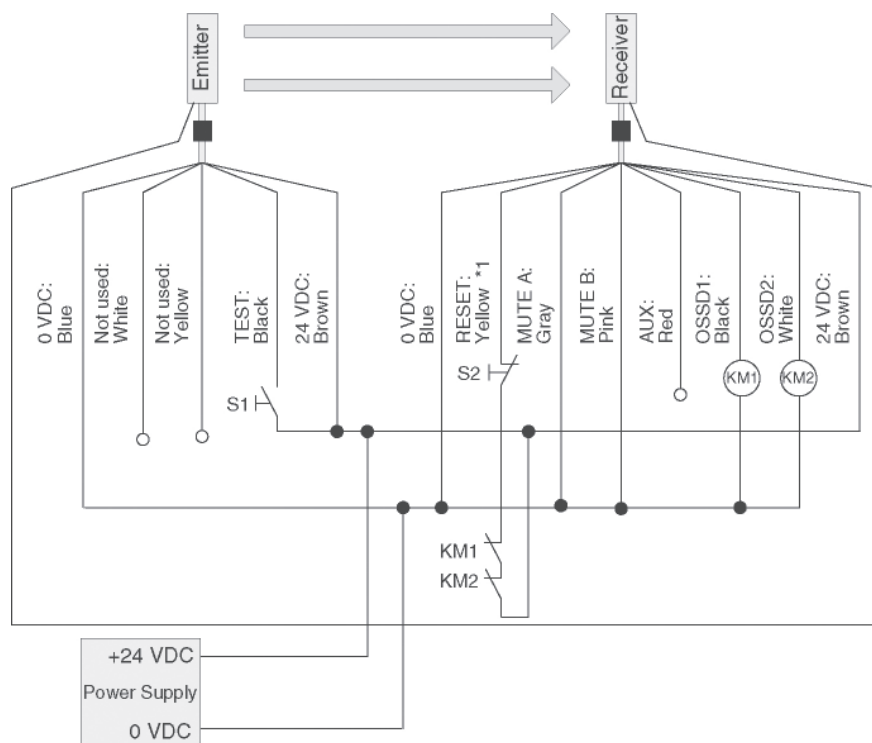
SLC-F SAFETY LIGHT CURTAINS		TECHNICAL DATA	
Performance:			
Object Resolution (Detection Capability)	30mm diameter		
Beam Gap	20mm		
Protective Height	270mm to 1710mm (10.5 inch to 68 inch)		
Operating Range	300mm to 20.0m (1ft to 65ft)		
Electrical:			
Power Supply Voltage (Vs)	SELV/PELV 24 VDC \pm 20% (ripple p-p 10% maximum)		
Supply Outputs (OSSD)	Two PNP or NPN transistor outputs (PNP or NPN is selectable by DIP Switch.) Load current of 300 mA max.,		
Output Operation Mode - Safety Output	Light-ON (Safety output is enabled when the receiver receives an emitting signal.)		
Over-voltage Category (IEC 60664-1)	II		
Protective Circuit	Output short protection, Power supply reverse polarity protection		
Insulation Resistance	20 MOhms or higher (500 VDC megger)		
Dielectric Strength	1,000 VAC, 50/60 Hz (1 min)		
Functional:			
Test Function	Self-test (at power-on, and during operation). External test (light emission stop function by test input)		
Safety Related Functions	Interlock External device monitoring (EDM) Pre-reset Fixed blanking/Floating blanking Reduced resolution Muting/Override Scan code selection PNP/NPN selection Response time adjustment		
Environmental:			
Ambient Temperature	Operating: -10 to 55°C (14 to 131°F) (non-icing) Storage: -25 to 70°C (-13 to 158°F)		
Ambient Humidity	Operating: 35% to 85% (non-condensing) Storage: 35% to 95%		
Ambient Illuminance	Incandescent lamp: 3,000 lx max. on receiver surface. Sunlight: 10,000 lx max. on receiver surface		
Degree of Protection (IEC 60529)	IP65 and IP67		
Vibration Resistance (IEC 61496-1)	10 to 55 Hz, Multiple amplitude of 0.7 mm, 20 sweeps for all 3 axes		
Shock Resistance (IEC 61496-1)	100 m/s ² , 1000 shocks for all 3 axes		
Pollution Degree (IEC 60664-1)	Pollution Degree 3		
Material:	Housing: AluminumCap: PBT Front window: PMMA Cable: Oil resistant PVC Mounting Bracket: ZDC2 FE plate: SUS		
Conformity:			
Type of ESPE (IEC 61496-1)	Type 4		
Performance Level (PL) Safety Category	Type 4: PL e/Category 4 (EN ISO 13849-1:2008)		
PfHd	$\leq 9.9 \times 10^{-8}$ (IEC 61508)		
Proof test interval TM	Every 20 years (IEC 61508)		
SFF	99% (IEC 61508)		
HFT	1 (IEC 61508)		
Classification	Type B (IEC 61508-2)		

Safety Light Curtains Type: SLC-F and SLC-H

CONNECTIONS (Basic Wiring Diagrams):



STANDALONE SLC-F or SLC-H using PNP OUTPUTS:



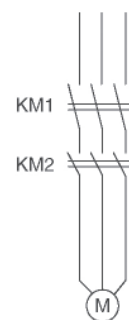
[DIP Switch settings]

Receiver:

- Manual Reset Mode
- EDM enabled
- PNP output

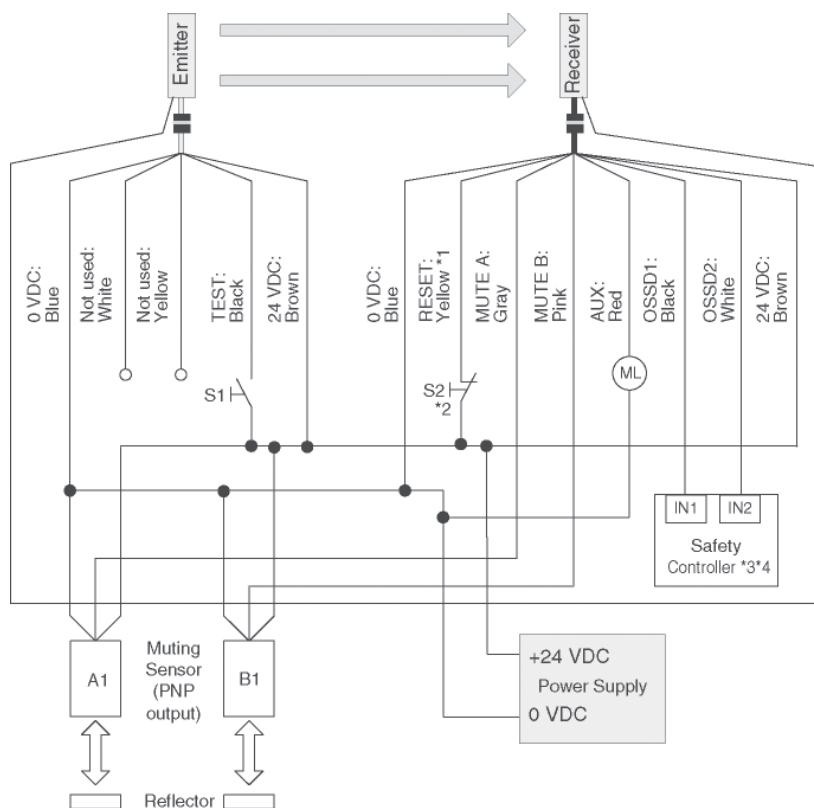
Emitter:

- 24 V Active



S1: Test Switch
S2: Lockout/Interlock Reset Switch
KM1, KM2: Safety relay with forcibly guided contacts
M: 3-phase motor
*1. Also used as EDM input line.

STANDARD MUTING MODE/EXIT-ONLY MUTING MODE WITH TWO MUTING SENSORS USING PNP OUTPUTS



[DIP Switch settings]

Receiver:

- Auto Reset Mode
- EDM disabled
- PNP output


Emitter:

- 24 V Active

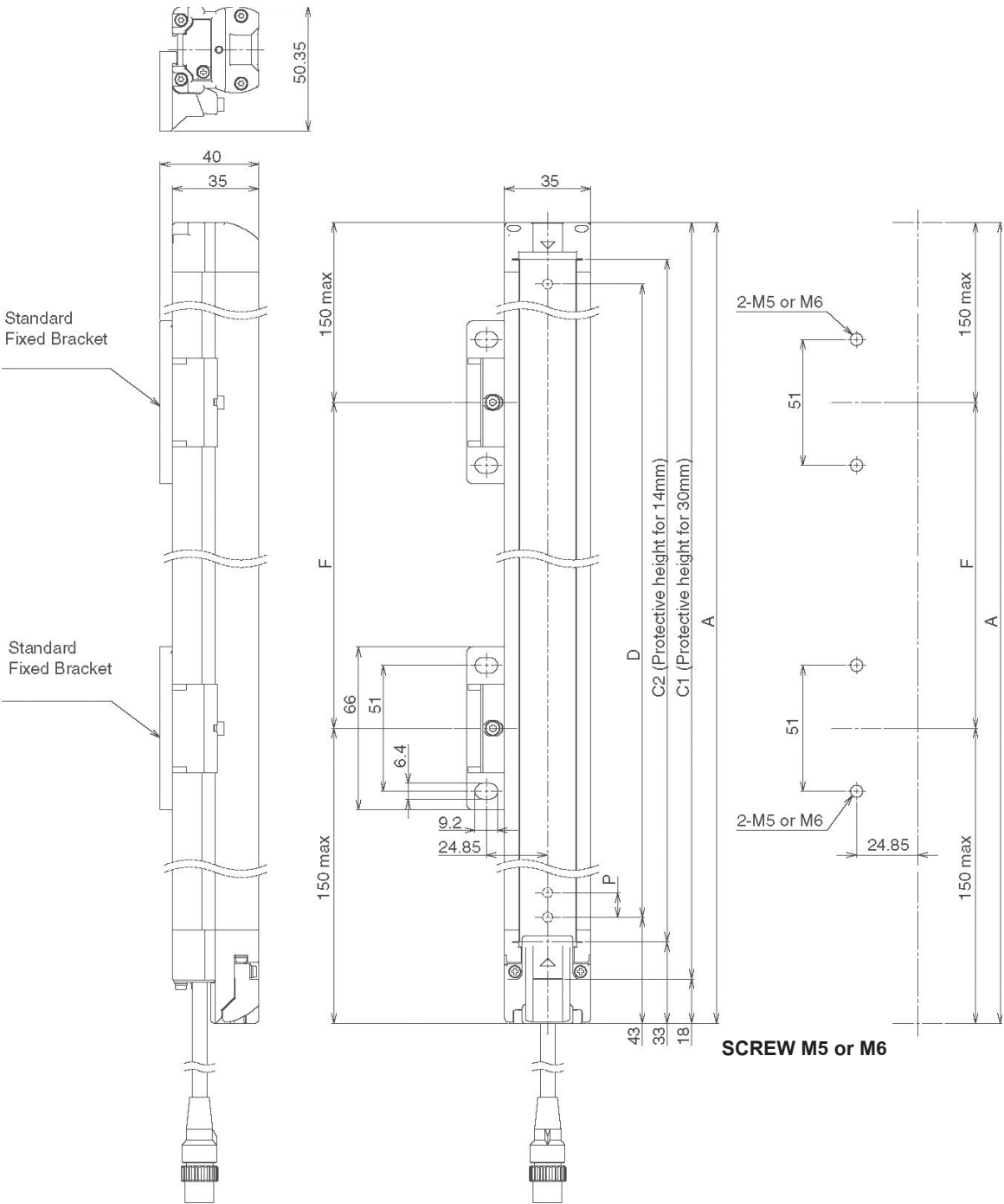
S1: Test Switch
S2: Lockout/Interlock Reset Switch, Override Switch or Override Cancel Switch
ML: Muting lamp
A1, B1: Muting sensor

Safety Light Curtains Type: SLC-F and SLC-H

DIMENSIONS:



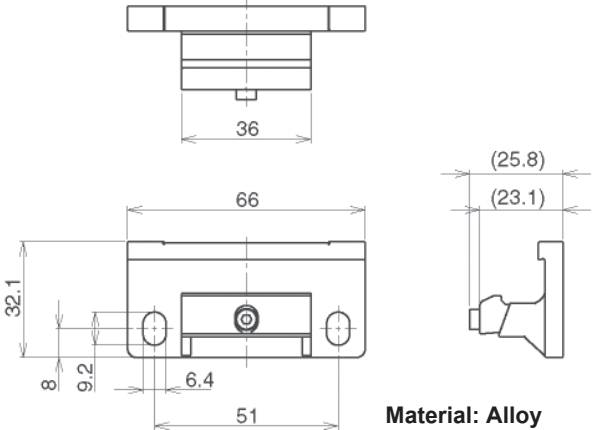
MOUNTED WITH STANDARD FIXED BRACKETS (supplied in pack) BACKSIDE MOUNTING:



DIMENSIONS FOR SLC-H SERIES

DIMENSIONS SLC-H SERIES	
Dimension A	C1 + 18
Dimension C1	Protective Height (See pp183)
Dimension D	C1 - 50
Dimension P	20

STANDARD FIXED BRACKET DIMENSIONS (Supplied)



DIMENSIONS FOR SLC-F SERIES

DIMENSIONS SLC-F SERIES	
Dimension A	C2 + 48
Dimension C2	Protective Height (See pp182)
Dimension D	C1 - 20
Dimension P	10

Safety Light Curtains Type: SLC-F and SLC-H

INDICATOR INFORMATION:



EMITTER:

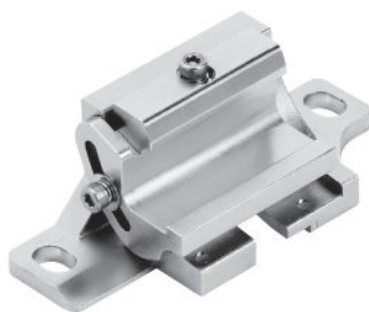
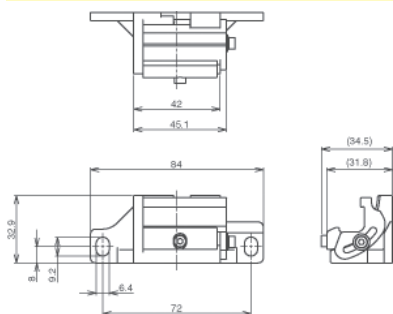
NAME OF INDICATOR		COLOUR	ILLUMINATED	BLINKING
Test	TEST	Green	-	External test is being performed.
Operating Range	LONG	Green	Long range mode is selected by DIP Switch.	Lockout state due to DIP Switch seeing error.
Power	POWER	Green	Power is ON.	-
Lockout	LOCKOUT	Red	-	Lockout state due to error in emitter.

RECEIVER:

NAME OF INDICATOR		COLOUR	ILLUMINATED	BLINKING
Top-beam-state	TOP	Blue	The top beam is unblocked	Muting/Override state, or Lockout state due to Cap error or other sensor error
PNP/NPN mode	NPN	Green	NPN mode is selected by DIP Switch	-
Response time	SLOW	Green	Response Time Adjustment is enabled	-
Sequence error	SEQ	Yellow	-	Sequence error in Muting or Pre-reset mode.
Blanking	BLANK	Green	Blanking, Warning Zone or Reduced Resolution is enabled.	Teach-in mode, or Blanking Monitoring error.
Configuration	CFG	Green	-	Teach-in mode, zone measurement being performed by Dynamic Muting, or Lockout state due to Parameter error or Cascading Configuration error.
Interlock	INT-LK	Yellow	Interlock state	Pre-reset mode.
External device monitoring	EDM	Green	RESET input is in ON state	Lockout state due to EDM error.
Internal error	INTERNAL	Red	-	Lockout state due to Internal error, or error due to abnormal power supply or noise.
Lockout	LOCKOUT	Red	-	Lockout state due to error in receiver.
Stable-state	STB	Green	Incident light level is 170% or higher of ON-threshold.	Safety output is instantaneously turned OFF due to ambient light or vibration.
ON/OFF	ON/OFF	Green	Safety output is in ON state.	-
		Red	Safety output is in OFF state, or the sensor is in Setting state.	Lockout state due to Safety Output error, or error due to abnormal power supply or noise.
Communication	COM	Green	Synchronization between emitter and receiver is maintained.	Lockout state due to Communication error, or error due to abnormal power supply or noise.
Bottom-beam-state	BTM	Blue	The bottom beam is unblocked	Muting/Override state, or Lockout state due to DIP Switch setting error.

Accessories: Brackets, Alignment Tool, Extension Cables

ADJUSTABLE MOUNTING BRACKET:



SALES NUMBER	NUMBER OF BRACKETS
SLC-AB-2	2
ADJUSTABLE BRACKETS (Optional extra)	
Angle adjustment range is $\pm 15^\circ$.	
Side mounting and backside mounting possible.	

SMART MUTING ACTUATOR:



ACCESSORY DESCRIPTION	MUTING TRIGGER BEAM GAP	SALES NUMBER
Smart Muting Actuator - 8 beams	100mm	SLC-SMA100
Smart Muting Actuator - 20 beams	300mm	SLC-SMA300

MUTING LAMP:



ACCESSORY DESCRIPTION	SALES NUMBER
Muting Lamp	SLC-ML1

EXTENSION CABLES:

TECHNICAL DATA:	
Rated Voltage	60V ac/dc max.
Rated Current	4A max. per contact
Electromagnetic Protection	Shielded
Sleeve Material	PUR
Wire Structure	5 x 0.34mm ²
Wire Insulation	PP
Outer Cable Diameter	6.3mm \pm 5%
Temperature Range	-25C to +80C (-13F to +175F)
Degree of Protection	IP67
Certification	UL CSA



CABLE DESCRIPTION (M12 Male to Female)		SALES NUMBER
EMITTER:		
PUR Shielded	M12 5-pole 3m length	SLC-CE3
PUR Shielded	M12 5-pole 10m length	SLC-CE10
RECEIVER:		
PUR Shielded	M12 8-pole 3m length	SLC-CR3
PUR Shielded	M12 8-pole 10m length	SLC-CR10
NOTE: Cables are not supplied with Safety Light Curtains		

Safety Relay Type: SCR-31P-i (for use with Safety Light Curtains)

DESCRIPTION:

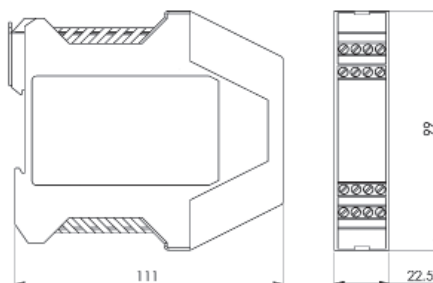
The SCR-31P-i safety relay from IDEM is designed to be compatible with devices offering OSSD outputs such as the IDEM range of safety light curtains.

They offer high current switching via force guided relays.

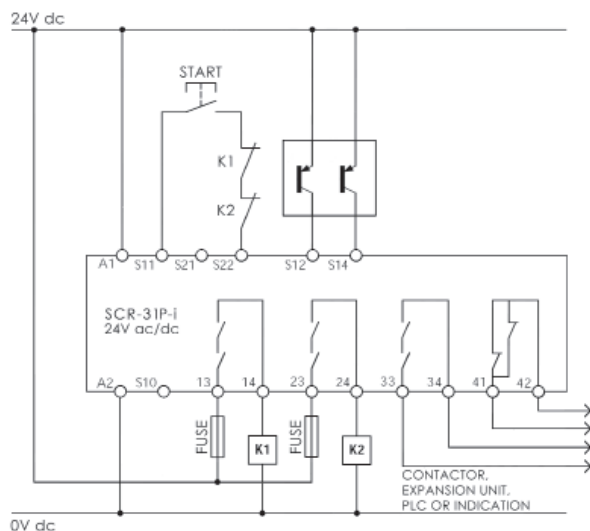
FEATURES:

- Outputs 3NC contacts and 1NO contact.
- Feedback circuit to monitor external contacts.
- Easy diagnosis of status via visual indication of LEDs.
- Up to PLe, SILCL 3, Category 4.
- Monitored manual or automatic start.
- Up to 8A switching capability.

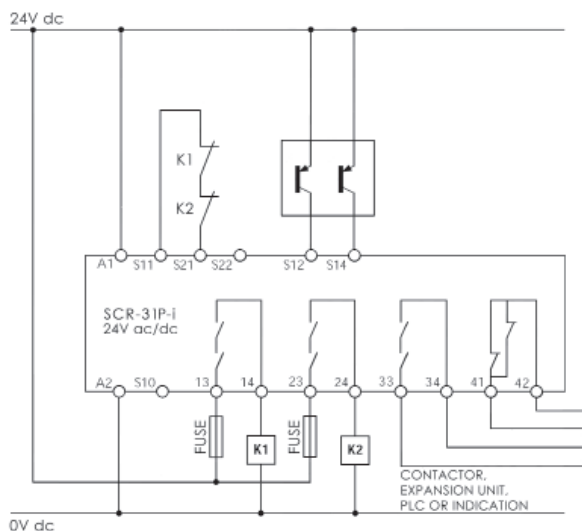
DIMENSIONS:



MANUAL RESTART MODE PNP INPUTS:



AUTOMATIC RESTART MODE PNP INPUTS:



SPECIFICATIONS:

STANDARDS			
EN ISO13849-1	EN62061	EN60204-1	EN ISO12100
POWER SUPPLY CIRCUIT			
Operating Voltage	24V AC/DC		
Operating Voltage Tolerance	85-110%		
Rated Supply Frequency	50Hz-60Hz		
Power Consumption	2W (24V DC)		
CONTROL CIRCUITS			
Rated Output Voltage	24V DC (S11)		
Output Current	100mA (S11)		
Response Time	100ms		
Release Time	25ms		
Recovery Time	90ms		
OUTPUT CIRCUITS			
Rated Output Voltage	250V AC		
Maximum Current per Output	6A		
Maximum Total Current all Outputs	8A		
Safety Contact Breaking Capacity	AC	250V, 1500V, 6A, Ohmic	230V, 4A for AC-15
	DC	24V, 30W, 1.25A, Ohmic	
Minimum Contact Load	10V 10mA		
Minimum Contact Fuses	4A slow blow, 6A fast blow		
Contact Material	AgSnO ₂		
Contact Service Life	10 x 10 ⁶		
GENERAL DATA			
Rated Impulse Withstand Voltage	4kV		
Rated Insulation Voltage	250V		
Degree of Protection	IP20		
Temperature Range	-20C to +55C		
Overvoltage Category	III		
Weight	300qr (10.5 oz.)		

SAFETY CHARACTERISTICS	
EN62061	SIL3
ISO13849-1	PLe Category 4
PFH	4.1E-10 1/h (0.4% of SIL3 (1 E-07 1/h))
PFD Av. (T=20a)	3.6E-05 (3.6% of SIL3 (1 E-03))
MTTFd	142a (High)
DC Av.	99% (High)

LED DIAGNOSTICS:

WHEN SAFETY RELAY IN OPERATION

- Power Power applied to device
- Reset Restart Circuit is closed.
- CH1 External OSSD Output ON.
- CH2 External OSSD Output ON.
- K1 Internal relay safety output contacts closed.
- K2 Internal relay safety output contacts closed.

ORDERING:

SALES NUMBER	TYPE	TERMINAL TYPE	SUPPLY VOLTAGE	INPUT CIRCUITS	OUTPUT CONTACTS
280003	SCR-31P-i	Standard	24Vac/dc	2 x OSSD	3NC 1NO
280003-P	SCR-31P-i	Pluggable	24Vac/dc	2 x OSSD	3NC 1NO