

SLIMLINE SAFETY LIGHT CURTAINS - Types SLCS-F/H/B

Ultra slim design with an exceptionally small 20mm x 30mm footprint

Suitable for unobtrusive mounting at access points

Type 2 SLCS-2 SIL2 to IEC61508

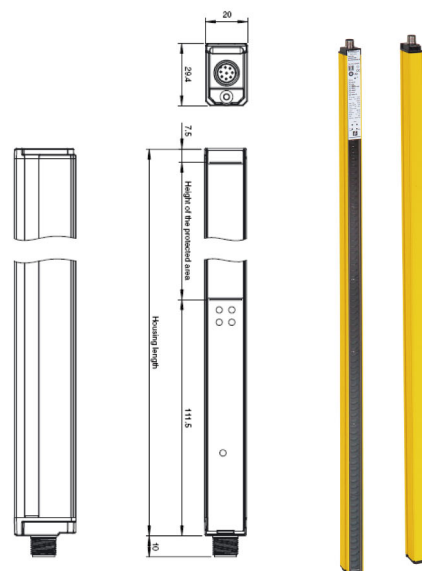
Type 4 SLCS-4 SIL3 to IEC61508

Fully self contained '2 box' system – no separate control unit required

No synchronisation cable required between emitter and receiver

Mounting is quick and easy with unique 'snap action' mounting bracket, flexible 3 sided mounting and M12 connectors

SLCS-F Finger protection
 SLCS-H Hand Protection
 SLCS-B Full Body protection



	SLCS-F	SLCS-H	SLCS-B60	SLCS-B90
Resolution	14mm	30mm	60mm	90mm
Angle of divergence	< 5 degrees			
Detection range	SLCS 2 - 0.2 to 8m / SLCS 4 – 0.4m to 8m			
Height of protected area	100 to 1200mm	100 to 2400mm	300 to 2400mm	300 to 2400mm
Outputs	2 independent failsafe PNP semiconductor outputs			
Operating voltage	24V.dc			
Response time	<55ms	<39ms	<24ms	<18ms
Manual / Auto start	Selectable			
Ambient temperature	-30C. to 60C.			
Enclosure protection	IP65			
Connection	M12 connectors: Transmitter 4-Pin, receiver 8-Pin			

Finger 14mm resolution Sales Number	Protected Height (mm)
SLCS-2/4F-100	100
SLCS-2/4F-200	200
SLCS-2/4F-300	300
SLCS-2/4F-400	400
SLCS-2/4F-500	500
SLCS-2/4F-600	600
SLCS-2/4F-700	700
SLCS-2/4F-800	800
SLCS-2/4F-900	900
SLCS-2/4F-1000	1000
SLCS-2/4F-1100	1100
SLCS-2/4F-1200	1200

Hand 30mm resolution Sales Number	Protected Height (mm)
SLCS-2/4H-100	100
SLCS-2/4H-200	200
SLCS-2/4H-300	300
SLCS-2/4H-400	400
SLCS-2/4H-500	500
SLCS-2/4H-600	600
SLCS-2/4H-800	800
SLCS-2/4H-1000	1000
SLCS-2/4H-1200	1200
SLCS-2/4H-1400	1400
SLCS-2/4H-1600	1600
SLCS-2/4H-1800	1800
SLCS-2/4H-2000	2000
SLCS-2/4H-2200	2200
SLCS-2/4H-2400	2400

Body 60mm resolution Sales Number	Protected Height (mm)
SLCS-2/4B60-300	300
SLCS-2/4B60-600	600
SLCS-2/4B60-900	900
SLCS-2/4B60-1200	1200
SLCS-2/4B60-1500	1500
SLCS-2/4B60-1800	1800
SLCS-2/4B60-2100	2100
SLCS-2/4B60-2400	2400

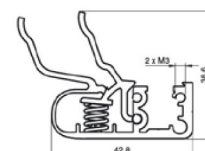
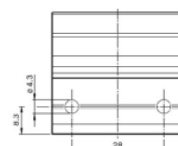
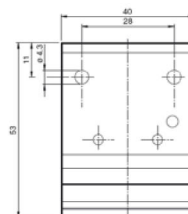
Body 90mm resolution Sales Number	Protected Height (mm)
SLCS-2/4B90-300	300
SLCS-2/4B90-600	600
SLCS-2/4B90-900	900
SLCS-2/4B90-1200	1200
SLCS-2/4B90-1500	1500
SLCS-2/4B90-1800	1800
SLCS-2/4B90-2100	2100
SLCS-2/4B90-2400	2400

Total Height is the Protected Height plus 150mm

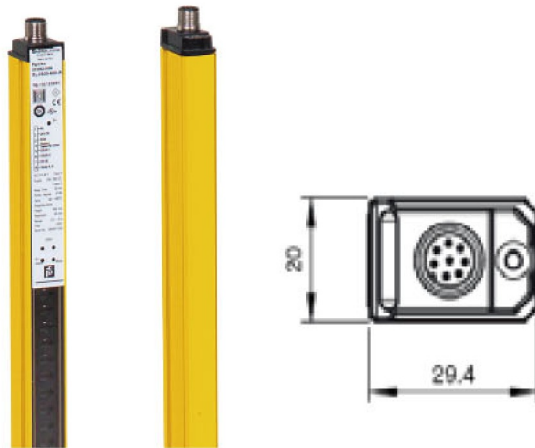
Ordering Examples: Finger Protection Category 2 300mm height 14mm resolution Part No. SLCS-2-F-300
 Body protection Category 4 900mm height 60mm resolution Part No. SLCS-4-B60-900

Accessories

Mounting Bracket, Quick Clip (2 per pack) 4 are required to mount a set of light curtains	OMH-SLCT-01
Transmitter Cable 5m	V1-G-BK5M-PUR-UL
Receiver Cable 5m	V19-G-BK5M-PUR-UL
Transmitter Cable 10m	V1-G-BK10M-PUR-UL
Receiver Cable 10m	V19-G-BK10M-PUR-UL



SAFETY LIGHT CURTAINS



SLCS Housing

Resolution: Detection capability indicates the minimum size object that the curtain will detect:

- Finger (14 mm resolution) – SLCS-F, SLC-F
- Hand (30 mm resolution) – SLCS-H, SLC-H
- Body (60 or 90 mm resolution) – SLCS-B, SLC-B
- Pedestrian (2,3 or 4 beam systems) – SLGC, SLGM

Positioning: The Safety Distance is the minimum distance that must be maintained between the safety sensor and the hazardous part of the machine in order to stop the machine before someone or something reaches it. A full risk assessment should always be carried out prior to installing a SLC.

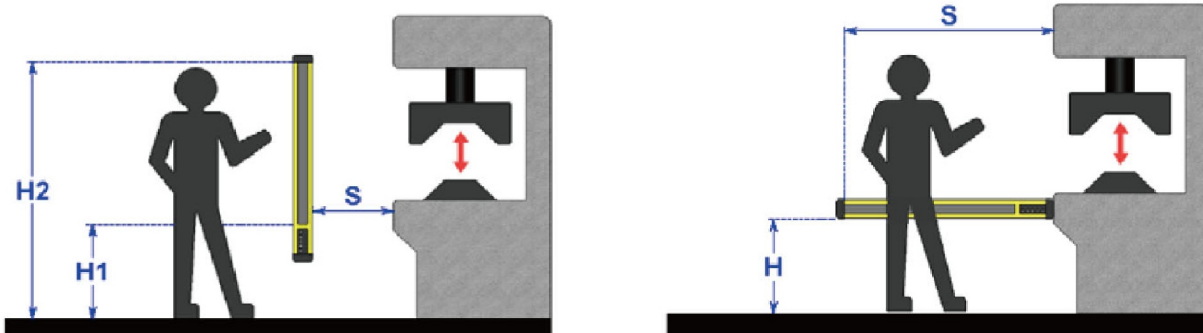
The Safety Distance S can be calculated using the equation method provided by the standard EN999 (ISO 14120).

Vertical curtain: $S = (K \times T) + 8 \times (R-14)$ where

S is the minimum safety distance in mm from the hazardous part of the machine to the detection point of the safety sensor. t
 K is the approach speed of the body or parts of the body in mm/sec. (2000mm/s for calculated value of $S < 501$ mm or 1600mm/s for $S > 500$ mm)

T is the overall stopping performance in seconds, sum of safety sensor response time and machine response time

R is the resolution of the SLC (mm).



SAFETY LIGHT CURTAINS - Types SLC-F SLC-H SLC-B

Rugged housing with a robust 52 x 55 mm profile

Quick and easy configuration using DIP switches

Glanded cable entry with terminal connection in end caps

Type 4: EN 954-1 Category 4 - a single failure will not lead to a loss of safety.

Cascadable

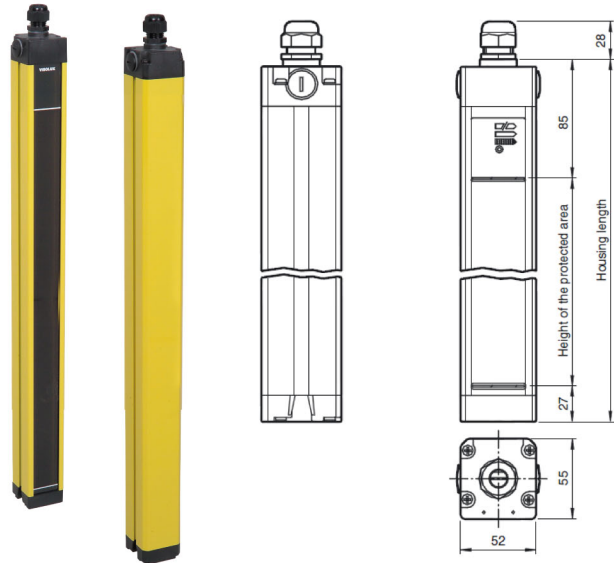
SLC-F Finger protection (14mm resolution)

SLC-H Hand Protection (30mm resolution)

SLC-B60 Full Body protection (60mm resolution)

SLC-B90 Full Body protection (90 mm resolution)

ATEX approval for Zone 2 and 22 (Optional)



	SLC-F	SLC-H	SLC-B60	SLC-B90
Resolution	14mm	30mm	60mm	90mm
Angle of divergence	< 5 degrees			
Detection range	0.2 to 5m.	0.2 to 15m.	0.2 to 5m.	
Height of protected area	150 to 1500mm			
Outputs	2 x PNP			
Operating voltage	24V.dc			
Response time	Max. 30ms			
Manual / Auto start	Selectable			
Ambient temperature	0C. to 55C.			
Enclosure protection	IP67			
Connection	Terminal			

Finger 14mm resolution Sales Number	Protected Height (mm)
SLC-F-4-150	150
SLC-F-4-300	300
SLC-F-4-450	450
SLC-F-4-600	600
SLC-F-4-750	750
SLC-F-4-900	900
SLC-F-4-1050	1050
SLC-F-4-1200	1200
SLC-F-4-1350	1350
SLC-F-4-1500	1500
SLC-F-4-1650	1650
SLC-F-4-1800	1800

Hand 30mm resolution Sales Number	Protected Height (mm)
SLC-H-4-150	150
SLC-H-4-300	300
SLC-H-4-450	450
SLC-H-4-600	600
SLC-H-4-750	750
SLC-H-4-900	900
SLC-H-4-1050	1050
SLC-H-4-1200	1200
SLC-H-4-1350	1350
SLC-H-4-1500	1500
SLC-H-4-1650	1650
SLC-H-4-1800	1800

Body 60mm resolution Sales Number	Protected Height (mm)
SLC-B60-4 -150	150
SLC-B60-4 -300	300
SLC-B60-4 -450	450
SLC-B60-4 -600	600
SLC-B60-4 -750	750
SLC-B60-4 -900	900
SLC-B60-4 -1050	1050
SLC-B60-4 -1200	1200
SLC-B60-4 -1350	1350
SLC-B60-4 -1500	1500
SLC-B60-4 -1650	1650
SLC-B60-4 -1800	1800

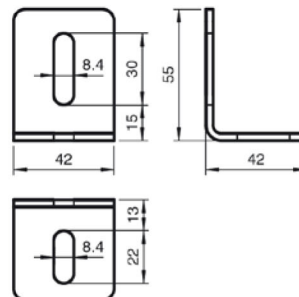
Body 90mm resolution Sales Number	Protected Height (mm)
SLC-B90-4 -150	150
SLC-B90-4 -300	300
SLC-B90-4 -450	450
SLC-B90-4 -600	600
SLC-B90-4 -750	750
SLC-B90-4 -900	900
SLC-B90-4 -1050	1050
SLC-B90-4 -1200	1200
SLC-B90-4 -1350	1350
SLC-B90-4 -1500	1500
SLC-B90-4 -1650	1650
SLC-B90-4 -1800	1800

Accessories

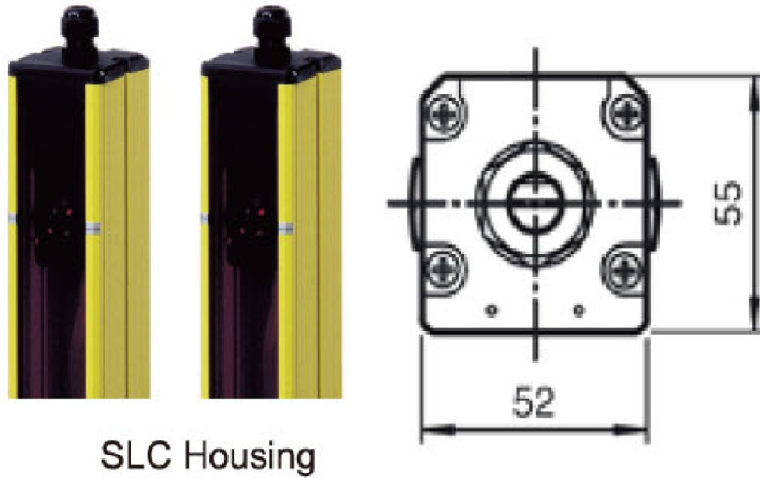
	SLC-F/H/B
Mounting Bracket (1 bracket) 4 are required to mount a light curtain set	MS-SLC

Accessories

Mounting Bracket (1 per pack) 4 are required to mount a set of light grids	MS-SLP
Muting Sensor Kit (1 Set includes 2 sensors & 2 mounting brackets)	RLK-SET
Muting Sensor Cable (2 required for muting set)	V1S-G-2M-PUR



SAFETY LIGHT CURTAINS



SLC Housing

Resolution: Detection capability indicates the minimum size object that the curtain will detect:

- Finger (14 mm resolution) – SLCS-F, SLC-F
- Hand (30 mm resolution) – SLCS-H, SLC-H
- Body (60 or 90 mm resolution) – SLCS-B, SLC-B
- Pedestrian (2,3 or 4 beam systems) – SLGC, SLGM

Positioning: The Safety Distance is the minimum distance that must be maintained between the safety sensor and the hazardous part of the machine in order to stop the machine before someone or something reaches it. A full risk assessment should always be carried out prior to installing a SLC.

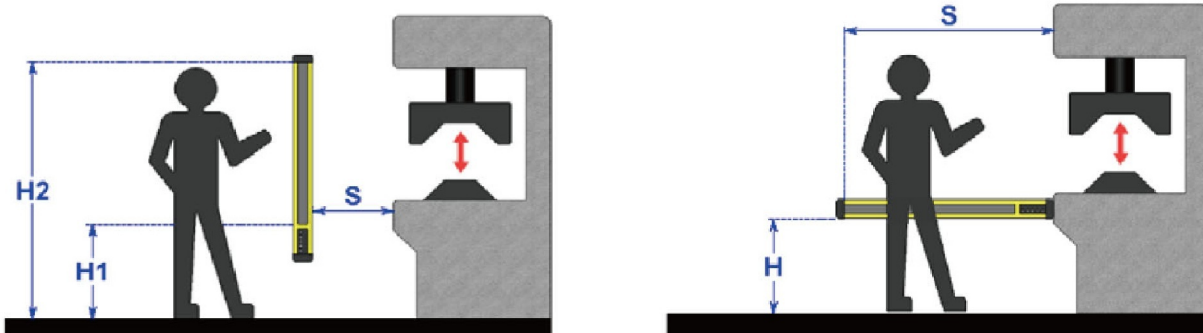
The Safety Distance S can be calculated using the equation method provided by the standard EN999 (ISO 14120).

Vertical curtain: $S = (K \times T) + 8 \times (R-14)$ where

S is the minimum safety distance in mm from the hazardous part of the machine to the detection point of the safety sensor. t
 K is the approach speed of the body or parts of the body in mm/sec. (2000mm/s for calculated value of $S < 501$ mm or 1600mm/s for $S > 500$ mm)

T is the overall stopping performance in seconds, sum of safety sensor response time and machine response time

R is the resolution of the SLC (mm).



SAFETY LIGHT GRIDS - Types SLGC SLGM

Suitable for preventing pedestrian access in areas such as conveyor loading/unloading, palletisers, end of line access, fork lift truck access

Rugged housing with integrated control unit

Integrated muting option, no external controller required

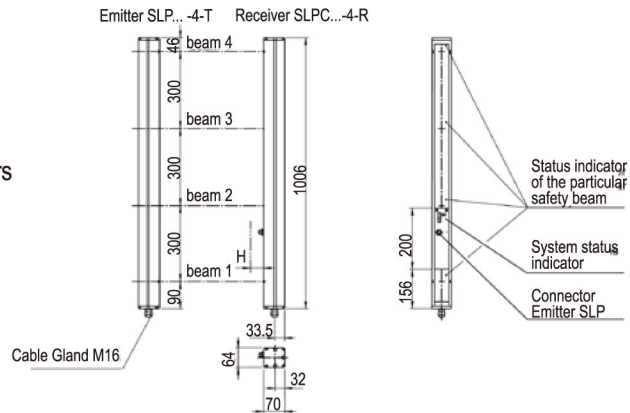
Muting Types SLGM: Parallel or sequential muting with time or safety beam limiting function.

Detection range up to 65m

Self monitoring (type 4 to IEC/EN 61496-1)

2, 3 or 4 beam

M12 connection on the front side for muting sensors

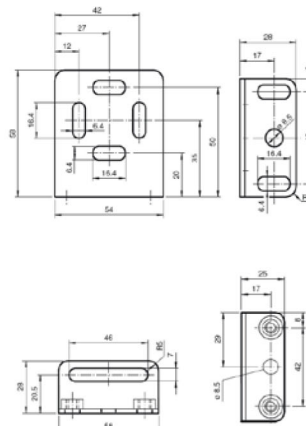


	SLGC-10 and SLGM-10	SLGC-30 and SLGM-30	SLGC-65 and SLGM-65
No. of beams	2, 3 or 4 depending upon height		
Beam spacing	500mm / 400mm / 300mm depending upon height		
Detection range	0.2 to 10m.	6 to 30m.	12 to 65m.
Angle of divergence	< 5 degrees		
Outputs	2 independent failsafe force guided NO/ PNP semiconductor outputs		
Response time	Max. 40ms.		
Manual / Auto start	Selectable		
Ambient temperature	0C. to 50C.		
Enclosure protection	IP65		
Connection	Terminal clamps with M16 gland		

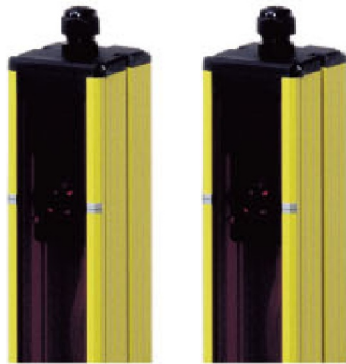
Sales Number		No of Beams	Detection length	Protection Height	Pitch	Total Height
Without Muting	With Muting					
SLGC-10-2	SLGM-10-2	2	0.2 to 10m.	500	500	636
SLGC-10-3	SLGM-10-3	3	0.2 to 10m.	800	400	936
SLGC-10-4	SLGM-10-4	4	0.2 to 10m.	900	300	1036
SLGC-30-2	SLGM-30-2	2	6 to 30m.	500	500	636
SLGC-30-3	SLGM-30-3	3	6 to 30m.	800	400	936
SLGC-30-4	SLGM-30-4	4	6 to 30m.	900	300	1036
SLGC-65-2	SLGM-65-2	2	12 to 65m.	500	500	636
SLGC-65-3	SLGM-65-3	3	12 to 65m.	800	400	936
SLGC-65-4	SLGM-65-4	4	12 to 65m.	900	300	1036

Accessories

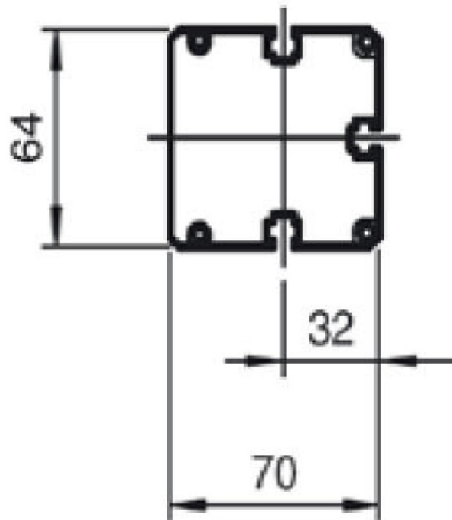
Mounting Bracket (1 per pack) 4 are required to mount a set of light grids	MS-SLP
Muting Sensor Kit (1 Set includes 2 sensors & 2 mounting brackets)	RLK-SET
Muting Sensor Cable (2 required for muting set)	V1S-G-2M-PUR



SAFETY LIGHT CURTAINS



SLG Housing



Resolution: Detection capability indicates the minimum size object that the curtain will detect:

- Finger (14 mm resolution) – SLCS-F, SLC-F
- Hand (30 mm resolution) – SLCS-H, SLC-H
- Body (60 or 90 mm resolution) – SLCS-B, SLC-B
- Pedestrian (2,3 or 4 beam systems) – SLGC, SLGM

Positioning: The Safety Distance is the minimum distance that must be maintained between the safety sensor and the hazardous part of the machine in order to stop the machine before someone or something reaches it. A full risk assessment should always be carried out prior to installing a SLC.

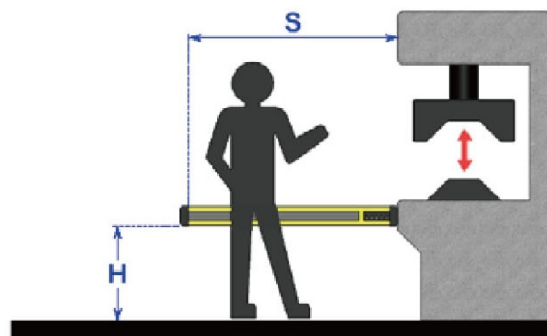
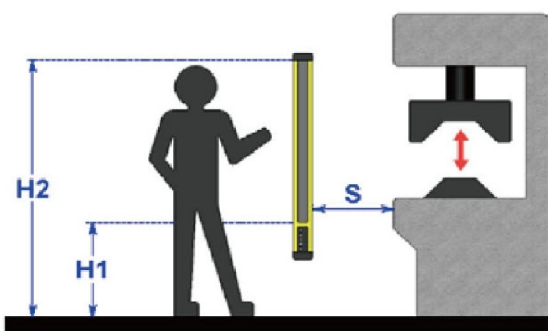
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Vertical curtain: $S = (K \times T) + 8 \times (R-14)$ where

S is the minimum safety distance in mm from the hazardous part of the machine to the detection point of the safety sensor. t
K is the approach speed of the body or parts of the body in mm/sec. (2000mm/s for calculated value of $S < 501$ mm or 1600mm/s for $S > 500$ mm)

T is the overall stopping performance in seconds, sum of safety sensor response time and machine response time

R is the resolution of the SLC (mm).



SAFETY SENSORS

For applications requiring a single beam for perimeter protection

Suitable for complex perimeter layouts

Space saving small housings for unobtrusive mounting

Connect to safe controller IDEBOX



Maximum Range	4m	10m	10m	30m
Type	LS40	LS-20	LS12	LS-29
Housing	Die Cast Aluminium (Painted Yellow)	Plastic -Terluran	Die-Cast zinc (Nickel Plated)	Plastic - ABS
Design	3 wire		2 wire	
Angle of divergence	< 5 degrees			
Number of beams	1			
Detection range	0.2 to 4m.	0.2 to 10m.	0.2 to 10m.	0.2 to 30m.
Outputs	Safebox			
Response time	Safebox 30ms			
Operating voltage	Power supply via Safebox			
Ambient temperature	-20C. to 60C.			
Connection	Connector M12 5 pin or flying lead 5 wire 2m. 5m. 10m.			

Description	Sales Number
LS12 2 metre cable 5 wire Die-Cast zinc (Nickel Plated)	LS12-2M
LS12 5 metre cable 5 wire Die-Cast zinc (Nickel Plated)	LS12-5M
LS12 10 metre cable 5 wire Die-Cast zinc (Nickel Plated)	LS12-10M
LS12 M12 5 way Male Die-Cast zinc (Nickel Plated)	LS12-QC
LS29 2 metre cable 5 wire ABS	LS29-2M
LS29 5 metre cable 5 wire ABS	LS29-5M
LS29 10 metre cable 5 wire ABS	LS29-10M
LS29 M12 5 way Male ABS	LS29-QC
LS20 2 metre cable 5 wire Terluran	LS20-2M
LS20 5 metre cable 5 wire Terluran	LS20-5M
LS20 10 metre cable 5 wire Terluran	LS20-10M
LS20 M12 5 way Male Terluran	LS20-QC
LS40 2 metre cable 5 wire Aluminium	LS40-2M
LS40 5 metre cable 5 wire Aluminium	LS40-5M
LS40 10 metre cable 5 wire Aluminium	LS40-10M
LS40 M12 5 way Male Aluminium	LS40-QC
M12 2m. Female Lead	LSQC-2M
M12 2m. Female Lead	LSQC-5M
M12 2m. Female Lead	LSQC-10M

IDE-BOX CONTROL UNITS FOR LIGHT CURTAINS AND SAFETY SENSORS

Control Units for use with Light Sensing Components
22mm wide modules plug into SB housing station

Self monitoring Type 4 (IEC61496) SIL3 to IEC61508

Light Curtains SLC SLCS SLGC SLGM

Light Sensors LS12 LS29 LS20 LS40

No programming required, configuration is by DIP switches on modules
Single or independent multiple zone guarding
No software knowledge required

Up to 4 components per module Self monitoring

Supports
Emergency Stop
Manual / Auto start
Muting Override



Module	SB-PR	SB-CP	SB-XP	SB-X
Specification	System Power Supply and Relay Outputs (always required)	Input Module with micro controller	Input Module with micro controller	Input Module
Inputs	1 system reset button 1 system start button 1 relay monitor 2 wire	Max. 4 channels For devices with: NC NO contacts	Max. 4 channels For devices with: PNP outputs NC NO contacts	Max. 4 channels For devices with: PNP outputs NC NO contacts
Connectable sensors		LS 12 LS29	SLC SLCS SLGC SLGM LS 20 LS40	SLC SLCS SLGC SLGM LS 20 LS40
Outputs	2 independent safety relay outputs 3 indicator LED's 1 RS422			
Response time	< 78ms			
Selectable functions	Restart Relay monitor			
Supply voltage	24V.dc	Internally via back plane of SB housing		
Connection	Removable screw type cage terminal			

Description	Sales Number	
SB-PR	System Power Supply and relay outputs	SB-PR
SB-CP	Input Module with micro controller	SB-CP
SB-XP	Input Module with micro controller	SB-XP
SB-X	Input module	SB-X
SB Housing station 2	Accepts 2 modules (45.2mm wide)	SB-2
SB Housing station 3	Accepts 3 modules (67.8mm wide)	SB-3
SB Housing station 4	Accepts 4 modules (90.4mm wide)	SB-4
SB Housing station 5	Accepts 5 modules (113.0mm wide)	SB-5
SB Housing station 6	Accepts 6 modules (135.6mm wide)	SB-6
SB Housing station 7	Accepts 7 modules (158.2mm wide)	SB-7
SB Housing station 8	Accepts 8 modules (180.8mm wide)	SB-8
Cape for unused stations	Covers unused stations of the Safebox (22mm wide)	SB-CAPE