

Type 2 light curtain with separate control unit

For the protection of operators in Industry

FF-SLC Series

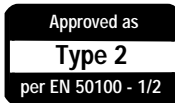
New features

FEATURES

- Active optoelectronic protective device compliant with the requirements of the IEC/EN 61496 - parts 1 and 2 European norms for Type 2 Electrosensitive Protective Equipment
- Separate control unit with removable terminal strips
- Safeguarding function based on a periodic test
- Output: 2 guided contact safety relays
- Automatic or manual restart
- Resolution: $\varnothing 35$ mm, $\varnothing 55$ mm, $\varnothing 184$ mm / $\varnothing 1.38$ in, $\varnothing 2.16$ in, $\varnothing 7.24$ in
- Scanning range up to 12 m/39.3 ft
- Response time < 0,032 s
- Supply voltage: 24 Vdc
- Protection height of 230 mm to 1600 mm / 9.06 in to 63.04 in
- Possibility to connect 2 sets of light curtains to the same control unit

TYPICAL APPLICATIONS

- Packaging and wrapping devices
- Automated warehouses
- Horizontal protection of working areas instead of sensitive mats
- Machinery for merchandise handling such as palletizing and self-organisers
- Automated assembly lines



The FF-SLC curtain is an Electrosensitive Protective Equipment designed to protect operators of dangerous machinery. The safety light curtain detects any opaque object of a diameter greater than the resolution which interrupts the protected zone, the result being a stop signal sent to the machine. The FF-SLC series is an excellent alternative to traditional mechanical barriers, providing many benefits such as unobstructed working area, improved productivity, simple installation and maintenance.

The FF-SLC curtain is a multibeam photoelectric barrier made up of an emitter, a receiver and a separate control unit. The three units are combined to provide a Type 2 system, the safeguarding function of which is based upon a periodic performance test, as defined by the norm IEC/EN 61496 - parts 1 & 2. The test can be initiated by the machine or the operator and the control unit is provided with a test input that provides a safe connection between emitter and receiver and the machinery control circuit. Via a specific feedback monitor, the control unit is preset to check the reaction times and the electrical connections of the external contactors used in the machine control circuitry.

Two sets of light curtains can be connected to the same control unit. The control unit also offers the possibility to set the system to automatic or manual restart mode.

WARNING

MISUSE OF DOCUMENTATION

- The information presented in this product sheet (or catalogue) is for reference only. DO NOT USE this document as system installation information.
- Complete installation, operation and maintenance information is provided in the instructions supplied with each product.

Failure to comply with these instructions could result in death or serious injury.

Both the emitter and the receiver are built in a modular design. This design permits rapid and simple maintenance of barrier from 230 mm up to 1600 mm / 9.06 in to 63.04 in detection heights. Three different object detection capabilities are available:

- FF-SLC35 versions with a 35 mm / 1.38 in object detection capability, ideal for detecting the hands of the operator.
- FF-SLC55 versions with a 55 mm / 2.16 in object detection capability for arms, legs or the whole body detection.
- FF-SLC18 versions with a 184 mm / 7.24 in object detection capability for the whole body detection.

With a scanning range of up to 12 m / 39.4 ft, the FF-SLC barrier can be used for most industrial applications.

Due to its specific mechanical concept combined with micro-electronics technology, the modular system minimises the size, making it possible to install the system in confined spaces.

The control unit is powered on 24 Vdc. The control unit box (IP 40) can be integrated into the machine control panel at a distance from the barrier of up to 100 m / 328 ft. This control unit is designed for rapid mounting on an Omega rail (EN 50 022). **The control unit should be installed in an IP 54 enclosure.** Moreover, the separate control unit makes first level maintenance easier for the customer: it is not necessary to dismantle the receiver to change relays for instance.

The emitter and receiver are optically synchronised, and can be easily mounted using the right-angle brackets which are provided with the system.

The $\pm 4^\circ$ opening angle of the beams complies with IEC/EN 61496 - 2, enabling simple alignment between emitter and receiver.

LED indicators displayed on the front panel of the emitter, receiver and control units, indicate the status of the system, aiding optical alignment and failure diagnoses.

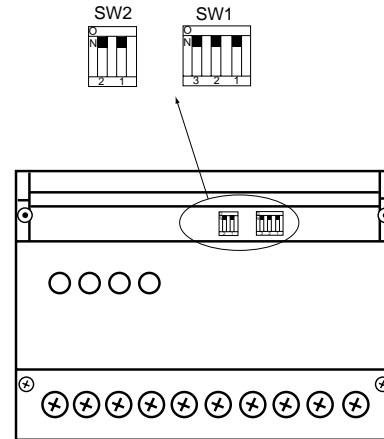
Design and operation

IEC/EN 61496 requires that a Type 2 electrosensitive protective device maintains its protective function, if an emergency-stop signal is generated after detection of the failure of the protective device due to the cyclic performance test.

The control unit of the FF-SLC barrier is set with a test signal input which allows the machine to generate a periodic test (before each machine cycle for instance). At power up and after any interruption of the detection field, the test command is systematically activated when the safety system is reset. Only a positive response to the test enables the start function, energising the output relays. When a test gives a negative response the output relays de-energise. The control unit remains permanently de-energised until the fault condition is removed (it is not possible to reset the safety system). Reset is activated by external control conditions. Both emitter and receiver columns have integral self-check circuits to control the emission and reception of the infrared light scan. Any failure is immediately detected within the scanning time.

The control unit checks the correct function of the output circuitry of the receiver column, the reaction time of the two internal relays, the electrical connections of the test/start command and the connections with auxiliary external relays (checking the reaction time via the feedback monitor).

The restart mode can be selected through dip switches on the control unit.

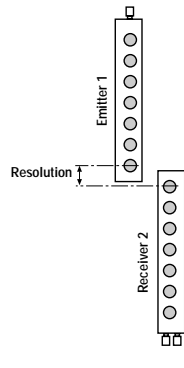
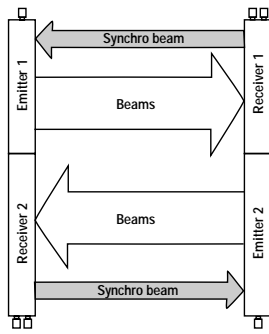


Installation advice

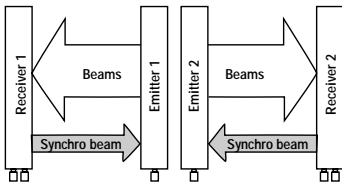
Protection heights above 1600 mm / 63.04 in or L-shape configurations can be achieved by means of two photoelectric barriers connected to the same control unit.

In some applications, the right-angled mounting arrangement shown below offers the best solution. For perimetric protection, an arrangement with one, two, or three mirrors is possible.

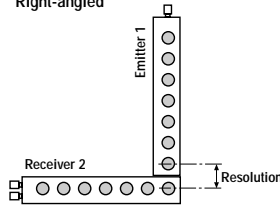
Linear assembly



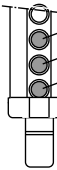
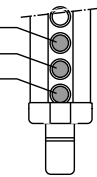
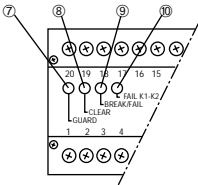
Side by side



Right-angled



LED status indicators

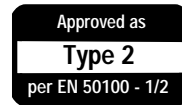
UNIT	LED Nr	COLOUR	STATE	INDICATIONS
Emitter 	①	Green	On	Reception of the synchronisation beam
	②	Yellow	On	Misalignment of the synchronisation beam
	③	Red	Flickering	Failure on the emitter unit ⁽¹⁾
Receiver 	④	Green	On	Protection field is clear/NO outputs are closed
	⑤	Yellow	On	Protection field is clear/NO outputs are open
	⑥	Red	On	Protection field is entered/NO outputs are open
			On	Failure on the receiver unit ⁽¹⁾
Control unit 	⑦ (Guard)	Green	On	Protection field is clear/NO outputs are closed
	⑧ (Clear)	Yellow	On	Protection field is clear/NO outputs are open
	⑨ (Break/Fail)	Red	On	Protection field is entered/NO outputs are open
			Flickering	Failure on the control unit
⑩ (Fail K1-K2)	Red	Flickering	Failure on the external relays K1 & K2 ⁽²⁾	

⁽¹⁾ The red LED and the yellow LED flicker alternately - ⁽²⁾ The 2 red LED flicker simultaneously.

FF-SLC

FF-SLC35

- Type 2 according to IEC/EN 61496 - parts 1 & 2
- $\varnothing 35$ mm / 1.38 in object detection capability
- Scanning range up to 12 m / 39.4 ft



Dimensions in millimeters / inches, meters / feet, weights in kg / lbs

Specifications	Supply voltage	24 Vdc \pm 20 %
	Output	2 safety relays with guided contacts (2 A / 125 Vac): 2 NO contacts and 1 NC contact
	Resolution	$\varnothing 35$ mm / 1.37 in
	Alignment tolerance	$\pm 4^\circ$ for both emitter and receiver, in compliance with norm IEC/EN 61496 - 2
	Temperatures	Operating: 0 °C to 55 °C / 32 °F to 131 °F • Storage: -20 °C to 70 °C / -4 °F to 158 °F
	Resistance to ambient light	> 50 000 Lux
	Sealing	Emitter and receiver: IP 65 • Control unit: IP 40
	Electrical noise immunity according to	Norm IEC 801-4 Level IV
	Mechanical mounting	Right-angle brackets Control unit: Rail mounting in accordance with EN 50 022-35
	Dimensions of control unit	100 mm / 3.94 in x 73 mm / 2.87 in x 118 mm / 4.64 in
	Weight of control unit	450 g / 0.99 lb
	Lens diameter	$\varnothing 12$ mm / 0.47 in
	Scanning range	0 m to 12 m / 0 ft to 39.4 ft
	Electrical connections	Emitter and receiver: 7-pin plastic plugs type GO 610WF, Nr 932 484-100 (Hirschmann) Control unit: Plugable terminal blocks / Max. connection length: 100 m / 328 ft Cable specifications: $\varnothing 0,5$ mm ² to 1 mm ² / $\varnothing 0,019$ in ² to 0.0394 in ² (max. allowable line resistance: 4 Ω)

Ordering information

FF-SLC35

Protection height (PH) mm/in

- 02: 230 / 9.06
- 04: 400 / 15.76
- 06: 570 / 22.45
- 07: 745 / 29.35
- 09: 915 / 36.05
- 11: 1 090 / 42.94
- 13: 1 260 / 49.64
- 14: 1 435 / 56.53
- 16: 1 605 / 63.23

Control units

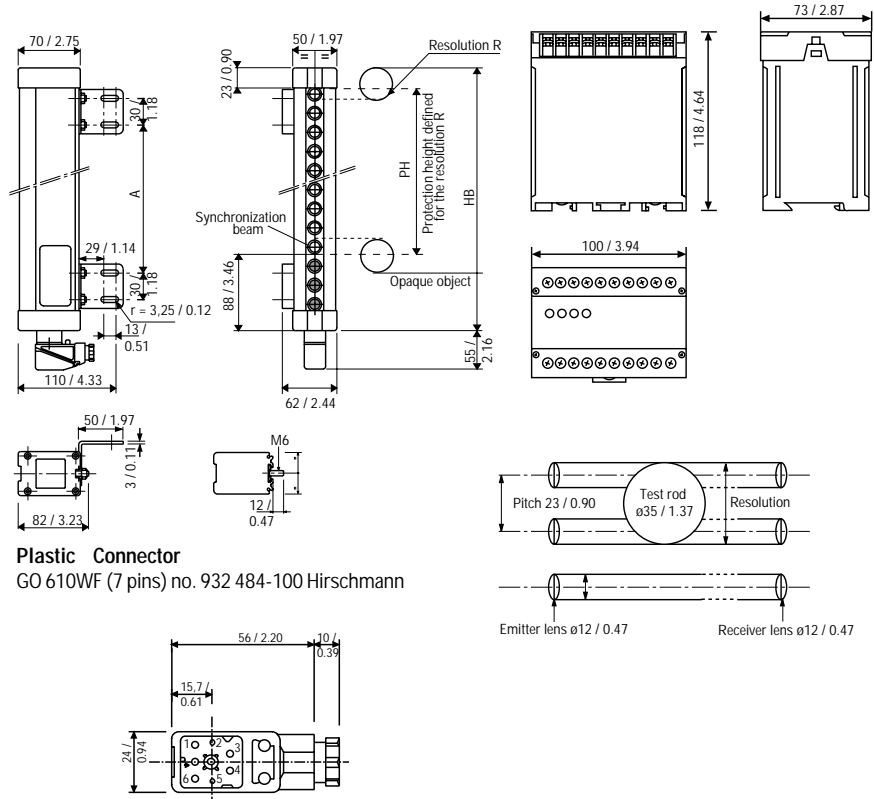
FF-SLU100T2 ("Twin" control unit)
or
FF-SLM200R2 (with muting function)

Note

Each barrier consists of an emitter and a receiver, and is delivered with 4 brackets and 2 connectors (cable is not provided). For a complete set be sure to order the control unit. In case of significant vibrations, order separately 2 kits of vibration dampers.

The emitter and the receiver have the same dimensions

Control unit



Plastic Connector

GO 610WF (7 pins) no. 932 484-100 Hirschmann

Protection height	mm / in	PH	230/9.06	400/15.76	570/22.45	745/29.35	915/36.05	1090/42.94	1260/49.64	1435/56.53	1605/63.23
Height of the barrier	mm / in	HB	300/11.82	470/18.51	645/25.41	815/32.11	990/39	1160/45.70	1335/52.59	1505/59.29	1675/65.99
Dimensions height	mm / in	HT	355/13.98	525/20.68	700/27.58	870/34.27	1045/41.17	1215/47.87	1390/54.76	1560/61.46	1730/68.16
Number of beams			9	17	25	33	41	49	57	65	73
Response time (with control unit, See Note) t1	(ms)		28	29	29	30	30	30	31	32	32
Weight	kg / lbs		2,5 / 5.5	3,7 / 8.15	4,8 / 10.58	6 / 13.22	7,4 / 16.31	8,6 / 18.95	9,7 / 21.38	10,8 / 23.8	12,5 / 27.55
Power consumption	W		13	14,3	15,7	17,1	18,5	19,8	21,2	22,6	24
Mounting brackets pitch	mm / in	A max. A min.	165/6.5	340/13.39	510/20.09	685/26.98	855/33.68	1030/40.58	1200/47.28	1370/53.97	1540/60.67

Note: (with FF-SLU100T2 or FF-SLM200R2 control unit)

Safety distances

The safety distance between the protection field and the dangerous zone should be large enough to ensure that if the protection field is entered, the dangerous zone cannot be reached before the hazardous movement has ended or is interrupted. For the safety distance *S*, the EN 999 European project norm defines the following formula:

Normal approach

Europe

$$S \geq 2000 (t_1+t_2) + 168 \text{ mm}, S \geq 100 \text{ mm}$$

$$(\text{or } S \geq 78.74 (t_1+t_2) + 6.61 \text{ in}, S \geq 3.9 \text{ in})$$

This formula applies for all safety distances of *S* up to and including 500 mm/19.7 in. If *S* is found to be greater than 500 mm/19.7 in. using the above-mentioned formula, then the distance may be reduced using the following formula:

$$S \geq 1600 (t_1+t_2) + 168 \text{ mm}, S \geq 500 \text{ mm}$$

$$(\text{or } S \geq 63.04 (t_1+t_2) + 6.61 \text{ in}, S \geq 19.7 \text{ in})$$

US (OSHA 29 CFR 1910.217, ANSI B11.19 1990)

$$D_s \geq 63 (t_1 + t_2) + 3.75 \text{ in} \quad D_s = S$$

Parallel approach

$$S \geq 1600 (t_1+t_2) + 850 \text{ mm with } 875 < H \leq 1\,000 \text{ mm}$$

$$(\text{or } S \geq 63.04 (t_1+t_2) + 33.5 \text{ in with } 875 < H \leq 19.7 \text{ in})$$

or

$$S \geq 1600 (t_1+t_2) + (1\,200 - 0.4H) \text{ mm}$$

$$\text{with } 0 < H \leq 875 \text{ mm}$$

$$(\text{or } S \geq 63.04 (t_1+t_2) + (47.3 - 0.4H) \text{ in}$$

$$\text{with } 0 < H \leq 34.47 \text{ in})$$

The height *H* should be a maximum of *H* max. = 1 000 mm / 39.4 in from the ground and the lowest allowable height of the device *H* min. = 0 from the ground. However, if the installation height *H* is greater than 300 mm / 11.82 in, there is a risk of inadvertent undetected access beneath the curtain, and this must be taken into account in the risk assessment.

*t*₁: Response time of the barrier and control unit (s)

*t*₂: Stopping time of the machine (s)

H: Height of the plane of detection (mm / in)

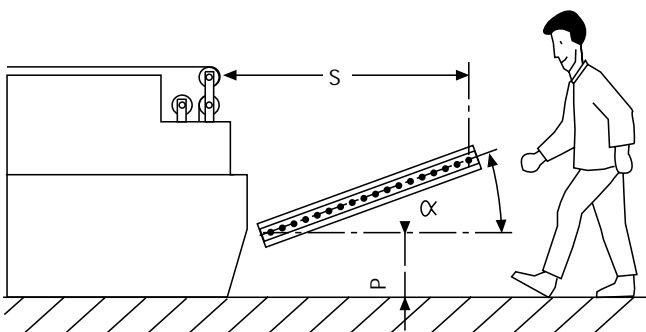
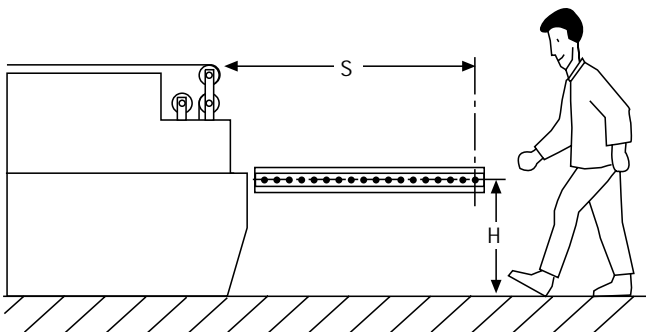
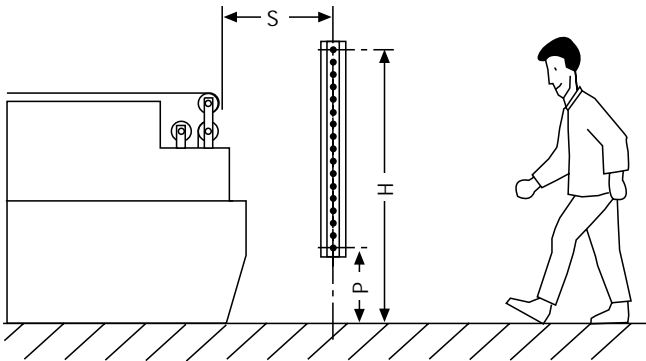
Angled approach

30° < α < 90°

If the angle is greater than 30°, the approach should be considered as normal, and one of the above-mentioned formulas should be used.

0° < α ≤ 30°

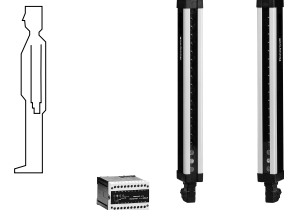
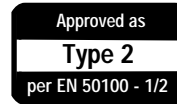
If the angle is less than or equal to 30°, the approach should be considered as parallel, and one of the above-mentioned formulas should be used. In this case the min. height allowed is *P* min. = 0 and the max. height allowed is *H* max. = 1 000 mm / 39.4 in. However, if *P* > 300 mm / 11.82 in, the risk of inadvertent access from below must be taken into account.



FF-SLC

FF-SLC55

- Type 2 according to IEC/EN 61496 - parts 1 & 2
- $\varnothing 55$ mm / 2.16 in object detection capability
- Scanning range up to 12 m / 39.4 ft



Dimensions in millimeters / inches, meters / feet, weights in kg / lbs

Specifications	Supply voltage	24 Vdc \pm 20 %
	Output	2 safety relays with guided contacts (2 A / 125 Vac): 2 NO contacts and 1 NC contact
	Resolution	$\varnothing 55$ mm / $\varnothing 2.16$ in
	Alignment tolerance	$\pm 4^\circ$ for both emitter and receiver, in compliance with norm IEC/EN 61496 - 2
	Temperatures	Operating: 0 °C to 55 °C / 32 °F to 131 °F • Storage: -20 °C to 70 °C / -4 °F to 158 °F
	Resistance to ambient light	> 50 000 Lux
	Sealing	Emitter and receiver: IP 65 • Control unit: IP 40
	Electrical noise immunity according to	Norm IEC 801-4 Level IV
	Mechanical mounting	Right-angle brackets
	Dimensions of control unit	Control unit: Rail mounting in accordance with EN 50 022-35
	Weight of control unit	100 mm / 3.94 in x 73 mm / 2.87 in x 118 mm / 4.64 in
	Lens diameter	450 g / 1 lb
	Scanning range	$\varnothing 12$ mm / 0.47 in
	Electrical connections	0 m to 12 m / 0 ft to 39.36 ft
		Emitter and receiver: 7-pin plastic plugs type GO 610WF, Nb 932 484-100 (Hirschmann)
		Control unit: Plugable terminal blocks / Max. connection length: 100 m / 328 ft
		Cable specifications: $\varnothing 0,5$ mm ² to 1 mm ² / $\varnothing 0.019$ in ² to 0.0394 in ²
		(max. allowable line resistance: 4 Ω)

Ordering information

FF-SLC55□□□2

Protection height (PH) mm/in	
04:	440 / 17.33
06:	610 / 24.03
08:	785 / 30.92
09:	955 / 37.62
11:	1130 / 44.52
13:	1300 / 51.22
15:	1475 / 58.11
16:	1645 / 64.81

Control units

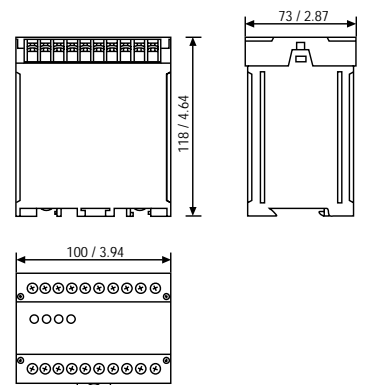
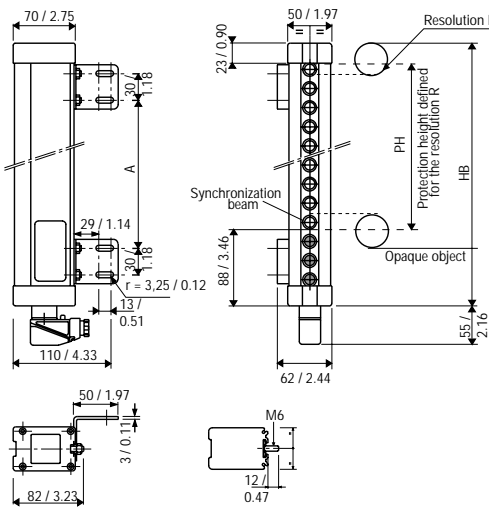
FF-SLU100T2 ("Twin" control unit)
or
FF-SLM200R2 (with muting function)

Note

Each barrier consists of an emitter and a receiver, and is delivered with 4 brackets and 2 connectors (cable is not provided). For a complete set be sure to order the control unit. In case of significant vibrations, order separately 2 kits of vibration dampers

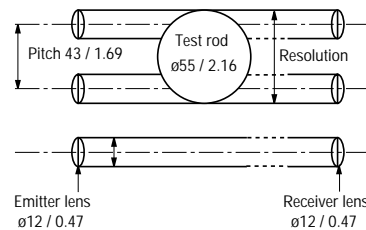
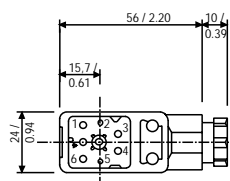
The emitter and the receiver have the same dimensions

Control unit



Plastic Connector

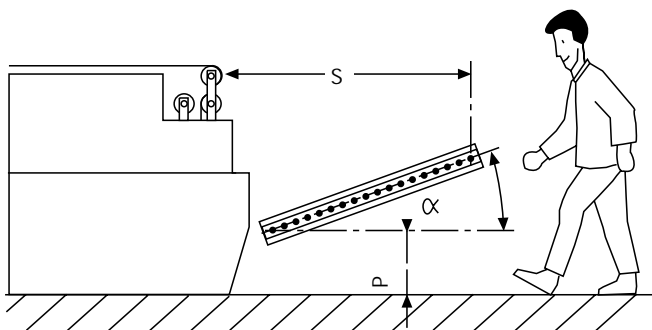
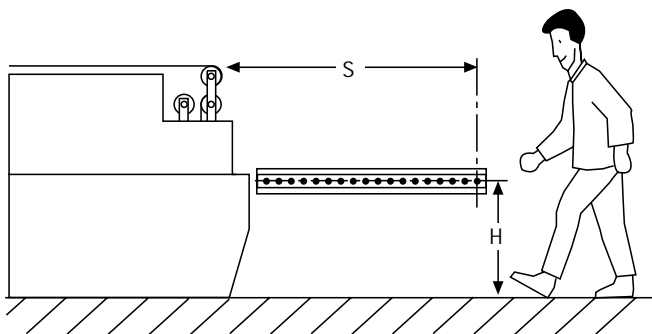
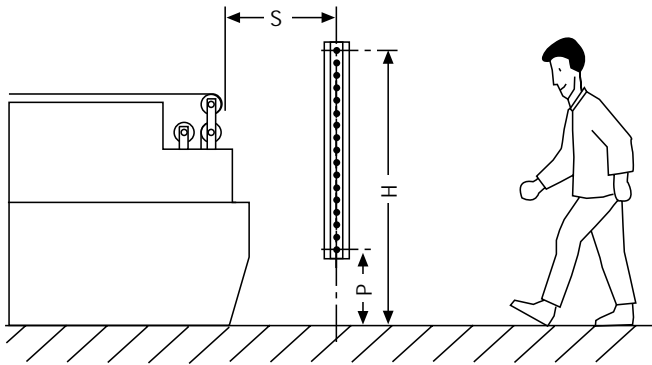
GO 610WF (7 pins) no. 932 484-100 Hirschmann



Protection height	mm / in	PH	440 / 17.33	610 / 24.03	785 / 30.92	955 / 37.62	1130 / 44.52	1300 / 51.22	1475 / 58.11	1645 / 64.81
Height of the barrier	mm / in	HB	470 / 18.51	645 / 25.41	815 / 32.11	990 / 39	1160 / 45.70	1335 / 52.59	1505 / 59.29	1675 / 65.99
Dimensions height	mm / in	HT	525 / 20.68	700 / 27.58	870 / 34.27	1045 / 41.17	1215 / 47.87	1390 / 54.76	1560 / 61.46	1730 / 68.16
Number of beams			9	13	17	21	25	29	33	37
Response time (with control unit, See Note) t1	(ms)		28	28	29	29	29	30	30	30
Weight	kg / lbs		3,7 / 8.14	4,8 / 10.56	6 / 13.2	7,4 / 16.28	8,6 / 18.92	9,7 / 21.34	10,8 / 23.76	12,5 / 27.5
Power consumption	W		13	13.7	14.3	15	15.7	16.4	17.1	18
Mounting brackets pitch	mm / in	A max.	340 / 13.4	510 / 20.10	685 / 27	855 / 33.68	1030 / 40.58	1200 / 47.28	1370 / 54	1375 / 54.17
		A min.								20 / 0.78

Note: (with FF-SLU100T2 or FF-SLM200R2 control unit)

Safety distances



The safety distance between the protection field and the dangerous zone should be large enough to ensure that if the protection field is entered, the dangerous zone cannot be reached before the hazardous movement has ended or is interrupted. For the safety distance S, EN 999 defines the following formula:

Normal approach

$$S \geq 1600 (t_1+t_2) + 850 \text{ mm}$$

$$(\text{or } S \geq 63.04 (t_1+t_2) + 33.49 \text{ in})$$

The risk of inadvertent access should be taken into account during the risk assessment stage, but in all cases, the height H of the uppermost beam should be greater or equal to 900 mm / 35.46 in, and the height P of the lowest beam should be lower or equal to 300 mm / 11.82 in.

Parallel approach

$$S \geq 1600 (t_1+t_2) + 850 \text{ mm with } 875 < H \leq 1\,000 \text{ mm}$$

$$(\text{or } S \geq 63.04 (t_1+t_2) + 47.28 \text{ with } 875 < H \leq 1\,000)$$

OR

$$S \geq 1600 (t_1+t_2) + (1200 - 0.4H) \text{ in. with } 0 < H \leq 875 \text{ mm}$$

$$(\text{or } S \geq 63.04 (t_1+t_2) + (47.28 - 0.4H) \text{ in with } 0 < H \leq 34.47 \text{ in})$$

The height H should be a maximum of $H_{\text{max.}} = 1\,000 \text{ mm} / 39.4 \text{ in}$ from the ground and the lowest allowable height of the device $H_{\text{min.}} = 75 \text{ mm} / 2.95 \text{ in}$ from the ground. However, if the installation height H is greater than 300 mm / 11.82 in there is a risk of inadvertent undetected access beneath the curtain, and this must be taken into account in the risk assessment.

t_1 : Response time of the barrier and control unit (s)

t_2 : Stopping time of the machine (s)

H: Height of the plane of detection (mm / in)

Angled approach

$$30^\circ < \alpha < 90^\circ$$

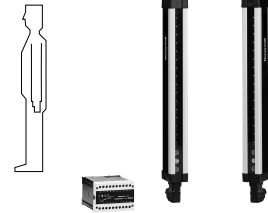
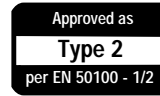
If the angle is greater than 30°, the approach should be considered as normal, and one of the above-mentioned formulas should be used.

$$0^\circ < \alpha \leq 30^\circ$$

If the angle is less than or equal to 30°, the approach should be considered as parallel, and one of the above-mentioned formulas should be used. In this case the min. height allowed is $P_{\text{min.}} = 75 \text{ mm} / 2.95 \text{ in}$ and the max. height allowed is $H_{\text{max.}} = 1\,000 \text{ mm} / 39.4 \text{ in}$. However, if $P > 300 \text{ mm} / 11.82 \text{ in}$, the risk of inadvertent access from below must be taken into account.

FF-SLC18

- Type 2 according to IEC/EN 61496 - parts 1 & 2
- $\varnothing 184$ mm / 7.24 in object detection capability
- Scanning range up to 12 m / 39.4 ft



Dimensions in millimeters / inches, meters / feet, weights in kg / lbs

Specifications	Supply voltage	24 Vdc \pm 20 %
	Output	2 safety relays with guided contacts (2 A / 125 Vac) : 2 NO contacts and 1 NC contact
	Resolution	$\varnothing 184$ mm / 7.24 in
	Alignment tolerance	$\pm 4^\circ$ for both emitter and receiver, in compliance with norm IEC/EN 61496 -2
	Temperatures	Operating: 0 °C to 55 °C / 32 °F to 131 °F • Storage: -20 °C to 70 °C / -4 °F to 158 °F
	Resistance to ambient light	> 50 000 Lux
	Sealing	Emitter and receiver: IP 65 • Control unit: IP 40
	Electrical noise immunity according to	Norm IEC 801-4 Level IV
	Mechanical mounting	Right-angle brackets
	Dimensions of control unit	Control unit: Rail mounting in accordance with EN 50 022-35
	Weight of control unit	100 mm / 3.94 in x 73 mm / 2.87 in x 118 mm / 4.64 in
	Lens diameter	450 g / 1 lb
	Scanning range	$\varnothing 12$ mm / 0.47 in
	Electrical connections	0 m to 12 m / 0 ft to 39.4 ft
		Emitter and receiver: 7-pin plastic plugs type GO 610WF, Nb 932 484-100 (Hirschmann)
		Control unit: Plugable terminal blocks / Max. connection length: 100 m / 328 ft
		Cable specifications: $\varnothing 0,5$ mm ² to 1 mm ² / $\varnothing 0.019$ in ² to 0.0394 in ²
		(max. allowable line resistance: 4 Ω)

Ordering information

FF-SLC18□□□2

- Protection height (PH) mm/in
- 04: 355 / 13.98
 - 06: 525 / 20.68
 - 07: 700 / 27.58
 - 09: 870 / 34.27
 - 11: 1045 / 41.17
 - 13: 1215 / 47.87
 - 14: 1390 / 54.76

Control units

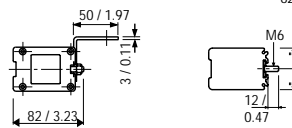
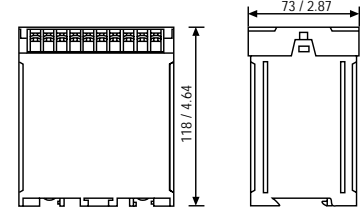
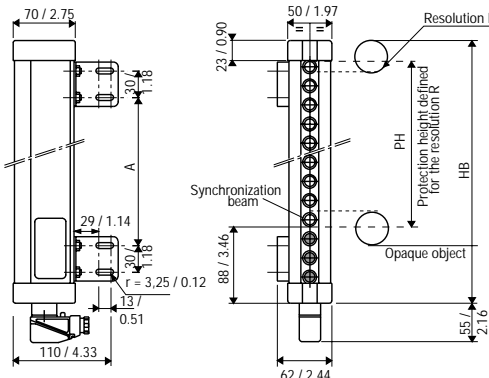
- FF-SLU100T2 ("Twin" control unit)
- or
- FF-SLM200R2 (with muting function)

Note

Each barrier consists of an emitter and a receiver, and is delivered with 4 brackets and 2 connectors (cable is not provided). **For a complete set be sure to order the control unit.** In case of significant vibrations, order separately 2 kits of vibration dampers.

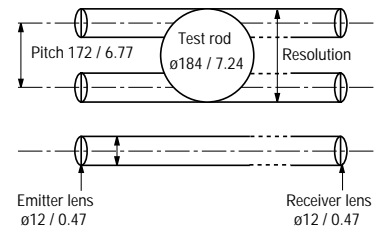
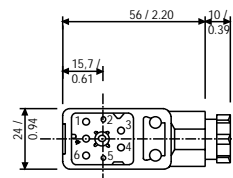
The emitter and the receiver have the same dimensions

Control unit



Plastic Connector

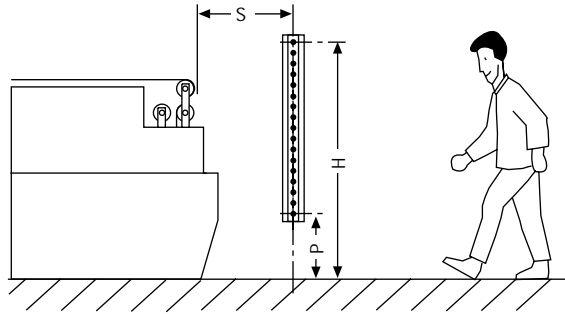
GO 610WF (7 pins) no. 932 484-100 Hirschmann



Protection height	mm / in	PH	355 / 13.98	525 / 20.68	700 / 27.58	870 / 34.27	1045 / 41.17	1215 / 47.87	1390 / 54.76
Height of the barrier	mm / in	HB	470 / 18.51	645 / 25.41	815 / 32.11	990 / 39	1160 / 45.70	1335 / 52.59	1505 / 59.29
Dimensions height	mm / in	HT	525 / 20.68	700 / 27.58	870 / 34.27	1045 / 41.17	1215 / 47.87	1390 / 54.76	1560 / 61.46
Number of beams			3	4	5	6	7	8	9
Response time (with control unit, See Note) t1	(ms)		28	28	29	29	29	30	30
Weight	kg / lbs		3,7 / 8.15	4,8 / 10.58	6 / 13.22	7,4 / 16.31	8,6 / 18.95	9,7 / 21.38	10,8 / 23.80
Power consumption	W		14.3	15.7	17.1	18.5	19.8	21.2	22.6
Mounting brackets pitch	mm / in	A max.	420 / 16.54	590 / 23.24	765 / 30.14	935 / 36.83	1110 / 43.73	1218 / 47.98	1450 / 57.13
		A min.				20 / 0.78			

Note: (with FF-SLU100T2 or FF-SLM200R2 control unit)

Safety distances



The safety distance between the protection field and the dangerous zone should be large enough to ensure that if the protection field is entered, the dangerous zone cannot be reached before the hazardous movement has ended or is interrupted. For the safety distance S, EN 999 defines the following formula:

Normal approach

$$S \geq 1600 (t1+t2) + (850 \text{ mm})$$

$$(\text{or } S \geq 63.04 (t1+t2) + (33.5 \text{ in}))$$

t1: Response time of the barrier and control unit

t2: Stopping time of the machine (s)

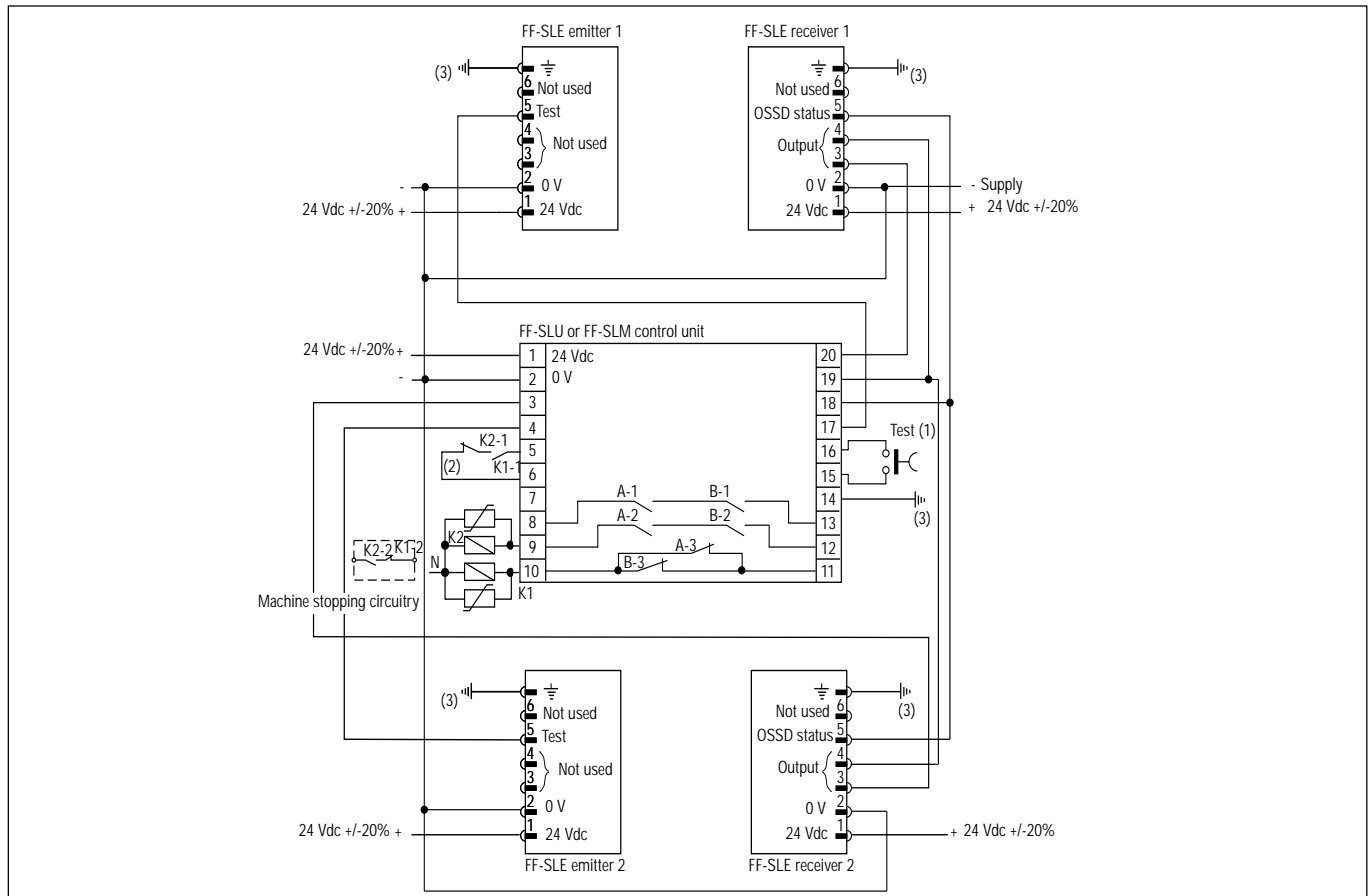
(1) This equipment may be installed at a height similar to the one mentioned in the EN 999 for single safety beams.

(2) This risk of inadvertent access beneath the light curtain must be taken into account during the risk assessment stop.

Recommendations:

Models	Beam Heights	
	P (mm/in)	H (mm/in)
FF-SLC18042 ⁽¹⁾	578 / 22.77	922 / 36.32
FF-SLC18062 ⁽²⁾	400 / 15.76	916 / 36.09
FF-SLC18072	300 / 11.82	988 / 38.92
FF-SLC18092	300 / 11.82	1 160 / 45.70
FF-SLC18112	300 / 11.82	1 332 / 52.48
FF-SLC18132	200 / 7.88	1 404 / 55.31
FF-SLC18142	200 / 7.88	1 576 / 62.09

Connection diagram



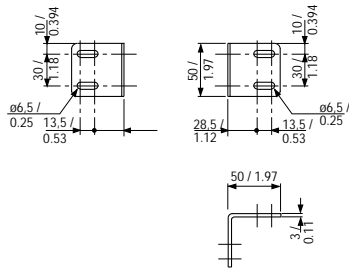
(1) Test input: The safeguarding function of the system relies on the use of this input. This input enables the cyclic activation of the test and the reset of the system after each power on or intrusion in the detection field (the contact should be maintained during 10 ms/test duration: 100 ms).

(2) Feedback control: The setting of this feedback control allows the monitoring of the external relays K1 and K2. In case of failure of one relay, the control unit remains in a stop condition until the failure cause is removed.

(3) All the ground terminals must be connected to the same potential.

FF-SLC accessories (Brackets/connectors are provided with light curtains)

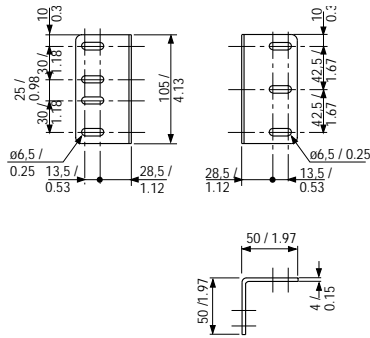
7200037



Single mounting bracket (HP < 1 000 mm / 39.4 in)

Mounting bracket for one mounting pin, supplied with screws and nuts (order 2 brackets per emitter or receiver with a protection height lower than 1 000 mm / 39.4 in).

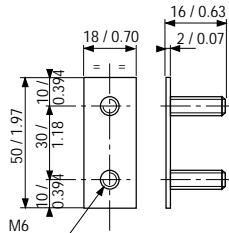
7200081



Double mounting bracket (HP ≥ 1 000 mm / 39.4 in)

Mounting bracket for two mounting pins, supplied with screws and nuts (order 2 brackets per emitter or receiver with a protection height greater or equal to 1 000 mm / 39.4 in).

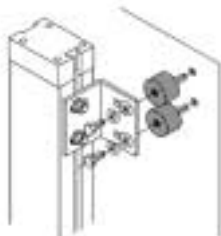
7200038



Mounting pin

Mounting pin (order one mounting pin for the 7200037 bracket and 2 mounting pins for the 7200081 bracket).

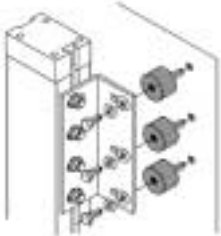
1200084



Kit of 4 anti-vibration dampers

In case of significant vibrations, use one kit of 4 anti-vibration dampers for two 7200037 brackets (supplied with screws and nuts)

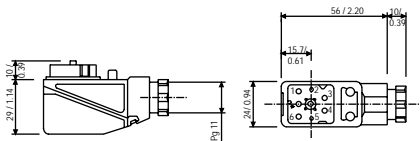
1200085



Kit of 6 anti-vibration dampers

In case of very significant vibrations, use one kit of 6 anti-vibration dampers for two 7200081 brackets (supplied with screws and nuts).

7200062

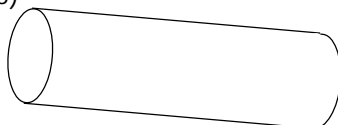


Plastic connector

Mobile female supply plug for emitter and receiver, Hirschmann 7 pin GO 610WF, no. 932 484-100 (order one plug per emitter and receiver).

8010587 (Ø35)

8010588 (Ø55)



Test rods

Test rods of Ø35 mm / 1.37 in for FF-SLC35 barrier and Ø55 mm / 2.16 in for FF-SLC55 barrier.