Type 2 safety single beam with separate control unit

FF-SLB Series

For access detection to low risk areas

New

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
- **Small space required for installation**
- **Single beam configuration allows installation flexibility**
- **Ease of installation: 2 mounting holes + quick disconnect M8 connectors**
- **Cost effective for applications that require only Type 2 protection**
- Test Input for periodic test
- Scanning range from 0,8 m up to 6 m / 2.62 ft up to 19.68 ft
- Supply voltage: 24 Vdc ±20 %
- Up to 4 sets of light beams can be connected to the same control unit
- LED for power on, beam status and test sequence

TÜV PRODUCT SERVICE

CE

Approved as
Type 2
per IEC/EN 61496-1/2

TYPICAL APPLICATIONS

- Looms
- Packaging and wrapping devices
- Automated industrial warehousing systems
- Handling, palletising / de-palletising systems
- Assembly lines

The FF-SLB safety single beam is a through-scan system designed to detect the body of an operator on approach into the detection field. Together with a separate control unit, FF-SLU100T2, or a control unit with built-in muting function, FF-SLM200R2, it forms a Type 2 Electrosensitive Protective Equipment.

The FF-SLB is a single beam photoelectric barrier made up of an emitter and receiver. Its safeguarding function is based upon a periodic performance test, as defined by the IEC/EN 61496-parts 1&2.

Its small size makes it usable under tight space requirements. Two mounting holes and M8 quick disconnect connectors allow easy installation.

The metal packaging and the glass lens ensure the product is extremely sturdy and immune to the electrostatic attraction of dust, making it ideally suited for use in the industries like the textile industries.

The FF-SLB forms a safety system with one to four beams, suitable for the protection of people exposed to hazards on low risk machinery. It is a cost effective system for applications that only require Type 2 protection.

⚠ WARNING

IMPROPER SAFETY PRODUCT USE IN THE US

- Type 2 safety light curtains as defined by IEC/EN 61496-1/2 do not meet US OSHA 1910.217, US ANSI B11.1, B11.2, B11.19 and B11.20 requirements. Although Type 2 safety products are acceptable for certain applications outside the US, they are not generally acceptable in the US due to current US regulations and standards.
- In the US, Type 2 safety light curtains may be used under limited circumstances as defined by the ANSI/R15.06-1999 standard.
- Do not use Type 2 safety products in the US if the applicable standard requires a control reliable solution. Refer to ANSI TR3 and ANSI/R15.06-1999 standard for the definition of risk assessment.
- Consult with local safety agencies before installing a Type 2 safety light curtain product.

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

⚠ WARNING

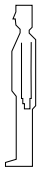
MISUSE OF DOCUMENTATION

- 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.

FF-SLB

- **Type 2 according to IEC/EN 61496 - parts 1 & 2**
- **Scanning range from 0,8 m up to 6 m / 2.62 ft up to 19.68 ft**



CE

TÜV PRODUCT SERVICE

Approved as Type 2 per IEC/EN 61496-1/2

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

Specifications	
Supply voltage	24 Vdc ± 20 % - Reverse polarity protected
Output	NPN 100 mA max light on - Short-circuit protected
Beam diameter	ø8 mm / 0.03 in
Alignment tolerance	± 4° for both emitter and receiver, in compliance with norm IEC/EN 61496 - 2
Scanning range	0,8 m up to 6 m / 2.62 ft up to 19.68 ft
Response time	<8 ms
Resistance to ambient light	10 000 Lux
Power consumption	Emitter : 0,7 W / Receiver : 0,4 W
Temperatures	*Operating:* 0 °C to 55 °C / 32 °F to 131 °F
Sealing	*Emitter and receiver:* IP 65
Electrical connections	*Emitter and receiver:* M8 quick disconnect connectors
Mechanical mounting	2 M4 holes
Electrical noise immunity according to	Norm IEC 801-4 level IV
Weight	40 gr / 0.88 lbs

Ordering information

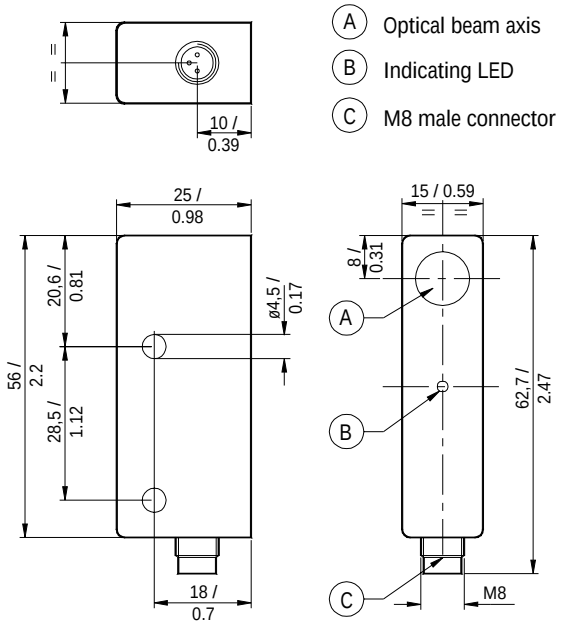
FF-SLBU6 Emitter+Receiver

FF-SLBU6CA ❑ ❑❑

- *05*: length 5 m / 16.4 ft
- *15*: length 15 m / 49.2 ft
- *S*: straight cable with M8 connector
- *A*: angled cable with M8 connector

Dimensions (mm/in)

The emitter and the receiver have the same dimensions.



Indicators	Colour	State	Indications
Emitter	yellow	ON	Power ON - beam emitted
	yellow	OFF	Test being performed or power OFF
Receiver	green	ON	Power ON and detection field is unobstructed
	green	OFF	Power OFF or detection field is obstructed

Multiple separate beams

Multiple separate beams are often used to detect the intrusion of the whole body rather than parts of the body.

The installation of a multiple separate beam arrangement has to be carried out in such a way that access to the moving parts is unlikely without breaking the beams.

The EN 999 European standard gives the following formula for the calculation of the minimum safety distance between the dangerous zone and the detection plane. Compliance to this formula will allow detection of an operator and stop the motion before the operator reaches moving parts:

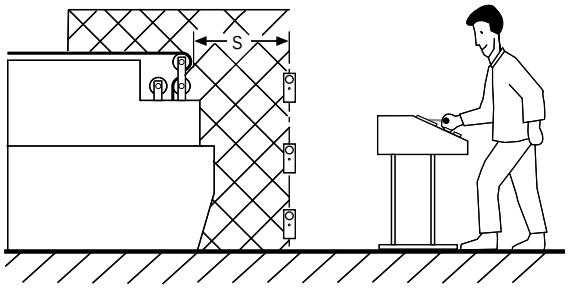
S ≥ 1600 (t1 + t2) + 850 (mm)
(or Ds ≥ 63 (t1 + t2) + 33.5 (in) Ds = S)

S: Minimum safety distance (mm / in)
t1: Response time of the FF-SLB equipment (0,08 s)
t2: Response time of the machine (s), i.e. time required to stop the machine or remove the risk after receiving the output signal from the protective equipment

Recommended beam heights

EN 999 recommends the following heights which have been found to be the most appropriate in application for multiple separate beams.

Number of beams	Beam heights above the reference floor	
	mm	in
2	400 / 900	15.7 / 35.4
3	300 / 700 / 1100	11.8 / 27.6 / 43.3
4	300 / 600 / 900 / 1200	11.8 / 23.6 / 35.4 / 47.2



The number of beams to be used needs to be defined according to the risk assessment and to the probability for the machine operator to bypass the protection. Particularly, during risk assessment, methods of defeating safety equipment shall be taken into account before selecting the correct configuration.

Single Beam

These beams are only considered when they are used parallel to the ground and the beam is broken by a person's body in the upright position.

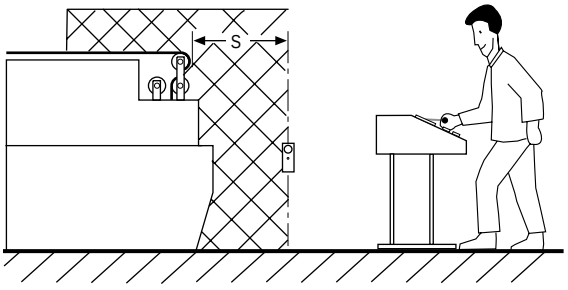
Where the risk assessment allows a single height beam to be used alone, then the minimum safety distance must be calculated using the following formula :

S ≥ 1600 (t1 + t2) + 1200 (mm)

S: Minimum safety distance (mm / in)
t1: Response time of the FF-SLB equipment (0,08 s)
t2: Response time of the machine (s), i.e. time required to stop the machine or remove the risk after receiving the output signal from the protective equipment

Recommended beam height

A height of 750 mm / 29.55 in from the ground or reference plane has been found in industry to be the most appropriate solution to the problems of inadvertent access from stepping over or bending under the beam.



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