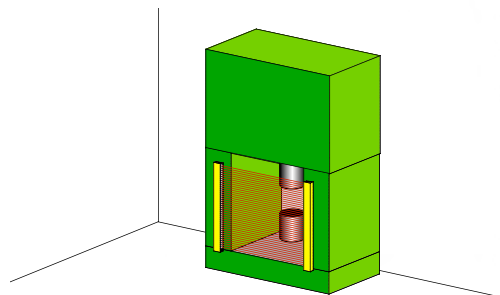


Safety-light curtains Safety-light grids

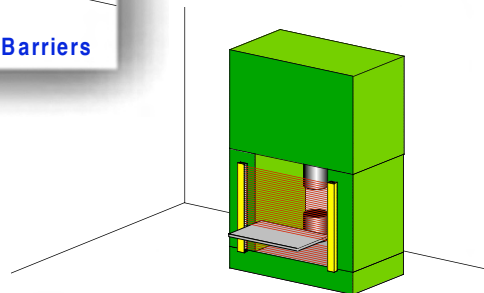
TLVT / ILVT

user-friendly
economically

- model 40x60mm
- integrated controller
- large range up to 60 m
- cascadable
- Blanking function
- with terminals for the use of standard cable



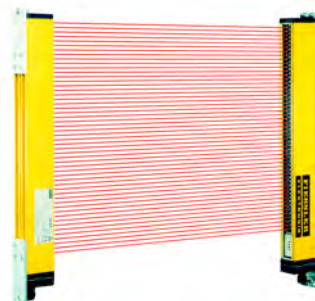
Multi-Beam Safety Light Barriers



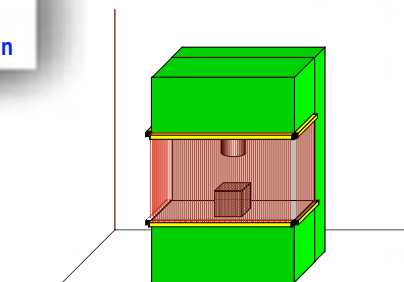
With Blanking Functions

Safety For All Applications*

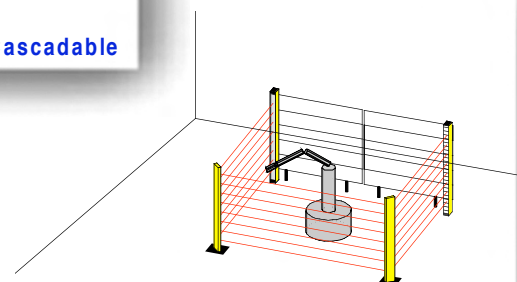
* Expert advice and information for the reliable integration of our safety equipment in your machine!



Safety Light Curtain



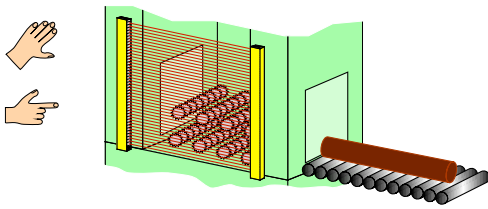
Cascadable



Safety Light Grids

Typ2
EN 61496

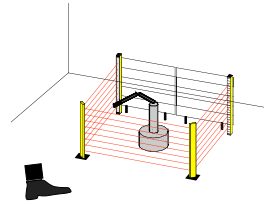
Application examples



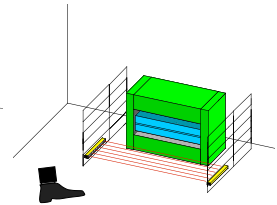
[Light Curtains](#) for the protection of dangerous sites.
Protection of fingers or hands.



Pedestrian access units.
Guarding by [Safety Light Grids](#), body protection.



Pedestrian access units.
Guarding by [Safety Light Grids](#), body protection.



Fencing off of accessible areas by horizontally positioned light curtain

Type description

The optimized safety light curtains of the TLVT series are available for all applications:

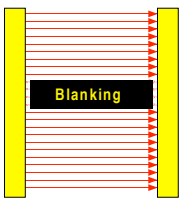
TLVT	Protection of fingers, hands, or pedestrian access guard	Resolution 14 - 500 mm	Safety type 2
ILVT	Protection of Fingers, hands, or pedestrian access guard w. blanking function , Resolution 14 - 500 mm		Safety type 2
cascading	All safety light curtains available for connection in segments	Resolution 14 - 500 mm	Safety type 2 and 4

Terminology

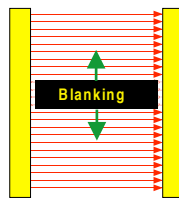
- [Light curtains](#): safety light curtains for protection of fingers or hands. Beam spacing 14mm or 30 mm.
- [Blanking function](#): controlled blanking of light beams to disable selected, fixed areas in the protective field.
- [Safety light grids](#): same as safety light curtains, but especially for personal protection as pedestrian access unit. Beam spacing ≥ 100 mm
- [Beam spacing](#): distance between adjacent light beams. In order to enable a reliable stop of the machine, at least 2 beams must be interrupted completely.
- [Resolution](#): see also "minimum obstacle diameter". Reference testing measure for safe responding of the light curtain.
- [ESPE type 2](#): Safety class with cyclic test of the safety light curtain. Error will be detected only during the test, integrated test unit, external test is not necessary.
- [Cascading](#): For protecting a hazardous area on more than one side, up to 3 light curtains may be connected in series.

Examples For Blanking Functions

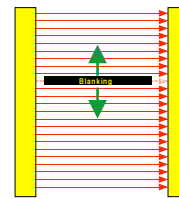
There are 11 different blanking patterns to choose from. Programming these patterns is very easy



Fixed Blanking
The presence of rigid (fixed) machine parts that permanently reach into the protective field of the light curtain must be blanked. Full protection for the remainder of the protective field.



Floating Blanking
The presence of moving machine parts that permanently reach into the protective field of the light curtain must be blanked. Full protection for the remainder of the protective field.



Skip 1 Beam Once
The covering of only one beam that is located at any random position within the protective field, is ignored. application example: blanking of a metal sheet at press brakes.

Design

The safety light curtains of the ...LVT series consist of two components: transmitter and receiver. Their detection range is defined by the distance between the transmitter and the receiver; their protective height depends on their individual constructional height (overall height). Therefore, the protective field is defined by both protective height and detection range. Protective heights from 100mm up to 1900 mm are available because of their modular design. On demand, construction of special units for intermediate-sized application is possible.

Function

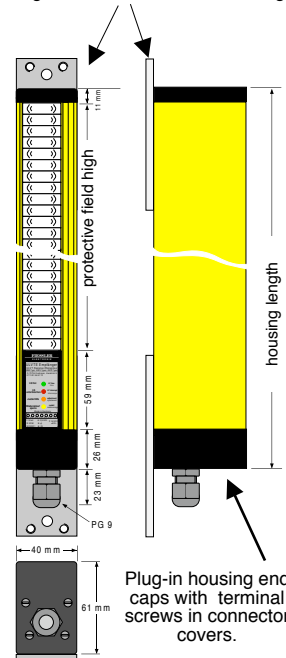
The transmitter generates infra-red chopped light beams. The parallel light beams are monitored by micro-controllers. The receiver evaluates the arriving beams in synchronous action to the transmitter. Due to the beam spacing, a resolution of 14 mm / 30 mm is achieved. If an object is introduced into the protective field, i.e. if at least one of the light beams is interrupted, both receiver outputs interrupt the hazardous movement of the machine at once, and a restart of the machine is reliably prevented.

Response Time

The safety light curtains of the ...LVT series are characterized by the special short response times. This reduces the safety distance between the light curtain and the dangerous area.

	basic response time	response time per receiver segment
TLVT	4,3 ms	0,084 ms
ILVT	5,5 ms	0,126 ms
cascaded light curtain	response time main sensor + 3ms for each secondary sensor	

Fastening brackets for easy mounting and adjustment of the light curtain. (Sliding and rotatable in a full 90° angle)



Plug-in housing end caps with terminal screws in connector covers.

		Finger protection	Hand protection	Access protection	Access protection	Access protection	Access protection	Access protection
Protective height (mm)	Con-structural Height L(mm)	<u>Resolution</u> 14 mm Number of beams	<u>Resolution</u> 30 mm Number of beams	<u>Resolution</u> 100 mm Number of beams	<u>Resolution</u> 200 mm Number of beams	<u>Resolution</u> 300 mm Number of beams	<u>Resolution</u> 400 mm Number of beams	<u>Resolution</u> 500 mm Number of beams
↓	↓	<u>Range</u> 7 m / 10 m	<u>Range</u> 24 m / 30 m	<u>Range</u> 24 m / 30 m	<u>Range</u> 24 m / 30 m	<u>Range</u> 24 m / 30 m	<u>Range</u> 24 m / 60 m	<u>Range</u> 24 m / 60 m
100	196	13	7	-	-	-	-	-
200	296	26	14	3	2	-	-	-
300	396	39	21	4	-	2	-	-
400	496	52	28	5	3	-	2	-
500	596	65	35	6	-	-	-	2
600	696	78	42	7	4	3	-	-
700	796	91	49	8	-	-	-	-
800	896	104	56	9	5	-	3	-
900	996	117	63	10	-	4	-	-
1000	1096	130	70	11	6	-	-	3
1100	1196	143	77	12	-	-	-	-
1200	1296	156	84	13	7	5	4	-
1300	1396	169	91	14	-	-	-	-
1400	1496	182	98	15	8	-	-	-
1500	1596	195	105	16	-	6	-	4
1600	1696	208	112	17	9	-	5	-
1700	1796	221	119	18	-	-	-	-
1800	1896	234	126	19	10	-	-	-
1900	1996	247	133	20	-	-	-	-

Protective height: by demand special protective height are available

Order code: example type (TLVT)-protective height(500)-/number of beams(35) — TLVT500/35

Order code: example type (ILVT)-protective height((500)-/number of beams(35) — ILVT500/35 (with blanking function)

Integrated switching unit

The ESPE safety type 2 requires the restart interlock and valve/contacter control. These characteristics are integrated standard features of the receiver head of the light curtain. Therefore, for the safe operation no additional switching unit is necessary. The testable category 2 light curtains required a cyclic system test.

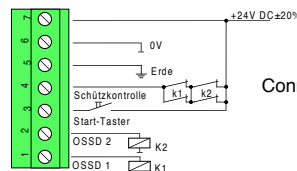
With TLVT / ILVT light curtains this is no longer necessary, because a continuous internal self-testing is active

Operational modes

The required operational mode is user-friendly selected via dip-switches. There is no need of a computer for programming.

Contactors/valves directly connectable

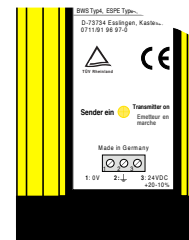
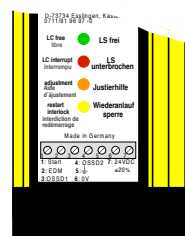
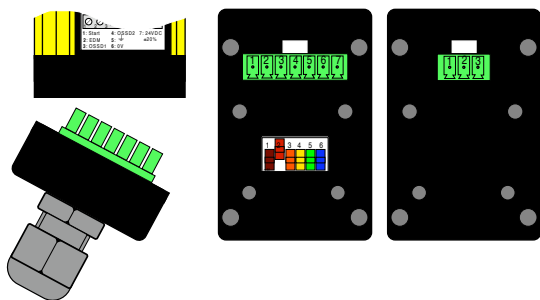
The switching capacity of 0.5 A / 24 VDC of both fail-safe outputs (OSSD1 und OSSD2) permits the direct connection of contactors or valves.



Connection Example for TLVT

LED displays

Several LEDs located at the receiver and transmitter heads provide precise and clear indication of the current operating status, such as interruption of the protective field, soiling, start requiring signal, or faults.



Integrated plug-in connection in the connection lid

The standard equipment of the product series ...LVT includes an extra flat plug-in connection with screw nut located in the connection lid. This lid may be removed without disconnecting the cable. The housing itself remains sealed.

Several standard connection-plugs are available as options. The transmitter is connected via a 3-core cable, the receiver is connected via a 5- to 7-core cable (required according to the mode of operation).

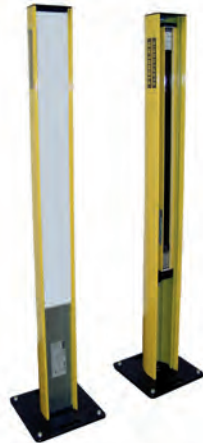
Self-Diagnostics Device

If the self-testing of the system detects an internal or external error, the machine will be switched off immediately. The internal or external error will be displayed by the flashing of the LEDs of the transmitter, respectively on the receiver panel. An error-diagnostic appliance is available, which enables the exact localization of the errors on the spot. When a fault is detected, the flashing LEDs provide the visual output of the detected fault and display in the diagnostics device.

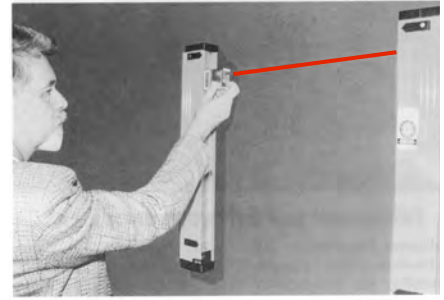
Accessories

All light curtains are delivered with the necessary plugs and come with adjustable fastening brackets.

For their installation in an open area (e.g. for a multi-sided screening, or protection through tilted mirrors), the units can be supplied as pre-manufactured assembly columns.



For the precise alignment of the TLVT light barriers, particularly where large distances or screening through tilted mirrors are involved, a battery-powered adjustment laser is available. The device is attached to the front panel of the transmitter. A laser beam which is visible even in broad daylight, shows the direction of the beams coming from the transmitter, thereby providing the most accurate adjustment of the light curtain.



Additional functions

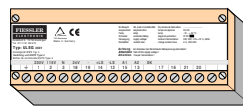
Optional there safety controller available for additional functions such as relay output or Muting: e.g. snap-on relay output module LSRA, power supply with potential free relay outputs ULSG, compact safety controller PLSG1k -PLSG3k for DIN rail mounting, The programming of all these devices is possible without PC.



Safety Muting controller
PLSG1K/ PLG2K
Compact
safety controller PLSG3K
for DIN rail mounting



Safety PLC
Programmable Safety Centre
FPSC



Power supply with
potential free relay outputs
ULSG



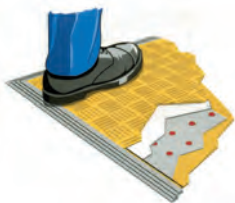
Snap-On relay
output module
LSRA-T

Other safety equipment

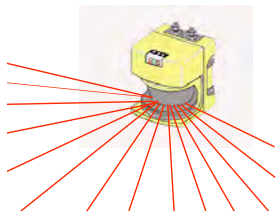
Apart from the above mentioned light curtains and light grids, Fiesler Elektronik provides other components for the protection of your work places.

Service

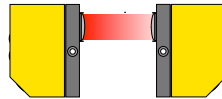
As a special feature for training our customers, Fiesler Elektronik offers one-day safety workshops. Our service team provides you with expert advice and information for the reliable integration of our safety equipment into your machine.



Safety mats



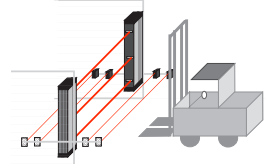
Proximity laser scanner



Single-beam safety light
barriers with extra large
detection range



Press brake protection system
AKAS



Distinguishing man from
machine due to special
muting applications

HOMOLOGATIONS

In order to ensure and maintain the high quality level of the Fiesler safety products, a quality control security system has been established early. Fiesler Elektronik holds the DIN ISO EN 9001 Certificate and, thanks to the company-owned EMC laboratory, all products must pass an inspection without exception before they leave the company. All safety equipment comply with the applicable national and international standards. Development and Design is made in close co-operation with the German employer's liability insurance associations. All homologations are obtained only after having passed strict tests by the German surveyor organisation TÜV.



Award of appreciation

for exemplary performance in the development of the press brake protection system AKAS. The award was bestowed upon Fiesler Elektronik by the ministry of trade and commerce of the federal state of Baden-Württemberg.



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Fiesler Elektronik has representations in all major industrial nations.

