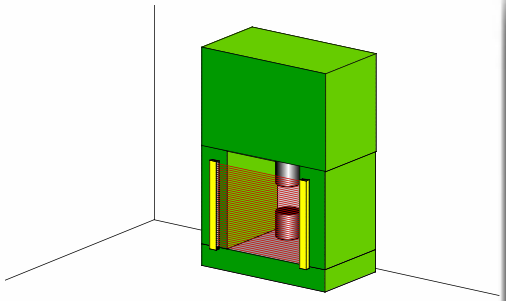
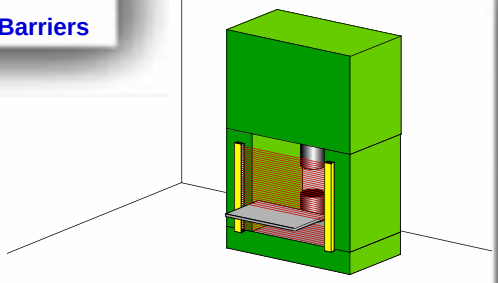
FIESSLER ELEKTRONIK

SAFETY LIGHT BARRIERS

ULVT
ULVT 500/2R
TLVT
BLVT
ILVT



Multi-Beam Safety Light Barriers

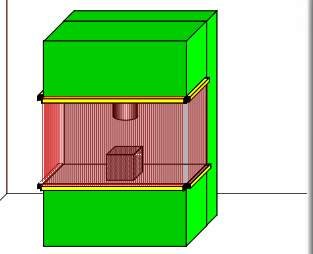


With Blanking Functions

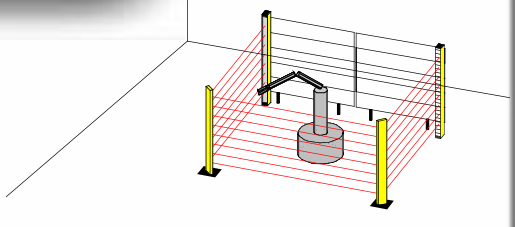
Safety For All Applications*

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

Safety Light Curtain

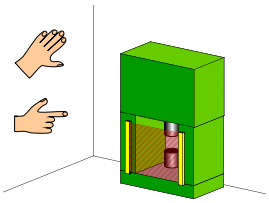


Connection In Segments ("Cascades")

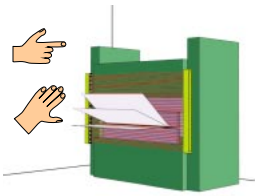


Safety Light Grids

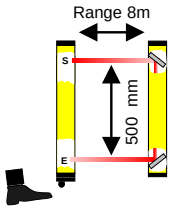
Application Examples



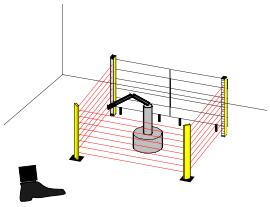
Light Curtains for the protection of dangerous sites. Protectuon of fingers or hands.



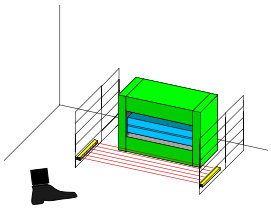
Guarding of special sections of press brakes with light curtains featuring Blanking Functions



Pedestrian access units. Single-beam safety light barriers LS featuring wrap-around perimeter guarding by diversion mirrors. Passive Transmitter.



Pedestrian access units. Guarding by Safety Light Grids. Personal protection.



Fencing off of accessible areas by horizontally positioned light curtain.

Type Description

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

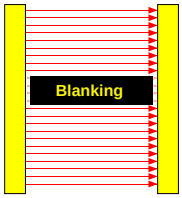
ULVT	Protection of fingers, hands, or pedestrian access guard	beam spacing 7,5 - 500 mm	safety type 4
TLVT	Protection of fingers, hands, or pedestrian access guard	beam spacing 7,5 - 500 mm	safety type 2
BLVT	Fingers, hands, or pedestrian access guard w. blanking function,	beam spacing 7,5 - 500 mm	safety type 4
ILVT	Fingers, hands, or pedestrian access guard w. blanking function,	beam spacing 7,5 - 500 mm	safety type 2
cascading	All safety light curtains available for connection in segments	beam spacing 7,5 - 500 mm	safety types 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.
Passive transmitter: light grid with opposed mirrors. Only available with a beam spacing of 500 mm (type ULVT500/2R)
ESPE type 4: highest safety class for light curtains. If a fault is detected, the the hazardous movement will be reliably stopped at once.
ESPE type 2: safety class providing periodic testing of the light curtain. Faults are detected only during test. Comes with integrated testing device!
Cascading: For protecting a hazardous area on more than one side, up to 3 light curtains may be connected in series.

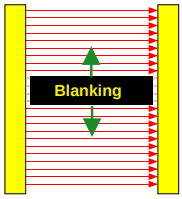
Examples For Blanking Functions

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



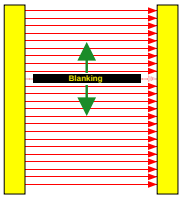
Fixed Blanking

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.

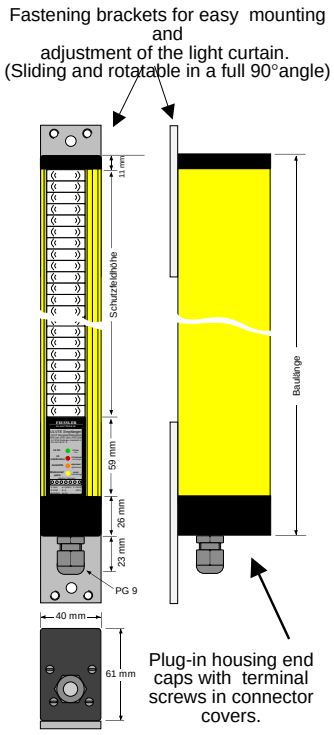


Skip 1 Beam Once

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.
Response times:

	BASIC RESPONSE TIME	RESPONSE TIME PER RECEIVER SEGMENT
ULVT	4,3 ms	0,084 ms
TLVT	4,3 ms	0,084 ms
BLVT	5,5 ms	0,126 ms
ILVT	5,5 ms	0,126 ms
CASCADED LIGHT	response time main sensor + 3ms	
CURTAINS	for each secondary sensor	

AVAILABLE STANDARD SIZES

		FINGER PROTECTION	HAND PROTECTION	Pedestrian Access Protection	Pedestrian Access Protection	Pedestrian Access Protection	Pedestrian Access Protection	Pedestrian Access Protection	Pedestrian Access Protection
PROTECTIVE HEIGHT (mm)	Construc-tional Height L(mm)	Beam Spacing 7,5 mm Resolution 14 mm **Number of Beams**	Beam Spacing 14 mm Resolution 30 mm **Number of Beams**	Beam Spacing 100 mm **Number of Beams**	Beam Spacing 200 mm **Number of Beams**	Beam Spacing 300 mm **Number of Beams**	Beam Spacing 400 mm **Number of Beams**	Beam Spacing 500 mm **Number of Beams**	Beam Spacing 500 mm **Number of Beams**
⇓	⇓	Detection Range 7 m	Detection Range 24 m	Detection Range 24 m	Detection Range 24 m	Detection Range 24 m	Detection Range 24 m	Detection Range 24 m	Detection Range 8 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	
500/2R	650		Beam diversion via mirror. Wiring required to only one head.						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	-	-	-	-	

DETECTION RANGE Ranges of 24m up to 60 m are available with our light curtain series LSUW.

ORDER CODE: example: Model (**ULVT**)-protective height (**500**)-/number of beams(**35**) — **ULVT500/35**

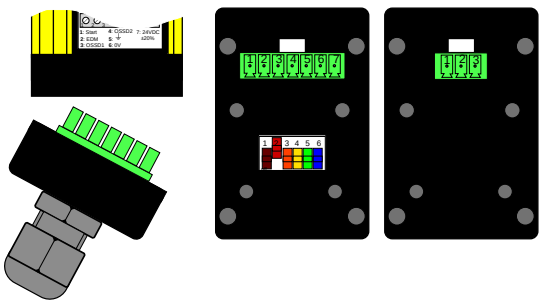
INTEGRATED SWITCHING UNIT

The ESPE safety type 4 requires the restart interlock and valve/contactor control. These characteristics are integrated standard features of the receiver head of the light cutain. Therefore, for the safe operation **no** additional switching unit is necessary.

The light curtains of Safety Type 2 are equipped with the required periodical testing as an integrated standard feature.

OPERATIONAL MODES

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

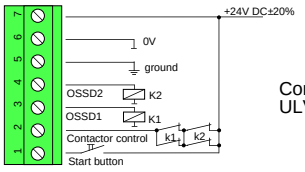


Integrated Plug-In Connection In The Connection Lid

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).

Contactors/valves directly connectable

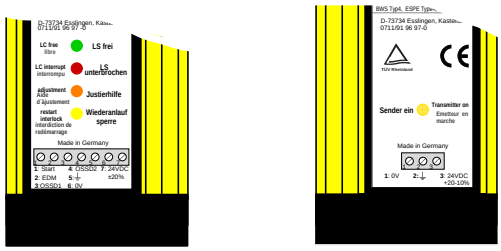
The switching capacity of 0,5 A / 24 VDC of both fail-safe outputs (OSSD1 und OSSD2) permits the direct connection of contactors or valves.



Connection Example for ULVT

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.



Self-Diagnostics Device

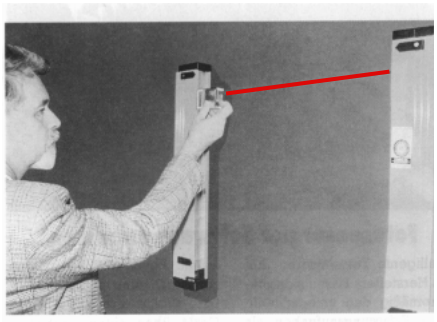
If the self-testing of the system detects an internal or external error, the machine will be switched off immediately. The internal or external error will be displayed by the flashing of the LEDs located on the transmitter, respectively on the receiver panel.
An error-diagnostic appliance is available, 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.

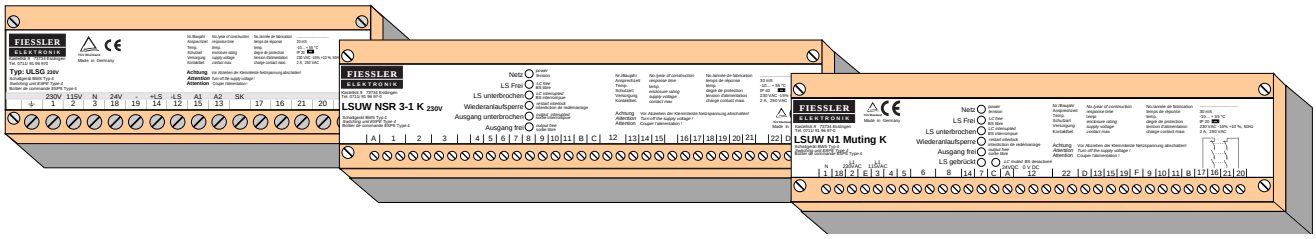
For their installation in an open area (e.g. for a multi-sided screening, or protection through tilted mirrors), the units can be suppplied as premanufactured assembly columns.

For the precise alignment of the ULVT light barriers, particularly where large distances or screening through tilted mirrors are involved, a battery powered adjustment laser ios 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

The safety control units ULSG, LSUW NSR 3-1, NSR 3-1K and LSUW N1-Muting K are available as options for application in order to achieve additional functions such as **potential-free output contacs, stroke operation or Muting.** Moreover, there is a programmer for easy programming the blanking features on the BLVT without using any computer.



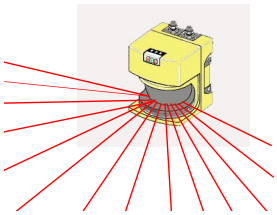
OTHER SAFETY EQUIPMENT

Besides the above mentioned light curtains and light grids, Fiessler Elektronik provides other components for the protection of your work places.

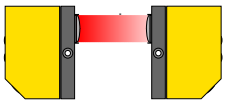
SERVICE

As a special feature for training our customers, Fiessler 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

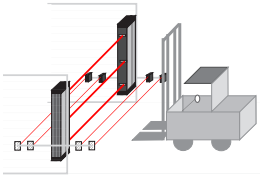


Proximity Laser Scanner



Single-Beam Safety Light Barriers With Extra Large Detection Range

Press Brake Protection System AKAS



Distinguishing Man From Machine Due To Special Muting Applications

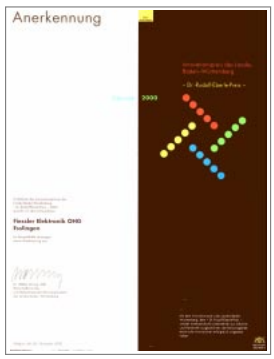
HOMOLOGATIONS

In order to ensure and maintain the high quality level of the Fiessler safety products, a quality control security system has been established early. Fiessler Elektronik holds the DIN ISO EN 9001 Certificate and, thanks to the company-owned EMC laboratory, all products must pass a 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 cooperation with the German employer`s liablility insurance associations. All homologations are obtained only after having passed strict tests by the German surveyor organisation TÜV.

CE BG zugelassen TÜV ZERT UL LISTED ex

AWARD OF APPRECIATION

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



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