



**The right partner  
for your safety**

*Made in Italy*

**Red Beam**

The Red Beam for your SAFETY

The **experience** we gained during years of activity in the world of industry, led us almost naturally, as a manufacturer, to develop **safety** products for factories.

We decided to put our experience in the design and the **manufacturing** of technologically advanced safety light curtains, to ensure maximum safety to millions of people who work every day in extremely hazardous conditions or in close contact with dangerous equipment.

We are pleased to be surrounded by a team staff who shares our **enthusiasm** and **passion**, which are needed to ensure total quality of our fully **made in Italy** products and services.

Each safety light curtain, whose materials conform to current European directives, undergoes strict checks during the whole production cycle. After that, we conduct an **accurate stress test** on it.

Our greatest satisfaction is to find that many customers choose Red Beam in highly customized applications, thanks to our **reliability, flexibility and promptness** in answering your needs.



## Hesi Safety srl

Hesi Safety is a company based in Gassino Torinese with Italian funds, with more than twenty years of experience in the design and manufacturing of electronical products. It comes in the safety world with precision sensors and applications of infrared and ultrasound technologies.

In 2000 the company, focusing on the occupational safety, chooses to invest in the design and production of optoelectronic devices for safety and introduces to the safety light curtain market the avant-garde **Red Beam** brand of safety light curtains.

Hesi Safety increases its experience focusing with greater attention on occupational safety according with the 8 Directives CEE adopted by D.lgs 81/08. The goal of these Directives is oriented towards the systematic research of working risks, their removal, prevention and containment before they may cause unwanted effects.

With **Red Beam** safety light curtain, Hesi efficaciously encompasses the sector of on-the-job safety.



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## CERTIFICATIONS



The Red Beam optoelectric safety light curtains are immediately recognizable by their distinctive yellow color, as any other safety device installed in the environment.

The Red Beam security system creates an infrared bidimensional field of protection, that makes its use very effective in critical areas of the industrial production process, where men work in close contact with dangerous and ever faster machines: presses, welding robots, etc.

The Red Beam system is also suitable as a safeguard for the operator who has to enter in working areas that are hazardous because of the presence of moving machine parts. It can also be employed in working environments for process control (painting) or just for step counting (storage).

Inserting a body in the working field of the safety light curtain causes the interruption of the dialog between each couple of transmitter-receiver elements, with the immediate activation of the safety relays, that stop the operating machine and alert any connected audible and visible alarm device, until the dangerous situation is removed.

The Red Beam complete protection system uses microprocessor technology to provide a wide range of capabilities to analyze dangerous situations and malfunctions.

Thanks to this flexibility, Red Beam places itself among the most advanced control units on the market today.







The Red Beam safety system is mainly made up of two elements: an emitter and a receiver, with one or more optically synchronized infrared beams that creates an intangible control safety light curtain.

## Emitter

The emitter houses a series of emitter elements, which transmit the infrared beams; their number is variable and this is what defines the safety light curtain resolution. The emitter is equipped with a CPU that handles all control and management functions of the safety light curtain. Any anomaly in the operation will cause the emitter to stop within the response time of that specific model.



## Receiver

The receiver is the intelligent element where infrared beams land. It has the same number of photosensitive elements as the emitter. The receiver is equipped with a CPU that handles all control and management functions of the safety light curtain. The emitter and the receiver exchange signals through the infrared beams. These signals provide informations about the safety light curtain status and its alignment.

Beside the beam interruption, any other anomaly in operation will cause the receiver to stop within the response time of that specific model, blocking the machine that uses the safety light curtain.

Before any scan, the receiver checks that any external environment condition would not affect the state of its photoreceptors.



## Risk assesment

EN 1050 Directive recommends a systematic procedure for risk assessment, in order to choose and adopt the most suitable safety measures for reducing or removing the risk.

The risk assessment is divided in 4 phases and it's based on 3 factors:

- S severity of injury
  - S1 minor injury (recovery is possible).
  - S2 severe injury (recovery is not possible) or death.
- F frequency / duration of exposition to risk
  - F1 seldom up to often and/or short exposition time.
  - F2 frequently up to continuous and/or long exposition time.
- P possibility of avoiding the danger
  - P1 possibile under certain conditions (escape or intervention of additional personnel).
  - P2 scarcely possible (the event happens quickly).

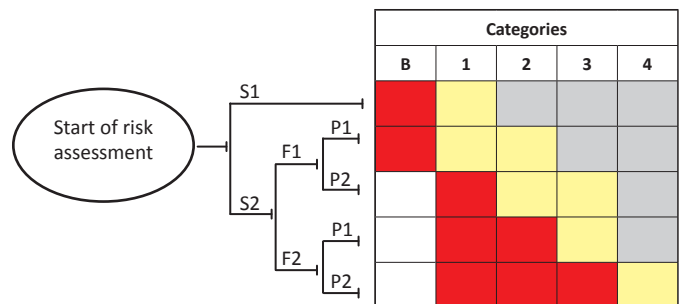
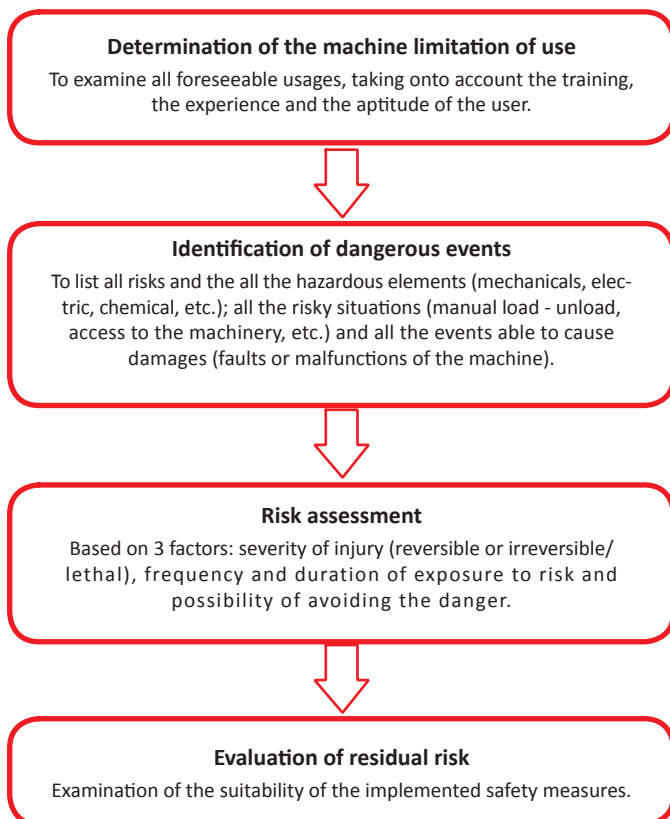
## SIL

((Safety Integrity Level) - it is the new regulation that allows the manufacturer to certify the safety level of protective photosensitive equipment on board of dangerous machinery. Red Beam safety light curtains ensure the respect of the harmonized standard UNI EN ISO 13849-1 and are compliant to:

ISO 13849-1 PLd for safety level 2

and

ISO 13849-1 PLe for safety level 4



Suitable category
Excessive safety measure for the risk
Category usable only in conjunction with additional safety measures





## Safety Categories

Red Beam safety products can be of type 2 or 4.

The following table describes the main differences between the two categories.

	SAFETY CATEGORY 2	SAFETY CATEGORY 4
<b>Applicable requirements</b>	Requirements belonging to Category B are applicable. Safe components and safety principles are applicable. The control systems of the device performs a safety check at proper intervals.	Requirements belonging to Category B are applicable. Safe components and safety principles are applicable. The components associated with safety are designed so that: <ul style="list-style-type: none"> <li>• A single malfunction of one of these components does not cause a fault of the safety function.</li> <li>• A single malfunction is detected before or during the following safety function cycle.</li> </ul>
<b>System Operation</b>	The occurrence of a malfunction may lead to the loss of the safety function during the interval between the checks. The check detects the safety function fault.	If a single malfunction occurs, the safety function is preserved. Malfunctions are promptly detected to prevent the loss of the safety function.
<b>Mode of operation</b>	Limit switches detect potentially risky movements. Periodic checks of the safety function are performed at startup and then on a cyclic basis. A malfunction of the safety function is detected during the next cycle.	<ul style="list-style-type: none"> <li>• System redundancy.</li> <li>• Any single malfunction does not lead to the loss of the safety function.</li> <li>• Input redundancy – two channels with positive input from the safety device, in order to detect a displacement of a contact.</li> <li>• Output redundancy – 2 contactors.</li> <li>• Monitoring of the contactors (feedback cycle).</li> <li>• Protection for short circuit on safety device input.</li> </ul>
<b>Minimal requirements (EN 954 -1)</b>	<ul style="list-style-type: none"> <li>• 1 or 2 input with PO</li> <li>• 1 or 2 output: the former for operation and the latter for signalling.</li> <li>• Feedback cycle (recommended).</li> <li>• Periodic check.</li> </ul>	<ul style="list-style-type: none"> <li>• 2 input channels with PO.</li> <li>• Redundancy circuit (input and output).</li> <li>• Feedback cycle.</li> <li>• Self-monitoring cycle.</li> <li>• Schort circuit protection (input)</li> </ul>

## Safety distance

To choose the proper model, you need to measure the height of the zone to be protected and select the model with the next greater length, according to the type of protection required.

In case the height required is greater than the available models, you need to use two systems with two control units, installing one emitter and one receiver alternating on each side.

The distance of the safety light curtain from the hazardous area can be calculated keeping in consideration some factors, as shown in the following tables.

### Formulas for the European calculation

$$K \times T + C$$

K - Constant in mm per second (200 mm/sec)

T - Total response time of the safety light curtain plus the machine halting time, in seconds

C - Additional distance in mm

### Formulas for the North American calculation

$$K \times (Ts+Tr) + Dpf$$

K - Constant in inches per second (63 pollici/sec)

Ts - Total response time of the safety light curtain plus the machine halting time, in seconds

Tr - Response time of the safety light curtain

Dpf - Additional distance (recommended depth penetration factor: 3,1 inches)



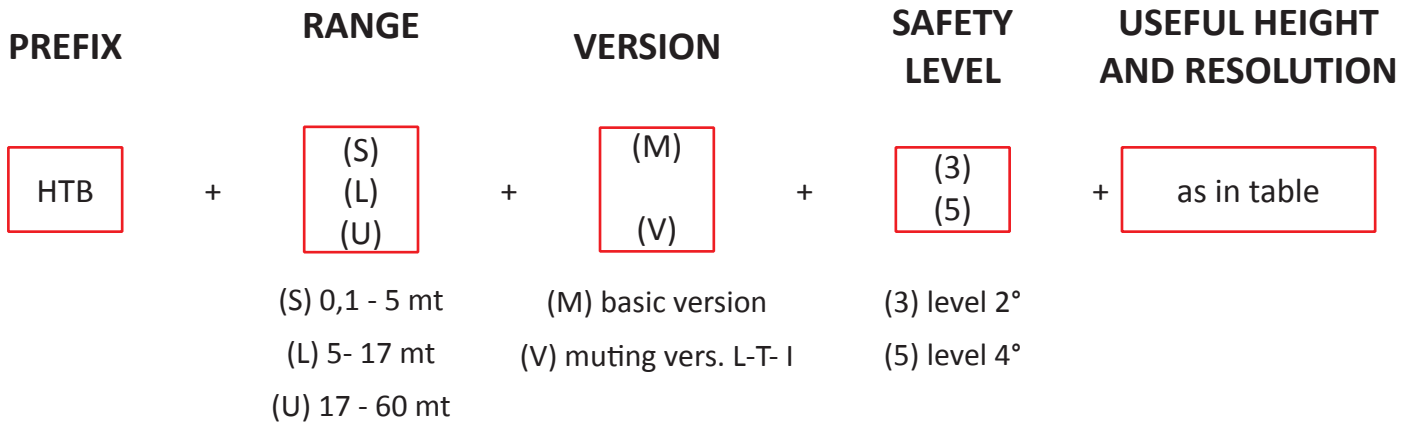
## Composition of product code

PREFIX	RANGE	VERSION	SAFETY LEVEL	USEFUL HEIGHT AND RESOLUTION
HTB	( ) (L)	(R) ( )	(3) (5)	as in table
	( ) 0,1 - 5 mt (L) 5 - 17 mt	(R) basic version ( ) advanced version	(3) level 2° (5) level 4°	

WORKING HEIGHT (mm)	RESOLUTION (mm)					
	14	20	30	35	40	50
150	1514	1520	1530	1535	1540	1550
300	3014	3020	3030	3035	3040	3050
450	4514	4520	4530	4535	4540	4550
600	6014	6020	6030	6035	6040	6050
750	7514	7520	7530	7535	7540	7550
900	9014	9020	9030	9035	9040	9050
1050	10514	10520	10530	10535	10540	10550
1200	12014	12020	12030	12035	12040	12050
1350	13514	13520	13530	13535	13540	13550
1500	15014	15020	15030	15035	15040	15050
1650	16514	16520	16530	16535	16540	16550
1800	18014	18020	18030	18035	18040	18050
1950	19514	19520	19530	19535	19540	19550



## Composition of product code



WORKING HEIGHT (mm)	RESOLUTION (beams)				
	1	2	3	4	5
80	0801				
160	1601	-	-	-	
300	-	3002	-	-	
450	-	4502	4503	-	
600	-	-	6003	-	
750	-	-	7503	7504	7504
900	-	-	9003	9004	9005
1050	-	-	10503	10504	10505
1200	-	-	12003	12004	12005
1350	-	-	13503	13504	13505
1500	-	-	-	15004	15005
1650	-	-	-	16504	16505
1800	-	-	-	18004	18005
1950	-	-	-	19504	19505

The photoelectrical safety light curtains are electro-sensitive devices with one or more beams sent by an Emitter element to a Receiver element, that creates an intangible controlled zone. The main features are:

## Safety Categories

The risk assessment for different machines or different parts of a machine may lead to different levels of risk. It is necessary to choose the safety measures to adopt in proportion to the risk.

EN954 Regulation defines the safety categories using the following parameters:

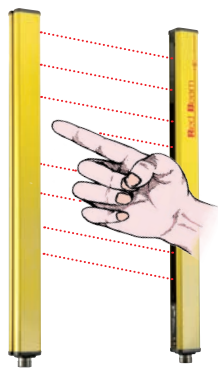
- Severity of injury (reversible or irreversible/lethal).
- Frequency and duration of exposure to risk.
- Possibility of avoiding the danger.

When the safety device is a photoelectric safety light curtain, it can only be Category 2 or Category 4, as defined by European Regulation CEI EN 61496 1-2.

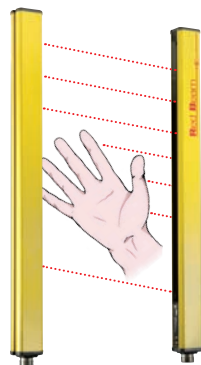
## Resolution

The resolution of a photoelectrical safety light curtain is the minimal size an object entering the controlled area needs to have, in order to cause the activation of the device and the resulting block of the dangerous machine with certainty.

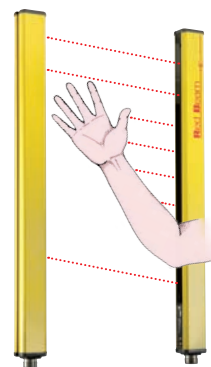
The different available optical resolutions allow to adapt the protection to the body part exposed to the danger. It is therefore possible to set the field protection to finger size, but it is also possible to decrease the resolution to body size at short distance or at long distance with the use of column or wall mirrors.



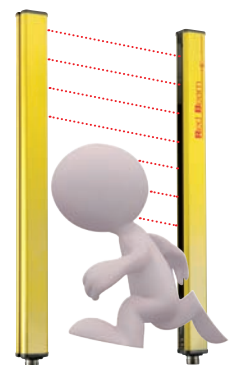
Finger Protection



Hand protection



Limb protection



Body protection



## Range

It is the maximum distance allowed between emitter and receiver. The Red Beam security safety light curtains are available both with short and long range, in order to prevent access to hazardous areas of various sizes.

The long range safety light curtains are intended to protect large perimeters with various access sides. This kind of installation requires the use of one or more mirrors.

While using deflecting mirrors, you have to take into account the dispersion factor added by each of them, which varies from 10% to 25%.

## Response Time

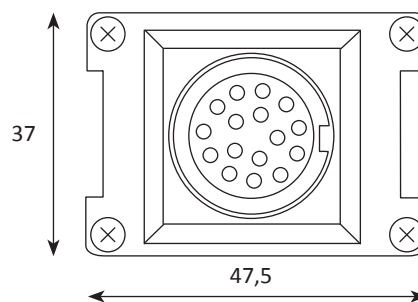
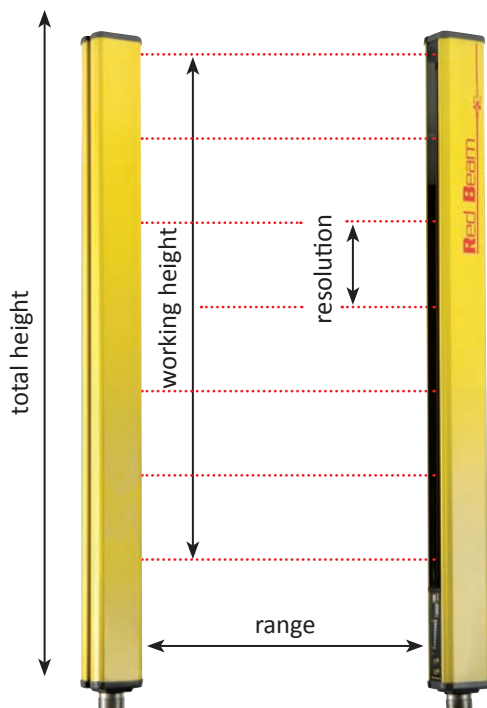
The response time is the time taken by the safety light curtain to send the alarm signal after detecting an object in the protected

The response time of a safety safety light curtain mainly derives from its height and its resolution.

All multi-beam models have a response time equal or lower than 30 ms.

## Working Height

The working height is the height controlled by the safety light curtain. In horizontal installations it indicates the depth of the protected zone.





The Red Beam security safety light curtains are available for Safety Category 2 and 4, and are divided in the product lines BASIC and ADVANCED.

## Basic Line

The Basic line Red Beam safety light curtains have an embedded control unit with 24 Vcc relay output, or 0 Vcc upon request, and with 1A normally open contact. They are equipped with automatic reset and control lights indicating the operational status.



## Advanced Line

The Advanced line Red Beam safety light curtains have a programmable reset, that can be manual, semi automatic or automatic.

The control block positioned on the safety light curtain consists of an alphanumeric display, a graduated scale, an alignment check led and buttons to program the safety light curtain. This type of safety light curtain has the muting, the fixed/mobile blanking and the feedback (EDM) functions embedded.



## Operating Modes

With *manual reset*, the relay within the safety light curtain is activated using an external button.

With *semi automatic reset*, the safety light curtain has to be started manually after the power on, but each following reset cycle will be automatic.

With *automatic reset*, the relay within the safety light curtain activates without the need of external commands.



## Muting Function

The muting function temporarily and automatically disables the safety light curtain, in a way that is safe in relation to the machine cycle. This is an essential function when the normal operating cycle of the machinery envisages the transit of some machine parts or workpiece through the safety light curtain, without stopping the machine. This function is not available in the Basic line.

## Override Function

The override function has the purpose of allowing the removal of objects that are intercepting the protected passage. This may happen after the machine stopped when the object passed through the passage. The two override signals can be activated by a designated selector that provides the two required levels or by an impulse that activates the override status.

This function is only available on “T, L, I” models.

## Blanking Function

The blanking function allows to disable one or more optical elements, in order to permit the entrance of objects with various size. This allows the operator not to bypass the device and to preserve the safety conditions.

This function is useful when a workpiece or a machine part has to intercept the photoelectrical field of the safety light curtain. This function is only available in the Advanced line.

## Feedback Function (EDM)

The feedback function (better known as EDM) has the purpose of checking the status of the contacts of the external contactors the safety light curtain is connected to, blocking the system if one or more of them have short-circuited. This function is not available in the Basic line.

### ADVANCED LINE

### BASIC LINE



**MUTING:** light signal showing if the muting / blanking function is active and helps the safety light curtain to align each other.

**BREAK:** it shows if there are interrupted beams and if we are in normal environmental conditions.

**SAFE:** it shows if the receiver is aligned and properly working.

**F1 -F2:** function buttons accessible through password.

**GRADUATED SCALE:** it shows the area where the beam has been interrupted and the beam status during the safety light curtain operation.

**ALPHANUMERIC DISPLAY:** together with the other signals, it shows the safety light curtain status.





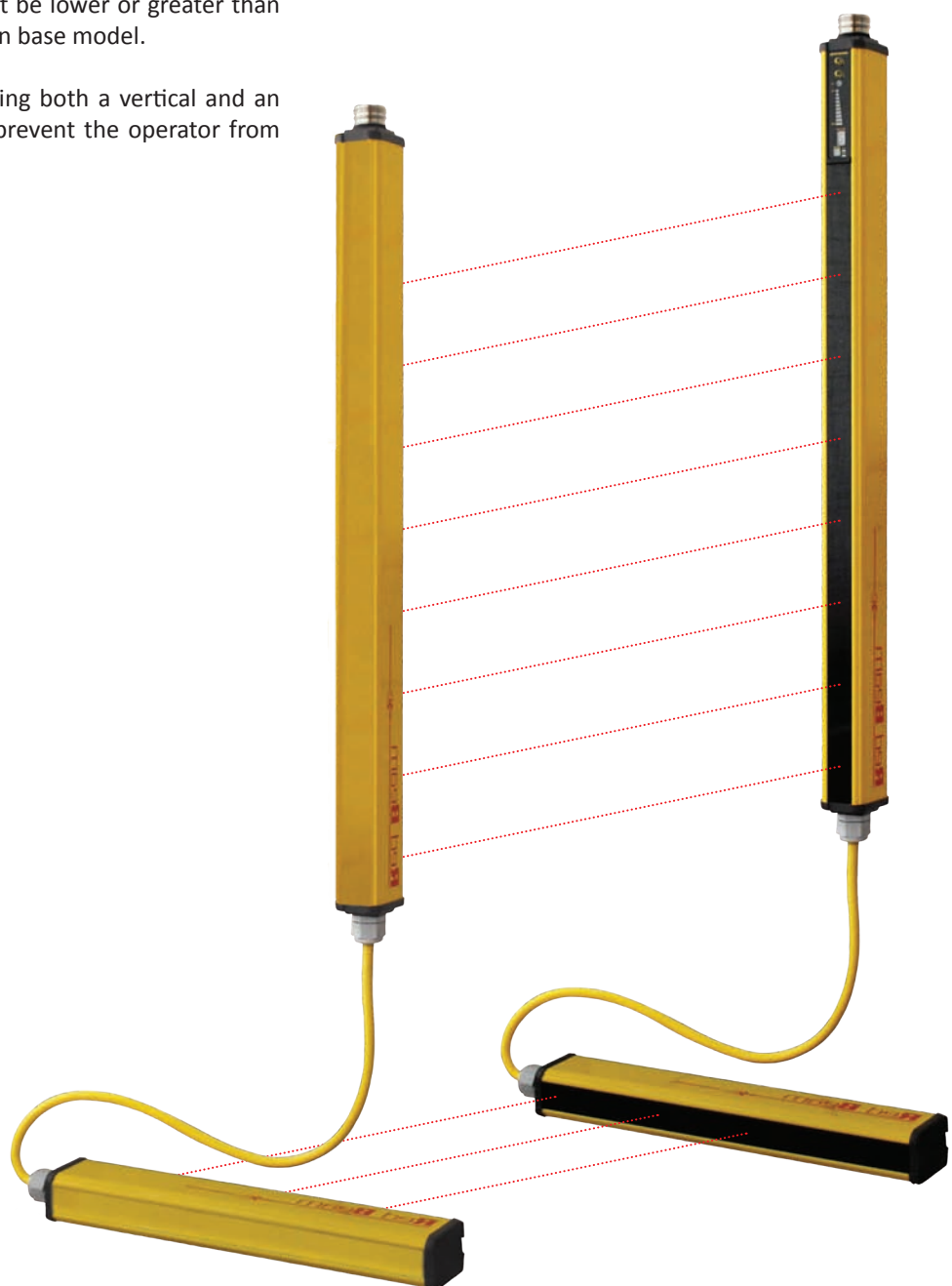
## Master & Slave Line

Compatible with the Basic or Advanced line of any model, this function allows to bend the safety light curtain using a cable not longer than 30 cm.

Once the reference model has been chosen, it can be divided in two or more components: a Master, containing the CPU and the first series of beams, and one or more Slaves, containing the remaining beams.

The total number of beams will not be lower or greater than the number of beams of the chosen base model.

It is useful when interested in having both a vertical and an horizontal protection, in order to prevent the operator from approaching to the hazardous area.





## V Line

The V line safety light curtains are safety devices that create a bidimensional field for body protection. Crossing the controlled area triggers the safety light curtain, stopping of the dangerous machine.

All V line models have safety category 4.

These safety light curtains are available with range 0,1-5 mt.

On demand, models with range 5-17 mt and 17-60 mt.

These models are suitable for all palletizing and packaging sy



The following table shows the various combinations of protection available.

Height	1 beam	2 beams	3 beams	4 beams	5 beams
160 mm					
300 mm					
450 mm					
600 mm					
750 mm					
900 mm					
1050 mm					
1200 mm					
1350 mm					
1500 mm					
1650 mm					
1800 mm					
1950 mm					

### TECHNICAL DETAILS

**Operating mode:** Automatic / Manual

**Power source:** 24 Vdc  $\pm$  20%

**Output:** 2 PNP transistor (OSSD) -24Vcc IC Max 1A DC-30 V protected in current

**Power consumption:** 0,4A max

**Working temperature:** -10° +60° C

**Enclosure rating:** IP 65

**Response time:** HTBV5<30ms

**Sensor time:** the time between the activation of a sensor and the following one is 4" max., and the same applies for the sensors deactivation

**Input** Muting, Override, Test and Feedback

**Output:** Status and Muting control

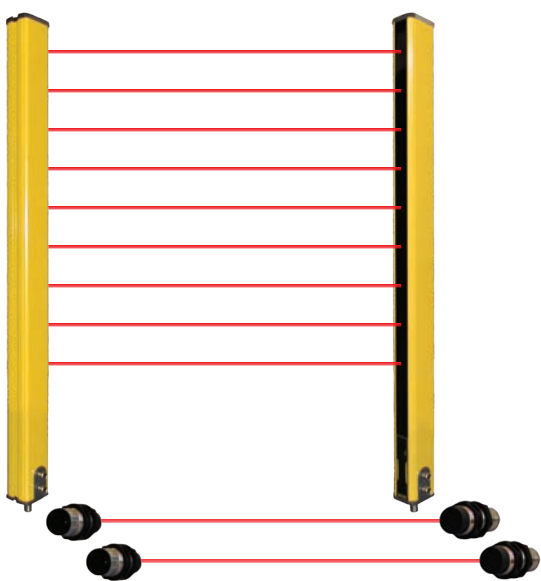
**Muting duration:** 30" or 90' programmable on the safety light curtain.



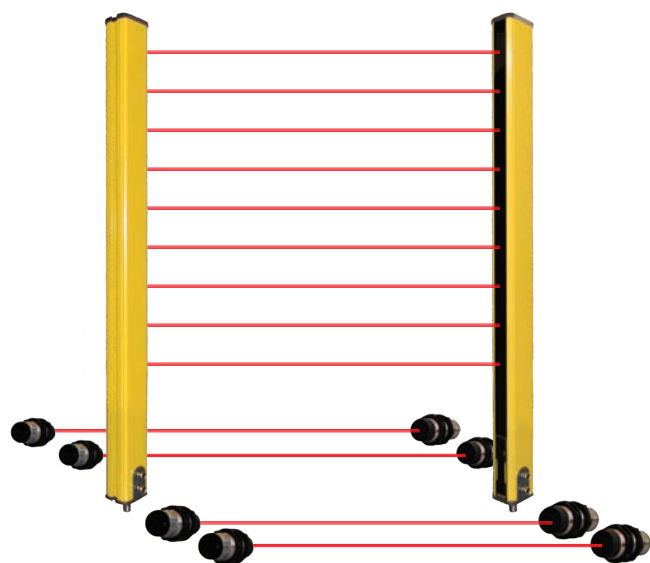
# Available configurations of V LINE

## I models with external photocells

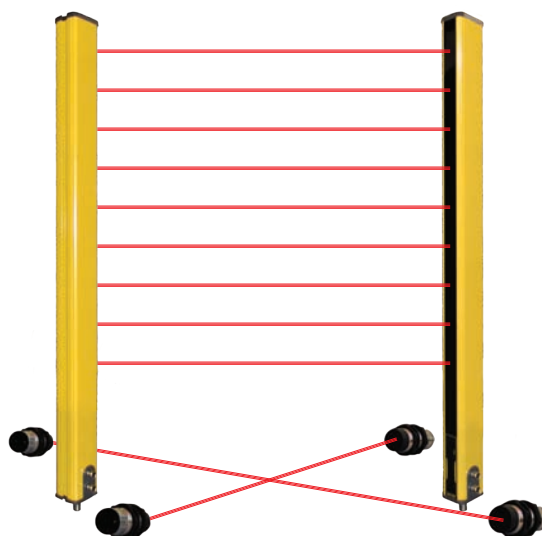
For models provided without arms, the “I” version allows to connect 2 or 4 single photocells, arranged according to the needs of use. The proper working of the photocells system is committed to the expertise of the technician installing it.



2 parallel sensors version



4 parallel sensors version



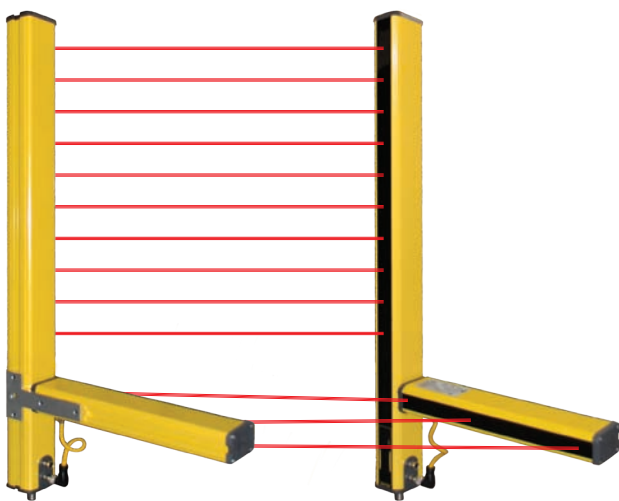
2 crossing sensors version





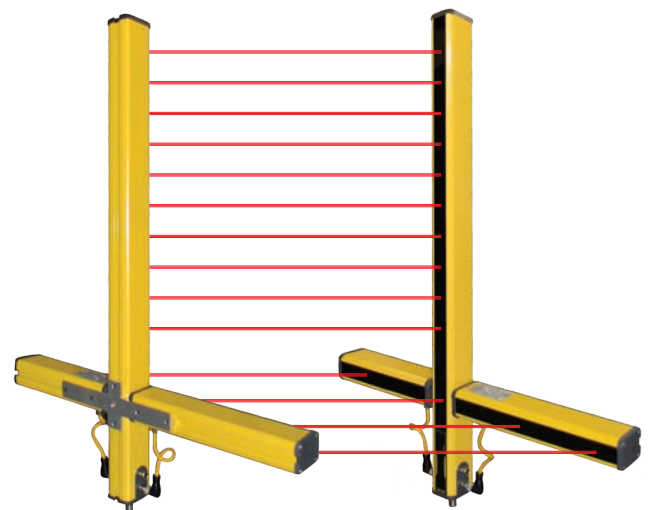
## L models with parallel and sequential beams

The two sensors are within the protected area, so that the operator cannot intercept them before interrupting the safety light curtain beams. They are used to open an exit passage to objects or pallets. The muting is activated after the interruption of both photocells.



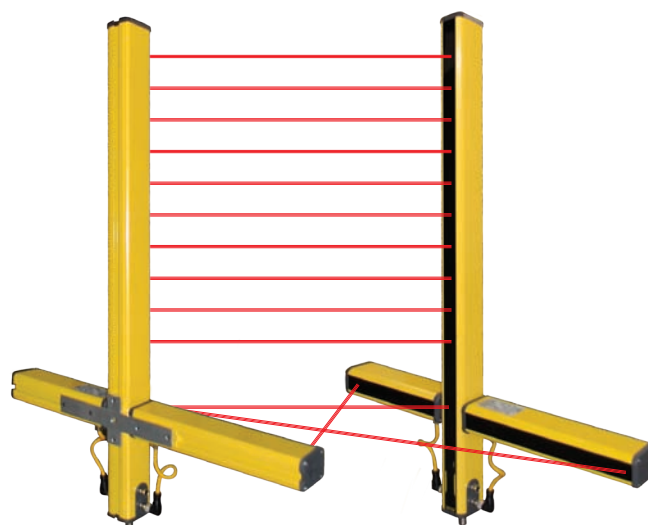
## T models with parallel and sequential beams

In the sequential mode, the activation takes place with the interception of one of the two beam pairs. Two beams are active on each side, in order to guard both the entrance and the exit passage (bidirectional).



## T models with crossed beams

The point of intersection must be within the protected area, to prevent the operator access.  
The beam intersection guards the entrance passage (monodirectional).





## M Line

The M line safety light curtains are safety devices that create a bidimensional field for body protection. Crossing the controlled area triggers the safety light curtain, stopping of the dangerous machine.

All M line models are available for safety categories 2 and 4.

These safety light curtains are available with three different ranges (0,1-5 mt, 5-17 mt e 17-60 mt), this allows to cover the area to be protected according to its size.

The following table shows the various combinations of protection available.

Height	1 beam	2 beams	3 beams	4 beams	5 beams
80 mm					
300 mm					
450 mm					
600 mm					
750 mm					
900 mm					
1050 mm					
1200 mm					
1350 mm					
1500 mm					
1650 mm					
1800 mm					
1950 mm					



### LASER POINTER

The M line models can be equipped with a laser pointer placed on top of the emitter. The visible red light laser allows to align long range safety light curtains with ease.

*Feature available upon request.*

#### TECHNICAL DETAILS

The system is provided with output contacts not under voltage, normally open (max 1A@30Vdc protected in current).

These OSSD output are two for safety level 4 models and one for safety level 2 models. With the safety light curtain activated, in normal operation, the contacts are closed.

**Operating mode:** automatic

**Power source:** 24 Vdc±20%

**Power consumption:** 0,4A max

**Working temperature:** -10° +60° C

**Enclosure rating:** IP 65

**Response time:** HTBSM<30ms,  
HTBLM<30ms, HTBUM<30ms



## BASIC / M LINE

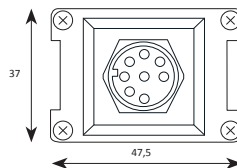


OPTICAL ELEMENT

BREAK: it shows if there are interrupted beams and if we are in normal environment conditions

MUTING: complete safety light curtain suspension

SAFE: it shows if the receiver is working properly



M 12 connector with 8 pins

FEATURES	BASIC	ADVANCED	M	V
Integrated 24 Vcc relay	X			
Integrated relay with isolated contact		X	X	
PNP transistor output				X
Automatic reset	X	X	X	X
Semi-automatic reset		X		
Manual reset		X	X	X
Alignment led	X	X	X	X
Alphanumeric display		X		X
Graduated scale		X		X
Function button		X		X
Muting		X	X	X
Blanking		X		
Optical synchronization	X	X	X	X
Override				X
Feedback		X		X



## Basic Line

### Safety Category 2

**Working range:** HTBR3 : 0,1 - 5 mt HTBLR3 : 5 - 17 mt

**Response time:** < 30ms

**Output:** 1 relay output in voltage NO - 24 Vcc IC max 1A dc/30V protected in current

**Input:** TEST

**Power source:** + 24 Vdc ± 20%

**Power consumption:** 0,4 A max

**Working temperature:** - 10° + 60° C

**Enclosure rating:** IP 65

**Connection:** Circular connector M12 with 5 pins

**Reset:** automatic

Alignment led

RESOLUTION	RANGE		HEIGHT		NR. BEAMS
	0,1 - 5 mt	5 - 17 mt	USEFUL	TOTAL	
14 mm	HTBR3-1514	HTBLR3-1514	150	270	16
	HTBR3-3014	HTBLR3-3014	310	430	32
	HTBR3-4514	HTBLR3-4514	470	590	48
	HTBR3-6014	HTBLR3-6014	630	750	64
	HTBR3-7514	HTBLR3-7514	790	910	80
	HTBR3-9014	HTBLR3-9014	950	1070	96
	HTBR3-10514	HTBLR3-10514	1110	1230	112
	HTBR3-12014	HTBLR3-12014	1270	1390	128
	HTBR3-13514	HTBLR3-13514	1430	1550	144
	HTBR3-15014	HTBLR3-15014	1590	1710	160
	HTBR3-16514	HTBLR3-16514	1750	1870	176
	HTBR3-18014	HTBLR3-18014	1910	2030	192
HTBR3-19514	HTBLR3-19514	2070	2190	208	

20 mm	HTBR3-1520	HTBLR3-1520	150	270	16
	HTBR3-3020	HTBLR3-3020	310	430	32
	HTBR3-4520	HTBLR3-4520	470	590	48
	HTBR3-6020	HTBLR3-6020	630	750	64
	HTBR3-7520	HTBLR3-7520	790	910	80
	HTBR3-9020	HTBLR3-9020	950	1070	96
	HTBR3-10520	HTBLR3-10520	1110	1230	112
	HTBR3-10520	HTBLR3-10520	1270	1390	128
	HTBR3-10520	HTBLR3-10520	1430	1550	144
	HTBR3-10520	HTBLR3-10520	1590	1710	160
	HTBR3-10520	HTBLR3-10520	1750	1870	176
	HTBR3-10520	HTBLR3-10520	1910	2030	192
HTBR3-10520	HTBLR3-10520	2070	2190	208	

40 mm	HTBR3-1540	HTBLR3-1540	150	270	6
	HTBR3-3040	HTBLR3-3040	300	430	11
	HTBR3-4540	HTBLR3-4540	450	590	16
	HTBR3-6040	HTBLR3-6040	630	750	22
	HTBR3-7540	HTBLR3-7540	750	910	27
	HTBR3-9040	HTBLR3-9040	930	1070	32
	HTBR3-10540	HTBLR3-10540	1110	1230	38
	HTBR3-12040	HTBLR3-12040	1260	1390	43
	HTBR3-13540	HTBLR3-13540	1410	1550	48
	HTBR3-15040	HTBLR3-15040	1590	1710	54
	HTBR3-16540	HTBLR3-16540	1770	1870	59
	HTBR3-18040	HTBLR3-18040	1950	2030	64
HTBR3-19540	HTBLR3-19540	2130	2190	69	

30 mm	HTBR3-1530	HTBLR3-1530	140	270	8
	HTBR3-3030	HTBLR3-3030	300	430	16
	HTBR3-4530	HTBLR3-4530	460	590	24
	HTBR3-6030	HTBLR3-6030	620	750	32
	HTBR3-7530	HTBLR3-7530	780	910	40
	HTBR3-9030	HTBLR3-9030	940	1070	48
	HTBR3-10530	HTBLR3-10530	1100	1230	56
	HTBR3-12030	HTBLR3-12030	1260	1390	64
	HTBR3-13530	HTBLR3-13530	1420	1550	72
	HTBR3-15030	HTBLR3-15030	1580	1710	88
	HTBR3-16530	HTBLR3-16530	1740	1870	96
	HTBR3-18030	HTBLR3-18030	1900	2030	104
HTBR3-19530	HTBLR3-19530	2060	2190	112	

50 mm	HTBR3-1550	HTBLR3-1550	120	270	4
	HTBR3-3050	HTBLR3-3050	280	430	8
	HTBR3-4550	HTBLR3-4550	440	590	12
	HTBR3-6050	HTBLR3-6050	600	750	16
	HTBR3-7550	HTBLR3-7550	760	910	20
	HTBR3-9050	HTBLR3-9050	920	1070	24
	HTBR3-10550	HTBLR3-10550	1080	1230	28
	HTBR3-12050	HTBLR3-12050	1240	1390	32
	HTBR3-13550	HTBLR3-13550	1400	1550	36
	HTBR3-15050	HTBLR3-15050	1560	1710	40
	HTBR3-16550	HTBLR3-16550	1720	1870	44
	HTBR3-18050	HTBLR3-18050	1880	2030	48
HTBR3-19550	HTBLR3-19550	2040	2190	52	

35 mm	HTBR3-1535	HTBLR3-1535	140	270	8
	HTBR3-3035	HTBLR3-3035	300	430	16
	HTBR3-4535	HTBLR3-4535	460	590	24
	HTBR3-6035	HTBLR3-6035	620	750	32
	HTBR3-7535	HTBLR3-7535	780	910	40
	HTBR3-9035	HTBLR3-9035	940	1070	48
	HTBR3-10535	HTBLR3-10535	1100	1230	56
	HTBR3-12035	HTBLR3-12035	1260	1390	64
	HTBR3-13535	HTBLR3-13535	1420	1550	72
	HTBR3-15035	HTBLR3-15035	1580	1710	88
	HTBR3-16535	HTBLR3-16535	1740	1870	96
	HTBR3-18035	HTBLR3-18035	1900	2030	104
HTBR3-19535	HTBLR3-19535	2060	2190	112	



## Safety Category 4

**Working range:** HTBR5 : 0,1 - 5 mt HTBLR5: 5 - 17 mt

**Response time:** < 30ms

**Output:** 2 relay output in voltage NO - IC max 1A  
dc/30V protected in current

**Input:** TEST

**Power source:** + 24 Vdc ± 20%

**Power consumption:** 0,4 A max

**Working temperature:** - 10° + 60° C

**Enclosure rating:** IP 65

**Connection:** Circular connecto M12 with 5 pins

**Reset:** automatic

**Alignment led**

RESOLUTION	RANGE		HEIGHT		NR. BEAMS
	0,1 - 5 mt	5 - 17 mt	USEFUL	TOTAL	
14 mm	HTBR5-1514	HTBLR5-1514	150	270	16
	HTBR5-3014	HTBLR5-3014	310	430	32
	HTBR5-4514	HTBLR5-4514	470	590	48
	HTBR5-6014	HTBLR5-6014	630	750	64
	HTBR5-7514	HTBLR5-7514	790	910	80
	HTBR5-9014	HTBLR5-9014	950	1070	96
	HTBR510514	HTBLR5-10514	1110	1230	112
	HTBR5-12014	HTBLR5-12014	1270	1390	128
	HTBR5-13514	HTBLR5-13514	1430	1550	144
	HTBR5-15014	HTBLR5-15014	1590	1710	160
	HTBR5-16514	HTBLR5-16514	1750	1870	176
	HTBR5-18014	HTBLR5-18014	1910	2030	192
HTBR5-19514	HTBLR5-19514	2070	2190	208	

20 mm	HTBR5-1520	HTBLR5-1520	150	270	16
	HTBR5-3020	HTBLR5-3020	310	430	32
	HTBR5-4520	HTBLR5-4520	470	590	48
	HTBR5-6020	HTBLR5-6020	630	750	64
	HTBR5-7520	HTBLR5-7520	790	910	80
	HTBR5-9020	HTBLR5-9020	950	1070	96
	HTBR5-10520	HTBLR5-10520	1110	1230	112
	HTBR5-10520	HTBLR5-10520	1270	1390	128
	HTBR5-10520	HTBLR5-10520	1430	1550	144
	HTBR5-10520	HTBLR5-10520	1590	1710	160
	HTBR5-10520	HTBLR5-10520	1750	1870	176
	HTBR5-10520	HTBLR5-10520	1910	2030	192
HTBR5-10520	HTBLR5-10520	2070	2190	208	

30 mm	HTBR5-1530	HTBLR5-1530	140	270	8
	HTBR5-3030	HTBLR5-3030	300	430	16
	HTBR5-4530	HTBLR5-4530	460	590	24
	HTBR5-6030	HTBLR5-6030	620	750	32
	HTBR5-7530	HTBLR5-7530	780	910	40
	HTBR5-9030	HTBLR5-9030	940	1070	48
	HTBR5-10530	HTBLR5-10530	1100	1230	56
	HTBR5-12030	HTBLR5-12030	1260	1390	64
	HTBR5-13530	HTBLR5-13530	1420	1550	72
	HTBR5-15030	HTBLR5-15030	1580	1710	80
	HTBR5-16530	HTBLR5-16530	1740	1870	96
	HTBR5-18030	HTBLR5-18030	1900	2030	104
HTBR5-19530	HTBLR5-19530	2060	2190	112	

40 mm	HTBR53-1540	HTBLR5-1540	150	270	6
	HTBR5-3040	HTBLR5-3040	300	430	11
	HTBR5-4540	HTBLR5-4540	450	590	16
	HTBR5-6040	HTBLR5-6040	630	750	22
	HTBR5-7540	HTBLR5-7540	750	910	27
	HTBR5-9040	HTBLR5-9040	930	1070	32
	HTBR5-10540	HTBLR5-10540	1110	1230	38
	HTBR5-12040	HTBLR5-12040	1260	1390	43
	HTBR5-13540	HTBLR5-13540	1410	1550	48
	HTBR5-15040	HTBLR5-15040	1590	1710	54
	HTBR5-16540	HTBLR5-16540	1770	1870	59
	HTBR5-18040	HTBLR5-18040	1950	2030	64
HTBR5-19540	HTBLR5-19540	2130	2190	69	

35 mm	HTBR5-1535	HTBLR5-1535	140	270	8
	HRBR5-3035	HRBLR5-3035	300	430	16
	HTBR5-4535	HTBLR5-4535	460	590	24
	HTBR5-6035	HTBLR5-6035	620	750	32
	HTBR5-7535	HTBLR5-7535	780	910	40
	HTBR5-9035	HTBLR5-9035	940	1070	48
	HTBR5-10535	HTBLR5-10535	1100	1230	56
	HTBR5-12035	HTBLR5-12035	1260	1390	64
	HTBR5-13535	HTBLR5-13535	1420	1550	72
	HTBR5-15035	HTBLR5-15035	1580	1710	80
	HTBR5-16535	HTBLR5-16535	1740	1870	96
	HTBR5-18035	HTBLR5-18035	1900	2030	104
HTBR5-19535	HTBLR5-19535	2060	2190	112	

50 mm	HTBR5-1550	HTBLR5-1550	120	270	4
	HTBR5-3050	HTBLR5-3050	280	430	8
	HTBR5-4550	HTBLR5-4550	440	590	12
	HTBR5-6050	HTBLR5-6050	600	750	16
	HTBR5-7550	HTBLR5-7550	760	910	20
	HTBR5-9050	HTBLR5-9050	920	1070	24
	HTBR5-10550	HTBLR5-10550	1080	1230	28
	HTBR5-12050	HTBLR5-12050	1240	1390	32
	HTBR5-13550	HTBLR5-13550	1400	1550	36
	HTBR5-15050	HTBLR5-15050	1560	1710	40
	HTBR5-16550	HTBLR5-16550	1720	1870	44
	HTBR5-18050	HTBLR5-18050	1880	2030	48
HTBR5-19550	HTBLR5-19550	2040	2190	52	





## Advanced Line

### Safety Category 2

**Working range:** HTB3 : 0,1 - 5 mt HTBL3 : 5 - 17 mt  
**Response time:** < 30ms  
**Output:** 1 relay output not in voltage NO - I max 1A dc/30V procted in current - FEEDBACK (EDM)  
**Input:** RESTART - MUTING - TEST  
**Power source:** + 24 Vdc ± 20%  
**Power consumption:** 0,4 A max  
**Working temperature:** - 10° + 60° C  
**Enclosure rating:** IP 65  
**Connection:** Circular connector M23 with 16 pins and M12 with 5 pins  
**Reset:** automatic, manual, semi automatic  
 Alignment led  
 Buttons to program the safety light curtain

RESOLUTION	RANGE		HEIGHT		NR. BEAMS
	0,1 - 5 mt	5 - 17 mt	USEFUL	TOTAL	
14 mm	HTB3-1514	HTBL3-1514	150	270	16
	HTB3-3014	HTBL3-3014	310	430	32
	HTB3-4514	HTBL3-4514	470	590	48
	HTB3-6014	HTBL3-6014	630	750	64
	HTB3-7514	HTBL3-7514	790	910	80
	HTB3-9014	HTBL3-9014	950	1070	96
	HTB3-10514	HTBL3-10514	1110	1230	112
	HTB3-12014	HTBL3-12014	1270	1390	128
	HTB3-13514	HTBL3-13514	1430	1550	144
	HTB3-15014	HTBL3-15014	1590	1710	160
	HTB3-16514	HTBL3-16514	1750	1870	176
	HTB3-18014	HTBL3-18014	1910	2030	192
HTB3-19514	HTBL3-19514	2070	2190	208	

20 mm	HTB3-1520	HTBL3-1520	150	270	16
	HTB3-3020	HTBL3-3020	310	430	32
	HTB3-4520	HTBL3-4520	470	590	48
	HTB3-6020	HTBL3-6020	630	750	64
	HTB3-7520	HTBL3-7520	790	910	80
	HTB3-9020	HTBL3-9020	950	1070	96
	HTB3-10520	HTBL3-10520	1110	1230	112
	HTB3-10520	HTBL3-10520	1270	1390	128
	HTB3-10520	HTBL3-10520	1430	1550	144
	HTB3-10520	HTBL3-10520	1590	1710	160
	HTB3-10520	HTBL3-10520	1750	1870	176
	HTB3-10520	HTBL3-10520	1910	2030	192
HTB3-10520	HTBL3-10520	2070	2190	208	

40 mm	HTB3-1540	HTBL3-1540	150	270	6
	HTB3-3040	HTBL3-3040	300	430	11
	HTB3-4540	HTBL3-4540	450	590	16
	HTB3-6040	HTBL3-6040	630	750	22
	HTB3-7540	HTBL3-7540	750	910	27
	HTB3-9040	HTBL3-9040	930	1070	32
	HTB3-10540	HTBL3-10540	1110	1230	38
	HTB3-12040	HTBL3-12040	1260	1390	43
	HTB3-13540	HTBL3-13540	1410	1550	48
	HTB3-15040	HTBL3-15040	1590	1710	54
	HTB3-16540	HTBL3-16540	1770	1870	59
	HTB3-18040	HTBL3-18040	1950	2030	64
HTB3-19540	HTBL3-19540	2130	2190	69	

30 mm	HTB3-1530	HTBL3-1530	140	270	8
	HTB3-3030	HTBL3-3030	300	430	16
	HTB3-4530	HTBL3-4530	460	590	24
	HTB3-6030	HTBL3-6030	620	750	32
	HTB3-7530	HTBL3-7530	780	910	40
	HTB3-9030	HTBL3-9030	940	1070	48
	HTB3-10530	HTBL3-10530	1100	1230	56
	HTB3-12030	HTBL3-12030	1260	1390	64
	HTB3-13530	HTBL3-13530	1420	1550	72
	HTB3-15030	HTBL3-15030	1580	1710	80
	HTB3-16530	HTBL3-16530	1740	1870	96
	HTB3-18030	HTBL3-18030	1900	2030	104
HTB3-19530	HTBL3-19530	2060	2190	112	

50 mm	HTB3-1550	HTBL3-1550	120	270	4
	HTB3-3050	HTBL3-3050	280	430	8
	HTB3-4550	HTBL3-4550	440	590	12
	HTB3-6050	HTBL3-6050	600	750	16
	HTB3-7550	HTBL3-7550	760	910	20
	HTB3-9050	HTBL3-9050	920	1070	24
	HTB3-10550	HTBL3-10550	1080	1230	28
	HTB3-12050	HTBL3-12050	1240	1390	32
	HTB3-13550	HTBL3-13550	1400	1550	36
	HTB3-15050	HTBL3-15050	1560	1710	40
	HTB3-16550	HTBL3-16550	1720	1870	44
	HTB3-18050	HTBL3-18050	1880	2030	48
HTB3-19550	HTBL3-19550	2040	2190	52	

35 mm	HTB3-1535	HTBL3-1535	140	270	8
	HTB3-3035	HTBL3-3035	300	430	16
	HTB3-4535	HTBL3-4535	460	590	24
	HTB3-6035	HTBL3-6035	620	750	32
	HTB3-7535	HTBL3-7535	780	910	40
	HTB3-9035	HTBL3-9035	940	1070	48
	HTB3-10535	HTBL3-10535	1100	1230	56
	HTB3-12035	HTBL3-12035	1260	1390	64
	HTB3-13535	HTBL3-13535	1420	1550	72
	HTB3-15035	HTBL3-15035	1580	1710	80
	HTB3-16535	HTBL3-16535	1740	1870	96
	HTB3-18035	HTBL3-18035	1900	2030	104
HTB3-19535	HTBL3-19535	2060	2190	112	



RESOLUTION	RANGE		HEIGHT		NR. BEAMS
	0,1 - 5 mt	5 - 17 mt	USEFUL	TOTAL	
14 mm	HTB5-1514	HTBL5-1514	150	270	16
	HTB5-3014	HTBL5-3014	310	430	32
	HTB5-4514	HTBL5-4514	470	590	48
	HTB5-6014	HTBL5-6014	630	750	64
	HTB5-7514	HTBL5-7514	790	910	80
	HTB5-9014	HTBL5-9014	950	1070	96
	HTB510514	HTBL5-10514	1110	1230	112
	HTB5-12014	HTBL5-12014	1270	1390	128
	HTB5-13514	HTBL5-13514	1430	1550	144
	HTB5-15014	HTBL5-15014	1590	1710	160
	HTB5-16514	HTBL5-16514	1750	1870	176
	HTB5-18014	HTBL5-18014	1910	2030	192
HTB5-19514	HTBL5-19514	2070	2190	208	

20 mm	HTB5-1520	HTBL5-1520	150	270	16
	HTB5-3020	HTBL5-3020	310	430	32
	HTB5-4520	HTBL5-4520	470	590	48
	HTB5-6020	HTBL5-6020	630	750	64
	HTB5-7520	HTBL5-7520	790	910	80
	HTB5-9020	HTBL5-9020	950	1070	96
	HTB5-10520	HTBL5-10520	1110	1230	112
	HTB5-10520	HTBL5-10520	1270	1390	128
	HTB5-10520	HTBL5-10520	1430	1550	144
	HTB5-10520	HTBL5-10520	1590	1710	160
	HTB5-10520	HTBL5-10520	1750	1870	176
	HTB5-10520	HTBL5-10520	1910	2030	192
HTB5-10520	HTBL5-10520	2070	2190	208	

30 mm	HTB5-1530	HTBL5-1530	140	270	8
	HTB5-3030	HTBL5-3030	300	430	16
	HTB5-4530	HTBL5-4530	460	590	24
	HTB5-6030	HTBL5-6030	620	750	32
	HTB5-7530	HTBL5-7530	780	910	40
	HTB5-9030	HTBL5-9030	940	1070	48
	HTB5-10530	HTBL5-10530	1100	1230	56
	HTB5-12030	HTBL5-12030	1260	1390	64
	HTB5-13530	HTBL5-13530	1420	1550	72
	HTB5-15030	HTBL5-15030	1580	1710	80
	HTB5-16530	HTBL5-16530	1740	1870	96
	HTB5-18030	HTBL5-18030	1900	2030	104
HTB5-19530	HTBL5-19530	2060	2190	112	

35 mm	HTB5-1535	HTBL5-1535	140	270	8
	HTB5-3035	HTBL5-3035	300	430	16
	HTB5-4535	HTBL5-4535	460	590	24
	HTB5-6035	HTBL5-6035	620	750	32
	HTB5-7535	HTBL5-7535	780	910	40
	HTB5-9035	HTBL5-9035	940	1070	48
	HTB5-10535	HTBL5-10535	1100	1230	56
	HTB5-12035	HTBL5-12035	1260	1390	64
	HTB5-13535	HTBL5-13535	1420	1550	72
	HTB5-15035	HTBL5-15035	1580	1710	80
	HTB5-16535	HTBL5-16535	1740	1870	96
	HTB5-18035	HTBL5-18035	1900	2030	104
HTB5-19535	HTBL5-19535	2060	2190	112	

40 mm	HTB5-1540	HTBL5-1540	150	270	6
	HTB5-3040	HTBL5-3040	300	430	11
	HTB5-4540	HTBL5-4540	450	590	16
	HTB5-6040	HTBL5-6040	630	750	22
	HTB5-7540	HTBL5-7540	750	910	27
	HTB5-9040	HTBL5-9040	930	1070	32
	HTB5-10540	HTBL5-10540	1110	1230	38
	HTB5-12040	HTBL5-12040	1260	1390	43
	HTB5-13540	HTBL5-13540	1410	1550	48
	HTB5-15040	HTBL5-15040	1590	1710	54
	HTB5-16540	HTBL5-16540	1770	1870	59
	HTB5-18040	HTBL5-18040	1950	2030	64
HTB5-19540	HTBL5-19540	2130	2190	69	

50 mm	HTB5-1550	HTBL5-1550	120	270	4
	HTB5-3050	HTBL5-3050	280	430	8
	HTB5-4550	HTBL5-4550	440	590	12
	HTB5-6050	HTBL5-6050	600	750	16
	HTB5-7550	HTBL5-7550	760	910	20
	HTB5-9050	HTBL5-9050	920	1070	24
	HTB5-10550	HTBL5-10550	1080	1230	28
	HTB5-12050	HTBL5-12050	1240	1390	32
	HTB5-13550	HTBL5-13550	1400	1550	36
	HTB5-15050	HTBL5-15050	1560	1710	40
	HTB5-16550	HTBL5-16550	1720	1870	44
	HTB5-18050	HTBL5-18050	1880	2030	48
HTB5-19550	HTBL5-19550	2040	2190	52	

### Safety Category 4

**Working range:** HTB5 : 0,1 - 5 mt HTBL5: 5 - 17 mt

**Response time:** < 30ms

**Output:** 2 relay output not in voltage NO - IC max 1A dc/30V protected in current - FEEDBACK (EDM)

**Input:** RESTART - MUTING - TEST

**Poer source:** + 24 Vdc ± 20%

**Power consumption:** 0,4 A max

**Working temperature:** - 10° + 60° C

**Enclosure rating:** IP 65

**Connection:** Circular connector M23 16 with pins and M12 with 5 pins

**Reset:** automatic, manual, semi automatic Alignment led

Buttons to program the safety light curtain

Alphanumeric display showing safety light curtain status



## HTBSM ... Line

### Safety Category 2

**Working range:** HTBSM3: 0,1 - 5 mt  
**Response time:** < 30ms  
**Output:** 1 relay output not in voltage NO - IC max 1A dc/30V protected in current  
**Input:** TEST - MUTING  
**Power source:** + 24 Vdc  $\pm$  20%  
**Power consumption:** 0,4 A max  
**Working temperature:** - 10° + 60° C  
**Enclosure rating:** IP 65  
**Connection:** Circular connector M12 with 5 and 8 pins  
**Reset:** Automatic / Manual  
 Alignment led

### Safety Category 4

**Working range:** HTBSM5 : 0,1 - 5 mt  
**Response time:** < 30ms  
**Output:** 2 relay output not in voltage NO - IC max 1A dc/30V protected in current  
**Input:** TEST - MUTING  
**Power source:** + 24 Vdc  $\pm$  20%  
**Power consumption:** 0,4 A max  
**Working temperature range:** - 10° + 60° C  
**Enclosure rating:** IP 65  
**Connection:** Circular connector M12 with 5 and 8 pins  
**Reset:** Automatic / Manual  
 Alignment led

MODEL	HEIGHT		NR. BEAMS
	WORKING	TOTAL	
HTBSM3-0801	80	110	1
HTBSM3-3002	300	338	2
HTBSM3-4502	450	488	2
HTBSM3-4503	450	488	3
HTBSM3-6003	600	638	3
HTBSM3-7503	750	788	3
HTBSM3-9003	900	938	3
HTBSM3-10503	1050	1088	3
HTBSM3-12003	1200	1238	3
HTBSM3-13503	1350	1388	3
HTBSM3-7504	750	788	4
HTBSM3-9004	900	938	4
HTBSM3-10504	1050	1088	4
HTBSM3-12004	1200	1238	4
HTBSM3-13504	1350	1388	4
HTBSM3-15004	1500	1538	4
HTBSM3-16504	1650	1688	4
HTBSM3-18004	1800	1838	4
HTBSM3-19504	1950	1988	4
HTBSM3-7505	750	788	5
HTBSM3-9005	900	938	5
HTBSM3-10505	1050	1088	5
HTBSM3-12005	1200	1238	5
HTBSM3-13505	1350	1388	5
HTBSM3-15005	1500	1538	5
HTBSM3-16505	1650	1688	5
HTBSM3-18005	1800	1838	5
HTBSM3-19505	1950	1988	5

MODEL	HEIGHT		NR. BEAMS
	WORKING	TOTAL	
HTBSM5-0801	80	110	1
HTBSM5-3002	300	338	2
HTBSM5-4502	450	488	2
HTBSM5-4503	450	488	3
HTBSM5-6003	600	638	3
HTBSM5-7503	750	788	3
HTBSM5-9003	900	938	3
HTBSM5-10503	1050	1088	3
HTBSM5-12003	1200	1238	3
HTBSM5-13503	1350	1388	3
HTBSM5-7504	750	788	4
HTBSM5-9004	900	938	4
HTBSM5-10504	1050	1088	4
HTBSM5-12004	1200	1238	4
HTBSM5-13504	1350	1388	4
HTBSM5-15004	1500	1538	4
HTBSM5-16504	1650	1688	4
HTBSM5-18004	1800	1838	4
HTBSM5-19504	1950	1988	4
HTBSM5-7505	750	788	5
HTBSM5-9005	900	938	5
HTBSM5-10505	1050	1088	5
HTBSM5-12005	1200	1238	5
HTBSM5-13505	1350	1388	5
HTBSM5-15005	1500	1538	5
HTBSM5-16505	1650	1688	5
HTBSM5-18005	1800	1838	5
HTBSM5-19505	1950	1988	5



## HTBLM ... Line

### Safety Category 2

**Working range:** HTBLM3: 5 - 17 mt  
**Response time:** < 30ms  
**Output:** 1 relay output not in voltage NO - IC max 1A dc/30V protected in current  
**Input:** TEST - MUTING  
**Power source:** + 24 Vdc  $\pm$  20%  
**Power consumption:** 0,4 A max  
**Working temperature:** - 10° + 60° C  
**Enclosure rating:** IP 65  
**Connection:** Circular connector M12 with 5 and 8 pins  
**Reset:** Automatic / Manual  
 Alignment led

### Safety Category 4

**Portata utile:** HTBLM5 : 5 - 17 mt  
**Tempo di risposta:** < 30ms  
**Output:** 2 relays not in tension NO - IC max 1A dc/30V protected in current  
**Input:** TEST - MUTING  
**Power source:** + 24 Vdc  $\pm$  20%  
**Power consumption:** 0,4 A max  
**Working temperature:** - 10° + 60° C  
**Enclosure rating:** IP 65  
**Connection:** Circular connector M12 with 5 and 8 pin  
**Reset:** Automatic / Manual  
 Alignment led

MODEL	HEIGHT		NR. BEAMS
	WORKING	TOTAL	
HTBLM3-0801	80	110	1
HTBLM3-3002	300	338	2
HTBLM3-4502	450	488	2
HTBLM3-4503	450	488	3
HTBLM3-6003	600	638	3
HTBLM3-7503	750	788	3
HTBLM3-9003	900	938	3
HTBLM3-10503	1050	1088	3
HTBLM3-12003	1200	1238	3
HTBLM3-13503	1350	1388	3
HTBLM3-7504	750	788	4
HTBLM3-9004	900	938	4
HTBLM3-10504	1050	1088	4
HTBLM3-12004	1200	1238	4
HTBLM3-13504	1350	1388	4
HTBLM3-15004	1500	1538	4
HTBLM3-16504	1650	1688	4
HTBLM3-18004	1800	1838	4
HTBLM3-19504	1950	1988	4
HTBLM3-7505	750	788	5
HTBLM3-9005	900	938	5
HTBLM3-10505	1050	1088	5
HTBLM3-12005	1200	1238	5
HTBLM3-13505	1350	1388	5
HTBLM3-15005	1500	1538	5
HTBLM3-16505	1650	1688	5
HTBLM3-18005	1800	1838	5
HTBLM3-19505	1950	1988	5

MODEL	HEIGHT		NR. BEAMS
	WORKING	TOTAL	
HTBLM5-0801	80	110	1
HTBLM5-3002	300	338	2
HTBLM5-4502	450	488	2
HTBLM5-4503	450	488	3
HTBLM5-6003	600	638	3
HTBLM5-7503	750	788	3
HTBLM5-9003	900	938	3
HTBLM5-10503	1050	1088	3
HTBLM5-12003	1200	1238	3
HTBLM5-13503	1350	1388	3
HTBLM5-7504	750	788	4
HTBLM5-9004	900	938	4
HTBLM5-10504	1050	1088	4
HTBLM5-12004	1200	1238	4
HTBLM5-13504	1350	1388	4
HTBLM5-15004	1500	1538	4
HTBLM5-16504	1650	1688	4
HTBLM5-18004	1800	1838	4
HTBLM5-19504	1950	1988	4
HTBLM5-7505	750	788	5
HTBLM5-9005	900	938	5
HTBLM5-10505	1050	1088	5
HTBLM5-12005	1200	1238	5
HTBLM5-13505	1350	1388	5
HTBLM5-15005	1500	1538	5
HTBLM5-16505	1650	1688	5
HTBLM5-18005	1800	1838	5
HTBLM5-19505	1950	1988	5



## HTBUM ... Line

### Safety Category 2

**Working range:** HTBUM3: 17 - 60 mt  
**Response time:** < 30ms  
**Output:** 1 relay output not in voltage NO - IC max 1A dc/30V protected in current  
**Input:** TEST - MUTING  
**Power source:** + 24 Vdc  $\pm$  20%  
**Power consumption:** 0,4 A max  
**Working temperature:** - 10° + 60° C  
**Enclosure rating:** IP 65  
**Connection:** Circular connector M12 with 5 and 8 pins  
**Reset:** Automatic / Manual  
 Alignment led

### Safety Category 4

**Working range:** HTBUM5: 17 - 60 mt  
**Response time:** < 30ms  
**Output:** 2 relay output not in voltage NO - IC max 1A dc/30V protected in current  
**Input:** TEST - MUTING  
**Power source:** + 24 Vdc  $\pm$  20%  
**Power consumption:** 0,4 A max  
**Working temperature:** - 10° + 60° C  
**Enclosure rating:** IP 65  
**Connection:** Circular connector M12 with 5 and 8 pins  
**Reset:** Automatic / Manual  
 Alignment led

MODEL	HEIGHT		NR. BEAMS
	WORKING	TOTAL	
HTBUM3-0801	80	110	1
HTBUM3-3002	300	338	2
HTBUM3-4502	450	488	2
HTBUM3-4503	450	488	3
HTBUM3-6003	600	638	3
HTBUM3-7503	750	788	3
HTBUM3-9003	900	938	3
HTBUM3-10503	1050	1088	3
HTBUM3-12003	1200	1238	3
HTBUM3-13503	1350	1388	3
HTBUM3-7504	750	788	4
HTBUM3-9004	900	938	4
HTBUM3-10504	1050	1088	4
HTBUM3-12004	1200	1238	4
HTBUM3-13504	1350	1388	4
HTBUM3-15004	1500	1538	4
HTBUM3-16504	1650	1688	4
HTBUM3-18004	1800	1838	4
HTBUM3-19504	1950	1988	4
HTBUM3-7505	750	788	5
HTBUM3-9005	900	938	5
HTBUM3-10505	1050	1088	5
HTBUM3-12005	1200	1238	5
HTBUM3-13505	1350	1388	5
HTBUM3-15005	1500	1538	5
HTBUM3-16505	1650	1688	5
HTBUM3-18005	1800	1838	5
HTBUM3-19505	1950	1988	5

MODEL	HEIGHT		NR. BEAMS
	WORKING	TOTAL	
HTBUM5-0801	80	110	1
HTBUM5-3002	300	338	2
HTBUM5-4502	450	488	2
HTBUM5-4503	450	488	3
HTBUM5-6003	600	638	3
HTBUM5-7503	750	788	3
HTBUM5-9003	900	938	3
HTBUM5-10503	1050	1088	3
HTBUM5-12003	1200	1238	3
HTBUM5-13503	1350	1388	3
HTBUM5-7504	750	788	4
HTBUM5-9004	900	938	4
HTBUM5-10504	1050	1088	4
HTBUM5-12004	1200	1238	4
HTBUM5-13504	1350	1388	4
HTBUM5-15004	1500	1538	4
HTBUM5-16504	1650	1688	4
HTBUM5-18004	1800	1838	4
HTBUM5-19504	1950	1988	4
HTBUM5-7505	750	788	5
HTBUM5-9005	900	938	5
HTBUM5-10505	1050	1088	5
HTBUM5-12005	1200	1238	5
HTBUM5-13505	1350	1388	5
HTBUM5-15005	1500	1538	5
HTBUM5-16505	1650	1688	5
HTBUM5-18005	1800	1838	5
HTBUM5-19505	1950	1988	5





## HTBV ... Line

### Safety Category 4

**Working range:** HTBV5: 0,1 - 5 mt . On demand models with range 5 - 17 mt, 17 - 60 mt

**Response time:** < 30ms

**Output:** 2 PNP transistor output in voltage - IC max 1A dc/30V protected in current - FEEDBACK (EDM) - STATUS output - Muting lamp output

**Input:** RESTART - MUTING - TEST - OVERRIDE

**Power source:** + 24 Vdc  $\pm$  20%

**Power consumption:** 0,4 A max

**Working temperature:** - 10° + 60° C

**Enclosure rating:** IP 65

**Connection:** Circular connector M23 with 16 pins and M12 with 5 pins

**Reset:** Automatic, Semi automatic, Manual

Alignment led

Buttons to program the safety light curtain

Alphanumeric display showing safety light curtain status

MODEL	HEIGHT		NR. BEAMS
	WORKING	TOTAL	
HTBV5-1601	160	190	1
HTBV5-3002	300	490	2
HTBV5-4502	450	640	2
HTBV5-4503	450	640	3
HTBV5-6003	600	790	3
HTBV5-7503	750	940	3
HTBV5-9003	900	1090	3
HTBV5-10503	1050	1240	3
HTBV5-12003	1200	1390	3
HTBV5-13503	1350	1540	3
HTBV5-7504	750	940	4
HTBV5-9004	900	1090	4
HTBV5-10504	1050	1240	4
HTBV5-12004	1200	1390	4
HTBV5-13504	1350	1540	4
HTBV5-15004	1500	1690	4
HTBV5-16504	1650	1840	4
HTBV5-18004	1800	1990	4
HTBV5-19504	1950	2140	4
HTBV5-7505	750	940	5
HTBV5-9005	900	1090	5
HTBV5-10505	1050	1240	5
HTBV5-12005	1200	1390	5
HTBV5-13505	1350	1540	5
HTBV5-15005	1500	1690	5
HTBV5-16505	1650	1840	5
HTBV5-18005	1800	1990	5
HTBV5-19505	1950	2140	5

## Watertight enclosure for barrier protection

The HTB5-CY enclosure is ideal for protecting barriers against dust, or oil and water jets.

It is not recommended in Atex environments.

It can house all models of Red-Beam barriers of the "Basic line".



### Technical details

- Compatible models : HTBR-HTBRS-HTBRL-HTBM
- Material : Transparent PMMA tube
- Enclosure rating : IP68
- Fire class : Class E
- Resistance to atmospheric agents : alkali - weak acids
- Breaking strength : 70 MPa
- Working temperature : 0 + 70°C without heater
- Working temperature : -25°C + 70°C with heater
- Available lengths : for barriers from 150mm up to 1950mm
- Cable output : M12 with 5 pins / 8 pins
- Fastening with wall brackets (provided)

## Laser Pointer

All Advanced models and the M line Red Beam safety light curtains can be equipped with a laser pointer placed on top of the receiver, or on top of the emitter in case of the M line.

This allows to align long range safety light curtains with ease. The visible red light laser can be easily switched on using the F2 button and, after the optical alignment, it turns off at system restart, without needing the pressure of any button.

### Technical details

Wavelength: 670 nm  $\pm$  10%

Optical power: < 5 mW

Power consumption: < 50 mA

Divergence: < 2 mrad

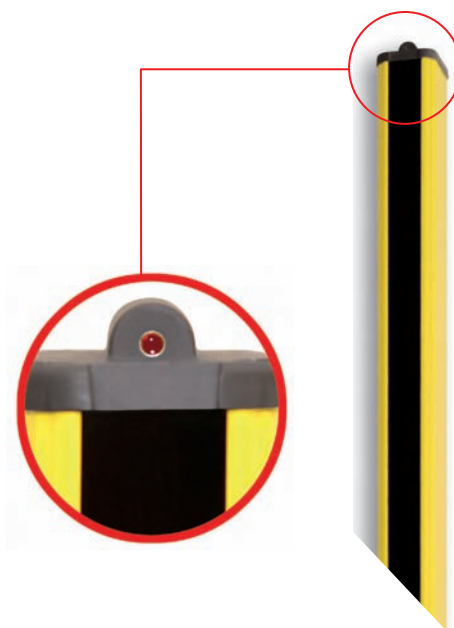
Diameter of the beam: 3 mm

Optic: plastic lens

Safety class (EN 60 82 5 - 1): 3R

**Class 3R:** continuous laser with power lower than 5 mW, that emits radiation with wavelength between 302,5 nm and 10<sup>5</sup> nm, where the vision of the beam or its reflection on a mirror surface is potentially hazardous with or without optical instruments (the risk is lower than with Class 3B laser).

**Do not stare into the laser beam.**





## Relay AC02 - AC03 - AC04 - AC05 - AC06 - AC07 - AC08 - AC09

### AC02

Suitable to connect Red Beam safety light curtains with the final actuator of the machine. It is equipped with 3 NO + 2 NC contacts, completely separated, useful to connect acoustic or visual alarm devices.

- Reset: Automatic / Manual
- Input: 24 Vcc
- Output: 3 NO, 3 NC, independent Vdc
- Light indicating proper functioning
- Protected from overvoltage
- Safety category: 4
- Enclosure rating: IP20
- Contact type: guided contacts
- Mechanical endurance: 10.000.000 operations
- Power consumption: 6 A
- Auxiliary safe NO output for external signals



### AC03

Suitable to connect safety category 2 Red Beam safety light curtains with the final actuator of the machine. It is equipped with 2 NO + 1 NC contacts, completely separated, useful to connect acoustic or visual alarm devices.

- Reset: Automatic
- Input: 24 Vcc
- Output: 2 NO, 1 NC, independent Vdc
- Light indicating proper functioning
- Protected from overvoltage
- Safety category: 2
- Enclosure rating: IP20
- Contact type: guided contacts
- Mechanical endurance: 10.000.000 operations
- Power consumption: 6 A

### AC04

Suitable to connect safety category 4 Red Beam safety light curtains with the final actuator of the machine. It is equipped with 2 NO + 1 NC contacts, completely separated, useful to connect acoustic or visual alarm devices.

- Reset: Automatic
- Input: 24 Vcc
- Output: 2 NO, 1 NC, independent Vdc
- Light indicating proper functioning
- Protected from overvoltage
- Safety category: 4
- Enclosure rating: IP20
- Contact type: guided contacts
- Mechanical endurance: 10.000.000 operations
- Power consumption: 6 A





### AC05

Suitable to connect safety category 2 Red Beam safety light curtains with the final actuator of the machine. It is equipped with 2 NO + 1 NC contacts, completely separated, useful to connect acoustic or visual alarm devices.

- Reset: Automatic / Manual
- Internal feedback
- Input: 24 Vcc
- Output: 2 NO, 1 NC, independent Vdc
- Light indicating proper functioning
- Protected from overvoltage
- Safety category: 2
- Enclosure rating: IP20
- Contact type: guided contacts
- Mechanical endurance: 10.000.000 operations
- Power consumption: 6 A



### AC06

Suitable to connect safety category 4 Red Beam safety light curtains with the final actuator of the machine. It is equipped with 2 NO + 1 NC contacts, completely separated, useful to connect acoustic or visual alarm devices.

- Reset: Automatic / Manual
- Internal feedback
- Input: 24 Vcc
- Output: 2 NO, 1 NC, independent Vdc
- Light indicating proper functioning
- Protected from overvoltage
- Safety category: 4
- Enclosure rating: IP20
- Contact type: guided contacts
- Mechanical endurance: 10.000.000 operations
- Power consumption: 6 A





### AC07

Suitable to connect one-input emergency buttons with the final actuator of the machine. It is equipped with 2 NO + 1 NC contacts, completely separated, useful to connect acoustic or visual alarm devices.

- Reset: Automatic / Manual
- Internal feedback
- Input: 24 Vcc
- Output: 2 NO, 1 NC, independent Vdc
- Light indicating proper functioning
- Protected from overvoltage
- Safety category: 2
- Enclosure rating: IP20
- Contact type: guided contacts
- Mechanical endurance: 10.000.000 operations
- Power consumption: 6 A



### AC08

Suitable to connect double-input emergency buttons with the final actuator of the machine. It is equipped with 2 NO + 1 NC contacts, completely separated, useful to connect acoustic or visual warning devices.

- Reset: Automatic / Manual
- Internal feedback
- Input: 24 Vcc
- Output: 2 NO, 1 NC, independent Vdc
- Light indicating proper functioning
- Protected from overvoltage
- Safety category: 4
- Enclosure rating: IP20
- Contact type: guided contacts
- Mechanical endurance: 10.000.000 operations
- Power consumption: 6 A



### AC09

Suitable to connect two-hand control panels with the final actuator of the machine. It is equipped with 2 NO + 1 NC contacts, completely separated, useful to connect acoustic or visual warning devices.

- Internal feedback
- Input: 24 Vcc
- Output: 2 NO, 1 NC, independent Vdc
- Light indicating proper functioning
- Protected from overvoltage
- Safety category: 4
- Enclosure rating: IP20
- Contact type: guided contacts
- Mechanical endurance: 10.000.000 operations
- Power consumption: 6 A







## Power supply HTB5 - AL01 e AL02

Accessory for the power supply of all Red Beam products. It is provided with the required protections against short circuits and electric glitches.

- Input: 110 Vac (AL01) / 230 Vac (AL02)
- Output: 24 Vcc
- Light indicating proper functioning
- Protected from overvoltage
- Safety category: 4
- Enclosure rating: IP20

The AL-01 and AL02 power supplies are intended to power each individual Red Beam device, it is not recommended to use them for other purposes.

When using the power supply, the 24 Vdc output must not be used to power additional devices.

All type 4 ESPE powered in CC must have their individual power source, compliant with EN 61558.



## Cables

To power its safety light curtains, Red Beam uses shielded cables available in various lengths, according to the customer needs.

For Basic line safety light curtains we offer shielded cables with connectors M12 with 5 pins (straight or curved at 90 degree).

For M line safety light curtains, there's the M12 family of cables with 8 pins, to be used on the receiver only.

For Advanced line safety light curtains there's the M23 family of cables with 16 pins, to be used on the receiver only.





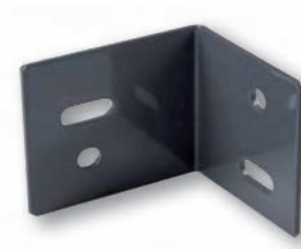
## Fixing brackets



**HTB5-ST17** is a sliding bracket with a fastening pin. Each safety light curtain comes with a 4 pieces kit, which includes the fastening screws.



The "cradle-like" fastening bracket **HTB5-ST18** allows to adjust the safety light curtain position, permitting to conveniently tilt and rotate both the emitter and the receiver. These are optional elements; four of them are provided with each safety light curtain pair.



The "corner" bracket **HTB5-ST19** allows to position the safety light curtain at 90° in respect to the fastening point. These are optional elements; four of them are provided with each safety light curtain pair.



The bracket **HTB5-ST21** allows to fix a single arm on L line safety light curtains. It is supplied in 2 pieces, together with grub screws for fastening.



The bracket **HTB5-ST22** allows to fix two arms on T line safety light curtains. It is supplied in 2 pieces, together with grub screws for fastening.





## Columns & Mirrors

Using mirrors to deflect the beam, it is possible to cover large areas.

The deflecting mirrors, fastened to mirror-holding/safety light curtain-holding columns, are available in various height according to the customer needs.

They are used to create a perimeter protection around hazardous areas, protecting more than one side with just one safety light curtain. They are usually employed in robotized areas, machine centers, presses and similar.

The usage of mirrors entails a 10-15% reduction of the range for each unit; to solve this inconvenience, the mirrors are usually paired with safety light curtains with increased range.

Mirror-holding and safety light curtain-holding columns provide a solid fixing to the floor, a quick installation and an easy and accurate optical alignment of the system.

Suitable to protect: automatic punching-machines, cutting lines, robotized areas, assembly lines, palletizing robots.

Main features:

- The base is available in two versions:
  - A - Steel base equipped with elastomer springs for an accurate adjustment of the vertical axis.
  - B - Fastening with adjustment directly on the floor.
- Columns in extruded aluminum with adjustable angular orientation
- Simple assembly and disassembly of the safety light curtain with the possibility to regulate the height of the first beam.
- Width of the mirror with wall fastening: 130 mm.
- Diameter of the mirror-holding/safety light curtain-holding column: 130 mm.





Italia

# CERTIFICATO

## CERTIFICATE

**Direttiva Macchine 2006/42/CE All. IX- Esame CE del tipo per componenti di sicurezza in accordo alla Direttiva Macchine 2006/42/CE (rif. Allegato IV – 21)**

*Machinery Directive 2006/42/EC Annex. IX - EC type-examination certificate for safety components (rif. Annex IV – 21)*

**Certificato No.:**

**TÜV IT 0948 10 MAC 0070 B**

*Certificate No.:*

**Data della domanda:**

13/03/2015

*Date of submission:*

**Nome ed indirizzo del fabbricante:**

H.E.S.Y. Safety S.R.L.  
Strada Val Baudana 9  
10090 GASSINO TORINESE (TO) - ITALIA

*Name and address of manufacturer:*

**Prodotto:**

Barriere di sicurezza fotoelettriche  
*Safety Light curtains.*

*Product:*

**Modello/tipo:**

HTB-HTBM-HTBV

*Model/type:*

**Rapporto di prova:**

**TR 0948 MAC 0070 B\_R.00, 30/06/2015**

*Test report:*

**Norme di riferimento:**

EN 61496-1:2013 – EN 61496-2:2013  
EN ISO 13849-1:2008 - EN ISO 13849-2:2008  
EN 60204-1:2006

*Reference Standards:*

**Si certifica che il componente di sicurezza nel campo di applicazione riportato nell'allegato al presente certificato soddisfa i requisiti della direttiva:**

*We herewith certify that the safety component for the respective scope of application stated in the annex to this EC type-examination certificate meets the requirements of the Directive:*

## 2006/42/CE

**Data emissione:** 15/10/2015

*Issue data:*

**Data di scadenza:** 14/10/2020

*Expiry date:*



SDQ N° 0482    ISO N° 15185    PRD 24 0006  
SBA N° 0100    TR N° 0006    ISO N° 0502  
SCR N° 0004    PRS N° 0070    SAEI N° 0070

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ISO 9001:2008    TÜV SÜD    TÜV SÜD    TÜV SÜD    TÜV SÜD



**TÜV Italia S.r.l.**  
**Organismo notificato N° 0948**  
*Notified Body Identification N° 0948*

*Dr. Gennaro Oliva*  
**Industrie Service Manager**

Ulteriori informazioni sono riportate in allegato.  
Si prega vedere le note sul retro.

*Further information are enclosed. Please see remarks on reverse.*

NOTE