



SAFETY ***LIGHT CURTAINS*** *Optoelectronic protective devices*



IPF ELECTRONIC

High-End in High-Tech.



**SCAN QR CODE
AND READ FLYER DIGITALLY**

IPF SAFETY LIGHT CURTAINS **HAND, FINGER AND BODY PROTECTION**

The new generation of optoelectronic safety light curtains is an efficient and low-cost alternative to conventional mechanical protective devices. In automated production and manufacturing processes, effective accident and personal protection has absolute top priority.

Safety light curtains form an invisible protected field of infrared beams in order to guard access to hazardous areas and danger points.

Furthermore, the comprehensive range of accessories for the new products from ipf electronic will meet almost every customer requirement. In addition to mounting brackets, we now also offer a selection of special rotatable brackets with which the devices can be secured to a mounting surface directly and without the need for additional holders. Other new products include the optional, extremely robust protective housings for the light curtains. These housings are designed in IP69K and therefore provide reliable protection for the devices in applications with extremely tough environmental conditions. Analogous to the adjustable EDM function for finger and hand protection, the safety relays now also have a normally closed (NC) contact in addition to the three normally open (NO) contacts. The floor mount, also available as an option, now features a spirit level to ensure fast and reliable alignment. The extensive range of accessories includes deflection mirrors, laser pointers as well as connection cables and test bars.

The **OY32** and **OY36** safety light curtains have the maximum performance level 'e' (PL 'e'), SIL category 3 (EN ISO 13849-1) as well as category 4 and are certified in accordance with IEC 61496-2 (active optoelectronic protective device).

100% PROTECTION **FOR MAXIMUM SAFETY**

The safety light curtains for category 4 hand and finger protection are available with protected field heights of 150mm to 1800mm. The resolution is 30mm for hand protection and 14mm for finger protection. The response times of these light curtains are considerably shorter compared to the predecessor models, thereby also reducing the safety distances. The range of the hand protection light curtains is now max. 19m, whereas the maximum range for finger protection is 6m.

The light curtains for body protection are now available with protected field heights of 500, 800, 900 and 1200mm. The number of light axes varies between 2 and 4 depending on the model. The range of up to 50m means that the performance spectrum of the respective devices has doubled.

While the light curtains for hand and finger protection are now configured more easily and, above all, completely tamper proof by means of corresponding wiring, special DIP switches on safety light curtains for body protection enable the EDM function to be set up for monitoring the safety relay and for configuring the automatic reset. The DIP switches are behind a cover on the front of the device and allow quick and easy device setup.

The new series of safety light curtains from ipf electronic are also characterized by features ensuring easy installation and fast setup. For example, the "arrow" LEDs integrated in the housing make alignment of the light curtains much easier. The quality of the transmission signal is shown as numerical values on another integrated display.



Link to the video
„Safety light curtains“



CATEGORY 4 SAFETY LIGHT CURTAINS

FINGER PROTECTION

Light curtains with protected field heights of 150 to 1800mm, a resolution of 14mm and a range of up to 6m are available.



HAND PROTECTION

Different models with protected field heights of 150 to 1800mm are available. These models have a resolution of 30mm and a maximum range of 19m.



BODY PROTECTION

Different models with protected field heights of 500, 800, 900 and 1200mm are available. The number of light axes varies between 2 and 4 depending on the model, whereby a range of up to 50m is achieved.

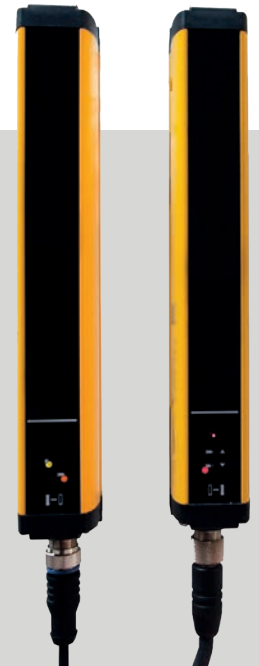


SAFETY SYSTEMS

DANGER POINT SAFEGUARDING

APPLICATIONS

- / Bending and cutting machines
- / Metalworking machines
- / Punching machines
- / Presses
- / Automotive industry
- / Assembly robots
- / Conveyor systems



QUICK AND EASY MOUNTING

The compact and robust housing (aluminum) can be easily mounted in any machine using the enclosed brackets. The additionally supplied brackets enable the safety light curtains to be rotated. The excellent vibration resistance makes the systems ideal for use in tough environmental conditions.

CONFORMITY WITH STANDARDS

The safety light curtains (finger, hand or body protection) conform to the applicable standards, making them suitable for safeguarding hazardous areas. Thanks to their extraordinarily compact dimensions (32 x 37mm = **OY32** and 35 x 41mm = **OY36**) as well as the simple connection and installation technology, the safety light curtains provide the operator with optimum and effective protection in all industrial safety applications. These devices have TÜV certification (TÜV = German Technical Inspection Association).

SIMPLY CONNECT – READY!

Reverse-polarity-protected connection with M12-connectors: The transmitter is connected using a 4-pin connector and the receiver using an 8-pin connector.

LED DISPLAYS

RECEIVER

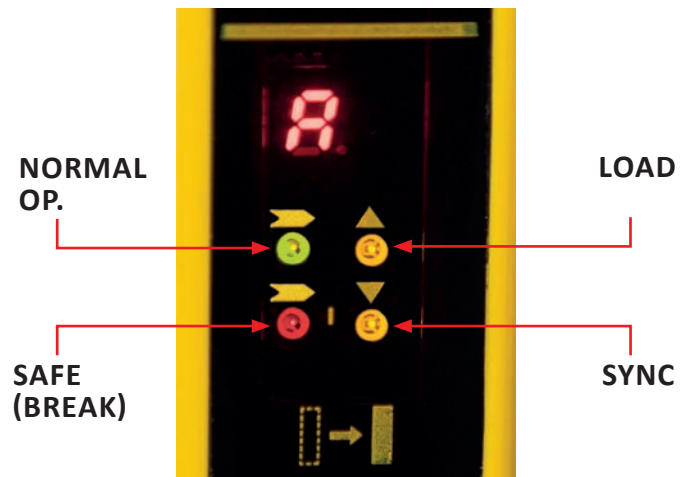
»Normal Operation« LED: green

»Safe« LED: red

»Load« LED: yellow

»SYNC« LED: yellow

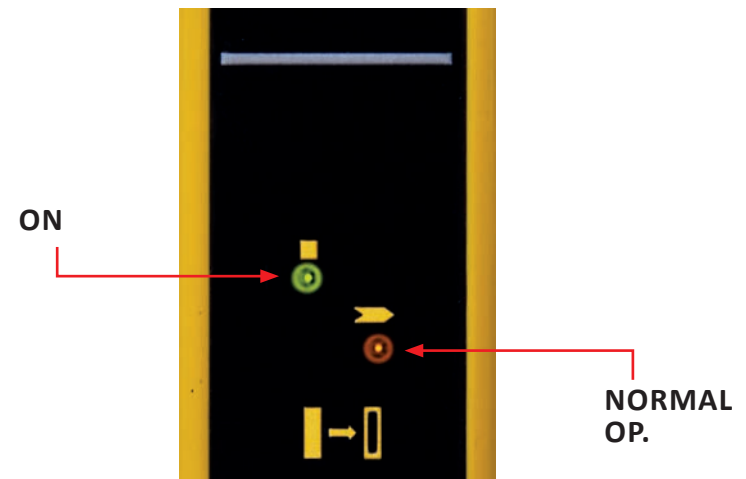
The meaning of the LEDs on the receiver depends on the operational mode.



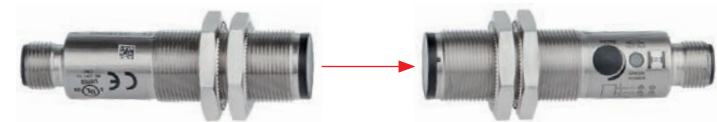
TRANSMITTER

»Normal Operation« LED: yellow

»Power on« LED: green



MUTING



SAFETY WITH INTELLIGENCE

Muting is an intelligent way of automatically and temporarily deactivating the protective function of a safety light curtain (person, hand and finger protection) to allow e.g. material to be transported into a protected area. This simply requires so-called muting sensors (usually through-beam sensors with normally closed (NC) contact output) to be added to the light curtain and a muting relay to be installed.

The arrangement of the sensors depends on whether sequential muting or cross muting is required. With sequential muting, several sensors connected in series (2 in front of and 2 behind the protected field) are activated in sequence by the material that passes through the protected field. For cross muting, only 2 sensors are necessary; their detection range is arranged in a cross.

In both versions, the muting cycle starts when the sensors in front of the safety light curtain are activated by the conveyed material. The muting relay monitors exactly when the muting sensors and the safety light curtain are activated. For example, the muting sensors are not allowed to be activated simultaneously by the incoming material and, additionally, the distance between the two switching points must not exceed an adjustable maximum duration.

The arrangement of the sensors and monitoring of the switching sequence ensure that a person entering the safety area is reliably distinguished from incoming material.

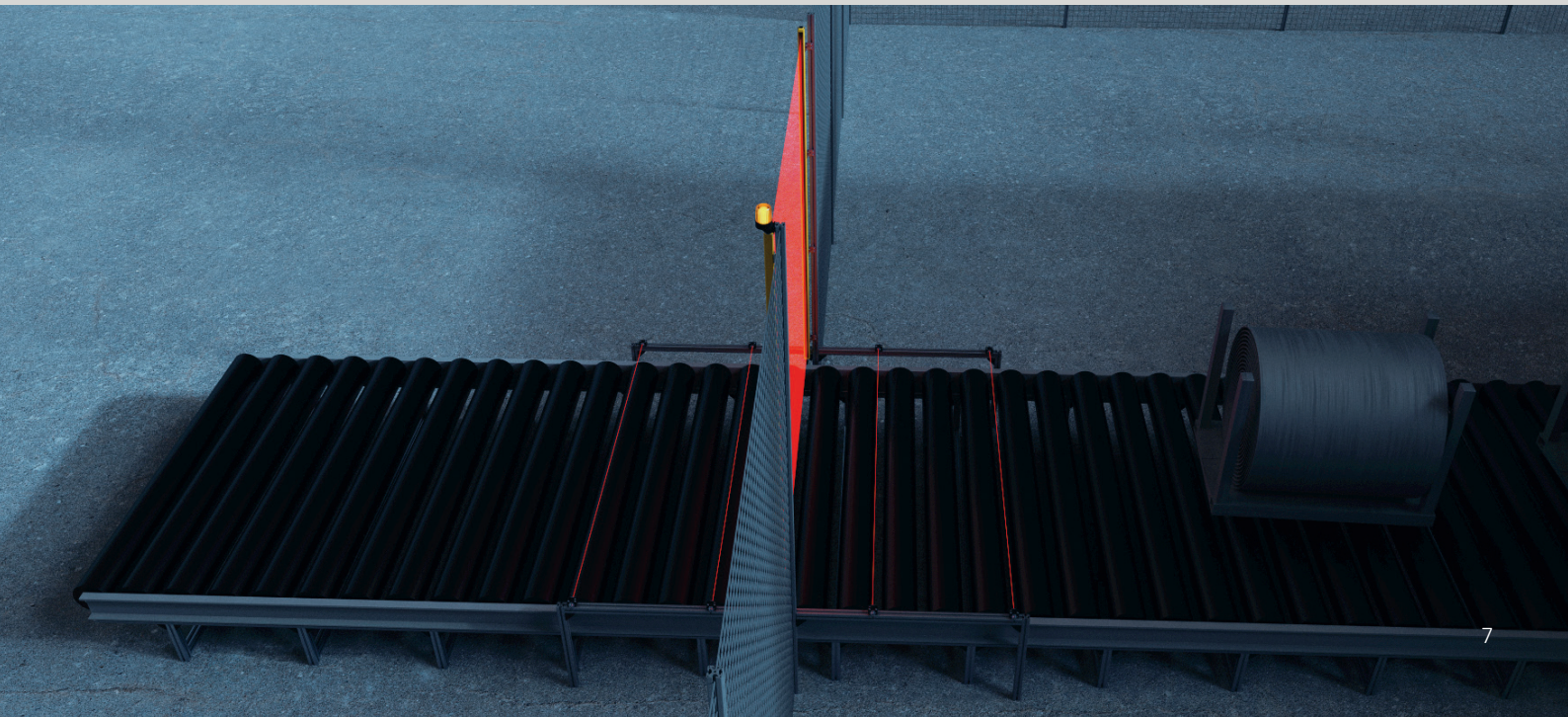
A muting cycle consists of up to four phases and is signaled by a muting lamp. Phase 3 is not present in cross muting.



Link to the video „Muting“

Phase 1	Phase 2	Phase 3	Phase 4
Material in front of the protected field	Muting sensors 1 and 2 activated in sequence by the material Material moves into the deactivated protected field	Muting sensors 3 and 4 activated in sequence by the material	Material has passed through the protected field and the muting sensors are deactivated in sequence
Light barrier active	Light barrier deactivated	Light barrier deactivated	Light barrier active
Muting lamp off	Muting lamp on	Muting lamp on	Muting lamp off

Reliable protection against unauthorized entry by persons, but material can pass through whenever required by the processes.



ACCESSORIES

SAFETY RELAYS



**MOUNTING
BRACKETS**



**COLUMN AND FLOOR
MOUNTING**

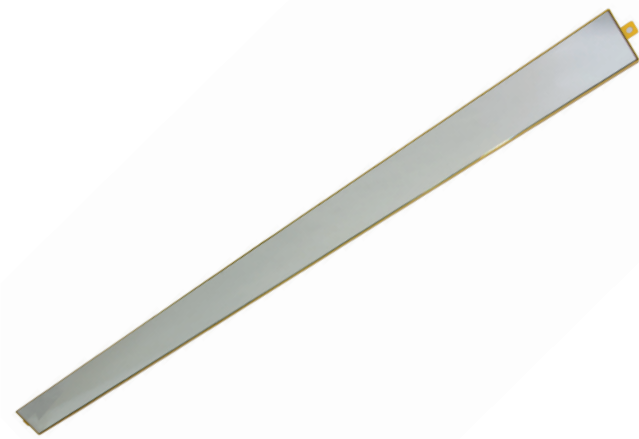


**CONNECTION
CABLES**





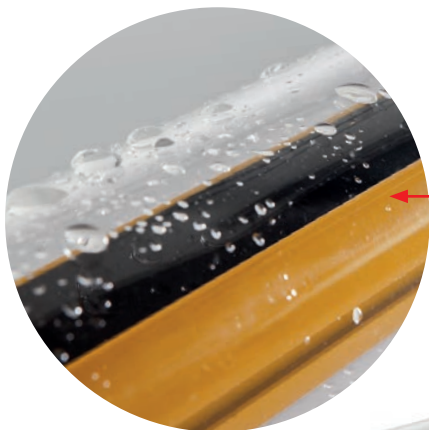
LASER POINTER / ALIGNMENT AID



DEFLECTION MIRRORS



TEST BARS



PROTECTIVE HOUSING

Optimum protection against e.g. splash water,
degree of protection IP69K

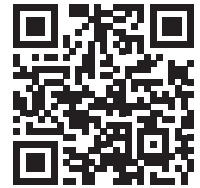


APPLICATION SAFETY LIGHT CURTAINS

A metal foundry manufactures e.g. flywheels for use in the automotive industry. After the metal has been cast, the blanks are mechanically processed to produce a ready-to-install component.

To optimize the production process, a robot was integrated to automatically load the components onto an oven conveyor. The transport racks and pallets are set down at separate retrieval points by a forklift and fed into the process via roller conveyors so that the robot can then collect the components and place them onto the oven conveyor. Here, access to the danger zone and the movement area of the robot must be safeguarded at all times. It was not possible to use safety guards or gates for this application because opening and closing of the gates would have resulted in unacceptable delays and installation would have been too complex and costly.

Instead it was decided to use the **OY32** safety light curtains (performance level 'e', category 4) from ipf electronic. The systems with a resolution of 30mm (hand protection) are designed in such a way that they safeguard access points at the transfer stations on both sides (loading and robot side). As a result, they protect the hazardous area against unauthorized entry and also provide collision protection between the robot and e.g. a forklift during loading of the components. When the robot takes a component from a pallet and thus interrupts the inner light curtain, the process remains active. If, however, the outer light curtain is interrupted, this causes immediate shutdown of the robot. The same thing happens if the robot interrupts the inner light curtain and a person attempts to enter the robot's working area. In this way it was possible to ensure efficient plant operation without compromising plant safety.



Automated loading of an oven conveyor



EFFICIENT ADVICE ON ALL MATTERS

PERSONAL SERVICE AND PROBLEM-SOLVING ON SITE

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In almost all industrial applications, problems are becoming ever more complex and varied. Solutions to these problems often require external expertise. You will find this expertise together with a high level of specialist and problem-solving competence at ipf electronic. We are happy to discuss tasks which may seem small with you. For us, this is a matter of course!

Ipf electronic is a renowned supplier of industrial sensor technology and a reliable partner. No customer query is ignored and no on-site customer appointment is missed. Our extremely broad range of products will convince you.

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This is ipf electronic's recipe for success.



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