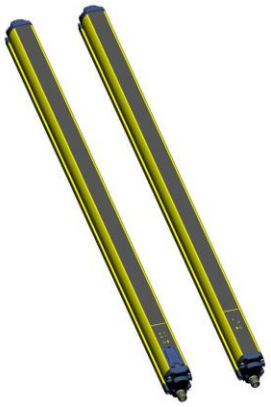
Quick Instruction Manual Safety Light Curtain OY36

Devices for bodyprotection



Safety Information

The following points must be observed for a correct and safe use of the OY36 safety device:

- The stopping system of the machine must be electrically controlled.
- This control system must be able to stop the dangerous movement of the machine within the total machine stopping time T as per paragraph 1.3.3 of the manual included in the CD supplied and during all working cycle phases.
- Mounting and connection of the safety light curtain must be carried out by qualified personnel only, according to the indications included in the special sections (refer to sections 2; 3; 4; 5) and in respect to the applicable standards.
- The safety light curtain must be securely placed in a particular position so that access to the dangerous zone is not possible without the interruption of the beams.
- The personnel operating in the dangerous area must be well trained and must have adequate knowledge of all the operating procedures of the safety light curtain.
- The TEST button must be located outside the protected area because the operator must check the protected area during all Test operation.
- The RESET/RESTART button must be located outside the protected area because the operator must check the protected area during all Reset/Restart operations.
- Please carefully read the instructions for the correct functioning before powering the light curtain.

Precautions to be observed for the choice and installation

Make sure that the protection level assured by the OY36 device (Type 4) is compatible with the real danger level of the machine to be controlled, according to **EN 954-1** and **EN 13849-1**.

- The outputs (OSSD) of the ESPE must be used as machine stopping devices and not as command devices. The machine must have its own START command.
- The dimension of the smallest object to be detected must be larger than the resolution level of the device.
- The ESPE must be installed in a room complying with the technical characteristics indicated in section 9 “Technical Data” indicated in the complete manual. The complete manual is available for download on our homepage www.ipf-electronic.com.
- Do not install device near strong and/or flashing light sources or close to similar devices.

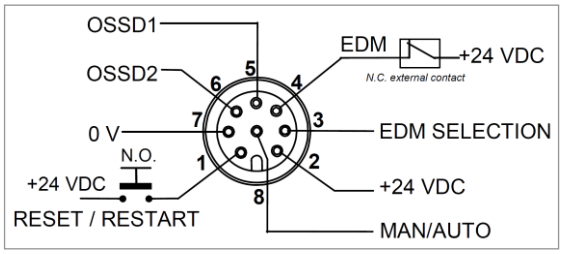
- The presence of intense electromagnetic disturbances could jeopardise device functioning. This condition shall be carefully assessed by seeking the advice of ipf electronic Technical service.
- The operating distance of the device can be reduced in presence of smog, fog or airborne dust.
- A sudden change in environment temperature, with very low minimum peaks, can generate a small condensation layer on the lenses and so jeopardise functioning.
- Reflecting surfaces near the safety light curtain light beam (above, under or lateral) can cause passive reflections that can jeopardize functioning.
- The safety device must be installed at a distance which is major or equal to the minimum safety distance S to ensure that the operator can not reach the dangerous area until the moving dangerous object has been blocked by the ESPE.

The failure to respect the safety distance reduces or cancels ESPE the protection function.

For more detailed information about calculation of safety distance, please refer to the complete manual available for download on the homepage www.ipf-electronic.com.

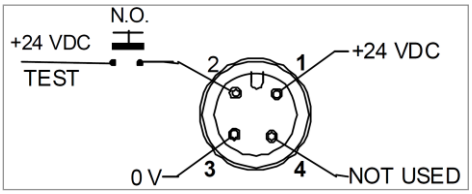
CONNECTIONS

RECEIVER (RX):



1 = white = TEST / START
2 = brown = +24V DC
3 = green = NOT USED
4 = yellow = EDM
5 = grey = OSSD 1
6 = pink = OSSD 2
7 = blue = 0V
8 = red = NOT USED

EMITTER (TX):



1 = brown = +24V DC
2 = white = NOT USED
3 = blue = 0V
4 = black = NOT USED

ALIGNMENT PROCEDURE

The alignment between the emitting and the receiving units is necessary to obtain the correct functioning of the light curtain.

The alignment is perfect if the optic axes of the first and the last emitting unit's beams coincide with the optic axes of the corresponding elements of the receiving unit. Two yellow LED indicators (HIGH ALIGN, LOW ALIGN) facilitate the alignment procedure.

Correct alignment procedure

When the mechanical installation and the electrical connections have been effected – as explained inthe previous paragraphs – it is possible to carry-out the alignment of the safety light curtain, according to the following procedure:

- Disconnect the power supply to the light curtain.
- Press the TEST/START button and keep it pressed (open the contact).
- Re-connect the power supply.
- Release the TEST/START button.
- Check the green LED on the bottom of the TX unit (POWER ON) and the yellow LED (NORMAL OPERATION); if they are ON, the unit is running correctly.
- Verify that one of the following conditions is present on the RX unit:

  1. Red LED (SAFE) ON: non-alignment condition.

  2. Green LED (NORMAL OPERATION) ON: light curtain already aligned condition; in this case also the two yellow LEDs will be ON (HIGH ALIGN, LOW ALIGN).

- Continue with the following steps to change from condition 1 to condition 2:

  A Keep the receiving unit in a steady position and set the transmission unit until the yellow LED on the bottom (LOW ALIGN) is ON. This condition shows the effective alignment of the first lower beam.

  B Rotate the transmission unit until the upper yellow LED (HIGH ALIGN) is ON; in this condition red LED (SAFE) must turn off and green LED (NORMAL OPERATION) must turn ON.

  Note: ensure that the green LED (NORMAL OPERATION) modo is ON and steady.

  C Delimit the area in which the green LED (NORMAL OPERATION) is steady through some micro adjustments - for the first and then for the second unit - then place both units in the centre of this area.

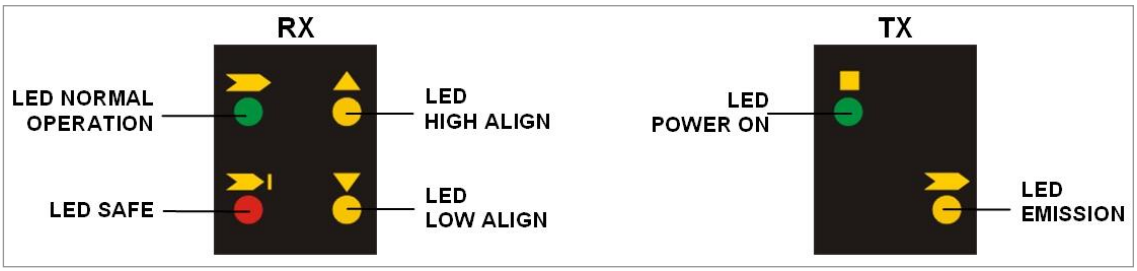
- Fix the two units firmly using pins and brackets.
- Disconnect the power supply to the light curtain.
- Re-connect the power supply.

Verify that the green LED is ON on the RX unit (condition where the beams are free, NORMAL OPERATION) and verify that, if even one single beam is obscured, the green LED turns OFF and the red LED turns ON (condition where an object has been detected, SAFE).

DIAGNOSTIC FUNCTIONS

Visualisation of the functions

The operator can verify the operating condition of the light curtains through four LEDs positioned on the receiving unit and two LEDs on the emitting unit.



The LEDs located on the emitter (TX) have the following meanings:

YELLOW LED NORMAL OPERATION: when ON, indicates that the unit is emitting correctly.

GREEN LED POWER ON: when ON, indicates that the unit is correctly powered.

The meaning of the LEDs positioned on the receiving unit **(RX)** depends on the light curtain operating mode.

Alignment mode

In this condition the outputs are OFF (SAFE state).

GREEN LED NORMAL OPERATION: when ON**,** indicates that no objects have been detected by the device.

RED LED SAFE: when ON**,** indicates that the receiving and the emitting units are not aligned, or that an object has been detected.

YELLOW LED HIGH ALIGN: when ON**,** indicates the correct alignment of the last TX optic with the corresponding RX optic (top side of the device).

YELLOW LED LOW ALIGN: when ON, indicates the correct alignment of the first TX optic with the corresponding RX optic (lower side of the device).

Operating mode

GREEN LED NORMAL OPERATION: when ON, indicates that no objects have been detected by the device.

RED LED SAFE: when ON, indicates that one object has been detected; in this condition the outputs are OFF.

YELLOW LED HIGH ALIGN: when continuously ON, indicates the INTERLOCK state, so that it is necessary to press the TEST/START button to reset the device consequently to an object interception. This occurs only when the device runs under the manual Reset mode.

Fault and diagnostic messages

The operator is able to check the main causes of the system stop and failure, using the same LEDs used for the visualization of the functions.

RECEIVING UNIT:

Failure	Cause	Check and repair
OFF *Blinking yellow*  *Blinking red* *Blinking yellow*	- Output failure	- Check the output connections - Check, if the load characteristics are in accordance with the technical data (see section 9).
OFF *OFF*  *Blinking red* *Blinking yellow*	- Failure of external switching device (EDM test function)	- Control the EDM connections - Check the compatibility of external switching device with EDM test time - Switch OFF and switch ON the device; is failure persists replace external switching device.
OFF *Blinking yellow*  *OFF* *Blinking yellow*	- Microprocessor failure	- Check the correct positioning of the configuration dip-switches - Switch OFF and switch ON the device; if the failure continues, please contact ipf electronic.
OFF *OFF*  *OFF* *Blinking yellow*	- Optic failure	- Check unit alignment - Switch OFF and switch ON the device; if the failure continues, please contact ipf electronic.
OFF *OFF*  *OFF* *OFF*	- Power supply failure - Power supply voltage is outside the allowed range - Main microprocessor failure	- Check power supply - Switch OFF and switch ON the device; if the failure continues, please contact ipf electronic.

EMITTING UNIT:

Failure	Cause	Check and repair
ON green  ***Blinking yellow***	- Emitter side generic failure	- Check power supply; if the failure continues, please contact ipf electronic.
OFF  ***OFF***	- Power supply failure	- Check power supply; if the failure continues, please contact ipf electronic.
ON green  ***OFF***	- Power supply voltage is outside the allowed range - Main microprocessor failure	- Check power supply - Switch OFF and switch ON the device; if the failure continues, please contact ipf electronic.