Photocells and safety devices/
Infrared protective barriers

LIGI

NEW

MADE IN GERMANY

CRASHLESS

degree of IP67 protection

Advantages

- **Eliminates sensitive edges on the door**
- **Easy to install due to compact dimensions (16x16mm)**

No impact force measurement required, prevents collision

- **Ideal for doors up to 10m wide**
- **Highly insensitive to environmental influences and highly resistant to vibrations**
- **IP67 protection rating, fully resin-coated**
- **Simple and direct mounting on the door (Ø4mm through holes)**
- **Easy adjustment of the barrier with LED display**

SICURITY DEVICE CERTIFIED EN 12978 / EN ISO 13849, Cat. 2

Certifications

The LIGI model has passed the CE examination at the TÜV Nord certification body in compliance with the requirements of EN 12978 / EN ISO 13849, Cat. 2, PLd / IEC 61496-2 / EN 12445 Chap. 7 / EN 12453 Chap. 5.5.1 / Devices C+D and E without limitation, and has obtained the corresponding certification.

Opening angle conforms to the standard

The LIGI model meets all the requirements of EN 12978, including the required opening angle specified in Chapter 4.3.3 of max. ±5° for transmitters and receivers.

Intelligent functions – simple installation

The safety-related opening angle requirement of ±5° is no problem for the installation of the LIGI model.
Mechanically adjustable clamps and a software adjustment mode are available for this purpose.
In this mode, the reception strength of the optical signal is displayed on the LED indicator via the variable flashing frequency. This ensures the best possible signal reception and, consequently, perfect mutual alignment of the transmitter and receiver when the diode's flashing frequency is at its maximum.

Maximum operational safety

The LIGI model is not very sensitive to external light, so much so that even direct sunlight does not limit its operation.
Even with regard to electromagnetic interference (EMC), such as that which can occur with door drives using frequency converters in the low frequency range, the LIGI model is immune to interference.

Modernisation of older door systems

The photoelectric barrier is perfectly adaptable to the conversion or modernisation of door systems that cannot comply with the maximum closing forces required.

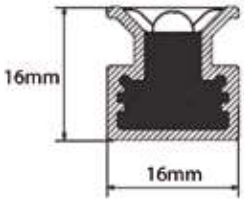
Special versions for lower door heights

For door heights where it is not possible to install the complete LIGI model, such as in underground parking areas (monitoring zones with risk of falls), we offer a variant with the electronics positioned lower. In this way, it is possible to monitor the entire height of the door, even below 2500 mm, without gaps in the protection field.

CRASHLESS

Abexo

Versions

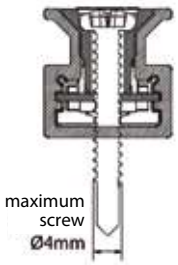


version A
- for high-speed doors
- 56 beams for 2.5 m, one beam every 45 mm

version C
- for all other types of closures/automations
- 23 beams for 2.5 m, one beam every 45 mm up to a height of 500 mm, then one beam every 180 mm

Types of mounting brackets

DIRECT mounting



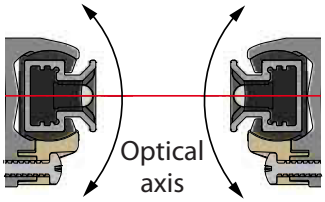
Mounting with ADJUSTABLE SUPPORT

Included in the package
for replacement > see page A69

90-degree mounting
supplied with bracket
Optional accessory > see page A69

Installation

The cable connection must always be located at the top.



Optical axis alignment

Align the optical axis of the transmitter and receiver by bringing them closer together and carry out the electrical connection of the LIGI (see operating instructions)

Signal output versions

OSE

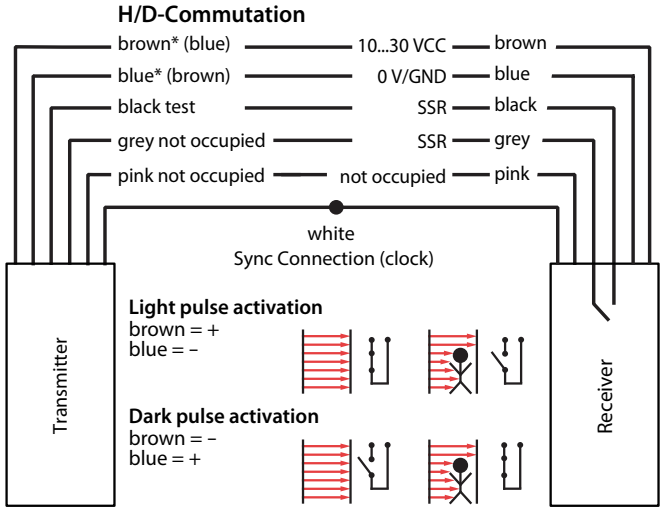
The LIGI-OSE light barrier can be operated directly by all control devices via the OSE signal input as a safety edge

PNP signal input

The LIGI-PNP photoelectric barrier can be operated directly by all control devices through a PNP signal input (pulse) as a safety edge. Through the test input in the transmitter bar, the system can be tested for safety functionality using the control device.

SSR

The output of the LIGI-SSR version is a solid-state relay (transistor) that provides a pure NC (normally closed) or NO (normally open) contact to control the input of a control unit for automation.
It provides high performance characteristics using transistor semiconductor technology, particularly in applications where a high switching frequency is required.



* NC-NO switching of the output contact by inverting the polarity of the operating voltage for the transmitter (not available on OUTDOOR versions)

BLANKING FUNCTION
The barriers identify the interruption of the beams caused by the door closing movement from top to bottom without stopping the operation. If the movement is stopped for more than 1.5 seconds during the manoeuvre, the interruption is signalled. The free zone is signalled only after the door has been completely opened, after which unassisted closing is possible.

Technical specifications

Safety parameters	BWS Type 2 in conformity with IEC 61496-2; MTTFD > 100 years; DCAVG > 99% Category 2; PL d (PFH=7.33.10-9 1/h) in conformity with standard EN 61508-2; Category 2 for LIGI-xx-Nxx, LIGI-xx-Pxx and LIGI-xx-Rxx only with external control adapted for testing.
Door width	1,6...10 m
Rated voltage	24 V CC -58% +25% (10...30 V CC)
Current consumption	Transmitter: approx. 30 mA (24 V DC) Receiver: approx. 20 mA (24 V DC)
Power consumption	approx 1,2 W
Protection zone height	max. 2520 mm
Number of channels	max. 57
Type of photocell	infrared modulated
Switching type	light present, i.e. free protection zone: • OSE output = alternating signal (approx. 950 Hz) • PNP output = High level • NPN output = Low level • Semiconductor relay = low ohmic resistance
Opening angle	approx ±5°
Detection range	0...500 mm, object to be detected >= 50 mm - 500...2520 mm, object to be detected >= beam distance +5 mm
Door operation	Max. door speed: - (variant A; closing strip > 100 mm) = 1,1 m/s - (variant A; closing strip > 125 mm) = 1,3 m/s - (variant C; closing strip > 370 mm) = 1,3 m/s

OSE output	Approx. 950 Hz, alternating signal, 4 V 20 mA short-circuit proof, protected against reverse polarity, max. 100 nF, max. 30 µA leakage current Integrated pulldown resistor of 220 Ω
PNP output	100 mA, short-circuit proof, protected against reverse polarity, max. 220 nF, max. 350 µA leakage current, pull-down resistance 10 kΩ...4 k7 (recommended value range) must be present.
NPN output	same as PNP output but with max. 150 µA leakage current
SSR output	100 mA, short-circuit proof, max. 220 nF, max. 30 V CC, max. 21 V AC, semiconductor relay R on < 35 Ω, leakage current < 100 µA.
Light immunity environment	>= 100 klu
Housing material	Die-cast aluminium profile with two-component epoxy resin
Connection	M8 pig-tail connector, 4-pin, L = 130 mm
Protection degree	IP67 conformity with standard EN-60529
Operating temperature	-20°C, +60°C
Storage temperature	-30°C, +70°C
Maximum air humidity	95%
Weight	approx. 1860 gr
Dimensions	2640 x 16 x 16 mm (L x P x H) Length corresponds to the maximum protection zone height of 2520 mm

Extended requirements

TÜV has outlined a scenario of potential risks that should be detected through the use of a photoelectric barrier.
In case of a residual opening greater than 50 mm, the door stops. If in this position, the test piece B (Ø 50 mm) penetrates into the remaining part of the protection field, the barrier must detect it as an obstacle.
Furthermore, the Conference for the exchange of experiences on automatic door and gate systems, which took place on 29 October 2013 in Nuremberg, marked a further development in safety for the application of photoelectric barriers as protective devices for gate systems, raising the regulatory field for the detection of test piece B (Ø 50 mm) from 300 mm to 500 mm above the ground. The LIGI model complies with the increased requirements.

Price list - versions for manufacturers

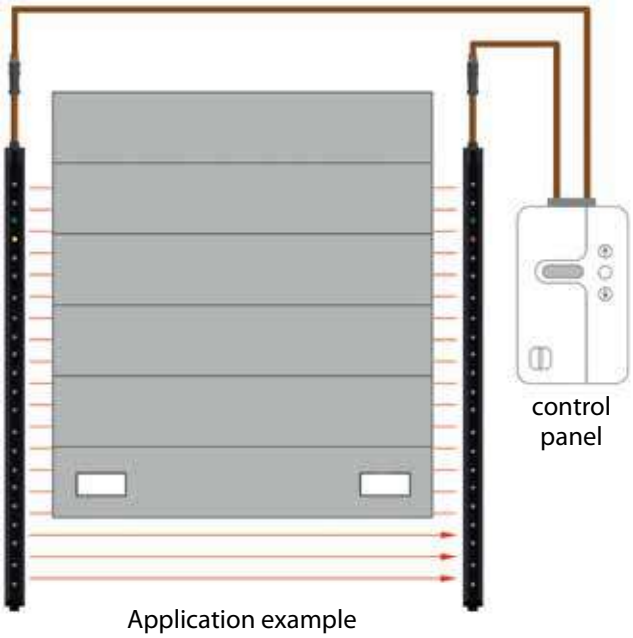
OSE (versione A) **WI-318725** h attiva 2295mm h totale 2415mm	**PNP (versione A)** **WI-317339** h attiva 2520mm h totale 2640mm

Applications

Vertical doors with LIGI installation in guide/axis with the gate
> BLANKING FUNCTION

OUTPUT SSR

The LIGI barrier is designed for industrial doors and has been TÜV-Nord certified.



Application example

HA = active HT = total (mm)	SPEED DOORS version A	HA = active HT = total (mm)	VERTICAL CLOSURES version C
HA = 1485 HT = 1605	**WI-319476**	HA = 1530 HT = 1650	**WI-322794**
HA = 1710 HT = 1830	**WI-319479**	HA = 1710 HT = 1830	**WI-322796**
HA =1890 HT = 2010	**WI-319063**	HA =1890 HT = 2010	**WI-318928**
HA = 2115 HT = 2235	**WI-319482**	HA = 2070 HT = 2190	**WI-318934**
HA = 2295 HT = 2415	**WI-320886**	HA = 2250 HT = 2370	**WI-318940**
HA = 2520 HT = 2640	**WI-318922**	HA = 2520 HT = 2640	**WI-318949**

LIGI Accessories

FERRITE KIT
Pair of ferrites for filtering electromagnetic interference

WI-320637

Power supply 230/24V 0,5A - 12W

grado di IP20 protezione

TECHNICAL DATA
AC input voltage: 100÷240 Vac
Output voltage: 24 Vdc
Nominal c/lout current: 0,25÷0,13 A
Output current: 0,5 A

APE-143/0024

For additional information, see page A138

MOUNTING ACCESSORIES

90° mounting bracket
with bracket supplied
(pack of 10 pcs, not available for individual purchase)

WI-316111 pack of 10 pcs, not separately available

Mounting with ADJUSTABLE SUPPORT (spare part)
(pack of 10 pieces, not available individually)

The rubber insert must have its edges facing upwards!

WI-316991 pack of 10 pcs, not separately available

Outdoor version (for external use)
Sliding doors and gates with SSR output with application outside the door movement.

Contact customer service