



Fire protection thru-beam sensor

LA28/LK28-FC-Z/31/116



- Compact fire protection photoelectric sensor for safety devices on fire barriers
- Approval in accordance with VdS Test Report FSA and externally monitored manufacture (Ü Symbol)
- Not sensitive to ambient light, even with switched energy saving lamps

Compact fire protection photoelectric sensor



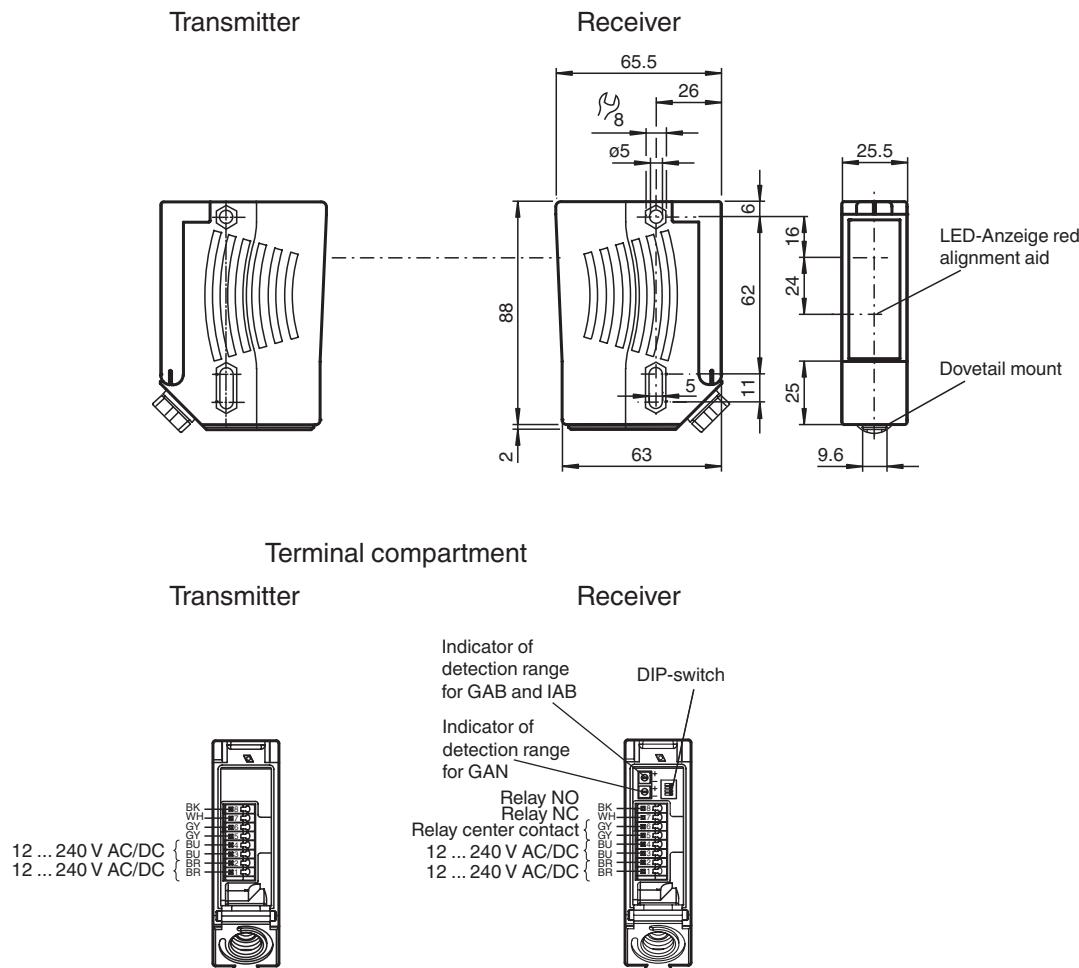
Function

It is essential that fire is not allowed to spread in buildings should it break out. Fire protection regulations therefore prescribe fire barriers. These include fire doors, industrial fire doors and fire dampers, which are generally kept closed at all times. In areas where doors are left open, such as heavily traveled passageways and corridors, a self-closing mechanism must be automatically triggered in case of fire. However, the door must not close when persons or objects are in the closing area. Legislation consequently requires monitoring with appropriate safety devices. The technical challenge is to ignore the smoke and at the same time reliably detect objects in it. These certified photoelectric sensors fulfill this function.

Application

- Securing hold-open devices on fire barriers in the vicinity of track-based conveyor systems
- Reliable object detection for doorway monitoring with fire barriers in the vicinity of trackbased conveyor systems, even in smoky condition

Dimensions



Technical Data

Release date: 2024-09-10 Date of issue: 203495_eng.pdf

General specifications

Effective detection range	0 ... 10 m
Threshold detection range	10 m
Light source	LED, 660 nm and IRED, 880 nm
Light type	modulated visible red light and modulated infrared light
Alignment aid	LED red (in receiver lens) illuminated constantly: beam is interrupted, flashes: reaching switching point, off: sufficient stability control
Diameter of the light spot	approx. 0.2 m at 10 m
Opening angle	Emitter 1.2°, Receiver 5°
Ambient light limit	50000 Lux

Functional safety related parameters

MTTF _d	490 a
Mission Time (T _M)	20 a
Diagnostic Coverage (DC)	0 %

Indicators/operating means

Operation indicator	LED green
Function indicator	LED yellow: 1. LED lit constantly: signal > 2 x switching point (function reserve) 2. LED flashes: signal between 1 x switching point and 2 x switching point 3. LED off: signal < switching point
Control elements	Light-on/dark-on changeover switch ; Time adjuster

Electrical specifications

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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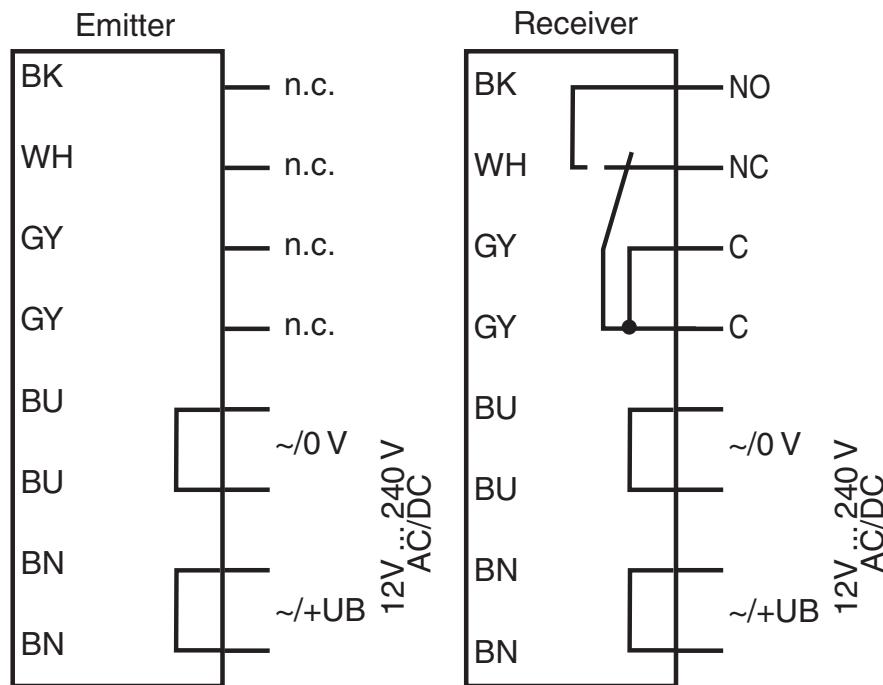
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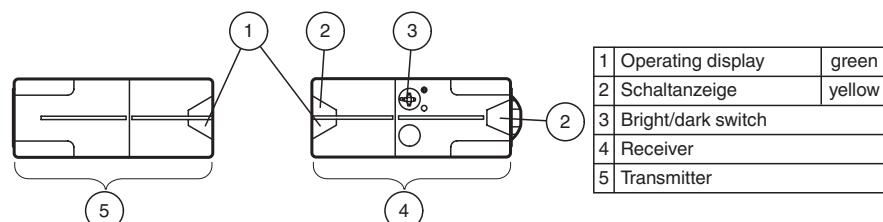
Technical Data

Operating voltage	U _B	12 ... 240 V AC/DC
Power consumption	P ₀	≤ 3.5 VA
Output		
Switching type		light/dark on, switchable . (selectable, light/dark switching is only activated if the receiver has 'dark on' selected.)
Signal output		Relay, 1 alternator
Switching voltage		max. 250 V AC/DC
Switching current		max. 2 A
Switching power		DC: max. 50 W AC: max. 500 VA
Switching frequency	f	25 Hz
Response time		20 ms
Timer function		ON delay (GAN), OFF delay (GAB), one shot (IAB), ON delay-OFF delay (GAN-GAB), programmable adjustment range 0.1 ... 10 s
Standard conformity		
Standards		EN 60947-5-2 smoke insensitive up to 2 dB/m (EN 54-12)
Approvals and certificates		
Protection class		II, rated insulation voltage ≤ 250 V AC with pollution degree 1-2 according to IEC 60664-1 Output circuit insulated from control circuit in accordance with IEC 61140. Caution! The protection class 2 is only valid when the terminal compartment is closed.
CCC approval		Certified by China Compulsory Certification (CCC)
Approvals		VdS/DIBt certificate of compliance No. 25021 , approval number Z-6.510-2383
Ambient conditions		
Ambient temperature		-40 ... 60 °C (-40 ... 140 °F)
Storage temperature		-40 ... 60 °C (-40 ... 140 °F)
Relative humidity		30% ... 85% non-condensing ; Non-icing
Mechanical specifications		
Degree of protection		IP67
Connection		terminal compartment with 8 spring-loaded terminals for wire cross section 0.5 ... 1.5 mm ² , Insulation stripping 7.5 ... 8.5 mm , M16 x 1.5 cable gland
Material		
Housing		plastic
Optical face		Plastic pane
Mass		200 g (emitter and receiver)
Dimensions		
Height		88 mm
Width		25.8 mm
Depth		65.5 mm

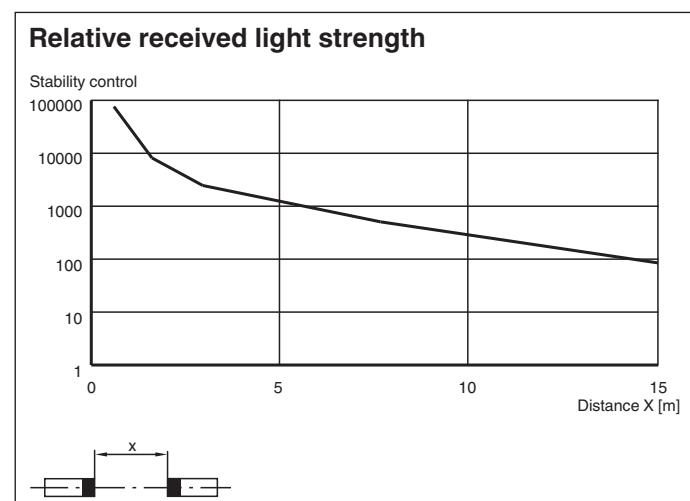
Connection Assignment



Assembly



Characteristic Curve



Application



Additional Information

Function principle

Fire protection photoelectric sensors are photoelectric sensor systems as safety devices for hold-open systems on fire barriers. The safety device is used to monitor the closing area of fire barriers for obstacles. The safety device ensures that the barrier is only closed if there are no obstacles in the closing area.

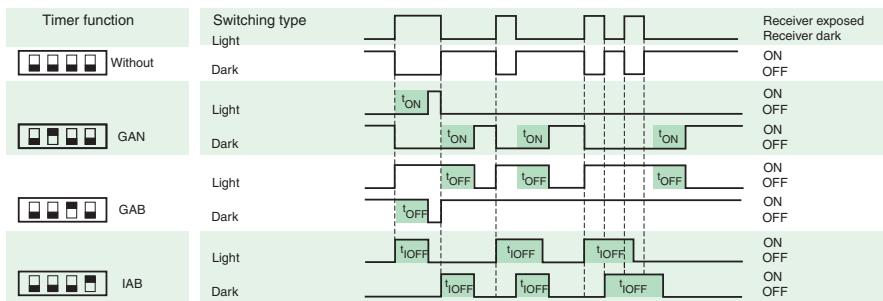
The LA28/LK28-FC is a thru-beam sensor with a power supply for 12 ... 240 V AC/DC.

The thru-beam sensor contains an emitter and a receiver in separate housings. These components must be optically aligned with one another in a single line. The light emitted from the source is detected by the receiver and evaluated. When the light beam is interrupted, the switching function is triggered.

With its high excess gain at sensing ranges of up to 10 m, the thru-beam sensor is suitable as a safety device for hold-open devices on fire barriers. The photoelectric sensor is insensitive to reflective and shiny objects.

Setting the timer functions:

The desired timer function can be set with the DIP switches.



Time t_{ON} , t_{OFF} and t_{IOFF} are adjustable from 0.1 to 10 seconds.
The H/D Switch (Left, outer switch) is shown in the "Dark ON" position.

Version	Description	Notes
-Z	"OFF delay" time relay, (GAB)	Time range adjustable, 0.1 s ... 10 s
	Impulse-type "OFF delay" time relay, (IAB)	
	"On delay" time relay, (GAN)	
	"ON/OFF delay" double time relay (GAN/GAB)	
	"ON impulse-type/OFF delay" double time relay (GAN/IAB)	