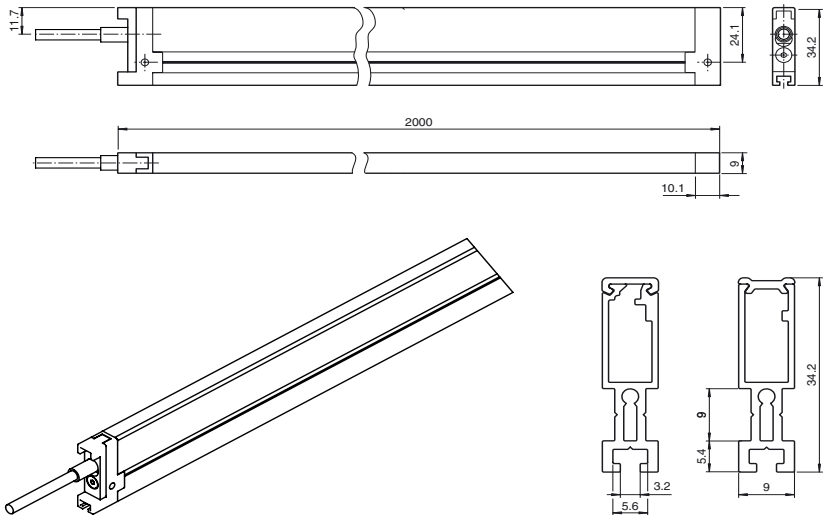




Dimensions



Model Number

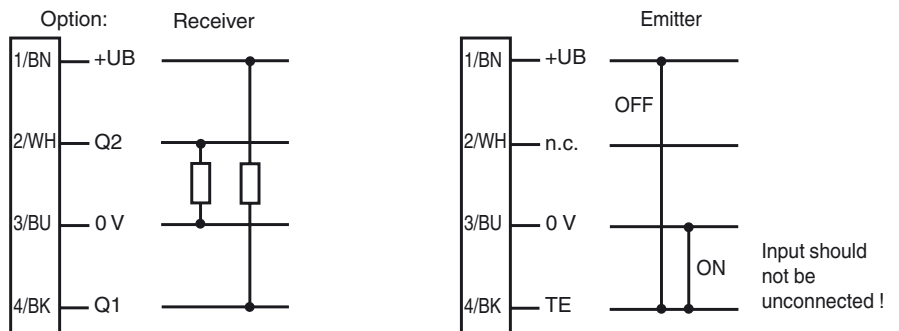
AL2109-P-1820-EX2/25/49/115/133/76a

High-resolution light grid for detecting people and objects, with EC-type examination certificate, set comprising emitter and receiver, field height: 1820 mm, light ON, 1 NPN output and 1 PNP output

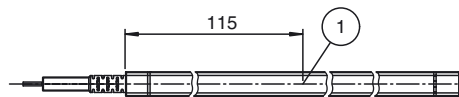
Features

- Low-profile, high resolution light grid for monitoring locking edges on elevators and accesses
- Thru-beam light grid with integrated controller
- In accord with EN81-70 and EN12015/16
- Dense monitoring field with up to 135 beams ensures that small objects are detected
- Object detection up to distance of zero
- Automatic beam crossing and beam suppression
- Insensitive to reflection and ambient light
- Version with EC-type examination certificate for Zones 2 and 22

Electrical connection



Indicators/operating means



1 LED display

Description

The AL2109 elevator light grid is used to protect elevator doors or for passenger monitoring and access control. Its special features include its dynamic beam crossover with up to 135 active sensors, object detection down to nearly zero millimeters and an ambient light limit greater than 100,000 Lux. The evaluation electronics and the power supply are completely integrated into the emitter and receiver element, so that no external equipment is necessary for operation. The system offers flexible mounting options and meets the newest standards in accordance with EN 81-70 and EN 12016. Other suitable accessories can be found at www.pepperl-fuchs.com

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Technical data**General specifications**

Effective detection range	0 ... 3500 mm
Threshold detection range	3500 mm
Light source	IREd
Light type	modulated infrared light , 950 nm
Field height	1800 mm
Beam crossover	automatic, 3x/5x/7x (depending on distance between transmitter/receiver)
Beam blanking	Defective beams are faded out after 60 s. Deactivation of the light grid upon failure of 2 adjacent beams or more than 50 % of all beams
Beam spacing	90 mm
Number of beams	61 ... 135 (dynamic)
Angle of divergence	Emitter: < 20 ° , Receiver: < 6 °
Ambient light limit	> 100000 Lux

Functional safety related parameters

MTTF _d	180 a
Mission Time (T _M)	20 a
Diagnostic Coverage (DC)	0 %

Indicators/operating means

Function indicator	LED red (in receiver): Illuminates after connecting operating power, out when object is detected, flashes in case of permanent interruption of 2 neighbouring beams
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Electrical specifications

Operating voltage	U _B	11 ... 30 V DC: max.
Ripple		10 %
No-load supply current	I ₀	< 180 mA

Output

Switching type	light on	
Signal output	1 PNP and 1 NPN, short-circuit protected	
Switching voltage	max. 30 V DC	
Switching current	100 mA	
Switching frequency	f	< 3 Hz
Response time		< 100 ms

Ambient conditions

Ambient temperature	-20 ... 55 °C (-4 ... 131 °F)
Storage temperature	-20 ... 65 °C (-4 ... 149 °F)
Pollution Degree	Pollution Degree 2: Nonconductive pollution, temporary conductivity caused by condensation is possible

Mechanical specifications

Degree of protection	IP54
Connection	5 m fixed cable
Material	
Housing	aluminum
Optical face	plastic
Mass	2300 g (device)

General information

Use in the hazardous area	see more details for the use in hazardous areas
Category	3G; 3D

Compliance with standards and directives

Directive conformity	
EMC Directive 2004/108/EC	EN 12015:2014 EN 12016:2013
Standard conformity	
Product standard	EN 60947-5-2:2007 + A1:2012 IEC 60947-5-2:2007 + A1:2012
Standards	EN 81-70:2003/A1:2004; Section 5.2.4 EN 81-20:2014; Section 5.3.6.2.2.1 Taking into account object detection in accordance with the data sheet specification for the monitoring field.

Approvals and certificates

CCC approval	CCC approval / marking not required for products rated ≤36 V
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ATEX 3G (nA)

Instruction	Manual electrical apparatus for hazardous areas
Device category 3G (nA)	for use in hazardous areas with gas, vapour and mist
ATEX marking	⊕ II 3 G Ex nAc op is IIC T4
Directive conformity	94/9/EG
Standards	EN 60079-0:2009 , EN 60079-15:2010 , EN 60079-28:2007
Installation, commissioning	Laws and/or regulations and standards governing the use or intended usage goal must be observed. The apparatus should be set up so that the housing is oriented vertically and the cable glands enter the housing from above.
Maintenance	No modifications must be undertaken on apparatus, which is operated in hazardous areas. Repairs to such apparatus are not permissible.
Special conditions	
Maximum permissible ambient temperature T _{Umax}	55 °C (131 °F)
Protection from mechanical danger	The apparatus must be protected from mechanical damage.

Protection of overvoltage

Precautions must be taken to prevent the rated voltage being exceeded by more than 40 % due to transient disturbances.

Protection from UV light

The sensor and the connection cable must be protected from damaging UV-radiation. This can be achieved when the sensor is used in internal areas.

Other conditions

The apparatus should only be set up in areas that offer adequate protection against foreign objects or fluids entering the device. Non-intrinsically safe live circuits may only be connected and disconnected during installation, maintenance or repair. Installation, maintenance and repair work must not be carried out in explosive atmospheres.

ATEX 3D

Instruction

Manual electrical apparatus for hazardous areas

Details for use in hazardous areas

Electrical apparatus for potentially explosive atmospheres

ATEX marking

Ⓔ II 3 D Ex tc IIIB T80°C

Directive conformity

94/9/EG

Standards

EN 60079-31:2009

Installation, commissioning

Laws and/or regulations and standards governing the use or intended usage goal must be observed. Only connections that are disconnected from the power supply may be unplugged. The apparatus should be set up so that the housing is oriented vertically and the cable glands enter the housing from above.

Maintenance

No modifications must be undertaken on apparatus, which is operated in hazardous areas. Repairs to such apparatus are not permissible.

Special conditions

Protection from mechanical danger

The apparatus must be protected from mechanical damage.

Protection of overvoltage

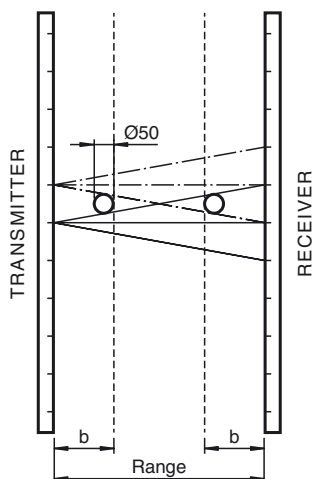
Precautions must be taken to prevent the rated voltage being exceeded by more than 40 % due to transient disturbances.

Protection from UV light

The sensor and the connection cable must be protected from damaging UV-radiation. This can be achieved when the sensor is used in internal areas.

Monitoring field

Object detection



Range [mm]	b [mm]
100	38
200	64
300	88
400	64
500	76
600	88
700	72
800	80
900	88
1000	96
1500	134
2000	171
2500	209
3000	246
3500	283

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