

Solid-state scanner with time-of-flight technology



ShieldScan-3M-SSR black



- Solid-state scanner with time-of-flight technology for reliable and silent operation in all ambient conditions
- Optimal beam geometry for maximum door safety
- Solid-state scanner for all conventional swing doors
- Virtual-wall function for hiding non-relevant areas
- Plug-and-play corner mounting with IP65 degree of protection
- Puristic, cubic, slim housing for full integration into the door
- One-teach function for simplified commissioning
- Increased pinch protection at the hinge edge
- SSR: solid-state relay
- Image and drawing are generic for this device type and may deviate from the specific variant



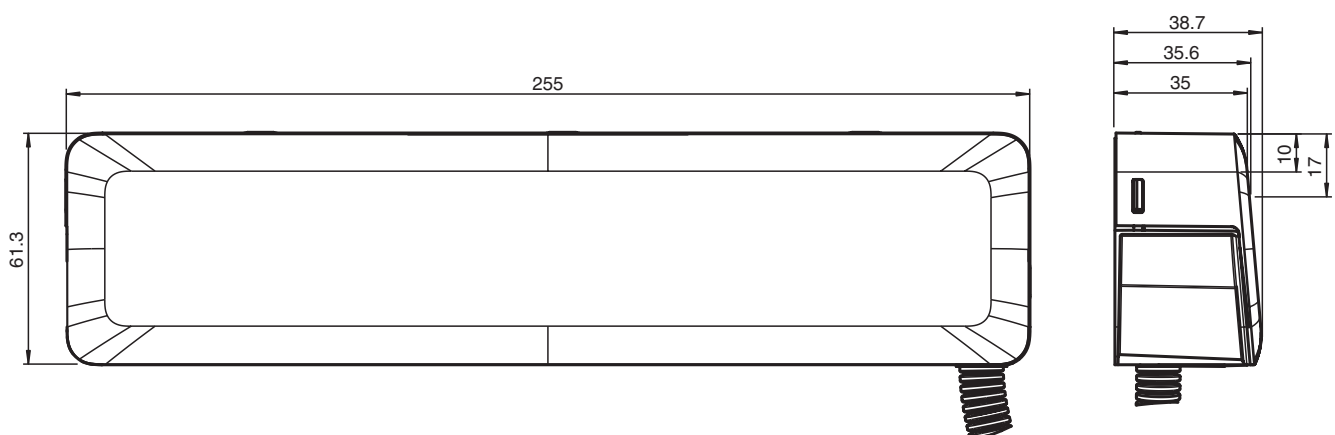
Function

The ShieldScan is used for pedestrian safety at automatic doors. The device operates as a solid-state scanner and forms a completely end-to-end detection field on each door side in accordance with DIN 18650/EN 16005. The 3 beam areas allow the device to monitor the leading edge, the door panel, and the hinge edge. If a person or an object interrupts one or more light beams, the device triggers the switching outputs. The sensor system adjusts to various door width up to 1800 mm. The sensor system consists of a primary sensor and a secondary sensor, that are connected with a cable. The IO module is plugged into the primary sensor. The IO module connects the device to the door controller.

Application

- Protection mechanism for closing edges on automatic doors
- Anti-collision protection for people/objects in the vicinity of revolving or carousel doors

Dimensions



Technical Data

General specifications

Light source	IRED 850 nm
Number of beams	20
Diameter of the light spot	8 cm at 2000 mm sensor range

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

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Technical Data

Functional safety related parameters

Safety Integrity Level (SIL)	SIL 2
Performance level (PL)	PL d
Category	Cat. 2
MTTF _d	> 100 a
Diagnostic Coverage (DC)	94 %

Indicators/operating means

Function indicator	Status LED red/green/orange Teach-in, errors, switch state LED red: Switch indicator for door hinge side LED green: Switch indicator for hinge opposite side
Control elements	Teach-In key , DIP switch for selection of operating modes

Electrical specifications

Operating voltage	U _B	24 V DC +/- 20 %
Protection class		III
Power consumption	P ₀	primary sensor 3.6 W secondary sensor 3.4 W

Input

Test input	High at U = 15 V DC ... 30 V DC Low at U = < 2 V DC
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Output

Switching type	switching when protection field is clear
Signal output	solid-state relay , short-circuit protected
Switching voltage	max. 30 V DC
Switching current	max. 60 mA
Response time	≤ 50 ms with installation height ≤ 2500 mm ≤ 80 ms with installation height > 2500 mm

Conformity

Functional safety	ISO 13849-1 ; EN 61508 part1-4
Product standard	EN 12978 ; EN 16005 ; DIN 18650

Approvals and certificates

TÜV approval	TÜV NORD
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Ambient conditions

Ambient temperature	-30 ... 60 °C (-22 ... 140 °F)
Storage temperature	-30 ... 70 °C (-22 ... 158 °F)
Relative humidity	25% ... 95% , non-condensing

Mechanical specifications

Mounting height	1500 ... 2500 mm (0.8 m ... 1.8 m door width) 2500 ... 3000 mm (0.8 m ... 1.6 m door width)
Degree of protection	IP65
Connection	Plug with connection cable , 8-wire
Material	
Housing	PC (Polycarbonate)
Optical face	PC (Polycarbonate)
Mass	approx. 500 g (kit)
Dimensions	
Height	61.3 mm
Depth	38.7 mm
Length	255 mm

Factory settings

Function	
DIP switch	switch 1 ON switch 2 ON switch 3 ON switch 4 ON
Adjuster	Adjustment dial: position 6 = installation height 2100 mm

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Technical Data

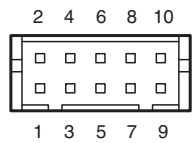
Scope of delivery	Sensor system for hinge side and leading edge side (1 primary sensor and 1 secondary sensor, connecting cable, door transition cable, corrugated hose with wall bracket, 2 x 3 self-tapping screws, drilling template, cable seal with IP65 degree of protection)
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Connection

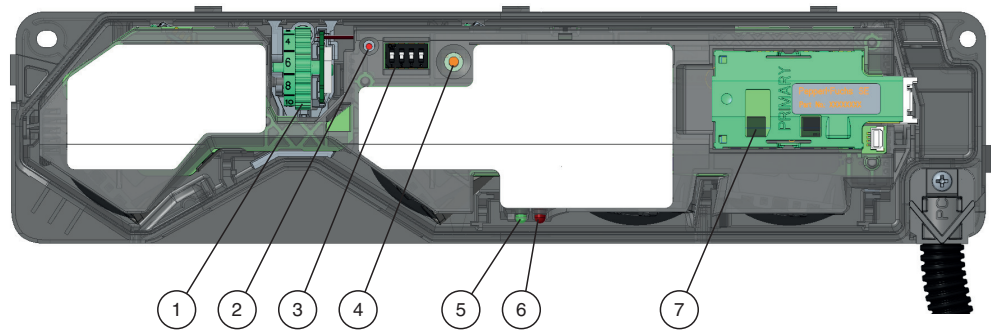
Solid-state relay

1	BN	— 0V
2	GN	— 24V
3	PK	— COMMON BGS
4	GY	— BGS OUT
5		— n.c.
6	YE	— COMMON BS
7	WH	— BS OUT
8		— n.c.
9	RD	— Test +
10	BU	— Test -

Connection Assignment



Assembly



1	Adjustment wheel for inclination angle
2	Status LED red/green/orange Teach-in, Errors, Switch state
3	DIP switch
4	Teach-in button
5	Green switch indicator, hinge opposite side (HOS)
6	Red switch indicator, hinge side (HS)
7	IO-Modul

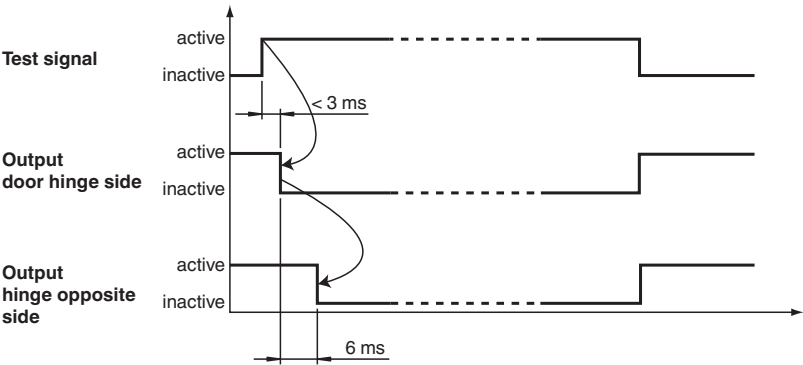
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Characteristic Curve

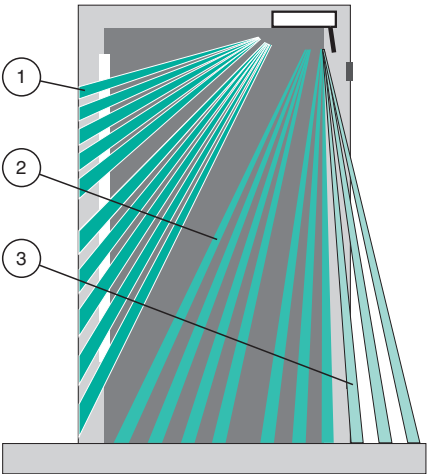
Test signal

The test signal must be in contact with the test input for at least 9 ms.

The signal outputs enable crossed circuit detection.
To do so, the outputs carry out a delayed shutoff from each other.



Operation



1	beams for the leading edge
2	beams for the door leaf
3	beams for the hinge edge

Configuration

DIP Switch
Factory setting: all DIP switches on

Pos.	Function	
	ON	OFF
1	Door hinge side	Hinge opposite side
2	no function	no function
3	Hinge edge on	Hinge edge off

Configuration

Pos.	Function	
	ON	OFF
4	Virtual-wall function enabled	Virtual-wall function disabled

Technical Features

- Virtual-Wall Function**

The device can adjust its protection field dynamically and according to the angle. It is therefore not necessary to explicitly teach in a wall behind the open door. When the door is opened, the individual beams of the protection field are suppressed one after the other until the maximum opening angle is reached. Any changes behind the open door are thereby ignored.
- Pinch protection on the hinge edge**

The beam field is "curved" in the area around the hinge edge. The curved beam field detects when someone is reaching around the side (pinch protection).

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