

Solid-state scanner with time-of-flight technology



ShieldScan-3M-SC 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
- SC: semiconductor (NPN/PNP)
- Image and drawing are generic for this device type and may deviate from the specific variant

Solid-state scanner for personal safety on automatic doors in accordance with DIN 18650/EN 16005, DIN left/DIN right, NPN/PNP output, black housing



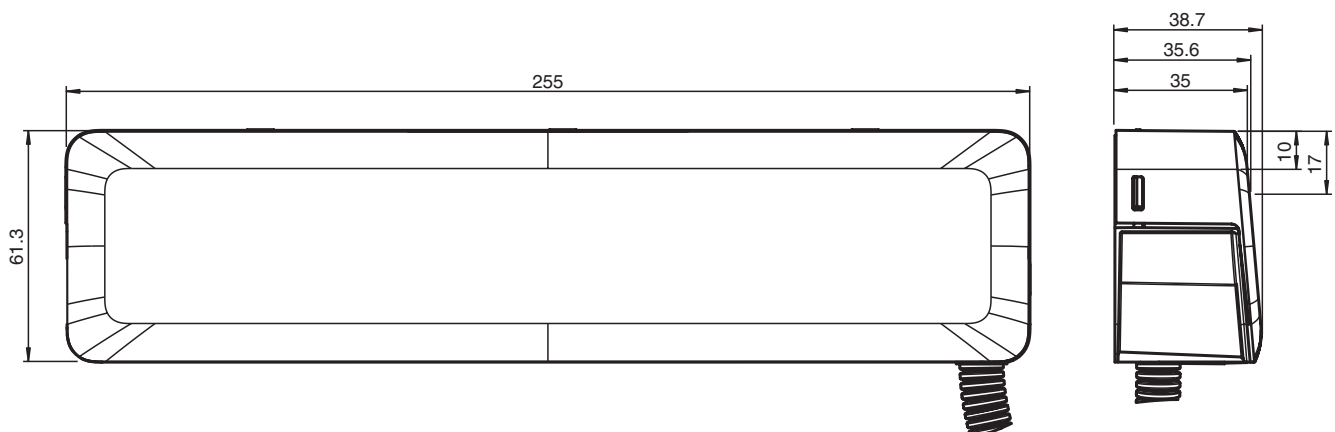
Function

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

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

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Technical Data

Diameter of the light spot		8 cm at 2000 mm sensor range	
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 = 10 V DC ... 30 V DC Low at U = < 2 V DC	
Output			
Switching type		switching when protection field is clear	
Signal output		NPN , PNP , short-circuit protected , switchable	
Switching voltage		max. 30 V DC	
Switching current		max. 100 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	
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 (0.5 m ... 1.8 m door width) 2500 ... 3000 mm (0.5 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

General information

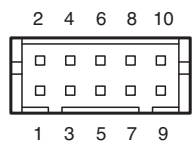
Scope of delivery	Sensor system for hinge side and leading edge side (1 primary sensor and 1 secondary sensor, connecting cable, door transition cable, corrugated hose with wall bracket, 2 x 3 self-tapping screws, drilling template, cable seal with IP65 degree of protection)
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Connection

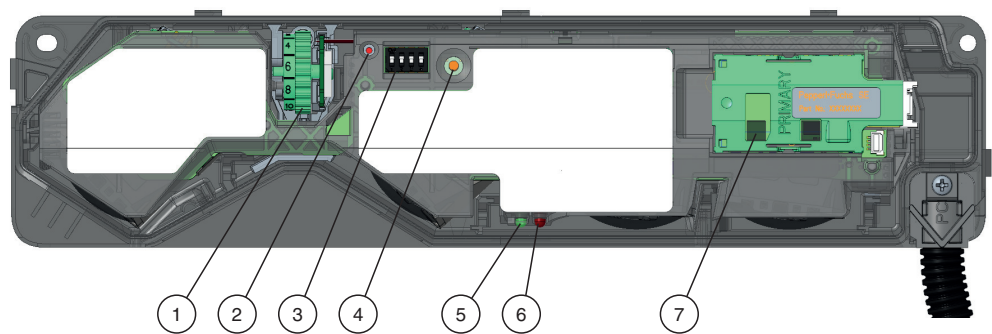
NPN/PNP

1	BN	— 0V
2	GN	— 24V
3		— n.c.
4	GY	— BGS OUT
5		— n.c.
6		— n.c.
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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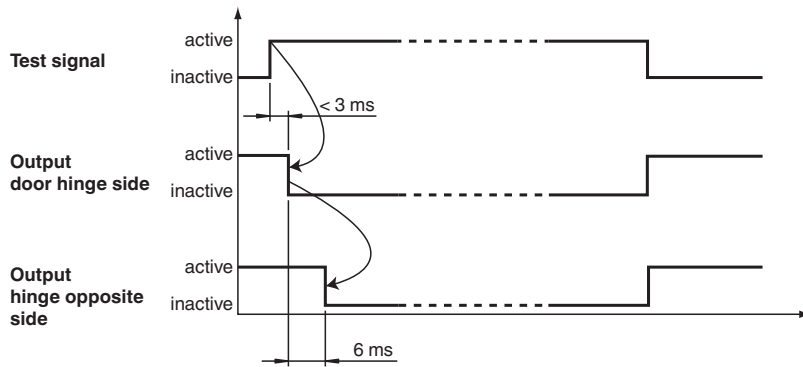
Characteristic Curve

Test signal

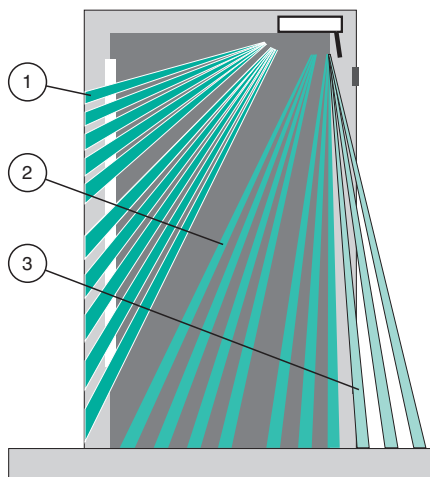
The test signal must be in contact with the test input for at least 9 ms.

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	NPN output	PNP output
3	Hinge edge on	Hinge edge off

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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).