

# Combined Motion and Presence Detector for Automatic Curved and Straight Sliding Doors GUARDIAN 2

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- Overhead sensor for curved and straight sliding doors
- Motion and presence detection in one unit
- Digital Video Camera Technology
- Easy teach of presence zone
- Environmental adaptation
- No Crosstalk between sensors
- Separate motion and presence output
- 2 x SPST relay outputs
- Supply voltage: 12 to 24 VAC/DC
- LED indication for: Power, Motion and Presence
- CE, UL325 and TÜV approved



## Product Description

The GUARDIAN 2 is an overhead sensor for pedestrian sliding doors. The sensor has combined motion and presence (safe) detection zones. The sensor is based on CMOS camera technology and detection on image processing. The motion zone reacts only to movement whereas the presence zone reacts to both movement and presence. The motion zone can be blanked in 3 directions (front, left and right) in order to avoid detec-

tion of unwanted objects. The presence zone is taught into the sensor by recognition of standard test targets in the setup phase - it will adapt to the shape of a curved or straight sliding door. The presence zone also adapts to the surroundings to work in different weather conditions. The sensor has separate outputs for the motion and presence zones as well as a test input to test the sensor function for each door cycle.

## Ordering Key

**GUARDIAN 2**

## Type Selection


Housing size	Ordering no.
210 x 77 x 58 mm	GUARDIAN 2

## Specifications

<b>Rated operational voltage (U<sub>e</sub>)</b>	12 - 24 VAC (12 - 24 VCA) RMS incl. ripple 50-60 Hz, ±15% tolerance 12 - 24 VDC (12 - 24 VCC) ±15% tolerance			<b>Test input*</b> Active high:	Max. input current 5 mA ON > 9 VAC/VDC OFF < 6 VAC/VDC
				Active low:	ON < 6 VAC/VDC OFF > 9 VAC/VDC
<b>No load supply current (I<sub>e</sub>)</b>	<b>Typical</b> 192 mA 146 mA 103 mA 65 mA	<b>Max.</b> 230 mA 170 mA 120 mA 80 mA	 @ 12V AC @ 12V DC @ 24V AC @ 24V DC	<b>Sensitivity</b>	Adjusting in 7 steps
<b>Technology</b>	Digital video camera technology			<b>Presence zone reaction time</b> Reaction time:	210 ms (20% contrast, object speed 1 m/s, test body CA (DIN18650-1))
<b>Power ON delay</b>	5 seconds			Fall time:	500 ms
<b>Output function*</b> Safety and Motion Zone Common relay data: Operations minimum	Relay – SPST 1A DC 30VDC 600.000 @ 0,5A, 50 VAC/ 30 VDC			<b>Motion zone reaction time</b> Reaction time:	1,2 s (20% contrast, object speed 1 m/s, test body CA (DIN18650-1))
Operations minimum	100.000 @ 1A, 30 VDC			Fall time:	500 ms

\* UL connected to supply class 2

## Specifications (cont.)

<b>Presence time</b> (Background relearn time) In accordance with DIN18650 Not in accordance with DIN18650	7 step rotary switch 1 min, 5 min.  10 sec, 30 sec.	<b>Type of ESPE</b> Type 2	The sensing functions have to be tested for each door cycle by applying a test signal to the terminals 2+3. See test input.
<b>Vibration</b>	10 to 150 Hz 0.5 mm/7.5g (IEC 60068-2-6)	<b>LED indications</b> Green LED Yellow LED Red LED	Power ON Motion detected Presence detected For special LED functions see page 3
<b>Shock</b>	2 x 1 m and 100 x 0.5 m (IEC 60068-2-32)	<b>Rated Insulation voltage</b>	50 VDC
<b>Ambient temperature range**</b> Operating Store	-25° to +55°C (-13° to +131°F) -25° to +80°C (-13° to +176°F)	<b>Weight</b>	460 g
<b>Ambient light</b>	10 lux - 50.000 lux 40 lux - 50.000 lux, TÜV approved, measured at the sensor surface	<b>Electromagnetic compatibility</b>	In acc. with EMC directive 2004/108/EG Immunity in acc. with EN61326-1 and EN61326-3-1
<b>Contrast</b>	Min. 20% contrast between the floor and object	<b>Marking</b>	CE
<b>Material</b> Housing and cover Front glass	ABS Black Clear transparent, polycarbonate.	<b>TÜV-Approval</b>	In acc. with machinery directive 2006/42/EC, annex I DIN 18650-1 § 5.7.4, edition 2005 (prEN16005), EN13241-1, EN 12978, edition 2003, EN61508, edition 2001, ENISO13849-1: 2008 cat.2 pl. c for presence detection
<b>Connection cable</b>	3 m 8 x 0,14 mm <sup>2</sup> LIYY grey Max. cable length: 10 m.	 Baumuster geprüft	
<b>Environment protection</b>	IP64 (EN 60529, 60947-1)	<b>UL-Approval</b>	cULus UL325, CSA-C22.2 No.247
<b>Installation category</b>	III (IEC 60664 / 60664A / EN 60947-1)		
<b>Pollution degree</b>	3 (IEC 60664 / 60664A / EN 60947-1)		
<b>Humidity</b>	0 % to 90 % relative, non condensing		

\*\* UL approved temperature range -25° to +40°C (-13° to +104°F)

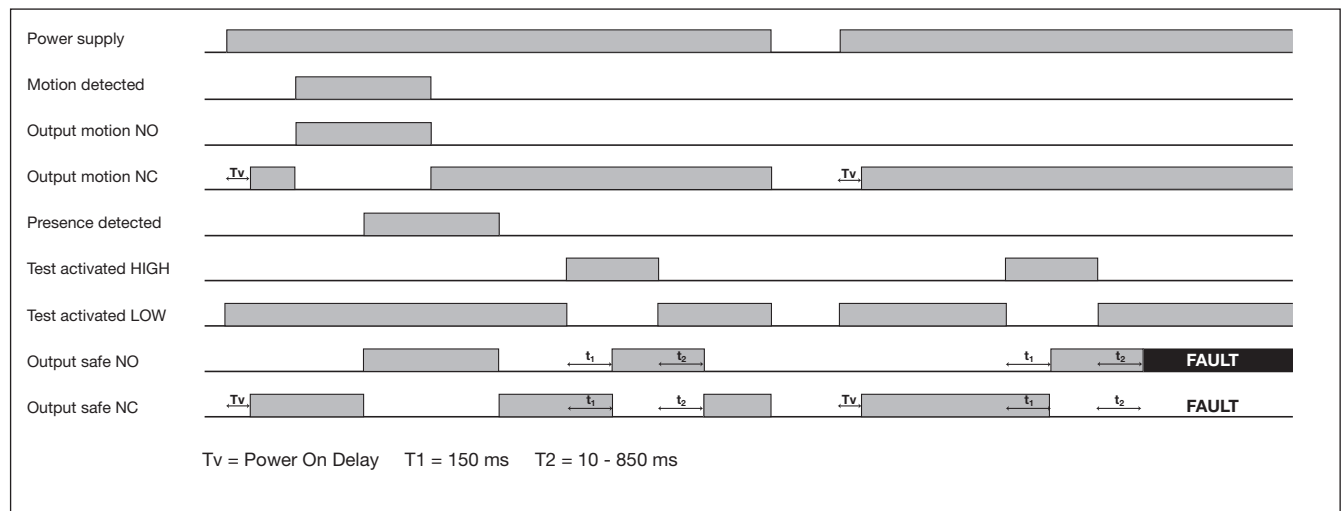
## Specifications straight sliding door

<b>Motion zone sensing area</b> Height 180 cm Height 220 cm Height 300 cm	(W x D) 246 x 204 cm 300 x 249 cm 410 x 340 cm The motion area can be blanked from left, right and front in 7 steps on three rotary switches
<b>Presence zone sensing area</b> Height 180 cm Height 220 cm Height 300 cm	(W x D) 42 cm x door width 51 cm x door width 70 cm x door width
<b>Mounting height</b>	1.8 m to 3.0 m
<b>Placement of sensor</b> Horizontal distance from door  Vertical distance from door	max 50 cm in front of the door. The sensor must be able to see the door opening. 10 cm from the top of the door opening

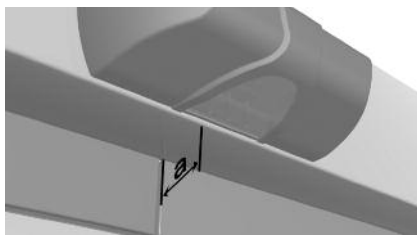
## Specifications curved sliding door

<b>Door radius size as a function of mounting height</b> Height 200 cm Height 250 cm Height 300 cm	Radius 130 cm Radius 170 cm Radius 200 cm
<b>Sensor distance from curved door (a) as a function of curved door radius (Fig. 1)</b> Radius 80 cm Radius 90 cm Radius 100 cm Radius 110 cm Radius 120 cm Radius 130 cm Radius 140 cm Radius 150 cm Radius 160 cm Radius 170 cm Radius 180 cm Radius 190 cm Radius 200 cm	Distance 8.2 cm Distance 10.2 cm Distance 12.2 cm Distance 14.3 cm Distance 16.7 cm Distance 18.7 cm Distance 21.0 cm Distance 23.4 cm Distance 25.8 cm Distance 28.3 cm Distance 30.8 cm Distance 33.3 cm Distance 35.9 cm
<b>Mounting height</b>	1.8 m to 3.0 m

## Operation Diagram

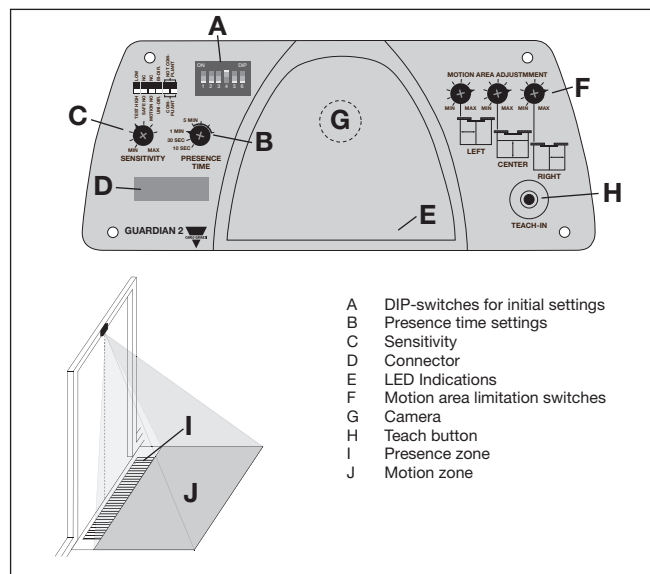


**Fig. 1**



Horizontal distance to door (a)

## Component Guide



## DIP-Switch Settings

Set up the DIP-switches to match the door controller.

### DIP-switch 1 - Sensor test input

- ☐ Test input Active Low
- ☐ Test input Active High

### DIP-switch 2 - Safety output

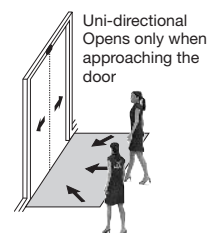
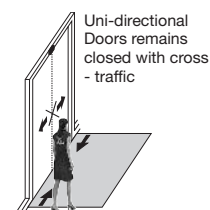
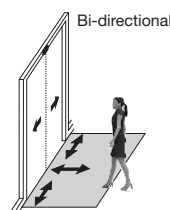
- ☐ Normally closed (NC)
- ☐ Normally open (NO)

### DIP-switch 3 - Motion output

- ☐ Normally closed (NC)
- ☐ Normally open (NO)

### DIP-switch 4 - Direction recognition

- ☐ Bi-directional mode
- ☐ Uni-directional mode)



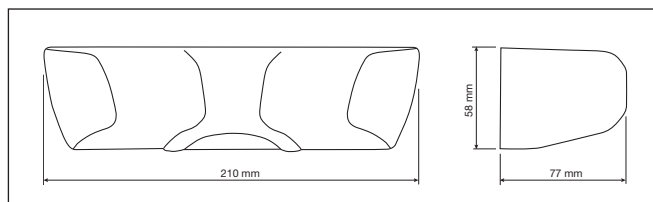
### DIP-switch 5 and 6

- ☐ Not in accordance with DIN18650-1 (prEN16005)
- ☐ In accordance with DIN18650-1 (prEN16005)
- ☐ Not valid (red LED flashes and output relays is set in safe mode)

## LED Indications

Situation / LED	Yellow	Red	Green
<b>Normal</b>	Motion detected	Presence detected	Power On
<b>No presence zone stored</b>	Running light on all LED's		
<b>Teach mode</b>	Flashing simultaneously		
<b>Background stored</b>	Off	Off	Flashing
<b>Not allowed DIN18650</b>	Off	Flashing	On
<b>Self test failed</b>	Flashing simultaneously		On
<b>Sensor error Contact installer</b>	On	On	Off

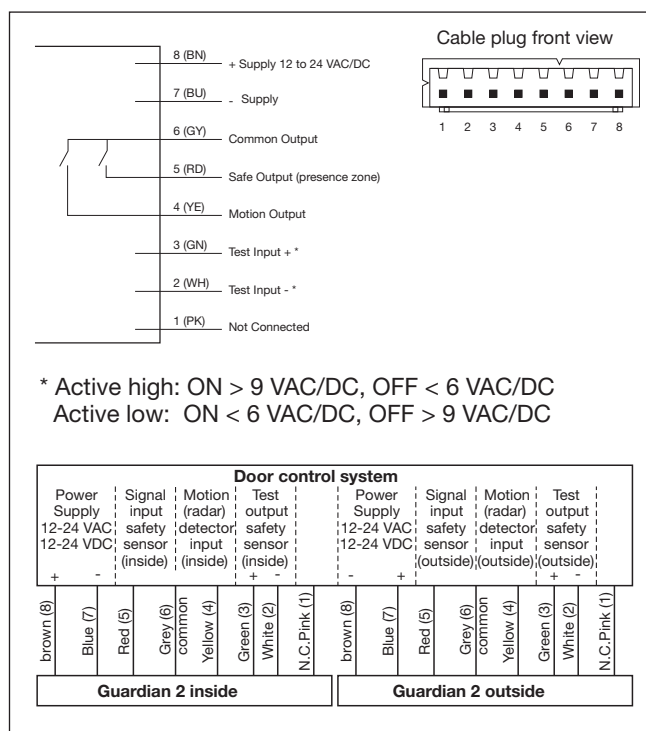
## Dimensions



## Delivery Contents

- GUARDIAN 2 door sensor
- User Manual
- Drilling template
- 3 m connection cable with connector
- **Packaging:** Cardboard box

## Wiring Diagram



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