WN 058109 45532, 03/23
16089

Sensor for approach detection at industrial doors

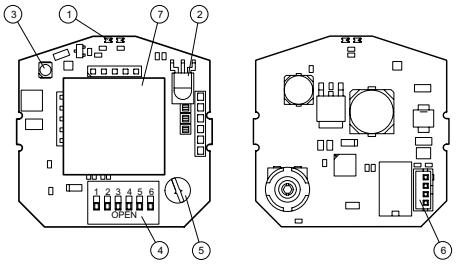
In order to comply with the safety requirements of EN 60650-1 and UL508, the sensor must be operated with safety extra-low voltage (SELV).
The total output power must not exceed 100 W under any circumstances. Use for example T2, 5A fuse to ensure compliance.

Delivery package

1	Sensor
1	Connection cable
2	Screws for mounting (in the housing)
1	Self-adhesive mounting template
1	Mounting instructions

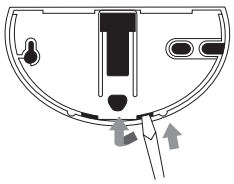
Elements

①	LED (red/green)	⑤	Potentiometer
②	IR receiver	⑥	Connector
③	IR transmitter	⑦	Antenna
④	DIP switches		

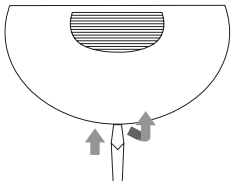


Components can be damaged by electrostatic energy!
Do not touch any electronic components.
Do not use metal tools.

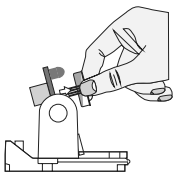
Preparation
Insert the screwdriver into the opening provided from behind, carefully lift up the cover, fold upwards and remove.



Do not open the housing from the top.



Turning the antenna (to change the antenna characteristics)
Remove the antenna carefully using two fingers and insert in the antenna orientation for the required detection area.



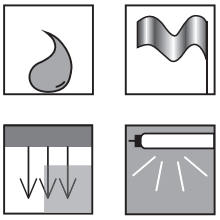
Do not bend the contacts.
Do not touch the surface of the antenna.

Antenna characteristics
A wide or narrow detection area can be set with the turnable antenna.

Installation height	2.20 m
Detection area angle	30°
Detection area size	Max

Wide			Width: Depth:	4.50 m 2.00 m
Narrow			Width: Depth:	2.00 m 4.50 m

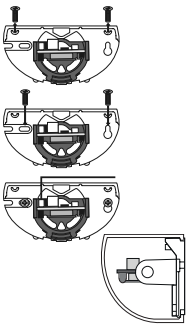
Installation information
- Protect the sensor from rain*.
- Avoid moving objects in the detection area (fans, plants, etc.).
- Do not cover the sensor. Mount the sensor only behind suitable covers.
- Moving drive components affect the sensor.
- Avoid fluorescent lights in the detection area.
- The installation conditions may limit the programming options and the functions of the sensor.



* **dormakaba recommends installing a weather cap for outdoor applications**

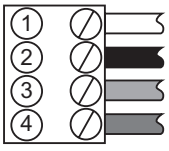
Accessories
Remote control
Rain protection cover

Mounting
Attach the self-adhesive template and drill according to the hole pattern.
Guide the cable through the opening provided.
Fasten the baseplate using the screws (screws are in the housing).
Can be mounted on the ceiling using the rain protection cover.

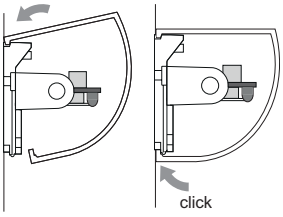


Connecting the sensor
Connect the cable to the terminal as follows:

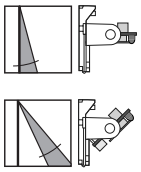
①	white	=	GND
②	brown	=	12 - 36 V DC/ 12 - 28 V AC
③	green	=	COM
④	yellow	=	NO/NC



Replacing the cover
Attach the cover on the top and press down until it snaps into place.



Adjusting the inclination angle



0°

40°

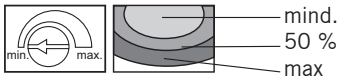
Position can be modified in 5° increments.
Holding the sensor's baseplate by the sides, move it forward and position it as required.

Setting for an inclined detection area

Turn the PCB from -35° to +35° (horizontal movement) to adjust the detection range. The position can be modified in 2.5°.

Detection area size/Sensitivity

Change the size of the detection area using the potentiometer.



Detection capabilities

Direction detection

No direction recognition

With forward direction recognition (towards the sensor)

With backward direction recognition (away from the sensor)

Cross-traffic suppression

Cross-traffic suppression allows passers-by to be partially suppressed.
The detection field is reduced when this option is set.

Little cross-traffic, (1 ... 5)
door remains closed

A lot of cross-traffic, (6 ... 10)
door remains closed

Slow Motion

Even the smallest of movements are detected.
"Door closed" setting
Door opens even when extremely slow-moving objects approach.
"Door open" setting
The door closes if no movement is detected within the monitoring time.

Monitoring time/sensitivity:
3 seconds, decreasing

Monitoring time/sensitivity:
5 seconds, constant maximum sensitivity

Immunity (1 ... 7)

Immunity can be used to minimize interference such as rain, vibration and reflections.

LED status display

Color indicator		Status
G	Green	Device ready for operation
R	Red	Detection active
G	Green flashing	Command received
R	Red flashing	Fault
R/G	Red/green flashing	Initialisation after switching on

Setup

Remove all objects from the door area that do not normally belong there.
Switch on the device and wait 10 s
(the red/green LED will flash).
Test the settings by walking near the detection area.
The red LED lights up when an object is detected.

Swing door applications

The sensor can be used on swing doors.
Mount the sensor approx. 20 - 30 cm above the door edge to the sides of the door hinges (hinge side) and activate cross-traffic suppression. The closing door leaves are not detected as a result.

Additional functions

During the initialization period you can switch on the additional functions mode.
In order to do this, switch DIP switch 5. The green LED will flash. Set the additional function and reset DIP switch 5.

DIP switch 6 must be up (ON)
Remember the position of the potentiometer so that you can reset it if required.

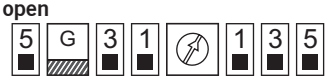
Initialisation period

The hardware and software are initialised when the operating voltage is connected. Initialisation lasts 10 seconds.
The red/green LED will flash. Adjust the sensor.
Check the settings by walking the detection area.

Additional functions can only be set during initialisation.

During potentiometer adjustment, the LED blinks alternately red/green. This allows you to count the adjusted setting and goes for all additional functions!

Slow motion detection area
Door open

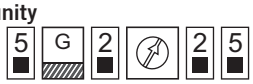


1. Switch DIP switch 5.
   - The green LED will flash.
2. Switch DIP switch 3.
3. Switch DIP switch 1.
4. Change the detection area size using the potentiometer.
5. Reset DIP switch 1.
6. Reset DIP switch 3.
   - The settings are saved.
7. Reset DIP switch 5.

Slow motion detection area
Door closed

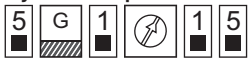
1. Switch DIP switch 5.
   - The green LED will flash.
2. Switch DIP switch 3.
3. Switch DIP switch 2.
4. Change the detection area size using the potentiometer.
5. Reset DIP switch 2.
6. Reset DIP switch 3.
   - The settings are saved.
7. Reset DIP switch 5.

Immunity



1. Switch DIP switch 5.
   - The green LED will flash.
2. Switch DIP switch 2.
3. Change the sensitivity of immunity using the potentiometer.
   - The LED displays the immunity setting.
4. Reset DIP switch 2.
   - The settings are saved.
5. Reset DIP switch 5.

Off-delay time (output)



1. Switch DIP switch 5.
   - The green LED will flash.
2. Switch DIP switch 1.
3. Change the relay off-delay time using the potentiometer. The relay is then continually opened and closed at the adjusted off-delay time.
   - The LED changes from green to red accordingly.
4. Reset DIP switch 1.
   - The settings are saved.
5. Reset DIP switch 5.

Restoring original settings

1. Switch DIP switch 5.
   - The green LED will flash.
2. Switch DIP switch 4.
   - The red LED will flash.
3. Reset DIP switch 4.
   - The sensor is reset to the original settings and restarted.
4. Reset DIP switch 5 after the initialisation period has expired.

DIP switch settings (check the setting by walking the detection area)

No.	DIP switches	Direction of detection	Cross-traffic suppression	Slow Motion		Zusätzlich empfohlene Einstellungen		
				Door open	Door closed	Detection area size	Off-delay time	Application example
1	1 2 3 4 5 6		--	--	--		1 s	Standard
							0.2 s	Vestibule
2				--	--		0.5 s	Pavement
							1 s	High mounting (optional, wide area)
3					--			
4				--	--			
5								
6			--		--		1.5 s	Supermarket (optional, wide area)
7			--		--			
8			--	--	--			
9			--	--	--			
10				--	--			
11					--			
12				--	--			
13			--		--		2 s	Retirement home (optional, wide area)
14			--		--			
15			--					
16			--		--			

Relay contact

Relay contact when detection is active (NO)

Relay contact when detection is passive (NC)

Programming with the "Prosecure Remote Control"

DIP switch 6 on the sensor must be down (OFF) to enable access with remote control.

The sensor addresses are preset using DIP switches 1 to 4 (see table on next page).
If several sensors are located within the range of the remote control, these sensors must be set to different addresses. The potentiometer and DIP switch 5 have no function when working with remote control. Before starting programming, read the remote control instructions.
The remote control must be directed accurately towards the sensor to establish a connection with the sensor.

Establishing a connection with the sensor

1. Select the sensor type and confirm with ✓.
2. Select or search for an address and confirm with ✓.
3. If the sensor is protected, enter the 4-digit code and confirm with ✓.
   - The sensor can now be programmed.

Programming the sensor

1. Select the parameters and confirm with ✓.
2. Read the setting and confirm with ✓.
   - The current setting is displayed.
3. Adjust the required setting and confirm with ✓.
4. Return to parameter list with ⌫.
5. Proceed in the same way with other parameters.

Secured access

The sensor can be protected with a code to prevent against unauthorised programming.

Activating access protection using a code

1. Select the "Code" parameter and confirm with ✓.
2. Select "Access with code" and confirm with ✓.
3. Enter 4-digit code.
4. Repeat code.
   - The sensor is now protected.

Deactivating access protection using a code

1. Establish a connection with the sensor.
2. Select the "Code" parameter and confirm with ✓.
3. Select "Access without code" and confirm with ✓.
   - Access protection is now deactivated.

Disable access

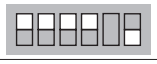
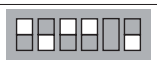
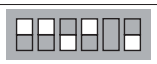
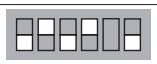
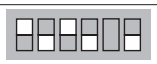
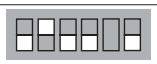
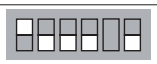
1. Select the "Code" parameter and confirm with ✓.
2. Select "Disable access" and confirm with ✓.
   - Access with the remote control is now no longer possible.

Remote control settings (check the setting by walking the detection area)

Menu	Settings	Description
Sensitivity	1 - 16	1: Small detection area 16: Large detection area
Detection mode	Off Stereo forward Stereo backward Mono	No detection Detects movements in the direction of the sensor Detects movements away from the sensor Detects both forward and backward movements
Off-delay time (output)	Off 0.2 s, 0.5 s, 1 s, 1.5 s, 2 s, 3 s, 4 s, 5 s	Off: Relay is not operating 0.2 s: Shortest off-delay time 5.0 s: Longest off-delay time
Relay contact	NO contact NC contact	Relay contact closes on detection (NO) Relay contact opens on detection (NC)
Cross-traffic suppression	Off 1 - 10	Off: No cross-traffic optimization 1: Low cross-traffic optimization 10: High cross-traffic optimization
Slow Motion Door open (LED red)	Off 1 s, 3 s, 5 s **1***	Off: Slow motion deactivated Monitoring time/sensitivity
Slow Motion Door closed (LED green)	Off On	Slow motion deactivated Slow motion activated
Slow motion field Door open.	1 - 10	1: Small detection area 10: Large detection area
Slow motion field Door closed	1 - 10	1: Small detection area 10: Large detection area
Immunity	1 - 7	1: Minimum immunity 7: Maximum immunity
Standard profiles	Profile 1 - 16	For settings see "DIP switch settings" table
Reset		Reset to original settings
Code	Access with code Disable access Access without code	Access with remote control is only possible after a code is entered. Access is disabled. No remote control access possible. Access with remote control is possible at all times.
Disconnect		Exit programming mode

1* - The sensor turns off the detection if no movement within the set time.

Setting the Address

Sensor address	DIP switches
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	

Programming with the BEA remote control
In addition to the setting options described in the product's operation manual, the sensor can be operated with the BEA remote control.

This function is activated as follows:
1. DIP switch 6 to OFF
   → IR mode = ON
2. DIP switch 5 to OFF
   → IR mode = BEA remote control

Note:
- DIP switches 1 – 4 have no function
- The potentiometer has no function
-

Parameterization
Recurrent steps for parameterization:

Unlocking
Unlock the sensor by pressing the "Padlock open" button. If an unlock code is expected, the red LED flashes at about 5 Hz. After entering the correct code, the red LED flashes at about 2 Hz. If no code is required, the red LED flashes at 2 Hz after pressing the button. As long as the sensor is in parameterization mode, the red LED flashes at approx. 2 Hz. If four wrong digits are entered during unlocking, the input mode is exited, the red LED goes out and the green LED lights up as long as the sensor does not detect any movement. For the first 60 seconds after a sensor restart, no code is required for unlocking.

Select function
If a function key is pressed, the red LED flashes at approx. 5Hz and waits for a numerical value. After a number key is entered, the received value is indicated by the green LED flashing.

Locking
Lock the sensor after entering all parameters by pressing the "Padlock closed" key. Press twice for immediate locking with old code. Press once to enter new code within 60 seconds. The code may contain a maximum of 4 digits. Red LED flashes at approx. 5 Hz while waiting for new code. The old code can be deleted by entering the code 0 or 0000. If nothing is inputted for 60 seconds, the sensor is automatically locked.

Functions

Button	Function description	Adjustment range	Factory settings
Padlock open	Start parameterization mode – Unlocking		without code
Padlock closed	End parameterization mode – Locking		
◢	Sensitivity - Field size	0 (minimum sensitivity) … 9 (maximum sensitivity)	7
🕓	Hold time	0 = 0.5 secs 1 = 1 sec … 9 = 9 secs	1
÷	Switching output	1 => Relay n. o. 2 => Relay n. c.	1
↔	Detection mode Detection of objects …	1 => moving towards or away from the sensor 2 => moving towards the sensor 3 => moving towards the sensor. As soon as an object is detected, change to detection mode 1. If no other objects are detected, return to detection mode 3. 4 => moving away from the sensor. 5 => moving away from the sensor. As soon as an object is detected, change to detection mode 1. If no other objects are detected, return to detection mode 5.	2
<<□>>	Immunity	1 (smallest filtration)...9 (largest filtration)	2
Ghost	Cross-traffic suppression	0 => off 9 => maximum suppression	2
Magic wand	Factory reset after pressing 9 key	9	
F2	Sensor operation	1 (automatic) 2 (permanently detected) 3 (permanently not detected)	1
D	Mounting height	1 (for mounting height < 3m, corresponds to sensitivity 0...9 of P+F remote control) 2 (for mounting height > 3m, corresponds to sensitivity 6...16 of P+F remote control)	2
0 … 9, +, -	Use depending on the function pressed		
F1, A, B, C, color buttons (blue, red, green, yellow), camera with clock	without use		
?	Value query of the previously pressed function key		

Notes

Separate parameter ranges are managed in the sensor for each of the three available setting methods (Pepperl+Fuchs remote control, buttons, BEA remote control). This means that settings made using buttons are not lost if a remote control mode has been set in the meantime via DIP 6.

On the other hand, you cannot, for example, use a remote control to read out settings made with the buttons.

Prosecure Opti Motion Stereo

Troubleshooting

Fault	Corrective action
Door is detected.	Reduce the detection area size. Adjust the inclination angle.
LED not lit up.	No power supply. Device defective.
Sensor responds to very slight interference such as rain, vibration, reflections. Door opens for no apparent reason.	Increase immunity. Reduce the detection area size.
Potentiometer does not respond.	Operation by remote control is activated. Push DIP switch 6 UP (ON).
Remote control does not respond.	Operation with DIP switch and potentiometer is set. Push DIP switch 6 DOWN. Device is disabled (OFF). Switch the operating voltage off and on again. Sensor can be configured for 30 minutes without code. Check the remote control battery.

Original settings

Function	Setting
DIP switches	Switch 1-4: top, 5-6: bottom (BEA Remote Control)
Detection field angle	15°
Direction of detection	Forward
Off-delay time (output)	1 s
Relay contact	Active
Immunity	2
Slow Motion	Off
Cross traffic suppression	2
Sensitivity	14

Technical data

Operating principle	Microwave module
Detection speed	Min. 0.1 m/s
Approvals	CE
Detection field angle vertical horizontal	 0 .. 90° in 5° increments ± 30° in 2.5° increments
Detection range at installation height of 2200 mm and 30° angle:	(W x D) Narrow: 2000 x 4500 mm Wide: 4500 x 2000 mm
Operating frequency	24.15 ... 24.25 GHz, K band
Status display	Red/green LED
Operating controls	Potentiometer and DIP switch
Operating voltage	12 - 36 V DC/12 - 28 V AC
No-load current	< 50 mA at 24 V DC
Power consumption	< 1.2 W at 24 V DC, < 1.7 W at 36 V DC
Operation mode	Active/passive
Signal output	Relay: 1 NO/NC
Switching voltage	Max. 48 V AC/48 V DC
Switching current	Max. 0.5 A AC/1 A DC
Switching power	Max. 24 W/ 60 VA
Off-delay time (output)	off, 0.2 s - 5 s, adjustable (default setting 1 s)
Ambient temperature	-20 °C to 60 °C
Relative humidity	Max. 90 %, not condensing
Mounting height	Max. 4000 mm
Class of protection	IP 54
Connection	Plug, 4-pin (connector cable included with delivery)
Housing material	Polycarbonate (PC), ABS
Weight	130 g
Transmitting power	< 20 dBm EIRP
Dimensions without rain protection cover (W x H x D)	123 mm x 65 mm x 57 mm

EC DECLARATION OF CONFORMITY

dormakaba Deutschland GmbH
DORMA Platz 1, 58256 Ennepetal, Germany

declares that the product
Prosecure Opti Motion Mono/Stereo,
Prosecure Easy Motion Mono/Stereo
complies with the provisions of the EC Directive(s) specified in the Appendix and that the standards and/or technical specifications referred to in the Appendix were applied.

Directive:

2014/53/EU Radio Equipment
2011/65/EU RoHS

Harmonized European standard, national rule:

EN 62368-1
EN 301489-1 V1.9.2
EN IEC 63000

UKCA Declaration of Conformity

dormakaba Deutschland GmbH
DORMA Platz 1, 58256 Ennepetal, Germany

declares that the product(s)
Prosecure Opti Motion Mono/Stereo,
Prosecure Easy Motion Mono/Stereo
complies with the provisions of the applicable UK legislation and UK designated standards.

UK Legislation:

Radio Equipment Regulations 2017
RoHS, The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Regulation 2012

Designated Standards:

EN62368-1:2014+AC:2015
EN 301489-1 V1.9.2
EN IEC 63000:2018

DOCT-2811B Part-no. 257310

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