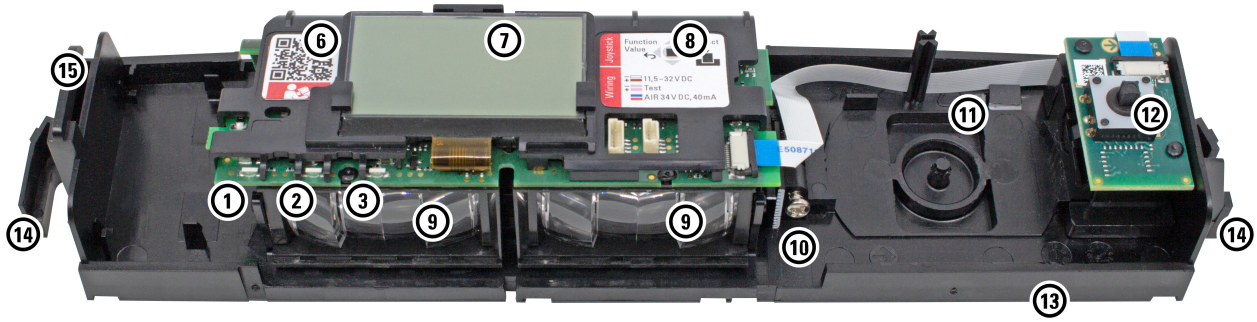
BBC BIRCHER
Smart Access

DualSense S

Sensor for safeguarding automatic sliding doors in accordance with EN 16005 and DIN 18650

1 **Description** 2
1.1 Function 2
1.2 Scope of delivery 2
2 ⚠ **Safety instructions** 2
3 **Installation** 2
3.1 Mounting position 2
3.2 Mounting preparation 2
3.3 Mounting 2
3.4 Electrical connection 5
4 **Settings** 5
4.1 Software configuration 5
4.2 Mechanical settings 7
5 **Operation** 8
5.1 Commissioning 8
5.2 Status display 8
5.3 Regular work 9
6 **Faults** 9
6.1 Tools 9
7 **Technical data** 10
8 **Contact** 11



1 Red LED (active infrared, AIR)
2 Green LED (system)
3 Blue LED (without function)
4 Infrared light window (AIR)
5 Cover
6 QR link to online documentation
7 Display
8 Connection label
9 Optics (4 AIR lenses each)
10 AIR angle adjustment
11 Position not used
12 Joystick
13 Support plate
14 Fastening clips
15 Cable strain relief

1 Description

1.1 Function

The sensor is designed for mounting above an automatic pedestrian door and for connection to the door controller.

To safeguard the door, an AIR field (active infrared) detects the presence of people.

1.2 Scope of delivery

Standard package contents

- Sensor with cover
- Connection cable with plug-in connection
- Cover plates for AIR lenses
- Mounting materials
- Drilling template
- QuickStart guide

Optional accessories

- Rain cover
- Curved adapter
- Ceiling mounting bracket
- Ceiling mounting kit

2 ⚠ Safety instructions

Read the operating instructions carefully before commissioning the device. Keep the instructions for future use.

Intended use

The manufacturer is only liable for products used as intended. Only use this product for the function specified:

Sensor for safeguarding automatic sliding doors in accordance with EN 16005 and DIN 18650

Personnel qualification

Only trained and qualified personnel may install and commission the device.

The installer is responsible for installing the device and the connected system in accordance with the regulations and standards.

General safety instructions

It is the responsibility of the equipment installer to carry out a risk assessment and to install the system, in compliance with applicable regulations and safety standards.

If installation according to EN 61558 is required, the detector may only be operated using safety extra-low voltages (SELV) with safe electrical isolation.

The cables must be protected against mechanical damage.

3 Installation

3.1 Mounting position

Door requirements for the sensor:

- Always position a sensor above the main closing edge.

Requirements for the environment:

- Surface must be stable, vibration-proof and grounded.
- The sensor requires an unobstructed field of view to detect objects.
- Avoid proximity to fluorescent lamps.
- Avoid pointing strong streams of air (currents of warm air, ventilation systems) at the sensor.
- Shield the sensor against extreme weather conditions, e.g. with a rain cover, canopy or installation under the door lintel.

Sensor distance to door level:

- Max. 300 mm as standard, see section "Set the AIR inclination angle".
- A reduced distance is recommended for mounting with the ceiling mounting kit, see section "Ceiling mounting kit".

3.2 Mounting preparation

1) Disconnect the power supply to the door controller.
2) Specify the mounting position.
3) Lay the connection cable. Ensure that the cable is routed so that it is free of electromagnetic interference. Avoid e.g. parallel routing of the cables for the sensor and door drive.
4) Remove the cover from the sensor.
5) Prepare Mechanical settings according to the mounting situation:
   - To limit the AIR field, cover lenses.
   - Set the AIR inclination angle according to the table.

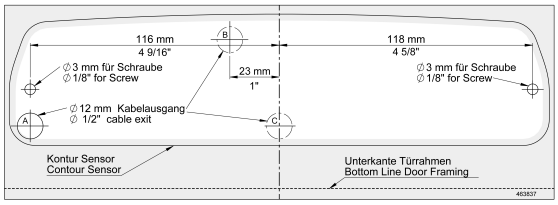
3.3 Mounting

The sensor is attached to or above the door frame as standard.

The sensor can also be attached in the door frame or under the ceiling with the corresponding accessories, see 3.3.1 "Ceiling mounting with angle"

Optionally, installation in a suspended ceiling is possible, see 3.3.2 "Ceiling mounting kit"

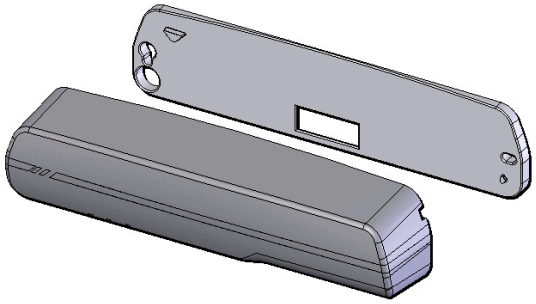
1) Glue the drilling template onto the door frame. Pull the edge of the drilling template (marked gray in the picture) away from the gluing point.

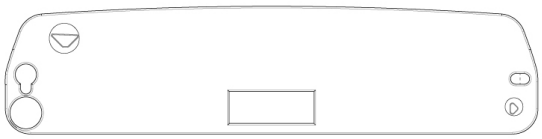


2) Center-punch the positions for self-drilling screws or drill screw holes Ø 3 mm.
3) Drill a cable aperture Ø 12 mm at position A, B or C.
4) Position the following optional accessories on the screw holes:

Curved adapter

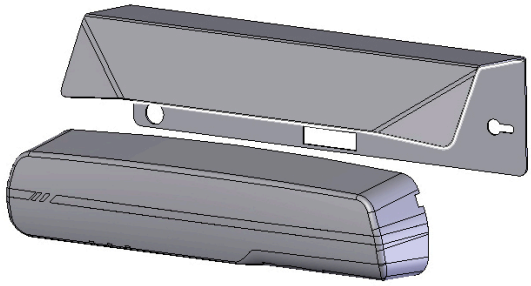
to level the mounting surface on a revolving door

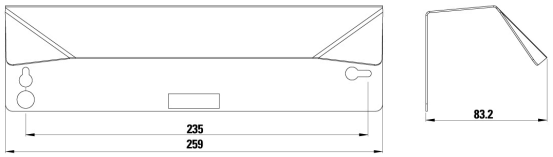




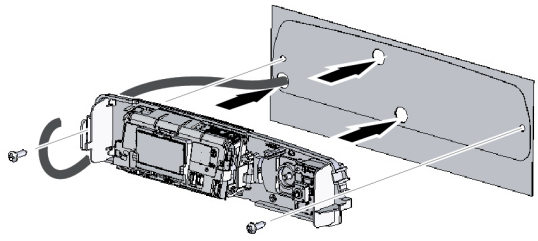
Rain cover

to protect sensors on the external facade



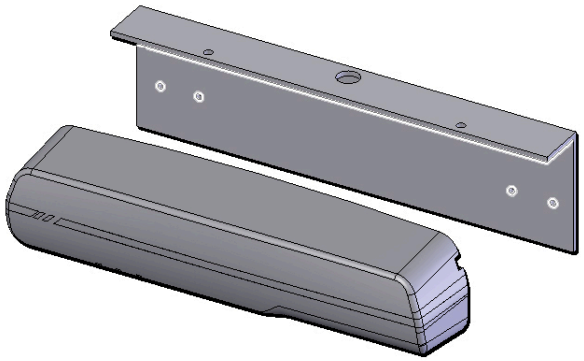


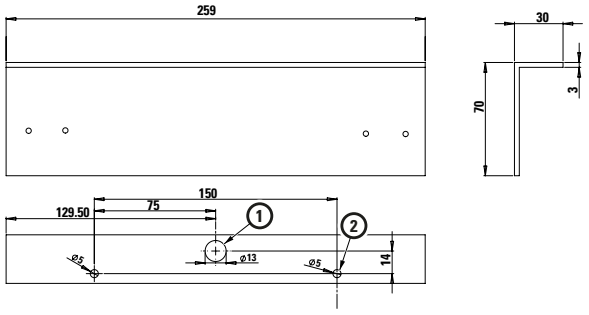
5) Position the connection cable.
6) Screw the support plate of the sensor to the mounting points.



3.3.1 Ceiling mounting with angle

To mount the sensor on the ceiling or in the lintel, use the angle profile (optional accessory).





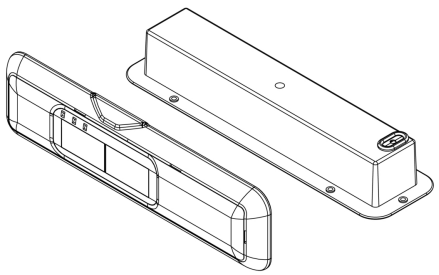
1 Cable aperture
2 Hole for screw

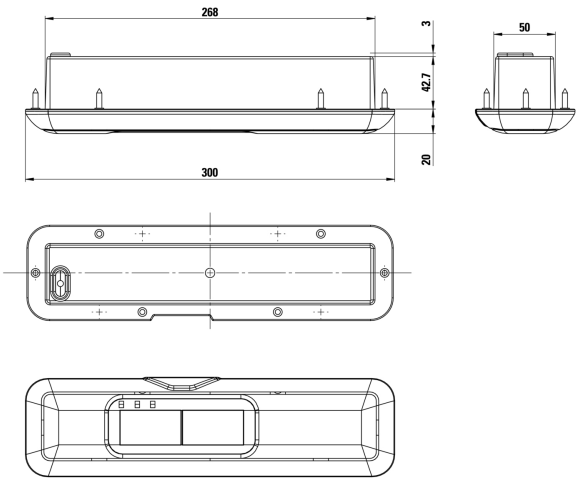
Use the angle profile instead of the drilling template.

1) With the help of the angle profile, mark the positions of the cable outlet (1) and the two screws (2).
2) Drill a cable aperture Ø 12 mm and, if necessary, screw holes Ø 3 mm.
3) Attach the angle profile.
4) Pull the connection cable through the drill hole.
5) Lay the connection cable and plug it into the sensor.
6) Screw the support plate of the detector to the mounting points.

3.3.2 Ceiling mounting kit

To integrate the sensor into the ceiling cladding, use the integration kit (optional accessory).





NOTE

Configuration-friendly mounting position

The sensor is removed from the installation housing for configuration. An AIR inclination angle of ≥ 0° must be set to prevent the sensor display from hitting the housing wall when it is reinserted. AIR angle values below 0° must be readjusted after each configuration.

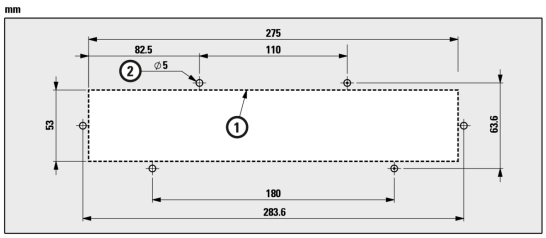
► To avoid an AIR inclination angle below 0°, limit the mounting distance R:

Mounting height H (mm)	Distance R (mm)
≤ 2200	≤200
≤ 3000	≤ 250

For details see section "Set the AIR inclination angle"

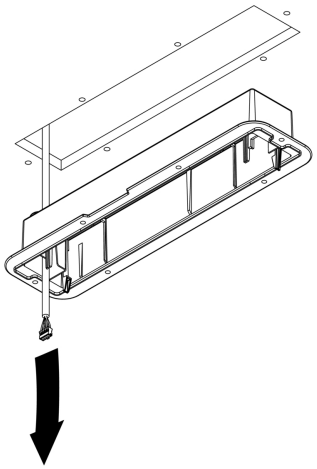
Do ***not*** use: Cover and drilling template from the standard scope of delivery of the sensor.

1) Glue the drilling template from the ceiling mounting kit onto the mounting site.

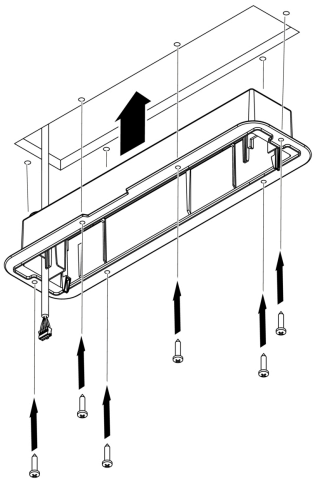


2) Cut a recess in the ceiling cladding along line (1).
3) Center-punch the positions for self-drilling screws or drill screw holes Ø 3 mm.
4) Remove the mounting template.

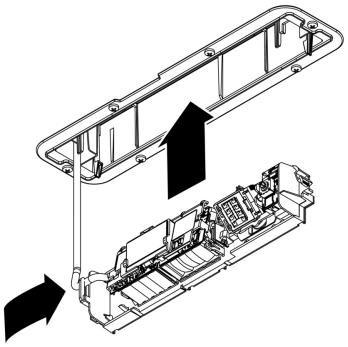
5) Pull the connection cable through the opening in the ceiling mounting kit.



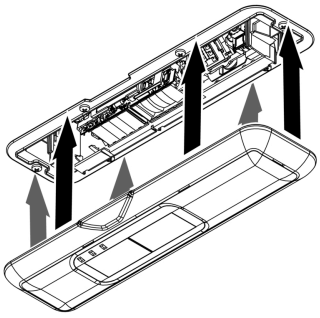
6) Insert the mounting housing into the recess and screw the flange to the ceiling.



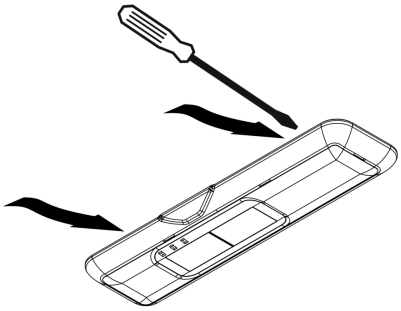
7) Connect the sensor to the connection cable and adjust the sensor settings, see section Settings. To align the AIR field, slide the sensor into the mounting housing until it clicks into place.



To close the ceiling mounting kit, press the supplied cover onto the flange of the mounting housing. The edge of the cover snaps into place on the flange.



To open the cover, lever the edges out of the catch hooks.

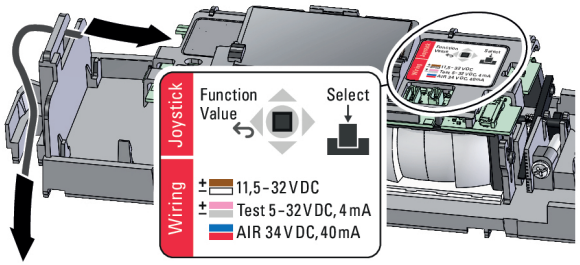


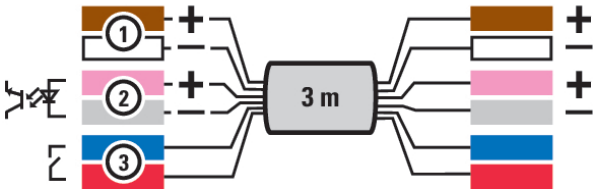
You must open the cover for the following purposes:

- Cleaning the infrared windows
- Changing the sensor settings

3.4 Electrical connection

1) Connect the cable to the sensor.
2) Connect the cable to the door controller as shown below.
3) Switch on the power supply to the door controller.





Sensor	Door controller

1 Supply voltage, 11.5 – 32 V DC
2 Test input, 5 – 32 V DC, max. 4 mA
3 Infrared output, max. 34 V DC / 24 V AC, max. 40 mA
5 Radar voltage output,
open-circuit voltage 4.5 V, min. 3.3 V @ 10 mA
(typical load with 3 optocouplers in series)

Performance level PLd

► To achieve the performance level PLd, Cat. 2, according to standard EN ISO 13849-1, connect the test input to (wire pair **"2"**).

4 Settings

4.1 Software configuration

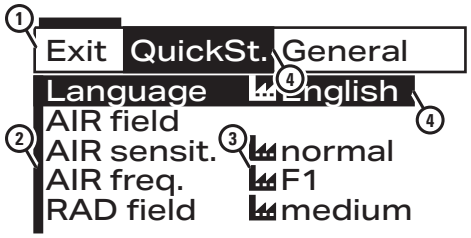
4.1.1 Operate display and joystick

The current detector status is shown on the display. **AIR** displays a presence detection. A fault code is shown in the event of faults. To configure the detector, press the joystick.

Joystick action in the status view

	Press to start configuration

The display switches to the menu view. The menu view lists the configurable parameters, categorizing them into menu groups. Besides the parameter name, the currently set value is also shown. Use the menu view to navigate between the parameters.



Menu view

1 Menu group
2 Parameter
3 Currently set value
4 Selection in the navigation

Joystick action in the menu view

	Select menu group
	Select parameters
	Display value view of the parameter (exit configuration in menu item Exit)

To change the value for the selected parameter, press the joystick. The display switches to the value view. The value view lists the configurable values of a parameter. Select the relevant value and/or return to the menu view.

Value view

1 Displayed parameter
2 Configurable values
3 Selected value
4 Selection of the currently set value
5 Selection of the factory setting
6 Visual explanation of the selected value

Joystick action in the value view

	Select value
	Confirm value
	Return to the menu view

You can close the configuration in the menu by selecting Exit. Alternatively, the display switches to the status view after a time-out.

Time-out

1 minute not actuated	Configuration closes automatically
3 minutes not actuated	Password protection active (if set)

4.1.2 Configure parameter

Initial installation

1) Press the joystick.
2) Follow the QuickStart menu shown on the display. Configure the parameters and the mechanical settings as described in the following. Close the QuickStart menu by restarting the detector (menu item **Start**).
3) Test the door system. If necessary, optimize other parameters.
4) If desired, protect the configuration in the menu group **General** with a password.
5) Finish configuration in the menu group **Exit**.

NOTE

Default settings

The detector starts with the default settings.

Alternative default settings can be selected in the **General** menu group. The default settings take into account typical features of certain applications:

footpath situation, wind screen, retirement home, especially high, wide or narrow doors.

Attention! Selecting default settings overwrites the set values for all parameters.

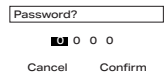
NOTE

QuickStart

The QuickStart menu guides you through the basic steps of the initial installation. It also indicates when mechanical settings need to be made.

Overview of menu groups

Parameter name	Notes on selecting a suitable value
QuickStart	
Select your menu language during initialization.	
AIR field	Configure the mechanical settings as described below Set presence detection.
AIR sensitivity	Configuring presence detection: Make the following selection for a mounting height – above 3.0 m **high** – above 2.6 m **medium** – above 2.2 m **normal** The settings **low** and **very low** are suitable for special floor conditions. Test presence detection with a test specimen. If installation according to EN 18650 is required, select **hight**. Adjust the setting until the test specimen is always reliably recognized.
AIR frequency	Important for series circuits: To avoid conflicts due to overlapping infrared fields, select different frequency settings for adjacent detectors.
Start	Finish initialization by restarting the detector and teaching in presence detection (AIR).
General	
Language	Menu language setting
Default settings	Typical settings for specific applications. Attention: All parameters will be overwritten. Test the settings and adjust the values as needed.
Reset	**Restart** teaches the detector in again. **Factory setting** deletes all manual settings, including password.

Password 	Dialog for setting a password consisting of 4 digits. At 0000, the password protection is inactive (factory setting). For any other combination of digits, the password is requested when the configuration menu is started. 3 minutes after finishing the configuration the menu is locked again. If the password is lost, disconnect the detector from the power source. After reconnection, the configuration is open for 1 minute to set a new password.

AIR

Sensitivity	See QuickStart.
Presence	The selected time determines the time after which a stationary object is ignored and the door is permitted to close.
Output AIR	The switching logic **active (NO)** closes, **passive (NC)** opens the contact when the safety-relevant function is triggered. The **slave (NO)** and **slave (NC)** settings are required for series circuits.
Break	The safety-relevant function can be switched off for 15 minutes for maintenance work. The red LED flashes during the break.
Frequency	See QuickStart.

Info

Information on the status of the device for troubleshooting. For more details, see section 6.1 "Tools"

Log	Messages and error codes
AIR sign.	AIR signal level for analysis purposes in case of complicated ambient conditions.
Config ID	Currently saved detector configuration as a QR code, which you can take a picture of for support purposes.
Op. hours	Operating hours counter
SW	Software version

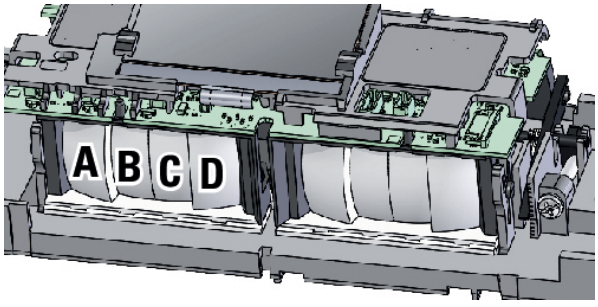
Exit

	Exit configuration

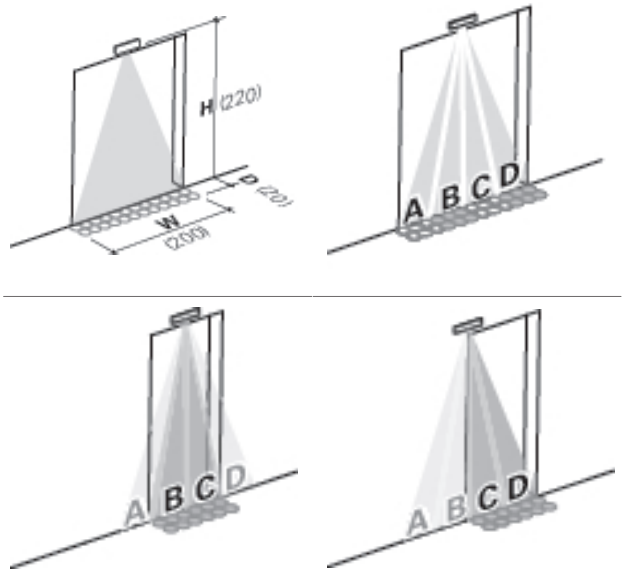
4.2 Mechanical settings

4.2.1 Set presence detection

The sensor is equipped with a safety device. To prevent injuries caused by automatic door movements, the sensor detects the presence of people with an AIR field (active infrared light). Optics with 4 lenses creates an AIR light field made of 4 segments (A to D).



The size of the AIR field on the floor depends on the mounting height of the detector (see drawing with example values for the height H = 220 cm).

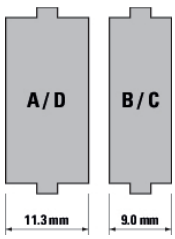


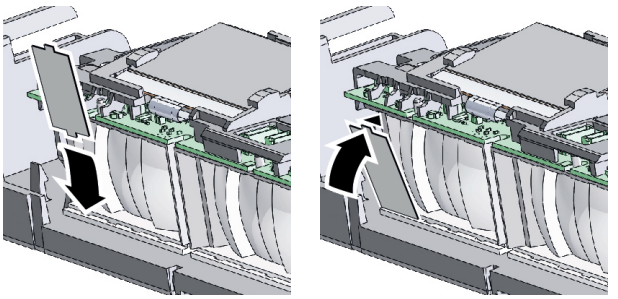
To prevent the safety device from being triggered unnecessarily, the AIR field should be limited to the door's movement range. If the AIR field is too large, the door cannot close if there are people next to the entrance. In the narrow door illustrated above, for example, the segments A and D and the segments A and B of the main closing edge on the side unnecessarily trigger the safety device.

Restrict the AIR field

► To prevent the safety device from being triggered unnecessarily, limit the AIR field to the required size.

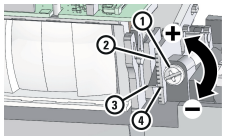
Cover the lenses (A to D) for segments that are not required. Insert the enclosed plastic plates in the slots in front of the lenses. Select the plate size appropriate for the lens.





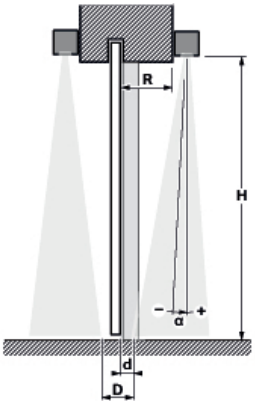
Set the AIR inclination angle

The AIR field must be aligned to the floor with the smallest possible distance to the door, but not to the door itself. If the AIR field recognizes the door, the door will not be able to close. The distance to the door can be adjusted continuously with the AIR angle adjustment.



AIR angle adjustment

1 Adjusting screw
2 Inclination angle scale
3 Pointer
4 Marking 0°



Cross section of the sliding door, with detectors and AIR fields opposite on both sides

H Mounting height of detector
R Distance between the detector and door
α AIR inclination angle (vertical: 0°)
d Distance between the AIR field and door
D Distance from AIR fields opposite

The AIR inclination angle is set to +6° at the factory.

► Use the AIR angle adjustment to adjust the inclination angle to the mounting situation. Select one of the following methods.

Method A (with connected sensor):

1) Slide a sheet of paper under the door so that a white strip 5 to 8 cm deep (distance d) remains visible in front of the door.
2) Turn the adjusting screw (1) to the right until the AIR field detects the sheet of paper on the floor.

Method B (already possible during mounting preparation):

1) Measure the **depth R** of the lintel and the **mounting height H** of the sensor.
2) Determine the appropriate **inclination angle α** using the guide value table.
3) Turn the adjusting screw (1) to the right until the pointer (3) on the scale (2) reaches the desired **inclination angle α** . At the 0° mark (4), the AIR field is aligned vertically downwards.

(mm)	Distance R						
Height H	0	50	100	150	200	250	300
1800	+6°	+5°	+3°	+1°	0°	-2°	-3°
2000	+6°	+5°	+3°	+2°	0°	-1°	-3°
2200	+5°	+4°	+3°	+2°	0°	-1°	-2°
2400	+5°	+4°	+3°	+2°	+1°	0°	-2°
2600	+5°	+4°	+3°	+2°	+1°	0°	-1°
2800	+5°	+4°	+3°	+2°	+1°	0°	-1°
3000	+5°	+4°	+3°	+2°	+1°	0°	-1°
3200	+5°	+4°	+3°	+2°	+1°	+1°	0°
3400	+5°	+4°	+3°	+2°	+2°	+1°	0°
3600	+5°	+4°	+3°	+2°	+2°	+1°	0°
3800	+5°	+4°	+3°	+2°	+2°	+1°	0°
4000	+5°	+4°	+3°	+2°	+2°	+1°	0°

Guide values for the inclination angle α

NOTE

for sensor with ceiling mounting kit:

An AIR inclination angle α ≥ 0° simplifies the configuration, see section "Ceiling mounting kit". Refer to the table for the mounting distances R suitable for angle value ≥ 0° at the intended mounting height H.

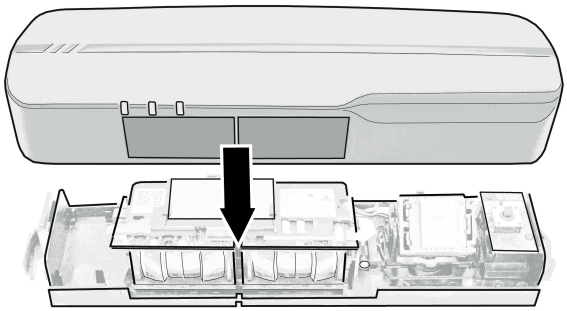
As soon as the sensors on both sides of the sliding door are set, measure the **distance D** between the AIR fields. Make sure that D is ≤ 18 cm. Test the safety device with a test specimen.

5 Operation

5.1 Commissioning

1) Remove all objects from the door area that are not part of the normal surroundings of the door system. Make sure that there are no people in the door area.
2) Start the sensor in the **QuickStart menu**.
3) Place the cover on the sensor.

   The separator between the AIR light windows in the cover fits in the groove between the two AIR optics.



4) Wait until the LEDs stop flashing. Note: Continuous flashing signals indicate a fault, see section Faults.
5) Test the door system and, if necessary, modify the Settings.

WARNING

Risk of crushing if incorrectly adjusted

The safety function (presence detection) of the sensor must be set with sufficient sensitivity to detect people.

5.2 Status display

LED display		Operating status
	lights up red	new object in AIR field

© 21.10.2025 BBC Bircher Smart Access

LED display		Operating status
🔴 🔴 🔴 🔴	flashes red	a) AIR signal too strong/weak b) AIR break (15 minutes) c) AIR hardware fault
🔴 🟢 🔴 🟢	alternately flashes red and green	Detector restart (9 seconds)
🔴🟢🔴🔴🟢🔴🟢	flashes red and green at the same time	a) Power supply faulty b) Detector defective

5.3 Regular work

Monthly

► Test the safety device of the door system.

Annually

► Remove dust from the inside of the AIR windows.

6 Faults

Door fault

○○○○○○○	LED signal
Display: possibly error code Possible cause	► Possible remedies

Door does not close

▬	LED lights up red
AIR detects door movement	► Mechanical settings: Increase the inclination angle of the AIR field (away from the door leaf).
Moving objects in the AIR field	► Remove plants, signs, flags from the AIR field.
AIR interference due to vibration of the detector	► Fix the mounting points of the detector.
AIR interference by fluorescent lights	► Use a different kind of lighting.
AIR interference due to puddles of water or snowfall	► Configuration: Decrease the AIR sensitivity. Caution! Safety-relevant function may be impaired.
AIR interference due to further detector	► AIR configuration: Select another frequency.
AIR interference due to door drive or other electromagnetic influences	a) Optimize the cable routing (3.2 "Mounting preparation") b) Configuration: Decrease the AIR sensitivity. Caution! Safety-relevant function may be impaired.

Door does not move

▭ ▭	LEDs do not light up
Presence detection (AIR) is configured incorrectly	► Configuration **Output AIR**: Switch between **active** and **passive**.

Door does not move

🔴 🔴 🔴 🔴	LED flashes red
Display: Message A2102 AIR signal too weak	a) Clean the AIR light windows and restart the detector (configuration/general/reset). b) Mechanical settings: Readjust the angle of the AIR field. Check the effect on the signal strength in the signal monitor (configuration info: AIR sign). c) Cover light-absorbing floors in the AIR field with a light-colored surface. Check the effect on the signal strength (configuration info: AIR sign).
Display: Message A2103 AIR signal too strong	a) Mechanical settings: Readjust the angle of the AIR field. Check the effect on the signal strength in the signal monitor (configuration info: AIR sign). b) Cover reflective floors in the AIR field with a matt surface. Check the effect on the signal strength (configuration info: AIR sign).
Display: Message A2104 … 2121 Detector defective	► Replace the detector.

Door does not move

🔴🟢🔴🔴🟢🔴🟢	LEDs flash red and green simultaneously
Display: Message A2004 … A2007 Supply voltage too low	► Ensure that the supply voltage is sufficient. If the supply voltage is guaranteed according to the technical data, replace the detector.
Display: Message E … Detector defective	► Replace the detector.

6.1 Tools

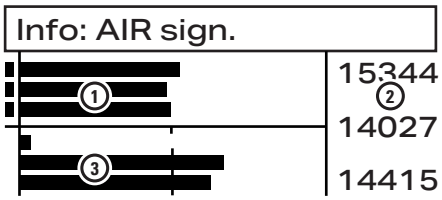
In complicated environments and in the event of faults, the configuration menu offers an analysis tool and status data for the detector. Use this information for support requests as well.

Info configuration menu/menu group:

- Log data with messages and error codes
- AIR signal display for analysis
- Configuration code for support requests
- Operating hours counter
- Software version

AIR signal display

The detector has 3 infrared channels. Their signal level is displayed under **AIR sign.** Analysis of the signal level can help when configuring the detector in difficult ambient conditions.



AIR signal level

1 Absolute values, visual
2 Absolute values, numerical
(Guide value with and without detection:
min. 180, max. 29000)
3 Values relative to the switch point (central), visual
(indicates whether a signal triggers switching)

Absolute values outside of the guide value thresholds can indicate e.g. problems with reflective or extremely light-absorbing floors. Changing the floor covering will fix the issue.

Observing the signal level can indicate whether unexpected detections are triggered due to door movements or electromagnetic influences of the door drive. Accordingly, problems can be fixed by adjusting the AIR inclination angle/cable routing for the door drive.

Allow manufacturer support to assist you in analysis.

Configuration code

Under **Config ID**, the entire current device configuration is displayed as a QR code. If you require support, take a picture of the code and e-mail it to support.

✉ service@bircher.com +41 52 687 1366

7 Technical data

Technology	Active infrared (AIR)
Mounting height	min. 1.8 m, max. 4.0 m EN 16005 up to 3.0 m DIN 18650 up to 3.0 m
Dimensions of field/spot on the floor	See the specifications for mounting height 2.20 m below
Dimensions of AIR field	max. 2.00 × 0.20 m
Dimensions of AIR spot	30 × 30 mm
Number of AIR spots	2 rows with 12 spots each
Performance level AIR	PLd, Cat. 2 (EN ISO 13849-1)

Electrical data

Supply voltage	11.5 – 32 V DC
Operating current	max. 120 mA at 24 V
Inrush current	max. 240 mA
Test input	Automatic recognition
Response time to test signal	< 10 ms
Test input, high level	5 – 32 V DC, max. 4 mA
Infrared output	Solid state relay, max. 40 mA, max. 34 V DC / 24 V AC
Connection type (standard)	3 m cable with plug-in connector

Mechanical data

Housing material	ABS / PA
Housing color	black, silver, white
Dimensions (L × W × D)	252 × 61 × 51 mm
Weight	250 g
Protection class	IP54 (EN 60529)

Ambient conditions

Ambient temperature	min. –20 °C, max. +60 °C
Relative Humidity	max. 95 %, non-condensing

Disposal information

The product contains electrical or electronic components. Do not dispose of the product with household waste.

Notice on conformity

CE

BBC Bircher AG declares that this product conforms with the following guidelines and directives of the EU:

MD 2006/42/EC RED 2014/53/EU
RoHS 2011/65/EU

EC type-examination certificate:
44 780 13131912 0044 TÜV NORD

Follow the QR code or link below for the detailed declaration of conformity.

Technical documentation

You will find all documents on the manufacturer website
www.bircher.com

© 21.10.2025 BBC Bircher Smart Access

8 Contact

If you have any questions about the device, please contact us:

✉ service@bircher.com +41 52 687 1366

BBC Bircher Smart Access

BBC Bircher AG, Wiesengasse 20, CH-8222 Beringen
www.bircher.com