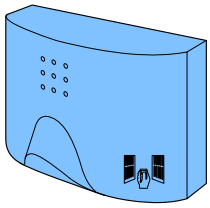
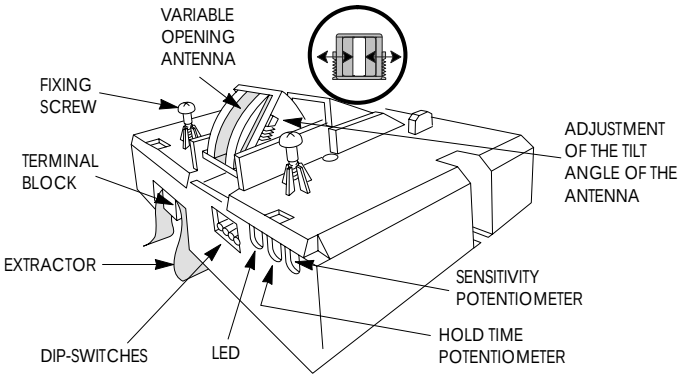


BF1 MOTION SENSOR FOR AUTOMATIC DOORS

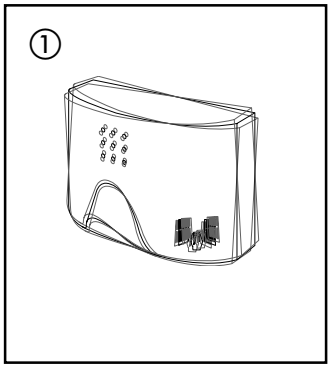
1. TECHNICAL CHARACTERISTICS

Technology	microwave and microprocessor
Radiated frequency	24.125 GHz
Output power	3 mW
Mounting height	3 m max.
Tilt angle	20° to 34° in 5 positions
Detection zone (typical)	
Wide sensing field	4 m (W) x 2 m (D)
Narrow sensing field	2 m (W) x 3 m (D)
Detection mode	motion
Minimum detection speed	5 cm/s (measured in the radar axis)
Supply voltage	12 to 24 V AC ±10 % 12 to 24 V DC +30 % / –10 %
Mains frequency	50 to 60 Hz
Power consumption	< 2 W
Output	relay with switch-over contact (voltage free)
Relay contact ratings (max. voltage)	60 V DC / 125 V AC
Relay contact ratings (max. current)	1 A (resistive)
max. switching power	30 W (DC) / 60 VA (AC)
Output hold time	0.5 s to 13 s (adjustable)
Adjustments	
Sensitivity, hold time (by potentiometer)	
Function configuration (by Dip-Switches)	
Dimensions and position of the sensing field (mechanically)	
Temperature range	–20°C to +55°C / (–4°F to +131°F)
Immunity	electrical and radio frequency interferences
Dimensions	136 mm (W) x 98 mm (H) x 65 mm (D)
Weight	315 g
Material	ABS
Housing colour	blue
Cable length	2,5 m

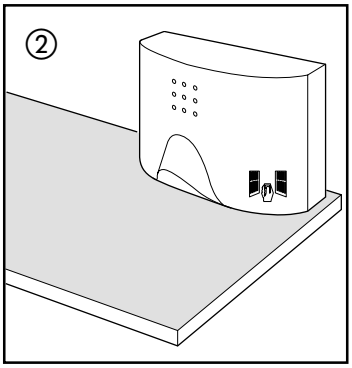
2. DESCRIPTION OF THE SENSOR



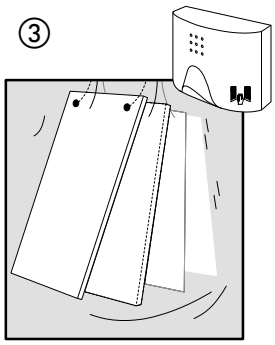
3. INTALLATION TIPS



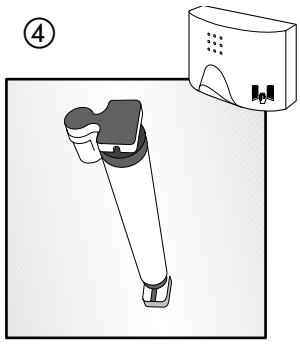
•The sensor must be firmly fastened in order not to vibrate



•The sensor must not be placed directly behind a panel or any kind of material

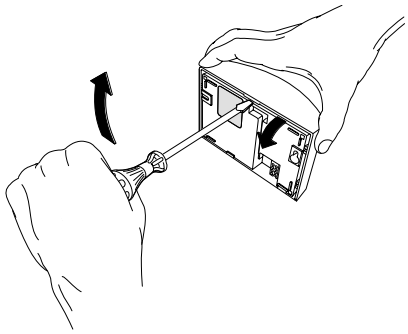


•The sensor must not have any object likely to move or vibrate in its sensing field

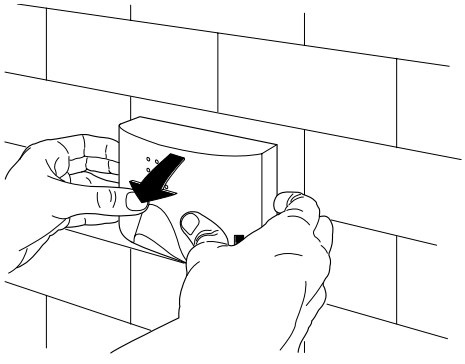


•No fluorescent lighting in the sensing field

4. OPENING THE SENSOR



From behind, before installation

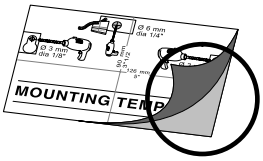


From the front, after installation

GB

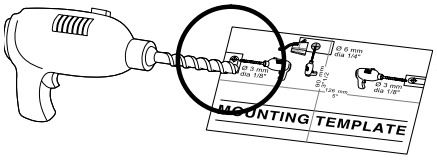
5. PREPARATION FOR MOUNTING THE SENSOR

①



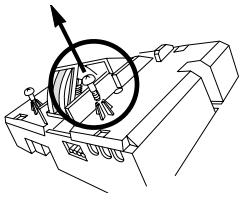
•Paste the template

②



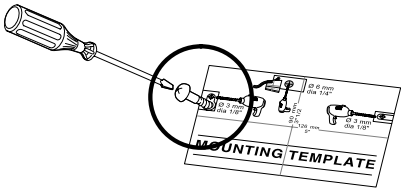
•Drill according to indications

③



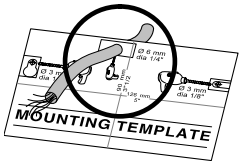
•Fastening screws are available on the housing

④



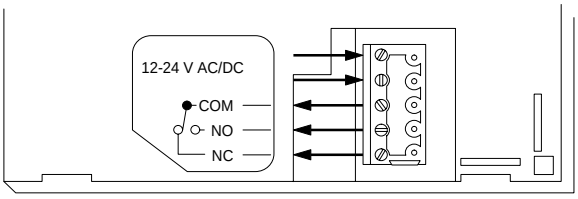
•Put the screws
•Do not tighten completely

⑤

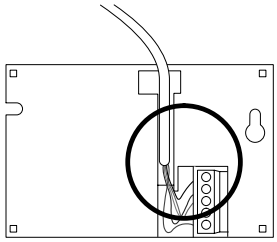


•If possible, pass the cable where it is supposed to go through

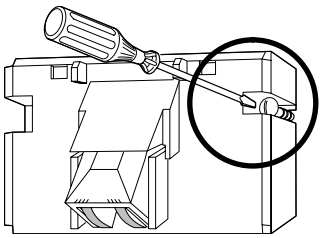
6. CONNECTING AND MOUNTING THE SENSOR



•Remove the terminal block with the extractor
•Connect the cable according to the picture
•Replace the terminal block **without** the extractor



•Make sure you place the cable back in its guide

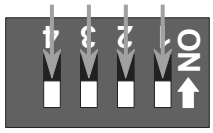


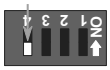
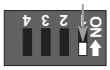
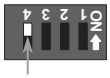
•Mount the sensor and fasten both screws

7. FUNCTIONS CONFIGURATION

(Dip switches are pictured as watched from below with the sensor installed)

USUAL CONFIGURATION OF THE SENSOR

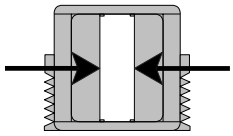


DIP-SWITCH # 4	DIP-SWITCH # 3	DIP-SWITCH # 2	DIP-SWITCH # 1
 In the OFF position: normal operation	 Must be in the OFF position	 Must be in the OFF position	 Must be in the OFF position
 In the ON position: operation with stronger immunity	—	—	—

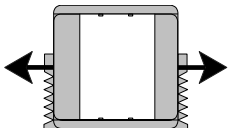
In general, when the environment is strongly disturbed (interferences, rain and intense vibrations), Dip-Switch #4 must be switched in the ON position for stronger immunity.

8. SETTING THE SENSING FIELD DIMENSIONS

① THE WIDTH OF THE SENSING FIELD IS DETERMINED BY THE ANTENNA OPENING.



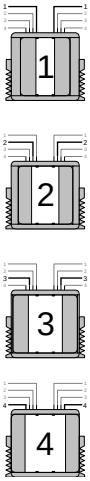
For a wide sensing field :
the antenna must be closed

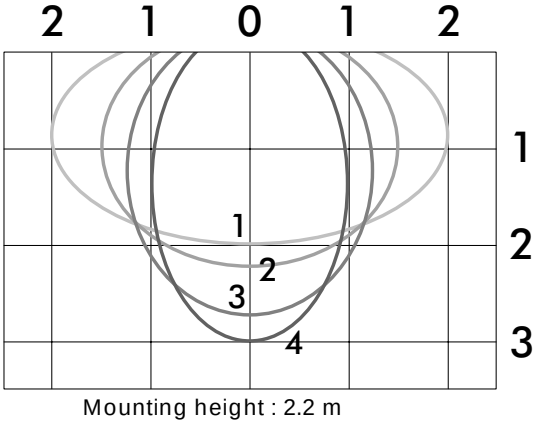


For a narrow sensing field :
the antenna must be open

<u>Sensing fields as a function of the antenna opening</u>

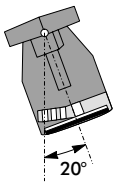
➲ The sensing fields here below correspond to the following setting s:
- tilt angle of the antenna : 27° (average)
- sensitivity : 4/4 (maximum)



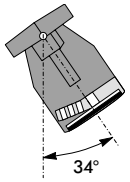


Mounting height : 2.2 m

② THE POSITION OF THE SENSING FIELD IN FRONT OF THE DOOR IS DETERMINED BY THE TILT ANGLE OF THE ANTENNA.



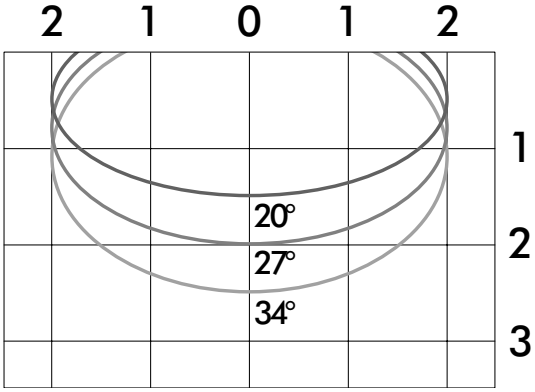
To get the sensing field closed to the door : **the angle must be set to the minimum position (20°)**



To get the sensing field far from the door : **the angle must be set to the maximum position (34°)**

Sensing fields as a function of the tilt angle of the antenna

➲ The sensing fields here below correspond to the following settings :
- antenna completely closed
- sensitivity = 4/4 (maximum)

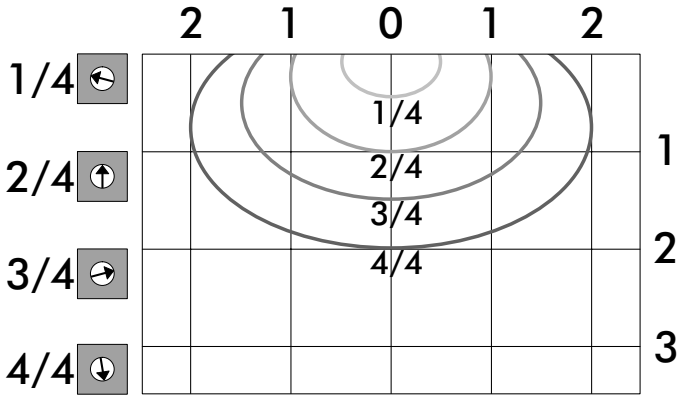


Mounting height : 2.2 m

③ THE DIMENSIONS (WIDTH, DEPTH, DEAD ZONE) OF THE SENSING FIELD DEPEND ON THE SENSITIVITY SETTING.

Sensing fields as a function of sensitivity setting

➲ The sensing fields here below correspond to the following settings :
- antenna completely closed
- tilt angle of the antenna = 27° (average)

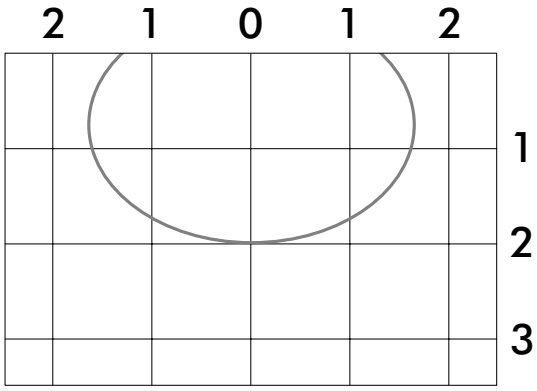


Mounting height : 2.2 m

④ THE DIMENSIONS (WIDTH, DEPTH, DEAD ZONE) OF THE SENSING FIELD DEPEND ON THE MOUNTING HEIGHT.

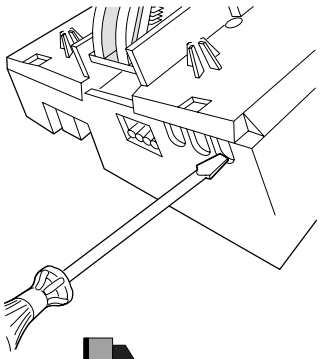
Sensing field for a mounting height of 3 m.

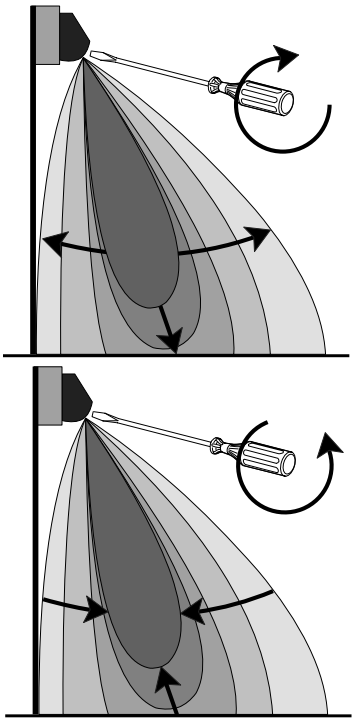
➲ The sensing field here below corresponds to the following settings :
- antenna nearly closed (notch 2)
- tilt angle of the antenna = 20° (minimum)
- sensitivity = 4/4 (maximum)



Mounting height : 3 m

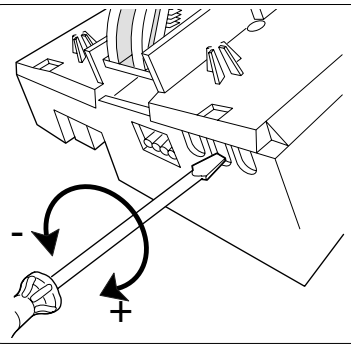
9. SENSITIVITY POTENTIOMETER



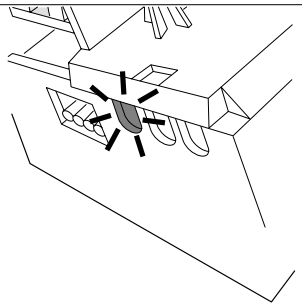


To increase the sensitivity, turn the potentiometer clockwise; to decrease it, turn counterclockwise.

10. HOLD TIME POTENTIOMETER

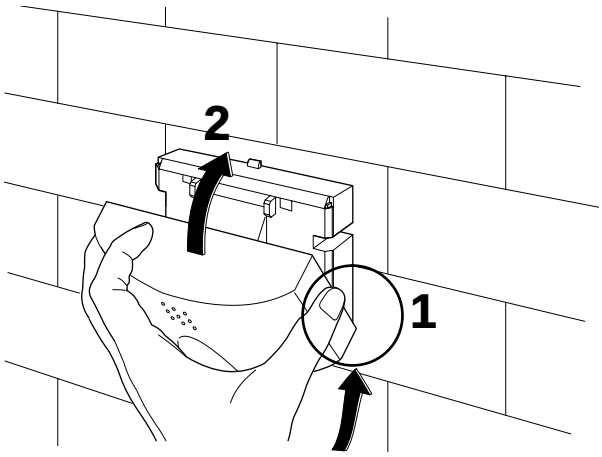


11. SIGNAL LED



The led blinks for several seconds when the sensor is being turned on, **then the LED lights up when the detector detects.**

12. END OF INSTALLATION



When all settings are done, replace the cap by fastening the lower part first (1) and then closing it from bottom to top (2).

- Make sure the cap is well fastened and does not vibrate.
- Note : the LED is no longer visible when the cap is in place.

13. TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE	CORRECT ACTION
The door does not open The Led does not light up	The sensor power is off	a. check the supply cable b. check the supply voltage
The door does not open The Led does light up	The cables to the door control are incorrectly wired	a. check the cables to the door control b. check the door control
The door opens and closes continuously	1. The detector "sees" the door moving	a. increase the tilt angle of the antenna b. decrease the sensitivity
	2. When it closes, the door creates vibrations	a. check the stability of the support on which the sensor is fixed b. make sure that the antenna position is stable c. check that the sensor cap is fixed on its base d. switch the Dip-Switch #4 in the ON position to reinforce the immunity e. decrease the sensitivity
The door opens and closes after a while for no apparent reason	1. The detector detects a vehicle traffic outside the pedestrian sensing field	a. decrease the sensitivity b. reduce the angle of the antenna
	2. The sensor detects interferences	a. switch the Dip-Switch #4 in the ON position to reinforce the immunity b. decrease the sensitivity
	3. The sensor is influenced by rain	a. switch the Dip-Switch #4 in the ON position to reinforce the immunity b. decrease the sensitivity
The detector doesn't detect close enough to the door	The tilt angle of the antenna is too high	a. reduce the tilt angle of the antenna b. increase the sensitivity