

US

AUTONOMOUS WIRELESS INFRARED BARRIER
Installation manual - [Pages 1-28](#)

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1 INTRODUCTION

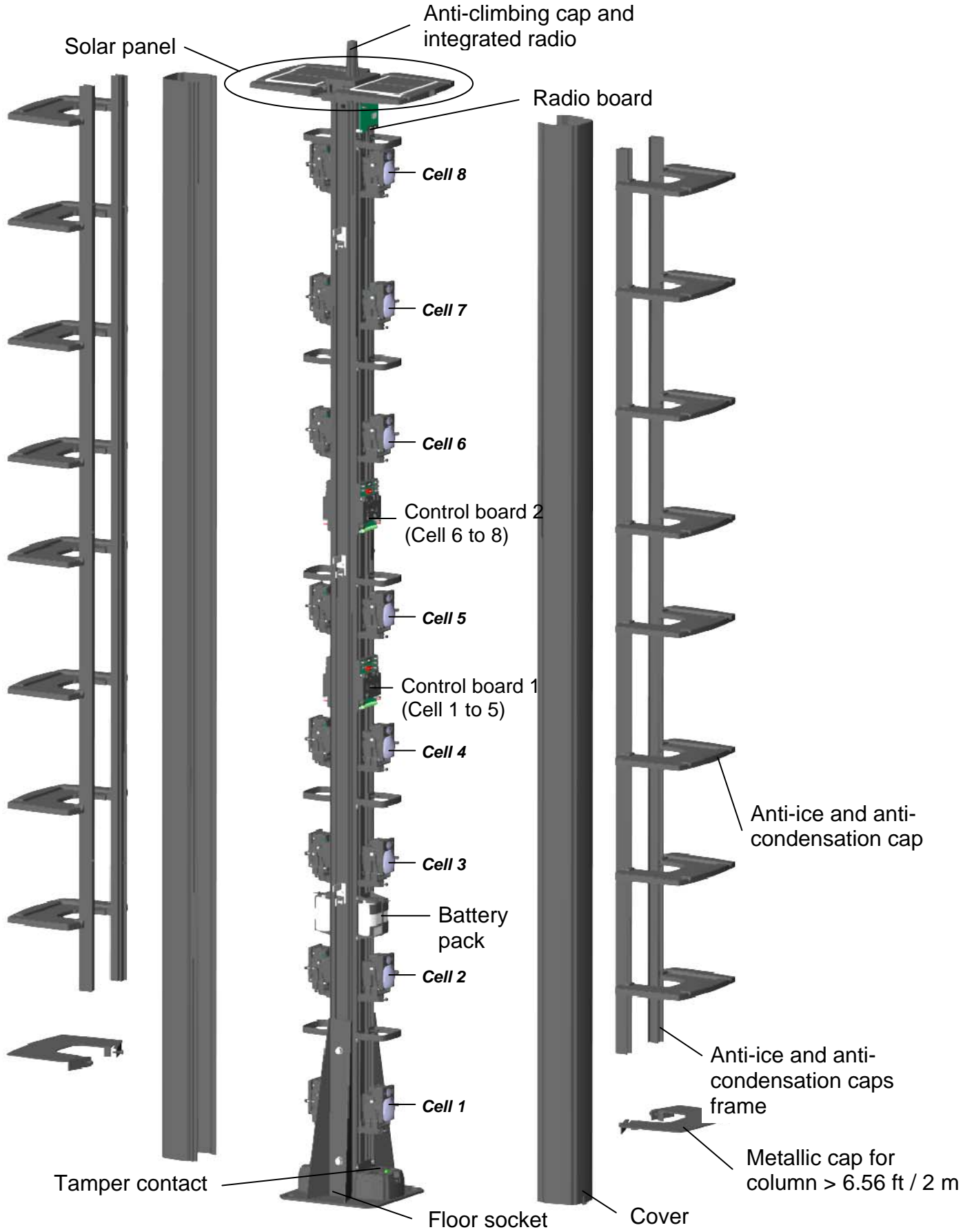
The active infrared barriers **SOLARIS** are entirely autonomous and do not need any wiring. The alarm information is transmitted through the radio coordination unit to the **MAXIBUS III Hub**. Power is supplied thanks to an integrated solar panel and battery pack that guarantee the column's autonomy in all weathers.

The active infrared barriers **SOLARIS** generate alarm information when 2 parallel beams are cut. They consist of a transmitter column (TX) and a receiver column (RX) to be installed face to face at the distance that is to be protected, this allowing the creation of a virtual wall of detection that is invisible and impenetrable.

MAIN FEATURES:

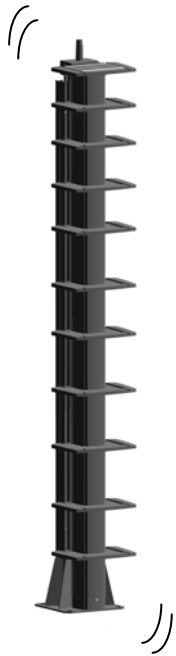
- Maximum outdoor range: 246 ft / 75 m
- Barriers with 3 to 10 double beam cells per direction (with automatic detection of the cells) on heights of 5 ft / 1.5 m, 7 ft / 2 m, 8.2 ft / 2.5 m and 10 ft / 3 m.
- Simple face (SF) and double face (DF) columns allowing an optimal control of the positioning of the cells.
- 4 infrared selectable channels allowing to differentiate the barriers among themselves.
- Integrated alignment tools on each TX and RX column: optical sights, LEDs and a buzzer that indicate the reception quality of the incoming signal.
- Integrated anti climbing cap.
- Options:
 - Additional solar panel
 - Concrete block
 - Floor socket
 - Wall fastening Kit

2 DESCRIPTION



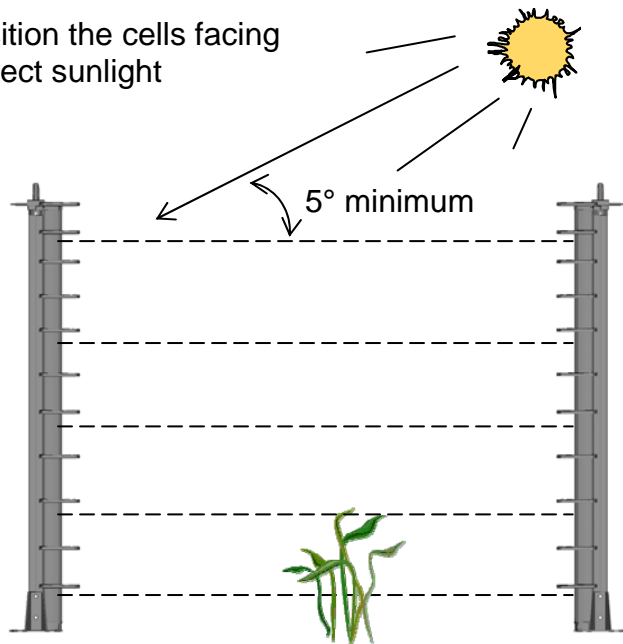
3 INSTALLATION PRECAUTIONS

To install the barriers correctly, it is important to follow certain rules.



Have a stable support

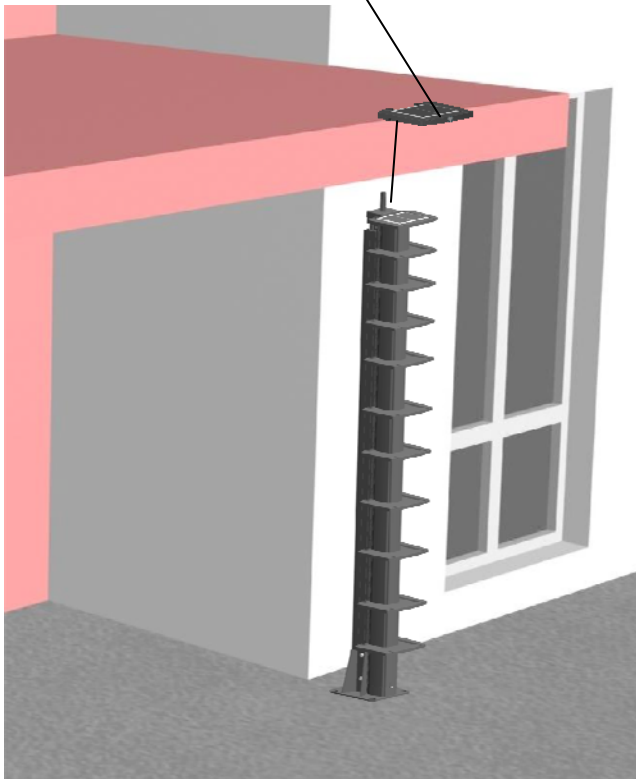
Do not position the cells facing direct sunlight



5° minimum

Be sure that beams cannot be obscured by vegetation in any season

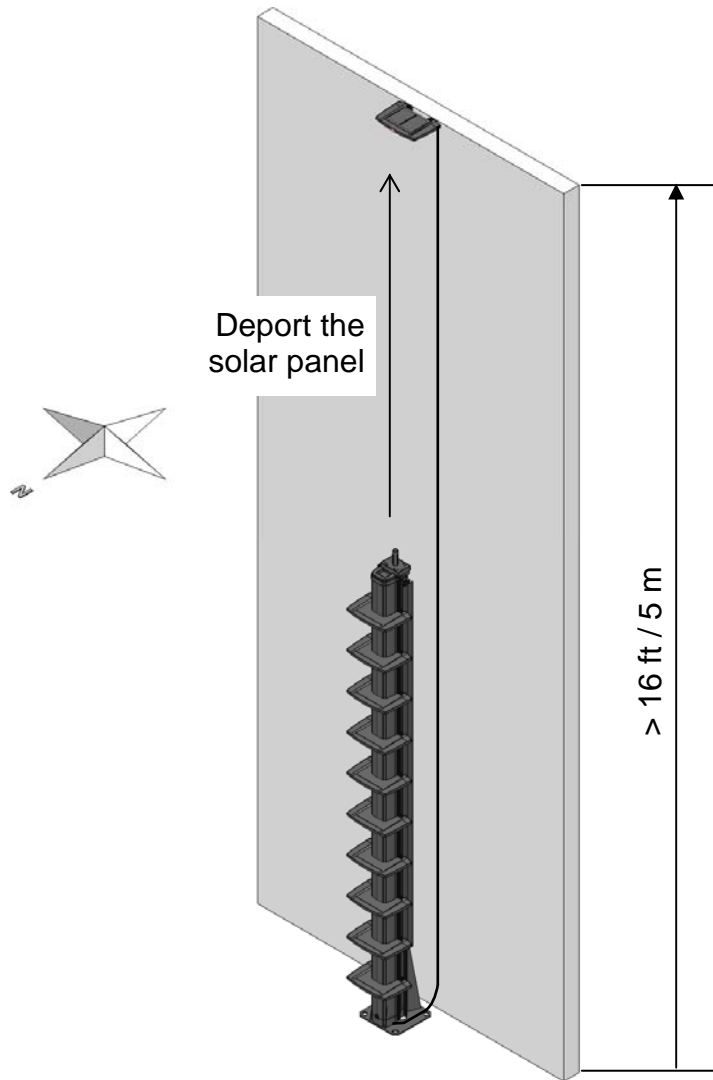
Re-positioned solar panel



If a column is shielded from the sun, re-position the solar panel from the column



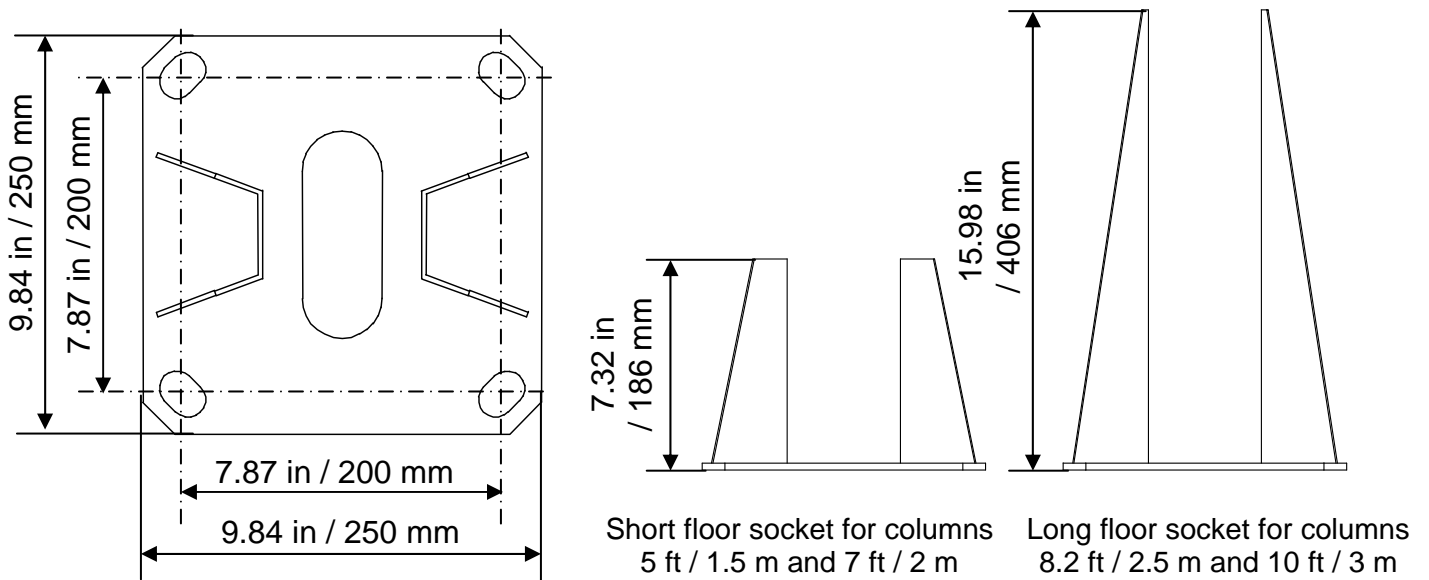
Do not install a column under trees



When a column SOLARIS has to be installed against a wall higher than 16 ft / 5m and north facing, deport the solar panel on the top of the wall.

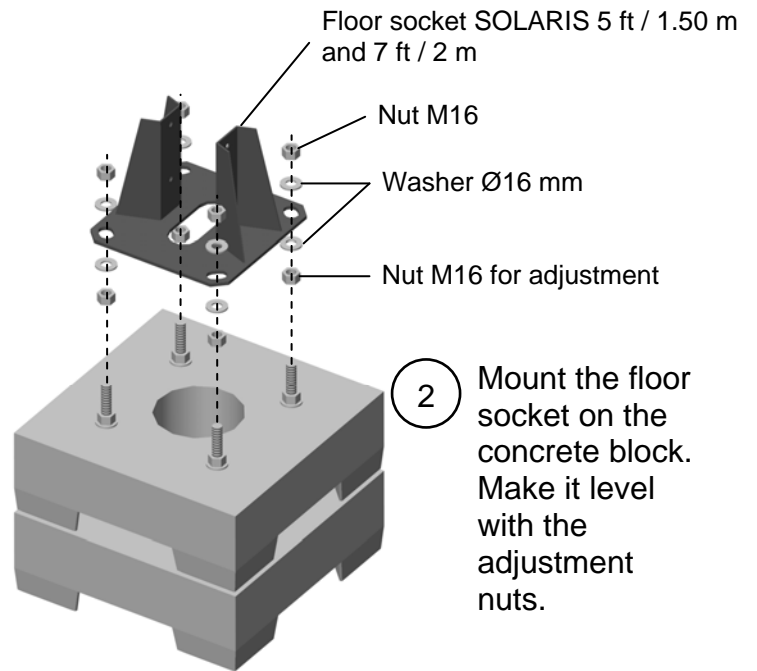
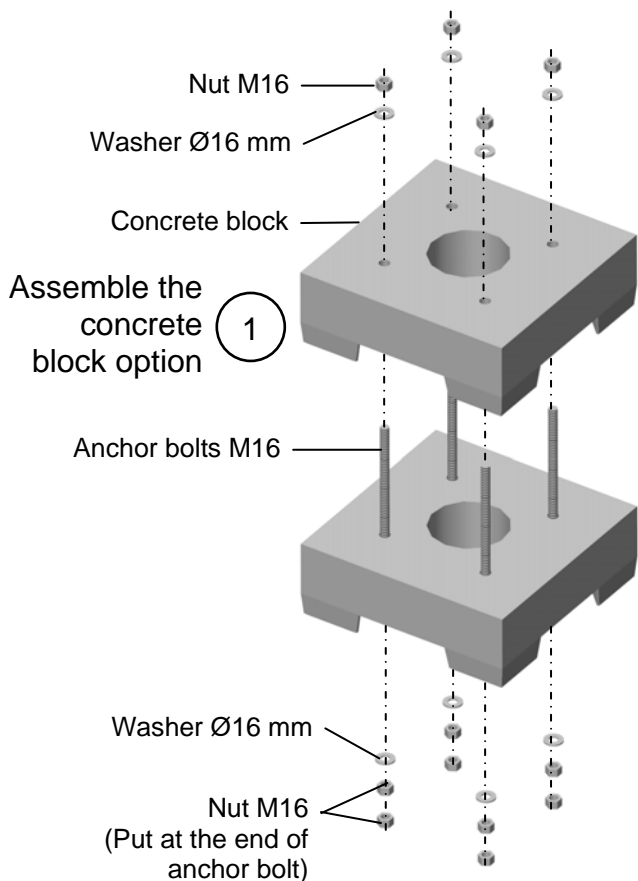
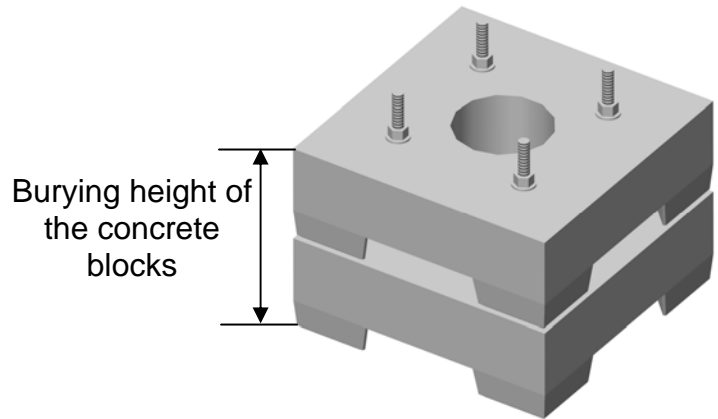
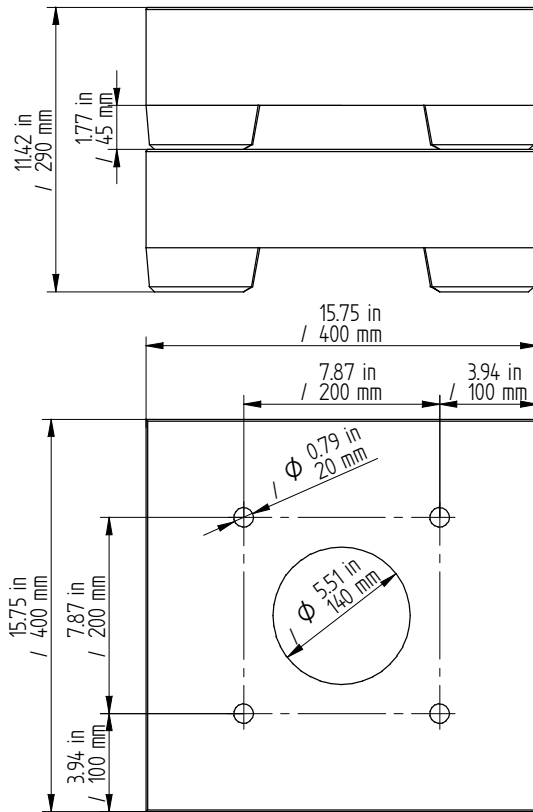
4 INSTALLATION

4.1 Dimensions of the template



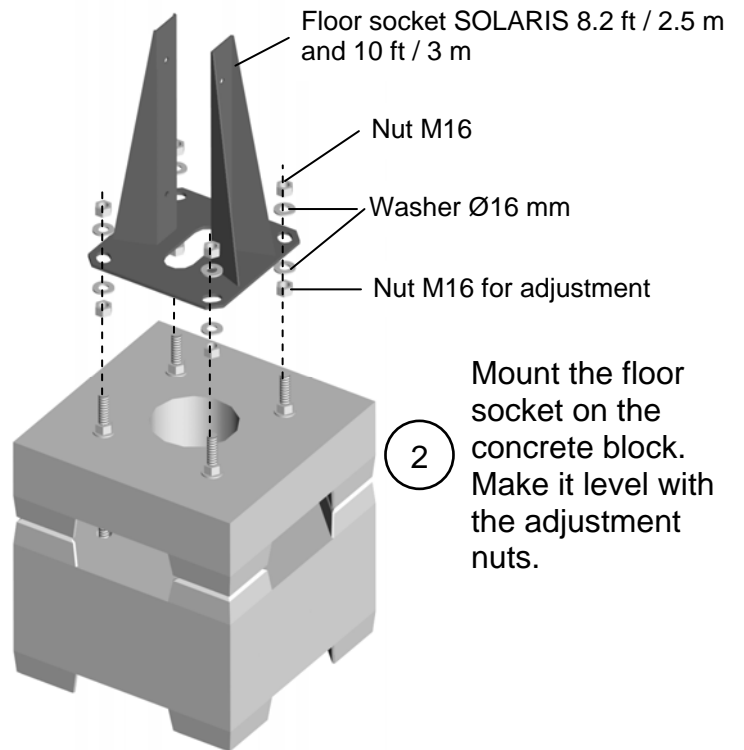
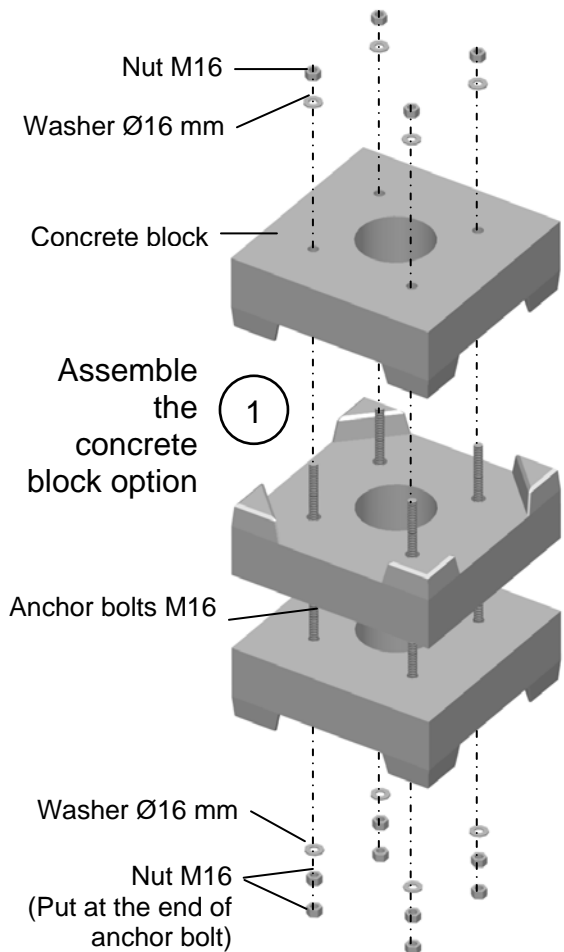
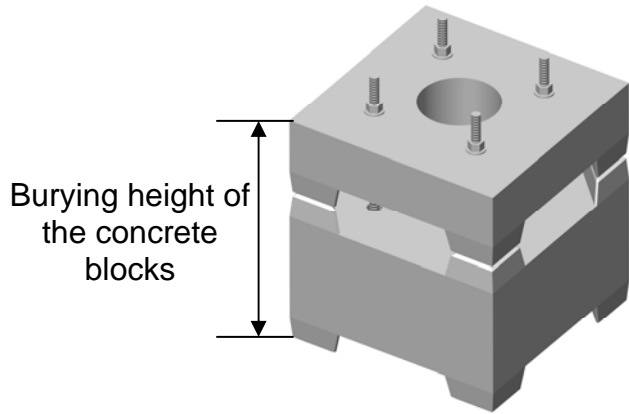
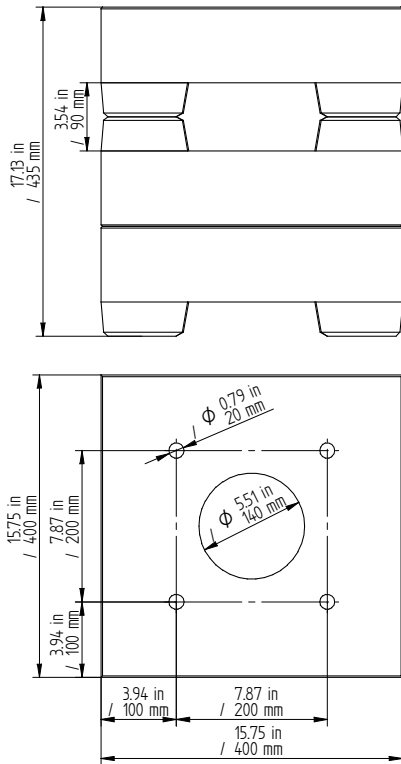
4.2 Mounting the 2 buried concrete blocks option for columns 5 ft / 1.5 m and 7 ft / 2 m

Dimensions of the 2 concrete blocks option

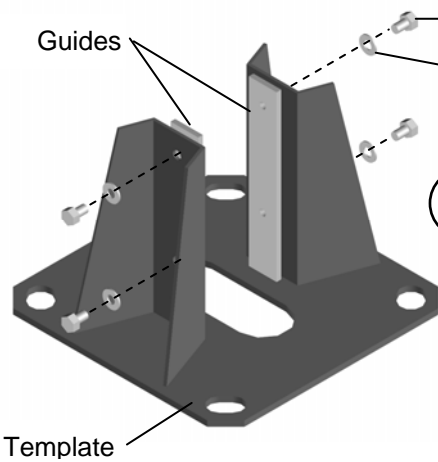


4.3 Mounting the 3 buried concrete blocks option for columns 8.2 ft / 2.5 m and 10 ft / 3 m

Dimensions of the 3 concrete blocks option

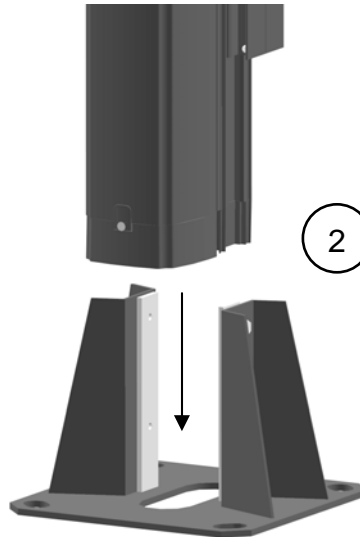


4.4 Mounting the column on the floor socket



1

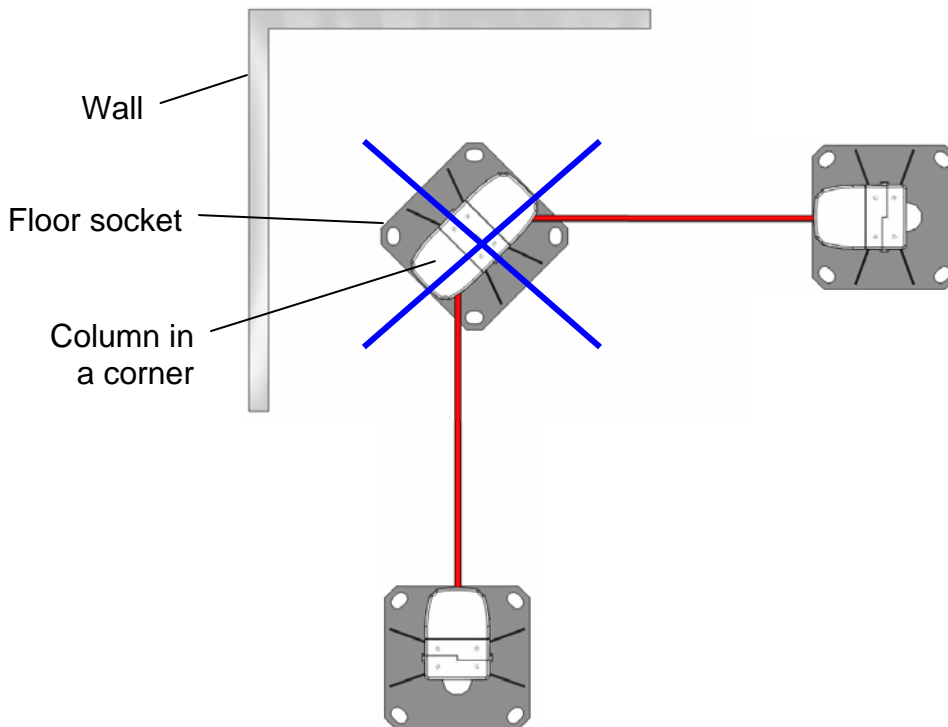
Put the guides on the floor socket without blocking them.
Note: The guides must not go beyond the floor socket.



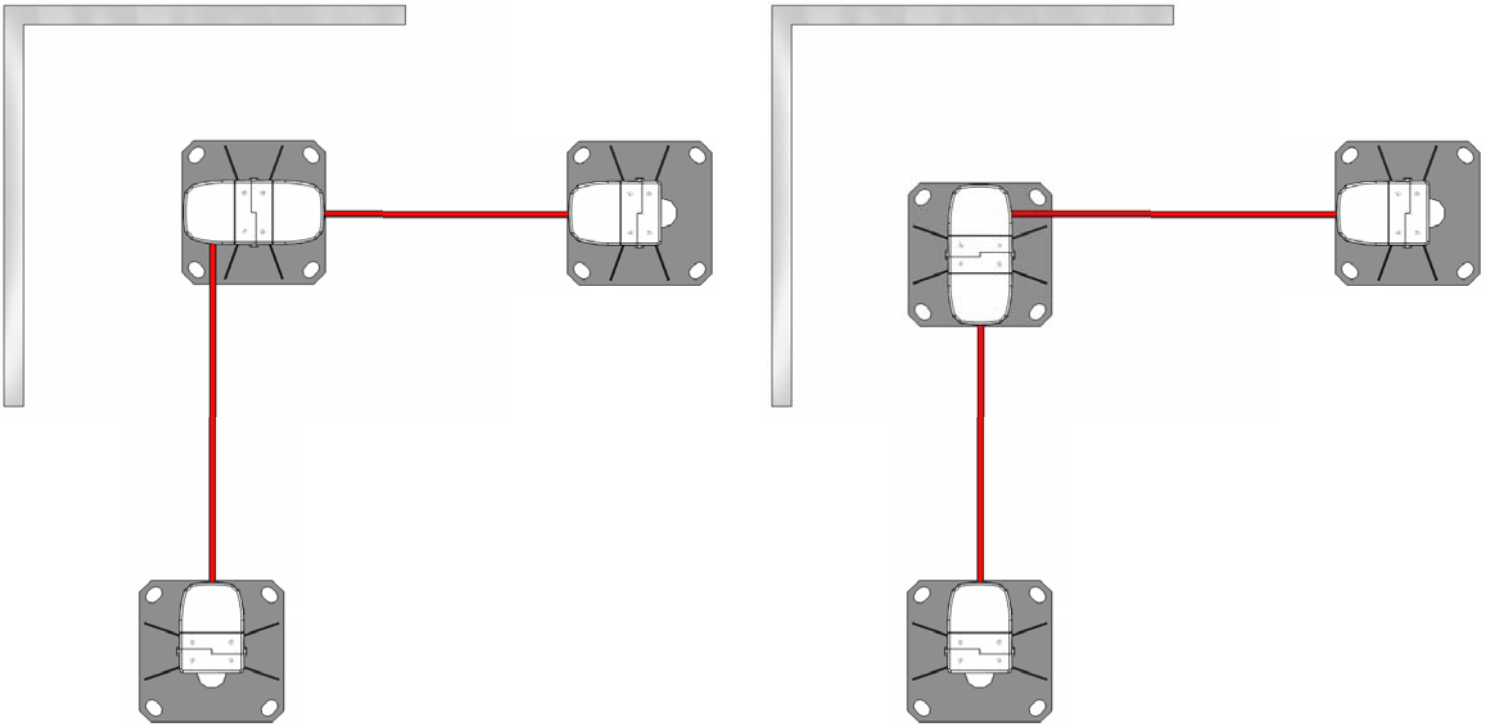
Slide the column between the 2 pillars of the floor socket. Leave a space between the bottom of the column and the template of the floor socket to allow the cable of the solar panel go through.

Note: If a column is installed in a corner, place the column parallel to the wall.

Incorrect installation of the column in a corner



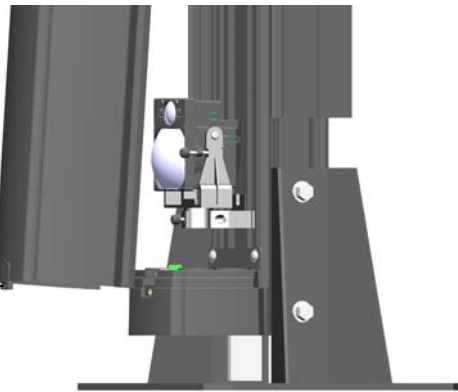
Correct installation of the column in a corner



4.5 Remove the cover

Unscrew the screw

1



2
Push the cover to the top

2

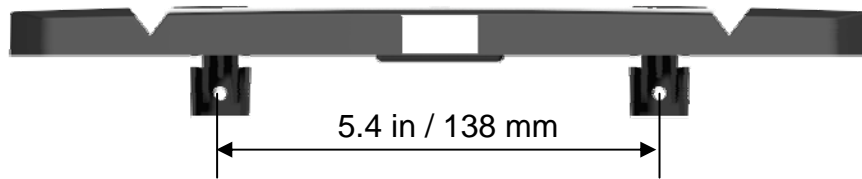
3
Pull the cover away

3

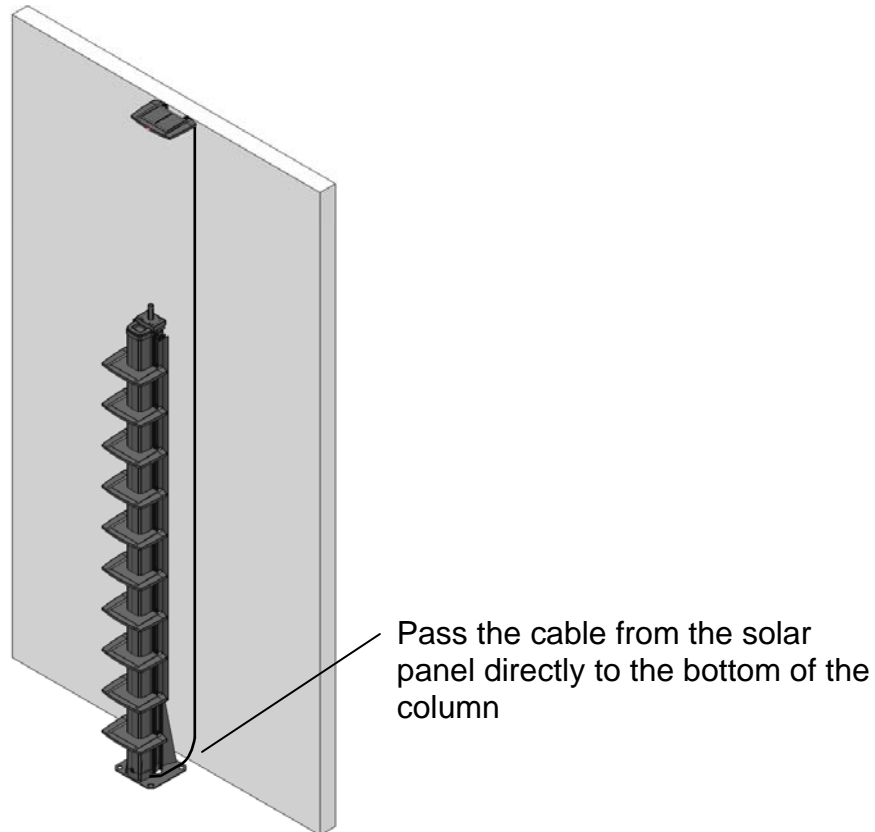


4.6 Mounting the solar panel

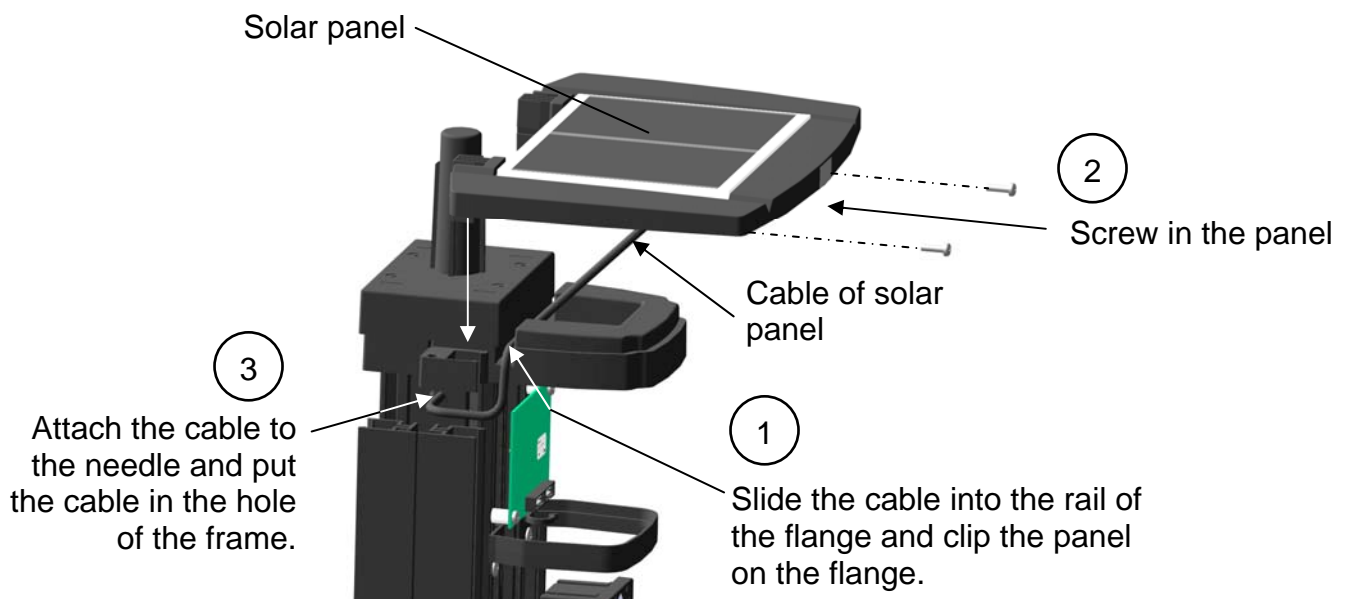
4.6.1 Deport of the solar panel



Maximum distances of deport: 246 ft / 75 m



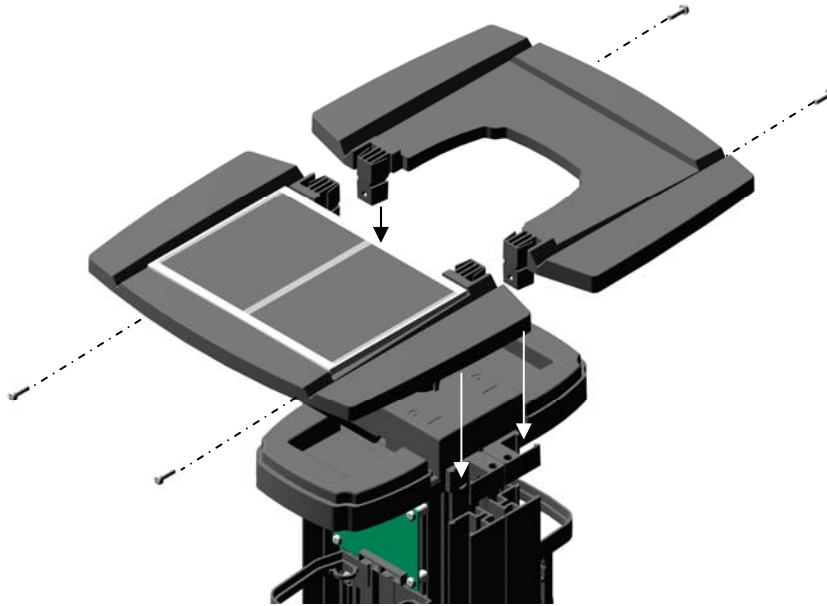
4.6.2 Solar panel installation



For a double face column:

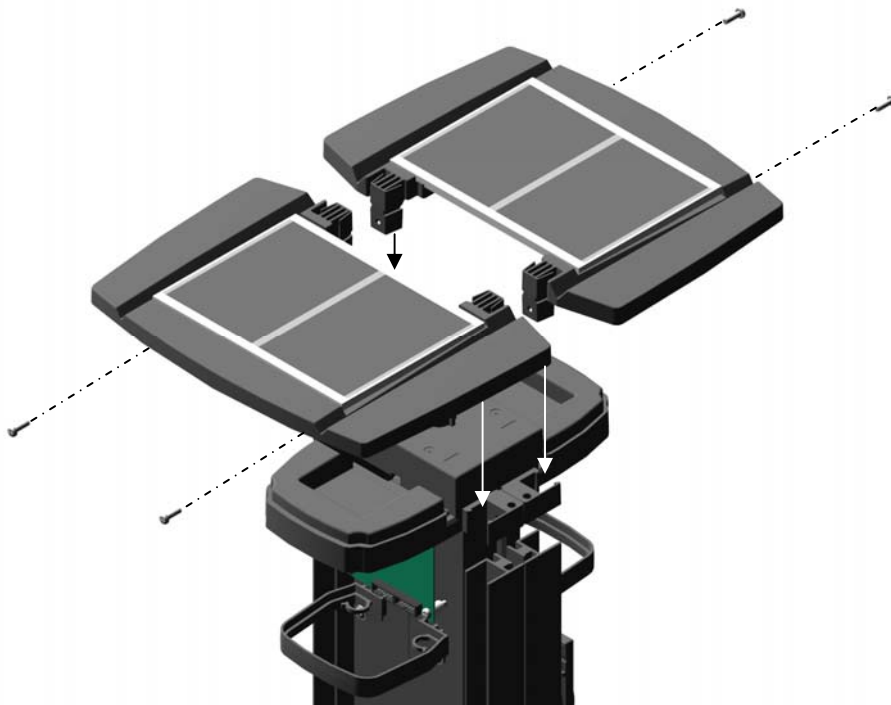
Columns 5 ft / 1.5 m and 7 ft / 2 m:

Clip and screw in a 2nd cap **without solar panel** on 2nd face.



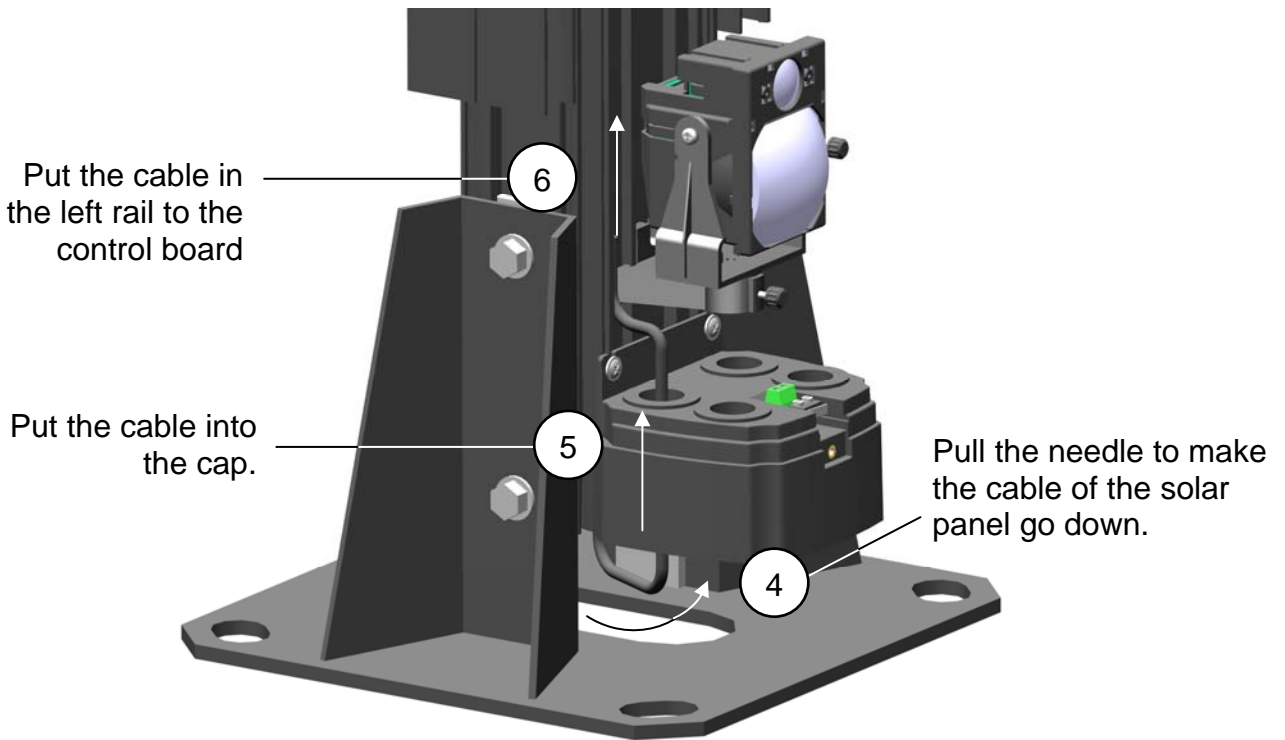
Columns 8.2 ft / 2.5 m and 10 ft / 3 m:

Clip and screw in a 2nd cap **with solar panel** on the 2nd face.



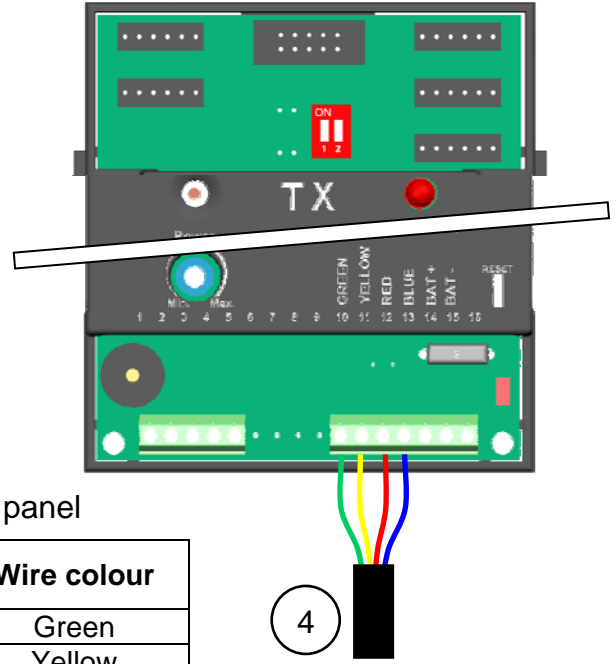
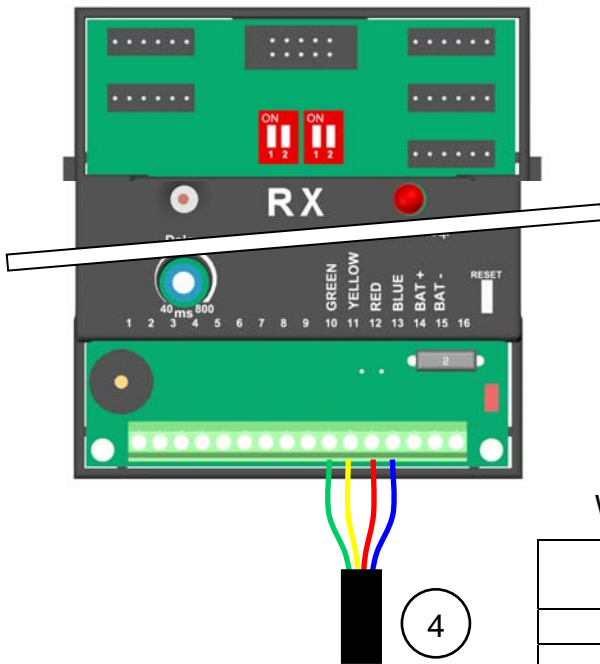
4.6.3 Connecting the solar panel

Note: in case 2 solar panels are used, wire 1 solar panel on each face of the DF column as follows:



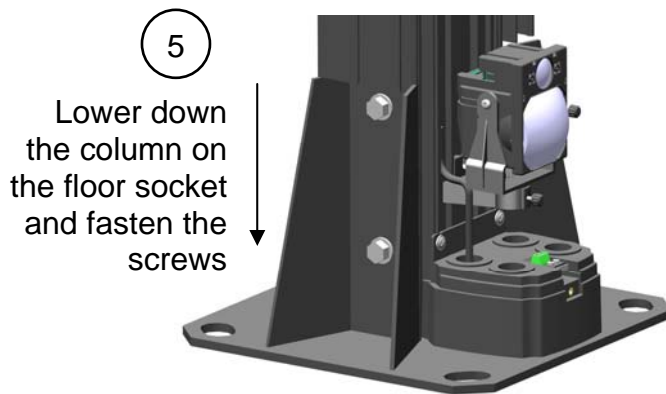
Wiring the solar panel:

- In the case of a simple or double face column strictly below 8.2 ft / 2.5 m high, wire the solar panel on the control board on which the battery is connected.
- In the case of a double face column 8.2 ft / 2.5 m and 10 ft / 3 m high, wire a solar panel for each face on the control board on which the battery is connected.



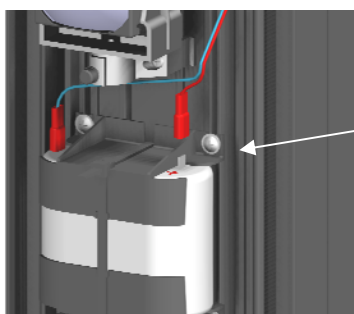
Wiring the solar panel

N° of the terminal	Wire colour
10	Green
11	Yellow
12	Red
13	Blue or Black



5 ALIGNMENT AND ADJUSTMENT

5.1 Connecting the battery pack




Connect the battery pack by wiring the red wire on the terminal + of the battery pack

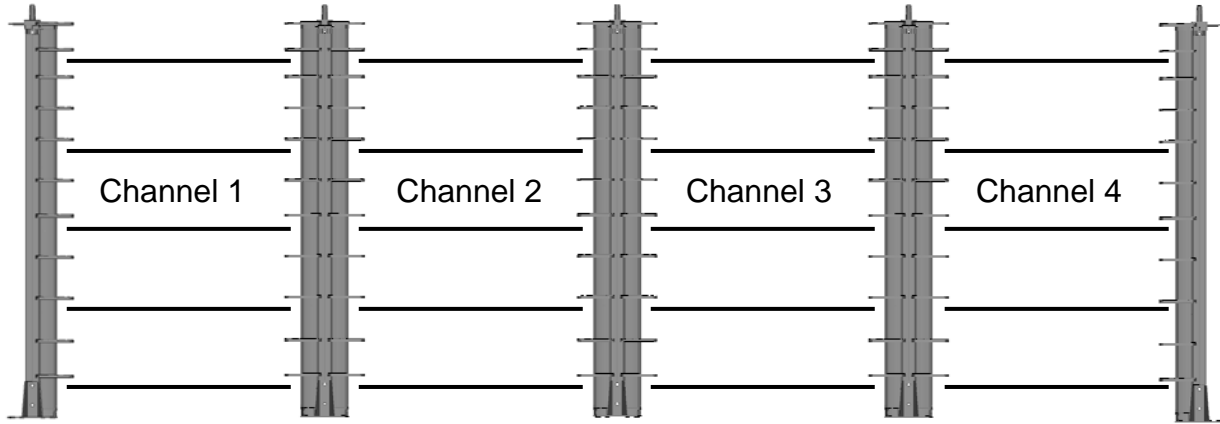
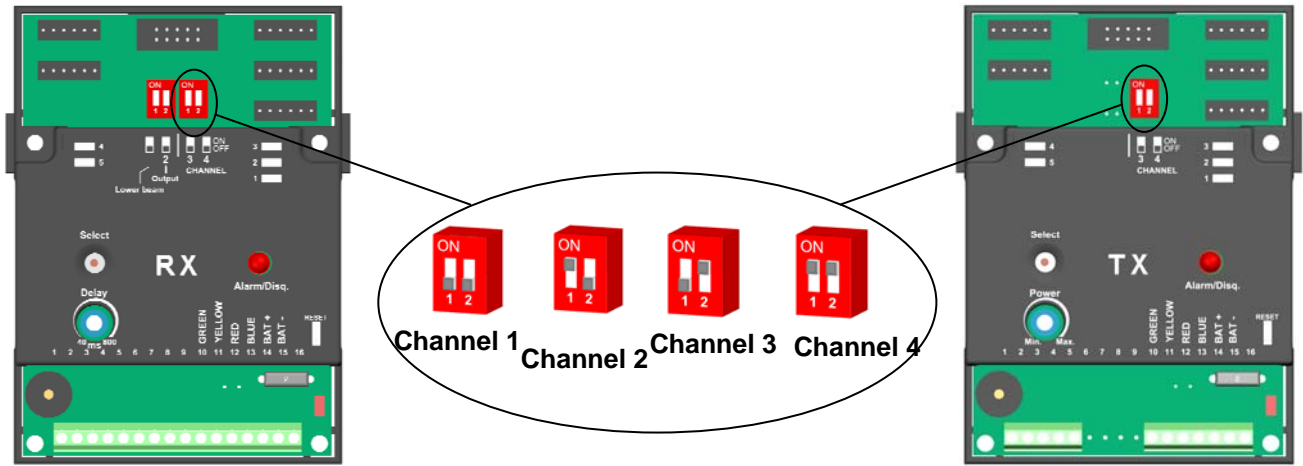
5.2 Channel selection

To prevent interference by one barrier with another at the same site, barriers are equipped with four selectable frequencies (channels).

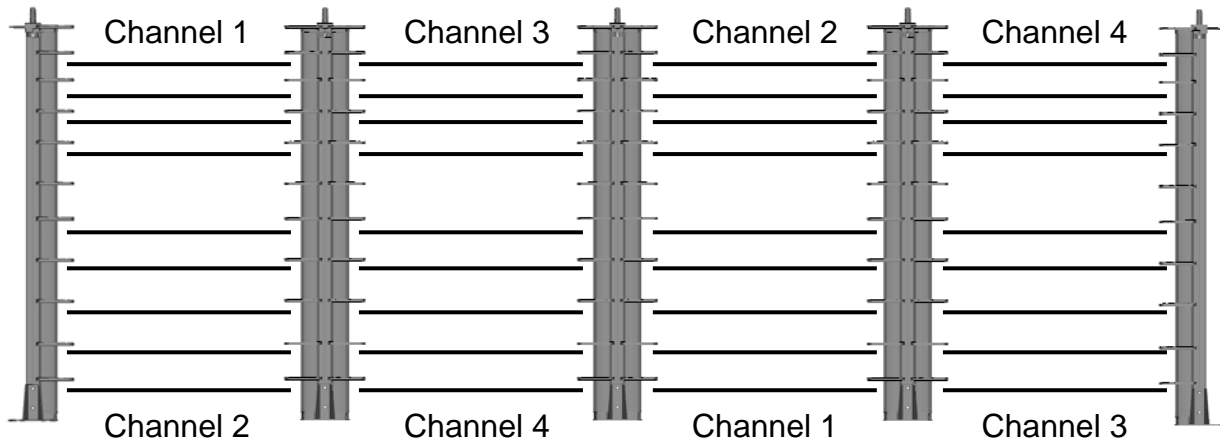
The 2 columns that comprise a barrier must be configured with the same channel number. This configuration is performed by using the switches on the control board.

Alternate the channels on the barriers that are closest to each other.

 *The channel is activated when the configuration is validated. (cf. §5.3)*

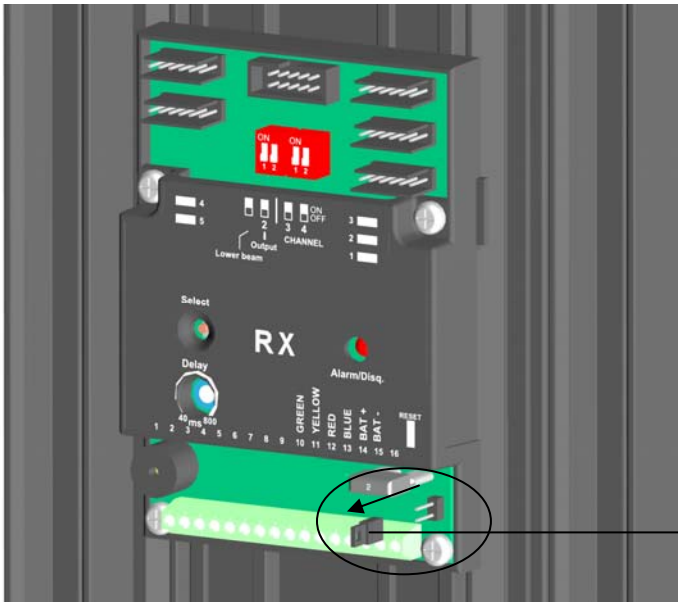


Assignment of channels according to column availability having 5 cells maximum per barrier.



Assignment of channels according to column availability having 6 cells maximum per barrier.

5.3 Validation of the configuration



1. Take out the “reset” jumper pin.
2. Wait a few seconds.
3. Replace the “reset” jumper pin.
4. Verify that the buzzer signal makes a short beep.
(If the buzzer signal makes a long beep see §11 Maintenance)

“reset” jumper pin

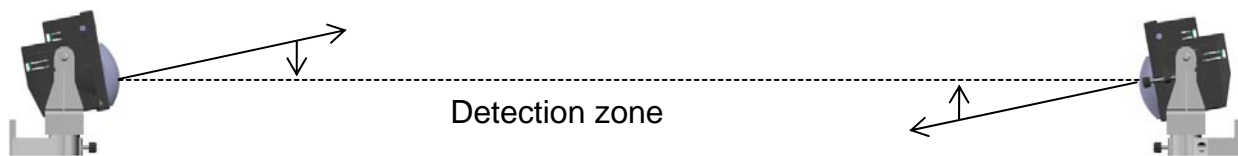
5.4 Alignment

- **Optical alignment**

Correct operation of detection depends on correct barrier alignment.

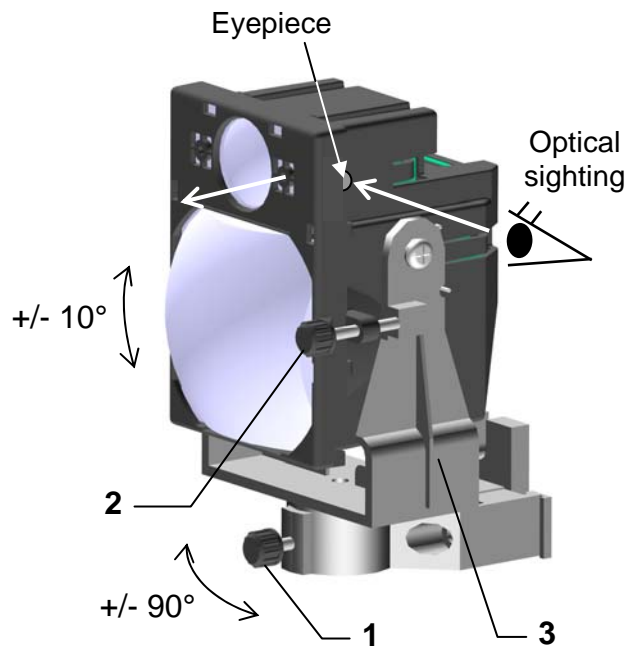
This alignment consists of lining up the optical axes of the column cells installed facing each other. It is to be done cell by cell on each TX and RX column.

This basic alignment adjustment is performed for each cell using the integrated optical sights system.

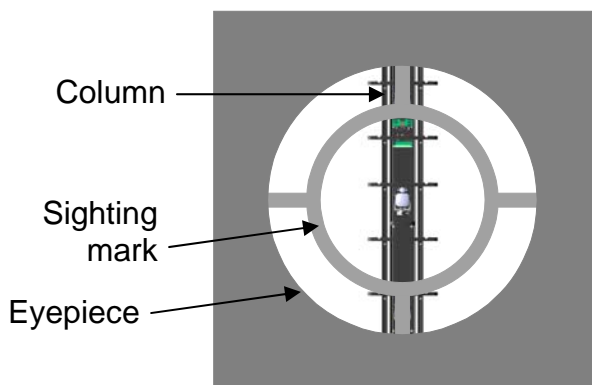


DESCRIPTION OF THE CELL VIEWFINDER

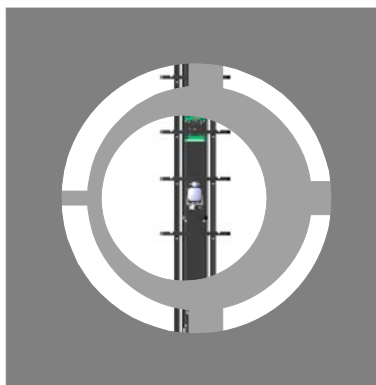
- Loosen the adjusting knob (1) thereby allowing the cell to rotate horizontally +/- 90°.
- Place the eye in front of the cell along an oblique line of sight.
- Aiming consists of visualizing the image of the opposite housing (see figure below).
- Aiming is performed by rotating the sight horizontally +/- 90° by directly manipulating the cell fork (3).
- Vertical rotation +/- 10° via the adjustment knob (2).
- After sighting the image, do not forget to fasten the adjustment knob (1).



Note: distance for eye accommodation: approximately 0.39 in / 1 cm



Correct optical sighting:
the eyepiece, the sighting mark
and the column are adjusted

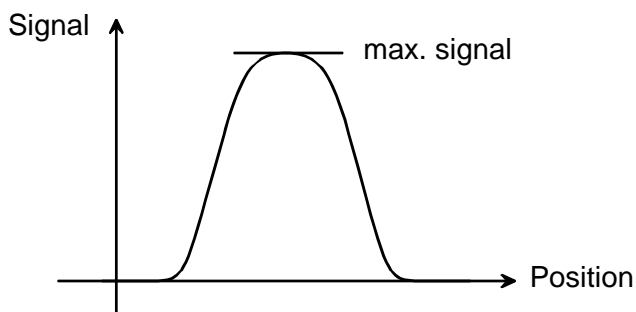


Wrong optical sighting:
the sighting mark and/or the
column are not adjusted

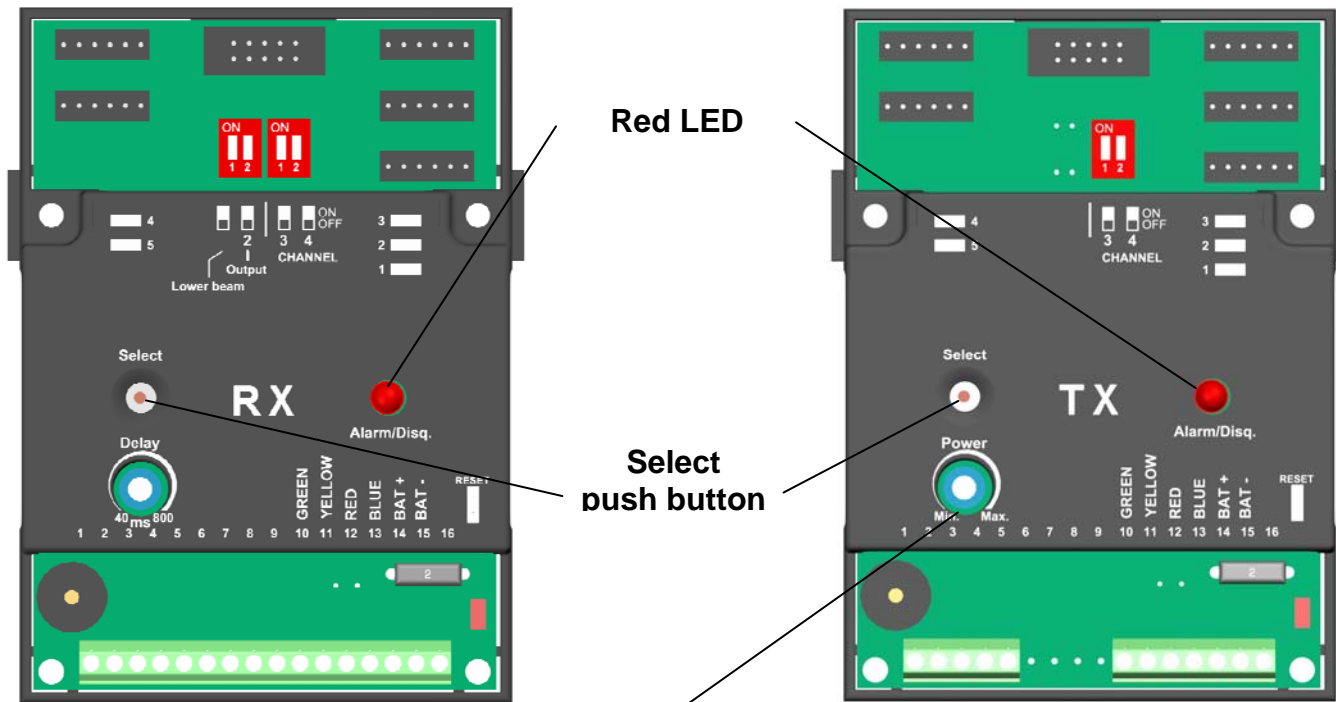
• **Adjustment mode**

Rules to follow:

1. The alignment consists in finding the position that gives the maximum signal for the minimum power (power potentiometer of the beam).



2. The TX and RX columns must be both in alignment mode.
3. The beam number in alignment mode must be the same on both columns.


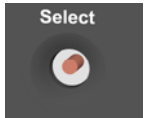
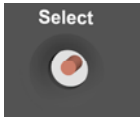
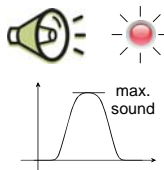
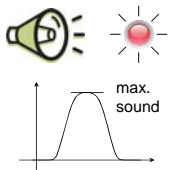
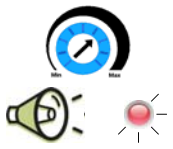
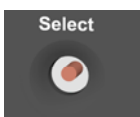
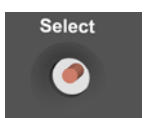

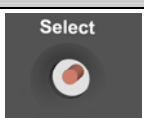
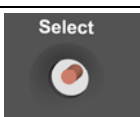


Adjustment of the transmission power
(only active while in alignment mode)



Alignment of barrier 8.2 ft / 2.5 m or 10 ft / 3 m:

- Put in alignment the bottom control board to align the cells connected to it and switch off the top control board with the jumper pin ON-OFF on both columns forming the barrier (TX and RX).
- Put in alignment the top control board **to align the cells connected to it and switch off the** bottom control board with the jumper pin ON-OFF on both columns forming the barrier (TX and RX).

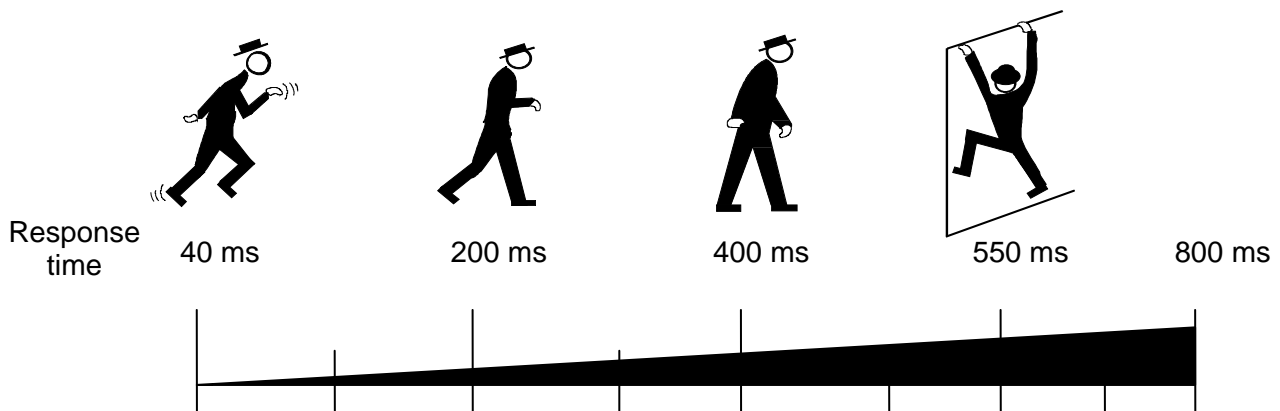
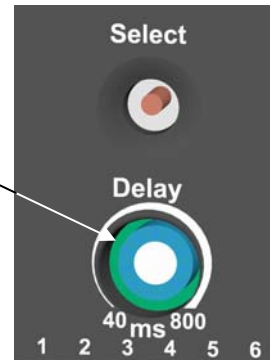
Stage:	RX column	TX column
1	/	Adjust the power potentiometer of the beam to the maximum. 
2	/	Push the button "Select" for more than 2s until the buzzer signal makes 3 short beeps. (the alignment starts with cell 1) 
3	Push the button "Select" more than 2s until the buzzer signal makes 3 short beeps. (the alignment starts with cell 1) 	/
4	Turn the cell on both axes until you have the maximum sound on the buzzer and the fastest flashing on the indicator light. 	/
5	/	Turn the cell on both axes until you have the maximum sound on the buzzer and the fastest flashing on the indicator light. 
In case the continuous sound cannot be obtained, go to stage 7.		
6	/	Lower the power of the beam with the potentiometer until you have a discontinuous sound of the buzzer and the flashing of the indicator light. 
Do stage 4 again		
7	For the next cell, push briefly on the button "Select". The flashing of the indicator light and the beeps of the buzzer indicate the cell number to be aligned. 	/
8	/	For the next cell, push briefly on the button "Select". The flashing of the indicator light and the beeps of the buzzer indicate the cell number to be aligned. 
9	/	Adjust to the maximum the potentiometer of the beam power. 
Do stage 4 again for each cell.		
10	/	Push the button "Select" for more than 2s until the buzzer makes 3 short beeps to leave the alignment mode. 
11	Push the button "Select" for more than 2s until the buzzer makes 3 short beeps to leave the alignment mode. 	/

Note: the potentiometer of the beam power is only taken into account in the alignment mode. It has no effect in the detection mode.

5.5 Configuration

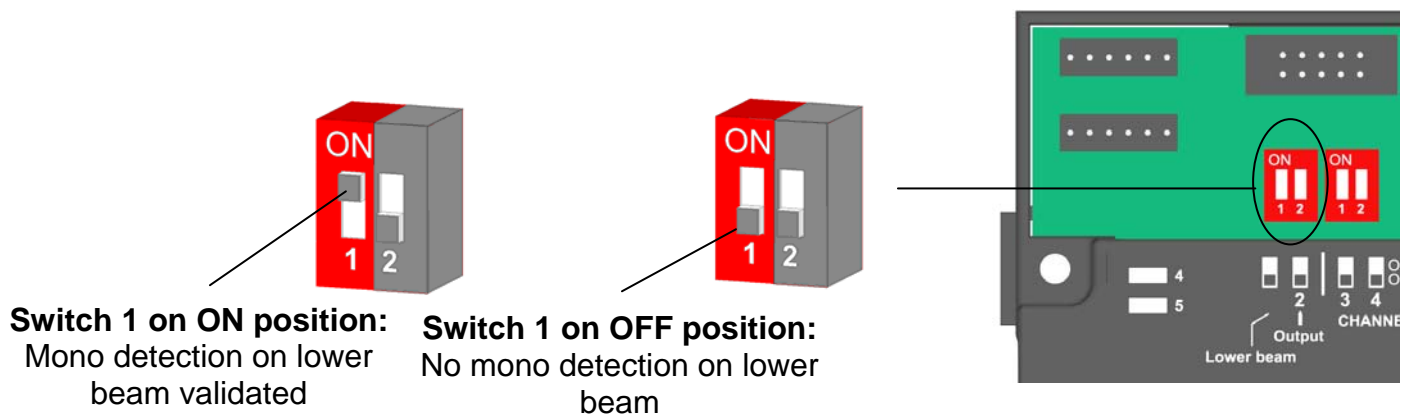
- Configuration of response time for the intrusion alarm

Adjust the response time in moving the potentiometer of the receiver control board (RX).



- Bottom beam selection

Validate / invalidate the mono detection of the time-delayed lower beam to 1,5s (not adjustable) by setting switch 1 on the ON position.

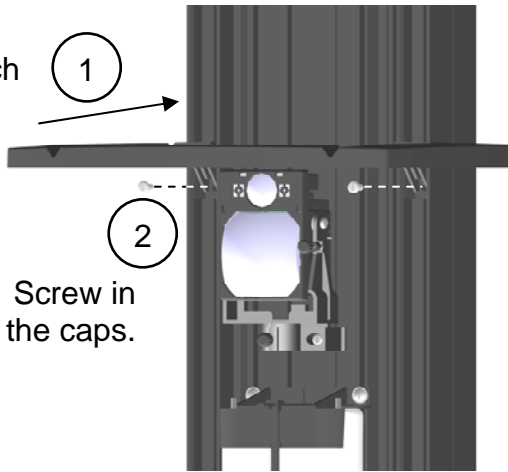


The mono detection of the bottom beam will be activated when the control board will be powered. (§5.3)

6 MOUNTING THE ANTI-ICE AND ANTI-CONDENSATION CAPS

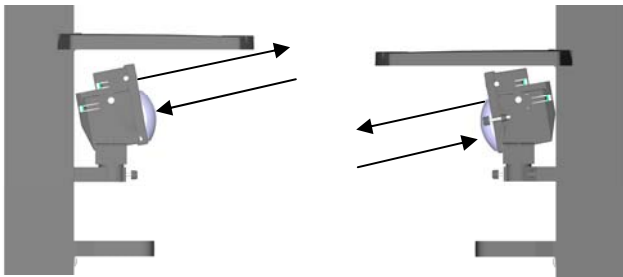
Note: mounting the anti-ice and anti-condensation caps in their support will only be done during the 1st installation.

Clip the caps just above each cell.

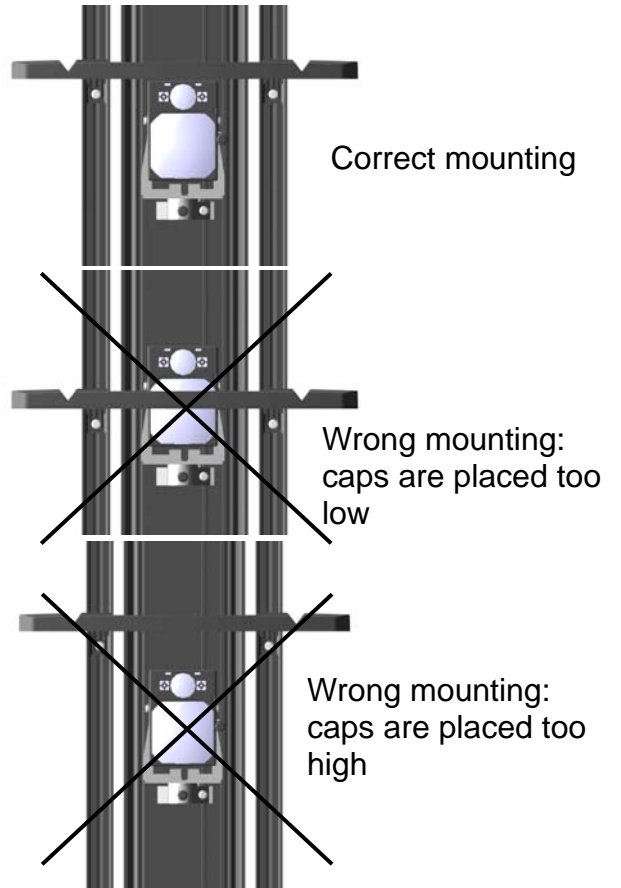


Screw in the caps.

Position of the caps for a cell inclination of +/-10°:



Column with caps above the cells



Correct mounting

Wrong mounting: caps are placed too low

Wrong mounting: caps are placed too high

Column with all the caps



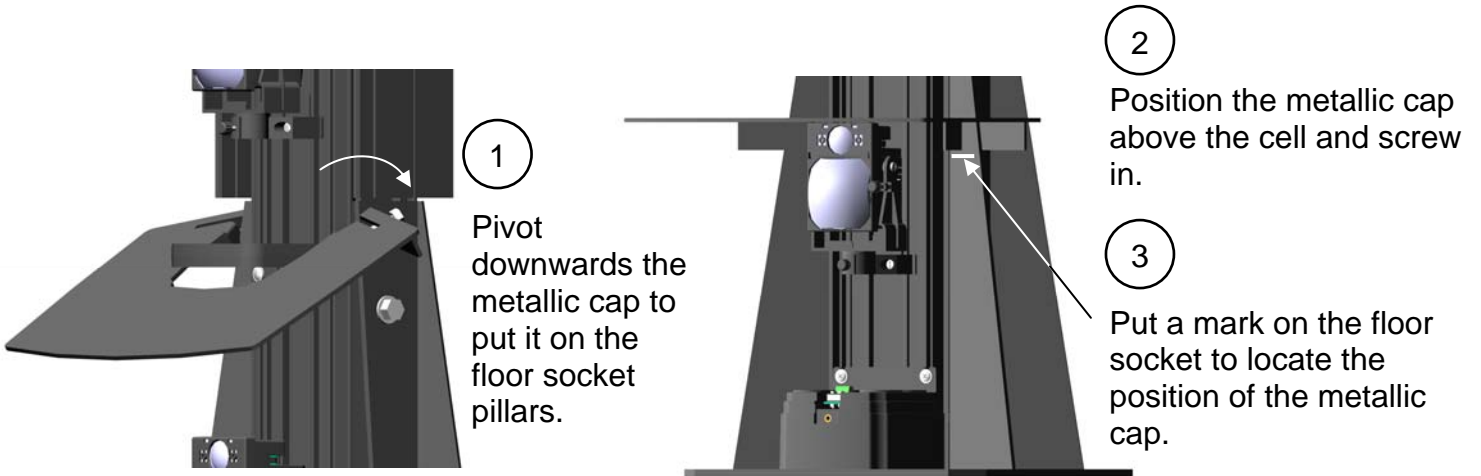
3 Divide the remaining caps along the column in order to hide the position of the real beams.



Do not place a cap just below a cell. Leave around 3.9 in / 10cm.

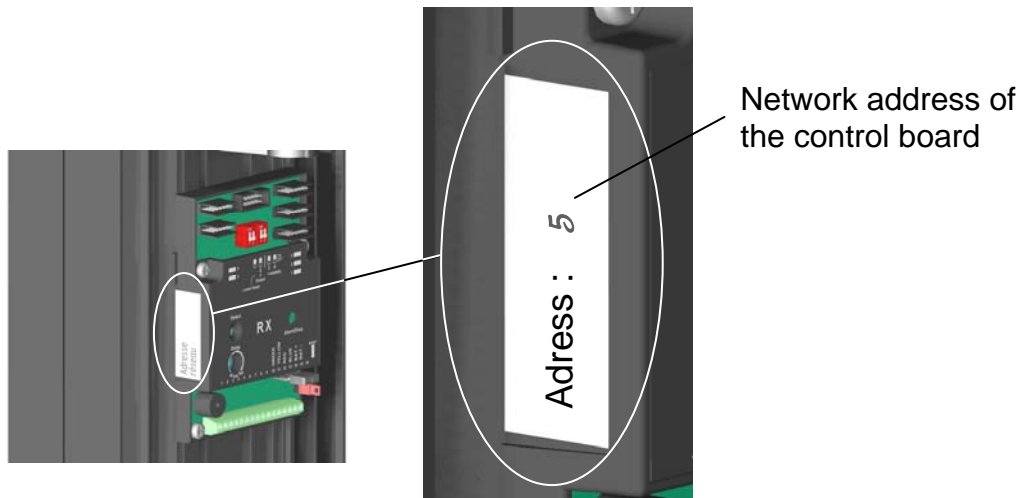
When the anti-ice and anti-condensation caps are mounted on their frame, it forms an homogeneous unit that can be taken off and put on as one single piece.

- **Mounting the metallic cap for columns 8.2 ft / 2.5 m and 10 ft / 3 m**

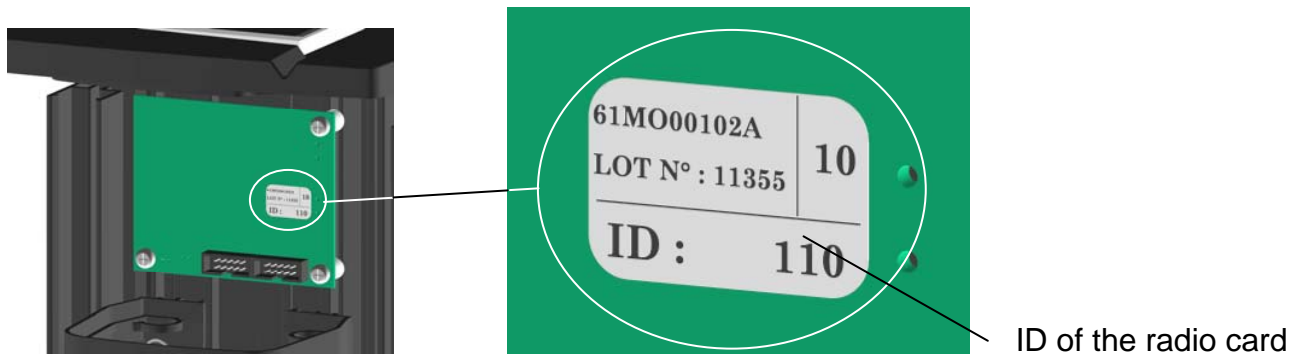


7 ALARM TRANSMISSION

- Each control board has a network address between 1 and 64.

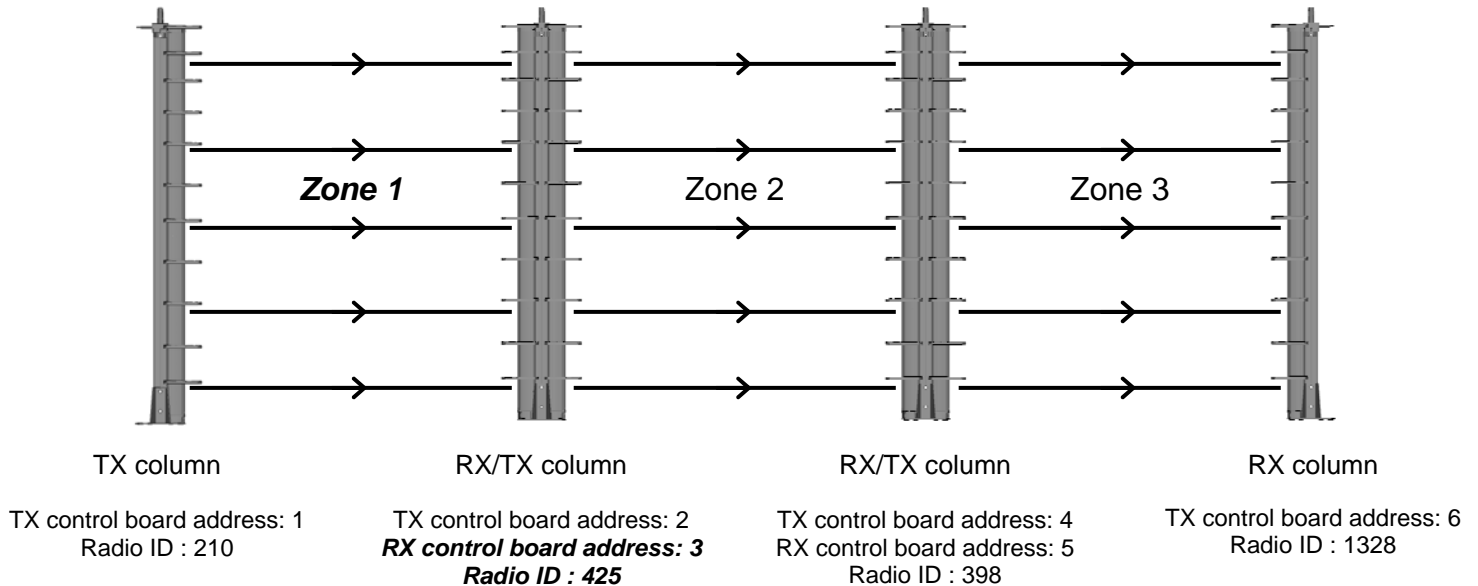


- Each column has a radio transmitter / receiver with its own ID.



- The network addresses of the control boards and the « ID » of the radio of each column must be spotted on a plan to configure the alarms assignment on the MAXIBUS III Hub. (See NT297 of the MAXIBUS III Hub)

Example: The intrusion alarm **zone 1** is detected by the RX column **address 3** and transmitted to the MAXIBUS III Hub via the radio **ID 425**.



Note: in the case of 8.2 ft / 2.5 m and 10 ft / 3 m barriers, the radio transmits 1 alarm information per control board. It is possible to associate these information in the MAXIBUS III Hub to have only one alarm information on the same relay.

8 FINAL TESTS

After installation, verify correct operation with a complete test:

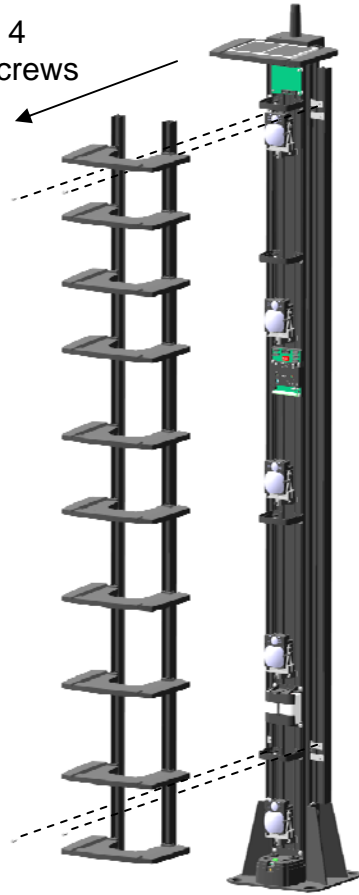
- Interrupt two adjacent cells and verify activation of the intrusion alarm. (Red indicator light on the RX column)
- If mono-detection is validated, interrupt the lower cell and verify activation of the intrusion alarm. (Red indicator light on the RX column)
- Mask on the beams for 1min and verify the activation of the disqualification. (Red light flashing on the RX column)

Note: The alarms visualization on the red indicator light of the RX column is only possible when the column is open. (Tamper output open)

9 CLOSING THE COLUMN

9.1 Removing the anti-ice and anti-condensation caps cover

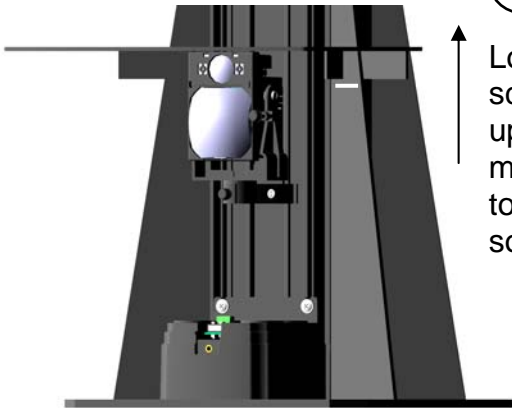
Pull out the 4 mounting screws



9.2 Removing the metallic cap (Only for columns 8.2 ft / 2.5 m and 10 ft / 3 m)

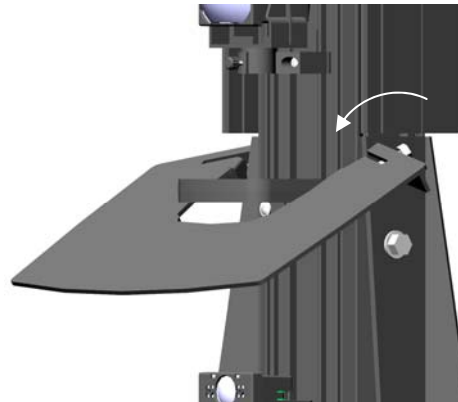
1

Loosen the screws and push upwards the metallic cap to the top of the floor socket pillars

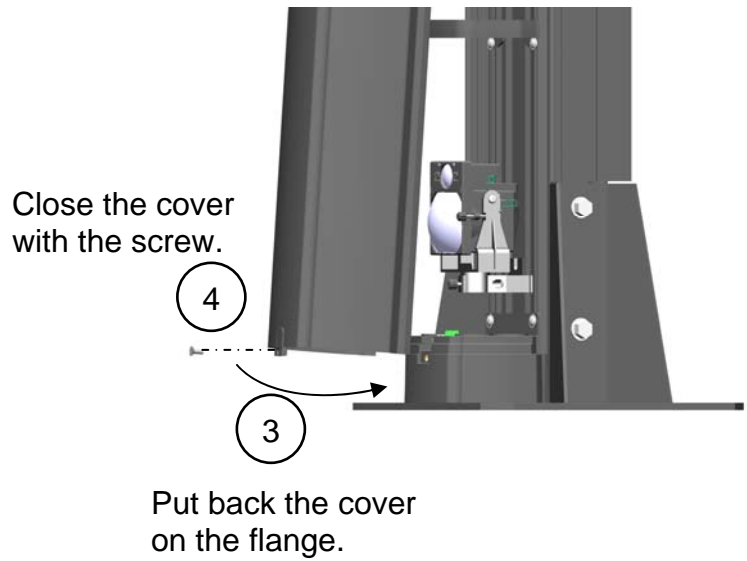
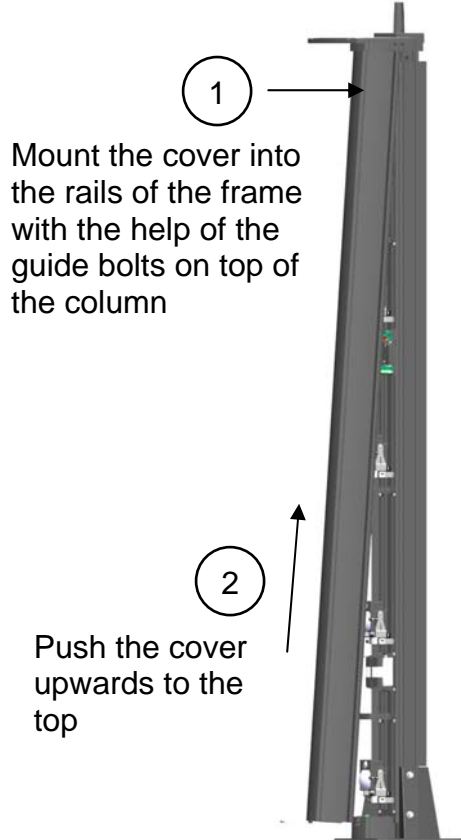


2

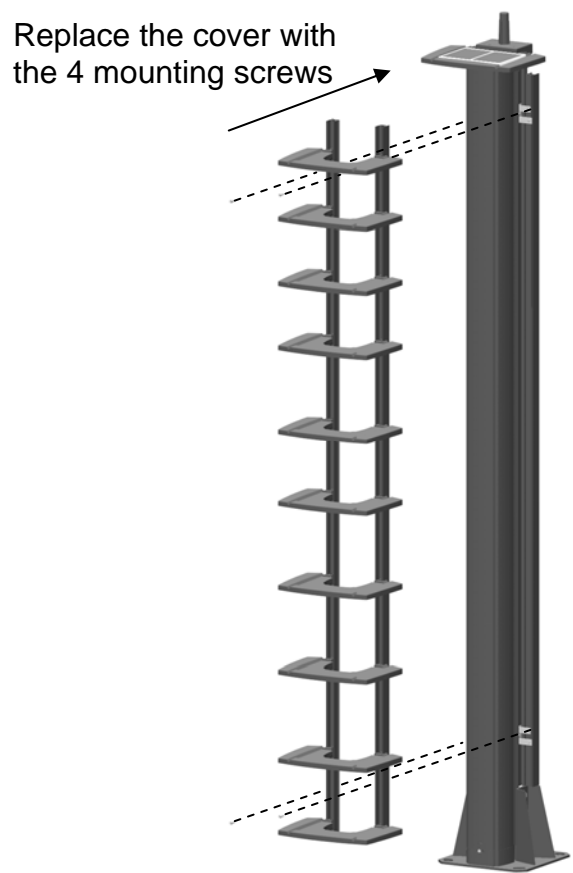
Pivot downwards the metallic cap to put it out from the floor socket pillars.



9.3 Mounting the infrared cover

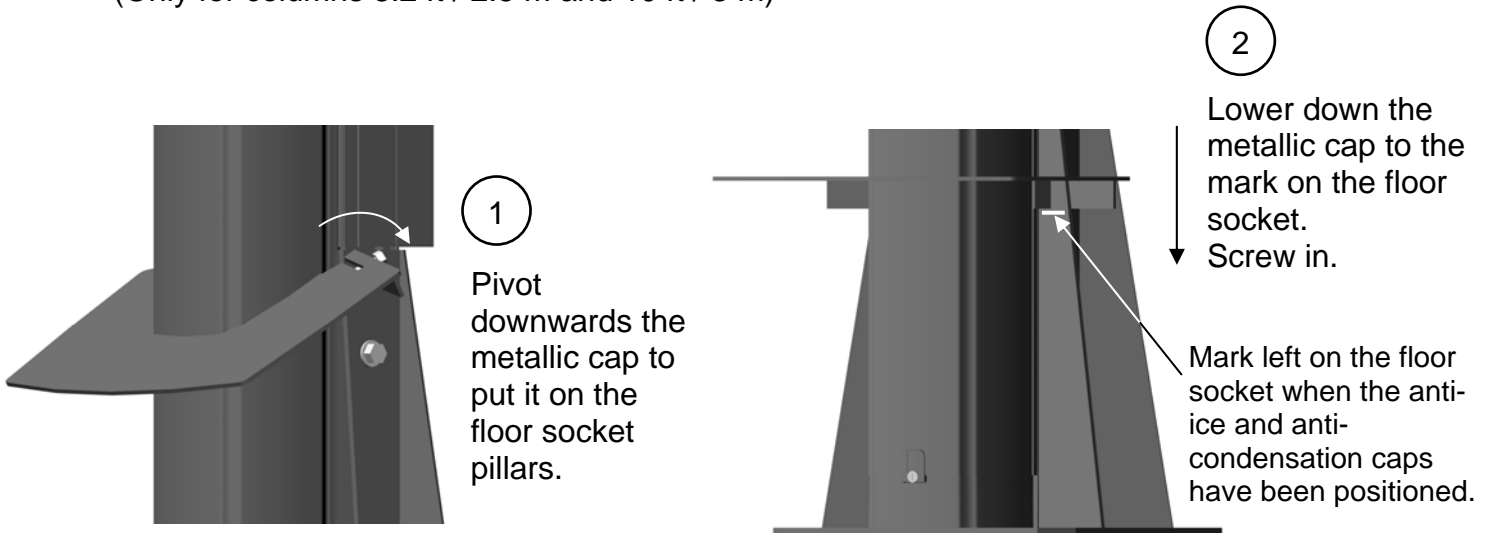


9.4 Mounting the cover with the caps



9.5 Remounting the metallic cap

(Only for columns 8.2 ft / 2.5 m and 10 ft / 3 m)



10 PERIODIC MAINTENANCE

To ensure proper performance over time, minimum maintenance should be performed:

- Clean the cap of each component at least once a year. (Or more often depending on exposure to foreign elements and dirt)
- Clean the solar panel. (Once a year)

11 MAINTENANCE

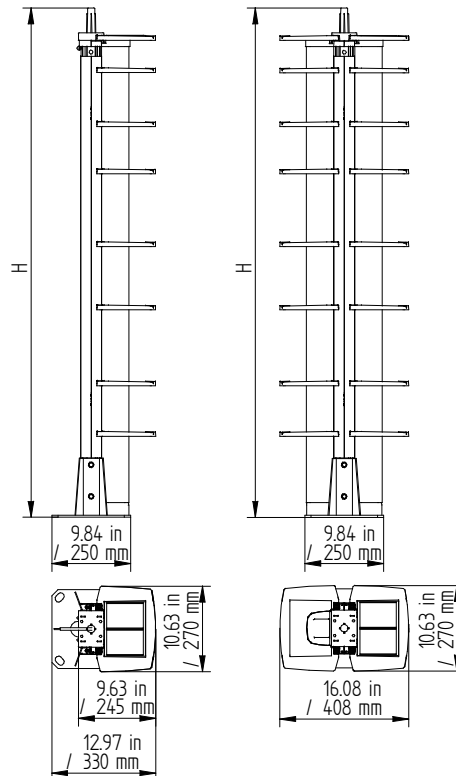
Malfunction	Probable cause	Solution
When the column is powered, the buzzer makes a long beep (5s). (Reset made with the “reset” jumper)	<ul style="list-style-type: none"> - Low battery tension. - There are less than 3 cells connected on the column. 	<ul style="list-style-type: none"> - Battery tension < 3.85V (The panel is disconnected or covered, replace the battery pack). - Verify the cells connection.
The cells are interrupted but the red light “Alarm” is off on the RX column.	<ul style="list-style-type: none"> - The 2 cells are not interrupted at the same time. - Low battery tension. - Tamper closed - Fuse of control board out of order - Jumper pin ON/OFF away 	<ul style="list-style-type: none"> - Block 2 cells at the same time. - Battery tension < 3.85V (The panel is disconnected or covered, replace the battery pack). - Verify the tamper contact. - Verify the fuse - Verify jumper pin ON/OFF
Press a long time on the “Select” button (>2s) to be in the alignment mode, no effect.	<ul style="list-style-type: none"> - Low battery tension. 	<ul style="list-style-type: none"> - Battery tension < 3.85V (The panel is disconnected or covered, replace the battery pack).
In alignment mode, there is no signal.	<ul style="list-style-type: none"> - Wrong optical alignment. - Power of the beam too low. - The cells in alignment mode on the transmitter and receiver columns do not have the same number. - Different channel on the columns forming the detection zone. - Infrared disruption. 	<ul style="list-style-type: none"> - Do the optical alignment again. (§5.1) - Increase the power of the beam with the potentiometer (§5.5). - Put the cells under the same number in alignment mode. (§5.5) - Put the same channel on both columns. (§5.3) - Verify that the channels of the other barriers are different. (§5.3)
No beep of the buzzer when starting	<ul style="list-style-type: none"> - Jumper pin ON/OFF away - Fuse of the control board out of order - Battery out of order 	<ul style="list-style-type: none"> - Verify the jumper pin ON/OFF - Verify the fuse - Very low battery tension
Red light “Alarm” flashing on the RX column.	<ul style="list-style-type: none"> - At least 1 cell is blocked. - Wrong optical alignment 	<ul style="list-style-type: none"> - Verify that the cells are clear. - Verify that ice and fog shields do not disturb the cells. (§6) - Eject the infrared beam by disconnecting the RX and TX cells and reset. - Do the optical alignment again (§5.1)

12 TECHNICAL SPECIFICATIONS

SOLARIS											
Maximum outdoor range	246 ft / 75 m										
Detection mode	Pulsed infrared cells with four selectable frequencies (channels).										
Number of cells for 1 direction	3 to 10										
Detection mode	Time-delayed bi-directional										
Response time of intrusion alarm	Adjustable from 40ms to 800ms										
Response time of alarm disqualification	1 minute non adjustable										
Power supply	<ul style="list-style-type: none"> - Battery pack: 4V 5Ah - Solar panel: 250mA 6V 										
Operating temperature	-31°F to 131°F / -35°C to +55°C										
Relative humidity	95% maxi without condensation										
Protection index	IP 44										
Column weights:	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: center;">SF column</th> <th style="width: 50%; text-align: center;">DF column</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">23.15 lb / 10.5 kg</td> <td style="text-align: center;">28.66 lb / 13 kg</td> </tr> <tr> <td style="text-align: center;">29.32 lb / 13.3 kg</td> <td style="text-align: center;">36.81 lb / 16.7 kg</td> </tr> <tr> <td style="text-align: center;">35.49 lb / 16.1 kg</td> <td style="text-align: center;">44.09 lb / 20 kg</td> </tr> <tr> <td style="text-align: center;">49.16 lb / 22.3 kg</td> <td style="text-align: center;">57.09 lb / 25.9 kg</td> </tr> </tbody> </table>	SF column	DF column	23.15 lb / 10.5 kg	28.66 lb / 13 kg	29.32 lb / 13.3 kg	36.81 lb / 16.7 kg	35.49 lb / 16.1 kg	44.09 lb / 20 kg	49.16 lb / 22.3 kg	57.09 lb / 25.9 kg
SF column	DF column										
23.15 lb / 10.5 kg	28.66 lb / 13 kg										
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35.49 lb / 16.1 kg	44.09 lb / 20 kg										
49.16 lb / 22.3 kg	57.09 lb / 25.9 kg										
<ul style="list-style-type: none"> • Column 5 ft / 1.5 m • Column 7 ft / 2 m • Column 8.2 ft / 2.5 m • Column 10 ft / 3 m 											
Electromagnetic compatibility	Compliance with European standards (label CE)										
Cell orientation	Horizontal +/- 90° - Vertical +/- 10°										
Integrated alignment tools	Optical sights, 1 indicator light and a buzzer signal indicating the reception quality of the incoming signal										
Radio features:	FCC ID: QVA81100097 915.000MHz – 915.250MHz 6 50KHz										
<ul style="list-style-type: none"> • Radio standard • Frequency • Number of channels • Width of a channel 											

Dimensions:

Column	Height H
5 ft / 1.5 m	5.3 ft / 1.6 m
7 ft / 2 m	6.9 ft / 2.1 m
8.2 ft / 2.5 m	8.6 ft / 2.6 m
10 ft / 3 m	10.2 ft / 3.1 m



13 OPTIONS REFERENCES

- Additional solar panel ref: 30620902
- Wall fixing option for SF column 5 ft / 1.5 m and 7 ft / 2 m ref: 30580002
- Wall fixing option for DF column 5 ft / 1.5 m and 7 ft / 2 m ref: 30580021
- Wall fixing option for SF column 8.2 ft / 2.5 m and 10 ft / 3 m ref: 30621501
- Wall fixing option for DF column 8.2 ft / 2.5 m and 10 ft / 3 m ref: 30611502
- Battery pack ref: 81000226



In compliance with the European environmental directives, this product must not be thrown away but recycled through an appropriate subsidiary.