



# **Flexibox 900**

Quick setup guide

Rev. 1.3

**Dantherm**<sup>®</sup>  
CONTROL YOUR CLIMATE

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**Warnings**

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**Target group**

The target group for this service manual are specialists who will install and prepare the Flexibox 900 for use in telecom free cooling.

This installation manual and the product use various displays and labels to ensure safe use. Ignoring these displays and labels and using the product incorrectly could result. Please read the following warning symbol information before reading the rest of this section, and be sure to strictly observe all instructions.

## Introduction

### Introduction

This is the quick setup guide for the Dantherm Flexibox 900 .  
The Flexibox is available in different variants according to the following notation.

#### FB-900-DC-G4

	<b>Filtertype:</b>
	G4
	M5
	<b>Voltage</b>
	DC 48
	AC 230 50/60 Hz
	<b>Flexibox 900</b>

#### FB-900-DC-DO-G4

	<b>Filter type:</b>
	G4
	M5
	<b>Direction of airflow</b>
	Down
	Up
	<b>Voltage</b>
	DC 48
	AC 230 50/60 Hz
	<b>Flexibox 900</b>



**Warning** Not following these instructions could result in death or serious injury



**Caution** Not following these instructions could result in injury or property damage.



The symbol means something that should NOT be done

### Safety

#### **Project safety is your responsibility!**

Follow the instructions in this quick setup guide regarding the installation and use of the product. Not following these instructions could result in injury, death, or damage to equipment. All work should be performed by qualified personal using safe work practices. All proper personal protective equipment should be used. PPE required for this installation includes but is not limited to:

- Safety glasses
- Hard hat
- Safety shoes
- Hearing protection
- Cut resistant gloves
- Face shield
- Proper work attire (long sleeve shirt and long pants)

Please strictly observe the following: Special skills are required to install the Dantherm Flexibox unit. Non-qualified personnel should not attempt any of the actions shown in this quick guide. Dantherm shall not be responsible for improper installation or any accidents, damage, or injury resulting from improper installation.

### Copyright

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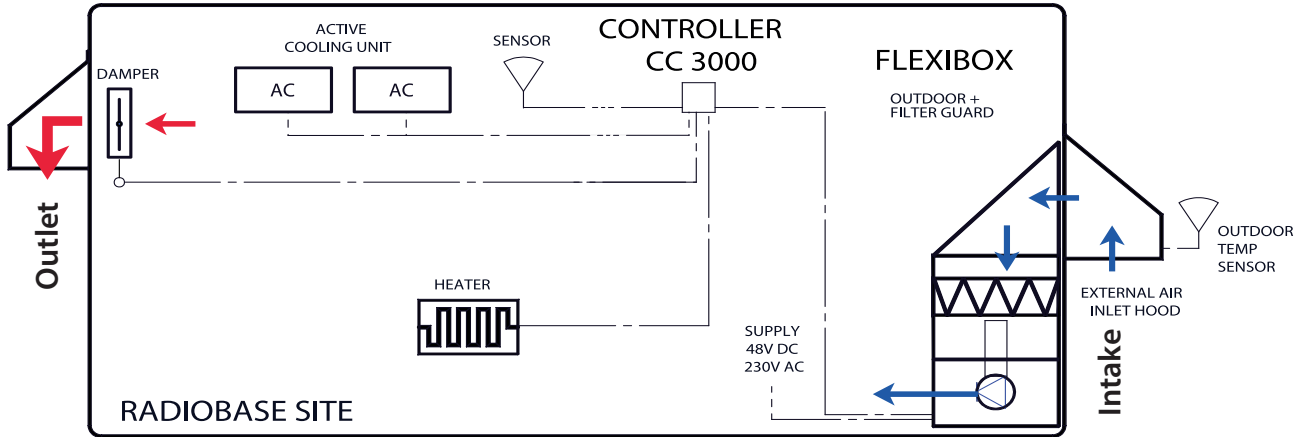
### Reservations

Dantherm reserves the right to make changes and improvements to the product and the service manual at any time without prior notice or obligation.

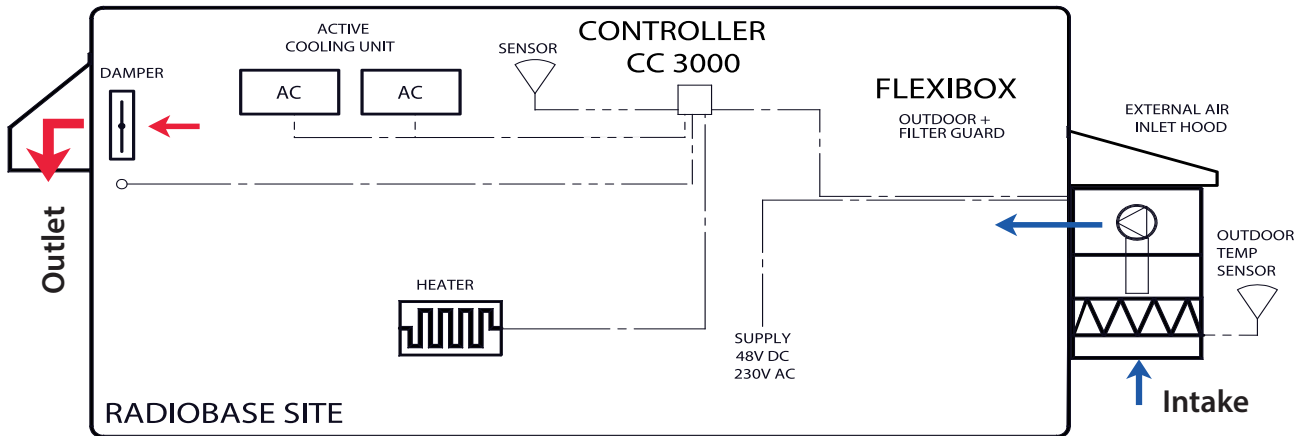
### Quick setup guide

Part number of this quick setup guide is 093418

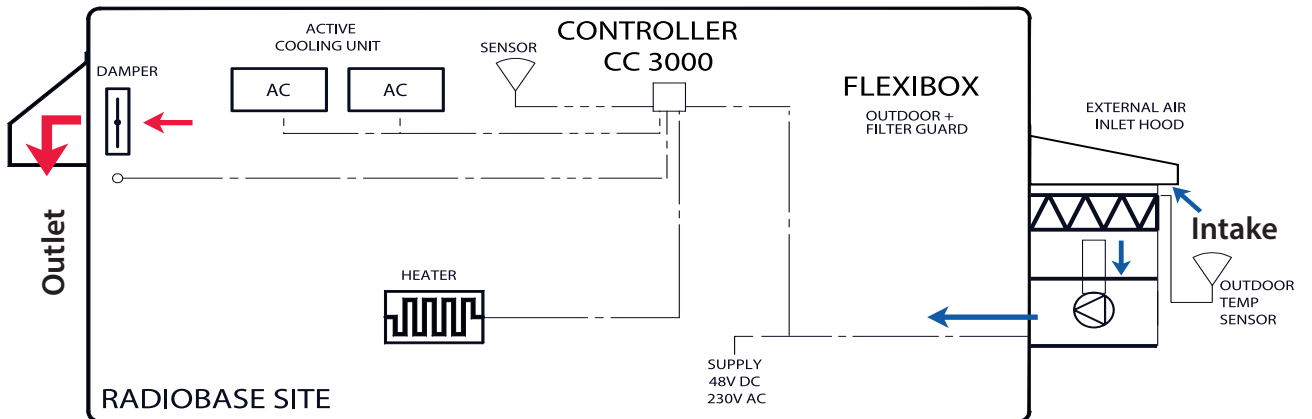
Flexibox 900 Indoor flow



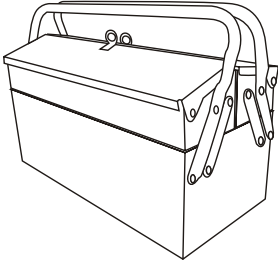

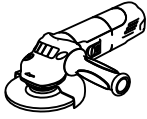
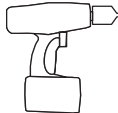

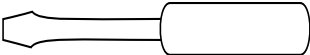
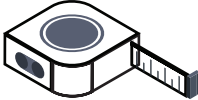
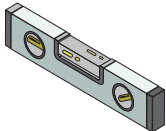
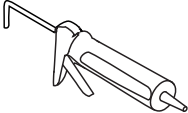
Flexibox 900 Outdoor up flow

















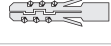



Flexibox 900 Outdoor down flow



Tools needed

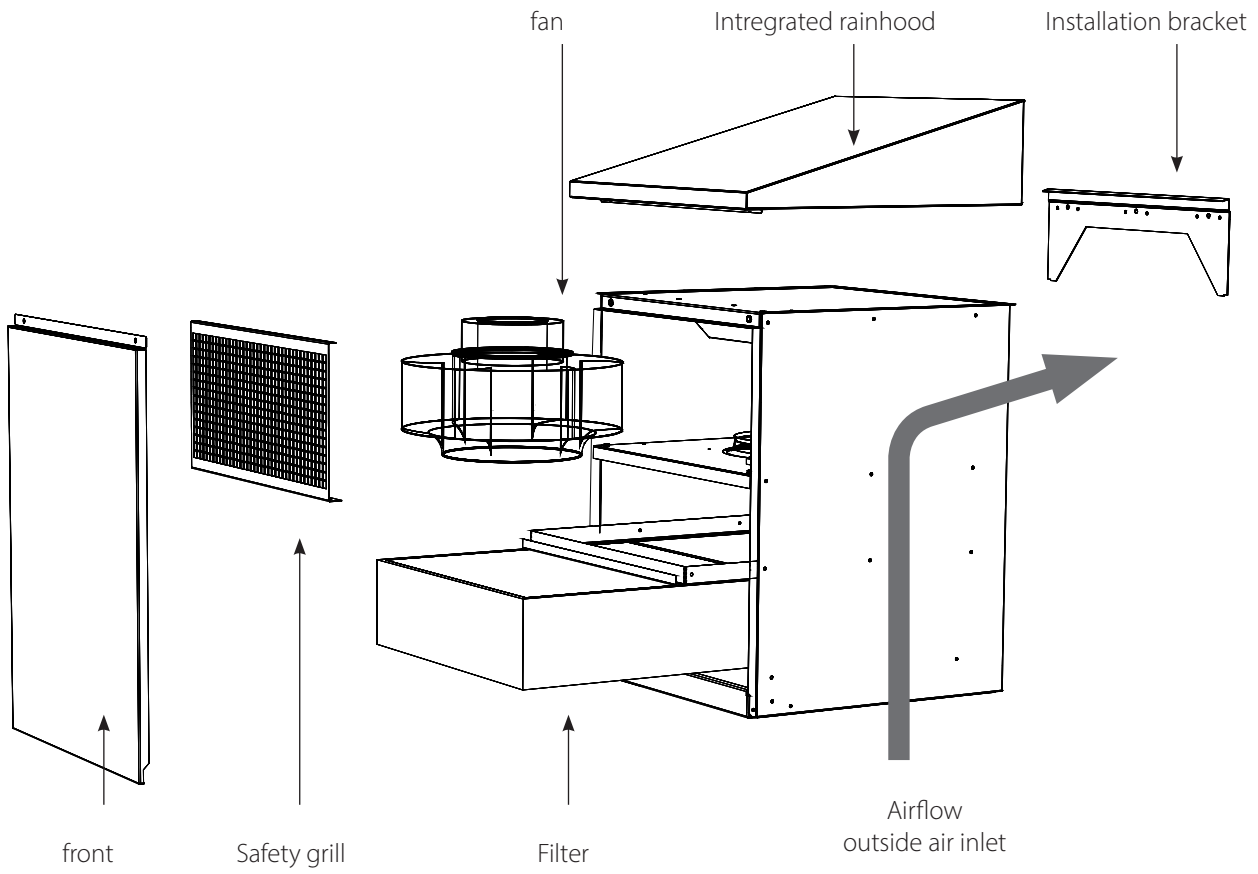
	1x		~	
	1x		+	
	1x			
	2x		+	
	1x			

Parts included

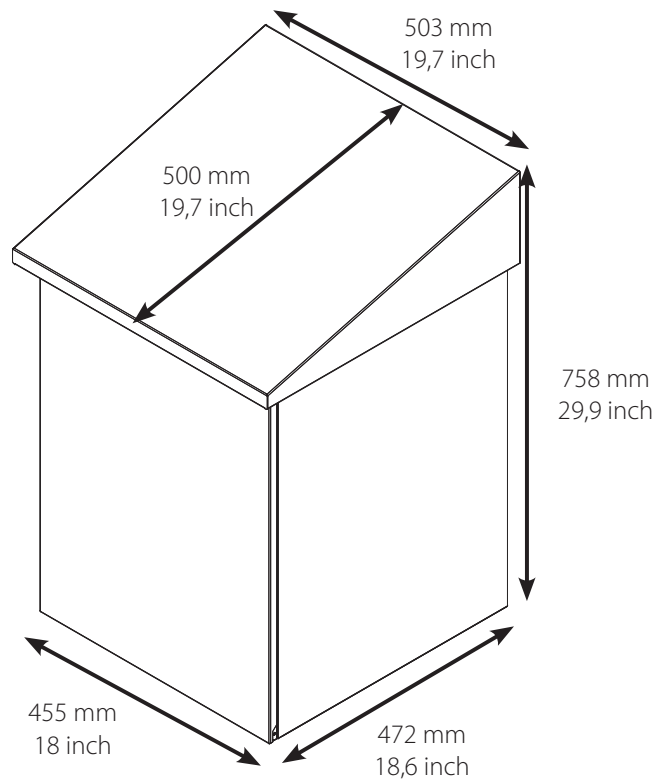
		230V Indoor	230v Outdoor	48V Indoor	48V Outdoor
Flexibox 900 Indoor 230V		1	-	-	-
Flexibox 900 Outdoor 230V		-	1	-	-
Flexibox 900 Indoor 48V		-	-	1	-
Flexibox 900 Outdoor 48V		-	-	-	1
Controller CC3000		1	1	1	1
SD card		1	1	1	1
Cable 8-wire w. Anytec terminal		1	1	1	1
Power Plug, AC Power		1	1	-	-
Power connector 2 pos 48V		-	-	1	1
Indoor Sensor		1	1	1	1
Internal Air Hood		1	-	1	-
Nylon Cable Clamps	-	2	2	2	2
Weather strip		1	-	1	-
Screws ø4x12, PH, T20, Hardened		8	-	8	-
Suspension bracket		1	-	1	-
Brace, Protection		1	-	1	-
Machine screw, M4x10, PH,T20		2	-	2	-
Sheet metal screw, ST 4,2x13 PHH		2	2	2	2
Cable tie	-	3	-	3	
Sheet metal screw, ø4,8 x 38, PHZ, A2		16	5	16	5
Rawplug, 8 x 40		16	5	16	5
Cable tie with clips	-	3	-	3	-
Hex cap screw, M8x16		1	1	1	1
Lock washer, M8, ø8,2x14x0,8mm, serrated		1	1	1	1
Wall mount		-	1	-	1

Product overview

**Outdoor Air Flow Up**

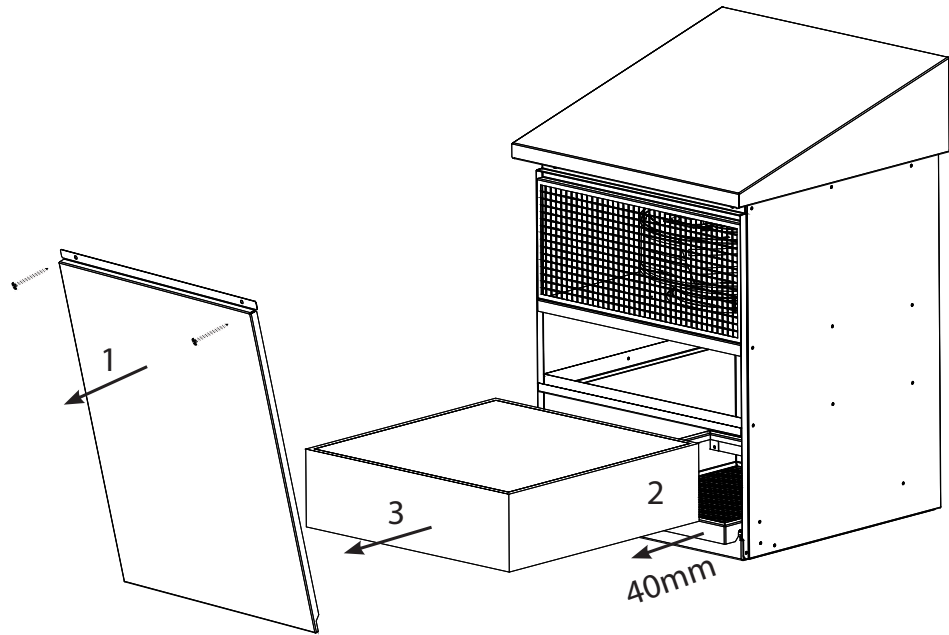


**Product dimension**  
**Flexibox 900 Outdoor**

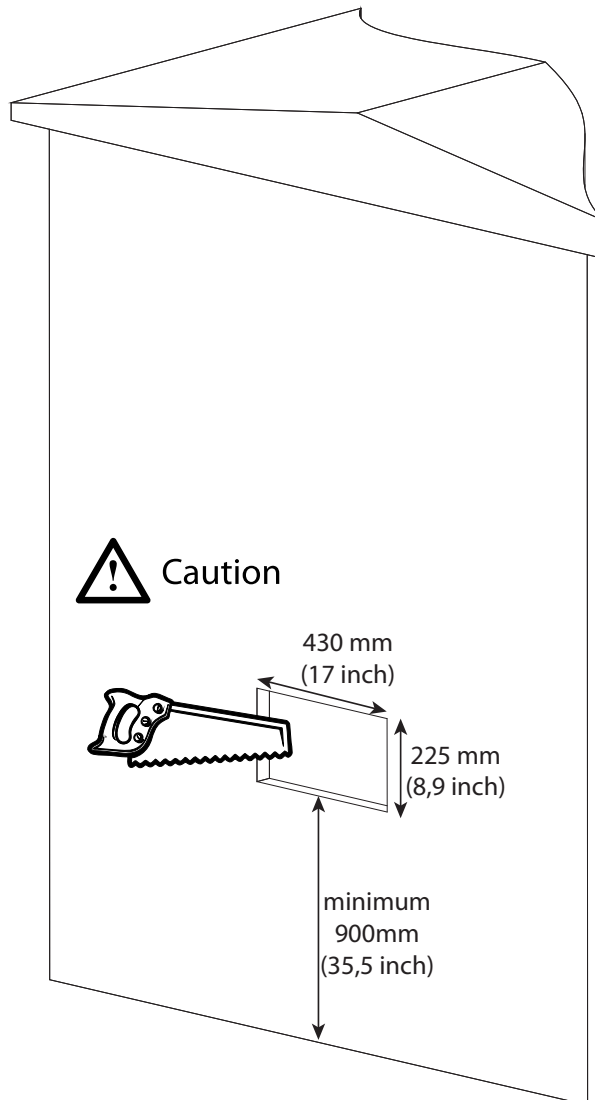


## Outdoor Air Flow Up

Prepare unit  
Flexibox 900 Outdoor



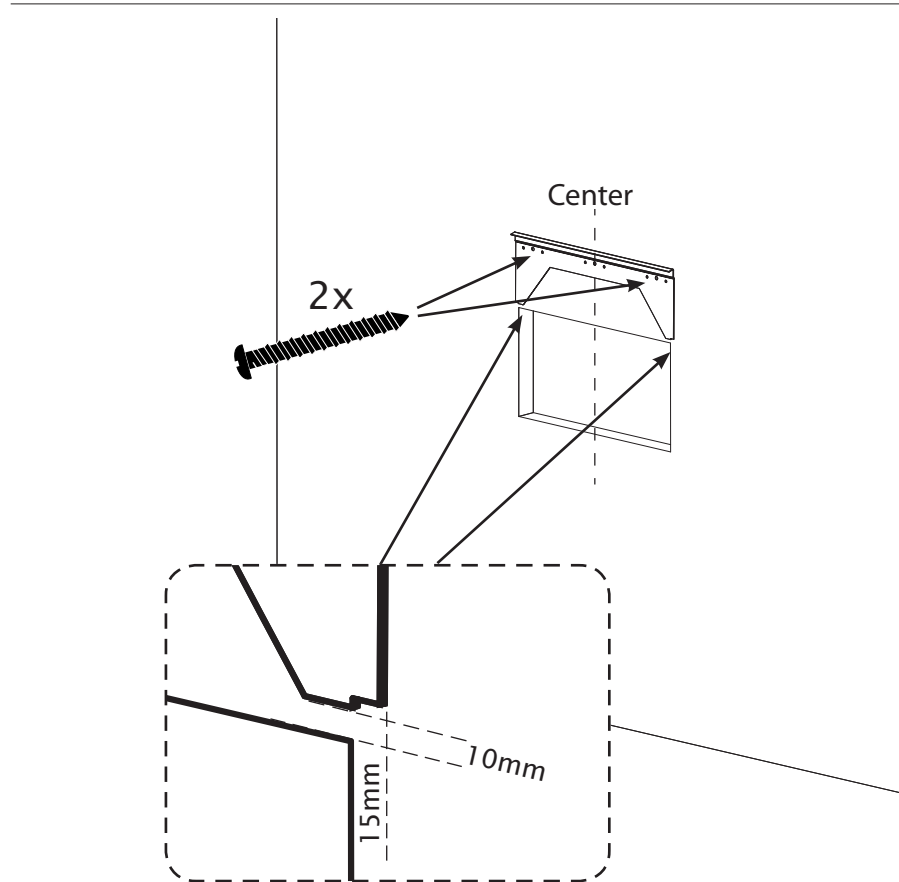
Cut hole  
Flexibox 900 Outdoor



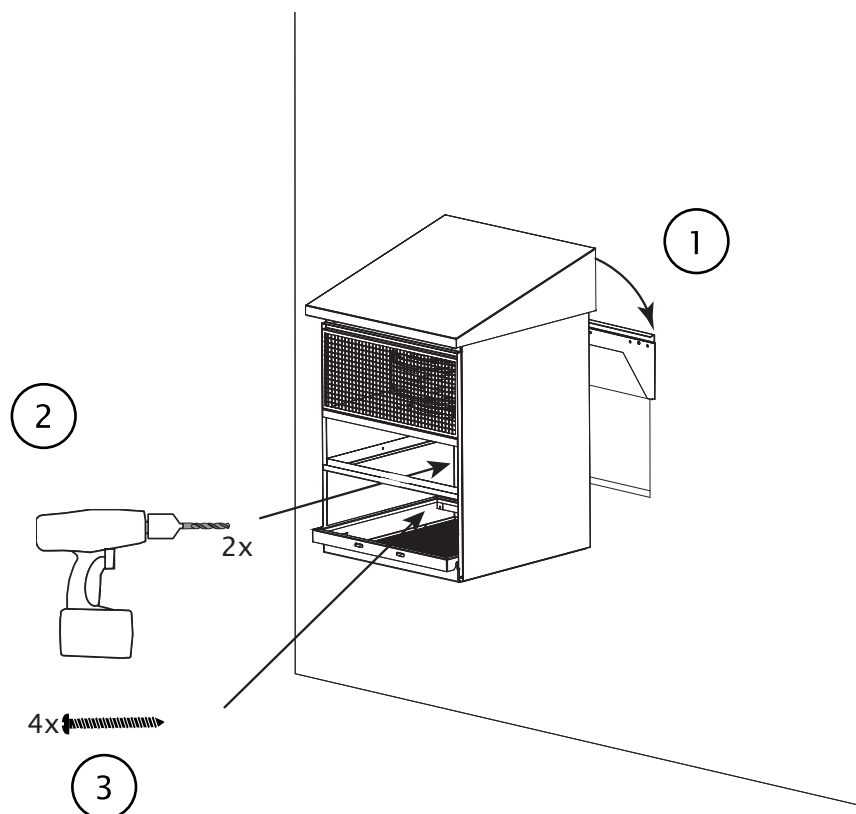


## Outdoor Air Flow Up

Mount bracket  
Flexibox 900 Outdoor

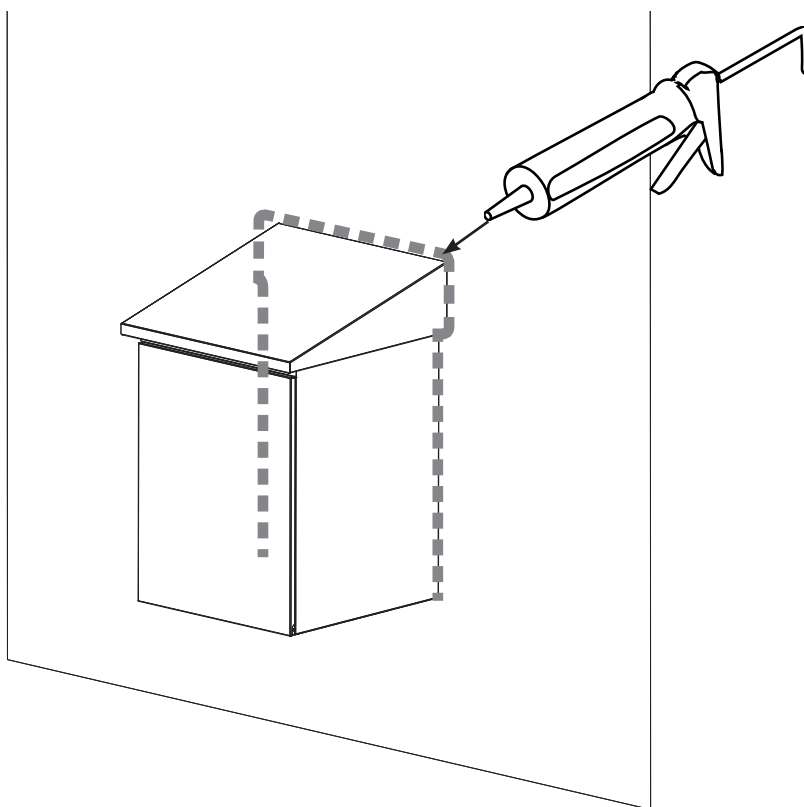


Mount unit  
Flexibox 900 Outdoor



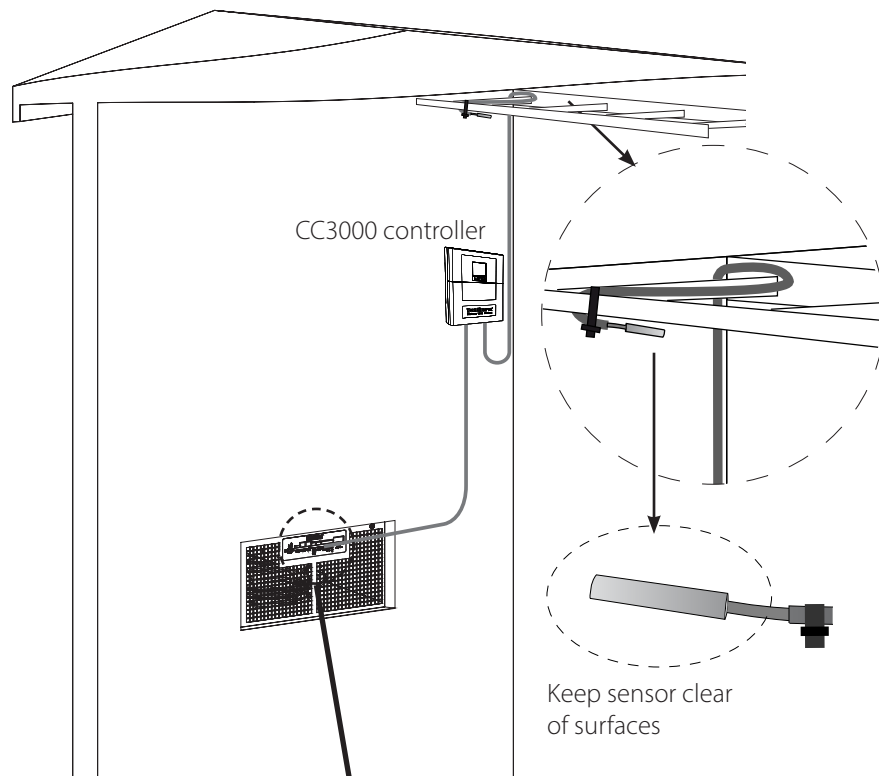
## Outdoor Air Flow Up

Seal unit  
Flexibox 900 Outdoor



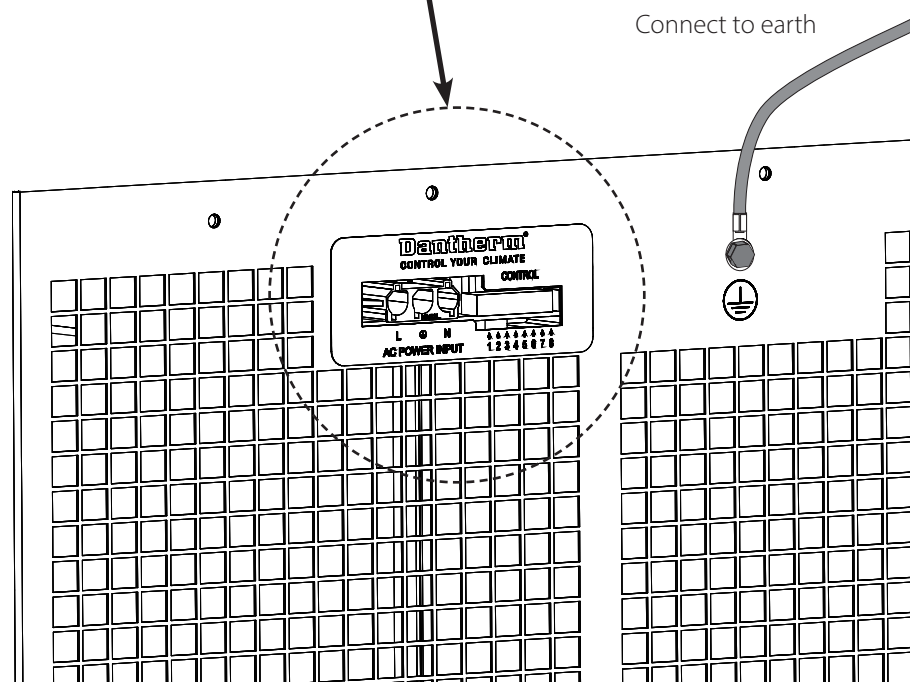
## Outdoor Air Flow Up

### Mount indoor sensor Flexibox 900 Outdoor



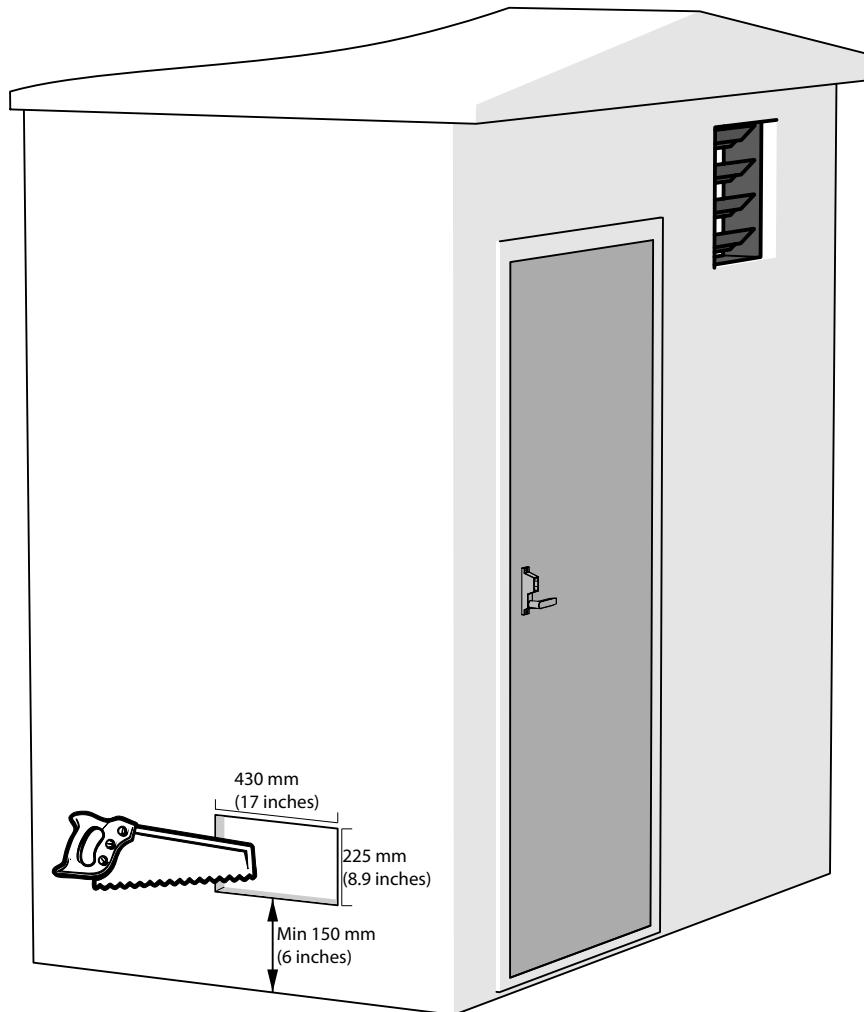
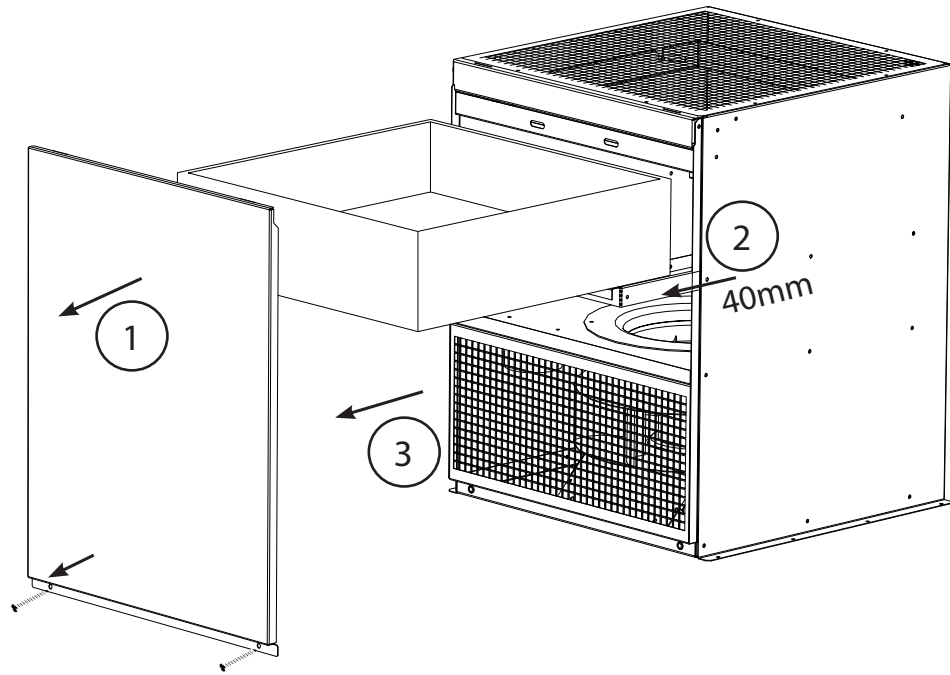
For installation and use of the CC3000 controller please refer to the installation section on page 18.

### Connect earth Flexibox 900 Outdoor



## Outdoor Air Flow Down

Remove front to access interior.

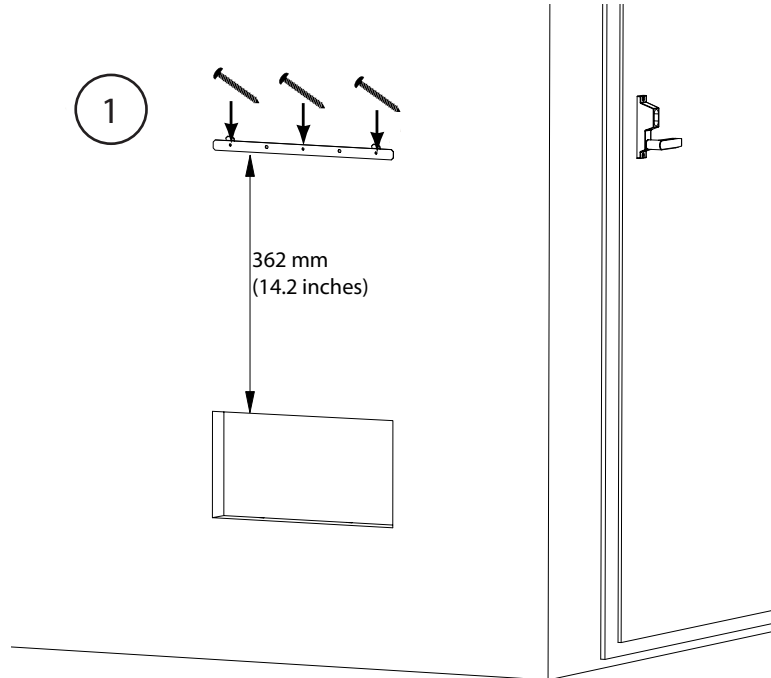


Cut hole

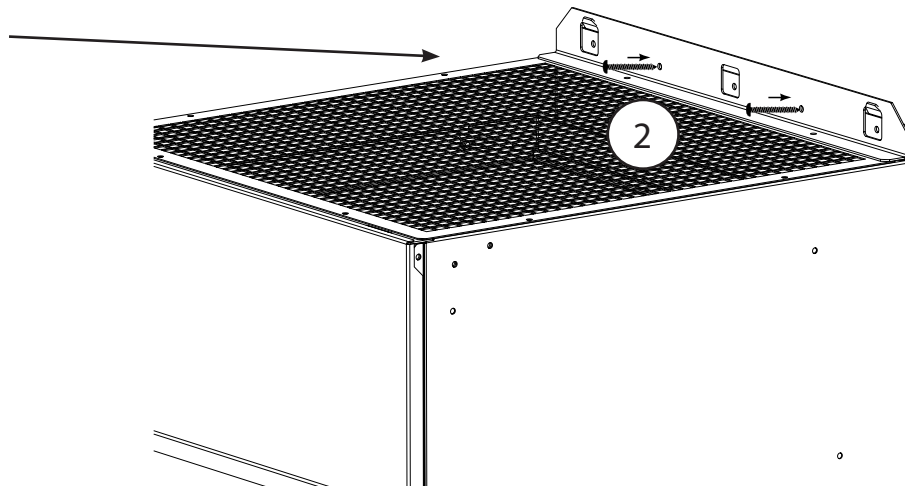
## Outdoor Air Flow Down

### FB 900 Outdoor Air flow down

Mount bracket



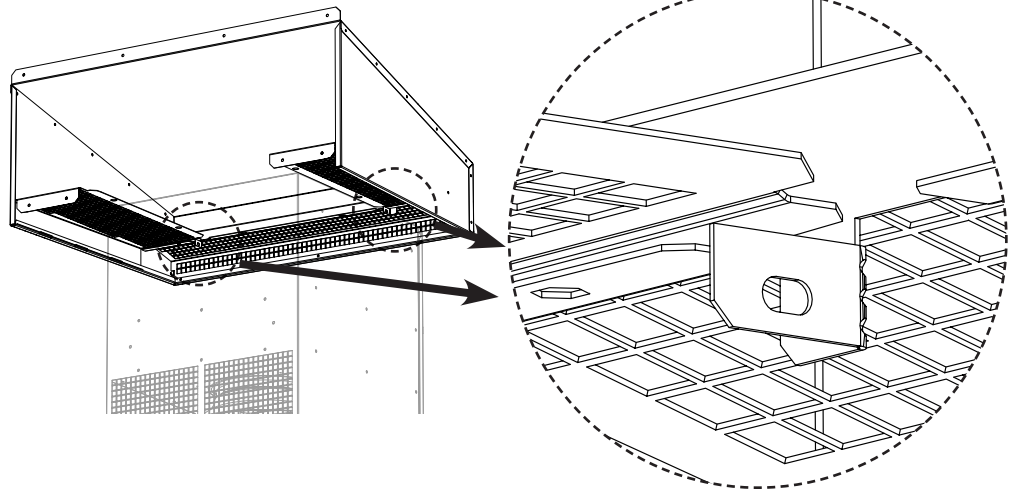
Fasten FB 900 to the wall bracket



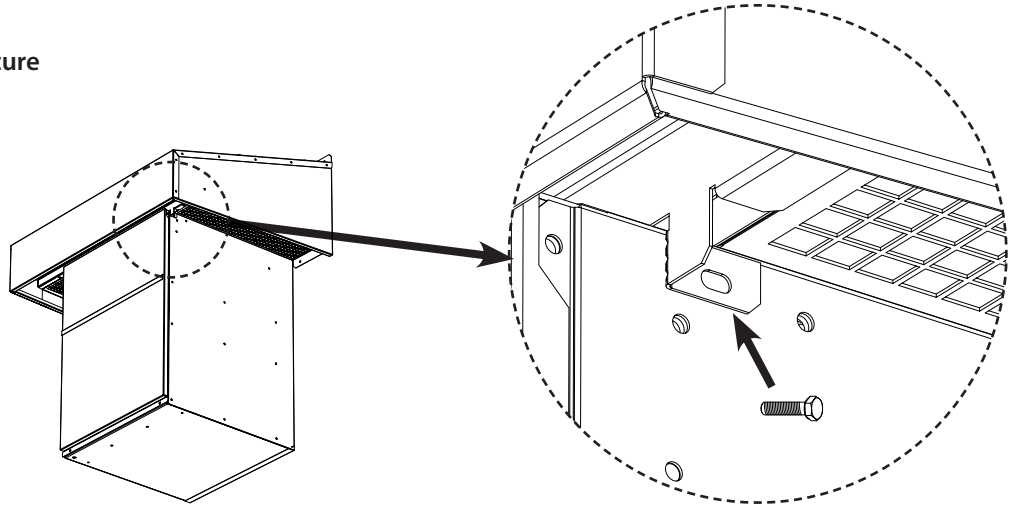
## Outdoor Air Flow Down

FB 900 Outdoor Air flow down  
Rainhood

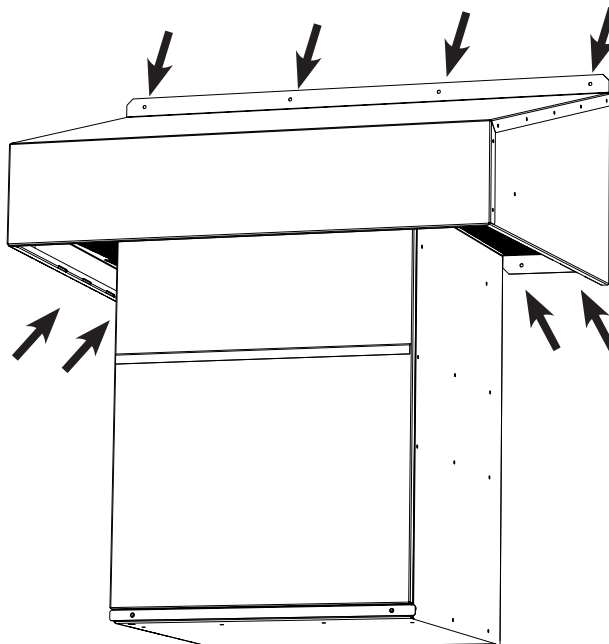
Bend metal flaps 90°.



Mount rainhood on FB and secure  
with screws.



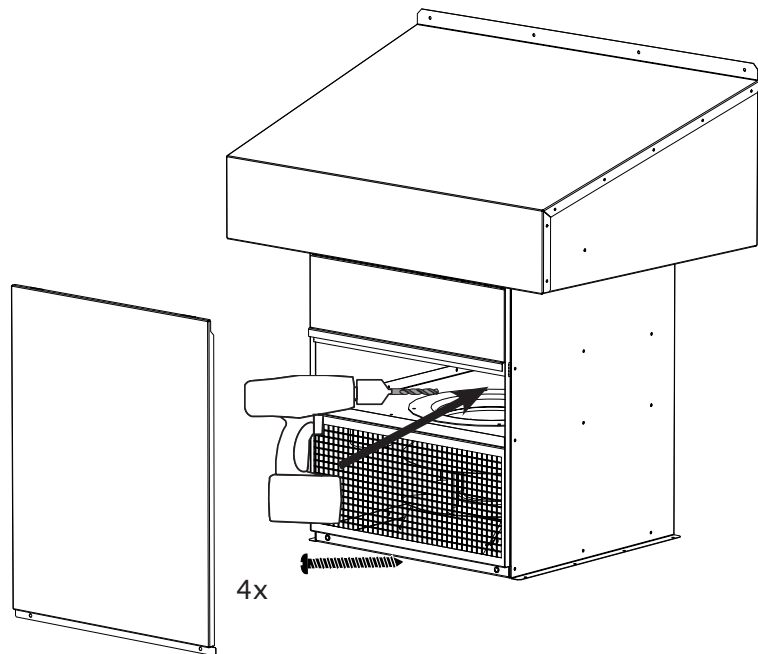
Secure hood to wall using screws  
below and above the hood.



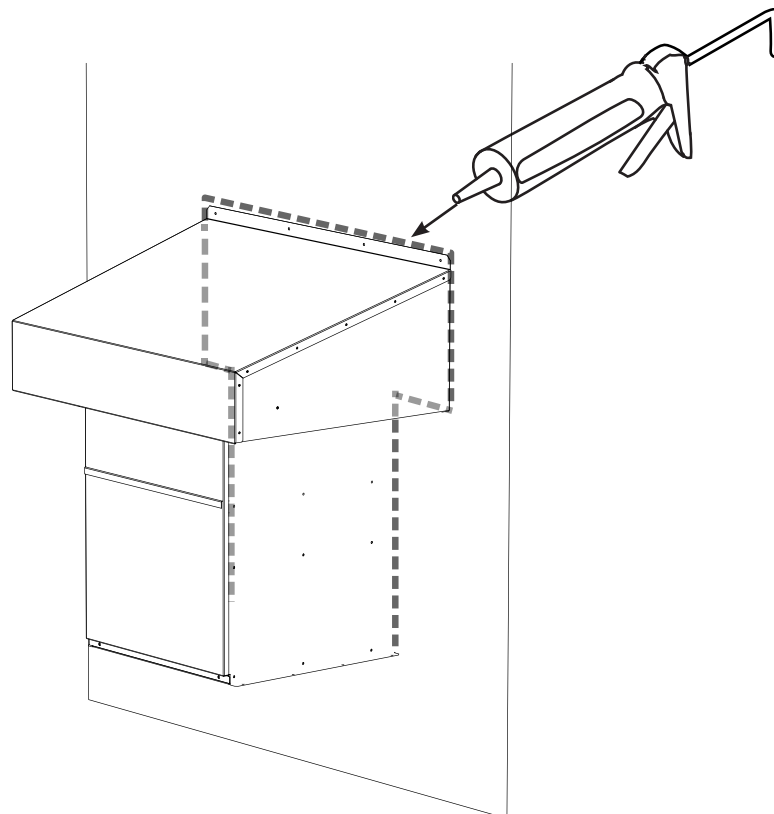
## Outdoor Air Flow Down

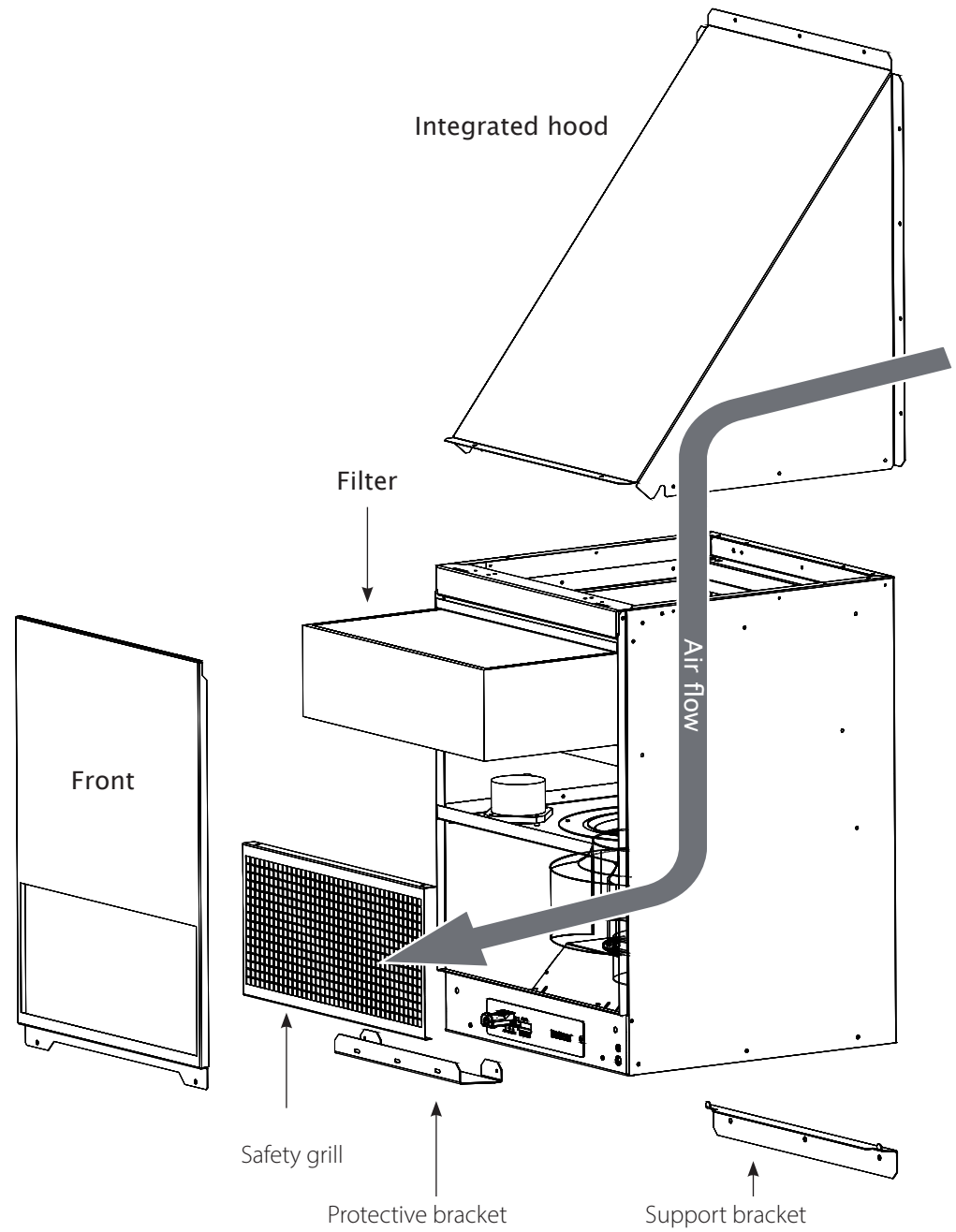
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Mount unit  
Flexibox 900 Outdoor



Seal unit

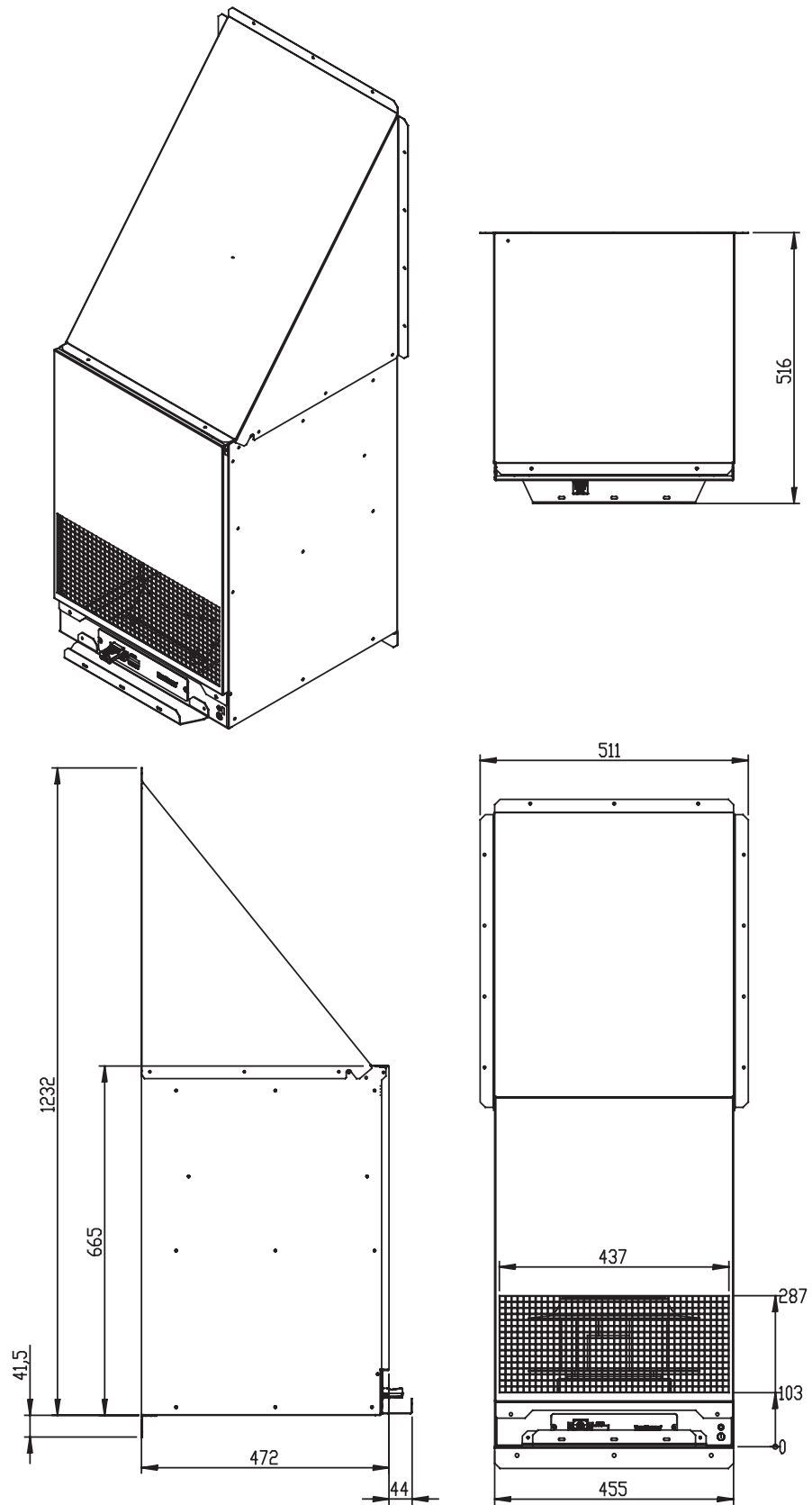






Dimensions

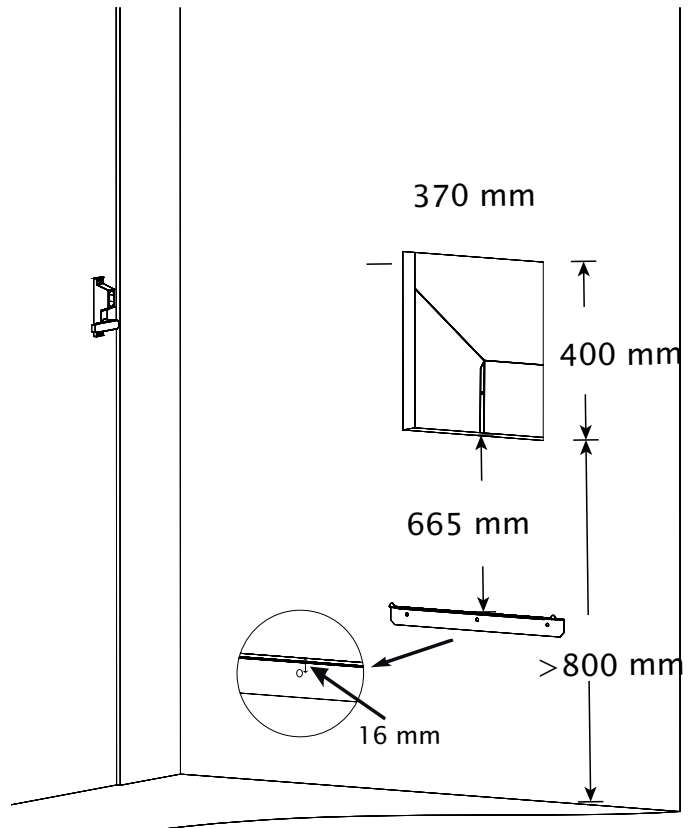
**Indoor**



**Indoor**

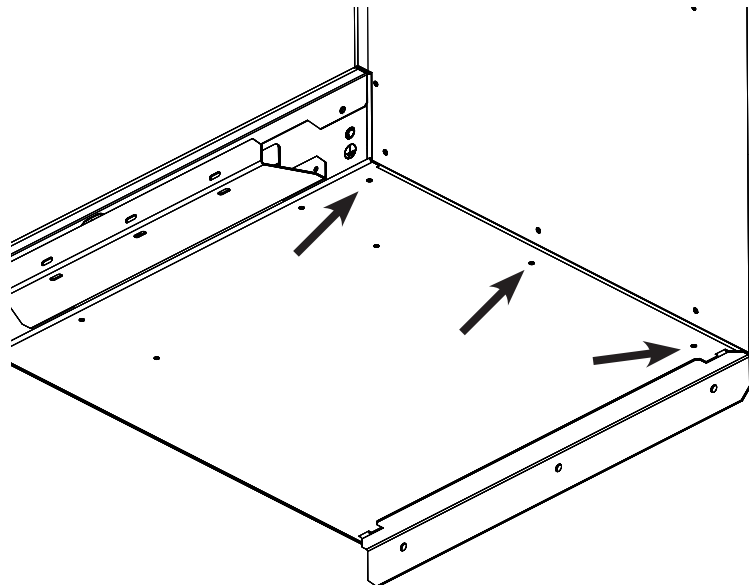
Mounting

**Cut hole**  
Flexibox 900 Indoor



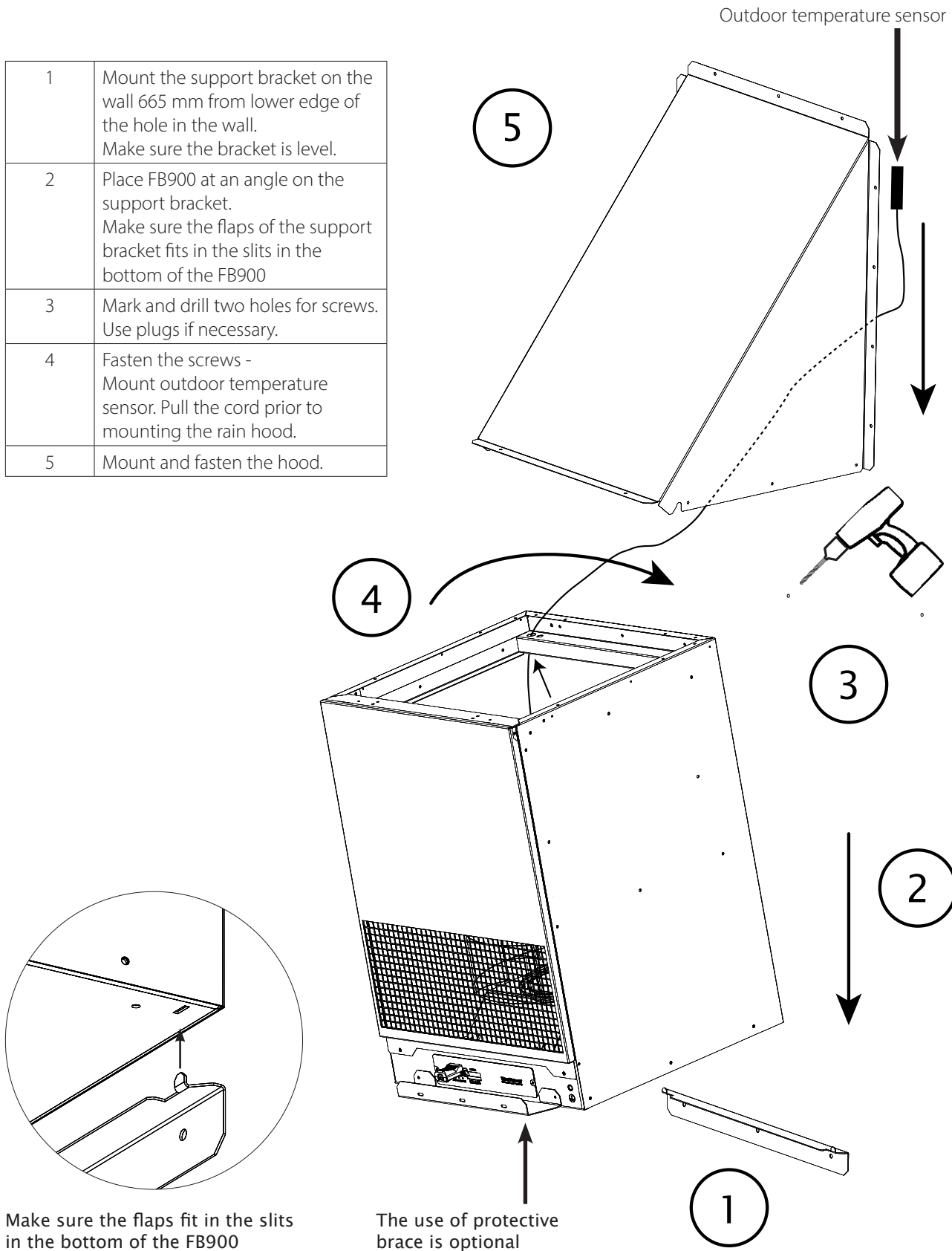
**Note:**

The three holes in the bottom of the Flexibox 900 can be used for attaching cable ties with clips.



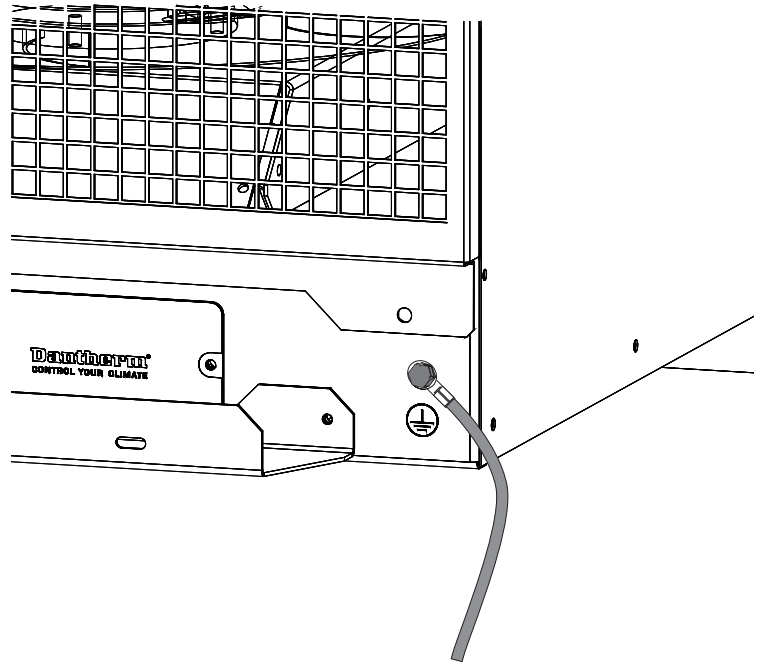
**Mounting procedure  
Flexibox 900 Indoor**

1	Mount the support bracket on the wall 665 mm from lower edge of the hole in the wall. Make sure the bracket is level.
2	Place FB900 at an angle on the support bracket. Make sure the flaps of the support bracket fits in the slits in the bottom of the FB900
3	Mark and drill two holes for screws. Use plugs if necessary.
4	Fasten the screws - Mount outdoor temperature sensor. Pull the cord prior to mounting the rain hood.
5	Mount and fasten the hood.



**Indoor**

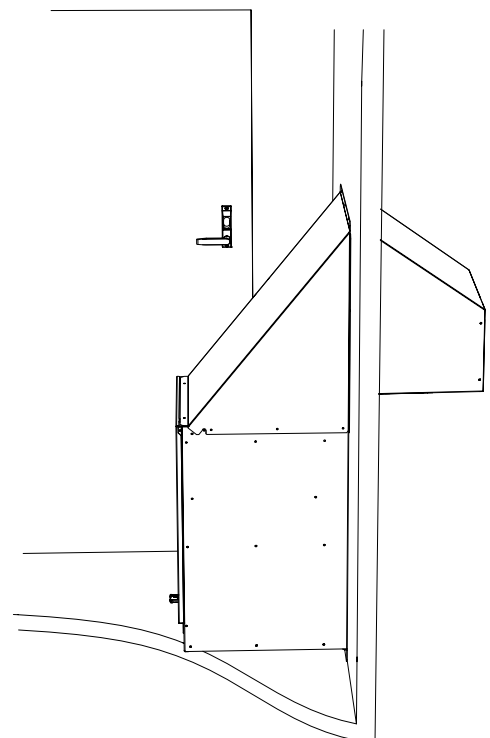
Connect earth  
Flexibox 900 Indoor



Dantherm offers the following weather protection solutions:

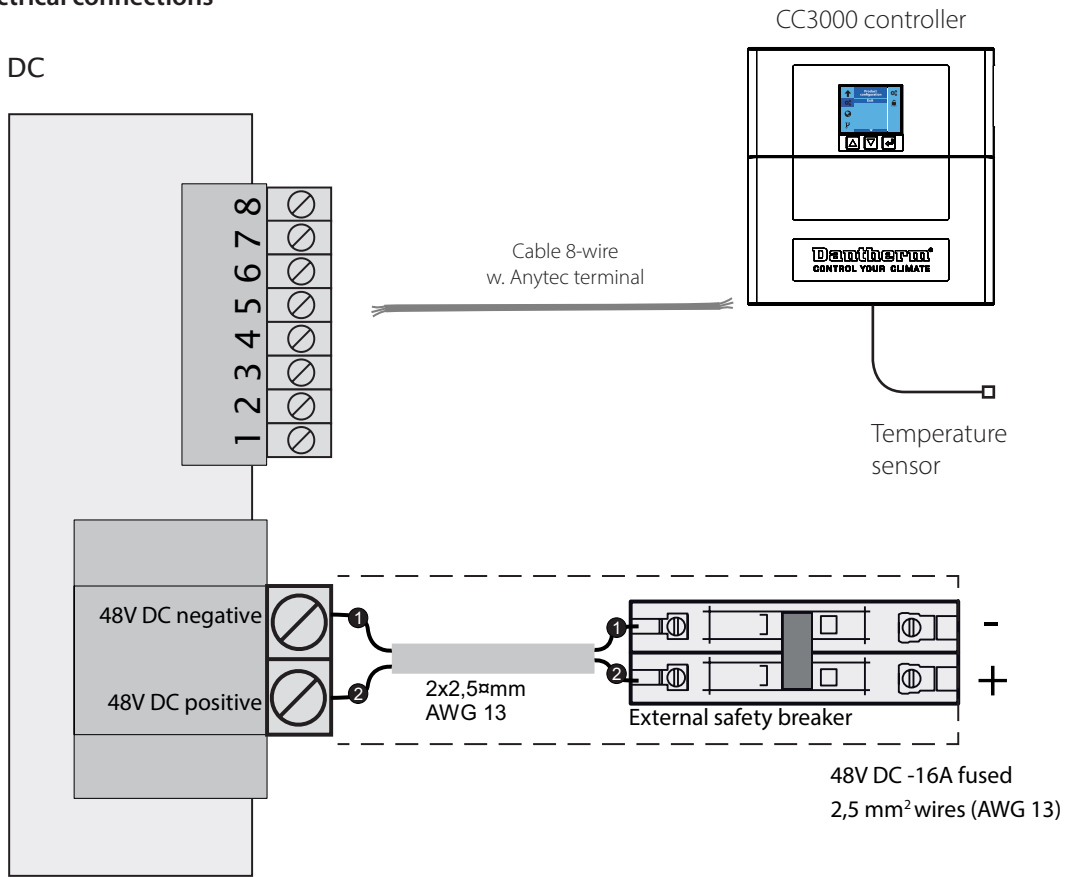
Art No	Description	
299653	External rain hood	
075575	AirMaze Panel, unpainted	
086924	AirMaze Panel, painted, with bug screen	

External Rain hood for  
Flexibox 900 Indoor

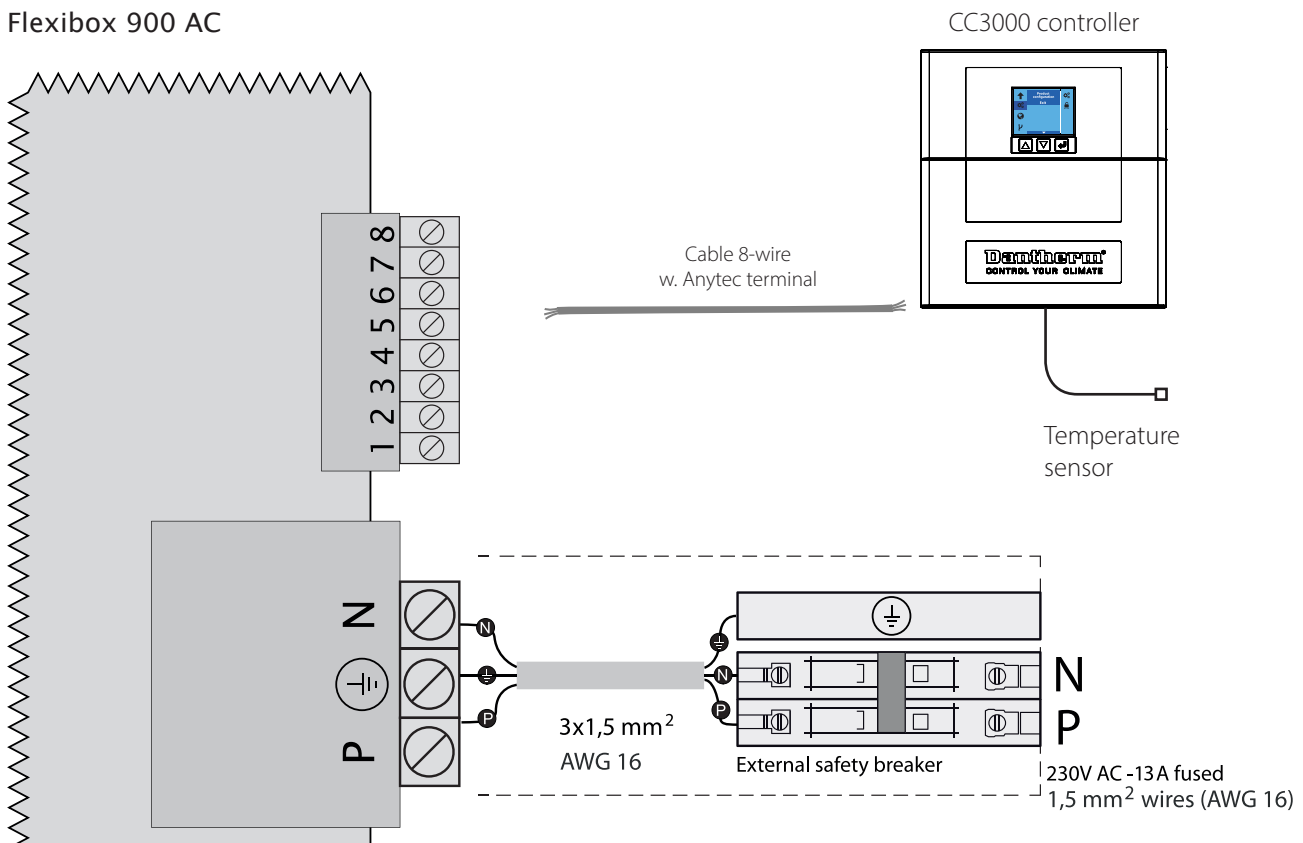


**Mandatory electrical connections**

**Flexibox 900 DC**

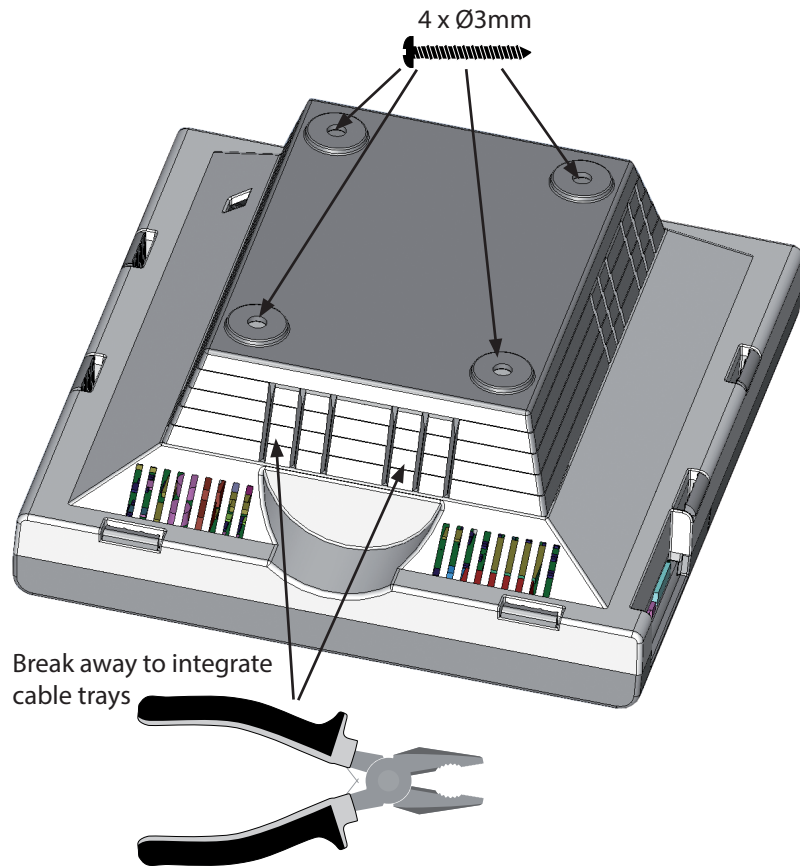


**Flexibox 900 AC**

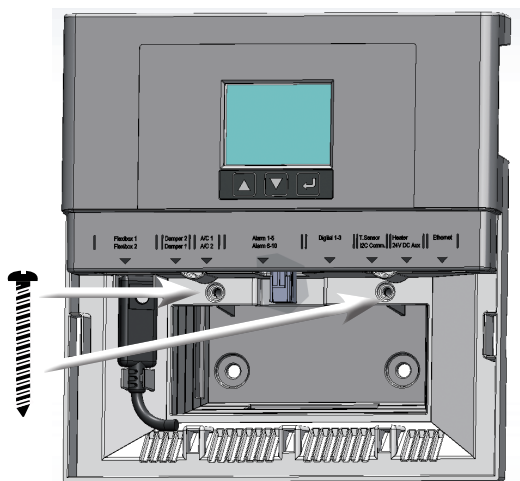


## Controller CC3000

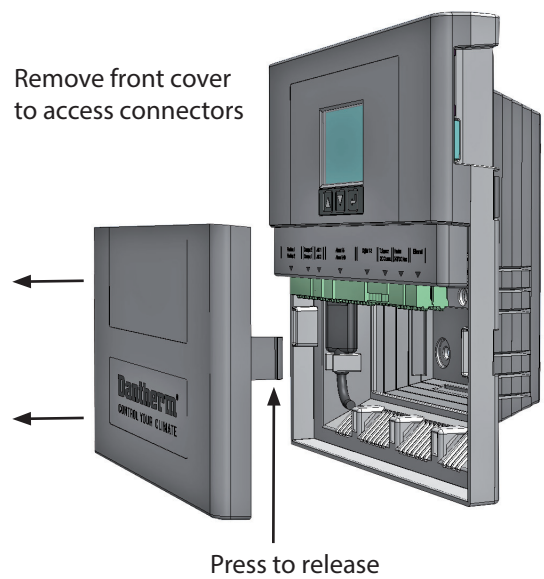
Controller CC3000 rear



### Fasten main part to the wall mount



### Access connectors

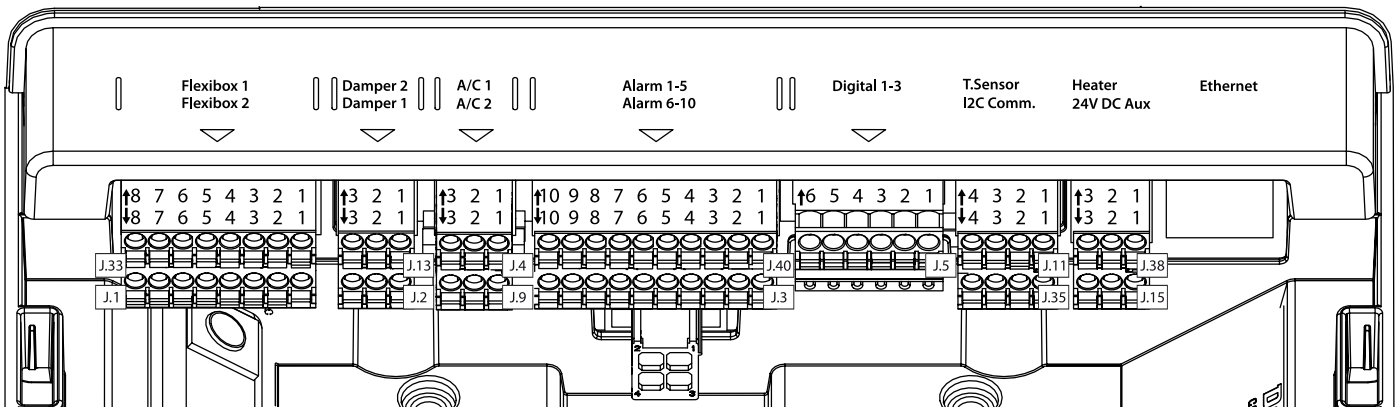


## Controller CC3000

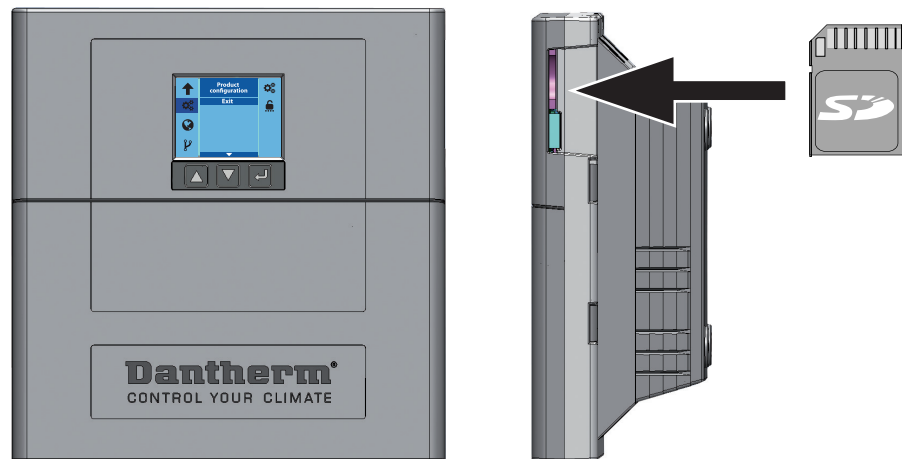
### Connect controller CC3000 to Flexibox 900



Mount all green connectors from extra equipment such as: Flexibox Aircon, alarms, Temp, RH sensors and digital in and output.



### System Setup



At startup insert SD card in the slot located on the side of the CC3000 controller. This will allow you to select the config file for your FB900.

**Note:** When the SD card is inserted the controller will automatically update firmware. See instructions in display. The firmware update may take up to 6 minutes. Until the SD card is inserted the controller will remain inactive and the buttons will not function.

For product configuration and advanced use please refer to the user manual for the CC3000 controller.

## Controller CC3000

### Check correct installation.

#### How to:

---

After installation of controller and cooling product, correct connectivity can be checked by use of a selftest function. > See manual for CC3000.

---



If automatic sequence is started, controller will activate all outputs one by one. Time duration for each step is 3 minutes, which should be sufficient for the installer to check that fans, dampers, air conditioners, heaters and alarms are correctly connected.

Test steps can be bypassed by pressing down key.

A manual sequence can also be used, if only certain outputs are checked. Use up/down key to select output and press enter. Output is now activated. Pressing enter again, will deactivate output.

After connectivity check, go to main menu and check that indoor/outdoor temperature reading is correct and that set point is correct.

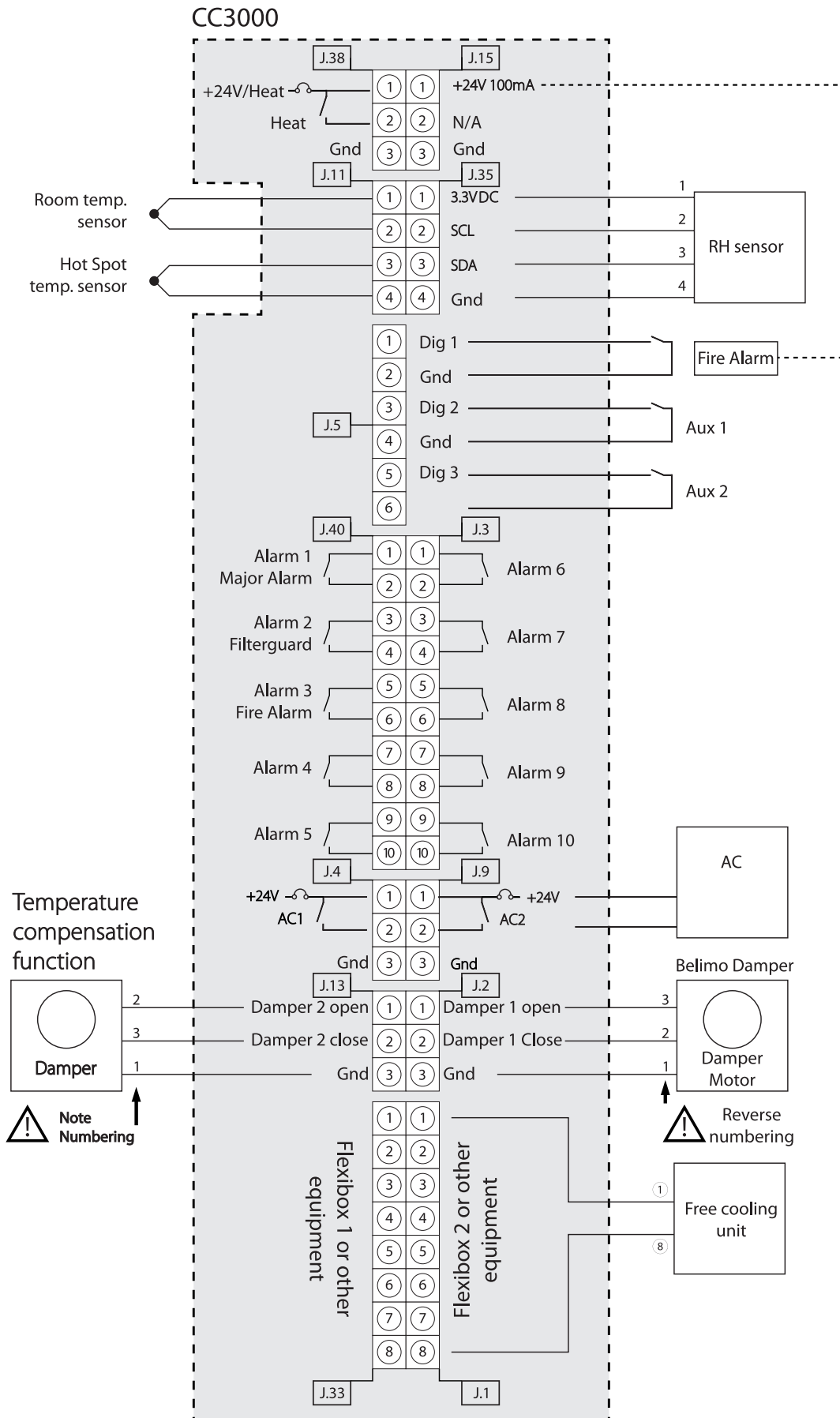
If shelter temperature is below set point, indoor temperature sensor can be heated by hand, to check that fan starts when temperature reach set point.

**Note:** If sensor temperature reach air conditioner set point and air conditioner is started, it has a minimum runtime of 3 minutes.



Connections diagram

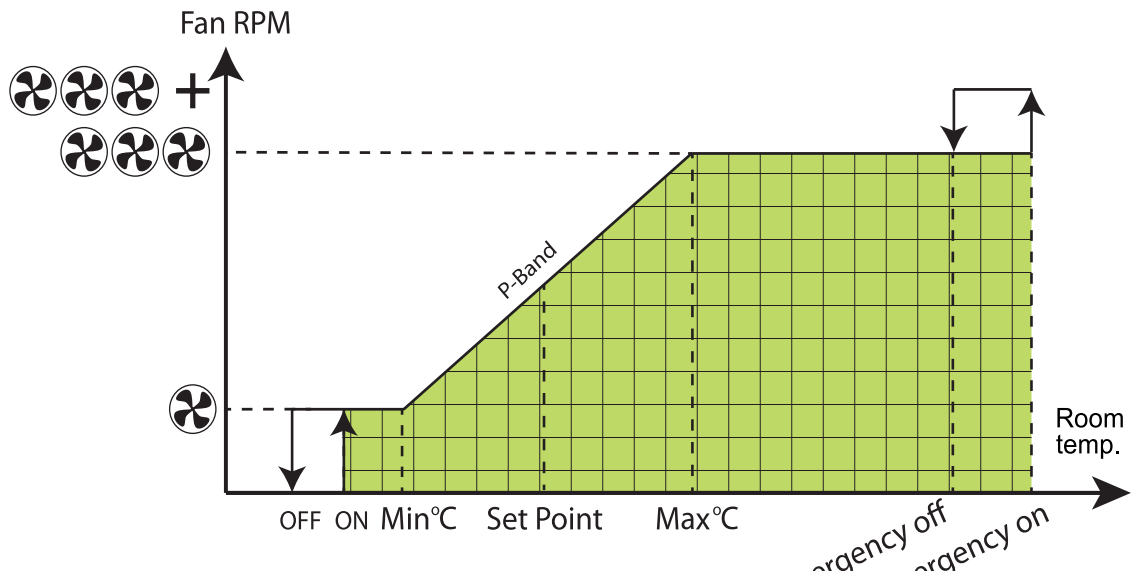
**Controller CC3000**



Default Cooling strategies (can be changed using the CC3000 controller.)

Free Cooling  
Mode

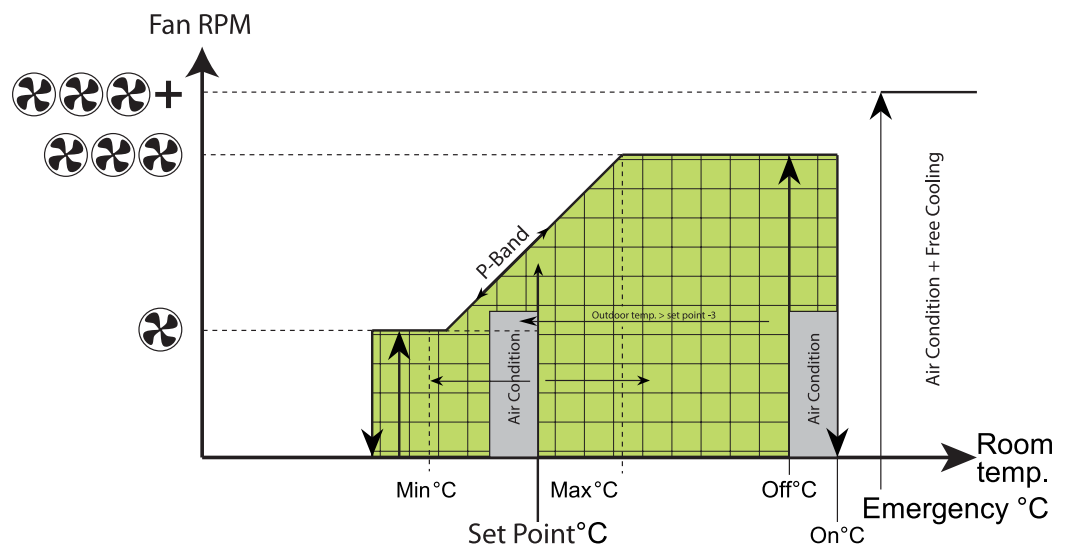
	Description	Value
<b>Off</b>	Temperature when fan stops	20
<b>On</b>	Temperature when Fan starts	23
<b>Min °C</b>	Temperature at bottom of P-band	25
<b>Max °C</b>	Temperature at top of P-band	29
<b>Set Point</b>	The wanted indoor temperature; fan speed will be adjusted between Min°C and Max °C	27
<b>Emergency on</b>	Fan run 100%	38
<b>Emergency off</b>	Fan go back to nominal speed	36



**Standard Mode**  
(Freecooling <> A/C)

	Description	Value
<b>Off</b>	Temperature when fan stops	20
<b>On</b>	Temperature when Fan starts	23
<b>Min °C</b>	Temperature at bottom of P-band	25
<b>Max °C</b>	Temperature at top of P-band	29
<b>Set Point</b>	The wanted indoor temperature; fan speed will be adjusted between Min°C and Max °C	27
<b>A/C 1 on</b>	External Air Con unit 1 start if connected	31
<b>A/C 1 off</b>	External Air Con unit 1 stops if connected	29
<b>A/C 2 on</b>	External Air Con unit 2 start if connected	33
<b>A/C 2 off</b>	External Air Con unit 2 stops if connected	31
<b>Emergency on</b>	Fan run 100% and both A/C 1 and A/C 2 starts	38
<b>Emergency off</b>	Fan stops both A/C 1 and A/C 2 continue to run	36

A/C unit 1 start at set point if outdoor temperature is less than 3°K colder than set point.  
If outdoor temperature is more than 3°K colder than setpoint the A/C unit 1 will start at 31°C

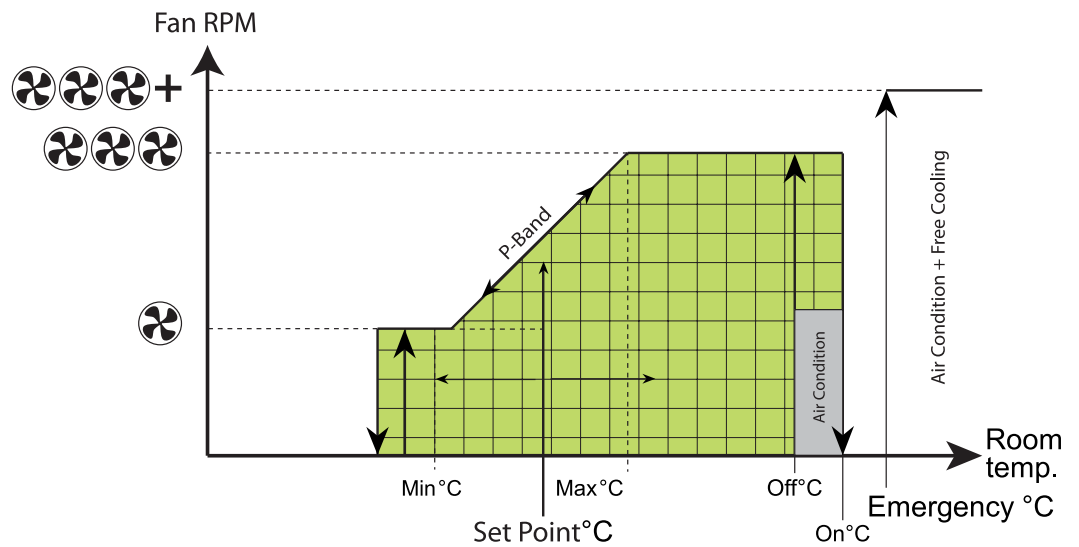


**Energy save Mode  
(Freecooling > A/C)**

	Description	Value
<b>Off</b>	temperature when fan stops	20
<b>On</b>	Temperature when Fan starts	23
<b>Min °C</b>	temperature at bottom of P-band	25
<b>Max °C</b>	Temperature at top of P-band	29
<b>Set Point</b>	The wanted indoor temperature; fan speed will be adjusted between Min°C and Max °C	27
<b>A/C 1 on</b>	External Air Con unit 1 start if connected	31
<b>A/C 1 off</b>	External Air Con unit 1 stops if connected	29
<b>A/C 2 on</b>	External Air Con unit 2 start if connected	33
<b>A/C 2 off</b>	External Air Con unit 2 stops if connected	31
<b>Emergency on</b>	Fan run 100% and both A/C 1 and A/C 2 starts	38
<b>Emergency off</b>	Fan stops both A/C 1 and A/C 2 continue to run	36

If outdoor temperature is less than 1°C colder than indoor room temperature the Flexibox Fan will stop.

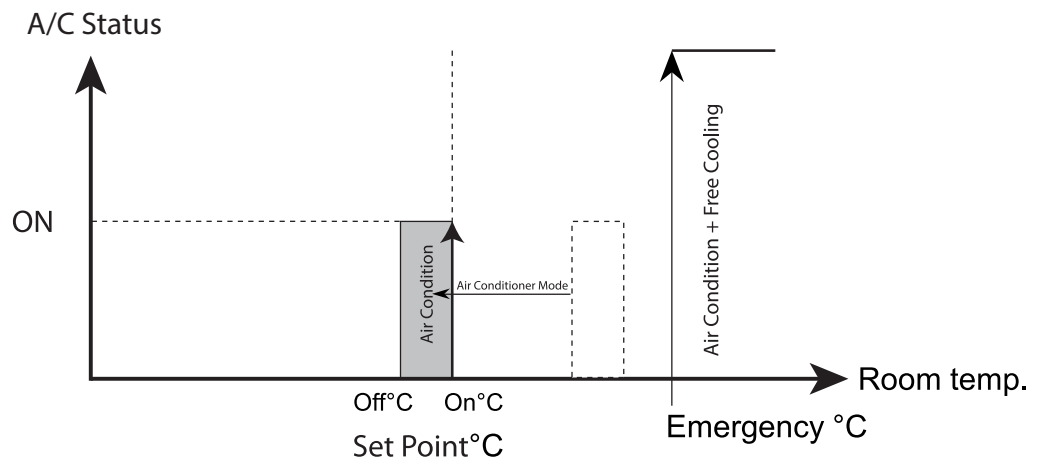
The connected Air-con units will start and stop according to the table above.



**Air Conditioner Mode**

	Description	Value
<b>Set Point</b>	External Air Con unit 1 start if connected	27
<b>A/C 1 off</b>	External Air Con unit 1 stops if connected	25
<b>A/C 2 on</b>	External Air Con unit 2 start if connected	29
<b>A/C 2 off</b>	External Air Con unit 2 stops if connected	27
<b>Emergency on</b>	Fan run 100% and both A/C 1 and A/C 2 starts	38
<b>Emergency off</b>	Fan stops both A/C 1 and A/C 2 continue to run	36

The free cooling unit is not active, only the connected Air conditioners



Spare Parts list for FB 900

**For FB 900 DC**

Description	Spare part no.
Fan 48V DC	093712
Satellite PCB 48V DC	093713
Fuse 58V DC / 10 Amp	094152

**For FB 900 AC**

Fan 230V AC	093714
Satellite PCB 230V AC	093716
48V DC Power supply for 230V AC models	093717
Fuse 4A, 250V Ø5,2 x 20mm	096645

**Common for  
FB 900 DC and  
FB 900 AC**

CC3000 control including SD card configured for all units	093719
CC 3000 Connector Kit	092081
Controller Cable for CC3000	093724
Filter Guard monitor	840020
Outdoor Temperature sensor 2000 mm cord (for Outdoor Units)	087429
Temperature sensor 2600 mm cord	036761
Temperature sensor 8000 mm cord	096873
Damper actuator for both 48V and 230V controller LM24A KTE	840021

## Declaration of Conformity for Machinery

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Fax: +45 96 14 38 00

---

Declaration of following product:

Product name: **Flexibox 900**

Product No: 368460 & 368461

- 2006/42/EC Directive on the safety of machines
- 2014/35/EU Low Voltage Directive
- 2014/30/EU EMC Directive
- 2011/65/EU RoHS Directive

- and is manufactured in conformity with the following harmonised standards::

- EN 12100:2011 Safety of Machinery
- EN 60950-1:2006 Safety
- EN 61 000-6-2:2005 Immunity
- EN 61 000-6-3:2007 Emission

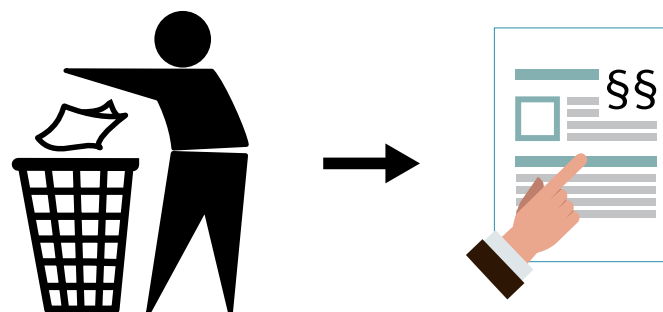
Skive, 29.08.2016

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## Recycling

The unit should be recycled according to national rules and procedures to protect the environment. Please consult your local authorities for further information.

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**Dantherm A/S**

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Denmark

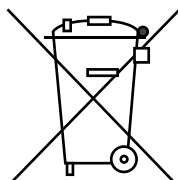
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Dantherm can accept no responsibility for possible errors and changes.  
Irrtümer und Änderungen vorbehalten.  
Dantherm n'assume aucune responsabilité pour erreurs et modifications éventuelles.  
Dantherm se exime de cualquier responsabilidad por errores y cambios realizados.

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