Heat recovery ventilation

InspirAIR® Top

Heat recovery ventilation for single-family dwelling

Intervention guide

Version 1.0 – 03/2021

Contents

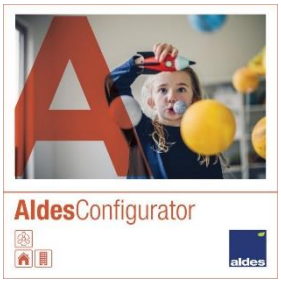
1. General information

1.1 Reference documents and related tools

Document title	Reference
InspirAIR® Top Installation and maintenance guide	11029426
InspirAIR® Top Use and servicing manual	11029413

All these documents can be found updated on the Aldes site product page:

https://pro.aldes.fr/produits/inspirair-top-p183032.htm



Aldes Configurator is an Aldes trade software program available on PC used by the installer during installation, configuration, commissioning and maintenance of the InspirAIR® Top unit and the ductwork.

It saves the configurations and generates intervention reports, ensuring high quality and traceability.

https://services.aldes.com/logiciels

It is mandatory to use a Modbus RS485 to USB cable. Aldes sells this cable under the reference 11023320 - INSPIRAIR USB CONNECTION CABLE RS485 1.8 M.

A complete package of videos are available online to present the unit and train installer for the installation, the settings and the maintenance of our new range InspirAIR® Top :

"Mediatool" Commercial videos for product & system presentation	
Choose InspirAIR® Top for Air Quality	
Choose InspirAIR® Top for performances	
Choose InspirAIR® Top for comfort	
Choose InspirAIR® Top for the end-user experience	
Choose InspirAIR® Top for the interaction with professionals	
Installation and maintenance videos	
InspirAIR® Top installation presentation	
InspirAIR® Top electric cables wiring	
InspirAIR® Top internal pre-heater installation	
InspirAIR® Top commissioning	
InspirAIR® Top maintenance – motor changes	
InspirAIR® Top maintenance – bypass change	
InspirAIR® Top maintenance – heat exchanger cleaning	

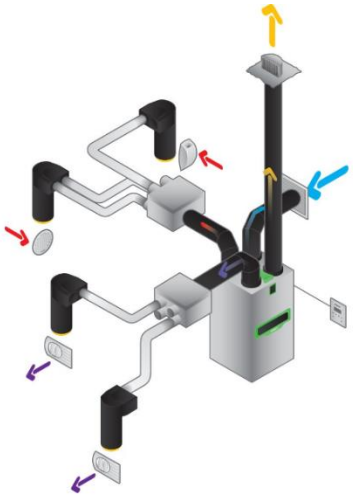
2. General description

2.1 InspirAIR® Top Heat Recovery Ventilation System

In a heat recovery system, air is renewed mechanically via air supply into living rooms and exhaust from equipment areas (kitchen, bathroom/shower, WC, cellar). The stale air extracted by the exhaust terminals in technical rooms passes through a heat recovery unit before being discharged outside.

The heat exchanger serves to recover the heat in the exhaust air to pre-heat the incoming air.

The filter(s) installed on the air supply in the unit in the rooms can effectively filter different types of pollutant in the air breathed in by the occupants of the dwelling.



2.2 Typical example of installation

Laundry room/Cellar	Cupboard	Kitchen
		

2.3 Product and kit references

Type	Code	Description
Unit only	**11023473**	InspirAIR® Top 300 Classic
Unit only	**11023474**	InspirAIR® Top 300 Premium
Unit only	**11023477**	InspirAIR® Top 300 Premium ERV
Unit only	**11023475**	InspirAIR® Top 450 Classic
Unit only	**11023476**	InspirAIR® Top 450 Premium
Unit only	**11023478**	InspirAIR® Top 450 Premium ERV
Kit France*	**11023496**	InspirAIR® Top 300 Classic + HMI+WATER TRAP
Kit France*	**11023497**	InspirAIR® Top 450 Classic + HMI+WATER TRAP

*The kits exclusive to the French market include the unit only (11023473 or 11023475), the InspirAIR® remote control 11023479 and the condensate kit 11023483.

The unit must be connected permanently to a remote control to operate. The unit can be commissioned with the remote control or Aldes Configurator

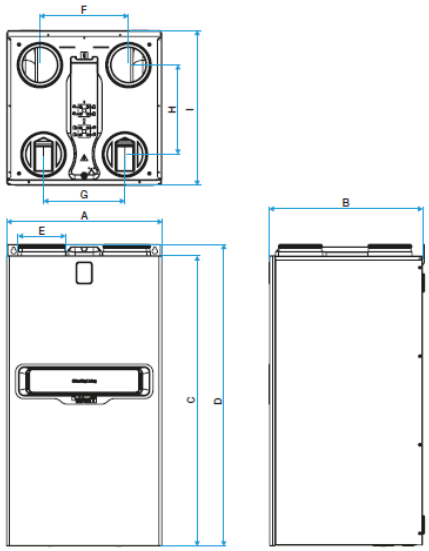
2.4 Differences between Classic and Premium

- No side and rear panels for the CLASSIC
- No light signal on front panel for the CLASSIC
- No Aldes Connect Box as standard for the Classic
- Different heat exchanger in the CLASSIC with less pressure drops but less thermal efficiency
- Filtration level higher on PREMIUM

InspirAIR® TOP Classic

InspirAIR® TOP Premium

2.5 Dimensions

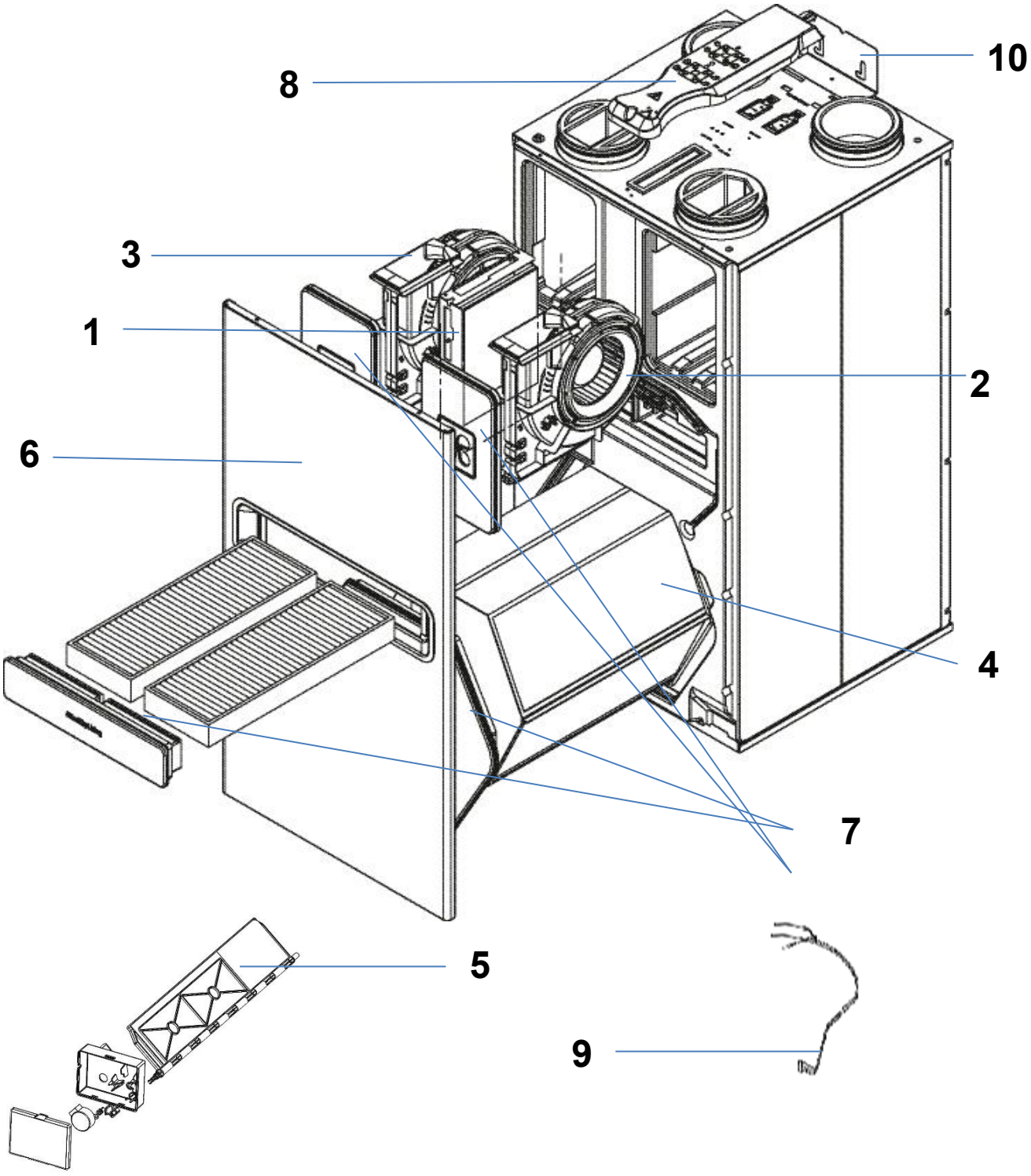


	A	B	C	D	E	F	G	H	I	Weight
InspirAIR® Top Classic	560	560	1045	1088	160	320	294	323	560	28kg
InspirAIR® Top Premium										41kg

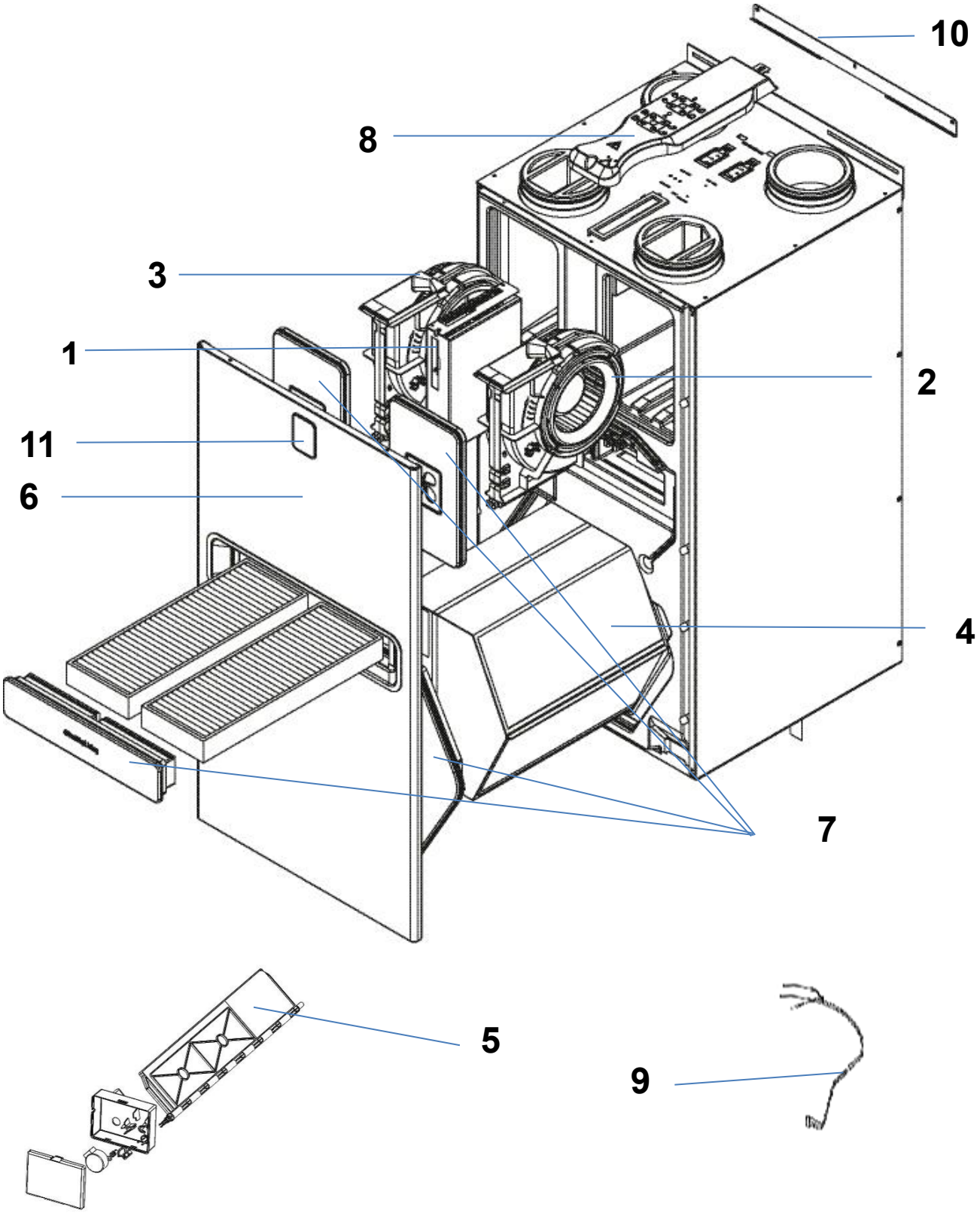
Dimensions in mm

3. Exploded view and parts list

3.1 Exploded view (Version 300/450/VEX40T Classic)



3.2 Exploded view (Version 300/450/VEX40T Premium)

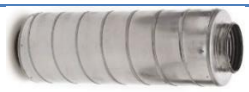


3.3 Spare parts list

Reference	Description	Reference
1	InspirAIR® Top electronic board	11101400
2	InspirAIR® Top 300 right-motor kit	11101407
	InspirAIR® Top 450 S/E right-motor kit	11101409
3	InspirAIR® Top 300 S/E left-motor kit	11101408
	InspirAIR® Top 450 S/E left-motor kit	11101410
4	InspirAIR® Top 300/450 Classic heat exchanger	11101411
	InspirAIR® Top 300/450 Premium heat exchanger	11101412
	InspirAIR® Top 300/450 Premium ERV heat exchanger	11101426
5	InspirAIR® Top bypass kit	11101413
6	InspirAIR® Top Classic front panel kit	11101414
	InspirAIR® Top Premium front panel kit	11101415
7	InspirAIR® Top EPP caps kit	11101418
8	InspirAIR® Top green plastic channel	11101419
9	InspirAIR® Top temperature sensors cables kit	11101420
-	InspirAIR® Top power connectors kit	11101421
10	InspirAIR® Top Classic wall mounting kit	11101423
	InspirAIR® Top Premium wall mounting kit	11101424
11	InspirAIR® Top Premium light signal kit+ Lexan	11101425

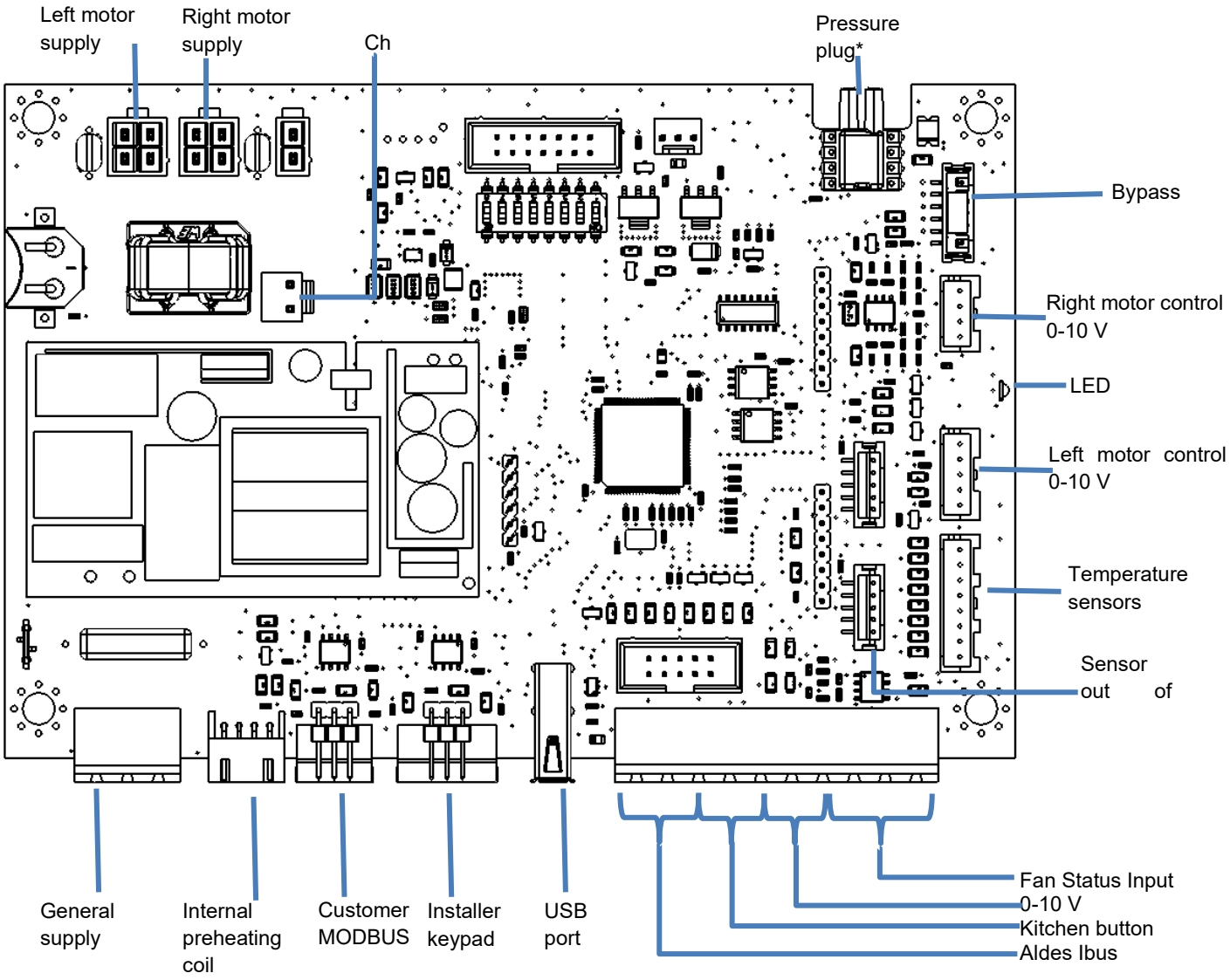
3.4 Options & Accessories

⇨ *Filters: please refer to the user manual or the Aldes website Enter*

Product	Description	Item
	Walter® connected sensor	11023470
	InspirAIR® CO2 remote control	11023480
	InspirAIR® remote control	11023479
	AldesConnect Box®	11023386
	CO2 sensor	11017090
	Power supply 230/24 V for CO2 sensor	11017180
	Two-speed remote control - Push button	11026011
	InspirAIR® Top water trap kit	11023483
	InspirAIR® Top floor fastening kit	11023484
	InspirAIR® Top ceiling penetration	11023485
	OCTA 160 sound attenuator with seal	11094633
	InspirAIR® external preheating coil	11023225
	InspirAIR® Top internal preheating coil	11023486
	InspirAIR® Top external post-heating coil	11023487
	InspirAIR® Top pressure kit	11023498
	USB RS485 CONNECTION CABLE 1.8 M	11023320

4. Electrical wiring diagrams

InspirAIR® Top board:



*Pressure plug available only on "InspirAIR Top pressure kit" electronic board

5. InspirAIR® remote control menus

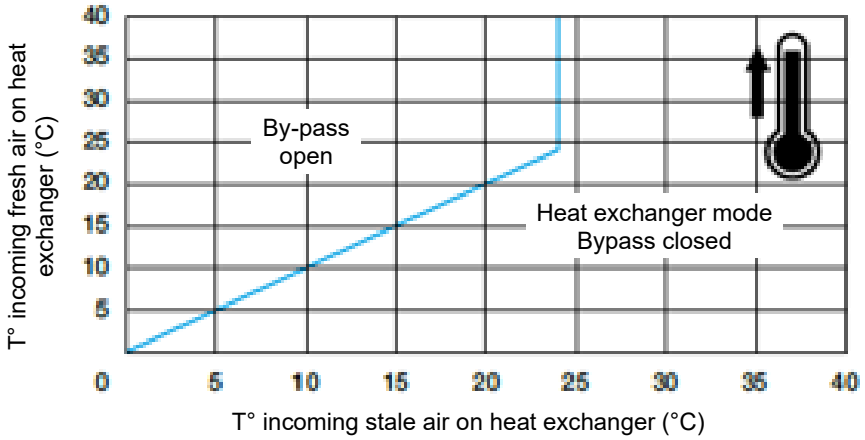
INFORMATION	
The INFORMATION menu can be accessed without password. It display the unit's key settings without being able to alter them.	
Menu	**Sub-menu**
Settings	Regulation
	In progress
	Comfort temperature
Filters	Filter status
	Number days remaining
Error	
Product ID	Product number
	Serial number
	Soft number
Connectivity	Remote control
	Heating coils
	Dry contact

MY SETTINGS
The MY SETTINGS menu is specific for the user and can be accessed without password. Here he can adjust his ventilation every day and launch simple actions.
Menu
Language
Light signal
Filters
Weekly programming
Sensor deactivation
Open fire

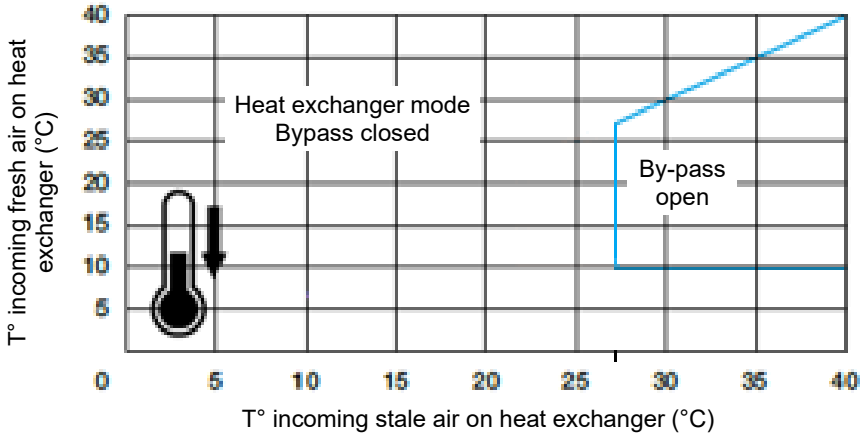
INSTALLER (code 0405)	
The INSTALLER menu is specific for a competent installer and can be accessed with the password: 0405. The installer can access all the settings, accessories and operating and maintenance data for the machine.	
Menu	**Sub-menu**
Commissioning reboot	
Settings	Country, language
	Date and time
	Control
	Levels config.
	Imbalance
	RADON mode
	Open fire
	Filter timer
	Comfort temperature
	Unit
	Certification
	Quick adjustment
	Factory reset
Connectivity	CO2 sensor
	0-10 V sensor
	RH sensor
	Internal preheating coil
	External preheating coil
	External post-heating coil
	Fire dampers
Maintenance	Actual values
	Signal demo.

6. Control

6.1 Bypass



Priority given to heating mode



Priority given to cooling mode*

* The T°C of the fresh air (coming from outside) is lower than the T°C of the ambient air.

6.2 Frost protection

Configuration	Air T°	Machine behaviour
Without heating coil	If incoming air temperature < -3°C for 30 minutes	Frost protection mode Two motors stopped if PassivHaus* Air supply motor stopped if not PassivHaus* Up to 120 minutes with constant control of incoming air T° to relaunch or not the start-up of front motors /!\ bypass not used in the frost protection function
With heating coil	If incoming air temperature < -3°C for 30 minutes And if exhaust air temperature < 4°C Coil operating a full power to heat the incoming air > -3°C	Safe mode: Moving into everyday airflow Where t° always Tfresh air<-3°C and Texhaust < 4°C after 20 minutes of Safe mode Then: Frost protection mode Two motors stopped if PassivHaus* Air supply motor stopped if not PassivHaus* Up to 120 minutes with constant control of incoming air T° to relaunch or not the start-up of front motors /!\ bypass not used in the frost protection function

* The "PassivHaus" or "Not PassivHaus" certification mode can be configured in Aldes Configurator in the InspirAIR remote control in this menu: Installer > Settings > Certifications

The unit is factory configured as "Not PassivHaus*"

7. Maintenance instructions

- Check that the installation complies with the recommendations provided ("**Installation Manual**")
- Check that the unit is configured to suit the installation ("**Installation Manual**")
- Check that all exhaust ducts and terminals are connected correctly. Flexible ducts must be taut and not crushed.

Definition of maintenance levels

Maintenance level	Definition	Lowest level of intervention
1	Simple actions required for operations, carried out on easily accessible elements in complete safety	User
2	Actions requiring simple procedures	Unapproved installer
3	Actions requiring complex procedures	Approved installer

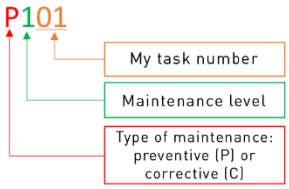
⇨ *Here maintenance levels 2 and 3 are similar, as no maintenance operation requires specific qualification.*

List of tools and equipment

➔ USB key to recover history and updates
➔ Standard tools
➔ Modbus RS485 to USB cable for use of Aldes Configurator
➔ Unit and remote control software programs up-to-date if updating is possible*
*Up-to-date versions of both these software programs along with an "end user" procedure for updating the software are available here in French and English: https//inspirair-top-software.aldes.com

Maintenance operations guide

The maintenance operations guide below presents all preventive and corrective maintenance tasks identified for product servicing and repairs. Each task presented within the guide is referenced and detailed in the operating mode paragraph of this document.



7.1 List of InspirAIR ® Top preventive maintenance operations

P-101			
		Replacement of filters	
Filters	Nbr.: 3(+)	Frequency: every six to twelve months	5 min
List of steps: - Step 1, 4			

P-201			
		Cleaning of heat exchanger	
Heat exchanger	Nbr.: 1	Frequency: every two years	1 h
List of steps: - Step 1, 2, 10, 11			

7.2 List of InspirAIR ® Top curative maintenance operations

C-201			
		Replacement of left motor	
Motor	Nbr.: 1	Standard tools	45 min
List of steps: - Step 1, 2, 3, 7, 5			

C-202			
		Replacement of right motor	
Elec. board	Nbr.: 1	Standard tools	45 min
List of steps: - Step 1, 2, 3, 7, 6			

C-203			
		Replacement of the electronic board	
Bypass	Nbr.: 1	Standard tools	45 min
List of steps: - Step 1, 2, 3, 7			

C-204			
		Replacement of the bypass	
Sensors	Nbr.: 1	Standard tools	45 min
List of steps: - Step 1, 2, 3, 7, 8			

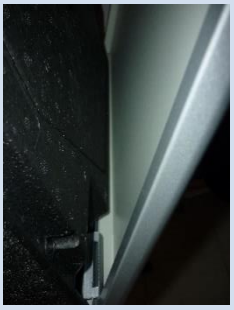
C-205			
		Replacement of sensors	
Core	Nbr.: 1	Standard tools	30 min
List of steps: - Step 1, 2, 3, 7, 9			

C-206			
		Reflash the electronic board from the unit	
-	-	Standard tools and USB key + software	10 min
List of steps: - Step 12			

C-207			
		HMI reflasher	
Core	Nbr.: 1	USB key + software	2 min
List of steps: - Step 13			

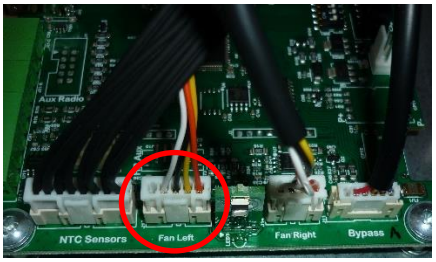
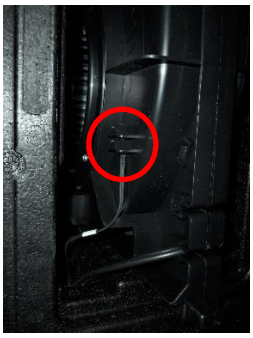
7.3 InspirAIR ® Top operating procedures

	Step 1	
	Switch the unit off	
		*- Power off the unit using the electrical cabinet circuit breaker operated by an accredited person.*

	Step 2	
	Open the door	
		*- Remove the filter plugs* *- Remove the two door fastening screws*
		

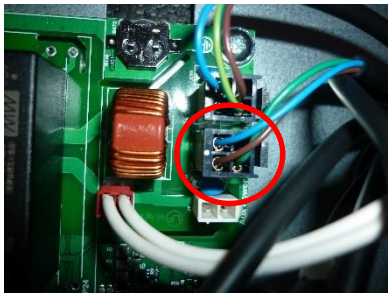
	Step 3	
	Open upper box	
		*- Remove the fastening screws from the box and lift it backwards*

<table>
<tr><td>  </td><td colspan="3">Step 4</td></tr>
<tr><td colspan="4">Change the filters</td></tr>
<tr><td>  </td><td>  </td><td colspan="2">- Open the access hatch to the filters
- Remove the filters</td></tr>
<tr><td>  </td><td>-</td><td colspan="2">- Insert the new filters
- Watch out for the fitting direction for the pollen filters: the arrow must point in the same direction as the one on the box fan</td></tr>
</table>

<table>
<tr><td>  </td><td colspan="3">Step No. 5</td></tr>
<tr><td colspan="4">Change the left motor</td></tr>
<tr><td> 
</td><td>  </td><td colspan="2">- Unplug the left motor connectors</td></tr>
<tr><td>  </td><td>  </td><td colspan="2">- Remove the left motor cover by sliding the tool supplied with the motor to the centre on right for leverage.</td></tr>
<tr><td>  </td><td>  </td><td colspan="2">- Remove the "cable gland" foam (do not lose it)
- Remove the air sensor from the volute</td></tr>
<tr><td>  </td><td>  </td><td colspan="2">- Withdraw the motor cables
- Slide the motor assembly forwards.</td></tr>
</table>

Step 6

Change the right motor



- Unplug the right motor connectors

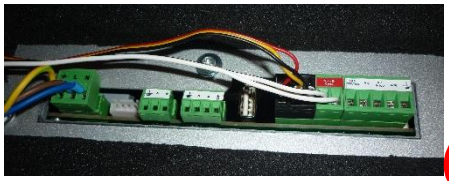
- Remove the right motor cover by sliding the tool supplied with the motor to the centre on left for leverage.

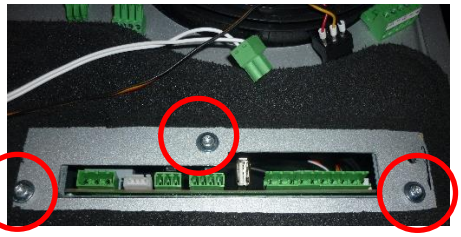
- Remove the "cable gland" foam (do not lose it)
- Remove the air sensor from the volute

- Withdraw the motor cables
- Slide the motor assembly forwards.

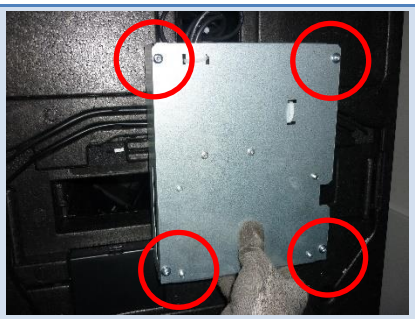
Step 7

Replace the electronic board

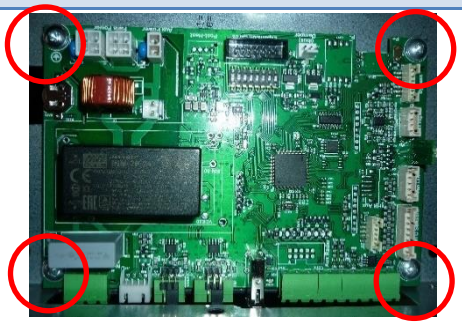




- Unplug all connectors from the board
- Remove the three fastening screws



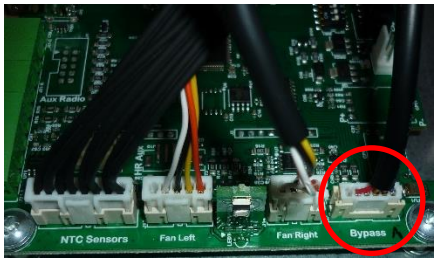
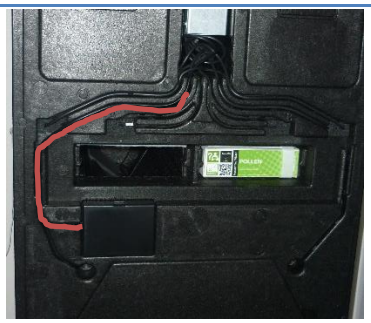
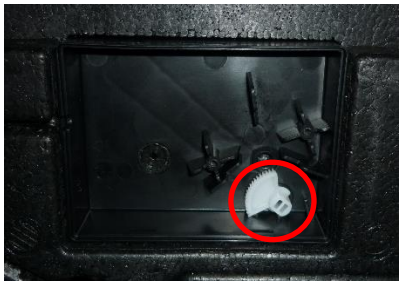
- Slide the electronic box out of its housing.
- Remove the four fastening screws



- Disconnect all connectors.
- Remove the four fastening screws

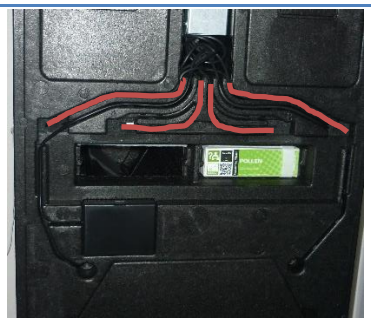
Description	Code
InspirAIR® Top 300 Classic	11023473
InspirAIR® Top 300 Premium	11023474
InspirAIR® Top 300 Premium ERV	11023477
InspirAIR® Top 450 Classic	11023475
InspirAIR® Top 450 Premium	11023476
InspirAIR® Top 450 Premium ERV	11023478

- Power on the product, fill in the last four digits of the product code.

<table>
<tr><td>  </td><td colspan="3">Step 8</td></tr>
<tr><td colspan="4">Replace the bypass</td></tr>
<tr><td> 
</td><td>  </td><td colspan="2">- Unplug the bypass connector
Withdraw the cable from the channel</td></tr>
<tr><td>  </td><td>  </td><td colspan="2">- Open bypass motor box
- Remove the motor fastening screws</td></tr>
<tr><td>  </td><td>  </td><td colspan="2">- Unclip the flap ratchet
- Remove the motor box</td></tr>
<tr><td>  </td><td></td><td colspan="2">- Withdraw the bypass flap</td></tr>
</table>

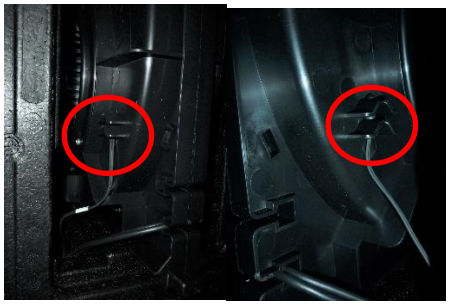
Step 9

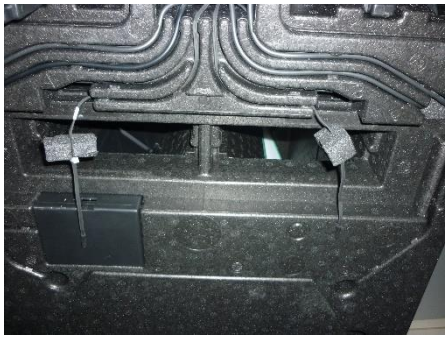
Change the sensor cables



- Unplug the sensor connector from the electronic board

- Remove the motor covers by using the tool supplied with the motor at the centre for leverage.





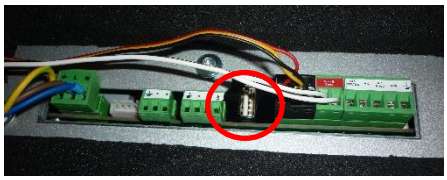
- Remove the two sensors placed on the motors
- Remove the two sensors above the filters (do not lose the foam plugs)

Step No. 10

Remove the heat exchanger

- Remove the cover from the heat exchanger
- Extract the heat exchanger from its housing

	Step No. 11	
	Clean the heat exchanger	
	-	*- Remove the impurities in the heat exchanger (cleaning with air advised)*

	Step No. 12	
	Flash the control board with new software	
		*- Power off the unit using the electrical cabinet circuit breaker operated by an accredited person.* *- Plug in the USB key containing the new running software (the USB key must only contain the software)*
PREMIUM VERSION		*- Power the machine back on. The house LED flashes until it is lit steadily.* *- Unplug the USB key*
CLASSIC VERSION		*- Power the machine back on.* *- Wait 30 s* *- Unplug the USB key*

	Step No. 13	
	Flash HMI with new software	
	-	*- Unplug HMI* *- Plug in the USB key containing the new running software (the USB key must only contain the software)* *- Plug HMI back in* *- when the screen is displayed, programming completed (do not flash product)*

7.4 Repair guide

Please refer to the relevant user manuals for handling the user keypad or control core.
Code to access Expert level on the control core: 0405

List of error codes:

Code	Meaning	Solution
49	No product ID	Fill in product ID
50	Product not configured	Check that the product has been configured (at least type of control and R/L chosen)
53	Pressure sensor fault	Check for outliers based on the control voltage and rotating speed
70	Roof fan dry contact activated	Check state of dry contact
72	RH sensor fault	Check that its T° is consistent with the other product sensors
76	HMI CO2 sensor fault	Replace HMI
81	Lack of BCA detected	- Refer to the breakdown flow chart on page 18 for alarm 81. - Check the BCA Bus port wiring - Check the supply sensor ohm coherence (below)
83	Ext. preheating BCA Resistor does not heat	Check that the sensors increase
84	Internal preheating BCA connected to incorrect flow	Check which sensor increases in operation
85	Post-heating BCA operation	
90	Fire damper test not OK	Check that the fire damper test is OK
91	Fire damper control triggered	Check the state of damper blade positions
92	No fire damper box connected	Check that the connection is ok or set 0 as number of fire damper if not used
182	Exhaust motor-fan error unplugged or motor out of service	- Refer to the breakdown flow chart for alarm 182/183 - Switch off the power for 30 min., then switch back on - Check the motor wiring
183	Air supply motor-fan error unplugged or motor out of service	
239	Air exhaust Tr sensor fault	- Check the sensor position - Check the sensor ohm coherence - Refer to the breakdown flow chart
240	External Te sensor fault	
241	Air supply Ti sensor fault	
243	Ext. Tbca fault	
251	CMEV temperature sensor Tv sensor	

Test values:

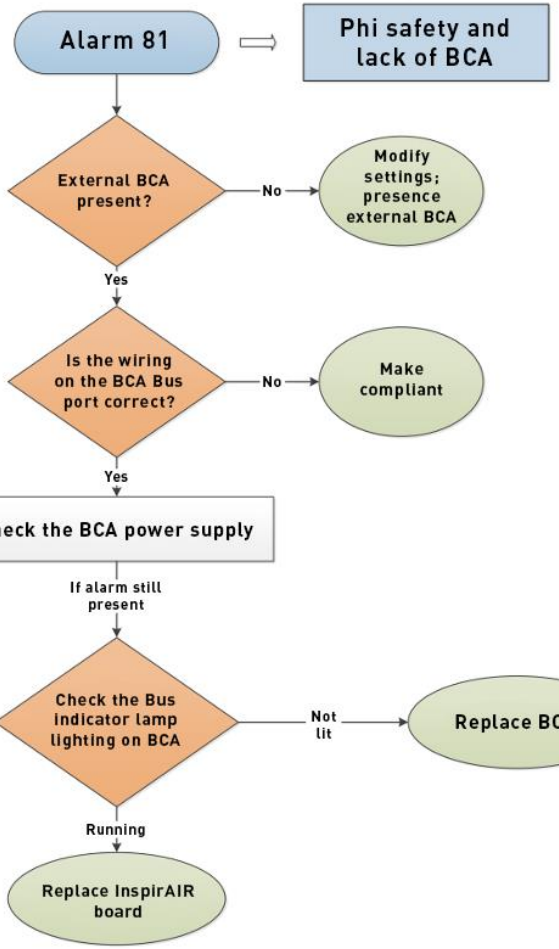
T: 0° R: 32.7 KΩ	T: 15° R: 15.7 KΩ
T: 5° R: 25.4 KΩ	T: 20° R: 12.5 KΩ
T: 10° R: 19.9 KΩ	T: 25° R: 10.0 KΩ

7.5 Breakdown flow charts

INSPIRAIR TOP

Alarm 81 - The unit does not recognise the BCA

Problems:
- BCA configuration error
- BUS wiring
- Incorrect power supply

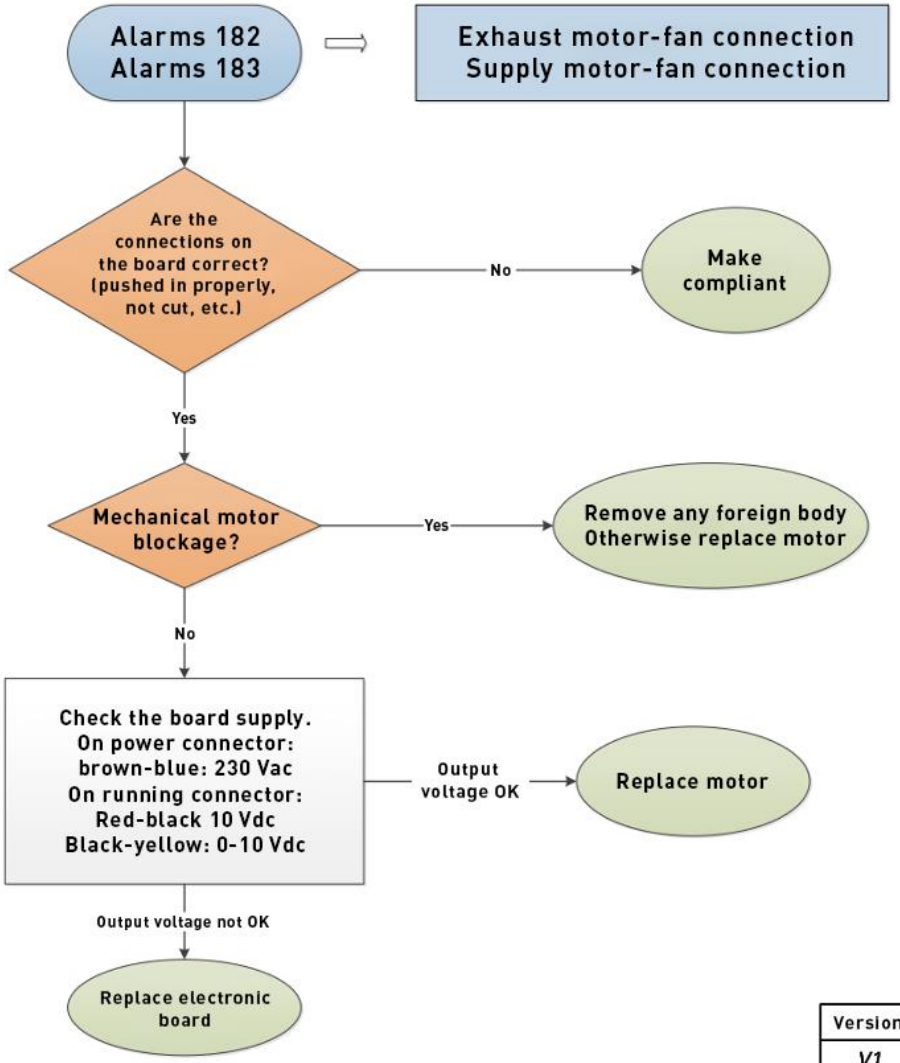


Version	Creation date
V1	*November 2020*

INSPIRAIR TOP

Alarm 182 - Exhaust motor-fan is no longer running
Alarm 183 - Air supply motor-fan is not working

Problems:
- Motor-fan connection unplugged
- Motor out of service
- Foreign body in volute
- Faulty board



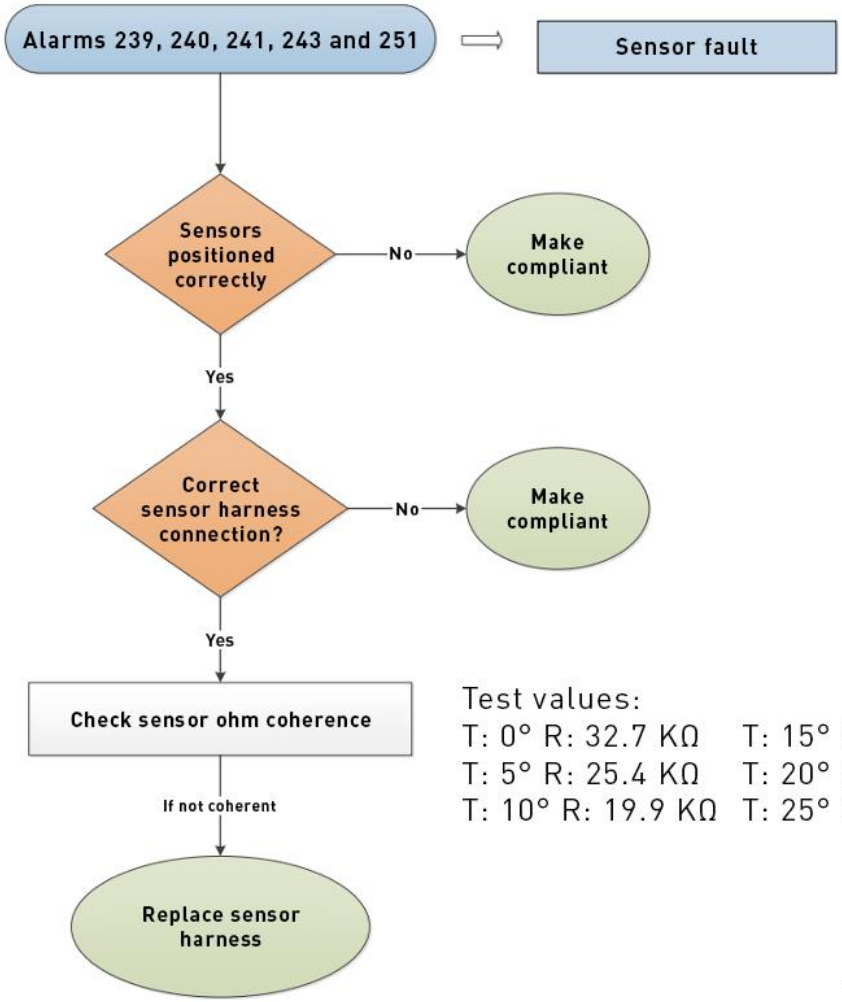
Version	Creation date
V1	*November 2020*

INSPIRAIR TOP

Version A:
Trejet - Tvmc - Te - Ti
Version B:
Te - Ti - Trejet - Tvmc

Alarms 239, 240, 241, 243 and 251 - One or more sensors no longer working

Problems:
- Incorrect position or incorrect wiring
- Sensor out of service



Test values:

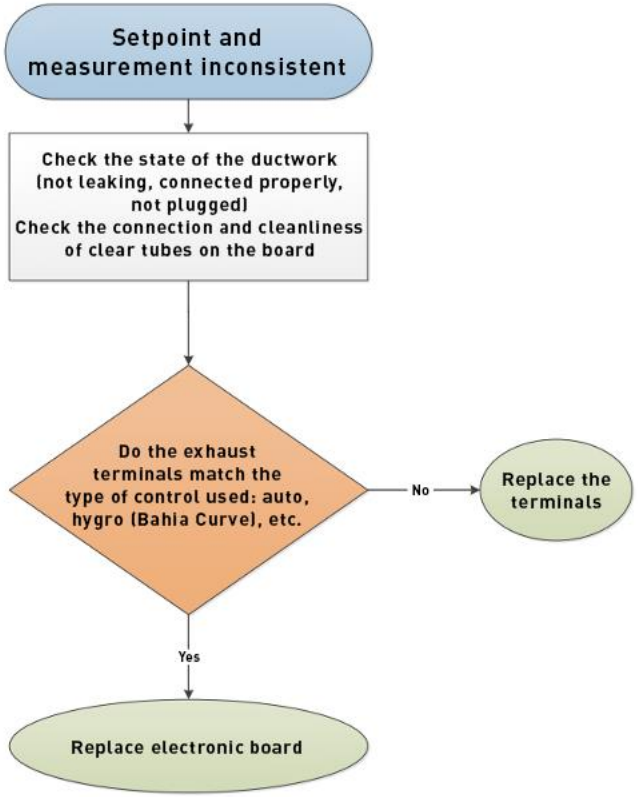
T: 0° R: 32.7 KΩ	T: 15° R: 15.7 KΩ
T: 5° R: 25.4 KΩ	T: 20° R: 12.5 KΩ
T: 10° R: 19.9 KΩ	T: 25° R: 10.0 KΩ

Version	Creation date
V1	*November 2020*

INSPIRAIR TOP

The measured airflow is less than the setpoint airflow

Problems:
- Electronic board
- Leaking ductwork
- Incorrect type of terminal

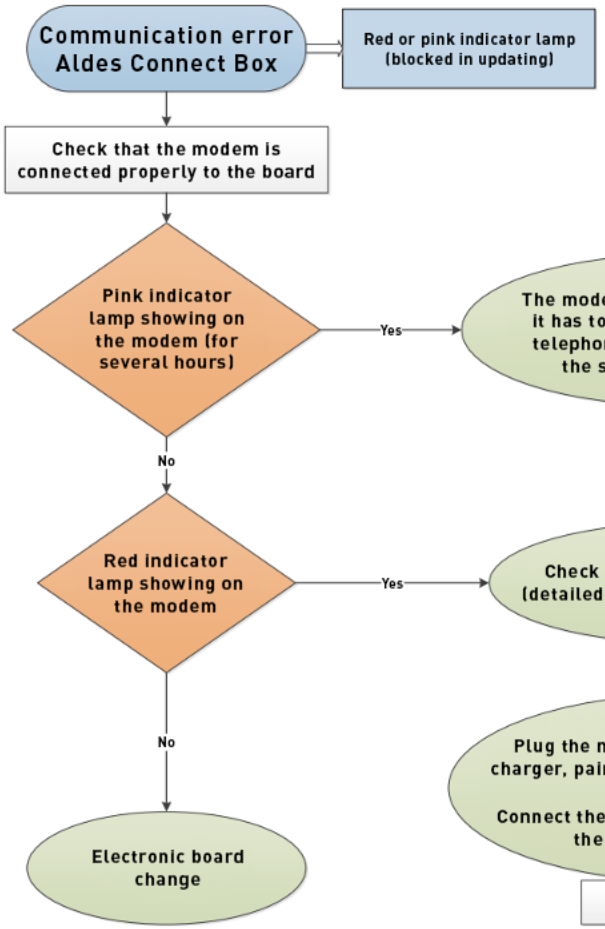


Version	Creation date
V1	*November 2020*

I INSPIRAIR TOP

Problem in pairing with Aldes Connect Box

Problems:
- Internet/Box connection
- Board modem communication



Version	Creation date
V1	*AUGUST 2018*