

RENSON® EXTERNAL FROST PROTECTION

MANUAL

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1 • General

The RENSON® external frost protection is a pre-heating element with built-in temperature control that is used to heat the supply air going to the Flux unit. This way, you can continue to ventilate even at lower temperatures, without the ventilation unit switching to frost protection mode.

This manual consists of 2 parts:

- The installation manual: all information needed for installation.
- The user manual: guide to operating this device.

1.1 • Purpose of this manual

This manual contains instructions and recommendations for correctly sizing the Renson external frost protection unit and then safely installing, commissioning and maintaining it. Read this manual completely before installing and commissioning the Renson external frost protection unit. The proper functioning of the Renson external frost protection largely depends on correct installation and start-up.

1.2 • Version control

This Dutch version is the original version. Any other language versions are translations. In case of incompatibility, the Dutch version is the standard version.

1.3 • Using this manual

This manual begins with a general description of the Renson external frost protection. Read these chapters first to familiarise yourself with the function and location of the most important parts. This is followed by procedures covering:

- Installation
- Commissioning
- Maintenance

1.4 • Electronic version

This manual is only available electronically as a PDF file. The PDF file contains bookmarks in the left-hand margin that allow you to quickly navigate to the desired information. Each time the cursor changes to a  symbol, you can click on the link to go to the desired information.

1.5 • Symbols used

 **Warning:** failure to correctly follow the procedure may result in undesired outcomes or damage to the Renson external frost protection.

 **Danger:** failure to correctly follow the procedure may result in personal injury.

 The **CE mark** indicates that, according to the manufacturer, a product complies with all EU requirements relating to safety, health and environmental protection.

 **UKCA mark:** the product complies with the regulations of the relevant laws in England, Wales and Scotland.

 **Warning:** hazardous electrical voltage.
The product operates at high voltages.

 Device to be used indoors.

 This electrical device must be disposed of separately from household waste by the owner.

1.6 • Abbreviations

The following abbreviations are used in this manual:

Abbreviation	Meaning
CERTIFICATION	
AREI	Belgian General Regulations for Electrical Installations
EMC	Electromagnetic Compatibility
AIRFLOW HEAT RECOVERY SYSTEM	
EHA	Exhaust air, contaminated extraction air that is blown outside
ETA	Extracted air, contaminated extraction air from the interior
ODA	Outdoor air, fresh air that enters the home
SUP	Supply air, fresh air that is blown into the interior
HA 	House connection (ETA & SUP) - is indicated by a house
BA 	Outdoor connection (EHA & ODA) - is indicated by a tree
MATERIALS HEAT RECOVERY SYSTEM	
EPP	Expanded and thermally insulating polypropylene
SI UNITS AND GENERAL CONCEPTS	
Pa	Pascal, unit of pressure (1 Newton per 1 m ²)
ppm	Parts per million, a measure of concentration
CO ₂	Carbon dioxide, a measure of human presence
VOC	Volatile Organic Components, a measure of indoor pollutants
WTW	Heat recovery, a method for reusing heat

1.7 • Definitions

The following terms are used in this manual:

Term	Meaning
System D	Ventilation system with mechanic supply + mechanical extraction of air
Unit	Renson Flux Flat
Ventilation system	The unit with associated pipes and control elements
Pipe pressure	Every pipe system in a home has a characteristic pressure drop (pipe characteristic).
Plenum box	Distribution box used to distribute both supply air and extraction air to the various rooms.
Valves	Adjustable openings that facilitate both the supply and extraction of air in the various rooms.
Supply / SUP	Supplying air to the home
Extraction / ETA	Extracting air from the home
Bypass	A conventional bypass allows the heat exchanger to be bypassed when no cold or heat exchange is required.
Thermal efficiency	The efficiency of heat or cold transfer will result in a thermal efficiency
Condensation drain	The exchange of airflows and heat transfer may, depending on temperature and humidity, result in the production of condensation; this moisture must be discharged via a condensation drain.
Filters	To protect the valuable unit (heat exchanger, fans, sensors), it is necessary to replace the 2 filters in the unit at regular intervals (see maintenance chapter).
Frost protection	If necessary, the unit will operate with imbalance at critical temperatures to prevent the heat exchanger from freezing.
Constant Flow	Regardless of the variation in pressure due to indoor conditions or contamination of filters, the unit will always ensure the desired airflow rates are used. This also ensures the thermal efficiency is optimal at all times.

1.8 • General instructions and safety instructions

- The device must not be used by persons (including children) with reduced physical, sensory or mental capabilities, or by persons lacking experience and knowledge.
- Children must be supervised to ensure that they do not play with the device.
- The device must be connected to an earthed socket outlet.
- The unit in this packaging complies with the applicable CE safety requirements and UK Conformity Assessment.



- Renson external frost protection complies with the legal requirements imposed upon electrical equipment. Disconnection from the power supply. If the device is used with a power cord fitted with a plug, the plug can be considered the disconnection device. For devices fitted with a plug, the power socket must be easily accessible.

AREI

- The socket used to connect the unit to the mains voltage must comply with the provisions of the AREI.

2 • Set up and installation (Safety)

2.1 • Safety regulations

CAUTION

Ignoring the warnings below may result in malfunction or reduced performance and could also cause fire, electrical shock or injury.

- A unit that has not been installed in accordance with the installation instructions is not covered by the warranty.
- This unit is intended for indoor domestic use. If you have a different situation, please contact RENSON®.
- The Flux external frost protection must NOT be placed in areas where the following are present or may occur:
 - Excessively greasy atmosphere
 - Corrosive or flammable gases, liquids or vapours
 - Room air temperatures above 40°C or below 0°C (the Flux must be installed in a frost-free location!)
 - Relative humidity above 90% or outdoor installation (condensing environment)
- The unit and its associated parts and controls must not be used in places where they may be exposed to water jets.
- Do not clean the external frost protection with water.
- All wiring must be installed by a qualified person.
- Ensure the electrical power supply corresponds to 230 V, single phase, 50 Hz.
- Do not place cables or other materials near or on the preheater.
- Use the preheater only for the functionality described in this manual.
- Do not use or store explosive or flammable materials/substances near the unit.
- Ensure that there is always a continuous airflow through the preheater when it is active (i.e. do not block the air duct).
- In the event of continuous operation, periodically check that everything is still functioning correctly and properly connected.
- Do not touch the preheater with wet hands.
- Do not allow children near the unit.
- If unusual noise or smoke is emitted from the preheater, disconnect it from the power supply and contact the installer.
- Do not open the preheater while it is in operation!
- Changes to the Flux external frost protection are not permitted.
- The unit cannot be opened without tools. Opening the unit may result in damage to the unit or personal injury.
- Installation of the Renson external frost protection must be carried out in accordance with the applicable general and local building, safety and installation regulations of municipal/local and/or other authorities.
- The device must be installed so that it is safe to touch. This means, among other things, that under normal operating conditions no one can come into contact with live parts of the PCB or the heating element without performing a deliberate action, such as:
 - Removing the cover and dismantling the cassette
 - Disconnecting an air duct

2.2 • System in operation

- It is the installer's job to inform the user how the unit works and how it can be maintained.
- Only use the product for the applications for which it is designed as stated in the manual.
- Maintenance instructions must be followed precisely to prevent damage and/or wear.
- It is recommended to conclude a maintenance contract.

2.3 • Specific measures

CAUTION

Ensure that the Flux external frost protection unit remains easily accessible at all times so that maintenance and service can be carried out easily.

- RENSON® Flux external frost protection complies with the legal requirements imposed upon electrical equipment.
- Install RENSON® Isodec flexible air ducts with thermal insulating properties or Easyduct.
- It should not be possible to touch the heating element with your hand. Therefore, an air duct network should always be connected to the Flux preheater before commissioning it. The minimum channel length is 0.5 m.

2.4 • Electrical

- Connect the unit to a 230 VAC 50/60 Hz power supply. Any other power connection will cause damage to the unit.
- Always switch off the power supply to the unit before you start working on the ventilation system. Leaving the unit open while it is operating could result in personal injury. Make sure the unit cannot be switched on accidentally. The unit can be disconnected from the power supply network by unplugging the power cable from the wall socket or by switching off the fuse. If there is any doubt, check that the unit is actually disconnected.
- If the power cable is damaged, the unit must be replaced. If this is not respected and different wiring is used, any guarantee and/or liability for the poor functioning of the product will be void.

Electronic components

- Static electricity can cause damage to the electronics.

CAUTION

When working with electronics, always take protective measures such as wearing a grounded wrist strap.

2.5 • Personal Protective Equipment

- Wear a helmet and safety shoes when certain parts are lifted or hoisted during installation. Even when installing the unit on the ceiling, it is important to wear a helmet.
- Always wear gloves when handling metal parts; they may have sharp edges!
- Wear an anti-static wrist strap when working on a printed circuit board.

3 • General description of the Renson Flux external frost protection

3.1 • Operating principle

- During prolonged freezing temperatures, there is a risk of ice formation in the heat exchanger. This is why every Flux unit from Renson is equipped with standard frost protection via imbalance*.
In severe winter conditions, additional electric frost protection may be recommended. This optional feature preheats the supply air before it reaches the heat exchanger, effectively preventing ice formation.
With electric frost protection, hybrid frost protection** can be achieved based on a 1.2 kW electric heating element. The element is time-modulated and controlled by the sensors inside the unit.
The default operating mode upon installation is 'Comfort'.
- The external frost protection is designed for extended periods of continuous operation without power interruption. As it is a component unit, the preheater must not be used as a standalone device. The preheater must always be earthed.
- The transported air must not contain flammable or explosive mixtures, chemical vapours, coarse dust, soot and oil particles, sticky substances, fibrous materials, pathogens or other harmful substances.
- The external frost protection is intended for use in enclosed spaces at ambient temperatures from -30°C to +80°C and relative humidity up to 80%.
- The unit is set by default to Comfort mode, maintaining duct temperatures in the range 0°C to -20°C with a maximum airflow of 350 m³/h. After this, the unit switches to imbalance operation.
- If the installer or end user prefers lower energy consumption, it is possible to switch to Eco mode. In Eco mode, airflow imbalance is applied only when frost protection is activated.
- Standard features include overheating protection with manual restart if the operating temperature exceeds 60°C.

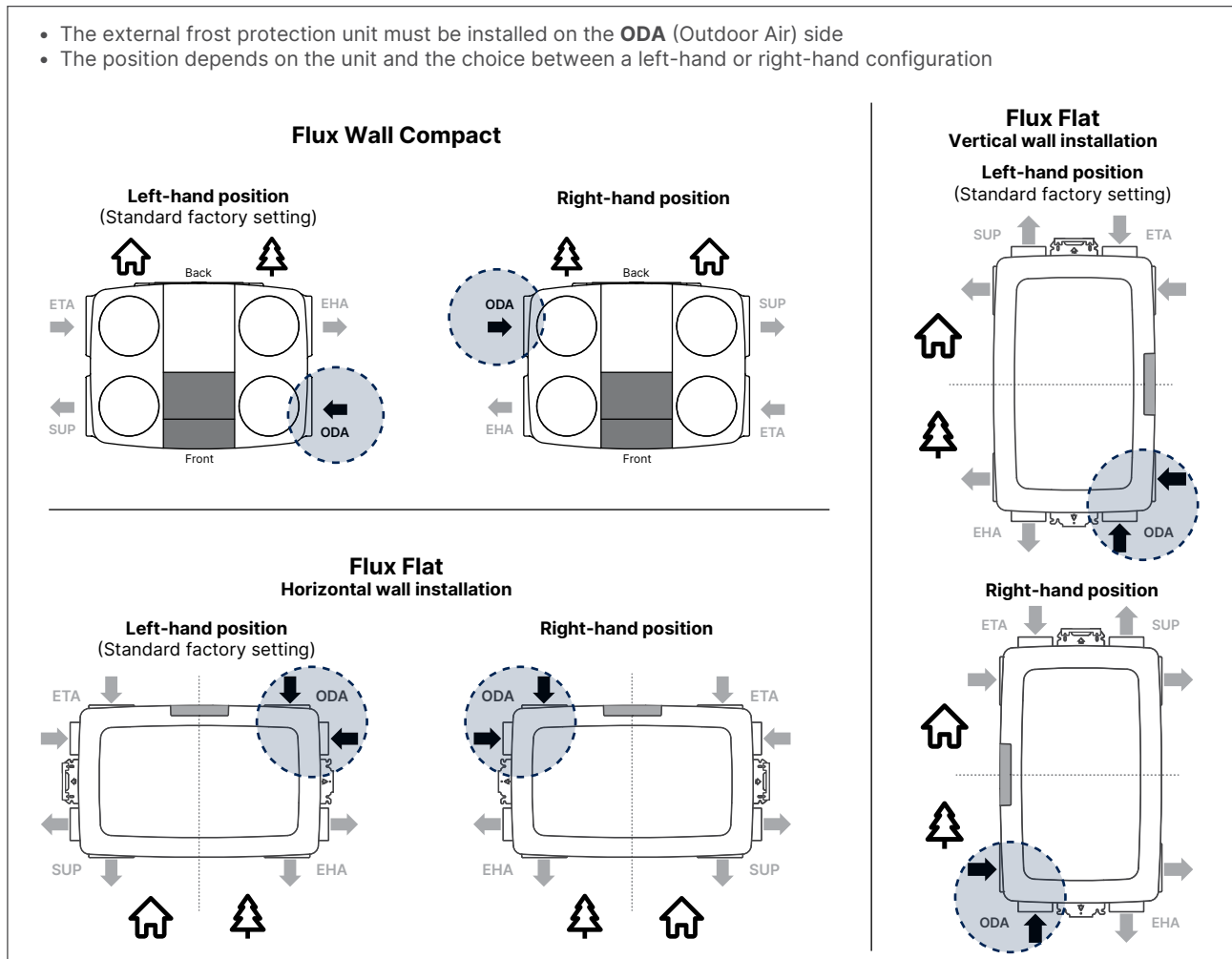
* Imbalance is achieved by reducing the supply of fresh air. When the temperature sensors detect that the temperature is warm enough, our unit automatically switches back to balance control.

** Combination of imbalance with electrical frost protection.

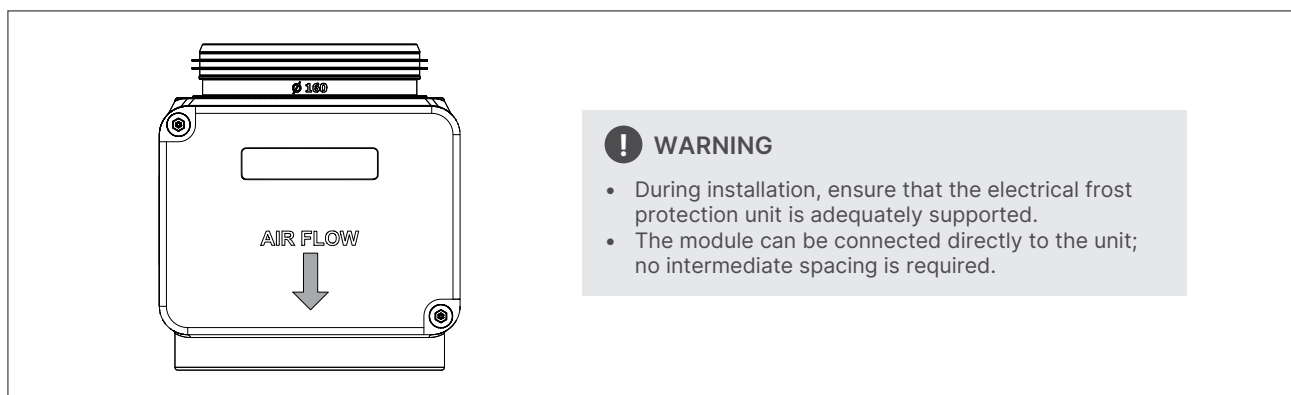
3.2 • Installation properties

Before starting the installation, make sure that both the Flux unit and the external frost protection unit are not connected to the power supply.

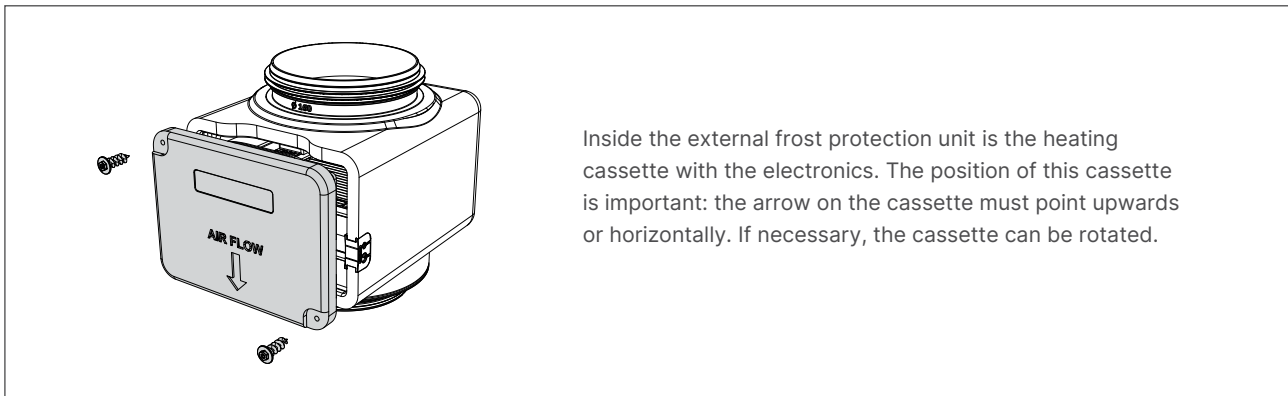
- The external frost protection unit must be installed on the **ODA** (Outdoor Air) side
- The position depends on the unit and the choice between a left-hand or right-hand configuration



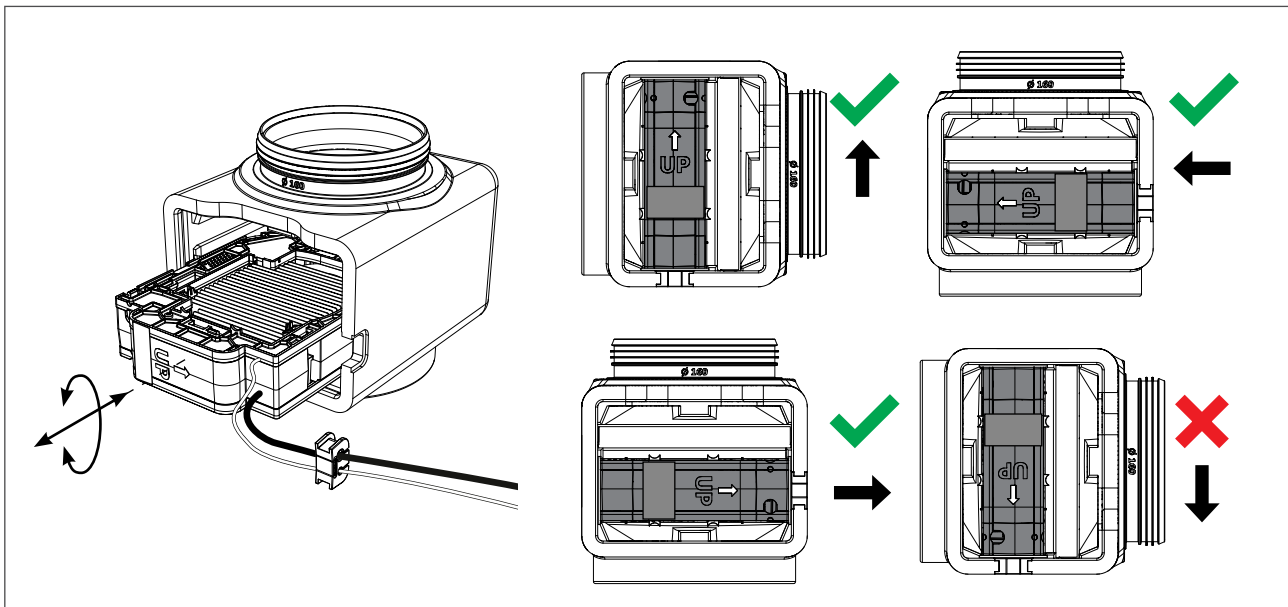
The arrow on the outside of the housing, indicating the airflow direction, must always be followed.



Remove the housing cover by loosening the two screws.

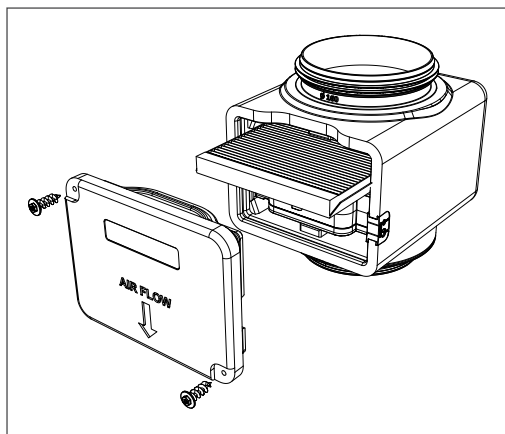


Orientation of the internal cassette: the arrow must point upwards or be horizontal. If necessary, the cassette can be rotated.

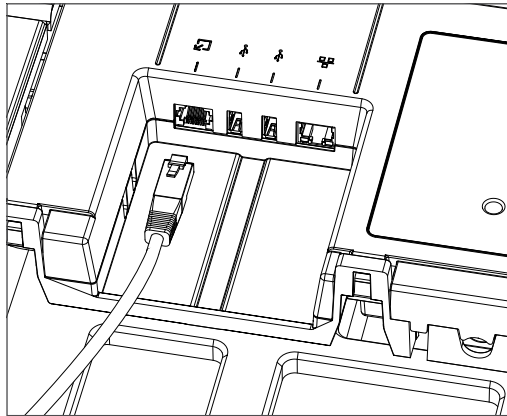


If required, an additional optional filter (art. 37368) can be placed in the designated space in the external frost protection unit. This filter protects the heating element against contamination and minimises any unpleasant odours when the element is operating.

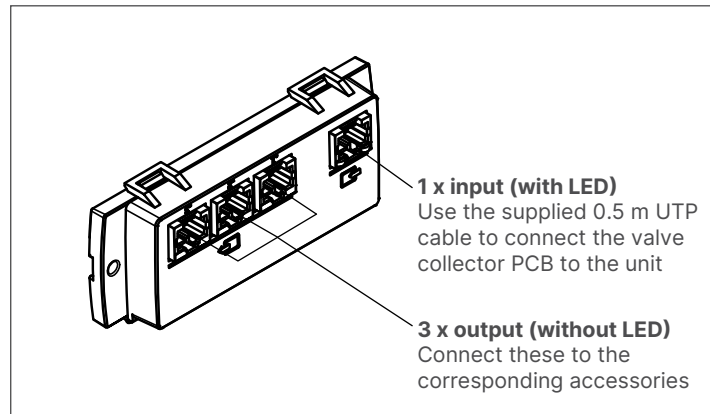
Reinstall the cover on the active humidification unit.



Plug the UTP cable into the designated port on the Flux unit.



Option: If the 2-zone valve is combined with an external frost protection unit, the UTP ports must be expanded with the valve collector PCB (art. 17071).



NOTE

The Flux unit must have software version 2.7.0 or higher. If not: Connect the unit to the internet (via UTP cable or Wi-Fi). Or use the Renson Installer app. The unit will automatically update to the latest version.

First switch on the electrical frost protection unit (i.e. connect it to the power supply) before switching on the ventilation unit. The frost protection unit will be detected automatically and will configure itself.



Additional settings can be configured with the installer app:

RENSON | FLUX Service page EN ▼

- Home
- Service
 - Wi-Fi
 - Room sensors
 - Errors
 - Sensor data
 - Sensor settings
 - State of device**
 - Start calibration

Service page access

State of device

Bypass

Bypass temperature	24 °C
Bypass status	inactive
Bypass valve	Activate Deactivate
Bypass calibration	Start

Breeze

Breeze temperature	24 °C
Breeze status	inactive

Frost protection

Type	Unbalance Electrical
Mode	Eco Comfort
Status	inactive

Ventilation

Global minimal ventilation	10 %
Exhaust fan	Test
Supply fan	Test
Boost level	100 %
Boost time	7200 sec
Activate boost	Stop
Time left	7159 seconds

Filter indication

Filter warning mode	Time based Smart
Current filter pollution	70 %
Filter changed	Reset

Comfort mode

By default, the unit is set to Comfort mode. In this scheme, priority is given to the electrical frost protection. Only when this protection is no longer sufficient will the Flux unit gradually operate with increasing imbalance in order to maintain the desired level.

Eco mode

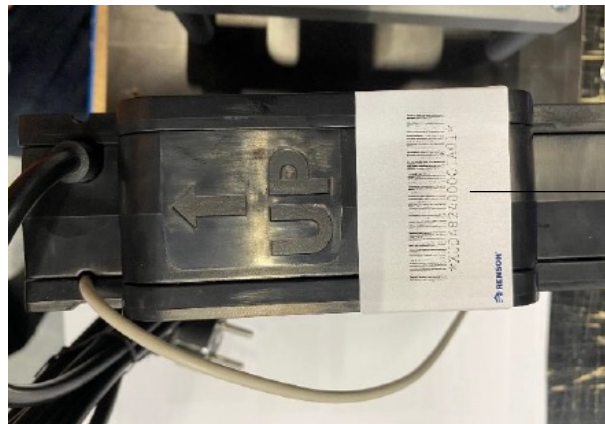
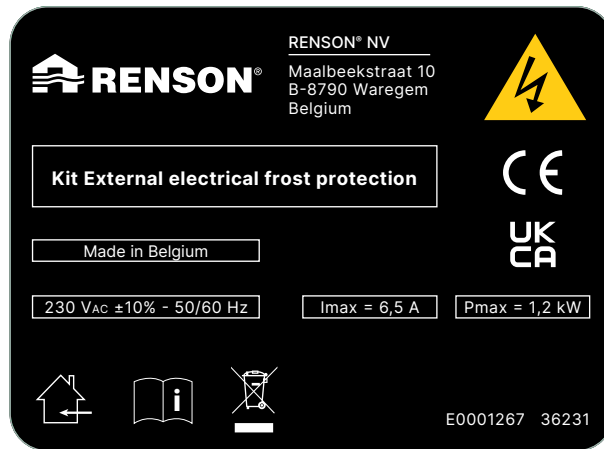
Eco mode can be activated manually via the app. In this scheme, the Flux unit initially operates with imbalance. The electrical frost protection is only activated when this is no longer sufficient.

This strategy is interesting for situations where one wants to minimise electricity consumption.

The end user can also select the desired mode (Eco mode or Comfort mode) via the Renson Ventilation End User app.

3.3 • Identification

3.3.1 • Identification label



Warranty number

3.3.2 • Information to be provided when contacting Renson®

Always provide the warranty number when you contact Renson®, or when requesting service for your unit. Always report any complaints to the installer first. If necessary, the installer will contact the Renson® service department.

3.4 • Guarantee terms and conditions

- The customer guarantee period is 2 years from the date of installation. The unit is deemed to have been installed no later than 1 year after the date of manufacture.
- All pipes must be supported and mounted according to best practice. If any actions other than those mentioned are carried out, Renson® is not responsible and the warranty will be void.
- The unit can only be used with the appropriate Renson® accessories and controls.
- Changes to the Renson Flux external frost protection are not permitted.

4 • Materials

4.1 • Disposing of the device

Old electrical and electronic devices often contain valuable materials. However, they also contain hazardous substances that are necessary for the functioning and safety of the unit. Never dispose of the discarded unit with regular household waste.



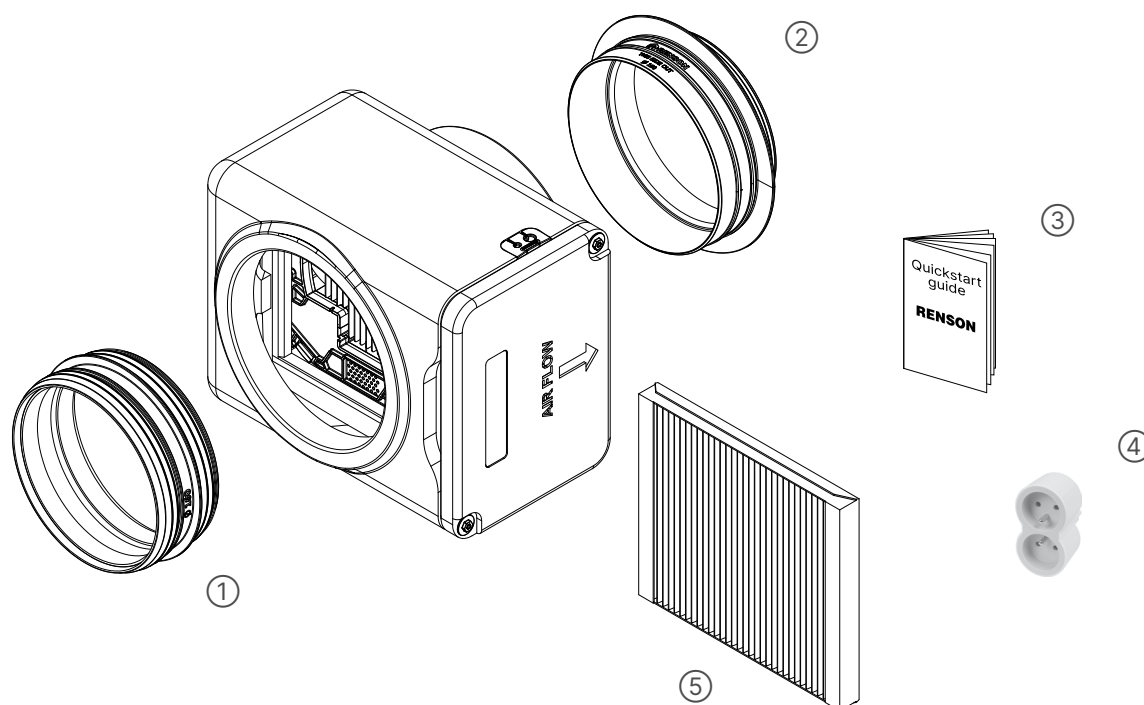
Dispose of the unit in an environmentally responsible manner by taking it to an appropriate collection point.

5 • Ventilation unit description

5.1 • Checking the delivery

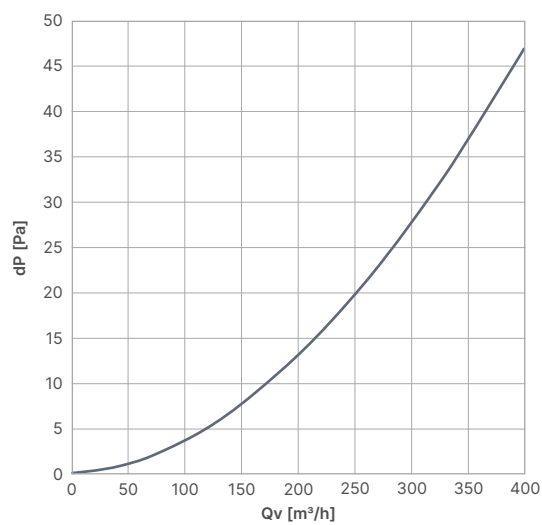
Contact the supplier immediately if damage is found when opening the packaging, or if the delivery appears to be incomplete. Each packaging kit (14524) contains the following components:

Article code	Name	Primary contents
14524	External electrical frost protection kit	Inclusive: • Connection - Ø160-Ø160 for connection to ODA pipe ① - Ø150-Ø160 for connection to Flux Flat ② • Quick start guide ③ • Multiple socket ④
37368 (optional)	Set of filters (2 x G3)	Additional protection of the electrical element of the electrical frost protection system Coarse 45% according to ISO 16890 Set contains 2 filters ⑤



5.2 • Technical specifications

Physical properties	
Dimensions	192 × 270 × 212 mm
Rebus cable length	2 metres
Electrical connection length	2 metres
Weight	- Without filter: 1804 g - With filter: 1849 g
Materials	EPP
Compatible with	- Flux Wall Compact - Flux Flat
Scope of operation	Between -15°C and 40°C
Pressure drop across optional filter	See graph
Electrical properties	
Supply voltage	230 Vac ±10% (50 Hz, 60 Hz)
Max. power	1.2 kW
Maximum power consumption	6.5 A
Flux communication	Rebus connection (included)
Selectable modes	- Eco: Minimises electrical consumption - Comfort: Optimises demand control (Default)
Warranty	2 years
Application	All Flux Flat units and the Flux Wall Compact. Not for Flux Wall units



6 • Maintenance

6.1 • Annual maintenance (to be performed before falling outdoor temperatures)

1. Disconnect the external frost protection from the power supply.
Unplug the unit from the mains before starting maintenance.
2. Remove the heating cassette.
Carefully slide the cassette containing the heating element out of the housing.
3. Perform a visual inspection.
 - Check for dust buildup, contamination and any blockages.
 - Verify free airflow through the outdoor air channel and the preheater segment.
4. Clean the heating element.
 - Preferably use a pressure washer on a low-pressure setting, or
 - Carefully clean with a soft brush in combination with a vacuum cleaner.
5. Clean the housing.
Wipe the inside and outside with a slightly damp cloth.
Avoid using aggressive detergents.
6. Reassemble the components.
Slide the cassette back into the housing and reconnect the electrical power supply.

6.2 • Optional: Additional protection with G3 filter

- For additional protection, a G3 filter (art. 37368) can be placed in front of the heating element.

6.3 • Maintenance of the optional G3 filter

- Monthly: visual inspection for dust accumulation.
- Every 3 months: clean with a vacuum cleaner.
- Annually: full replacement.

All images shown are for illustration purposes only and represent a snapshot of a practical situation.
The actual product may vary due to modifications to the product.
Renson® reserves the right to make technical modifications to the products discussed here.
The most recent brochures can be downloaded at www.renson.net



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