



User manual

HRC-OptiAir EU

Balanced ventilation with heat recovery

This manual is intended for users of the balance ventilation system type HRC-OptiAir EU. The manual contains important information on the operation and maintenance of the ventilation unit with heat recovery.

This manual corresponds to versions:

HRC-260-OptiAir EU

HRC-360-OptiAir EU

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Why Ventilate?

The importance of good ventilation

Houses are getting better and better insulated. This is a good development, because it saves a lot of energy and money. Unfortunately, good insulation reduces the exchange of air in your home, because in an airtight house air cannot flow from outside to the inside, or vice versa. And that is precisely not a good development, because you and your home need fresh air.

Just opening a window is not enough; the moment you close the window the fresh air is already gone. You need about 25 m³ of fresh air per hour, so good ventilation is pure necessity. Without good ventilation, the house becomes damp and musty, resulting in bacteria, mold and health problems such as headaches, allergies and respiratory irritations. What's more, heating this moist air also costs more energy than heating dry air.

Of course, we are sketching an extreme situation with this, but a good ventilation system is mandatory in new houses for a reason. This balanced ventilation unit can operate fully automatically and saves energy. But more importantly, it therefore also benefits your health!

I. Precautions and safety instructions

1.1 Safety regulations

- Installation, commissioning and maintenance must be performed by a licensed installer unless otherwise specified. An unauthorized installer may cause personal injury or damage to the operation of the ventilation system;
- After installation, all components that could cause personal injury are safely located inside the enclosure. Do not open the enclosure;
- Always follow the safety rules, warnings, notes and instructions in this manual. Failure to follow safety precautions, warnings, notes and instructions may result in personal injury or damage to the unit;
- No modification of the unit or specifications in this document is permitted. Modifications may cause personal injury or damage to the operation of the ventilation system;
- Do not place objects on the HRC-OptiAir, this may overload the suspension or feet;
- Do not unplug the appliance unless specified in the appliance manual;
- Replace filters (at least) every six months. This keeps the indoor air healthy and comfortable and protects the unit from dirt;
- Always leave the user manual with the unit.

1.2 Scope

The unit is suitable for residential construction only and not for industrial use, such as swimming pools and/or saunas. The airflow rate of the unit must match the ventilation requirements of the home.



Note: It is not permitted to connect a range hood or clothes dryer to the system.



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2. General operation of balanced ventilation system

In order to create a healthy living environment in your home, it must be well ventilated. Your home is therefore equipped with a mechanical exhaust and extract ventilation system from Orcon. This system consists of a centralized balanced ventilation unit (HRC-OptiAir EU), a duct system with extract and exhaust valves in various rooms and can be combined with a position switch, RF remote control and/or CO₂ sensor(s).

1. A centrally located HRC-OptiAir EU balanced ventilation system
2. Remote control 15RF of Flush mounted HRC control display 15RF
3. CO₂-sensor 15RF
4. Silencers (minimum 1m) for a very quiet installation



Overview ventilation system HRC-OptiAir EU

In balance

The HRC-OptiAir EU is equipped with two fans: an extract and exhaust fan. The exhaust fan ensures that hot, humid and contaminated air is removed from the home. The extract fan ensures a sufficient supply of clean outside air.

Heat exchanger

The extract air, which will be quite cold in winter due to the cooler outside air, is first warmed up in the HRC using the heat extracted from the warm return air from the house. Conversely, in the summer months, the warm extract air from outside will be cooled by the cooler return air from the home, thereby hardly any precious heat is lost and the inlet temperature will be at a comfortable level.

Bypass

In the summer situation, when heat recovery is not desirable, the air is not passed through, but along the heat exchanger via a bypass damper. This also makes it possible in the summer situation, at night, with relatively cool outside air ventilate the home, restoring a relatively cool temperature in the morning. The bypass operates automatically at the best time to achieve maximum comfort.

Frost protection

When the outside temperature is around freezing in the winter, it is possible for ice to form in the exchanger. As a result, cold air is blown into your home. To prevent this, the HRC will heat the exchanger in time using the built-in preheater. The built-in preheater automatically switches on to prevent freezing of the heat exchanger.

Humidity sensor

Your HRC comes standard with a humidity sensor, it measures the humidity content in the extracted air from the kitchen, bathroom and toilet. If the built-in humidity sensor detects that the humidity is rising, for example while cooking or showering, the unit will automatically switch to a higher setting. 15 minutes after showering or cooking, the unit switches back to the lower setting.

Filters

The HRC is equipped with two filters. A filter for filtering the supply air and a filter for filtering the exhaust air. The supply filter ensures that only clean air enters your home and keeps dust, soot and insects out.

Optionally, you can also use a pollen filter for the supply filter. The exhaust filter ensures that the air from your home is also filtered, minimizing contamination at the heat exchanger.

For an optimal indoor climate, we recommend cleaning your filters every 3 months and replacing them once every 6 months. The HRC is equipped with a filter indicator, which indicates when the filters should be cleaned. For more information on how to clean your filters, see chapter 5.



Note: Ensure adequate air supply. Absolutely never tape off or close valves.

Contact your installer if you have questions or want to order new filters.

3. Product information

3.1 Appliance types

The Orcon HRC features an intelligent electronic control circuit that ensures optimal operation and protection under all conditions.

The table below lists the different versions.

	HRC-260-OptiAir EU	HRC-360-OptiAir EU
Item no.	22610050	22610060
Air flow rate [m3/h] at max. 200 Pa	260	360
Power cord	Peripheral ground. (Perilex optional available)	
Channel connection [mm]	4x Ø160mm	4x Ø180mm
Preheater	Yes	Yes
Filter class (ISO16890)	1x Coarse 65% 1x ePM1 70%	1x Coarse 65% 1x ePM1 70%

3.2 Optional accessories

The unit is expandable with the Orcon items from the table below.

Artikel	Artikelnummer
Remote control 15RF	21800000
Wireless CO ₂ wall sensor 15RF	21800040
CO ₂ remote control sensor 15RF	21800045
Wireless CO ₂ flush mounted wall sensor 15RF	21800050
Flush mounted HRC control display 15RF	21800060

4. Operating the unit

The HRC can be operated with various accessories. This chapter describes how to use the optional controls. For a detailed description, please refer to the manual of the respective control.

4.1 Operating with three-position switch

If your unit is equipped with a perilex connection and a three-position switch, the ventilation positions can be set from the table below. If multiple switches or controls are used in your home, the last selected ventilation setting is always leading.

Explanation ventilation modes		
position 1	low	For use during absences for long periods of time
position 2	medium	For daily use in normal residential use
position 3	high	For use while cooking, showering or partying.

4.2 Operating with remote control 15RF

De balanced ventilation system can be operated with a wireless remote control 15RF. The remote control has 6 buttons, their functions are explained in the table below.

Remote control button explanation		
Button	Operation	Function
	1x short	absence mode
1	1x short	Position 1 (low position)
2	1x short	Position 2 (middle position)
3	1x short	Position 3 (high position)
	1x short	Position 3 (timer setting) temporarily 15 minutes
	2x short	Position 3 (timer setting) temporarily 30 minutes
	3x short	Position 3 (timer setting) temporarily 60 minutes
AUTO	1x short	Automatic mode

Absence mode

In the absence mode, the unit runs in the minimum ventilation mode.

Timer mode

In timer mode, the unit runs for a desired time in position high, after the time has elapsed the unit returns to the last selected position. The timer can be aborted by selecting another (desired) setting.

Automatic mode

In auto mode, the unit runs based on the humidity content in your home.

The humidity sensor is integrated into the HRC as standard and measures the humidity content in the extracted air from the kitchen, bathroom and toilet. If the humidity sensor detects that the humidity content is rising, the unit will automatically switch to a higher setting. 15 minutes after showering or cooking, the unit switches back to the previous setting. If your appliance is expanded with a CO₂ sensor, the automatic mode operates based on the CO₂ level. The system can be expanded with additional controls/CO₂ sensors (up to a maximum of 20 controls per appliance).

4.3 Control with the Wireless CO₂ wall sensor 15RF

This sensor measures the CO₂ concentration (air quality) in the room and automatically makes the unit ventilate harder if necessary. This prevents unnecessary ventilation, which benefits the energy efficiency of the unit.

Indication and operation Wireless CO₂ wall sensor 15RF

By touching the operation button once, the status is displayed by the leds. After 30 seconds, the leds automatically turn off again, so as not to disturb a dark residence hall. If the control button is touched again, the sensor will switch to a different mode. Changing this mode can be recognized by the lighting of the green or blue LED on the top right of the wireless CO₂ wall sensor.

The Wireless CO₂ wall sensor 15RF has the following two modes:

- **Energy saving mode**

When the CO₂ wall sensor is in this mode, the unit will ventilate according to the standard requirement. This saves on energy costs, ventilating only when really needed.

- **Extraordinary mode**

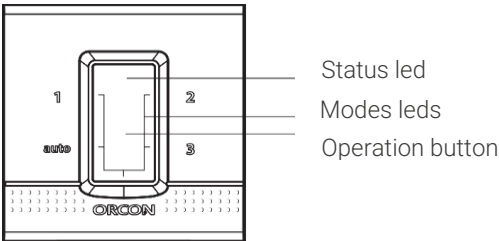
When the CO₂ wall sensor is in this mode, the CO₂ wall sensor will maintain high levels of air quality. This increases ventilation, removing dirty air particles from the home, and bringing fresh outside air into the home.

4.4 Control with the Wireless CO₂ flush mounted wall sensor 15RF

This flush mounted wall sensor measures the CO₂ concentration (air quality) in the room and automatically makes the unit ventilate harder if necessary. This prevents unnecessary ventilation, which benefits the energy efficiency of the unit.

Indications and operation with the wireless CO₂ flush mounted sensor 15RF

Tapping the control button once displays the status through the leds. After 30 seconds, the leds automatically turn off again, so as not to disturb a dark residence hall. If the control button is touched again, the sensor will switch to a different mode. Changing this mode can be recognized by the lighting of the mode leds.



Wireless CO ₂ flush mounted sensor 15RF			
Status	Led	Function	
Absence mode		Unit runs in lowest possible setting until another function is activated (12 hours)	
1		Position 1 (temporary low position)	
2		Position 2 (temporary medium position)	
3		Position 3 (temporary high position)	
Energy saving Auto mode		Automatic control based on CO ₂ <1150 PPM	
Extraordinary good Auto Modus		Automatic control based on CO ₂ <950 PPM	

The CO₂ flush mounted sensor has the following modes:

Absence and position 1, 2 and 3

When the CO₂ flush mounted sensor is in absence mode, the unit will ventilate a minimum amount. Only the status led lights up and will go out after 30 sec. This mode remains active for 12 hours.

Modes 1 (low), 2 (medium) and 3 (high) are temporary modes. When modes 1 (low) and 3 (high) are selected, the system will return to automatic mode after 60 minutes and the leds will remain lit for this time. For mode 2 (medium) this is 13 hours, this mode can be chosen as night mode in situations where not every bedroom is equipped with a CO₂ sensor.

Energy saving mode

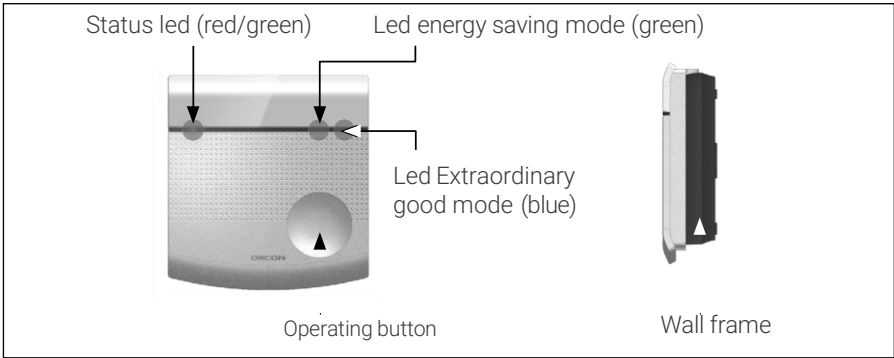
When the CO₂ flush mounted sensor is in this mode, the fan will ventilate according to the standard requirement. This saves on energy costs; that is, it ventilates only when really needed.

Extraordinary good mode

When the CO₂ flush mounted sensor is in this mode, the CO₂ flush mounted sensor will keep the air quality level at a very good level. This increases ventilation, which removes the dirty air particles from the home faster. The clean outside air is brought in.

4.5 Operating with CO₂ remote control sensor 15RF

The HRC can also be operated with the CO₂ remote control sensor. This is a CO₂ sensor with integrated controls. Touching the control button once displays the status through the leds. After 30 seconds, the leds automatically turn off again, so as not to disturb a dark residence hall. If the control button is touched again after the one-time touch, the CO₂ remote control sensor will switch to another mode or mode.



CO ₂ Remote control sensor 15RF		
	Absence mode	Appliance runs in the lowest possible setting (12 hours)
auto	Automatic mode	Automatic control based on humidity and CO ₂
1	Position 1	Temporary low position (60 min)
2	Position 2	Temporary medium position (13 hours)
3	Position 3	Temporary high position (60 min)

CO₂ Plus system

It is possible to place one CO₂ wall sensor, flush mounted wall sensor and/or flush mounted HRC control display or remote control sensor in each occupied room. This can be expanded to 15 CO₂ sensors (and 5 remote controls). These sensors communicate wirelessly with the HRC ventilation unit.

When the remote control is set to automatic mode, the unit responds to the highest CO₂ level (air quality in a residence hall) measured by the CO₂ sensors. This provides fully automatic control where there is an exceptional indoor climate for the occupant at all times. You can always select a different speed using the remote control. The automatic

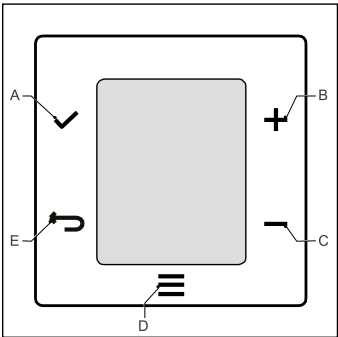
mode is then cancelled. After any power interruption, the fan will start up in automatic mode.

4.6 Flush mounted HRC control display 15RF

The HRC can be operated and read with the HRC control Display 15RF. The display has control buttons with which the unit can be operated. It is also possible to use the display to read out the status of the unit and to change various settings.

Indication and operation control display

Briefly touching any of the keys lights up the display and shows the current state of the linked HRC. Then the keys below can be used to change or read the HRC settings.



- A. OK button: Select menu
- B. UP button: Increase fan level or advance in a menu
- C. DOWN button: Lower fan setting or go back in menu
- D. MENU button: Scroll through the available settings
- E. BACK button: To return to the default screen

Control display		
	Automatic mode	Automatic ventilation based on humidity and/or CO ₂ demand
	Position 1	Manual mode 1 (low mode, active until mode change selection)
	Position 2	Manual mode 2 (medium mode, active until mode change selection)
	Position 3	Manual mode 3 (high mode, active until mode change selection)
	Absence mode	Unit runs in the lowest possible setting
	Temporary mode	Appliance temporarily runs mode 3 (60 min)

Changing fan modes

In the standard screen, the fan setting can be changed using the UP and DOWN keys.

Read out unit settings

Settings of the HRC can be read out by tapping the Menu key until the following icon  appears in the display. By touching the UP or DOWN key, the following settings can be read out. Press the OK key to select the readout menu.

Control display			
No.	Description	No.	Description
1	Software version	10	Bypass position
4	RV value in home (%)	11	Exhaust fan speed (%)
5	RV value supply air (%)	12	Extract fan speed (%)
6	Return air temperature to outside(°C)	13	Remaining after running time (humidity scenario) (min.)
7	Supply air temperature to dwelling (°C)	14	Control preheater (%)
8	Temperature from home (°C)	16	Current extract flow rate (m ³ /h)
9	Temperature from outside (°C)	17	Current exhaust flow rate (m ³ /h)

Changing settings

With the Built-in Display, it is also possible to change unit settings. To do this, follow the steps below:

1. Press the MENU button  for 10 seconds
2. When  flashes, press the OK key to enter the settings menu.
3. Scroll through the settings with the + and – keys.
4. Touch the OK key to change a selected setting (see table below).
5. Touch the OK key again to confirm.
6. Touch the back key  to return to the start screen.

The settings below can be changed.

Control display			
No.	Description	No.	Description
1	Speed absence mode supply fan (%)	10	Time to change filter (days)
2	Speed absence mode exhaust fan (%)	11	Position humidity sensor 0=medium, 1=high
3	Low supply fan (%)	12	Sensor sensitivity (%)
4	Low exhaust fan (%)	13	After-run time humidity (Min)
5	Medium supply fan (%)	14	Comfort temperature (°C)
6	Medium exhaust fan (%)	15	Outdoor temperature before cooling season activation (°C)
7	High supply fan (%)	16	Minimum speed of the HRC in bypass scenario (%)
8	High exhaust fan (%)	17	Adjustment position (3=medium mode, 4=high mode)
9	Boost mode (%)	18	Bypass fan speed: 0: follow setting 16, 1: follow setting 17

Filter reset

When the icon  appears in the display, the filters are in need of cleaning or replacement due to soiling. After replacement or cleaning, the filter message can be reset. To do so, briefly press the MENU button. Now only the filter icon  is visible. Touch the OK key to perform the filter reset.

5. Maintenance

The parts of the HRC in the table below should be cleaned regularly.

Celaning part Orcon Ventilation system		
Action	Interval	Who?
Cleaning filters	1x per 3 months	User
Replacing filters	1x per 6 months	User
Cleaning valves and grills	1x per 6 months	User
Cleaning/maintenance of controls	1x per 6 months	User
Replace battery remote control 15RF	1x per 2 year	User
Cleaning outer casing	1x per 6 months	User
Cleaning humidity sensor	1x per 2 year	Installer
Cleaning preheater	1x per 2 year	Installer
Cleaning fans	1x per 2 year	Installer
Cleaning condensate drain	1x per 2 year	Installer
Cleaning heat exchanger	1x per 4 year	Installer
Cleaning inside unit	1x per 4 year	Installer
Cleaning ducts	1x per 4 year	Installer

5.1 User maintenance

Cleaning filters

The unit is equipped with a filter timer. If the filter timer of 6 months has expired, a green led next to the text 'FILTER' will illuminate on the display of the unit. If you have a 15RF Remote Control or control display, a message will be displayed on your control. After each operation, the led of the RF remote control will then flash orange 3x instead of 1x green. On the control display, the icon "filter dirty" appears



Note: Remove the plug from the outlet before cleaning the filters!

1. Remove the filter handles.
2. Remove the dirty filters from the unit.
3. Vacuum the filters on the outside. If the filters are too heavily soiled, they should be replaced. For this, order original Orcon filters to ensure proper performance of the unit.
 - Coarse 45% filter: wire frame filter, filter 45% of all coarse particles such as sand and dust (0,97µm) from the air.
 - Coarse 65% filter: Pleated filter: large filter surface area, filters 65% of all particles (0,97µm) from the air.
 - ePM1 70% filter: Pleated filter: large filter surface, filters 70% of all particles (0,31µm) such's as pollen and fine dust from the air. To be used as supply filter.
4. Replace the cleaned filters. **Note:** Replace the filters on the same side as they were before cleaning. If you have pleated filters, an icon will indicate on which side they should be placed. These icons can also be found on the side of the appliance.
5. Clean the sealing ring on the filter handle with a little water.
6. Insert the filter handles back into the recess on the front of the unit. Press the filter handles firmly over the entire front surface to ensure they are fully engaged.
7. Insert the plug back into the outlet.
 On the display, press the button next to 'FILTER' for 3 seconds to reset the filter timer. Or do this on the remote control by pressing <AUTO> and <TIMER> simultaneously for **3 seconds**.

Filter sets	
Article	Article number
Filter set HRC OptiAir standard (2x coarse 65%)	22700040
Filter set HRC OptiAir extra (1x coarse 65% & 1x ePM1 70%)	22700043

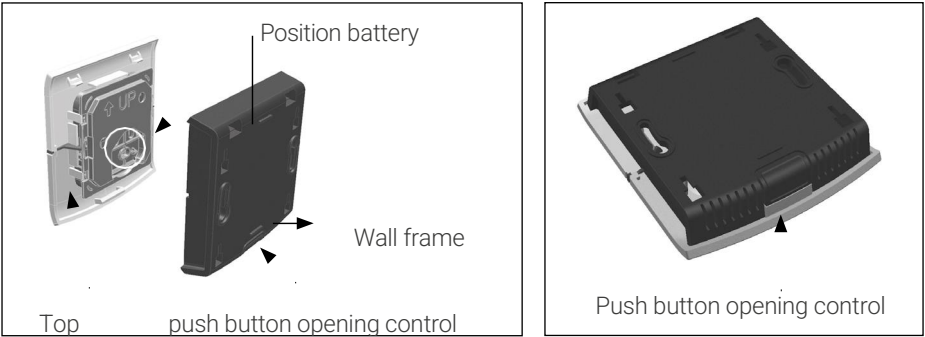
Cleaning valves

Grab the valve by the outer edge and remove it from the wall or ceiling. The valves can be cleaned with soapy water. Afterwards, rinse the valve thoroughly and dry the valve. Insert the valve back into the wall or ceiling.

Please note that the setting of the valves is not changed and that the valves are not interchanged. If they are interchanged, the system no longer functions optimally!

Remote control maintenance

Periodically remove dust from the remote control with a dry cloth. When the led indicator on the remote control flashes orange 1x or no longer responds to operation, the battery is probably dead. You can easily replace it yourself.



To replace the battery, press the button on the bottom of the remote control to detach the top part from the wall frame. You can now remove the old battery and insert the new battery (plus side facing you). Replace the top part by hooking it onto the top edge of the wall frame and snapping it onto the wall frame with a hinged downward motion.



Note: Do not dispose of used batteries in the household waste; take them to the collection points for small chemical waste.

User maintenance log

Date/ action	Cleaning filters	Cleaning valves	Cleaning controls	

6. Faults

I. Remote control 15RF

When a button on the remote control is pressed, the led lights up green, after this it flashes for confirmation. The following indications are possible:

Overview indications remote control 15RF	
Indication	Message on remote control
Unit OK, message followed up	1x green
Unit OK, timer 15 min. activated	1x green
Unit OK, timer 30 min. activated	2x green
Unit OK, timer 60 min. activated	3x green
RF Communication problem	3x red
Binding mode is started	1x red 1x green 1x red
Successful pairing with unit	10x green
Battery low	1x orange
Remote control reset performed	2x orange
Filter indication active	3x orange

II. Indications on CO₂ sensor

The CO₂-wall sensor, CO₂-remote control sensor 15RF and CO₂-flush mounted wall sensor 15RF have a status led which displays the status of the sensor. By briefly touching the button once, the current status is displayed. The following indications are possible.

LED indications CO ₂ sensors	
Indication	Notification on status LED
Status OK, normal operation	Continues green
CO ₂ sensor error	1x red
Error in unit	2x red
RF communication problem	3x red
Filter indication active	3x Orange

III. control display 15RF

An error message is shown in the display with the following icon 

Overview of displays on the control display 15RF	
Indication	Message on display
Temperature emergency stop HRC	02
Error both fans	0D
Error extract fan	03
Error exhaust fan	08
Modbus error both fans	0E
Modbus exhaust fan fault	0F
Modbus extract fan fault	10
Error temperature sensor exhaust from house	04
Error temperature sensor supply from outside	05
Error temperature sensor supply to house	06
Error temperature sensor exhaust air to outside	07
Error humidity sensor exhaust air	0A
Filter alarm	09

IV. Display HRC

The unit is equipped with a display on the front. On this display, by means of a green and a red led, the status of the unit is shown and any error messages are displayed (status led). An overview of possible indications is shown in the table under V. Circuit board.

V. Circuit board

The red/green led on the circuit board inside the HRC shows the status of the HRC. Through the blinking pattern of the led the status can be read off. The following indications are possible:

Overview indications on PCB and LED display HRC

Indication	Led indication
Binding mode is active	Continues green
Preheater active	3x long green
Frost protection active	2x long green
Bypass active	5x short green
Timer mode active	4x short green
External sensor demand active	3x short green
Internal RH mode active	2x short green
Normal mode	1x short green
Fault exhaust fan	1x red 1x orange
Fault extract fan	1x red 2x orange
Fault both fans	1x red 3x orange
Emergency stop temperature	2x red 1x orange
Failure of temperature sensor from house (X22)	2x red 2x orange
Failure of temperature sensor from outside (X23)	2x red 3x orange
Failure temperature sensor supply to house	2x red 4x orange
Failure temperature sensor exhaust to outside	2x red 5x orange
RH-sensor error	3x red 3x orange
Modbus error exhaust fan	4x red 1x orange
Modbus error supply fan	4x red 2x orange
General modbus error fans	4x red 3x orange
Communication error with SmartZone 15RF	6x red 1x orange
Filter dirty	1x green 1x red

Binding mode

In binding mode, the green led will light continuously for three minutes. In binding mode, it is possible to link up to 20 different RF components to the unit. For details, please refer to the manual of the RF component in question or www.orcon.nl.

In operation

After the binding mode, the unit will automatically change to the "in operation" mode. The unit will operate properly.

Replace filter

The "dirty filter" warning on the display is an aid to timely cleaning or replacing the filters. When the selected interval time in the board has expired, it will send a signal to the display on the unit and to the remote control 15RF. After each operation, instead of 1x green, the remote control will now flash 3x orange. Also, the green led next to <FILTER> on the unit display lights up. After cleaning and/or replacing the filters, the warning can be reset by pressing the button next to <FILTER> on the display for 3 seconds. Using the remote control 15RF, you can reset the filter timer by pressing the <AUTO> and <TIMER> buttons simultaneously.

7. Warranty

Groupe Atlantic Nederland bv provides a standard two-year warranty on the appliance. The warranty period starts on the production date. The warranty expires if:

- The installation was not performed according to the appliance regulations;
- The defects were caused by improper connection, improper use or contamination of the unit and accessories;
- Changes have been made to the wiring;
- Repairs have been made by third parties.

On-site (de-)assembly costs are not covered by the warranty. If a defect occurs within the warranty period, it must be reported to the installer.

Please report the type and serial number, found on the type sticker under the unit. Groupe Atlantic Nederland bv reserves the right to change the construction and/or configuration of its products at any time without the obligation to modify previously delivered products. The data in this manual refer to the most recent information.

Disassembly and removal



Ensure that the unit is disposed of in an environmentally friendly manner at the end of the unit's life. Contact the supplier about options for returning the unit. If the unit cannot be returned, the user is responsible for safe disassembly of the residential fan and disposal of the parts, according to locally applicable regulations.