

User manual

HRC-EcoMax / HRC-MaxComfort

Balanced ventilation system with heat recovery

This manual is intended for end-users of the HRC-EcoMax and HRC-MaxComfort balanced ventilation systems. This manual contains important information about the operation and maintenance of the ventilation unit with heat recovery, remote control, CO₂ room sensor and CO₂ control sensor. The installer manual can be found on the right side of the unit.

This manual covers the following models:

HRC-300-EcoMax

HRC-300-MaxComfort

HRC-400-EcoMax

HRC-400-MaxComfort

HRC-500-EcoMax

HRC-500-MaxComfort

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Why ventilate?

Orcon: exceptional indoor climate

Our goal is to provide residents with an exceptional indoor climate that is as comfortable and healthy as possible, in which they feel comfortable and can function optimally. With this aim in mind, we have grown to become a leading supplier of ventilation systems for residential homes and utilities.

The importance of good ventilation

Houses are becoming better insulated. This is a positive development, because it saves a great deal of energy and money. Unfortunately, good insulation reduces the fresh air supply in your home, because in an airtight home the air cannot circulate from the outside to the inside, or vice versa. This is an unwanted side-effect that comes with a properly isolated home. As you need enough fresh air in your home the airflow needs to be constant.

You require approximately 25m² of fresh air an hour, so good ventilation is a necessity.

Just opening a window isn't enough to solve the issue. As closing it would mean you cut off the air supply again.

Without proper ventilation, it will get damp and musty in your home, allowing bacteria and fungi to grow with health problems such as headache, allergies and respiratory irritations as a result. Moreover, it is also true that heating this moist air consumes more energy than heating dry air.

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

It is therefore important to ventilate your home 24 hours a day.

1. Precautions and safety instructions

This document will assist you to operate and maintain the HRC safely and optimally. The HRC is referred to as "the unit" in this document. The unit is continuously undergoing further development and improvement. This means that there is a possibility that the unit may deviate slightly from the descriptions.

Contact your installer if you have any questions or would like to order new filters.

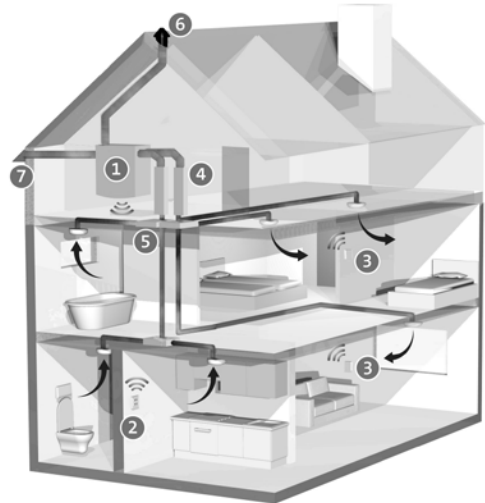
1.1 Safety instructions

- Installation, commissioning and maintenance must be carried out by an approved installer, unless indicated otherwise. An unauthorised installer can cause personal injury or damage the functioning of the ventilation system;
- After installation, all parts that may lead to personal injury are safely contained inside the housing. Do not open the housing;
- Always follow the safety instructions, warnings, comments and instructions in this manual. Failure to follow safety instructions, warnings, comments and instructions may result in personal injury or damage to the unit;
- Modifications to the device or the specifications in this document are strictly prohibited. A modification may cause personal injury or damage the functioning of the ventilation system;
- Do not disconnect the plug from the socket unless specified in the unit manual. This prevents the occurrence of moisture and mold problems.
- Replace the filters at least every six months. This keeps the indoor air healthy and comfortable and protects the unit against dirt;
- Always keep the user manual near the unit. The next installer who needs the manual will know where to find it.

2. General operation of balanced ventilation system

In order to create a healthy living environment in your home, good ventilation is required. Your home is therefore equipped with a mechanical supply and extractor ventilation system from Orcon bv. This system consists of a centrally arranged balance ventilation device (HRC-EcoMax/MaxComfort) with very energy-efficient DC motors, a duct system with supply and exhaust valves in the various rooms and can be combined with a position switch, an RF remote control and/or CO₂ room sensors.

1. A centrally placed HRC-EcoMax/MaxComfort residential ventilation system with moisture sensor
2. Remote control (accessory) for operating the unit
3. CO₂ room sensors (accessories)
4. Silencers (at least 1 m) for a very quiet installation
5. Air distribution system for the supply and extraction of the polluted air to and from the unit
6. Roof outlet incl. airtight connection
7. Wall transit



Overview ventilation system HRC-EcoMax/MaxComfort

In balance

The HRC-EcoMax/MaxComfort is equipped with two fan modules: an extractor ventilator and a supply ventilator. The extractor ventilator ensures that warm, humid and contaminated air is removed from the home. The supply ventilator ensures a sufficient supply of clean outside air, which will pass the filters before entering your home. This to ensure clean air enters your living space..

Heat exchange

The supply air, which will be quite cold in the winter due to the cold outside air, is first heated in the HRC using the heat extracted from the warm return air from the home. Conversely, in the summer months the warm supply air from outside will be cooled by the cooled return air from the home.

The built-in heat exchanger ensures that up to 99% of the heat is transferred, so that hardly any valuable heat is lost and the inlet temperature will be at a comfortable level.

Bypass

In the summer, or when heat recovery is not desirable, the air is not passed through, but past the heat exchanger thanks to a bypass module. This makes it possible to ventilate the home with fresh outside air in the summer situation, during the night, so that the home is relatively cool again in the morning. The bypass opens when the inside temperature exceeds the set comfort temperature of 23°C and the outside temperature exceeds 15°C.

Frost protection

When the outside temperature in winter is around freezing, it is possible for ice to form in the exchanger. Cold air is blown into your house as a result. To prevent this, the HRC will heat the exchanger in time using the warm indoor air from your home. The unit will temporarily create an imbalance to achieve this.

For the MaxComfort models, the built-in preheater switches on and warms up the cold incoming outside air.

Humidity sensor

Your HRC is equipped with a moisture sensor, which measures the moisture 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 during cooking or showering, the unit will automatically switch to a higher setting. The unit will switch back to the lower position 15 minutes after showering or cooking.

Filters

The HRC has two filters. A filter for filtering the supply air and a filter for filtering the extracted air. The supply filter ensures that only clean air enters your home and that dust, soot and insects remain outside. Optionally, you can also use a pollen filter for the supply filter. The extractor filter also ensures that the air from your home is filtered, so that the pollution to the exchanger is kept to a minimum.

For an optimal indoor climate, we recommend that you clean your filters every 3 months and replace them once every 6 months. The HRC is equipped with a filter indication, which indicates when the filters must be cleaned. For more information about cleaning your filters, see Chapter 5.

Caution: Ensure adequate air supply. Never tape or close the valves!

3. Product information

3.1 Unit types

The Orcon HRC is equipped with an intelligent electronic control circuit that ensures optimum operation and protection under all circumstances.

The different models are listed in the table below. Each model is suitable for both left and right mounting. For all models it is possible to use a radio remote control 15RF, CO₂ Room sensor 15RF or a CO₂ Control sensor 15RF; these are available separately.

	HRC-300- EcoMax	HRC-300- MaxComfort	HRC-400- EcoMax	HRC-400- MaxComfort	HRC-500- EcoMax	HRC-500- MaxComfort
Item no.	22000080	22000085	22000090	22000095	22000100	22000105
Air flow rate [m ³ / h] at max. 200 Pa	300	300	400	400	500	500
Tube connection [mm]	ø150	ø150	ø180	ø180	ø180	ø180
Preheater	no	yes	no	yes	no	yes
Filter class (ISO16890)	2x coarse 65%	supply: ePM1 70% extract: coarse 65%	2x coarse 65%	supply: ePM1 70% extract: coarse 65%	2x coarse 65%	supply: ePM1 70% extract: coarse 65%

3.2 Optional accessories

The unit can be expanded using the Orcon products in the table below.

Article	Article number
Remote control 15RF	21800000
CO ₂ Room sensor 15RF	21800040
CO ₂ Control sensor 15RF	21800045

3.3 Scope of application

The unit is only suitable for residential buildings and not for industrial use, swimming pools or saunas. The air flow rate from the unit must match the ventilation requirements of the home.

Caution: Connecting a hood with motor or a tumble dryer to the system is strictly prohibited.

4. Operating the unit





4.1 Operation with 3-position switch

If your unit is equipped with a perilex connector and 3-position switch, the ventilation positions can be set from the table below. If several switches or controls are used in your home, the last selected ventilation position always takes precedence.

Explanation of Ventilation settings			
Setting 1	Low	Absent setting	For use during absence during a long period
Setting 2	Medium	Present setting	For daily use with normal use within the home
Setting 3	High	High setting	For use during cooking, showering or parties

4.2 Operation using RF remote control

The balance ventilator can be operated using a wireless remote control (15 RF). The remote control has 6 buttons, the functions of which are explained in the table below.

Explanation of remote control buttons		
Button	Operation	Function
	1x short	Absent setting (same as low setting)
1	1x short	Setting 1 (low setting)
2	1x short	Setting 2 (medium setting)
3	1x short	Setting 1 (low setting)
	1x short	Setting 3 (timer mode) temporary 15 minutes
	2x short	Setting 3 (timer mode) temporary 30 minutes
	3x short	Setting 3 (timer mode) temporary 60 minutes
auto	1x short	Automatic mode

Absent setting

In the absent setting, the device runs in the minimum ventilation setting.

Timer setting

In the timer mode, the unit runs at the high setting for a required time; after the time has elapsed, the unit switches back to the last selected setting. The timer can be cancelled by selecting a different required setting.

Automatic mode (auto)

In auto mode, the device runs based on the moisture content in your home. Your HRC is equipped with a moisture sensor, which measures the moisture content in the extracted air from the kitchen, bathroom and toilet. If the humidity sensor detects that the humidity is rising, the unit will automatically switch to a higher setting. The unit will switch back to the lower position 15 minutes after showering or cooking. When your device is expanded with a CO₂ Room sensor, the automatic mode works based on the CO₂ level. The system can be expanded with extra controls/CO₂ room sensors (up to a maximum of 20 controls per unit).

4.3 Control using the CO₂ Room sensor

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

Indication and operation CO₂ Room sensor

By tapping the control button once, the status is displayed by the LEDs. After 30 seconds, the LEDs go out automatically, so as not to disturb a dark living space. If the remote control button is touched again after holding down once, the CO₂ room sensor will switch to another mode. Changing this mode can be recognised by the green or blue LED on the top right of the CO₂ room sensor lighting up.

The CO₂ room sensor has the following two modes:

- **Energy-saving mode**

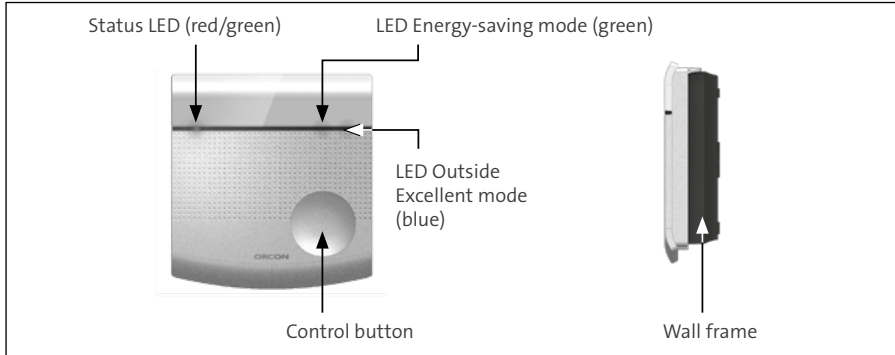
When the CO₂ Room sensor is in this mode the unit will ventilate according to the standard requirement. This saves on energy costs, as ventilation is only carried out when it is really needed.

- **Excellent mode**

When the CO₂ Room sensor is in this mode, the CO₂ Room sensor to keep air quality at a high level. As a result, more air is ventilated so that the dirty air particles can be extracted from the home faster and clean outside air is circulated.

4.4 Control using the CO₂ control sensor

The HRC can also be operated with the CO₂ Control sensor. This CO₂ sensor has an integrated control. By holding down the control button once, the status is displayed by the LEDs. After 30 seconds, the LEDs go out automatically, so as not to disturb a dark living space. If the remote control button is pressed again after holding down once, the CO₂ Control sensor will switch to another setting or mode.



CO₂ Control sensor

	Absent setting	Unit runs at the lowest possible setting
auto	Automatic setting	Automatic control based on moisture and CO ₂
1	Setting 1	Temporary low setting (60 min)
2	Setting 2	Temporary medium setting (60 min)
3	Setting 3	Temporary high setting (60 min)

CO₂ Plus system

It is possible to have a CO₂ Room sensor and/or Control sensor in every living space. The number can be expanded to 15 CO₂ Room sensors (and 5 remote controls). These sensors communicate wirelessly with the HRC-EcoMax/MaxComfort ventilation device.

When the remote control is set to automatic mode, the unit responds to the highest CO₂ level (air quality in a living space) that is measured by the CO₂ Room sensors. This ensures a fully automatic control with an excellent indoor climate for the resident at all times. You can always choose a different speed yourself with the remote control. The automatic mode is then cancelled. If there is a power failure, the ventilator will start up in automatic mode.

5. Maintenance

The Orcon ventilation system components in the table below must be cleaned regularly.

Clean Orcon ventilation system parts		
Action	Interval	Who?
Clean filters	1x per 3 months	User
Replace filters	1x per 6 months	User or installer
Clean valves (and grilles)	1x per 6 months	User
Cleaning/maintenance of controls	1x per 6 months	User
Replace remote control battery 15RF	1x per 3 years	User
Clean housing	1x per 6 months	User or installer
Clean moisture sensor	1x per 3 years	Installer
Clean ventilators	1x per 3 years	Installer
Clean condensation extractor	1x per 3 years	Installer
Clean the heat exchanger	1x per 5 years	Installer
Clean the inside of the unit	1x per 5 years	Installer
Clean ducts	1x per 5 years	Installer

5.1 Maintenance by the user

Clean filters

The unit is equipped with a filter timer. If the filter timer of 6 months has elapsed, a green LED next to the text 'FILTER' will light up on the unit display. If you have an RF Remote Control, a message will be displayed on your control. After each operation the LED will now flash 3x orange instead of 1x green.

Caution: Remove the plug from the socket before cleaning the filters!

1. Remove the filter handles, this may require some force.
2. Remove the contaminated filters from the device using the pull tab.
3. Vacuum clean the filters on the outside. If the filters are too dirty, they must be replaced. Order original Orcon filters to guarantee a good performance of the unit (www.orcon.nl/winkel).
 - Coarse 45% filter: Wire-frame filter, filters 45% of all particles (0.97-176µm) from the air
 - Coarse 65% filter: Pleated filter: large filter surface, filters 65% of all particles (0.97-176µm) from the air
 - ePM1 70% filter: Pleated filter: large filter surface, filters 70% of all particles (0.3-1µm) such as pollen and fine dust from the air. To be used as a supply filter.
4. Reinstall the cleaned filters. **Caution:** Reinstall the filters on the same side as they were before cleaning. If you have pleated filters (HRC-MaxComfort), an icon will indicate on which side they should be placed, these icons can also be found on the top of the unit.
5. Replace the filter handles in the recess on the front of the unit. On the inside of the covers you will see an 'L' or 'R' marking to indicate on which side the covers should be. Press the filter handles firmly over the entire front surface to ensure that they are fully attached.
6. Return the plug back to the socket.
7. Press the button next to 'FILTER' on the display 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	Item no.
Filter set HRC EcoMax 2x coarse 45%	22700002
Filter set HRC MaxComfort coarse 65% & ePM1 70%	22700006
Filter set HRC EcoMax 2x Coarse 65%	22700009

Clean valves

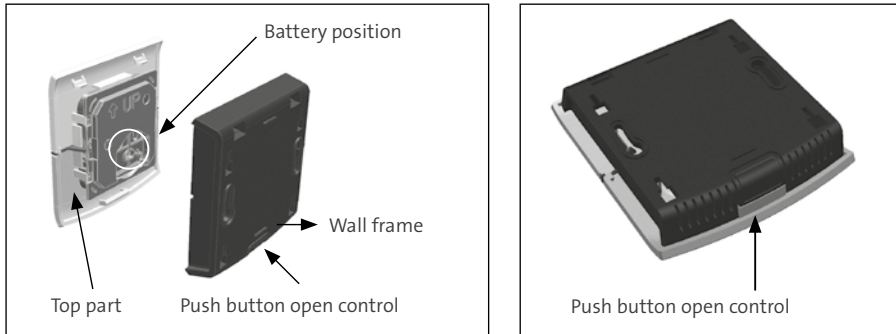
Take the valve by the outer edge and remove it from the wall or ceiling. The valves can be cleaned with soapy water. Then rinse the valve thoroughly and dry it. Replace the valve in the wall or ceiling.

Take care: that the setting for the valves is not changed and that the valves are not interchanged. If these are interchanged, the system will no longer function optimally!

Maintenance of remote control

Regularly remove the dust from the remote control with a dry cloth.

If the LED indicator on the remote control flashes 1x orange or no longer responds to the operation, the battery is probably empty. You can easily replace it yourself.



To replace the battery, press the button on the bottom of the remote control to detach the upper part from the wall frame. You can now remove the old battery and insert the new battery (with the plus side facing you). Replace the top part by hooking it onto the top edge of the wall frame and clicking it down onto the wall frame while making a hinge movement.

Caution: Do not throw empty batteries into the household waste, but take them to the collection points for chemical waste.

Maintenance CO₂ Room sensor/Control sensor

The CO₂ Room sensors require no maintenance during the lifetime. However, the operation may be disrupted by contamination of the air slots. Therefore, remove the dust from the housing regularly with a **dry** cloth. When a deviation occurs in the CO₂ Room sensor, then the status LED will light up red continuously. In this case, contact the installer.

Fill condensation extractor

The condensation extractor is connected to the indoor sewage system. If a standard condensation extractor is installed, sewage air can enter your home if there is no water in the water trap. You can prevent this by pouring a cup of water into the water trap. If a flat dry siphon is used, you do not need to do anything, it will not dry out.

User maintenance log

Date/ Action	Clean filters	Clean valves	Clean controls	Fill condensation extractor

6. Malfunctions

I. Remote control 15RF

When a key on the remote control is pressed, the LED lights up green, then it will flash to confirm. The following indications are possible:

Overview indications remote control RF15	
Indication	Remote control message
Unit OK, message followed up	1x green
Unit OK, timer activated for 15 minutes	1x green
Unit OK, timer activated for 30 minutes	2x green
Unit OK, timer activated for 60 minutes	3x green
RF Communication problem	3x red
Configuration mode starting up	1x red 1x green 1x red
Successful connection with unit	10x green
Battery almost empty	1x orange 2x green
Reset remote control carried out	2x orange
Filter indication active	3x orange

II. CO₂ Room sensor 15RF

When the status LED on the CO₂ Room sensor is permanently green, the CO₂ Room sensor is functioning correctly and there is a connection to the ventilation unit. If the status LED flashes red 3 times, there is no radio-controlled communication with the ventilation unit. Register the CO₂ Room sensor on the ventilation unit according to the instructions. If a malfunction occurs in the CO₂ Room sensor, then the status LED will 1x flash red repeatedly. You need the help of your installer to resolve this problem. Please contact your installer. Always state the model/type and the error that you are being shown.

III. Display

The unit has a display fitted on the front. This LED can show a message depending on the colours of the LED and the number of times it lights up.

An overview of potential indications is shown in the table under 7.2 IV. Printed circuit board.

IV. Printed circuit board

The status of the HRC can be read with the red/green LED on the printed circuit board in the HRC. The status can be read off via the flashing pattern of the LED.

The following errors are possible:

Overview of indications on display/circuit board	
Indication	Message on display/circuit board
Configuration mode active	continuous green
In operation	1x green
Start up unit/RF communication	1x orange
Replace filter	1x green 1x red
Extract fan error	1x red 1x orange
Supply fan error	1x red 2x orange
Error both ventilation fans	1x red 3x orange
Temperature emergency shutdown	2x red 1x orange
Temperature sensor fault x22	2x red 3x orange
Temperature sensor fault x23	2x red 4x orange
Humidity sensor fault	3x red 3x orange
Modbus extractor ventilator fault	4x red 1x orange
Modbus supply ventilator fault	4x red 2x orange
Fault both Modbus ventilators	4x red 3x orange

Set-up mode

In the set-up mode, the green LED will burn continuously for 3 minutes. In the configuration mode, it is possible to connect up to 20 different RF components to the unit. For the details, please refer to the instruction manual for the relevant RF component or www.orcon.nl.

In operation

After the learning mode, the unit will automatically switch to 'in operation mode'. The unit is working properly.

Replace filter

The dirty filter warning on the display is an indication to clean or replace the filters on time. When the chosen interval time in the printed circuit board has elapsed, it will send a signal to the display on the unit and to the remote control 15RF. After each operation the remote control will now flash 3x orange instead of 1x green. The green LED next to <FILTER> also lights up on the unit display. 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. With the 15RF remote control you can reset the filter timer by pressing the <AUTO> and <TIMER> buttons simultaneously.

7. Certification and warranty

Orcon bv grants a standard two-year warranty on the unit.

The warranty period starts on the production date.

The warranty will expire if:

- The installation has not been carried out in accordance with the applicable instructions;
- The defects were caused by incorrect connection, improper use or contamination of the unit and accessories;
- Wiring changes have been made;
- Repairs made by third parties.

(Dis) assembly costs on site are not covered by the warranty. If a defect occurs within the warranty period, this must be reported to the installer.

State the type and serial number, which can be found on the type sticker under the unit. Orcon bv reserves the right to change the construction and/or configuration of its products at any time without the obligation to adjust previously delivered products. The information in this manual relates to the most recent information.

Disassembly and removal



Ensure that the unit is disposed of in an environmentally-friendly manner at the end of its lifetime. Contact the supplier about the options for returning the unit.

If the unit cannot be returned, the user is responsible for the safe dismantling of the home ventilator and for the disposal of the parts, in accordance with local regulations.

ORCON

Landjuweel 25, 3905 PE Veenendaal | Postbus 416, 3900 AK Veenendaal
t +31 (0)318 54 47 00 | info@orcon.nl | www.orcon.nl