

Heat recovery unit

FUTURA

User Manual

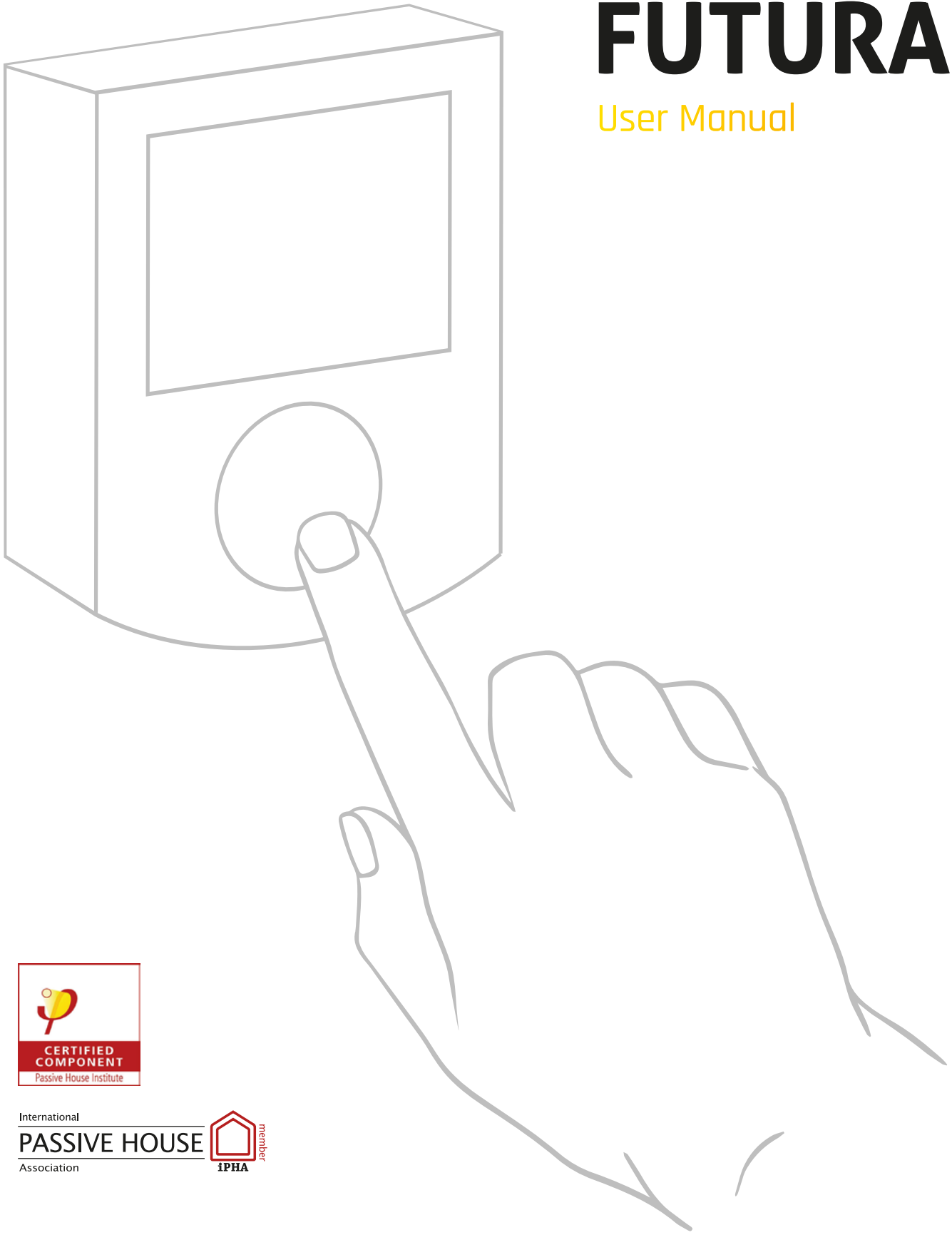


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Symbol	Explanation
	IMPORTANT WARNING!
	CAUTION! IMMINENT DANGER! (risk of injury of the user or the service staff; risk of damage of the heat recovery equipment or risk of affecting its proper function and operation).
	DANGER! CAUTION! RISK OF HAND INJURY!
	CAUTION! ELECTRIC EQUIPMENT!

Tab. 1 - Symbols used

Please, pay increased attention to the used symbols and in the interest of your safety and proper operation of the heat recovery equipment follow the instructions that accompany every symbol.

Introduction

The User Manual deals with the **Futura heat recovery system**, which is designed for controlled ventilation and treatment of the indoor environment of residential premises. The heat recovery system ensures recovery of heat and humidity, filters supplied air, helps maintain optimum humidity and provides after-cooling by means of an integrated automatic by-pass in summer, in the night mode.

Before you put the heat recovery system in operation, read the User Manual carefully. It will provide you with information about the principle of heat recovery, structural design of the heat recovery system and its modes, functions, operation and simple maintenance. Pay attention to all specifications and instructions included in it and follow them accordingly. This is the only way of ensuring proper and safe operation of the heat recovery system.

This device complies with Directive of the Commission (EC) no. 1253/2014, requirements for the environment-friendly design of ventilation units and Directive of the Commission (EC) no. 1254/2014.

ANY CHANGES RESULTING FROM TECHNICAL DEVELOPMENT ARE RESERVED. WE RESERVE THE RIGHT TO CHANGE THE CONTENTS OF THE MANUAL ANY TIME WITHOUT PRIOR NOTICE.

1. Identification and application

The Futura heat recovery unit represents HVAC equipment with heat recovery and active control of humidity recovery that is designed for comfortable and energy-efficient controlled ventilation of family houses. The heat recovery unit provides controlled ventilation of residential premises with the required ventilation volume of 110–350 m³, at the outdoor air temperature range from -19 °C to +45 °C.

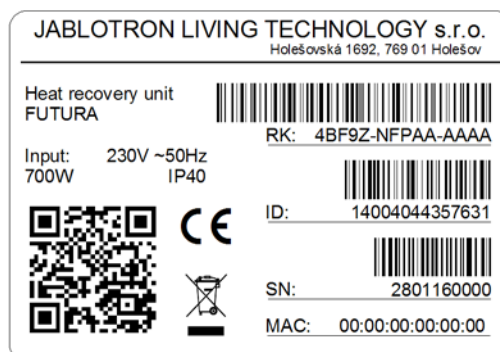


Fig. 1 - Identification label

2. Safety instructions

Always follow the safety instructions that are included in the User Manual. Failure to observe them may result in personal injury or damage of the heat recovery system.

- (1) The equipment has been developed and produced to provide controlled ventilation in residential buildings and premises.
- (2) The equipment may only be used for purposes for which it has been developed and produced and for which it has adequate technical capabilities – in line with the conditions defined by the manufacturer, its design, construction and technical condition complying with safety regulations.
- (3) The heat recovery equipment must be installed in compliance with general and locally valid safety regulations.
- (4) The heat recovery equipment may only be installed, connected, commissioned and maintained by an authorized service technician with respective professional qualifications. A service technician is a person with adequate qualifications, experience and knowledge of respective regulations, standards as well as possible risks and dangers.
- (5) The equipment may only be independently operated by physically and mentally apt persons that have thoroughly read and understood the User Manual. The User Manual must be stored in an accessible place.
- (6) Do not change or modify the heat recovery system in any way!
- (7) Follow the time intervals for regular filter replacement.
- (8) Do not repair the heat recovery equipment! If you find a defect or damage, make sure you switch off the unit and contact a service technician immediately.
- (9) We do not recommend you to leave the heat recovery system off for prolonged periods even in the periods of absence of persons. Always let the system run at the lowest ventilation level or in the Automatic Mode.



Any maintenance activities, incl. filter replacement may only be carried out on the heat recovery equipment if the unit has been disconnected from the electric mains!



During the replacement of filters do not reach into the filter space with your hand! Avoid the risk of hand injury!



The equipment must not be operated together with an open fireplace or with any fireplace without its own air supply!

3. Heat recovery operation principle

The heat recovery system ensures continuous replacement of used air with fresh, clean air. Heat recovery takes place in the exchanger, where the supplied air receives a part of heat and humidity from the exhausted air (mainly from the kitchen, bathroom, WC etc.). So the fresh air, which continuously flows into the interior (living room, children's bedroom, study etc.) is thermally optimized and also filtered. The air that is exhausted from the interior is also filtered. The individual streams are mutually separated so they will not get mixed.

An automatic by-pass is integrated in the heat recovery unit that enables after-cooling of the residential premises in the summer months, in the night mode. In this season, heat transfer is not desirable so the by-pass channel leads air outside the exchanger and prevents the colder night air from being heated up by the warm exhausted air.

The functional principle of heat recovery is illustrated in fig. 2.

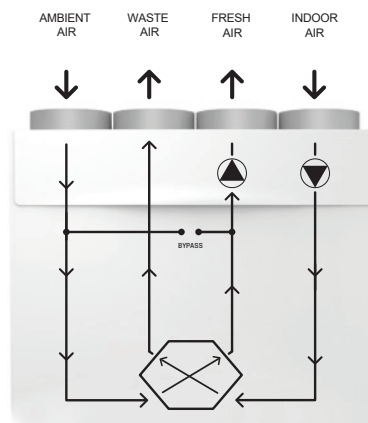


Fig. 2 - Illustrative diagram of the operation of the ventilation with heat recovery system

4. Structural parts of the heat recovery unit

The heat recovery unit consists of the following structural parts:

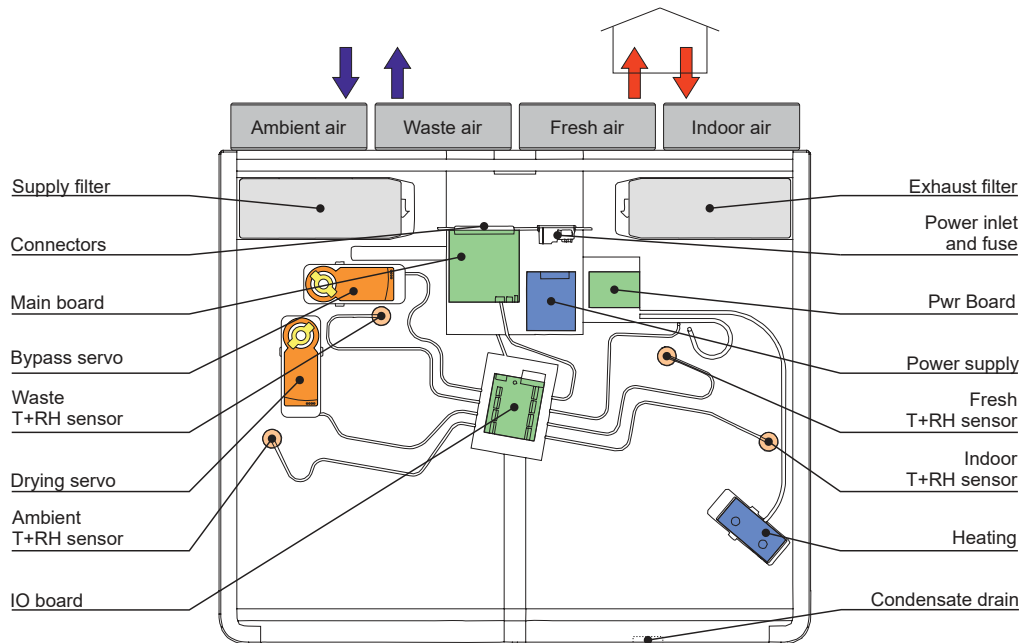


Fig. 3 - System design

4.1. Unit body

The outer jacket of the heat recovery unit is made of high-quality plastic. The internal structure is made of monolithic polypropylene, which serves as heat and noise insulation without thermal bridges. The orifices of the heat recovery unit (\varnothing 150 mm) for air supply and exhaust are situated in its top part.

4.2. LED backlight

On the front side of the unit there is a colored LED backlight that provides a clear indication of the current status of the unit. During normal operation, green color pulses on the unit in regular intervals. A change of the backlight color indicates the need to replace the filters, error statuses and active Bluetooth. The meaning of individual colors is explained in table 2.

RGB LED color	Explanation
green	Constant power, Automatic Mode, Stand-by
yellow	Replace filter! The filter is clogged!
red	Error! Fault!
blue	Active Bluetooth

Tab. 2 - Colored LED backlight



Pay attention to changes of the colored backlight!

4.3. Filters and filter replacement

The heat recovery unit contains F7 filters at the air supply as well as exhaust. The necessity to replace the filters is indicated automatically. The recommended interval of their replacement depends on the air quality in the environment where the equipment is used (1^x approx. 2-6 months). The basic filtration can be supplemented with an optional carbon filter, which is inserted directly into the unit under the supplied air filter.

Users are alerted to the need to replace filters by:

- a) a change of the colored LED backlight on the front side of the unit (see page 4, Tab. 2 - Colored LED backlight),
- b) a message in the MyCOMPANY application.

Indication of a clogged filter: **Filter** ⚠



The heat recovery system must not be used without filters! During the replacement of filters and any maintenance activity, the unit must be off!



During the replacement of filters do not reach into the filter space with your hand! Avoid the risk of hand injury!

During the replacement of the filters, proceed as follows:

- (1) Switch off the heat recovery unit with the On/Off button.
- (2) Remove the cover from the filter drawer and remove the filter out of the drawer.
- (3) Insert the new filter into the drawer and fit the cover onto it. Be sure to insert the filters correctly, observing the arrows indicating the air flow direction!
- (4) Switch on the heat recovery unit with the On/Off button.
- (5) Press the respective button on the control board (see page 5, fig. 4 - Button of initialization of new filters) or start filter replacement from the MyJABLOTRON application.



Before the start of the initialization process, both the new filters must be inserted in the filter drawers and the filter covers must be fitted!

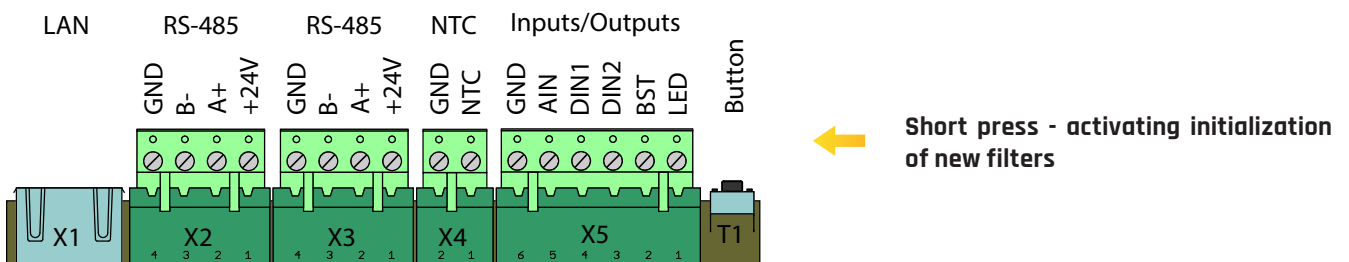


Fig. 4 - Button of initialization of new filters

After the initialization of new filters, the unit will return to the previous setting.

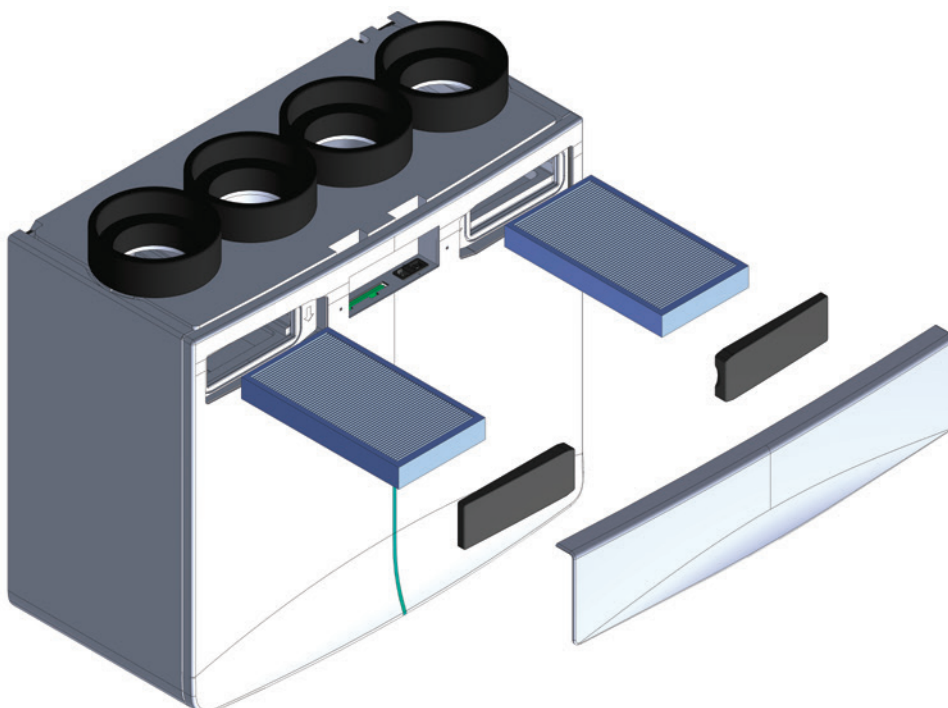


Fig. 5 - Filter replacement



Clogged filters that are not replaced regularly can cause higher pressure losses, poor air flow, settling of dust on the fan blades, which changes their characteristic, higher power consumption and higher power of the fan motors. This results in excessive wear, imbalance of the system and generally improper operation of the heat recovery system. In an extreme case this may lead to its irreversible damage and impaired functionality of comfortable ventilation.



Replace the filters in regular intervals!

4.4. Enthalpy exchanger

In the heat recovery unit, an enthalpy counter-current exchanger is installed, which transfers not only heat, but also humidity from the exhausted air, which means that it helps optimize the humidity level in the indoor environment.

4.5. Fans

The heat recovery unit contains two economical fans with an integrated electronic unit and the function of maintaining a constant air flow.

4.6. Display of the control

The display of the control of the heat recovery unit can be divided into five sections with the set of individual symbols.

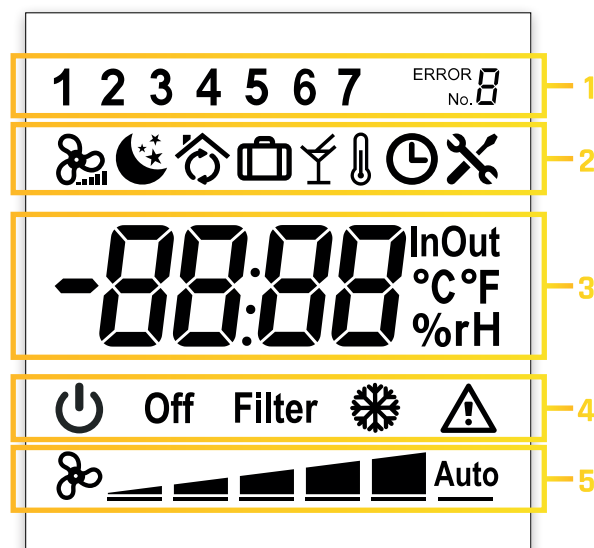


Fig. 6 - Display of the control

- 1 Symbols for the Days of the Week and Error Statuses (Error No. 1-9)
- 2 Symbols for functions of the heat recovery system, Indoor Temperature Setting, Time Schedule and Settings
- 3 Symbols for temperature values - Temperature IN and Temperature OUT (displayed in °C or °F), Humidity IN, Humidity OUT (displayed in % rH)
- 4 Symbols for Switching off, Filters, Too Low Outdoor Temperatures, Warning
- 5 Symbols for Stand-by, Constant Power and Automatic Mode

4.7. Summer by-bass

The summer bypass consists of a supplementary bypass channel that directs the supplied air around the exchanger, namely during colder summer nights. This prevents the warm exhausted air from transferring its heat to the colder air from the outside and heating it up. The by-pass works in the automatic mode and it is controlled depending on the temperature setpoint. The by-pass is not activated at a lower outdoor temperature than +15 °C, at active Drying, Circulation and Stand-by. The automatic by-pass function can be enabled or disabled from a mobile application.

4.8. Icing protection

The heat recovery system is technically as well as structurally ready for operation at temperatures below the freezing point without the need of preheating, down to the temperature of -19 °C. During operation, when the outdoor temperatures remain below the freezing point, the drying cycle is activated as necessary – based on the operation logic evaluation. The interval between drying cycles is not fixed; it is activated approx. 1× every 3 days. In the period of extreme frosts, this interval may get reduced.

Thanks to this function, no other frost protection in the form of electric preheating is necessary (see page 7, 5. Operation modes).

4.9. Operation together with fireplaces

The heat recovery system is designed for operation together with a fireplace that is intended for passive buildings, has a sealed fireplace insert and its own air supply.



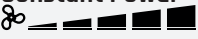





The system must not be operated together with an open fireplace or with any fireplace without its own air supply!

Use together with fireplaces is only possible if the relevant safety and fire regulations and standards are observed. This operation requires setting and using the Overpressure function (see page 8, 6. Functions of the heat recovery system).

5. Operation modes

The user can set several modes of the heat recovery unit that influence its current output. In the default state, the unit works in the Automatic Mode. The current mode of the unit can be changed in the Time Schedule or manually (control) The operation modes of the heat recovery unit are shown in Tab 3.

off 	The unit is off, does not evaluate the connected peripherals, no temperature, humidity or CO ₂ measurements are carried out. It communicates with the Jablotron cloud in longer time intervals (of several hours). The unit responds to the On command. The consumption in this mode is below the threshold of 1 W. If the air temperature at the outlet of the heat recovery system decreases below 0 °C, the Drying mode will be started and the unit can only be switched off after that. If the unit is switched on during Drying, this mode must be completed first and the unit can only be switched on after that.
Stand-by 	The heat recovery system is in the standby mode, but the air exchange is not active. Information from all the connected sensors is available, being continuously evaluated. Thanks to the connection to the Jablotron Cloud, the heat recovery unit can be activated and its settings can be changed any time. In the Stand-by mode the unit responds to the Boost function.
Constant Power 	This is a mode where the user selects the fan power level in the range of values 1–5. Depending on the temperature and humidity setpoint, the system controls the by-pass flap and connected peripherals. It controls turning of the heat exchanger flaps and the drying flap based on the actual temperature and humidity.
Automatic Mode 	Default mode of the heat recovery unit. This is a mode that uses information from the connected CO ₂ sensors and controls the fan power based on the current values. The ventilation power is adapted to the requirements for quality of the indoor environment. The unit remains in this mode until it is switched to the Time Schedule mode.
Time Schedule 	A mode where the user adjusts the fan power level in the range of values 1 (minimum) – 5 (maximum), Stand-by and Automatic Mode.
Drying	A mode started automatically to remove moisture from the heat recovery unit. The drying takes 3 hours and the flaps of the heat exchanger are further turned over in intervals determined by the dew point temperature. During this mode, the user comfort is not reduced; the air that is supplied to the indoor space is warmer than the air that is exhausted. If the Boost function is activated during drying, the forced exhaust time is limited to 2 min.
Too Low Outdoor Temperature 	A mode started automatically when the outdoor temperature drops below -20 °C. Drying is carried out while the air exchange and ventilation are suspended.

Tab. 3 – Operation modes

6. Functions of the heat recovery system

The heat recovery unit works in certain modes and functions whose activation and start is accompanied by lighting up of the respective symbol. The following functions of the heat recovery unit are distinguished:

Boost (forced ventilation)

A top power (5) function used if fast, forced ventilation of the indoor premises is required. The unit is temporarily switched to the maximum level, the fans working at the top power. This function is available in any mode except the Off mode. It can be activated from the cloud (for any time), from the LCD control (for a preset value) or with a button connected to the unit (two preset values for short and long pressing). From the application, short pressing activates the Boost function for a shorter preset time; after longer pressing, user time selection options are displayed. If Boost is active, the time remaining until the expiration of this function is displayed next to the respective symbol. After expiration of the given time, the unit will return to the previous mode.

Night Mode

A reduced power function used at night. The unit is switched to the minimum level (1), the fans working at the lowest power setting. After expiration of the given time, the unit will return to the previous mode.

Holiday

A reduced power function used in periods of absence of the users of the premises. The unit is switched to the minimum level (1), the fans working at the lowest power setting. On activation of this function, the user sets the return day and time (dd.mm.yy hh:mm).

Party

An increased power function used mainly when a higher number of persons are present on the indoor premises. The unit works at the 4th power setting. After expiration of the set time the unit will return to the previous mode.

Circulation

A function used if it is necessary to prevent flowing of outdoor air into the indoor space. The indoor air is circulated. On setting this function, the user sets the duration of this function.

Overpressure

A function designed for simultaneous use with a fireplace and only available from the MyJABLOTRON application. The unit changes the ratio of the fan speeds for the aspirated and exhausted air. The fan exhausting air from the indoor space works at a lower power than the fan that supplies air. This prevents combustion products and smoke from getting into the interior.

Functions	Duration	Increment	Default value
Boost	5 min - 2 h	5 min	set value
Overpressure	5 min - 2 h	5 min	30 min
Night Mode	15 min - 15 h	15 min	8 h
Holiday	1 day - 1 month	1 h	7 days
Party	15 min - 8 h	15 min	2 h
Circulation	15 min - 2 h	15 min	1 h

Tab. 4 - Time characteristic of the functions of the heat recovery unit

Heating

The heat recovery unit can heat the supplied fresh air by means of an internal heater. The heater output is controlled based on temperature of exhaust air. This feature can be turned on or off from a mobile application.

Comfort heating

When the heating is switched on, the temperature of the supplied air is heated to the same temperature as the exhaust air with the internal heater.

7. Control of the heat recovery system

The control of the heat recovery system has been designed with the aim of easy operation and at the same time clear and intuitive indication of the current status. The heat recovery system can be controlled locally as well as remotely.

7.1. Local control

- (1) wall-mounted room control with an integrated CO₂ sensor – 1 piece is supplied with the unit as standard; within optional accessories the number of controls can be increased to max. 3,
- (2) switch for boost ventilation and CO₂ sensors – available as optional accessories.

7.1.1. Wall-mounted control

The wall-mounted control comprises a rotary switch that can be pressed. The response of the control to a change from a steady state differs by the pressing length (short and long press) and by rotation of the switch.

Short pressing is used for switching **between the functions** in this order: Boost, Night Mode, Circulation, Holiday, Party and Time Schedule. Further pressing results in rotation of the functions and the Boost function is selected again. Switching between individual functions is shown in the following figure.

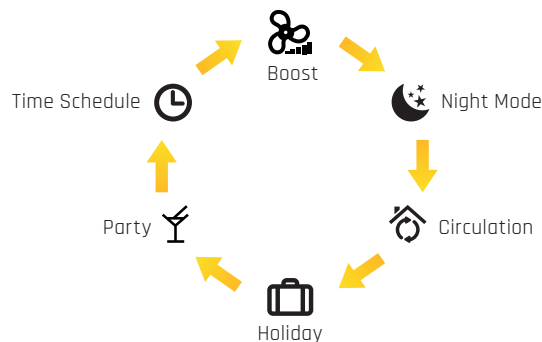




Fig. 7 - Switching between functions


The function selected by the user is indicated by flashing of the respective symbol. During flashing of the symbol, the time value associated with the selected function is displayed. Rotate the switch to select the required duration of the respective function (see page 8, Tab. 4 - Tab 4 - Time characteristic of the functions of the heat recovery unit). The display will show the default value and you can achieve the maximum allowed time by turning the switch to the right. By turning the switch to the left, the user can reach the minimum value "0", which is accompanied by the symbol "Off".

The setting of the Holiday  function slightly differs from the above mentioned procedure, i.e. the user must select the number of days of absence (e.g. "d05" – i.e. 5 days' holiday) and define the hour when the Holiday function should expire (h15 - i.e. 15:00 h). The respective values for the number of days and return hour are saved after the expiration of the time interval of 10 s. When the Holiday function is active, you can set "d00" and "h00" to terminate it prematurely.

The Time Schedule is also characterized by a different setting procedure . It offers the "On" and "Off" setting options. If the user selects "On" and another function of the heat recovery unit is activated at the same time, it will be terminated and the power will be controlled according to the Time Schedule. The activation of the Time Schedule function will not be functional if the Holiday function has been activated at the same time.

The selected function and time is confirmed automatically after expiration of the time interval of 10 s (i.e. without rotation and pressing of the switch). If the switch is pressed during this time interval, the setting will not be saved.

If **you press and hold** the switch longer (for 3 s) **the indoor temperature setting menu will be displayed** , accompanied by the respective flashing symbol.

Another pressing will move the user to the Off symbol , displaying the "On" and "Off" options for the user. If "On" is selected, no action will be performed, the "Off" option is used to switch off the control. It can be subsequently woken up by a long press of the switch (for 3 s again).

You can rotate the switch to **change the operation mode** of the heat recovery unit (see page 7, 5. Operation Modes) in the sequence:



Fig. 8 - Changing the operation mode

Turning of the switch will terminate the Boost, Night Mode, Party and Circulation functions. Turning does not have any impact on the Holiday function.

When a certain function of the heat recovery unit has been activated, you can activate another function that will deactivate or interrupt the previous function, or the functions can run simultaneously.

The Boost function will interrupt the Circulation function. The Night Mode and Party functions will continue after expiration of the Boost function. If the Boost function is started and the Holiday function has also been selected (both the symbols are lit), the Holiday function will continue after expiration of the Boost function.

If the Night Mode function is selected, the Boost and Party functions will be terminated.

If the Holiday function is selected, the Boost, Night Mode and Circulation functions will be terminated.

If the Party function is selected, the Boost, Night Mode and Circulation functions will be terminated. The Party function cannot be activated if the Holiday function has been activated.

7.1.2. Optional accessories

The heat recovery system can be supplemented with boost ventilation switches, CO₂ sensors, more wall-mounted controls (max. 3 pieces), VAC material and distribution elements as optional accessories.

7.1.2.1. Boost ventilation switch

The forced ventilation (Boost) mode can be activated with boost ventilation buttons, which are usually installed in rooms that require quick exhaust of excessive humidity and smells (bathroom, WC and kitchen). The functions of the boost ventilation switch are activated after pressing of the button. One pressing means activation at the top exhaust level for the selected time. After expiration of the respective time, the system will return to the original ventilation level setting. You can deactivate the boost function by pressing the button again.

7.1.2.2. CO₂ sensor

The sensors are used for automatic control of the operation of the heat recovery unit. When a selected threshold is exceeded, the power of the unit will be increased to ventilate the room to an optimum level. The fan speeds automatically increase or decrease based on the data of the sensors. Max. 8 CO₂ sensors can be installed on residential premises.

7.2. Remote control

The heat recovery system can be controlled remotely through the MyJABLOTRON mobile application for iOS and Android. This is a unique service that provides online access to the heat recovery system with the possibility of its full control from anywhere and any time by means of a smart phone or tablet (remote monitoring, administration of all the user functions and settings, automatic alert to filter replacement and error statuses).

8. Guarantee

A 5-year guarantee period is provided for the heat recovery system. The guarantee period starts to run on the day of putting in permanent operation by a certified installation partner.

A guarantee claim can only be acknowledged if all the instructions included in the User Manual, which is part of the delivery, are observed. A necessary condition is especially the execution of regular maintenance by an authorized service partner of the company JABLOTRON LIVING TECHNOLOGY throughout the guarantee period, in the interval defined by the manufacturer (at least once a year) and regular filter replacement (depending on the contamination level 2-4× a year).

Conditions of granting the guarantee

- (1) The equipment has been supplied and commissioned by a certified installation partner of the company JABLOTRON LIVING TECHNOLOGY.
- (2) The equipment is permanently connected to the Jablotron cloud services via the Internet throughout the guarantee period (taking into account short-term periods of network unavailability).
- (3) The equipment is checked by an authorized service partner of JABLOTRON LIVING TECHNOLOGY at least once a year.
- (4) The equipment is used in conformity to the manual and it is not subject to any inexpert interventions.
- (5) No modifications contrary to the installation recommendations of JABLOTRON LIVING TECHNOLOGY have been implemented in the installation of the ventilation system.

Scope of the granted guarantee

- (1) JABLOTRON LIVING TECHNOLOGY undertakes to repair a defective product free of charge during the extended guarantee period, namely:
 - a) 5 years from the moment of commissioning by a certified installation partner,
 - b) during another 2 years if the customer uses an alarm and the service of the Jablotron Security Center throughout the guarantee period.
- (2) The guarantee does not cover the costs related to possible disassembly and reassembly of a defective product.
- (3) In case of a guarantee claim the equipment must not be subject to any interventions without prior written consent of the manufacturer or supplier.

The guarantee becomes invalid if:

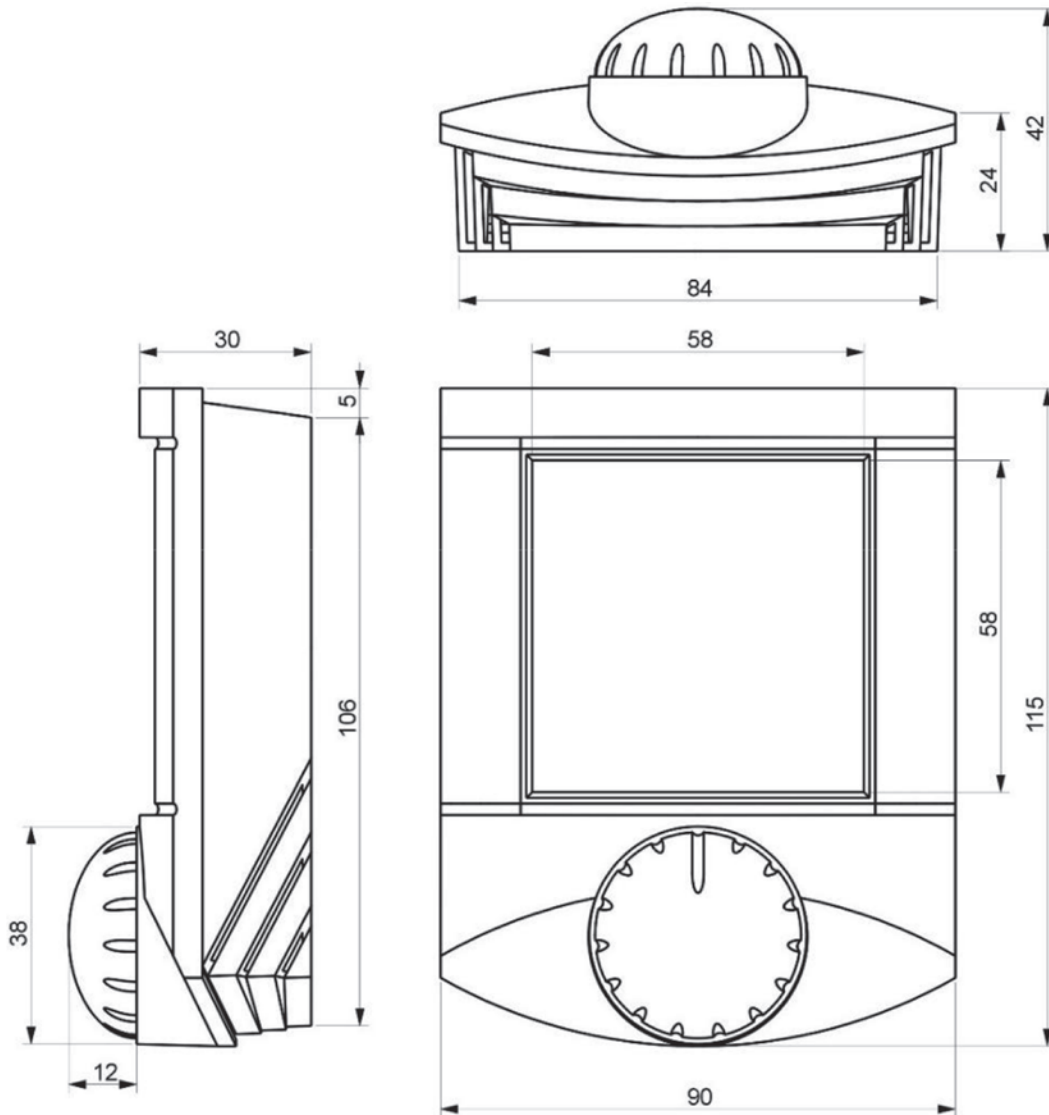
- (1) the guarantee period has expired,
- (2) the equipment has been subject to unauthorized changes, modifications and other interventions,
- (3) parts that have not been supplied by the manufacturer have been incorporated into the equipment,
- (4) the equipment has been used in an inexpert or incorrect manner,
- (5) the equipment has been damaged due to incorrect connection, system contamination, a natural disaster or a failure of the electric mains.

9. Disposal of the equipment

After the end of the operation and service life of the heat recovery system make sure the unit and its accessories are properly disposed of or recycled in an environment-friendly manner. The equipment must not be disposed of as municipal waste and must be taken to the respective collection center for recycling of electric and electronic devices. By ensuring its proper disposal, you will prevent occurrence of possible negative impacts on human health and the environment.

Appendices

Appendix 1 Control - dimensions



International

PASSIVE HOUSE

Association



Your installation partner:

JABLOTRON LIVING TECHNOLOGY s.r.o. *User manual*. 2 edition. Holešov: JABLOTRON LIVING TECHNOLOGY s.r.o., 2017. 12 pages.