USER'S MANUAL

TwinFresh Style Wi-Fi
TwinFresh Style Wi-Fi Frost
TwinFresh Style Wi-Fi M
TwinFresh Style Wi-Fi Frost M

TwinFresh Style Wi-Fi mini
TwinFresh Style Wi-Fi mini M

Single-room reversible energy recovery ventilator

⨳ VENTS

CONTENTS

This user's manual is a main operating document intended for technical, maintenance, and operating staff.

The manual contains information about purpose, technical details, operating principle, design, and installation of the TwinFresh Style Wi-Fi (mini) (Frost) (M) unit and all its modifications.

Technical and maintenance staff must have theoretical and practical training in the field of ventilation systems and should be able to work in accordance with workplace safety rules as well as construction norms and standards applicable in the territory of the country.

SAFETY REQUIREMENTS

This unit is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the unit by a person responsible for their safety. Children should be supervised to ensure that they do not play with the unit.

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.

Cleaning and user maintenance shall not be made by children without supervision.

Children shall not play with the appliance.

Connection to the mains must be made through a disconnecting device, which is integrated into the fixed wiring system in accordance with the wiring rules for design of electrical units, and has a contact separation in all poles that allows for full disconnection under overvoltage category III conditions.

If the supply cord is damaged, it must be replaced by the manufacturer, its service agent, or similarly qualified persons in order to avoid a safety hazard.

Ensure that the unit is switched off from the supply mains before removing the guard.

Precautions must be taken to avoid the back-flow of gases into the room from the open flue of gas or other fuel-burning appliances.

The appliance may adversely affect the safe operation of appliances burning gas or other fuels (including those in other rooms) due to back flow of combustion gases. These gases can potentially result in carbon monoxide poisoning. After installation of the unit the operation of flued gas appliances should be tested by a competent person to ensure that back flow of combustion gases does not occur.

All operations described in this manual must be performed by qualified personnel only, properly trained and qualified to install, make electrical connections and maintain ventilation units.

Do not attempt to install the product, connect it to the mains, or perform maintenance yourself. This is unsafe and impossible without special knowledge.

Disconnect the power supply prior to any operations with the unit.

All user's manual requirements as well as the provisions of all the applicable local and national construction, electrical, and technical norms and standards must be observed when installing and operating the unit.

Disconnect the unit from the power supply prior to any connection, servicing, maintenance, and repair operations.

Connection of the unit to power mains is allowed by a qualified electrician with a work permit for the electric units up to 1000 V after careful reading of the present user's manual.

Check the unit for any visible damage of the impeller, the casing, and the grille before starting installation. The casing internals must be free of any foreign objects that can damage the impeller blades.

While mounting the unit, avoid compression of the casing! Deformation of the casing may result in motor jam and excessive noise.

Misuse of the unit and any unauthorised modifications are not allowed.

Do not expose the unit to adverse atmospheric agents (rain, sun, etc.).

Transported air must not contain any dust or other solid impurities, sticky substances, or fibrous materials.

Do not use the unit in a hazardous or explosive environment containing spirits, gasoline, insecticides, etc.

Do not close or block the intake or extract vents in order to ensure the efficient air flow.

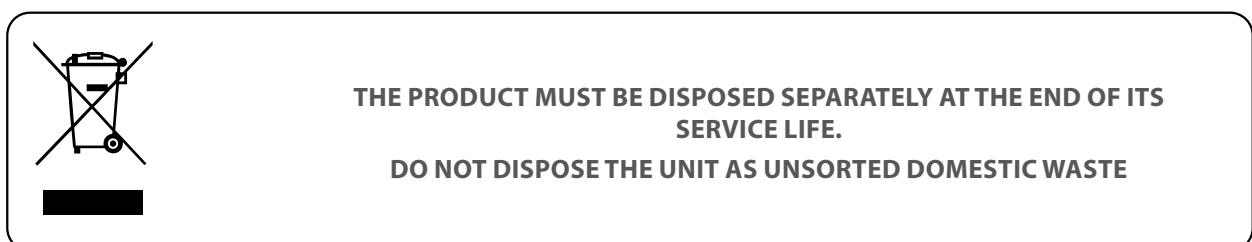Do not sit on the unit and do not put objects on it.

The information in this user's manual was correct at the time of the document's preparation. The Company reserves the right to modify the technical characteristics, design, or configuration of its products at any time in order to incorporate the latest technological developments.

Never touch the unit with wet or damp hands.

Never touch the unit when barefoot.

BEFORE INSTALLING ADDITIONAL EXTERNAL DEVICES, READ THE RELEVANT USER MANUALS.

THE PRODUCT MUST BE DISPOSED SEPARATELY AT THE END OF ITS SERVICE LIFE.
DO NOT DISPOSE THE UNIT AS UNSORTED DOMESTIC WASTE

PURPOSE

The ventilator is designed to ensure continuous mechanical air exchange in flats, cottages, hotels, cafés and other domestic and public premises. The ventilator is equipped with a regenerator that enables supply of fresh filtered air heated by means of extract air heat energy recovery.
The ventilator is designed for installation on external walls.
The ventilator is rated for continuous operation.

DELIVERY SET

Name	Number	
	TwinFresh Style Wi-Fi mini TwinFresh Style Wi-Fi mini M	TwinFresh Style Wi-Fi TwinFresh Style Wi-Fi Frost TwinFresh Style Wi-Fi M TwinFresh Style Wi-Fi Frost M
Indoor assembly unit of the ventilator	1 pc.	1 pc.
Air duct	1 pc.	1 pc.
Sound-absorbing material	1 pc.	1 pc.
Fan assembly	–	1 pc.
Regenerator assembly	–	1 pc.
Cartridge assembly	1 pc.	–
Outer ventilation hood	1 pc.	1 pc.
Remote control	1 pc.	1 pc.
Cardboard mounting plate	1 pc.	1 pc.
Mounting kit	2 packages	2 packages
Mounting wedges	1 kit	1 kit
User's manual	1 pc.	1 pc.
Mounting hood installation instruction	1 pc.	1 pc.
Packing box	1 pc.	1 pc.

DESIGNATION KEY

TwinFresh Style Wi-Fi Frost L07 14 M

Air damper opening/closing method
_ – automatic/manual
M – manual only

Outer ventilation hood type

Air duct length
_ – 500 mm
L03 – 300 mm
L035 – 350 mm
L07 – 700 mm

Modification
_ – modification for temperate climate
Frost – modification for cold climate

Ventilator series

TwinFresh Style Wi-Fi is a series of reversible Wi-Fi controlled ventilators with a duct diameter of 160 mm and rated air flow of 50 m³/h.
TwinFresh Style Wi-Fi mini is a series of reversible Wi-Fi controlled ventilators with a duct diameter of 100 mm and rated air flow of 30 m³/h.

TECHNICAL DATA

The temperature in the room where the indoor unit of the ventilator is installed must be in the range from +1 ˚C to +40 ˚C with relative air humidity up to 65 % (no condensation buildup).

Transported air temperature must be in the range:

from -15 ˚C to +40 ˚C for **TwinFresh Style Wi-Fi mini** and **TwinFresh Style Wi-Fi mini M** models

from -15 ˚C to +40 ˚C for **TwinFresh Style Wi-Fi** and **TwinFresh Style Wi-Fi M** models

from -30 ˚C to +40 ˚C for **TwinFresh Style Wi-Fi Frost** and **TwinFresh Style Wi-Fi Frost M** models.

If the conditions of use of the ventilator are outside the specified limits, turn off the ventilator. Provide fresh air with open windows.

The unit is rated as a class II electric appliance.

Ingress protection rating against access to hazardous parts and water ingress is IP2X.

The supplied hood model and the air duct length depend on the ventilator model (see the "Designation key" section).

The ventilator design is regularly improved, so some models may slightly differ from those ones described herein.

OVERALL DIMENSIONS OF THE INDOOR UNIT [MM]
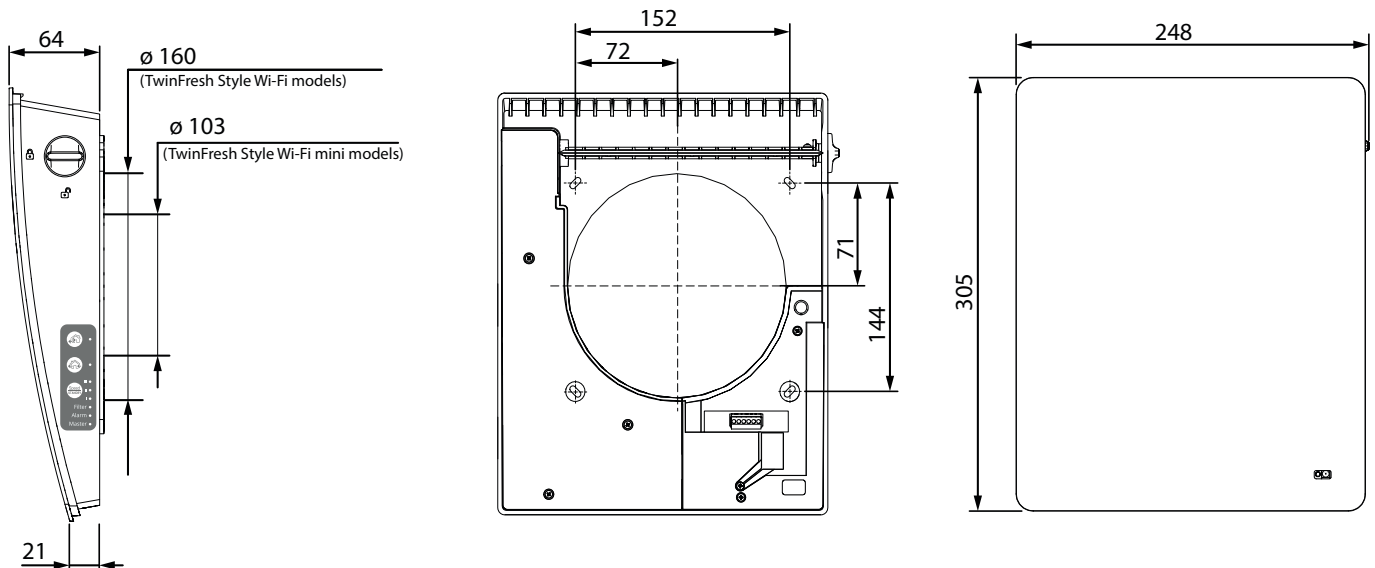
Wi-Fi technical data

Standard	IEFE 802,11, b/g/n
Frequency band [GHz]	2.4
Transmission power [mW] (dBm)	100(+20)
Network	DHCP
WLAN safety	WPA, WPA2

DESIGN AND OPERATING PRINCIPLE

The ventilator consists of an indoor unit with a decorative front panel, a fan unit, a regenerator unit located inside the air duct and an outer ventilation hood.

In the **TwinFresh Style Wi-Fi mini** and **TwinFresh Style Wi-Fi mini M**, the fan unit and the regenerator unit are connected in a non-assembled cartridge.
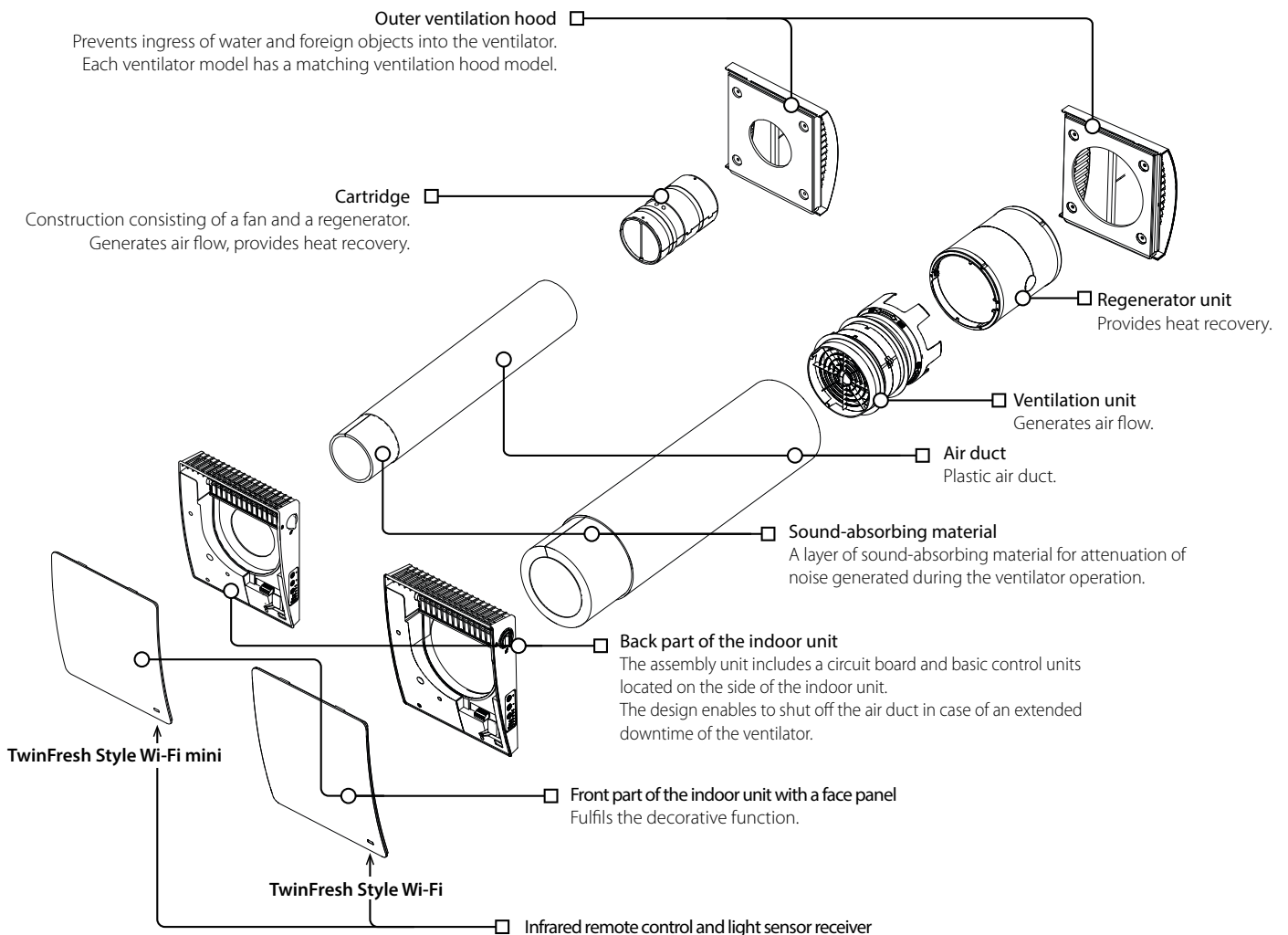
Inside the air duct, on the air flow path, there are two filters that ensure rough air filtration and prevent ingress of dust and foreign objects into the regenerator and the fan.

The **TwinFresh Style Wi-Fi Frost** and **TwinFresh Style Wi-Fi Frost M** models are equipped with an external ventilation hood EH-13 with electric heating, which allows the ventilator use in colder climates.

In the lower right corner of the front panel of the ventilator there is a receiver window for the IR remote control combined with the light sensor. The light sensor controls the brightness of the control panel LEDs.

The LEDs are brighter during daylight hours and dim at night.

VENTILATOR DESIGN

Outer ventilation hood
Prevents ingress of water and foreign objects into the ventilator.
Each ventilator model has a matching ventilation hood model.

Cartridge
Construction consisting of a fan and a regenerator.
Generates air flow, provides heat recovery.

Regenerator unit
Provides heat recovery.

Ventilation unit
Generates air flow.

Air duct
Plastic air duct.

Sound-absorbing material
A layer of sound-absorbing material for attenuation of noise generated during the ventilator operation.

Back part of the indoor unit
The assembly unit includes a circuit board and basic control units located on the side of the indoor unit.
The design enables to shut off the air duct in case of an extended downtime of the ventilator.

TwinFresh Style Wi-Fi mini

Front part of the indoor unit with a face panel
Fulfils the decorative function.

TwinFresh Style Wi-Fi

Infrared remote control and light sensor receiver

AIR DAMPER OPERATING PRINCIPLE

The indoor unit of the ventilators has a swivel damper. The vertical position of the handle corresponds to the position OPEN, the horizontal one – to the position CLOSED.

The indoor unit of the **TwinFresh Style Wi-Fi** ventilators is equipped with an automatic air damper. It opens at the beginning of the ventilator's operation and lets the air flow freely through the ventilator.

After switching off the ventilator, the damper closes automatically.

The air damper opening and closing process can take up to five minutes.

Caution! If the power supply is cut off during operation of the ventilator, after five minutes, the damper can be manually moved to the CLOSED position using the handle to prevent drafts.

Later on, when the ventilator is turned on, the damper will automatically open.

Automatic opening/closing of the damper is not provided in the indoor unit of the **TwinFresh Style Wi-Fi M** ventilators. The damper in these models can only be adjusted manually using the handle regardless of the ventilator operating mode.

Caution! Air damper opening or closing does not turn the ventilator on or off!

The figure below shows the closed and open positions of the damper and the handle.

The damper is closed

The damper is open
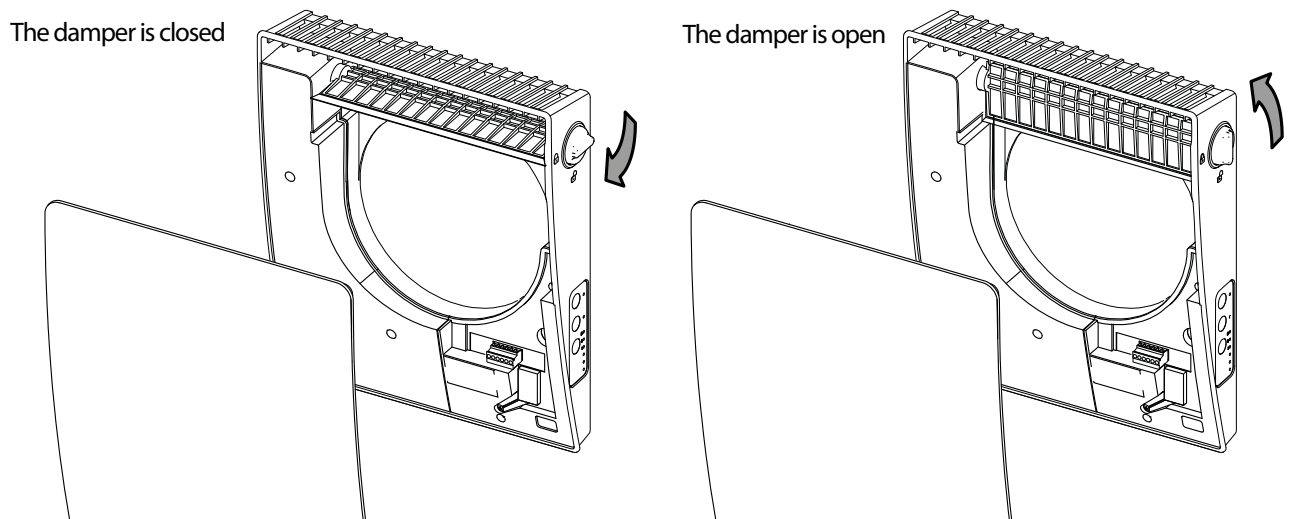
VENTILATOR OPERATION MODES

Ventilation: the ventilator runs either in air extraction or air supply mode at a set speed.

In this mode some of the ventilators in the network run in air supply mode and the other ones in air extraction mode, depending on the position of the DIP switch No. 3 (see section **"Setting the ventilator operation mode using DIP switches"**).

Boost: the ventilator goes to the maximum speed without changing the operation mode.

Regeneration: the ventilator runs in two cycles, 70 seconds each, with heat and humidity regeneration.

Cycle I. Warm stale air is extracted from the room and flows through the ceramic regenerator, which gradually absorbs heat and humidity. In 70 seconds, as the ceramic regenerator gets warmed, the ventilator is switched to supply mode.

Cycle II. Fresh intake air from outside flows through the ceramic regenerator, absorbs accumulated moisture and is heated up to the room temperature. In 70 seconds, as the ceramic regenerator gets cooled down, the ventilator is switched to air extraction mode and the cycle is renewed. If two ventilators are installed, they operate with opposite rotation directions in this mode. While one ventilator supplies air, the other one extracts it.

Air supply: the ventilator operates in supply mode irrespective of the position of the DIP switch No. 3 (see section **"Setting the ventilator operation mode using DIP switches"**).

The ventilators are equipped with a humidity sensor and terminals for connecting an external 0-10 V analogue sensor and an external normally open contact (relay sensor). When any of these devices is triggered, the ventilator switches to maximum speed (Boost mode).

When the sensors return to their original position, the Boost mode switch-off delay timer starts.

Relevant sections of the Vents Home mobile app allow you to configure the following ventilator settings:

- switch on or off the humidity sensor, 0-10 V analogue sensor, and relay sensor;
- set the triggering threshold for the humidity sensor and the 0-10 V analogue sensor;
- set the Boost mode switch-off delay duration (30 minutes by default);
- set the operation duration under the first speed timer ("Night" mode) (8 hours by default);
- set the operation duration under the third speed timer ("Party" mode) (4 hours by default).

If necessary, you can set different ventilator speeds for different time intervals by day of the week in the "Weekly Schedule" section of the Vents Home mobile app. For the week schedule to work correctly, you need to set the current date and time correctly in the "Date and Time" section.

In case of simultaneous use of several modes of operation of the ventilator, which exclude each other, the ventilator selects the mode according to the following priority:

1. The Night mode timer or the Party mode timer.
2. Standby.
3. Boost.
4. Weekly Schedule
5. Standard operation mode.

MOUNTING AND SET-UP

> ⚠ **READ THE USER'S MANUAL BEFORE INSTALLING THE UNIT.**
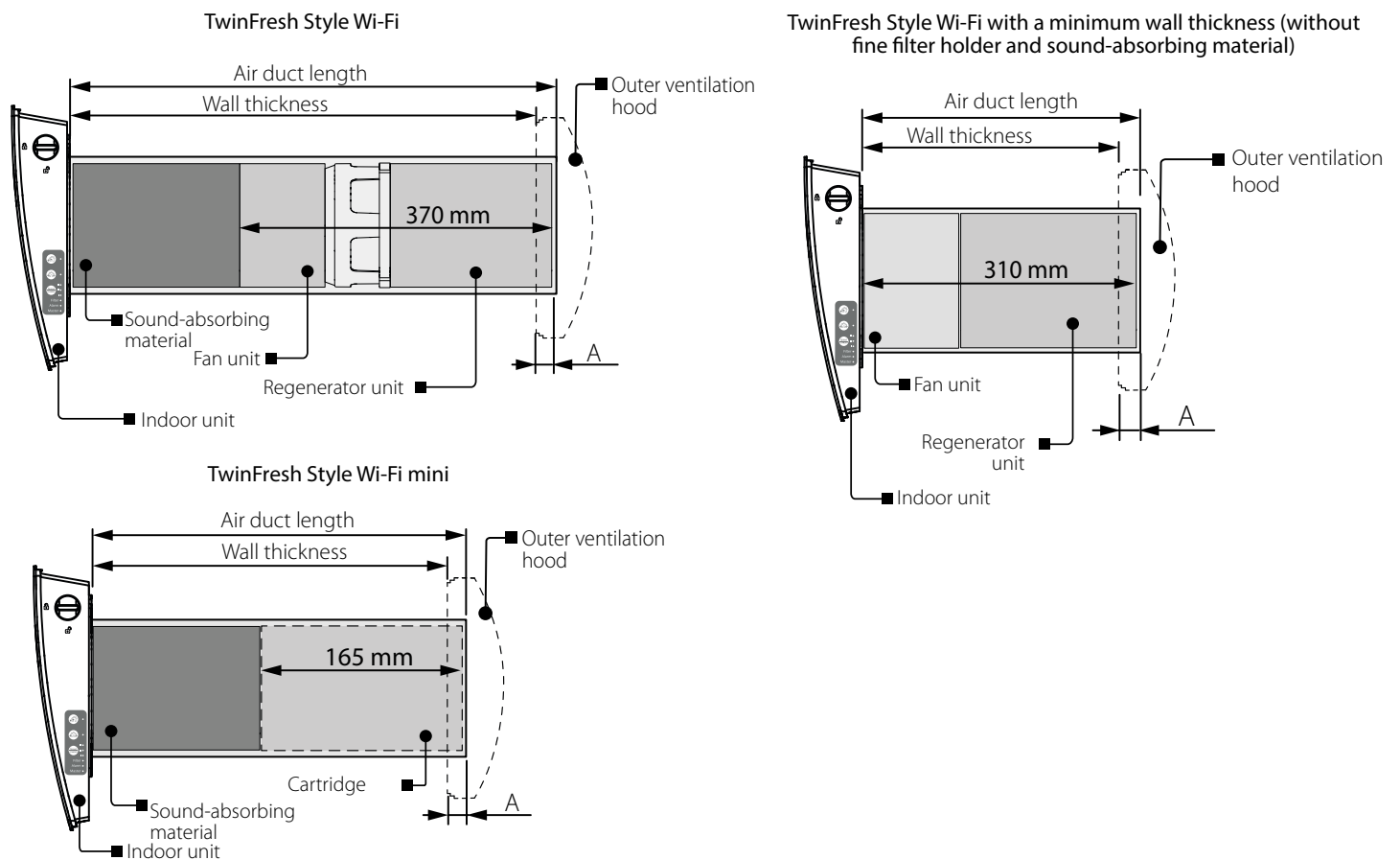
> ⚠ **DO NOT BLOCK THE AIR DUCT OF THE INSTALLED VENTILATOR WITH DUST ACCUMULATING MATERIALS, SUCH AS CURTAINS, CLOTH SHUTTERS, ETC. AS IT PREVENTS AIR CIRCULATION IN THE ROOM.**

The figure below shows a schematic layout of the ventilator's internal elements depending on the wall thickness. The ability to mount the ventilator in the wall depends on the length of the internal elements and the required protrusion A.

The length of the internal elements, the diameter of the required opening and the minimum wall thickness in which the ventilator can be installed when using different external ventilation hoods are shown in the table below.

Layout of the ventilator units inside the wall

TwinFresh Style Wi-Fi

TwinFresh Style Wi-Fi with a minimum wall thickness (without fine filter holder and sound-absorbing material)

TwinFresh Style Wi-Fi mini

If the wall thickness is less than that in the layout of the blocks inside the wall, you can unfasten the fine filter holder and assemble the ventilator without it and without sound-absorbing material, as shown in the figure above.

With this type of installation, the recovery efficiency may decrease and the immission of street noise into the room may increase. This will also increase the noise level of the ventilator itself.

Reference dimensions for installation of ventilators	Ventilator model or installation variant		
	TwinFresh Style Wi-Fi mini	**TwinFresh Style Wi-Fi**	**TwinFresh Style Wi-Fi with minimum wall thickness**
Length of cartridge or fan and regenerator units [mm]	165	370	310
Hole diameter D [mm]	120	180	180
Minimum possible wall thickness when using EH, EH-14, EH-13, EH-17, MVVM hoods (mm)	from 155	from 360	300
Minimum possible wall thickness when using an EH-2 hood (mm)	from 55	from 260	200

1. Prepare a round core hole in the outer wall.

The figure below shows the minimum distance from the hole to the surrounding objects.

The hole diameter depends on the specific ventilator model. The corresponding values are given in the table.
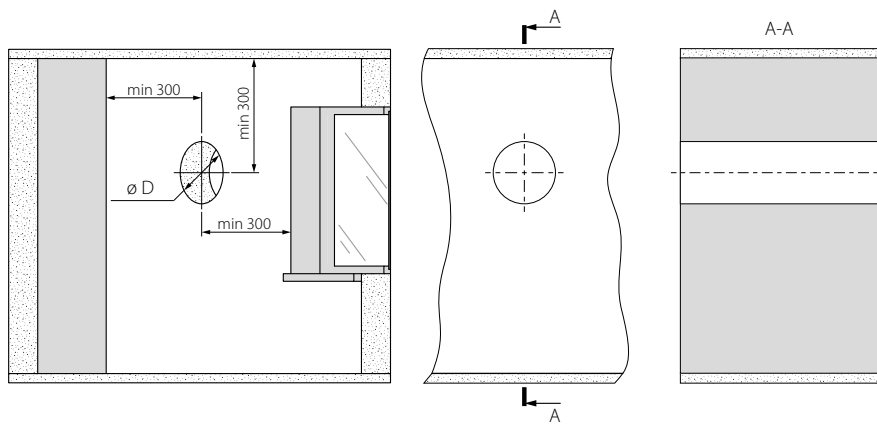
2. Insert the air duct in the wall. For ease of installation use the mounting wedges included in the delivery set.

The air duct end must protrude for the distance A that enables installation of the outer ventilation hood. The overall dimensions of the outer ventilation hood, the outside protrusion length of the air duct A and the mounting sequence of the hood are stated in its installation instruction.
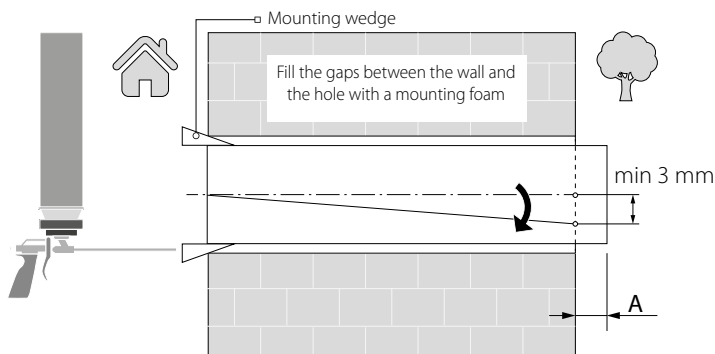
Install the air duct with the minimum slope of 3 mm downwards from the outer wall side.

The air duct can be cut by calculating preliminary the required length or after fixing the air duct on the wall (in this case, it is necessary to have access to the outside part of the wall).

3. Install the outer ventilation hood. The mounting sequence of the outer ventilation hood is described in the installation instruction for the ventilation hood.

4. Stick the delivered cardboard master plate on the indoor wall using a mounting tape. The large opening in the master plate must be axially aligned with the air duct. Align the master plate horizontally with a building level.

Then mark the fastening holes for installation of the supplied dowels and drill the holes to a required depth.

Route the power cable from the wall through the marked opening on the template.
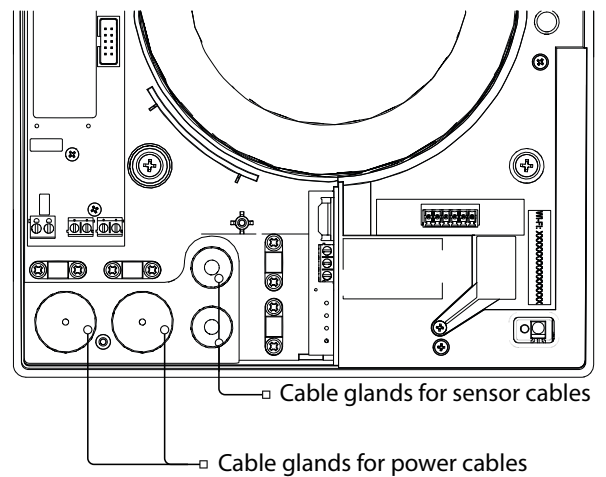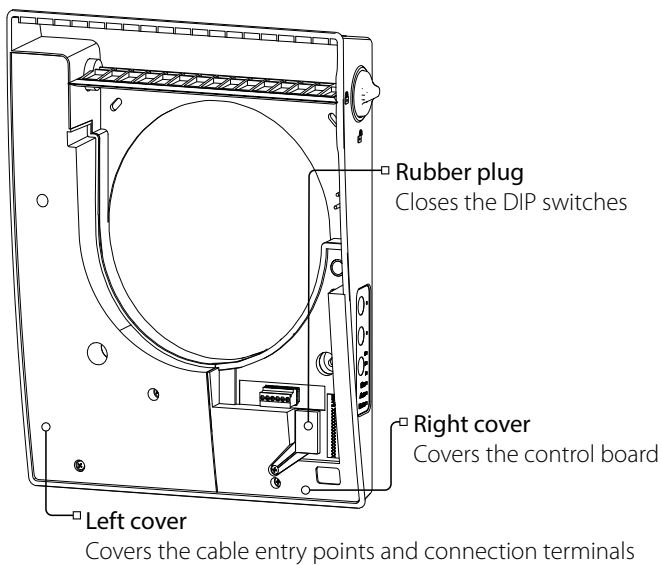
Hole marking for unit fastening

152
72
ø 103
71
144
136
ø 160
Entrance for wiring
75
106
ø 23
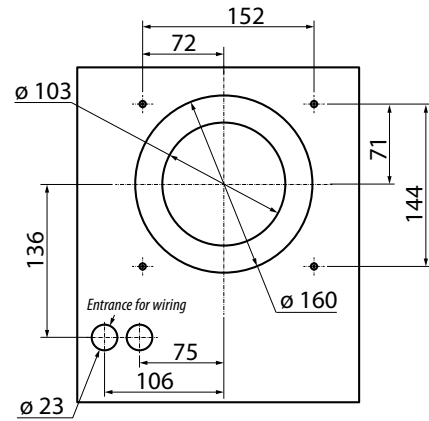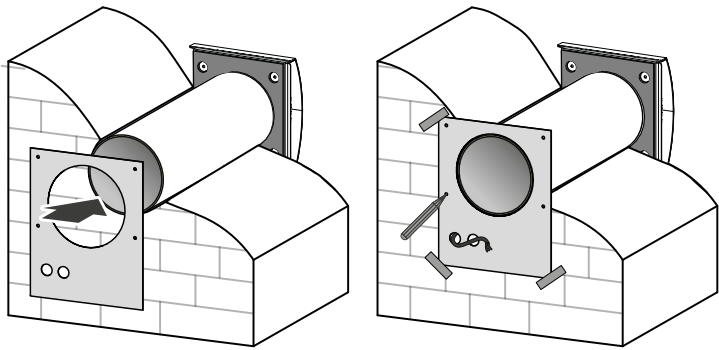
5. Separate the front panel of the indoor unit from its back part. To do this, unhook the latches securing the front panel and open it as shown in the figure below.


Filter
Alarm
Master
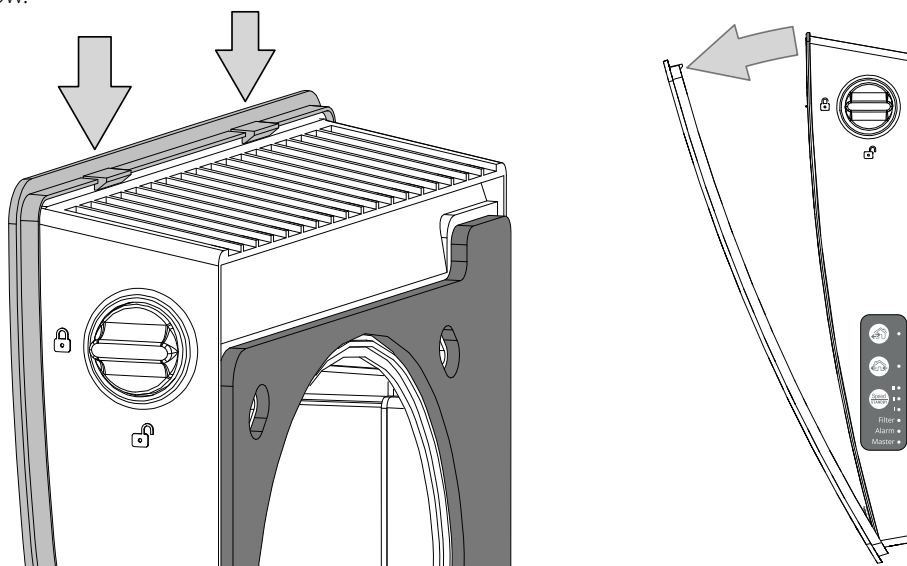
6. Remove the three retaining screws from the left cover to enable access to the terminals.
Route the power wires through the appropriate cable glands.

Rubber plug
Closes the DIP switches

Right cover
Covers the control board

Left cover
Covers the cable entry points and connection terminals

Cable glands for sensor cables

Cable glands for power cables

7. Fix the back part of the indoor unit on the wall with the screws supplied with the mounting kit of the ventilator.
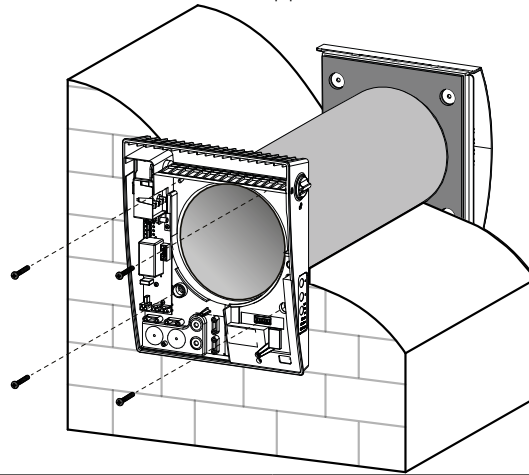
8. Route the power cable as figured below and connect the ventilator to power mains in compliance with the external wiring diagram, see section **"Connection to power mains"**. Secure the power cable with the clamp.

Circuit board
A3

Circuit
board
A1

XP3

XP2

XP1

N

H1 H2 IN1 IN2

12V
IN
GND

XP1
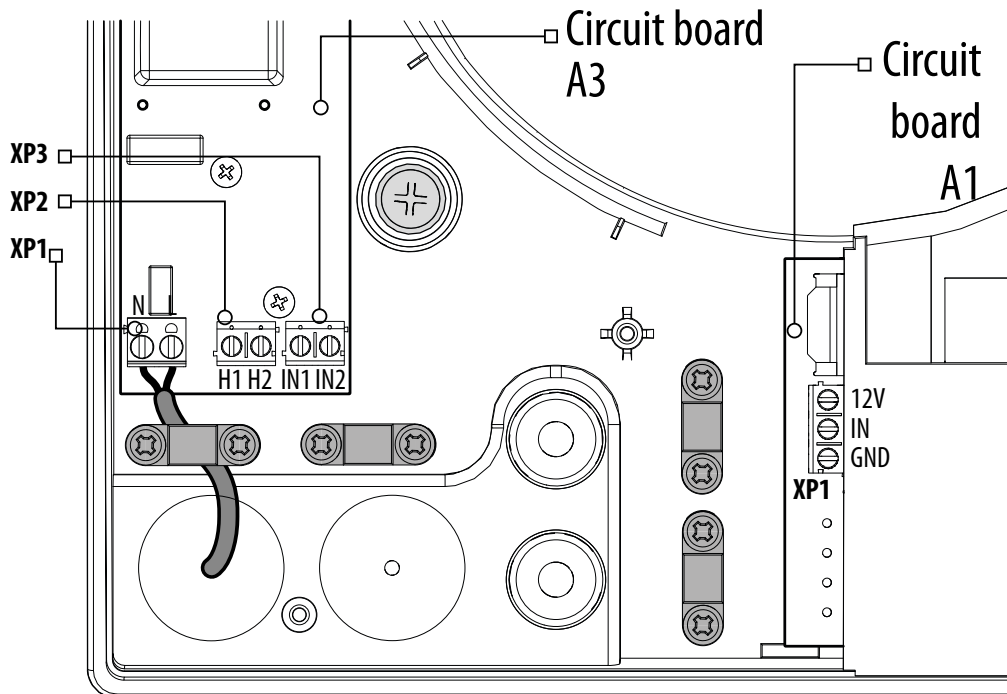
9. After completion of the electrical connection reinstall the left cover in site.
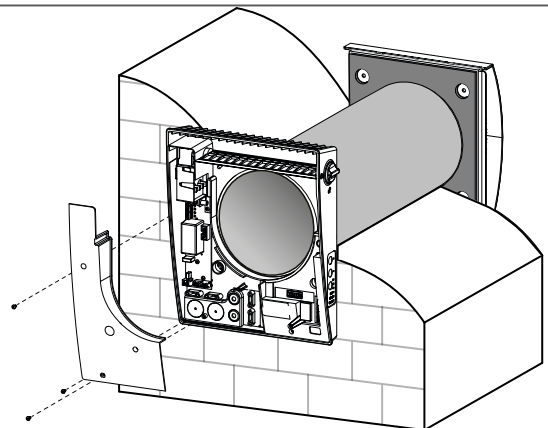
10. Install the cartridge or the regenerator unit and the fan unit into the air duct as figured below and connect the connector to the board.

Insert the sound-absorbing layer in the air duct. Roll the layer of the sound absorbing material to match the air duct diameter. The protecting paper layer must be outside. Insert the sound absorbing roll into the cartridge against stop. Make a mark at the end of the air duct, remove the material and cut the roll as marked. Insert the ready sound absorbing roll into the air duct.
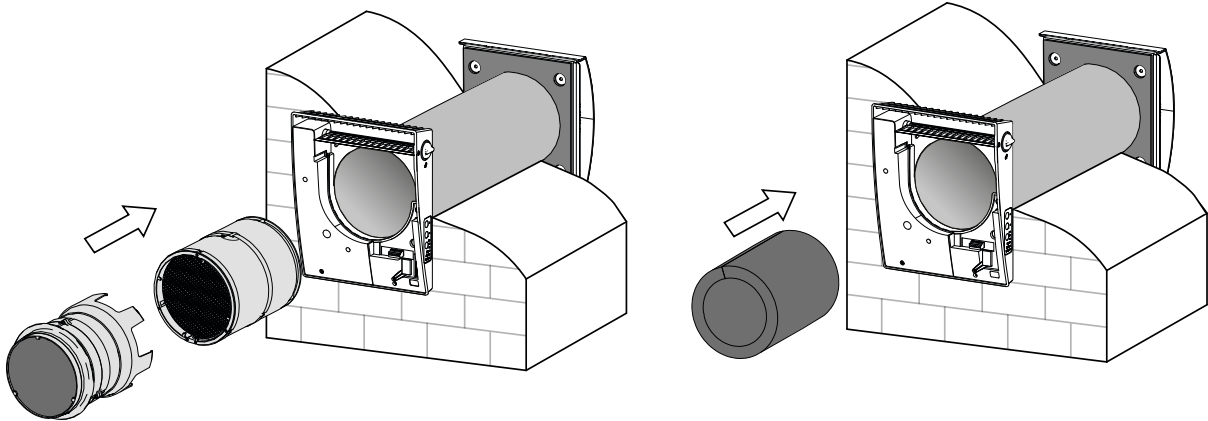
11. Install the front panel of the indoor unit.
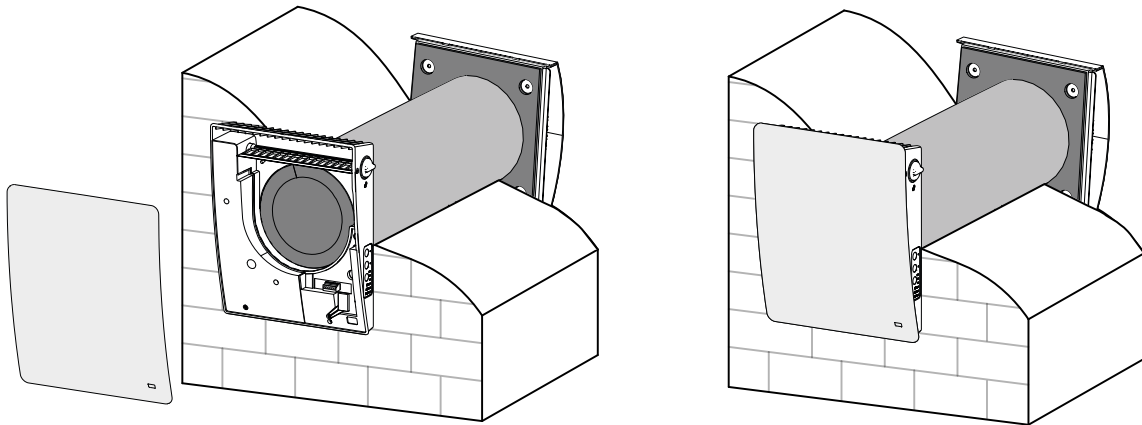
CONNECTION TO POWER MAINS

⚠️ **POWER OFF THE POWER SUPPLY PRIOR TO ANY OPERATIONS WITH THE UNIT.**
THE UNIT MUST BE CONNECTED TO POWER SUPPLY BY A QUALIFIED ELECTRICIAN.
THE RATED ELECTRICAL PARAMETERS OF THE UNIT ARE GIVEN ON THE MANUFACTURER'S LABEL.

The ventilator is rated for connection to single-phase AC 100-240 V 50/60 Hz power mains.

For electric installations use insulated, flexible conductors (cables, wires) with the minimum cross section of 0.5 up to 0.75 mm² for power cables and 0.25 mm² for sensor cables. The cable cross section is given for reference only. The actual conductor cross-section selection must be based on its type, maximum permissible heating, insulation, length and installation method.

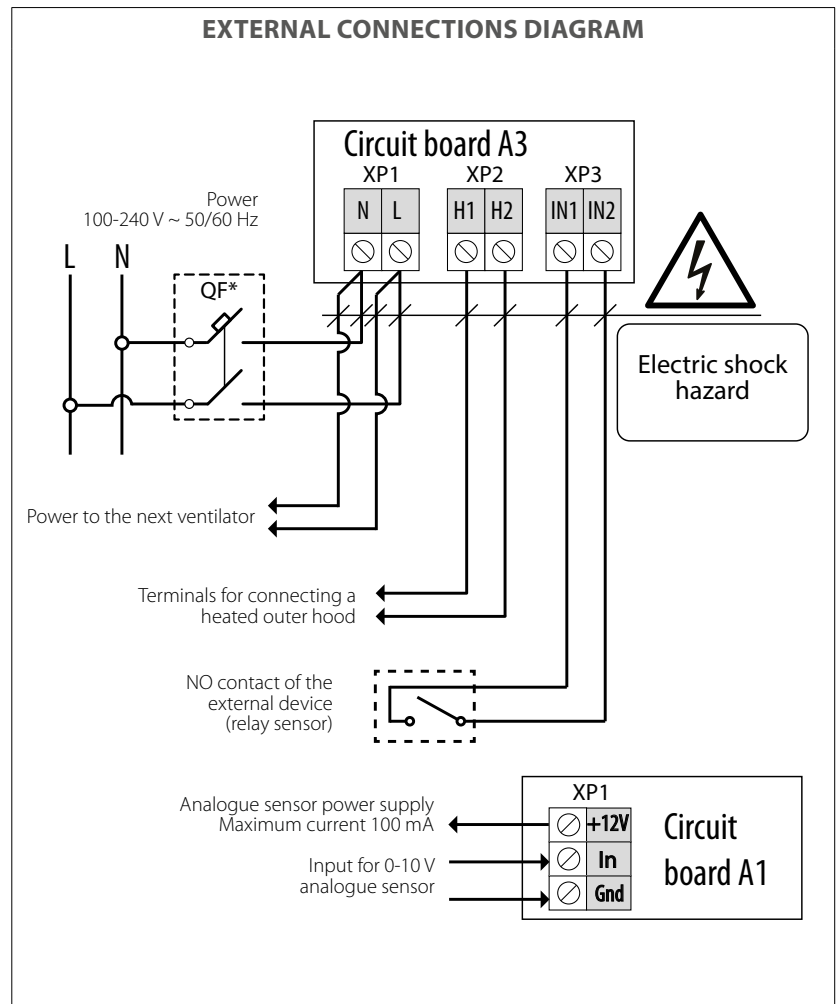Use copper wires for all the electric connections!

Connect the unit to power mains via the terminal block installed in the power board (A3) in compliance with the wiring diagram and terminal designation.

Connect the unit to power mains through the external circuit breaker with a magnetic trip integrated into the fixed wiring system. The tripping current of the circuit breaker is selected based on the electrical characteristics shown on the label of the fan casing.

The ventilator design enables connecting any external controls with a normally opened contact (NO contact), such as an external CO_2 sensor, a humidity sensor, a switch, etc.

When the NO contact of the external device is closed, the unit changes to the maximum speed.

An analogue sensor with output voltage 0-10 V is also compatible with the unit.

EXTERNAL CONNECTIONS DIAGRAM

Circuit board A3

XP1 XP2 XP3

Power 100-240 V ~ 50/60 Hz

N L H1 H2 IN1 IN2

QF*

Electric shock hazard

Power to the next ventilator

Terminals for connecting a heated outer hood

NO contact of the external device (relay sensor)

Analogue sensor power supply Maximum current 100 mA

Input for 0-10 V analogue sensor

XP1

+12V

In

Gnd

Circuit board A1

*The circuit breaker is not included in the delivery set.

PRE-SETTING OF THE VENTILATOR

DIP switch under the cover
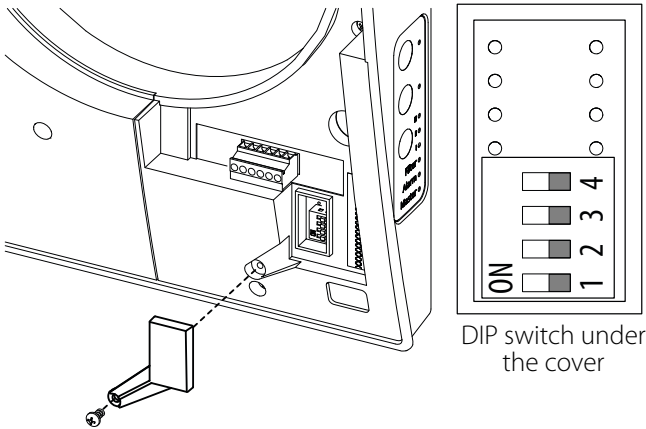
Prior to operating the ventilator set it up using the DIP switch. It is located on the controller circuit board.

To access the DIP switch, take off the front panel of the indoor unit and uplift the rubber plug that covers the switch.

POSITION OF THE DIP SWITCH

Defining the role of the ventilator when operating in a group

▣	1	ON – slave unit (hereinafter referred to as "Slave unit")
▣	1	OFF – master unit (hereinafter referred to as "Master unit")

Standby mode setup

▣	2	Min – the ventilator operates at Speed I in the Standby mode.
▣	2	OFF – the ventilator is switched off in the Standby mode.

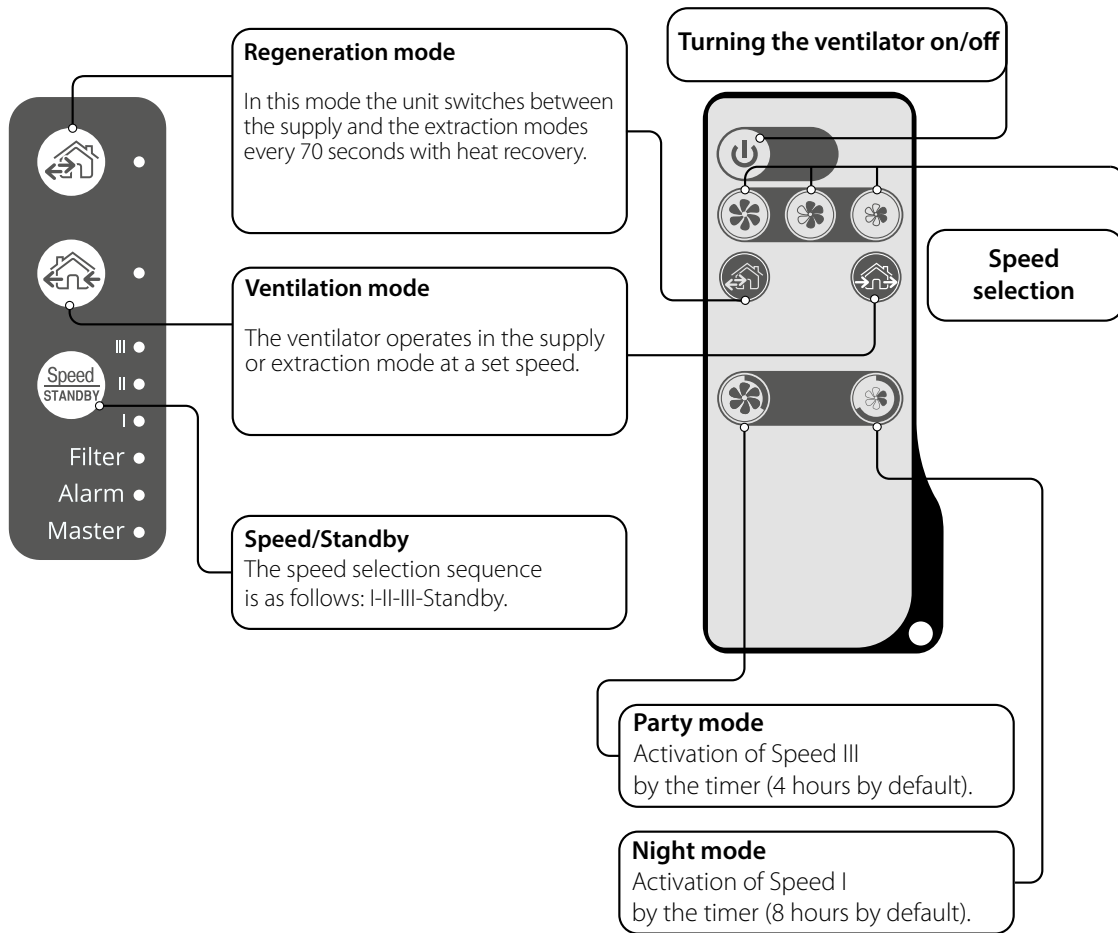### Setting of the fan rotation direction*

▣	3	ON – in the Ventilation mode the ventilator supplies the air to the room. in Regeneration mode the ventilator starts operating first in supply mode.
▣	3	OFF – in the Ventilation mode the ventilator extracts the air from the room. in Regeneration mode the ventilator starts operating first in extract mode.

Restore factory default settings

▣	4	ON – restore factory default settings. For this purpose, move the switch on the operating ventilator to the ON position, after the sound signal turn the switch to the OFF position.
▣	4	OFF – standard operation of the unit.

*To form an optimal ventilation mode in the room, it is recommended to use either one or an even number of networked ventilators. The setting is carried out in such a way that during each operation interval one half of the ventilators supplies air to the room, and the other half extracts air out of the room.

The figure below shows the control buttons on the indoor unit and the remote control with a brief description of their function.

Regeneration mode

In this mode the unit switches between the supply and the extraction modes every 70 seconds with heat recovery.

Turning the ventilator on/off

Ventilation mode

The ventilator operates in the supply or extraction mode at a set speed.

Speed selection

Speed/Standby
The speed selection sequence is as follows: I-II-III-Standby.

Party mode
Activation of Speed III
by the timer (4 hours by default).

Night mode
Activation of Speed I
by the timer (8 hours by default).

Speed
STANDBY

Filter
Alarm
Master

VENTILATOR CONTROL WITH THE BUTTONS ON THE INDOOR UNIT

The table below shows the buttons and indicators on the indoor ventilator unit with a detailed description of their purpose and functionality.

Speed Standby	The speed selection sequence is follows: I-II-III-Standby. All the units integrated in a single network operate according to the speed settings of the Master unit. I: permanent indicator glowing indicates operation of the unit at Speed I. Indicator blinking indicates activation of the **Night mode** timer. I and II: permanent glowing of these indicators indicates operation of the unit at Speed II. I, II and III: permanent glowing of these indicators indicates operation of the ventilation unit at Speed III. Synchronous blinking of the indicators I, II and III indicates activation of the timer in the **Party mode** or the turn-off delay timer in the Boost mode in case of actuation of the connected external sensors or the integrated humidity sensor. Alternate blinking of the indicators I, II and III indicates that the ventilator runs at the speed set with the mobile application using the slider selector for manual speed setting or that the **Weekly Schedule** mode is activated.
	Regeneration mode The rotation direction of both fans changes to opposite every 70 seconds. Heat recovery is performed in this mode. To enable reverse phase operation of the ventilators, change the position of the DIP switch No. 3.
	Ventilation mode The ventilator operates in the supply or extraction mode at a set speed. The fan rotation direction depends on the position of the DIP switch No. 3.

No glowing of the indicators "**Regeneration**" and "**Ventilation**" indicates forced operation of the ventilation unit in the air supply mode. This mode may be activated only via the mobile application.

Indicators on the indoor unit

Filter	90 days after installation of the cartridge the filter replacement indicator starts glowing. In this case, clean or replace the filters (see section "Technical maintenance"). After replacement or cleaning of the filters reset the timer using the mobile application or by pressing and holding the button on the Master ventilator indoor unit for 5 seconds until a signal sounds.
Alarm	**Alarm indicator**. In case of failure, the **Alarm** indicator on the indoor unit glows or blinks. Reasons of Alarm blinking: • Battery charge is below the low level. • No connection between the Master unit and the router. • Alarm shutdown of the ventilator. If several interconnected ventilators are running in the same network, in case of alarm shutdown of the ventilator, all of the ventilators of this network also stop. The **Alarm** indicator blinks on the defective ventilator and glows on the other connected ventilators. In case of communication loss of the **Master** unit with the router for longer than 20 seconds, the Master unit switches to **Standby** mode (**Alarm** indicator blinking) and the **Slave** units will signal that there is no communication with the **Master** unit (see the description of the **Master** indicator). After resuming communication, the **Slave** units are automatically synchronised with the **Master** unit.
Master	Permanent glowing of the indicator shows the leading unit in the network (**Master** unit). Indicator blinking indicates the driven unit (**Slave** unit) and no connection to the **Master** unit. No glowing of the indicator means that this ventilator is a **Slave** unit and it is connected to a **Master** unit.

Synchronous blinking of all the indicators on the casing of the ventilator indicates that the **Setup mode** is enabled.

VENTILATION UNIT OPERATION WITH THE REMOTE CONTROL

The table below shows the buttons on the remote control with a detailed description of their purpose and functionality.

	The **Standby** mode depends on the position of the DIP switch 2 (see section "**Setting the ventilator operation mode using DIP switches**"). The same button is used to reset alarms (**Alarm**) and to turn off the timers.
	Ventilator speed selection: Speed III-II-I respectively.
	Regeneration mode The rotation direction of both fans changes to opposite every 70 seconds. Heat recovery is performed in this mode. The fan rotation direction depends on the position of the DIP switch 3.
	Ventilation mode The ventilator operates in the supply or extraction mode at a set speed. The fan rotation direction depends on the position of the DIP switch 3.
	Timer control buttons: **Party mode:** the timer activates operation of the unit at Speed III for a set time period, 4 hours by default. The timer setting may be changed during setup of the unit on the mobile device. **Night mode:** the timer activates operation of the ventilation unit at Speed I for a set time period, 8 hours by default. The timer setting may be changed during setup of the unit on the mobile device. The ventilation unit reverts to operation with a previous speed setting upon elapse of the set time period. Press any speed setting key to deactivate the timer or press the timer control button once again.

VENTILATION UNIT OPERATION WITH THE MOBILE APPLICATION VENTS HOME

Download the Vents Home application and install it on the mobile device.

Vents Home – App Store	**Vents Home** – Play Market

The ventilator with the factory settings operates as a Wi-Fi access point with the name FAN: + 16 characters of the ID number indicated on the device casing under the front panel.
Wi-Fi access point password: 11111111.
Follow the instructions in the mobile app to connect the device. The app allows configuring the ventilator to connect via your home Wi-Fi network and via a cloud server..

CONTROLLING THE VENTILATOR USING THE SMART HOME SYSTEM

The ventilators are connected to the Smart Home system in accordance with the user manual for connecting to the Vents Home system.

WIRELESS CONNECTION OF SEVERAL VENTILATORS

Ventilators can be combined into a group in which one ventilator shall act as the master and the others shall be connected to it as slaves.

If the ventilator is a **master** ventilator, the slave ventilators and mobile devices connect to it via Wi-Fi. The master ventilator is controlled using a mobile device, remote control or touch buttons on the ventilator casing. The control signal is automatically transmitted to the slave ventilators. In this mode, the device receives signals from sensors (humidity sensor, external discrete sensor, external 0-10 V analogue sensor) and switches to the appropriate operating mode.

If the ventilator is a **slave**, it only receives control signals from the master ventilator. All other signals from other control devices are ignored. In this mode, the ventilators also do not respond to signals from sensors. In case there is no connection to the master ventilator for more than 20 seconds, the ventilator shall automatically switch to **Standby** mode.

Sensor-based operation

The ventilator shall only respond to sensor signals when they are acting as a master ventilator.

If any of the sensors is triggered, all ventilators in the group will reach maximum speed.

VENTILATOR WIRELESS CONNECTION DIAGRAMS

Wiring diagram 1

Connection of up to 8 Slave units or mobile devices to the Master unit with its own wireless access point.

In case of connection of 8 Slave units to the Master unit with its own wireless access point a mobile device may not be connected.

Master
with a Wi-Fi access point

Slave 1   Slave 2   Slave N   **Mobile device**
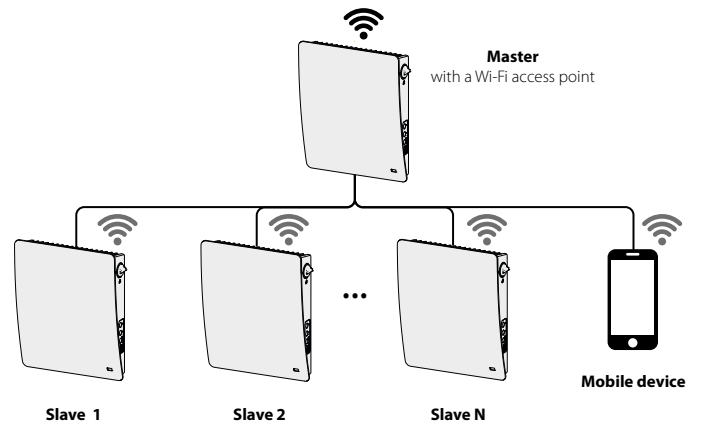
Wiring diagram 2

The Master units, the Slave units and the mobile devices are connected to a wireless access point of the Wi-Fi router.

In this case, the Master unit can operate with the number (N) of Slave units, limited by the technical characteristics of the router.

Router
with its wireless access point

Master   Slave 1   Slave N   **Mobile device**   **Mobile device**
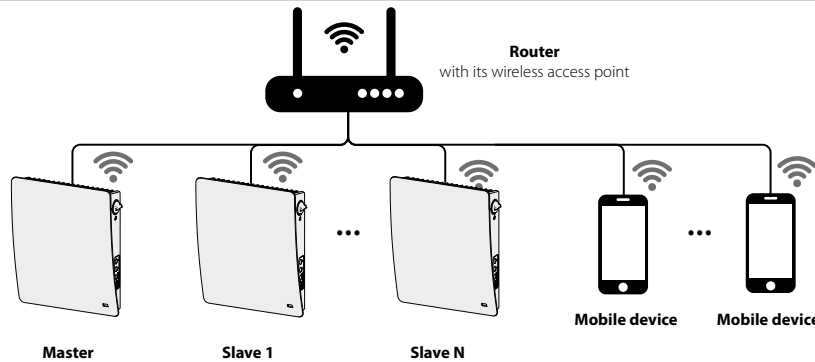
If the Wi-Fi router capacity is not enough to connect a required number of the units, you may use an extra wireless access point to connect the other the unit. Several Master units can optionally be connected to the network for arranging a zone control.

Router
with its wireless access point

Master   Slave 1   Slave N   **Mobile device**   **Mobile device**

Additional Wi-Fi access point

Slave N+1   Slave N+N   **Mobile device**   **Mobile device**
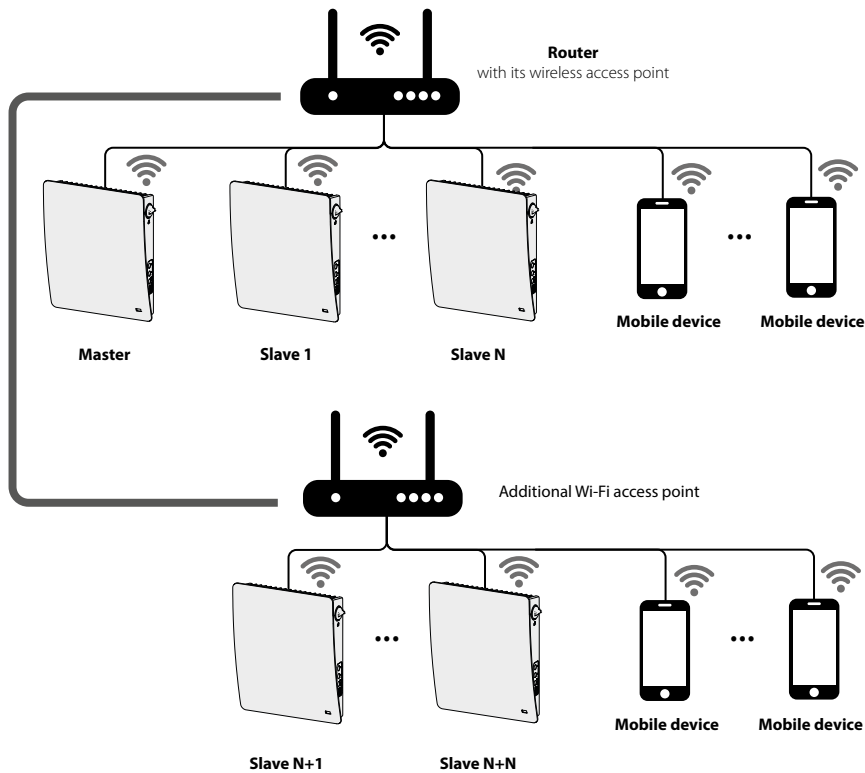
SPECIAL SETUP MODE OF THE VENTILATOR

In the event of losing the Wi-Fi password or the password of the master unit, or in other cases, use the special Setup mode to restore access to the unit functions.

To enter the special setup mode, press and hold the "**Ventilation**" button on the ventilator casing for 5 seconds until you hear a beep sound and all LEDs start flashing.
The ventilator will stay in this mode for 3 minutes, after which it will automatically return to the previous settings.

To exit the setup mode immediately, press and hold the "**Ventilatation**" button on the ventilator casing again for 5 seconds until you hear a beep sound and all LEDs stop flashing.

The following settings are available in this mode:
*   **Wi-Fi name:** Setup mode.
*   **Wi-Fi password:** 11111111.
*   **The unit password is ignored.**

WHEN SETTING UP THE CONNECTION OF THE DEVICES, IT IS NECESSARY THAT ALL SLAVE VENTILATORS ARE WITHIN THE WI-FI COVERAGE AREA OF THE MASTER VENTILATOR.
AFTER CHANGING THE WI-FI PARAMETERS OF THE MASTER VENTILATOR, RECONNECT THE VENTILATORS

CONNECTING MASTER AND SLAVE VENTILATORS

Follow these steps to create a group of ventilators that are linked as master and slave ventilators:
*   Set the DIP switches on each ventilator to the position that corresponds to its role in the group (see "Position of the DIP switch").
*   Next, configure the Wi-Fi settings of the master ventilator by following the instructions in the Vents Home mobile app.
*   Set the master ventilator to the special mode as described above, and all LEDs on the ventilator casing will flash. ПRepeat the same procedure with the slave ventilators and wait until the slave ventilators beep and the LEDs stop flashing. Switch the master unit back to normal mode. To do this, press and hold the "**Ventilation**" button until you hear a beep sound and the LEDs stop flashing.

Note: If you have multiple Wi-Fi access points connected to your home router and you want to connect some of the ventilators to one access point and some to another, then
*   Connect the master unit to the first Wi-Fi access point.
*   Complete the connection with the first group of the slave units.
*   Connect the master unit to the second Wi-Fi access point.
*   Complete connection with the second group of the slave units.

BATTERY REPLACEMENT

The **Alarm** indicator on the unit casing will blink when the battery is approaching the end of its life. The mobile app will also display the warning ⚠, and show the following message on pressing the indicator icon.

Low battery power may cause disruptions in the weekly schedule operation. Power off the unit before replacing the battery. After replacing the battery reset the time and date.

The battery is located on the A1 control board. To replace the battery, power off the ventilator, remove the front panel and the cover protecting the control circuit board. Then remove the battery and install a new one.

The battery type is CR1220.
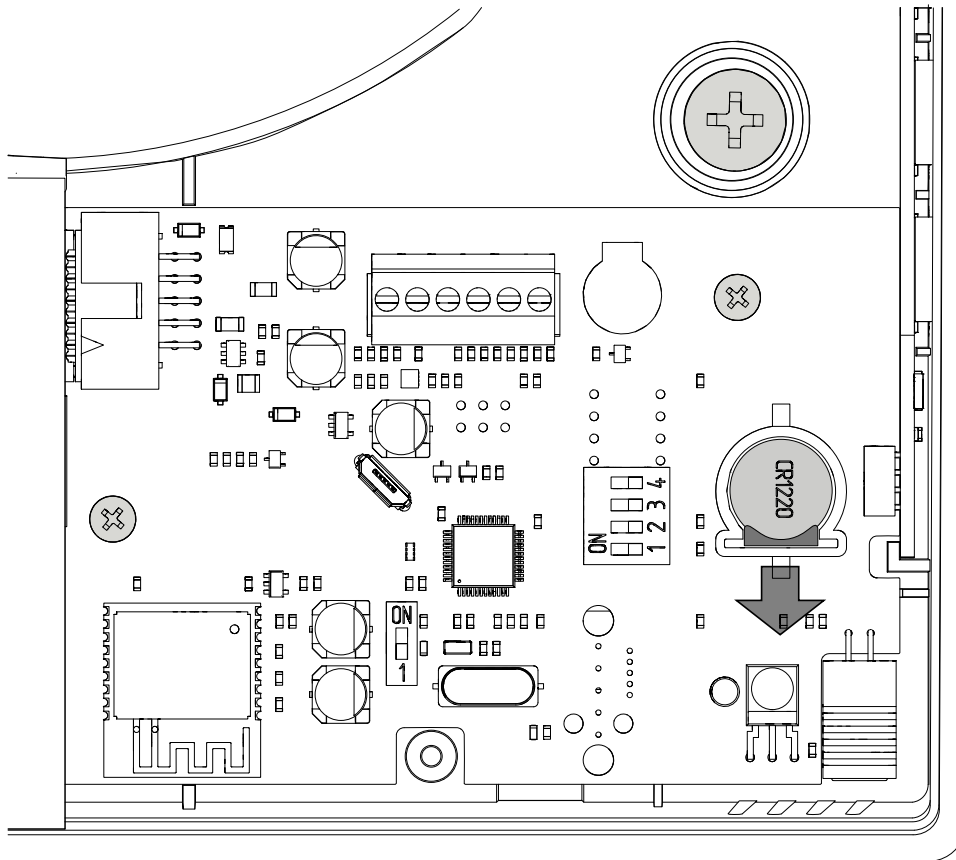
TECHNICAL MAINTENANCE

⚠ **DISCONNECT THE UNIT FROM POWER SUPPLY BEFORE ANY MAINTENANCE OPERATIONS!**
MAKE SURE THE UNIT IS DISCONNECTED FROM POWER MAINS BEFORE REMOVING THE PROTECTION

Maintenance of the ventilator means regular cleaning of the ventilator surfaces of dust and cleaning and replacement of the filters. To enable access to the main units, follow the procedure described below. The ventilator must be previously turned off using the remote control or the buttons on the indoor unit. Then turn off power supply completely.

1. Remove the front part of the indoor control unit as shown in step 5 of the **"Mounting and Set-up"** section.
Move the air damper to the horizontal position using the handle.
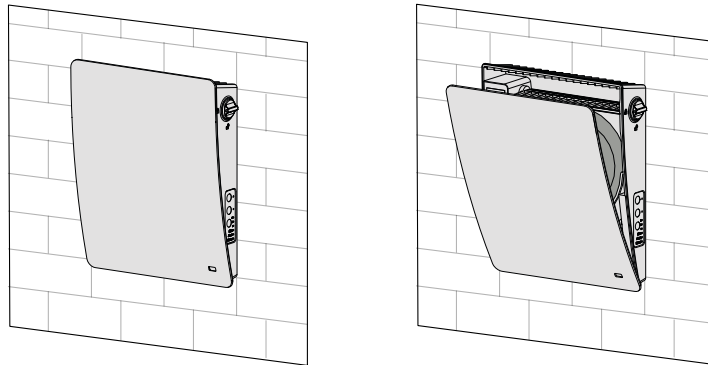
2. Disconnect the connector from the circuit board. Do not remove the connector by pulling the wires. Use a flat screwdriver to uplift it if required.
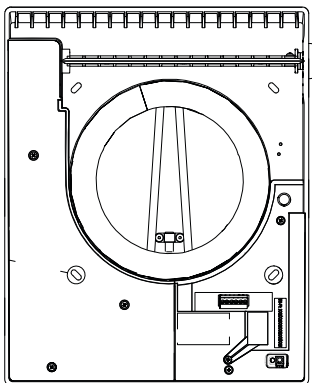
Do not pull on the electric cable.
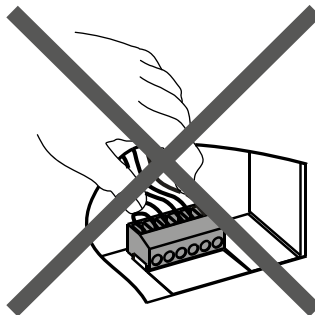
Use a flat screwdriver to disconnect the socket.

UP!
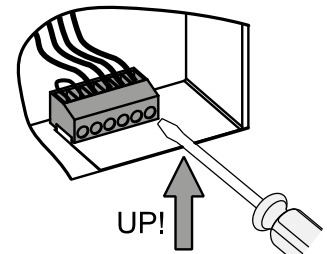
3. Remove the sound-insulation material from the duct, then remove the cartridge or the fan unit and the regenerator unit.
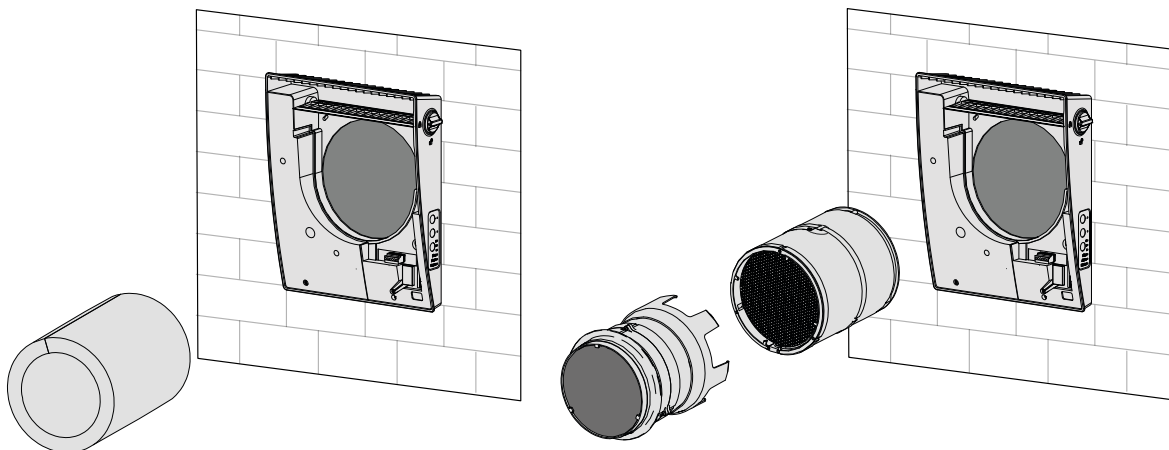
4. Clean filters once they become dirty. Upon elapse of the set number of days the filter replacement indicator (Filter) starts glowing. Depending on the dustiness of the air, the duration of the ventilator operation until the next filter cleaning may be different. The duration of the period when the filter replacement indicator is turned on can be set using the mobile application in the range from 70 to 365 days of continuous operation (by default, the Manufacturer's recommended value is set to 90 days).

- Reset the filter timer using the application on your mobile device or using the button on the indoor unit of the ventilator, as described in the **"Filter timer setting and reset"** section.
- Wash the filters and let those dry out completely. Install the dry filters in their place and assemble the unit in the reverse order.
- Vacuum cleaning is allowed.
- The filter rated service life is 3 years.
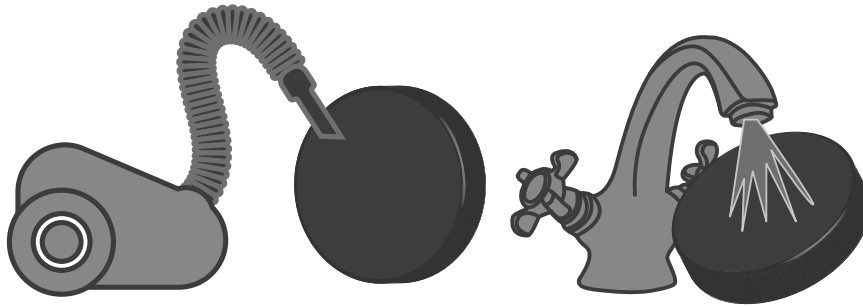
Some dust may accumulate on the regenerator and the fan even in case of regular maintenance of the filters.

- Clean the regenerator regularly to ensure its high heat recovery efficiency.
- Vacuum clean the regenerator not less than once a year.
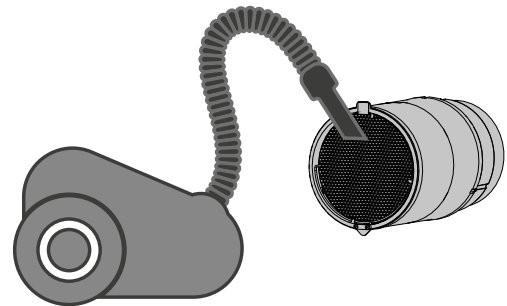
5. Replacement of the remote control battery (if necessary).

In case of a long operation of the remote control the battery must be replaced.

No response of the unit for pressing the remote control buttons indicates the need to replace the battery.

The battery type is CR2025.

Remove the holder with the battery from the lower part of the remote control.

Replace the battery and install the holder with a new battery back to the remote control.

POSSIBLE REASONS AND TROUBLESHOOTING

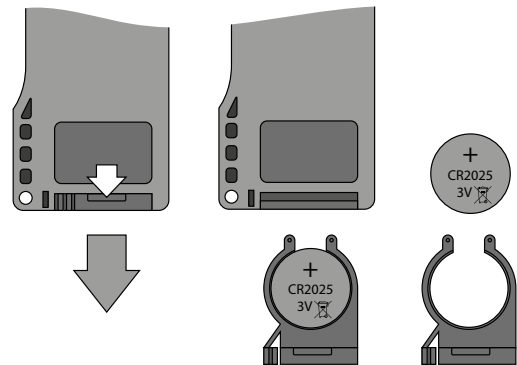| Problem	Possible reasons	Troubleshooting
When switching on the ventilator, the fan does not start.	No power supply.	Make sure the power supply line is connected correctly, otherwise troubleshoot the connection error.
	The motor is jammed, the impeller blades are soiled.	Turn the ventilator off. Troubleshoot the motor jam and impeller clogging. Clean the blades. Turn the ventilator on.
Circuit breaker tripping during the ventilation unit start-up.	Overcurrent as a result of short circuit in the electric line.	Turn the ventilator off. Contact the Seller for further information.
Low air flow.	Low set fan speed.	Set higher speed.
	The filters, the fan or the regenerator are clogged.	Clean or replace the filter. Clean the fan and the heat exchanger.
Noise, vibration.	The impeller is clogged.	Clean the impeller.
	Loose screw connection of the unit casing or the outer ventilation hood.	Tighten the screws of the ventilator or the outer ventilation hood.

STORAGE AND TRANSPORTATION REGULATIONS

- Store the unit in the manufacturer's original packaging box in a dry closed ventilated premise with temperature range from +5 °C to + 40 °C and relative humidity up to 70 %.
- Storage environment must not contain aggressive vapors and chemical mixtures provoking corrosion, insulation, and sealing deformation.
- Use suitable hoist machinery for handling and storage operations to prevent possible damage to the unit.
- Follow the handling requirements applicable for the particular type of cargo.
- The unit can be carried in the original packaging by any mode of transport provided proper protection against precipitation and mechanical damage. The unit must be transported only in the working position.
- Avoid sharp blows, scratches, or rough handling during loading and unloading.
- Prior to the initial power-up after transportation at low temperatures, allow the unit to warm up at operating temperature for at least 3-4 hours.

MANUFACTURER'S WARRANTY

The product is in compliance with EU norms and standards on low voltage guidelines and electromagnetic compatibility. We hereby declare that the product complies with the provisions of Electromagnetic Compatibility (EMC) Directive 2014/30/EU of the European Parliament and of the Council, Low Voltage Directive (LVD) 2014/35/EU of the European Parliament and of the Council and CE-marking Council Directive 93/68/EEC. This certificate is issued following test carried out on samples of the product referred to above.

The manufacturer hereby warrants normal operation of the unit for 24 months after the retail sale date provided the user's observance of the transportation, storage, installation, and operation regulations. Should any malfunctions occur in the course of the unit operation through the Manufacturer's fault during the guaranteed period of operation, the user is entitled to get all the faults eliminated by the manufacturer by means of warranty repair at the factory free of charge. The warranty repair includes work specific to elimination of faults in the unit operation to ensure its intended use by the user within the guaranteed period of operation. The faults are eliminated by means of replacement or repair of the unit components or a specific part of such unit component.

The warranty repair does not include:
* routine technical maintenance
* unit installation/dismantling
* unit setup

To benefit from warranty repair, the user must provide the unit, the user's manual with the purchase date stamp, and the payment paperwork certifying the purchase. The unit model must comply with the one stated in the user's manual. Contact the Seller for warranty service.

The manufacturer's warranty does not apply to the following cases:
* User's failure to submit the unit with the entire delivery package as stated in the user's manual including submission with missing component parts previously dismounted by the user.
* Mismatch of the unit model and the brand name with the information stated on the unit packaging and in the user's manual.
* User's failure to ensure timely technical maintenance of the unit.
* External damage to the unit casing (excluding external modifications as required for installation) and internal components caused by the user.
* Redesign or engineering changes to the unit.
* Replacement and use of any assemblies, parts and components not approved by the manufacturer.
* Unit misuse.
* Violation of the unit installation regulations by the user.
* Violation of the unit control regulations by the user.
* Unit connection to power mains with a voltage different from the one stated in the user's manual.
* Unit breakdown due to voltage surges in power mains.
* Discretionary repair of the unit by the user.
* Unit repair by any persons without the manufacturer's authorization.
* Expiration of the unit warranty period.
* Violation of the unit transportation regulations by the user.
* Violation of the unit storage regulations by the user.
* Wrongful actions against the unit committed by third parties.
* Unit breakdown due to circumstances of insuperable force (fire, flood, earthquake, war, hostilities of any kind, blockades).
* Missing seals if provided by the user's manual.
* Failure to submit the user's manual with the unit purchase date stamp.
* Missing payment paperwork certifying the unit purchase.

> ⚠ **FOLLOWING THE REGULATIONS STIPULATED HEREIN WILL ENSURE A LONG AND TROUBLE-FREE OPERATION OF THE UNIT**

> ⚠ **USER'S WARRANTY CLAIMS SHALL BE SUBJECT TO REVIEW ONLY UPON PRESENTATION OF THE UNIT, THE PAYMENT DOCUMENT AND THE USER'S MANUAL WITH THE PURCHASE DATE STAMP**

CERTIFICATE OF ACCEPTANCE

Unit Type	Single-room reversible energy recovery ventilator
Model	
Serial Number	
Manufacture Date	
Quality Inspector's Stamp	

SELLER INFORMATION

Seller	
Address	
Phone Number	
E-mail	
Purchase Date	
This is to certify acceptance of the complete unit delivery with the user's manual. The warranty terms are acknowledged and accepted.	
Customer's Signature	

Seller's Stamp
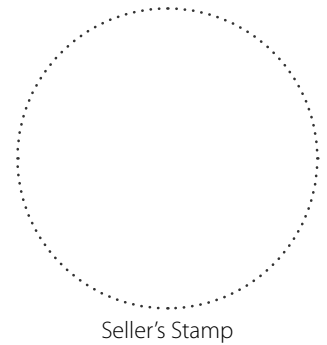
INSTALLATION CERTIFICATE

The _____ unit is installed pursuant to the requirements stated in the present user's manual.

Company name		
Address		
Phone Number		
Installation Technician's Full Name		
Installation Date:	Signature:	
The unit has been installed in accordance with the provisions of all the applicable local and national construction, electrical and technical codes and standards. The unit operates normally as intended by the manufacturer.		
Signature:		

Installation Stamp
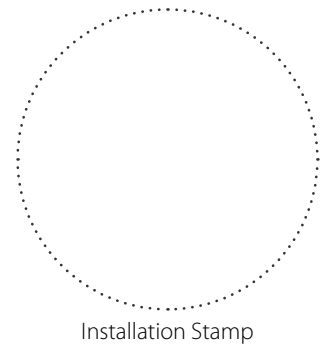
WARRANTY CARD

Unit Type	Single-room reversible energy recovery ventilator
Model	
Serial Number	
Manufacture Date	
Purchase Date	
Warranty Period	
Seller	

Seller's Stamp
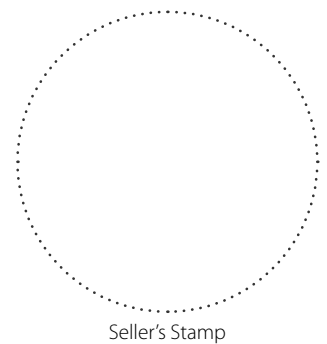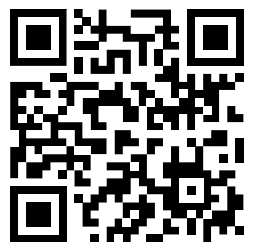
CONNECTION GUIDE

TwinFresh Expert RW-30 V.2
TwinFresh Expert RW1-50 V.2
TwinFresh Expert RW1-85 V.2
TwinFresh Expert RW1-100 V.2
TwinFresh Expert Duo RW1-30 V.2

TwinFresh Expert RW1-50 V.3
TwinFresh Style Wi-Fi
TwinFresh Style Wi-Fi Frost
TwinFresh Style Wi-Fi mini

Smart House

CO₂

TwinFresh Expert
RW1-50-14 V.2

TwinFresh Expert
RW1-100-14 V.2

TwinFresh Expert Duo
RW1-30-14 V.2

TwinFresh Expert Duo
RW1-30-14 V.2

Connection to a "Smart House" system

VENTS

CONTENTS

PURPOSE

This guide covers the connection of TwinFresh Expert RW V.2 (V.3) and TwinFresh Style Wi-Fi series of air handling units to a "Smart House" system.

Control is provided only by Master devices. Slave devices, mobile devices, and "Smart House" system components are connected to master devices over Wi-Fi. Slave devices are controlled by means of commands received from master devices.

There are two wireless connection patterns available:

1. A master device with a Wi-Fi access point, which can accept up to eight slave connections. If all available eight connections of the master device are used, a mobile device or a "Smart House" system will not be able to connect to the master device.

Master
with a Wi-Fi access point

Slave 1   **Slave 2**   **Slave N**   **Mobile device**
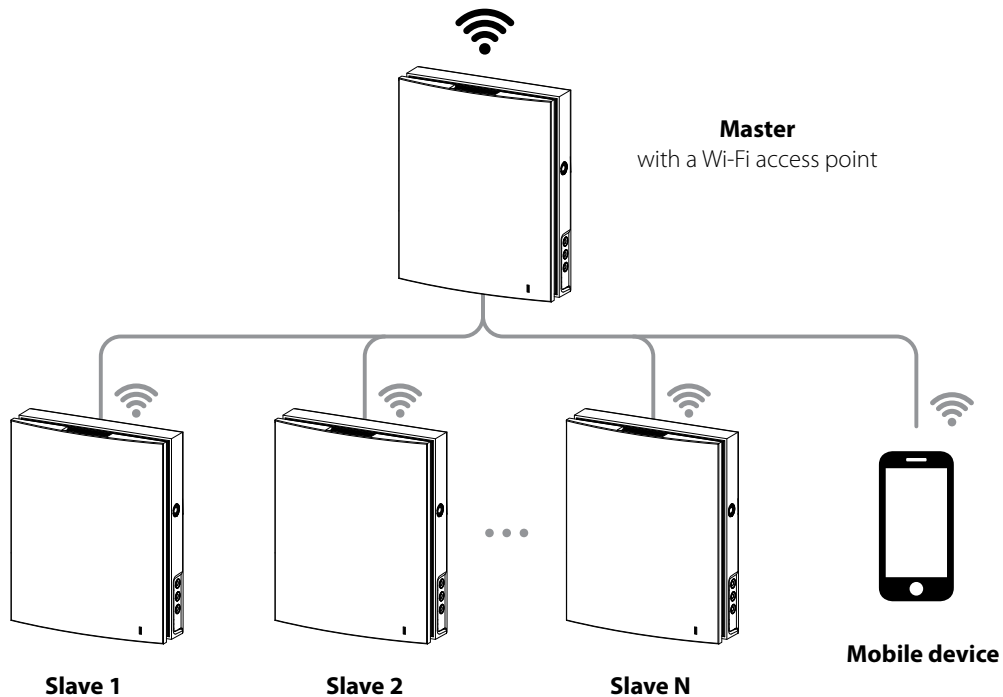
2. Master devices, slave devices, mobile devices and a "Smart House" system connect to the Wi-Fi access point of the network router. In this case, the maximum number of available Wi-Fi connections is limited by the router functionality. If the number of necessary ventilation units is more than the router can accept, you may use an additional Wi-Fi access point to connect the remaining ventilation units. The router network may include several master devices to provide control by zones.
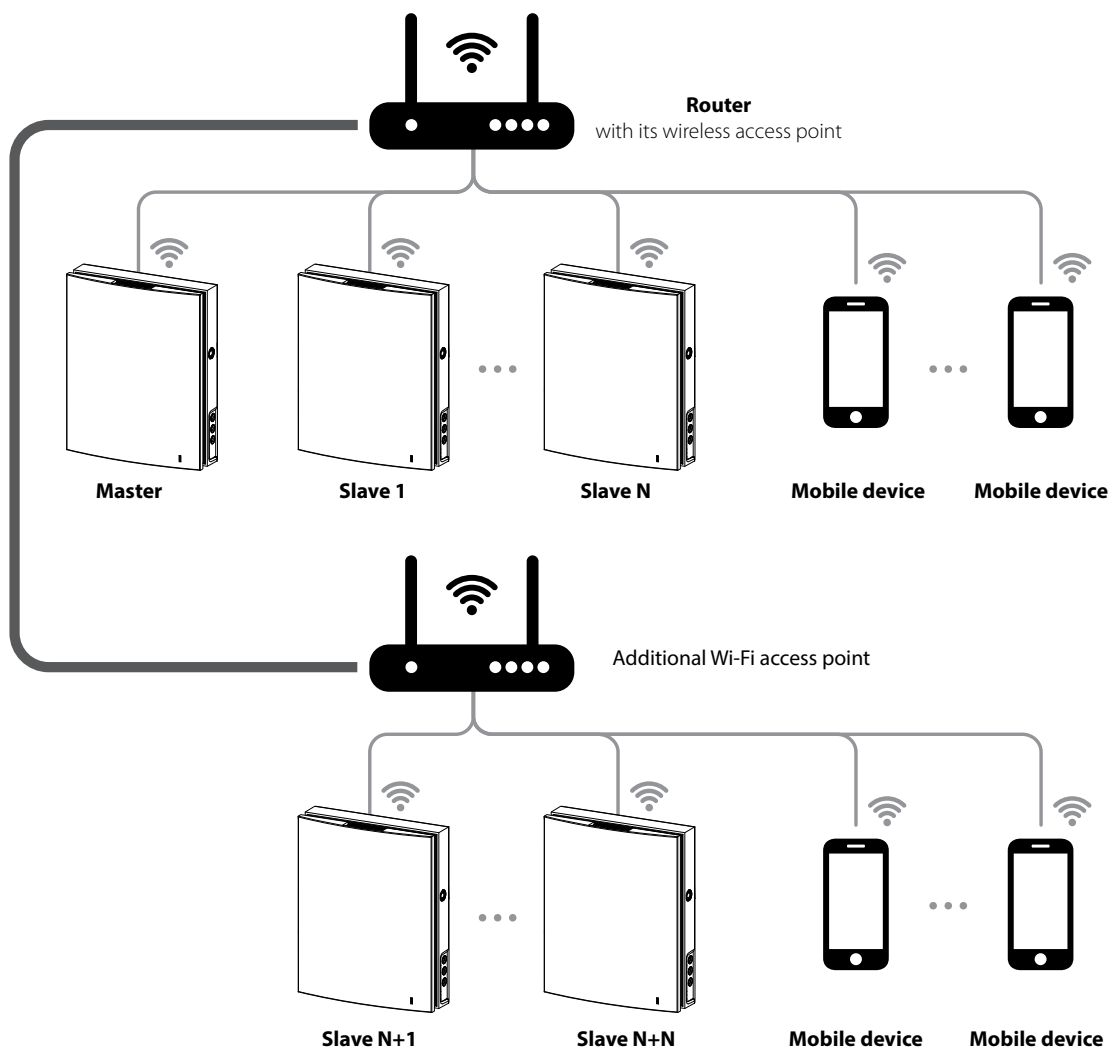
The connection is set up via the mobile application from the Connection – > Wi-Fi setup menu (see the unit data sheet).

NETWORK PARAMETERS

Data is exchanged via the UDP protocol (with broadcast support).

Master device IP address:
- 192.168.4.1 – if the master device runs without a router (connection pattern 1).
- If the master device is connected via a router (connection pattern 2), the IP address is set up via the mobile application (see unit data sheet) and can be defined as static or dynamic (DHCP).

Master device port: 4000.

Maximum packet size: 256 bytes.

PACKET STRUCTURE

0xFD	0xFD	TYPE	SIZE ID	ID	SIZE PWD	PWD	FUNC	DATA	Chksum L	Chksum H

| 0xFD | 0xFD | : packet beginning character (2 bytes). |

TYPE : protocol type (1 byte). Value = 0x02.

SIZE ID : ID block size (1 byte). Value = 0x10.

ID : controller ID. This number is printed on the label (16 characters) applied to the control circuit board or the unit casing.

You can also substitute the ID with "DEFAULT_DEVICEID" code word. The ID can be used:
- To control the master device if it runs without a router (connection pattern 1).
- To search for master devices on the network if a router is used (connection pattern 2). In this case, the device will respond to two parameters only: 0x007C and 0x00B9 (see parameter table).

SIZE PWD : PWD block size (1 byte). Possible values: from 0x00 to 0x08.

PWD : device password (permissible characters: "0…9", "a…z", and "A…Z"). The default password is "1111".

This password can be changed via the mobile application from the **Connection –> At home –> Settings menu** (see the unit data sheet).

FUNC : the function number (1 byte). It defines the action with the data and the **DATA** block structure:

0x01: parameter read.
0x02: parameter write. The controller does not send any response regarding the status of the given parameters.
0x03: parameter write with subsequent controller response regarding the status of the given parameters.
0x04: parameter increment with subsequent controller response regarding the status of the given parameters.
0x05: parameter decrement with subsequent controller response regarding the status of the given parameters.
0x06: controller response to the request (FUNC = 0x01, 0x03, 0x04, 0x05).

DATA : data block. It consists of parameter numbers and their values:

If FUNC = 0x01 or 0x04 or 0x05:

P1	P2	Pn

If FUNC = 0x02 or 0x03 or 0x06:

P1	Value 1	P2	Value 2	Pn	Value n

Parameter numbers (see parameter table) consists of two bytes (the high byte is virtual). By default the high byte of each parameter number in each new packet equals 0x00. The high byte can be changed within a single packet using the special 0xFF command (see below).

P is the low byte of the parameter number. Possible values: 0x00 – 0xFB. The 0xFC – 0xFF values are special commands:

0xFC : change function (**FUNC**) number. The following byte must be the new function number ranging from 0x01 to 0x05. This command is used to organise several functions with different actions into a single packet.

0xFD : parameter not supported by the controller. The following byte is the low byte of the non-supported parameter. This command is used in controller response (**FUNC** = 0x06) to a non-supported parameter read or write request.

0xFE : change a size of the Value for one parameter which follows. The following byte must be the new parameter size followed by the low byte of the parameter number, and then – by the **Value** itself.

0xFF : change the high byte for parameter numbers within a single packet. The following byte must be the new high byte.

Value : parameter value (the default size of value is 1 byte). Byte ordering from least significant byte to most significant byte.

Chksum L **Chksum H** : checksum (2 bytes). This is calculated as the total of bytes beginning with the TYPE byte and ending with the final byte of the **DATA** block.
Chksum L: checksum low byte.
Chksum H: checksum high byte.

EXAMPLES OF USING SPECIAL COMMANDS IN THE DATA BLOCK

Write request (FUNC = 0x03) for parameters number 0x009B, 0x0070, and 0x0007
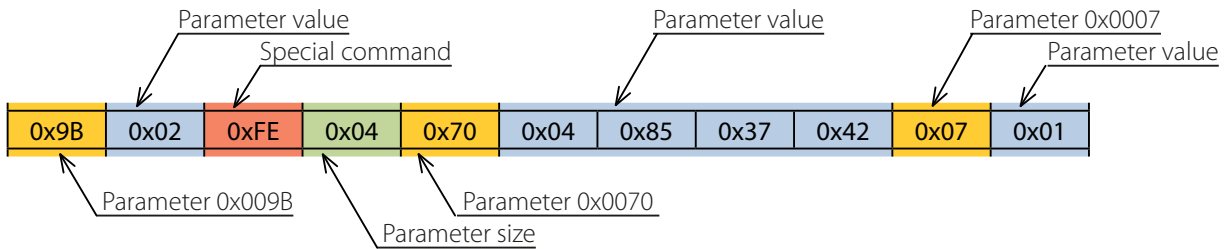
Write request details:
- Parameter 0x009B to be assigned the value of 0x02.
- Parameter 0x0070 to be assigned the value of 0x42378504. The value size is 4 bytes as indicated by the special command 0xFE + 0x04.
- Parameter 0x0007 to be assigned the value of 0x01.

Controller response (FUNC = 0x06) to write request
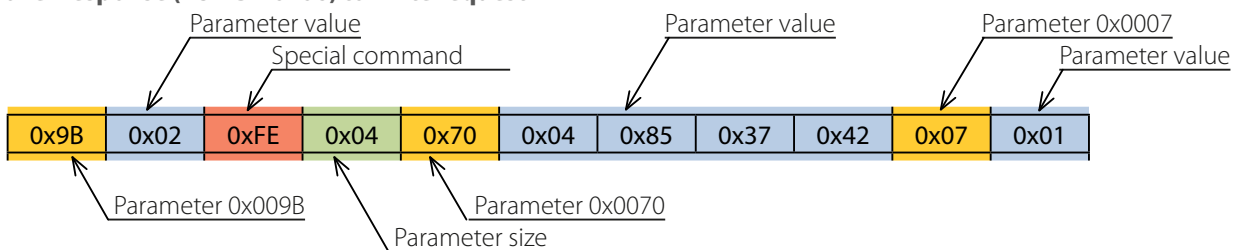
Controller response details:
- Parameter 0x009B equals 0x02.
- Parameter 0x0070 equals 0x42378504. The value size is 4 bytes as indicated by the special command 0xFE + 0x04.
- Parameter 0x0007 equals 0x01.

Read request (FUNC = 0x01) for parameters number 0x0101, 0x0104, and 0x0240
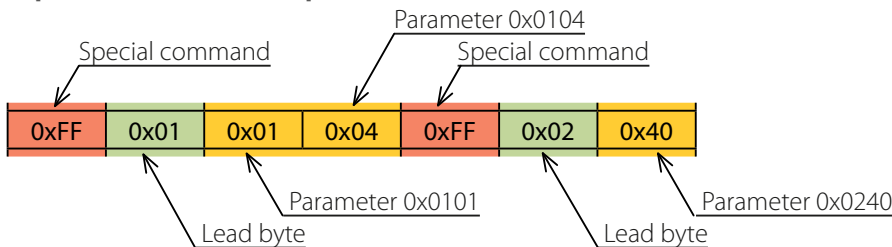
Controller response (FUNC = 0x06) to write request
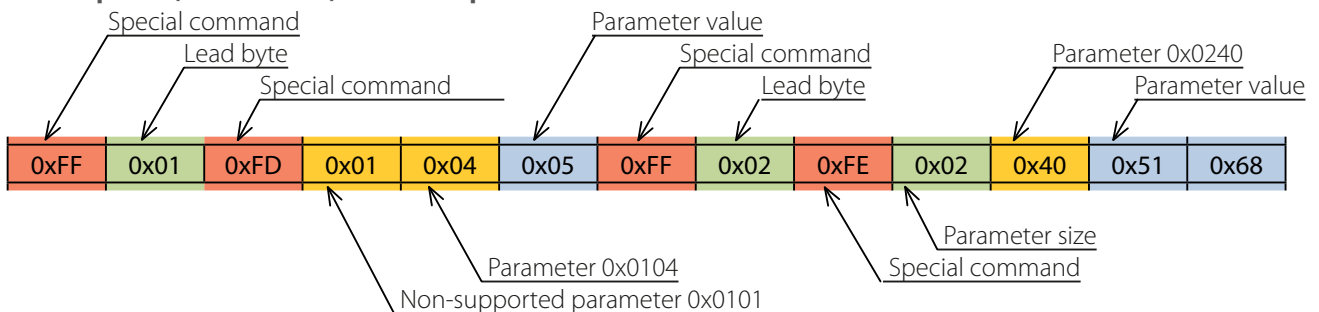
Controller response details:
- Parameter 0x0101 is not supported by the controller as indicated by the special command 0xFD.
- Parameter 0x0104 equals 0x05.
- Parameter 0x0240 equals 0x6851. The value size is 2 bytes as indicated by the special command 0xFE + 0x02.

COMPLETE PACKET EXAMPLES

Sending "Smart House–> Controller" packet

This packet contains a read request (FUNC = 0x01) for parameters number: 0x0001, 0x0002.

Start of packet
Protocol type
ID block size
Controller ID

| 0xFD | 0xFD | 0x02 | 0x10 | 0x00 | 0x00 | 0x00 | 0x00 | 0x00 | 0x00 | 0x00 | 0x00 | 0x00 | 0x00 | 0x00 | 0x00 |

Controller ID
PWD block size
Device password
Function number
Data block
Checksum

| 0x00 | 0x00 | 0x00 | 0x00 | 0x04 | 0x31 | 0x31 | 0x31 | 0x31 | 0x01 | 0x01 | 0x02 | 0xDE | 0x00 |
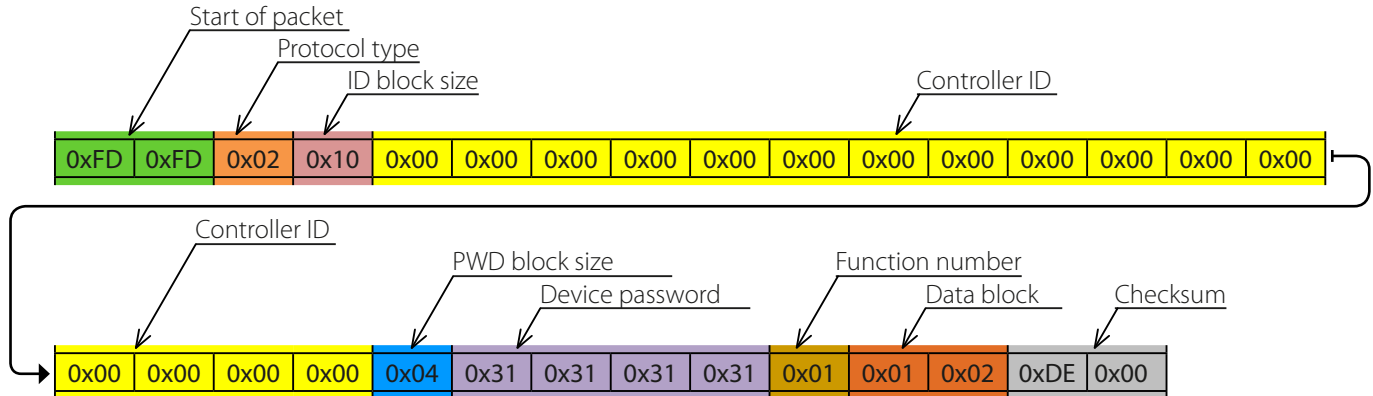
Request details:
- Checksum: 0x00DE.

Sending "Controller –> Smart House" packet

This packet contains the controller response (FUNC = 0x06) to the write request.

Start of packet
Protocol type
ID block size
Controller ID

| 0xFD | 0xFD | 0x02 | 0x10 | 0x00 | 0x00 | 0x00 | 0x00 | 0x00 | 0x00 | 0x00 | 0x00 | 0x00 | 0x00 | 0x00 | 0x00 |

Controller ID
PWD block size
Device password
Function number
Data block
Checksum

| 0x00 | 0x00 | 0x00 | 0x00 | 0x04 | 0x31 | 0x31 | 0x31 | 0x31 | 0x06 | 0x01 | 0x00 | 0x02 | 0x03 | 0xE6 | 0x00 |
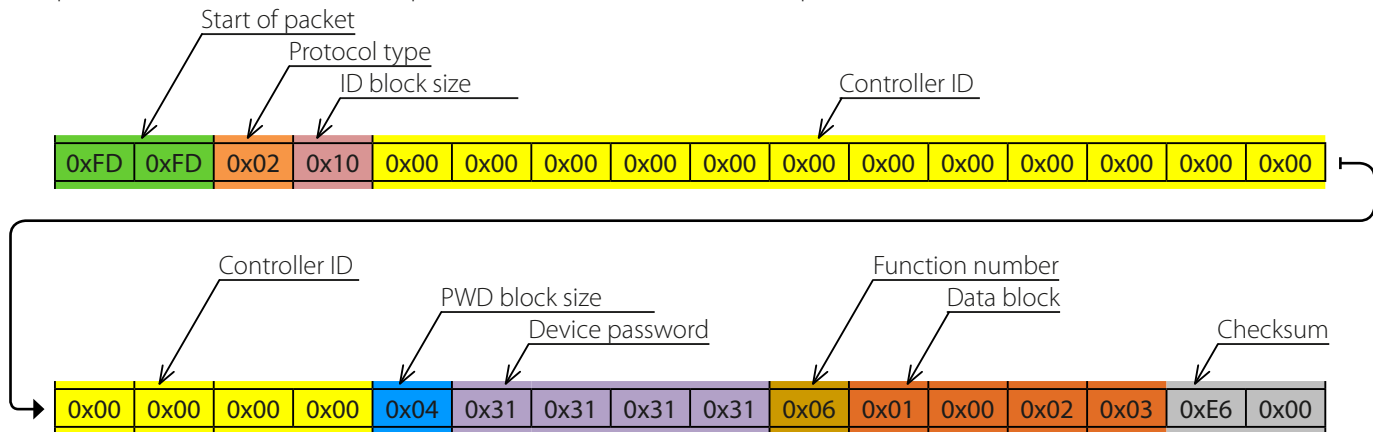
Controller response details:
- Parameter 0x0001 equals 0x00.
- Parameter 0x0002 equals 0x03.
- Checksum: 0x00E6.

PARAMETER TABLE

Functions:

R – 0x01	**INC** – 0x04	**RW** – 0x03
W – 0x02	**DEC** – 0x05	

Parameter number [Dec./Hex.]	Functions	Description	Possible values	Size [bytes]
1/0x0001	R/W/RW	Unit On/Off	0 — Off 1 — On 2 – Invert	1
2/0x0002	R/W/RW/INC/DEC	Speed number	1 – Speed 1 2 – Speed 2 3 – Speed 3 255 – manual speed setting mode (see parameter 68)	1
6/0x0006	R	Boost mode status	0 – Off 1 – On	1
7/0x0007	R/W/RW/INC/DEC	Timer mode (see parameters 770 and 771)	0 – Off 1 – Night mode 2 – Party mode	1
11/0x000B	R	Current countdown of the Timer mode	Byte 1 – seconds (0…59) Byte 2 – minutes (0…59) Byte 3 – hours (0…23)	3
15/0x000F	R/W/RW	Humidity sensor activation	0 – Off 1 – On 2 – Invert	1
20/0x0014	R/W/RW	Relay sensor activation	0 – Off 1 – On 2 – Invert	1
22/0x0016	R/W/RW	0–10 V* sensor activation	0 – Off 1 – On 2 – Invert	1
25/0x0019	R/W/RW/INC/DEC	Humidity threshold setpoint	40…80 RH%	1
36/0x0024	R	Current RTC battery voltage	0…5000 mV	2
37/0x0025	R	Current humidity	0…100 RH%	1
45/0x002D	R	Current 0–10 V* sensor signal value	0…100 %	1
50/0x0032	R	Current relay sensor state	0 – Off 1 – On	1
58/0x003A	R/W/RW/INC/DEC	Supply fan speed in 1st speed mode**	10…255	1
59/0x003B	R/W/RW/INC/DEC	Exhaust fan speed in 1st speed mode**	10…255	1
60/0x003C	R/W/RW/INC/DEC	Supply fan speed in 2nd speed mode**	10…255	1
61/0x003D	R/W/RW/INC/DEC	Exhaust fan speed in 2nd speed mode**	10…255	1
62/0x003E	R/W/RW/INC/DEC	Supply fan speed in 3rd speed mode**	10…255	1
63/0x003F	R/W/RW/INC/DEC	Exhaust fan speed in 3rd speed mode**	10…255	1
74/0x004A	R	Fan 1 speed	0…5000 rpm	2
75/0x004B	R	Fan 2 speed	0…5000 rpm	2
99/0x0063	R/W/RW/INC/DEC	Filter replacement timer setup**	70…365 days	2
100/0x0064	R	Timer countdown to filter replacement	Byte 1 – minutes (0…59) Byte 2 – hours (0…23) Byte 3 – days (0…181)	3

Parameter number [Dec./Hex.]	Functions	Description	Possible values	Size [bytes]
101/0x0065	W	Reset timer countdown to filter replacement	Any byte	1
102/0x0066	R/W/RW/INC/DEC	Setpoint of the Boost mode deactivation delay	0…60 minutes	1
111/0x006F	R/W/RW	RTC time	Byte 1 – RTC seconds (0…59) Byte 2 – RTC minutes (0…59) Byte 3 – RTC hours (0…23)	3
112/0x0070	R/W/RW	RTC calendar	Byte 1 – RTC number (1…31) Byte 2 – RTC day of the week (1…7) Byte 3 – RTC month (1…12) Byte 4 – RTC year (0…99)	4
114/0x0072	R/W/RW	Weekly schedule mode	0 — Off 1 — On 2 – Invert	1
119/0x0077	R/W/RW	Schedule setup In the read request you should use special command 0xFE and specify the size of the 0x02 parameter value required for selecting the necessary day of the week and time period number. The write request and the controller response use all the 6 bytes. The first time period always starts at 00:00 while the start of each following period begins at the end of the previous one. The final time period always ends at 24:00	**Byte 1** – day of the week: 0 – all days (write only) 1 – Monday 2 – Tuesday 3 – Wednesday 4 – Thursday 5 – Friday 6 – Saturday 7 – Sunday 8 – Mon…Fri (write only) 9 – Sat…Sun (write only) **Byte 2** – period number: 1…4 **Byte 3** – speed number: 0 – standby 1…3 **Byte 4** – reserved: any byte **Byte 5** – minutes to end of period: 0…59 **Byte 6** – hours to end of period: 0…23	6
124/0x007C	R	Device search on the local network, ID	Text ("0…9", "A…F")	16
125/0x007D	R/W/RW	Device password	Text ("0…9", "a…z", "A…Z")	0–8
126/0x007E	R	Machine hours	Byte 1 – minutes (0…59) Byte 2 – hours (0…23) Byte 3 and Byte 4 – days (0…65535)	4
128/0x0080	W	Reset alarms	Any byte	1
131/0x0083	R	Alarm/warning indicator	0 – no 1 – alarm (highest priority) 2 – warning	1
133/0x0085	R/W/RW	Cloud server operation permission	0 – Off 1 – On 2 – Invert	1
134/0x0086	R	Controller base firmware version and date	Byte 1 – firmware version (major) Byte 2 – firmware version (minor) Byte 3 – day Byte 4 – month Byte 5 and Byte 6 – year	6

Parameter number [Dec./Hex.]	Functions	Description	Possible values	Size [bytes]
135/0x0087	W	Restore factory settings	Any byte	1
136/0x0088	R	Filter replacement indicator	0 – filter replacement not required 1 – replace filter	1
148/0x0094	R/W/RW/INC/DEC	Wi-Fi operation mode	1 – Client 2 – Access Point	1
149/0x0095	R/W/RW	Wi-Fi name in Client mode	Text	1…32
150/0x0096	R/W/RW	Wi-Fi password	Text	8…64
153/0x0099	R/W/RW	Wi-Fi data encryption type	48 – OPEN 50 – WPA_PSK 51 – WPA2_PSK 52 – WPA_WPA2_PSK	1
154/0x009A	R/W/RW/INC/DEC	Wi-Fi frequency channel	1…13	1
155/0x009B	R/W/RW	Wi-Fi module DHCP	0 – STATIC 1 – DHCP 2 – Invert	1
156/0x009C	R/W/RW	IP address assigned to Wi-Fi module	**Byte 1** – 0…255, **Byte 2** – 0…255, **Byte 3** – 0…255, **Byte 4** – 0…255	4
157/0x009D	R/W/RW	Wi-Fi module subnet mask	**Byte 1** – 0…255, **Byte 2** – 0…255, **Byte 3** – 0…255, **Byte 4** – 0…255	4
158/0x009E	R/W/RW	Wi-Fi module main gateway	**Byte 1** – 0…255, **Byte 2** – 0…255, **Byte 3** – 0…255, **Byte 4** – 0…255	4
160/0x00A0	W	Apply new Wi-Fi parameters and quit Setup Mode	Any byte	1
162/0x00A2	W	Discard new Wi-Fi parameters and quit Setup Mode	Any byte	1
163/0x00A3	R	Current Wi-Fi module IP address	**Byte 1** – 0…255, **Byte 2** – 0…255, **Byte 3** – 0…255, **Byte 4** – 0…255	4
183/0x00B7	R/W/RW/INC/DEC	Ventilator operation mode	0 – ventilation 1 – heat recovery 2 – supply	1
184/0x00B8	R/W/RW/INC/DEC	0–10 V* sensor threshold setpoint	5…100 %	1

185/0x00B9	R	Unit type	3: TwinFresh Expert RW1-50 V.2,
			   TwinFresh Expert RW1-85 V.2,
			   TwinFresh Expert RW1-100 V.2
			4: TwinFresh Expert Duo RW1-30 V.2
			5: TwinFresh Expert RW-30 V.2
				2

252/0x00FC 253/0x00FD 254/0x00FE 255/0x00FF		**Special commands**		
770/0x0302	R/W/RW	Night mode timer setpoint	Byte 1 – minutes (0…59) Byte 2 – hours (0…23)	2
771/0x0303	R/W/RW	Party mode timer setpoint	Byte 1 – minutes (0…59) Byte 2 – hours (0…23)	2
772/0x0304	R	Humidity sensor status	0 – below setpoint 1 – over setpoint	1
773/0x0305	R	0–10 V* sensor status	0 – below setpoint 1 – over setpoint	1

*Available for all models except TwinFresh Expert RW-30 V.2
**Available for TwinFresh Expert RW1-50 V.3, TwinFresh Style Wi-Fi, TwinFresh Style Wi-Fi Frost, TwinFresh Style Wi-Fi mini.

EXAMPLE OF PROCESSING PACKETS WRITTEN IN C

```c
//=============== Special commands ================//
#define BGCP_CMD_PAGE                           0xFF
#define BGCP_CMD_FUNC                           0xFC
#define BGCP_CMD_SIZE                           0xFE
#define BGCP_CMD_NOT_SUP                        0xFD
//====================================================//

#define BGCP_FUNC_RESP                          0x06

uint8_t receive_data[256];
uint16_t  receive_data_size;
uint8_t State_Power;
uint8_t State_Speed_mode;
char current_id[17] = "002D6E1B34565815"; // Controller ID

//********* Checksum and start of packet check **********//
uint8_t check_protocol(uint8_t *data, uint16_t size)
{
    uint16_t i, chksum1 = 0, chksum2 = 0;
    if((data[0] == 0xFD) && (data[1] == 0xFD))
    {
        for(i = 2; i <= size-3; i++)
            chksum1 += data[i];
        chksum2 = (uint16_t)(data[size-1] << 8) | (uint16_t)(data[size-2]);
        if(chksum1 == chksum2)
            return 1;
        else
            return 0;
    }
    else
        return 0;
}
//**************************************************************//


int main(void)
{
    ...

    if(check_protocol(receive_data, receive_data_size) == 1) // Checksum
    {
        if(receive_data[2] == 0x02) // Protocol type
        {
            if(memcmp(&receive_data[4], current_id, receive_data[3]) == 0) // ID
            {
                uint16_t jump_size = 0, page = 0, param, param_size, r_pos;
                uint8_t flag_check_func = 1, BGCP_func;

                r_pos = 4 + receive_data[3];
                r_pos += 1 + receive_data[r_pos]; // Position in array where FUNC block begins
                //******************** FUNC and DATA ********************//
                for(; r_pos < receive_data_size - 2; r_pos++)
                {
                    //=========== Special commands ===========//
                    param_size = 1;
                    //=== New function number
                    if((flag_check_func == 1) || (receive_data[r_pos] == BGCP_CMD_FUNC))
                    {
                        if(receive_data[r_pos] == BGCP_CMD_FUNC)
                            r_pos++;
                        flag_check_func = 0;
                        BGCP_func = receive_data[r_pos];
                        if(BGCP_func != BGCP_FUNC_RESP) // If the function number is not supported
                            break;
                        continue;
                    }
                    //=== New lead byte value for parameter numbers
                    else if(receive_data[r_pos] == BGCP_CMD_PAGE)
                    {
```

```
            page = receive_data[++r_pos];
            continue;
        }
        //=== New parameter size value
        else if(receive_data[r_pos] == BGCP_CMD_SIZE)
        {
            param_size = receive_data[++r_pos];
            r_pos++;
        }
        //=== If the parameter is not supported
        else if(receive_data[r_pos] == BGCP_CMD_NOT_SUP)
        {
            r_pos++;
            //******* Processing of non-supported parameters ******//
            param = (uint16_t)(page << 8) | (uint16_t)(receive_data[r_pos]);
            switch(param)
            {
                case 0x0001:
                    break;
                case 0x0002:
                    break;
                 ...
            }
            //*********************//
            continue;
        }
        jump_size = param_size;
        //=================================//

        //******* Processing of supported parameters ******//
        param = (uint16_t)(page << 8) | (uint16_t)(receive_data[r_pos]);
        switch(param)
        {
            case 0x0001:
                State_Power = receive_data[r_pos+1];
                break;
            case 0x0002:
                State_Speed_mode = receive_data[r_pos+1];
                break;
             ...
        }
        //*********************//
        r_pos += jump_size;
    }
    //********************************************************//
        }
      }
    }
}
```