



INVENTER

iV-Smart⁺ sMove

Operating instructions

 HIGH-TECH
MADE IN GERMANY

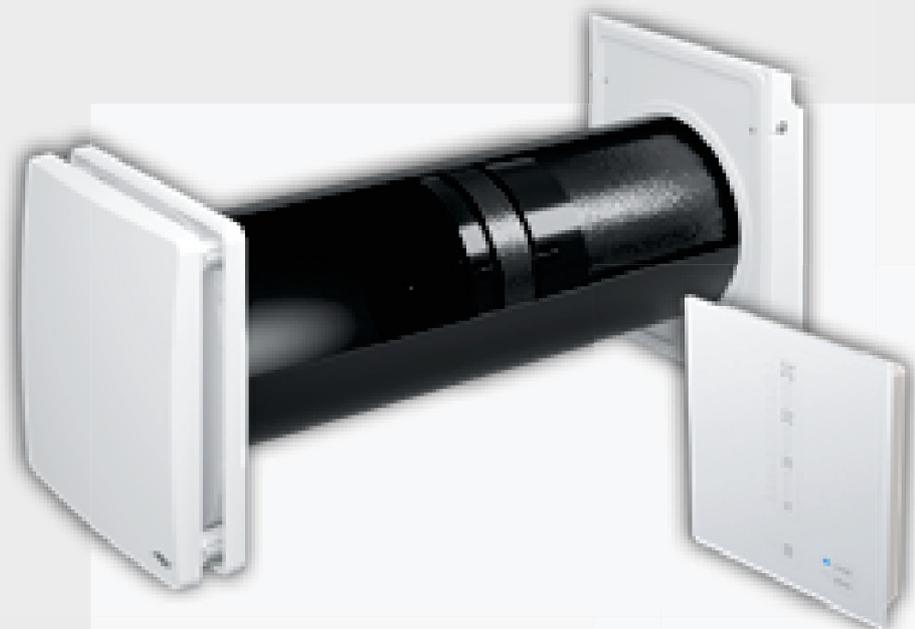


Table of contents

1	User and safety instructions	4
1.1	User information	4
1.2	Safety instructions	5
2	System overview	7
2.1	Construction	8
2.2	Function	9
2.3	Control elements	10
3	Operation of the iV-Smart⁺ ventilation unit	11
3.1	Opening/closing the inner cover	11
3.2	Tilting the inner cover	11
4	Operating the sMove controllers	12
4.1	Design and features	12
4.2	Activating the controller	15
4.3	Setting mode	16
4.4	Set output	18
4.5	View hours run	19
5	Cleaning and maintenance	20
5.1	Remove the inner cover panel	21
5.2	Cleaning/replacing dust filters	22
5.3	Removing the thermal accumulator insert	23
5.4	Cleaning and reassembling the thermal accumulator insert	24
5.5	Attaching the inner cover	26
6	Troubleshooting and disposal	27
7	Specifications	29
8	Accessories and spare parts	30
9	Guarantee and warranty	32
10	Service	32
	Appendix 1: Wiring protocol	33
	Appendix 2: Cleaning protocol	34

Trademarks, copyrights and property rights

inVENTer®, Xenion®, inVENTron®, and Clust-Air® are registered trademarks of inVENTer GmbH.

The copyright of this document remains with the manufacturer. Rights to all contents and images: © inVENTer GmbH 1999-2018.

All trademarks used in this document are the property of their respective manufacturers and are hereby acknowledged.

Disclaimer

This documentation is a translation of the original German operating instructions. After completion of the installation it must be given to the user (tenant, owner, property management, etc.). The content of this documentation has been checked for compliance with the described hardware and software. Nevertheless deviations may still occur, therefore no guarantee of compliance can be provided. This documentation describes the functionality of the standard scope. The documentation does not purport to cover all details on all types of the product and cannot cover every conceivable scenario for operation, cleaning and maintenance. The illustrations in this document may differ slightly from the design of the product that you have purchased. The same functionality is ensured despite any design deviations.

This documentation is updated regularly. Necessary corrections and appropriate supplements are always included in subsequent editions. You can find the latest version at www.inventer.eu/downloads

Version 1.0

1 User and safety instructions

Thank you for purchasing this high quality product from inVENTer!

Your inVENTer product is an exclusive system for the ventilation of your living premises, which additionally contributes to improving energy efficiency via the principle of heat recovery. Our inVENTer ventilation units are made to the highest quality standards in Germany using premium materials.

This section provides an overview of the basic safety precautions for safe and proper operation of your ventilation unit.

1.1 User information

Concept of safety instructions

The safety and warning instructions in these operating instructions have a uniform structure and are marked with a symbol on the left side of the instruction. A signal word in front of the text also indicates the hazard level. If several hazard levels exist, the highest level safety instruction is always used.

The safety and warning instructions contain the following information.



SIGNAL WORD: Type and origin of the hazard. Possible consequences of the hazard! Measures to avoid the hazard.

A signal word indicates the severity of the potential hazard unless the preventative measures are taken.



WARNING indicates: Imminent danger of serious injury or death.



CAUTION indicates: Imminent or possible risk of minor/significant injury.



NOTICE indicates: Imminent or possible damage to property due to an adverse event/state.

If you see this sign, ensure you observe the described measures to prevent possible hazards and/or damage.

Other symbols used in this documentation

In addition to the safety instructions, the following symbols are used:



A **TIP** symbol indicates practical and useful tips for handling your ventilation unit.



A tool symbol before an installation sequence lists any additional tools and materials required for the described task.



A **Red frame** surrounding a graphic indicates that the interior wall is shown.

► **Action required:** this requires you to perform a specific action.

⇒ **Check the results:** this requires you to check the results of the action you have performed.

12 Safety instructions

These operating instructions are part of the ventilation unit and must be permanently available. When handing the equipment/system to a third party, the operating instructions must be handed over also. Please read the operating instructions carefully before operating or cleaning the system and observe all information provided in this section about operating, cleaning and maintaining your system. Also note the safety instructions that precede the described handling instructions. Non-observance of safety warnings could result in injury and/or property damage.

Intended use

The ventilation unit is designed to ventilate dwellings and similar residential spaces. It is controlled via an inVENTer system controller.

General instructions

- Use the equipment/system exclusively for the applications that are described in this documentation and only in conjunction with components that are recommended, authorised and described by inVENTer GmbH in this documentation. Changes or modifications to the equipment/system are not permitted.
- Your ventilation unit is exclusively designed for use in ambient temperatures between -20 and 50 °C.
- Proper operation and cleaning/maintenance are required for trouble-free and safe operation of the equipment/system.
- **WARNING:** Install a pressure monitor in rooms with open flues. In any case air exchange must be assured to be sufficient for the ventilation units as well as the fire place. Consult your chimney sweeper and/or building planner before installation!
- **NOTICE:** Do not place the unit near radiators, room thermostats or in the immediate vicinity/above sensitive paintings or furnitures.
- **NOTICE:** Maintain a minimum circumferential clearance of 250 mm to avoid the mixing of outdoor air and exhaust air.
- **NOTICE:** Observe the predetermined minimum distance of 300 mm in front of the ventilation unit to ensure access to the unit and its components. Remove/avoid obstacles that hinder access to, or removal of, the unit's components.



Cleaning and maintenance

- **CAUTION: Operation and/or maintenance of the ventilation unit and its controllers must not be carried out by children and/or persons who are not fully capable of doing so due to their physical, sensory or mental capabilities, inexperience or lack of knowledge. Young children should be supervised to ensure that they do not play with the device.**
- **NOTICE:** Your ventilation unit and controller have scratch-sensitive plastic surfaces. Do not touch the inner cover with oily and/or dirty hands. Avoid contact with sharp or pointed objects, e.g. rings.
- **NOTICE:** Do not use strong cleaning agents or solvents. Use a soft, damp cloth to clean the plastic surfaces.
- **NOTICE:** Your inVENTer® ventilation unit operates with a protective low voltage and an operating voltage of 6 – 16 V DC. The ventilation unit must not be connected directly to the 230 V power grid. It must **always be connected via a controller**.
- Before performing cleaning or maintenance tasks, disconnect the controller's power supply and put on gloves.

- Never use the unit without the filters and inner cover.
- Use the sMove controllers exclusively to control inVENTer ventilation devices with heat recovery.

If your device has a defect, contact your nearest distributor or our technical service.

Any kind of use other than the intended use will exclude all liability claims.

Improper use

Any use that is not mentioned in the intended use section, is considered to be improper.

Do not install the equipment in areas which...

- Contain (or may contain) strong oils or lubricants.
- Contain (or may contain) flammable gases, liquids or vapours.
- Contain (or may contain) extreme dusts.
- Are exposed to ambient temperatures below -20 °C and above 50 °C.
- Contains obstacles that hinder access to, or removal of, the unit's components.
- It is used to dry up the structure.

Qualified personnel

The equipment/system may only be operated and maintained in conjunction with this documentation and the documentation for the controllers.

Any necessary cleaning or maintenance tasks can be carried out by the user by following the instructions. Operation and/or maintenance of the ventilation unit and controller must not be carried out by children and/or persons who are not fully capable of doing so due to their physical, sensory or mental capabilities, inexperience or lack of knowledge.

Conformity

The ventilation unit complies with the applicable technical safety requirements and standards for household and similar electrical appliances. They are conform to the following European directives:

- 2014/30/EC: Electromagnetic compatibility directive
- 2009/125/EC: Energy related products directive
- 2014/35/EC: Low voltage directive
- 2011/65/EC: Restriction of certain Hazardous Substances (RoHS) directive

2 System overview

The iV-Smart⁺ ventilation system is designed to ventilate living rooms and bedrooms in single- and multi-family houses, hotels and guest houses, rooms in public facilities and work rooms in office buildings. It is usually located in the exterior wall.

The construction of the iV-Smart⁺ product range complies with the applicable European directives.

The ventilation unit iV-Smart⁺ comprises a wall sleeve into which a thermal accumulator insert is installed, as well as an inner cover and an exterior closure. The thermal accumulator insert contains the ceramic thermal accumulator and inVENTron[®]. The flow-optimised design of inVENTron[®], the two guiding vanes with embedded reversible fan Xenion[®], ensures efficient capacity utilisation and even flow through the thermal accumulator.

It is controlled via one of the following inVENTer[®] system controllers¹⁾:

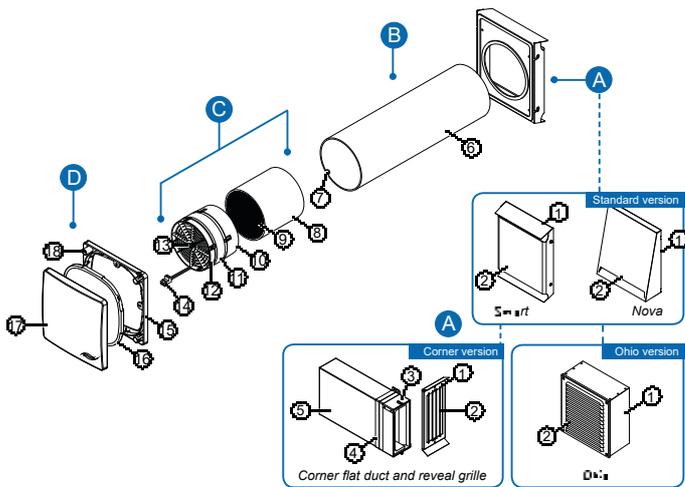
- sMove s4
- sMove s8
- MZ-Home

Components (see fig. page 8)

- Inner cover incl. dust filter of class G4
- Thermal accumulator insert (thermal accumulator and inVENTron[®])
- Wall sleeve
- Exterior closure
- Pollen, micro and activated carbon filter options available
- Sound and wind protection options available as accessory

Models

- **Standard version:** iV-Smart⁺ ventilation units with driving rain proof weather protection hood Nova or Smart (white/grey/Nord/custom colour)
- **Corner version:** iV-Smart⁺ ventilation units with flat duct integrated into the thermal insulation layer and reveal grille (white/grey/Nord/custom colour). Due to the reveal grille in the window reveal the ventilation unit disappears subtly into the external wall.
- **Ohio version:** iV-Smart⁺ ventilation units with weather protection hood Ohio (grey) It is designed as an solution for buildings with the special requirements of particularly thin exterior walls, e. g. if due to construction requirements no thermal insulation may be fitted.



- A**
 - 6 Wall sleeve R-D160
 - 7 Recess for fan BUS (interior wall side)
- B**
 - 8 Thermal accumulator with insulation
 - 9 Thermal accumulator handle
 - 10 Standard guiding vane (broad)
 - 11 Xenion reversible fan
 - 12 Slim guiding vane (slim)
 - 13 Guiding vane knob
- C**
 - 14 BUS plug connection
 - 15 Inner cover base plate
 - 16 Dust filter
 - 17 Inner cover panel
 - 18 Spacer (4 x)
- D**
 - 1 Metal sleeve with Neopor insert
 - 2 Protective grille

2.2 Function

The iV-Smart+ ventilation system is used to provide ventilation for living rooms and bedrooms. An integrated thermal accumulator in combination with the reversible fan Xenion and the guiding vanes ensures optimum heat recovery with maximum air flows in its class.



The ventilation unit operates on the principle of heat recovery by changing the direction of the fan. The integrated thermal accumulator charges itself with heat energy from the room's air as it flows to the exterior (extract air). After 70 seconds, each Xenion reversible fan changes direction. When the reversible fan changes direction, it releases the stored heat energy into the incoming outside air (supply air).

For this principle to work correctly and to ensure the room's pressure stability the incoming air and extract air volumes must match, i. e. two iV-Smart+ ventilation units are required. These are operated in pairs in push-pull operation: One ventilation unit works in supply air mode while the other works in extract air mode at the same time.

Due to the Xenion reversible fan's high pressure built-up and active speed control (integrated wind stabiliser) the air flow within the system is kept nearly constant. Thus, the air flow's sensitivity to pressure variation meets the requirements of class S3 according to EN 13141-8 (max. 30 % air flow deviation at ± 20 Pa).

In order to ensure the full functioning of the ventilation system throughout the entire year, an additional, flexible temperature sensor is integrated into the Xenion reversible fan. This measures the temperature of the air flow. If the temperature falls below $+5$ °C, the reversible fan is automatically switched to extract air mode for 4 cycles. This allows the thermal accumulator to heat up again and prevents cooling of the interior due to cold drafts. During this phase, the mode that has been set on the controller is ineffective. Subsequently, the controller switches the ventilation unit back to the originally selected mode.

A multi-use dust filter of filter class G4 is integrated discreet and easy of access into the inner cover. It filters off reliably dusts as well as allergenic particles (such as pollen) from the ambient air before it can enter living spaces. Dust filters are season independent. For special requirements micro, pollen and activated carbon filters are available as an option.

A decentralised ventilation system is based on the free movement of air between individual pairs of ventilation units. Therefore, internal doors must not have air-tight seals. Ensure adequate air transfer measures: An air gap of about 10 mm below the door, unscrew the hinges by 5 mm, use a ventilation grille or similar (cross ventilation).

The ventilation unit is controlled via one of the inVENTer system controllers. Depending on the controller, operating modes and functions may be selected.

2.3 Control elements

sMove controller



The controllers from the sMove product range are electronic control units for controlling the iV-Smart+ ventilation units. They are characterised by their timeless and slim design and a simple touch-based operating concept.

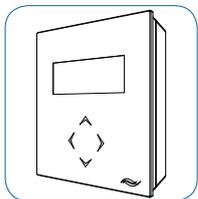
The sMove controller is available in the s4 and s8 versions. s4 is used to control up to four iV-Smart+ ventilation units. s8 is used to control up to eight iV-Smart+ ventilation units.

Both versions are available in a flat and standard version: In contrast to the flat version, in addition to pause mode, the standard version provides the option to switch off the ventilation unit completely.

The connected ventilation units can be controlled in the following modes:

- Heat recovery
- Continuous ventilation
- Pause function
- Off (only sMove standard version)

MZ-Home controller



The MZ-Home controller is an electronic control unit for controlling up to 16 iV-Smart+ ventilation units.

Due to its unique and patented Clust-Air technology (multi-zone control) and its versatility MZ-Home controls up to four zones within the residential unit. Thus, it ensures individual ventilation to each living area.

The MZ-Home controller consists of a control unit and at least one (optional up to four) Clust-Air module(s). Each Clust-Air® module can control up to four iV-Smart+ ventilation units in different zones within the accommodation unit. For each zone, the operating mode and output level

can be set manually or via a 7-day timer.

The connected ventilation units can be controlled in the following modes:

- Heat recovery
- Continuous ventilation
- Dehumidification
- Off / Pause function

The sMove and MZ-Home controllers can be expanded with additional sensors. An external interface allows the connection of a potential-free switching contact or integration into an existing home automation system via an analogue input.

For detailed information see the separate operating instructions of the controller.

3 Operation of the iV-Smart+ ventilation unit

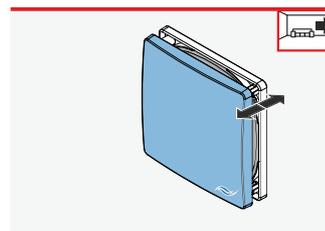
3.1 Opening/closing the inner cover

For correct functioning of your ventilation system the ventilation unit's inner cover must be opened.

Close the inner cover if you take the ventilation unit out of operation. This will prevent an undesired air exchange, i. e. an inflow of cold air into the living room.

In particular situations (i. e. accidents with smoke or leaking gases) it is necessary to close all doors and windows. In these situations your ventilation units must be disconnected from the power supply and inner covers must be closed as well.

Re-open the inner cover before taking the ventilation unit into operation again.



Requirements: The inner cover panel is attached.

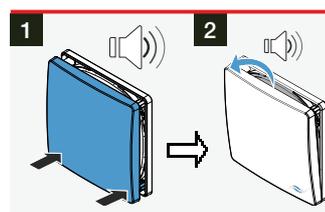
Closing the inner cover:
▶ Press the inner cover panel into the base plate in the direction of the interior wall.

Opening the inner cover:
▶ Pull the inner cover panel forwards until you feel all four spacers snap into place.

⇒ You have opened/closed the inner cover.

3.2 Tilting the inner cover

To enable direction of the flow rate, the panel of the Flair inner cover can be tilted upwards and downwards. The inner cover becomes closed at the tilted side, thereby directing the flow rate in the open direction. The sound pressure level is decreased. Also note that the flow rate decreases if the inner cover is only partially open.



Requirements: The inner cover is open.

▶ Slide the inner cover panel onto the lower (upper) spacers in the direction of the base plate.

⇒ You have tilted the inner cover panel downwards (upwards).

⇒ The air flow will now be directed upwards (downwards).

⇒ The sound pressure level is decreased.

4 Operating the sMove controllers

Operating mode, output level and further functions, i. e. pause function, are adjusted via one of the inVENTer system controllers¹⁾.

They are operated by touching the capacitive button and the slide control on the control panel. With its integrated indicator lights, the control panel also serves as a display surface.

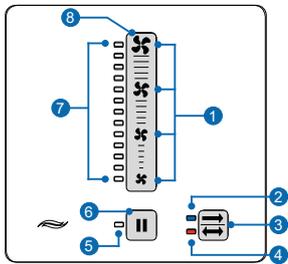
Flat version: When in pause mode the controller switches off the ventilation unit for one hour. Subsequently, the ventilation unit continues to work in heat recovery mode at the lowest output level. The use of the flat version is recommended in areas where it is desirable not to turn off the ventilation unit in order to maintain humidity levels.

Standard version: In addition to pause mode, the standard version provides the option to switch off the ventilation unit completely.

4.1 Design and features

Control panel

The control panel is located on the front of the control unit and also serves as a display surface. It is composed of capacitive buttons and various indicator lights. It is operated by touching the various buttons (marked in grey in figure 2).



- 1 Marker for output levels 1 – 4
- 2 Continuous ventilation mode (blue) indicator light
- 3 Operating mode button
- 4 Heat recovery mode (orange) indicator light
- 5 Pause/Off indicator light
- 6 Pause/Off button
- 7 Output level indicator lights
- 8 Slide control

Figure 2: Operating and display elements on the control panel

Slide control:

Briefly pressing the fan symbol allows you to select one of the four specific output levels. Touching the slide control for approx. one second lets you continuously adjust the output level by moving it. The position of the illuminated display on the left side of the slide control indicates the currently set output level.

¹⁾The operating instructions for the MZ-Home controller are not part of this documentation. They are available separately.

Mode button:



Pressing again lets you switch between the heat recovery and ventilation modes. The indicator lights to the left of the Mode button displays the currently set mode.

The output level of the ventilation unit can be adjusted in all operating modes.

Output level	Symbol	Flow rate (%)
1	☰	25
2	☷	35
3	☹	50
4	☺	100

Pause/Off button:



A brief press of the controller allows you to switch to the pause function. In the standard version, pressing the button for 5 seconds allows you to completely switch off all ventilation units connected to the controller. Pressing it again switches the connected ventilation units back on. In Flat version the ventilation unit cannot be shut off completely.

Function

sMove s4 controller without connected interface

If the external interface is not connected, the mode and the intensity of the air flow can be set on the sMove controller.

The heat recovery and continuous ventilation modes can easily be set by touching the Mode button. The OFF mode or the pause function can be selected by touching the Pause/Off button. An indicator light next to the button indicates the selected mode.

The intensity of the ventilation can be adjusted continuously by moving the slide control, or in four steps by touching the fan icons on the slide control. The position of the illuminated display on the left side of the slide control indicates the currently set output level.

sMove s4 controller with connected interface

The external interface is a bi-functional port on the back of the operating unit. It enables the connection of a sensor with a potential-free switching contact (NOC) or the use of an analogue input to integrate the ventilation unit into an existing home automation system.

Connecting the external interface changes the functionality of your controller as follows:

A. Interface as external switching contact

The sensor used must have a potential-free relay contact (NOC). The function settings of the interface are adjusted via the jumper on the back of the operating unit.

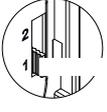
The connection of a pressure monitor is necessary in rooms with air-ventilated fireplaces. Consult a chimney sweep/construction planner about this. If the interface is used for a pressure switch, the air pressure in the interior is measured continuously. Once the air pressure exceeds or falls below the safety threshold, the sensor reacts and turns off all connected ventilation units.

If the external interface is used to connect a

- CO₂ sensor, the CO₂ content in the interior is measured continuously.
- hygrostat, the relative humidity in the interior is measured continuously.
- VOC sensor, the composition of the air and the resulting air quality are measured continuously.

A CO₂ sensor and a hygrostat are optionally available as accessories.

Once the respective value exceeds the upper limit or falls below the lower limit, the sensor reacts and switches all connected ventilation units to ventilation mode, output level 4.

Sensor	Jumper 2 setting	Upper limit exceeded/ switch activated	Lower limit exceeded/ switch deactivated
Pressure switch	Jumper 2 attached (closed) 	Switch all ventilation units connected to the controller to the OFF mode.	Switch all ventilation units connected to the controller to the originally set mode.
CO ₂ Sensor	Jumper 2 not attached (open) 	Switch all ventilation units connected to the controller to continuous ventilation mode, output level 4.	Switch all ventilation units connected to the controller to the originally set mode.
VOC sensor			
Hygrostat			

B. Interface as analogue input

If the interface is used as an analogue input, the ventilation unit can be integrated into an existing home automation system. To do so, a predefined voltage level is set in the home automation control unit, depending on the desired function.



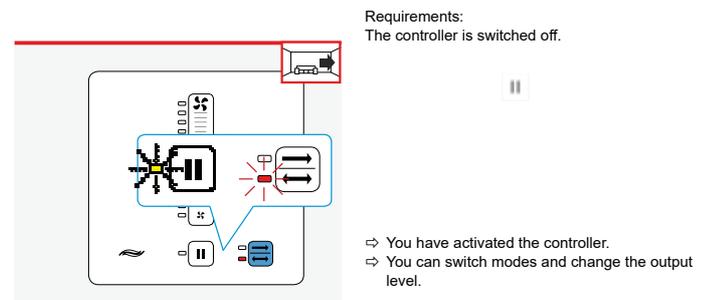
TIP: It is not possible to connect a potential-free switch and an analogue input simultaneously. A connected analogue input always has priority over a potential-free switching contact. The jumper on the back of the operating unit must not be attached.

Depending on the control voltage, the following functions are available:

Function	Fan voltage [V DC]
Continuous ventilation output level 4	0.00 ≤ U ≤ 0.25
Continuous vent at an output level 3	0.75 ≤ U ≤ 1.25
Continuous vent at an output level 2	1.75 ≤ U ≤ 2.25
Continuous vent at an output level 1	2.75 ≤ U ≤ 3.25
OFF	3.75 ≤ U ≤ 4.25
Heat recovery output level 1	4.75 ≤ U ≤ 5.25
Heat recovery output level 2	5.75 ≤ U ≤ 6.25
Heat recovery output level 3	6.75 ≤ U ≤ 7.25
Heat recovery output level 4	7.75 ≤ U ≤ 8.25

4.2 Activating the controller

After activating the controller (e. g. after a power cut), the heat recovery mode will be active.



If no change is made after the controller is activated, the controller will switch on the reversible fans at the lowest output level after 60 minutes.

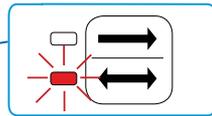
4.3 Setting mode

Setting heat recovery mode

The ventilation unit operates on the generator principle. The fan changes direction at 70-second intervals. The integrated thermal accumulator charges itself with heat energy from the room's air as it flows to the exterior (extract air). When the reversible fan changes direction, it releases the stored heat energy into the incoming outside air (supply air).

Requirements:
The controller is switched on.

► Press the button  until the orange LED on the left side of the button is illuminated:



⇒ You have selected heat recovery mode.

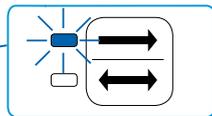
Setting continuous ventilation mode

The ventilation unit's fan works without changing direction. Thus, no heat recovery takes place in this mode. The continuous ventilation unit must be set to supply air mode.

This mode is recommended for cooling the room during summer nights.

Requirements:
The controller is switched on.

► Press the button  until the blue LED on the left side of the button is illuminated:



⇒ You have selected continuous ventilation mode.

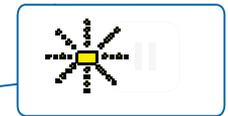
TIP: Pressing the button  again lets you switch between the heat recovery and continuous ventilation modes.

Setting pause function mode

When setting the pause function, the controller will first switch off the connected ventilation units. After 60 minutes, all ventilation units connected to the controller will restart in heat recovery mode at 25% of the maximum output level.

Requirements:
The controller is in heat recovery or continuous ventilation mode.

► Press the button 
 ⇒ The white Pause/Off indicator light flashes.



⇒ You have set the pause mode.

TIP: In the standard version, when the button  is pressed for longer than five seconds the controller will switch to OFF mode. The indicator light is permanently lit.

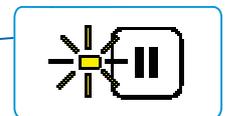
Setting OFF mode (only standard version)

The ventilation unit's fan is switched off when the mode is selected. If the controller is switched on, the controller must be activated again (see page 15)

NOTICE: In Flat version the ventilation unit cannot be shut off completely.

Requirements:
The controller is in heat recovery or continuous ventilation mode.

► Press the button  longer than 5 seconds
 ⇒ The white Pause/Off indicator light is permanently lit.



⇒ You have shut off the controller.

4.4 Set output

The intensity of the ventilation can be adjusted continuously by moving the slide control, or in four steps by touching the fan icons on the slide control. The fan icons on the slide control indicate output levels 1 (25 %), 2 (35 %), 3 (50 %) and 4 (100 %). They serve as a guide. The new setting takes effect immediately, so that adjustments can be made purely by listening to changes in the sound level.

Setting the output with predefined levels

Requirements:
The controller is in heat recovery or continuous ventilation mode.

▶ Press the button with the symbol matching the desired output level, e. g. level 3:

- ▶ Fan output 100 % (level 4)
- ▶ Fan output 50 % (level 3)
- ▶ Fan output 35 % (level 2)
- ▶ Fan output 25 % (level 1)

⇒ The indicator light to the left of the selected fan icon will be illuminated.

⇒ You have set the predefined output level.

Set continuous output adjustment

Requirements:
The controller is in heat recovery or continuous ventilation mode.

- ▶ Place your finger on the slide control for 1 second.
⇒ The slide control is now active.
- ▶ Move your finger on the slide control to the desired output level.
⇒ The indicator light to the left of the slide control displays the output level set.

⇒ You have set continuous output adjustment.

4.5 View hours run

The sMove controller comes with an integrated hours-run counter. The operating time is displayed in days. The maximum displayable number is 4,000 days. One day corresponds to a calculation period of 24 hours. There is no further split within these 24 hours.

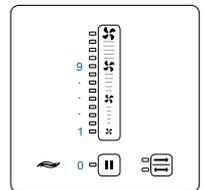
The operating time is displayed as a 4-digit number.

Every digit, beginning with the first place, will be individually displayed by an indicator light to the left of the slide control/pause button .

The indicator light to the left of the button corresponds to the number 0.

The indicator lights to the left of the slide control correspond to the numbers 1 (bottom) to 9 (top). When the number is displayed, the end value will be permanently lit. To simplify the numbering, a number of running lights corresponding to the end value will move towards the end value.

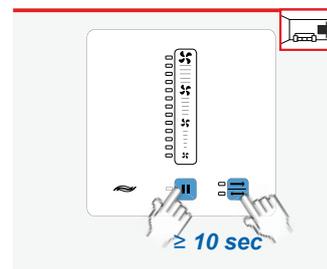
The display disappears between the individual numbers.



Requirements:
The controller is switched on.

- ▶ Press the  and  simultaneously for 10 seconds until the display lights switch off.
- ▶ Note down the digits displayed.
- ▶ Combine the digits into a number:
Number in 1st place = first digit displayed
Number in 2nd place = second digit displayed
Number in 3rd place = third digit displayed
Number in 4th place = fourth digit displayed

⇒ You have requested the days of operation for the controller.



Example

Number's position	Indicator light	Digit
first place	left of the pause button	0
second place	End value: 4th indicator light to the left of slide control 4 running lights move to the end value	4
third place	left of the pause button	0
fourth place	End value: 7th indicator light to the left of slide control 7 running lights move to the end value	7

⇒ The controller has been in operation for 0-4-0-7 days (407 days).

5 Cleaning and maintenance

The iV-Smart⁺ ventilation units and the sMove controller are virtually maintenance-free. Any necessary cleaning or maintenance work can be carried out by the user by following these instructions.

TIP: Before performing cleaning or maintenance tasks, disconnect the controller's power supply and put on gloves.

Detergents

NOTICE
The plastic/glass surface of the inner panel/controller is not scratch-resistant and may be damaged.
• Do not use sand, soda, acid or chlorine-based cleaning agents.

A commercially available detergent in warm water can be used for cleaning. The following tools may be used for cleaning:

- lint-free, soft cloth
- soft brush
- Vacuum cleaner

Recommended maintenance

The maintenance tasks and intervals listed here are recommended by inVENTer GmbH to maintain the functionality and performance of the iV-Smart⁺ ventilation system.

Depending on requirements and/or air quality, your personal maintenance plan may deviate from these recommendations.

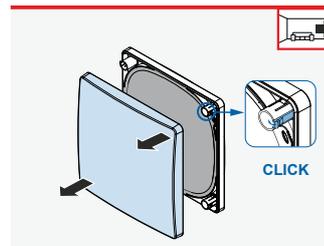
Interval	Assembly	Maintenance activity
Cleaning from the interior room		
Monthly	Micro filter	Replace the micro filter.
	Pollen filter	Replace the pollen filter.
	Inner cover	Clean the surface of the panel with a damp cloth.
	sMove controller	Clean the acrylic glass cover and side surfaces with a damp cloth. Brush the ventilation slots free.
Quarterly	Dust filter	Wash the dust filter with warm water and detergent. Or Replace defective dust filters.

Interval	Assembly	Maintenance activity
Half-yearly	Thermal accumulator	Remove the thermal accumulator and clean it under running warm water.
	Guiding vanes	Remove the guiding vanes from the fan. Clean the guiding vanes using a soft brush or under warm running water.
	Reversible fan	Clean the fan blades with a brush.
	Wall sleeve	Clean the wall sleeve with a damp cloth.
	Carbon filter	Replace the activated carbon filter.
	Sound protector	Replace the sound protector.
	Sound absorbing insert	Gently pat off the sound absorbing insert.
Yearly	Wind protection insert	Wash the wind protection insert with warm water and detergent.
	Inner cover base plate	Clean the surface of the base plate with a damp cloth.
Cleaning from the exterior		
Yearly	Exterior closure: weather protection hood	Clean the surface of the cover and the protective grille with a damp cloth.
	Flat duct	Remove the reveal grille. Clean the interior side of the flat duct with a damp cloth. Screw the reveal grille to the flat duct.

5.1 Remove the inner cover panel

To clean and maintain the ventilation unit, first remove the panel of the inner cover.

Requirements: The ventilation unit is switched off.

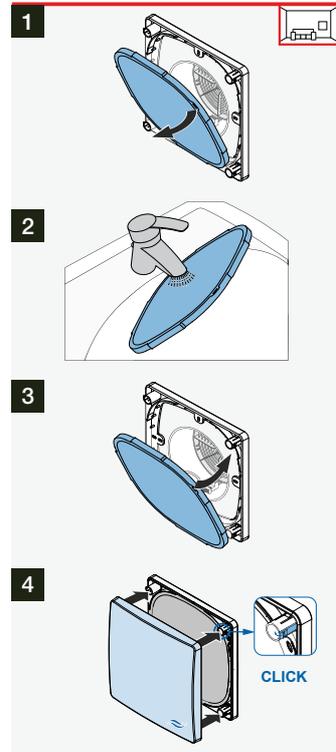


⇒ You have removed the panel of the inner cover.

5.2 Cleaning/replacing dust filters

TIP: inVENTer dust filters of class G4 are highly durable and can be washed repeatedly. We recommend cleaning the dust filter regularly. For specific requirements, pollen filter, micro filter and activated carbon filter are available as accessories. You can find assembly instructions in the filter operating instructions provided.

Requirements:
The reversible fan is switched off on the controller.
The inner cover's panel has been removed. (📖 3.1)



► Pull the contaminated filter out of the inner cover base plate by the tab.
⇒ The dust filter has been removed.

► Clean the dust filter under warm running water.
► Wait until the filter is completely dry, or

► Dispose of the dust filter if defective.

► Insert a new or cleaned dust filter into the base plate.
Ensure you push the filter ring firmly between the fixing projections and the inner edge of the inner cover base plate.
Ensure that the tab on the filter ring is pointing towards the interior.

► Place the cover on the four spacers.
Ensure that the inVENTer logo is located on the bottom right).
► Press the side detent lugs inwards on the inner cover base plate's spacers.
► Slide the inner cover panel onto the spacers.
⇒ All spacers noticeably snap in.

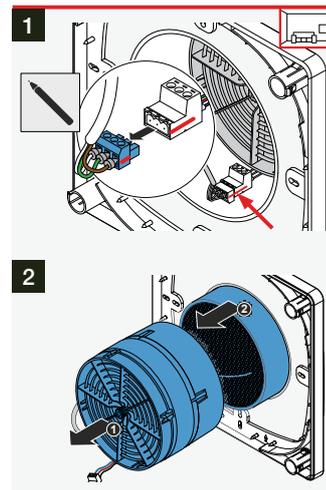
⇒ You have changed the dust filter.

5.3 Removing the thermal accumulator insert

Pen to mark the connector orientation

Requirements:
The reversible fan is switched off on the controller.
The dust filter has been removed. (📖 5.2)

TIP: Before removing, mark the orientation of the green controller plug. This will prevent the reversible fan spinning in the wrong direction after reassembly.



► Mark the orientation of the BUS connector. This will prevent the reversible fan spinning in the wrong direction after reassembly.
► Disconnect the BUS connector.

NOTICE: In case of damage to the ceramic thermal accumulator it will no longer function!

- Do not throw the ceramic thermal accumulator.
- Store the thermal accumulator in the standing position outside the wall sleeve.

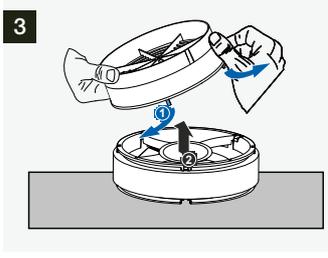
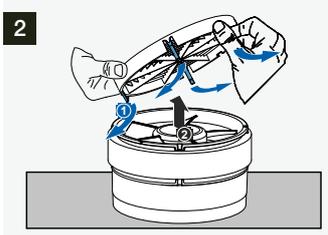
► Step 1: Remove inVENTron from the wall sleeve by the knob.
► Step 2: Remove the thermal accumulator from the wall sleeve by the handle.

CLEANING AND MAINTENANCE

5.4 Cleaning and reassembling the thermal accumulator insert

 Soft brush, lint-free soft cloth and warm water

Requirements:
The thermal accumulator insert has been removed.



NOTICE: Incorrect cleaning of the thermal accumulator will result in damage to the insulation on the thermal accumulator.

- Always clean the thermal accumulator under warm running water.
- Never clean it in the dishwasher.

NOTICE: When breaking the attachment strips on the guiding vane, the guiding vane can no longer be attached to the fan!

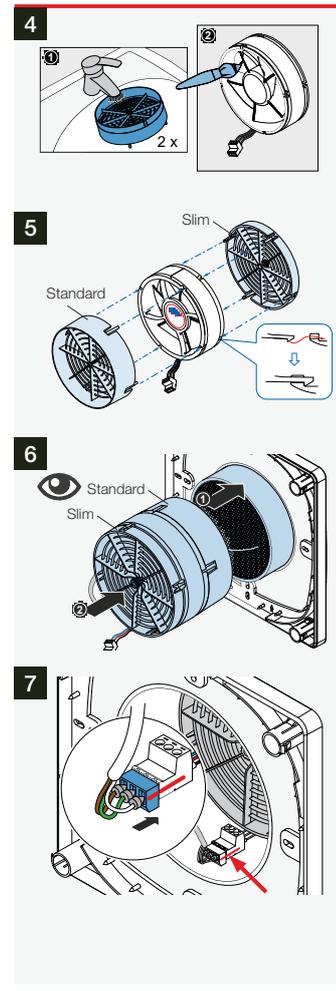
- Carefully bend the strips away from the guiding vane.
- If you can feel resistance, stop bending the strips outwards.

- Place iVENTion on an even surface.
- Remove the Slim guiding vane from the fan.

Step 1: Carefully bend the lateral strips on the guiding vane away from the fan one after the other.
Hold the first removed strip in the current position with one hand until the guiding vane is completely removed.
⇒ The guiding vane is separated from the fan.

- Step 2: Lift the guiding vane upwards.
- Turn the fan so that the remaining guiding vane is pointing upwards.
 - Remove the guiding vanes from the fan.
 - ⇒ Remove the remaining guiding vane as previously described.

CLEANING AND MAINTENANCE



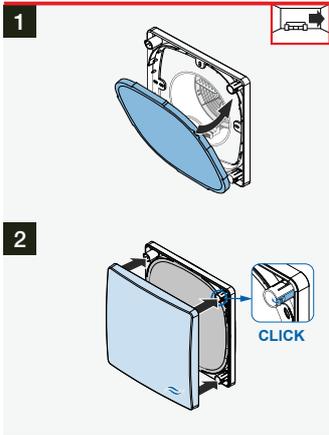
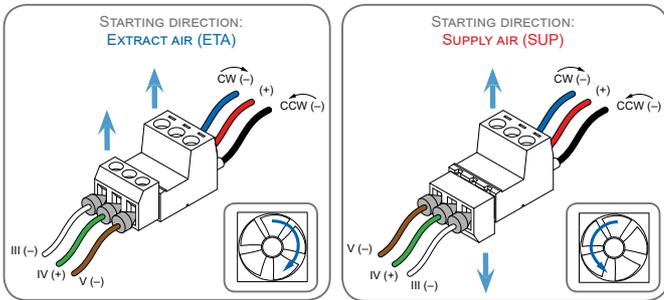
- Step 1: Clean both parts of the guiding vane carefully with a soft brush or under warm flowing water.
- Let the guiding vane drip dry. Wait until the guiding vane is completely dry.
- Step 2: Clean the reversible fan carefully with a soft brush.

Reattach the guiding vanes to the reversible fan. Ensure that the smaller Slim guiding vane is located on the side WITHOUT type plate.

If there are no markings on the connector start one of the paired fans in extract air mode and the other in supply air mode (Appendix 1: Wiring protocol or 26)

Optional with **7** : Set starting direction of reversible fan

Note the starting direction of the respective unit in the connection plan. (Appendix 1) Thus the starting direction is determined for upcoming maintenance tasks and a wrong connection will be avoided.



▶ Insert the dust filter into the base plate.
Ensure you push the filter ring firmly between the fixing projections and the inner edge of the inner cover base plate.
Ensure that the tab on the filter ring is pointing towards the interior.

▶ Place the cover on the four spacers.
Ensure that the inVENTer logo is located on the bottom right.
 ▶ Press the side detent lugs inwards on the inner cover base plate's spacers.
 ▶ Slide the inner cover panel onto the spacers.
 ⇨ All spacers noticeably snap in.

⇨ You have attached the inner cover.

6 Troubleshooting and disposal

Troubleshooting

If your ventilation units or controllers are not functioning properly, consult the following troubleshooting table. If the fault persists, contact your supplier, distributor or the technical service department at inVENTer GmbH.

Malfunction	Possible cause	Remedy
Fan failure	No electrical power.	Check fuse.
	Installation error.	Check wiring for correct polarity. Check all connectors for correct fit.
	Fan defective.	Replace fan.
	Controller/power supply unit defective.	Replace controller/power supply unit.
Fan does not switch off.	Faulty controller.	Replace controller.
Low air flow	Inner cover closed.	Open inner cover panel.
	Dust filter/pollen filter heavily soiled.	Clean/replace dust filters. Replace pollen filters.
	Micro filter inserted.	The addition of a micro filter reduces the flow rate. Only use a micro filter during periods of heavy pollution. Replace filter if heavily soiled.
	Fans are not operating in paired mode.	Connect the first fan in extract air mode and the second fan in supply air mode.
	Fan speed is too low.	Increase the output level.
Thermal accumulator is soiled.	Clean the thermal accumulator.	
Noises	Foreign body in the fan.	Remove foreign body from the fan. Clean the ventilation unit.
	Fan blades soiled.	Clean fan blades.
	Thermal accumulator is not correctly positioned in the wall sleeve.	Slide the thermal accumulator out of the wall sleeve. Insert it again. Slide the thermal accumulator into the wall sleeve as far as the end stop tape.
	Fan speed very high.	Set a lower output level on the controller.
Supply air is cold	Installation error.	Check the connector plug on the controller. The connector plug must be sitting firmly in the connector housing.
	The controller is operating in continuous ventilation mode.	Select heat recovery mode on the controller.

Malfunction	Possible cause	Remedy
Wrong controller function when interface is connected	Upper jumper is incorrectly/ not connected	Check position of the jumper on the back of the operating unit: Attached: Operating mode OFF Not attached: Ventilation mode
Controller does not function.	Operating unit is incorrectly/ not connected.	Check wiring.
	No electrical contact.	Check cables. Ensure cables are stripped sufficiently (approx. 8.5 mm).
Indicator lights do not light up.	Faulty controller.	Replace controller.
	There is no power.	Check power supply.
Slide control defective.		Replace controller.

Disassembly

Disassemble the ventilation unit in the opposite sequence to the assembly sequence. You can subsequently dispose of your old device. Please note the disposal recommendation outlined below.

Disposal



The products described in these installation and operating instructions contain valuable materials which can be recovered and recycled. Further information about the used materials are provided in the corresponding installation instructions.

The separation of waste materials into different varieties facilitates recovery of the recyclable materials. Contact an electronic appliance disposal company to arrange environmentally friendly recycling and disposal of your old system. They will dispose of the product in compliance with the applicable national regulations.

7 Specifications

Feature	Value		
iV-Smart+ ventilation unit			
Operating range [°C]	-20 – 50		
Air flow in reverse operation (push-pull) per unit [m³/h]	8.5 – 29		
Extract air flow per unit [m³/h] (EN 13141-8)	17 – 58		
Sound pressure level [dB (A)]	16 – 36		
Standard sound level difference [dB]	Standard: 38 – 49	Corner: 39 – 47	Ohio: 34
Heat recovery [η_{eff}]	0.87		
Input voltage [V DC]	6 – 16		
Power consumption [W]	1 – 3		
Protection class (EN 61140) / Type of protection (EN 60529)	III / IP20		
Filter class (standard filter) (EN 779:2012)	G4		
Air flow sensitivity at ± 20 Pa (EN 13141-8)	Class S3		
Frost protection	Automatically due to push-pull operation (up to -20 °C)		
Energy efficiency class	local demand control	A+	
	manual control	A	
Conformity	CE		
sMove controller			
Protection class (EN 61140) / Type of protection (EN 60529)	II / IP20		
Input voltage Switching PSU [V AC] [Hz]	230 / 50		
Output voltage Switching PSU [V DC] [Hz]	24		
Maximum power consumption s4/s8 [W]	11 / 20		
Power consumption (Standby) [W]	< 1		
Output voltage fan BUS [V DC]	6.7 – 15.3; 3 pole		
Analogue input (optional) [V DC]	0 – 10, Control voltage		
External switching contact (optional)	Potential free closer contact (NO)		
Operating temperature [°C]	5 – 50		
Conformity	CE		

8 Accessories and spare parts

To order parts for your ventilation unit or controller, contact your nearest factory outlet or our service staff.

Standard components

All standard components are available as spare parts.

Component	Item number
Standard exterior closure: Weather protection hood incl. sealing tapes	
Weather protection hood Smart, white – RAL9016	1508-0062
Weather protection hood Smart, grey – RAL9006	1508-0063
Weather protection hood Smart, Nord – RAL7011	1508-0069
Weather protection hood Nova R, white – RAL9016	1508-0080
Weather protection hood Nova R, grey – RAL9006	1508-0081
Weather protection hood Nova R, Nord – RAL7011	1508-0082
Corner exterior closure: Corner flat duct and reveal grille incl. sealing tapes	
Corner flat duct 90x220x400 (D160)	1506-0066
Corner flat duct 90x220x500 (D160)	1506-0067
Reveal grille V-90x220, white – RAL9016	1508-0018
Reveal grille V-90x220, grey – RAL9006	1508-0065
Reveal grille V-90x220, Nord – RAL7011	1508-0030
Exterior closure Ohio version: Weather protection hood incl. sealing tapes	
Weather protection hood Ohio, iV-Smart*, grey	1508-0072
Wall sleeve incl. protective discs and mounting wedges	
Wall sleeve R-D160x495	1506-0068
Wall sleeve R-D160x745	1506-0069
Thermal accumulator insert	
Thermal accumulator insert iV-Smart+	1507-0017
Inner cover	
Flair inner cover V-233x233, white	1505-0036
Flair inner cover V-233x233, white, incl. sound insulation SDE	1505-0037

Component	Item number
sMove controller	
sMove s4	1001-2006
sMove s8	1001-2007

Accessories

Component	Item number
Dust filter G4 IC Flair V-233x233 (2 x)	1004-0175
Pollen filter IC Flair V-233x233 (2 x)	1004-0143
Micro filter IC Flair V-233x233 (2 x)	1004-0144
Activated carbon filter IC Flair V-233x233 (2 x)	1004-0158
Sound absorbing insert R-D160	1004-0148
Sound protector SPR R-D160	1004-0154
Wind protection insert WSE R-D160	1004-0151
CO ₂ Sensor CS1	1004-0145
Hygrostat HYG12	1002-0015

Spare parts

Component	Item number
Ventilation unit	
Thermal accumulator R-D160 [150 mm]	2002-0061
inVENTron R-D160 Medium	2007-0031
Guiding vanes inVENTron Slim R-D160 incl. knob	3006-0278
Guiding vanes inVENTron Standard R-D160	3006-0250
Base plate IC Flair V-233x233	2003-0223
Panel IC Flair V-233x233	2003-0221
Panel IC Flair V-233x233 w/ sound insulation SDE	2003-0222
Spacer for base plate IC, 25 mm, white	3006-0151
Controllers	
Control panel switching PSU NT17-s4	3002-0274
Flush-mounted switching PSU NT17-s4	3002-0273
Control panel switching PSU NT17-s8	3002-0275
Flush-mounted switching PSU NT17-MZ/s8	3002-0267

9 Guarantee and warranty

Warranty

Outside Germany, the national warranty provisions of the country in which the system is sold apply. Please contact the distributor for your country.

The warranty refers to the defect-free condition of the product at the time of purchase and covers all defects that were present at the time of purchase. Failure to observe the intended use will invalidate all warranty claims.

Manufacturer guarantee

inVENTer GmbH provides a five-year guarantee for all electrical components and the wall mounting sleeve, as well as a thirty-year guarantee on the heat accumulator ceramic. This covers premature product wear.

Further information about the warranty is available at www.inventer.eu/guarantee.

10 Service

Warranty and guarantee claims

In the case of a warranty or guarantee claim, contact your local distributor or factory representative.

In all cases, return the complete device to the manufacturer. The guarantee is an additional offer by the manufacturer and in no way affects the applicable law.

Accessories and spare parts

To order parts for your controller, contact your nearest factory outlet or our service staff.

Technical customer service

For technical support contact our service staff.

 +49 (0) 36427 211-0
 +49 (0) 36427 211-113
 info@inventer.de
 <http://www.inventer.eu>

Appendix 1: Wiring protocol

Ventilation unit	Floor	Area/room and position	Ventilation zone (CAM)	Starting direction	
				Supply air	Extract air
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					



inVENTer



HIGH-TECH
MADE IN GERMANY

inVENTer GmbH

Ortsstraße 4a

D-07751 Löberschütz

 +49 (0) 36427 211-0

 +49 (0) 36427 211-113

 info@inventer.de

www.inventer.eu

Version dated 05/2018
Subject to modifications.
Item number: 5005-0004
© inVENTer GmbH 1999-2018