# **USER'S MANUAL**

SIKU RA1-50 V3 Twin Fresh Comfo SIKU RA1-85 V3 Twin Fresh Comfo





Single-room reversible energy recovery ventilator

## CONTENTS

SAFETY REQUIREMENTS	02
PURPOSE	04
DELIVERY SET	04
TECHNICAL DATA	05
DESIGN AND FUNCTIONING	06
MOUNTING AND SET-UP	08
CONNECTION TO POWER MAINS	10
CONTROL	13
TECHNICAL MAINTENANCE	15
TROUBLESHOOTING	16
STORAGE AND TRANSPORTATION REGULATIONS	16
MANUFACTURER'S WARRANTY	17
CERTIFICATE OF ACCEPTANCE	18
SELLER INFORMATION	18
INSTALLATION CERTIFICATE	18
WARRANTY CARD	18

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 SIKU RA1-50 V3 /RA1-85 V3 Twin Fresh Comfo 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

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.

Only qualified electricians with a work permit for electrical units up to 1000 V are allowed for installation and maintenance. The present user's manual should be carefully read before beginning works.

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 device 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.

### WARNING! Similar to the use of any other household electrical appliances when operating this fan, the following basic rules must be followed:

Never touch the unit with wet or damp hands. Never touch the unit when barefoot.

This appliance 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 appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.

The connection to the supply mains must be made

through a means of disconnection, which is incorporated in the fixed wiring in accordance with the wiring rules, 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 appliance 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 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 and partitions. The unit is rated for continuous operation.

THE UNIT MAY NOT BE OPERATED BY CHILDREN OR PERSONS WITH REDUCED PHYSICAL, MENTAL OR SENSORY CAPACITIES, OR LACKING THE APPROPRIATE TRAINING.



THE UNIT MUST BE INSTALLED AND CONNECTED ONLY BY PROPERLY QUALIFIED PERSONNEL AFTER THE APPROPRIATE BRIEFING.

THE CHOICE OF UNIT INSTALLATION LOCATION MUST PREVENT UNAUTHORIZED ACCESS BY UNATTENDED CHILDREN.

The unit is rated for continuous operation. Transported air must not contain any flammable or explosive mixtures, evaporation of chemicals, sticky substances, fibrous materials, coarse dust, soot and oil particles or environments favourable for the formation of hazardous substances (toxic substances, dust, pathogenic germs).

## **DELIVERY SET**

	NUMBER
INDOOR ASSEMBLY UNIT OF THE VENTILATOR	1 pc.
TELESCOPIC AIR DUCT	1 pc.
REGENERATOR WITH FILTERS, ASSEMBLED	1 pc.
OUTER VENTILATION HOOD	1 pc.
REMOTE CONTROL	1 pc.
CARDBOARD MOUNTING PLATE	1 pc.
SEALING GASKET	1 pc.
MOUNTING KIT	2 kit
MOUNTING WEDGES	1 pc.
USER'S MANUAL	1 pc.
PACKING BOX	1 pc.

## **TECHNICAL DATA**

The temperature in the room where the indoor unit of the ventilator is installed must be in the range from +1  $^{\circ}$ C to +40  $^{\circ}$ C with relative humidity up to 65% (no condensation buildup). If the conditions for using the ventilator are beyond the specified limits, turn off the ventilator. Provide fresh air supply through windows.

the range from -20 °C to +40 °C. The unit is rated as a class II electric appliance. Ingress protection rating against access to hazardous parts and water ingress is IP22.

The ventilator design is constantly being improved, thus some models may be slightly different from those described in this manual.

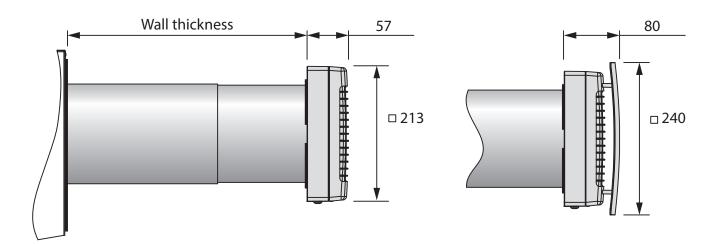
The temperature of the transported air should be in

MODEL	SIKU RA1-50 V3		SIKU RA1-85 V3			
SPEED	1	2	3	1	2	3
SUPPLY VOLTAGE (V/HZ)	100-240 V ~ 50/60 Hz		100-240 V ~ 50/60 Hz			
POWER CONSUMPTION (W)	4,50	5,50	6,50	4,74	6,56	9,65
TOTAL CURRENT CONSUMPTION (A)	0,028	0,035	0,044	0,034	0,050	0,071
DELIVERY RATE IN VENTILATION MODE (M <sup>3</sup> /H)	20	35	50	36	59	85
DELIVERY RATE IN REGENERATION MODE (M <sup>3</sup> /H)	10	17	25	18	30	43
NOISE LEVEL, 1 M (DBA)	23	30	33	29	35	44
NOISE LEVEL, 3 M (DBA)	13	20	23	19	25	34
NOISE LEVEL ATTENUATION (DBA)		40			40	
HEAT RECOVERY EFFICIENCY (%)	≤ 94 ≤ 90					

The telescopic design of the air duct allows its length to be adjusted without mechanical cutting. The thickness of the wall, in which the ventilator can be installed, depending on the used outer hood, is shown in the table below.

MODEL	WALL THICKNESS (MM)
SIKU RA1-50 V3 / SIKU RA1-85 V3	290-470

#### **VENTILATOR OVERALL DIMENSIONS, MM**



## **DESIGN AND OPERATING LOGIC**

The ventilator consists of a telescopic air duct with adjustable length (inner part and outer part), a ventilation unit and an outer ventilation hood. The inner telescopic part contains two air filters and a ceramic regenerator.

The air filters are designed to purify supply air and prevent foreign object ingress into the regenerator and the fan.

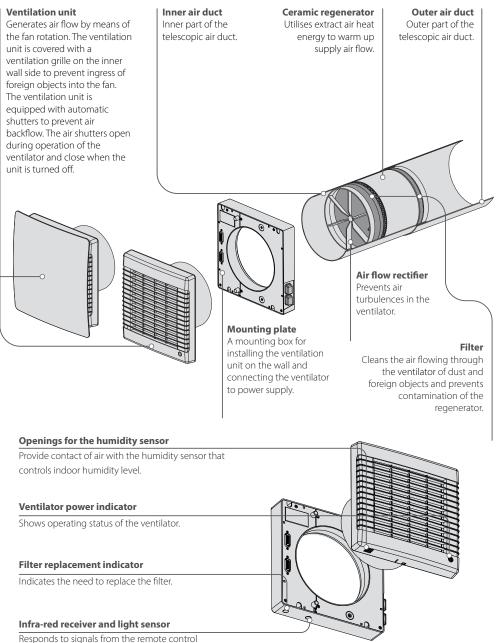
The ceramic regenerator utilises extract air heat

energy to warm up supply air flow.

The regenerator is equipped with a pull cord inside to facilitate its withdrawal from the ventilator. The regenerator has a special heat insulation. The ventilation unit must be installed on inner side of the wall.

The outer ventilation hood is installed for guided air discharge and prevention of direct ingress of water and other big objects to the ventilator.

#### **VENTILATOR DESIGN**



and detects illumination level to activate/deactivate the night mode.

### **OPERATING LOGIC OF THE AUTOMATIC SHUTTERS**

entilator is off
 ventilator is on



#### **VENTILATOR OPERATION MODES**

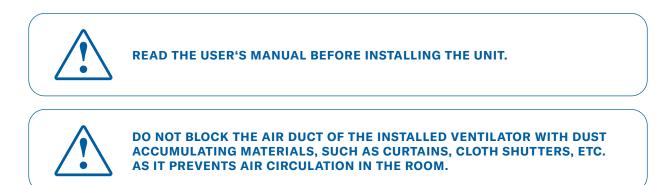
The ventilator has four ventilation modes: Natural air supply: The automatic shutters are opened, the fan is idle. Air supply: The ventilator supplies fresh air to the premise. Ventilation: The ventilator operates in permanent supply or extract mode at a set speed depending on the CN7 jumper position. Regeneration: The ventilator operates in reversible mode with heat and humidity recovery.

In the Regeneration mode the ventilator operates in two cycles, 70 seconds each.

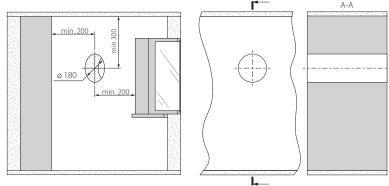
**Cyclel.** Warm stale air is extracted from the room. As it flows through the ceramic regenerator, it heats and moisturizes the regenerator, transferring up to 90 % of heat energy. In 70 seconds as the ceramic regenerator gets warmed the ventilator is switched to the supply mode.

**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 the exhaust mode and the cycle is renewed.

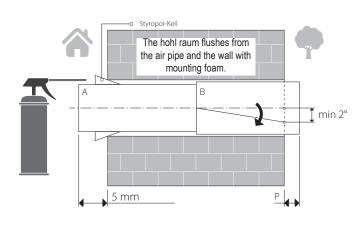
## **MOUNTING AND SET-UP**



Prepare a round core hole in the outer wall. The hole size is shown in the figure below.
 While preparing core holes it is recommended to make preparations for layout of the power cable and other required cables. Use the supplied cardboard template to mark the relative position of the duct opening and cable exit points.



2. Insert the vent pipe into the wall and fix it with the supplied Styrofoam wedges and mounting foam. On the outside wall, the ventilation pipe must protrude at the distance required for the installation of the outdoor ventilation hood.



The air pipe in the wall is set, the links are available. The air pipe must be properly installed. Connecting the connecting pipe  ${\bf B}$  with an angle of 2° downwards.

In addition to the outdoor wall, the air pipe must be removed from the wall, which is required for the installation of the outdoor air hood.

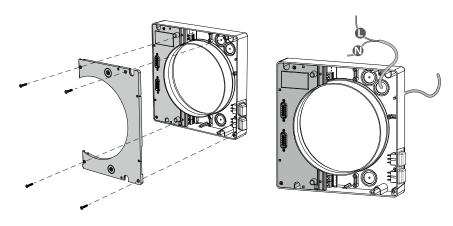
The distance P is only on the beach, when it ends with an insulation or. External use up. The air pipe must be closed to the outside.

ATTENTION: Only the external pipe with the use of construction!

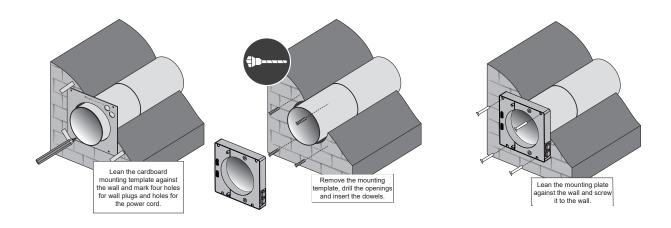


Please bring in the delivery seal of the outer hood of the outdoor hood. Closing the outdoor hood with the shutters in the airway is connected and on the wall protected. 3. Remove the mounting plate to access the control board. It is necessary for connection of the ventilator to power supply and connection of other ventilators as stated in the "Connection to power mains" section, page 10.

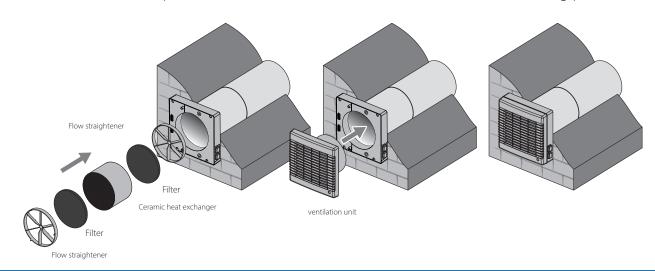
To remove the mounting plate, unscrew the four self-tapping screws as shown in the figure below. Then disconnect the mounting plate from the unit with care and push it aside to enable access to the control board. While doing that avoid abrupt movements not to damage the connecting cables between the control board and the mounting plate. Disconnect the mounting plate from the ventilation unit by disconnecting the two connectors. Assemble the mounting plate unit in the reverse order. Install the cables with care.



4. Using the cardboard template supplied, mark the holes for attaching the ventilator as shown in the figure below. Drill the holes and insert the dowels. Install the mounting plate unit on the wall, while laying a sealing gasket under it, fix the unit with self-tapping screws from the mounting kit. Install the mounting plate back with the connectors in place and secure it with four screws.



5. Install the air flow rectifier, filter, ceramic regenerator, one more filter and one more air flow rectifier inside the telescopic air duct. Then install the ventilation unit on the mounting plate unit.



# **CONNECTION TO POWER MAINS**

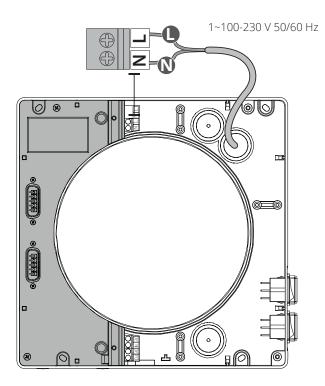


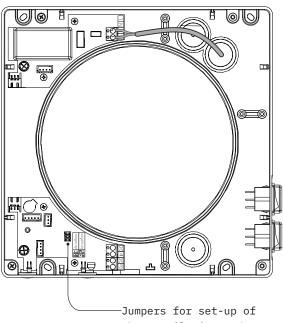
DISCONNECT THE POWER SUPPLY PRIOR TO ANY OPERATIONS WITH THE UNIT. CONNECTION OF THE UNIT TO POWER MAINS IS ALLOWED BY A QUALIFIED ELECTRICIAN WITH A WORK PERMIT FOR THE ELECTRIC UNITS UP TO 1000 V AFTER CAREFUL READING OF THE PRESENT USER'S MANUAL. THE RATED ELECTRICAL PARAMETERS OF THE UNIT ARE GIVEN ON THE MANUFACTURER'S LABEL.



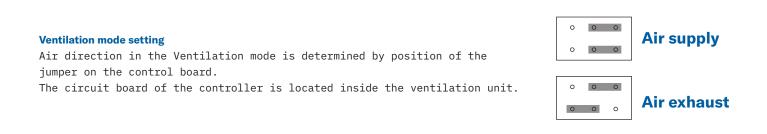
# ANY TAMPERING WITH THE INTERNAL CONNECTIONS IS PROHIBITED AND WILL VOID THE WARRANTY.

The ventilator is rated for connection to single-phase AC 1~100-230 V 50/60 Hz power mains. Connect the ventilator to power mains through the external automatic circuit breaker with a magnetic trip integrated into the fixed wiring system. The power cable is connected to the upper terminal block.





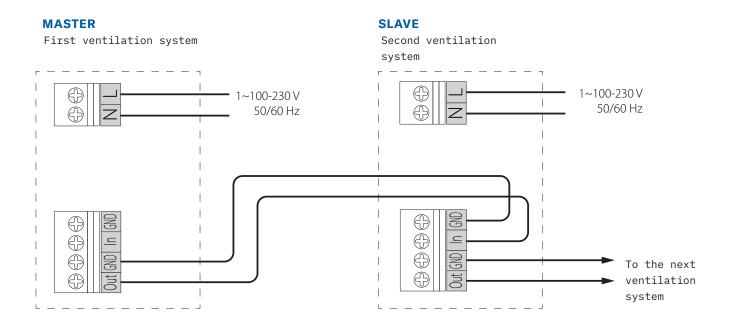
the Ventilation mode.



#### **CONNECTION OF SEVERAL VENTILATORS IN SERIES**

When the ventilators are connected in series, all the connected ventilators are controlled with the first ventilator and a remote control. To connect the ventilators in series, connect the control terminals with a cable as shown in the diagram below. Connect the second ventilator with the third ventilator in the same way, etc. For connection, use a screened cable with a wire cross-section of at least 0.25 mm<sup>2</sup> (not included in the delivery set).

When the ventilators are connected in series, power must be supplied separately to each of them.

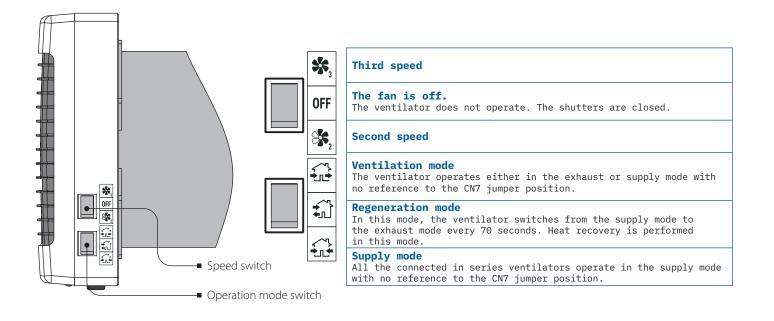


# CONTROL

The ventilator is operated with a remote control or the buttons on the ventilator casing, see the figure below.

The operation buttons on the ventilator casing have limited functionality and include activating the second and third speed and setting three of four ventilation modes. The remote control has wider control capabilities. The IR receiver is located at the bottom of the fan assembly. Please consider the location of the port while using the remote control.

In case of power failure the ventilator reverts to the previous operation mode after power supply resumption.



#### **REMOTE CONTROL**

<ul> <li>Turning the ventilator on/off</li> </ul>	Night mode The ventilator switches to the first speed in the darkness.
Speed selection	
<ul> <li>Passive air supply</li> <li>The shutters are open,</li> <li>the fan does not run.</li> </ul>	Air supply The ventilator continually supplies fresh air to the room no matter of CN7 jumper position).
• Ventilation* The ventilator operates either in the exhaust or supply mode at the selected speed depending on the CN7 jumper position.	Heat recovery The ventilator switches between the supply and exhaust mode each 70 seconds with heat regeneration. Heat recovery is performed in this mode.
<ul> <li>Humidity set point setting</li> </ul>	

\*When connected in series, the ventilators operate depending on the position of the jumper for setting the Ventilation mode on the control board. Setting of the Ventilation mode is described on page 11.

#### **REMOTE CONTROL OF THE VENTILATION UNIT**

Set the speed switch to position and the operation mode switch to position to enable remote control of the ventilation unit.

U	Turning the ventilator on/off ON/OFF
<b>②</b>	Night mode If the Night mode is activated, the ventilator switches to the first speed in the dark time of the day when the light is turned off. Activation of the night mode is confirmed by a long sound signal. Exiting the night mode is confirmed by a short sound signal.
()	Speed changeover
	First speed
<b>*</b>	Second speed
	Third speed
	Operation mode
(ALL)	Natural air supply mode.
	The room is ventilated in the natural way, the fan is off.
	<b>Air supply mode.</b> Air is supplied to the room at a set speed. All the connected in series ventilators operate in supply mode with no reference to the CN7 jumper position.
	<b>Ventilation mode.</b> Air is extracted (factory setting) or supplied at a selected speed. All the ventilators connected in series operate depending on the position of the CN7 jumper.
	<b>Regeneration mode.</b> The ventilator operates 70 seconds in the supply mode and 70 seconds in the exhaust mode. Heat recovery is also performed in this mode.

#### Humidity Control mode.

The humidity control may be activated in the Regeneration mode only by pressing one of the humidity control buttons. in the Humidity Control mode the ventilator humidity sensor monitors the extract air humidity and controls the fan speed depending on difference between set humidity point and actual indoor humidity. If indoor humidity is about the set range or has slight deviations, the ventilator operates with the second speed. If indoor humidity is above the set humidity point, the ventilator changes to the third speed. If indoor humidity is below the set humidity point, the ventilator changes to the first speed.

LOW	Humidity threshold - 45 %
	Humidity threshold - 55 %
d d d d HIGH	Humidity threshold - 65 %

The humidity control function can only be switched on / off via the remote control!

# **TECHNICAL MAINTENANCE**



DISCONNECT THE UNIT FROM POWER SUPPLY BEFORE ANY MAINTENANCE OPERATIONS! ENSURE THAT THE UNIT IS SWITCHED OFF FROM THE SUPPLY MAINS BEFORE REMOVING THE GUARD.

Maintenance of the ventilator means regular cleaning of the ventilator surfaces of dust and cleaning and replacement of the filters.

#### 1. Heat exchanger and filter maintenance

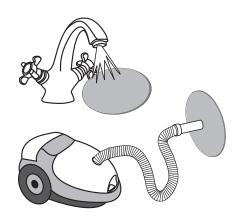
#### (3-4 times per year).

- 1. Remove the ventilation unit.
- 2. Remove the air flow rectifier.
- 3. Remove the filter upstream of the regenerator.
- 4. Pull the regenerator cord to remove the regenerator from the air duct.
- 5. Be careful while pulling the regenerator to avoid its damage.
- 6. Remove the filter downstream of the regenerator.

Flow straightener Flow straightener Flow straightener

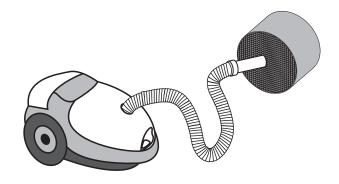
Clean the filters as often as required, but at least 3 times a year.

- After completion of the period set for the motor hour meter (factory setting 90 days) the filter replacement indicator in the bottom of the mounting plate glows to indicate the need of the filter cleaning of replacement.
- Wash the filters, let those dry out and install the dry filters inside the air duct.
- Vacuum cleaning is allowed.
- The filter rated service life is 3 years.
- For new filters contact the Seller.



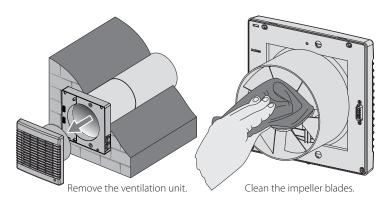
Some dust may accumulate on the regenerator block even in case of regular maintenance of the filters.

- Clean the heat exchanger regularly to ensure its high heat recovery efficiency.
- Vacuum clean the regenerator not less than once a year.



#### 2. Fan inspection (once per year).

Take off the ventilation unit and clean the fan blades. Remove dust using a soft brush, cloth or a vacuum cleaner. Do not use water, abrasive detergents, solvents, sharp objects for cleaning. The impeller blades must be cleaned once a year.





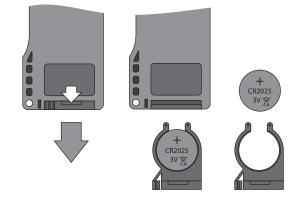
To reset the operating hours counter after installing filters and a regenerator in the

ventilator, press and hold the button for 10 seconds. The red indicator, indicating that the filter is dirty, should go out.

# 3. Replacement of the remote control battery (if necessary).

Replace the battery of the remote control after prolonged use. No response of the ventilator for pressing the remote control buttons indicates the need to replace the battery. The battery type is CR2025.

To replace the battery of the remote control, remove the battery holder with a battery. Replace the battery and install the holder with a new battery back to the remote control.



# TROUBLESHOOTING

### POSSIBLE MALFUNCTIONS AND TROUBLESHOOTING

PROBLEM	POSSIBLE REASONS	TROUBLESHOOTING
When switching on	No power supply.	Make sure the power supply line is connected correctly, otherwise troubleshoot a connection error.
the ventilator, the fan does not start.	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 of the fan.
LOW AIT IIOW.	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.
NOISE, VIDIALION.	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.



#### 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**

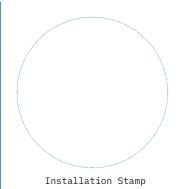
UNIT TYPE	Single-room reversible energy recovery ventilator	
MODEL	SIKU Twin Fresh Comfo	
SERIAL NUMBER		
MANUFACTURE DATE		
QUALITY INSPECTOR'S STAMP		

### **SELLER INFORMATION**

SELLER		
ADDRESS		
PHONE NUMBER		] / $\land$
E-MAIL		
PURCHASE DATE		
This is to certify acceptance of th The warranty terms are acknowledged	e complete unit delivery with the user's manual. and accepted.	
CUSTOMER'S SIGNATURE		Seller's Stamp

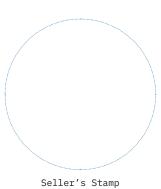
### **INSTALLATION CERTIFICATE**

The SIKU Twin Fresh stated in the present user's manual		led pursuant to the	e requirements
COMPANY NAME			
ADDRESS			
PHONE NUMBER			
INSTALLATION TECHNICIAN'S FULL NAME			
INSTALLATION DATE		SIGNATURE	
The unit has been installed in account national construction, electrical and The unit operates normally as intend	nd technical codes and	d standards.	oplicable local and
SIGNATURE			



### WARRANTY CARD

UNIT TYPE	Single-room reversible energy recovery ventilator
MODEL	SIKU Twin Fresh Comfo
SERIAL NUMBER	
MANUFACTURE DATE	
PURCHASE DATE	
WARRANTY CARD	
SELLER	







Printing errors, mistakes and technical changes reserved.

SIKU VertriebsgmbH | Bundesstraße 5 | 2102 Bisamberg | Austria | Tel.: +43 2262 61 521 | www.siku.at | office@siku.at

BDA\_50709\_50728\_SIKU\_RA1-50V3\_RA1-85V3\_EN\_01