

beginning with version 1.00

Ventilation controller

Manual for the
specialised craftsman

Mounting

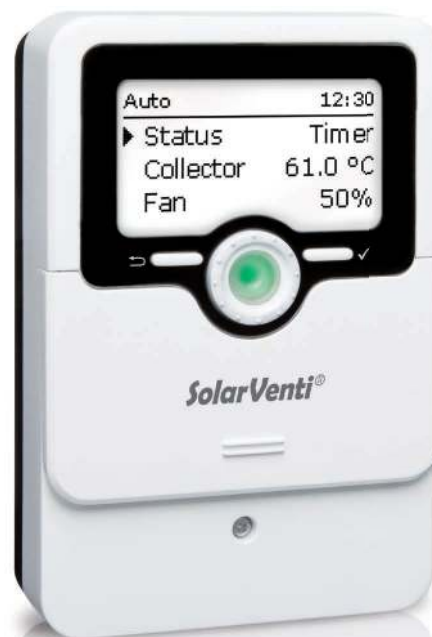
Connection

Operation

Application examples

Functions

Troubleshooting



11212833

Thank you for buying this product.

Please read this manual carefully to get the best performance from this unit. Please keep this manual safe.

en

Manual

Safety advice

Please pay attention to the following safety advice in order to avoid danger and damage to people and property.

Danger of electric shock:

- When carrying out works, the device must first of all be disconnected from the mains.
- It must be possible to disconnect the device from the mains at any time.
- Do not use the device if it is visibly damaged!

Instructions

Attention must be paid to the valid local standards, regulations and directives!

Information about the product

Proper usage

The controller is designed for controlling fans in combination with hot air collectors in compliance with the technical data specified in this manual.

Improper use excludes all liability claims.

EU Declaration of conformity

The product complies with the relevant directives and is therefore labelled with the CE mark. The Declaration of Conformity is available upon request, please contact the manufacturer.



Note:

Strong electromagnetic fields can impair the function of the device.

- Make sure the device as well as the system are not exposed to strong electromagnetic fields.

Subject to technical change. Errors excepted.

Target group

These instructions are exclusively addressed to authorised skilled personnel. Only qualified electricians are allowed to carry out electrical works. Initial commissioning must be effected by authorised skilled personnel.

Description of symbols

ATTENTION! Warnings are indicated with a warning triangle!



→ **They contain information on how to avoid the danger described.**

Signal words describe the danger that may occur, when it is not avoided.

- **ATTENTION** means that damage to the appliance can occur.



Note:

Notes are indicated with an information symbol.

- Arrows indicate instruction steps that should be carried out.

Disposal

- Dispose of the packaging in an environmentally sound manner.
- Old appliances must be disposed of by an authorised body in an environmentally sound manner. Upon request we will take back your old appliances bought from us and guarantee an environmentally sound disposal of the devices.

Ventilation controller

The SControl ventilation controller has been especially developed for controlling fans in combination with hot air collectors. It has up to 6 operating modes and offers functions such as collector starting temperature, room temperature and

humidity monitoring, cooling, dew point lock and antifreeze. The vast timer function can be used for adjusting a controlled ventilation mode.

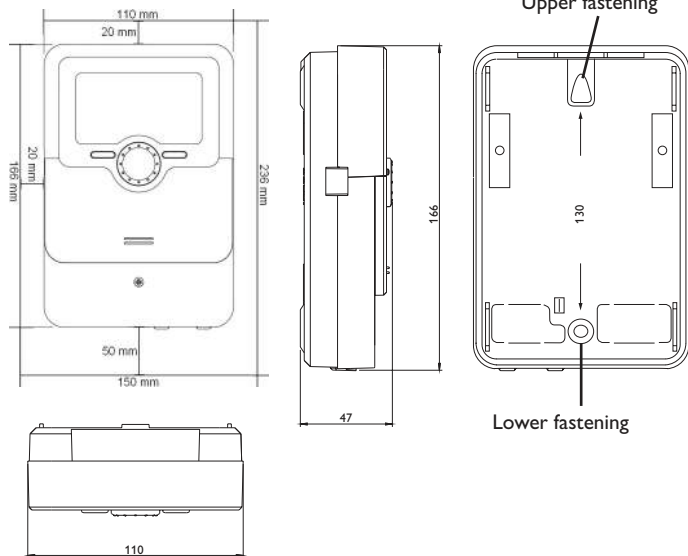
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1 Overview

- 5 pre-configured basic systems
- 2 speed-controlled fan outputs
- 1 relay output (potential-free extra-low voltage relay)
- 2 inputs for combined sensors (temperature and humidity)
- 1 internal combined sensor (temperature and humidity)
- 2 inputs for Pt1000 temperature sensors
- Up to 6 operating modes
- Data logging, storing, easy transfer of controller adjustments prepared and firmware updates via SD card
- Dew point lock
- Room temperature monitoring (heating and cooling)
- Humidity-dependent ventilation
- Timer and interval operation

Dimensions and minimum distances



Technical data

Inputs: 2 Pt1000 temperature sensors, 2 FRHd combined sensors, 1 internal combined sensor

Outputs: 1 potential-free extra-low voltage relay, 2 speed controlled 12V outputs (1 of them in parallel operation), 1 DC Out (12V)

Switching capacity:

1 (1) A 12V \equiv (fan)

1 (1) A 12V \equiv (DC Out)

1 (1) A 30V \equiv (potential-free relay)

Total switching capacity: 2 A 12V \equiv

Power supply:

Mains adapter: 100–240V~ 1 A/12V \equiv 2 A

Solar module: 12V \equiv 4 A

Supply connection: type X attachment

Standby: < 1W

Mode of operation: type 1.B.C action

Data interface: VBus®, MicroSD card slot

VBus® current supply: 60 mA

Functions: collector starting temperature, room temperature monitoring, humidity-dependent ventilation, dew point lock, timer and interval operation, cooling function, antifreeze function, maximum collector temperature

Housing: plastic, PC-ABS and PMMA

Mounting: wall mounting, also suitable for mounting into patch panels

Indication/Display: graphic display, operating control LED (Lightwheel®)

Operation: 4 push buttons and 1 adjustment dial (Lightwheel®)

Ingress protection: IP 20/EN 60529

Protection class: III

Ambient temperature: 0... 40 °C

Degree of pollution: 2

Dimensions: 110 x 166 x 47 mm

2 Installation

2.1 Mounting

ATTENTION! ESD damage!



Electrostatic discharge can lead to damage to electronic components!

→ **Take care to discharge properly before touching the inside of the device! To do so, touch a grounded surface such as a radiator or tap!**



Note:

Strong electromagnetic fields can impair the function of the device.

→ Make sure the device as well as the system are not exposed to strong electromagnetic fields.

The unit must only be located in dry interior rooms.

Please pay attention to separate routing of sensor cables and mains cables.

In order to mount the device to the wall, carry out the following steps:

- Unscrew the crosshead screw from the cover and remove it along with the cover from the housing.
- Mark the upper fastening point on the wall. Drill and fasten the enclosed wall plug and screw leaving the head protruding.
- Hang the housing from the upper fastening point and mark the lower fastening point (centres 130 mm).
- Insert lower wall plug.
- Fasten the housing to the wall with the lower fastening screws and tighten.
- Carry out the electrical wiring in accordance with the terminal allocation (see page 5).
- Put the cover on the housing.
- Attach with the fastening screw.

2.2 Electrical connection

ATTENTION! ESD damage!



Electrostatic discharge can lead to damage to electronic components!

→ **Take care to discharge properly before touching the inside of the device! To do so, touch a grounded surface such as a radiator or tap!**



Note:

Connecting the device to the power supply must always be the last step of the installation!



Note:

It must be possible to disconnect the device from the mains at any time.

→ Install the mains plug so that it is accessible at any time.

If the mains cable is damaged, it must be replaced by a special connection cable which is available from the manufacturer or its customer service.

Do not use the device if it is visibly damaged!

The controller is equipped with 2 speed-controlled fan outputs **V1** and **V2** (parallel operation). V1 is for connection of the inlet air fan. A second fan can be connected in parallel at V2.

Relay 1 is a potential-free extra-low voltage relay and can be used for a further fan or other devices.

V1

18 = fan positive pole

⊕ = fan negative pole (GND)

V2

19 = parallel fan positive pole

⊕ = parallel fan negative pole (GND)

Connection to **R1** with either polarity (terminals 7 and 14).

The connection for the internal direct voltage is at the terminals **Out**:

20 = internal direct voltage positive pole

⊕ = internal direct voltage negative pole (GND)

Connect the **temperature sensors** (S1 to S2) to the terminals S1 to S2 and GND (either polarity).

1/⊕ = sensor 1 (collector)

2/⊕ = sensor 2 (room)

The cables carry low voltage and must not run together in a cable conduit with cables carrying a voltage higher than 50 V (please pay attention to the valid local regulations). The cross section must be at least 1.5 mm² and the cable can be extended up to 100 m (0.75 mm² at 50 m). The cables can be extended with a two-wire cable (bell wire).

K1 and **K2** are inputs for digital combined sensors (humidity and temperature).

K1

3 = combined sensor 1 positive pole
4 = combined sensor 1 signal (room)

5 = combined sensor 1 negative pole
(GND)

K2

10 = combined sensor 2 positive pole
11 = combined sensor 2 signal (out-

door)

12 = combined sensor 2 negative pole
(GND)

The cables of the combined sensors can be extended and must have a cross section of 0.75 mm².

The controller is equipped with an internal combined sensor **K3**. Due to the higher measuring accuracy the use of external combined sensors is recommended.

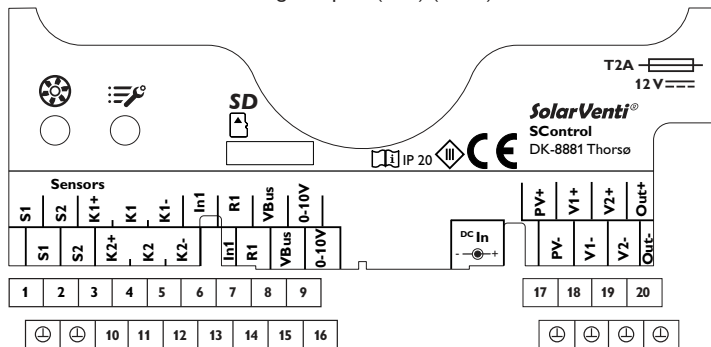
The power supply of the controller takes place via an external mains adapter and/or via the PV module of the collector (hybrid operation). The supply voltage of the mains adapter must be 100–240 V~ (50–60 Hz). The use of an external mains adapter is recommended for the power supply in case of insufficient solar irradiation or at night.

The mains adapter is to be connected to the **DC In** connector.

The PV module is to be connected to the **PV** terminals:

17 = SolarVenti® PV module positive pole (brown)

⊖ = SolarVenti® PV module negative pole (blue) (GND)



2.3 Data communication/Bus

The controller is equipped with a **VBus**® for data transfer and energy supply to external modules. The connection is to be carried out at the terminals marked **VBus** (any polarity).

The cable carries low voltage and must not run together in a cable conduit with cables carrying a higher voltage than 50 V (please pay attention to the valid local regulations). The cross section must be at least 0.5 mm² and the cable can be extended up to 50 m in the case of a single connection. The bus cable can be extended with a two-wire cable (bell wire).

One or more **VBus**® modules can be connected via this data bus, such as:

- DL2 Datalogger
- DL3 Datalogger
- KM2 Communication module

Furthermore, the controller can be connected to a PC or integrated into a network via the **VBus**®/USB or **VBus**®/LAN interface adapter (not included).



Note

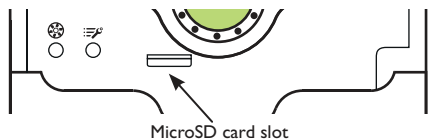
More accessories on page 28.

2.4 MicroSD card slot

The controller is equipped with a MicroSD card slot.

With a MicroSD card, the following functions can be carried out:

- Store measurement and balance values onto the MicroSD card. After the transfer to a computer, the values can be opened and visualised, e.g. in a spreadsheet.
- Prepare adjustments and parameterisations on a computer and transfer them via the MicroSD card.
- Store adjustments and parameterisations on the MicroSD card and, if necessary, retrieve them from there.
- Download firmware updates from the Internet and install them on the controller via MicroSD card.

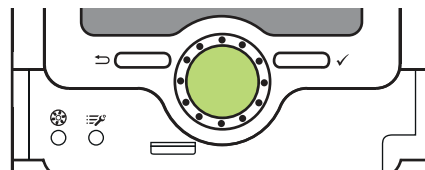


Note

For more information about using a MicroSD card, see page 24.

3 Operation and function

3.1 Buttons and adjustment dial



The controller is operated via 2 buttons and 1 adjustment dial (Lightwheel®) below the display:

- Left button (←) - escape button for changing into the previous menu / changing to the start display (Status), if the button is briefly pressed
- Right button (✓) - confirming / selecting
- Lightwheel® - scrolling upwards / scrolling downwards, increasing adjustment values / reducing adjustment values

3.2 Microbuttons for speed and operating mode




The controller is equipped with two microbuttons underneath the slidable housing cover, the slider, for adjusting the fan speed and the operating mode.

Microbutton ⚙️: If the microbutton ⚙️ is pressed, the fan speed can be adjusted by means of the Lightwheel® during 7 s. The adjusted value is valid for 60 min, afterwards the controller changes to the mode determined by the adjusted function / operating mode. If the function or the adjustment is changed within these 60 min, the fan operates at the speed determined by the function.

Microbutton 🌀: The microbutton 🌀 can be used for changing the operating mode. The following operating modes are available: Auto, Off, Humidity, Cooling, Timer, Temperature (see page 19).

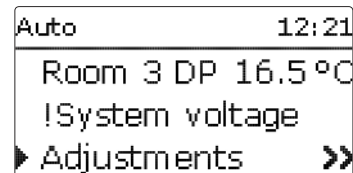
3.3 Operating control LED

The controller is equipped with a multicolour operating control LED in the centre of the Lightwheel®, indicating the following states:

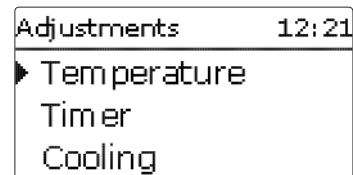
Colour	Permanently shown	Flashing
	Everything OK	Manual mode on/off
		Sensor line break, sensor short circuit
	Insufficient PV current	Parameterisation/update active, initialisation

3.4 Selecting menu points and adjusting values

In normal operation of the controller the status screen is indicated. If no button is pressed for 2 min, the display illumination switches off. Press any key to reactivate the display illumination. In order to scroll through the menu items, turn the Lightwheel®.



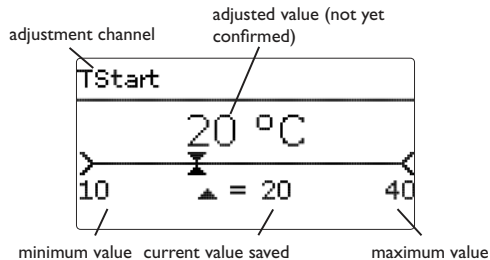
If the symbol » is shown behind a menu item, pressing the right button (✓) will open a new submenu.



Values and options can be changed in different ways:

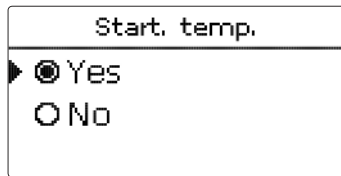
Numeric values can be adjusted by means of a slide bar. The minimum value is indicated to the left, the maximum value to the right. The large number above the slide bar indicates the current adjustment. By turning the Lightwheel®, the upper slide bar can be moved to the left or to the right.

Only after the adjustment has been confirmed by pressing the right button (✓) will the number below the slide bar indicate the new value. The new value will be saved if it is confirmed by pressing the right button (✓) again.

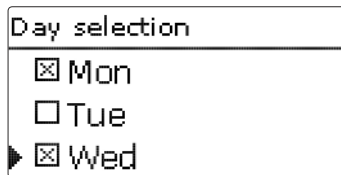


When 2 values are locked against each other, they will display a reduced adjustment range depending on the adjustment of the respective other value.

In this case, the active area of the slide bar is shortened, the inactive area is indicated as a dotted line. The indication of the minimum and maximum values will adapt to the reduction.



If only one item of several can be selected, they will be indicated with radio buttons. When one item has been selected, the radio button in front of it is filled.



If more than one item of several can be selected, they will be indicated with checkboxes. When an item has been selected, an x appears inside the checkbox.

If no button has been pressed within a couple of minutes, the adjustment is cancelled and the previous value is retained.

3.5 Parameterisation mode

After the installer code is entered (see page 25), the controller changes to the parameterisation mode.



Note:

In parameterisation mode, the control process will stop and the message **Control stopped – Parameterisation active** will be indicated. The LED in the Lightwheel® will glow yellow.

- ➔ In order to carry out adjustments in the menu, press the right button (✓).
 - ➔ In order to save the adjustments made, select the menu item **Save** in the adjustment menu.
 - ➔ In order to cancel the parameterisation process and to discard adjustments made, press the left button (↶) for approx. 3 s.
- The controller will leave the installer level and restart.

4 Commissioning

When the system is ready for operation, establish power supply of the controller.

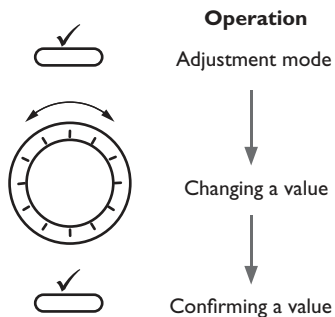
The controller runs an initialisation phase in which the Lightwheel® flashes red.

When the controller is commissioned or when it is reset, it will run a commissioning menu after the initialisation phase. The commissioning menu leads the user through the most important adjustment channels needed for operating the system.

Disconnecting the controller from the mains after having run the commissioning menu will not delete adjustments that have already been carried out. After you switch on the device again, the controller will not start the commissioning menu, but normal operation after the initialisation phase.

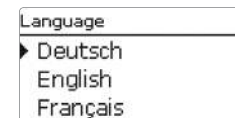
Commissioning menu

The commissioning menu consists of the channels described in the following. In order to make an adjustment, adjust the desired value with the Lightwheel® and confirm with the right button (✓). The next channel will appear in the display.



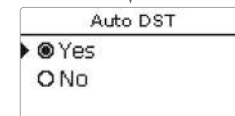
1. Language:

→ Adjust the desired menu language.



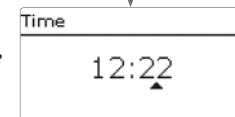
2. Daylight savings time adjustment:

→ Activate or deactivate the automatic daylight savings time adjustment.



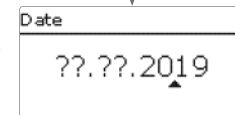
3. Time:

→ Adjust the clock time. First of all adjust the hours, then the minutes.



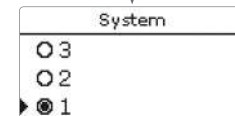
4. Date:

→ Adjust the date. First of all adjust the year, then the month and then the day.



5. System:

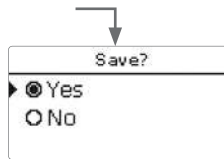
→ Adjust the desired system.



6. Completing the commissioning menu:

After the adjustments have been made, a security enquiry appears. If the security enquiry is confirmed, the adjustments will be saved.

- In order to confirm the security enquiry, press the right button (✓).
- In order to reenter the commissioning menu channels, press the left button (←). If the security enquiry has been confirmed, the controller is ready for operation and should enable an optimum system operation.



Adjusting the operating mode

After commissioning the controller will be in automatic mode. The operating mode can be changed with the right microbutton \Rightarrow (see pages 7 and 19).

Adjusting the fan speed

A fan speed is allocated to each function (Low, Stand., High). This value can be changed and adapted to local conditions in the corresponding function menu (see chap. 6). In the **Basic settings** menu, the starting fan speeds can be adjusted (see chap. 7).



Note:

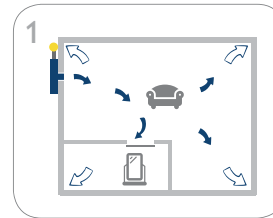
Each system is pre-programmed with specific factory settings.

The adjustments carried out during commissioning can be changed anytime in the corresponding adjustment channel. Additional functions and options can also be activated and adjusted (see page 19).

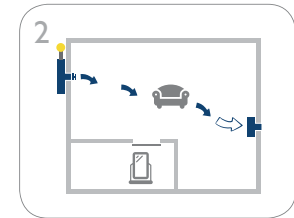
Set the code to the customer code before handing over the controller to the customer (see page 25).

4.1 Systems with basic settings

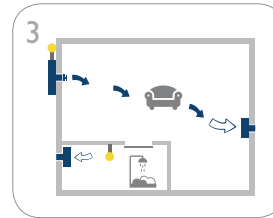
The controller is pre-programmed for 5 basic systems. The basic pre-adjustments have already been made.



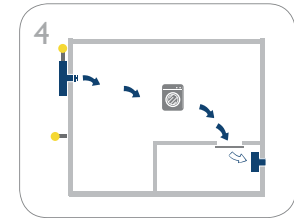
Living space with inlet and outlet air via the building envelope (see page 12)



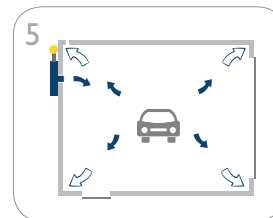
Living space with inlet air and electric disk valve, outlet air via a second fan (see page 13)



Living space with inlet air and electric disk valve, outlet air via a second fan, humidity-controlled bathroom (see page 14)

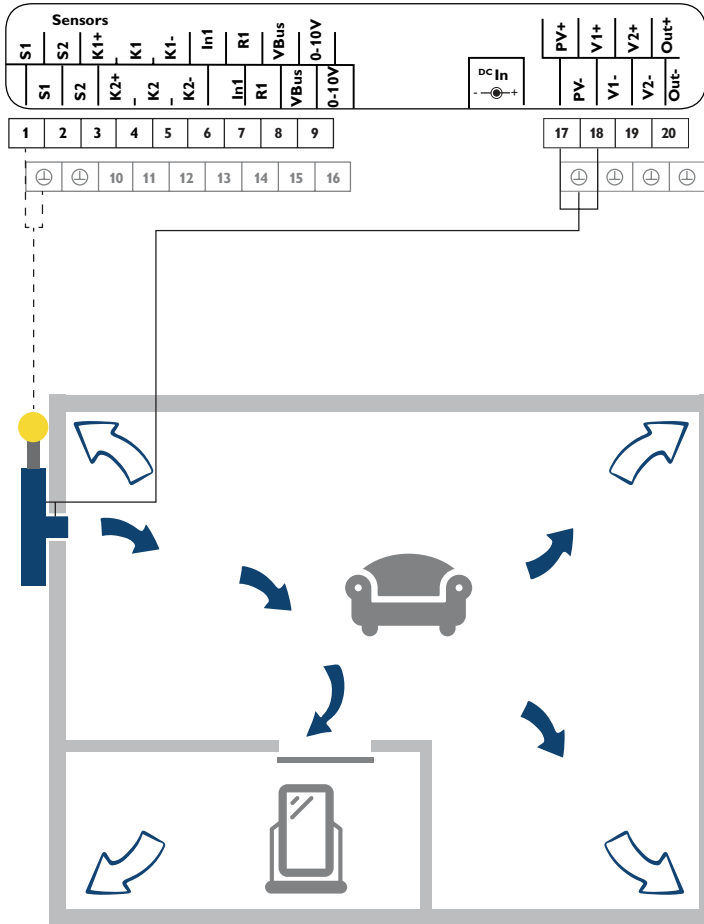


Basement with inlet and outlet air and dew point monitoring (see page 15)



Garage with inlet and outlet air via the building envelope (see page 16)

System 1: Living space with inlet and outlet air via the building envelope



Sensors

S1	Collector	1/⊕
S2	Free	2/⊕
K1	Free	3/4/5
K2	Free	10/11/12
K3	Room	internal

Actuators/Supply

PV	PV module (optional*)	17/⊕
V1	Inlet air fan	18/⊕
V2	Free	19/⊕
R1	Free	7/14
Out	Free	20/⊕

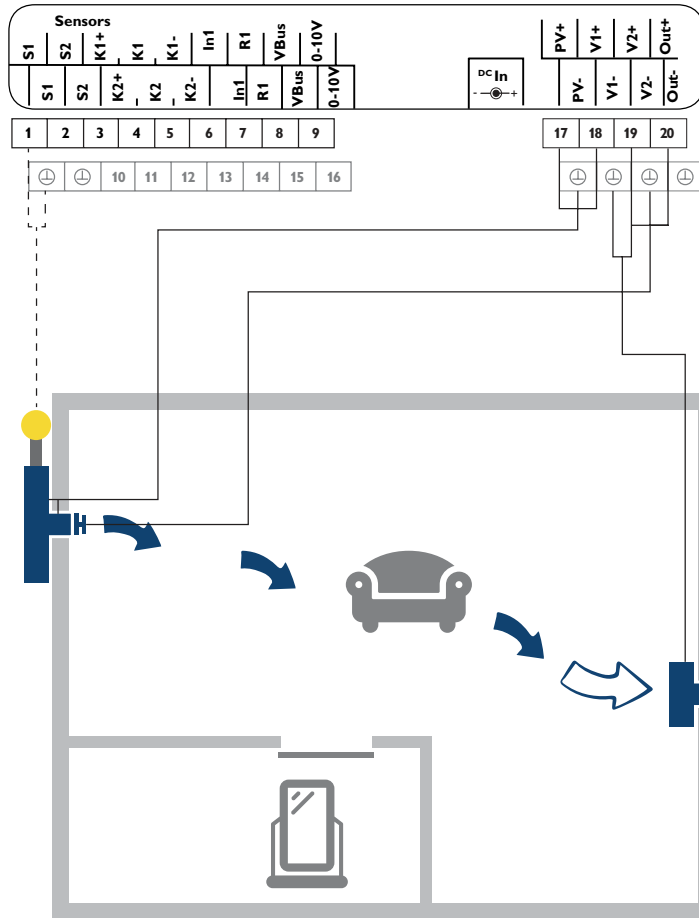
* If **DC In** is allocated, **PV** does not have to be used.

If the temperature at collector sensor S1 exceeds the adjusted starting temperature (factory setting 20 °C), the inlet air fan (V1) switches on. The living space is vented, dehumidified and heated.

The used outlet air escapes via leaks in the building envelope or via special ventilation devices such as air slits in the window frame.

The internal combined sensor limits the room temperature to a maximum of 25 °C (inlet air fan V1 switches off). The internal combined sensor can optionally be used for monitoring the relative humidity. A time-dependent ventilation can be adjusted by means of the timer function.

System 2: Living space with inlet air and electric disk valve, outlet air via a second fan



Sensors		
S1	Collector	1/⊕
S2	Free	2/⊕
K1	Free	3/4/5
K2	Free	10/11/12
K3	Room	internal

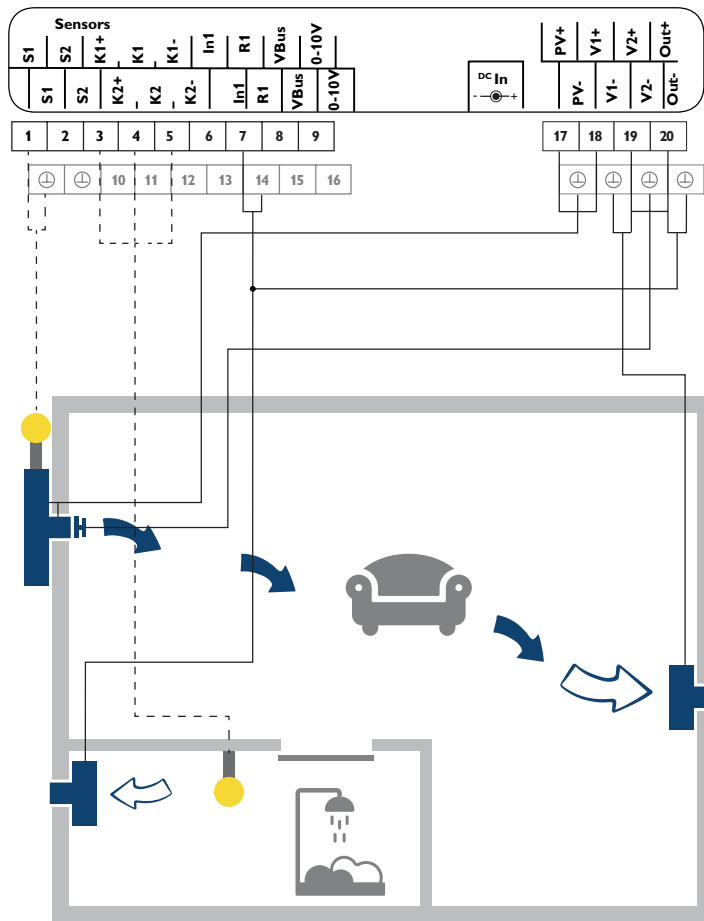
Actuators/Supply		
PV	PV module (optional*)	17/⊕
V1	Inlet air fan	18/⊕
V2	Outlet air fan	19/⊕
R1	Free	7/14
Out	Electric disc valve	20/⊕ + 19

* If **DC In** is allocated, **PV** does not have to be used.

If the temperature at collector sensor S1 exceeds the adjusted starting temperature (factory setting 20 °C), the inlet air fan (V1) switches on. The disk valve opens. The living space is vented, dehumidified and heated. The outlet air fan (V2) removes the air to the outside and ensures a constant air flow. If the inlet air fan switches off, the disk valve hermetically closes the inlet opening.

The internal combined sensor limits the room temperature to a maximum of 25 °C (inlet air fan V1 switches off). The internal combined sensor can optionally be used for monitoring the relative humidity. A time-dependent ventilation (interval operation) takes place by means of the timer function.

System 3: Living space with inlet air and electric disk valve, outlet air via a second fan, humidity-controlled bathroom



Sensors

S1	Collector	1/⊕
S2	Free	2/⊕
K1	Bathroom	3/4/5
K2	Free	10/11/12
K3	Room	internal

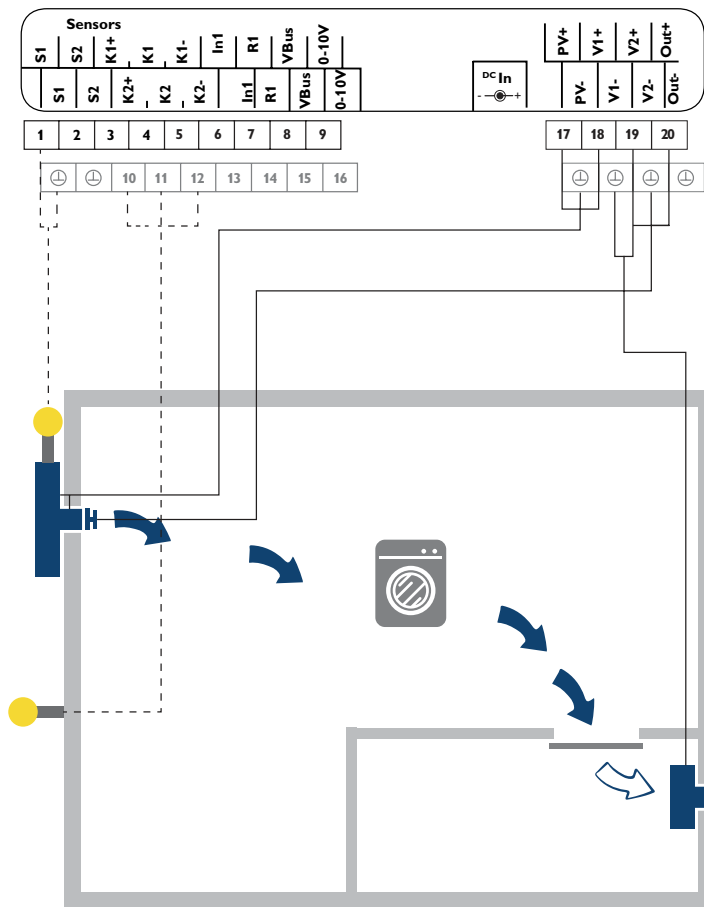
Actuators/Supply

PV	PV module (optional*)	17/⊕	* If DC In is allocated, PV does not have to be used.
V1	Inlet air fan	18/⊕	
V2	Outlet air fan	19/⊕	
R1	Bathroom fan	7/14 + 20/⊕	
Out	Electric disc valve	20/⊕ + 19	

If the temperature at collector sensor S1 exceeds the adjusted starting temperature (factory setting 20 °C), the inlet air fan (V1) switches on. The disk valve opens. The living space is vented, dehumidified and heated. The outlet air fan (V2) removes the air to the outside and ensures a constant air flow. If the adjusted maximum humidity is exceeded at sensor K1, the outlet air fan in the bathroom (R1) switches on.

If the inlet air fan switches off, the disk valve hermetically closes the inlet opening. The internal combined sensor limits the room temperature to a maximum of 25 °C (inlet air fan V1 switches off). A time-dependent ventilation (interval operation) takes place by means of the timer function.

System 4: Basement with inlet and outlet air and dew point monitoring



Sensors

S1	Collector	1/ ⊕
S2	Free	2/ ⊕
K1	Free	3/4/5
K2	Outdoor	10/11/12
K3	Basement	internal

Actuators/Supply

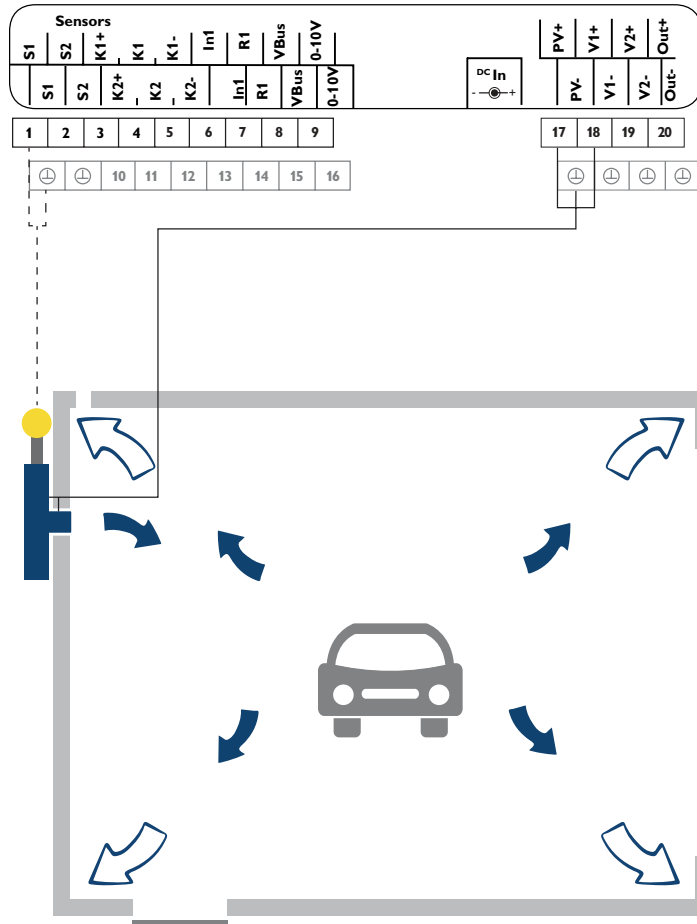
PV	PV module (optional*)	17/ ⊕	* If DC In is allocated, PV does not have to be used.
V1	Inlet air fan	18/ ⊕	
V2	Outlet air fan	19/ ⊕	
R1	Free	7/14	** Optional use of the electric disc valve
Out	Electric disc valve**	20/ ⊕ + 19	

If the temperature at collector sensor S1 exceeds the adjusted starting temperature (factory setting 10 °C), the inlet air fan (V1) switches on. The disk valve opens. The basement is vented, dehumidified and heated. The outlet air fan (V2) removes the air to the outside and ensures a constant air flow.

The internal combined sensor limits the room temperature to a maximum of 25 °C (inlet air fan V1 switches off) and monitors the relative humidity in the basement. A time-dependent ventilation (interval operation) at night takes place by means of the timer function.

The dew point lock enables the operation of the fans, if the dew point outside (K2) is lower than the dew point inside (K3 / internal combined sensor). This prevents the condensation of warm outside air on cool basement walls (example: thunderstorm tendency during midsummer).

System 5: Garage



Sensors

S1	Collector	1/⊕
S2	Free	2/⊕
K1	Free	3/4/5
K2	Free	10/11/12
K3	Garage	internal

Actuators/Supply

PV	PV module (optional*)	17/⊕
V1	Inlet air fan	18/⊕
V2	Free	19/⊕
R1	Free	7/14
Out	Free	20/⊕

* If **DC In** is allocated, **PV** does not have to be used.

If the temperature at the collector sensor S1 exceeds the garage temperature by the adjusted value (ΔT_{on}), the inlet air fan (V1) switches on.

The garage is vented, dehumidified and heated. The used outlet air escapes via leaks in the garage or via special ventilation devices such as ventilation grids in the garage walls. The internal combined sensor (K3) limits the room temperature in the garage to a maximum of 30 °C (inlet air fan V1 switches off).

If the humidity in the garage increases significantly (e.g. by a wet parked car), the humidity control (combined sensor 3) enforces a ventilation in order to dehumidify the garage. The timer is used for the time-dependent ventilation of the garage, if required.

i Note

A humidity measurement with the external combined sensor 1 improves the accuracy. The allocation of the combined sensor is then at K1 instead of K3.

5 Functions and options

5.1 Menu structure

Start display

Status
Collector
Fan
...
Settings
Service

Settings

Temperature
Timer
Cooling
Humidity
Basic settings
SD card
User code
Manual mode

Temperature

Starting temperature
TStart
Hysteresis
Tdifference
Δ Ton
Δ Toff
Room temperature
...

Basic settings

Language
Auto DST
Date
Time
Fan
System
Reset

Fan

Low
Standard
High
Max



The menu items and adjustment values selectable are variable depending on adjustments already made. The figure only shows an exemplary excerpt of the complete menu in order to visualise the menu structure.



Some functions and adjustment values belong to the installer level and can only be accessed after the installer user code has been entered.

5.2 Start display

Auto	12:30
▶ Status	Timer
Collector	61.0 °C
Fan	50%

The start display is a status menu with information about the current system state. Furthermore, messages and device information are displayed.

The headline indicates the operating mode. The start display consists of the following indications and submenus:

- Status (see table)
- Collector (temperature)
- Fan (speed)
- Relay (state)
- Room (temperature, relative humidity, dew point)
- Outdoor (temperature, relative humidity, dew point)
- Messages (see table)
- Adjustments
- Service
- Device info

Status message

Status display	Description
Error	Sensor fault (see messages table)
Ready	Controller ready for operation, no function active
Coll. max.	Maximum collector temperature active
Frost	Antifreeze function active
Dynamic	Dynamic dew point lock active
Dew point	Dew point lock active
Humidity	Humidity function active
Cooling	Cooling function active

Timer	Timer function active
Temperature	Temperature function active
Room max.	Maximum room temperature exceeded

Messages

Message	Description/Cause
!Date/Time	Real time clock defective
!Collector sensor	Collector sensor defective
!Room sensor	Room sensor defective line break, short circuit or no sensor available
!Outdoor sensor	Outdoor sensor defective
!Control stopped	Parameterisation mode active
!System voltage	System voltage below 8 V
!Alternat. speed	Fan speed manually changed
!Manual mode	Manual mode of an actuator active

In the **Adjustments** submenu, further menu items can be selected for activating/deactivating and adjusting functions.

- Temperature
- Timer
- Cooling
- Humidity
- Basic settings
- SD card
- User code
- Manual mode

The **Service** submenu indicates the measured values of the sensors connected. (Installer code entry required)

The **Device info** submenu indicates information about soft- and hardware.

6 Functions

The controller has functions with different priorities. The functions are described in detail in the following and have the following priorities:

Maximum collector temperature/antifreeze = priority 1

Dew point lock = priority 2

Relative humidity = priority 3

Cooling = priority 4

Timer = priority 5

Temperature = priority 6

1 = highest priority, 6 = lowest priority

6.1 Operating mode

Auto: Automatic operation according to the activated functions and priorities.

Off: Only emergency functions are active (maximum collector temperature, antifreeze).

Humidity: Operation according to the adjustments in the Humidity menu (see page 22).

Cooling: Operation according to the adjustments in the Cooling menu (see page 22).

Timer: Operation according to the adjustments in the Timer menu (see page 20).

Temperature: Operation according to the adjustments in the Temperature menu (see page 19).

If an operating mode has been selected, a security enquiry appears.

→ In order to save the selected operating mode, confirm the security enquiry with **Yes**.

The selected operating mode is displayed in the headline of the status menu.



Note:

Only the **Auto** mode has access to all adjusted functions of the controller. Only change the operating mode, if the controller functions are to be limited to the selected operating mode.

6.2 Temperature

In the **Temperature** menu, different temperature functions can be activated and adjusted.

Starting temperature

The **Starting temperature** is used for defining a minimum collector temperature which has to be exceeded for the fan to switch on. Sensor S1 is used as the reference sensor. The hysteresis is adjustable.

Temperature difference

The controller calculates the temperature difference between the collector sensor S1 and a selectable room sensor. If the temperature difference reaches or exceeds the switch-on temperature difference, the fan switches on. If the temperature difference reaches or falls below the adjusted switch-off temperature difference, the fan switches off.



Note:

A room sensor is required for this function.

Room temperature

If the room temperature reaches or exceeds the adjusted maximum value, the fan switches off. The hysteresis is adjustable. The **Relay** option can be used for activating the potential-free relay. If the room temperature reaches the adjusted maximum value, the relay switches on.

Lock time

The lock time is used for adjusting a time frame in which the temperature functions are locked.

Room sensor

The parameter **Sen.Room** is used for selecting a reference relay for the **Temperature difference** and **Room temperature** functions.



Note:

Only if at least one of the two functions is activated, will the parameter be shown.

Fan

The parameter **Fan** is used for adjusting the fan speed for the temperature functions.

Maximum temperature

The parameter **TMax** is used for adjusting a maximum collector temperature. If the collector temperature reaches or exceeds the adjusted maximum value, the fan is locked. This function is always active, even if no temperature function is activated.

Antifreeze

The antifreeze function prevents too cold air from getting into the room. If the collector temperature falls below the adjusted antifreeze temperature, the fan is locked. This function is always active, even if no temperature function is activated.

Adjustments /Temperature

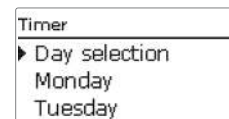
Adjustment channel	Description	Adjustment range /selection	Factory setting
Start. temp.	Starting temperature function	Yes, No	Yes
TStart	Starting temperature	10 ... 40 °C	system dependent
Hysteresis	Hysteresis for the starting temperature	2 ... 10 K	2 K
Tdifference	Temperature differential function	Yes, No	system dependent
ΔTon	Switch-on temperature difference	3.0 ... 20.0 K	system dependent
ΔToff	Switch-off temperature difference	1.0 ... 19.5 K	system dependent
Room temperature	Room temperature function	Yes, No	system dependent
Tamb.	Maximum room temperature	15 ... 30 °C	system dependent
Hysteresis	Hysteresis for the room temperature	0.5 ... 10.0 K	1.0 K
Relay	Optional relay	Yes, No	No
Lock time	Lock time function	Yes, No	Yes
Start	Start of the lock time	00:00 ... 23:00	22:00
Stop	End of the lock time	00:00 ... 23:00	05:00
Sen. Room	Room sensor selection	S2, K1, K3	K3
Fan	Fan function	Low, Stand., High	Stand.
TMax	Collector maximum temperature	40 ... 100 °C	90 °C
Antifreeze	Antifreeze function	-30 ... 10 °C	system dependent

6.3 Timer

In the **Timer** menu, a day selection can be activated and adjusted or intervals for the ventilation can be defined.

The parameter **Output** can be used for allocating an output to the timer. The parameter **Fan** can be used for adjusting the fan speed for the timer operation.

The **Day selection** option can be used for selecting and adjusting the timer with time frames.



In the **Day selection** channel, the days of the week are available.

If several days are selected, they will be merged into one combination for the following steps.

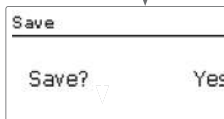
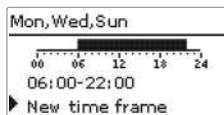


The last menu item after the list of days is **Continue**. If Continue is selected, the Edit timer menu opens, in which the time frames can be adjusted.

Adding a time frame:

In order to add a time frame, proceed as follows:

- ➔ Select **New time frame**.
- ➔ Adjust **Start** and **Stop** for the desired time frame.



The time frames can be adjusted in steps of 5 min.

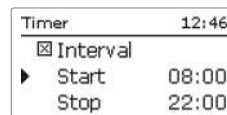
- ➔ In order to save the time frame, select **Save** and confirm the security enquiry with **Yes**.

- ➔ In order to add another time frame, repeat the previous steps.

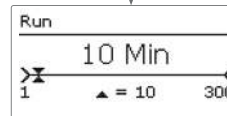
6 time frames can be adjusted per day or combination.

With the parameter **Copy from** time frames already adjusted for another day/another combination can be copied. In order to delete time frames, select **Delete**, to set back the timer, select **Reset**.

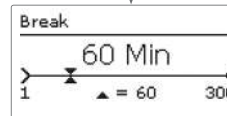
With the **Interval** option, intervals for periodic ventilation can be defined. For this purpose, start, stop, runtime and break time can be adjusted.



- ➔ Adjust **Start** and **Stop** for periodic ventilation.
- ➔ The runtime of the interval can be adjusted with the parameter **Run**.



- ➔ The break time of the interval can be adjusted with the parameter **Break**.



Adjustments/Timer

Adjustment channel	Description	Adjustment selection	range/	Factory setting
Day selection	Day selection option	Yes, No		No
Timer	Timer	-		-
Day selection	Days of the week/ combination	Mo...Su		-
Monday... Sunday	Selection of the days of the week	Monday... Sunday		
Reset	back to factory setting	-		-
Start	Start of the time frame	00:00... 23:00		-
Stop	End of the time frame	00:00... 23:00		-
Interval	Interval option	Yes, No		system dependent
Start	Start of the interval	00:00... 23:00		system dependent
Stop	End of the interval	00:00... 23:00		system dependent
Run	Runtime of the interval	100... 300 min		system dependent
Break	Break time of the interval	100... 300 min		system dependent
Output	Output selection for the timer function	Fan, Relay, Fan + Relay		Fan
Fan	Fan speed	Low, Stand., High		system dependent

6.4 Cooling

In the **Cooling** menu, adjustments for room cooling can be made.

If the collector temperature falls below the room temperature, the output selected is switched on until the minimum room temperature is reached. The hysteresis is adjustable and the reference sensor for the room temperature can be selected.

The parameter **Fan** is used for adjusting the fan speed for the cooling function.

The cooling function operates within an adjusted time frame.



Note:

The parameter **Fan** is only available, if the **Fan** or **Fan + Relay** output has been selected.

Adjustments / Cooling

Adjustment channel	Description	Adjustment range/selection	Factory setting
Cooling	Room cooling function	Yes, No	No
Tamb.	Minimum room temperature	5 ... 30 °C	15 °C
Hysteresis	Hysteresis for the cooling function	0.5 ... 5.0 K	1.0 K
Start	Start of the cooling function	00:00 ... 00:00	19:00
Stop	End of the cooling function	00:00 ... 00:00	07:00
Sen. Room	Room sensor selection	S2, K1, K3	K3
Output	Output selection	Fan, Relay, Fan + Relay	Fan
Fan	Speed selection	Low, Stand., High	Low

6.5 Humidity

In the **Humidity** menu, the functions **Relative humidity** and **Dew point lock** can be selected and adjusted.

Relative humidity

The **relative humidity** function is used for monitoring the relative humidity in a room by means of a humidity sensor. If the adjusted maximum relative humidity value is exceeded, the selected outputs switch on for the tendency time. If the relative humidity falls below the maximum value by the adjusted hysteresis, the outputs switch off.

- If the value falls below the switch-off threshold within the tendency time, humidity operation stops and the controller changes to the mode with lower priority.
- If the humidity decreases within the tendency time, but does not fall below the switch-off threshold, the tendency time starts again after it has ended.
- If the humidity increases within the tendency time, humidity operation stops after the tendency time has elapsed. A short waiting time follows during which all outputs are blocked.

The parameter **Fan** is used for adjusting the fan speed for the humidity operation.



Note:

The parameter **Fan** is only available, if the **Fan** or **Fan + Relay** output has been selected.

Dew point lock

If the **Dew point lock** function is activated, the dew point temperatures of the air in the room and of the outside air are permanently monitored and compared: If the dew point of the outside air is lower than the dew point of the room air, control operation is enabled.

If the dew point of the outside air is equal to or higher than the dew point of the room air, control operation is blocked.

With the **Relay lock** option, the potential-free relay is blocked if the dew point lock is active.

Dynamic dew point lock

The **Dynamic** option is used for limiting the dew point lock. For this purpose, the controller determines the dynamic starting temperature (collector temperature).

The risk of humidity and the temperature addition can be adjusted with the parameters **Risk** and **Toffset**.

(Installer code entry required)

Adjustments / Humidity

Adjustment channel	Description	Adjustment range / selection	Factory setting
Rel. humidity	Relative humidity function	Yes, No	system dependent
Sen. Room	Room sensor selection	K1, K3	system dependent
Max. humidity	Maximum humidity	30 ... 90 %	70 %
Hysteresis	Hysteresis for relative humidity	2 ... 20 %	5 %
Tendency	Tendency time	5 ... 120 min	system dependent
Output	Output selection	Fan, Relay, Fan + Relay	Fan
Fan	Speed selection	Low, Stand., High	High
Dew point lock	Dew point lock function	Yes, No	system dependent
Sen. Room	Room sensor selection	K1, K3	K3
Δ TDew point	Dew point temperature difference	-5 ... 5 K	1 K
Dynamic	Dynamic dew point lock option	Yes, No	system dependent
Risk	Humidity risk	1 ... 10	5
Toffset	Temperature addition	3 ... 20 K	10 K
Relay lock	Relay lock option	Yes, No	No

7 Basic settings

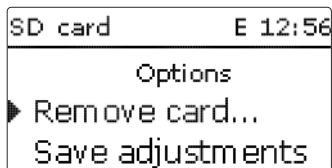
Basic settings		12:55
▶	Language	English
	<input checked="" type="checkbox"/> Auto DST	
	Date	27.06.2019

In the **Basic settings** menu, all basic parameters for the controller can be adjusted. Normally, these settings have been made during commissioning. They can be subsequently changed in this menu.

Fan		E 12:56
▶	Low	20%
	Standard	50%
	High	80%

Basic settings

Adjustment channel	Description	Adjustment range / selection	Factory setting
Language	Selection of the menu language	Deutsch, English, Français, Español, Česky, Dansk, Svenska, Norsk, Suomi	Deutsch
Auto DST	Daylight savings time selection	Yes, No	Yes
Date	Adjustment of the date	01.01.2001 ... 31.12.2099	01.01.2019
Time	Adjustment of the current time	00:00 ... 00:00	-
System	System selection	1 ... 5	1
Fan	Starting speeds adjustment	-	-
Low	Starting speed Low		20 %
Standard	Starting speed Standard		50 %
High	Starting speed High		80 %
Max	Starting speed Max		100 %
Reset	Back to factory settings of the systems	Yes, No	No



The controller is equipped with a MicroSD card slot for MicroSD memory cards. With a MicroSD card, the following functions can be carried out:

- Logging measurement and balance values. After the transfer to a computer, the values can be opened and visualised, e.g. in a spreadsheet.
- Store adjustments and parameterisations on the MicroSD card and, if necessary, retrieve them from there.
- Running firmware updates on the controller.

Running firmware updates

When a MicroSD card with a firmware update is inserted, the enquiry **Update?** is indicated on the display.

→ In order to run an update, select **Yes** and confirm with the right button (✓).

The update will run automatically. The indication **Please wait** and a progress bar appear on the display. When the update has been completed, the controller will automatically reboot and run a short initialisation phase.



Note:

Only remove the card when the initialisation phase has been completed and the status menu is indicated on the controller display!

→ To skip the update, select **No**.

The controller starts normal operation.



Note:

The controller will only recognise a firmware update file if it is stored in a folder named **SV** on the first level of the MicroSD card.

→ Create a folder named **SV** on the MicroSD card and extract the downloaded ZIP file into this folder.

Starting the logging

→ Insert the MicroSD card into the slot.

→ Adjust the desired logging type and interval.

Logging will start immediately.

Completing the logging process

→ Select the menu item **Remove card...**

→ After **Remove card** is displayed, remove the card from the slot.

When **Linear** is adjusted in the **Logging type** adjustment channel, data logging will stop if the capacity limit is reached. The message **Memory capacity** will be displayed.

If **Cyclic** is adjusted, the oldest data logged onto the SD card will be overwritten as soon as the capacity limit is reached.



Note:

Because of the increasing size of the data packets, the remaining logging time does not decrease linearly. The data packet size can increase, e.g. with the increasing operating hours value.

Storing controller adjustments

→ To store the controller adjustments on the MicroSD card, select the menu item **Save adjustments**.

While the adjustments are being stored, first **Please wait**, then **Done!** will be indicated on the display. The controller adjustments are stored as a .SET file on the MicroSD card.

Loading controller adjustments

→ To load controller adjustments from a MicroSD card, select the menu item **Load adjustments**.

The **file selection** window will appear.

→ Select the desired .SET file.

While the adjustments are being loaded, first **Please wait**, then **Done!** will be indicated on the display.



Note:

To safely remove the MicroSD card, always select the menu item **Remove card...** before removing the card.

SD card

Adjustment channel	Description	Adjustment range/selection	Factory setting
Remove card...	Safely remove card	-	-
Save adjustments	Save adjustments	-	-
Load adjustments	Load adjustments	-	-
Logging interval	Interval for data logging	00:01 ... 20:00 (mm:ss)	01:00
Logging type	Logging type	Cyclic, Linear	Linear

9 Manual mode

Manual mode E 12:15	
▶ Fan	Auto
Relay	Auto
0-10 V	Auto

In the **Manual mode** menu, the operating mode of all controller outputs can be adjusted.

Fan	
Auto	
Auto	▲ = Auto 100

The operating mode can be selected individually for each output. The following options are available:

- 0 % = Output is switched off (manual mode)
- 100 % = Output is active at 100 % (manual mode)
- 1 ... 99 % = Output runs at adjusted speed (manual mode)
- Auto = Output is in automatic mode



Note:

After service and maintenance work, the relay mode must be set back to **Auto**. Normal operation is not possible in manual mode.

Manual mode

Adjustment channel	Description	Adjustment range/selection	Factory setting
Fan	Operating mode selection	Auto, 0 ... 100 %	Auto
Relay	Operating mode selection	Auto, 0 %, 100 %	Auto
0-10 V	Operating mode selection	Auto, 0 ... 100 %	Auto

10 User code

User code
0000

In the **User code** menu, a user code can be entered. Each number of the 4-digit code must be individually adjusted and confirmed. After the last digit has been confirmed, the menu automatically jumps to the superior menu level.

To access the menu areas of the installer level, the installer user code must be entered:

Installer: 0262

If the installer user code has been entered, the controller changes to the parameterisation mode, see page 9.



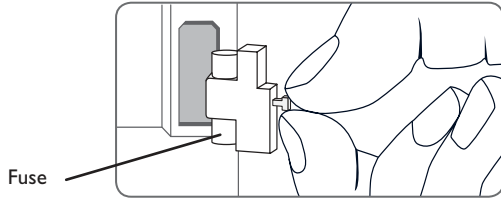
Note:

Save the adjustments made. The controller will leave the installer level and restart.

11 Troubleshooting

If a malfunction occurs, a message will appear on the display of the controller.

The controller is protected by a fuse. The fuse holder (which also holds the spare fuse) becomes accessible when the cover is removed. To replace the fuse, pull the fuse holder from the base.



The Lightwheel® flashes red.

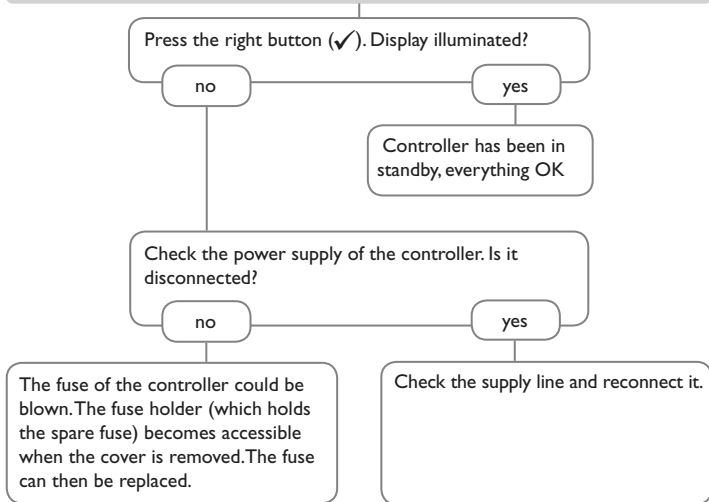
Sensor fault. An error code instead of a temperature is shown on the sensor display channel.

Short circuit or line break.

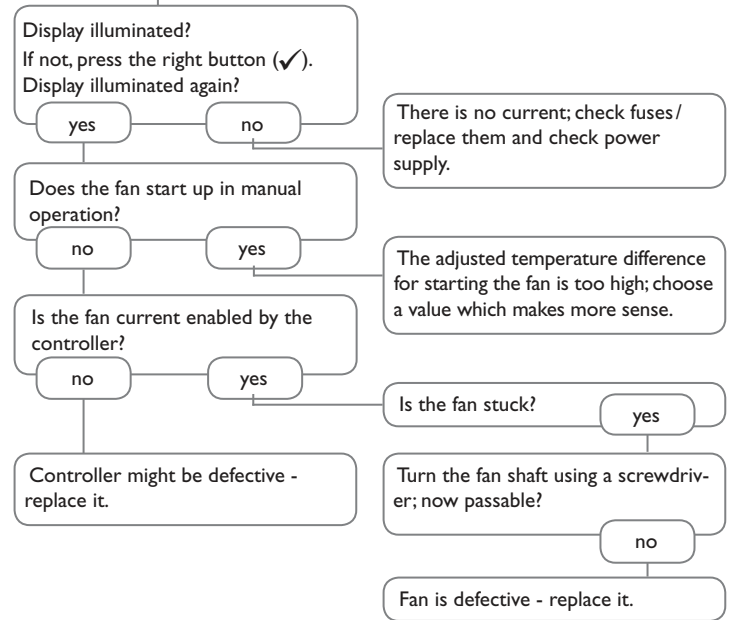
Disconnected temperature sensors can be checked with an ohmmeter. Please check if the resistance values correspond with the table.

°C	Ω Pt1000	°C	Ω Pt1000
-10	961	55	1213
-5	980	60	1232
0	1000	65	1252
5	1019	70	1271
10	1039	75	1290
15	1058	80	1309
20	1078	85	1328
25	1097	90	1347
30	1117	95	1366
35	1136	100	1385
40	1155	105	1404
45	1175	110	1423
50	1194	115	1442

The display is permanently off.



Fan is not running.





Sensors



FRHd combined sensor for humidity and temperature



FRP12 room temperature sensor



KM2 Communication module



DL2 Datalogger



DL3 Datalogger

12.1 Sensors and measuring instruments

Sensors

High-temperature sensors (collector) and room temperature sensors are available for the controller. Special variants such as clip-on sensors can be delivered upon request.

FRHd

The FRHd is used for measuring the relative humidity and the room temperature for the controller to calculate the dew point.

12.2 VBus® accessories

KM2 Communication module

The KM2 Communication module is the ideal interface between a solar or heating controller and the Internet. In only a few steps, the SolarVenti controller can be connected to the VBus.net visualisation portal. The communication module is suitable for all controllers with VBus® and enables the easy and secure access to system data via VBus.net.

DL3 Datalogger

The DL3 Datalogger is used for logging data of up to 6 SolarVenti controllers and permits the visualisation via www.VBus.net. Get a comprehensive overview of all controllers connected with the large full graphic display, all important settings are directly adjustable on the DL3. The integrated sensor and impulse inputs can measure and log temperatures – even without a controller. The DL3 is furthermore equipped with a BACnet functionality for BACnet conform transmission of data and can thus be used in a building management system.

DL2 Datalogger

The DL2 Datalogger is the interface between a SolarVenti controller and the Internet and additionally permits logging of system data. The DL2 enables the access to the system data via www.VBus.net.

12.3 Interface adapters

VBus®/USB & VBus®/LAN interface adapters

The VBus®/USB interface adapter is the interface between the controller and a personal computer. With its standard mini-USB port it enables a fast transmission of system data for processing, visualising and archiving data via the VBus®. The ServiceCenter software is included.

The VBus®/LAN interface adapter is designed for the direct connection of the controller to a PC or router. It enables easy access to the controller via the local network of the owner. Thus, controller access and data charting can be effected from every workstation of the network. The VBus®/LAN interface adapter is suitable for all controllers equipped with a VBus®. The ServiceCenter software is included.

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