Instruction manual

VENT-61

SIMON RWA®
Begeisterung trifft Technik

BA-ST4-4029-11-en

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General

2. General

2.1 Forward to this manual

This manual has been created for the purposes of proper operation, installation and maintenance by trained, experienced specialist personnel (e.g. electrician) and/or specialist personnel with knowledge involving the installation of electrical devices.

Read the instruction manual carefully and follow the prescribed sequence. Retain the operating manual for later use/maintenance. Please precisely observe the pin assignment, the minimum and maximum performance data in chapter 2.2 on page 5 and the installation instructions. Incorrect usage or improper operation/assembly can cause the loss of system functions and result in damage to property and/or persons.

You will find the following symbols in this manual:

Information

This information provides you with additional tips!

Attention

A warning draws your attention to potential dangers for the product.

Danger

This warning draws your attention to possible risks to your life or health!

Environmental warning

A warning draws your attention to potential dangers for the environment.

- ➢ This is how operating procedures are identified.
- ➘ Consequences are represented this way.
- • ***Buttons*** or ***switches*** to be activated are indicated in italics.
- • "Displays" are placed in quotation marks.

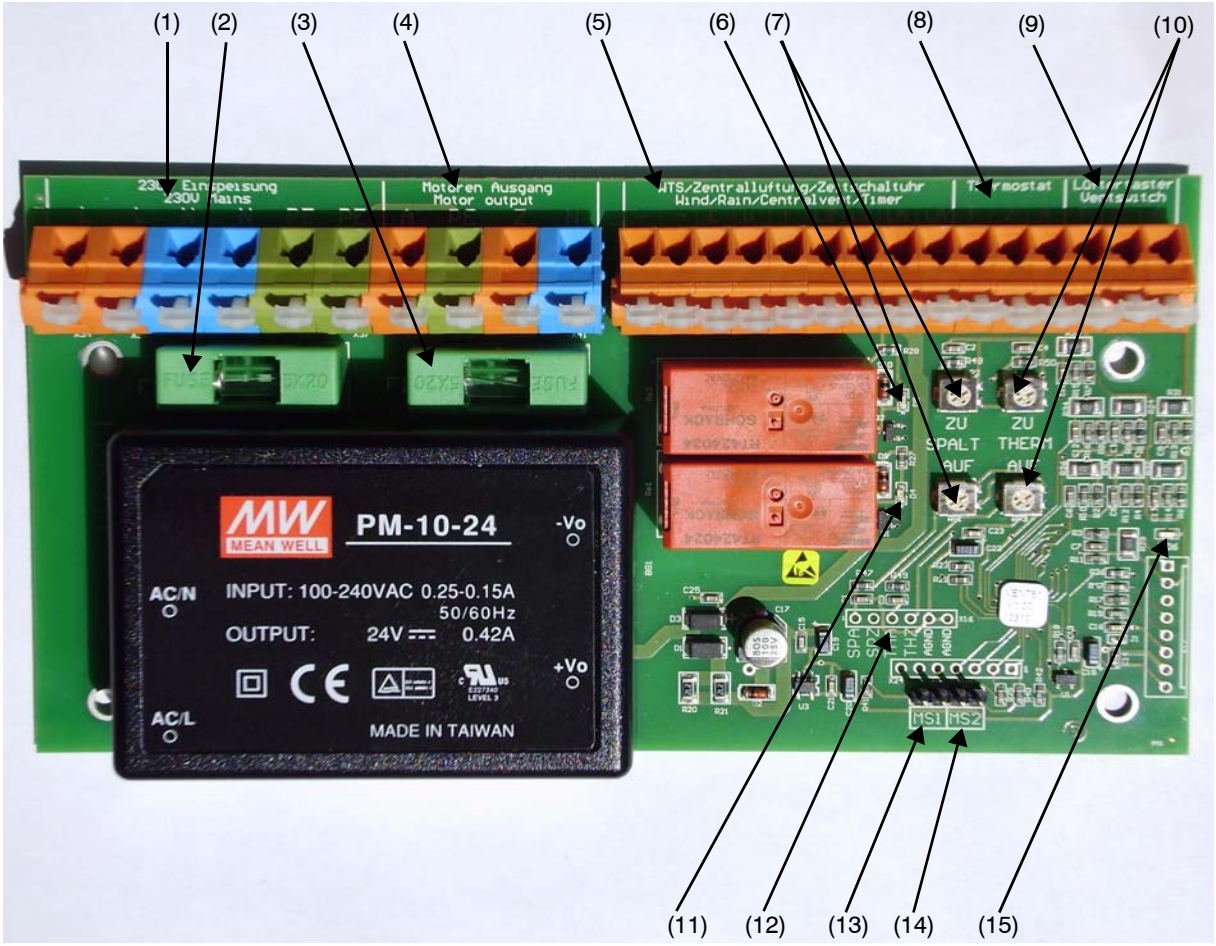
2.2 Technical data for VENT-61

Nominal voltage:	230 V AC
Permissible voltage range:	100 - 240 V AC
Frequency range:	47 - 63 Hz
Pre-fuse SNT (F2):	(5 x 20) delayed 0.4 A
Fuse relay - contacts and 230 V AC actuators (F1):	(5 x 20) delayed 6.3 A
Signal input voltage:	24 V DC
Total output current (E/T):	max. 0.3 A DC
Voltage range Signal input voltage:	20 - 30 V DC
Ripple signal input voltage:	2 V DC
Pause time for change in direction:	> 350 ms
Ambient temperature:	5 °C - 50 °C
Terminal setup:	0.5 mm² - 2.5 mm²
Power supply conductor cross-section:	min. 1.5 mm²
Continuous operation:	YES
Dimensions of housing:	180 x 180 x 60 mm
Ingress protection:	IP 67
Colour:	RAL 7035
Weight:	approx. 0.55 kg

General

2.3 Product description

Figure 1: VENT-61 circuit board



- (1) Terminal strip for 230 V AC supply
- (2) Fuse F2 (5 x 20) delayed 0,4 A
- (3) Fuse F1 (5 x 20) delayed 6,3 A
- (4) Terminal strip for 230 V AC actuators
- (5) Terminal strip for the connection of wind / rain detectors, central ventilation button and clock timer
- (6) LED D5 lights up green in the case of control signal CLOSE
- (7) Potentiometer for the setting of the run time for the limited ventilation function (run time OPEN RP1, run time CLOSE RP2)
- (8) Terminal strip for the connection of a thermostat
- (9) Terminal strip for the connection of a localventilation button
- (10) Potentiometer for the setting of the run time for the thermostat function
  (run time OPEN RP3, run time CLOSE RP4)
- (11) LED D4 lights up green in the case of control signal OPEN
- (12) Test contacts (X16) for determining the run times for the limited ventilation and thermostat function
- (13) Jumper MS1 without function
- (14) Jumper MS2 if this jumper is set, the thermostat signal is only evaluated every 20 min.
- (15) LED D6 flashes green to indicate the operational readiness of the ventilation control unit VENT-61

General

The microprocessor-controlled ventilation controller of type VENT-61 is a compact design in a sealed plastic housing.

The VENT-61 controls a group of up to six 230 V AC actuator units (total actuator current max. 6 A) and can be extended by further controllers in parallel operation (multi-group system). Central triggering units affect all connected individual components. A 24 V DC power supply unit is installed for the internal controller and the wind/rain detector (e.g. WS890/WTS892).

The following functions and priorities are integrated in the VENT-61 ventilation controller :

- Priority 1: Wind/rain detector
- Priority 2: Clock timer and/or central ventilation button
- Priority 3: Thermostat, run time for OPEN/CLOSE adjustable via potentiometer
- Priority 3: Local ventilation button with limited ventilation, inching stop function and dead man function

2.4 Functional description

2.4.1 Wind/rain detector (WS890/WTS892)

The wind/rain detector enables the user to automatically close the flaps/windows opened for ventilation in the case of weather-related influences. It has the highest priority and thus overrides all other functions. After the wind/rain detector triggers, it generates a permanent control signal in the CLOSE direction so that the control signals from all other triggering units have no function. This control signal is reset after the expiry of a time specified in the wind/rain detector. Due to the multiple triggering inhibitor the actuator units can subsequently only be reactivated by a command in the OPEN direction.

Attention

The control signal from the wind/rain detector in the CLOSE direction is automatically released again after a pre-defined time. Regarding this, please refer to the specifications in the manual for the respective wind/rain detector.

Attention

If no wind/rain detector is connected, the contacts of terminals "E" and "U" must be bridged. The central ventilation button, the clock timer, the thermostat and the local ventilation button will otherwise not function!

See also chapter 4.4 on page 13 and Figure 11: "Bridging" on page 14.

2.4.2 Clock timer, central ventilation button

The connection of a clock timer makes a time-controlled ventilation function possible for the user. With the central ventilation button it is possible to manually operate all actuator units from a central point. The control signal is applied only as long as one of the switches is actuated (dead man function). The control signals of the clock timer and the central ventilation button have the priority 2. If both a clock timer and a central ventilation button are connected to the VENT-61, then the control signal applied last takes priority.

2.4.3 Thermostat

A temperature-controlled ventilation function can be realised with the aid of the thermostat. In addition the aperture can be defined individually via the run time. The run time of the actuator units can be set separately for the OPEN and CLOSE directions with a potentiometer.
(see also 6.1 "Setting the run time for the thermostat function" on page 19)
A connected thermostat has the priority 3.

2.4.4 Local ventilation button

A limited ventilation function, an
inching-stop function and a dead man function can be realised with the local ventilation button. The local ventilation button has the priority 3. If both a thermostat and a local ventilation button are connected to the VENT-61, then the control signal applied last takes priority.

2.4.4.a Limited ventilation function

The limited ventilation or stroke limiter is activated by actuating (tapping < 2 seconds) the local ventilation button in the OPEN or CLOSE direction. This function enables the user to drive the actuator units automatically for a pre-defined time. The run time can be set separately for the OPEN and CLOSE directions by means of a potentiometer. (see also 6.2 "Setting the run time for the limited ventilation function" on page 21)

2.4.4.b Inching-stop function

The limited ventilation function can be interrupted with the inching-stop function. By actuating (tapping < 2 seconds) the button for the current direction of travel, the run time is interrupted and the actuator units stop. The run time is reactivated when the same button is tapped again.

This can be repeated any number of times until the pre-defined total run time for the limited ventilation function is reached.

Attention

The dead man function is automatically activated if the respective direction button is pressed for 2 seconds or longer.

2.4.4.c Dead man function

The dead man function is a safety function as a result of which the actuator units can only be moved by actuating the respective direction button.
The actuator units stop immediately if the button is released. The limited ventilation function can be overridden with the dead man's switch function.

Attention

If the limited ventilation function is overridden with the dead man function, it must be noted that the actuator units move only for the pre-defined time in the case of the limited
ventilation function. This can lead to the actuator units not reaching the CLOSE end position.

Information

After any override of the
limited ventilation function in the OPEN direction, the actuator units must be driven in the CLOSE direction by means of the dead man function until they reach their end position.

General

Figure 2: Examples of triggering units

Safety regulations

3. Safety regulations

Danger

For placing this product on the market outside of Germany the installation and use has to follow all relevant and valid directives of the respective country!

Danger

The location where this product is installed must have a free access to ensure the open entrance for maintenance and service staff.

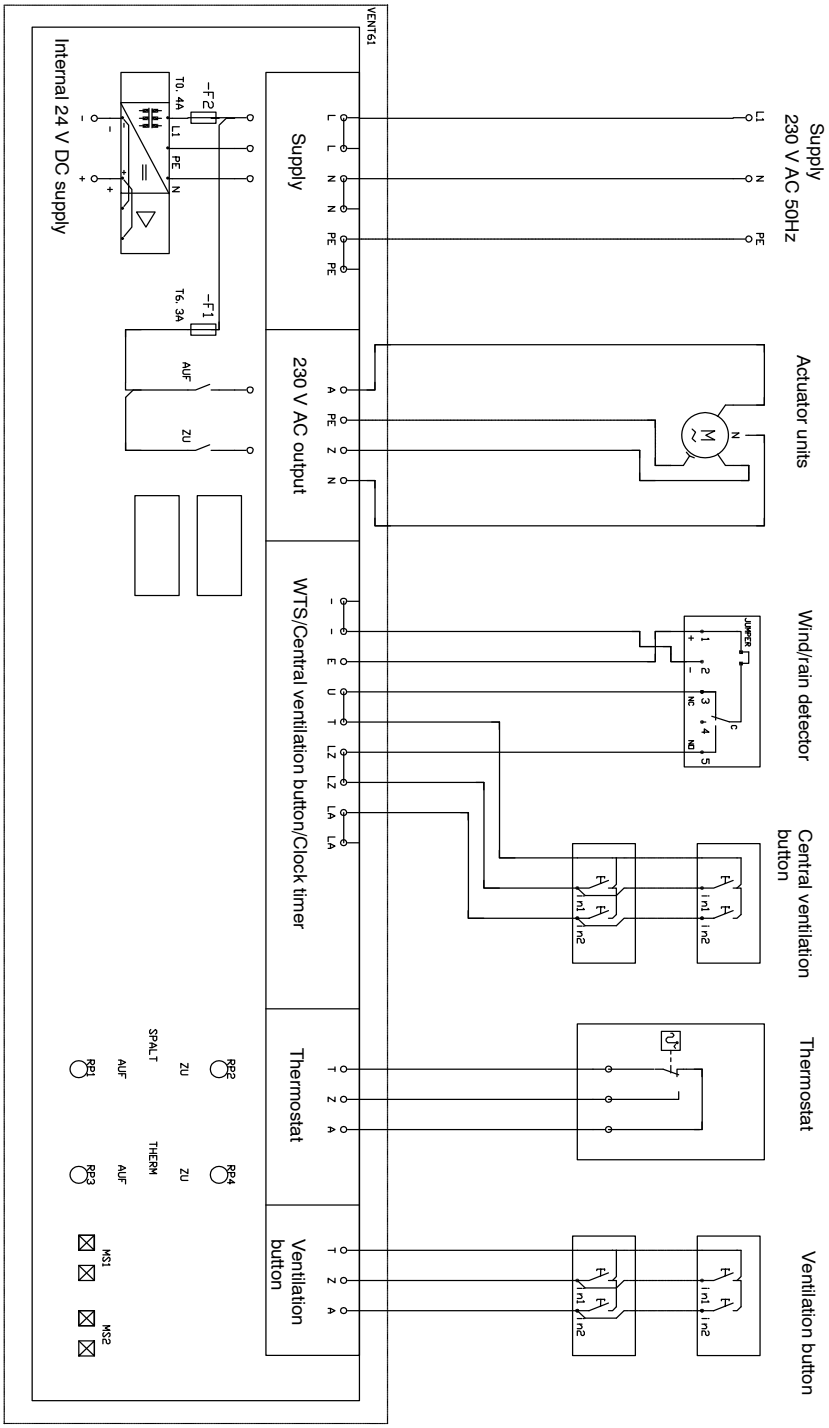
Attention

The circuit board is equipped with components posing a risk of electrostatic discharge. Do not touch installed components!

Connection of a single group

4. Connection of a single group

Figure 3: Circuit diagram – PCB



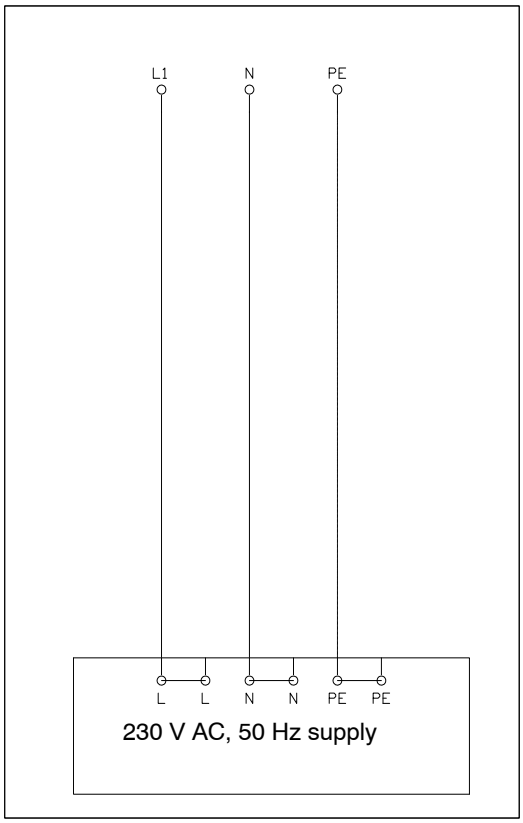
Connection of a single group

4.1 Supply

The supply takes place with 230 V AC, 50 Hz. The cores are connected to the terminals “PE” (protective earth),
“L” (live conductor) and “N” (neutral conductor).
See Figure 4: "Supply" on page 12 and
Figure 5: "Circuit diagram - Supply" on page 12.

Figure 4: Supply

Figure 5: Circuit diagram - Supply



4.2 General connection information

Danger

The installation may only be carried out by expert personnel! If the installation is not carried out correctly there is a danger of electrocution. It is essential that you adhere to the applicable safety regulations! All components must be connected without exception in a voltage-free condition.

4.3 Connection of an actuator

The actuator units are connected to the terminals marked with “output”
(see Figure 6: "Output" on page 13).
The cores of the actuator unit connection cables are attached to the terminals marked with “PE” (protective earth), “A” (OPEN control signal), “Z” (CLOSE control signal) and “N” (neutral conductor).
(see Figure 7: "Circuit diagram - Output" on page 13)
Up to six actuator units can be connected in parallel; however, the total current for all actuators may not exceed 6 A.

Attention

Only 230 V AC actuator units may be connected!

Attention

The total current of the connected actuator units may not exceed 6 A.

Connection of a single group

Figure 6: Output

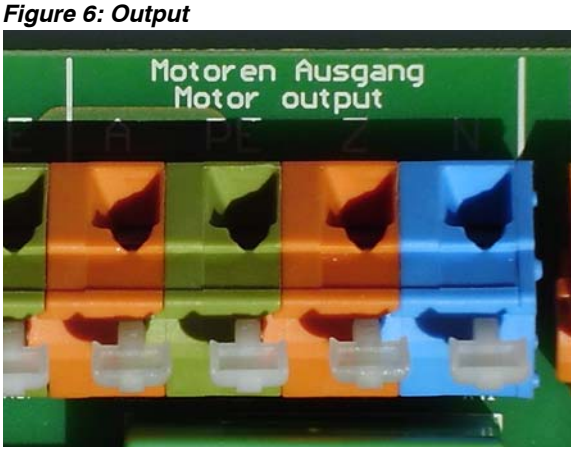
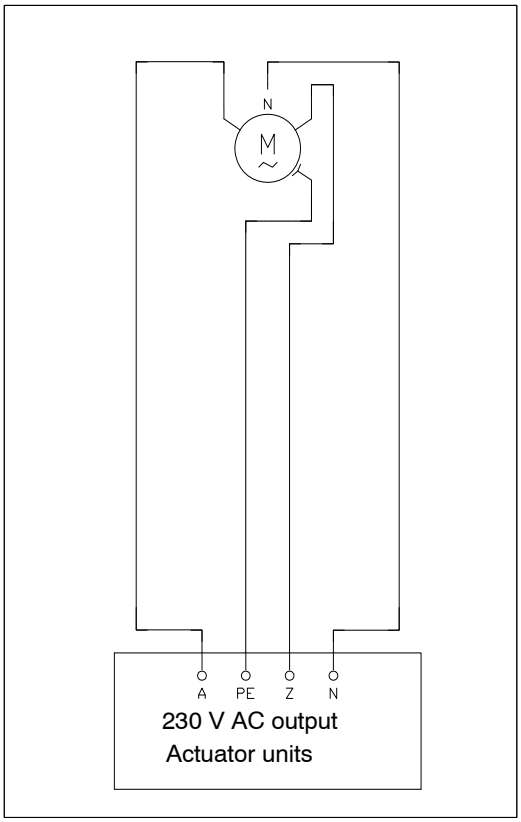


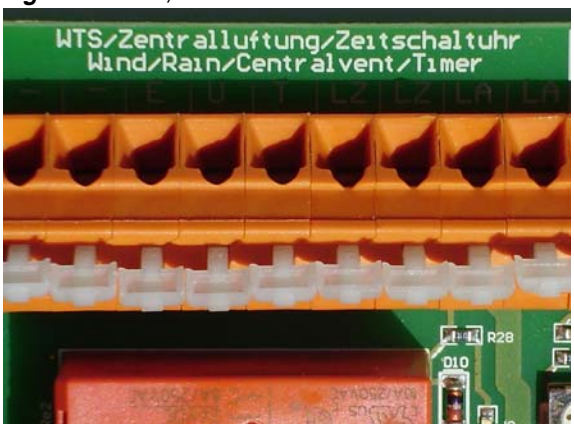
Figure 7: Circuit diagram - Output



4.4 Connection of a wind/rain detector, central ventilation button and clock timer

The wind/rain detector (e.g. WT 890/WTS 892) and a central ventilation button and/or a clock timer are connected according to the circuit diagrams in Figure 9: "Circuit diagram - WTS" on page 14 or in Figure 10: "Circuit diagram - Central ventilation button" on page 14 to the terminals marked with “WTS/Central ventilation/ Clock timer (see also Figure 8: "Wind/rain detector" on page 13).
The marking of the terminal “**-**“ stands for the minus voltage, “E” and “T” for the +24 V DC power supply of the wind/rain detector, the central ventilation button and the clock timer. The terminals “U” and “T” have no function if the WTS signal is present. The terminals for the control signal CLOSE are marked with "LZ", and the terminals for the control signal OPEN with "LA".

Figure 8: Wind/rain detector



Connection of a single group

Figure 9: Circuit diagram - WTS

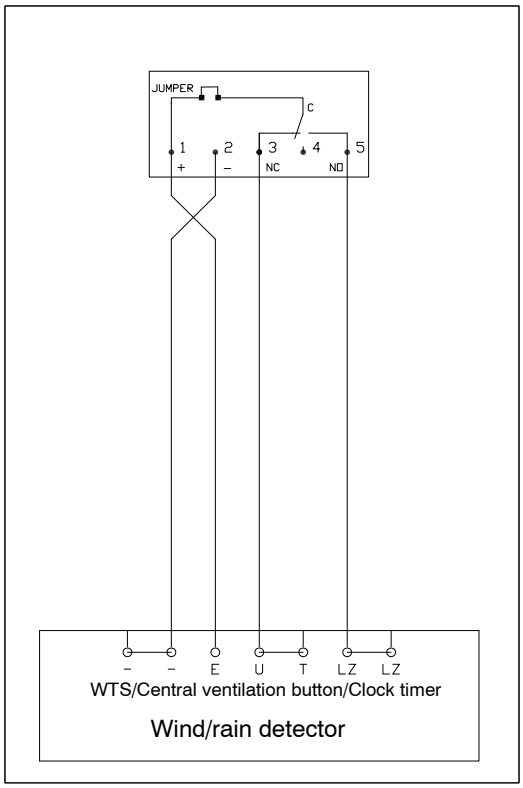
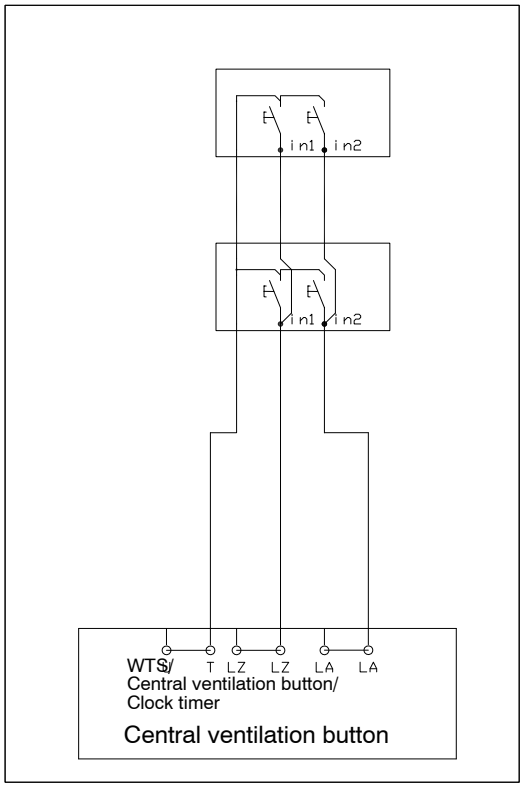


Figure 10: Circuit diagram - Central ventilation button



Attention

If no wind/rain detector is connected, the contacts of terminals "E" and "U" must be bridged. The central ventilation button, the clock timer, the thermostat and the local ventilation button will otherwise not function!

Figure 11: Bridging

Connection of a single group

4.5 Connection of a thermostat

The thermostat is connected in accordance with Figure 12: "Thermostat" on page 15 to the terminals marked with “Thermostat”: “T” (+24 V DC), “Z” (CLOSE control signal) and “A” (OPEN control signal) (see Figure 13: "Circuit diagram - Thermostat" on page 15).

Figure 12: Thermostat

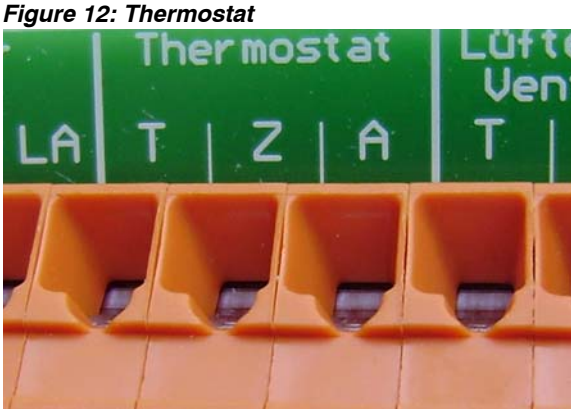
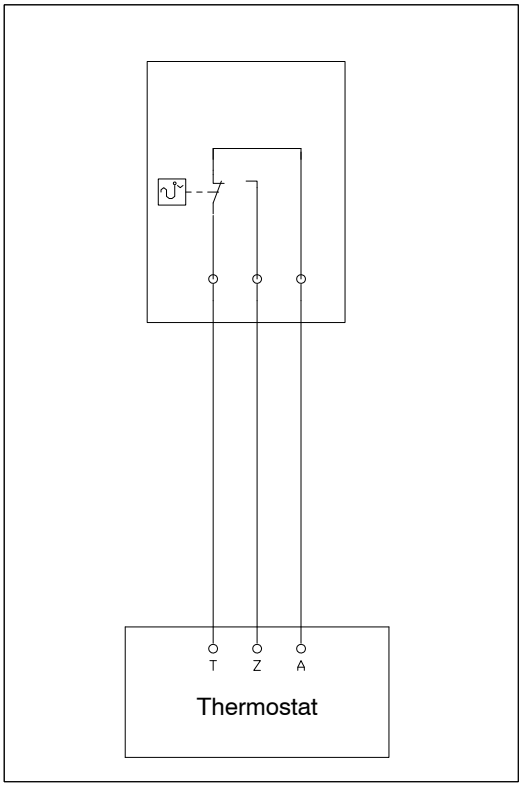


Figure 13: Circuit diagram - Thermostat



4.6 Connection of a ventilation button

The ventilation button is connected to the terminals marked with “Ventilation button”: “T” (+24 V DC), “Z” (CLOSE control signal) and “A” (OPEN control signal) (see Figure 14: "Ventilation button" on page 15 and Figure 15: "Circuit diagram - Ventilation button" on page 15).

Figure 14: Ventilation button

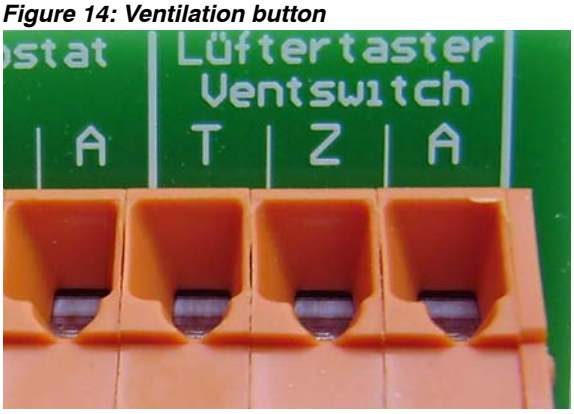
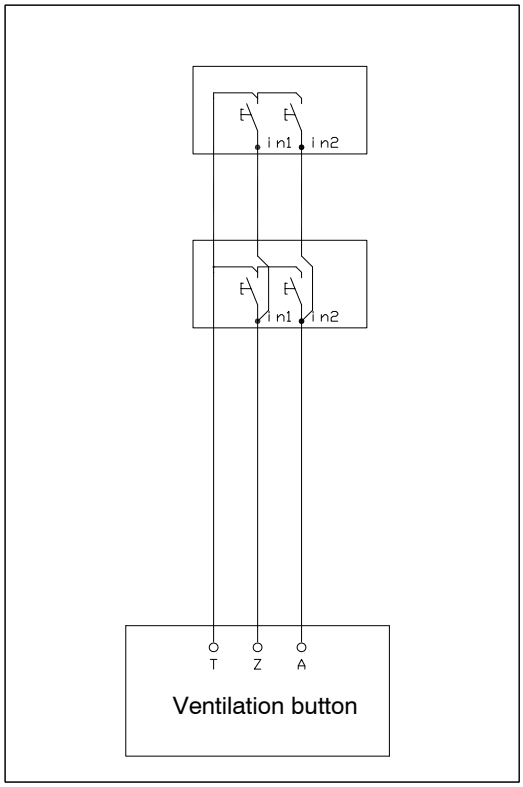


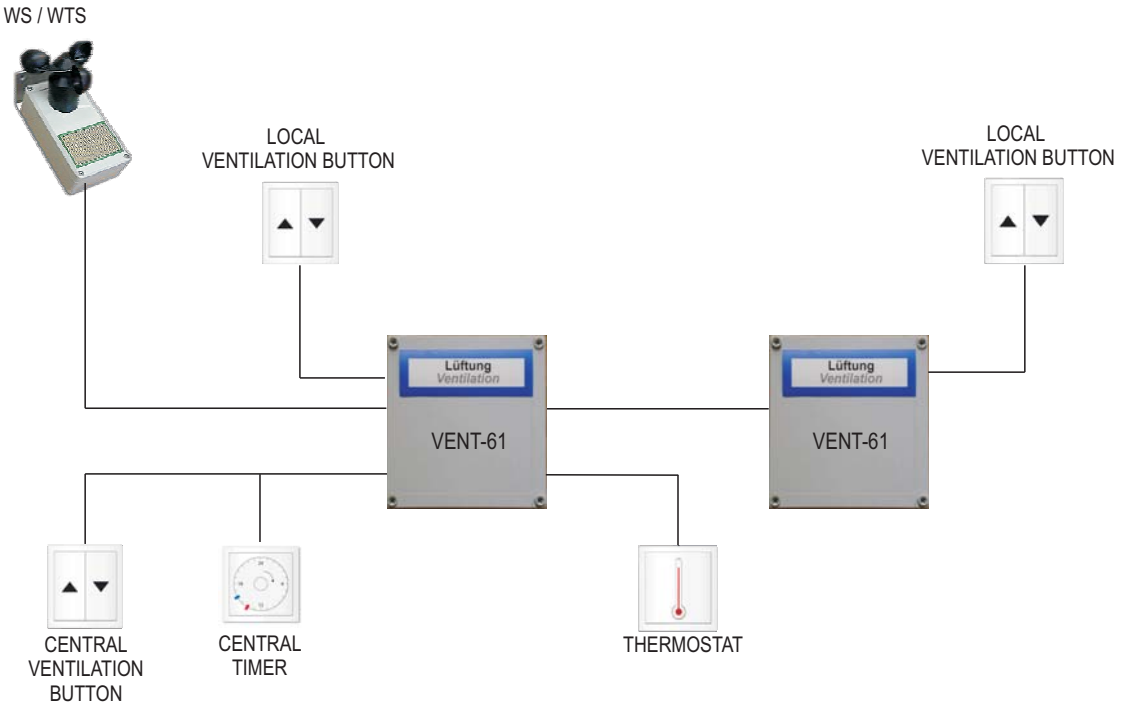
Figure 15: Circuit diagram - Ventilation button



Connection example – Parallel operation

5. Connection example – Parallel operation

Figure 16: Diagram – Parallel operation



A possible application is shown in Figure 16: "Diagram – Parallel operation" on page 16. This variant of parallel operation (multi-group system) consists of two VENT-61 ventilation controllers. Further VENT-61 can be connected in parallel depending upon the customer's requirements. The total output current of 0.3 A DC at the output "E" of the VENT-61 to which the wind/rain detector is connected must not be exceeded. This ventilation controller supplies the ventilation components of all other parallel connected Vent-61 with power. The total ventilation component connection is restricted by this limit of 0.3 A DC and must be observed during commissioning. The cable lengths and the resulting voltage losses must be considered. The manufacturer's data regarding the signal input voltage (see Technical data page 5) are to be adhered to.

In the above application example, up to twelve 230 V AC actuator units (up to six actuator units per ventilation controller) with a total max. current of 12 A (6 A per ventilation controller) can be controlled. The control signals from the wind/rain detector, the thermostat, the clock timer and the central ventilation button can be evaluated by both ventilation groups. The trigger units have the same priorities in parallel operation as in the single group.

Connection example – Parallel operation

The actuator units and the local ventilation buttons are connected as in the case of a single group.
Please read chapter 4. and chapter 6. regarding this.

The connection of both ventilation controllers is illustrated in Figure 17: "Circuit diagram – Parallel connection" on page 18 For the supply of 230 V AC, the terminals “PE” (protective earth), “N” (neutral connector) and “L” (live conductor) of both ventilation controllers are connected together. In order to be able to evaluate the control signals from the wind/rain detector, the clock timer and the central ventilation button, the contacts “-“ (minus voltage), “T” (+24 V DC power supply), “LZ” (CLOSE control signal) and “LA” (OPEN control signal) must be connected to each other. In order to forward the thermostat signals, the contacts “Z” (CLOSE control signal) and “A” (OPEN control signal) are linked.

Information

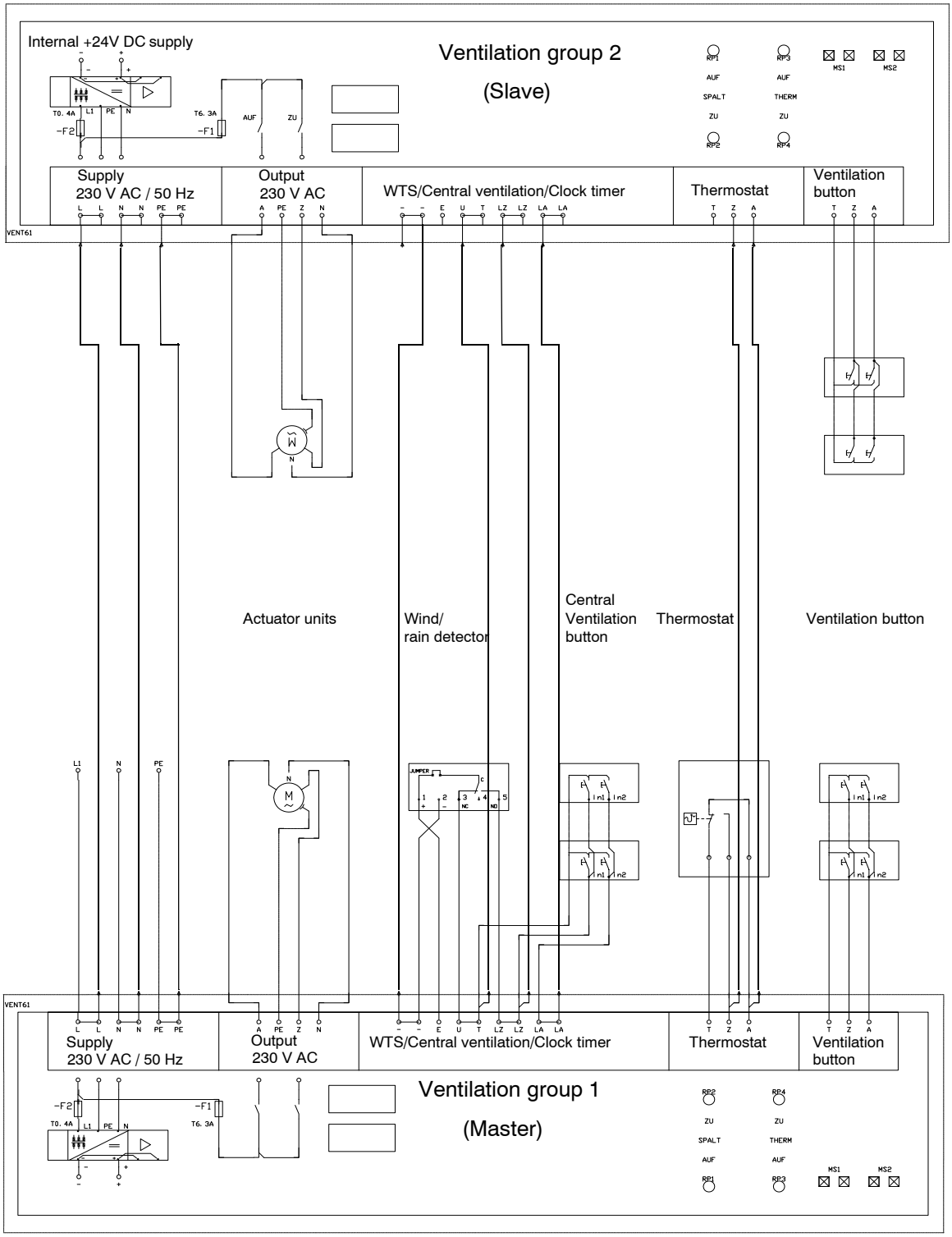
If no wind/rain detector is connected, then the contacts “U” and “E” only need to be bridged in the first ventilation controller.

Information

Information about further application possibilities (e.g. thermostat control per group) is available on request.

Connection example – Parallel operation

Figure 17: Circuit diagram – Parallel connection



6. Commissioning

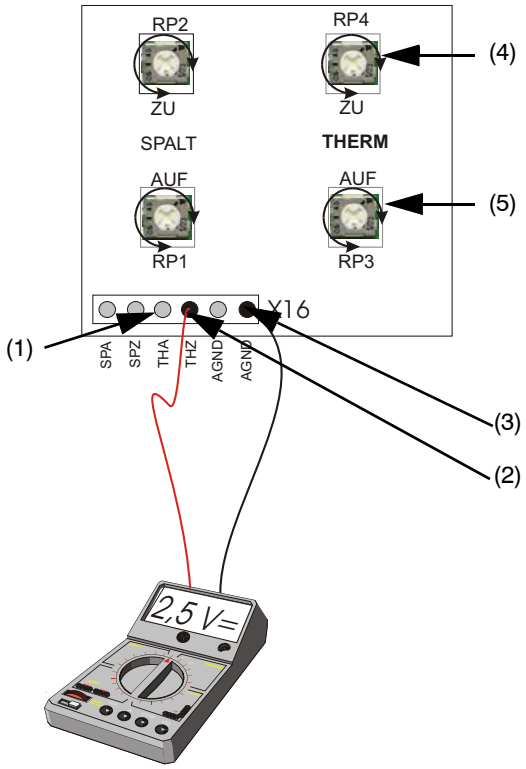
6.1 Setting the run time for the thermostat function

Danger

The settings of the run times can be only made if the VENT-61 is connected to the power supply. It is essential to observe the applicable safety regulations and to use suitable tools.

The potentiometers RP3 and RP4 as well as the test contacts X16 are used for the setting of the run time of the actuator units (aperture) for the thermostat function. In addition you require a voltmeter in order to be able to measure the voltage.

Figure 18: Time setting – Thermostat



- (1) Contact THA - Thermostat OPEN
- (2) Contact THZ - Thermostat CLOSE
- (3) Contact AGND - Ground
- (4) RP4 potentiometer for run time CLOSE
- (5) RP3 potentiometer for run time OPEN

In Figure 18: "Time setting – Thermostat" on page 19 shows the connection of the measuring instrument for the setting of the run time in the CLOSE direction. The red probe tip of the voltmeter is connected to the “THZ” contact and the black probe tip to the “AGND” contact. In order to measure the voltage of the run time in the OPEN direction, the red probe tip of the voltmeter is connected to the “THA” contact and the black probe tip to the “AGND” contact. The voltage is increased by turning the respective potentiometer (RP3 for the OPEN direction, RP4 for the CLOSE direction) in the clockwise direction. Turning counter-clockwise reduces the voltage. The higher the voltage is set, the longer the run time will be.

With the help of the diagram in
Figure 22: "Run time diagram" on page 22 , the time can now be determined. A maximum run time of 120 seconds can be set, which corresponds to a voltage of 2.5 V DC. The run time in the CLOSE direction should be selected somewhat longer than the run time in the OPEN direction in order to ensure that the actuator units reach the CLOSE end position.

Information

If, for example, the measuring instrument indicates a voltage of 0.5 V DC, then a time of 23 seconds can be read off from the diagram. In this case the actuator units move for 23 seconds in the corresponding direction.

Information

In order to ensure that the CLOSE end position is reached, the run times must always be explicitly matched to one another.

Commissioning

6.1.1 Jumper MS1

Jumper MS1 has no function.

6.1.2 Jumper MS2

With the aid of jumper MS2 (item 14 Figure 1: "VENT-61 circuit board" on page 6), the
control behaviour of the ventilation button can be influenced if a thermostat is operated at the same time.

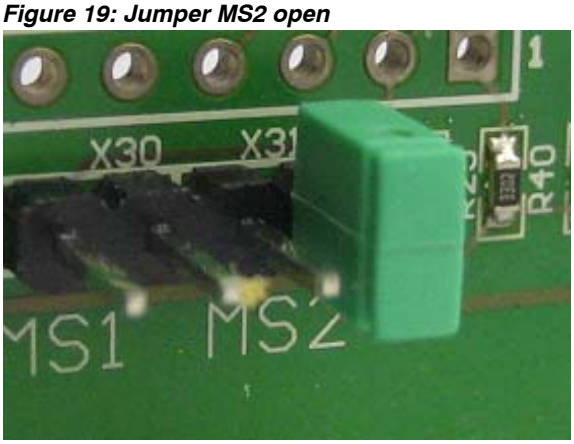
6.1.2.a Jumper MS2 not set

If jumper MS2 is not set and if, in the case of
parallel operation of ventilation button and thermostat, the thermostat signal is overridden manually with the ventilation button, then the ventilation button signal remains effective until there is a new control signal in the opposite direction. The thermostat signal is not stored.

Example:

The connected thermostat closes the windows. The user intervenes with the ventilation button and opens them again. This condition does not change until they are closed again via the ventilation button. The thermostat only closes again if in the meantime a zero crossover has taken place in the thermostat, i.e. the switching point OPEN was reached and now the switching point CLOSE is reached again.

Figure 19: Jumper MS2 open



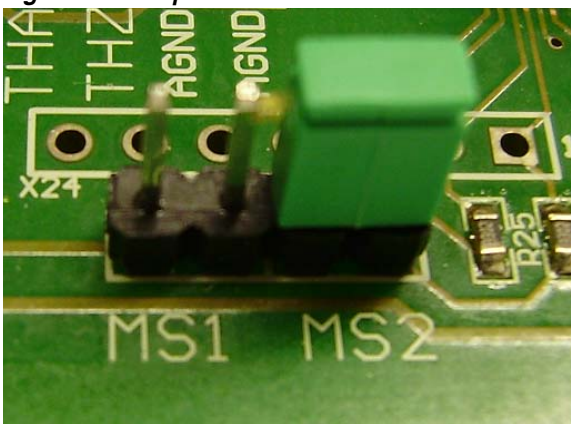
6.1.2.b Jumper MS2 set

If jumper MS2 is set and, in the case of parallel operation of ventilation button and thermostat, the thermostat signal is overridden by manual intervention with the ventilation button, then the ventilation button signal is effective for a maximum of 20 minutes – after that the thermostat signal is effective. The thermostat signal is stored.

Example:

The connected thermostat closes the windows. The user intervenes with the ventilation button and opens them again. This condition does not change for a period of maximally 20 minutes. After 20 minutes have expired the thermostat closes again, as soon as there is a control signal in the CLOSE direction.

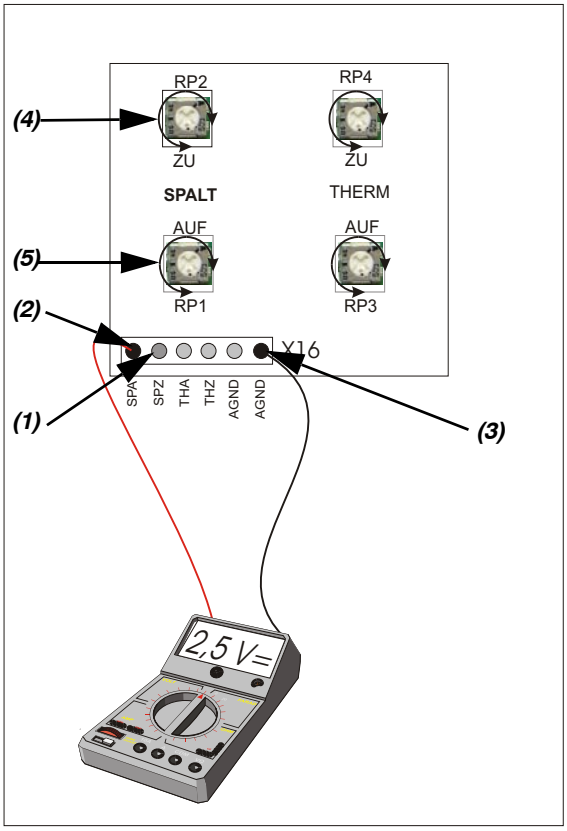
Figure 20: Jumper MS2 closed



6.2 Setting the run time for the limited ventilation function

The potentiometers RP1 and RP2 as well as the test contacts X16 are used for the setting of the run time (stroke limiter) for the limited ventilation function. In addition a voltmeter is required in order to be able to measure the voltage.

Figure 21: Time setting – Limited ventilation



- (1) Contact SPZ - Limited ventilation CLOSE
- (2) Contact SPA - Limited ventilation OPEN
- (3) Contact AGND - Ground
- (4) RP4 potentiometer for run time CLOSE
- (5) RP1 potentiometer for run time OPEN

In Figure 21: "Time setting – Limited ventilation" on page 21 shows the connection of the measuring instrument for the setting of the run time in the OPEN direction. To this end the red probe tip of the voltmeter is connected to the “SPA” contact and the black probe tip to the “AGND” contact. The voltage for the run time in the OPEN direction is increased by turning potentiometer “RP1” clockwise. The potentiometer is turned counter-clockwise to reduce the voltage. In order to measure the voltage of the run time in the CLOSE direction, the red probe tip of the voltmeter is connected to the “SPZ” contact and the black probe tip to the “AGND” contact. The voltage for the run time in the CLOSE direction is increased by turning potentiometer „RP2“ clockwise. Turning counter-clockwise reduces the voltage. According to the diagram in Figure 22: "Run time diagram" on page 22 , the run time can now be determined. A maximum run time of 120 seconds can be set, which corresponds to a read-off value of 2.5 V DC.

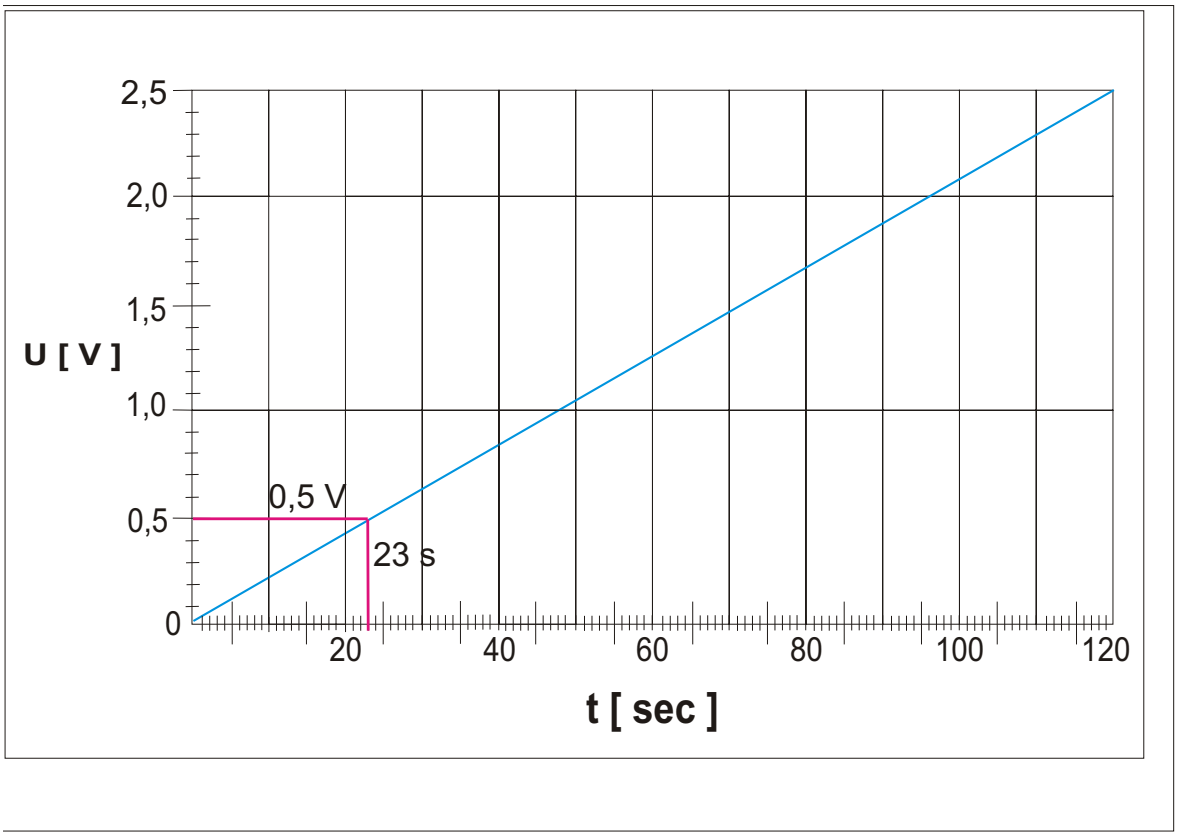
Information

If, for example, the measuring instrument indicates a voltage of 0.5 V DC, then a time of 23 seconds can be read off from the diagram. In this case the window actuator moves for 23 seconds in the corresponding direction.

Information

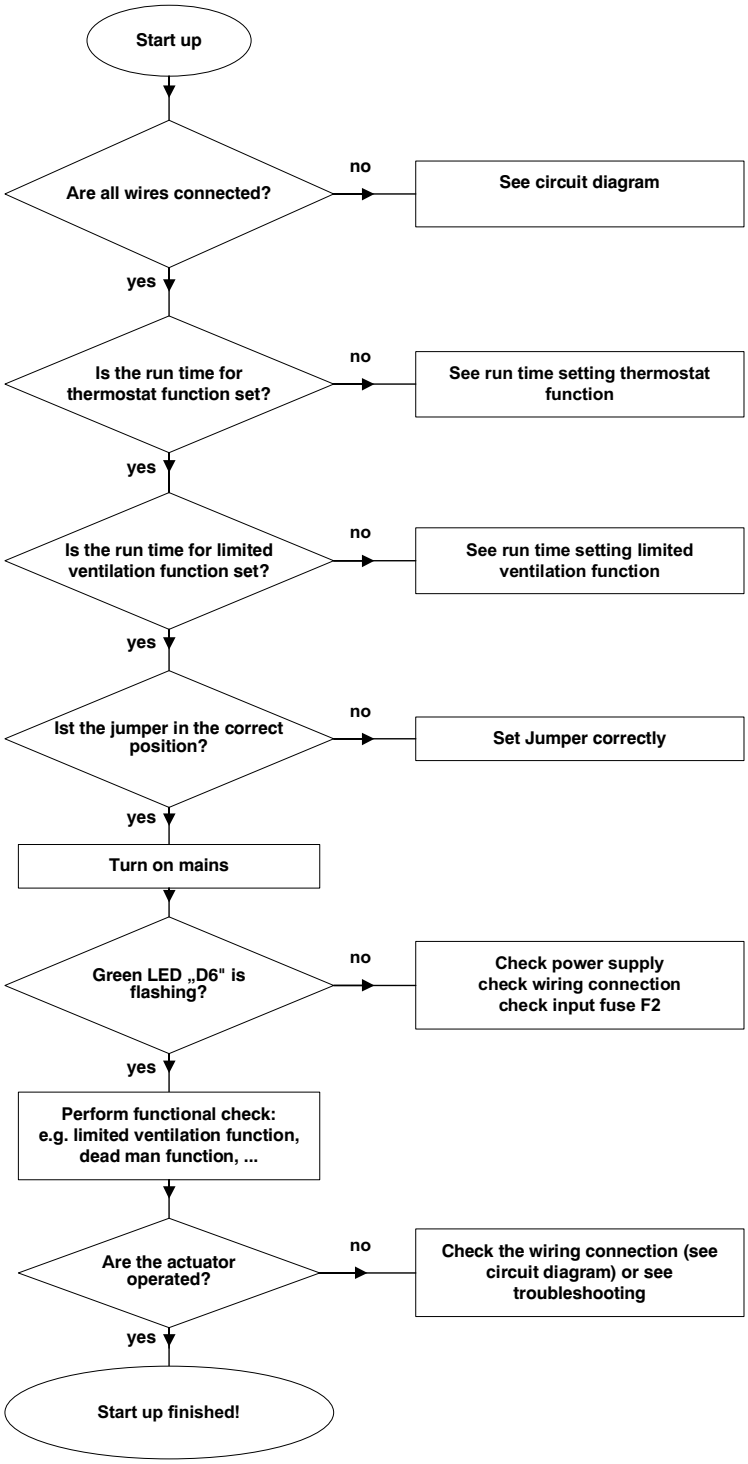
In order to ensure that the CLOSE end position is reached, the run times must always be explicitly matched to one another.

Figure 22: Run time diagram



Commissioning

Figure 23: Commissioning check list



6.3 Troubleshooting

Tabelle 1: Overview of faults

Malfunction	Possible causes	Failure correction
The green LED D6 does not flash;	- No mains voltage - Connection cable connected incorrectly - Fuse F2 defective	- Check mains voltage - Check connection cable - Check all fuses
Central ventilation button, clock timer, thermostat and local ventilation button do not work;	- Connection cables connected incorrectly / not connected - No wind/rain detector connected - Wind/rain detector active	- Check all connection cables - Bridge contacts “E” and “U” on the thermostat terminals - Wait until the control signal is enabled again, then drive in the OPEN direction first
Wrong running direction of the actuator;	- Terminals “A” and “Z” swapped;	- Swap the actuator poles at the terminals “A” and “Z”
Limited ventilation function does not work, or does not work correctly;	- Ventilation button actuated for longer than 2 seconds operated, dead man function activated - Wind/rain detector active - Run time set incorrectly	- Actuate the ventilation button for less than 2 seconds - Wait until the wind/rain detector signal has been terminated, then there must first be a control signal in the OPEN direction - Set the run time using the potentiometer
No dead man function;	- Wind/rain detector active - Local ventilation button not actuated long enough	- Wait until the wind/rain detector signal has been terminated and there has been a control signal in the OPEN direction - Actuate the local ventilation button for longer than 2 seconds
Ventilation button function in the wrong direction;	- Terminals “A” and “Z” swapped	- Swap terminals “A” and “Z” of the ventilation button
The actuator units do not work;	- Load fuse F1 defective - Incorrect connections	- Check the fuse and replace it if necessary - Check the connections and the connection cables

Guarantee

7. Guarantee

7.1 Repair and replacement

The ventilation controller VENT-61 may only be repaired by the manufacturer. Peripherals and spare parts are to be procured from the manufacturer or an authorised contract partner.

7.2 Guarantee conditions

The following applies with respect to the guarantee: "General conditions for the supply of products and services of the electrical and electronics industry ("Green delivery terms" - GL)". These can be found at our homepage ***www.simon-rwa.de***.
We would be happy to send you a copy upon request.

7.3 Disposal note

Environmental warning

Pursuant to the Electronics Act (ElektroG), this device must be properly disposed of at the end of its service life! Please contact your waste disposal company with any questions.

8. Appendix

8.1 EU manufacturer declaration

CE

We hereby declare the conformity of the product with the applicable guidelines.
The declaration of conformity can be viewed in the company and will be delivered upon request.

This declaration becomes invalid following a change that has been made without our consent.

8.2 Company addresses

8.2.1 Germany:

Simon RWA® Systeme GmbH
Medienstr. 8
D - 94036 Passau
Tel: +49 (0)851 98870 - 0
Fax: +49 (0)851 98870-70
E-mail: info@simon-rwa.de
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8.2.2 Austria:

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Fax: +43 (0)2256 64070
E-mail: info@simon-rwa.at
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8.2.3 Switzerland:

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Notes

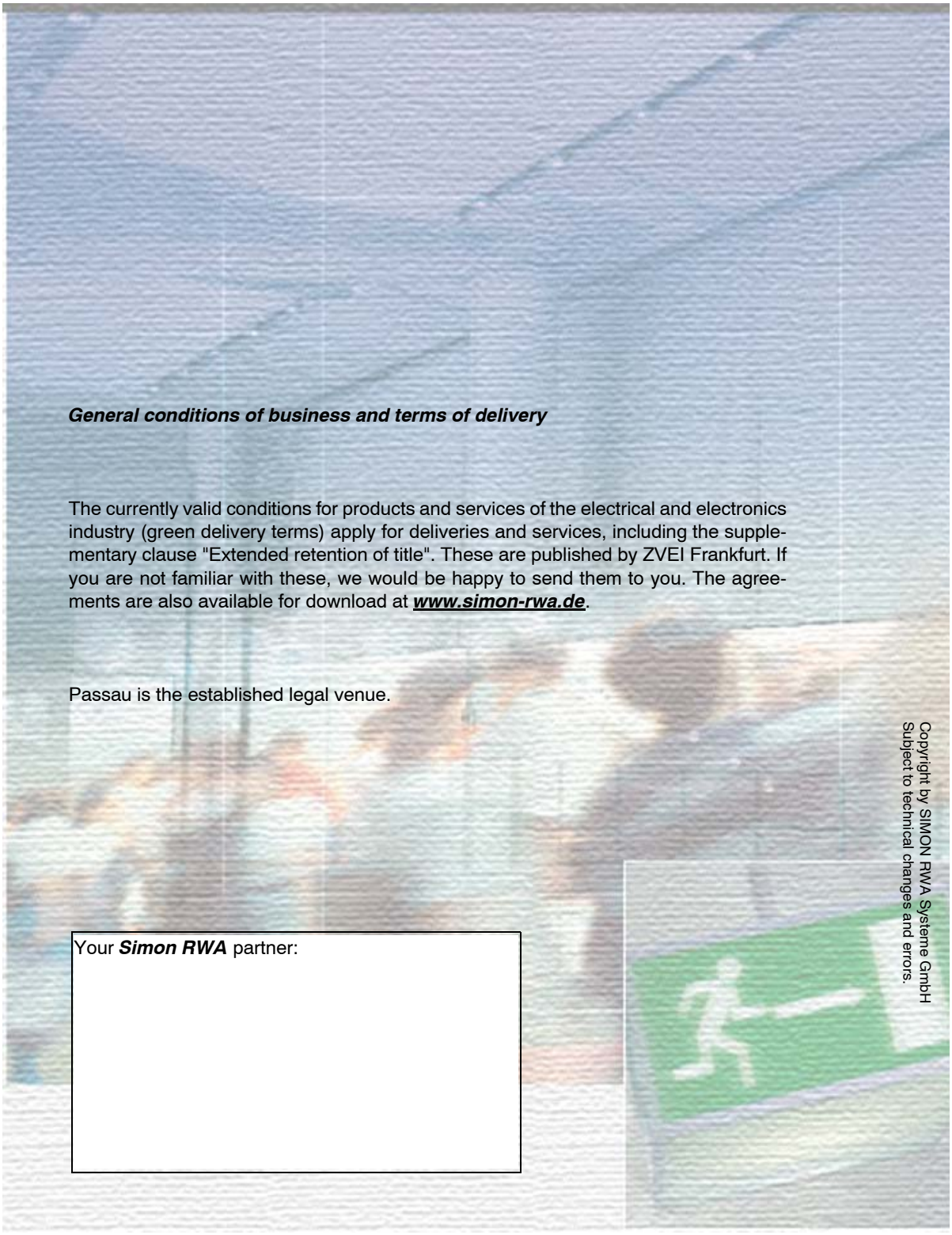
9. Notes

Notes

Instruction manual

VENT-61

SIMON RWA®
Begeisterung trifft Technik



General conditions of business and terms of delivery

The currently valid conditions for products and services of the electrical and electronics industry (green delivery terms) apply for deliveries and services, including the supplementary clause "Extended retention of title". These are published by ZVEI Frankfurt. If you are not familiar with these, we would be happy to send them to you. The agreements are also available for download at ***www.simon-rwa.de***.

Passau is the established legal venue.

Your ***Simon RWA*** partner: