

Smoke and Heat Ventilation Pneumatic - Electronic Control Systems



Installation and Operation Instructions

Version 4-2

SHEVS Control Centre RWZ 5f



<u>Contents</u>

| | ruge |
|---|---------------------------|
| Concept of Control Centre | 3 |
| 1.1 Options / Accessories | 3 |
| Technical Data | 4 |
| 2.1 Versions | 4 |
| 2.2 Performance data and characteristics | 4 |
| Putting into service / Putting out of service | 6 |
| 3.1 Installation / Putting into service | 6 |
| 3.2 Putting out of service | 6 |
| Functions and operation | |
| 4.1 Indicators / control elements of the Control Centre | 6 |
| 4.2 Group configuration and selectable functions | 7 |
| 4.3 Indicators / functions of the manual call points | 8 |
| 4.4 Alarm functions | 8 |
| 4.5 Ventilation functions | 8 |
| 4.5.1 Manual ventilation | 8 |
| 4.5.2 Setting the ventilation position 🔀 | 9 |
| 4.5.3 Setting the ventilation time ∡ | 9 |
| 4.5.4 Indication of position \mathbf{I}_{-} in the ventilation button | 9 |
| 4.5.5 External Wind and Rain Control (WRC) | 9 |
| 4.6 Repetition of cycle V | |
| 4.7 Mains failure | |
| Maintenance | 10 |
| Detection of fault / Troubleshooting | |
| 6.1 General instructions | 10 |
| 6.2 Service display | 11 |
| Connection and layout diagrams | from A - 1 |
| | Concept of Control Centre |

Please read these instructions carefully.

Work at the Control Centre may be performed only by qualified personnel.

Symbols used:



Page

1 Concept of Control Centre

- SHEVS Control Centre with four outputs for connecting 24 V actuators (RWZ 5f-xx) or 48 V actuators (RWZ 5f-xx-48V)
- Functions according to EN 12101-10 (power supply), ISO 21927-9 (control), VdS 2581 and VdS 2593
- Selectable group configuration: one or two SHE groups, up to four ventilation groups
- For every SHE group, two signal lines:
 - Line =: Automatic fire detectors or fire alarm control panel (FACP)
 - Line : Manual call points RT 4 (main alarm point RT 4-*-BS or secondary alarm point RT 4-*). Connectable versions see section 2 "Technical Data"
- Line F for connecting a FACP (activating the alarm in both SHE groups)
- Reset the alarm / the detectors using the button in the main alarm point or in the Control Centre
 Selectable functions:
 - "Auto Close" (automatic closure after resetting an alarm)
 - "Fault = Alarm" (fault in a signal line will trigger an alarm)
 - "Alarm Close" (the actuators are closed in case of alarm)
 - "Thermal Alarm" (alarm on exceeding an enclosure inside temperature of 70 °C)
 - "2-detector-dependency" (2-detector dependency for automatic fire detector in line =)
 - "WRC" (automatic closure in the case of active wind and rain control)
- Possibility of connecting ventilation button for each ventilation group, also with indication of position
- For each actuator output adjustable ventilation position X and ventilation time X^o
- Possibility of connecting an external wind and rain control, e.g., type **WRS**. Internal wind and rain control, optional
- Internal service display for indicating the detailed status
- The use of K + G / Grasl actuators is recommended. When controlling 3rd party actuators, compatibility is to be checked. Also note section 2 "Technical Data" for this
- Connectable actuators: 24 V / 48 V actuators, travelling time for full stroke at rated load (total travelling time)
 4 minutes
- Note the output current of each actuator output and the total output current when connecting the actuators
- When directly changing the sense of travel, the actuators are stopped briefly before change of sense
- Sheet steel enclosure, light grey (RAL 7035)

1.1 Options / Accessories

- PK: Potential-free contacts (PFC) for alarm and/or fault forwarding
- PK-SA: Potential-free contacts for forwarding indication of position
- WTM: Outputs for controlling external warning devices in case of alarm or fault
- WRM: Internal wind and rain control. Connection of wind sensor WM and/or rain sensor RS is required (accessory)
- vert The PK-SA and WTM options cannot be provided at the same time!

2 Technical Data

2.1 Versions

Inrush current

| 24 V types | RWZ 5f-20 | RWZ 5f-40 |
|-------------------------|---------------------|---------------------|
| Item number | 8100 5620 1000 | 8100 5640 1000 |
| Total output current | 20 A (24 V / 480 W) | 40 A (24 V / 960 W) |
| Current input | 2.5 A / 230 V~ | 5.0 A / 230 V~ |
| Inrush current | ca. 80 A | ca. 115 A |
| Accumulators (VRLA-AGM) | 2 x 12 Ah / 12 V | 2 x 17 Ah / 12 V |
| | | |
| 48 V types | RWZ 5f-10-48V | RWZ-5f-20-48V |
| Item number | 8100 5610 1100 | 8100 5620 1100 |
| Total output current | 10 A (48 V / 480 W) | 20 A (48 V / 960 W) |
| Current input | 2.5 A / 230 V~ | 5.0 A / 230 V |

ca. 80 A

ca. 115 A

Accumulators (VRLA-AGM)2 x 12 Ah / 12 V2 x 17 Ah / 12 VOnly supplied or approved accumulators may be used.

See compatibility list on: www.kg-tectronic.de (Electronics - System Accessories - Accumulators)

The requirements of Directives 2014/35/EU and 2014/30/EU are met. **C E** Suitable for operation in residential, business and commercial areas.

2.2 Performance data and characteristics

| General | |
|--|-----------------------------|
| Line voltage supply | 230 V~ / 50 - 60 Hz |
| Circuit breaker with tripping characteristics C needed | |
| Internal supply voltage / standby time | 24 V / 72 h (mains failure) |
| Dimensions in mm | W 430 x H 525 x D 185 |
| Cable entry through membrane grommets (from above) | 13 x M16, 1 x M20, 8 x M25 |
| 2 housing openings (from behind) | 144 x 34 mm (W x H) |
| Type of control equipment according to ISO 21927-9 | Type D |
| Environmental class 1 (EN 12101-10 / ISO 21927-9) / III (VdS 2581) | -5 °C +40 °C |
| Relative humidity | 20 % 80 %, non-condensing |
| Enclosure protection rating | IP30 |
| Installation dimensional and "Line valtere Installation Assumulators" disc | |

Installation dimensions, see "Line voltage, Installation, Accumulators" diagram.

Not suitable for outdoor use. Protect from direct sunlight, humidity and excessive formation of dust! Preferably, the installation should be carried out in dry, heated rooms.

| Signal lines | |
|--|--|
| Line monitoring | wire-break, short-circuit |
| Line 📾: Automatic fire detectors: Smoke detector / heat detector (RM 2 / TM 2 or RM 3 / TM 3) | 20 pieces per SHE group, of which max. 10 heat detectors ¹ |
| or | |
| Fire alarm control panel | NC / NO contact |
| Line , manual call point: - RT 4-* | total of 10 pieces per SHE group, of which max. 3 pieces with buzzer ⊄ |
| Line F, Fire Alarm Control Panel | NC / NO contact |
| | |

Inputs / Outputs

| Ventilation buttons LT $\land \forall$ | unlimited per ventilation group |
|--|---------------------------------|
| Ventilation buttons LT x-A △ ♡ ! | 10 pieces per ventilation group |
| Wind and Rain Control (type WRS) | NC contact ² |

¹ Heat detector: **TM 2-D** (65-55000-122), **TM 2-M** (65-55000-137), **TM 3-D** (FD-851RE), **TM 3-M** (FD-851HTE), **RM 3-OT** (SD-851-TE),

Optical detector: **RM 2-O** (65-55000-317), **RM 3-O** (SD-851-E) ² In the WRC, a separate contact is required for each Control Centre to be controlled

Actuator outputs 24 V types (RWZ 5f-xx)

Rated voltage

Operating mode / duty cycle Maximum cross-section of the supply line Line monitoring (unbranched common line) Permissible current per output / permissible total current 24 V= (+6 V / -4 V) S3 30 % 4 x 10 mm² (rigid) wire-break, short-circuit

| | RWZ 5f-20 | | | | | RWZ | 5f-40 | |
|---------------|-----------|------|------|-----|------|-----|-------|-----|
| Output | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Current | 16 A | 8 A | 16 A | 8 A | 16 A | 8 A | 16 A | 8 A |
| Total current | | 20 A | | | 20 | A (| 20 | A |

The permissible cable length between the control centre and the actuator control / the actuator depends on their respective minimum permissible operation voltage and the conductor cross section. In case of a voltage drop of 1 V (simple arrangement without extensive branching), the following applies:

| (| Current Cross-section | 2.0 A | 4.0 A | 6.0 A | 8.0 A | 10.0 A | 12.0 A | 14.0 A | 16.0 A | |
|---|--------------------------|-------|-------|-------|-------|--------|--------|--------|--------|----------|
| | 2 x 1.5 mm ² | 22 m | 11 m | 7 m | 5 m | 4 m | 4 m | 3 m | 3 m | |
| | 2 x 2.5 mm ² | 36 m | 18 m | 12 m | 9 m | 7 m | 6 m | 5 m | 5 m | |
| | 2 x 4.0 mm ² | 58 m | 29 m | 19 m | 15 m | 12 m | 10 m | 8 m | 7 m | |
| | 2 x 6.0 mm ² | 87 m | 44 m | 29 m | 22 m | 17 m | 15 m | 12 m | 11 m | |
| _ | 2 x 10.0 mm ² | 145 m | 73 m | 48 m | 36 m | 29 m | 24 m | 21 m | 18 m | |
| | 4 x 1.5 mm² | 44 m | 22 m | 15 m | 11 m | 9 m | 7 m | 6 m | 5 m | |
| | 4 x 2.5 mm ² | 73 m | 36 m | 24 m | 18 m | 15 m | 12 m | 10 m | 9 m | When 4 |
| | 4 x 4.0 mm ² | 116 m | 58 m | 39 m | 29 m | 23 m | 19 m | 17 m | 15 m | connec |
| | 4 x 6.0 mm ² | 174 m | 87 m | 58 m | 44 m | 35 m | 29 m | 25 m | 22 m | in paral |
| | 4 x 10.0 mm ² | 290 m | 145 m | 97 m | 73 m | 58 m | 48 m | 41 m | 36 m | |

When 4 cores are used, connect 2 cores each in parallel.

| Actuator | outputs | 48 V | types | (RWZ | 5f-xx-48\ | /) |
|----------|---------|------|-------|-------|-----------|-----|
| | | | -76 | ····- | 0 | • • |

Rated voltage

Operating mode / duty cycle

Maximum cross-section of the supply line

Line monitoring (unbranched common line)

| +0 v (' i v / -2 v) | |
|------------------------------|--|
| S3 30 % | |
| 4 x 6 mm² (rigid) | |
| Wire-breakage, short-circuit | |

 $49 V - (\pm 1 V / 2 V)$

Permissible current per output / permissible total current

| | | RWZ 5f-10-48V | | | | RWZ 5f | -20-48V | |
|---------------|-----|---------------|-----|-----|-----|--------|---------|-----|
| Output | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Current | 5 A | 5 A | 5 A | 5 A | 5 A | 5 A | 5 A | 5 A |
| Total current | | 10 A | | | 10 |) A | 10 | A |

The permissible cable length between the control centre and the actuator control / the actuator depends on their respective minimum permissible operation voltage and the conductor cross section.

In case of a voltage drop of 4 V (simple arrangement without extensive branching), the following applies:

| Current Cross-section | 1.0 A | 2.0 A | 3.0 A | 4.0 A | 5.0 A |
|--------------------------|--------|-------|-------|-------|-------|
| 2 x 1.5 mm ² | 174 m | 87 m | 58 m | 44 m | 35 m |
| 2 x 2.5 mm ² | 290 m | 145 m | 97 m | 73 m | 58 m |
| 2 x 4.0 mm ² | 464 m | 232 m | 155 m | 116 m | 93 m |
| 2 x 6.0 mm ² | 696 m | 348 m | 232 m | 174 m | 139 m |
| 4 x 1.5 mm ² | 348 m | 174 m | 116 m | 87 m | 70 m |
| 4 x 2.5 mm ² | 580 m | 290 m | 193 m | 145 m | 116 m |
| 4 x 4.0 mm ² | 928 m | 464 m | 309 m | 232 m | 186 m |
| 4 x 6.0 mm ² | 1392 m | 696 m | 464 m | 348 m | 278 m |

When 4 cores are used, connect 2 cores each in parallel.

| F | uses | |
|---|------|--|
| | | |

| Mains primary (miniature fuse 5 x 20 mm) | | F1.1, F1.2, F1.3: T 4 A |
|--|---------------|-------------------------------------|
| Accumulators (blade fuse 19 mm) | | F2.1, F 2.2: 30 A |
| Actuators (mini blade fuse 11 mm) | RWZ 5f-xx | F3.1, F 3.3: 20 A, F3.2, F3.4: 10 A |
| | RWZ 5f-xx-48V | F3.1 - F3.4: 15 A |

3 Putting into service / Putting out of service

Work may be performed only by qualified personnel!

Before starting any work, it is mandatory to deflect static charge!

We do not assume any guarantee or liability for defects caused by faulty connection.

 $lap{1}$ Planning and design of SHEVS require observation of the following rules, as far as applicable: National building codes/model building code and regulations of local building and fire safety authorities, VDE regulations (particularly VDE 0100, 0108 and 0833), VdS Guidelines 2098 and 2221, DIN 18232, EN 12101, DIN 4102, model line systems policy.

3.1 Installation / Putting into service

- Perform work only in de-energised condition!
- I Actuators must not be actuated directly (e.g., with external accumulators during installation / maintenance) when they are already connected. This can lead to defects in the power output.
- Fasten the enclosure securely to a wall using suitable mounting material. Guide the connection cables through the openings provided and wire them according to the connection diagrams.
- Make function settings (see 4.2).
- Turn on line voltage. The indicators and the service display light up briefly. Subsequently, the indicator A flickers for about 15 s (calibration process). If the indicator \triangle is permanently lit, there is a fault in a signal line (see 6).
- Insert the accumulators in the enclosure as illustrated on the "Line voltage, Installation, Accumulators" plan and connect them.
- The indicator OK lights up, the indicator A goes out, the system is ready for operation. If a fault is still displayed, follow the instructions in section 6 "Detection of fault / Troubleshooting". If necessary, decommission the Control Centre again (see 3.2).
- While putting into service, check all functions and indicators of the Control Centre and its components. The individual functions are described in section 4. Also simulate faults and check detection (see 6).
- To finish putting into service, retract all actuators completely (press button ∇).
- $\hat{\mathfrak{I}}$ After about 24 hours of continuous operation without mains failure, the accumulators are sufficiently charged to achieve the full standby time in case of mains failure.

3.2 Putting out of service

- Disconnect the accumulators from the Control Centre (remove accumulator connection line or fuses F2.1 and F2.2).
 - period.
- Switch off line voltage.

4 Functions and operation

Before touching the control elements in the Control Centre it is mandatory to deflect static charge!

4.1 Indicators / control elements of the Control Centre

- Indicators on the logic board:
 - OK (green): Trouble-free operation. Goes out when a fault is detected. - 1/2 2 (red): Alarm in SHE group 1 / 2, see 4.4. A 1 / A 2 (yellow): Fault in SHE group 1 / 2, see 6.
 (blue): Wind and Rain Control is active
 - Wind and Rain Control is active.
 - 🖌 (blue): Maintenance is due (flashes) or maintenance mode enabled (lights up).
 - 88 (red): Service display, see 6.2.
 - \land / \lor (blue): Travel command in OPEN / CLOSE direction active.

Control elements on the logic board:

- Button Reset 4 Resetting the alarm function of both SHE groups.
- Button Reset d: Switching off the warning tone in both SHE groups.
- Ventilation position X_{\circ} (see 4.5.2) and ventilation time A_{\circ} (see -o). - Buttons 🔀 / 🖉:

- **Button Test (:** Switching to accumulator mode and running the alarm function in both the SHE groups for maintenance purposes.
 - PFC- (PFC alarm) and buzzer are not enabled. For service purposes only.
- Button µC-Reset:

4.2 Group configuration and selectable functions

• "Group Configuration" DIP switches S1-1 through S1-3 (* = factory setting):

One SHE group:

Two SHE groups:

Ventilation

groups

2

3

4

| | Ventilation | DIP switch | | | Actuato | or outpu | t | | |
|-----------------------|------------------|------------|------|------|---------|----------|------|------|------|
| | groups | S1-1 | S1-2 | S1-3 | X1.1 | X1.2 | X1.3 | X1.4 | |
| * | 1 | - | - | - | | | 1 | | |
| | 2 | - | - | • | | 1 | | 2 | ri d |
| | 3 | - | • | - | 1 | 2 | | 3 | la c |
| | 4 | - | • | • | 1 | 2 | 3 | 4 | |
| • = DIP switch ON SHE | | | | | | | | | |
| | - = DIP switch (| OFF | | | | gro | up 1 | | |

S1-3

•

•

X1.1

1

1

1

SHE

group 1

2

2

Left tabular section: DIP switch setting to be made for the desired number of ventilation groups.

Right tabular section: Resulting classification of the actuator outputs for SHE and/or ventilation group.

Number of ventilation groups is at least equal to the number of SHE groups.

= DIP switch ON
= DIP switch OFF

 "Thermal Alarm" DIP switch S1-4: In the ON position, the alarm function (see 4.4) is executed when the inside temperature of the enclosure exceeds 70 °C.

Actuator output

X1.2 X1.3 X1.4

3

2

3

SHE

group 2

4

Vent. group

Factory setting: OFF (no alarm when 70 °C is exceeded).

DIP switch

S1-2

_

•

•

S1-1

•

•

.

- DIP switches S1-5 and S1-6: Do not change setting. Factory setting: OFF.
- "Fault = Alarm" DIP switches S2-1 (SHE group 1) and S2-2 (SHE group 2):

In the ON position, the alarm function (see 4.4) is executed after a few seconds if a signal line is faulty. This does not apply to faults with status "undefined". The alarm can also be reset by pressing the button *Reset* \mathcal{M} in a main alarm point or the Control Centre before eliminating the fault. If a switch is in ON position, then the function is also activated in line \mathbb{F} .

Factory setting: OFF (no alarm in case of fault).

 "2-detector-dependency" DIP switch S2-3 (SHE group 1) and S2-4 (SHE group 2): In the ON position, two automatic fire detectors must have responded in line = before the alarm function (see 4.4) is executed.

As soon as the first automatic detector has responded, the pre-alarm is activated: The indicators \mathcal{A} on the logic board and the manual call points flash, manual call points with buzzer \mathfrak{A} emit an intermittent warning tone. After changing the switch position, a recalibration is performed automatically (see 3.1). Factory setting: OFF (no 2-detector-dependency in line Ξ).

Q When the function is activated, note the changed terminating resistor (see connection diagram).

- "Alarm Close" DIP switches S3-1 (actuator output 1) to S3-4 (actuator output 4): In the ON position, the actuators are closed in case of alarm. Factory setting: OFF (opening in case of alarm).
- "Auto Close" DIP switches S4-1 (actuator output 1) to S4-4 (actuator output 4): In the ON position, the actuators are automatically retracted after resetting an alarm. When the function responds, ventilation can be resumed only after 4 minutes. Factory setting: ON (automatic closure is activated).
- **"WRC"** DIP switch **S5-1** (actuator output 1) to **S5-4** (actuator output 4): In the ON position, the actuators are automatically retracted if a wind and rain control is activated. Factory setting: ON (automatic closure in the case of active wind and rain control).
 - 1 In the OFF position, the respective output can be actuated by the corresponding ventilation button even when the WRC is active.

4.3 Indicators / functions of the manual call points

- For activation and reset, see 4.4.
- Indicators:
 - (red, **RT 4-***): **Alarm**, see 4.4.
 - OK (green, **RT 4-*-BS**): **Trouble-free operation**. Goes out when a fault is detected.
 - ⚠ (yellow, **RT 4-*-BS**): **Fault**, see 6.
- Button Reset ((RT 4-*-BS): Reset the alarm function with a short press (accessible after opening the door with a key).

4.4 Alarm functions

During the execution of an alarm function the ventilation functions are disabled.

- 1 When configuring 2 SHE groups (see 4.2), the following description applies accordingly to the second group.
- **Resetting the alarm function:** Resetting is done by briefly pressing the button *Reset (M)* in a main alarm point or the Control Centre. Then the indicators *(M)* will go out and the buzzers *(I)* will be switched off.
 - n If the actuators are retracted by pressing the button ∇ after an alarm has been reset or if the function "Auto Close" is enabled, ventilation can be resumed only after 4 minutes.
- Manual call points: For manual alarm signalling, break open the glass of the manual call point and press the control button until the indicator *(*//.) confirms the detection of the alarm. For maintenance work, the door of the manual call point can be opened with a key.
- Automatic fire detectors: The alarm is triggered automatically (depending on the type of detector due to smoke and/or heat detection). If an automatic fire detector responds immediately after resetting, press the button *Reset (u)* again (smoke particles may still be present in the detector).
- Fire Alarm Control Panel (FACP): When an alarm is signalled by the FACP, the alarm function will be executed in both SHE groups. The alarm is reset at the FACP.
- Nother alarm functions ("Fault = Alarm", "Thermal Alarm", "2-detector-dependency", "Alarm Close", "Auto Close") see 4.2.

4.5 Ventilation functions

- 1 Configuration of ventilation groups: see 4.2.
- *When performing ventilation functions, do not exceed the duty cycle of the actuators. After each duty cycle, the actuators need to rest for a certain time in order to avoid excessive wear.*
- If the fuses F1.1, F1.2 and/or F1.3 are blown, all ventilation functions are blocked. If only the fuses F1.2 and/or F1.3 are blown, the indication of position in the ventilation button remains active.

4.5.1 Manual ventilation

- After briefly pressing a ventilation button (△ / ▽), the actuators of the ventilation group travel up to the end position or the set ventilation position X (see 4.5.2). Pressing it again stops the actuators. By pressing the button for the reverse direction of travel, the travelling direction is reversed after a brief stop.
- When pressed longer (> 1 s), the actuators travel as long as the button remains pressed. It is also possible to travel up to the end position or up to the set ventilation position.

4.5.2 Setting the ventilation position X

- n This setting can only be made when the system has no faults and WRC is not active. Initially, all actuators must be completely retracted and the travel command V has to have finished.
- If an indicator △ flickers when activating the programming mode, then the actuators of the related output are not fully retracted and the ventilation position cannot be set. By pressing the button ∠, closing can be acti-vated for these outputs (display: ∠x).
- \tilde{g} If a changeover contact is used for ventilation, then the ventilation position can only be set for each actuator output.
- 1 The programming mode is cancelled automatically after 15 minutes without button activity or manually by double clicking on the button Reset 4.
- The travelling times can be set for each actuator output or for each ventilation group.
 - Setting the travelling times for each actuator output (ax):
 - Briefly press the button X to enter programming mode for the respective actuator output (display: x)
 - Briefly press button X to extend the actuators. When the desired ventilation position is reached, press the button X again.
 - Briefly press button X- to retract the actuators. When the desired closing position is reached, press the button X- again. The indicator x goes out.
 - \circ Setting the travelling times for each ventilation group (Lx):
 - Briefly press the button X to enter programming mode for the respective ventilation group (display: x) and then press the associated button X^o (display: x). The indicator Y flashes in the ventilation buttons of the group.
 - Briefly press a ventilation button ∆ to extend the actuators. When the desired ventilation position is reached, press the ventilation button ∆ again.
- After the programming, the actuators automatically travel to the ventilation position for verification and then retract again.
- Enabling / disabling the ventilation position (for each actuator output): Press button X₋ for longer than 3 s.
 Display: ↓ = enabled / □ = disabled
 - Ventilation position disabled: travelling time \triangle / ∇ = 4 minutes.
 - Enabled after being disabled: travelling time = previously saved time
- Reset to factory setting: Press button X for longer than 6 s. The display briefly shows a.

Factory setting: 15 s travelling time OPEN, 30 s travelling time CLOSE.

4.5.3 Setting the ventilation time 🖍

• The ventilation time can be set for each actuator output in 5-minute steps (5 to 30 minutes) using button <u>⊀</u>. The first press displays the set value, pressing again changes the value. After the set time has elapsed, the actuators retract automatically. With setting □ the ventilation time is deactivated (= factory setting).

4.5.4 Indication of position \checkmark in the ventilation button

- The indicator
 - lights up: Actuators are in OPEN position
 - flickers: A travel command is active
 - blinks: Ventilation function is blocked (also see the indicator in the device)
 - flashes: Ventilation position can be set with this button (see 4.5.2)
 - In case of a travel command towards CLOSED, the indicator goes out latest after 4 minutes
- vert In case of a mains failure the indicator is disabled.
- [§] If the WRC function is disabled for any actuator outputs, the ventilation buttons of these actuator outputs can be used for ventilation although their LED is blinking (note the WRC settings).

4.5.5 External Wind and Rain Control (WRC)

- If the wind and rain control is active, the actuators are retracted automatically. The ventilation functions are disabled. The indicator % on the logic board lights up, until the WRC releases the ventilation functions once again. After a reset, the indicator lights up, as long as a travel command is active. An alarm has priority.
 - $\tilde{1}$ Note the setting of the "WRC" function (see 4.2).

4.6 Repetition of cycle *∇*

• If not all actuators are properly retracted (e.g., actuator has switched off due to a gust of wind), the repetition of cycle function can be activated by briefly pressing the ventilation button *∇*. The actuators are briefly extended and following the closing command is executed once again.

4.7 Mains failure

- In case of mains failure, the accumulators cannot be charged, but they provide the operating power for the standby time. Actuators in ventilation position are retracted and pressing the ventilation button ∆ is ignored. Alarm functions are not affected by the mains failure.
 The mains failure must be rectified immediately to prevent the deep-discharge protection from responding, to recharge the accumulators, and to ensure safe functioning of the system.
- **Deep discharge protection:** If the accumulators are in critical condition, the device is **switched off** completely. However, a low quiescent current continues to flow (in addition to the natural self-discharge). Therefore, without recharging, there is a risk of permanent damage to the accumulators after only a few days.

5 Maintenance

 In the course of maintenance - unless other local regulations apply - check all the functions and displays of the device and the components at least once a year. This also includes checking the terminal points, connection cables, indicators and fuses, and cleaning of various components, if necessary. The individual functions are described in section 4. Likewise simulate faults of the signal lines and power supply and check the detection (see 6).

Maintenance due indication

If the maintenance company has enabled this function, the indicator \checkmark flashes after about 11 months of service life. After about 14 months, the overdue maintenance leads to the indication of a fault \triangle .

• Accumulators:

Check the accumulators at least once a year for proper functioning. They should be replaced following a typical service life of 3, but no more than 4 years in an ambient temperature of 20 °C. For every 10 °C rise in ambient temperature, the service life decreases by about 1 year!

- <u>Checking the accumulators:</u> Press the button *Test* (1) (test alarm is executed in accumulator mode) and completely extend the actuators. If the accumulator voltage drops too low during this, the accumulators are defective. A fault (code L) will be displayed until the accumulators have been replaced.

After testing the accumulators, reset the test alarm (press button *Reset M* briefly) and retract all actuators again.

vert A quick check of the accumulators with low load takes place automatically every 60 minutes.

- The end user, i.e., the final owner, has to return used batteries / accumulators to a distributor or public waste management company. This obligation to return applies regardless of whether it is a private or commercial end user.
- If the system needs to be put out of service / temporarily shut down, **the accumulators have to be dis-connected** and the mains voltage has to be switched off!
- Accumulators that are charged but not yet connected have a shelf-life of about 6 months. They must be recharged if stored for a longer period.
- *Q* Actuators must not be actuated directly (e.g., with external accumulators during installation / maintenance) when they are already connected. This can lead to defects in the power output.

6 Detection of fault / Troubleshooting

6.1 General instructions

Occurrence of a fault is indicated by flashing of the indicator \triangle in main alarm points and in the device. With the help of the service display, the cause can be limited (see 6.2).

- The following are detected as faults:
 - Accumulator or mains failure, accumulator polarity reversed
 - Failure of the fuses F1 to F3
 - Wire-break or short-circuit of the signal lines
 - Wire-break or short-circuit of the actuator line (unbranched common line)
 - Maintenance overdue (if the maintenance indicator was enabled)

- Notify the maintenance company in case of faults.
- Spare material: In the device, there is a bag of spare fuses and resistors.
- Automatic calibration in case of a fault in the signal line =: After rectifying a fault that was present for more than 10 minutes, the line is automatically calibrated. The indicator \triangle flickers for about 15 s. If the indicator \triangle then lights up continuously, there is another fault.

6.2 Service display

- Operating conditions can be accurately displayed with the help of the service display. The display is switched off in normal condition. It can be switched on for 120 s by pressing the button Reset 4 for 4 s.
- The memory content of the display can be shown for 1 s by briefly pressing the button Reset 🕢 (alarm memory) or the button *Reset* \vec{u} (fault memory).
- In case of alarm, fault or automatic closing, the display is switched on, but switched off again after 10 s in the event of a power failure. In this case it can be switched on again for 10 s by pressing the button Reset of for 4 s.

| Operating conditions: | | |
|-----------------------|--|--|
| Code | Description | |
| 0: | Mains failure or fuse F1.1 blown | |
| 50 | Fuse F1.2 blown | |
| 03 | Fuse F1.3 blown | |
| 11 | Wire-break of accumulators or F2.1 blown | |
| 12 | Fuse F2.2 blown | |
| 15 | Fuse F3.1 blown | |
| - 22 | Fuse F3.2 blown | |
| 23 | Fuse F3.3 blown | |
| 24 | Fuse F3.4 blown | |
| 3: | X1.1: Wire-break / short-circuit | |
| 32 | X1.2: Wire-break / short-circuit | |
| 33 | X1.3: Wire-break / short-circuit | |
| 34 | X1.4: Wire-break / short-circuit | |
| 41 | Line 册 X4.1: Alarm | |
| 42 | Line 🖮 X4.1: Wire-break | |
| 43 | Line 🚍 X4.1: Short-circuit | |
| 44 | Line 🚟 X4.1: Undefined ¹ | |
| 51 | Line 🗊 X4.1: Alarm | |
| 52 | Line 🗊 X4.1: Wire-break | |
| 53 | Line 🗊 X4.1: Short-circuit | |
| 54 | Line 💽 X4.1: Undefined ¹ | |
| 5: | Line 🖮 X4.2: Alarm | |
| 53 | Line 🖮 X4.2: Wire-break | |
| 63 | Line 🖮 X4.2: Short-circuit | |
| 54 | Line 🚟 X4.2: Undefined ¹ | |
| 11 | Line 💽 X4.2: Alarm | |
| 72 | Line 🕞 X4.2: Wire-break | |
| - 73 | Line 🕞 X4.2: Short-circuit | |
| 74 | Line 💽 X4.2: Undefined ¹ | |
| 8: | Line F: Alarm | |
| 58 | Line F: Wire-break | |
| 83 | Line F: Short-circuit | |
| 84 | Line F: Undefined 1 | |
| 9: | X4.1: "Fault = Alarm" active | |
| 55 | X4.2: "Fault = Alarm" active | |
| | | |

| O | perating | conditions. |
|----|----------|-------------|
| U. | | conulions. |

| Code | Description |
|------------|---------------------------------------|
| LI | Setting Ventilation position X2.1 |
| 53 | Setting Ventilation position X2.2 |
| 13 | Setting Ventilation position X2.3 |
| LY | Setting Ventilation position X2.4 |
| n (| Line 🖮 X4.1: Pre-Alarm |
| -2 | Line 📾 X4.2: Pre-Alarm |
| 01 | Setting Ventilation position X1.1 |
| 50 | Setting Ventilation position X1.2 |
| ۵3 | Setting Ventilation position X1.3 |
| ۵۲ | Setting Ventilation position X1.4 |
| Р: | Changeover contact at X2.1 |
| 54 | Changeover contact at X2.2 |
| P3 | Changeover contact at X2.3 |
| PY | Changeover contact at X2.4 |
| 9 | Alarm through internal thermal sensor |
| Ł | Accumulator test active |
| L | Accumulator is defective |
| Ч | Accumulator polarity reversed |
| | Memory alarm / fault empty |
| <u> </u> | Automatic closing X1.1 |
| 52 | Automatic closing X1.2 |
| 53 | Automatic closing X1.3 |
| 54 | Automatic closing X1.4 |
| Γ! | Reset button 🕢 X4.1: Short-circuit |
| 53 | Reset button 🕢 X4.2: Short-circuit |
| ا ل | Reset button 🖞 X4.x: Short-circuit |
| 52 | Reset button 🖞 X4.x: Short-circuit |
|)(| Test alarm active |
| Ξ | Maintenance is due |
| I (19 | Error, service required |
| ŏ | Factory settings |
| ι. | Accu charging phase: I-charging |
| ω. | Accu charging phase: U-charging |
| ٥. | Accu charging phase: trickle charging |
| • | Accu charging phase: no charging |
| | |

System diagram (please consider local conditions / components)



Further groups:

The connection of components in further SHE or ventilation groups is carried out according to the examples given for the 1st group.

General: length of cable max. 400 m, if not specified otherwise.

Cable types (examples): Signal lines: J-Y(St)Y 2x2x0.8 - 4x2x0.8 Mains: NYM-J 3x1.5 mm² PFC: NYM-J 4x1.5 mm² / NYM-O 3x1.5 mm²

• ⁴) Separate documentation

RWZ5f-A3-1.sch A-1 /7 Ver. 3/25 PA 26 Feb. 2025



- 1) Connect resistors Rend to the last actuator.
- \bullet ²⁾ Run the supply line unbranched to under the roof.
- 3) In case of wrong travelling sense, reverse polarity of actuator cable.

X4.x: Terminal blocks of SHE groups 1 + 2



Colour code for resistors: 10k = brown/black/black/red

Ver. 1/21 Mo 28 Jan. 2021 A - 3 / 7

Automatic fire detectors, Fire Alarm Control Panel (FACP)

1st SHE group

Automatic fire detectors RM 2 / TM 2 (terminals L1 in, L1 out and L2) or RM 3 / TM 3 (terminals 2, 3 and 5)



Manual call points RT 4

1st SHE group



2nd SHE group



Colour code for resistors: 10k = brown/black/black/red

 RWZ5f-A2-5.sch
 RWZ5f-A2-6.sch

 Ver. 2/25
 PA
 26 Feb. 2025
 A - 5 / 7

Ventilation buttons, external Wind and Rain Control

1st ventilation group



2nd ventilation group



The connection is made as shown for the 1st group, but using terminal strip X2.2.



The connection is made as shown for the 1st group, but using

• 1)

WRS 101

Output contact 1

Output contact 2

Use a separate contact for each connected Control Centre / Control.

Extension to four output contacts possible with Option PKM 101.

х у

12 13

17 16



The connection is made as shown for the 1st group, but using terminal strip X2.4.

External Wind and Rain Control



RWZ5f-A2-6.sch A-6/7 Ver. 2/25 PA 26 Feb. 2025

Line voltage, Installation, Accumulators

Line voltage:





Accumulators:

Insert the accumulators in the enclosure as illustrated and connect them.







When putting into / out of service, observe the operating instructions!

Be sure to unplug the accumulators if mains voltage supply is cut out for a longer time.



5+6: Do not change the setting