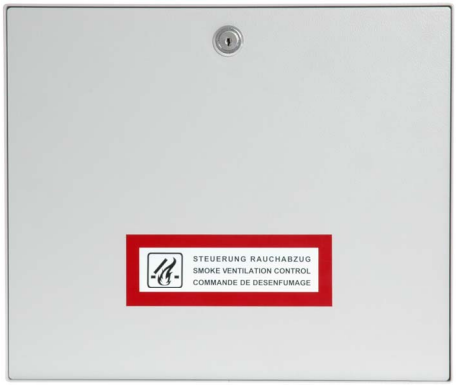
1. Concept of Control Centre



The Smoke and Heat Exhaust Ventilation System (SHEVS) Control Centre **RWZ 1a** enables a VdS tested **RWS - E 1** system with the approval no. S 506001 to be configured, using the components listed hereunder.
While using other components will not affect VdS approval of the Control Centre, the system itself will not be VdS approved (freely configured system).
The Control Centre has been specially developed for use in stair-wells and small fire compartments.

1.1 VdS approved system RWS - E 1, accepted components

- SHEVS Control Centre **RWZ 1a** with VdS approval G 505013
- Main / secondary alarm point **RT 2-*** with VdS approval G 501005
- Spindle actuator Type **S**, with VdS approval G 503005
- Spindle actuator Type **G40P-VdS** with VdS approval G 503006, connectable only to Control Centre RWZ 1a with 4A output current (RWZ 1-4a)
- Optical smoke detector **RM 2-O** Type 65-55000-317 VdS no. G 200017
  Optical smoke detector **RM 3-O** Type SD-851E VdS no. G 202013
  Optical/thermal smoke detector **RM 3-OT** Type SD-851TE VdS no. G 202019
  Rate of rise heat detector **TM 2-D** Type 65-55000-122 VdS no. G 200059
  Rate of rise heat detector **TM 3-D** Type FD-851RE VdS no. G 202015
  Fixed temperature heat detector **TM 2-M** Type 65-55000-137 VdS no. G 200062
  Fixed temperature heat detector **TM 3-M** Type FD-851HTE VdS no. G 202017
- Components for ventilation control can be freely selected, as far as they comply with the technical requirements of the Control Centre. The following components may be selected, e.g. ventilation button **LT**, wind and rain control **WRS**, wind sensor **WM**, rain sensor **RS**

Prerequisite for an approval of the system is that the equipment has been planned and installed by a VdS approved installation contractor in accordance with VdS 2221 “Smoke Extracting Systems in Stairwells”.

1.2 Brief description of the Control Centre

- SHEVS Control Centre for connection of 24V- actuators
- One Smoke and Heat Exhaust group (SHE group), 2 signal lines
  - 1st line ( ): automatic fire detectors or Fire Alarm Control Panel (FACP)
  - 2nd line ( ): hand-operated fire alarms **RT 2** (non automatic fire detectors) as
    a) Main alarm point with status lights Operation OK, Alarm , Malfunction ⚠ and push-button „Reset “. Connection of main alarm point with mini buzzer (Alarm / Malfunction) also possible
    b) Secondary alarm point with status light Alarm
  - Alternatively, the 2nd signal line may be connected to a Fire Alarm Control Panel (FACP)
- Reset of alarm / fire detectors by push-button at the main alarm point or at the Control Centre
- Alarm will be automatically activated when enclosure inside temperature rises above 70°C
- Monitoring of signal lines, actuator supply line, fuses, accumulators and power line
- Standby power supply for at least 72 hours by internal accumulators
- Reverse connection protection and deep-discharge cut-off of the accumulators
- Possibility of connecting ventilation buttons, also with indication of position OPEN
- Ventilation position can be adjusted (stroke limitation)
- Adjustable ventilation time (automatic closing after ventilation action)
- Possibility of connecting an external Wind and Rain Control (WRC), e.g. **WRS** (WRC must have a separate contact for each SHEVS Control Centre to be controlled). Internal Wind and Rain Control at option
- Functions selectable by DIP switches:
  - “Auto Close” (actuators close automatically when an alarm has been reset)
  - “Malfunction = Alarm” (malfunction in a signal line activates an alarm)
  - “Line 1: Alarm memory OFF” (alarm in 1st signal line will not be stored)
  - “Line 1: No PFC Alarm” (alarm in 1st signal line does not activate potential-free contact (PFC) for alarm)
  - “Travelling time 3min” or “Travelling time 6min” (actuators will stop after 3 or 6 minutes travelling time)
- Use of K+G / Grasl actuators is recommended. When controlling actuators made by others, check them for suitability. For this purpose, please refer to the technical specifications

- Connectable actuators: 24V actuators, travelling time for full stroke at rated load (total travelling time) < 1,5 minutes in VdS-approved systems. Freely configurable systems also allow using actuators of up to 3 or 6 minutes travelling time
- Actuators must be suitable for cycle repetition functions OPEN and CLOSE
- When directly changing the sense of travel, the actuators will stop for about 1s before the change of sense
- Sheet steel enclosure, light grey (RAL 7035)

1.3 Options / accessories

- **PK:** One potential-free contact (PFC) each for alarm / malfunction
- **WRM:** Internal Wind- and Rain Control
  - All actuators will automatically close on response of WRM. Requires connection of wind sensor **WM** and / or rain sensor **RS** (accessories)
  - Direct sensor connection on the module in SHEVS Control Centre. No external WRC required
  - Closing command remains active for at least 6 minutes, or for the time of sensor response
  - Wind speed response point and rain sensor response threshold are adjustable
  - Status LEDs for wind and rain on the module
- **SD 1:** Service display unit for detailed status information (alarms, malfunctions, charging condition) during maintenance and installation. It is advisable to use two display units at the same time
- **SVM:** Battery backed service module for indication of due maintenance action

2. Technical Data

2.1 Versions

RWZ 1-2a (8101 0201 0001), output power:	62W (24V⎓ / 2,6A)
RWZ 1-4a (8101 0401 0001), output power:	96W (24V⎓ / 4A)

2.2 General

Dimensions in mm (W x H x D):	320 x 270 x 110
Cable entry:	from above, below or behind
Environmental class III (to VdS 2581):	-5 to +40°C
Relative humidity:	20 to 80%, no condensation
Degree of protection provided by enclosure (to DIN EN 60529):	IP30

Not to be used outdoors. To be protected from direct exposure to sun rays, moisture and excessive formation of dust! To be installed preferably at dry and heated indoor location.

2.3 Power supply unit

Line voltage supply:		230V~ / 50Hz
Current input:	**RWZ 1-2a**:	0,5A
	RWZ 1-4a:	0,72A
Internal voltage supply:		24V⎓ / 72 hours for line failure
Deep-discharge cut-off:		accumulator voltage < 18,8V
Sealed lead-acid accumulators:		2 x 12V / 2Ah, VdS-approved
I / U - charge:		max. 200mA (29,4V) / 27,4V

2.4 Inputs / Outputs

Automatic fire detectors (1st signal line):

Smoke detector / heat detector (**RM 2** / **TM 2** or **RM 3** / **TM 3**):	10 pieces
Fire Alarm Control Panel (FACP):	NO contact with
Terminating resistor:	10kΩ ±10% ¼W
Release resistor:	1kΩ..1,5kΩ ±10% ½W
Hand operated fire alarms (non automatic fire-det., 2nd signal line):	total of 10 pieces, max. 3 of these with buzzer

- Secondary alarm point (**RT 2-***)
- Main alarm point (**RT 2-*-BS**)
- Main alarm point (**RT 2-*-BS-AA**, with buzzer 🔊)

Other:

Ventilation button (**LT**): unlimited
Ventilation button with indication of position OPEN (**LT-A**): 10 pieces

Wind and Rain Control (**WRC**): NC contact
(WRC must have a separate contact for each SHEVS Control Centre to be controlled)

2.5 Actuator output

Rated voltage: 24V⎓ (+6V / -4V)
Maximum ripple / peak voltage when line operated: 48% / 42V
Maximum cross section of supply cable: 2 x 6mm² (rigid)
Admissible voltage drop from Control Centre to actuator: 1V at full load

Max. output current: **RWZ 1-2a**: 2,6A
RWZ 1-4a: 4A

If actuator arrangement is simple, without complex branching, the following cable lengths are admissible:

Current / Cross section	0,8A	1,0A	1,3A	1,6A	2,0A	2,4A	2,6A	3,0A	3,2A	4,0A
2 x 1,5mm²	54m	44m	33m	27m	22m	18m	17m	15m	14m	11m
2 x 2,5mm²	91m	73m	56m	45m	36m	30m	28m	24m	23m	18m
2 x 4,0mm²	145m	116m	89m	73m	58m	48m	45m	39m	36m	29m
2 x 6,0mm²	218m	174m	134m	109m	87m	73m	67m	58m	54m	44m

2.6 Line monitoring

Signal lines: short-circuit, earth fault, wire-break, undefined condition

Actuators: short-circuit, earth fault, wire-break (common line)

2.7 Fuses

Mains primary (G fuse link 5x20mm): F1: T 1A
Mains secondary (G fuse link 5x20mm): F2: T 4A
Actuators (G fuse link 5x20mm): F3: T 4A

2.8 Potential-free contacts (option PK)

Contact load rating PFC Alarm, PFC Malfunction (change-over contacts): 5A / 30V⎓ / 230V~
Fuses PFC Alarm, PFC Malfunction (G fuse links 5x20mm): P:F1, P:F2: F 5A

2.9 Internal Wind and Rain Control (option WRM)

Wind sensor **WM**: 1 piece
Heated rain sensor **RS**: 1 piece

Response threshold setting range for wind 🌬: approx. 5 - 15m/s or 20 - 60km/h (approx. wind force 3 - 7)

Response threshold setting range for rain 🌧: drizzle - stronger rainfall