1. Concept of Control Centre

- Smoke and Heat Exhaust Ventilation System (SHEVS) Control Centre for connection of 24V- actuators
- SHEVS Control Centres type RWZ 6 are individually arranged as single modules consisting of SHE-, ventilation and power output groups. All modules of one SHE group will perform the SHE functions at the same time. SHE groups may consist of several ventilation groups. To increase the output current by 8A each, additional power output groups (extension modules) will be integrated
- Type identification: **RWZ 6.x.y-z**
  x: Number of SHE groups
  y: Total number of ventilation groups
  z: Total output current of system in amps (A) at 24V⎓.
  Standard output currents:
  8A / 16A / 24A / 32A / 40A / 48A / 56A / 64A / 72A / 80A / 88A / 96A.
  For higher output currents, please inquire
- Modules:
  - Power supply, module **EV**
  - SHE group, module **KM** (one SHE, ventilation and power output group)
  - Ventilation group, module **LM** (one ventilation and power output group)
  - Power output group, module **SM** (one power output group)
  - Potential-free contacts alarm / malfunction, alarm output, module **PM**
  - Integrated Wind- and Rain Control, module **WRM**
  - Potential-free contacts for indication of position, module **SA** (last travelling command) / module **SAM** (limit switches)
  - Signal line extension, module **LEM**
- Use of K+G / Grasl actuators is recommended. Third-party actuators must be checked for compatibility! For this purpose, see also section “Technical specifications”
- Connectable actuators: 24V actuators, travelling time for full stroke at rated load (total travelling time) < 6 minutes
- Actuators must be suitable for cycle repetition functions OPEN / CLOSE
- Upon immediate change of travel direction actuators will be stopped for about 1s before change of direction
- Automatic recharge of accumulators (integrated battery charger)
- Reverse connection and deep-discharge protection for the accumulators
- Line for connection to a Fire Alarm Control Panel (FACP)
- Monitoring of accumulators, fuses, power line and FACP signal line
- Upon exceeding an enclosure internal temperature of 70°C the FACP-alarm function will be activated. When cooled down to approximately 60°C the alarm will be reset
- Possibility of connecting an external Wind and Rain Control (WRC), e.g. type **WRS** (WRC must have a separate contact for each SHEVS Control Centre to be controlled). Internal Wind and Rain control at option
- Blocking of ventilation function OPEN △ in the case of insufficient accumulator charge or mains failure
- Status lights Mains ⏀, Malfunction ⚠, WRC and FACP on the module **EV** and the enclosure door
- Driving power for the actuators is obtained from the system’s accumulators
- Sheet steel enclosure, light grey (RAL 7035)

1.1 SHE group (module KM)

- Module with one SHE, one ventilation and one power output group
- SHE group allows integration of additional ventilation and power output groups by extension modules
- Output for 24V- actuators wired on terminal strip
- Two signal lines:
  - 1st line: automatic fire detectors
  - 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 button "Reset". Connection of main alarm point with mini buzzer (Alarm / Malfunction) also possible
    b) Secondary alarm point with status light Alarm
- Reset of alarm / fire detectors by push-button on the module or in the main alarm point
- Cycle repetition function in the event of alarm to VdS 2581
- Monitoring of signal lines, actuator supply line and fuse
- Possibility of connecting ventilation buttons
- Adjustable ventilation position
- Configurable functions:
  - "Auto CLOSE" (group closes automatically when alarm has been reset)
  - "Malfunction = Alarm" (malfunction in a signal line activates alarm)
- Status lights Alarm and Malfunction ⚠ on the module and in the enclosure door

1.2 Ventilation group (module LM)

- Module for the extension of a SHE group by one ventilation and one power output group
- Ventilation group allows integration of additional power output groups by extension modules
- Output for 24V- actuators wired on terminal strip
- Monitoring of actuator supply line and fuse
- Possibility of connecting ventilation buttons
- Adjustable ventilation position
- Status light Malfunction ⚠ on the module

1.3 Power output group (module SM)

- Module for the extension of a SHE or ventilation group by one power output group
- Output for 24V- actuators wired on terminal strip
- Monitoring of actuator supply line and fuse
- Status light Malfunction ⚠ on the module

1.4 Potential-free contacts for alarm / malfunction, alarm-output (module PM)

- Module for routing alarm / malfunction signals, e.g. to a FACP or Building Management System (BMS), with one potential-free contact (PFC) each for alarm / malfunction
- Output for controlling external 24V- warning devices in the event of alarm (e.g. multiple-tone sounder or strobe)
- Button for resetting external warning devices and possibility of connecting an external reset button

1.5 Internal Wind- and Rain Control (module WRM)

- Actuators / groups 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
- PFC for controlling an additional Control Centre / Control System or a Contact Extension Unit **KE**

1.6 Options

- **Indication of position (SA):** Indication of positions OPEN and CLOSED, e.g. for hand-operated fire alarms **RT 2-*-BS-SA**. This option is required separately for each SHE / ventilation group.
  For using the indication of position, actuators with additional limit switches, or external limit switches are required.

- **Indication of position in door of Control Centre (SA-T):** additional indication of positions OPEN ⌿ and CLOSED ⌐, in the enclosure door. This option is required separately for each SHE / ventilation group. For using the indication of position, actuators with additional limit switches, or external limit switches are required.

2. Technical data

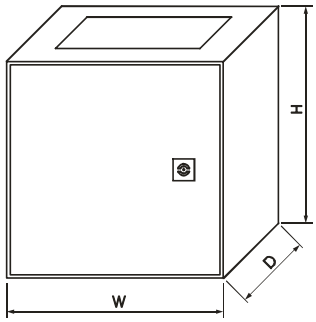
2.1 Versions

Custom configured Control Centre

Total output current for 24V⎓ actuators: max. 96A (2.300W)
(for higher output currents, please inquire)

2.2 General

Dimensions in mm (W x H x D):



W	H	D
600	600	210
600	600	300
600	800	300 / 400
800	800	300
800	1.000	300 / 400
800	1.200	300 / 400
1.000	1.000	300
1.000	1.200	300
1.000	1.400	300

Cable entry through sheet steel flange with membrane grommets: from above
(mains and signal lines M16, actuator outputs M25)

Environmental class III (to VdS 2581): -5 to +40°C
Relative humidity: 20 to 80%, no condensation
Enclosure protection rating (to DIN EN 60529): IP40 (IP54 without door LEDs)

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, 150VA / 250VA

Sealed lead-acid accumulators (VdS approved): 2 x 12V / 12Ah - 65Ah
(emergency power supply for at least 72 hours to DIN EN 54-4)

2.4 Inputs

Automatic fire detectors (1st line):

Smoke detector / heat detector (**RM 2** / **TM 2** or **RM 3 / TM 3**): 20 pieces per SHE group (**KM**)

Hand operated fire alarms (non automatic fire-detectors, 2nd line): total of 10 pieces per SHE group (**KM**), 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 🔊)
- Main alarm point (**RT 2-*-BS-SA**, with indication of position OPEN ⌿ / CLOSED ⌐), requires option SA / SA-T

Fire Alarm Control Panel (line): NO contact with
- Terminating resistor: 10kΩ ±10% ¼W
- Alarm resistor: 1kΩ..1,5kΩ ±10% ½W

Other:

Ventilation buttons each ventilation group (**KM** / **LM**):
- Ventilation button (**LT**): unlimited
- Ventilation button with indication of position OPEN (**LT-SA**): 10 pieces, requires option SA / SA-T

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

2.5 Actuator outputs (module **KM** / **LM** / **SM**)

Rated voltage: 24V⎓ (+6V / -4V)
Maximum cross section of supply cable: 4 x 10mm² (rigid) per output
Admissible voltage drop from Control Centre to actuator: 1V at full load

Admissible cable lengths per output if actuator arrangement is simple (no complex branching):

Current / Cross section	1,0A	2,0A	3,0A	4,0A	5,0A	6,0A	7,0A	8,0A
2 x 1,5mm²	44m	22m	15m	11m	9m	7m	6m	5m
2 x 2,5mm²	73m	36m	24m	18m	15m	12m	10m	9m
2 x 4,0mm²	116m	58m	39m	29m	23m	19m	17m	15m
2 x 6,0mm²	174m	87m	58m	44m	35m	29m	25m	22m
2 x 10,0mm²	290m	145m	97m	73m	58m	48m	41m	36m
4 x 1,5mm²	87m	44m	29m	22m	17m	15m	12m	11m
4 x 2,5mm²	145m	73m	48m	36m	29m	24m	21m	18m
4 x 4,0mm²	232m	116m	77m	58m	46m	39m	33m	29m
4 x 6,0mm²	348m	174m	116m	87m	70m	58m	50m	44m
4 x 10,0mm²	580m	290m	193m	145m	116m	97m	83m	73m

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

2.6 Line monitoring

Signal lines: wire-break, short-circuit
Actuators (unbranched common line): wire-break

2.7 Fuses

Mains (G fuse link 5x20mm, 1 piece): F1: T 1A / T 2A
Charge (G fuse link 5x20mm, 1 piece): F2: T 3,15A / T 5A
Accumulators (flat car fuse 19mm): F3.1 - F3.x: 25A (white)
Actuators (flat car fuse 19mm) on the module: 10A (red) each output (**KM** / **LM** / **SM**)

2.8 Potential-free contacts (module PM)

Contact load rating PFC Alarm, PFC Malfunction (change-over contacts): 5A / 30V⎓ / 230V~
(one fast-acting fuse each to be provided in the line at site. Fuse rating: max. F 5A)

Output for external warning devices (e.g. **MS** or **BL**): max. 250mA / 24V⎓
Fuse (G fuse link 5x20mm on the module): F1: T 250mA

External reset button (NO contact): unlimited

2.9 Internal Wind and Rain Control (module WRM)

Wind sensor **WM**, heated rain sensor **RS** 1 piece each
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

Contact load rating of potential free contact (change-over contact): 5A / 30V⎓ / 230V~
(fast-acting fuse to be provided in the line at site. Fuse rating: max. F 5A)

3. Special modules

3.1 SHE group (module IM)

- Module with one SHE and one power output group
- 24V- impulse output for controlling electromagnets / solenoid valves (**CA** / **CFR**), pneumatic valves with electric add-on components (**EA** / **EZ**) or pyrotechnical pressure gas generators (**DG**), wired on terminal strip
- Two signal lines:
  - 1st line: automatic fire detectors
  - 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 button "Reset". Connection of main alarm point with mini buzzer (Alarm / Malfunction) also possible
    b) Secondary alarm point with status light Alarm
- Reset of alarm / fire detectors by push-button on the module or in the main alarm point
- Monitoring of signal lines, solenoid supply line and fuse
- Configurable functions:
  - "FACP alarm" (FACP alarm at module **EV** activates module **IM** as well)
  - "KM alarm" (alarm at module **KM** activates module **IM** as well)
  - "Malfunction = Alarm" (malfunction in a signal line activates alarm)
  - "Delay 1min" (output signal 1 minute delayed in the event of alarm)
  - "Continuous signal" (10s duration of output pulse, e.g. for controlling pneumatic valves with electric add-on components **EA** or **EZ**)
- Status lights Alarm and Malfunction ⚠ on the module and in the enclosure door

3.2 Potential-free contacts for indication of position (module SA) (last travelling command)

- Module for potential-free indication of position for 3 groups with module **KM** or **LM**
- One PFC for OPEN and CLOSED for each group

3.3 Potential-free contacts for indication of position (module SAM) (limit switches)

- Module for potential-free indication of position for 5 groups with module **KM** or **LM**
- One PFC for OPEN and one PFC for CLOSED for each group

3.4 Signal line extension (module LEM)

- The module is suitable
  a) for connection to the signal line of a module **KM** and therefore increases the number of usable signal lines and connectable automatic fire detectors
  b) as independent SHE module with signal lines and potential-free contacts for routing alarm / malfunction signals. In this way e. g. machines may be deactivated in the case of alarm
- Two signal lines:
  - 1st line: automatic fire detectors
  - 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 button "Reset". Connection of main alarm point with mini buzzer (Alarm / Malfunction) also possible
    b) Secondary alarm point with status light Alarm and / or potential-free contact of an FACP when activating the alarm separately for each group
- Two PFCs for routing alarm signals
- Additional line for detection of an external malfunction signal
- Reset of alarm / fire detectors by push-button on the module or in the main alarm point
- Monitoring of signal lines and malfunction line
- Configurable functions:
  - "FACP alarm" (centralised FACP alarm at module **EV** activates module **LEM** as well)
  - "Indicate KM alarm" (alarm at module **KM** will be shown at module **LEM** as well)
  - "Malfunction = Alarm" (malfunction in a signal line activates alarm)
  - "2-detector-dependency" (2-detector-dependency for alarm by automatic fire detectors)
  - „Detectors RM 2 / TM 2" (change between detector types RM 3 / TM 3 and RM 2 / TM 2)
- Status lights Alarm and Malfunction ⚠ on the module

3.5 Technical data / possible connections module IM

Automatic fire detectors (1st line):

Smoke detector / heat detector (**RM 2** / **TM 2** or **RM 3 / TM 3**):	10 pieces
Hand operated fire alarms (non automatic fire-detectors, 2nd 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 🔊)	
Monitoring of signal lines:	short-circuit, wire-break
Output for solenoids / **DG** (observe total current of Control Centre!): (rated for 25 solenoid valves **CA** or window unlocking devices **CFR**, approx. 30 electric add-on parts **EA** or **EZ** for ventilation valves or approx. 70 pyrotechnical pressure gas generators **DG**)	max. 7,5A / 24V⎓
Max. cross section of supply line:	4 x 10mm² (rigid)
Monitoring of solenoid supply line (unbranched):	wire-break
Output fuse (flat car fuse 19mm on the module):	F1: 10A

3.6 Technical data / possible connections module SA

Potential-free change-over contact OPEN / CLOSED (3 pieces):	5A / 30V⎓, 5A / 230V~

3.7 Technical data / possible connections module SAM

Potential-free NC contact OPEN (5 pieces):	0,1A / 30V⎓
Potential-free NC contact CLOSED (5 pieces):	0,1A / 30V⎓

3.8 Technical data / possible connections module LEM

Automatic fire detectors (1st line):

Smoke detector / heat detector (**RM 2** / **TM 2** or **RM 3 / TM 3**):	32 pieces
Hand operated fire alarms (non automatic fire-detectors, 2nd 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 🔊)	
Activating the alarm by FACP separately for each group:	NO contact with
− Terminating resistor:	10kΩ ±10% ¼W
− Alarm resistor:	1kΩ..1,5kΩ ±10% ½W
Triggering the malfunction line:	NO contact with
− Terminating resistor:	10kΩ ±10% ¼W
− Signalling resistor:	1kΩ..1,5kΩ ±10% ½W
Monitoring of signal lines and malfunction line:	short-circuit, wire-break
Contact load rating (potential-free change-over contacts):	
− 1st contact:	0,1A / 30V⎓
− 2nd contact:	5A / 30V⎓ / 230V~

Protect the contacts by fuses (fast-acting) at site.