

Installation instruction

Control Unit for Fire Ventilation

SV 24V-24A / SV 24V-32A

SV 24V-8A-ds / SV 24V-24A-ds / SV 24V-30A-ds / SV 24V-32A-ds

SV 48V-24A / SV 48V-32A

SV 48V-8A-ds / SV 48V-24A-ds / SV 48V-30A-ds / SV 48V-32A-ds



Fire ventilation

Comfort ventilation

24VDC/48VDC max. 8A/24A/30A/32A

2 actuator outputs

2 fire ventilation group, 2 comfort groups

Connection for fire switches, wind- and rain sensor, comfort switches, smoke detectors

Possibility for bus connection of 10 SV control units

Address of installation

Name:

Address:

Phone no.:

Contact person:

Date of installation:

Installation

Number of SV control units and type (ex. SV 24V-24A):

Number of fire ventilation groups:

Type of opening system:

Type of opening system:

Type of opening system:

External controls (AFA-CCS):

Comfort control:

Wind- and rain sensor:

230V power supply from group:

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General description

The SV control unit can be used for electrical opening of e.g. skylights, smoke hatches or similar in connection with fire- and comfort ventilation.

The SV control unit has different inputs with line monitoring which can be activated by e.g. fire switches, smoke detectors, heat detectors, AFA systems and CCS systems.

For control of the indoor climate (comfort ventilation) manual switches, weekly timer, room thermostat and outdoor weather sensors can be connected.

By means of LEDs in the the front panel the control indicates the operating condition (ok operation and error- and alarm condition), just as it by means of the built-in potential free relay contacts can re-lay operating information about ok operation and error- and alarm condition to other systems in the building.

The SV control unit is a part of a range of control units which are all built with a AC main supply and with either 24 or 48 volts DC motor supply. The range consists of the following types:

SV 24V-24A, SV 24V-32A, SV 24V-8A-ds, SV 24V-24A-ds, SV 24V-30A-ds, SV 24V-32A-ds:
24 volts DC motor supply, power capacity 8A, 24A, 30A and 32A respectively.

SV 48V-24A, SV 48V-32A, SV 48V-8A-ds, SV 48V-24A-ds, SV 48V-30A-ds, SV 48V-32A-ds:
48 volts DC motor supply, power capacity 8A, 24A, 30A and 32A respectively.

The polarity of the motor supply is reversed when opening or closing.

The SV control unit has built-in 72 hours battery backup.

(May be less if battery backup (F9) is used for wind and rain sensor, or other devices there are connected to terminals 29 and 30.)

By a unique bus system consisting of a 3 wire cable the SV control units can be mutually connected so that up to 10 SV control units can be connected and operate as an integrated system.

Connection of cables to the in- and outputs of the SV control unit is described in the connection drawing on page 10-11.

A more detailed connection to the individual in- and outputs is described in the individual sections in this manual.

Selection of cable sizes on page 16-17.

By means of jumpers and dip switches the SV control unit has different setting possibilities for in- and outputs. These settings are indicated in a complete table (please see section with jumper settings on page 13).

Examples of types of openings systems and the max. power consumption which can be connected to the SV control unit:

| Type: | 24V power supply: | 48V power supply: |
|-----------------|-------------------------------------------------------------------|-------------------|
| SA Power Single | 4A | 2A |
| SA Power Double | 8A (2x4A) | 4A (2x2A) |
| SA Power Large | 8A | 4A |
| Rotary 100 | 2,5A | 1,25A |
| SA Power Mini | 2,5A | 1,25A |
| Others | See specification of max. power consumption on the opening system | |

Safety rules during installation and operation

The SV control unit may only be installed and maintained by personnel authorized for installation of automatic electrical fire ventilation equipment.

Explosion danger

The SV control unit is supplied with back-up batteries, which contain large amounts of energy which can be released as explosion in case of wrong handling - the following safety rules must therefore always be observed:

- Never short-circuit a back-up battery.
- Do not use external chargers on installed batteries. If unauthorized chargers are used explosive gasses can be released from the battery.
- Do not drop back-up batteries as strong acids can be released if they are broken.

Installation

The SV control unit can weigh up to 28 kgs and must be installed on a stable wall. The wall fitting placed on top of the back of the control unit should be loosened from the control unit and placed on the wall. The lower fitting on the back of the control unit should be turned downwards and the control unit should be hanged on the wall fitting. After this the lower fitting should be fastened to the wall. When cables are connected, the foil in the bottom should be removed with a knife or similar according to the number of cable connections. Before cable connection please mount PG cable glands or membrane glands in the holes.

All cables are connected according to the drawing on the central pages and are dimensioned according to table page 16.

If cables are passed through the back plate, the edges of the plate must be lined with edge bands to protect the cables.

Keep in mind that the operating voltage from the SV control unit is either 24V or 48V and that the max. voltage drop is 15% which demands correct cable dimension.

Please be aware that it often may be required (in order to keep the demands on the CE marking of the complete installation or another law) that the SV control unit is supplied with 230VAC from separate powerline with its own ground error circuit interrupter, and that a repair interrupter is mounted on the motor lines.

After connection the SV control unit must charge the batteries min. 12 hours before complete testing.

Yearly legal requirement of maintenance and control (authorized)

The functions of the SV control unit and the opening system must be tested by authorized personnel at least once a year. The SV control unit informs when the maintenance should be done. The external LEDs on the front panel are running fast. The SV control unit and opening system are of course still full operating. Please call a service technician at your earliest convenience in order to carry out the maintenance and to test the control and opening system, in order to prepare it for another year of operation. The legal requirements for this must be observed and the testing and control must as a minimum include the following:

- Control that all opening systems move to full opening when the fire function is activated - should not be carried out if the wind is more than 6 m/sec. as there might be a risk that the opening system cannot close automatically.
- Control of the batteries. If the batteries are replaced it is important to use the same type as the batteries are carefully chosen to be able to deliver the current, for which the control is specified.
- Control of in- and outputs on the control.
- Control of fire switches and smoke- and heat detectors.

The batteries should be replaced as required, however at least every third year!

Use the same brand.

Connection to motor- (actuator-) outputs and line monitoring

The actuators (motors) must be connected to one of the 2 actuator outputs on the output terminals 2-3 or 4-5. It is possible to connect and disconnect the line monitoring on the 2 actuator outputs (the factory setting is “connected”). The cables to the actuators can be connected in series or parallel or a combination of these (please see drawing with examples or connection diagramme on the central pages). It is important to keep the right polarity of the cables - The actuators must always be connected through a current limiter, e.g. the Actulux LIP or similar.

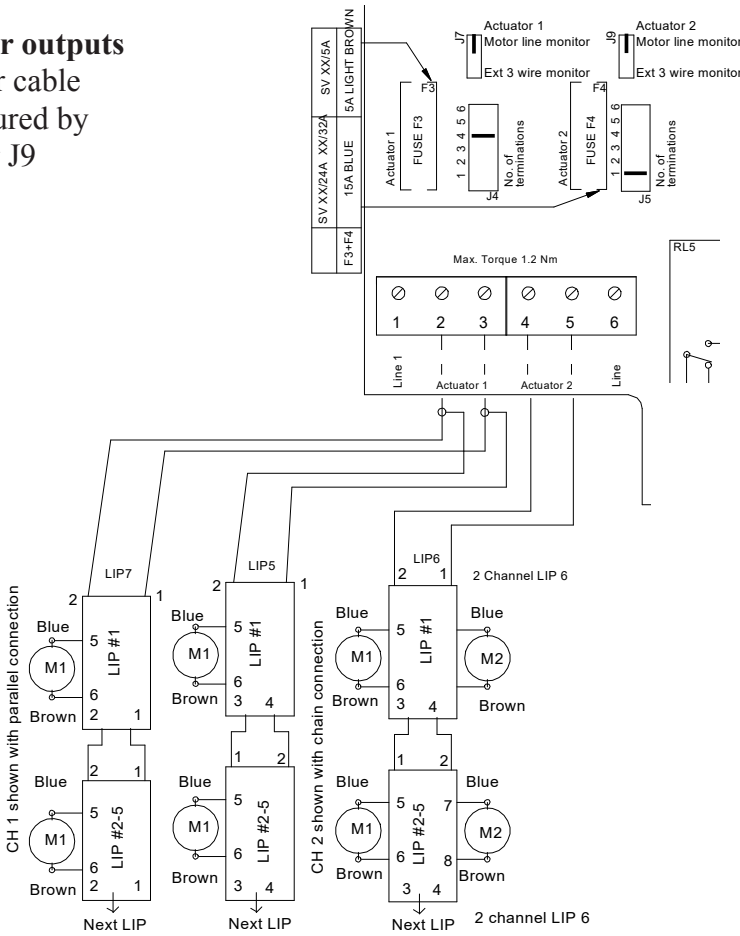
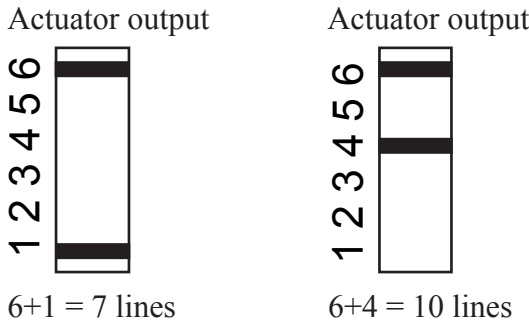
Cable monitoring (line monitoring) on the motor outputs

The control is equipped with 3 possible settings for cable monitoring (line monitoring), which can be configured by means of jumper J7 (actuator output 1) and jumper J9 (actuator output 2).

Jumper J7 and J9 is mounted in pos. »Motor line«

Line monitoring between terminal 2-3 and 4-5. The jumpers J4 (actuator output 1) and J5 (actuator output 2) are set according to the number of termination resistors (27KΩ) to be detected – for each actuator output 1 to max. 6 lines can be detected (from software version 499 it is possible to detect 7-10 lines with 2 x jumpers) by moving the jumpers J4 and J5 respectively – this means that the cable installation between the SV control units and the actuators can be established in series connection (cable connection from e.g. skylight 1, further to skylight 2, etc.), or parallel connection (cable connection from each skylight to the control), or a combination of these. However, as mentioned max. 6 (10 from software version 499) different lines can be detected each terminated with a 27KΩ resist

Line monitoring example with 2 x jumpers (from software version 499):



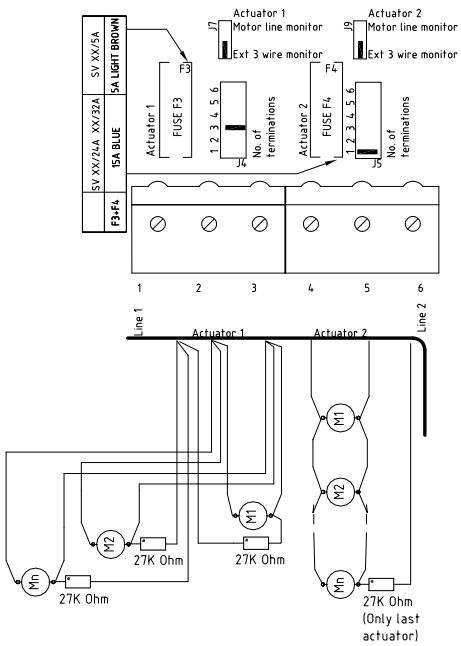
For SV 24V-8A/48V-8A the max. allowed current is 8A divided on 2 outputs.

| | Jumper description |
|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| J4 | Number of connected 27Kohm termination resistors for actuator output 1 |
| J5 | Number of connected 27Kohm termination resistors for actuator output 2 |
| J7 | Chooses line monitoring through motor terminals 2-3 and 4-5 (Mot Mon) or separate wire terminals 1-3 and 5-6 (Ext Li Mon), or no line monitoring when J7/J4 or J9/J5 is removed. |
| J9 | |
| F3 | Fuse 15A (blue) for actuator output 1 24A+32A control units |
| F4 | Fuse 15A (blue) for actuator output 2 24A+32A control units |
| F3 | Fuse 5A (light brown) for actuator output 1 / 5A control unit |
| F4 | Fuse 5A (light brown) for actuator output 2 / 5A control unit |

Jumper J7 and J9 mounted in pos. »Ext 3 wire«.

Line monitoring between terminal 1-3 and 5-6: With the jumpers J4 (actuator output 1) and J5 (actuator output 2) it is chosen, how many lines (number of 27KΩ) you wish to detect - the same way as the motor line. This setting demands 3 wire cable from motor output to motor. Jumper J7/J4 and J9/J5 are not mounted - No line monitoring for actuator output 1 and actuator output 2 respectively.

For SV 24V-8A/48V-8A the max. allowed current is 8A divided on 2 outputs.



Current limiter type LIP function and setting (if mounted)

The current limiter type LIP (mounted on the opening system) is used as current limiter between the 48/24VDC supply and 1 or 2 actuators. When the adjusted current limit is reached, the speed of the actuators is reduced. When the max. power on the actuator is exceeded, the actuator stops. On the 24V/48V types (LIP5, LIP6 or LIP7) max. 3 times overload cut outs in the same direction is allowed. After that it will not be possible to run in this direction again, before the motor has run in the opposite direction. This in order to protect the actuator gear mechanism. Please note that when opening, the red LED in the LIP must light. This indicates that polarity to actuator is correct.

Table of LIP settings

| Äbningssystem 24V/48V | 3A/1,5A SA Power Single, Double, Large | 4A/2A SA Power Single, Double, Large | 2.5A/1,25A SA Power Mini | 2,5A/1,25A Rotary 100 | LIP5/6 |
|--------------------------|-------------------------------------------|-----------------------------------------|-----------------------------|-----------------------|--------|
| | | | | 2A/1A SA Power Mini | LIP7 |
| DIP 1 | ON | OFF | ON | OFF | |
| DIP 2 | OFF | ON | ON | OFF | |

| Type | Board no. | Board descrip. | Voltage and function | DIP 1 | DIP 2 | DIP 3 | DIP 4 | DIP 5 | DIP 6 | DIP 7 | DIP 8 |
|------------|-----------|----------------|-----------------------------------------|-------------------|-------|--------|-------------|----------------------------|---------------------------------------|-------|------------|
| LIP5 | 121315 | A043 | 24/48V 1 channel | | | 27K ON | Not mounted | | | | |
| LIP6 * | 121330 | A044 | 24/48V 2 channels | | | OFF | ON** | 27K ON | M1-M2 delay =ON | | |
| LIP7 Basic | 121305 | LIP7 | 24/48V 1 channel | See diagram above | | 27K ON | Not mounted | | | | |
| LIP7 TA | 121306 | LIP7 | 24/48V 1 channel Tandem | | | 27K ON | ON = Com | OFF = Slave ON = Master | OFF = Syncro Mode ON = Tandem Mode | **** | Not in use |
| LIP7*** OC | 121308 | LIP7 | 24/48V 1 channel Syncro m/position ind. | | | 27K ON | ON = Com | OFF = Slave ON = Master | OFF = Syncro Mode ON = Tandem Mode | **** | Not in use |

* SA Power Large - parallel operation: Jumper OPT mounted - both motors stop at the same time if one stops because of overload.

** When DIP4 is OFF = Tandem mode - both motors stop at the same time if no current flows in one. (1.5 sec. reaction time)

*** Requires actuator with Reed. (3-core incl. black cable)

**** OFF = No delay between Master og Slave / ON = Seven sec. delay between Master og Slave.

Operation and connection of fire switches (e.g. type BVT)

The fire switch will generally contain the following:

- Breakable glass window and red control button is activated by pressure - this puts the SV control unit in ALARM condition, by which both motor outputs are activated (for normal service and testing the lid can be opened with a key).
- RESET button which brings the SV control unit out of the alarm condition and starts the closing sequence for about 180 seconds. Please note that RESET does not cancel errors on the system, e.g. line errors etc. These must be found and corrected.
- RED LED indicates that the SV control unit is in ALARM condition and that the motor outputs either are or have been activated.
- YELLOW LED indicates faults on the system - please call for a service technician.
- GREEN LED indicates that the system is in normal operation condition without errors.

CONNECTION of the fire switch is made as shown on the drawing.

The installation with fire switches must be terminated with a 10K Ω or 27K Ω resistor in the last switch in order to establish the line monitoring correctly – this can either be done by moving the factory mounted resistor from the terminal strip to the last fire switch or connect **jumper J1** in the fire switch type BVT is mounted (by this a 10K Ω resistor is also connected).

By means of DIP switches the SV control unit has different possibilities of settings for the input to the fire switch:

DIP 3 (Conf. firesw.):

On = ALARM condition from 500-3K Ω , (indication of line error by direct short circuit or open circuit).

Off = ALARM condition from 0-3K Ω (indication of line error by open circuit).

DIP 4 (FIRESW. 2 CH):

On = The control unit will now be split up into 2 fire groups.

Fireswitch 1: Ø13 - Ø17A = Actuator output 1

Fireswitch 2: Ø13 - Ø17B = Actuator output 2.

Off = 1 line, e.g. by connection of more fire switches, the cables are run from switch to switch in one line.

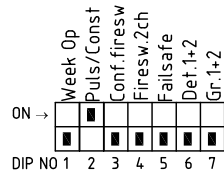
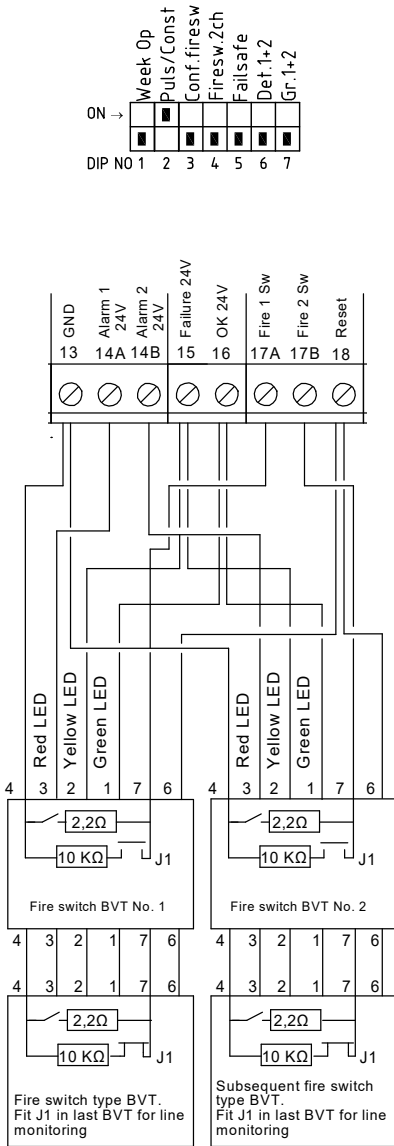
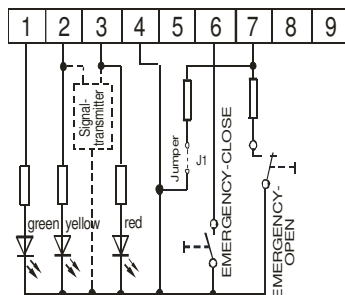
DIP 5 (Failsafe):

On = Any line error on fire switch or smoke detector puts the SV control unit in ALARM condition. This function can be used if cables to fire switches and smoke detectors are not fireproof.

Off = An error condition does not report ALARM condition.

BVT

- 1 green LED OK (lights when OK and while closing)
 - 2 yellow LED (lights on error)
 - 3 red LED alarm (emergency opening)
 - 4 GND (-)
 - 5 not used
 - 6 fire switch reset
 - 7 fire switch emergency opening
- Jumper J1 must only be set in the last or only fire switch



Connection of smoke-/heat detectors

Smoke- and heat detectors are connected as shown.

The installation can be carried out as 2 loops Detector 1: terminal 19 and 20

Detector 2 terminal 21 and 20 with max. 22 detectors on each circuit.

The last detector in each circuit must be terminated with a 10K Ω termination resistor so that the cable monitoring (line monitoring) works correctly.

The following settings are possible:

DIP 6 (Det. 1&2):

On = Min. one detector should be activated in each of the 2 loops in the installation before the SV control unit goes into alarm condition (this function is used if the monitored room has potential possibility of limited local occurrences of smoke/heat in connection with daily use, e.g. because of passage of trucks in the building).

Off = The SV control unit goes into alarm condition when only one detector is active, no matter in which of the 2 circuits in the installation the active detector is placed.

DIP 4

If DIP 4 is ON, the control unit is set for 2 fire groups.

Detector 1 and 2 will hereafter automatically be divided, so that detector 1 follows fire switch 1 and detector 2 follows fire switch 2.

If DIP 4 is ON, the function for DIP 6 is not possible.

Line monitoring: Correct line monitoring can only be guaranteed with detectors delivered from the supplier. Other detectors may have different internal resistors and stand by power consumption.

Comfort ventilation – Connection and settings

Each of the 2 motor outputs can be controlled separately with their own comfort switch.

For comfort ventilation there are the following possibilities:

DIP 7 (Gr. 1 +2): On = 1 comfort switch controls both outputs.

DIP 2 (Puls/Const):

On = It is possible to press the »up« button 3 times, which each gives 6 seconds of opening time at 24V (3 seconds at 48V) – after that nothing happens.

Continuous »up« signal gives 3x6(3) sec.=18(9) sec. - One press on »down« closes the actuator completely for a period which is 18 seconds longer than the complete opening time. - In order to avoid »actuator pumping« max. 3 successive closing attempts will be allowed.

Off = As long as »up« signal or »down« signal are given, the actuators are running.

Jumper J29 (Comf var.)

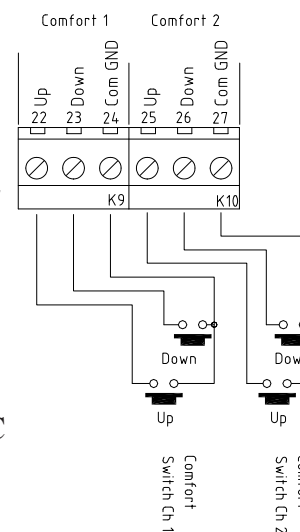
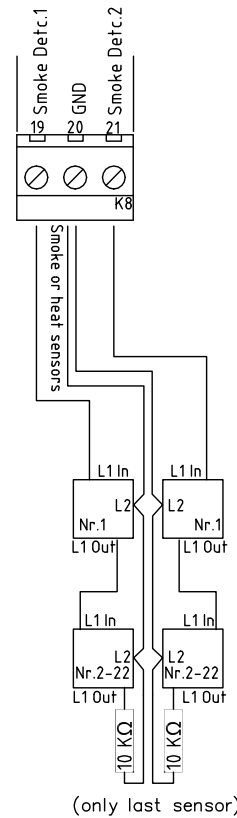
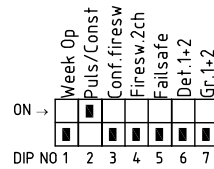
Mounted = The time on the above mentioned pulse opening can be adjusted from 1-60 sec. on the potentiometre P1.

Not mounted = The time on the above mentioned pulse opening is fixed (6 sec. at 24V / 3 sec. at 48V).

Room thermostats, weekly timers, CCS and other external control equipment for comfort ventilation can be connected on the inputs of the comfort control.

Indication about open or closed actuators:

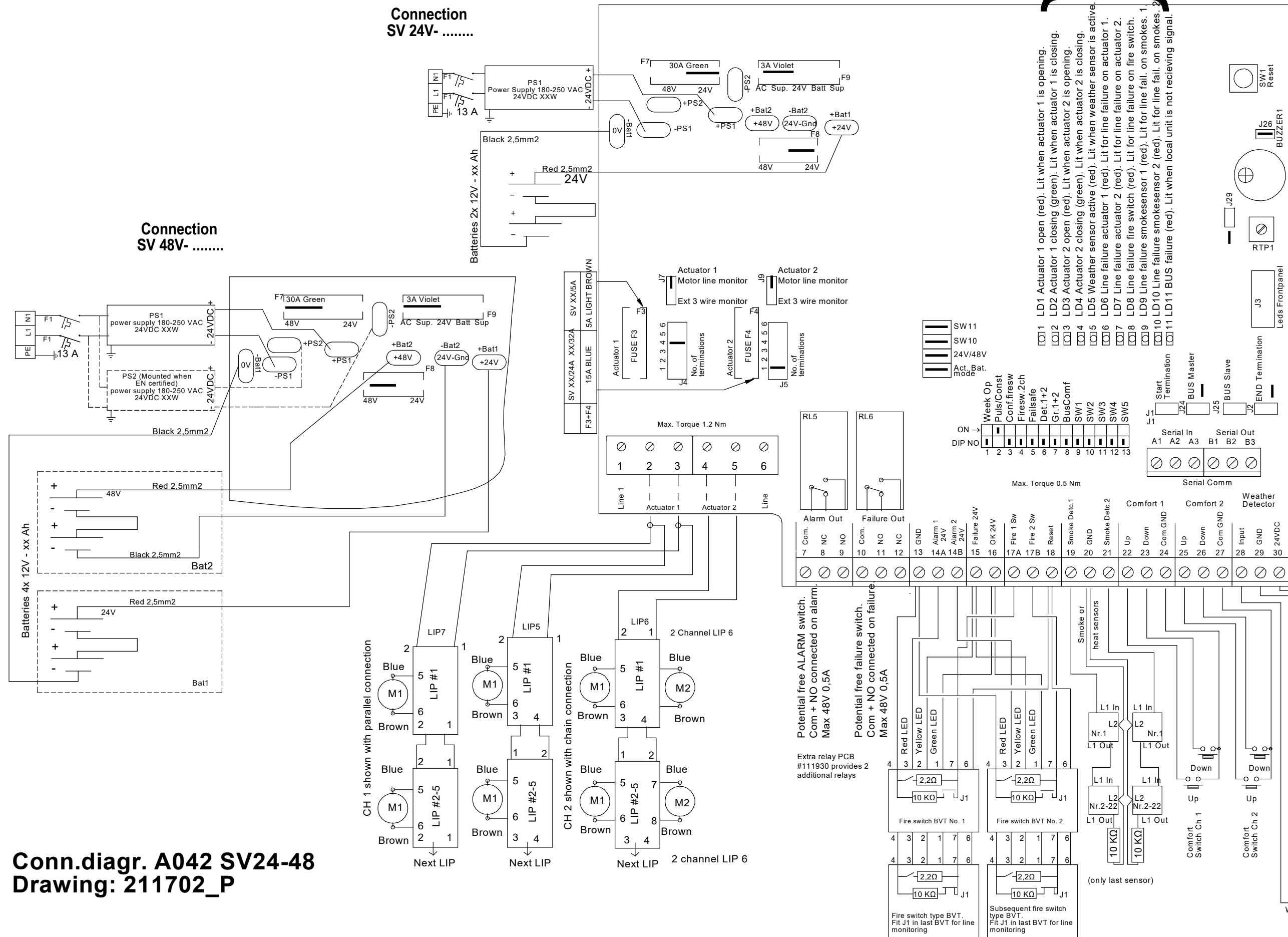
111685 SV-control position indicator is a relay unit with 2 pcs. DPDT-contacts 230VAC 3A which indicates if the actuators are open or closed. Can only be used when DIP 2 puls/const is ON. The function can give information to burglar alarms, heat controls etc., if the actuators are open or closed.



Connection

SV 24V-

Connection
SV 48V-



Conn.diagr. A042 SV24-48
Drawing: 211702_P

External LEDs on the front panel (LED board)

| | | Operation possibilities for: | Alarm/ fire | Comfort operation |
|-----------------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|----------------------|
| Text on front | Colour | Meaning: Switched off - lights - flashes | | |
| OK | Green | lights if everthing is ok switched off by local error on this control panel flashes by error message from other controls received by bus | LD12 | Yes |
| Battery low | Yellow | flashes by local battery error on this control panel or by error message from other controls received by bus | LD13 | Yes |
| Linie fault | Yellow | flashes by local error on this control panel or by error message from other controls received by bus | LD14 | Yes |
| AC supply error | Yellow | flashes by local error on this control panel or by error message from other controls received by bus | LD15 | Yes |
| Alarm active | Red | lights red constantly on the active unit receiving signal flashes during alarm via bus | LD16 | Yes |
| | All lights | running lights time for yearly service - please call for supplier | LD12, 13, 14, 15, 16 | Yes |

Internal LED indication on main board

| | Operation possibilities for: | Alarm/fire | Comfort operation |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------------------|
| LD1 | Actuator 1 open (red). Lights when actuator 1 opens | | |
| LD2 | Actuator 1 close (green). Lights when actuator 1 closes | | |
| LD3 | Actuator 2 open (red). Lights when actuator 2 opens | | |
| LD4 | Actuator 2 close (green). Lights when actuator 2 closes | | |
| LD5 | Weather sensor active (red). Lights when weather sensor is active | Yes | No |
| LD6 | Line error on actuator 1 (red). Lights when actuator 1 has line error | Yes | Only close |
| LD7 | Line error on actuator 2 (red). Lights when actuator 2 has line error | Yes | Only close |
| LD8 | Line error on fire switch (red). 1 flash per second = fire switch 1 line error. 2 flashes per second = fire switch 2 line error. Constant light = error on both fire switches. | Yes | Only close |
| LD9 | Line error on smoke detector 1 (red). Lights when smoke detector 1 has line error | Yes | Only close |
| LD10 | Line error on smoke detector 2 (red). Lights when smoke detector 2 has line error | Yes | Only close |
| LD11 | BUS error (red). Lights when BUS signal from other controls is missing. Only relevant if J24 or J25 is mounted. | Yes | Only close |

Fuse specifications

| Placement | 24V | 48V |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Fuse value | | |
| F7 30A green | 2 pcs. 12V batteries = 24V | 4 pcs. 12V batteries = 48V |
| F9 3A violet | 24VDC to terminal 30 - AC supply from 24V power supply - batt.supp. from the batteries - take care of discharging of the batteries when 230VAC is missing | 24VDC to terminal 30 - AC supply from PSU - batt.supp. from the batteries - take care of the discharging of the batteries when 230VAC is missing |

Complete jumper settings

| | Text on board | Factory set | Mounted / ON function | Dismounted / OFF function |
|------------------------------------------------------------------------|-------------------------|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DIP 1 | Week open | no | Weekly open (2 sec.)/close (5 sec.) cycle activated | Weekly open/close not activated |
| DIP 2 | Puls/Const | yes | Actuator output runs pulse mode (24V=6 sec./ 48V=3 sec.) at comfort activation (max. 3 times opening) | Actuator output runs constantly as long as comfort activation is active |
| DIP 3 | Conf. Fireswitch | no | Fire switch active from 500-3KΩ | Fire switch active from 0-3KΩ |
| DIP 4 | Firesw. 2 ch | no | The control is split up into 2 fire groups | The control has 1 fire group |
| DIP 5 | Failsafe | no | Line fault on fire switch or detector puts the control in alarm | Normal mode |
| DIP 6 | Detekter 1&2 | no | Alarm only on concurrent activation (&) of detector input 1 and 2 (DIP 4 must be set to 1 fire group) | Alarm mode at activation of either detector input 1 or 2 |
| DIP 7 | Gr. 1+2 comfort | no | The control has 1 comfort group which is activated by either comfort input ch1 or ch2 (if dip 8 “Bus comfort” is ON, the comfort input ch2 controls other control units via bus activity | The control is split up into 2 comfort groups which are activated by comfort input ch1 and ch2 respectively |
| DIP 8 | Bus comfort | no | The control reacts on comfort signal via bus activity | The control does not react on comfort signal via bus activity // NB! Always reaction on weather signal via bus activity and own comfort signal |
| DIP 9 | SW1-Sprinkler | no | Actuator output closed by active detector (opens by activation of fire switch) | Normal mode - actuator output opens by active detector or fire switch |
| DIP 10 | BRA Mode special | no | Special fire switch/alarm mode and comf. active at all errors | Normal mode |
| DIP 11 | SW3-Snitch | no | LED’s remember errors (line errors, AC/Batt.errors, bus errors) which have been detected and remain switched on even though the error disappears again - the LED’s can only be switched off/reset again by setting dip in off | Normal mode |
| DIP 12 | SW4-Temp. Detekt. | no | Line error on motor line (upper resistor area) = alarm | Normal mode |
| DIP 13 | SW5-Bus Reset | yes | The control react on reset via bus activity | Normal mode |
| For previous software version 491 and earlier, the following applies ↓ | | | | |
| DIP 13 | SW5-Spec. charge | no | Special Ke charging feature (may only be used in special installations) | Normal mode |
| J1 (Bus) | Start term. + Master | no | First control unit in the bus network | See section concerning connection of control units (bus connection) page 14 |
| J24 (Bus) | | no | | |
| J4 (Motor) | 1 - 2 - 3 - 4 - 5 - 6 | 1 | Connect according to number of 27KΩ termination resistors on actuator 1 (from software version 499 it is possible to detect 7-10 lines with 2 x jumpers) | No line monitoring channel 1 |
| J5 (Motor) | 1 - 2 - 3 - 4 - 5 - 6 | 1 | Connect according to number of 27KΩ termination resistors on actuator 2 (from software version 499 it is possible to detect 7-10 lines with 2 x jumpers) | No line monitoring channel 2 |
| J7 (Motor) | Mot Mon act. 1 | yes | 2 wire line monitoring via 27KΩ terminal 2-3 | No line monitoring channel 1 |
| | Ext Li Mon act. 1 | no | 3 wire line monitoring with direct motor connection actuator 1 | |
| | SW10-Bus fire | yes | The control reacts on alarm signal via bus activity | The control does not react on alarm signal via bus activity // NB! Always reaction on weather signal and failures via bus activity and own alarm signal (detector or fire switch) |
| J9 (Motor) | Mot Mon act. 2 | yes | 2 wire line monitoring via 27KΩ terminal 4-5 | No line monitoring channel 2 |
| | Ext Li Mon act. 2 | no | 3 wire line monitoring with direct motor connection actuator 2 | |
| | SW11-Ser | yes | Active | Inactive |
| J25 (Bus) | Slave | no | Middle and last control unit in the bus network | See section concerning connection of control units in bus connection, page 14 |
| J2 (Bus) | End term. | no | Last control unit in the bus network | |
| J26 | BUZZER1 | yes | Acoustic alarm active | Acoustic alarm deactivated |
| | Actu. batt. mode | yes no: double supply | Actuators are supplies by batteries | Actuators are supplied by 230/24V converter, batteries as backup |
| | | | 48V controls (4 batteries) | 24V controls (2 batteries) |
| J29 | comf. var | no | Comfort pulse adjustable on RPT1 1-60 sec. | Firm comfort pulse time 6 sec. (24V) / 3 sec. (48V) |

Others: Reset = 180 sec. closing // Cut-off motor output and charging after 360 sec.

Connection of more controls to one fire group (bus connection)

By means of a bus communication it is possible to make 2 – 10 SV control units to work as a complete system. The SV control units communicate with each other via a 3 wire bus connection.

This could e.g. be a 3x0.5 mm² fireproof cable according to standard IEC 60-31.

Terminal no. A1, A2, A3 are for the incoming connection and B1, B2, B3 for the outgoing connection.

In the first SV control unit start Bus J1 has to be on. This control is Master and J24 must therefore also be on. The bus cable is connected on the output terminals B1, B2, B3 and lead to the next SV control unit which is a slave, J25 must therefore be on. The cable is connected to the input terminals A1, A2, A3 of the next SV control unit and further to the next slave SV control unit from terminal B1, B2, B3.

In the last slave SV control unit J2 and J25 must be on in order to terminate the bus connection.

ALARM: Connection of alarm inputs works across all controls so that if a fire switch or a smoke-/heat detector on one control is activated, all connected SV control units also goes into alarm condition.

This only happens if J8 is set. If not set, the control unit will not listen to the alarm on the bus.

RESET: If the reset button on one control or in one fire switch is activated, the reset function on all connected control is activated and starts the closing function on all motor output in approx. 180 sec.

COMFORT: The comfort control can work locally on each SV control unit or via the bus on more SV control units. If a wind- and rain sensor is connected it will work on all SV control units on the bus.

Comfort switch Ch1 controls locally Actuator output 1. This function only applies, WHEN DIP 7 is OFF.

Comfort switch Ch2 controls locally Actuator output 2.

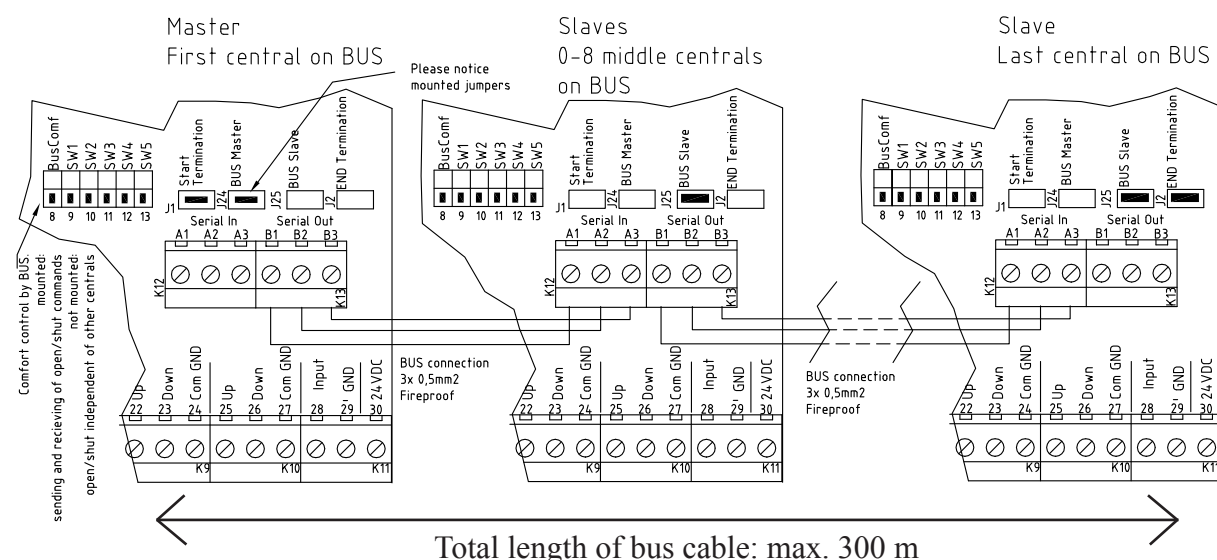
If DIP 8 is ON, the comfort switch 2 will control all other SV control units on the bus, where DIP 8 is ON.

DIP 4: If DIP 4 is ON, i.e. 2 fire groups, then SW 10-Bus Fire is disabled.

Function description for SV control units connected with bus connection

If more SV control units are connected by means of a bus connection, the following are monitored/communicated between the SV control units:

- A detected bus error makes the LED LD11 on the main board light/flash.
- A detected bus error brings all controls on the bus connection in error condition (line error).
- If one of the SV control units in the network goes into alarm condition, all go into alarm condition.
- If one of the SV control units goes into a certain error condition (line error, AC error, battery error or bus error), the other SV control units also go into error condition – the type of the error is indicated on the board of the front plate of all SV control units – on the SV control unit(s) which have not caused the error, the ok LED on the board of the front plate flashes at the same time as the error. On the SV control unit(s) which have caused the error, the OK LED is switched off.



Connection of weather sensor / Close all function

A weather sensor can be connected to the SV control unit.

The weather sensor is adjusted according to the instructions.

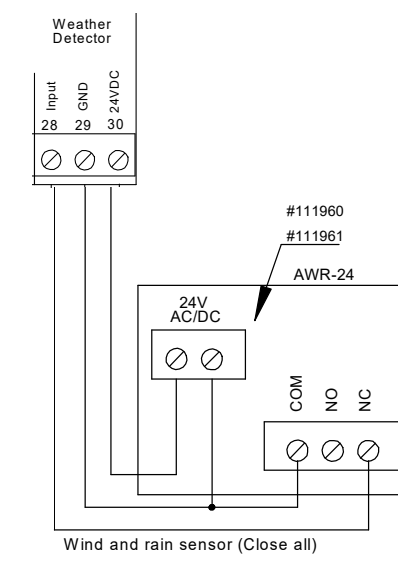
Actuators should be closed when the wind is above 6 m/s.

LED LD5 on the main board indicate active weather sensor, lights as long as input is active.

As long as the weather sensor is active, motor inputs cannot be opened with comfort switches.

The weather sensor closes on all controls which are connected through bus connection.

On the input to weather station a weekly timer can be connected which makes sure that everything is closed, e.g. by end of a working day.



External signal transfer, connection to AFA systems and other control systems

The SV control unit can receive potential free alarm signals from e.g. AFA systems on the input to fire switch or smoke-/heat detector

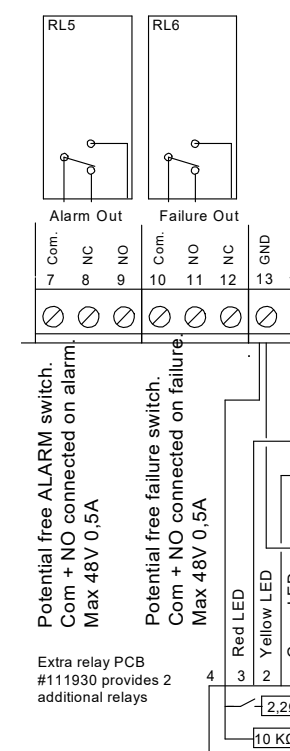
– Line monitoring resistor must be fitted on the contact in the AFA system.

The SV control unit can forward Alarm condition to external connected systems by means of potential free contacts on the terminals 7 (com), 8(NC) and 9(NO).

The SV control unit can forward Failure condition to external connected systems by means of potential free contacts on the terminals 10 (com), 11(NC) and 12(NO).

Add-on relay PCB #111930 provides 2 additional relays, each with 2 potential-free NO / NC contact sets. (30VDC - 0.5A)

Alarm and error contacts work parallel on all controls connected with bus connection.

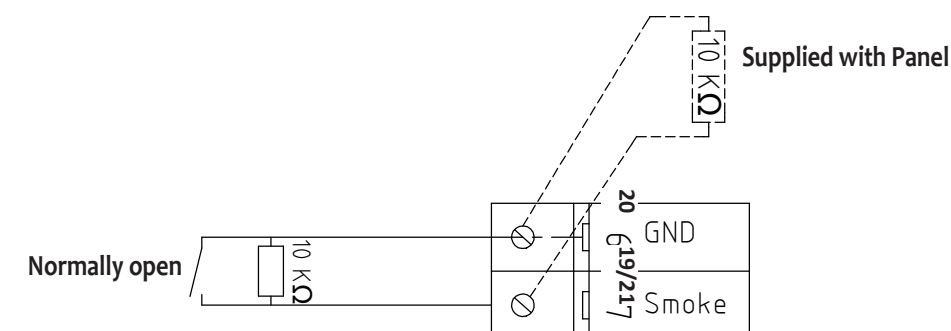


How to make a connection from a Fire Alarm Panel

The control panel can receive potential free zero volt alarm signals from e.g.

AFA systems on the input to fire switch or smoke-/heat detector Terminal 19/21 and 20.

– Line monitoring resistor must be fitted on the contact in the AFA system



Special functions

Sprinkler function:

DIP 9 On - a special function comes in use where sprinkler systems are installed. With this function activated, both actuator outputs close, if smoke-/heat detector input is activated.
If the fire switch is activated, both actuator outputs open.

Weekly open/close:

DIP 1 On - both motor outputs open shortly (3 seconds) once a week and close immediately after - This function is used to give the right tension on the packing of the skylights to keep them watertight.

Function of heat detector in LIP:

DIP 12 On - a heat detector can be mounted in each LIP. If the temperatur is exceeded, the SV control unit goes into alarm and the opening system is opening.

Cable sizes

It is very important to use the correct cable types and sizes to make sure that the fire ventilation system meets the standards and works correct in an emergency.
The two most important factors are the ability of the cables to resist heat and to make sure that the voltage drop in the cables to the actuators do not exceed 15% at full load on the fire ventilation hatches.

Fire resistant cables according to IEC 60331 must be used for the following functions:

| | | |
|---------------------------------------|------------------------------------------------------------------|-------------------|
| Opening systems with actuators 24/48V | 2 wires, see diagramme (3 wire by external line surveillance) | Max. cable length |
| Fire switch 24V | Min. 6 x 0,5 mm² (0,8 mm) | 100 m* |
| Smoke detector 24V | Min. 2 x 0,5 mm² (0,8 mm) | 100 m* |
| Heat detector | Min. 2x0,5 mm² (0,8 mm) | 100 m* |
| Total length of bus cable | 3 x 0,5 mm² (0,8 mm) | 300 m* |

* For cable lengths longer than 100 m, properly closed shielded cables must be used.

Normal cables can be used for the following functions:

| | |
|--------------------------------|------------------|
| Supply for control 230VAC | e.g. 3 x 1,5 mm² |
| Comfort ventilation button 24V | Min. 3 x 0,5 mm² |
| Wind- and rain sensor 24 V | Min. 4 x 0,5 mm² |

Table for SV 24V-XX allowable voltage drop 15% = 3,6V

| Power consumption per group in ampere | Cable cross section and amount of cores | | | | | | |
|---------------------------------------|-----------------------------------------|-----------|----------------------------|----------------------------|---------|----------------------------|----------|
| | 2x1,5 mm² | 2x2,5 mm² | 4x1,5 mm² (2x1,5+2x1,5) | 4x2,5 mm² (2x2,5+2x2,5) | 2x6 mm² | 5x2,5 mm² (2x2,5+3x2,5) | 2x10 mm² |
| 2 | 74 m | 123 m | 148 m | 246 m | 295 m | 307 m | 492 m |
| 4 | 37 m | 61 m | 74 m | 122 m | 148 m | 154 m | 244 m |
| 6 | 25 m | 41 m | 50 m | 82 m | 98 m | 102 m | 164 m |
| 8 | 18 m | 31 m | 36 m | 62 m | 74 m | 77 m | 124 m |
| 10 | 15 m | 25 m | 30 m | 50 m | 59 m | 61 m | 100 m |
| 12 | 12 m | 20 m | 24 m | 40 m | 49 m | 51 m | 80 m |
| 14 | | 18 m | 22 m | 36 m | 42 m | 44 m | 72 m |
| 16 | | 15 m | 18 m | 30 m | 36 m | 38 m | 60 m |

Table for SV 48V-XX allowable voltage drop 15% = 7,2V

| Power consumption per group in ampere | Cable cross section and amount of cores | | | | | | |
|---------------------------------------|-----------------------------------------|-----------|----------------------------|----------------------------|---------|----------------------------|----------|
| | 2x1,5 mm² | 2x2,5 mm² | 4x1,5 mm² (2x1,5+2x1,5) | 4x2,5 mm² (2x2,5+2x2,5) | 2x6 mm² | 5x2,5 mm² (2x2,5+3x2,5) | 2x10 mm² |
| 2 | 148 m | 246 m | 295 m | 492 m | 590 m | 615 m | 984 m |
| 4 | 74 m | 123 m | 148 m | 246 m | 295 m | 307 m | 492 m |
| 6 | 49 m | 82 m | 98 m | 164 m | 197 m | 205 m | 328 m |
| 8 | 37 m | 61 m | 74 m | 123 m | 148 m | 154 m | 246 m |
| 10 | 30 m | 49 m | 60 m | 98 m | 118 m | 123 m | 197 m |
| 12 | 25 m | 41 m | 50 m | 82 m | 98 m | 102 m | 164 m |
| 14 | | 35 m | 42 m | 70 m | 84 m | 88 m | 141 m |
| 16 | | 31 m | 36 m | 62 m | 74 m | 77 m | 123 m |

Parts nos. and accessories

| Part no. | Name of part | Description |
|----------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 121607 | A042 SV24 PCB | Main board for SV 24V control units |
| 121608 | A042 SV48 PCB | Main board for SV 48V control units |
| 211059 | Power supply 150W 24VDC | Power supply NOT for DS control units |
| 211068 | Power supply 200W 24VDC | Power supply for 8A DS control units |
| 211080 | Power supply 600W 24VDC MW | Power supply 230VAC / 24VDC |
| 211101 | Power supply 750W 24VDC | Power supply for 32A DS control units |
| 211210 | Circuit breaker 10A | Automatic fuse 10A / input terminal |
| 800348 | Battery 12V/7,2Ah 151x65x95mm | Battery for 8A / 24A / 30A controls |
| 800622 | Battery 12V/12Ah 151x94x98mm | Battery for 30A / 32A controls |
| 111789 | Fire switch/reset IP40 Actulu | Fire switch IP 40 |
| 111629 | Replacement glass for BVT | Replacement glass for fire switch |
| 111702 | Tool/key fireswitch WCP111720 | Key for fire switch for operation without breaking glass |
| 111626 | Fireswitch BVT in IP65 BOX | Fire switch built in IP65 box |
| 111960 | Rain sensor 250VAC / 24VDC | Rain sensor closes everything when raining |
| 111961 | Wind and rain sensor 250VAC / 24DC | Wind- and rain sensor closes everything when raining or strong wind |
| 111735 | Heat detector+base 75 degrees | Heat detector 75 degrees temperature activation |
| 111741 | Heat detector+base 90 degrees | Heat detector 90 degrees temperature activation |
| 111740 | Smoke detector, optical | Optical smoke detector |
| 111742 | Smoke detector, Ion detector | Ion smoke detector for invisible smoke |
| 111753 | Comfort switch OPUS w housing | Comfort switch Opus complete with housing |
| 111758 | Comfort switch FUGA w housing | Comfort switch Fuga complete with housing |
| 111760 | Weekly timer 1 channel | Weekly timer, can e.g. close everything in the evening |
| 111761 | Comfort sw.up/down OPUS IP44 | Comfort switch Opus 44 white |
| 111767 | AUTO MAN switch OPUS with housing | Switch Auto. man. OPUS white, activates room thermostat or weekly timer |
| 111770 | Room thermostat RTR w.resis. | Room thermostat for control of comfort ventilation |
| 111930 | Relay PCB extra 2Xoutp.in box | Board with 2x2 extra relay outputs 30V 0,5A |
| 111685 | Control position indicator | Relay unit with 2 pieces switch contacts 230VAC 3A, which indicates whether the actuators are open or closed. Can only be used when DIP2 puls / const is mounted. |
| 111690 | Add-on position relay | Relay Print for indication of window position |
| 111892 | Transmitter for Wind and Rain | Wireless weather signal together with #111895 |
| 111895 | Remote control w/receiver SV | Wireless comfort control (transmitter and Add-on PCB) |

(DK) YDEEVNEDEKLARATION IHT. FORORDNING NR. (EU) 305/2011)
(UK) DECLARATION OF PERFORMANCE ACCORDING TO REGULATION NO. (EU) 305/2011)
(D) LEISTUNGSERKLÄRUNG GEMÄSS DER VERORDNUNG NR. (EU) 305/2011)
(F) DECLARATION DES PERFORMANCES SELON RÈGLEMENT UE 305/2011



EN 12101-10:2005

Produkt: **Strømforsyning**
Product: **Power Supply**
Produkt: **Stromversorgung**
Produit: **Source de courant**

Type/Type/Typ/Type: **SV 24V/8A – 24V/24A – 24V/30A – 24V/32A**
SV 48V/8A – 48V/24A – 48V/30A – 48V/32A

Formål: **Strømforsyning til aktuator brugt i forbindelse med brandventilation**
Purpose: **Power supply for actuators used for SHEV**
Verwendungszweck: **Stromversorgung für Antriebe, die für Rauchabzug genutzt werden**
Description du produit: **Asservissement pour vérins électriques**

Producenten: **Actulux A/S, Haandvaerkevej 2, 9560 Hadsund Denmark**
Manufacture:
Hersteller:
Usine de fabrication:

System for attesting og kontrol af ydeevne: / **SYSTEM 1**
System for attestation and verification of performance: /
System zur Bescheinigung und Prüfung der Performance: /
Système(s) d'évaluation et de vérification de la constance des performances du produit:

Det bemyndigede organ **0402 RISE Research Institute of Sweden** udførte den indledende inspektion af fabrikken og af dennes egen produktionskontrol samt løbende overvågning, vurdering og evaluering af fabrikkens egen produktions- kontrol til **SYSTEM 1**, og følgende vises:

The notified body **0402 RISE Research Institute of Sweden** made the initial inspection of factory and of factory production control, and ongoing monitoring, assessment and evaluation of factory production control to the **SYSTEM 1** and the following is displayed:

Die notifizierte Stelle **0402 RISE Research Institute of Sweden** hat die Erstinspektion des Werkes und der werks- eigenen Produktionskontrolle sowie die laufenden Überwachung, Bewertung und Evaluierung der werkseigenen Produktionskontrolle nach dem **SYSTEM 1** vorgenommen und Folgendes ausgestellt:

L'organisme notifié **RISE (Research Institute of Sweden) 0402** a procédé à l'inspection initiale de l'usine et à son propre contrôle de production, ainsi qu'à la surveillance, à l'appréciation et à l'évaluation continues du contrôle de production propre à l'usine pour **SYSTEM 1**. Les éléments suivants sont indiqués:

CERTIFICATE OF CONSTANCY OF PERFORMANCE
NO. 0402 – CPR – SC0354-13


| Feature/Feature/Merkmal/ Fonctionnalité | Ydeevne/Performance/Leistung/ Performance | Specifikation/Specification/Spesifikation Spécification |
|--------------------------------------------|----------------------------------------------|------------------------------------------------------------|
| Environmental class 1 | Class A | EN 12101-10:2005/AC:2007 |

Ydeevnen af produktet i overensstemmelse med punkt 1 og 2 svarer til den deklarerede ydeevne for punkt 9.
Ansvarlig for udfærdigelse af denne ydeevnedeklaration er producenten der er henvist til i punkt 4.
Underskrevet på vegne af fabrikanten og navnet på fabrikanten af:

The performance of the product in accordance with point 1 and 2 corresponds to the declared performance for point 9.
Responsible for creating this declaration of performance is the manufacturer referred to point 4.
Signed on behalf of the manufacturer and the name of the manufacturer of:

Die Leistung des Produkts gemäß den Punkt 1 und 2 entspricht der erklärten Leistung nach Punkt 9.
Verantwortlich für die Erstellung dieser Leistungserklärung ist allein der Hersteller gemäß Punkt 4.
Unterzeichnet für den Hersteller und im Namen des Herstellers von:

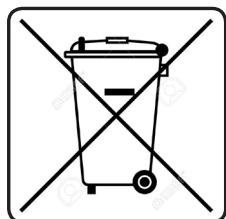
Les performances du produit identifié aux points §1 et §2 sont conformes aux performances déclarées indiquées au point §9.
La présente déclaration des performances est établie sous la seule responsabilité du fabricant identifié au point §4.
Signé au nom du fabricant et nom du fabricant de:


Hadsund d. 16 January 2019, Jens Buus, Managing Director

| Specifications | SV 24V-xx Control Panels | SV 48V-xx Control Panels |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| | 24V-24A / SV 24V-32A 24V-8A-ds / 24V-24A-ds / 24V-30A-ds / 24V-32A-ds | 48V-24A / 48V-32A 48V-8A-ds/48V-24A-ds/48V-30A-ds/48V-32A-ds |
| Note / Approvals / Conforms | “-ds” = EN12101-10:2005 approved / certified - class A (double supply) - envir. class 1 (to -15°C) // Conform EN12101-9 | |
| Power supply | 230VAC $\pm 15\%$ / max. 1.5A (“ds” = max. 5A) | 230VAC $\pm 15\%$ / max. 1.5A (“ds” = max. 10A) |
| Output supply | 24VDC | 48VDC |
| Motor outputs | 2 pcs. (line detecton: 1-6 lines) (from software version 499 it is possible to detect 7-10 lines with 2 x jumpers per actuator output) | 2 pcs. (line detecton: 1-6 lines) (from software version 499 it is possible to detect 7-10 lines with 2 x jumpers per actuator output) |
| Max. total load | 8A / 24A / 30A / 32A | 8A / 24A / 30A / 32 A |
| Max. load each motor output | 4A / 16A | 4A / 16A |
| Operation tempeature | -15°C - +40°C | -15°C - +40°C |
| Density | IP 54 | IP 54 |
| Battery back-up (72h) | Yes | Yes |
| Batteries | 8A-24A = 2 pcs. 12V/7.2Ah 30A-32A = 2 pcs. 12V/12Ah | 8A-24A = 4 pcs. 12V/7.2Ah 30A-32A = 2 pcs. 12V/12Ah + 2 pcs. 12V/7.2Ah |
| Dimensions (WxDxH) | 343 x 178 x 450 mm | 343 x 178 x 450 mm |
| Weight incl. batteries | Max. 22 kgs | Max. 32 kgs |
| Colour | White front / Black chassis | White front / Black chassis |
| Fire groups | 1 or 2 pcs. (by dip switch) with line detect. / Max. power consumption for fire switches (LED+buzzer)=14mA= approx. 6 fire switches | |
| Comfort groups | 1 or 2 pcs. (by dip switch) - Unlimited number of comfort switches | |
| Detector (smoke/heat) input | 2 lines max. 22 pcs. on each / Max. power consumption 1,1 mA per line \approx app. 2 x 22 = 44 detectors. Trigger point 30mA | |
| Weather sensor input / close all | Yes | Yes |
| Alarm output | Yes - potential free contact, max. 48V / 0.5A | Yes - potential free contact, max. 48V / 0.5A |
| Failure output | Yes - potential free contact, max. 48V / 0.5A | Yes - potential free contact, max. 48V / 0.5A |
| 24VDC for external use | 24VDC / max. 0.5A - at 230VAC operation | 24VDC / max. 0.5A - at 230VAC operation |
| Bus communication | Yes - connection of 2-10 control panels - line detection | |
| Visual (LED) indication in front panel | “OK” / “AC fault” / “Low battery” / “Line fault” / “Alarm” | |
| Options | Possibility to connect “Add-on” PCB with relay contacts for “comfort open” signal | |
| Low Voltage Directive | 2014/35/EU EN 61558-1:2006 (2nd edition), EN 61558-2-6, EN 61558-2-16 and EN 60335-1:2012 (4th edition) | |

Note for EN12101-10 approved editions (-ds)

| Type | Primary supply | Secondary supply | Interruption time |
|--------------|-------------------------|-------------------------|--------------------|
| 24V editions | 23-26VDC, ripple 1V p/p | 20-27VDC, max. load 32A | Less than 1.5 sec. |
| 48V editions | 48-51VDC, ripple 1V p/p | 40-52VDC, max. load 32A | Less than 1.5 sec. |



Electrical equipment, accessories and packaging must be sent for recycling for the protection of our environment!

Do not dispose electrical equipment with household waste!

According to European Guideline 2002/96 / EC on electrical waste, this must be disposed separately and sent for recycling to protect our environment.

Manufacturer:

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