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

#211682

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 relay 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 detailled 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.
Not intended for use in households, offices or other private environments.

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.

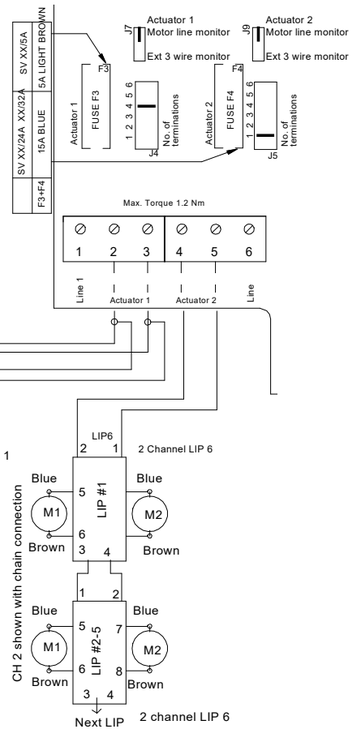
The batteries should be replaced as required, however at least every third year!
Use the same brand.

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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):

Actuator output



6+1 = 7 lines

Actuator output



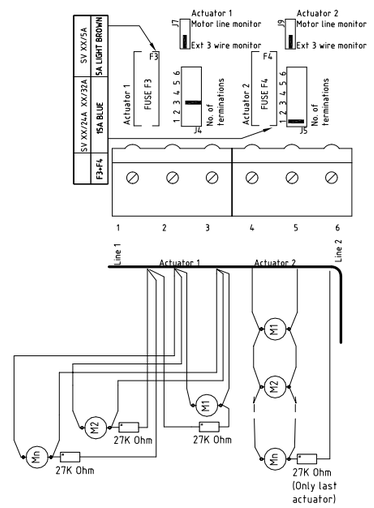
6+4 = 10 lines

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 J9	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.
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.

LIP settings

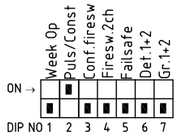
Set according to the type label on the traverse (opening system).

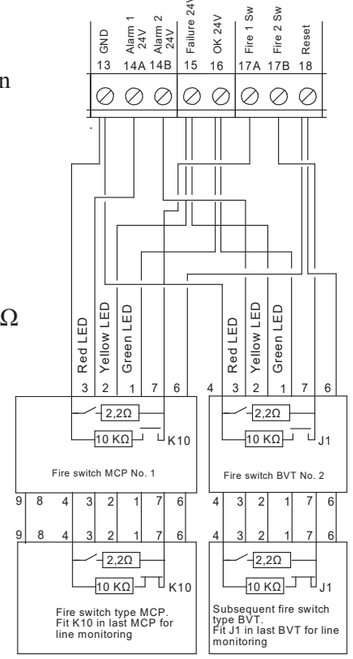
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Operation and connection of fire switches (e.g. type BVT or MCP)

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 10KΩ or 27KΩ 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 10KΩ resistor is also connected) or K10 in type MCP. Jumper K5 (only integrated in MCP) has no function. All Jumpers are factory fitted on delivery if a fire pressure type BVT or MCP is used. * If no fire pressure is used, the 10 kΩ resistor must remain in the control center.

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

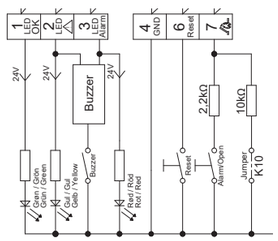
DIP 3 (Conf. firesw.):
On = ALARM condition from 500-3KΩ, (indication of line error by direct short circuit or open circuit).
Off = ALARM condition from 0-3KΩ (indication of line error by open circuit).

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.

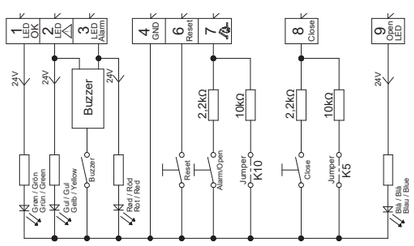
BVT

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



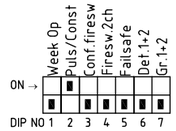
MCP

1 green LED OK (lights when OK and while closing)
2 yellow LED (lights on error)
3 red LED alarm (emergency opening)
4 GND (-)
6 fire switch reset
7 fire switch emergency opening
8 no application
9 Open
Jumper K10 may only be set in the last or only fire switch



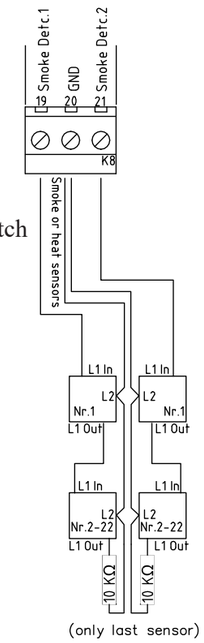
Connection of smoke-/heat detectors

Smoke- and heat detectors are connected as shown.
The installationen can be carried out as 2 loops Detector 1: terminal 19 and 20
Detetor 2 terminal 21 and 20 with max. 22 detectors on each circuit.
The last detector in each circuit must be terminated with a 10KΩ 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.

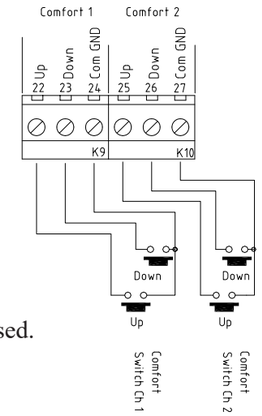
DIP 4
If DIP 4 is ON, the control unit is set for 2 fire groups.
Detector 1 and 2 will hereafter automatically be devided, so that detector 1 follows fire switch 1 and detector 2 follows fire switch 2.
If DIP 4 is ON, the function for DIP 6 is not possible.
Line monitoring: Correct line monitoring can 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.

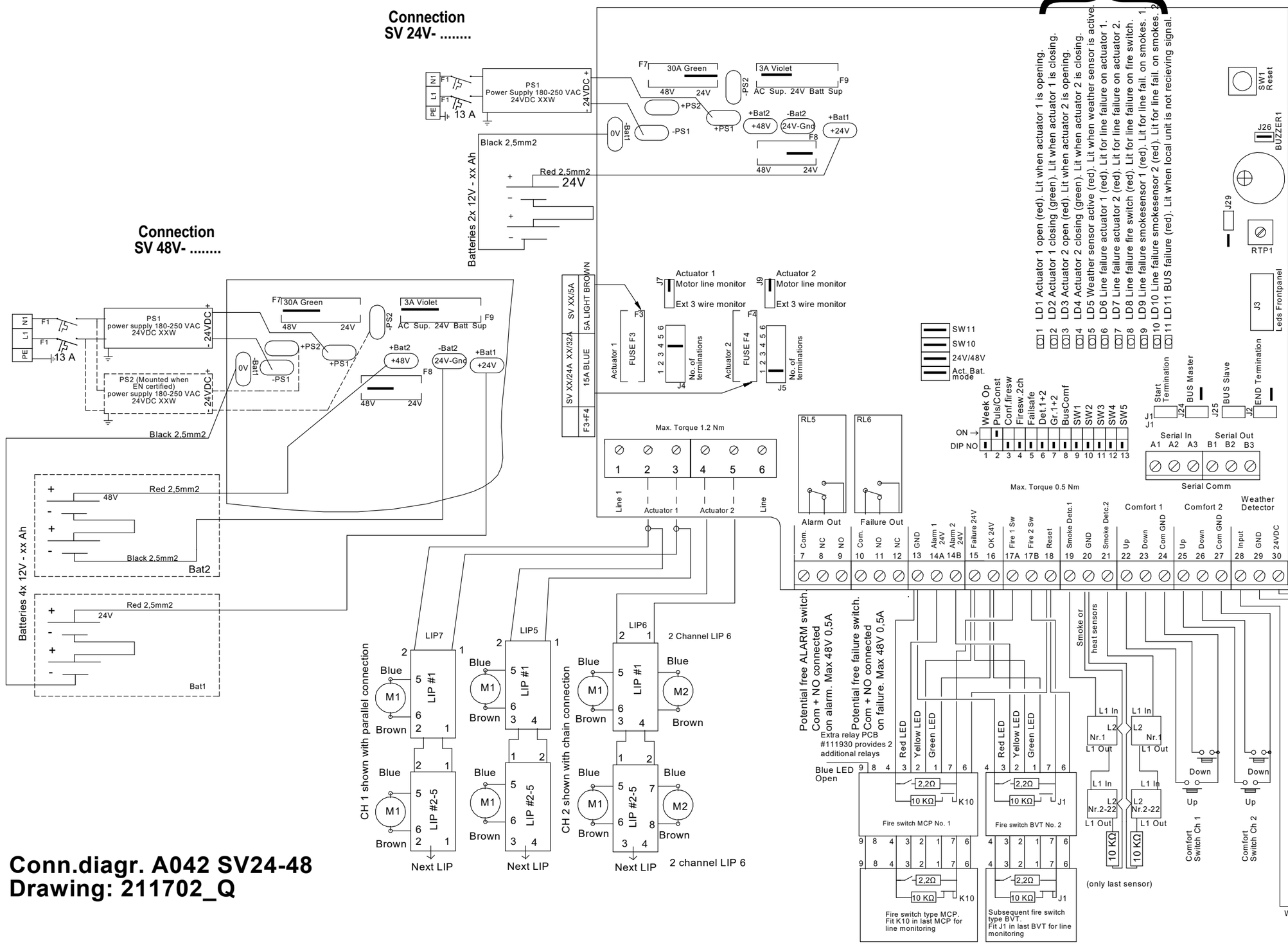
Bus comfort:
If comfort function is done via the bus communication, comfort switch no.2 must be used.
See settings for bus comfort page 14

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See page 12

Connection SV 24V- .....

Connection SV 48V- .....



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

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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	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	Yes
Linie fault	Yellow	**flashes** by local error on this control panel or by error message from other controls received by bus	LD14	Yes	Only close
AC supply error	Yellow	**flashes** by local error on this control panel or by error message from other controls received by bus	LD15	Yes	Only close
Alarm active	Red	**lights** red constantly on the active unit receiving signal **flashes** during alarm via bus	LD16	Yes	No
	All lights	**running lights** time for yearly service - please call for supplier	LD12, 13, 14, 15, 16	Yes	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 (red). Lights when actuator has open circuit, flashes at earth fail or when short circuit occur. It is not possible to RESET or close with actuator output.	Yes	If steady Only Close
LD7	Line error on actuator (red). Lights when actuator has open circuit, flashes at earth fail or when short circuit occur. It is not possible to RESET or close with actuator output.	Yes	If steady 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 / Fuse value	**24V**	**48V**
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.

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

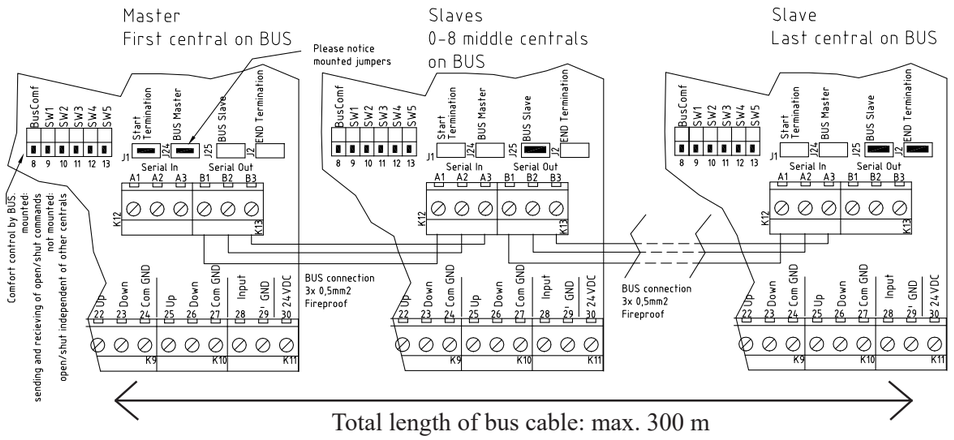
By means of a bus communication it is possible to make 2 – 10 SV control units to work as a complete system. The SV control units communicate with each other via a 3 wire bus connection.
This could e.g. be a 3x0.5 mm² fireproof cable according to standard IEC 60-31.
Terminal no. A1, A2, A3 are for the 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.

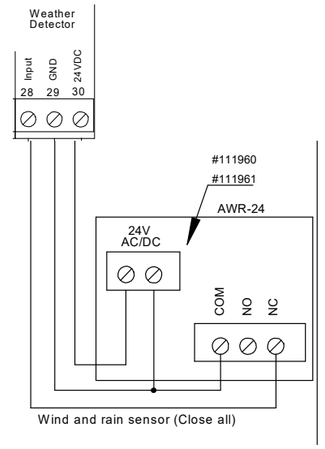


Connection of weather sensor / Close all function

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.



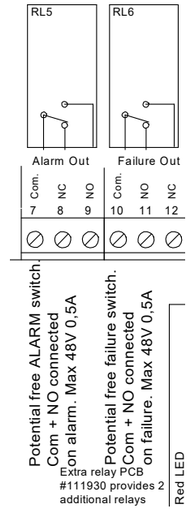
External signal transfer, connection to AFA systems and other control systems

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(NO) and 12(NC).

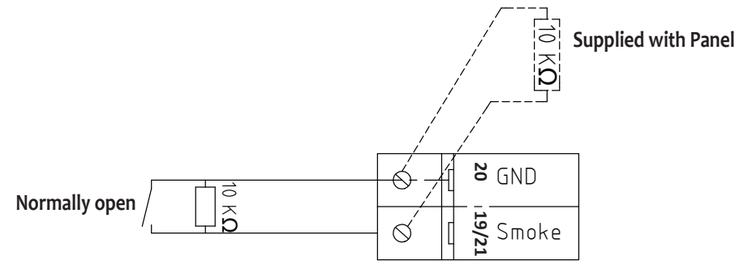
Add-on relay PCB #111930 provides 2 additional relays, each with 2 potential-free NO / NC contact sets. (30VDC - 0.5A)

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



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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

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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 BVSA 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
111778	Room thermostat RTR cpl.	Room thermostat for control of comfort ventilation
111779	Room thermostat with adj. deadband. cpl	Room thermostat for control of comfort ventilation. Adjustable deadband.
111930	Relay PCB extra 2Xoutp.in box	Board with 2x2 extra relay outputs 30V 0,5A
111690	Add-on position relay	Relay Print for indication of window position (requires special software in control panel)
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)

Control for Fire and Comfort ventilation Type SV 24V and SV 48V

Actulux

(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

CE EN 12101-10:2005 UKCA BS EN 12101-10:2005

Produkt: Product: Produkt: Produit:	**Strømforsyning** **Power Supply** **Stromversorgung** **Source de courant**
Type/Type/Typ/Type:	**SVM Micro 24V-4A** **SVM 24V-5A, SVM EI 24V-5A, DFM 24V-5A** **SVM 24V-8A, SVM EI 24V-8A, DFM 24V-8A** **SVM EI 24V-10A, DFM 24V-10A** **SV 24V-8A, 24V-24A, 24V-30A, 24V-32A** **SV 48V/8A, 48V-24A, 48V-30A, 48V-32A** **SVL 24V-15A, 24V-20A, 24V-32A, 24V-40A, 24V-50A** **SVL 48V-10A, 48V-15A, 48V-20A, 48V-32A, 48V-50A**
Formål: Purpose: Verwendungszweck: Description du produit:	**Strømforsyning til aktuator brugt i forbindelse med brandventilation** **Power supply for actuators used for SHEV** **Stromversorgung für Antriebe, die für Rauchabzug genutzt werden** **Asservissement pour vérins électriques**
Producenten/ Manufacture/ Hersteller Usine de fabrication:	**Actulux A/S, Porsborgparken 35, 9530 Stoevring, Denmark**
System for attestering og kontrol af ydeevne: 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:	**SYSTEM 1**

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**
Det bemyndigede organ **BSI** 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 **BSI** 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 **BSI** 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 **BSI** 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. 0086 CPR 760202**

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 only 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:

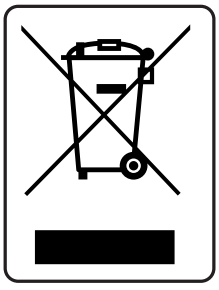
Jens Buus

Stoevring 27 September 2024, Jens Buus, Managing Director

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Specifications	SV 24V-xx Control Panels 24V-24A / SV 24V-32A 24V-8A-ds / 24V-24A-ds / 24V-30A-ds / 24V-32A-ds				SV 48V-xx Control Panels 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 ±15% / max. 1.5A ("ds" = max. 5A)				230VAC ±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	32A
Standby consumption	8.5W	12W	12W	12.1W	10.7W	18.7W	18.7W	18.1W
Max. load each motor output	4A / 16A				4A / 16A			
Operation temperture	-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 ≈ app. 2 x 22 = 44 detectors. Trigger point 15mA							
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	Possiblility 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)							
EMC Directive	(2014/30/EU), EN50130-4:2011							

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:
Actulux A/S
Porsborgparken 35
DK 9530 Stoevring
Denmark

Tel.: +45 98 57 40 90
e-mail: info@actulux.com
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