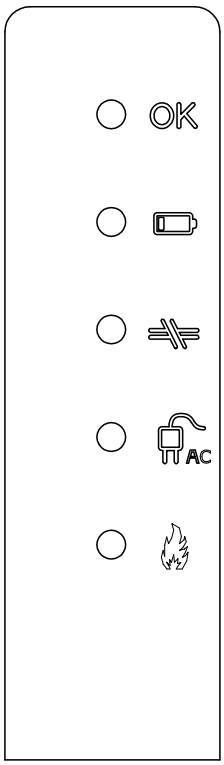
User manual and installation instruction Control Unit for Fire Ventilation

SV 24V-24A / SV 24V-32A
SV 48V-5A / SV 48V-24A / SV 48V-32A



Fire ventilation

Comfort ventilation

24VDC/48VDC max. 5A/24A/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:

220V power supply from group:

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Manufacturer:
Actulux A/S
Haadvaerkervej 2
DK 9560 Hadsund
Danmark

Tel.: +45 98 57 40 90
Fax: +45 96 15 28 00
e-mail: info@actulux.com
www.actulux.com

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:
24 volts DC motor supply, power capacity 24A and 32A respectively.

SV 48V-5A, SV 48V-24A, SV 48V-32A:
48 volts DC motor supply, power capacity 5A, 24A 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 back-up.
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.

By means of jumpers 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
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 32 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. 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 230V AC 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 flashes 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!

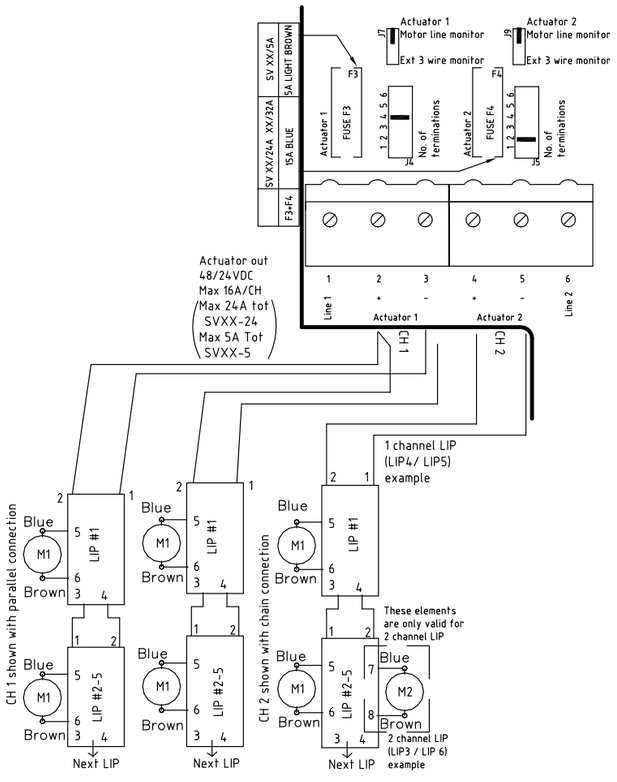
Connection to motor- (actuator-) outputs and line monitoring

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 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 different lines can be detected each terminated with a 27KΩ resistor.

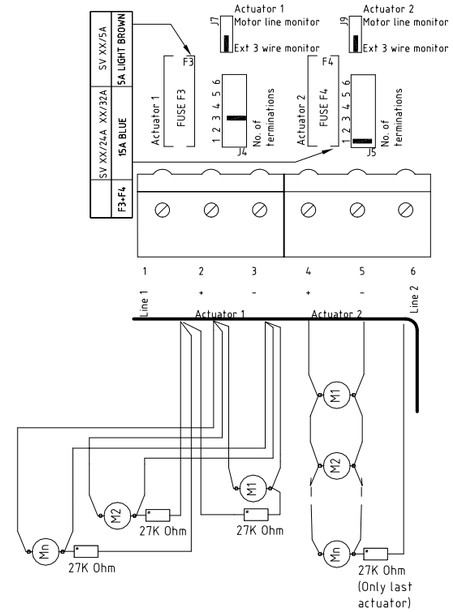
For SV 48V-5A the max. allowed current is 5A, e.g. 1 x 5A or 2 x 2.5A.



	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 48V-5A the max. allowed current is 5A, e.g. 1 x 5A or 2 x 2.5A.



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 48/24V DC 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 or LIP6) max. 5 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

Opening system	Not used	3A SA Power	4A SA Power	2,5 A Rotary 100
DIP 1	OFF	ON	OFF	ON
DIP 2	OFF	OFF	ON	ON

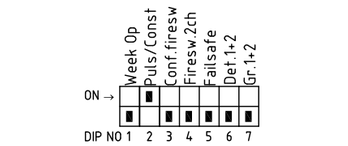
Type	Part no. board	Board description	Voltage and function	DIP 1	DIP2	DIP3	DIP4	DIP5	DIP6	DIP7	DIP8
LIP3	111305	A028	24 V 2 channels	See diagram above		OFF	ON	27K ON	M1-M2 delay =ON	OFF	Test OFF
LIP4	111315	A036	24 V 1 channel			27k ON	test OFF	Not mounted			
LIP3	111330	A040	24V 2 channels			OFF	ON	27K ON	M1-M2 delay =ON	OFF	Test OFF
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	Not mounted	

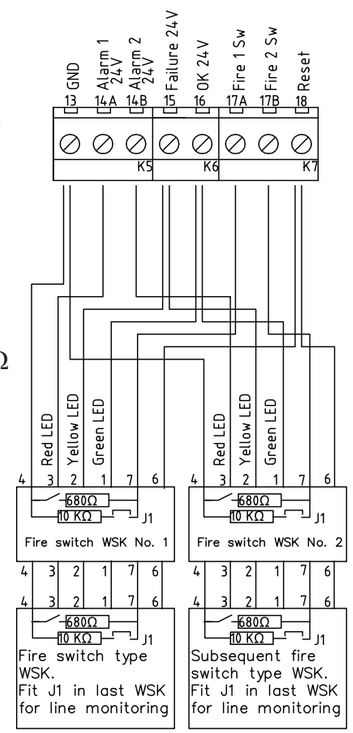
* SA Power Large - parallel operation: Jumper OPT mounted - both motors stop at the same time if one stops because of overload.

Operation and connection of fire switches (e.g. type WSK 320)

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 90 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.



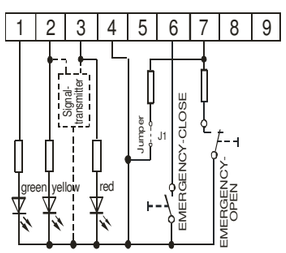


CONNECTION of the fire switch is made as shown on the drawing.
The installation with fire switches must be terminated with a 10KΩ or 27KΩ resistor in the last switch in order to establish the line monitoring correctly – this can either be done by moving the factory mounted resistor from the terminal strip to the last fire switch or connect **jumper J1** in the fire switch type WSK 320 is mounted (by this a 10KΩ 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 500-3KΩ, (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.

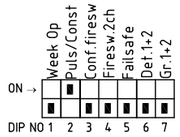
WSK 320

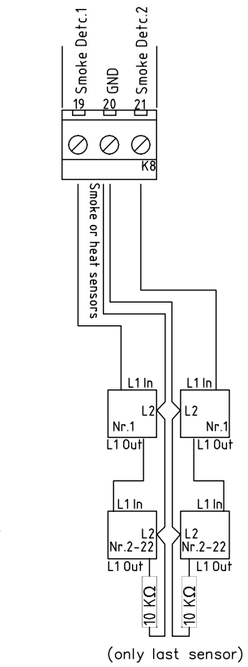
1 green LED OK (lights when OK and while closing)
2 yellow LED (lights on error)
3 red LED alarm (emergency opening)
4 ground (-)
5 not used
6 fire switch reset
7 fire switch emergency opening
Jumper J1 must only be set in the last or only fire switch



Connection of smoke-/heat detectors

Smoke- and heat detectors are connected as shown.
The installationen can be carried out as 2 loops Det.1 terminal 19 and 20 and Det. 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.
Det. 1 and 2 will hereafter automatically be devided, so that det. 1 follows fire switch 1 and det. 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.

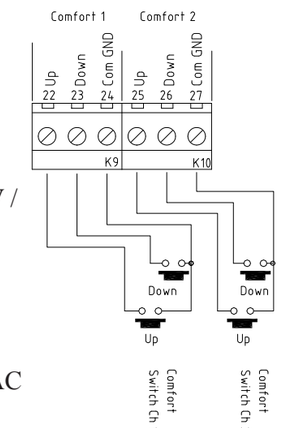




Comfort ventilation – Connection and settings

Each of the 2 motor outputs can be controlled separately with their own comfort switch.
For comfort ventilation there are the following possibilities:

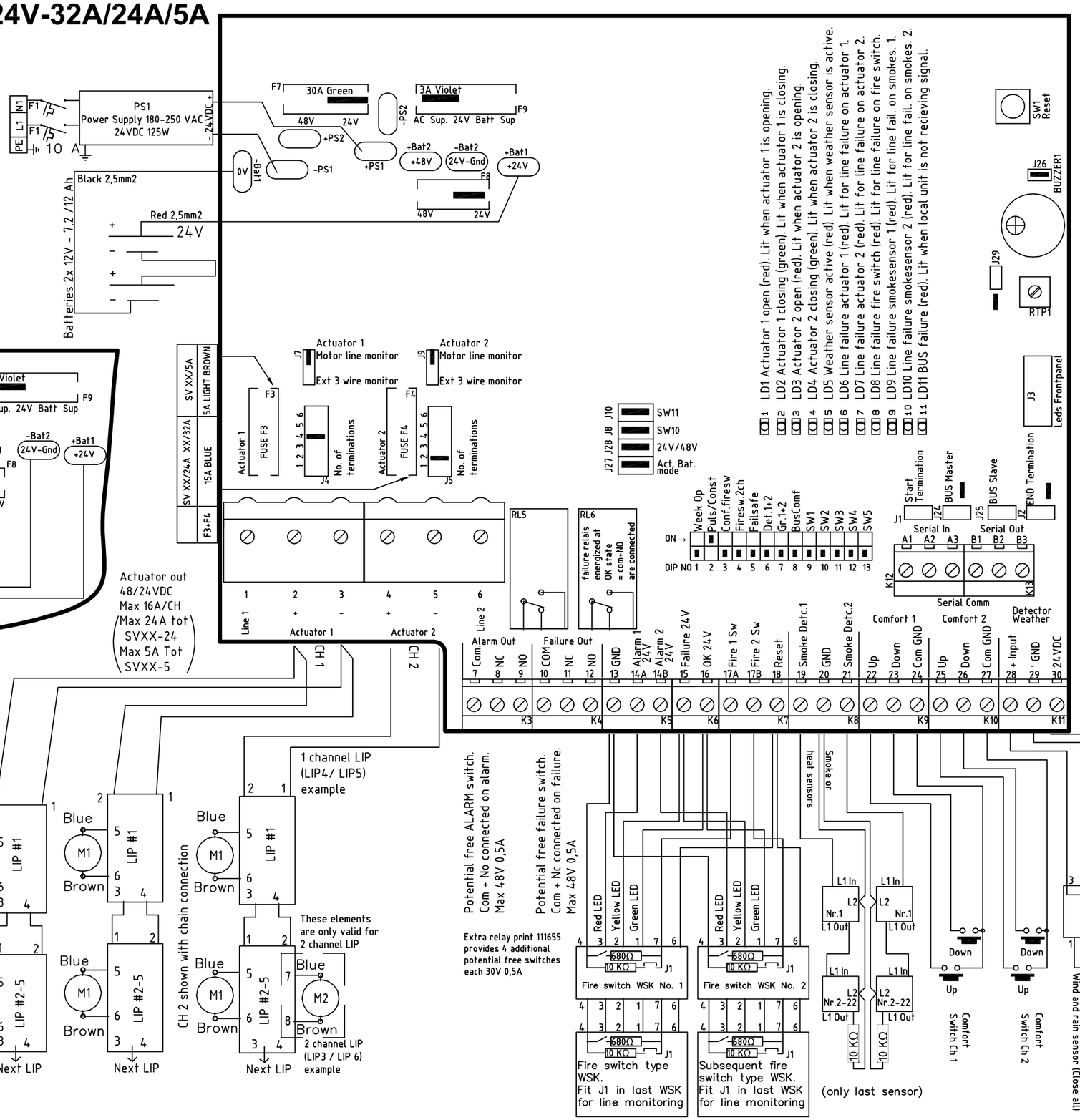
DIP 7 (Gr. 1 +2): On = 1 comfort switch controls both outputs.
DIP 2 (Puls/Const):
On = It is possible to press the »up« button 3 times, which each gives 6 seconds of opening time at 24V (3 seconds at 48V) – after that nothing happens.
Continuous »up« signal gives 3x6(3) sec.=18(9) sec. - One press on »down« closes the actuator completely for a period which is 6 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.



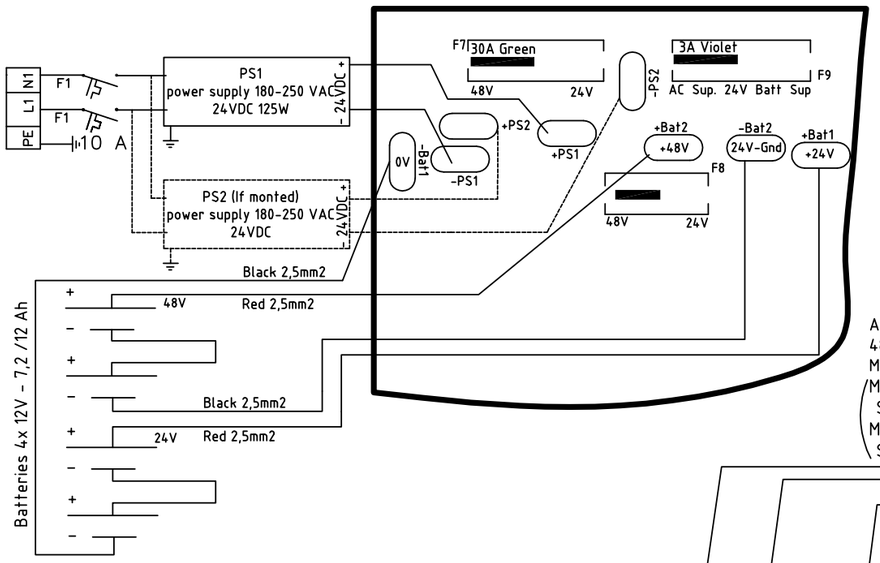
Indication about open or closed actuators:
111685 SV-control position indicator is a relay unit with 2 pcs. DPDT-contacts 230VAC 3A which indicates if the actuators are open or closed. Can only be used when DIP 2 puls/const is ON. The function can give information to burglar alarms, heat controls etc.,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

Control for Fire and Comfort ventilation Type SV 24V-24A/SV 24V-32A / SV 48V-5A/SV 48V-24A/SV 48V-32A

Connection
SV 24V-32A/24A/5A



Connection
SV 48V-32A/24A/5A



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

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 **flashes** by error message from other controls received by bus	LD12	Yes	Yes
Battery low	Yellow	**lights** by local battery error on this control **flashes** by error message from other controls received by bus	LD13	Yes	Only close
Linie fault	Yellow	**lights** by local error on this control **flashes** by error message from other controls received by bus	LD14	Yes	Only close
AC supply error	Yellow	**lights** by local error on this control **flashes** by error message from other controls received by bus	LD15	Yes	Only close
Alarm active	Red	**lights** red constantly	LD16	Yes	No
	All 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 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 / Fuse value	**24V**	**48V**
F7 30A green	2 pcs. 12V batteries = 24V	2 pcs. 12V batteries = 24V
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 (standard setting marked in **BOLD**)

Software version ≥ 0484

	Text on board	Factory mounted	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	BR 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-Spec. charge	no	Special Ke charging feature (must 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
J2 (Bus)		no		
J4 (Motor)	1 - 2 - 3 - 4 - 5 - 6	1	Connect according to number of 27KΩ termination resistors on actuator 1	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	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	
J8	SW10-Bus fire	no	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	
J10	SW11-Ser	yes	Active	**Inactive**
J24 (Bus)	Slave	no	Middle and last control unit in the bus network	See section concerning connection of control units in bus connection, page 14
J25 (Bus)	End term.	no	Last control unit in the bus network	
J26	BUZZER1	**yes**	**Acoustic alarm active**	Acoustic alarm deactivated
J27	Actu. batt. mode	yes no: double supply	Actuators are supplies by batteries	Actuators are supplied by 230/24V converter, batteries as backup
J28			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 = 90 sec. closing // Cut-off motor output and charging after 360 sec.

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

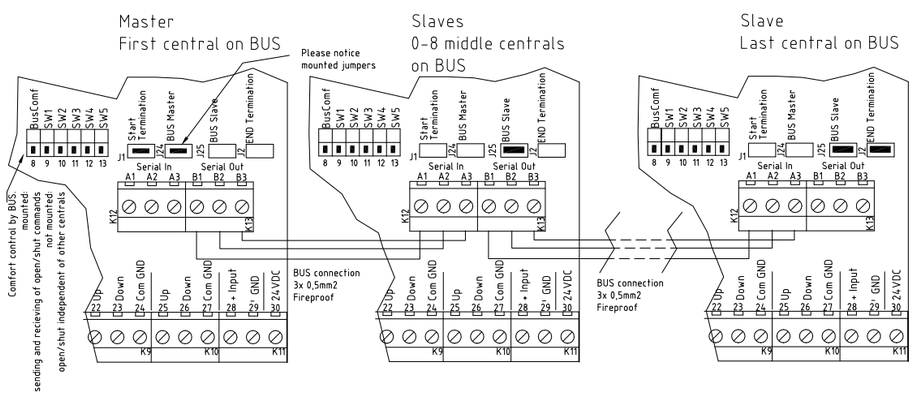
By means of a bus communication it is possible to make 2 – 10 SV control units to work as a complete system.
The SV control units communicate with each other via a 3 wire bus connection. This could e.g. be a 3x0.5 mm² fireproof cable according to standard IEC 60-31.
Terminal no. A1, A2, A3 are for the 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. 90 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, the bus function is not possible.

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.



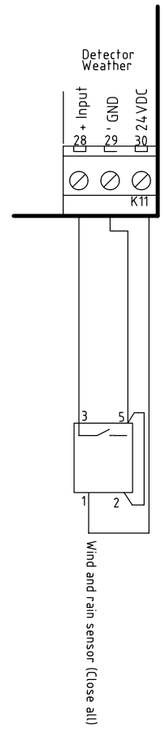
Connection of weather sensor / Close all function

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.



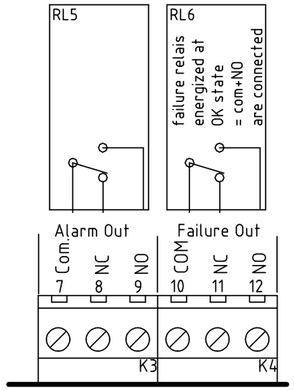
External signal transfer, connection to AFA systems and other control systems

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).

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



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 70-100° 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)
Fire switch 24V	Min. 6 x 0,5 mm²
Smoke detector 24V	Min. 2 x 0,5 mm²
Heat detector	Min. 2x0,5 mm²
Cable between RV control units (bus)	3 x 0,5 mm²

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	292 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

Reservedels nummer	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
211050	Power supply 125W 24VDC MW	Power supply 230VAC/24VDC
211210	Circuit breaker 10A	Automatic fuse 10A / input terminal
800248	Battery 12V/7,2AH 151x65x98mm	Battery for 24 / 5A controls
111622	Battery 12V 12AH 151x94x98	Battery for 32 A controls
111617	Fuse 15A spade (blue auto)	Blue 15A fuse for actuator outputs (F3, F4) SV xxV-32A/24A
911812	Fuse 5A light brown	Light brown 5A fuse for SV xxV-5A (F3,F4)
911813	Fuse 3A spade Violet aut	3A fuse violet F9 24V supply external system
111710	Fire switch/reset IP40 Actulu	Fire switch IP 40
111703	Replacement glass f WSK	Replacement glass for fire switch
111702	Tool/key fireswitch WCP111720	Key for fire switch for operation without breaking glass
111725	Fireswitch WSK in IP65 BOX	Fire switch built in IP65 box
111730	Wind and rain sensor 24VAC/DC	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 w housin	Switch Auto. man. OPUS white, activates room thermostat or weekly timer
111770	Room thermostat RTR w.resis.	Room thermostat for control of comfort ventilation
111655	Relay PCB extra 2Xoutp.in box	Board with 2x2 extra relay outputs 30V 0,5A
111681	Relay box coil 24VDC Contacts 3x230V shift	Relay box with 3x230V shift contacts
111685	SV-control position indicator	Relay unit with 2 pcs. DPDT-contacts 230VAC 3A which indicates if the actuators are open or closed. Can only be used when DIP2 puls/ const is mounted
111748	Transmitter module 1-cha. OPUS	Wireless remote control 1-channel sender module built in OPUS
111749	Receiver module 2-channels	2-channels receiver module 24V - built in control unit

Control for Fire and Comfort ventilation Type SV 24V-24A/SV 24V-32A / SV 48V-5A/SV 48V-24A/SV 48V-32A

Actulux

CE

DECLARATION OF CONFORMITY (UK)
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We, **Actulux A/S**
Haandvaerkervej 2
9560 Hadsund
Denmark

declare under our sole responsibility that the product:
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dichiara sotto la propria responsabilitá che il seguente prodotto:

SV 24-24, SV 24-32, SV 48-5, SV 48-24, SV 48-32

(name, type or model, lot, batch or serial number, possible sources and numbers of items)
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EN12101-10:2006
EN61000-6-2:2005 EN61000-6-4:2001
EN61000-3-2:2005 EN61000-3-3:1995

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following the provisions of Directive 73/23/EEC - 89/336/EEC and 93/68/EEC.
gemäss den Bestimmungen der Richtlinie 73/23/EEC - 89/336/EEC und 93/68/EEC.
i henhold til direktivets bestemmelser 73/23/EEC - 89/336/EEC og 93/68/EEC.
selon les stipulations des directives 73/23/EEC - 89/336/EEC et 93/68/EEC.
ed alle direttive 73/23/EEC - 89/336/EEC ed 93/68/EEC.

Hadsund 1 January 2011
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Jens Buus
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Technical specifications SV 24V-5A/SV 24V-24A / SV 48V-5A/ SV 48V-24A:

Power supply	: 230V AC - max. 1.5A
Power supply (double supply)	: SV 24V-24A: 230V AC - max. 5A SV 48V-5A: 230V AC - max. 3A SV 48V-24A: 230V AC - max. 10A
Operating temperature	: -5°C - +40°C
Density	: IP44
Dimensions WxHxD	: 343x450x178 mm
Weight incl. batteries	: 24V control units: 16 kgs / 48V control units: 22 kg
Battery back-up	: Incl.
Battery capacity	: 24V (2x12V) 7,2 AH / 48V (4x12V) 7,2 AH
Max. total load	: 5A / 24A
Max. load each motor	: 5A / 16A
Motor lines	: 2 pcs. (terminals 16mm²)
Fire switch groups	: 1 or 2 groups, external fire switches max. LED/buzzer consumption 35mA = max. 6 pcs. WSK fire switches
Comfort groups	: 1 or 2 groups, unlimited number of switches
Smoke- and heat detectors	: 2 lines max. 22 pcs. on each (totally 44 pcs.)
Wind- and rain sensor	: Input for close all
Serial connection of controls	: Bus connection integrates most functions - From 2 - 10 control units in the same bus connection/fire group
Alarm output	: Potential free SPDT change over max. 48V 0,5A
Fault output	: Potential free SPDT change over max. 48V 0,5A
Supply out	: 24VDC 0,5A ved 230VAC operation
Line surveillance	: Motor lines, fire switches, smoke detector inputs and bus connection
Visual indication (LED) in front panel	: OK, AC fault, DC fault, Line fault, Alarm

Technical specifications SV 24V-32A / 48V-32A:

Power supply	: 230V AC - max. 1.5A
Power supply (double supply)	: SV 24V-32A: 230V AC - max. 5A SV 48V-32A: 230V AC - max. 10A
Operating temperature	: -5°C - +40°C
Density	: IP44
Dimensions WxHxD	: 343x450x178 mm
Weight incl. batteries	: 24V control unit: 22 kgs / 48V control unit: 32 kgs
Battery back-up	: Incl.
Battery capacity	: 24V (2x12V) 12 AH / 48V (2x12V) 7,2 AH + (2x12V) 12AH
Max. total load	: 32A
Max. load each motor line	: 16A
Motor lines	: 2 pcs. (terminals 16mm²)
Fire switch groups	: 1 or 2 groups, external fire switches max. LED/buzzer consumption 35mA = max. 6 pcs. WSK fire switches
Comfort groups	: 1 or 2 groups, unlimited number of switches
Smoke- and heat detectors	: 2 lines max. 22 pcs. on each (totally 44 pcs.)
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Fault output	: Potential free SPDT change over max. 48V 0,5A
Supply out	: 24VDC 0,5A ved 230VAC operation
Line surveillance	: Motor lines, fire switches, smoke detector inputs and bus connection
Visual indication (LED) in front panel	: OK, AC fault, DC fault, Line fault, Alarm

Manufacturer:

Actulux A/S
Håndværkervej 2
DK 9560 Hadsund
Denmark

Tel.: +45 98 57 40 90
Fax: +45 96 15 28 00
e-mail: info@actulux.com
www.actulux.com