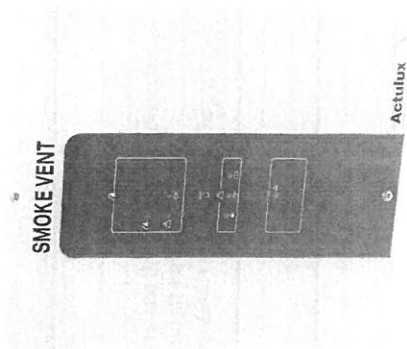


# User manual and installation instruction Control Panel for Fire Ventilation

SVM 24V-5A / SVM 24V-8A



## Fire ventilation

## Comfort ventilation

24VDC max. 5A/8A

1 fire ventilation group, 1 comfort group

Connection for manual control points, wind- and rain sensor, comfort switches, smoke detectors  
Possibility for bus connection of 35 control panels

## Address of installation

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Phone no.: \_\_\_\_\_

Contact person: \_\_\_\_\_

Date of installation: \_\_\_\_\_

## Installation

Number of control panels and type (ex. SVM 24V-5A): \_\_\_\_\_

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: \_\_\_\_\_

## Table of contents

Address of installation / Description of installation .....	2
General description .....	4
Safety rules during installation and operation .....	5
Explosion danger .....	5
Installation .....	5
Yearly legal requirement of maintenance and control .....	5
Connection to motor- (actuator) outputs and line monitoring .....	6
Current limiter type LIP .....	7
Operation and connection of fire switches .....	8
Connection of smoke-/heat detectors .....	9
Comfort ventilation - connection and settings .....	9
<b>Diagram control panel and connections .....</b>	<b>10-11</b>
External LEDs on the front panel (LED board) .....	12
Internal LED indication on the main board .....	12
Fuse specifications .....	12
Complete jumper settings .....	13
Connection of more control panels to one fire group (bus connection) .....	14
Connection of weather sensor / Close all function .....	15
External signal transfer, connection of AFA systems and other systems .....	15
Special functions .....	16
Cable sizes .....	16-17
Part nos. and accessories .....	18
CE Declaration of conformity .....	19
Technical specifications .....	20

Rev 0.02 17-02-2015

## Manufacturer:

Actulux A/S  
 Håndværkervej 2  
 9560 Hadsund  
 Denmark  
 Tlf.: +45 98 57 40 90  
 Fax: +45 96 15 28 00  
 e-mail: info@actulux.com  
 www.actulux.com

## General description

The control panel can be used for electrical opening of e.g. sky/lights, smoke hatches or similar in connection with fire- and comfort ventilation.

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

The control panel has built-in 72 hours battery back-up.

By a unique bus system consisting of 3 wire cable the control panels can be mutually connected so that up to 35 control panels can be connected and operate as an integrated system.

If the temperature exceeds 75°C, the control panel will enter AL-ARM condition.

Connection of cables to the in- and outputs of the control panel 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 control panel 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 control panel:

### Type:

SA Power Single  
SA Power Double  
SA Power Large  
SA Power Mini  
Rotary 100  
Others

### 24V power supply:

4A  
8A (2x4A)  
8A  
2.5A  
2.5A

See specification of max. power consumption on the opening system

## Safety rules during installation and operation

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

### Explosion danger

The control panel 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 control panel can weigh up to 7 kg and must be installed on a stable wall. The mounting holes for wall mounting are placed on the metal plate underneath the plastic lid.

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 control panel is 24V and that the max. voltage drop is 15% which demands correct cable dimension according to table on page 17.

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 control panel 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 line.

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

### Yearly requirement of maintenance and control (authorized)

The functions of the control panel and the opening system must be tested by authorized personnel at least once a year. The control panel informs when the maintenance should be done. The external LEDs on the front panel flashes fast. The control panel 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-) output and line monitoring

The actuators (motors) must be connected to the actuator output on the output terminals 2-3. It is possible to connect and disconnect the line monitoring on the actuator output (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.

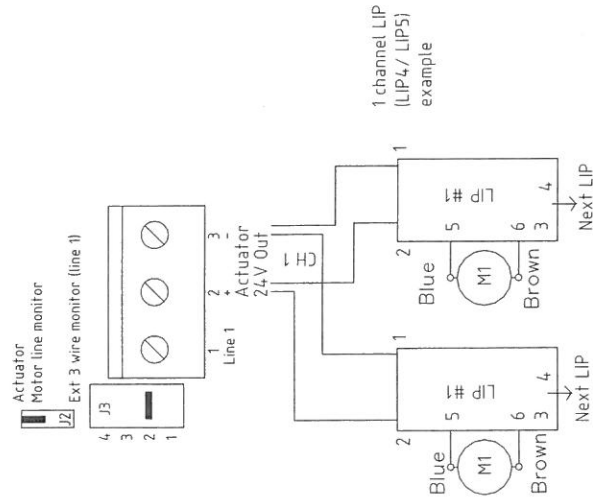
### Cable monitoring (line monitoring) on the motor output

The control is equipped with 3 possible settings for cable monitoring (line monitoring), which can be configured by means of jumper J2.

#### Jumper J2 mounted in pos. »Motor lines«

Line monitoring between terminal 2-3. Jumper J3 (actuator output) is set according to the number of termination resistors (27KΩ) to be detected - 1 to max. 4 lines can be detected by moving jumper J3 - this means that the cable installation between the control panel 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. 4 different lines can be detected each terminated with a 27KΩ resistor.

For SVM 24V-5A the max. allowed current is 5A, For SVM 24V-8A it is 8A.



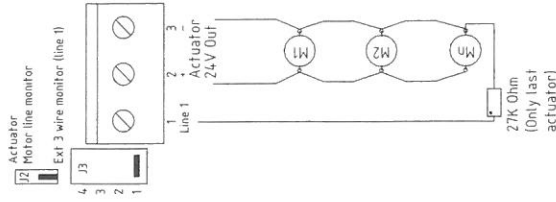
Jumper description
J3 Number of connected 27Kohm terminal resistors for actuator output
J2 Chooses line monitoring through motor terminals 2-3 (Mot Mon) or separate wire terminals 1-3 (Ext Li Mon), or no line monitoring when J2/J3 is removed
F1 Fuse 8A for actuator output

#### Jumper J2 in pos. »Ext 3 wire«.

Line monitoring between terminal 1-3: With jumper J3 (actuator output) 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 J2/J3 is not mounted - No line monitoring for actuator output.



## 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 24V/48V 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: 24V/48V		3A/1,5A SA Power Single, Double, Large		4A/2A SA Power Single, Double, Large		2.5A/1,25 SA Power Mini		2.5A/1,25A Rotary 100	
DIP 1	DIP 2	ON	OFF	ON	OFF	ON	ON	ON	ON
Type	Part no. board	Board description	Voltage and function	DIP 1	DIP 2	DIP 3	DIP 4	DIP 5	DIP 6
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	121301	LIP7	24/48V 1 channel			27K ON			Not mounted
LIP7	121303	LIP7	24/48V 1 channel w/position indication		See diagram above	27K ON			Not mounted
LIP7	121302-4	LIP7	24/48V 1 channel Syncro			27K ON			OFF = Slave ON = Master

\* 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 = Syncro mode - both motors stop at the same time if no current flows in one. (1.5 sec. reaction time)

## Operation and connection of Manual Control Points

The Manual Control Point will generally contain the following:

- Breakable glass window and red control button is activated by pressure - this puts the control panel in ALARM condition, by which the motor output is activated (for normal service and testing the lid can be opened with a key).
- RESET button which brings the control panel 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 control panel is in ALARM condition and that the motor output either is or has 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 $\Omega$  or 27K $\Omega$  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 $\Omega$  resistor is also connected).

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

### DIP 1 (Conf. fire sw.):

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

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

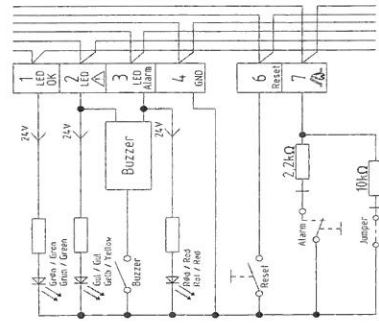
### DIP 2 (Failsafe):

On = Any line error on fire switch or smoke detector puts the control panel 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 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.

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

### Comfort ventilation – Connection and settings

The motor output can be controlled separately with a comfort switch.

For comfort ventilation there are the following possibilities:

#### Potentiometer in Puls pos.:

It is possible to press the »up« button 3 times, which each gives 6 seconds of opening time - after that nothing happens - Continuous »up« signal gives 3x6 sec.=18 sec. - One press on »down« closes the actuator completely for a period which is the double of the complete opening time - In order to avoid »actuator pumping« max. 3 successive closing attempts will be allowed.

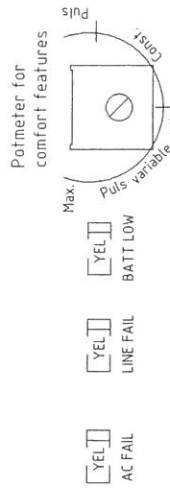
#### Potentiometer in Const. pos.:

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

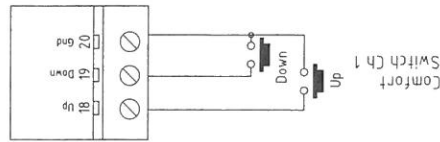
#### Potentiometer in Puls variable pos.:

The time on the above mentioned pulse opening can be adjusted from 0-60 sec. on the potentiometer.

When moving the potentiometer into the different positions the LED batt low will flash for about 4 sec. to indicate when in puls mode. LED line fail flashes 4 sec. when in constant and AC fail flashes when in puls variable.

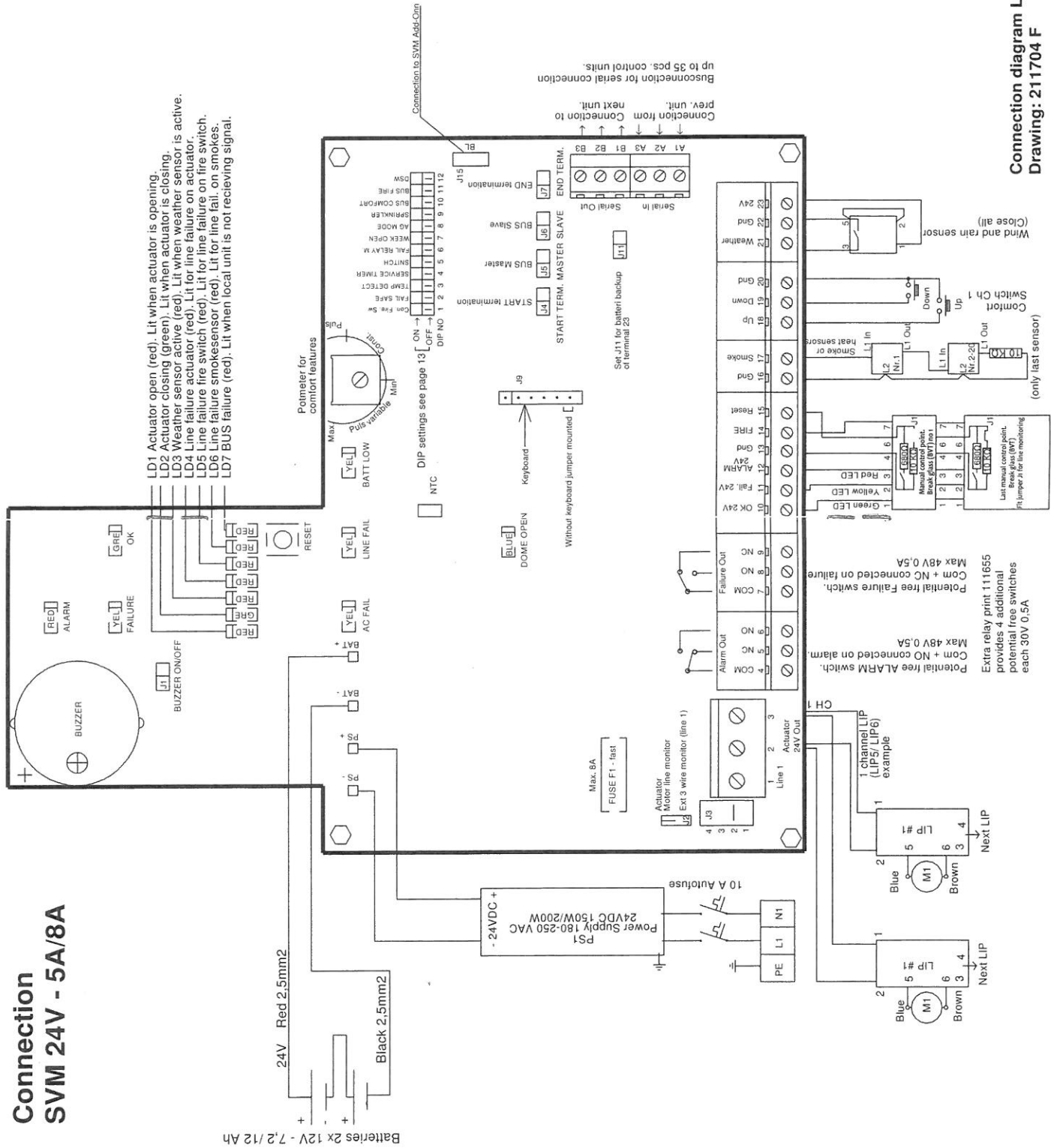


only last sensor)



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

# Connection SVM 24V - 5A/8A



## LEDs on main board and front panel

LED/colour	Symbol	Operation possibilities for:	Alarm/ fire	Comfort operation
LD1/red		Actuator open (red). Lights when actuator opens		
LD2/green		Actuator close (green). Lights when actuator closes		
LD3/red		Weather sensor active (red). Lights when weather sensor is active	Yes	No
LD4/red		Line error on actuator (red). Lights when actuator has line error	Yes	Only close
LD5/red		Line error on fire switch (red). Lights when fire switch has line error	Yes	Only close
LD6/red		Line error on smoke detector (red). Lights when smoke detector has line error	Yes	Only close
LD7/red		Bus error (red). Lights when BUS signal from other controls is missing. Only relevant if J24 or J25 is mounted.	Yes	Only close
Green Board + Front	OK	lights if everything is ok switched off by local error on this control flashes by error message from other controls received by bus	Yes	Yes
Yellow Board + Front		<b>Fault lights</b> by local error on this control or by error message from other controls received by bus	Yes	Only close
**Yellow Board + Front		<b>Line error flashes</b> by local error on this control or by error message from other controls received by bus	Yes	Only close
**Yellow Board + Front		<b>AC error flashes</b> by local error on this control or by error message from other controls received by bus	Yes	Only close
Red Board + Front		<b>Alarm lights</b> red constantly	Yes	No
*Yellow Board + Front		<b>DC error flashes</b> by local battery error on this control or by error message from other controls received by bus		
Blue Board + Front		Lights blue constantly in open condition (when windows are open)		
Lights with*		Time for yearly service - please call for supplier (Running light)	Yes	Yes

## Fuse specifications

Placement	24V
Fuse value	
F1 8A fast acting fuse	1 pc. for 24V motor output

## Complete jumper settings

	Text on board	Factory mounted	Mounted / ON function	Dismounted / OFF function
DIP 1	Conf. Fireswitch	No	Fire switch active from 500-3KΩ	Fire switch active from 0-3KΩ
DIP 2	Failsafe	No	Line error on fire switch or detector puts the control in alarm	Normal mode
DIP 3	Temp. Detekt	No	Line error on motor line (upper resistor area) = alarm	Normal mode
DIP 4	Ser	Yes	Active	Inactive
DIP 5	Switch	No	LED's "remember" errors (line errors, AC/Batt. error, bus error). The LED's can only be switched off/reset again by setting dip switch off	Normal mode
DIP 6	Fail Relay	No	Failure relay works as indication that skylight is open	Normal mode (works as failure relay)
DIP 7	Week open	No	Weekly open (2 sec.) / close (5 sec.) cycle activated	Weekly open/close not activated
DIP 8	AG Mode special	No	Special "Fire close" button enabled	Normal mode
DIP 9	Sprinkler	No	Motor output closes by active detector (opens by activating the fire switch)	Normal mode - motor output opens by active detectors or fire switches
DIP 10	Bus comfort	No	The control reacts on comfort signal via bus activity	The control does not react on comfort signals via bus activity // NB! Always reaction on weather signal and failures via bus activity and own comfort signal
DIP 11	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)
DIP 12	BR Mode special	No	Special fire switch/alarm mode and conf. active at all failures	Normal mode
J3 (motor)	1 - 2 - 3 - 4	Pos. 1	Connect according to number of 27KΩ terminal resistors on actuator	No line monitoring
J2 (motor)	Mot Mon act.	Yes	2 wire line monitoring via 27KΩ terminal 2-3	No line monitoring
J4(Bus)	Start term.	No	3 wire line monitoring with direct motor connection actuator	
J5(Bus) + Master		No	First control panel in the bus network	See section concerning connection of controls panels in bus connection, page 14
J6(Bus)	Slave	No	Middle and last control panel in the bus network	
J7(Bus)	End term.	No	Last control panel in the bus network	
J9	FOIL	Yes in Basic	Line monitoring of front cabinet	Line error flashes
J11	BatSup->023	No	Battery backup of terminal 23	Terminal 23 only AC supplied

Others: Reset time = 180 sec. closing // Cut-off motor output and loading after 360 sec. // Comf. var (potentiometer): 1-60 sec.

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

By means of a bus communication it is possible to make 2 – 35 control panels to work as a complete system. The control panels communicate with each other via a 3 wire bus connection. This could e.g. be a 3x0.5 mm<sup>2</sup> fireproof cable.

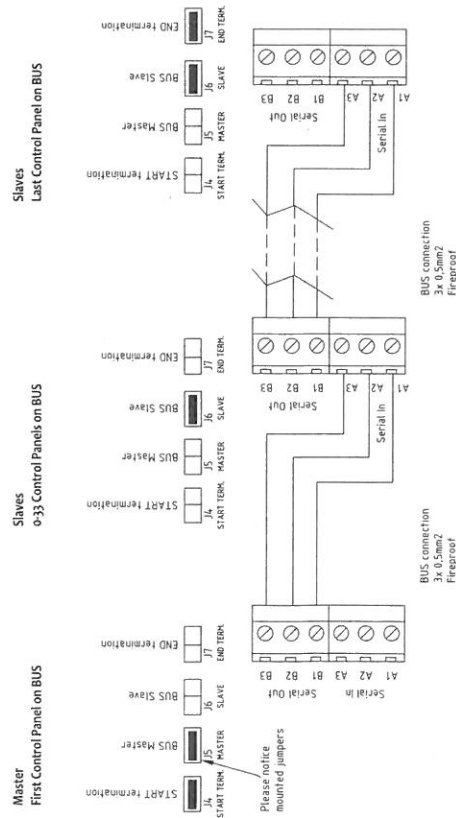
Terminal no. A1, A2, A3 are for the incoming connection and B1, B2, B3 for the outgoing connection. In the first control panel start Bus J4 has to be on. This control is Master and J5 must therefore also be on. The bus cable is connected on the output terminals B1, B2, B3 and lead to the next control panel which is a slave, J6 must therefore be on. The cable is connected to the input terminals A1, A2, A3 of the next control panel and further to the next slave control panel from terminal B1, B2, B3. In the last slave control panel J7 and J6 must be on in order to terminate the bus connection.

**ALARM:** Alarms from Manuel Control Point smoke-/heat detectors are controlled locally. When DIP11 is set the panel will go into alarm state if another control panel connected on the BUS enters alarm state  
**RESET:** If the reset button on one control or in one fire switch is activated, the reset function on all connected controls is activated and starts the closing function on all motor output in approx. 180 sec.  
**COMFORT:** The comfort control can work locally on each control panel. When DIP 10 is set the control panel will react on any comfort signal send on the bus from another control panel.  
 If a wind- and rain sensor is connected, it will work on all control panels on the bus no matter dip settings.

## Function description for control panels connected with bus connection

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

- A detected bus error makes the LED LD7 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 control panels in the network goes into alarm condition, all go into alarm condition.
- If one of the control panels goes into a certain error condition (line error, AC error, battery error or bus error), the other control panels also go into error condition – the type of the error is indicated on the board of the front plate of all control panels – on the control panel(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 control panel(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 control panel.

The weather sensor is adjusted according to the instructions.

Actuators should be closed when the wind is above 6 m/s. LED LD3 on the main board indicates 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 the bus connection.

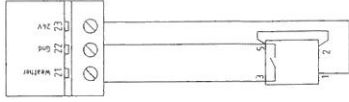
On the input to weather station a weekly timer can be connected which makes sure that everything is closed, e.g. by end of a working day.

Power Supply to terminal 22 and 23 is only AC supplied as standard.

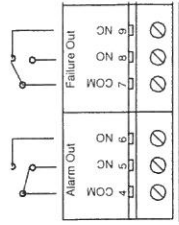
If battery backup is needed, then mount J11.

This is only possible at PCB V5 and following versions.

NOTE: Be aware of standby time due to current consumption.



Wind and rain sensor  
(Close all)



Potential free ALARM switch.  
Com + NO connected on alarm.  
Max 48V 0,5A

Potential free Failure switch.  
Com + NC connected on failure.  
Max 48V 0,5A

Extra relay print 111655 provides 4 additional potential free switches each 30V 0.5A

## External signal output, connection to Fire Alarm Panel and other control systems

The control panel can forward alarm condition to external connected systems by means of potential free contacts on the terminals 4 (com), 5(NC) and 6(NO).

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

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

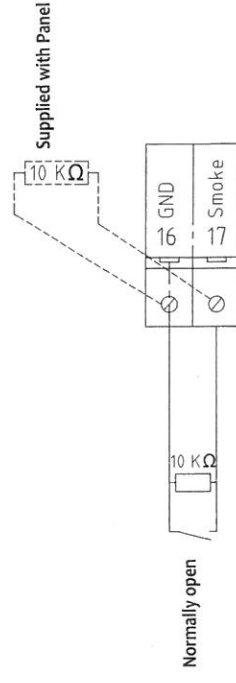
## DIP6 (fail relay):

On = Fail relay changes function to indicate open/closed window.

## 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 16 and 17.

– 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, the actuator output closes, if smoke-/heat detector input is activated.  
If the fire switch is activated, the actuator output opens.

### Weekly open/close:

**DIP 7 On** - the motor output opens shortly (3 seconds) once a week and closes 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 3 On** - a heat detector 70-100° can be mounted in each LIP. If the temperatur is exceeded, the control panel goes into alarm and the opening system is opening.

### Special mode:

**DIP 12 On** - possible to use comfort switch also during line fault, low batt., no AC, Alarm only as long as fire input is active or detector is activated.

## 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 24V	2 wires, see diagramme (3 wires by external line surveillance)
Fire switch 24V	Min. 6 x 0,5 mm <sup>2</sup>
Smoke detector 24V	Min. 2 x 0,5 mm <sup>2</sup>
Heat detector	Min. 2 x 0,5 mm <sup>2</sup>
Cable between control panels (bus)	3 x 0,5 mm <sup>2</sup>

Normal cables can be used for the following functions:

Supply for control 230VAC	e.g. 3 x 1,5 mm <sup>2</sup> PVIK-J
Comfort ventilation button 24V	Min. 3 x 0,5 mm <sup>2</sup>
Wind- and rain sensor 24V	Min. 4 x 0,5 mm <sup>2</sup>

**Table for SVM 24V-5A/8A allowed voltage drop 15% = 3,6V**

Power consumption per group in ampere	Cable cross section and amount of cores							
	2x1,5 mm <sup>2</sup>	2x2,5 mm <sup>2</sup>	4x1,5 mm <sup>2</sup> (2x1,5+2x1,5)	4x2,5 mm <sup>2</sup> (2x2,5+2x2,5)	2x6 mm <sup>2</sup>	5x2,5 mm <sup>2</sup> (2x2,5+3x2,5)	2x10 mm <sup>2</sup>	
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	

**Part nos. and accessories**

Spare parts no.	Name of part	Description
121620	Control PCB	Main board
211060	Power supply 150W 27VDC MW	Power supply 230VAC/27VDC for 5A control
211070	Power supply 200W 27VDC MW	Power supply 230VAC/27VDC for 8A control
211210	Circuit breaker 10A	Automatic fuse 10A / input terminal
800248	Batteri 12V/7,2AH 151x65x98mm	Battery for 24A / 5A controls / 8A controls
111789	Fire switch/reset IP40 Actulux	Fire switch IP 40
111703	Replacement glass FWSK/BVT	Replacement glass for fire switch
111702	Tool/key fireswitch WCP111720	Key for fire switch for operation without breaking glass
111725	Fireswitch WSK/BVT 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 degree	Heat detector 75 degrees temperature activation
111741	Heat detector+base 90 degree	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