



## **CONTROL UNITS**

### **VEHICLE EXHAUST GASES**

**Fumex's control units offers a good working environment, adapted to all types of facilities. The right choice of control units is energy-saving and provides the lowest possible noise levels.**

Control automation encompasses specially adapted and proven components, as well as recommendations for appropriate system selections. In the installation examples on pages 2 through 5, there are suggestions for various solutions to help finding systems to comply with most needs. Exhaust extraction products are presented in various system solutions in the examples.

For control of local extractors installations, see the control automation for local extractors.

For help with installation or to calculate energy savings, please contact Fumex.



*Fumex also offers a range of local extractors, fans, accessories, and filters*

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## **VEHICLE EXHAUST GASES**

**Pure advantages**

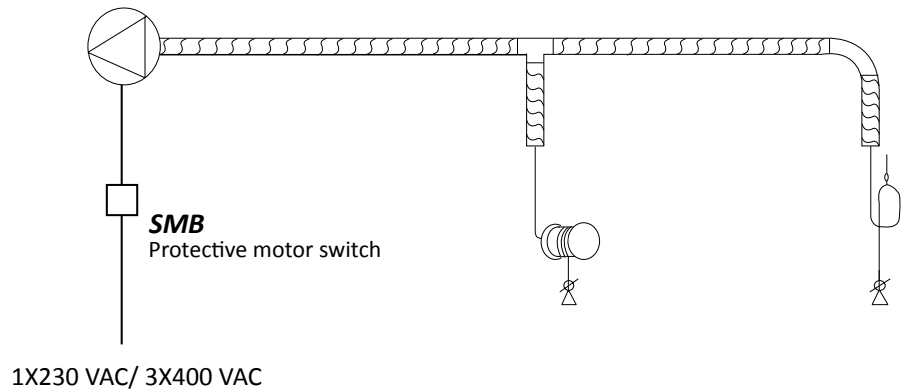
## Start and stop of fan, with or without speed control

### System 1:11

#### Manual start and stop of fan

The fan is started and stopped manually with protective motor switch SMB.

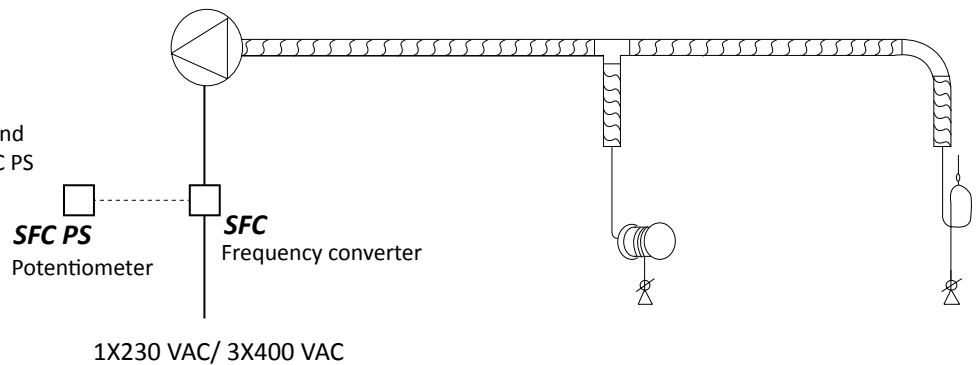
The protective motor switch has termic magnetic release and a phase failure protection.



### System 1:12

#### Manual speed control of fan that is started and stopped with the potentiometer.

The fan's speed is regulated manually and start/stopped as necessary with the SFC PS potentiometer.

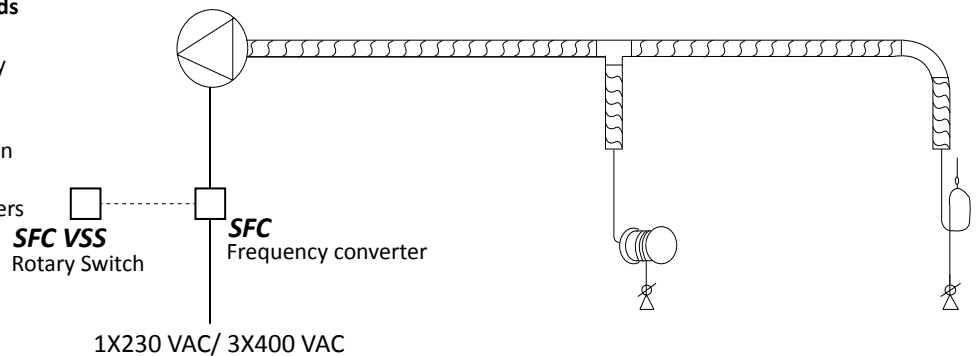


### System 1:13

#### Manual start and stop of fan two speeds

The fan is started and stopped manually with the rotary switch SFC VSS.

With the rotary switch the fan speed can be switched between 2 preset speeds programmed on the frequency converters display.

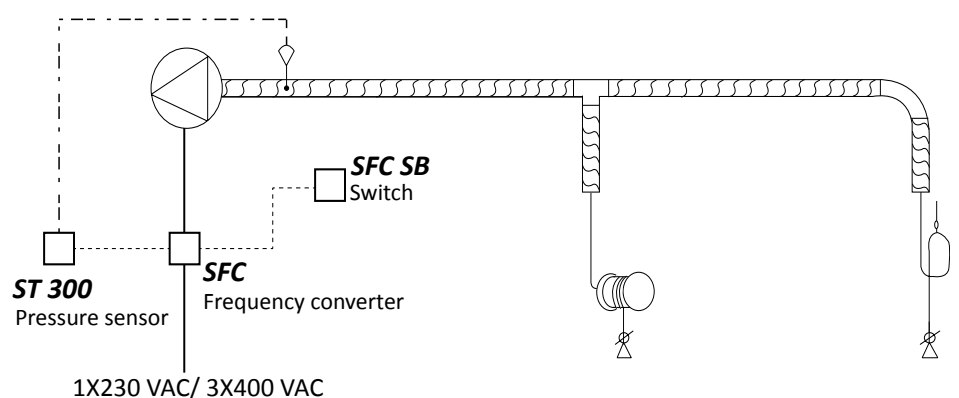


### System 1:14

#### Manual start and stop of fan as well as demand control of fan speed.

The fan is started and stopped manually with the switch SFC SB.

The frequency converter maintains the negative pressure in the collecting duct using the pressure sensor.



————— 1x230/ 3x400 VAC  
 - - - - - Signal cable  
 - - - - - Slang

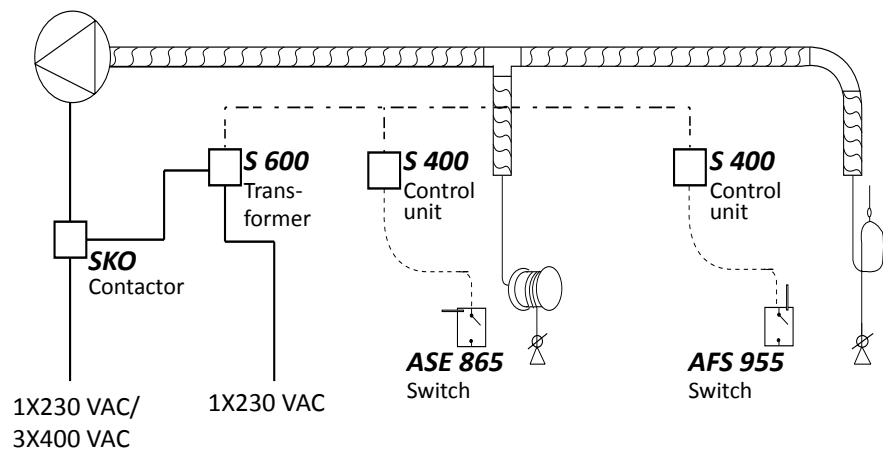
## Start and stop of fan with contactor. Automatic control, with time delay.

### System 2:11

#### Automatic start and stop of fan.

Automatic start and stop with a switch placed on the hose reel or balancing block.

Control unit S 400 is equipped with an adjustable time delay of 0-15 minutes.



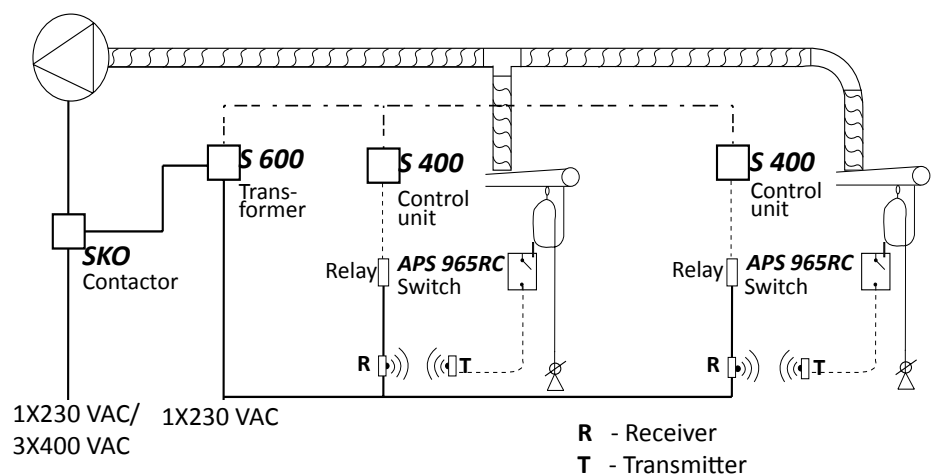
## Automatic control, radio transmitted with a time delay.

### System 2:12

#### Automatic start and stop of fan.

Automatic start and stop with a radio switch placed on the balancing block.

Control unit S400 is equipped with an adjustable time delay 0-15 minutes.



————— 1x230/ 3x400 VAC  
 ..... Signal cable  
 - - - - - Slang

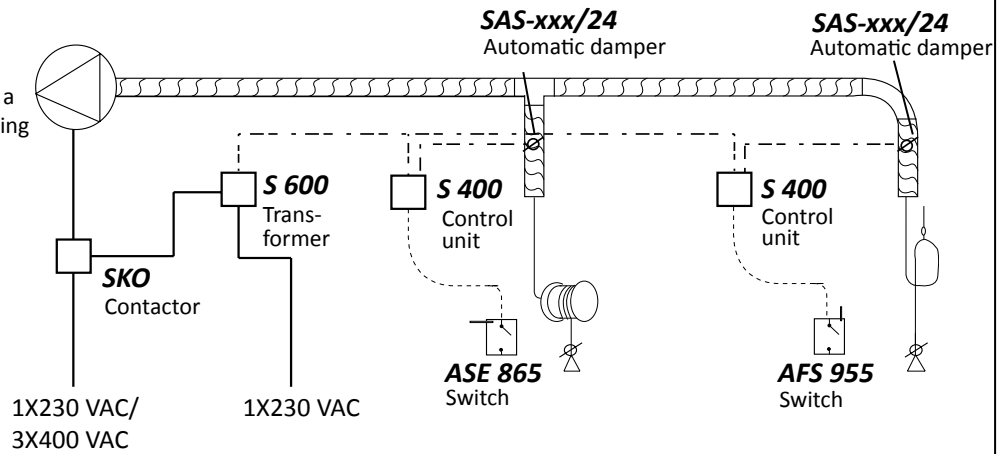
**Individual damper control, start and stop of fan through a contactor.  
Automatic control of fan and damper, with time delay.**

**System 3:11**

Automatic start and stop of fan.

Start and stop of fan as well as opening and closing of damper is automatic with a switch placed on the hose reel or balancing block.

Control unit S 400 is equipped with an adjustable time delay 0 - 15 minutes.



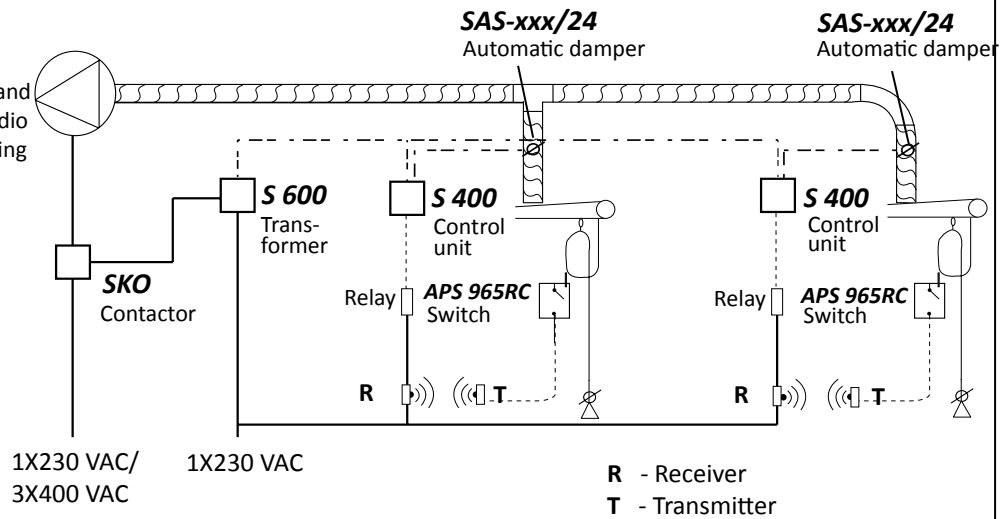
**Automatic control of fan and damper, radio transmitter with time delay.**

**System 3:12**

Automatic start and stop of fan.

Start and stop of fan as well as opening and closing of damper is automatic with a radio transmitted switch placed on the balancing block.

Control unit S 400 is equipped with an adjustable time delay 0 - 15 minutes.



R - Receiver  
T - Transmitter

## Individual damper control and control of the fan through a pressure sensor and frequency converter. Automatic control of the frequency converter and damper, with time delay.

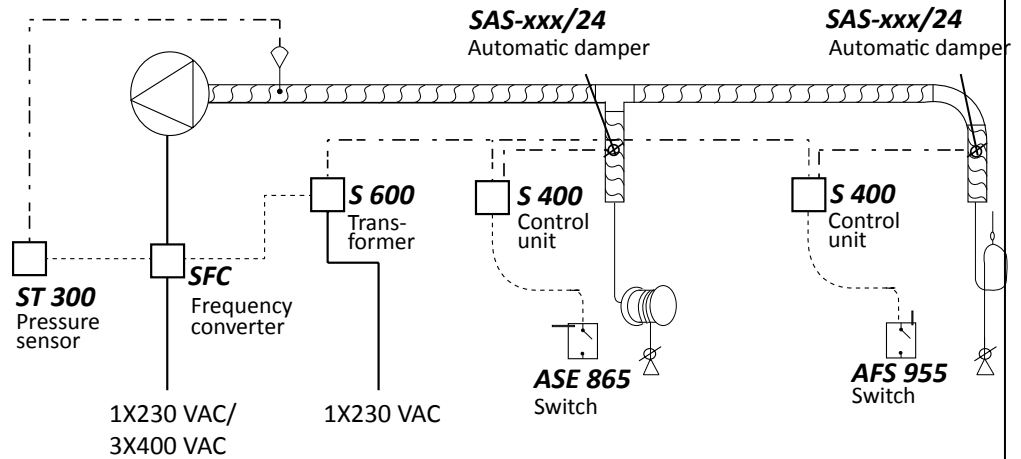
### System 4:11

#### Automatic start and stop of fan.

Start and stop of fan as well as opening and closing of dampers is automatic with a switch placed on the hose reel or balancing block.

The frequency converter maintains a constant negative pressure in the main duct via the pressure sensor.

Control unit S 400 is equipped with an adjustable time delay 0 - 15 minutes.



## Automatic control of frequency converters and damper, radio transmitter with time delay

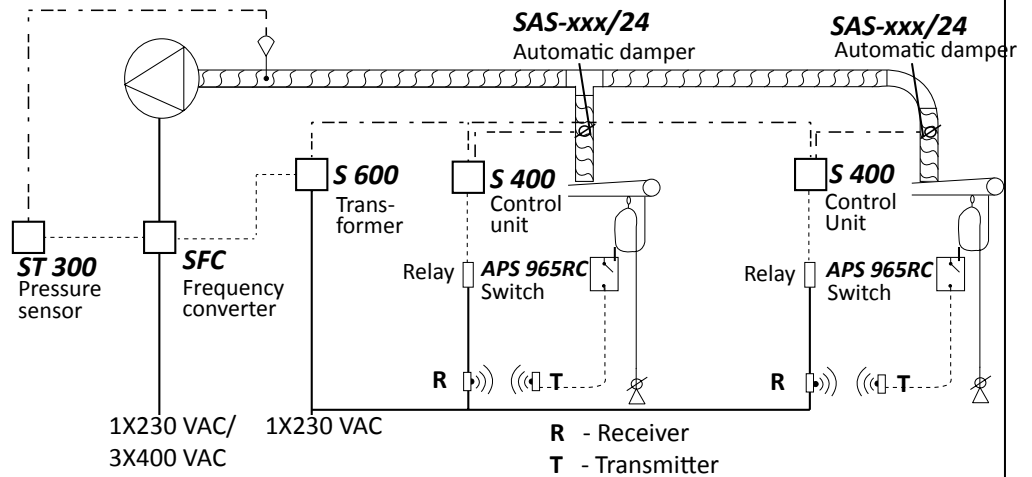
### System 4:12

#### Automatic start and stop of fan

Start and stop of fan as well as opening and closing of damper is automatic with a radio transmitted switch placed on the balancing block.

The frequency converter maintains a constant negative pressure in the main duct via the pressure sensor.

Control unit S 400 is equipped with an adjustable time delay 0 - 15 minutes.





### FREQUENCY CONVERTER Designed for process ventilation

The SFC frequency converter is designed for variable speed control of e.g. fans. This provides optimal operating economy and the lowest possible noise level. Depending on the number of work stations in operation, the SFC (along with the ST 300 pressure sensor) varies the fan speed and thus evacuates the correct amount of air. Alternatively, manual variable control can be used with the SFC PS potentiometer. The SFC VSS is used if a 2-step control is preferred. Interference filters are included. The enclosure class is IP 20 for built-in applications, alternatively IP 66 for dust- and water protection. Fumex can supply SFC PROG pre-programmed frequency converters to make it easier to put systems in operation.

*For alternative voltages, etc., please contact Fumex.*

#### ENCLOSURE CLASS IP 20

Designation	Rated power kW	Rated current A	Input voltage V		Output voltage V
			1-phase	3-phase	3-phase
SFC 037/20-1	0,37	3,3	230		230
SFC 037/20-3	0,37	1,5		400	400
SFC 055/20-1	0,55	3,7	230		230
SFC 055/20-3	0,55	1,9		400	400
SFC 075/20-1	0,75	4,8	230		230
SFC 075/20-3	0,75	2,3		400	400
SFC 110/20-1	1,1	6,9	230		230
SFC 110/20-3	1,1	3		400	400
SFC 150/20-1	1,5	8	230		230
SFC 150/20-3	1,5	4,1		400	400
SFC 220/20-1	2,2	11	230		230
SFC 220/20-3	2,2	5,5		400	400
SFC 400/20-3	4	9,5		400	400
SFC 750/20-3	7,5	17		400	400

#### ENCLOSURE CLASS IP 66

Designation	Rated power kW	Rated current A	Input voltage V		Output voltage V
			1-phase	3-phase	3-phase
SFC 037/66-1	0,37	3,3	230		230
SFC 037/66-3	0,37	1,5		400	400
SFC 055/66-1	0,55	3,7	230		230
SFC 055/66-3	0,55	1,9		400	400
SFC 075/66-1	0,75	4,8	230		230
SFC 075/66-3	0,75	2,3		400	400
SFC 110/66-1	1,1	6,9	230		230
SFC 110/66-3	1,1	3		400	400
SFC 150/66-1	1,5	8	230		230
SFC 150/66-3	1,5	4,1		400	400
SFC 220/66-1	2,2	11	230		230
SFC 220/66-3	2,2	5,5		400	400
SFC 400/66-3	4	9,5		400	400
SFC 750/66-3	7,5	17		400	400

**SFC PS/VSS/SB****SFC PS****SFC VSS****SFC SB****SFC PS POTENTIOMETER**

The SFC PS is a potentiometer for a variable regulation of fan speed via frequency converters.

**Dimensions** 100x100x67 mm  
**Resistance** 10 k $\Omega$

**SFC VSS ROTARY SWITCH**

The SFC POT is a rotary switch for 2-step regulation of fan speeds via frequency converters.

**Dimensions** 100x100x67 mm  
**Increments** 0-1-2

**SFC SB SWITCH**

The SFC SB is a switch for start/stop of fans via frequency converters.

**Dimensions** 60x80x55 mm  
**Enclosure class** IP 54  
**Power supply** Max 250 V, 16 A

**ST 300****ST 300 PRESSURE SENSOR**

The ST 300 maintains constant negative pressure in the discharge duct via a frequency converter that controls fan speeds. The ST 300 always provides the correct flow, regardless of the number of open and closed dampers.

**Dimensions** 90x96x36 mm  
**Enclosure class** IP 54  
**Operating range** 500, 1000, 2000, 3000 Pa  
**Power supply** 24 VDC  
**Output signal** 0-10 V (alt. 4-20 mA)

**Included accessories** Measurement output and 2 m hose

## S 400

### S 400 CONTROL UNIT

The S 400 is used for automatic control of damper motor SAS 24 at terminals 1–4. Fans are normally controlled via the S 600 transformer units. The after-run time for evacuation of remaining gases is built into the control unit. The time is set between 0–15 min. The S 400 is supplied with 24 VAC from the S 600 transformer unit.

<b>Dimensions</b>	130x80x77 mm
<b>Enclosure class</b>	IP 54
<b>Primary side</b>	24 VAC
<b>Secondary side</b>	24 VAC

#### ACCESSORIES

**SMT 60** The **SMT mechanical timer switch** is a manual timer, adjustable from 0 to 60 minutes. The SMT 60 is wall-mounted close to the extractor.  
Size: 100x100x67 mm, time: 0 - 60 minutes

**ASE 865** **Switch for hose reel mounted on a hose reel**, opens when the hose is pulled down and closes when the hose is fully rolled up

**AFS 955** **Switch for balancing block**, Single pole switch mounted on a balancing block. Switch is opened when the hose is pulled down and closed when the hose is fully drawn up. Supplemented with an electrical cable attached on the trolley on the profile rail.

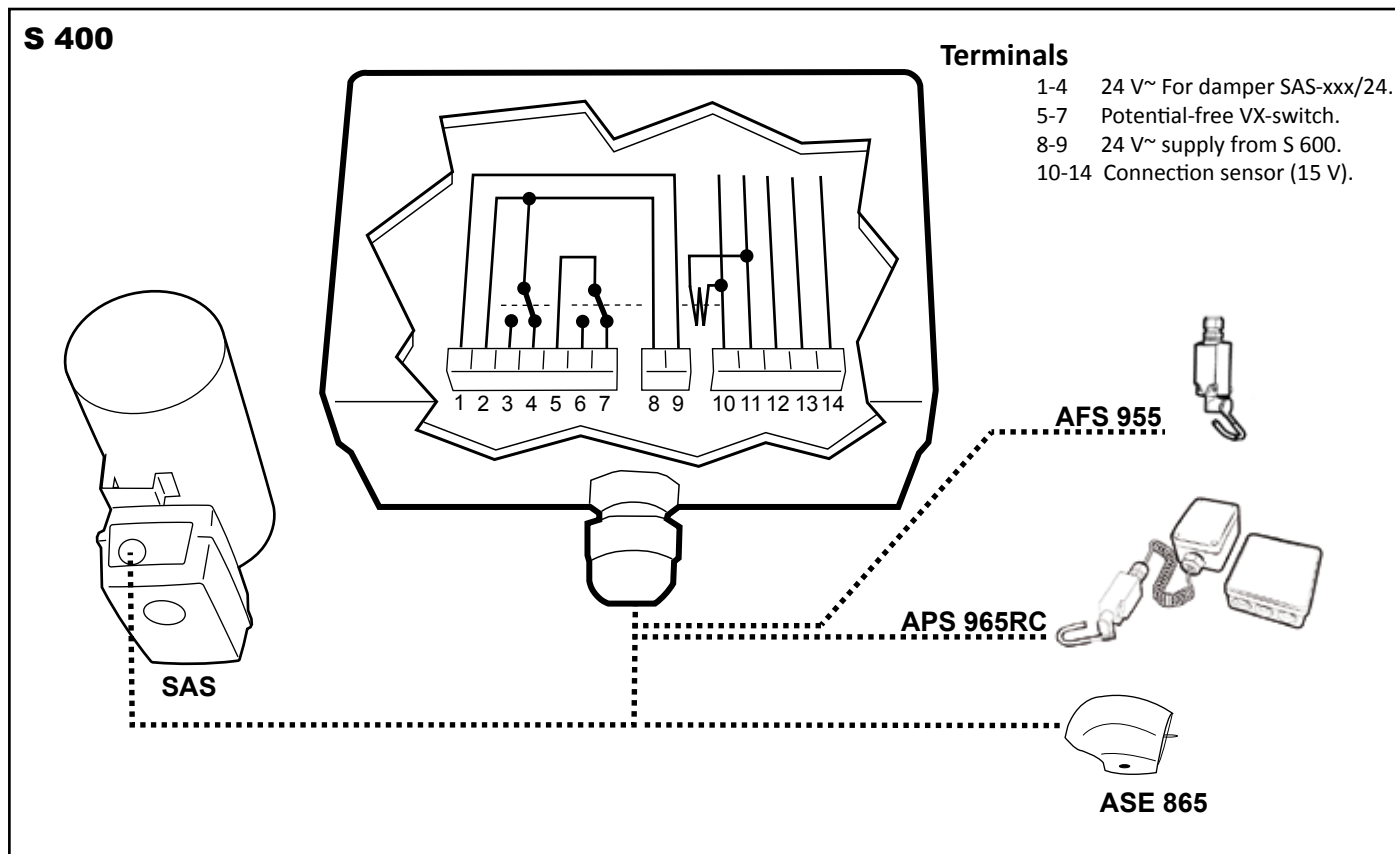
**APS 965RC** **Switch with radio transmitter for profile rail**  
Micro switch mounted on the balancing block. When the hose is pulled down the switch opens and a radiotransmitter sends a signal to a receiver that opens a relay. The switch is closed when the hose is fully drawn up.



S 400



SMT 60





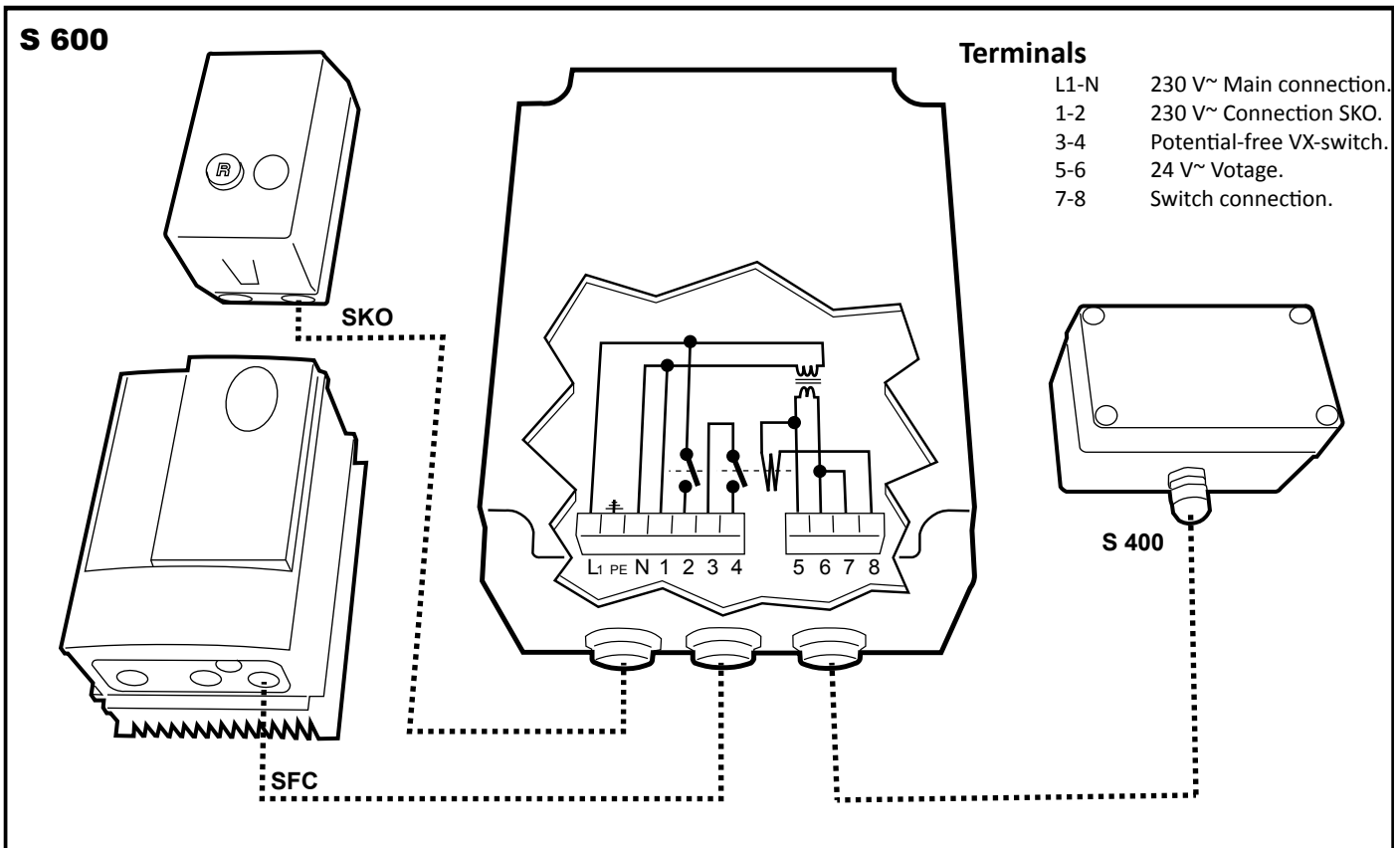


S 600

### S 600 TRANSFORMER UNIT

The S 600 is used to supply 24 VAC to the S 400 control unit. Control of fan is made via external contactor 230 VAC, via signal from terminals 1 & 2. Frequency converter is controlled via the potential-free outputs, terminals 3 and 4.

<b>Dimensions</b>	130x180x102 mm
<b>Enclosure class</b>	IP 54
<b>Primary side</b>	230 VAC
<b>Secondary side</b>	24 VAC (60 VA)



## S 200/230

### S 200/230 CONTROL UNIT

The S 200/230 is used for automatic control of damper motor SAS 230 and/or a fan. The after-run time for evacuation of remaining gases is built into the pliers sensor (~30 sec.). For longer after-run times, there is an adjustable timer card (0–15 min. and 0–240 min.) available as an accessory. Single-phase fans (max. 0.75 kW) can be directly controlled via an integrated relay. Other fans are controlled with an external contactor via the same integrated relay, terminals 1–5. Frequency converters are controlled via the potential-free output, terminals 6–8.

<b>Dimensions</b>	180x130x77 mm
<b>Enclosure class</b>	IP 54
<b>Primary side</b>	230 VAC
<b>Secondary side</b>	230 VAC (Max 10A)

#### ACCESSORIES

<b>STK 15</b>	Timer card 0-15 min
<b>STK 240</b>	Timer card 0-240 min
<b>ASE 865</b>	Switch for hose reel
<b>AFS 955</b>	Switch for balancing block
<b>APS 965RC</b>	Switch with radio transmitter for profile rail

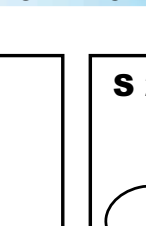
S 200/230



STK 15



STK 240



## S 200/24

### S 200/24 CONTROL UNIT

The S 200/24 is used for automatic control of damper motor SAS 24 and/or a fan. The after-run time for evacuation of remaining gases is built into the pliers sensor (~30 sec.). For longer after-run times, there is an adjustable timer card (0–15 min. and 0–240 min.) available as an accessory.

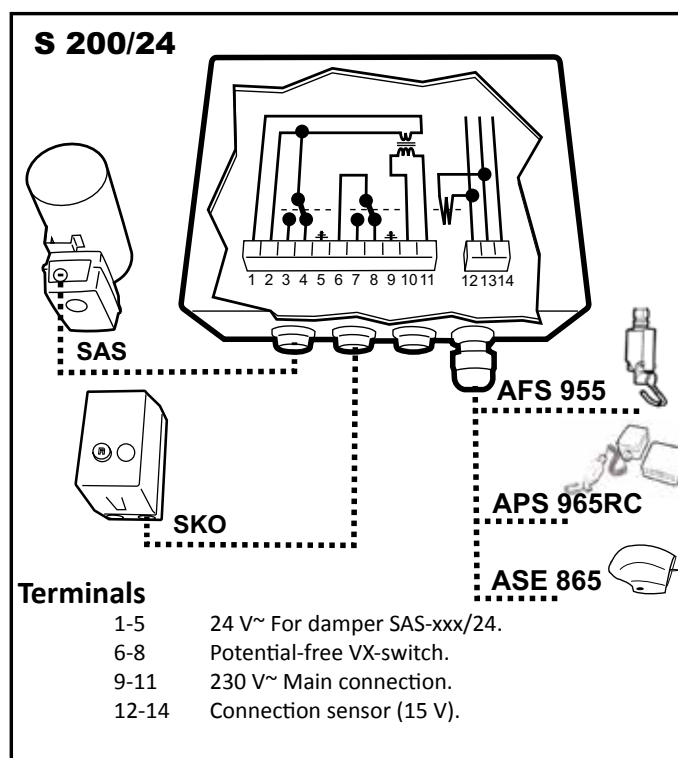
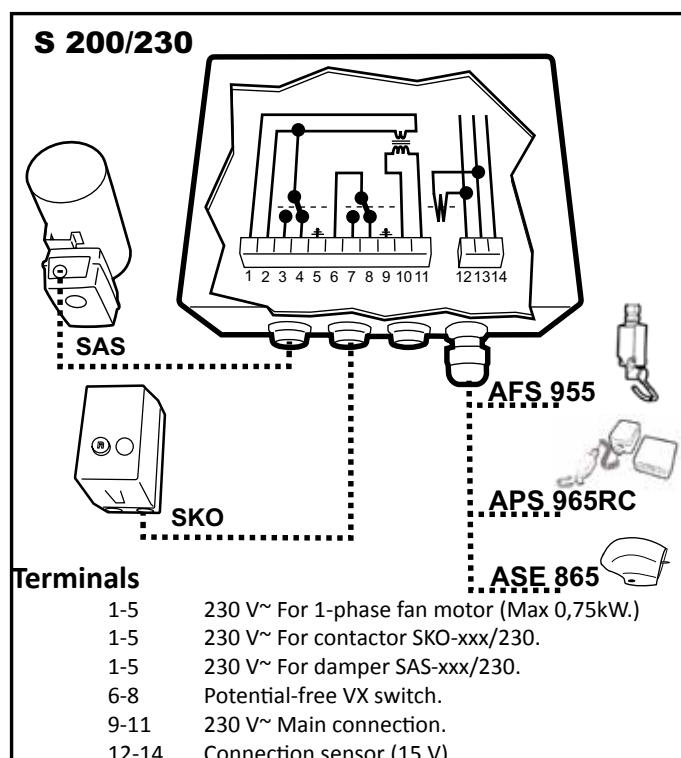
Fans are controlled with external contactors via the integrated relay, terminals 1–5. Frequency converters are controlled via the potential-free output, terminals 6–8.

<b>Dimensions</b>	180x130x77 mm
<b>Enclosure class</b>	IP 54
<b>Primary side</b>	230 VAC
<b>Secondary side</b>	230 VAC

#### ACCESSORIES

<b>STK 15</b>	Timer card 0-15 min
<b>STK 240</b>	Timer card 0-240 min
<b>ASE 865</b>	Switch for hose reel
<b>AFS 955</b>	Switch for balancing block
<b>APS 965RC</b>	Switch with radio transmitter for profile rail

S 200/24





### SMB PROTECTIVE MOTOR SWITCH

The SMB is a 3-pole protective motor switch with thermal-magnetic release and equipped with phase failure protection. The SMB is designed for control and protection of fan motors.

<b>Dimensions</b>	<b>93x148x84 mm</b>	
<b>Enclosure class</b>	<b>IP 55</b>	
<b>Product</b>	<b>Current range (A)</b>	<b>3-phase ~400 V (kW)</b>
<b>SMB 10*</b>	0,63-1,0	0,25
<b>SMB 16*</b>	1,0-1,6	0,37/0,55
<b>SMB 25*</b>	1,6-2,5	0,75
<b>SMB 40*</b>	2,5-4,0	1,1/1,5
<b>SMB 63*</b>	4,0-6,3	2,2
<b>SMB 100*</b>	6,0-10,0	4,0
<b>SMB 140**</b>	9,0-14,0	5,5
<b>SMB 180**</b>	13,0-18,	07,5

\*Self-protecting, pre-fusing not required

\*\*Max. pre-fusing when  $I_k > I_{cu}$  is 63 A.



### SKO CONTACTOR

The SKO is a 3-pole contactor with an overcurrent relay for manual resetting. The overcurrent relay has phase failure protection. It is used with external switches or control.

<b>Dimensions</b>	<b>103x200x153 mm</b>	
<b>Enclosure class</b>	<b>IP 55</b>	
<b>Product</b>	<b>Current range (A)</b>	<b>3-phase ~400 V (kW)</b>
<b>SKO 10/230*</b>	0,63-1,0	0,25
<b>SKO 17/230*</b>	1,0-1,6	0,37/0,55
<b>SKO 25/230*</b>	1,6-2,5	0,75
<b>SKO 40/230*</b>	2,5-4,0	1,1/1,5
<b>SKO 60/230*</b>	4,0-6,3	2,2
<b>SKO 80/230*</b>	6,0-10,0	4,0
<b>SKO 130/230**</b>	9,0-14,0	5,5
<b>SKO 180/230**</b>	13,0-18,	07,5

\* Maximum power is 4 kW.

\*\*Maximum power is 7.5 kW.

~24 V



**SAS AUTOMATIC DAMPER**

The SAS is an automatic single-leaf damper for applications where short operating times are necessary.

The extremely fast motor opens the damper blade in 7.5 seconds. This entails 95% extraction capacity after 3 seconds.

The damper is supplied for air tightness class 1.

For other air tightness classes, please contact Fumex.

<b>Dimensions (motor)</b>	140x100x85 mm
<b>Material (cowling)</b>	PA
<b>Material (damper housing)</b>	Galvanised sheet metal
<b>Opening time, 90°</b>	7,5 s
<b>Torque</b>	3 Nm
<b>Power consumption</b>	
(24 V)	2 VA in operation/ 0 VA not in operation
<b>Power consumption</b>	
(230 V)	5 VA in operation/ 0 VA not in operation

<b>Product</b>	<b>Diameter (mm)</b>	<b>Voltage (V)</b>
SAS-100/24	Ø100	24
SAS-125/24	Ø125	24
SAS-160/24	Ø160	24
SAS-200/24	Ø200	24
SAS-250/24	Ø250	24
SAS-315/24	Ø315	24
SAS-100/230	Ø100	230
SAS-125/230	Ø125	230
SAS-160/230	Ø160	230
SAS-200/230	Ø200	230
SAS-250/230	Ø250	230
SAS-315/230	Ø315	230