

## WSC5XX FLEXISMOKE™

## MODULAR SMOKE VENTILATION



#### Description

- for heat and smoke ventilation (H&S) and daily comfort ventilation
- only one type of group (each group can be set as H&S and / or natural ventilation)
- low power consumption
- up to 60A as standard per panel, more panels can easily be linked without any additional modules
- for both  $\pm 24V$  standard motors and/or motors with MotorLink™
- less cabling as the panel uses bus technology
- wind direction dependel H&S ventilation is standard
- additional modules are not needed

Modular smoke ventilation panel for the control of  $\pm 24V$  DC motors and motors with MotorLink™ for smoke ventilation and daily comfort ventilation. The modular panel can be used in larger and medium sized buildings e.g. shopping centres, schools or sport/leisure facilities. Comfort ventilation also possible with KNX, LON or BACnet (BACnet IP, BACnet MSTP, Modbus RTU, Modbus IP) due to bus technology together with eg. NV Comfort™ or NV Advance™

By linking several panels together the panels can be used in very large buildings. The linking of panels can be carried out from the beginning or later via CAN. Distance between two smoke control panels up to 250m with maximum total distance of 1000m.

FlexiSmoke™ gives the possibility of up to three motor speeds depending of the type of motor:

Motor type / number of speeds:

- $\pm 24V$  DC standard motor – 1 speed (H&S)
- MotorLink™ motor – 2 speeds (H&S / manually operated)
- MotorLink™ motor and bus communication – 3 speeds (H&S / manually operated / automatically)

The different speeds:

- a slow and almost soundless speed, when controlled automatically by comfort ventilation

- a faster and audible speed when manually operated by comfort ventilation
- a fast speed with H&S ventilation and security functions. H&S has always first priority

Built-in uninterruptible power supply for min. 72h in case of power loss (batteries are to be ordered separately)

#### Special Technical Features

- approval according to EN 12101-10
- approval according to prEN 12101-9 requested
- automatically limited opening for comfort ventilation without additional modules
- field bus modules are available for KNX. From 2013 LON and BACnet (BACnet IP, BACnet MSTP, Modbus RTU, Modbus IP) modules will be available
- max. output voltage 27.6VDC @230VAC
- modular plug-in card design
- flexible open system design
- simple installation – due to substantially less cabling – easy configuration at start up / expanding / rebuilding on the 31/2" LCD built in touch screen in the panel – this can also be done on a PC without any additional modules – the touch screen is also used for quick troubleshooting when maintaining the system

#### Connection Options

- triggering by BMS via potential-free contact without any additional modules
- up to 20A in one  $\pm 24V$  DC standard motor line without additional modules or up to 10A per motor line (standard motors and/or motors with MotorLink™) on the motor modules
- up to 30 break glass units per 20A section, 10 of the units can be connected with a smoke detector – up to 10 detectors per unit

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# MODULAR SMOKE VENTILATION

## Structure of FlexiSmoke™

### Sections

The FlexiSmoke™ smoke ventilation panel is available in three different sizes 20A, 40A and 60A. The smoke ventilation panel consists of 20A-sections, thus WSC 520 contains one section, WSC 540 two sections and WSC 560 three sections.

### Modules

Each section contains the WSA 5PS power supply module, the WSA 5MC overall control module and 3 slots for expansion modules. The WSA 5MC overall control module is available with or without field bus interface for KNX, LON or BACnet (BACnet IP, BACnet MSTP, Modbus RTU, Modbus IP).

At the 3 slots the WSA 5IO input/output module, the WSA 5SM ±24V standard motor module or the WSA 5ML MotorLink™ motor module can be connected. The type and number of the modules are specifically to suit the smoke panel required function.

### Motor groups and motor lines

A motor group consists of one or more motor lines and all the motor lines are operated simultaneously.

Each 20A section contains one 20A motor line for connection of ±24V standard motors on the WSA 5PS module. If more motor lines are needed, one or more motor modules WSA 5SM are inserted. Each motor module contains four motor lines.

For connection of motors with MotorLink™ insert one or more motor modules WSA 5ML. Each motor module contains four motor lines.

It is possible to insert both motor module types in the same 20A section, thus the section will operate both ±24V standard motors and motors with MotorLink™.

A 20A-section can contain up to 13 ±24V standard motor lines or 12 MotorLink™ motor lines as well as 1 ±24V standard motor line and the total power consumption of all the motors must not exceed 20A.

### Selection of modules

Expansion modules are selected specifically for the task.

Example of module selection:

- a) 1 input/output module and no additional modules
- b) 1 input/output module and 1 ±24V standard motor module
- c) 3 ±24V standard motor modules

Expansion modules can be mounted anywhere in the three expansion slots in a 20A section, but the modules are to be plugged in starting from the left. The type and number of expansion modules are a part of the article number of the chosen panel.

### Adding panels

The smoke ventilation panel can be expanded by adding more FlexiSmoke™ panels in the CAN inputs on the WSA 5MC module. The CAN cable between two smoke ventilation panels must not exceed 250m and the total cable length must not exceed 1000m.

### Break glass unit

Break glass unit type WSK 501 are to be used together with FlexiSmoke™. The units are configured and assigned to smoke zones via the touch screen in the smoke control panel.

### Inputs / outputs

All inputs and outputs on the FlexiSmoke™ smoke ventilation panel can be freely configured – this means that they can be assigned to functions across modules and 20A-sections.

## Example modules in a WSC540 FlexiSmoke™



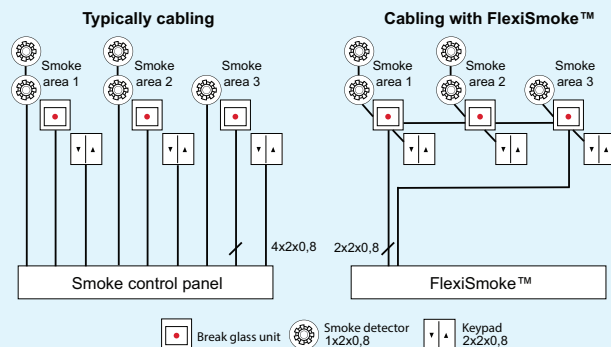
WSA 5PS power supply module  
– one module in each section



WSA 5MC overall control module  
– one module in each section



Free slots for connection of expansion modules type WSA 5IO, WSA 5SM and/or WSA 5ML – 3 free slots in each section



### Cabling

FlexiSmoke™ uses bus technology and the overall cabling for break glass units, smoke detectors and keypads is significantly reduced compared to other types of smoke panels:

- the break glass units are series connected, therefore is not necessary to cable from each break glass unit to the smoke ventilation panel
- keypads for ventilation and smoke detectors are connected directly to the break glass units in the smoke areas

# MODULAR SMOKE VENTILATION

## Module descriptions

### Power supply module (WSA 5PS)

Each 20A section contains WSA 5PS power supply module.

**The module contains:**

- one motor line for ±24V standard motors
- two free configurable inputs for connection of eg. wind/rain sensor WLA 330 or keypad for comfort ventilation
- one output for additional power supply to sensors
- output for fault signal to ASV
- connection of power supply
- touch screen for configuration, commissioning and maintenance



- X1: 1.1 (white)  
1.2 Cable surveillance  
1.3 (brown) } 20A motor line ±24V motors
- X2: 2.1 Open  
2.2 Close  
2.3 GND / 0V } input
- X3: 3.1 24V UPS  
3.2 24V  
3.3 GND / 0V } AUX power
- X4: 4.1  
4.2  
4.3 (nc) } fault signal to ASV
- X5: 5.1 N  
5.2 L1  
5.3 (L2)  
5.4 (L3) } power supply 230/400V AC

### Overall control module (WSA 5MC)

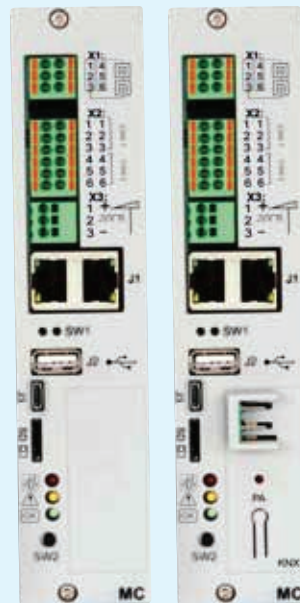
Each 20A section contains an overall control module WSA 5MC.

The module is available with or without field bus interface for KNX, LON or BACnet (BACnet IP, BACnet MSTP, Modbus RTU or Modbus IP).

**The module can contain i.a.:**

- one input for break glass unit type WSK 501
- CAN bus interface for connection of more smoke ventilation panels
- connection of weather station with wind direction detection
- LEDs for status of the smoke control panel
- connection for field bus for KNX, BACnet or LON (only modules with communication)

#### WSA 5MC      WSA 5MC KNX



- X1: 1.1 22V  
1.2 Lin  
1.3 GND / 0V  
1.4 (not connected) } break glass unit WSK 501
- X2: 2.1 CAN GND  
2.2 CAN low  
2.3 CAN high  
2.4 CAN GND  
2.5 CAN low  
2.6 CAN low } CAN 1  
2.7 CAN GND  
2.8 CAN low  
2.9 CAN high  
2.10 CAN GND  
2.11 CAN low  
2.12 CAN low } CAN 2
- X3: 3.1 24V  
3.2 communication  
3.3 GND / 0V } weather station with wind direction
- J1: 2 x ethernet
- SW1: reset all
- J2: USB host
- J3: USB device
- SD: SD-micro card
- KNX: KNX connection
- LED 1/2/3: status
- PA: button for switching between normal / addressing mode for transferring of physical address
- SW2: (not connected)

# MODULAR SMOKE VENTILATION

## Module descriptions (continued)

### Input / output module (WSA 5IO)

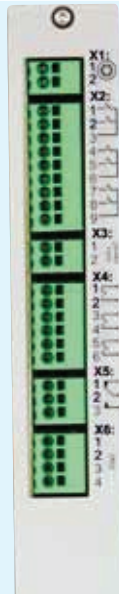
The WSA 5IO module contains:

#### Inputs

- 1 connection for external smoke detector when no break glass unit is connected
- 3 free configurable inputs for connection of e.g. keypads for comfort ventilation or inputs from ASV
- 1 24/48V ASV input – primarily used in France

#### Outputs

- 3 solid state outputs
- 1 free configurable potential free output for connection to ASV or other systems



X1: 1.1 + } connection of smoke  
1.2 - } detector WSA 300

X2: 2.1 In 1.1  
2.2 In 1.2  
2.3 GND / 0V  
2.4 In 2.1  
2.5 In 2.2  
2.6 GND / 0V  
2.7 In 3.1  
2.8 In 3.2  
2.9 GND / 0V } inputs

X3: 3.1 + } 24/48V input  
3.2 - }

X4: 4.1 Out 1 +  
4.2 Out 1 -  
4.3 Out 2 +  
4.4 Out 2 -  
4.5 Out 3 +  
4.6 Out 3 - } outputs (solid state)

X5: 5.1 NC  
5.2 com  
5.3 NO } output (pot. free)

X6: 6.1  
6.2  
6.3  
6.4 } (not connected)

### Motor modules

#### WSA 5SM

##### ±24V standard motor module

- WSA 5SM motor module provides:
- 4 motor lines for ±24V standard motors
  - 1 x 2 free configurable inputs for connection of e.g. keypad or wind/rain sensor

#### WSA 5ML

##### MotorLink™ motor module

- WSA 5ML motor module provides:
- 4 motor lines for motors with MotorLink™
  - 1 x 2 free configurable inputs for connection of e.g. keypad or wind/rain sensor.

ML-comm = MotorLink™ communication.

	WSA 5SM	WSA 5ML
Motor line 1	X1: 1.1 24V / 0V 1.2 Cable surveillance 1.3 0V / 24V	X1: 1.1 24V 1.2 ML-comm 1.3 0V
Motor line 2	X2: 2.1 24V / 0V 2.2 Cable surveillance 2.3 0V / 24V	X2: 2.1 24V 2.2 ML-comm 2.3 0V
Motor line 3	X3: 3.1 24V / 0V 3.2 Cable surveillance 3.3 0V / 24V	X3: 3.1 24V 3.2 ML-comm 3.3 0V
Motor line 4	X4: 4.1 24V / 0V 4.2 Cable surveillance 4.3 0V / 24V	X4: 4.1 24V 4.2 ML-comm 4.3 0V
Input	X5: 5.1 Input 5.2 Input 5.3 GND / 0V	X5: 5.1 Input 5.2 Input 5.3 GND / 0V

# MODULAR SMOKE VENTILATION

Module descriptions (continued)

FlexiSmoke™ break glass unit (WSK 501)

FlexiSmoke™ primary glass break unit for manual activation of smoke ventilation system.

Break glass unit with an audible signal (when opening the door the signal will be interrupted). The coloured LEDs indicate fire triggering or if a fault is present on the system.

**Housing:** plastic

**Colour:** red, orange, yellow, grey or blue

**Dimension:** 125 x 125 x 36mm (W x H x D)

**IP rating:** IP40

**Rated current:** 24V DC

**Data communication:** break glass unit bus

**Delivery includes:** Break glass unit with key and "SMOKE VENT" text labels.

See the accessories list for item numbers.

Spare parts (glass, keys etc.) can be ordered separately. See the separate product sheets for the spare parts.



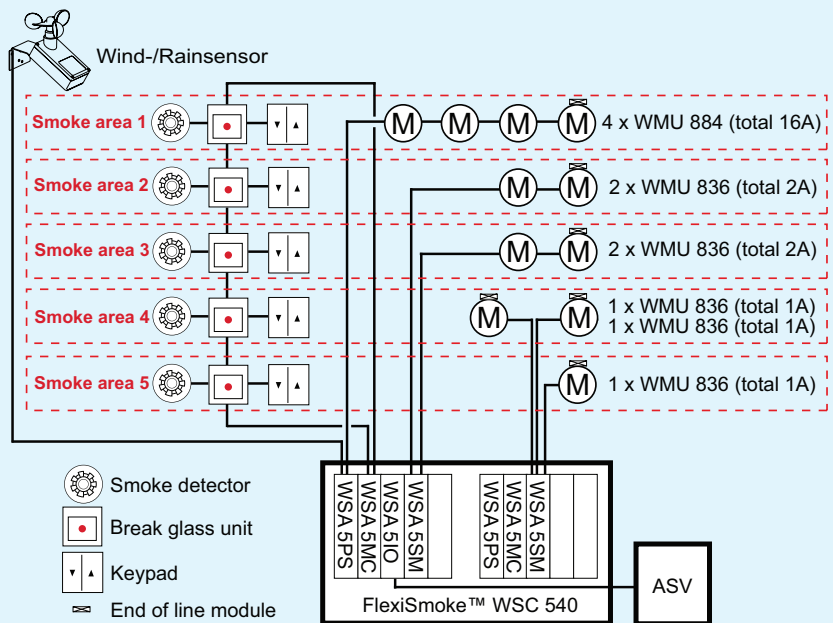
System example with WSC 540

Smoke ventilation panel with two sections (2 x 20A) configured in five smoke areas. Total ±24V standard motor power consumption in the first section is 20A (smoke area 1- 2 - 3) and the total ±24V standard motor power consumption in second section is 2A (smoke area 4 - 5).

The keypads and break glass units are cabled directly to the break glass units in the smoke areas which means that the need for cabling in the building is significantly reduced.

A wind/rain sensor is connected to close the windows during comfort ventilation in case of high wind and/or rain.

The smoke ventilation panel is connected to the ASV system via the WSA 5IO module.



# MODULAR SMOKE VENTILATION

Technical data							
Output current	WSC 520: 20A / WSC 540: 40A / WSC 560: 60A						
Motor lines Motor groups Smoke areas	Per 20A section: max. 13 motor lines (1 x 20A ±24V standard motor line and 12 x ±24V standard / MotorLink™ motor lines) in max 13 motor groups and max 13 smoke areas Via the software more motor lines can be connected in the same group						
Primary voltage	WSC 520: 1 x 230V AC (±10%) / 50Hz WSC 540: 2 x 230VAC (±10%) / 50Hz WSC 560: 3 x 230VAC (±10%) (400V AC) / 50Hz						
Output voltage of motor lines	<table border="1"> <tr> <td>Motor voltage</td> <td>24V DC (±15%)</td> </tr> <tr> <td>Open circuit voltage at 230VAC (no load)</td> <td>27.6V DC @ 20°C</td> </tr> <tr> <td>Ripple (full load)</td> <td>max 6% (3.5Vpp)</td> </tr> </table>	Motor voltage	24V DC (±15%)	Open circuit voltage at 230VAC (no load)	27.6V DC @ 20°C	Ripple (full load)	max 6% (3.5Vpp)
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Open circuit voltage at 230VAC (no load)	27.6V DC @ 20°C						
Ripple (full load)	max 6% (3.5Vpp)						
Power consumption	<p>WSC 520: 'no load'<sup>1)</sup> min<sup>2)</sup> 2.5W typ<sup>3)</sup>: 2.8W at full load: 540W            WSC 540: 'no load'<sup>1)</sup> min<sup>2)</sup> 5.0W typ<sup>3)</sup>: 5.6W at full load: 1080W            WSC 560: 'no load'<sup>1)</sup> min<sup>2)</sup> 7.5W typ<sup>3)</sup>: 8.4W at full load: 1620W</p> <p><sup>1)</sup> 'no load': system operational but no motors are running  <sup>2)</sup> 'min': with 1 x WSK 501 break glass unit and 1 x WSA 300 smoke detector per 20A section  <sup>3)</sup> 'full load': with 4 x WSK 501 break glass unit and 4 x WSA 300 smoke detector per 20A section</p>						
Inrush current on primary side	WSC 520: 30A / WSC 540: 60A* / WSC 560: 90A* <0,05ms *= 30A > 0,05ms on each phase						
Operating condition	-5°C - +40°C, max. 95% relative humidity (not condensing) EN 12101-10 and prEN 12101-9 Class D1 with IP value increased to IP 54						
Emergency power	>72 hours in accordance with EN 12101-10						
Switch-on duration	ED 40% (4 min. per 10 min.)						
Cable connection	Actuator: flexible max 6mm <sup>2</sup> /solid max 10mm <sup>2</sup> , other components: min 0,2mm <sup>2</sup> /max 1,5mm <sup>2</sup>						
Size and weight	WSC 520: 380 x 600 x 210mm (WxHxD), 17kg no batteries, 28kg with batteries (2xWSA 017) WSC 540: 600 x 600 x 210mm (WxHxD), 26kg no batteries, 49kg with batteries (4xWSA 017) WSC 560: 1000 x 760 x 210mm (WxHxD), 57kg no batteries, 90kg with batteries (6xWSA 017)						
Material	Metal housing for surface mounting						
Colour	Grey (RAL 7035)						
IP rating	IP54						
Approval	Approved according to EN 12101-10, approval according to prEN 12101-9 requested						
Delivery includes	FlexiSmoke™ smoke ventilation panel (ASV control unit) with WSA 501 (10kΩ resistors, 10 pcs.); WSC 520 x1, WSC 540 x2, WSC 560 x3. Back-up batteries to be ordered separately.						
To be ordered separately	Back-up battery type WSA 017 (12V/17Ah) – order two batteries per 20A section						
Note	We reserve the right to make technical changes						