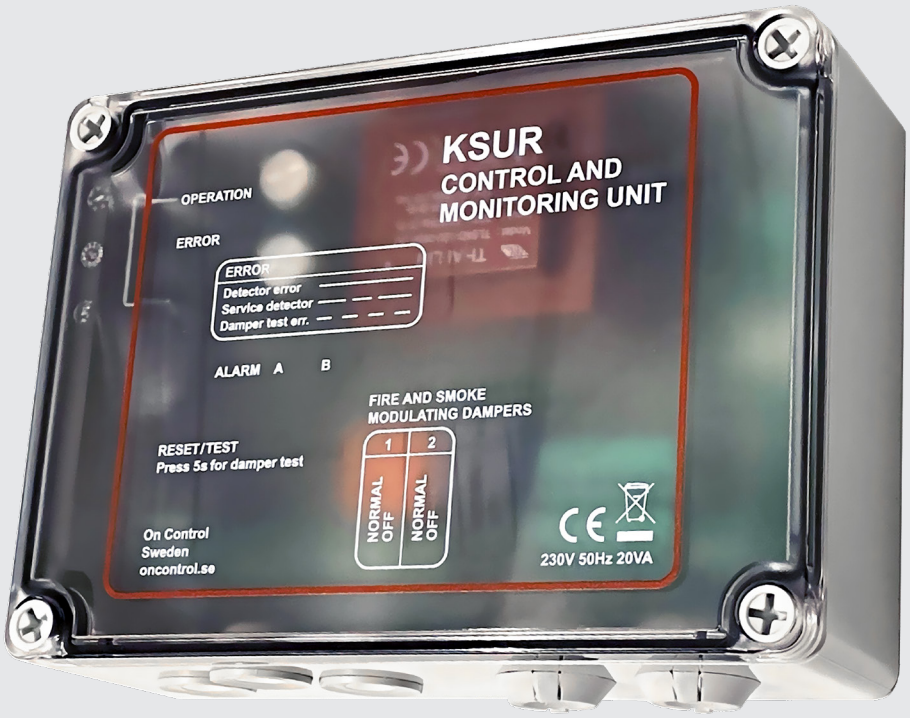


KSUR

Control and monitoring unit

MANUAL

KSUR

CONTENTS

DESCRIPTION

The KSUR is a control and monitoring unit for fire protection in ventilation systems, intended to control fire dampers with a 0-10 V regulating function.

The unit regularly monitors the damper's end positions.

The unit can be used as a fully **stand-alone unit** or as a **slave unit** in networks with the SUSA or KSUA master unit.

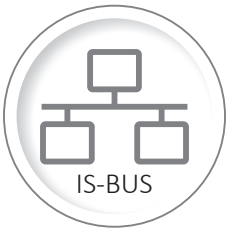
- 2 regulating fire dampers in 2 damper groups
- 1 smoke detector loop (max 5 per loop)
- 48 hour interval for damper test
- Input for an external fire alarm or night mode
- A and B alarm relay (fire/sum alarm)
- Integrated transformer 230/24 VAC

Valid from software version FW 4.0

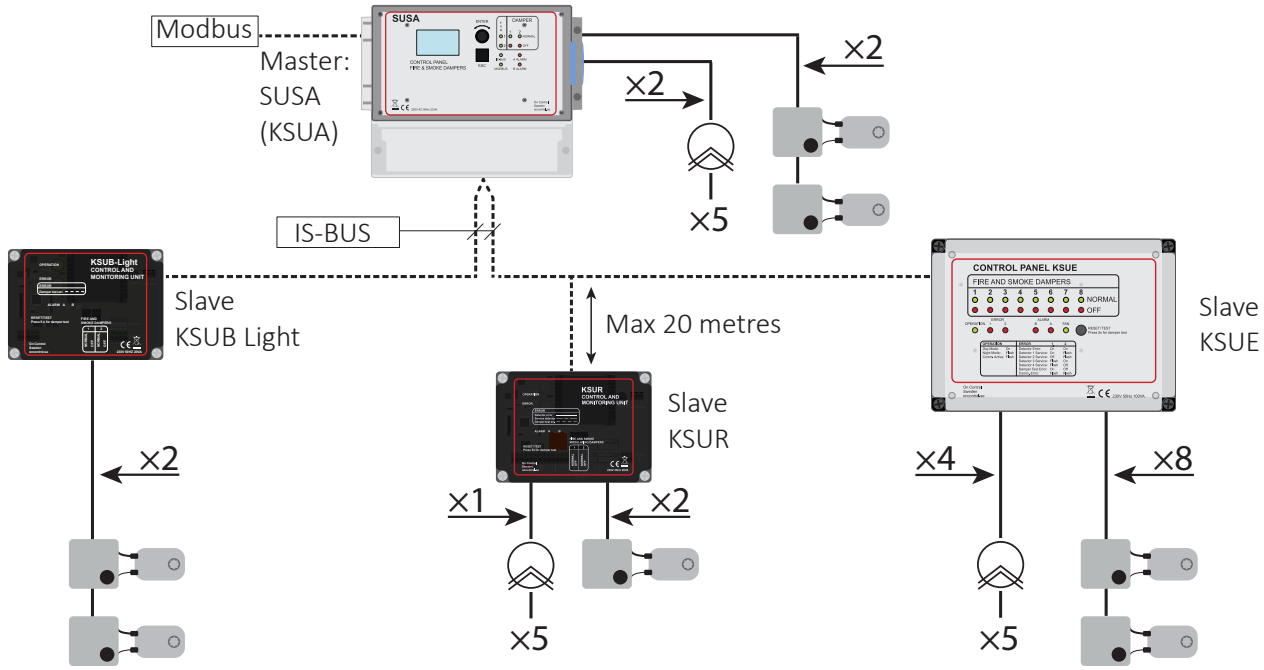
GENERAL SYSTEM OVERVIEW

The following diagram is a general example of network mode between the SUSA master unit and slave units. Follow the instructions to install the KSUR as a stand-alone unit or as a slave unit for the SUSA or KSUA.

You can also visit our website oncontrol.se to use our product selection program.

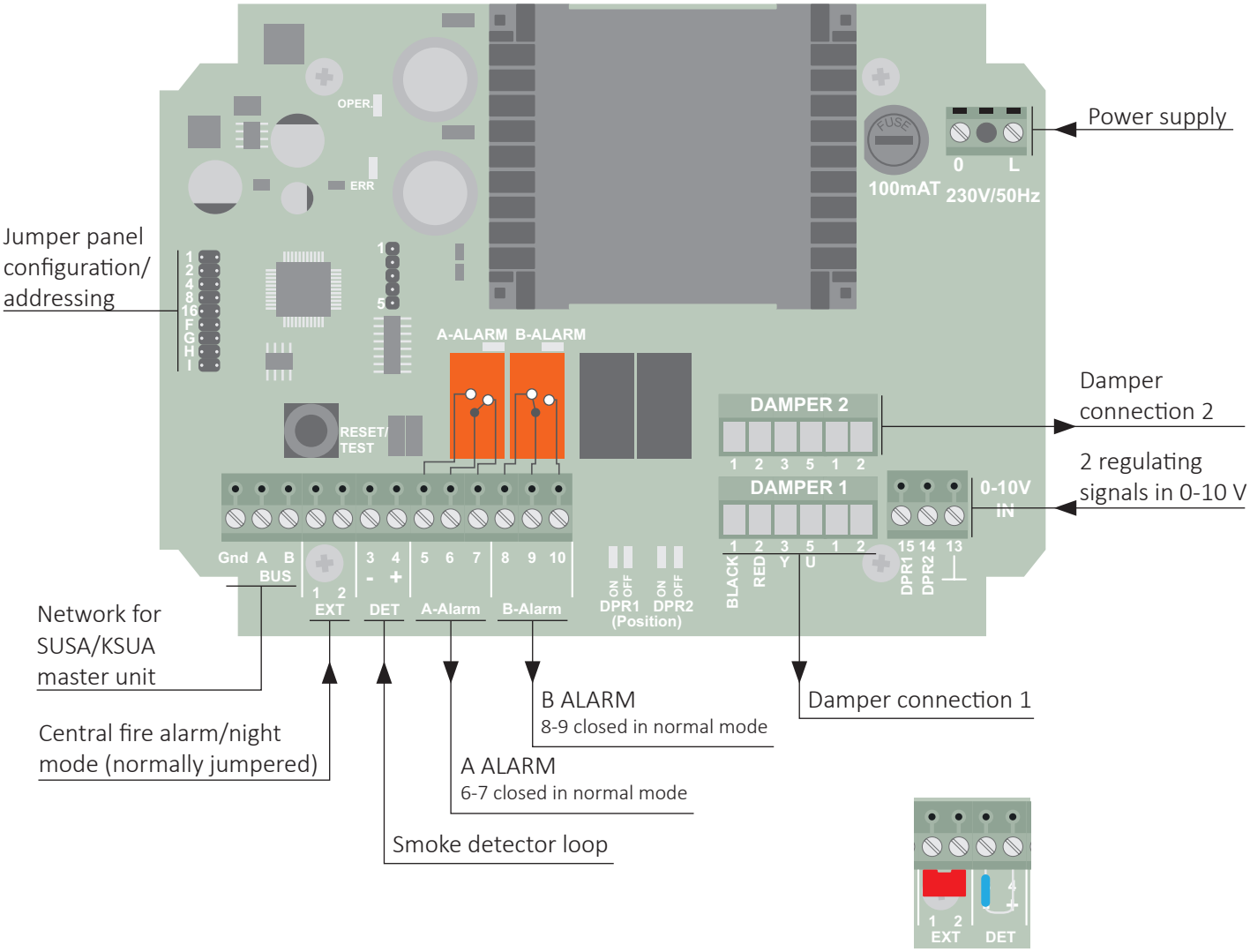


- Max length of IS-BUS 1200 m
- Daisy chain with max branch length 20 m
- Max 32 slave units



UNIT	FIRE DAMPER	SMOKE DETECTOR
SUSA	4 (2X2)	10 (2X5)
KSUE	16 (8X2)	20 (4X5)
KSUB	4 (2X2)	10 (2X5)
KSUB Light	4 (2X2)	0
KSUR	2 0-10 V	5

CONNECTIONS



On delivery there is a jumper over EXT and a 2.2 kΩ resistor over -/+ on DET

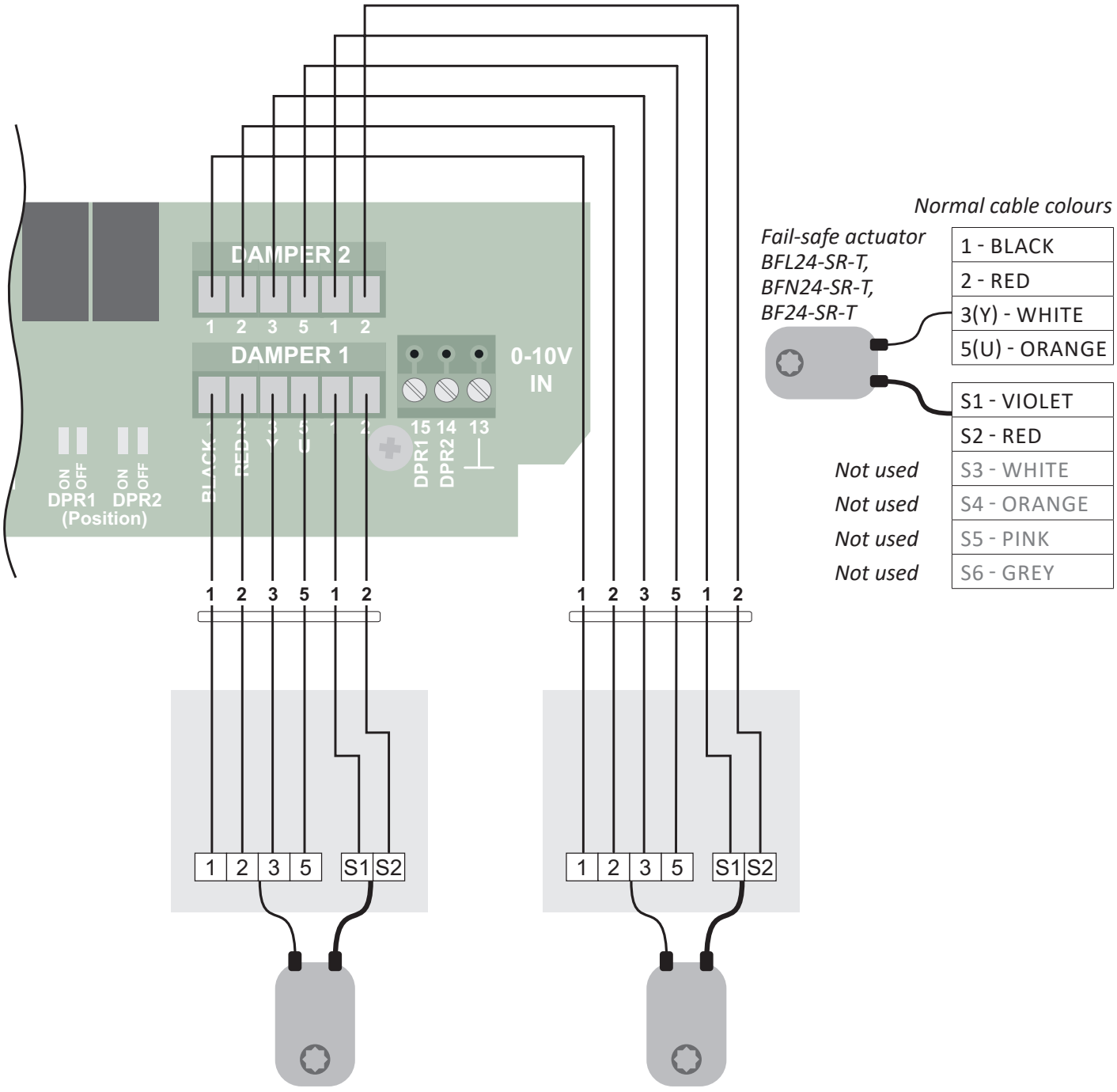
Wiring

To install the unit in stand-alone or network mode (slave unit for the SUSA/KSUA), carry out the wiring as shown in the tables below:

- Wiring for stand-alone mode on page 6
- Wiring for network mode on page 7

Cable recommendation

- The smoke detectors are connected using telephone type twisted pair cables with no particular requirements in terms of area.
- The damper motor can be connected using 7G0.75 type control cable for example, with a length of up to 200 metres.
- The IS-BUS network can be connected using FKAR-PG 2×0.5.



Normal cable colours

Fail-safe actuator BFL24-SR-T, BFN24-SR-T, BF24-SR-T

	1 - BLACK
	2 - RED
	3(Y) - WHITE
	5(U) - ORANGE
	S1 - VIOLET
	S2 - RED
Not used	S3 - WHITE
Not used	S4 - ORANGE
Not used	S5 - PINK
Not used	S6 - GREY

Connection of regulating fire damper

- Fire dampers are connected as illustrated above, with a maximum of one damper per damper group.
- 0-10 V DC regulating signal to the relevant input at terminal 15 (DAMPER1), 14 (DAMPER2) to adjust the blade pitch angle of the damper.

TIP!

Configure the correct motor type before startup as shown in the following tables:

- WIRING FOR NETWORK MODE
- WIRING FOR STAND-ALONE MODE

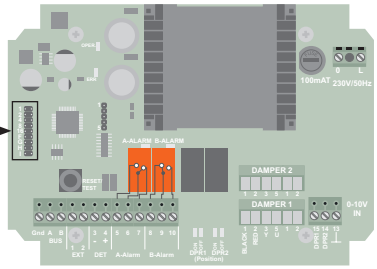
IMPORTANT!

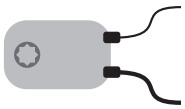
If a single damper group is connected in stand-alone mode, DAMPER 1 must be used with jumper 4 ON.

WIRING FOR STAND-ALONE MODE

STAND-ALONE MODE

> **IMPORTANT!**
> In stand-alone mode, jumper H must be ON.



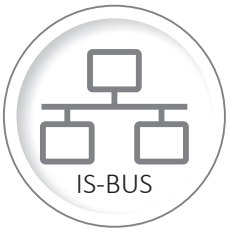
CONTROL OF EXTERNAL UNIT	TERM.	NAME	DESCRIPTION	JUMPER	JUMPER POSITION FUNCTION WITH JUMPER ON	JUMPER POSITION FUNCTION WITH JUMPER OFF
Regulating fire damper 	1(BLACK), 2(RED), 3(Y), 5(U), 1, 2	DAMPER1, DAMPER2	24 V regulating fire damper with spring return, installed as described in Damper wiring on page 5. Max one damper per damper group. Damper test every 48 hours and starting 10 hours after every new power-up.	**4**	DAMPER 2 **NOT** used	**Both** damper groups used
				G	**Sequential** damper test	**Simultaneous** damper test
				F	Actuator without mechanical "closed contact"	Actuator with mechanical "closed contact"

INPUTS	TERM.	NAME	DESCRIPTION		FUNCTION WITH JUMPER ON	FUNCTION WITH JUMPER OFF
Smoke detector 	3(-) 4(+)	DET	Replace existing resistor with smoke detector of type UG3-0 or similar. Max 5 in a loop. Terminate the last detector with a 2.2 kΩ resistor.	**8**	**NOT** used	**1** detector zone ▪ Controls both damper groups
Fire alarm/ night mode 	1-2	EXT	Normally closed. Activated by voltage-free external break. Affects all function groups. The damper test can take place if in night mode.	**1**	Night mode input	Fire alarm input

OUTPUTS (ALARM)	TERM.	NAME	DESCRIPTION
Fire alarm 	5, 6, 7	A ALARM	Terminals 6-7 are closed in normal mode and change with fire alarm from EXT or DET. The relay is a voltage-free changeover contact, max 5 A/250 VAC.
Sum alarm 	8, 9, 10	B ALARM	Terminals 8-9 are closed in normal mode and change with ▪ detector fault/service ▪ damper fault and ▪ fire alarm. The relay is a voltage-free changeover contact, max 5 A/250 VAC.

POWER SUPPLY	TERM.	NAME	DESCRIPTION
230 VAC 50 Hz	0, L	230 V/50 Hz	Connected with permanent cabling and isolating switch to 2 A group fuse.

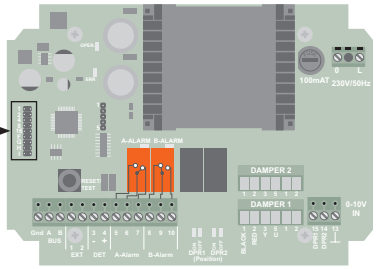
WIRING FOR NETWORK MODE



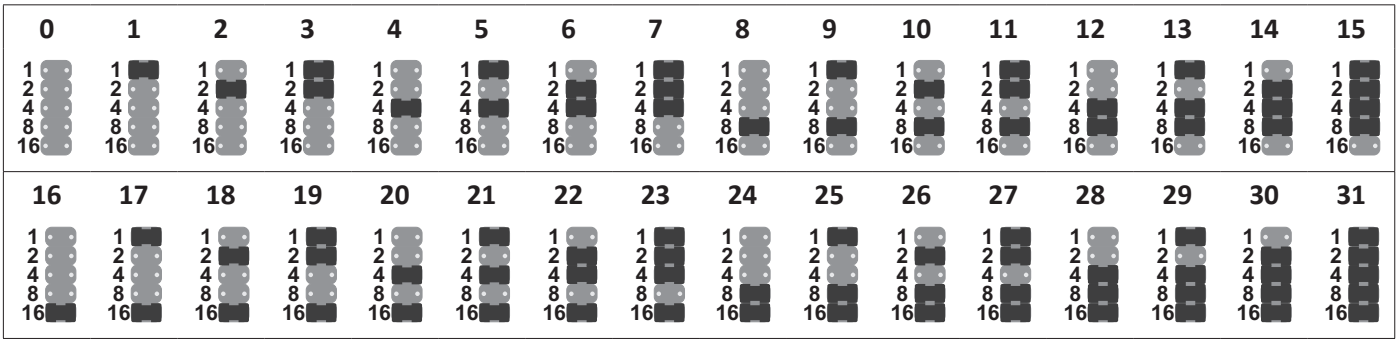
NETWORK MODE

IMPORTANT!

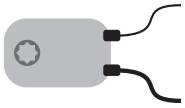
This page describes installation of the KSUR in **network mode** to the SUSA or KSUA master unit, and is not applicable to stand-alone mode. Jumper "H" must be OFF.



Addressing in the KSUR 0 to 31



Wiring

CONTROL OF EXTERNAL UNIT	TERM.	NAME	DESCRIPTION
Regulating fire damper 	1, 2, 3, 5, 1, 2	DAMPER1, DAMPER2	24 V regulating fire damper with spring return, installed as described in Damper wiring on page 5. Max one damper per damper group. Damper tests are performed by the master unit. **The damper groups must be configured in the master unit.**

INPUTS	TERM.	NAME	DESCRIPTION
Smoke detector 	3(-) 4(+)	DET 1	Replace existing resistor with smoke detector of type UG3-0 or similar. Max 5 per input. Terminate the last one with 2.2 kΩ. **The detector input must be configured from the master unit.**
Fire alarm 	1-2	EXT	Normally closed and activated by voltage-free external break. Affects the whole system. Detector group 1 must be activated in the master unit for the function to be available. Keep the resistor in the terminal.
Network 	Gnd, A, B	IS-BUS	Network connection to the SUSA or KSUA master unit which must **ONLY be connected to IS-BUS**. Daisy chaining between units with Gnd to Gnd, A to A and B to B. Addressing in the KSUR is as shown in the table above. The unit can then be configured in the master unit. If relevant, the IS-BUS is terminated with jumper I but only for the two most remote units in the network.

POWER SUPPLY	TERM.	NAME	DESCRIPTION
230 VAC 50 Hz	0, L	230 V/50 Hz	Connected with permanent cabling and isolating switch to 2 A group fuse.

SPECIFICATION

Installation

Intended to be attached to a wall.

Power supply

230 VAC, 50 Hz, 30 VA. Protected with 2 A fuse at least.

Protection class

IP65

Ambient temperature

Max. +35 °C, min.-10 °C

Weight

1.5 kg

Outputs

- B alarm – potential-free changeover contact, max 5 A/250 V. Terminal numbers 8, 9, 10.
- A alarm – shared by all detectors and EXT. Voltage-free changeover contact, max. 5 A/250 V. Terminal numbers 5, 6, 7.
- Damper group 1
- Damper group 2

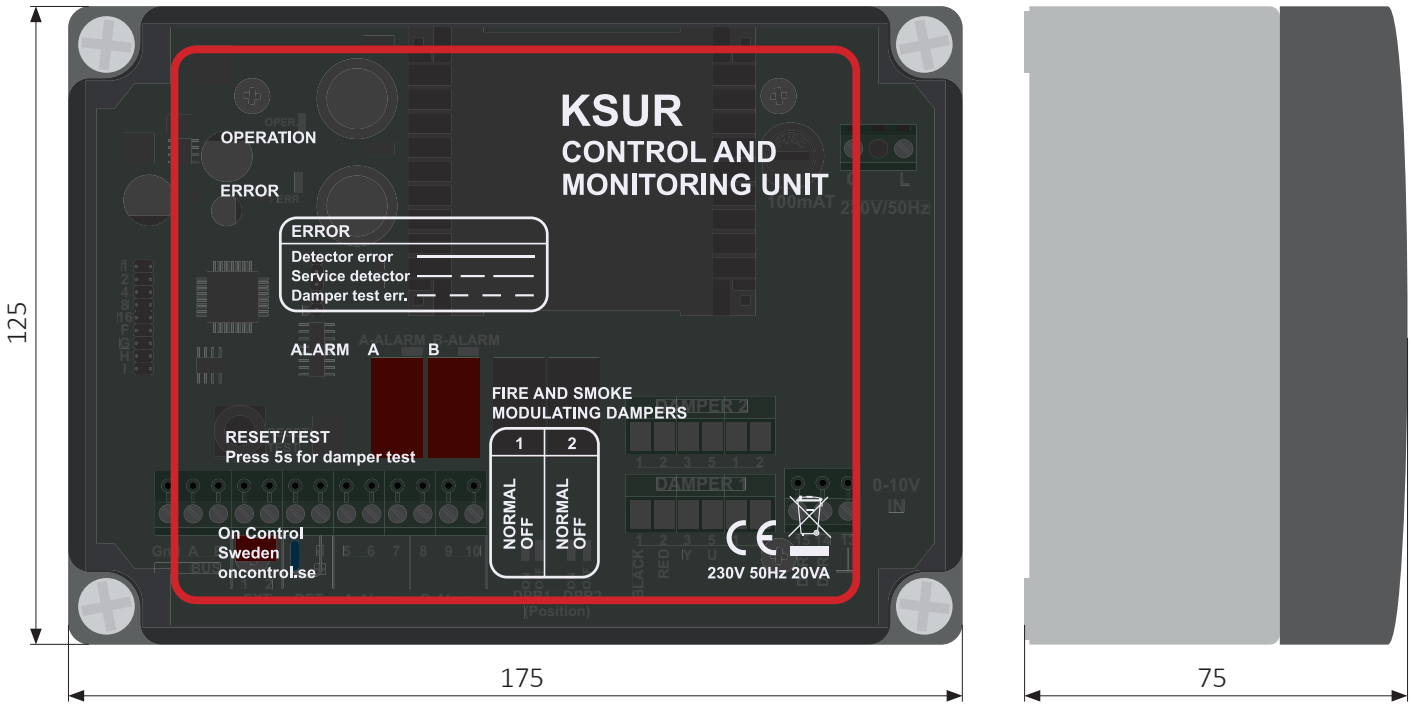
Inputs

- IS network bus to SUSA or KSUA master unit.
- External fire alarm (EXT) or night mode input. Controls both damper groups. Terminals 1, 2.
- Detector. Terminals 3, 4
- Input for 230 V/50 Hz
- Inputs for 0-10 V damper control.

Fuses

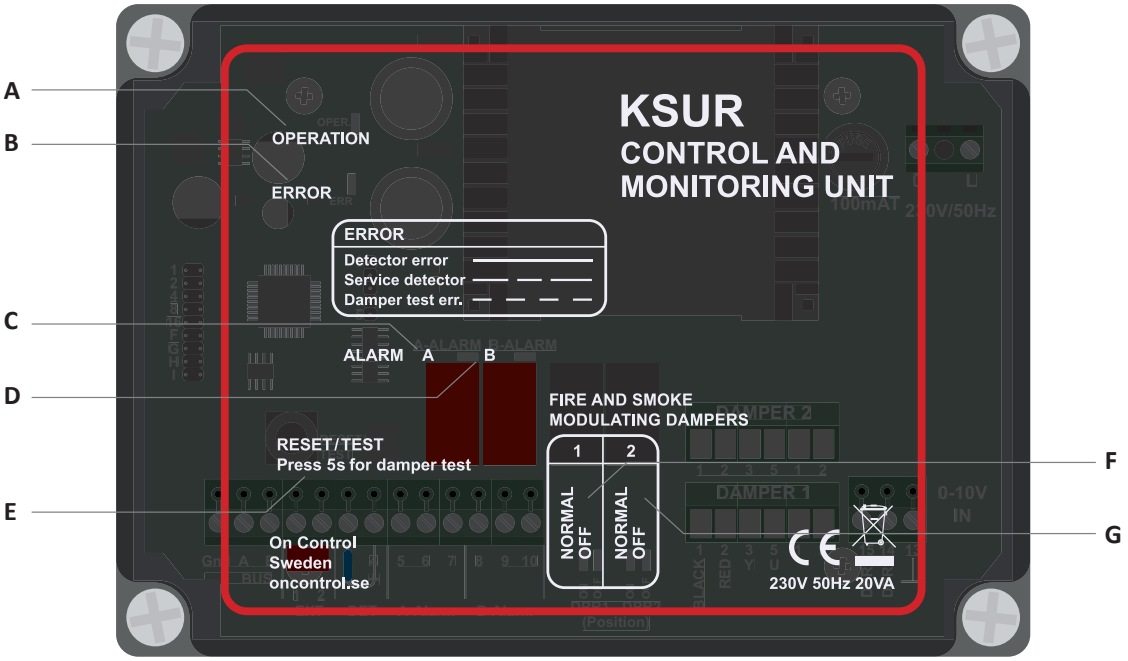
There is a 160 mA fuse on the motherboard. The fuse is to the right of the mains transformer. The holder is the bayonet type. To remove the fuse, press down and turn a quarter turn anticlockwise.

Dimensions



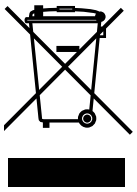
TERMINOLOGY

Ventilation damper	A fire damper with a 24 VAC motor. It closes with spring force to the fail-safe position (closed).
Evacuation/ pressure relief/ bypass damper	A damper with a 24 VAC motor. It opens with spring force to the fail-safe position (open).
Normal mode	Ventilation dampers are open and evacuation dampers are closed.
Night mode	All damper types close. For example, used if the ventilation system is shut down to save energy. The fire damper is put in the fail-safe position and then opens when the NIGHT input closes again. Damper tests (if any) can take place at this time.
Stand-alone mode	The unit is not connected to a master unit via the IS-BUS network. Instead, it is fully stand-alone and only outputs an alarm with the LED or voltage-free changeover relay. The jumper panel is used for configuration.
Network mode	The SUSA or KSUA master unit communicates all alarms, function tests, etc. between the slave units over the IS-bus. Max 32 slaves.
Parallel connection	This means two dampers connected to a damper group (DAMPER). Isolated damper faults affect the damper group NORMAL/OFF indication (in network mode this appears in the master unit).
Jumper panel	For installation in stand-alone mode, the jumper panel is used to configure the unit. For installation in network mode, the jumper panel is used for slave unit addressing.



	FUNCTION	DESCRIPTION
A	OPERATION (OPER.)	Green LED showing that the unit is energised and indicating day/night mode or communication. Constant = day mode. Long flashing = night mode. Short flashing = communication via IS-BUS.
B	ERROR (ERR)	This LED uses three different flashing sequences to indicate three different alarms. ▪ **Constant if the detector loop is broken** *Check:* ▪ The terminating resistor in the last detector of the loop with the problem. It should be 2200 Ω, 0.6 W. ▪ If the input is not used, a resistor of 2200 Ω must be installed to replace the detector. ▪ Break in cable ▪ Loose contact in the detector bases ▪ Check the wiring to the detector. ▪ Polarity! ▪ **Alternating short and long flashes if there is a service alarm** (dirty smoke detector) The indication is delayed by one hour to prevent false alarms. When the alarm is reset, the delay is deactivated to make it possible to confirm immediately that the alarm has been cleared. *Check:* ▪ There is no dirt on the detector. Indicated by a yellow LED on the affected detector if the detector has a service alarm function. Vacuum-clean or, in the worst case, replace the detector head. ▪ **Rapid flashing if the damper test fails** *Check:* ▪ If a single damper group is connected, DAMPER 1 is used for the connection and jumper 4 is ON. ▪ Connected DAMPER (1, 2) groups indicate NORMAL (green). Perform a manual (E) damper test and check that the relevant DAMPER indicates OFF (red) within 30 seconds after NORMAL (green) goes off. The indication must then return to NORMAL within 200 seconds.

	FUNCTION	DESCRIPTION
C	A ALARM	If the LED is red, a detector has been triggered. The associated relay is closed. *Check:* ▪ That the EXT input is jumpered or closed by an external monitoring unit ▪ That none of the detector loops is short-circuited ▪ That an alarm from a detector is indicated with a red LED on the detector.
D	B ALARM	The B alarm is indicated by the red LED and the associated relay output is closed when the following events occur: ▪ If the A alarm is triggered ▪ Break in the detector loop ▪ Error during function test ▪ Service alarm in the detector loop ▪ Damper in incorrect position during normal operation ▪ Wiring error *Check:* ▪ For other alarms indicated by the LEDs ▪ If there is only one damper, it must be connected to DAMPER1 and jumper "4" must be ON. ▪ That the dampers are wired correctly In particular, take care that G and M are not the wrong way round.
E	RESET (TEST)	**RESET** – press the button briefly to reset all alarms. **TEST** – carry out a manual damper test by holding down the button for longer than five seconds. The test starts when you release the button. A configurable period passes before the damper test to allow any duct pressure to reduce or the reheater to cool down.
F, G	DAMPER 1, DAMPER 2	Indicates the end position of the safety actuator for the relevant damper group DAMPER 1, 2 (DPR). ▪ **Flashing green LED (NORMAL) indicates that the blade position is fully open/closed.** ▪ Short green flash – more closed. ▪ Long green flash – more open. ▪ **Constant green LED (NORMAL) indicates the position for normal mode (open).** ▪ **Constant red LED (OFF) indicates the damper's fail-safe position (closed).** **The dampers do not open.** *Check:* ▪ That there is a regulating signal to open ▪ That there are no other alarms on the front panel ▪ That the damper motor is wired correctly



Disposal of used electrical and electronic equipment
(applies to the EU and other European countries with a dedicated collection system)

If this symbol appears on the product or its packaging, the product must not be treated as household waste. Instead, it must be sent to a suitable collection point that recycles electrical and electronic equipment. By making sure this product is correctly processed, you will help to prevent the negative impact on the environment and on human health that could result from inappropriate waste handling. Recycling helps to conserve natural resources. To find out more about recycling this product you can contact your local authority, your cleaning contractor or the dealer you purchased the product from.

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