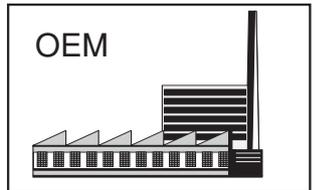
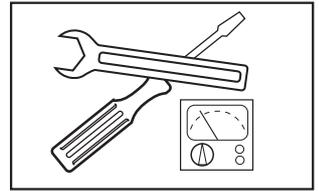


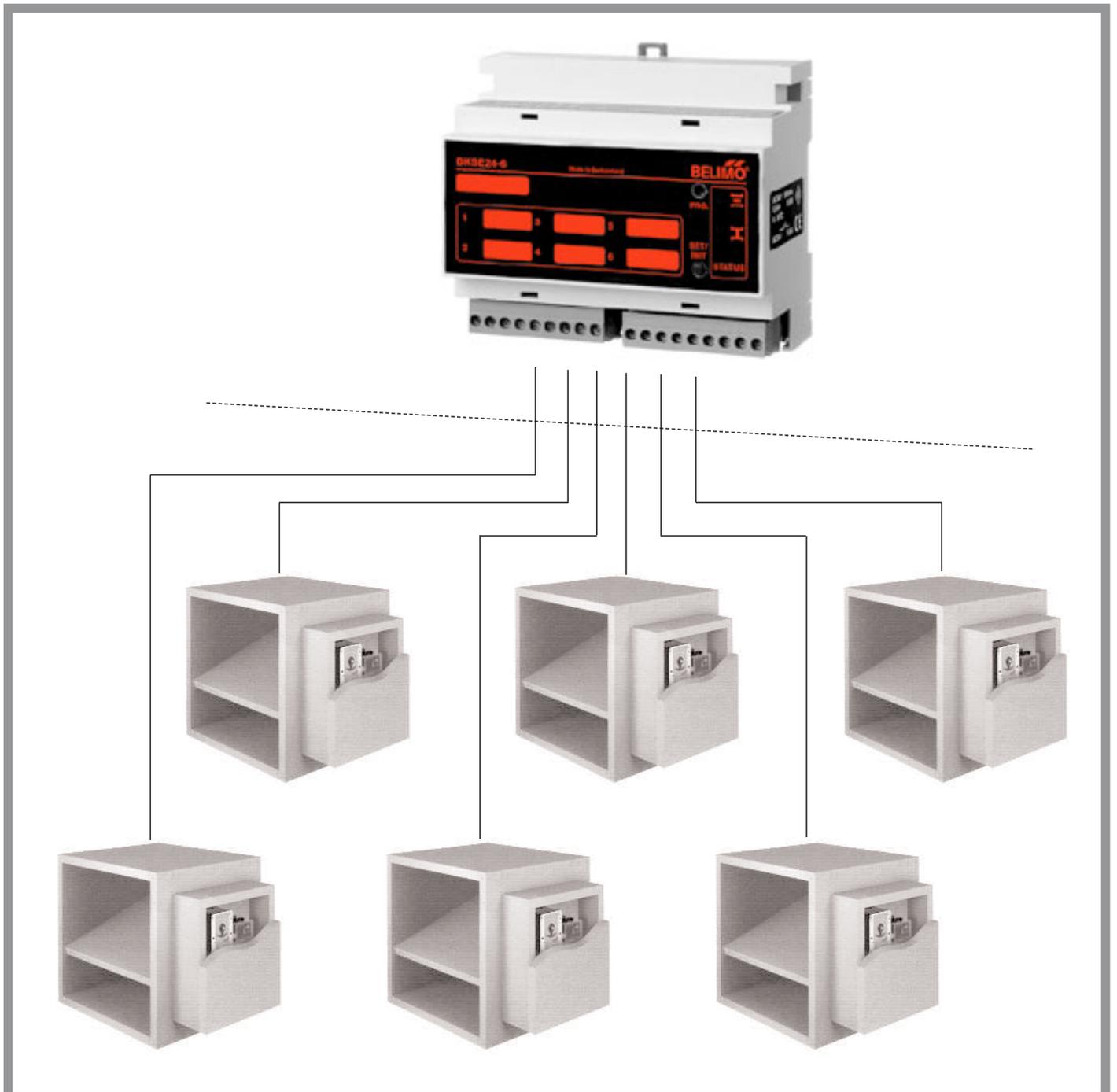
- new
- supplement to
- replaces



3. A12 / BKSE24-6 / EN

SBSE-Control

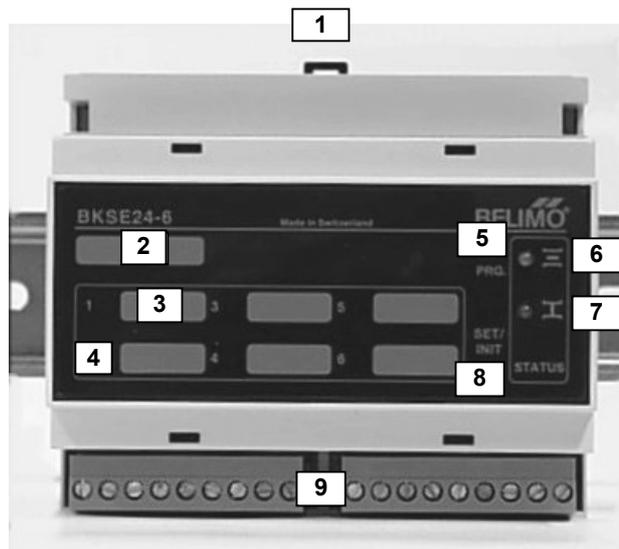
Operating Instructions BKSE24-6



Content

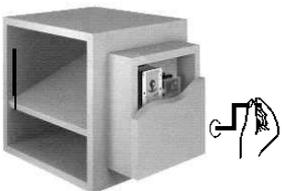
Subject	Page
1.0 Operating controls and indicators	3
2.0 Preparations for faultless commissioning and operating	4
3.0 Programming the number of dampers per BKSE24-6	5
4.0 Adding / removing of dampers	6
5.0 System- testing	7
6.0 Function- testing	8
7.0 Fault alarms	9
8.0 Technical data	10
9.0 Block diagram, signalling, dimensions	11

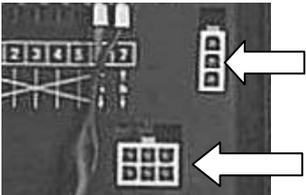
1.0 Operating controls and indicators

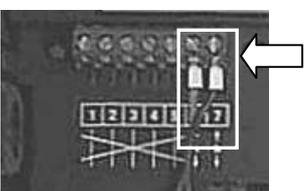


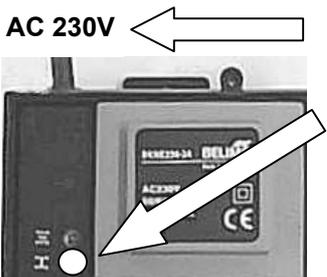
1	Retaining-Clip for DIN rail mounting	Lift clip with Screwdriver for mounting-/ removing
2	Label	For zone identification.
3	Label 1...6	For damper identification
4	LED's (red) FAULT dampers 1...6	Off = No fault Flashing = Fault present On = Fault stored
5	Pushbutton PRG.	- Programming the number of dampers - Check the number of dampers <small>This pushbutton is recessed, use a proper tool to operate</small>
6	LED (yellow) OPEN Position	Flashing = Dampers move to open position (smoke extract) On = Dampers have reached open position
7	LED (green) CLOSE Position	Flashing = Dampers move to close position (extract end) On = Dampers have reached close position
8	Pushbutton SET / INIT	- System Test (control units and communication) - Functional Test (for checking actuator and damper manually)
9	Electrical connection	9-Pin Terminal Connectors

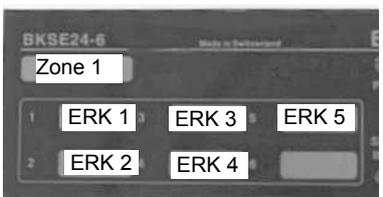
2.0 Preparations for faultless commissioning and operation

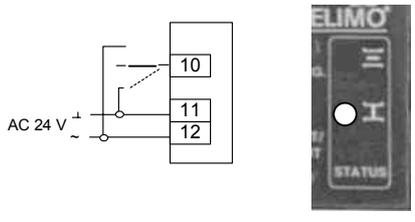
- 2.1
- 
- The dampers are installed and mechanically tested
 - End positions **OPEN** and **CLOSED** are attainable

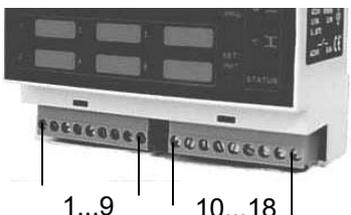
- 2.2
- 
- The two cables from the damper actuators (24V) are connected to the BKNE230-24

- 2.3
- 
- Terminals **6** and **7** of the BKNE230-24 unit correctly wired according to the wiring diagram and technical documentation
 - Ensure correct polarity !

- 2.4
- 
- All BKNE230-24 units connected to the AC 230V mains supply
 - The green LED “damper close” is **steady on**
- Note: The BKNE230-24 units are factory programmed with a close command

- 2.5
- 
- Number and sequence of connected dampers labelled and programmed (e.g. 1..5) on the front of the BKSE24-6 unit
 - Programming see Para. 3.0

- 2.6
- 
- All BKSE24-6 units connected to the AC 24V power supply
 - The last executed command was **CLOSE**
 - The green LED “damper close” is **steady on**
- Note: The BKSE24-6 units are factory programmed with a “close” command

- 2.7
- 
- All other inputs correctly wired according to the wiring diagram and the technical documentation

3.0 Programming the number of dampers per BKSE24-6 unit



- Factory programming:
The BKSE24-6 unit is factory programmed for 6 dampers



- When connecting 1....5 dampers, the programming must be modified accordingly

Procedure:

3.1



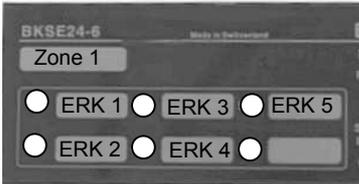
- Note preparatory work in Para. 2.0

3.2



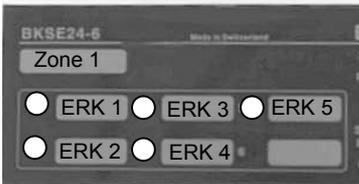
- Press and hold **PRG.** key (until 3.5 included)
(This pushbutton is recessed, use a proper tool to operate)

3.3



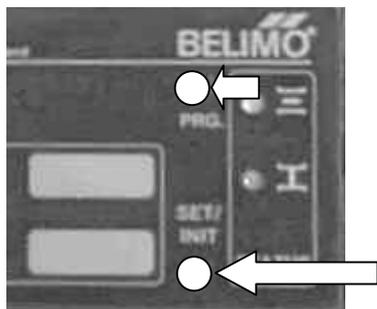
- The fault LED's for the number of dampers programmed **light up for 4 seconds** (e.g. 1...6)

3.4



- The fault LED's for the number of dampers connected and recognised by the BKSE24-6 unit start **flashing** (e.g.1...5)
- The number of dampers recognised must correspond to the number of dampers labelled and connected

3.5



- Press the **SET/INIT** key at the same time as you hold the **PRG.** key
- The number of dampers recognised is now stored in the BKSE24-6 unit

Note: A system test is initiated automatically (see Para. 5.0)
After any programming, we recommend to run also a function test (see Para. 6)

4.0 Adding / removing a damper

Example:

A damper is to be added to an existing system, res. or is being removed.

The dampers 1...5 are in operation and damper 6 is the new one, or but, damper is being removed.

The comment in ***bold italics*** refers to the removal of dampers.

Procedure:

4.1



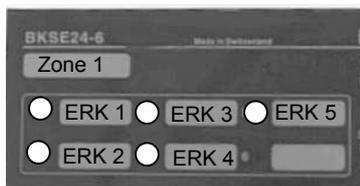
- Note preparatory work in Para. 2.0
- An automatic system test is performed, when the power supply (AC 24V) is energised (see Para. 5.0)
- Start flashing:
 - The LED **CLOSE** and the fault LED of the **new damper 6** or
 - ***The LED CLOSE and the fault LED of the removed damper 5***

4.2



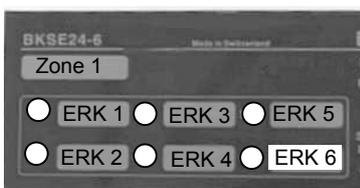
- Press and hold the **PRG.** Key (until 4.5 included)
(This pushbutton is recessed, use a proper tool to operate)

4.3



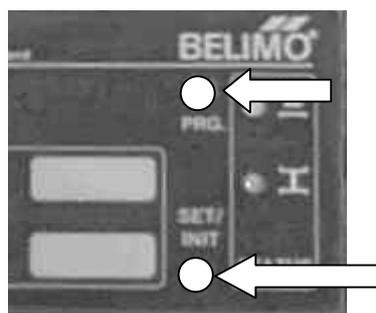
- The fault LED's for the five dampers already programmed **light up for 4 Seconds**

4.4



- The fault LED's for the number of connected and recognised by the BKSE24-6 unit start **flashing**
 - after adding a damper actuator LED's 1...6 start flashing
 - ***after removing a damper actuator LED's 1...4 start flashing***
- The number of dampers recognised must correspond to the number of dampers labelled and connected

4.5



- Press **SET/INIT** key at the same time as you hold the **PRG.** key
- The number of dampers recognised is now stored in the BKSE24-6 unit

Note: A system test is initiated automatically (see Para. 5.0)

5.0 System test



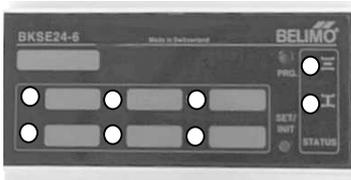
- The system test deals with the wiring of connected dampers, the actuators, the BKSE24-6 and the BNE230-24 units
- Note preparatory work in Para. 2.0

5.1 Initiation criteria

- a) **Automatic**
 - After **programming**
 - After **powering up** (AC24 V)
- b) **After a fault alarm**
 - By pressing the **SET/INIT** key

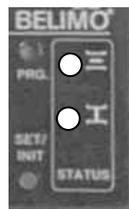
Procedure:

5.2



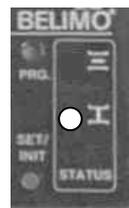
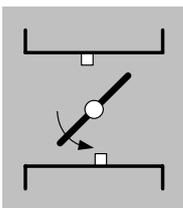
- All 8 LED's **light up** for **4 Seconds** (lamp test)

5.3



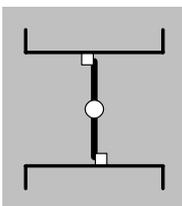
- **OPEN / CLOSE** LED's **flash alternately** for the duration of the system test

5.4



- The green LED **CLOSE** is **flashing**, the dampers are moved to the close position

5.5



- The green LED gives a **steady light**, all dampers have reached the closed position

5.6



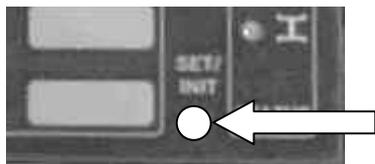
- The system is now ready for use

6.0 Function test



- The purpose of the function test is for checking the system manually and should be performed periodically
- The connected dampers are moved to the **OPEN** and **CLOSE** positions
- Note preparatory work in Para. 2.0

6.1 Initiation criteria:



- **Press and hold SET/INIT** key

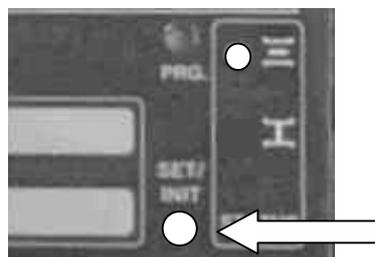
6.2 Procedure:

6.3



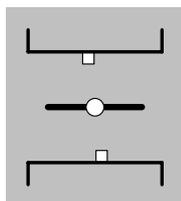
- The green LED **CLOSE** lights up
- All dampers are **closed**
- The fault LED's 1...6 are **off**

6.4



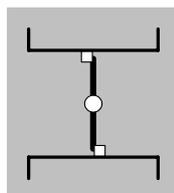
- **Press and hold** the **SET/INIT** key
- The yellow LED **OPEN** start's **flashing**, the dampers move to the open position

6.5



- The dampers have reached the fully OPEN position when the yellow LED gives a **steady light**
- Release the **SET/INIT** key

6.6



- The green LED **CLOSE** start's **flashing**, the dampers move to the close position
- When the green LED gives a **steady light** it means that the dampers have reached the fully closed position. The function test has been completed successfully

6.7

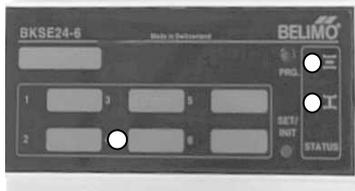


- The system is now ready for use

7.0 Fault alarms

7.1 Fault present

Fault in the system

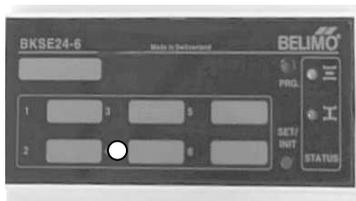


- Fault LED **flashing** (e.g. damper 4)
 - LED **OPEN** or **CLOSE** flashing (depending on the control signal)
- > **Fault present**
 --> **Contact K5 is open** (see page 11, Signalling)

Note:
Possible causes Paragraph. 7.3

7.2 Fault stored

Temporary fault in the system



- Fault LED **steady light** (e.g. damper 4)
- > **Fault stored**
 --> **Contact K5 is closed** (see page 11, Signalling)
- A stored fault can be re-set in two ways:
 1. Manually, with the **SET/INIT** key (see Para. 4.0)
 2. Automatically, when the dampers have run properly to the successive end positions OPEN / CLOSED

7.3 Initiation criteria

- When a damper does not reach the OPEN or CLOSE position within the specified running time
---> Para. 2.1
- Open-circuit or fault at the plug connections from the damper actuator and the BKNE230-24 unit
---> Para. 2.2
- Open-circuit or wrong polarity on the 2-wire conductor
---> Para. 2.3
- No power supply or fault in the BKNE230-24 unit
---> Para. 2.4
- No power supply or fault in the BKSE24-6 unit
---> Para. 2.6
- After adding a damper actuator to, or removing a damper actuator from an existing system
---> Para. 4.0

7.4 Unit fault

Fault in the BKSE24-6 unit

- All 8 LED's on the BKSE24-6 unit **flash synchronous**
- > It means that the BKSE24-6 unit is defective and must be replaced

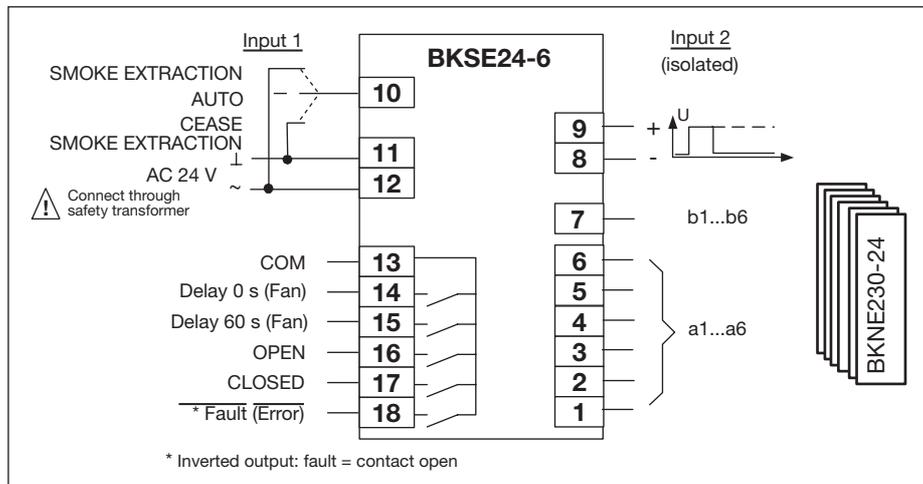
8.0 Technical data



Danger

The enclosure of the actuator equipment may only be opened by the manufacturer. It contains no components which the user can replace or repair.

Wiring diagram



Control and monitoring of up to 6 motorized smoke extraction dampers using the BKNE230-24 unit

Application

The BKSE24-6 unit is designed for mounting in equipment cubicles and indicates operating status and fault signals for the smoke extraction dampers that are linked to it. The auxiliary contacts that are incorporated also allow functions to be signalled or passed on to higher-level control systems.

Mode of operation

The signals from the BKNE230-24 unit are received by the BKSE24-6 unit and evaluated individually. All BKNE230-24 units are triggered simultaneously. Communication is via the 2-wire conductor. Correct operation of the dampers is indicated by means of two LEDs. The operating status of the SBSE-Control system and any faults are also indicated by this LED and the corresponding fault LED.

Control

There are two control options for the BKSE24-6 unit:

Input 1 (terminal 10) controlled through a switch or pushbutton. The commands for SMOKE EXTRACTION (terminals 10/12) or CEASE SMOKE EXTRACTION (terminals 10/11) are handled with Priority 1.

Input 2 (terminals 8/9) controlled through a higher-level system.

The command for SMOKE EXTRACTION is handled with Priority 2 and is only implemented when Input 1 is positioned to AUTO (terminal 10 open).

Command memory

The last control command is retained throughout temporary power failures.

INIT

In the event of a fault, a self-test can be initiated by pressing the SET/INIT pushbutton.

Fault memory

Faults remain stored in the BKSE24-6 unit until the dampers have performed a complete trouble-free cycle.

Factory settings

The BKSE24-6 unit is programmed at the factory for 6 smoke extraction dampers. The control command CEASE SMOKE EXTRACTION is also stored in the memory.

Installation and connection

The BKSE24-6 unit can be clipped directly to a 35 mm DIN mounting rail and connected by means of two 9-pole plug-in terminals.

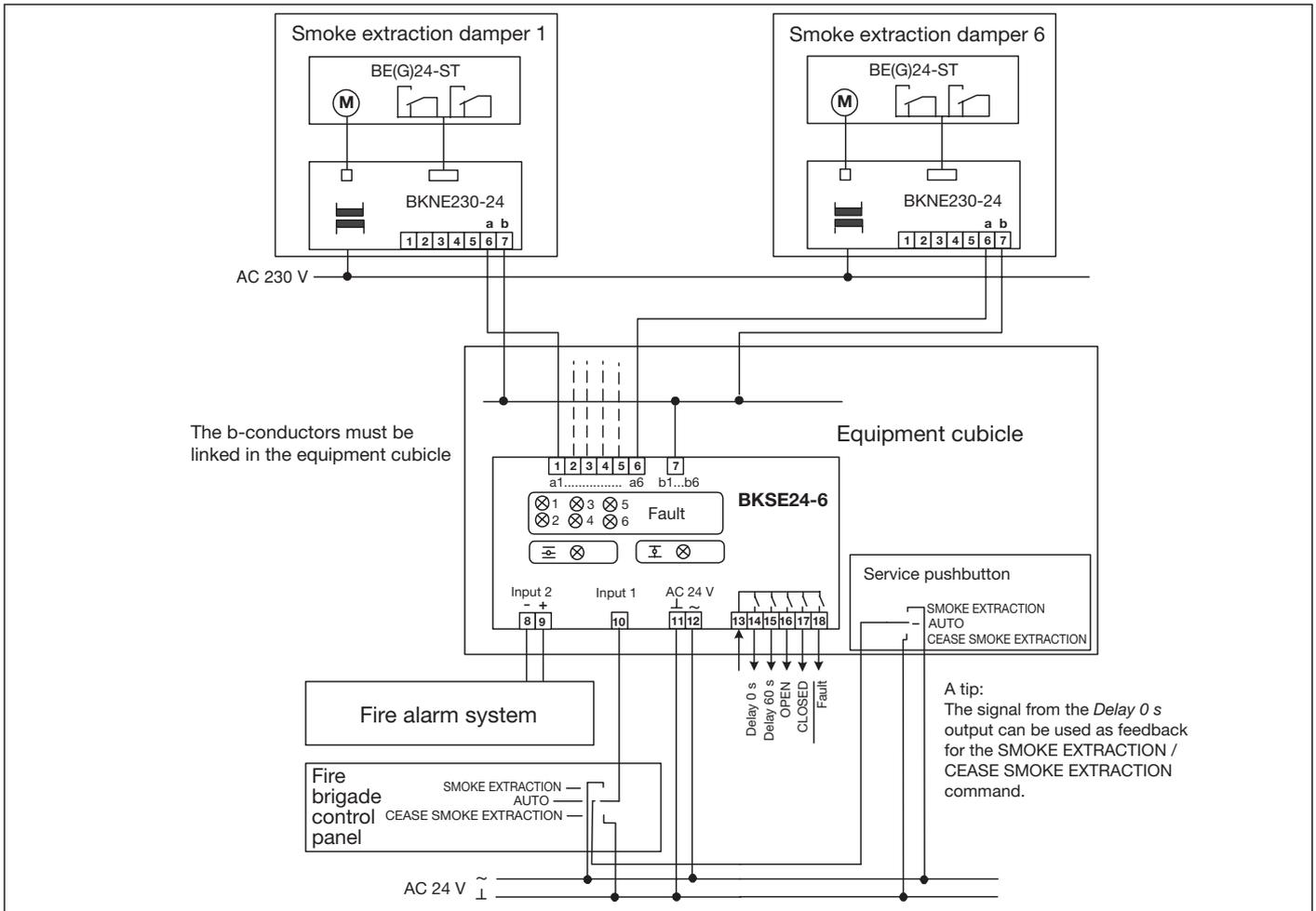
It is recommended that a fire alarm signal cable suitable for the application be used for the 2-wire conductor.

Smoke extraction zoning

The zoning arrangements required for the smoke extraction system can be set up by forming groups and by wiring the BKSE24-6 unit appropriately.

Technical data	BKSE24-6
Nominal voltage	AC 24 V 50/60 Hz
Nominal voltage range	AC 19.2...28.8 V
For wire sizing	5.5 VA (Imax. 6.4 A @ 2.5 ms)
Power consumption	3.5 W
Control signals	
• Input 1 (Priority 1)	
- extract smoke	link terminals 10-12
- cease smoke extraction	link terminals 10-11
- Auto	input open (basic position)
- signal duration	t _{min} = 1 s
- input impedance	R _(terminals10-11) = 66 kΩ; R _(terminals10-12) = 66 kΩ
• Input 2 (Priority 2)	terminals 8 + 9 (isolated from input 1)
- input level DC	U _(high) = DC 18...30 V; U _(low) < DC 12 V
- input current DC	I = 5 ± 0.5 mA
- input level AC	U _(high) = AC 16...30 V; U _(low) < AC 8 V
- input current AC	I = 2.5 ± 0.5 mA
- signal duration	t _{min} = 0.5 s
Connections	terminals for wire 2 x 1.5 mm ²
Conductor lengths	
• 2-wire conductor a/b	max. 600 m (wire 0.75 mm ²)
• control input	max. 600 m (wire 0.75 mm ²)
Recommended cable	Fire alarm signal cable 2 x 0.8 mm ²
Type	JE-H (St) Bd FE180/E30-E90
Auxiliary contacts	AC 24 V @ 0.5 A
Protection class	III safety extra-low voltage
Degree of protection	IP20
Mode of operation	type 1 (EN 60730-1)
Software class	A (EN 60730-1)
Ambient temperature range	0...+50°C
EMC	CE according to 89/336/EEC
Maintenance	maintenance-free
Weight	160 g

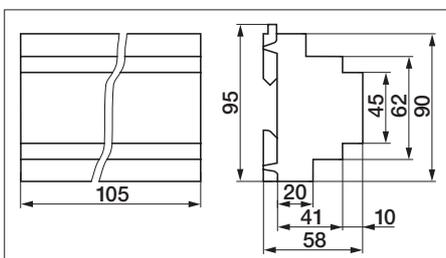
9.0 Block diagram, signalling, dimensions



Signal outputs

Signal	Contact (terminal)	Function
Delay 0 s	K1 (14)	Contact closes as soon as the SMOKE EXTRACTION command is given
Delay 60 s	K2 (15)	Contact closes with a delay of 60 s after the SMOKE EXTRACTION has been given
Open	K3 (16)	Contact remains closed for as long as all dampers are in OPEN position
Closed	K4 (17)	Contact remains closed for as long as all dampers are in CLOSED position
Fault	K5 (18)	The fault contact opens as soon as a fault is detected. Possible faults: see page 9, Para. 7.

Dimensions



Air applications



Standard actuators and spring-return actuators for air control dampers in HVAC systems



Safety actuators for motorizing fire and smoke extraction dampers



VAV systems for individual room air control



Mixing actuators and motorized ball valves for HVAC water circuits



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Innovation, Quality and Consultancy: A partnership for motorizing HVAC actuators

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