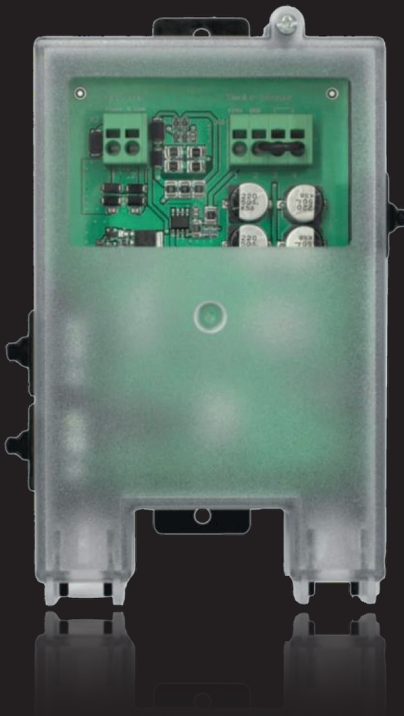


BC24 G2

Slave device
SLC[®] wiring principle



SLC® Line → slave device

BC24 G2

Technical datasheet

Slave device for fire protection and smoke extraction actuators



Main characteristics

- + plug connection for actuator
- + current measurement of actuator
- + simple damper test
- + runtime monitoring
- + power supply and input for smoke detector
- + tried and tested **SLC®** wiring principle (power supply via communication line)



Compatible actuators

Spring return actuators	BELIMO	BF24-T-ST	(18 Nm)
		BFN24-T-ST	(9 Nm)
		BLF24-T-ST	(6 Nm)
		BFL24-T-ST	(4 Nm)
Smoke extraction actuators	BELIMO	BE24-ST	(40 Nm)
		BLE24-ST	(15 Nm)
		BR24-F-ST	(15 Nm)
		BEE24-ST	(25 Nm)*
		BEN24-ST	(15 Nm)*

***from october 2020**

Cable adapter set for actuators without prefabricated "ST" connection available from BV-Control AG

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5	Terminal assignment.....	6
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7	Dimensions	8

1 SUMMARY

The BC24 G2 is the linking element between the SLC® master device (e.g., SLC24-B, SLC24-8B, SLC24-16B) and damper actuator.

Power supply (**for actuator and smoke detector**) and communication take place via an interchangeable two-wire line.

A smoke detector or another safety element can be connected without any additional equipment.

When the smoke or temperature sensor is triggered, the damper is immediately controlled locally to the safety position and the corresponding report is sent to the higher-level system.

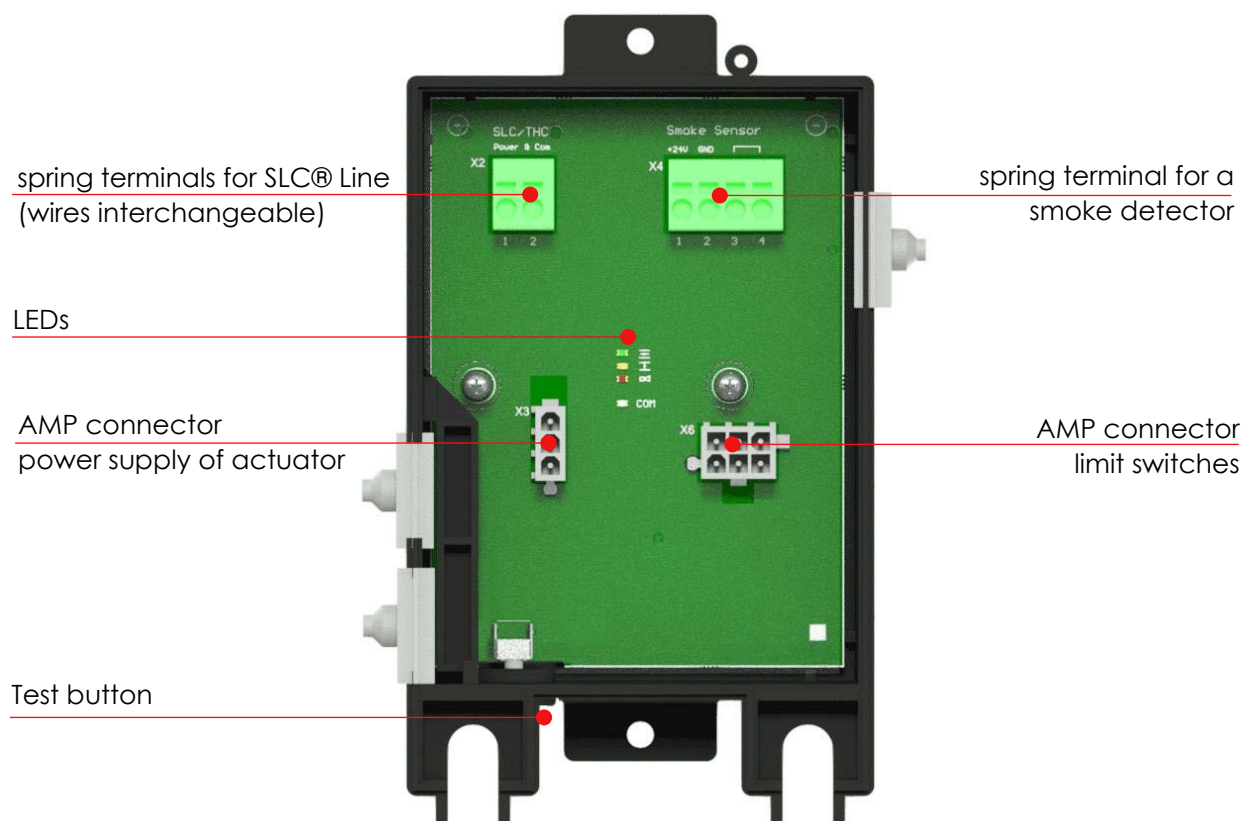


2 TECHNICAL DATA

Electrical data	Rated voltage	Defined by SLC® control device	
	Power consumption	0.5W	
	Connections	Plug connections / spring terminals	
	Power supply for external smoke detector	+24VDC / max. 30mA	
Safety	Protection class	III (safety extra-low voltage)	
	EMC	CE in accordance with 2014/30/EU	
	Mode of operation	Type 1 (EN 60730-1)	
	Rated impulse voltage	2.5 kV (EN60730-1)	
	Pollution degree of environment	3 (EN60730-1)	
	Ambient temperature	-20° ... +50°C	
	Storage temperature	-20° ... +80°C	
	Humidity test	95% rh, non-condensing (EN 60730-1)	
	Maintenance	Maintenance-free	
Mechanical data	Dimensions	Width	114 mm
		Height	153 mm
		Depth	54 mm
	Weight	240 g	
	Installation	Screw-fitted	

Table 1 Technical data

3 DEVICE OVERVIEW



4 DISPLAY AND OPERATION

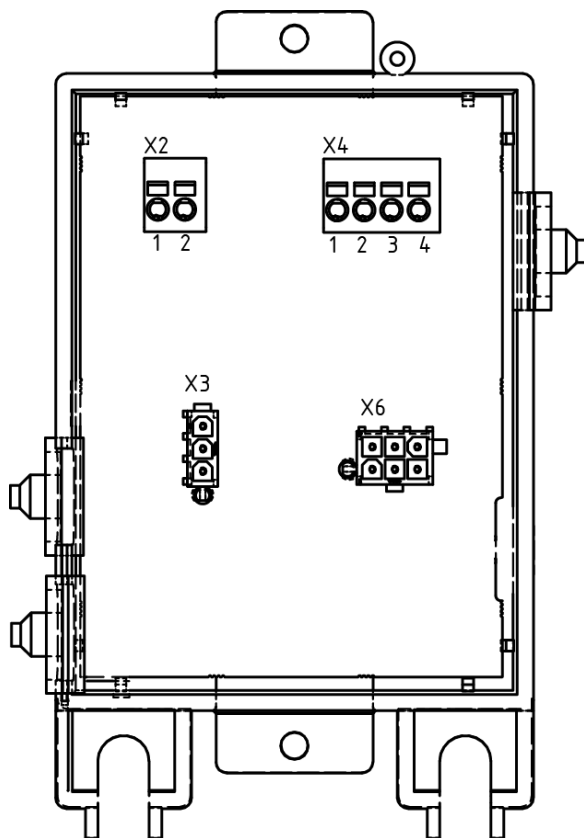
LEDs

Green	on	„damper open“	(from october 2020)
	blinks	“damper is opening”	
Yellow	on	„damper “	(from october 2020)
	blinks	“damper is closing”	
White	blinks	SLC-communication ok – control command „close damper“	
	flashes	SLC-communication ok – control command „open damper“	
Red	blinks	self-test active	
		error:	
			communication loss
			actuator not connected
			thermoelectric tripping device of actuator triggered
			runtime monitoring / mechanical error triggered
	on	safety element triggered (at X4)	

Button

By pressing the button, the command received from the control module is reversed i.e. the damper travels to the opposite direction as long as the button remains pressed. This allows the simple function test on site of the damper. The button operation causes an error message at the control device which has to be reset.

5 TERMINAL ASSIGNMENT



X2 2-pin spring terminal 1/2 (formerly 6 / 7)

Connection for SLC – two-wire line, wires interchangeable. Maximum cable lengths can be calculated with the SLC Planning Tool.

Rule of thumb: 300m@1.5 mm²

X4 4-pin spring terminal

Connection for smoke detector

- 1 +24VDC / max. 30 mA
- 2 GND
- 3 IN1 (external relay contact 1)
- 4 IN2 (external relay contact 2)

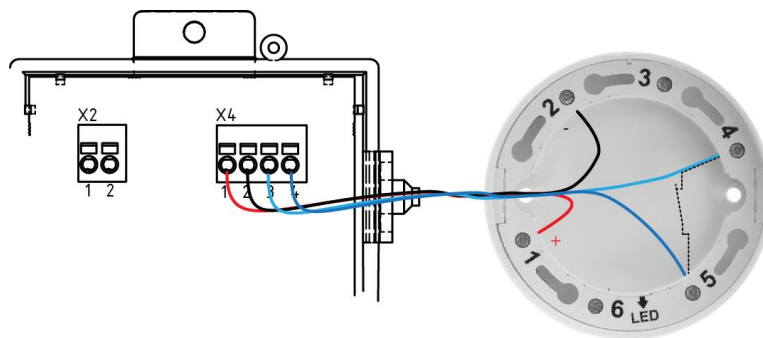
X3 3-pin AMP connector

Power supply for actuator

X6 6-pin AMP connector

Limit switches of the actuator

Example with ORS142 K (Hekatron)

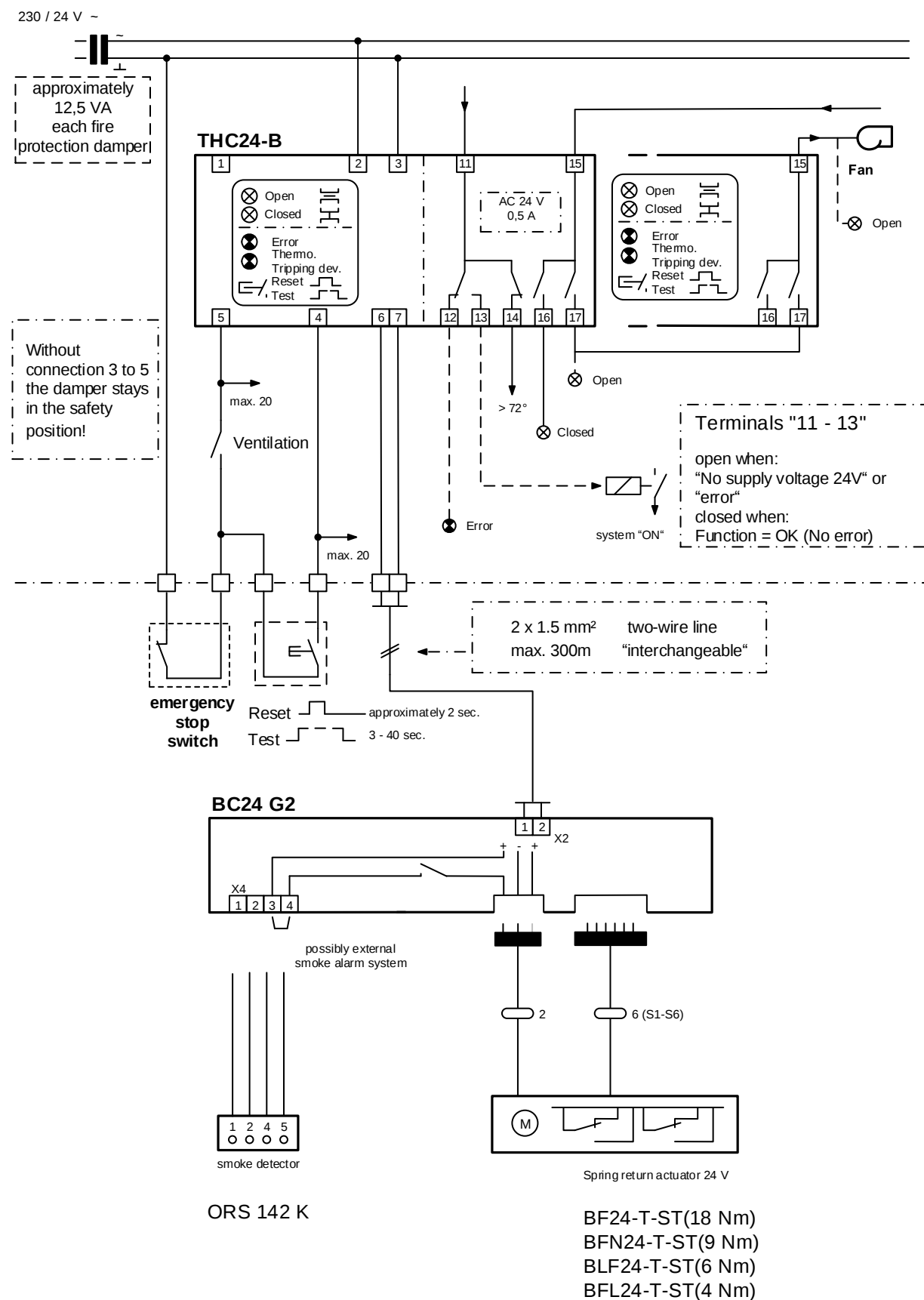


Instead of a smoke detector, any potential-free control contact can be connected to terminals X4: 3/4 (e.g. fire alarm system). When the contact opens, the damper travels to the safety position. At delivery the bridge between X4: 3/4 is present.

Attention

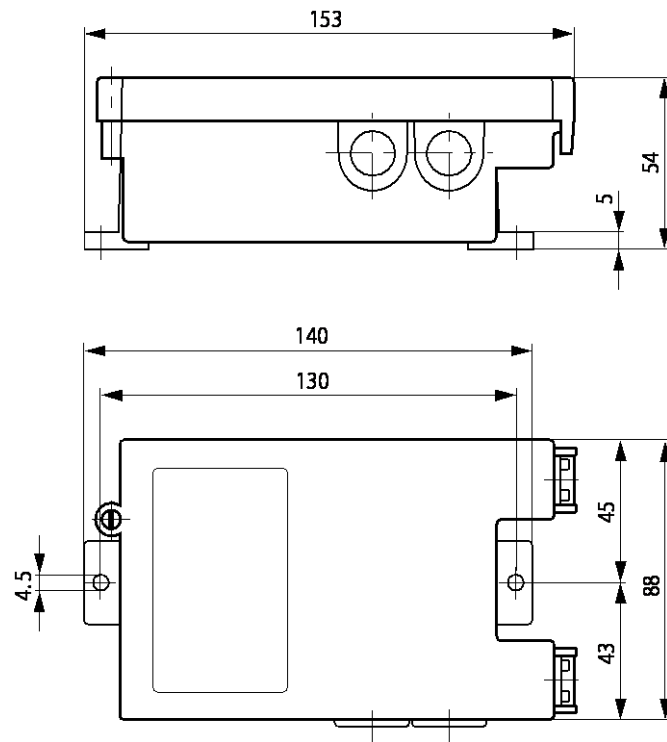
Parallel circuits, i.e. a smoke detector on multiple slave devices are not allowed.

6 WIRING EXAMPLE WITH THC24-B



7 DIMENSIONS

Dimensions in mm





MP3

When **Quality** meets **Passion**

THC24-B G2

Digital communication and
monitoring of one motorized
fire damper



SLC® Line → BC24 (G2) master

THC24-B G2

Technical datasheet

Digital communication and control unit for the control and reliable monitoring of one motorized fire damper in ventilation systems



Main characteristics



- + **BC24 G2 / BC24 master**
- + **1:1 replacement for THC24-B**
- + display of damper position
- + monitoring of actuator travelling time
- + monitoring of the thermoelectric tripping device of the actuator
- + monitoring of a smoke detector attached at the BC24
- + manual damper test via button on device
- + tried and tested SLC® wiring principle, in star topology via 2 x 1.5 mm² cables to the fire damper
- + conventional control via potential-free contact
- + relay outputs for enabling ventilation
- + relay output (BAE** or smoke detector triggered)

* The datasheet for the BC24 G2 is available as a separate document

** Thermoelectric tripping device

Content

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1 SUMMARY

The THC24-B G2 is the successor of the THC24-B. The module communicates with the communication units BC24 (G2) via an interchangeable 2-wire line.

The SLC® communication principle used enables the actuator to be supplied with power directly via the communication line, so that no separate power supply line has to be laid to the damper.

The module sends and receives digitally encoded commands and status messages. The simultaneous transmission of check codes ensures maximum transmission reliability.

In the event of a communication interruption, the THC24-B G2 module reports the fault and the BC24 (G2) autonomously moves the damper to the safety position.

Four LEDs are used to display the movement sequences and states of the damper and the safety elements.

The movement sequence can be easily followed on the display. The current position of the damper can be seen at any time. A button allows the user to test the damper and is used to reset errors.

The device is equipped with 4 relay outputs to forward the states 'damper closed', 'damper open', 'thermoelectric tripping device / smoke detector error' and 'general error'.



2 TECHNICAL DATA

Electrical data	Nominal Voltage	24 VAC	-15%...+20% , 50/60 Hz
		24 VDC...28 VDC	
		Attention, severely limited cable lengths when using 24.0 VDC! Use power supply with adjustment function	
	Power Consumption	1.5 VA	
	Terminals	Plug-in spring-loaded	
	Relay load	0.5 A @ 24 VAC; 0.5 A @ 24 VDC	
Safety	Protection Class	III (safety extra-low voltage)	
	EMC	CE according 2014/30/EU	
	Mode of operation	Type 1 (EN 60730-1)	
	Ambient temperature	-20° ... +50°C	
		-20° ... +80°C	
	Humidity Test	95 % RH, not condensing (EN 60730-1)	
	Maintenance	Maintenance-free	
Mechanical data	Dimensions	Width	24.5 mm
		Height	76.75 mm (without terminals)
		Depth	78 mm (on DIN rail)
	Weight	approx. 150 g	
	Installation	Clips onto 35 mm DIN rail.	

Table 1 Technical data

3 DISPLAY AND OPERATION

LED green

on	damper is open
blinking	damper is opening
flashing	open command present and actuator not connected or thermoelectric tripping device of the actuator triggered

LED yellow

on	damper closed
blinking	damper is closing

LED red (>72°C)

blinking	thermoelectric tripping device or smoke detector on BC24 (G2) interrupted
on	thermoelectric tripping device or smoke detector on BC24 (G2) was temporarily interrupted. (saved error)

LED red (horn)

blinking	current mechanical error
on and shortly off	saved mechanical error
flashing	communication error (SLC line shorted or open)
on	saved communication error

Button

no error	as long as the button is pressed, the actuator moves in the opposite direction, i.e. reverses the control of terminal 5
on error	for current errors and stored mechanical errors, a reset / self-test is carried out; for other stored errors, only the errors are deleted without a reset / self-test

Self-test

The self-test is performed when the system is switched on. LEDs during the self-test: All LEDs light up for 3 seconds, followed by alternating green and yellow flashing until the self-test is complete.

The self-test checks whether the actuator can reach and leave the safety position within the specified time (70 seconds) and whether the actuator is drawing power. If the self-test is triggered by a reset due to mechanical errors, it also checks whether the operating position is reached.



4 INPUT TERMINALS & SLC® CONNECTION

Power supply

Terminal 2 + 3 24 VAC (-15 %...+20 % , 50/60 Hz)

24 VDC...28 VDC
(Caution with 24.0 VDC voltage,
see **chapter 6**)

Control with AC supply

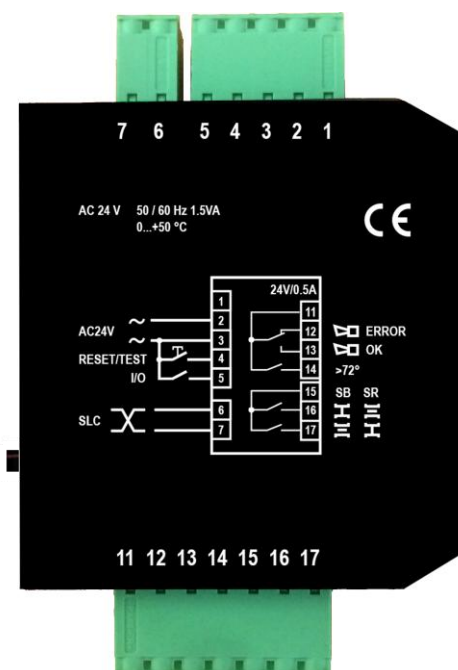
Terminal 4 connected to 2 or 3:
Test and Reset (acts like the button)

Terminal 5 connected to 2 or 3:
open damper

Control with DC supply

Terminal 4 connected to the positive pole of the
power supply:
Test and Reset (acts like the button)

Terminal 5 connected to the positive pole of the power supply:
open damper



Connection to BC24 (G2) and damper

Terminal 6 + 7 SLC line, **interchangeable**

The current of the SLC output is limited to 700 mA by means of hardware and additionally monitored by software - in the event of a short circuit, the output is deactivated for 1 minute

Never bring the SLC wires into contact with earthed parts. With a grounded transformer, the internal full-bridge rectifier would be short-circuited and destroyed.

5 RELAYS

Terminal 11+12	ERROR	connected without power supply or if an error is present
Terminal 11+13	OK	connected if no error is present
Terminal 11+14	>72°	open when thermoelectric tripping device / smoke detector on BC24 (G2) triggered
Terminal 15+16	closed	connected when the damper is closed
Terminal 15+17	open	connected when the damper is open (enable ventilation)

6 MAXIMUM LENGTHS OF THE SLC® LINE

The maximum permissible distance between the THC24-B G2 and the BC24 (G2) unit depends on the following factors:

- Input voltage of the THC24-B G2
- Cable cross-section used for the SLC® line (connection to BC24 (G2))
- Drive performance
- Smoke switch performance

6.1 EXAMPLE WITH AC POWER SUPPLY

When using a sufficiently dimensioned 230/24 V AC transformer and a cable cross-section of 1.5 mm², very long distances can be achieved:

Power Supply	Cross Section	Actuator	Smoke Detector ORS 142 K	Max. length
24 VAC	1.5 mm ²	BF24-ST (18Nm)	Yes	475 m
24 VAC	1.5 mm ²	BFN24-ST (9Nm)	Yes	500 m
24 VAC	1.5 mm ²	BFL24-ST (4Nm)	Yes	500 m

6.2 EXAMPLE WITH DC POWER SUPPLY

When using 24.0 VDC, the cable length is severely limited! We therefore recommend using a power supply that allows the output voltage to be increased by a few volts:

Power Supply	Cross Section	Actuator	Smoke Detector ORS 142 K	Max. length
24 VDC	1.5 mm ²	BF24-ST (18Nm)	Yes	35 m
24 VDC	1.5 mm ²	BFN24-ST (9Nm)	Yes	55 m
24 VDC	1.5 mm ²	BFL24-ST (4Nm)	Yes	75 m
25 VDC	1.5 mm ²	BF24-ST (18Nm)	Yes	150 m
25 VDC	1.5 mm ²	BFN24-ST (9Nm)	Yes	225 m
25 VDC	1.5 mm ²	BFL24-ST (4Nm)	Yes	275 m
26 VDC	1.5 mm ²	BF24-ST (18Nm)	Yes	325 m
26 VDC	1.5 mm ²	BFN24-ST (9Nm)	Yes	400 m
26 VDC	1.5 mm ²	BFL24-ST (4Nm)	Yes	475 m

7 TRANSFORMER / POWER SUPPLY DIMENSIONING

The power of the transformer or power supply must be sufficiently dimensioned.

7.1 EXAMPLE WITH TRANSFORMER

$$\begin{array}{rcccccccc} S(\text{THC24-B G2}) & + & S(\text{BC24 G2}) & + & S(\text{ORS142K}) & + & S(\text{BF24-ST}) & = S_{\text{Tot}} \\ 1.5 \text{ VA} & + & 1.5 \text{ VA} & + & 1 \text{ VA} & + & 10 \text{ VA} & = \mathbf{14 \text{ VA}} \end{array}$$

$$\begin{array}{rcccccccc} S(\text{THC24-B G2}) & + & S(\text{BC24 G2}) & + & S(\text{ORS142K}) & + & S(\text{BFN24-ST}) & = S_{\text{Tot}} \\ 1.5 \text{ VA} & + & 1.5 \text{ VA} & + & 1 \text{ VA} & + & 6 \text{ VA} & = \mathbf{10 \text{ VA}} \end{array}$$

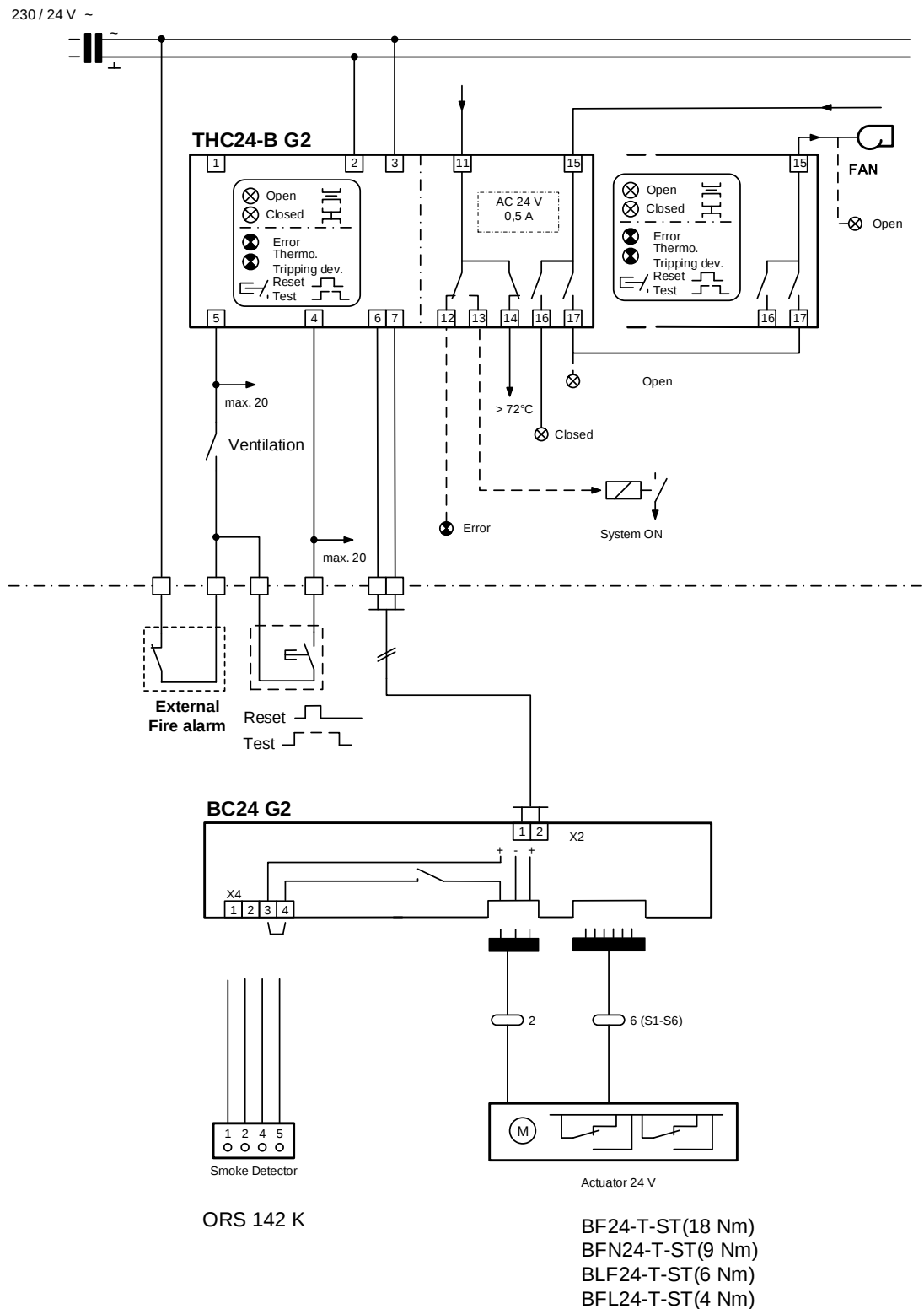
7.2 EXAMPLE WITH DC POWER SUPPLY

$$\begin{array}{rcccccccc} P(\text{THC24-B G2}) & + & P(\text{BC24 G2}) & + & P(\text{ORS142K}) & + & P(\text{BF24-ST}) & = P_{\text{Tot}} \\ 1 \text{ W} & + & 1 \text{ W} & + & 0.5 \text{ W} & + & 7 \text{ W} & = \mathbf{9.5 \text{ W}} \end{array}$$

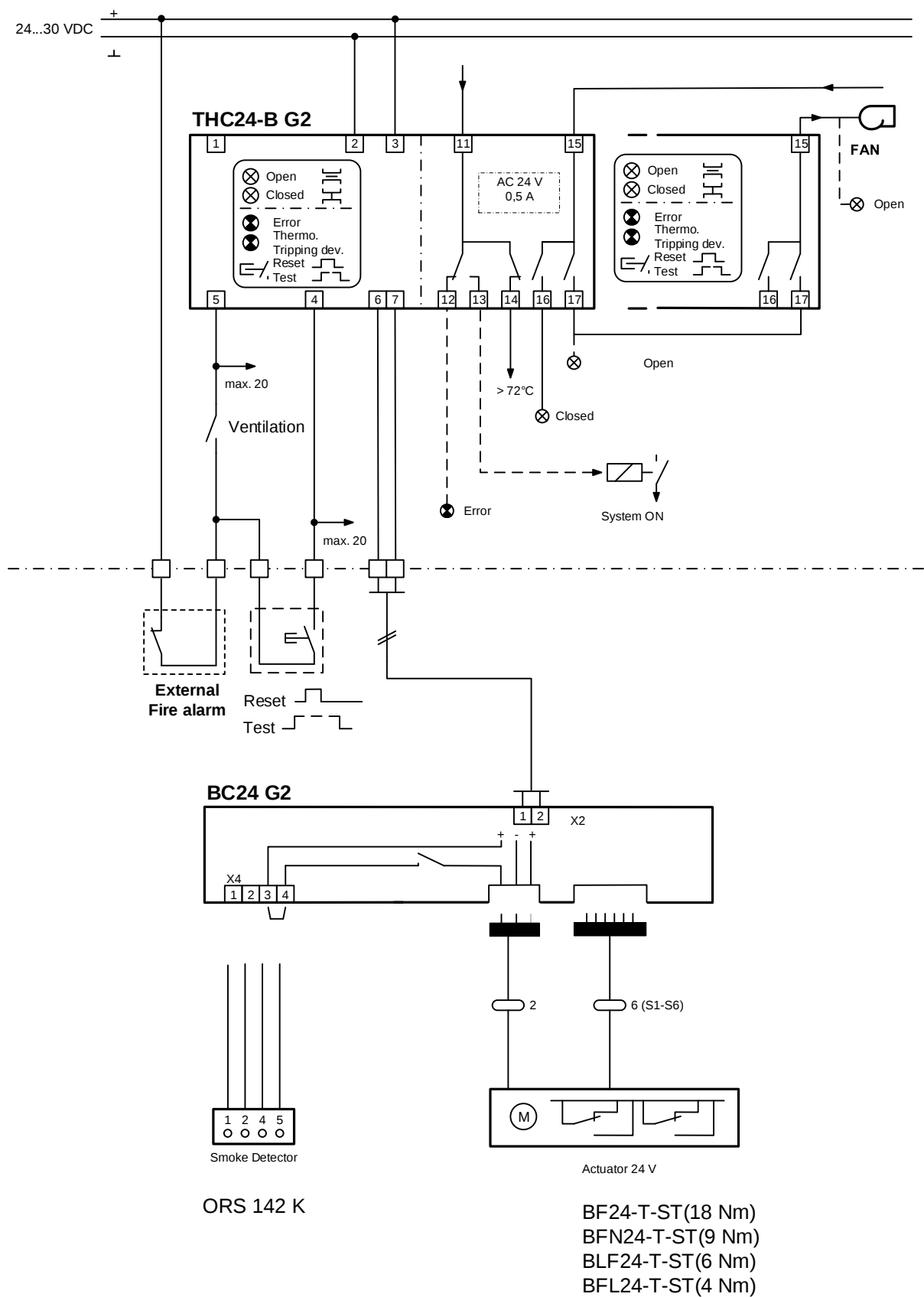
$$\begin{array}{rcccccccc} P(\text{THC24-B G2}) & + & P(\text{BC24 G2}) & + & P(\text{ORS142K}) & + & P(\text{BFN24-ST}) & = P_{\text{Tot}} \\ 1 \text{ W} & + & 1 \text{ W} & + & 0.5 \text{ W} & + & 4 \text{ W} & = \mathbf{6.5 \text{ W}} \end{array}$$

8 WIRING EXAMPLES

8.1 EXAMPLE WITH BC24 G2 (AC POWER SUPPLY)

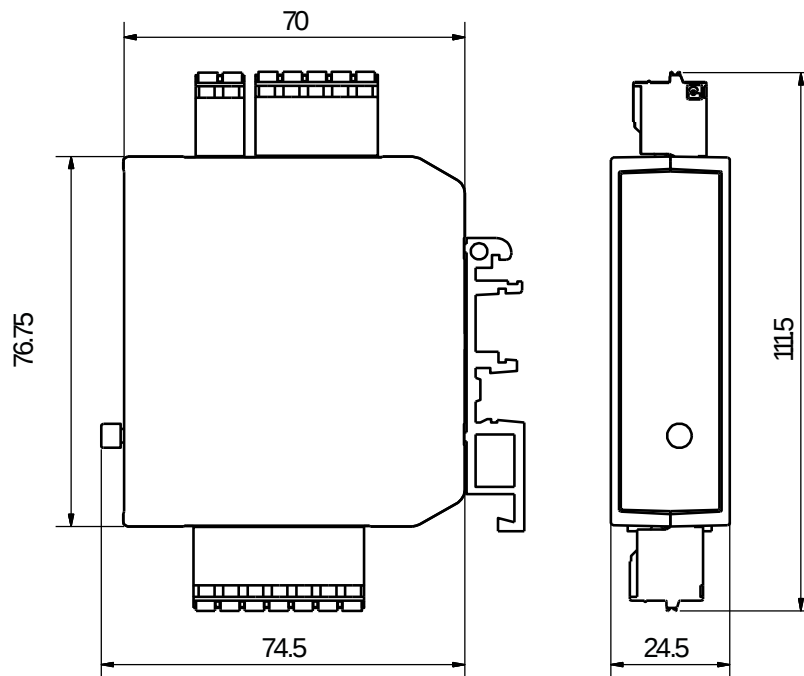


8.2 EXAMPLE WITH BC24 G2 (DC POWER SUPPLY)



9 DIMENSIONS

Dimensions in mm





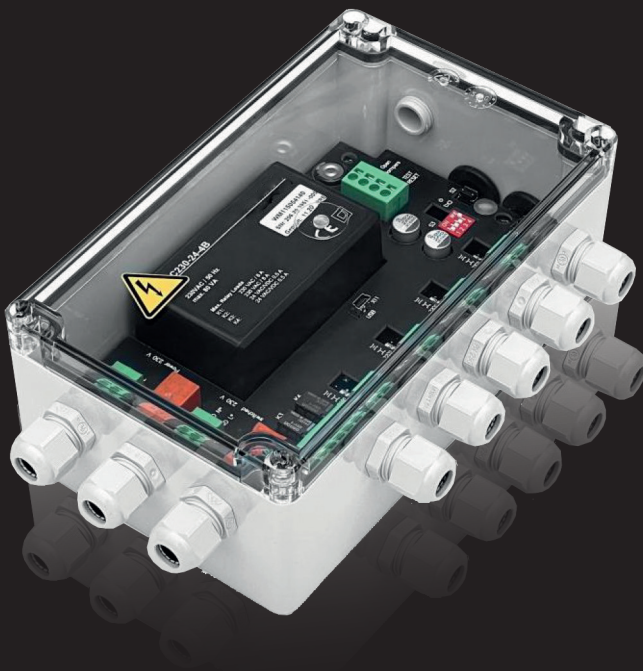
MP3

When **Quality** meets **Passion**

SLC230-24-2B/4B

Master unit

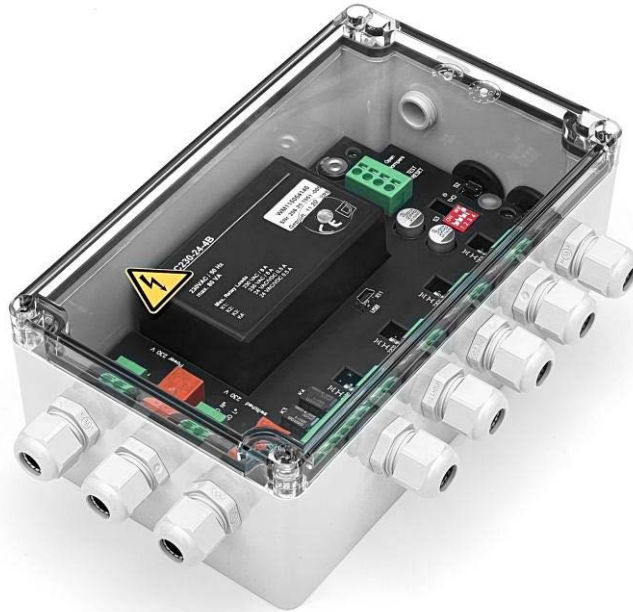
SLC® wiring principle



SLC® Line → 2-way/4-way BC24 master

SLC230-24-2B / SLC230-24-4B

Technical datasheet



Digital communication and control units for control and reliable monitoring a maximum of two/four motorized fire dampers in air-conditioning systems with integrated power supply, automatic damper test function and configurable timer for time-controlled ventilation.

Main characteristics

- + **BC24 G2 master for one or two (SLC230-24-2B) / one to four (SLC230-24-4B) motorized fire dampers**
- + Tried and tested SLC® wiring principle, in star topology via 2 x 1.5 mm² cables to the fire dampers (known from the THC24-B/BC24 system)
- + Integrated timer for automatic tests or time-controlled ventilation
- + Integrated power supply
- + Conventional control via optically isolated inputs
- + 230 VAC output for direct connection of a home ventilation system
- + Potential-free relay outputs for enabling ventilation / fault indication
- + Runtime monitoring of the dampers
- + USB interface and Windows® diagnostic and configuration tool

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1 SUMMARY

The **SLC230-24-2B** is a master for up to two, and the **SLC230-24-4B** for up to four BC24 G2 units. The devices offer display, operating, and monitoring functions for motorized fire dampers with temperature sensors and optional smoke detectors.

The devices are designed for systems in which the fire dampers are located no more than 100 m apart.

The internal power supply eliminates the need for an external power supply or transformer.

If a fault occurs on a fire damper, e.g., due to the activation of a smoke detector or BAE ($> 72^{\circ}\text{C}$), the fire dampers are closed. The ventilation or a fan is shut down by either directly interrupting the power supply or the "enable ventilation" contact.

In addition to the relay outputs, the damper position indicators, and the manual test function, the device also has an integrated timer that enables periodic, automatic tests. The intervals can be freely set via a PC tool and USB interface.

The test can consist of a complete closing process or just a brief departure from the "Open" position. In the latter case, the "enable ventilation" relay remains closed if no other errors are present.

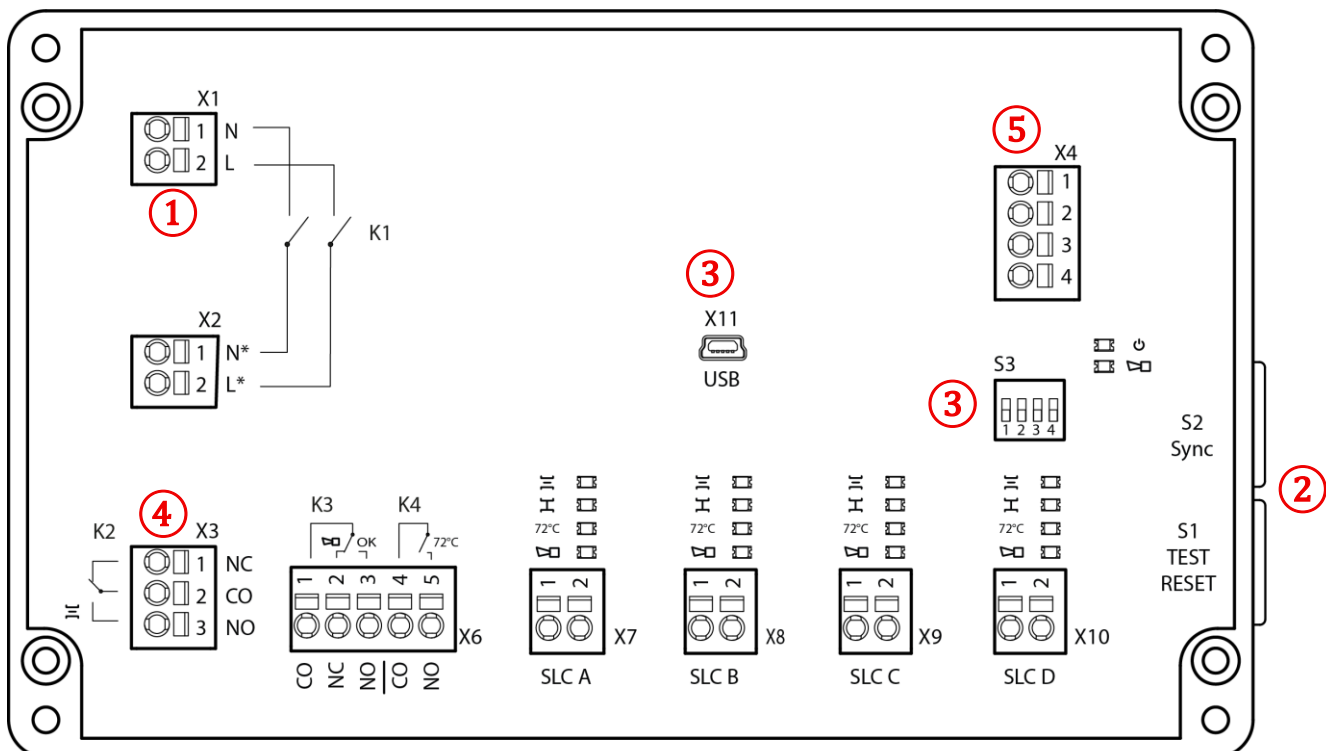
Alternatively, time-controlled ventilation can be implemented using the integrated timer. This function eliminates the need for an external timer on the control inputs.

The SLC connections are short-circuit-proof and are switched to high resistance in the event of a fault.



2 COMMISSIONING – CHECKLIST

#	Function	Description	Section	
1	Power supply	230 VAC at X1: contacts 1+2	4	☐
2	Partial occupancy	Scan started by pressing both buttons for > 5 s	5.2	☐
3	Timer (optional)	DIP switch set and intervals configured via software Timer mode + external control: corresponding setting activated in the software The Windows software can be downloaded from the BV-Control product page	5.4	☐
4	Enable ventilation	230 V via X2 and X3 or potential-free via X3	6	☐
5	Control input	Potential-free contact at X4: contacts 1 + 2 present	7	☐

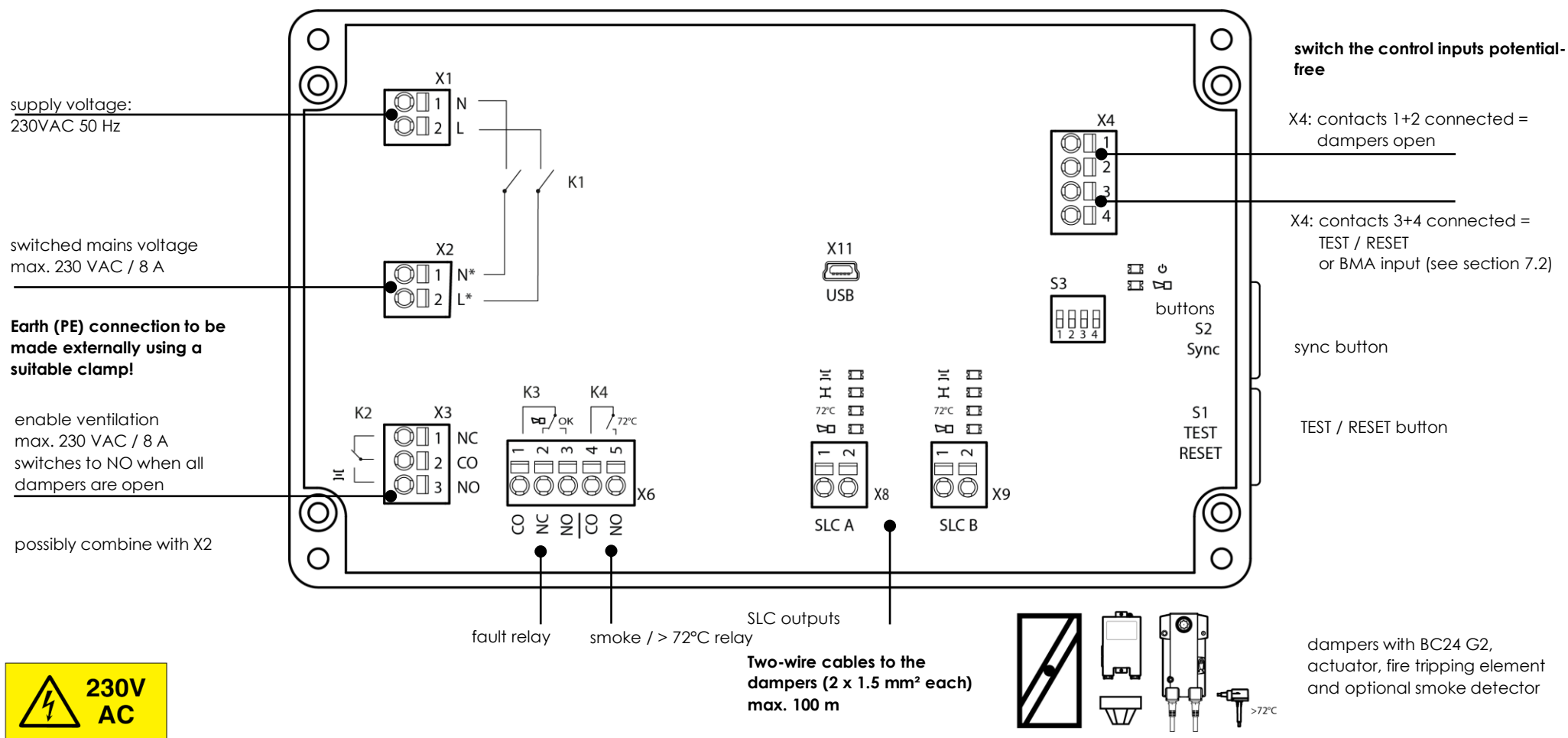


3 TECHNICAL DATA

Electrical data	Rated voltage	230 VAC
	Power consumption	Max. 50 W including BC24 G2, actuator, smoke detector and temperature sensor
	Connections	Spring terminals
	Load relay 1 (230 VAC mains voltage)	230 VAC / 8 A
	Load Relay 2 "enable ventilation"	230 VAC / 8 A
	Load Relay 3 "fault"	24 VAC/VDC / 0.5 A
	Load Relay 4 "smoke / > 72°C"	24 VAC/VDC / 0.5 A
	Maintenance	maintenance-free
Safety	Protection class	II
	EMC	CE according to 2014/30/EU CE according to 2014/35/EU
	Mode of operation	Type 1 (EN 60730-1)
	Ambient temperature	-20° ... +50°C
	Storage temperature	-20° ... +80°C
	Humidity test	95 % RH, non-condensing (EN 60730-1)
Mechanical data	Dimensions	Installation width 255 mm Height 147 mm Depth 75 mm
	Weight	805 g
	Installation	Surface-mounted with 4 screws

Table 1 Technical Data

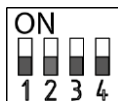
4.2 SLC230-24-2B



The 230 VAC connection to X1 and X2 may only be performed by qualified personnel! The device must be protected with a 13 A circuit breaker.

5 SETTINGS AND OPERATION

5.1 DIP SWITCHES



DIP 1

1: short auto test: The dampers only close until the "Open" limit switch is no longer active. Relay 2 (enable ventilation) remains energized during the test unless a damper closes completely, or an error occurs during the test.

0: normal auto test: **Dampers first close completely and then open again (default)**

DIP 2 + 3

00: **auto test / timer deactivated (default)**

01: auto test each day*

10: auto test each week*

11: timer active**

* The auto test intervals can be adjusted in the PC tool

** The operation of the timer is described in section 5.4.

An auto test is only performed if all active dampers are open! If this is not the case, the test is skipped.

DIP 4

1: **Saved fire alarm errors must first be acknowledged with the TEST/RESET button (S1) before the dampers can be opened again (default)**

0: the dampers can be opened without acknowledgment in case of saved fire alarm errors

5.2 BUTTONS

TEST / RESET button S1:

If an error is present, a reset of the corresponding damper is triggered. If a mechanical error is present, the damper will perform an initialization process. The fault-free dampers will close until the process is complete.

If no errors are present, all dampers will run in the opposite direction as long as the button is pressed.

Sync button S2:

The Sync button has different functions depending on the setting of DIP switches 2 and 3:

Case 1: auto test active (DIP switches 2 and 3 are either 01 or 10):

Pressing this button resets the internal time and performs an auto test. The recurring auto tests will then always be performed at the same time.

Case 2: timer active (DIP switches 2 and 3 are 11):

If the internal clock does not contain the correct time, the time is set to Monday, 00:00 (see section 5.4).

S1 + S2 Scan:

Pressing both buttons (>5 seconds) starts a scan. Connections without a BC24 G2 will be deactivated after the scan.

5.3 DISPLAY ELEMENTS

5.3.1 SLC LEDs

Green LED

on	damper is open
blinking	damper opens
flashes	open command is present but no actuator connected or BAE of actuator tripped

Yellow LED

on	damper is closed
blinking	damper closes

Red LED (> 72°C)

blinking	the temperature sensor (BAE) or the smoke detector contact (ORS) on the BC24 (G2) is interrupted
on	the temperature sensor (BAE) or the smoke detector contact (ORS) on the BC24 (G2) was interrupted temporary

Red LED (Horn)

blinking	current mechanical error is present
on and briefly off	saved mechanical error
flashes	communication error (SLC line short-circuited or open)
on	saved communication error

5.3.2 Device LEDs

Red LED (Horn)

blinking	Initialization error
on	Error is present, relays 1 + 3 are open
flashes	timer is active but internal time is not correct
on and briefly off	BMA error must be acknowledged using the TEST / RESET button

Green LED

on	Device is supplied with power
----	-------------------------------

5.4 TIMER / TIME-CONTROLLED VENTILATION

The timer is used for time-controlled ventilation by opening and closing the dampers at configurable times. Four timers are available. For each timer, a start and end time can be entered, as well as the days of the week on which ventilation should take place.

The option “*Timers active without control input*” determines whether the dampers open while the timer is active even when the control input (X4.1 / X4.2) is absent.

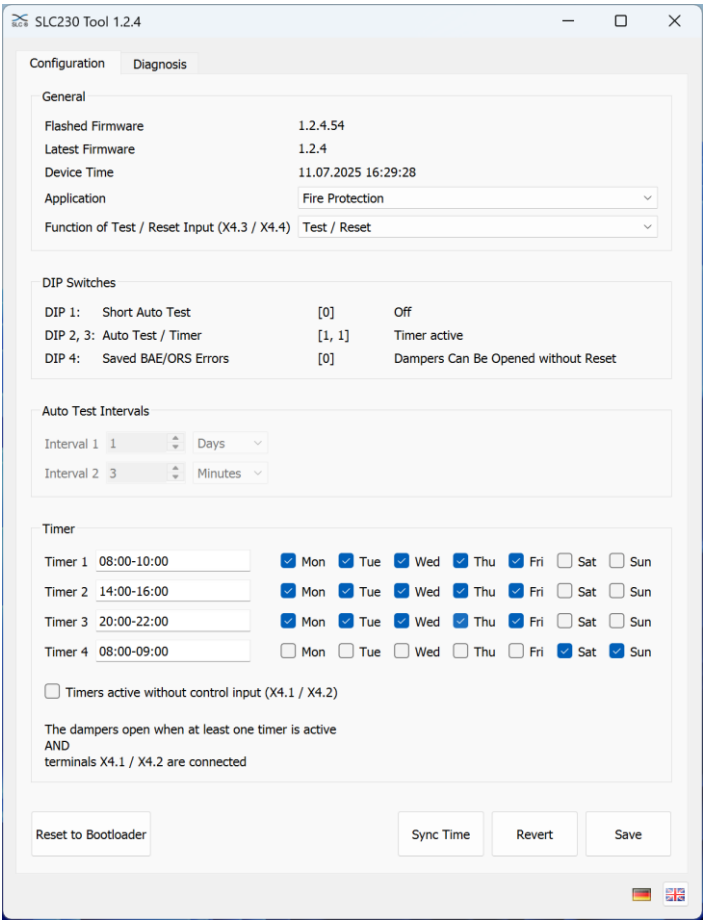
If the timer is enabled (DIP 2 + 3 both set to 1 1), the dampers open under the following conditions:

Option “ <i>Timers active without control input</i> ”	Condition for dampers to open
not enabled (default)	Timer is active AND control input is active
enabled	Timer is active OR control input is active The dampers can also be opened outside the programmed time windows via the control input.

In the delivery state, “Timer 1” is set to ventilate every day between 00:00 and 01:00. As long as the time is not synchronized with the PC tool, the device time can be set to Monday, 00:00 by pressing the sync button S2. In this case, ventilation will take place for one hour every day from this time onwards.

With the help of the PC tool, the time can be set correctly, and the individual timers can be adjusted as required.

The internal clock is backed up for approximately one week in the event of a power failure. If a power outage lasts longer than a week, the internal clock will be set to Monday, midnight the next time the unit is powered on. This is signaled by a flashing red LED (horn). The timer will continue to function in this case, but the ventilation will no longer operate at the correct time.



6 RELAY OUTPUTS

Relay 1 (K1): **Function:** **Switches the mains voltage from X1 to X2**

Interrupts in case of damper error, communication interruption or fire alarm (BAE or ORS)

Closed if no errors are present

Relay 2 (K2): **Function:** **Enable ventilation**

Switches X3.2 CO to X3.3 NO if all dampers are open and no errors are present.

Switches to X3.1 NC if one of the dampers is not open, at least one error is present, or the device is de-energized.

Relay 3 (K3): **Function:** **OK**

Switches X6.1 CO to X6.3 NO if no errors are present.

Switches to X6.2 NC in case of damper errors, communication interruptions, damper-side fire alarm (BAE or ORS), or when the device is de-energized.

Relay 4 (K4): **Function:** **> 72°C**

Switches X6.4 CO to X6.5 NO when there is no present fire alarm (BAE or ORS).

Opens when there is a fire alarm on the damper-side (BAE or ORS) or when the fire alarm system (BMA) has been triggered.

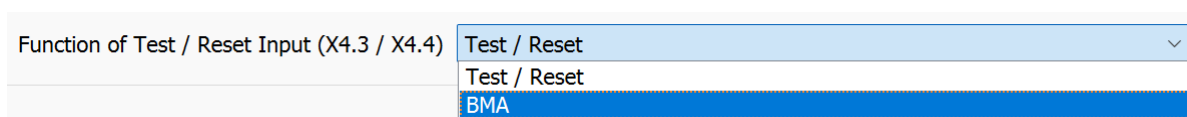
7 CONTROL

7.1 OPEN/CLOSE COMMAND

X4:	contacts 1+2	closed	=	dampers open
		open	=	dampers close

7.2 TEST / RESET

Starting with firmware version 1.2.1¹, the function of the 'Test / Reset' input can be configured using the 'SLC230 Tool'. To do so, select the desired function and then click 'Save' in the bottom right corner of the tool.



Function as 'Test / Reset' (default):

X4:	contacts 3+4 closed	=	acknowledge errors
			reverse open/close command
	open	=	no function

Function as 'BMA':

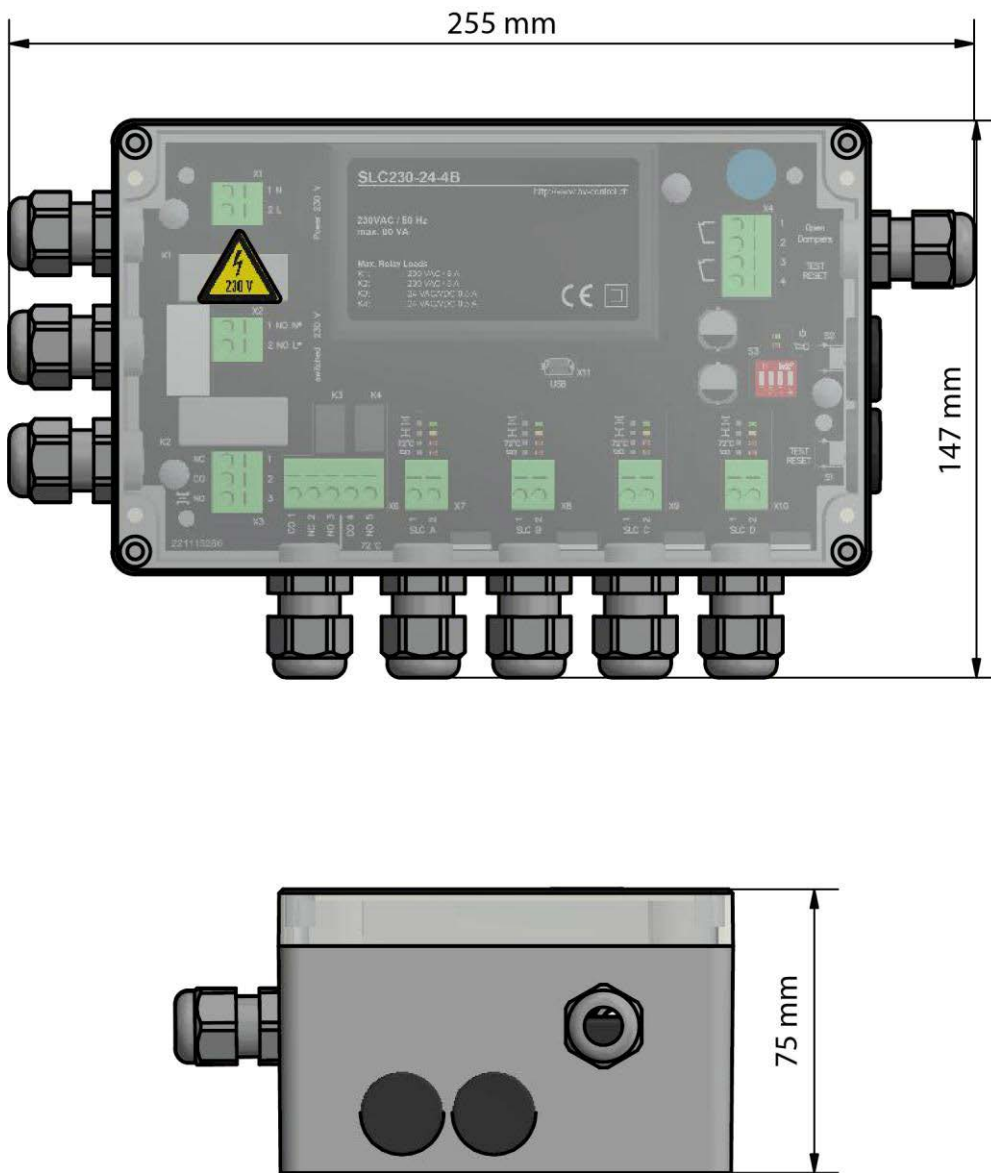
X4:	contacts 3+4 closed	=	BMA OK
	open	=	BMA triggered

When the fire alarm system (BMA) is triggered, all dampers close, relay K1 interrupts the mains voltage, and relays K2, K3, and K4 switch from NO to NC. The red device LED signals this by illuminating.

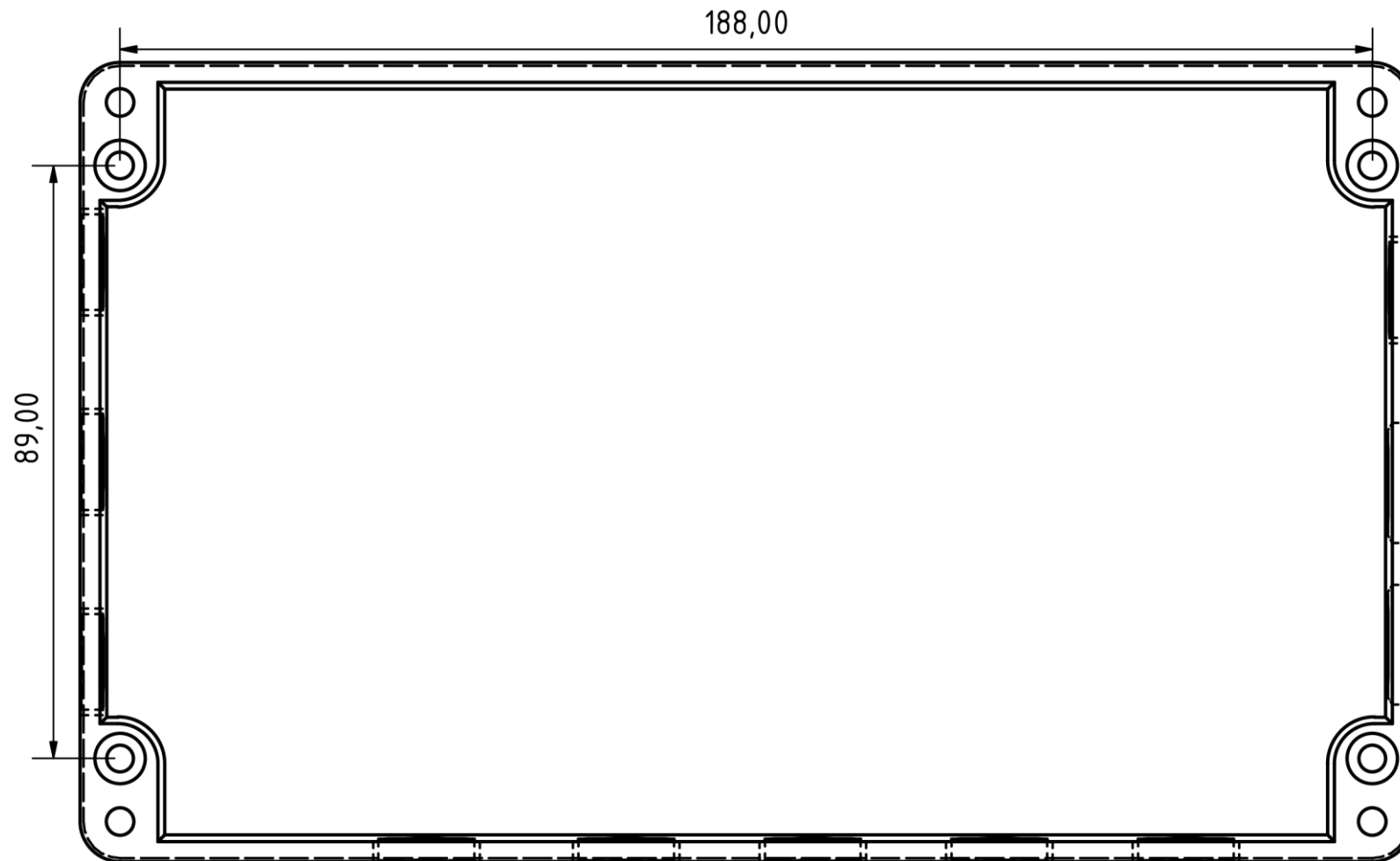
If contacts 3 and 4 are reconnected after the fire alarm system (BMA) has been triggered, the fault remains active until the fault is acknowledged using the 'Test/Reset' button. The red device LED signals this fault by illuminating and briefly extinguishing.

¹ Update possible using SLC230 tool on a Windows computer

8 DIMENSIONS



9 DRILLING PLAN





MP3

When **Quality** meets **Passion**

SLC24-16B

Master unit

SLC[®] wiring principle



SLC® Line → 8/16 x BC24 Master

SLC24-8B / SLC24-16B

Technical datasheet

Digital communication and control unit for the control and reliable monitoring of up to 8 / 16 motorized fire dampers in ventilation systems



Main characteristics

- + **Master for up to 8 / 16 BC24* units**
- + plug-in spring-loaded terminals for easy installation
- + tried and tested SLC® wiring principle, in star topology via 2 x 1.5 mm² cables to the fire dampers (known from the THC24-B/BC24 system)
- + conventional actuation via optically isolated control inputs
- + relay outputs for enabling ventilation
- + optional control and monitoring via
Modbus RTU (RS-485) or Modbus TCP/IP (Ethernet)
BACnet MS/TP or BACnet IP
- + optional monitoring via an external computer or control cabinet touchscreen (TCP/IP communication)
- + USB interface for optional configuration and on-site diagnostics via a computer
- + zoning (closing of the dampers in groups)

NEW with Firmware 3.x: (The devices will automatically upgrade if attached to the PC via USB cable and if the CDU 3.x is running)

- + **Bus-Control is only enabled if positive voltage is applied at DI3**
- + BACnet functionality has been enhanced
- + The configuration and diagnostic software now also connects through a VPN tunnel
- + Saved errors are now reset without a test run of the damper

Older Firmware can be restored by using an older CDU 2.x and pressing the Test/Reset Button at Start-UP

* The data sheet for the BC24 is contained in a separate document

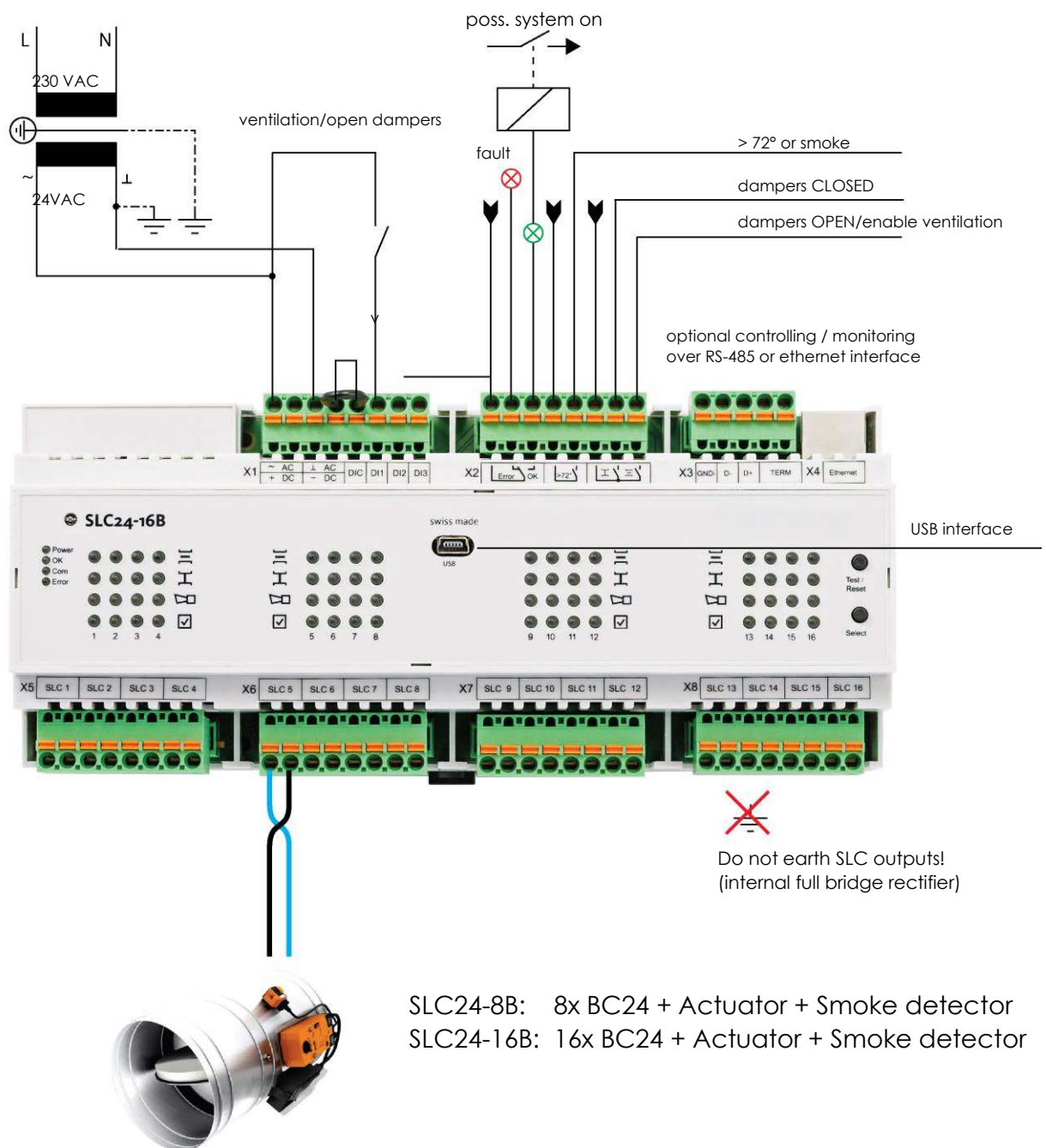
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1 SUMMARY

The SLC24-8B combines eight and the SLC24-16B sixteen **THC24-Bs** in a single unit. Up to **8/16 x BC24s** (with fire damper actuator, thermoelectric tripping device and smoke detector) can be connected. Supply and communication with the motorized fire damper are via a two-wire line. Actuation can be potential-free as with the **THC24-B**, direct via digital signals (0, 24 V) or via **MODBUS (RTU or TCP/IP or BACnet MS/TP or IP)**

Individual dampers can be grouped into zones using the **configuration and diagnostic tool**. If a damper in a zone develops a fault, the other dampers in the same zone will close too. Connections which are not being used can also be deactivated again without a USB tool via the two operating buttons by pressing them simultaneously for more than 3 seconds.



2 TECHNICAL DATA

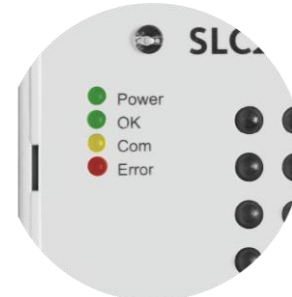
Electrical data	Rated voltage	24 VAC - 15% to + 20%, 50/60 Hz 24 to 35 VDC
	Power consumption	6 VA 4 W
	Connections	Plug-in spring-loaded terminals
	Relay load	0.5 A @ 48 VAC; 1 A @ 24 VDC
	Inputs	Type: optical coupler 10 mA @ 24 VDC (common reference point)
Modbus RTU BACnet MS/TP (default)	Medium	RS-485, galvanically isolated
	Transmission formats	1-8-N-2, 1-8-N-1, 1-8-E-1 and 1-8-O-1 (start bit, data bits, parity and stop bits)
	Number of nodes	max. 64 (without a repeater)
	Baud rates	9600, 19200, 38400 and 76800 baud
	Addresses	Modbus 1...247 (0 reserved for broadcast) BACnet 0...127
	Termination	120 Ω can be activated via jumper
	Typical response time	< 10 ms (delay can be added)
Modbus TCP/IP BACnet IP	IP address assignment	Static or DHCP Default: 10.0.0.2
Safety	Protection class	III (safety extra-low voltage)
	EMC	CE in accordance with 2014/30/EU
	Mode of operation	Type 1 (EN 60730-1)
	Ambient temperature	- 20 °C to + 50 °C
	Storage temperature	- 20 °C to + 80 °C
	Humidity test	95% rh, non-condensing (EN 60730-1)
	Maintenance	maintenance-free
Mechanical data	Dimensions	Installation width 212.1 mm Height 94 mm Depth 58 mm
	Weight	approximately 465 g
	Installation	Clips onto 35 mm DIN rail.

Table 1 Technical data

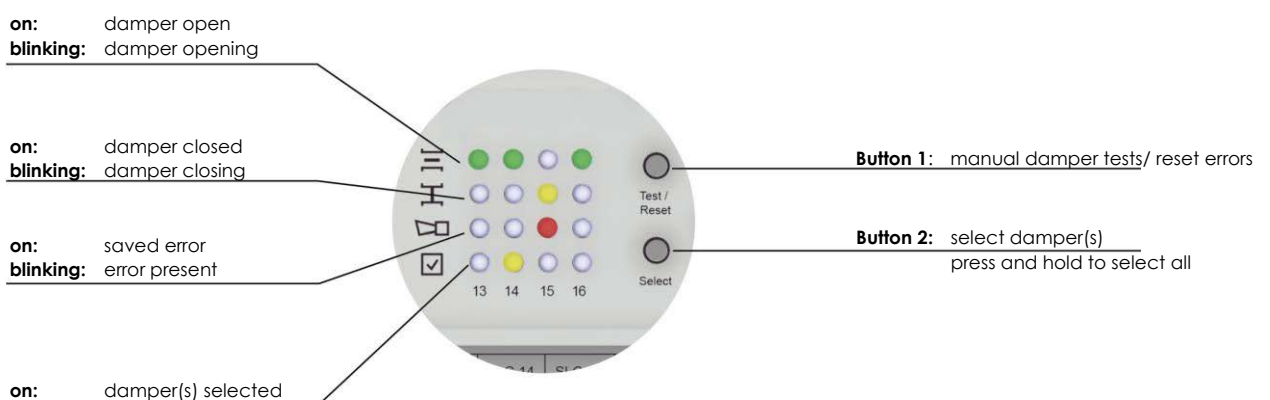
3 DISPLAY AND OPERATION

The unit has four status LEDs:

Power	Lights up when power is connected to the unit
OK enable ventilation Relay 1, Relay 4	Lights up when there are no errors/faults and all dampers programmed as active are open
Com Communication	Flashes when Modbus / BACnet packages are sent/received
Error	Lights up when faults occur Faults include the following: • Operating voltage too low/high • Short circuit on at least one SLC line • Communication error affecting at least one damper • Present damper error



The unit has two damper position LEDs for each damper and an error LED. The fourth LED indicates the damper selected which can be tested directly via the unit. **Press both buttons for more than 3 seconds to start an automatic search. As a result, SLC connections not being used will be deactivated and removed from the relay logic.**



4 CONFIGURATION AND DIAGNOSTIC TOOL

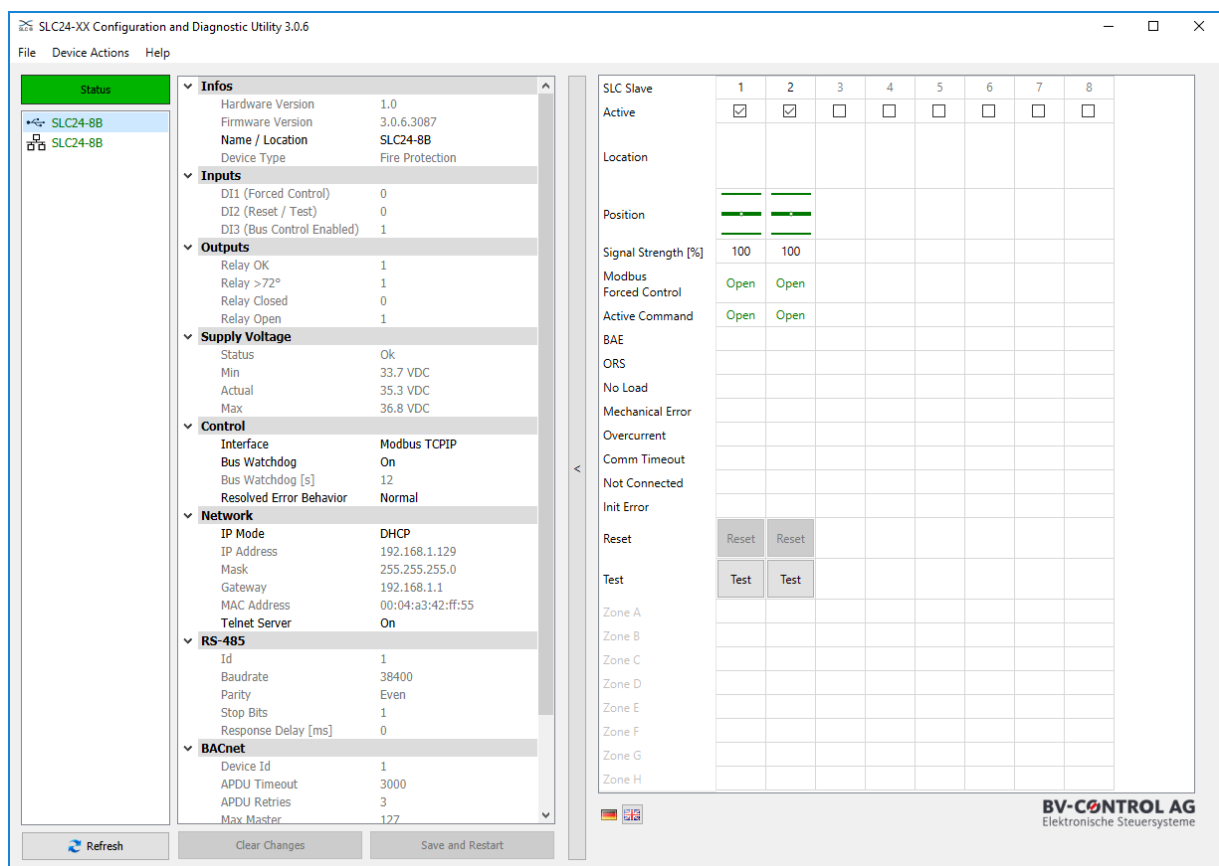
The configuration and diagnostic tool offers the following functions:

Configuration functions:

- Selection and parameterization of the bus interface
- Addressing
- Zoning
- Firmware update

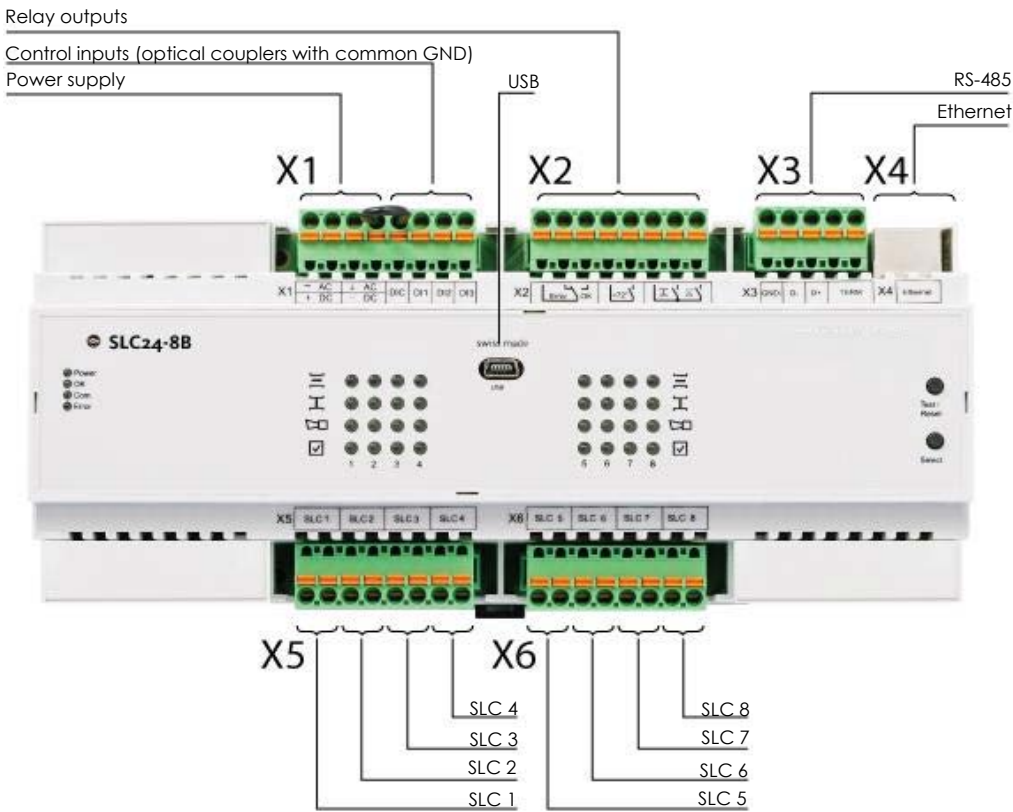
Diagnostic functions:

- Control command monitoring
- Overview of the damper positions
- Overview of actual/saved errors in the fire damper
- SLC communication check
- Manual damper tests

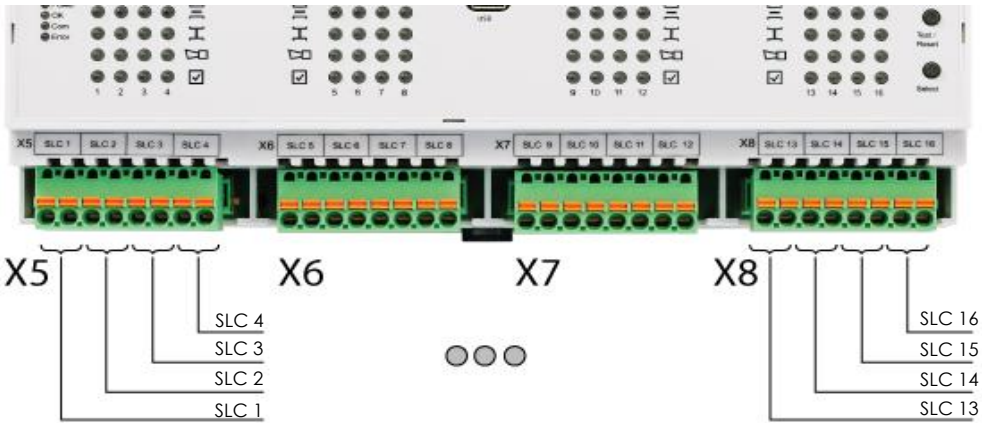


5 CONNECTIONS

5.1 SLC24-8B



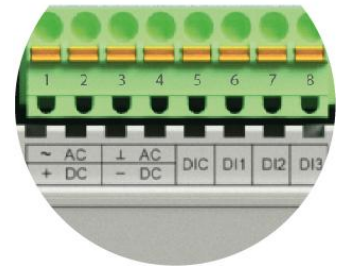
5.2 SLC24-16B



5.3 POWER SUPPLY (TERMINAL BLOCK X1 1..4)

The SLC24-XXB can run on 24 VAC or 24 VDC (Internal active bridge rectification).

Power consumption max. 6 VA/4 W.



1	2	3	4
~ AC		⊥ AC	
+ DC		- DC	

Table 2 Terminal block X1 1..4

The output of the transformer or the power supply unit must be adequately dimensioned. The total output of the actuators is decisive for dimensioning.

5.3.1 Design example (maximum load scenario)

16 x BC24 with 10 VA/7 W BF24s and smoke detector are connected via a 300 m line length in each case.

Transformer:

$$\begin{array}{rclcl}
 1 \times S(\text{SLC24-16B}) & + & 16 \times S(\text{BF24,BC24,ORS142K}) & = & S_{\text{Tot}} \\
 6 \text{ VA} & + & 16 \times 12.5 \text{ VA} & = & 206 \text{ VA} \\
 & & & \rightarrow & \mathbf{250 \text{ VA}}
 \end{array}$$

DC power supply:

$$\begin{array}{rclcl}
 1 \times P(\text{SLC24-16B}) & + & 16 \times P(\text{BF24,BC24,ORS142K}) & = & P_{\text{Tot}} \\
 4 \text{ W} & + & 16 \times 9 \text{ W} & = & 148 \text{ W} \\
 & & & \rightarrow & \mathbf{200 \text{ W}}
 \end{array}$$

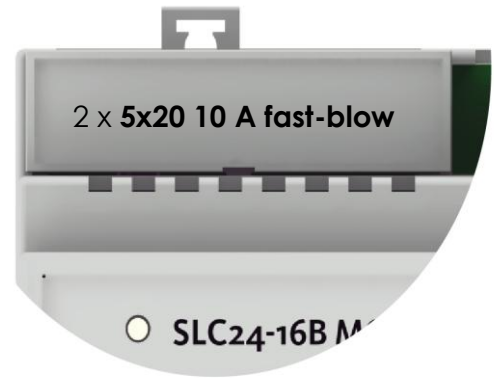
In particular, when using a DC power supply, the voltage drop across the lines has to be considered! BV-Control AG provides a software tool that calculates the proper functioning of the actuator, taking account of given cable lengths and cross sections.

5.3.2 Fuses and SLC output monitoring

Faulty wiring can lead to high short-circuit currents.

Standard safety fuses are installed in order to protect the unit against destruction. The fuses can be replaced easily.

TYPE: **10 A fast-blow, FSF, 0034.1526, Schurter**



Individual SLC® outputs are limited to 700 mA by means of hardware and are also monitored by means of software. If a short circuit is detected, the output affected will be deactivated for 1 minute.



Wiring must not be carried out when the unit is live!!!

5.4 INPUTS (TERMINAL BLOCK X1 5..8)

The 3 control inputs are galvanically isolated from the system via **optical couplers** and have a **common reference point DIC**. External voltage can be used (24 VAC or 24 VDC)

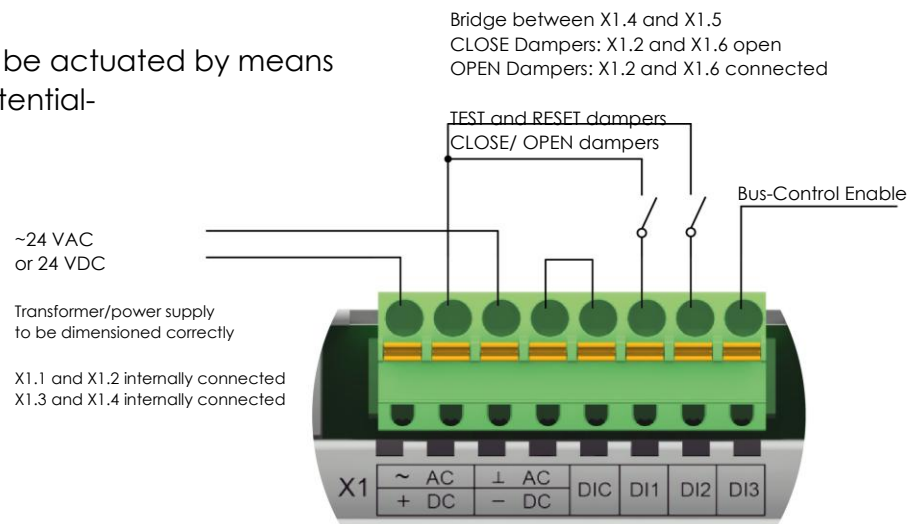
Load 10 mA @ 24 VDC

5	6	7	8
Control inputs			
DIC	DI1	DI2	DI3
Common reference point	Locin (forced control)	Test/Reset	Bus-Control Enable

Table 3 Terminal block X1 5..8

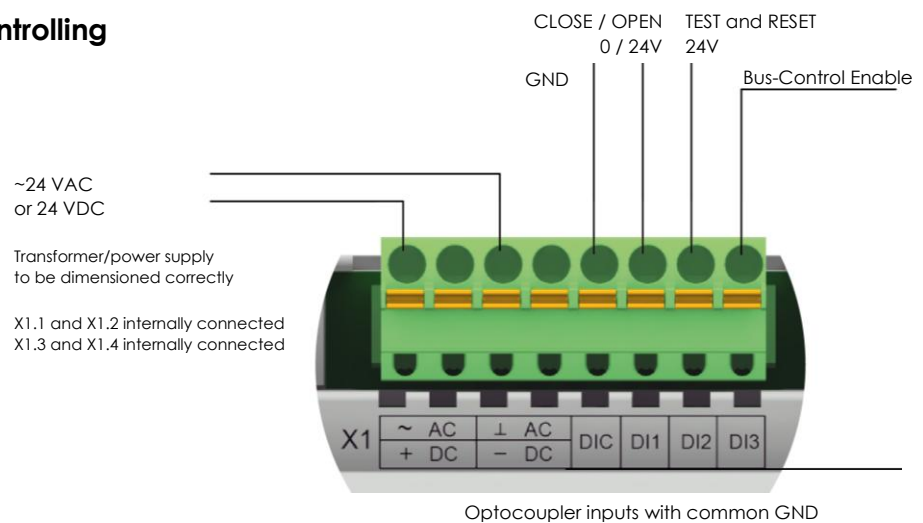
5.4.1 Actuation by means of potential-free wiring

The SLC24-XXB can be actuated by means of conventional potential-free wiring.



5.4.2 Direct digital controlling

Alternatively, it can be actuated directly via the digital outputs (0V/24 V) of an external controller.

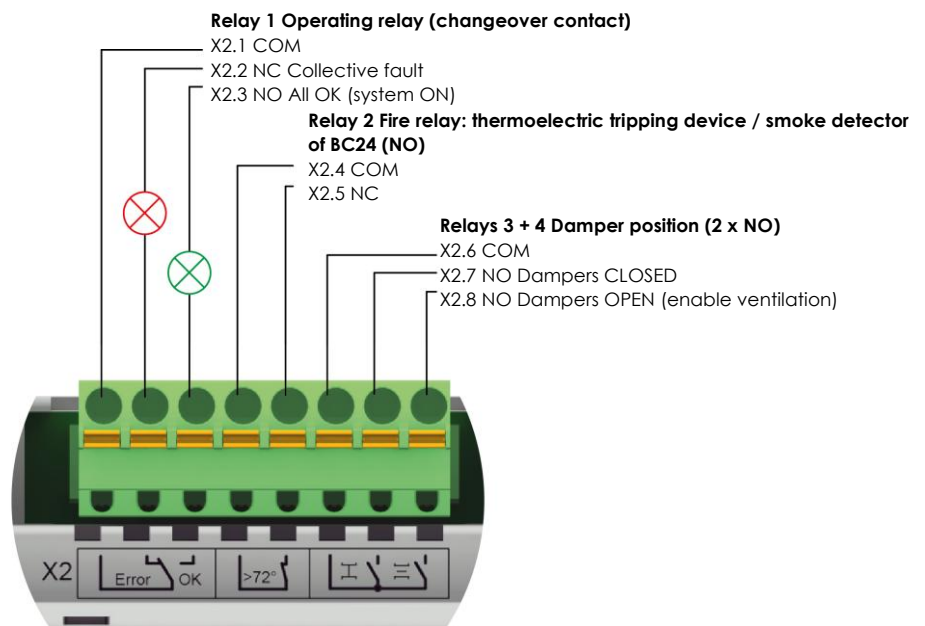


5.5 RELAY OUTPUTS (TERMINAL BLOCK X2)

The functions of the relay outputs are shown in the table below.

Max. contact load 48 VAC with 0.5 A or 24 VDC with 1 A.

Connections **6 and 8** are normally used for enabling ventilation.



1	2	3	4	5	6	7	8
Collective fault			Thermoelectric tripping device*/smoke detector		Damper position		
COM	Fault	No fault	> 72°		COM*	CLOSE D	OPEN
Changeover			NO		2 x NO		
1 and 2 connected: Fault present or unit de-energized 1 and 3 connected: No fault present			4 and 5 connected: Thermoelectric tripping device* and smoke detector of BC24 OK 4 and 5 open: Thermoelectric tripping device* or smoke detector of BC24 triggered or unit de-energized * of BC24 or actuator		6 and 7 connected: All dampers closed 6 and 8 connected: All dampers open Unit de-energized: Contacts open		

Table 4 Terminal block X2

6 BUS MODE

The system can also be controlled and monitored by means of a **Modbus RTU (RS-485)**, **Modbus TCP/IP** or **BACnet MS/TP, BACnet IP**. The configuration of the interfaces can be carried out by means of USB and the Windows configuration and diagnostic tool as an option. (Download from www.bv-control.ch) The default interface parameters can be found in the section entitled "**Technical data**".

Bus-Control is only possible if 24V is applied at the digital input DI3. Bus-Monitoring is always possible.

6.1 MODBUS

The System can also be controlled by Modbus RTU or TCP/IP. The selection of the protocol and its configuration can be done with the Configuration and Software Tool.

Per default the unit has an activated bus watchdog of 120s. The time will be reset with each forced control command. If the watchdog counts to zero the control module will close all dampers.

6.1.1 Implemented commands

Default Commands

Read Holding Registers [3]

Write Single Register [6]

Optional Commands

Read Input Registers [4]

Write Multiple Registers [16]

Organization of the registers

Register No. 1 – 30

Registers to control and monitor all dampers

Register No. 101 – 109

Service Registers

6.1.2 Register assignment

6.1.2.1 Operating registers

Unless specified otherwise, the following will apply:

Bit 0 = damper 1
 Bit 1 = damper 2
 Bit 2 = damper 3
 Bit 3 = damper 4
 ...
 Bit 15 = damper 16

No.	Addr.	Name	Description	Read	Write
1	0	Active dampers	Bit X: 0 = damper programmed as inactive 1 = damper programmed as active	X	
2	1	Forced control	Bit X: 0 = Close dampers 1 = Open dampers	X	X
3	2	Reset	Bit X: 1 = Reset (automatic reset on completion of Reset)	X	X
4	3	Unit code	1000	X	
5	4	Initialization	Bit X: 0 = Normal 1 = Initialization active	X	
6	5	Test run	Bit X: 0 = Normal 1 = Test run active	X	
7	6	Active error	Bit X: 0 = no active error 1 = at least one active error (concrete active errors can be read via register no. 16-23)	X	
8	7	Saved error	Bit X: 0 = no saved error 1 = at least one saved error (concrete saved errors can be read via register no. 24-30)	X	
9	8	Damper position OPEN	Bit X: 0 = damper not open 1 = damper open	X	
10	9	Damper position CLOSED	Bit X: 0 = damper not closed 1 = damper closed	X	
11	10	Damper position opening	Bit X: 0 = damper not opening 1 = damper opening	X	
12	11	Damper position closing	Bit X: 0 = damper not closing 1 = damper closing	X	
13	12	Relay outputs	Bit 0 1 = OK / 0 = Error Bit 1 1 = "< 72" Bit 2 1 = dampers CLOSED Bit 3 1 = dampers OPEN	X	
14	13	Digital inputs	Bit 0 = DI1 Locin (forced control) Bit 1 = DI2 TEST/RESET Bit 2 = DI3 Bus control enable	X	
15	14	Local forced control	Bit 0: 1 = local forced control active 0 = bus control active	X	
16	15	Thermoelectric tripping device error	Bit X: 0 = no error 1 = device triggered	X	
17	16	Smoke detector error	Bit X: 0 = no error 1 = smoke detector triggered	X	

18	17	No Load	Bit X: 0 = no error 1 = no load detected: either no actuator is connected to the BC24 or the thermoelectric tripping device of the actuator has been triggered	X
19	18	Mechanical error	Bit X: 0 = no error 1 = a mechanical error is present; the damper is blocked or is taking too long to reach the target position.	X
20	19	Overcurrent	Bit X: 0 = no error 1 = an overcurrent has been detected: Because of the overcurrent, the power supply to the BC24 was interrupted. With this error, self-resetting will take place after one minute.	X
21	20	No SLC communication	Bit X: 0 = no error 1 = no communication between the SLC unit and the BC24. With this error, self-resetting will take place as soon as communication is functioning again.	X
22	21	Not Connected	Bit X: 0 = no error 1 = no BC24 is connected to the corresponding port. With this error, self-resetting will take place as soon as a BC24 is connected.	X
23	22	Initialization Error	Bit X: 0 = no error 1 = an error restricting functionality occurred during initialization. This error is not self-resetting and must be acknowledged by means of a Reset (register no. 3).	X
24	23	Saved Thermoelectric tripping device error	Bit X: 0 = no saved error 1 = a thermoelectric tripping device error was active but has since been rectified. Saved errors are reset by means of a Reset (register no. 3).	X
25	24	Saved smoke detector error	Bit X: 0 = no saved error 1 = a smoke detector error was active but has since been rectified. Saved errors are reset by means of a Reset (register no. 3).	X
26	25	Saved "No Load" error	Bit X: 0 = no saved error 1 = a "No Load" error was active but has since been rectified. Saved errors are reset by means of a Reset (register no. 3).	X
27	26	Saved Mechanical error	Bit X: 0 = no saved error 1 = a mechanical error was active but has since been rectified. Saved errors are reset by means of a Reset (register no. 3).	X
28	27	Saved Overcurrent error	Bit X: 0 = no saved error 1 = an overcurrent error was active but has since been rectified. Saved errors are reset by means of a Reset (register no. 3).	X
29	28	Saved "No SLC communication" error	Bit X: 0 = no saved error 1 = a "No SLC communication" error was active but has since been rectified. Saved errors are reset by means of a Reset (register no. 3).	X
30	29	Saved "Not Connected" error	Bit X: 0 = no saved error 1 = a "Not Connected" error was active but has since been rectified. Saved errors are reset by means of a Reset (register no. 3).	X

6.1.2.2 Service Registers

No.	Addr.	Name	Description	Read	Write
101	100	-		X	
102	101	-		X	
103	102	-		X	
104	103	Firmware Major		X	
105	104	Firmware Minor		X	
106	105	Firmware Revision		X	
107	106	Build Number		X	
108	107	Bus Watchdog Countdown	Counting down every second from 120 to 0. Reset to 120 with a force control command. If counted down to 0 and Bus-Control is enabled the System will close all dampers.	X	
109	108	Bus Watchdog Enabled	1 = Bus watchdog is active 0 = Bus watchdog deactivated	X	
110	109	Reset bus watchdog countdown	A write command (0 or 1) resets the countdown to 120 seconds	X	X

6.2 BACNET

BACnet Device Profile

BACnet Application Specific Controller (B-ASC), protocol revision 12

Supported BIBBs

Supported BIBB	BIBB Name
DS-COV-B	Data Change of Value-B
DS-RP-B	Data Sharing-Read Property-B
DS-RPM-B	Data Sharing-Read Property Multiple-B
DS-WP-B	Data Sharing-Write Property-B
DM-DDB-B	Device Management-Dynamic Device Binding-B
DM-DOB-B	Device Management-Dynamic Object Binding-B
DM-DCC-B	Device Management-Device Communication Control-B
DM-RD-B	Device Management-Reinitialize Device-B

- Segmentation is not supported
- Static Device Binding is not supported

PICS

Object Type	Optional Properties	Writable Properties
Analog Input [AI]	Description COV Increment	COV Increment
Binary Input [BI]	Description Active Text Inactive Text	
BitString Value [BSV]	Description Bit Text	
Binary Value [BV]	Description Active Text Inactive Text	Present Value
Device	Description Location Active COV Subscriptions Max Master (only MS/TP) Max Info Frames (only MS/TP)	Description Object Name Location APDU Timeout (1000...60'000) Number of APDU Retries (0...10) Max Master (1...127) (only MS/TP) Max Info Frames (1...255) (only MS/TP)
Multi-state Input [MI]	Description State Text	
Multi-state Output [MO]	Description State Text	Present Value

- The Services CreateObject and DeleteObject are not supported
- Maximum length (Bytes) of the visible strings are
 - Object Name: 64
 - Location: 64
 - Description: 64
- „DeviceCommunicationControl“ is supported, no Password needed
- 128 COV Subscriptions are allowed with a time span from 1...28800s (8 hours)

BACnet Object-List

Object Type / Instance(s)	Object Name	Values	Unit	COV Support	Description	Explanation	Access*
MO 0	Forced Control all Slaves	1: None 2: Open 3: Close Default: 1		Yes	Sets the given value/priority to all slaves and resets the bus watchdog	Forced Control for all slaves „None“ is interpreted as „Close“ A write command will reset the watchdog counter	C
MO 1-4	Forced Control Block x	1: None 2: Open 3: Close Default: 1		Yes	Sets the given value/priority to all slaves in block x (*) and resets the bus watchdog * x=1: slaves 1 – 4 x=2: slaves 5 – 8 x=3: slaves 9 – 12 x=4: slaves 13 - 16	Forced Control for the 4 blocks „None“ is interpreted as „Close“ A write command will reset the watchdog counter	C
MO 101-116	Forced Control Slave x	1: None 2: Open 3: Close Default: 1		Yes	Forced Control, resets the bus watchdog	Forced Control for every single damper „None“ is interpreted as „Close“ A write command will reset the watchdog counter	C
AI 0	Bus Watchdog Countdown	0...120	73 [seconds]	Yes COV Increment: 0.01...1000.0 Default COV Increment: 1	Current Timer Value of the Bus Watchdog Countdown (Communication Supervision)	Current Watchdog counter value	R
BI 0	Relay OK	0: Off 1: On		Yes	State of the local output relay 'Error/OK'		R
BI 1	Relay > 72 Degrees	0: Off 1: On		Yes	State of the local output relay '> 72 degrees'		R
BI 2	Relay All Closed	0: Off 1: On		Yes	State of the local output relay 'All Closed'		R
BI 3	Relay All Open	0: Off 1: On		Yes	State of the local output relay 'All Open'		R
BI 4	DI1 Local Forced Control	0: Off 1: On		Yes	State of the local digital input 1 (local forced control)		R
BI 5	DI2 Local Reset	0: Off 1: On		Yes	State of the local digital input 2 (local reset/test)		R
BI 6	DI3 Bus Control enabled	0: Off 1: On		Yes	State of the local digital input 3 (bus control enabled)		R
BI 7	Heartbeat	0: Off 1: On		Yes	Toggles every second to indicate that the device is running		R
BI 8	Heartbeat Slow	0: Off 1: On		Yes	Toggles every 15 seconds to indicate that the device is running		R
BV 0	Reset all Slaves	0: Off 1: On		Yes	Clears any mem errors of all slaves, resets the bus watchdog		W
BV 1	Control Heartbeat	0: Off 1: On		Yes	Any write to the control heartbeat (ON or OFF) resets the bus watchdog	Heartbeat to keep the bus-control alive Any write to the control heartbeat (ON or OFF) resets the bus watchdog	W
BV 101-116	Slave Active x	0: Off 1: On		Yes	Whether a slave is active		W

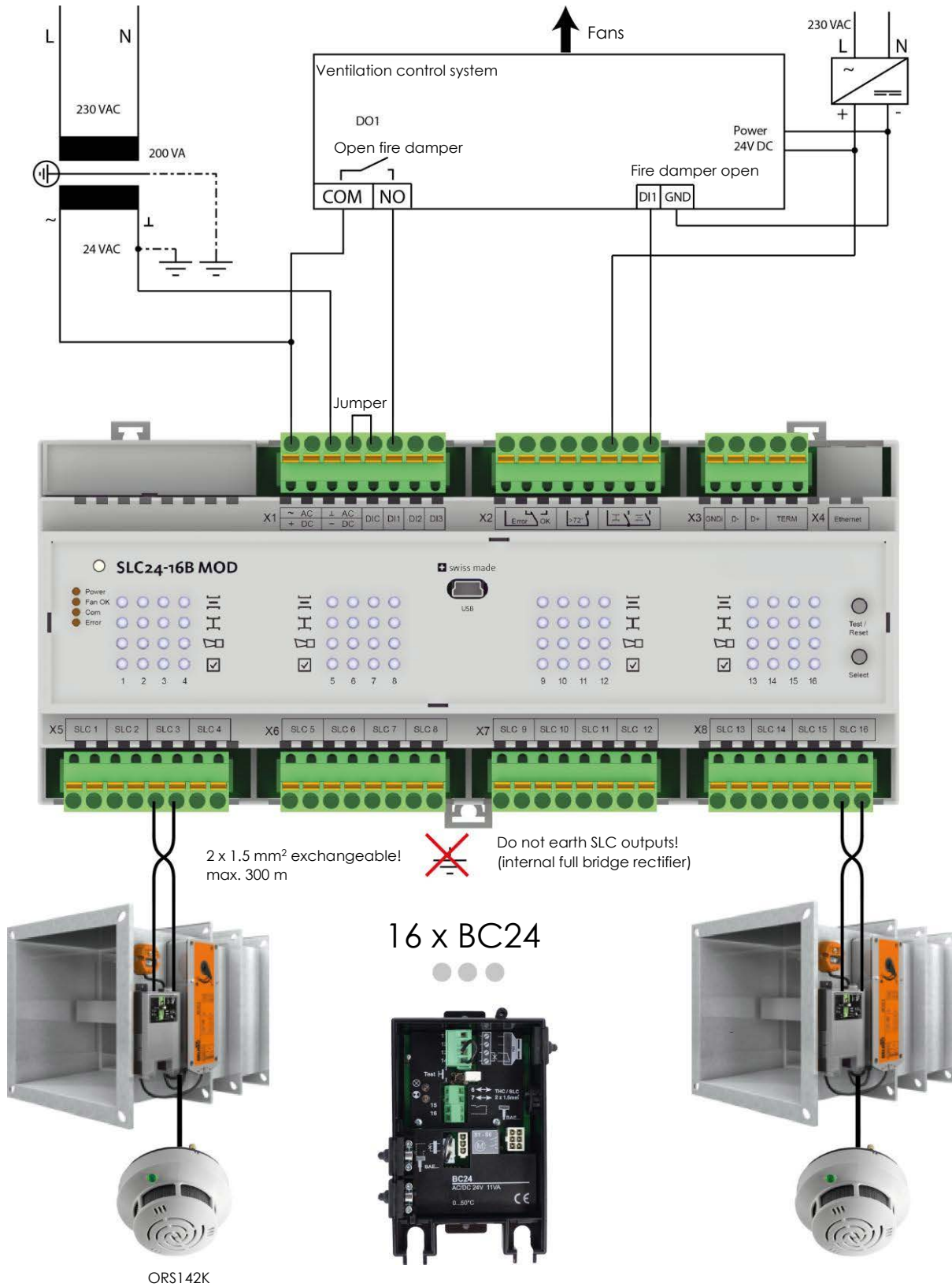
BV 201-216	Reset x	0: Off 1: On		Yes	Resets the slave if there is an active error, clears any 'Mem Errors', resets the bus watchdog		W
BSV 101-116	Status Flags Slave x	Bit 1: Init Bit 2: Test Bit 3: Damper Open Bit 4: Damper Closed Bit 5: Damper Opening Bit 6: Init Error Bit 7: Not Connected Bit 8: Comm Timeout Bit 9: Overcurrent Bit 10: Mechanical Error Bit 11: No Load Bit 12: BAE Bit 13: ORS Bit 14: Not Connected Mem Bit 15: Comm Timeout Mem Bit 16: Overcurrent Mem Bit 17: Mechanical Error Mem Bit 18: No Load Mem Bit 19: BAE Mem Bit 20: ORS Mem		Yes	Combined status, position and error information	The status flags hold the same information as the MI Objects and can be used to reduce data points.	R
MI 0	Summary Status all Slaves	1: Inactive 2: Unknown 3: Not Ok 4: Ok		Yes	Summary status of all active slaves	Status summary of all active slaves Inactive: no slave available Unknown: no connection to the slaves established Not Ok: at least one slave has an error Ok: all slaves are ok	R
MI 1-4	Summary Status Block x	1: Inactive 2: Unknown 3: Not Ok 4: Ok		Yes	Summary status of active slaves in block x (*) * x=1: slaves 1 – 4 x=2: slaves 5 – 8 x=3: slaves 9 – 12 x=4: slaves 13 - 16	Status summary of all active slaves in block x Inactive: no slave available Unknown: no connection to the slaves established Not Ok: at least one slave has an error Ok: all slaves are ok	R
MI 10	Summary Position all Slaves	1: Inactive 2: Unknown 3: Closed 4: Open 5: Other		Yes	Summary position of all active slaves	Position summary of all active slaves Inactive: no slave available Unknown: no connection to the slaves established Closed: Dampers of all slaves closed Open: Dampers of all slaves are open Other: positions are different among each damper or they are moving	R
MI 11-14	Summary Position Block x	1: Inactive 2: Unknown 3: Closed 4: Open 5: Other		Yes	Summary position of active slaves in block x (*) * x=1: slaves 1 – 4 x=2: slaves 5 – 8 x=3: slaves 9 – 12 x=4: slaves 13 - 16	Position summary of all active slaves in block x Inactive: no slave available Unknown: no connection to the slaves established Closed: Dampers of all slaves are closed Open: Dampers of all slaves are open Other: positions are different among each damper or they are moving	R
MI 101-116	Status Slave x	1: Inactive 2: Unknown 3: Init 4: Normal Operation 5: Test 6: Warning 7: Error 8: Error During Initialization		Yes	Detailed status information	Detailed status of slave x Inactive: slave not available Unknown: no connection to the slave established Init: slave is initializing Normal Operation: slave is working correctly Test: slave is doing a damper test Warning: at least one saved error exists Error: at least one present error exists Error During Initialization: Error during initialization, a reset is required	R

MI 201-216	Position Slave x	1: Unknown 2: Closed 3: Open 4: Closing 5: Opening		Yes	Detailed position information	Damper position of slave x Unknown: slave not available or no connection to slave Closed: damper is closed Open: damper is open Closing: damper is between its limit switches and closing Opening: damper is between its limit switches and opening	R
MI 301-316	Sensor Status Slave x	1: Unknown 2: OK 3: ORS 4: ORS & BAE 5: ORS & No Load 6: ORS & BAE & No Load 7: BAE 8: BAE & No Load 9: No Load		Yes	Indicates whether the smoke detector (ORS) and/or temperature sensor (BAE) got triggered	ORS (Smoke detector) and BAE (thermoelectric tripping device) Status of slave X Unknown: slave not available or no connection to slave OK: no error ORS: ORS has triggered ORS & BAE: ORS and BAE have triggered ORS & No Load: ORS and the BAE of the Actuator have triggered ORS & BAE & No Load: ORS, the BAE and the BAE of the Actuator have triggered BAE: BAE has triggered BAE & No Load: BAE and the BAE of the Actuator have triggered No Load: BAE of the Actuator has triggered	R
MI 401-416	Sensor Status Mem Slave x	1: Unknown 2: OK 3: ORS 4: ORS & BAE 5: ORS & No Load 6: ORS & BAE & No Load 7: BAE 8: BAE & No Load 9: No Load		Yes	An error that is not active anymore appears as 'Mem Error'	Saved ORS (Smoke detector) and BAE (thermoelectric tripping device) errors of slave x	R
MI 501-516	Actuator Status Slave x	1: Unknown 2: OK 3: Mechanical 4: Overload 5: Mechanical & Overload		Yes	Mechanical error or overload due to blocked damper	Actuator status of slave x Unknown: slave not available or no connection to slave OK: no error Mechanical: mechanical error Overload: too much current drawn Mechanical & Overload: mechanical error and too much current drawn	R
MI 601-616	Actuator Status Mem Slave x	1: Unknown 2: OK 3: Mechanical 4: Overload 5: Mechanical & Overload		Yes	An error that is not active anymore appears as 'Mem Error'	Saved actuator status errors of slave x	R
MI 701-716	Status Connection Slave x	1: Unknown 2: OK 3: Not Connected 4: Comm Timeout 5: Not Connected & Comm Timeout		Yes	Detailed connection status	Connection status of slave x Unknown: slave not available OK: no error Not Connected: no connection to slave Comm Timeout: communication to slave failed Not Connected & Comm Timeout: slave not connected and communication failed	R
MI 801-816	Status Connection Mem Slave x	1: Unknown 2: OK 3: Not Connected 4: Comm Timeout 5: Not Connected & Comm Timeout		Yes	An error that is not active anymore appears as 'Mem Error'	Saved connection status errors of slave x	R

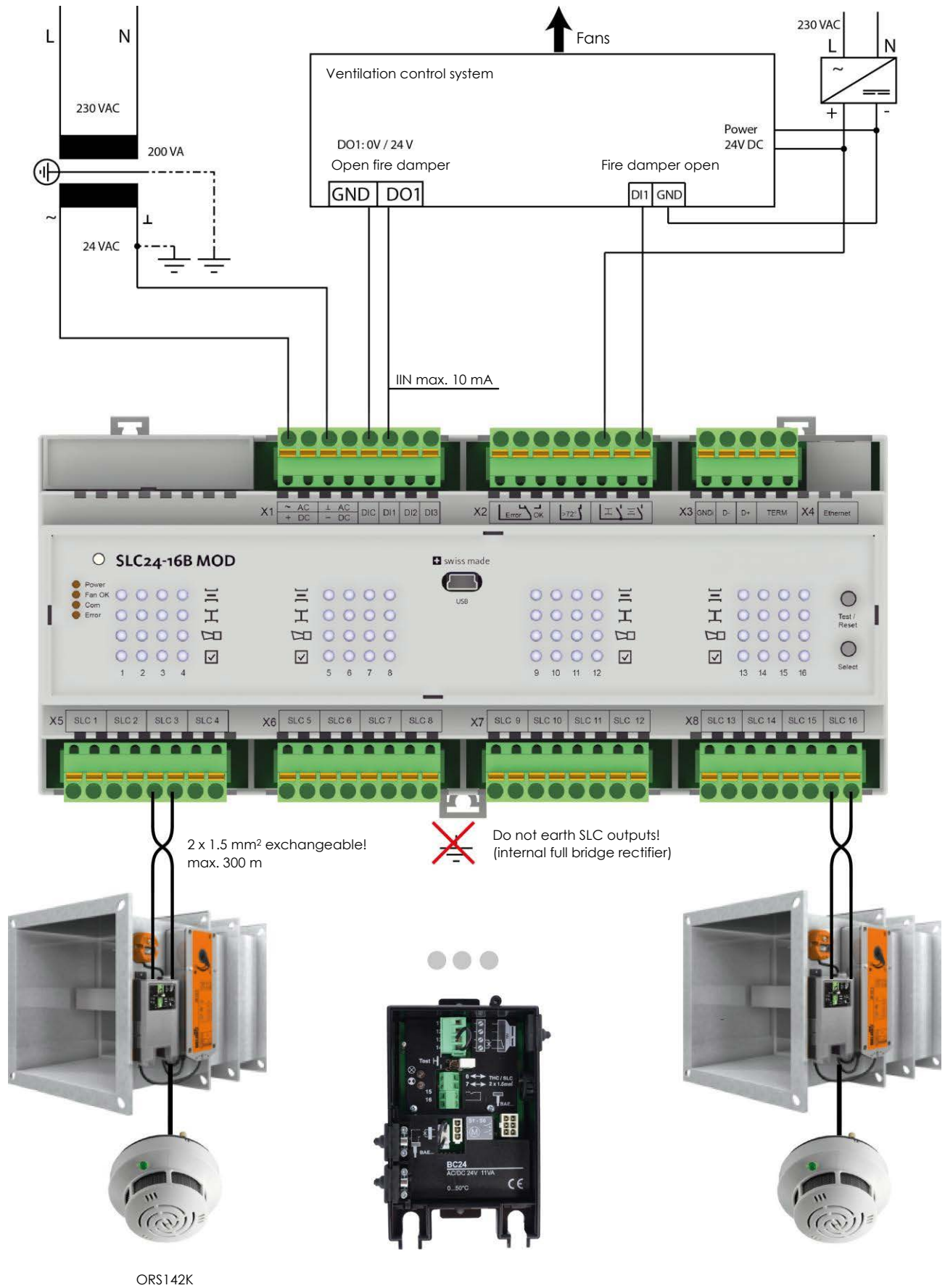
* Access: R = Read, W = Write, C = Commandable with priority array

7 EXAMPLES OF APPLICATIONS

7.1 VENTILATION CONTROL SYSTEM WITH CONVENTIONAL WIRING



7.2 VENTILATION CONTROL SYSTEM WITH DIGITAL OUTPUT



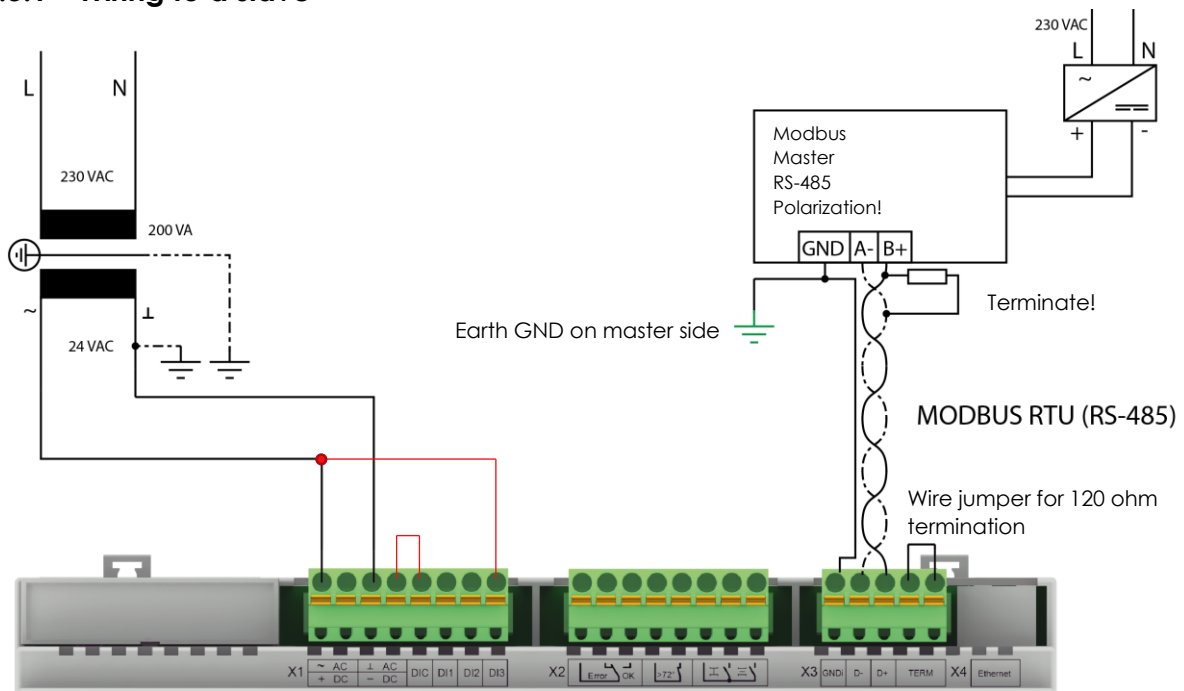
7.3 CONTROL BY MEANS OF MODBUS MASTER RTU

The bus wiring is to be in accordance with the official Modbus specifications:

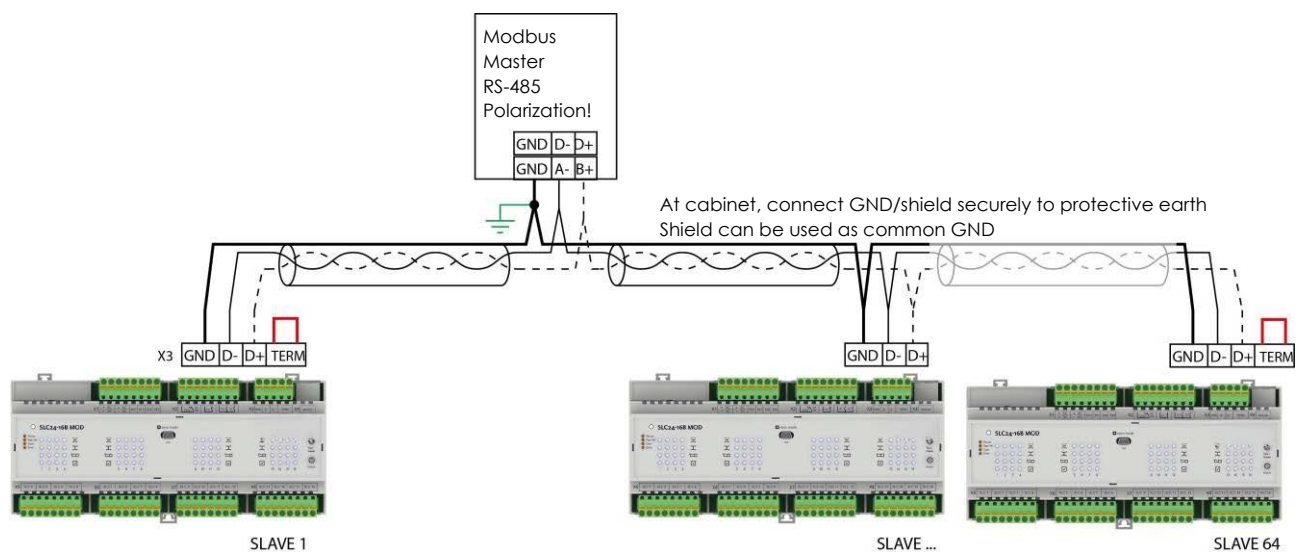
[Modbus Serial Line Protocol and Implementation Guide V1.02](#)

Addressing is carried out via a USB interface and the **configuration tool**.

7.3.1 Wiring to a slave

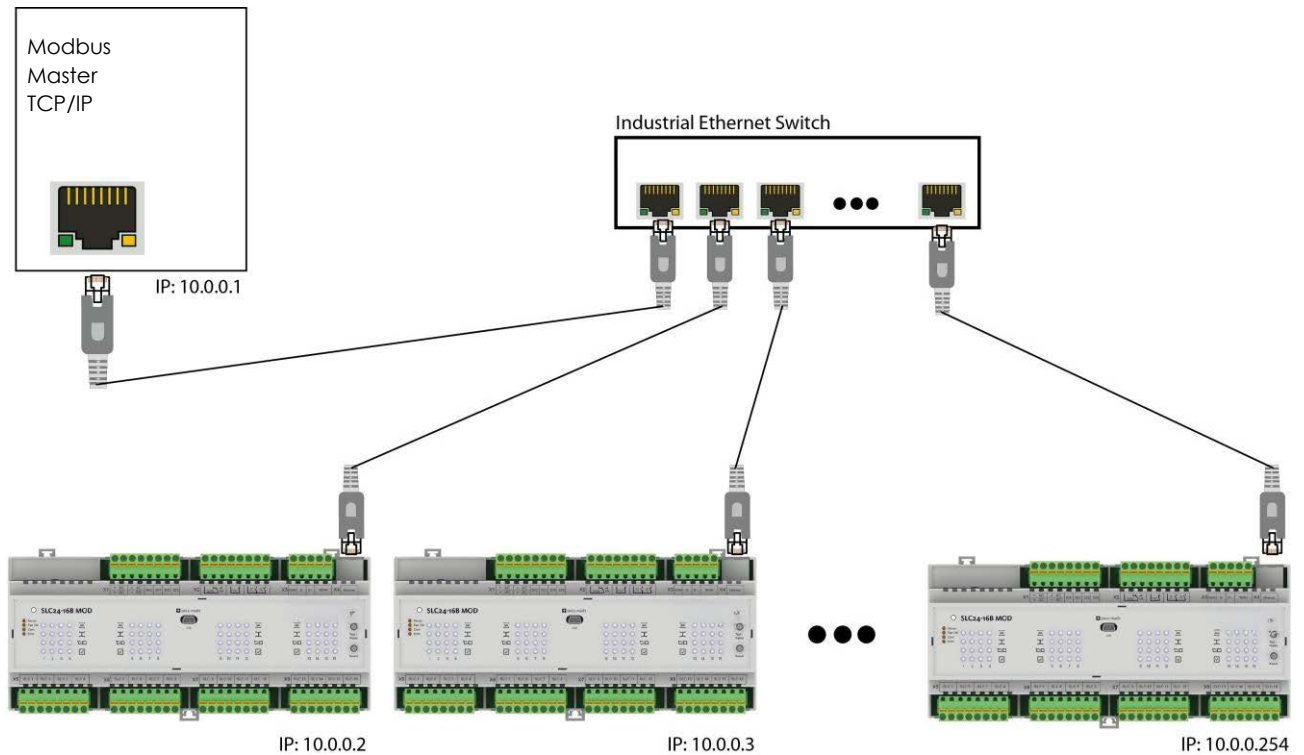


7.3.2 Up to 64 slaves (1024 fire dampers)



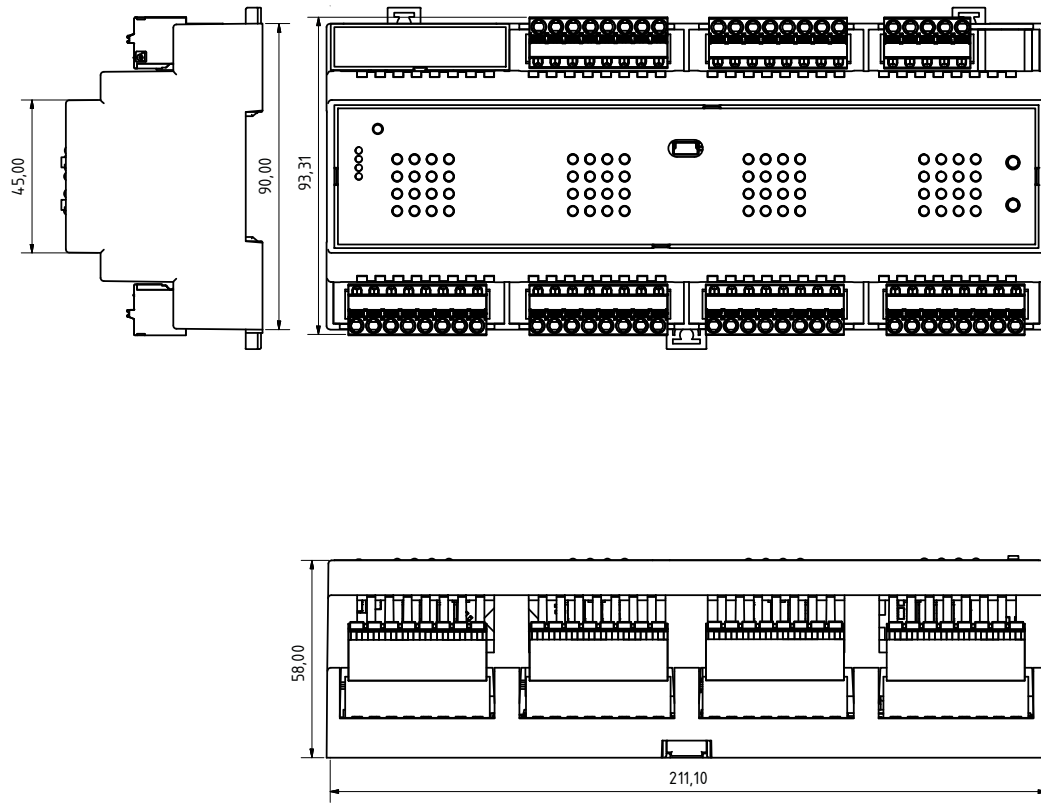
7.4 MODBUS TCP/IP

The configuration tool can be used to set the IP addresses to static or activate assignment via DHCP.



8 DIMENSIONS

Dimensions in mm





MP3

When **Quality** meets **Passion**