Smoke and Heat Exhaust Control unit EN 230V/24V

EN 230V/24V 10A – 2 – 1

EN 230V/24V 10A –4 – 1

EN 230V/24V 20A – 4 – 1

EN 230V/24V 25A – 5 – 1

Technical documentation

BSC Technology GmbH
Dr.-Köhl-Straße 6
D-95119 Naila

Telephone (main number)
+49 9282 48731-0

Fax (main number)
+49 9282/48731-29

windowdrives.com

mail: info@bsc-technology.de

WINDOWDRIVES
BSC TECHNOLOGY

1 Table of contents

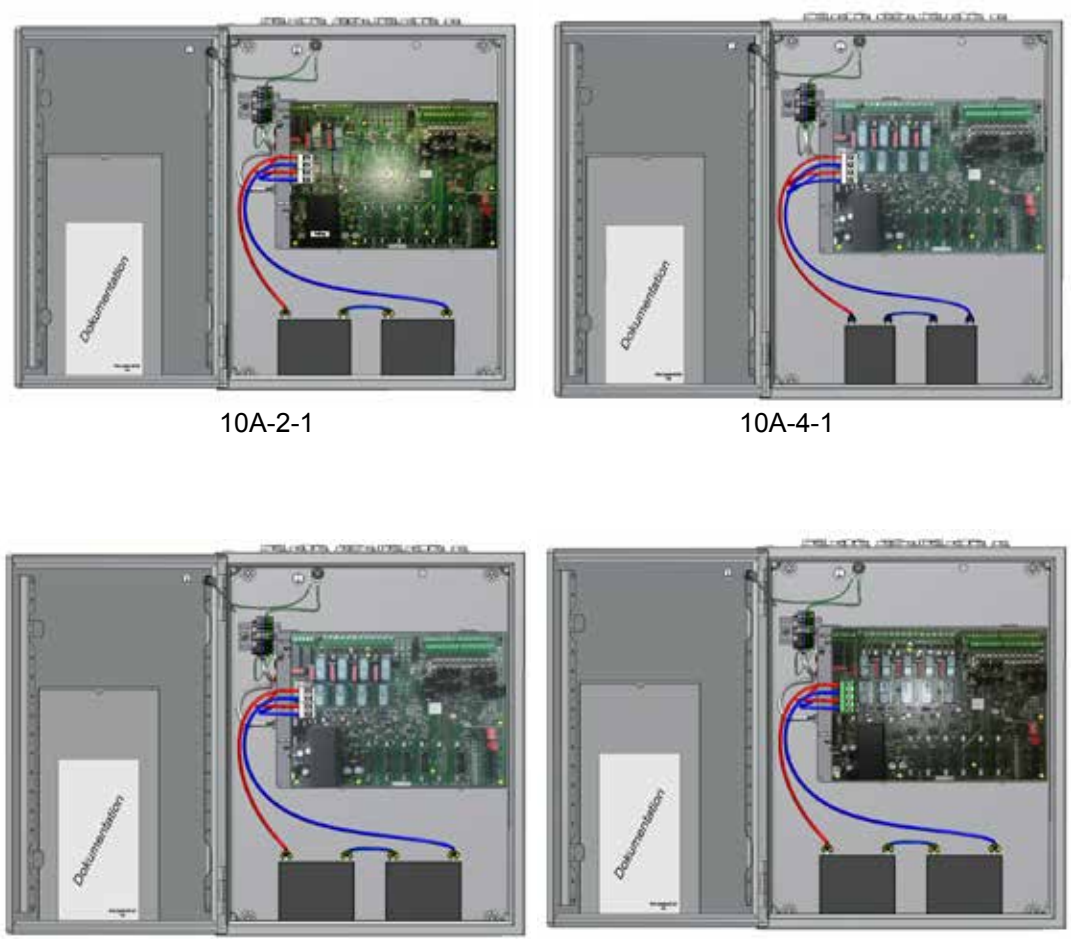
Page
1 Table of contents 2
1.1 List of figures 3
2 Device views 4
2.1 Control unit EN 230V/24V overview 4
3 Installation 5
3.1 General 5
3.2 Regulations and installation instructions 5
3.3 Accident prevention regulations 5
3.4 Layout of the control unit 5
3.5 Connection of the motorised openers 6
3.5.1 Determination of the conductor cross sectional area 6
3.5.2 Cable types 6
3.6 Signal relays 7
3.7 Connecting the rechargeable batteries 8
3.8 Parameterising the ventilation groups 9
4 Functional description 10
4.1 Smoke and heat vent (triggered) operation 10
4.2 Ventilation mode 10
4.3 Comfort ventilation module 11
4.3.1 Stroke limitation 11
4.3.2 Automatic closing 11
4.3.3 Insertion slot selection for the KL-MOD 11
4.4 Open display 12
4.5 Connection of the wind/rain assessment module WRA 501 (retrofit module) 13
5 Commissioning 14
6 Operation 16
6.1 Display and control elements on the board 16
6.2 Acoustic signals 20
6.3 Fuses on the board 20
6.4 Delivery condition 21
7 Programming 22
7.1 Control unit EN Type 23
8 Fault-finding / troubleshooting 31
9 Maintenance 32
10 Technical data 33
10.1 Control unit EN 230V/24V 10A-2-1: 33
10.2 Control unit EN 230V / 24V 10A-4-1: 34
10.3 Control unit EN 230V / 24V 20A-4-1: 34
10.4 Control unit EN 230V / 24V 25A-5-1: 35
14 Annex - Circuit diagrams

1.1 List of figures

Page
Figure 1: Device view Control unit EN 230V/24V 4
Figure 4: View of batteries 8
Figure 5: View of jumper pairs for parameterising the ventilation groups 9
Figure 6: Comfort ventilation module KL - MOD 11
Figure 7: Connection of the wind/rain assessment module WRA 501 to the control units 13
Figure 9: Display and control elements 16
Figure 10: Display and control elements 22

2 Device views

2.1 Control unit EN 230V/24V overview



10A-2-1 10A-4-1

20A-4-1 25A-5-1

Figure 1: Device view Control unit EN 230V/24V

3 Installation

3.1 General

Installation, commissioning, repair and maintenance of the Control unit may only be undertaken by trained specialist personnel. The control unit has been developed, based on EN 12101 parts 9 and 10.

3.2 Regulations and installation instructions

With installation, integration and commissioning, the following regulations and instructions should be observed:

- State building regulations
- DIN 18232 – Constructional fire protection in industrial buildings
- VdS – directive 2098
- Regulations from the fire protection authority responsible
- The directive ZH 1/494 for powered windows, doors and gates
- VDE 0100, VDE 0108
- The regulations from the energy supply company [EVU] responsible
- Installation location for the control unit should be selected such that it is freely accessible for subsequent maintenance and repair
- The housing should be fastened to the wall

Important information
Before commissioning, the rechargeable batteries should be charged for at least 12h.
When connecting the rechargeable batteries care should be taken to ensure correct polarity!!

3.3 Accident prevention regulations

The general accident prevention regulations for powered windows, doors and gates and the installation regulations from the German electrical engineering association [VDE] must be observed.

Important warnings

Before removing a component, the system must be completely de-energised.

- **First, disconnect the rechargeable batteries**
- **Then switch off the mains power supply**
- **To protect the electronic components, the installation technician must earth themselves by touching a finger to the earth connection →prior to working on the circuit boards**
- **When switching back on again, the voltages must be applied again in reverse order**

3.4 Layout of the control unit

The control unit has up to **5** motor lines, **1** manual alarm line, **1** automatic alarm line and an input for the FAS (fire alarm system) and therefore offers the possibility to connect the following equipment:

- **Motors:** The motor lines can be loaded with motor run times up to 60s with max. 15A(10A).
- **Alarms:** Up to 10 Break glass switches can be connected to the manual alarm line. Up to 50 automatic alarms [optical smoke detectors, max. heat detectors or differential heat detectors] can be connected to the automatic alarm line, individually or using dual detector interconnections.

3.5 Connection of the motorised openers

The Control units have up to 5 motor lines with a max. output current of 15(10A)A for a max. motor run time of 60s.

3.5.1 Determination of the conductor cross sectional area

When using motorised openers, the length of the motor lines is restricted due to voltage losses. Here, the nominal current of the closed drive in a motor line as well as the cross sectional area of the conductor are critical for the max. permissible line length.

The following table shows the max. permissible line length depending on the **nominal current of the motorised opener attached** and the cross sectional area of the conductor:

Current draw (I) per motor line in [A]	Number of conductor cores required (without protective conductor)	Max. permissible single line length to the last motor in [m]
0,5A bis 1A	2 x 1,5mm²	84m
0,5A bis 1A	2 x 2,5mm²	140m
1A bis 1,5A	2 x 1,5mm²	56m
1A bis 1,5A	2 x 2,5mm²	93m
1A bis 1,5A	2 x 4mm²	149m
1,5A bis 2A	2 x 1,5mm²	42m
1,5A bis 2A	2 x 2,5mm²	70m
1,5A bis 2A	2 x 4mm²	112m
2A bis 2,5A	2 x 1,5mm²	33m
2A bis 2,5A	2 x 2,5mm²	56m
2A bis 2,5A	2 x 4mm²	89m
2A bis 2,5A	2 x 6mm²	134m
2,5A bis 3A	2 x 1,5mm²	28m
2,5A bis 3A	2 x 2,5mm²	46m
2,5A bis 3A	2 x 4mm²	74m
2,5A bis 3A	2 x 6mm²	112m
3A bis 3,5A	2 x 1,5mm²	24m
3A bis 3,5A	2 x 2,5mm²	40m
3A bis 3,5A	2 x 4mm²	64m
3A bis 3,5A	2 x 6mm²	96m
3,5A bis 4A	2 x 1,5mm²	21m
3,5A bis 4A	2 x 2,5mm²	35m
3,5A bis 4A	2 x 4mm²	56m
3,5A bis 4A	2 x 6mm²	84m
4A bis 4,5A	2 x 1,5mm²	18m
4A bis 4,5A	2 x 2,5mm²	31m
4A bis 4,5A	2 x 4mm²	50m
4A bis 4,5A	2 x 6mm²	75m
4,5A bis 5A	2 x 1,5mm²	16m
4,5A bis 5A	2 x 2,5mm²	28m
4,5A bis 5A	2 x 4mm²	44m
4,5A bis 5A	2 x 6mm²	67m
4,5A bis 5A	2 x 10mm²	112m

3.5.2 Cable types

All cable types must be ratified with the authorities responsible and the fire protection authorities or the local fire department in all instances.

3.6 Signal relays

2 relays, each with a potential-free changeover contact, are provided for passing on status signals from the control unit.
The 1st. signal relay is pre-programmed as a fault relay (terminals, 5, 6, 7) and serves to pass on fault signals.
The second signal relay is pre-programmed as a triggering relay (terminals, 8, 9, 10) and serves to pass on triggering.
The switching power can be found in the "Technical details" chapter.

In normal condition:

- **The Fault relay is energised and drops out in the event of a fault.**
- **The Fault relay is de-energised and pulls in in the event of a fault.**

Contact closed:	Term. 7 + 5:	Fault
	Term. 7 + 6:	No fault
	Term. 10 + 8:	No triggering
	Term. 10 + 9:	Triggering

The function of the signal relays can be changed in the set-up mode.
The following functions can be set:

Function	Contact position	Information
1. Signal relays	**Terminals 5,6 and 7**	
Fault	7 + 5	Current fault
	7 + 6	Normal operation with no fault
Wind-rain forwarding	7 + 5	Current ventilation prohibition
	7 + 6	Ventilation allowed
Triggering relay	7 + 5	Normal operation with no triggering
	7 + 6	Triggering
2. Signal relays	**Terminals 8, 9 and 10**	
Fault	10 + 8	Current fault
	10 + 9	Normal operation with no fault
Wind-rain forwarding	10 + 8	Current ventilation prohibition
	10 + 9	Ventilation allowed
Triggering relay	10 + 8	Normal operation with no triggering
	10 + 9	Triggering

3.7 Connecting the rechargeable batteries

When connecting the rechargeable batteries care should be taken to ensure the polarity is correct. **Incorrect connection can result in the circuit board being destroyed immediately.** The red line always represents the plus positive line and the blue line always represents the negative line for the rechargeable batteries. The connection lugs on the rechargeable batteries are likewise colour coded.

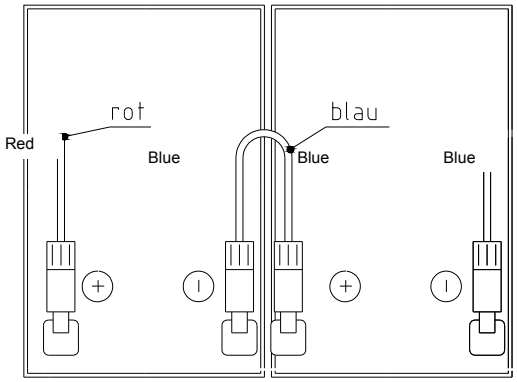


Figure 4: View of batteries

The emergency power supply comprises two 12 V rechargeable batteries, connected in series so that the output voltage adds up to 24 V. To do so, the negative terminal of the first battery should be connected to the positive terminal of the second battery. The two remaining free terminals are then connected to the connection wires from the circuit board.
(Red → Plus / Blue → Minus)

3.8 Parameterising the ventilation groups

The control unit has 1 – 5 ventilation groups (1 – 5 motor lines), which can be connected with one another by means of jumpers (plug-in bridges). Small jumpers (plug-in bridges) can be found on the circuit board for this purpose.
A total of up to four jumpers - pairs for merging ventilation groups - are available (see figure below).

- If the left jumper pair "1 + 2" is plugged in horizontally, motor outputs 1 and 2 are linked to a single ventilation group.
- If the centre jumper pair "2 + 3" is plugged in horizontally, motor outputs 2 and 3 are linked to a single ventilation group.
- If the right jumper pair "3 + 4" is plugged in horizontally, motor outputs 3 and 4 are linked to a single ventilation group.
- If the right jumper pair "4 + +5" is plugged in horizontally, motor outputs 4 and 5 are linked to a single ventilation group.
- If all jumper pairs are plugged in horizontally, all motor outputs are collected together in a single ventilation group.

The connection of the ventilation buttons is implemented at the terminals provided. If several outputs are collected together in a single ventilation group, any ventilation button input from these lines can be used.

The parameterising of the optional plug-in comfort ventilation module has no effect on this. This must always be parameterised or enabled via the set-up.

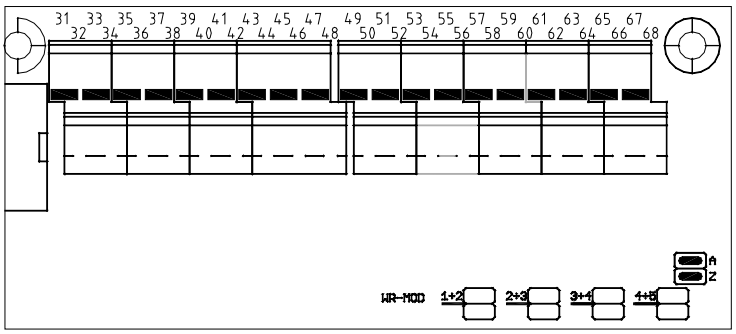


Figure 5: View of jumper pairs for parameterising the ventilation groups

Jumper pair "4+5"
(combines ventilation 4 with 5)

Jumper pair "3+4"
(combines ventilation 3 with 4)

Jumper pair "2+3"
(combines ventilation 2 with 3)

Jumper pair "1+2"
(combines ventilation 1 with 2)

4 Functional description

The compact RWS (smoke and heat vent control unit) is a smoke and heat vent control unit with an emergency power supply for 72 hours in the event of a power outage. It is used to open and close electric motor-driven smoke vents in the event of a fire, and also for everyday ventilation.
The functional description will be kept quite general at this point. The functions of the individual operating controls and display elements will be described in more detail in the next section.

A distinction is made between two basic operating modes:

4.1 Smoke and heat vent (triggered) operation

In the event of a fire (triggered by smoke and heat vent pushbutton, smoke detector or heat detector or the fire alarm system), the opening elements connected will open. Smoke and heat vent operation always has priority over ventilation mode; the rechargeable batteries help to ensure that after 72 hours of power outage the system can still be opened twice and closed once (smoke and heat vent operation). Triggering can be initiated manually by pressing the ”Trigger" pushbutton on the external smoke and heat vent buttons, or automatically when one of the automatic detectors or the fire alarm system is triggered. Triggering is also guaranteed for 72h of power outage.

If necessary, or when the fire brigade so desires, the connected opening elements can be given a Reset command and then close again. To do this, the smoke and heat vent alarm triggering must first be acknowledged by pressing the “Reset button” on the smoke and heat vent button or on the circuit board. Then the opening elements can be closed again by pressing the ”Close pushbutton” on the Break glass switch 6(A), the individual ventilation buttons, or the ”Close button” on the board.

Smoke and heat vent operation has priority over ventilation mode, i.e. operation in ventilation mode is not possible during a smoke and heat vent operation alarm.

4.2 Ventilation mode

Three different ventilation modes (continuous / push open only / push open and close) can be set on the board. The settings are made in set-up mode (see Programming).

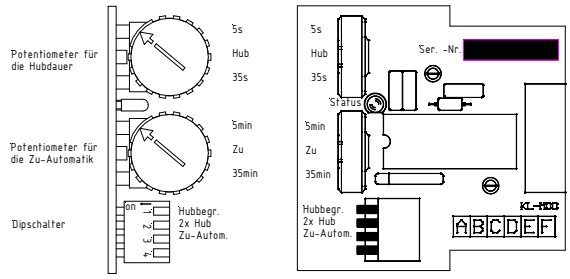
The connected opening elements can be opened and closed by means of the individual ventilation push-buttons.
In "Continuous" mode, pressing the Open pushbutton at the ventilation pushbutton once moves the motor to the Open end position, and pressing the Close pushbutton once moves it to the Closed end position. Both pushbuttons can be pressed simultaneously to hold the motor in an intermediate position.
In "Push open only" mode, the motor is moved in the Open direction only so long as the Open pushbutton on the ventilation pushbutton is held pressed. If the Close pushbutton on the ventilation pushbutton is pressed, the motor moves to its Closed end position. In "Push open and close“ mode, the drive also moves in Close direction. In "No ventilation function" mode, the ventilation button inputs have no function. Likewise, there is no close control in the event of a power outage. This function is only necessary for the control of CO2 triggers.

If a wind/rain detector is connected, its function has priority over normal ventilation mode, i.e. in the event of a rain/wind alarm the connected opening elements are closed automatically, and can only be opened again manually after the rain/wind alarm has dropped out.

Operation in ventilation mode is not possible during a power outage and all drives are closed automatically.

4.3 Comfort ventilation module

If the optional comfort ventilation module is installed, the following additional ventilation functions can be used.



Potentiometer für die Hubdauer – Potentiometer for stroke duration
Potentiometer für die Zu- Automatik - Potentiometer for automated closing
Dipschalter - DIP switch
Hub - Stroke
Zu - Close
Hubbegr. – Stroke limit.
2x Hub – 2x stroke
Zu- Autom – Automated closing
Ser. – Nr.: - Ser. no.

Figure 6: Comfort ventilation module KL - MOD

4.3.1 Stroke limitation

To enable the stroke limitation function, move the "Stroke limit." DIP switch to "ON" position (left). The "Continuous" ventilation mode should likewise be set. An opening duration between 5s and 35s can now be set with the "Stroke" potentiometer. If the ventilation pushbutton moves to Open, the motor is actuated only for the time period set in the previous step.
DIP switch "2x stroke" sets the opening time to double. The maximum opening time is now double the time set. However, the ventilation pushbutton must also be pressed at least twice for this.

The drive connected can only be operated in the open direction in accordance with the time set, even if the motor has meanwhile been instructed to Close (while the set time is running).

Example:

- Time set = 20 seconds (switch "2 * stroke" is in the "OFF" position)
- The motor runs Open for 10s with the ventilation button
- Then it is run in Close direction for 5 seconds
- Then it is opened again by means of the vent button
- → The motor will now run for another 15s!

4.3.2 Automatic closing

To enable the automatic closing function, move the "Automatic closing" DIP switch to "ON" position (left). The time for the Automatic closing can be set between 5 mins. and 35 mins. at the "Close" potentiometer. The time starts at the last drive command. The time is reset automatically after driving closed for min. 90 seconds and the Open display has extinguished.

4.3.3 Insertion slot selection for the KL-MOD

The modules can only be inserted or removed whilst the smoke and heat vent control unit is de-energised (rechargeable batteries and main power disconnected).

4.3.3.1 Control unit EN 230V/24V 10A-2-1 / 14A-4-1 7 10A-4-1 and 25A-5-1

Depending on the function, the insertion slot for the comfort ventilation module can be seen in the table below. A max. of five modules (only with 25A-5-1) can be used. Adjacent groups can be connected together in set-up mode. The table below shows the slot for your specific application.

Functional area	Insertion slot 1	Insertion slot 2	Insertion slot 3	Insertion slot 4	Insertion slot 5
Group 1	Yes	-	-	-	-
Group 1+2	Yes	-	-	-	-
Group 1+2+3	Yes	-	-	-	-
Group 1+2+3+4	Yes	-	-	-	-
Group 1 to 5	Yes	-	-	-	-
Group 2	-	Yes	-	-	-
Group 2+3	-	Yes	-	-	-
Group 2+3+4	-	Yes	-	-	-
Group 2+3+4+5	-	Yes	-	-	-
Group 3	-	-	Yes	-	-
Group 3+4	-	-	Yes	-	-
Group 3+4+5	-	-	Yes	-	-
Group 4	-	-	-	Yes	-
Group 4+5	-	-	-	Yes	-
Group 5	-	-	-	-	Yes

The assignment of the individual comfort ventilation modules must be set up accordingly in the functional menu of the control unit.

With the "All individual" KL MOD assignment, module insertion slots 1-5 are firmly assigned to the appropriate ventilation groups 1-5.
This means that, for example, one KL-MOD for ventilation group 2 must be installed in module slot 2 and one KL- MOD of group 5 in slot 5.

If combinations are set for the KL-MOD assignments in the functional menu, one KL-MOD will suffice for each combination. Then it should be installed in the lowest slot of the combined ventilation groups.
For example, if ventilation groups 2 and 3 can be set via one KL-MOD, groups 1 and 4 each have one separate KL-MOD. For this, the KL-MOD assignment "2+3" must be set in Setup and one KL-MOD each put in module slots 1, 2 and 4, i.e., the KL-MOD for the combined groups 2 and 3 must be in slot 2.

4.4 Open display

The control unit has one output per motor output for an open display.
If the connected drive moves Open, this output is switched. If the connected drive is still in Close state min. 90 seconds after a Close command, the display extinguishes (the output is reset).
The Open display works without feedback from the drive by assuming that the drive is closed if it runs in the close direction for min. 90 seconds. The Open display is then switched off.
Each time the Open drive is actuated, the Open display is switched on again.

4.5 Connection of the wind/rain assessment module WRA 501 (retrofit module)

The following figure shows the connection of the wind/rain module WR-MOD 501 with the wind/rain sensor DRF 501 to the control unit. The wind/rain assessment module is a modular retrofit kit for the control unit. It comprises a wind/rain module WR-MOD 501 and a wind/rain sensor DRF 501.

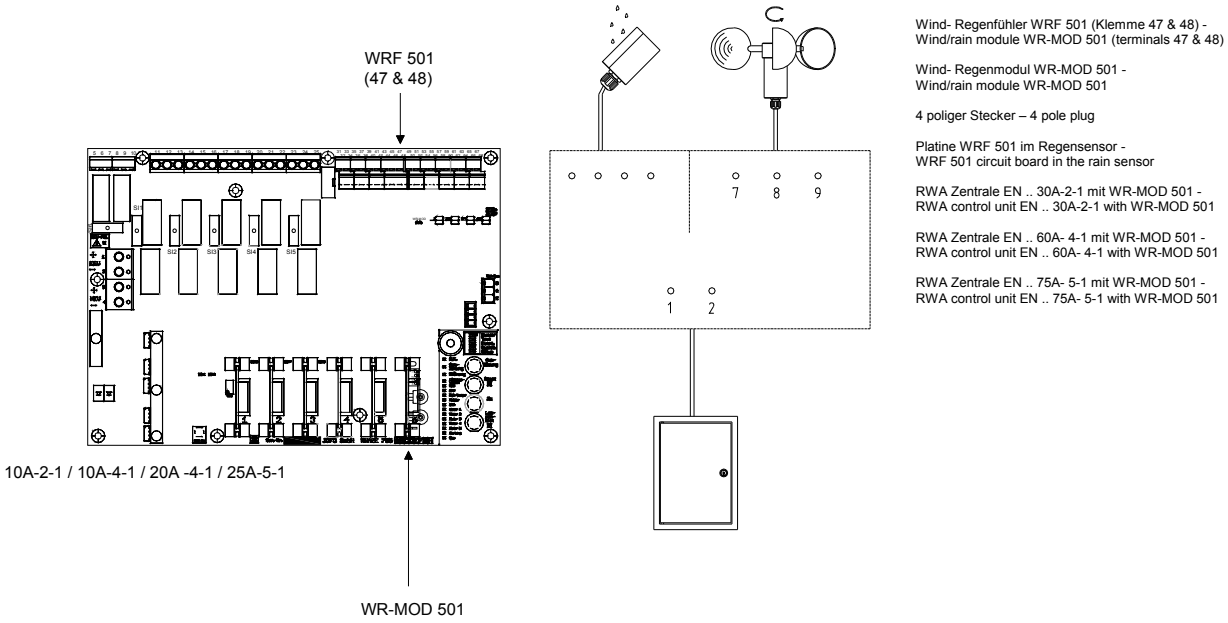


Figure 7: Connection of the wind/rain assessment module WRA 501 to the control units

For prioritised closing of the opening device in ventilation mode, a wind/rain assessment module can be connected to the control unit. The above figure shows the connection of the wind/rain module WR-MOD 501 and the connection of the wind/rain sensor WRF 501.

Insertion slot selection: The WR-MOD can be installed in any free insertion slot.

The information on the proper function of the wind/rain assessment module can be found in the accompanying technical documentation.

5 Commissioning

If all external devices are connected, the wiring has been checked once again and the rechargeable batteries charged, the commissioning can be undertaken.
First, the power supply must be assured. Only once the mains supply is connected can the rechargeable batteries be connected - the green OK LEDs in the control unit and in the Break glass switches 6(A) illuminate.

When connecting the rechargeable batteries care should be taken to ensure the polarity is correct. Incorrect connection can result in the immediate destruction of the board.

The control unit is now ready for use and the functions can be checked in turn.

The following functions must be checked during the commissioning:
The ☞ switch must be set to the ON position to switch the buzzer on.

Ventilation function:

Push ventilation button in Open direction	- Motors drive open
Push ventilation buttons in Open and Close directions simultaneously	- Motors stop
Push ventilation button in Close direction	- Motors drive closed
Push ventilation button in Open direction	- Motors drive open
<u>If present:</u> Trigger a rain alarm on the rain detector (push test button if available) ***Motors should be open !!!***	- All motors drive closed

Alarm function (triggered by Break glass switch, automatic detector or fire alarm system):

Set the operating mode switch to the position and trigger the alarm with the red button on the board	- The green OK LED on the board flashes (test mode) - All motors drive open - The red LED on the board and the Break glass switches flashes. - The buzzer sounds with an alternating frequency
Bring the alarm back to operational readiness with the RESET button on the board. Then drive the motors closed with the button on the board. (Operating mode switch remains in position on)	- All motors drive closed - Red LED extinguishes - The buzzer falls silent - The green OK LED on the board flashes (test mode)
Initiate an alarm trigger on all Break glass switches by actuating the button (operating mode switch remains in position on)	- All motors drive open - The red LED on the board and the Break glass switches flashes - The buzzer sounds with an alternating frequency - The green OK LED on the board flashes (test mode)
Bring the alarm back to operational readiness with the RESET button on the Break glass switches. Then drive the motors closed with the button on the Break glass switches (operating mode switch remains in position on).	- All motors drive closed - Red LED extinguishes - The buzzer falls silent - The green OK LED on the board flashes (test mode)
Initiate a alarm on the type ECO automatic detector with the test unit for detector series type ECO 1000RTU or with a proofing gas (operating mode switch remains in position on)	- All motors drive open - The red LED on the board and the Break glass switches flashes - The buzzer sounds with an alternating frequency - The green OK LED on the board flashes (test mode)
Bring the alarm back to operational readiness with the RESET button on the board. Then drive the motors closed with the button on the board. (Now set operating mode switch to position off again)	- All motors drive closed - Red LED extinguishes - The buzzer falls silent - The green OK LED on the board now illuminates steadily (normal operating mode)

6 Operation

6.1 Display and control elements on the board

The Control unit has a number of operator controls and displays on the board, thus providing a clear, detailed indication of the individual operating states and faults. The operator control elements can be used to make various settings and activate various functions on the Control unit.
The following figure shows the control elements on the Control unit board:

With the exception of the ventilation function, the Control unit can be operated from the board alone.

The following control elements are available:

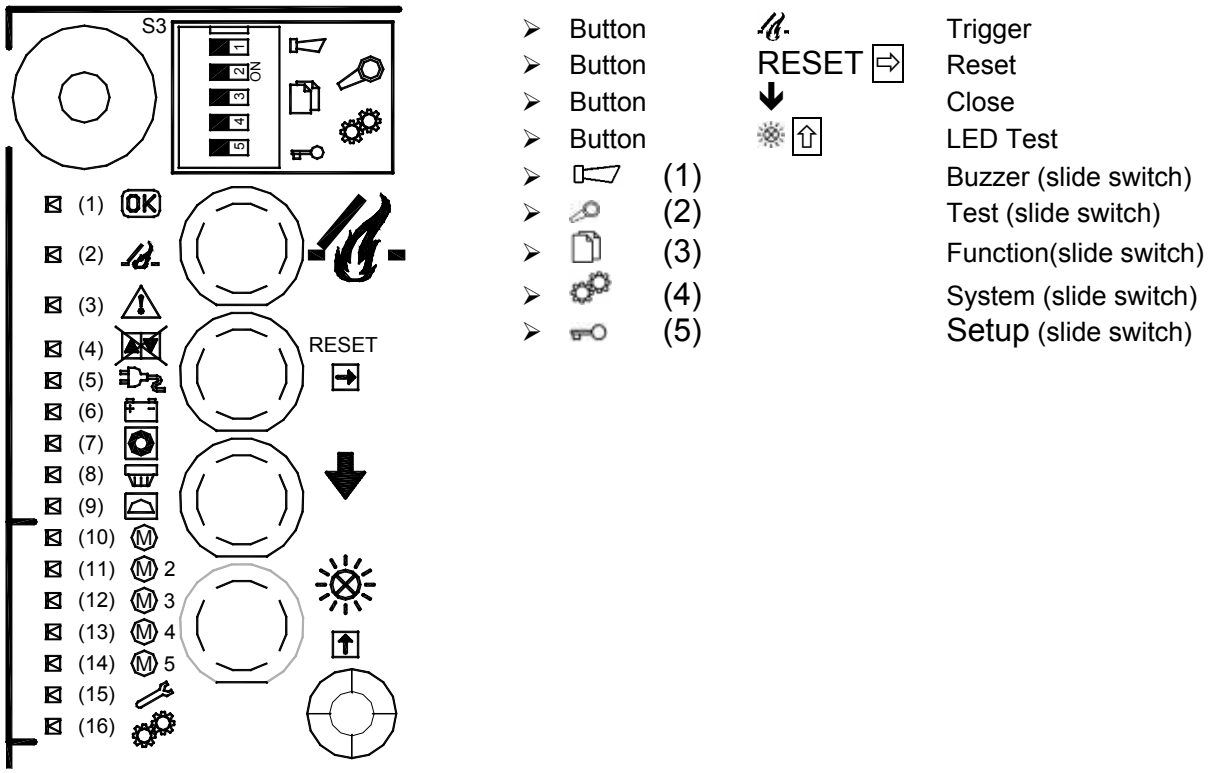


Figure 9: Display and control elements

The following display elements are also provided:

30A/60A/75A	Piktogram		LED	Funktion
(1)		→	Green	OK
(2)		→	Red	Trigger / alarm
(3)		→	Yellow	Fault
(4)		→	Yellow	Ventilation forbidden
(5)		→	Yellow	MPS
(6)		→	Yellow	Battery
(7)		→	Yellow	Break Glass Switch
(8)		→	Yellow	Autom. Detectors
(9)		→	Yellow	FAS (Fire Alarm System)
(10)		→	Yellow	Motor line 1
(11)		→	Yellow	Motor line 2
(12)		→	Yellow	Motor line 3
(13)		→	Yellow	Motor line 4
(14)		→	Yellow	Motor line 5
(15)		→	Yellow	Maintenance
(16)		→	Yellow	System (Manufacturer information)

The following table shows an overview of the various functions and settings for the individual control elements on the board:

Operation	Function / effect
Pressing the - button	All motors drive open The red - LED on the board and on the break glass switches flashes The buzzer sounds with an alternating frequency Autom. alarm forwarding active
Pressing the RESET ⇨ button	Alarm triggering is reset The buzzer falls silent Autom. alarm forwarding inactive The red - LED on the board and on the break glass switches are going out
Pressing the ↓ button	All motors drive closed (only if no triggering alarm is present)larm triggering is reset
Pressing the ⇧ button	All LEDs on the board and the connected break glass switches illuminate. They extinguish again after pressing the RESET ⇨ button The buzzersounds, so long as the ⇧ button is pressed. After approximately 15 mins. the lamp test ends automatically
slide switch in "ON" position	after pressing the internal buzzer sounds with triggers, faults and acknowledgements The buzzer sounds, so long as the ⇧ button is pressed.
slide switch in "OFF" position	The internal buzzer is not sounded
slide switch in "ON" position	The control unit is in test mode The green OK LED on the board flashes Autom. alarm forwarding inactive In the event of a mains power failure, the diagnostics LEDs can be activated on the board
slide switch in "OFF" position	Control unit in normal operating mode The signal relay will be switched in the event of a triggering
slide switch in "ON" / "OFF" position	Start function menu (ON) Exit function menu (OFF)
slide switch in "ON" position	Manufacturer function
slide switch in "OFF" position	Manufacturer function
slide switch in "OFF" position	Normal operating mode
slide switch in "ON" position *[Actuate Reset ➔ button and lamp test button ↑ simultaneously]*	Set-up mode active (see programming) Some LEDs flash very quickly

The following table shows an overview of the various display conditions of the individual display elements on the Control unit board:

Display	Status
OK LED	**Illuminates steadily** so long as there is no fault identified (normal operation) **Flashes** in test mode **Extinguishes** in the event of an active fault or maintenance being due
LED	**Flashes** with alarm triggering **Flashes** with automatic detectors set with dual detector interconnection when one has triggered.
LED	**Flashes** with the detection of a fault **Blinks** in the event of a mains power failure **Flashes** in the event of maintenance being due (see LED)
LED	**Illuminates steadily** with active wind/rain detection or in the event of a fault with the WRA 501
LED	**Flashes** if the mains power supply voltage deviates from the nominal range **Blinks** if the mains power supply voltage has not yet been detected
LED	**Illuminates steadily** if the rechargeable battery voltage is too high **Flashes** if the wiring of the rechargeable batteries has incorrect polarity (only possible to stop with the RESET ⇨ button!) **Blinks** if the rechargeable battery voltage is too low or if the rechargeable batteries are missing
LED	**Illuminates steadily** in the event of a triggering via an external RESET ⇨ button **Flashes** in the event of a wire break **Blinks** in the event of a wiring short-circuit
LED	**Illuminates steadily** in the event of a triggering via an external autom. detector **Flashes** in the event of a wire break **Blinks** in the event of a wiring short-circuit
LED	**Illuminates steadily** in the event of a triggering via the external fire alarm system. **Flashes** in the event of a wire break **Blinks** in the event of a wiring short-circuit
Ⓜ 1-5 LEDs	**Fault in motor line 1-5** Flashes in the event of wire breaks / motor fuse defective (motor line overload / short circuit)
LED	**switch in "OFF" position**
	Illuminates steadily in the event of maintenance being due
	Switch **in "ON" position**
	Blinks with active warning counter, maintenance is not yet necessary. This is a functional check.
LED	**Illuminates steadily** > Manufacturer information **Flashes** > Manufacturer information Blinks in the event of a temperature range infringement Temperature too high (ϑ > 40°C) Temperature too low (ϑ < 0°C)

6.2 Acoustic signals

During operation the alarm outputs acoustic signals via the buzzer, providing information about the fault conditions and the actions to be carried out:

Attention !
In order to hear the signal tones, the "Buzzer" switch must be set to the ON position!

Steady tone:
Fault condition (the LEDs provide information regarding the cause) *or*
Lamp test button has been pressed (all LEDs illuminate).

Constant tone with alternating frequency:
Alarm triggered. The red LED flashes.

1x long beep (confirmation signal)
After leaving the set-up mode: Settings have been accepted

6.3 Fuses on the board

Fuses (2 – 6 x FKS 80 fuse) are installed on the control unit board to protect the electronics. The following figure shows the function and value of the individual fuses:

Control unit EN 230V

Designation:	Function:	Value:
SI6	Rechargeable batteries charging fuse	5A FKS 80V
SI1	Motor line 1 fuse	15A FKS 80V
SI2	Motor line 2 fuse	15A FKS 80V
SI3	Motor line 3 fuse (only Control unit 60A and 75A)	15A FKS 80V
SI4	Motor line 4 fuse (only Control unit 60A and 75A)	15A FKS 80V
SI5	Motor line 5 fuse (only Control unit 75A)	15A FKS 80V

With 24V control units, it is essential that fuses for nominal voltages above 80V are used (e.g. FKS 80V) → DANGER OF FIRE!

6.4 Delivery condition

Because of the many options described here for setting the parameters of the Control unit, the state of the control unit at the time of delivery will now be summarised in tabular form:

slide switch	"**OFF**" position → Automatic trigger forwarding in the alarm
slide switch	"**OFF**" position
slide switch	"**OFF**" position
slide switch	"**OFF**" position
slide switch	"**ON**" position, so that the buzzer is active.
The following functions or settings are set in programming mode:	
Ventilation mode	Set to "Continuous"
Series resistance – break glas switch and fire alarm system (function 0R / 18K)	Set to “18k Ohm“ (short circuit monitoring of the line activated)
Detector interconnections	Set to 1 detector interconnection
Triggering with faults	Switched off
Number of detectors	Set to 1-10 automatic detectors
Signal relay 1	Fault signalling
Signal relay 2	Trigger forwarding
KL-MOD assignment	KL-MOD applies only to the output, into whose slot this is inserted.

7 Programming

Many special functions and settings can be programmed in the Mode menu:

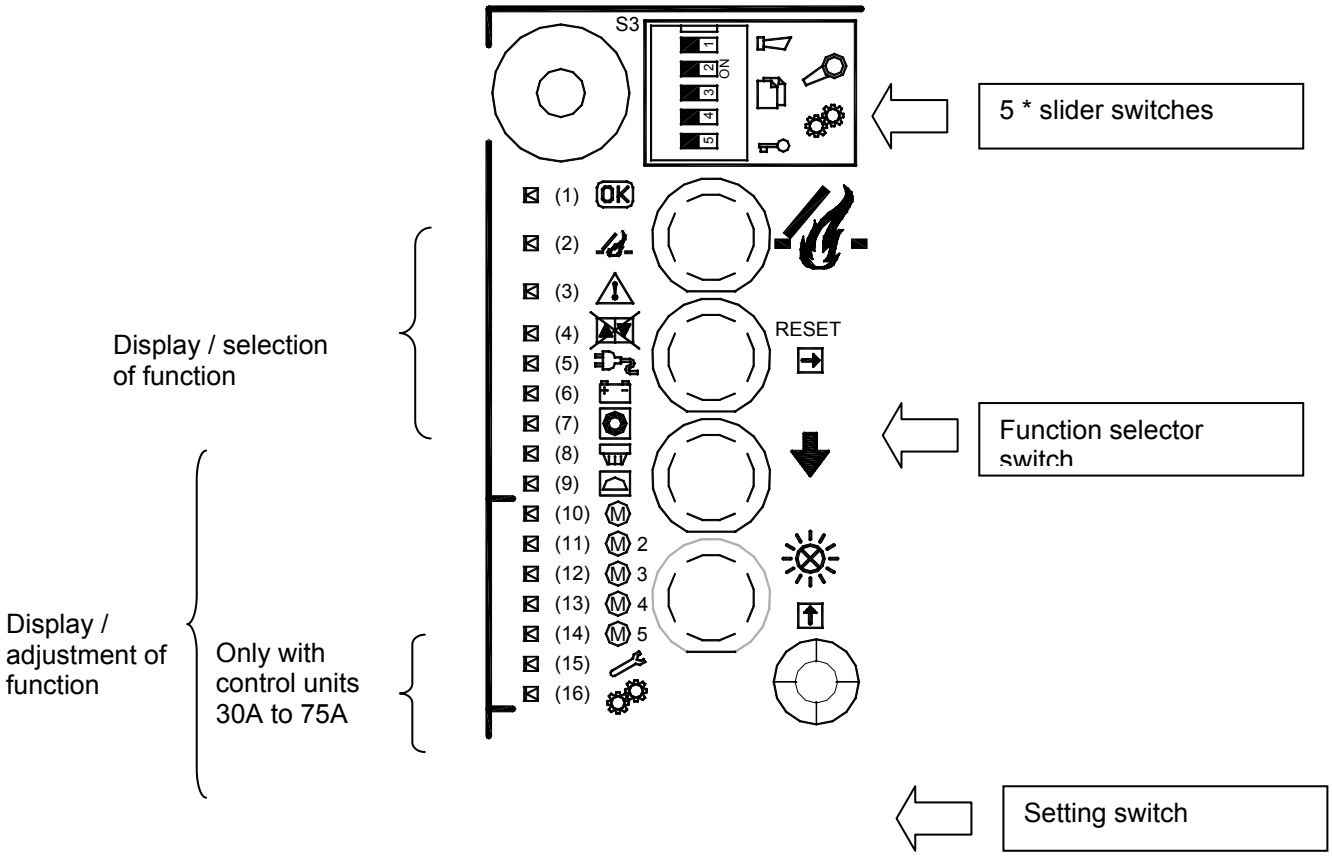


Figure 10: Display and control elements

Changes to the functions are carried out via the two buttons "Reset" and "Lamp test" on the board and displayed via the LEDs.

7.1 Control unit EN Type

The six LEDs "Vent. forbidden" to "Fire alarm sys." indicate which function is selected and the seven lower LEDs "Motor 1" to "Sys." indicate which settings this function currently has.

Function menu control unit EN Part 1

The DIP switch is provided for this. It must be set to ON for changing the programming. A few LEDs on the board now flash in a very fast rhythm in order to indicate that the mode menu is switched on.

LED			Function software version RWAZE 755 V2.19						
			Daily ventilation constant/momentary					KL-MOD- assignment	
			Gr. 1	Gr. 2	Gr. 3	Gr. 4	Gr. 5	Gr. 1-4	Gr.5
	4		●	●	●	●	●	●	●
	5		●	●	●	●	●	●	●
	6		●	●	●	●	●	●	●
	7		●	●	●	☼	☼	☼	☼
	8		●	☼	☼	●	●	☼	☼
	9		☼	●	☼	●	☼	●	☼
			(☼ LED flashes ● LED dark)						
			setting						
	10	Ⓜ 1	-	-	-	-	-	1+2+3+4	-
	11	Ⓜ 2	-	-	-	-	-	2+3+4	-
	12	Ⓜ 3	-	-	-	-	-	1+2+3	-
⇑	13	Ⓜ 4	-	-	-	-	-	1+2, 3+4	-
	14	Ⓜ 5	No ventilation function					3+4	-
	15		OPEN/CLOSE momentary					2+3	-
	16		Only OPEN momentary					1+2	4+5
(LED 10-16 off)			Constant					All individ.	Individ.

The functions can be selected with the two board buttons "Reset ➔" and "Lamp test ⇑", and their settings changed:
"Reset ➔" button next function (1 column to the right in the table above)
"Lamp test ⇑" button, setting one position higher (1 line higher in the table above)

Any setting change is adopted by the control unit immediately, however, to protect the changed setting(s) from the effects of a power outage, the "Funct." slider switch must be set "OFF" again.
The SETUP mode is exited and the setting saved ca. 60s after the last press of a button.

Function menu control unit EN Type Part 2

LED			Function software version RWAZE 755 V2.19						
			Automatic closing function						
			Gr. 1	Gr. 2	Gr. 3	Gr. 4	Gr. 5		
	4		●	●	●	●	●		
	5		●	●	●	●	●		
	6		☼	☼	☼	☼	☼		
	7		●	●	●	●	☼		
	8		●	●	☼	☼	●		
	9		●	☼	●	☼	●		
			(☼ LED flashes ● LED dark)						
			setting						
⇑	10	Ⓜ 1	-	-	-	-	-		
	11	Ⓜ 2	-	-	-	-	-		
	12	Ⓜ 3	-	-	-	-	-		
	13	Ⓜ 4	Closes automatically after 120 min.						
	14	Ⓜ 5	Closes automatically after 60 min.						
	15		Closes automatically after 30 min.						
	16		Closes automatically after 15 min.						
(LED 10-16 off)			Off						

The functions can be selected with the two board buttons "Reset ➔" and "Lamp test ⇑", and their settings changed:

"Reset ➔" button next function (1 column to the right in the table above)
"Lamp test ⇑" button, setting one position higher (1 line higher in the table above)

Any setting change is adopted by the control unit immediately, however, to protect the changed setting(s) from the effects of a power outage, the "Funct." slider switch must be set "OFF" again.
The SETUP mode is exited and the setting saved ca. 60s after the last press of a button.

Set-up menu control unit EN Type Part 1

Many special functions and settings can be programmed in the SETUP menu:
The "Set-up" slider switch is provided for this. The "Reset ➔" and "Lamp test ⇑" buttons must be pressed simultaneously along with this switch being set to ON to change the programming. A few LEDs on the board now flash in a very fast rhythm in order to indicate that the mode menu is switched on.

LED			Function software version RWAZE 755 V2.19						
			Function relays		Stroke limitation				
			1. Relay (fault)	2. Relay (trigger/alarm)	Gr.1	Gr.2	Gr.3	Gr.4	Gr.5
	4		●	●	●	●	●	●	●
	5		●	●	●	●	●	●	●
	6		●	●	●	●	●	●	●
	7		●	●	●	☼	☼	☼	☼
	8		●	☼	☼	●	●	☼	☼
	9		☼	●	☼		☼		☼
			(☼ LED flashes ● LED dark)						
			setting						
	10	Ⓜ 1	-	-	60 s				
	11	Ⓜ 2	-	-	45 s				
⇑	12	Ⓜ 3	Alarm closing	-	35 s				
	13	Ⓜ 4	Reset	-	25 s				
☼	14	Ⓜ 5	Trigger / alarm	Alarm trigger 5s wiping contact	15 s				
	15		Wind/rain / mains failure	Alarm trigger	8..9 s				
	16		Störungsausgabe erst nach 30s	Wind/rain / mains failure	5..6 s				
LED 10-16 off			Fault output	Fault output	off				

The functions can be selected with the two board buttons "Reset ➔" and "Lamp test ⇑", and their settings changed:
"Reset ➔" button next function (1 column to the right in the table above)
"Lamp test ⇑" button, setting one position higher (1 line higher in the table above)
Any setting change is adopted by the control unit immediately, however, to protect the changed setting(s) from the effects of a power outage, the "Funct." slider switch must be set "OFF" again. The SETUP mode is exited and the setting saved ca. 60s after the last press of a button.

Set-up menu control unit EN Type Part 2

LED			Function software version RWAZE 755 V2.19				
			Motor line monitoring	Actuator runtime	Function for pneumatical solutions output 1 + 2	Trigger break glas switch	Trigger FAS
	4		●	●	●	●	●
	5		●	●	●	●	●
	6		☼	☼	☼	☼	☼
	7		●	●	●	●	☼
	8		●	●	☼	☼	●
	9		●	☼	●	☼	●
			(☼ LED flashes ● LED dark)				
			setting				
	10	Ⓜ 1	-	-	Gr.1 open & Gr.2 open/close	-	-
⇑	11	Ⓜ 2	-	-	Gr.1 & 2 open/close	-	-
✲	12	Ⓜ 3	-	-	Gr. 1 & 2 open	-	Normally closed contact
	13	Ⓜ 4	-	-	Gr.2 open/close	-	Quiescent current
	14	Ⓜ 5	-	8 min. without blockade function	Gr.2 open	-	Opera-tional current
	15		-	8 min. without blockade function	Gr.1 open/close	With fault	With fault
	16		Additional 33k	8 min.	Gr.1 open	With 0 Ω	With 0 Ω
LED 10-16 off			C & 3-wire	90 s	off	With 18 kΩ	With 18 kΩ

The functions can be selected with the two board buttons "Reset ➔" and "Lamp test ⇑", and their settings changed:

"Reset ➔" button next function (1 column to the right in the table above)
"Lamp test ⇑" button, setting one position higher (1 line higher in the table above)

Any setting change is adopted by the control unit immediately, however, to protect the changed setting(s) from the effects of a power outage, the "Funct." slider switch must be set "OFF" again.
The SETUP mode is exited and the setting saved ca. 60s after the last press of a button.

Set-up menu control unit EN Type Part 3

LED			Function software version RWAZE 755 V2.19							
			Alarm by autom. detector failure	Number of detectors	Detector interconnections	Weather and alarm functions				
						Gr.1	Gr.2	Gr.3	Gr:4	Gr.5
	4		●	●	●	●	●	●	●	●
	5		●	●	●	☼	☼	☼	☼	☼
	6		☼	☼	☼	●	●	●	●	●
	7		☼	☼	☼	●	●	●	☼	☼
	8		●	☼	☼	●	☼	☼	●	●
	9		☼	●	☼	☼	●	☼	●	☼
			(☼ LED flashes ● LED dark)							
			setting							
	10	Ⓜ 1	-	-	-	-	-	-	-	-
	11	Ⓜ 2	-	-	-	-	-	-	-	-
⇑	12	Ⓜ 3	-	-	-	-	-	-	-	-
	13	Ⓜ 4	-	-	-	-	-	-	-	-
☼	14	Ⓜ 5	-	-	-	No reaction to alarm and weathersignals				
	15		-	ECO 26 – 50	2 detectors with pre warning	No reaction to alarm ng				
	16		On	ECO 11 – 25	2 detectors	No reaction to weathersignals				
LED 10-16 off			Off	ECO 1 – 10	1 detector	Both allowed				

The functions can be selected with the two board buttons "Reset ➔" and "Lamp test ⇑", and their settings changed:

"Reset ➔" button next function (1 column to the right in the table above)
"Lamp test ⇑" button, setting one position higher (1 line higher in the table above)

Any setting change is adopted by the control unit immediately, however, to protect the changed setting(s) from the effects of a power outage, the "Funct." slider switch must be set "OFF" again.
The SETUP mode is exited and the setting saved ca. 60s after the last press of a button.

Set-up menu control unit EN Type Part 4

LED			Function software version RWAZE 755 V2.19							
			FAS entrance	Delayed opening at alarm/trigger					Alarm driving direction	Wheather contact
				Gr. 1	Gr. 2	Gr. 3	Gr. 4	Gr. 5		
	4		●	●	●	●	●	●	●	●
	5		☼	☼	☼	☼	☼	☼	☼	☼
	6		●	●	☼	☼	☼	☼	☼	☼
	7		☼	☼	●	●	●	●	☼	☼
	8		☼	☼	●	●	☼	☼	●	●
	9		●	☼	●	☼	●	☼	●	☼
			(☼ LED flashes ● LED dark)							
			setting							
	10	Ⓜ 1	-	-	-	-	-	-	-	-
	11	Ⓜ 2	-	-	-	-	-	-	-	-
	12	Ⓜ 3	-	-	-	-	-	-	All closes	-
⇑	13	Ⓜ 4		60s start-up delay					Gr. 2 – 5 closes	-
	14	Ⓜ 5	Edge evaluation	45 s start-up delay					Gr. 3 – 5 closes	-
	15		Level with autom. reset + close	30 s start-up delay					Gr. 4+5 closes	-
	16		Level with autom. reset	15 s start-up delay g					Gr. 5 closes	Normally closed
LED 10-16 off			Level	Start-up delay off					All open	Normally open

The functions can be selected with the two board buttons "Reset ➔" and "Lamp test ⇑", and their settings changed:

"Reset ➔" button next function (1 column to the right in the table above)
"Lamp test ⇑" button, setting one position higher (1 line higher in the table above)

Any setting change is adopted by the control unit immediately, however, to protect the changed setting(s) from the effects of a power outage, the "Funct." slider switch must be set "OFF" again.
The SETUP mode is exited and the setting saved ca. 60s after the last press of a button.

Set-up menu control unit EN Type Part 5

LED			Function software version RWAZE 755 V2.19							
			Beeper output	Bus address		Actuator speed				
				1. digit	2. digitr	Gr.1	Gr.2	Gr.3	Gr:4	Gr.5
	4		●	●	☼	☼	☼	☼	☼	☼
	5		☼	☼	●	●	●	●	●	●
	6		☼	☼	●	●	●	●	●	●
	7		☼	☼	●	●	●	●	☼	☼
	8		☼	☼	●	●	☼	☼	●	●
	9		●	☼	●	☼	●	☼	●	☼
			(☼ LED flashes ● LED dark)							
			setting							
	10	Ⓜ 1	-	7 – X	X – 7	-	-	-	-	-
	11	Ⓜ 2	-	6 – X	X – 6	-	-	-	-	-
	12	Ⓜ 3	-	5 – X	X – 5	-	-	-	-	-
⇑	13	Ⓜ 4	-	4 - X	X – 4	-	-	-	-	-
	14	Ⓜ 5	Constant by alarm/trigger	3 – X	X – 3	-	-	-	-	-
	15		Constant by fault	2 – X	X – 2	Low speed by daily ventilation				
	16		Constant	1 - X	X – 1	Low speed by daily ventilation and weather alarm closing				
LED 10-16 off			Normal	Off	X – 0	Off				

The functions can be selected with the two board buttons "Reset ➔" and "Lamp test ⇑", and their settings changed:

"Reset ➔" button next function (1 column to the right in the table above)
"Lamp test ⇑" button, setting one position higher (1 line higher in the table above)

Any setting change is adopted by the control unit immediately, however, to protect the changed setting(s) from the effects of a power outage, the "Funct." slider switch must be set "OFF" again.
The SETUP mode is exited and the setting saved ca. 60s after the last press of a button.

Set-up menu control unit EN Type Part 6

LED			Function software version RWAZE 755 V2.19	
			Bus	
			Alarm 7 trigger	Weather signal
	4		☼	☼
	5		●	●
	6		●	●
	7		☼	☼
	8		☼	☼
	9		●	☼
			(☼ LED flashes ● LED dark)	
			setting	
	10	Ⓜ 1	-	-
	11	Ⓜ 2	-	-
⇑	12	Ⓜ 3		
	13	Ⓜ 4	Off	-
	14	Ⓜ 5	Only receiving	Off
	15		Only sending with an adiitional wheater signal.	Only receiving
	16		Only sending	Only sending
LED 10-16 off			Send and receive	Send and receive

The functions can be selected with the two board buttons "Reset ➔" and "Lamp test ⇑", and their settings changed:

"Reset ➔" button next function (1 column to the right in the table above)
"Lamp test ⇑" button, setting one position higher (1 line higher in the table above)

Any setting change is adopted by the control unit immediately, however, to protect the changed setting(s) from the effects of a power outage, the "Funct." slider switch must be set "OFF" again.
The SETUP mode is exited and the setting saved ca. 60s after the last press of a button.

8 Fault-finding / troubleshooting

Many faults can be detected and localised with the help of the diagnostics LEDs on the board. Faults arising due to incorrect wiring of components can of course not be diagnosed. If functional errors should arise that cannot be identified with the help of the diagnostics LEDs, then the first course of action is to check the wiring to the external components.

If the control unit detects a fault, the green OK LED is extinguished and the yellow ⚠ LED flashes or blinks.

Diagnostics LED display	Cause	Remedial measure
(8) LED flashes	Line break in the detector line	➢ Terminate detector line with 33k/15k/6k8 resistor ➢ (Setup setting) ➢ Check cable for break
(8) LED blinks	Short circuit in the detector line	➢ Check cable for short circuit
(7) LED flashes	Line break in the Break glass switch line	➢ Terminate line with 33K resistor ➢ Check cable for break
(7) LED blinks	Short circuit in the Break glass switch line	➢ Check cable for short circuit
Ⓜ 1-5 (10-14) LED flashes	Break in motor line	➢ Check motor fuses ➢ Check cable for short circuit ➢ Check cable for break ➢ **For 3rd. party drives, use 3-wire connection.** ➢ **Two-wire connection without diode module.**
(4) LED illuminates steadily	Active wind or rain detection or fault at the wind or rain module	➢ Wait until wind or rain signal has dropped off ➢ Check wind or rain detectors connected
(5) LED flashes	Main power supply not correct	➢ Check min power supply ➢ Check main power supply voltage
(5) LED blinks	System voltage not detected	➢ Check min power supply ➢ Check main power supply voltage
(6) LED illuminates steadily	Rechargeable battery voltage too high	➢ Check rechargeable battery voltage
(6) LED flashes	Poles of rechargeable batteries incorrectly connected	➢ Check rechargeable battery voltage
(6) LED blinks	Rechargeable battery voltage too low	➢ Check rechargeable battery voltage
⚠ (3) LED blinks	Mains power supply failure detected	➢ Check mains voltage ➢ Check main power supply voltage
(15) LED flashes	Maintenance necessary	➢ Inform customer support

Malfunction	Cause	Remedial measure
Connected automatic detectors are not triggered	Wrong polarity Incorrect wiring	➢ Check wiring/polarity of the connections and rectify faults
Malfunction at braek glass switch	Incorrect wiring	➢ Check wiring

9 Maintenance

Smoke and heat vent systems are safety systems intended to protect human lives, health, and material property.
For this reason, maintenance of the smoke and heat vent system must be carried out at regular intervals, at least once per year, in accordance with DIN 18232, the VdS directives, and the manufacturer's guidelines. Functional testing, operational readiness, maintenance and any repairs on the smoke and heat vent system may only be carried out by authorised specialists.

Before carrying out work on the opened control unit the installation technician must earth themselves on the earthing screw !!!!

Attention !!
Consult with us before carrying out a functional test of the system if the triggers or faults are forwarded on to the fire brigade or building control system by means of the integrated signalling relay.

Control unit:

- Visual check of the control unit
- Check mains voltage 230 V AC
- Check all fuses
- Check rechargeable batteries (ca. 27.6V / but not below 24V)
- The rechargeable batteries must be replaced after 4 years and the old rechargeable batteries disposed of in the prescribed manner
- Check all terminal connections are firmly seated
- Check cabling for damage
- Carry out a functional check (see chapter 0 Commissioning), setting the "Test" slider switch to the "ON" position beforehand
- Check Control unit functions by actuating or triggering all connected external Break glass switches, automatic detectors or ventilation buttons.
- Check display elements of the externally connected Break glass switches and automatic detectors
- Check the fault and trigger forwarding lines - set the "Test" slider switch to the "OFF" position for this

10 Technical data

Common technical data:

Number of alarm trigger lines:	1
Number of fire alarm sys. lines:	1
Number of Break glass switches 6(A), 7(A):	Max. 10 units
Number of automatic detectors:	1 – 10 units or 11 – 25 units or 26 – 50 units (see programming) Smoke detector ECO1003, max. heat detector ECO1005T
OPEN display outputs:	24 V DC, max. 50 mA
Switched 24V output:	0.5 A

Terminals:

Motor terminals:	4 mm² (fine-wire) 6 mm² (rigid)
Mains connection terminals:	2.5 mm²
Fault and triggering relays:	2.5 mm²
Misc. terminals:	1.5 mm² (fine-wire) 2.5 mm² (rigid)
Line monitoring:	Motor line for wire break / fuse-blow Break glass switch line for wire break and short circuit Fire alarm sys. line for wire break and short circuit Detector line for wire break and short circuit Rechargeable battery line for wire break / rechargeable battery voltage
Signal relays:	2 x potential-free, changeover contacts Switching power, each (60 V AC or 24 V DC) / 1 A

10.1 Control unit EN 230V/24V 10A-2-1:

Type:	Control unit EN 230V/24V 10A-2-1
Housing:	Sheet steel housing with sash lock Dimensions W/H/D: 400/500/210 [mm] Colour: Grey (similar to RAL 7035)
Type of protection:	IP 54
Temperature range:	Temperature class III per VdS 2581 (-5°C to 40°C) Temperature class III per VdS 2593 (-5°C to 40°C)
Nominal voltage:	230 VAC / 50 Hz
Nominal power:	550 VA
Nominal rechargeable battery voltage:	24 VDC (2 x 12 VDC)
Nominal rechargeable battery capacity:	7,0 or 7,2 Ah
Switching power, motor line:	Max. 10 A nominal current (dependent on motor duty cycle) 10 A with run-time ≤ 60s / 7,5 A with run-time of 60s to max. 3min
Switching power, control unit:	Max. 10 A nominal current (dependent on motor duty cycle) 10 A with run-time ≤ 60s / 7,5 A with run-time of 60s to max. 3min
Switch-on duration (duty cycle):	Max. 30% duty cycle (with 10 mins. cycle times)
Number of motor lines:	2
Number of ventilation groups:	2

10.2 Control unit EN 230V / 24V 10A-4-1:

Type:	Control unit EN 230V / 24V 10A-2-1
Housing:	Sheet steel housing with sash lock Dimensions W/H/D: 400/500/210 [mm] Colour: Grey (similar to RAL 7035)
Type of protection:	IP 54
Temperature range:	Temperature class III per VdS 2581 (-5°C to 40°C) Temperature class III per VdS 2593 (-5°C to 40°C)
Nominal voltage:	230 VAC / 50 Hz
Nominal power:	550 VA
Nominal rechargeable battery voltage:	24 VDC (2 x 12 VDC)
Nominal rechargeable battery capacity:	7,0 / 7,2 Ah
Switching power, motor line:	Max. 10 A nominal current (dependent on motor duty cycle) 10 A with run-time < 60s / 7,5 A with run-time > 60s up to max. 3min
Switching power, control unit:	Max. 10 A nominal current (dependent on motor duty cycle) 10 A with run-time ≤ 60s / 7,5 A with run-time of 60s to max. 3min
Switch-on duration (duty cycle):	Max. 30% duty cycle (with 10 mins. cycle times)
Number of motor lines:	4
Number of ventilation groups:	4

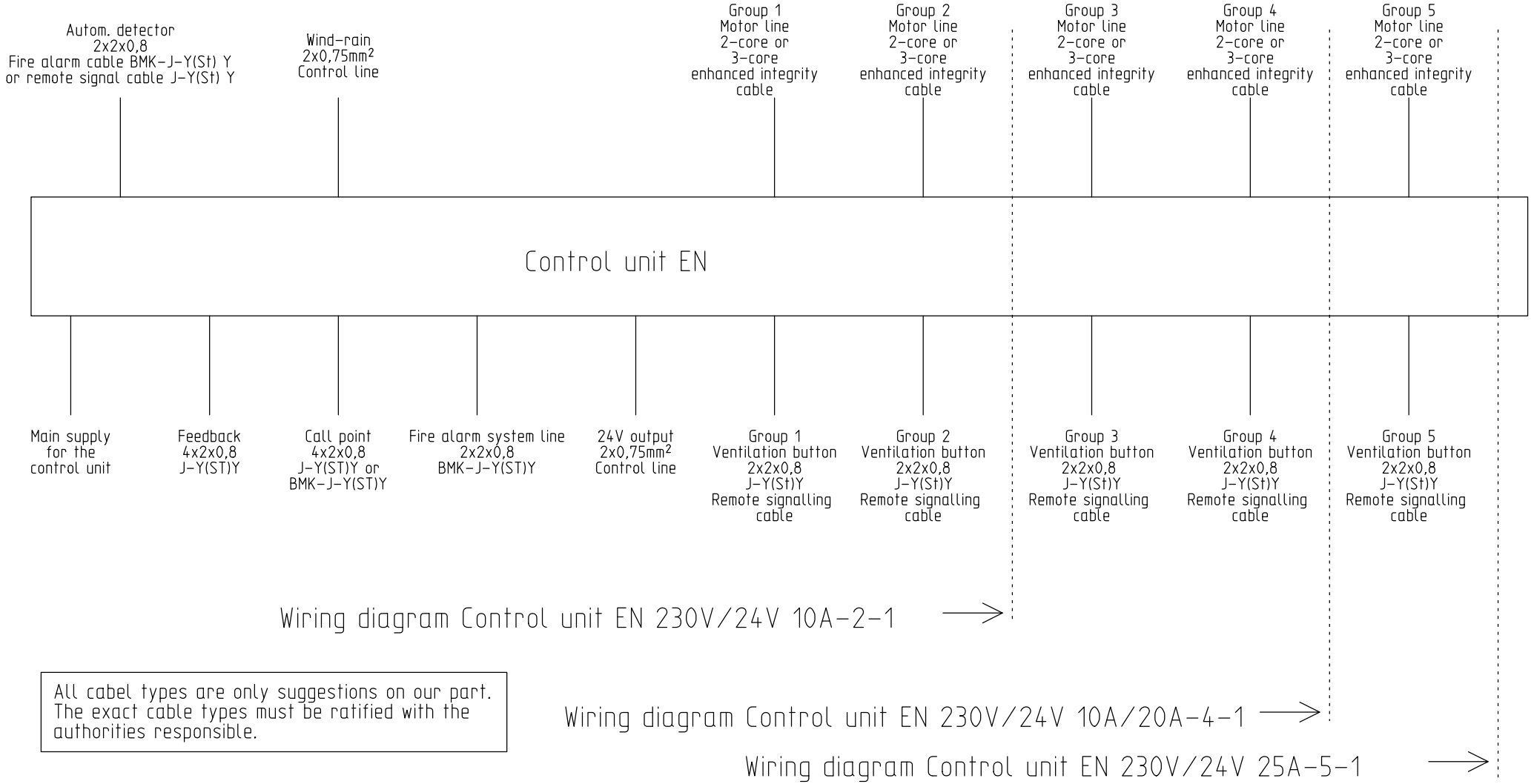
10.3 Control unit EN 230V / 24V 20A-4-1:

Type:	Control unit EN 230V / 24V 20A-4-1
Housing:	Sheet steel housing with 2 sash locks Dimensions W/H/D: 400/500/210 [mm] Colour: Grey (similar to RAL 7035)
Type of protection:	IP 54
Temperature range:	Temperature class III per VdS 2581 (-5°C to 40°C) Temperature class III per VdS 2593 (-5°C to 40°C)
Nominal voltage:	230 VAC / 50 Hz
Nominal power:	850 VA
Nominal rechargeable battery voltage:	24 VDC (2 x 12 VDC)
Nominal rechargeable battery capacity:	18 Ah
Switching power, motor line:	Max. 15 A nominal current (dependent on motor duty cycle) 15 A with run-time < 60s / 10 A with run-time > 60s up to max. 3min
Switching power, control unit:	Max. 20 A nominal current (dependent on motor duty cycle) 20 A with run-time ≤ 60s / 15 A with run-time of 60s to max. 3min
Switch-on duration (duty cycle):	Max. 30% duty cycle (with 10 mins. cycle times)
Number of motor lines:	4
Number of ventilation groups:	4

10.4 Control unit EN 230V / 24V 25A-5-1:

Type:	Control unit EN 230V / 42V 25A-5-1
Housing:	Sheet steel housing with 2 sash locks Dimensions W/H/D: 400/500/210 [mm] Colour: Grey (similar to RAL 7035)
Type of protection:	IP 54
Temperature range:	Temperature class III per VdS 2581 (-5°C to 40°C) Temperature class III per VdS 2593 (-5°C to 40°C)
Nominal voltage:	230 VAC / 50 Hz L/N/PE
Nominal power:	850 VA (can be split over two phases).
Nominal rechargeable battery voltage:	24 VDC (2 x 12 VDC)
Nominal rechargeable battery capacity:	12 Ah
Switching power, motor line:	Max. 10 A nominal current (dependent on motor duty cycle) 10 A with run-time < 60s / 7,5 A with run-time > 60s up to max. 3min
Switching power, control unit:	Max. 25 A nominal current (dependent on motor duty cycle) 25 A with run-time ≤ 60s / 16,75 A with run-time of 60s to max. 3min
Switch-on duration (duty cycle):	Max. 30% duty cycle (with 10 mins. cycle times)
Number of motor lines:	5
Number of ventilation groups:	5

Wiring diagram Control unit EN



Wiring diagram Control unit EN 230V/24V 10A-2-1 →

All cabel types are only suggestions on our part.
The exact cable types must be ratified with the authorities responsible.

Wiring diagram Control unit EN 230V/24V 10A/20A-4-1 →

Wiring diagram Control unit EN 230V/24V 25A-5-1 →

Schutzvermerk nach DIN ISO 16016 beachten!

--24_0103--0150_E100___

previous page:

Status	Change	Date	Name	Project	Date	Name
		07.06.2018		Drawn	21.05.2015	Arnold
				Checked		
				Standard		

Original

Customer

Project description: Control unit EN 230V/24V 10/20/25A-X-1

Replaces

Sheet description: Wiring diagram Exemplary Max configuration

Replaced by

Next page: 2

Order number:

System:

Location:

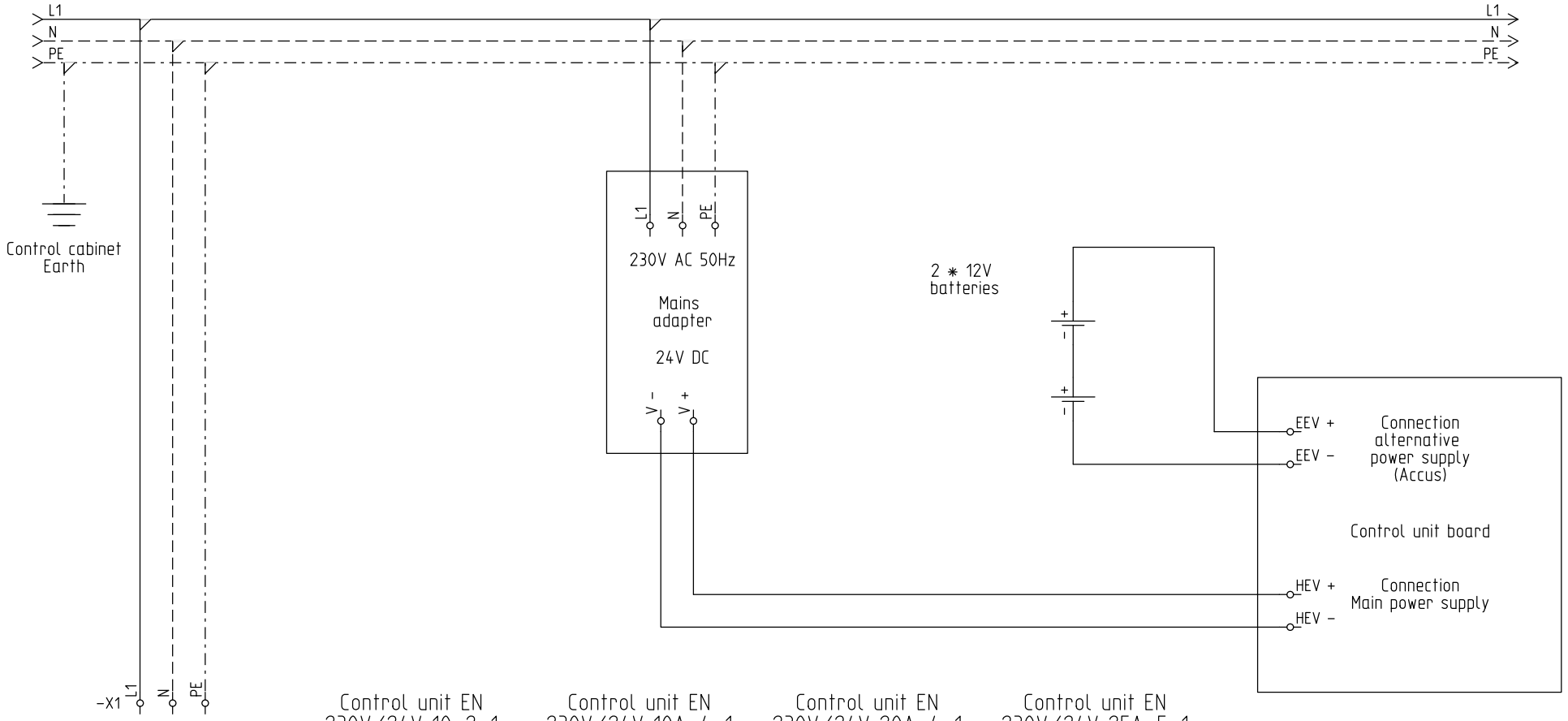
Location

Commission:

Sheet: 1

of 13

Power supply 230V AC supply line with 24V DC nominal voltage



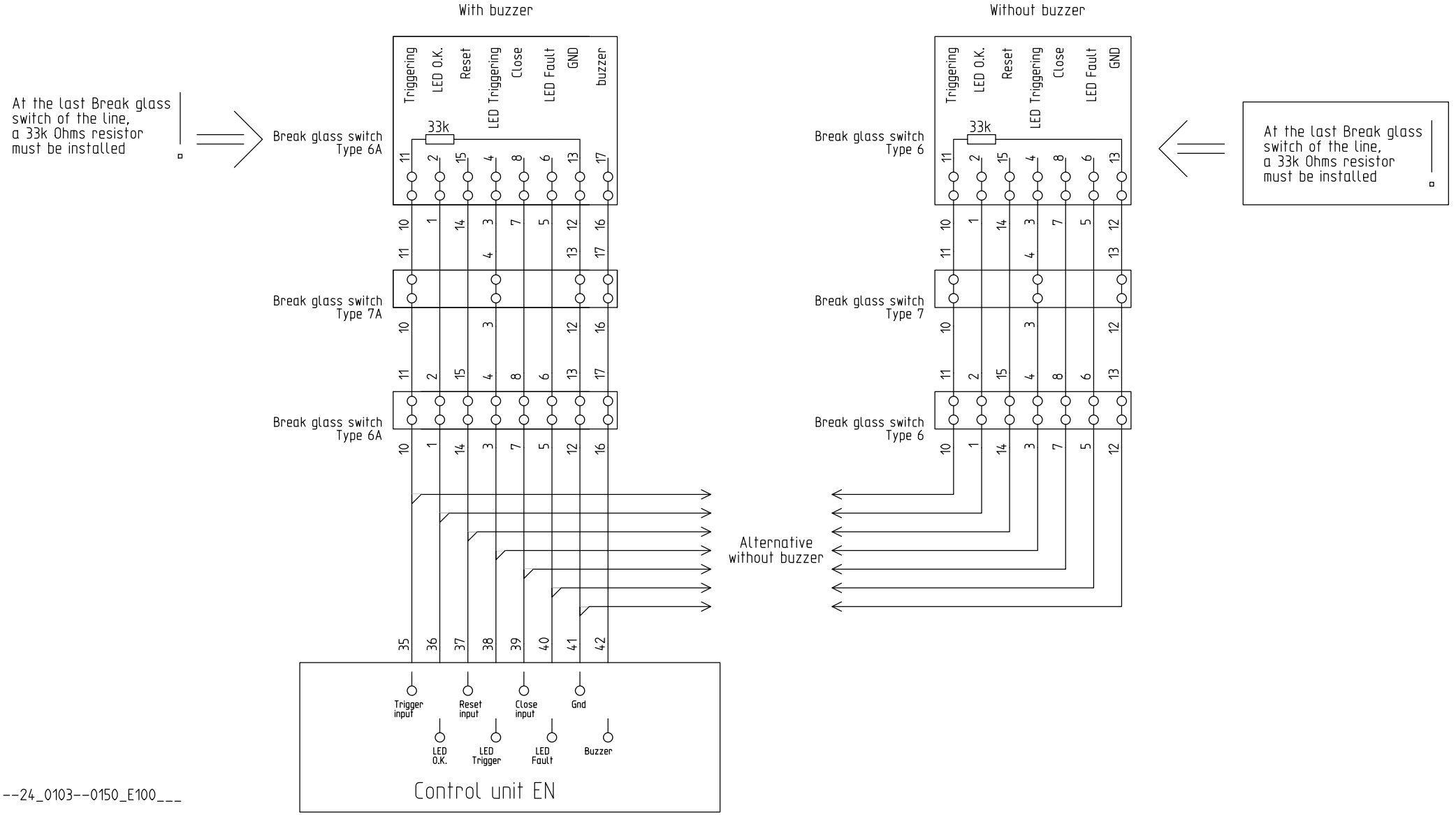
Note Protection Mark according DIN ISO 16016!

Control unit EN 230V/24V 10-2-1	Control unit EN 230V/24V 10A-4-1	Control unit EN 230V/24V 20A-4-1	Control unit EN 230V/24V 25A-5-1
~1L/N/PE ca. 550VA 230V AC 50 Hz	~1L/N/PE ca. 550VA 230V AC 50 Hz	~1L/N/PE ca. 850VA 230V AC 50 Hz	~1L/N/PE ca. 850VA 230V AC 50 Hz

--24_0103--0150_E100___

previous page 1							customer	project description	page description	next page 3		
state	amendment	date	name	project	date	name		Control unit EN 230V/24V 10/20/25A-X-1	230V/24V control unit Mains connection Accus connection	order number:	plant:	
		07.06.2018		editor	20.04.2017	Arnold					place:	
				proofed						location	commission:	sheet: 2
				Norm			Urspr.	Ers.f	Ers.d			of 13

Break glass switch connection



Note Protection Mark according DIN ISO 16016!

--24_0103--0150_E100___

previous page 2							customer	project description	page description	next page 4		
state	amendment	date	name	project	date	name		Control unit EN 230V/24V 10/20/25A-X-1	Break glass switch connection	order number:	plant:	
		07.06.2018		editor	20.04.2017	PPA					place:	
				proofed						location	commission:	sheet: 3
				Norm			Urspr.	Ers.f	Ers.d			of 13

Connection of automatic smoke/ heat detectors

Note Protection Mark according DIN ISO 16016!

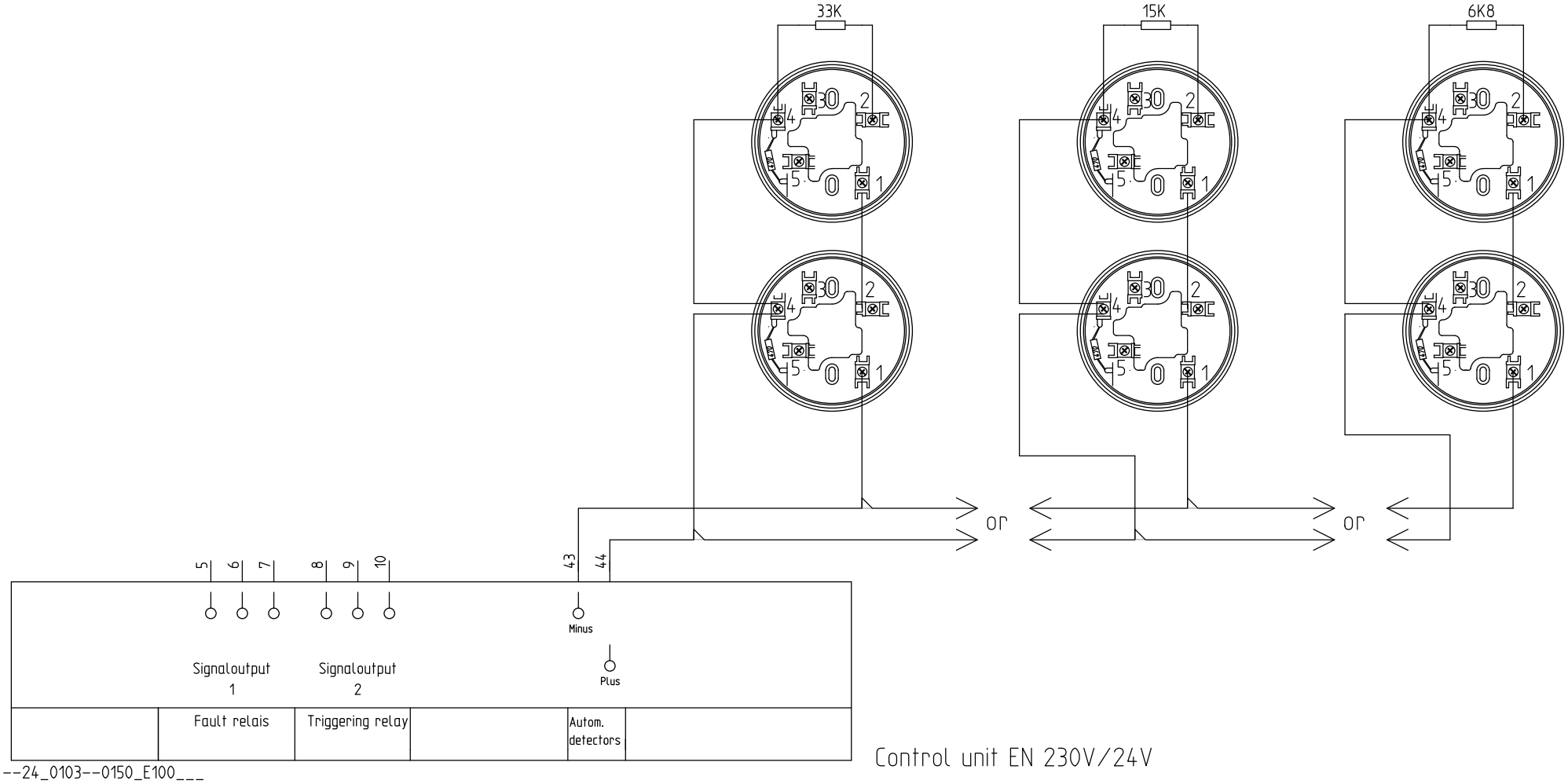
With the connection of up to 10 units in 1 line, the 33k Ohms termination resistor must be used! (standard setting)

The 15k Ohms resistor is in bag, fastend in the control cabinet.

While connecting 11–25 pcs. the last detector must be terminated with a 15k Ohms resistor. (SETUP adjustments)

The 6k8 Ohms resistor is in bag, fastend in the control cabinet.

While connecting 26–50 pcs. the last detector must be terminated with a 6k8 Ohms resistor. (SETUP adjustments)



Control unit EN 230V/24V

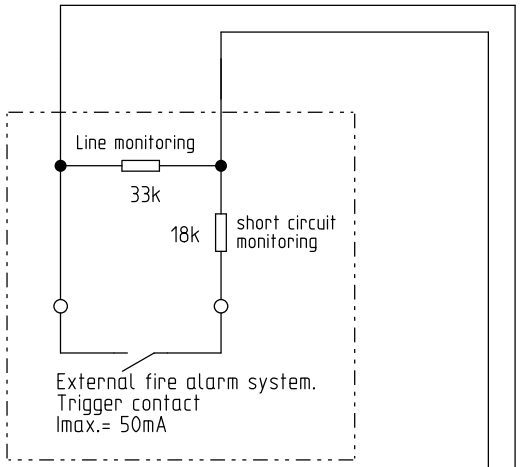
--24_0103--0150_E100___

previous page 3							customer	project description	page description	next page 5		
state	amendment	date	name	project	date	name		Control unit EN 230V/24V 10/20/25A-X-1	Autom. detector wiring	order number:	plant:	
		07.06.2018		editor	20.04.2017	Arnold					place:	
				proofed						location	commission:	sheet: 4
				Norm			Urspr.	Ers.f	Ers.d			of 13

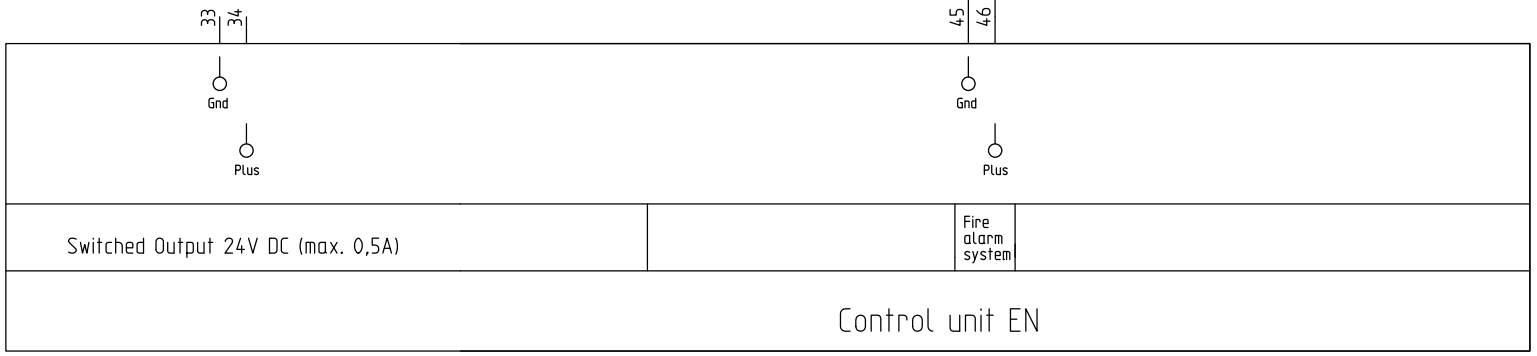
Monitored FAS Input

24V DC power supply for external signalling unit

Switched Output 24V DC (max. 0,5A)
Short-circuit proof.
E.g. for external signalling unit.
Attention:
This output will be switched off appr. 3 minutes after the main power supply fails.



In delivery condition the 33k Ohms resistor is mounted to the terminals 45 and 46 on the control unit. The 18k Ohms resistor is in a bag fastened to the battery bridge.



Note Protection Mark according DIN ISO 16016!

--24_0103--0150_E100___

previous page 4							customer	project description	page description	next page 6		
state	amendment	date	name	project	date	name		Control unit EN 230V/24V 10/20/25A-X-1	Fire alarm system input	order number:	plant:	
		07.06.2018		editor	20.04.2017	Arnold					place:	
				proofed						location	commission:	sheet: 5
				Norm			Urspr.	Ers.f	Ers.d			of 13

Optional wiring of the fault and triggering relay.

Attention: Function depends on setup settings!

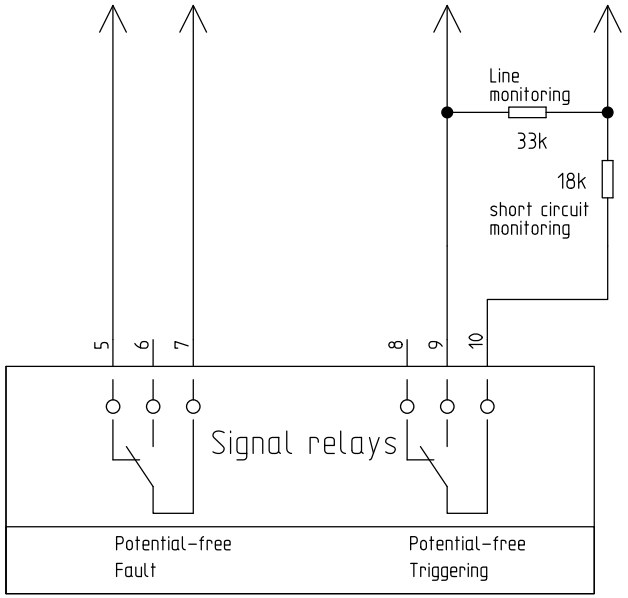
Note Protection Mark according DIN ISO 16016!

Forwarding Fault

Control of a building control unit or fire alarm system.

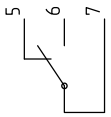
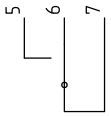
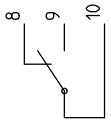
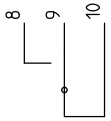
Forwarding Triggering / Alarm

Control of a Break glass switch line or a fire alarm system line of a second control unit.



Control unit EN

Signalling relay function

	Setup setting	Contact position	Function
Default position	Fault forwarding		Active fault
	Trigger forwarding		Normal operation (no triggering)
	Wind-rain forwarding		Wind-rain signalling
	Fault forwarding		No fault
	Trigger forwarding		Trigggering
	Wind-rain forwarding		No wind-rain signalling
Default position	Trigger forwarding		Normal operation (no triggering)
	Fault forwarding		Active fault
	Wind-rain forwarding		Wind-rain signalling
	Trigger forwarding		Triggering
	Fault forwarding		No fault
	Wind-rain forwarding		No wind-rain signalling

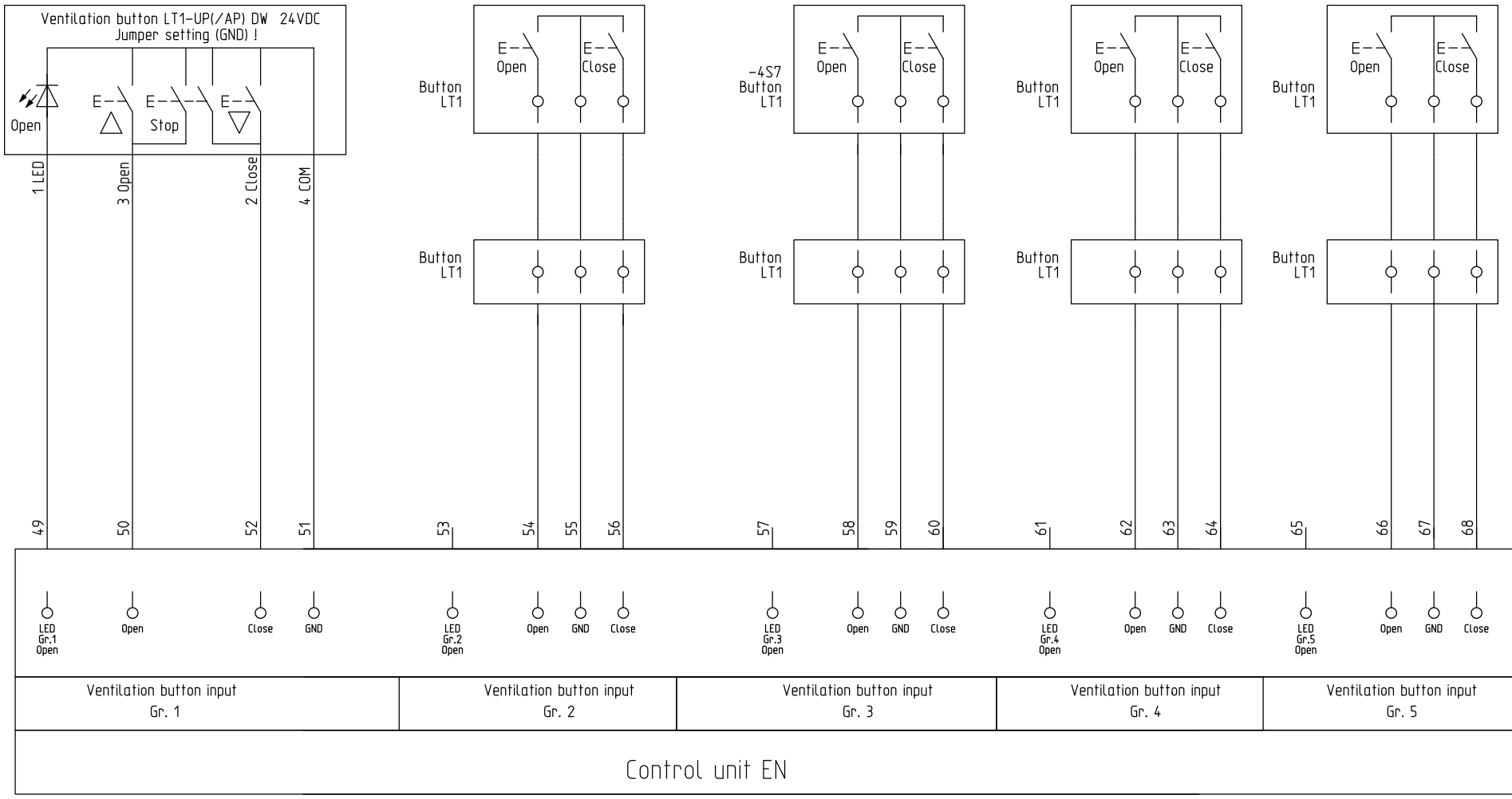
--24_0103--0150_E100___

previous page 5							customer	project description	page description	next page 7		
state	amendment	date	name	project	date	name		Control unit EN 230V/24V 10/20/25A-X-1	signal relays optional functions	order number:	plant:	
		07.06.2018		editor	20.04.2017	Arnold					place:	
				proofed						location	commission:	sheet: 6
				Norm			Urspr.	Ers.f	Ers.d			of 13

Connection ventilation button

Dual rocker without mutual interlocking

Ventilation button
group 1
Max. output power of the
open display output at 24V DC
(50mA) is 1.2W
Max number of units is 8



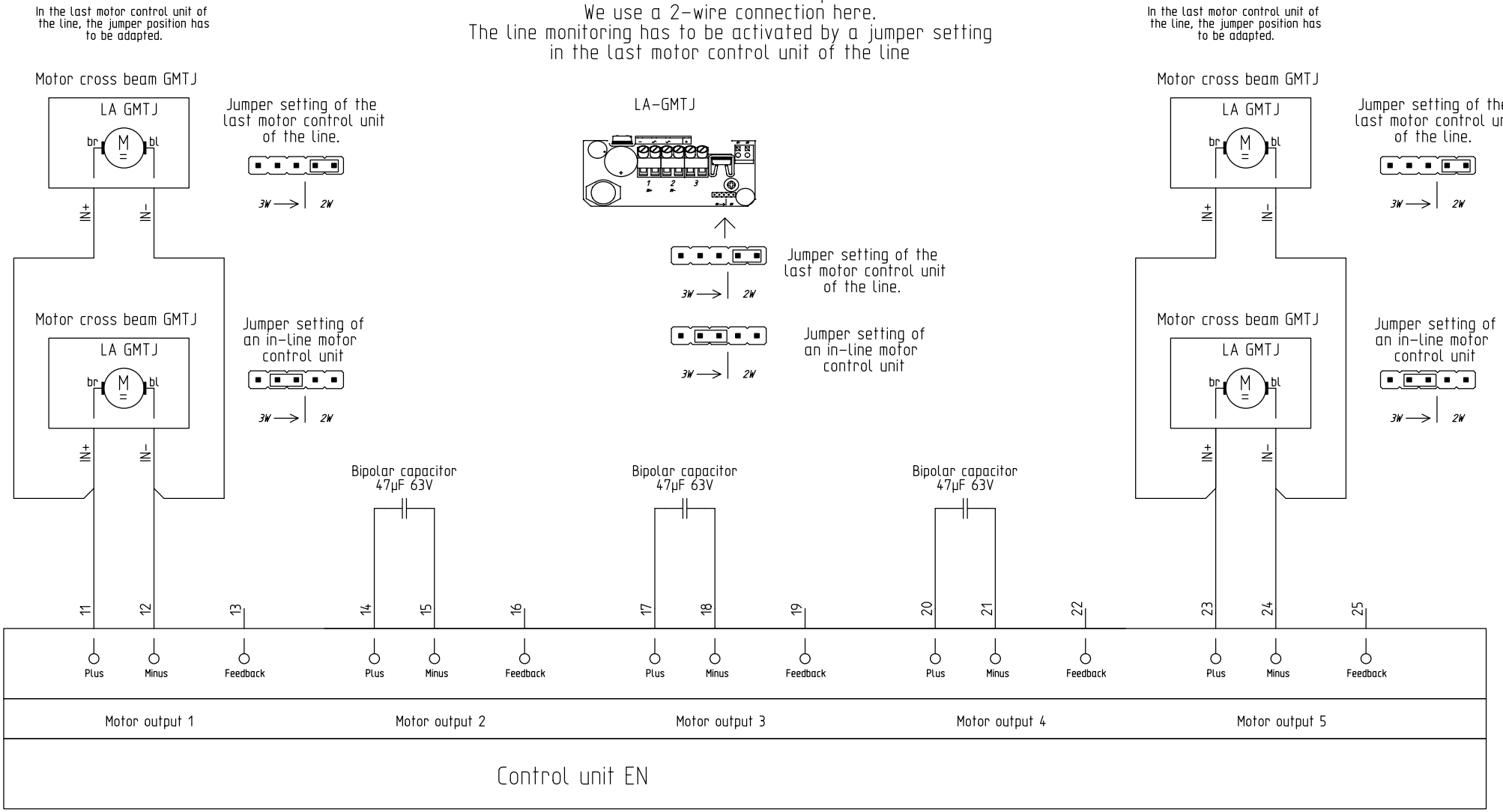
Note Protection Mark according DIN ISO 16016!

--24_0103--0150_E100___

previous page 6							customer	project description	page description	next page 8		
state	amendment	date	name	project	date	name		Control unit EN 230V/24V 10/20/25A-X-1	Ventilation button	order number:	plant:	
		07.06.2018		editor	20.04.2017	Arnold					place:	
				proofed						location	commission:	sheet: 7
				Norm			Urspr.	Ers.f	Ers.d			of 13

Motorline connection for 24V motor cross beams type GMTJ

The max. output current of 15A (10A) per each output
must not be exceeded. Be aware about the max. output current of the control unit!
We use a 2-wire connection here.
The line monitoring has to be activated by a jumper setting
in the last motor control unit of the line

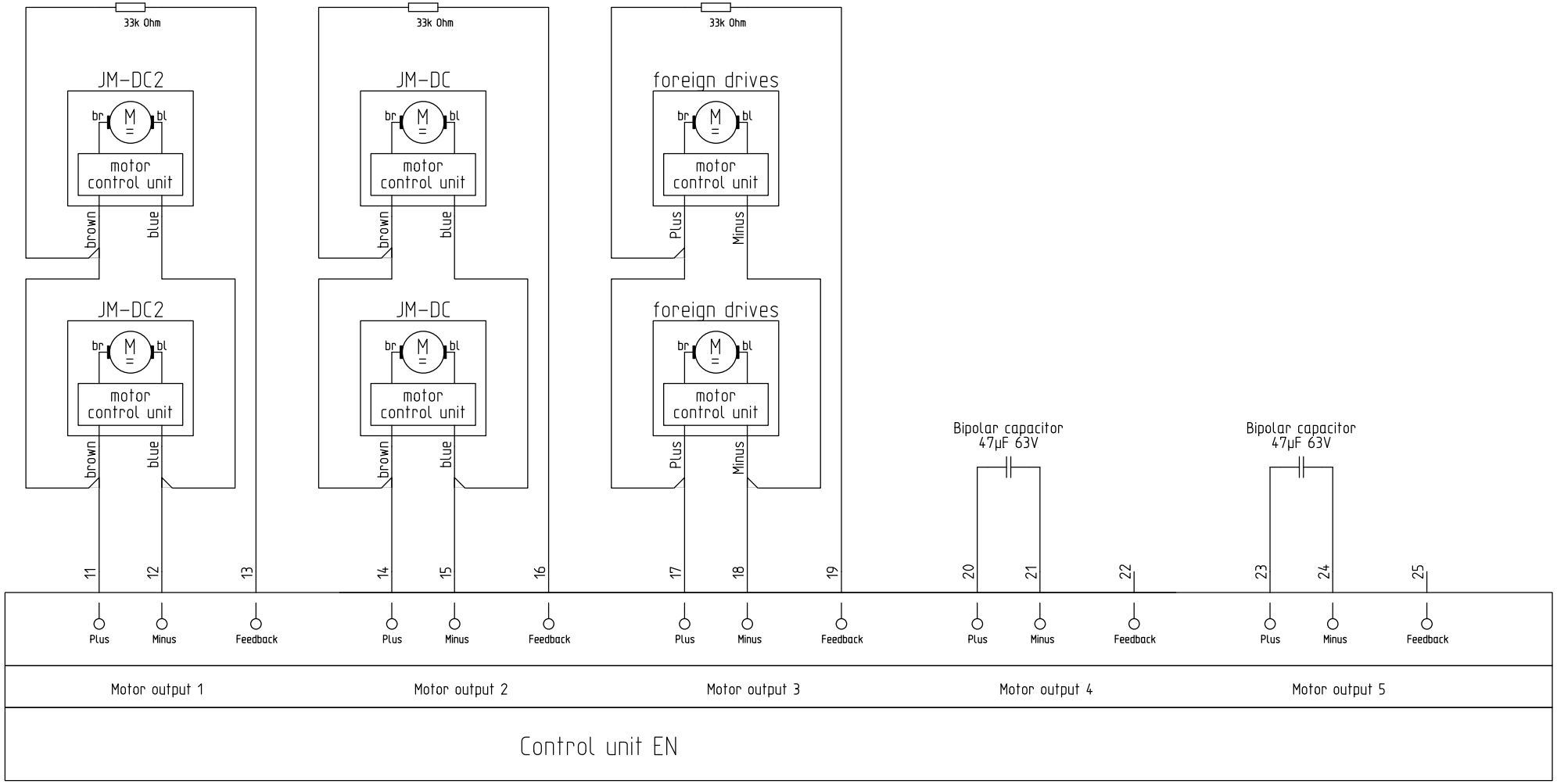


Note Protection Mark according DIN ISO 16016!

--24_0103--0150_E100___

previous page 7							customer	project description	page description	next page 9
state	amendment	date	name	project	date	name		Control unit EN 230V/24V 10/20/25A-X-1	Motor output 24V E-cross-beams, type GMT-J	order number: / plant: / place:
		07.06.2018		editor	20.04.2017	Arnold				
				proofed						location / commission: / sheet: 8
				Norm			Urspr.	Ers.f	Ers.d	of 13

3 Line Monitoring:
At delivery, bipolar capacitors for line monitoring are mounted at the motor output terminals. To monitor the line of drives, the 33k Resistor has to be mounted at the last drive of the line (brown/plus).
The capacitors have to be removed when the lines are connected with the drives.

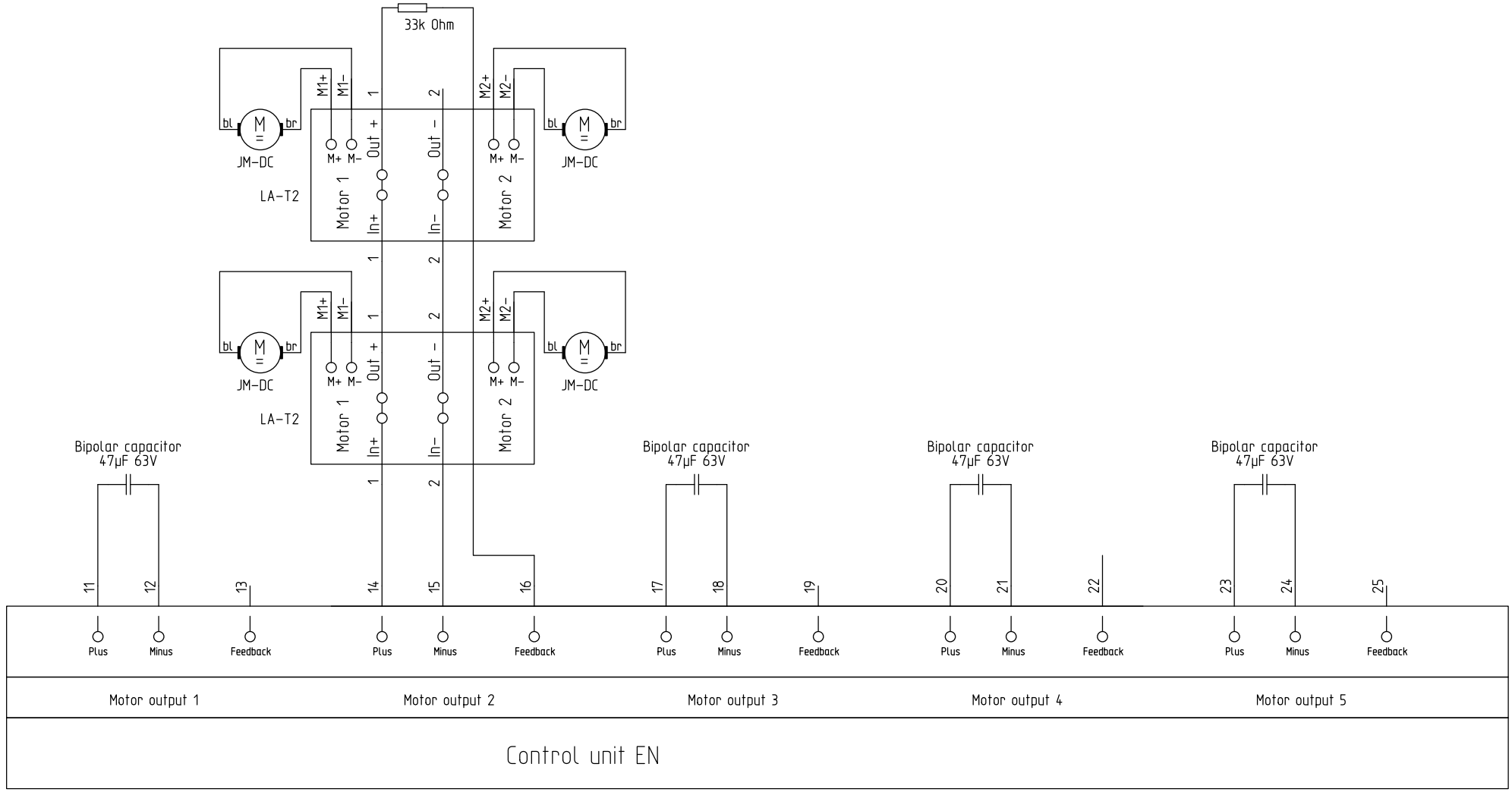


Note Protection Mark according DIN ISO 16016!

--24_0103--0150_E100___

Note Protection Mark according DIN ISO 16016!

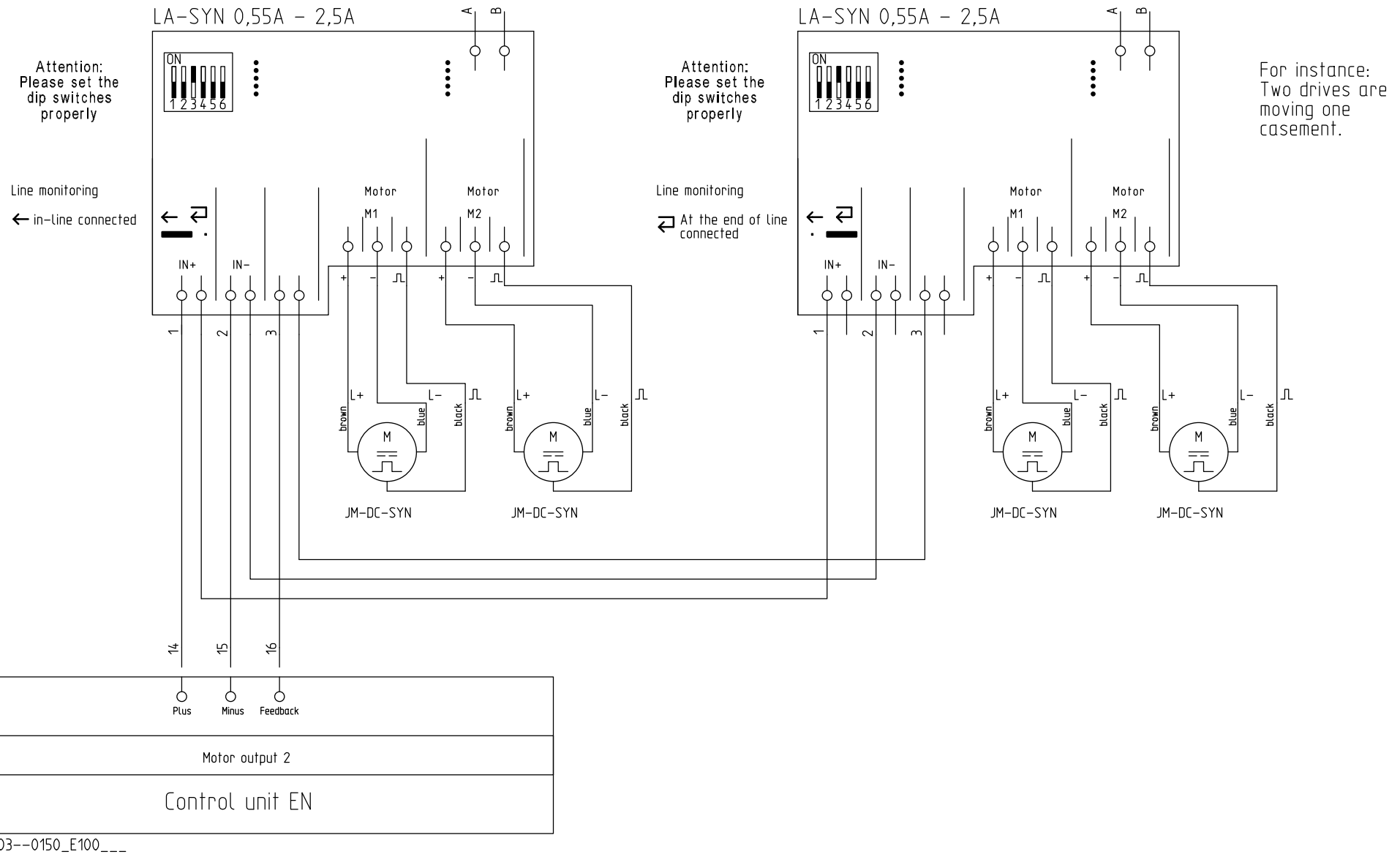
Tandem-Mode



--24_0103--0150_E100___

previous page 9							customer	project description	page description	next page 11
state	amendment	date	name	project	date	name		Control unit EN 230V/24V 10/20/25A-X-1	Motor output 24V	order number: / plant: / place:
		07.06.2018		editor	20.04.2017	Arnold				location / commission: / sheet: 10 of 13
				proofed						
				Norm			Urspr.	Ers.f	Ers.d	

JM-DC-SYN drives, connection plan with LA-SYN.

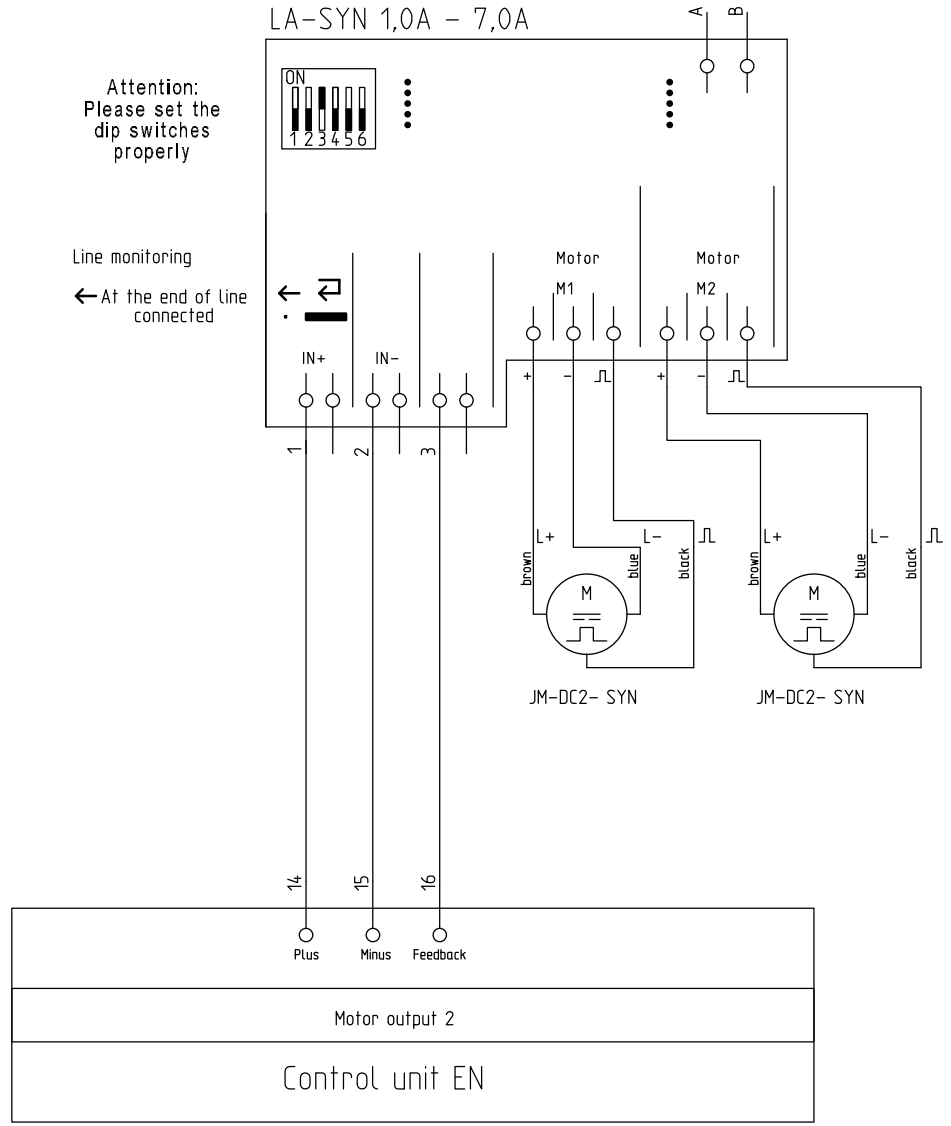


Note Protection Mark according DIN ISO 16016!

--24_0103--0150_E100___

previous page 10							customer	project description	page description	next page 12	
state	amendment	date	name	project	date	name		Control unit EN 230V/24V 10/20/25A-X-1	Motor output 24V	order number:	plant:
		07.06.2018		editor	20.04.2017	Arnold					place:
				proofed						location	commission: sheet: 11
				Norm			Urspr.	Ers.f	Ers.d		of 13

JM-DC2-SYN drives, connection plan with LA-SYN.

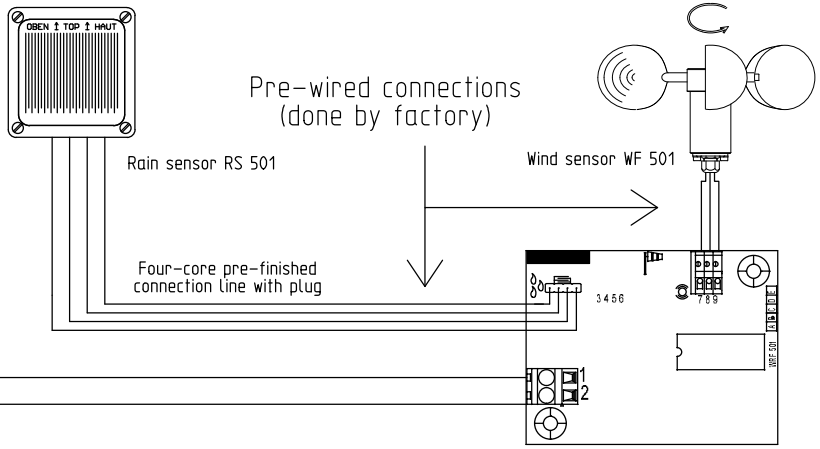


Note Protection Mark according DIN ISO 16016!

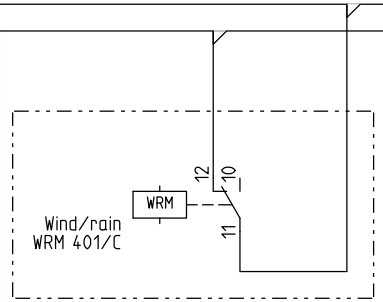
--24_0103--0150_E100___

previous page 11							customer	project description	page description	next page 13		
state	amendment	date	name	project	date	name		Control unit EN 230V/24V 10/20/25A-X-1	Motor output 24V	order number:	plant:	
		07.06.2018		editor	20.04.2017	Arnold					place:	
				proofed						location	commission:	sheet: 12
				Norm			Urspr.	Ers.f	Ers.d			of 13

Connection wind/rain detector

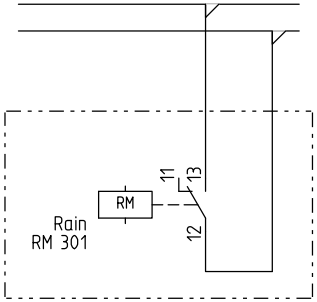


or ... or ...



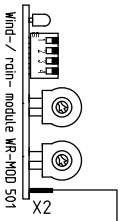
Connection (W)RM 401/C
(potential free contacts)

When connecting a wind/rain detector the type-specific manual must be observed.

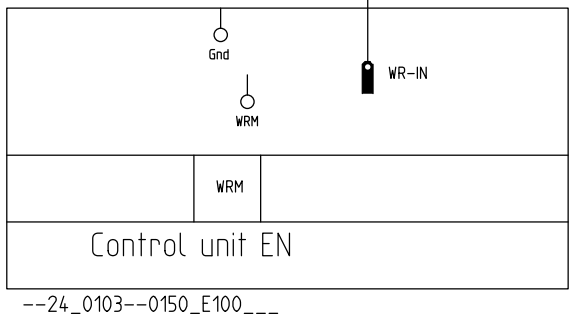


Connection RM 301
(potential free contacts)

With wind or rain, terminals 47 and 48 are short-circuited via the wind or rain detector. (WRM 401 / RM 301)



Attention:
The module may only be inserted into the slot when the system is in de-energised condition!
The same applies for take out.



--24_0103--0150_E100___

Note Protection Mark according DIN ISO 16016!

previous page 12							customer	project description	page description	next page		
state	amendment	date	name	project	date	name		Control unit EN 230V/24V 10/20/25A-X-1	Connection wind/rain input	order number:	plant:	
		07.06.2018		editor	20.04.2017	Arnold					place:	
				proofed						location	commission:	sheet: 13
				Norm			Urspr.	Ers.f	Ers.d			of 13