

.BTR

Installation and Commissioning Instructions CONTROL UNIT BCR



RWA-Control Unit BCR - 2 A / 4 A / 8 A / 12 A CE



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ABBREVIATIONS

Index of abbreviations	
These abbreviations are used consistently throughout these assembly & operating instructions. Unless stated differently, all dimensions indicated in this document are in mm. General tolerances in accordance with DIN ISO 2768-m.	
aP	Surface mounting
WxHxD	Width x Height x Depth
COM	Common connection
DIN	German Institute for Standardisation
EN	European Standard
IN	Input
OUT	Output
RAL	Central European Colour Standard
RWA	Smoke and heat exhaust ventilation

Figures	
AC	Alternating current (50Hz / 60Hz)
DC	Direct current
I	Electric current
L	Length
ME	Module space unit (1 ME = 23 mm)
NC	Contact „close“ (normally close)
NO	Contact „open“ (normally open)
P	Electric power
R	Electrical resistance
U	Electric voltage
Um	Change over switch

Scale units	
°C	Degree Celsius
A	Amps
Ah	Amp-hours
kg	Kilogram
m	Metres
min	Minutes
mm	Millimeters
N	Newtons
s	Seconds
Pcs.	Pieces
V	Volts
PU	Packaging Units
Vpp	Residual ripple (Voltage Peak-Peak)
W	Watts
Ω / k Ω	Ohm / kilo-Ohm

Colour			
BK	black	OG	orange
BN	brown	RD	red
BU	blue	VT	violet
GN	green	WH	white
GY	grey	YE	yellow

Once the assembly and commissioning has been completed, the installer of a machine „power-operated window“ shall hand these instructions over to the end-user.

The end-user shall store these instructions in a safe place over the whole lifecycle and use it for further reference, if required.

**WARNING****WARNING AND SAFETY SYMBOLS IN THESE INSTRUCTIONS:**

The symbols used in the instructions shall be strictly observed and have the following meaning:

WARNING	Failure to comply with the warning notes can result in irreversible injuries or death.
CAUTION	Failure to comply with the warning notes can result in minor or moderate (reversible) injuries.
NOTE	Failure to comply with the warning notes can lead to damage to property.
Useful note	for an optimum installation.

**Caution / Warning**

Danger due to electric current.

**Caution / Warning**

Risk of crushing and entrapment during device operation.

**Attention / Warning**

Risk of damage to / destruction of drives and / or windows.

TARGET GROUP

These instructions are intended for trained personnel and operators of systems for natural smoke and heat exhaust ventilation systems (RWA) and natural ventilation via windows, who are knowledgeable of operating modes as well as the remaining risks of the system.

WARNING

This device is not intended for use by persons (including children) with physical, sensory or mental limitations or lacking experience and / or knowledge, unless they are supervised by a person who is responsible for the safety or were instructed by him on the usage of this equipment. Children should be supervised to ensure that they are not playing with this device. Cleaning and operator's maintenance may not be performed by children without supervision.

INTENDED USE

Area of application / Scope of application

This control device is intended for power-feeding and controlling of electromotive operated windows in facade or roof areas. **The prime task of this product**, in combination with the electromotive window, **is to evacuate hot smoke and combustion gases in case of fire** to save human lives and protect material assets. **Furthermore**, the electromotive operated window ensures **fresh air supply for the natural ventilation** of the building.

By attaching an electric operating drive to a movable element of a window and connecting it to a power supply a so-called "power-operated window" is created which, according to the Machinery Directive 2006 / 42 / EG, represents a machine. The control device is designated for driving such a window. Where it seems reasonable, these installation instructions point out sensibly predictable hazards and risks resulting from a power operated window.

NOTE

Intended use

The control device is intended for stationary installation and electrical connection as part of a building.

In accordance with the attached Declaration of Conformity the control device, in combination with electromotive drives from **BTR**, is released for its proper use at a power-operated window for the following use:

- Application for natural ventilation
 - with an installation height of the drive and the bottom side of casement of at least 2,5 m above the floor, **or**
 - with an opening width at the HSK of the driven part of < 200 mm by a simultaneous speed of < 15 mm/s at the HSK in closing direction.
- Application as NRWA (natural smoke and heat exhaust ventilator(s) in accordance with EN12101-2 without dual purpose for ventilation.

WARNING

Attention must be paid to possible hazards when used with tilting or rotating windows, whose secondary closing edges are located at less than 2,5 m installation height above the floor, under consideration of the Control Unit and usage!

We as manufacturers are well aware of our duties and responsibilities regarding the development, manufacturing and placing of safe window drives on the market and consistently implement them. Ultimately, however, we have no direct influence on the usage of our drives. Therefore, as a precaution, we point out the following:

- The **constructor or his agent** (architect, specialist planner) **are obligated** by law **to evaluate the hazards to persons**, originating from the usage, installation position, opening parameters as well as the planned type of installation of the power operated window and the external Control Unit, **already in the planning phase and to establish necessary protective measures.**
- The **constructor / manufacturer** of the machine "power-operated window" **must implement** the planned **protective measures** at the installation site or, if not yet established, **determine them** by their own responsibility and detect or **minimize possible remaining risks.**

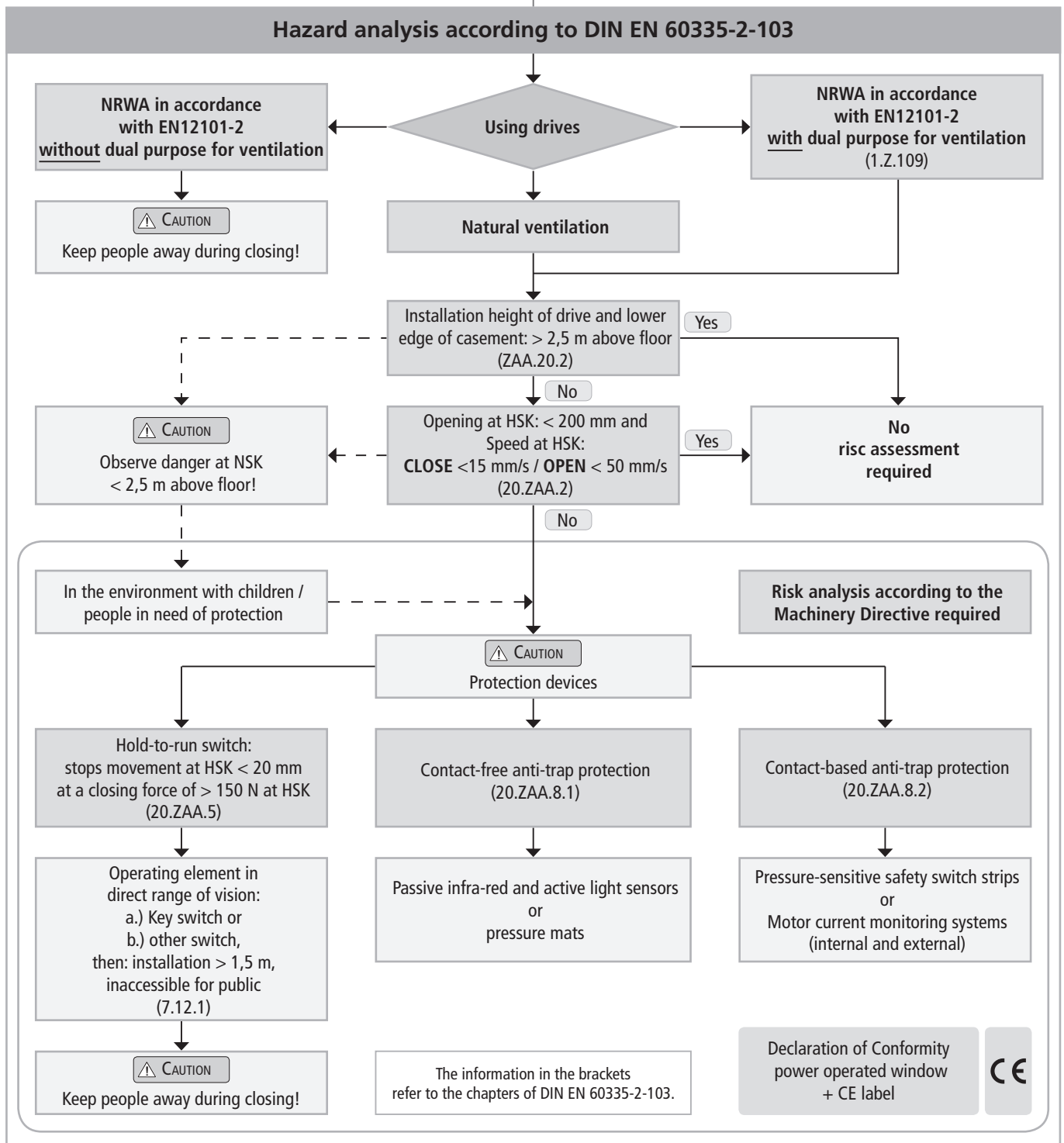
NOTE

By connecting the window drives with a control device and their operation the constructor of the complete system becomes the manufacturer of the power-operated window! If necessary, he is obligated to perform a risk assessment of the complete system in accordance with the Machinery Directive 2006/42/EG when the utilization or operation of the control device or the connected window drives deviate from their intended use!

The need for a risk assessment at the installation site due to the reasonably foreseeable misuse. A risk assessment in accordance with the Machinery Directive 2006 / 42 / EG by activation of the power-operated window for natural ventilation is absolutely necessary under the following conditions:

- the installation height of the drive or of the „HSK / main closing edge“ (parallel to hinge) < 2,5 m above the floor and one of the following conditions:
- the opening width at the HSK is > 200 mm, or
- the closing speed at the HSK is > 15 mm/s, or
- the opening speed at the HSK is > 50 mm/s, or
- the closing force at the HSK is > 150 N

The following flow chart can be applied, which also includes the protective measures in accordance with EN 60335-2-103/2016-05.



NOTE

We recommend using exclusively system components by **BTR**, because their compatibility is carefully checked in the factory. **BTR** shall not assume liability for the system-compatible functioning of third party components. Applications and connections other than explicitly described in these instructions require the express written consent of **BTR**. Utilization of applications and components not expressly authorized by **BTR** are considered as unintended use even if their perfect functioning is proven at commissioning (e.g. approval under building law).

Basic functions of RWA (smoke and heat exhaust system) control devices:

- Control of electromotive window drives for smoke and heat exhaust in case of fire and for "natural ventilation".
- Evaluation of trigger signals of manual and automatic smoke detectors as well as of fire alarm systems.
- Emergency power supply provided by accumulators for maintaining safety functions if power supply is interrupted in case of fire.
- Monitoring the power supply of all important connections for malfunctions.
- Diverse automatic and manual control options for controlling natural ventilation (e.g. via wind and rain sensors).
- Transmission of signals of all essential operating states for external evaluation (may require additional components).
- Comfortable configuration and parameterization of control via PC software.
- Optional integration into external data bus systems via dd-on modules.

SAFETY INSTRUCTIONS



It is important to follow these instructions for the safety of persons. These instructions shall be kept in a safe place for the entire service life of the products.



Risk of crushing and entrapment!
Electromotive operated windows can close automatically!
The compressive force is absolutely sufficient to crush fingers in case of carelessness.

Area of application

The control device shall only be used according to its intended use. For additional applications consult the manufacturer or his authorized dealer.

Installation

These instructions address expert and safety-conscious electricians and / or qualified personnel knowledgeable of the electrical and mechanical installation of drives and control systems.

Mounting material

The required mounting material must be modified to fit the occurring load.

Crush and shear points

To avoid injuries, **crushing and shear points** between casement and frame must be secured **against entrapment up to an installation height of 2,5 meters above the floor** with appropriate measures. This can be achieved e.g. by using contact-based or contactless protective devices against entrapment, which stop the motion through contact or through interruption by a person. A warning symbol at the opening element must indicate this clearly.

Routing cables and electrical connection

Routing or installing electrical lines and connections may be performed only by approved specialist companies. Never operate drives, Control Units, operating elements and sensors at operating voltages and connections contrary to the specifications of the manufacturer.

NOTE

The planning and calculation of the wiring system is the responsibility of the builder or his agent or the authorized constructor and must be performed according to the statutory provisions.

All relevant national instructions shall be observed for the installation.



The power line on-site must be secured separately and provided with all poles separators. After opening of the system housing voltage carrying parts are exposed. The system must be separated from the power supply and accumulator voltage before each intervention in the Control Unit of the system.

The types of cable, cable lengths and cross-sections shall be selected in accordance with the manufacturer's technical data. If necessary, the cable types shall be coordinated with the competent local authorities and energy supply companies. Low-voltage lines (24 V DC) shall be routed separate from the high-voltage lines. Flexible cables may not be flush-mounted. Freely suspended cables shall be equipped with strain reliefs.



Cables must be laid such way that they cannot be sheared off, twisted or bent during operation. It is recommended to perform an insulation measurement of the system's line network and to document this.

Clamping points shall be checked for tightness of threaded connections and cable ends. Access to junction boxes, clamping points and external drive control systems shall be ensured for maintenance work.

Commissioning, operation and maintenance

After the installation and after each modification in the set up all functions shall be checked with a trial run. **After the installation of the system is completed the end-user shall be instructed in all important operating steps.** If necessary, he must be advised of all remaining risks / dangers.

The end-user shall be instructed in intended use of the drives and, if necessary, the safety instructions. The end-user shall be specifically instructed that no additional forces, except for the pressure and tension in the opening and closing direction of the casement, may be applied to the spindle, chain or lever of the drive.

NOTE

Post warning signs!

During the proper assembly of drives with mounting elements at a window, and the connection to an external Control Unit, the interfaces resulting from mechanical and electrical performance characteristics of single elements shall be observed.

WARNING

It is imperative that the information provided in the installation instructions of the controlled window drives are observed and adhered to!

CAUTION

Other persons must be kept away from the casement when a hold-to-run switch (pushbutton) is operated or when a window, which has been opened by a smoke and heat exhaust system, is closing!

CAUTION

The operating element of hold-to-run switches must be installed within direct view from the window, but apart from moving elements. If the switch is not a key-operated switch it must be installed at a minimum height of 1,5 m and inaccessible to the public!

CAUTION

Do not allow children to play with permanently mounted control devices and keep remote controls out of reach for children!



Before working on the system it must be completely disconnected from the power supply and emergency power supply (e.g. accumulators) and secured against unintentional re-activation. While working in the Control Unit the workplace must be secured to prevent unauthorized access. It must be ensured that unauthorized personnel are unable to open the Control Unit.

The installation instructions of system components (smoke detector, natural smoke and heat exhaust ventilators, drives, etc.) are part of the documentation for the complete system and must be kept accessible for authorized qualified personnel, together with the installation and operating instructions, for the entire service life of the system.

WARNING

Check all functions of the system before releasing it for operation.

Software terms and conditions

The Control Unit is configured by the factory for the intended use.



The configuration software of the control device largely excludes damages caused by incorrect settings. As a matter of precaution we point out that **BTR**, as manufacturer, cannot assume liability for damages caused by using **BTR** software, because **BTR** has no influence on a perfect systems environment or object-specific systems configuration

We, therefore, recommend to protect the operating system and software of the systems sufficiently against unauthorized interference (e.g. by using a password) and to attend the training provided by the manufacturer.

Replacement parts

System components shall only be replaced with spare parts of the same manufacturer. There is no liability, warranty or customer service if third-party parts are used. Exclusively original spare parts of the manufacturer shall be used for expansions.

Ambient conditions

The product may not be subjected to impacts or falls, or to vibrations, moisture, aggressive vapors or other harmful environments, unless the manufacturer released it for one or more of these environmental conditions.

• Operation:

Ambient temperature: -5 °C ... +40°C
 Relative humidity: < 90% less 20°C;
 < 50% less 40°C;
 no formation of condensation

• Transport / Storage:

Storage temperature: 0°C ... +30°C
 Relative humidity: < 60%

Accident prevention regulations and workmen's compensation insurance guidelines

For work on or in a building or building part the provisions and instructions of the respective accident prevention regulations (UVV and workmen's compensation insurance guidelines (BGR /ASR) shall be observed and adhered to.

Declaration of Conformity

The control device is manufactured and inspected for its intended use in accordance with the European guidelines. The respective Declaration of Conformity is on hand. In case the use or operation of the control device or the connected window drives deviate from this a risk assessment must be performed for the complete system of power-operated windows and a Declaration of Conformity according to Machinery Directive 2006/42/EG issued as well as a CE labeling obtained.

GUIDELINES AND STANDARDS

The most recent state of country-specific laws, regulations, provisions and standards must absolutely be observed during the installation and for electrical connections.

These are for instance:

State building code with special construction regulations such as:

- Industrial construction guideline
- Venue regulations, etc.

MLAR - Sample Guideline on Conduits German designation

Provisions of the fire protection authorities

TAB (technical connection conditions) of Utility companies

German Regulations for Occupational Insurance

Schemes, such as:

- ASR A1.6 and 1.7 (substitute for BGR 232)

Additional standards and guidelines, such as:

EN 60335-2-103 Safety of household and similar electrical appliances

EN 60730-1 Automatic electrical controls

EN 12101-10 / prEN 12101-9 (ISO 21927-9/10)

Smoke and heat control systems

DIN 4102-12 Functional integrity of electric cable systems

VDE 0100 Installation of high-voltage systems up to 1000 V

VDE 0298 Use of cables

VDE 0815 Wiring cables (for telecommunication and data processing systems)

VDE 0833 Alarm systems

VdS-Guidelines: 2593, 2581, 2580, 2592


Accident prevention regulations, in particular:

- VBG 1 „General rules“ and
- VBG 4 „Electrical systems and equipment“.


For placing on the market, the installation and the operation outside Germany the relevant national laws, regulations, standards and safety provisions apply.

The constructor is responsible for the proper installation or operation and the issuing of a Declaration of Conformity according to European guidelines.

DATA SHEET **RWA - CONTROL UNIT BCR - 2 A****2 A****4 A****Control Unit BCR2A - 0101**

Article	Application																																
	<p>Compact Control Unit for smoke and heat exhaust ventilation systems operating with 24 V DC voltage, suitable for staircases.</p>																																
	<table border="0"> <tr> <td>Technical Data (Rated values)</td> <td>Part.-No. 60.100</td> <td style="text-align: right;">2 A</td> </tr> <tr> <td>Operating voltage:</td> <td>230 V AC (195 – 253 V AC, 50 / 60 Hz)</td> <td></td> </tr> <tr> <td>Max. power consumption:</td> <td>128 W</td> <td></td> </tr> <tr> <td>Output voltage:</td> <td>24 V DC (20 – 28 V DC / 0,5 Vpp)</td> <td></td> </tr> <tr> <td>Output current:</td> <td>2,0 A</td> <td></td> </tr> <tr> <td>Ambient temperature range:</td> <td>5°C ... + 40°C</td> <td></td> </tr> <tr> <td>Protection rating:</td> <td>IP30</td> <td></td> </tr> <tr> <td>Housing:</td> <td>Surface mounting, steel sheet, RAL 7035 (light grey)</td> <td></td> </tr> <tr> <td>Dimensions (WxHxD):</td> <td>316 x 305 x 112 mm</td> <td></td> </tr> <tr> <td>Connection terminals:</td> <td>1,5 mm² / Drives: 2,5 mm² (rigid wire)</td> <td></td> </tr> <tr> <td>Motherboard:</td> <td>1 RWA group / 1 Vent group</td> <td></td> </tr> </table>	Technical Data (Rated values)	Part.-No. 60.100	2 A	Operating voltage:	230 V AC (195 – 253 V AC, 50 / 60 Hz)		Max. power consumption:	128 W		Output voltage:	24 V DC (20 – 28 V DC / 0,5 Vpp)		Output current:	2,0 A		Ambient temperature range:	5°C ... + 40°C		Protection rating:	IP30		Housing:	Surface mounting, steel sheet, RAL 7035 (light grey)		Dimensions (WxHxD):	316 x 305 x 112 mm		Connection terminals:	1,5 mm ² / Drives: 2,5 mm ² (rigid wire)		Motherboard:	1 RWA group / 1 Vent group
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Motherboard:	1 RWA group / 1 Vent group																																
<p>Feature / Equipment</p> <ul style="list-style-type: none"> ■ Cable entry from above / below / behind ■ Prepared for 2 maintenance-free backup accumulators 2x 12 V / 2,3 Ah (Part. Nr. 60.304) 																																	

DATA SHEET **RWA - CONTROL UNIT BCR - 4 A**

Control Unit BCR4A - 0101																																	
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	<table border="0"> <tr> <td>Technical Data (Rated values)</td> <td>Part.-No. 60.101</td> <td style="text-align: right;">4 A</td> </tr> <tr> <td>Operating voltage:</td> <td>230 V AC (195 – 253 V AC, 50 / 60 Hz)</td> <td></td> </tr> <tr> <td>Max. power consumption:</td> <td>276 W</td> <td></td> </tr> <tr> <td>Output voltage:</td> <td>24 V DC (20 – 28 V DC / 0,5 Vpp)</td> <td></td> </tr> <tr> <td>Output current:</td> <td>4,0 A</td> <td></td> </tr> <tr> <td>Ambient temperature range:</td> <td>5°C ... + 40°C</td> <td></td> </tr> <tr> <td>Protection rating:</td> <td>IP30</td> <td></td> </tr> <tr> <td>Housing:</td> <td>Surface mounting, steel sheet, RAL 7035 (light grey)</td> <td></td> </tr> <tr> <td>Dimensions (WxHxD):</td> <td>316 x 305 x 112 mm</td> <td></td> </tr> <tr> <td>Connection terminals:</td> <td>1,5 mm² / Drives: 2,5 mm² (rigid wire)</td> <td></td> </tr> <tr> <td>Motherboard:</td> <td>1 RWA group / 1 Vent group</td> <td></td> </tr> </table>	Technical Data (Rated values)	Part.-No. 60.101	4 A	Operating voltage:	230 V AC (195 – 253 V AC, 50 / 60 Hz)		Max. power consumption:	276 W		Output voltage:	24 V DC (20 – 28 V DC / 0,5 Vpp)		Output current:	4,0 A		Ambient temperature range:	5°C ... + 40°C		Protection rating:	IP30		Housing:	Surface mounting, steel sheet, RAL 7035 (light grey)		Dimensions (WxHxD):	316 x 305 x 112 mm		Connection terminals:	1,5 mm ² / Drives: 2,5 mm ² (rigid wire)		Motherboard:	1 RWA group / 1 Vent group
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<p>Feature / Equipment</p> <ul style="list-style-type: none"> ■ Cable entry from above / below / behind ■ Prepared for 2 maintenance-free backup accumulators 2x 12 V / 2,3 Ah (Part. Nr. 60.304) 																																	

DATA SHEET RWA - CONTROL UNIT **BCR - 8 A**

8 A

12 A

Control Unit BCR8A - 0102

Article



Application

Compact Control Unit for smoke and heat exhaust ventilation systems operating with 24 V DC voltage, suitable for staircases.

Technical Data (Rated values)

Operating voltage:

Max. power consumption:

Output voltage:

Output current:

Ambient temperature range:

Protection rating:

Housing:

Dimensions (WxHxD):

Connection terminals:

Motherboard:

Part.-No. **60.102**

230 V AC (195 – 253 V AC, 50 / 60 Hz)

299 W

24 V DC (20 – 28 V DC / 0,5 Vpp)

8,0 A

5°C ... + 40°C

IP30

Surface mounting, steel sheet, RAL 7035 (light grey)

316 x 305 x 112 mm

1,5 mm² / Drives: 2,5 mm² (rigid wire)

1 RWA group / 2 Vent groups

8A

Feature / Equipment

- Cable entry from above / below / behind
- Prepared for **2** maintenance-free backup accumulators **2x 12 V / 7 Ah** (Part. Nr. 60.305)

DATA SHEET RWA - CONTROL UNIT **BCR - 12 A**

Control Unit BCR12A - 0102

Article



Application

Compact Control Unit for smoke and heat exhaust ventilation systems operating with 24 V DC voltage, suitable for staircases.

Technical Data (Rated values)

Operating voltage:

Max. power consumption:

Output voltage:

Output current:

Ambient temperature range:

Protection rating:

Housing:

Dimensions (WxHxD):

Connection terminals:

Motherboard:

Part.-No. **60.103**

230 V AC (195 – 253 V AC, 50 / 60 Hz)

460 W

24 V DC (20 – 28 V DC / 0,5 Vpp)

12,0 A

5°C ... + 40°C

IP30

Surface mounting, steel sheet, RAL 7035 (light grey)

316 x 305 x 112 mm

1,5 mm² / Drives: 2,5 mm² (rigid wire)

1 RWA group / 2 Vent groups

12A

Feature / Equipment

- Cable entry from above / below / behind
- Prepared for **2** maintenance-free backup accumulators **2x 12 V / 7 Ah** (Part. Nr. 60.305)

TECHNICAL DATA

Electrical data and connected loads

Operating voltage, primary:	195....253 V AC
Frequency	50....60 Hz
Nominal current (secundär) / Current consumption (primär)	Version 2 A / 128W Version 4 A / 276W Version 8 A / 299W Version 12 A / 460W
Current output (short-time duty)	Nominal current 30% max. duty ratio
Constant current consumption	30 % max. of nominal current (depending on version)
Output voltage, drives	24V DC nominal (20....28 V DC)
Residual ripple	max. 0,5 Vpp
Number of detectors (manual / automatic)	10 units per detector line
Line output	18....26 V (detector voltage)
Accumulator voltage	2 x 12 V
Accumulator nominal capacity	2,3 or 7,0 Ah (depending on version)



The available internal emergency power supply (back-up accumulators), if correctly rated and serviced at regular intervals, ensures that the controller of the Control Unit moves the connected drives open at least twice and close at least once after 72 hours of mains power supply loss.

Environmental Conditions (operation)

Ambient temperature range:	-5...+40 °C (according to EN 12101 Class 1)
Maximum relative air humidity:	75 % (mean value over lifetime) 90 % (for max. 96 hours)

Mechanical Data

Surface mounted housing:	steel plate painted in RAL 7035
Protection class:	IP 30
Housing dimensions (W x H x D):	316 x 305 x 112 mm all dimensions given without lock

PREPARING ASSEMBLY



Important instructions for safe assembly: Fully observe all instructions, incorrect assembly may lead to serious injuries.

Before starting the installation please check with the delivery note that the delivery is complete and correct, any complaints received later cannot be considered. It is required to keep a logbook for the BCR which must be accessible to authorized staff at all times.

Scope of delivery: RWA - Control Unit BCR

- Installation and Commissioning Instructions
- Test report according to VDE 0113
- Drive line end module
- Resistors
- Key

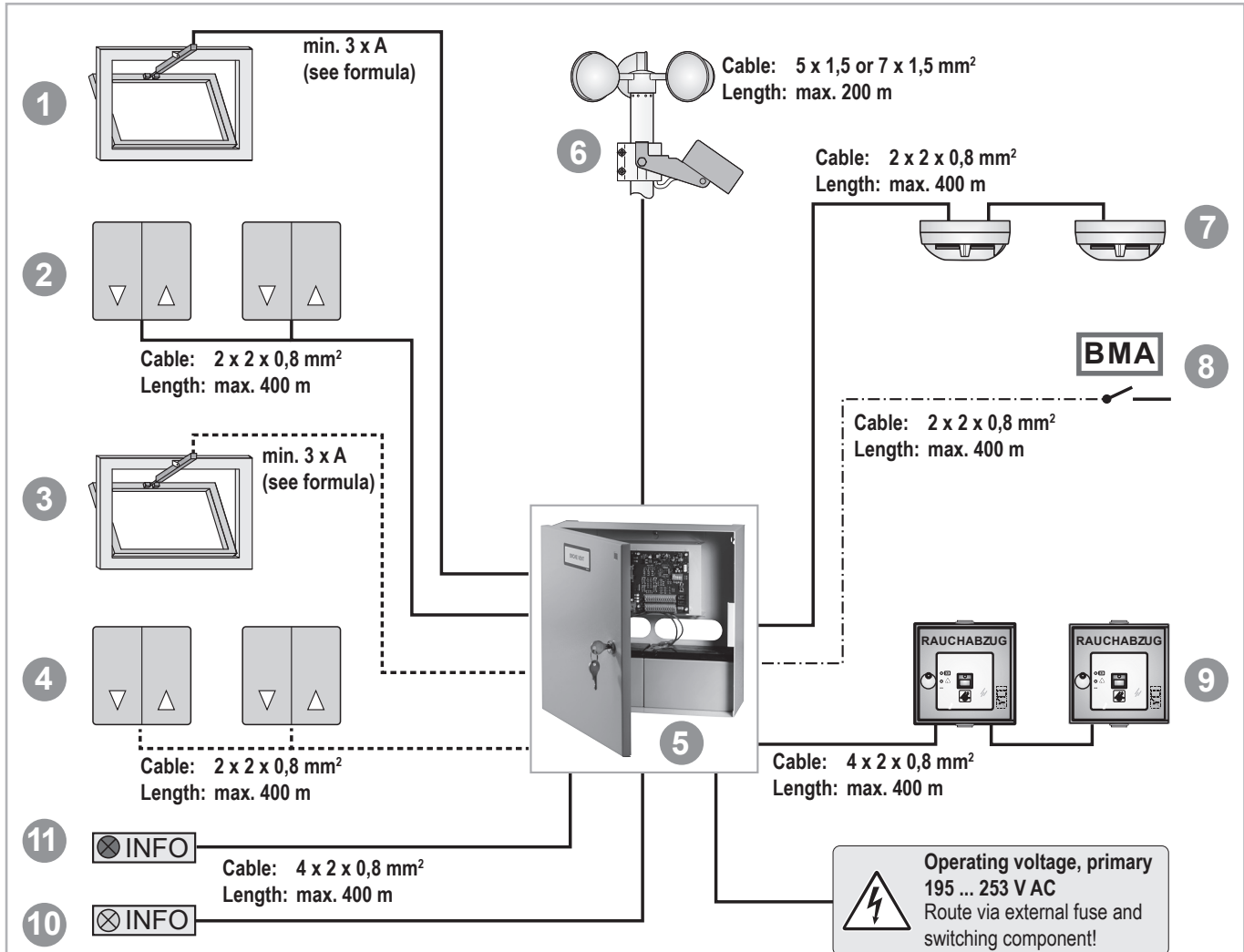
CONNECTION FACILITIES / CABLING

2A

4A

8A

12A



Formula to calculate the required wire cross-section of a infeed line

$$A \text{ mm}^2 = \frac{I \times L \times 2}{\Delta U \times 56 \text{ m} / (\Omega \cdot \text{mm}^2)}$$

A = cross-section of the wire in mm²
L = line length in m
I = current of connected drives in A
 ΔU = line voltage drop = 2 V DC

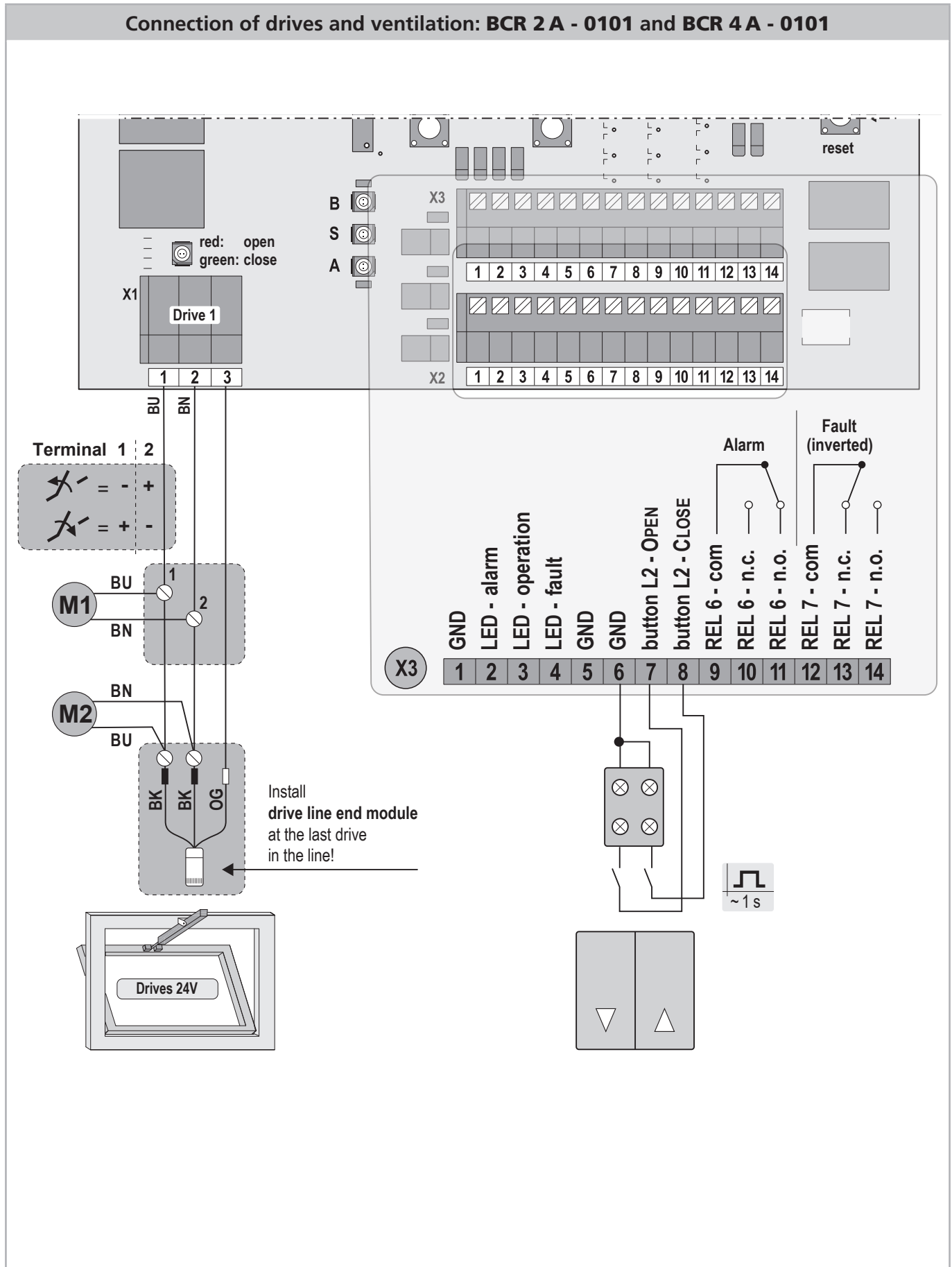
Legend

- 1** Output for drive line 1, 24 V DC for smoke and heat exhausting and natural ventilation
- 2** Input for ventilation line 1 (max. 10 vent buttons)
- 3** Output for drive line 2 (only available for **BCR 8A** and **BCR 12A**)
- 4** Input for ventilation line 2 (max. 10 vent buttons) (only available for **BCR 8A** and **BCR 12A**)
- 5** Housing of control unit
- 6** Connections for wind and rain sensor (disabled in case of alarm and power loss)
- 7** Input for smoke detectors (max. 10)
- 8** Input for signal from external fire alarm system (alternative connection) to smoke detectors
- 9** Input for break-glass units (HSE – max. 10)
- 10** Output for signal transduction 1 (alarm release)
- 11** Output for signal transduction 2 (collective fault)

----- only available for **BCR 8A** and **BCR 12A**

INSTALLATION STEP 1:
BCR 2 A UND BCR 4 A CONNECTING: DRIVES AND VENTILATION

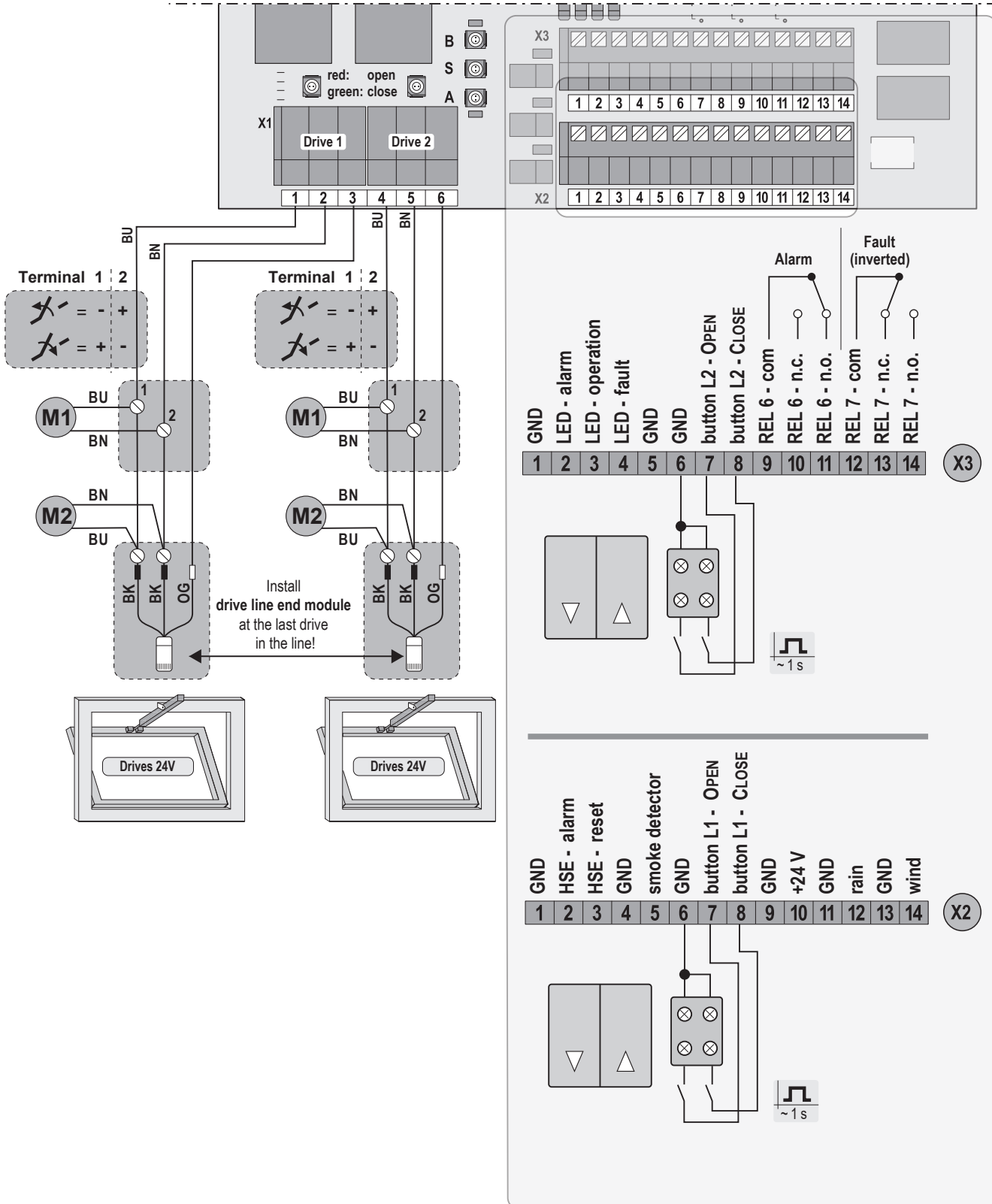
Connection of drives and ventilation: **BCR 2 A - 0101** and **BCR 4 A - 0101**



INSTALLATION STEP 1: BCR 8 A UND BCR 12 A CONNECTING: DRIVES AND VENTILATION

8A 12A

Connection of drives and ventilation: BCR 8 A - 0102 and BCR 12 A - 0102



INSTALLATION STEP 2:

2A

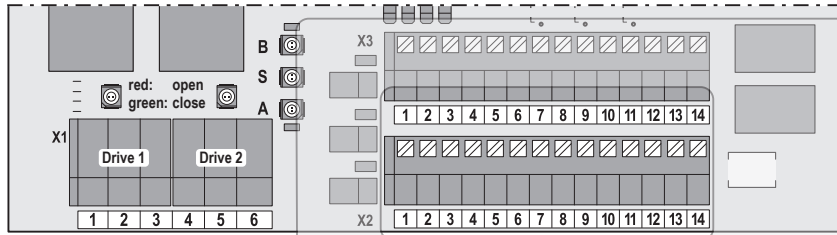
4A

8A

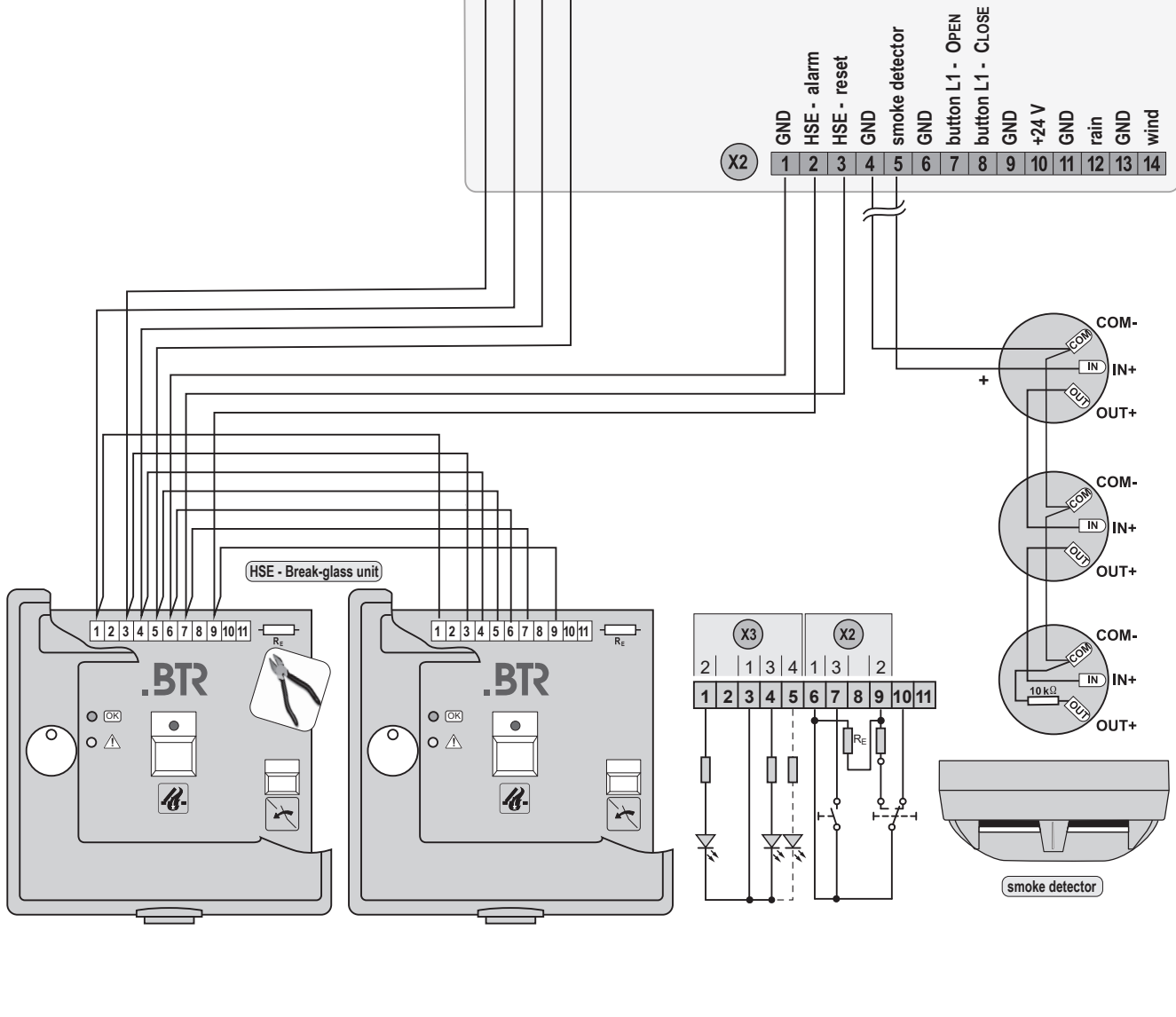
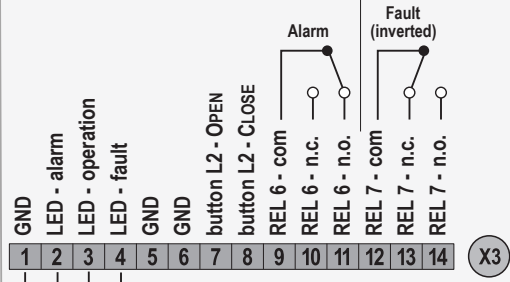
12A

CONNECTION: AUTOMATIC AND MANUAL SMOKE DETECTORS

Connection of automatic and manual smoke detectors / BMZ



The fire detector connection is closed-circuit monitored for line failures. Therefore, both the last smoke detector and the last breakglass unit in the line must be provided with a 10 kΩ resistor (RE).



INSTALLATION STEP 3: CONNECTING: WIND SENSORS AND RAIN SENSORS

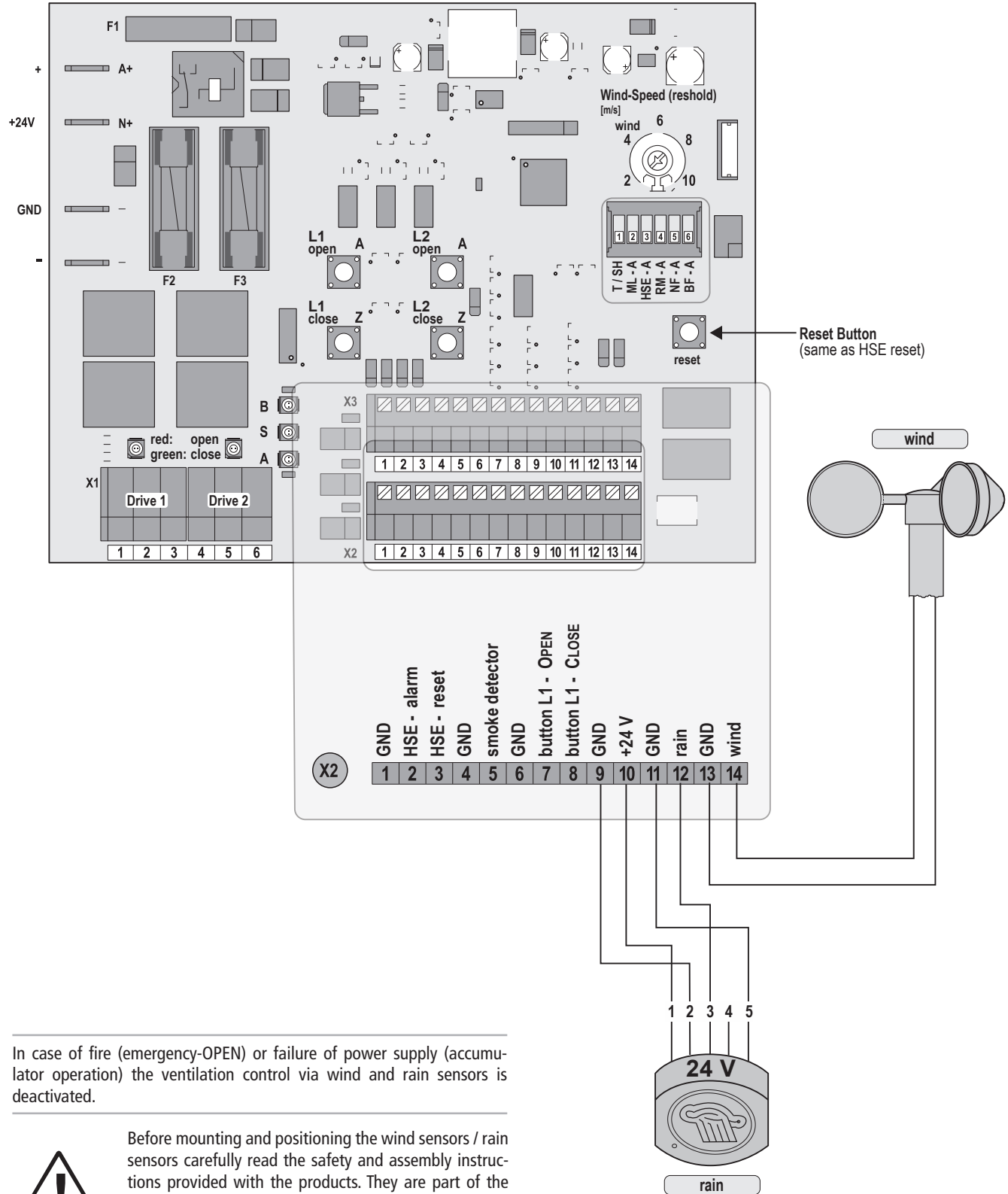
2A

4A

8A

12A

Connection of wind sensors and rain sensors



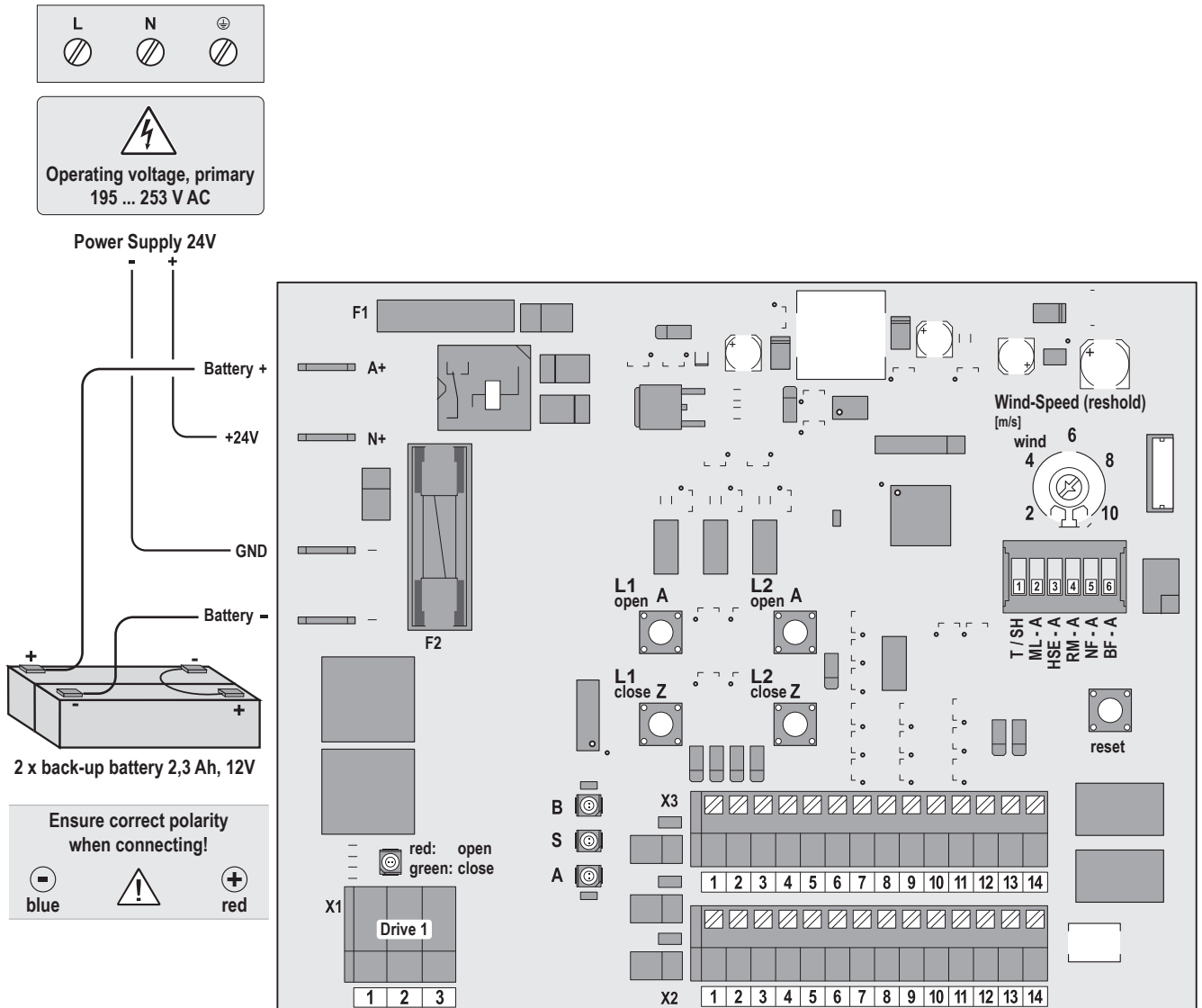
In case of fire (emergency-OPEN) or failure of power supply (accumulator operation) the ventilation control via wind and rain sensors is deactivated.



Before mounting and positioning the wind sensors / rain sensors carefully read the safety and assembly instructions provided with the products. They are part of the system documentation and must be adhered to and kept accordingly (e.g. for servicing purposes).

INSTALLATION STEP 4:
BCR 2 A UND BCR 4 A CONNECTING: POWER SUPPLY

Connection of power supply



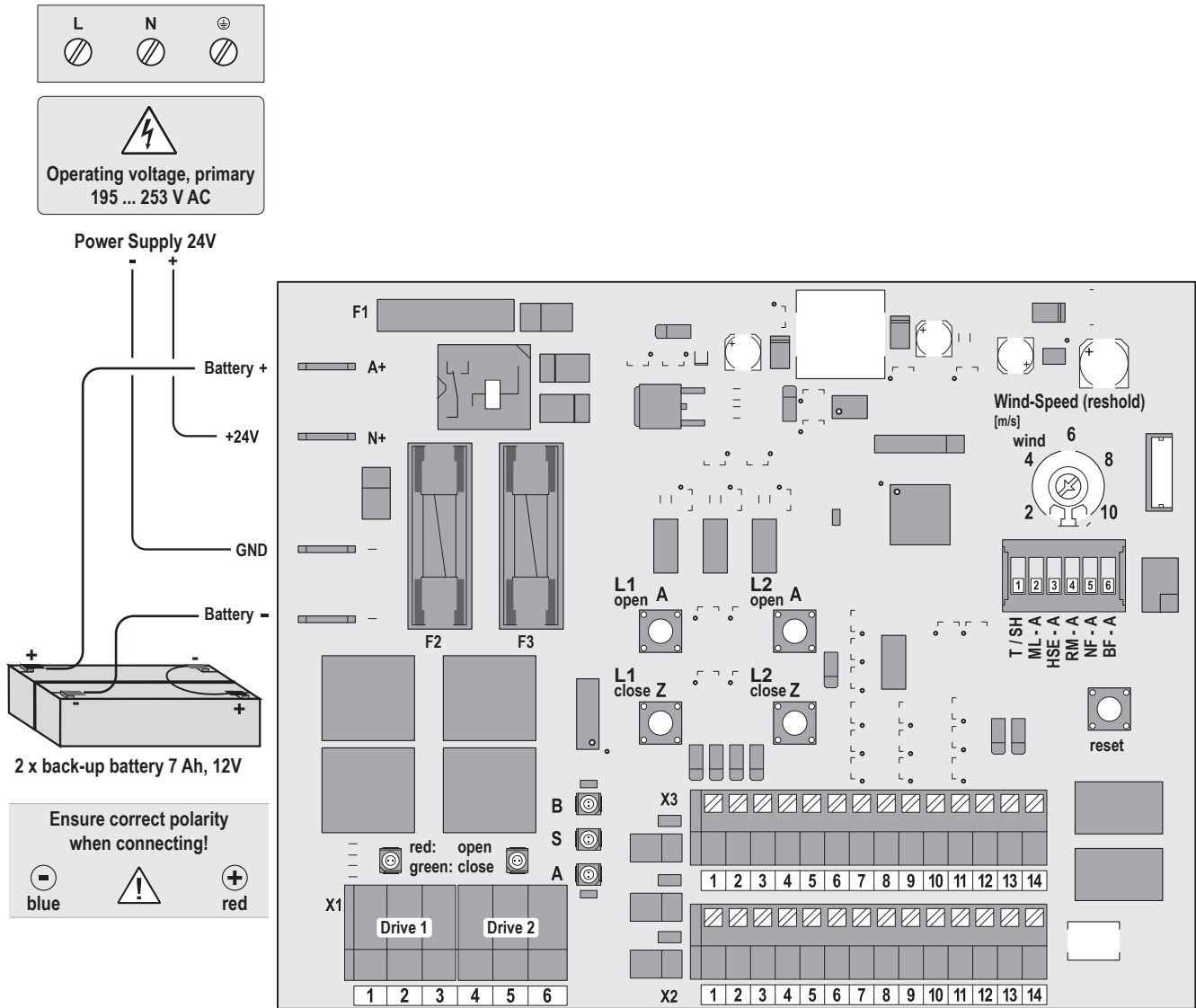
Route line voltage supply via external fuse and switching component. Only connect supply voltage and accumulator set when disconnected from the mains power supply! Switch off power supply and secure against reconnection!



It is essential to ensure correct polarity when connecting the accumulator set! Incorrectly connected accumulators will cause damage to the controller!

INSTALLATION STEP 4: BCR 8 A UND BCR 12 A CONNECTING: POWER SUPPLY

Connection of power supply



Route line voltage supply via external fuse and switching component. Only connect supply voltage and accumulator set when disconnected from the mains power supply! Switch off power supply and secure against reconnection!



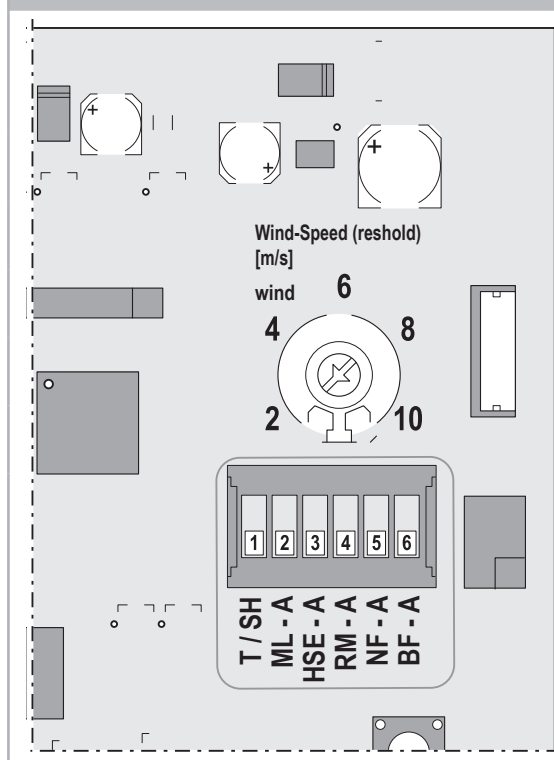
It is essential to ensure correct polarity when connecting the accumulator set! Incorrectly connected accumulators will cause damage to the controller!

INSTALLATION STEP 5: LED'S AND DIP SWITCHES

State	LED's from motherboard			LED's from breakglass unit (HSE)		
	B	S	A	Operation	Fault	Emergency-OPEN
Standby	ON	OFF	OFF	ON	OFF	OFF
Emergency-OPEN / alarm (power supply operation)	ON	OFF	ON	ON	OFF	ON
Emergency-OPEN / alarm (back-up accumulators mode)	OFF	flashes	ON	OFF	flashes	ON
Power failure (highest priority)	OFF	flashes	OFF	OFF	flashes	OFF
Fault breakglass unit lines	OFF	ON	OFF (*)	OFF	ON	OFF (*)
Fault smoke detector lines	OFF	blinks slowly	OFF (*)	OFF	ON	OFF (*)
Fault motor-line 1	OFF	blinks (4x)	OFF (*)	OFF	blinks slowly	OFF (*)
Fault motor-line 2	OFF	blinks (5x)	OFF (*)	OFF	blinks slowly	OFF (*)
Fault HSE reset	OFF	blinks (6x)	OFF	OFF	blinks slowly	OFF
Fault back-up accumulators (lowest priority)	OFF	blinks fast	OFF	OFF	blinks fast	OFF
Maintenance due	ON	blinks (2x)	OFF	ON	blinks (2x)	OFF
Rain active	ON	blinks (3x)	OFF	ON	OFF	OFF
Wind active	ON	blinks (4x)	OFF	ON	OFF	OFF
Wind and rain active	ON	blinks (5x)	OFF	ON	OFF	OFF
Smoke detector still active after reset	X	X	blinks slowly	X	X	blinks slowly

(*) = Depending on the configuration „Fault Emergency-OPEN“ ON or OFF

DIP switch function



switch	ON	OFF
DIP 1	Mode to: Vent switches BIASED	BIASED OFF
DIP 2	Fault motor lines triggers alarm	disabled
DIP 3	Fault breakglass unit lines triggers alarm	disabled
DIP 4	Fault smoke detector lines triggers alarm	disabled
DIP 5	Fault power supply triggers alarm	disabled
DIP 6	Fault back-up accumulators triggers alarm	disabled

INSTALLATION STEP 6: ENABLING OPERATION/COMPLETING INSTALLATION

Before the installer is allowed to enable the operation of the Control Unit, the complete performance range of the system must be checked with utmost care. The chapter „TROUBLESHOOTING AND REPAIR“ provides support for the localisation of possible faults and malfunctions.

On the last page you find an overview of all external connections where the current assignments can be entered.

Modifications of the system using the system software should take place after the complete installation of the Control Unit and all components being connected. When required, the system configuration and status can be saved or printed using the system software. In the case of faults or malfunctions of system components it might also be necessary to thoroughly check the system configuration (computer to be connected using system software).



For safety reasons the Control Unit is supplied with „deadman“ pre-setting for ventilation. You require the software for switching over to „latching“. It is absolutely necessary to ensure that all safety-relevant requirements for the „latching“ mode are guaranteed according to the information provided by the manufacturers of the connected opening components.



Before changing the operating mode check and pay attention to danger zones at the window!

RWA systems require a logbook, in which all important master data have to be entered prior to operation enable and all operational events during the period in operation. The logbook is part of the system documents and must be stored and available to authorized staff at all times.



Follow the instructions in the chapter „SAFETY INSTRUCTIONS“.

We advise to perform an insulation measurement of the cable network before enabling operation of the plant and to keep a written record of this test.



Depending on the storage period the back-up accumulators require some time to be fully charged. Therefore, bridging time (see chapter „DATA SHEET“) for the power failure might not be ensured after connecting the back-up accumulators and the back-up accumulators first need some charging time in mains operation to reach the maximum charge status (min. 8 hours).



The Control Unit must not be enabled for operation unless **all** system components work properly. This also applies to system components that do not come under our producer responsibility or whose installation had not been commissioned but are still components of the RWA system. Upon completion of the installation, all functions of the Control Unit must be checked for correct functionality with utmost care. Even if there is no fault indication this does not mean that all components function faultlessly.

Provided that the factory default configuration has been changed using the system software, all alterations have to be taken into account in the operating manual. It might be required to prepare an operating manual for non-specialist users that is easy to follow and well understandable.



In case of fire the system saves lives. Therefore immediately remedy or have any fault or malfunction remedied by specialists!

TROUBLESHOOTING AND REPAIR

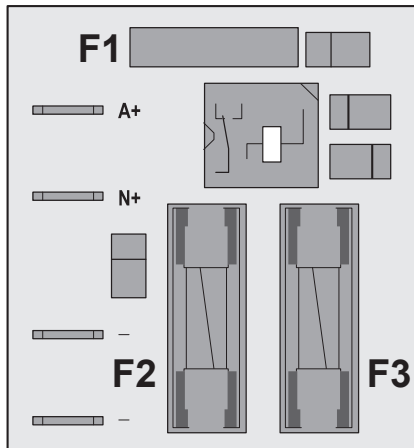
All functions and system components that are important for the RWA operation are constantly monitored for faults. A fault indication signals the type of fault and, respectively, possible errors when connecting system components (such as back-up accumulators, detectors, drives) during commissioning of the Control Unit.

The overview below details some of the possible faults and problem cases and their causes. „Indicator **B**“ means the green operating indicator which does not light up in case of a fault. The yellow „Indicator **S**“ signals the type of fault.

You find a list of all indicators in chapter „LED'S AND DIP SWITCHES“ - on the previous page.

FUSES

Fuse		
F1	Automotive Blade Fuse	5,2 x 0,64 mm
F2	Glass Cartridge Fuse	5 x 20 mm
F3	Glass Cartridge Fuse	5 x 20 mm



RWA - Control Unit BCR			
F1	5 A	(accumulators)	BCR 2A - 0101
F2	3,15 AT	(drives)	
F1	5 A	(accumulators)	BCR 4A - 0101
F2	6,3 AT	(drives)	
F1	10 A	(accumulators)	BCR 8A - 0102
F2	10 AT	(drive 1)	
F3	10 AT	(drive 2)	
F1	20 A	(accumulators)	BCR 12A - 0102
F2	10 AT	(drive 1)	
F3	10 AT	(drive 2)	

INDICATOR AND CONTROL ELEMENTS

Position in the Control Unit



The indicators and control elements (switches) are in the same position on all BCR versions.
 Only the number of ventilation lines varies.
 The versions BCR 8A-0102, BCR 12A-0102 have two sets of indicators and control elements for the drive control (LT 1 and LT 2).

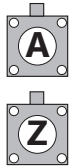
Meaning of the Displays (overview)



Basically, the green indicator „B” signals that the Control Unit works properly. A yellow indicator „S” lighting up signals a fault to be eliminated immediately. Since the type of fault signal into the breakglass units may differ from the fault indicator „S” in the Control Unit, always pay regard to the indicators in the Control Unit for exact troubleshooting.

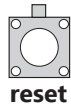
Indicator and Control Elements

Push buttons:

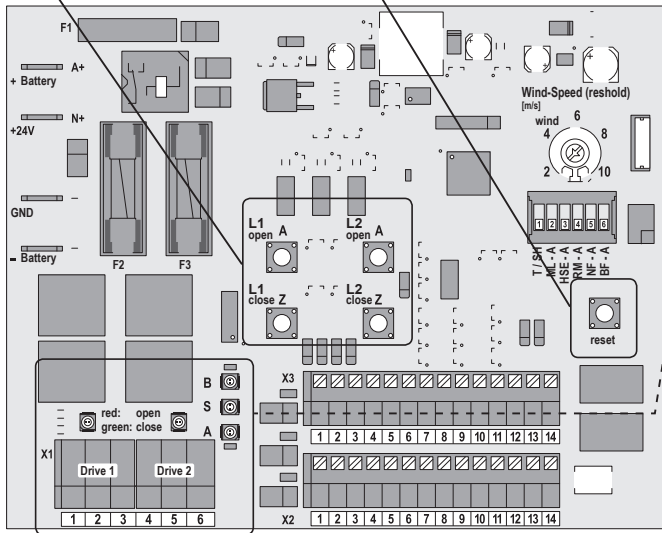


Drive run direction
A = OPEN / Z = CLOSE

2 x on BCR 8A-0102
 BCR 12A-0102



Reset/Emergency-CLOSE
 resetting smoke detectors
 after Emergency-OPEN



Indicators:



(GN) = Operation



(YE) = Fault



(RD) = Alarm (Emergency-OPEN)



red: open
green: close

Drive run direction and position
A = OPEN (red) Duo-LED
Z = CLOSE (green) Duo-LED
 2 x on BCR 8A-0102
 BCR 12A-0102

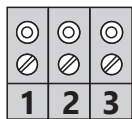
The Duo-LED only lights up for the duration of the drive run time (in red or in green light).

Drive run direction

Drives



green: close *)



on (red)

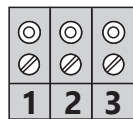


off

Drives



red: open *)



off



on (green)

*) The Duo-LED only lights up for the duration of the drive run time.

MAINTENANCE AND MODIFICATION

To ensure continuous function and safety of the complete system periodic maintenance by a specialist company is required at least once a year (as mandated by law for smoke and heat exhaust systems). Operational readiness must be checked regularly, at least once a month.



After opening of the system housing voltage carrying parts are exposed! Each time, before performing maintenance work or making a modification of the structure (e.g. replacement of the window drive), the mains voltage and – as far as available – the accumulators must be completely disconnected and secured against unintentional reactivation (lock in separation mode).

The information provided in these instructions for the maintenance must be observed. Malfunctions must be remedied immediately. Only spare parts made by the manufacturer may be used. Between maintenance intervals the operator shall carry out or order a visual inspection at least once and document it in writing in the log book. We recommend a maintenance contract with a specialist company authorized by the manufacturer. A sample maintenance contract can be downloaded from the homepage of

FIRM BTR GmbH
(www.btr-hamburg.de).

What has to be serviced?

- Check all **connections** (also the ones in the Control Unit) for tightness and for possible damage.
- Check all **fuse links**.
- Check charge level and installation date of back-up **accumulators** and exchange the accumulators, if necessary (accumulators must be exchanged 4 years after installation). Note down the exchange date on the accumulator. Dispose of removed accumulators in conformity with legal requirements.
- Check **drive control** for proper function. Also check drive run directions. If the actuation is correct but the drive is still not working properly, pay regard to the assembly and maintenance instructions of the drive manufacturer.
- Check all **breakglass units** and ventilation buttons for functionality (do the drives move in the direction indicated on the buttons?)
- Check all **smoke detectors** according to manufacturer's instructions using test gas.
- Remove dirty or faulty **detectors** and send them to the manufacturer for repair or cleaning.
- When connecting **wind and rain sensors** check for proper functionality of the sensors, readjust the wind response threshold, if necessary. The service instructions for the connected components are decisive for their maintenance.

IMPORTANT MAINTENANCE INFORMATION

- While working in the Control Unit the workplace must be secured against unauthorized access.
- The specialists performing the maintenance work are solely responsible for the maintenance.
- For smoke and heat exhaust systems a log book must be kept in which the maintenance work must be documented. Special attention must be paid to operating events (e.g. repeatedly occurring malfunctions) which may be recorded.
- These installation and operating instructions are part of the maintenance documents. The control device may be maintained only by considering the information provided therein. This affects also system supplements and the exchange of components. A separate maintenance protocol should be prepared and filed with the maintenance documents.
- Only original parts may be used. Otherwise the warranty obligation and product liability of the manufacturer shall no longer apply.
- For the maintenance of individual system components the installation and maintenance instructions of the manufacturer of these components shall be binding. If they are not available, they must be requested from the manufacturer. In case special maintenance instructions are prescribed (e.g. for natural smoke and heat exhaust ventilators pursuant to EN 12101-2), they must also be on hand.

WARRANTY AND CUSTOMER SERVICE

In principal our following term are applicable:

„**General Terms for the Supply of Products and Services of the Electrical Industry (ZVEI)**“.
„**Terms for the used software**“.

The warranty corresponds with legal provisions and applies to the country in which the product has been acquired.

The warranty includes material and manufacturing defects incurred during normal use.

The warranty period for delivered material is twelve months.

Warranty and liability claims for personal injuries or material damages are excluded, if caused by one or more of the following:

- Improper use of the product.
- Improper installation, commissioning, operation, maintenance or repair of the product.
- Operating the product by defect and improper installed or not functioning safety and protection devices.
- Ignoring instructions and installation requirements in these instructions.
- Unauthorized constructional modifications at the product or accessories.
- Disaster situations due to effects of foreign bodies and Acts of God.
- Wear and tear.

Point of contact for possible warranty claims or for repair parts or accessories is the responsible branch office or the responsible person at

BTR GmbH.

Contact data are available at our homepage
(www.btr-hamburg.de)

DEMOUNTING AND DISMANTLING

The Control Unit shall be stored only in locations protected from moisture, severe contamination and temperature fluctuations (not beyond 30°C). The packaging shall not be removed until the control system is to be installed. Disconnect the accumulators and store them separately after the control device has already been in operation.

It is imperative that the following is observed for the storage of the accumulators:



Keep the storage time of lead-acid accumulators short, because the accumulators discharge as time passes. At the latest after seven months in storage accumulators must be recharged. Use either a suitable accumulator charger or connect the accumulators to an EMB Control Unit and supply same with mains voltage. In both cases the charging time requires a minimum of 8 hours (depending on the discharge).

In case the Control Unit is permanently decommissioned the statutory provisions for the destruction, recycling and disposal shall be observed. The control device contains plastic, metal, electrical components and accumulators. Replaced accumulators contain highly toxic pollutants and may therefore only be disposed of at collection points prescribed by the legislator.



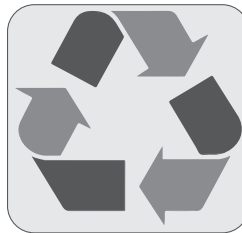
Before dismantling the Control Unit separate same completely from the mains!

LIABILITY

We reserve the right to change or discontinue products at any time without prior notice. Illustrations are subject to change. Although we take every care to ensure accuracy, we cannot accept liability for the content of this document.

DISPOSAL

According to the European Directive 2012/19 / EU on Waste Electrical and Electronic Equipment (WEEE) and its transposition into national law, obsolete electrical appliances must be collected separately and sent for environmentally friendly recycling.







CERTIFICATE AND DECLARATION OF CONFORMITY

We declare under our sole responsibility that the product described under "Data sheet" is in conformity with the following directives:

- 2014/30/EU
Directive relating to Electro-Magnetic Compatibility
- 2014/35/EU
Low voltage Directive



We further declare that the drive is an incomplete machine within the meaning of the European Machinery Directive (2006/45/EG).

Technical file and declaration at firm:

BTR GmbH
Gemeindewald 11
D-86672 Thierhaupten

Ramona Meinzer
Managing Director (Chairman)

NOTE:

The proof of the application of a quality management system is for company:

BTR GmbH

according to the certification basis **DIN EN 9001** as well the "Declaration of Incorporation and Conformity" can be accessed via the QR code or directly on our homepage:
(www.btr-hamburg.de)



THIS IS THE ORIGINAL INSTRUCTIONS FOR ASSEMBLY AND COMMISSIONING

Important note:

We are aware of our responsibility, which is why we present life-supporting and value-preserving products with greatest possible conscientiousness. Although we make every effort to ensure that the data and information are as correct and up-to-date as possible, we still cannot guarantee that they are free from mistakes and errors.

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The publication of these assembly and commissioning instructions supersedes all previous editions.

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