

aumüller

Installation and Commissioning Instructions



LZ6 - 10 A / 24 A / 30 A - NATURAL VENTILATION CONTROL UNIT - 24 V DC CE



| | | |
|----|--|---------|
| 01 | <p>Abbreviations Warning and Safety Symbols Target Groups, Intended Use Safety Instructions</p> | 3 - 8 |
| 02 | <p>10 A 24 A 30 A</p> <p>Data sheet: LZ6 - 10 A / 24 A / 30 A - Natural ventilation control unit 24 V DC</p> | 9 |
| 03 | <p>10 A 24 A 30 A</p> <p>Circuit diagram: LZ6 - 10 A / 24 A / 30 A - Natural ventilation control unit 24 V DC</p> | 10 |
| 04 | <p>Fuse Maintenance and Modification Storage and Disposal Warranty and After-Sales Service Liability</p> | 11 - 12 |
| 05 | <p>Certificates and Declaration of Conformity</p> | 15 |
| 06 | | |
| 07 | | |
| 08 | | |

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 |
| DM | Drive Module |
| EN | European Standard |
| IN | Input |
| OUT | Output |
| PM | Power Modul |
| RAL | Central European Colour Standard |
| RWA | SHEV – smoke and heat exhaust ventilation |
| WM | Weather Module |



WARNING

Once the assembly and commissioning have been completed, the installer of a „power-operated windows and door“ machine must hand these instructions over to the end user. The end user must store these instructions in a safe place for further reference and use, if required.

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

| 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 |

Warning and safety symbols in these Instructions:

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

- 
DANGER Failure to comply with the warning notes results in irreversible injuries or death.
- 
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.
- 
Note regarding the system configuration using the free software of the Control Unit manufacturer (USB connection).



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 Control Unit, drives and / or windows.

Target group

These instructions are intended for personnel trained in electrical engineering and skilled operators of systems for natural ventilation via windows, who are knowledgeable of operating modes and remaining risks of the system.



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 electromotive operated windows in facade and roof areas. **Furthermore**, the electromotive operated window ensures **fresh air supply for the natural ventilation** of the building.

By installing the drive to a movable element of the window 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.



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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.**

Intended use according to the Declaration of Conformity

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 AUMÜLLER, is released for its intended use in a power-operated window **without an additional on-site risk assessment** for the following use:

- Natural ventilation
 - with an installation height of the drive of at least 2,5 m above the floor, or
 - with an opening width at the HSK of the operated element of < 200 mm by a simultaneous speed of < 15 mm/s at the HSK in closing direction.
- Application as NSHEV (natural smoke and heat exhaust ventilators) for ventilation without dual purpose for ventilation in accordance with EN12101-2.



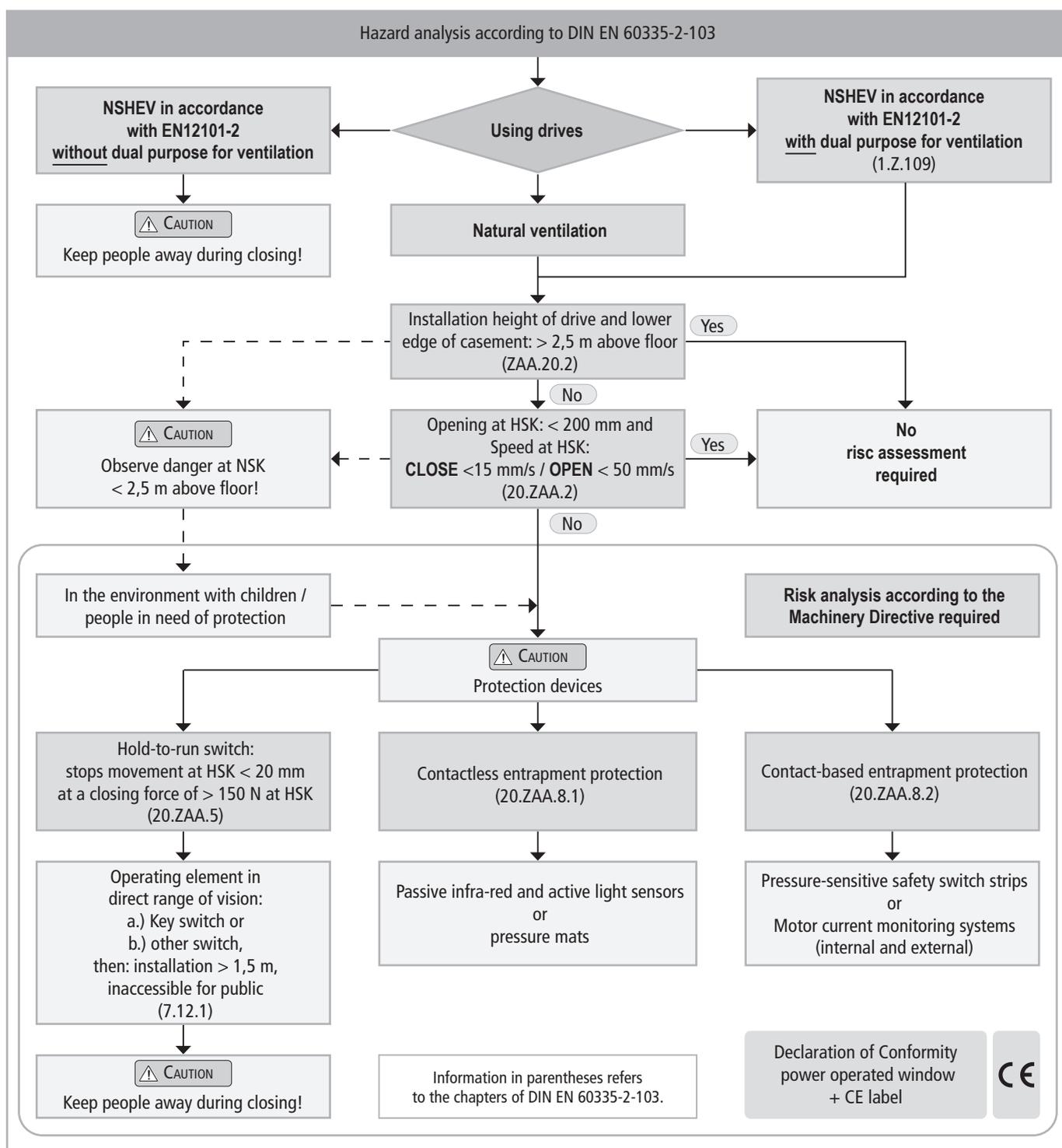
By connecting the window drives with a control device and their operation the constructor of the complete system becomes the manufacturer of the power-operated window! If necessary, he is obligated to perform a risk assessment of the complete system in accordance with the Machinery Directive 2006/42/EG 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 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 and lower edge of casement < 2,5 m above the floor **and** one of the following conditions:
- the opening width at the HSK > 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 flowchart 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 **AUMÜLLER**, because their compatibility is carefully checked in the factory. **AUMÜLLER** shall not assume liability for the system-compatible functioning of third party components. Applications and connections other than explicitly described in these instructions

NOTE

require the express written consent of **AUMÜLLER**. Utilization of applications and components not expressly authorized by **AUMÜLLER** are considered as unintended use even if their perfect functioning is proven at commissioning (e.g. approval under building law).

Safety instructions

 **WARNING**

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 instructions shall be observed for the installation, specifically:

- VDE 0100 Setting up high-voltage systems up to 1000 V
- VDE 0815 Wiring cables
- Specimen Guideline on Conduits German designation (MLAR).



The power line on-site must be secured separately and provided all poles separators. After opening of the system housing voltage carrying parts are exposed. The system must be separated from the power supply and battery 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 introduced to 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. batteries) and secured against unintentional reactivation. 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 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 (standard configuration). The software, especially developed for this Control Unit, allows a quick and easy adjustment of the factory setting to the respective requirements. Furthermore, the system status can be saved, retrieved and printed.



Modifiable standard configurations are particularly emphasized in these instructions. The software is part of the shipment of the Control Unit. The functional range of this unlicensed version can be expanded by activation against payment (license).

The prerequisites of the system must be checked prior to the installation. The "Software clause for handing over the standard software as part of shipments" of the ZVEI (German Electrical and Electronic Manufacturer's Association) is accepted as legally binding upon installation. See our homepage:

Firm Aumüller Aumatic GmbH.
(www.aumueller-gmbh.de)



The configuration software of the control device largely excludes damages caused by incorrect settings. As a matter of precaution we point out that AUMÜLLER, as manufacturer, cannot assume liability for damages caused by using AUMÜLLER software, because AUMÜLLER 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: LZ6 - 10 A / 24 A / 30 A

Natural ventilation control unit 24 V DC

10 A

24 A

30 A

LZ6 - 10 A / 24 A / 30 A - Natural ventilation control unit 24 V DC



| | |
|------------------------------|--|
| Application: | Natural ventilation control panel with power supply for the controlling of 24 V DC drives in 6 ventilation groups. |
| Operating voltage: | 230 V AC (195 – 253 V AC, 50/60 Hz) |
| Output voltage: | 24 V DC (20 – 28 V DC / 2 Vpp) |
| Inputs: | 6x Ventilation button lines with 2 priorities (P3: LOW; P2: HIGH) 1x Input all outputs OPEN/CLOSE (P1) |
| Outputs: | 6x Drive output lines 1x 24 V DC / 500 mA (e.g. rain sensor) |
| Display: | Power, output voltage switched in OPEN/CLOSE direction |
| Slot: | for optional BUS module (LON / KNX) |
| Housing: | Surface mounting, steel sheet, RAL 7035 (light grey) |
| Dimensions (WxHxD): | 420 x 300 x 144 mm |
| Connection terminals: | Screw terminals 2,5 mm ² (rigid wire) |
| Protection rating: | IP30 |

Versions

| | |
|--------------------------------|-------------------------|
| Part.-No.: | 660070 |
| Max. power consumption: | 506 W |
| Output current: | 10 A (6 x 1,6 A) |
| Part.-No.: | 660071 |
| Max. power consumption: | 805 W |
| Output current: | 24 A (6 x 4,0 A) |
| Part.-No.: | 660072 |
| Max. power consumption: | 1518 W |
| Output current: | 30 A (6 x 5,0 A) |

Feature / Equipment

- DIP switch for the configuration of the inputs with low priority in jog-switch or dead-man mode
- Inputs of various LZ6 are switchable in parallel.
- All outputs are fused.

Circuit diagram: LZ6 - 10 A / 24 A / 30 A

10 A

24 A

30 A

Natural Ventilation Control Unit 24 V DC

LZ6 - 10 A / 24 A / 30 A - Natural ventilation control unit 24 V DC



Only connect when disconnected from the mains power supply! Switch off power supply and secure against reconnection!

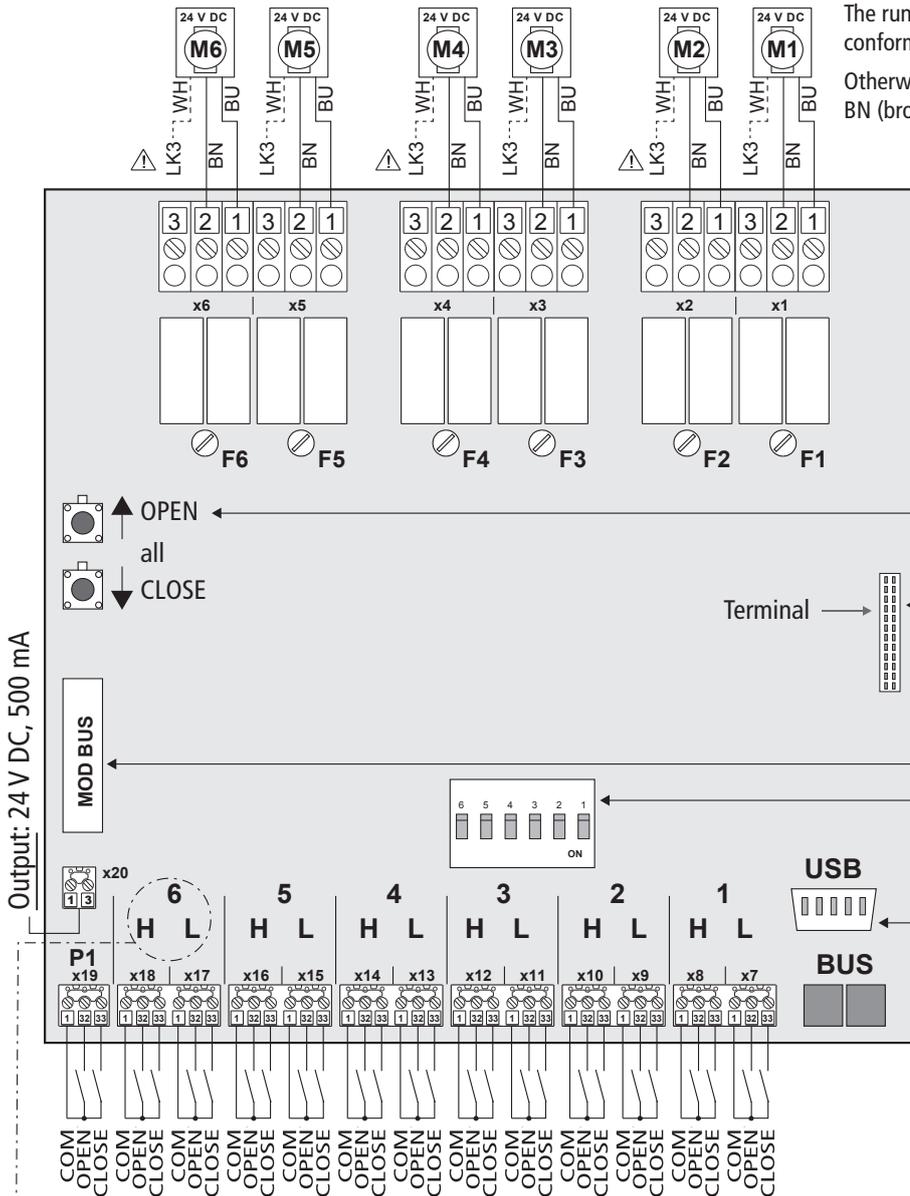


Only 24 V DC drives may be connected.

Connection LK3 only Aumüller S12!

The running direction of the drives has to be conform with the indicated direction.

Otherwise exchange the leads:
BN (brown) and BU (blue)



Output: 24 V DC, 500 mA

Using **↑ OPEN** and **↓ CLOSE** button on the board, all the lines can be opened and closed together.

On the **BUS slot**, depending on the configuration of the control unit, a KNX or LON field BUS module can be plugged, to bind the ventilation control unit LZ6 to a building management system.

WM connection or external DM
On the **DIP switch** can be set for each ventilation groups, if the button in latching (ON) or in dead-man (OFF) operation works.

The **USB port** can use LZ6 configuration software various functions for the respective ventilation groups are set.

P1 - Input
common control

H (P2) = HIGH - higher priority
L (P3) = LOW - lower priority
for switching process

Plug in of ventilation button, as well as weather, time and temperature controls or signals of building management system.

| | | |
|----|---|-------|
| BK | = | black |
| BN | = | brown |
| BU | = | blue |
| GN | = | green |
| RD | = | red |
| WH | = | white |

03

Fuses

| Fuses LZ6 - 10 A / 24 A / 30 A | | | | | |
|--------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| F6 | F5 | F4 | F3 | F2 | F1 |
| 5 AT (engine output) | 5 AT (engine output) | 5 AT (engine output) | 5 AT (engine output) | 5 AT (engine output) | 5 AT (engine output) |
| | | | | | |

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 batteries 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 **Aumüller Aumatic GmbH**
(www.aumueller-gmbh.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 **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 **ventilation buttons** and **weather controls, time controls** and **temperature controls** for functionality (do the drives move in the direction indicated on the buttons?)
- When connecting **wind and rain sensors** check for proper functionality of the sensors, readjust the wind response threshold, if necessary.
- Check the **configuration** with our system software and test if the system works with the stored configuration.

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 (possible information on template on the homepage) 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.



The system configuration must be checked and recorded with each service

Demounting and dismantling

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

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



Before dismantling the Control Unit, isolate it completely from the mains!

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.



Warranty and Customer service

In principle, our:

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

„Terms for the used software“.

The warranty is compliant 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 tangible 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, if installed defectively or incorrectly, or with its safety and protection devices not working .
- Ignoring instructions and installation requirements in these instructions.
- Unauthorised constructional modifications the product or accessories.
- Disaster situations due to the effects of foreign bodies and force majeure.
- 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

AUMÜLLER AUMATIC GMBH.

Contact data are available at our homepage

(www.aumueller-gmbh.de)

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.



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



Technical file and declaration at firm:

AUMÜLLER AUMATIC 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:

AUMÜLLER AUMATIC 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.aumueller-gmbh.de)



Translation of the original instructions (German)

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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Basically the General Terms and Conditions of **AUMÜLLER AUTOMATIC GmbH** apply to all offers, supplies and services.

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

AUMÜLLER AUMATIC GMBH
Gemeindewald 11
86672 Thierhaupten

Tel. +49 8271 8185-0
Fax +49 8271 8185-250
info@aumueller-gmbh.de

www.aumueller-gmbh.de

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