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Instructions for installation and commissioning

EMB 7300 RADIO **HSE S**YSTEM

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Contents

Abbreviations

Index of abbreviations	
The following abbreviations are used throughout these instructions. All units of measurement in the instructions are in mm, unless otherwise stated. General tolerances according to DIN ISO 2768-mK-E.	
aP	Surface mounted
WxHxD	Width x Height x Depth
CAN	CAN-BUS
CM	Control-Module
COM	Common connection
DIN	German Institute for Standardisation
DM	Drive-Module
EN	European Standard
IN	Input
LON	Local Operating Network
OUT	Output
PG	Price group
PM	Power-Module
PS	Power supply
RM6	Relay-Module
RWA	Smoke and heat exhaust
SM	Sensor-Module
uP	Flush mounted
WM	Weather-Module
WRG	Wind direction transmitter

Scale Units	
°C	Degree Celsius
A	Ampere
Ah	Ampere hour
dBm	Decibel milliwatts
kg	Kilogramme
m	Meter
min	Minute
mm	Millimetre
s	Seconds
V	Volt
VE (PU)	Packaging Unit
Vpp	Residual Ripple (Voltage peak-to-peak)
W	Watts
Ω / k Ω	Ohm / Kilo-Ohm

Colour Codes according to IEC 60757					
BK	black	GY	grey	VT	violet
BN	brown	OG	orange	WH	white
BU	blue	PK	pink	YE	yellow
GN	green	RD	red		

General Symbols	
AC	Alternating Current (50Hz / 60Hz)
DC	Direct Current
I	Electric Current
L	Length
ME	Module Space Unit (1 ME = 23 mm)
NC	Contact „closed" (normally closed)
NO	Contact „opened" (normally opened)
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 must be strictly observed and have the following meanings:

⚠ **DANGER** — Failure to comply with these warnings may result in permanent injury or death.

⚠ **WARNING** — Failure to comply with these warnings may result in permanent injury or death.

⚠ **CAUTION** — Failure to comply with these warnings may result in minor or moderate (reversible) injuries.

NOTE — Failure to comply with these notes may result in property damage.

☞ **Useful Note** for optimal installation.

USB **Note regarding system configuration** setting options via the „Alpha" configuration software.

Caution / Warning Danger from electric current.

Attention / Warning Risk of damage / destruction of Control Units, drives and / or windows.

Target group

These instructions are intended for qualified personnel trained in electrical engineering and skilled operators of systems for natural smoke ventilation (NRA / RWA) (natural smoke exhaust / smoke and heat exhaust) and for natural ventilation via windows, who have knowledge of the operating modes and residual risks of the system.

| ⚠ WARNING | This device is not intended for use by persons (including children) with limited physical, sensory or mental abilities or lack of experience and/or knowledge. |

Intended Use

Area of Application / Scope of Application
This control device is intended for the supply and control of electrically operated windows in façade and roof areas. **The main task of this product**, in combination with the electromotive window, **is to remove hot smoke and fumes in case of a fire** in order to save human lives and protect material assets. **In addition**, the electromotive window ensures **the supply of fresh air for natural ventilation** of the building.

Intended use according to the Declaration of Conformity
The control device is designed for fixed 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 approved for proper use on a power-operated window:
- Application for natural ventilation
  - installation height of the drive and the bottom side of the sash at least 2.5m above the floor, **or**
  - opening width at the HSK of the operating unit < 200 mm with a simultaneous speed of the HSK in closing direction of < 15 mm/s.
- Application as NRWG (natural smoke and heat exhaust ventilator) according to EN12101-2 without dual function for natural ventilation.

| NOTE | By connecting the window drives with a control device and commissioning them, the installer of the entire system becomes the manufacturer of the electric window! The installer may be required to carry out a risk assessment of the entire system in accordance with the Machinery Directive 2006 / 42 / EC if the use or operation of the control unit or the connected window drives deviates from the intended use! |

| NOTE | We recommend the exclusive use of **AUMÜLLER** system components, as their compatibility is carefully checked at the factory. **AUMÜLLER** does not assume any liability for the proper functioning of third-party components. For applications and connections other than those explicitly stated in these instructions, the express written consent of **AUMÜLLER** is required. The use of applications and components not expressly authorised by **AUMÜLLER** shall also be considered as not in accordance with the regulations even if their proper functioning can be proved when they are put into operation (e.g. by approval under building law). |

Safety Instructions

⚠ WARNING

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

Scope of application
The control device shall only be used according to its intended use. For additional applications, please contact the manufacturer or their authorised dealer.

Installation
These instructions are intended for competent and safety-conscious electrical installers and/or qualified personnel with knowledge of the electrical and mechanical installation of drives and control systems.

Mounting Material
The required mounting material must be modified to fit the applied load.

Routing cables and electrical connection
The laying or installation of electrical cables and connections may only be carried out by approved specialist companies. Never operate the drives, controls, operating elements or sensors on operating voltages and connections contrary to the manufacturer's specifications.

NOTE

The planning and calculation of the line network is the responsibility of the building owner, their agents or the commissioned installer, and must be carried out in accordance with the statutory regulations.

All relevant regulations must be observed during installation, particularly:
• VDE 0100 Installation up high-voltage systems up to 1000 V
• VDE 0815 Installation cables and - / conductors
• Model Cable Systems Directive (MLAR).

The mains supply line of the Control Unit must be secured separately by the customer and provided with an all-pole disconnecting device. After opening the system housing, live parts are exposed. The system must be disconnected from the power supply and batteries before any work can be carried out on the Control Unit.

The cable types, cable lengths and cross-sections must be selected in accordance with the manufacturer's technical specifications. If necessary, the cable types must be approved by the responsible local authorities and power supply companies.

Cables must be laid in such a way that they are not sheared off, twisted or bent during operation. It is recommended to carry out an insulation measurement of the line network of the system and to document it.

Clamping points must be checked for tightness of screw connections and cable ends. The accessibility of junction boxes, terminal points and external drive controls for maintenance work must be ensured.

Commissioning, operation and maintenance
After installation and after every change to the setup, all functions must be checked by a test run. After completion of the installation, the end user must be instructed in all important operating steps. If necessary, they must be informed of any remaining risks / dangers.
The end user must be informed about the intended use of the system and, if necessary, about the safety instructions.

NOTE

Put up warning signs!

Before working on the system, it must be completely disconnected from the power supply and emergency power supply (e.g. batteries) and secured against accidental reconnection. When working in the Control Unit, the workplace must be secured against unauthorised access. It must be ensured that unauthorised persons cannot 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 of the overall system and, like the installation and operating instructions for the control unit, must be kept accessible to authorised specialists throughout the service life of the system.

⚠ WARNING

Carefully check all functions of the system before releasing it for operation.

Software terms and conditions
The Control Unit is configured at the factory for its intended use (standard configuration). With the software specially developed for this Control Unit, the factory setting can be quickly and easily adapted to suit specific requirements. In addition, the system status can be saved, recalled and printed out.

USB

Changeable standard configurations are highlighted in these instructions. The range of functions of the unlicensed version can be extended by license activation payment.

The system requirements (see chapter „Systems Configuration of Software") must be checked before installation. The „Software clause for the provision of standard software as part of deliveries" of the ZVEI (Central Association of the Electrical Engineering and Electronics Industry) is considered to be legally binding upon installation. See our website:

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

The configuration software of the control device largely excludes damage due to incorrect settings. As a precaution, we would like to emphasise that **Aumüller**, as manufacturer, cannot be held liable for damages resulting from the use of **Aumüller** software, because **Aumüller** itself has no influence on a perfect systems environment or object-specific systems configuration.

Therefore, we recommend protecting the operating system and the software from unauthorised access (e.g. by use of a password) and attending the training provided by the manufacturer.

Spare Parts
System components should only be replaced with spare parts of the same manufacturer. The manufacturer's liability, warranty and customer service are considered void if third-party products are used. Only original spare parts from the manufacturer are to be used for system extensions.

Ambient Conditions
The product must not be exposed to impacts or falls, vibrations, humidity, aggressive vapours or other harmful environments unless approved by the manufacturer for one or more of these environmental conditions.

- **Operation:**
  Ambient Temperature: -5 °C … +40°C
  Relative Humidity: < 90% up to 20°C;
  < 50% up to 40°C;
  no condensation

- **Transport / Storage:**
  Storage Temperature: 0°C … +30°C
  Relative Humidity: < 60%

Accident prevention regulations and employer's liability insurance association guidelines
When working on, in or on top of a building or part of a building, the specifications and instructions of the respective Accident Prevention Regulations (UVV) and Employers' Liability Insurance Associations (BGR / ASR) must be observed and complied with.

Declaration of Conformity
The control device is manufactured and tested for its specific intended use according to European guidelines. The respective Declaration of Conformity is available. If the use or operation of the control unit or the connected window drives deviates from this, a risk assessment must be carried out for the entire power operated window system and a declaration of conformity must be issued in accordance with the Machinery Directive 2006/42/EC and the CE mark attached.

Directives and Standards

During installation and electrical connection, the latest country-specific laws, ordninances, regulations and standards must be adhered to without fail.

These are, for example:

State building code with special building regulations such as:
- Industry Building Directive
- Ordninance on Places of Assembly etc.

MLAR - Model Piping Systems Directive

Regulations of the Fire Protection Authorities TAB (technical connection conditions) of the Energy Supply Companies

Trade Association Regulations, such as:
- ASR A1.6 and 1.7 (substitute for BGR 232)

Further standards and guidelines, such as:
EN 60335-2-103 Safety of 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 maintenance of electric cable systems
VDE 0100 Installation of high-voltage systems up to 1000 V
VDE 0298 Use of Cables
VDE 0815 Installation cables and lines
VDE 0833 Alarm systems
VdS-Guidelines: 2593, 2581, 2580, 2592
Accident Prevention Regulations, in particularly:
- VBG 1 „General Regulations" and
- VBG 4 „Electrical Systems and Equipment".

The relevant national laws, regulations, standards and safety provisions apply to the marketing, installation and commissioning outside of Germany.

The installer is responsible for the proper installation, operation and the issuing of a Declaration of Conformity according to European Guidelines.

EMB 7300 Radio HSE System: Radio HSE (Transmitter) and Radio Receiver	

Application: The **Radio HSE** is used to control the Emergency OPEN and Emergency CLOSE functions via a **Radio Receiver** in the detector line of the **EMB 7300** SHEV Control Unit.

Radio: FM narrow bandwidth
Frequency: 433.100 to 434.600

Radio HSE Variants			
❶ Radio HSE Plastic red	(similar to RAL 3000)	**528340**
❶ Radio HSE Plastic yellow	(similar to RAL 1018)	**528341**
❶ Radio HSE Plastic grey	(similar to RAL 7035)	**528342**
❶ Radio HSE Plastic blue	(similar to RAL 5015)	**528343**
❶ Radio HSE Plastic orange	(similar to RAL 2011)	**528344**
Inclusive: 3,6 V Lithium-Battery, > 2000mAh, Typ: 14500			

Additional Equipment	
❷ Radio Receiver	528738
❸ Radio Antenna including holder	528737

⚠ For the use of **Radio HSE**, an **EMB 7300** firmware V0.1.9 or higher is required.

Radio HSE and Radio Receiver

The **Radio HSE** are connected to the **Radio Receiver** by radio (ISM band) and exchange a data packet (Ping) every 96 seconds to signal the "life status".

If a signal is generated on the **Radio HSE** (trigger button, reset button or fault) an encrypted data packet is immediately sent back to the **Radio Receiver** with a confirmation packet.

The radio system uses 6 frequencies for the **Radio HSE**. The total number of all **Radio HSE** must not exceed 10 detectors per system.

- Long service life of the battery-powered **Radio HSE**
- High security for all transmission channels
  - AES encrypted packets in the event of triggering
  - Hand-shake for radio and serial data
  - Distribution on 6 frequencies against jamming transmitters
- High range in buildings
  - VNA optimised **Radio HSE** antennas for horizontal and vertical radio alignment
  - 433MHz ISM narrow bandwidth with 1.2kbps

Connection: Radio Receiver on EMB 7300

Slot for radio module →

Plug-in direction:
Antenna connection towards main board
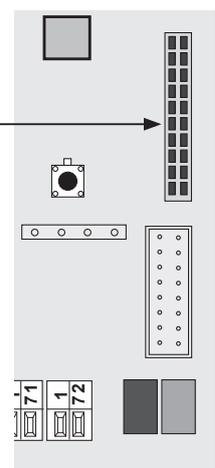
⚠ For comissioning the licensed version of the configuration software **EMB Compact** is absolutely necessary!

Assembly: HSE button (break-glass unit)

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Li 3,6 V
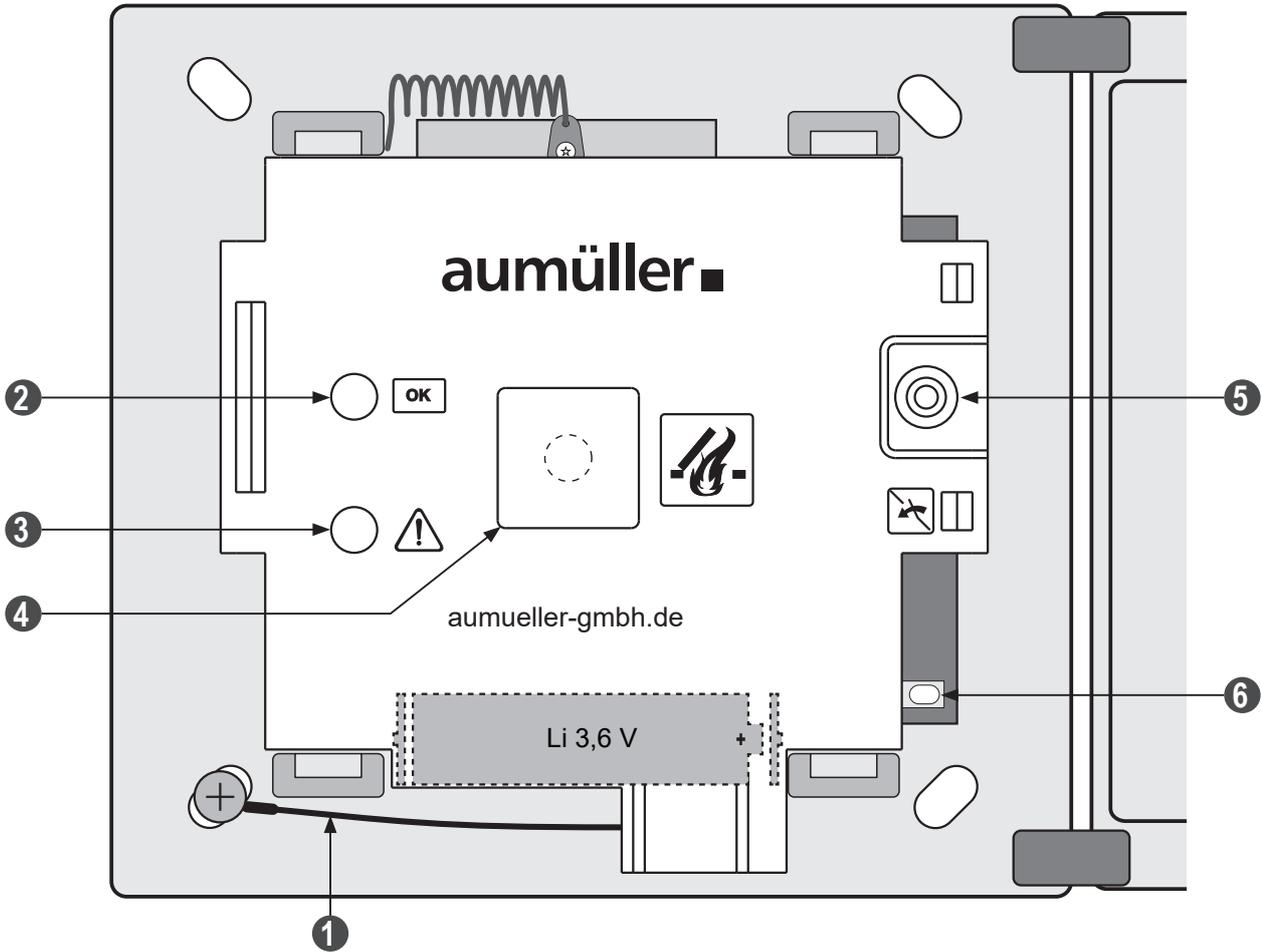
NOTE	Please attach **tear-off contact** ❶ to the housing / wall! A fault is triggered if the **connection between the tear-off contact and the circuit board** is interrupted. Duration approx. 90s.

Explanation	
❷	power indication
❸	fault indicator
❹	Emergency OPEN incl. Emergency OPEN LED
❺	reset button
❻	restart button

NOTE	**Press the restart button ❻** A restart of the radio HSE is triggered when the actuation time is less than 500ms. A longer press does not lead to a restart, which is indicated by the green LED flashing quickly.

EMB 7300 Radio HSE System

If the network option Radio HSE is selected under System Properites, the following tab appears in the left-hand menu: „**Radio HSE**".

☞ The licensed version of the „**EMB Kompakt**" software is required in order to change the network options and to programme and configure the radio HSE buttons.

| File | System Configuration | Language | Help | Absolut ... |

▸ EMB7300-0102A   Radio HSE
   ▸ Basic Features
      ▌ System Features   Frequency Group   Group A
      ▌ Features
      ▌ Firmware Update
   ▌ Drive line 1
   ▌ Drive line 2
   ▌ Radio HSE   **+**
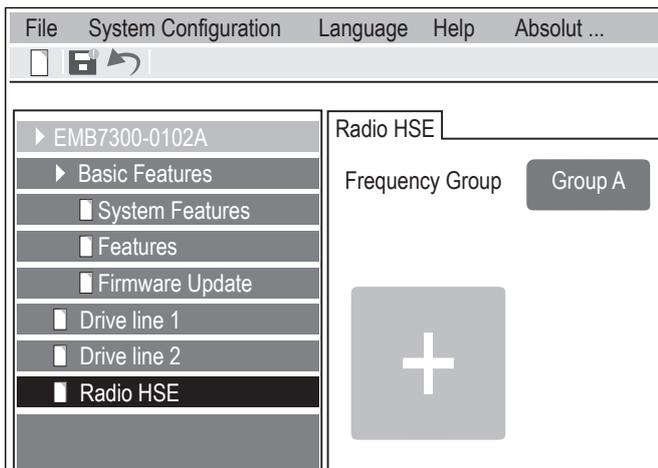
NOTE After selecting the network option „**Radio HSE**" and the desired frequency group (this is set on the system and the push-button), the change must be saved in the control panel. No push-buttons can be programmed before this.

INSTALLING STEP 1:
Select frequency group:

A predefined frequency group can be selected for the radio link of the **EMB 7300 Radio HSE** via the 4 selection fields under Frequency Group:

Frequency Groups (MHz)	
Group A	433.100, 433.700, 434.450, 433.300, 434.225, 433.500, 434.000
Group B	433.150, 433.750, 434.500, 433.350, 434.275, 433.550, 434.050
Group C	433.200, 433.800, 434.550, 433.400, 434.325, 433.600, 434.100
Group D	433.250, 433.850, 434.600, 433.450, 434.375, 433.650, 434.150

INSTALLING STEP 2:
Preparing the push-button:

- Press and release the restart button - this is bottom right (**green LED** flashes quickly).
- Then immediately press and hold the reset button.
- The **red LED** flashes.
- When the **red LED** stops flashing, release the reset key.
- The push-button is reset.
- Do not re-insert the circuit board holder into the housing yet.

INSTALLING STEP 3:
Set the freqency group on the HSE buttons:

- Press and release the restart button - this is bottom right (**green LED** flashes quickly).
- Hold down the reset button and the release key at the same time.
- All LEDs light up until the keys are released.
- The **red LED** now flashes for the group number (1 x for Group A, 2 x for Group B, etc.).
  Press the reset key to select the next group and the release key to accept the currently selected group.

INSTALLING STEP 4:
Startup Phase on the HSE button:

- Press the restart button at the bottom right (**green LED** flashes quickly for approx. 3s).
- The startup phase begins.

This lasts approx. 20 seconds and is completed as soon as the **green** und **yellow LED** flash simultaneously.
- The button is now ready to be programmed.

INSTALLING STEP 5:
Programming push-buttons in the system

- When Installing Step 4 is completed, the push-buttons can be programmed on a Control Unit.
- Start the software and select the tab "Radio HSE". There is a „**Plus**" button ⊞ under the selection of frequency groups.

button „**Plus**"

- When the „**Plus**" ⊞ button is pressed, the system switches to search mode and sends a "Search Signal" to all manual call points.
- The signal lasts for 3 minutes.

- On all manual call points
  - that do not have an assigned address
  - are in the correct frequency group and
  - are within reach
  the „**Emergency OPEN LED**" (**red LED** on the push button) now starts to flash.

- To complete the programming process, the „**Emergency OPEN**" button in the HSE button must be pressed. After a few seconds the button is programmed and appears in the configurator.
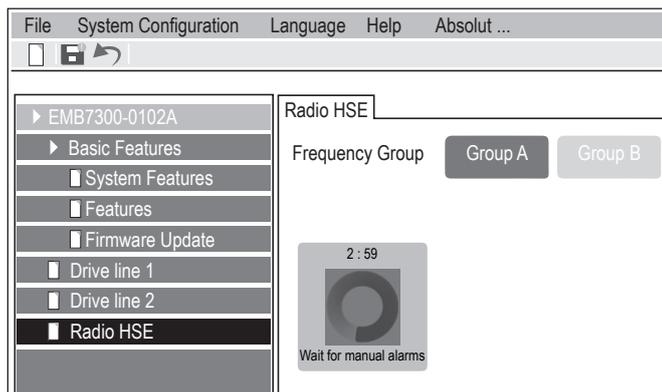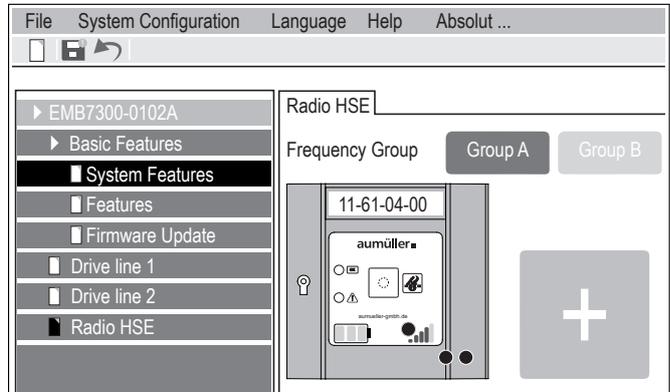
Range checker function (RF analysis)

NOTE

The range tester can only be used if the wireless HSE button has already been taught in (INSTALLING STEP **1 - 5**).
If the radio contact has been lost over a longer period of time, a restart is required in order to synchronize the radio HSE button again (press the restart button once).

Functional description:

The range checker measures the electrical field strength to the radio partner (**EMB 7300**) and signals the reception strength via the three built-in LED´s.
The radio module of the **EMB 7300** sends a beacon packet every 1.75s, which is analyzed by the range checker.

Activation:

1. Ensure battery supply and wait until the startup phase is complete.
2. The radio HSE button must be in the taught-in state.
3. Neustart-Taste unten rechts drücken und halten (ca. 3s) bis alle 3 LED´s leuchten. Press and hold the restart button (approx. 3s) - at the bottom right - until all 3 LEDs light up.
4. When you release the restart button, the LEDs go out and one LED shows the electric field strength.

LED display for break-glass unit (HSE)		
Indicator	**Electric field strength**	**Meaning**
A OFF **B** continuously ON **S** OFF	$\geqq$ - 70 dBm	Very good signal
A OFF **B** flash **S** OFF	-80 to -71 dBm	Good signal
A OFF **B** OFF **S** flash	-90 to 81 dBm	Sufficient signal
A flash **B** OFF **S** OFF	-100 to -91 dBm	Bad signal
A continuously ON **B** OFF **S** OFF	< -100 dBm	Very bad signal
A continuously ON **B** OFF **S** flash	No signal	No signal Note the information of the radio contact!

NOTE

The range analysis is ended by briefly pressing the restart button ❻.
It is recommended to change the battery after using the range analysis for regular operation.
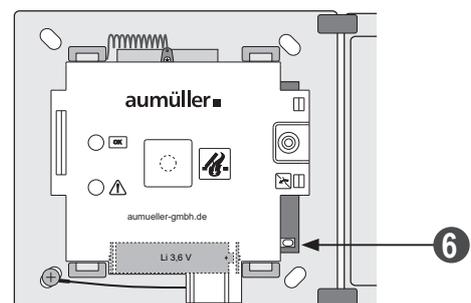
INSTALLING STEP 6:
Edit Push-button

To edit a programmed push-button, simply left-click with the mouse on the desired push-button – the push-button's editing menu opens:

Adjustable functions	
Name	Here you can assign a name for each push button as free text.
Adress	Hardware-bound – nothing can be changed here.
Drive Lines	Here you can set which drive lines (1 or 2 depending on the Control Unit variant) the HSE button should trigger.
Status	Info field, here the push-button reports its status (e.g. missing, if it is no longer recognised).
Colour selection push button	Here you can select the colour of the button for better orientation.

Normal Operation:
If all push-buttons have been properly programmed and the system is in normal operation (no fault is present), the **green LED** on the HSE push-button flashes, therefore signalling normal operation.
For energy-saving reasons, the LED on the radio HSE push-button flashes (on wired push-buttons, it is permanently lit).

Resetting a Button

To delete the addressing of a push-button (e.g. for programming to another installation), the following steps are necessary.
- Press the restart button at the bottom right (**green LED** flashes quickly for approx. 3s).
- Then immediately press and hold the reset button.
- **Red LED** flashes.
- When the **LED** stops flashing, release the push-button.

All changes must be saved via the disk in the editing menu.

Battery Change
The battery of the manual call point must be changed at least every 2 years (in standard operation).
In case of frequent malfunctions / tripping, an annual change may also be necessary. The exact battery status can be monitored via the central software.

If you want to delete a key which has already been programmed, you can use the „**Trash**" icon in the software.

The respective indicators can be displayed with a delay of up to 30 seconds depending on the situation.

| Additional Displays	
LED´s	Show the current status which the respective key reports back to.
Battery	Indicates the current battery charge level.
Reception	Displays the current signal strength of the button.
Blue Points	Shows which motor lines (1 or 2 or both) the button currently triggers.

INSTALLING STEP 7:
Antenna

- Use the screw ❻ to put the lock washer ❺, the antenna head ❹ and the antenna holder ❸ together.
  Also make sure that the antenna head ❹ is installed in the correct position.
- Insert the nut ❶ in the cover ❷.
- Mount the cover ❷ and nut ❶ with the screw ❻ on the antenna holder ❸.

- Put the cap ❼ on the antenna head ❹.
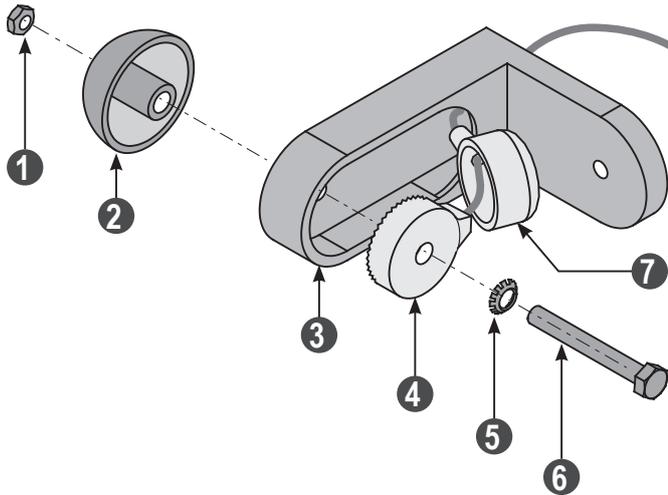
- Mount the antenna ❽ on the remaining threaded end of the screw ❻.
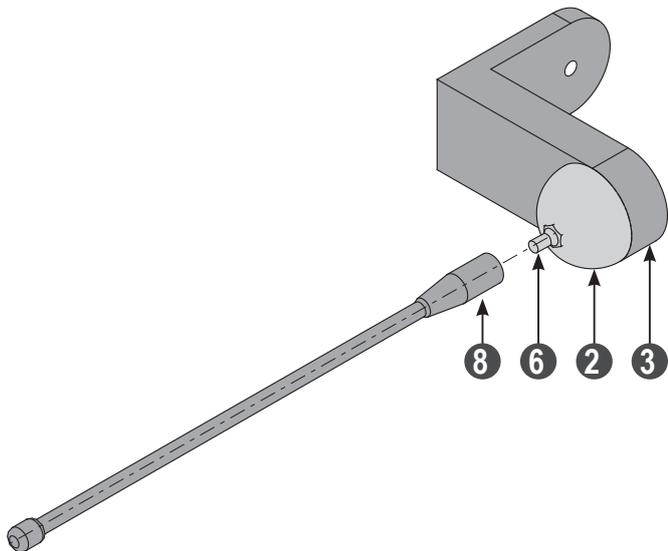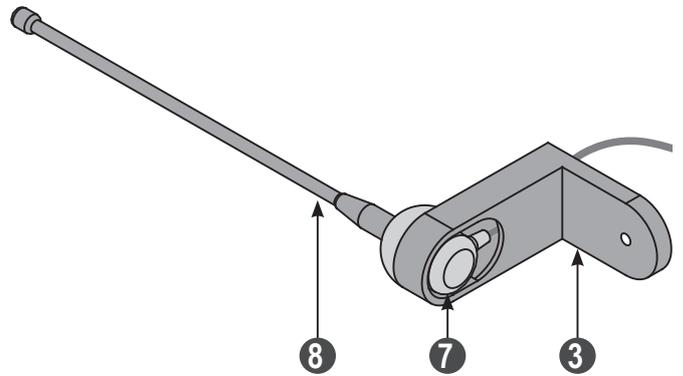
Blink codes
Meaning of the Displays (overview)

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 break-glass 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.

Explanation		
B ⬤	**GN**	= green = Operation
S ◯	**YE**	= yellow = Fault
A ⬤	**RD**	= red = Alarm (Emergency-OPEN)

LED display for break-glass unit (HSE)	
Indicator	**State**
A ⬤ OFF **B** ◯ OFF **S** ◯ ON	HSE button is waiting for a sync packet. If no signal is received on the selected frequency, the frequency in the frequency group is switched first.
A ⬤ OFF **B** ◯ OFF **S** ◯ flashes (1s cycle)	If no packet is received on all 6 frequencies, the HSE button goes into sleep mode for 4 minutes. Reactivation by Emergency-OPEN button.
A ⬤ OFF **B** ◯ continuance **S** ◯ flash	startup phase
A ⬤ OFF **B** ◯ flash **S** ◯ OFF	successful synchronization
A ⬤ flash **B** ◯ OFF **S** ◯ OFF	reset process
A ⬤ to shine **B** ◯ to shine **S** ◯ flash	start phase frequency group
A ⬤ OFF **B** ◯ flash **S** ◯ OFF	requency group menu: group **A** - 1x **red** group **C** - 3x **red** group **B** - 2x **red** group **D** - 4x **red**
A ⬤ OFF **B** ◯ ON **S** ◯ OFF	operation
A ⬤ OFF **B** ◯ OFF **S** ◯ ON	fault
A ⬤ ON **B** ◯ OFF **S** ◯ OFF	alarm

Storage and Dismantling

The Control Unit should only be stored in places protected from moisture, heavy contamination and high temperatures (not above 30 °C). Do not remove the packaging until the control unit is ready to be installed. Disconnect the batteries and store them separately if the control unit has already been used.

When storing rechargeable batteries it is essential to observe the following:

Keep the storage time of the lead acid batteries as short as possible, as the batteries discharge over time. The batteries must be recharged after seven months of storage at the latest. For recharging, either use a suitable charger or connect the batteries to an EMB Control Unit and supply it with mains voltage. In both cases the charging time is at least **8 hours** (depending on discharge).

If the Control Unit is to be permanently decommissioned, the legal regulations for destruction, recycling and disposal must be adhered to. The control unit contains plastic, metal and electrical components as well as batteries. Replaced batteries contain highly toxic pollutants and must therefore only be disposed of at the collection points stipulated by law.

Before removing the Control Unit, it must be disconnected from the mains at all poles!

Disposal

Do not throw electrical appliances in the household waste! According to the European Directive 2012 / 19 / EU on Waste Electrical and Electronic Equipment (WEEE) and its implementation in national law, electrical equipment that is no longer usable must be collected separately and sent for environmentally friendly recycling.

Warranty and Customer Service

In principle, the following applies:

„General Terms of Delivery for Products and Services of the Electrical Industry (ZVEI)".
„Terms of Delivery for the software used".

The warranty complies with the legal requirements and applies to the country in which the product was purchased.
The warranty extends to material and manufacturing defects that occur under normal use.

The warranty period for material delivery is twelve month.

Warranty and liability claims for personal injury and damage to property are excluded if they are attributable to one or more of the following cause:

- Improper use of the product.
- Improper installation, commissioning, operation, maintenance or repair of the product.
- Operating the product with defective, incorrectly installed or non-functional safety and protective devices .
- Failure to observe the instructions and installation requirements in these instructions.
- Unauthorised structural changes to the product or accessories.
- Catastrophes caused by foreign bodies and Acts of God.
- Wear and tear.

The contact person for possible warranties or for spare parts or accessories is the branch office responsible for you or your responsible clerk at:

AUMÜLLER AUMATIC GMBH.
The contact details are available on our website
(www.aumueller-gmbh.de)

Liability

Product changes and product adjustments can be made without prior notice. Illustrations are not binding. Despite the greatest possible care, no liability can be accepted for the content of these instructions.

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Installation Instruction
Radio HSE System

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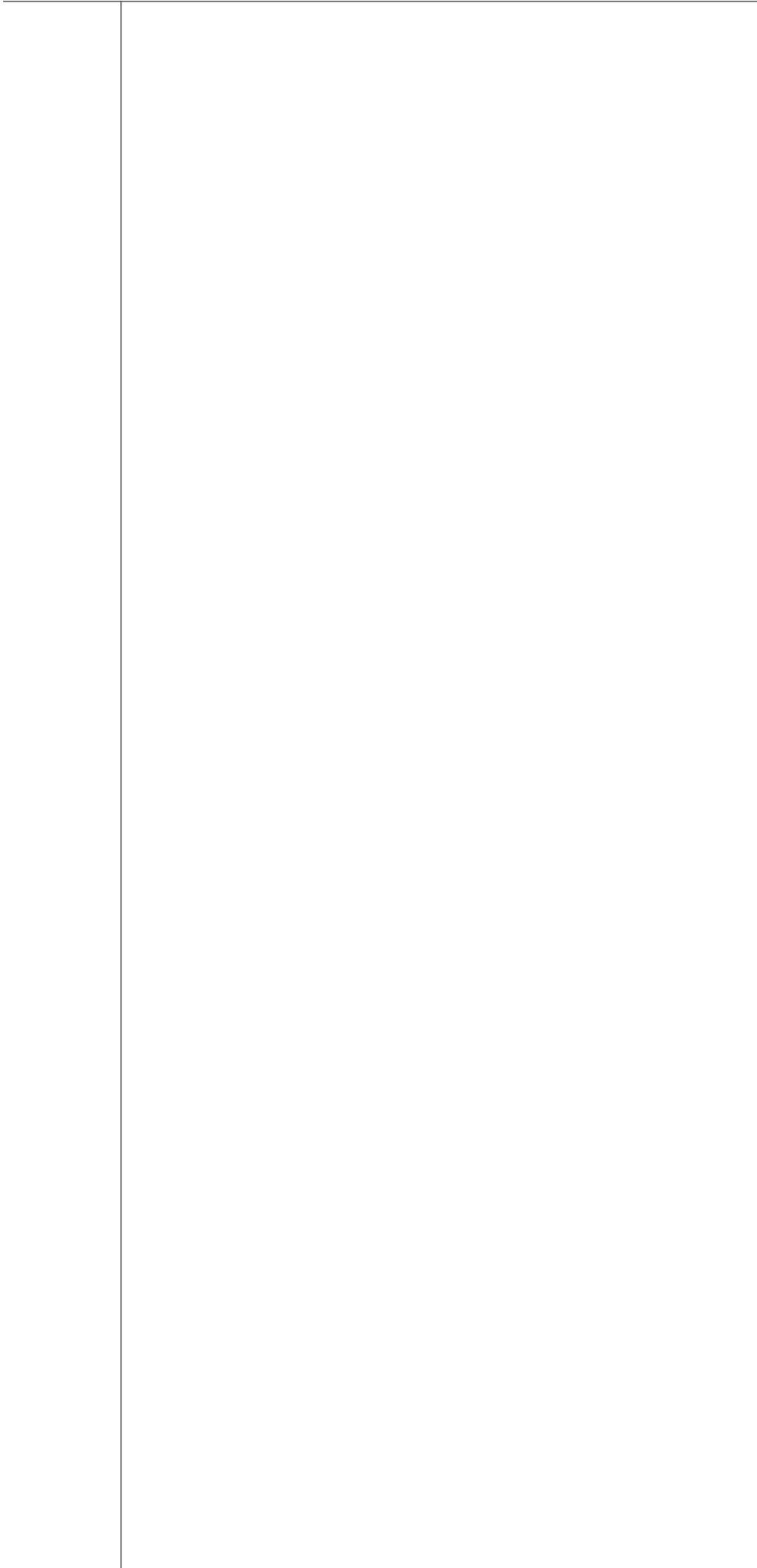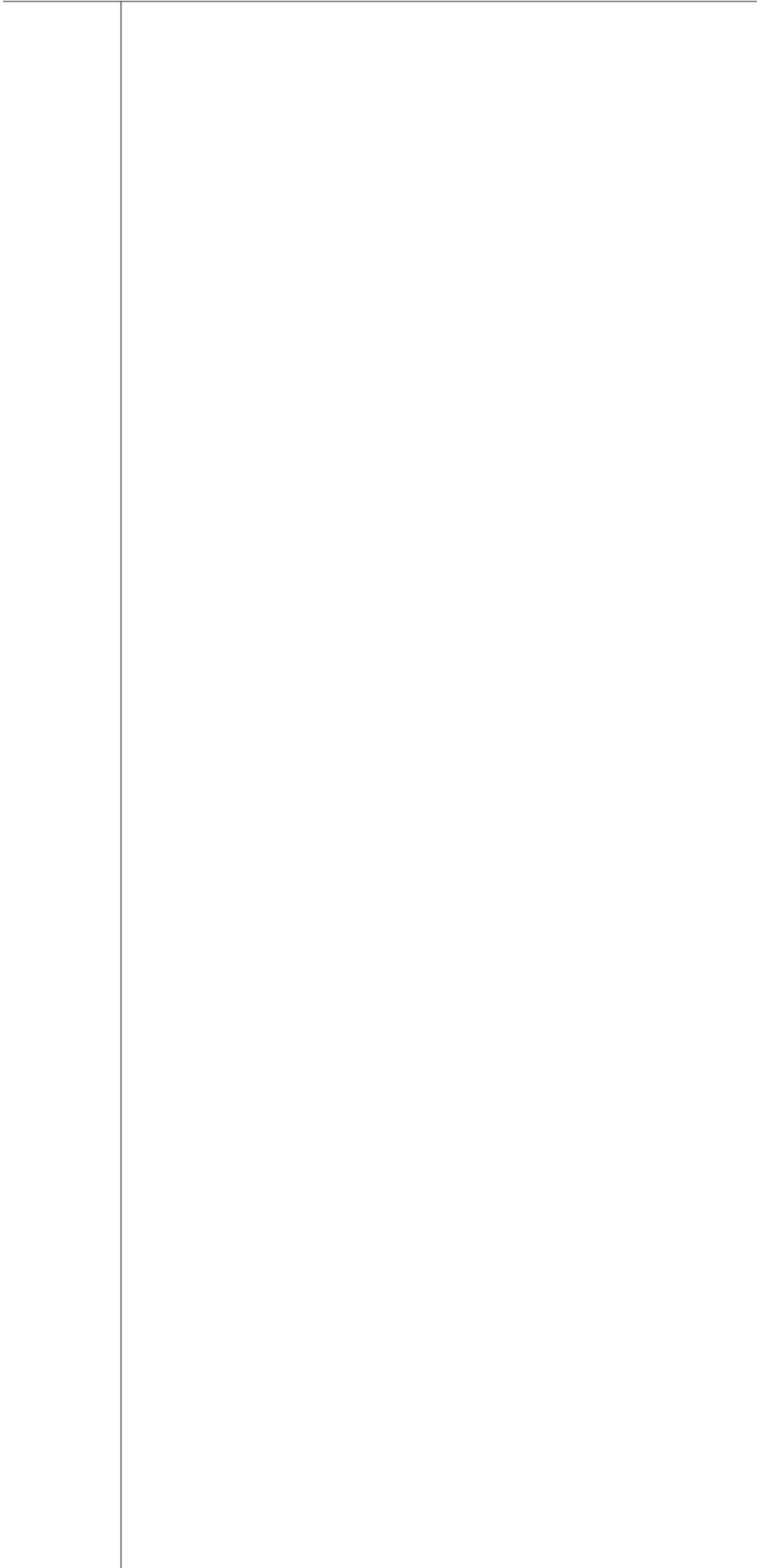
Certificate and Declaration of Conformity

We declare with sole responsibility that the product complies with the following directives:

$C\epsilon$

- 2014 / 30 / EU Electromagnetic Compatibility Directive
- 2014 / 35 / EU Low-voltage Regulation

Technical documents and explanations at company:

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