Plena Voice Alarm System

Security Systems

en | Basic System Manual
Voice Alarm System

BOSCH

Important Safeguards

Prior to installing or operating this product, always read the Important Safety Instructions which are available as a separate document (9922 141 7014x). These instructions are supplied together with all equipment that can be connected to the mains.

Important Notices

When using routers, keypads or more than one call station, configure the controller using the supplied software.

Use shielded cable (Cat-5) between the routers and the controller.

The factory default setting of the Plena Voice Alarm Controller is as follows:

- Stand-alone unit configured for an ISO 60849 compliant system when used with a spare power amplifier from the Plena range and compliant wiring and loudspeakers.
- One channel system.
- Supervision on for:
  - Loudspeaker lines (90 seconds interval, 15% accuracy)
  - Main and spare power amplifier
  - Short to ground (“Ground short”)
  - Mains and battery power
  - EMG mic
  - Memory

Please note that when used with the factory default configuration:

- The background music (BGM) is muted when no spare power amplifier is connected. Disabling the spare power amplifier supervision or overall supervision restores the BGM.
- The BGM will not be present in non-selected zones during a call. If this is desired, connect a spare/call power amplifier and switch the system to 2-channel mode.

Thank you for choosing a Bosch Security Systems product.

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1 Introduction

1.1 Purpose

The purpose of the Basic System Manual is to provide information that is required to install, configure and operate a basic Plena Voice Alarm System. By definition, such a system is installed, configured and operated without a PC.

1.2 Digital document

The Basic System Manual is also available as a digital document in the Adobe Portable Document Format (PDF). All references to pages, figures, tables, etc. in this digital document contain hyperlinks to the referenced location.

1.3 Intended audience

The Basic System Manual is intended for installers and users of a basic Plena Voice Alarm System. Installers and users of extensive systems should refer to the Installation and User Instructions (see section 1.4).

1.4 Related documentation

The following related documents are available:

- Plena Voice Alarm System Installation and User Instructions (9922 141 1037x).
- Plena Voice Alarm System Configuration Software Manual (9922 141 1038x).

1.5 Alerts

In this manual, four types of alerts are used. The alert type is closely related to the effect that may be caused when it is not observed. These alerts - from least severe effect to most severe effect - are:

- **Note**
  Alert containing additional information. Usually, not observing a note alert does not result in damage to the equipment or personal injuries.
- **Caution**
  The equipment can be damaged if the alert is not being observed.
- **Warning**
  Persons can be (severely) injured or the equipment can be seriously damaged if the alert is not being observed.
- **Danger**
  Not observing the alert can result in death.

1.6 Signs

Except for note alerts, the nature of the effect that can be caused when the alert is not observed, is indicated using a sign. For note alerts, the sign provides more information about the note itself. In this manual, the following signs are used in combination with alerts:

Note
General sign for notes.

Note
Consult the indicated source of information.

Caution, Warning, Danger
General sign for cautions, warnings and dangers.

Caution, Warning, Danger
Risk of electric shock.

Caution, Warning, Danger
Risk of electrostatic discharges.

1.7 Conversion tables

In this manual, SI units are used to express lengths, masses, temperatures etc.. These can be converted to non-metric units using the information provided below.

table 1.1: Conversion of units of length

1 in =	25.4 mm	1 mm =	0.03937 in
1 in =	2.54 cm	1 cm =	0.3937 in
1 ft =	0.3048 m	1 m =	3.281 ft
1 mi =	1.609 km	1 km =	0.622 mi

table 1.2: Conversion of units of mass

1 lb =	0.4536 kg	1 kg =	2,2046 lb

table 1.3: Conversion of units of pressure

1 psi =	68.95 hPa	1 hPa =	0.0145 psi

Note
1 hPa = 1 mbar.

$$^{\circ}F = \frac{9}{5} \cdot {}^{\circ}C + 32$$

$$^{\circ}C = \frac{5}{9} \cdot (^{\circ}F - 32)$$

2 System Overview

2.1 Voice Alarm System

2.1.1 Introduction

The Plena Voice Alarm System is a public address and voice alarm system in which all the necessary features for compliance to evacuation standards such as IEC60849, NEN2575 and BS5839/8 are integrated.

2.1.2 Application types

Typically, the Plena Voice Alarm System is used to create small systems that must comply to evacuation standards, medium-sized systems in which one call channel is enough and large systems that consist of many small zones.

2.1.3 Application areas

The application areas of the Plena Voice Alarm System include:

- Supermarkets, shops
- Factories
- High-rise buildings
- Office buildings
- Schools
- Recreational facilities
- Hotels
- Small airports

2.1.4 Plena

The Plena Voice Alarm System is part of the Plena product range. Plena provides public address solutions for places where people gather to work, worship, trade or simply enjoy themselves. It is a family of system elements that are combined to create public address systems tailored for virtually any application. The range includes mixer, pre, system and power amplifiers, a source unit, digital message manager, feedback suppressor, conventional and PC call stations, an 'All-in-One' system and a voice alarm system. Each element is designed to complement all others thanks to matched acoustical, electrical and mechanical specifications.

2.2 Basic system

As mentioned before, the scope of this manual is a basic system. By definition, a basic system is installed, configured and operated without a PC. Such a system can only consist of:

- 1x LBB1990/00 Voice Alarm Controller (required).
- 1x LBB1956/00 Call Station (optional).

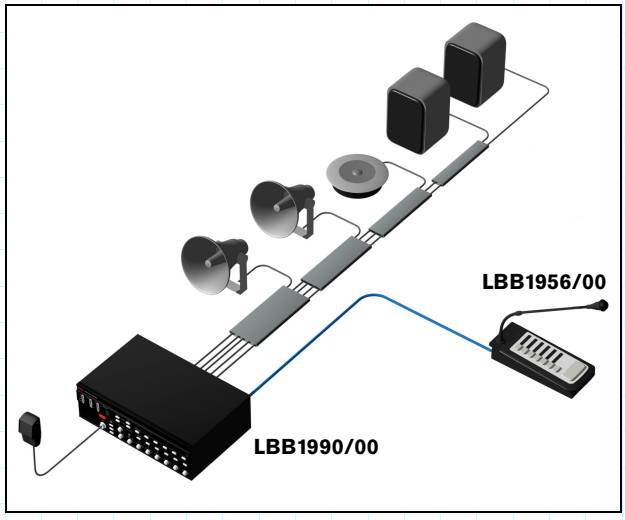

figure 2.1: Basic system

2.3 Voice alarm controller

2.3.1 Introduction

The LBB1990/00 Voice Alarm Controller is the heart of the Plena Voice Alarm System. The voice alarm controller distributes emergency calls, business calls as well as background music (BGM) to up to 6 loudspeaker zones.

figure 2.2: Voice Alarm Controller

Note
When the voice alarm controller has been purchased in the Asian-Pacific Region, the emergency button has a different cover.

2.3.2 Hand-held microphone

The voice alarm controller is equipped with a hand-held microphone, which can be used to make emergency calls.

2.3.3 Internal power amplifier

The voice alarm controller has a 240 W internal power amplifier, which can be used in 1-channel or 2-channel mode. In the 1-channel mode, all calls and BGM are amplified by the internal power amplifier. If desired, an external power amplifier can be connected for spare switching. In the 2-channel mode, the BGM is amplified by the internal power amplifier, whereas the calls are amplified by an external power amplifier.

2.3.4 Internal message manager

The voice alarm controller has an internal message manager, which maps wave files (.wav) to messages that can be played by the Plena Voice Alarm System.

2.3.5 Supervision

All necessary supervision features for compliance to evacuation standards are integrated into the voice alarm controller. If supervision is enabled and a fault is detected, the voice alarm controller lights a LED on its front panel that indicates the cause of the fault.

2.3.6 Overview

See figure 2.3 for an overview of the controls, connections and indicators on the voice alarm controller:

1 **Power LED/VU Meter** - A combined power indicator and VU meter. The green power LED is lit if the voice alarm controller is connected to the mains or back-up power and switched on. The VU meter indicates the master VU level: 0 dB (red), - 6 dB, -20 dB (yellow).

2 **Fault indicators** - Twelve yellow system fault LEDs (Processor reset, Network, Call/EMG, Music/ Spare, Ground short, Input, Mains, Battery, Message, EMG mic, RCP and Router) and twelve yellow loudspeaker line fault LEDs. Fault indication is only possible if supervision is enabled (see section 5.7). If supervision is disabled, the yellow Disabled LED is lit.

3 **Fault state buttons** - Two buttons to acknowledge (Ack) and reset (Reset) the fault state (see section 5.7).

4 **Emergency state buttons** - Two buttons to acknowledge (Ack) and reset (Reset) the emergency state (see section 5.6).

5 **Emergency call zone selectors** - Six buttons to select the zones to which the emergency call must be distributed (see section 5.6). Each button has a green and a red LED. The six red LEDs indicate the zones that are selected for the emergency call. The six green LEDs indicate the zones in which a business call is running.

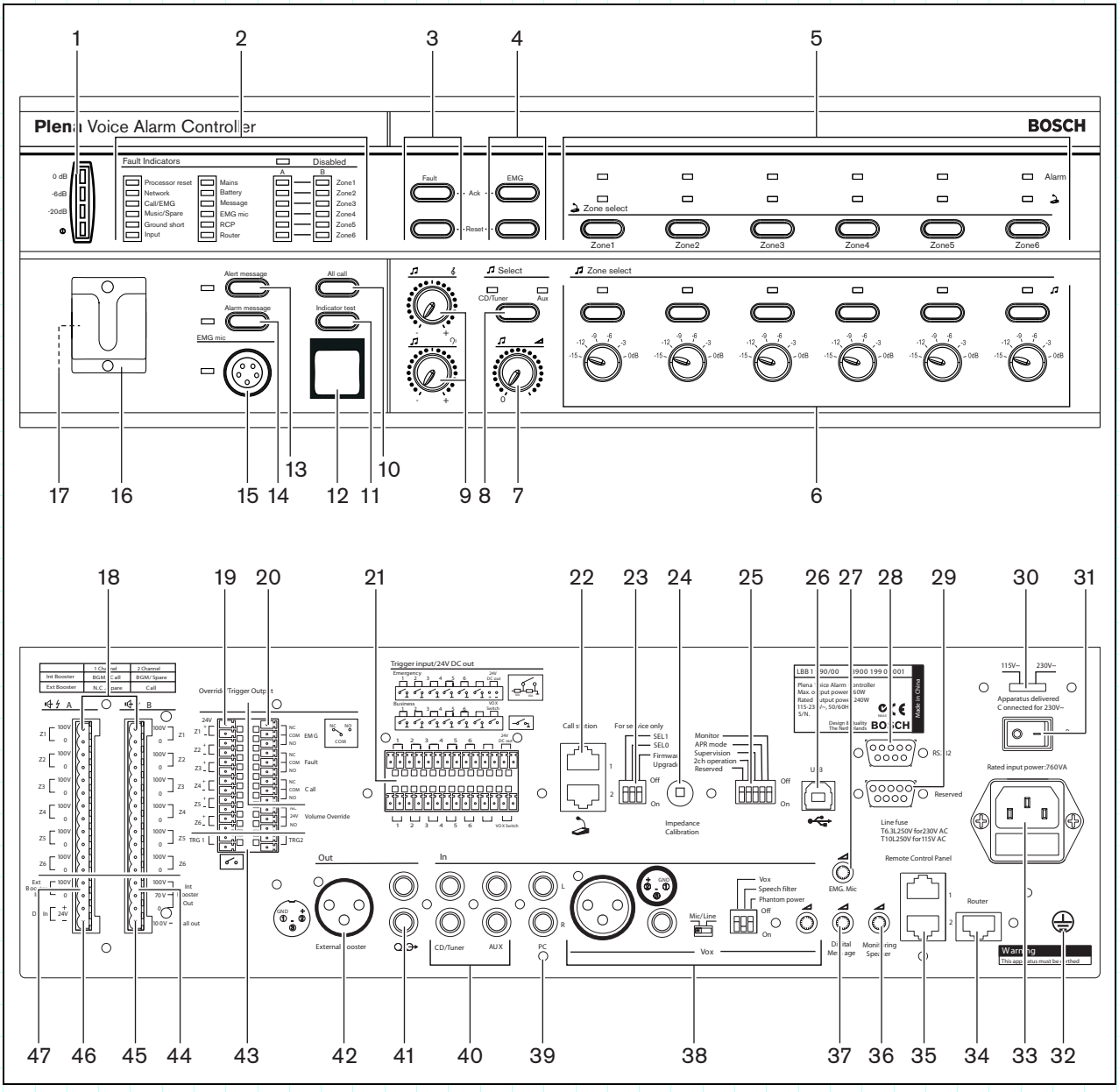

figure 2.3: Front and rear views of the voice alarm controller

6 **BGM zone selectors** - Six buttons to select the zones to which the BGM is distributed (see section 5.4). Each button has a green LED and a rotary knob. The six green LEDs indicate the zones to which BGM is distributed. The six rotary knobs are local volume controls that can be used to adjust the volume of the BGM in each zone.

7 **BGM master volume control** - A rotary knob to set the master volume of the BGM (see section 5.4).

8 **BGM source selector** - A button to select the BGM source (CD/Tuner or Aux). The selected source is indicated with a green LED (see section 5.4).

9 **BGM tone controls** - Two rotary knobs to control the high and low frequencies of the BGM (see section 5.4).

10 **All call button** - A button to select all zones. This button is only available in the emergency state (see section 5.6).
11 **Indicator test button** - A button to test all LEDs on the front panel of the voice alarm controller. All LEDs are lit as long as the button is pushed (see section 5.7).
12 **Emergency button** - A push button to put the system in the emergency state (see section 5.6).
13 **Alert message button** - A button to select the alert message. This button is only available in the emergency state (see section 5.6).
14 **Alarm message button** - A button to select the default alarm message. This button is only available in the emergency state (see section 5.6).
15 **Microphone socket** - A socket to connect the hand-held emergency microphone (see section 3.6).
16 **Bracket** - A bracket for the hand-held emergency microphone that is supplied with the voice alarm controller.
17 **Monitoring speaker** - Built-in monitoring speaker.
18 **Zone outputs** - Six zone outputs to connect loudspeakers to the voice alarm controller. Each zone output consists of two loudspeaker line outputs (see section 3.10).
19 **Override outputs** - Six volume override outputs to override local volume controls in each zone (see section 3.11).
20 **Status outputs** - Three status outputs to send the status of the Plena Voice Alarm System to third party equipment (see section 3.14).
21 **Trigger inputs/24 V DC output** - Twelve trigger inputs to receive signals from third party equipment and one 24 V(DC) output. Except for the VOX switch input and the 24V DC out output, these must be configured with the configuration software and are therefore not used in basic systems (see section 3.13).
22 **Call station sockets** - Two redundant RJ45 sockets to connect call stations (LBB1956/00) to the voice alarm controller (see section 3.8).
23 **Service settings** - A set of DIP switches to service the voice alarm controller. Do not change the positions of the switches.
24 **Calibration switch** - A switch to calibrate the impedances of the loudspeaker lines for loudspeaker supervision (see section 4.5.5.3).
25 **Configuration settings** - A set of DIP switches to configure the voice alarm controller (see section 4.2).
26 **PC socket** - A USB socket to connect the voice alarm controller to a PC. Not for use in basic systems.
27 **Emergency microphone volume control** - A rotary knob to set the volume of the hand-held emergency microphone.
28 **Reserved**
29 **Reserved**
30 **Voltage selector** - A voltage selector to select the local mains voltage (see section 3.15).
31 **Power switch** - A switch to switch the voice alarm controller on and off (see section 5.1).
32 **Ground** - A connection to electrically ground the voice alarm controller.
33 **Mains power inlet** - A socket to connect the voice alarm controller to the mains power (see section 3.15).
34 **Router socket** - An RJ45 socket to connect voice alarm routers (LBB1992/00) to the voice alarm controller. Not for use in basic systems.
35 **Remote control panel socket** - Two redundant RJ45 sockets to connect remote control panels (LBB1996/00, LBB1997/00) to the voice alarm controller. Not for use in basic systems.
36 **Monitoring speaker volume control** - A rotary knob to set the volume of the monitoring loudspeaker.
37 **Digital message volume control** - A rotary knob to set the volume of the digital business messages. This volume control does not influence the volume of the emergency messages.
38 **Mic/line input with VOX functionality** - An XLR socket and a 6.3 mm jack with voice-activated (VOX) functionality to connect a microphone or line input to the voice alarm controller (see section 3.13). The VOX settings are configured with the DIP switches and the source switch (see section 4.6).
39 **PC Call station input** - An input to connect a PC call station. Not for use in basic systems.

40 **BGM inputs** - Two inputs to connect background music sources. Each input consists of two cinch sockets (see section 3.7).

41 **Line output** - A line output to connect an external recording device to record the audio of the Plena Voice Alarm System (see section 3.12).

42 **External power amplifier (output)** - An XLR socket to connect an external power amplifier (see section 3.9). This socket is used in combination with the external power amplifier input (no. 47).

43 **Trigger outputs** - Two general purpose trigger outputs. Not for use in basic systems.

44 **Internal power amplifier output** - Three pins that provide the 100 V audio signal of the internal power amplifier of the voice alarm controller.

45 **Call output** - An output that provides the call audio of the Plena Voice Alarm System.

46 **Back-up power inlet** - An inlet to connect a back-up power supply to the voice alarm controller (see section 3.15).

47 **External power amplifier (input)** - An input to connect an external power amplifier (see section 3.9). These pins are used in combination with the external power amplifier output (no. 42).

2.4 Call station

2.4.1 Introduction

The LBB1956/00 Call Station can be connected to the LBB1990/00 Voice Alarm Controller to make business calls. The call station is connected to the voice alarm controller using standard Cat-5 Ethernet cable.

figure 2.4: Call Station

The call station is not supervised. For compliance to evacuation standards, the Plena Voice Alarm System disables the call station during emergency calls.

2.4.2 Overview

See figure 2.5 for an overview of the controls, indicators and connectors on the call station:

1 **Power indicator** - A green LED to indicate that the call station is powered on.

2 **Zone selection buttons** - Six buttons to select the zones to which the business call is distributed (see section 5.5). Each button has a green LED, which indicates the zones to which the business call is distributed.

3 **'All call' selector** - A button to select all zones (see section 5.5).

4 **Push-to-talk button** - A push-to-talk (PTT) button to start the business call.

5 **Status indicators** - Three LEDs that indicate the status of the call station (see section 5.5).

6 **Keypad connector** - A connector to connect call station keypads (LBB1957/00) to the call station.

7 **Configuration settings** - A set of DIP switches to configure the call station (see section 4.7).

8 **Power supply inlet** - A socket to connect a 24 V(DC) power supply (see section 3.8).

9 **System sockets** - Two redundant RJ45 sockets to connect the call station to the voice alarm controller (LBB1990/00, see section 3.8).

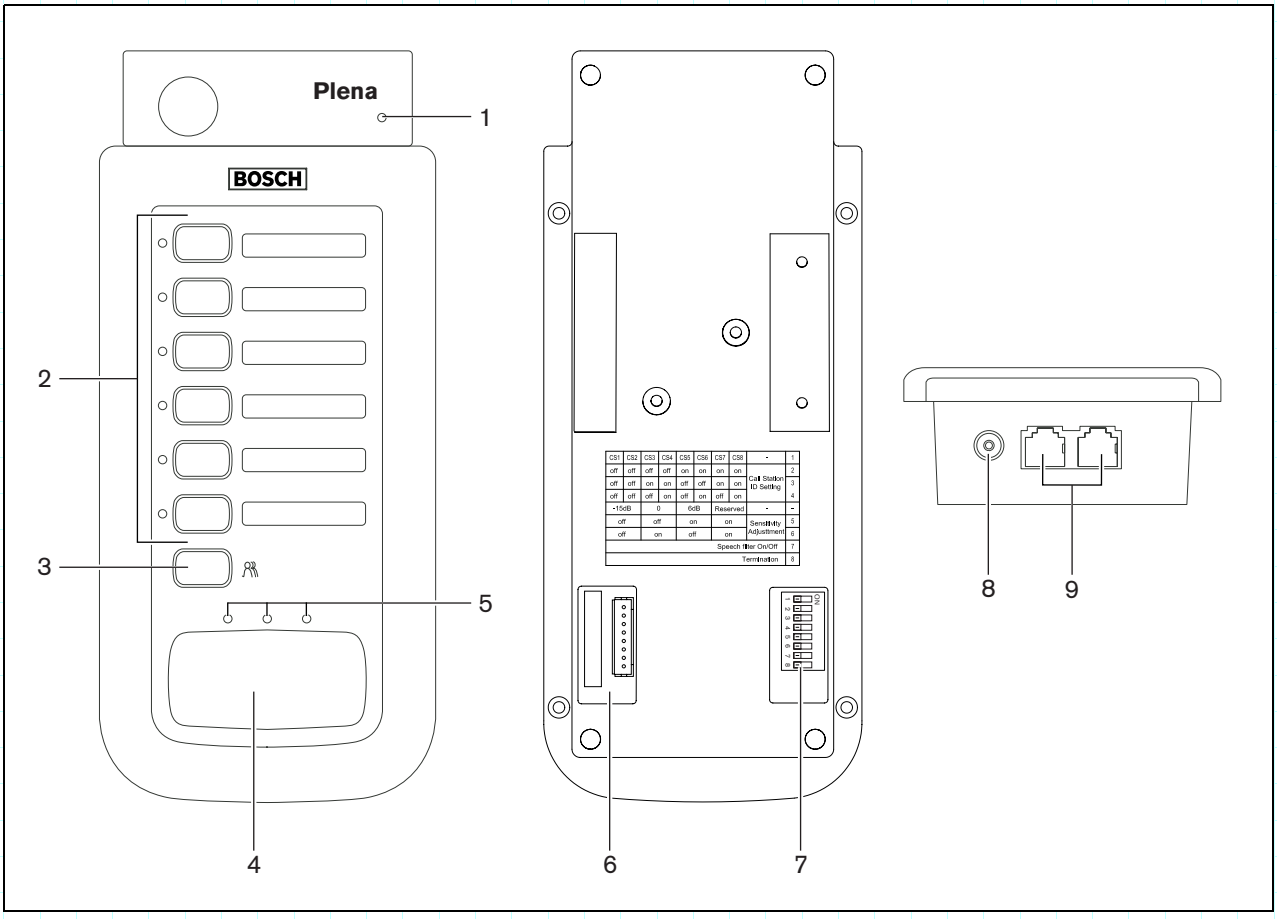

figure 2.5: Top and bottom views of the call station

3 Installation

3.1 Introduction

This chapter describes how to install a basic Plena Voice Alarm System.

3.2 Requirements

Before starting to install the basic system, check if the installation site(s) for the voice alarm controller and call station meet the environmental, electrical and physical requirements that are listed in chapter 6.

3.3 Unpacking

The voice alarm controller and the call station are shipped in boxes. For the contents of these boxes, see table 3.1 and table 3.2.

Note
Always compare the contents of a shipment with the descriptions on the shipment documents.

table 3.1: LBB1990/00 contents

Description	Quantity
Voice alarm controller	1 x
Safety instructions	1 x
Basic system manual	1 x
CD-ROM (see section 3.4)	1 x
Power cord	1 x
Emergency microphone	1 x
19" rack-mounting brackets	2 x
USB cable	1 x

table 3.2: LBB1956/00 contents

Description	Quantity
Call station	1 x
Cat-5 cable	1 x

Caution
Keep the equipment boxed until the moment of installation. Boxed equipment is relatively well protected.

3.4 CD-ROM

The CD-ROM in the box of the voice alarm controller contains:

- Plena Voice Alarm System configuration software
- Audio tools (e.g. converters)
- Default messages and chimes
- Plena info
- Basic System Manual
- Installation and User Instructions
- Bosch data book

3.5 Hardware installation

The voice alarm controller is suitable for table-top and 19-inch rack-mounting installation. Two brackets for rack-mounting are supplied. See figure 3.1 for installation details.

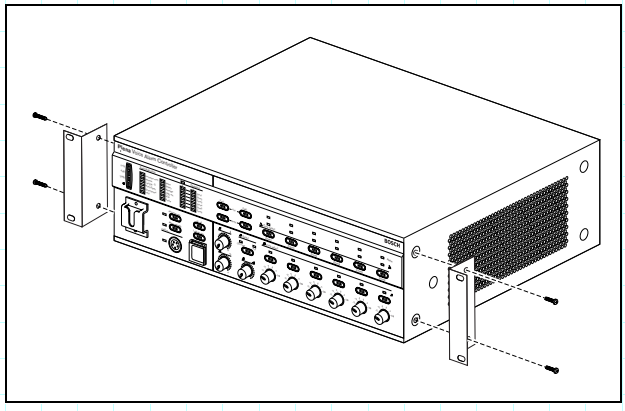

figure 3.1: Brackets for rack-mounting

Make sure that there is a free space of at least 100 mm on both sides of the unit for ventilation. The voice alarm controller has an internal fan, which is regulated to keep the temperature inside the unit within the safe operating area.

3.6 Emergency microphone

The voice alarm controller has one connector for an emergency microphone. A hand-held emergency microphone is supplied with the voice alarm controller. See figure 3.2 for installation details. Turn the lock ring clockwise to lock the plug.

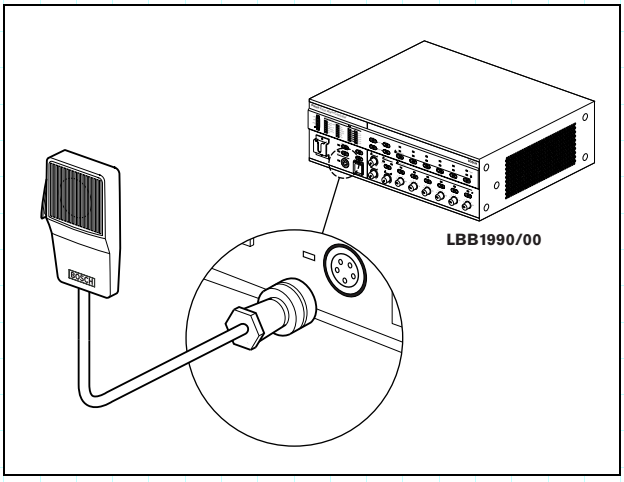

figure 3.2: Connecting the emergency microphone

3.7 BGM inputs

The voice alarm controller has 2 BGM inputs (see figure 3.3 and table 3.3). Each BGM input has a double cinch socket. To these cinch outputs, a background music source can be connected (e.g. a PLN-DVDT Plena DVD Tuner). The signals connected to the L (left) and R (right) cinch sockets are mixed to form a single input signal.

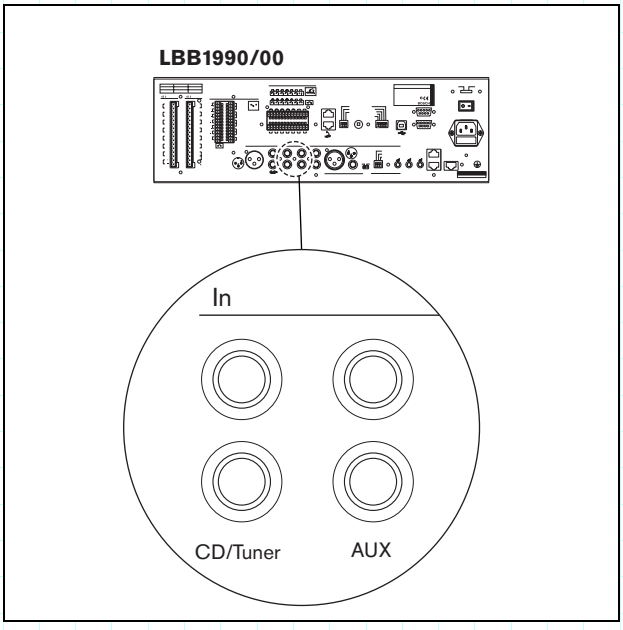

figure 3.3: BGM inputs

table 3.3: BGM inputs

Input	Source
CD/Tuner	CD or tuner
AUX	Auxiliary source

3.8 Call station

The call station can be connected to one of the shielded RJ45 call station sockets on the voice alarm controller with a Cat-5 Ethernet cable. See figure 3.4 for connection details.

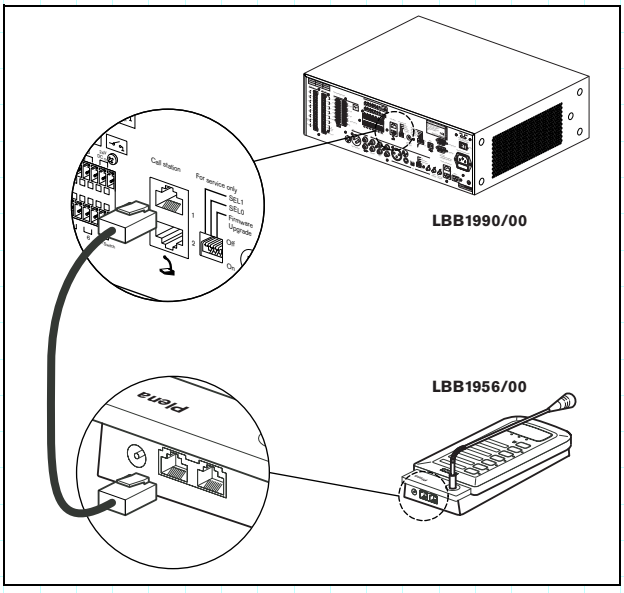

figure 3.4: Connecting a call station

If the cable between the call station and the voice alarm controller is longer than 100 m, the call station must be connected to a 24 V(DC) power source. See figure 3.5 for connection details.

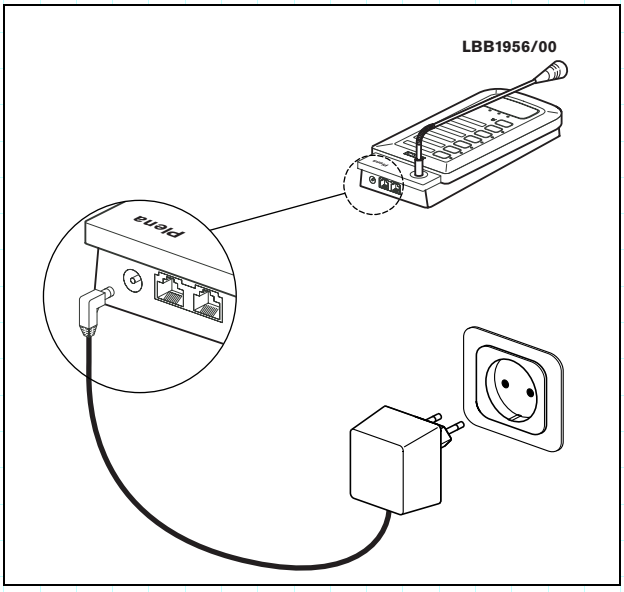

figure 3.5: Connecting a power supply

3.9 External power amplifier

The voice alarm controller has 1 external power amplifier output (line level, 1 V) and 1 external power amplifier input (100 V) to connect an external power amplifier (see figure 3.6). The function of the external power amplifier (e.g. a PLN-1P120 Plena Power Amplifier) depends on the channel mode for which the voice alarm controller is configured (see section 4.5.11).

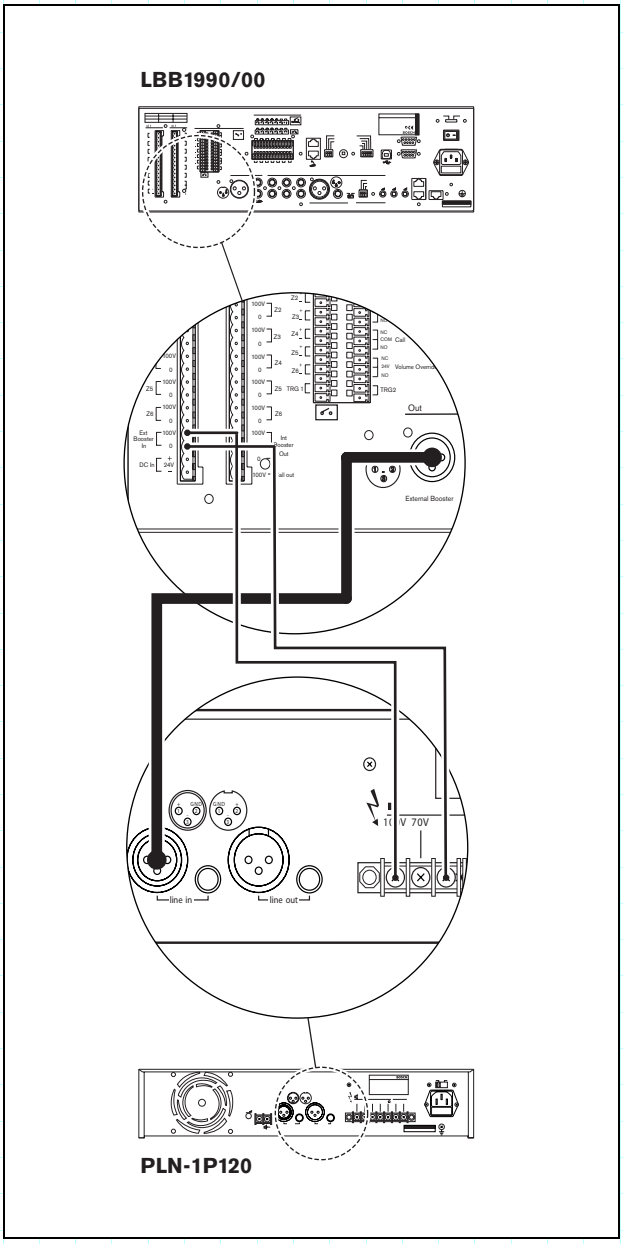

figure 3.6: Connecting an external power amplifier

3.10 Loudspeakers

The voice alarm controller has 6 zone outputs (Z1 to Z6). Each zone output consists of 2 redundant loudspeaker lines (line A and line B). Normally, calls and BGM are distributed to a zone over both loudspeaker lines. If one of the loudspeaker lines of a zone fails, it is still possible to distribute calls and BGM to the zone over the remaining loudspeaker line (see figure 3.7).

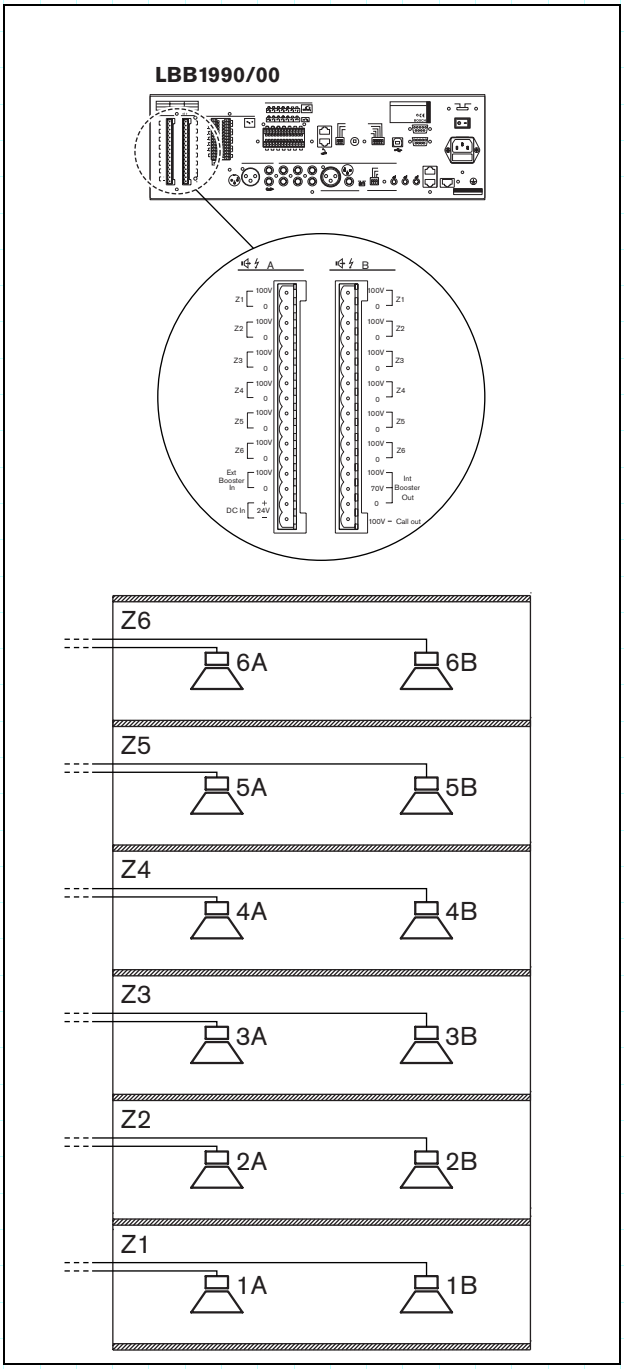

figure 3.7: Connecting loudspeaker zones

If it is necessary to detect the removal or failure of a single loudspeaker, the following is advised:

- Do not connect more than 5 loudspeakers to the same loudspeaker line (line A or line B). Field tests have shown that the impedance of loudspeakers and loudspeaker lines varies with temperature and age. The limit of 5 loudspeakers is set due to this variation. In a more stable environment, the number of loudspeakers can be higher.
- Make sure that all loudspeakers connected to the same loudspeaker line have the same impedance.

Note
The impedance measurement of the Plena Voice Alarm System has an accuracy better than 2%. The system only generates a fault if the line impedance difference is greater than 15% (default accuracy).

Note
The maximum load for the internal power amplifier of the voice alarm controller is 240 W. However, if the voice alarm controller is used in 2-channel mode and an external 480 W amplifier is connected to it, the maximum loudspeaker load can be 480 W at 100 V. This is because in 2-channel mode, the internal power amplifier of the voice alarm controller is used for BGM only and distributes BGM at -3 dB, from which follows that the maximum power output is 240 W at 70 V and that the loading caused by 100 V loudspeakers at 70 V is also 240 W. The external amplifier is used for calls only with 480 W output power and 100 V loudspeaker line voltage.

3.11 Volume overrides

The voice alarm controller has 6 override outputs; 1 for each zone in the system (see figure 3.8). These are suitable for 4-wire override (24 V) as well as for 3-wire override.

Note
By default, the voice alarm controller is configured for 4-wire (24 V), power-saving override, see situation I in figure 3.10.

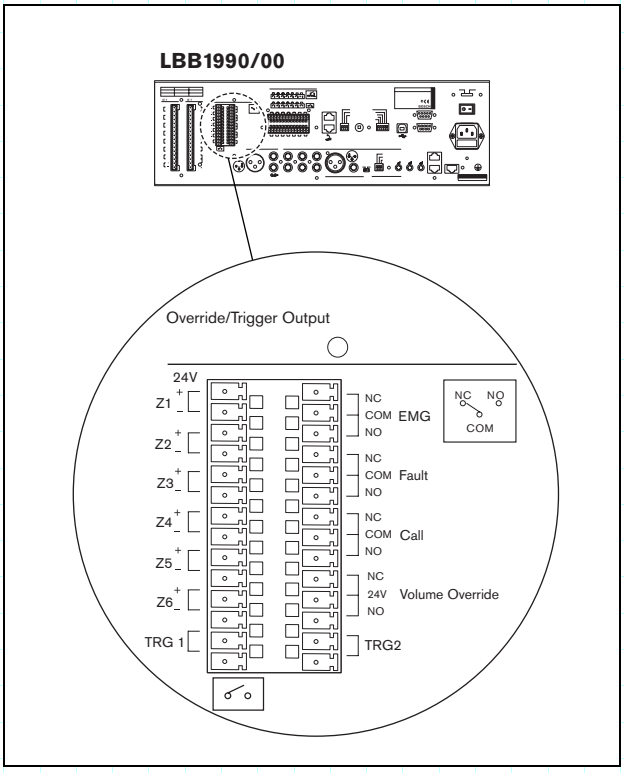

figure 3.8: Override outputs

Internally, the positive override pins (Z+) are all connected to either the NC or the NO contact of the Volume Override output (see figure 3.9). The negative override pins (Z-) are all connected to earth.

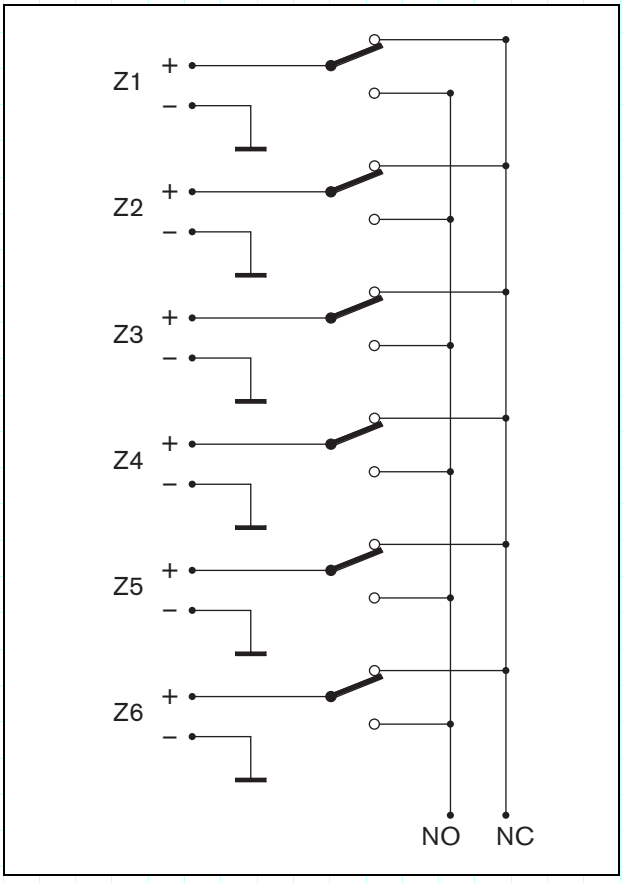

figure 3.9: Volume override contacts

Normally, when there are no active calls, the Z+ pins are internally connected to the NC contact of the Volume Override. At the moment a call is started in a zone, the Z+ pin of the zone is internally connected to the NO contact of the Volume Override. So, the NC and the NO contacts determine which voltage is supplied to the positive pins of the override outputs (Z+).

See figure 3.10, situation I for an example of a fail-safe 4-wire volume override:

- Connect the NO contact of the Volume Override to the 24V contact of the Volume Override.

See figure 3.10, situation II for an example of a power-saving 4-wire volume override:

- Connect the NC contact of the Volume Override to the 24V contact of the Volume Override.

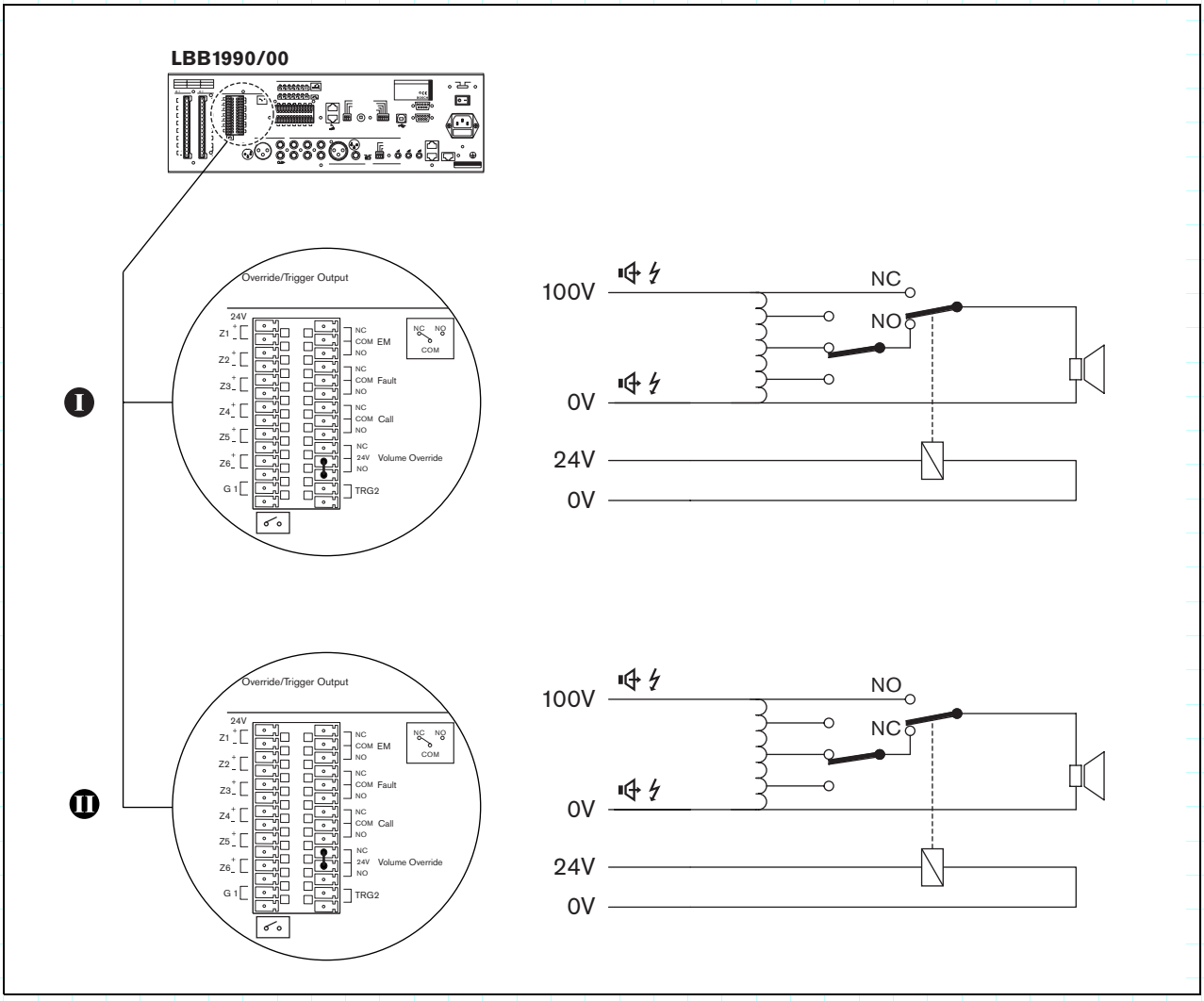

figure 3.10: 4-wire volume override

To create a 3-wire volume override, see figure 3.11:

Note
It is not possible to use 3-wire volume override in a basic system, because it must be enabled using the configuration software. See the Installation and User Instructions (9922 141 1037x) and the Configuration Software Manual (9922 141 1038x) for more information.

Note
It is not possible to use 3-wire volume override in combination with redundant loudspeaker lines (line A and B, see figure 3.7). If redundant loudspeaker lines are needed, use 4-wire volume override (see figure 3.10).

- Connect the 100V output of loudspeaker line A to the 100 V input of the volume control.
- Connect the 100 V/0 V (CALL/RTN) of the transformer to the 100V output of loudspeaker line B.
- Connect the 0 output of loudspeaker line A to the 0 V of the loudspeaker.
- Enable 3-wire volume override in the configuration software.

Caution
Make sure that the correct connections have been made and the system is correctly configured.

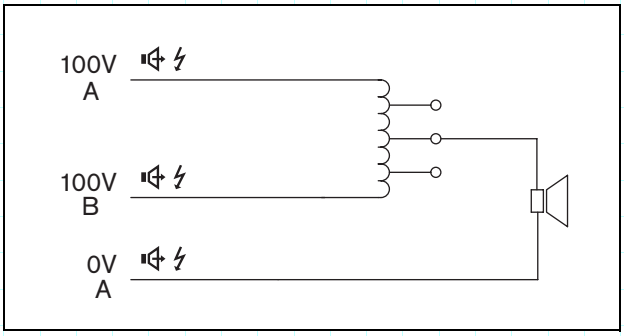

figure 3.11: 3-wire volume override

3.12 Line output

The voice alarm controller has one line output (see figure 3.12). This output has a double cinch socket. Both cinch sockets contain the same, mono signal, which consists of the current BGM and calls. The line output can be used to connect the voice alarm controller to a recording device (e.g. a tape-deck).

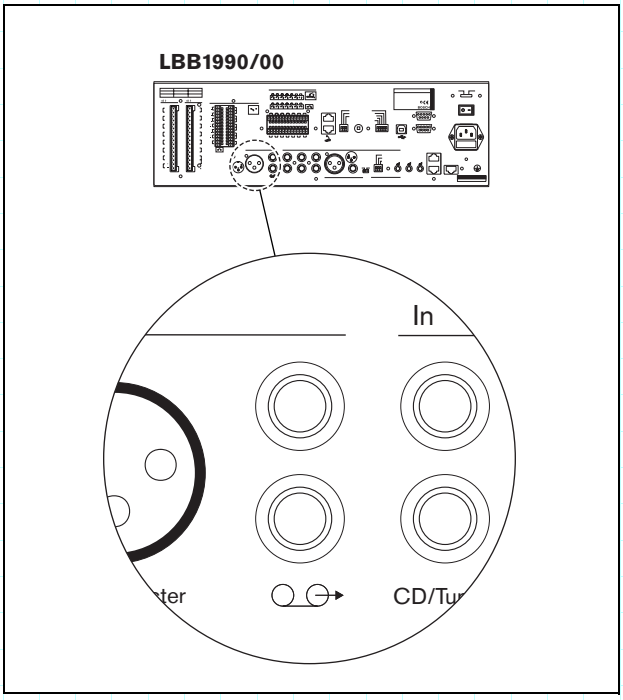

figure 3.12: Line output

3.13 Mic/line input with VOX functionality

The voice alarm controller has 1 mic/line input with voice-activated (VOX) functionality (see figure 3.13). This input has two sockets; one balanced XLR socket and a balanced 6.3 mm jack socket. The signals from both sockets are mixed to form a single input signal.

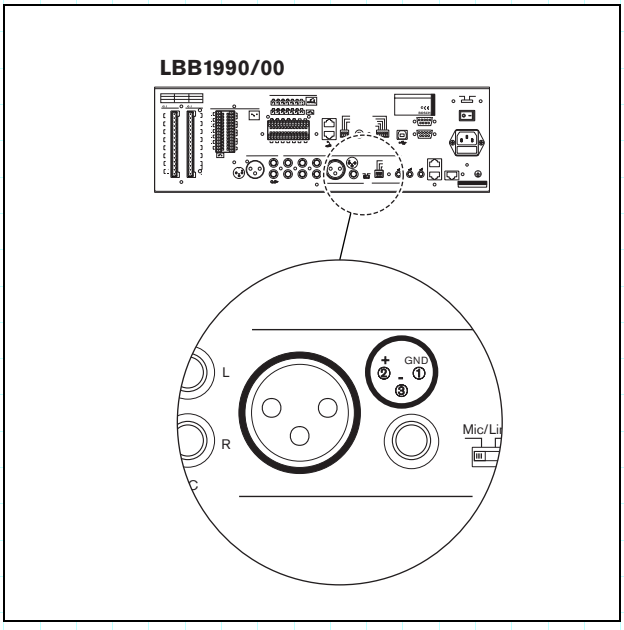

figure 3.13: Mic/line input with VOX functionality

In basic systems, the default priority of the mic/line input with VOX functionality is 6. This means that it can be used to make business calls (e.g. with a PLN-MM Plena Message Manager). The input automatically starts a business call if the input is higher than -20 dB (100 mV for line and 100 µV for microphone inputs) or if the VOX switch is closed (see figure 3.14).

Note
In extended systems, the mic/line input with VOX functionality can also be used to make emergency calls. For example, it can be used to create a supervised link to another emergency sound system (e.g. a Praesideo system). See the Installation and User Instructions (9922 141 1037x) for more information.

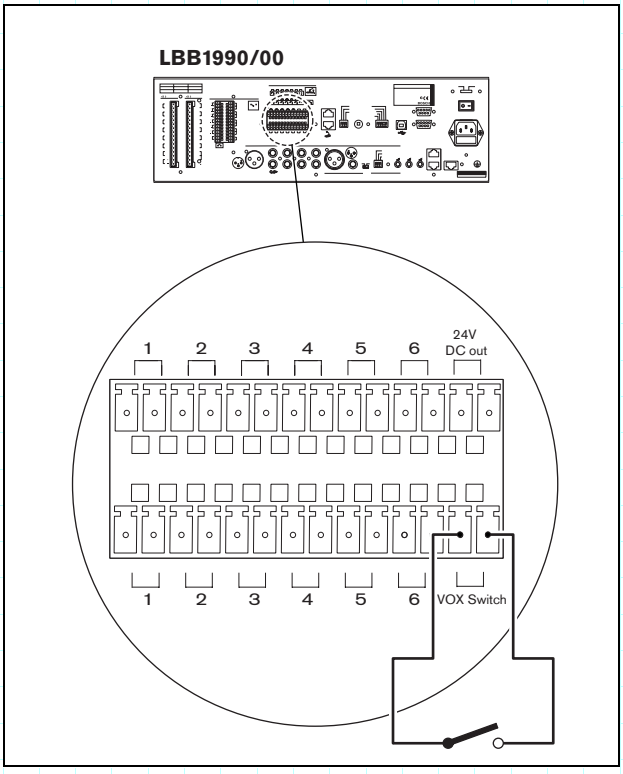

figure 3.14: Connecting a VOX switch

3.14 Status output contacts

The voice alarm controller has 3 status output contacts to indicate the current system state (see figure 3.15). These are used to send the status of the Plena Voice Alarm System to third party equipment or to connect sounders or similar indicating devices.

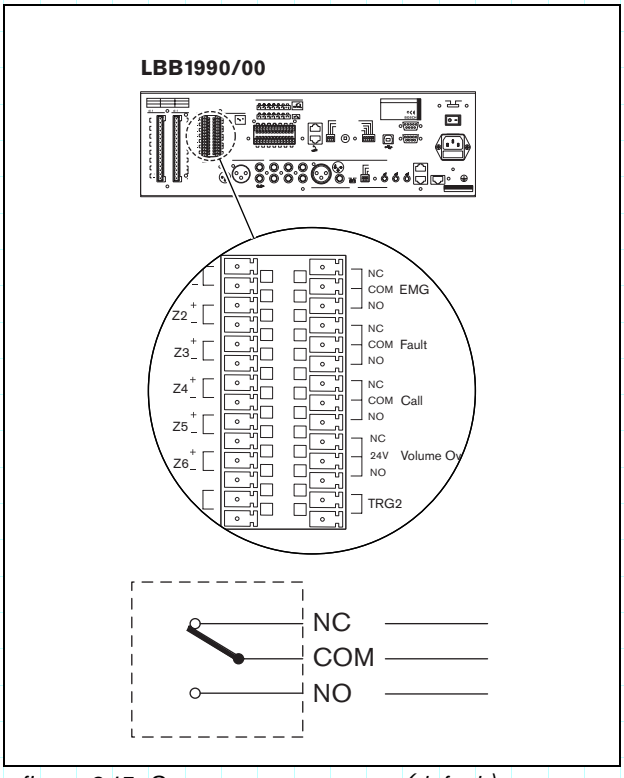

figure 3.15: Status output contacts (default)

table 3.4: Status output contact

Contact	Description
EMG	Emergency state. See section 5.6
Fault	Fault state. See section 5.7
Call	Call active state.

The status output contacts are internal relays. By default, NC is connected to COM. When the Plena Voice Alarm System enters one of the states that are indicated in table 3.4, the relay connects NO to COM.

3.15 Power

3.15.1 Introduction

The voice alarm controller has the following power connections:

- Mains power connection (see section 3.15.2).
- Back-up power connection (see section 3.15.3).

3.15.2 Mains power

Proceed as follows to connect the voice alarm controller to the mains power:

1 Select the local mains voltage using the voltage selector on the rear of the voice alarm controller.

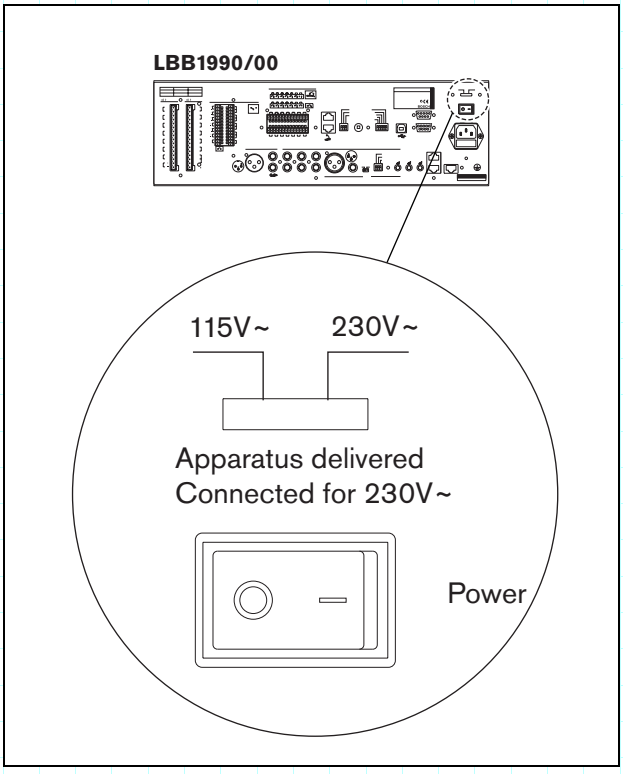

figure 3.16: Voltage selector

table 3.5: Voltage selector

Selector	Mains voltage V(AC)	Fuse
115	100 - 120	115 V - 10 AT
230	220 - 240	230 V - 6.3 AT

Note
The LBB1990/00 Voice Alarm Controller is delivered with the voltage selector in the 230 position.

2 Put the correct type of fuse in the voice alarm controller (see table 3.5).

Note
The LBB1990/00 Voice Alarm Controller is delivered with a T6.3L 250 V fuse for a mains voltage of 220 to 240 V(AC).

3 Connect a locally approved mains cord to the voice alarm controller (see figure 3.17).
4 Connect the mains cord to a locally approved mains outlet (see figure 3.17).

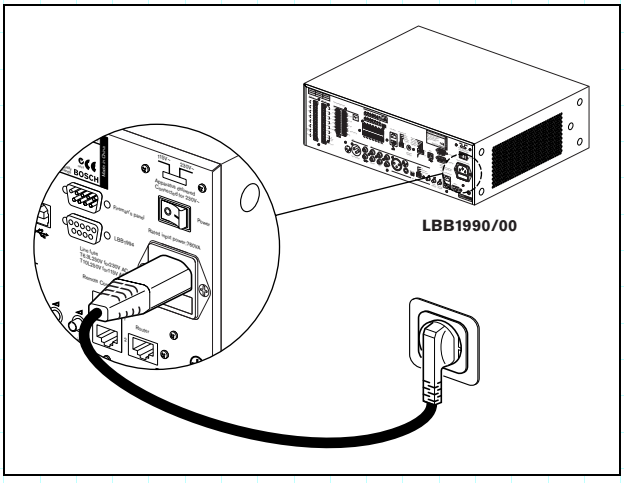

figure 3.17: Connecting the mains cord

3.15.3 Back-up power

The voice alarm controller has a 24 V(DC) input to connect a back-up power supply (e.g. a battery) which powers the system if the mains power is not available. See figure 3.18 for connection details.

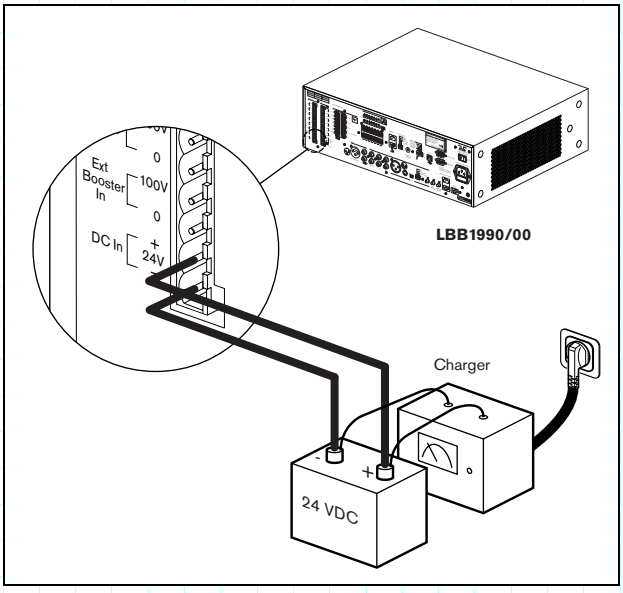

figure 3.18: Connecting a back-up power supply

4 Configuration

4.1 Introduction

A basic system is configured using the DIP switches and volume controls on the rear of the voice alarm controller and the DIP switches on the bottom of the call station.

4.2 System settings

4.2.1 Introduction

The system settings are configured using DIP switches on the rear of the voice alarm controller (see figure 4.1). By default, all switches are in the OFF position.

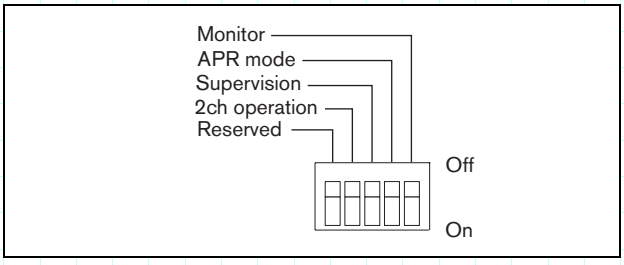

figure 4.1: System settings DIP switches

table 4.1: System settings DIP switches

DIP switch	Description
Monitor	Switches the monitoring loudspeaker on (ON) and off (OFF). See section 4.3.
APR mode	Switches the Asian Pacific Region mode on (ON) and off (OFF). See section 4.4.
Supervision	Switches supervision on (ON) and off (OFF). See section 4.5.
2ch operation	Switches 2-channel operation on (ON) and off (OFF). See section 4.5.11.
Reserved	Reserved. This DIP switch must always be in the OFF position.

4.3 Monitor

If the Monitor switch (see figure 4.1) is in the ON position, the internal monitoring loudspeaker of the voice alarm controller is switched on. The volume of the monitoring loudspeaker is set with the Monitoring Speaker volume control (see figure 2.3, no. 36).

4.4 APR mode

If the APR mode switch (see figure 4.1) is in the ON position, the system is in the Asian-Pacific Region (APR) mode. In APR mode, the system operates according to the emergency standards of the Asian-Pacific Region. For a basic system, the differences between normal operation and the APR mode are:

- When the emergency button (see figure 2.3, no. 12) is pushed on the front of the voice alarm controller, an alarm message is automatically started. This message is automatically repeated.
- In the APR mode the red LED, which during normal operation indicates that the zone is selected for an emergency call (see figure 2.3, no. 5), does not work.
- In the APR mode the green LED, which during normal operation indicates that a business call is running in the zone (see figure 2.3, no. 5), indicates that an emergency call is running in the zone.

4.5 Supervision

4.5.1 Introduction

If the Supervision switch (see figure 4.1) is in the ON position, supervision is enabled. If it is in the OFF position, supervision is disabled.

Note
Supervision is only necessary for systems that have to comply to the IEC60849 evacuation standard. If the system does not have to comply to this standard, leave the switch in the OFF position.

If the Supervision switch is in the OFF position, the Disabled indicator on the front panel of the voice alarm controller is lit (see figure 4.2) to indicate that supervision is switched off.

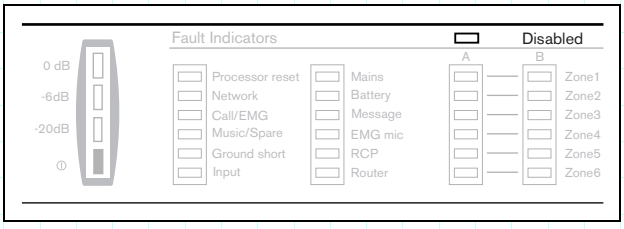

figure 4.2: Disabled indicator

4.5.2 Overview

The supervised functions can be configured with a PC and the configuration software. To basic systems, the default settings apply (see table 4.2).

table 4.2: Default supervision settings

Supervision of:	Default setting
Processor	On. See section 4.5.3.
Network	Off.
Messages	On. See section 4.5.4.
Line supervision	On. See section 4.5.5.
Emergency microphone	On. See section 4.5.6.
Input contacts	Off.
Mains power	On. See section 4.5.7.
Battery power	On. See section 4.5.8.
Internal power amplifier	On. See section 4.5.9.
VOX 20 kHz input	Off.
External power amplifier	Depends on position of the 2ch operation switch. See section 4.5.11.

Note
See section 5.7 for information about faults.

4.5.3 Processor supervision

If supervision is enabled (see section 4.5.1), the processor of the voice alarm controller is supervised by a watchdog. If the watchdog triggers, the Processor reset indicator on the front panel of the voice alarm controller is lit. Then, the program memory is checked and the processor resumes operation within 10 seconds. The indicator remains on until the fault is acknowledged and reset.

4.5.4 Message supervision

If supervision is enabled (see section 4.5.1), the internal message manager of the voice alarm controller is supervised. This message supervision consists of supervision of the wave player using a check-sum and supervision of the audio path using a pilot tone.

4.5.5 Line supervision

4.5.5.1 Introduction

If supervision is enabled (see section 4.5.1), all loudspeaker lines are supervised. Line supervision consists of:

- Short-circuit supervision (see section 4.5.5.2).
- Impedance supervision (see section 4.5.5.3).
- Short-to-ground supervision (see section 4.5.5.4).

4.5.5.2 Short-circuit supervision

The voice alarm controller continuously monitors all loudspeaker lines in the system for short-circuits. If a short-circuit is detected, the line output of the short-circuited line is isolated and shut down within 200 ms. The system will remain operational. If the line is dual-redundant connected (A and B) the short-circuited line remains operational as well.

4.5.5.3 Impedance supervision

If supervision is enabled, the voice alarm controller measures the impedance of all loudspeaker lines once every 90 seconds. The reference values for impedance supervision are stored in the voice alarm controller during the system calibration (see section 5.3). If a difference of > 15% is detected between the measured line impedance and its reference value, the line is considered faulty.

Note
For a correct impedance supervision, connect loudspeakers as described in section 3.10.

4.5.5.4 Short-to-ground supervision

If supervision is enabled, the voice alarm controller continuously monitors all loudspeaker lines in the system for short-to-ground situations. If a leakage current > 30 ± 15 mA is detected in a line, the line is considered faulty.

4.5.6 Emergency microphone

If supervision is enabled (see section 4.5.1), the audio path and the PTT switch of the emergency microphone are monitored from the capsule to the connection with the voice alarm controller.

4.5.7 Mains power supervision

If supervision is enabled (see section 4.5.1), the availability of the mains power is supervised.

4.5.8 Battery supervision

If supervision is enabled (see section 4.5.1), the availability of the back-up power is supervised.

4.5.9 Internal power amplifier supervision

If supervision is enabled, the internal power amplifier of the voice alarm controller is supervised. The function of this power amplifier depends on the position of the 2ch operation switch (see section 4.5.11).

table 4.3: Internal power amplifier functions

Operational mode	Function
1-channel	BGM/Call power amplifier
2-channel	BGM/Spare power amplifier

4.5.10 External power amplifier supervision

If supervision is enabled and the 2ch operation switch (see section 4.5.11) is in the ON position, the external power amplifier is supervised. In 2-channel mode, the external power amplifier is always the call power amplifier.

4.5.11 1 channel and 2 channel operation

4.5.11.1 Introduction

If the 2ch operation switch (see figure 4.1) is in the ON position, the voice alarm controller operates in the 2-channel mode. If the 2ch operation switch is in the OFF position, the voice alarm controller operates in the 1-channel mode.

4.5.11.2 1-channel mode

In the 1-channel mode, all calls and BGM are amplified by the internal power amplifier of the voice alarm controller. If desired, an external power amplifier can be connected for spare switching (see section 3.9). In 1-channel mode, all calls will interrupt the BGM. The external power amplifier is not supervised (see section 4.5.10).

table 4.4: 1-channel mode

Amplifier	Function
Internal	BGM/Call power amplifier
External	Not connected/Spare power amplifier

4.5.11.3 2-channel mode

In the 2-channel mode, the BGM is amplified by the internal power amplifier of the voice alarm controller. The calls are amplified by the external power amplifier, which is connected to the voice alarm controller (see section 3.9). If the external power amplifier is faulty, the calls are amplified by the internal power amplifier. In 2-channel mode, calls do not interrupt the BGM. Both the internal power amplifier and the external power amplifier are supervised (see section 4.5.10).

table 4.5: 2-channel mode

Amplifier	Function
Internal	BGM/Spare power amplifier
External	Call power amplifier

4.6 VOX configuration

4.6.1 Introduction

The type of source that is connected to the mic/line input with VOX functionality is set using the Mic/Line switch on the rear of the voice alarm controller (see figure 4.3).

- If the source is a microphone, put the switch in the Mic position.
- If the source is a line-level source, put the switch in the Line position.

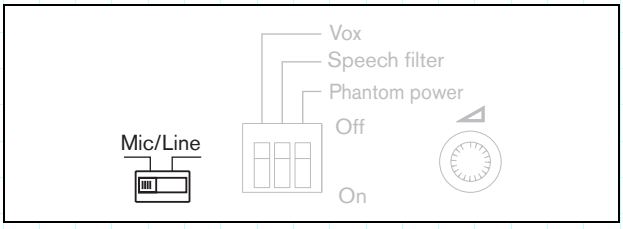

figure 4.3: VOX input source switch

The mic/line input with VOX functionality is configured using DIP switches on the rear of the voice alarm controller (see figure 4.4). By default, all switches are in the OFF position.

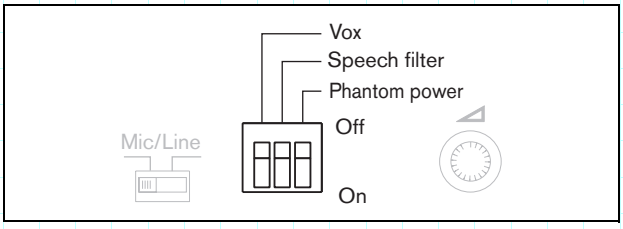

figure 4.4: VOX settings

The settings that can be made using the DIP switches are explained in a table on the rear of the voice alarm controller (see figure 4.5).

	Off	On
1	VOX activate by mic.	VOX activate by VOX Switch
2	Speech filter	Flat
3	Phantom power Off	Phantom power On

figure 4.5: VOX settings table

The volume of the mic/line input with VOX functionality is set with the VOX volume control (see figure 4.6).

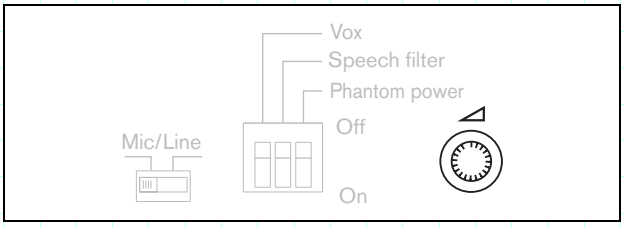

figure 4.6: VOX volume control

4.6.2 Vox

If the Vox switch is in the OFF position, the input is activated when the voltage of the signal of the source is above the specified threshold. If the Vox switch is in the ON position, the input is activated when the VOX Switch trigger input is closed (see also section 3.13).

4.6.3 Speech filter

If the Speech filter switch is in the OFF position, a speech filter is activated for the mic/line input with VOX functionality. The speech filter improves the speech intelligibility by cutting off the lower frequencies.

4.6.4 Phantom power

If the Phantom power switch is in the ON position, a phantom power supply is activated. This switch only has to be put in the ON position if the source is a microphone that must receive phantom power. If the source is not a microphone or if the microphone does not accept phantom power, leave the switch in the OFF position.

4.7 Call station

4.7.1 Introduction

The call stations are configured using the DIP switch at the bottom (see figure 4.7).

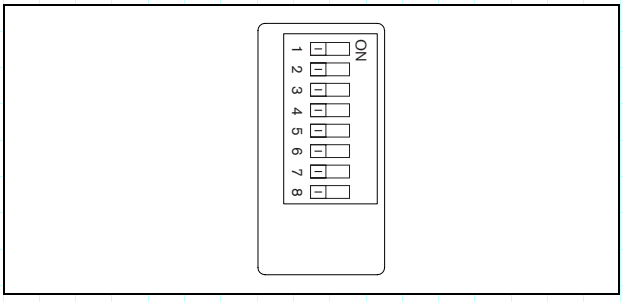

figure 4.7: Call station DIP switches

table 4.6: Call station DIP switches

DIP switch	Description
1, 2, 3, 4	Set the ID of the call station. See section 4.7.2
5, 6	Set the sensitivity of the call station. See section 4.7.3.
7	Switches the speech filter on (ON) and off (OFF). See section 4.7.4.
8	Switches termination on (ON) and off (OFF). See section 4.7.5.

4.7.2 Call station ID

The ID of the call station is set using switches 1 to 4. Since a basic system can contain only 1 call station, the ID of this call station is 1. This is accomplished by leaving the DIP switches 1 to 4 in the default OFF position.

4.7.3 Sensitivity

The sensitivity of the call station is set using switches 5 and 6 (see table 4.7).

table 4.7: Call station sensitivity

Sensitivity	Switch 5	Switch 6
-15 dB	OFF	OFF
0 dB	OFF	ON
6 dB	ON	OFF
Reserved	ON	ON

4.7.4 Speech filter

If switch 7 is in the ON position, a speech filter is activated for the call station. The speech filter improves the speech intelligibility by cutting off the lower frequencies.

4.7.5 Termination

Switch 8 must always be in the ON position, since basic systems contain only 1 call station.

5 Operation

Note
It is assumed that the APR mode switch (see section 4.4) is in the OFF position.

5.1 Switch on

Put the Power switch on the rear of the voice alarm controller (see figure 5.1) in the I position.

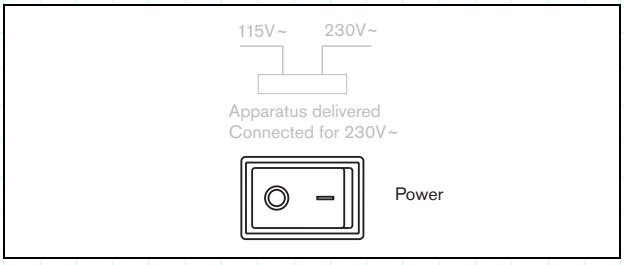

figure 5.1: Power switch

If mains power or back-up power is available, the power indicator on the front of the voice alarm controller is lit (see figure 5.2). If the basic system contains a call station, the power indicator of the call station is also lit (see figure 2.5, no. 1).

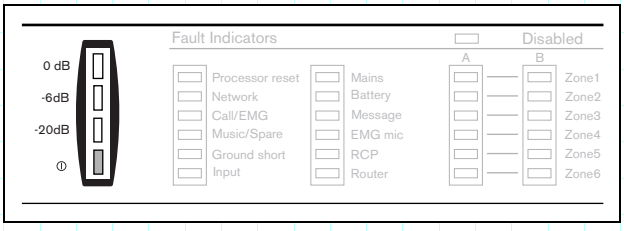

figure 5.2: Power indicator

Note
When the system is switched on for the first time and supervision is enabled, calibrate the system (see section 5.3).

5.2 Switch off

Put the Power switch of the voice alarm controller (see figure 5.1) in the O position.

5.3 Calibration

Calibration is necessary for a correct loudspeaker line impedance supervision (see section 4.5.5.3). To calibrate the voice alarm controller, push the calibration switch (see figure 2.3, no. 24). The system must be calibrated:

- When the voice alarm controller is switched on for the first time.
- After the connected loudspeakers are changed.
- After loudspeakers have been added.
- After the settings of the connected loudspeakers have been changed.

5.4 Background music

5.4.1 Introduction

The background music (BGM) is controlled using the BGM controls on the front of the voice alarm controller (see figure 2.3). Proceed as follows to route BGM:

1 Select the BGM source (see section 5.4.2).
2 Select the zones (see section 5.4.3).

5.4.2 Select BGM source

Select the BGM source with the Select button (see figure 5.3). A green LED indicates the source that is selected.

- If the source is a CD player or a tuner that is connected to the CD/Tuner input (see section 3.7), choose CD/Tuner.
- If the source is an auxiliary source that is connected to the Aux input (see section 3.7), choose Aux.

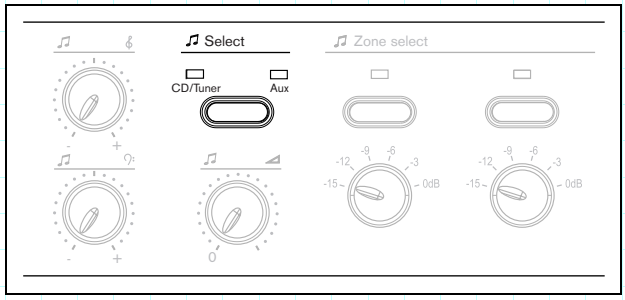

figure 5.3: BGM source selector

5.4.3 Select zones

The BGM is distributed to the zones with the Zone select buttons (see figure 5.4). A green LED indicates the zones to which BGM is distributed.

- If the Zone select indicator is off, no BGM is distributed to the zone. Push the Zone select button to distribute the BGM to the zone.
- If the Zone select indicator is on, BGM is distributed to the zone. Push the Zone select button to stop distributing the BGM to the zone.

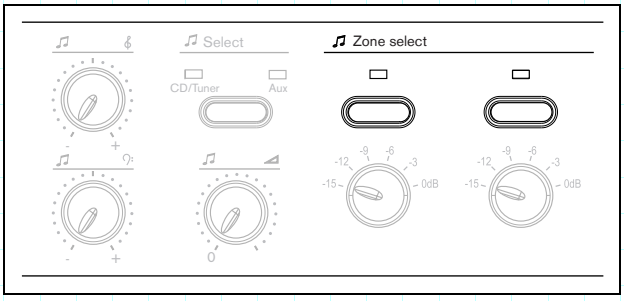

figure 5.4: BGM zone selectors

5.4.4 Adjust volume

The voice alarm controller has two types of controls to adjust the BGM volume (see figure 5.5). The overall (maximum) volume of the BGM source is set with the master volume control, which is located below the BGM source selector (Select button, see figure 5.3). Per zone, the local volume can be adjusted with the zone volume switches, which are located below the zone selection buttons (Zone select, see figure 5.4).

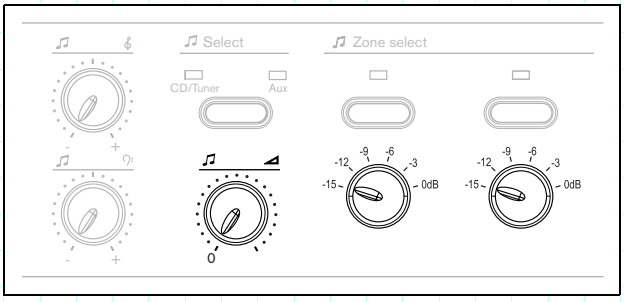

figure 5.5: BGM volume controls

5.4.5 Adjust frequencies

The voice alarm controller has two rotary knobs to adjust the sound of the BGM (see figure 5.6).

- Use the upper rotary knob to adjust the treble or high frequency content of the BGM.
- Use the lower rotary knob to adjust the bass or low frequency content of the BGM.

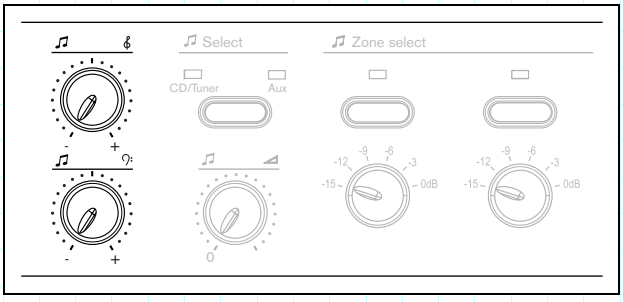

figure 5.6: BGM tone controls

5.5 Business calls

5.5.1 Introduction

Business calls can only be distributed with call stations. It is not possible to use the hand-held emergency microphone to distribute business calls. Proceed as follows to distribute a business call:

1 Select the zones (see section 5.5.2).
2 Make the announcement (see section 5.5.3).

5.5.2 Select zones

Select the zones to which the business call must be distributed with the zone selection buttons on the call station (see figure 5.7). A green LED indicates the zones to which the business call is distributed.

- If the indicator of a button is off, the zone is not selected. Push the button to select the zone.
- If the indicator of a button is on, the zone is selected. Push the button to deselect the zone.

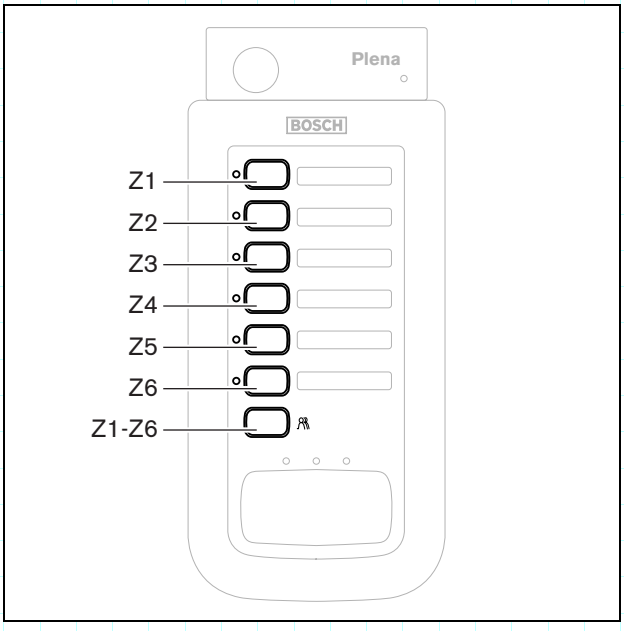

figure 5.7: Zone select buttons

5.5.3 Make the announcement

Push the push-to-talk (PTT) button of the call station to make an announcement (see figure 5.8). The call is only distributed to the selected zones (see section 5.5.2).

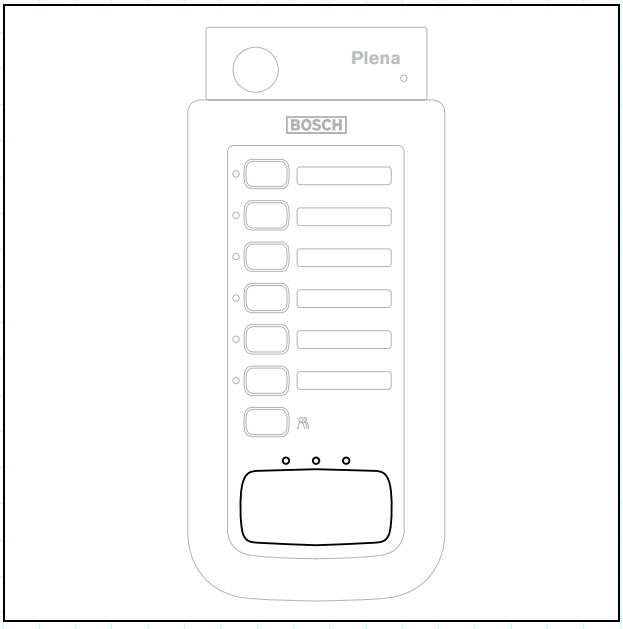

figure 5.8: PTT button and indicators

The LEDs above the PTT button provide information about the status of the call station (see table 5.1).

table 5.1: Call station status indicators

Indicator	Description
Green	PTT button is pushed.
Yellow	Fault in the system.
Red	System is in emergency state. The call station is disabled.

5.6 Emergency state

5.6.1 Introduction

Emergency calls can only be distributed when the system is in the emergency state. See section 5.6.2 for information about entering the emergency state. In the emergency state, it is possible to distribute the following emergency calls:

- Live speech with the emergency microphone of the voice alarm controller (see section 5.6.5).

Note
It is not possible to distribute chimes or speech with the call station when the system is in the emergency state, because the call station is disabled automatically at the moment that the system enters the emergency state.

- The default alert message (see section 5.6.6).
- The default alarm message (see section 5.6.7).

5.6.2 Enter the emergency state

To enter the emergency state, push the emergency button on the front of the voice alarm controller (see figure 5.9). The red LED that is integrated in the switch lights.

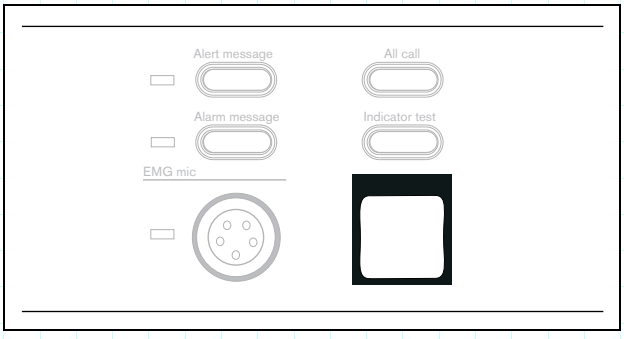

figure 5.9: Emergency button

At the moment the emergency state is entered, a beeper starts and the EMG status output contact is closed.

Note
See section 5.6.4 for information about exiting the emergency state.

5.6.3 Acknowledge the emergency state

The beeper can be switched off by acknowledging the emergency state with the EMG Ack button (see figure 5.10).

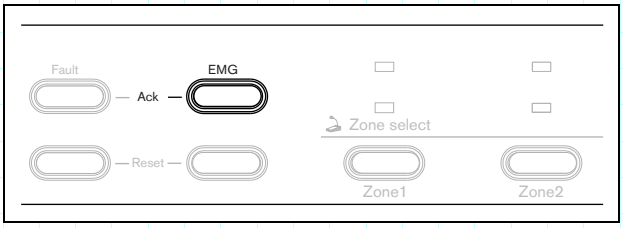

figure 5.10: EMG Ack button

5.6.4 Exit the emergency state

Exit (reset) the emergency state by pushing the EMG Reset button (see figure 5.11). In order to reset the emergency state, it first must be acknowledged (see section 5.6.3).

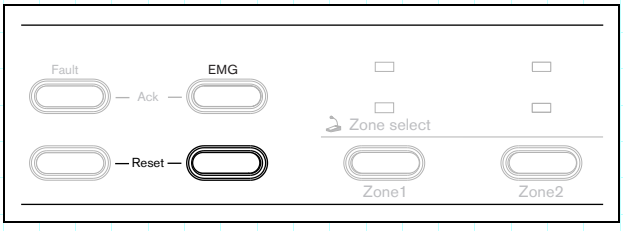

figure 5.11: EMG Reset button

5.6.5 Distribute live speech

5.6.5.1 Introduction

Proceed as follows to distribute live speech:

1 Select zones (see section 5.6.5.2).
2 Make announcement (see section 5.6.5.3).

5.6.5.2 Select zones

Select the zones to which the live speech must be distributed with the Zone select buttons on the front of the voice alarm controller (see figure 5.12). A red LED indicates the zones to which the live speech is distributed.

- If the indicator of a Zone select button is off, the zone is not selected. Push the button to select the zone.
- If the indicator of a Zone select button is on, the zone is selected. Push the button to deselect the zone.

Note
If no additional action is taken within 10 seconds after the last Zone select button has been pushed (for example closing the PTT switch), the zone selection is cancelled.

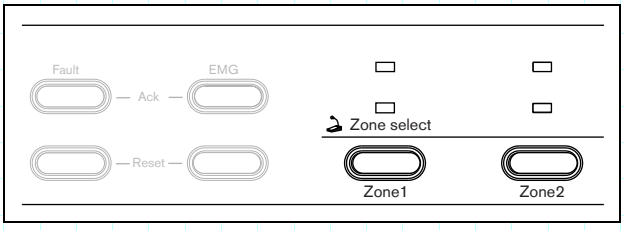

figure 5.12: Zone select buttons

To select all zones, push the All call buttons on the front panel of the voice alarm controller (see figure 5.13).

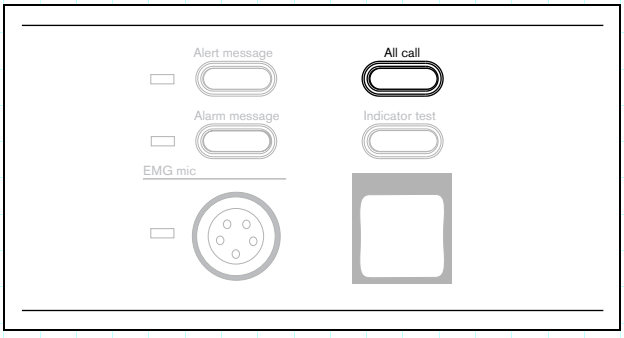

figure 5.13: All call button

5.6.5.3 Make the announcement

Push the push-to-talk (PTT) button of the emergency microphone to make an announcement (see figure 5.14). The live speech is only distributed to the selected zones (see section 5.5.2). At the moment the PTT button of the emergency microphone is pushed:

- The red EMG mic indicator is lit (see figure 5.15).
- If they are currently distributed, the default alert message and default alarm message are stopped.

Note
If no zones have been selected, the live speech is automatically distributed to all zones in the system.

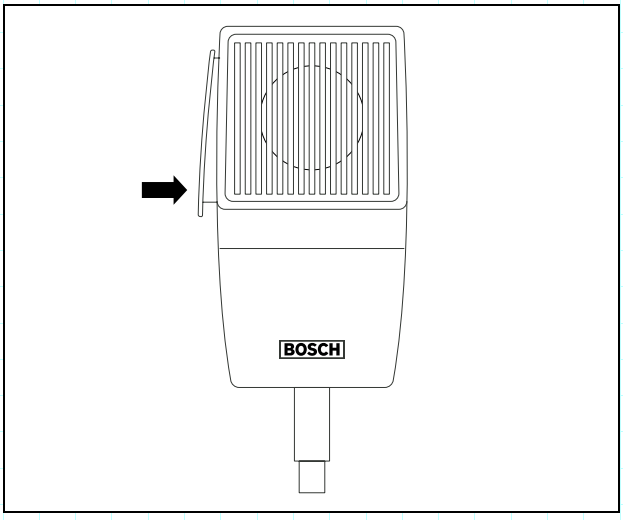

figure 5.14: Emergency microphone

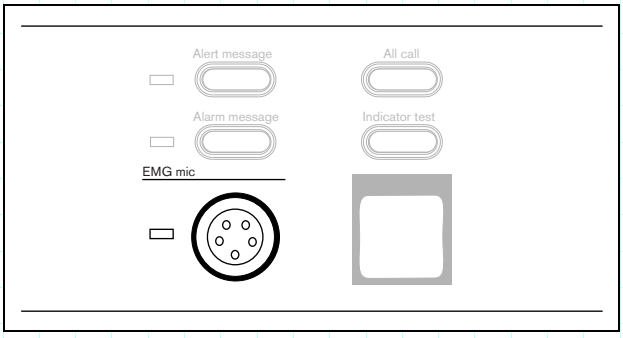

figure 5.15: Emergency microphone indicator

5.6.6 Distribute the alert message

5.6.6.1 Introduction

Proceed as follows to distribute the default alert message:

- Select the zones (see section 5.6.6.2).
- Start the alert message (see section 5.6.6.3).

5.6.6.2 Select zones

Select the zones to which the default alert message must be distributed with the Zone select buttons on the front of the voice alarm controller (see figure 5.12). A red LED indicates the zones to which the default alert message is distributed.

- If the indicator of a Zone select button is off, the zone is not selected. Push the button to select the zone.
- If the indicator of a Zone select button is on, the zone is selected. Push the button to deselect the zone.

Note
If no additional action is taken within 10 seconds after the last Zone select button has been pushed (for example pushing the Alert message button), the zone selection is cancelled.

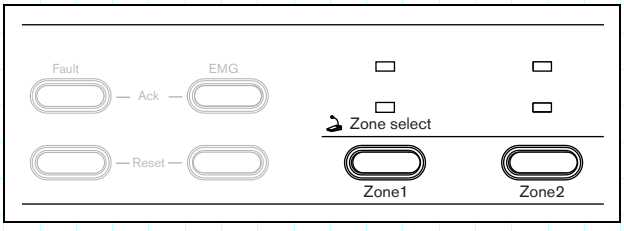

figure 5.16: Zone select buttons

To select all zones, push the All call button on the front panel of the voice alarm controller (see figure 5.17)

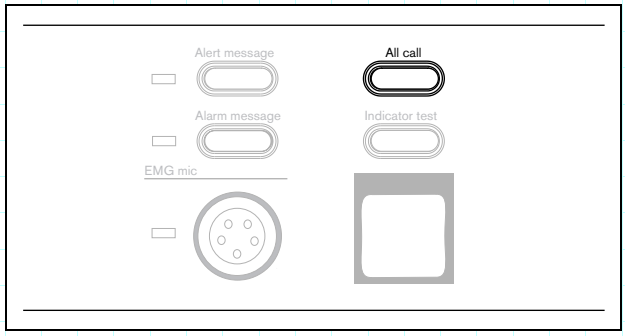

figure 5.17: All call button

5.6.6.3 Start the alert message

Push the Alert message button to distribute the message to distribute the default alert message (see figure 5.18). The message is only distributed to the selected zones (see 5.6.6.2).

- If the red Alert message indicator is off, the alert message is not distributed. Push the Alert message button to distribute the default alert message.
- If the red Alert message indicator is on, the message is distributed. Push the Alert message button to stop distributing the default alert message.

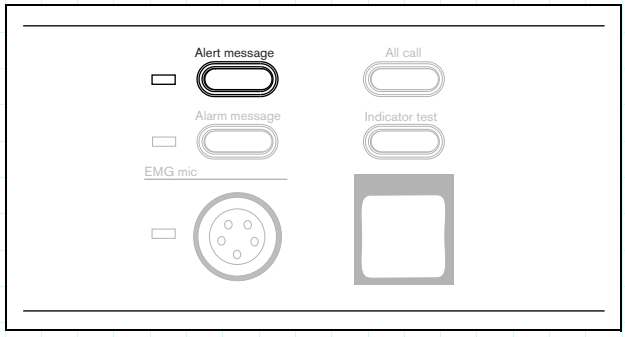

figure 5.18: Alert message button

5.6.7 Distribute the alarm message

Distributing the default alarm message is similar to distributing the default alert message (see section 5.6.6). Push the Alarm message button instead of the Alert message button (see figure 5.19).

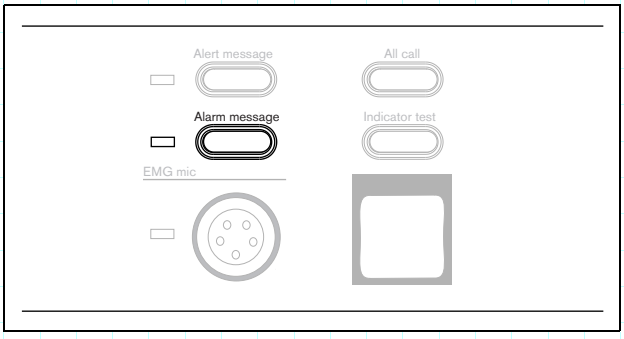

figure 5.19: Alarm message button

5.7 Fault state

5.7.1 Introduction

If a supervised function fails, the voice alarm controller enters the fault state and:

- Starts a beeper. The beeper is switched off when the fault is acknowledged (see section 5.7.2).
- Closes the Fault Status NO output contact. This status output contact is opened again when the fault is reset (see section 5.7.3).
- Lights a fault indicator on the front panel that indicates the source of the fault (see section 5.7.4). The indicator is switched off when the fault is reset (see section 5.7.3).

5.7.2 Acknowledge the fault state

The beeper can be switched off by acknowledging the fault state with the Fault Ack button (see figure 5.20).

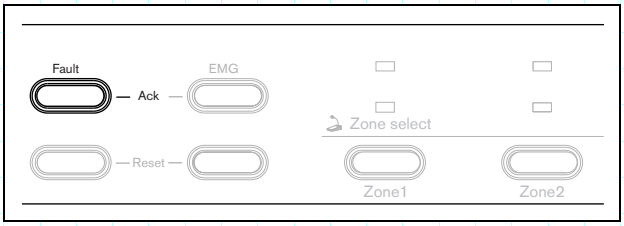

figure 5.20: Fault Ack button

The following buttons also acknowledge the fault state and stop the beeper:

- Alert button
- Alarm button
- PTT button of the emergency microphone

5.7.3 Reset the fault state

Reset the fault state by pushing the Fault Reset button (see figure 5.21). In order to reset the fault state, it first must be acknowledged (see section 5.7.2). When the Fault Reset button is pushed, the fault indicators are switched off and the status of the system is checked.

- If the fault is not resolved, the fault indicators are switched on again. The beeper remains off. It is only switched on if a new fault occurs or if the resolved fault occurs again.
- If the fault is resolved, the fault indicators remain off.

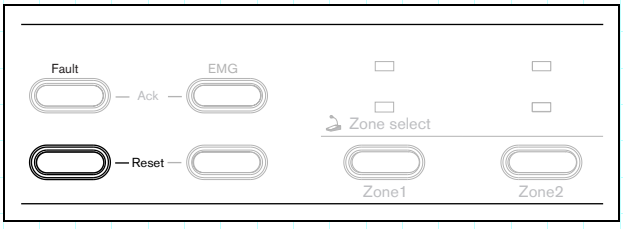

figure 5.21: Fault Reset button

5.7.4 Fault indicators

The voice alarm controller has two types of fault indicators: system fault indicators (see figure 5.22) and loudspeaker line fault indicators (see figure 5.23). They provide information about failing system functions that are supervised (see table 5.2). If a system fault is persistent, contact your dealer.

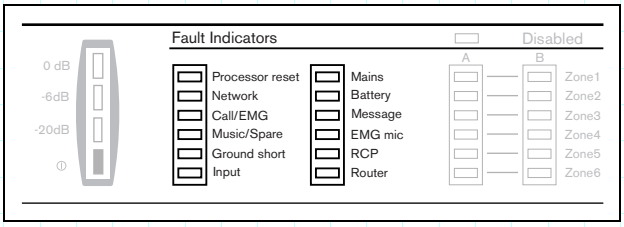

figure 5.22: System fault indicators

The loudspeaker line indicators provide information about failing loudspeaker lines. They indicate short-circuit (see section 4.5.5.2) and impedance supervision (see section 4.5.5.3) faults. If a loudspeaker line indicator lights, check the wiring of the indicated loudspeaker line and try to solve the fault. If it not possible to determine the fault, contact your dealer.

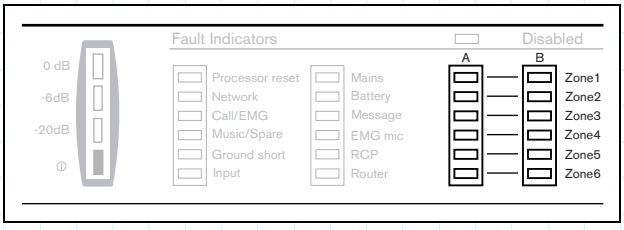

figure 5.23: Loudspeaker line indicators

If supervision is disabled (see section 4.5), the fault indicators do not function and the Disabled indicator is lit (see figure 5.24).

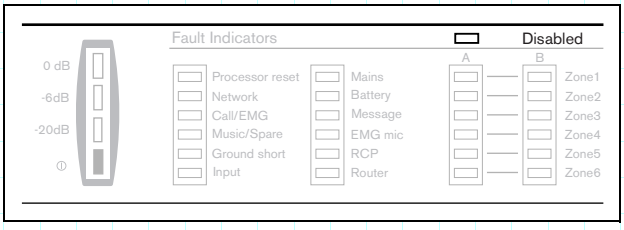

figure 5.24: Disabled indicator

The availability of the indicators can be tested with the Indicator test button (see figure 2.3, no. 11).

table 5.2: System fault indicators

Indicator	Description	Recommended action	Additional information
Processor reset	A processor reset is detected.	Switch the voice alarm controller off and on again.	See section 4.5.3.
Network	A network fault is detected.	Contact your dealer.	This fault should not occur, since this type of supervision is disabled (see section 4.5)
Call/EMG	In 1-channel mode: The internal power amplifier of the voice alarm controller failed. In 2-channel mode: The external power amplifier failed.	In 1-channel mode: Switch the voice alarm controller off and on again. In 2-channel mode: Switch the external power amplifier off and on again.	See section 3.9 and section 4.5.11.
Music/Spare	In 1-channel mode: The external power amplifier failed. In 2-channel mode: The internal power amplifier failed.	In 1-channel mode: Switch the external power amplifier off and on again. In 2- channel mode: Switch the voice alarm controller off and on again.	See section 3.9 and section 4.5.11.
Ground short	A short-to-ground fault in the loudspeaker line cabling is detected.	Check all loudspeaker lines for short-to-ground situations.	See section 3.10 and section 4.5.5.4
Input	An input contact fault is detected.	Contact your dealer.	This fault should not occur, since this type of supervision is disabled (see section 4.5).
Mains	A mains power failure is detected.	Check the mains power connection of the voice alarm controller and the mains power availability.	See section 3.15.2 and section 4.5.7.
Battery	A back-up power failure is detected.	Check the back-up power supply connection of the voice alarm controller and the back-up power availability.	See section 3.15.3 and section 4.5.8.
Message	A message fault is detected.	Switch the voice alarm controller off and on again.	See section 4.5.4.
EMG mic	A emergency microphone fault is detected.	Check the emergency microphone. If necessary, replace it.	See section 3.6 and section 4.5.6.
RCP	A remote control panel fault is detected.	Contact your dealer.	This fault should not occur, since this type of supervision is disabled (see section 4.5).
Router	A router fault is detected.	Contact your dealer.	This fault should not occur, since this type of supervision is disabled (see section 4.5).

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6 Technical data

6.1 LBB1956/00

6.1.1 Electrical

Voltage range:
24 V(DC), +10%/-20%, supplied by LBB1990/00 or external power source.

Current consumption:
< 30 mA

6.1.2 Performance

Nominal sensitivity:
85 dB SPL (gain preset 0 dB)

Nominal output level:
355 mV

Maximum input sound level:
110 dB SPL

Gain preset:
+6/0/-15 dB

Limiter threshold:
2 V

Compression ratio limiter:
20:1

Distortion:
< 0.6% (nominal input)
< 5% (maximum input)

Equivalent input noise level:
25 dB SPL(A)

Frequency response:
100 Hz - 16 kHz

Speech filter:
- 3 dB @ 500 Hz, high-pass, 6 dB/oct

Output impedance:
200 Ω

6.1.3 Interconnection

Type:
2x redundant RJ45 sockets to connect the call station to the voice alarm controller with Cat-5 Ethernet cables.

6.1.4 Environmental conditions

Operating temperature range:
-10 to +55 °C

Storage temperature range:
-40 to +70 °C

Relative humidity:
< 95%

6.1.5 General

EMC emission:
According to EN55103-1

EMC immunity:
According to EN55103-2

Dimensions:
40 x 100 x 235 mm (base)
390 mm stem length (with microphone)

Weight:
approx. 1 kg

6.2 LBB1990/00

6.2.1 Electrical

Mains voltage:
230/115 V(AC), ± 10%, 50/60 Hz

Mains current:
0.3 A (system idle)
4.0 A (maximum load)

Max. mains inrush current:
6.3 A (for mains voltage of 220 - 240 V)
10 A (for mains voltage of 100 - 120 V)

Battery voltage:
20.0 to 26.5 V(DC)

Battery current:
0.9 A (system idle)
14 A (maximum load)

Note
Maximum load means meaximum power out, maximum load 24 V(DC) out and maximum number of call stations.

6.2.2 Message manager

Data format:
WAV-file, 16-bit PCM, mono

Supported sample rates (fs):
24 kHz, 22.05 kHz, 16 kHz,
12 kHz, 11.025 kHz, 8 kHz

Frequency response:
@ fs = 24 kHz, 100 Hz - 11 kHz (+1/-3 dB)
@ fs = 22.05 kHz, 100 Hz - 10 kHz (+1/-3 dB)
@ fs = 16 kHz, 100 Hz - 7.3 kHz (+1/- 3 dB)
@ fs = 12 kHz, 100 Hz - 5.5 kHz (+1/-3 dB)
@ fs = 11.025 kHz, 100 Hz - 5 kHz (+1/-3 dB)
@ fs = 8 kHz, 100 Hz - 3.6 kHz (+1/-3 dB)

Distortion:
< 0.1% @ 1 kHz

Signal-to-noise ratio (flat at max. volume):
> 80 dB

Memory capacity:
64 Mbit Flash

Recording/playback time:
1000 s @ fs = 8 kHz to 333 s @ fs = 24 kHz

Number of messages:
max. 254 wave files

Supervision EEPROM:
continuous checksum control

Supervision DAC:
1 Hz pilot tone

Data retention time:
> 10 years

6.2.3 Internal power amplifier

Rated output power:
240 W

Frequency response:
50 Hz - 20 kHz (+1/-3 dB, @ -10 dB ref. rated output)

Distortion:
< 1% @ rated output power, 1 kHz

Signal-to-noise ratio (flat at max. volume):
> 85 dB

Supervision:
20 kHz pilot tone

Outputs:
70, 100 V screw terminal, 100 V call out

6.2.4 Interconnection

LBB1956/00:
Redundant RJ45 sockets, CAN bus
max. 8 call stations

LBB1992/00:
RJ45 socket, CAN bus
max. 2 routers

PC:
USB 2.0 (USB 1.1 compatible)

External power amplifier:
3-pin XLR and screw terminals, max. 5 A
max. rated output 1000 W

6.2.5 Loudspeaker outputs

Type:
Screw terminals

Number of zones:
6

Number of loudspeaker lines:
12 (2 per zone)

Signal-to-noise ratio (flat at max. volume):
> 85 dB

Line voltage:
100 V

6.2.6 Overrides

Type:
3-wire or 4-wire on screw terminals

Voltage:
24 V(DC) for 4-wire, if selected

Current:
total 0.8 A

6.2.7 Trigger outputs

Type:
Screw terminals

Voltage:
Floating, max. 250 V

Current:
max. 0.5 A

6.2.8 Trigger inputs/24 V DC out

Trigger voltage:
< 24 V

Type
Momentary or latching
Normally opened (default) or normally closed

Emergency input supervision:
10 kΩ + 10 kΩ series and parallel resistors

24 V DC out:
24 V(DC), max. 0.8 A

VOX switch:
Normally opened

6.2.9 Mic/line input with VOX functionality

Type:
3-pin XLR, 6.3 mm jack socket, balanced

Sensitivity:
1 mV +1/-3 dB (mic), 1 V +1/-3 dB (line)

Impedance:
> 10 kΩ

VOX threshold:
500 µV (mic), 500 mV (line)

6.2.10 BGM

Type:
Cinch, stereo converted to mono

Nominal input level:
500 mV

6.2.11 Line out

Type:
3-pin XLR, 6.3 mm jack socket, balanced

Nominal output level:
1 V

Maximum output level:
1 V

6.2.12 External power amplifier

Type:
3-pin XLR and screw terminals

Controller output/External power amplifier input voltage:
1 V

Controller input/External power amplifier output voltage:
100 V

6.2.13 Environmental conditions

Operating temperature range:
-10 to +55 °C

Storage temperature range:
-40 to +70 °C

Relative humidity:
< 95%

6.2.14 General

EMC emission:
According to EN55103-1

EMC immunity:
According to EN55103-2

Dimensions:
19” wide, 3 U high, 360 mm deep
(leave 50 mm for connections)

19” mounting brackets:
included

Weight:
approx. 20 kg

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7 Glossary

A

APR mode
Asian-Pacific Region mode.

B

BGM
Background music.

Business call
Live announcement that is made when the system is in the normal state. Business calls can only be made with a call station.

E

Emergency call
Live speech, alert message or alarm message that is distributed in the emergency state. Emergency calls can only be made with the voice alarm controller.

Emergency state
Emergency calls can only be distributed in the emergency state. This state is entered by pushing the red emergency button on the front panel of the voice alarm controller. At the moment the emergency state is entered, a beeper starts. Simultaneously, the default alert message and the default alarm message are distributed to all zones in the system.

F

Fault state
If a supervised function fails, the system automatically enters the fault state. It starts a beeper, de-energizes the Fault Status output contact and lights an indicator on the front panel of the voice alarm controller.

L

LED
Light Emitting Diode. Electronic component that frequently is used as indicator.

P

PC
Personal Computer.

PDF
Portable Document Format. Type of file.

Praesideo
Digital public address and emergency sound system of Bosch Security Systems.

PTT button
Push-to-talk button. A button that starts the actual call.

U

USB
Universal Serial Bus. Type of bus that is used to connect equipment to PCs.

V

VOX
Voice-activated. The voice alarm controller has one voice-activated input to connect an additional emergency microphone or to interface with another emergency sound system (e.g. a Praesideo system).

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8 Product Index

table 8.1: Product index

Code	Reference	Description
LBB1990/00	Controller	Main unit
LBB1992/00	Router	Slave unit
LBB1994/00	Logger	Event logging unit
LBB1995/00	Fireman's panel	Remote control with basic functionality
LBB1996/00	Remote control	Remote control for controller
LBB1997/00	Remote control kit	Same as remote control, but with rugged connectors
LBB1998/00	Remote control extension	Remote control extension for router
LBB1999/00	Remote control extension kit	Same as remote control extension, but with rugged connectors
LBB1956/00	Call station	Based on existing LBB1946 with 6 zone keys and all call
LBB1957/00	Call station keypad	Call station keypad extension with 7 zone keys

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Data subject to change without notice

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