

Praesideo 2.2



Security Systems

en

Installation and User Instructions
Digital Public Address and
Emergency Sound 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 70142) and are packed with all units that can be connected to the mains.

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Emergency Sound Systems

Bosch Security Systems has made a great effort for the design and manufacturing of the components and also supplies all documentation that enables the assembly of a safe and high quality emergency unit in accordance with IEC60849. Bosch Security Systems has made up this list of requirements, based on the standard, which needs to be filled in and subsequently signed off by both parties. The signed paper has the nature of a certificate and can have significant meaning in the case of a legal investigation of the liability issue for personal injuries.

- The safety of the system in accordance with IEC60849 in an alarm and emergency application does not only depend on component safety, but also highly on the installation engineer and the operator. For example, the sound pressure level of the system depends on the installation. Moreover, the system should only be installed and operated by qualified personnel.
- Modifications of the system should only be executed by authorized persons in accordance with the safety concept and need to be registered in the system documentation.
- If third party components (not delivered by Bosch Security Systems) are added to the minimal configuration of Praesideo, then the IEC60849 certification becomes expired.
- Only use a UPS compliant to the current standards and legislation in combination with the Praesideo system.
- The end-user must maintain a journal for the system.
- In case continuous event logging (beyond the possibilities and capacity provided by the Network Controller) is required, the end-user/installer must use the Praesideo system in combination with a logging PC. In that case the logging PC is considered as a basic element of the system.
- The installer is responsible for security measures to prevent improper use of the system via the Internet.
- To calculate the required battery back-up power, see the details described in the application note 'Backup Power Supply Concepts for Praesideo Systems' [9222-141-50491].
- Bosch Security Systems refuses any liability for damage that might result from non-observance of these instructions.

Herewith the undersigned states that he/she has processed for him/her applicable requirements, as specified in this document, in an adequate way and has confirmed this fact by signing the rightmost column of each applicable requirement.

Installer
Name:
Signature:
Date:
Place:

End-user
Name:
Signature:
Date:
Place:

[illegible]

IEC60849 - 4. General system requirements**IEC60849 - 4.1 Principal features**

Requirement	Compliance	Signature
A sound system for emergency purposes shall permit the broadcasting of intelligible information of measures to be taken for the protection of lives within one or more specified areas.	Compliant, if properly installed. Responsibility of the installer.	
The following criteria shall be fulfilled:		
a When any alarm is detected, the system shall immediately disable any functions not connected with its emergency role (such as paging, music or general pre-recorded announcements being broadcast to the loudspeaker zones requiring emergency broadcasts).	Supported by software release 1.1 and higher.	
b Unless damaged as a result of the emergency, the system shall be available for operation at all times (or as required by the system specification).	Compliant, if installed with: • Redundant ring network. • Spare Power Amplifiers. • Multiple loudspeaker circuits per zone and one loudspeaker circuit per amplifier channel. • Battery backup / UPS backup. • Emergency Call Station in failsafe layout or Emergency Call Station Kit in the failsafe layout. Responsibility of the installer.	
c The system shall be capable of broadcasting within 10 s after primary or secondary power is applied.	Compliant, if installed with failsafe layout. Responsibility of the installer.	
d Except during the condition described in 4.1c), the system shall be capable of broadcasting a first attention-drawing signal within 3 s of being placed in an emergency mode by the operator, or automatically on receipt of a signal from a fire or other detection system. In the latter case, the period of 3 s includes the reaction time of the detection system from the time the emergency is first detected, to commanding the alarm broadcast.	Compliant.	
e The system shall be able to broadcast attention-drawing signals and speech messages to one or more areas simultaneously. There shall be at least one appropriate attention-drawing signal alternating with one or more speech messages for this purpose.	Compliant, if attention-drawing signal is part of the pre-recorded message. Responsibility of the installer.	
f At any time the system operator shall be able to receive, by means of a monitoring system, indications of the correct functioning or otherwise of the relevant parts of the emergency system (see also 5.2 and 5.3).	Compliant, indicated by Call Station Basic and/or Call Station Kit and/or by a control output of the Network Controller (if properly installed). Details are available in the Diagnostics section of the web interface.	
g Failure of a single amplifier or loudspeaker circuit shall not result in total loss of coverage in the loudspeaker zone served. NOTE 1 - The monitoring system specified in 4.1f) should indicate the failure of an amplifier or of a loudspeaker circuit. NOTE 2 - Particularly in small buildings, it may not be necessary to install two separate loudspeaker circuits in one loudspeaker zone. A decision on this matter may be subject to local regulations.	Compliant if installed with: • Spare Power Amplifiers. • Multiple loudspeaker circuits per zone and one loudspeaker circuit per amplifier channel. • Line Supervision set. Responsibility of the installer.	
h An attention-drawing signal shall precede the first message for 4 s to 10 s. Successive signals and messages shall then continue until either changed in accordance with the evacuation procedure, or manually silenced. The interval between successive messages shall not exceed 30 s and attention-drawing signals shall be broadcast whenever periods of silence might otherwise exceed 10 s. Where more than one attention-drawing signal is used, such as those used for different types of emergency, each signal shall be clearly distinguishable in character.	Compliant, if attention-drawing signal is part of the pre-recorded message and call macro has been configured properly. Responsibility of the installer.	
i All messages shall be clear, short, unambiguous and as far as practicable, pre-planned.	Responsibility of the installer.	

Requirement	Compliance	Signature
Where pre-recorded messages are used they shall be held in a non-volatile form, preferably in a solid-state store, and be continuously monitored for availability.	First 128 MB of compact flash card is continuously monitored, which is equivalent to the first 25 minutes of audio.	
The system design shall make it inherently impossible for an external source to corrupt or derange the store or its contents.	Compliant.	
NOTE - On grounds of reliability, it is preferable not to use storage media depending on mechanical devices.	Storage medium is a compact flash card.	
j The language(s) used shall be specified by the purchaser.	Responsibility of the installer.	
k The system shall be capable of being divided into emergency loudspeaker zones if required by the evacuation procedure. Such zones need not be the same as other zones, for example emergency detection zones or non-emergency loudspeaker zones.	Compliant, if properly installed. Responsibility of the installer.	
l In determining loudspeaker zones, the following criteria shall apply:		
1 the intelligibility of messages broadcast in one zone shall not be reduced below the requirement of 5.1 by the broadcasting of messages in other zones or from more than one source.	Compliant, if properly installed. Responsibility of the installer.	
2 no emergency detection zone shall contain more than one emergency loudspeaker zone. For non-emergency use, a loudspeaker zone may be subdivided.	Compliant, if properly installed. Responsibility of the installer.	
m A secondary power source shall be available (see 5.6).	Compliant, if properly installed. Responsibility of the installer.	

IEC60849 - 4.2 Responsible person

Requirement	Compliance	Signature
The person or body, having control of the premises shall nominate a "responsible person", identified by name or job title, who shall be responsible for ensuring that the system is properly maintained and repaired so as to continue to operate as specified. NOTE - The responsible person should be appropriately trained.	Responsibility of the person or body having control of the premises.	

IEC60849 - 4.3 Priorities

IEC60849 - 4.3.1 Classification of priorities

Requirement	Compliance	Signature
It is necessary to decide upon an order of priority for the message distribution based upon:		
a Any automatic programmed response.	Compliant, if properly installed. Responsibility of the installer.	
b The perceived risk to occupants, which may require manual override of the programmed response.	Compliant, if properly installed. Responsibility of the installer.	
Events shall be given a level of priority according to their urgency. The following primary levels are recommended but there may be advantages in adding further subgroups, depending on the operational strategies of the site:	Compliant, if properly installed. Responsibility of the installer.	
a Evacuate - potentially life-threatening situation needing immediate evacuation.	Compliant, if properly installed. Responsibility of the installer.	
b Alert - dangerous situation nearby requiring warning of pending evacuation.	Compliant, if properly installed. Responsibility of the installer.	
c Non-emergency - operational messages, e.g. system test, etc.	Compliant, if properly installed. Responsibility of the installer.	

Requirement	Compliance	Signature
The use of these levels in descending order of priority will ensure that appropriate alarm signals and messages are provided first to the zones immediately at risk.	Compliant, if properly installed. Responsibility of the installer.	

IEC60849 - 4.3.2 Operational priorities

Requirement	Compliance	Signature
If the voice alarm system is capable of operation in fully automatic mode, a facility shall always be available to control:		
a The type of pre-recorded message being broadcast.	Compliant, if properly installed: - Input contact configured to start a call with a pre-recorded message. - Running message can be overridden by higher priority manually started messages.	
b The distribution of messages to different zones.	Supported by software release 1.1 and higher.	
c Real-time instructions or information to occupants via the emergency microphone (if any).	Compliant, if properly installed. Manual selection of loudspeaker zones is supported. Adding or removing zones from a running call is supported by software release 1.1 and higher.	
Means shall be provided for manual intervention to override any automatically programmed functions. This shall apply both to the nature of the message being broadcast and to the distribution paths of the message. Thus, manual controls shall be provided at the central control point (and also at specified remote control points) to allow:		
a Starting or stopping of pre-recorded alarm messages.	Compliant, if properly installed. Running message can be overridden by higher priority manually started messages.	
b Selection of appropriate pre-recorded alarm messages.	Compliant, if properly installed. Manual selection of pre-recorded alarm messages is supported.	
c Switching on or off, of selected loudspeaker zones.	Compliant, if properly installed. Manual selection of loudspeaker zones is supported. Adding or removing zones from a running call is supported by software release 1.1 and higher.	
d Broadcasting of live messages via the emergency microphone (if any).	Compliant, if properly installed. Live calls from an emergency call station is supported.	
NOTE - The above controls may form part of an emergency detection control panel.		
The emergency control microphone shall have the highest level of priority for access to the voice alarm system, with provision to allow it to override all other broadcasts.	Compliant, if properly installed.	

IEC60849 - 4.4 Safety requirements

Requirement	Compliance	Signature
The safety requirements applying to emergency sound systems are given in IEC60065 or other appropriate IEC safety standards.	Compliant. Praesideo complies to IEC60065.	
The mechanical construction of the system shall be such that under the influence of internally generated heat, explosion or implosion, however caused, no part shall cause injury to any person.	Compliant.	
Where any part of the system is installed in areas with hazardous or explosive atmospheres, the relevant safety requirements of IEC60079 shall be met.	Responsibility of the installer. The Praesideo equipment itself does not comply to IEC60079.	

IEC60849 - 5. System technical requirements**IEC60849 - 5.1 Speech intelligibility**

Requirement	Compliance	Signature
Unless otherwise specified, the following requirement shall be satisfied:		
The speech intelligibility over all of an area of coverage (see 3.1) shall be greater than or equal to 0,7 on the common intelligibility scale (CIS). See annexes A and B for the conversion between CIS and other scales of intelligibility. The noise level (see B.5) at the time of measurement (but in the absence of the test signal) and the test signal level shall be stated with the test result. NOTE - If the persons who are required to understand the messages are, or will be, reasonably familiar with them through regular system tests, the effective intelligibility tends to increase by approximately 0,05 on the CIS if the intelligibility is in the range 0,6 to 0,7. This may apply, for example, in an office building. However, in a sports ground, for example, most of the messages are likely to be relatively unfamiliar to the majority of persons present, and no relaxation of the above requirement should be considered.	Responsibility of the installer.	
The system specification may exclude from the area of coverage, defined areas rarely or never occupied by people.	Responsibility of the installer.	

IEC60849 - 5.2 Automatic status indication

Requirement	Compliance	Signature
A clear indication shall automatically be given at the designated control locations of:		
a System availability.	Compliant. Indication on Call Station Basic and Call Station Kit if properly installed.	
b Power supply availability.	Compliant. Indication on Call Station Basic and Call Station Kit if properly installed.	
c Any fault condition.	Any fault is indicated by a control output of the Network Controller, if properly installed.	
d (For systems having numerous loudspeaker zones), which loudspeaker zones are selected and the mode of operation of each zone, i.e. "evacuate" or "alert" and pre-selection of emergency microphone. Where different alarm messages are provided, which are dependent on the evacuation requirements, indication of which message is being broadcast and into which zone, shall be displayed by a suitable method. This information shall be continuously displayed and kept up to date.	Supported by software release 1.1 and higher.	

IEC60849 - 5.3 Automatic fault monitoring

Requirement	Compliance	Signature
A clear indication shall automatically be given, at specified locations, e.g. at main equipment locations, of:		
a Short-circuit or disconnection or failure of the primary power source.	Compliant, if properly installed. Responsibility of the installer. (UPS should be monitored via control input.)	
b Short-circuit or disconnection or failure of the standby power source.	Compliant, if properly installed. Responsibility of the installer. (UPS should be monitored via control input.)	
c Short-circuit or disconnection or failure of any battery charging equipment associated with the primary or standby power sources.	Responsibility of the installer. Supervision of third party charging equipment is via control inputs.	
d Rupture of any fuse or operation of circuit breaker, isolator or protective device that may prevent an emergency broadcast.	Compliant. Fault is indicated by a control output of the Network Controller, if properly installed. Fault is also displayed in the Diagnostics section of the web interface.	

Requirement	Compliance	Signature
e Failure of microphone, including capsule voice coil, pre-amplifier and essential wiring to the rest of the system.	Compliant. Fault is indicated by a control output of the Network Controller, if properly installed. Fault is also displayed in the Diagnostics section of the web interface.	
f Failure of critical signal paths through the amplification chain, with individual amplifiers separately identified.	Compliant. Fault is indicated by a control output of the Network Controller, if properly installed. Fault is also displayed in the Diagnostics section of the web interface.	
g Amplifiers or critical modules missing.	Compliant. Fault is indicated by a control output of the Network Controller, if properly installed. Fault is also displayed in the Diagnostics section of the web interface.	
h Failure of any standby amplifier.	Compliant. Fault is indicated by a control output of the Network Controller, if properly installed. Fault is also displayed in the Diagnostics section of the web interface.	
i Failure of emergency signal generators, including emergency pre-recorded message stores.	Compliant. Fault is indicated by a control output of the Network Controller, if properly installed. Fault is also displayed in the Diagnostics section of the web interface. The chime generator is supervised by a watchdog circuit. First 128 MB of compact flash card (message store) is checked (first 25 minutes).	
j Failure of any loudspeaker circuit (open- and short-circuit faults).	Compliant, if properly installed using Line Supervision Set. Responsibility of the installer. Fault is indicated by a control output of the Network Controller, if properly installed. Fault is also displayed in the Diagnostics section of the web interface.	
k Short-circuit or disconnection of visual alarm devices.	Compliant, if properly installed. Responsibility of the installer. Visual alarm device must provide feedback to control input.	
l Failure of a processor to correctly execute its software program.	Supported by software release 1.1 and higher using the control outputs of the Network Controller.	
m Detection of any error during memory checking.	Compliant. Program memory is checked on correctness via checksum during system start-up. Fault is indicated by a control output of the Network Controller, if properly installed. Fault is also displayed in the Diagnostics section of the web interface.	
n Cessation of any scanning or interrogation process.	Compliant. Fault is indicated by a control output of the Network Controller, if properly installed. Fault is also displayed in the Diagnostics section of the web interface.	
o Failure of the interconnecting data or voice communication links between parts of a distributed system.	Compliant. Fault is indicated by a control output of the Network Controller, if properly installed. Fault is also displayed in the Diagnostics section of the web interface.	
In addition to individual fault identification at these locations, a common sounder shall sound for a minimum of 0,5 s every 5 s. A fault shall cause the sounder to operate in a latched mode and a visual indicator to light, either steadily, or in a flashing mode. Manual acceptance and reset switching shall be included. When accepted, the sounder shall be silenced and the indicator shall change to (or remain in) steady illumination. The occurrence of a further fault condition shall reactivate the sounder and the visual indicator. When all the faults have been cleared, the indicator shall be switched off, either automatically or by operating a reset switch.	Compliant. Responsibility of the installer to install a sounder and a lamp using the control outputs of the Network Controller. Acknowledge/Reset with Call Station Keypad, if properly installed or in Diagnostic section of the web interface.	
The fault indication should be given within 100 s of the occurrence of the fault, regardless of whether the voice alarm system is being used for non-emergency purposes, such as the transmission of background music.	Compliant.	

IEC60849 - 5.4 Monitoring of software controlled equipment

Requirement	Compliance	Signature
The correct execution of the system software by any microprocessor shall be monitored by internal self-checking procedures and by an appropriate monitoring circuit (e.g. "watch dog" circuit) complying with the following:		
a The monitoring circuit and its associated indication and signalling circuits shall not be prevented from determining and signalling a fault condition by the failure of any microprocessor or associated clock circuits.	Compliant.	
b The monitoring circuit shall monitor the execution of routines associated with the main program elements (i.e. it shall not be solely associated with "waiting" or other "housekeeping" routines).	Compliant. Indication on Call Station Basic and Call Station Kit if properly installed.	
c In the event of a failure by a microprocessor to execute its software correctly, the monitoring circuit shall (in addition to initiating an audible and visual fault warning) perform as follows:	Compliant. Fault are indicated by a control output of the Network Controller, if properly installed. Responsibility of the installer.	
1 re-initialise the processor and attempt to restart the program at a suitable point within 10 s of the occurrence of the failure. The re-initialisation procedure shall verify that the contents of memory, both program and data , are not corrupted, and	Compliant, both data and program are checked for the Network Controller and the firmware in the units.	
2 either		
irecord that a failure has occurred (using a system capable of recording a minimum of 99 failures and re-settable only by an operation restricted to authorized servicing personnel) or	Compliant. The Diagnostic section of the Web interface contains a list of failures.	
iautomatically reset the equipment and give an audible and visual warning that an automatic reset has occurred.		

IEC60849 - 5.5 Interface with emergency detection system

Requirement	Compliance	Signature
The communication link between the emergency detection system and the sound system shall be continuously monitored for faults. This is normally performed by the control equipment for the emergency detection system, which gives an audible and visual indication of a fault in the link between the two systems.	Compliant, if properly installed using supervised control inputs. Responsibility of the installer.	
The emergency detection system shall also be capable of receiving information regarding faults in the sound system and shall include a provision, usually at its control and indicating equipment, for appropriate audible and visual indication of such faults. As a minimum, the sound system shall be capable of transmitting to the emergency detection system one general "Sound system fault" for any of the fault conditions listed in 5.3 that may occur within the sound system.	Compliant, if properly installed using control outputs. Responsibility of the installer.	
The link between a fire detection and alarm system and the voice alarm system is of crucial importance in maintaining the integrity of overall operation. It may be desirable on larger systems, where distributed control equipment is used, to provide a link at each control equipment location rather than to rely on a central location. Each link shall be monitored. The voice alarm system shall be capable of continuing to broadcast alarm messages, which have been initiated by the fire detection and alarm system, even in the event of a subsequent fault in the interconnecting link between the two systems (i.e. the voice alarm system shall "latch" on receipt of a signal from the fire detection and alarm system). Interruption by higher priority broadcasts shall still be possible.	Compliant, if properly installed. Responsibility of the installer. Control input should be in toggle mode.	

Requirement	Compliance	Signature
In complex buildings in which actions, such as initiation of evacuation signals, silencing of alarm signals, etc., can be implemented at remote voice alarm equipment, consideration shall be given to whether there is a need for such actions to be indicated at any central fire detection and alarm control and indicating equipment.	Responsibility of the installer.	

IEC60849 - 5.6 Secondary power supply

Requirement	Compliance	Signature
If the building is to be evacuated following primary power failure, a secondary power supply shall be provided. This shall be capable of operating the system in the emergency mode for a period equal to twice the evacuation time determined by the appropriate authority for the building. In any event, the secondary power supply shall be capable of powering the system for a minimum of 30 min.	Responsibility of the installer.	
If the building is not to be evacuated following failure of the principal power supply, the secondary power supply shall be capable of operating the system for at least 24 h, or 6 h if an emergency generator is available, and then powering the system in emergency mode for a minimum of 30 min. If a building remains unoccupied for several days, provision should be made to ensure that the voice alarm system is capable of operation in emergency mode for 30 min when the building is re-occupied.	Responsibility of the installer.	
Non-emergency functions within the system, such as background music, shall not operate from the secondary power supply if this will reduce the capacity for emergency operation.	Responsibility of the installer by connecting the BGM source to the primary power supply. From release 1.1 onwards the BGM will be deactivated.	
If batteries are used as a secondary power supply they shall be of the secondary type, complete with automatic charging facilities. Where lead-acid batteries are used they shall be of the valve-regulated type unless otherwise specified, and the charging system shall incorporate charging current compensation for changes in the ambient temperature, where this is necessary to achieve the specified battery life.	Responsibility of the installer.	
Batteries shall be used in accordance with the manufacturer's recommendations in order to achieve their specified life, which shall be not less than four years. The end of life shall be taken as the time when deterioration to less than 80% of the rated ampere-hour capacity (at the one-hour rate) has occurred.	Responsibility of the installer.	
Automatic charging shall ensure that the batteries are fully recharged to 80% of their maximum rated capacity from the fully discharged state in a period of not more than 24 h.	Responsibility of the installer.	
Adequate ventilation and protection against corrosion and dangers resulting from gases emitted by the batteries shall be provided.	Responsibility of the installer.	

IEC60849 - 5.7 Climate and environmental conditions

Requirement	Compliance	Signature
As all or part of the system may be installed inside or outside buildings, under various climatic and environmental conditions, and exposed to possible mechanical damage, full information on the conditions under which the system is required to operate shall be included in the system specification. For tests, refer to IEC60068-1 (environmental testing).	Praesideo specifications exceed the environmental requirements given by IEC60849.	
When not otherwise specified, equipment shall operate in accordance with the system specification under the following conditions:		

Requirement	Compliance	Signature
a Control and amplification equipment and associated battery power supplies:		
• Ambient temperature -5 °C to + 40 °C.		
• Relative humidity 25% to 90%.		
• Air pressure 86 kPa to 106 kPa.		
b All other equipment:		
• Ambient temperature -20 °C to +55 °C.		
• Relative humidity 25% to 99%.		
• Air pressure 86 kPa to 106 kPa.		

IEC60849 - 5.8 Marking and symbols for marking

Requirement	Compliance	Signature
Equipment shall be permanently marked with information regarding its function.	Compliant.	
Terminals and controls shall be permanently marked with information regarding their function, characteristics and polarity.	Compliant.	
The marking shall be such that it shall be possible to adjust the user controls and to confirm their positions accurately in conformity with the information given in the user instructions.	Compliant.	
Marking shall preferably include letter symbols, signs, numbers and colours that are internationally comprehensible. Reference is required to IEC60027 and IEC60417. Marking not included in these standards shall be clearly explained in the user instructions.	Compliant.	

IEC60849 - 5.9 Electrical matching values

Requirement	Compliance	Signature
For the electrical matching values, reference is required to IEC61938 unless otherwise specified.	Compliant (specified in Technical data sections).	

IEC60849 - 5.10 Connectors

Requirement	Compliance	Signature
Connectors shall comply with IEC60268-11 or IEC60268-12. Requirements for fire resistance of connectors may also be stipulated by the relevant authorities.	Connectors comply to IEC60268-11 or IEC60268-12. Additional requirements are the responsibility of the installer.	

IEC60849 - 6. Installation requirements

Requirement	Compliance	Signature
The system shall be installed in accordance with IEC60364 or with mandatory national or local standards.	Responsibility of the installer.	
If the emergency sound system forms part of an emergency detection and/or alarm system, the cabling shall meet the requirements of mandatory national or local, emergency and/or alarm system standards. Where the application specifically excludes detection and/or alarm, the cabling shall be of a standard suitable for the application.	Responsibility of the installer.	
Precautions shall be taken to prevent the spread of hazardous effects via the wiring routes.	Responsibility of the installer.	
When a sound system for emergency purposes is installed in combination with an emergency detection system, the installation standards for the sound system shall comply as far as is applicable with the standards required for that detection system.	Responsibility of the installer.	
When additions and/or modifications are made to a non-compliant system the existing system may require to be upgraded to meet this standard. In all cases the additions and/or modifications shall meet this standard.	Responsibility of the installer.	

IEC60849 - 7. Instructions for use**IEC60849 - 7.1 Instructions for operation**

Requirement	Compliance	Signature
Instructions for the operation of the system, including actions to be taken in accordance with established and well-rehearsed procedures, shall be available for rapid reference, preferably prominently and permanently displayed, at each control station.	Responsibility of the installer.	
As far as possible, graphic illustrations should be used: where text is necessary this should be clearly legible and in the preferred language(s).	Responsibility of the installer.	
Updating of the instructions for operation shall be carried out after additions to or modifications of the system, or on the basis of practical experience, or revised procedures.	Responsibility of the installer.	
Instructions shall include:		
• The functional operation of the system.	Responsibility of the installer.	
• Action to be taken in the event of a system failure.	Responsibility of the installer.	
A bound copy of the operational instructions shall be provided.	Responsibility of the installer.	

IEC60849 - 7.2 Records to be kept

Requirement	Compliance	Signature
Installation, logbook and maintenance records shall be kept by the end-user and/or maintenance company contracted by the end-user in accordance with relevant international and national standards. These shall comprise as a minimum:		
a Installation	Responsibility of the installer.	
1 details of the locations of all items of the equipment.	Responsibility of the installer.	
2 "as installed" performance measurements of the system including:	Responsibility of the installer.	
•measured loudspeaker loading per circuit in emergency mode.	Responsibility of the installer.	
•settings of any adjustable items within the system, including the output level of power amplifiers.	Responsibility of the installer.	
•sound pressure levels.	Responsibility of the installer.	
•intelligibility measurements.	Responsibility of the installer.	
b Log book		
A stiff covered log book shall be kept, in which all usage of the system and all fault occurrences should be recorded, together with all available automatically produced records, to include:	Responsibility of the person nominated by the person or body, having control of the premises (see 4.2).	
1 dates and times of usage of the system.		
2 details of tests and routine checks carried out.		
3 time and date of each fault occurrence.		
4 details of the fault found and the circumstances of it being found (for example during routine maintenance).		
5 action taken to rectify or remedy.		
6 date, time and name of person in charge of the system.		
7 countersignature of the responsible person, if any faults occurred or have been rectified.		

IEC60849 - 7.3 Maintenance**IEC60849 - 7.3.1 General**

Requirement	Compliance	Signature
There shall be an established and documented procedure for the scheduled maintenance and retesting of the sound system and equipment as recommended by the system designer in conjunction with the equipment manufacturer and in accordance with relevant international and national standards. It is recommended that a minimum of two scheduled maintenance inspections, by a competent person, be made each year. A responsible person (see 4.2) shall be nominated to ensure that the procedure continues to be carried out correctly.	Responsibility of the installer to establish the maintenance procedures using the manufacturer documentation.	

IEC60849 - 7.3.2 Maintenance instructions

Requirement	Compliance	Signature
A stiff-covered maintenance manual should be available giving details of all work required to maintain the installation and equipment in proper working order, consistent with specified performance criteria and any other requirements of this standard and other relevant international or national standards. This should state clearly:	Responsibility of the installer to establish the maintenance procedures using the manufacturer documentation.	
a The method of maintenance.		
b Any sequence related to maintenance.		
c Identification of parts requiring maintenance, giving reference to the location of items on drawings, together with manufacturer's reference numbers, and the addresses, telephone and facsimile numbers, of suppliers of materials and parts.		
d Original versions of equipment and materials catalogues.		
e List and location of spare parts.		
f List and location of special tools.		
The maintenance instructions should also include:		
g Test certificates as required to be examined by the relevant authority.		
h A set of "as fitted" drawings.		

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BS 5839: part 8: 1998 design considerations additional to IEC60849

Requirement	Compliance	Date and signature
This table only describes requirements of BS 5839 : part 8 : 1998 additional to the requirements as specified for IEC 60849.	Responsibility of the installer. The installer has used the checklist for IEC 60849 before proceeding with this list for BS 5839 : part 8.	
System interface Clause 6.4 (partial) - The interlinking cable between the fire detection and alarm system and the voice alarm system should be protected against fire and mechanical damage (see clause 19.3) and should, where practicable, pass through areas of low fire risk. The interface between the fire detection and alarm system and the voice alarm system should be such that any delay in the automatic transmission of the relevant pre-recorded message (see clause 13) is minimized.	Compliant, if properly installed. Responsibility of the installer. The installer has checked BS5839 : part 8, clause 6.	
Program controlled systems Clause 6.8 (partial) - Access to facilities provided for alteration should be restricted to access level 3 for site specified data and access level 4 for the program and all other data (see clause 17.3.3).	Compliant, if properly installed. Responsibility of the installer. The installer has checked BS5839 : part 8, clause 6.	
Loudspeaker zone Clause 9 (partial) - There should be no conflict between the zone boundaries of the fire detection and alarm system and the loudspeaker emergency broadcast zone boundaries. It is possible that a number of fire detection and alarm system zones may be contained within a single loudspeaker emergency broadcast zone but no fire detection and alarm system zone should contain more than one loudspeaker emergency broadcast zone. Loudspeaker emergency broadcast zones should be selected so that an effective evacuation of the building can be carried out without confusion or misinterpretation of information. Loudspeaker zone boundaries should, where possible, coincide with walls, permanent partition or doors within the building to aid acoustic separation between zones. This is particularly necessary if two adjacent zones can broadcast two different messages simultaneously. Clause 14.1.2 (partial) - Where overspill of a message into an adjacent zone is unavoidable, it may be easier to discriminate between simultaneous messages if each is delivered in a different voice, for example, male in one area and female in the other.	Compliant, if properly installed. Responsibility of the installer. The installer has checked BS5839 : part 8, clause 9.	

Requirement	Compliance	Date and signature
Types of loudspeakers Clause 10.3 (partial) - In the event of fire, it is accepted that an individual loudspeaker can fail if directly exposed to heat. However, it is important that such a failure does not result in failure of the circuit to which the loudspeaker is connected, for example due to a short-circuit of the conductors. It should be ensured that loudspeaker design is such that failure of the associated circuit is unlikely to occur if the loudspeaker is exposed to fire before evacuation of the building is complete. Suitable design measures include the use of ceramic terminal blocks. In addition, the design and layout of internal wiring should be such as to avoid, as far as practicable, the potential for fire to cause a short-circuit that would result in failure of the loudspeaker circuit, as opposed to the individual loudspeaker concerned. In order to prevent inadvertent contact and damage by falling objects, every flush-mounted ceiling loudspeaker should be fitted with a rear enclosure. This should be constructed from non-combustable material with a melting point of at least 800°C, for example steel, in order to provide additional protection for the cable termination. Where loudspeakers are mounted in fire-resisting barriers, particularly fire-resisting ceilings, the fire resistance of the barriers should be maintained. Specialist advice on this matter may be necessary.	Compliant, if properly installed. Responsibility of the installer. The installer has checked BS5839 : part 8, clause 10.	
Ambient noise sensing Clause 11 (partial) - A voice alarm system may be provided with an ambient noise sensing and compensation controller (ANS), which senses background noise and automatically adjusts voice alarm broadcast levels as background noise levels vary. The purpose of this facility is to ensure that the sound level of the voice alarm broadcast exceeds background noise by the recommended amount. Although such a facility can be used with advantage in spaces that can be subject to significant variation in background noise levels, for example airport and railway concourses, its use is not normally essential. However, where an ANS is provided, its design should be such as to avoid the risk of broadcast levels being too low due to a failure of the ANS. Such failures include, but are not necessarily restricted to: failure of the noise sensing transducer; short-circuit or disconnection of any noise sensing microphone circuit; failure of the associated control circuit. Care should be taken in the design of such a facility to ensure that the voice alarm broadcast level is not unduly affected by a localized, abnormal noise, for example from a screaming child.	Specified functionality available within the Praesideo system. Compliant when properly installed. Responsibility of the installer. The installer has checked BS5839 : part 8, clause 11.	

Requirement	Compliance	Date and signature
Message generators Clause 13 (partial) - Since a voice alarm system depends on the ability to broadcast recorded messages, the reliability and integrity of the associated message generators is as important as that of other elements of the system. Such message generators should be designed to use solid-state electronics exclusively for message storage and control. Apart from relays, for example associated with status or fault indication, there should be no moving parts; tape players or disk drives, for example, should not be used. The recording should be stored in non-volatile memory and the recorded message(s) should be protected from unauthorized changes. Each generator should be monitored continuously to ensure the availability of audio output. It is recommended that, during non-emergency operation, in addition to any appropriate internal software checks, where appropriate, at least one message per generator is run and monitored. The broadcast voice should sound natural; this can readily be achieved with a high quality recording. A synthesized voice should not be used unless the resultant broadcast sound is indistinguishable from that of a human voice.	Specified functionality available within the Praesideo system with properly installed flash card. The first 128MB of the internal flash card is continuously monitored for proper operation and message availability, corresponding to the first 25 minutes of messages. Compliant when properly installed. Responsibility of the installer. The installer has checked BS5839 : part 8, clause 13	
Messages Clause 14 - BS5839 : part 8, clause 14 prescribes the general characteristics of attention-drawing signals, message quality, language, live voice-messages, pre-recorded messages, emergency broadcasts and test messages.	Specified functionality available within the Praesideo system. Compliant when properly installed. Responsibility of the installer. The installer has checked BS5839 : part 8, clause 14.	
Control equipment Clause 17 - The control equipment of the voice alarm system should normally comprise facilities for the following: reception, control and relaying of signals from the fire detection and alarm system or fire microphones; indication and warning associated with signals described in a) and with system statuses; generation, amplification and distribution of messages to loudspeakers. Clause 17 prescribes: 17.2 Indications and controls; 17.3 Construction; 17.4 Siting.	Specified functionality available within the Praesideo system. Compliant when properly installed. Responsibility of the installer. The installer has checked BS5839 : part 8, clause 17.	
Power supplies Clause 18 - The power supply for the voice alarm system should be in accordance with BS 5839 : part 4 and follow the recommendations for life safety systems in clause 16 of BS 5839 : part 1 : 1988. the operation of voice alarm systems is more complex than that of alarm sounders and the advice given in BS5839 : part 1 should be supplemented by the recommendations in 18.2 to 18.4 inclusive of BS 5839 : part 8. Clause 18 prescribes: 18.2 Evacuation period; 18.3 Maximum load; 18.4 Standby battery type; 18.5 Standby battery calculations; 18.6 Changeover.	Specified functionality available within the Praesideo system. Compliant when properly installed. Responsibility of the installer. The installer has checked BS5839 : part 8, clause 18.	

Requirement	Compliance	Date and signature
Certification Clause 28.6 - The installer should supply to the user a certificate stating that the installation is in accordance with the recommendations given in BS 5839 : part 8 or, if deviations have been agreed, a statement of these deviations should be given by the installer. Certification of the voice alarm system installation and commissioning may be provided either on a document specific for the voice alarm system (see annex D) or preferably incorporated with certification for the fire detection and alarm system using common documentation based on the formats shown in annex D of BS 5839 : part 8 and appendix B of BS 5839 : part 1: 1988.	Responsibility of the installer. The installer has checked BS5839 : part 8 : 1998, clause 28. The installer of the equipment confirms that the latest version of the standard BS 5839 : part 8 has been applied in a professional manner. The installer has carefully read, completed and signed the certificate BS 5839 : part 8, annex D, and applicable actions have been executed.	

Praesideo on board of ships

Guidelines for use of Praesideo equipment on board of ships, in accordance with Rules for Classification and Construction VI-Part 7, GL 2001, Chapters 3 as published by Germanischer Lloyd, based on IACS E10 and IEC 60945.

Type number	Product name	Bridge and deck zone	General power and distribution zone	Accommodation zone
LBB4401/00	Network Controller	No	Yes	Yes
LBB4402/00	Analogue Audio Expander	Yes	Yes	Yes
LBB4404/00	CobraNet Interface	Yes	Yes	Yes
LBB4410/00	Network Splitter	Yes	Yes	Yes
LBB4414/xx	Fiber Interface	Yes	Yes	Yes
LBB4421/xx	Power Amplifier 1 x 500 W	Yes	Yes	Yes
LBB4422/xx	Power Amplifier 1 x 250 W	Yes	Yes	Yes
LBB4424/xx	Power Amplifier 4 x 125 W	Yes	Yes	Yes
LBB4428/00	Power Amplifier 8 x 60 W	No	Yes	Yes
LBB4430/00	Call Station Basic	Yes	Yes	Yes
LBB4432/00	Call Station Keypad	Yes	Yes	Yes
LBB4433/00	Call Station Kit	Yes	Yes	Yes
LBB4434/00	Call Station Keypad Kit	Yes	Yes	Yes
LBB4442/00	Line Supervision Set	Yes	Yes	Yes
LBB4416/00	Network Cable 100 m	Applied as dedicated accessory of aforementioned products.		
LBB4416/01	Network Cable Assy 0.5 m	Applied as dedicated accessory of aforementioned products.		
LBB4416/02	Network Cable Assy 2 m	Applied as dedicated accessory of aforementioned products.		
LBB4416/05	Network Cable Assy 5 m	Applied as dedicated accessory of aforementioned products.		
LBB4416/10	Network Cable Assy 10 m	Applied as dedicated accessory of aforementioned products.		
LBB4416/20	Network Cable Assy 20 m	Applied as dedicated accessory of aforementioned products.		
LBB4416/50	Network Cable Assy 50 m	Applied as dedicated accessory of aforementioned products.		
LBB4417/00	Set of Network Connectors	To be applied in combination with the LBB4416/00.		
LBB4419/00	Set of Cable Couplers	To be applied in combination with the LBB4416/00.		

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Section 1 - Introduction

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1 About this manual

1.1 Purpose of this manual

This manual supplies an engineer with the information required to install a Praesideo system. Refer to the Service Manual for maintenance, troubleshooting and repair. Praesideo recognizes the following authorization levels:

- **Administrator**
Typically a person who is responsible for ensuring that the system is properly maintained and repaired so as to continue to operate as specified.
- **Installer**
Typically an installation engineer who installs the system.
- **User**
Typically an end-user of the system.

1.2 Intended audience

This manual has been written with administrators and installers in mind. To be able to make the right judgements in error situations, it is preferred that you have followed a general Praesideo training. User instructions for the end-users must be provided by the administrator(s) and installer(s).

1.3 Related documentation

The following related documents are available:

- Commercial Brochure (9498 974 3441x)
- Data Brochure (9498 974 3451x)
- Architect & Engineering Specification (9498 947 3471x)

1.4 Alerts

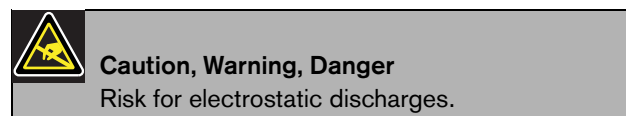
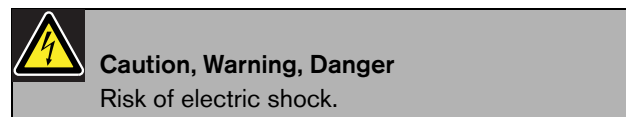
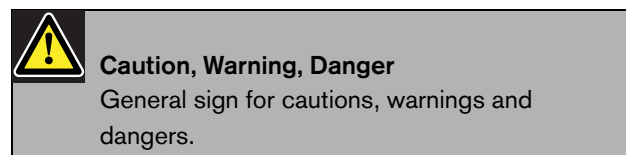
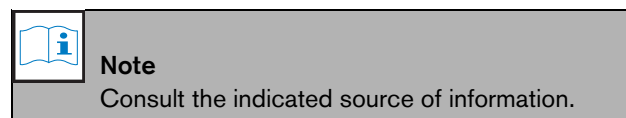
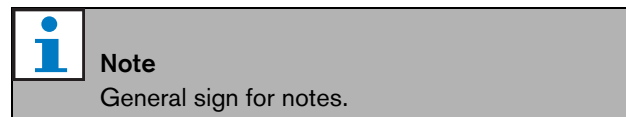
In this manual, four types of alerts are used. The alert type is closely related to the effect that may be caused when it is not observed.

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.

1.5 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:



2 System overview

2.1 Introduction

Praesideo is a fully digital public address system that meets all the requirements placed by professional users on a public address/emergency system. The system brings highly innovative and advanced digital technology to the public address market. The processing and communication of both audio signals and control data entirely in the digital domain makes the system a superior public address and emergency sound system.

Digital signal processing allows significant improvements in audio quality to be achieved. The Praesideo system is designed for configuration from a PC, which makes installation and setting of operating parameters very simple and user-friendly.

The Praesideo system satisfies almost all public address and voice alarm system requirements. All audio processing is performed in the digital domain. Communication between the units is via plastic fiber or glass fiber cabling, depending on the distance between the units. The cabling uses the daisy chain principle. This makes the cabling and installation very quick, simple and easy. The system cabling supports a closed loop, which allows redundancy to be achieved. If redundancy is not required, also branching is possible.

2.2 User-friendly software control

The system is supplied with user-friendly software for system configuration. This allows all system functions to be configured. The software is based on web technology, which gives authorized users full freedom of configuration in terms of time and location. The simplified and accurate organization of the programming features makes navigation highly user-friendly and fault-tolerant. The software also provides clear indication of any parameters, which have not been configured before exiting from any stage of the configuration process.

2.3 Networked approach

The system architecture is based on daisy-chaining of units. It is possible to add or remove equipment anywhere in the network without affecting the performance of other units, provided that the network connection is available. This makes the system easily expandable by the customer, without adding any additional electronics at the network controller unit. Thanks to this network architecture, users can start with a small system in the initial stage and expand the system later simply by adding the required new units to the existing network. The system can be configured for redundant cabling using a ring cabling structure.

2.4 Distributed control

The system is designed for distributed control of various system functions. The external interfaces which are control inputs and outputs can be located anywhere in the network. The processing of audio input and output signals is located in each unit. This allows the network controller to concentrate on other activities like routing of announcements and taking actions on control inputs, etc. As a result the response times are much shorter than for systems with centralized processing of all signals.

2.5 Combination of functions

The Praesideo range of equipment has multiple functions combined in a single unit. This feature drastically reduces the number of different types of equipment used in the system. Functions like audio processing, audio delay, amplifier monitoring and automatic amplifier change-over and receivers for speaker line monitoring are provided in the power amplifier unit itself. This makes the overall system highly cost-effective. The flexible architecture of the Praesideo range of equipment allows the customer to locate any type of equipment anywhere in the building. The configuration software enables the user to configure all the functional parameters. No programming is required at the equipment end, which drastically reduces the installation and commissioning time.

2.6 Evacuation compliance

The Praesideo range of equipment complies with the various emergency standards which are applicable all over the world. The network controller is capable of monitoring all the units in the system, from the microphone capsule of the call station to the loudspeaker line. A built-in memory stores the last 200 fault messages. Any fault is reported back to the network controller. The system also meets emergency requirements for emergency call stations. The highly open system concept, with the possibility for large numbers of control inputs and outputs satisfies even difficult emergency requirements.

2.7 External interfaces

The interfaces to the system can be audio, control input or Ethernet. The Ethernet interface is provided at the network controller. The audio and control inputs can be anywhere in the system, for example at the power amplifier, audio expander or network controller.

The system also accepts contact closures via the control inputs. The configuration allows the user to configure the input to initiate the desired actions in the system. The flexibility to route any input from one system unit to another makes it possible to use the Praesideo range of products or a wide range of public address and emergency sound system applications.

2.8 Reduced installation costs

The Praesideo architecture uses the daisy chain principle with the possibility of branching for both data and audio signals. This makes the system wiring very cost-effective, using 2 fiber cores for data and audio communication and a copper wire pair to supply power to the units. Power supply for the system units can be provided locally if the distances are very long.

Combining various functions in a single unit also makes equipment more cost-effective than systems in which separate units have to be purchased for all the specific functions. This combination of functions also saves lot of rack space and further reduces installation costs.

2.9 High system flexibility

The Praesideo system is a highly versatile system which gives the user a high degree of flexibility in the number of zones, call stations, audio inputs and outputs, control inputs and outputs, etc.

3 Calls

3.1 Introduction

As Praesideo is a public address and emergency sound system, it is used to distribute background music, live speech and evacuation messages. All audio in the system is distributed in the form of calls.

3.2 Components

3.2.1 Introduction

A call always consists of the following components:

- Priority (see section 3.2.2).
- Call content (see section 3.2.3).
- Routing (see section 3.2.4).

3.2.2 Priority

To each call, a priority is assigned. When two or more calls are addressed to the same zone or need shared resources (e.g. the message player), the system only starts the call with the highest priority. The range of priorities that is available for a call depends on the type of call (see table 3.1).

table 3.1: Priorities and call types

Priority	Call type
0 to 31	BGM calls
32 to 223	Business calls
224 to 255	Emergency calls

3.2.3 Call content

The content of a BGM call typically consists of an audio signal coming from a BGM source, such as a CD player or a tuner. The content of business calls and emergency calls is defined by a call macro, which can consist of:

- A start chime.
- Prerecorded message(s).
- Live speech.
- An end chime.

3.2.4 Routing

The routing of the call is the set of zones to which the call is intended to be addressed. Whether the call actually is addressed to the selected zones depends on the priority of the call (see section 3.2.2) and its partiality (see section 3.3).

3.3 Partiality

Calls can be partial or non-partial. By definition, partial calls do not require the entire routing to be available at the start of the call and during the call. When a partial call is started and a part of the routing is not available, the call is only distributed to the available part of the routing. When a part of the routing becomes unavailable during the call, the call continues in the parts of the routing that are still available.

Non-partial calls are calls that require the entire routing to be available at the start of the call and during the call. When during the call a part of the routing becomes unavailable, the call is aborted.

**Note**

Non-partial business calls **cannot** be started when the entire routing is unavailable. BGM and emergency calls **can** be started when the entire routing is unavailable.

**Note**

BGM calls and emergency calls without live speech are started in the non available parts of the routing as soon as these parts are released.

3.4 Types

3.4.1 Introduction

As mentioned before, Praesideo uses the following types of calls:

- BGM (background music) calls (see section 3.4.2).
- Business calls (see section 3.4.3).
- Emergency calls (see section 3.4.4).

3.4.2 BGM calls

BGM (background music) calls are typically used to distribute background music. Their content consists of an audio signal from a BGM source, such as a CD player or a tuner. By default, BGM calls are partial calls. Zones can be added to the routing of a BGM call at any time. If an added zone is already in use by another call with the same priority or higher, the BGM call will not be routed to that zone until it has been released by the other call.

3.4.3 Business calls

Business calls typically contain live speech and optionally chimes and prerecorded messages. The content of business calls is defined by a call macro (see section 3.2.3). Business calls can be partial or non-partial.

3.4.4 Emergency calls

Emergency calls are similar to business calls (see section 3.2.3). The major difference is that emergency calls put the system in the emergency state and are partial by default. In the emergency state, Praesideo stops all BGM calls and business calls.

4 Glossary

A

A/D

Analogue-to-digital converter.

AEX

Audio expander.

AVC

Automatic volume control. This improves the intelligibility of calls by adjusting the volume of a call related to the measured ambient noise.

B

BGM

Background music.

C

CST

Call station.

D

D/A

Digital-to-analogue converter.

DCN NG

Digital Congress System Next Generation. Digital congress system of Bosch Security Systems.

DSP

Digital signal processor.

E

ESD

Electrostatic discharge. This might damage electronic components.

G

GOF

Glass optical fiber. Type of fiber that is used to cover distances > 50 m in the Praesideo network.

L

LCD

Liquid crystal display. Type of display.

LED

Light emitting diode. Electronic component frequently used as indicator.

LSP

Loudspeaker.

LSZH

Low smoke, zero halogen.

M

MAC address

Media access control address. Unique hardware address.

MTBF

Mean-time-between-failures.

N

NCO

Network controller.

NC

Normally closed. Control output behavior. When the output is activated, the NC contact is opened.

NO

Normally open. Control output behavior. When the output is activated, the NO contact is closed.

P

PAM

Power amplifier.

PCB

Printed circuit board.

POF

Plastic optical fiber. Type of fiber that is used to cover distances < 50 m in the Praesideo network.

PTT key

Press-to-talk key. A key to start a call with a predefined priority based on a call macro that will be addressed to one or more predefined zones or zone groups.

Section 2 - Control Equipment

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5 LBB4401/00 Network Controller

5.1 Introduction

The LBB4401/00 Network Controller is the heart of the Praesideo system. See figure 5.1 for a block diagram of the network controller.

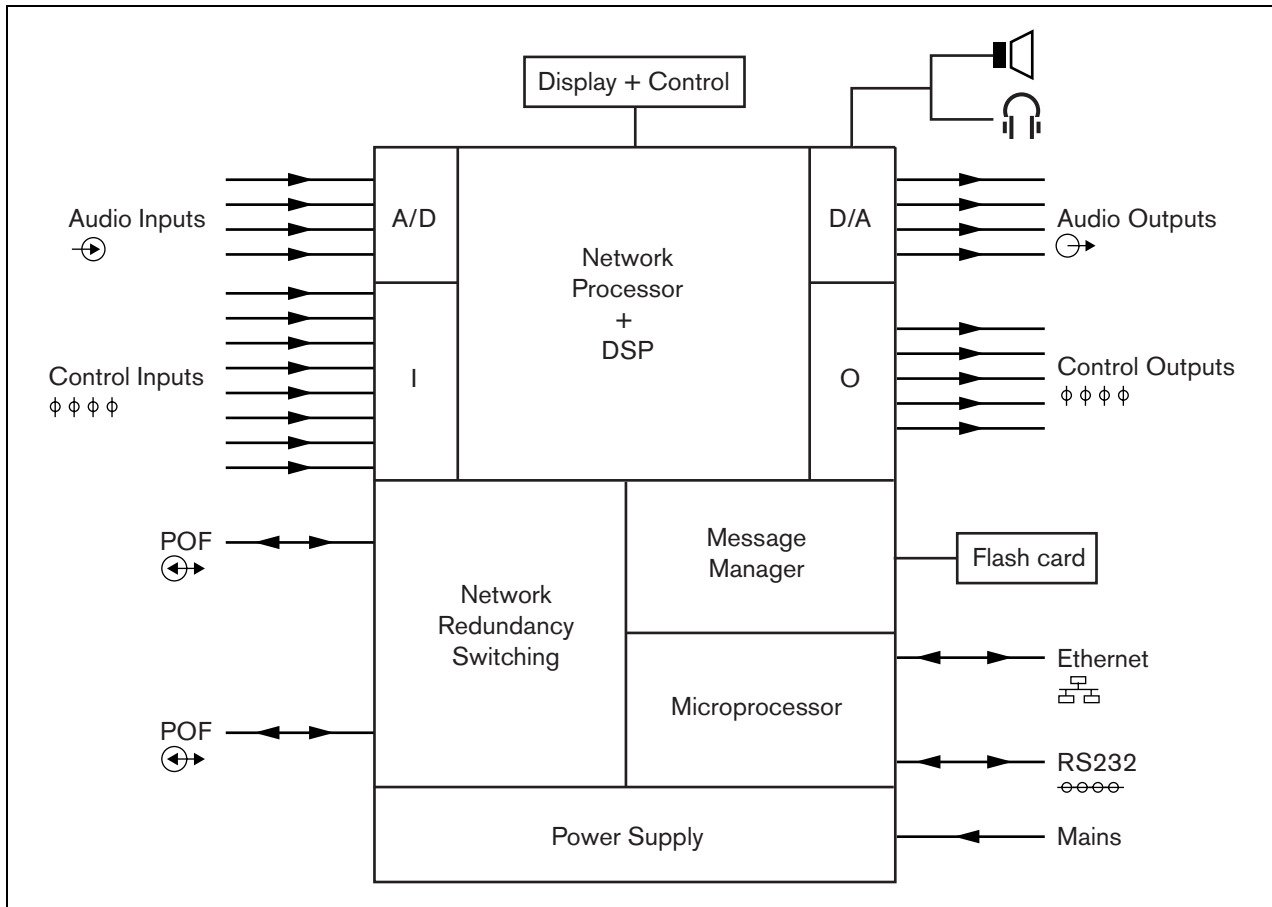


figure 5.1: Block diagram of the network controller

5.2 Controls, connectors and indicators

5.2.1 Front view

The front of the network controller (see figure 5.2) contains the following:

- 1 **Loudspeaker** - A loudspeaker for audio monitoring purposes. The loudspeaker is muted when monitoring headphones are connected to the monitoring headphones output (4).
- 2 **Menu display** - A 2x16 character LCD display gives information about the network controller (see section 5.5).
- 3 **Menu button** - A turn-and-push button to operate the menu (see section 5.5).
- 4 **Monitoring headphones output** - A 3.5 mm (0.14 inch) jack socket to connect headphones for audio monitoring purposes. The loudspeaker (1) is muted when headphones are connected.

5.2.2 Rear view

The rear of the network controller (see figure 5.2) contains the following:

- 5 **Ground** - A connection to electrically ground the network controller.
- 6 **Audio inputs** - Four audio inputs for receiving audio signals from analogue audio sources. Two of the audio inputs are selectable between microphone and line. The other two audio inputs are fixed line inputs. Each audio input has a XLR as well as a double cinch connector (see section 5.3.5).
- 7 **Audio outputs** - Four audio outputs for extracting analogue audio signals. Each audio output has a XLR as well as a double cinch connector (see section 5.3.6).
- 8 **Mains on/off switch** - A switch to switch the network controller on and off (see section 5.3.2).
- 9 **Fuse holder** - A fuse holder with a fuse that protects the power supply of the network controller (see section 5.3.2).
- 10 **System bus** - Two system bus connectors to connect the network controller to other Praesideo equipment (see section 5.3.3).
- 11 **Ethernet interface** - An interface to connect the network controller to external logging and configuration devices/systems. This interface usually will be used to connect a configuration PC (see section 5.3.4) or an open interface client to the Praesideo system.
- 12 **Control inputs** - The control inputs can be used to receive signals from third party equipment that must trigger actions in the Praesideo network (see section 5.3.7).
- 13 **RS232 interface** - For factory/development use.
- 14 **Control outputs** - The control outputs can be used to send signals to third party equipment to trigger actions generated by the Praesideo network (see section 5.3.8).
- 15 **Voltage selector** - A voltage selector to select the local mains voltage (see section 5.3.2).
- 16 **Mains inlet** - A socket to connect the network controller to the mains (see section 5.3.2).

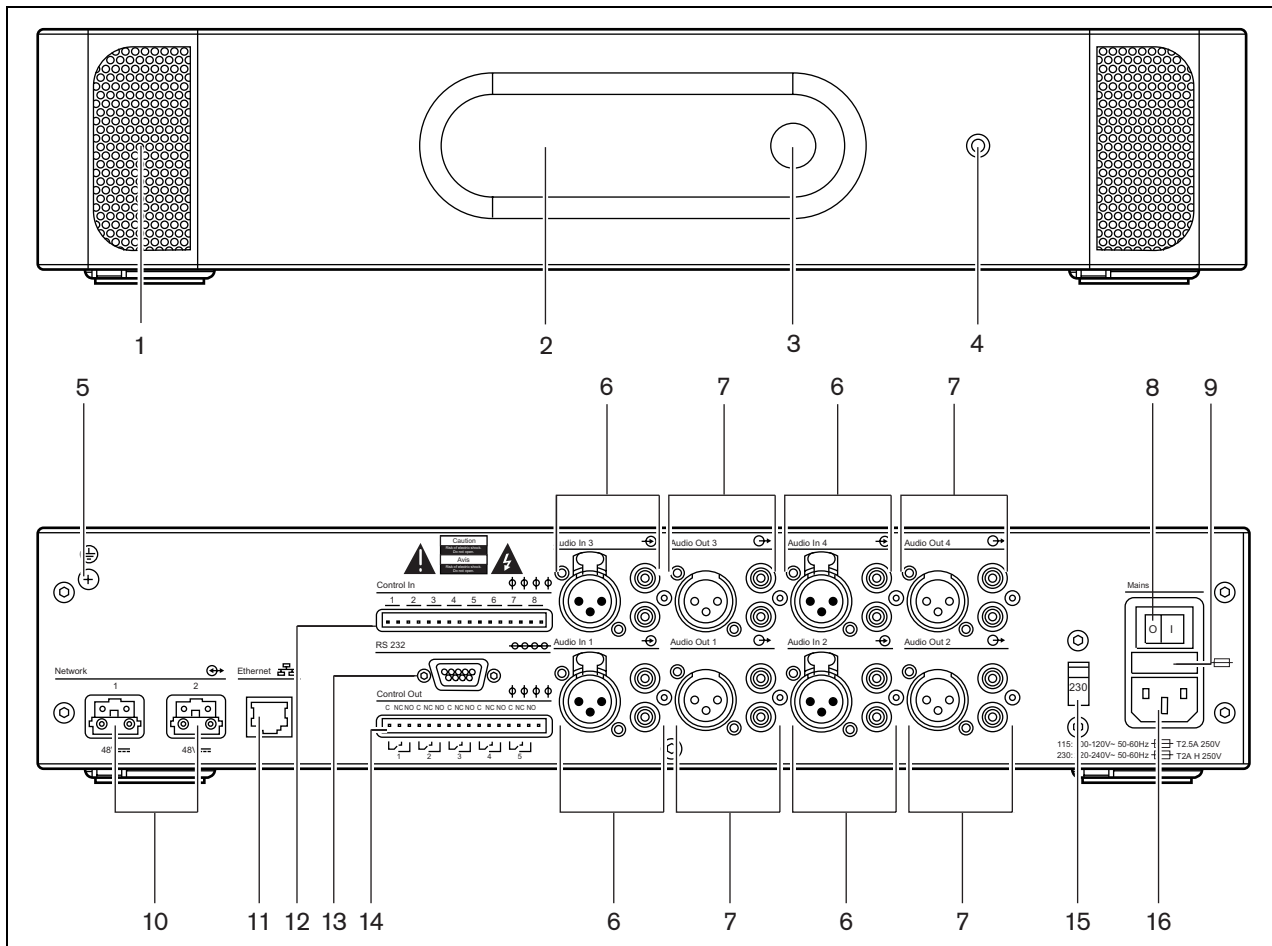


figure 5.2: Front and rear views of the network controller

5.2.3 Internal view

The interior of the network controller (see figure 5.3) contains the following:

- 17 **Earth jumper** - A jumper that connects the signal earth to the safety earth.
- 18 **Compact flash card** - A connector for a compact flash card for storage of messages (see section 5.3.10). A stored message set can hold up to 1024 messages. The system can play up to four messages in the set simultaneously, as part of a call. All of these calls may use the same message, if required, time-shifted or not.

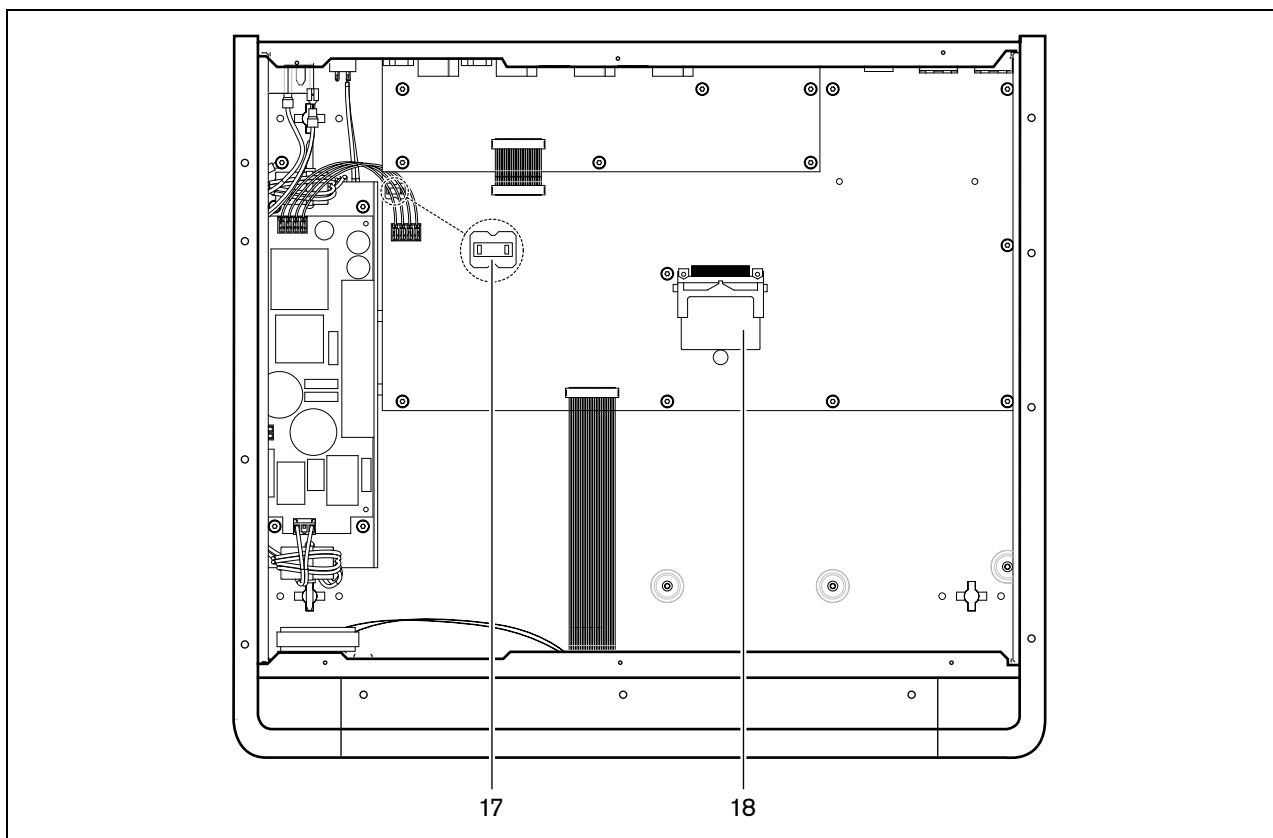


figure 5.3: Internal view of the network controller

5.3 Connections

5.3.1 Introduction

This section gives an overview of typical system connections using the network controller.

- Connecting the mains (see section 5.3.2).
- Connecting the network (see section 5.3.3).
- Connecting a configuration PC (see section 5.3.4).
- Connecting audio inputs (see section 5.3.5).
- Connecting audio outputs (see section 5.3.6).
- Connecting control inputs (see section 5.3.7).
- Connecting control outputs (see section 5.3.8).
- Connecting the RS232 port (see section 5.3.9).
- Inserting a compact flash card (see section 5.3.10).

5.3.2 Connecting the mains

Proceed as follows to connect the network controller to the mains:

- 1 Select the correct local mains voltage using the voltage selector on the rear of the network controller (see table 5.1).

table 5.1: Voltage selector and fuse

Selector	Mains voltage V(AC)	Fuse
115	100 - 120	T2.5A 250 V (UL 248)
230	220 - 240	T2A H 250 V (IEC 60127)

- 2 Put the correct type of fuse in the network controller (see table 5.1).
- 3 Connect the mains cord to the network controller.
- 4 Connect the mains cord to a locally approved mains outlet.

5.3.3 Connecting the network

Connect the network controller to the Praesideo system using the system bus connectors and LBB4416 network cables. Both connectors are interchangeable.

5.3.4 Connecting a PC

5.3.4.1 Introduction

The network controller has one RJ45 socket to interface with the Praesideo configuration PC. Using the configuration PC, the Praesideo system can be configured and diagnosed. Basically, there are two ways to connect the configuration PC to the network controller: directly (see section 5.3.4.3) or via a network (see section 5.3.4.4).

5.3.4.2 Requirements

The configuration PC must meet the following minimum requirements:

Operating system:

Windows 2000, Service Pack 4 (or higher) **OR**
Windows XP, Service Pack 1

Processor:

Pentium III processor or equivalent

CD-ROM drive

RAM:

64 MB or more

Network connection:

Ethernet 100 Base-T **OR**

Ethernet 10 Base-T

Free disk space:

120 MB

Software:

Internet Explorer 6.0

5.3.4.3 Direct connection

If the configuration PC must be connected directly to the network controller, a crossover cable (Cat 5 cable) must be used (see figure 5.4).

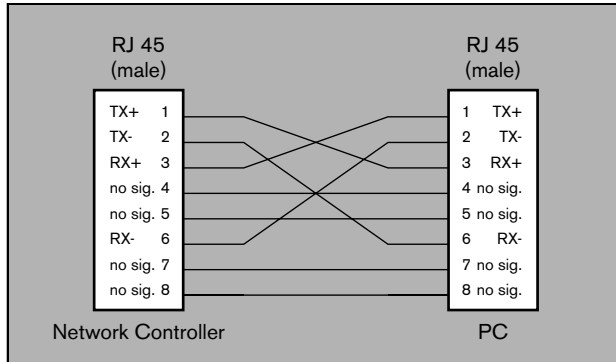


figure 5.4: Direct connection to PC



Note

The maximum length of a crossover-cable is 100 m.

5.3.4.4 Via a network

If the configuration PC must be connected to the network controller via a network, standard cables must be used to connect both the network controller and the configuration PC to the network.



Caution

Do not connect the network controller and configuration PC to any network without consulting the network administrator.

5.3.5 Connecting audio inputs

The network controller has 4 audio inputs to interface with analogue audio sources. Each audio input has two connectors on the rear of the network controller; one XLR connector (for balanced signals) and one double cinch connector (for unbalanced signals).



Note

The network controllers mixes stereo signals connected to the cinch connectors of the same audio input into one single mono signal.

The analogue audio can be a line source as well as a microphone. See table 5.2 for an overview of the input types supported by each of the inputs.

table 5.2: Audio input types

Audio Input	Microphone (XLR only)	Line
1	Yes	Yes
2	Yes	Yes
3	No	Yes
4	No	Yes



Note

The audio inputs can handle electret microphones as well as dynamic microphones, since the network controller can generate the phantom supply for electret microphones.

See figure 5.5 for details about the audio input sockets of the network controller.

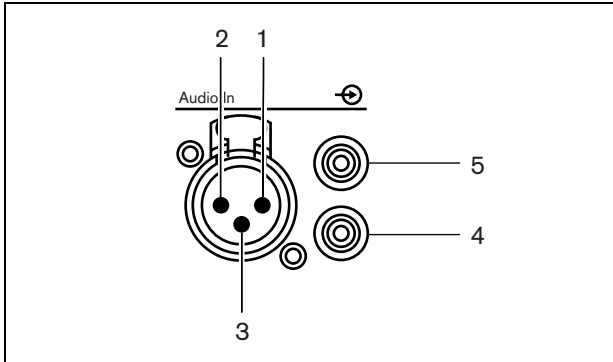


figure 5.5: Audio input sockets

table 5.3: Audio input socket details

Pin	Socket	Definition	Description
1	XLR (female)	Xternal	Shield/ground (phantom supply -)
2		Live	Positive (phantom supply +)
3		Return	Negative (phantom supply +)
4	Cinch	Right	Right channel in
5		Left	Left channel in

5.3.6 Connecting audio outputs

The network controller has 4 audio outputs to route analogue audio signals to other equipment (e.g. a tape deck to record a specific audio signal). Each audio output has two connectors on the rear of the network controller; one XLR connector (for balanced signals) and one double cinch connector (for unbalanced signals).



Note

The right and left cinch connectors carry the same mono signal.

See figure 5.6 for details about the audio output sockets of the network controller.

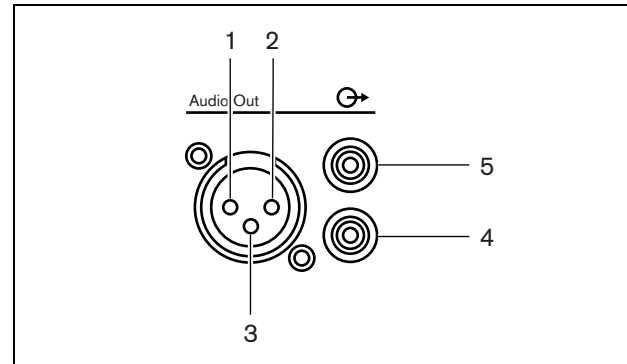


figure 5.6: Audio output sockets

table 5.4: Audio output socket details

Pin	Socket	Definition	Description
1	XLR	Xternal	Shield/ground
2	(male)	Live	Positive
3		Return	Negative
4	Cinch	Right	Right channel out
5		Left	Left channel out

5.3.7 Connecting control inputs

The network controller has 8 control inputs. The control inputs can receive signals from third party equipment that must trigger actions in the Praesideo system. The control inputs can be configured to act on contact make or on contact break (see section 34.2). It is also possible to supervise the cables for short-circuits and open connections (see figure 5.7 and figure 5.8). Whether a control input is actually supervised or not is defined in the configuration.

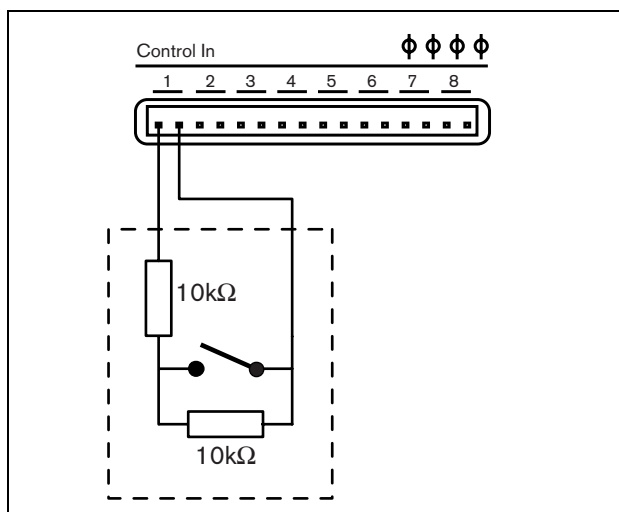


figure 5.7: Supervised control input

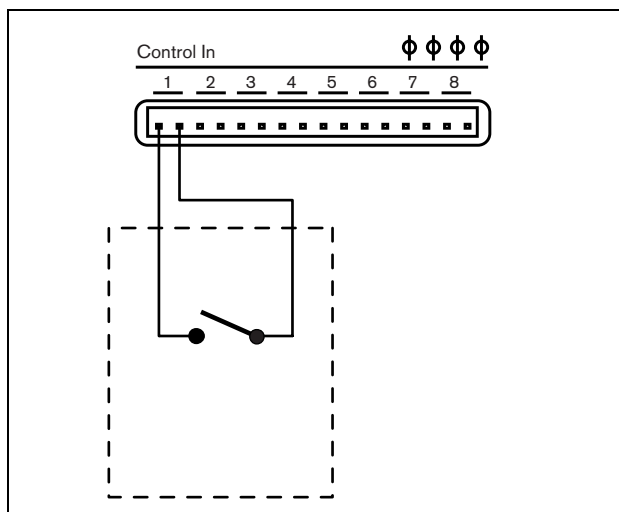


figure 5.8: Non-supervised control input



Warning

Do not connect DC or AC signals to the control inputs, otherwise the input circuit may be damaged.

5.3.8 Connecting control outputs

The network controller has 5 control outputs. The control outputs can be used to send signals to third party equipment to trigger actions. Each control output connection has three pins (see figure 5.9).

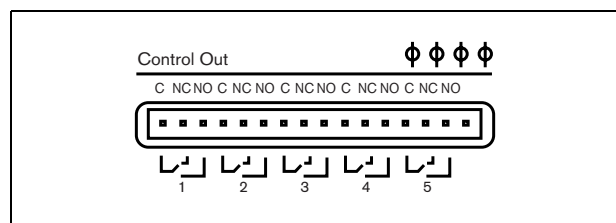


figure 5.9: Control outputs

The common (C) pin of the control output should always be connected. Whether the other pin that is connected is the normally closed (NC) or normally open (NO) depends on which action that has to take place when the control output is active (see table 5.5).

table 5.5: Control outputs details

Connection	Abbr.	Description
Normally closed	NC	By default, the NC contact is connected with common contact C. When the output is activated, the NC contact is opened.
Normally open	NO	By default, the NO contact is not connected with common contact C. When the output is activated, the NO contact is closed.

In the configuration, a purpose must be attached to the control output that indicates the action to be taken when it becomes active (see table 34.5). Control outputs 4 and 5 of network controllers of version HW15/xx and higher already have a fixed purpose (see table 5.6).

table 5.6: Control outputs 4 and 5

Control output	Purpose
4	Audible fault indicator
5	Visual fault indicator

**Note**

For failsafe behavior, these fixed control outputs are energized in the default (faultless) situation, so NC is open and will be closed if a fault occurs.

5.3.9 Connecting RS232 port

The network controller has a RS232 connector for production and development purposes. Do not use this connector in installed Praesideo systems.

5.3.10 Inserting compact flash card

If digital audio messages that can be used by the Praesideo system must be stored, a type 1 compact flash card must be installed in the network controller. Although flash cards up to 512 MB are supported, only the first 128 MB are supervised and suitable for emergency messages. This is equivalent to the first 25 minutes of the message set.

**Warning**

To prevent the hazard of electric shocks, disconnect the mains cord from the network controller before starting installing the compact flash card.

**Note**

The electronics inside the network controller are susceptible to electrostatic discharges. Wear an anti-ESD bracelet during the installation of the compact flash card.

A compact flash card is supplied together with the network controller. The following cards have been tested successfully:

table 5.7: Tested compact flash cards

Manufacturer	Size
Dane-Elec (www.dane-elec.com)	32, 128 MB
Pretec (www.pretec.com)	32, 128 MB
Simpletech (www.simpletech.com)	16, 32, 64 MB
Crucial (www.crucial.com)	32, 128 MB



Note

Each 16 MB of compact flash card size matches approximately 3 minutes of digital audio.



Note

For network controllers of hardware version HW15/xx and higher, flash cards of any reputable flash card manufacturer can be used. The hardware information can be obtained from the front panel menu. See section 5.5 for more information about the front panel menu.

5.4 Installation

The network controller is suitable for either table-top or 19-inch rack installation. Four feet (for table-top use) and two brackets (for rack installation) are supplied.



Note

The center bracket positions can be used to secure the unit on a table or shelf. They can also be used to install the unit vertically to a wall.

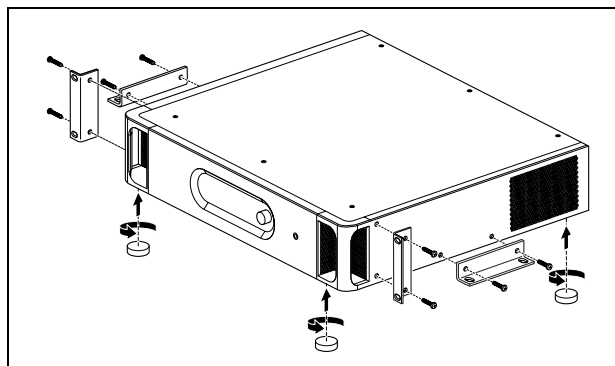


figure 5.10: Installation

5.5 Using the configuration menu

5.5.1 Overview

A number of network controller settings are available via an interactive menu, using a 2x16 LCD display and a 'turn-and-push' menu button. The next figure gives an overview of the menu structure.

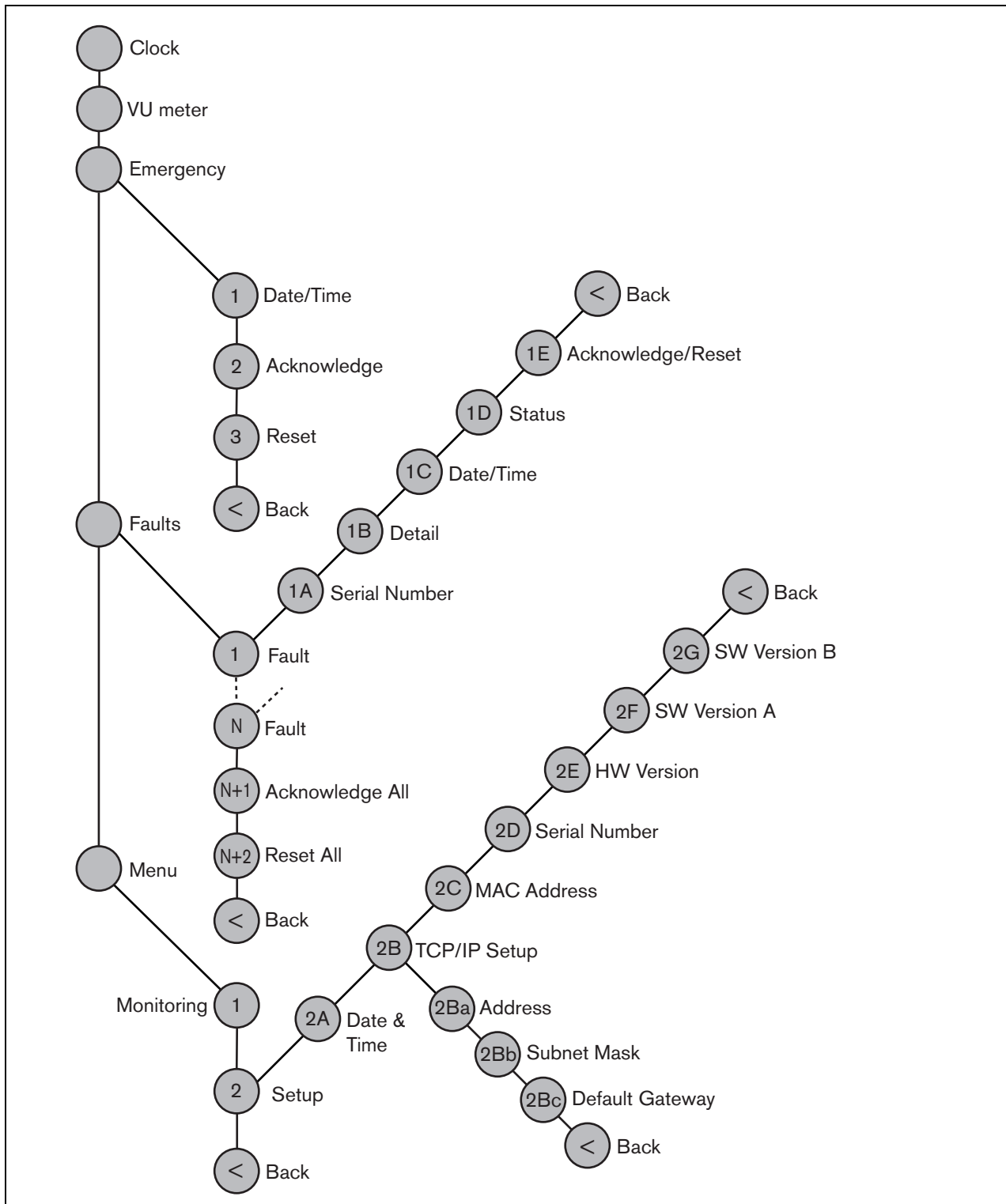


figure 5.11: Structure of the network controller front panel menu

5.5.2 Navigate through the menu

Operating the menu is always a sequence of alternating turns and pushes:

Turn the button to:

- Cycle through the menu items within a menu.
- Go to a settable option within a menu item (a blinking cursor moves through the menu screen).
- Cycle through the available values for a settable option (the value is blinking).

Push the button to:

- Confirm a chosen menu item (a blinking cursor appears).
- Go to a submenu (the submenu item character starts blinking).
- Confirm the selection of a settable option (the cursor disappears, the option value starts blinking).
- Confirm a selected value for a settable option (the value stops blinking, the cursor appears again).

Each menu is identified by a number or by a number plus a character (see figure 5.12). The item identification can be found at the start of the first line and is used to navigate to and from the submenus. Most menu items have one or more settable options. The value of an option can be changed by selecting a value from a list of available values.

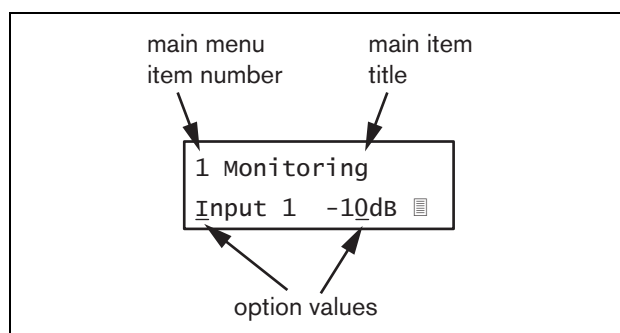


figure 5.12: Menu item screen elements

To navigate through the status screens:

- 1 Turn the button to move through the status screens (i.e. the *Clock*, *VU meter*, *Emergency ...*, *Faults ...* and *Menu ...* screens).

To navigate through the main menu:

- 1 Navigate in the status screens to *Menu...*
- 2 Push the button to go to the main menu. The menu item number starts blinking.
- 3 Turn to select another menu item number.
- 4 Push to confirm the selection.

To jump to a submenu:

- 1 Navigate to an item with three dots (e.g. *Setup...*).
- 2 Push the button to go to the submenu. The submenu item character starts blinking.
- 3 Turn to select another menu item number.
- 4 Push to confirm the selection.

To navigate through a submenu:

- 1 Turn the button to move the cursor to the submenu item character.
- 2 Push the button. The item character and title starts blinking.
- 3 Turn to select another submenu item character.
- 4 Push to confirm the selection.

To change option values:

- 1 Navigate to the applicable menu item.
- 2 Turn the button to move the cursor to the option value you want to change.
- 3 Push the button to activate the option. The option starts to blink.
- 4 Turn the button to select a new option value.
- 5 Push the button to confirm the new value. The option value stops blinking.
- 6 Turn the button to move the cursor to another settable option (when available) and repeat steps 3 to 5.

To jump back from a submenu to an item of the main menu:

- 1 Turn the button to move the cursor to the main menu item number.
- 2 Push the button. The item number starts blinking.
- 3 Turn to select another item number.
- 4 Push to confirm the selection.

OR

- 1 Turn the button to < Back.
- 2 Push to confirm.

To jump back from the main menu to the status screens:

- 1 Jump back to the main menu.
- 2 Turn the button to < Back.
- 3 Push to confirm.

Example:

Set the IP address of the network controller. (This example assumes you start from the default screen):

Netw Controller
2002/09/27 13:27

- 1 Turn the button to go to the *Menu ...* in the status screens:

Menu...

- 2 Push the button to confirm:

1 Monitoring
off

- 3 Turn the button to go to the *Setup* submenu:

2 Setup
...

- 4 Push the button to confirm:

2A Date & Time
2002/09/27 13:27

- 5 Turn the button to go to the *TCP/IP Setup* submenu:

2B TCP/IP Setup
...

- 6 Push the button to confirm:

2Ba Address
000.000.000.000

- 7 Push the button to confirm:

2Ba Address
000.000.000.000

- 8 Turn the button to move the cursor to the first part of the IP address:

2Ba Address
000.000.000.000

- 9 Push the button to confirm:

2Ba Address
000.000.000.000

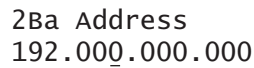
- 10 Turn the button to change the first part of the IP address:

2Ba Address
192.000.000.000

- 11 Push the button to confirm:

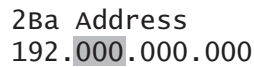
2Ba Address
192.000.000.000

- 12 Turn to move the cursor to the second part of the IP address:



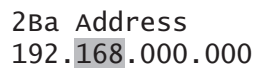
2Ba Address
192.000.000.000

- 13 Push the button to confirm:



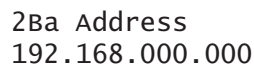
2Ba Address
192.000.000.000

- 14 Turn the button to change the second part of the IP address:



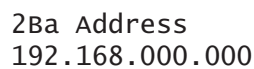
2Ba Address
192.168.000.000

- 15 Push the button to confirm:



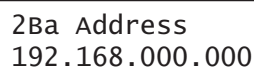
2Ba Address
192.168.000.000

- 16 Turn to move the cursor to the third part of the IP address:



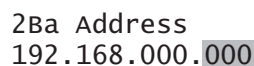
2Ba Address
192.168.000.000

- 17 Turn to move the cursor to the fourth part of the IP address:



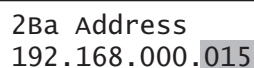
2Ba Address
192.168.000.000

- 18 Push the button to confirm:



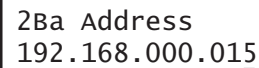
2Ba Address
192.168.000.000

- 19 Turn the button to change the fourth part of the IP address:



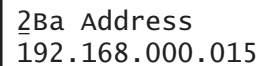
2Ba Address
192.168.000.015

- 20 Push the button to confirm:



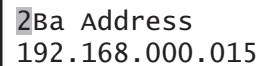
2Ba Address
192.168.000.015

- 21 Turn to move the cursor to the menu number:



2Ba Address
192.168.000.015

- 22 Push the button to confirm:



2Ba Address
192.168.000.015

- 23 Turn to move to the < Back item:



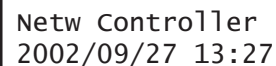
< Back

- 24 Push the button to confirm:



Menu...

- 25 Turn the button to go to the default screen:



Netw Controller
2002/09/27 13:27

5.6 Configuration and operation

5.6.1 Introduction

The next sections give descriptions of the possible configuration options. Each description is followed by the relevant menu items with detailed instructions per menu option. The default values are indicated by an asterisk (*) when applicable.

5.6.2 Start-up

When the network controller is (re)started, the display shows the name of the unit and the clock (first of the status screens).

5.6.3 Status screens

The status screens (see table 5.8) provide general information about the network controller.

table 5.8: Status screens

Menu item	Description
<i>Clock</i>	Shows the name of the unit and the time and date.
<i>VU Meter</i>	Visual indication of the signal strengths on all audio inputs and audio outputs of the network controller.

5.6.4 Emergency menu

The *Emergency ...* item (see figure 5.11) provides access to the emergency menu. This menu is automatically activated when the system is put into the emergency state. It changes automatically back to the *Clock* screen when the emergency state is reset. The *Emergency ...* menu screen itself shows the name of key that was used to activate the emergency state or the IP address of the open interface controller that activated the emergency state. For example:

Emergency	...
CST-EM-PTT	

In this example, *Emergency* indicates that the emergency state is active and that it was activated by button *CST-EM-PTT*.

The menu items in the emergency menu provide additional information about the emergency state and allow to acknowledge and reset the emergency state (see table 5.9).

table 5.9: Emergency menu

Menu item	Description
1 <i>Date/Time</i>	Date and time on which the emergency state was activated.
2 <i>Acknowledge</i>	Acknowledges the emergency state.
3 <i>Reset</i>	Resets the emergency state.

5.6.5 Faults menu

The *Faults ...* menu (see figure 5.11) provides access to the faults menu. This menu is automatically activated when there is a fault in the system. Because the number of active faults in the system can vary, the item numbers in this menu are not fixed. The youngest fault is the fault with the lowest number. The maximum number of faults is 200.



Note

When a new fault occurs while another fault is being viewed, the item number of the fault that is being viewed is automatically incremented. For example, when 23 *Overload* is being viewed while a new fault occurs, it becomes automatically 24 *Overload*.



Note

When fault 200 is being viewed while a new fault occurs, fault 200 is automatically deleted and replaced by the next fault. For example, fault 200 is 200 *Overload* and the next fault is 199 *Gnd Short*. Then 200 *Overload* automatically becomes 200 *Gnd Short* when a new fault occurs.

The *Faults ...* menu screen itself shows the number of active faults in the system. For example:

Faults ...
27 faults

The numbered menus in the faults menu shows the name of the fault and the unit that generated the fault. For example:

23 Overload
PAM_01

In this case the fault is *Overload*, which was generated by the unit named *PAM_01*. The menu items in the faults menu provide additional information about the selected fault and allow to acknowledge and reset faults (see table 5.10).



Note

In the next table, n indicates the nth fault in the faults menu, whereas N indicates the total number of faults in the faults menu.

table 5.10: Faults menu

Menu item	Description
<u>n</u> A Serial Nr	Shows the serial number of the unit that generated the fault <u>n</u> .
<u>n</u> B Detail	Shows the fault detail of fault <u>n</u> . See table 5.12.
<u>n</u> C Date/Time	Shows the date and time on which fault <u>n</u> occurred.
<u>n</u> D Status	Shows the status of fault <u>n</u> . See chapter 42
<u>n</u> E Acknowledge	Acknowledge the selected fault. See chapter 42.
<u>n</u> F Reset	Reset the selected fault. See chapter 42.
<u>N</u> +1 Ack All	Allows to acknowledge all faults in the system. See chapter 42.
<u>N</u> +2 Reset All	Resets all faults in the system. See chapter 42.

The faults and fault details displayed by the network controller are closely related to the faults that are displayed in the *Logging Viewer* (see chapter 50). In table 5.12, all faults that can be displayed by the network controller are listed. Use this table in combination with the information in chapter 45 to find out the cause of a fault or the recommended action to take.

5.6.6 Main menu

The *Menu ...* item (see figure 5.11) provides access to the main menu.

table 5.11: Main menus

Menu item	Description
1 Monitoring	Go to the <i>Monitoring</i> submenu. See section 5.6.7.
2 Setup	Go to the <i>Setup</i> submenu. See section 5.6.8 (and further).

table 5.12: Faults event table

Fault	Detail	Web interface message
<i>Amp standby</i>		<i>Amplifier initialization failure</i>
<i>Audio path</i>		<i>Call station audio path fault</i>
<i>Cobranet</i>	<i>Fault (number)</i>	<i>Cobranet network fault: faultcode</i>
<i>Config file</i>	<i>Not valid</i>	<i>No valid configuration file found; a new configuration file will be created</i>
	<i>Mismatch</i>	<i>Configuration file version mismatch: version x.xx found y.yy expected</i>
	<i>Error</i>	<i>Configuration file error</i>
<i>Ctrl input</i>	<i>(control input)</i>	<i>Control input line failure</i>
<i>End of line</i>	<i>(channel)</i>	<i>Loudspeaker line failure</i>
<i>Failure</i>	<i>(channel)</i>	<i>Amplifier failure</i>
	<i>(channel)</i>	<i>Amplifier failure or overload</i>
<i>Fault input</i>	<i>(text)</i>	<i>Fault input</i>
<i>Flashcard</i>	<i>Missing</i>	<i>Flash card missing</i>
	<i>Checksum</i>	<i>Flash card data error</i>
	<i>Message names</i>	<i>Messages missing:</i>
<i>Gnd short</i>	<i>(channel)</i>	<i>Amplifier ground short</i>
<i>HW Version</i>	<i>Mismatch</i>	<i>Hardware version mismatch</i>
<i>Internal</i>	<i>Fault (number)</i>	<i>Cobranet interface fault</i>
<i>Keypad</i>	<i>n/m mismatch</i>	<i>Keypad mismatch</i>
<i>Loudspeaker</i>	<i>(channel)</i>	<i>Loudspeaker failure</i>
<i>Lsp Line</i>	<i>(channel)</i>	<i>Amplifier loudspeaker line failure</i>
<i>Memory</i>	<i>EEPROM</i>	<i>Memory error</i>
	<i>FLASH</i>	
<i>Mic input</i>	<i>(audio input)</i>	<i>Microphone Failure</i>
<i>Missing</i>		<i>Unit missing</i>
<i>No mains</i>		<i>Mains power supply failure</i>
<i>No sec pwr</i>		<i>Back up power supply failure</i>
<i>Overheat</i>	<i>(channel)</i>	<i>Amplifier overheat</i>
<i>Overload</i>	<i>(channel)</i>	<i>Amplifier overload</i>
	<i>(channel)</i>	<i>Amplifier short circuit</i>
<i>Proc reset</i>	<i>MMP</i>	<i>Processor reset: MMP (network processor)</i>
	<i>CPU</i>	<i>Processor reset: CPU (system processor)</i>
	<i>CNM</i>	<i>Processor reset: CNM (CobraNet module)</i>
	<i>SCB</i>	<i>Processor reset: SCB (supervision control board)</i>
<i>Ring broken</i>	<i>System Network</i>	<i>Redundant ring broken</i>
<i>Supervision</i>	<i>(channel)</i>	<i>Pilot tone calibration</i>
	<i>(channel)</i>	<i>Line supervision master mismatch</i>
<i>Uncfgd unit</i>		<i>Unit not configured</i>
<i>Unkwn unit</i>		<i>Unknown unit type</i>

5.6.7 Set monitoring options

The *Monitoring* submenu is used to set which signal is sent to the monitoring loudspeaker or headphones. It can be one of the audio inputs, one of the audio outputs or no signal at all. Furthermore, the screen provides level meters for a visual identification of the actual signal strength.

table 5.13: Monitoring submenu

Menu item	Option	Value 1	Value 2	Description
1 Monitoring	Source:			
	- Input <u>n</u>	Input nr: 1 to 4	Volume: -31 to 0 dB	The signal from audio input <u>n</u> is available on the monitoring loudspeaker or headphones output.
	- Output <u>n</u>	Output nr: 1 to 4	Volume: -31 to 0 dB	The signal from audio output <u>n</u> is available on the monitoring loudspeaker or headphones output.
	- Off*			The monitoring loudspeaker or headphones output is off during normal operation.

5.6.8 Set date and time

The *Date & Time* menu item is used to change the date and time displayed by the network controller.

table 5.14: Date & Time menu item

Menu item	Option	Value 1	Value 2	Description
2A Date & Time		Date: 2000-01-01 to 2037-12-31	Time 00:00 to 23.59	The date is displayed in the yyyy-mm-dd format, the time is displayed in the hh:mm format.

5.6.9 Setup TCP/IP

The *TCP/IP Setup* submenu is used to set the TCP/IP parameters of the network controller.

table 5.15: TCP/IP Setup submenu

Menu item	Value	Description
2Ba Address	e.g. 192.168.000.015	IP address of the network controller.
2Bb Subnet Mask	e.g. 255.255.255.000	Subnet mask for the network controller.
2Bc Def. Gateway	e.g. 192.168.000.050	Default gateway for the network controller.

5.6.10 View MAC address

The *MAC Address* menu item can be used to view the MAC address of the network controller. The MAC address is a unique address that is factory-set and cannot be changed. Within networks, it can be used to get access to the unit.

table 5.16: MAC address menu item

Menu item	Value (read-only)	Description
2C MAC Address	e.g. 000463-004209	Show the MAC address of the network controller.

5.6.11 View version information

The *Serial Number*, *HW Version*, *SW version A* and *SW version B* menu items are used to obtain version information about the network controller.

table 5.17: Version information menu items

Menu item	Value (read-only)	Description
2D Serial Number	e.g. 11.0.008A4	Shows the hexadecimal serial number.
2E HW Version	e.g. 15.00	Shows the hardware version.
2F SW Version A	e.g. 2.10.1175	Shows the version number of the Praesideo software.
2G SW Version B	e.g. 3.00.1419	Shows the version number of the firmware. This must be the same for all units in the system.

5.7 Technical Data

5.7.1 Physical characteristics

Dimensions (H x W x D):

88 x 483 x 400 mm (19" installation, with brackets,
360 mm depth behind the brackets, 40 mm in front of
the brackets)

92 x 440 x 400 mm (table-top, with feet)

Weight:

7 kg

5.7.2 Climate conditions

Temperature:

-5 to +55 °C (operating)

-20 to +70 °C (non-operating)

Relative humidity:

15 to 90%, non-condensing (operating)

5 to 95%, non-condensing (non-operating)

Air pressure:

600 to 1100 hPa

5.7.3 Electromagnetic compatibility

Emission:

EN55103-1/FCC-47 part 15B

Immunity:

EN55103-2

5.7.4 Safety

Electrical:

IEC65/EN60065/UL6500 (file 203290)

Approvals:

CE marking according to CB-scheme,
c-CSA-us marking

5.7.5 Mean time between failure

MTBF:

50,000 hours at +55 °C

(The MTBF doubles for every 10 °C decrease in
temperature.)

5.7.8 Analogue line inputs

Connector (rear side):

Female XLR and female stereo cinch socket per input.
The stereo signal from the cinch is internally converted
to a mono signal

Preferred cable:

Shielded

5.7.6 System bus

Connector (rear side):

Proprietary connector

Preferred cable:

LBB4416/xx

Maximum cable length:

50 m (per system bus connector)

Data signal interface

Plastic optical fiber

Network power supply:

2 x 60 W (at network output)

5.7.7 Power supply

Connector (rear side):

IEC male power inlet with fuse holder

Preferred cable:

Mains cord meeting CE standard

Voltage selector (rear side)

115 V(AC)/230 V(AC)

Input voltage:

90 to 132 V(AC) and 198 to 264 V(AC) at 50-60 Hz

On/Off switch:

Located at the rear

Power consumption:

14 W (without network load)

Maximum input signal level:

18 dBV ± 1 dB (XLR)

6 dBV ± 1 dB (cinch)

Input range:

-12 dB to 0 dB with respect to maximum input level

Input sensitivity setting:

Software

Frequency response:

-3 dB points at 20 Hz and 20 kHz (tolerance ± 1 dB)

Input impedance:

100 k Ω (XLR)

12 k Ω (cinch)

Signal/Noise ratio:

> 87 dBA at maximum level

Common mode rejection ratio:

> 40 dB

Input cross-talk:

> 75 dB at maximum level at 100 Hz, 1 kHz and 10 kHz

Distortion:

< 0.05% at 1 kHz at -3 dB of the maximum input level

5.7.9 Analogue microphone inputs (only input 1 and input 2)

Connector (rear side):

Female XLR per input

Preferred cable:

Shielded

Nominal input level:

-57 dBV based on 91 dB SPL for a microphone with sensitivity of 2 mV/Pa, a male voice with normal loudness and a speaker to microphone distance of 0.15 m

Headroom:

30 dB

Input range:

-7 to 18 dB with respect to nominal input level (limiter threshold)

Input sensitivity setting:

Software

Frequency response:

-3 dB points at 300 Hz and 20 kHz (tolerance ± 1 dB)
First order, high-pass speech filter at 300 Hz

Input impedance:

1360 Ω

Signal/Noise ratio:

> 62 dBA with 25 dB headroom

Common mode rejection ratio:

> 55 dB at 100 Hz

> 65 dB at 1 kHz and 10 kHz

Phantom supply:

12 V $\pm$ 1 V (max. 15 mA)

Limiter:

Analogue limiter, level -8 dB with respect to maximum.

- attack time: 1 ms
- decay time: 300 ms
- threshold at nominal input level

(Only for network controllers of version HW15/xx and higher. Hardware information can be obtained using the front panel menu)

5.7.10 Audio outputs

Connector (rear side):
One XLR and one stereo (dual mono) cinch for each output
Preferred cable:
Shielded
Maximum output level:
18 dBV $\pm$ 1 dB for XLR
6 dBV $\pm$ 1 dB for cinch
Output range:
-30 dB to 0 dB with respect to maximal output level
Output level setting:
Software
Frequency response:
-3 dB points at 20 Hz and 20 kHz (tolerance $\pm$ 1 dB)
Output impedance:
< 100 Ω
Signal/Noise ratio:
> 89 dBA at maximum level
Output cross-talk:
< -85 dB
Distortion:
< 0.05% at 1 kHz at -3 dB of the maximum input signal

5.7.11 Control inputs

Connector (rear side):
Removable screw connector
Total cable resistance:
< 1 k Ω (with line supervision)
< 5 k Ω (without line supervision)
Maximum open voltage:
24 V(DC)
Internal pull-up current:
0.5 mA
External contacts:
Voltage-free closing or breaking contacts (relay contacts, mechanical switches, mercury contacts etc.)

5.7.12 Control outputs

Connector (rear side):
Removable screw connector
Maximum cable length:
1 km
Contact type:
Relay contact, single pole, change-over contact (SPDT)
Contact voltage:
24 V(DC)
Contact current:
1 A
Off state (unpowered):
C-NC is closed, C-NO is open
Fault contacts:
Network controllers of hardware version HW15/xx have fixed purposes for control outputs 4 and 5. Control output 4 is a audible fault indication contact for audible fault indications (e.g. buzzer), whereas control output 5 is a visual fault indication contact for visual fault indications (e.g. lamp). (The hardware information can be obtained from the front panel menu)

5.7.13 RS232 interface

Connector (rear side):
Female 9 pole SUB-D connector
Maximum cable length:
15 m
Signal levels:
According to EIA RS232-C interface specification

5.7.14 Ethernet

Medium:

Copper, 10 BASE-T/100 BASE-TX with 10/100 Mbps auto-negotiation.

Connector (rear side):

RJ45 jack/receptacle with shield

Preferred cable:

UTP cable category 5

Maximum length:

100 m (point-to-point)

Signal levels:

According to IEEE 802.3

5.7.15 Headphones

Connector (front side):

3.5 mm stereo jack socket for headphones

Maximum output voltage:

6 dBV with volume control

Rated load impedance:

8 to 600 Ω

Signal/Noise ratio

> 80 dB (at maximum output level)

Distortion:

< 0.5%

6 LBB4402/00 Audio Expander

6.1 Introduction

The LBB4402/00 Audio Expander is used if the system requires additional audio inputs and outputs. See figure 6.1 for a block diagram of the audio expander. Unlike the network controller, the audio expander has transformer-isolated and balanced XLR inputs and outputs for easy interfacing to other systems. Furthermore, control inputs and outputs are available.

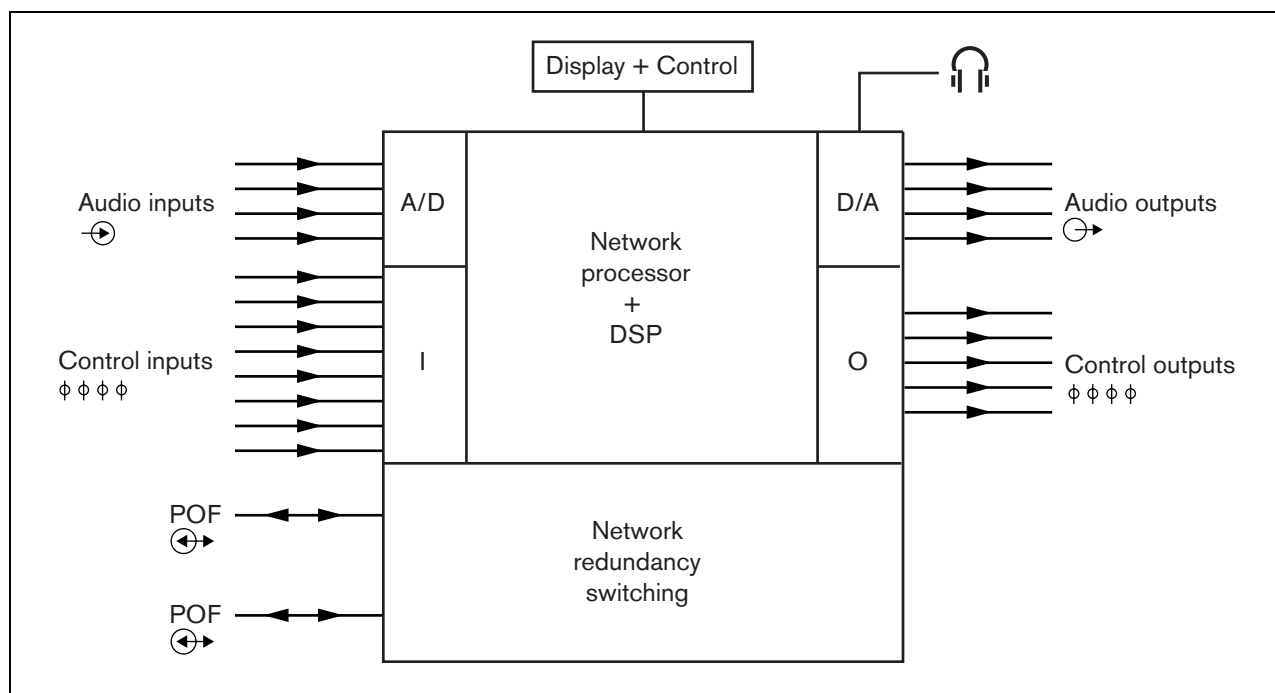


figure 6.1: Block diagram of the audio expander

6.2 Controls & connectors

6.2.1 Front view

The front of the audio expander (see figure 6.2) contains the following:

- 1 **Menu display** - A 2x16 character LCD display gives information about the audio expander (see section 6.5).
- 2 **Menu button** - A turn-and-push button to operate the menu (see section 6.5).
- 3 **Monitoring headphones output** - A 3.5 mm (0.14 inch) jack socket to connect headphones for audio monitoring purposes.

6.2.2 Rear view

The rear of the audio expander (see figure 6.2) contains the following:

- 4 **Audio inputs** - Four audio inputs for receiving audio signals from analogue audio sources. Two of the audio inputs are selectable between microphone and line. The other two audio inputs are fixed line inputs. Each audio input has a XLR as well as a double cinch connector (see section 6.3.3).
- 5 **Audio outputs** - Four audio outputs for extracting analogue audio signals. Each audio output has a XLR as well as a double cinch connector (see section 6.3.4).
- 6 **Ground** - A connection to electrically ground the audio expander.
- 7 **System bus** - Two system bus connectors to connect the audio expander to other Praesideo equipment (see section 6.3.2).
- 8 **Control inputs** - The control inputs can be used to receive signals from third party equipment that must trigger actions in the Praesideo network (see section 6.3.5).
- 9 **Control outputs** - The control outputs can be used to send signals to third party equipment to trigger actions generated by the Praesideo network (see section 6.3.6).

6.3 Connections

6.3.1 Introduction

This section gives an overview of typical system connections using the audio expander.

- Connecting the network (see section 6.3.2).
- Connecting audio inputs (see section 6.3.3).
- Connecting audio outputs (see section 6.3.4).
- Connecting control inputs (see section 6.3.5).
- Connecting control outputs (see section 6.3.6).

6.3.2 Connecting the network

Connect the audio expander to the Praesideo system using the system bus connectors and LBB4416 network cables. Both connectors are interchangeable.

6.3.3 Connecting audio inputs

The audio expander has 4 audio inputs to interface with analogue audio sources. Each audio input has two connectors on the rear of the audio expander; one XLR connector (for balanced signals) and one double cinch connector (for unbalanced signals).



Note

The audio expander mixes stereo signals connected to the cinch connectors of the same audio input into one single mono signal.

The analogue audio can be a line source as well as a microphone. See table 6.1 for an overview of the input types supported by each of the inputs.

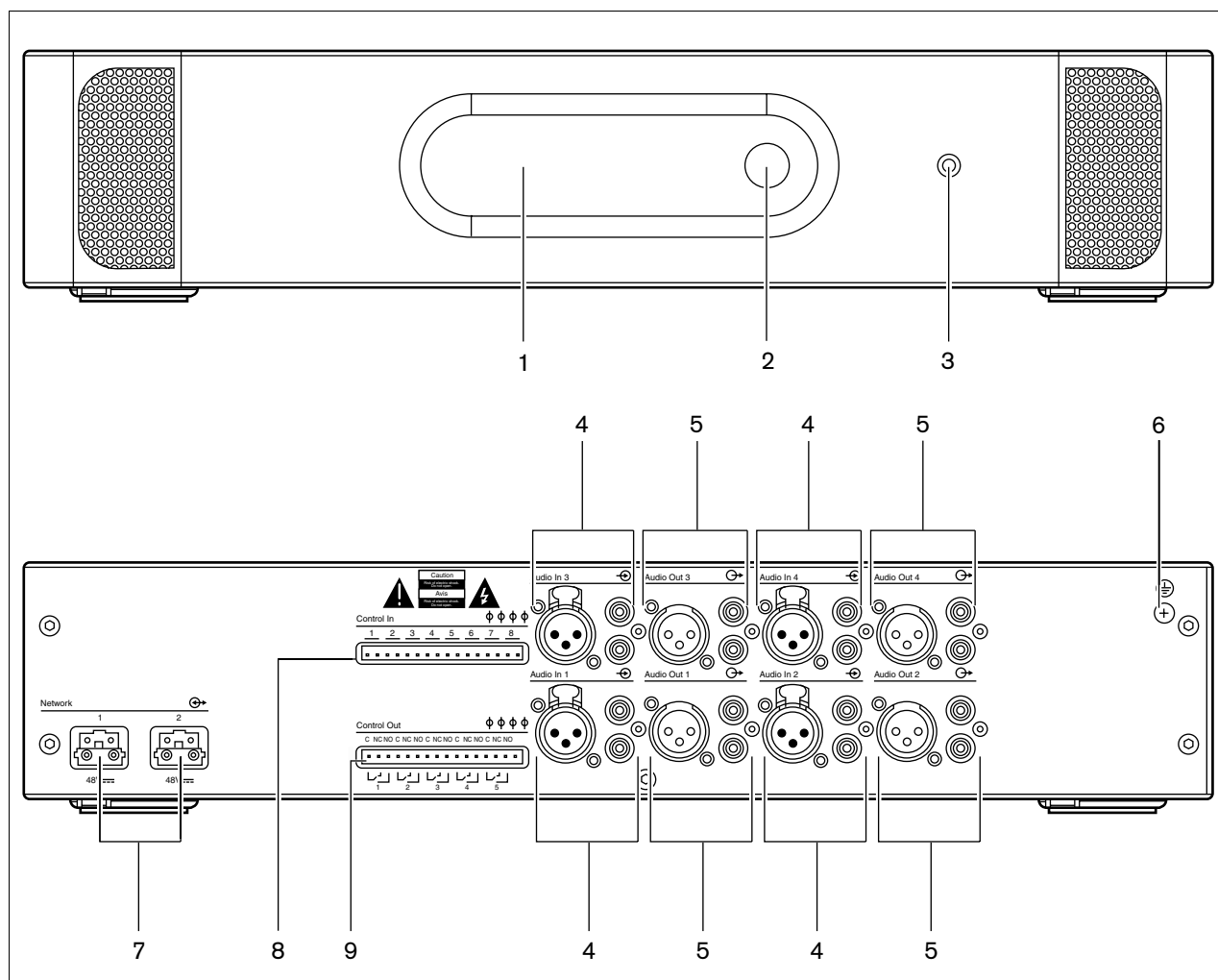


figure 6.2: Front and rear views of the audio expander

table 6.1: Audio input types

Audio Input	Microphone (XLR only)	Line
1	Yes	Yes
2	Yes	Yes
3	No	Yes
4	No	Yes



Note

The audio inputs can handle electret microphones as well as dynamic microphones, since the audio expander can generate the phantom supply for electret microphones.

See figure 6.3 for details about the audio input sockets

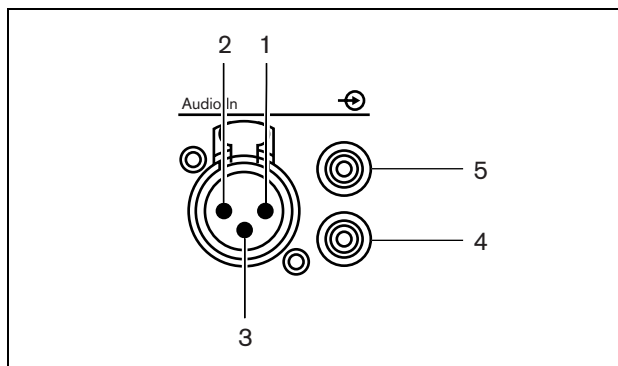


figure 6.3: Audio input sockets

table 6.2: Audio input socket details

Pin	Socket	Definition	Description
1	XLR (female)	Xternal	Shield/ground (phantom supply -)
2		Live	Positive (phantom supply +)
3		Return	Negative (phantom supply +)
4	Cinch	Right	Right channel in
5		Left	Left channel in

6.3.4 Connecting audio outputs

The audio expander has 4 audio outputs to route analogue audio signals to other equipment (e.g. a tape deck to record a specific audio signal). Each audio output has two connectors on the rear of the audio expander; one XLR connector (for balanced signals) and one double cinch connector (for unbalanced signals).



Note

The right and left cinch connectors carry the same mono signal.

See figure 6.4 for details about the audio output sockets.

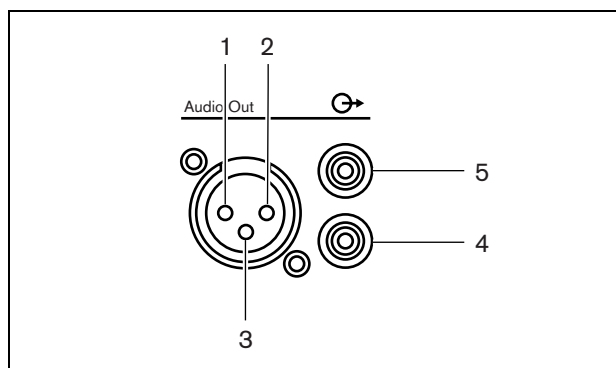


figure 6.4: Audio output sockets

table 6.3: Audio output socket details

Pin	Socket	Definition	Description
1	XLR (male)	Xternal	Shield/ground
2		Live	Positive
3		Return	Negative
4	Cinch	Right	Right channel out
5		Left	Left channel out

6.3.5 Connecting control inputs

The audio expander has 8 control inputs. The control inputs can receive signals from third party equipment that must trigger actions in the Praesideo system. The control inputs can be configured to act on contact make or on contact break (see section 34.5). It is also possible to supervise the cables for short-circuits and open connections (see figure 6.5 and figure 6.6). Whether a control input is actually supervised or not is defined in the configuration.

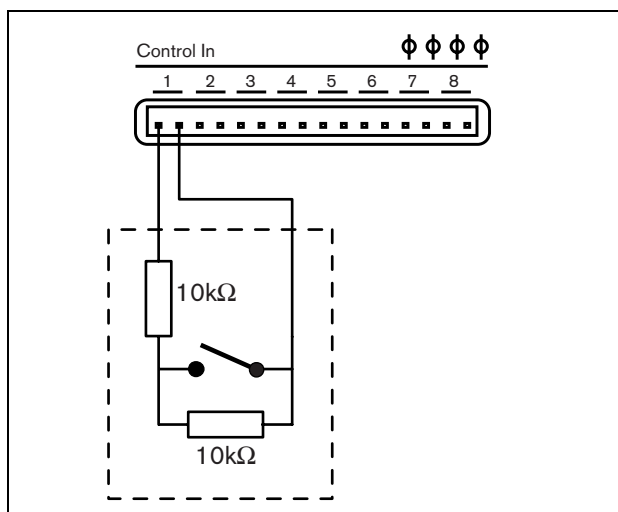


figure 6.5: Supervised control input

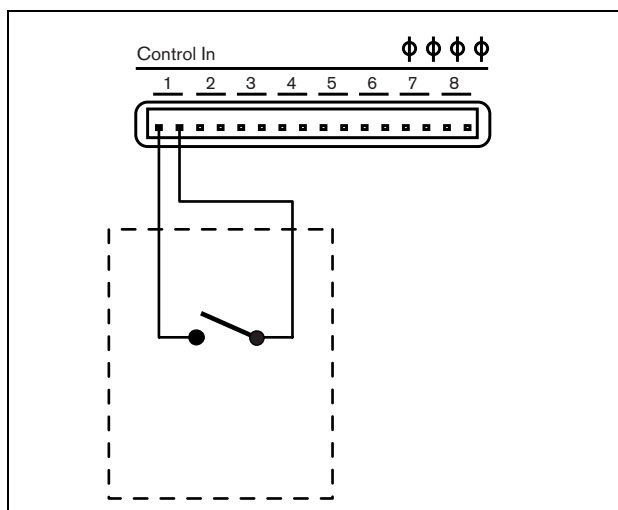


figure 6.6: Non-supervised control input

**Warning**

Do not connect DC or AC signals to the control inputs. otherwise the input circuit may be damaged.

6.3.6 Connecting control outputs

The audio expander has 5 control outputs. The control outputs can be used to send signals to third party equipment to trigger actions. Each control output connection has three pins (see figure 6.7).

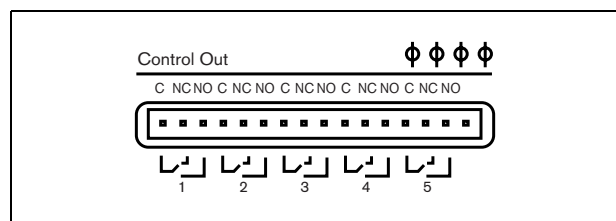


figure 6.7: Control outputs

The common (C) pin of the control output should always be connected. Whether the other pin that is connected is the normally closed (NC) or normally open (NO) depends on which action that take place when the control output is active (see table 6.4).

table 6.4: Control outputs details

Connection	Abbr.	Description
Normally closed	NC	By default, the NC contact is connected with common contact C. When the output is activated, the NC contact is opened.
Normally open	NO	By default, the NO contact is not connected with common contact C. When the output is activated, the NO contact is closed.

In the configuration, a purpose must be attached to the control output that indicates the action to be taken when it becomes active (see table 34.5).

6.4 Installation

The audio expander is suitable for either table-top or 19-inch rack installation. Four feet (for table-top use) and two brackets (for rack installation) are supplied.



Note

The center bracket positions can be used to secure the unit on a table or shelf. They can also be used to install the unit vertically to a wall.

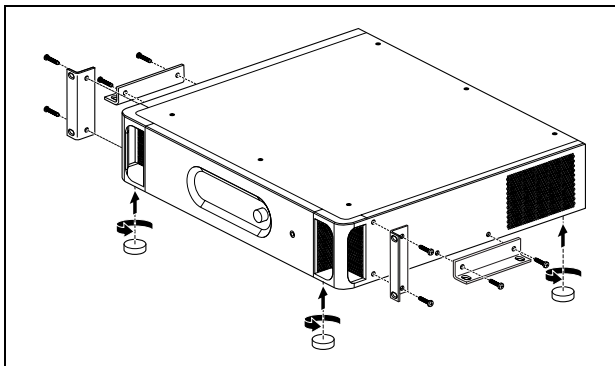


figure 6.8: Installation

6.5 Using the configuration menu

6.5.1 Overview

A number of audio expander settings are available via an interactive menu, using a 2x16 LCD display and a 'turn-and-push' menu button. The next figure gives an overview of the menu structure.

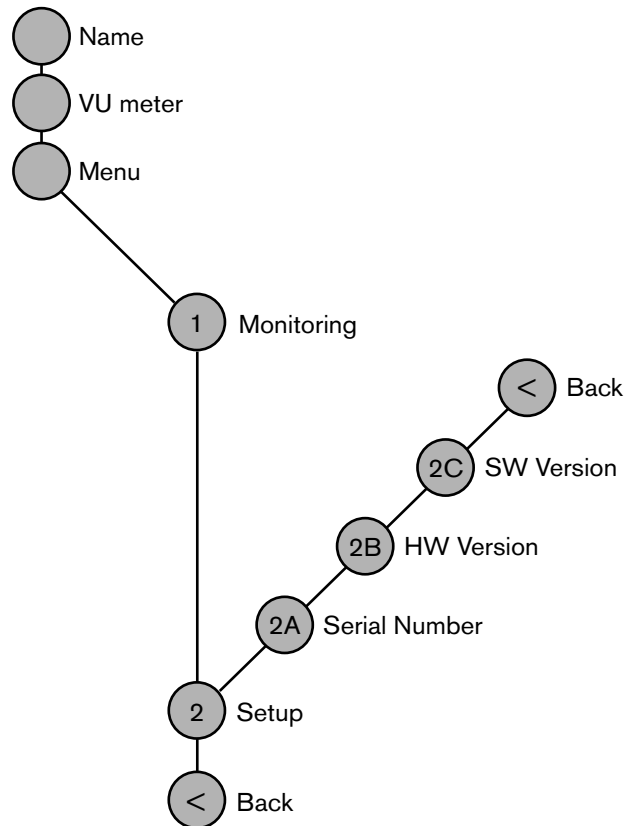


figure 6.9: Structure of the audio expander front panel menu

6.5.2 Navigate through the menu

Operating the menu is always a sequence of alternating turns and pushes:

Turn the button to:

- Cycle through the menu items within a menu.
- Go to a settable option within a menu item (a blinking cursor moves through the menu screen).
- Cycle through the available values for a settable option (the value is blinking).

Push the button to:

- Confirm a chosen menu item (a blinking cursor appears).
- Go to a sub-menu (the sub-menu item character starts blinking).
- Confirm the selection of a settable option (the cursor disappears, the option value starts blinking).
- Confirm a selected value for a settable option (the value stops blinking, the cursor appears again).

Each menu is identified by a number or by a number plus a character (see figure 6.10). The item identification can be found at the start of the first line and is used to navigate to and from the sub-menus. Most menu items have one or more settable options. The value of an option can be changed by selecting a value from a list of available values.

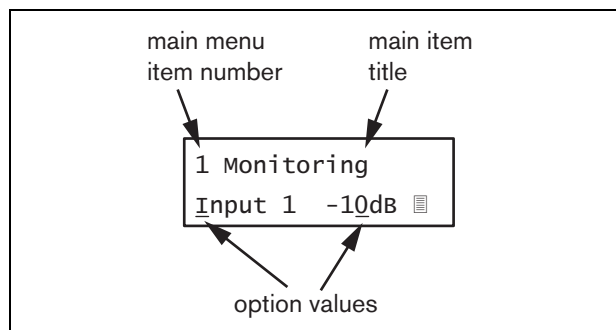


figure 6.10: Menu item screen elements

To navigate through the status screens:

- 1 Turn the button to move through the status screens (i.e. the *Name*, *VU meter* and *Menu ...* screens).

To navigate through the main menu:

- 1 Navigate in the status screens to *Menu....*
- 2 Push the button to go to the main menu. The menu item number starts blinking.
- 3 Turn to select another menu item number.
- 4 Push to confirm the selection.

To jump to a sub-menu:

- 1 Navigate to an item with three dots (e.g. *Setup...*).
- 2 Push the button to go to the sub-menu. The sub-menu item character starts blinking.
- 3 Turn to select another menu item number.
- 4 Push to confirm the selection.

To navigate through a sub-menu:

- 1 Turn the button to move the cursor to the sub-menu item character.
- 2 Push the button. The item character and title starts blinking.
- 3 Turn to select another sub-menu item character.
- 4 Push to confirm the selection.

To change option values:

- 1 Navigate to the applicable menu item.
- 2 Turn the button to move the cursor to the option value you want to change.
- 3 Push the button to activate the option. The option starts to blink.
- 4 Turn the button to select a new option value.
- 5 Push the button to confirm the new value. The option value stops blinking.
- 6 Turn the button to move the cursor to another settable option (when available) and repeat steps 3 to 5.

To jump back from a sub-menu to an item of the main menu:

- 1 Turn the button to move the cursor to the main menu item number.
- 2 Push the button. The item number starts blinking.
- 3 Turn to select another item number.
- 4 Push to confirm the selection.

OR

- 1 Turn the button to < Back.
- 2 Push to confirm.

To jump back from the main menu to the status screens:

- 1 Jump back to the main menu.
- 2 Turn the button to < Back.
- 3 Push to confirm.

Example:

Set the output that is available on the headphones output of the audio expander. (This example assumes you start from the default screen):

Audio Expander

- 1 Turn to the button to go to the *Menu ...* in the status screens:

Menu...

- 2 Push the button to confirm:

1 Monitoring
off

- 3 Push the button to confirm:

1 Monitoring
Off

- 4 Turn the button to the *Monitoring* option:

1 Monitoring
off

- 5 Push the button to confirm:

1 Monitoring
off

- 6 Turn the button to change the audio output you want to listen to:

1 Monitoring
Output 3 0 dB

- 7 Push the button to confirm:

1 Monitoring
Output 3 0 dB

- 8 Turn to move the cursor to the menu number:

1 Monitoring
Output 3 0 dB

- 9 Push the button to confirm:

1 Monitoring
Output 3 0 dB

- 10 Turn to move to the < Back item:

< Back

- 11 Push the button to confirm:

Menu...

- 12 Turn the button to go to the default screen:

Audio Expander

6.6 Configuration and operation

6.6.1 Introduction

The next sections give descriptions of the possible configuration options. Each description is followed by the relevant menu items with detailed instructions per menu option. The default values are indicated by an asterisk (*) when applicable.

6.6.2 Start-up

When the audio expander is (re)started, the display shows the name of the unit. If it shows *Load Unit Software*, the unit does not contain any firmware. By default, the unit is delivered with DCN NG (i.e. the Bosch Security Systems Digital Congress Network) firmware. This must be replaced by Praesideo firmware (see section 28.5).

6.6.3 Status screens

The status screens (see table 6.5) provide general information about the status of the audio expander.

table 6.5: Status screens

Menu Item	Description
<i>Name</i>	Shows the name of the unit and (possibly) its fault event status (see section 6.6.4).
<i>VU Meter</i>	Visual indication of the signal strengths on all audio inputs and audio outputs of the audio expander.

6.6.4 Fault status

If there is an active fault, the *Name* screen also shows the fault status (see table 6.6). If there is more than one active fault, only the most severe fault is shown. A fault status only provides global information. The exact source of a fault can be found out using the fault events list in this manual (see chapter 45).

table 6.6: Fault status (high to low)

Fault status	Description
<i>No network</i>	The optical network is not available.
<i>Fault: Input C/n</i>	Fault in control input <i>n</i> . (If <i>n</i> = +, faults in multiple control inputs.)

6.6.5 Main menu

The *Menu ...* item (see figure 6.9) provides access to the main menu.

table 6.7: Main menus

Menu item	Description
<i>1 Monitoring</i>	Go to the <i>Monitoring</i> submenu. See section 6.6.6.
<i>2 Setup</i>	Go to the <i>Setup</i> submenu. See section 6.6.7 (and further).

6.6.6 Set monitoring options

The *Monitoring* submenu is used to set which signal is sent to the monitoring headphones. It can be one of the audio inputs, one of the audio outputs or no signal at all. Furthermore, the screen provides level meters for a visual identification of the actual signal strength.

table 6.8: Monitoring submenu

Menu item	Option	Value 1	Value 2	Description
1 Monitoring	Source:			
	- Input <u>n</u>	Input nr: 1 to 4	Volume: -31 to 0 dB	The signal from audio input <u>n</u> is available on the headphones output.
	- Output <u>n</u>	Output nr: 1 to 4	Volume: -31 to 0 dB	The signal from audio output <u>n</u> is available on the headphones output.
	- Off*			The headphones output is off during normal operation.

6.6.7 View version information

The *Serial Number*, *HW Version* and *SW Version* menu items are used to obtain version information about the audio expander.

table 6.9: Version information menu items

Menu item	Value (read-only)	Description
2A Serial Number	e.g. 12.0.0030C	Shows the hexadecimal serial number.
2B HW Version	e.g. 15.00	Shows the hardware version.
2C SW Version	e.g. 3.00.1419	Shows the version number of the firmware. This must be the same for all units in the system.

6.7 Technical data

6.7.1 Physical characteristics

Dimensions (H x W x D):

88 x 483 x 400 mm (19" installation, with brackets,
360 mm depth behind the brackets, 40 mm in front of
the brackets)

92 x 440 x 400 mm (table-top, with feet)

Weight:

7 kg

6.7.2 Climate conditions

Temperature:

-5 to +55 °C (operating)

-20 to +70 °C (non-operating)

Relative humidity:

15 to 90%, non-condensing (operating)

5 to 95%, non-condensing (non-operating)

Air pressure:

600 to 1100 hPa

6.7.3 Electromagnetic compatibility

Emission:

EN55103-1/FCC-47 part 15B

Immunity:

EN55103-2

6.7.4 Safety

Electrical:

IEC65/EN60065/UL6500 (file 203290)

Approvals:

CE marking according to CB-scheme,
c-CSA-us marking

6.7.5 Mean time between failure

MTBF:

50,000 hours at +55 °C

(The MTBF doubles for every 10 °C decrease in
temperature.)

6.7.8 Analogue microphone inputs (only input 1 and input 2)

Connector (rear side):

Female galvanically separated XLR per input

Preferred cable:

Shielded

6.7.6 System bus

Connector (rear side):

Proprietary connector

Preferred cable:

LBB4416/xx

Maximum cable length:

50 m (per system bus connector)

Data signal interface:

Plastic optical fiber

Network power consumption:

5.6 W

6.7.7 Analogue line inputs

Connector (rear side):

Female, galvanically separated XLR and female stereo
cinch socket per input. The stereo signal from the
cinch is internally converted to a mono signal

Preferred cable:

Shielded

Maximum input signal level:

18 dBV $\pm$ 1 dB (XLR)

6 dBV $\pm$ 1 dB (cinch)

Input range:

-12 dB to 0 dB with respect to maximum input level

Input sensitivity setting:

Software

Frequency response:

-3 dB points at 20 Hz and 20 kHz (tolerance $\pm$ 1 dB)

Input impedance:

100 k Ω (XLR)

12 k Ω (cinch)

Signal/Noise ratio:

87 dBA at maximum level

Common mode rejection ratio:

40 dB at 1 kHz

Input cross-talk:

75 dB at 100 Hz, 1 kHz and 10 kHz

Distortion:

< 0.05% at 1 kHz at -3 dB of the maximum input level

Nominal input level:

-57 dBV based on 91 dB SPL for a microphone with
sensitivity of 2 mV/Pa, a male voice with normal
loudness and a speaker to microphone distance of
0.15 m

Headroom:

30 dB

Input range:

-7 to 18 dB with respect to nominal input level
(limiter threshold)

Input sensitivity setting:

Software

Frequency response:

-3 dB points at 300 Hz and 20 kHz (tolerance ± 1 dB)
First order, high-pass speech filter at 300 Hz

Input impedance:

1360 Ω

Signal/Noise ratio

> 62 dBA with 25 dB headroom

Common mode rejection ratio:

> 55 dB at 100 Hz
> 65 dB at 1 kHz and 10 kHz

Phantom supply:

12 V $\pm$ 1 V (max. 15 mA)

Limiter:

Analogue limiter, level -8 dB with respect to maximum

- attack time: 1 ms
- decay time: 300 ms
- threshold at nominal input level

(Only for audio expanders of version HW15/xx and higher. Hardware information can be obtained using the front panel menu.)

6.7.9 Audio outputs

Connector (rear side):

One galvanically separated XLR and one stereo (dual mono) cinch for each output

Preferred cable:

Shielded

Maximum output level:

+ 18 dBV $\pm$ 1 dB (XLR)
+ 6 dBV $\pm$ 1 dB (cinch)

Output range:

-30 dB to 0 dB with respect to maximal output level

Output level setting:

Software

Frequency response:

-3 dB points at 20 Hz and 20 kHz (tolerance ± 1 dB)

Output impedance:

< 100 Ω

Signal/Noise ratio:

> 89 dBA at maximum level

Output cross-talk:

< -85 dB

Distortion:

< 0.05% at 1 kHz at -3 dB of the maximum input signal

6.7.10 Control inputs

Connector (rear side):

Removable screw connector

Total cable resistance:

< 1 k Ω (with line supervision)
< 5 k Ω (without line supervision)

Maximum open voltage:

24 V(DC)

Internal pull-up current:

0.5 mA

External contacts:

Voltage-free closing or breaking contacts (relay contacts, mechanical switches, mercury contacts etc.)

6.7.11 Control outputs

Connector (rear side):

Removable screw connector

Maximum cable length:

1 km

Contact type:

Relay contact, single pole, change-over contact (SPDT)

Contact voltage:

24 V(DC)

Contact current:

1 A

Off state (unpowered):

C-NC is closed, C-NO is open

6.7.12 Headphones

Connector (front side):

3.5 mm stereo jack socket for headphones

Maximum output voltage:

6 dBV with volume control

Rated load impedance:8 to 600 Ω **Signal/Noise ratio**

> 80 dB (at maximum output level)

Distortion:

< 0.5%

7 LBB4404/00 CobraNet Interface

7.1 Introduction

The LBB4404/00 CobraNet Interface is used to interface between a CobraNet and Praesideo. The CobraNet interface can convert up to 4 audio channels from Praesideo to CobraNet and 4 audio channels from CobraNet to Praesideo at the same time. See figure 7.1 for a block diagram of the CobraNet interface.



Note

CobraNet™ is a registered trademark of Peak Audio, a division of Cirrus Logic, Inc.

CobraNet is a combination of software, hardware and network protocol which allows distribution of many channels of real-time, high quality digital audio over an Ethernet network. CobraNet is supported for switched Ethernet variants. CobraNet uses standard Ethernet packets and network infrastructure (controllers, switches, cabling, etc.) that operate in compliance with the IEEE 802.3u specification for Fast Ethernet. Fast Ethernet distance limitations apply to CobraNet installations: 100 meters over CAT-5 copper cable, 2 kilometers over multimode fiber. Proprietary Fast Ethernet via single mode fiber solutions can reach even further.

CobraNet can sent up to 64 channels of 48 kHz, 20-bit audio over a single 100 Mbit link in each direction. These channels are grouped in bundles.

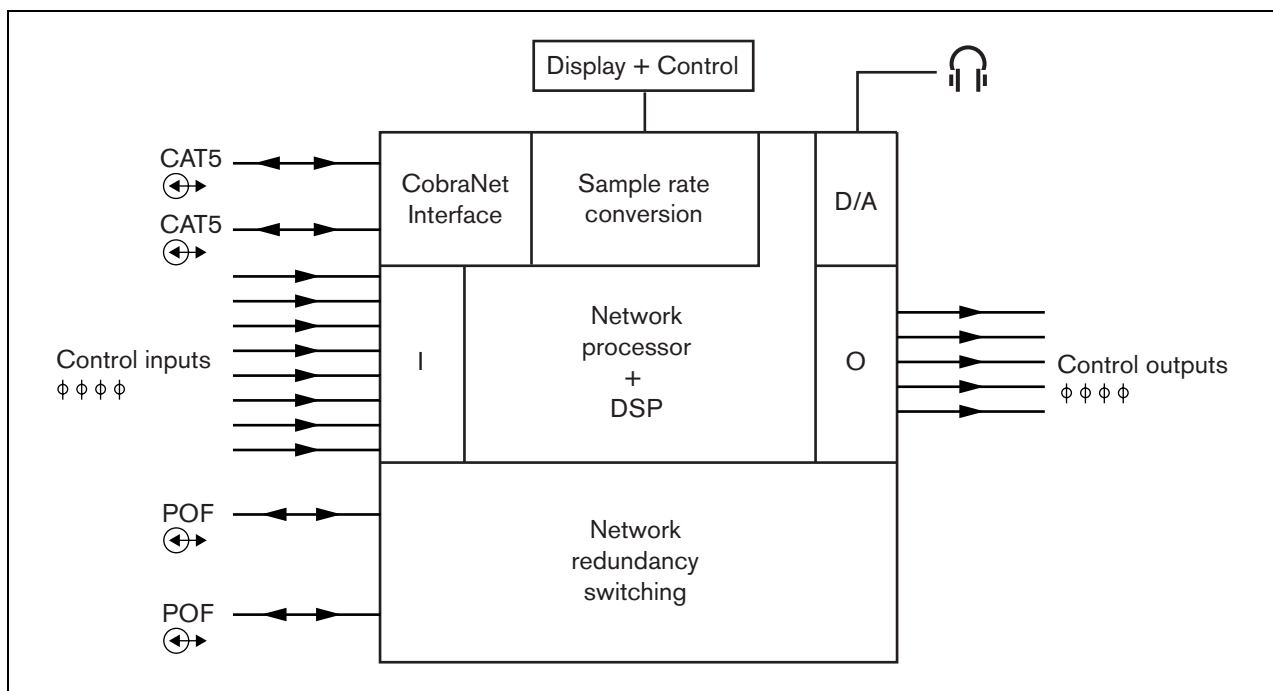


figure 7.1: Block diagram of the CobraNet interface

7.2 Controls and connectors

7.2.1 Front view

The front of the CobraNet interface (see figure 7.2) contains the following:

- 1 **Menu display** - A 2x16 character LCD display gives information about the CobraNet interface (see section 7.7).
- 2 **Menu button** - A turn-and-push button to operate the menu (see section 7.7).
- 3 **Monitoring headphones output** - A 3.5 mm (0.14 inch) jack socket to connect the headphones for audio monitoring purposes.

7.3 Rear view

The rear of the CobraNet interface (see figure 7.2) contains the following:

- 4 **System bus** - Two system bus connectors to connect the CobraNet interface to other Praesideo equipment (see section 7.4.2)
- 5 **CobraNet interface** - Two RJ45 sockets to connect the CobraNet interface to the CobraNet network (see section 7.4.3)
- 6 **Control inputs** - The control inputs can be used to receive signals from third party equipment that must trigger actions in the Praesideo network (see section 7.4.4).
- 7 **Control outputs** - The control outputs can be used to send signals to third party equipment to trigger actions generated by the Praesideo network (see section 7.4.5).

7.4 Connections

7.4.1 Introduction

This section gives an overview of typical system connections using the CobraNet interface.

- Connecting the Praesideo network (see section 7.4.2)
- Connecting the CobraNet network (see section 7.4.3).
- Connecting control inputs (see section 7.4.4).
- Connecting control outputs (see section 7.4.5).

7.4.2 Connecting the Praesideo network

Connect the CobraNet interface to the Praesideo system using the system bus connectors and LBB4416 network cables. Both connectors are interchangeable.

7.4.3 Connecting the CobraNet network

Connect the CobraNet interface to the CobraNet network using the Ethernet connectors and CAT5 Ethernet cables. Use either one CAT 5 connection for a normal Ethernet connection or two for a redundant connection. Ethernet supports redundant connections between switches using self-healing topologies.

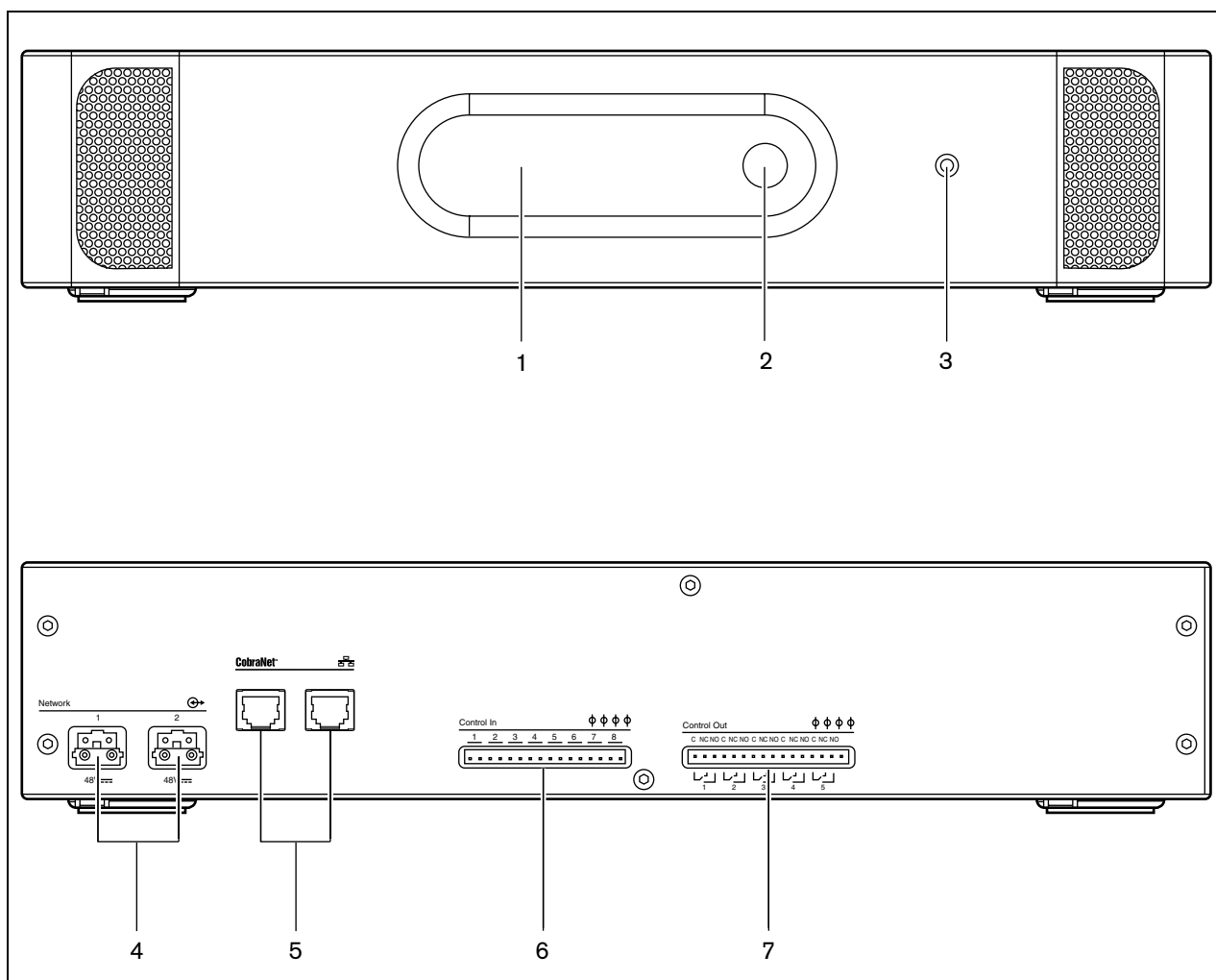


figure 7.2: Front and rear views of the CobraNet interface

7.4.4 Connecting control inputs

The CobraNet interface has 8 control inputs. The control inputs can receive signals from third party equipment that must trigger actions in the Praesideo system. The control inputs can be configured to act on contact make or on contact break (see section 34.7). It also possible to supervise the cables for short-circuits and open connections (see figure 7.3 and figure 7.4). Whether a control input is actually supervised or not is defined in the configuration.

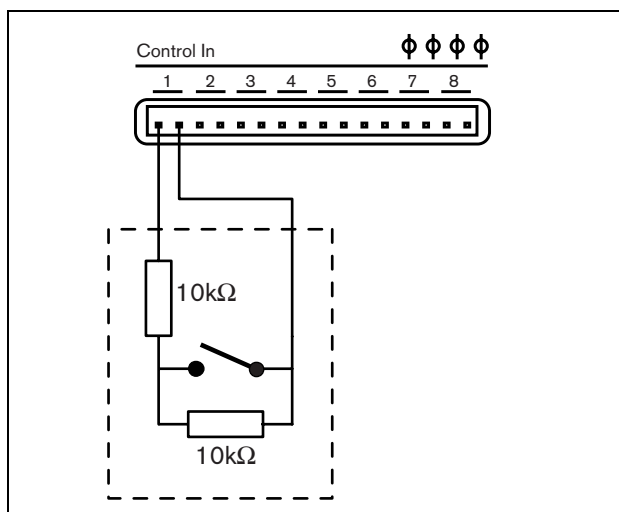


figure 7.3: Supervised control input

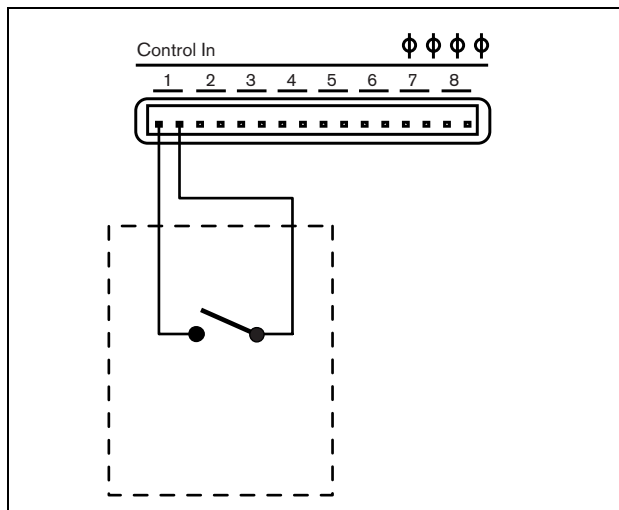


figure 7.4: Non-supervised control input



Warning

Do not connect DC or AC signals to the control outputs, otherwise the input circuit may be damaged.

7.4.5 Connecting control outputs

The CobraNet interface has 5 control outputs. The control outputs can be used to send signals to third party equipment to trigger actions. Each control output connection has three pins (see figure 7.5).

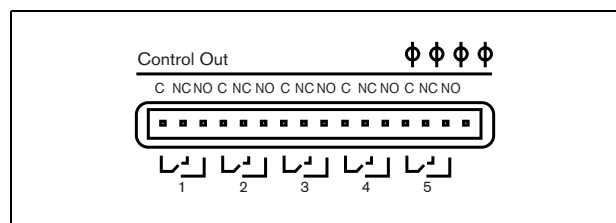


figure 7.5: Control outputs

The common (C) pin of the control output should always be connected. Whether the other pin that is connected is the normally closed (NC) or normally open (NO) depends on which action that take place when the control output is active (see table 6.4).

table 7.1: Control outputs details

Connection	Abbr.	Description
Normally closed	NC	By default, the NC contact is connected with common contact C. When the output is activated, the NC contact is opened.
Normally open	NO	By default, the NO contact is not connected with common contact C. When the output is activated, the NO contact is closed.

In the configuration, a purpose must be attached to the control output that indicates the action to be taken when it becomes active (see table 34.5).

7.5 Installation

The CobraNet interface is suitable for either table-top or 19-inch rack installation. Four feet (for table-top use) and two brackets (for rack installation) are supplied.

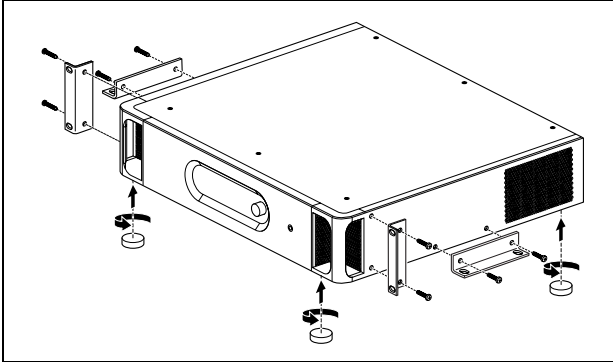


figure 7.6: Installation



Note

The center bracket positions can be used to secure the unit on a table or shelf. They can also be used to install the unit vertically to a wall.

7.6 CobraNet Configuration

The CobraNet must be configured using the *Cobranet Discovery* utility (see chapter 46) and the *CobraNet Configuration Application* (see chapter 47). These applications can be run from any PC that is connected to the CobraNet interfaces via an Ethernet network.

The *Cobranet Discovery* utility must be used before the *CobraNet Configuration Application* is started. It looks for CobraNet units and assigns IP numbers to them. The *CobraNet Configuration Application* is used to configure the CobraNet connections.

7.7 Using the configuration menu

7.7.1 Overview

A number of CobraNet interface settings are available via an interactive menu, using a 2x16 LCD display and a 'turn-and-push' menu button. The next figure gives an overview of the menu structure.

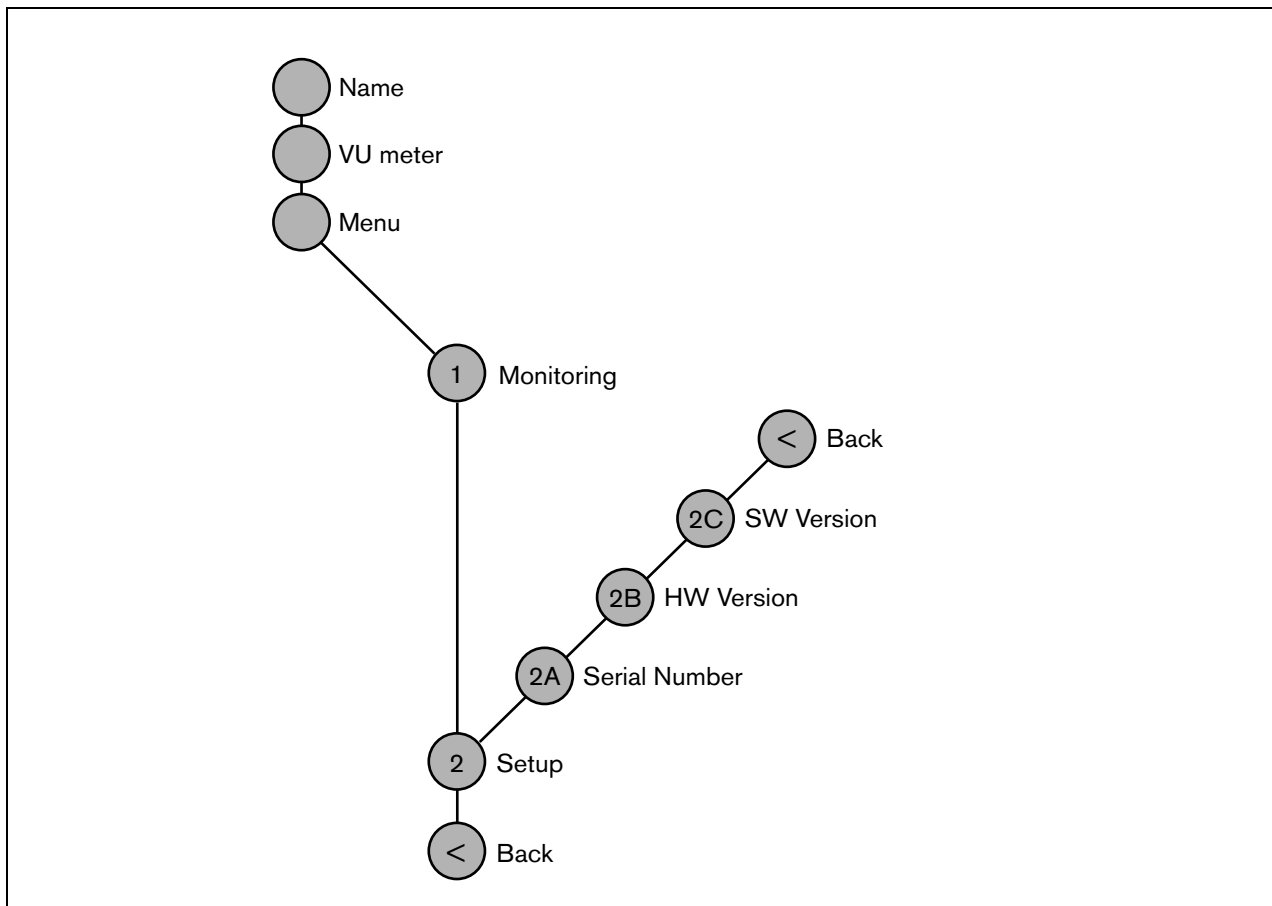


figure 7.7: Structure of the CobraNet interface front panel menu

7.7.2 Navigate through the menu

Operating the menu is always a sequence of alternating turns and pushes:

Turn the button to:

- Cycle through the menu items within a menu.
- Go to a settable option within a menu item (a blinking cursor moves through the menu screen).
- Cycle through the available values for a settable option (the value is blinking).

Push the button to:

- Confirm a chosen menu item (a blinking cursor appears).
- Go to a sub-menu (the sub-menu item character starts blinking).
- Confirm the selection of a settable option (the cursor disappears, the option value starts blinking).
- Confirm a selected value for a settable option (the value stops blinking, the cursor appears again).

Each menu is identified by a number or by a number plus a character (see figure 7.8). The item identification can be found at the start of the first line and is used to navigate to and from the sub-menus. Most menu items have one or more settable options. The value of an option can be changed by selecting a value from a list of available values.

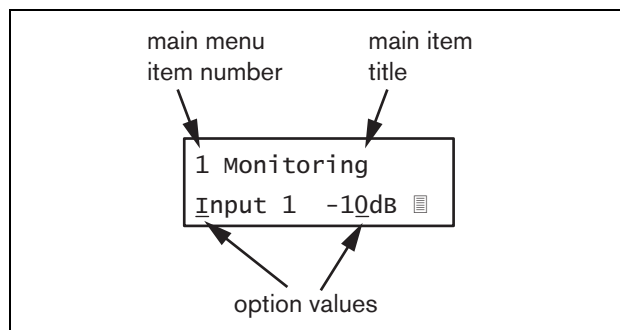


figure 7.8: Menu item screen elements

To navigate through the status screens:

- 1 Turn the button to move through the status screens (i.e. the *Name*, *VU meter* and *Menu ...* screens).

To navigate through the main menu:

- 1 Navigate in the status screens to *Menu....*
- 2 Push the button to go to the main menu. The menu item number starts blinking.
- 3 Turn to select another menu item number.
- 4 Push to confirm the selection.

To jump to a sub-menu:

- 1 Navigate to an item with three dots (e.g. *Setup...*).
- 2 Push the button to go to the sub-menu. The sub-menu item character starts blinking.
- 3 Turn to select another menu item number.
- 4 Push to confirm the selection.

To navigate through a sub-menu:

- 1 Turn the button to move the cursor to the sub-menu item character.
- 2 Push the button. The item character and title starts blinking.
- 3 Turn to select another sub-menu item character.
- 4 Push to confirm the selection.

To change option values:

- 1 Navigate to the applicable menu item.
- 2 Turn the button to move the cursor to the option value you want to change.
- 3 Push the button to activate the option. The option starts to blink.
- 4 Turn the button to select a new option value.
- 5 Push the button to confirm the new value. The option value stops blinking.
- 6 Turn the button to move the cursor to another settable option (when available) and repeat steps 3 to 5.

To jump back from a sub-menu to an item of the main menu:

- 1 Turn the button to move the cursor to the main menu item number.
- 2 Push the button. The item number starts blinking.
- 3 Turn to select another item number.
- 4 Push to confirm the selection.

OR

- 1 Turn the button to < Back.
- 2 Push to confirm.

To jump back from the main menu to the status screens:

- 1 Jump back to the main menu.
- 2 Turn the button to < Back.
- 3 Push to confirm.

Example:

Set the output that is available on the headphones output of the audio expander. (This example assumes you start from the default screen):

Cobranet Interf

- 1 Turn to the button to go to the *Menu ...* in the status screens:

Menu...

- 2 Push the button to confirm:

1 Monitoring
off

- 3 Push the button to confirm:

1 Monitoring
Off

- 4 Turn the button to the *Monitoring* option:

1 Monitoring
off

- 5 Push the button to confirm:

1 Monitoring
off

- 6 Turn the button to change the audio output you want to listen to:

1 Monitoring
Output 3 0 dB

- 7 Push the button to confirm:

1 Monitoring
Output 3 0 dB

- 8 Turn to move the cursor to the menu number:

1 Monitoring
Output 3 0 dB

- 9 Push the button to confirm:

1 Monitoring
Output 3 0 dB

- 10 Turn to move to the < Back item:

< Back

- 11 Push the button to confirm:

Menu...

- 12 Turn the button to go to the default screen:

Cobranet Interf

7.8 Configuration and operation

7.8.1 Introduction

The next sections give descriptions of the possible configuration options. Each description is followed by the relevant menu items with detailed instructions per menu option. The default values are indicated by an asterisk (*) when applicable.

7.8.2 Start-up

When the CobraNet interface is (re)started, the display shows the name of the unit. If it shows *Load Unit Software*, the unit does not contain any firmware. By default, it is delivered without firmware. See section 28.5 for information about upgrading the firmware.

7.8.3 Status screens

The status screens (see table 7.2) provide general information about the status of the CobraNet interface.

table 7.2: Status screens

Menu Item	Description
<i>Name</i>	Shows the name of the unit and (possibly) its fault status (see section 7.8.4)
<i>VU Meter</i>	Visual indication of the signal strengths on all audio inputs and audio outputs of the CobraNet interface.

7.8.4 Fault status

If there is an active fault, the *Name* screen also shows the fault status (see table 7.3). If there is more than one active fault, only the most severe fault is shown. A fault status only provides global information. The exact source of a fault can be found out using the fault events list in this manual (see chapter 45).

table 7.3: Fault status (severity: high to low)

Fault status	Description
<i>No network</i>	The optical network is not available.
<i>Fault: CobraNet</i>	Fault in the CobraNet network.
<i>Fault: Internal</i>	Fault in the CobraNet interface.
<i>Fault: Input CIn</i>	Fault in control input <u>n</u> . (If <u>n</u> = +, faults in multiple control inputs.)

7.8.5 Main menu

The *Menu ...* item (see table 7.4) provides access to the main menu.

table 7.4: Main menus

Menu item	Description
1 <i>Monitoring</i>	Go to the <i>Monitoring</i> submenu. See section 7.8.6.
2 <i>Setup</i>	Go to the <i>Setup</i> submenu. See section 7.8.7 (and further).

7.8.6 Set monitoring options

The *Monitoring* submenu is used to set which signal is sent to the monitoring headphones. It can be one of the audio inputs, one of the audio outputs or no signal at all. Furthermore, the screen provides level meters for a visual identification of the actual signal strength.

table 7.5: Monitoring submenu

Menu item	Option	Value 1	Value 2	Description
1 <i>Monitoring</i>	Source:			
	- Input <u>n</u>	Input nr: 1 to 4	Volume: -31 to 0 dB	The signal from audio input <u>n</u> is available on the headphones output.
	- Output <u>n</u>	Output nr: 1 to 4	Volume: -31 to 0 dB	The signal from audio output <u>n</u> is available on the headphones output.
	- Off*			The headphones output is off during normal operation.

7.8.7 View version information

The *Serial Number*, *HW Version* and *SW Version* menu items are used to obtain version information about the audio expander.

table 7.6: Version information menu items

Menu item	Value (read-only)	Description
2A <i>Serial Number</i>	e.g. 1C.0.0030C	Shows the hexadecimal serial number.
2B <i>HW Version</i>	e.g. 01.00	Shows the hardware version.
2C <i>SW Version</i>	e.g. 3.00.1419	Shows the version number of the firmware. This must be the same for all units in the system.

7.9 Technical data

7.9.1 Physical characteristics

Dimensions (H x W x D):

88 x 483 x 400 mm (19" installation, with brackets,
360 mm depth behind the brackets, 40 mm in front of
the brackets)

92 x 440 x 400 mm (table-top, with feet)

Weight:

7 kg

7.9.2 Climate conditions

Temperature:

-5 to +55 °C (operating)

-20 to +70 °C (non-operating)

Relative humidity:

15 to 90%, non-condensing (operating)

5 to 95%, non-condensing (non-operating)

Air pressure:

600 to 1100 hPa

7.9.3 Electromagnetic compatibility

Emission:

EN55103-1/FCC-47 part 15B

Immunity:

EN55103-2.

Fast transients immunity:

During fast transients bursts according to
EN61000-4-4, the Cobranet audio signal might be
lost. After the burst, this signal restores automatically.

7.9.4 Safety

Electrical:

IEC65/EN60065/UL6500 (file 203290)

Approvals:

CE marking according to CB-scheme,
c-CSA-us marking

7.9.5 Mean time between failure

MTBF:

50,000 hours at +55 °C

(The MTBF doubles for every 10 °C decrease in
temperature.)

7.9.6 System bus

Connector (rear side):

Proprietary connector

Preferred cable:

LBB4416/xx

Maximum cable length:

50 m (per system bus connector)

Data signal interface:

Plastic optical fiber

Network power consumption:

11 W

7.9.7 Control inputs

Connector (rear side):

Removable screw connector

Total cable resistance:

< 1 kΩ (with line supervision)

< 5 kΩ (without line supervision)

Maximum open voltage:

24 V(DC)

Internal pull-up current:

0.5 mA

External contacts:

Voltage-free closing or breaking contacts (relay
contacts, mechanical switches, mercury contacts
etc.)

7.9.8 Control outputs

Connector (rear side):

Removable screw connector

Maximum cable length:

1 km

Contact type:

Relay contact, single pole, change-over contact
(SPDT)

Contact voltage:

24 V(DC)

Contact current:

1 A

Off state (unpowered):

C-NC is closed, C-NO is open

7.9.9 CobraNet

Connector (rear side):
RJ45 sockets
Preferred cable:
CAT 5
Audio transport:
Ethernet (16, 20 and 24 bit)
Channels:
4 in/4 out per connector (max. 64 on CobraNet)
Sample rate:
48 kHz
Latency:
5.33 ms
Integrity assurance:
Watchdog

7.9.10 Headphones

Connector (front side):
3.5 mm stereo jack socket for headphones
Maximum output voltage:
6 dBV with volume control
Rated load impedance:
8 to 600 Ω
Signal/Noise ratio
> 80 dB (at maximum output level)
Distortion:
< 0.5%

Intentionally left blank.

Section 3 - Power Amplifiers

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8 LBB442x/xx Power Amplifiers

8.1 Introduction

The main function of the LBB442x/00 Power Amplifiers is the amplification of audio signals for the loudspeakers. See figure 8.1 for a block diagram of the power amplifier.

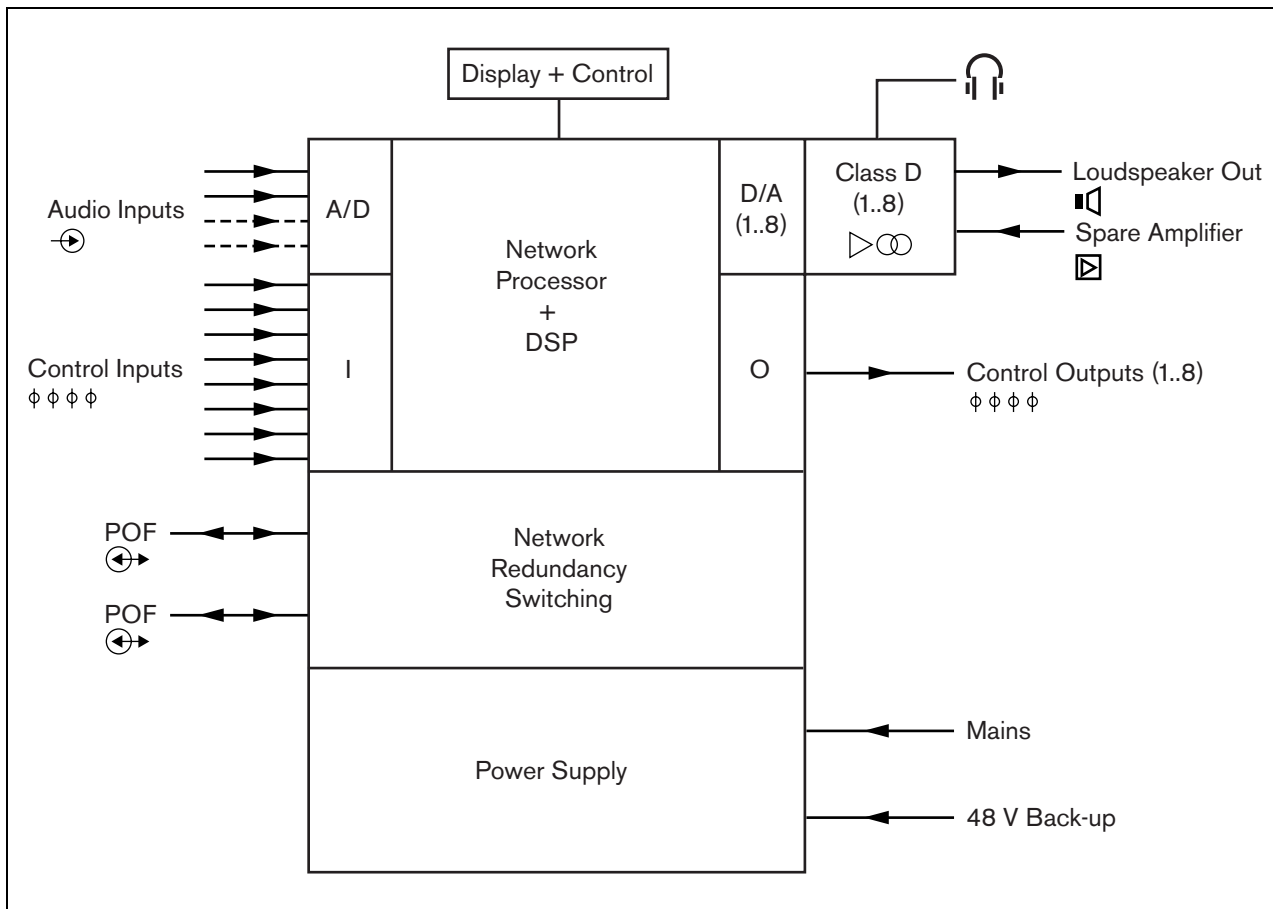


figure 8.1: Block diagram of a power amplifier



Note

The number of inputs, spare amplifier connections, loudspeaker lines and control outputs depends on the type of power amplifier.

8.2 Controls, connectors and indicators

8.2.1 Front view

The front of the power amplifier (see figure 8.2) contains the following:

- 1 **Menu display** - A 2x16 character LCD display gives information about the power amplifier (see section 8.5).
- 2 **Menu button** - A turn-and-push button to operate the menu (see section 8.5).
- 3 **Monitoring headphones output** - A 3.5 mm (0.14 inch) jack socket to connect headphones for audio monitoring purposes.

8.2.2 Rear view

The rear of the power amplifier (see figure 8.2) contains the following:

- 4 **Ground** - A connection to electrically ground the power amplifier
- 5 **Control inputs** - The control inputs can be used to receive signals from third party equipment that must trigger actions in the Praesideo network (see section 8.3.6).
- 6 **Audio inputs** - Audio inputs for receiving audio signals from analogue audio sources (see section 8.3.5).
- 7 **Back-up power** - A socket for connecting a back-up power supply (see section 8.3.7).
- 8 **Mains on/off switch** - A switch to switch the mains of the power amplifier on and off (see section 8.3.2).
- 9 **Fuse holder** - A fuse holder with a fuse that protects the power supply of the power amplifier (see section 8.3.2).
- 10 **System bus** - Two system bus connectors to connect the power amplifier to other Praesideo equipment.
- 11 **Amplifier channels** - Each power amplifier unit contains 1 to 8 completely separated and configurable amplifier channels. The number of amplifier units (and therefore the number of amplifier channels) depends on the type of power amplifier (see section 8.3.4).
- 12 **Mains inlet** - A mains socket to connect the power amplifier to the mains (see section 8.3.2).

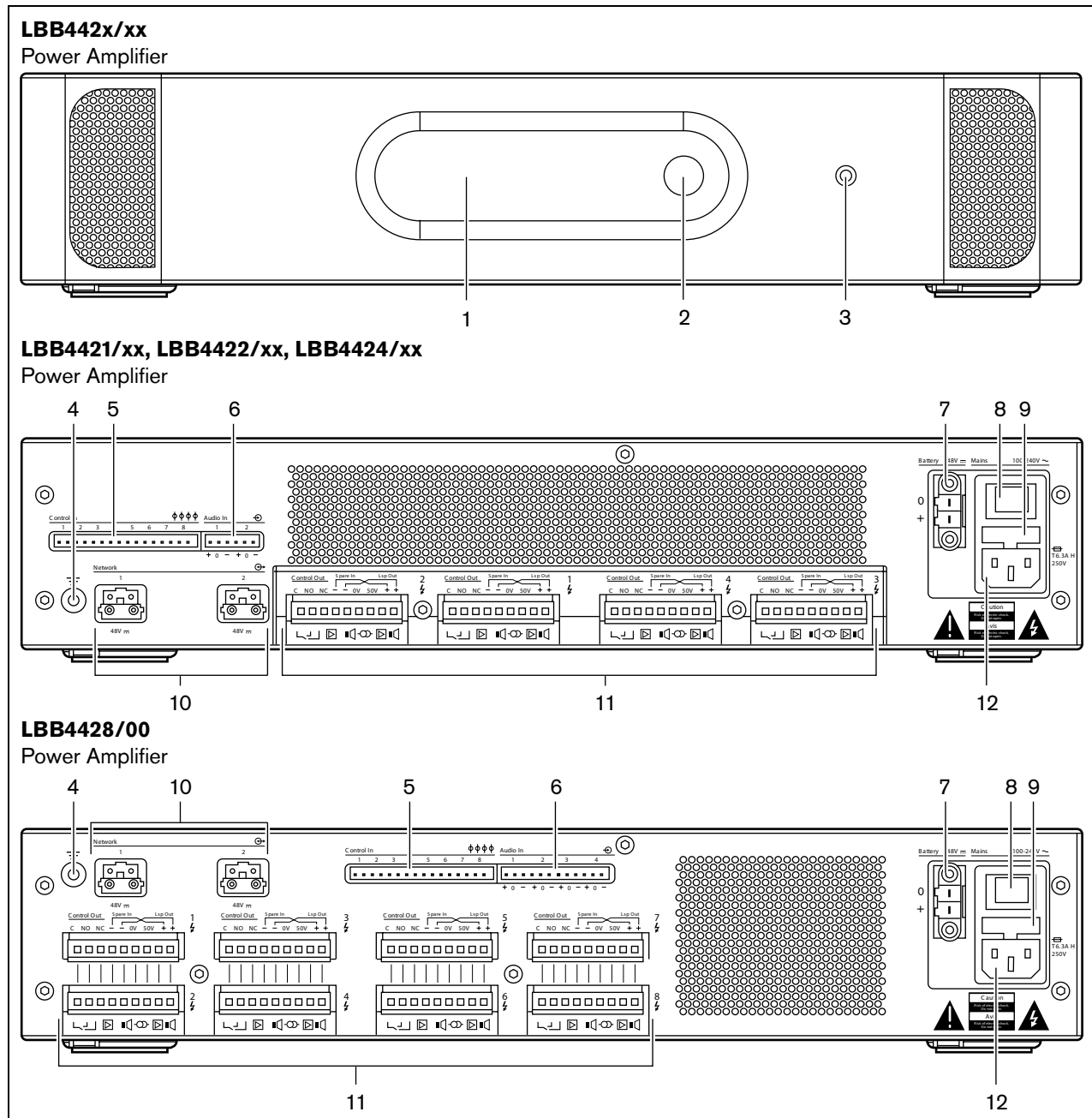


figure 8.2: Front and rear views of the power amplifier (all types)

8.3 Connections

8.3.1 Introduction

This section gives an overview of typical system connections using the power amplifier.

- Connecting the mains (see section 8.3.2).
- Connecting the network (see section 8.3.3).
- Connecting the amplifier channels (see section 8.3.4).
- Connecting audio inputs (see section 8.3.5).
- Connecting control inputs (see section 8.3.6).
- Connecting back-up power supply (see section 8.3.7).

8.3.2 Connecting the mains

Proceed as follows to connect the power amplifier to the mains:

- 1 Put the correct type of fuse in the power amplifier (see table 8.1).

table 8.1: Voltage ranges and fuses

Voltage range	Fuse
Low voltage range	6 A SB (UL 248)
High voltage range	T6.3 A H 250 V (IEC 60127)

- 2 Connect the mains cord to the power amplifier.
- 3 Connect the mains cord to a locally approved mains outlet.

8.3.3 Connecting the network

Connect the power amplifier to the Praesideo system using the system bus connectors and LBB4416 network cables. Both connectors are interchangeable.

8.3.4 Connecting the amplifier channels

8.3.4.1 Introduction

An amplifier channel (see figure 8.3) is a group of outgoing signals that have been processed by the same amplifier unit of the power amplifier. The number of amplifier channels depends on the type of power amplifier (see table 8.2)

table 8.2: Number of amplifier channels

Type	Amplifier channels
LBB4420	1
LBB4422	2
LBB4424	4
LBB4428	8

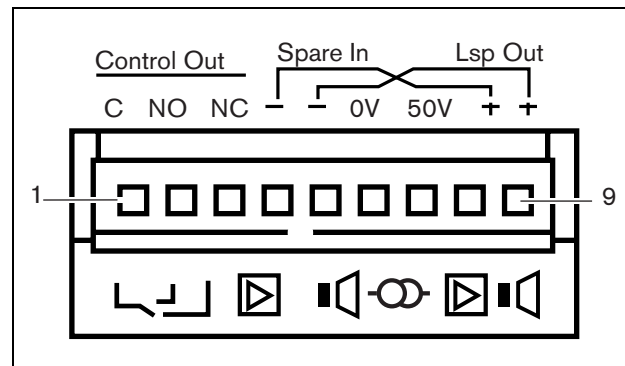


figure 8.3: Amplifier channel connector

table 8.3: Amplifier channel connector details

Pin	Description
1, 2, 3	Control outputs contacts. See section 8.3.4.4.
4, 8	Spare amplifier. See section 8.3.4.5.
5, 9	Loudspeaker line. See section 8.3.4.2.
6, 7	Fixed 50 V line. See section 8.3.4.3.



Caution

After connecting wires to the amplifier channel connectors, install the plastic safety bracket. The plastic safety bracket makes sure that the amplifier channel connectors cannot be touched.

8.3.4.2 Loudspeaker lines

Between the *Lsp Out+* and *Lsp Out-* connections, the loudspeakers must be connected. The voltage between these connections (100 V, 70 V or 50 V) depends on the position of the jumper switch on the output board (see figure 8.5).



Caution

Check the specifications of the loudspeakers to find out which maximum voltage can be provided on the loudspeakers outputs of the power amplifiers.

It is possible to use the different voltages to reduce the volume of the loudspeaker line. For example, if all loudspeakers are suitable for 100 V, the maximum output level is 40 dBV. If the loudspeaker line voltage is set to 70 V, the maximum output level is reduced to 37 dBV (difference: -3 dB). If it is set to 50 V, it is reduced to 34 dBV (difference: -6 dB).

8.3.4.3 50 V output

The 50 V output provided by the amplifier channel is actually a tap-off from the 50 V voltage for the loudspeaker line. The availability of the 50 V line does not depend on the selected loudspeaker voltage, since the tap-off is situated in front of the jumper (see figure 8.4).

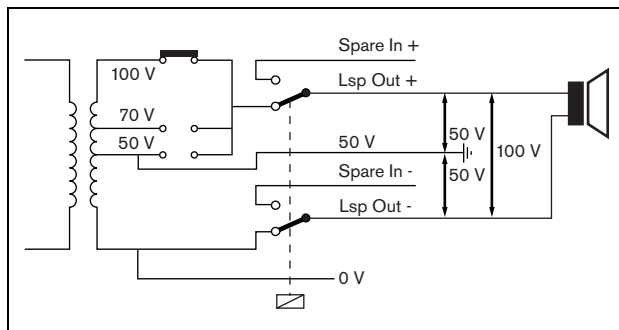


figure 8.4: 50 V output

If the 50 V is connected to ground, a 'balanced' output for the loudspeaker voltage can be created. In that case, the maximum voltage between the loudspeaker line and ground is always 50 V (see figure 8.4). The actual voltage between the loudspeaker line and ground depends on the position of the jumper switch.

If the 50 V is connected to ground on purpose, the ground supervision of the amplifier output should be disabled using the configuration software (see section 34.3.4).

8.3.4.4 Control outputs

Each amplifier channel has one control output. The control output can be used to send signals to third party equipment to trigger actions. Each control output has three pins (see figure 8.3). The common (C) pin of the control output should always be connected. Whether the other pin that is connected is the normally closed (NC) or normally open (NO) depends on which action you want to take place when the control output is active (see table 8.4).

table 8.4: Control outputs details

Behavior	Abbreviation	Description
Normally closed	NC	By default, the NC contact is connected with common contact C. When the output is activated, the NC contact is opened.
Normally open	NO	By default, the NO contact is not connected with common contact C. When the output is activated, the NO contact is closed.

In the configuration, a purpose must be attached to the control outputs that indicates the action to be taken when it becomes active (see table 34.5). For example, the power amplifier control outputs can be configured as a *Volume override* output to create volume overrides.

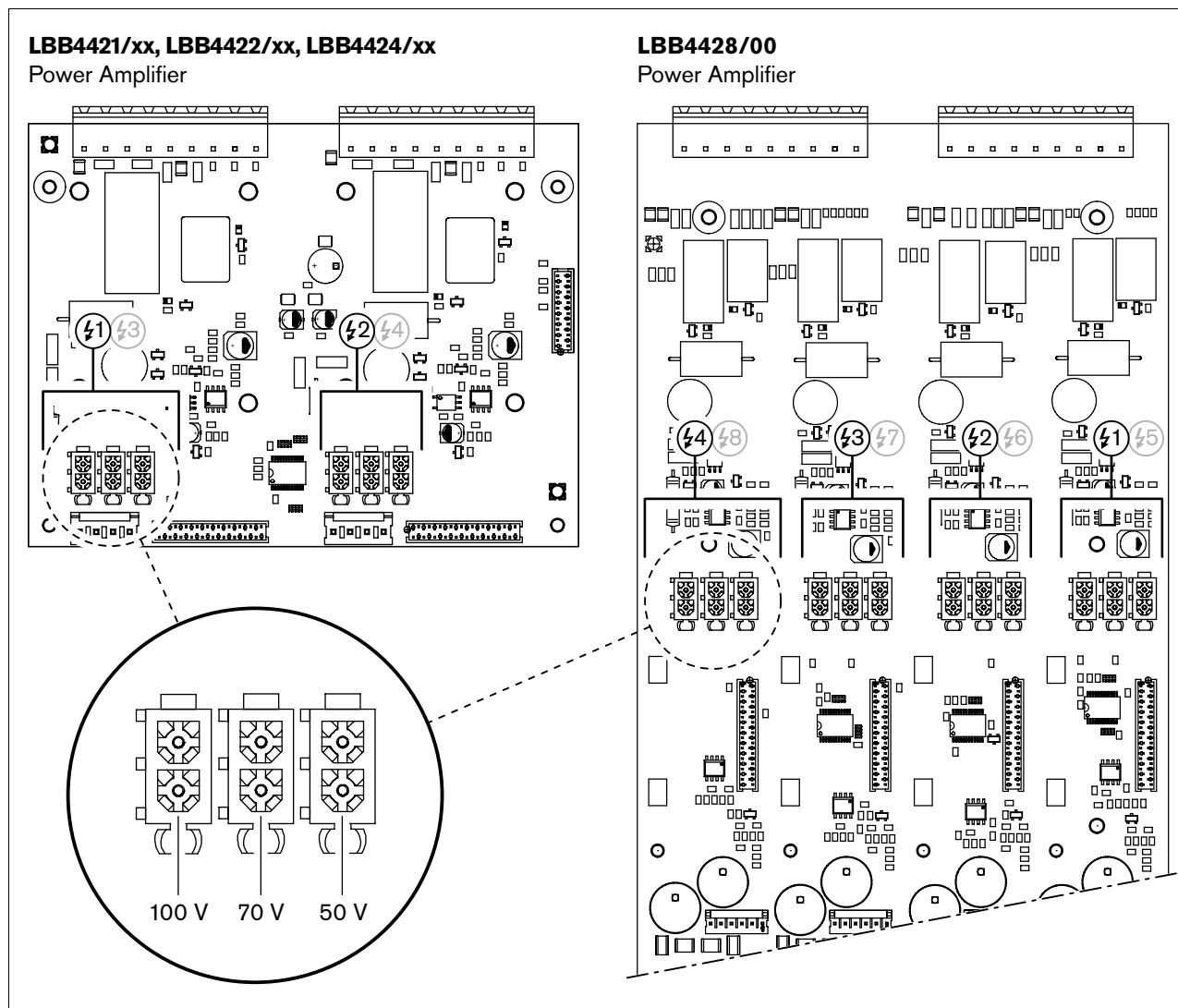


figure 8.5: Top view of the power amplifier output boards

8.3.4.5 Spare amplifiers

If a power amplifier has a defect, all loudspeaker lines are switched automatically to a spare amplifier (if connected and configured). See figure 8.6 for a connection diagram. Keep the following in mind:

- The main and spare power amplifiers must be of the same type. If the main power amplifier is a LBB4424/10, the spare power amplifier must also be a LBB4424/10
- The way the loudspeaker lines are connected to the spare amplifier must be exactly the same as the way they are connected to the main amplifier. For example, if the loudspeaker lines use the fixed 50 V output of the main amplifier, they also must be connected to the fixed 50 V output of the spare amplifier.

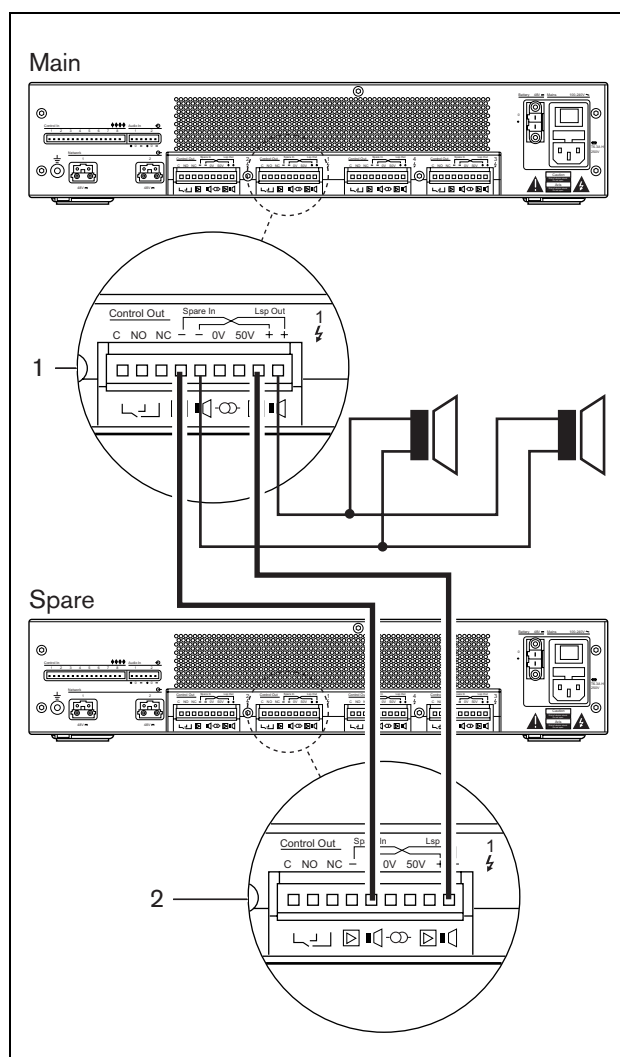


figure 8.6: Connecting a spare amplifier



Note

It is allowed to connect one spare power amplifier to more than one main power amplifier.

The actual spare switch is carried out by a relay. See figure 8.7 for the situation before spare switching and figure 8.8 for the situation after spare switching. As long as the main power amplifier (1) functions correctly, this relay is energized (see figure 8.7) and the audio is routed to the loudspeaker line (*Lsp Out+* and *Lsp Out-* terminals). The spare amplifier (2) does not route any audio, since it has no connection to any loudspeaker line.

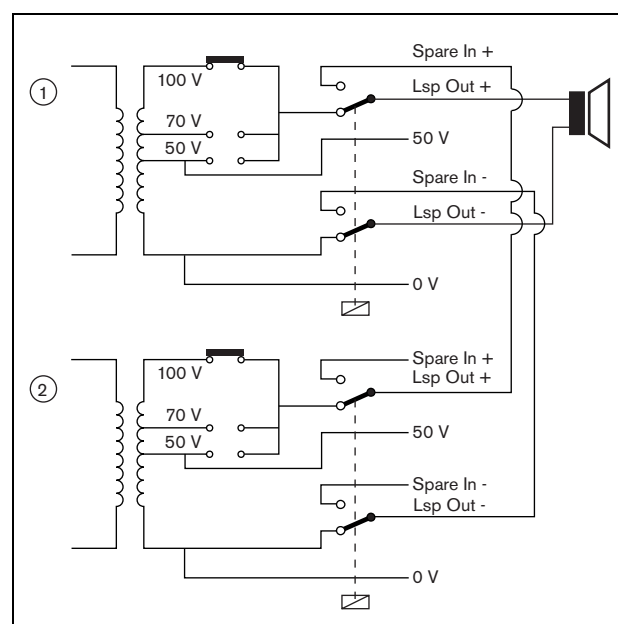


figure 8.7: Power amplifier, before spare switching

At the moment the main amplifier (1) goes down, the relay is de-energized and the switches fall into their default positions: *Spare In -* and *Spare In +* (see figure 8.8). This means that the audio output of the spare amplifier (2) is routed to the loudspeaker line through the main amplifier (1). The configuration settings (see section 34.3) of the audio outputs are transferred from the main power amplifier to the spare power amplifier. The configuration settings of the audio inputs, control inputs and control outputs are not transferred to the spare power amplifier.

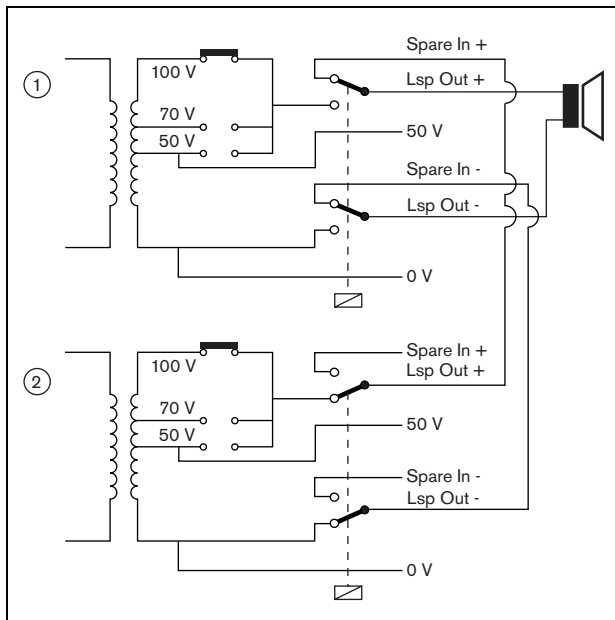


figure 8.8: Power amplifier, after spare switching

Often, for each rack of main amplifiers, one spare amplifier is used. To connect multiple main amplifiers of the same type to a spare amplifier of the same type:

- Connect the loudspeaker output of the spare amplifier to the spare inputs of the first main amplifier.
- Loop-through the spare inputs of the first main amplifier to the spare inputs of the other main amplifiers. Please note that if the number of failing main power amplifier increases, the loudspeaker load of the spare power amplifier increases. This can result in an overload of the power amplifier. Also note that the audio distributed to the loudspeaker lines of all failing power amplifiers depends on the configuration settings of the first failing power amplifier, since only the configuration settings of the first failing power amplifier are transferred to the spare power amplifier.

8.3.5 Connecting audio inputs

The number of audio inputs depends on the type of power amplifier.

table 8.5: Number of audio inputs

Type	Audio inputs
LBB4421	2
LBB4422	2
LBB4424	2
LBB4428	4

The audio inputs are used to interface with analogue audio sources. Each audio input is selectable between line and microphone.

It is possible to connect unbalanced signal as well as balanced signals. Unbalanced signals can be connected to the 0 (GND) and the + or - pins (see figure 8.9). The remaining, non-connected pin do not have to be connected to the 0 pin. A balanced signal should be connected between the + and - pins of the audio input. If necessary, the 0 (GND) pin can be connected to the shielding of the signal cable. However, this is not required.

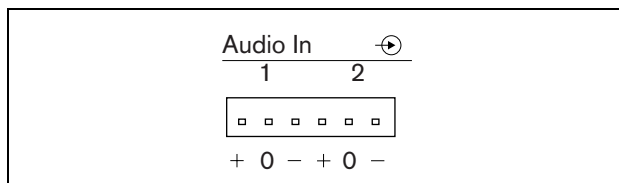


figure 8.9: Audio input connectors

8.3.6 Connecting control inputs

Each type of power amplifier has 8 control inputs. The control inputs can receive signals from third party equipment that must trigger actions in the Praesideo system. The control inputs can be configured to act on contact make or on contact break (see section 34.3). It is also possible to supervise the cables for short-circuits and open connections (see figure 8.10 and figure 8.11). Whether a control input is actually supervised or not is defined in the configuration.

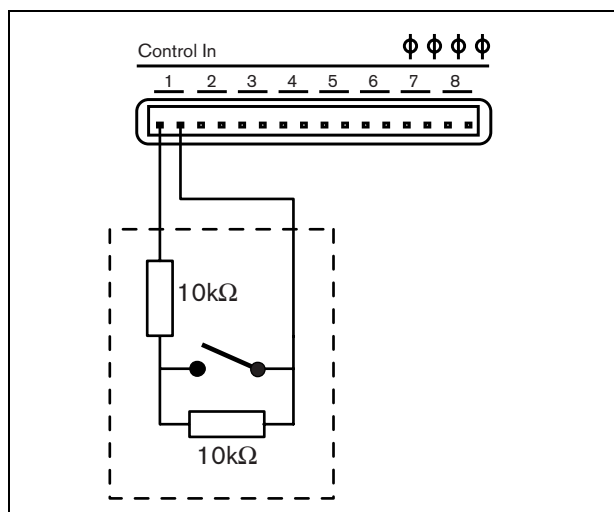


figure 8.10: Supervised control input

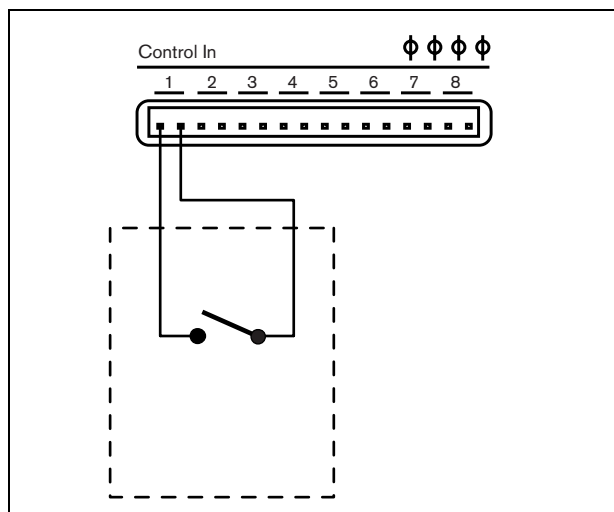


figure 8.11: Non-supervised control input



Warning

Do not connect DC or AC signals to the control inputs, otherwise the input circuit may be damaged.

8.3.7 Connecting back-up power

If a back-up power supply has been connected to the power amplifier, the power amplifier must be connected to earth in a correct way. See figure 8.12 for instructions on how to connect a rack-installed power amplifier to earth and figure 8.13 for instructions on how to connected a non rack-installed power amplifier to earth.

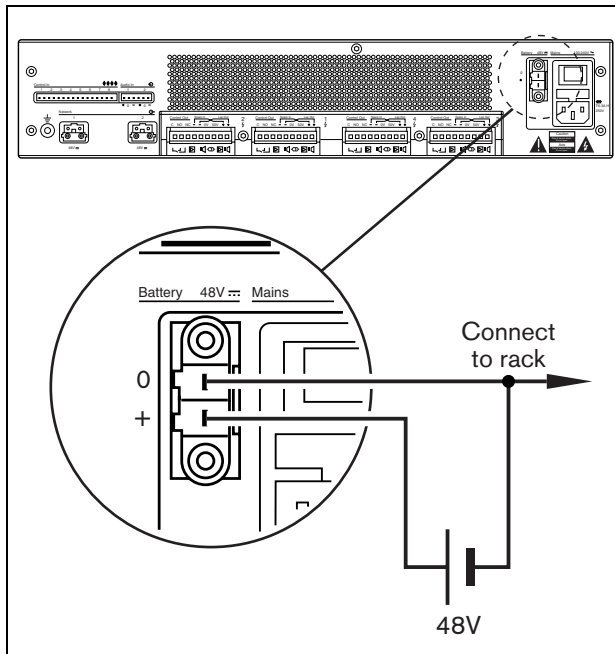


figure 8.12: Connecting power amplifier to earth (1)

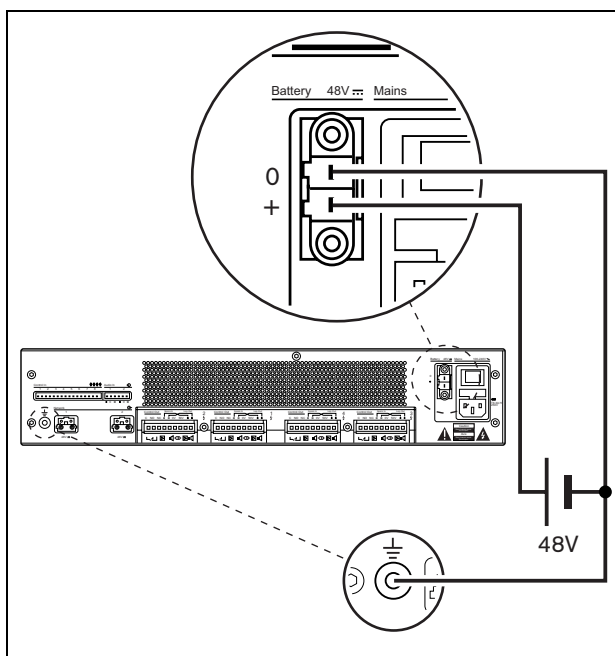


figure 8.13: Connecting power amplifier to earth (2)

8.4 Installation

The power amplifier is suitable for either table-top or 19-inch rack installation. Four feet (for table-top use) and two brackets (for rack installation) are supplied.



Caution

Due to the weight of the power amplifiers, it requires two persons to lift and install them in a 19-inch rack.

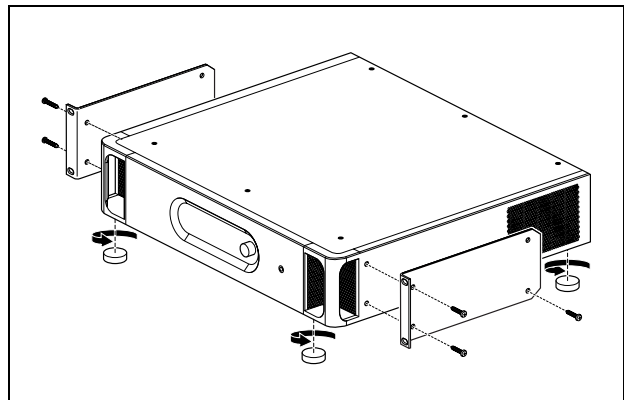


figure 8.14: Installation

Ensure there is enough space for the cool air flow to enter and the warm air flow to leave the power amplifier. Preferably, the power amplifiers are installed in a closed 19" rack that has one cool air inlet protected with a dust filter (see figure 8.15) to prevent dust from entering the equipment.

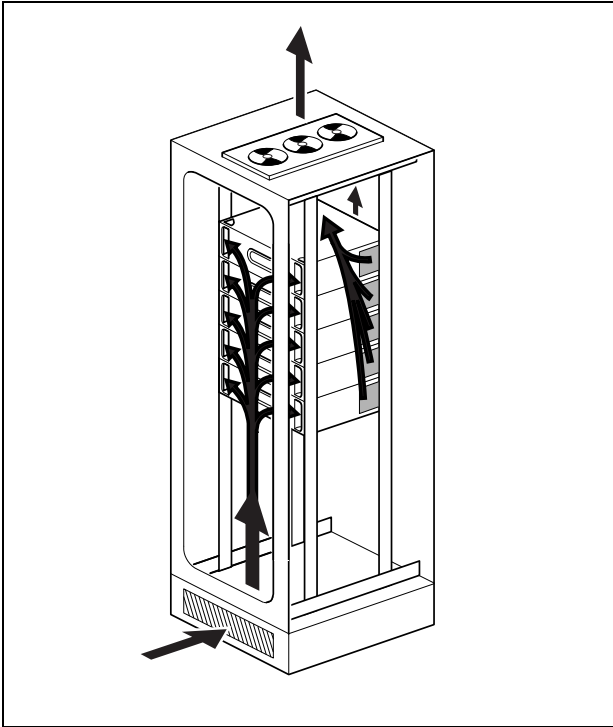


figure 8.15: Air flow in a 19" rack

8.5 Using the configuration menu

8.5.1 Overview

A number of power amplifier settings are available via an interactive menu, using a 2x16 LCD display and a 'turn-and-push' menu button. The next figure gives an overview of the menu structure.

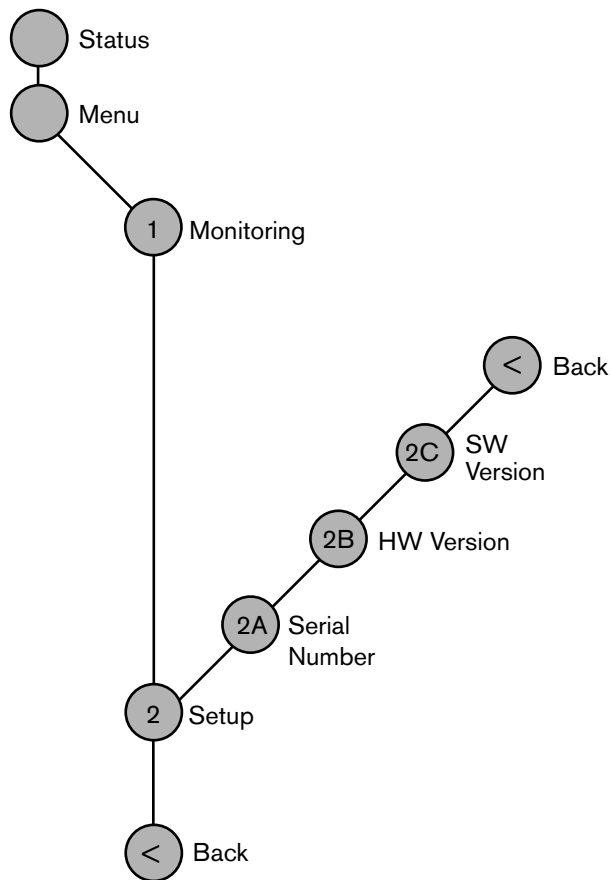


figure 8.16: Structure of the power amplifier front panel menu

8.5.2 Navigate through the menu

Operating the menu is always a sequence of alternating turns and pushes:

Turn the button to:

- Cycle through the menu items within a menu.
- Go to a settable option within a menu item (a blinking cursor moves through the menu screen).
- Cycle through the available values for a settable option (the value is blinking).

Push the button to:

- Confirm a chosen menu item (a blinking cursor appears).
- Go to a sub-menu (the sub-menu item character starts blinking).
- Confirm the selection of a settable option (the cursor disappears, the option value starts blinking).
- Confirm a selected value for a settable option (the value stops blinking, the cursor appears again).

Each menu is identified by a number or by a number plus a character (see figure 8.17). The item identification can be found at the start of the first line and is used to navigate to and from the sub-menus. Most menu items have one or more settable options. The value of an option can be changed by selecting a value from a list of available values.

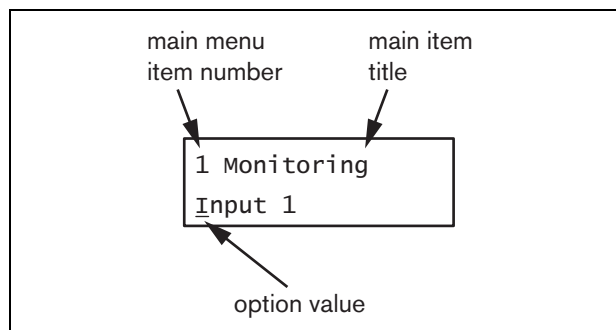


figure 8.17: Menu item screen elements

To navigate through the status screens:

- 1 Turn the button to move through the status screens (i.e. the *Status* and *Menu ...* screens).

To navigate through the main menu:

- 1 Navigate in the status screens to *Menu...*
- 2 Push the button to go to the main menu. The menu item number starts blinking.
- 3 Turn to select another menu item number.
- 4 Push to confirm the selection.

To jump to a sub-menu:

- 1 Navigate in to an item with three dots (e.g. *Setup...*).
- 2 Push the button to go to the sub-menu. The sub-menu item character starts blinking.
- 3 Turn to select another menu item number.
- 4 Push to confirm the selection.

To navigate through a sub-menu:

- 1 Turn the button to move the cursor to the sub-menu item character.
- 2 Push the button. The item character and title starts blinking.
- 3 Turn to select another sub-menu item character.
- 4 Push to confirm the selection.

To change option values:

- 1 Navigate to the applicable menu item.
- 2 Turn the button to move the cursor to the option value you want to change.
- 3 Push the button to activate the option. The option starts to blink.
- 4 Turn the button to select a new option value.
- 5 Push the button to confirm the new value. The option value stops blinking.
- 6 Turn the button to move the cursor to another settable option (when available) and repeat steps 3 to 5.

To jump back from a sub-menu to an item of the main menu:

- 1 Turn the button to move the cursor to the main menu item number.
- 2 Push the button. The item number starts blinking.
- 3 Turn to select another item number.
- 4 Push to confirm the selection.

OR

- 1 Turn the button to < *Back*.
- 2 Push to confirm.

To jump back from the main menu to the status screens:

- 1 Jump back to the main menu.
- 2 Turn the button to < *Back*.
- 3 Push to confirm.

Example:

Set the output that is available on the headphones output of the power amplifier. (This example assumes you start from the default screen):

Power Amp 4x125W
1_2_3_4_

- 1 Turn to the button to go to the *Menu ...* in the status screens:

Menu...

- 2 Push the button to confirm:

1 Monitoring
off

- 3 Push the button to confirm:

1 Monitoring
off

- 4 Turn the button to the *Monitoring* option:

1 Monitoring
off

- 5 Push the button to confirm:

1 Monitoring
off

- 6 Turn the button to change the audio output you want to listen to:

1 Monitoring
Output 3

- 7 Push the button to confirm:

1 Monitoring
Output 3

- 8 Turn to move the cursor to the menu number:

1 Monitoring
Output 3

- 9 Push the button to confirm:

1 Monitoring
Output 3

- 10 Turn to move to the < *Back* item:

< Back

- 11 Push the button to confirm:

Menu...

- 12 Turn the button to go to the default screen:

Power Amp 4x125W
1_2_3_4_

8.6 Configuration and operation

8.6.1 Introduction

The next sections give descriptions of the possible configuration options. Each description is followed by the relevant menu items with detailed instructions per menu option. The default values are indicated by an asterisk (*) when applicable.

8.6.2 Start-up

When the power amplifier is (re)started, the display shows the name of the unit and the VU meters for the outputs. If it shows *Load Unit Software*, the unit does not contain any firmware. By default, it is delivered without firmware. See section 28.5 for information about upgrading the firmware.

8.6.3 Status screen

The *Status* screen (see figure 8.16) shows the name of the power amplifier and provides general information about its (fault) status (see table 8.6). If there is more than one active fault, only the most severe fault is shown. A fault status only provides global information. The exact source of a fault can be found out using the fault events list in this manual (see chapter 45).

table 8.6: Status (in order of severity: high to low)

Fault status	Description
<i>No network</i>	The optical network is not available.
<i>Fault: Channel <u>n</u></i>	Fault in amplifier channel <u>n</u> . (If <u>n</u> = +, faults in multiple amplifier channels.)
<i>Fault: Line Ch <u>n</u></i>	Fault in loudspeaker line <u>n</u> . (If <u>n</u> = +, faults in multiple loudspeaker lines.)
<i>Fault: Lsp Ch <u>n</u></i>	Fault in a loudspeaker in line <u>n</u> . (If <u>n</u> = +, loudspeakers on multiple lines are failing).
<i>Fault: Input C<u>n</u></i>	Fault in control input <u>n</u> . (If <u>n</u> = +, faults in multiple control inputs.)
<i>Fault: Input A<u>n</u></i>	Fault in audio input <u>n</u> . (If <u>n</u> = +, faults in multiple audio inputs.)
<i>Fault: Mains</i>	Mains power supply failure.
<i>Fault: Battery</i>	Back-up power supply failure.
<i>Idle</i>	Spare power amplifier that is not sparing at the moment.
<i>Standby</i>	Standby mode or disabled in system configuration.
<i>VU meters</i>	Fully operational.

8.6.4 Main menu

The *Menu ...* item provides access to the main menu.

table 8.7: Main menus

Menu item	Description
1 <i>Monitoring</i>	Go to the <i>Monitoring</i> submenu. See section 8.6.5.
2 <i>Setup</i>	Go to the <i>Setup</i> submenu. See section 8.6.6 (and further).

8.6.5 Set monitoring options

The *Monitoring* submenu is used to set which signal is sent to the monitoring headphones. It can be one of the audio outputs or no signal at all. It is not possible to set the volume of the audio outputs on the monitoring headphones. This means you always hear the audio output at the monitoring headphones at the same volume as it is broadcast.

table 8.8: Monitoring submenu

Menu item	Option	Value 1	Description
1 <i>Monitoring</i>	Source:		
	- Output <u>n</u>	Output nr: 1 to 8	The signal from audio output <u>n</u> is available on the monitoring headphones output.
	- Off		The monitoring headphones output is off.

8.6.6 View version information

The *Serial Number*, *HW Version* and *SW Version* submenus are used to obtain version information about the power amplifier.

table 8.9: Version information menu items

Menu item	Value (read-only)	Description
2A <i>Serial Number</i>	e.g. 07.0.0025B	Shows the hexadecimal serial number.
2B <i>HW Version</i>	e.g. 01.01	Shows the hardware version.
2C <i>SW Version</i>	e.g. 3.00.1419	Shows the version number of the firmware. This must be the same for all units in the system.

8.7 Technical data

8.7.1 Physical characteristics

Dimensions (H x W x D):

88 x 483 x 400 mm (19" installation, with brackets,
360 mm depth behind the brackets, 40 mm in front of
the brackets)

92 x 440 x 400 mm (table-top, with feet)

Weight:

13 kg (LBB4421)

14 kg (LBB4422)

16.5 kg (LBB4424)

14.5 kg (LBB4428)

8.7.2 Climate conditions

Temperature:

-5 to +55 °C (operating)

-20 to +70 °C (non-operating)

Relative humidity:

15 to 90%, non-condensing (operating)

5 to 95%, non-condensing (non-operating)

Air pressure:

600 to 1100 hPa

8.7.3 Electromagnetic compatibility

Emission:

EN55103-1/FCC-47 part 15B

Immunity:

EN55103-2

8.7.4 Safety

Electrical:

IEC65/EN60065/UL6500 (file 203290)

Approvals:

CE marking according to CB-scheme,
c-CSA-us marking

8.7.5 Mean time between failure

MTBF:

32,000 hours at +55 °C

(The MTBF doubles for every 10 °C decrease in
temperature.)

8.7.6 System bus

Connector (rear side):

Female proprietary connector

Preferred cable:

LBB4416/xx

Maximum cable length:

50 m (per system bus connector)

Data signal interface:

Plastic optical fiber

Network power consumption:

0 W

8.7.7 Power supply

Connector (rear side):

IEC male power inlet with fuse holder

Preferred cable:

Mains cord meeting CE standard

Voltage selector:

Autorange

Input voltage:

90 to 264 V(AC), 50-60 Hz

On/Off switch:

Located at the rear

8.7.8 Backup power

Connector (rear side):

2 x 2 pole for removable screw connector

Input voltage:

48 V(DC)

Input voltage range:

45 to 56 V(DC)

Maximum current:

12 A

8.7.9 Power consumption (LBB4421)

Stand-by:
6 W, 48 V(DC); 16 W, 120/230 V(AC)
Idle, no pilot tone:
21 W, 48 V(DC); 32 W, 120/230 V(AC)
Idle, with pilot tone 8 V:
26 W, 48 V(DC); 37 W, 120/230 V(AC)
P_{max} -6 dB with pilot tone 8 V:
182 W, 48 V(DC); 210 W, 120/230 V(AC)
P_{max} -3 dB with pilot tone 8 V:
330 W, 48V(DC); 370 W, 120/230 V(AC)
P_{max} with pilot tone 8 V:
520 W, 48 V(DC); 640 W, 54 V(DC); 720 W, 120/230 V(AC)

8.7.11 Power consumption (LBB4424)

Stand-by:
8 W, 48 V(DC); 19 W, 120/230 V(AC)
Idle, no pilot tone:
37 W, 48 V(DC); 52 W, 120/230 V(AC)
Idle, with pilot tone 8 V:
46 W, 48 V (DC); 61 W, 120/230 V(AC)
P_{max} -6 dB with pilot tone 8 V:
200 W, 48 V(DC); 226W, 120/230 V(AC)
P_{max} -3 dB with pilot tone 8 V:
340 W, 48V(DC); 390 W, 120/230 V(AC)
P_{max} with pilot tone 8 V:
620 W, 48 V(DC); 670 W, 54 V(DC); 720 W, 120/230 V(AC)

8.7.10 Power consumption (LBB4422)

Stand-by:
6 W, 48 V(DC); 16 W, 120/230 V(AC)
Idle, no pilot tone:
24 W, 48 V(DC); 38 W, 120/230 V(AC)
Idle, with pilot tone 8 V:
29 W, 48 V (DC); 44 W, 120/230 V(AC)
P_{max} -6 dB with pilot tone 8 V:
188 W, 48 V(DC); 214 W, 120/230 V(AC)
P_{max} -3 dB with pilot tone 8 V:
336 W, 48V(DC); 375 W, 120/230 V(AC)
P_{max} with pilot tone 8 V:
520 W, 48 V(DC); 640 W, 54 V(DC); 720 W, 120 V(AC)/230 V(AC)

8.7.12 Power consumption (LBB4428)

Stand-by:
16 W, 48 V(DC), 26 W, 120/230 V(AC)
Idle, no pilot tone:
53 W, 48 V(DC); 68 W, 120/230 V(AC)
Idle, with pilot tone 8 V:
64 W, 48 V(DC), 80 W, 120/230 V(AC)
P_{max} -6 dB with pilot tone 8 V:
230 W, 48 V(DC); 255 W, 120/230 V(AC)
P_{max} -3 dB with pilot tone 8 V:
360 W, 48V(DC); 415 W, 120/230 V(AC)
P_{max} with pilot tone 8 V:
680 W, 48 V(DC); 710 W, 54 V(DC); 790 W, 120/230 V(AC)

8.7.13 Analogue line inputs

Connector (rear side):
6 pole header (type ETB47-06-2-G1 (ECE)) for removable screw connector
Preferred cable:
Twisted pair, shielded
Maximum input signal level:
6 dBV
Input range:
-12 to 0 dB with respect to maximum input level
Input sensitivity setting:
Software
Frequency response:
-3 dB points at 50 Hz and 20 kHz (tolerance ± 1 dB)
Input impedance:
22 k Ω
Signal/Noise ratio:
> 87 dB (rms unweighed)
Common mode rejection ratio:
> 40 dB at 1 kHz
Input cross-talk:
< -80 dB at 1 kHz
< -70 dB at 10 kHz at -11 dBV input level
Distortion:
< 0.1%

8.7.14 Analogue microphone inputs

Connector (rear side):
6 pole header (type ETB47-06-2-G1 (ECE)) for removable screw connector
Preferred cable:
Twisted pair, shielded
Input range:
-65 dBV to -50 dBV
Input sensitivity setting:
Software
Frequency response:
100 Hz to 16 kHz
Input impedance:
1360 Ω
Signal/Noise ratio:
> 60 dB (rms unweighed at -60 dBV)
Common mode rejection ratio:
> 40 dB at 1 kHz
Input cross-talk:
< -80 dB at 1 kHz at -60 dBV input level
< -70 dB at 10 kHz at -60 dBV input level
Distortion:
< 0.1%
Phantom supply:
12 V $\pm$ 1 V (max. 15 mA)

8.7.15 Loudspeaker outputs and spare inputs (LBB4421)

Connector (rear side):
1 x 9 pole header (type ETB 43-09-2-G1 (ECE)) with removable screw connector (shared with control outputs)
Voltage:
100 V, 70 V, 50 V (jumper setting)
Max. unloaded voltage:
200 V peak
Rated load resistance:
20 Ω (100 V); 10 Ω (70 V); 5 Ω (50 V)
Rated load capacitance:
250 nF (100 V); 500 nF (70 V); 1000 nF (50 V)
Rated output power:
500 W, distortion $\leq$ 1% (mains power or backup power $>$ 53 V) max. 1 minute at 1 kHz and an ambient temperature of 55 °C
400 W, distortion $\leq$ 1% (backup power 48 V)
Alarm tone output power:
250 W, distortion $\leq$ 0.3% max. 30 minutes at 1 kHz and an ambient temperature of 55 °C
Continuous output power:
125 W at 1 kHz and an ambient temperature of 55 °C
250 W at 1 kHz and an ambient temperature of 30 °C
Distortion:
$\leq$ 0.3% at 1 kHz and 50% of the rated output power
$<$ 1% from 60 Hz to 19 kHz
Frequency response:
60 Hz to 19 kHz (-3 dB) at -10 dB with maximum capacitive load and rated load resistance
Power bandwidth:
60 Hz - 19 kHz (-3 dB, distortion $<$ 1%) at 50% of the rated output power
Signal/Noise ratio:
$>$ 85 dBA with pilot tone off
Channel cross-talk:
$<$ -80 dB at 1 kHz at nominal load
$<$ -70 dB at 10 kHz at nominal load
Amplifier output limiting:
Soft clipping
Acoustical noise level:
$<$ NR35 at 1 m, fans at half speed, table-top
$<$ NR40 at 1 m, fans at full speed, table-top

8.7.16 Loudspeaker outputs and spare inputs (LBB4422)

Connector (rear side):
1 x 9 pole header (type ETB 43-09-2-G1 (ECE)) with removable screw connector (shared with control outputs)
Voltage:
100 V, 70 V, 50 V (jumper setting)
Max. unloaded voltage:
200 V peak
Rated load resistance:
40 Ω (100 V); 20 Ω (70 V); 10 Ω (50 V)
Rated load capacitance:
125 nF (100 V); 250 nF (70 V); 500 nF (50 V)
Rated output power:
2 x 250 W, distortion $\leq$ 1% (mains power or backup power $>$ 53 V) max. 1 minute at 1 kHz and an ambient temperature of 55 °C
2 x 200 W, distortion $\leq$ 1% (backup power 48 V)
Alarm tone output power:
2 x 125 W, distortion $\leq$ 0.3% max. 30 minutes at 1 kHz and an ambient temperature of 55 °C
Continuous output power:
2 x 60 W at 1 kHz and an ambient temperature of 55 °C
2 x 125 W at 1 kHz and an ambient temperature of 30 °C
Distortion:
$\leq$ 0.3% at 1 kHz and 50% of the rated output power
$<$ 1% from 60 Hz to 19 kHz
Frequency response:
60 Hz to 19 kHz (-3 dB) at -10 dB with max. capacitive load and rated load resistance
Power bandwidth:
60 Hz - 19 kHz (-3 dB, distortion $<$ 1%) at 50% of the rated output power
Signal/Noise ratio:
$>$ 85 dBA with pilot tone off
Channel cross-talk:
$<$ -80 dB at 1 kHz at nominal load
$<$ -70 dB at 10 kHz at nominal load
Amplifier output limiting:
Soft clipping
Acoustical noise level:
$<$ NR35 at 1 m, fans at half speed, table-top
$<$ NR40 at 1 m, fans at full speed, table-top

8.7.17 Loudspeaker outputs and spare inputs (LBB4424)

Connector (rear side):
1 x 9 pole header (type ETB 43-09-2-G1 (ECE)) with removable screw connector (shared with control outputs)
Voltage:
100 V, 70 V, 50 V (jumper setting)
Max. unloaded voltage:
200 V peak
Rated load resistance:
80 Ω (100 V); 40 Ω (70 V); 20 Ω (50 V)
Rated load capacitance:
62 nF (100 V); 125 nF (70 V); 250 nF (50 V)
Rated output power:
4 x 125 W, distortion $\leq$ 1% (mains power or backup power $>$ 53 V) max. 1 minute at 1 kHz and an ambient temperature of 55 °C.
4 x 100 W, distortion $\leq$ 1% (backup power 48 V)
Alarm tone output power:
4 x 60 W, distortion $\leq$ 0.3% max. 30 minutes at 1 kHz and an ambient temperature of 55 °C.
Continuous output power:
4 x 30 W at 1 kHz and an ambient temperature of 55 °C.
4 x 60 W at 1 kHz and an ambient temperature of 30 °C.
Distortion:
$\leq$ 0.3% at 1 kHz and 50% of the rated output power $<$ 1% from 60 Hz to 19 kHz
Frequency response:
60 Hz to 19 kHz (-3 dB) at -10 dB with max. capacitive load and rated load resistance
Power bandwidth:
60 Hz - 19 kHz (-3 dB, distortion $<$ 1%) at 50% of the rated output power
Signal/Noise ratio:
$>$ 85 dBA with pilot tone off
Channel cross-talk:
$<$ -80 dB at 1 kHz at nominal load
$<$ -70 dB at 10 kHz at nominal load
Amplifier output limiting:
Soft clipping
Acoustical noise level:
$<$ NR35 at 1 m, fans at half speed, table-top
$<$ NR40 at 1 m, fans at full speed, table-top

8.7.18 Loudspeaker outputs and spare inputs (LBB4428)

Connector (rear side):
1 x 9 pole header (type ETB 43-09-2-G1 (ECE)) with removable screw connector (shared with control outputs)
Voltage:
100 V, 70 V, 50 V (jumper setting)
Max. unloaded voltage:
200 V peak
Rated load resistance:
166 Ω (100 V); 82 Ω (70 V); 42 Ω (50 V)
Rated load capacitance:
30 nF (100 V); 60 nF (70 V); 120 nF (50 V)
Rated output power:
8 x 60 W, distortion $\leq$ 1% (mains power or backup power $>$ 53 V) max. 1 minute at 1 kHz and an ambient temperature of 55 °C.
8 x 50 W, distortion $\leq$ 1% (backup power 48 V)
Alarm tone output power:
8 x 30 W, distortion $\leq$ 0.3% max. 30 minutes at 1 kHz and an ambient temperature of 55 °C
Continuous output power:
8 x 15 W at 1 kHz and an ambient temperature of 55 °C
8 x 30 W at 1 kHz and an ambient temperature of 30 °C
Distortion:
$\leq$ 0.3% at 1 kHz and 50% of the rated output power $<$ 1% from 60 Hz to 19 kHz
Frequency response:
80 Hz to 19 kHz (-3 dB) at -10 dB with max. capacitive load and rated load resistance
Power bandwidth:
80 Hz - 19 kHz (-3 dB, distortion $<$ 1%) at 50% of the rated output power
Signal/Noise ratio:
$>$ 85 dBA with pilot tone off
Channel cross-talk:
$<$ -80 dB at 10 kHz at nominal load
$<$ -60 dB at 10 kHz at nominal load
Amplifier output limiting:
Soft clipping
Acoustical noise level:
$<$ NR35 at 1 m, fans at half speed, table-top
$<$ NR40 at 1 m, fans at full speed, table-top

8.7.19 Control inputs

Connector (rear side):

16 pole header (type Phoenix MC1,5/16-G-3,81) for removable screw connector (MC1,5/16-SWT-3,81)

Cable loop resistance:

max. 1000 Ω

External contacts:

Voltage-free closing or breaking contacts (relay contacts, mechanical switches, mercury contacts etc.)

8.7.20 Control outputs

Connector (rear side):

1 x 9 pole header (type ETB 43-09-2-G1 (ECE)) with removable screw connector (shared with loudspeaker output and spare amplifier input)

Contact type:

Relay contact, single pole, change-over contact (SPDT)

Contact voltage:

24 V(DC)

Contact current:

1 A

Off state (unpowered):

C-NC is closed, C-NO is open

8.7.21 Headphones

Connector (front side):

3.5 mm stereo jack socket for headphones

Maximum output voltage:

6 dBV without volume control

Rated load impedance:

8 to 600 Ω

Signal/Noise ratio:

> 80 dB (at maximum output level)

Distortion:

< 0.5%

9 Single loudspeaker line supervision

9.1 Introduction

The LBB4442/00 Line Supervision Set contains a supervision-master PCB and a supervision-slave PCB. With this set, it is possible to supervise the end of a loudspeaker line.



Note

Use multiple loudspeaker line supervision (see chapter 10) to supervise the ends of branches in loudspeaker lines and the loudspeakers themselves.

The supervision-master PCB must be installed on the output board of the amplifier channel that must be supervised, whereas the supervision-slave must be connected to the last loudspeaker in the loudspeaker line that must be supervised.

So, for each loudspeaker line, one set is needed. The supervision-slave is powered from the 20 kHz pilot tone of the power amplifier and communicates inaudibly with the supervision-master via the loudspeaker lines. No additional wiring is required. Faults in the loudspeaker lines are reported within 100 s. Communication is not affected by the audio signals on the loudspeaker lines.

The use of multi-wire cables is not recommended in combination with line supervision because crosstalk between audio channels may influence the line supervision.

9.2 Controls, connectors and indicators

9.2.1 Supervision-master

The supervision-master contains the following:

- 1 **Connector** - A provision to connect the supervision-master electrically to the output board of the amplifier channel (see section 9.3.1).

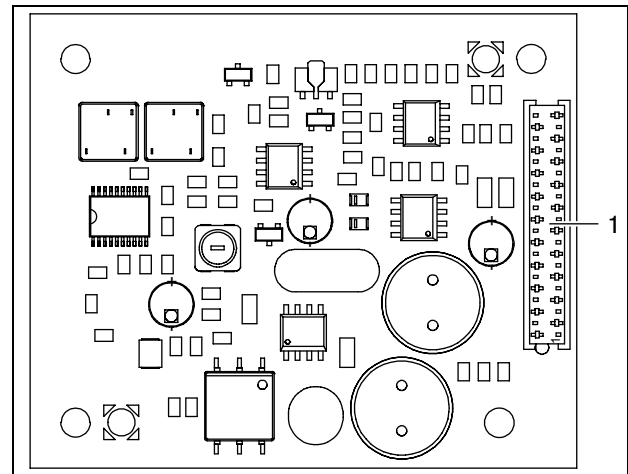


figure 9.1: Component side of supervision-master

9.2.2 Supervision-slave

The supervision-slave contains the following:

- 1 **Connector** - A provision to connect the supervision-slave to the loudspeaker lines.

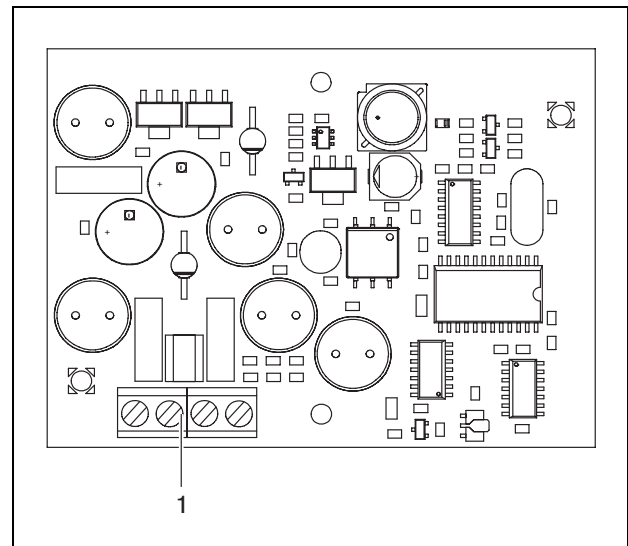


figure 9.2: Component side of supervision-slave

The supervision-slave provides a double connector that allows the supervision-slave to be put anywhere in the loudspeaker line (see figure 9.3). Usually, the supervision-slave is installed at the end of the loudspeaker line.

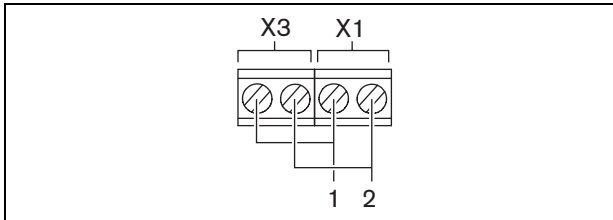


figure 9.3: Supervision-slave connector

table 9.1: Supervision-slave connector details

Connector	Pin	Signal
X1	1	Loudspeaker line +
	2	Loudspeaker line -
X3	1	Loudspeaker line +
	2	Loudspeaker line -

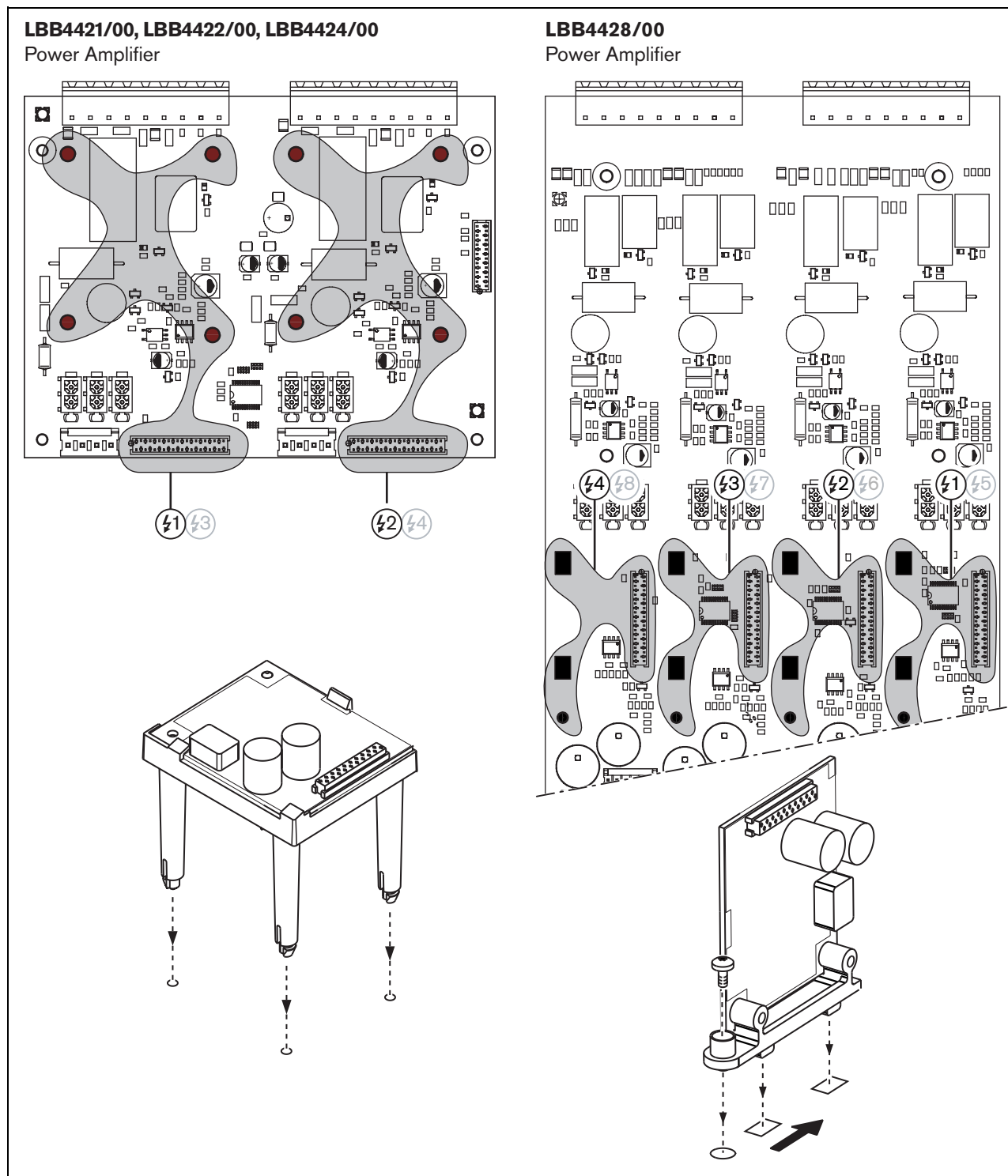


figure 9.4: Supervision-master installation

9.3 Installation

9.3.1 Supervision-master

**Warning**

To prevent the hazard of electric shocks, disconnect the mains cord and the backup power supplies from the power amplifier before starting installing the supervision-master.

**Warning**

The electronics inside the power amplifier and on the supervision-master are susceptible to electrostatic discharges. Wear an anti-ESD bracelet during the installation of the supervision-master.

Proceed as follows to install the supervision-master in LBB4421/00, LBB4422/00 and LBB4424/00 Power Amplifiers:

- 1 Remove the lid from the power amplifier and locate the output board (see figure 9.4).
- 2 Fit the supervision-master on the supplied 'table' bracket.
- 3 Snap the supervision-master and bracket assembly in the holes in the output board.
- 4 Fit the supplied flat cable to the connector on the output board and the supervision-master. Do not twist the flat cable and fit the polarization pin of the flat cable in the hole in the PCB next to the connector.

Proceed as follows to install the supervision-master in LBB4428/00 Power Amplifiers:

- 1 Remove the lid from the power amplifier and locate the output board (see figure 9.4).
- 2 Fit the supervision-master on the supplied 'slide' bracket.
- 3 Slide the supervision-master and bracket assembly in the holes in the output board.
- 4 Tighten the screw to fix the supervision-master and bracket assembly to the output board.
- 5 Fit the supplied flat cable to the connector on the output board and the supervision-master. Do not twist the flat cable and fit the polarization pin of the flat cable in the hole in the PCB next to the connector.

**Note**

In the spare amplifiers also supervision-masters must be installed for those channels that have supervision-masters in the corresponding main amplifier. Otherwise, a *Line supervision master mismatch* fault event is generated.

9.3.2 Supervision-slave



Warning

To prevent the hazard of electric shocks, switch the power amplifier and the backup power supplies off, before starting installing the supervision-slave.



Warning

To prevent the hazard of electric shocks, disconnect the mains cord and the backup power supplies from the power amplifier before starting installing the supervision-slave.



Note

The supervision-slave is susceptible to electrostatic discharges. Wear an anti-ESD bracelet during the installation of the supervision-slave.

The following loudspeakers have a provision for a supervision-slave:

- LBC3011/41
- LBC3011/51
- LBC3018/00
- LBC3210/00
- LBC3403/14 with LBN9000/00 or LBN9001/00
- LBC3404/14 with LBN9000/00 or LBN9001/00
- LBC3405/14 with LBN9000/00 or LBN9001/00
- LBC3406/14 with LBN9000/00 or LBN9001/00
- LBC3510/00, LBC3510/40
- LBC3520/00, LBC3520/40
- LBC3530/00, LBC3530/40

Proceed as follows to install the supervision-slave in the loudspeaker line:



Note

See the installation instructions of the loudspeakers for additional information.



Note

To install the supervision-slave in, for example, a box, use the universal brackets (LBB4446/00). Connect the board to a bracket using the middle holes (see figure 9.5).

- 1 Use the holes in the supervision-slave (see figure 9.5) to install it in a loudspeaker. The coils on the supervision-slave PCB must be kept at a distance of 30 mm or more from the loudspeaker magnet and a distance of 50 mm or more from the loudspeaker transformer, otherwise the magnetic fields can disturb the correct operation of the supervision-slave.

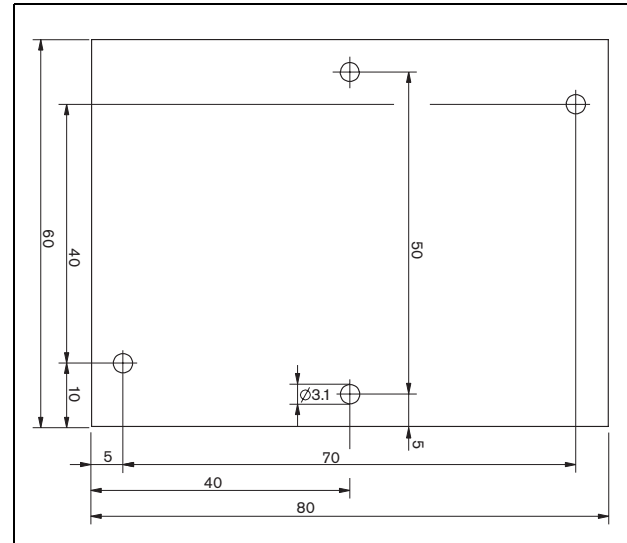


figure 9.5: Supervision-slave PCB dimensions

- 2 Connect the loudspeaker line signal to the supervision-slave PCB (see section 9.2.2).

9.4 Technical data supervision-master

9.4.1 Physical characteristics

Dimensions (H x W x D):

60 x 50 x 17 mm

Weight:

30 g

Connection:

20 pole flatband cable and connector

Installation:

Plastic brackets for horizontal and vertical installation included.

9.4.2 Climate conditions

Temperature:

-5 to 55 °C (operating)

-20 to 70 °C (non-operating)

Relative humidity:

15 to 90%, non-condensing (operating)

5 to 95%, non-condensing (non-operating)

Air pressure:

600 to 1100 hPa

9.4.3 Electromagnetic compatibility

Emission:

EN55103-1/FCC-47part 15B

Immunity:

EN55103-2

9.4.4 Mean time between failure

MTBF:

50,000 hours at +55 °C

(The MTBF doubles for every 10 °C decrease in temperature.)

9.5 Technical data supervision-slave

9.5.1 Physical characteristics

Dimensions (H x W x D):

80 x 60 x 16 mm

Weight:

50 g

Connection:

Screwable connector

9.5.2 Climate conditions

Temperature:

-5 to 55 °C (operating)

-20 to 70 °C (non-operating)

Relative humidity:

15 to 90%, non-condensing (operating)

5 to 95%, non-condensing (non-operating)

Air pressure:

600 to 1100 hPa

9.5.3 Electromagnetic compatibility

Emission:

EN55103-1/FCC-47part 15B

Immunity:

EN55103-2

9.5.4 Mean time between failure

MTBF:

50,000 hours at +55 °C

(The MTBF doubles for every 10 °C decrease in temperature.)

9.5.5 Loudspeaker line characteristics

Preferred cable:

Twisted pair, 0.75 mm² to 1.5 mm²

Maximum cable length:

1 km (max. 500 m adjacent to other supervised loudspeaker cables)

Maximum cable loop resistance:

38 Ω

Maximum cable inductance:

750 μH

Maximum total loudspeaker impedance:

120 Ω @ 70 kHz (independent of amplifier power)

Maximum cable capacity:

300 nF. However, if the maximum load capacity for the power amplifier output is less than this value, the maximum load capacity of the power amplifier is leading (see section 8.7).

Loudspeaker voltage:

70 V, 100 V

10 Multiple loudspeaker line supervision

10.1 Introduction

Use the LBB4440/00 Supervision Control Board, LBB4441/00 Loudspeaker Supervision Board and LBB4443/00 EOL Supervision board for multiple loudspeaker line supervision. With these boards, it is possible to supervise up to 80 loudspeakers in a loudspeaker line including the ends of the various branches in the loudspeaker line.



Note

Multiple loudspeaker line supervision is only possible in combination with LBB442x/10 Power Amplifiers.

The LBB4441/00 Loudspeaker Supervision Boards check if loudspeakers are intact, whereas the LBB4443/00 EOL (End of Line) Supervision Boards check if the loudspeaker lines are intact. Both types of boards are powered from the 20 kHz pilot tone of the LBB442x/10 Power Amplifier and communicate inaudibly with the LBB4440/00 Supervision Control Board, which controls the communication between Praesideo and the supervision boards. No additional wiring is required

Communication is not affected by the audio signals on the loudspeaker lines. Faults in the loudspeakers and loudspeaker lines can be reported within 100 s. The use of multi-wire cables is not recommended in combination with line supervision because crosstalk between audio channels may influence the line supervision.

10.2 Controls, connectors and indicators

10.2.1 Supervision control board

The supervision control board (see figure 10.1) contains the following:

X1 Connector - A provision to connect the supervision control board electrically to the output board of the amplifier channel.

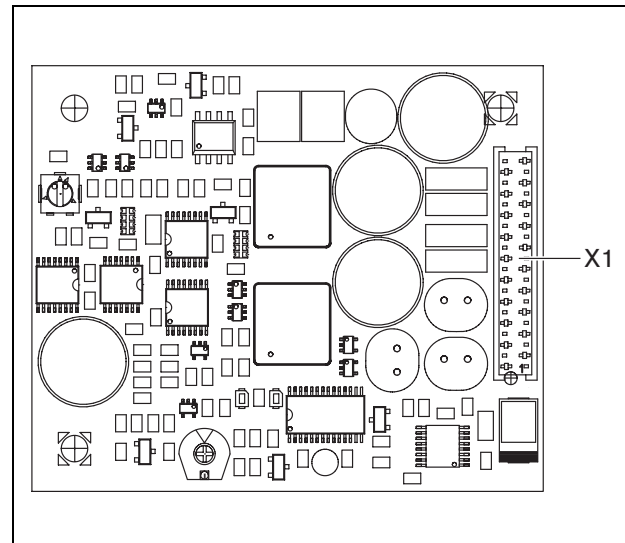


figure 10.1: Component side

10.2.2 Loudspeaker supervision board

The loudspeaker supervision board (see figure 10.2) contains the following:

- X10 **Flying leads** - Two flying leads (30 cm) with high-temperature insulation to install the loudspeaker supervision board in a loudspeaker (see section 10.4.2).
- X11 **Faston connectors** - Two faston connectors to install the loudspeaker supervision board in the loudspeaker (see section 10.4.2).
- S700 **Address selector** - An address selector to set the address of the loudspeaker supervision board (see section 10.5).
- S701 **Address selector** - An address selector to set the address of the loudspeaker supervision board (see section 10.5).
- C540 **Capacitor** - A capacitor for factory adjustments. Do not touch this capacitor.
- R441 **Resistor** - A resistor for factory adjustments. Do not touch this resistor.

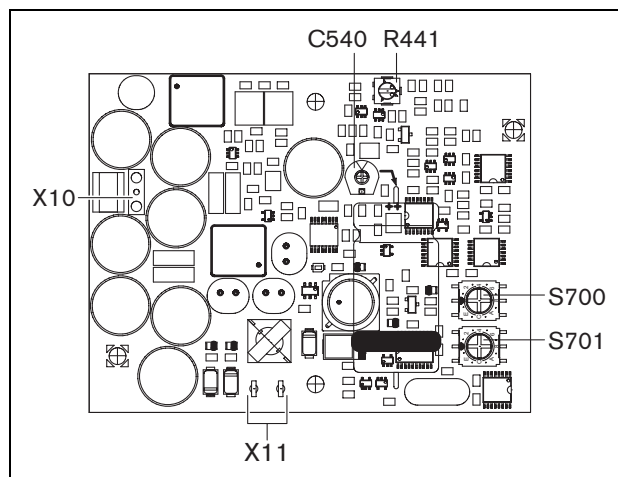


figure 10.2: Component side

10.3 EOL supervision board

The EOL supervision board (see figure 10.3) contains the following:

- X10 **Flying leads** - Two flying leads (30 cm) with high-temperature insulation to install the EOL supervision board in a loudspeaker (see section 10.4.3).
- S700 **Address selector** - An address selector to set the address of the EOL supervision board (see section 10.5).
- S701 **Address selector** - An address selector to set the address of the EOL supervision board (see section 10.5).
- C540 **Capacitor** - A capacitor for factory adjustments. Do not touch this capacitor.
- R441 **Resistor** - A resistor for factory adjustments. Do not touch this resistor.

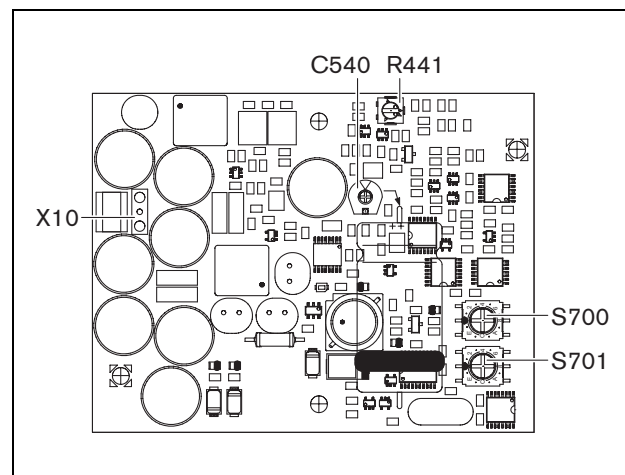


figure 10.3: Component side

10.4 Installation

10.4.1 Supervision control board



Warning

To prevent the hazard of electric shocks, disconnect the mains cord and the backup power supplies from the power amplifier before starting installing the supervision control board.



Warning

The electronics inside the power amplifier and on the supervision control board are susceptible to electrostatic discharges. Wear an anti-ESD bracelet during the installation of the supervision control board.

Proceed as follows to install the supervision control board in LBB4421/10, LBB4422/10 and LBB4424/10 Power Amplifiers:

- 1 Remove the lid from the power amplifier and locate the output board (see figure 10.4).
- 2 Fit the supervision control board on the supplied 'table' bracket (see figure 10.4).
- 3 Snap the bracket with the supervision control board in the holes in the output board (see figure 10.4).
- 4 Fit the supplied flat cable to the connector on the output board and the supervision control board. Do not twist the flat cable and fit the polarization pin of the flat cable in the hole in the PCB next to the connector.



Note

In the spare amplifiers also supervision control boards must be installed for those channels that have supervision control boards in the corresponding main amplifier. Otherwise, a *Line supervision master mismatch* fault event is generated.

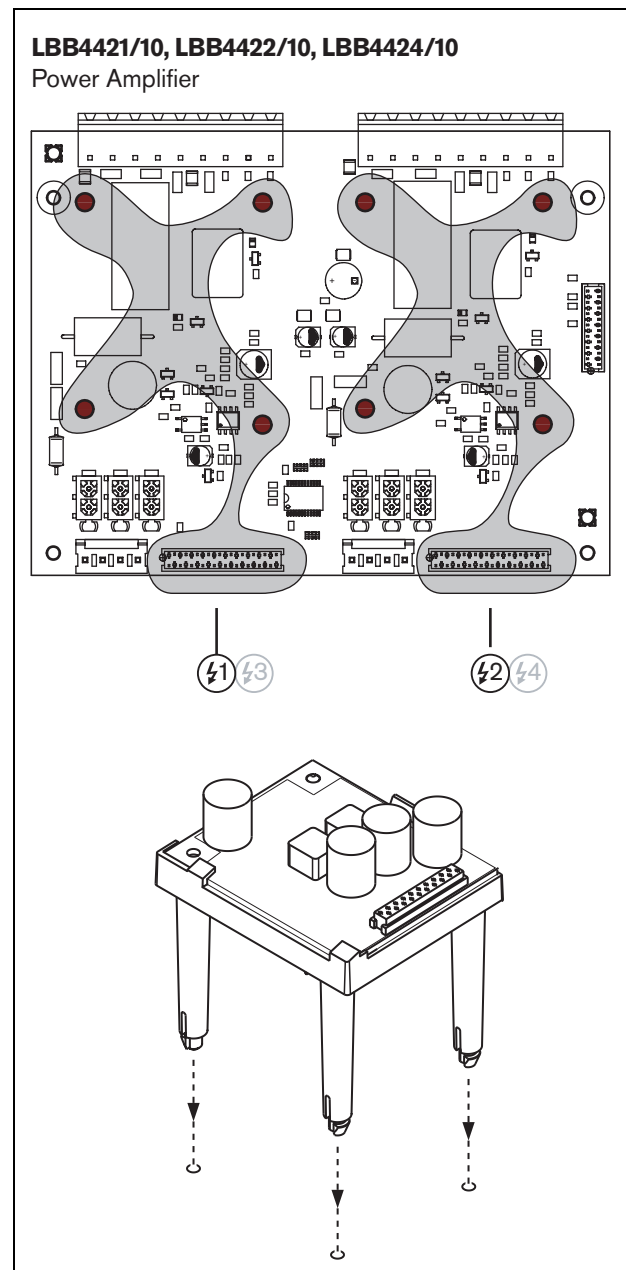


figure 10.4: Installation

10.4.2 Loudspeaker supervision board



Warning

To prevent the hazard of electric shocks, disconnect the loudspeaker from the loudspeaker line before installing the supervision board.



Warning

The electronics on the loudspeaker supervision board are susceptible to electrostatic discharges. Wear an anti-ESD bracelet during the installation of the supervision board.

The following loudspeakers have a provision for installing a supervision board:

- LBC3011/41
- LBC3011/51
- LBC3018/00
- LBC3210/00
- LBC3403/14 with LBN9000/00 or LBN9001/00
- LBC3404/14 with LBN9000/00 or LBN9001/00
- LBC3405/14 with LBN9000/00 or LBN9001/00
- LBC3406/14 with LBN9000/00 or LBN9001/00
- LBC3510/00, LBC3510/40
- LBC3520/00, LBC3520/40
- LBC3530/00, LBC3530/40

Proceed as follows to install the loudspeaker supervision board in a loudspeaker:



Note

See the installation instructions of the loudspeakers for more information.



Note

To install the board in, for example, a box, use the universal brackets (LBB4446/00). Connect the board to a bracket using the middle holes (see figure 10.5).

- 1 Set the address of the board with the S700 and S701 address selectors (see section 10.5).
- 2 Use the corner holes in the board (see figure 10.5) to install it in a loudspeaker. The coils on the PCB must be kept at a distance of 30 mm or more from the loudspeaker magnet and a distance of 50 mm or more from the loudspeaker transformer, otherwise the magnetic fields can disturb the correct operation of the board.

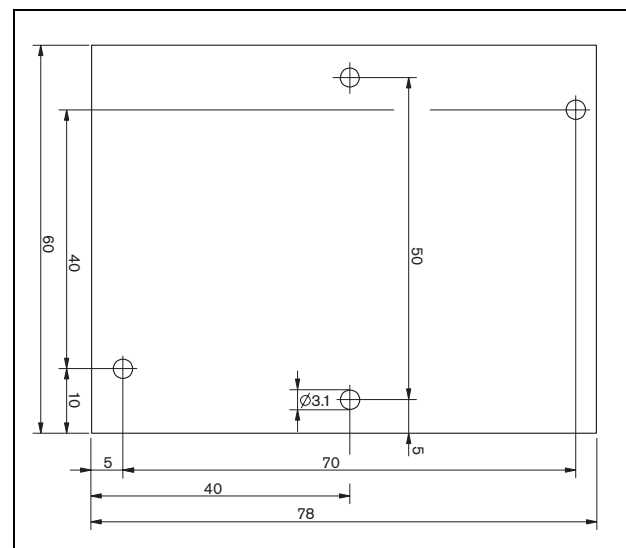


figure 10.5: Dimensions

- 3 Connect the board to the loudspeaker with the flying leads and the faston connectors (see figure 10.6).

**Note**

Use one of the faston cables inside the loudspeaker and the supplied faston cable to connect the board to the loudspeaker.

**Note**

The board must be connected after the ceramic block with the thermal fuse. In case of a fire, the thermal fuse will blow and disconnect the board from the loudspeaker line. The trip point of the thermal fuse that is connected to the ceramic block is lower than the melting point of the solder on the board to prevent short-circuits in the supervision board and the loudspeaker line.

**Note**

When the loudspeaker does not contain a ceramic block with a ceramic fuse, use an LBC1256/00 EVAC Connection Adapter (see chapter 12).

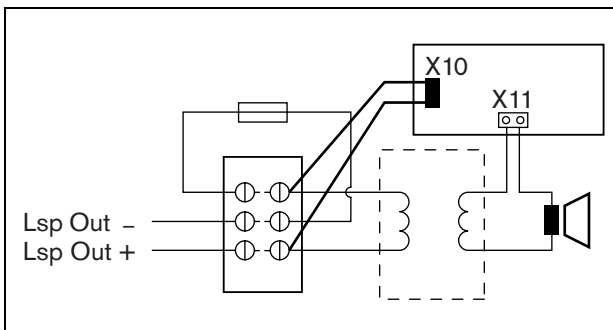


figure 10.6: Connection

10.4.3 EOL supervision board

The procedure for installing an EOL supervision board is similar to the installation of a loudspeaker supervision board (see section 10.4.2). However, the EOL supervision board does not contain a faston connector (see figure 10.7).

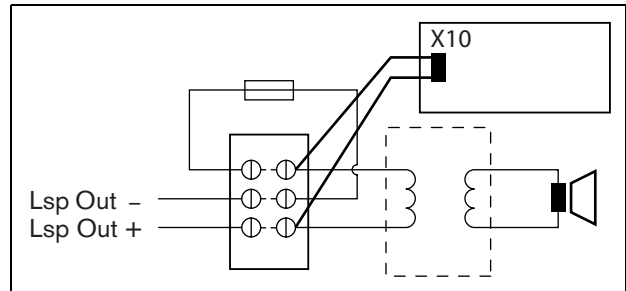


figure 10.7: EOL supervision board dimensions

10.5 Addressing

All LBB4441/00 Loudspeaker Supervision Boards and LBB4443/00 EOL Supervision Boards must have an address for communication purposes. All LBB4441/00 Loudspeaker Supervision Boards and LBB4443/00 EOL Supervision Boards that are connected to the same amplifier channel must have a different address. Use the S700 and S701 switches to assign a (hexadecimal) address in the range of 00 to 4F to the board. The S700 switch sets the right digit, whereas the S701 switch sets the left digit. Each switch has 16 hexadecimal positions (0 to F).

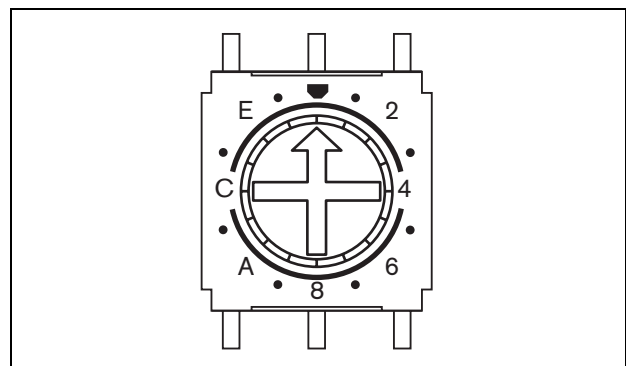


figure 10.8: ID selector

10.6 Technical data supervision control board

10.6.1 Physical characteristics

Dimensions (H x W x D):

60 x 50 x 17 mm

Weight:

30 g

Connection:

20 pole flatband cable and connector

Installation:

Plastic brackets for horizontal and vertical installation included.

10.6.2 Climate conditions

Temperature:

-5 to 55 °C (operating)

-20 to 70 °C (non-operating)

Relative humidity:

15 to 90%, non-condensing (operating)

5 to 95%, non-condensing (non-operating)

Air pressure:

600 to 1100 hPa

10.6.3 Electromagnetic compatibility

Emission:

EN55103-1/FCC-47part 15B

Immunity:

EN55103-2

10.6.4 Mean time between failure

MTBF:

50,000 hours at +55 °C

(The MTBF doubles for every 10 °C decrease in temperature.)

10.7 Technical data loudspeaker supervision board

10.7.1 Physical characteristics

Dimensions (H x W x D):

78 x 60 x 22 mm

Weight:

70 g

Connection:

Screwable connector

10.7.2 Climate conditions

Temperature:

-5 to 55 °C (operating)

-20 to 70 °C (non-operating)

Relative humidity:

15 to 90%, non-condensing (operating)

5 to 95%, non-condensing (non-operating)

Air pressure:

600 to 1100 hPa

10.7.3 Electromagnetic compatibility

Emission:

EN55103-1/FCC-47part 15B

Immunity:

EN55103-2

10.7.4 Mean time between failure

MTBF:

50,000 hours at +55 °C

(The MTBF doubles for every 10 °C decrease in temperature.)

10.7.5 Loudspeaker line characteristics

Preferred cable:

Twisted pair, 0.75 mm² to 1.5 mm²

Maximum cable length:

1 km (max. 500 m adjacent to other supervised loudspeaker cables)

Maximum cable loop resistance:

38 Ω

Maximum cable inductance:

750 μH

Maximum total loudspeaker impedance:

120 Ω @ 70 kHz (independent of amplifier power)

Maximum cable capacity:

300 nF. However, if the maximum load capacity for the power amplifier output is less than this value, the maximum load capacity of the power amplifier is leading (see section 8.7).

Maximum number of supervision boards (LBB4441/00 and LBB4443/00) per amplifier channel:

80 @ 500 W
40 @ 250 W
20 @ 125 W
10 @ 60 W

Loudspeaker voltage:

70 V, 100 V

10.8 Technical data EOL supervision board

The technical data of the EOL supervision board are the same as the technical data of the loudspeaker supervision board (see section 10.7).

11 LBB4446/00 Brackets

The LBB4446/00 Brackets (see figure 11.1) are used to install supervision slave PCBs in junction boxes or in loudspeaker housings. Each set contains 10 pieces of aluminium brackets including screws and washers.

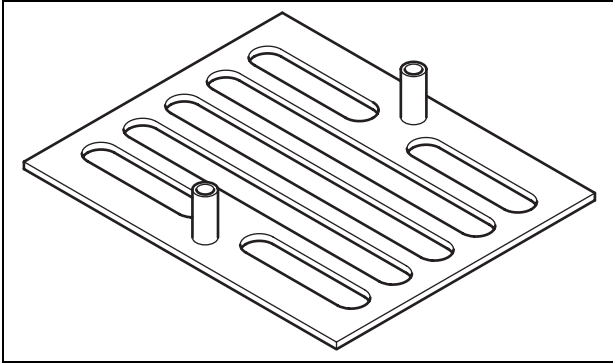


figure 11.1: Brackets

To install the supervision slave using a bracket:

- 1 Fix the bracket using its slots, the washers and suitable screws.
- 2 Attach the supervision slave to the brackets using the spacers on the brackets and the screws.

12 LBC1256/00 EVAC Connection Adapter

12.1 Introduction

Using an LBC1256/00 EVAC Connection Adapter, loudspeakers that do not contain a ceramic block with a thermal fuse can be upgraded to comply to evacuation standards.

12.2 Installation

The EVAC connection adapter must be installed in an enclosure with double-sided tape (see figure 12.1). The cable between the loudspeaker and the EVAC connection block must be short to make sure that the temperature of the thermal fuse does not differ from the temperature of the cable. Otherwise, the thermal fuse will not blow before there is a short-circuit in the loudspeaker line.

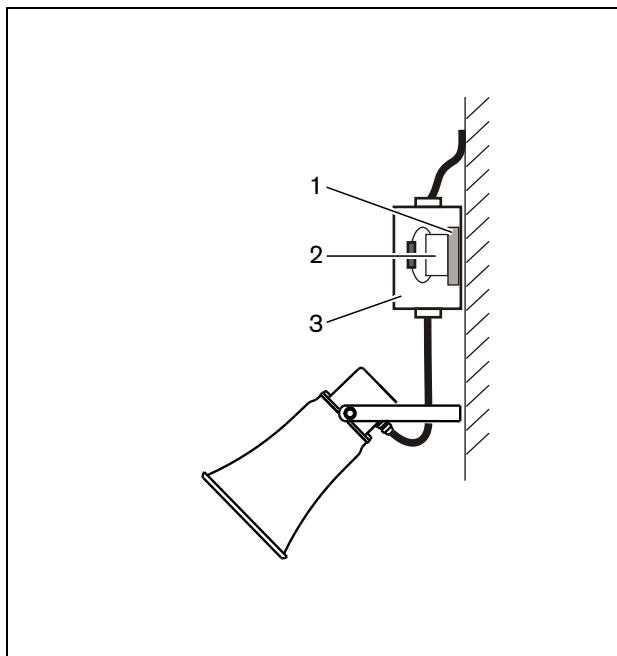


figure 12.1: Connection details

- 1 Double-sided tape
- 2 LBC1256/00
- 3 Enclosure

The EVAC connection block itself is a three pole screw connector to which the loudspeaker can be connected (see figure 12.2).

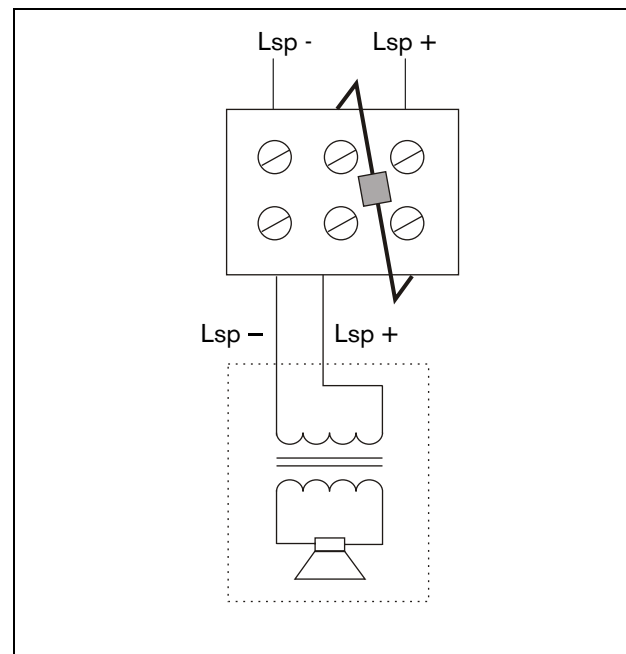


figure 12.2: Circuit diagram

12.3 Technical data

Dimensions (H x W x D):

19 x 37 x 22 mm

Weight:

40 g

Thermal fuse:

150 °C

Material:

Ceramic

Type:

3-pole screw connector

Preferred cable:

Heat-resistant cable (e.g. cable with PTFE insulation)

Pack contents:

100 pieces

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Section 4 - Call Stations

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13 LBB4430/00 Call Station

Basic

13.1 Introduction

The LBB4430/00 Call Station Basic is used for making live speech or pre-recorded announcements to any pre-assigned zones or to execute any pre-defined actions. See figure 13.1 for a block diagram of the call station basic.

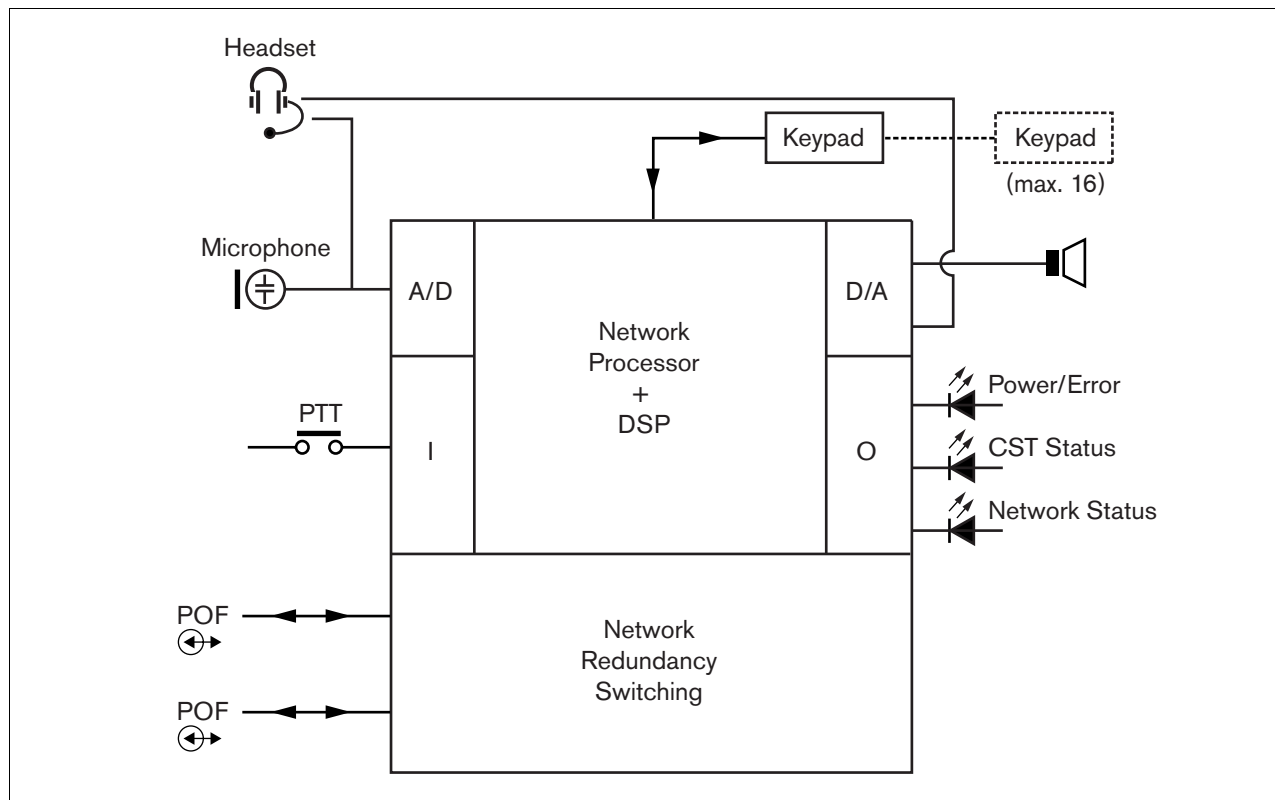


figure 13.1: Block diagram of the call station basic

13.2 Controls, connectors and indicators

The call station basic (see figure 13.3 and figure 13.4) contains the following:

- 1 **Headset connection** - A 3.5 mm (0.14 inch) jack socket to connect a headset. The loudspeaker (5) and the microphone are muted when a headset is connected (see section 13.3.3).
- 2 **Volume control** - A control to adjust the volume of the internal loudspeaker and the headset.
- 3 **Press-to-talk (PTT) key** - A key to start a call.
- 4 **Status LEDs** - Three bicolored status LEDs provide information about the call station basic and the status of the Praesideo system. (see section 13.5).
- 5 **Loudspeaker** - A loudspeaker for audio monitoring purposes. The loudspeaker and microphone are muted when a headset is connected to the headset connection (1). Only chimes and messages activated by a PTT key of the call station or one of its keypads (see section 38.10) are played via the loudspeaker of the call station.
- 6 **System bus** - Two system bus connectors to connect the call station basic to other Praesideo equipment (see section 13.3.2).
- 7 **Interface connector** - A flat cable connector to connect the call station basic to a call station keypad.

13.3 Connections

13.3.1 Introduction

This section gives an overview of typical system connections using the network controller.

- Connecting the network (see section 13.3.2).
- Connecting a headset (see section 13.3.3).

13.3.2 Connecting the network

Connect the call station basic to the Praesideo system using the system bus connectors and LBB4416 network cables. Both connectors are interchangeable.

13.3.3 Connecting a headset

The next figure shows the signals that are available on the headset connector and how they relate to the parts of a 3.5 mm connector.

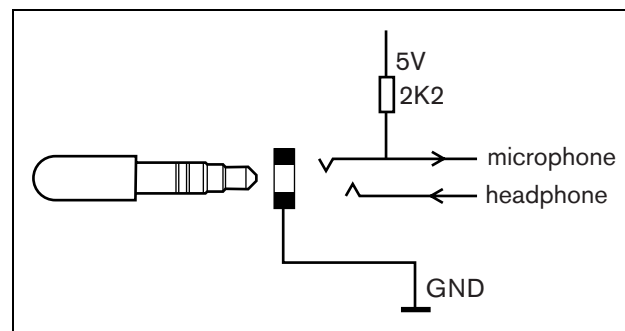


figure 13.2: Headset connector

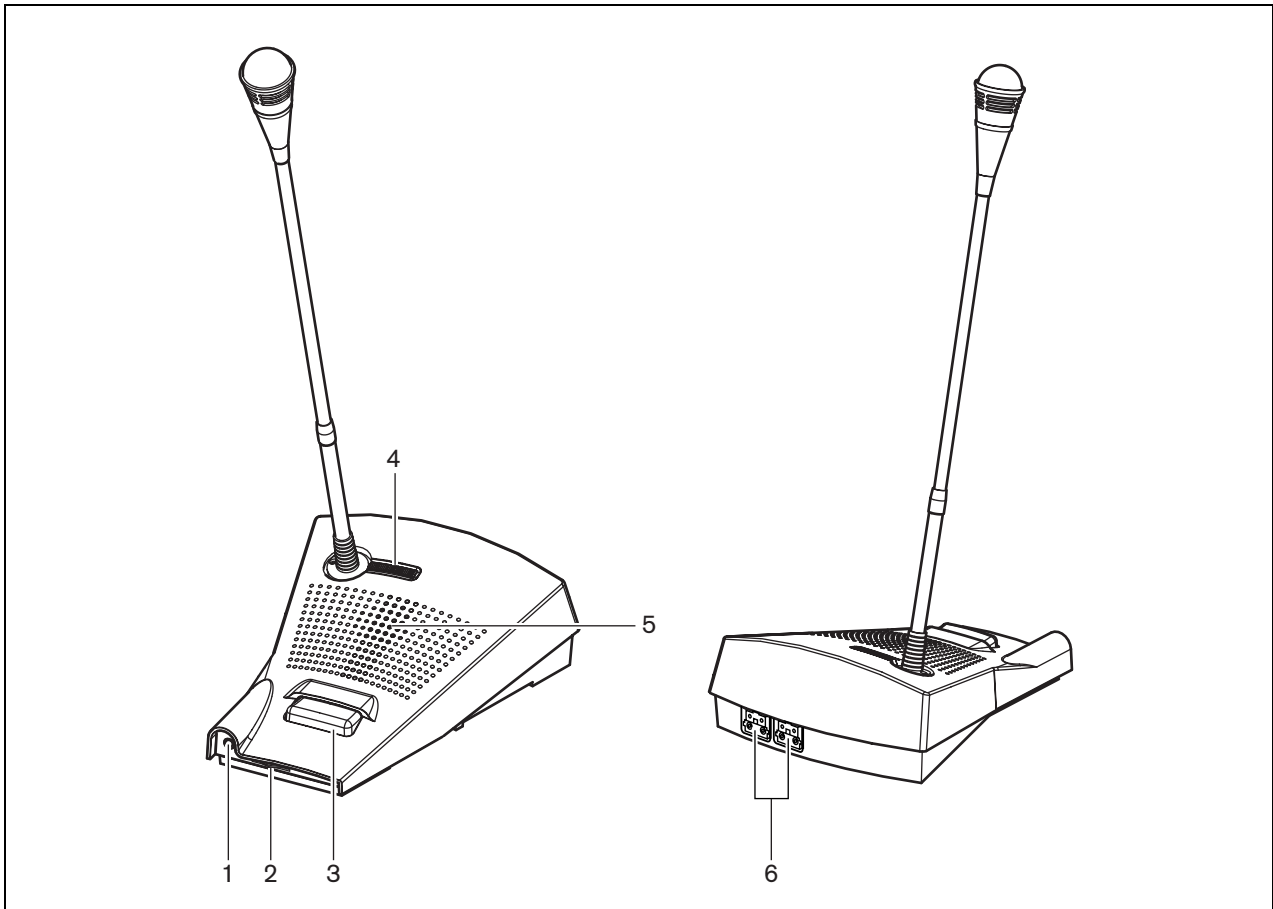


figure 13.3: Front and rear views of the call station basic

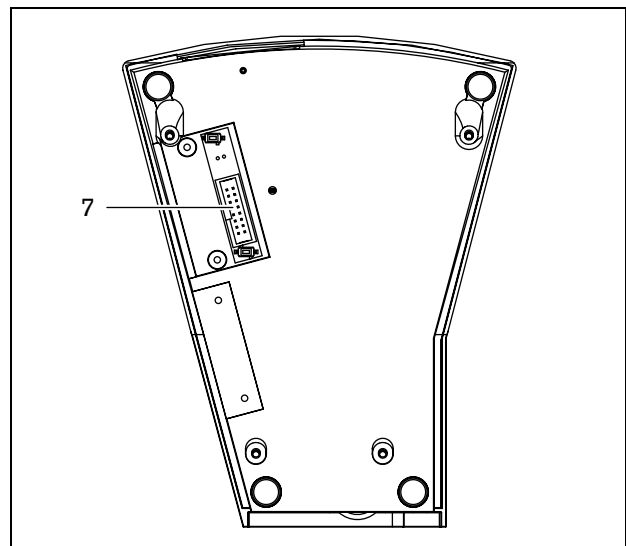


figure 13.4: Bottom view of the call station basic

13.4 Installation

The call station basic is suitable for table-top use. Its functionality can be expanded by connecting up to 16 call station keypads (LBB4432/00 or LBB4434/00).

13.5 Operation

The call station basic has three bi-color status LEDs that provide information about the call station basic and the status of the Praesideo system:

- Power/fault LED (left), see table 13.1.
- Basic status LED (center), see table 13.2.
- System status LED (right), see table 13.3.



Note

By default, the call station is delivered with factory firmware, which must be upgraded (see section 28.5). If the call station contains no firmware or damaged firmware (e.g. after an interrupted firmware upgrade), all LEDs are on.

table 13.1: Power/Fault LED (left)

Color	State	Explanation
---	Off	Power not available.
Green	On	Power on and no system or call station basic faults.
Yellow	Blinking	Power on, but there is a fault in the system.
Yellow	On	Power on, but there is a fault in the call station basic or the Praesideo network is not operational.

table 13.2: Basic status LED (center)

Color	State	Explanation
---	Off	No call status to display.
Green	On	Ready to talk/live announcement.
Green	Blinking	Chime on or pre-recorded message playing.

table 13.3: System status LED (right)

Color	State	Explanation
---	Off	No pre-defined or selected zones are in use or reserved by the system, and no emergency announcement is being made.
Yellow	On	Lower priority announcements are being made or are reserved to all or some of the zones which are pre-assigned to the press-to-talk key of the call station basic and selected zones of the call station keypad (if fitted).
Yellow	Blinking	Announcements with higher or the same priority (not emergency) are on or reserved to all or some of the zones which are pre-assigned to the press-to-talk key of the call station basic and selected zones of the call station keypad (if fitted).
Red	On	An emergency announcement is being made. Normal announcements can be made to the zones which are not involved.

13.6 Technical data

13.6.1 Physical data

Dimensions (H x W x D):
90 x 160 x 200 mm
Length (goose neck):
380 mm
Weight:
0.95 kg

13.6.2 Climate conditions

Temperature:
-5 to +45 °C (operating)
-20 to +70 °C (non-operating)
Relative humidity:
15 to 90%, non-condensing (operating)
5 to 95%, non-condensing (non-operating)
Air pressure:
600 to 1100 hPa

13.6.3 Electromagnetic compatibility

Emission:
EN55103-1/FCC-47 part 15B
Immunity:
EN55103-2

13.6.4 Safety

Electrical:
IEC65/EN60065
Approvals:
CE marking according to CB-scheme

13.6.5 Mean time between failure

MTBF:
50,000 hours at +45 °C
(The MTBF doubles for every 10 °C decrease in temperature.)

13.6.6 System bus

Connector (rear side):
Female proprietary connector
Preferred cable:
LBB4416/xx
Maximum cable length:
50 m (per system bus connector)
Data signal interface:
Plastic optical fiber
Network power consumption:
4.4 W

13.6.7 Microphone

Input sensitivity:
-42 to -57 dBV
75 to 90 dB(SPL)
Signal/Noise ratio:
> 60 dB at 85 dB(SPL)
Bandwidth:
-3 dB points at 340 Hz and 13,5 kHz with respect to 1 kHz

13.6.8 Loudspeaker

Signal/Noise ratio:
80 dB at max. output
Sound pressure level:
85 dB(SPL) at 0.5 m and 1 kHz

13.6.9 Headset

Connector:
3.5 mm (0.14 inch) jack
Electret impedance:
1 to 10 kΩ
Microphone input sensitivity:
-47 to -32 dB/Pa (tolerance ± 3 dB)
Signal/Noise ratio microphone:
60 dB at -38 dB/Pa (tolerance ± 3 dB)
Earphone impedance:
32 Ω
Signal/Noise ratio earphone:
80 dB at max. output (tolerance ± 3 dB)
Cross-talk (earphone to microphone):
< 40 dB at -42 dB/Pa and 1 kHz (tolerance ± 3 dB)
Output power:
1 mW

14 LBB4432/00 Call Station Keypad

14.1 Introduction

The LBB4432/00 Call Station Keypad is used in combination with the call station (LBB4430/00 or LBB4433/00) to make manual or pre-recorded announcements to any assigned zones, to select the zones or to execute pre-defined actions (see figure 14.1).

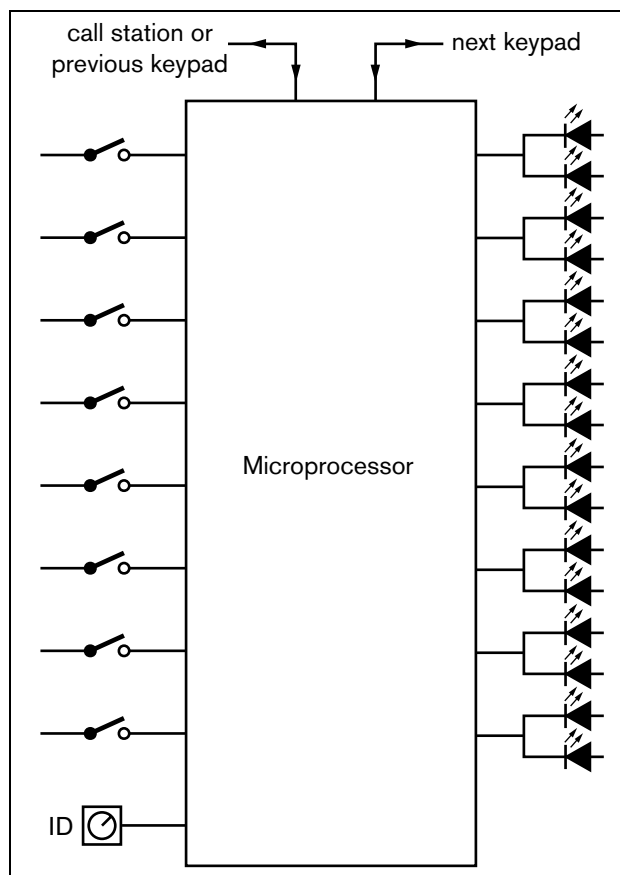


figure 14.1: Block diagram of the call station keypad

14.2 Controls, connectors and indicators

14.2.1 Top view

The top of the call station keypad (see figure 14.2) contains the following:

- 1 **Paper slot** - Each programmable key (3) has a corresponding paper slot, which can contain a descriptive label to identify where the programmable key has been configured for. It can be snapped in and out of the keypad.



Note

The LBB4470/00 Praesideo Software CD-ROM contains a Microsoft Word file (*Manuals/Keypad labels.doc*), which can be used to create labels.

- 2 **Key indicator** - Each programmable key (3) has a corresponding key indicator (see section 14.5).
- 3 **Programmable key** - Each programmable key can be configured to perform a specific action when it is pressed (see chapter 38). To protect keys from being pushed accidentally (e.g. alarm or emergency keys), key covers (LBB4436/00) can be put on them.

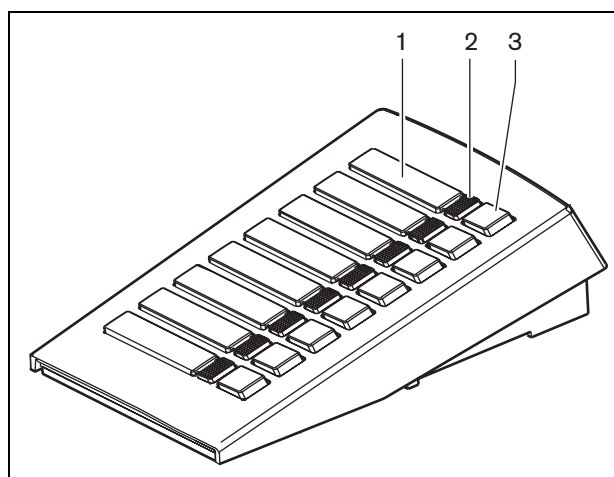


figure 14.2: Front view of the call station keypad

14.2.2 Bottom view

The bottom of the call station keypad (see figure 14.3) contains the following:

- 4 **Keypad connector** - A connector to connect the call station keypad to the next call station keypad.
- 5 **ID selector** - A selector to identify the call station keypad to the call station basic it is connected (see section 14.3).
- 6 **Keypad connector** - A connector to connect the call station keypad to the previous call station keypad or to the call station basic.

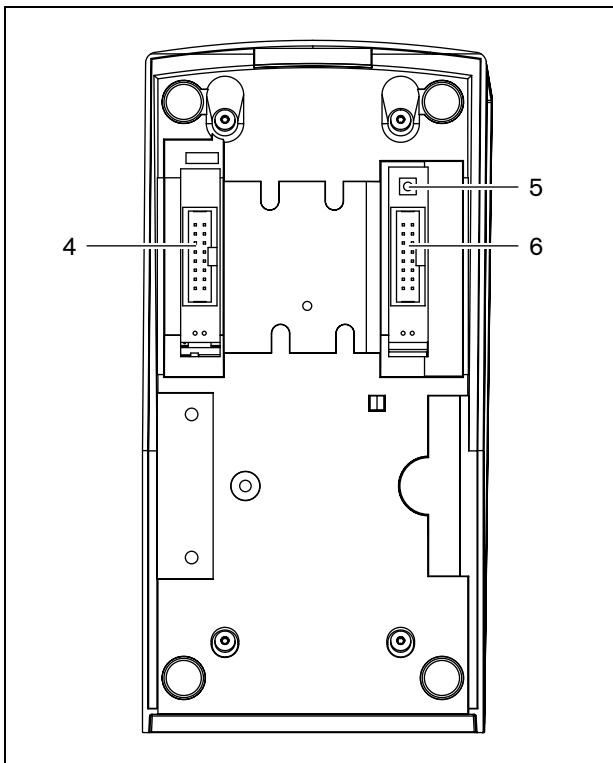


figure 14.3: Bottom view (without lid) of the call station keypad

14.3 Configuration

It is possible to connect up to 16 keypads (LBB4432/00 or LBB4434/00) to a call station (LBB4430/00 or LBB4433/00). For a correct communication between call station and keypad(s), the correct ID must be assigned to each keypad using the ID selector (see figure 14.3, no. 5 and figure 14.4). The ID of a keypad depends on its position in the array of keypads connected to a call station. The first keypad has ID 0, the next 1, and so on up to F for the sixteenth keypad.

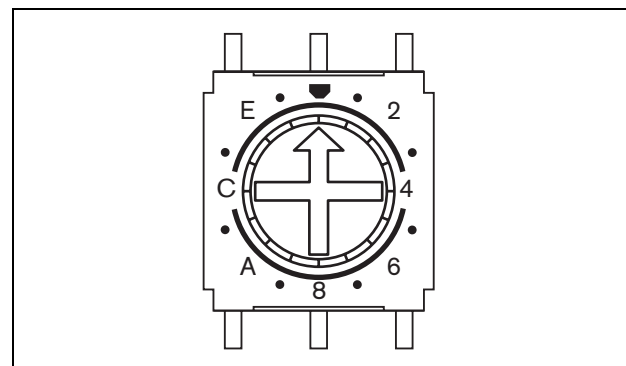


figure 14.4: ID selector

14.4 Installation

The call station keypad is suitable for table-top use. It must be connected to a call station or to a keypad which already has been connected to a call station. Proceed as follows:



Caution

Disconnect the system cable from the call station and back-up supplies before you are going to connect a keypad to it. Connecting a keypad to a powered call station can damage the call station.

- 1 Remove the lid by sliding it to the left and snapping it out of the call station keypad (see figure 14.5).
- 2 Connect the flat cable to the keypad connector and assign the correct ID to the keypad (see section 14.3 and figure 14.5).
- 3 Slide the connecting plate into the bottom of the keypad (see figure 14.5).
- 4 Fasten the connection plate using three screws (see figure 14.5).
- 5 Put the lid back by sliding it to the right and snapping it into the call station keypad (see figure 14.5).

14.5 Operation

The call station keypad has eight (software) programmable keys. Each key has one 2-color LED that is used for status indications (see table 14.1). However, the status indications depend on the function which has been assigned to the programmable key (see section 34.4.6 and section 38.3):

- For keys that are configured as routing selectors (e.g. *Zone selection*), the indicator is used for routing selection indication.
- For keys that are configured for functions like *Priority*, *Call macro*, etc., the indicator is used as selection indicator. It is on as long as the selection is valid.
- For keys that are configured for functions like *Cancel*, *Reset*, *Recall*, *BGM volume*, etc., the indicator is used as a key active indicator. It is on as long as the key is pressed.

table 14.1: Routing selector LED indications.

Color	Status	Explanation
Yellow	On	The selected resources are occupied by a lower-priority announcement.
Green	On	The selected resource is available.

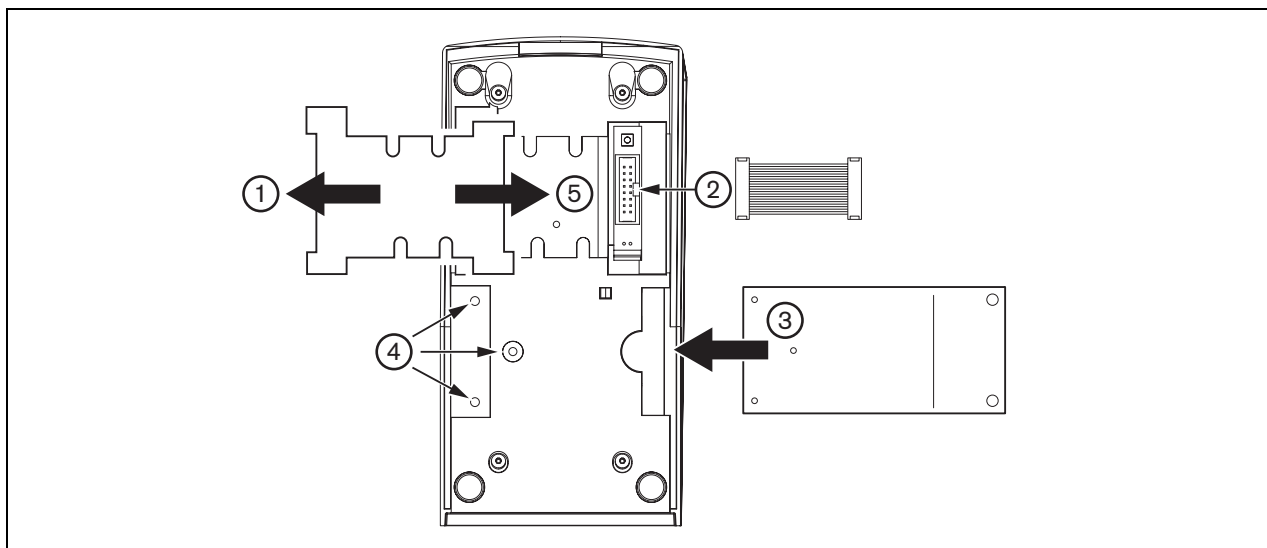


figure 14.5: Installation

14.6 Technical data

14.6.1 Physical dimensions

Dimensions (H x W x D):

70 x 95 x 200 mm

Weight:

0.3 kg

14.6.2 Climate conditions

Temperature:

-5 to +45 °C (operating)

-20 to +70 °C (non-operating)

Relative humidity:

15 to 90%, non-condensing (operating)

5 to 95%, non-condensing (non-operating)

Air pressure:

600 to 1100 hPa

14.6.3 Electromagnetic compatibility

Emission:

EN55103-1/FCC-47 part 15B

Immunity:

EN55103-2

14.6.4 Safety

Electrical:

IEC65/EN60065

Approvals:

CE marking according to CB-scheme

14.6.5 Mean time between failure

MTBF:

50,000 hours at +60 °C

(The MTBF doubles for every 10 °C decrease in temperature.)

14.6.6 System bus

Network power consumption:

1.1 W

15 LBB4433/00 Call Station Kit

15.1 Introduction

The LBB4433/00 Call Station Kit contains a printed circuit board (PCB) that can be used to make custom-made call stations (e.g. an emergency call station). See figure 15.1 for a block diagram of the call station kit.

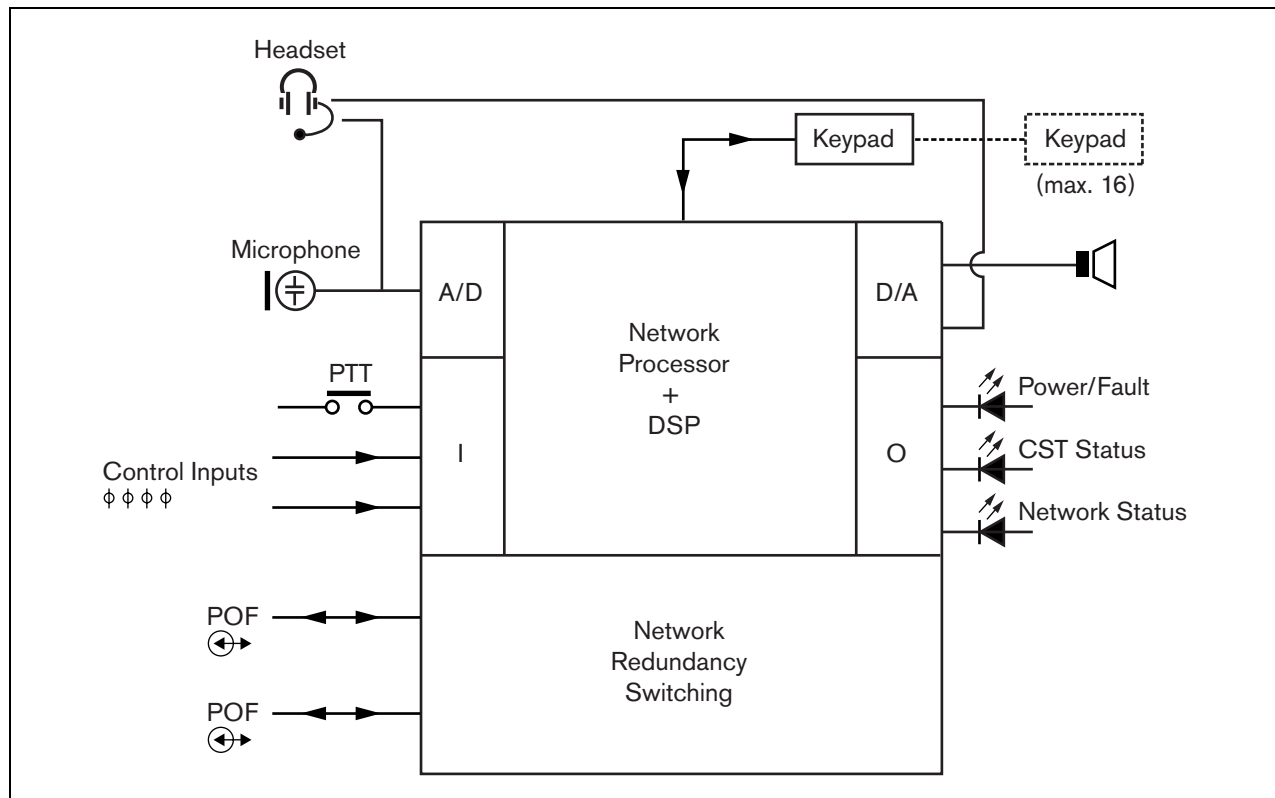


figure 15.1: Block diagram of the call station kit

15.2 Controls, connectors and indicators

The call station kit (see figure 15.2) contains the following:

X4 Back-up supply/Control inputs - Besides powering the call station kit via the system network connector (X1, X2), it can also be powered externally from a back-up power supply (see section 15.2.1). The connector provides also two control inputs to monitor the backup power supply.

X1, X2 System bus - Two system bus connectors to connect the call station kit to other Praesideo equipment. Both connectors are interchangeable.

X143 Keypad interface - The keypad interface is used to connect up to 16 keypads (LBB4432/00 or LBB4434/00) to the call station kit (see section 15.2.6).

X70 Microphone - The microphone input is used to connect a microphone (see section 15.2.3).

X142 External Speaker - The external speaker is meant for listening to chimes, pre-recorded messages etc. (see section 15.2.5). Only chimes and messages activated by a PTT key of the call station or one of its keypads (see section 38.10) are played via the loudspeaker of the call station.

X11 Headset - The headset connector provides the possibility to connect a headset to the call station kit (see section 15.2.2).

X80 Control input/outputs - The control input and five control outputs are used as replacement for the PTT key and LEDs on the LBB4430/00 Call Station Basic (see section 15.2.4).

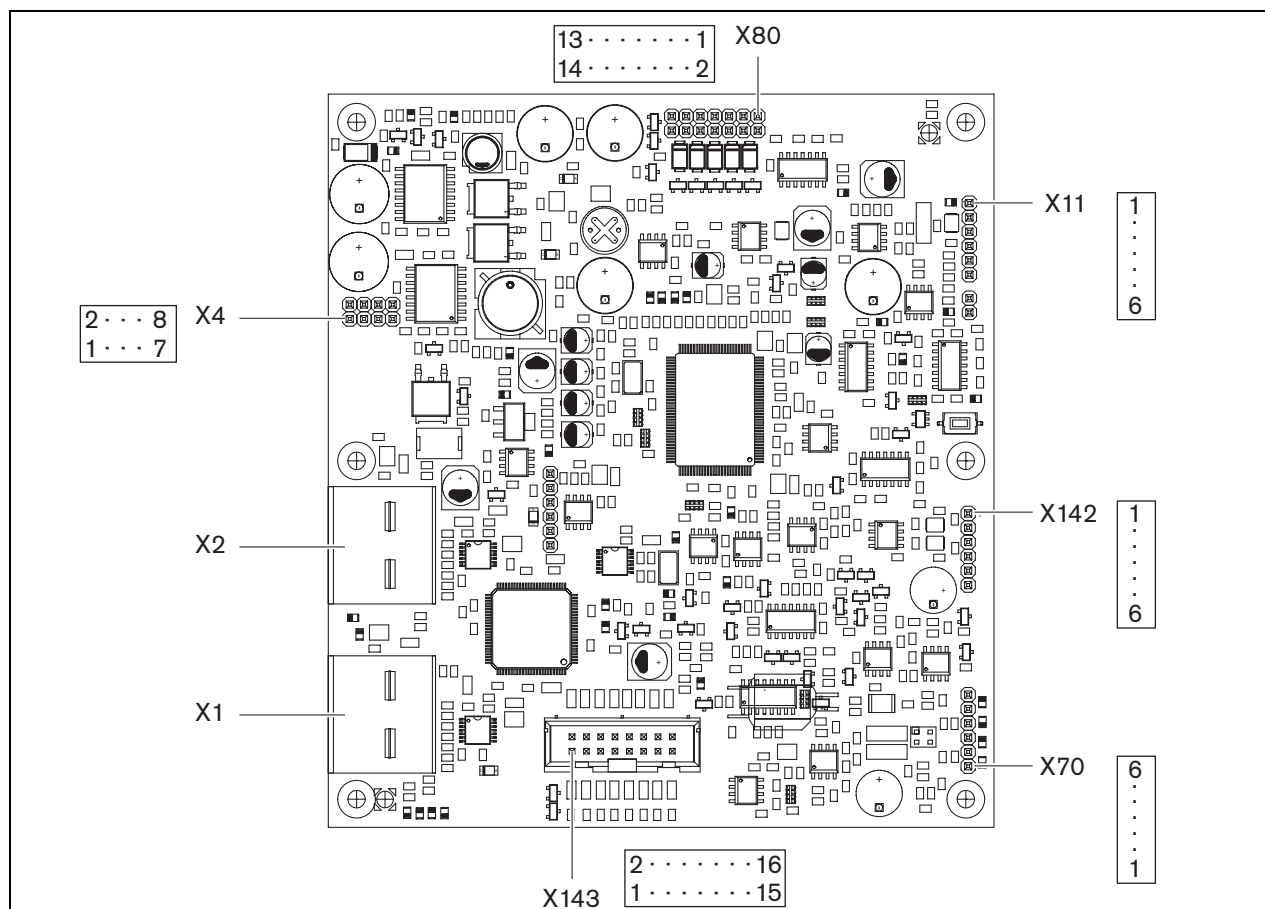


figure 15.2: Component side of the call station kit PCB

15.2.1 Back-up supply (X4)

The external interface for the back-up supply consists of a pin header connector with 8 positions (see the PCB for the pin numbering). The connector provides also two control inputs. These can be used to receive signals from other equipment. For example, signals from the back-up supply that indicate its status such as mains available, battery OK etc.

table 15.1: X4 connector details

Pin	Signal
1	GND
2	GND
3	Back-up supply
4	Back-up supply
5	GND
6	Control input 1
7	GND
8	Control input 2

table 15.2: X4 technical data

Backup voltage:
18 to 58 V
Backup current:
max. 2 A
Current (control inputs):
max. 0.5 mA
Voltage (control inputs):
max. 3.3 V

15.2.2 Headset (X11)

The external interface for headsets consists of a pin header connector with 6 positions (see the PCB for the pin numbering).

table 15.3: X11 connector details

Pin	Signal
1	Mic
2	GND
3	Volume control voltage
4	3.3 V supply output
5	GND
6	Earphone

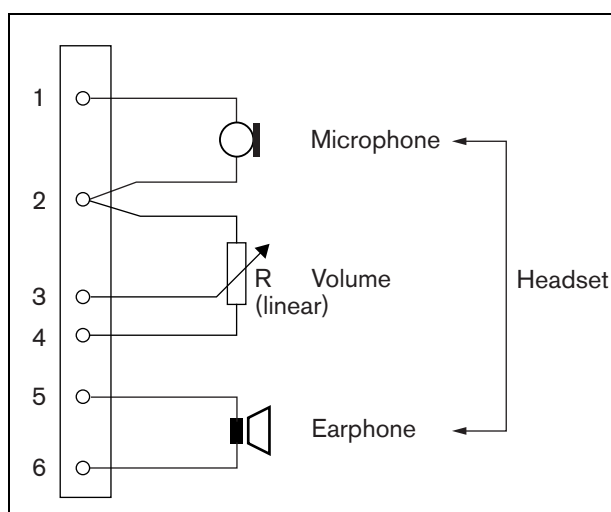


figure 15.3: Headset connection diagram



Note

The linear resistor R (typical value: 10 kΩ) is used to create a control voltage from the supply voltage.



Note

If a volume control is not needed, pin 2 and 3 must be connected to each other. The volume level of the earphone is then at its maximum.

table 15.4: X11 technical data

Mic. electret impedance:
500 to 5000 Ω
Mic. input sensitivity:
-57 to -42 dBV/Pa $\pm$ 3dB (default -48 dBV/Pa)
S/N:
60 dB +/- 3 dB at default sensitivity (mic.)
typical 80 dB +/- 3 dB (earphone)
Earphone impedance:
min. 16 Ω (typical 32 Ω)
Crosstalk (earphone to mic):
max. 40 dB $\pm$ 3 dB
Bandwidth:
340 to 14000 Hz
(-3 dB with respect to level at 1 kHz)
Output power:
0.1 to 30 mW (typical 1 mW)
Volume control voltage:
0 to 3.3 V

15.2.3 Microphone (X70)

The external interface for microphones consists of a pin header connector with 6 positions (see the PCB for the pin numbering). The following microphones were designed to be used in combination with the kit:

- LBB9081 Hand-held Dynamic Microphone (including resistors for switch supervision).
- LBB9082 Gooseneck Dynamic Microphone.

table 15.5: X70 connector details

Pin	Signal
1	Mic-
2	GND
3	Mic+
4	--- not connected ---
5	PTT input contact
6	GND

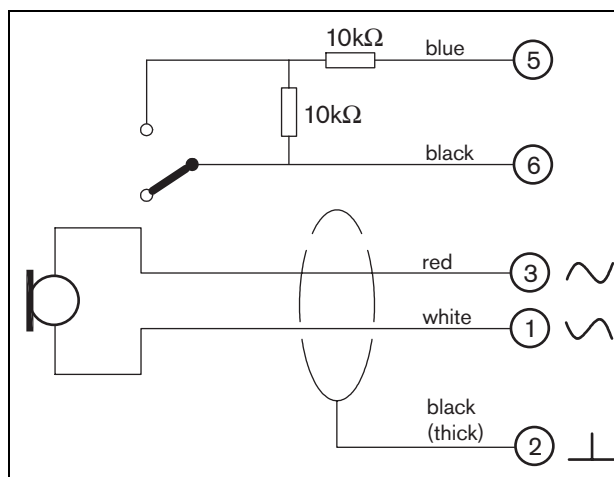


figure 15.4: LBB9081 connection diagram

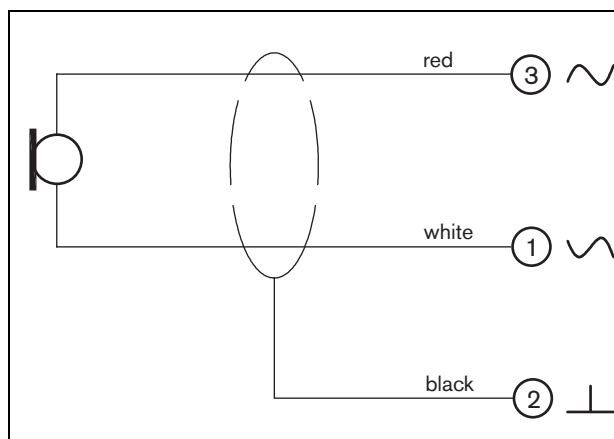


figure 15.5: LBB9082 connection diagram

table 15.6: X70 technical data

Microphone input sensitivity:
-57 to -42 dBV (default -48 dBV)
S/N:
min. 60 dB at default sensitivity
Headroom:
min. 30 dB at default sensitivity
Bandwidth:
340 to 14000 Hz
(-3 dB with respect to level at 1 kHz)

15.2.4 Control input/outputs (X80)

The call station kit provides an external interface for one control input and five control outputs. This external interface consists of a pin header with 14 positions (see the PCB for the pin numbering).

table 15.7: X80 connector details

Pin	Signal
1	PTT input contact
2	GND
3	Output 1, out (power indicator)
4	Output 1, in (power indicator)
5	Output 2, out (fault indicator)
6	Output 2, in (fault indicator)
7	Output 3, out (call indicator)
8	Output 3, in (call indicator)
9	Output 4, out (system priority indicator)
10	Output 4, in (system priority indicator)
11	Output 5, out (system emergency indicator)
12	Output 5, in (system emergency indicator)
13	GND
14	GND

It is possible to connect the following to the control inputs/outputs connector:

- Press-to-talk (PTT) key. See figure 15.6 for a connection diagram. The two resistors must be placed in the circuit, because the contact is always supervised by the system software.
- Internally powered lamp or LED. See figure 15.7 for a connection diagram.
- Externally powered lamp or LED. See figure 15.8 for a connection diagram.
- Externally powered relay. See figure 15.9 for a connection diagram.

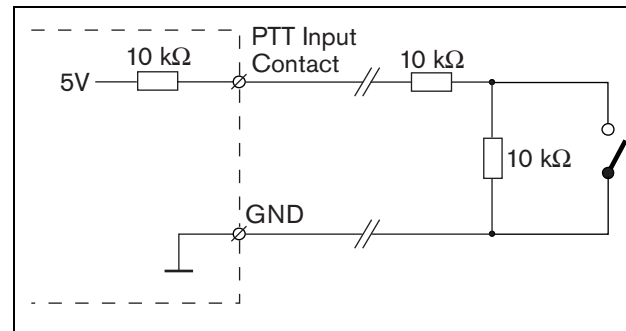


figure 15.6: Press-to-talk (PTT) key

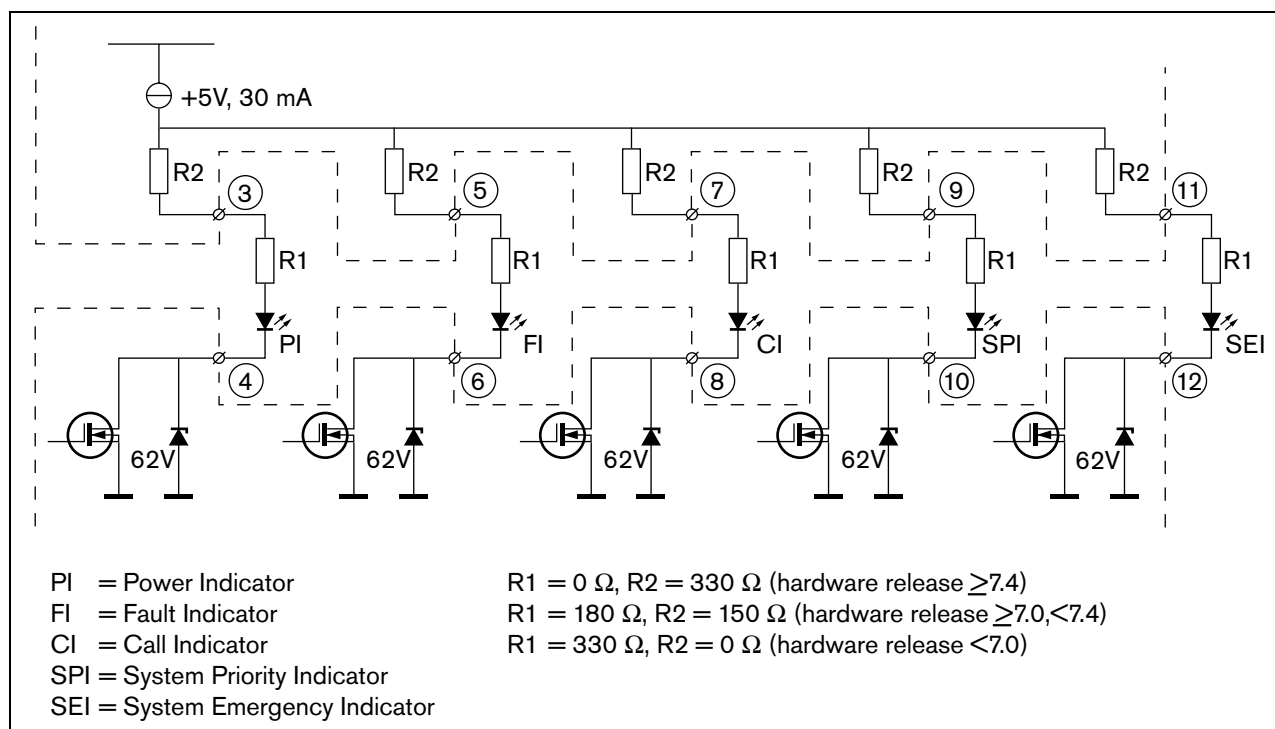


figure 15.7: Internally powered LED

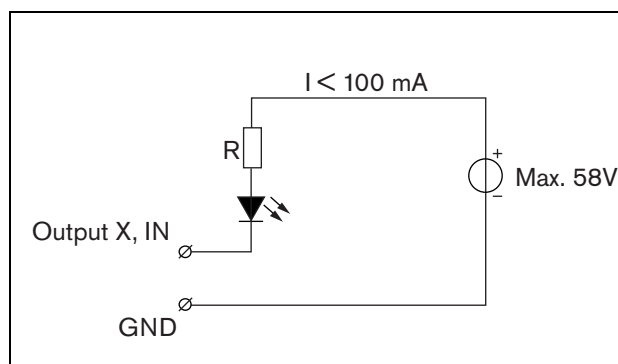


figure 15.8: Externally powered LED

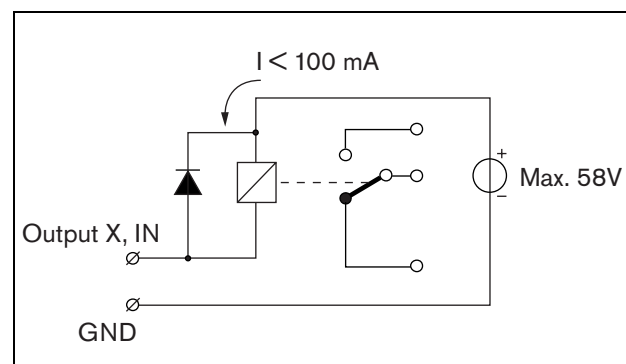


figure 15.9: Externally powered relay

The value of resistor R in figure 15.8 depends on the voltage of the external source, the forward voltage of the LED and the current flowing through the LED:

$$R = \frac{V_{source} - V_{forward}}{I}$$

For example, the voltage of the external source is 24 V, the forward voltage of the LED is 2 V and the current flowing through the LED is 10 mA, then:

$$R = \frac{24 - 2}{10 \cdot 10^{-3}} = 2200 \text{ } (\Omega)$$

table 15.8: X70 technical data

Current (PTT input):
0.5 mA
Voltage (PTT input):
3.3 V
Internal output supply current:
max. 10 mA (per pin)
max. 30 mA (total)
Output type:
open collector/drain
Output voltage:
max. 58 V (per pin)
Output sink current:
max. 100 mA per output switch pin

15.2.5 External speaker (X142)

The external interface for external speakers consists of a pin header connector with 6 positions (see the PCB for the pin numbering.) When using an external loudspeaker, also connect a volume control (see section 15.2.2).

table 15.9: X142 connector details

Pin	Signal
1, 2, 3	Speaker +
4, 5, 6	Speaker -

table 15.10: X142 technical data

Impedance:
min. 25 Ω, typical 45 Ω
Signal/Noise ratio:
typical 80 dB ± 3 dB at max. output
Output power:
typical 100 mW, max. 300 mW

15.2.6 Keypad interface (X143)

The external interface for the keypad (kits) consists of an IDC connector with 16 positions. Keypads (LBB4433 and LBB4434) are connected in series. That means there is only a direct connection between the call station kit and the first keypad. The second keypad is connected to the first, the third to the second etc. using standard flat cables.

table 15.11: X143 connector details

Pin	Signal
1	Synchronization line.
2	GND
3	Interrupt line (INT)
4	GND
5	Data I2C (SDA)
6	GND
7	Clock I2C (SCL)
8	GND
9	Power
10	GND
11	Power
12	GND
13	Power
14	GND
15	Power
16	GND

15.3 Installation

The call station kit contains six holes for installation purposes (see figure 15.10).

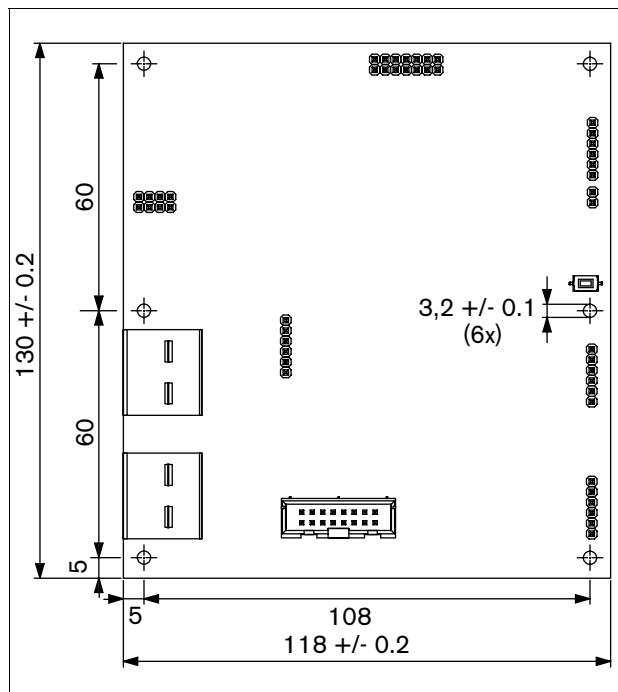


figure 15.10: Installation

The kit is delivered together with Tyco AMP pin headers and Tyco AMP 1-141708-1 shrink-contacts (see figure 15.11) to facilitate the connection of wires to the PCB. These pin headers are suitable for wires with a cross section from 0.2 to 0.56 mm². It is possible to solder the wires to the pin headers.



Note

If the call station kit is installed in a vibrating surrounding (e.g. a ship), glue the pin header to the PCB.

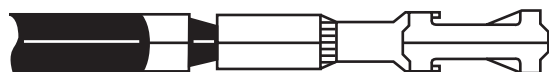


figure 15.11: Tyco AMP 1-141708-1 shrink-contact

To connect the wires to the shrink-contacts, use one of the following pliers:

- Tyco AMP 169111-1 pliers (see figure 15.12)
- Tyco AMP Modu 4 169481-1 pliers (see figure 15.13)

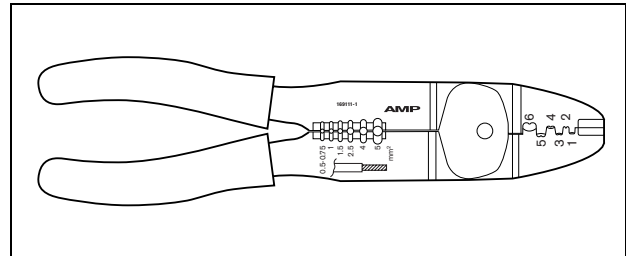


figure 15.12: Tyco AMP 169111-1 pliers

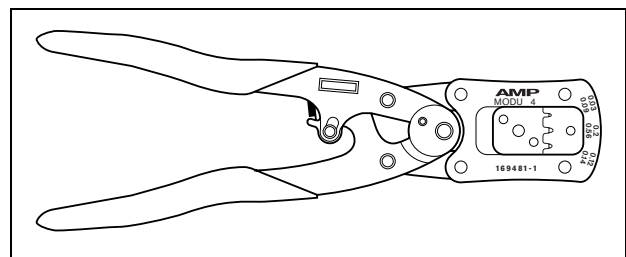


figure 15.13: Tyco AMP Modu 4 169481-1 pliers

15.4 Technical Data

15.4.1 Physical characteristics

Dimensions (H x W x D):

130 x 118 x 20 mm

Weight:

120 g

15.4.2 Climate conditions

Temperature:

-5 to +45 °C (operating)

-20 to +70 °C (non-operating)

Relative humidity:

15 to 90%, non-condensing (operating)

5 to 95%, non-condensing (non-operating)

Air pressure:

600 to 1100 hPa

15.4.3 Electromagnetic compatibility

Emission:

EN55103-1/FCC-47 part 15B

Immunity:

EN55103-2

15.4.4 Safety

Electrical:

IEC65/EN60065/UL6500 (file 203290)

Approvals:

CE marking according to CB-scheme,

c-CSA-us marking

15.4.5 Mean time between failure

MTBF:

50,000 hours at +60 °C

(The MTBF doubles for every 10 °C decrease in temperature.)

15.4.6 System bus

Network power consumption:

7.2 W

16 LBB4434/00 Call Station Keypad Kit

16.1 Introduction

The LBB4434/00 Call Station Keypad Kit contains a printed circuit board (PCB) that can be used to make custom-made call station keypads (e.g. for emergency call stations). See figure 16.1 for a block diagram of the call station keypad kit.

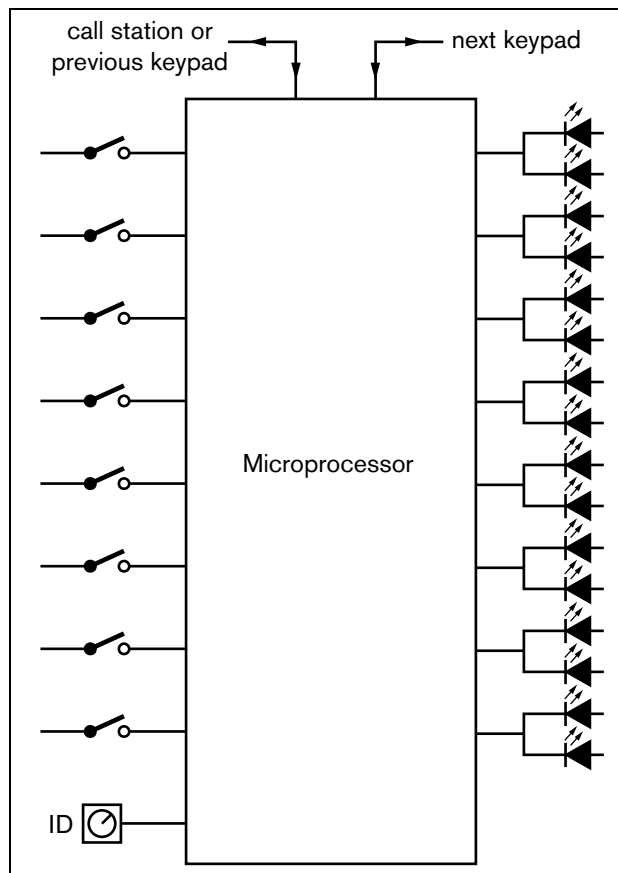


figure 16.1: Block diagram of the call station keypad kit

16.2 Controls, connectors and indicators

The call station keypad kit (see figure 16.2) contains the following:

- X800 **Control inputs** - The control inputs are used as replacement for the keys on the LBB4432/00 Call Station Keypad (see section 16.2.1).
- X810 **Control outputs** - The control outputs are used as replacement for the LEDs on the LBB4432/00 Call Station Keypad (see section 16.2.2).

S9 **ID selector** - A selector to identify the call station keypad kit to the call station to which it is connected (see section 16.2.4).

X5, X6 **Keypad interface** - The keypad interface is used to connect up to 16 keypads (LBB4432/00 or LBB4434/00) to a call station (LBB4430/00 or LBB4433/00) (see section 16.2.3).

X2 **Jumper switch** - Unused. However, the jumper must be placed for correct operation.

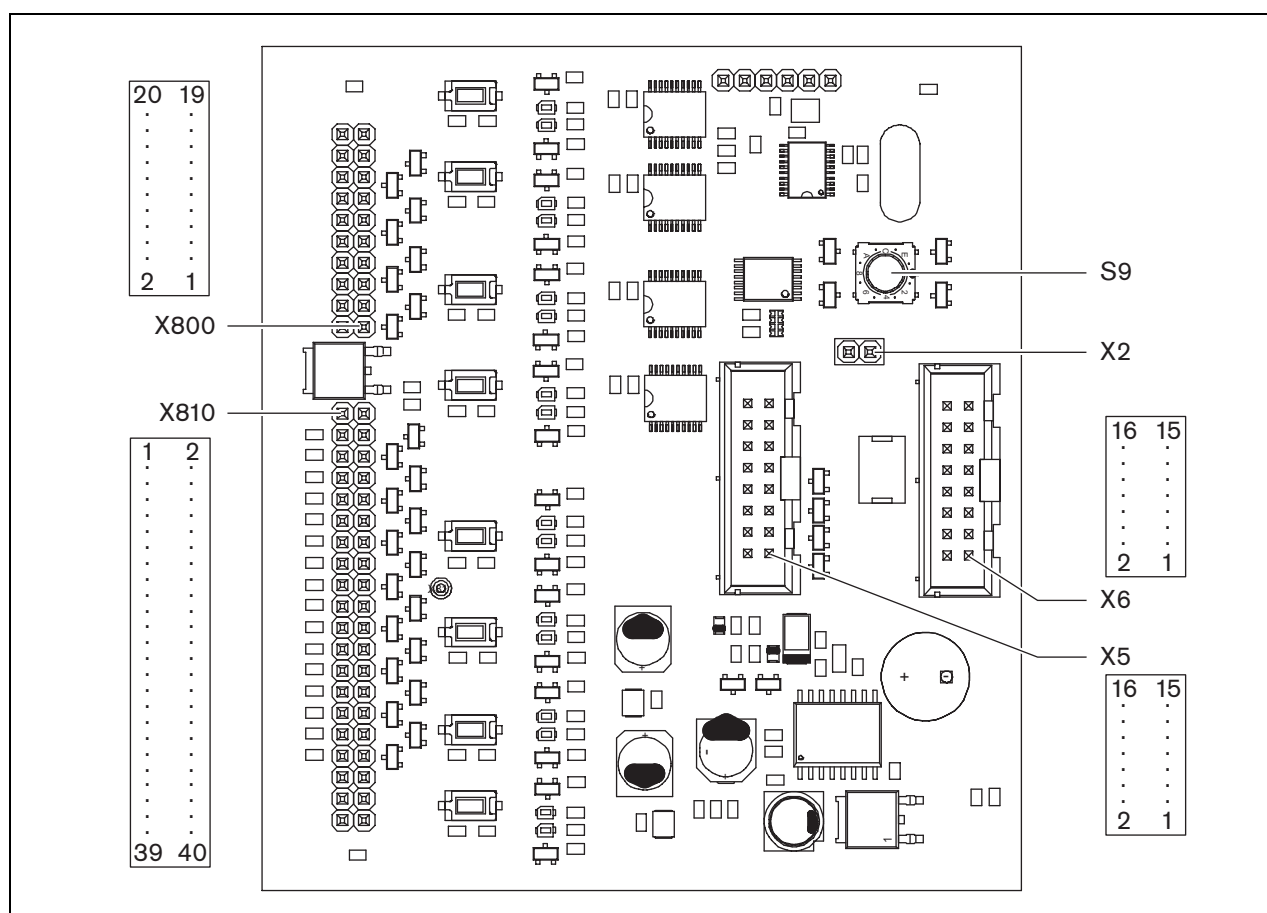


figure 16.2: Component side of the call station keypad kit PCB



Caution

Disconnect the system cable from the call station (kit) and back-up supplies before you are going to connect a keypad to it. Connecting a keypad to a powered call station can damage the call station.

16.2.1 Control inputs (X800)

The external interface for control inputs consists of a pin header connector with 20 positions (see the PCB for the pin numbering). These control inputs cannot be supervised.

table 16.1: X800 connector details

Pin	Signal
1	Input 1, in
2	Input 1, GND
3	Input 2, in
4	Input 2, GND
5	Input 3, in
6	Input 3, GND
7	Input 4, in
8	Input 4, GND
9	Input 5, in
10	Input 5, GND
11	Input 6, in
12	Input 6, GND
13	Input 7, in
14	Input 7, GND
15	Input 8, in
16	Input 8, GND
17	--- not connected ---
18	--- not connected ---
19	--- not connected ---
20	--- not connected ---

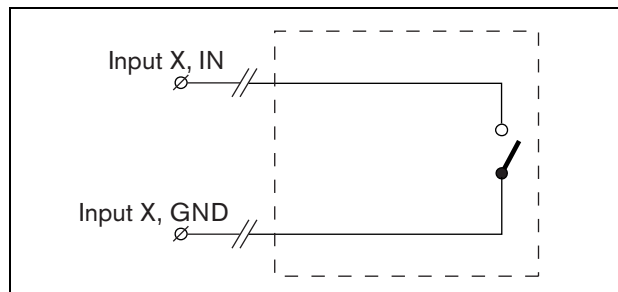


figure 16.3: Input connection diagram

table 16.2: X800 technical data

Cable length:
max. 5 m
Current (control inputs):
max. 0.5 mA
Voltage (control inputs):
max. 3.3 V with internal pull-up resistor of 10 kΩ

16.2.2 Control outputs (X810)

The external interface for control outputs consists of a pin header connector with 40 positions (see the PCB for the pin numbering).

table 16.3: X810 connector details

Pin	Signal
1	GND
2	GND
3	Output 1, out (green)
4	Output 1, in (green)
5	Output 2, out (green)
6	Output 2, in (green)
7	Output 3, out (green)
8	Output 3, in (green)
9	Output 4, out (green)
10	Output 4, in (green)
11	Output 5, out (green)
12	Output 5, in (green)
13	Output 6, out (green)
14	Output 6, in (green)
15	Output 7, out (green)
16	Output 7, in (green)
17	Output 8, out (green)
18	Output 8, in (green)
19	Output 1, out (yellow)
20	Output 1, in (yellow)
21	Output 2, out (yellow)
22	Output 2, in (yellow)
23	Output 3, out (yellow)
24	Output 3, in (yellow)
25	Output 4, out (yellow)
26	Output 4, in (yellow)
27	Output 5, out (yellow)
28	Output 5, in (yellow)
29	Output 6, out (yellow)
30	Output 6, in (yellow)
31	Output 7, out (yellow)
32	Output 7, in (yellow)
33	Output 8, out (yellow)
34	Output 8, in (yellow)
35	GND
36	GND
37	--- not connected ---
38	--- not connected ---
39	--- not connected ---
40	--- not connected ---

It is possible to connect the following to the control inputs/outputs connector:

- Internally powered lamp or LED. See figure 16.4 for a connection diagram.
- Externally powered lamp or LED. See figure 16.5 for a connection diagram.
- Externally powered relay. See figure 16.6 for a connection diagram.

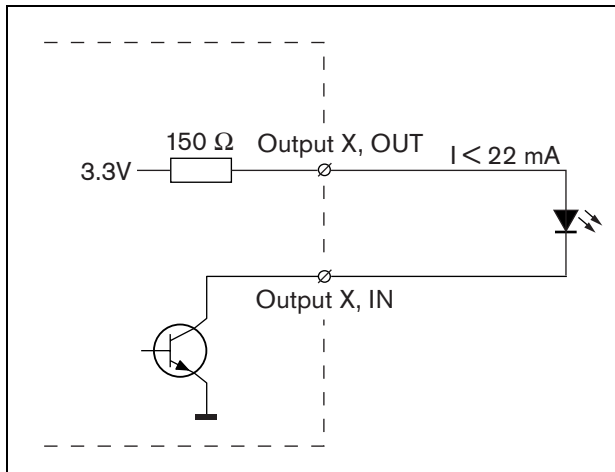


figure 16.4: Internally powered LED

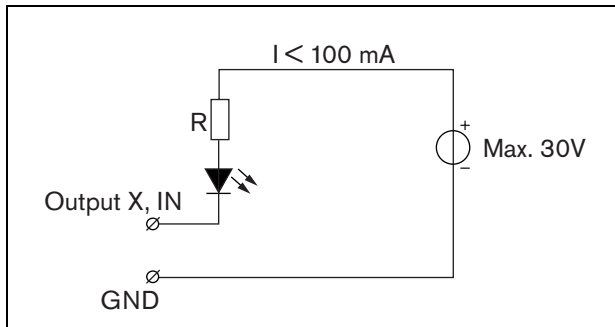


figure 16.5: Externally powered LED

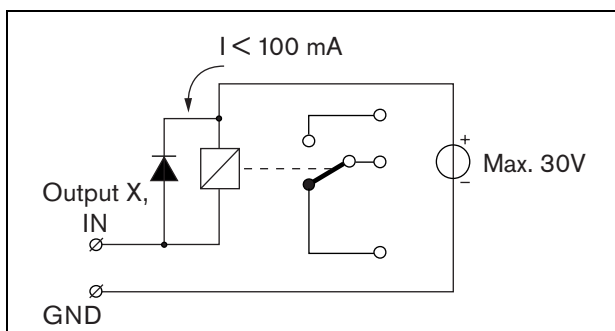


figure 16.6: Externally powered relay

The value of resistor R in figure 16.5 depends on the voltage of the external source, the forward voltage of the LED and the current flowing through the LED:

$$R = \frac{V_{source} - V_{forward}}{I}$$

For example, the voltage of the external source is 24 V, the forward voltage of the LED is 2 V and the current flowing through the LED is 10 mA, then:

$$R = \frac{24 - 2}{10 \cdot 10^{-3}} = 2200 \text{ } (\Omega)$$

table 16.4: X810 technical data

Cable length:

max. 5 m

Current:

max. 100 mA

Voltage:

max. 30 V

16.2.3 Keypad interface (X5, X6)

The external interface for connecting the keypad to other keypads or to a call station consists of a IDC connector with 16 positions (see the PCB for the pin numbering). Call station keypad are connected in series to a call station. This means that there is only a direct connection between the call station and the first keypad. The second keypad is connected to the first, the third to the second etc. using standard flat cables.

table 16.5: X5 and X6 connector details

Pin	Signal
1	Synchronization line.
2	GND
3	Interrupt line (INT)
4	GND
5	Data I2C (SDA)
6	GND
7	Clock I2C (SCL)
8	GND
9	Power
10	GND
11	Power
12	GND
13	Power
14	GND
15	Power
16	GND

16.2.4 ID selector (S9)

It is possible to connect up to 16 keypads (LBB4432/00 or LBB4434/00) to a call station (LBB4430/00 or LBB4433/00). For a correct communication between call station and keypad(s), the correct ID must be assigned to each keypad using the S9 selector (see figure 16.1). The ID of a keypad depends on its position in the array of keypads connected to a call station. The first keypad has ID 0, the next 1, and so on up to F for the sixteenth keypad.

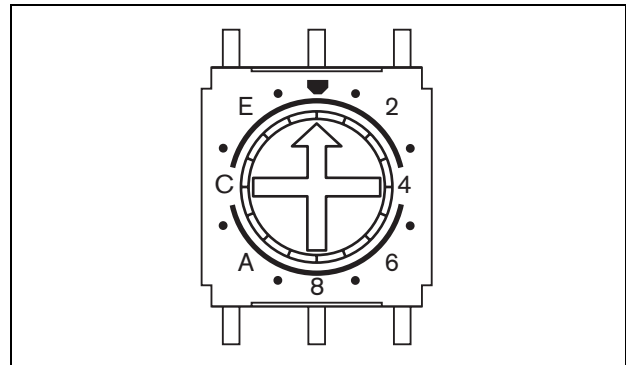


figure 16.7: ID selector

16.3 Installation

The call station keypad kit contains four holes for installation purposes (see figure 16.8).

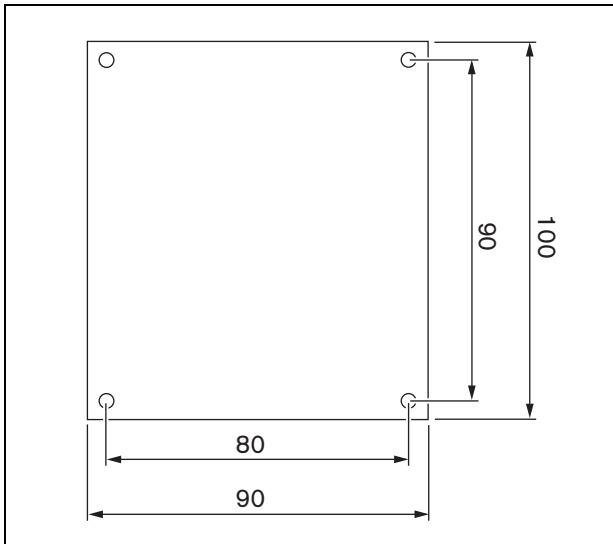


figure 16.8: Installation

The kit is delivered together with Tyco AMP pin headers and Tyco AMP 1-141708-1 shrink-contacts (see figure 16.9) to facilitate the connection of wires to the PCB. These pin headers are suitable for wires with a cross section from 0.2 to 0.56 mm². It is possible to solder the wires to the pin headers.



Note

If the call station keypad kit is installed in a vibrating surrounding (e.g. a ship), glue the pin header to the PCB.

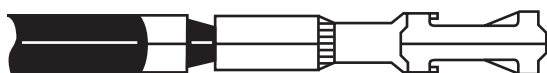


figure 16.9: Tyco AMP 1-141708-1 shrink-contact

To connect the wires to the shrink-contacts, use one of the following pliers (see also the following figures):

- Tyco AMP 169111-1 pliers (see figure 16.10)
- Tyco AMP Modu 4 169481-1 pliers (see figure 16.11)

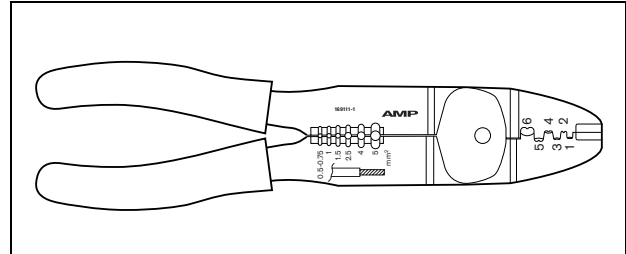


figure 16.10: Tyco AMP 169111-1 pliers

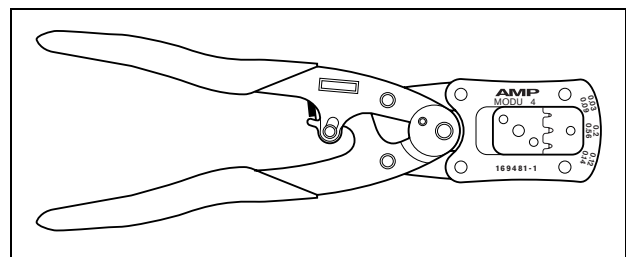


figure 16.11: Tyco AMP Modu 4 169481-1 pliers

16.4 Technical data

16.4.1 Physical characteristics

Dimensions (H x W x D):

100 x 90 x 20 mm

Weight:

55 g

16.4.2 Climate conditions

Temperature:

-5 to +45 °C (operating)

-20 to +70 °C (non-operating)

Relative humidity:

15 to 90%, non-condensing (operating)

5 to 95%, non-condensing (non-operating)

Air pressure:

600 to 1100 hPa

16.4.3 Electromagnetic compatibility

Emission:

EN55103-1/FCC-47 part 15B

Immunity:

EN55103-2

16.4.4 Safety

Electrical:

IEC65/EN60065/UL6500 (file 203290)

Approvals:

CE marking according to CB-scheme,

c-CSA-us marking

16.4.5 Mean time between failure

MTBF:

50,000 hours at +60 °C

(The MTBF doubles for every 10 °C decrease in temperature.)

16.4.6 System bus

Network power consumption:

1.2 W

17 LBB4436/00 Key Covers

The LBB4436/00 Key Covers are used to protect keys from LBB4432/00 Call Station Keypads from being pushed by accident (e.g. alarm or emergency keys). A set of LBB4436/00 Key Covers consists of 10 key covers and 10 replacement lenses.

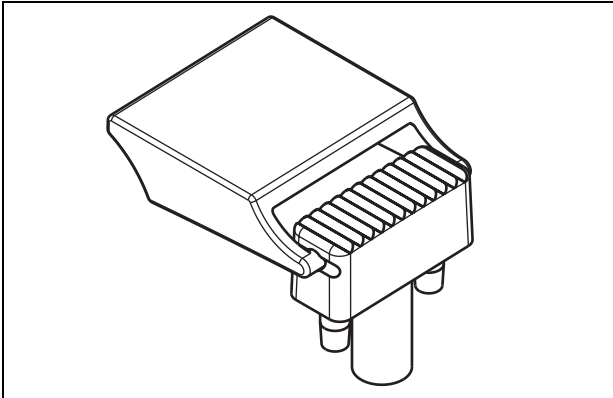


figure 17.1: Key cover

To install an LBB4436/00 Key Cover on a LBB4432/00 Call Station Keypad key:

- 1 Snap the key cover in the replacement lens (see figure 17.1 for the end result).
- 2 Remove the original lens from the LBB4432/00 Call Station Keypad using a pair of pliers.
- 3 Snap the key cover and replacement lens assembly in the LBB4432/00 Call Station Keypad.
- 4 Optionally, use cyano acrylate glue to fix the LBB4436/00 Key Cover permanently to the LBB4432/00 Call Station Keypad.

Section 5 - Installation Accessories

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18 LBB4410/00 Network Splitter

18.1 Introduction

The LBB4410/00 Network Splitter is used to create short-circuit proof tap-off points in the network. A network may contain up to 10 network splitters.

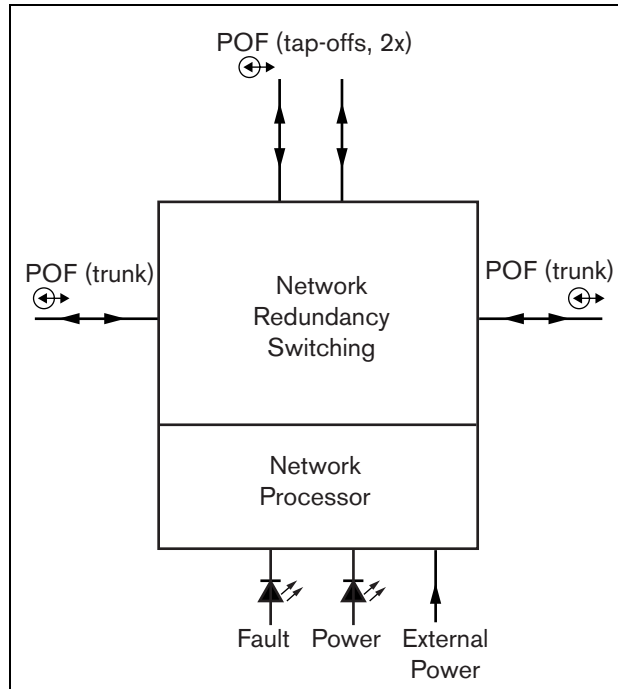


figure 18.1: Block diagram of the network splitter



Note

It is not allowed to connect more than two other network splitters to a tap-off of a network splitter that is located in the main loop of the network.

18.2 Controls and connectors

18.2.1 Exterior

The exterior of the network splitter (see figure 18.2) contains the following:

- 1 **External power supply** - A connection for an (optional) external power supply. The external power supply only feeds the tap-offs. It does not provide power to the trunk line (see section 18.3.3).
- 2 **Tap-off 1** - A system bus connector for creating a tap-off. The tap-off is protected against short-circuits and has a maximum load of 2.5 A (see sections 18.2.2 and 18.3.2).
- 3 **Trunk** - A system bus connector for looping through the trunk line (see section 18.3.2).
- 4 **Lid** - A lid that provides access to the jumpers (see section 18.2.2). The rear side of the lid contains a label with explanation about the internal settings.
- 5 **Fault LED** - A yellow fault LED that provides information about the status of the network splitter (see section 18.5).
- 6 **Power LED** - A green power LED that provides information about the status of the network splitter (see section 18.5).
- 7 **Tap-off 2** - A system bus connector for creating a tap-off. The tap-off is protected against short-circuits and has a maximum load of 2.5 A (see sections 18.2.2 and 18.3.2).
- 8 **Trunk** - A system bus connector for looping through the trunk line (see section 18.3.2).

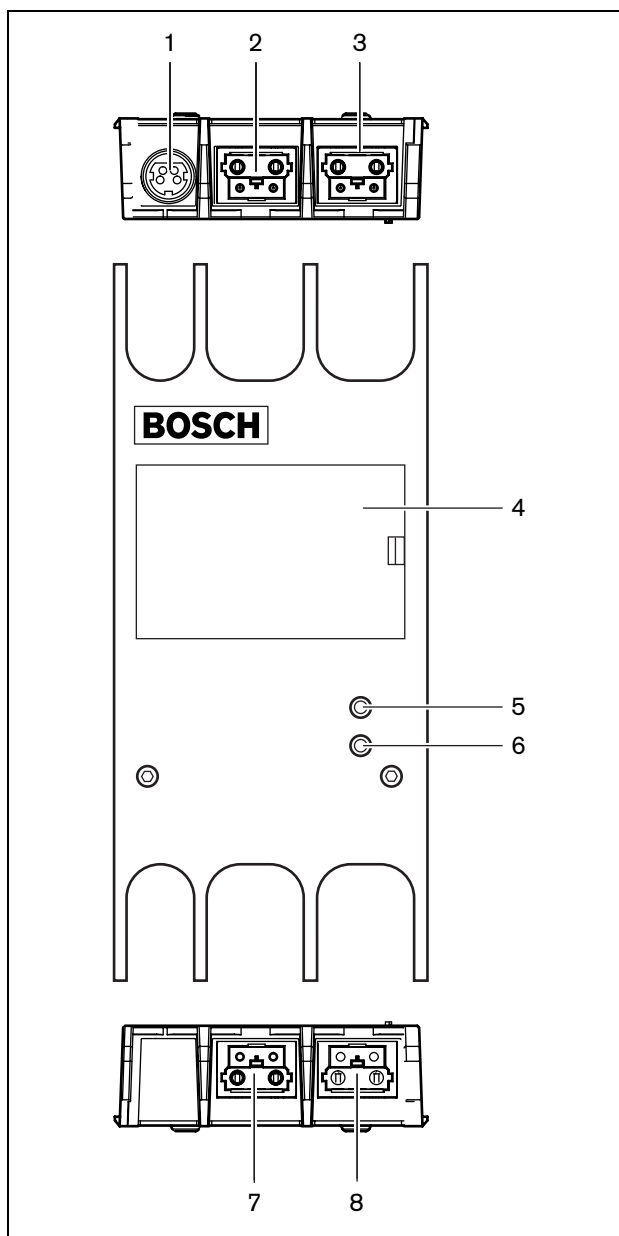


figure 18.2: Exterior of the network splitter

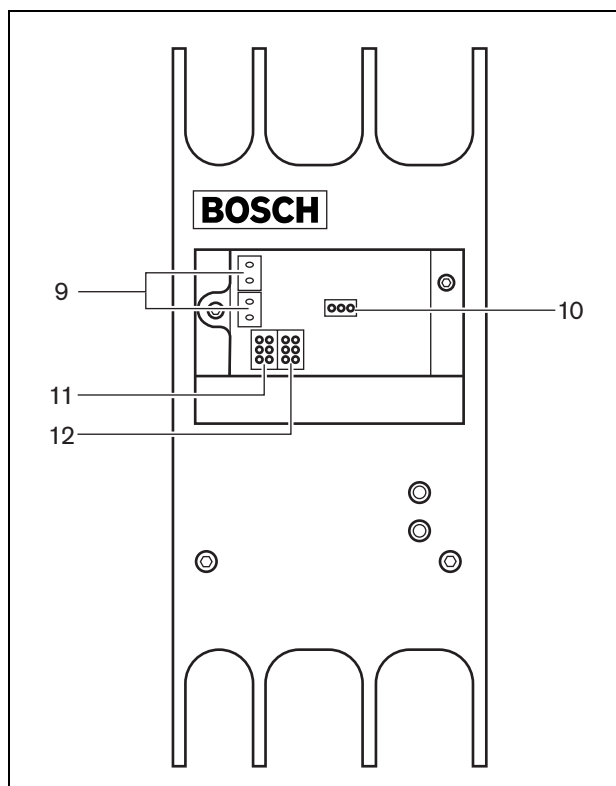


figure 18.3: Interior of the network splitter

18.2.2 Interior

The interior of the network splitter (see figure 18.3 and figure 18.4) contains the following:



Note

The numbering in figure 18.4 differs from the numbering in figure 18.1 and figure 18.2.

- 9 **Tap-off power source** - A jumper that specifies whether the tap-offs are powered from the trunk line or use an external power supply connected to the network splitter. See the label at the rear side of the lid for information about the jumper settings.
- 10 **External power** - On. (Use this setting for Praesideo.)
- 11 **Tap-off 2 limiter** - A jumper that limits the power for tap-off 2. If the tap-off asks for more power than allowed, the tap-off is shut down. See the label at the rear side of the lid for information about the jumper settings.
- 12 **Tap-off 1 limiter** - A jumper that limits the current for tap-off 1. If the tap-off asks for more power than allowed, the tap-off is shut down. See the label at the rear side of the lid for information about the jumper settings.

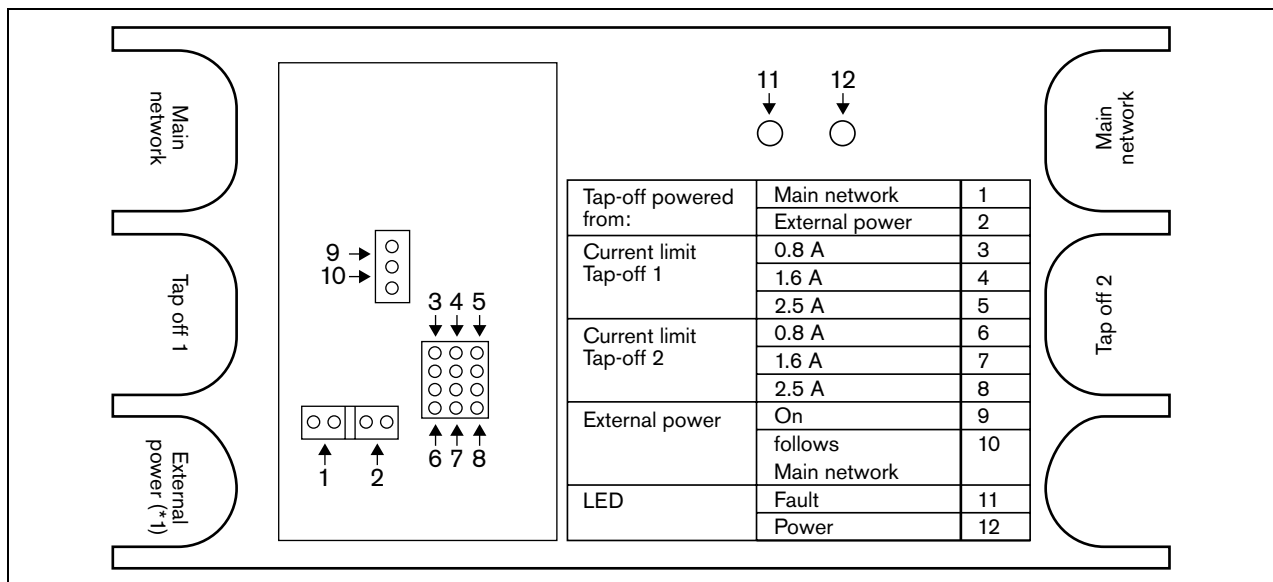


figure 18.4: Jumper identification

18.3 Connections

18.3.1 Introduction

This section gives an overview of typical system connections using the network splitter:

- Looping through the trunk line (see section 18.3.2).
- Creating tap-offs (see section 18.3.2).
- Connecting an external power supply (see section 18.3.3).

18.3.2 Connecting the trunk line and creating tap-offs

See figure 18.5 for information about connecting the main network and the tap-offs to the network splitter.

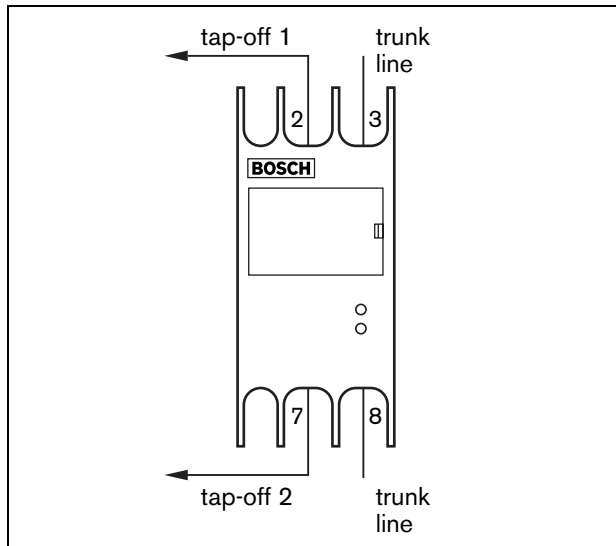


figure 18.5: Connecting the network splitter

18.3.3 Connecting a power supply

The network splitter is delivered with a separate Kycon KPP4-P connector to connect the external power supply to the network splitter.



Note

The external power supply can only feed the tap-offs and not the main network branch. Whether it really does depends on the jumper settings inside the network splitter.

The Kycon KPP-4P connector has four pins (see figure 18.6):

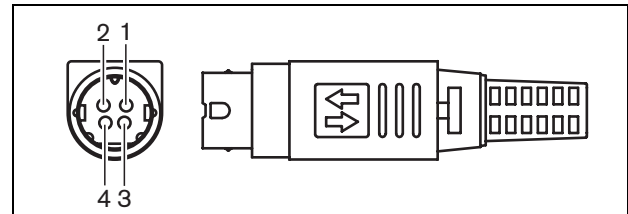


figure 18.6: Connection diagram

table 18.1: Kycon KPP-4P connector details

Pin	Signal
1	Ground
2	Power from local power supply (max. 48 V/5A)
3	Power from the system (max 48V/5A)
4	Not connected



Note

For detailed connector assembly instructions, see appendix B.

18.4 Installation

The network splitter can be attached to a wall or any other flat surface using a bracket (see figure 18.7). The distance (d) between the holes in the bracket is 40 mm.

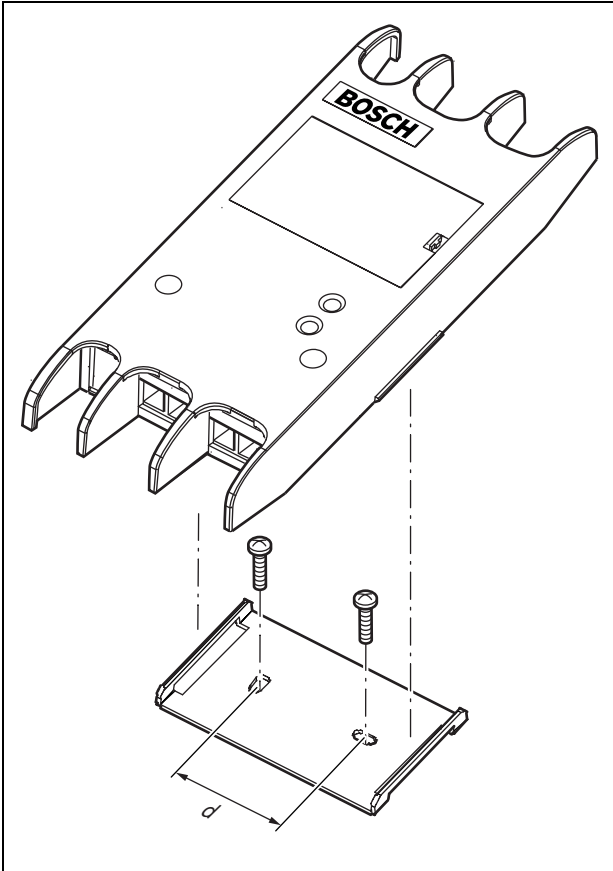


figure 18.7: Installation

18.5 Operation

table 18.2: Status LED indications

Yellow (Fault)	Green (Power)	Status
Off	Off	No power
On	Off	No network or network fault
Off	On	Functioning correctly

18.6 Technical data

18.6.1 Physical characteristics

Dimensions (H x W x D):

200 x 82.5 x 28.9 mm

Weight:

0.3 kg

18.6.2 Climate conditions

Temperature:

-5 to 45 °C (operating)

-20 to 70 °C (non-operating)

Relative humidity:

15 to 90%, non-condensing (operating)

5 to 95%, non-condensing (non-operating)

Air pressure:

600 to 1100 hPa

18.6.3 Electromagnetic compatibility

Emission:

EN55103-1/FCC-47 part 15B

Immunity:

EN55103-2

18.6.4 Safety

Electrical:

IEC65/EN60065

Approvals:

CE marking according to CB-scheme

18.6.5 Mean time between failure

MTBF:

50,000 hours at +45 °C

(The MTBF doubles for every 10 °C decrease in temperature.)

18.6.6 System bus

Number of connections:

4x proprietary female connectors

Position:

Front and rear sides

Preferred cable:

LBB4416/xx

Maximum cable length:

50 m (per system bus connector)

Data signal interface:

Plastic optical fiber

Network power consumption:

3.9 W

18.6.7 External power supply

Connector:

Kycon KPP4-P

Input voltage:

48 V(DC)

Input voltage range:

24 to 58 V(DC)

Current:

5 A (peak, < 2 s)

2.5 A continuous

19 LBB4414/xx Fiber Interface

19.1 Introduction

The LBB4414/xx Fiber Interface is used to convert from plastic optical fiber (POF) cable to glass optical fiber (GOF) cable and vice versa for covering long distances. The following types are available:

Type	Description
LBB4414/00	Fiber Interface with control inputs
LBB4414/10	Fiber Interface without control inputs

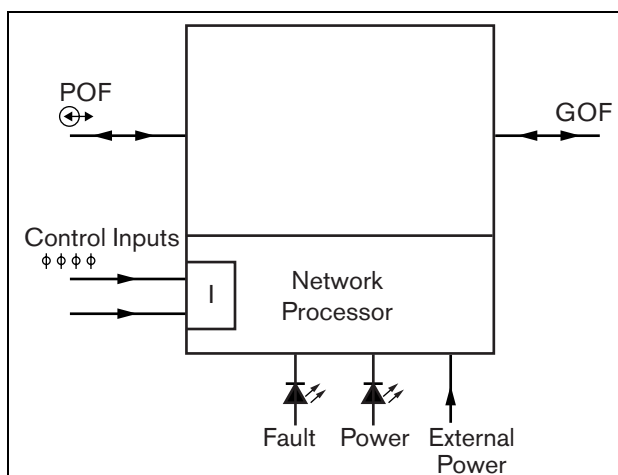


figure 19.1: Block diagram of the fiber interface

The LBB4414/10 Fiber Interface only converts from POF to GOF. It does not count as a node in the system (see table 24.2) with respect to the maximum number of nodes, 63, that can be in a system. It is intended for systems in which otherwise the maximum number of nodes would be exceeded. However, this unit does influence the maximum cable length of the system as if it was a normal node (see figure 24.5).

In emergency sound systems, do not use this type of fiber interface to power far-end units. Since it does not have any control inputs, it is not possible to supervise its external power supply (if connected). Using the LBB4414/10 Fiber Interface as a near-end fiber interface that is connected to the network controller is possible though.

19.2 Controls, connectors and indicators

The fiber interface (see figure 19.2) contains the following:

- 1 **External power supply** - A connection for an (optional) external power supply. The external power supply feeds the trunk (see section 19.3.3).
- 2 **Control inputs** - The control inputs can be used to receive signals from third party equipment that must trigger actions in the Praesideo network (see section 19.3.4).
- 3 **POF connector** - A POF connector to connect the fiber interface to a POF cable (see section 19.3.2).
- 4 **Lid** - Not used.
- 5 **Fault LED** - A yellow fault LED that provides information about the status of the fiber interface (see section 19.3.5).
- 6 **Power LED** - A green power LED that provides information about the status of the fiber interface. (see section 19.3.5).
- 7 **GOF connector** - A GOF connector to connect the fiber interface a GOF cable (see section 19.3.2).

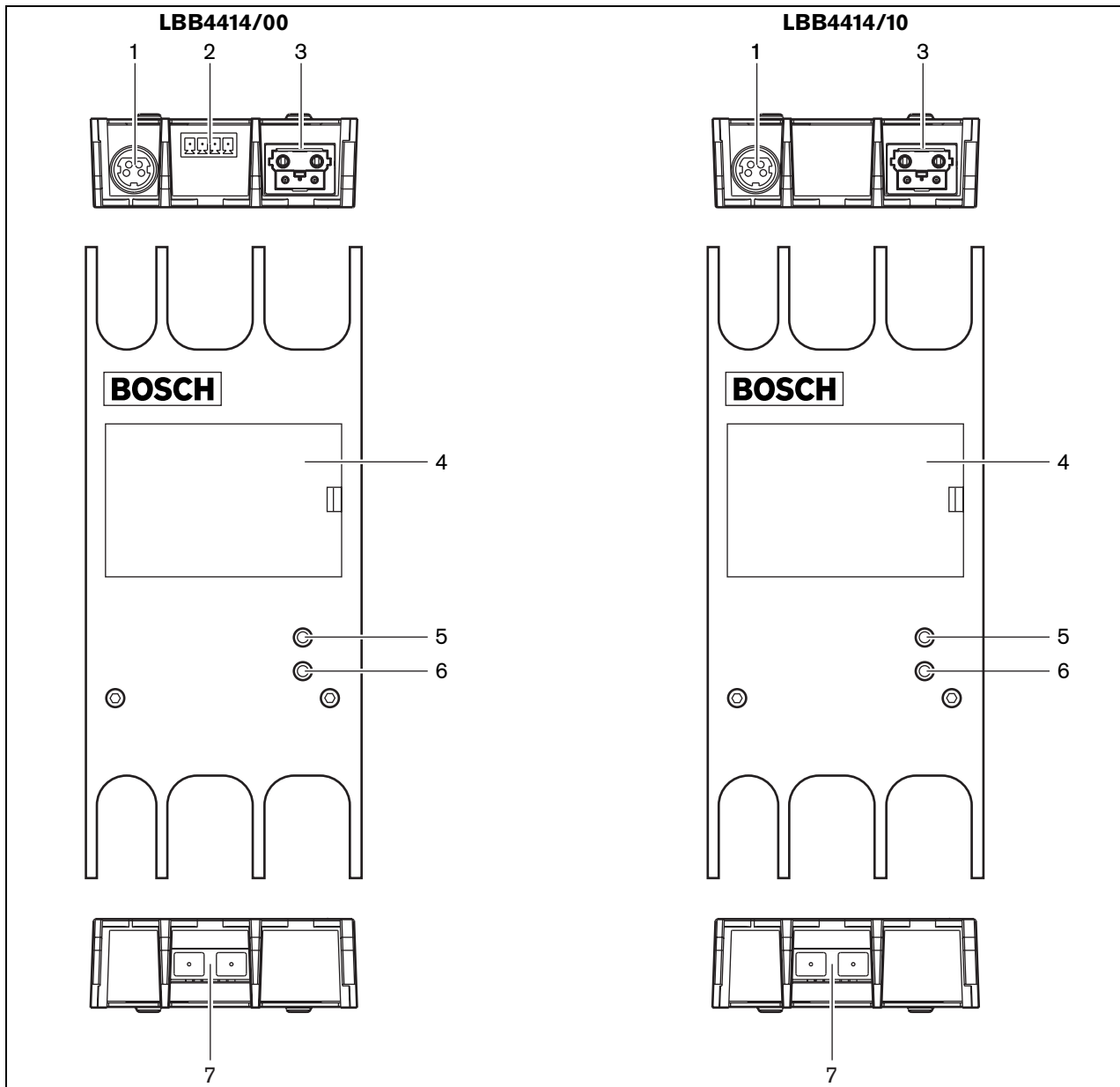


figure 19.2: Overview of the fiber interface

19.3 Connections

19.3.1 Introduction

This section gives an overview of typical system connections using the fiber interface:

- Connecting the POF cable (see section 19.3.2).
- Connecting the GOF cable (see section 19.3.2).
- Connecting an external power supply (see section 19.3.3).

19.3.2 Connecting POF and GOF cables

Fiber interfaces convert from POF to GOF to connect two pieces of equipment that are more than 50 m apart. Usually, they are used in pairs. The first converts from POF to GOF, whereas the second converts from GOF back to POF (see figure 19.3).

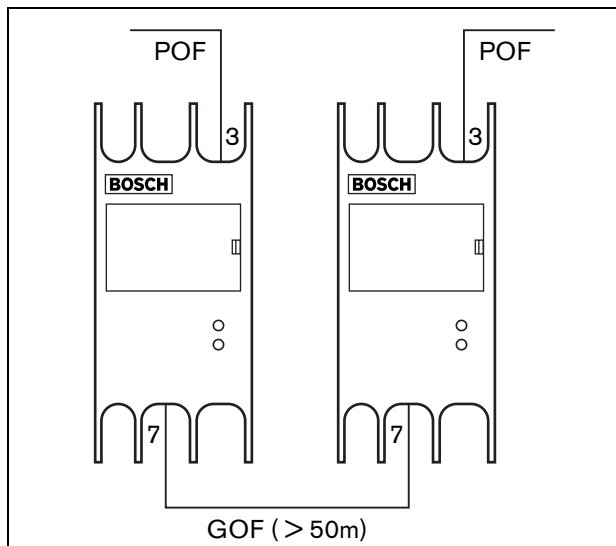


figure 19.3: Connecting the fiber interface

The GOF connector (see figure 19.4) is an SC connector, which uses invisible infra-red light (1300 nm).

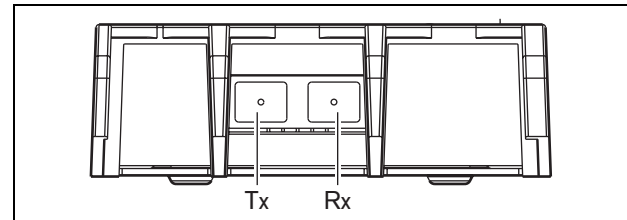


figure 19.4: GOF connector

table 19.1: GOF connector pins

Pin	Description
Tx	Transmitter
Rx	Receiver

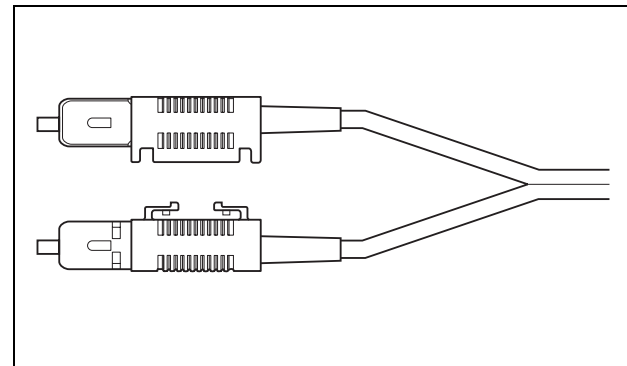


figure 19.5: SC connector

19.3.3 Connecting a power supply

The fiber interface is delivered with a separate Kycon KPP4-P connector to connect the external power supply to the fiber interface. The Kycon KPP-4P connector has four pins (see figure 18.6):

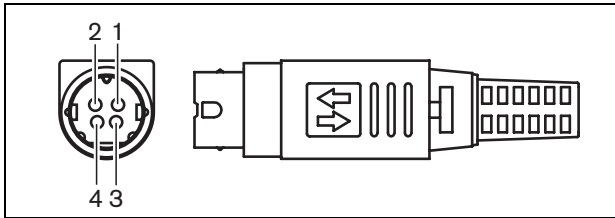


figure 19.6: Connection diagram

table 19.2: Kycon KPP-4P connector details

Pin	Signal
1	Ground
2	Power from local power supply (max. 48 V/5A).
3	Power from the system (max 48V/5A)
4	Not connected



Note

For detailed connector assembly instructions, see appendix B

If the fiber interface uses an external power supply and the system power supply is present as well, it is possible that the system voltage (nominally 48 V) is higher than the external power supply voltage. In that case, this higher voltage is forced on the output of the external power supply.

Many external power supplies are not able to accept this and get defective as a result. To isolate the external power supply from a higher terminal voltage, a series diode should be inserted between the external power supply and the fiber interface (see figure 19.7).

Technically, it was not possible to incorporate this diode into the fiber interface because it is allowed to power a significant part of the network from this external power supply, with up to 5 A load. With a load of 5 A, the power dissipation of the diode would be such that the internal temperature of the fiber interface would become too high. The diode should be specified for at least 50 V reverse voltage and a maximum current bigger than what can be expected from the connected load.

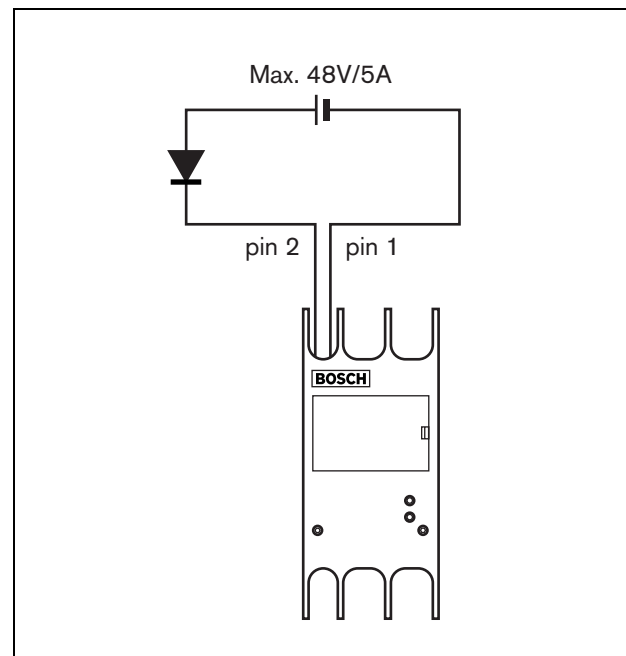


figure 19.7: Diode connection

19.3.4 Connecting control inputs

The fiber interface has two control inputs (see figure 19.8). The control inputs can be used to receive signals from third party equipment that must trigger actions within the Praesideo system. The control inputs can be configured to act on contact make or on contact break (see section 34.6).

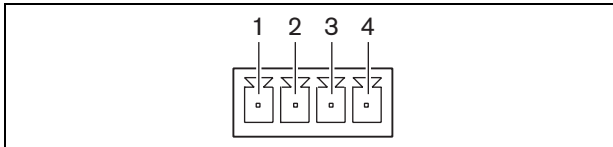


figure 19.8: Control inputs connector

table 19.3: Control inputs connector details

Pin	Signal
1	Input Contact 1
2	Input Contact 1, ground
3	Input Contact 2
4	Input Contact 2, ground

It is also possible to have the cables supervised for short-circuits and open connections (see figure 19.9 and figure 19.10). Whether a control input is actually supervised or not is defined in the configuration.

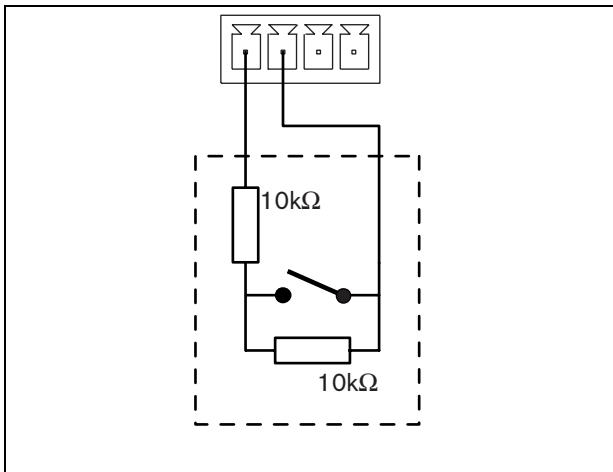


figure 19.9: Supervised control input



Caution

Do not connect DC or AC signals to the control inputs, otherwise the input circuit may be damaged.

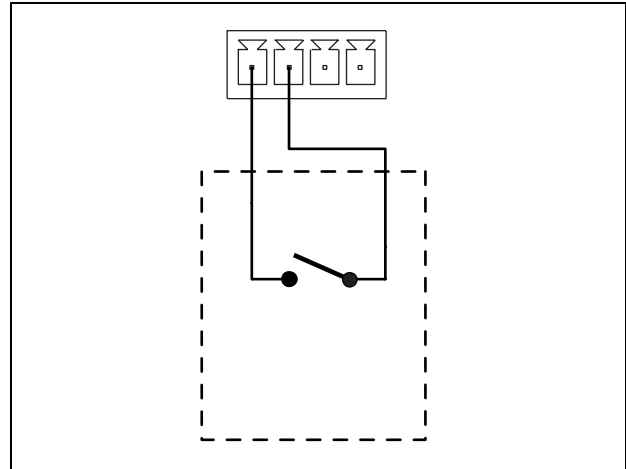


figure 19.10: Non-supervised control input

19.3.5 Operation

The two LEDs on the fiber interface provide information about the status of the fiber interface.

table 19.4: Status LED indications

Yellow (Fault)	Green (Power)	Status
Off	Off	Off; no external power available.
On	Off	Stand-by; external power to POF switched off.
On	On	Operating; external power to POF switched on.
Off	On	Operating; no external power available, but powered from the POF side.
Off	Blink	Fault, no external power available and no protocol received.
On	Blink	Fault, external power available, but no protocol received.



Note

The green LED of the LBB4414/10 Fiber Interface cannot detect if the correct protocol is received. Therefore, the last two statuses that are described in table 19.4 do not apply to the LBB4414/10 Fiber Interface.

19.4 Installation

The fiber interface can be attached to a wall or any other flat surface using a bracket (see figure 19.11). The distance between the holes in the bracket is 40 mm.

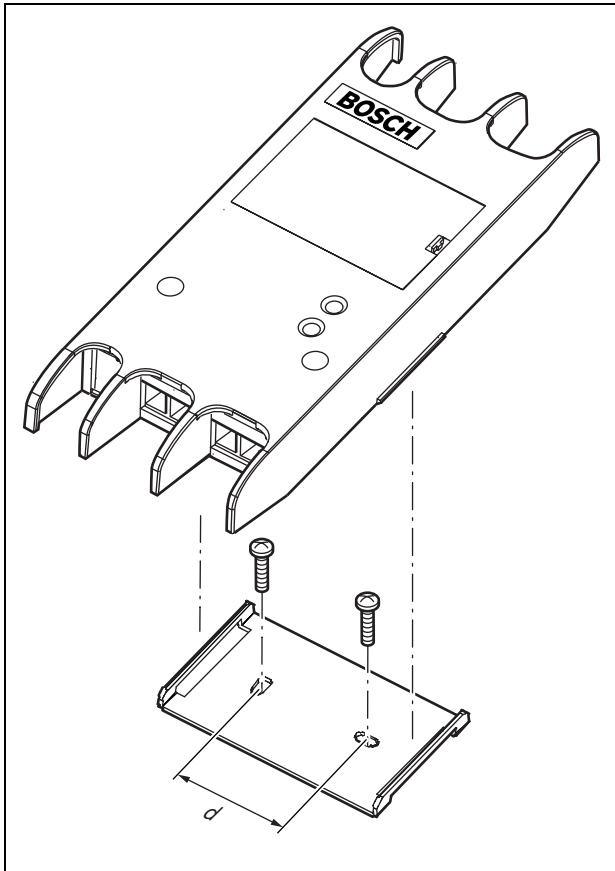


figure 19.11: Installation

19.5 Technical data

19.5.1 Physical characteristics

Dimensions (H x W x D):

200 x 82.5 x 28.9 mm

Weight:

0.3 kg

19.5.2 Climate conditions

Temperature:

-5 to +55 °C (operating)

-20 to +70 °C (non-operating)

Relative humidity:

15 to 90%, non-condensing (operating)

5 to 95%, non-condensing (non-operating)

Air pressure:

600 to 1100 hPa

19.5.3 Electromagnetic compatibility

Emission:

EN55103-1/FCC-47 part 15B

Immunity:

EN55103-2

19.5.4 Safety

Electrical:

IEC65/EN60065

Approvals:

CE marking according to CB-scheme

19.5.5 Mean time between failure

MTBF:

50,000 hours at +55 °C

(The MTBF doubles for every 10 °C decrease in temperature.)

19.5.6 System bus

Number of connections:

1x proprietary female connector (POF)

1x industry standard SC connector (GOF)

Position:

Front and rear sides

Preferred cable:

LBB4416/xx (POF)

Multimode (GOF)

Maximum cable length:

50 m (POF)

Data signal interface:

Plastic optical fiber (POF)

Glass optical fiber (GOF)

Network power consumption:

4.6 W

19.5.7 External power supply

Connector:

Kycon KPP4-P

Input voltage:

48 V(DC)

Input voltage range:

24 to 58 V(DC)

Current:

5 A (peak, < 2 s)

2.5 A continuous

19.5.8 GOF connector

Interface:

Agilent HFBR-5803 transceiver

Wavelength:

1300 nm

Preferred cable:

62.5/125 µm and 50/125 µm multimode GOF

20 LBB4416/xx Network Cables

20.1 Introduction

All LBB4416/xx Network Cables contain two plastic optical fibers for data communication and two copper cores for the power supply. All cables (except for the LBB4416/00) are supplied with the network connectors fitted.

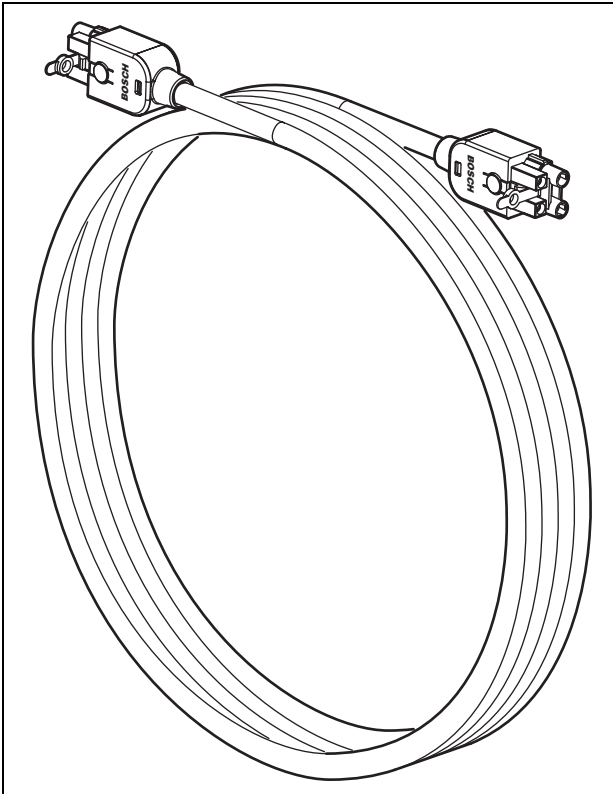


figure 20.1: Network cable

table 10.1: Network cables

Type number	Cable length
LBB4416/00	100 m
LBB4416/01	0.5 m
LBB4416/02	2 m
LBB4416/05	5 m
LBB4416/10	10 m
LBB4416/20	20 m
LBB4416/50	50 m

To connect extension cables to each other, cable couplers (LBB4419/00) can be used.

20.2 Connectors

Except for LBB4416/00, all cables are terminated with male, proprietary connectors on both ends of the cable. See figure 20.3 for connector details.

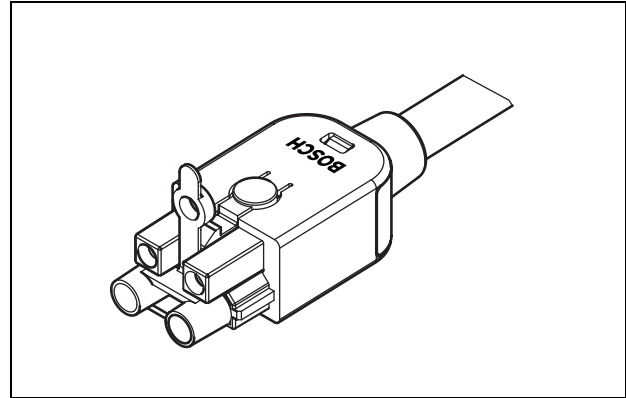


figure 20.2: Connector (with dust cap)

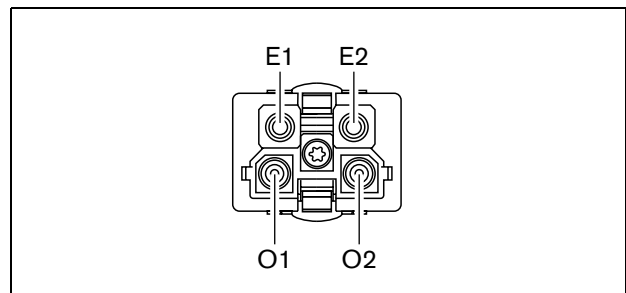


figure 20.3: Connector details

table 20.1: Connector details

Pin	Signal	Wire
E1	+48V(DC)	Copper
E2	GND	Copper
O1	Data	Optical fiber
O2	Data	Optical fiber

20.3 Wiring

See figure 20.4 for details about the wires inside the extension cables.

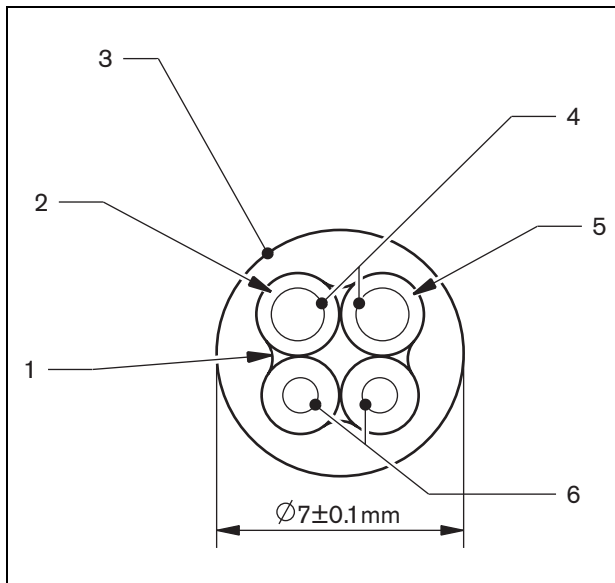


figure 20.4: Cable details

table 20.2: Cable details

Number	Signal	Color
1	Protective cloth	----
2	Insulation	Brown
3	Outer sheet	Black
4	Stranded wire	-----
5	Insulation	Red
6	Optical fiber	-----

20.4 Custom-made cables

Use LBB4418/00 Cable-connector Tool Kit to create custom-made cables out of LBB4416/00 Network Cables and LBB4417/00 Network Connectors.

20.5 Technical data

Insulation:

LSZH (low smoke/zero halogen), black

Outer diameter:

7 mm

Power supply wires (2):

Copper, stranded 1 mm², red and brown insulation, resistance < 0.018 Ω/m

Optical fibers (2):

- PMMA, 1 mm diameter including cladding, 2 mm diameter including insulation
- black numeric aperture = 0.5
- optical attenuation < 0.17 dB/m @ 650 nm
- bending loss < 0.5 dB (r = 20 mm, 90°), according to JIS C6861

Temperature range:

-40 to +65 °C

Pull force:

max. 150 N

UL-compliance:

UL444 (60 °C/60 V), UL1666

Flame retardant:

according to IEC 60332-1 / 60 s

Halogen level:

according to IEC 60754-2, pH > 4.3 and conductivity < 10 uS/mm

Smoke level:

according to IEC 61034-2, light transmittance > 60%

21 LBB4417/00 Network Connectors

The LBB4417/00 Network Connectors are used to create custom-made cables in combination with LBB4416/00 Network Cable (100 m) and the LBB4418/00 Cable-connector Tool Kit.

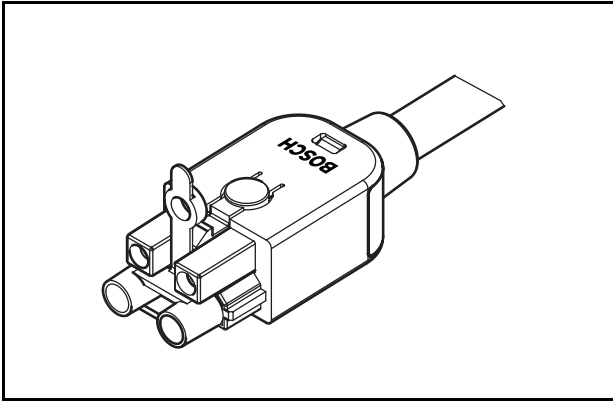


figure 21.1: Connector

The type number LBB4417/00 contains parts for 10 pieces of network connectors, which is enough for 5 extension cables.

22 LBB4118 Cable-connector

Tool Kit

22.1 Introduction

The LBB4418/00 Cable-connector Toolkit is intended for creating optical network cables (see figure 22.1) out of LBB4416/00 Network Cable (100 m) and LBB4417/00 Network Connectors.

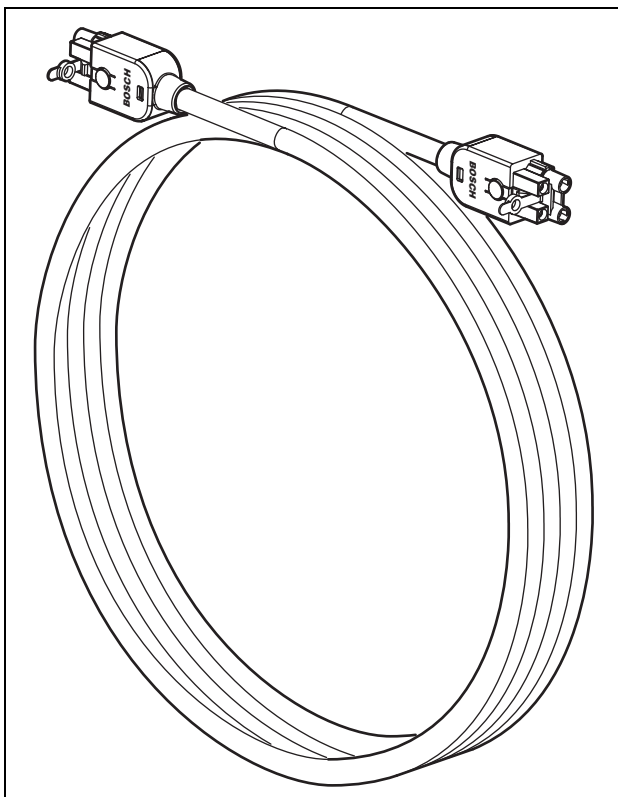


figure 22.1: Optical network cable

22.2 Toolkit contents



figure 22.2: Toolkit contents

table 22.1: Toolkit contents

No.	Description	Number
1	Spare cutting system (with Allen key)	600 004 0
2	Cable cutter	600 015 36
3	Crimping tool	642 509 3 23
4	POF positioning/crimping tool	618 071 69PHI
5	Stripping tool	607 202 69PHI
6	POF cutter/stripping tool	600 003 - 1 39
7	Torx screwdriver	C209 000077

Toolkit supplier:

- Rennsteig Werkzeuge GmbH
Viernau, Thüringen, Germany
Supplier type number: 600 100 PHI

**Note**

Before using the POF cutter/stripping tool (tool 6), release its blocking screw using the Torx screwdriver (tool 7).

**Note**

After 1,260 cuts, the POF cutter/stripping tool (tool 6) blocks automatically. In that case, replace the cutting system with the spare cutting system (tool 1) to ensure smooth cuts. Additional spare cutting systems are available as type number LBB4418/50.

**Caution**

Oil all tools regularly to avoid rusting.

22.3 Connector components

Each optical network connector (LBB4417/00) consists of 10 components (see figure 22.3 and figure 22.4).

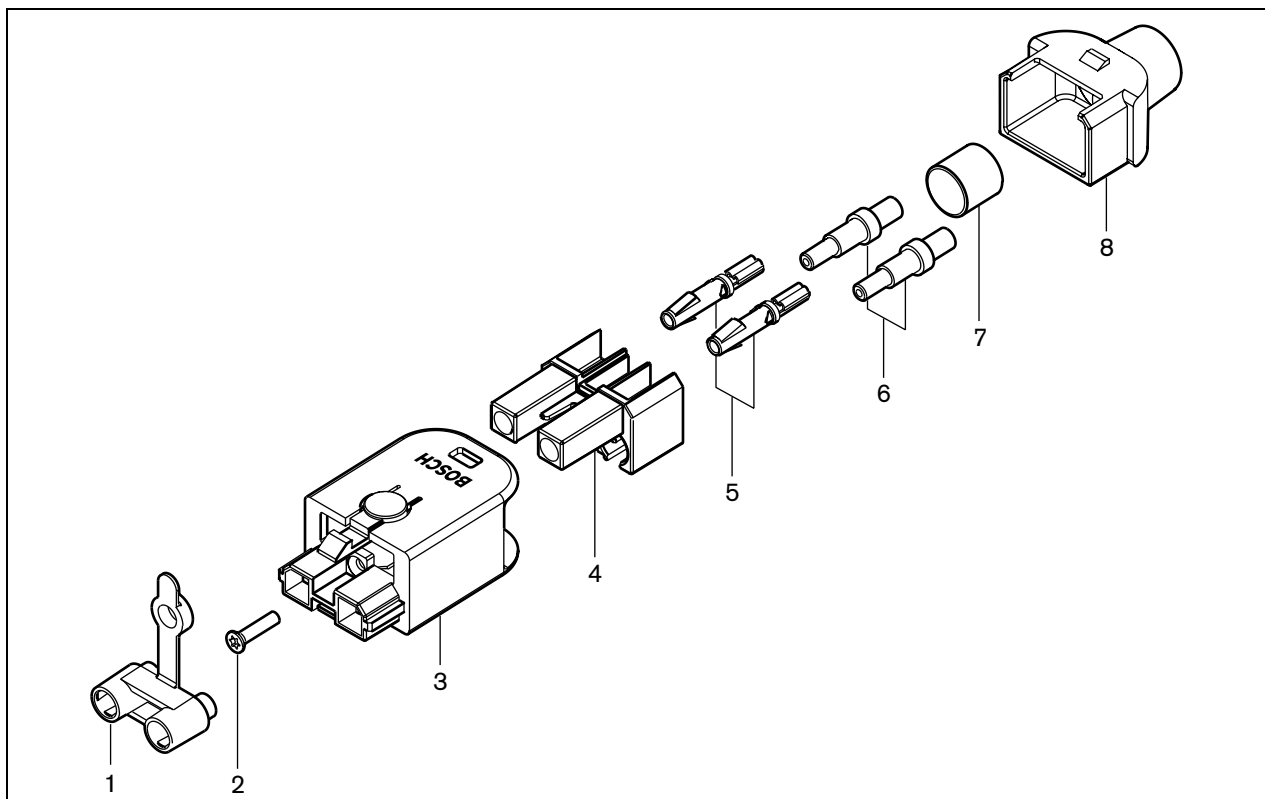


figure 22.3: Connector assembly drawing

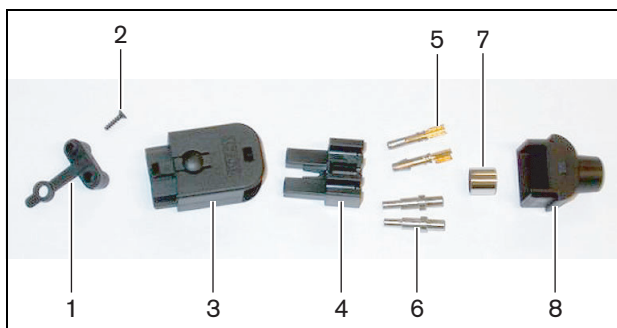


figure 22.4: Connector components

table 22.2: Connector components

No	Description
1	Dust cap
2	Torx screw
3	Front housing
4	Mounting block
5	Socket contacts
6	Ferrules
7	Crimping bush
8	Back housing

22.4 Cable-connector installation

22.4.1 Introduction

This chapter contains a step-by-step description of the cable-connector installation process. The procedure consists of the following parts:

- Preparation (see section 22.4.3).
- Crimping the bush (see section 22.4.4).
- Stripping the copper wires (see section 22.4.5).
- Installing the socket contacts (see section 22.4.6).
- Stripping the optical fibers (see section 22.4.7).
- Installing the ferrules (see section 22.4.8).
- Assembling the connector (see section 22.4.9).

22.4.2 Cable types

There are two types of optical network cables:

- Type A cables in which the plastic optical fibers are located next to each other (see figure 22.5, which shows both cable ends).
- Type B cables in which the plastic optical fibers are located opposite to each other (see figure 22.5, both cable ends are identical).

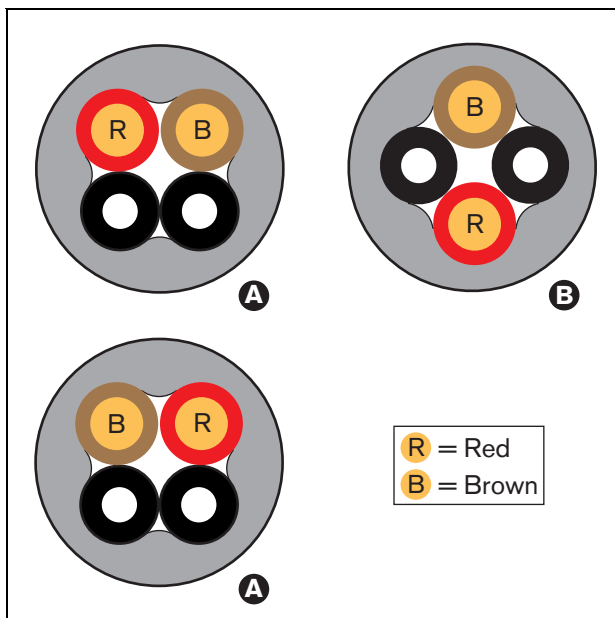


figure 22.5: Cable types

22.4.3 Preparation

Proceed as follows:

- 1 Cut the optical network cable to the required length using the cable cutter (tool 2).



Note

Due to light loss, the length of an optical network cable must be less than 50 m.

- 2 Determine the cable type (see section 22.4.2), since some steps in the cable-connector installation procedure depend on the cable type.
- 3 Disassemble a network connector. A network connector consists of 10 parts (see section 22.3).
- 4 Slide the back housing over the cable (see figure 22.6).



figure 22.6: Back housing on cable

- 5 Using the stripping tool (tool 5), strip the outer sheath of the cable by pushing the cable to the mechanical stop (see figure 22.7).

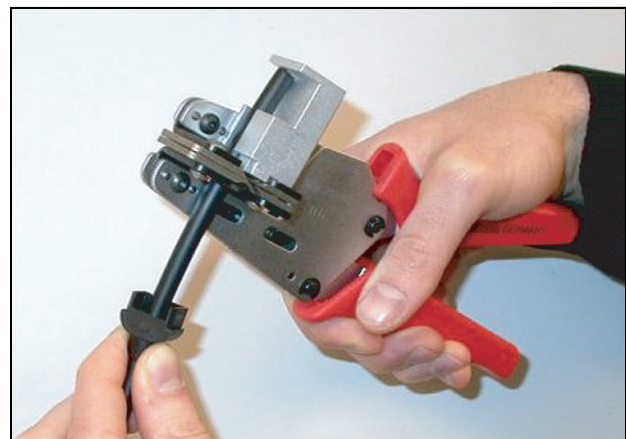


figure 22.7: Stripping the cable

22.4.4 Crimping bush

Proceed as follows:

- 6 Slide the crimping bush over the cable and position it at the end of the outer sheath.



Note

In the next step, the circular shape of the cable cross-section at the end of the outer sheath is transformed into a hexagonal shape using the crimping tool (tool 3) and the crimping bush. Before crimping the bush, ensure that both plastic optical fibers will be positioned parallel to a flat side of the hexagonal cross-section (see figure 22.8)

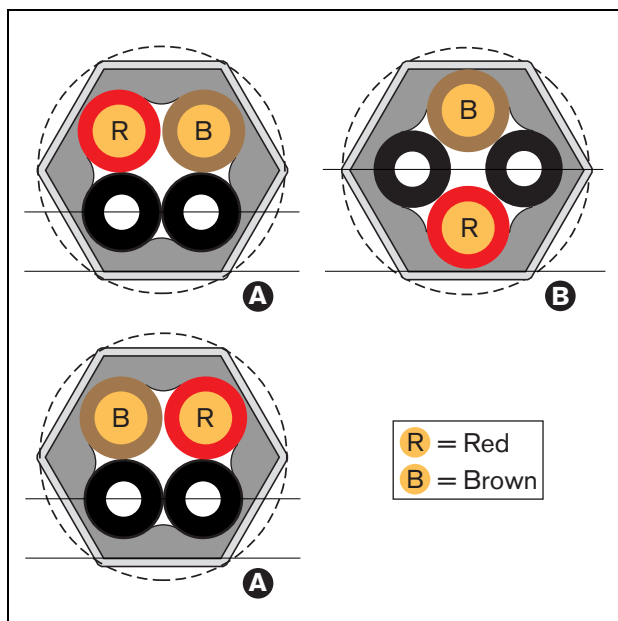


figure 22.8: Cross-section transformation

- 7 Crimp the bush on the outer sheath using the crimping tool (tool 3, see figure 22.9). The crimping bush will prevent the cable from rotating in the connector.



figure 22.9: Crimping the bush

22.4.5 Stripping copper wires

Proceed as follows:

- 8 Cut the copper wires at the required length using the cable cutter (tool 2) and the stripping tool (tool 5). To this end, position the crimping bush in position I and cut the copper wires at position II (see figure 22.10).

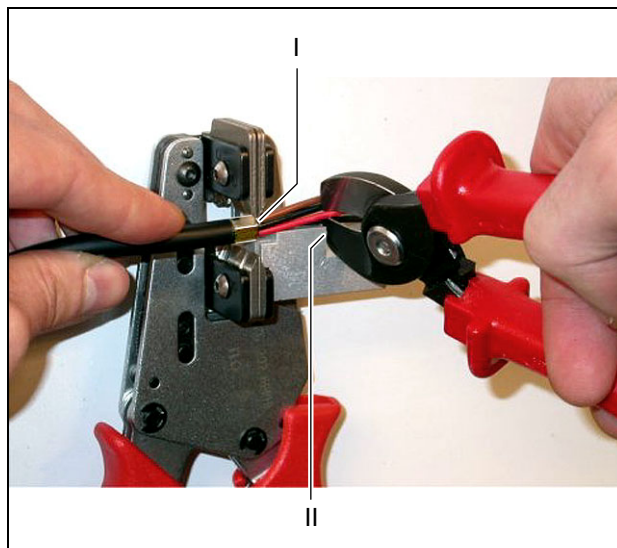


figure 22.10: Cutting a copper wire

- 9 Strip the red and brown insulations from the copper wires by pushing them to the mechanical stop of the stripping tool (tool 5, see figure 22.11).

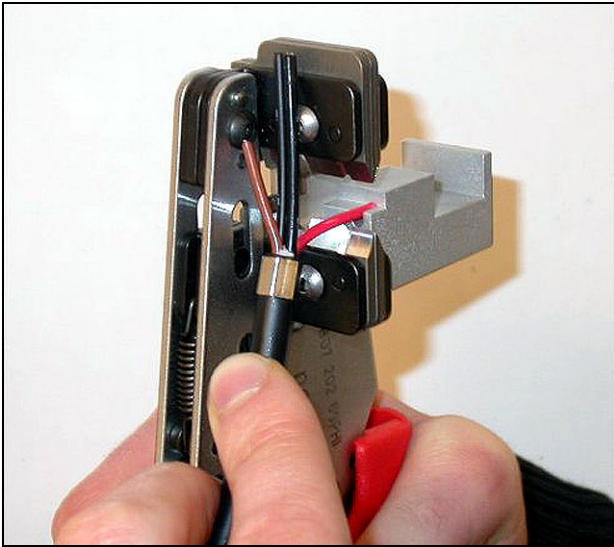


figure 22.11: Stripping a copper wire

22.4.6 Installing socket contacts

Proceed as follows:

- 10 Put a socket contact in the crimping tool (tool 3, see figure 22.12). The upper part of the crimping tool contains a ridge for positioning the socket contact in the tool (see figure 22.13).

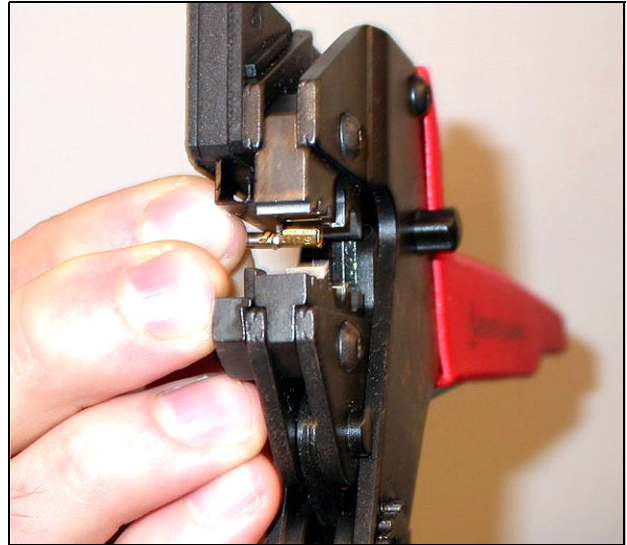


figure 22.12: Crimping a socket contact (1)

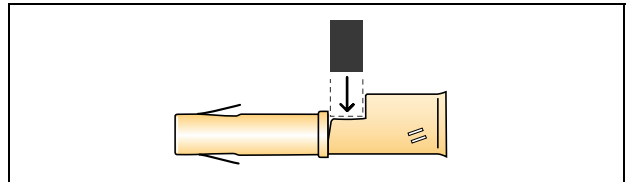


figure 22.13: Positioning a socket contact

- 11 Slide one of the stripped, copper wires into the contact area of the socket contact and close the crimping tool to crimp the socket contact onto the copper wire (see figure 22.14).

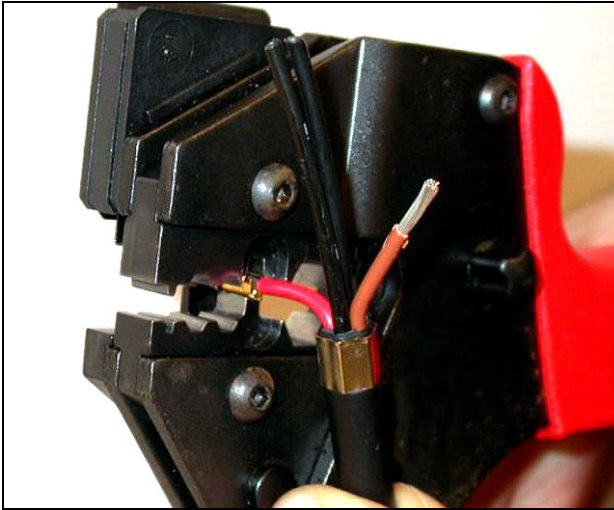


figure 22.14: Crimping a socket contact (2)

- 12 Repeat steps 10 and 11 for the other stripped, copper wire. See figure 22.15 for the result of this part of the cable-connector installation procedure.

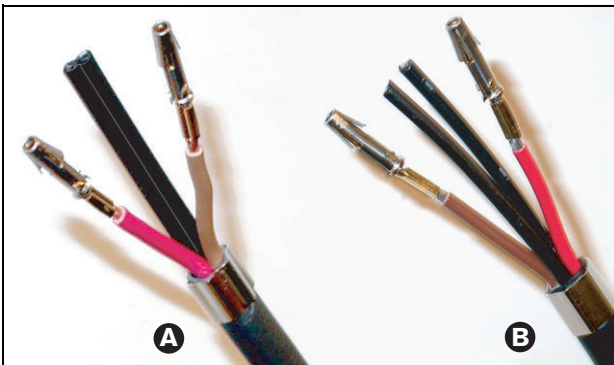


figure 22.15: Installed socket contacts

22.4.7 Stripping fibers

Proceed as follows:

- 13 Slide the plastic optical fibers into the POF cutter/stripping tool (tool 6). The fiber that is going to be cut-off must be put in the small guiding hole, whereas the other fiber must be put in the large guiding hole (see figure 22.16). The crimping bush must rest against the stop (see figure 22.17).



figure 22.16: Cutting a fiber (1)

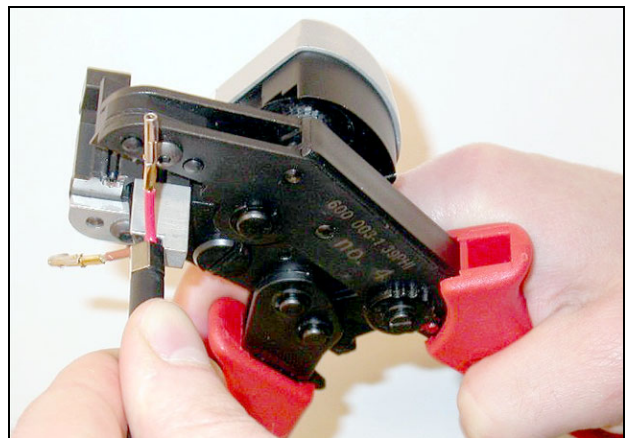


figure 22.17: Cutting a fiber (2)

- 14 Close the tool to fix the cable and pull the 'trigger' to cut the fiber (see figure 22.18).



figure 22.18: Cutting a fiber (3)

- 15 Repeat steps 13 and 14 for the other plastic optical fiber in the cable. Both fibers now have the required length.
- 16 Slide one of the fibers into the front part of the POF cutter/stripping tool (tool 6, see figure 22.19).

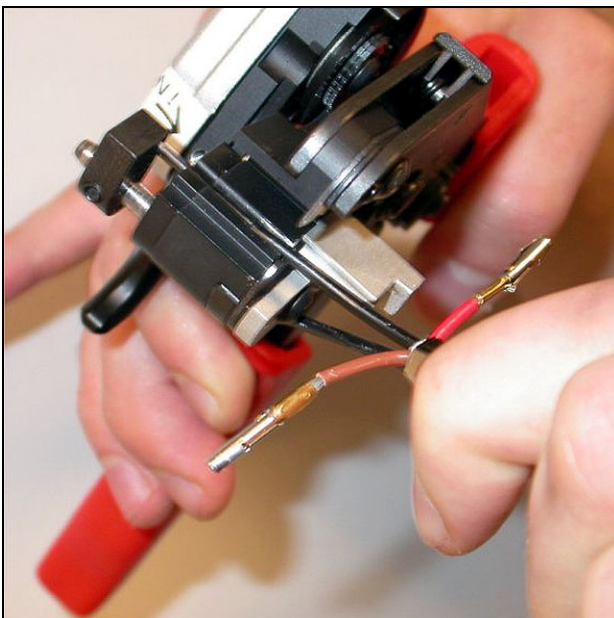


figure 22.19: Stripping a fiber

- 17 Close the tool and pull the fiber out to strip the sheath from it.



Note

Do not forget to remove the piece of sheath from the tool.

- 18 Repeat steps 16 and 17 for the other fiber in the cable. See figure 22.20 for the result of this part of the cable-connector installation procedure.

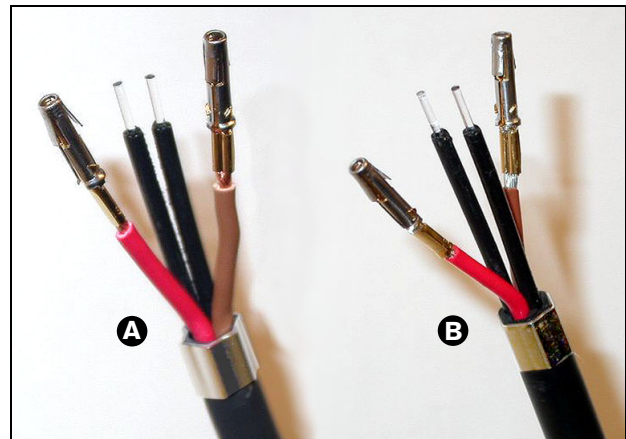


figure 22.20: Stripped optical fibers

22.4.8 Installing the ferrules

Proceed as follows:

- 19 Insert a ferrule into the spring-loaded stop of the POF positioning/crimping tool (tool 4, see figure 22.21).



figure 22.21: Inserting a ferrule

- 20 Lock the ferrule with the small lever (see figure 22.22).



figure 22.22: Locking a ferrule

- 21 Insert a plastic optical fiber into the ferrule in the spring-loaded stop of the POF positioning tool (see figure 22.23).

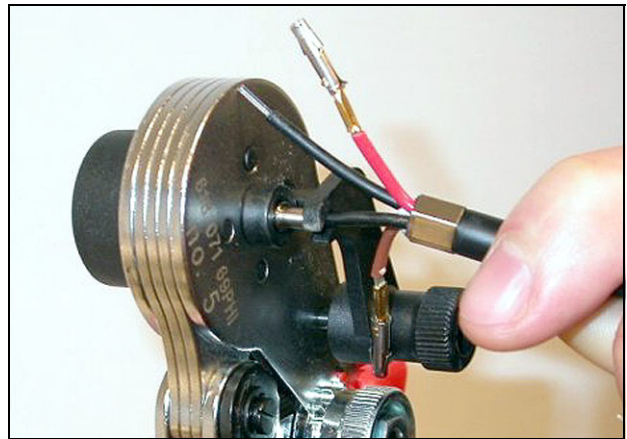


figure 22.23: Crimping ferrules (1)

- 22 Close the tool and open it again to crimp the ferrule on the core of the fiber.
- 23 Repeat steps 19 to 22 for the other fiber in the cable. The ferrules only have been crimped on the core of the optical plastic fiber. Next, the ferrules are going to be crimped on the sheaths of the fibers.
- 24 Put both ferrules in the crimping tool (tool 3, see figure 22.24).

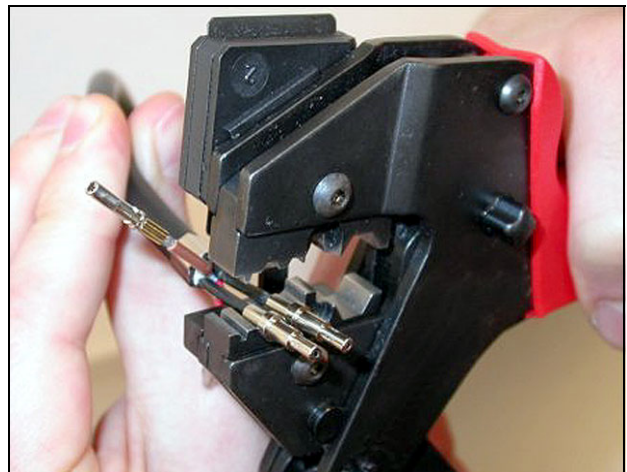


figure 22.24: Crimping ferrules (2)

- 25 Crimp the ferrules on the sheath using the crimping tool (tool 3, see figure 22.25). See figure 22.26 for the result of this part of the cable-connector mounting procedure.

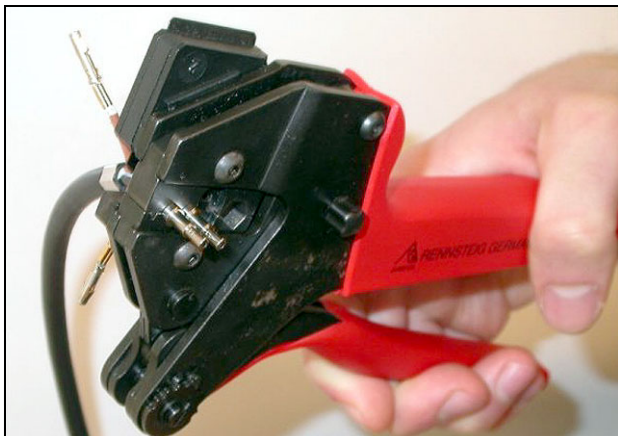


figure 22.25: Crimping ferrules (3)

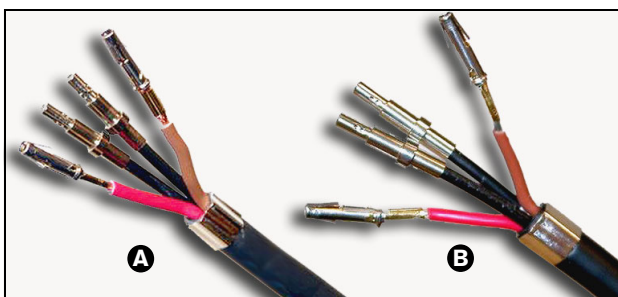


figure 22.26: Ferrules on fibers

22.4.9 Assembling the connector

Before starting to assemble the connector, position the copper wires and the plastic optical fibers for installation. The copper wires will be installed in the upper part of the connector, whereas the fibers will be installed in the lower part of the connector (see figure 22.27).



Note

When replacing a connector, always first check the wiring in the connector at the other end.

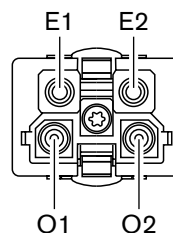


figure 22.27: Front view of connector

table 22.3: Optical network connector details

Pin	Signal	Wire
E1	+48V(DC)	Copper
E2	GND	Copper
O1	Data	Optical fiber
O2	Data	Optical fiber

Also, observe the wiring diagram (see figure 22.28). For the practical implications of this diagram, see figure 22.29 and figure 22.30).

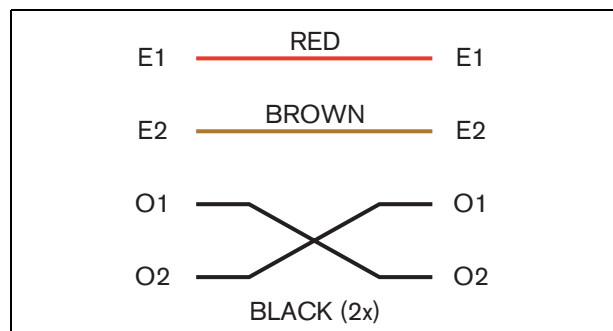


figure 22.28: Wiring diagram

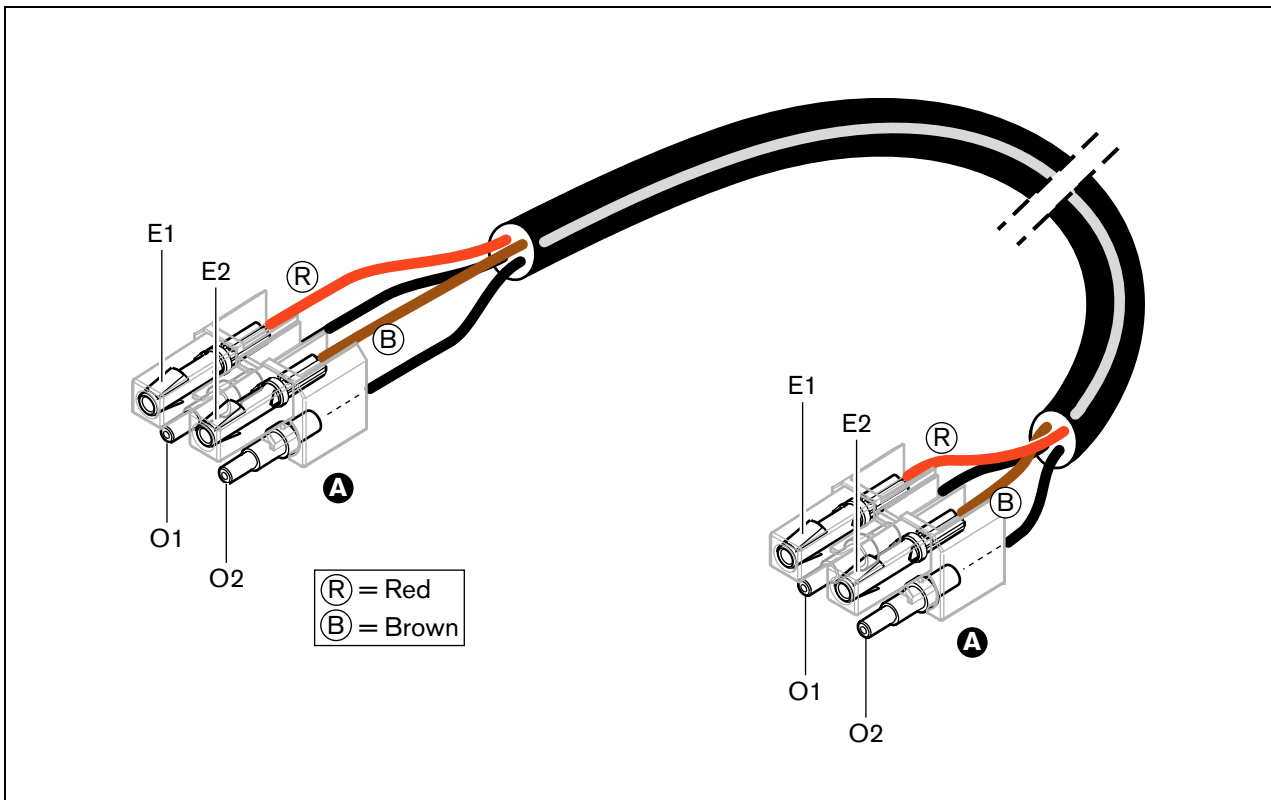


figure 22.29: Wiring diagram applied to type A optical network cables

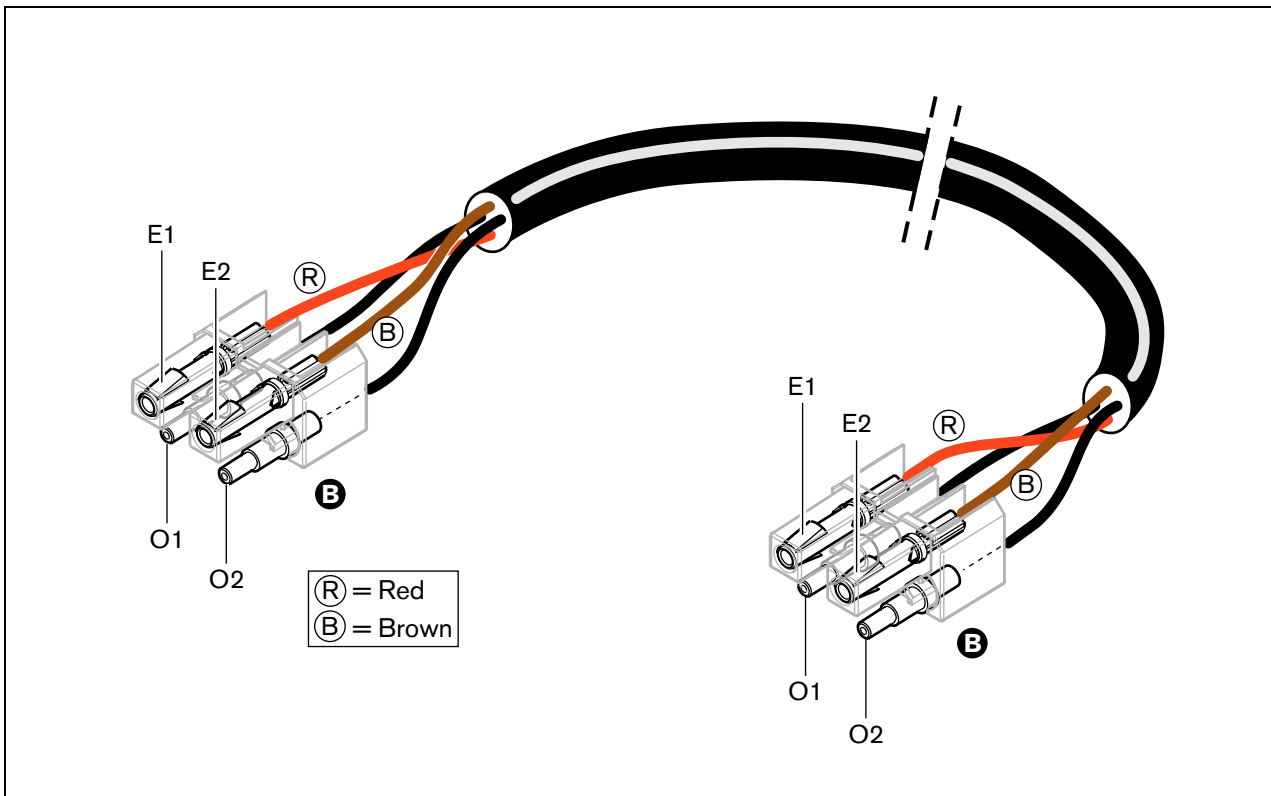


figure 22.30: Wiring diagram applied to type B optical network cables

Where applicable, the way in which the connectors must be assembled on both sides of the cables is shown in the figures. Proceed as follows:

- 26 Check if the copper wires and the plastic optical fibers have been positioned in the correct way (see figure 22.31).

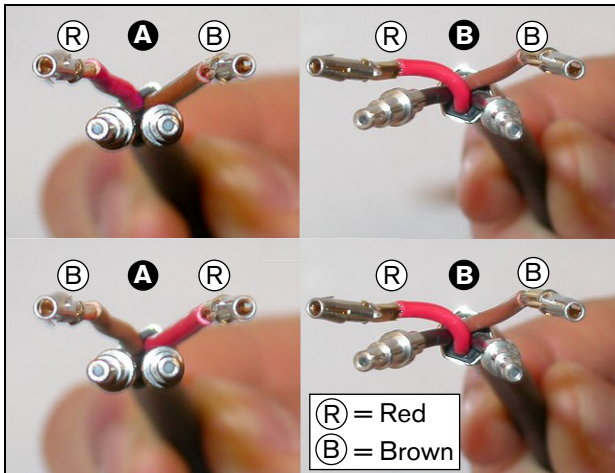


figure 22.31: Positioning the copper wires and fibers

- 27 Put the ferrules in the mounting block (see figure 22.32)

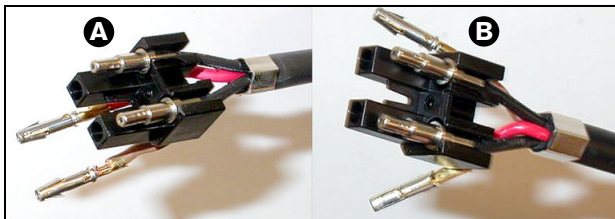


figure 22.32: Mounting block and back housing

- 28 Put the socket contacts in the mounting block (see figure 22.33). In one of the connectors attached to a type A cable, the red and brown copper wires must cross to meet the wiring diagram (see figure 22.28).

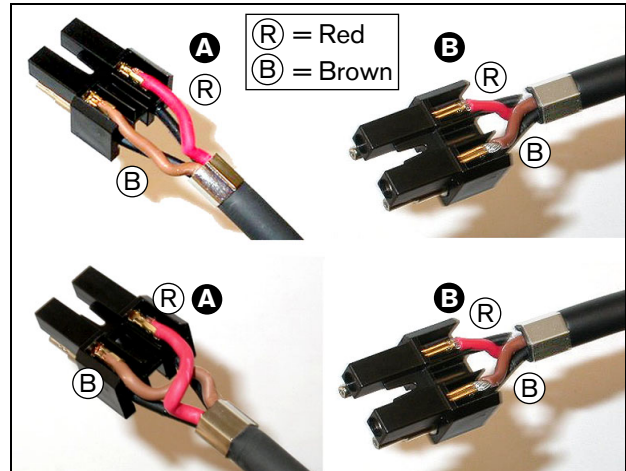


figure 22.33: Mounting block and back housing

- 29 Put the mounting block in the back housing (see figure 22.34)

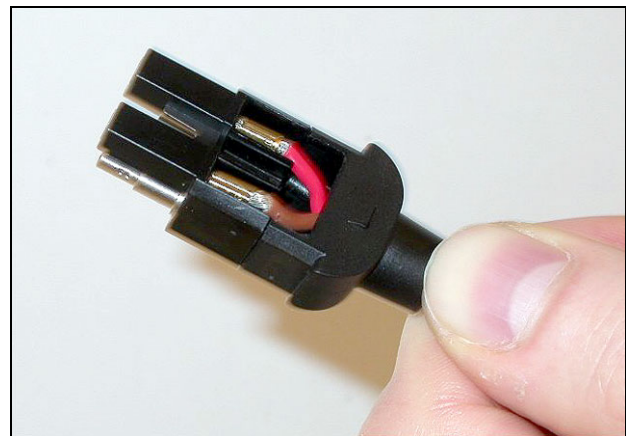


figure 22.34: Mounting block/back housing assembly

30 Click the front housing on the mounting block/back housing assembly (see figure 22.35).

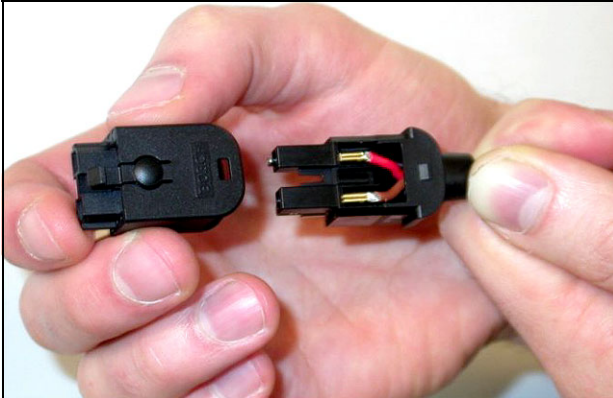


figure 22.35: Installing the front housing

31 Insert the Torx screw into the front housing (see figure 22.36).

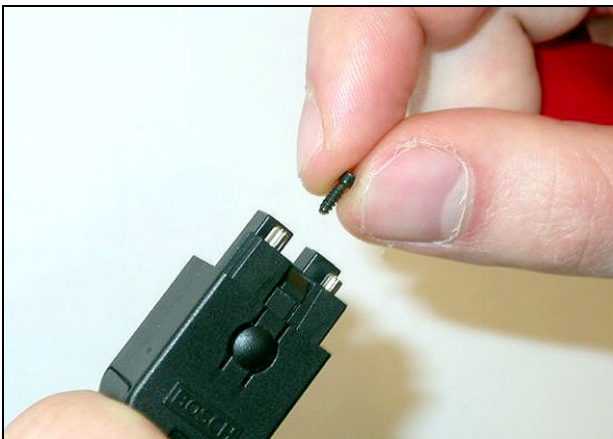


figure 22.36: Inserting the Torx screw

32 Tighten the Torx screw using the Torx screwdriver (tool 7, see figure 22.37)

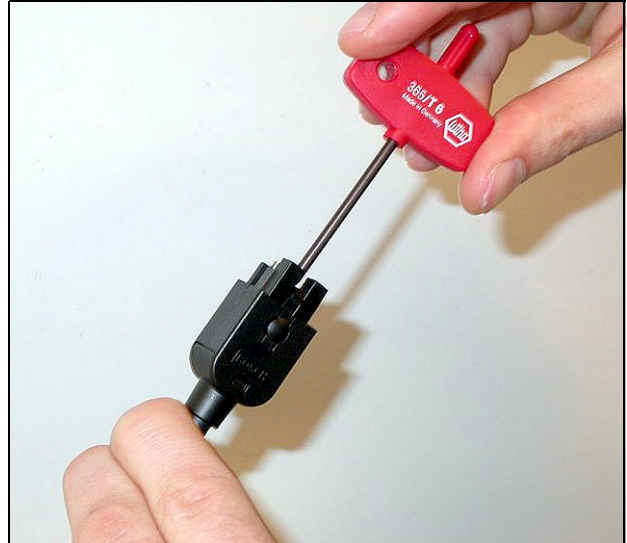


figure 22.37: Tightening the Torx screw

33 Put the dust cap on the connector to protect the plastic optical fibers (see figure 22.38).

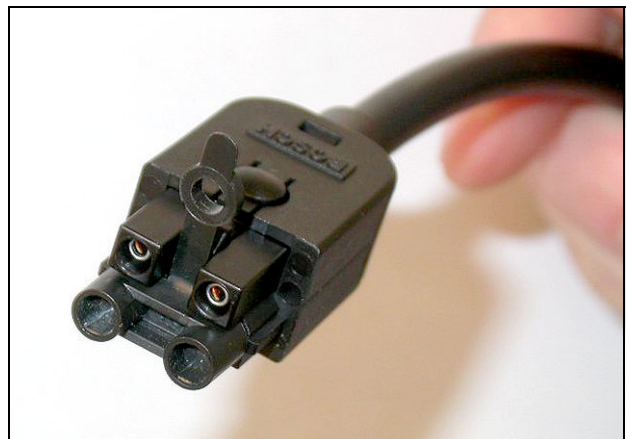


figure 22.38: Dust cap on connector

23 LBB4419/00 Cable Couplers

The LBB4419/00 Cable Couplers are used to connect extension cables to each other. However, in each cable coupler, a small amount of light gets lost. Therefore, each cable coupler limits the maximum distance of between two pieces of equipment (normally 50 meters) with 20 meters.

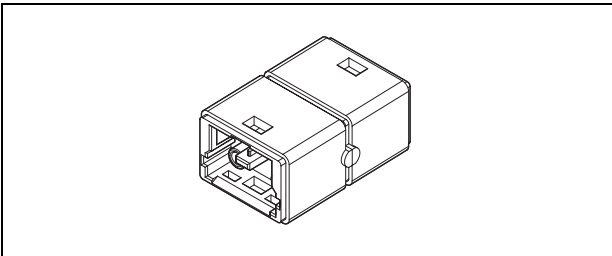


figure 23.1: Cable coupler

Cable couplers can also be used in combination with the tap-off outlets of network splitters (LBB4410/00) to create temporarily or easily detachable connections (e.g. break-out boxes).

Section 6 - System Hardware Installation

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24 Cabling

24.1 Introduction

The pieces of equipment in a Praesideo system form a daisy chain. Therefore, all units are equipped with two interchangeable system bus connectors (see figure 24.1). Use one of these connectors to connect a unit to the previous unit and the other to connect it to the next unit in the chain.



Note

Both system connectors are identical.

Because the units are daisy-chained, it is possible to add or remove equipment anywhere in the network without affecting the performance of other units, provided that the other network connection remains available.

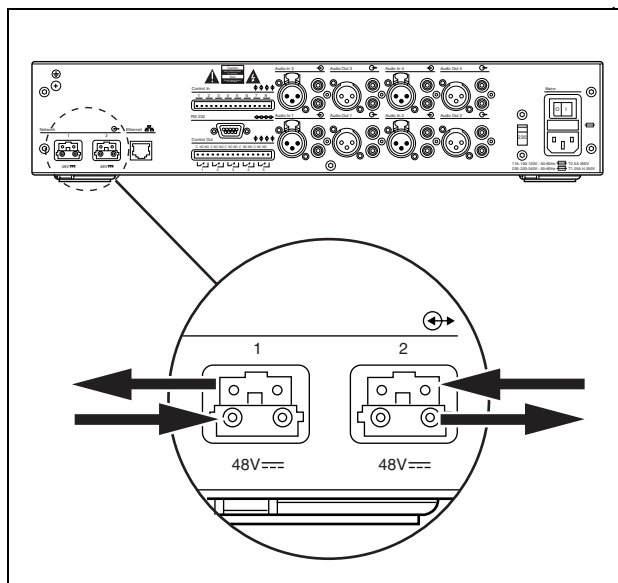


figure 24.1: Daisy chain

24.2 System bus

A system bus cable (see figure 24.2) has two plastic optical fiber (POF) 'wires' and two copper wires. The POF wires can transport up to 28 simultaneous audio channels and Praesideo control data, whereas the copper wires transport power to feed the units.

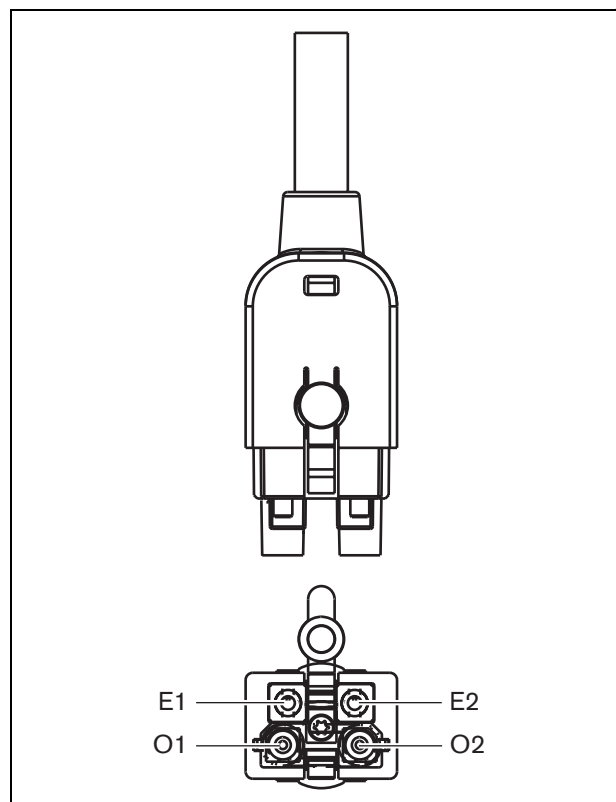


figure 24.2: System bus connector

table 24.1: System bus cable details

Number	Color	Material	Description
E1	Red	Copper	Power, + (48V)
E2	Brown	Copper	Power, - (GND)
O1	Black	POF	Data
O2	Black	POF	Data

**Note**

During both installation and operation, the temperature of the POF cabling may not exceed 65 °C. Higher temperatures can damage the fibers.

**Note**

The POF part of the system bus connectors on the Praesideo equipment are F05 and F07 compliant. This means that if only data has to be transported, industry-standard F05 or F07 connectors can be used. If only POF cabling is used between two units, no power is transported between these pieces of equipment.

24.3 Dust caps

Protect the POF parts of the system cables and connectors that are not in use with dust caps. Dust caps also block the red light from the fiber optic interface, which might be visible and disturbing.

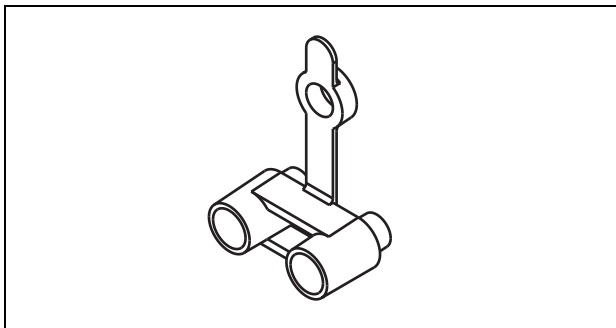


figure 24.3: Dust cap

24.4 Maximum distance

Due to light loss, the maximum length of POF cabling (and therefore also system bus cables) between two pieces of equipment is 50 m. If the distance between two units is more than 50 m, LBB4414/xx Fiber Interfaces and glass optical fibers (GOF) must be used (see figure 24.4).

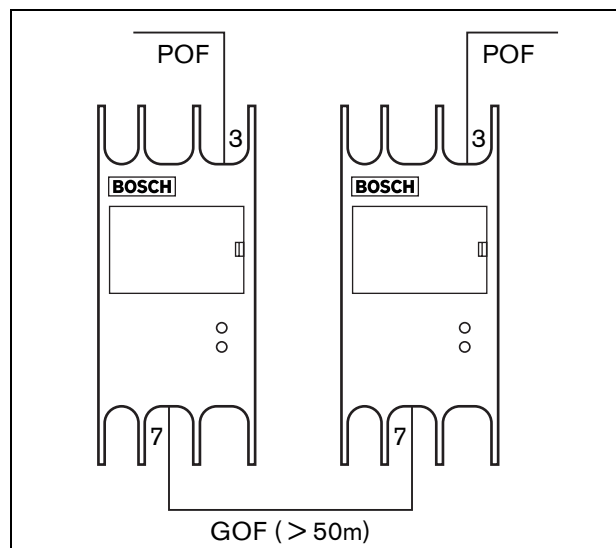


figure 24.4: Using fiber interfaces

If GOF cables are used, make sure that they:

- are multimode GOF cables (single mode GOF cables are not supported);
- have a maximum attenuation of 2 dB/km;
- are suitable for light with a wavelength of 1300 nm;
- are terminated with standard SC connectors.

**Note**

It is also possible to increase the distance between units above 50 m by inserting LBB4410/00 Network Splitters every 50 m or less. Although no tap-off may be required, the network signal is regenerated in the network splitter to cover another 50 m.

24.5 Maximum cable length

The maximum length of all optical fibers together (both POF and GOF) in the system depends on the number of nodes in the system. Each piece of equipment has been assigned a number of nodes.

table 24.2: Nodes

Type no.	Description	Nodes
LBB4401/00	Network Controller	3
LBB4402/00	Audio Expander	1
LBB4404/00	CobraNet Interface	1
LBB4410/00	Network Splitter	1
LBB4414/00	Fiber Interface	1
LBB4414/10	Fiber Interface	0/1
LBB4421/xx	Power Amplifier 1x500 W	1
LBB4422/xx	Power Amplifier 2x250 W	1
LBB4424/xx	Power Amplifier 4x125 W	1
LBB4428/00	Power Amplifier 8x60 W	2
LBB4430/00	Call Station Basic	1
LBB4432/00	Call Station Keypad	0
LBB4433/00	Call Station Kit	1
LBB4434/00	Call Station Keypad Kit	0

The graph (see figure 24.5) shows the relation between the number of nodes in the system and maximum optical fiber length in the system.



Note

A system may not contain more than 63 nodes.



Note

The LBB4414/10 counts as 0 nodes for the system limit of 63 nodes, but as 1 node for the maximum optical fiber length.

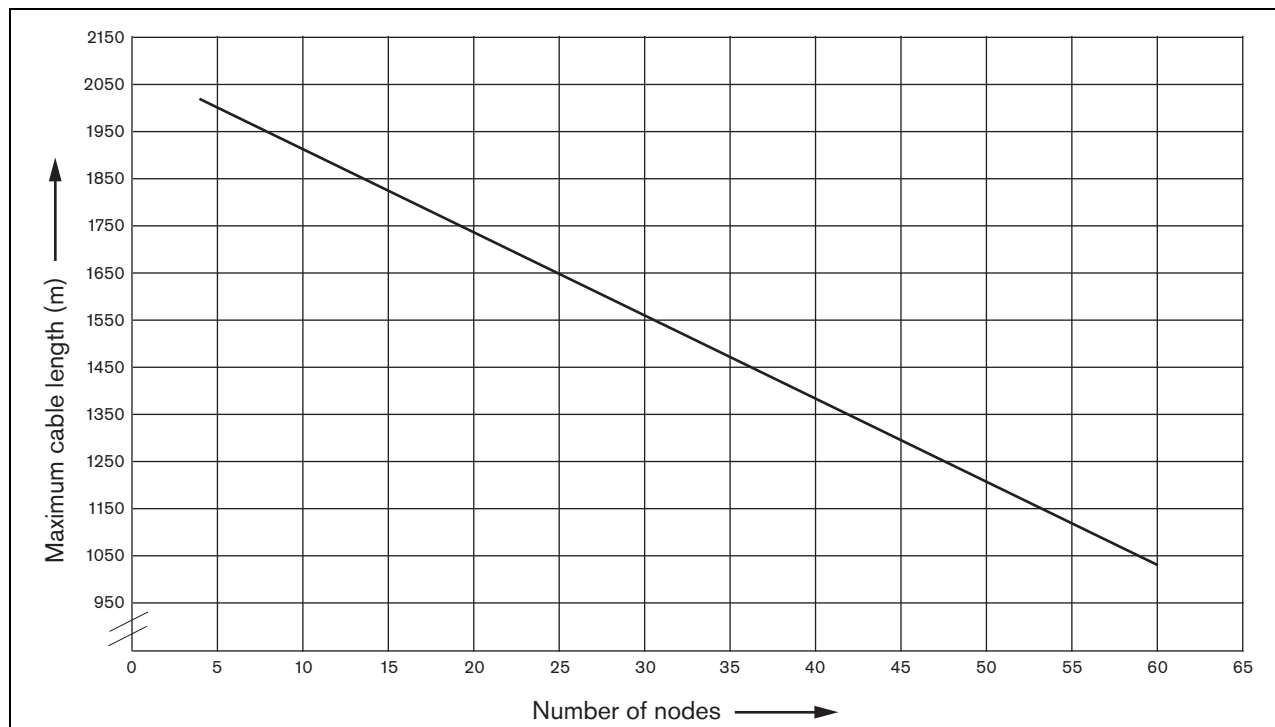


figure 24.5: Maximum optical fiber length vs. number of nodes

24.6 Bending and coiling

24.6.1 Introduction

The POF cable may be bend or coiled. However, the rules in this section must be observed.

24.6.2 Bending

The bend radius is 25 mm (see figure 24.6). The maximum number of bends in a POF cable is 5.

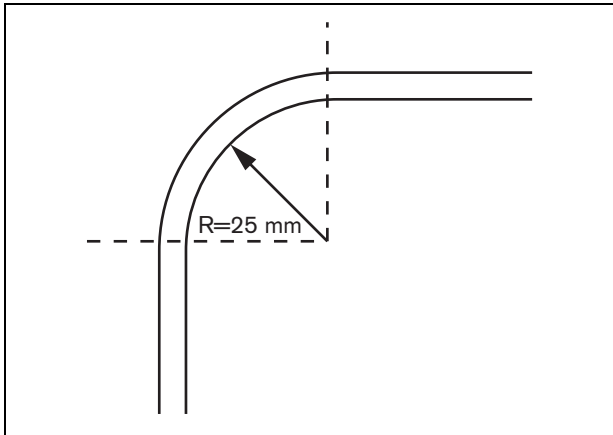


figure 24.6: Bend radius

A 180 degree bend equals two bends (see figure 24.7)

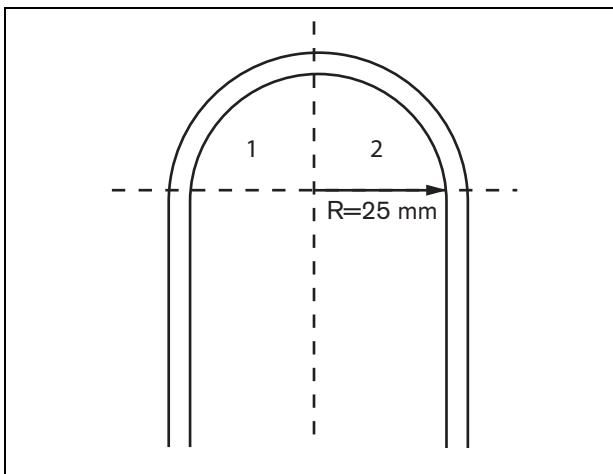


figure 24.7: U curve

24.6.3 Coiling

The minimum coiling radius is 100 mm (see figure 24.8)

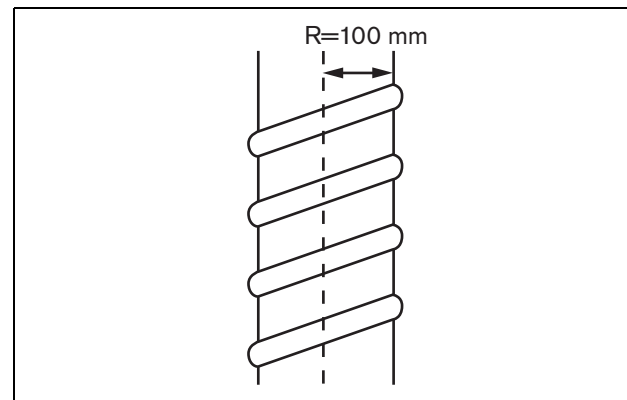


figure 24.8: Coiling radius

25 Architecture

25.1 Introduction

The exact layout of the Praesideo system depends on the number and type of units that make up the system. This chapter contains some easy-to-follow examples of (strongly simplified) Praesideo systems to illustrate the possibilities.

25.2 Basic system

See figure 25.1 for an example of a basic system.

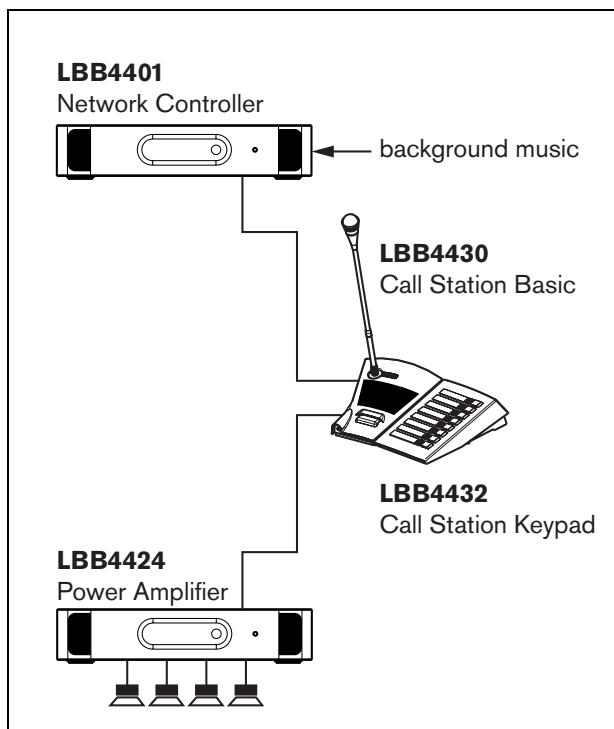


figure 25.1: Basic system



Note

In the remainder of this chapter, 'basic system' refers to the system in figure 25.1.

25.3 Redundant cabling

The basic system has no redundant cabling. If the cable between the call station basic and the power amplifier breaks, it becomes impossible to broadcast calls or background music. This can be solved by creating a redundant cabled system (see figure 25.2).

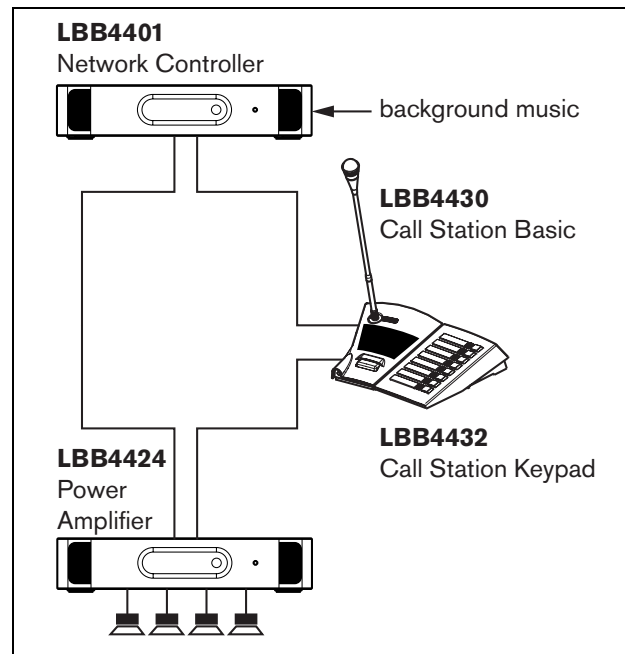


figure 25.2: Redundant cabled basic system



Note

In the remainder of this chapter, 'basic redundant system' refers to the system in figure 25.2.

The only difference between the basic system and this redundant cabled basic system is the connection between the power amplifier and the network controller. The equipment now forms a ring. If a cable breaks, the system remains functional.

25.4 Tap-offs

The network splitter makes it possible to create tap-offs (see figure 25.3). Please note that tap-offs are never redundant, because it is not possible to create a tap-off ring. If the cable between the network splitter and the call station B breaks, call station B is not functioning anymore, hence the tap-off is not redundant.

25.5 Spare amplifiers

Besides using redundant cabling it is also possible to add spare amplifiers to the system (see chapter 8).

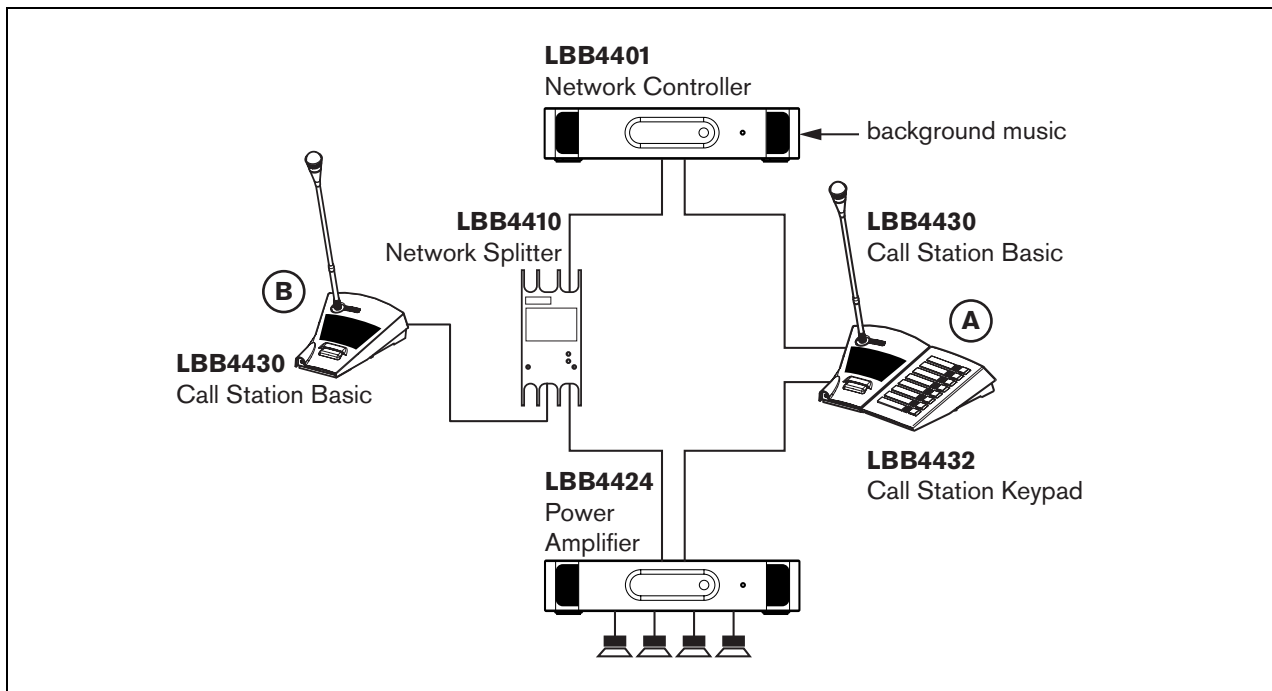


figure 25.3: Redundant basic system with tap-off

25.6 CobraNet

CobraNet is a standard for transporting multiple digital uncompressed audio channels over Ethernet. Many manufactures of public address and professional audio equipment support this standard. CobraNet has all the advantages of Ethernet: structured cabling using Cat 5 and GOF to cover long distances and cheap network components. In Praesideo systems, the LBB4404/00 CobraNet Interface is used to interface between Praesideo and CobraNet. These CobraNet interfaces can be used to:

- Connect Praesideo systems (see figure 25.4 for an example).
- Benefit from already existing Ethernet infrastructure.
- Transport audio over large distances.

PC data such as Praesideo Open Interface data can coexist with CobraNet on the same Ethernet network as long as managed Ethernet switches are used. Because of delay variations, it is not allowed to connect more than 7 switches in series.

Fast Ethernet distance limitations apply to CobraNet installations: 100 meters over CAT-5 copper cable, 2 kilometers over multimode fiber. Proprietary Fast Ethernet via single mode fiber solutions can reach even further.

**Note**

The CobraNet interface does not transfer control functions. These can only be transferred over Ethernet using the Praesideo Open Interface. Network controllers are always open interface slaves, which must be controlled by an open interface master, for example a PC Call Station.

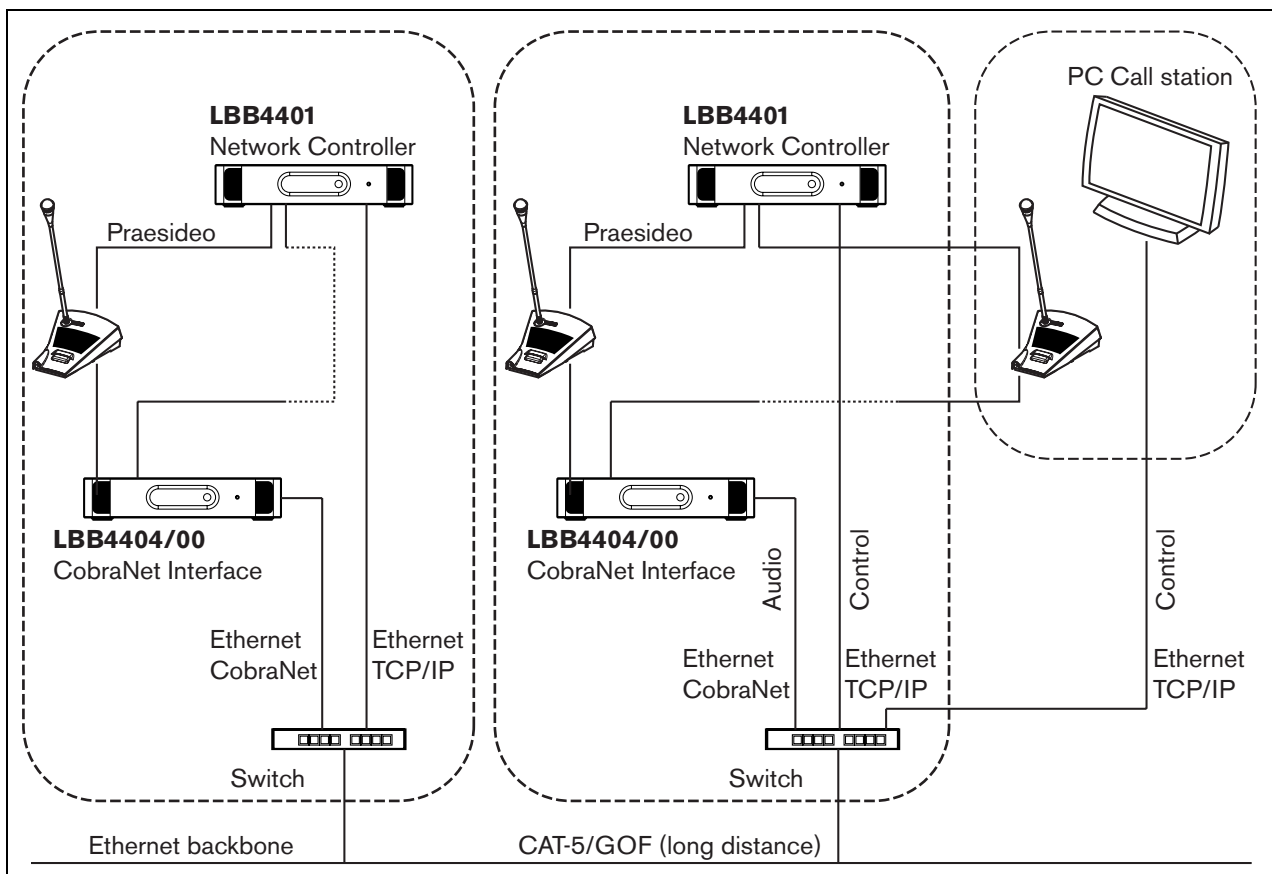


figure 25.4: Connecting systems

25.7 Failsafe

25.7.1 Introduction

When the Praesideo system must be used as an emergency sound system, the network layout must be failsafe. A failsafe network allows to make calls even if the network controller fails. To achieve this, 'emergency' call stations must be put in the system. However, it is not possible to put them anywhere in the system.

25.7.2 Rules

When creating a failsafe layout, observe the following rules:

- 1 Label the call station as an 'emergency' calls station using the configuration section of the web interface (see chapter 34).
- 2 The emergency call station must have a supervised backup power supply. If the network controller fails, it cannot provide power to the system bus anymore. The call station, however, must remain functional and therefore it must be fed by another power source. So, connect the emergency call station to the network using a fiber interface that uses a supervised external power supply **OR** use an externally powered call station kit.
- 3 Do not put equipment between the emergency call station(s) and the power amplifier(s) that:
 - under normal circumstances uses power from the system bus **and**
 - has no back-up power supply connected.Suppose the network controller fails, then these units are not functioning anymore, because they are not connected to any power source. As a result, it is not possible for them to route signals and therefore they may not be put between the emergency call station(s) and the power amplifier(s).
- 4 Do **not** put the emergency call station(s) in a tap-off. The emergency call stations must be in the main network. This is the only way to ensure that calls can be made to all zones.
- 5 It is **not** allowed to connect local volume control systems to the loudspeakers even if they have a volume override facility. If the network controller is absent, the control outputs that activate the volume override systems are not activated anymore (even if the control outputs are located on power amplifiers or audio expanders). Furthermore, a local volume control system disturbs the operation of the line supervision. The line supervision set uses the loudspeaker line. Any volume control in the line would attenuate the 20 kHz pilot tone of the supervision-master too much for the supervision-slave to work correctly.

26 Power Consumption

26.1 Introduction

To calculate the power consumption and power budget in an easy way, the power consumption or power supply of each unit is defined in Watt. A power load uses an amount of Watt, whereas a power source provides a number of Watts.

As long as the total number of Watt required by the power loads in the system are equal or less than the total amount of Watt provided by the power sources, normally no external power supplies are needed to feed additional power to the system.

26.2 Power sinks

See table 26.1 for a list of all power sinks in the Praesideo system.

table 26.1: Power consumption

Type no.	Description	Watt
LBB4402/00	Audio Expander	5.6
LBB4404/00	CobraNet Interface	11
LBB4410/00	Network Splitter	3.9
LBB4414/xx	Fiber Interface	4.6
LBB4421/xx	Power Amplifier 1 x 500 W	0.0
LBB4422/xx	Power Amplifier 2 x 250 W	0.0
LBB4424/xx	Power Amplifier 4 x 125 W	0.0
LBB4428/00	Power Amplifier 8 x 60 W	0.0
LBB4430/00	Call Station Basic	4.4
LBB4432/00	Call Station Keypad	1.1
LBB4433/00	Call Station Kit	7.2
LBB4434/00	Call Station Keypad Kit	1.2

26.3 Power sources

By default, the only power source in the system is the network controller. Each system bus connector on the rear of the network controller provides 60 Watt.



Note

If you create a redundant ring and you do not use additional power supplies, you can connect up to 60 Watt to the network controller. This is to ensure that when there is a fault in the network close to one of the system bus connectors of the network controller, the other system bus connector can still feed the entire network.

If more power is needed, external power supplies must be used to feed the system. The following units have a provision for connecting external power supplies:

- LBB4410/00 Network Splitter
- LBB4414/00 Fiber Interface
- LBB4433/00 Call Station Kit

The amount of Watt provided by an external power supply is calculated as follows:

$$P = U \cdot I$$

P = power (W)

U = DC voltage (V)

I = DC current (A)

Because all the Praesideo units have built-in switched mode power supplies, the power consumption is virtually constant and within a certain range independent of the supply voltage V. The lower V is, the higher I will be.

Section 7 - Software

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27 LBB4470/00 Praesideo Software CD-ROM

27.1 Introduction

The LBB4470/00 Praesideo Software CD-ROM contains the Praesideo system software as well as the manuals and freeware audio tools.

27.2 Starting the CD-ROM

Put the LBB4470/00 Praesideo Software CD-ROM in the CD-ROM drive of the configuration PC. If autorun is enabled for the CD-ROM drive, a screen similar to the one in figure 27.1 is opened in *Internet Explorer*. If the CD-ROM does not start automatically:

- 1 Go to *Start > Run*.
- 2 Enter *X:\setup.exe*. (Replace X with the character of the CD-ROM drive).

27.3 Contents

27.3.1 Introduction

The software on the Praesideo CD-ROM is divided in three categories:

- Mandatory packages (see chapter 28).
- Recommended packages (see chapter 29).
- Optional packages (see chapter 30).



figure 27.1: Software installation page

28 Mandatory packages

28.1 Introduction

The mandatory software installation procedure consists of the following steps:

- 1 Installation of all mandatory software packages on the configuration PC (see section 28.2).
- 2 Establishing a connection between the configuration PC and the network controller (see section 28.3).
- 3 Transferring system files from the configuration PC to the network controller (see section 28.4).
- 4 Installing firmware on the network controller and other system units (see section 28.5).

28.2 Installation on PC

28.2.1 Introduction

The following mandatory software packages must be installed on the configuration PC:

- *Praesideo core* software (see section 28.2.2).
- *SVG viewer* (see section 28.2.3).
- *Windows script* (see section 28.2.4)

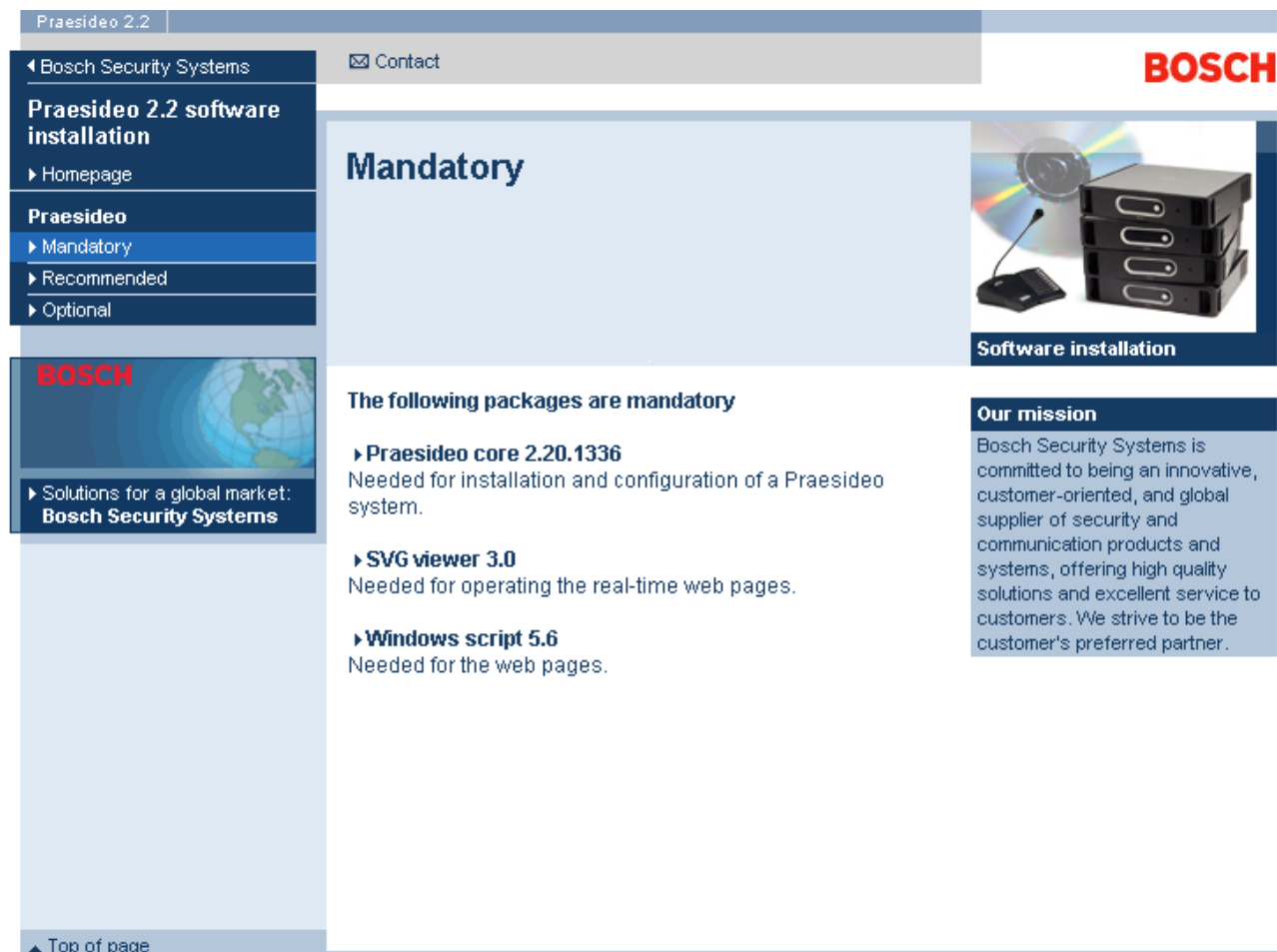


figure 28.1: Mandatory software packages page

28.2.2 Praesideo core software

The *Praesideo core* software consists of the *File Transfer Application* and all files that must be transferred to the network controller and other units in the system.

Proceed as follows:

- 1 Start the LBB4470/00 Praesideo Software CD-ROM (see section 27.2). A screen similar to the one in figure 27.1 appears.
- 2 Go to *Mandatory > Praesideo core 2.10.xxxx* (where *xxxx* is software release number). A *File Download* window appears.
- 3 Click the *Open* button to start the *Praesideo core* software setup program. A screen similar to the one in figure 28.2 appears.



figure 28.2: Setup program

- 4 Follow the instructions that are displayed on screen. A notification is displayed when the installation is finished.

28.2.3 SVG viewer

The *SVG viewer* must be installed on the configuration PC to be able to operate the audio processing part of the web interface. Proceed as follows:

- 1 Start the LBB4470/00 Praesideo Software CD-ROM (see section 27.2). A screen similar to the one in figure 27.1 appears.
- 2 Go to *Mandatory > SVG viewer*. A *File Download* window appears.
- 3 Click the *Open* button to start the *SVG viewer* setup program. Follow the instructions that are displayed on screen. A notification is displayed when the installation is finished.

28.2.4 Windows script

The *Windows script* software must be installed on the configuration PC to be able to operate the web interface. Proceed as follows:

- 1 Start the LBB4470/00 Praesideo Software CD-ROM (see section 27.2). A screen similar to the one in figure 27.1 appears.
- 2 Go to *Mandatory > Windows script*. A *File Download* window appears.
- 3 Click the *Open* button to start the *Windows script* setup program. Follow the instructions that are displayed on screen. A notification is displayed when the installation is finished.

28.3 Establishing connection

After the mandatory software has been installed on the configuration PC (see section 28.2), the configuration PC must establish a connection with the network controller to be able to transfer the system files to the network controller and other units in the system (see section 28.4). Proceed as follows:

- 1 If the network controller is connected to an existing Ethernet, ask the network administrator for:
 - An IP address for the network controller.
 - A suitable subnet mask.
 - The IP address of the default gateway for the network controller.
- 2 Go to screen *2Ba* of the menu display of the network controller to set the IP address of the network controller. See section 5.5.1 for the configuration menu.
- 3 Go to screen *2Bb* of the menu display of the network controller to set the subnet mask of the network controller.
- 4 Go to screen *2Bc* of the menu display of the network controller to set the default gateway for the network controller.
- 5 Connect the network controller to an existing Ethernet network or directly to the configuration PC.
- 6 On the configuration PC, go to *Start > Run* and enter *cmd* to open a command prompt window.

- 7 Ping the network controller. For example, if the IP address of the network controller is 192.168.0.15, enter *ping 192.168.0.15*.
 - If no connection is possible, a screen similar to the one in figure 28.3 appears.
 - If a connection can be established, a screen similar to the one in figure 28.4 appears.

```
Microsoft Windows 2000 [Version 5.00.2195]
(C) Copyright 1985-2000 Microsoft Corp.

C:\>ping 192.168.0.15

Pinging 192.168.0.15 with 32 bytes of data:

Request timed out
Request timed out
Request timed out
Request timed out

Ping statistics for 192.168.0.15:
    Packets: Sent = 4, Received = 0, Loss = 4 (100% loss)

Approximate round trip in milli-seconds:
    Minimum = 0 ms, Maximum = 0 ms, Average = 0 ms
```

figure 28.3: Incorrect communication

```
Microsoft Windows 2000 [Version 5.00.2195]
(C) Copyright 1985-2000 Microsoft Corp.

C:\>ping 192.168.0.15

Pinging 192.168.0.15 with 32 bytes of data:

Reply from 192.168.0.15: bytes = 32 time<10 ms TTL=128
Reply from 192.168.0.15: bytes = 32 time<10 ms TTL=128
Reply from 192.168.0.15: bytes = 32 time<10 ms TTL=128
Reply from 192.168.0.15: bytes = 32 time<10 ms TTL=128

Ping statistics for 192.168.0.15:
    Packets: Sent = 4, Received = 4, Loss = 0 (0% loss)

Approximate round trip in milli-seconds:
    Minimum = 0 ms, Maximum = 0 ms, Average = 0 ms
```

figure 28.4: Correct communication

- 8 Go to *Start > Programs > Praesideo > FT Application* to start the Praesideo *File Transfer Application*. A screen similar to the one in figure 28.5 appears.
- 9 Enter the IP address of the network controller in the *NCO address* field.
- 10 Enter the correct user name in the *Username* field and the correct password in the *Password* field.
 - If no software has been transferred to the network controller before, the default user name is *target* and the default password is *password*.
 - If software has been transferred to the network controller before, the default user name is *admin* and the default password is *admin*.
- 11 Click the *Connect to NC* button to establish a connection with the network controller. A notification appears.

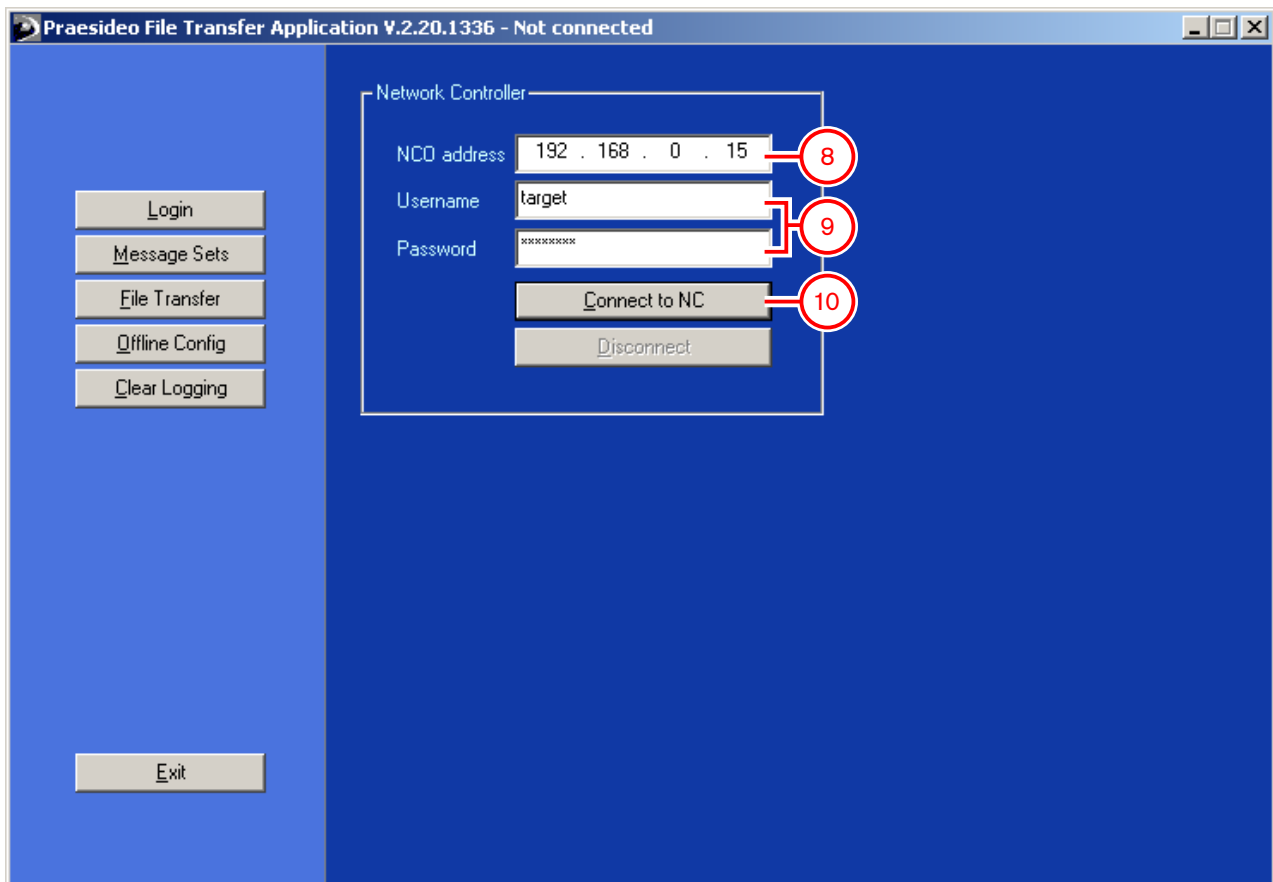


figure 28.5: Connecting to the network controller

28.4 Transfer system files

A number of the system files that have been installed on the configuration PC (see section 28.2), must be transferred to the network controller. Proceed as follows:

- 1 In the *File Transfer Application*, click the *File Transfer* button. A screen similar to the one in figure 28.7 appears.
- 2 Click the *Configuration* radio button.
- 3 Click the *Upgrade system software* button. A screen similar to the one in figure 28.6 appears.
- 4 Put a check mark in all boxes and click *OK* to transfer the system files from the configuration PC to the network controller. A notification is displayed when the file transfer process is finished.
- 5 Switch the network controller off and on to restart.

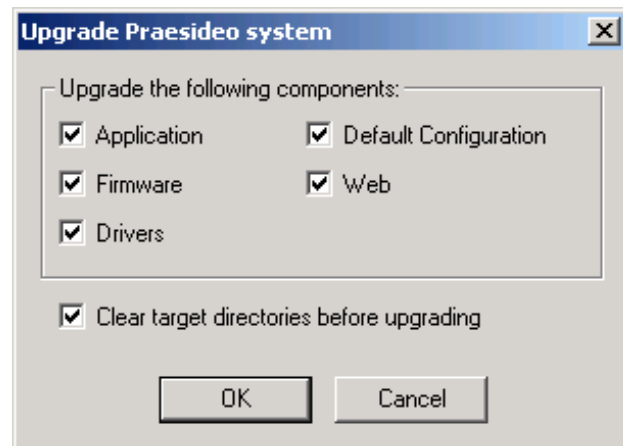


figure 28.6: Upgrade window

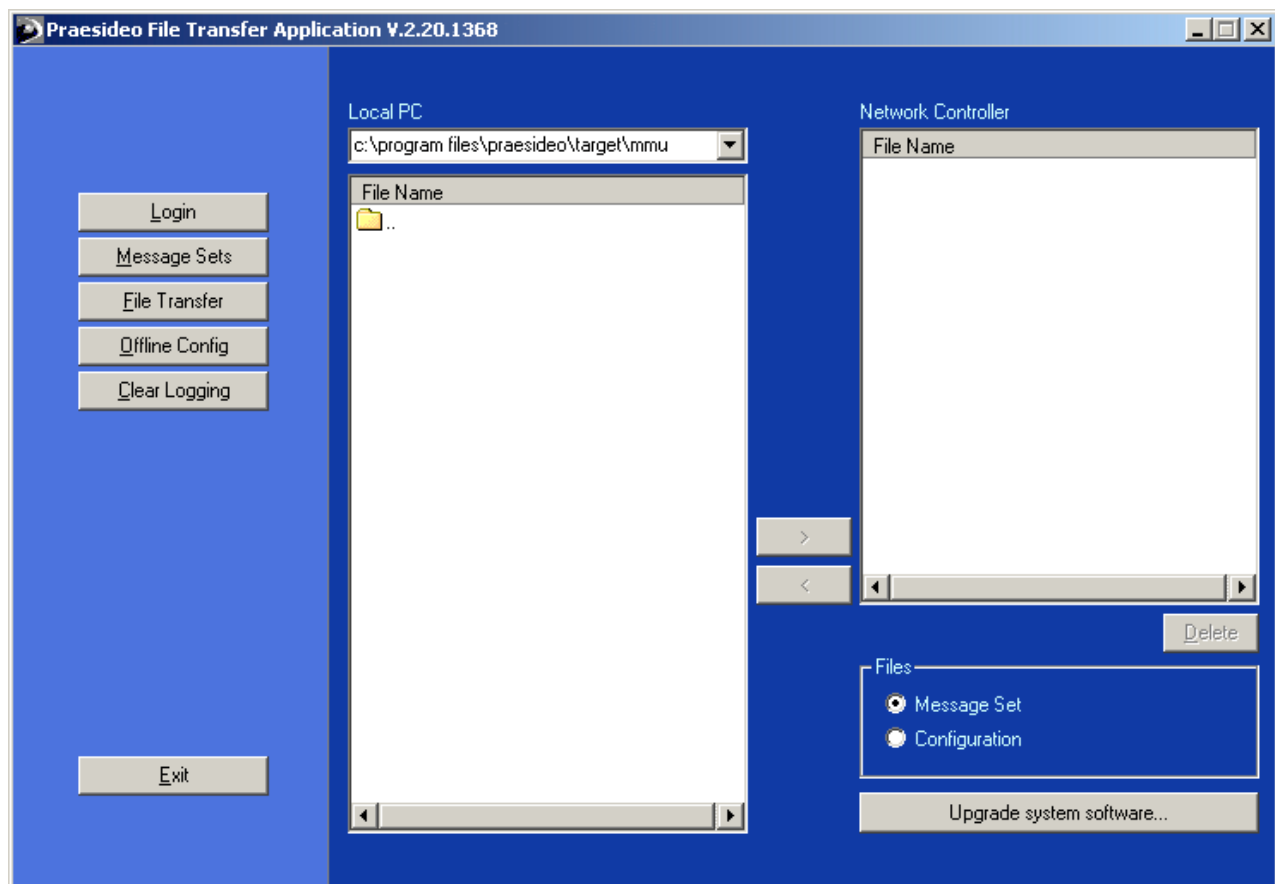


figure 28.7: File transfer screen

28.5 Upgrade firmware

After the system files have been transferred to the network controller (see section 28.4), the firmware files must be installed on all units, including the network controller. Installing new firmware will generate a fault event (*Unit Missing*), since the units are temporarily 'removed' from the network. This fault is automatically resolved and can be acknowledged and reset.



Caution

Each unit in the Praesideo network must run the same version of firmware.



Caution

Do not use the system or switch units on or off while upgrading firmware.

Proceed as follows:

- 1 On the configuration PC, start *Internet Explorer*.
- 2 Enter the IP address of the network controller in the address bar of *Internet Explorer*.



Note

Internet Explorer does not accept leading zeros in the IP address. For example, if the IP address that is displayed on the network controller is 192.168.000.015, enter 192.168.0.15 in the address bar.

- 3 Click the *Go* button at the end of the address bar. A screen similar to the one in figure 28.8 appears.

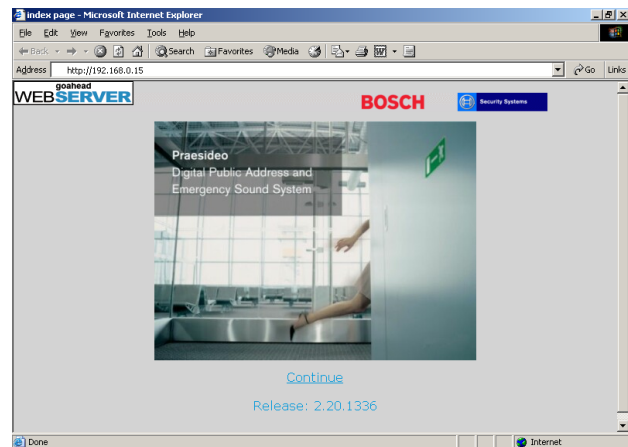


figure 28.8: Praesideo web interface home page.



Note

If the network controller and PC are connected to an existing Ethernet, which uses a proxy for normal Internet traffic, it is possible that the network controller cannot be reached. In that case, disable the proxy server in Windows LAN settings or add the name of the network controller to the hosts file in the Windows system directory and use this name for the connection.

- 4 Go to the bottom of the page and click the *Continue* hyperlink to access the web interface. A screen similar to the one in figure 28.9 pops up.

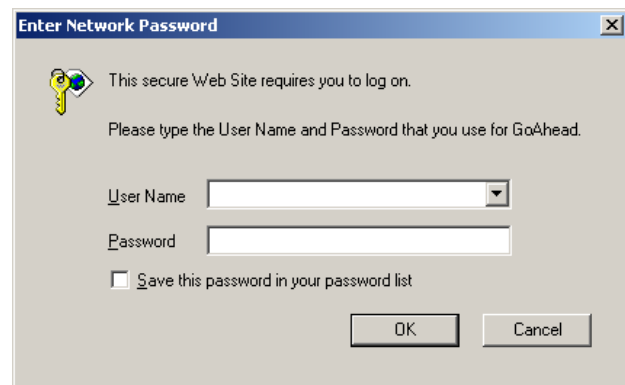


figure 28.9: Logon window

- 5 Enter the user name in the *User Name* field and the password in the *Password* field and click *OK* to open the web interface. A screen similar to the one in figure 28.10 appears.

**Note**

The default user name is *admin*, the default password is *admin*.

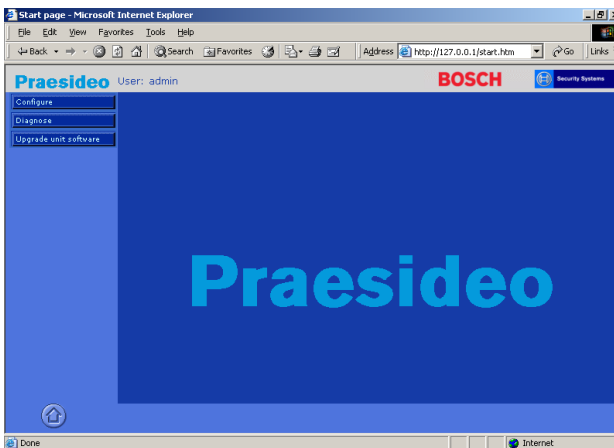


figure 28.10: Web interface start page.

- 6 Click the *Upgrade unit software* button in the navigation bar to open the *Upgrade unit software* menu. A list of all types of equipment appears in the navigation bar.
- 7 Click *Network Controller*. A screen similar to the one in figure 28.11 appears.

**Note**

The title of the page shows the release number of the firmware that the system expects. The release number of the firmware that is currently running is shown in the *Firmware version* field.

**Note**

It is not possible to upgrade firmware within 5 minutes upon start-up of the network controller.

- 8 Click the *Upgrade unit software* button in the *Upgrade unit software* field to upgrade the firmware of the network controller. The progress of the upgrading process is displayed in the *Progress* field.
- 9 Update the firmware of the power amplifiers, call stations, audio expanders, fiber interfaces and CobraNet interfaces. The procedure for upgrading the firmware of these units is similar to the procedure for upgrading the firmware of the network controller (step 7 to step 8).

**Note**

All units must run the same firmware release.

**Note**

The firmware of the audio expanders must always be upgraded, even if the numbers in the page title and the *Firmware version* field match. By default, all audio expanders are delivered with DCN NG (i.e. congress) firmware. This firmware must be replaced by Praesideo firmware. Although the version of the DCN NG firmware can be the same as that of Praesideo firmware, its function is very different. The *Firmware version* field only shows the release number. It does not provide information about the firmware itself.

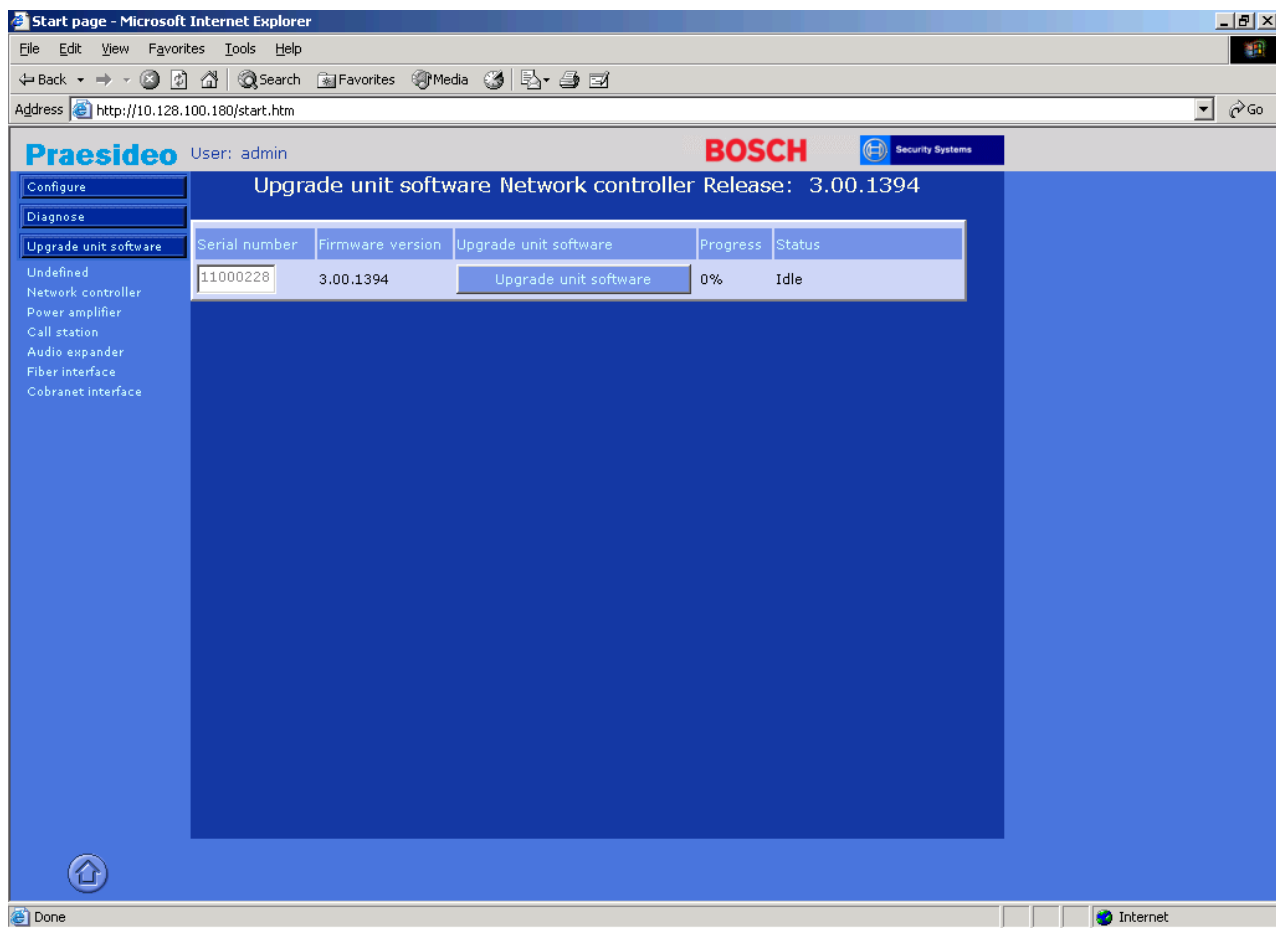


figure 28.11: Upgrade unit software page



Note

The LBB4414/10 Fiber Interface does not contain firmware and is not recognized in the system. Only LBB4414/00 Fiber Interfaces are shown in the configuration pages.



Note

In case of faults, click *Undefined* in the navigation bar of the web interface to view a list of all units for which the firmware upgrade failed. Disconnect and connect these units again and refresh or reload the *Undefined* page before retrying to upgrade the software.

28.6 Clear logging events

After the system has been configured with the configuration software (see chapter 31), the *File Transfer* application can be used to delete all logging events from the network controller in order to deliver a system with a clean logging database to the customer. Proceed as follows:

- 1 Click the *Clear logging* button in the navigation bar. A screen similar to the one in figure 28.12 appears.

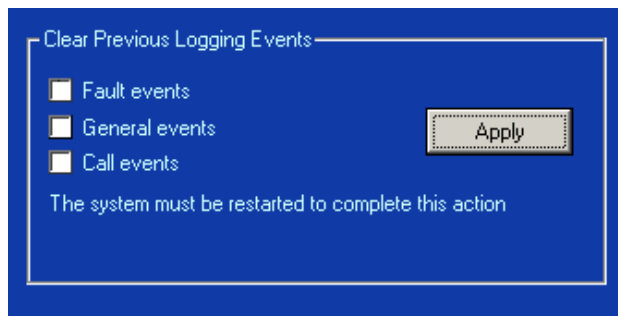


figure 28.12: Clear logging

- 2 If the fault events must be deleted from the network controller, put a checkmark in the *Fault events* checkbox.
- 3 If the general events must be deleted from the network controller, put a checkmark in the *General events* checkbox.
- 4 If the call events must be deleted from the network controller, put a checkmark in the *Call events* checkbox.
- 5 Click the *Apply* button and restart the system to delete the selected type of events from the network controller.

29 Recommended packages

29.1 Introduction

There is no specific installation procedure for the recommended packages. However, it is advised to install *Adobe reader* first (see section 29.2). The recommended packages do not have to be installed on the configuration PC; they can be installed on any PC.

29.2 Adobe reader

The *Acrobat reader* must be installed to view the release notes and manuals. Proceed as follows:

- 1 Start the LBB4470/00 Praesideo Software CD-ROM (see section 27.2). A screen similar to the one in figure 27.1 appears.
- 2 Click the *Recommended* link. A screen similar to the one in figure 29.1 appears.
- 3 Click the *Acrobat reader x.x* hyperlink (where *x.x* is the version). A *File Download* window appears.

- 4 Click the *Open* button to start the *Acrobat reader* setup program. Follow the instructions that are displayed on screen. A notification is displayed when the installation is finished.

29.3 Release notes

The release notes contain last minute changes and remarks in the *Adobe Portable Document Format* (PDF). To view the document, *Acrobat Reader* (see section 29.2) is required.

29.4 Manuals

The installation and user instructions are 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. To view the document, *Acrobat reader* (see section 29.2) is required.

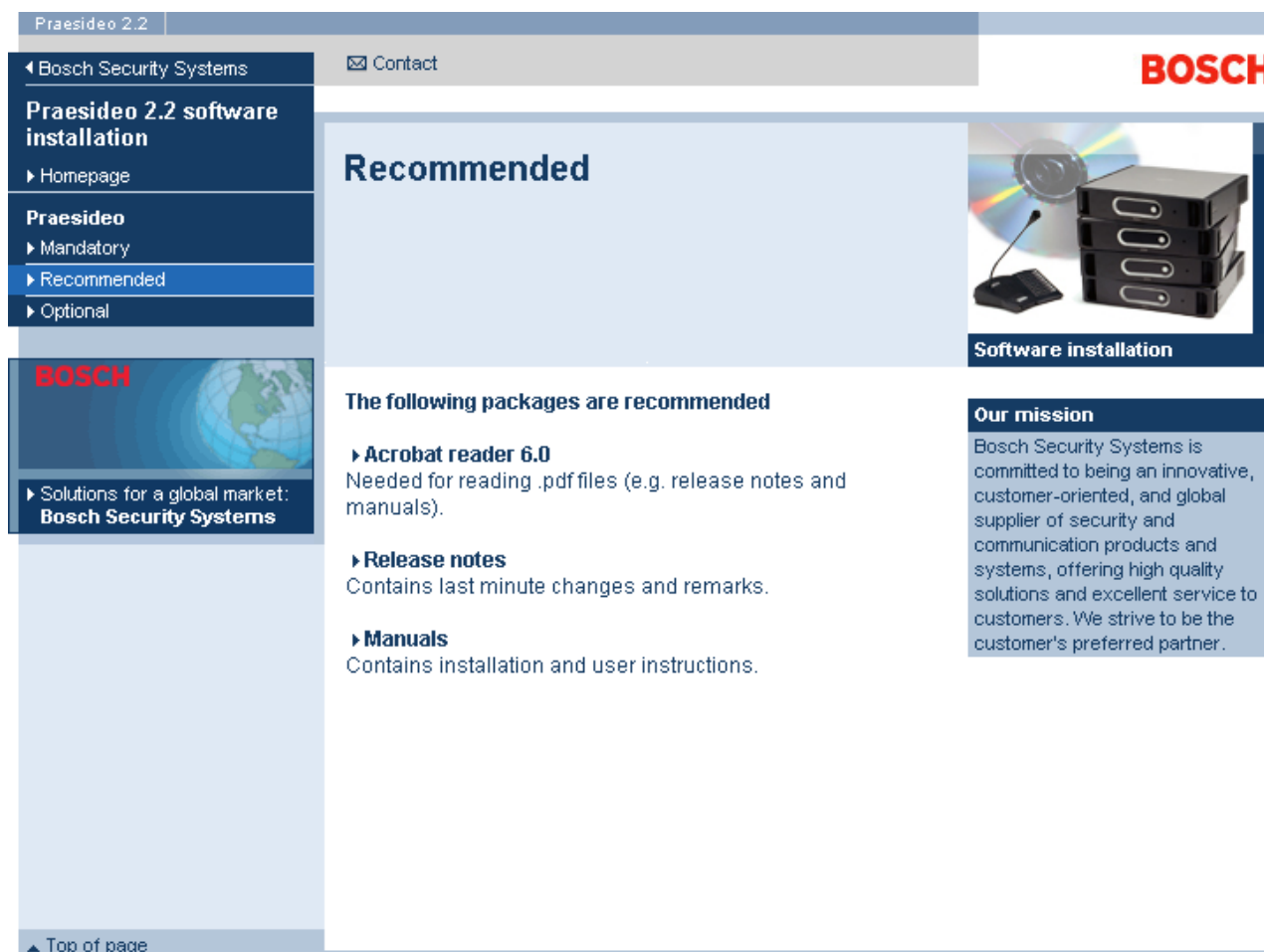
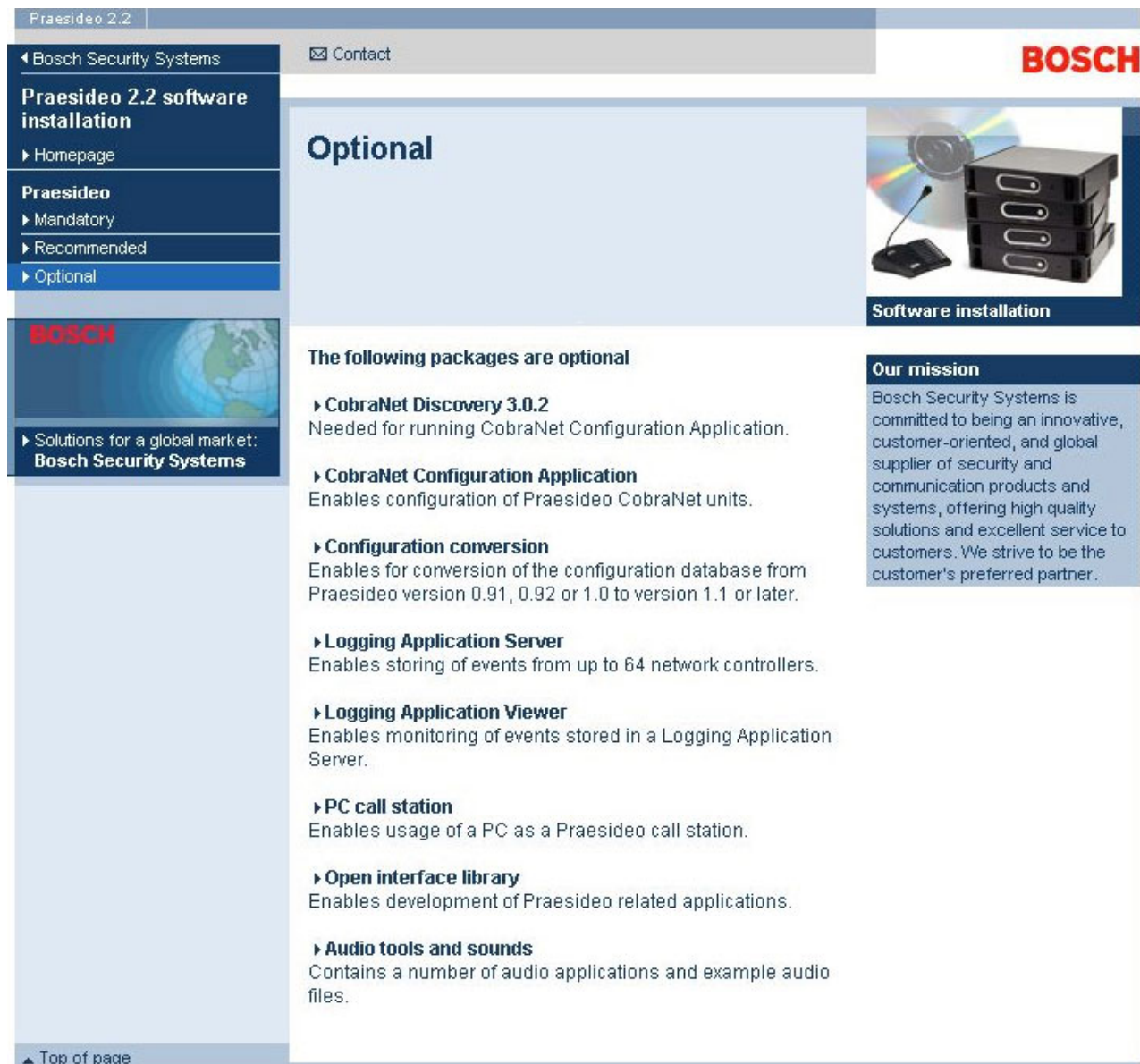


figure 29.1: Recommended software packages page

30 Optional packages

The optional packages (see figure 30.1) can be installed on any PC that meets the requirements that are put on it by the applications themselves. See chapter 48 and further for detailed descriptions of the optional packages.



The screenshot shows the 'Optional' section of the Praesideo 2.2 software installation page. The page has a blue header with the Bosch logo and a navigation menu on the left. The main content area lists several optional packages with their descriptions. On the right, there is a section titled 'Software installation' with an image of a CD and a stack of hard drives, and another section titled 'Our mission' with a brief description of Bosch Security Systems.

Praesideo 2.2

☐ Contact

BOSCH

Praesideo 2.2 software installation

- ▶ Homepage
- Praesideo**
 - ▶ Mandatory
 - ▶ Recommended
 - ▶ **Optional**

BOSCH

▶ Solutions for a global market: **Bosch Security Systems**

Optional

Software installation

Our mission

Bosch Security Systems is committed to being an innovative, customer-oriented, and global supplier of security and communication products and systems, offering high quality solutions and excellent service to customers. We strive to be the customer's preferred partner.

The following packages are optional

- ▶ **CobraNet Discovery 3.0.2**
Needed for running CobraNet Configuration Application.
- ▶ **CobraNet Configuration Application**
Enables configuration of Praesideo CobraNet units.
- ▶ **Configuration conversion**
Enables for conversion of the configuration database from Praesideo version 0.91, 0.92 or 1.0 to version 1.1 or later.
- ▶ **Logging Application Server**
Enables storing of events from up to 64 network controllers.
- ▶ **Logging Application Viewer**
Enables monitoring of events stored in a Logging Application Server.
- ▶ **PC call station**
Enables usage of a PC as a Praesideo call station.
- ▶ **Open interface library**
Enables development of Praesideo related applications.
- ▶ **Audio tools and sounds**
Contains a number of audio applications and example audio files.

▲ Top of page

figure 30.1: Optional software packages page

Section 8 - System Configuration

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31 Configuration software

31.1 Introduction

The network controller is equipped with a web interface. The web interface is accessible using the configuration PC connected to the network controller and can be used to configure and diagnose the Praesideo system.



Note

The web interface is not factory installed on the network controller. Putting the web interface on the network controller is part of the software installation process (see chapter 27).

31.2 Starting and logging on

Proceed as follows to log on to the web interface:

- 1 Start *Internet Explorer* on the configuration PC.
- 2 Enter the IP address of the network controller in the address bar of *Internet Explorer*.
- 3 Click the *Go* button at the end of the address bar. A screen similar to the one in figure 31.1 appears.

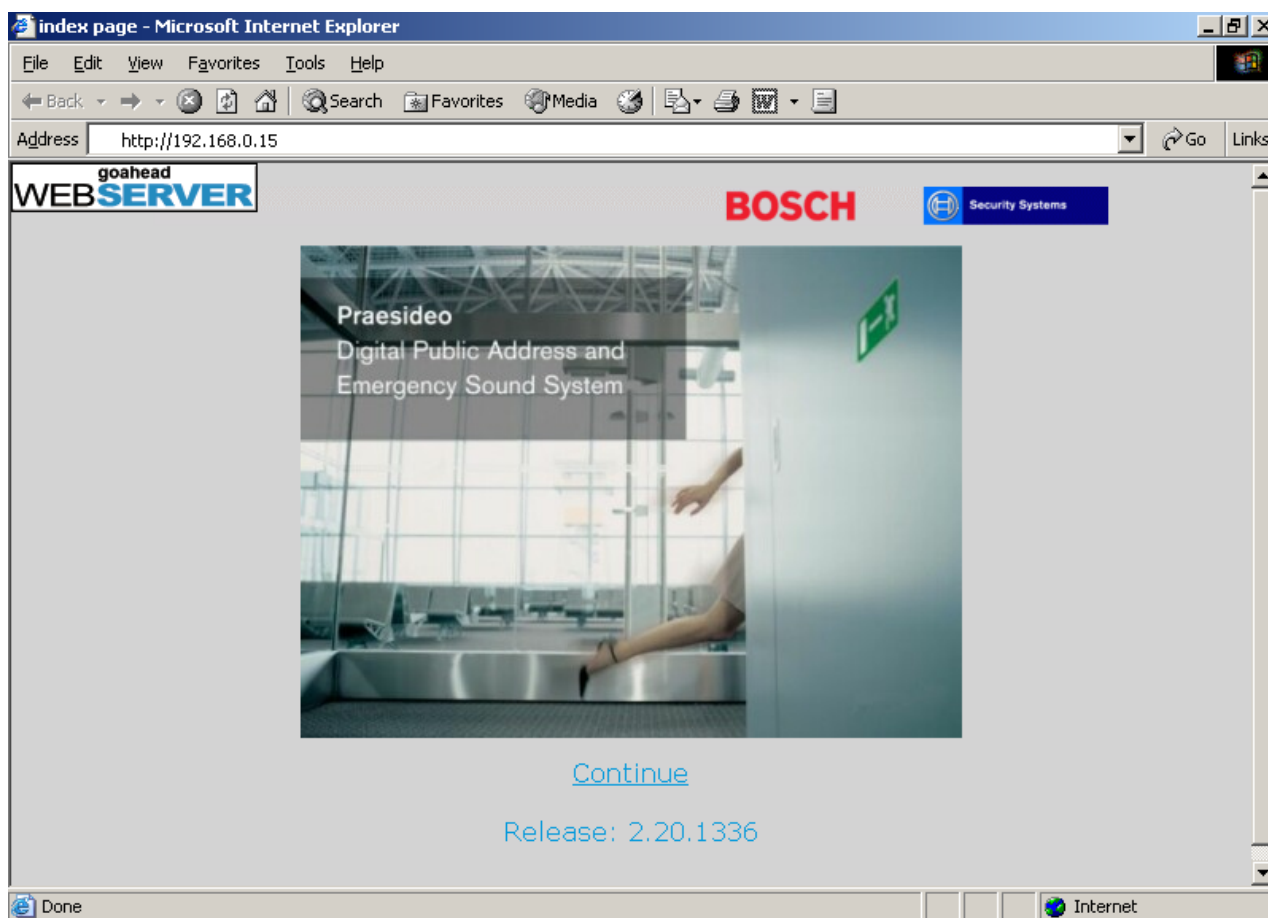


figure 31.1: Home page of the Praesideo web interface

- 4 Scroll to the bottom of the page and click the *Continue* hyperlink to access the web interface. A screen similar to the one in figure 31.2 pops up.

figure 31.2: Logon window

- 5 Enter the user name in the *User Name* field, enter the password in the *Password* field and click *OK* to open the web interface. A screen similar to the one in figure 31.4 appears.



Note

The default user name is *admin*, the default password is *admin*. The password can be changed by adding a new user with administrator rights and then deleting the default user (see section 32.3 and 32.4).

31.3 Overview

The web interface (see figure 31.4) contains the following elements:

- 1 **Configure** - A button that opens the configuration section of the web interface (see section 31.4).
- 2 **Diagnose** - A button that opens the diagnostics section of the web interface (see section 41).
- 3 **Upgrade** - A button that opens the upgrade firmware part of the web interface (see section 31.6).
- 4 **Main frame** - A frame that displays the requested page. See chapter 32 to 39 for descriptions of the screens in the *Configure* section and chapter 41 for a description of the page in the *Diagnose* section.

31.4 Configure section

31.4.1 Introduction

Using the *Configure* section of the web interface, the *Praesideo* system can be configured. The order of the menu items in the *Configure* section, which is opened when the *Configure* button is clicked (see figure 31.3), represents the recommended workflow for configuring a *Praesideo* system.

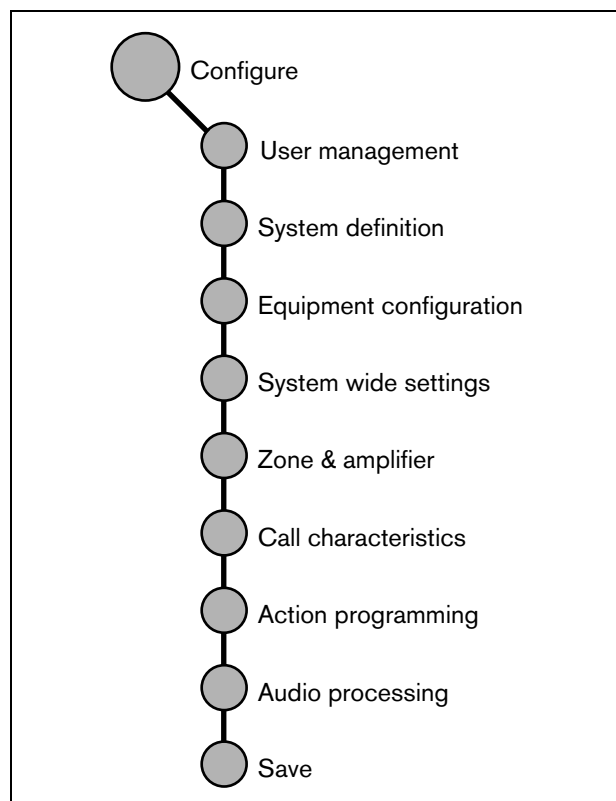


figure 31.3: Configure section

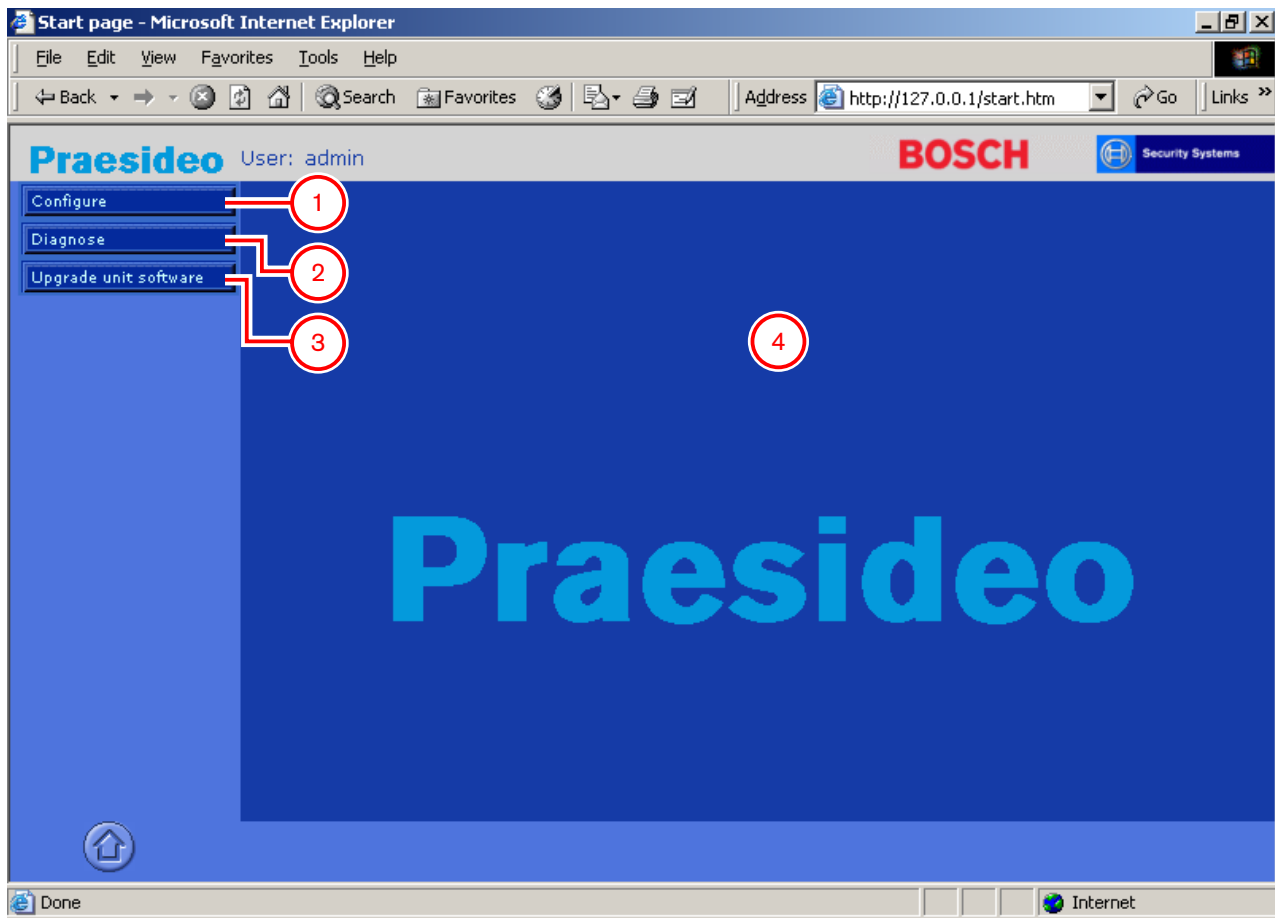


figure 31.4: Web interface elements

31.4.2 Overview

The *Configure* section contains the following groups of pages (see figure 31.3):

- On the *User management* pages, the accounts that provide access to the Praesideo web interface can be managed (see chapter 32).
- On the *System definition* pages, the equipment of which the system consists can be registered (see chapter 33).
- On the *Equipment configuration* pages, each piece of equipment that has been added using the *System definition* pages can be configured (see chapter 34).
- On the *System wide settings* pages, a number of general, system wide settings can be configured (see chapter 35).
- On the *Zone & amplifier* pages, the zones and amplifiers can be configured (see chapter 37).
- On the *Call characteristics* pages, call macros can be defined (see chapter 37).
- On the *Action programming* pages, the keys of the keypads and the control inputs can be configured. (see chapter 38).
- On the *Audio processing* pages, the audio processing parameters of the audio inputs and outputs in the system can be set (see chapter 39).
- On the *Save* page, the current configuration can be saved (see section 31.4.5).

31.4.3 Off-line configuration

It is possible to carry out the configuration of the Praesideo system off-line or edit the existing configuration off-line using the configuration PC:

- 1 Go to *Start > Programs > Praesideo > FT Application* to start the Praesideo *File Transfer* application.
- 2 Click the *Offline Config* button. A window appears in which the configuration file that will be used for the offline configuration, can be chosen. It is also possible to create a new, empty configuration file. After clicking the *OK* button, a screen similar to the one in figure 31.1 appears. Logging on to the off-line version of the web interface is similar to logging on to the 'real' web interface.

31.4.4 Submitting

Each page in the *Configure* section of the web interface contains a *Submit* button. Always click this button after making changes, otherwise the changes are lost.

Clicking the *Submit* button, however, does not mean that the changes are saved (see section 31.4.5).

31.4.5 Saving

Proceed as follows to save the current configuration:

- 1 Go to *Configure > Save > Save to NCO*.
- 2 Click the *Save Configuration* button to write the configuration file to the network controller.



Note

When the configuration file is saved to the network controller, the configuration is not activated until the network controller is restarted. If the new configuration must be saved and activated, click the *Save Configuration and Restart System* button.



Note

In case of an off-line configuration, the configuration file is saved in the *Program Files\Praesideo\target\rfa\cfg* folder of the configuration PC. This file can be transferred to the network controller using the *File Transfer* application.



Note

Audio processing parameters are changed immediately when the *Submit Equalizer* button on the *Audio Processing* pages is clicked. Although the changes are audible, it is important to realize that they are not automatically saved. If the changes are not saved they will be lost when the network controller is reset.

31.4.6 Allowed characters

When entering names for units, inputs, outputs, messages, zones, zone groups, etc., make sure that only the following characters are used:

- letters: A to Z and a to z
- numbers: 0 to 9
- special: # . () [] _ - + : and space



Note

All other characters are not allowed.

31.4.7 Unique names

When entering names for units, inputs, outputs, messages, zones, zone groups, etc., make sure that all entered names are unique. It is not allowed to use a name for more than one item. The name must not only be unique within a group of items (e.g. unit names), but also within the complete system configuration (e.g. zone groups must have different names than zones). Names that are not unique cause inconsistencies in the configuration database. In turn, these inconsistencies can result in unpredictable system behavior.

31.4.8 Initial values

When the value of a parameter of a configuration item is *<None>*, the parameter has no value yet. For example, when the *Action programming* page of a *Priority* key is opened for the first time (see section 38.7), the value in the *Priority* field is *<None>*.

When the value of a parameter of a configuration item is *<Default>*, the parameter is set to its default value. For example, if the audio input of a call macro (see section 37.2) is *<Default>*, the configured audio input is the microphone of the call station that started the call macro.

31.4.9 Undo changes

Most pages of the *Configure* section contain a *Cancel* button. By clicking the *Cancel* button, any changes made on the pages are cancelled.



Note

Restart the network controller without saving the changes. to undo all changes.

31.4.10 Enabled items

Configuration items can be enabled and disabled with a checkbox. If a configuration item is enabled, the system is able to generate a fault event when a fault occurs. If a configuration item is disabled, the system cannot generate a fault event when a fault occurs. The web interface puts disabled configuration items in brackets in selection lists. For example, the disabled configuration item *AudioIn01* is displayed as *(AudioIn01)* in selection lists.

31.4.11 Deleting items

When a configuration item is deleted, all configuration items that are related to the deleted configuration item are also deleted. For example, when a power amplifier is deleted from the system definition (see section 33.4), all audio outputs of the power amplifier are also no longer part of the configuration.

31.4.12 Audio inputs

It is not allowed to use audio inputs for more than one purpose, since this can cause inconsistencies in the configuration database. In turn, these inconsistencies can result in unpredictable system behavior. For example, if the audio input is already part of a call macro (see section 37.2), it is not allowed to also use the audio input in a BGM channel (see section 36.5).

31.4.13 Configuration printing utility

The mandatory Praesideo software (see section 28.1) also installs a configuration printing utility. This utility can read information from configuration files of version 1.1 and higher. The configuration printing utility shows the information on screen in a formatted way to check and/or archive the configuration on paper.

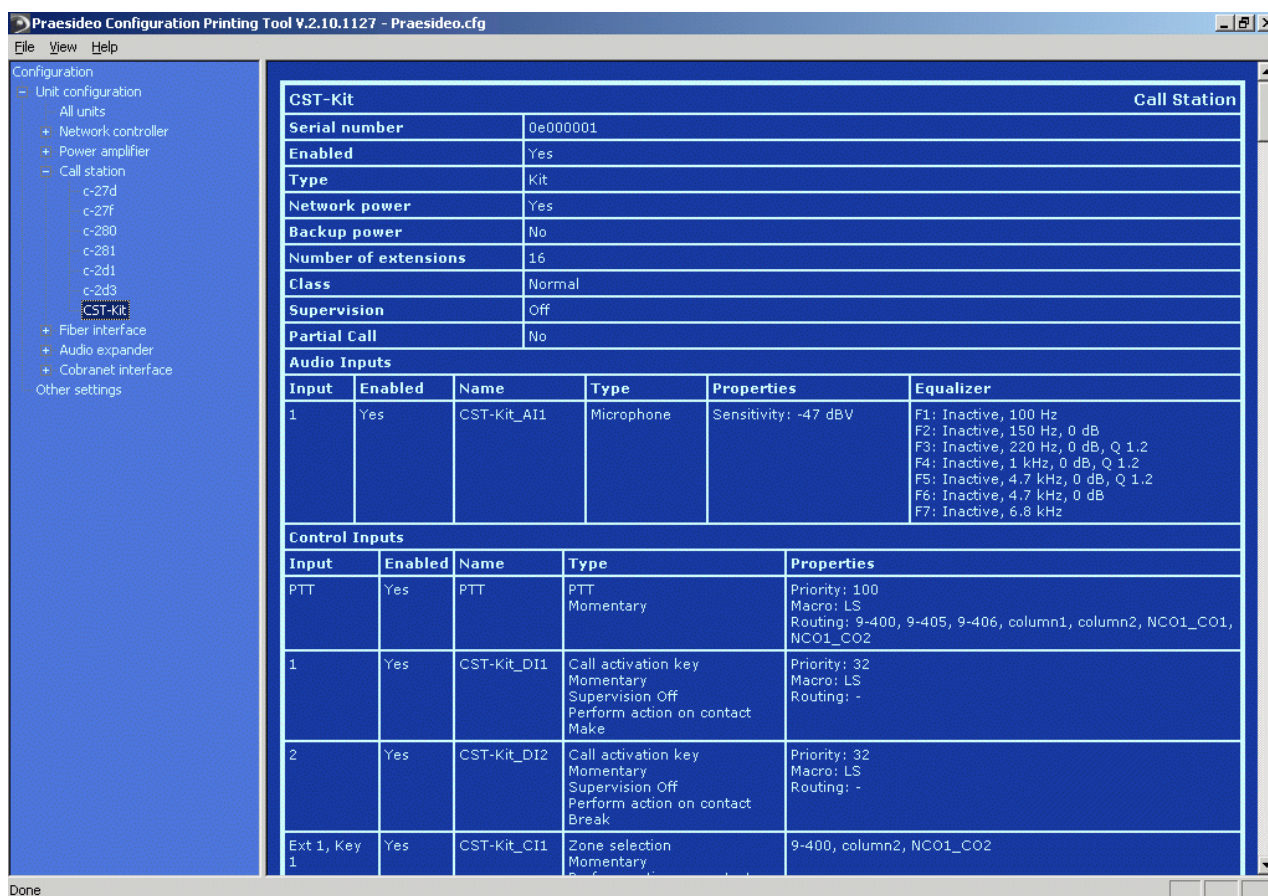


figure 31.5: Configuration printing utility

31.5 Diagnose section

Using the *Diagnose* section, the system installation can be diagnosed (see chapter 41).

31.6 Upgrade section

Using the *Upgrade unit software* section, the firmware of the units in the Praesideo system can be transferred from the network controller to the units (see chapter 28.5).

32 User management

32.1 Introduction

On the *User Management* pages, the accounts that provide access to the Praesideo web interface can be managed.

Using the *User Management* pages, it is possible to:

- Add a user (see section 32.3).
- Delete a user (see section 32.4).

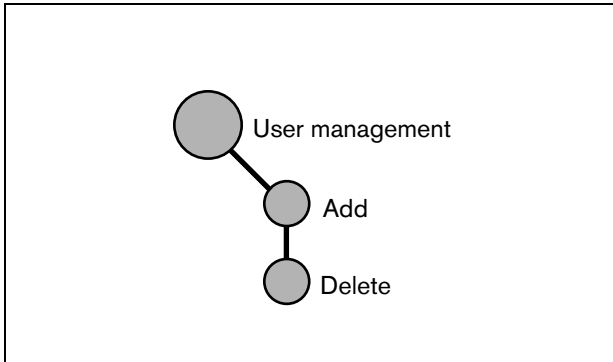


figure 32.1: User management pages

32.2 Accounts

To access the web interface, an account is needed. An account consists of a user name, a password and an authorization level. The authorization level defines to which part of the web interface access is granted. The web interface provides the following authorization levels:

- **Administrator**
Administrators have access to all parts of the web interface including the *User Management* part.
- **Installer**
Installers have access to all parts of the web interface except the *User Management* part.
- **Users**
Users only have access to the *Diagnose* section of the web interface (see chapter 41).



Note

For security reasons, it is advisable to create first a new *Administrator* account and then to delete the default Praesideo *Administrator* account (i.e. the *admin/admin* account).

32.3 Add a user

Proceed as follows to add a new user (i.e. create a new account):



Note

Only *Administrators* can create new accounts.

- 1 Go to *Configure > User management > Add*. A screen similar to the one in figure 32.2 appears in the main frame of the web interface.

User id	Group	Password
admin	Administrators	admin

Users

OK

figure 32.2: Add user, step 1

- 2 Enter the user name for the new user in the *User id* field. It can contain up to 16 characters. For example, *johndoe* (see figure 32.3).
- 3 Select the authorization level for the new user in the *Group* column. The authorization level defines to which part of the Praesideo web interface access is granted (see section 32.2).

- 4 Enter the password for the new user in the *Password* field. It can contain up to 16 characters. For example, *password* (see figure 32.3)

i

Note

Use a password of more than 5 characters. It is important that a password is not easy to guess, since it safeguards unauthorized access to the system that could result in unsafe system configuration.

Add Users

User id	Group	Password
admin	Administrators	admin
johndoe	Administrators	password

figure 32.3: Add user, step 2 - 4

- 5 Click the *OK* button to activate the new account. A screen similar to the one in figure 32.4 appears in the main frame of the web interface.

Add Users

User id	Group	Password
admin	Administrators	admin
johndoe	Administrators	password
	Users	

figure 32.4: Add user, step 5

32.4 Delete a user

Proceed as follows to delete a user (i.e. delete an existing account):

i

Note

Only *Administrators* can delete existing accounts.

i

Note

An *Administrator* account cannot delete its own account.

- 1 Go to *Configure > User management > Delete*. A screen similar to the one in figure 32.5 appears in the main frame of the web interface.

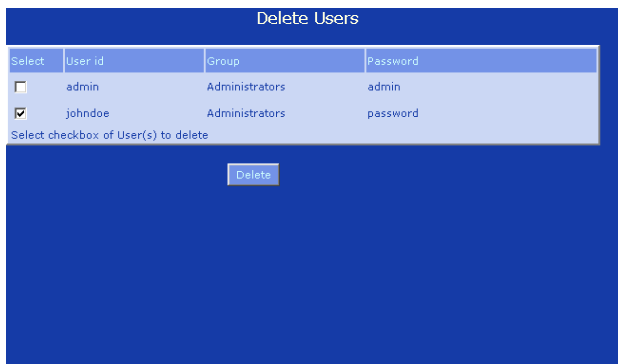
Delete Users

Select	User id	Group	Password
☐	admin	Administrators	admin
☐	johndoe	Administrators	password

Select checkbox of User(s) to delete

figure 32.5: Delete user, step 1

- 2 Check the box in front of the account that has to be deleted (see figure 32.6).



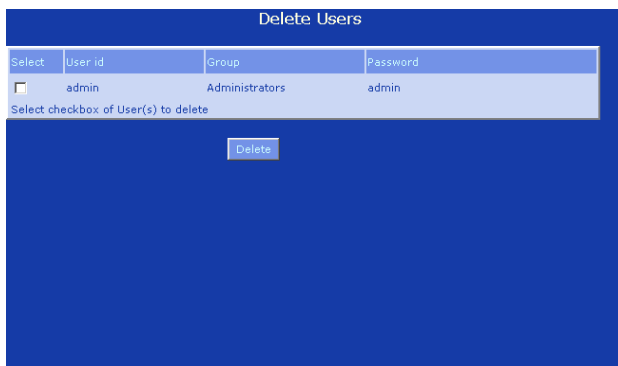
Select	User id	Group	Password
☐	admin	Administrators	admin
☒	johndoe	Administrators	password

Select checkbox of User(s) to delete

[Delete](#)

figure 32.6: Delete user, step 2.

- 3 Click the *Delete* button to delete the account. A screen similar to the one in figure 32.7 appears in the main frame of the web interface. This screen does not contain the deleted account anymore.



Select	User id	Group	Password
☐	admin	Administrators	admin

Select checkbox of User(s) to delete

[Delete](#)

figure 32.7: Delete user, step 3

33 System definition

33.1 Introduction

On the *System definition* pages, the equipment of which the system consists can be registered. Using the *System definition* pages, it is possible to register (add) and unregister (delete) the following pieces of equipment:

- Network controller (see section 33.3).
- Power amplifiers (see section 33.4).
- Call stations (see section 33.5).
- Audio expanders (see section 33.6).
- Fiber interfaces (see section 33.7).
- CobraNet interfaces (see section 33.8).
- TCP/IP devices (see section 33.9).



Note

Equipment that is not listed in the *System Definition* pages, does not have to be configured (e.g. network splitters).

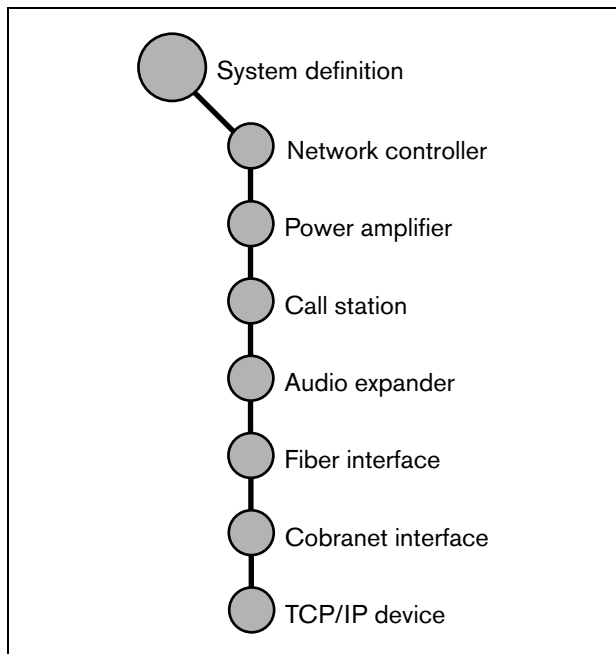


figure 33.1: System definition pages

33.2 Serial numbers

Each Praesideo unit has a serial number, which is needed to register the unit in the system. The serial number can be found on the unit label on the unit (see figure 33.2).

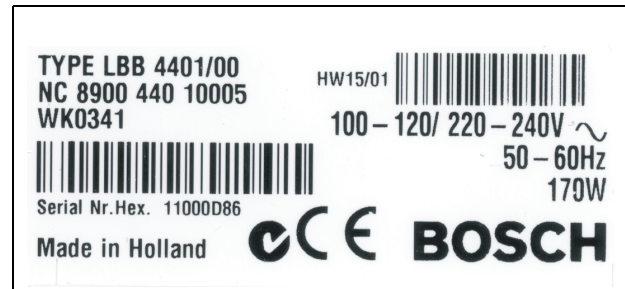


figure 33.2: Unit label

The hexadecimal serial number of a unit consists of 8 digits ranging from 0 to F. The combination of the first and second digit identifies the type of unit.

table 33.1: Serial number ranges

Type no.	Description	ID
LBB4401/00	Network Controller	11
LBB4402/00	Audio Expander	12
LBB4404/00	CobraNet Interface	1C
LBB4410/00	Network Splitter	14
LBB4414/00	Fiber Interface	15
LBB4421/xx	Power Amp. 1 x 500 W	0B
LBB4422/xx	Power Amp. 2 x 250 W	0A
LBB4424/xx	Power Amp. 4 x 125 W	09
LBB4428/00	Power Amp. 8 x 60 W	08
LBB4430/00	Call Station Basic	0C
LBB4433/00	Call Station Kit	0E

33.3 Network controller

Proceed as follows to register the network controller:

- 1 Go to *Configure > System definition > Network controller*.
A screen similar to the one in figure 33.3 appears in the main frame of the web interface.

Enabled	Name	Serial number
☒	NCO_01	1100026d

Submit

figure 33.3: Register network controller, step 1

- 2 Enter a name for the network controller in the *Name* field.
- 3 Enter the hexadecimal serial number of the network controller in the *Serial number* field.
- 4 When the network controller is physically present, it can be enabled by ticking the *Enabled* checkbox.



Note

The serial number itself is not checked. However, the software checks that all entered characters are hexadecimal characters and that the serial number is 8 characters long.

- 5 Submit the changes. Note that the changes are not permanent until the configuration is saved. (see section 31.4.4 and section 31.4.5).

33.4 Power amplifier

33.4.1 Add a power amplifier

Proceed as follows to add a power amplifier to the system configuration:

- 1 Go to *Configure > System definition > Power amplifier*.
A screen similar to the one in figure 33.4 appears in the main frame of the web interface.

Enabled	Name	Type	Purpose	Serial number
---------	------	------	---------	---------------

Add Delete Submit

figure 33.4: Add power amplifier, step 1

- 2 Click the *Add* button to add a new power amplifier to the system. A screen similar to the one in figure 33.5 appears in the main frame of the web interface.

Enabled	Name	Type	Purpose	Serial number
Adding	Name	Type	Purpose	Serial number
		LB84421 (1 x 500 W)	Main PAM	

OK Cancel

Add Delete Submit

figure 33.5: Add power amplifier, step 2

- 3 Enter the data of the power amplifier (see figure 33.7 for an example).
 - Enter a name for the power amplifier in the *Name* field. The name may consist of up to 10 characters.
 - Select the type of power amplifier from the *Type* dropdown list.
 - Select the purpose of the power amplifier from the *Purpose* dropdown list (*Main PAM* for a main amplifier, *Spare PAM* for a spare amplifier).
 - Enter the hexadecimal serial number of the power amplifier in the *Serial number* field. See section 33.2 for information about serial numbers.

**Note**

It is advised to include the name of the assigned zone(s) in the naming of a power amplifier. By doing so, error messages can be directly related to the applicable power amplifiers.

**Note**

The serial number itself is not checked. However, the software checks that all entered characters are hexadecimal characters and that the serial number is 8 characters long.

- 4 Click the *OK* button to add the power amplifier to the list of power amplifiers in the system. A screen similar to the one in figure 33.7 appears in the main frame of the web interface.

Enabled	Name	Type	Purpose	Serial number
☒	PAM_01	LBB4424 (4 x 125 W)	Main PAM	090001f0
☒	PAM_02	LBB4424 (4 x 125 W)	Spare PAM	090001f1

Buttons: Add, Delete, Submit

figure 33.7: Add power amplifier, step 4

- 5 When the power amplifier is physically present, it can be enabled by ticking the *Enabled* checkbox.
- 6 Submit the changes. Note that the changes are not permanent until the configuration is saved (see section 31.4.4 and section 31.4.5).

Enabled	Name	Type	Purpose	Serial number
☐	PAM_01	LBB4424 (4 x 125 W)	Main PAM	090001f0

Buttons: Add, Delete, Submit

figure 33.6: Add power amplifier, step 3

33.4.2 Delete a power amplifier

Proceed as follows to delete a power amplifier from the system definition:



Note

It is not possible to delete a unit if its inputs or outputs are being used in for example the *Zone & Amplifier* or *Action Programming* pages.

- 1 Go to *Configure > System definition > Power amplifier*. A screen similar to the one in figure 33.8 appears in the main frame of the web interface.

Enabled	Name	Type	Purpose	Serial number
☒	PAM_01	LBB4424 (4 x 125 W)	Main PAM	090001f0
☒	PAM_02	LBB4424 (4 x 125 W)	Spare PAM	090001f1

Add Delete Submit

figure 33.8: Delete power amplifier, step 1

- 2 Click anywhere in the row of the power amplifier that has to be deleted from the system definition. The entire row is highlighted (see figure 33.9).

Enabled	Name	Type	Purpose	Serial number
☒	PAM_01	LBB4424 (4 x 125 W)	Main PAM	090001f0
☒	PAM_02	LBB4424 (4 x 125 W)	Spare PAM	090001f1

Add Delete Submit

figure 33.9: Delete power amplifier, step 2

- 3 Click the *Delete* button. A screen similar to the one in figure 33.10 appears in the main frame of the web interface.

Enabled	Name	Type	Purpose	Serial number
☒	PAM_01	LBB4424 (4 x 125 W)	Main PAM	090001f0
☒	PAM_02	LBB4424 (4 x 125 W)	Spare PAM	090001f1

Deleting

Name	Type	Purpose	Serial number
PAM_02	LBB4424 (4 x 125 W)	Spare PAM	090001f1

OK Cancel

Add Delete Submit

figure 33.10: Delete power amplifier, step 3

- 4 Click the *OK* button to delete the power amplifier from the system definition. A pop-up window asks for confirmation.
- 5 Click the *OK* button to confirm the pop-up message. A screen similar to the one in figure 33.11 appears in the main frame of the web interface. The deleted power amplifier is no longer listed in the table.

Enabled	Name	Type	Purpose	Serial number
☒	PAM_01	LBB4424 (4 x 125 W)	Main PAM	090001f0

Add Delete Submit

figure 33.11: Delete power amplifier, step 5

- 6 Submit the changes. Note that the changes are not permanent until the configuration is saved (see section 31.4.4 and section 31.4.5).

33.5 Call station

33.5.1 Add a call station

Adding a call station to the system definition is similar to adding a power amplifier (see section 33.4.1). Go to *Configure > System definition > Call station*, click the *Add* button and:

- Enter a name for the call station in the *Name* field. The name may consist of up to 16 characters.
- Select the type of call station from the *Call station type* dropdown list (see table 33.2).

table 33.2: Call station types

Model	Type
LBB4430/00	Basic
LBB4433/00	Kit

- Select the number of connected extensions (keypads) from the extension dropdown list.
- Enter the hexadecimal serial number of the call station in the *Serial number* field.

Enabled	Name	Call station type	Extension	Serial number
☒	CST_01	Basic	2	0c0001f0
☒	CST_02	Kit	3	0c0001f1

Add Delete Submit

figure 33.12: Call station definition

33.5.2 Delete a call station

Deleting a call station from the system definition is similar to deleting a power amplifier (see section 33.4.2). Go to *Configure > System definition > Call station*, select the call station that has to be deleted and click the *Delete* button.

33.6 Audio expander

33.6.1 Add an audio expander

Adding an audio expander to the system definition is similar to adding a power amplifier (see section 33.4.1). Go to *Configure > System definition > Audio expander*, click the *Add* button and:

- Enter a name for the audio expander in the *Name* field. The name may consist of up to 16 characters.
- Enter the hexadecimal serial number of the audio expander in the *Serial number* field.

Enabled	Name	Serial number
☒	AEX_01	020000f0
☒	AEX_02	020000f1

Add Delete Submit

figure 33.13: Audio expander definition

33.6.2 Delete an audio expander

Deleting an audio expander from the configuration is similar to deleting a power amplifier (see section 33.4.2). Go to *Configure > System definition > Audio expander*, select the audio expander that has to be deleted and click the *Delete* button.

33.7 Fiber interface

33.7.1 Add a fiber interface

Adding a fiber interface to the system definition is similar to adding a power amplifier (see section 33.4.1). Go to *Configure > System definition > Fiber interface*, click the *Add* button and:



Note

Only LBB4414/00 Fiber Interfaces have to be configured. LBB4414/10 Fiber Interfaces cannot be configured.

- Enter a name for the fiber interface in the *Name* field. The name may consist of up to 16 characters.
- Enter the hexadecimal serial number of the fiber interface in the *Serial number* field.

Enabled	Name	Serial number
☒	F1_01	030000f0
☒	F1_02	030000f1

Add Delete Submit

figure 33.14: Fiber interface definition

33.7.2 Delete a fiber interface

Deleting a fiber interface from the system definition is similar to deleting a power amplifier (see section 33.4.2). Go to *Configure > System definition > Fiber interface*, select the fiber interface that has to be deleted and click the *Delete* button.

33.8 CobraNet Interface

33.8.1 Add a CobraNet interface

Adding a CobraNet interface to the system definition is similar to adding a power amplifier (see section 33.4.1). Go to *Configure > System definition > Cobranet interface*, click the *Add* button and:

- Enter a name for the CobraNet interface in the *Name* field. The name may consist of up to 16 characters.
- Enter the hexadecimal serial number of the CobraNet interface in the *Serial number* field.

Enabled	Name	Serial number
☒	CNI_01	1c0000f0
☒	CNI_02	1c0000f1

Add Delete Submit

figure 33.15: CobraNet interface definition

33.8.2 Delete a CobraNet interface

Deleting a CobraNet interface from the system definition is similar to deleting a power amplifier (see section 33.4.2). Go to *Configure > System definition > Cobranet interface*, select the CobraNet interface that has to be deleted and click the *Delete* button.

33.9 TCP/IP device

33.9.1 Add a TCP/IP device

Adding a TCP/IP device to the system definition is similar to adding a power amplifier (see section 33.4). Go to *Configure > System Definition > TCP/IP device*, click the *Add* button and:

- Enter a name for the TCP/IP device in the *Name* field. The name may consist of up to 16 characters.
- Enter the IP address of the TCP/IP device in the *IP address* fields.
- Use the *Connection supervision* list to specify if the connection to the TCP/IP device must be supervised (*On*) or not (*Off*).

Enabled	Name	IP address	Connection supervision
☒	TCP/IP_01	192 168 0 90	On
☒	TCP/IP_02	192 168 0 91	Off

Add Delete Submit

figure 33.16: TCP/IP device definition

33.9.2 Delete a TCP/IP device

Deleting a TCP/IP device from the system definition is similar to deleting a power amplifier (see section 33.4.2). Go to *Configure > System definition > TCP/IP device*, select the TCP/IP device that has to be deleted and click the *Delete* button.

34 Equipment configuration

34.1 Introduction

On the *Equipment configuration* pages, each piece of equipment that has been added using the *System definition* pages can be configured. Using the *Equipment configuration* pages, it is possible to configure:

- Network controllers (see section 34.2).
- Power amplifiers (see section 34.3).
- Call stations (see section 34.4).
- Audio expanders (section 34.5).
- Fiber interfaces (see section 34.6).
- CobraNet interfaces (see section 34.7).

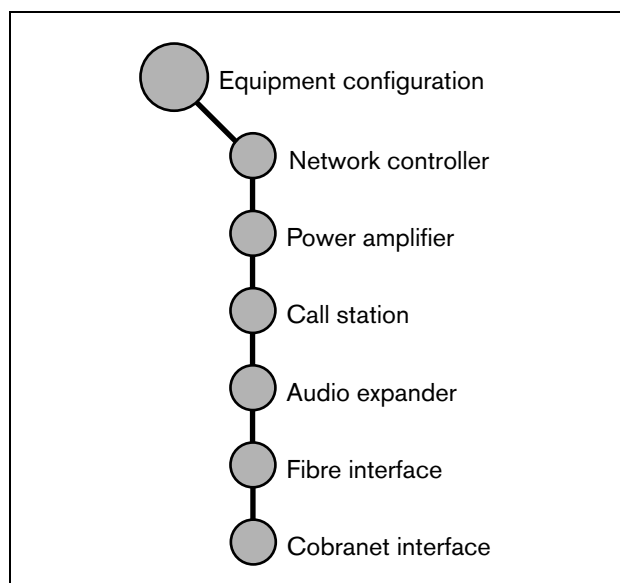


figure 34.1: Equipment configuration pages

34.2 Network controller

34.2.1 Procedure

Proceed as follows to configure the network controller:

- 1 Go to *Configure > Equipment configuration > Network controller*. A screen similar to the one in figure 34.2 appears in the main frame of the web interface.



figure 34.2: Configure network controller, step 1

- 2 Click the name of the network controller that must be configured. A screen similar the one in figure 34.3 appears in the main frame of the web interface.

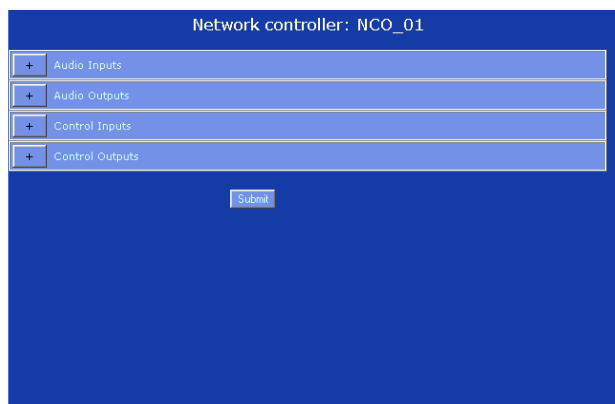


figure 34.3: Configure network controller, step 2

- 3 Open the *Audio inputs* category to configure the audio inputs of the network controller (see section 34.2.2).
- 4 Open the *Audio outputs* category to configure the audio outputs of the network controller (see section 34.2.3).
- 5 Open the *Control inputs* category to configure the control inputs of the network controller (see section 34.2.4).

- 6 Open the *Control outputs* category to configure the control outputs of the network controller (see section 34.2.5).
- 7 Submit the changes. Note that the changes are not permanent until the configuration is saved (see section 31.4.4 and section 31.4.5).

34.2.2 Audio inputs

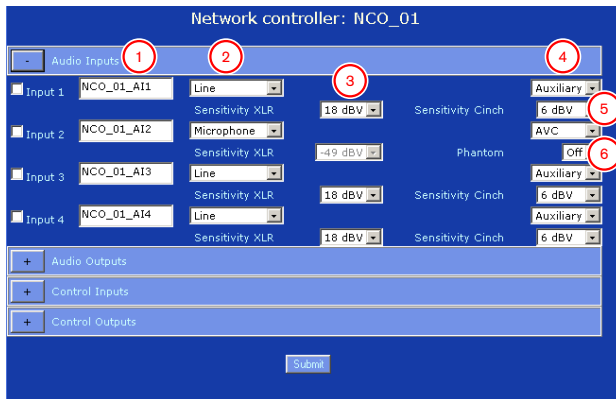


figure 34.4: Configure network controller, step 3

table 34.1: Audio inputs configuration

No.	Item	Value	Description
1	Input		Unique name for the audio input. The input can be enabled and disabled using the checkbox.
2	Audio type	Line Microphone	Sets the type of audio source. This is either line (<i>Line</i>) or microphone (<i>Microphone</i>).
3	Sensitivity XLR	6 to 18 dBV (line) -64 to -49 dBV (mic.)	Sets the maximum input level for the XLR connector of the audio input. If the input signal is stronger than the specified value, it is clipped.
4	Microphone type	Auxiliary AVC	Sets the type of microphone.
5	Sensitivity Cinch	-6 to 6 dBV (line)	Sets the maximum input level for the cinch connector of the audio input. If the input signal is stronger than the specified value, it is clipped. This item is only available if (2) has been set to <i>Line</i> .
6	Phantom	On, Off	Specifies whether the microphone receives a phantom supply (<i>On</i>) or not (<i>Off</i>). This item is only available if (2) has been set to <i>Microphone</i> .



Note

The values of the items *Sensitivity XLR* and *Sensitivity Cinch* are coupled. If one of them changes, the other changes automatically.



Caution

Only set *Phantom* to *On* for condenser microphones connected to the XLR connector of the audio input.

34.2.3 Audio outputs

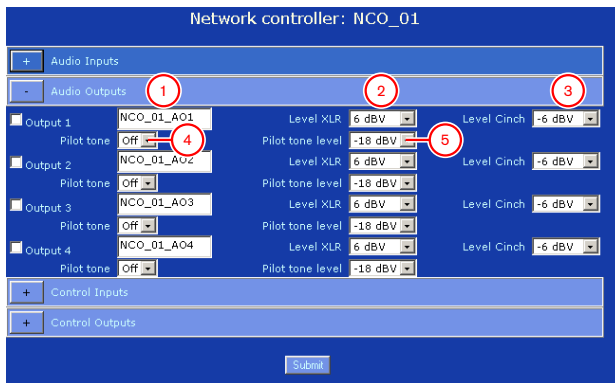


figure 34.5: Configure network controller, step 4

table 34.2: Audio outputs configuration

No.	Item	Value	Description
1	Output		Unique name for the audio output. The output can be enabled and disabled using the checkbox.
2	Level XLR	-12 to 18 dBV	Sets the maximum output level for the XLR connector. This is the level of the audio output signal when the audio input level is at its configured maximum.
3	Level Cinch	-24 to 6 dBV	Sets the maximum output level for the cinch connector. This is the level of the audio output signal when the audio input level is at its configured maximum.
4	Pilot tone	On, Off	Switches the 20 kHz pilot tone on (<i>On</i>) or off (<i>Off</i>). The pilot tone is used to supervise the analogue audio connection to another public address system or device. The supervision and fault reporting should be done by that subsequent system or device (e.g. Bosch Intellivox loudspeaker).
5	Pilot tone level	-32 to -12 dBV (XLR)	Sets the level for the pilot tone. This level is for the XLR output. The level for the cinch output is 12 dB less.



Note

The values of the items *Level XLR* and *Level Cinch* are coupled. If one of them changes, the other changes automatically.

34.2.4 Control inputs

Network controller: NCO_01

Control Inputs

Input 1 NCO_01_CI1 Momentary Supervision Off Call activation key

Act on contact Make

Input 2 NCO_01_CI2 Momentary Supervision Off Call activation key

Act on contact Make

Input 3 NCO_01_CI3 Momentary Supervision Off Call activation key

Act on contact Make

Input 4 NCO_01_CI4 Momentary Supervision Off Call activation key

Act on contact Make

Input 5 NCO_01_CI5 Momentary Supervision Off Call activation key

Act on contact Make

Input 6 NCO_01_CI6 Momentary Supervision Off Call activation key

Act on contact Make

Input 7 NCO_01_CI7 Momentary Supervision Off Call activation key

Act on contact Make

Input 8 NCO_01_CI8 Momentary Supervision Off Call activation key

Act on contact Make

Submit

figure 34.6: Configure network controller, step 5

table 34.3: Control inputs configuration

No.	Item	Value	Description
1	Input		Unique name for the control input. The input can be enabled and disabled using the enable checkbox.
2	Behavior	Momentary Toggle	Sets a part of the behavior of the control input. See chapter 38.
3	Supervision	On, Off	Switches supervision of the control input on (On) or off (Off).
4	Action		Sets the action of the control input. See chapter 38.
5	Action on contact		Sets a part of the behavior of the control input. See chapter 38.

34.2.5 Control outputs

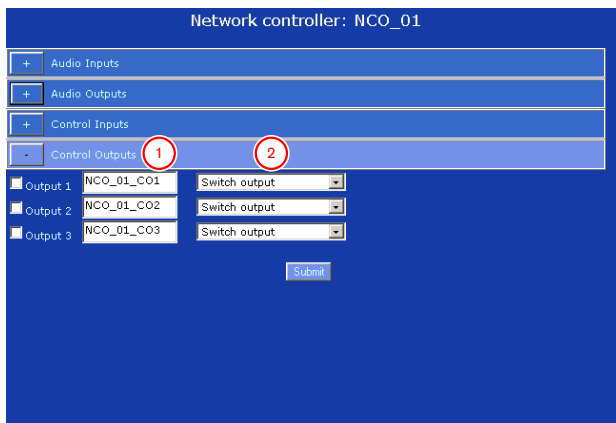


figure 34.7: Configure network controller, step 6

table 34.4: Control outputs configuration

No.	Item	Value	Description
1	Output		Unique name for the control output. The output can be enabled and disabled using the checkbox.
2	Type		Sets the purpose of the control output. See table 34.5.

table 34.5: Control output types

Type	Description
Switch output	The control output is activated by a <i>Switch trigger</i> control input or keypad key. See section 38.20.
Audible fault indicator	The control output activates an audible fault indicator (e.g. a buzzer) each time a fault is detected in the system. It can only be deactivated by acknowledging all faults.
Visual fault indicator	The control output activates a visual fault indicator (e.g. a lamp) each time a fault is detected in the system. It can only be deactivated by resetting all faults.
Audible EVAC indicator	The control output activates audible EVAC indicator (e.g. a buzzer) each time a call with priority 223 or higher is started (i.e. an emergency call). It can only be deactivated by acknowledging the emergency state.
Visual EVAC indicator	The control output activates a visual EVAC indicator (e.g. a lamp) each time a call with priority 223 or higher is started (i.e. an emergency call). It can only be deactivated by resetting the emergency state.
Zone active	The control output is activated when there is an active call in the associated zone (see section 36.2).
Volume override	The control output is activated when there is an active call with priority 32 or higher in the associated zone. See section 36.2.

34.3 Power amplifier

34.3.1 Procedure

Proceed as follows to configure a power amplifier:

- 1 Go to *Configure > Equipment configuration > Power amplifier*. A screen similar to the one in figure 34.8 appears in the main frame of the web interface.



figure 34.8: Configure power amplifier, step 1



Note

The spare amplifiers cannot be configured and are therefore not in the list of power amplifiers.

- 2 Click the name of the power amplifier that must be configured. A screen similar the one in figure 34.9 appears in the main frame of the web interface.

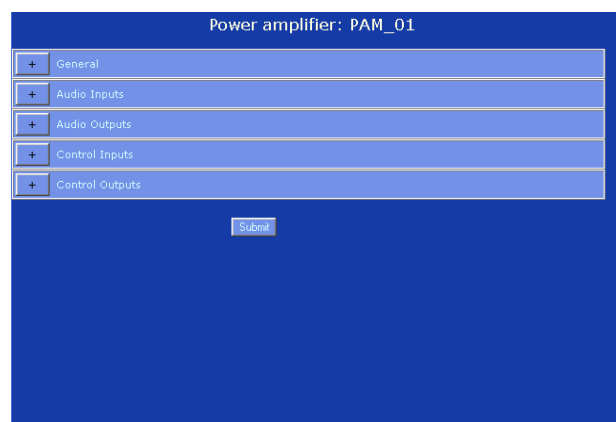


figure 34.9: Configure power amplifier, step 2

- 3 Open the *General* category to configure the general settings of the power amplifier (see section 34.3.2).
- 4 Open the *Audio inputs* category to configure the audio inputs of the power amplifier (see section 34.3.3).
- 5 Open the *Audio outputs* category to configure the audio outputs of the power amplifier (see section 34.3.4).
- 6 Open the *Control inputs* category to configure the control inputs of the power amplifier (see section 34.3.6).
- 7 Open the *Control outputs* category to configure the control outputs of the power amplifier (see section 34.3.7).
- 8 Submit the changes. Note that the changes are not permanent until the configuration is saved (see section 31.4.4 and section 31.4.5).

34.3.2 General

figure 34.10: Configure power amplifier, step 3

table 34.6: General configuration

No.	Item	Value	Description
1	<i>Mains power</i>	No	Specifies whether the primary power supply is the mains (Yes) or the 48 V(DC) power supply (No).
		Yes	
2	<i>Backup power</i>	No	Specifies whether a back-up power supply has been connected to the power amplifier (Yes) or not (No). If set to Yes, a fault event is generated if the back-up power supply voltage is not within the correct range.
		Yes	



Note

Setting *Mains Power* to *No* when mains power is used, results in a system that does not detect mains power failures.



Note

Setting *Backup power* to *No* when back-up power is used, results in a system that does not detect back-up power failures.

34.3.3 Audio inputs

Power amplifier: PAM_01

General

Audio Inputs

Input 1: PAM_01_A11, Line, Sensitivity: 6 dBV, Auxiliary

Input 2: PAM_01_A12, Microphone, Sensitivity: -50 dBV, Auxiliary

Phantom: Off, Supervision: Off

Audio Outputs

Control Inputs

Control Outputs

Submit

figure 34.11: Configure power amplifier, step 4

table 34.7: Audio inputs configuration

No.	Item	Value	Description
1	Input		Unique name for the audio input. The input can be enabled and disabled using the checkbox.
2	Audio type	Line Microphone	Sets the type of audio source. This is either line (<i>Line</i>) or AVC microphone (<i>Microphone</i>).
3	Sensitivity	-6 to 6 dBV (line) -65 to -50 dBV (mic.)	Sets the maximum input level of the audio input. If the input signal is stronger than the specified value, it is clipped.
4	Microphone type	Auxiliary AVC	Sets the type of microphone.
5	Phantom	On, Off	Specifies whether the AVC microphone receives a phantom supply (<i>On</i>) or not. This option is only visible if (2) is set to <i>Microphone</i> .
6	Supervision	On, Off	Switches supervision on (<i>On</i>) and off (<i>Off</i>) for the AVC microphone. This option is only visible if (2) is set to <i>Microphone</i> .

34.3.4 Audio outputs

The screenshot shows the 'Power amplifier: PAM_01' configuration window. The 'Audio Outputs' section is active, displaying four output channels. Red circles are placed over the following elements: 1. The checkbox for 'Output 1', 2. The 'Delay (distance)' dropdown menu, 3. The 'Pilot tone' dropdown menu, 4. The 'GND Supervision' dropdown menu, 5. The 'Line/Lsp Supervision' dropdown menu, and 6. The 'Configure slave devices' button. The interface includes tabs for 'General', 'Audio Inputs', 'Audio Outputs', 'Control Inputs', and 'Control Outputs'. A 'Submit' button is at the bottom.

figure 34.12: Configure power amplifier, step 5

table 34.8: Audio outputs configuration

No.	Item	Value	Description
1	Output		Unique name for the audio output. The output can be enabled and disabled using the checkbox.
2	Delay	0 to 510 m	Sets the loudspeaker alignment time, expressed as a distance in meters.
3	Pilot tone	On, Off	Switches the pilot tone for loudspeaker monitoring on (On) and off (Off). This pilot tone is used to monitor the amplifier module and the secondary side of the transformer for short-circuits. It is also supervises the amplifier for failures and is used by the line supervision set.
4	GND Supervision	On, Off	Switches ground supervision of the loudspeaker line on (On) and off (Off).
5	Line/LSP Supervision	None LBB4442 (Single) LBB4440 (Multiple)	Sets the type of line or loudspeaker supervision.
6	Configure slave devices		Opens a screen to configure LBB4441 and LBB4443 slave devices (see section 34.3.5).

34.3.5 Slave devices

34.3.5.1 Adding a single slave device

Proceed as follows to add a single slave device to an audio output of a power amplifier:

- 1 Click the *Configure slave devices* button in the *Audio Outputs* category of the applicable power amplifier (see section 34.3.4). A screen similar to the one figure 34.13 appears.

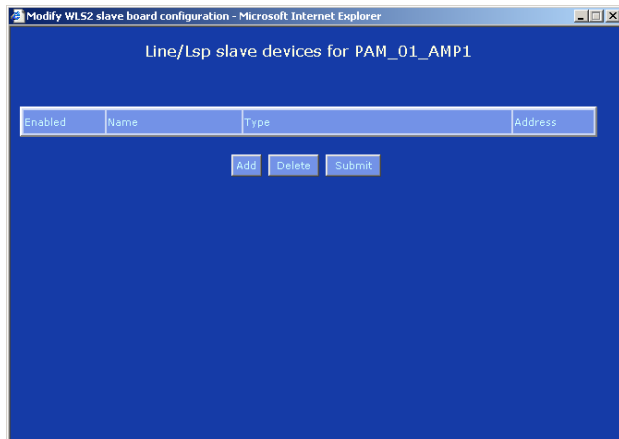


figure 34.13: Add slave device, step 1

- 2 Click the *Add* button to add a new slave device to the audio output. A screen similar to the one in figure 34.14 appears.

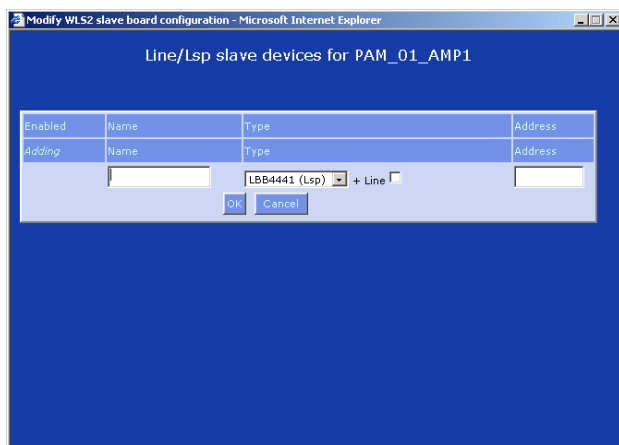


figure 34.14: Add slave device, step 2

- 3 Enter the data of the slave device (see figure 34.15 for an example).

- Enter a name for the slave device in the *Name* field. The name may consist of up to 16 characters.
- Select the type of slave device from the *Type* dropdown list.



Note

When you want to use an LBB4441 to supervise the loudspeaker line as well, it is recommended that you install the LBB4441 in the last loudspeaker in the line. To enable loudspeaker line supervision, put a checkmark in the *Line* box. The LBB4441 will then be polled more often.

- Enter the address that was assigned to the slave device in the *Address* field (see figure 34.15).



Note

It is also possible to add multiple slave devices of the same type at the same time (see section 34.3.5.2).

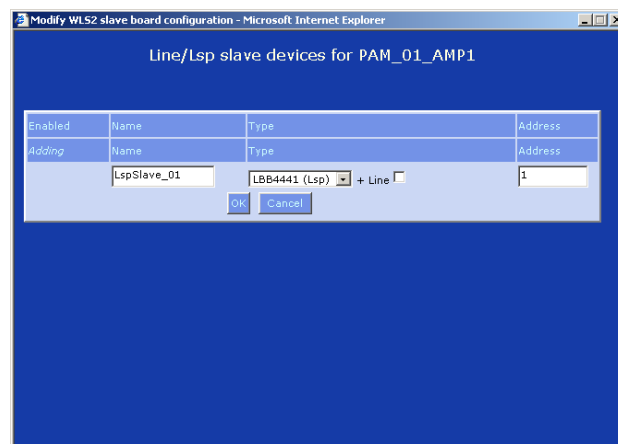


figure 34.15: Add slave device, step 3

- 4 Click the *OK* button to add the slave device to the audio output of the power amplifier. A screen similar to the one in figure 34.16 appears.

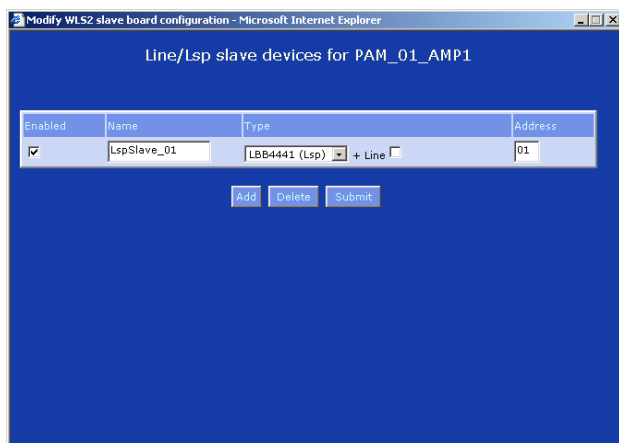


figure 34.16: Add slave device, step 4

- 5 Submit the changes. Note that the changes are not permanent until the configuration is saved (see section 31.4.4 and section 31.4.5).

34.3.5.2 Adding multiple slave devices

Proceed as follows to add multiple slave devices of the same type to an audio output of a power amplifier at the same time:

- 1 Click the *Configure slave devices* button in the *Audio Outputs* category of the applicable power amplifier (see section 34.3.4). A screen similar to the one figure 34.17 appears.

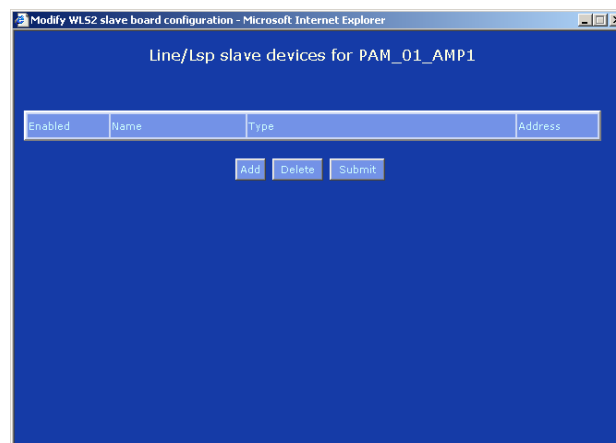


figure 34.17: Add slave device, step 1

- 2 Click the *Add* button to add the slave devices to the audio output. A screen similar to the one in figure 34.18 appears.

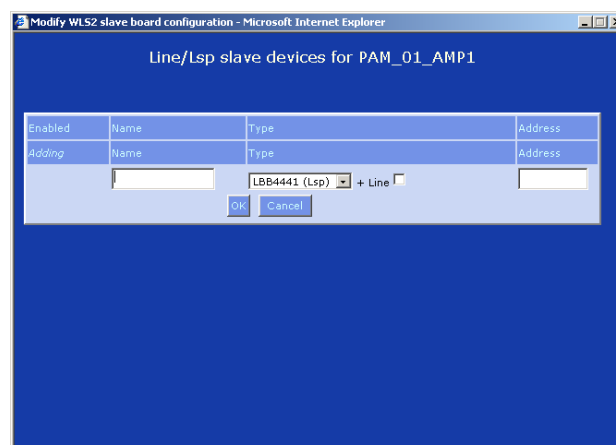


figure 34.18: Add slave device, step 2

- 3 Enter the data of the slave devices (see figure 34.19 for an example):
 - Enter the first part of the names of the slave devices in the *Name* field. This name may consist of up to 13 characters. The configuration software will add a postfix to the names (see figure 34.20).
 - Select the type of slave devices from the *Type* dropdown list.

**Note**

When you want to use an LBB4441 to supervise the loudspeaker line as well, it is recommended that you install the LBB4441 in the last loudspeaker in the line. To enable loudspeaker line supervision, put a checkmark in the *Line* box. The LBB4441 will then be polled more often.

- Enter the address range that was assigned to the slave devices in the *Address* field. The first address and last address must be separated by a dash (-).

Enabled	Name	Type	Address
Adding	LspSlave	LBB4441 (Lsp)	1-6

figure 34.19: Add slave device, step 3

- 4 Click the *OK* button to add the slave devices. A screen similar to the one in figure 34.20 appears.

Enabled	Name	Type	Address
☒	LspSlave_01	LBB4441 (Lsp)	01
☒	LspSlave_02	LBB4441 (Lsp)	02
☒	LspSlave_03	LBB4441 (Lsp)	03
☒	LspSlave_04	LBB4441 (Lsp)	04
☒	LspSlave_05	LBB4441 (Lsp)	05
☒	LspSlave_06	LBB4441 (Lsp)	06

figure 34.20: Add slave device, step 4

- 5 Submit the changes. Note that the changes are not permanent until the configuration is saved (see section 31.4.4 and section 31.4.5).

34.3.6 Control inputs

Power amplifier: PAM_01

- General
- Audio Inputs
- Audio Outputs
- Control Inputs

Input	ID	Act on contact	Supervision	Call activation key
Input 1	PAM_01_CI1	Momentary	Off	Call activation key
Input 2	PAM_01_CI2	Momentary	Off	Call activation key
Input 3	PAM_01_CI3	Momentary	Off	Call activation key
Input 4	PAM_01_CI4	Momentary	Off	Call activation key
Input 5	PAM_01_CI5	Momentary	Off	Call activation key
Input 6	PAM_01_CI6	Momentary	Off	Call activation key
Input 7	PAM_01_CI7	Momentary	Off	Call activation key
Input 8	PAM_01_CI8	Momentary	Off	Call activation key

Control Outputs

Submit

figure 34.21: Configure power amplifier, step 6

The configuration page for power amplifier control inputs is similar to the configuration page for network controller control inputs (see section 34.2.4).

34.3.7 Control outputs

Power amplifier: PAM_01

- General
- Audio Inputs
- Audio Outputs
- Control Inputs
- Control Outputs

Output	ID	Switch output
Output 1	PAM_01_CO1	Switch output
Output 2	PAM_01_CO2	Switch output
Output 3	PAM_01_CO3	Switch output
Output 4	PAM_01_CO4	Switch output

Submit

figure 34.22: Configure power amplifier, step 7

The configuration page for power amplifier control outputs is similar to the configuration page for network controller outputs of a network controller (see section 34.2.5).

34.4 Call station

34.4.1 Procedure

Proceed as follows to configure a call station:

- 1 Go to *Configure > Equipment configuration > Call station*. A screen similar to the one in figure 34.23 appears in the main frame of the web interface.

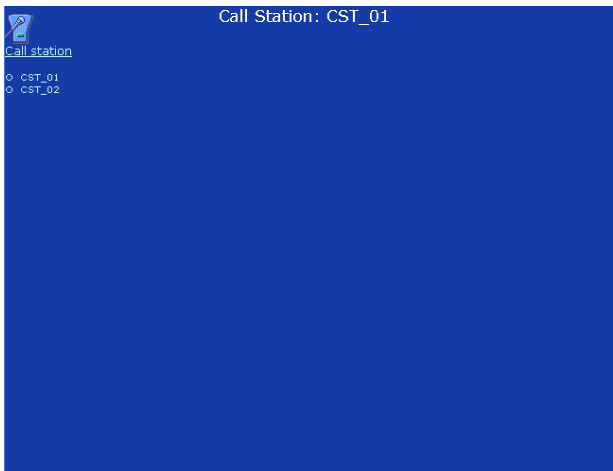


figure 34.23: Configure call station, step 1

- 2 Click the name of the call station that must be configured. A screen similar the one in figure 34.3 appears in the main frame of the web interface.

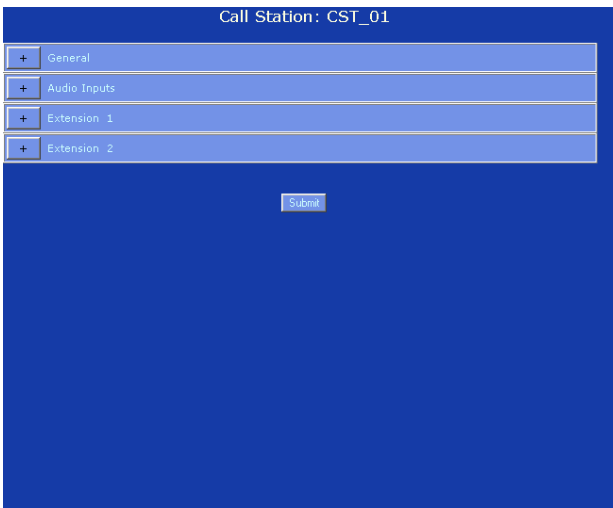


figure 34.24: Configure call station, step 2

- 3 Open the *General* category to configure the general settings of the call station. See section 34.4.2 for information about configuring the general settings of a basic call station (LBB4430/00) and section 34.4.3 for information about configuring the general settings of a call station kit (LBB4433/00).
- 4 Open the *Audio Inputs* category to configure the audio inputs of the call station (see section 34.4.4).
- 5 Open the *Control Inputs* category to configure the control inputs of the call station (see section 34.4.5).



Note

The LBB4430/00 Call Station Basic has no control inputs and therefore no *Control Inputs* category

- 6 Open the *Extension* categories to configure the keypads connected to the call station (see section 34.4.6).
- 7 Submit the changes. Note that the changes are not permanent until the configuration is saved (see section 31.4.4 and section 31.4.5).

34.4.2 General (LBB4430/00)

Call Station: CST_01

General

Class: Normal Partial Call: No

Audio Inputs

Extension 1

Extension 2

Submit

figure 34.25: Configure call station, step 3

table 34.9: General configuration settings (LBB4430/00)

No.	Item	Value	Description
1	Class	Normal Emergency	Sets the type of call station. This is either <i>Normal</i> for normal call stations or <i>Emergency</i> for emergency call stations (see chapter 3).
2	Partial Call	Yes No	Specifies whether partial calls are allowed (<i>Yes</i>) or not (<i>No</i>).

34.4.3 General (LBB4433/00)

figure 34.26: Configure call station, step 3

table 34.10: General configuration settings (LBB4433/00)

No.	Item	Value	Description
1	Class	Normal Emergency	Sets the type of call station. This is either <i>Normal</i> for normal call stations or <i>Emergency</i> for emergency call stations (see chapter 3).
2	Partial Call	Yes No	Specifies whether partial calls are allowed (<i>Yes</i>) or not (<i>No</i>).
3	Network power	Yes No	Specifies whether the call station is powered by the network or not.
4	Backup power	Yes No	Specifies whether the call station has a backup power supply (<i>Yes</i>) or not (<i>No</i>)



Note

Setting *Backup power* to *No* when back-up power is used, results in a system that does not detect back-up power failures.

34.4.4 Audio inputs

figure 34.27: Configure call station, step 4

table 34.11: Audio inputs configuration settings

No.	Item	Value	Description
1	Input		Unique name for the microphone (audio input). The microphone (audio input) can be enabled and disabled using the checkbox.
2	Supervision	On Off	Switches supervision of the microphone on (On) and off (Off).
3	Sensitivity	<u>LBB4430/00:</u> 75 to 90 dB SPL <u>LBB4433/00:</u> -57 to -42 dBV	Sets the maximum input level before limiting. If the input signal is stronger than the specified value, it is limited.

34.4.5 Control inputs (LBB4433)

Call Station: CST_02

+ General

+ Audio Inputs

- Control Input

Input 1: CST_02_DI1, Momentary, Supervision: Off, Call activation key: [dropdown]

Act on contact: Make

Input 2: CST_02_DI2, Momentary, Supervision: Off, Call activation key: [dropdown]

Act on contact: Make

+ Extension 1

+ Extension 2

+ Extension 3

Submit

figure 34.28: Configure call station, step 5

table 34.12: Control inputs configuration settings

No.	Item	Value	Description
1	Input		Unique name for the control input. The input can be enabled and disabled using the checkbox.
2	Behavior	<i>Momentary Toggle</i>	Sets a part of the behavior of ten control input. See chapter 38.
3	<i>Supervision</i>	<i>On</i> <i>Off</i>	Switches supervision of the control input on (<i>On</i>) and off (<i>Off</i>).
4	Action		Sets the action of the control input. See chapter 38.
5	<i>Act on contact</i>	<i>Make</i> <i>Break</i>	Sets a part of the behavior of ten control input. See chapter 38.

34.4.6 Extension (keypad)

Call Station: CST_01

+ General

- Extension 1

Key 1 CST_01_CI1 Momentary Zone selection

Key 2 CST_01_CI2 Momentary Zone selection

Key 3 CST_01_CI3 Momentary Zone selection

Key 4 CST_01_CI4 Momentary Zone selection

Key 5 CST_01_CI5 Momentary Zone selection

Key 6 CST_01_CI6 Momentary Zone selection

Key 7 CST_01_CI7 Momentary Zone selection

Key 8 CST_01_CI8 Momentary Zone selection

+ Extension 2

Subnet

figure 34.29: Configure call station, step 6

table 34.13: Extension (keypad) configuration settings

No.	Item	Value	Description
1	Key		Unique name for the key. The key can be enabled and disabled using the checkbox.
2	Behavior		Sets the behavior of the key. See chapter 38.
3	Action		Sets the action of the key. See chapter 38.

34.5 Audio expander

34.5.1 Procedure

Proceed as follows to configure an audio expander:

- 1 Go to *Configure > Equipment configuration > Audio expander*. A screen similar to the one in figure 34.30 appears in the main frame of the web interface.

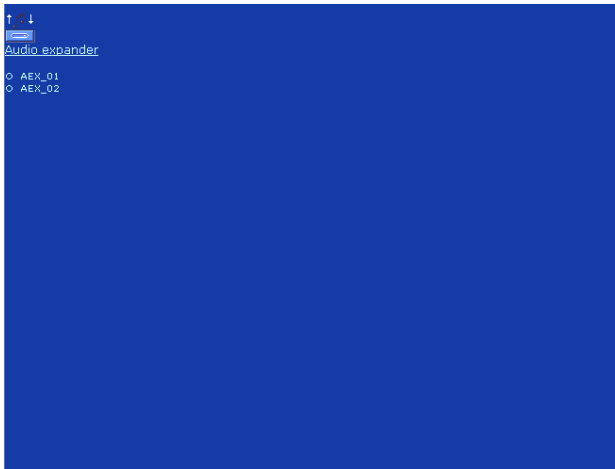


figure 34.30: Configure audio expander, step 1

- 2 Click the name of the audio expander that must be configured. A screen similar the one in figure 34.3 appears in the main frame of the web interface.



figure 34.31: Configure audio expander, step 2

- 3 Open the *Audio inputs* category to configure the audio inputs of the audio expander (see section 34.5.2).
- 4 Open the *Audio outputs* category to configure the audio outputs of the audio expander (see section 34.5.3).

- 5 Open the *Control inputs* category to configure the control inputs of the audio expander (see section 34.5.4).
- 6 Open the *Control outputs* category to configure the control outputs of the audio expander (see section 34.5.5).
- 7 Submit the changes. Note that the changes are not permanent until the configuration is saved (see section 31.4.4 and section 31.4.5).

34.5.2 Audio inputs



figure 34.32: Configure audio expander, step 3

The configuration page for audio expander audio inputs is similar to the configuration page for network controller audio inputs (see section 34.2.2).

34.5.3 Audio outputs

figure 34.33: Configure audio expander, step 4

The configuration page for audio expander audio outputs is similar to the configuration page for network controller audio outputs (see section 34.2.3).

34.5.4 Control inputs

figure 34.34: Configure audio expander, step 5

The configuration page for audio expander control inputs is similar to the configuration page for network controller control inputs (see section 34.2.4).

34.5.5 Control outputs

figure 34.35: Configure audio expander, step 6

The configuration page for audio expander control outputs is similar to the configuration page for network controller control outputs (see section 34.2.5).

34.6 Fiber interface

34.6.1 Procedure

Proceed as follows to configure a fiber interface:

- 1 Go to *Configure > Equipment configuration > Fiber interface*. A screen similar to the one in figure 34.36 appears in the main frame of the web interface.



figure 34.36: Configure fiber interface step 1

- 2 Click the name of the fiber interface that must be configured. A screen similar the one in figure 34.37 appears in the main frame of the web interface.

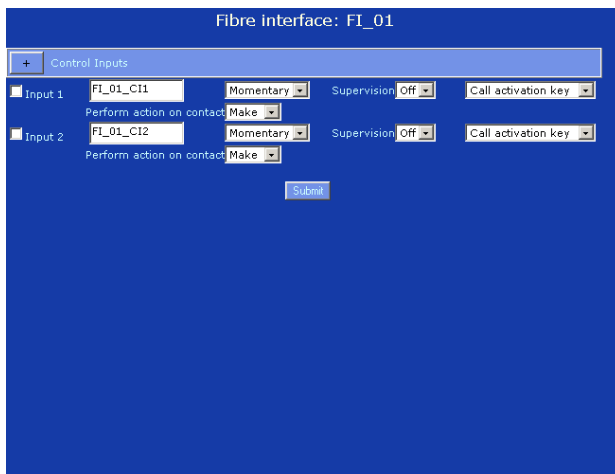


figure 34.37: Configure fiber interface, step 2

- 3 Configure the control inputs of the fiber interface (see section 34.6.2).
- 4 Submit the changes. Note that the changes are not permanent until the configuration is saved (see section 31.4.4 and 31.4.5).

34.6.2 Control inputs

The configuration page for fiber interface control inputs is similar to the configuration page for network controller control inputs (see section 34.2.4).

34.7 CobraNet interface

Proceed as follows to configure a CobraNet interface:

- 1 Go to *Configure > Equipment configuration > Cobranet interface*. A screen similar to the one in figure 34.38 appears in the main frame of the web interface.



figure 34.38: Configure CobraNet interface step 1

- 2 Click the name of the CobraNet interface that must be configured. A screen similar to the one in figure 34.39 appears in the main frame of the web interface.

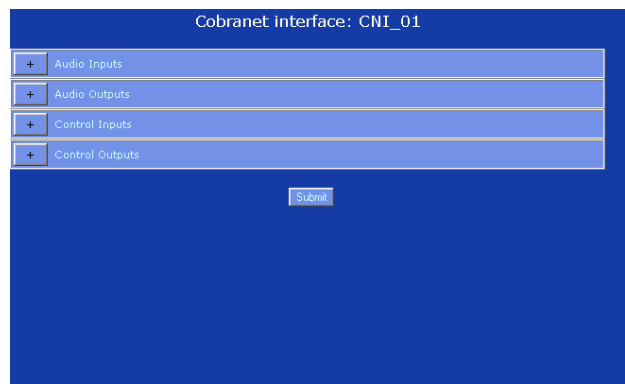


figure 34.39: Configure CobraNet interface step 2

- 3 Open the *Audio inputs* category to configure the audio inputs of the CobraNet interface (see section 34.7.1).
- 4 Open the *Audio outputs* category to configure the audio outputs of the CobraNet interface (see section 34.7.2).

- 5 Open the *Control inputs* category to configure the control inputs of the CobraNet interface (see section 34.7.3).
- 6 Open the *Control outputs* category to configure the control outputs of the CobraNet interface (see section 34.7.4).
- 7 Submit the changes. Note that the changes are not permanent until the configuration is saved (see section 31.4.4 and section 31.4.5).

34.7.1 Audio inputs

The screenshot shows the 'Cobranet interface: CNI_01' configuration page. The 'Audio Inputs' section is expanded, showing four input slots. Each slot has a name field (CNI_01_A11, CNI_01_A12, CNI_01_A13, CNI_01_A14) and a 'Submit' button at the bottom right.

figure 34.40: Configure CobraNet interface step 3

Enter unique names for the audio inputs in the available text boxes.

34.7.2 Audio outputs

The screenshot shows the 'Cobranet interface: CNI_01' configuration page. The 'Audio Outputs' section is expanded, showing four output slots. Each slot has a name field (CNI_01_AO1, CNI_01_AO2, CNI_01_AO3, CNI_01_AO4) and a 'Submit' button at the bottom right.

figure 34.41: Configure CobraNet interface step 4

Enter unique names for the audio outputs in the available text boxes.

34.7.3 Control inputs

The screenshot shows the 'Cobranet interface: CNI_01' configuration page. The 'Control Inputs' section is expanded, showing eight input slots. Each slot has a name field (CNI_01_CI1 to CNI_01_CI8), a 'Perform action on contact' dropdown (all set to 'Momentary'), a 'Supervision' dropdown (all set to 'Off'), and a 'Call activation key' dropdown (all set to 'Call activation key'). A 'Submit' button is at the bottom right.

figure 34.42: Configure CobraNet interface step 5

The configuration page for CobraNet interface control inputs is similar to the configuration page for network controller control outputs (see section 34.2.4).

34.7.4 Control outputs

The screenshot shows the 'Cobranet interface: CNI_01' configuration page. The 'Control Outputs' section is expanded, showing five output slots. Each slot has a name field (CNI_01_CO1 to CNI_01_CO5) and a 'Switch output' dropdown. A 'Submit' button is at the bottom right.

figure 34.43: Configure CobraNet interface step 6

The configuration page for CobraNet interface control outputs is similar to the configuration page for network controller control outputs (see section 34.2.5).

35 System wide settings

35.1 Introduction

On the *System wide settings* pages, a number of general, system wide settings can be configured. It is possible to:

- Register recorded messages (see section 35.2).
- Specify system settings (see section 35.4).

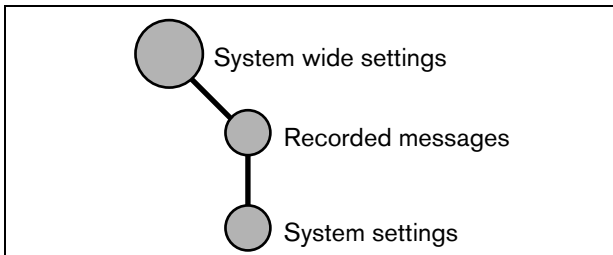


figure 35.1: System wide settings pages

35.2 Recorded messages

35.2.1 Introduction

On the *Recorded messages* page, WAV files (audio files) that have been transferred from the configuration PC to the network controller in the form of a message set, can be registered. See section 35.3 for information about creating and transferring messages sets.

35.2.2 Register a recorded message

Proceed as follows to register a recorded message:

- 1 Go to *Configure > System wide settings > Recorded messages*. A screen similar to the one in figure 35.2 appears in the main frame of the web interface.

figure 35.2: Register message, step 1

- 2 Click the *Add* button to add a recorded message. A screen similar to the one in figure 35.3 appears in the main frame of the web interface.

figure 35.3: Register message, step 2

- 3 Enter the name of the WAV file in the message set in the *Name* field (see figure 35.4 for an example).
 - The name must be exactly the same as the name of the WAV file (including upper- and lowercase characters). It may consist of up to 16 characters.
 - The extension *.wav* must be omitted.

figure 35.4: Register message, step 3

- 4 Click the *OK* button to add the recorded message to the list of registered recorded messages. A screen similar to the one in figure 35.5 appears in the main frame of the web interface.

Name
Evacuation
Fire
Welcome
Closing

Add Delete Submit

figure 35.5: Register message, step 4

- 5 Submit the changes. Note that the changes are not permanent until the configuration is saved (see section 31.4.4 and 31.4.5).

35.2.3 Unregister a recorded message

Proceed as follows to unregister a recorded message:

- 1 Go to *Configure > System wide settings > Recorded messages* to open the *Recorded messages* page. A screen similar to the one in figure 35.6 appears in the main frame of the web interface.

Name
Evacuation
Fire
Welcome
Closing

Add Delete Submit

figure 35.6: Unregister a message, step 1

- 2 Click anywhere in the row of the recorded message that has to be deleted. The entire row becomes highlighted (see figure 35.7).

Name
Evacuation
Welcome
Closing
Fire

Add Delete Submit

figure 35.7: Unregister message, step 2

- 3 Click the *Delete* button. A pop-up window asks to confirm this choice.
- 4 Click the *OK* button to confirm that the message must be deleted from the list. A screen similar to the one in the figure 35.8 appears in the main frame of the web interface.

Name
Evacuation
Welcome
Closing

Add Delete Submit

figure 35.8: Register message, step 4

- 5 Submit the changes. Note that the changes are not permanent until the configuration is saved (see section 31.4.4 and 31.4.5).

35.3 Message sets

35.3.1 Introduction

Message sets are files that consist of one or more mono, 16 bit, 44.1 kHz WAV (audio) files. Message set files are used to store WAV files at the compact flash card inside the network controller. The message sets can be created on a PC (see section 35.3.2) and transferred to the network controller (see section 35.3.3) using the *File Transfer* application.

A stored message set can hold up to 1024 messages. The system can play up to four messages in the set simultaneously, as part of a call. All of these calls may use the same message, if required, time-shifted or not.

35.3.2 Creating a message set

Proceed as follows to create a message set:

- 1 Go to *Start > Programs > Praesideo > FT Application* to start the Praesideo *File Transfer* application.
- 2 In the *File Transfer* Application, click the *Message Sets* button. A screen similar to the one in figure 35.9 appears.
- 3 Click the *New* radio button.



Note

Using the *Message set mode* radio buttons, the message set screen of the *File Transfer* application can also be put in the *View* mode (for viewing existing message sets) or *Edit* (for editing existing message sets; only possible when connected to the network controller).

- 4 Browse to the WAV file that has to be added to the message set and select it.
- 5 Click the *>* button to add the WAV file to the message set.
- 6 Repeat steps 4 and 5 to add additional WAV files to the message set. The *Up* and *Down* buttons can be used to change the order of the messages in the set.
- 7 Enter a name for the message set in the *Message Set* field.
- 8 Click the *Save Message Set as* button to save the message set on the configuration PC. The message set has been created. For instruction about transferring the message set to the network controller, see section 35.3.3.

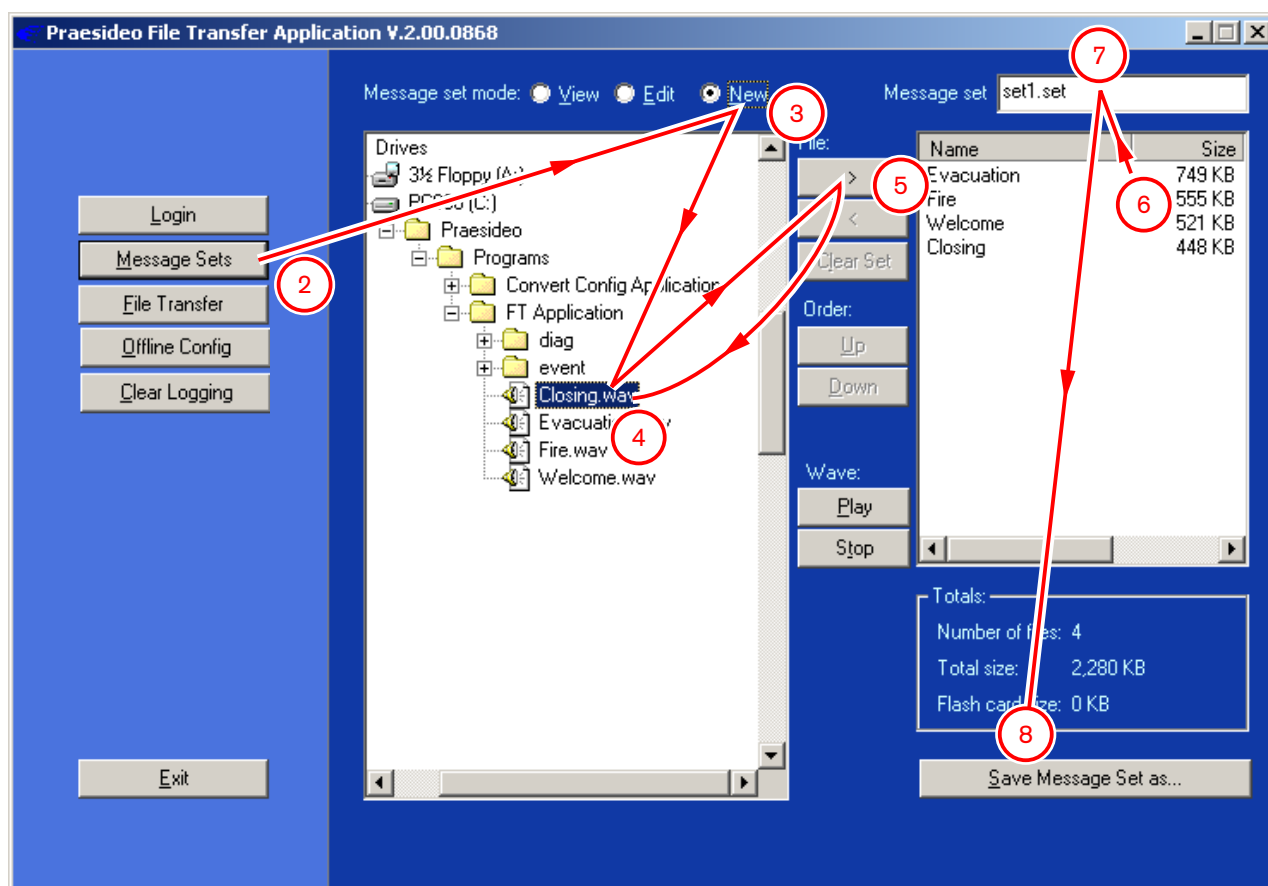


figure 35.9: Creating a message set

35.3.3 Transfer a message set

Proceed as follows to transfer a message:

- 1 In the *File Transfer* application, click the *File Transfer* button. A screen similar to the one in figure 35.10 appears.
- 2 Click the *Message Set* radio button.
- 3 Select the message set file in the *Local PC* box. The file is highlighted and the > button becomes available.
- 4 Click the > button to transfer the file from the PC to the network controller. A screen pops up that provides information about the file transfer progress.
- 5 When the file transfer is complete, the transferred file is visible in the *Network Controller* box.

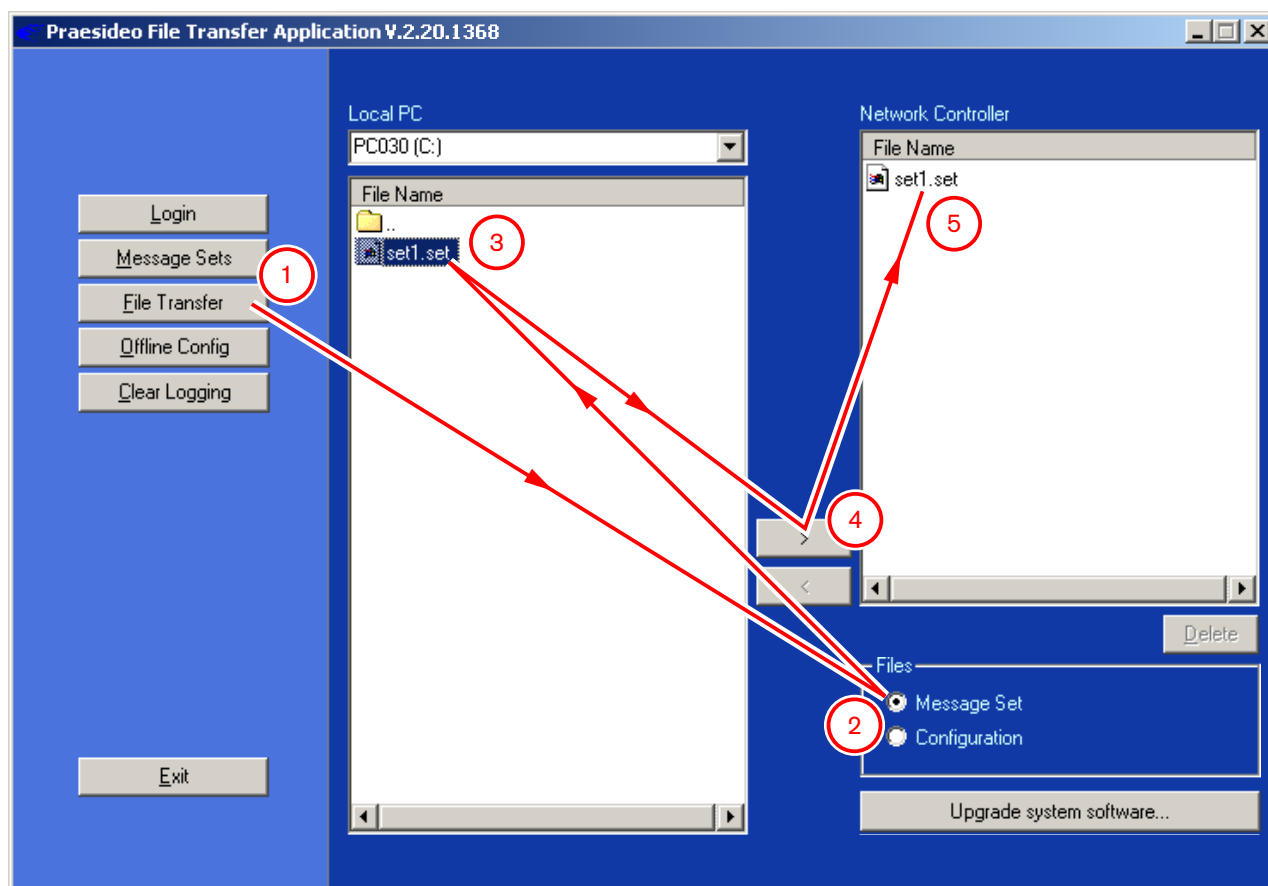


figure 35.10: Transferring a message set



Note

The network controller raises a *Flash card data error*, because the checksum changed. This event is automatically resolved. However, it must be acknowledged and reset manually.

35.4 System settings

A number of general, system wide parameters can be set using the *System wide settings* page (see figure 34.2).

figure 35.11: System settings

- 1 **Redundant ring network** - Specifies whether the Praesideo network forms a redundant ring (*Yes*) or not (*No*). If set to yes, cable breaks are reported.
- 2 **Back-up Power mode: disable calls below priority level** - Calls with a priority lower than the specified priority are disabled if the system is in the backup power mode. Use the *Backup power mode* action to put the system in the backup power mode (see section 38.28).
- 3 **Emergency mode: disable calls below priority level** - Calls with a priority lower than the specified priority are disabled if the system is in the emergency mode. The system is automatically put in the emergency mode when an emergency call is started.
- 4 **Message FLASH card available** - Specifies whether the network controller contains a compact flash card (*Yes*) or not (*No*). If set to yes, the availability of the flash card is monitored.
- 5 **Call station: release fault indicator after** - The yellow power/fault LED (see table 13.1) is released after a fault has been acknowledged or after a fault has been reset. It is not necessary to resolve a fault before acknowledging it.

6 **Key timeout** - After this time, the selection that was made using a LBB4432/00 Call Station Keypad or LBB4434/00 Call Station Keypad Kit is automatically cancelled if the selection has not been executed.

7 **Activate new tone set** - Some tones have been adjusted for better system compliance. If a configuration file of version 2.0 or older is used, select *Yes*.

8 **Access permission for non-configured TCP/IP devices** - Specifies whether TCP/IP devices that are not part of the system definition can access the system (*Yes*) or not (*No*). If set to *No*, all TCP/IP devices that access the system must be added to the system definition (see section 33.9).

9 **Loudspeaker line supervision (LBB4440)** - Specifies whether LBB4440 Supervision Control Boards that are used for line supervision (see also section 34.3.5) must report faults immediately (*Immediate report*) or must check again before reporting faults (*Recheck before fault reporting*). When the system must comply to evacuation standards, select *Immediate report* to make sure that faults are reported within 100 s.

36 Zone & amplifier

36.1 Introduction

On the *Zone & amplifier* pages, the zones and amplifiers can be configured. It is possible to:

- Configure zones (see section 34.2).
- Configure zone groups (see section 36.3).
- Assign spare amplifiers to main amplifiers (see section 36.4).
- Configure BGM channels (see section 36.5).

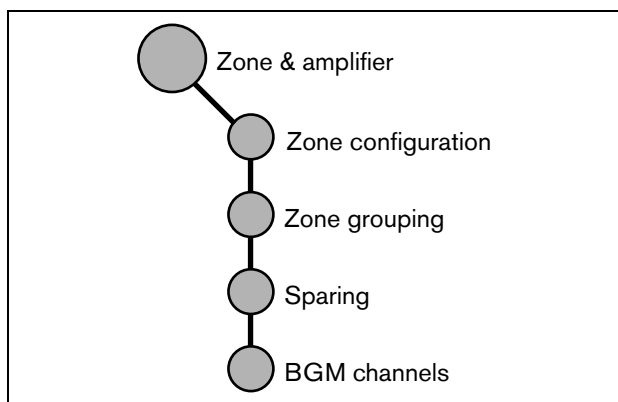


figure 36.1: Zone & amplifier pages

36.2 Zone configuration

36.2.1 Introduction

On the *Zone configuration* page, zones can be built. A zone is a group of audio outputs that, for example, go to the same geographical area. For example, consider an LBB4424/10 Power Amplifier (4 x 125 W) that is part of a Praesideo system on a small airport:

- Audio output 1 (*PAM_01_AMP1*) and audio output 2 (*PAM_01_AMP2*) go to departure hall 1.
- Audio output 3 (*PAM_01_AMP3*) and audio output 4 (*PAM_01_AMP4*) go to departure hall 2.

Then, a zone can be created called *Departure 1* to group the loudspeaker lines that go to departure hall 1 and a zone called *Departure 2* to group the loudspeaker lines that go to departure hall 2.



Note

An audio output cannot be part of more than one zone. After an audio output has been assigned to a zone, it is not allowed to assign the audio output to another zone (group).

To control external devices during the audio phase of a call, it is possible to include *Zone active* and *Volume override* control outputs in a zone. A *Zone active* control outputs is activated when a call starts and deactivated when a call ends in the zone of which it is part. A *Volume override* control output performs the same action for calls with priority 32 or higher.



Note

A control output cannot be part of more than one zone. After a control output has been assigned to a zone, it is not allowed to assign the control output to another zone.

36.2.2 Overview

The *Zone configuration* page (see figure 36.2) contains the following:

- 1 **Name** - Shows the name of the zone
- 2 **Available outputs** - Shows the available audio outputs. Use the dropdown list to choose the types of outputs that are shown.
- 3 **Assigned outputs** - Shows the outputs assigned to the zone shown in (1).
- 4 **Add/Delete buttons** - Using the > button, outputs selected in (2) can be added to (3). The < button removes outputs selected in (3) from (3).
- 5 **Volume settings** - Open the *Volume settings* category to configure the volume settings of the zone (see section 36.2.4).
- 6 **AVC settings** - Open the *AVC settings* category to configure the AVC settings of the zone (see chapter 40).
- 7 **Add** - Using this button a new zone can be added to the system configuration.
- 8 **Delete** - Using this button an existing zone can be deleted from the system configuration.
- 9 **Submit** - Using this button changes are submitted to the network controller.

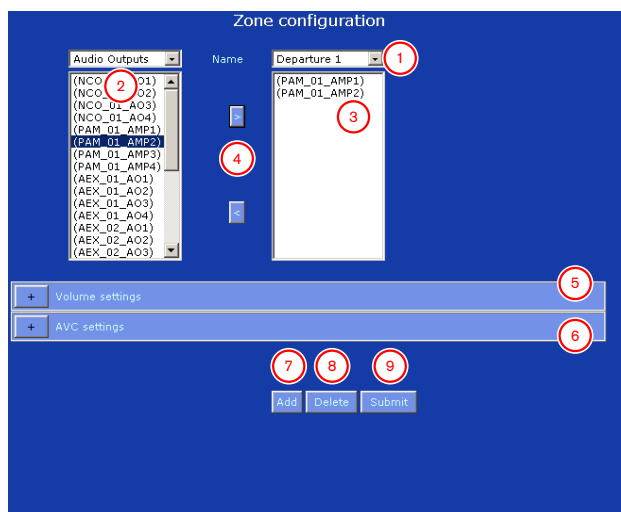


figure 36.2: Zone configuration, overview

36.2.3 Create a zone

Proceed as follows to create a new zone:

- 1 Go to *Configure > Zone & amplifier > Zone configuration*. A screen similar to the one in figure 36.3 appears in the main frame of the web interface.

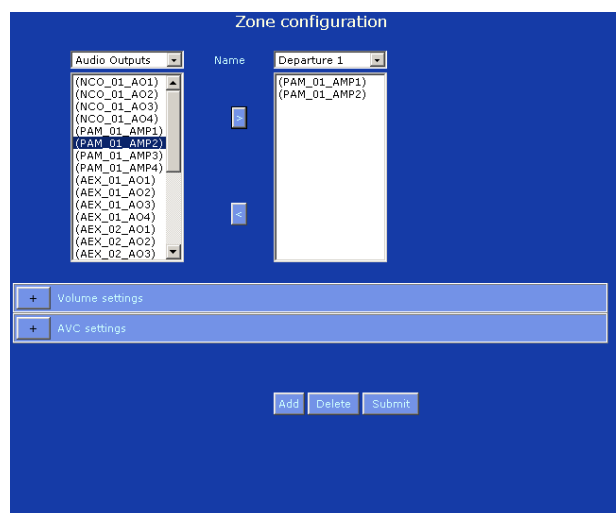


figure 36.3: Add zone, step 1

- 2 Click the *Add* button. A screen similar to the one in figure 36.4 appears in the main frame of the web interface.

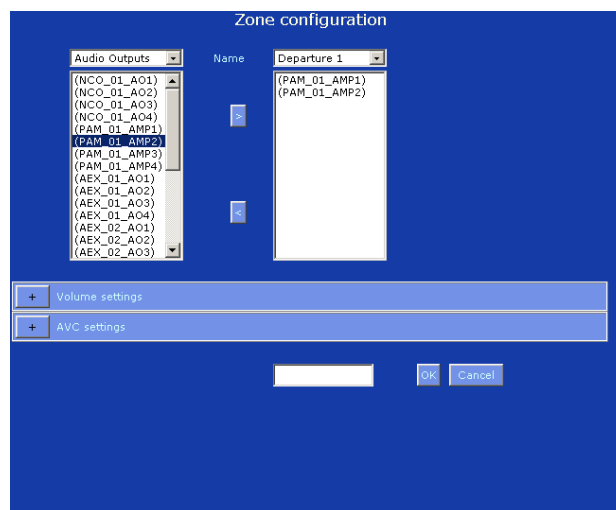


figure 36.4: Add zone, step 2

- 3 Enter a name for the new zone in the textbox at the bottom of the page. For example, *Departure 2* (see figure 36.5). It may consist of up to 16 characters.

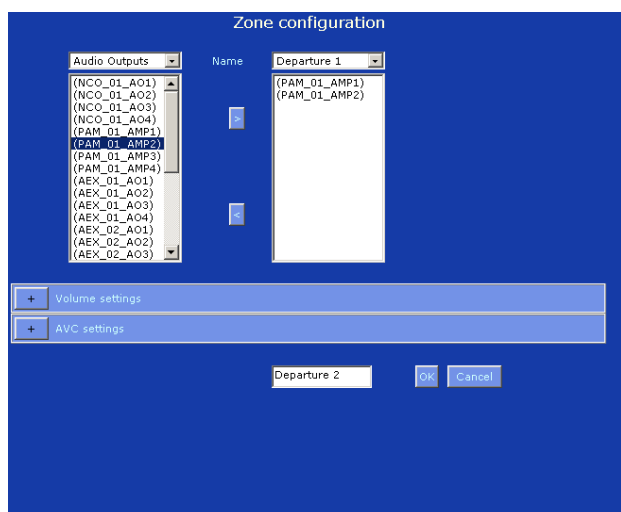


figure 36.5: Add zone, step 3

- 5 Select the output that must be added to the zone from the left box. For example, *PAM_01_AMP3* (see figure 36.7).

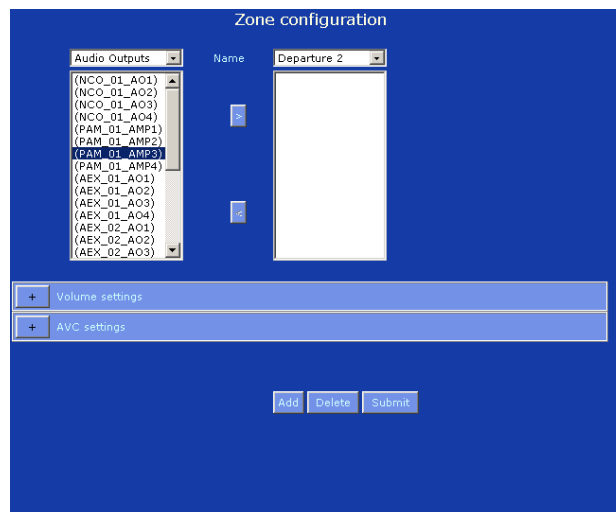


figure 36.7: Add zone, step 5

- 4 Click the *OK* button. A screen similar to the one in figure 36.6 appears in the main frame of web interface.

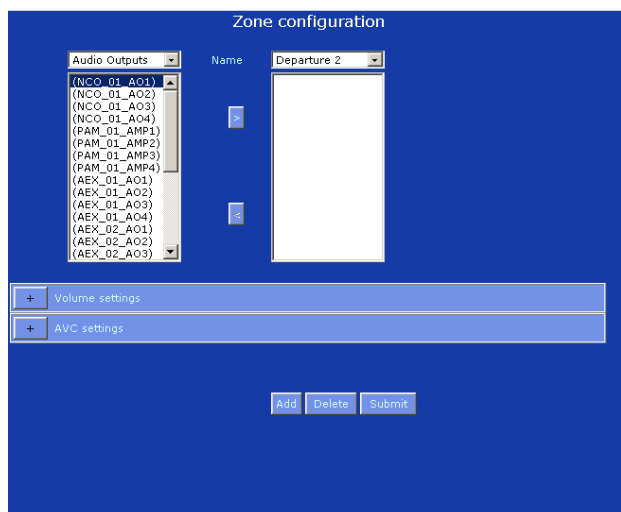


figure 36.6: Add zone, step 4

- 6 Double click the selected output or click the > button to add the output to the zone. A screen similar to the one in figure 36.8 appears in the main frame of the web interface.

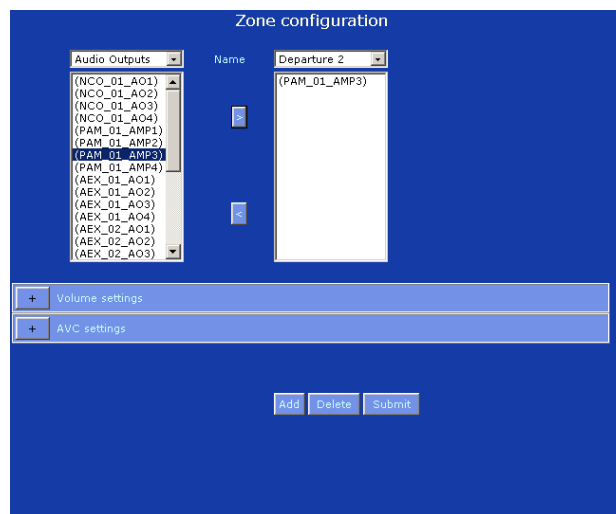


figure 36.8: Add zone, step 6

- 7 Repeat steps 5 and 6 to add additional outputs to the zone. See figure 36.9 for an example of an end result.

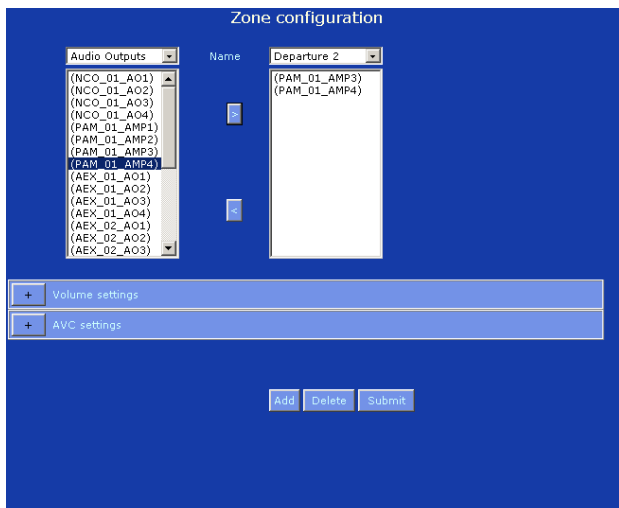


figure 36.9: Add zone, step 7

- 8 Open the *Volume settings* category to do the volume settings (see section 36.2.4).
- 9 Open the *AVC settings* category to do the AVC settings (see chapter 40).
- 10 Submit the changes. Note that the changes are not permanent until the configuration is saved (see section 31.4.4 and section 31.4.5).

36.2.4 Volume settings

In the *Volume settings* category (see figure 36.10) of the zone configuration page, it is possible to schedule BGM volume attenuation (*scheduled BGM volume adjustment*) and call volume attenuation (*scheduled call volume adjustment*).

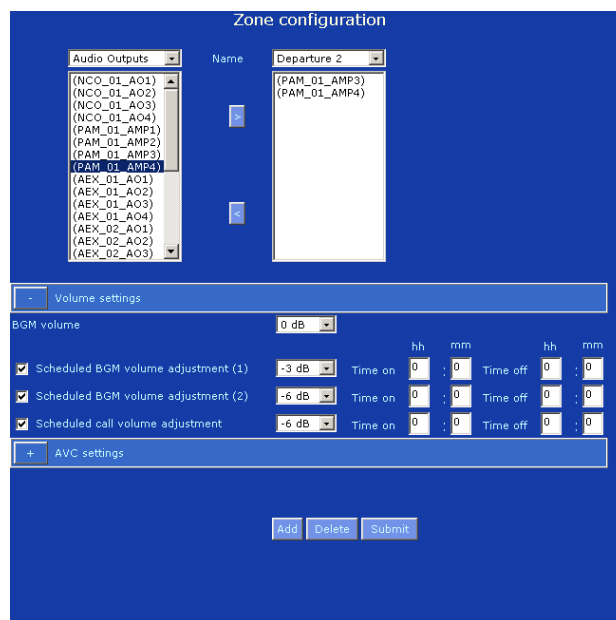


figure 36.10: Volume settings

36.2.5 Delete a zone

Proceed as follows to delete a zone:

- 1 Go to *Configure > Zone & Amplifier > Zone configuration*. A screen similar to the one in figure 36.11 appears.

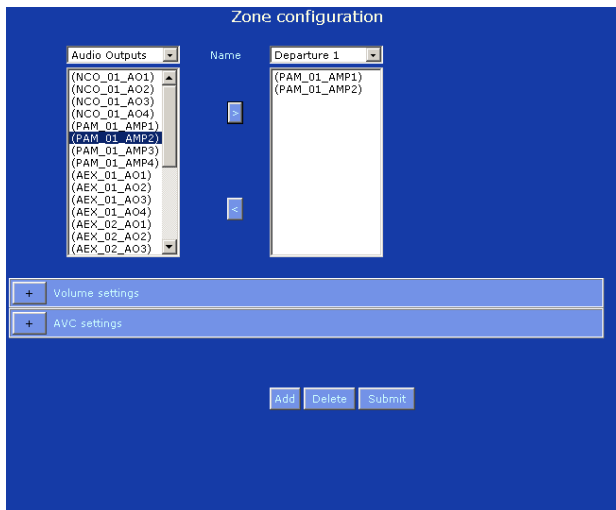


figure 36.11: Delete a zone, step 1

- 2 Select the zone that must be deleted from the *Name* dropdown list. For example, *Departure 2* (see figure 36.12)

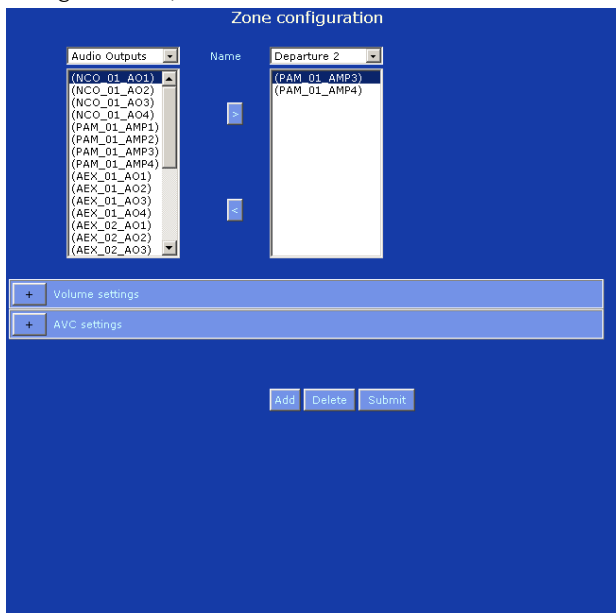


figure 36.12: Delete zone, step 2

- 3 Click the *Delete* button to delete the zone. A pop-up window asks to confirm this choice.
- 4 Click the *OK* button to confirm that the zone has to be deleted. A screen similar to the one in figure 36.13 appears. The deleted zone is no longer available in the *Name* dropdown list.

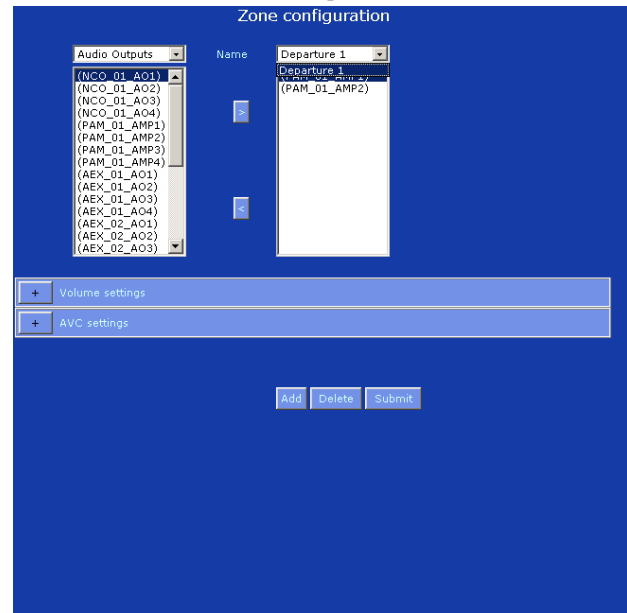


figure 36.13: Delete zone, step 4

- 5 Submit the changes. Note that the changes are not permanent until the configuration is saved (see section 31.4.4 and section 31.4.5).

36.3 Zone Grouping

36.3.1 Introduction

On the *Zone grouping* page, zone groups can be built. A zone group is a group of zones that, for example, go to the same geographical area.

For example, Consider a small airport with four zones: *Departure 1*, *Departure 2*, *Arrival 1* and *Arrival 2*. The zones *Departure 1* and *Departure 2* contain loudspeaker lines that go to departure hall 1 and departure hall 2 respectively. The zones *Arrival 1* and *Arrival 2* contain loudspeaker lines that go to arrival hall 1 and arrival hall 2 respectively.

Then, a zone group can be created called *Departure Halls* to group the zones that go to the departure halls and a zone group called *Arrival Halls* to group the zones that go to the arrival halls.

36.3.2 Overview

The *Zone grouping* page (see figure 36.14) contains the following:

- 1 **Name** - Shows the name of the zone group.
- 2 **Available zones** - Shows the available audio zones. Zones can be created at the *Zone configuration* page (see section 36.2).
- 3 **Assigned zones** - Shows the zones that have been assigned to the zone group shown in (1)
- 4 **Add/Delete buttons** - Using the > button, zones selected in (2) can be added to (3). The < button removes zones selected in (3) from (3).
- 5 **Add** - Using this button a new zone group can be added to the system.
- 6 **Delete** - Using this button an existing zone group can be deleted from the system.
- 7 **Submit** - Using this button changes are submitted to the network controller.

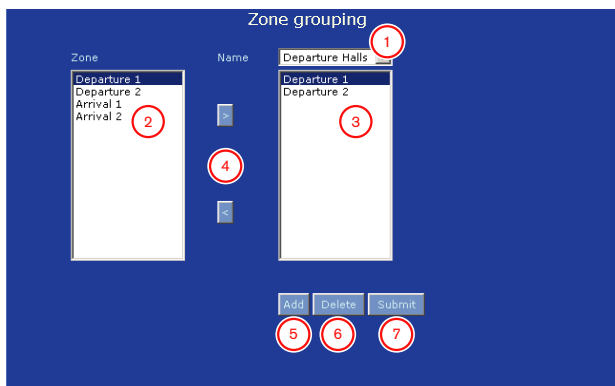


figure 36.14: Zone grouping, overview

36.3.3 Add a zone group

The procedure for creating a zone group is similar to the procedure for creating a zone (see section 36.2.3).

36.3.4 Delete a zone group

The procedure for deleting a zone group is similar to the procedure for deleting a zone (see section 36.2.5).

36.4 Sparing

36.4.1 Introduction

On the *Sparing* page, main amplifiers can be assigned to spare amplifiers. For example, consider a small airport with four LBB4424/10 Power Amplifiers (4 x 125 W). Two of these power amplifiers are main amplifiers (*PAM_01* and *PAM_03*), whereas the other power amplifier are spare amplifiers (*PAM_02* and *PAM_04*). Then, *PAM_04* can be configured as spare amplifier for *PAM_03*.



Note

See section 8.3.4 about connecting spare amplifiers.

36.4.2 Overview

The *Sparing* page (see figure 36.15) contains the following:

- 1 **Name** - Name of the spare amplifier to which a main amplifier must be assigned.
- 2 **Main amplifiers** - List of main amplifiers that can be assigned to a spare amplifier.
- 3 **Spare amplifiers** - List of main amplifiers to which the spare amplifier shown in (1) has been assigned.
- 4 **Add/Delete buttons** - Using the > button, main amplifiers selected in (2) can be added to (3). The < button removes main amplifiers selected in (3) from (3).
- 5 **Submit** - Using this button changes are submitted to the network controller.

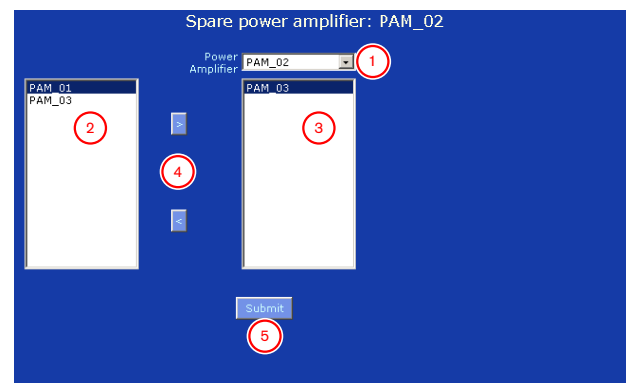


figure 36.15: Sparing, overview

36.4.3 Procedure

Proceed as follows to assign a main amplifier to a spare amplifier:

- 1 Go to *Configure > Zone & amplifier > Sparing*. A screen similar to the one in figure 36.16 appears in the main frame of the web interface.

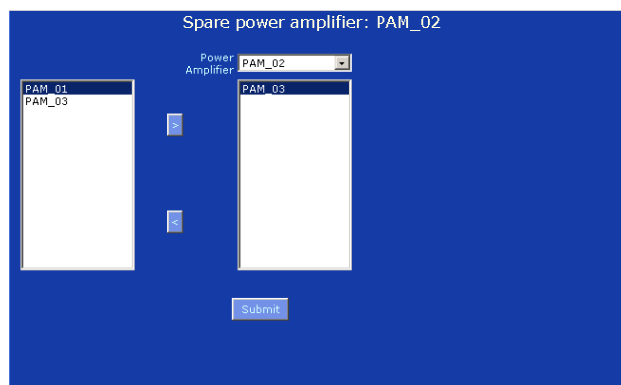


figure 36.16: Sparing, step 1

- 2 Select the spare amplifier to which the main amplifier must be assigned from the *Power Amplifier* dropdown list. For example, *PAM_04* (see figure 36.17).

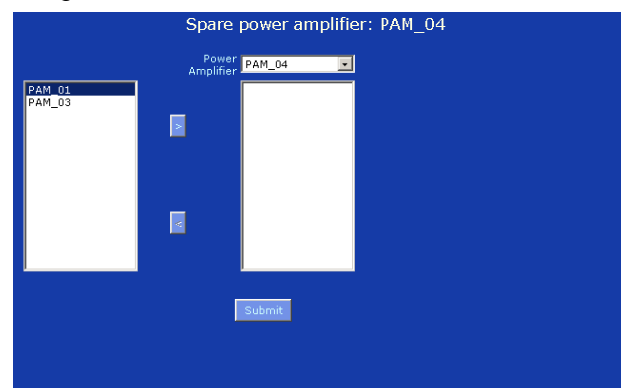


figure 36.17: Sparing, step 2

- 3 Select the main amplifier that must be assigned to the spare amplifier from the left box (see figure 36.18).

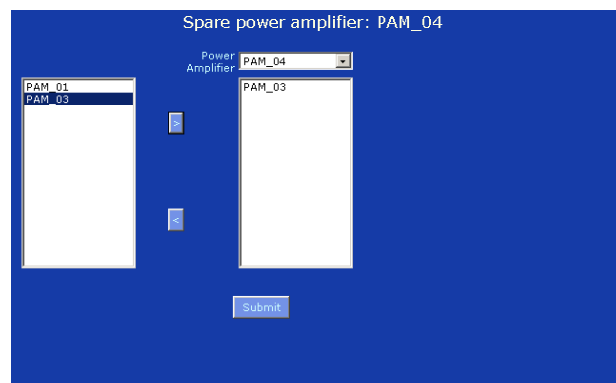


figure 36.18: Sparing, step 3

- 4 Double click the selected main amplifier or click the *>* button to assign the main amplifier to the spare amplifier. A screen similar to the one in figure 36.19 appears in the main frame of the web interface.

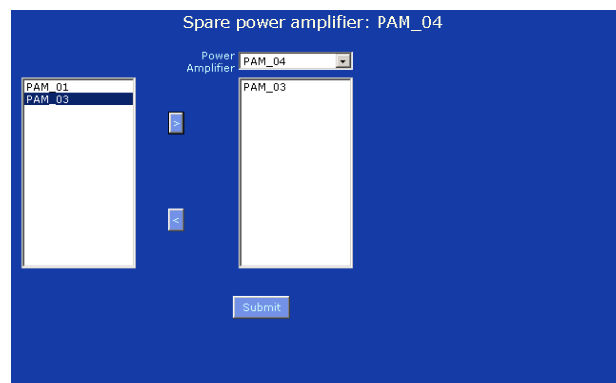


figure 36.19: Sparing, step 4

- 5 Submit the changes. Note that the changes are not permanent until the configuration is saved (see section 31.4.4 and section 31.4.5).

36.5 BGM Channels

36.5.1 Introduction

At the *BGM channels* page, background music (BGM) channels can be built. A BGM channel refers to an audio input in the system. Optionally, default zones and or default zone groups can be connected to the channel. When the system is switched on, then the specified BGM is routed to the connected zones and zone groups.



Note

When a zone or zone group is already connected to a BGM channel, do not connect another BGM channel to it. Connecting zones and zone groups to multiple BGM channels can cause inconsistencies in the configuration database when the system is switched on. In turn, these inconsistencies can result in unpredictable system behavior. The routing of BGM channels can be changed with call station keypads after the system has started up (see chapter 38).

The maximum number of BGM channels in the system is 28.

36.5.2 Overview

The *BGM channels* page (see figure 36.20) contains the following:

- 1 **Name** - Name of the background music channel.
- 2 **Available outputs** - Shows the available zones and zone groups. Use the dropdown list to choose the type of outputs that are shown.
- 3 **Assigned outputs** - Shows the zones and zone groups that have been assigned to the channel shown in (1).
- 4 **Add/Delete buttons** - Using the > button, outputs selected in (2) can be added to (3). The < button removes outputs selected in (3) from (3).
- 5 **Audio input** - Sets the audio input that provides the background music.
- 6 **Add** - Using this button a new zone group can be added to the system.
- 7 **Delete** - Using this button an existing zone group can be deleted from the system.

- 8 **Submit** - Using this button changes are submitted to the network controller.

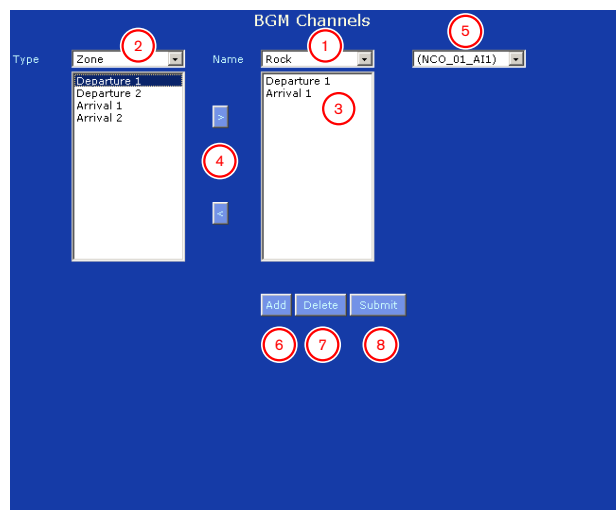


figure 36.20: BGM channels, overview

36.5.3 Add a BGM channel

The procedure for creating a BGM channel is similar to the procedure for creating a zone (see section 36.2.3).

36.5.4 Delete a BGM Channel

The procedure for deleting a BGM channel is similar to deleting a zone (see section 36.2.5).

37 Call characteristics

37.1 Introduction

Using the *Call characteristics* pages, call macros can be defined (see section 34.2).

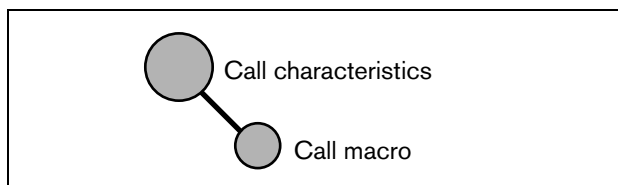


figure 37.1: Call characteristics pages

37.2 Call macro

37.2.1 Introduction

On the *Call macro* page, call macros can be defined. Call macros are used to make calls.

37.2.2 Create a call macro

Proceed as follows to create a new call macro:

- 1 Go to *Configure > Call characteristics > Call macro*. A screen similar to the one in figure 37.2 appears in the main frame of the web interface.

figure 37.2: Add call macro, step 1

- 2 Click the *Add* button to add a new call macro. A screen similar to the one in figure 37.3 appears in the main frame of the web interface.

figure 37.3: Add call macro, step 2

- 3 Enter the name of the new call macro in the *Name* field (see figure 37.4 for an example). It may consist of up to 16 characters.

figure 37.4: Add call macro, step 3

- 4 Click the *OK* button to add the call macro to the list of call macros in the system. A screen similar to the one in figure 37.5 appears in the main frame of the web interface.

figure 37.5: Add call macro, step 4

- 5 Configure the contents of the call macro (see figure 37.6 for an example):

- If the call must use a start chime, select a chime from the *Start Chime* dropdown list. See appendix A for a list of available tones and chimes.
- If the call must contain recorded messages, select them in the left box and click the > button to add them to the *Messages* box of the call macro. Use the *Repetitions* box to specify how many times the recorded messages must be repeated. See section 35.2 for information about recorded messages.
- If the call must contain live speech, set the *Live speech* option to *Yes*. If the call does not contain live speech, set it to *No*.
- If the call must use an end chime, select a chime from the *End Chime* dropdown list. See appendix A for a list of available tones and chimes.
- If *Live speech* is set to *Yes*, use the *Audio input* list to specify the input that must be inserted. Select *Default* if the live speech is originating from a call station.

figure 37.6: Add a call macro, step 5

- 6 Submit the changes. Note that the changes are not permanent until the configuration is saved (see section 31.4.4 and section 31.4.5).

37.2.3 Delete a call macro

Proceed as follows to delete a call macro:

- 1 Go to *Configure > Call characteristics > Call macro* to open the *Call macro* page. A screen similar to the one in figure 37.7 appears in the main frame of the web interface.

figure 37.7: Delete call macro, step 1

- 2 Select the call macro that has to be deleted from the *Name* dropdown list. See figure 37.8 for an example.

figure 37.8: Delete call macro, step 2

- 3 Click the *Delete* button to delete the call macro. A pop-up window asks to confirm this choice.

- 4 Click the *OK* button to confirm that the call macro must be deleted. A screen similar to figure 37.9 appears in the main frame of the web interface. The deleted call macro is no longer available from the *Name* dropdown list.

figure 37.9: Delete call macro, step 4

- 5 Submit the changes. Note that the changes are not permanent until the configuration is saved (see section 31.4.4 and section 31.4.5).

38 Action programming

38.1 Introduction

On the *Action programming* pages, the keys of the keypads and the control inputs can be configured. The process of configuring a key or control input consists of two steps:

- 1 Assigning a behavior (see section 38.2).
- 2 Assigning an action (see section 38.3).

38.2 Behavior

38.2.1 Introduction

The behavior specifies how the control input deals with incoming signals or how the key reacts when it is pressed. The following behaviors are available:

- Momentary on break or make (see section 38.2.2).
- Toggle on break or make (see section 38.2.3).



Note

The behavior must be defined on the *Equipment configuration* pages (see chapter 34).

38.2.2 Momentary

If the behavior is momentary, the action coupled to the control input or key is active during the time the external contact is closed (see figure 38.1).

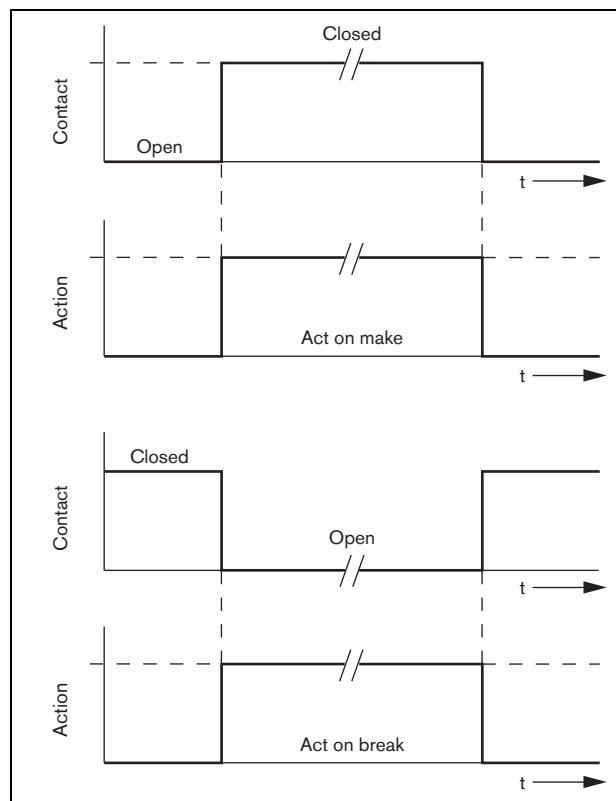


figure 38.1: Momentary behavior

38.2.3 Toggle

If the behavior is toggle, the action coupled to the control input or key is started by a pulse. A second pulse stops the action (see figure 38.2)

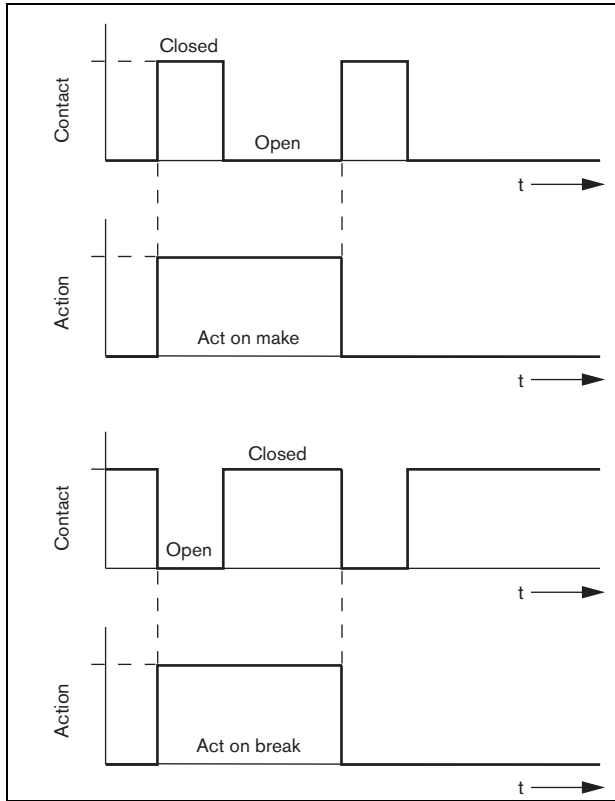


figure 38.2: Toggle behavior (1)

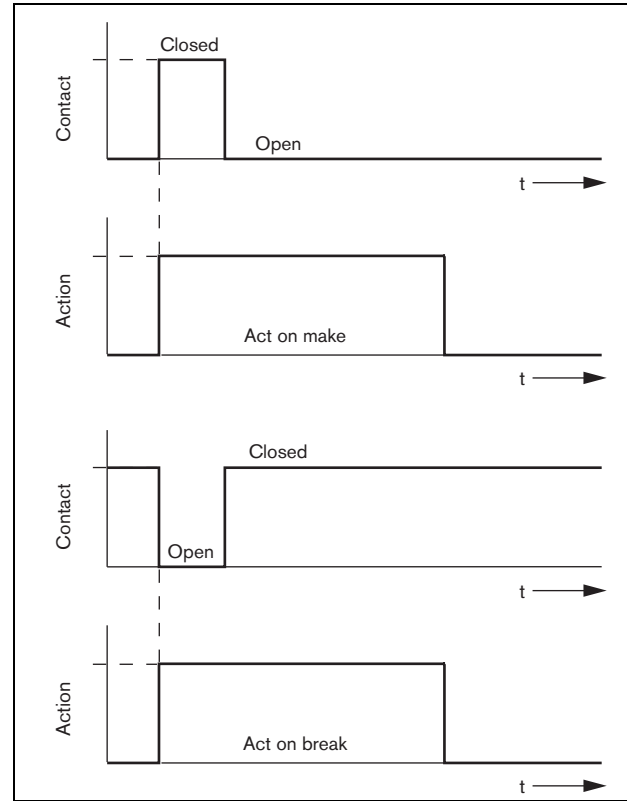


figure 38.3: Toggle behavior (2)

38.3 Actions

The action determines which action is triggered if the control input or key becomes active. The following actions are available:

- *Zone selection* (see section 38.4)
- *Call macro* (see section 38.5)
- *Tones* (see section 38.6)
- *Priority* (see section 38.7)
- *Recorded message* (see section 38.8)
- *Call activation key* (see section 38.9)
- *PTT* (Press-to-talk, see section 38.10)
- *Cancel selection* (see section 38.11)
- *Recall* (see section 38.12)
- *BGM source* (see section 38.13)
- *BGM volume control* (see section 38.14)
- *Acknowledge/Reset* (see section 38.15)
- *Fault input* (see section 38.16)
- *Zone emergency status* (see section 38.17)
- *Zone priority status* (see section 38.18)
- *Synchronize time* (see section 38.19)
- *Switch trigger* (see section 38.20)
- *Switch output* (see section 38.21)
- *Zone active output* (see section 38.22)
- *Volume override output* (see section 38.23)
- *BGM on/off* (see section 38.24)
- *Local BGM on/off* (see section 38.25)
- *Local BGM source* (see section 38.26)
- *Local BGM volume control* (see section 38.27)
- *Backup power mode* (see section 38.28).



Note

The *Action programming* pages for a call station basic or call station toolkit always contain a *General* section and up to 16 *Extension* sections. In the *General* section, the properties of the PTT key of the call station can be defined. This key always has been assigned the *Press-to-talk* (PTT) action.

38.4 Zone selection

38.4.1 Introduction

Using a *Zone selection* key one or more zones and/or one or more zone groups can be selected. See figure 38.4 for an overview of the *Action programming* page for a *Zone selection* key.

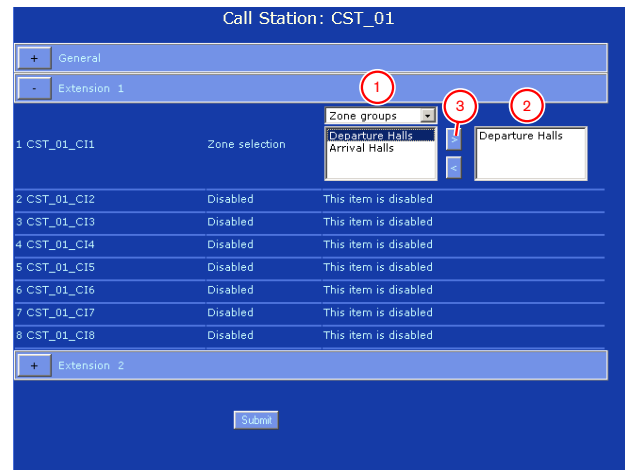


figure 38.4: Zone selection, overview

- 1 **Available outputs** - Shows the available zones, zone groups and control outputs. Use the dropdown list to choose the type of outputs that are shown.
- 2 **Assigned outputs** - Shows the outputs that have been assigned to the key.
- 3 **Add/Remove buttons** - Using the > button, outputs selected in (1) can be added to (2). The < button removes outputs selected in (2) from (2).



Note

For information about creating zones and zone groups, see section 36.2.

38.4.2 Programming

Proceed as follows to configure a *Zone selection* key:

- 1 Go to *Configure > Action programming > Call station*. A screen similar to the one in figure 38.5 appears in the main frame of the web interface.

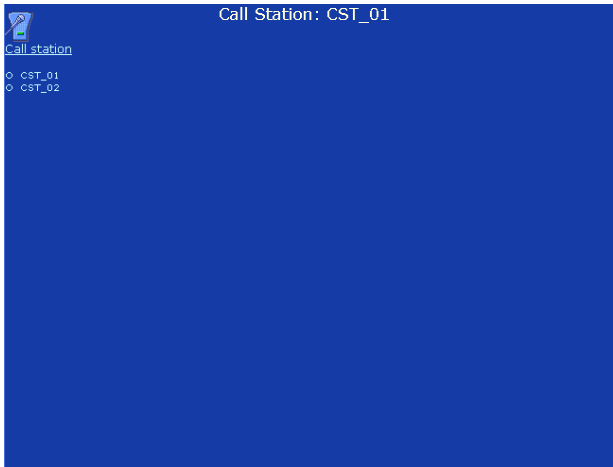


figure 38.5: Zone selection, step 1

- 2 Click the name of the call station to which the keypad of which the key that must be configured has been connected. A screen similar to the one in figure 38.6 appears in the main frame of the web interface.

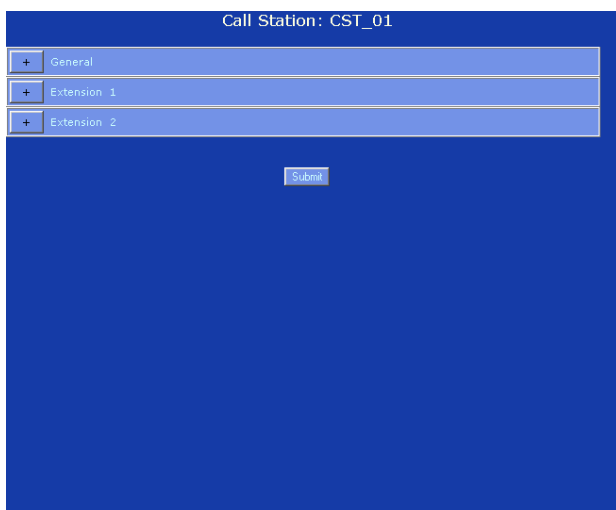


figure 38.6: Zone selection, step 2

- 3 Click the *Extension* that contains the key that must be configured. A screen similar to the one in figure 38.7 appears in the main frame of the web interface.

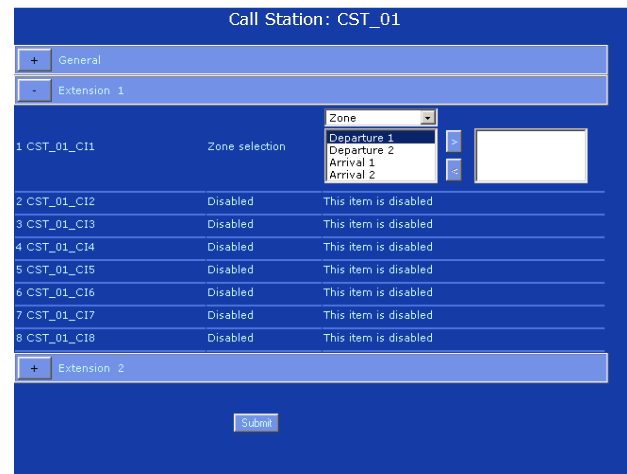


figure 38.7: Zone selection, step 3

- 4 Select the zone (group) or control output that must be selected by the key from the left box and click the *>* button to add the zone (group) to the key. See figure 38.8 for an example.

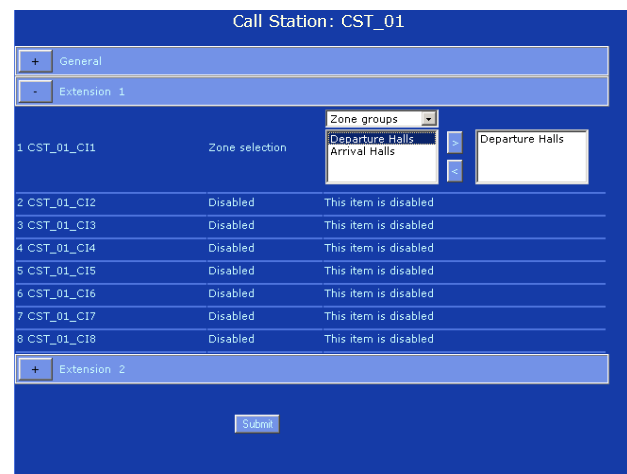


figure 38.8: Zone selection, step 4

- 5 Repeat step 4 to add additional zones, zone groups or control outputs to the key.
- 6 Submit the changes. The changes are not permanent until the configuration is saved (see section 31.4.4 and section 31.4.5).

38.5 Call macro

Using a *Call macro* key, a call macro can be selected. See figure 38.9 for an overview of the *Action programming* page for a *Call macro* key.

Call Station: CST_01		
+ General		
- Extension 1		
1 CST_01_CI1	Call Macro	Closing
2 CST_01_CI2	Disabled	This item is disabled
3 CST_01_CI3	Disabled	This item is disabled
4 CST_01_CI4	Disabled	This item is disabled
5 CST_01_CI5	Disabled	This item is disabled
6 CST_01_CI6	Disabled	This item is disabled
7 CST_01_CI7	Disabled	This item is disabled
8 CST_01_CI8	Disabled	This item is disabled
+ Extension 2		
Submit		

figure 38.9: Call macro key

To configure a *Call macro* key, choose the call macro that must be assigned to the key from the dropdown list.



Note

Do not forget to submit the changes. The changes are not permanent until the configuration is saved (see section 31.4.4 and section 31.4.5).



Note

For information about creating call macros, see section 37.2.

38.6 Tones

Using a *Tones* key, a tone can be selected. See figure 38.10 for an overview of the *Action programming* page for a *Tones* key.

Call Station: CST_01		
+ General		
- Extension 1		
1 CST_01_CI1	Tones	1-tone chime Start tone
2 CST_01_CI2	Disabled	This item is disabled
3 CST_01_CI3	Disabled	This item is disabled
4 CST_01_CI4	Disabled	This item is disabled
5 CST_01_CI5	Disabled	This item is disabled
6 CST_01_CI6	Disabled	This item is disabled
7 CST_01_CI7	Disabled	This item is disabled
8 CST_01_CI8	Disabled	This item is disabled
+ Extension 2		
Submit		

figure 38.10: Tones key

To configure a *Tones* key, choose the tone from the left dropdown list and use the right dropdown list to specify whether the selected tone is an start tone (*Start tone*) or an end tone (*End tone*).



Note

Do not forget to submit the changes. The changes are not permanent until the configuration is saved (see section 31.4.4 and section 31.4.5).



Note

For information about available tones, see appendix A.

38.7 Priority

Using the *Priority* key, a priority can be selected. See figure 38.11 for an overview of the *Action programming* page for a *Priority* key.

Call Station: CST_01		
+ General		
- Extension 1		
1 CST_01_CI1	Priority	32
2 CST_01_CI2	Disabled	This item is disabled
3 CST_01_CI3	Disabled	This item is disabled
4 CST_01_CI4	Disabled	This item is disabled
5 CST_01_CI5	Disabled	This item is disabled
6 CST_01_CI6	Disabled	This item is disabled
7 CST_01_CI7	Disabled	This item is disabled
8 CST_01_CI8	Disabled	This item is disabled
+ Extension 2		
Submit		

figure 38.11: Priority key

To configure a *Priority* key, choose the priority that must be assigned to the key from the dropdown list. The range of priorities offered depends on the type of call station.

- For normal call stations, the range is 32 to 223.
- For emergency call stations, the range is 32 to 255.



Note

Do not forget to submit the changes. The changes are not permanent until the configuration is saved (see section 31.4.4 and section 31.4.5).

38.8 Recorded message

Using the *Recorded message* action, a recorded message can be selected. See figure 38.12 for an overview of the *Action programming* page for a *Recorded message* key.

Call Station: CST_01		
+ General		
- Extension 1		
1 CST_01_CI1	Recorded message	Evacuation
2 CST_01_CI2	Disabled	This item is disabled
3 CST_01_CI3	Disabled	This item is disabled
4 CST_01_CI4	Disabled	This item is disabled
5 CST_01_CI5	Disabled	This item is disabled
6 CST_01_CI6	Disabled	This item is disabled
7 CST_01_CI7	Disabled	This item is disabled
8 CST_01_CI8	Disabled	This item is disabled
+ Extension 2		
Submit		

figure 38.12: Recorded message key

To configure a *Recorded message* key, choose the recorded message that must be assigned to the key from the dropdown list.



Note

Do not forget to submit the changes. The changes are not permanent until the configuration is saved (see section 31.4.4 and section 31.4.5).



Note

For information about creating recorded messages, see section 35.2.

38.9 Call activation key

38.9.1 Introduction

Using the *Call activation key* action, a call with a predefined priority based on a call macro can be started in one or more predefined zones or zone groups. It is also possible to activate a predefined control output. See figure 38.13 for an overview of the *Action programming* page for a *Call activation key*.



Note

This action can also be assigned to control inputs.

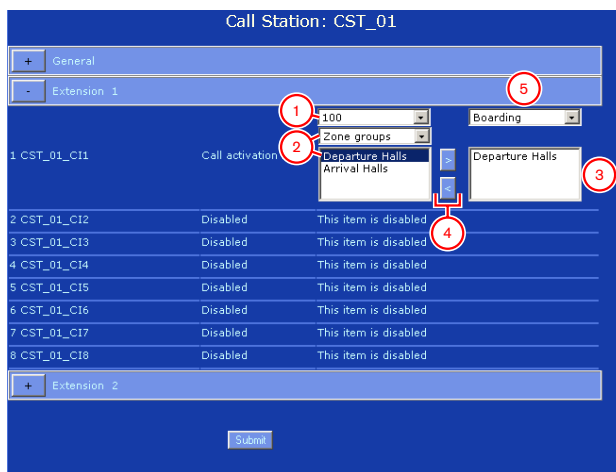


figure 38.13: Call activation key, overview

- 1 **Priority** - Sets the priority of the call. The ranges of priorities offered depends on the type of call station.
 - For normal call stations, the range is 32 to 223.
 - For emergency call stations, the range is 32 to 255.



Note

For control inputs, the priority can range from 32 to 255.

- 2 **Available outputs** - Shows the available zones, zone groups and control outputs. Use the dropdown list to choose the type of outputs that are shown.
- 3 **Assigned outputs** - Shows the outputs that have been assigned to the key or control input.

- 4 **Add/Remove buttons** - Using the > button, outputs selected in (2) can be added to (3). The < button removes outputs selected in (3) from (3).
- 5 **Call macro** - Assigns a call macro to the key or control input.

38.9.2 Programming

Proceed as follows to configure a *Call activation key* key:

- 1 Go to *Configure > Action programming > Call station*. A screen similar to the one in figure 38.14 appears in the main frame of the web interface.

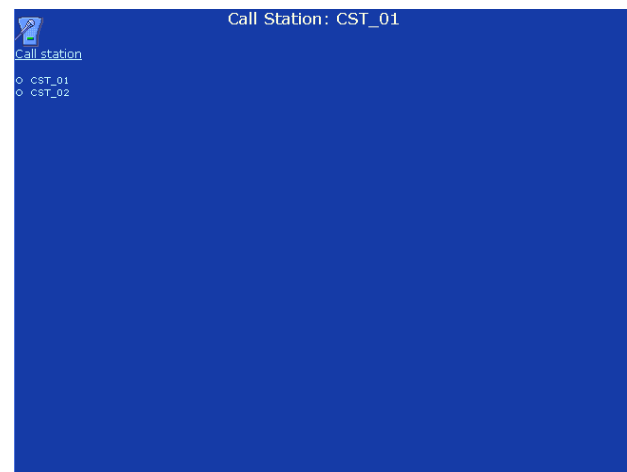


figure 38.14: Call activation key, step 1

- 2 Click the name of the call station to which the keypad of which the key that must be configured has been connected. A screen similar to the one in figure 38.15 appears in the main frame of the web interface

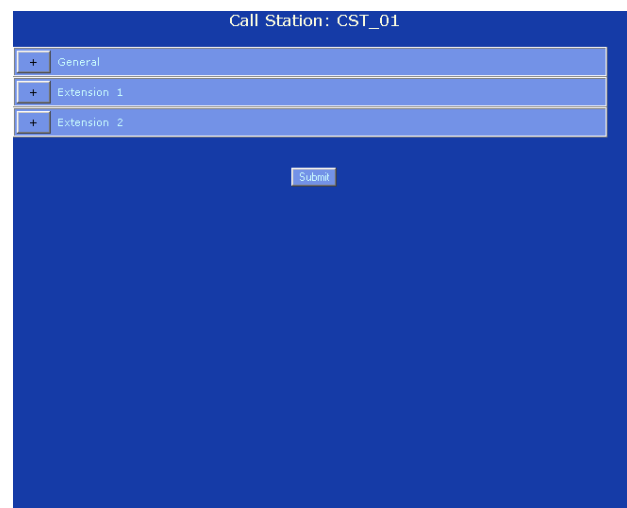


figure 38.15: Call activation key, step 2

- Click the *Extension* that contains the key that must be configured. A screen similar to the one in figure 38.16 appears in the main frame of the web interface.

figure 38.16: Call activation key, step 3

- Select the priority that must be assigned to the call from the upper left hand dropdown list. See figure 38.17 for an example.

figure 38.17: Call activation key, step 4

- Select the zone, zone group or control output to which the call must be addressed from the right list. See figure 38.17 for an example and click the > button to add the zone to the key. See figure 38.18 for an example.

figure 38.18: Call activation key, step 5

- Repeat step 5 to add additional zones, zone groups or control outputs to the key.
- Select the call macro that must be assigned to the key. See figure 38.19 for an example.

figure 38.19: Call activation key, step 7

- Submit the changes. Note that the changes are not permanent until the configuration is saved (see section 31.4.4 and section 31.4.5).

38.10 Press-to-talk (PTT)

Using the *PTT* (Press-to-talk) action, a call with a predefined priority based on a call macro can be started in one or more predefined zones or zone groups. See figure 38.20 for an overview of the *Action programming* page for a *PTT* key. Configuring a *PTT* action is similar to configuring a *Call activation key* action (see section 38.9.2).

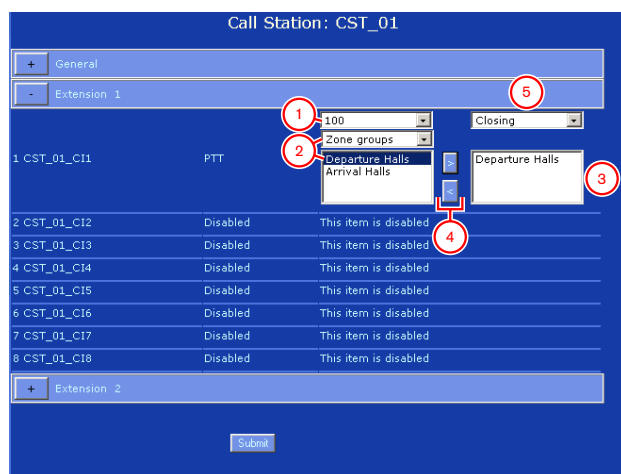


figure 38.20: PTT (Press-to-talk) key

- 1 **Priority** - Sets the priority of the call. The ranges of priorities offered depends on the type of call station. For normal call stations, the range is 32 to 223. For emergency call stations, the range is 32 to 255.
- 2 **Available outputs** - Shows the available zones, zone groups and control outputs. Use the dropdown list to choose the type of outputs that are shown.
- 3 **Assigned outputs** - Shows the outputs that have been assigned to the key.
- 4 **Add/Remove buttons** - Using the > button, outputs selected in (2) can be added to (3). The < button removes outputs selected in (3) from (3).
- 5 **Call macro** - Assigns a call macro to the key.

The difference between a *PTT* action and a *Call activation key* action is that it is possible to add zones, priority, chimes, messages and even call macros to a *PTT* key 'on the fly' using keys for these functions. The selection replaces the *PTT* properties, except for the zones. The *PTT* routing is not replaced by the selected zones; the selected zones are added to the routing.

The *PTT* keys of call stations and call station keypads are linked to the status LEDs (see section 13.5 and 15.2.4). Only one *PTT* key can be active at the same time. If more than one call must be started simultaneously from the same call station, use the *Call activation key* action. However, this action is not linked to the status LEDs. Since multiple *Call activation key* actions can be active at the same time, the link between these actions and the LEDs would not be clear.

38.11 Cancel selection

The *Cancel selection* action is used to cancel selections that have been made. See figure 38.21 for the *Action programming* page for a *Cancel selection* key.



figure 38.21: Cancel selection key

There is nothing to set after the *Cancel selection* action has been attached to the key on the *Equipment configuration* pages (see section 34.4.6).

38.12 Recall

The *Recall* action is used to recall selections that have been made. See figure 38.22 for the *Action programming* page for a *Recall* key.)

Call Station: CST_01		
+ General		
- Extension 1		
1 CST_01_CI1	Recall	There is nothing to set.
2 CST_01_CI2	Disabled	This item is disabled
3 CST_01_CI3	Disabled	This item is disabled
4 CST_01_CI4	Disabled	This item is disabled
5 CST_01_CI5	Disabled	This item is disabled
6 CST_01_CI6	Disabled	This item is disabled
7 CST_01_CI7	Disabled	This item is disabled
8 CST_01_CI8	Disabled	This item is disabled
+ Extension 2		
Submit		

figure 38.22: Recall, overview

There is nothing to set after the *Recall* action has been attached to the key on the *Equipment configuration* pages (see section 34.4.6).

38.13 BGM source

Using the *BGM Source* action, a BGM source can be selected. See figure 38.23 for an overview of the *Action programming* page for a *BGM Source* key.

Call Station: CST_01		
+ General		
- Extension 1		
1 CST_01_CI1	BGM source	Rock
2 CST_01_CI2	Disabled	This item is disabled
3 CST_01_CI3	Disabled	This item is disabled
4 CST_01_CI4	Disabled	This item is disabled
5 CST_01_CI5	Disabled	This item is disabled
6 CST_01_CI6	Disabled	This item is disabled
7 CST_01_CI7	Disabled	This item is disabled
8 CST_01_CI8	Disabled	This item is disabled
+ Extension 2		
Submit		

figure 38.23: BGM source key

To configure a *BGM source* key, choose the BGM channel that must be assigned to the key from the dropdown list.



Note

Do not forget to submit the changes. The changes are not permanent until the configuration is saved (see section 31.4.4 and section 31.4.5).



Note

For information about *BGM sources*, see section 36.5.

38.14 BGM volume control

Using a *BGM volume control* action, the background music volume can be controlled. See figure 38.24 for an overview of the *Action programming* page for a *BGM volume control* key.

Call Station: CST_01		
+ General		
- Extension 1		
1 CST_01_C11	BGM volume control	Volume up
2 CST_01_C12	Disabled	This item is disabled
3 CST_01_C13	Disabled	This item is disabled
4 CST_01_C14	Disabled	This item is disabled
5 CST_01_C15	Disabled	This item is disabled
6 CST_01_C16	Disabled	This item is disabled
7 CST_01_C17	Disabled	This item is disabled
8 CST_01_C18	Disabled	This item is disabled
+ Extension 2		
Submit		

figure 38.24: BGM volume control key

To configure a *BGM volume control* key, choose the type of control from the dropdown list. To increase the volume level using the key, choose *Volume up*. To decrease the volume level using the key, choose *Volume down*.



Note

Do not forget to submit the changes. The changes are not permanent until the configuration is saved (see section 31.4.4 and section 31.4.5).

The BGM volume in a certain zone can be changed by selecting the zone using a zone key (see section 38.4) and then pressing a *BGM volume control* key. If a *BGM source* key is pressed, then the indicators of all zones assigned to that source (if present) will light. In these zones, the volume can be changed. It is also possible to add zones to or remove zones from the selection before changing the volume. If a BGM source selection partly influences a zone group, the indicator of that zone group will be yellow instead of green.

38.15 Acknowledge/Reset

Using the *Acknowledge/Reset* action, faults can be acknowledged and reset. See figure 38.25 for an overview of the *Action programming* page for a *Acknowledge/Reset* key.



Note

This action can also be assigned to control inputs.

Call Station: CST_01		
+ General		
- Extension 1		
1 CST_01_C11	Acknowledge/Reset	Acknowledge
2 CST_01_C12	Disabled	This item is disabled
3 CST_01_C13	Disabled	This item is disabled
4 CST_01_C14	Disabled	This item is disabled
5 CST_01_C15	Disabled	This item is disabled
6 CST_01_C16	Disabled	This item is disabled
7 CST_01_C17	Disabled	This item is disabled
8 CST_01_C18	Disabled	This item is disabled
+ Extension 2		
Submit		

figure 38.25: Acknowledge/Reset key

To configure an *Acknowledge/Reset* key or control input:

- 1 Choose the type of events that must be acknowledged or reset from the upper dropdown list:
 - *EVAC* acknowledges or resets the emergency state.
 - *Fault* acknowledges or resets fault messages.
- 2 Choose whether the key or control input must acknowledge the messages (*Acknowledge*) or reset the messages (*Reset*).



Note

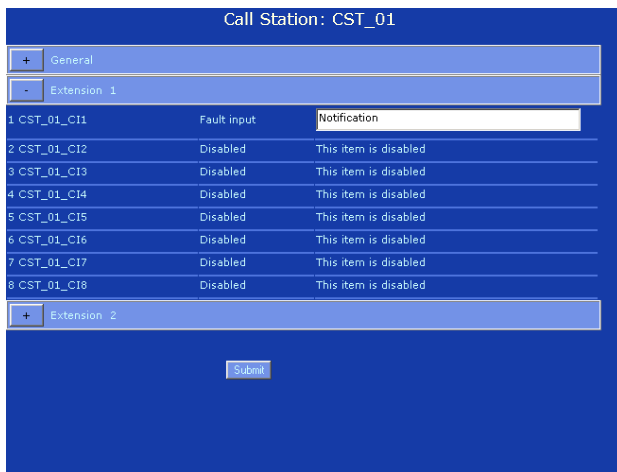
Do not forget to submit the changes. The changes are not permanent until the configuration is saved. (see section 31.4.4 and section 31.4.5).

38.16 Fault input

Using the *Fault input* action, a customized message can be logged and the system is put in the fault state. See figure 38.26 for an overview of the *Action programming* page for a *Fault input* key.



Note
This action can also be assigned to control inputs.



The screenshot shows the 'Call Station: CST_01' configuration page. The 'General' tab is selected. Under 'Extension 1', there is a table with 8 rows. The first row is for 'CST_01_CI1' with the action 'Fault input' and a notification field containing 'Notification'. The other 7 rows are for 'CST_01_CI2' through 'CST_01_CI8', all with the action 'Disabled' and the notification 'This item is disabled'. There is a 'Submit' button at the bottom.

figure 38.26: Fault input key

To configure a *Fault input* key, enter the notification that must be assigned to the key.

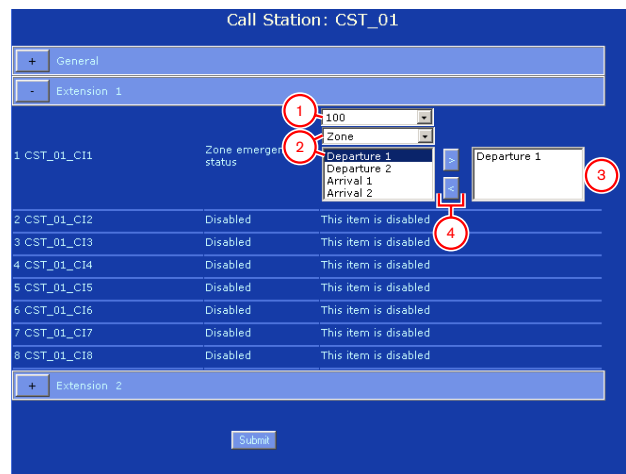


Note
Do not forget to submit the changes. The changes are not permanent until the configuration is saved (see section 31.4.4 and section 31.4.5).

38.17 Zone emergency status

38.17.1 Introduction

The *Zone emergency status* action is intended for LBB4433/00 Call Station Keypad Kits. The key/input itself is not used by this action; only the indicator/output attached to the key is activated. The *Zone emergency status* action activates the indicator/output belonging to the key if there is a call made to the zone with a priority higher than or equal to the defined priority. The purpose of this function is to be able to build a custom display with zone indicators that will show in which zones an emergency call has been started (i.e. have emergency status). If the defined priority is set to 224 a zone indicator lights if an emergency call (priority equal to or higher than 224) is made to that zone. See figure 38.27 for an overview of the *Action programming* page for a *Zone emergency status* key.



The screenshot shows the 'Call Station: CST_01' configuration page for 'Zone emergency status'. The 'General' tab is selected. Under 'Extension 1', there is a table with 8 rows. The first row is for 'CST_01_CI1' with the action 'Zone emergency status'. To the right of this row is a configuration area with four numbered callouts: (1) a 'Priority' dropdown set to '100'; (2) a 'Zone' dropdown menu open showing options 'Departure 1', 'Departure 2', 'Arrival 1', and 'Arrival 2'; (3) an 'Assigned outputs' list containing 'Departure 1'; and (4) a button with a right-pointing arrow (>) to add outputs from the zone list to the assigned outputs list. The other 7 rows are for 'CST_01_CI2' through 'CST_01_CI8', all with the action 'Disabled' and the notification 'This item is disabled'. There is a 'Submit' button at the bottom.

figure 38.27: Zone emergency status, overview

- 1 **Priority** - The action is activated if the priority is equal to or higher than this specified priority.
- 2 **Available outputs** - Shows the available zones, zone groups and control outputs. Use the dropdown list to choose the type of outputs that are shown.
- 3 **Assigned outputs** - Shows the outputs that have been assigned to the key.
- 4 **Add/Remove buttons** - Using the > button, outputs selected in (2) can be added to (3). The < button removes outputs selected in (3) from (3).

38.17.2 Programming

Proceed as follows to configure a *Zone emergency status* key:

- 1 Go to *Configure > Action programming > Call station*. A screen similar to the one in figure 38.28 appears in the main frame of the web interface.

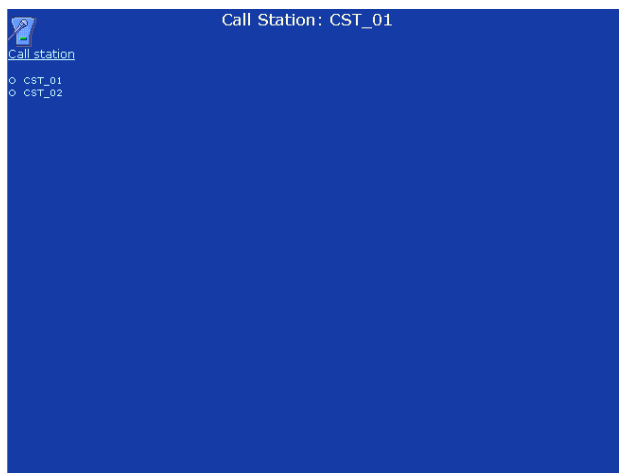


figure 38.28: Zone emergency status, step 1

- 2 Click the name of the call station to which the keypad of which the key that must be configured has been connected. A screen similar to the one in figure 38.29 appears in the main frame of the web interface.

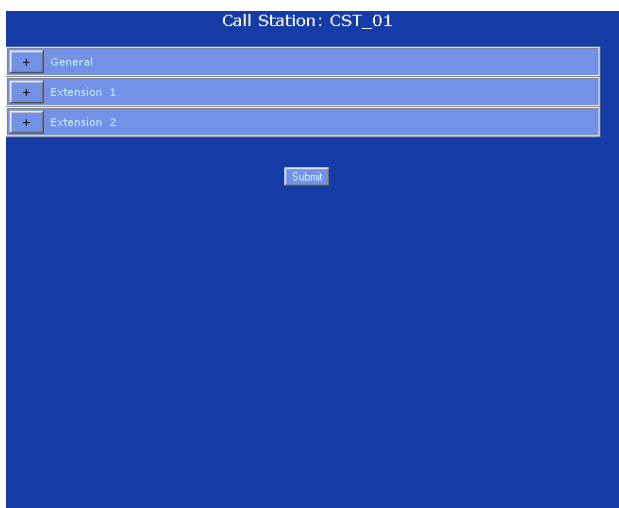


figure 38.29: Zone emergency status, step 2

- 3 Click the *Extension* that contains the key that must be configured. A screen similar to the one in figure 38.30 appears in the main frame of the web interface.

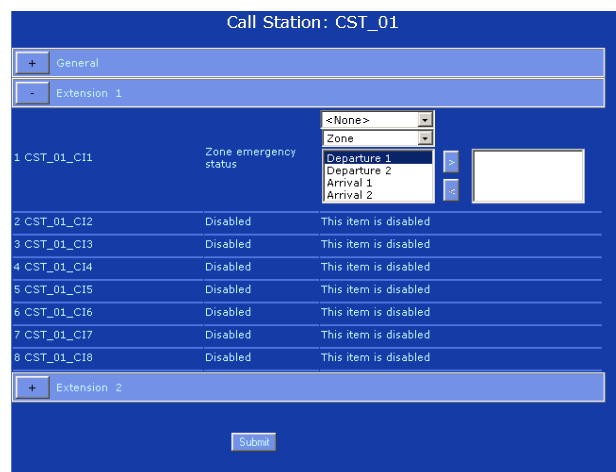


figure 38.30: Zone emergency status, step 3

- 4 Select the priority that must be assigned to the action. See figure 38.31 for an example.

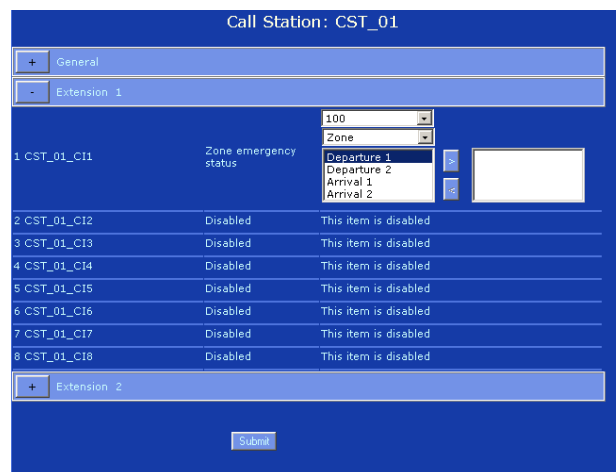


figure 38.31: Zone emergency status, step 4

- 5 Select the output which must be assigned to the action. See figure 38.32 for an example and click the > button to assign the output to the action.

figure 38.32: Zone emergency status, step 5

- 6 Repeat step 5 to add additional outputs to the action.
- 7 Submit the changes. Note that the changes are not permanent until the configuration is saved (see section 31.4.4 and section 31.4.5).

38.18 Zone priority status

The *Zone priority status* action is intended for LBB4433/00 Call Station Keypad Kits. The key/input itself is not used by this action; only the indicator/output attached to the key is activated. The *Zone priority status* action activates the indicator/output belonging to the key if there is a call made to the zone with a priority equal to the defined priority. The purpose of this function is to be able to build a custom display with zone indicators that will show in which zones a call with a specific priority is busy. In this way the indicators can show whether a certain emergency or alert message is running in a zone by setting the defined priority to the priority of that message.

See figure 38.33 for an overview of the *Action programming* page for a *Zone Priority Status* key. Configuring a *Zone Priority Status* key is similar to configuring a *Zone emergency status* key (see section 38.17.2).

figure 38.33: Zone priority status key

- 1 **Priority** - Sets the priority equal or above which the action is active.
- 2 **Available outputs** - Shows the available zones, zone groups and control outputs. Use the dropdown list to choose the type of outputs that are shown.
- 3 **Assigned outputs** - Shows the outputs that have been assigned to the key.
- 4 **Add/Remove buttons** - Using the > button, outputs selected in (2) can be added to (3). The < button removes outputs selected in (3) from (3).

38.19 Synchronize time

The *Synchronize time* action is used to set the internal clock of the network controller to the nearest minute to synchronize the clock with a master. See figure 38.34 for an overview of the *Action programming* page for a *Synchronize time* key.



Note

This action can also be assigned to control inputs.

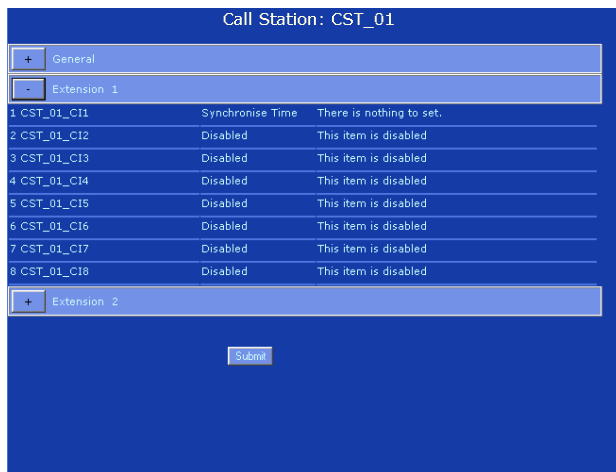


figure 38.34: Synchronize time key

There is nothing to set after the *Synchronize time* action has been attached to the key on the *Equipment configuration* pages (see section 34.4.6).

38.20 Switch trigger

38.20.1 Introduction

The *Switch trigger* action is intended for activating *Switch output* control outputs or *Switch output* keypad keys (see section 38.21). See figure 38.35 for an overview of the *Action programming* page for a *Switch trigger* key.



Note

This action can also be assigned to control inputs.

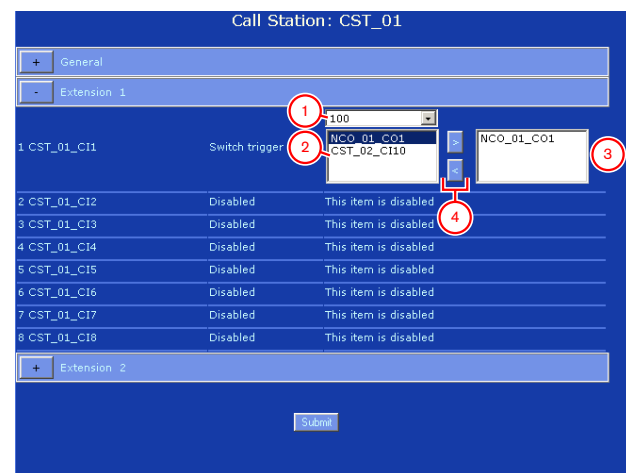


figure 38.35: Switch trigger key

- 1 **Priority** - Sets the priority of the activated output.
- 2 **Available outputs** - Shows the available *Switch output* control outputs and keypad keys.
- 3 **Assigned outputs** - Shows the *Switch output* control outputs and keypad keys that have been assigned to the key.
- 4 **Add/Remove buttons** - Using the > button, outputs selected in (2) can be added to (3). The < button removes outputs selected in (3) from (3).

38.20.2 Programming

Proceed as follows to configure a *Switch trigger* key:

- 1 Go to *Configure > Action Programming > Call station*. A screen similar to the one in figure 38.36 appears in the main frame of the web interface.

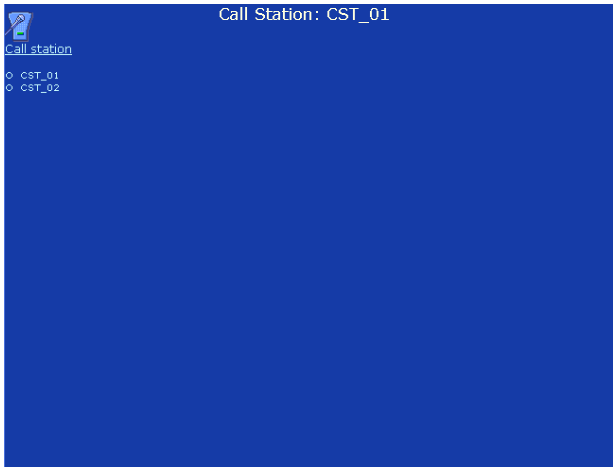


figure 38.36: Switch trigger, step 1

- 2 Click the name of the call station to which the keypad of which the key that must be configured has been connected. A screen similar to the one in figure 38.37 appears in the main frame of the web interface.

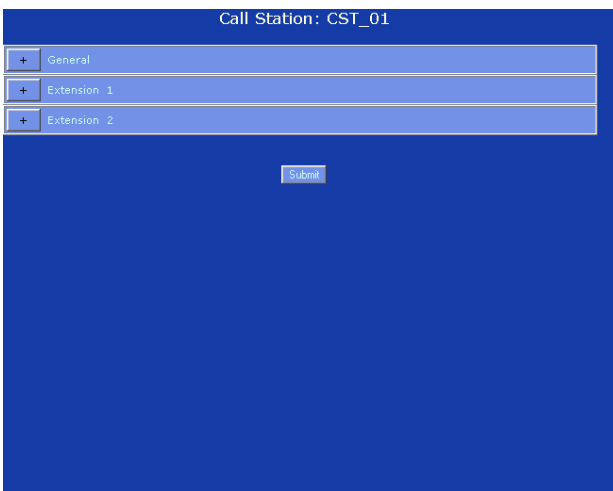


figure 38.37: Switch trigger, step 2

- 3 Click the *Extension* that contains the key that must be configured. A screen similar to the one in figure 38.38 appears in the main frame of the web interface.

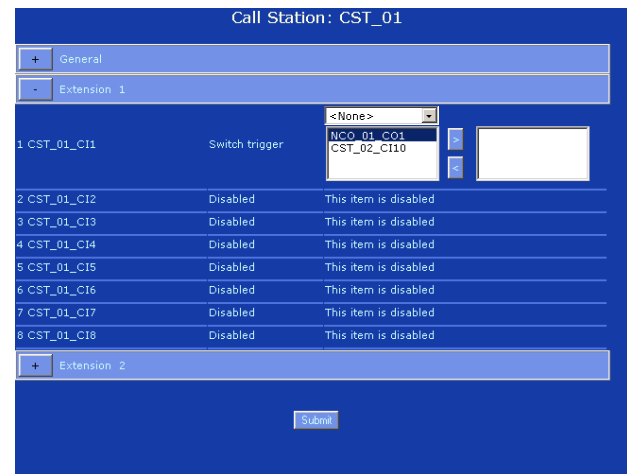


figure 38.38: Switch trigger, step 3

- 4 Select the priority that must be assigned to the action. See figure 38.39 for an example.

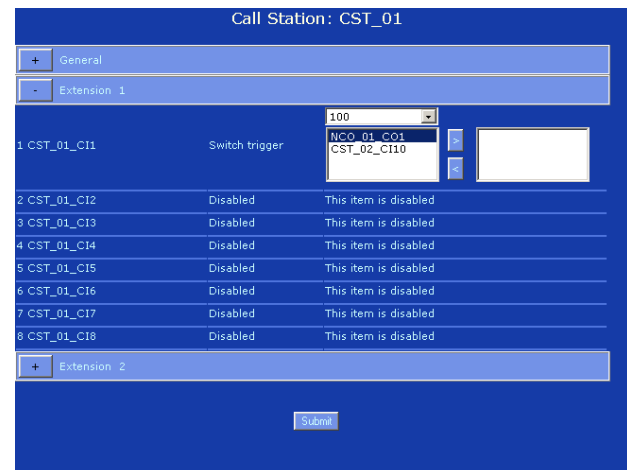


figure 38.39: Switch trigger, step 4

- 5 Select the output which must be assigned to the action. See figure 38.40 for an example and click the > button to assign the output to the action.

figure 38.40: Zone emergency status, step 5

- 6 Repeat step 5 to add assign additional outputs to the action.
- 7 Submit the changes. Note that the changes are not permanent until the configuration is saved (see section 31.4.4 and section 31.4.5).

38.21 Switch output

The *Switch output* action is intended for control outputs and call station keypads or call station keypad kits. The key/input itself is not used by this action; only the indicator/output attached to the key is activated. The *Switch output* action is activated using a *Switch trigger* action (see section 38.20). See figure 38.41 for the *Action programming* page for a *Switch output* key.

figure 38.41: Switch output key

There is nothing to set after the *Switch output* action has been attached to the key on the *Equipment configuration* pages (see section 34.4.6).

38.22 Zone active output

The *Zone active output* action is intended for control outputs and call station keypads or call station keypad kits. The key/input itself is not used by this action; only the indicator/output attached to the key is activated. A *Zone active output* key can be assigned to a zone (see section 36.2) and becomes active when a call or BGM is sent to the zone. See figure 38.42 for an overview of the *Action programming* page for a *Zone active output* key.

Call Station: CST_01		
+ General		
- Extension 1		
1 CST_01_CI1	Call active output	There is nothing to set.
2 CST_01_CI2	Disabled	This item is disabled
3 CST_01_CI3	Disabled	This item is disabled
4 CST_01_CI4	Disabled	This item is disabled
5 CST_01_CI5	Disabled	This item is disabled
6 CST_01_CI6	Disabled	This item is disabled
7 CST_01_CI7	Disabled	This item is disabled
8 CST_01_CI8	Disabled	This item is disabled
+ Extension 2		
Submit		

figure 38.42: Zone active output key

There is nothing to set after the *Zone active output* action has been attached to the key on the *Equipment configuration* pages (see section 34.4.6).

38.23 Volume override

The *Volume override* action is intended for control outputs and call station keypads or call station keypad kits. The key/input itself is not used by this action; only the indicator/output attached to the key is activated. A *Volume override* key can be assigned to a zone (see section 36.2) and becomes active when a call with a priority equal to or higher than 32 is sent to the zone. See figure 38.43 for an overview of the *Action programming* page for a *Volume override* key.

Call Station: CST_01		
+ General		
- Extension 1		
1 CST_01_CI1	Call active output	There is nothing to set.
2 CST_01_CI2	Disabled	This item is disabled
3 CST_01_CI3	Disabled	This item is disabled
4 CST_01_CI4	Disabled	This item is disabled
5 CST_01_CI5	Disabled	This item is disabled
6 CST_01_CI6	Disabled	This item is disabled
7 CST_01_CI7	Disabled	This item is disabled
8 CST_01_CI8	Disabled	This item is disabled
+ Extension 2		
Submit		

figure 38.43: Volume override key

There is nothing to set after the *Volume override* action has been attached to the key on the *Equipment configuration* pages (see section 34.4.6).

38.24 BGM on/off

The *BGM on/off* action is used to turn background music on or off in preselected zones. See figure 38.44 for an overview of the *Action programming* page for a *BGM on/off* key.



Note

This action can also be assigned to control inputs.

figure 38.44: BGM on/off key

To configure the *BGM on/off* key, choose the type of control from the dropdown list. To switch BGM on in preselected zones with the key, choose *On*. To switch the BGM off in preselected zones with the key, choose *Off*.



Note

Do not forget to submit the changes. The changes are not permanent until the configuration is saved (see section 31.4.4 and section 31.4.5).

38.25 Local BGM on/off

38.25.1 Introduction

The *Local BGM on/off* action is used to turn background music on or off in predefined zones. See figure 38.45 for the *Action programming* page for a *Local BGM on/off* key. The *Local BGM on/off* action combines the *Zone selection* (see section 38.4) and *BGM on/off* actions (see section 38.24). See figure 38.45 for an overview of the *Action programming* page of for a *Local BGM on/off* key.



Note

This action can also be assigned to control inputs.

figure 38.45: Local BGM on/off key

- Type** - Sets the type of control:
 - On* to switch BGM on
 - Off* to switch BGM off
 - Toggle* to toggle BGM on and off
- Available outputs** - Shows the available zones and zone groups. Use the dropdown list to choose the type of outputs that are shown.
- Assigned outputs** - Shows the outputs that have been assigned to the key.
- Add/Remove buttons** - Using the > button, outputs selected in (2) can be added to (3). The < button removes outputs selected in (3) from (3).

38.25.2 Programming

Proceed as follows to configure a *Local BGM on/off* key:

- 1 Go to *Configure > Action Programming > Call station*. A screen similar to the one in figure 38.36 appears in the main frame of the web interface.

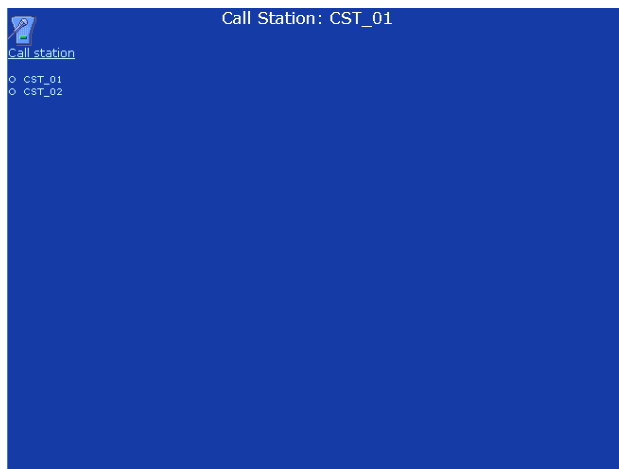


figure 38.46: Local BGM on/off, step 1

- 2 Click the name of the call station to which the keypad of which the key that must be configured has been connected. A screen similar to the one in figure 38.47 appears in the main frame of the web interface.

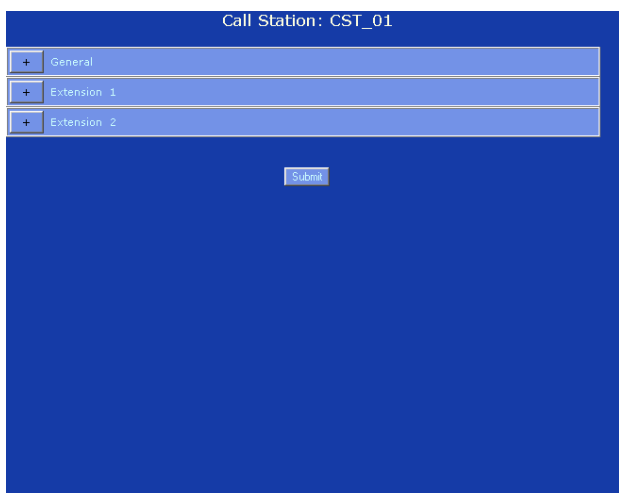


figure 38.47: Local BGM on/off, step 2

- 3 Click the *Extension* that contains the key that must be configured. A screen similar to the one in figure 38.48 appears in the main frame of the web interface.

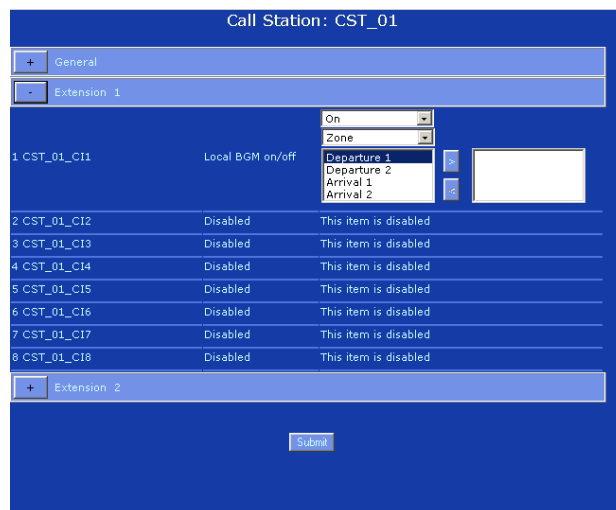


figure 38.48: Local BGM on/off, step 3

- 4 Select the type of action that must be assigned to the key from the upper dropdown list. See figure 38.49 for an example.

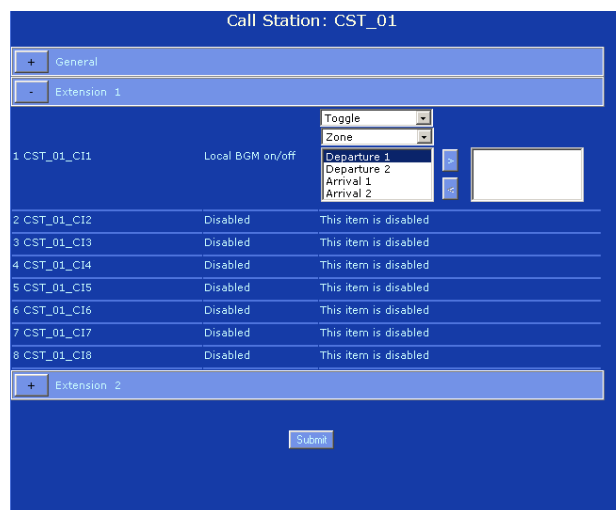


figure 38.49: Local BGM on/off, step 4

- 5 Select the zone (group) that must be selected by the key from the left box and click the > button to add the zone (group) to the key. See figure 38.40 for an example.

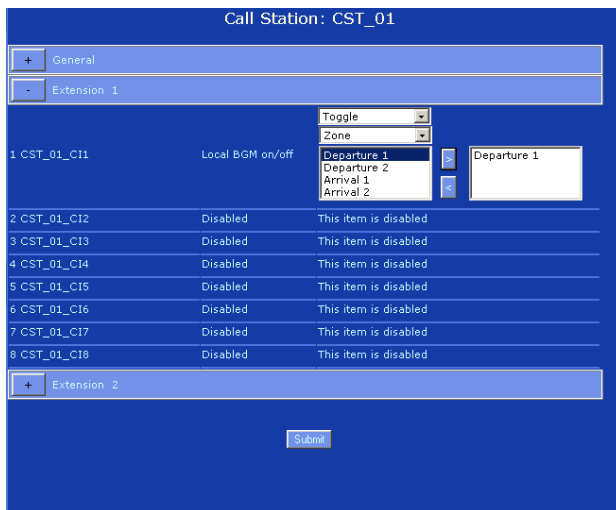


figure 38.50: Local BGM on/off, step 5

- 6 Repeat step 5 to add additional zone (groups) to the key.
- 7 Submit the changes. Note that the changes are not permanent until the configuration is saved (see section 31.4.4 and section 31.4.5).

38.26 Local BGM source

38.26.1 Introduction

The *Local BGM source* action is used to step through all available BGM sources in the assigned zone (groups). See figure 38.51 for an overview of the *Action programming* page for a *Local BGM source* key.

Note

This action can also be assigned to control inputs.

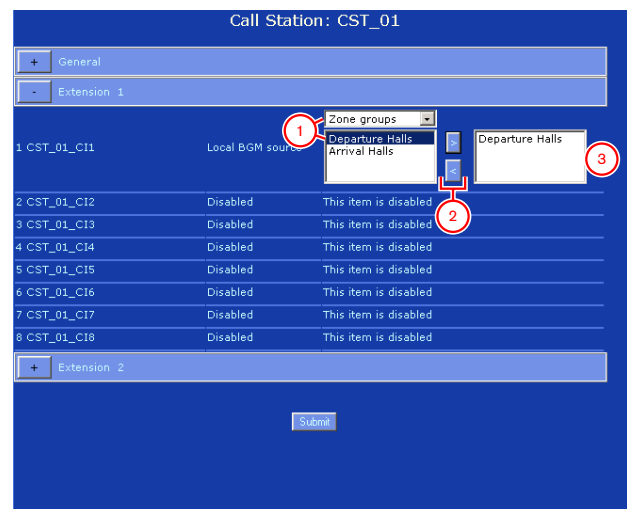


figure 38.51: Local BGM source key

- 1 **Available outputs** - Shows the available zones and zone groups. Use the dropdown list to choose the type of outputs that are shown.
- 2 **Assigned outputs** - Shows the outputs that have been assigned to the key.
- 3 **Add/Remove buttons** - Using the > button, outputs selected in (2) can be added to (3). The < button removes outputs selected in (3) from (3).

38.26.2 Programming

Proceed as follows to configure a *Local BGM source* key:

- 1 Go to *Configure > Action Programming > Call station*. A screen similar to the one in figure 38.52 appears in the main frame of the web interface.

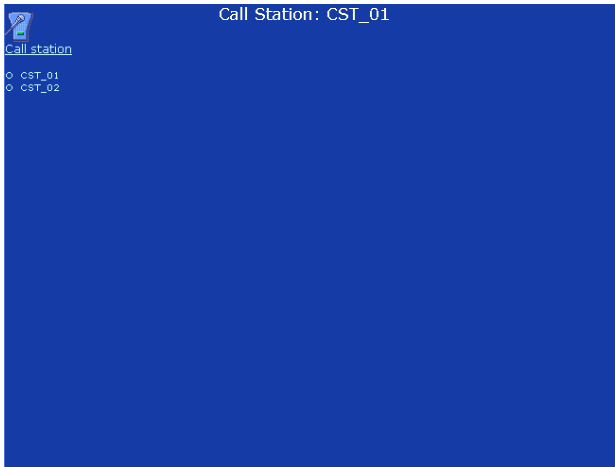


figure 38.52: Local BGM source, step 1

- 2 Click the name of the call station to which the keypad of which the key that must be configured has been connected. A screen similar to the one in figure 38.53 appears in the main frame of the web interface.

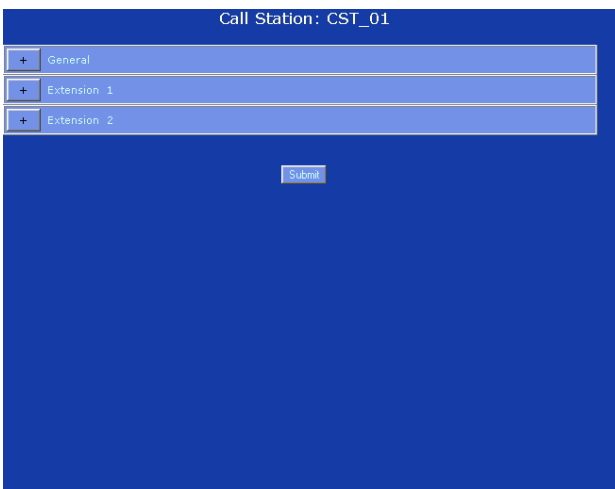


figure 38.53: Local BGM source, step 2

- 3 Click the *Extension* that contains the key that must be configured. A screen similar to the one in figure 38.54 appears in the main frame of the web interface.

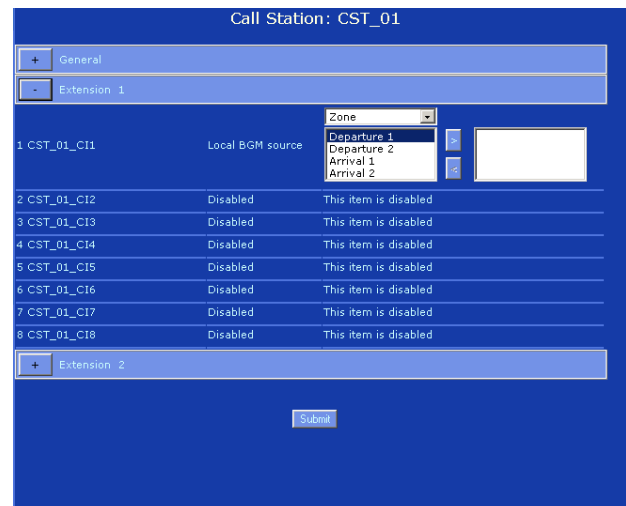


figure 38.54: Local BGM source, step 3

- 4 Select the zone (group) that must be selected by the key from the left box and click the > button to add the zone (group) to the key. See figure 38.40 for an example.

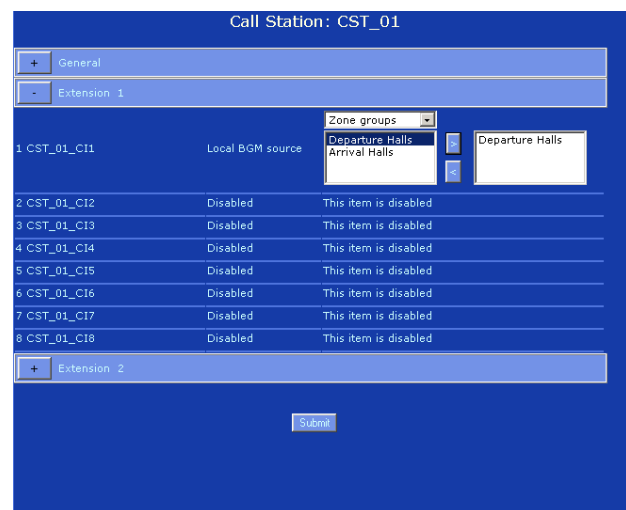


figure 38.55: Local BGM on/off, step 5

- 5 Repeat step 4 to add additional zone (groups) to the key.
- 6 Submit the changes. Note that the changes are not permanent until the configuration is saved (see section 31.4.4 and section 31.4.5).

38.27 Local BGM volume control

38.27.1 Introduction

The *Local BGM volume control* action is used to control the volume of the BGM in the assigned zone (groups). It can be changed in steps of 3 dB between -96 dB and 0 dB. See figure 38.51 for an overview of the *Action programming* page for a *Local BGM volume control* key.



Note

This action can also be assigned to control inputs.

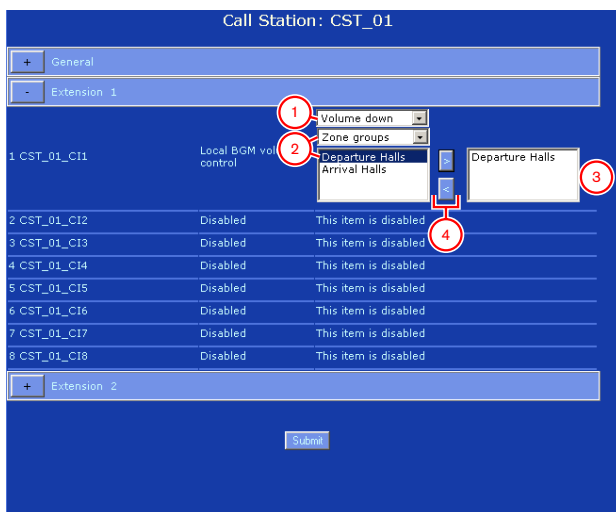


figure 38.56: Local BGM volume control key

- Volume control** - Sets the type of volume control. To increase the volume, select *Volume up*. To decrease the volume, select *Volume down*.
- Available outputs** - Shows the available zones and zone groups. Use the dropdown list to choose the type of outputs that are shown.
- Assigned outputs** - Shows the outputs that have been assigned to the key.
- Add/Remove buttons** - Using the > button, outputs selected in (2) can be added to (3). The < button removes outputs selected in (3) from (3).

38.27.2 Programming

- Go to *Configure > Action Programming > Call station*. A screen similar to the one in figure 38.57 appears in the main frame of the web interface.

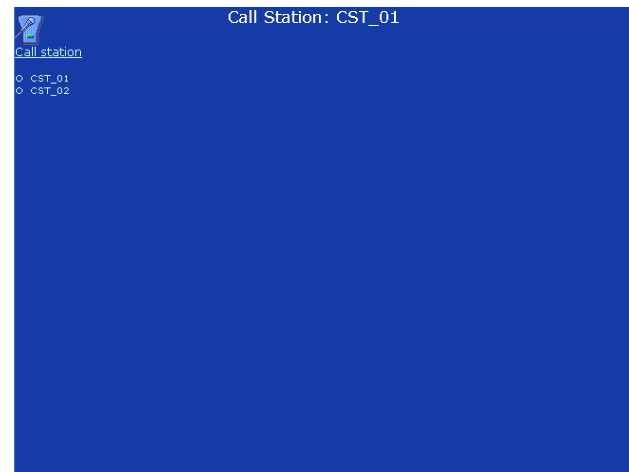


figure 38.57: Local BGM volume control, step 1

- Click the name of the call station to which the keypad of which the key that must be configured has been connected. A screen similar to the one in figure 38.58 appears in the main frame of the web interface.

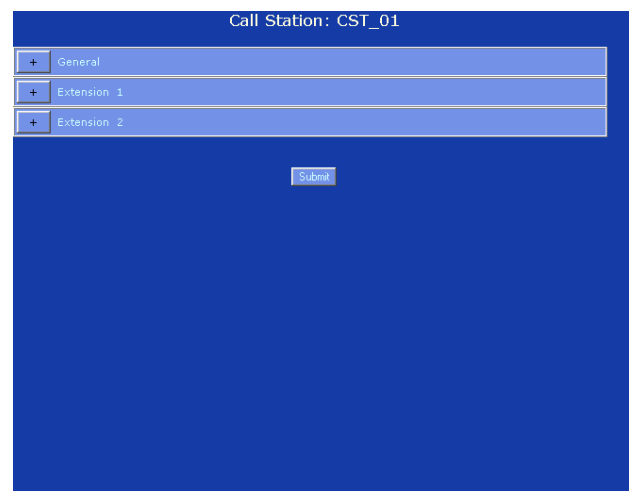


figure 38.58: Local BGM volume control, step 2

- 3 Click the *Extension* that contains the key that must be configured. A screen similar to the one in figure 38.54 appears in the main frame of the web interface.
- 5 Select the zone (group) that must be selected by the key from the left box and click the > button to add the zone (group) to the key. See figure 38.61 for an example.

figure 38.59: Local BGM volume control, step 3

figure 38.61: Local BGM volume control, step 5

- 4 Select the type of action that must be assigned to the key from the upper dropdown list. See figure 38.60 for an example.
- 6 Repeat step 5 to add additional zone (groups) to the key.
- 7 Submit the changes. Note that the changes are not permanent until the configuration is saved (see section 31.4.4 and section 31.4.5).

figure 38.60: Local BGM volume control, step 4

38.28 Back-up power mode

The *Backup power mode* action is used to put the system in the backup power mode. In this mode, all calls below a specified priority (see section 35.4) are aborted. See figure 38.62 for an overview of the *Action programming* page for a *Backup power mode* key.



Note

This action can also be assigned to control inputs.

Call Station: CST_01

+ General		
- Extension 1		
1 CST_01_CI1	Backup power mode	There is nothing to set.
2 CST_01_CI2	Disabled	This item is disabled
3 CST_01_CI3	Disabled	This item is disabled
4 CST_01_CI4	Disabled	This item is disabled
5 CST_01_CI5	Disabled	This item is disabled
6 CST_01_CI6	Disabled	This item is disabled
7 CST_01_CI7	Disabled	This item is disabled
8 CST_01_CI8	Disabled	This item is disabled
+ Extension 2		

Submit

figure 38.62: Backup power mode key

There is nothing to set after the *Backup power mode* action has been attached to the key on the *Equipment configuration* pages (see section 34.4.4).

39 Audio processing

39.1 Introduction

On the *Audio Processing* pages, the audio processing parameters of all normal audio inputs and outputs in the system can be set (see section 39.2). Audio inputs that are configured as AVC inputs must be calibrated using the *Audio Processing* pages (see section 39.3)

39.2 Audio processing parameters

39.2.1 Overview

See figure 39.1 for an overview of an audio processing page for normal audio inputs and outputs.

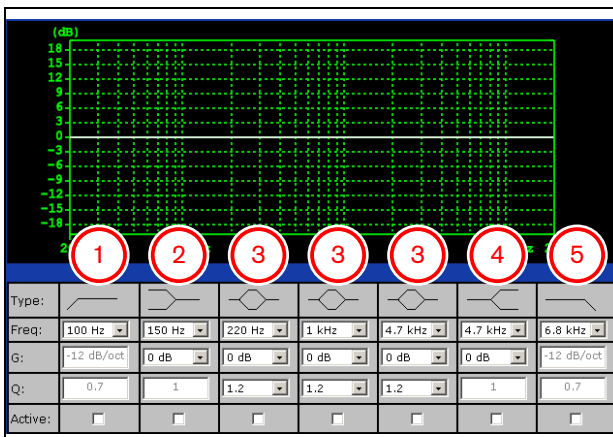


figure 39.1: Audio processing - overview

- 1 **High-pass filter** - A high-pass filter with a fixed quality factor and slope.
- 2 **Shelving filter** - A shelving filter for low frequencies with a fixed quality factor.
- 3 **Full parametric section** - Three full parametric sections with adjustable quality factors, gains and frequencies.
- 4 **Shelving filter** - A shelving filter for high frequencies with a fixed quality factor.
- 5 **Low-pass filter** - A low-pass filter with a fixed quality factor and slope.



Note

For the audio outputs, also a volume button is available that can be used to change the volume of the audio output.

39.2.2 Procedure

Proceeds as follows to configure a filter:

- 1 Select the frequency of the filter from the *Freq* dropdown list. See table 39.1 for a list of available frequencies.
- 2 Select the gain of the filter from the *G* dropdown list. See table 39.1 for a list of available gains.
- 3 Select the quality factor of the filter from the *Q* dropdown list. See table 39.1 for a list of available quality factors.
- 4 Put a check mark in the *Active* box of the filter to enable the filter.
- 5 Click the *Submit Equalizer* button to submit the changes. The changes are immediately applied to the audio input or output.



Note

Audio processing parameters are changed immediately when the *Submit Equalizer* button on the *Audio Processing* pages is clicked. Although the changes are audible, it is important to realize that they are not automatically saved. If the changes are not saved they will be lost when the network controller is reset. See section 31.4.5 for information about saving configuration settings.



Note

The default values in table 39.1 are indicated by asterisks (*) when applicable.

table 39.1: Audio processing parameters

							
Freq (Hz)	33						
	47	47					
	68	68	68				
	100*	100	100				
	150	150*	150				
	220	220	220*				
	330	330	330	330			
		470	470	470			
			680	1,000*			
				1,500	1,500		
				2,200	2,200	2,200	
				3,300	3,300	3,300	3,300
				4,700*	4,700*	4,700*	4,700
				6,800	6,800	6,800	6,800*
				10,000	10,000	10,000	10,000
				15,000	15,000	15,000	15,000
G (dB/Oct)	-12	12	12	12	12	12	12
		-8	-8	-8	-8	-8	
		-6	-6	-6	-6	-6	
		-4	-4	-4	-4	-4	
		-2	-2	-2	-2	-2	
		0*	0*	0*	0*	0*	
		2	2	2	2	2	
		4	4	4	4	4	
		6	6	6	6	6	
		8	8	8	8	8	
		10	10	10	10	10	
		12	12	12	12	12	
Q			0.2	0.2	0.2		
			0.4	0.4	0.4		
			0.6	0.6	0.6		
	0.7*						0.7*
			0.8	0.8	0.8		
		1.0*	1.0	1.0	1.0	1.0*	
			1.2*	1.2*	1.2*		
			1.4	1.4	1.4		
			1.6	1.6	1.6		
			1.8	1.8	1.8		
			2.0	2.0	2.0		

39.3 AVC calibration

When the *Audio Processing* page of an audio input that has been configured as an AVC input is opened, a *Start AVC calibration* button is shown (see figure 39.2).

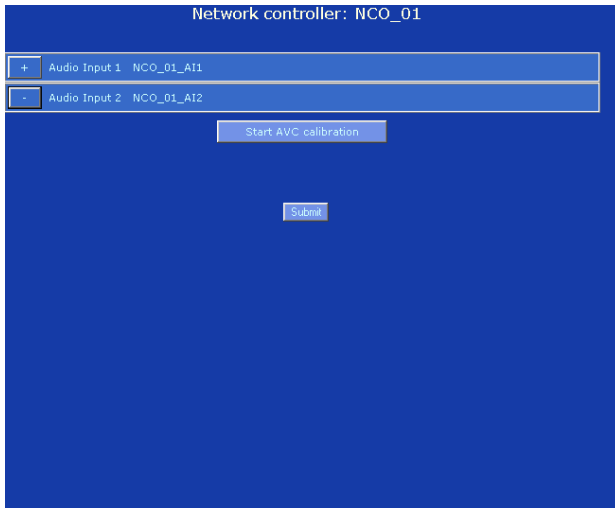


figure 39.2: AVC calibration button

Click the *Start AVC calibration* button to start the AVC calibration (see chapter 40).

**Note**

Do not forget to submit the changes. The changes are not permanent until the configuration is saved (see section 31.4.4 and section 31.4.5).

40 Automatic volume control

40.1 Introduction

Automatic volume control (AVC) improves the intelligibility of calls and the audibility of BGM in noisy environments. It changes the call volume in a zone to compensate for ambient noise. The ambient noise is measured by sensing microphones that can be connected to any of the audio inputs of the system.

40.2 Sensing microphones

40.2.1 Introduction

When AVC is enabled in a zone, a sensing microphone continuously measures the ambient noise. The system uses an averaging filter to derive the average ambient noise level from the signal of the sensing microphone.

**Note**

Between the start of a call and the end of a call, the AVC function does not process the signal of the sensing microphone.

40.2.2 Type

Use sensing microphones with high-quality cables, because sensing microphones are often installed in locations that are hard to reach. It is not required to use high-quality microphones. The choice for a directional or omni-directional microphone depends on the local situation.

40.2.3 Supervision

The connections between the system and the sensing microphones can be supervised (see section 34.3). When the sensing microphone of a zone fails, all calls in the zone are distributed at the maximum volume to comply with evacuation standards. When the sensing microphone of a zone fails, the attenuation of BGM is set to AVC range (see figure 40.1). To prevent undesired supervision faults, make sure that:

- The supply current for condenser microphones is between 0.5 mA and 5 A.
- The microphone impedance of dynamic microphones is between 120 Ω and 1300 Ω

40.2.4 Installation

To make sure that the sensing microphone measures the correct ambient noise level, install it in a place which has a typical ambient noise level. Furthermore:

- Keep the cables of the sensing microphones and high-power cables (e.g. mains cables) separated. Interference can disturb the ambient noise measurement.
- Do not install the sensing microphone near an expected noise source. A loud and very local noise can disturb the ambient noise measurement.
- Do not install the sensing microphone near an air vent or air conditioning. Airflows can disturb the ambient noise measurement.
- Do not attach the sensing microphone to any part of a building. The vibrations of buildings can disturb the ambient noise measurement.

40.3 Connection

Sensing microphones can be connected to the unit that contains the audio outputs of the AVC zone or to another unit. When the sensing microphone is connected to another unit and it is used in combination with an AVC zone, it permanently occupies a digital channel. As a result, the number of digital audio channels that are available for calls decreases.

**Note**

Spare amplifiers cannot take over the sensing microphone from a failing main amplifier when the signal of the sensing microphone is not routed over the optical network.

40.4 Configuration

Before configuring AVC in a zone:

- Make sure that the ambient sensing microphone is correctly connected to the system.
- Make sure that all loudspeakers are connected to the system, set at the correct power level, are aimed (if necessary) and are working.
- Adjust the nominal output level of all audio outputs in the zone to the level required to have the correct speech intelligibility at maximum ambient noise level.



Note

When AVC is used in combination with remote (wall) volume controls for BGM, make sure that all volume controls are manually set to maximum during calibration. Although control outputs can be used as volume overrides during calls, it is not possible to use them as volume override during AVC calibration.

Proceed as follows to configure AVC:

- 1 Go to the *AVC settings* category of the *Zone Configuration* page. A screen similar to the one in figure 40.1 appears in the main frame of the web interface.

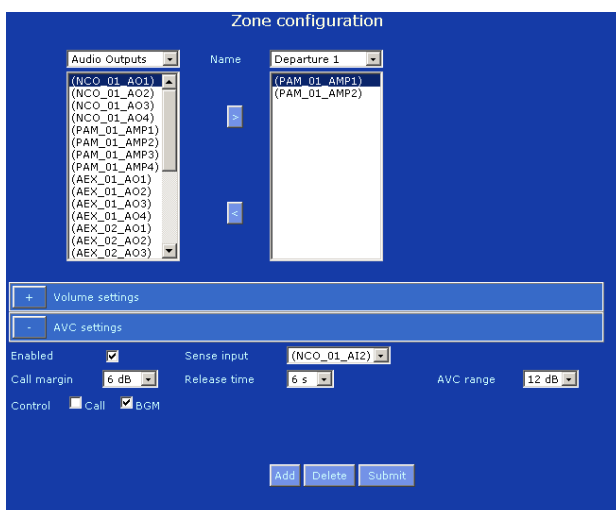


figure 40.1: AVC settings

- 2 Put a checkmark in the *Enabled* checkbox to enable AVC.



Note

The AVC settings only apply to the audio outputs of power amplifiers. It is not possible to apply AVC to the audio outputs of other units.

- 3 Choose the audio input to which the sensing microphone is connected from the *Sense input* dropdown list.
- 4 Select the call margin from the *Call margin* dropdown list. This is the threshold level of the AVC function. When the ambient noise level is higher than the call margin, AVC attenuates calls.



Note

The default value of 6 dB is a practical value. A higher value results in a bigger difference between the volume levels of the calls and the ambient noise. However, this requires more (or bigger) loudspeakers and power amplifiers to reach the high call volume when the volume level of the ambient noise is high.

- 5 Select the release time from the *Release time* dropdown list. This is the time between the end of the call and the start of the ambient noise measurement.



Note

The default value of 5 s is a practical value. A short release time combined with a long reverberation time can cause a high call volume level.

- 6 Select the attenuation range from the *AVC range* dropdown list.



Note

The default value of 12 dB is a practical value. A higher value can result in lower call volume levels when the ambient noise volume level decreases.

- 7 Go to the *Audio processing* page of the audio input to which the sensing microphone is connected. A screen similar to the one in figure 40.2 appears.

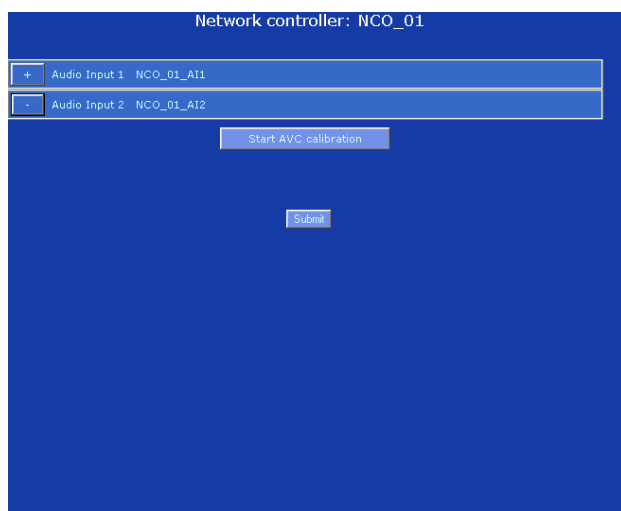


figure 40.2: AVC calibration button

- 8 Click the *Start AVC calibration* button to start the calibration of the AVC. A notification appears when the calibration has finished. The zone is not available for calls during calibration, because all audio outputs in the zone are used to distribute the calibration tone.



Note

During the calibration, the system uses one digital audio channel of the optical network to distribute the calibration tone. This temporarily decreases the number of available digital audio channels in the system.

The following messages can appear during or after calibration:

- *AVC calibration running*
Displayed during the calibration process.
- *AVC calibration completed, range = x dB*
Displayed after successful calibration. The range shows the available AVC range in this situation. The AVC range that is configured for a zone should be less than the indicated available range.
- *AVC calibration failed: sensing signal too high*
Input overloaded by a ambient sensing signal that is too high. Use a less sensitive microphone, use an attenuation pad, or choose a different sensing location.
- *AVC calibration failed: available range too small*
The difference between the measured ambient sensing signal with and without calibration tone is less than 6 dB. The available Praesideo output level is too low compared to the existing ambient noise at the sensing location.
- *AVC calibration failed: ambient sensing input or its unit is defect or disabled*
AVC calibration and AVC is not possible with a defect or disabled audio input for the ambient sensing signal.
- *AVC calibration failed: no AVC output is available*
AVC calibration and AVC is not possible without a zone being configured for AVC using this audio input for sensing. The calibration tone cannot be broadcast.

41 Installation

41.1 Introduction

With the *Installation* page in the *Diagnose* section of the web interface (see figure 41.1), the system installation can be diagnosed.

Installation

Check optical power margin of all network connections by reducing the optical level to half power. Full power ▾

Check for fault events with reduced level. If no relevant faults are present then resume normal operation by setting this selection to Full power. Otherwise check for critical connections.

Check supervision margin for loudspeakers and loudspeaker lines by reducing the level for: None ▾

Check for fault events with reduced level. If no relevant faults are present then resume normal operation by setting this selection to None. Otherwise check for installation faults.

Note: Checking takes up to 100 s for systems with loudspeaker line supervision in 'Immediate fault report' mode. In the 'Recheck before fault reporting' mode or with individual loudspeaker supervision, checking may take up to 300 s.

Submit

figure 41.1: Installation page

41.2 Optical network

Proceed as follows to diagnose the optical network:

- 1 Check the optical power margin of all network connections by reducing the optical level to *Half power*.
- 2 Check for fault events with reduced level. If no relevant faults are present, then resume normal operation by restarting the network controller. Otherwise, check for critical connections.



Note

Although it is possible to resume normal operation by selecting *Full power*, it is strongly recommended to restart the network controller. In case the power margin is nearly critical, the unit may not accept the *Full power* command anymore.

41.3 Loudspeaker supervision

Proceed as follows to diagnose the loudspeaker supervision:

- 1 Check the supervision of all loudspeakers and loudspeaker lines by reducing the levels of the communication (*Communication*) or the pilot tone (*Pilot tone*).
- 2 Check for fault events with reduced level. If no relevant faults are present, then resume normal operation by restarting the network controller.



Note

Checking takes up to 100 s for systems with loudspeaker lines in the *Immediate fault report* mode (see section 35.4). In the *Recheck before fault reporting* mode or with individual loudspeaker supervision, checking may take up to 300 s.

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Section 9 - Events

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42 Overview

42.1 Introduction

42.2 General events

General events contain information about special situations. For example, the connection of a unit to the system. See chapter 43 for a list of all general events.

42.3 Call events

Call events contain information about calls in the system. For example, the start of a call. See chapter 44 for a list of all call events.

42.4 Fault events

42.4.1 Introduction

Fault events contain information about faults in the system. For example, an overload of a power amplifier. See chapter 45 for a list of all fault events.

42.4.2 Status

Each fault event has a status (see table 42.1).

table 42.1 Fault event statuses

Status	Description
<i>New</i>	The fault event is a new fault event. All fault outputs are activated.
<i>Acknowledge</i>	The new fault event is acknowledged. If all faults in the system have been acknowledged, all audible fault indicator outputs are deactivated.
<i>Resolved</i>	The acknowledged fault event is resolved.
<i>Reset</i>	The resolved fault event is reset. If all faults in the system have been reset, all visual fault indicator outputs are deactivated.



Note

A fault output is a control output that has been configured as an *Audible fault indicator* or as a *Visual fault indicator* (see table 34.5).

42.4.3 Acknowledging fault events

42.4.3.1 Introduction

New fault events can be acknowledged:

- Using the network controller (see section 42.4.3.2).
- Using control inputs or keys (see section 42.4.3.3).
- Using the open interface (see section 42.4.3.4).
- Using the *Logging Viewer* (see chapter 50).



Note

When all faults are acknowledged, the *Audible fault indicator* fault outputs are deactivated.

42.4.3.2 Network controller

New fault events can be acknowledged using the *Faults...* menu of the network controller (see section 5.6.5). Using this menu it is possible to acknowledge individual fault events as well as all new fault events in the system.

42.4.3.3 Control input or key

New fault events can be acknowledged using control inputs or keys to which an *Acknowledge/Reset* action has been assigned (see section 38.15). However, such a control input or key acknowledges all new fault events in the system. It is not possible to acknowledge individual faults using a control input or key.

42.4.3.4 Open interface

New fault events can be acknowledged using the open interface (see the Open Interface Programming Instructions).

42.4.4 Resolving fault events

Before acknowledged fault events can be reset, they first must be resolved. Most fault events are automatically resolved by the system. Others need to be resolved manually.

Manual resolving is needed for faults whose presence is not checked again after they occurred (for example, an amplifier overload). After solving the problem, the fault status of these fault events must be manually set to *Resolved*. This is done by resetting the fault, after which the system checks the presence of the fault again. If the fault is not present anymore, the status of the fault event is set to both *Resolved* and *Reset*. If the fault is still present, the status of the fault event stays *Acknowledge*.

The information about the fault events (see chapter 45) describes how the fault events are resolved.

42.4.5 Resetting fault events

42.4.5.1 Introduction

Resolved fault events can be reset:

- Using the network controller (see section 42.4.5.2).
- Using control inputs or keys (see section 42.4.5.3).
- Using the open interface (see section 42.4.5.4).
- Using the *Logging Viewer* (see chapter 50).



Note

When all faults are reset, the *Visual fault indicator* outputs are deactivated.

42.4.5.2 Network controller

Resolved fault events can be reset using the *Faults...* menu of the network controller (see section 5.6.5). Using this menu it is possible to reset individual fault events as well as all resolved fault events in the system.

42.4.5.3 Control input or key

Resolved fault events can be reset using control inputs or keys to which an *Acknowledge/Reset* action has been assigned (see section 38.15). However, such a control input or key resets all resolved fault events in the system. It is not possible to reset individual faults using a control input or key.

42.4.5.4 Open interface

Resolved fault events can be reset using the open interface (see the Open Interface Programming Instructions).

43 General events list

General events in alphabetical order:

Event message:

Acknowledge

Originator:

Open interface client or unit that acknowledged the fault event.

Extra information:

Information about the fault event that was acknowledged including: time, location and event type.

Description:

Logs the acknowledgement of a fault event.

Recommended action:

Event message:

Amplifier resumes operation

Originator:

Main power amplifier that resumes operation.

Extra information:

Serial number and name of the spare power amplifier.

Description:

Logs the switch of a spare power amplifier to a main power amplifier.

Recommended action:

Event message:

Amplifier spare switch

Originator:

Main power amplifier that stops operating.

Extra information:

Serial number and name of the spare power amplifier.

Description:

Logs the switch of a main power amplifier to a spare power amplifier.

Recommended action:

Check the fault events of the main power amplifier and try to solve these faults.

Event message:

Call logging events discarded due to logging queue overflow

Originator:

Extra information:

Description:

The logging of call events is suspended due to an overflow of the input queue inside the network controller. This event is not shown on the display of the network controller.

Recommended action:

Make less overriding calls.

Event message:

Device connected via Open Interface

Originator:

Open interface client that connects.

Extra information:

Description:

Logs the connection of an open interface client to the system.

Recommended action:

Event message:

Device disconnected via Open Interface

Originator:

Open interface client that disconnects

Extra information:

Description:

Logs the disconnection of an open interface client from the system.

Recommended action:

Event message:*Emergency state acknowledge***Originator:**

Open interface client or unit that acknowledged the emergency state.

Extra information:

Description:

Logs the acknowledgement of the emergency state.

Recommended action:

Event message:*Logging of call events resumed***Originator:**

Extra information:

Description:

The logging of call events is resumed. This event is not shown on the display of the network controller.

Recommended action:

Event message:*Emergency state active***Originator:**

Open interface client or unit that activated the emergency state.

Extra information:

Description:

Logs the activation of the emergency state.

Recommended action:

Event message:*Network connections set to half optical power***Originator:**

Extra information:

Description:

Logs the start of the half power mode of the optical network.

Recommended action:

Event message:*Emergency state reset***Originator:**

Open interface client or unit that reset the emergency state.

Extra information:

Description:

Logs the reset of the emergency state.

Recommended action:

Event message:*Network connections reset to full optical power***Originator:**

Extra information:

Description:

Logs the end of the half power mode of the optical network.

Recommended action:

Event message:*Reset***Originator:**

Open interface client or unit that reset the fault event.

Extra information:

Information about the fault event that was reset including: date and time, location and event type.

Description:

Logs the reset of a fault event.

Recommended action:

Event message:*Resolve***Originator:**

Identical to the originator of the fault event.

Extra information:

Information about the fault event that was resolved including: date and time, location and event type.

Description:

Logs that a fault event is resolved.

Recommended action:

Event message:*Unit connect***Originator:**

Unit that connects.

Extra information:

Description:

Logs the connection of a unit to the system.

Recommended action:

**Note**

This general event is not applicable to open interface clients.

Event message:*System restarted***Originator:**

Network controller that is started.

Extra information:

Description:

Logs the start-up of a network controller.

Recommended action:

44 Call events list

Call events in alphabetical order:

Event message:

Call change

Originator:

Control input, key, open interface client or unit that started the call.

Extra information:

Name(s) of the output(s) that were removed from the routing and the name(s) of the output(s) that were added to the routing.

Description:

Logs a change in the routing of a call.

Recommended action:

Event message:

Call end

Originator:

Control input, key, open interface client or unit that started the call.

Extra information:

Description:

Logs the end of a call.

Recommended action:

Event message:

Call start

Originator:

Control input, key, open interface client or unit that started the call.

Extra information:

Priority, name(s) of the start chime, name(s) of the message(s), message(s) repetitions, live speech presence, audio input for live speech, name of the end chime, routing.

Description:

Logs the start of a call.

Recommended action:

45 Fault events list

Fault events in alphabetical order:

Event message:

Amplifier failure

Originator:

Amplifier channel in which the fault occurred.

Extra information:

Description:

Logs the failure of an amplifier channel. This fault event can only occur when the amplifier channel is enabled with the configuration software.

Resolve:

When the power amplifier disconnects or when the fault is resolved manually.

Recommended action:

Replace the power amplifier.


Note

The LBB4428/xx Power Amplifier combines the messages *Amplifier failure* and *Amplifier overload*.


Note

Resetting of faults may take up to 20 seconds for the LBB4428/00 Power Amplifier, because of the re-calibration of the pilot tone. The LED of a fault reset key on a call station keypad is not switched off until the re-calibration is finished.

Event message:

Amplifier ground short

Originator:

Amplifier channel in which the fault occurred.

Extra information:

Description:

Logs the short-to-ground of an amplifier channel. This fault event can only occur when the amplifier channel is enabled with the configuration software.

Resolve:

When the fault disappears or when the power amplifier disconnects.

Recommended action:

Check the cabling of the loudspeaker line and its insulation. This event can, for example, be generated when uninsulated parts of the cabling are in contact with the housing of the power amplifier or the 19" rack.

Event message:

Amplifier loudspeaker line failure

Originator:

Amplifier channel in which the fault occurred.

Extra information:

Description:

Logs the end-of-line failure of an amplifier channel (detected by LBB4442/00). This fault event can only occur when the amplifier channel is enabled with the configuration software.

Resolve:

When the fault disappears or when the power amplifier disconnects.

Recommended action:

Check the cabling of the loudspeaker line. If necessary, repair it.

Event message:*Amplifier initialization failure***Originator:**

Power amplifier channel in which the fault occurred.

Extra information:

Description:

Logs the inability of a power amplifier to return from the standby mode.

Resolve:

When the fault disappears or when the power amplifier disconnects.

Recommended action:

Switch the power amplifier off and on again.

Event message:*Amplifier overheat***Originator:**

Amplifier channel in which the fault occurred.

Extra information:

Description:

Logs the overheat ($> 85\text{ }^{\circ}\text{C}$) of an amplifier channel. The system decreases the audio level with 3 dB. This fault event can occur even when the power amplifier is disabled with the configuration software.

Resolve:

When the fault disappears or when the power amplifier disconnects.

Recommended action:

Check if the fans of the power amplifier operate correctly. Also check the ambient temperature of the rack. If necessary, use forced cooling.

**Note**

This fault event cannot be generated by LBB4428/xx Power Amplifiers.

Event message:*Amplifier overheat: (amplifier channel) muted***Originator:**

Amplifier channel in which the fault occurred.

Extra information:

Description:

Logs the overheat ($> 90\text{ }^{\circ}\text{C}$) of an amplifier channel. The system mutes all amplifier channels in the power amplifier. This fault can occur even when the power amplifier is disabled with the configuration software.

Resolve:

When the power amplifier disconnects or when the fault is resolved manually.

Recommended action:

Check if the fans of the power amplifier operate correctly. Also check the ambient temperature of the rack. If necessary, use forced cooling.

**Note**

This fault event cannot be generated by LBB4428/xx Power Amplifiers.

Event message:*Amplifier overload***Originator:**

Amplifier channel in which the fault occurred.

Extra information:

Description:

Logs the overload of an amplifier channel. This fault event can only occur when the power amplifier is enabled with the configuration software.

Resolve:

When the power amplifier disconnects or when the fault is resolved manually.

Recommended action:

- Decrease the number of loudspeakers connected to the amplifier channel **OR**
- Decrease the loudspeaker line voltage. (This influences the maximum volume of the loudspeakers connected to the line).

**Note**

This fault event cannot be generated by LBB4428/xx Power Amplifiers.

Event message:*Backup power supply failure***Originator:**

Unit in which the fault occurred.

Extra information:

Description:

Logs the failure of the backup power supply of a unit. This fault can only occur when the backup supply of the unit is enabled with the configuration software.

Resolve:

When the backup power supply returns or when the unit disconnects.

Recommended action:

Check the backup power supply and its connections to the unit that generated the event. If necessary, repair them.

**Note**

This fault event can only be generated by LBB4433/00 Call Station Kits and LBB442x/xx Power Amplifiers.

Event message:*Amplifier short circuit***Originator:**

Amplifier channel in which the fault occurred.

Extra information:

Description:

Logs a short-circuit of an amplifier channel. This fault event can only occur when the power amplifier is enabled with the configuration software.

Resolve:

When the fault disappears or when the power amplifier disconnects.

Recommended action:

Check the cabling of the loudspeaker line. If necessary, repair the short circuit.

Event message:*Call station audio path fault***Originator:**

Call station in which the fault occurred.

Extra information:

Description:

Logs an audio path fault of a call station.

Resolve:

When the call station disconnects or when the fault is resolved manually.

Recommended action:

Replace the call station.

Event message:

*Cobranet interface fault OR
Cobranet network fault*

Originator:

Unit in which the fault occurred.

Extra information:

Error code reported by the CobraNet Interface

Description:

Internal fault in the LBB4404/00 CobraNet Interface or CobraNet network fault. Most common faults are network faults, such as reception and transmission faults due to collisions, excessive network delay or broadcast traffic. Other faults could be related to the configuration.

Resolve:

When the error is no longer present or when another CobraNet error occurs on the same unit)

Recommended action:

- Make sure that the CobraNet interface is not connected to the Ethernet via a hub. Only use (managed) Ethernet switches. Repeater networks cause collisions.
- Make sure that the Ethernet network does not contain any loops.
- Check the Ethernet connections and the lengths of the Ethernet cables.
- If the Ethernet is also used to transport computer data, configure a high priority on the switch for the port that is used for CobraNet.
- Check if the bundle and channel numbers have been assigned correctly. Also check that at least one CobraNet device has a conductor priority unequal to zero.
- Check for each bundle number if it is not used by more than one transmitter.
- (Temporarily) disconnect other devices connected to the network to check if these are causing faults by transmitting corrupt packets.

For specialists only: the fault code is a reference to the CobraNet fault description, which can be found in the Error Code Reference part of the CobraNet Technical Datasheet. This datasheet can be downloaded from www.peakaudio.com.

Event message:

Configuration file error.

Originator:

Extra information:

Description:

Logs a consistency fault in the configuration file. (The default configuration file will be loaded.)

Resolve:

Immediately after acknowledgement.

Recommended action:

Check the version number of the configuration file. When this is lower than 1.4, convert it to the correct format with the configuration conversion software on the LBB4470/00 Praesideo Software CD-ROM.

**Note**

This fault event can only occur when the network controller is started.

Event message:

Configuration file mismatch

Originator:

Extra information;

Version of the configuration file, version of the system software.

Description:

Logs the mismatch of the version number of the configuration file and the version number of the system software.

Resolve:

Immediately after acknowledgement.

Recommended action:

Check the version number of the configuration file. When this is lower than 1.4, convert it to the correct format with the configuration conversion software on the LBB4470/00 Praesideo Software CD-ROM.

**Note**

This fault event can only occur when the network controller is started and the version number of the configuration file is 1.4 or higher.

Event message:*Control input line failure: (control input)***Originator:**

Control input in which the fault occurred.

Extra information:

Description:

Logs the failure of a supervised control input.

Resolve:

When the fault disappears or when the unit disconnects.

Recommended action:

Check the control input and the cables that are connected to it. If necessary, repair them.

**Note**

This fault event cannot be generated by LBB4430/00 Call Stations Basic and open interface clients.

Event message:*Fault input***Originator:**

Control input, key or open interface client that generated the fault event.

Extra information:

Description that is entered with the configuration software.

Description:

Logs the activation of a control input or key that was configured as a *Fault input*, or an open interface client that generated a *reportFault* command.

Resolve:

- If the fault was generated by a control input or key: when the *Fault Input* is deactivated or when the unit disconnects.
- If the fault was generated by an open interface client: when the open interface client reports that the error is resolved or when the open interface client disconnects.

Recommended action:

The recommended action depends on the purpose for which the specified control input, key or open interface client was configured.

Event message:*Flash card data error***Originator:**

Unit in which the fault occurred.

Extra information:

Description:

Logs a fault in the checksum of the flashcard. This fault event can only occur when the availability of a flash card is enabled with the configuration software and the flashcard is not missing.

Resolve:

When the fault disappears.

Recommended action:

- Replace the message set on the flashcard using the *File Transfer* application **OR**
- Replace the flashcard.

Event message:*Flash card missing***Originator:**

Unit in which the fault occurred.

Extra information:

Description:

Logs the absence of the flash card. This error can only occur when the availability of a flash card is enabled with the configuration software.

Resolve:

When the fault disappears and the network controller restarts.

Recommended action:

Check if a flashcard has been installed in the unit. If so, re-connect the flash card or replace it and restart the network controller.

Event message:*Hardware version mismatch***Originator:**

Unit in which the fault occurred.

Extra information:

The version number of the installed hardware and the lowest version number that is required to use the configured functionality.

Description:

Logs the mismatch of the version number of the unit hardware and the required hardware version number. The mismatch depends on the configured functionality of the unit. This fault event only occurs when the configured functionality cannot be handled by the hardware. Typically, this event occurs when multiple loudspeaker line supervision is used in combination with /00 Power Amplifiers.

Resolve:

When the unit disconnects.

Recommended action:

- Use a newer version of the unit that caused the fault **OR**
- Downgrade to a lower software version

Event message:*Line supervision master mismatch***Originator:**

Amplifier channel in which the fault occurred.

Extra information:

Description:

Logs the mismatch between the installed line supervision devices and the configured line supervision devices. This fault event can only occur when the amplifier channel is enabled with the configuration software.

Resolve:

When the installed and configured line supervisions devices match.

Recommended action:

Disable wireless line supervision for the specified amplifier channel with the web interface or install supervision-masters for all channels that use wireless line supervision.

Event message:*Keypad mismatch***Originator:**

Call station in which the fault occurred.

Extra information:

Number of configured keypads and the number of detected keypads.

Description:

Logs the mismatch of the number of configured and detected call station keypads.

Resolve:

When the fault disappears or when the call station disconnects.

Recommended action:

Make sure that the number of configured keypads is equal to the number of keypads that are connected to the call station.

Event message:*Loudspeaker failure***Originator:**

Amplifier channel in which the fault occurred.

Extra information:

Address(es) and name(s) of loudspeaker supervision board(s).

Description:

Logs the supervision failure of one or more LBB4441/00 Loudspeaker Supervision Boards. This fault can only occur when the amplifier channel and supervision boards are enabled with the configuration software.

Resolve:

When the power amplifier disconnects or when the fault is resolved manually.

Recommended action:

Check the loudspeaker connected to the loudspeaker supervision board that has reported the fault. Also check the loudspeaker line and the loudspeaker supervision board itself.

Event message:*Loudspeaker line failure***Originator:**

Amplifier channel in which the fault occurred.

Extra information:

Address(es) and name(s) of end of line supervision board(s).

Description:

Logs the supervision failure of one or more LBB4443/00 End of Line (EOL) Supervision Boards. This fault can only occur when the amplifier channel and supervision boards are enabled with the configuration software.

Resolve:

When the power amplifier disconnects or when the fault is resolved manually.

Recommended action:

Check the loudspeaker line connected to the EOL supervision board that has reported the fault. Also check the loudspeaker and the EOL supervision board itself.

**Note**

The system cannot attach the *Resolved* status to this event immediately after the fault has been resolved, because the system first must establish a communication link with the supervision board. This can take up to 300 s.

**Note**

The system cannot attach the *Resolved* status to this event immediately after the fault has been resolved, because the system first must establish a communication link with the supervision board. This can take up to 100 s.

**Note**

When this fault event is reset before the system has attached the *Resolved* status to it, the status of the fault event becomes *Reset*. Then, the same fault event is raised again with status *New*.

**Note**

When this fault event reset before the system has attached the *Resolved* status to it, the status of the fault event becomes *Reset*. Then, the same fault event is raised again with status *New*.

Event message:*Mains power supply failure***Originator:**

Unit in which the fault occurred.

Extra information:

Description:

Logs the failure of the mains power supply.

Resolve:

When the mains power returns or when the unit disconnects.

Recommended action:

Check the mains power supply and its connections to the unit that generated the event.

**Note**

This fault event can only be generated by LBB4433/00 Call Station Kits and LBB442x/xx Power Amplifiers.

Event message:*Memory error***Originator:**

Unit in which the fault occurred.

Extra information:

Whether the flash memory is defective, whether the EEPROM memory is defective.

Description:

Logs a memory fault.

Resolve:

When the fault disappears or when the unit disconnects.

Recommended action:

- Restart the network controller **OR**
- Switch off the unit in which the fault occurred **OR**
- Replace the unit in which the fault occurred.

**Note**

This fault event cannot be generated by open interface clients.

Event message:*Messages missing***Originator:**

Unit in which the fault occurred.

Extra information:

Name(s) of message(s) that are present in the configuration, but are not present on the flash card.

Description:

Logs the mismatch of the configured and detected messages in the flashcard. Can only occur when the availability of a flash card is enabled with the configuration software and restart the network controller.

Resolve:

When the fault disappears.

Recommended action:

Check the file names. (These are case-sensitive.) If the message names appear to be correctly configured, upload the message set again.

Event message:*Microphone failure***Originator:**

Audio input in which the fault occurred.

Extra information:

Description:

Logs the failure of a microphone on or connected to a unit.

Resolve:

When the fault disappears or when the unit disconnects.

Recommended action:

Check the microphone and its connections to the system. If necessary, repair them.

**Note**

This fault event can only be generated by call stations (LBB4430/00 and LBB4433/00) and LBB442x/xx Power Amplifiers.

Event message:

No valid configuration file found; a new configuration file will be created.

Originator:

Extra information:

Description:

Logs the absence/corruption of the configuration file (default configuration loaded).

Resolve:

Immediately after acknowledgement.

Recommended action:

Check the version number of the configuration file. When this is lower than 1.4, convert it to the correct format with the configuration conversion software on the LBB4470/00 Praesideo Software CD-ROM.

**Note**

This fault event can only occur when the network controller is started.

Event message:

Processor reset

Originator:

Unit in which the fault occurred.

Extra information:

The type of processor that caused the reset.

Description:

Logs the watchdog reset of a processor.

Resolve:

Immediately after acknowledgement.

Recommended action:

**Note**

This fault event can only be generated by units that are started up. It cannot be generated by open interface clients.

Event message:

Pilot tone calibration failure

Originator:

Amplifier channel in which the fault occurred.

Extra information:

Description:

Logs the failure of the pilot tone calibration of an amplifier channel. This fault can only occur when the amplifier channel is enabled with the configuration software. When end-of-line supervision is not configured, this fault can only occur for pilot tone 1 and 2.

Resolve:

When the fault disappears or when the unit disconnect.

Recommended action:

Switch the unit that generated the event off and on again to allow it to re-calibrate. If this does not solve the fault, there is a failure in the loudspeaker line connected to the specified amplifier channel (e.g. line supervision master/slave mismatch, loudspeaker line failure).

Event message:*Redundant ring broken***Originator:**

Extra information:

Description:

Logs a break in the redundant ring.

Resolve:

When the redundant ring is restored.

Recommended action:

- Restore the redundant ring **OR**
- On the *System wide settings* pages of the configuration software, set *Redundant ring network* to *No*.

Event message:*Unit missing***Originator:**

Unit that is missing

Extra information:

Description:

Logs the absence of a configured unit.

Resolve:

When the unit reconnects.

Recommended action:

Disable the configured unit with the configuration software or connect the missing unit to the system.

**Note**

The network controller detects missing units within 1 minute and missing Open Interface clients within 10 minutes.

Event message:*Unit not configured***Originator:**

Unit that is not configured.

Extra information:

Description:

Logs the connection of a unit that is not configured.

Resolve:

When the unit disconnects.

Recommended action:

Check the serial number and type of the unit that generated the event. Use the configuration software to configure and enable the unit.

**Note**

This fault event cannot be generated by open interface clients.

Event message:*Unit unknown type***Originator:**

Unit that has the unknown type.

Extra information:

Description:

Logs the connection of a unit of an unknown type.

Resolve:

When the unit disconnects.

Recommended action:

If the unit is not needed, remove disconnect it from the system. If the unit is needed, upgrade to a software version that supports the unit type. If the current software version supports the unit type, the unit is broken and must be repaired.

**Note**

This fault event cannot be generated by open interface clients.

Intentionally left blank.

Section 10 - Optional Software

Intentionally left blank.

46 CobraNet Discovery

46.1 Overview

CobraNet Discovery provides the ability to discover and assign IP addresses to all of the CobraNet devices on a network and update the CobraNet firmware.



Note

Do not run more than one instance of *CobraNet Discovery* at the same time. Otherwise, CobraNet Discovery incorrectly reports these instances as CobraNet devices.

46.2 System requirements

CobraNet Discovery is only supported under Windows 98, Windows NT 4.0 and Windows 2000. Operation under Windows 95 may be possible, but this is not tested nor is it supported. Internet Explorer 4.0 or greater must be installed prior to *CobraNet Discovery* to ensure proper operation. The PC running the *CobraNet Discovery* application must contain a properly configured Ethernet network interface card (also known as a NIC, or network adapter).

46.3 Installation

Proceed as follows:

- 1 Start the LBB4470/00 Praesideo Software CD-ROM (see section 27.2). A screen similar to the one in figure 27.1 appears.
- 2 Click *Optional > CobraNet Discovery* to start the setup program. Follow the instructions that are displayed on screen. A notification is displayed when the installation is finished.

46.4 Start

Proceed as follows:

- 1 Go to *Start > Programs > CobraNet Discovery* to start *CobraNet Discovery*. A screen similar to the one in figure 46.1 appears.

46.5 Discovery window

46.5.1 Overview

The *Discovery* window (see figure 46.1) displays a list of the CobraNet devices found on the network.

S	MAC Address	IP Address	errorCount	sysDescription
✓	00602b028764	192.168.2.2	0	Bosch Praesideo CobraNet version 0.9.9
✓	00602b028767	192.168.2.3	0	Bosch Praesideo CobraNet version 0.9.9

Devices: 2 Active: 2 Dead: 0

figure 46.1: Discovery window

46.5.2 Column headings

46.5.2.1 S (Status)

This column displays the status of each discovered device. A green checkmark indicates that the device is active. A red cross indicates that the device is not responding or is no longer connected to the network.

46.5.2.2 MAC Address

This column displays the globally unique Ethernet MAC address of each discovered device.

46.5.2.3 IP Address

The *IP Address* column displays the network unique IP address assigned to each discovered device. CobraNet devices initially have an IP address of 0.0.0.0. *CobraNet Discovery* will assign unique IP addresses to each device when *Enable Auto Assignment* is checked in the *Configuration* dialog box (see section 46.6.3).

46.5.2.4 sysDescription

This column displays the full name and firmware version of each discovered device.

46.5.2.5 errorCount

This column displays the number of errors that have occurred since the *CobraNet Discovery* application was started.

46.6 Configuration dialog box

46.6.1 Introduction

The *Configuration* dialog box (see figure 46.2) is displayed by selecting *View > Options* from the menu bar. It contains all of the controls required to customize the *CobraNet Discovery* application.

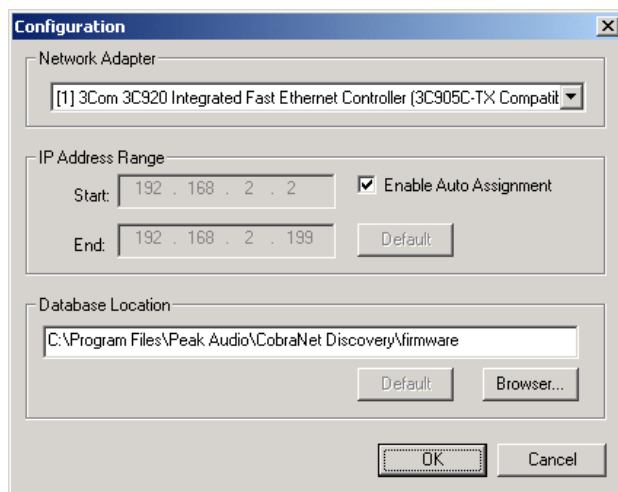


figure 46.2: Configuration dialog box

46.6.2 Network adapter

Displays the network adapter (NIC) that will be used to connect to the CobraNet network. For PCs containing multiple NICs, this list box allows any currently installed card to serve as the network adapter used in the discovery process.

46.6.3 IP Address Range

46.6.3.1 Start

The first IP address to be assigned when automatic assignment is enabled.

46.6.3.2 End

The last IP address to be assigned when automatic assignment is enabled.

46.6.3.3 Enable Auto Assignment

When checked, *CobraNet Discovery* automatically assigns IP addresses to all discovered devices according to the specified IP address range. When unchecked, automatic assignment is disabled.

46.6.3.4 Default

Pressing this button will detect the IP address of the selected network adapter and set the default IP range accordingly.

46.6.4 Database Location

46.6.4.1 Introduction

This window displays the path to the directory where CobraNet firmware files reside. By default, the firmware sub-directory created during the *CobraNet Discovery* installation process will be displayed in this window. The firmware files obtained from CobraNet equipment manufacturers must be manually placed in this directory.

46.6.4.2 Default

Pressing this button returns the *Database Location* path statement to the default firmware directory.

46.6.4.3 Browser

Pressing this button allows alternate firmware database locations to be specified.

47 CobraNet Configuration Application

47.1 Introduction

This application allows to configure the CobraNet parameters of all the CobraNet devices detected on the CobraNet network. It can be launched from any PC connected to the CobraNet network.



Note

It is necessary to know at least the basic theory of CobraNet so as to well understand the meaning of all the parameters. Information can be found at www.peakaudio.com.

47.3 General operation

The configuration program can be started from *Start > Programs > Praesideo > CNConfig*. A screen similar to the one in figure 47.1 is displayed. This window displays all the CobraNet devices detected on the network, and their associated CobraNet parameters. Each cell (so each column) is resizable by holding the mouse clicked on the right boundary of the cell: move the mouse to the left to shorten the cell, or to the right to enlarge it. Release the mouse when the desired size is obtained.

To focus on the parameters of one of the detected CobraNet devices, click on its line to highlight it. To change a parameter, right click on and modify its value.

Double click on the selected device line to access all the parameters of this device: the *Advanced Configuration* window is displayed (see section 47.4).

47.2 Installation

Proceed as follows:

- 1 Start the LBB4470/00 Praesideo Software CD-ROM (see section 27.2). A screen similar to the one in figure 27.1 appears.
- 2 Click *Optional > CobraNet Configuration Application* to start the setup program of the *CobraNet Configuration Application*. Follow the instructions that are displayed on screen. A notification is displayed when the installation is finished.

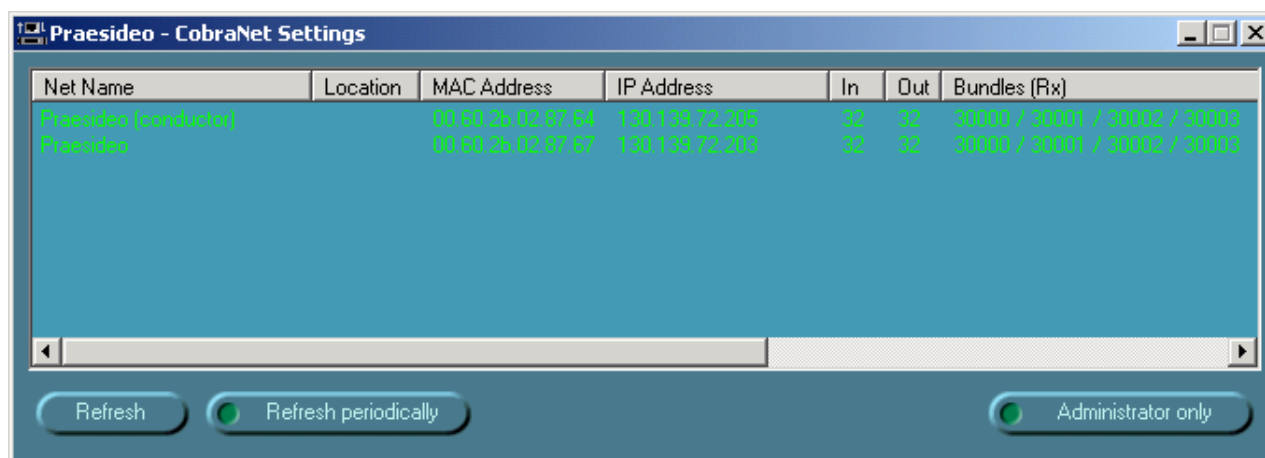


figure 47.1: CobraNet Settings

47.4 Advanced configuration

The *Advanced configuration* dialog box (see figure 47.2) allows to configure the following groups of parameters:

- Identity and location parameters (see table 47.1).
- Conductor and clock properties (see table 47.2).
- Receivers and transmitters (see table 47.3).
- Channels (see section 47.5).

The action buttons are:

- *Save*
Click on this button to save the settings in a file (.cnc). This operation does not apply the settings to the selected device. Click on the *Apply* button so that the settings become effective.
- *Load*
Click on this button to load a pre-defined configuration (.cnc file). This operation does not apply the settings to the device. Click on the *Apply* button so that the settings become effective.
- *Apply*
Click on the *Apply* button to apply the settings to the device.
- *Help*
Click on this button to open the online help.

table 47.1: Identity and location parameters

Element	Description
<i>Network Name</i>	Type here an administrative name assigned to this CobraNet device.
<i>Location</i>	Type here the name of the physical location of the device ("control room" for instance).
<i>Contact</i>	The textual identification of the person to contact for this device, plus information on how to contact this person.
<i>Current IP Address</i>	IP address of the device.
<i>IP Address at startup</i>	Default IP address (set at initialization).

table 47.2: Conductor and clock properties

Element	Description
<i>Conductor Clock</i>	Set this to <i>Internal clock</i> for LBB4404/00 CobraNet Interfaces.
<i>Perform Clock</i>	Set this to <i>Internal clock</i> for LBB4404/00 CobraNet Interfaces.
<i>Locked on external or network clock</i>	Not applicable for LBB4404/00 CobraNet Interfaces.
<i>External synchronization preset</i>	Not applicable for LBB4404/00 CobraNet Interfaces.
<i>Conductor Priority</i>	Not applicable for LBB4404/00 CobraNet Interfaces. Set a priority between 0 and 255. The unit with the highest priority becomes the Cobranet conductor.

table 47.3: Receivers and transmitters

Element	Description
<i>Bundle Number</i>	Number of the received or transmitted bundle. • 0 is reserved for unused bundles • Bundles 1 to 255 are multicast bundles (point to multipoint) • Bundles 256 to 65279 are unicast bundles • Bundles 65280 to 65535 are private bundles Each bundle can contain up to 8 channels. Double click on any channel line to assign the I/Os of a device to the channels of the bundle (see section 47.5).

Praesideo - Cobranet Advanced Configuration

Network Name : Current IP Address :

Location : IP Address at startup :

Contact :

Conductor Clock : Locked on external or network clock ☒

Performer Clock : External synchronization present ☐

Conductor Priority :

Receiver 1

Bundle Number :

Input
Ch 1 : AI1
Ch 2 : Unused
Ch 3 : Unused
Ch 4 : Unused
Ch 5 : Unused
Ch 6 : Unused
Ch 7 : Unused
Ch 8 : Unused

Receiver 2

Bundle Number :

Input
Ch 1 : AI2
Ch 2 : Unused
Ch 3 : Unused
Ch 4 : Unused
Ch 5 : Unused
Ch 6 : Unused
Ch 7 : Unused
Ch 8 : Unused

Receiver 3

Bundle Number :

Input
Ch 1 : AI3
Ch 2 : Unused
Ch 3 : Unused
Ch 4 : Unused
Ch 5 : Unused
Ch 6 : Unused
Ch 7 : Unused
Ch 8 : Unused

Receiver 4

Bundle Number :

Input
Ch 1 : AI4
Ch 2 : Unused
Ch 3 : Unused
Ch 4 : Unused
Ch 5 : Unused
Ch 6 : Unused
Ch 7 : Unused
Ch 8 : Unused

Transmitter 1

Bundle Number :

Output	Format
Ch 1 : AO1	20 bits
Ch 2 : Unused	20 bits
Ch 3 : Unused	20 bits
Ch 4 : Unused	20 bits
Ch 5 : Unused	20 bits
Ch 6 : Unused	20 bits
Ch 7 : Unused	20 bits
Ch 8 : Unused	20 bits

Transmitter 2

Bundle Number :

Output	Format
Ch 1 : AO2	20 bits
Ch 2 : Unused	20 bits
Ch 3 : Unused	20 bits
Ch 4 : Unused	20 bits
Ch 5 : Unused	20 bits
Ch 6 : Unused	20 bits
Ch 7 : Unused	20 bits
Ch 8 : Unused	20 bits

Transmitter 3

Bundle Number :

Output	Format
Ch 1 : AO3	20 bits
Ch 2 : Unused	20 bits
Ch 3 : Unused	20 bits
Ch 4 : Unused	20 bits
Ch 5 : Unused	20 bits
Ch 6 : Unused	20 bits
Ch 7 : Unused	20 bits
Ch 8 : Unused	20 bits

Transmitter 4

Bundle Number :

Output	Format
Ch 1 : AO4	20 bits
Ch 2 : Unused	20 bits
Ch 3 : Unused	20 bits
Ch 4 : Unused	20 bits
Ch 5 : Unused	20 bits
Ch 6 : Unused	20 bits
Ch 7 : Unused	20 bits
Ch 8 : Unused	20 bits

Load Save Help Apply

figure 47.2: Advanced configuration

47.5 Channels

47.5.1 Overview

Each bundle can contain up to 8 channels. Double click on any channel line in the *Advanced Configuration* dialog box (see figure 47.2) to assign the I/Os of a device to the channels of the bundle.

- For transmitters, a screen similar to the one in figure 47.3 appears. See table 47.4 for a description of the elements.
- For receivers, a screen similar to the one in figure 47.4 appears. See table 47.4 for a description of the elements.

table 47.4: Bundle properties

Element	Description
<i>Audio Format</i>	For each channel of a bundle, you can select the format of the transmitted audio samples (16, 20, or 24 bits per sample). This parameter is only for transmitters. (There is no parameter for the sampling frequency, as it is fixed to 48 KHz in the CobraNet protocol).
<i>Unicast MAC Address</i>	This field is valid in the case the bundle number corresponds to a private unicast bundle. • For a receiver, it is necessary to give the MAC address of the CobraNet device that transmits the bundle. • For a transmitter, it is necessary to give the MAC address of the CobraNet device that receives the bundle.
<i>Bundle Priority</i>	The bundle priority is used to solve conflicts where several transmitters attempt to transmit the same bundle (higher priority is elected). Only one transmitter is permitted per bundle. For receivers, if a transmitter is able to service a limited number of receivers due to <i>Unicast Mode</i> selection, the request priority determines which receivers are serviced.
<i>Unicast Mode</i>	Specifies the number of unicast destinations served before automatically switching to multicast. Multicast addressing is useful for efficient point to multipoint routing though multicast addressing consumes bandwidth on all ports on a switched network. • 0 - Multicast addressing is used at all times. • 1 - Unicast addressing used to single receiver. • 2 to 4 – Unicast addressing of two to four receivers (packets are repeated). (Note: these settings are only available for devices with embedded CobraNet firmware version 2.8.3 or higher) • 0x7FFFFFFF - Multicast addressing is never used. • Other values - Multicast addressing used for multiple receivers.
<i>Max Unicast</i>	Specifies the maximum number of unicast destinations supported simultaneously by the transmitter in a point to multi point routing. Receivers in excess of this number will not receive the bundle. If <i>Unicast Mode</i> is set lower than <i>Max Unicast</i> , the bundle will switch to multicast before the limitation on unicast destinations is reached.

T1 Advanced configuration

Bundle Map (defines how CobraNet outputs are routed to bundle channels) :

	Output	Audio Format
Bundle Channel 1 :	A01	20 bits
Bundle Channel 2 :	Unused	20 bits
Bundle Channel 3 :	Unused	20 bits
Bundle Channel 4 :	Unused	20 bits
Bundle Channel 5 :	Unused	20 bits
Bundle Channel 6 :	Unused	20 bits
Bundle Channel 7 :	Unused	20 bits
Bundle Channel 8 :	Unused	20 bits

Unicast MAC Address : 00 60 2B 02 87 64

Bundle Priority : 16

Unicast Mode : 8388607

Max Unicast : 1

OK Cancel

figure 47.3: Transmitter bundle map

If the device is an LBB4404/00 CobraNet Interface, 4 CobraNet inputs (*AI1* to *AI4*) and 4 CobraNet outputs (*A01* to *A04*) are available.

For a transmitter, each CobraNet output can be routed to one or several channels of a bundle (an output can also be routed to channels of different bundles). The CobraNet outputs are selectable from the list boxes.

R1 Advanced configuration

Bundle Map (defines how bundle channels are routed to CobraNet inputs) :

	Input
Bundle Channel 1 :	AI1
Bundle Channel 2 :	Unused
Bundle Channel 3 :	Unused
Bundle Channel 4 :	Unused
Bundle Channel 5 :	Unused
Bundle Channel 6 :	Unused
Bundle Channel 7 :	Unused
Bundle Channel 8 :	Unused

Unicast MAC Address : 00 60 2B 02 87 64

Bundle Priority : 16

OK Cancel

figure 47.4: Receiver bundle map

For a receiver, each channel of a bundle can be routed to a CobraNet input of a device. The CobraNet inputs are selectable from the list boxes. Note that several channels of a bundle cannot be routed so to the same CobraNet input.

A point to point communication between a transmitter and a receiver is established when they are set up to use the same bundle number.

48 Configuration conversion

48.1 Introduction

Configuration files from Praesideo 0.91, Praesideo 0.92 or Praesideo 1.0 systems are not compatible with configuration files from Praesideo 1.1 systems (and higher). They must be converted using the *Configuration conversion* software before they can be used by Praesideo 2.1.

48.2 Preparation

Before the old Praesideo 0.91, 0.92 or 1.0 configuration file can be converted, it must be transferred from the network controller to the configuration PC. Proceed as follows:

- 1 On the configuration PC, go to *Start > Programs > Praesideo > FT Application* to start the *File Transfer Application*. A screen similar to the one in figure 28.5 appears.
- 2 Connect to the network controller (see section 28.3).
- 3 In the *File Transfer Application*, click the *File Transfer* button. A screen similar to the one in figure 48.1 appears. Then select *Configuration*.
- 4 Select the *praesideo.cfg* file in the *Network Controller* box. The *praesideo.cfg* file is highlighted and the < button becomes available.
- 5 Click the < button to transfer the file from the network controller to the PC. A screen pops up that provides information about the file transfer progress.
- 6 When the file transfer is complete, the transferred file is shown in the *Local PC* box.

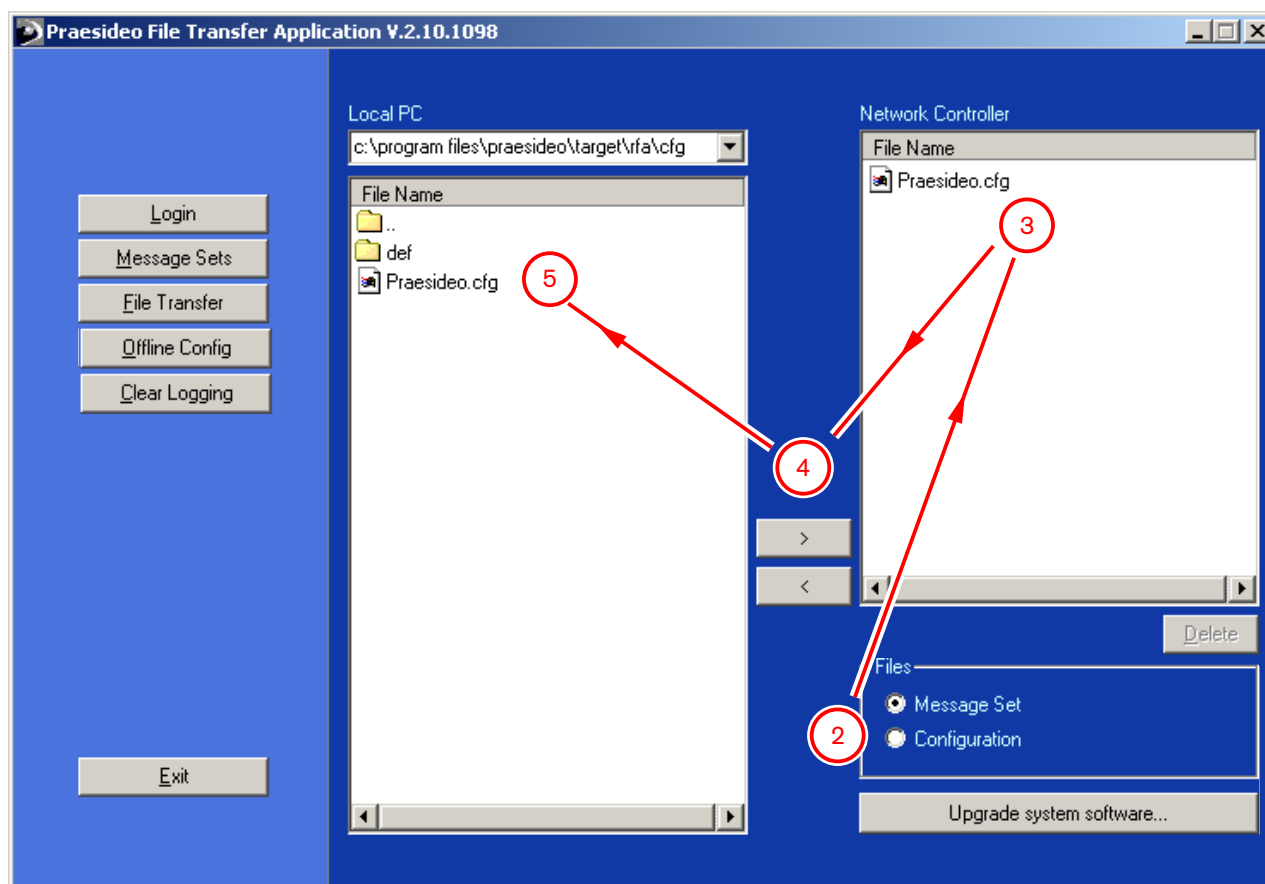


figure 48.1: File transfer screen

48.3 Installation

Proceed as follows:

- 1 Start the LBB4470/00 Praesideo Software CD-ROM (see section 27.2). A screen similar to the one in figure 27.1 appears.
- 2 Go to *Optional > Configuration conversion* hyperlink. A *File Download* window appears.
- 3 Click the *Save* button to save the configuration conversion files to your computer. A screen similar to the one in figure 48.2 appears.

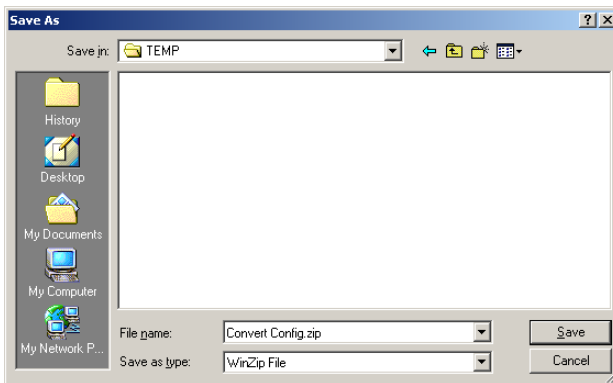


figure 48.2: Save As window

- 4 Save the *Convert Config.zip* file in *C:\TEMP* (as indicated in figure 48.2).
- 5 Unzip the files in the *Convert Config.zip* archive to *C:\TEMP*.

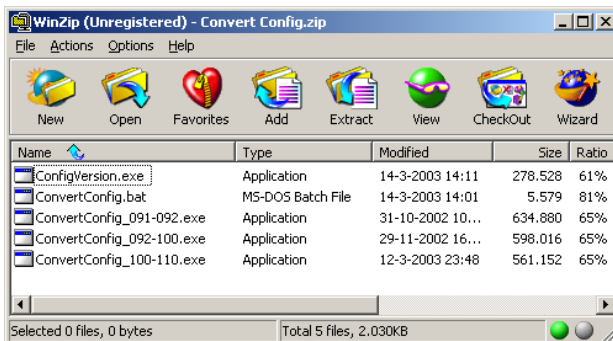


figure 48.3: Save As window

- 6 Go to *Start > Run* to open the command prompt and enter *cmd* to open a DOS box.
- 7 Enter *cd\TEMP* (see figure 48.4) to go to the convert configuration application.
- 8 Enter *convertconfig praesideo* to start the configuration file conversion. The results of the process are displayed on screen (see figure 48.4).



Note

The original configuration file is renamed before the start of the conversion. For example, if the name of the 0.91 configuration file is *praesideo.cfg*, it is renamed to *praesideo-091.cfg*.

Microsoft Windows 2000 [Version 5.00.2195]
(C) Copyright 1985-2000 Microsoft Corp.

```
C:\cd TEMP
C:\TEMP>convertconfig Praesideo
* Checking command line arguments
* Checking configuration file
* Converting praesideo.cfg from 0.91
* Converting praesideo.cfg from 0.92
* Converting praesideo.cfg from 1.00
```

Configuration file praesideo.cfg converted to 1.10 format

figure 48.4: Configuration file conversion

- 9 Use *Windows Explorer* to copy the *Praesideo.cfg* file from the *C:\Program Files\Praesideo\target\rfacfg* folder to the *C:\Program Files\Praesideo\Programs\Convert Config Application* folder. The converted configuration file is ready to be transferred back to the network controller using the *File Transfer Application* (see figure 48.1).

49 Logging Server

49.1 Introduction

With the *Logging Server*, the events generated by a maximum of 64 systems can be logged. Typically, the *Logging Server* runs on a PC that is connected to all systems of which the events are logged. The *Logging Server* stores the events in a database. The events in the database can be viewed with up to 5 *Logging Viewers* (see chapter 50).

49.2 Requirements

The *Logging Server* can run on any PC that meets the following requirements:

- Operating system: Windows 2000 with Service Pack 4 or Windows XP with Service Pack 1.
- 512 MB of RAM.
- Free disk space: depends on the amount of events that must be stored, but it is recommended to have at least 10 GB of free disk space.
- Network connection: 100 Base-T or 10 Base-T.
- It is good practice to keep the PC updated with the latest Windows updates. This makes sure that the PC contains the most recent version and service packs of the Microsoft Jet 4.0 database, which is used by the *Logging Server*. (See <http://support.microsoft.com/common/international.aspx>).

49.3 Installation

Proceed as follows:

- 1 Start the LBB4470/00 Praesideo Software CD-ROM (see section 27.2).
- 2 Click *Optional > Logging Application Server*. A *File Download* window appears.
- 3 Click the *Open* button to start the setup program of the *Logging Server*. A screen similar to the one in figure 49.1 appears.

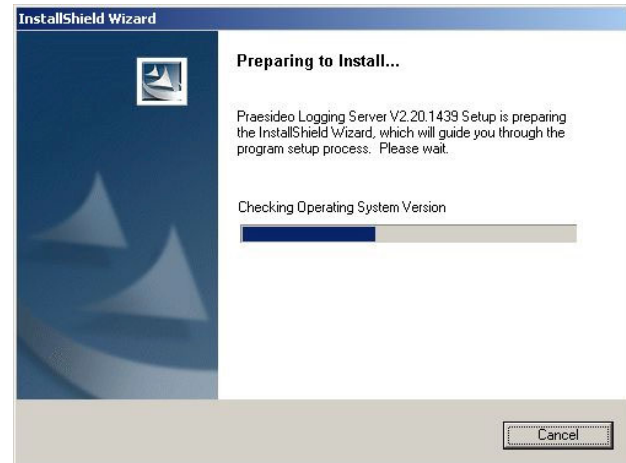


figure 49.1: Logging server setup

- 4 Follow the instructions that are displayed on screen. A notification is displayed when the installation is finished.

49.4 Start

The PC automatically starts the *Logging Server* when Windows is started. To indicate that the *Logging Server* has been started and operates correctly, an icon appears in the system tray of the taskbar of Windows (see figure 49.2).



figure 49.2: Logging Server icon (correct operation)

When the *Logging Server* has been started and faults have occurred, the icon has a red cross (see figure 49.3).



figure 49.3: Logging Server icon (faults)

When the PC does not automatically start the *Logging Server*, proceed as follows to start it manually:

- 1 Go to *Start > Programs > Praesideo*.
- 2 Click *Logging Server*. A new icon appears in the system tray of the taskbar of Windows (see figure 49.2 and figure 49.3).

49.5 Main window

49.5.1 Opening the main window

Proceed as follows:

- 1 Double click on the *Logging Server* icon (see figure 49.2). A screen similar to the one in figure 49.4 appears.

 **Note**
When server authentication (see section 49.6.5) is enabled, the *Logging Server* asks for a user name and a password.

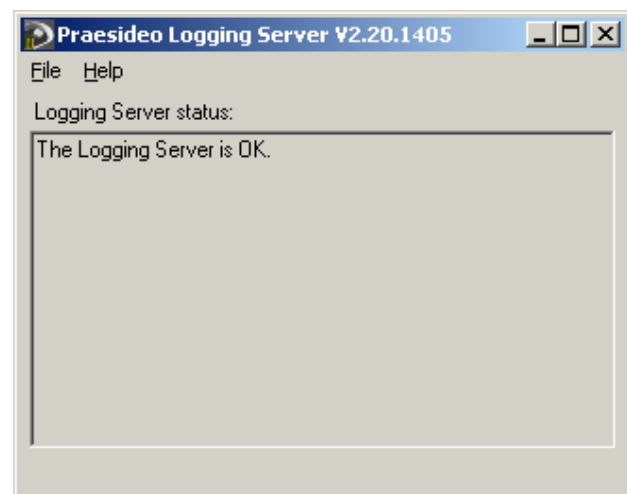


figure 49.4: Main window

49.5.2 Status messages

The main window displays the status of the *Logging Server*.

Message:

The Logging Server is OK.

Description:

The *Logging Server* operates correctly.

Recommended action:

Message:

Logging Server has no connection with <system>

Description:

There is no connection with the specified system.

Recommended action:

Make sure that the specified system is running and that the specified system has an Ethernet connection with the *Logging Server*.

Message:

Network controller <system> refused connection due to incorrect user name or password.

Description:

It is not possible to connect to the specified system, because the network controller authentication failed.

Recommended action:

Make sure the specified system knows the user name and password of the *Logging Server* (see section 49.6.5.3).

Message:

The Logging Server options are changed. Restart the Logging Server to use the changed settings.

Description:

The configuration settings of the *Logging Server* were changed. The changed settings are not used until the *Logging Server* is restarted.

Recommended action:

Restart the *Logging Server* to use the new settings.

Message:

The Logging Server database has reached its critical size. Please decrease the logging expiration periods.

Description:

The database has reached its critical size.

Recommended action:

Enable and decrease the logging expiration periods to move events to the overflow files (see section 49.6.3) or flush the database (see section 49.6.4.4).

Message:

The Logging Server overflow files have reached their critical size. Please clear or delete the overflow files.

Description:

One or more overflow files have reached the critical size.

Recommended action:

The overflow files are comma separated value (*.csv) files. They can be opened in an editor (e.g. Windows Wordpad, Microsoft Excel). When an overflow file reaches its critical size, use an editor to delete data from the overflow file and decrease its size.

49.5.3 Menu bar

Use the menus in the menu bar of the main window (see figure 49.4) to:

- Configure the *Logging Server* (see section 49.6).
- Close the *Logging Server* (*File > Exit*).

49.6 Configuration

49.6.1 Introduction

- 1 Open the main window (see section 49.5.1).
- 2 Click *File > Options*. A screen similar to the one in figure 49.5 appears.

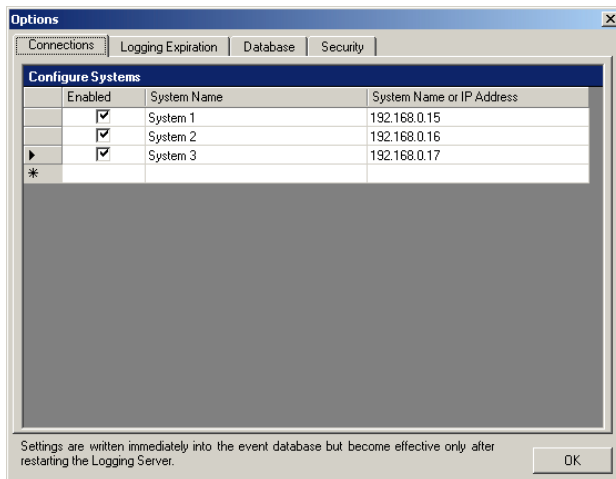


figure 49.5: Options window

- 3 Go to the *Connections* tab to define the connections to the systems of which the events must be logged (see section 49.6.2).
- 4 Go to the *Logging Expiration* tab to specify the expiration periods of the logged events (see section 49.6.3).
- 5 Go to the *Database* tab to define the properties of the logging database (see section 49.6.4).
- 6 Go to the *Security* tab to change the security settings of the logging server (see section 49.6.5).

49.6.2 Connections

49.6.2.1 Introduction

The *Logging Server* can log the events generated by up to 64 systems. The connections to the systems must be defined on the *Connections* tab.

49.6.2.2 Add a system

Proceed as follows:

- 1 Click in the *Enabled* field of the row that is marked with an asterisk (*). A new row is added to the list of systems (see figure 49.6).

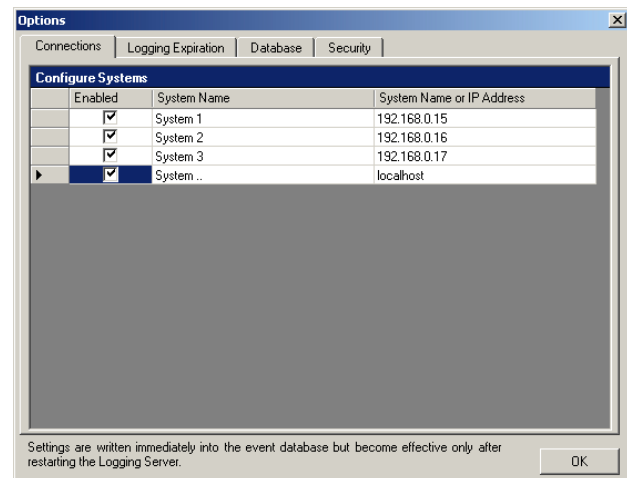


figure 49.6: Add a system (1)

- 2 Click the *System Name* field and enter the name of the system to which the *Logging Server* must connect. The name may consist of up to 16 characters. For example, *System 4* (see figure 49.7).

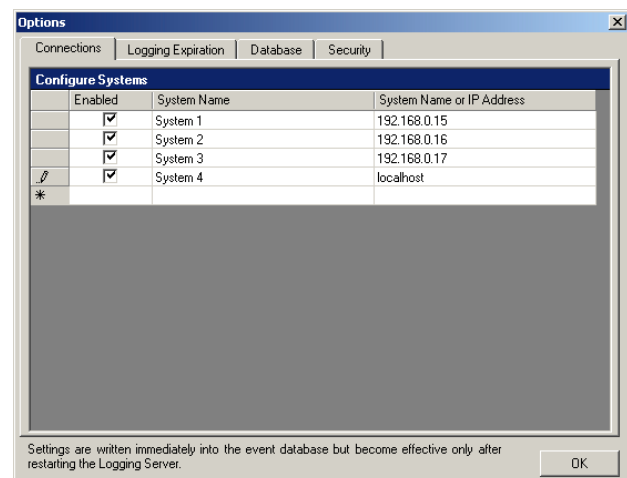


figure 49.7: Add a system (2)

- 3 Click the *System Name or IP Address* field and enter the IP address or the name of the network controller of the system to which the *Logging Server* must connect. For example, *192.168.0.18* (see figure 49.8).



Note

If the name of the network controller is used, the IP address of the network controller must be stored in the Windows hosts file (WINNT\system32\drivers\etc.). This file can be edited with Notepad.

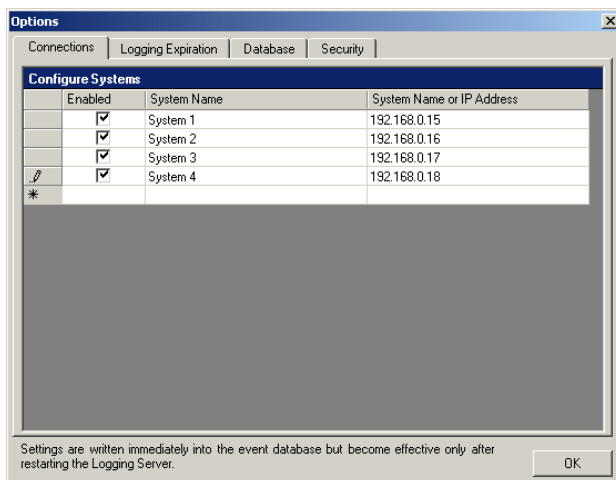


figure 49.8: Add a system (3)

49.6.2.3 Disable event logging for a system

To disable the event logging for a system, remove the checkmark from its *Enabled* checkbox.

49.6.2.4 Delete a system

Proceed as follows:

- 1 Click the field in front of the row that contains the system. For example, *System 4* (see figure 49.9).

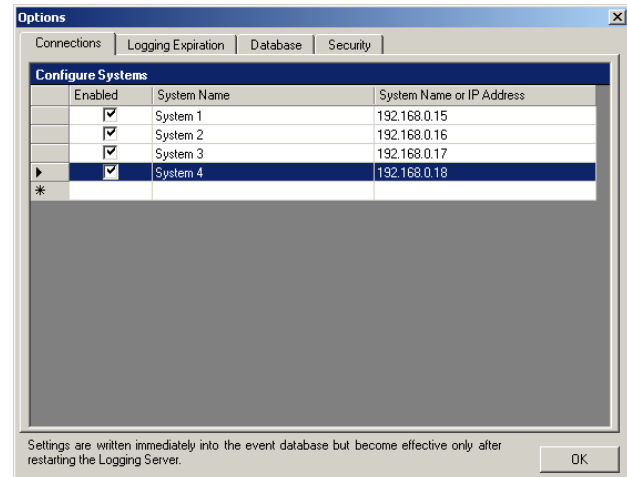


figure 49.9: Delete a system (1)

- 2 On the keyboard of the PC on which the *Logging Server* is running, press the *Del* key. The system is removed from the list (see figure 49.10 for an example).

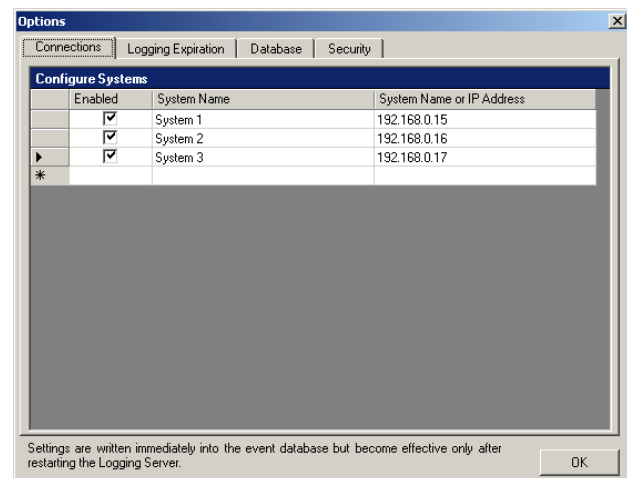


figure 49.10: Delete a system (2)

49.6.3 Logging expiration

49.6.3.1 Overview

On the *Logging Expiration* tab (see figure 49.11), the expiration periods of the logged events can be defined.

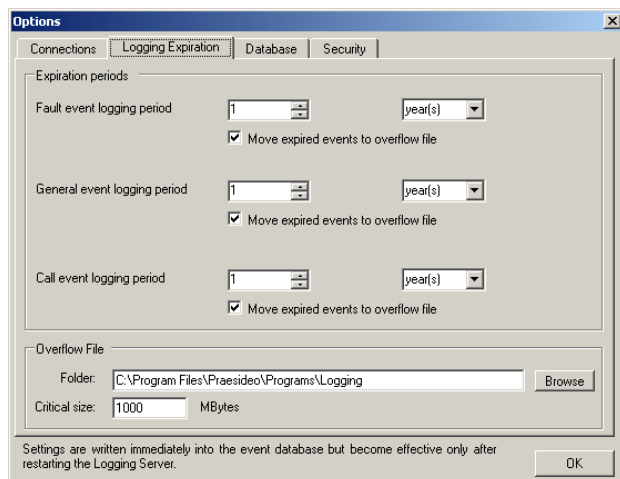


figure 49.11: Logging Expiration tab

49.6.3.2 Expiration periods

When expired events must automatically be moved to an overflow file, put a checkmark in the *Move expired events to overflow file* field. Use the controls in the *event logging period* rows to define the logging periods. All fault that are older than the logging period are moved to an overflow file.

49.6.3.3 Overflow file

The overflow files contain the expired events. Use the controls in the *Overflow File* block to define:

- The location of the overflow files. This can either be entered in the *Folder* field or selected from the file system with the *Browse* button.
- The critical size of the overflow files in the *Critical size* field. When the critical size is reached, the *Logging Server* displays the following message (see section 49.5.2): *The Logging Server overflow files have reached their critical size. Please clear or delete the overflow files.*

49.6.4 Database

49.6.4.1 Overview

On the *Database* tab (see figure 49.12), the properties of the logging database can be defined.

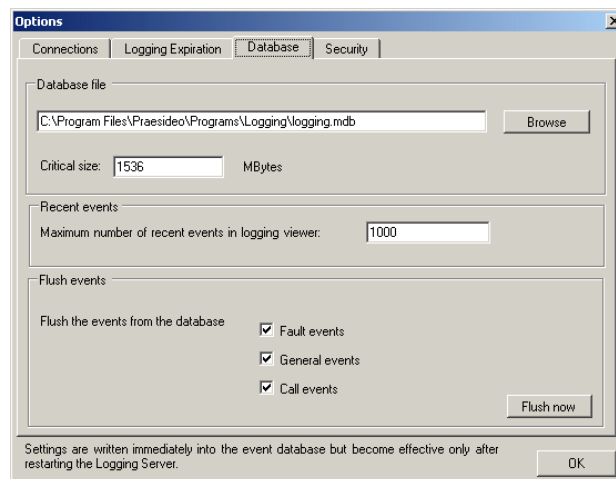


figure 49.12: Database tab

49.6.4.2 Recent events

Use the *Recent events* block to define the number of recent events that is displayed in the *Logging Viewer* (see section 50.6.2.3).

49.6.4.3 Database file

Use the controls in the *Database file* block to define:

- The location of the logging database. This can be entered in the upper textbox.



Note

The logging database is a Microsoft Access file, which also can be opened with Microsoft Access.

- The critical size of the logging database. When the critical size is reached, the *Logging Server* displays the following message (see section 49.5.2): *The Logging Server database has reached its critical size. Please decrease the logging expiration periods.*

49.6.4.4 Flush events

Use the controls in the *Flush events* block to flush events from the logging database. Proceed as follows:

- 1 If the fault events must be flushed from the logging database, put a checkmark in the *Fault events* checkbox.
- 2 If the general events must be flushed from the logging database, put a checkmark in the *General events* checkbox.
- 3 If the call events must be flushed from the logging database, put a checkmark in the *Call events* checkbox.
- 4 Click the *Flush now* button to flush the selected types of events from the logging database.
 - If the *Move expired events to overflow file* field of the selected type of events on the *Logging Expiration* tab (see section 49.6.3) contains a checkmark, the selected type of events are flushed to an overflow file.
 - If the *Move expired events to overflow file* field of the selected type of events on the *Logging Expiration* tab (see section 49.6.3) does not contain a checkmark, the selected type of events are deleted from the database.



Note

When the database is flushed and the *Logging Server* is started again, the database is filled with the events that are retrieved from the enabled network controllers. Each enabled network controller keeps an internal list of up to 200 events of each type. Use the *File Transfer* application to clear the internal list (see section 28.6).

49.6.5 Security

49.6.5.1 Overview

On the *Security* tab (see figure 49.13), the security settings can be defined.

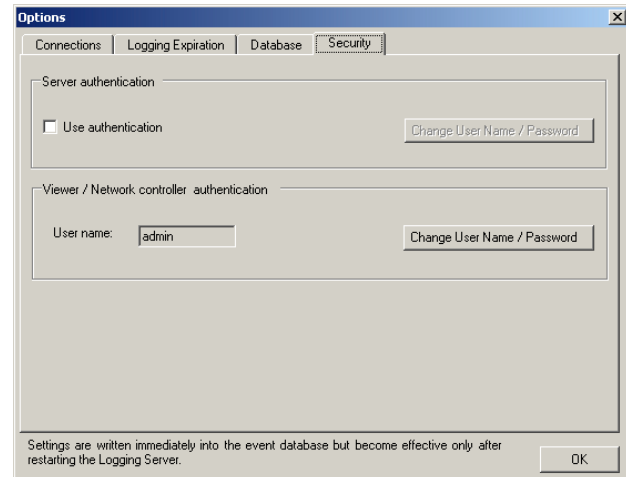


figure 49.13: Security tab

49.6.5.2 Server authentication

Use the controls in the *Server authentication* block to:

- Enable and disable server authentication with the *Use authentication* box. When server authentication is enabled, a user name and password must be entered to get access to the main window (see section 49.5.1).
- Set the password and user name to get access to the *Logging Server* with the *Change User Name/Password* button. A password and user name can only be set when server authentication is enabled.

49.6.5.3 Viewer/Network controller authentication

Use the controls in the *Viewer/Network controller authentication* block to set the password and user name that:

- Gives a *Logging Viewer* access to the *Logging Server* (see section 50.6.2.5).
- Gives the *Logging Server* access to all connected network controllers.



Note

Make sure that all systems have an account (see section 32.2) that contains the user name and password in the *Viewer/Network controller* block. Otherwise, the *Logging Server* cannot connect to the systems.

50 Logging Viewer

50.1 Introduction

With the Logging Viewer, the events logged by the Logging Server in a database, can be viewed. Typically, the Logging Viewer runs on a PC that is connected to the PC on which the Logging Server (see chapter 49) runs. The database is located at the same PC as the Logging Server.

50.2 Requirements

The *Logging Viewer* can run on any PC that meets the following requirements:

- Operating system: Windows 2000 with Service Pack 4 or Windows XP with Service Pack 1.
- 512 MB of RAM.
- Network connection: 100 Base-T or 10 Base-T.

50.3 Installation

Proceed as follows:

- 1 Start the LBB4470/00 Praesideo Software CD-ROM (see section 27.2).
- 2 Click *Optional > Logging Application Viewer*. A *File Download* window appears.
- 3 Click the *Open* button to start the setup program of the *Logging Viewer*. A screen similar to the one in figure 50.1 appears.

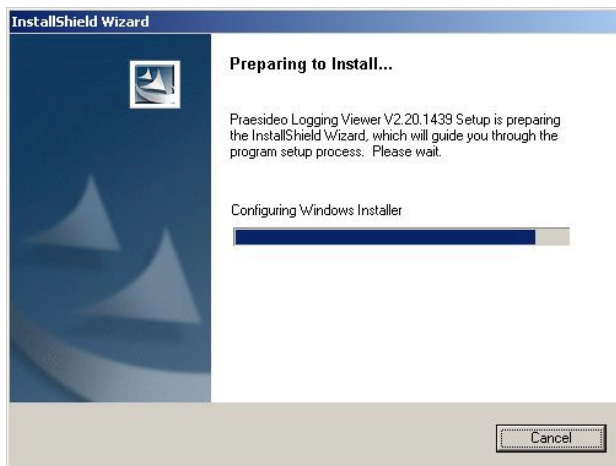


figure 50.1: Logging viewer setup

- 4 Follow the instructions that are displayed on screen. A notification is displayed when the installation is finished.

50.4 Start

Proceed as follows:

- 1 Go to *Start > Programs > Praesideo*.
- 2 Click *Logging Viewer*. A screen similar to the one in figure 50.4 appears.
 - When the *Logging Viewer* has been started and faults have occurred, the icon in the button has a red cross (see figure 50.2).

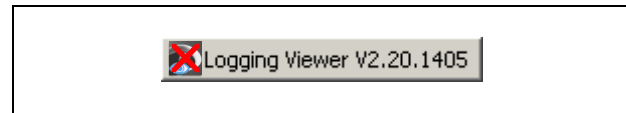


figure 50.2: Logging Viewer icon (faults)

50.5 Configuration

Proceed as follows to configure the *Logging Viewer*:

- 1 Go to *File > Options*. A screen similar to the one in figure 50.3 appears.

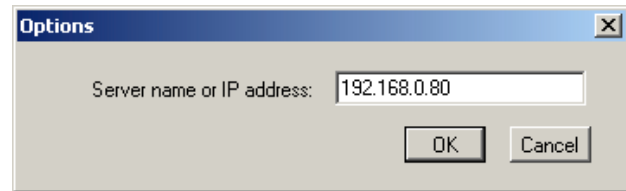


figure 50.3: Options window

- 2 Enter the IP address of the PC on which the *Logging Server* is running to which the *Logging Viewer* must connect.



Note

If the name of the PC is used, the IP address of the PC must be stored in the Windows hosts file (WINNT\system32\drivers\etc.). This file can be edited with Notepad.

50.6 Operation

50.6.1 Overview

The *Logging Viewer* (see figure 50.4) contains the following:

- 1 **Menu bar** - A menu bar that provides access to the menus of the *Logging Viewer* (see section 50.6.2).
- 2 **Block buttons** - Two buttons to select the next and previous blocks of events (see section 50.6.4).
- 3 **Logging Status button** - A button that opens a window that shows the status of the *Logging Viewer* (see section 50.6.3). When the *Logging Server* or *Logging Viewer* does not operate correctly, the button is red.
- 4 **Tabs** - Use the tabs to select the type of events that are shown by the *Logging Viewer*. See chapter 42 for information about the events.

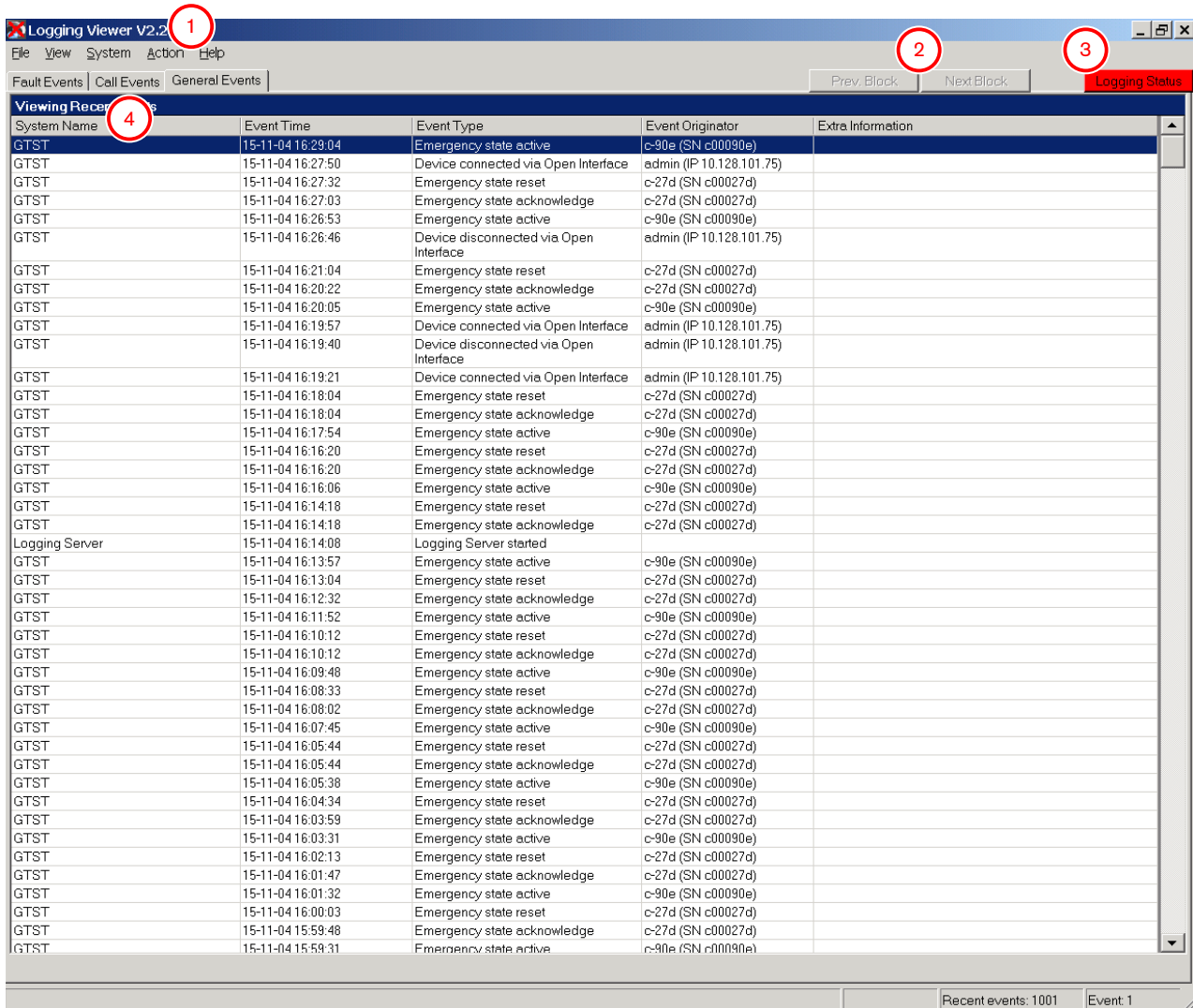


figure 50.4: Logging viewer

50.6.2 Menu bar

50.6.2.1 Introduction

The menu bar contains the following menus:

- The *File* menu (see section 50.6.2.2)
- The *View* menu (see section 50.6.2.3).
- The *System* menu (see section 50.6.2.4).
- The *Action* menu (see section 50.6.2.5).
- The *Help* menu (see section 50.6.2.6).

50.6.2.2 File

The items in the *File* menu are used to export and print events and to configure the *Logging Viewer*. It contains the following items:

- *Options*
Opens the *Options* window that is used to configure the *Logging Viewer* (see section 50.5).
- *Export*
Exports all events in the current event view to a comma separated values file (*.csv). This file can be opened with, for example, Microsoft Excel.
- *Print*
Prints all events in the current event view or prints a selected block of successive events. (To select a block of events: click the first event and then hold the <Shift> key and click the last event.)
- *Exit*
Closes the *Logging Viewer*.

50.6.2.3 View

The items in the *View* menu are used to set the event viewing options. It contains the following items:

- *Recent*
Shows all recent events. The number of displayed recent events is defined by the *Logging Server* window (see section 49.6.4.2). When the number of recent events is greater than 10000, the *Logging Server* delivers the events in blocks to the *Logging Viewer*. Use the *Next Block* and *Prev Block* buttons to scroll through the blocks (see section 50.6.4).
- *Historical*
Shows historical events. These are retrieved from the logging database (see section 49.6.4). When this item is selected, a calendar appears in which a start date (*Start Date*) and an end date (*End Date*) can be selected.
- *Refresh*
Refreshes the list of events.

50.6.2.4 System

The items in the *System* menu are used to select the system from which the events are displayed. The list of available systems is generated by the *Logging Server* to which the *Logging Viewer* is connected (see section 49.6.2). When *All* is selected, the events from all systems are displayed, including events from disabled systems and events from non-configured systems. Events generated by the *Logging Server* itself can be selected separately.

50.6.2.5 Action

The items in the *Action* menu are used to acknowledge and reset fault events. It contains the following items:

- *Acknowledge All Fault Events*
Acknowledges all new fault events in all systems that are connected to the *Logging Server*. The user must log on to the *Logging Server* to acknowledge fault events.
- *Reset All Fault Events*
Resets all acknowledged fault events in all systems that are connected to the *Logging Server*. The user must log on to the *Logging Server* to reset fault events.
- *Log Off*
Logs the user off from the *Logging Server*.

50.6.2.6 Help

The item in the *Help* menu provides version information about the *Logging Viewer*.

50.6.3 Logging status button

The *Logging Status* window displays the status of the *Logging Viewer*.

Message:

The Logging Server and Viewer are OK.

Description:

The *Logging Server* and *Logging Viewer* operate correctly.

Recommended action:

Message:

Logging Server has no connection with <system>

Description:

There is no connection with the specified system.

Recommended action:

Make sure that the specified system is running and that the specified system has an Ethernet connection with the *Logging Server*.

Message:

The Logging Viewer has lost contact with the Logging Server

Description:

There is no connection with the *Logging Server*.

Recommended action:

Make sure that the *Logging Server* is running and that the *Logging Server* has an Ethernet connection with the *Logging Viewer*.

Message:

The Logging Server options are changed. Restart the Logging Server to use the changed settings.

Description:

The configuration settings of the *Logging Server* were changed. The changed settings are not used until the *Logging Server* is restarted.

Recommended action:

Restart the *Logging Server* to use the new settings.

Message:

The Logging Server database has reached its critical size. Please decrease the logging expiration periods.

Description:

The database has reached its critical size.

Recommended action:

Enable and decrease the logging expiration periods to move events to the overflow files (see section 49.6.3) or flush the database (see section 49.6.4.4).

Message:

The Logging Server overflow files have reached their critical size. Please clear or delete the overflow files.

Description:

One or more overflow files have reached the critical size.

Recommended action:

The overflow files are comma separated value (*.csv) files. They can be opened in an editor (e.g. Windows Wordpad, Microsoft Excel). When an overflow file reaches its critical size, use an editor to delete data from the overflow file and decrease its size.

50.6.4 Blocks

When the current view is the *Historical* view (see section 50.6.2.3) and the number of historical events is greater than 10000, the *Logging Server* delivers the events in blocks to the *Logging Viewer*.

- If a next block is available, the *Next Block* button is enabled. The next block contains events that are newer than the events that are currently displayed.
- If a previous block is available, the *Prev Block* button is enabled. The previous block contains events that are older than the events that are currently displayed.

51 Open Interface

51.1 Introduction

This chapter describes how to use the Praesideo Open Interface based on a Visual Basic implementation. The interface is based on the COM technology (*OLE* automation subset), as described by Microsoft.

It is preferred to use *.NET* to implement the Praesideo Open Interface. *.NET* is the successor of *COM*, *COM+* and *DCOM* and is comparable to these. Existing *COM* interfaces can be used in a *.NET* environment. Many programming languages recognise *.NET*, which makes development of user interfaces by third parties easier.

At this moment, the Praesideo Open Interface is based on *COM* to enable connections to existing systems that are not built on *.NET*. Most current third party systems support *COM*, but not yet *.NET*. However, in the future, Bosch Security Systems will convert the *COM* interfaces to *.NET*.

It may be convenient to develop third party applications (e.g. PC call stations) in *.NET* already. These *.NET* applications can communicate with the current *COM* interface without any problems and will cause no problems in the future when the interface is based on *.NET*. If the application is developed in a *COM* environment, it must be rewritten when the interface is based on *.NET*.

The open interface connection (i.e. an Internet connection) is regarded as an open connection that requires extra safety precautions. For example, a firewall to prevent unauthorized persons from (ab)using the system.

Use of the open interface can lead to situations in which the Praesideo system does not comply anymore to the evacuation standards that have been verified by TÜV. In that case, the TÜV certificate can be lapsed.

51.2 Scope

As mentioned before, this chapter describes how to use the Praesideo Open Interface in combination with Visual Basic. To understand this chapter, knowledge in the following fields is necessary:

- The Visual Basic 6.0 programming language and its development environment.
- The principle of *COM* interfaces and *OLE* automation.
- The Praesideo system and its installation.



Note

The *COM* interface is not limited to Visual Basic. It can also be used in other programming languages that support *COM*. Visual Basic is just used as an example here.

This chapter is intended for users, who want to use the Praesideo Open Interface. It is not possible to derive any rights from this chapter regarding the programming interface. Extensions and improvements on the open interface can be implemented when new versions of Praesideo are introduced. Since this chapter is intended for programmers, it is only available in English (also in Installation and User Instructions that are not entirely in English).

Although the open interface DLLs contain the previous versions of the open interface (for backward compatibility), only the open interface version 2.1 is described in this chapter. The interfaces in the DLL are identified using a name extension. The original version if the interface does not have a name extension.

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Section 11 - Appendices

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A Tones

A.1 Chimes

Name	Description
1-tone chime	Frequency 554 Hz.
2-tone chime	Frequencies 554, 440 Hz.
3-tone chime - A	Frequencies 392, 523, 659 Hz.
3-tone chime - B	Frequencies 659, 523, 392 Hz.
4-tone chime - A	Frequencies 554, 440, 493, 330 Hz.
4-tone chime - B	Frequencies 659, 523, 392, 330 Hz.
4-tone chime - C	Frequencies 196, 262, 330, 392 Hz.

A.2 Alarms

Name	Description
Fast whoop	Sweeping signal from 700 Hz up to 880 Hz in 400 ms, followed by 400 ms of silence and repeating. Signal duration 4.8 s.
Police alarm	Alternating frequencies; 650 Hz 500 ms, 850 Hz 500 ms. Signal duration 5 s.
Crash alarm	Up and down sweeping signal, frequencies 500 Hz to 600 Hz with sweep time of 500 ms up ramp and 500 ms down ramp. Signal duration 5 s.
Fire repeating	Single tone of 1000 Hz, 300 ms on, 200 ms off and repeating. Signal duration 5 s.
Fire Dutch	Sweeping signal from 500 Hz up to 1200 Hz in 3.5 s, followed by 500 ms of silence, played 2 times. Signal according Dutch fire regulations.
Reference 440Hz	Single tone, 440 Hz. Signal duration 60 s.
Reference 440Hz C	Single tone, 440 Hz. Continuous.

Din alarm	Sweeping signal from 1200 Hz down to 500 Hz in 1 s and repeating. Signal duration 60 s.
Din alarm C	Sweeping signal from 1200 Hz down to 500 Hz in 1 s and repeating. Continuous.
2-tone alarm 1	Alternating frequencies of 440 Hz and 554 Hz. Every frequency lasts 1 s. Signal duration 60 s.
2-tone alarm 1 C	Alternating frequencies of 440 Hz and 554 Hz. Every frequency lasts 1 s. Continuous.
End of alarm	Sweeping signal from 100 Hz up to 420 Hz in 5 s, holding that frequency for 60 s, sweeping down to 100 Hz in 5 s.
Fire alarm 3	Sweeping signal from 100 Hz up to 420 Hz in 3 s, holding that frequency for 10 s, sweeping down to 300 Hz in 3 s, holding that frequency for 10 s and repeating. Signal duration 52 s.
All clear	Sweeping signal from 1000 Hz down to 650 Hz in 3 s, followed by 2 s of silence and repeating. Duration 60 s.
All clear C	Sweeping signal from 1000 Hz down to 650 Hz in 3 s, followed by 2 s of silence and repeating. Continuous.
Fast whoop UK	Sweeping signal from 700 Hz up to 880 Hz in 400 ms, followed by 400 ms of silence and repeating. Signal duration 60 s.
Fast whoop UK C	Sweeping signal from 700 Hz up to 880 Hz in 400 ms, followed by 400 ms of silence and repeating. Continuous.
2-tone alarm 2	Alternating frequencies of 650 Hz and 850 Hz. Every frequency lasts 500 ms. Signal duration 60 s.
2-tone alarm 2 C	Alternating frequencies of 650 Hz. and 850 Hz. Every frequency lasts 500 ms. Continuous.

Crash UK	Sweeping signal from 500 Hz up to 600 Hz in 500 ms, sweeping down to 500 Hz in 500 ms and repeating. Signal duration 60 s.
Crash UK C	Sweeping signal from 500 Hz up to 600 Hz in 500 ms, sweeping down to 500 Hz in 500 ms and repeating. Continuous.
Fire alarm 1	Single tone of 1000 Hz, 300 ms on, 200 ms off and repeating. Signal duration 60 s.
Fire alarm 1 C	Single tone of 1000 Hz, 300 ms on, 200 ms off and repeating. Continuous.
Air raid	Sweeping signal from 900 Hz up to 1000 Hz in 2.5 s, sweeping down to 900 Hz in 2.5 s and repeating. Signal duration 60 s.
Air raid C	Sweeping signal from 900 Hz up to 1000 Hz in 2.5 s, sweeping down to 900 Hz in 2.5 s and repeating. Continuous.
Abandon platform	Single tone of 1000 Hz. Signal duration 60 s.
Abandon C	Single tone of 1000 Hz. Continuous.
F in morse	1000 Hz tone 100 ms on, 100 ms off, 100 ms on, 100 ms off, 300 ms on, 100 ms off, 100 ms on, 500 ms off. Repeating signal, duration 60.2 s.
F in morse C	1000 Hz 100 ms on, 100 ms off, 100 ms on, 100 ms off, 300 ms on, 100 ms off, 100 ms on, 500 ms off. Continuously repeated.
Slow whoop	Sweeping signal from 500 Hz up to 1200 Hz in 3.5 s followed by 500 ms of silence and repeating. Signal duration 60 s.

Slow whoop C	Sweeping signal from 500 Hz up to 1200 Hz in 3.5 s followed by 500 ms of silence and repeating. Continuous.
NBC alarm	Sweeping signal from 900 Hz up to 1000 Hz in 2.5 s, sweeping down to 900 Hz in 2.5 and repeating. Signal duration 60 s.
NBC alarm C	Sweeping signal from 900 Hz up to 1000 Hz in 2.5 s, sweeping down to 900 Hz in 2.5 and repeating. Continuous.
Mortar attack	Sweeping signal from 2000 Hz down to 1700 Hz in 300 ms and repeating. Signal duration 60 s.
Mortar attack C	Sweeping signal from 2000 Hz down to 1700 Hz in 300 ms and repeating. Continuous.
Muster alarm	Single tone of 650 Hz, 7 times 1 s on, 1 s off followed by continuous signal of 650 Hz. Signal duration 60 s.
Muster alarm C	Single tone of 650 Hz, 7 times 1 s on, 1 s off followed by continuous signal of 650 Hz. Continuous.
Boat fire C	Single tone of 800 Hz, 7 times 1 s on, 1 s off followed by 2 s on, 1 s off and repeating. Continuous.
Catastrophe	Single tone of 440 Hz, 7 s on, followed by 19 times 3 s off, 4 s on. Signal duration 140 s.
General alarm	Single tone of 440 Hz, signal duration 140 s.
Fire alarm 2	Frequency 400 Hz, 25 s on, followed by 10 s off and repeating. Continuous.
Important Mesg	Single tone of 600 Hz, 5 times 6 s on, 12 s off; 6 s on. Signal duration 96 s.
All clear 2	Single tone of 600 Hz, signal duration 30 s.

Immediate danger	Single tone of 600 Hz, 200 ms on, 200 ms off. Signal duration 60 s.
Immediate danger short	Single tone of 600 Hz, 200 ms on, 200 ms off. Signal duration 10 s.

A.3 Test tones

Name	Description
Test chime 250Hz	1-tone chime, frequency 250 Hz.
Test chime 1kHz	1-tone chime, frequency 1000 Hz.
Test chime 4 kHz	1-tone chime, frequency 4000 Hz.
Silence	Silence period of 500 ms.
Wobble	AVC calibration. Sweep 1 kHz to 2 kHz in 0.25 seconds followed by sweep 2 kHz to 1 kHz in 0.25. Repeating.
Silence period 2	AVC calibration. Silence period of 60 s.

B Kycon KPP-4P connector

B.1 Introduction

This appendix contains assembly instructions and a connection diagram for the Kycon KPP-4P connector that is used to connect the LBB4410/00 Network Splitter and the LBB4414/00 Fiber Interface to back-up power supplies.

B.2 Assembly

The connector consists of the following (see figure B.1):

- A Customer Cable
- B Strain Relief
- C Plastic Enclosure
- D Metal Spring
- E Plastic Guide
- F Top Metal Cover
- G Pin Mold
- H Lower Metal Sleeve
- I Plastic Coupling

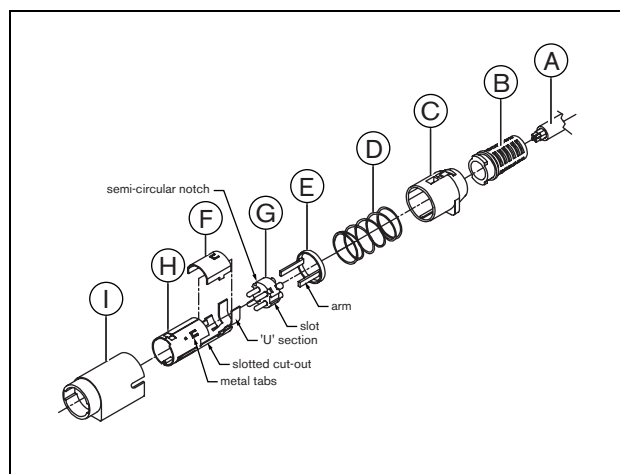


figure B.1: Assembly drawing

Proceed as follows to assembly a Kycon KPP-4P connector:

- 1 Attach Strain Relief (B) to Plastic Enclosure (C).
- 2 Pass Cable (A) through Strain Relief (B)/Plastic Enclosure (C) assembly, Metal Spring (D) and Plastic Guide Ring (E).
- 3 Solder cable wires to solder cups on Pin Mold (G).
- 4 Properly align Pin Mold (G) with Lower Metal Sleeve (H). The slotted sections on the sides of the Pin Mold (G) must line up with the slotted cut-outs on the Lower Metal Sleeve (H) and the 3 semi-circular notches around the perimeter of the Pin Mold (G) must line up with the 3 metal tabs inside the Lower Metal Sleeve (H).
- 5 Push Pin Mold (G) forward into the Lower Metal Sleeve (H) until it locks into place.
- 6 Manually press the 3 metal tabs on the Lower Metal Sleeve (H) into the notches in the Pin Mold (G).
- 7 Crimp 'U' section of Lower Metal Sleeve (H) onto Cable (A).
- 8 Fit Plastic Ring Guide (E) into Lower Metal Sleeve (H) by placing plastic arms into the appropriate slots on the sides of the sleeve.
- 9 Attach Top Metal Cover (F) onto Lower Metal Sleeve (H). Be sure to align all tabs and securely install cover.
- 10 Push Metal Spring (D) onto the Top Metal Cover (F)/Lower Metal Sleeve (H) assembly. This will help to hold the assembly together.
- 11 Push Strain Relief (B)/Plastic Enclosure (C) assembly onto the Top Metal Cover (F)/Lower Metal Sleeve (H) assembly. The two assemblies must be properly aligned as shown in the drawing. Be sure to check that the Metal Spring (D) remains in place and does not go underneath either the Plastic Enclosure (C) or the Plastic Guide (E) or twists during assembly. A significant amount of force may be necessary to lock the two assemblies together.
- 12 Check to make sure that the Strain Relief (B)/Plastic Enclosure (C) assembly is securely locked into place over the Top Metal Cover (F)/Lower Metal Sleeve (H) assembly. The two assemblies should not be able to be pulled apart.
- 13 Properly align the new assembly with the Plastic Coupling (I) as shown in the drawing. Push assembly into Plastic Coupling (I) until it locks properly into place. The entire plug assembly is now complete.

C Product index

C.1 Old product codes

Old code	Current code	Product name	Refer to
LBB4401/00	PRS-NCO	NETWORK CONTROLLER	Page 43
LBB4402/00	PRS-4AEX4	AUDIO EXPANDER ANALOGUE	Page 67
LBB4404/00	PRS-4CIN4	COBRANET INTERFACE	Page 81
LBB4410/00	PRS-NSP	NETWORK SPLITTER	Page 163
LBB4414/00	PRS-FIN	FIBER INTERFACE	Page 169
LBB4414/10	PRS-FINNA	FIBER INTERFACE NON-ADDR	Page 169
LBB4416/00	PRS-CB100	NETWORK CABLE 100M	Page 176
LBB4416/01	PRS-CA0M5	NETWORK CABLE ASSY 0.5M	Page 176
LBB4416/02	PRS-CA002	NETWORK CABLE ASSY 2M	Page 176
LBB4416/05	PRS-CA005	NETWORK CABLE ASSY 5M	Page 176
LBB4416/10	PRS-CA010	NETWORK CABLE ASSY 10M	Page 176
LBB4416/20	PRS-CA020	NETWORK CABLE ASSY 20M	Page 176
LBB4416/50	PRS-CA050	NETWORK CABLE ASSY 50M	Page 176
LBB4417/00	PRS-CBCON	SET NETWORK CONN 20 PCS	Page 178
LBB4418/00	PRS-CBTK	CABLE/CONNECTOR TOOLKIT	Page 179
LBB4418/50	PRS-CBTKC	SPARE CUTTING TOOL 2 PCS	Page 179
LBB4419/00	PRS-CBCPL	SET CABLE COUPLER 10 PCS	Page 192
LBB4421/10	PRS-1P500	POWER AMPLIFIER 1X500W	Page 95
LBB4422/10	PRS-2P250	POWER AMPLIFIER 2X250W	Page 95
LBB4424/10	PRS-4P125	POWER AMPLIFIER 4X125W	Page 95
LBB4428/00	-----	POWER AMPLIFIER 8X80W	Page 95
LBB4430/00	PRS-CS	CALLSTATION BASIC	Page 135
LBB4432/00	PRS-CSKP	CALLSTATION KEYPAD	Page 140
LBB4433/00	PRS-CSK	CALLSTATION KIT	Page 144
LBB4434/00	PRS-CSKPK	CALLSTATION KEYPAD KIT	Page 153
LBB4436/00	PRS-CSKPC	SET KEY COVERS 10 PCS	Page 160
LBB4440/00	PRS-SVCO	SUPERVISION CONTROL BOARD	Page 123
LBB4441/00	PRS-SVLSP	LSP SUPERVISION BOARD	Page 123
LBB4442/00	PRS-SVSET	LINE SUPERVISION SET	Page 117
LBB4443/00	PRS-SVLN	LINE SUPERVISION BOARD	Page 123
LBB4446/00	PRS-SVB	SET SV BRACKETS 10 PCS	Page 130
LBB4470/00	PRS-SW-220	PRAESIDEO C/L/D SW R2.20	Page 207

C.2 Current product codes

Current code	Old code	Product name	Refer to
PRS-1P500	LBB4421/10	POWER AMPLIFIER 1X500W	Page 95
PRS-2P250	LBB4422/10	POWER AMPLIFIER 2X250W	Page 95
PRS-4P125	LBB4424/10	POWER AMPLIFIER 4X125W	Page 95
PRS-4AEX4	LBB4402/00	AUDIO EXPANDER ANALOGUE	Page 67
PRS-4CIN4	LBB4404/00	COBRANET INTERFACE	Page 81
PRS-CA002	LBB4416/02	NETWORK CABLE ASSY 2M	Page 176
PRS-CA005	LBB4416/05	NETWORK CABLE ASSY 5M	Page 176
PRS-CA010	LBB4416/10	NETWORK CABLE ASSY 10M	Page 176
PRS-CA020	LBB4416/20	NETWORK CABLE ASSY 20M	Page 176
PRS-CA050	LBB4416/50	NETWORK CABLE ASSY 50M	Page 176
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