Praesideo

Praesideo - Digital Public Address and Emergency Sound System

Praesideo is a fully digital public address system that meets all the requirements placed by professional users on a public address/emergency sound system. It 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 superior to other currently available public address and emergency sound systems. Digital signal processing allows significant improvements in audio quality to be achieved. The Praesideo system is configured from a PC, making installation and configuration very simple and user-friendly.

All audio processing is digital. Communication between the units is via plastic fiber or glass fiber cabling, depending on the distance between the units. Because the system uses the daisy chain principle, cabling and installation are very quick, simple and easy.

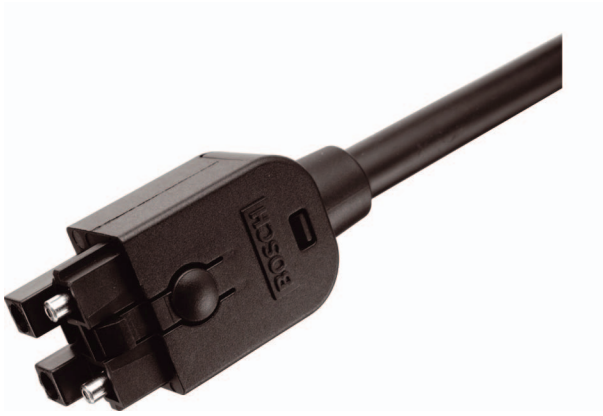
User-friendly Software Control

The system has user-friendly software to configure all system functions. The software is web-based technology, and provides authorized users full freedom of configuration: any time and from anywhere in the network. A simple and well-organized user interface provides an intuitive environment for configuring the system. The software has plausibility checks, and informs the user of any parameters, which have not been set, before exiting from any stage of the configuration process.

Network Approach

The system architecture is based on the daisy chaining of units. Equipment can be placed anywhere a network connection is available. Customers can expand their systems easily without adding additional electronics to the network controller unit. Thanks to this network architecture, a small initial system can be expanded later by simply adding the required new units to the existing network. The same is true for modifications to the PA system that become necessary later, due to reorganizations, structural changes, etc.

The system can be configured for redundant cabling using a ring cabling structure.



Distributed Control

The system design distributes the control of various system functions, as well as processing, throughout the system. The external interfaces, inputs and outputs, can be located anywhere in the network. All units can process audio input and output signals. This allows the network controller to concentrate on other activities such as the routing of announcements, taking actions on control inputs, etc. As a result, the response times are much shorter than for those of systems with centralized processing of all signals. The system scales gracefully, because each new unit increases the overall digital signal processing power of the system.

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. For example, functions such as audio processing, audio delay, amplifier monitoring (including spare switching), and speaker line monitoring are provided by 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 lets an administrator/installer configure any units in the system from any PC with a network connection to the network controller. No local configuring at the equipment end is required, drastically reducing the installation and commissioning time, as well as any changes, which become necessary after commissioning.

IEC 60849 Certified

The Praesideo range of equipment complies with the various emergency standards, which are applicable all over the world. In fact Praesideo is the first system to be certified according to the IEC 60849 standard. The network controller can supervise all units in the system, from the microphone capsule of the call station to the loudspeaker line and loudspeakers. A built-in memory stores the last 200 fault messages. All faults are reported back to the network controller. The system also fulfills the requirements for emergency call stations. The open system architecture has the flexibility to provide large numbers of in and outputs, making even the most demanding emergency applications possible.

External Interfaces

Administrators and installers can configure the control inputs to initiate the desired actions in the system. The ability to route any input from one system unit to any other unit makes it possible to use the Praesideo range of products for a wide range of public address and emergency sound system applications.

Reduced Installation Costs

The Praesideo architecture uses the daisy chain principle for both data and audio signals. This makes the system wiring very cost-effective, using two fiber cores for data and audio communication, and a copper wire pair to supply power from the network controller to the units.

High System Flexibility

The Praesideo system is an extremely versatile system. It gives system designers a high degree of flexibility in the number of zones, call stations, audio and control in and outputs, etc., that they can use. The flexibility of unit distribution is also greater than legacy systems, and it is usually easier to place elements closer to where they are needed.

System Overview

Network Controller

The network controller is the heart of the system, and stores all configuration information. It provides the Ethernet interface for connection to the PC to enable system configuration, as well as diagnostic and logging functions. The network controller stores the digital audio messages for (scheduled) announcements on a built-in flash card. The controller monitors all the system components and reports any changes in status. The unit provides four audio inputs and four outputs, as well as eight control inputs and five control outputs. The control inputs can trigger actions in the system. Administrators and installers can define the control input characteristics in the configuration software. Control inputs can be programmed for momentary or toggle operation, act on make or break, supervision, etc. They can be used to initiate actions, and can be linked to external equipment. The network controller stores and shows the last 200 fault messages. The availability of the digital audio messages, the alarm tones, and the control inputs are continuously supervised. An internally generated pilot tone can be provided on the audio outputs for monitoring purposes.

Power Amplifiers

There are four types of power amplifier units in the Praesideo product range. These differ in the number of amplifier channels per frame: one, two, four, or eight. The overall power rating is 500 watts for all of the amplifiers.

The power amplifiers can be selected for 100 V, 70 V and 50 V output tapping. The fiber optic network cable provides audio input. The amplifiers are equipped with amplifier supervision and spare amplifier changeover relays. They have short-to-ground and short-circuit detection functions, and can generate their own pilot tone for supervision purposes.

Loudspeaker and/or line supervision control boards can be added to an amplifier. The control board communicates with supervision boards at the end of the line and/or in individual loudspeakers. Their status is communicated over the loudspeaker line itself without interfering with the audio signal.

The power amplifiers are equipped with audio processing facilities for each amplifier channel. They support configurable delay, three parametric equalizer sections and two shelving equalizers per channel. An ambient microphone connection enables automatic output level adjustment for maximum intelligibility. The power amplifier has a supervised connection for a 48 VDC backup power supply.

Multi Channel Interface and Basic Amplifiers

The basic amplifiers are cost effective alternatives to the regular Praesideo power amplifiers, for situations where no built-in digital signal processing functions, such as equalizers, delay and AVC are required. They do not have a Praesideo network connection. Instead, these amplifiers are connected to the Praesideo network via the multi channel interface.

The basic amplifiers are high-efficiency, class-D power amplifiers for public address and emergency sound systems. The multi channel interface provides audio signals to all basic amplifier channels and has full control. The basic amplifier is fully supervised, and fault events are reported via the multi channel interface to the Praesideo network controller (IEC 60849 compliant). The amplifiers have connections for separate group A and group B loudspeakers in a zone and can be configured for class-A loudspeaker loop wiring.

The multi channel interface provides 16 configurable output channels (14 main outputs and 2 spare outputs), 32 control inputs and 16 control outputs. With its built-in supervision controller, it can also take care of loudspeaker and loudspeaker line supervision for all connected basic amplifier outputs.

Call Station Basic

The call station basic has a direct network interface, one press-to-talk-key, a monitoring speaker and a headphone socket. The volume control on the front of the unit adjusts the loudspeaker or headphone volume. Up to 16 call station keypads can be connected to the unit. LEDs on the unit indicate the status of the system, call station, and call.

Call Station Keypad

The call station keypad has eight selection keys and status indicators. This unit connects to a basic call station through a local interface. Each selection key has one bi-color LED, which shows the status of the selection.

Call Station Kit

The call station kit has the same functions as the basic call station, and is intended for the construction of custom-made units. The kit is supplied without a housing for easy installation in panels, walls or custom made housings. It has a power supply input for both the call station itself and the call station keypads. The external power supply can be monitored by connecting its fault control output to the control input of the call station kit.

Call Station Keypad Kit

The kit is a call station keypad without housing, but with the same functionality. The kit facilitates the construction of custom applications, where special placement, custom switches, and/or custom indicators are desired.

Call Station Remote

In many applications, call stations must be located relatively far away from the rest of the system. For such cases, the Praesideo system provides the remote call station as a cost-effective alternative. It has the same functionality as the basic call station, but does not connect to the Praesideo network directly. Instead, it connects to the call station interface via a CAT 5 cable with a maximum length of 1000 meters. Thus, the distance from the remote call station to the network is not part of the overall network length. Often an existing CAT 5 cable can be used, further reducing costs. Up to 16 call station keypads or call station keypad kits can be connected.

Call Station Remote Kit

The remote kit is a version of the remote call station with the same functionality, but without the housing for easy installation in custom-applications.

Call Station Interface

The call station interface is a unit that interfaces between a remote call station and the Praesideo network. Because a remote call station uses CAT 5 cable for interconnection and does not have Praesideo network connections, a call station interface is needed. The call station interface also provides a local power input as well as control inputs, and delivers power to the remote call station. The call station interface interfaces to the remote call station via a bidirectional digital interface. Because not all 28 Praesideo audio channels, but only the required microphone and monitor audio channels are transported on this interface, the bit-rate is much lower. The lower bit rate allows the interconnection cable to be much longer than the typical Praesideo network connection between units.

Audio Expander

The audio expander can provide additional audio inputs and outputs to the system. The unit has four transformer isolated audio inputs and four transformer isolated audio outputs, as well as eight control inputs and five control outputs. The audio inputs can be configured for background music, microphone or line inputs. The control inputs can be configured to initiate actions.

CobraNet Interface

The CobraNet interface can insert up to four audio channels from CobraNet into the Praesideo system and up to four audio channels from Praesideo into a CobraNet network. CobraNet, developed by Peak Audio (a division of Cirrus Logic, Inc.), is a network protocol for real-time uncompressed digital audio distribution over industry standard 100Base-T Ethernet networks. Digital audio data is directly converted between Praesideo and CobraNet with no audio processing other than sample rate conversion.

Control inputs and outputs provide external interfacing. The CobraNet interface gets its power from the Praesideo network and does not need a mains or battery connection. CobraNet interfaces are often used to interconnect two or more Praesideo subsystems via Ethernet. The audio channels are transported via CobraNet and the Praesideo control data via the Praesideo Open Interface.

Network Splitter

The network splitter allows the main network line to be split into branches. The branch lines are still supervised, but do not have the redundant cabling of the main network line. The network splitter has an option to connect a 48 VDC supply that can supply additional power if required. The network splitter can also function as a repeater to extend the cable another 50 meters with plastic fiber.

Fiber Interface

Most of the Praesideo system units have plastic fiber optic interfaces. Plastic fiber is used to interconnect nodes, which are less than 50 meters apart. For distances of more than 50 meters, multi-mode glass fiber optic cable is used. A fiber interface converts from plastic to glass fiber and vice versa. The fiber interface has a power supply input to provide power to remote network sections, and two control inputs. The control inputs can pass on supervision information about the power supply connected to the fiber interface.

PRS-NCO-B Network Controller

Features

- Public address and emergency sound system control unit
- Fully digital with four audio inputs and four audio outputs
- Control and routing of 28 audio channels
- Eight supervised control inputs and five control outputs
- Ethernet interface for configuration, control, diagnostics, and logging
- Digital storage for prerecorded messages
- Stores the last 200 fault events
- IEC60849 Certified

The network control unit is the heart of the Praesideo system. The unit routes up to 28 simultaneous audio channels, delivers power to the system, reports faults, and controls the system. Audio inputs can be announcements from call stations, background music, or local audio. The network control unit can be configured for the most complex public address systems. The configuration can be done comfortably and efficiently via a PC. The PC is only needed for configuration. The controller can operate independently of the PC. However, the controller can use a PC to display information on the system status using the software, supplied with the unit. The unit can be freestanding on a tabletop or mounted in a 19" rack.

Functions

Connectivity

The network controller has four analog audio inputs. Of these, two are selectable between microphone and line. The other two inputs are fixed as line inputs. The microphone/ line inputs can be used as call inputs, if they are programmed conditionally to any of the eight control inputs, which are freely programmable for system actions, with freely programmable priorities.

The controller has four analog audio line outputs each with a selectable 20 kHz monitoring signal. Three control outputs are programmable for faults or calls, and two others are used to connect visual and audible fault indicators.

Operation and performance

The network controller is completely configurable from a PC using the supplied software, which can also provide the current status of the running system, as well as comfortable and efficient configuration. The controller can also run without a connected PC, once it has been configured. The front panel has a 2 x 16-character LCD display and a rotary control to navigate through the menu and select the menu items. Address, version, fault events, and monitor enquiries can be done using the display and control knob. The network controller can control up to 60 nodes. Nodes include equipment such as power amplifiers, audio expander units, call stations, call station kits, etc.

To meet the requirements for emergency sound systems, automatic messaging is included in the network controller. The controller has a built-in, replaceable compact flash memory card, to match the storage requirements for audio messages. Four messages can be played simultaneously. Message storage and of the messages themselves are monitored. Audio messages (as a set of wav files) can be downloaded from a computer via the Ethernet link. The controller also stores wide range of attention tones, test tones, and alarm tones, all accessible by any call stations or control inputs for announcement or alarm broadcast. An internal real time clock lets the network controller automatically do things, such as playing scheduled announcements or changing the volume of background music during evening hours. It has extensive audio processing possibilities for the audio inputs and the audio outputs. Parametric equalization, limiter and gain can be easily adjusted using the configuration software. There is a headset jack for monitoring the audio channels.

Security

The network controller supports redundant network cabling. It can be wired as a branched network or redundant loop. The system can handle 256 priorities, for calls to hundreds of zones, satisfying even the most complex public address and emergency requirements.

The controller monitors the status of all the equipment in the system, reports status changes, and stores the last 200 fault messages in the system. This monitoring extends from the capsule of a call station microphone to the end of a loudspeaker line. The external cables connected to the control inputs are monitored for short and open circuit. An internally generated pilot tone is available for monitoring the audio outputs. The controller operates both on mains power and on a 48 V battery power supply for emergency back up, with automatic switchover. It can supervise both of the power supplies.

Controls and indicators

Front

- 2 x 16-character LCD display
- Rotary/push button

Back

- Mains switch
- Voltage selector

Interconnections

Front

- Headphone output

Back

- Mains input
- Battery backup input
- Eight control inputs
- Two analog audio mic/line inputs
- Two analog line audio inputs
- Five control outputs (two dedicated fault)
- Four analog audio line outputs
- Ethernet
- RS232
- Two system network connections

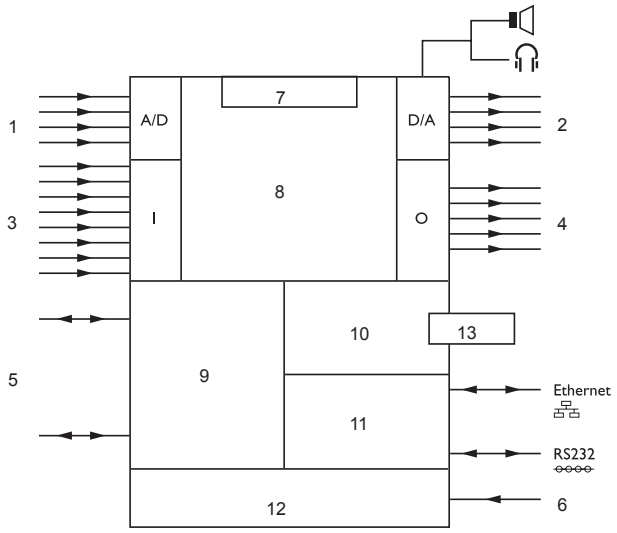
Parts Included

Quantity	Component
1	PRS-NCO-B Network Controller
1	Power cord
1	Set of mounting brackets for 19” rack
1	Set of feet
1	Set of connectors
1	PRS-SW Praesideo Software

Certifications and Approvals

Safety	acc. to IEC 60065-98
Immunity	acc. to EN 55103-2
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
EVAC (TÜV certified)	acc. to IEC 60849 / BS 5839-8

Installation/Configuration Notes



1	Audio inputs
2	Audio outputs
3	Control inputs
4	Control outputs
5	Plastic optical fiber network
6	Mains
7	Display and control
8	Network processor and DSP
9	Network redundancy switching
10	Message manager
11	Micro processor
12	Power supply
13	Compact flash (CF) memory card

Rear view

Technical Specifications

Electrical

Mains power supply	
Voltage	115/230 VAC ±10%, 50/60 Hz
Power consumption	14 W with no load 150 W with maximum load
Battery power supply	
Voltage	48 VDC -10% to +20%
Performance	
Frequency response	20 Hz to 20 kHz (-3 dB)
Line inputs	2 x
Connectors	3-pin XLR and stereo cinch (for each line)
S/N	>87 dBA at maximum level
CMRR	>40 dB
Input range	+6 dBV to +18 dBV (XLR) -6 dBV to +6 dBV (cinch)
Mic / line inputs	2 x
Connector	3-pin XLR
Nominal Input Level	-57 dBV
S/N	>62 dBA with 25 dB headroom
CMRR	>55 dB at 100 Hz
Input Impedance	1360 ohm
Phantom supply	12 V ±1 V at 15 mA
Input range	-7 dB to +8 dB ref nominal input level
Line outputs	4 x
Connectors	XLR and stereo cinch (for each line)
Output Impedance	<100 ohm
S/N	>89 dBA at maximum level
Crosstalk	<-85 dB
Signal range	-12 dBV to +18 dBV (XLR) -24 dBV to +6 dBV (cinch)
Distortion at 1 kHz	<0.05%

Mechanical

Dimensions (H x W x D)	
for tabletop use, with feet	92 x 440 x 400 mm (3.6 x 17.3 x 15.7 in)
for 19” rack use, with brackets	88 x 483 x 400 mm (3.5 x 19 x 15.7 in)
in front of brackets	40 mm (1.6 in)
behind brackets	360 mm (14.2 in)
Weight	7 kg (15.4 lb)
Mounting	Standalone; 19" rack
Color	Charcoal with silver

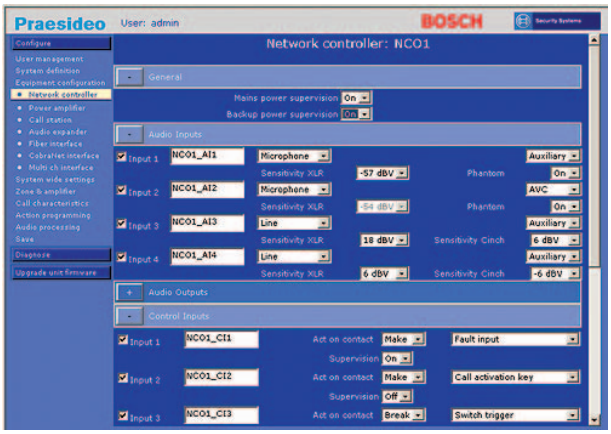
Environmental

Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering Information

Model & Description
PRS-NCO-B Network Controller

PRS-SW Praesideo Software



Features

Configuration software

- Web-based user interface
- Can be accessed using a PC with Internet Explorer 6 or higher
- Different levels of access rights can be assigned
- All system and unit parameters can be configured
- Easy navigation
- Dynamic HTML pages

Diagnostic and logging software

- Logging of call events, fault events and general events
- On-line logging function
- Historical logging
- Events can be sorted
- Password-protected

File transfer software

- PC application
- Supplied together with the network controller
- Creation of message sets
- Off-line configuration

This software has three parts:

- Configuration software, which is installed in the network controller
- Diagnostic & logging software, which is installed in the network controller, and optionally on a logging PC
- File transfer software, which is to be installed on the configuration PC and supplied together with the network controller

System Overview

Configuration software

The configuration software is required for every system. Once the configuration data entry has been completed and downloaded to the network controller, the system can operate without the configuration PC. The configuration software is required only during installation and to make changes to an existing system configuration.

The configuration software design allows even first-time users to navigate easily through the configuration.

Diagnostic and logging software

The main function of the diagnostic & logging software is to monitor and record the status of all elements of the PA system. This software logs all events, such as calls and changes in the status of system components, and displays the current status of the system. It can provide real-time logging to a PC.

File transfer software

The file transfer software transfers both data and message files from the PC to the network controller.

Functions

Configuration Software

The software supports three access levels: administrator, installer, and user. Each of the three levels carries different access rights.

Call macros allow users to configure various functions and/or actions that can be assigned to inputs such as control inputs and call station keys. The same call macro can be assigned to multiple inputs. A call macro defines: priority, start and end tones, an audio input, a message or sequence of messages, number of repetitions, and scheduling with duration and interval.

Zone grouping allows the user to define zones covering the same types of area. In the zone configuration, zone-related items such as amplifier channel outputs, audio outputs and control outputs can be assigned to defined zones.

A power amplifier can be linked to a spare power amplifier so that if there is a fault in the power amplifier it will automatically change over to the spare power amplifier. The ratio of main power amplifiers to spare power amplifiers is flexible, and can be configured to meet specific application requirements.

The software can configure all equipment inputs and outputs in the system. All audio inputs and outputs have audio processing facilities, including parametric equalization with high and low-pass filters for inputs and outputs, and gain and limiter adjustments for inputs only. The audio inputs can be set to microphone or line. Delays can be configured for each amplifier output individually. The level of the 20 kHz pilot tone can be adjusted automatically. Keys on call station keypads can be configured with various functions. A call station can be defined as an emergency call station, with the ability to add zones or audio outputs during an announcement. Control inputs can be configured for a sequence of functions. Control inputs can be configured for monitoring lines connected to them for open-circuits and short-circuits. Zones can be configured for various, time-based volume settings. BGM sources can be assigned to music channels, which can be assigned to different zones/audio outputs.

Diagnostic and Logging Software

Modes of enquiry supported by the software include general events, call logging, and fault logging. This part of the software allows monitoring the fault status of all units, as well as any status changes in the system. Users can view the last 200 fault messages, which are stored in the network controller. Control inputs can be used for reporting the fault status of third-party equipment, which is not part of the Praesideo system, allowing users to view logged events of monitored external devices. The software also provides control of audible and visual fault indicators.

Faults and alarm states can be acknowledged and reset, and the acknowledgement and reset actions are logged. Optionally, a PC-based logging server can store events from multiple systems in a database. This can be accessed remotely by a dedicated Praesideo log viewer program.

File Transfer Software

File transfer is protected by user IDs and passwords. The message set (a set with multiple wav files), which has to be stored in the network controller, can be assembled, stored on the PC and sent to the network controller. A configuration file, which has been created in off-line mode, can be transferred to the network controller. The configuration file can also be retrieved from the network controller.

Ordering Information

Model & Description

PRS-SW Praesideo Software

LBB 442x/xx Power Amplifiers

Features

- 1, 2, 4, or 8 audio outputs (selection from 100 / 70 / 50 V outputs)
- Audio processing and delay for each amplifier channel
- Amplifier supervision and spare amplifier switching
- Loudspeaker line and loudspeaker supervision (LBB 4428/00 only line supervision)
- Eight control inputs and 1, 2, 4 or 8 control outputs
- Supervision of line attached to control inputs
- Automatic volume control
- Two audio inputs (4 audio inputs for LBB 4428/00)
- Redundant network connection

There are four types of power amplifier units in the Praesideo product range. These differ in the number of amplifier channels per frame: one, two, four, or eight. The overall power rating is 500 watts for all of the amplifiers.

The power amplifiers can be set to 100 V, 70 V and 50 V output tappings. They have short-to-ground and short-circuit detection functions, and can generate their own pilot tone for supervision purposes.

Functions

The power amplifiers receive input signals over the network. They also have two auxiliary audio inputs (four for LBB 4428/00) for local audio. Their eight control inputs are freely programmable for system actions, and priorities can be assigned to these inputs. Each control input has the ability to monitor the attached line for open and short-circuits. Five control outputs are freely programmable for faults and call related actions.

The 2 x 16-character display and the rotary control enable local status enquiries. The display shows the VU-meter reading, when the audio monitoring mode is active. Audio can be monitored by headphone.

The units are self-monitoring and continually report their status to the network controller. They support both single branch and redundant loop cabling. The amplifiers have a 48 V DC back-up supply input.

The digital audio processing can handle three parametric equalization sections and two shelving equalization sections per channel.

Controls and indicators

- 2 x 16-character LCD for status display
- Rotary/push control button
- Mains switch

Interconnections

- Mains input
- Battery backup input
- Two system network connections
- Two mic/line inputs (four for LBB 4428/00)
- 100 V, 70 V or 50 V outputs (for each amplifier channel)
- 50 V output
- Eight programmable control inputs
- Control output (for each amplifier channel)
- Headphone output
- Spare amplifier connection (for each amplifier channel)

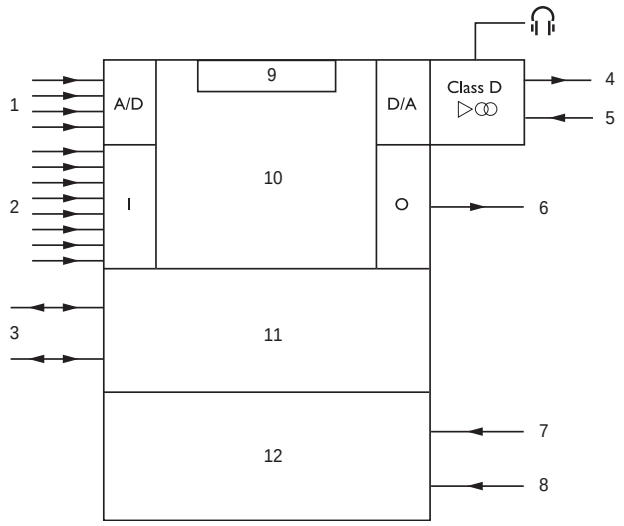
Parts Included

Quantity	Component
1	LBB 442x/xx Power Amplifier
1	Power cord
1	Set of mounting brackets (large) for 19” rack
1	Set of feet
1	Set of connectors

Certifications and Approvals

Safety	acc. to IEC 60065-98
Immunity	acc. to EN 55103-2
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
EVAC (TÜV certified)	acc. to IEC 60849 / BS 5839-8

Installation/Configuration Notes



1	Audio inputs, 2 x or 4 x
2	Control inputs
3	Plastic optical fiber network
4	Loudspeaker outputs, 1 x, 2 x, 4 x, 8 x
5	Spare amplifier input
6	Control outputs, 1 x, 2 x, 4 x, 8 x
7	Mains input
8	48 V backup supply
9	Display and control
10	Network processor and DSP
11	Network redundancy switching
12	Power supply

Rear view of LBB 4421/10 Power Amplifier 1 x 500 W

Rear view of LBB 4422/10 Power Amplifier 2 x 250 W

Rear view of LBB 4424/10 Power Amplifier 4 x 125 W

Rear view of LBB 4428/00 Power Amplifier 8 x 60 W

Technical Specifications

Electrical

Mains power supply	
Voltage	100 to 240 VAC ±10%, 50/60 Hz
Power consumption	Pmax -3 dB* / idle** / standby
LBB 4421/10	380 / 45 / 16 W
LBB 4422/10	380 / 52 / 16 W
LBB 4424/10	400 / 69 / 19 W
LBB 4428/00	420 / 88 / 26 W
	* Alarm tone level
	** With pilot tone 15 V
Battery power supply	
Voltage	48 VDC -10% to +20%
Power consumption	Pmax -3 dB* / idle** / standby
LBB 4421/10	340 / 34 / 6 W
LBB 4422/10	340 / 37 / 6 W
LBB 4424/10	350 / 54 / 8 W
LBB 4428/00	370 / 72 / 16 W
	* Alarm tone level
	** With pilot tone 15 V
Mic/line inputs	2 x (4 x for LBB 4428/00)
Connector	6-pole header for removable screw connector (mono, balanced)
Line	
Frequency response	-3 dB at 50 Hz and 20 kHz (±1 dB)
S/N	>87 dB (rms unweighted)
CMRR	>40 dB at 1 kHz
Input range	-6 dBV to 6 dBV
Input impedance	22 kohm
Mic	
Frequency response	-3 dB at 100 Hz and 16 kHz
Nominal input level	-57 dBV
S/N	>62 dBA with 25 dB headroom
CMRR	40 dB at 1kHz
Input impedance	1360 ohm
Phantom supply	12 V ±1 V at 15 mA
Input range	-7 dB to +8 dB ref nominal input level
Loudspeaker outputs	LBB 4421/10
Rated load resistance	20 ohm (100 V); 10 ohm (70 V)
Rated load capacitance	250 nF (100 V); 500 nF (70 V)
Rated output power (per channel)	500 W (1 min. at 55 °C) 250 W (30 min. at 55 °C, cont. at 30 °C) 125 W (cont. at 55 °C)
Loudspeaker outputs	LBB 4422/10
Rated load resistance	40 ohm (100 V); 20 ohm (70 V)
Rated load capacitance	125 nF (100 V); 250 nF (70 V)
Rated output power (per channel)	250 W (1 min. at 55 °C) 125 W (30 min. at 55 °C, cont. at 30 °C) 60 W (cont. at 55 °C)
Loudspeaker outputs	LBB 4424/10
Rated load resistance	80 ohm (100 V); 40 ohm (70 V)
Rated load capacitance	60 nF (100 V); 125 nF (70 V)
Rated output power (per channel)	125 W (1 min. at 55 °C) 60 W (30 min. at 55 °C, cont. at 30 °C) 30 W (cont. at 55 °C)

Electrical

Loudspeaker outputs	LBB 4428/00
Rated load resistance	160 ohm (100 V); 80 ohm (70 V)
Rated load capacitance	30 nF (100 V); 60 nF (70 V)
Rated output power (per channel)	60 W (1 min. at 55 °C) 30 W (30 min. at 55 °C, cont. at 30 °C) 15 W (cont. at 55 °C)
Connectors	9-pole header for removable screw connector
Frequency response	60 Hz (80Hz for LBB 4428/00) to 19 kHz (-3 dB)
S/N	>85 dB (no pilot tone)
Crosstalk	<80 dB at nominal load for 1 kHz
Distortion	<0.3% (at 1 kHz) at 50% of rated output power

Mechanical

Dimensions (H x W x D)	
for tabletop use, with feet	92 x 440 x 400 mm (3.6 x 17.3 x 15.7 in)
for 19” rack use, with brackets	88 x 483 x 400 mm (3.5 x 19 x 15.7 in)
in front of brackets	40 mm (1.6 in)
behind brackets	360 mm (14.2 in)
Weight	
LBB 4421/10	13 kg (28.7 lb)
LBB 4422/10	14 kg (30.9 lb)
LBB 4424/10	16.5 kg (36.4 lb)
LBB 4428/00	14.5 kg (32 lb)
Mounting	Standalone; 19”-rack
Color	Charcoal with silver

Environmental

Operating temperature	-10 °C to +55 °C (14 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering Information

Model & Description
LBB 4421/10 Power Amplifier 1 x 500 W
LBB 4422/10 Power Amplifier 2 x 250 W
LBB 4424/10 Power Amplifier 4 x 125 W
LBB 4428/00 Power Amplifier 8 x 60 W

PRS-16MCI Multichannel Interface

Features

- Interface to Praesideo basic amplifiers
- Up to 16 audio channels
- Redundant fiber optic network connection
- Control input and output connections
- Complete supervision
- IEC 60849 compliant

The PRS-16MCI is part of the Praesideo network and acts as an interface to the Praesideo basic amplifiers that do not provide network connectivity. The unit is intended for public address and emergency sound systems. The multichannel interface provides 16 configurable output channels (14 main outputs and two spare outputs). It provides the audio signals to the basic amplifiers and has full control over the amplifiers. It supervises itself and the connected basic amplifiers, and reports fault events to the Praesideo network controller (IEC 60849 compliant).

The unit should be mounted in a 19"-rack with the included mounting brackets.

Functions

This unit is the interface between the Praesideo network and the Praesideo basic amplifiers. It can get its power from the amplifiers it is connected to, or from the network. It has 16 audio channels for up to 14 main amplifiers (zones) and two spare amplifiers. These can be assigned from a non-mixing matrix of 28 Praesideo channels. There are connections for 32 control inputs and 16 control outputs.

The interface provides supervision for the unit itself, as well as all connected basic amplifiers. The interface monitors the functions of the amplifiers, and can activate a spare amplifier to replace one that reports a fault. It has loop-through in and outputs, supporting failsafe mode, which pass emergency calls through, even if the unit itself fails. A controller for multiple-line and loudspeaker supervision is a standard component. The interface can be configured for redundant group A/B switching, or for class-A loop wiring of the connected basic amplifiers. All configuration is done with software over the network.

Controls and indicators

- 16 two-color LEDs for amplifier channel status
- Two-color LED for network status

Interconnection

- Two system network connectors
- 32 RJ45 jacks for basic amplifiers
- Female XLR-3 connector for failsafe audio loop-through input
- Male XLR-3 connector for failsafe audio loop-through and supervision
- 32 control inputs on removable Euro-style screw terminals
- 16 control outputs on removable Euro-style screw terminals

Parts Included

Quantity	Component
1	PRS-16MCI Multichannel Interface
1	Set of mounting brackets for 19” rack
1	Set of connectors

Certifications and Approvals

Safety	acc. to IEC 60065-98
Immunity	acc. to EN 55103-2 / EN 50130-4
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
EVAC (TÜV certified)	acc. to IEC 60849 / BS 5839-8

Technical Specifications

Electrical	
Power consumption	12 W (DC)
Performance	
Frequency response	20 Hz to 20 kHz (-3 dB)
Total harmonic distortion	<0.1% (1 kHz)
Cross talk	<-80 dB (1 kHz)
S/N	>85 dB (without pilot tone)
Line input	1 x
Connector	XLR bypass
Line output	1 x
Connector	XLR loop-through
Line output	16 x
Connectors	RJ45 jack (in pairs)
	0 dBV (symmetrical)
Control inputs	32 x
Connectors	Removable screw terminals
Operation	Closing contact (with supervision)
Control outputs	16 x
Connectors	Removable screw terminals
Operation	Change over contact (SPDT)
	voltage free relay
Rating	24 V, 1 A

Mechanical

Dimensions (H x W x D)	88 x 483 x 400 mm (3.5 x 19 x 15.7 in)
in front of brackets	40 mm (1.6 in)
behind brackets	360 mm (14.2 in)
Weight	7 kg (15.4 lb)
Mounting	19” rack
Color	Charcoal with silver

Environmental

Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering Information

Model & Description
PRS-16MCI Multichannel Interface

LBB 4430/00 Call Station Basic

Features

- Redundant network connection
- Power ‘ON’ indication
- Status/fault indications
- Indication that the priority level of destinations is higher than that of the pending announcement
- Supervision of microphone capsule
- Stylish and modern design

The call station basic can make manual or pre-recorded announcements to any pre-assigned zones. The call station basic has a microphone on a flexible stem, a push-to-talk button, a speaker, and a headset socket.

Functions

The call station has a cardioid, supervised microphone on a gooseneck stem with good speech intelligibility. A limiter and a speech filter improve intelligibility and prevent clipping of the audio. It has a volume control for the monitoring speaker and the headset. When it plays a chime or a pre-recorded message, the call station activates its speaker. When a headset is connected, it replaces the microphone and speaker. The call station has its own DSP, and converts between analog and digital audio. The audio processing can include sensitivity adjustment, limiting, and parametric equalization.

Up to 16 call station keypads can connect to the station via a serial communication link. The station provides the power for the keypads. Its PTT-key can be configured for momentary or latching (toggle) mode. Up to 224 priorities can be assigned to the call station. All configuration can be done via the Praesideo network controller.

The call station is fully supervised and complies with IEC 60849. The station supports fail-safe operation. Even if the Praesideo network controller fails, the call station is still able to put through emergency calls.

Controls and indicators

- Three status LEDs
- Configurable PTT-key
- Volume control for loudspeaker/headset

Interconnections

- Two system network connections
- Serial data and power supply interface for call station keypads
- 3.5 mm jack for headset

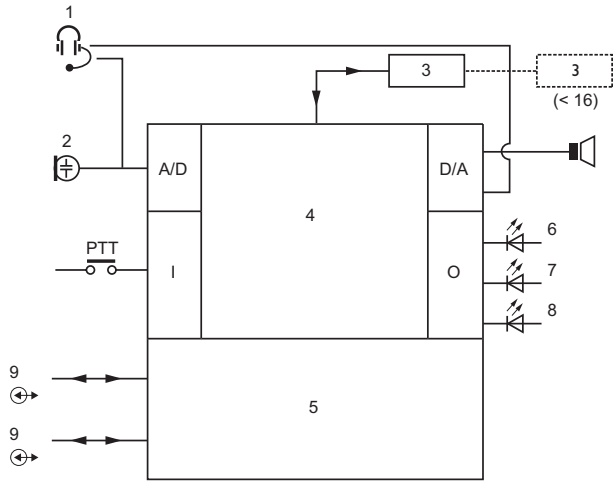
Parts Included

Quantity	Component
1	LBB 4430/00 Call Station Basic
1	Flat cable

Certifications and Approvals

Safety	acc. to IEC 60065-98
Immunity	acc. to EN 55103-2
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
EVAC (TÜV certified)	acc. to IEC 60849 / BS 5839-8

Installation/Configuration Notes



1	Headset
2	Microphone
3	Keypad(s)
4	Network processor and DSP
5	Network redundancy switching
6	Power/error
7	Call station status
8	Network status
9	Network connections

Technical Specifications

Electrical

External power supply	18 to 56 VDC
Power consumption	4.4 W (DC) excluding keypads
Microphone	
Nominal acoustic input level	75 to 90 dB SPL
S/N	>60 dB at 85 dB SPL
Frequency response	340 Hz to 14 kHz (-3 dB)
Loudspeaker	
S/N	80 dB at max. output
Sound pressure level	85 dB (SPL) at 0.5 m and 1 kHz
Headset	
Connector	3.5 mm jack
Recommended type	Hosiden HBH 0058

Mechanical

Dimensions (H x W x D)	90 x 160 x 200 mm (3.5 x 6.3 x 7.9 in)
Weight	0.95 kg (2.1 lb)
Mounting	Tabletop
Color	Charcoal
Length of mic stem	380 mm

Environmental

Operating temperature	-5 °C to +45 °C (+23 °F to +113 °F)
Storage temperature	-20 °C to +70 °C (-4 °F to +158 °F)
Humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering Information

Model & Description
LBB 4430/00 Call Station Basic

LBB 4432/00 Call Station Keypad

Features

- Eight freely programmable selection keys
- Serial data and power interface to call station basic
- Up to 16 keypads can be connected to one call station basic
- Activation indicator for each key
- Stylish and modern design

The call station keypad is used in combination with the call station basic to make manual or pre-recorded announcements to any assigned zones, to select the zones or to execute pre-defined actions. The call station keypad has eight programmable buttons, each with a two-color status LED.

Functions

The keys of the call station keypad can be programmed for actions, such as:

- Controlling functions: selection recall, call activation, cancel selection, BGM off, BGM volume control, fault acknowledgement, etc.
- Selecting sources: BGM channel, pre-recorded messages, attention and alarm tones
- Selecting destinations: zones and zone groups

The keys can be programmed for different modes of operation, such as momentary or toggle. Each key has one two-color status LED beside it. Beside each LED is a transparent, removable tab that can hold a function or zone label for the key. Safety covers (LBB 4436/00) to prevent accidental activation of the keys are available as an option.

The keypad gets its power from the call station it is connected to.

Controls and indicators

- Eight function keys
- Eight two-color LEDs

Interconnections

- Two serial data and power connections

Parts Included

Quantity	Component
1	LBB 4432/00 Call Station Keypad
1	Flat cable
1	Coupling bracket
1	Set of text labels

Certifications and Approvals

Safety	acc. to IEC 60065-98
Immunity	acc. to EN 55103-2
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
EVAC (TÜV certified)	acc. to IEC 60849 / BS 5839-8

Technical Specifications

Electrical

Power consumption	1.1 W (DC)

Mechanical

Dimensions (H x W x D)	70 x 95 x 200 mm (2.8 x 3.7 x 7.9 in)
Weight	0.3 kg (0.7 lb)
Mounting	Bracket attachment to a call station basic or other keypad
Color	Charcoal

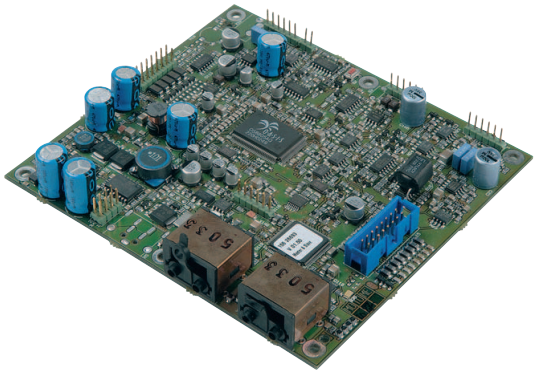
Environmental

Operating temperature	-5 °C to +55 °C (+23 °F to +131 °F)
Storage temperature	-20 °C to +70 °C(-4 °F to +158 °F)
Humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering Information

Model & Description
LBB 4432/00 Call Station Keypad
Accessories
LBB 4436/00 Set of Key Covers (10 pcs) 10 key covers and 10 replacement lenses

LBB 4433/00 Call Station Kit



Features

- Redundant network connection
- Power 'ON' outputs
- Status/fault outputs
- Output for a monitoring loudspeaker
- Priority indication of busy target zones
- Microphone supervision

The call station kit is used to make custom-made call stations, with the same functionality as the LBB 4430/00 Call Station Basic. The call station contains a built-in limiter and speech filter for improved intelligibility. An external power supply can be connected to the call station kit. Two supervised control inputs provide power supply status information.

Functions

The call station kit has a limiter and a speech filter. This improves intelligibility and prevents clipping of the audio. A potentiometer for volume control of the monitoring speaker and the headset can be connected. When it plays a chime or a pre-recorded message, the call station activates its speaker. The call station has its own DSP, and converts between analog and digital audio. The audio processing includes sensitivity adjustment, limiting, and parametric equalization.

Up to 16 call station keypads can connect to the station via a serial communication link. The station provides the power for the keypads. Its PTT-input can be configured for momentary or latching (toggle) mode. Up to 224 priorities can be assigned to the call station. All configuration can be done via the Praesideo network controller.

The call station kit is fully supervised and complies with IEC 60849. The station supports fail-safe operation. Even if the Praesideo network controller fails, the call station is still able to put through emergency calls.

Controls and indicators

These must be supplied by the installer.

Interconnections

- Two network connectors (system bus)
- Backup supply input and 2 control inputs
- Serial data and power supply interface for call station keypads
- Microphone
- Loudspeaker
- Headset
- Volume control for loudspeaker/headset
- Control input (for PTT)
- Five control outputs (for status LEDs)

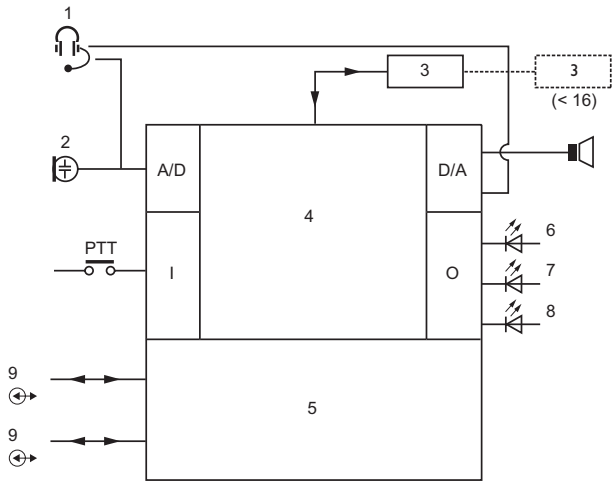
Parts Included

Quantity	Component
1	LBB 4433/00 Call Station Kit
1	Set of connectors

Certifications and Approvals

Safety	acc. to IEC 60065-98
Immunity	acc. to EN 55103-2
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
EVAC (TÜV certified)	acc. to IEC 60849 / BS 5839-8

Installation/Configuration Notes



1	Headset
2	Microphone
3	Keypad(s)
4	Network processor and DSP
5	Network redundancy switching
6	Power/error
7	Call station status
8	Network status
9	Network connections

Technical Specifications

Electrical

Power consumption	7.2 W (DC) excl. indicators and keypads
Mic input	1 x
Sensitivity	-57 to -42 dBV
S/N	>60 dB at -48 dBV
Frequency response	340 Hz to 14 kHz (-3 dB)
Loudspeaker output	1 x
S/N	80 dB ±3 dB at max.
Impedance	8 to 32 ohm
Power	100 mW typ., 300 mW max.
Headset	1 x
Impedance	0.5 to 5 kohm
Input sensitivity	-57 to -42 dBV/Pa (±3 dB)
Earphone impedance	>16 ohm
Status outputs	5 x open collector / drain
Max. current (internal)	10 mA per pin; 30 mA total
Max. voltage	56 V per pin
Max sink current	100 mA per output pin

Mechanical

Dimensions (H x W x D)	20 x 130 x 118 mm (0.8 x 5.1 x 4.6 in)
Weight	120 g (0.26 lb)
Mounting	PCB with 6 mounting holes

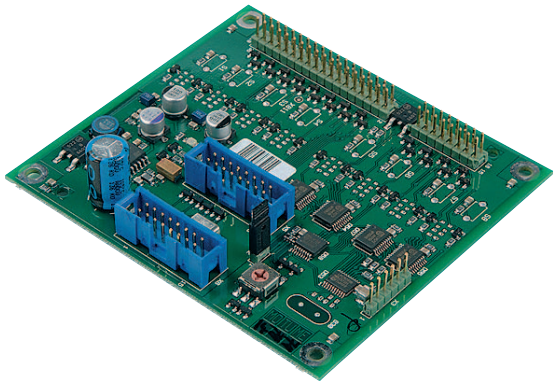
Environmental

Operating temperature	-5 °C to +55 °C (+23 °F to +131 °F)
Storage temperature	-20 °C to +70 °C(-4 °F to +158 °F)
Humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering Information

Model & Description
LBB 4433/00 Call Station Kit

LBB 4434/00 Call Station Keypad Kit



Features

- Eight programmable control inputs linked to 16 outputs
- Two serial interfaces to call stations or other keypads
- Up to 16 keypads can be connected to one call station

The call station keypad kit is used in combination with a call station kit or call station basic to make manual or pre-recorded announcements to any assigned zones, or to execute pre-defined actions. It is functionally equivalent to the LBB 4432/00 Call Station Keypad. One of the main applications is the development of fireman's panels. However, since the call station keypad has eight programmable input connections, each with two associated output connections; it is well suited for other control applications.

Functions

The key inputs of the kit can be programmed for actions such as:

- Controlling functions: selection recall, call activation, cancel selection, BGM off, BGM volume control, fault acknowledgement, etc.
- Selecting sources: BGM channel, pre-recorded messages, attention and alarm tones
- Selecting destinations: zones and zone groups

Each key input of the PCB has two functionally related outputs designed to drive a two-color LED, but which can be used for other purposes. Once a control input is used for a function, the two control outputs will be linked to the specific action. Call macros can also be assigned to inputs.

The PCB also has interfaces for serial connections to a call station or other keypads. The keypad gets its power from the call station, it is connected to. The key inputs can be programmed for different modes of operation, such as momentary or toggle.

Interconnections

- Eight control inputs
- 16 control outputs
- Two serial data and power connections

Parts Included

Quantity	Component
1	LBB 4434/00 Call Station Keypad Kit
1	Flat cable
1	Set of connectors

Certifications and Approvals

Safety	acc. to IEC 60065-98
Immunity	acc. to EN 55103-2
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
EVAC (TÜV certified)	acc. to IEC 60849 / BS 5839-8

Technical Specifications

Electrical

Power consumption	1.2 W (DC) excl. indicators
Control inputs	8 x
Max. current	0.5 mA
Max. voltage	3.3 V (with 10 kohm pull-up)
Control outputs	8 x 2 open collectors
Max. current	100 mA
Max. voltage	30 V

Mechanical

Dimensions (H x W x D)	20 x 90 x 100 mm (0.8 x 3.5 x 3.9 in)
Weight	55 g (0.12 lb)
Mounting	PCB with 4 mounting holes

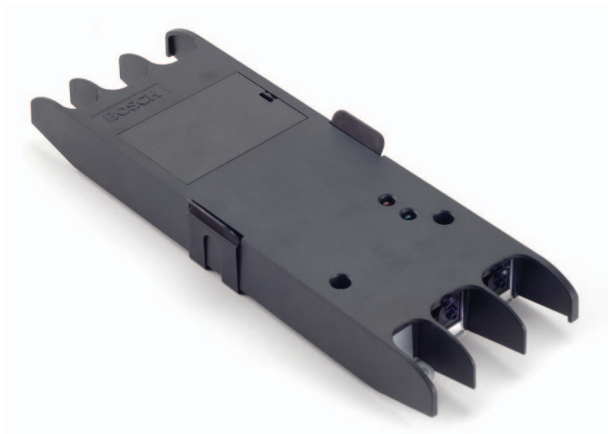
Environmental

Operating temperature	-5 °C to +55 °C (+23 °F to +131 °F)
Storage temperature	-20 °C to +70 °C(-4 °F to +158 °F)
Humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering Information

Model & Description
LBB 4434/00 Call Station Keypad Kit

LBB 4437/00 Call Station Interface



Features

- Connects a remote call station to the Praesideo network via CAT-5 cable (up to 1 km)
- Powered by the Praesideo network and/or local power supply
- Two supervised control inputs
- Built-in DSP for audio processing functions
- Complete supervision of the unit
- IEC 60849 compliant

The LBB 4437/00 is an interface between a single remote call station, LBB 4438/00, or a remote call station kit, LBB 4439/00, and the fiber optical Praesideo network. It uses CAT-5 cable for the connection to the remote call station. The CAT-5 cable, carrying digital audio and control data, can be as long as 1 km. The length of the CAT-5 cable is not a part of the Praesideo optical network length. This considerably increases the overall possible length of the optical network, especially in cases, where the call station is located far from the rest of the system.

The call station interface can get its power from the Praesideo network, and/or from a local power supply. It is fully supervised and complies with IEC 60849.

Functions

The interface can connect a single LBB 4438/00 remote call station or LBB 4439/00 remote call station kit to a Praesideo system with up to 1 km of CAT-5 cable.

The interface is fully digital, supporting high-quality sound with a built-in DSP for audio processing of the remote call station. It supports complete supervision of itself, the call station, and the connection, as well as of two control inputs. It supports the fail safe mode of remote call stations, allowing them to put through emergency calls, even if the network controller fails. The unit is configured via the network controller.

Controls and indicators

- Two LED indicators for power and network status
- Two jumpers (below cover) to separate power supply of call station interface and remote call station

Interconnectors

- Two Praesideo network connectors
- RJ45 connector for CAT-5 connection
- Kycon type (lockable) connector for power and two control inputs

Parts Included

Quantity	Component
1	LBB 4437/00 Call Station Interface
1	Power supply connector

Certifications and Approvals

Safety	acc. to IEC 60065-98
Immunity	acc. to EN 55103-2
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
EVAC (TÜV certified)	acc. to IEC 60849 / BS 5839-8

Technical Specifications

Electrical

External power supply	18 to 56 VDC
Power consumption	3.7 W
Control inputs	2 x
Operation	Closing contact (with supervision)

Mechanical

Dimensions (H x W x D)	27 x 243 x 80 mm without bracket (1.1 x 9.6 x 3.1 in) 34 x 243 x 84 mm with bracket (1.3 x 9.6 x 3.3 in)
Weight	0.7 kg (1.5 lb)
Mounting	Bracket (2 screws)
Color	Charcoal

Environmental

Operating temperature	-5 °C to +45 °C (+23 °F to +113 °F)
Storage temperature	-20 °C to +70 °C (-4 °F to +158 °F)
Humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering Information

Model & Description
LBB 4437/00 Call Station Interface

LBB 4438/00 Call Station Remote

Features

- Connects to call station interface via CAT-5 cable
- Up to 1 km from Praesideo optical network
- Uses standard Praesideo keypads for extension
- Built-in limiter
- Powered via CAT-5 and/or local power supply
- Complete supervision
- IEC 60849 compliant

The LBB 4438/00 is a call station with the same functionality as the basic call station, LBB 4430/00, but it uses CAT-5 cable for its connection to the Praesideo network. It connects, one-to-one, to the call station interface, LBB 4437/00, which is part of the Praesideo optical network. The CAT-5 cable, carrying digital audio and control data, can be as long as 1 km. The length of the CAT-5 cable is not a part of the Praesideo optical network length. This considerably increases the overall possible length of the optical network.

The LBB 4438/00 can be extended with up to 16 keypads (LBB 4432/00 or LBB 4434/00), each with eight programmable keys.

Functions

The call station has a cardioid, supervised microphone on a gooseneck stem with good speech intelligibility. A limiter and a speech filter improve intelligibility and prevent clipping of the audio. It has a volume control for the monitoring speaker and the headset. When it plays a chime or a pre-recorded message, the call station activates its speaker. When a headset is connected, it replaces the microphone and speaker.

The remote call station connects via a CAT-5 cable to an LBB 4437/00 unit, which interfaces it to the Praesideo optical network. The station gets its power from the interface unit via the CAT-5 cable, but is also equipped with a local power supply connection for extreme cases with a very long cable and many keypads.

Up to 16 call station keypads can connect to the station via a serial communication link. The station provides the power for the keypads. Its PTT-key can be configured for momentary or latching (toggle) mode. Up to 224 priorities can be assigned to the call station. All configuration can be done via the Praesideo network controller.

The remote call station is fully supervised and complies with IEC 60849. The station supports fail-safe operation. Even if the Praesideo network controller fails, the call station is still able to put through emergency calls.

Controls and indicators

- Three status LEDs
- Configurable PTT-key
- Volume control for loudspeaker/headset

Interconnections

- RJ45 connector for CAT-5 connection
- Serial data and power supply interface for call station keypads
- Power supply connector (lockable Kycon type)
- 3.5 mm jack for headset/headphone

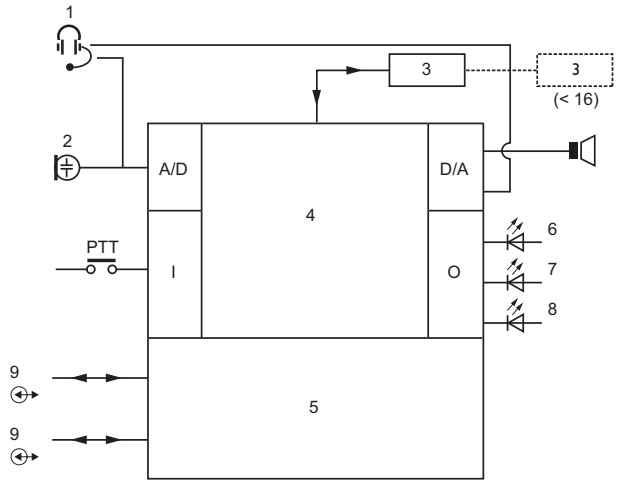
Parts Included

Quantity	Component
1	LBB 4438/00 Call Station Remote
1	Flat cable

Certifications and Approvals

Safety	acc. to IEC 60065-98
Immunity	acc. to EN 55103-2
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
EVAC (TÜV certified)	acc. to IEC 60849 / BS 5839-8

Installation/Configuration Notes



1	Headset
2	Microphone
3	Keypad(s)
4	Network processor and DSP
5	Network redundancy switching
6	Power/error
7	Call station status (two-color)
8	Network status
9	Network connections

Technical Specifications

Electrical

External power supply	18 to 56 VDC
Power consumption	2.9 W at 48 V without keypads
Microphone	
Nominal acoustic input level	75 to 90 dB SPL
S/N	> 60 dB at 85 dB SPL
Frequency response	340 Hz to 14 kHz (-3 dB)
Loudspeaker	
S/N	80 dB at max.
Sound pressure level	85 dB (SPL) at 0.5 m and 1 kHz
Headset	
Connector	3.5 mm jack
Recommended type	Hosiden HBH 0058

Mechanical

Dimensions (H x W x D)	90 x 160 x 200 mm (3.5 x 6.3 x 7.9 in)
Length of goose neck	380 mm (15 in)
Weight	1 kg (2.2 lb)
Mounting	Standalone
Color	charcoal

Environmental

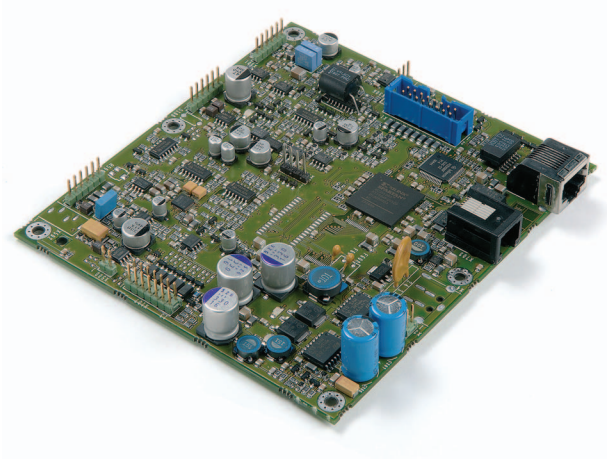
Operating temperature	-5 °C to +45 °C (+23 °F to +113 °F)
Storage temperature	-20 °C to +70 °C (-4 °F to +158 °F)
Humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering Information

Model & Description

LBB 4438/00 Call Station Remote

LBB 4439/00 Call Station Remote Kit



Features

- Connects to call station interface via CAT-5 cable
- Up to 1 km from Praesideo optical network
- Uses standard Praesideo keypads for extension
- Built-in limiter
- Powered via CAT-5 and/or local power supply
- Complete supervision
- IEC 60849 compliant

The LBB 4439/00 is a PCB with the same functionality as the remote call station, LBB 4438/00, but without its housing and other components. It is for the construction of custom applications. It connects via a CAT-5 cable, one-to-one, to the call station interface, LBB 4437/00, which is part of the Praesideo optical network. The CAT-5 cable, carrying digital audio and control data, can be as long as 1 km. The length of the CAT-5 cable is not a part of the Praesideo optical network length. This considerably increases the overall possible length of the optical network.

The LBB 4438/00 can be extended with up to 16 keypads (LBB 4432/00 or LBB 4434/00), each with eight configurable keys.

Functions

The call station has a connection for a supervised microphone. A limiter and a speech filter improve intelligibility and prevent clipping of the audio. It has a volume control for the monitoring speaker and the headset. When it plays a chime or a pre-recorded message, the call station activates its speaker. When a headset is connected, it replaces the microphone and speaker. The call station has its own DSP, and converts between analog and digital audio. The audio processing can include sensitivity adjustment, limiting, and parametric equalization.

The kit connects via a CAT-5 cable to an LBB 4437/00 unit, which interfaces it to the Praesideo optical network. The cable can be up to 1 kilometer long. The station gets its power from the interface unit via the CAT-5 cable, but is also equipped with a local power supply connection for extreme cases with a very long cable and many keypads.

Up to 16 call station keypads can connect to the station via a serial communication link. The station provides the power for the keypads. Its PTT-key can be configured for momentary or latching (toggle) mode. Up to 224 priorities can be assigned to the call station. All configuration can be done via the Praesideo network controller.

The remote call station is fully supervised and complies with IEC 60849. The station supports fail-safe operation. Even if the Praesideo network controller fails, the call station is still able to put through emergency calls.

Interconnections

- External power supply input and 2 control inputs
- Serial data and power supply interface for call station keypads
- Microphone
- Loudspeaker
- Headset
- Volume control for loudspeaker/headset
- Control input (for PTT)
- Three control outputs (for status LEDs)

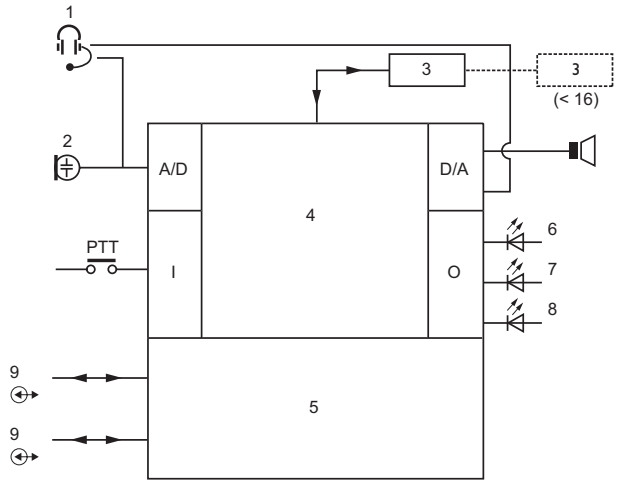
Parts Included

Quantity	Component
1	LBB 4439/00 Call Station Remote Kit
1	Set of connectors

Certifications and Approvals

Safety	acc. to IEC 60065-98
Immunity	acc. to EN 55103-2
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
EVAC (TÜV certified)	acc. to IEC 60849 / BS 5839-8

Installation/Configuration Notes



1	Headset
2	Microphone
3	Keypad(s)
4	Network processor and DSP
5	Network redundancy switching
6	Power/error
7	Call station status (two-color)
8	Network status
9	Network connections

Technical Specifications

Electrical

Power consumption	4 W at 48 V without keypads
External power supply	18 to 56 VDC
Microphone	
Nominal acoustic input level	75 to 90 dB SPL
SNR	> 60 dB at 85 dB SPL
Frequency response	340 Hz to 14 kHz (-3 dB)
Loudspeaker	
SNR	80 dB at max.
Sound pressure level	85 dB (SPL) at 0.5 m and 1 kHz
Headset	
Impedance	0.5 to 5 kohm
Input sensitivity	-57 to -42 dBV/Pa (±3 dB)
Earphone impedance	>16 ohm
Status outputs	5 x open collector / drain
Max. current (internal)	10 mA per pin; 30 mA total
Max. voltage	56 V per pin
Max sink current	100 mA per output pin

Mechanical

Dimensions (H x W x D)	20 x 130 x 118 mm (0.8 x 5.1 x 4.6 in)
Weight	120 g (0.26 lb)
Mounting	PCB 6 holes

Environmental

Operating temperature	-5 °C to +55 °C (+23 °F to 131 °F)
Storage temperature	-20 °C to +70 °C (-4 °F to 158 °F)
Humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering Information

Model & Description

LBB 4439/00 Call Station Remote Kit

LBB 4402/00 Audio Expander

Features

- Four audio inputs – two selectable mic/line and two line inputs
- Four line audio outputs
- Eight supervised control inputs and five control outputs
- Audio processing functions
- Redundant network connection
- Headphone connection and VU meter for audio monitoring

The audio expander inserts external audio into the system and extracts audio from the system. This unit has control inputs and outputs for external interfacing. It can route its audio inputs permanently or conditionally to any of the zones or to other audio outputs. The routing conditions are configured using the configuration software. The audio output can be programmed to get its signal from any of the audio inputs. The equipment can be used freestanding (tabletop) or in a 19" rack.

Functions

The audio expander has four transformer isolated analog audio inputs. Two of these are selectable between microphone and line. The other two inputs are fixed line inputs. The expander has four transformer isolated analog audio line outputs. It has built-in digital audio processing capable of three parametric and two shelving equalizer sections for all audio in and outputs. They also have a selectable 20 kHz monitoring signal. The 2 x 16-character display and the rotary control enable local status enquiries. The display shows the VU-meter reading when audio monitoring mode is active. Audio can also be monitored by using a headphone.

The eight control inputs are freely programmable for system actions, and priorities can be assigned to these inputs. Each control input has the ability to monitor the attached line for open and short-circuits. Five control outputs are freely programmable for faults and call-related actions.

The audio expander supports redundant network cabling. The network can be either single branch or redundant loop. The unit is powered from the network controller via the network cable. The expander is self-monitoring and continuously reports its status to the network controller.

Controls and indicators

- Two x 16-character LCD status display
- Rotary/push control for menu control and headphone volume

Interconnections

- Two system network connections
- Eight control inputs
- Two mic/line inputs
- Two line inputs
- Four line outputs
- Five control outputs
- Headphone output

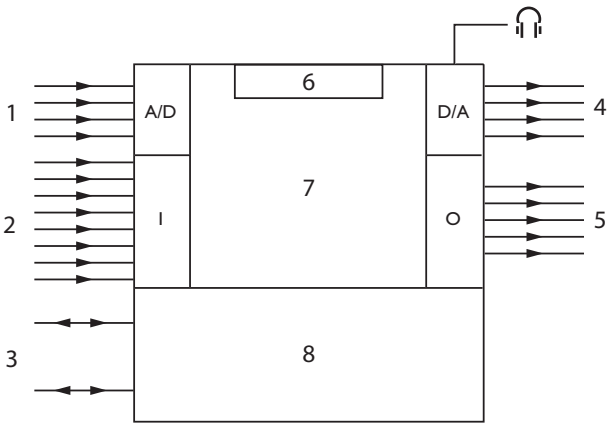
Parts Included

Quantity	Component
1	LBB 4402/00 Audio Expander
1	Set of mounting brackets for 19” rack
1	Set of feet
1	Set of connectors

Certifications and Approvals

Safety	acc. to IEC 60065-98
Immunity	acc. to EN 55103-2
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
EVAC (TÜV certified)	acc. to IEC 60849 / BS 5839-8

Installation/Configuration Notes



1	Audio inputs
2	Control inputs
3	Plastic optical fiber network
4	Audio outputs
5	Control outputs
6	Display and control
7	Network processor and DSP
8	Network redundancy switching

Technical Specifications

Electrical

Power consumption	5.6 W (DC)
Performance	
Frequency response	20 Hz to 20 kHz (-3 dB)
Line inputs	2 x
Connectors	3-pin XLR and 2 cinch (for each line)
S/N	>87 dBA at maximum level
CMRR	>40 dB
Input range	+6 dBV to +18 dBV (XLR) -6 dBV to +6 dBV (cinch)
Mic / line inputs	2 x
Connectors	3-pin XLR and 2 cinch (for each line)
Nominal Input Level	-57 dBV
S/N	>62 dBA with 25 dB headroom
CMRR	>55 dB at 100 Hz
Input Impedance	1360 ohm
Phantom supply	12 V ±1 V at 15 mA
Input range	-7 dB to 8 dB ref nominal input level
Line outputs	4 x
Connectors	XLR and 2 cinch (for each line)
Output Impedance	<100 ohm
S/N	>89 dBA at maximum level
Crosstalk	<-85 dB
Signal range	-12 dBV to +18 dBV (XLR) -24 dBV to +6 dBV (cinch)
Distortion at 1 kHz	<0.05%

Mechanical

Dimensions (H x W x D)	
for tabletop use, with feet	92 x 440 x 400 mm (3.6 x 17.3 x 15.7 in)
for 19” rack use, with brackets	88 x 483 x 400 mm (3.5 x 19 x 15.7 in)
in front of brackets	40 mm (1.6 in)
behind brackets	360 mm (14.2 in)
Weight	7 kg (15.4 lb)
Mounting	Tabletop, 19”-rack
Color	Charcoal with silver

Environmental

Operating temperature	-5 °C to +55 °C (23 °F to 131 °F)
Storage temperature	-20 °C to +70 °C (-4 °F to 158 °F)
Humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering Information

Model & Description
LBB 4402/00 Audio Expander

LBB 4404/00 CobraNet Interface

Features

- Four CobraNet™ audio inputs
- Four CobraNet™ audio outputs
- Eight supervised control inputs and 5 control outputs
- Redundant Praesideo network connection
- Redundant CobraNet™ network connection
- Headphone connection and VU-meter for audio monitoring

The CobraNet Interface can insert up to four audio channels from CobraNet into the Praesideo system and up to four audio channels from Praesideo into a CobraNet™ network. CobraNet™, developed by Peak Audio, is a network protocol for real-time uncompressed digital audio distribution over industry standard 100Base-T Ethernet networks.

CobraNet™ audio channels can be configured as inputs to Praesideo, where they can be routed permanently or conditionally to any of the zones or audio outputs. The routing conditions are configured using the configuration software. Praesideo calls and background music (BGM) sources can be routed to CobraNet™ channels. Digital audio data is directly converted between Praesideo and CobraNet™, with no other audio processing than sample rate conversion. Control inputs and outputs are provided for external interfacing. The equipment can be used free-standing (tabletop) or in a 19” rack.

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

Functions

The CobraNet Interface can simultaneously convert four digital audio channels from Praesideo to CobraNet™ and four digital audio channels from CobraNet™ to Praesideo. This includes converting between the 44.1 kHz sample rate used by Praesideo, and the 48 kHz sample rate that CobraNet™ uses, as well as conserving volume levels. It can also route audio channels between itself and other CobraNet Interfaces, in the same or in other Praesideo networks, or to third party CobraNet™ units. Only audio channels are routed via the interface, not control data. This means that if units are used to link multiple Praesideo systems, a PC master must always access the network controllers through their open interfaces for control purposes.

The eight control inputs are freely programmable for system actions, and priorities can be assigned to these inputs. Five control outputs are freely programmable for faults and call-related actions. Control inputs can also be programmed for momentary or toggle operation using the configuration software. Each control input has the ability to monitor the attached line for open and short-circuits.

The 2 x 16-character display and the rotary control enable local status enquiries. The display shows the VU-meter reading when the audio monitoring mode is active. Audio can be monitored by headphone.

The interface supports redundant network cabling of both Praesideo and CobraNet™ networks. It gets its power from the network controller via the network cable. The unit is self-monitoring and continually reports its status to the network controller.

Controls and indicators

- 2 x 16 character LCD status display
- Rotary/push control for menu control and headphone volume

Interconnections

- Two system network connections
- Two Ethernet connections
- Eight control inputs
- Five control outputs
- Headphone output

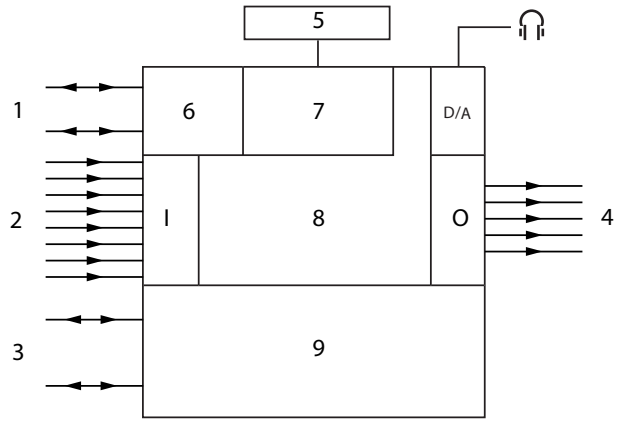
Parts Included

Quantity	Component
1	LBB 4404/00 CobraNet Interface
1	Set of mounting brackets for 19” rack
1	Set of feet
1	Set of connectors

Certifications and Approvals

Safety	acc. to IEC 60065-98
Immunity	acc. to EN 55103-2
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
EVAC (TÜV certified)	acc. to IEC 60849 / BS 5839-8

Installation/Configuration Notes



1	Ethernet network
2	Control inputs
3	Plastic optical fiber network
4	Control outputs
5	Display and control
6	CobraNet™ interface
7	Sample rate conversion
8	Network processor and DSP
9	Network redundancy switching

Rear view

Technical Specifications

Electrical

Power consumption	11 W (DC)
Audio Transport	Ethernet
Channels	4 in / 4 out per interface Max 64 on CobraNet™
Compliance	IEEE 802.3
Audio Transport	16 / 20 / 24-bit
Sample Rate	48 kHz
Latency	5.33 ms
Integrity assurance	Watchdog

Mechanical

Dimensions (H x W x D)	
for tabletop use, with feet	92 x 440 x 400 mm (3.6 x 17.3 x 15.7 in)
for 19” rack use, with brackets	88 x 483 x 400 mm (3.5 x 19 x 15.7 in)
in front of brackets	40 mm (1.6 in)
behind brackets	360 mm (14.2 in)
Weight	7 kg (15.4 lb)
Mounting	Tabletop, 19”-rack
Color	Charcoal with silver

Environmental

Operating temperature	-5 °C to +55 °C (23 °F to 131 °F)
Storage temperature	-20 °C to +70 °C (-4 °F to 158 °F)
Humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering Information

Model & Description

LBB 4404/00 CobraNet Interface

LBB 4410/00 Network Splitter

Features

- Two current-limited network tap-offs
- Supports redundant network connection on main loop
- Can feed power from an external supply to the network
- Power ´ON´ indication
- Fault indication

The network splitter is used in a network to provide two branches from the main cable run. It can use an external DC power supply, or it can use the power supply from the network controller. The unit automatically switches to the local power supply unit when it is connected to it, reducing the power drain on the main network. The network splitter can also function as a repeater, effectively extending the length of the main network another 50 meters.

Functions

The splitter inserts Praesideo units connected to a tap-off into the main network, however without the redundancy of the main loop. The maximum current supplied for each of the two tap-offs is separately selectable. External power from the local supply is used only for the tap-offs, and is not fed into the main system cable. The network splitter has two LEDs for diagnostic purposes.

Controls and indicators

- Power status LED
- Fault status LED
- Jumpers to configure tap-offs power behavior

Interconnections

- Two system network connections for main network
- Two system network connection for network tap-offs
- External power supply input

Parts Included

Quantity	Component
1	LBB 4410/00 Network Splitter
1	Mounting bracket
1	Power supply connector

Certifications and Approvals

Safety	acc. to IEC 60065-98
Immunity	acc. to EN 55103-2
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
EVAC (TÜV certified)	acc. to IEC 60849 / BS 5839-8

Technical Specifications

Electrical

Power consumption	3.9 W (network)
External power supply	
Voltage	24 to 56 VDC, 48 VDC nominal
Current	2.5 A maximum (5 A peak <2 s)

Mechanical

Dimensions (H x W x D)	28.9 x 200 x 82.5 mm (1.1 x 7.9 x 3.2 in)
Weight	0.3 kg (0.66 lb)
Mounting	2 screws in bracket
Color	Charcoal

Environmental

Operating temperature	-5 °C to +45 °C (+23 °F to +113 °F)
Storage temperature	-20 °C to +70 °C (-4 °F to +158 °F)
Humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering Information

Model & Description
LBB 4410/00 Network Splitter

LBB 4414/xx Fiber Interface

Features

- Redundant network connection
- Power 'ON' indication
- Error indication
- Two supervised control inputs (not LBB 4414/10)
- Can use a local power supply

Functions

The unit interfaces glass fiber optical cable with plastic fiber optical cable, and supports redundant wiring topology. In many applications this is necessary, because glass fiber can bridge much longer distances than plastic fiber. Any conversion to glass fiber must be converted back to plastic fiber before any Praesideo equipment can be attached, since they all have plastic fiber interfaces. This means that these units are always used in pairs.

The interface can use an external 48 VDC power supply to provide power for itself, as well as for remote parts of the network. If there is no external power source, the interface uses power from the network controller. The LBB 4414/00 has two control inputs. These can be used to connect to the fault output of the external power supply (UPS), allowing the units to monitor the power, reporting faults to the network controller. The fiber interfaces have two LEDs for diagnostic purposes.

The LBB 4414/10 is the same as the LBB 4414/00 except that it has no network node address. This has the advantage that the unit does not occupy one of the 60 possible addresses in the network. It also has the disadvantage that without an address, it is not possible to access the status of the two control inputs, as it is with the LBB 4414/00.

Controls and indicators

- Power status LED
- Network status LED

Interconnections

- Network connection for plastic optical fiber
- Network connection for glass optical fiber
- External power supply input
- Two control inputs

Parts Included

Quantity	Component
1	LBB 4414/xx Fiber Interface
1	Mounting bracket
1	Control input connector
1	Power supply connector

Certifications and Approvals

Safety	acc. to IEC 60065-98
Immunity	acc. to EN 55103-2
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
EVAC (TÜV certified)	acc. to IEC 60849 / BS 5839-8

Installation/Configuration Notes

The LBB 4414/10 and the LBB 4414/00 are often used in combination. The LBB 4414/10 is placed in the local (POF) network, and connected to a (remote) LBB 4414/00, which can then provide remote monitoring.

Technical Specifications

Electrical

Power consumption	4.6 W (DC)
External power supply	
Voltage	24 to 56 VDC, 48 VDC nominal
Current	2.5 A maximum (5 A peak <2 s)
Control inputs	2 x
Connector	Screw terminals
Operation	Closing contact (with supervision)
Glass optical fiber interface	
Connector	SC (Agilent HFBR-5803 transceiver)
Wavelength	1300 nm
Cable type	62.5/125 µm or 50/125 µm multimode

Mechanical

Dimensions (H x W x D)	28.9 x 200 x 82.5 mm (1.1 x 7.9 x 3.2 in)
Weight	0.3 kg (0.66 lb)
Mounting	2 screws in bracket
Color	Charcoal

Environmental

Operating temperature	-5 °C to +45 °C (+23 °F to +113 °F)
Storage temperature	-20 °C to +70 °C (-4 °F to +158 °F)
Humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering Information

Model & Description

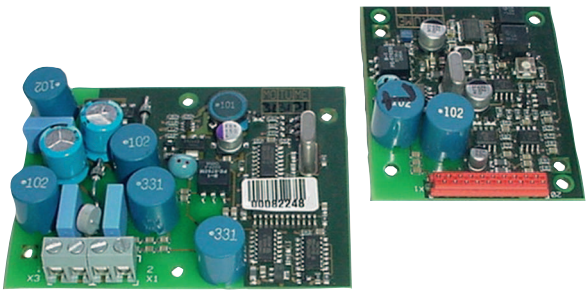
LBB 4414/00 Fiber Interface

full network address

LBB 4414/10 Fiber Interface

no network address

LBB 4442/00 Line Supervision Set



Features

- Loudspeaker line monitoring without additional cabling
- Supervision-master mounting in the power amplifier
- Supervision-slave mounting at the end of the loudspeaker line
- Open-circuit fault detection
- Compatible with 100 V and 70 V loudspeaker lines
- Supervision-slave powered from the power amplifier

The Praesideo system uses a unique loudspeaker line monitoring principle, which requires no additional cable. The loudspeaker line itself is used to communicate with the supervision-slave installed at the end of the loudspeaker line.

The LBB 4442/00 contains the master and slave device for supervision of a single loudspeaker line. For supervision of multiple loudspeaker line branches and loudspeakers, the use of the LBB 4440/00 Supervision Control Board in conjunction with the LBB 4441/00 and LBB 4443/00 Supervision Boards is recommended.

Functions

Each amplifier channel in an LBB 442x/x0 Power Amplifier unit has an internal mechanical and electrical provision for an LBB 4442/00 master board. The slave board fits into the Bosch range of loudspeakers and can be mounted in the last speaker in the line, or in a separate housing at the end of the line. The short-to-ground and short-circuit detection for the lines are incorporated in the power amplifier. Line faults are detected and reported within 100 s. The pilot tone generator for speaker monitoring is generated in the amplifier and powers the slave unit. Line monitoring can be switched on and off from the configuration software.

Interconnections

- 20-pin flat cable connector (master)
- Two screw terminals (slave)

Certifications and Approvals

Immunity	EN 55103-2
Emission	EN 55103-1 / FCC-47part 15B

Installation/Configuration Notes

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

- LBC 3011/41, LBC 3011/51
- LBC 3018/00
- LBC 3210/00
- LBC 3403/14 with LBN 9000/00 or LBN 9001/00
- LBC 3404/14 with LBN 9000/00 or LBN 9001/00
- LBC 3405/14 with LBN 9000/00 or LBN 9001/00
- LBC 3406/14 with LBN 9000/00 or LBN 9001/00
- LBC 3432/01
- LBC 3482/00, LBC 3483/00, LBC 3484/00
- LBC 3510/00, LBC 3510/40
- LBC 3520/00, LBC 3520/40
- LBC 3530/00, LBC 3530/40

Technical Specifications

Mechanical

Slave	
Dimensions (H x W X D)	16 x 80 x 60 mm (0.6 x 3.1 x 2.3 in)
Weight	50 g (1.7 ounces)
Mounting	2 screws
Master	
Dimensions (H x W X D)	17 x 60 x 50 mm (0.7 x 2.3 x 2 in)
Weight	30 g (1.1 ounces)
Mounting	Internally in all Praesideo Power Amplifiers

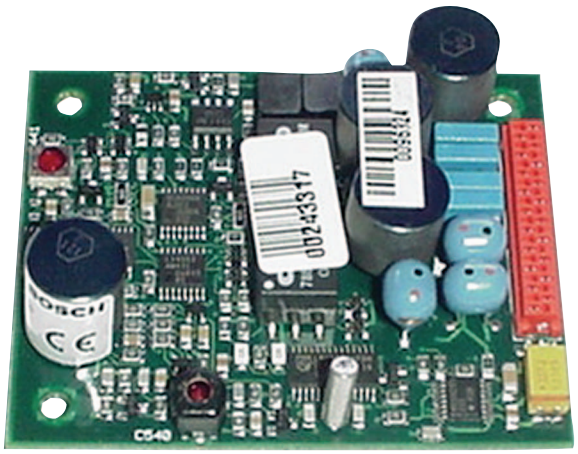
Environmental

Operating temperature	-5 °C to +55 °C (+23 °F to 131 °F)
Storage temperature	-20 °C to +70 °C (-4 °F to 158 °F)
Humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering Information

Model & Description
LBB 4442/00 Line Supervision Set
LBB 4446/00 Set Supervision Board Brackets (10 pcs)

LBB 4440/00 Supervision Control Board



Features

- Multiple speaker and line monitoring without additional cabling
- Mounted inside the power amplifier
- Controls up to 80 speaker and line supervision boards
- Open-circuit fault detection
- Compatible with 100 V and 70 V loudspeaker lines

The board controls the communication between the Praesideo system and the loudspeaker or loudspeaker line supervision boards.

The LBB 4440/00 is the supervision control board, monitoring multiple supervision-slave boards (LBB 4441/00 and LBB 4443/00), which are mounted inside the loudspeakers on the line. With these boards working together, it is possible to supervise 16, 64, or up to 80 loudspeakers or loudspeaker lines on a 500-watt amplifier.

Functions

Each amplifier channel in an LBB 442x/x0 Power Amplifier unit has an internal mechanical and electrical provision for an LBB 4440/00 control board. Communication between the supervision boards takes place inaudibly over the loudspeaker line, requiring no additional wiring. The audio signals on the lines do not affect communication.

Monitoring can be switched on and off from the configuration software. The monitoring of the presence of supervisor boards is continuous. Loudspeaker faults are detected and reported within 300 s, and line faults are detected and reported within 100 s.

Interconnections

20-pin connector and flat cable

Certifications and Approvals

Immunity	EN 55103-2
Emission	EN 55103-1 / FCC-47part 5B

Installation/Configuration Notes

The following power amplifiers have a provision for installing a supervision control board:

- LBB 4421/10
- LBB 4422/10
- LBB 4424/10

Required loudspeaker line characteristics:

Preferred cable	Single twisted pair, 0.75 mm^2 to 1.5 mm^2
Maximum length	1 km (including branches, max. 300 m adjacent to other supervised loudspeaker cables)
Maximum loop resistance	38 ohm
Maximum inductance	750 µH
Minimum total loudspeaker impedance	120 ohm at 70 kHz (independent of amplifier power)
Maximum capacity	300 nF
Maximum number of supervision boards per amplifier channel	80 at 500 W 40 at 250 W 20 at 125 W
Loudspeaker voltage	70 V, 100 V

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

Note: If the maximum load capacity for the power amplifier output is less than 300 nF, the maximum load capacity of the power amplifier is leading.

Technical Specifications

Mechanical

Dimensions (H x W x D)	60 x 50 x 17 mm without bracket (2.4 x 2.0 x 0.7 in)
Weight	30 g (1 ounce)
Mounting	Internally in the power amplifier Plastic brackets for horizontal and vertical installation included

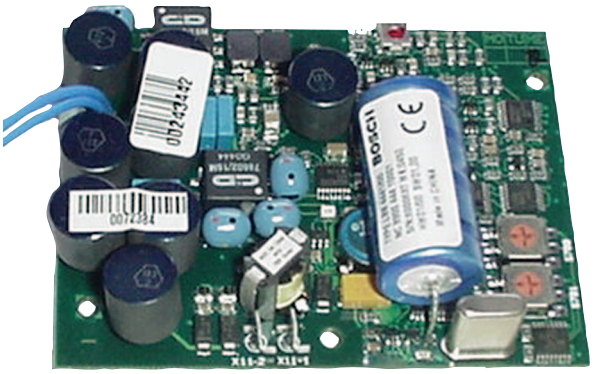
Environmental

Operating temperature	-5 °C to +55 °C (+23 °F to 131 °F)
Storage temperature	-20 °C to +70 °C (-4 °F to 158 °F)
Humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering Information

Model & Description
LBB 4440/00 Supervision Control Board for use in the power amplifier on each amplifier channel

LBB 4441/00 Loudspeaker Supervision Board



Features

- Loudspeaker and loudspeaker line monitoring without additional cabling
- Open-circuit fault detection
- Compatible with 100 V and 70 V loudspeaker lines
- Powering of the supervision-board from the power amplifier
- Communication is not affected by the audio signals on the loudspeaker line

The board monitors the integrity of a loudspeaker. It works together with the LBB 4440/00 Supervision Control Board. The speaker status is communicated to the LBB 4440/00 via the existing loudspeaker cable.

Functions

The LBB 4441/00 is mounted inside the loudspeaker casing and communicates the status of the loudspeaker to the LBB 4440/00 Supervision Control Board via the existing loudspeaker cable. The board detects and reports loudspeaker faults within 300 s, line faults within 100 s.

Interconnections

- Two 30 cm flying leads
- Two faston connectors

Certifications and Approvals

Immunity	EN 55103-2
Emission	EN 55103-1 / FCC-47part 15B

Installation/Configuration Notes

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

- LBC 3011/41, LBC 3011/51
- LBC 3018/00
- LBC 3210/00
- LBC 3403/14 with LBN 9000/00 or LBN 9001/00
- LBC 3404/14 with LBN 9000/00 or LBN 9001/00
- LBC 3405/14 with LBN 9000/00 or LBN 9001/00
- LBC 3406/14 with LBN 9000/00 or LBN 9001/00
- LBC 3432/01
- LBC 3482/00, LBC 3483/00, LBC 3484/00
- LBC 3510/00, LBC 3510/40
- LBC 3520/00, LBC 3520/40
- LBC 3530/00, LBC 3530/40

The board must be connected after the ceramic terminal 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.

When the loudspeaker does not contain a ceramic terminal block with a thermal fuse, use an LBC 1256/00 EVAC Connection Adapter

Technical Specifications

Mechanical

Dimensions (H x W x D)	78 x 60 x 22 mm (3.0 x 2.3 x 0.8 in)
Weight	70 g (2.4 ounces)
Mounting	Internally in the loudspeaker An optional mounting bracket, LBB 4446/00 is available

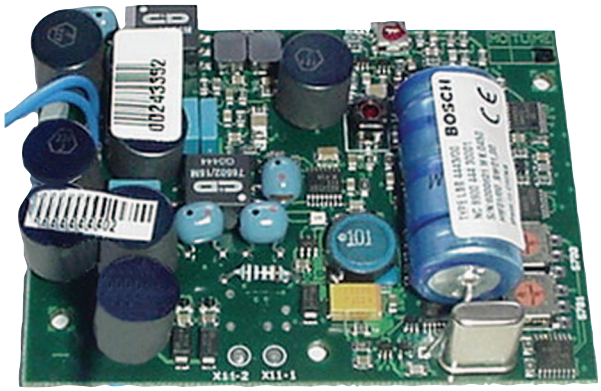
Environmental

Operating temperature	-5 °C to +55 °C (+23 °F to 131 °F)
Storage temperature	-20 °C to +70 °C (-4 °F to 158 °F)
Humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering Information

Model & Description
LBB 4441/00 Loudspeaker Supervision Board
LBB 4446/00 Set Supervision Board Brackets (10 pcs)

LBB 4443/00 End of Line (EOL) Supervision Board



Features

- Loudspeaker line monitoring without additional cabling
- Open-circuit fault detection
- Compatible with 100 V and 70 V loudspeaker lines
- Powering of the supervision-board from the power amplifier
- Communication is not affected by the audio signals on the line

The board monitors the integrity of a loudspeaker line. The boards work together with the LBB 4440/00 Supervision Control Board to monitor the status of the loudspeaker line and all of its branches. The line status is communicated to the LBB 4440/00 via the existing loudspeaker cable.

Functions

The board is mounted inside the case of the last loudspeaker on the loudspeaker line, or inside a separate case. Supervision of branched lines is possible. If a loudspeaker line has multiple branches, a separate LBB 4443/00 is required for the last loudspeaker in each branch. The board detects and reports line faults within 100 s.

Interconnections

- Two 30 cm flying leads
- Two faston connectors

Certifications and Approvals

Immunity	EN 55103-2
Emission	EN 55103-1 / FCC-47part 15B

Installation/Configuration Notes

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

- LBC 3011/41, LBC 3011/51
- LBC 3018/00
- LBC 3210/00
- LBC 3403/14 with LBN 9000/00 or LBN 9001/00
- LBC 3404/14 with LBN 9000/00 or LBN 9001/00
- LBC 3405/14 with LBN 9000/00 or LBN 9001/00
- LBC 3406/14 with LBN 9000/00 or LBN 9001/00
- LBC 3432/01
- LBC 3482/00, LBC 3483/00, LBC 3484/00
- LBC 3510/00, LBC 3510/40
- LBC 3520/00, LBC 3520/40
- LBC 3530/00, LBC 3530/40

Technical Specifications

Mechanical

Dimensions (H x W x D)	78 x 60 x 22 mm (3.0 x 2.3 x 0.8 in)
Weight	70 g (2.4 ounces)
Mounting	Internally in the loudspeaker An optional mounting bracket, LBB 4446/00 is available

Environmental

Operating temperature	-5 °C to +55 °C (23 °F to 131 °F)
Storage temperature	-20 °C to +70 °C (-4 °F to 158 °F)
Humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering Information

Model & Description
LBB 4443/00 End of Line (EOL) Supervision Board
LBB 4446/00 Set Supervision Board Brackets (10 pcs)

LBB 4416/xx Network Cables

The network cables come in different lengths with connectors at both ends. The extension of the type number indicates the length of the cable. The LBB 4416/00 comes without connectors. The connectors (LBB 4417/00) are available for it separately.

Functions

LBB 4416 /01 /02 /05 /10 /20 /50

These are special cables with two plastic fibers for data communication and two copper cores for the power supply.

The cables all have the network connectors fitted. They connects the network controller to power amplifiers, audio expanders, call stations etc.

LBB 4416/00

This is a special cable with two plastic fibers for data communication and two copper cores for the power supply.

The cable is 100 meters long, and comes without network connectors. LBB 4417/00 connectors are fitted after the cable has been cut to the required length. It connects the network controller to power amplifiers, audio expanders, call stations etc.

Certifications and Approvals

Flame retardant	acc. to IEC 60332-1 60 s
Halogen level	acc. to IEC 60754-2 pH>4.3, conductivity <10µS/mm
Smoke level	acc. to IEC 61034-2 light transmittance >60%

Installation/Configuration Notes

The cables have the following lengths

LBB4416/00	100 m (without connectors)
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

Technical Specifications

Electrical

Wire	Copper, stranded 1 mm^2
Resistance	<0.018 ohm/m

Optical

Fiber	PMMA, 1 mm
Numeric aperture	0.5
Attenuation	<0.17 dB/m at 650 nm
Bending loss	<0.5 dB (r=20 mm, 90°) JIS C6861

Mechanical

Dimensions (diameter)	7 mm
Color	Black
Pull force	150 N (max)

Environmental

Operating temperature	-40 °C to +65 °C (-40 °F to 149 °F)
Humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering Information

Model & Description
LBB 4416/00 Network Cable 100 m without the network connectors fitted
LBB 4416/01 Network Cable Assembly 0.5 m with the network connectors fitted
LBB 4416/02 Network Cable Assembly 2 m with the network connectors fitted
LBB 4416/05 Network Cable Assembly 5 m with the network connectors fitted
LBB 4416/10 Network Cable Assembly 10 m with the network connectors fitted
LBB 4416/20 Network Cable Assembly 20 m with the network connectors fitted
LBB 4416/50 Network Cable Assembly 50 m with the network connectors fitted
Accessories
LBB 4419/00 Cable Couplers (10 pcs)

LBB 4417/00 Set Network Connectors (20 pcs)

The set contains 20 connectors that can be used with the network cable LBB 4416/00 to make up to ten custom cables. The cable/connector toolkit LBB 4418/00 is required for assembly.

Ordering Information

Model & Description
LBB 4417/00 Set Network Connectors (20 pcs)

LBB 4418/00 Cable Connector Tool Kit

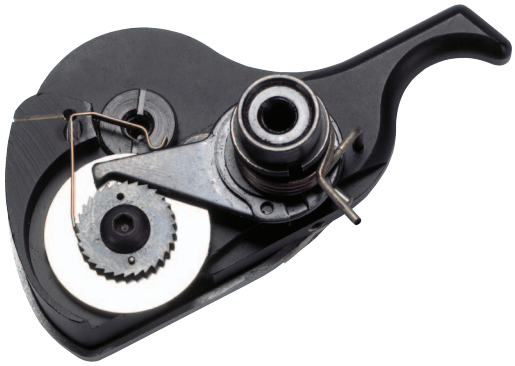
Parts Included

Quantity	Component
1	Standard cutting pliers
1	Stripping pliers
1	Crimping pliers
1	Plastic optical fiber cutting/stripping tool
1	Plastic optical fiber positioning and indent tool
1	Torx screw driver
1	Spare cutting system

Ordering Information

Model & Description
LBB 4418/00 Cable Connector Tool Kit
LBB 4418/50 Spare cutting system

LBB 4418/50 Spare Cutting System (2 pcs)



This set contains two replacements for the plastic optical fiber cutting/stripping tool contained in LBB 4418/00.

Installation/Configuration Notes

After 1260 cuts the cutter/stripping tool in the LBB 4418/00 blocks automatically. In that case, the cutting system must be replaced.

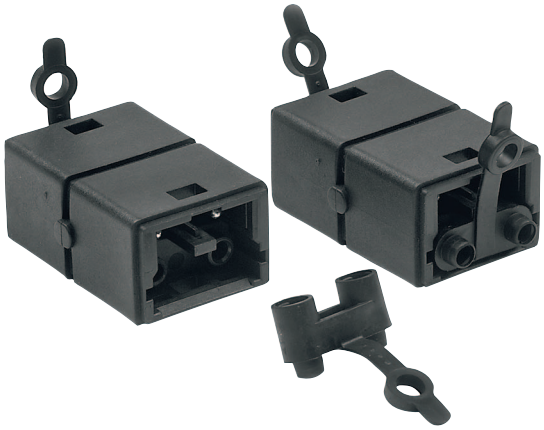
Ordering Information

Model & Description

LBB 4418/50 Spare Cutting System (2 pcs)

two replacement cutting systems for LBB 4418/00

LBB 4419/00 Cable Couplers (10 pcs)



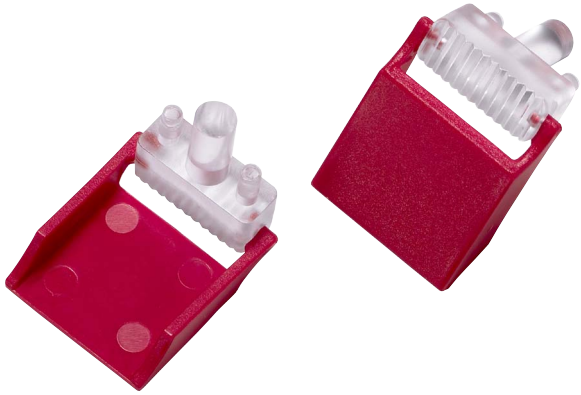
Cable couplers are used to couple LBB 4416/xx network cable assemblies for extension.

Ordering Information

Model & Description

LBB 4419/00 Cable Couplers (10 pcs)

LBB 4436/00 Set of Key Covers (10 pcs)



The key covers are snap-on replacements for the original lenses on an LBB 4432/00 Call Station Keypad that protect the keys from being accidentally pressed.

Parts Included

Quantity	Component
10	Key covers
10	Replacement lenses

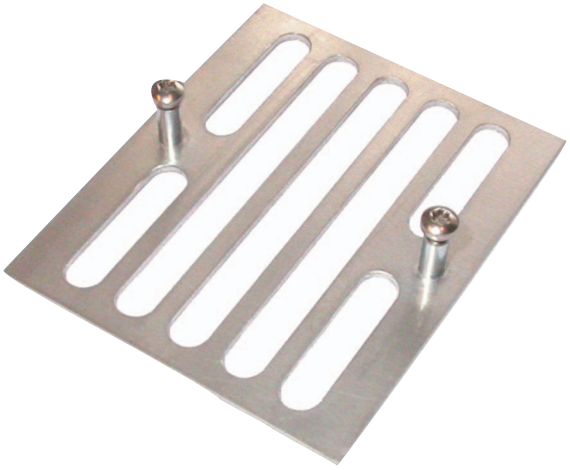
Ordering Information

Model & Description

LBB 4436/00 Set of Key Covers (10 pcs)

10 key covers and 10 replacement lenses

LBB 4446/00 Set of Supervision Board Brackets (10 pcs)



The supervision board brackets are intended for mounting LBB4442/00 Supervision Slave Boards, LBB4441/00 Loudspeaker Supervision Boards and LBB4443/00 EOL Supervision Boards into or onto loudspeaker cabinets, or into junction boxes and equipment racks.

Parts Included

Quantity	Component
10	Supervision board brackets

Ordering Information

Model & Description

LBB 4446/00 Supervision board brackets (10 pcs)