

Digital Congress Network - DCN



Security Systems

Installation and Operating Manual
en | Digital Congress Network



BOSCH

DCN

Digital Congress Network

Bosch Security Systems B.V.

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IMPORTANT SAFEGUARDS

Prior to installing or operating this product always read the Safety Instructions, which are available as a separate document.

About this Manual

This manual is a comprehensive guide to the installation and operation of the Digital Congress Network System DCN. For portability and ease of use, this manual combines both installation details and a comprehensive section on individual and system operational procedures.

The manual is divided into the following chapters:

- **Chapter 1. Introduction**

Chapter 1 provides an introduction to the DCN system, as well as introducing the user to its System Philosophy based on the new technology recently introduced into congress systems.

- **Chapter 2. to Chapter 9. Equipment Description.**

Chapters 2 to 9 provide a comprehensive detailed description of all system units that combine to make up the DCN system.

- **Chapter 10. Installation Techniques**

Chapter 10 provides an introduction to the fundamentals of system design as well as a detailed description on how to install, configure and interconnect the DCN system units.

- **Chapter 11. System Operation**

Chapter 11 provides a comprehensive and detailed description on how to set-up and operate DCN's main system items and its individual units.

- **Chapter 12. Environmental Conditions and Maintenance**

Chapter 12 gives the environmental conditions in which the DCN system should operate. A section on maintenance is also included describing how to clean and store the DCN system units.

- **Chapter 13. Technical data**

Chapter 13 gives both the mechanical and electrical details of the DCN system. The mechanical section gives the dimensions of individual units. The electrical section gives the technical specification of the DCN system.

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Chapter 1. Introduction Digital Congress Network (DCN)

The BOSCH Digital Network System (DCN) provides flexible control facilities for all types of conferences from small discussion groups to international, multi-lingual congresses with hundreds of delegates. Facilities range from basic microphone management, to delegate identification and registration, electronic voting, information distribution and display, up to extensive simultaneous interpretations and automatic camera control. A single operator using a computer with DCN's application software can control even the largest of congresses. Systems can be expanded by adding more contribution equipment and introducing PC control with DCN's application software.

The full range of DCN equipment includes:

1. Contribution equipment
2. Central control equipment
3. Simultaneous interpretation and language distribution equipment
4. Information display equipment
5. Application software packages
6. Installation equipment

DCN equipment is also complemented by external equipment such as video and character displays, TV cameras, personal computers, monitors, PA amplifiers, loudspeakers and printers all of which are fully compatible and easily integrated into the DCN system.

1.1 Contribution equipment

Contribution equipment describes the units which participants use to contribute to a conference. Depending on the type of contribution unit, delegates can access the DCN's wide range of facilities to listen, speak, register a request-to-speak, receive screen messages, communicate with other delegates via an intercom and to participate in electronic voting sessions. On insertion of an ID-card dedicated software is required giving much more facilities.

Contribution units can be used free-standing on a table-top, or flush-mounted in desks, seat backs or armrests. Other microphone types such as lavalier and hand-held are also available, allowing contribution from non seated participants such as a guest speaker for example.

1.2 Central Control Equipment

The Central Control Unit (CCU) forms the heart of the DCN system. The CCU can operate stand-alone to provide automatic conference control, or it can be accessed by an operator via a personal computer (PC) when more extensive management control is required.

All CCU's can control up to 240 contribution units. If more capacity is required, slave CCU's can be connected, each of which increases the system capacity by 240 contribution units. A maximum of 16 slave CCU's can be connected to a system. Other extension units include an Extension Power Supply unit and an Audio Media Interface unit which extend the systems power handling capacity.

The CCU offers basic microphone management, simultaneous interpretation and electronic voting facilities, as well as digital audio channels, data channels and communication channels. This allows effective unsupervised control of even large or international conferences. The extended CCU offers all the facilities of the basic CCU, but allows operator control via a personal computer (PC). The operator can access the wide range of DCN application software packages, each with a specific function in controlling and monitoring conferences. This includes advanced simultaneous interpretation and microphone management, message generation and display, voting procedures, intercom, creating a delegate data base, attendance registration, audio processing and automatic camera control.

1.3 Simultaneous Interpretation and Language Distribution Equipment

Interpretation.

Using the same trunk-line cabling DCN's interpreter desks can easily be integrated into existing systems, offering comprehensive facilities for simultaneous interpretation. The desk can accommodate up to 15 different language channels, plus the original floor language. A maximum of six desks can be installed per interpreter booth. They can be used stand-alone or as part of a more comprehensive system. When used stand-alone, the units built-in microprocessor is manually programmed to allocate language channels, channel routing and interlocks. In PC operator-controlled systems, the desk is used in combination with DCN dedicated software, and other interpreter desks (if required) to form a completely integrated interpretation network. An in-built facility enables direct or auto-relay interpretation to cater for less well known languages. Each desk has two output channels, one for the normal interpretation and one for second or auto-relay translation.

Language Distribution

Distribution of languages to individual delegates can be by wired or wireless language distribution systems. A wired language distribution system uses delegate contribution units that include a language channel selector, or dedicated language channel selector units. A wireless language distribution system uses the Infra-red transmission technique.

1.4 Information display equipment

The DCN system can distribute information to conference participants quickly and efficiently to suit all requirements. A wide range of displays are supported from simple LCD personal screens to video equipment for venue broadcasting.

The chairman unit, interpreter desk and one type of the delegate unit is equipped with a graphic (chairman, delegate) or alphanumeric (interpreter) LC-display which displays delegate information, voting results and operational procedures, public and personal messages, microphone status and multi-lingual user instructions.

Hall displays can quickly display conference information to a large number of conference participants. Numeric, alphanumeric or geographical displays are available, to display voting results. TV receivers and Video Displays allow high quality display of any live or recorded material, computer-generated graphics, text, and information generated by DCN software.

1.5 Application software packages

A comprehensive range of software packages is available for use with centrally controlled PC-systems. These packages run under Microsoft® Windows® integrate conference preparation management and control into this versatile graphical computer environment. Any combination of packages can be down-loaded according to specific system requirements. DCN software packages are generally used in larger scale systems where operator control is required.

The PC running the software is connected to the DCN system and therefore has direct communication links with contribution, interpretation and control equipment via the systems trunk-line data bus or the CCU's serial communication port. Therefore all aspects of conference management can be brought to a single point of control, leading to increased ease of use, efficiency and data distribution.

The range of DCN software packages includes:

- Microphone management
- Synoptic Microphone control
- System installation
- Parliamentary voting
- Multi- voting
- Delegate Database
- Simultaneous Interpretation
- Text/Status Display
- Attendance Registration
- ID-Card Encoding
- Message Distribution
- Intercom
- Video Display
- Automatic Camera Control
- DCN Start-up
- Multi-CCU
- DCN Open Interface

1.6 Installation equipment.

Fast cost-saving installation is an important benefit of the DCN's digital technology. A thin twin-coaxial cable carries all the system's digital signals, eliminating the need for the costly and vulnerable multi-core cables used in conventional analogue installations. The same cable is used to transport the signals to all delegates' microphone units throughout the system and can be 'tapped off' at any desired point to connect the microphone units or any system unit associated with the DCN system. Later capacity extensions - for example to add extra microphone units does not demand changes to the system cabling. All that is needed is to connect the required DCN system units or branches to the installed cabling. Trunk-line splitters and extension cable assemblies are available to simplify installations in difficult working areas.

DCN's System Philosophy.

The DCN introduces the latest digital technology, bringing far reaching benefits to the audio quality, as well as to promote the addition of a wide range of external peripheral equipment to conference systems.

FIG I-1 shows the concept of DCN's digital communication techniques. The Network cabling forms the system infrastructure providing the communication media between the Microprocessor controlled Central Control and all units connected to it. Using standard plugs and connectors throughout the system means that units can be connected to the Network at any convenient points, making installation quick and simple.

Communication through the Network cabling and all units connected to it, is done using three dedicated digital communication IC's, ACN 1, ACN 2 and ACN 3. Units that include an ACN 1 microprocessor - such as the delegate unit, chairman unit and interpreter desk - communicate to the Central Control Unit, via the units ACN 2 microprocessor on a send and receive basis (active or passive). Units that include an ACN 3 microprocessor - such as the Channel selector units - receive information on a receive basis only, such units are known as passive units.

Praedic

The integrated circuit (IC), PRAEDIC (Professional Audio Encoder Decoder Integrated Circuit) combines a built-in amplifier with both Analogue-to-Digital and Digital-to-Analogue convertors. The IC converts analogue signals (such as from a delegates' microphone) and digitizes them for distribution throughout the DCN network cabling. In return the digitized signal is then fed back to the Praedic and converted back to an analogue signal for distribution throughout the DCN units - such as delegate loudspeakers and headphones.

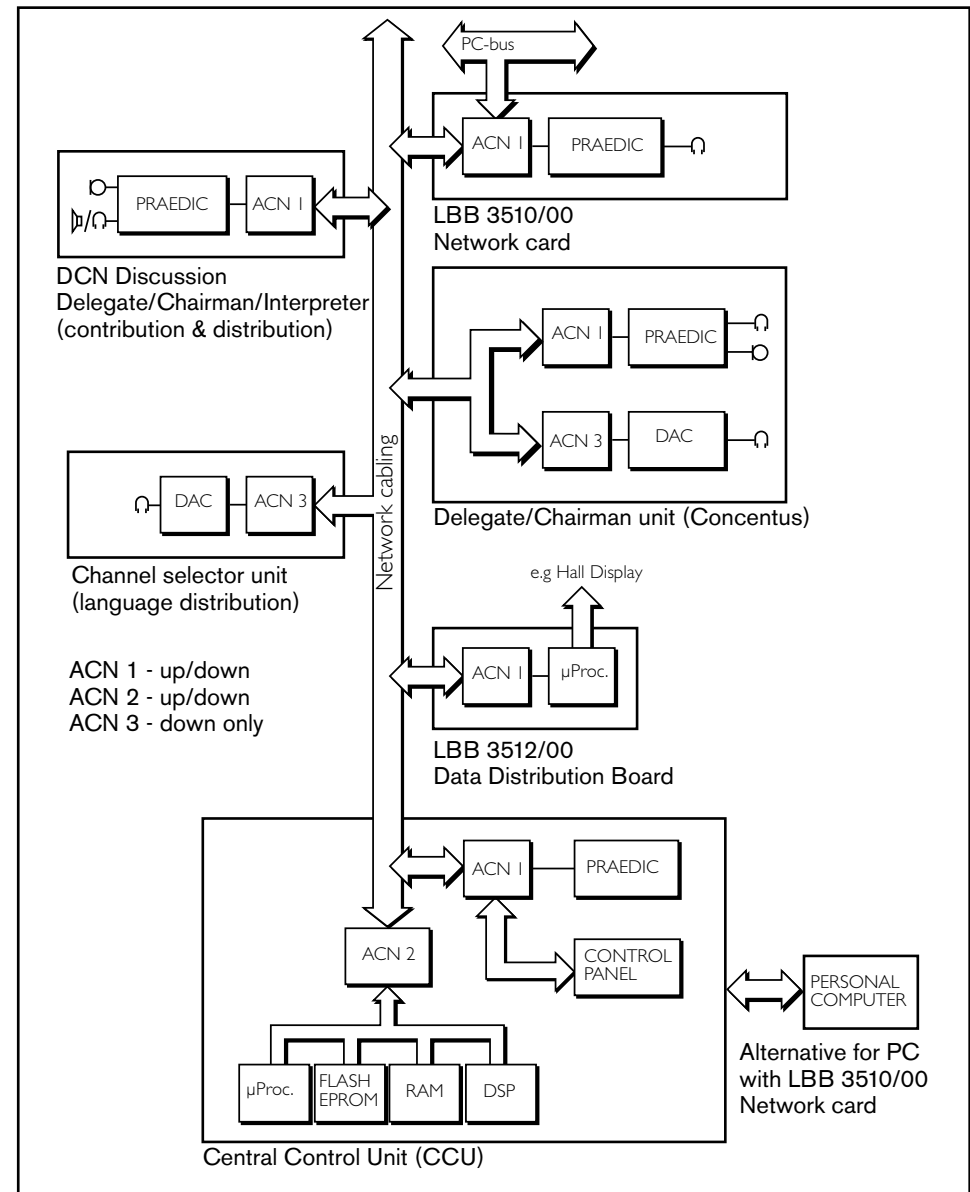


FIG I-1 DCN's digital communication technique

1.7 Quick reference to DCN's functions

Stand-alone System

A discussion system; delegates control their own microphone actions - without the need of a non-participating operator. Discussion systems cater for smaller groups, although the number of delegates can be extended to the total capacity of the DCN system. A discussion system therefore is ideal for small meeting halls, boardrooms, and hotels etc. where clear and concise speech intelligibility through sound amplification is required.

PC Controlled System

Delegates' microphone actions are controlled by a none participating operator using a personal computer.

Microphone Management

Method by which delegates/operator control the microphone units. Microphone Management control therefore is needed in order to conduct civilised and disciplined discussions/conferences.

The DCN system has its own built-in standard microphone control functions. These functions are usually sufficient for use in discussion groups using a stand-alone system. In conference systems however a central PC operator has extended microphone management capabilities when using DCN's dedicated microphone management software.

Microphone Management Operation Modes:

OPEN (AUTO)

The OPEN mode allows up to 1, 2 or 4 delegates (Active Micros) to control the on/off state of their own microphones unit simultaneously without the use of operator intervention. When more than the number of Active Micros has been reached, delegates requesting to speak join a request-to-speak list.

OVERRIDE (First-In-First-Out)

The Override mode allows up to 1, 2 or 4 delegates to speak on a FIRST-IN FIRST-OUT basis i.e. Override. With the override mode, there is no request-to-speak list, only the pre-selected number of Active Micros may be switched on simultaneously. This means that if another delegate should switch on his microphone unit, the microphone of the first delegate having joined the group will be switched off, allowing the latest delegate to join in the discussion.

VOICE ACTIVATION

The 'Voice' activation mode is an automatic method for activating the microphones of the delegate and chairman units by voice. The maximum number of voice activated units available for selection in a stand-alone system is 2 or 4. This mode of operation is intended for free discussion amongst participating delegates. For enhanced operation an additional Public Address system is highly recommended.

1.8 DCN Software packages

1.8.1 Microphone Management software

Microphone management software provides a text-based solution (delegates' names) for managing delegates' microphones. Run under Windows® the operator controls the delegates' microphone operations through menus.

The Microphone Management software offers five modes of microphone control:

- Operator with *Request-to-speak list (MANUAL)
- Operator with *Request and **Response list
- Delegate with *Request-to-speak list (OPEN)
- Delegate control with override (of other delegates' microphones)
 - *A Request-to-speak list is a list of delegates waiting to speak. To join the list delegates first press their microphone keys. If the maximum number of delegates are already speaking the delegates then joins the list. The number of delegates allowed to speak at the same time is set to 1, 2, 3, or 4.
 - ** A response list is a list of delegates that need to react immediately to a current speaker. Response requests are positioned at the top of the request list.
- Delegate with Voice activation

REFERENCE: For more information refer to the LBB 3570 software manual

1.8.2 Synoptic Microphone Control

Synoptic microphone control software provides a graphical solution using pictograms of microphone units. Run under Windows® the operator controls microphone units by simply pointing and clicking a mouse on the desired unit. Synoptic microphone control is icon based. It relies on the location of seats and uses pictograms that show icons with seat numbers or with names.

REFERENCE: For more information refer to the LBB 3571 software manual

1.8.3 Simultaneous Interpretation

Interpretation is the term used where the language of the floor speaker is interpreted by interpreters using interpreter desks into the languages of the other conference participants.

REFERENCE: For more information refer to the LBB 3572 software manual

1.8.4 Language Distribution

Language distribution describes the means by which delegates listen to the floor speaker in the language of their choice. Interpretations can be forwarded to delegates headphones using units with either a built-in language channel selector or via an infra-red receiver.

1.8.5 Voting

Parliamentary voting

Parliamentary voting allows delegates to vote 'NO', 'ABSTAIN' or 'YES'. It provides facilities for vote registration and display, with a choice of 'OPEN' (non-secret) and 'CLOSED' (secret) voting modes and selectable interim voting functions. Up to 9999 voting motions can be prepared in advance in a single script file and recalled instantly during a voting session (available with PC systems only). In PC based systems, editing facilities are also provided to simplify the preparation of updating script files.

REFERENCE: For more information refer to the LBB 3575 software manual

Multi voting

Multi-voting software allows up to 6 voting methods to be selected, 'Parliamentary', 'Audience response', 'Multiple choice', Opinion poll, Rating and For/against. Vote related parameters can be specified for each individual voting method, such as: vote type, result display type, interim display, screen and print legends, hall display, vote weighting, roll call, voting LEDs and abstain options. The user is able to print the final result and automatically export it to an MS-DOS file.

For more information refer to the LBB 3576 software manual.

REFERENCE: For more information refer to the LBB 3576 software manual

1.8.6 Attendance Registration and Access Control

To register delegates to the DCN system, personnel ID-cards can be programmed and allocated to participating delegates. The card ensures that only authorised delegates are able to access the functions of a microphone unit, participate in a voting session and to make an intercom call. This facility is only applicable to units fitted with an ID chip card reader.

REFERENCE: For more information refer to the LBB 3578 software manual

1.8.7 Intercom

An intercom handsets allows two-way vocal communication between conference participants, interpreters and operator.

REFERENCE: For more information refer to the LBB 3573 software manual

1.8.8 Text/Status Information Displays

Information displays range from hall displays for rooms of all sizes, down to personal displays for individual delegates.

Most of the displayed information is in the form of alphanumeric messages, shown on microphone units equipped with LC-displays, as well as on hall displays. A choice of solutions are available for hall display information like voting motions and results, delegates' names and affiliations, request-to speak lists, personal messages, public announcements and multiple choice questions.

Display facilities for video signals and graphic information such as seating plans and statistical voting representations can also be added to the system, using hall displays such as projection or direct view TV receivers, or giant-screen VidiWalls for larger audiences. Personal video displays can also be added in the form of LCD TV displays.

REFERENCE: For more information refer to the LBB 3583 software manual

1.8.9 Automatic Camera Control

Automatic camera control allows the speaker to be displayed on one or more video displays connected to a video control switcher. One or more dome cameras' with a fast moving pan and tilt, zoom lens and a large number of pre set positions are automatically activated by the microphone control signals of the contribution units.

REFERENCE: For more information refer to the LBB 3588 software manual

1.8.10 Delegate Database software

Delegate Database software is used to create names files of conference participants. It is used by several other DCN software modules to identify the conference participant and to control the delegates access to DCN functionality, i.e. microphone control, voting, use of intercom facilities.

REFERENCE: For more information refer to the LBB 3580 software manual.

1.8.11 ID-Card Encoder software

ID-Card Encoder Software enables encoding of a unique ID-card number to allow identification of each delegate when using DCN contribution units with an ID-card reader.

REFERENCE: For more information refer to the LBB 3580 software manual.

1.8.12 Message Distribution software

Message Distribution Software enables an operator to send individual or group messages to conference participants such as delegates and interpreters and to display text messages on hall displays.

REFERENCE: For more information refer to the LBB 3582 software manual.

1.8.13 System Installation software

System Installation is used to configure the DCN system. It allows linking of contribution units and users and assigning functions to audio channels. An installation file is required for DCN operation with PC control.

REFERENCE: For more information refer to the LBB 3585 software manual.

1.8.14 Video Display

Video Display software enables sending of relevant information for large screen video/data display or personal video/data display via a Video Client application.

REFERENCE: For more information refer to the LBB 3584 software manual.

1.8.15 Multi-CCU Control

Multi-CCU Control software allows to use up to 16 CCU's in a DCN system for a max. of 3840 contribution units. (Note: DCN's Delegate Database software LBB 3580 supports names files with up to 1500 names). The Multi-CCU Control software is installed on a Master CCU PC operating under OS/2. It allows assignment of the CCU acting as "Audiomaster" and the CCU used for connection of interpreter desks.

REFERENCE: For more information refer to the LBB 3586 software manual.

1.8.16 DCN Startup

DCN Startup software is the basic software module for installation of all DCN software modules. The Startup screen shows the icons of all installed software modules that can be activated. It also can show the system configuration, defines auto-start options, takes care for error logging and allows the operator to control the master volume level and to listen to interpretations via a headphone.

REFERENCE: For more information refer to the LBB 3590 software manual.

1.8.17 DCN Open Interface

The DCN open interface software allows remote control of a selected DCN functions via third party equipment. Control data exchange between DCN and the remote control device or system is done via a RS-232 port on the CCU. Access to the CCU is opened with the Open Interface software via a PC connection to the serial port of the CCU.

REFERENCE: For more information refer to the documentation on the disk of this module.

1.9 Glossary of Abbreviations and Acronyms

A

ACN-1, ACN-2, ACN-3	Integrated Circuit (IC)
Active unit	Sends data on the up link and receives data on the down link
Allow cancel request	A pre-programmed system interlock, allowing the delegate to cancel a request-to-speak
Allow mic. off facility	A pre-programmed system interlock, allowing delegates to switch off their microphone units without consent

C

CCU	Central Control Unit
Chairman	One who presides over or heads a meeting or conference
Contribution	Participation within a meeting or conference using contribution units
Central Operator	One who controls and organises a meeting or conference from a personal computer (PC)

D

Data Communication	Communication of data between microprocessor controlled units
DCN	Digital Congress Network
Delegate	A representative to a conference
Distribution	The distribution to delegates of interpreted languages

E

End of Voting	End of Voting Displayed on the delegate unit to inform delegates that the voting session has ended
---------------	--

F

Flush-mounted	Units that are built into tabletops or the arm rests of seats
---------------	---

H

Hold	Voting session on hold or temporarily halted
------	--

I

Information display	Display showing related conference information
Interlocks	Pre-programmed settings for use in interpretation procedures
Interpretation	The art of interpreting one language into another Interpretation (simultaneous) The art of interpreting one language into another at the same time
Interpreter	One who translates orally for people speaking in different languages

N

Network cabling	See Trunk-line
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M

Multi-CCU	Systems using more than one CCU, linked using a Multi-CCU link.
-----------	---

P

PC	Personal Computer
PCF	Power Consumption Factor
PCF value	The value assigned to a specific unit or system
PRAEDIC	Professional Audio Encoder Decoder IC.
Passive Unit	DCN unit that Receives data on the down link only

R

Rack-mounted	Defines units that are capable of being mounted in a 19-inch cabinet
Request accepted	Displayed on a delegate unit informing the delegate the delegate that his request-to-speak has been accepted
Request	Initiated by a delegate requesting to speak
Request cancelled	Displayed on delegate units informing the delegate that his request-to-speak has been cancelled or rejected
Restart	Voting session restarted after being on Hold
Response	Initiated by a delegate wishing to respond.

S

Speaker	Floor speaker
Speak now	Displayed on delegate units to inform the delegate that he may speak

T

Trunk-line	Cabling between units run in a loop-through chain
Trunk-outlet	Used for trunk-cable splitting and pulse regeneration purposes
Table-top	Units placed on top of a table or similar type surface

V

Voting	To cast one vote, exercise a choice or decision, express an opinion
Voting on-hold	Displayed on a delegate unit when a voting session has been temporarily suspended

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Chapter 2. Contribution Equipment

The following chapter describes the functionality of each unit and its interconnection and mounting facilities. All unit's dimensions are referenced in [Chapter 13](#): "Technical data".

2.1 CONTRIBUTION EQUIPMENT

The DCN range of contribution equipment falls into 3 categories: table-top, table-top + flush mounted (universal) and flush mounted.


2.1.1 Table-top Contribution units

Table-top contribution units include delegate, chairman and interpreter units. All are designed for uncluttered longitudinal placement on table-tops or similar type surfaces.



NOTE: DCN offers two different styles of table-top contribution units. Therefore for clarity throughout this manual, they will be divided into conference and discussion units.

The range of DCN's table top equipment includes the following units:

Unit Description	Type No.	Unit Type.
Active units		
Delegate unit	LBB 3530/xx LBB 3531/xx LBB 3544/00 LBB 3545/00 LBB 3546/00	Discussion Conference
Chairmans unit	LBB 3533/xx LBB 3534/xx LBB 3547/00	Discussion Conference
Microphones for conference units	LBB 3549/00 LBB 3549/50	Conference Conference
Interpreter desk	LBB 3520/10	Interpretation
Intercom handset	LBB 3555/00 with mounting plate LBB 3556/00	
Multi-purpose connection unit	LBB 3540/15 (Flush-mounted applications only)	
A "Microphone only" function is also available using the following:		
Hand microphones	LBB 3536/00, /10 (Flush-mounted applications only)	
Dual Audio Interface	LBB 3535/00 (Flush-mounted applications only)	
Passive units (no contribution, only in FM section)		
Electronic channel selector	LBB 3524/00*, LBB 3524/10*, LBB 3526/10	
	Note: *The electronic channel selector is a flush-mounted unit but can also be used in table-top installations (using the LBB 3525/00 housing).	

2.1.2 Delegate unit

For use by delegates to actively participate in discussion/conference proceedings - ranging from small discussion groups to multi-national conferences. Its basic functions allow delegates to speak, listen to other participants, and to participate in voting sessions (conference units only) using the units voting keys .

2.1.3 Chairman unit

For use by a chairman, the chairmans unit is similar to the delegate unit but includes a 'priority button'. This button when pressed temporarily mutes or permanently cancels all other microphone users. An optional chime tone is available when the priority button is used. A system may have one or more chairman units; for use by assigned delegates, privileged speakers or VIP's etc. In permanent mode, all delegates waiting to speak are also removed from the request-list. Chairman unit LBB 3547/00 has five soft-keys that enable the chairman to control, initiate, and to participate in voting sessions, as well as to cancel all delegates' microphones and requests-to-speak.



FIG. 2-1 Table-top contribution units

2.1.4 'Microphone Only' Function

A microphone 'only' function is for use by Podium and mobile floor speakers, or in installations where no delegate units are used. DCNs range of microphones can be connected to a Dual Audio Interface unit or a Multi-purpose connection unit. The Dual Audio Interface unit LBB 3535/00 can serve two delegate positions.

2.1.5 Interpreter desk

For use in bi/multi-lingual discussions/conferences, the interpreter desks can handle up to 15 different language channels in addition to the floor language. Up to six interpreter desks can be installed per booth. Its design provides for efficient operation, and preselection of the incoming language. A backlit alphanumeric display shows the selected language in combination with a 'quality indication' (direct or indirect interpretation). An 'auto-relay' facility enables interpreters to interpret from unfamiliar languages, where the desk automatically transmits the relay language to all other interpreter desks for onward interpretation.




FIG. 2-2 Interpreter desk LBB 3520/10

2.2 LBB 3530/xx and LBB 3531/xx Delegate Discussion Unit

Delegate units LBB 3530/xx and LBB 3531/xx enable delegates to speak, register a request-to-speak and listen to the floor speaker. Delegate unit LBB 3531/xx includes a built-in channel selector; for use in discussions where more than one language is used and simultaneous interpretation is available. The channel selector includes up/down select keys and a 1.5-digit LC-display for rapid selection of the required language channel. Channel selection is limited to the number of channels available.

Controls and Indicators (FIG. 2-3)

1. Uni-directional condenser microphone with built-in pop and windshield, mounted on a 'flexible' stem. Its illuminated light ring indicates microphone active (Default: not active in 'Voice' activated mode, for other settings see [Chapter 2.3.1](#) - Adjustment setting discussion units)
2. Numeric display (1.5-digit LC-display with back-lighting) with 2 x push-button (up/down) for language channel number selection (LBB 3531/xx only)
3. 2 x 3.5 mm jackplug socket for headphones.
4. Rotary volume control for headphones only
5. Microphone on/off button.
6. Microphone on/request-to-speak bi-colour LED (red - on, green - request-to-speak)
7. Loudspeaker: The loudspeaker is **muted** automatically when the microphone is ON and or a headphone is connected

 **NOTE:** Mic. stem length LBB 3530/00, LBB 3531/00 (310mm/12.20 in) incl. microphone.
LBB 3530/50, LBB 3531/50 (480mm/18.89 in) incl. microphone.
For rear view see [FIG. 2-6](#).

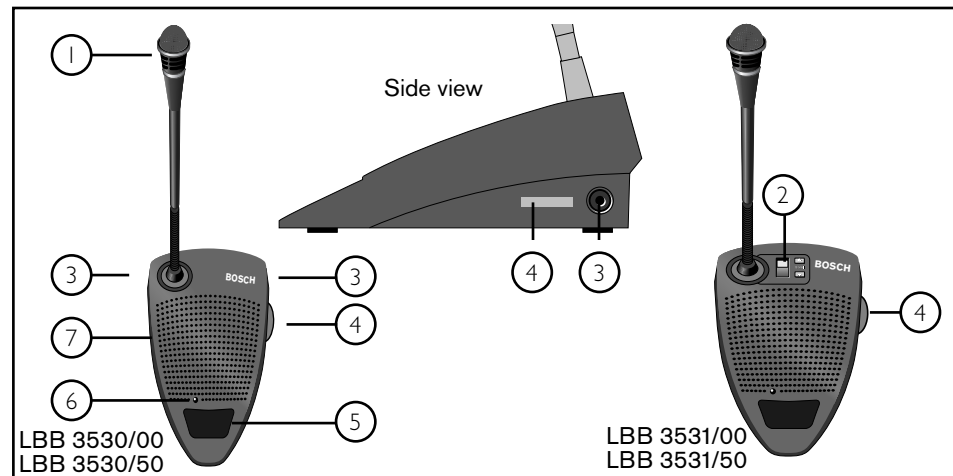



FIG. 2-3 Delegate units LBB 3530 and LBB 3531

2.3 LBB 3533/xx and LBB 3534/xx Chairman Discussion Unit

The Chairman units LBB 3533/xx and LBB 3534/xx have the same functions as a delegate unit with the exception of a 'Priority' button. This button when pressed enables its user to control the discussion by temporarily or permanently overruling and muting all active microphones. Chairman unit LBB 3534/xx also includes a built-in channel selector (see delegate unit). In permanent mode, all delegates waiting to speak are also removed from the request-list.

Controls and Indicators (FIG. 2-3 and FIG. 2-4)

8. Priority key which when pressed temporarily or permanently overrules and mutes all active microphones (depends on setting in the CCU), and keeps the microphone on for as long as the button is pressed.

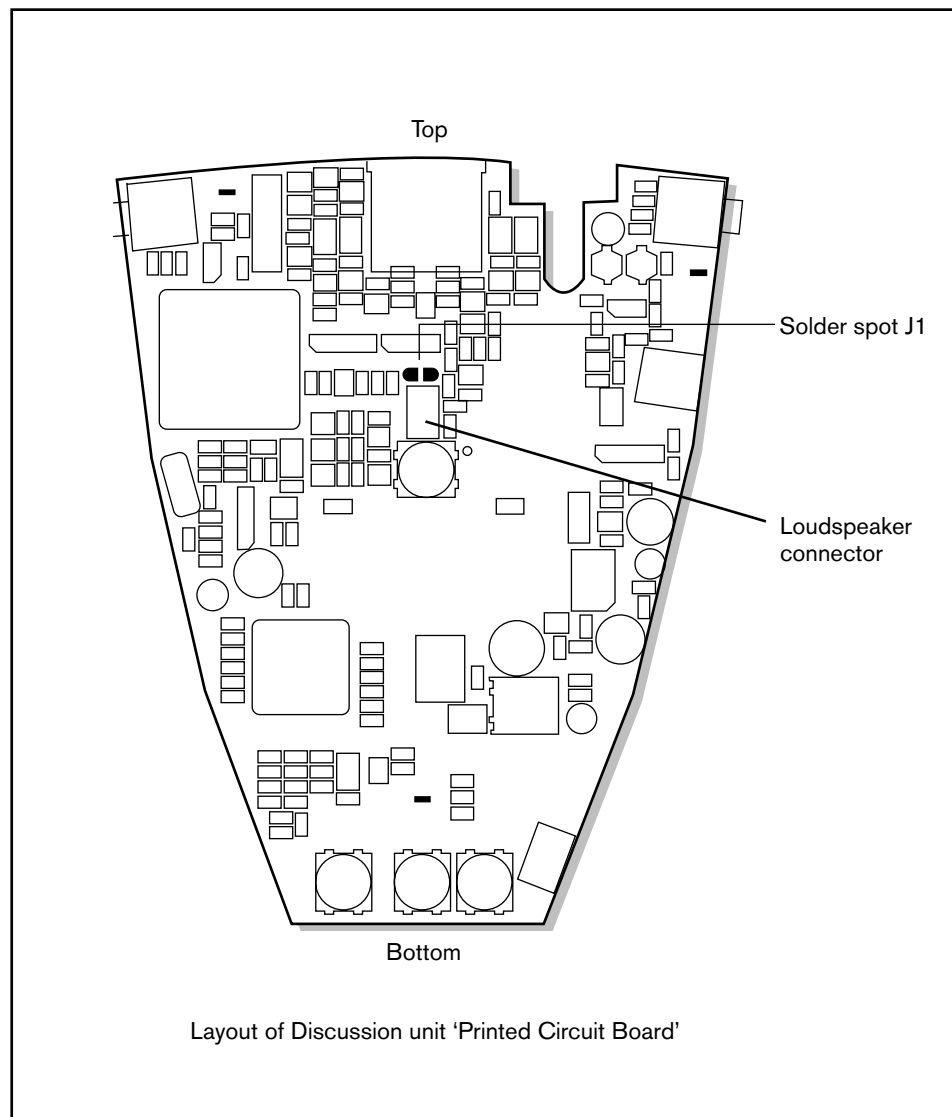
 **NOTE:** Micr. stem length LBB 3533/00, LBB 3534/00 (310 mm/2.20 in) incl. microphone.
LBB 3533/50, LBB 3534/50 (480 mm/18.89 in) incl. microphone.

For rear view see [FIG. 2-6](#)

For side view see [FIG. 2-3](#)



FIG. 2-4 Chairman units LBB 3533 and LBB 3534



2.3.1 Adjustment setting discussion units



The operational functionality of the delegate discussion units LBB 3530/xx, LBB 3531/xx and the chairman discussion units LBB 3533/xx, LBB 3534/xx, can be set by a solder spot J1. If a flashing LED ring is required when the speaker has only 60 seconds of speech time remaining, then the solder spot J1 must be closed.

To locate the solder spot proceed as follows:

Refer to FIG. 2-5

- Unscrew and remove the two retaining TorX™ screws located on the underside of the unit.
- Carefully remove the units housing, and locate the printed circuit board.
- On the printed circuit board remove the loudspeaker connector
- Locate solder spot J1.
- Set the units functionally (see below).
- Once done, replace the loudspeaker connection and replace the units housing.

Solder spot J1

-  Open (default) : Normal operation
-  Closed : Microphone LED ring will begin to flash when the last 60 seconds of speech time remains



NOTE: If J1 is 'closed' when the 'Voice' activation mode is selected, the microphone LED ring will remain lit when speaking into the microphone.

FIG. 2-5 Discussion unit, functional adjustment using solder spot J1

2.3.2 Interconnection details discussion units

All discussion units include connectors for loop-through connection of one unit to the other (i.e. 'daisy chain'). FIG. 2-6 shows the connectors and the interconnection method used.

Key to symbols (FIG. 2-6)

1. 2 m long cable terminated with a 6-pole circular connector.
2. 6-pole socket for loop-through from other system units.
3. Recessed microswitch for resetting the unit's address (De-Init).

2.3.3 Mounting discussion units (FIG. 2-6)

In portable systems, discussion units can be free-standing on a level surface - such as a table-top. In permanent installations, the units can be nut/bolt mounted using the 2 x M3 threaded holes under the unit. In such an installation, the units cable securing clamp can be removed from its cable entry and modified, allowing its 2 m cable to be neatly run through a hole directly under the table-top surface (see opposite). For cable clamp modification, remove the cable clamp at the rear of the unit by unscrewing the clamps two securing screws **(A)**. Once removed, use a sharp cutting tool to remove the small insert **(B)** from its housing. Run the units cable through the cable run and secure it into the free cable entry using the removed insert **(B)** as shown in **(D)**.

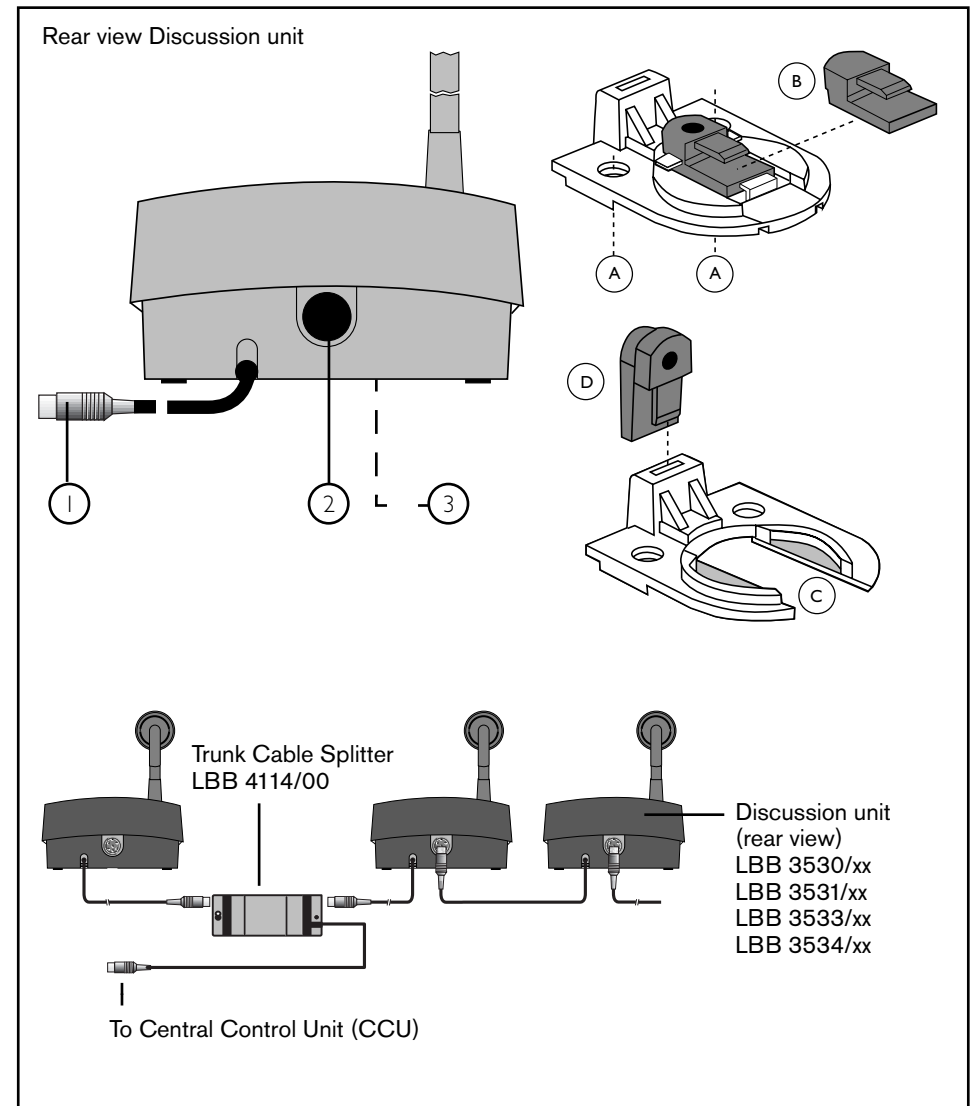


FIG. 2-6 Interconnections discussion unit (rear view)

2.4 LBB 3544/00, LBB 3545/00 and LBB 3546/00 Delegate conference units (Concentus)

Intended for table-top and flush-mounting, the delegate conference units enable participants to actively join in a discussion (i.e. speaking and listening). The unit includes a connection for a pluggable microphone type LBB 3549/00 or LBB 3549/50 and a microphone on/off button. Delegate unit types LBB 3545/00 and LBB 3546/00 includes a language channel selector, and LC-display to select the required language channel when used in combination with an interpretation system.



NOTE: Delegate unit LBB 3544/00 does not include a language channel selector; headphone/headset connections and volume controls.

Controls and Indicators (FIG. 2-7) (version illustrated LBB 3546/00)

* Not applicable to delegate units LBB 3544/00

** Not applicable to delegate units LBB 3545/00

1. XLR socket for 'uni-directional' condenser microphone (LBB 3549/00 or LBB 3549/50 (see 2.6) with illuminated LED light-ring to indicate microphone active (not active in 'Voice' activated mode). See [Chapter 2.3.1](#) 'Adjustment settings discussion units'.
2. Loudspeaker. The loudspeaker is automatically muted when the microphone is on.
3. Microphone ON indication (RED)
4. * **ID-chip-card reader for delegate identification.
5. *Numeric 1.5-digit LC-display for visual indication of the selected language channel. The display is activated once headphones are inserted in to the units jack socket.
6. *Up/down channel select keys for use in combination with the numeric display.
7. Microphone On/Off or request-to-speak button.
8. Microphone- ON indication (bi-colour LED green = 'request-to-speak', red = 'microphone ON')
9. 5 soft-keys with confirmation indicators (yellow LEDs) for use in combination with the units graphic LC-display provides the following (not applicable for *LBB 3544/00 and **LBB 3545/00):
To display:
 - Conference information
 - User information
 - Individual messages
 To participate in the following voting procedures
 - Parliamentary voting ('PRESENT', 'No', 'Abstain', 'Yes')
 - Multiple choice or opinion poll voting (Numerals: 1 to 24 max.)
 - Audience response voting (Rating scale - -, -, O, +, ++)
10. * **Graphical 2-line x 40 character LC-display (15 Chinese characters only) with back-lighting for displaying the following:
 - Conference related information
 - User information
 - Individual messages
 - Voting information and results

Rear, side and under views (FIG. 2-9 and FIG. 2-10)

12. *1 x 3.5 mm jack socket for headset/external microphone
13. 2 x 3.5 mm stereo jack sockets for headphones (1 at each side of the unit).
14. 2 x Rotary volume control for headphones (1 at each side of the unit)
15. Securing screw M3 for pluggable microphone (use Allen-key)
16. 6-pole socket for loop-through from other system units
17. 2 m (6.5ft.) long cable terminated with 6-pole circular connector
18. Modular jack-socket for intercom handset LBB 3555/00
19. 2x M3 guide holes for unit mounting (using custom built fixing bracket/strap)
20. Recessed micro-switch for resetting the unit's address (DE-INIT).
21. 4 x securing screws for unit housing

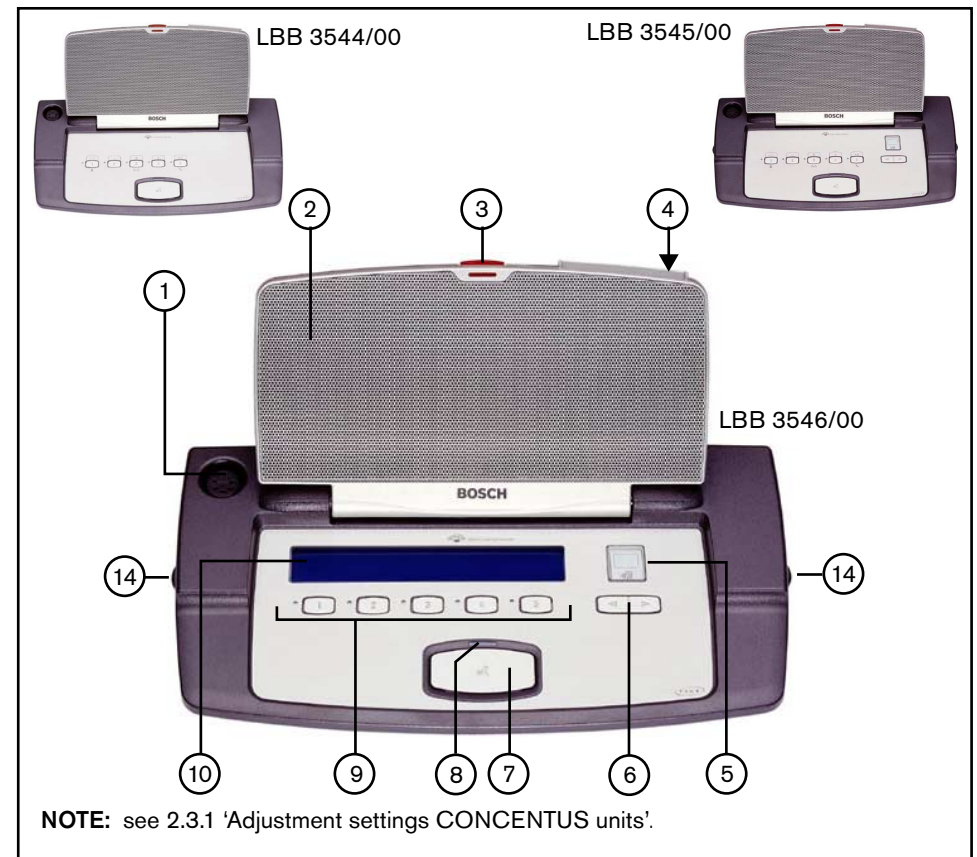


FIG. 2-7 Delegate conference units LBB 3544/00, LBB 3545/00 and LBB 3546/00

2.5 LBB 3547/00 Chairman Conference Unit (Concentus)

The unit provides access to the DCN systems main functions of listening to the floor via the units built-in loudspeaker, speaking and control of delegate microphones using a priority key, control of voting sessions, the viewing of displayed messages, language channel selection and monitoring via headphones and an ID card reader facility. The ID-card reader - for insertion of an ID-card - allows the chairman to be identified by the system allowing access to the functions of the chairman unit.

The chairman unit uses a pluggable microphone LBB 3549/00 or LBB 3549/50 (not included), microphone on/off button, built-in graphical LC-display, five soft-keys with LED indicators, and a priority key. The priority key sets all currently active delegate microphones in the system to off allowing the chairman to take over the control of the meeting.

Controls and indicators (FIG. 2-8)

1. XLR socket for 'uni-directional' condenser microphone (LBB 3549/00 or LBB 3549/50 (see FIG. 2-6)) with illuminated LED light-ring to indicate microphone active (not active in 'Voice' activated mode).
2. Loudspeaker. The loudspeaker is automatically muted when the microphone is on.
3. Microphone ON indication (RED)
4. ID-chip-card reader for chairman identification.
5. Numeric 1.5-digit LC-display for visual indication of the selected language channel. The display switches on when the plug of the headphones are inserted in to the jack socket.
6. Up/down channel select keys for use in combination with the numeric display (5)
7. Microphone On/Off button
8. Microphone- ON indication (bi-colour LED green = 'request-to-speak', red = 'microphone ON') (Permanently on in 'Voice activated mode).
9. Priority key, which when pressed emits a chime sound (if programmed) while temporarily muting all active delegate units. The chairman's microphone remains active for as long as the priority button is kept pressed. This key can also be used to cancel all active delegate units and remove all delegates waiting to speak from the request list (if programmed in the CCU).
10. 5 x Soft-keys with confirmation indicators (yellow LEDs) are used in combination with the units graphical LC-display to provide the following functions:
 - Microphone control, such as 'Cancel all Request', Cancel all speakers and requests.
 - Voting control (Start, Hold, Restart, Stop)
 - Voting participating function (No, Abstain, Yes)
 - Messages
11. Graphical 2-line x 40 character LC-display (15 Chinese characters only) with back-lighting for displaying the following:
 - Conference related information
 - User information
 - Individual messages
 - Voting information and results

Rear, side and under views (FIG. 2-9 and FIG. 2-10)

12. 1 x 3.5 mm jack socket for headset/external microphone
13. 2 x 3.5 mm stereo jack sockets for headphones (1 at each side of the unit).
14. 2 x Rotary volume control for headphones (1 at each side of the unit)
15. Securing screw M3 for pluggable microphone (use Allen-key)
16. 6-pole socket for loop-through from other system units
17. 2 m (6.5ft.) long cable terminated with 6-pole circular connector
18. Modular jack-socket for intercom handset LBB 3555/00
19. 2x M3 guide holes for unit mounting (using custom built fixing bracket/strap)
20. Recessed micro-switch for resetting the unit's address (DE-INIT).
21. 4 x securing screws for unit housing

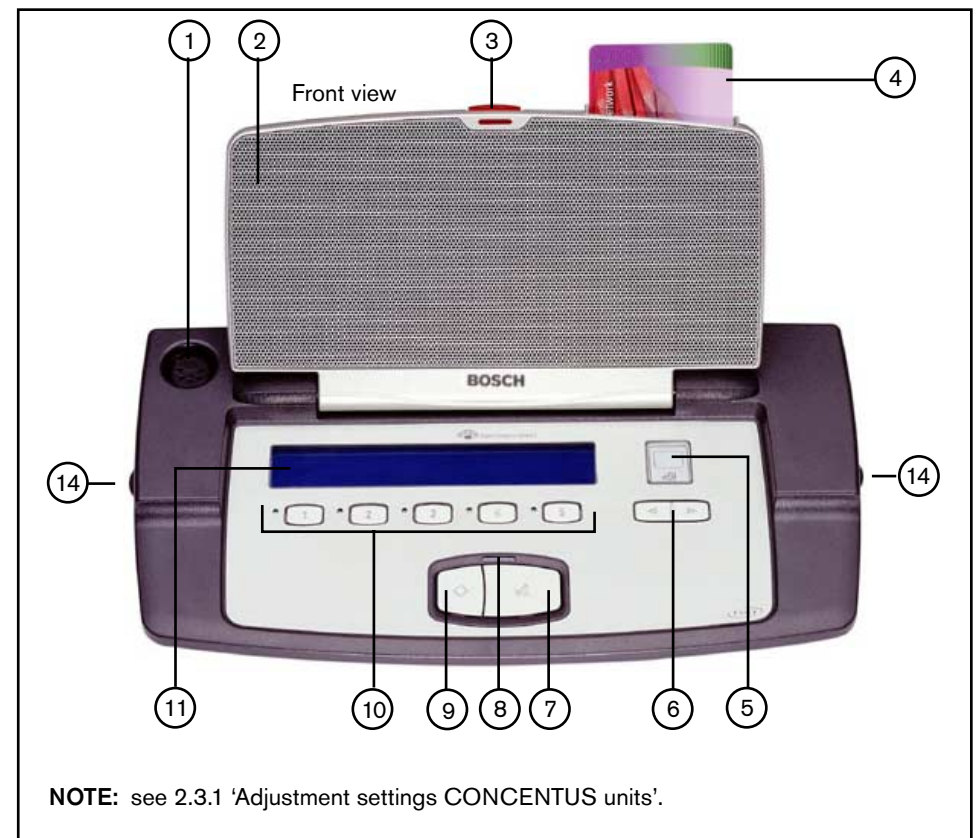


FIG. 2-8 LBB 3547/00 Chairman unit



FIG. 2-9 Concentus units (side views)

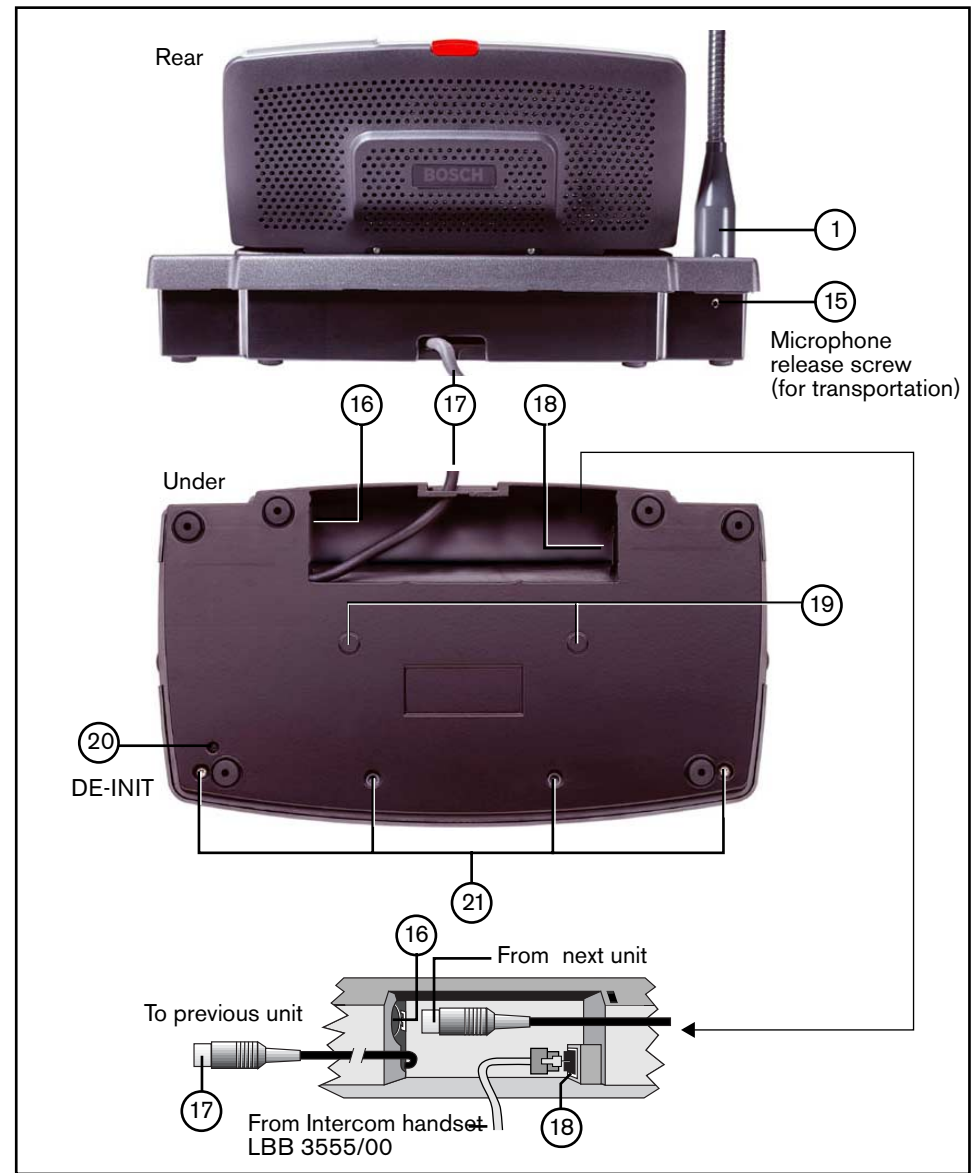


FIG. 2-10 Concentus units (rear and underside views)

2.5.1 Adjustment setting conference (Concentus) units


The operational functionality of the delegate conference (Concentus) units LBB 3544/00, LBB 3545/00, LBB 3546/00, and the chairman conference units LBB 3547/00 can be set by solder spots 1070, 1170, 1171 and 1172 located on the units PCB.


To locate the solder spots proceed as follows:


- Refer to FIG. 2-10
- Unscrew and remove the 4 securing TorX™ screws located on the underside of the unit.
- Carefully remove the units housing, and locate the printed circuit board (FIG. 2-11).
- If necessary carefully remove the loudspeaker connector.
- Locate solder spots 1070, 1170, 1171 and 1172 (FIG. 2-11).
- Set the units functionally (see below).
- Once done, replace the loudspeaker connection and replace the units housing.

Functionality


Solder spots 1070

 Open (default) : Normal operation


 Closed : Microphone LED ring will begin to flash when the last 60 seconds of speech time remains.

 **NOTE:** If 1070 is 'closed' when the 'Voice' activation mode is selected, the microphone LED ring will remain lit when speaking into the microphone. If a flashing LED ring is required when the speaker has only 60 seconds of speech time remaining, then solder spot 1070 must be closed.


Solder spots 1170


 Open (default) : Normal operation

 Closed : The intercom function is no longer available (see Note)


 **NOTE:** If 1170 is closed, the functionality of solder spots 1171 and 1172 is available (for example - an external make contact can be connected to PINS 1 and 2 of the intercom connector for 'FRAude' (Fraud push_button) and 'FINger' (Finger print reader) operation.


Solder spots 1171


 Open (default) : Normal operation

 Closed : 'FRAude' bit is available via the intercom connector (see Note)

Solder spots 1172

 Open (default) : Normal operation

 Closed : 'FINger' bit is available via the intercom connector (see Note)

 **NOTE:** If solder spot 1170 is closed a choice of only one of the functions is available 'FRAude' or FINger' NOT both.

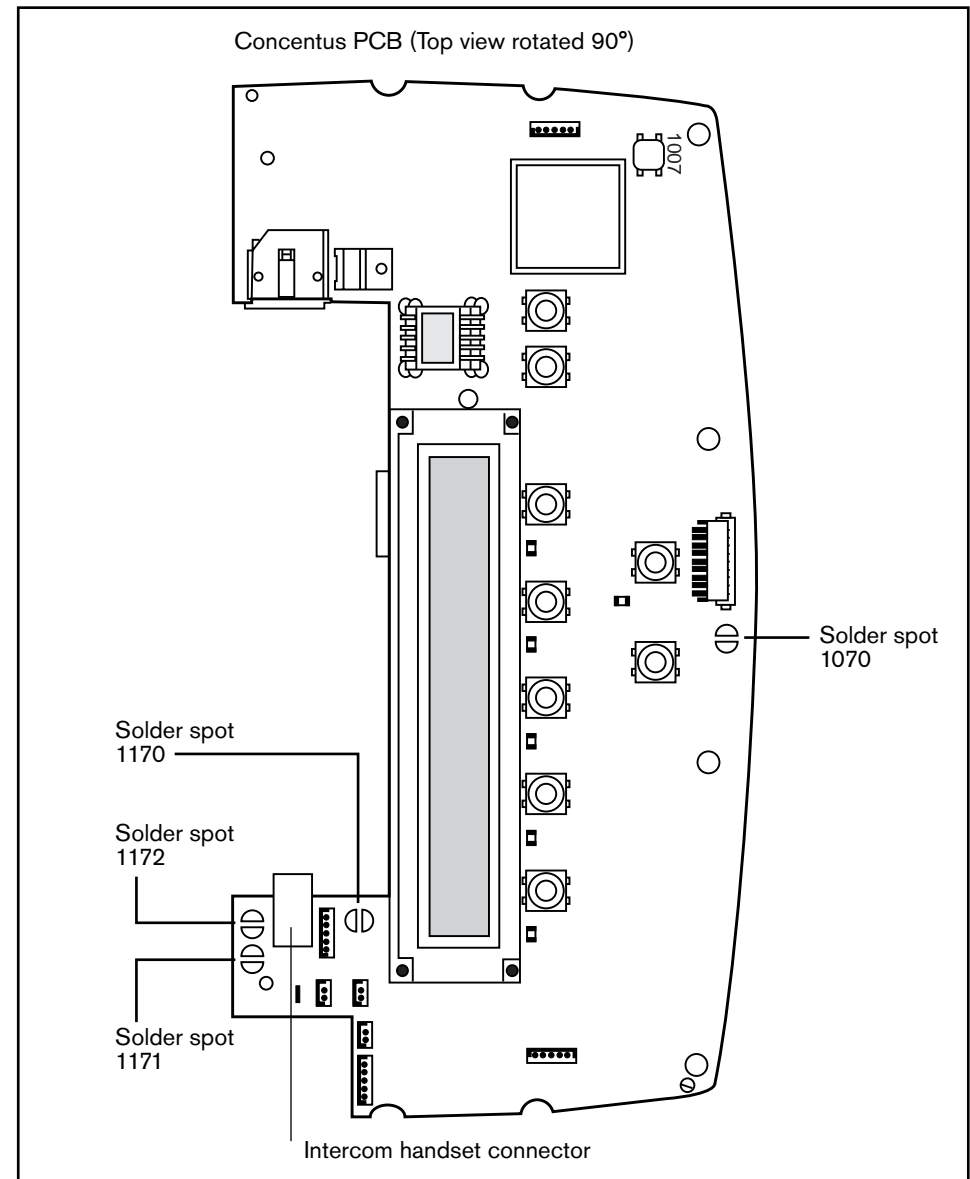


FIG. 2-11 PCB layout conference (Concentus) units

2.6 LBB 3549/00, LBB 3549/50 Pluggable Microphones

The pluggable flexible stem microphones LBB 3549/00 and LBB 3549/50 are unidirectional microphones intended for use with delegate units LBB 3544/00, LBB 3545/00, LBB 3546/00, chairman unit LBB 3547/00 and flush mounted microphone control panel LBB 3537/20.

Type number description:

LBB 3549/00 Pluggable microphone with flexible stem
Mic. stem length: 310 mm (12.2 in) (incl. mic.)

LBB 3549/50 As LBB 3544/00 but with extended stem length: 480 mm (18.8 in) (incl. mic.)



NOTE: See also [Chapter 2.1.2](#) LBB 3537/20 Pluggable Microphone control panels.

Controls and Indicators

- Unidirectional microphone, mounted on a flexible stem with built-in pop and windshield. The microphones include an illuminated indicator ring for microphone active status.

Interconnection

- 5-pole XLR-connector for connection to the delegate units LBB 3544/00, LBB 3545/00, LBB 3546/00, chairman unit LBB 3547/00 and microphone control panel LBB 3537/20.



FIG. 2-12 Pluggable microphones LBB 3549/00 and LBB 3549/50

2.7 LBB 3555/00 Intercom handset

The Intercom handset enables private two-way vocal communication between conference participants. The handset is hard-wired to the cradle by a coiled cable (0.5 m (19.68 in) coiled, 2 m uncoiled (78.74 in) hard wired to the cradle (FIG. 2-13). The cradle output cable is terminated with a 6-pole modular jack connector for connection to a conference units, interpreter desks, Multi-purpose connection units and the PC Network card.

When used in permanent installations, the handset is easily mounted to a table-top or wall using the screw holes in the cradle. In portable systems the handset can be simply attached to an Interpreter desk with the aid of a mounting plate LBB 3556/00.

For installing on an Interpreter desk LBB 3520 refer to [Chapter 3.1.2](#).



FIG. 2-13 LBB 3555/00 Intercom Handset

2.8 Flush-mounted Contribution equipment

DCN's broad range of flush mounted units form the building blocks for creating individual system contribution units for use in custom built solutions. The flush-mounted units are intended for use in fixed installations, where portability is not required. The units can be neatly installed in to either table-tops or seat armrests. The range of flush-mounted units available, provides all the functions and facilities offered by the table-top contribution units. For example a delegate unit can be created by combining a Multi-purpose connection unit LBB 3540/15 or Dual Audio Interface Unit LBB 3535/00. These units being the main components when creating flush-mounted solutions in combination with the following units:

Type No.	Description
LBB 3536/00-/10	Hand microphones
LBB 3537/00, /50	Microphone control panel
LBB 3537/10	Chairman microphone control panel with priority
LBB 3537/20	Pluggable microphone control panel
LBB 3538/00	Loudspeaker panel
LBB 3539/00	Blank mounting panel
LBB 3541/00	Delegate voting control panel*
LBB 3542/00	Delegate/chairman voting control panel with LC-display*
LBB 3543/15	Chip-Card reader panel*
LBB 3555/00	Intercom handset*
LBB 3524/xx + LBB 3526/10	Electronic Channel Selector Panel (connected to DCN trunk-line)

* Applicable to Multi-purpose Connection Unit LBB 3540/15 only

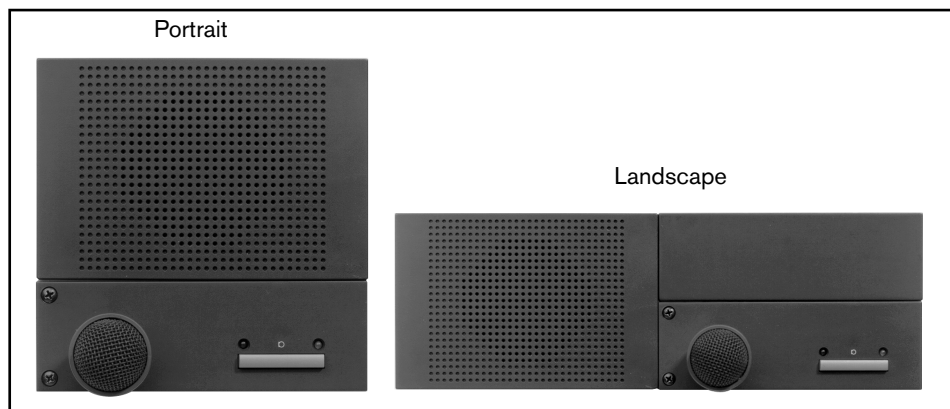


FIG. 2-14 Orientation flush-mounted units

All flush-mounted units are available in standard sizes of 40 × 120 mm (1.57 × 4.72 in) with the exception of the flush-mounted loudspeaker unit LBB 3538/00 which has a dimension of 80 × 120 mm (3.14 × 4.72 in) and the Delegate/chairman voting control panel LBB 3542/00 which has a dimension of 80 × 240 mm (3.14 × 9.44 in). The dimensions of the flush-mounted units allow units to be neatly installed and positioned along side each other in either a portrait or landscape type configuration.

Mounting

All DCN's flush-mounted units include a 'click-to-fit' mechanism, enabling units to be secured into cut-outs on table-tops or the armrest of seats in a landscape or portrait type format.

Two methods are used to mount the flush-mounted units. Method 1 is used when mounting units into a metal surface and method 2, used when mounting units into a wooden surface.

Method 1 (mounting into a metal surface)

The 'click-to-fit' mechanism available on all flush mounting unit is used to secure the units into cut-outs on table-tops or the armrests of seats etc. Additional screws are needed when mounting LBB 3537/xx Control Panel with microphone. The recommended method when installing the units, is to install them into a 2 mm (0.07 in) thick metal panel. The metal panel is used as the platform for securing the units. The panel needs to be cut-out according to the units template.



NOTE: Table top mounting is also possible for certain units with the Table-top housing LBB 3527/00. Refer to [Chapter 2.24](#).

Method 2 (mounting into a wooden surface)

Units are secured by screws using the holes available on each unit. All units include drill guide holes located under the front cover of each flush-mounted unit. The guide holes are used for guidance when drilling the units screw holes.



General

For cut-out templates and dimensions when physically installing the units refer to [Chapter 13](#). "Mechanical data".

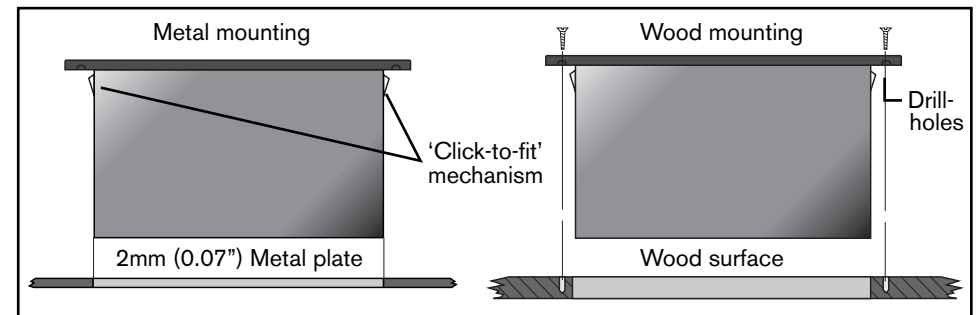


FIG. 2-15 Flush mounting in metal and wooden surfaces

2.9 LBB 3535/00 Dual Audio Interface unit

The LBB 3535/00 allows a variety of microphones, as well as line sources, to be connected to the DCN system. The unit can be used in combination with the LBB 3536/xx Hand microphone when mounting in seat armrest etc., or with the LBB 3537/xx Microphone with Control Panel when flush-mounting into table-tops etc.

The unit includes two separate inputs, each selectable for use with either a microphone or line input source. Each input can be assigned with its own seat number; providing two delegate or chairman positions.

Two 3.5 mm jack sockets provide the connection to headphones or to loudspeaker panels LBB 3538/00, or a combination of both. The output is switched off when the corresponding input is switched on.

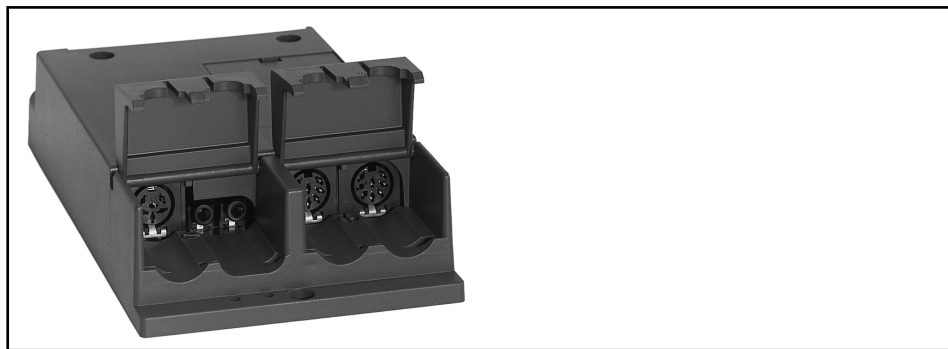


FIG. 2-16 LBB 3535/00 Dual Audio Interface Unit

Controls, Indicators and Interconnection (Chapter 2.17)

1. 6-pole circular connector for loop through system.
2. 2 x loudspeaker output connectors (marked 1 and 2) (3.5 mm jackplug socket). The loudspeaker is muted automatically when the corresponding microphone is on.
3. 2 x balanced audio input (marked 1 and 2) for line level (-12 dBV) or microphone level (-60 dBV) sources with or without a phantom power supply). (2 x 8-pole 262° DIN-type socket).
4. 2 m long cable terminated with a moulded 6-pole circular connector.
5. 2 x screw holes for securing the unit.
6. Switch panel with cover.
7. Tie-wrap holes for securing connected cables.
8. Initialization button (INIT) used for initializing the unit during installation. Also used to reset the unit's address (De-Init).
9. Input 1 and 2: ± 3 dB input level potentiometer for fine adjustment.

10. Initialization LED indicator. The LED illuminates when the unit is not being initialized. The LED is Off when the unit has been initialized.
11. Selector switch for selecting an asymmetrical microphone input, or a symmetrical microphone/line level input, or a symmetrical microphone input with Phantom power supply (12V/680 Ohm).
12. Input attenuation selection of: 0, 6, 12 or 18 dB. Factory setting: 6 dB.
13. Microphone or line level select switch.

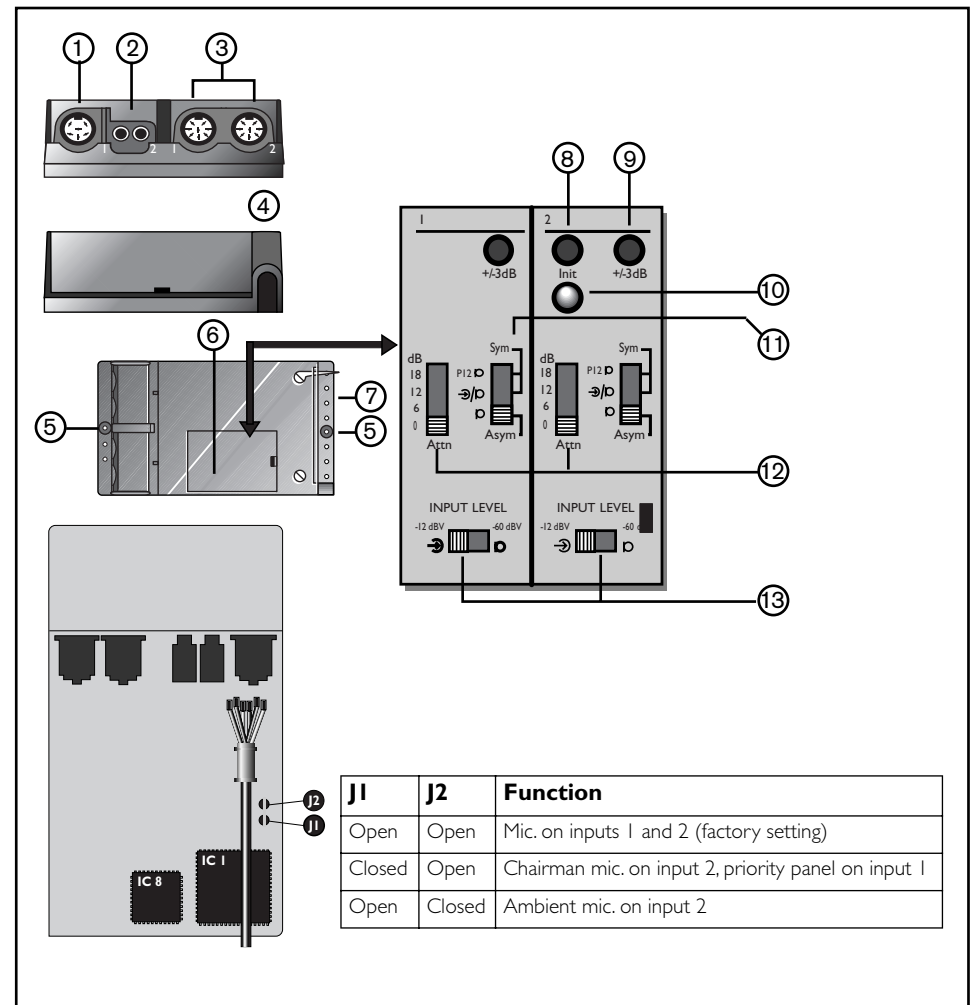
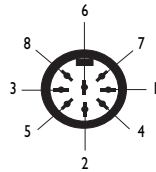


FIG. 2-17 LBB 3535/00 Dual Audio Interface Unit

Connection details: 8-pole 262° DIN-socket

- PIN 1 - 3 Symmetrical input (PIN 1(signal +), PIN 3 (signal -))
- PIN 2 Screen 0V
- PIN 4 Mic. On LED (red)
- PIN 5 Request-to-speak LED (green)
- PIN 6 Mic. switch
- PIN 7 +5 volt
- PIN 8 Light-ring indicator (LBB 3537/xx)



NOTE: PINS 1 and 3 provide a symmetrical input and PINS 1 and 2 provide an asymmetrical input. For custom built solutions the following connections are required:

- PIN 4 to PIN 7 for mic. On LED (pin 4 = cathode, pin 7 = anode)
- PIN 5 to PIN 7 for Request-to-speak LED (pin 5 = cathode, pin 7 = anode)
- PIN 6 to PIN 7 for mic. switch

INSTALLING DUAL AUDIO INTERFACE UNIT

The unit can be mounted free-standing on a table-top, mounted on a wall, or discreetly mounted into table-tops or into the arm rests of chairs using the screw holes provided on the unit.

When connecting microphones or line level sources, the switch settings on the top of the unit should be set to their correct operating positions. A jumper setting assigns the unit as either a delegate or chairman or ambient microphone position. When assigned as a chairman position, input 1 is used for the microphone, and input 2 is used for the priority input, using Priority Control panel LBB 3537/10.



NOTE: Two solder spots J1 and J2 are used when assigning the unit for use as either a delegate unit, chairman unit, or as an ambient microphone. When used as a chairman unit, one input is used to connect microphone LBB 3537/xx, and the other input is used for the Chairman Priority control panel LBB 3537/10. Refer to Chapter 2.17 for the solder spots and their settings.

Floor stand or Podium Microphones (FIG. 2-20 and FIG. 2-21)

The Dual Audio Interface Unit LBB 3535/00 can be used to connect floor-stand, podium, or wireless microphone systems to the DCN system. FIG. 2-20 and FIG. 2-21 shows two typical examples using a floor-stand and podium microphones. In the podium example the Dual Audio Interface Unit is used to connect two Microphone with control panels LBB 3537/xx and a Loudspeaker panel LBB 3538/00.



IMPORTANT: WHEN USED IN 'VOICE' ACTIVATED MODE, ONLY ONE MICROPHONE CAN BE USED (INPUT 2).

2.9.1 Flush Mounting Solutions

Flush mounted solution No.1 (serving two delegate positions) FIG. 2-18

LBB 3535/00	Dual Audio Interface Unit	
2 x LBB 3537/00	Microphone control panel with microphone stem (310mm/12.2 in)	or
2 x LBB 3537/50	Microphone control panel with microphone stem (480mm/18.8 in)	or
2 x LBB 3537/20	Microphone control panel for pluggable microphones types: - LBB 3549/00 Microphone with stem length (310mm/12.2 in) or - LBB 3549/50 Microphone with stem length (480mm/18.8 in)	
2 x LBB 3538/00	Loudspeaker panel	

Flush mounted solution No.2 (serving a chairman position) FIG. 2-19

LBB 3535/00	Dual Audio Interface Unit	
LBB 3537/00	Microphone control panel with microphone stem (310mm/12.2 in)	or
LBB 3537/50	Microphone control panel with microphone stem (480mm/18.8 in)	or
LBB 3537/20	Microphone control panel for pluggable microphones types: - LBB 3549/00 Microphone with stem length (310mm/12.2 in) or - LBB 3549/50 Microphone with stem length (480mm/18.8 in)	
LBB 3537/10	Chairman priority panel	

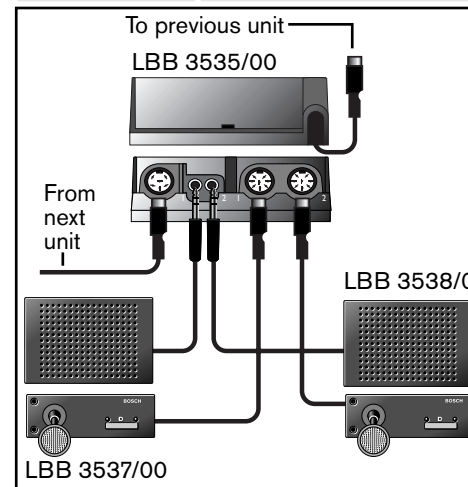


FIG. 2-18 Serving two delegates

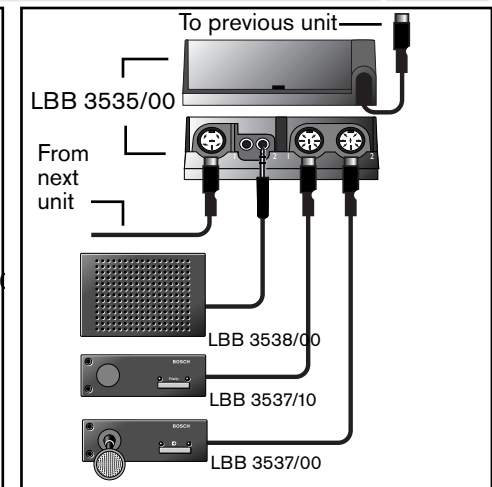


FIG. 2-19 Serving a chairman position

Flush mounted solution No.3 (floor stand with (interruption) microphones

FIG. 2-20

LBB 3535/00	Dual Audio Interface Unit	
LBB 3536/00	Hand held microphone with 5 m cable	or
LBB 3536/10	Hand held microphone with coiled cable	

Flush mounted solution No.4 (Rostrum with one microphone position) FIG. 2-21

LBB 3535/00	Dual Audio Interface Unit	
LBB 3537/00	Microphone control panel with microphone stem (310mm/12.2 in)	or
LBB 3537/50	Microphone control panel with microphone stem (480mm/18.8 in)	or
LBB 3537/20	Microphone control panel for pluggable microphones types: - LBB 3549/00 Microphone with stem length (310mm/12.2 in) or - LBB 3549/50 Microphone with stem length (480mm/18.8 in)	
LBB 3538/00	Loudspeaker panel	



General

A hand-held microphone LBB 3536/00 with 5 m cable or LBB 3536/10 with coiled cable can be used instead of a flush mounted Microphone Control Panel with microphone (fixed or pluggable).

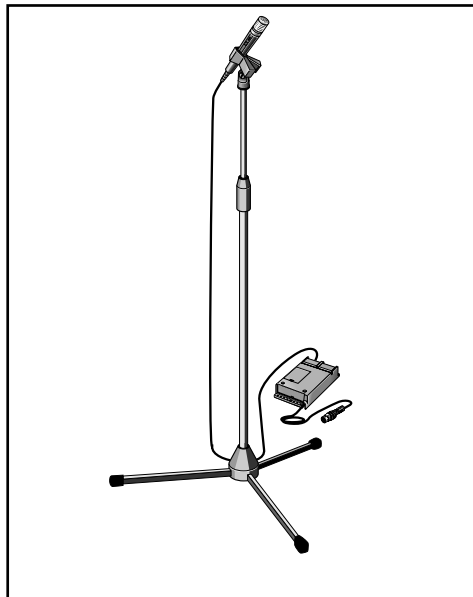


FIG. 2-20 floor stand microphone

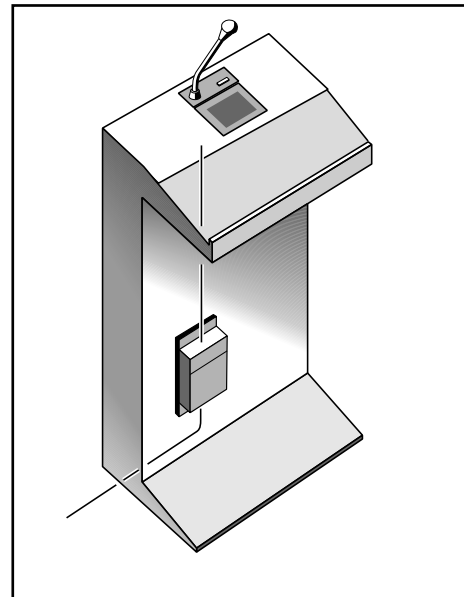


FIG. 2-21 Podium microphone

2.10 LBB 3536/00, /10 Hand-microphones

Unidirectional back-plate electret microphones with built-in pop and wind-shield. Both microphones include a microphone on/off button and indicator lamps (LEDs). Microphones can be connected to the Dual Audio Interface Unit LBB 3535/00 or to Multi-purpose connection unit LBB 3540/15.

LBB 3536/00 includes an uncoiled 5 m (16.4 feet) long cable, and LBB 3536/10 includes a coiled cable 0.4 m long (uncoiled 1.4 m (4.5 ft.) long).



NOTE: The maximum length of extension cable that can be used is 5 m. (16.4 ft.).

Controls and Indicators (FIG. 2-22):

1. Request-to-speak confirmation indicator (green LED).
2. Microphone On/Off or Request-to-speak button.
3. Microphone On indicator (red LED).

Interconnection

4. Cable terminated with an 8-pole 262° DIN-type plug.

Mounting

Clamps are available for mounting on floor stands

- For floor stands: Universal mic. clamp LBC 1215/01

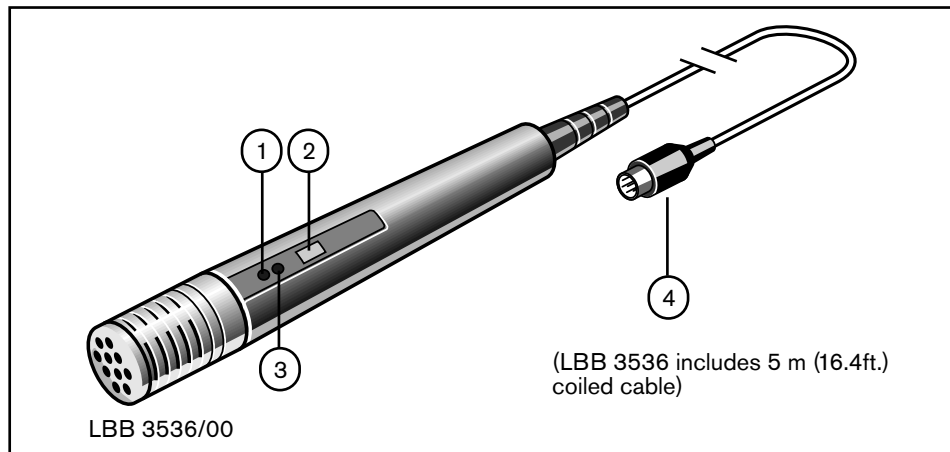


FIG. 2-22 Hand microphones

2.11 LBB 3540/15 Multi-purpose connection unit

The LBB 3540/15 is intended for use in tailored flush mounted solutions. Its versatility enables a number of functions to be added, making it ideal for both delegate and chairman positions. Functions include voting control panel, with or without LC-display (LBB 3541/00 or LBB 3542/00) and an ID-Chip Card Reader LBB 3543/15.

Two mixed audio input sockets with phantom supply enables up to two microphones to be connected. The sensitivity of the microphones can be adjusted simultaneously in 4 steps of 6 dB and a fine adjustment of ± 3 dB. Facilities are also available for connecting an intercom handset LBB 3555/00. A 3.5 mm stereo jack socket is provided for connection to headphones or to a loudspeaker panel LBB 3538/00. The loudspeaker output is switched off when the microphone is switched on.



NOTES:

1. A jumper on selection panel (FIG. 2-25 (11)) is used when assigning the unit for use as either a delegate or chairman unit. When used as a chairman unit, MIC 2 input is for microphone (LBB 3537/xx) and MIC 1 input for priority control (LBB 3537/10).
2. The unit can also be used as an entrance or exit unit for registration and access purposes



FIG. 2-23 LBB 3540/15 Multi-purpose connection unit

Controls and Indicators (FIG. 2-24 and FIG. 2-25)

1. 6-pole circular connector for connection of other system units (loop-through).
2. 2 x 3.5 mm stereo jackplug sockets (marked 1 and 2) for connection to:
 - LBB 3538/00 FM loudspeaker* panel (or)
 - Headphones (or)
 - Combination of both of the above

* Loudspeaker output 2 is automatically muted when the microphone(s) on input(s) 3 is active.
3. 2 x 8-pole 262° DIN-type connectors (marked 1 and 2) for connection to:
 - Microphone with FM Control Panel LBB 3537/xx, or the Chairman microphone Priority Switch Panel LBB 3537/10 or standard microphones LBB 3536/00 and /10. When two microphones are connected (delegate mode only), both are switched on at the same time.

4. 20-pole Micromatch connector for connection to:
 - LBB 3541/00 FM Delegate voting control panel
 - LBB 3542/00 FM Delegate/Chairman voting control panel with LC-display
 - Custom-built solutions including push-button and LEDs
5. 6-pole modular jack for LBB 3555/00 Intercom handset.
6. 10-pole Micromatch connector for connection to:
 - ID Chip Card reader panel LBB 3543/15.
7. 2 m long cable terminated with a 6-pole circular connector for connection to the trunk-line.
8. Screw holes for securing the unit.
9. Switch cover panel.
10. Tie-wrap holes for securing attached cables. Tie-wraps are included with the unit.
11. Jumper for assigning the unit as either a delegate or as a chairman unit.
12. Initialization button (Init) used for initializing the unit during installation. Also used to reset the unit's address (De-Init).
13. Input level potentiometer: ± 3 dB.
14. Initialization indicator (LED) indicating the unit requires initializing.
15. Selector switch for selecting:
 - Asymmetrical microphone input or Symmetrical microphone input or Symmetrical microphone input with Phantom power supply (applicable to both inputs).
16. Input attenuation selection of: 0, 6, 12 or 18 dB (applicable to both inputs). Default setting: 6 dB.
17. Jumper J01 for assigning connected units as either an entrance or exit unit. (See Table. 2-1.)

NOTES:

1. Jack socket marked (2) is ideally suited for loudspeaker panel LBB 3538/00 because its output is switched off when a microphone is switched on (preventing acoustic feedback). Jack socket output marked (1) is not muted when a microphone is switched-on
2. For connection details of the input sockets see LBB 3535/00 Dual Audio Interface Unit

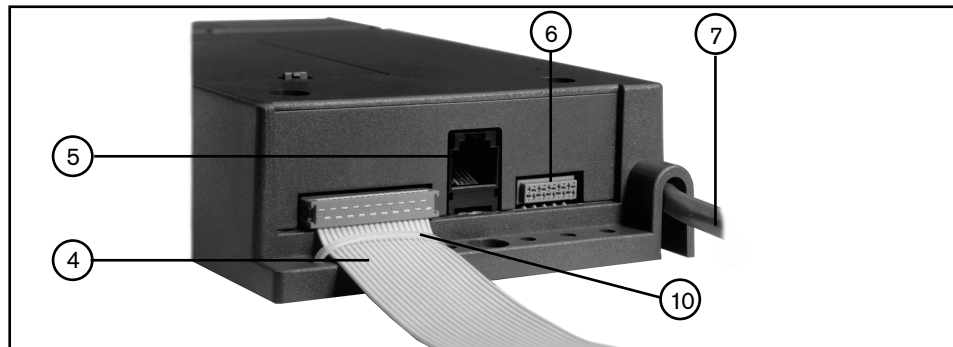


FIG. 2-24 LBB 3540/15 connection

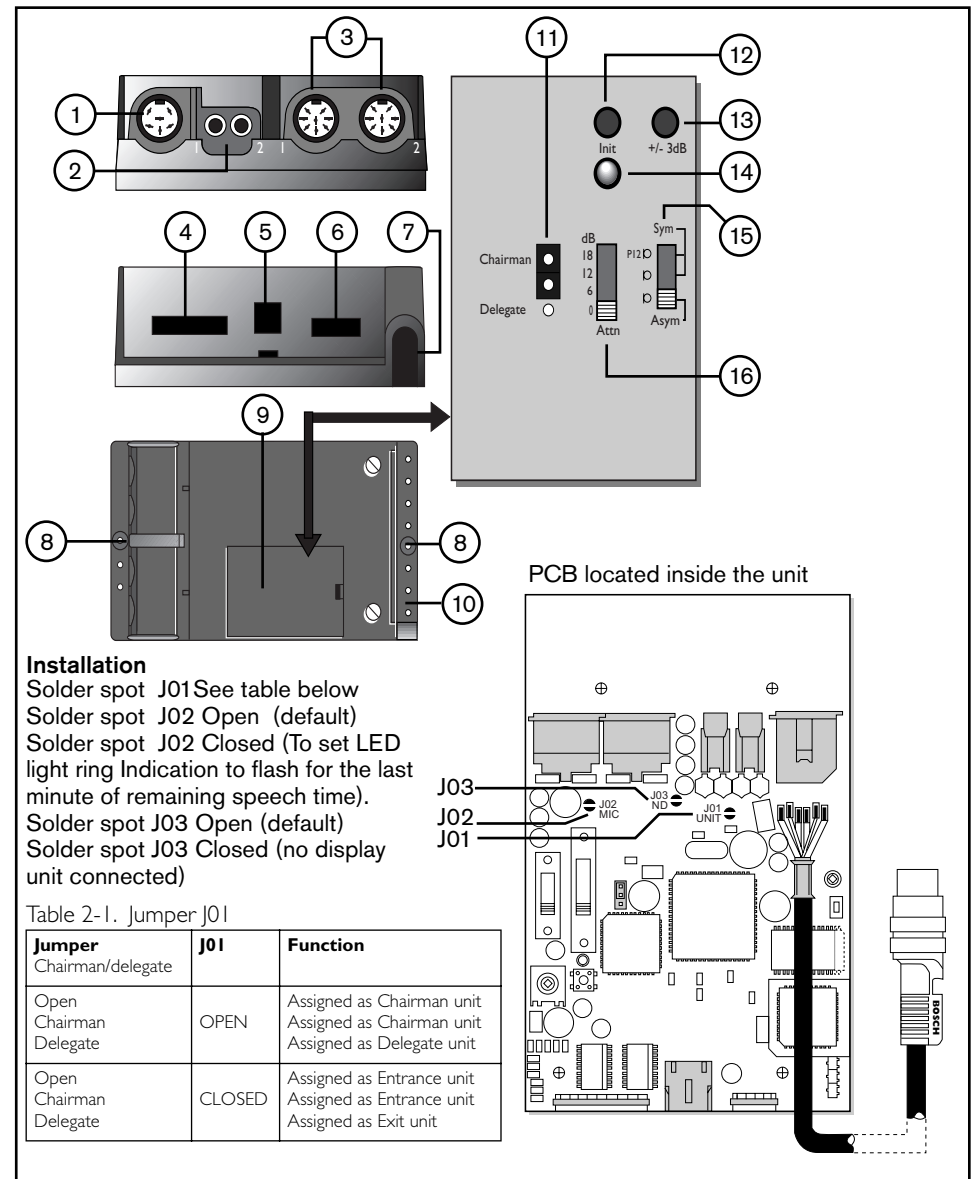


FIG. 2-25 Layout LBB 3540/15 Multi-purpose connection unit

2.11.1 Flush Mounting Solutions

Flush mounted solution No.5 (delegate position) FIG. 2-26

LBB 3540/15	Multi-purpose connection unit	
LBB 3537/00	Microphone control panel with microphone stem (310mm/12.2 in)	or
LBB 3537/50	Microphone control panel with microphone stem (480mm/18.8 in)	or
LBB 3537/20	Microphone control panel for pluggable microphones types: - LBB 3549/00 Microphone with stem length (310mm/12.2 in) or - LBB 3549/50 Microphone with stem length (480mm/18.8 in)	
LBB 3538/00	Loudspeaker panel	
LBB 3543/15	ID-chip card reader	



General

* A hand-held microphone LBB 3536/00 with 5 m cable or LBB 3536/10 with coiled cable can be used instead of a flush mounted Microphone Control Panel with microphone (fixed or pluggable).

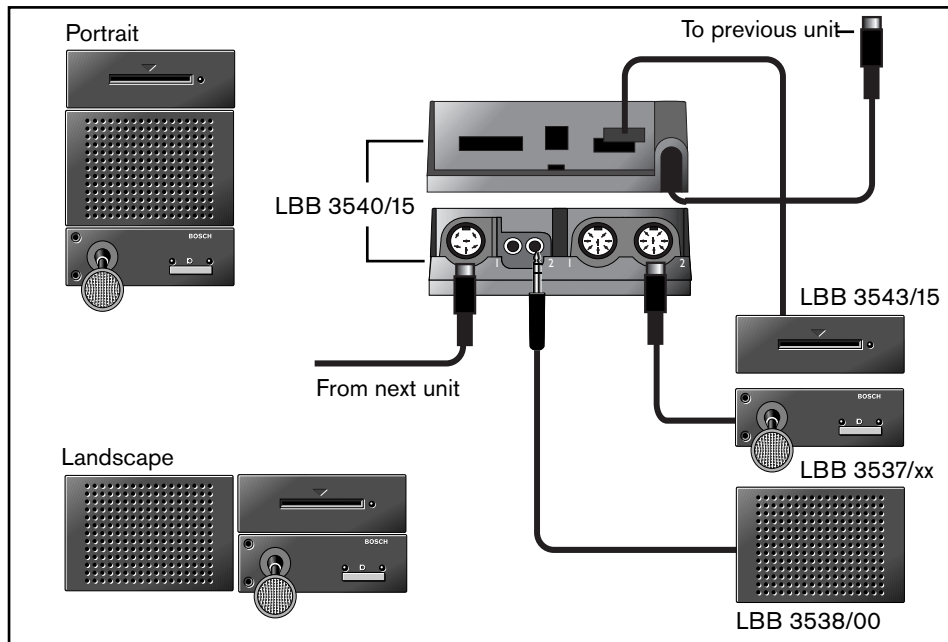


FIG. 2-26 Flush mounted solution 5 using LBB 3540/15

Flush mounted solution No.6 (delegate position) FIG. 2-27

LBB 3540/15	Multi-purpose connection unit	
LBB 3537/00	Microphone control panel with microphone stem (310mm/12.2 in)	or
LBB 3537/50	Microphone control panel with microphone stem (480mm/18.8 in)	or
LBB 3537/20	Microphone control panel for pluggable microphones types: - LBB 3549/00 Microphone with stem length (310mm/12.2 in) or - LBB 3549/50 Microphone with stem length (480mm/18.8 in)	
LBB 3538/00	Loudspeaker panel	
LBB 3543/15	ID-chip card reader	
LBB 3541/00	Voting control panel	
LBB 3524/xx	Channel selector panel (loop-through trunk-line connection)	

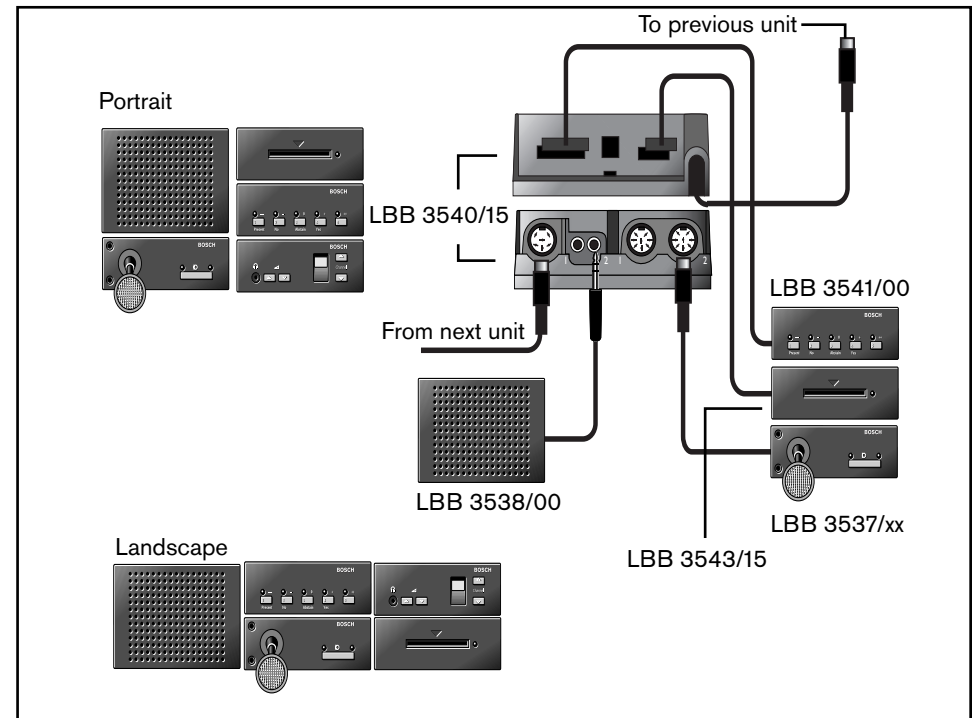


FIG. 2-27 Flush mounted solution 6 using LBB 3540/15

Flush mounted solution No.7 (delegate position) FIG. 2-28

LBB 3540/15	Multi-purpose connection unit	
LBB 3537/00	Microphone control panel with microphone stem (310mm/12.2 in)	or
LBB 3537/50	Microphone control panel with microphone stem (480mm/18.8 in)	or
LBB 3537/20	Microphone control panel for pluggable microphones types: - LBB 3549/00 Microphone with stem length (310mm/12.2 in) or - LBB 3549/50 Microphone with stem length (480mm/18.8 in)	
LBB 3538/00	Loudspeaker panel	
LBB 3543/15	ID-chip card reader	
LBB 3542/00	Voting control panel with alphanumeric LC-display	or
LBB 3542/20	Voting control panel with alphanumeric Cyrillic LC-display	

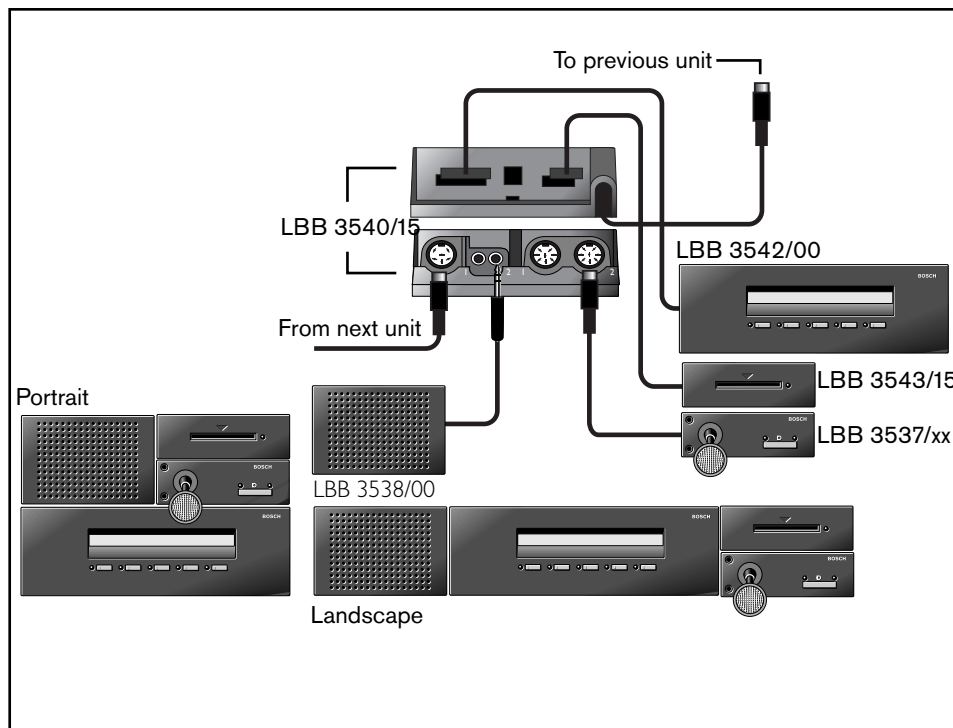


FIG. 2-28 Flush mounted solution 7 using LBB 3540/10

Flush mounted solution No.8 (Chairman position) FIG. 2-29

LBB 3540/15	Multi-purpose connection unit	
2 x LBB 3537/00	Microphone control panel with microphone stem (310mm/12.2 in)	or
2 x LBB 3537/50	Microphone control panel with microphone stem (480mm/18.8 in)	or
2 x LBB 3537/20	Microphone control panel for pluggable microphones types: - LBB 3549/00 Microphone with stem length (310mm/12.2 in) or - LBB 3549/50 Microphone with stem length (480mm/18.8 in)	
LBB 3537/10	Chairman priority panel	
LBB 3538/00	Loudspeaker panel	
LBB 3543/15	ID-chip card reader	
LBB 3542/00	Voting control panel with alphanumeric LC-display	
LBB 3542/20	Voting control panel with alphanumeric Cyrillic LC-display	
LBB 3524/xx	Channel selector panel (loop-through trunk-line connection)	

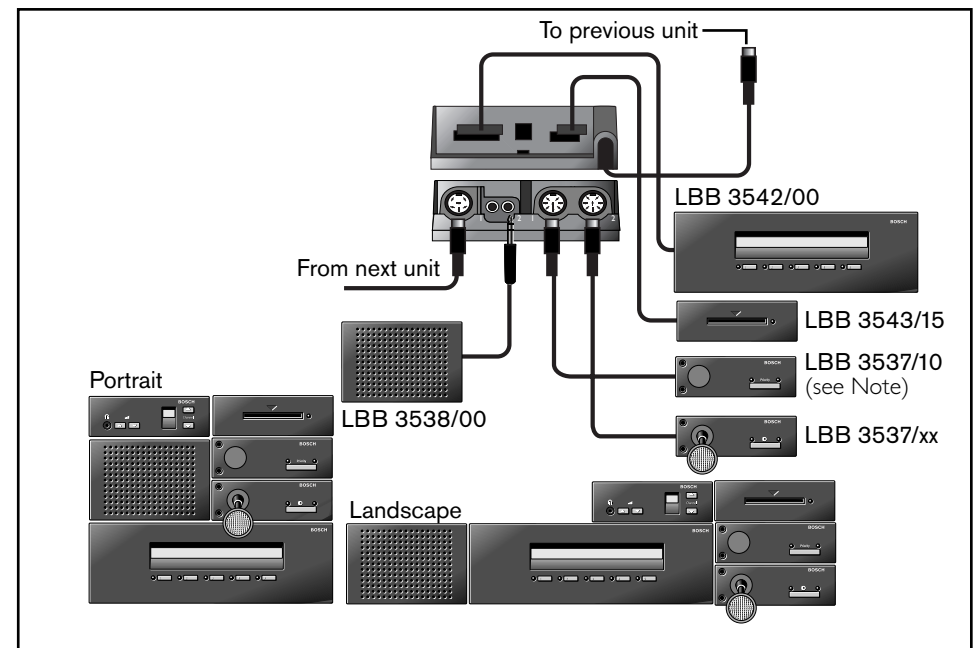


FIG. 2-29 Flush mounted solution 8 using LBB 3540/15

Applicable to solution No.8.

1. Jumper **J01** on the Multi-purpose connection unit is used to assign the unit for a chairman position.
2. If the chairman needs to view the number of delegates currently speaking or requesting to speak, then the LBB 3542/00 or LBB 3542/20 Voting control panel with alphanumeric LC-display can be used.
3. The ID-chip card reader LBB 3543/15 is used to provide a chairman registration and/or access function.



NOTE: Using the LBB 3540/15 in combination with the range of flush-mounted units, any number of configurations can be achieved to suit any conference requirement. The examples given, cater for both delegate and chairman positions with all the functions of a conference unit.

Flush mounted solution No.9 (Rostrum with two microphones) FIG. 2-30

LBB 3540/15	Multi-purpose connection unit	
2 x LBB 3537/00	Microphone control panel with microphone stem (310mm/12.2 in)	or
2 x LBB 3537/50	Microphone control panel with microphone stem (480mm/18.8 in)	or
2 x LBB 3537/20	Microphone control panel for pluggable microphones types: - LBB 3549/00 Microphone with stem length (310mm/12.2 in) - LBB 3549/50 Microphone with stem length (480mm/18.8 in)	or
LBB 3538/00	Loudspeaker panel	


General

A hand-held microphone LBB 3536/00 with 5 m cable or LBB 3536/10 with coiled cable can be used instead of a flush mounted Microphone Control Panel with microphone (fixed or pluggable).

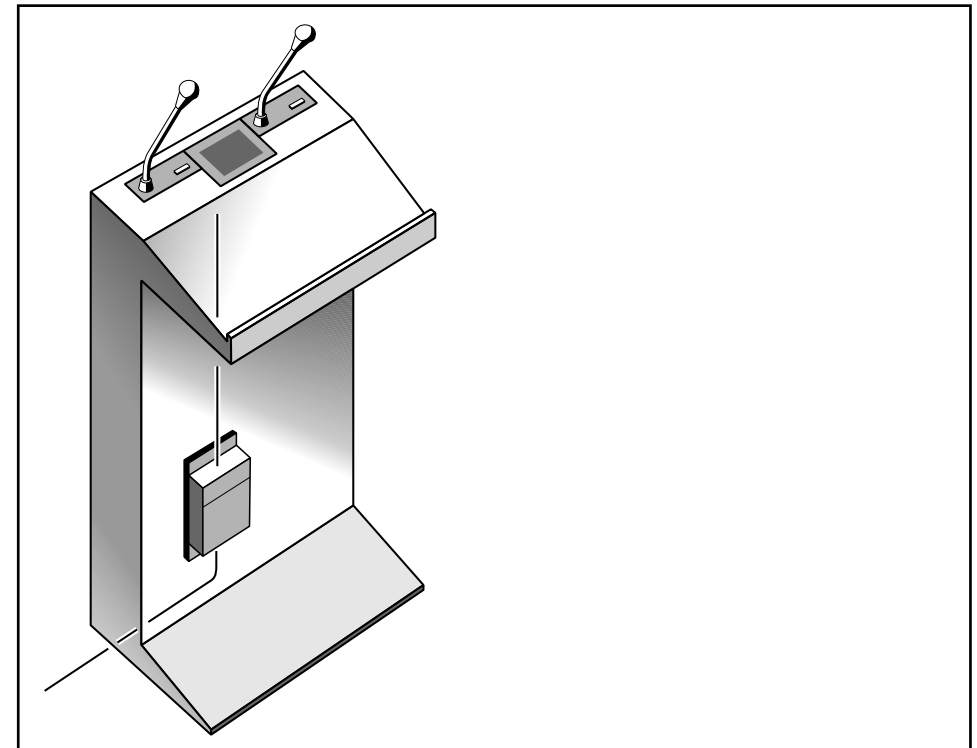


FIG. 2-30 Rostrum with two microphones

2.12 LBB 3537/00, LBB 3537/50 Delegate microphone with control panel

The LBB 3537/00 and LBB 3537/50 are uni-directional condenser microphones, mounted on a flush mounted control panel by means of a flexible stem. The microphones have a built-in pop- and windshield, as well as a light ring indicator which illuminates when the microphone is on. The control panel can be connected to a Multi-purpose connection unit LBB 3540/15, or to an input of the Dual Audio Interface unit LBB 3535/00.

Type number description:

LBB 3537/00 Microphone with control panel: 40 x 120 mm (1.5 x 4.7 in) (incl. mic.)
Mic. stem length: 310 mm (12.2 in) (incl. mic.)

LBB 3537/50 As LBB 3537/00 but with extended stem length: 480 mm (18.8 in) (incl. mic.)

Controls and Indicators (FIG. 2-31)

1. Unidirectional microphone, mounted on a flexible stem with built-in pop and windshield. The microphone includes an illuminated indicator ring for microphone active status.
2. Microphone On indicator (red LED).
3. Microphone On/Off or request-to-speak button.
4. Request-to-speak confirmation indicator (green LED).

Interconnection

- 2 m (6.5 ft.) long cable terminated with an 8-pole 262° DIN-type plug for connection to the Multi-purpose connection unit LBB 3540/15, or the Dual Audio Interface unit LBB 3535/00.



FIG. 2-31 LBB 3537/00 and LBB 3537/50 FM Microphone control panels

2.13 LBB 3537/10 Chairman microphone with control panel

The LBB 3537/10 includes a priority button and an LED indicator. The unit is used in combination with the microphone control panel LBB 3537/00 or microphone control panel LBB 3537/20 with pluggable microphones LBB 3549/00 and LBB 3549/50 to create a chairman position. The priority button when pressed sets all currently active delegates' microphones in the system to off, giving the chairman priority status over other participating delegates. The panel can be connected to the Multi-purpose connection unit LBB 3540/15, or the Dual Audio Interface unit LBB 3535/00.

Controls and Indicators (FIG. 2-32)

1. Microphone on indicator (red LED).
2. 'Priority' key.

Interconnection

- 2 m (6.5 ft.) long cable terminated with an 8-pole 262° DIN-type connector for connection to the Multi-purpose connection unit LBB 3540/15 or Dual Audio Interface Unit LBB 3535/00.

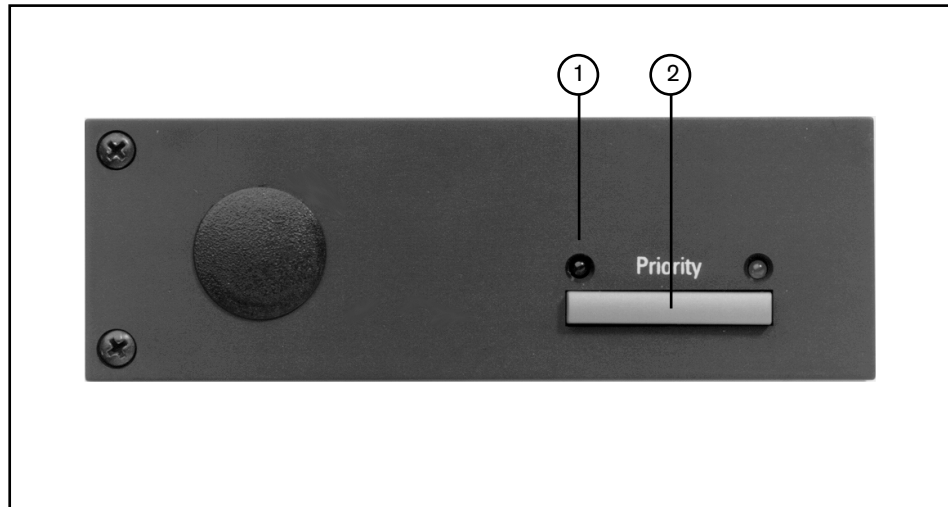


FIG. 2-32 LBB 3537/xx Chairman priority control panel

2.14 LBB 3537/20 Pluggable Microphone control panel

The Pluggable Microphone Control Panel LBB 3537/20 is intended for use with pluggable microphones type LBB 3549/00 and LBB 3549/50. The microphone control panel can be connected to the Multi-purpose connection unit LBB 3540/15, or the Dual Audio Interface unit LBB 3535/00.

LBB 3537/20 Microphone control panel for use with pluggable microphones LBB 3549/00 and LBB 3549/50

Controls and Indicators (FIG. 2-33)

1. 5-pole XLR connector (female) for connection to pluggable microphones LBB 3549/00 or LBB 3549/50 (see 2.6 Pluggable microphones).
2. Microphone on indicator (red LED).
3. Microphone On/Off or request-to-speak button.
4. Request-to-speak confirmation indicator (green LED).

Interconnection

1. 2 m (6.5 ft.) long cable terminated with an 8-pole 262° DIN-type connector for connection to the Multi-purpose connection unit LBB 3540/15 or Dual Audio Interface Unit LBB 3535/00.

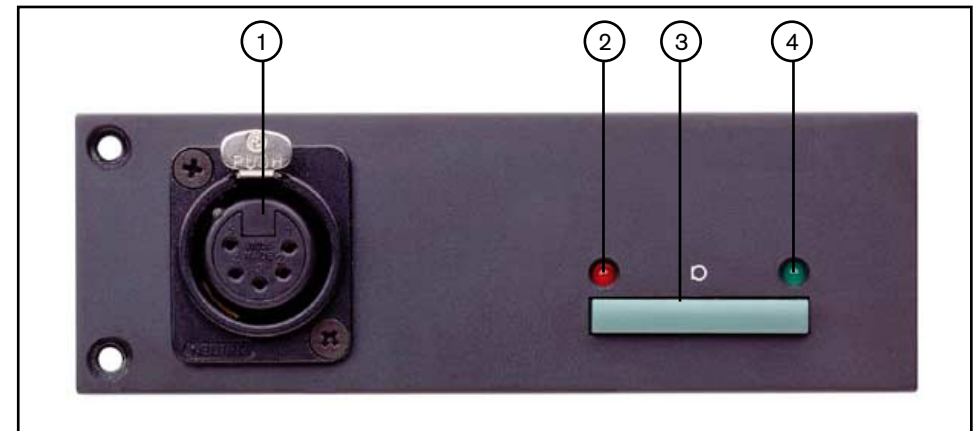


FIG. 2-33 LBB 3537/20 Pluggable Microphone control panel

2.15 LBB 3538/00 FM Loudspeaker panel

The LBB 3538/00 is used to distribute the floor signal when used with flush-mounted units. The panel is intended for flush mounting into table-tops or the back-rests of seats or for table-top placement using Table-top housing LBB 3527/00. The panel is intended for use with the Dual Audio Interface unit LBB 3535/00 or the Multi-purpose connection unit LBB 3540/15.

Interconnection

- 2 m (6.5 ft.) long cable terminated with a 3.5 mm stereo jackplug.

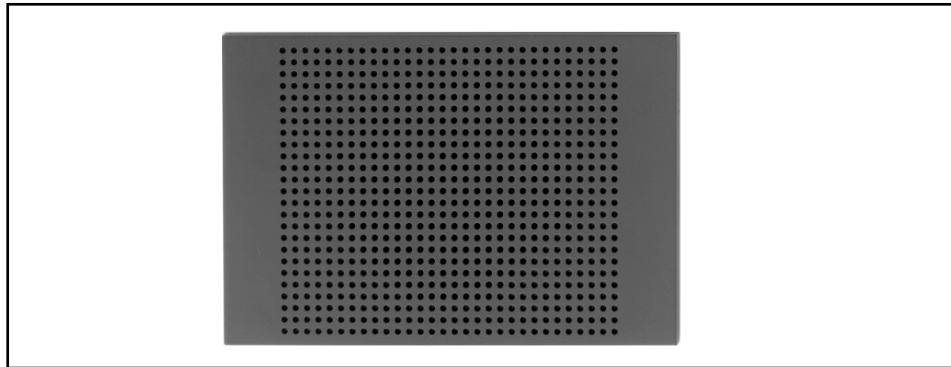


FIG. 2-34 LBB 3538/00 FM Loudspeaker panel

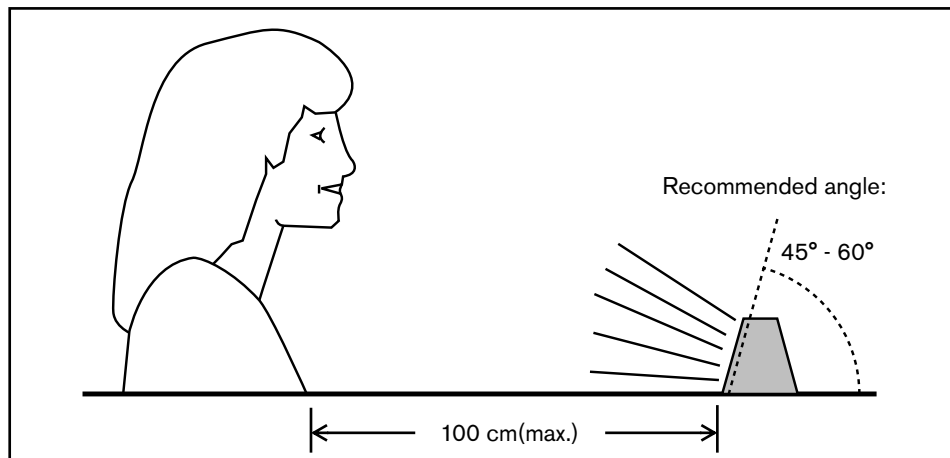


FIG. 2-35 Recommended loudspeaker placement

2.16 LBB 3541/00 FM Delegate Voting Control panel

The LBB 3541/00 includes voting facilities enabling delegates to participate in set voting sessions. The panel can be connected to the Multi-purpose connection unit LBB 3540/15.

Controls, Indicators and Interconnection (FIG. 2-36):

1. 5 voting keys each with confirmation indicators (yellow LEDs) for participation in the following voting procedures:
 - Parliamentary voting ('Present', 'No', 'Abstain', 'Yes')
 - Multiple choice or opinion poll voting (Numerals: 1 to 5 max.)
 - Audience response voting (Rating scale - -, -, O, +, ++)

Interconnection

- 2 m (6.5 ft.) long flat ribbon cable terminated with a 20-pole Micromatch connector.

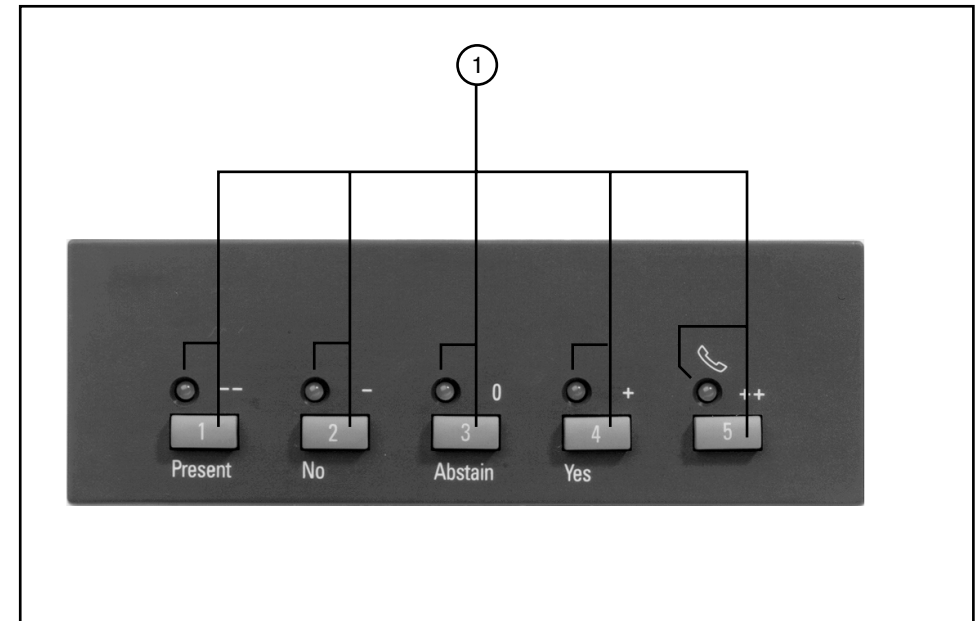


FIG. 2-36 LBB 3541/00 FM Delegate voting control panel

2.17 LBB 3542/00, LBB 3542/20 FM Delegate/Chairman voting control panel with LC-display

The LBB 3542/00 and LBB 3542/20 include voting functions and message display facilities. The panel includes an alphanumeric 2-line by 40 character LC-display. The LBB 3542/20 is for display of Cyrillic characters. The panel can be connected to Multi-purpose connection unit LBB 3540/15. The panel can be used for both delegate and chairman positions.

The LC-display provides for conference related information, general user instructions, and text messages to be viewed by a delegate or chairman.

Interconnection

- 2 m (6.5 ft.) long flat-ribbon cable terminated with a 20-pole Micro-match connector for connection to the Multi-purpose Connection Unit LBB 3540/15.

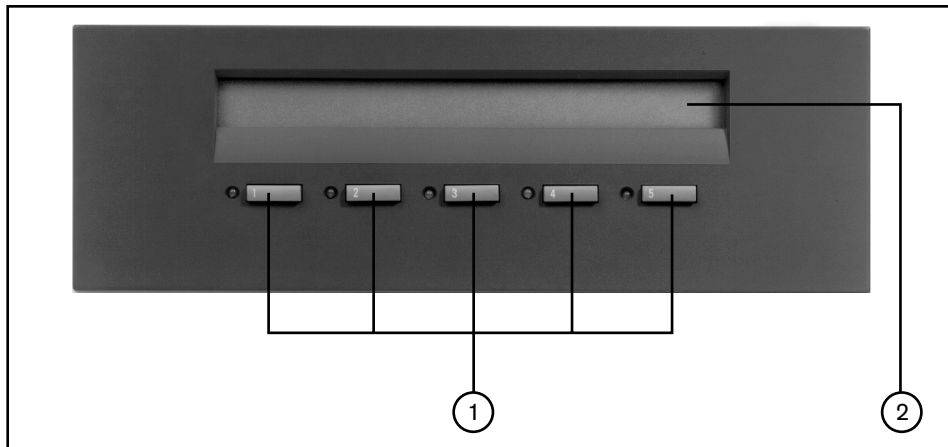


FIG. 2-37 LBB 3542/00 & LBB 3542/20 FM Delegate/Chairman voting control panel

Controls and indicators (FIG. 2-37):

1. Assigned Chairman

5 soft-keys each with confirmation indicators (yellow LEDs) in combination with the units LC-display provides some-or-all of the following functions:

- Microphone control
- Voting control
- Voting participating function
- Messages
- Intercom

1. Assigned Delegate

5 soft-keys marked 1-5 with confirmation indicators (yellow LEDs) for use in combination with the units LC-display provides the following functions:

- Conference information
- User information
- Individual messages
- Participation in the following voting procedures:
 - Parliamentary voting ('Present', 'No', 'Abstain', 'Yes')
 - Multiple choice or opinion poll voting (Numerals: 1 to 24 max.)
 - Audience response voting (Rating scale - -, -, O, +, + +)
- 2. Alphanumeric 2-line x 40 character LC-display.
 - * LBB 3542/20 Alphanumeric 2-line x 40 character Cyrillic LC-display.

2.18 LBB 3543/15 FM Chip-Card Reader

Intended for use with the Multi-Purpose Connection Unit LBB 3540/15, the Flush Mounted Chip Card Reader LBB 3543/15 provides electronic identification of delegates to the DCN system as well as ensuring that only authorized delegates participate in voting sessions or general conference proceedings - such as the use of a microphone.

Controls and Indicators (see FIG. 2-38):

1. Card reader slot for delegate identification.
2. Card accepted indicator (yellow LED).

Interconnection

- 2 m (6.5 ft.) long flat-ribbon cable terminated with a 10-pole Micromatch connector.

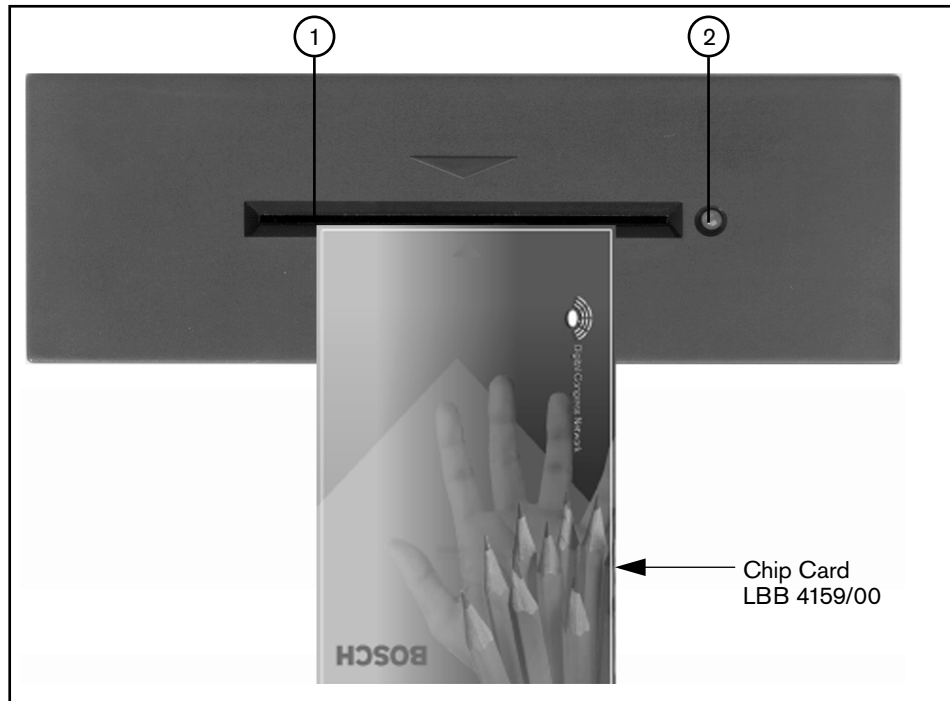


FIG. 2-38 LBB 3543/15 ID Card Reader

2.19 LBB 4159/00 Set of 100 Chip Cards

The Chip Cards allow delegate identification to the system and access control to the delegate microphone, voting and intercom functions. LBB 4159/00 includes a series of 100 Chip Cards. The Chip Cards have ample space for placing a label for user reference.

The cards are encoded using the Chip Card encoder LBB 4157/00 in combination with the DCN software package LBB 3581/00. The cards when encoded can also be used for other utility functions - for example, visitor identification at exhibitions.



FIG. 2-39 Chip-card (front)

Card specification

Number of cards:	100
Label area:	72 x 24 mm (2.8 x 0.9 in)
Memory	4096 bits (512 bytes)
Characteristics	Conform: ISO 7816 1-2
Dimensions	(H x W) 54 x 85.7 mm (2.1 x 3.3 in)
Code Position	Thickness: 0.76 mm ± 0.08 (0.02 in)



NOTES:

1. Labels larger than 72 x 24 mm (2.8 x 0.9 in) can be used on the rear side.
2. Code Position:

Refer to the User Manual of the 'Delegate Database' software module LBB 3580 for information about the position of the card code in the chip.

2.20 LBB 4157/00 Chip Card Encoder

Supporting a wide range of micro-processor cards compliant with ISO standards as well as the most frequently used synchronous cards, the LBB 4157 Chip Card encoder can easily be integrated into the DCN system.

The LBB 4157/00 is delivered with an external installation kit, and is powered by the workstation to which it is connected by a serial port.

The encoder is used in combination with DCN's ID Card Encoder Software package LBB 3581/00. The software can detect whether a Chip Card encoder or Magnetic stripe card encoder is connected.

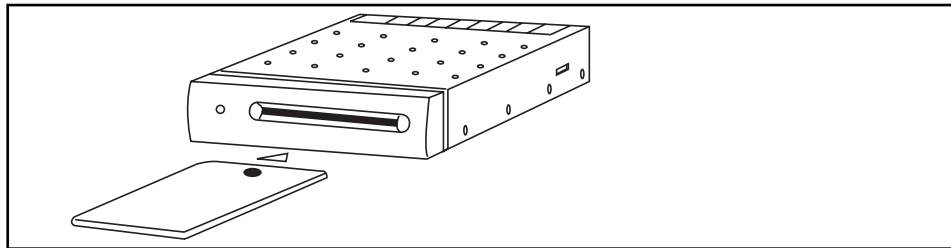


FIG. 2-40 LBB 4157/00 Chip Card Encoder

Technical specification

- Chip Card Interface:
- 8-contact friction connector (ISO location)
 - Protection against unexpected card withdrawal, short circuits and over consumption
- Serial Interface:
- RS232 interface to the DCN PC on RJ45 connector (connector 2)
 - RS232 interface on DB9 connector reserved for future use (connector 1)
- Internal architecture:
- 8-bit microcontroller
 - 128-Kbyte OTP memory
 - 32-Kbyte static RAM
- Power consumption:
- 200 mA maximum on 5V
- Compliance:
- The LBB 4157/00 complies with the following security and EMC directives and international standards:
- 73/23/CEE, ISO/IEC 7816-1/2/3 and CEM 89/336/CEE, modified by the 92/31/CEE directive.
 - EN 55022 Class B, EN 60950 and EN 50082-1, provided that cables supplied by BOSCH and an EC-certified computer are used.

The Chip Card Encoder is a SELV (Safety Extra Low Voltage) equipment and must be connected to a PC of the same kind.

2.20.1 Position of the DIP switches

- Open the DIP compartment under the encoder by lifting the lid.
- Using a sharp object such as a pencil, set all the DIPs to the OFF position (see below)

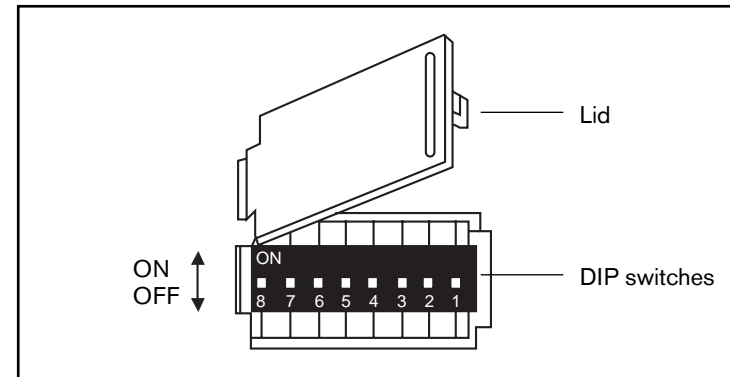


FIG. 2-41 Bottom view DIP compartment

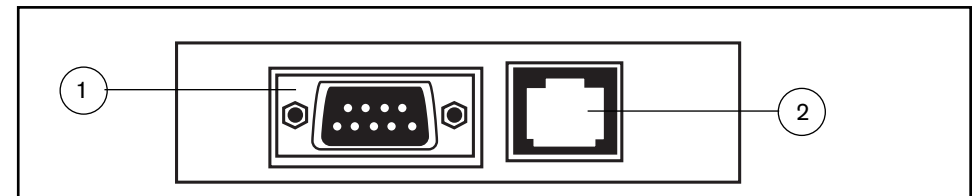


FIG. 2-42 Rear view of the Chip card encoder

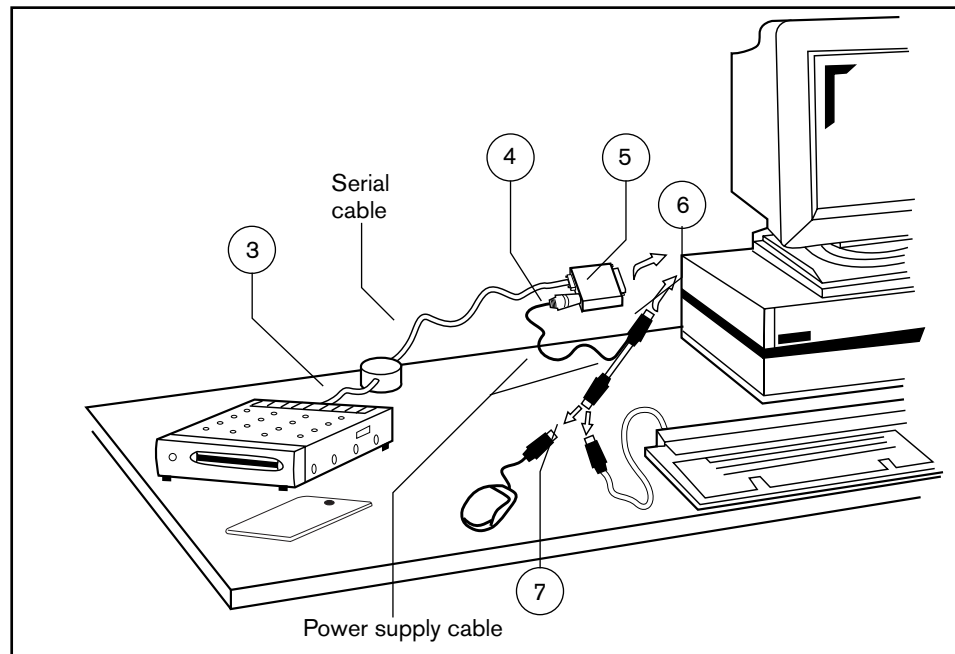


FIG. 2-43 Connecting the Chip Card Encoder

Contents of the External Installation Kit

- 1 Serial cable
- 1 Power supply cable
- 4 self adhesive feet
- 2 Velcro strips

Installing the External Encoder (see FIG. 2-43):



CAUTION: Prior to any installation switch-off the computer and remove the mains supply.

1. Connect the serial cable by plugging the RJ46 connector **(3)** to the encoder connector **(2)** and the DB9 connector **(5)** to the serial port of the PC, tightening the screws.
2. Disconnect either the PC keyboard or mouse. Connect it to part **(7)** of the power supply cable
3. Connect the mini jack **(4)** to the serial cables jack socket **(5)**
4. Connect part **(6)** of the power supply cable to the PC's mouse or keyboard port.

Positioning the Encoder

1. **Beside the Computer:** Stick the 4 self adhesive feet into the circular recesses meant for that purpose under the encoder.
2. **On the Computer:** Stick one velcro strip under the encoder, and the other one on the main unit of the computer. Put the encoder on the main unit.



NOTE: The Chip Card Encoder and the DCN Magnetic Stripe Encoder can only be used alternatively and not at the same time.
Do not stick anything on the DIPs compartment

2.21 LBB 3524/00, LBB 3524/10 and LBB 3526/10 FM Electronic channel selector panel

All channel selector panels include a 1.5-digit numeric built-in display with up/down select keys for selection of the required language channel. A headphone socket is provided for discrete listening via headphones. The unit is intended for mounting into table-tops or seat armrests. The LBB 3524/10* is identical to the LBB 3524/00 but includes two 1 m (3.2 ft.) long integrated input and output cables for ease of installation, and a backlit LC-display for easy viewing in darkened congress venues. The LBB 3426/10 is identical to the LBB 3524/10 but has a longer width (144 mm (5.6 in) instead of 120 mm (4.72 in) (for the LBB 3524/00 and LBB 3524/10).

NOTE: *an unused output cable must be terminated using a termination plug LBB 4118/00.

Controls and Indicators (FIG. 2-44):

1. 3.5 mm jacksocket for headphones (6.35 mm for LBB 3526/10).
2. 2 x push-button (up/down) for headphone volume control.
3. Numeric display (1.5-digit LC-display) for channel number indication.
4. 2 x push-button (up/down) for language channel selection.

Interconnection (FIG. 2-45):

LBB 3524/00

5. 2 m (6.5 ft.) long cable terminated with a moulded 6-pole circular connector.
6. 6-pole circular connector for loop-through connection.

LBB 3524/10 and LBB 3526/10 (FIG. 2-47):

5. 1 m (3.2 ft.) long input cable terminated with a moulded 6-pole DIN DCN female connector.
6. 1 m (3.2 ft.) long output cable terminated with a moulded 6-pole DIN DCN male connector.

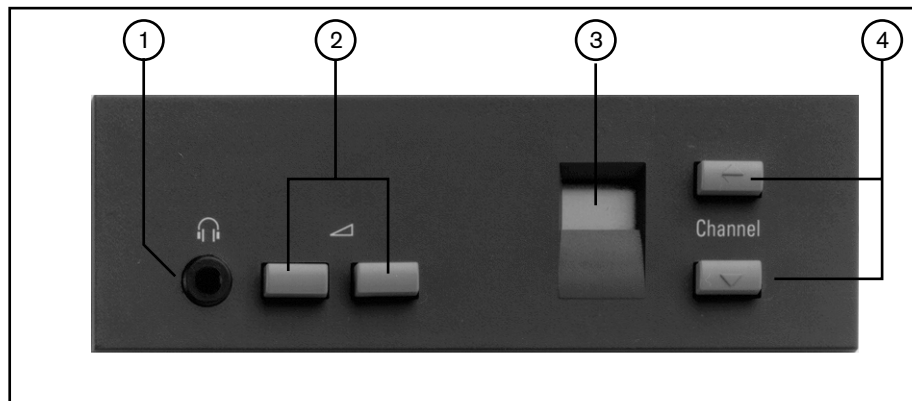


FIG. 2-44 LBB 3524/00 FM Channel Selector Panel

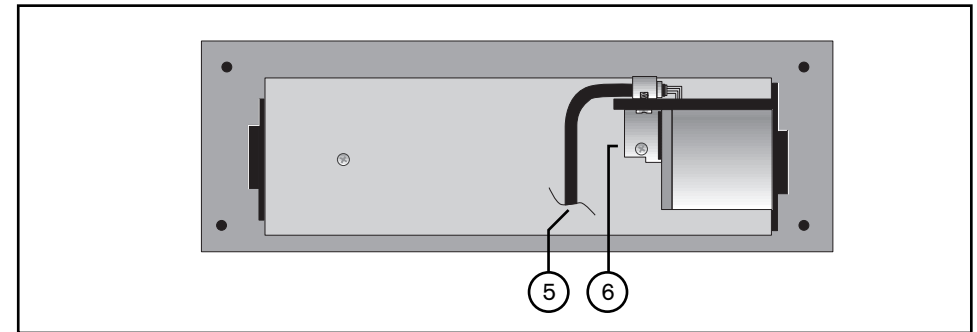


FIG. 2-45 LBB 3524/00 FM Electronic channel selector panel (bottom view)

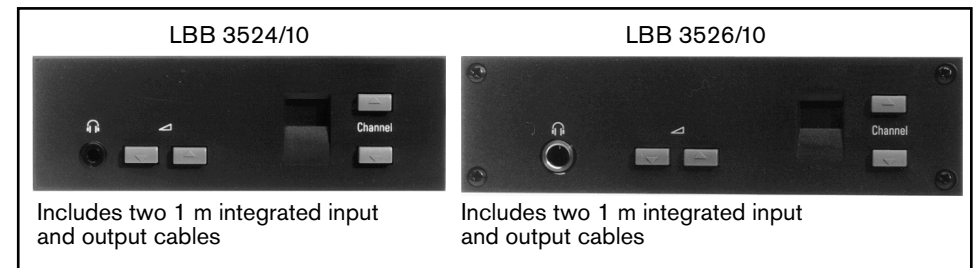


FIG. 2-46 LBB 3524/10 and LBB 3526/10 FM Electronic channel selector panels

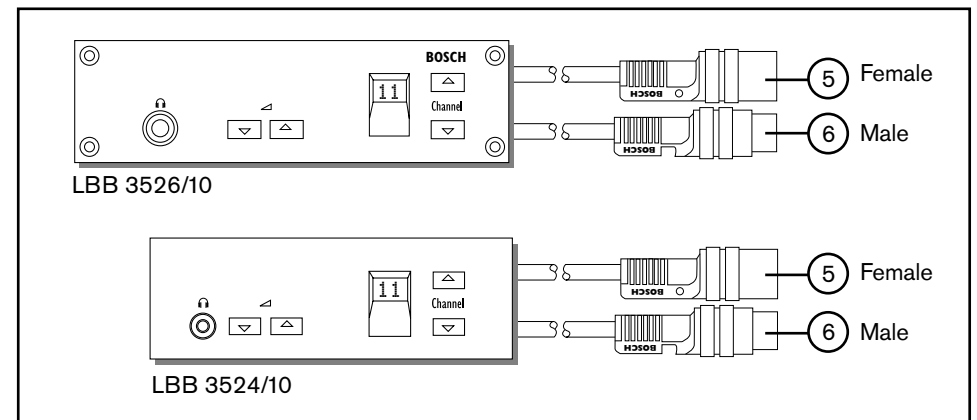


FIG. 2-47 Interconnections LBB 3524/10 and LBB 3526/10

Auto Switch-Off function


The unit's 'Auto Switch-Off' function can be enabled or disabled. If enabled, the unit is switched off by removing headphones from the jack socket. If disabled, the units remains on when headphones are removed from the jack socket. See solder spot jumper and resistor configuration. The backlighting feature is only active when a headphone is connected.

LBB 3524/xx and LBB 3526/10 Jumper and Resistor configuration (FIG. 2-48)


Solder spots **J70** and **J71** sets the channel selector's volume up and down controls. The volume-up and volume-down can be set independently. The 'Auto Switch-Off' function is enabled or disabled using solder spot **J72**.

1. Solder spot J70 (to set repeat/single-step volume-up control)

 OPEN Auto repeat volume-up


 CLOSED Single-step volume-up

2. Solder spot J71 (to set repeat/single-step volume-down control)

 OPEN Auto repeat volume-down

 CLOSED Single-step volume-down

3. Solder spot J72 (to set Auto-switch Off function)

 OPEN Enabled

 CLOSED Disabled



IMPORTANT: The last panel (LBB 3524/10, LBB 3526/10) connected (daisy-chain) must be terminated with a termination plug LBB 4118/00.

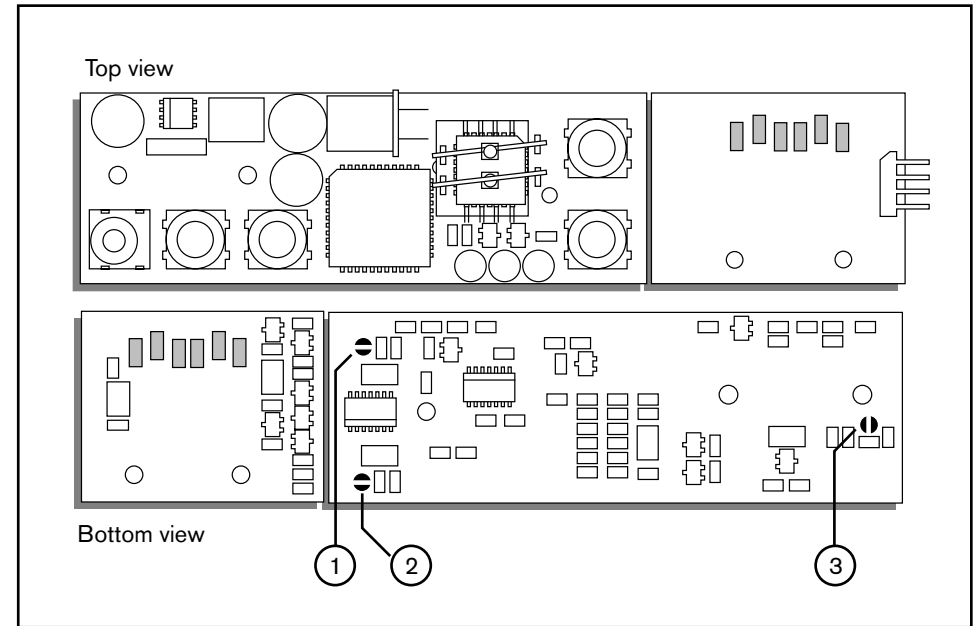


FIG. 2-48 Interconnections LBB 3524/10 and LBB 3526/10

2.22 LBB 3525/00 Table top housing for Channel selector or Voting control panel

The housing is intended for use in portable/table-top systems. It is designed to neatly accommodate the Electronic Channel Selector panels LBB 3524/00 or LBB 3524/10 or Voting control panel LBB 3541/00

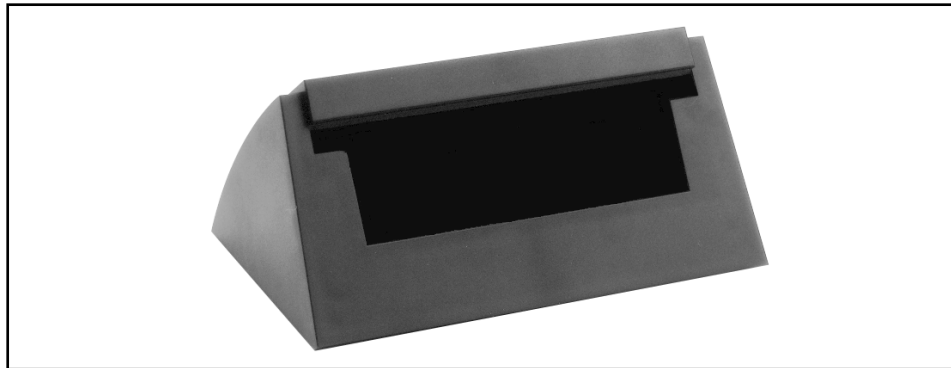


FIG. 2-49 LBB 3525/00 Channel selector housing

2.23 LBB 3539/00 Blanking panels

A blank panel can be used to blank over redundant flush-mounted table-top slots which might be used for future expansion of the system.

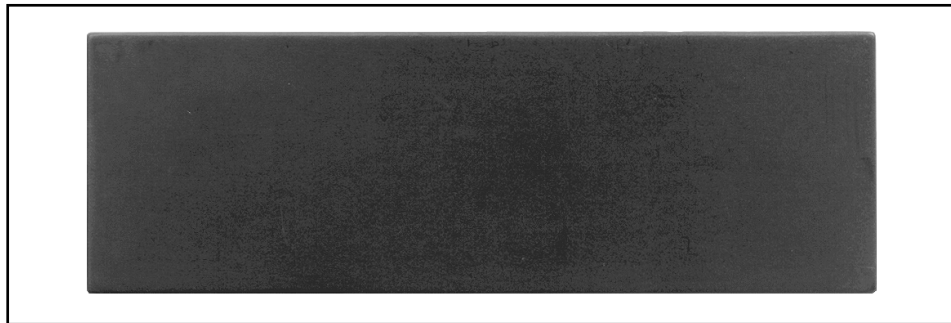


FIG. 2-50 LBB 3539/00 Blanking panel

2.24 LBB 3527/00 Table top housing

The table top housing LBB 3527/00 can accommodate 2 flush mounted units with dimensions (H x W) 40 x 120 mm (1.57 x 4.72 in). For example: Channel selector panel LBB 3524/xx (lower position) and Microphone panel LBB 3537/0xx (upper panel) or any other combination of units that fits. The unit can also accommodate one flush-mounted loudspeaker panel LBB 3538/00.

NOTE: Remove the 'snap-off' lugs before installing the relevant unit.

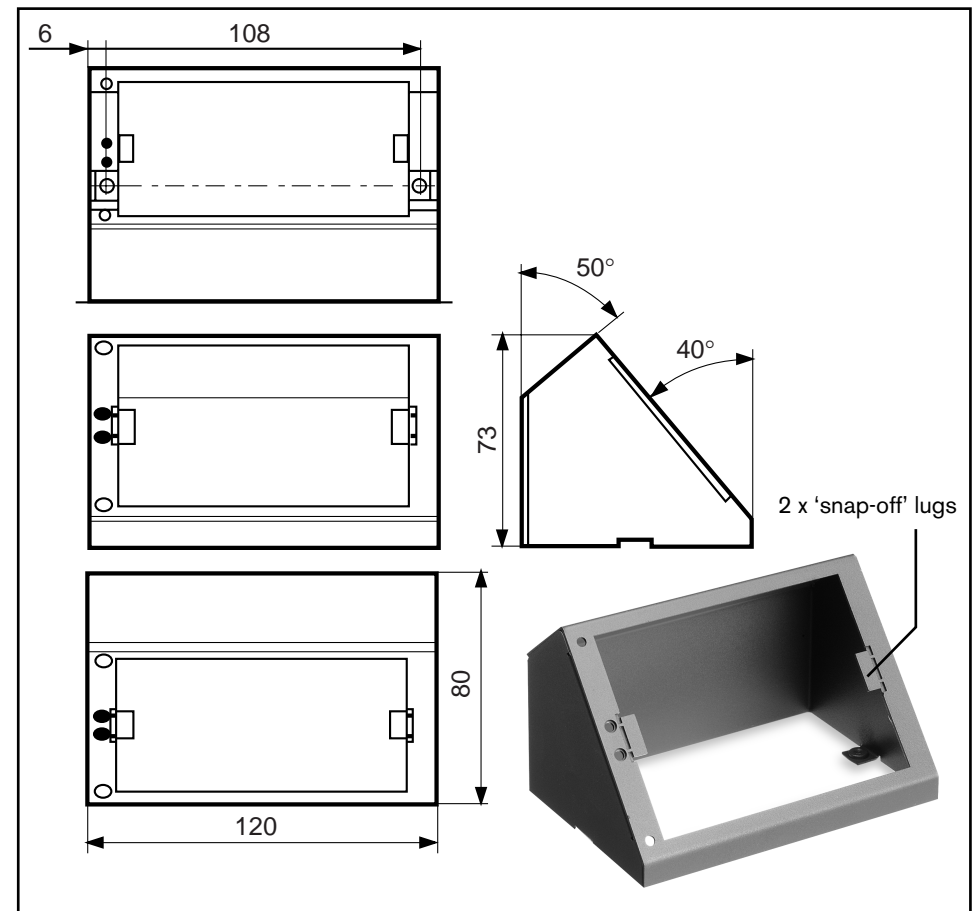


FIG. 2-51 LBB 3527/00 Flush Mounted Table-top housing

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Chapter 3. Interpretation Equipment

The DCN system offers comprehensive facilities for simultaneous interpretation and distribution of the interpreted languages to delegates, allowing the system to meet all the demands of international conference and congress venues. All interpretation facilities are fully integrated in the basic system concept, with digital distribution of the language signals using the same cabling as all the other system functions.

3.1 LBB 3520/10 Interpreter desk with back-lighting LC-display

The interpreter desks provides each interpreter with all the necessary facilities according to internationally agreed standards. The microprocessor controlled desk (A-B type) can handle up to 15 different language channels plus the original floor language. Up to six desks can be fitted per booth. The desk includes an intercom facility where an intercom handset can be mounted for two-way vocal communication between interpreters, the chairman and delegates.

Being microprocessor controlled, with a built-in LC-display, the desk in stand-alone systems can be programmed manually, to preset the allocation of the language channels, channel distribution, and interlocks. In PC operator controlled systems the desk in combination with dedicated software can be programmed by the operator to set all functional interlocks and channel allocation parameters.

An innovative function of the interpreter desk is its three personal incoming language pre-select keys. Instead of having to manually select from all the available channels, the interpreter can quickly pre-select the three incoming languages which are most relevant as well as the floor language. This allows quick, secure switching between the preferred languages and reduces the chance of operating errors. The alphanumeric display gives an at-a-glance indication of the selected language in plain text form. A further refinement is an indication of the 'quality level' of the incoming channels. Up to now, interpreters often had no way of knowing if they were receiving a direct or an indirect interpretation. This facility gives them the option of avoiding the use of an **INDIRECT** interpretation if a **DIRECT** interpretation is available in a language which is known to the interpreter.

The desk also provides for convenient transfer or relay interpretation, to enable the handling of 'exotic' languages for which sufficient qualified interpreters are not available. In this case, the DCN's unique auto-relay function automatically transmits the relay language to all the other interpreter desks for onward interpretation.



FIG 3-1 Interpreter desk LBB 3520/10

Controls and Indicators LBB 3520/10 (see FIG 3-2):

LISTENING FUNCTIONS

Loudspeaker Controls

1. Built-in loudspeaker.
2. Loudspeaker volume control for distribution of the floor language when all the microphones in the booth are switched off.
3. Volume, treble and bass controls for headphones and headset.

Incoming Channel Controls

4. Rotary selector switch, for selection of the incoming language channel.
5. Three Preselect relay keys a, b and c with a green LED indication for quick access to the interpreters' personal designated incoming language channels.
6. Floor language indication (green LED).
7. Select key for selection of the original floor language or auto-relay language when available.
8. Auto-relay indication (green LED).

SPEAKING FUNCTIONS

Outgoing Channel Controls

9. Outgoing A-channel and B-channel select keys with channel select indicators (red LED).
10. Uni-directional condenser microphone on a 'fold-away' stem with an illuminated red light ring to indicate 'microphone status'. The microphone itself includes a built-in pop and windshield.
11. Clear message/ Speak-to-fast key.
12. Call key (voice) two-way communication between interpreter and chairman/operator.
13. Outgoing B-channel selection keys (forward/reverse).
14. Microphone Mute key.
15. Channel engaged indicators for A and B outputs (yellow LEDs).
16. Microphone On/Off lever-type switch.
17. Microphone status indicator (red LED bar).

VIEWING FUNCTION

18. Alphanumeric 2-line by 40-character LC-display with back-lighting

Interconnections

All interpreter desks include connectors for loop-through connection of one unit to the other (i.e. 'daisy chain'). FIG 3-2 shows the connectors and the interconnection method used.

19. 6.3 mm jack headphone connector.
20. Headphone or headset connector (5-pole 180° DIN-type socket) (according IEC 268-11).
21. 3.5 mm jack headphone connector.
22. Selector switch to select an external headset microphone or built-in microphone.
23. 2 m (6.5 ft.) long cable terminated with a moulded 6-pole circular connector.
24. 6-pole circular connector for loop-through connections.
25. Modular jack connector for connection to intercom handset LBB 3555.
26. Recess microswitch for resetting the unit's address (De-Init).

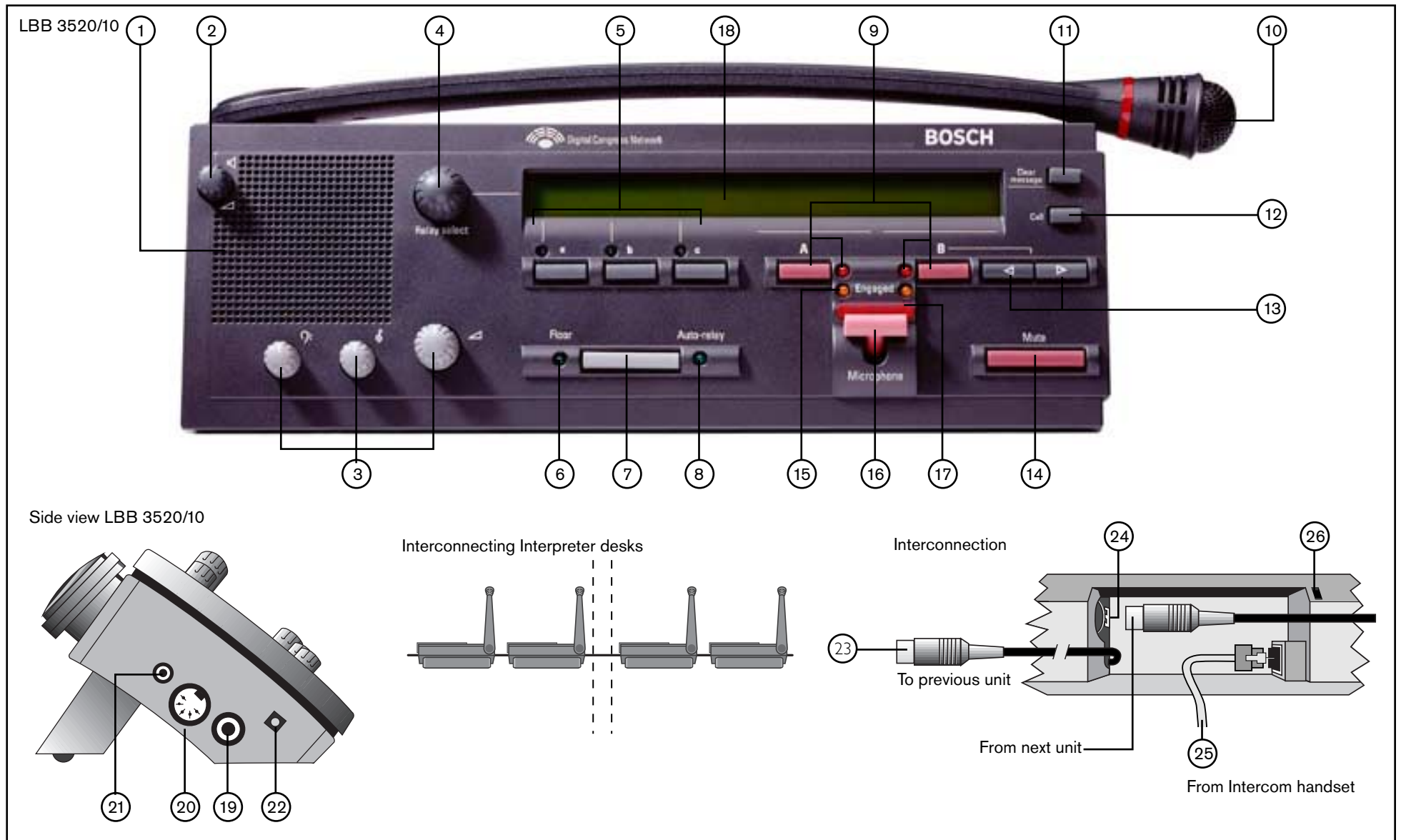


FIG 3-2 LBB 3520/10 Interpreter desk

3.1.1 Removal cable guide (FIG 3-3) (Interpreter desk LBB 3520/10)

To access the cable guide proceed as follows:

1. Wrap a small cord round the cable guide and pull firmly in the direction shown.
2. Place the head of a screwdriver in the cable guide groove as shown and twist gently.

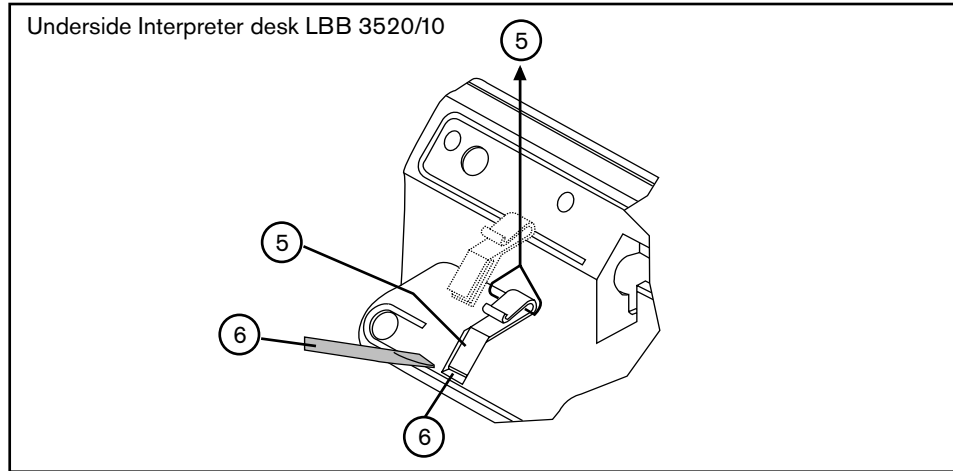


FIG 3-3 Removal of cable guide

3.1.2 Installing Intercom Handset to LBB 3520/10 (see FIG 3-4)

Handsets can be mounted and attached to the rear of an Interpreter desk LBB 3520/10, using a metal mounting plate LBB 3556/00, screws and two spire speed nuts. The spire speed nuts are delivered with the unit, and the securing screws are delivered with the mounting plate.



NOTE: When mounting the handset, spire speed nuts need to be mounted on the unit after first removing the units cable guides (see FIG 3-4).

Using the available mounting facilities, handsets can be mounted for both left and right hand users. In systems using flush-mounted units, handsets with cradles can be table-top mounted or fixed to an adjacent wall using the screw-holes on the handset cradle.

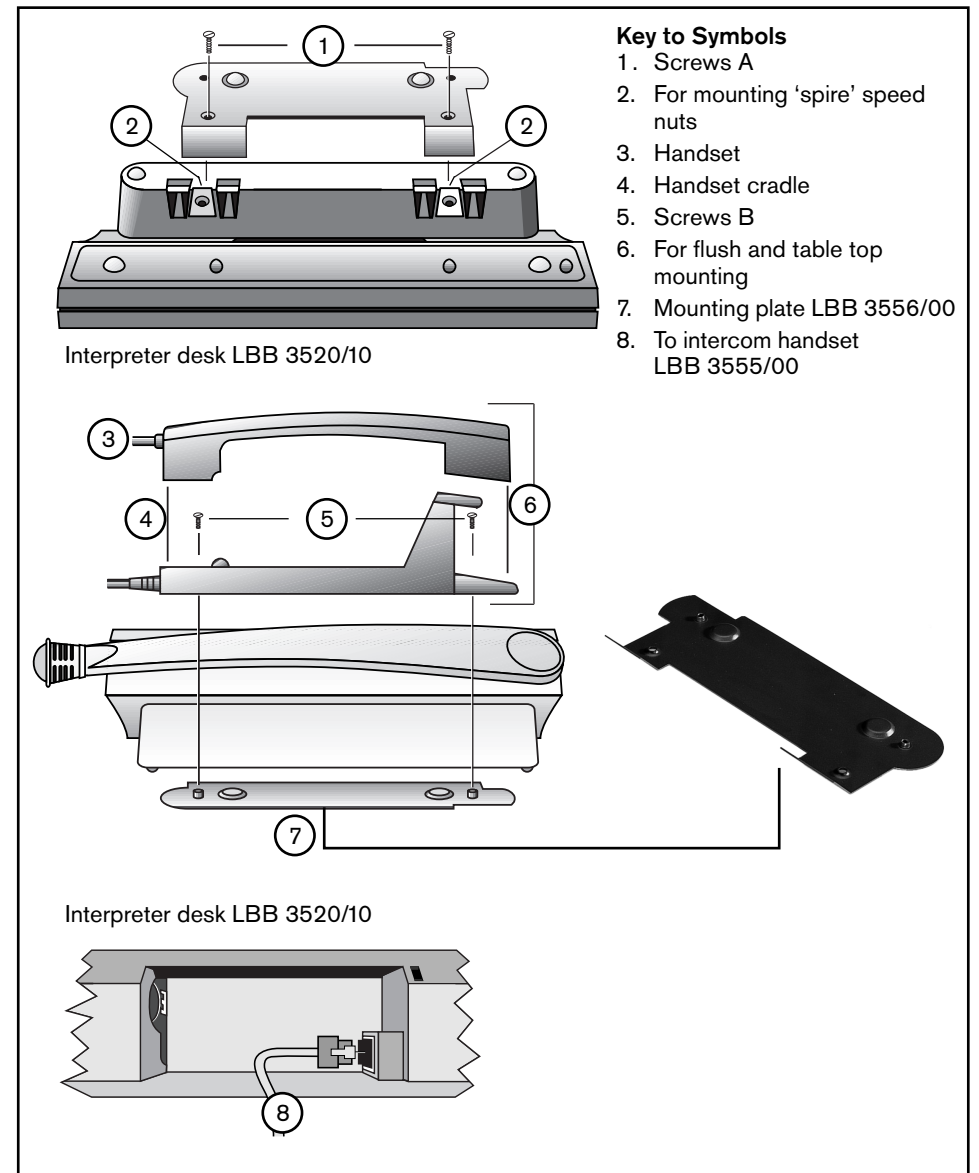
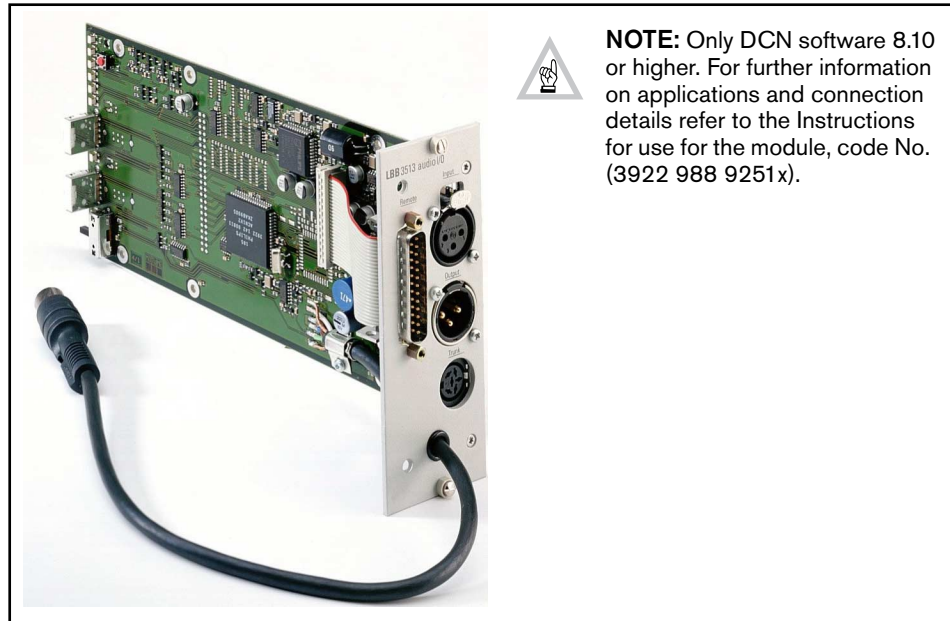


FIG 3-4 Installing Intercom handset to an Interpreter desk LBB 3520/10

3.1.3 LBB 3513/00 Analog Audio Input/output Module

The Analog Audio Input/Output Module type LBB 3513/00 has been designed for use in the BOSCH Digital Congress Network (DCN) system. The module is used to connect external analog audio equipment for distribution through one of the DCN audio distribution channels. The module also provides monitoring facilities for the distributed audio channels as well as facilities for coupling to external audio reproduction systems and audio recording equipment.



NOTE: Only DCN software 8.10 or higher. For further information on applications and connection details refer to the Instructions for use for the module, code No. (3922 988 9251x).

FIG 3-5 LBB 3513/00 Analog Audio Input/Output module

The module is ideally suited for the following applications:

- Audio/music input for distribution via DCNs language channels.
- Distribution of one of DCNs distribution channels to a PA system, monitoring or recording facilities.
- Connecting an interpreter at a remote site via standard communication links e.g. telephone line.
- Connecting to a remote DCN system.

The module also includes a remote control facility for custom built panel solutions where channel selection and various signal indications are available on a 25-pole SUB-D connector.

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Chapter 4. Central Control Equipment

4.1 Introduction Central control equipment

The Central Control Unit (CCU) is at the heart of the DCN system, and has control facilities for up to 240 contribution units, such as delegate and chairman units, interpreter desks, as well as audio and multipurpose interface units. The CCU can function with or without a central operator using a PC.

Stand-alone systems

For use in smaller systems where an operator is not essential, the Central Control Unit type LBB 3500/05 is used as a 'stand-alone' unit providing basic microphone operational modes, basic parliamentary voting procedures, and facilities for organizing interpretation channels and basic intercom functions. A dedicated RS 232 port is used for automatic camera control (default) and can also be set for 'test and diagnostic' purposes.

PC control

For use in larger systems requiring a central operator, Central Control Units type LBB 3500/15 and LBB 3500/35 are used allowing a PC to be used as the interface between an operator and the DCN system. A wide range of Windows based DCN application software modules are available to run on the PC to provide comprehensive facilities for conference control and management. Each CCU has a dedicated built-in RS232 port for 'DIRECT' connection to a PC (the PC does **NOT** require a PC-Network card LBB 3510/00). See [Chapter 5](#). DCN Control using Personal Computers.

Table 4-1: Range of DCN Central Control Units

CCU Range	PCF rating (max)	Ports (default settings)
LBB 3500/05 LBB 3500/05(D)	90 PCF	1 x RS232 COM Port (camera control)
LBB 3500/15 LBB 3500/15(D)	180 PCF	2 x RS232 COM Ports (Port 1 = PC control, Port 2 = camera control)
LBB 3500/35 LBB 3500/35(D)	180 PCF	2 x RS232 COM Ports (Port 1 = PC control, Port 2 = camera control)



IMPORTANT: (D) versions are intended for the North American market only. All controls and indicators described for DCN Control equipment (i.e. LBB 3500/05, LBB 3500/15, LBB 3500/35, LBB 4106/00 and LBB 3508/00) are also valid (unless mentioned) for (D) type versions with the exception of the 'power supply'. See [Chapter 4.4.1](#).



FIG 4-1 Central Control Units

4.2 LBB 3500/05, LBB 3500/05(D) Basic Central Control Unit

The LBB 3500/05 is intended for use in stand-alone discussion systems only (i.e. no central PC operator). Its built in control facilities can control up to 240 active contribution units, while its power handling capacity can handle up to 90 PCF points*.

*The figure stated represents the number of units rated with a Power Consumption Factor (PCF) of 1. For further information regarding the Power Consumption Factor refer to [Chapter 10.1.1](#): "System design fundamentals".

The unit's built-in functions include:

- Power supply to supply up to a maximum of 90 PCF points
- Control facilities for controlling up to 240 contribution units
- Digital audio control and processing facilities for 2 x 15 HiQ digital audio channels, used for contribution, distribution and interpretation units
- Automatic audio equalizer for adjusting the frequency response of the delegate and chairman loudspeaker channels
- Three basic microphone Operational modes (Operation) including:
 - (1) 'Open': Microphone key-control
 - (2) 'Override': Microphone key-control with override (First-In-First-Out)
 - (3) 'Voice' activated: Microphone control activated by voice-sample
- Each mode of Microphone operation allows the selection of 1, 2 or 4 microphones to be switched on concurrently (in 'Voice' activated mode 2 or 4 microphones can only be selected).
- Control for basic electronic parliamentary voting procedures with Present, Yes, No and Abstain.
- Basic Simultaneous Interpretation facilities providing control for as many as 11 interpretation channels plus the floor channel.
- Basic intercom facilities for one two-way communication channel between Delegate, Chairman and Interpreters.



NOTE: For Control and Indicators see [Chapter 4.4](#) and [FIG 4-2](#)

4.3 LBB 3500/15, LBB 3500/15(D) Central Control Unit

The LBB 3500/15 can be used for use in both 'stand-alone' discussion systems and PC controlled systems

As for LBB 3500/05 but includes:

- Power supply to supply up to a maximum of 180 PCF points
- Built-in RS232 Communication port for direct connection to a PC.
- Extended facilities are available when connected to a PC using the wide range of DCN's software. See DCN Data Brochure for available software packages



NOTE: For Control and Indicators see [Chapter 4.4](#) and [FIG 4-2](#).

4.4 LBB 3500/35, LBB 3500/35(D) Multi Central Control Unit

The Multi-CCU LBB 3500/35 is functionally identical to the LBB 3500/15 Central Control Unit and is used to extend the capacity of the DCN system when more than 240 contribution units are required. Each subsequent slave CCU (max. 16) added, increases the system capacity by a further 240 units. The unit can be used stand-alone and function as an LBB 3500/15 CCU. If the software package installed allows, the 'Single' operating mode can be selected by means of a front-panel push-button switch. The flexibility of the unit means that it can cater for virtually every conference requirement.

When the CCU is set to the Multi CCU system mode, a dedicated PC must be connected which acts as the master to all slave Multi-CCU's connected. This PC must be fitted with a Multi-CCU PC card type LBB 3511/00 and Multi-CCU software type LBB 3586 (see [Chapter 5.4](#)).

The unit's built-in functions for the Multi-CCU system mode include: (see also [Chapter 4.6](#)).

As for the LBB 3500/15 but includes:

- Up to 16 Multi-CCUs can be connected, allowing in total up to 3840 (max.) active DCN units to be connected, or up to 7680* microphones to be connected using Dual Audio Interface units LBB 3535/00.

NOTE: *The delegate database can only contain 1500 records.

- Switchable between Single and Multi-CCU mode.
- Two basic microphone Operational modes (Operation) including:
 - (1) 'Open': Microphone key-control with request-to-speak registration
 - (2) 'Override': Microphone key-control with override (First-In-First-Out)

Each mode of Microphone operation allows the selection of 1, 2 or 4 microphones to be switched on concurrently.



NOTE: When set to Single system mode, the Multi-CCU's built-in functions are identical to those of the Extended CCU, type LBB 3500/15.

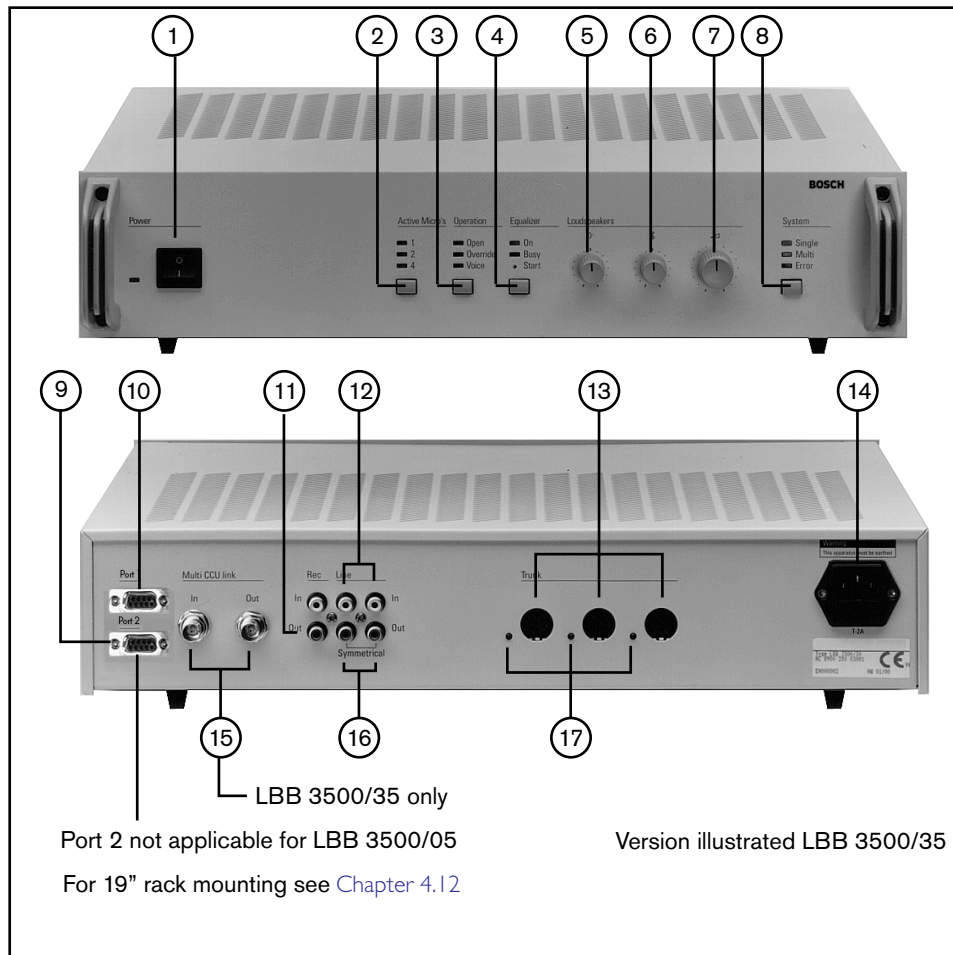


FIG 4-2 LBB 3500/35 Multi Central Control Unit (front and rear)

Controls and Indicators (Illustrated version LBB 3500/35 (FIG 4-2))

- * Not applicable to LBB 3500/05
- ** Not applicable to LBB 3500/05 and LBB 3500/15

Front panel

1. Mains On/Off switch with indicator (green LED).
2. 'Active Micros'
3 indicators (yellow LEDs) and a push-button selector switch to select the maximum number of delegate microphones which may be activated concurrently 1, 2 or 4.
3. 'Operation'
3 indicators (yellow LEDs) and a push-button selector switch to select the microphone mode of operation: Open, Override or Voice.
4. 'Equalizer'
1 x Microswitch (start) to initiate audio equalizer adjustment.
1 x Equalizer 'On' indicator (green LED)
1 x Equalizer 'Busy' indicator (red LED)
1 x Equalizer On/Off button
5. Unit loudspeakers tone control (bass).
6. Unit loudspeakers tone control (treble).
7. Unit loudspeakers volume control.
Units include: Delegate, Chairman units and Flush mounted units with loudspeaker.
8. **Selection switch to select single or Multi-CCU systems, with error indication.
(not applicable for CCUs LBB 3500/05 and LBB 3500/15)

Rear panel:

9. *COM Port 2. RS232 connection for automatic camera control (default) (see [Chapter 5](#).)
10. *COM Port 1. RS232 'DIRECT' connection to DCN control PC (Default) (see [Chapter 5](#).)
IMPORTANT: Port 1 on the CCU type LBB 3500/05 is **NOT** available for DCN PC control, but set (default) for camera control.
11. Tape/cassette recorder Input and output (cinch-type) for floor input and output.
12. 2 x Asymmetrical line input connectors (cinch-type) (floor input).
13. 3 x outlet trunk-line cable connectors for connection of contribution, distribution, and interpretation units, plus extension power supplies. (3 x 6-pole circular connectors)
14. Euro-mains socket with in-built fuse (a.c. mains voltage selectable inside unit). Matching mains cable (1.7 m (5.5 ft.) (D-version 2.5 m (8.2 ft.) included.
15. **Two BNC connectors (in/out), for loop-through connection to other Multi-CCU's and Master PC.
16. 2 x Asymmetrical line output connectors (cinch-type)
or 1 x Symmetrical line output for floor distribution to Public Address systems.
17. 3 indicators to indicate trunk-line overload (red LEDs).

Internal view:

See [FIG 4-3](#)

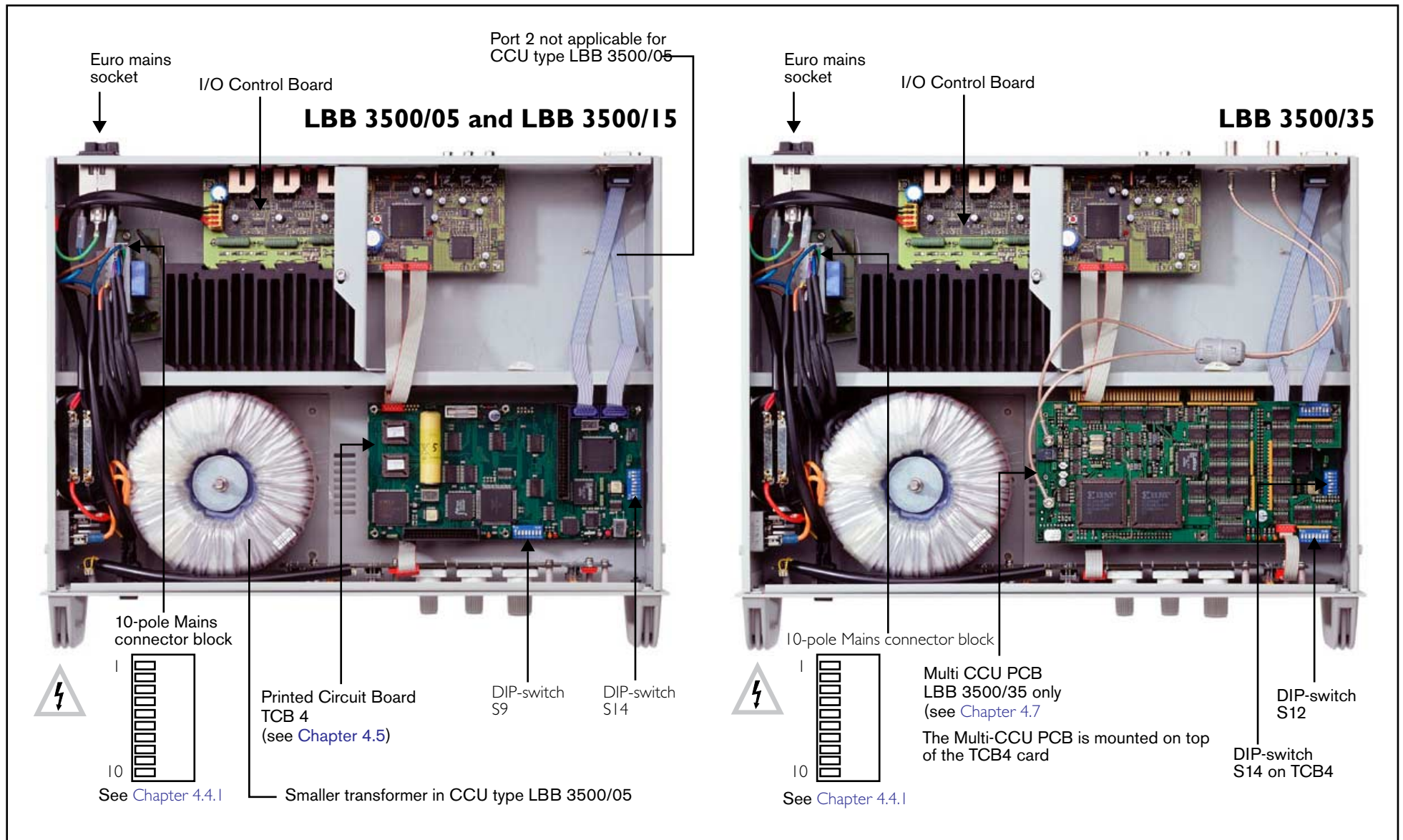


FIG 4-3 CCU internal view

4.4.1 CCU Mains voltage and adjustment

Depending on the CCU version, the CCU on delivery is set ready for use on one of the following voltages:

- LBB 3500/xx(European version) 230V a.c.
- LBB 3500/xxD(UL approved version) 125V a.c. plus mains cable

For alternative voltages (i.e. 105V, 115V, 220V or 240V a.c.) the unit provides a 10-pole connector block for mains selection (see FIG 4-3). A mains tally (FIG 4-4) showing the connection details is visible on one side of the unit once the top cover is removed.

Removal top cover



WARNING: Before removing the top cover, disconnect the mains and mains cable from the unit. Read also the 'Safety Precautions' at the front of this manual.

1. Unscrew and remove the four side panel securing screws (two on each side of the unit) and carefully remove the top cover.
2. DO NOT lose the toothed shake-proof washers, these electrically bond the top cover to the earthed chassis. For safety reasons these washers must always be fitted when the unit is in use.



WARNING Ensure that the CCU is not connected to the mains supply when rewiring for a different mains voltage. The CCU must be earthed via the mains supply using the green/yellow wire. The mains plug must be an earthed type.

FUSE	/05	UL/CSA T 2.5 A			UL/CSA T 1.25 A		
		IEC T 4 A			IEC T 2 A		
	/15	UL/CSA T 5 A			UL/CSA T 2.5 A		
		IEC T 5 A			IEC T 4 A		
CONNECTOR 10P		105V	115V	125V	220V	230V	240V
1	2	BLUE MAINS	N.C	BLUE MAINS		N.C	BLUE MAINS
3	4	BLACK	GREEN		BLACK	GREEN	
5	6	GREEN	BLUE MAINS	BLACK	GREEN	BLACK	
7	8	ORANGE			N.C	BLUE MAINS	N.C
9	10	BLUE (from transformer)					
1	2	N.C	BLACK	N.C	VIOLET		
3	4	YELLOW					
5	6	N.C			ORANGE		
7	8	VIOLET			N.C		
9	10	BROWN					

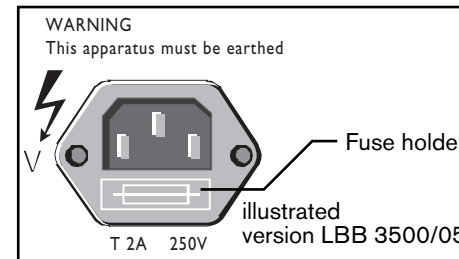
N.C. = Not Connected

FIG 4-4 Mains supply tally and mains socket

4.4.2 CCU Mains cable, plug and socket

The CCU is supplied with a 3-core mains cable terminated with a 2-pole mains plug with earth contacts (or earth pin LBB 3500/xxD) for connection to the mains supply, and at the other end with a CEE connector for connection to the mains socket on the CCU. For use in some countries it may be necessary to replace the mains cable with one of a local standard type.

- Live/brown
- Neutral/blue
- Earth/green yellow



WARNING: All units must be powered via an earthed mains outlet.

4.4.3 CCU Mains fuse rating

The CCU mains fuse is housed in the mains socket located at the rear of the unit (see opposite). Replacement fuses see Table 4-2:

Table 4-2: Mains voltage and Fuse ratings on delivery

Type No.	Voltage	Fuse	Nominal Power consumption (Watts)
LBB 3500/05	230 V	T-2A	175 W
LBB 3500/05 (D)	125 V	T-2,5A	
LBB 3500/15	230 V	T-4A	350 W
LBB 3500/15(D)	125 V	T-5A	
LBB 3500/35	230 V	T-4A	350 W
LBB 3500/35(D)	125 V	T-5A	
LBB 4106/00	230 V	T 4A	350 W
LBB 4106/00(D)	125 V	T 5A	
LBB 3508/00	230 V	T 2A	175 W
LBB 3508/00(D)	125 V	T 2.5A	

NOTE: (D) versions applicable for North American market only.



WARNING: Only replace with fuse of the same type (Rating and Breaking Capacity).

4.5 CCU Trunk Communication Board (TCB4)

All CCU's (LBB 3500/05, LBB 3500/15, LBB 3500/35) include an in-built 'Trunk Communication Board' (TCB4) (see FIG 4-3 and FIG 4-5). The board installed in CCU's type LBB 3500/15 and LBB 3500/35 provides the CCU's with two similar high speed serial RS 232 ports (Port 1 and Port 2). Port 1 is used for 'DIRECT' connection to a DCN control PC (default) and Port 2 is used for either test/diagnostics or camera control (default). The board housed in the CCU type LBB 3500/05 provides the CCU with ONLY one high speed serial RS 232 port (Port 1). This port is used for either automatic camera control (default) or for test and diagnostics purposes.



NOTE: CCU's with TCB3 boards, can be upgraded for use with TCB4 boards using the upgrade kit LBB 3519/20. For installation details refer to the Installation Instructions, supplied with the upgrade kit.

Key to symbols (FIG 4-5) :

- 1 Jumper X14 (See Chapter 4.5.3 (Table 4-4:))
- 2 S14 DIP-switches 1 - 8 (See Chapter 4.6)
- 3 S10 Push-button switch to reset the Central Control Unit during servicing.
- 4 Three LEDs (left to right) green/yellow/red. Normally the green/yellow LEDs flash in sequence, indicating the software is running. Red LED illuminates during system reset.
- 5 S9 DIP-switches 1 - 8 (See Chapter 4.5.2 (Table 4-3:))
- 6 Yellow LED indicates Digital Signal Processing (DSP) software is running.
- 7 Connector for multi-trunk board (used only in the multi-CCU)
- 8 Sockets for inserting flash EPROM (even)
- 9 Sockets for inserting flash EPROM (odd)
- 10 SRAM back-up battery 3.6V (life-time 5 years min.)
- 11 Jumper X13 (See Chapter 4.5.3 (Table 4-4:))
- 12 Fuse 3.15 amp (delayed)
- 13 Connector for multi-trunk board (used only in the multi-CCU)
- 14 Serial RS232 Port 1
- 15 Serial RS232 Port 2

4.5.1 Installation

1. See 'Safety Precautions' at the front of this manual.
2. DIP-switch S14 must be set, to configure the communication protocol and baud rate used on Port 1 and Port 2 (see Chapter 4.6).
3. DIP-switch S9 must be set to configure the boards functionality (see Chapter 4.5.2).
4. Jumpers X13 and X14 must be set (see Chapter 4.5.3).

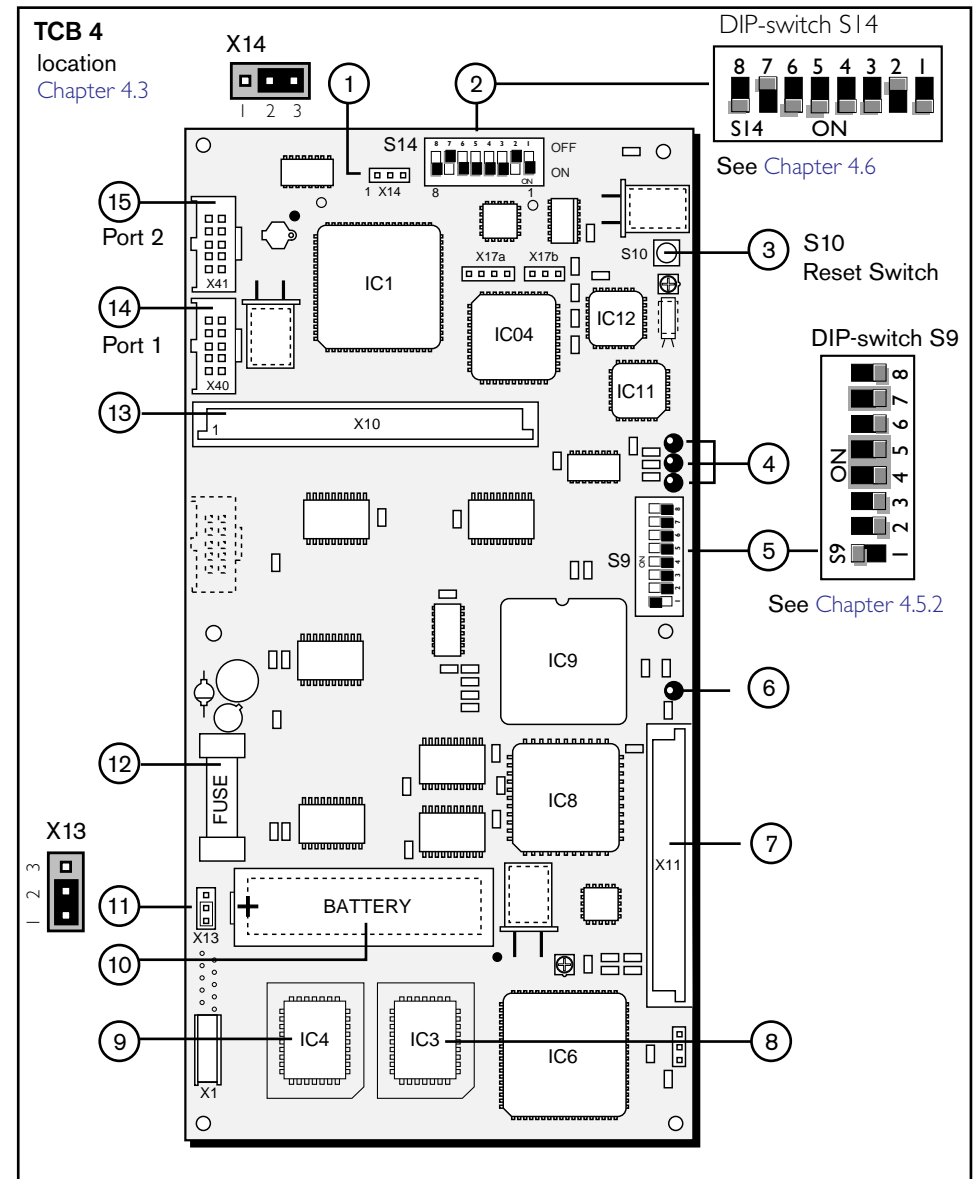


FIG 4-5 Layout 'Trunk Communication Board (TCB 4)

4.5.2 S9 DIP-Switch settings

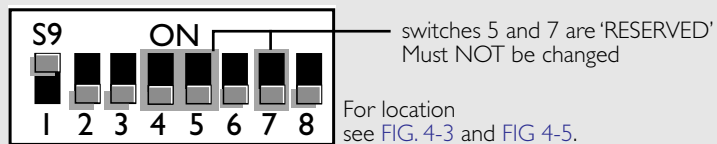
See FIG 4-5 for location, and Table 4-3: for functionality of the DIP-switches.

Table 4-3: S9 DIP-switch settings

TCB4		
SW 1	ON*	Chairman priority tone ON (default) .
	OFF	Chairman priority tone OFF
SW 2	ON	Audio 'Mix-Minus' mode activated in combination with SW3 = OFF
	OFF*	Normal Operation (default) .
SW 3	ON	Audio 'Insertion' mode activated in combination with SW2 = OFF
	OFF*	Normal Operation (default) .
SW 4	OFF*	Floor distribution ON (default) .
	ON	No floor distribution on unused language channels
SW 5	OFF	Reserved (IMPORTANT: must not be changed)
SW 6	ON	Active microphones and request will be permanently switched off if the priority function of the chairman unit is used. (default) .
	OFF*	Active microphones will be switched off temporarily if the priority function of the chairman unit is activated.
SW 7	OFF	Reserved (IMPORTANT: must not be changed)
SW 8	ON	Switching on the CCU will activate the BOOT software, this makes a new download possible. All memory settings will be erased and returns to the default settings. The unit addresses will not be erased.
	OFF*	Normal operation (default) .

* = default setting

DIP switch S9 (default settings)



4.5.3 Jumper settings

See FIG 4-5 for location, and Table 4-4: for functionality of the jumpers.

Table 4-4: Jumper settings

	Jumper	Default	Function
3	X13	1 & 2	Jumpered to provide SRAM Battery back-up Open when removing back-up battery. (Position 2 & 3)
7	X14	1 & 2	Watchdog active Open for service purposes. (Position 2 & 3)

4.6 CU Protocol and Serial Port settings

For location of DIP-switches see FIG 4-3 and FIG 4-5.

4.6.1 LBB 3500/05 Port 1 for Camera Control

In a single (stand-alone) CCU system only one COM-port (Port 1) is available: Default settings are;

- 8 data bits
- No parity check
- 1 Stop bit

Table 4-5: LBB 3500/05 Protocol settings

DIP-switch S14	Port 1	
	Switch DP-1	Switch DP-2
Not applicable	OFF	OFF
Terminal	OFF	ON
Not applicable	ON	OFF
Camera control*	ON	ON

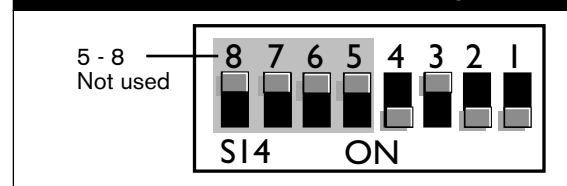
* default settings for LBB 3500/05

Table 4-6: LBB 3500/05 Baud rate settings

DIP-switch S14	Port 1	
	Switch DP-3	Switch DP-4
9.6 K	OFF	OFF
19.2 K*	OFF	ON
57.6 K	ON	OFF
115.2 K	ON	ON

* default settings for LBB 3500/05

DIP-switch S14: Port 1 (default settings)



4.6.2 LBB 3500/15 and LBB 3500/35 (TCB 4) - Port 1 : DCN Control PC Port 2 : Camera Control

In a single (stand-alone) CCU systems two serial COM-ports (Port 1 and Port 2) are available. Both ports can be individually configured. Default settings are;

- 8 data bits
- No parity check
- 1 Stop bit

Table 4-7: LBB 3500/15 and LBB 3500/15 Protocol settings

DIP-switch S14	Port 1		Port 2	
	Switch DP-1	Switch DP-2	Switch DP-5	Switch DP-6
Simple (Open interface)	OFF	OFF	OFF	OFF
Terminal	OFF	ON	OFF	ON
Full	ON*	OFF*	ON	OFF
Camera control	ON	ON	ON*	ON*

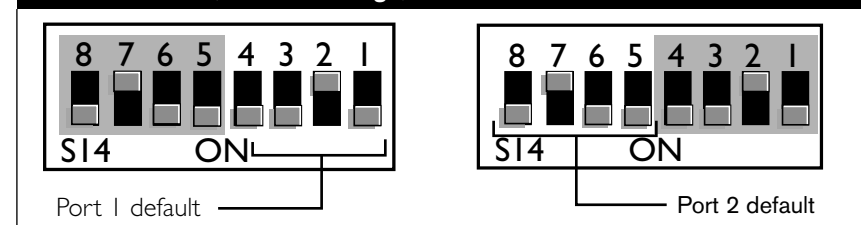
* default settings for LBB 3500/15 and LBB 3500/35

Table 4-8: LBB 3500/15 and LBB 3500/35 Baud rate settings

DIP-switch S14	Port 1		Port 2	
	Switch DP-3	Switch DP-4	Switch DP-7	Switch DP-8
9.6 K	OFF	OFF	OFF	OFF
19.2 K	OFF	ON	OFF*	ON*
57.6 K	ON	OFF	ON	OFF
115.2 K	ON*	ON*	ON	ON

* default settings for LBB 3500/15 and LBB 3500/35

DIP-switch S14 (default settings)



NOTE: It is possible to select 'Full' protocol on both Port 1 and Port 2. However this is NOT recommended due to processing power and memory limitations.

4.7 Multi-CCU card

The Multi-CCU card installed in the Central Control Unit LBB 3500/35 and LBB 3500/35(D) allows other Multi-CCU's (max.16) to be connected, thus extending the capacity of the DCN system. The multi-CCU card is connected and located on top of the Trunk Communication Board (TCB 4). See FIG 4-3 for location details.



NOTE: The Multi-CCU card is similar to the PC card used for Multi-CCU systems LBB 3511/00 (see also Chapter 5.4).

4.7.1 Installation (FIG 4-6)

The following steps are required to ensure correct operation:

1. Set the cards 'Slave' address only. Each Multi-CCU installed in a system (max.16) is required to have its own dedicated address. This address is assigned and selected on the Multi-CCU card by DIP-switch **S12**. See DIP-switch settings (Chapter 4.7.2).
2. Set Jumpers X24 and X32.

4.7.2 DIP-Switches S12 and S13

DIP-Switch S12

Table 4-9: DIP-switch S12

1	S12	DIP switches to define the card's 'Slave Address'. (default fixed positions 1, 2, 3 =OFF) (IMPORTANT: Must not be changed). Slave address is set by DIP-switches: 4, 5, 6, 7 and 8 (address 0 --31)
---	------------	---

1, 2 and 3 FIXED
DO NOT CHANGE !

Slave address use 4,5,6,7 and 8 only (address 0 - 31)

DIP-Switch S13

Table 4-10: DIP-switch S13

2	S13	DIP switches to define the card's I/O-address (04E0 HEX) (default: Fixed positions 1 =ON, 2=OFF, 3=OFF, 4=ON, 5=ON, 6=ON, 7=OFF, 8=OFF I/O address: 04E0 HEX (IMPORTANT: Default: do NOT be change).
---	------------	---

04E0 HEX

S13 ON

IMPORTANT: FIXED DEFAULT DO NOT CHANGE

4.7.3 Jumper settings

3. X32 Not placed (default)
4. X24 Placed



CAUTION: The units power supply poses hazards of electrical shock to personnel and damage to equipment. The unit should only be worked on by trained service technicians. When removing the housing to work inside the CCU, observe the precautions below:

1. To prevent personnel injury, first switch off the CCU and disconnect the power cable.
2. When installing or removing the TCB4, handle the card carefully by its edges to prevent damage.
3. Refer to 'Safety Precautions' at the front of this manual

4.7.4 LED indications

- 5 D1 (Yellow) Output port 1 indicator;
D2 (Green) Output port 1 indicator;
D3 (Red) Output port 1 indicator.
- 6 D4 (Yellow) Indicates the master state of the PC card,
D5 (Green) Indicates card has been initialized by the software,
D6 (Red) Indicates power-on.

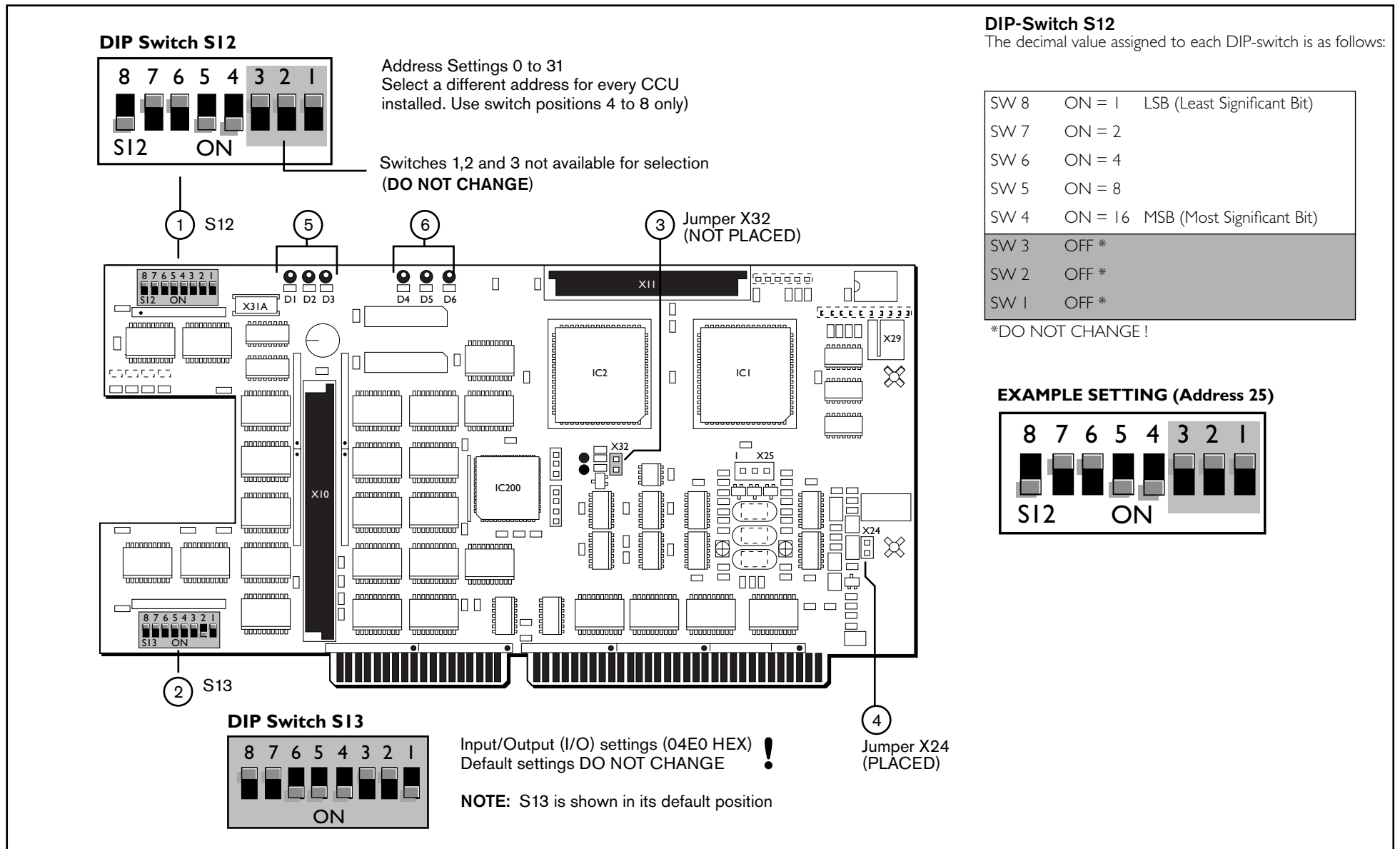


FIG 4-6 Multi-CCU PCB for CCU LBB 3500/35 (DIP-switch and jumper settings)

4.8 Connecting peripheral equipment to the CCU

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The Central Control Unit can connect to the following external equipment:

- Recording equipment (Recording floor only)
- Public address system
- Telephone coupler
- Mixing desk

The interconnection facilities located at the rear of the unit (FIG 4-7) are as follows:

1. Two Cinch-type sockets, Input (**In**) and Output (**Out**) for connection to a tape/cassette recorder (Rec.).
2. Two cinch-type sockets for Asymmetrical line Input (**In**).
3. Two cinch-type sockets for Symmetrical/Asymmetrical line Output (**Out**).

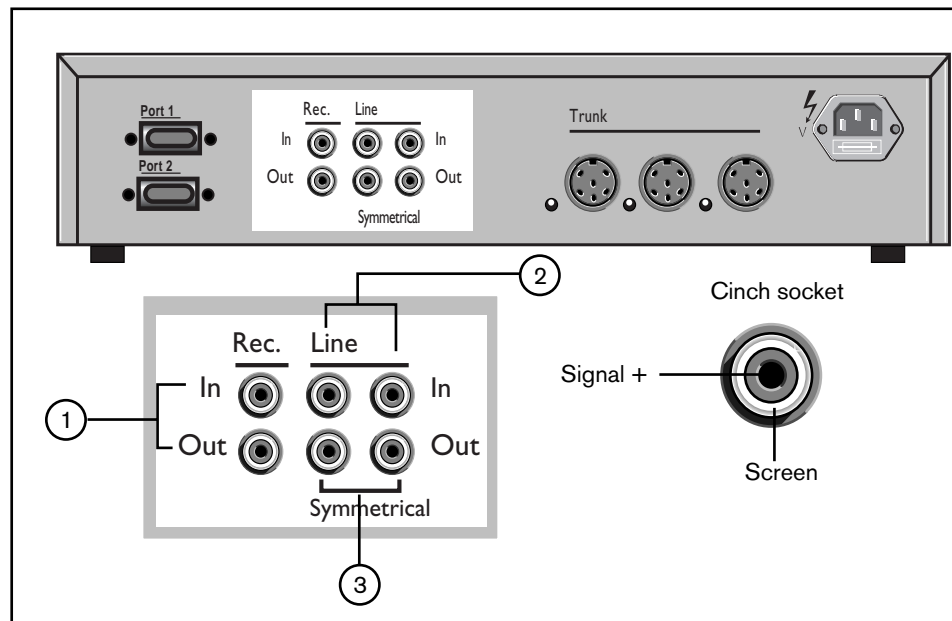


FIG 4-7 Connecting peripheral equipment

4.9 CCU Audio Routing Modes

To provide additional functionality in the CCU, the DCN software from release version 7.01 includes two new 'Audio Routing' modes - 'MIX-MINUS' and 'INSERTION' mode. Both modes are selected by setting DIP-switches **(S9)** on the TCB4 card located in the Central Control Unit CCU (see Chapter 4.5.2).

MIX-MINUS mode (FIG 4-8)

The main feature of this mode, is that audio signals connected to the 'Line-Input' of the CCU are no longer routed to the 'Line-Output' of the CCU. This feature is especially desired for the following applications:

1. Where a remote audio connection is made via a telephone coupler for connection to a remote delegate or specialist speaker.
2. To interconnect two DCN systems.

IMPORTANT! In the 'Mix Minus' mode, a permanent audio channel is used for 'Line-Input'. Therefore the number of available interpretation channels is one channel less than in the standard mode (i.e. 10 channels instead of 11 channels as available in 'Stand-alone' and 'Multi-CCU' systems).



NOTE: For recording the total audio signal (i.e. Floor + Line-Input) use an Audio Media Interface unit LBB 3508/00 on channel 0 (see Chapter 4.1.1).

Using this mode of operation, the audio connection is considerably improved, and avoids 'Echo' due to feedback as was experienced in the standard mode of operation.

FIG 4-8 gives an example of 'Audio Routing' in the CCU's and the external routing for connection of two DCN systems A and B.



NOTE: If connection is done via the Public Telephone Network, telephone couplers must be used (not shown in FIG 4-8).



Installation:

To set the CCU for the Mix-Minus mode Dip-switch 'S9' on the Trunk Communication Board must be set as follows:

DIP-switch S9

(See Chapter 4.5.2 (Table 4-4:))

Switch-2	Switch-3	Mode
Off	Off	Standard
On	Off	Mix-Minus

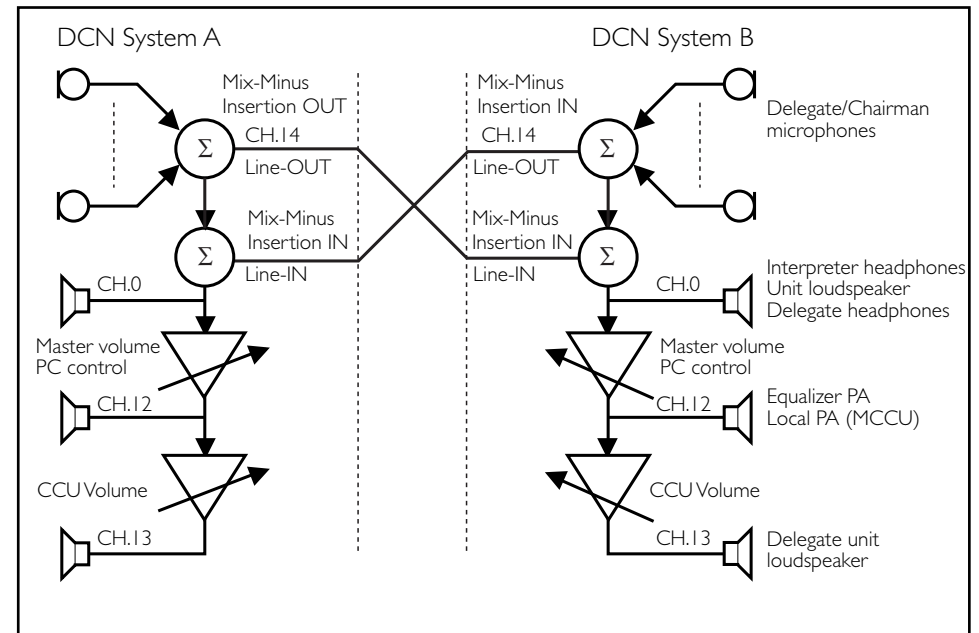


FIG 4-8 'MIX-MINUS' mode

4.9.1 Audio Routing INSERTION mode (FIG 4-9)

In the 'INSERTION' mode, the normal audio routing path in the CCU from added microphone signals to the loudspeakers of the delegate and chairman units is interrupted to allow connection of an external device for example - an audio mixer. The external audio device is connected between the 'Line-Output' and 'Line-Input' of the CCU.

FIG 4-9 shows the audio routing in the CCU and external device.

In the 'INSERTION' mode, a permanent audio channel is used for the 'Line-Input'. Therefore the number of available interpretation channels is one channel less than in the standard mode i.e. 10 channels instead of 11 channels in 'Stand-alone' and 'Multi-CCU' systems.



NOTES:

1. In INSERTION mode, recording of the 'Line-Input' signal via the recorder output of the CCU is no longer available.
2. For recording the total audio signal (i.e. Floor + Line-Input) use an Audio Media Interface unit LBB 3508/00 on channel 0 (see Chapter 4.11).



Installation:

To set the CCU for the 'INSERTION' mode DIP-switch 'S9' on the Trunk Communication Board (TCB 4) must be set as follows:

DIP-switch S9

(See Chapter 4.5.2 and Table 4-4:

Switch-2	Switch-3	Mode
Off	Off	Standard
Off	On	Insertion

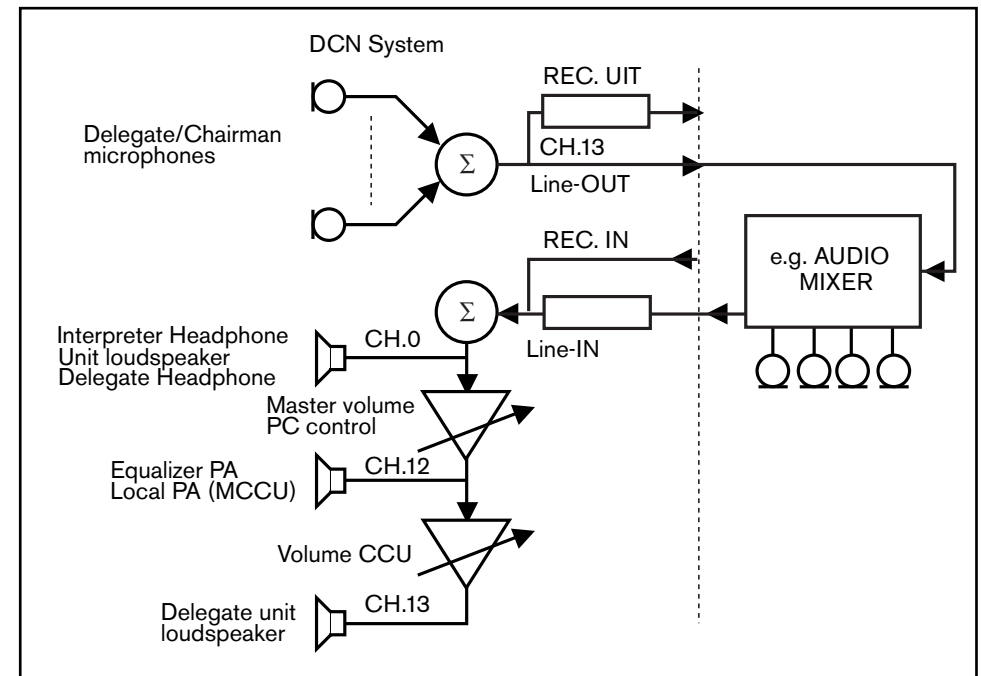


FIG 4-9 'INSERTION' mode

4.10 LBB 4106/00, LBB 4106/00D Extension power supply unit

The Extension power supply unit is remotely controlled by the CCU and enables systems to be extended. Used in combination with a central control unit, the unit is used to supply power for up to an additional 180* PCF points.

*The figure stated represents the number of units rated with a Power Consumption Factor (PCF) of 1. For further information regarding the Power Consumption Factor refer to [Chapter 10.1.1](#): "System design fundamentals".

The unit connects to the main trunk-line cabling using the loop-through cabling method and is switched on automatically when the CCU is switched on. A built-in trunk-line splitter enables the unit to be installed anywhere within the system cabling. All its outputs are protected against short circuit of the power supply lines.

Mounting

The unit can only be rack-mounted when two Extension power supply units LBB 4106/00 are used. The units are attached to each other using a supplied metal plate used to join the units together at the front and rear. Once joined the unit can be mounted using the mounting brackets supplied with each unit. Mounting the unit is similar to CCU mounting (see [Chapter 4.12](#)).

Controls and Indicators (see FIG 4-10):

1. Power On indicator (green LED).
2. 1 x Trunk-line outlet connector for loop-through connection** (without regeneration) of the trunk-line plus indicator (red LED) to indicate trunk-line overload. The outlet is protected against short circuit of the d.c. supply lines.
3. 2 x Tap-off outlet trunk-line cable connectors** (with regeneration)***. Each outlet includes an indicator (red LED) to indicate trunk-line overload. Each outlet is protected against short-circuit of the d.c. supply lines.
4. Euro-mains socket with in-built fuse (a.c. mains voltage selectable inside unit). Matching mains cable (1.7 m (5.5 ft.) (D-version 2.5 m (8.2 ft.) included).
5. 2 m (6.5 ft.) long cable terminated with a moulded 6-pole circular connector for connection to the DCN network cabling.
6. 3 indicators to indicate trunk-line overload (red LEDs).



Mains connection

- For mains voltage selection, fuse rating and mains cable and plug and socket connections refer to the Central Control Unit LBB 3500/xx. ([Chapter 4.4.1](#)). A mains tally, showing the connection details is visible on one side of the unit once the top cover is removed. The fuse ratings are the same as used for CCUs LBB 3500/15 and LBB 3500/35
- The unit must be powered via an earthed mains outlet.

** For connection of contribution, distribution, and interpretation units, incl. ext. power supplies.

*** For more information on regeneration see [Chapter 10.3](#).

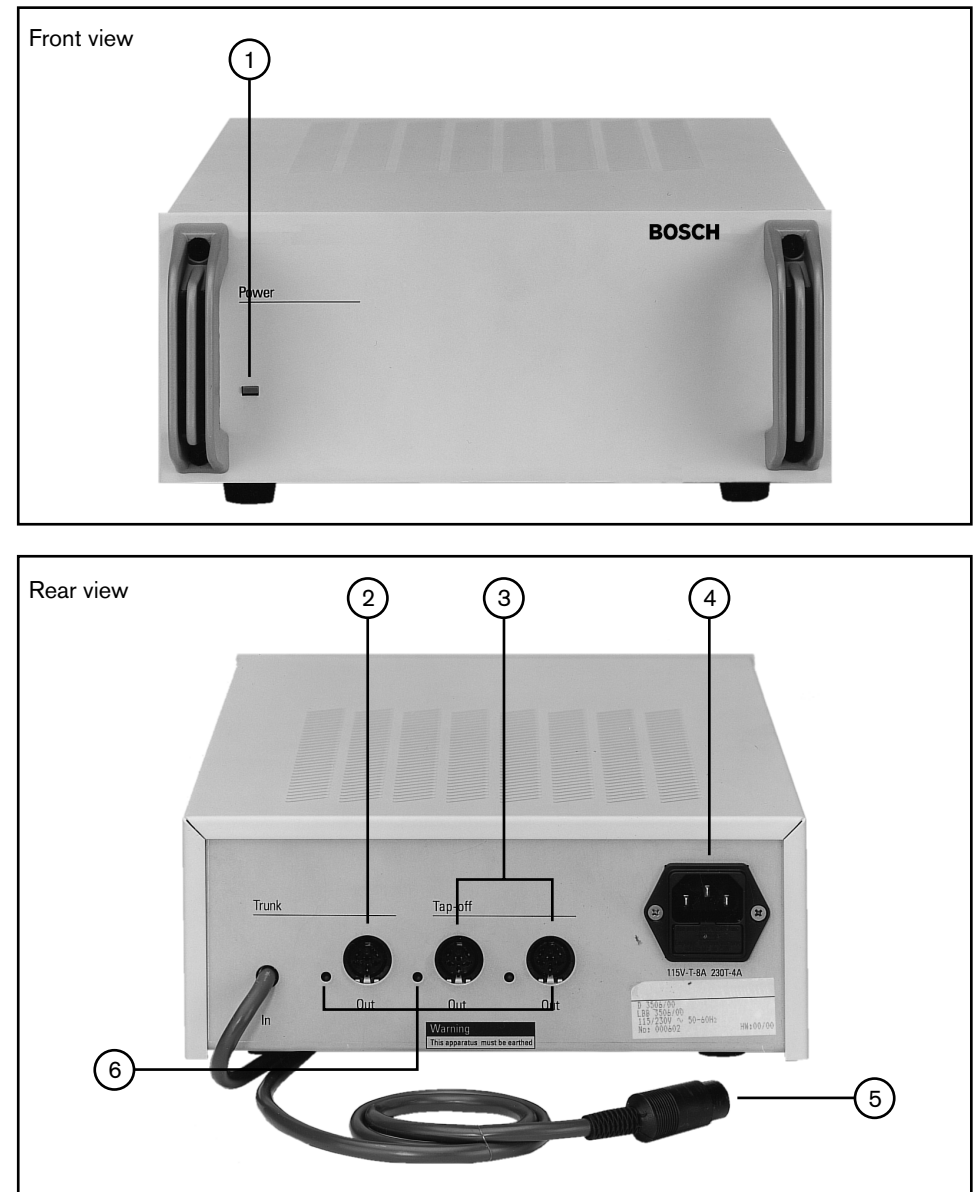


FIG 4-10 LBB 4106/00 Front and rear view Extension Power Supply unit

4.11 LBB 3508/00 & LBB 3508/00D Audio Media Interface and Power Supply Unit

The Audio Media Interface Unit is remotely controlled by the CCU and enables external analogue equipment to be connected to DCN's digital network - such as broadcast, recording, and sound distribution equipment. The unit is equipped with four Digital to Analogue converters with channel select switches for the selection of the floor or interpretation channels. The units built-in power supply for up to an additional 90* PCF points. Its built-in trunk-line splitter enables the unit to be connected to the trunk-line using the loop-through cabling method.

*The figure stated represents the number of units rated with a Power Consumption Factor (PCF) of 1. For further information regarding the Power Consumption Factor refer to [Chapter 10.1.1](#) "System design fundamentals".

The unit connects to the main trunk-line cabling using the loop-through method of cabling and is switched on automatically when the main Central Control Unit is switched on. The unit can be free-standing on a table top or with the use of brackets supplied with the unit ([Chapter 4.12](#)) can be mounted in to a 19" rack. Mounting the unit is similar to CCU mounting.

Controls and Indicators (see [FIG 4-11](#)):

1. Power On indicator (green LED).
2. 4 x 15-position rotary channel selector controls for Outputs 1, 2, 3 and 4.
3. 5-position output selector to select audio output for monitoring (Output 1 - 4 and off).
4. 6.3 mm stereo jack Headphone connector for audio monitoring.
5. 4 x 3-pin XLR male audio output sockets (balanced).
6. 1 x Trunk-line outlet connector for loop-through connection** (without regeneration) of the trunk-line plus indicator (red LED) to indicate trunk-line overload. The outlet is protected against short circuit of the d.c. supply lines.
7. 2 x Tap-off outlet trunk-line cable connectors*** (with regeneration)***. Each outlet includes an indicator (red LED) to indicate trunk-line overload. Each outlet is protected against short-circuit of the d.c. supply lines.
8. Euro mains socket (a.c. mains voltage selectable inside the unit) with built-in fuse. Mains cable 1.7 m (5.5 ft.) (D-version 2.5 m (8.2 ft.) long included).
9. 3 indicators to indicate trunk-line overload (red LEDs).
10. 2 m (6.5 ft.) long cable terminated with a moulded 6-pole circular connector for connection to the DCN Network Cable
11. 4 x audio output cinch-type sockets (Asymmetrical)

Mains connection

- For mains voltage selection, fuse rating and mains cable and plug and socket connections refer to the Central Control Unit LBB 3500/xx. ([Chapter 4.4.1](#)). A mains tally, showing the connection details is visible on one side of the unit once the top cover is removed. The fuse ratings are the same as used for the CCU LBB 3500/05.
- The unit must be powered via an earthed mains outlet.

** For connection of contribution, distribution, and interpretation units, plus ext. power supplies.

*** For more information on regeneration see [Chapter 10.3](#).

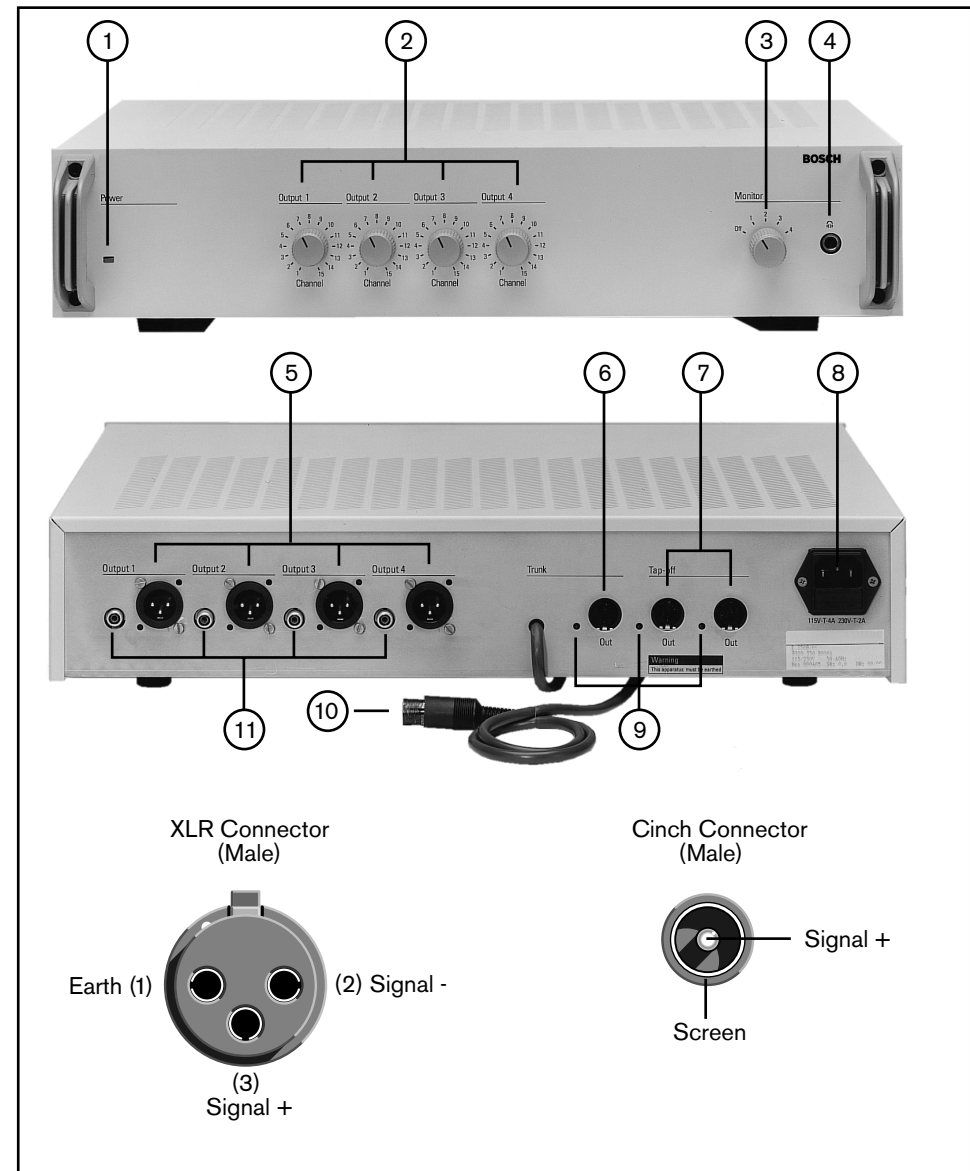


FIG 4-11 LBB 3508/00 Audio Media Interface Unit (Front and rear view)

4.12 19" Rack Mounting DCN Control Units

The Central Control Unit can be rack-mounted into a 19" rack or simply placed on a table-top or similar type surface close to the mains supply. When placing ensure that the unit has adequate ventilation (Refer to [Chapter 12](#)).

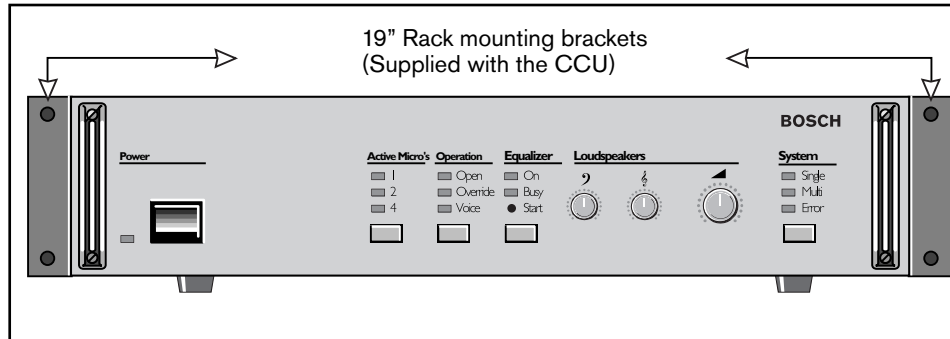



FIG 4-12 CCU with mounting brackets

Chapter 5. DCN Control using Personal Computers

To meet the ever changing requirements of modern conference venues and the demands of rapid technological changes, the DCN system has now integrated conference control and management with the flexibility and user friendliness of a personal computer. See [Chapter 1](#). Introduction.

5.1 Minimum Software and hardware requirements

Table 5-1: PC requirements

DCN Control PC
<p>For Windows 95, 98</p> <ul style="list-style-type: none"> • Pentium II processor or higher • 48 Mbytes of memory or more (at least 32 Mbytes) • Video card supporting at least VGA and SVGA resolutions, high or true colour • Hard disk with data access time <10 ms and 100 MB free disk space, after installation of Windows. • Ethernet network card for use in multi-PC systems • Free ISA slot for network card LBB 3510/00 or free RS-232 port for direct connection to CCU <p>Serial ports (RS-232) for connection to:</p> <ul style="list-style-type: none"> • Chip card encoder/reader • Label printer • Error logging • Printing microphone activity <p> NOTE: A PC with at least 4 serial ports is recommended if a direct CCU connection and Chip-card encoder is used.</p> <p>Parallel Printer Port for connection to printer</p> <p>Connections for:</p> <ul style="list-style-type: none"> • Keyboard • Mouse
<p>For NT 4.0, Windows 2000 or Windows XP Professional</p> <ul style="list-style-type: none"> • The same requirements as used for Windows 95 and 98 but with at least 64 MB of memory, 96 MB recommended, PC-card LBB 3510/00 NOT supported. • Free serial port for connection to CCU (baudrate 115,200 recommended). • For XP Pentium IV: 1.7 GHz and 256 MB RAM
<p>IMPORTANT:</p> <ol style="list-style-type: none"> 1. If a 'DIRECT' connection is made between the Control PC and the CCU, the operator has no connection to the PC for headphone or intercom handset. Additional DCN hardware is required for the operator if these functions are required. Use can be made of DCN table-top or flushmounted hardware depending on the requirements. 2. If the connection to the DCN control PC is via the PC-Network card, (installed in the DCN control PC) ONLY Windows 95 and 98 can be used.

5.2 LBB 3510/00 PC Network card

When installed into the 8-bit ISA-bus expansion slot of a personal computer (PC) running 'Windows' 95 or 98 operating system, the PC network card provides the interface between a PC and the 'DCN' system. The interface card includes a headphone socket for monitoring the floor and translation channels and an intercom handset socket for connection to an intercom handset used for vocal communication. When connected to the DCN network its input and outputs are optically isolated.



NOTE:

1. PC control is also possible via a 'DIRECT' serial link between a COM-port of the DCN control PC and Port 1 (default) or Port 2 of the CCU (LBB 3500/15, LBB 3500/35 only) when used in 'Single CCU mode'.
2. 'DIRECT' PC control in Multi-CCU systems requires a serial connection between a COM-port of the DCN control PC and a COM-port of the Master PC (OS/2) for Multi-CCUs.
3. Simultaneous use of the PC Network card and 'DIRECT' PC control is **NOT** possible

Cable and connectors (see FIG 5-1 and FIG 5-2):

1. 3.5 mm jack-socket for operator headphones.
2. Modular jack-socket for Intercom handset type LBB 3555.
3. 15-pole Sub-D type connector for connection to the DCN trunk-line.
4. ISA-bus (8-bit) connector
5. 2 m (6.5 ft.) long trunk-line input cable, terminated at one end with a 6-pole moulded circular connector (male) and at the other with a 15-pole D-sub plug (female) matching the 15-pole socket on the PCB (3).

Jumpers

X2 to select I/O address

X3 to select Interrupt Request Number (IRQ)

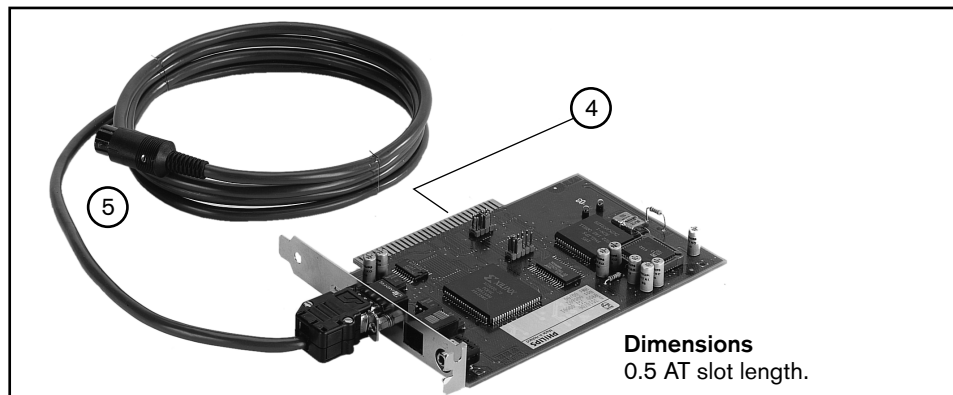


FIG 5-1 LBB 3510/00 Network card for PC

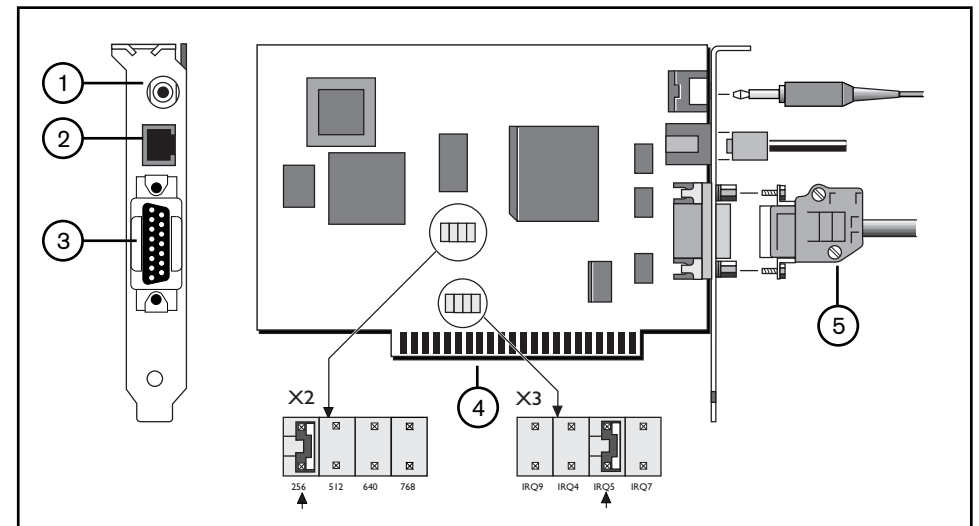


FIG 5-2 LBB 3510/00 layout Network card

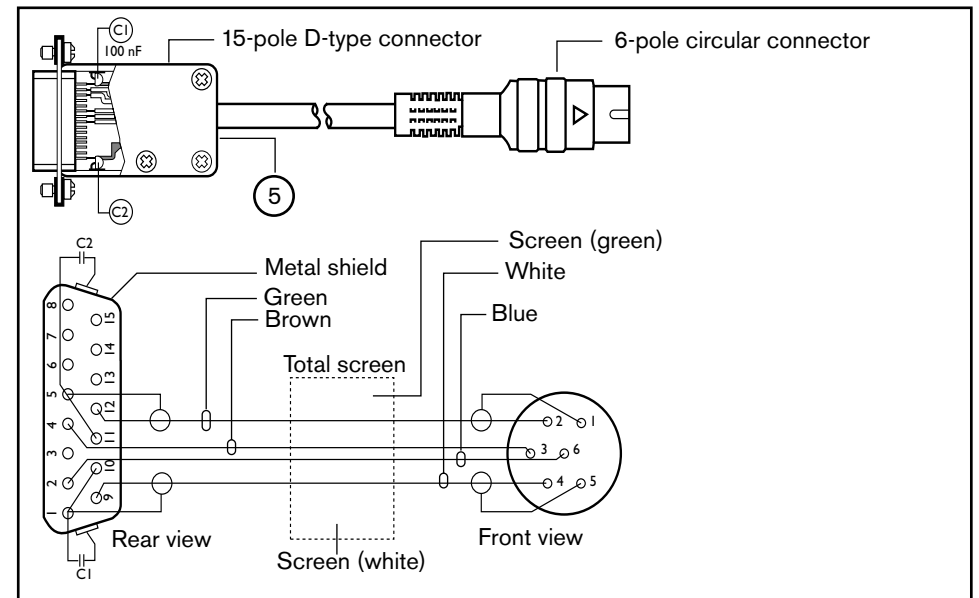


FIG 5-3 LBB 3510/00 Network cable assembly

5.2.1 Installing PC-Network card



WARNING: Before connecting a computer to the DCN network cabling, ensure the following: Refer also to the 'Safety Precautions' found at the front of this manual.

1. The mains supply is OFF.
2. The voltage selection switch on the computer is set for the correct mains voltage.
3. Refer to the manual supplied with your PC on how to install a PC-card. Follow the recommended installation procedures.

5.2.2 Interconnections PC Network card

Connecting PC to DCN cabling

- For connection via Network card see [FIG 5-4](#).
- For 'DIRECT' connection to a PC (no PC-Network card necessary) see [Chapter 5.2](#).



NOTE: The PC when fitted with a PC-Network card LBB 3510/00, as with all other DCN system units, can be connected to any convenient point within the trunk-line cabling. It can also be connected 'DIRECT' to a Central Control unit (<15 m) . However, when connecting a PC to the trunk-line cabling no loop-through facility is available. To bypass the PC, a trunk-splitter or Tap-off unit can be used. For more information see [Chapter 10](#).

Connecting Intercom handset

To connect an intercom handset to the PC, locate the Modular jack socket **(2)** on the PC-Network card LBB 3510/00), and connect the intercom's modular jack to it.

Connecting Headphones

For operator monitoring, connect headphones to the 3.5 mm jack socket **(1)** located on the PC Network card ([FIG 5-4](#)).

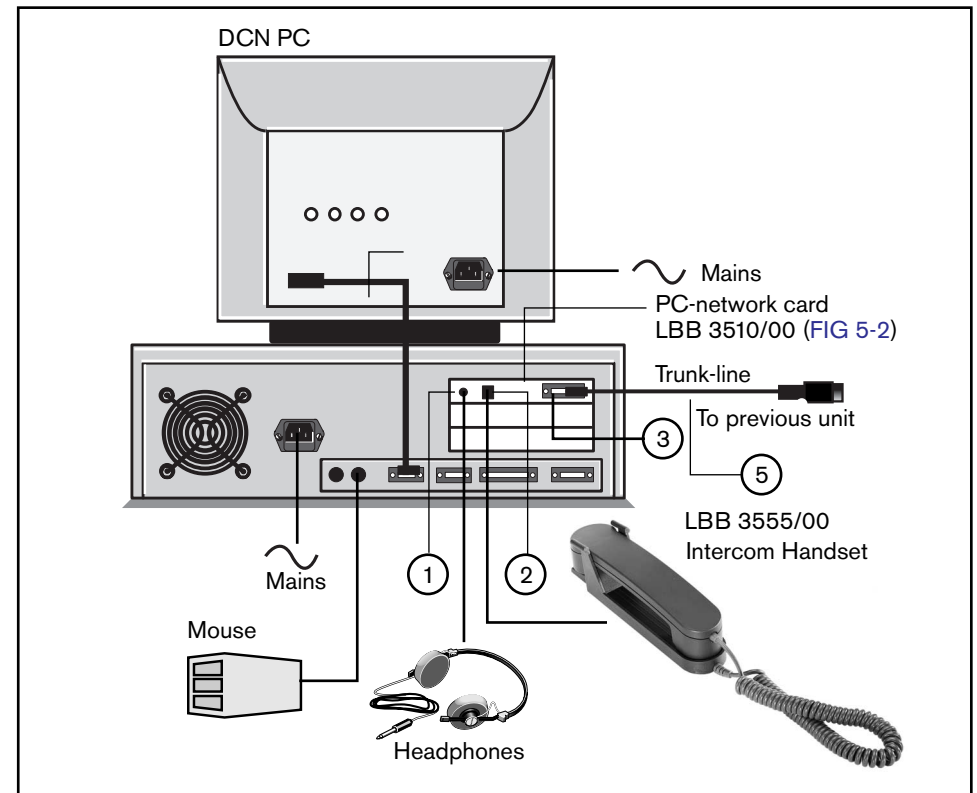


FIG 5-4 Interconnection Personal Computer (PC)

5.3 Windows and DCN Software modules

Refer to relevant DCN software manuals.

For available software packages refer to [Chapter 1](#).

5.4 LBB 3511/00 PC Card for Multi-CCU Systems

The interface card LBB 3511/00 provides the interface between a master PC and interconnected CCUs type LBB 3500/35 only. The card is installed in a 16-bit ISA-bus expansion slot of a OS/2 personal computer. The interface card should be installed in a secondary PC, running OS/2 (3.0 Warp or higher), and not in the main DCN system control PC. Once the card and the Multi-CCU software package LBB 3586 is installed, the PC performs as the master network provider for all CCUs connected to the Multi-CCU network. A maximum of 16 CCUs can be connected to the card, in closed loop configuration, using the two BNC connectors on the card. Standard 75 Ohm coaxial cable is used to make the connection.

Connectors (see FIG 5-5):

5. Input connection for External power-fail signal (active low).
6. Connector for Multi-trunk Out.
7. Pin connectors for test purposes only.
9. Connector for Multi-trunk In.
10. Card edge connector for connection to ISA-bus.

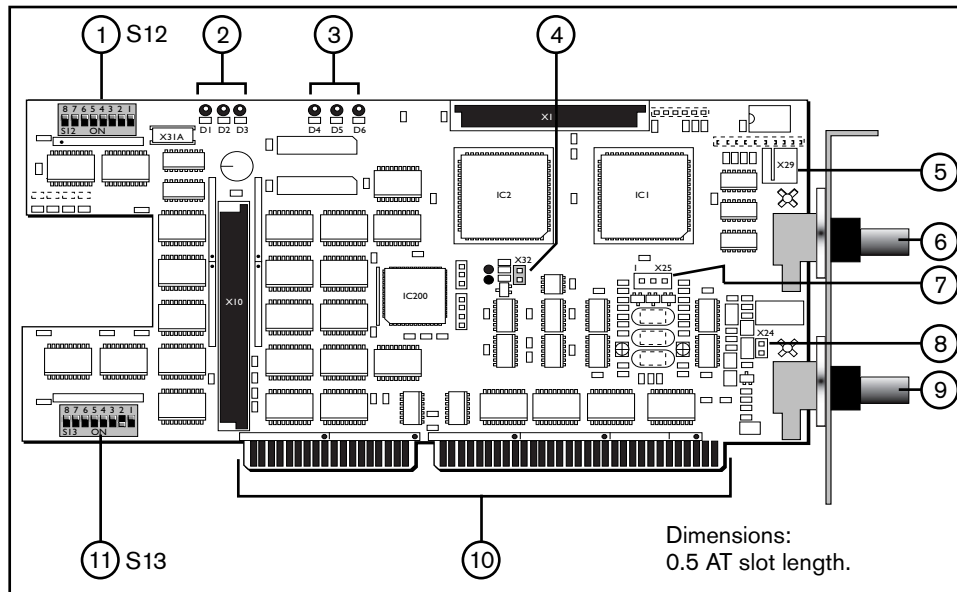


FIG 5-5 LBB 3511/00 Layout PC card for Multi-CCU systems

LED indications

- 2 D1 (Yellow) Output port 1 indicator;
- D2 (Green) Output port 1 indicator;
- D3 (Red) Output port 1 indicator.
- 3 D4 (Yellow) Indicates the master state of the PC card,
- D5 (Green) Indicates card has been initialized by the software,
- D6 (Red) Indicates power-on.

Jumpers

- 4 X32 When placed (indicated by LED D4) the Multi-CCU board is in its master state (default: placed).
- 8 X24 Not placed

DIP-switches (see Chapter 5.4.2)

- 1 S12 DIP-switches 1 and 6 define the priority functionality for the chairman
1 = ON, 6 = OFF (default settings)
(default 2, 3, 4, 5, 7 and 8 = OFF (**IMPORTANT:** Fixed, must **NOT** be changed)).
- 11 S13 Defines the cards I/O address
(default 1 = OFF, 2 = ON, 3 = OFF, 4 = OFF, 5 = OFF, 6 = OFF, 7 = OFF, 8 = OFF)
I/O address on delivery: 0200 HEX

5.4.1 Installing PC-Card for Multi-CCU systems



WARNING: Before connecting a computer to the DCN network cabling, ensure the following: Refer also to the 'Safety Precautions' found at the front of this manual.

1. The mains supply is OFF.
2. The voltage selection switch on the computer is set for the correct mains voltage.
3. Refer to the manual supplied with your PC on how to install a PC-card. Follow the recommended installation procedures.

The following steps are required to ensure correct operation:

1. Set the cards I/O address. The card installed in the PC is required to have its own dedicated address. This address is assigned on the PC card for Multi-CCU systems by DIP-switch (**S13**). See Chapter 5.4.2.
2. Set the cards functionality using DIP-switch (**S12**). See DIP-switch settings Chapter 5.4.2.
3. Set Jumpers X24 (**8**) and X32 (**4**) accordingly

5.4.2 LBB 3511/00 DIP-switch S12 and S13 settings

For location details see FIG 5-5

DIP-switch S12 : Assign cards digital input (0 - 31)
 DIP-switch S13 : Assign cards I/O (Input/Output) address (04E0 HEX)

DIP-switch S12

IP switches to define the card's 'digital input'.

Table 5-2: DIP-switch S12

LBB 3511/00 PC-card for Multi-CCU systems		
SW 1	ON OFF	Chairman priority tone ON (default) Chairman priority tone OFF
SW 2	OFF	Reserved for card's Master Address (IMPORTANT: must NOT be changed)
SW 3	OFF	Reserved for card's Master Address (IMPORTANT: must NOT be changed)
SW 4	OFF	Reserved for card's Master Address (IMPORTANT: must NOT be changed)
SW 5	OFF	Reserved for card's Master Address (IMPORTANT: must NOT be changed)
SW 6	ON OFF	Active microphones and requests will be permanently switched OFF if the priority function of the chairman's unit is activated. Active microphones will be switched OFF temporarily if the priority function of the chairman's unit is activated (default)
SW 7	OFF	Reserved for card's Master Address (IMPORTANT: must NOT be changed)
SW 8	OFF	Reserved for card's Master Address (IMPORTANT: must NOT be changed)

DIP-switch S13

Table 5-3: DIP-switch S13

LBB 3511/00 PC-card for Multi-CCU systems				
DIP-switches to define the cards I/O address (default: 0200 HEX)				
I/O address	0100 HEX	0140 HEX	0200 HEX	0280 HEX
SW 1	OFF	OFF	OFF	OFF
SW 2	OFF	OFF	ON	ON
SW 3	ON	ON	OFF	OFF
SW 4	OFF	OFF	OFF	ON
SW 5	OFF	ON	OFF	OFF
SW 6	OFF	OFF	OFF	OFF
SW 7	OFF	OFF	OFF	OFF
SW 8	OFF	OFF	OFF	OFF

Actual address settings DIP switch S13	
<p>Address (0100HEX)</p> <p>DIP-SWITCH S13</p>	<p>Address (0140HEX)</p> <p>DIP-SWITCH S13</p>
<p>Address (0200HEX) (default)</p> <p>DIP-SWITCH S13</p>	<p>Address (0280HEX)</p> <p>DIP-SWITCH S13</p>

NOTES:

- Available addresses (HEX): 0100, 0140, 0200 (default), 0280.
These addresses must be set with the DIP-switches and in the Config.sys file of the OS/2 PC.
- Available interrupts IRQ: 3, 4, 5, 7, 9, 10 (default) and 12.

NOTE: These interrupts must be set in the Config.sys file of the OS/2 PC.

5.5 Connection PC to CCU

Two methods for connecting the DCN Control PC to the CCU are available:

1. 'DIRECT' connection from a serial COM-port of the DCN Control PC to the serial COM-port of the CCU (not applicable for CCU type LBB 3500/05).
2. Using PC-Network card LBB 3510/00. (see Note 2). For installation details see [Chapter 5.2](#).



NOTES:

1. This function is only possible when the 'Windows® 95 or 98' operating system installed on the DCN Control PC. It is NOT possible when running under the 'Windows® NT 4.0 and 'Windows® 2000 operating systems.
2. Simultaneous use of the PC-Network card LBB 3510/00 and 'DIRECT' PC control is NOT possible.

The examples shown in this chapter are:

1. SINGLE-CCU system with control PC and Camera control
2. Multi-CCU System with control PC and Camera control

For further information refer to [Chapter 10](#). Installation techniques

EXAMPLE I: SINGLE-CCU system with control PC and Camera control

IMPORTANT: The LBB 3510/00 PC Network card CANNOT be used in a PC running Windows NT 4.0 or 2000.

Simultaneous use of the PC-Network card and 'DIRECT' connection is **NOT** possible.

NOTES:

1. When using the 'DIRECT' method the functions of the PC-Network card are NOT available (i.e. headphones and intercom). These functions are available on the DCN Concentus units or with the 'Multi-purpose connection unit' LBB 3540/15.
2. The baud-rate setting of the PC COM-port and the corresponding CCU Port must be the same. If a different setting is required this setting must be selected accordingly:

CCU: DIP-switch S14 on TCB4.

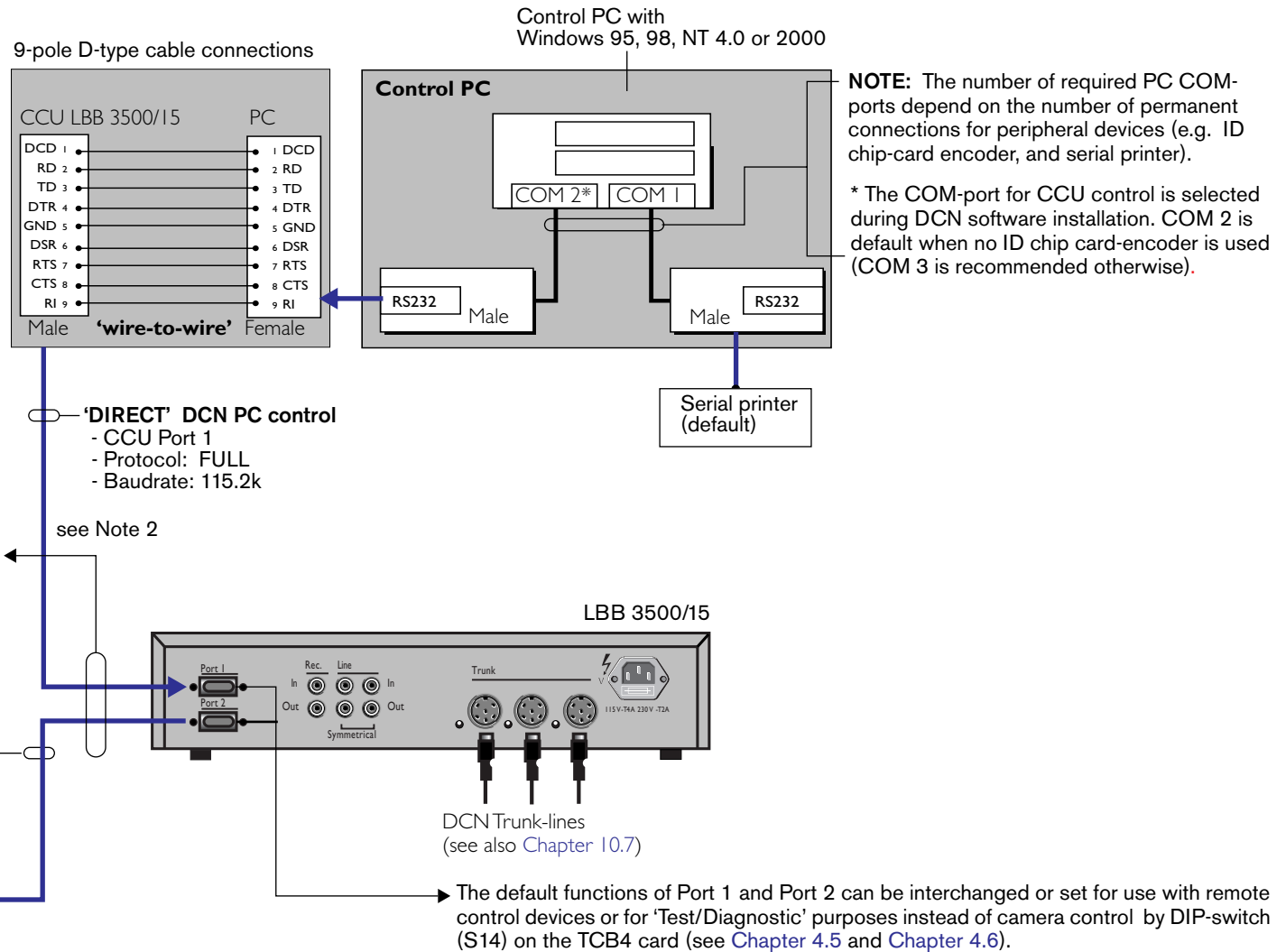
PC: During DCN software installation or in the `dcn.ini` file

CAMERA control with Allegiant video switcher
 - CCU Port 2
 - Protocol: CAMERA
 - Baudrate: 19.2k

Allegiant video switcher



See Chapter 6.. for installation details



NOTE: The number of required PC COM-ports depend on the number of permanent connections for peripheral devices (e.g. ID chip-card encoder, and serial printer).

* The COM-port for CCU control is selected during DCN software installation. COM 2 is default when no ID chip card-encoder is used (COM 3 is recommended otherwise).

FIG 5-6 Example SINGLE-CCU system with control PC and Camera control

EXAMPLE 2: Multi-CCU System with control PC and Camera control

IMPORTANT: The LBB 3510/00 PC Network card CANNOT be used in a PC running Windows NT 4.0 or 2000.

Simultaneous use of the PC-Network card and 'DIRECT' connection is **NOT** possible.

NOTES:

- When using the 'DIRECT' method the functions of the PC-Network card are NOT available (i.e. headphones and intercom). These functions are available on the DCN Centurus units or with the 'Multi-purpose connection unit' LBB 3540/15.
- The baud-rate setting of the Master CCU PC port and the corresponding Control PC port must be the same. The available baud rate settings are 9600, 19200, 38400, 57600 and 115200. Baud rate setting on the Master CCU PC must be set in the CCU_CFG file (SERIAL SPEED | <baud-rate>). For more information refer to the README.TXT file of the Multi-CCU software LBB 3586. Baud-rate setting on the DCN Control PC must be set in the DCN.INI file. This file can be found in the WINDOWS or WINNT directory.

```
[Server]
SerialLink=Yes
[Serial Link]
ComPort=1
Baudrate=<Baudrate>
FullProtocol=Yes
```

Control PC requirements:

- Windows 95, 98, NT 4.0 or 2000
- Start-up software LBB 3590.
- DCN software application modules as required.

'DIRECT' DCN PC control

- Master CCU Port 1
- Protocol: FULL
- Baudrate: 115.2k

The COM-port for Master CCU control is selected during software installation. Select COM 1.
By default an ID-chip card encoder is connected to COM 2. COM 2 settings can be changed in the dcn.ini file (see Table 5-11).

Master CCU PC requirements:

- OS/2 version 3.0 Warp or higher
- Multi-CCU software LBB 3586
- UPS (Uninterrupted Power Supply) recommended

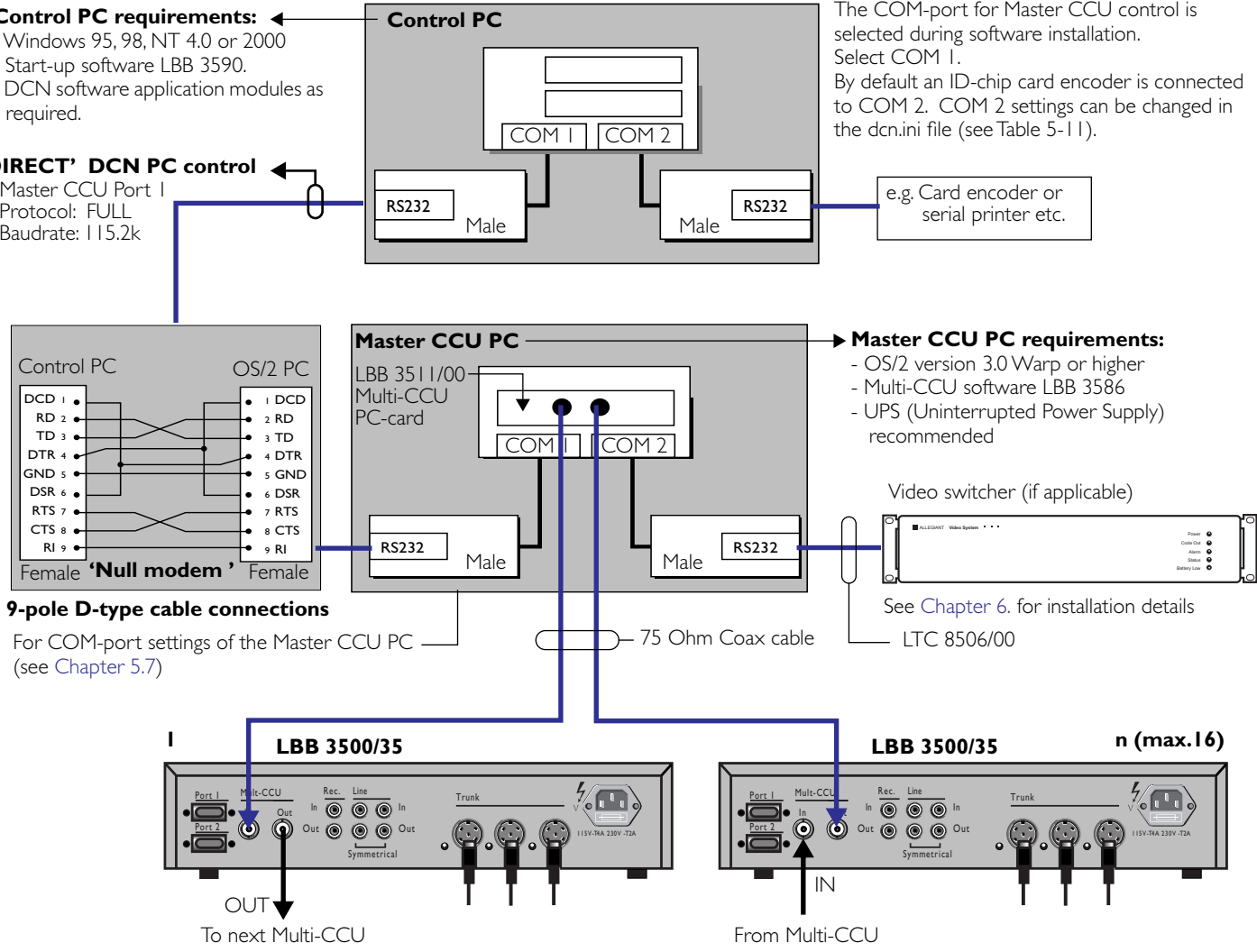


FIG 5-7 Multi-CCU System with control PC and Camera control

5.6 PC NETWORK SYSTEM

The example below show a typical PC network installation providing more operator control positions. For more information refer to the software manual supplied with the System Installation software LBB 3585. A typical example of a PC Network system is given in [Chapter 10.7.1](#).

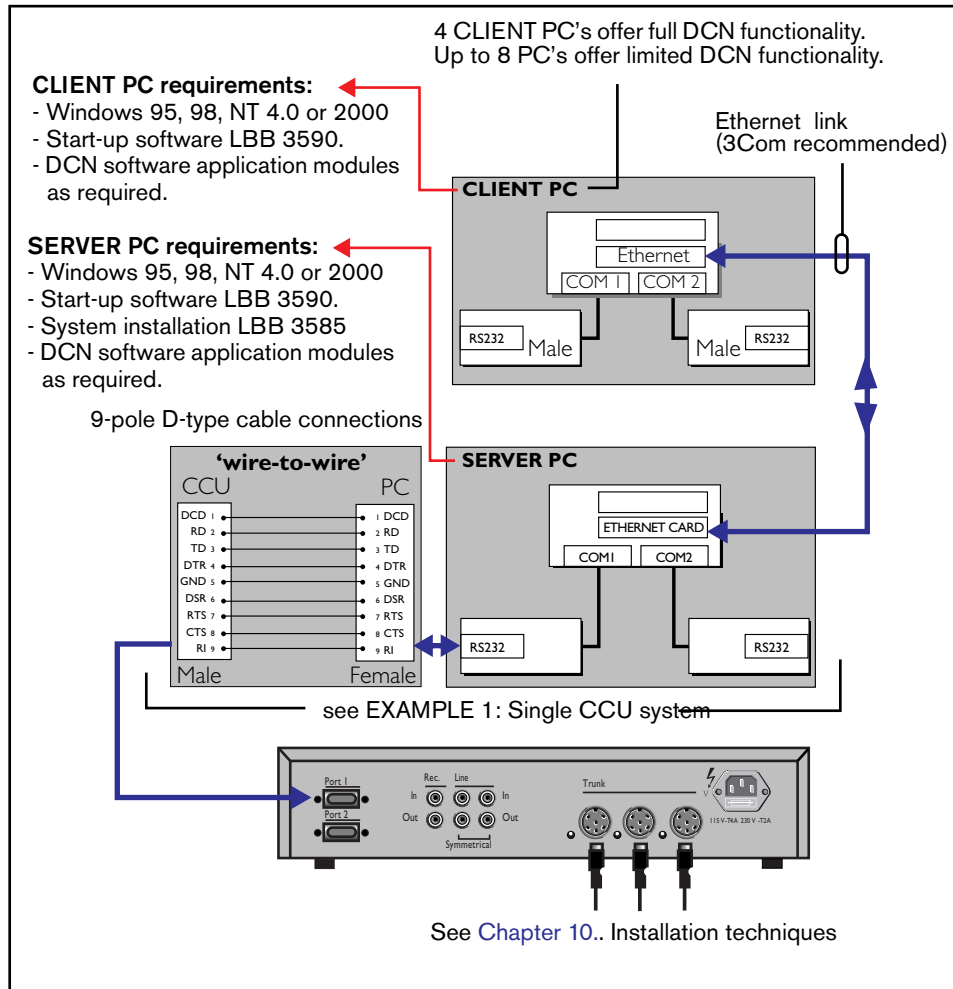


FIG 5-8 PC Network system

5.7 Software configuration Master CCU PC (OS/2) (Serial Ports 1 and 2)

In the CCU_CFG file , three items are reserved to control the serial COM-ports (Port 1 and Port 2) on the Master CCU (OS/2 PC) - 'SERIALPORT' , 'SERIALSPEED' and 'SERIALPROTOCOL' . Both ports can be used to connect a control PC, Remote Controller, Allegiant video switcher or other peripheral equipment to the Multi-CCU.

Table 5-4: Port number setting

SERIALPORT<number> <portnumber>		
number	1 or 2	First or second logic port
portnumber	0	Turns off serial communication (default when NOT found or invalid port given.
	1 - 2	Serial port number of the Master CCU PC (OS/2) (COM1 - COM2)

Table 5-5: Port baud-rate setting

SERIALSPEED<number> <baudrate>		
number	1 or 2	First or second logic port
baudrate	19200	Valid values are: 9600, 19200, 57600 and 115200. Any invalid value will be decreased to the nearest valid value.Values below 9600 are set to 9600.
NOTE: Baudrate 115200 is NOT supported on older PC's by OS/2.		

Table 5-6: Port Protocol setting

SERIALPROTOCOL<number> <type>		
number	1 or 2	First or second logic port
type	TERMINAL	The serial port is used with an ASCII interface (e.g terminal for 'Test' and 'Diagnostics' on the CCU).
	SIMPLE	The serial port is used with the 'SIMPLE' feature protocol.
	FULL	The serial port is used with the 'FULL' feature protocol.
	CAMERA	The serial port is used for connection to an 'Allegiant video switcher'.

Table 5-7: Example CCU_CFG file for 'DIRECT' PC and camera control

Location:	C:\DCN\MCCU (default)
	LOCATION CCU_0 LOCATION CCU_1 LOCATION CCU_2 LOCATION CCU_3 AUDIOMASTER CCU_1 CONTROLPC_CCU_0 INTERPRETER CCU_2 SERIALPORT1 2 SERIALSPEED1 19200 SERIALPROTOCOL1 CAMERA SERIALPORT2 1 SERIALSPEED2 115200 SERIALPROTOCOL2 FULL

Table 5-8: Single COM-port only (default COM 2)

Function	Single COM-port only (Port 1)
Remote control	SERIALPORT1 2 SERIALSPEED1 19200 SERIALPROTOCOL1 SIMPLE
Camera control (default)	SERIALPORT1 2 SERIALSPEED1 19200 SERIALPROTOCOL1 CAMERA
DCN PC control	SERIALPORT1 2 SERIALSPEED1 115200 SERIALPROTOCOL1 FULL

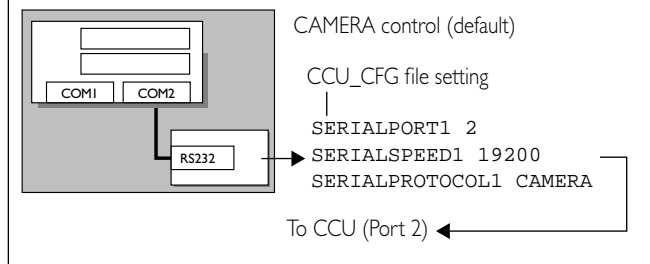


Table 5-9: Two COM-ports (Port 1 and Port 2)

COM-port functionality	Remote control	Camera control	DCN PC Control
Port 1: Remote control Port 2 Camera control	SERIALPORT2 1 SERIALSPEED2 19200 SERIALPROTOCOL2 SIMPLE	SERIALPORT1 2 SERIALSPEED1 19200 SERIALPROTOCOL1 CAMERA	Not applicable
Port 1: DCN PC control Port 2 Camera control	Not applicable	SERIALPORT1 2 SERIALSPEED1 19200 SERIALPROTOCOL1 CAMERA	SERIALPORT2 1 SERIALSPEED2 115200 SERIALPROTOCOL2 FULL
Port 1: DCN PC control Port 2 Remote control	SERIALPORT1 2 SERIALSPEED1 19200 SERIALPROTOCOL1 SIMPLE	Not applicable	SERIALPORT2 1 SERIALSPEED2 115200 SERIALPROTOCOL2 FULL

The settings for each COM-port shall be present in the CCU_CFG file: (see below)

CCU_CFG file settings

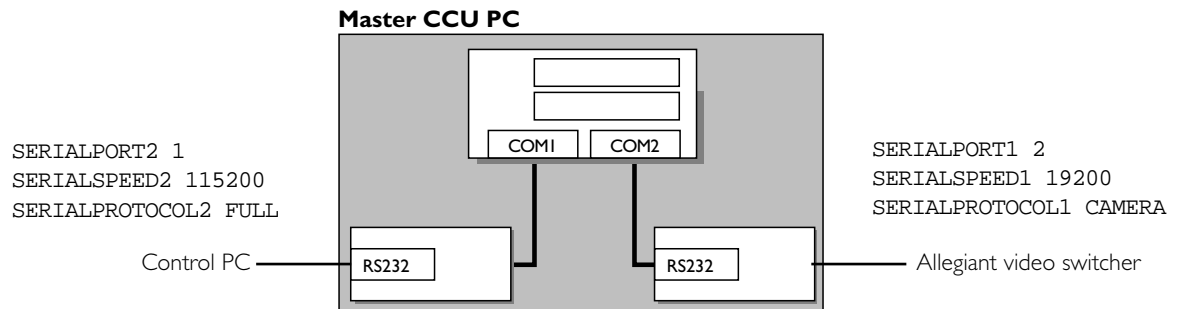


Table 5-10: DCN Printer and COM-ports for systems using PC-control with PC-Network card LBB 3510/00 (see Chapter 5.7 and Chapter 5.8)

		LASER PRINTER LPT-1 (IRQ=7)	MATRIX PRINTER COM 1 (IRQ = 4)	CARD ENCODER/ AUX.- INTERFACE COM 2 (IRQ=3)										
SOFTWARE PACKAGE		Windows® Print Manager	= ASCII + CR + LF	= ASCII + CR + LF										
LBB 3590	Startup	← Error messages Printing	← *1 Error logging Real-time Sent to Auxiliary	←										
LBB 3585	System Installation	← Seat numbers Printing ← Channel assignment Printing												
LBB 3571	Synoptic Micro- phone control	← Microphone activity List Printing	← *2 Microphone activity Real-time Printing	← *3 Microphone activity Real-time to Aux. (Camera ctrl.)										
LBB 3570	Microphone Management	← Microphone activity List Printing	← *2 Microphone activity Real-time Printing	← *3 Microphone activity Real-time to Aux. (Camera ctrl.)										
LBB 3580	Delegate Database	← Database List Printing	← *4 Label printing	← *5 Microphone activity Card encoder										
LBB 3575	Parliamentary Voting	← Voting file total* and individual* Printing ← (Real-time) Post-voting total* and individual* Printing	* Depends on which- mode selected											
LBB 3572	Simultaneous Interpretation	← Desk language assignment Auto Printing ← Channel language assignment Printing												
LBB 3573	Intercom switching	← File Printing												
LBB 3578	Attendance Registration	← List Registration Printing ← File Registration Printing												
<p>For COM and LPT cable connections, refer to FIG 5-9</p> <table border="1"> <thead> <tr> <th>LPT 1</th> <th>Default settings COM 1 and COM 2</th> </tr> </thead> <tbody> <tr> <td>8- bit standard</td> <td>Baud-rate = 9600 Data-bits = 8 Parity = None Flow control = None</td> </tr> <tr> <td colspan="2">* Change default COM-port assignments. (This can only be done in the dcn.ini file located in the 'Window® directory)</td> </tr> <tr> <td colspan="2">** Change COM-port settings: (Using the Port program found in the Windows Control Panel. Only applicable for Micactlogging)</td> </tr> <tr> <td>* 1 Not possible * 2 Not possible * 3 Not possible * 3 Not possible * 4 Not possible * 5 Not possible</td> <td>* 1 [Errorlogging] Comport=2 * 2 [MicActlogging] Prt-port=2 * 3 [MicActlogging] Comport=1 ** Baudrate - 19200 * 4 [Label printing] Comport=2 * 5 [CardEncoding] Comport=1</td> </tr> </tbody> </table>					LPT 1	Default settings COM 1 and COM 2	8- bit standard	Baud-rate = 9600 Data-bits = 8 Parity = None Flow control = None	* Change default COM-port assignments. (This can only be done in the dcn.ini file located in the 'Window® directory)		** Change COM-port settings: (Using the Port program found in the Windows Control Panel. Only applicable for Micactlogging)		* 1 Not possible * 2 Not possible * 3 Not possible * 3 Not possible * 4 Not possible * 5 Not possible	* 1 [Errorlogging] Comport=2 * 2 [MicActlogging] Prt-port=2 * 3 [MicActlogging] Comport=1 ** Baudrate - 19200 * 4 [Label printing] Comport=2 * 5 [CardEncoding] Comport=1
LPT 1	Default settings COM 1 and COM 2													
8- bit standard	Baud-rate = 9600 Data-bits = 8 Parity = None Flow control = None													
* Change default COM-port assignments. (This can only be done in the dcn.ini file located in the 'Window® directory)														
** Change COM-port settings: (Using the Port program found in the Windows Control Panel. Only applicable for Micactlogging)														
* 1 Not possible * 2 Not possible * 3 Not possible * 3 Not possible * 4 Not possible * 5 Not possible	* 1 [Errorlogging] Comport=2 * 2 [MicActlogging] Prt-port=2 * 3 [MicActlogging] Comport=1 ** Baudrate - 19200 * 4 [Label printing] Comport=2 * 5 [CardEncoding] Comport=1													

Table 5-11: DCN Printer and COM-ports for systems using 'DIRECT' PC control (see Chapter 5.7 and Chapter 5.8)

		LASE RPRINTER LPT1 (IRQ=7)	MATRIX PRINTER COM 1 (IRQ = 4)	CARD ENCODER/ AUX.- INTERFACE COM 2 (IRQ=3)	CENTRAL CONTROL UNIT COM 3 (IRQ=* (free IRQ))															
SOFTWARE PACKAGE		Windows® Print Manager	= ASCII + CR + LF	= ASCII + CR + LF																
LBB 3590	Startup	← Error messages Printing	← *1 Error logging Real-time Sent to Auxiliary	←																
LBB 3585	System Installation	← Seat numbers Printing ← Channel assignment Printing		←																
LBB 3571	Synoptic Micro- phone control	← Microphone activity List Printing	← *2 Microphone activity Real-time Printing	← *3 Microphone activity Real-time to Aux. (Camera ctrl.)																
LBB 3570	Microphone Management	← Microphone activity List Printing	← *2 Microphone activity Real-time Printing	← *3 Microphone activity Real-time to Aux. (Camera ctrl.)																
LBB 3580	Delegate Database	← Database List Printing	← *4 Label printing	← *5 Chip card encoder																
LBB 3575	Parliamentary Voting	← Voting file total* and individual* Printing ← (Real-time) Post-voting total* and individual* Printing	* Depends on which- mode selected	<p>For COM and LPT cable connections, refer to FIG 5-9</p> <table border="1"> <thead> <tr> <th>LPT1</th> <th>Default settings COM 1 and COM 2</th> <th>Default settings COM 3</th> </tr> </thead> <tbody> <tr> <td>8- bit standard</td> <td>Baud-rate = 9600 Data-bits = 8 Parity = None Flow control = None</td> <td>Baud-rate = 9600 Data-bits = 8 Parity = None Flow control = HW</td> </tr> <tr> <td colspan="2">* Change default COM-port assignments. (This can only be done in the dcn.ini file located in the Window® directory)</td> <td>* COM-port selected during software installation. (Can be changed in the dcn.ini file located in the Window® directory)</td> </tr> <tr> <td colspan="3">** Change COM-port settings: (Using the Port program found in the Windows Control Panel. Only applicable for Micactlogging)</td> </tr> <tr> <td>* 1 Not possible * 2 Not possible * 3 Not possible * 3 Not possible * 4 Not possible * 5 Not possible</td> <td>* 1 [Errorlogging] Comport=2 * 2 [MicActlogging] Prt-port=2 * 3 [MicActlogging] Comport=1 ** Baudrate - 19200 * 4 [Label printing] Comport=2 * 5 [CardEncoding] Comport=1</td> <td></td> </tr> </tbody> </table>		LPT1	Default settings COM 1 and COM 2	Default settings COM 3	8- bit standard	Baud-rate = 9600 Data-bits = 8 Parity = None Flow control = None	Baud-rate = 9600 Data-bits = 8 Parity = None Flow control = HW	* Change default COM-port assignments. (This can only be done in the dcn.ini file located in the Window® directory)		* COM-port selected during software installation. (Can be changed in the dcn.ini file located in the Window® directory)	** Change COM-port settings: (Using the Port program found in the Windows Control Panel. Only applicable for Micactlogging)			* 1 Not possible * 2 Not possible * 3 Not possible * 3 Not possible * 4 Not possible * 5 Not possible	* 1 [Errorlogging] Comport=2 * 2 [MicActlogging] Prt-port=2 * 3 [MicActlogging] Comport=1 ** Baudrate - 19200 * 4 [Label printing] Comport=2 * 5 [CardEncoding] Comport=1	
LPT1	Default settings COM 1 and COM 2	Default settings COM 3																		
8- bit standard	Baud-rate = 9600 Data-bits = 8 Parity = None Flow control = None	Baud-rate = 9600 Data-bits = 8 Parity = None Flow control = HW																		
* Change default COM-port assignments. (This can only be done in the dcn.ini file located in the Window® directory)		* COM-port selected during software installation. (Can be changed in the dcn.ini file located in the Window® directory)																		
** Change COM-port settings: (Using the Port program found in the Windows Control Panel. Only applicable for Micactlogging)																				
* 1 Not possible * 2 Not possible * 3 Not possible * 3 Not possible * 4 Not possible * 5 Not possible	* 1 [Errorlogging] Comport=2 * 2 [MicActlogging] Prt-port=2 * 3 [MicActlogging] Comport=1 ** Baudrate - 19200 * 4 [Label printing] Comport=2 * 5 [CardEncoding] Comport=1																			
LBB 3572	Simultaneous Interpretation	← Desk language assignment Auto Printing ← Channel language assignment Printing																		
LBB 3573	Intercom Switching	← File Printing																		
LBB 3578	Attendance Registration	← List Registration Printing ← File Registration Printing																		

5.8 Connecting Peripheral devices

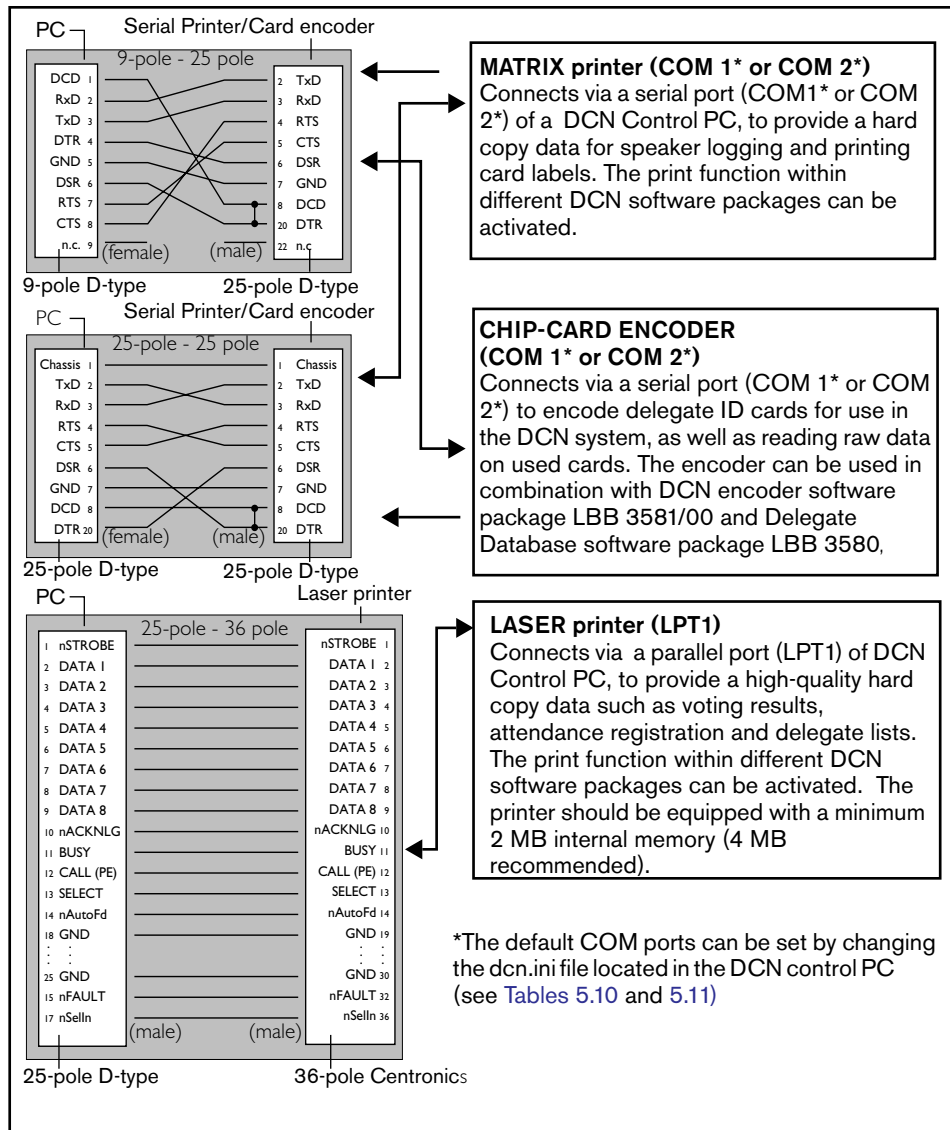


FIG 5-9 Connecting Peripheral devices

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Chapter 6. DCN Camera Control

The 'DCN Automatic Camera Control (DACC) directs video cameras toward speaking conference participants (e.g. delegates chairman etc.) to display them on a monitor. The DACC has two possibilities to connect cameras and monitors to the system.

- Via Allegiant Video switcher (AVS) to connect more than one camera and monitor.
- Direct Camera Control (DCC) to connect one camera and one monitor.

6.1 Allegiant Video Switcher

To provide 'DCN' Automatic Camera Control Allegiant Video switchers (FIG 6-1) and their associated equipment are used. For use in DCN stand-alone or PC operator controlled systems, the Video switcher in combination with the relevant software modules allows video cameras to be configured for switching and directing towards speaking conference participants (i.e. delegates, chairman etc.) for display on monitor screens.

The Allegiant Video Switchers control systems and control keyboards are controlled via the DCN software and programmable via a combination of the Allegiant keyboard and DCN GUI software modules for DACC in Stand-alone and PC-controlled systems. The maximum number of video inputs supported by the DCN software is 256.

The following table gives the range of applicable Allegiant Video Switchers.

Series	No. of Video inputs	No. of video outputs	Max. No. of keyboards
LTC 8100	8	2	2
LTC 8200	16	5	4
LTC 8300	32	6	4
LTC 8500	64	8	8
LTC 8600	128	16	16
LTC 8800	256	64	32

The Video Switcher series LTC8200 for example provides 16 camera inputs, and 5 monitor outputs. Using the Video switchers signal distribution ports, connection to on-site receiver/drivers (AutoDome™ camera's with pan/tilt motors), provide operator control of pan, tilt, zoom, multiple pre-fix positions, four auxiliaries, auto-pan and random scan.

The following table provides a survey of type numbers for the range of compact (one bay) Allegiant video switchers:

Series	19" rack height	European version	US version (120 VAC)
LTC 8100	1U	LTC 8100/50	LTC 8100/60
LTC 8200	1U	LTC 8200/50	LTC 8200/60
LTC 8300	2U	LTC 8300/50	LTC 8300/60

Refer to the CCTV Systems Data Book for Allegiant Video switchers, versions LTC 8500, LTC 8600 and LTC 8800.



NOTE: All Allegiant switchers shall have firmware 7.2x or higher.

6.1.1 Allegiant Switcher Control Keyboards

At least one keyboard is required for manual control and programming of the Allegiant switcher. Using the keyboard enables camera preset positions to be defined, manual override of automatic positions and picture selection. The recommended control keyboard is the LTC 8555 with variable speed joystick and reduced size.

6.1.2 Cameras and Monitors

A combination of fixed and orientable cameras with remote positioning and zoom lenses are available for connection to the video switcher. The maximum number being dependent on the number of available video inputs. Colour cameras are preferred, providing composite video outputs according to the PAL B and NTSC standards.

Orientable cameras must accept bi-phase control signals as generated by the Allegiant video switchers. Upon start up, when no microphones are activated or during camera movement from one position to the next (if enabled in the software) an "overview" picture is shown on the connected video displays (e.g. monitors, large screen TV's, video projectors). This picture is provided by the "overview" camera (fixed (preferred) or orientable) which is always connected to video input No. 1. If an orientable camera is used (preferred type 'AutoDome' system) the highest available preposition is used (software dependent).



NOTE: For preferred camera types, both fixed and orientable, refer to the DCN Conference and Discussion Systems Data catalogue.

Video displays, accepting composite video signals according to PAL B or NTSC standard are required for showing the picture to the operator and audience. A 14" or 17" monitor for the operator with high or at least medium video performance is preferred. This monitor must always be connected to video output No. 1 of the used video switcher. For preferred monitor types refer to the DCN Conference & Discussion Systems Data catalogue.

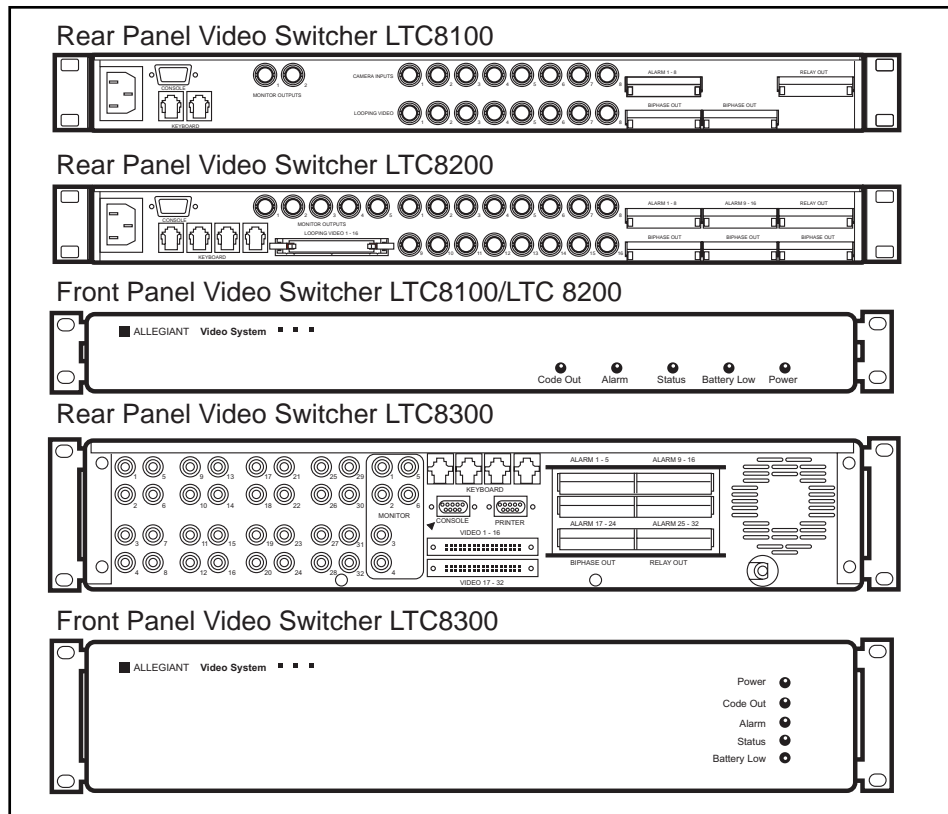


FIG 6-1 Range of BOSCH Allegiant Video Switchers

A maximum of 4 audience video displays can be connected to the Allegiant video switcher (not applicable for video switcher LTC 8100 series) using outputs 2 to 5. The actual number set is defined in the DCN Camera Control software LBB 3562 or LBB 3588. This option may save the need to use a video distribution amplifier. Use of more than one video output for the audience may have a negative influence on the system performance (response to events) for camera control.

Audience video displays shall be selected in accordance with the requirements of the conference venue, e.g. large screen video projector(s), large screen monitors or TV-sets.

6.1.3 INSTALLATION

Requirements

1. To install Allegiant Video Switcher panel, video cameras and monitors.
2. To connect the DCN system to the Allegiant Video switcher panel.
3. To configure/set-up video cameras in relation to microphone activity for use in DCN stand-alone and PC controlled systems.



CAUTION: When Installing and Operating the Allegiant Video Switcher/Control system, cameras and monitors refer to the documentation delivered with the equipment.

Connections to Allegiant Video Switcher Panel (see FIG 6-2 and FIG 6-3):

1. Using an RS232 cable terminated with 9-pole Sub-D connectors, connect the cable to the RS232 socket ('Port 2 (default)') at the rear of the CCU to the 9-pole Sub-D socket marked ('CONSOLE') at the rear of the Allegiant Video Switcher Panel.

FIG 6-3 shows the available RS232 cable connection for connecting the following configurations

1. Single CCU to video switcher
2. Installation PC to CCU and Video switcher
3. Connection OS/2 Master CCU to video switcher:
(This cable can be ordered under type number LTC 8506/00)
4. Installation PC to OS/2 Master CCU and Video switcher.



CAUTION: To meet EMC requirements all connections made to the 'Port 1' output of the CCU LBB 3500/xx or Port 1 and Port 2 of the CCU LBB 3500/05 or LBB 3500/35 must be screened cables, where at least one side of the screening is connected to ground.

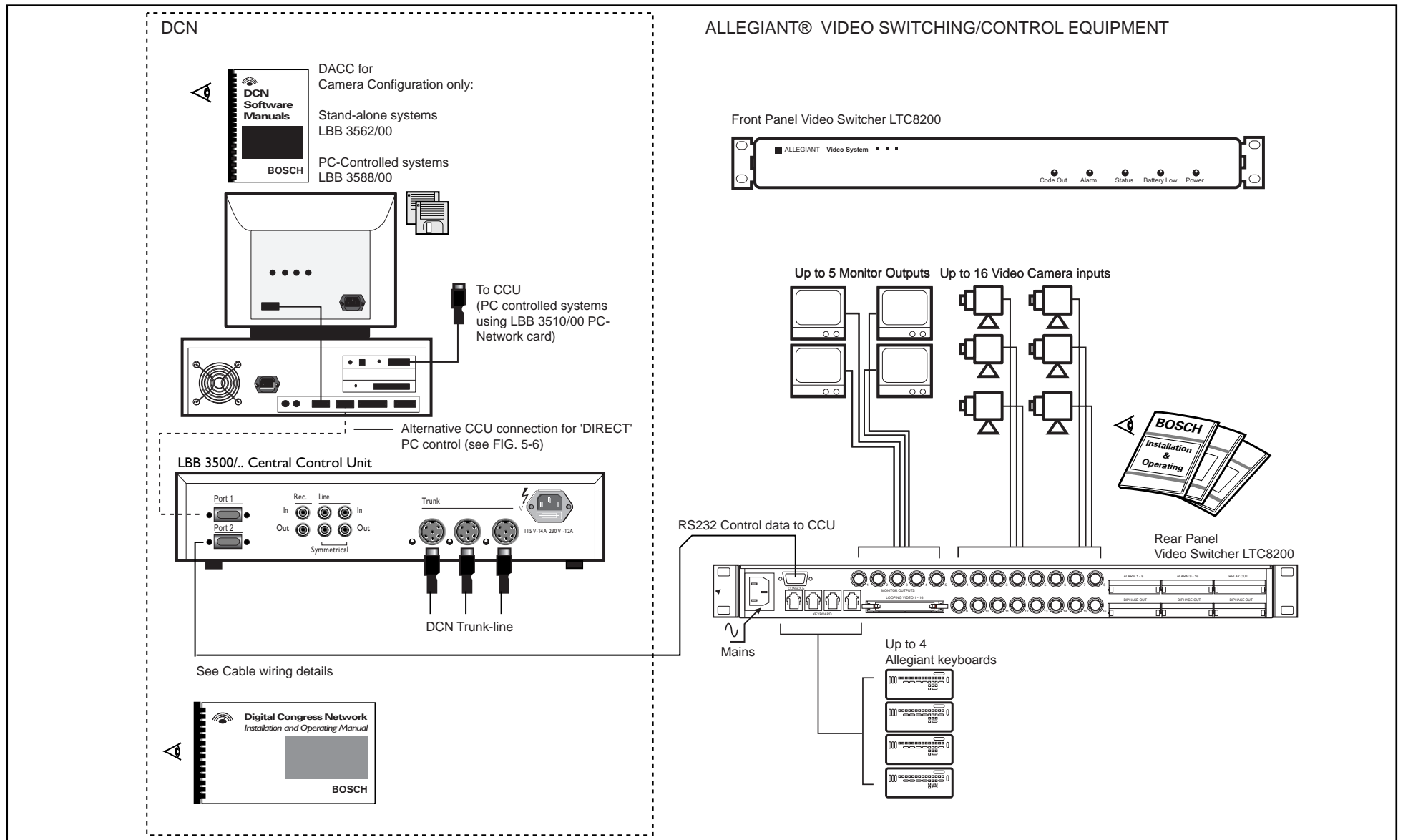


FIG 6-2 DCN Automatic Camera Control (DACC)

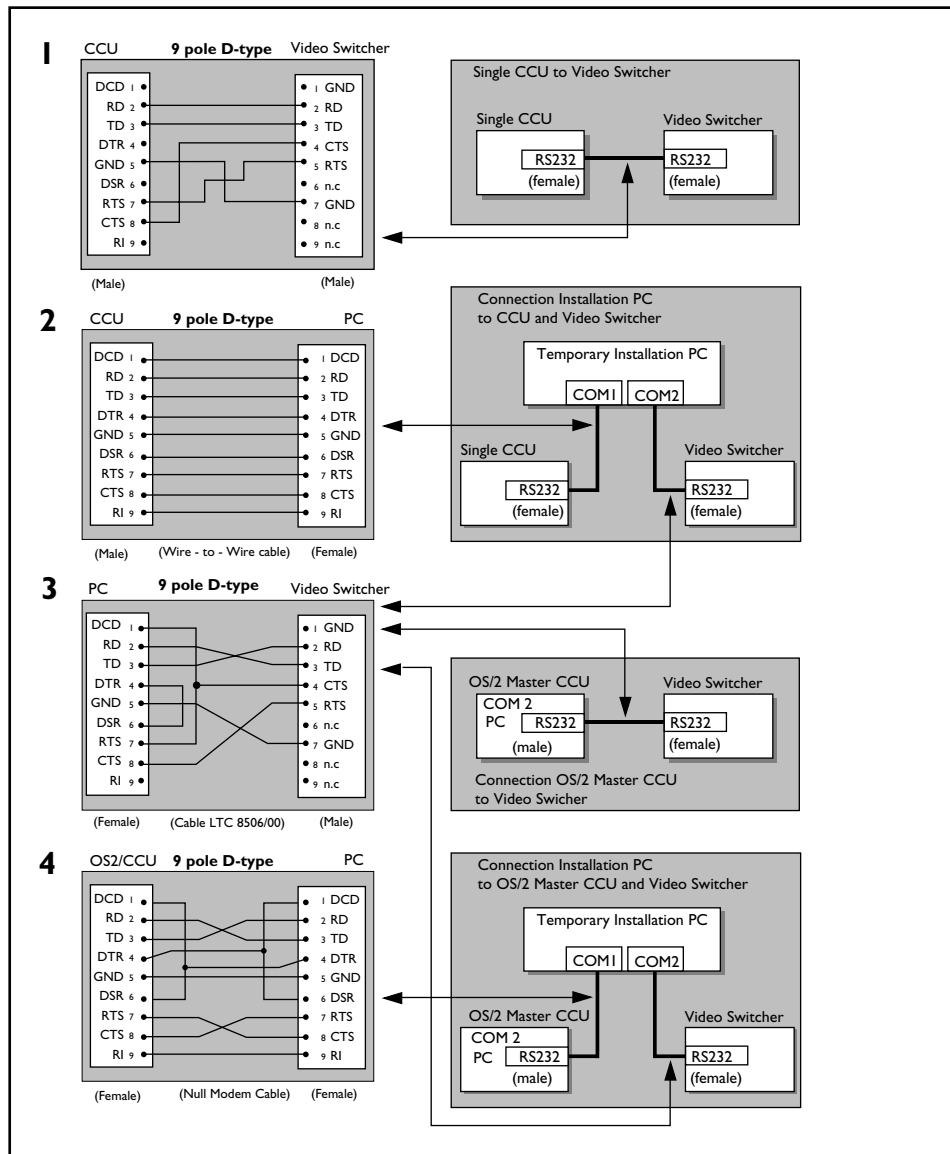
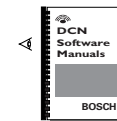


FIG 6-3 RS232 Connections for AVS

6.1.4 Set-up Camera configuration



Reference: To configure and set-up camera positions according to delegate/chairman microphone activity, DACC is available for Stand-alone DCN systems using DCN software package LBB 3562/00 and LBB 3588/00 for PC controlled systems. Refer to the relevant software manuals when programming the configuration for the DACC system.

To Install and download the required software modules proceed as follows:

6.1.4.1 Stand-alone DCN System with Camera Control

For camera installation with stand-alone Camera Control software LBB 3562/00 a temporary PC connection is required. The minimum PC requirements are as follows:

- 80486 DX/66 MHz or Pentium processor
- Operating system: Windows 95, Windows 98, Windows 2000, Window NT 4.0
- 4MB Random Access Memory (RAM)
- Video card: SVGA resolution 640 x 480 pixels, 256 colours
- Floppy disc drive 3.5 inch, 1.44 MB
- 100 MB hard disk
- 2 Serial ports
- Monitor or built-in colour LC-display
- Keyboard and mouse

6.1.4.2 Installation of a Single CCU

1. Connect the temporary PC (COM-port 2) to the Allegiant Video switcher (console port).
2. Connect the temporary PC (COM-port 1) to the CCU (Port 2) (see FIG 6-3 (2)).

6.1.4.3 Installation of a Multi-CCU

1. Connect the temporary PC (COM-port 2) to the Allegiant Video switcher (console port).
2. Connect the temporary PC CCU (COM-port 1) to the Master CCU (COM-port 2) (see FIG 6-3 (4)).



NOTE: The PC must be installed with the following:

1. OS/2 operating system
2. Multi-CCU interface card LBB 3511/00
3. Multi-CCU software LBB 3586/00

6.1.4.4 4. PC COM Port settings

COM 1 for communication to the CCU (default)

COM 2 for communication to the video switcher

If other settings are required they must be specified in the DCNCL.INI file in the Windows directory. The following settings must then be added or changed depending on the selected COM-port:

Camera Control

CCU = 1 // COM-port 1..4

Video = 2 // COM-port 1..4

Other fixed settings are:

Baudrate = 19200

Databits = 8

Parity = none

Stopbits = 1



NOTE: The default video switcher communication settings should NOT be changed

5. Communication settings:

1. Refer to DIP-switch S14 settings on the 'Trunk Communication Board' (TCB4 (see [Chapter 4.6](#)).
2. For multi-CCU systems the correct settings must be present in the CCU_CFG file of the Multi-CCU control software LBB 3586 (see [Table 5-8](#); and [Table 5-9](#)).
3. The default communication settings of the video switcher are the same as used in a DCN stand-alone system.

6.1.4.5 Installation of Camera Control software on the temporary PC

1. Install the 'Stand-alone' Camera Control software package LBB 3562/00.
2. Use the software program to configure and set up camera positions. On completion, all data and configuration settings will be automatically downloaded to the CCU.
3. Once camera positions are configured remove the temporary PC and make a direct connection as follows:
 - Single CCU system: direct connection between CCU and video switcher (see [FIG 6-3\(1\)](#)).
 - Multi-CCU system: direct connection between Master-CCU and the video switchers (see [FIG 6-3 \(3\)](#)).
4. Refer to relevant software manual.

6.1.4.6 Installation of Camera Control in DCN system with PC control

1. Requires DCN software release version 8.0 or higher
2. Requires a permanent connection in the following systems:
 - Single CCU system: direct connection between CCU and video switcher (see [FIG 6-3 \(1\)](#)).
 - Multi-CCU system: direct connection between Master CCU PC and the video switchers (see [FIG 6-3 \(3\)](#)).
3. Install software package LBB 3588/00 on the DCN control PC (server PC in a 'Multi-PC system).
4. Refer to relevant software manual.

6.2 Direct Camera Control

With Direct Camera Control (DCC) it is possible to connect one AutoDome camera directly to a CCU. In combination with the relevant software DCC can direct the AutoDome camera towards speaking conference participants. The DCC can only be used in combination with:

- A BOSCH AutoDome camera
- A CCU with TCB 4 or higher
- DCN software 9.30 or higher

6.2.1 Virtual Keyboard

A virtual keyboard is used to set the pre-positions of the AutoDome camera. The virtual keyboard software LTC 5138/00 must be installed on your temporary PC or DCN control PC.

6.2.2 Camera and Monitor

One BOSCH AutoDome camera, with RS232 control, can be connected to the CCU. One or more video displays can be connected to the camera output. These video displays must accept video signals according to the PAL-B or NTSC standard as provided by the AutoDome camera.

NOTE: If the distance between camera and CCU or PC is more than 15 meters the RS232 signal must be converted to Biphas with an LTC 8784/50 converter. (For connection refer to FIG 6-4).

6.2.3 Installation

FIG 6-4 shows the required cables for the following connections:

1. Single CCU to AutoDome camera.
2. DCN control or temporary PC to CCU.
3. DCN control or temporary PC to AutoDome camera.
4. DCN control or temporary PC to CCU and AutoDome camera (2 COM ports)
5. DCN control or temporary PC to AutoDome camera via LTC 8784/50 data converter.

CAUTION: To meet EMC requirements all connections made to the 'Port 1' output of the CCU LBB 3500/05(D) or 'Port 1' and 'Poet 2' of the CCU LBB 3500/15(D) or LBB 3500/35(D) must be screened cables, where at least one side of the screening is connected to ground.

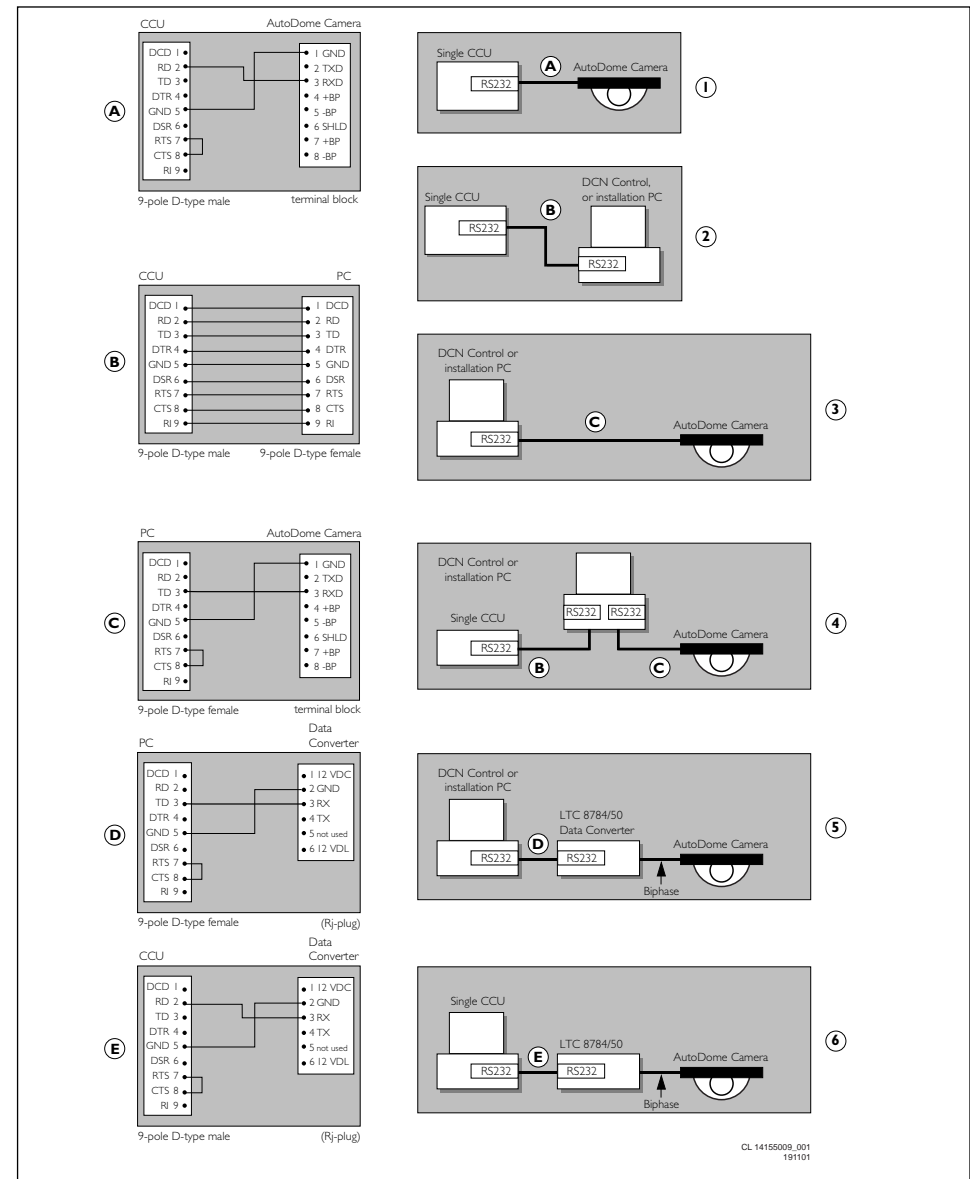


FIG 6-4 Connections for DCC

6.2.4 Set-up Camera Configuration



Reference: To configure and set-up camera positions according to delegate/chairman microphone activity, DCC is available for Stand-alone DCN systems using DCN software package LBB 3562/00 and LBB 3588/00 for PC controlled systems. Refer to the relevant software manuals when programming the configuration for the DCC system.

To install and download the required software modules proceed as described in the following sections.

For camera installation with stand-alone Camera Control software LBB 3562/00 a temporary PC connection is required.

The minimum PC requirements are as follows:

- Pentium II processor
- 48 MB RAM
- Video card supporting at least VGA and SVGA resolutions
- Hard disk with a data access time of 14 ms
- 100 MB free disk space
- Ethernet network card for multi-PC systems
- Serial port (RS232)

6.2.4.1 Stand-alone DCN system

The following procedure describes the connection of a PC with one COM-port. If you use a PC with two COM-ports you can connect the CCU to the second COM-port. It is not necessary to disconnect the AutoDome camera (item 6).

1. Connect the AutoDome to the PC-COM-port (RS232).
2. Connect a monitor to the video output of the AutoDome via a 75 Ohm coax cable.
3. Install the virtual keyboard software LTC 5138 (see enclosed Instructions for Use).

The required AutoDome communication settings are:

- 9600 baud
 - 8 data bits
 - No parity
 - 1 stop bit
 - No handshaking
4. Set the camera prepositions for the microphone positions in the room. The highest preposition is used for an overview picture.
 5. Close the virtual keyboard application.
 6. Connect the CCU (LBB 3500/x5) to the PC COM-port (disconnect the AutoDome)
The required CCU communication settings are (see paragraph 4.6):
 - Camera control protocol
 - 9600 baud
 7. Install the DCN stand-alone camera control software LBB 3562/00 on the PC and assign the defined AutoDome prepositions to the DCN units (See the LBB 3562 software manual).

8. Disconnect the CCU from the PC.
9. Connect the AutoDome to the CCU.



NOTE: Re-adjustments of the stored AutoDome prepositions can only be done with the AutoDome connected to the temporary or DCN control PC with virtual keyboard software.

6.2.4.2 DCN PC controlled system with single CCU

The following procedure describes the connection to a PC with one COM-port. If you use a PC with two COM-ports you can connect the AutoDome camera to the second COM-port. It is not necessary to disconnect (item 1) and reconnect (item 7) the CCU. The procedure assumes that you have an installed DCN system with PC control with an LBB 3500/15(D) or LBB 3500/35(D) CCU.

1. Disconnect the control PC from the CCU.
2. Connect the AutoDome to the PC COM-port (RS232)
3. Connect a monitor to the video output of the AutoDome via a 75 Ohm coax cable.
4. Install the Virtual keyboard software LTC 5138/00 (see enclosed Instructions for Use).
The required AutoDome communication settings are:
 - 9600 baud
 - 8 data bits
 - No parity
 - 1 stop bit
 - No handshaking
5. Set the camera prepositions for the microphone positions in the room. The highest preposition is used for an overview picture.
6. Close the virtual keyboard application.
7. Connect the CCU to the PC COM-port (disconnect the AutoDome)

The required CCU communication settings are:

- Full protocol
 - 115200 baud
8. Connect the AutoDome camera to Port 2 of the CCU.
The required CCU communication settings are:
 - Camera control protocol
 - 115200 baud
 9. Install the DCN camera control software LBB 3588/00 on the PC and assign the defined AutoDome prepositions to the DCN units (See the LBB 3588 software manual).
 10. Check the DCN system with DCC functionality.



NOTE: Re-adjustments of the stored AutoDome prepositions can only be done with the AutoDome connected to the temporary PC with Virtual Keyboard software.

6.3 Switching options using a personal computer

Using the communication port (COM-port 2) of a PC, a wide variety of communication and switching options are available. For example, video cameras can be switched and directed towards speaking delegates when a VCS (Video Control Switcher) is connected to the PC. Using DCN's Microphone Management software LBB 3570, and/or Synoptic Microphone Management software LBB 3571, cameras can be switched corresponding to the status of delegates' microphone actions. Directing a camera towards a speaking delegate is done using motor driven pan/tilt equipment, programmed and linked according to the microphone activity function which can be activated within the mentioned software packages.

NOTE: Using this method of switching options is a custom made alternative for 'Automatic camera' control with Allegiant video switchers. The equipment required including the software are NOT supplied by BOSCH Security Systems. See also the DCN manual for External Interfaces.

FIG 6-5 gives an example, showing the method used to switch and direct video cameras using the PC's COM 2 port and a video control matrix. Using the PC's RS232 communication port, video recording equipment can also be switched. Table 5-10: and Table 5-11: show the default COM-port setting.

The data format for RS232 communication

Microphone on:	\$1 <SEAT NUMBER> CR LF
Microphone off:	\$2 <SEAT NUMBER> CR LF
Request on:	&1 <SEAT NUMBER> CR LF
Request off:	&2 <SEAT NUMBER> CR LF
All requests off:	&3 0000 CR LF
Priority on:	#1 <SEAT NUMBER> CR LF
Priority off:	#2 <SEAT NUMBER> CR LF

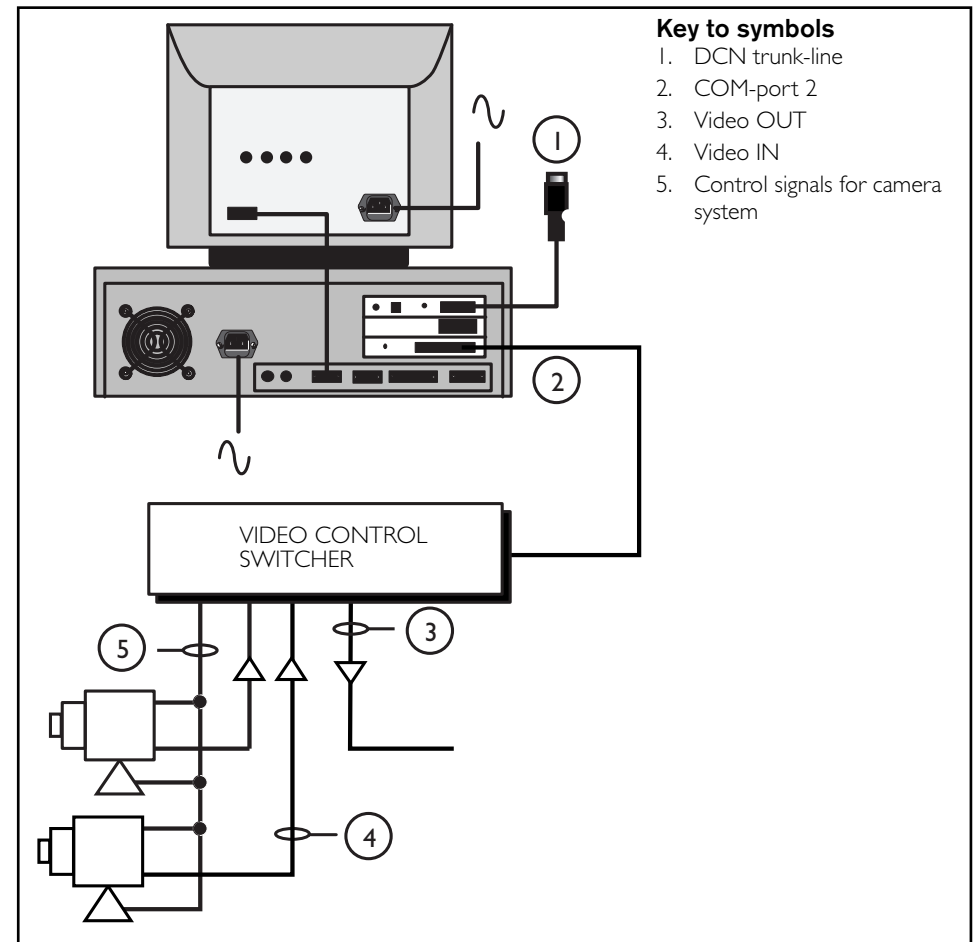


FIG 6-5 Using microphone activity for video switching

Chapter 7. DCN Installation accessories

7.1 Introduction Installation accessories

DCN's installation accessories allows system installation to be simplified with the use of ready made cables complete with connectors. Trunk-cable splitters allow trunk-lines to be split and run in diverse directions, allowing contribution units to be placed where needed within a conference room. The easy to connect accessories are used for both fixed and portable installations.

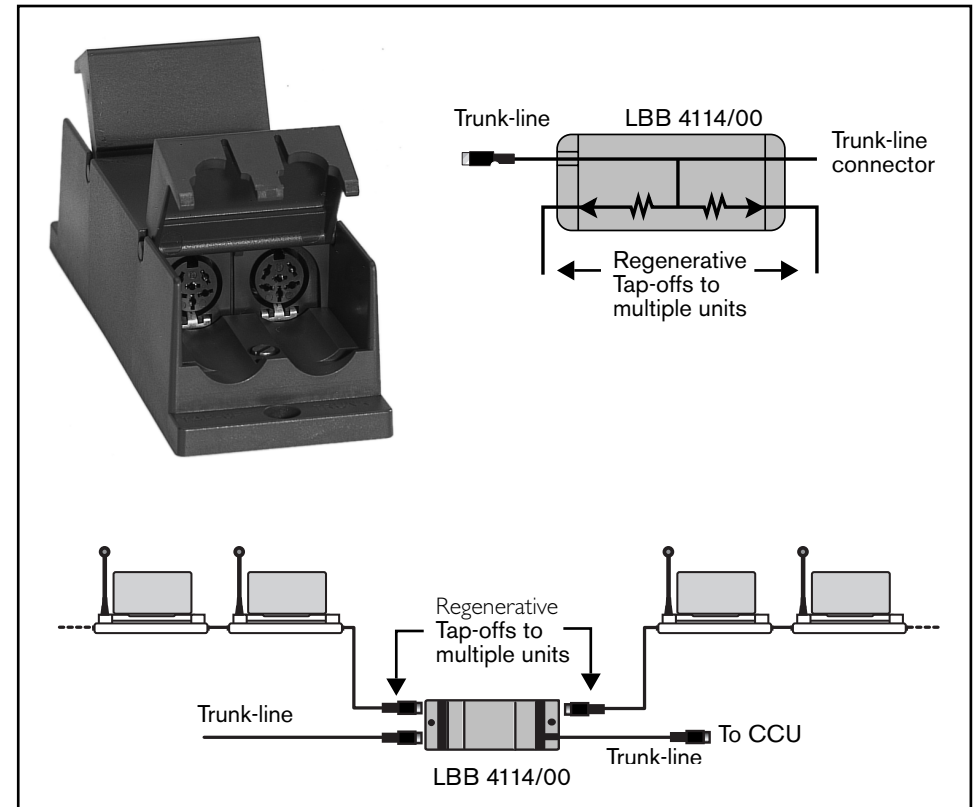


FIG 7-1 LBB 4114/00 Trunk-cable splitter

7.1.1 LBB 4114/00 Trunk-cable splitter

For use in combination with the systems installation cabling, the splitter is used to divide the trunk-line cabling into diverse directions, to achieve where necessary, a neat and tidy layout of the system cabling and its connected equipment. The splitter comes complete with cable restraining clamps and include mounting holes for fixation to a floor or for mounting against a wall.

Key to symbols (see FIG 7-2):

1. 2 m (6.5 ft.) long cable terminated with a moulded 6-pole circular connector.
2. 6-pole circular connector for trunk-cable splitting and pulse regeneration purposes (tap-off).
3. 6-pole circular connector for Loop-through connection (Trunk).
4. 6-pole circular connector for trunk-cable splitting and pulse regeneration purposes (tap-off).
5. Screw holes for securing the unit.

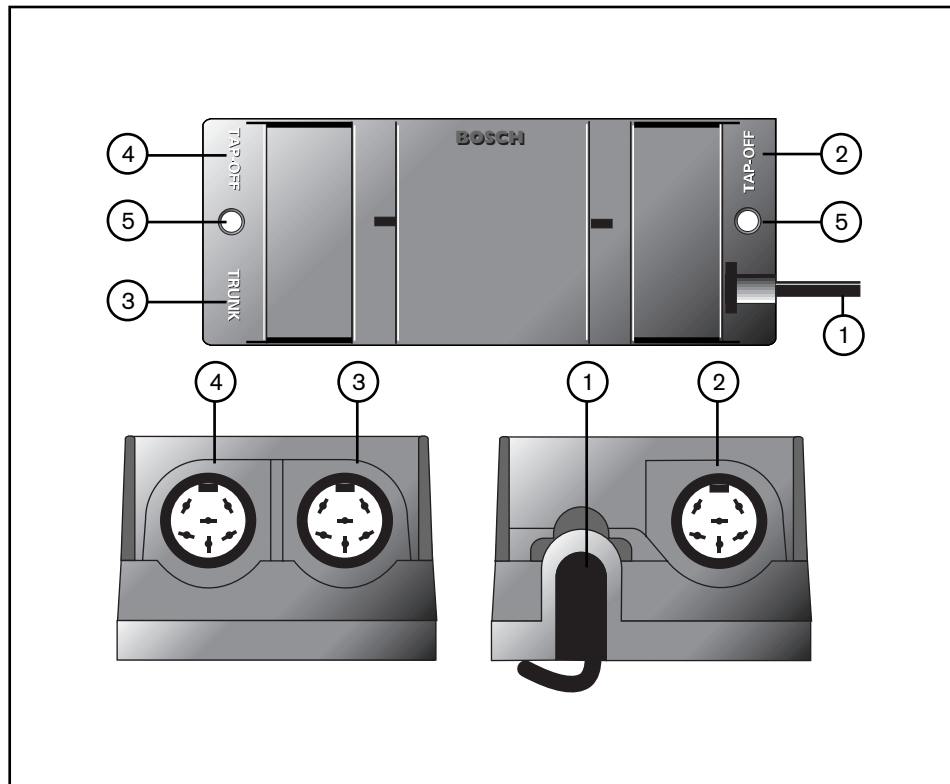


FIG 7-2 Layout Trunk-cable splitter (top and side view)

7.1.2 LBB 4115/00 Tap-off Unit

The LBB 4115/00 is used to create short-circuit proof tap-off points on the trunk-line cabling. Each tap-off point allows for connection of up to five channel selector panels or one contribution unit such as delegate, chairman or interpreter unit. The tap-off unit comes complete with cable restraining clamps and includes mounting holes for fixing purposes.

Interconnection (see FIG 7-3):

1. 2 m (6.5 ft.) long cable terminated with a moulded 6-pole circular connector.
2. 6 pole circular connector for tap-off purposes. The tap-off is equipped with an electronic short circuit protection facility on the power supply lines with a max load of 2.5 PCF.
3. 6-pole circular connector for loop-through connections (Trunk).
4. 6 pole circular connector for tap-off purposes. The tap-off is equipped with an electronic short circuit protection facility on the power supply lines with a max load of 2.5 PCF.
5. Screw holes for securing the unit.

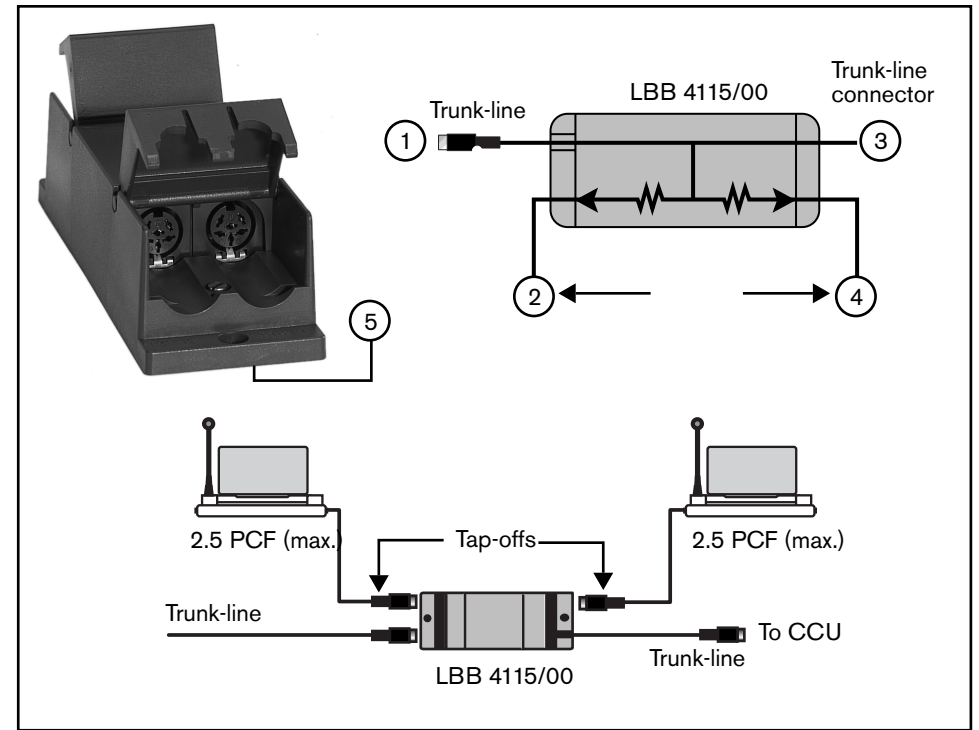


FIG 7-3 LBB 4115/00 Tap-off unit

7.1.3 Cable assemblies and connectors

The following Cable assemblies are available with the DCN system.

- LBB 4116/00 Installation cable (100 m (328 ft.) without connectors)
- LBB 4116/xx Extension cable assembly (available in various cable lengths)

- **Extension cable assemblies LBB 4116/xx**

These cable assemblies are used to extend the length of the trunk-line cable and to extend the length of cable between a delegate, chairman or interpreter desk. The cable assemblies are terminated with moulded 6-pole circular connectors (male and female). The 6-pole circular connectors male and female include a plug locking facility. To interlock the male and female connectors use cable locking clamps LBB 4117/00.

- **Installation cable LBB 4116/00**

Supplied without connectors the 100 m (328 ft.) installation cable is for use in installations where the normal DCN unit cables and extension cable assemblies are too short.

Available Extension cables

LBB 4116/02	2 m (6.5 ft.)
LBB 4116/05	5 m (16.4 ft.)
LBB 4116/10	10 m (32.8 ft.)
LBB 4116/15	15 m (49.2 ft.)
LBB 4116/20	20 m (65.6 ft.)
LBB 4116/25	25 m (82 ft.)

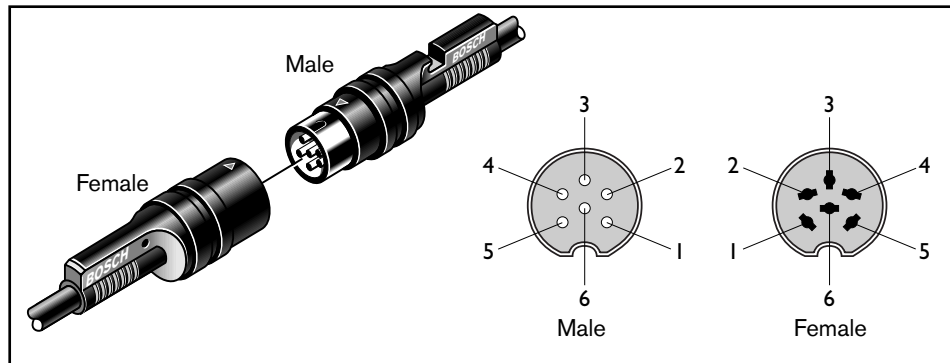
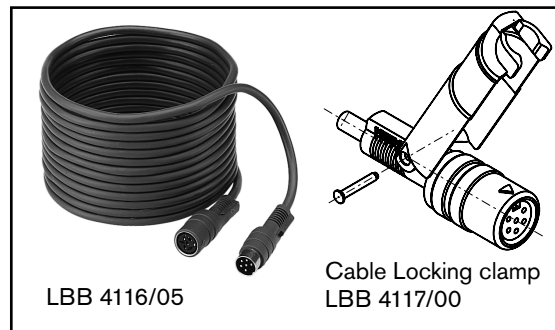


FIG 7-4 LBB 4116/05 Extension cable assembly (5m) (16.4 ft.)

Cable Connection details:

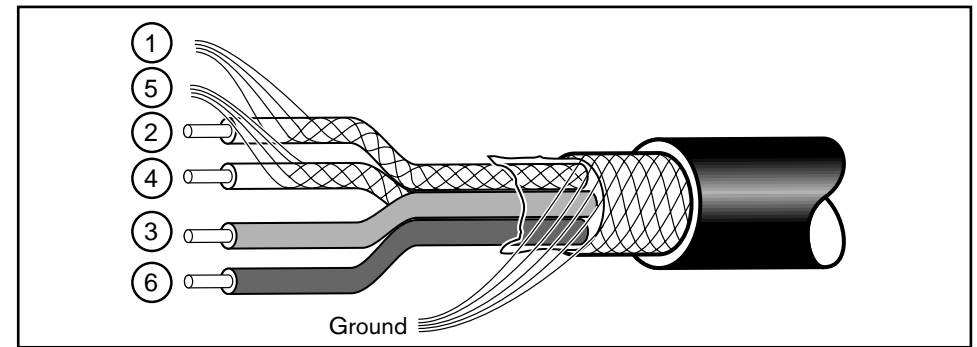


FIG 7-5 DCN Cable connection details

- PIN 1 - Down-link screen/ground
- PIN 2 - Down-link signal (green)
- PIN 3 - Positive supply (max. 40V) (brown)
- PIN 4 - Up-link-signal (white)
- PIN 5 - Up-link screen/ground
- PIN 6 - Positive supply (max. 40V) (blue)

- **Custom-made cables**

For customising DCN system cable connections, refer to the table below.

DCN Trunk-cable connectors	Hirschmann Type No.	Service Code No.
Cable-plug (Black) with locking screw (male)	MAS 6100	5322 264 54055
Cable-plug (Black) without locking screw (male)	MAS 60	4822 264 40026
Cable socket with locking screw (female)	MAK 6100	5322 264 10367

Note: MAS 6100 cannot be used in the Trunk-splitter due to the length of cap. Therefore, use a Hirschmann plug without locking (MAS 60).

NOTE: The screening of the DCN cable is connected to the earth tag of the Hirschmann cable plug/socket, and is potentially live. Therefore only use isolated sockets for extension cables, patch panels and floor boxes.



7.1.4 Connectors

The 6-pole moulded circular connectors, male and female include a plug locking facility for use with cable locking clamps LBB 4117/00.

When connecting connectors to extension cables, it is recommended that insulated metal shield connectors be used, rather than plastic to protect the connectors according to EMC specifications. For connection details refer to [Chapter 13.7](#).

7.1.5 LBB 4117/00 Set of 25 cable locking clamps

Clamps for male/female cable connectors, such as those on the extension cable LBB 4116. One clamp per connector set male/female is required.

7.1.6 LBB 4117/00 Termination plug for DCN Cable

The LBB 4117/00 termination plug is specially designed for use with the open-ended DCN cabling. It is connected to the output cable on the last electronic channel selector panel (LBB 3524/10, LBB 3526/10) in a daisy-chain configuration..



FIG 7-6 Termination plug LBB 4117/00

Chapter 8. Information Displays

Hall displays enable conference information to be clearly and effectively displayed to a large number of conference participants. Numeric, alphanumeric and geographical displays are available, and mainly used for displaying voting results and other text and conference related data. Also direct view or front and rear projector video displays can be used e.g. TV receivers, Video projectors for long distance viewing

In order to drive a hall displays, a data distribution board LBB 3512 must be installed in the display. The board includes an RS232 communication port with a baud rate of 9600 or 19200 baud selectable by an on-board dip-switch. Opto couplers isolate it from the DCN system. It can be powered from the DCN system or an external power source.

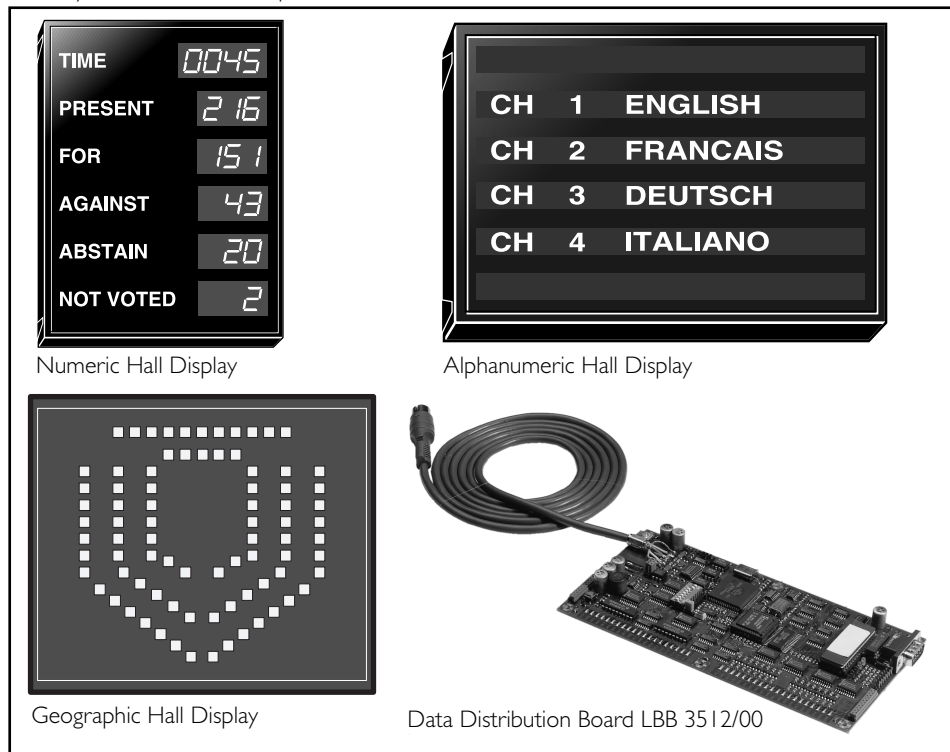


FIG 8-1 Information display

8.1 LBB 3512/00 Data Distribution Board

The data distribution board provides the communication interface between the DCN system and externally connected peripheral equipment - such as hall displays, remote switching panels and tailored conference solutions. The board is intended for mounting in the relevant equipment and includes an RS232 communication port with a baud rate of 9600 and 19200 baud - selectable by an on-board dip switch. The board can be powered by the system itself or from an external power source.

Interconnection between the board and the DCN system is via a 6-pole circular connector. The board has no system loop-through facility; therefore a Trunk-splitter LBB 4114/00 or Tap-off unit LBB 4115/00 is used to bypass the board in a loop-through configuration.

The board can be used as either a passive unit for reception of data, or as an active unit for transmission of data to the CCU.

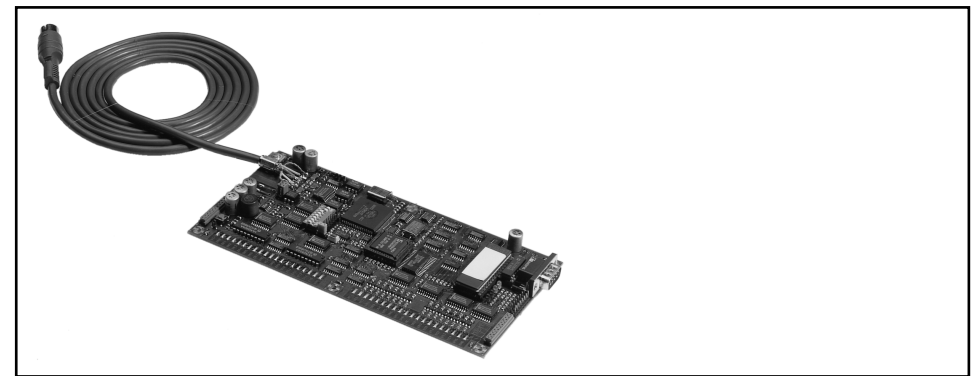


FIG 8-2 LBB 3512/00 Data Distribution Board

Electrical data

- 16-bit parallel data input/output
15 inputs/16 outputs (5V CMOS input/open collector output)
- Address allocation: 248 - 255. The following addresses are defined as:
 - 248 Numeric display
 - 249 Alpha-numeric display 1
 - 250 Alpha-numeric display 2
 - 251 Status display (= e.g. synoptic display) (1500 delegate positions for individual results)
 - 252 Chairman display EC version (Reserved)
 - 253 Not used
 - 254 Not used
 - 255 Interpreter lamp panel (e.g. Speak to-fast indication)

Electrical requirements

- Supply voltage (optional): 10 - 40V d.c.
- Current consumption: < 50 mA @ 40V

The Data Communication board includes a 10-pole and two 20-pole 'Micromatch' flat-cable connectors (female) and a 9-pin D-type connector (male) for serial data output. The pin configuration of the D-type is shown below:

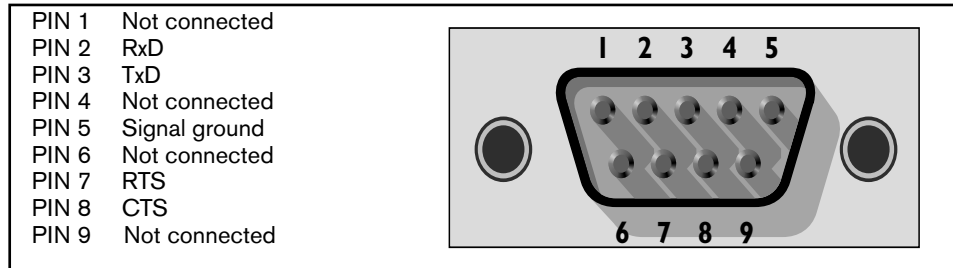


FIG 8-3 Data Distribution Board 9-pin Sub-D connector

Connectors, Controls and Indicators (see FIG 8-4)

1. 6 x 3.5 mm (0.13 in) mounting holes.
2. 2 x jumpers to select between either the DCN system power supply or an external power supply.
3. 9-pole Sub-D connector (male) for RS232 communication.
4. 4 x LED indicators for test purposes.
5. Parallel input connector 20-pole Micro-Match connector:
6. Parallel input connector via 20 solder pads.
7. Connector for test purposes.
8. 8-pole dip switch for communication mode and function setting as follows:

DP1	RS232 uplink transfer disabled/enabled	OFF - Disabled ON - Enabled
DP2	Passive or active mode setting	OFF - Passive ON - Active
DP3	Baudrate for RS232 communication	OFF - 9600 Baud (default) ON - 19200 Baud
DP4	Reserved	-
DP5	Reserved	-
DP6*	Passive mode, Least Significant address bit 0	OFF - 0, ON - 1
DP7*	Passive mode address bit 1	OFF - 0, ON - 1
DP8*	Passive mode most significant address bit 2	OFF - 0, ON - 1

*See board address settings.

9. Parallel output connector via 20 solder pads (open collector outputs).
10. Initialization button with LED indicator to indicate the none initialized mode.
11. Parallel output connector 20-pole Micro-Match connector:
12. 10-pole Micro-Match connector for the external power supply. Initialization status output and initialization button.
13. 2-pole external power supply connector (2-solder pads) and a 2-pole screw connector:
14. 2 m (6.5 ft.) long cable terminated with a 6-pole circular connector for connection to the DCN trunk-line.

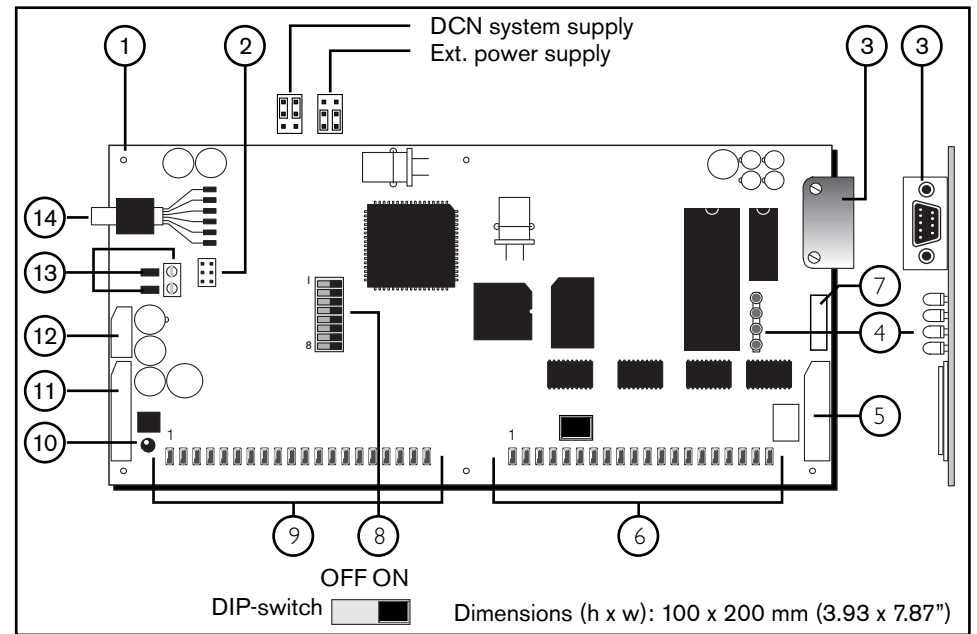


FIG 8-4 Layout Data Distribution Board

Parts delivered with LBB 3512/00

- 2 x Micromatch connector 2x10-pole 2-215083-0 AMP
- 1 x Micromatch connector 2x5-pole 1-215083-0 AMP
- 1 x Bus connector SOURIAU DE 09 S 067HT
- 2 x Screw retainer I67500-1 AMP
- 1 x Cable clamp 9-pole AMP 207467-1

Data Format Specifications: RS232 Output

- 9600/19200 baud (selected by dip switch)
- 8 data bits
- 1 stopbit
- No parity

Electrical specifications according to RS232 C standard.

Further information concerning the Data Distribution Board is available on request.

Parallel input and output connections

When using the board's parallel input or output, either the solder pads (6) and (9) or the Micro Match connectors (5) and (11) can be used. Two 20-pole male Micro Match connectors are provided with the board. These connectors can be connected to a 20-pole flat cable using a special connecting tool (not provided).

Board Address setting

DIP Switch	248	249	250	251	252	253	254	255
DP6	0	1	0	1	0	1	0	1
DP7	0	0	1	1	0	0	1	1
DP8	0	0	0	0	1	1	1	1

OUTPUTS 9		INPUTS 6	
Solder Pad L to R	Micromatch connector	Solder Pad L to R	Micromatch connector
Vcc	1	Vcc	1
D00	2	U00	2
D01	3	U01	3
D02	4	U02	4
D03	5	U03	5
D04	6	U04	6
D05	7	U05	7
D06	8	U06	8
D07	9	U07	9
Gnd	10	Gnd	10
Vcc	11	Vcc	11
D08	12	U08	12
D09	13	U09	13
D10	14	U10	14
D11	15	U11	15
D12	16	U12	16
D13	17	U13	17
D14	18	U14	18
D15	19	U15	19
Gnd	20	Gnd	20

FIG 8-5 Data Distribution Board connection details

8.1.1 Remote Switching Solutions

Using the Data Distribution Board LBB 3512/00 an interface facility is provided for the control of external equipment such as loudspeaker group switching and other special switching facilities (FIG 8-6).

Application 1.

Application 1, gives a typical solution when using the data distribution board in combination with an interpreter desk. The interpreter desk includes an external message key, this key when pressed can alert for example, some one in the secretariat via an LED indication panel or as a 'speak-to-fast' indication to the chairman.

Application 2.

Application 2, shows a typical example using the DCN system as a transparent control path using two data distribution boards LBB 3512. Using this example a variety of switching solutions are possible- for example, to switch lights on or off, or even to drive a motor that will open or close curtains as used in large congress halls etc.

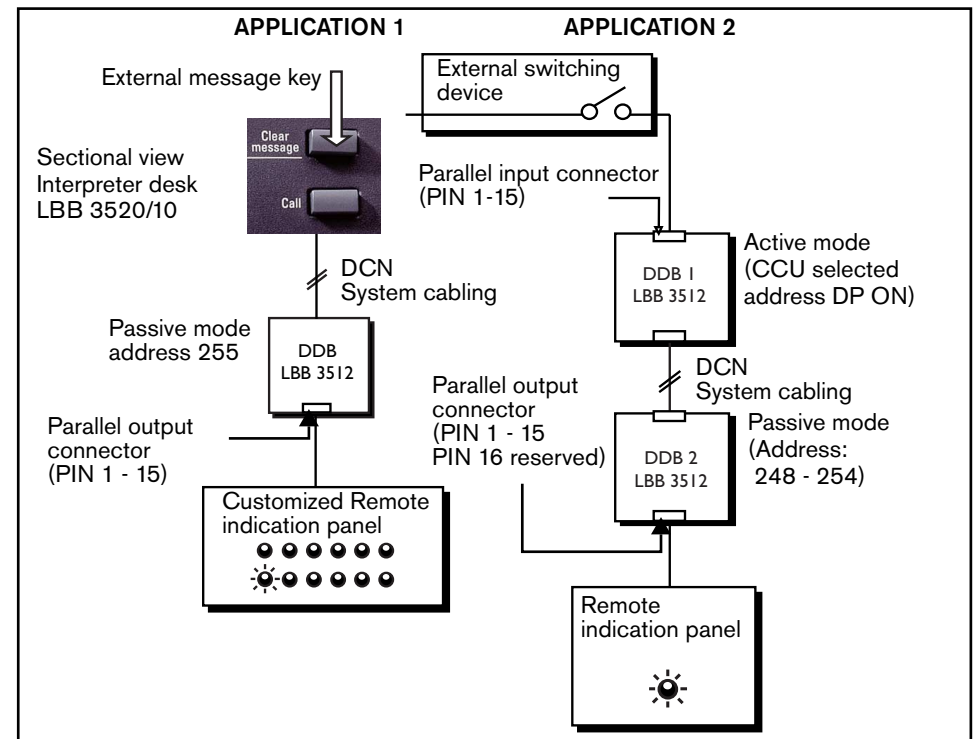


FIG 8-6 Remote switching solutions

8.1.2 Installing Data Distribution board LBB 3512/00.

To install the board, first mount and secure the board in a convenient position inside the relevant hall display. Connect one end of the connector cable to the 9-pole Sub-D connector on the data distribution board and connect the other end to the displays RS232 port. The length of cable should not exceed 5 m (16.4 ft.) when using a baud rate of 9600. The boards 2m (6.5 ft.) long cable, terminated with a 6-pole connector, connects directly to the DCN system trunk-line. To extend the length of cable to the trunk-line, extension cables LBB 4116/.. can be used.

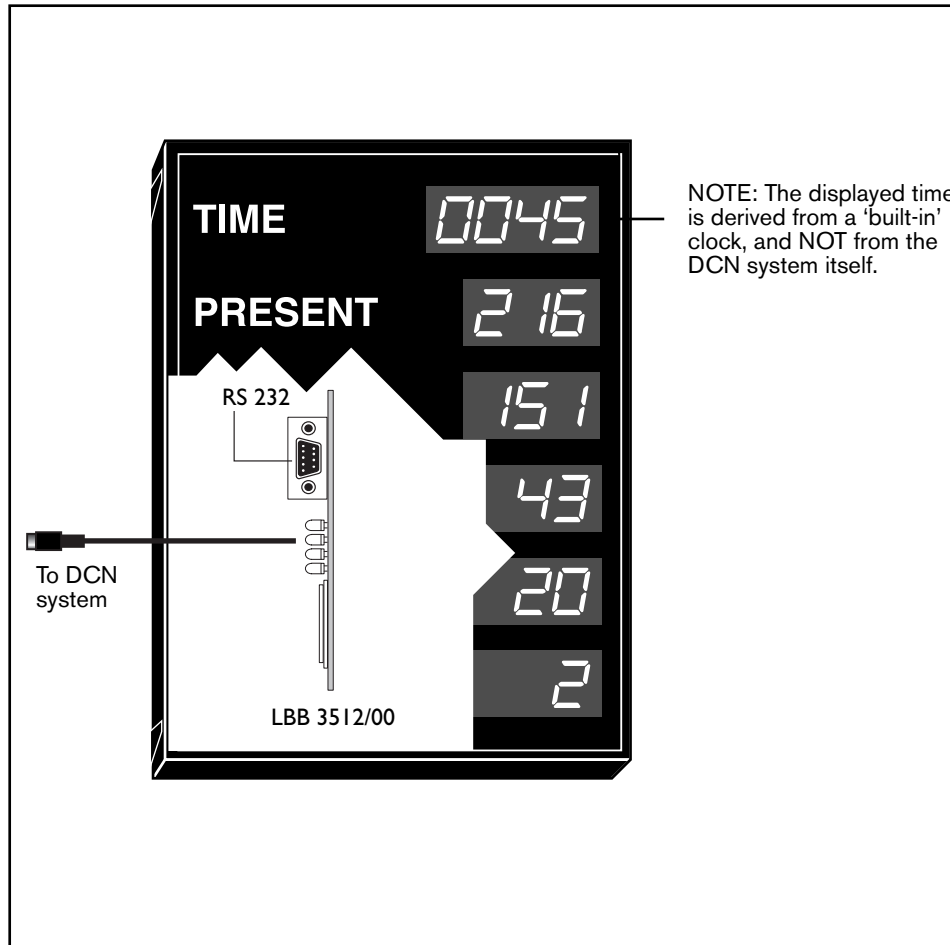


FIG 8-7 Installing Data Distribution Board LBB 3512/00

8.1.3 Connecting Hall Displays to the DCN System

FIG 8-8 shows a typical example using a trunk-splitter when connecting hall displays to the DCN system. When placing displays in the far off corners of a large conference room, extension cables LBB 4116/.. can be used. See Chapter 8.1: "LBB 3512/00 Data Distribution Board" for the address allocation and board settings of the LBB 3512/00.

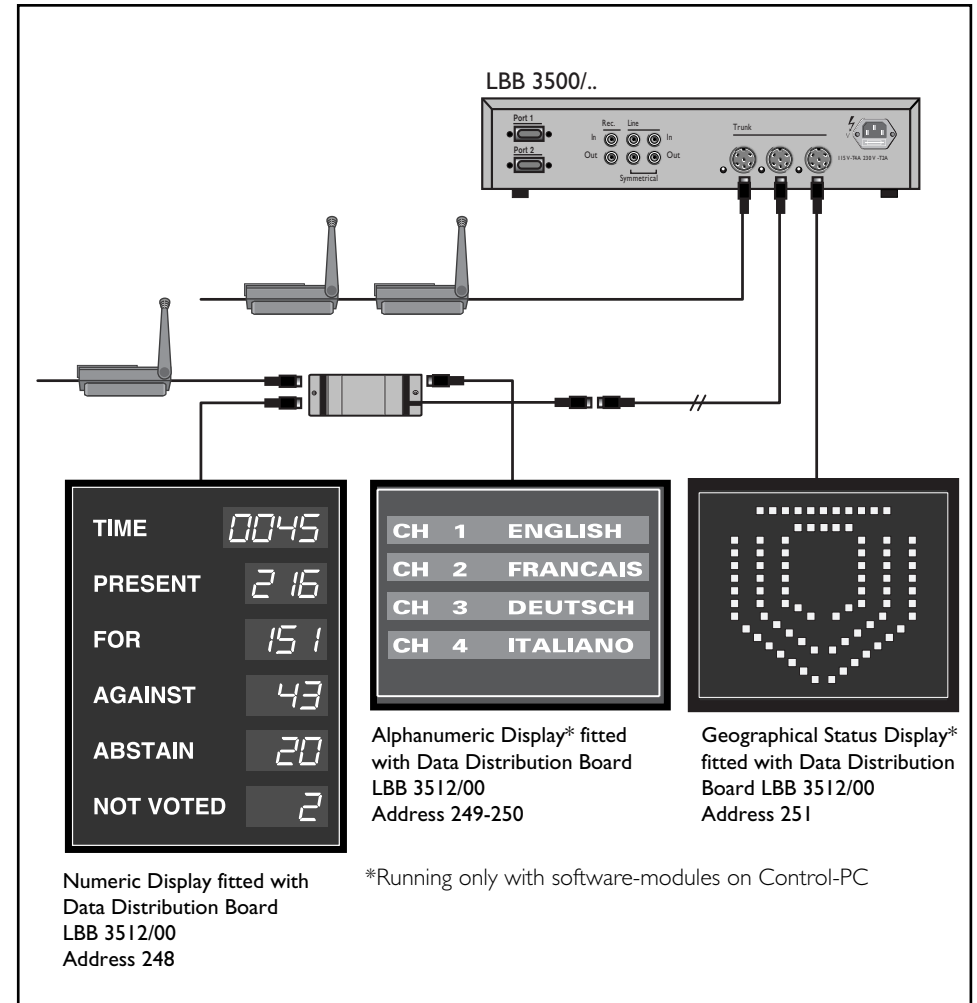


FIG 8-8 Typical layout for connecting hall display

8.1.4 Interconnection for Video hall displays and Video Projectors

Refer to FIG 8-9.

To display information on a Video hall display or Video projector:

Use the VGA/SVGA output of a client computer, other than the one used as the main DCN central computer. The client PC, with video display (client) software package, is connected to the main DCN PC (server) via an Ethernet link.

- The data information is transported by means of the DDE-link (Dynamic Data Exchange). For hardware information see [Chapter 10](#).
- The 'Video Display' software package LBB 3584 has to be installed in the DCN PC (server) only. The LBB 3590 start-up does not need to be installed on the client PC.

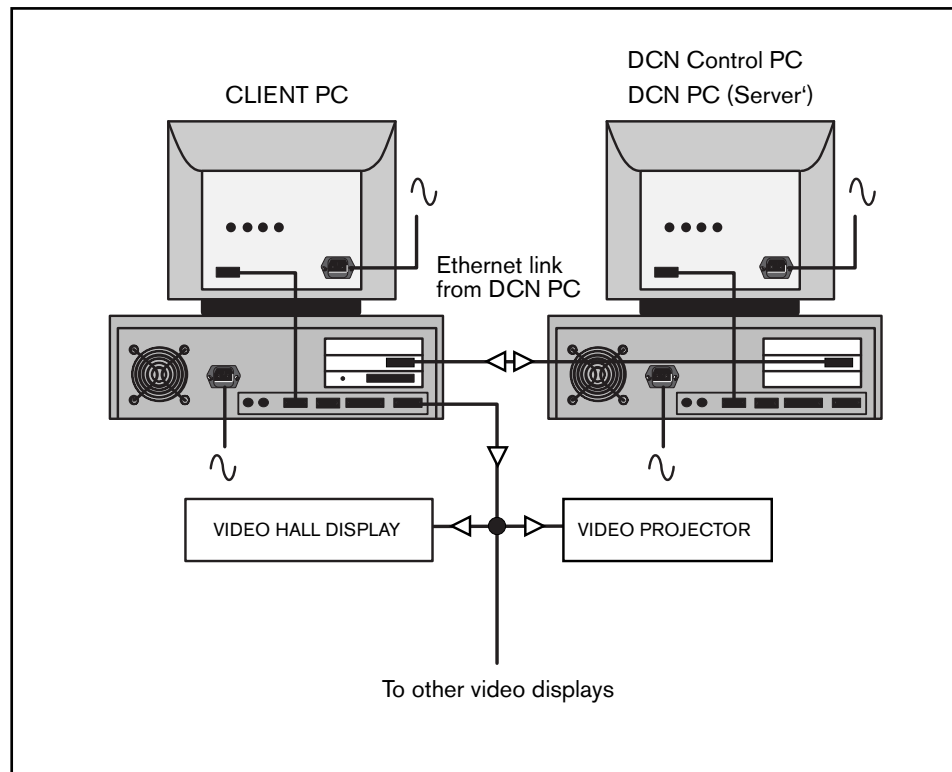


FIG 8-9 Interconnection Hall Display and Video Projector

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Chapter 9. DCN Peripheral Equipment

9.1 Introduction Peripheral Equipment

The DCN system can be connected to various external devices including a telephone coupler.

9.1.1 Telos Digital Telephone Interface

The 'TELOS' digital telephone interface allows participation in a DCN conference without actually being present. The interface links the DCN system to the public telephone network. It enables a caller - such as one providing specialist advice or information to participate from a remote location - even overseas.

The interface can be connected to the DCN system via the Central Control Unit LBB 3500/... A power supply unit provides power to the interface unit as well as providing the connection to a telephone or fax machine. For further information view the TELOS web-site at www.zephyr.com.

Interconnection

The telephone interface is connected to the line INPUT' and line OUTPUT' of the CCU. Use of the 'MIX-MINUS mode of the CCU is recommended (see [Chapter 4.9](#)). The telephone interface can also be used for 'Remote interpretation' in combination with the 'Analog Audio Input/Output' module LBB 3513/00 (Refer to the Instructions-for-use for the 'Analog Audio Input/Output' module code No. 3922 988 92511).

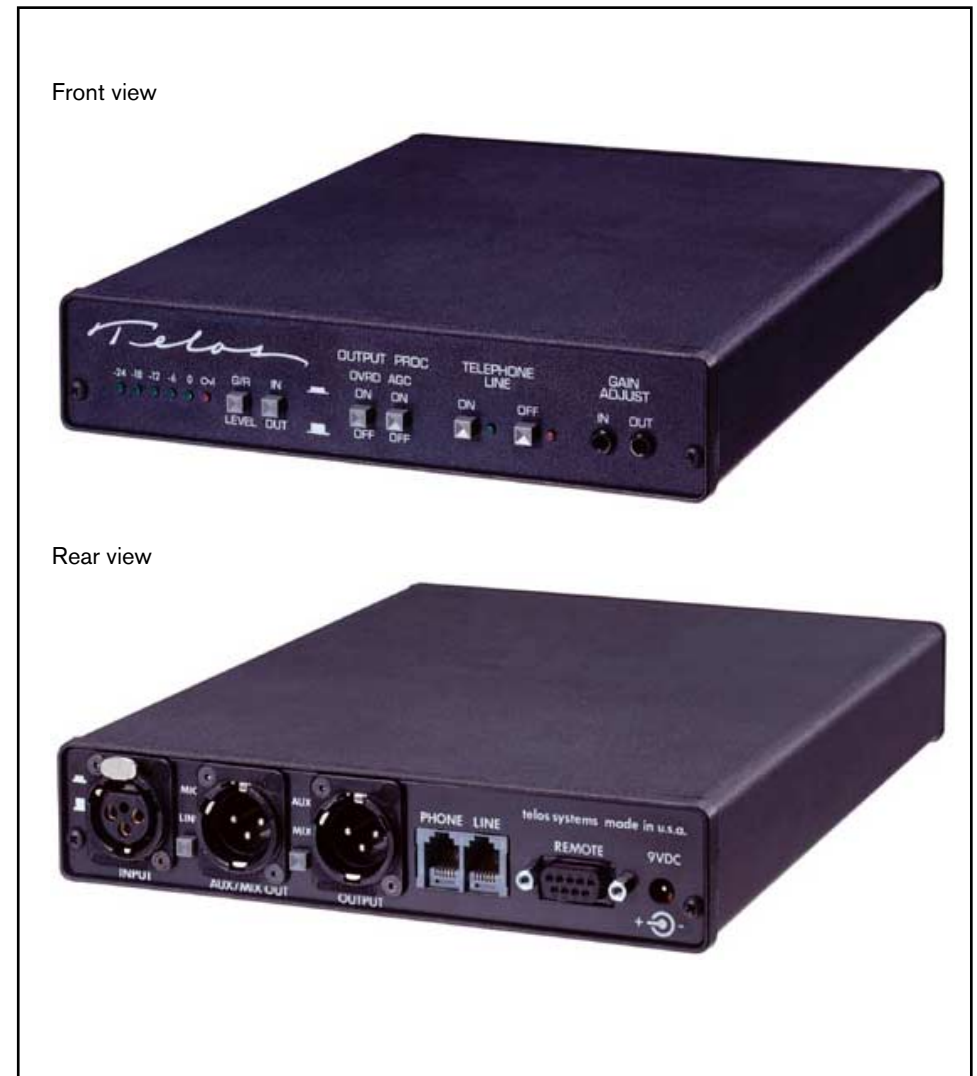


FIG 9-1 TELOS Digital Telephone Interface

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Chapter 10. Installation Techniques

10.1 Introduction Installation Techniques

The primary focus of this chapter is to provide system installation techniques, typical examples, and system limitations for stand-alone and PC- controlled systems using the range of equipment described in [Chapter 2](#).

The cable attached to each DCN unit forms the trunk-line cabling ('daisy-chain'). This cable carries all the systems digital signals, up-down links and power supplies. Its versatility allows units to be 'tapped-off' anywhere throughout an installation, meaning that systems can easily be expanded without the need to change the system cabling. The single cable handles as many as 16 up and 16 down high quality contribution, distribution and data channels or 15 up and 15 down plus four speech-quality intercom channels.

Installation is simplified by the use of ready-made cables, and where needed trunk-line splitters and Tap-off units.



REMARK: Before attempting to install a DCN system read the following [Chapter 10.1.1](#), 'System design fundamentals'. This chapter introduces the reader to DCNs power handling requirements and its control limitations.

10.1.1 System design fundamentals

The total number of system units in any installation is limited by the maximum power handling capacity and control capacity of the CCU (as well as the current consumed by individual system units). Because each DCN unit is a current consuming device, each unit draws a certain amount of current, depending on its power consumption requirements. This value normally expressed in Watts has been simplified to help make the total power handling capacity of a system easier to calculate.

To overcome the limitations of a system, dedicated units with extension facilities are available to extend the systems power handling capabilities. Such units include an Extension Power Supply Unit LBB 4106/00 and an Audio Media Interface Unit LBB 3508/00. Where more than 240 units are required, the system offers a Multi Central Control Unit (Multi-CCU) configuration (See [Chapter 4.4](#) for more information)

10.2 Power Handling Capacity

To understand the power handling capacity of a system, individual DCN units have been assigned with a Power Consumption Factor (PCF). The PCF therefore has a bearing on the total number of units that can be connected to a system. The maximum number of units, quoted for a CCU is based on all units having a PCF of 1. This means for example, that a CCU can accommodate 60 units of PCF (valid for each trunk/tap-off output), but can also accommodate 120 units of PCF 0.5. Table No. 10.1 gives the PCF value rated for each DCN system unit.

The length of (extension) cable used also has an influence on the number of units connected to a system. Therefore to calculate the PCF value in relation to the length of cable used, a calculation graph has been devised (refer to Chapter 10.4 "Calculating the PCF of a system").

FIG 10-1 shows the maximum PCF values that can be connected to a single and all three trunk-outlets of the following units:

1. Central Control Unit LBB 3500/..
2. Audio Media Interface unit LBB 3508/00
3. Extension Power Supply Unit LBB 4106/00

Table 10.1: Power Consumption Factor PCF

Type No.	DCN Unit Description	PCF Value
LBB 3530/xx	Delegate unit (discussion)	1
LBB 3531/xx	Delegate unit (discussion)	1
LBB 3533/xx	Chairman unit (discussion)	1
LBB 3534/xx	Chairman unit (discussion)	1
LBB 3544/00, LBB 3545/00	Delegate unit (Concentus)	2
LBB 3546/00	Delegate unit (Concentus)	2.5
LBB 3547/00	Chairman unit (Concentus)	2.5
LBB 3520/10	Interpreter desk	2.5
LBB 3524/xx	Channel selector unit	0.5
LBB 3526/10	Channel selector unit	0.5
LBB 3535/00*	Dual audio interface unit	1.5
LBB 3540/15	Multi-purpose connection unit	2
LBB 3512/00	Data Distribution Board	1
LBB 4106/00 (D)	Extension Power Supply Unit	0.5
LBB 3508/00 (D)	Audio Media Interface unit	0.5
LBB 3423/00	DCN Interface module	0.5
LBB 3510/00	PC network card	1
LBB 3513/00	Analog Audio Input/Output Module	1
LBB 4114/00	Trunk-cable Splitter	1
LBB 4115/00	Tap-Off unit	1



The PCF value of a unit includes its attached 2 m (6.5 ft.) long cable.
 *The PCF value of these units include the flush-mounted units and/or hand microphones connected to it

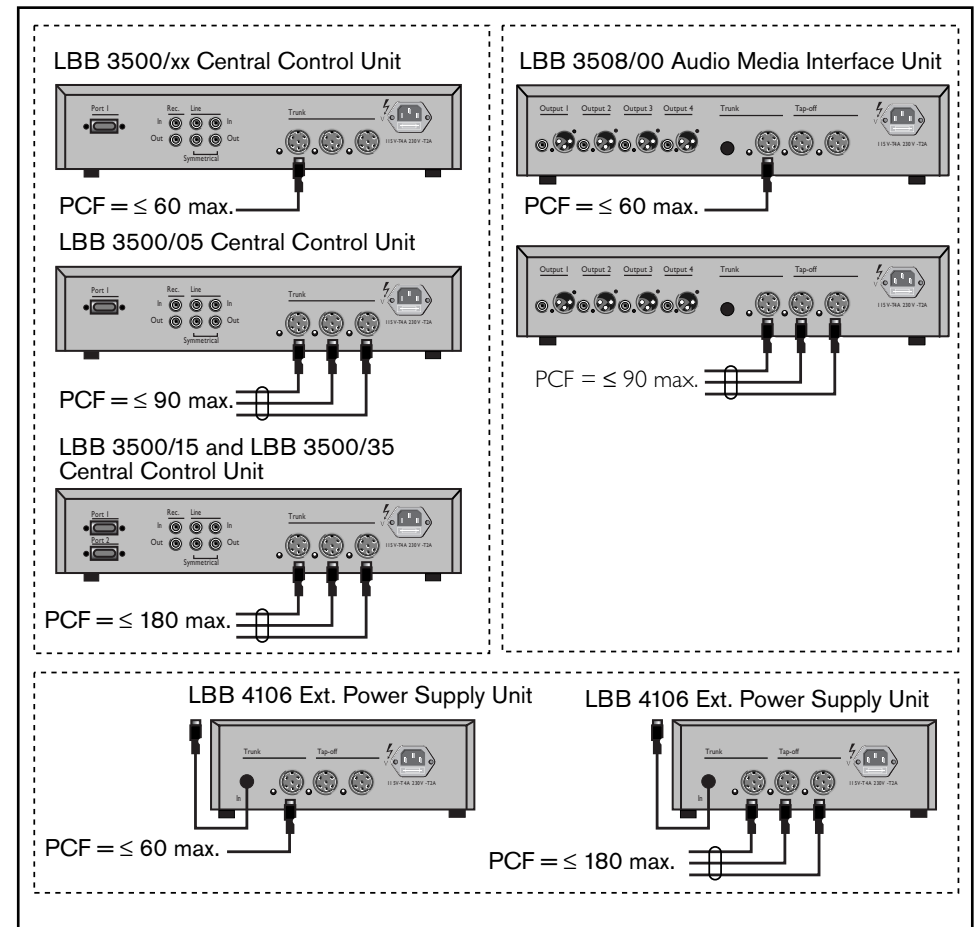


FIG 10-1 Power Handling Capacities



REMINDER: The Central Control Unit type LBB 3500/05 has a maximum rated PCF value of 90 PCF. Central control units type LBB 3500/15 and LBB 3500/35 have a maximum rated PCF value of 180 PCF.

10.3 Trunk outlets and Tap-offs

The Extension Power Supply Unit LBB 4106/00, Audio Media Interface Unit LBB 3508/00, Trunk-cable splitter LBB 4114/00 and Tap-off Unit LBB 4115/00 all have Trunk outlets and Tap-offs. Trunk-outlets are used for loop-through of the DCN trunk-line, and tap-offs are used for trunk-cable splitting. These units have regenerative Tap-offs, regenerating the digital DCN signal.

FIG 10-2 shows the Trunk outlets and Tap-offs of the following units:

1. Audio Media Interface Unit LBB 3508/00
2. Extension Power Supply unit LBB 4106/00
3. Trunk-cable splitter LBB 4114/00 and Tap-off unit LBB 4115/00

10.3.1 Tap-off limitations

The number of serial tap-off connections from the CCU to the last tap-off in its chain should not exceed 4. Any unit connected thereafter will not function. See FIG 10-3.

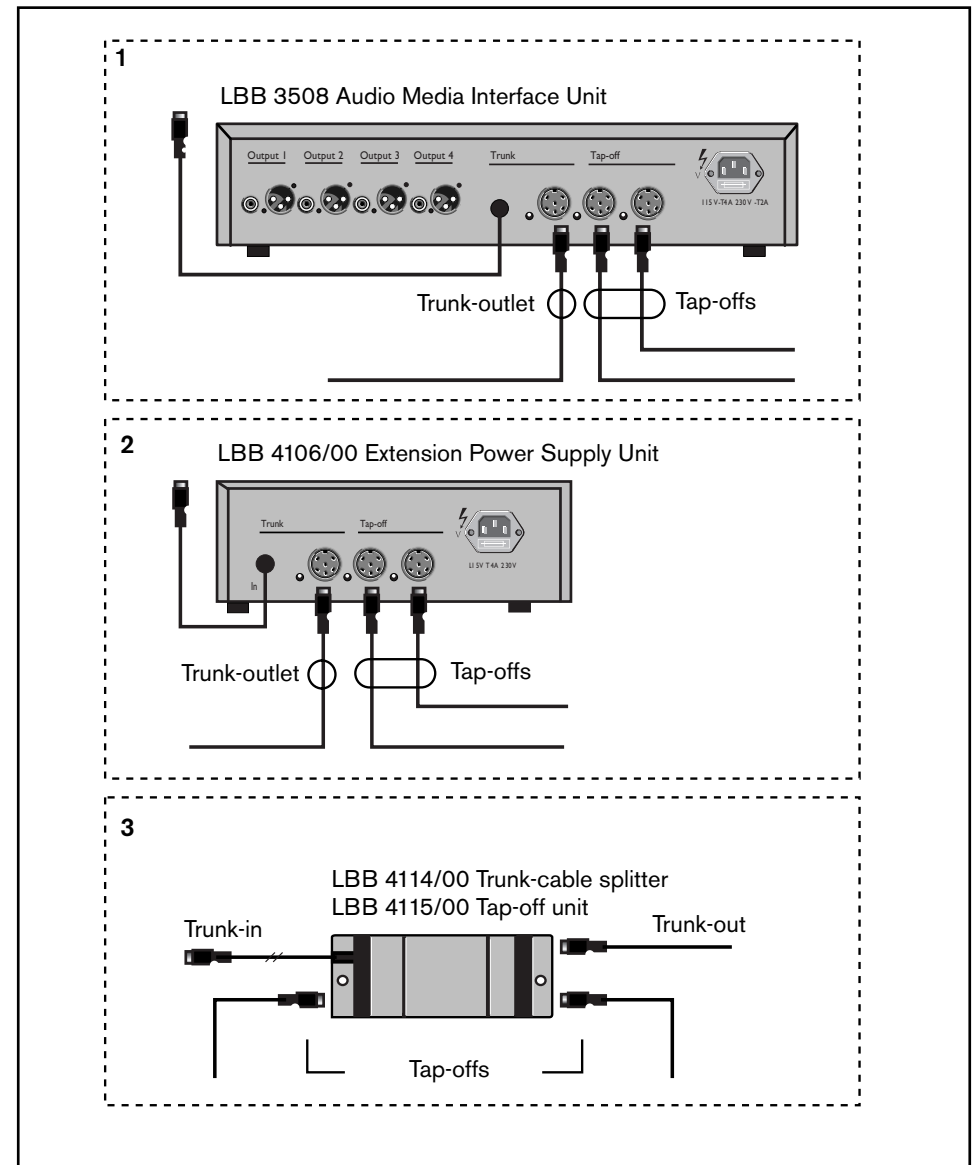


FIG 10-2 Trunk-outlet and tap-off connections

Max. number of units connected in series (without the use of extension cables)

The maximum number of units connected in series to a Trunk outlet or Tap-off of a CCU (LBB 3500), Extension Power Supply unit (LBB 4106/00) and Audio Media Interface unit (LBB 3508/00) is:

- **Table-top units**
 - 50 x Delegate/Chairman discussion units with a PCF value of 1 (see Limit 1)
- **Flush mounted units**
 - 40 x Dual Audio Interface units (see Limit 2),
 - or 30 x Multi-purpose connection units (see Limit 2),
 - or 50 x Channel selector units (see Limit 1),
 - or 24 x Delegate/Chairman Cententus units including interpreter desks with a PCF value of 2.5 (see limit 2).

Limit 1: The maximum cable length is 100 m (328 ft.). The length of cable attached to each unit is 2 m (6.5 ft.), therefore a maximum of 50 discussion units (50 x 2 m (6.5 ft.) = 100 m (328 ft.)) can be connected even though the maximum PCF value of 60 has not yet been reached.

Limit 2: The maximum total PCF value that can be connected to one outlet is 60. The Dual Audio Interface has a PCF value of 1.5 (40 x 1.5 = 60) and the Multi-purpose connection unit has a PCF value of 2 (2 x 30 = 60).

System overload

Each outlet socket is protected against short circuit at the power supply lines, and each has a red LED indicator (FIG 10-3) to indicate when the trunk-line has exceeded its maximum PCF value. In an overload situation, when the LED is lit, the system has a built-in delay time of 30 seconds before scanning the system again for a repeat overload situation. If the overload has been corrected the LED goes out. Refer to Chapter 10.2 Power Handling Capacity.

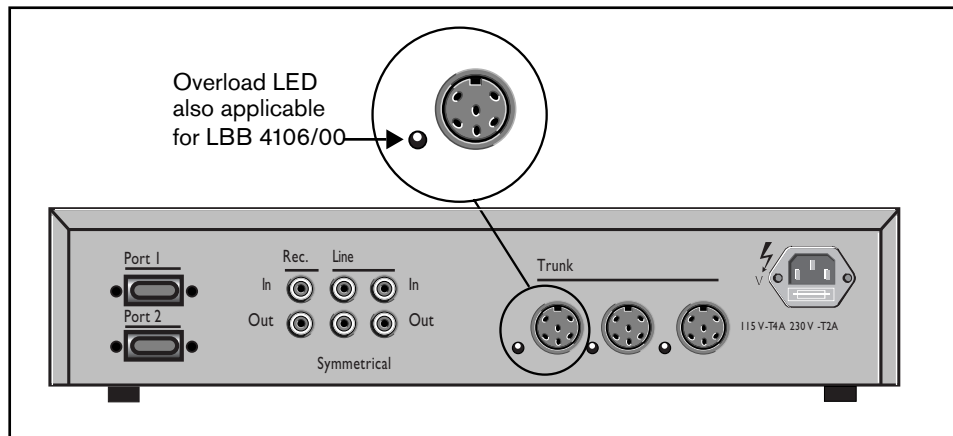


FIG 10-3 Overload indication

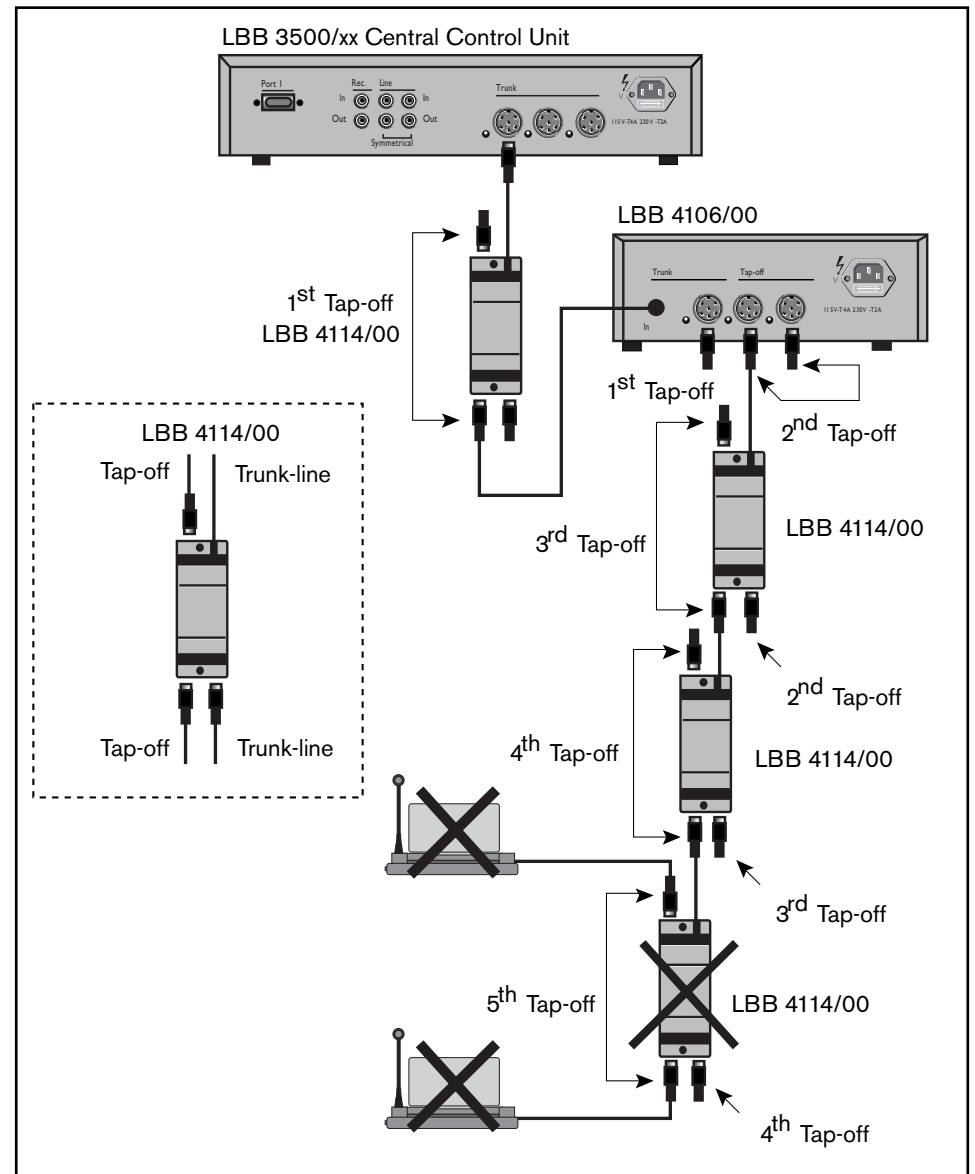


FIG 10-4 Tap-off limitations

10.3.2 Using Tap-Off unit LBB 4115/00

The Tap-off unit LBB 4115/00 (FIG 10-5) provides short-circuit protection on the Tap-off connector. Each tap-off connector can accommodate up to a maximum of 2.5 PCF including a DCN units extension cable; for example:

- **Table-top units**
 - 2 x Concentus Delegate, Chairman units or Interpreter Desks
- **Flush mounted units**
 - 1 x Dual Audio Interface unit
 - or 1 x Multi-purpose connection unit
 - or 5 x Channel selector units.

NOTE: The Tap-off connector can handle up to 2.5 PCF per outlet (1x Concentus unit per tap-off)

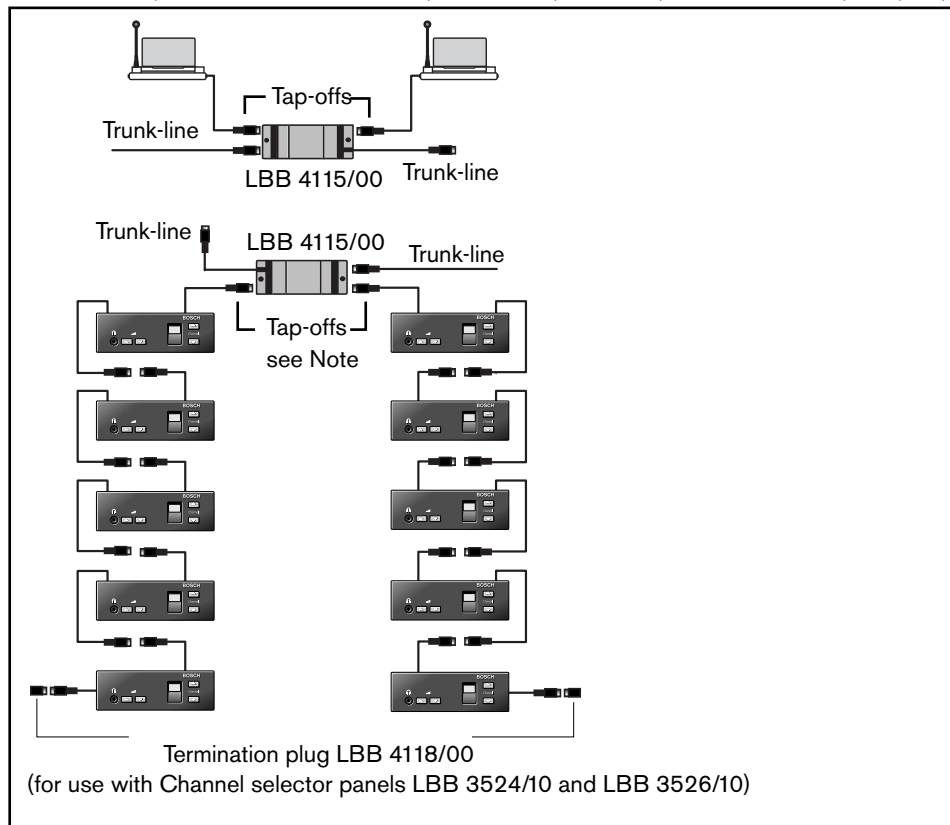


FIG 10-5 LBB 4115/00 Tap-off unit limitations

10.3.3 Maximum cable lengths using Trunk-outlets and/or Tap-offs

Extension cables are used to extend the length of cable on DCN system units. The length of cable used, directly affects the PCF value of a system.

System limits (FIG 10-6)

1. The total cable length (using standard LBB 4116/xx cable) between the CCU and the last unit in any branch of the system must not exceed 250 m (820 ft.). This includes all extension cables and the 2 m (6.5 ft.) cable attached to each system unit.
2. The total length of the cable from the CCU to the first regenerative tap-off (i.e. from Trunk Cable Splitter LBB 4114/00, Audio Media Interface Unit LBB 3508/00 or Extension Power Supply Unit LBB 4106/00 must not exceed 100 m (328 ft.).
3. The total length of the cable between regenerative tap-offs outputs must not exceed 100 m (328 ft.).

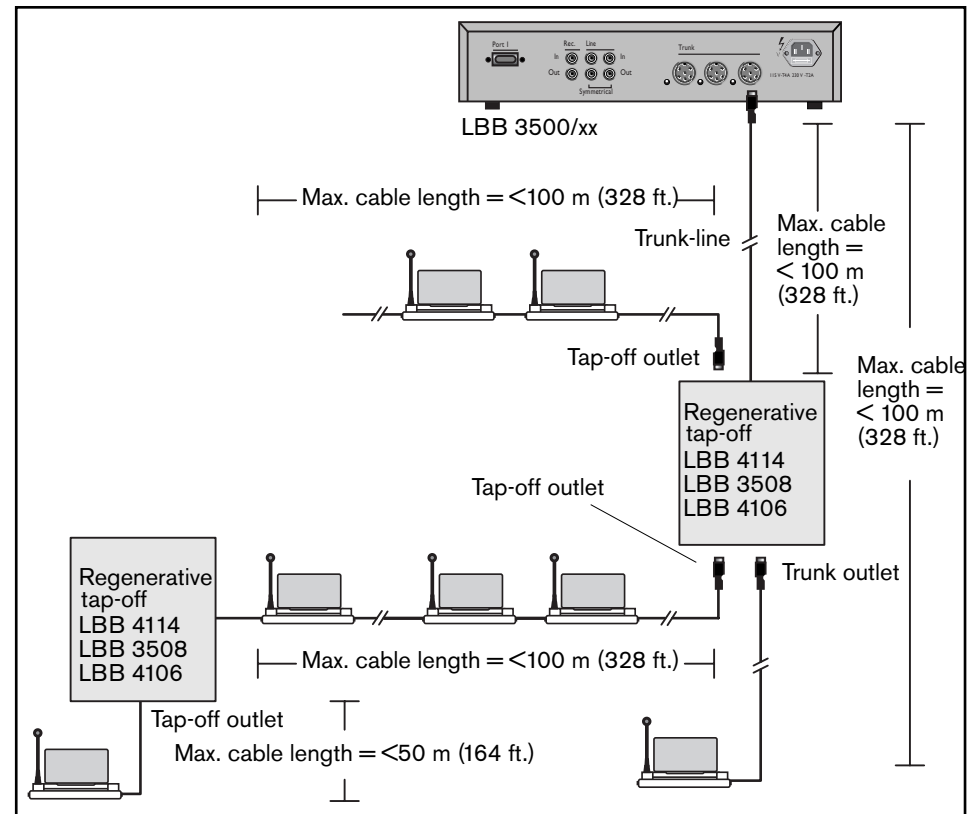


FIG 10-6 Maximum cable lengths

10.4 Calculating the PCF of a System with respect to cable length

As stated, the length of cable used in a system has a direct influence on the PCF of a system. In the example shown in FIG 10-7, the second in-line trunk-splitter has two extension cables connected to it, with lengths of 20 m (65.6 ft.) and 50 m (164 ft.) When determining the cable length of a trunk-outlet or tap-off connector, the longest extension cable only is taken in to account - in this example, the 50 m (164 ft.) cable. Therefore, in this example the total extension cable length from a single trunk-outlet of the CCU is calculated as 20 (65.6)+ 10 (32) +50 (164)= 80 m (262 ft.).

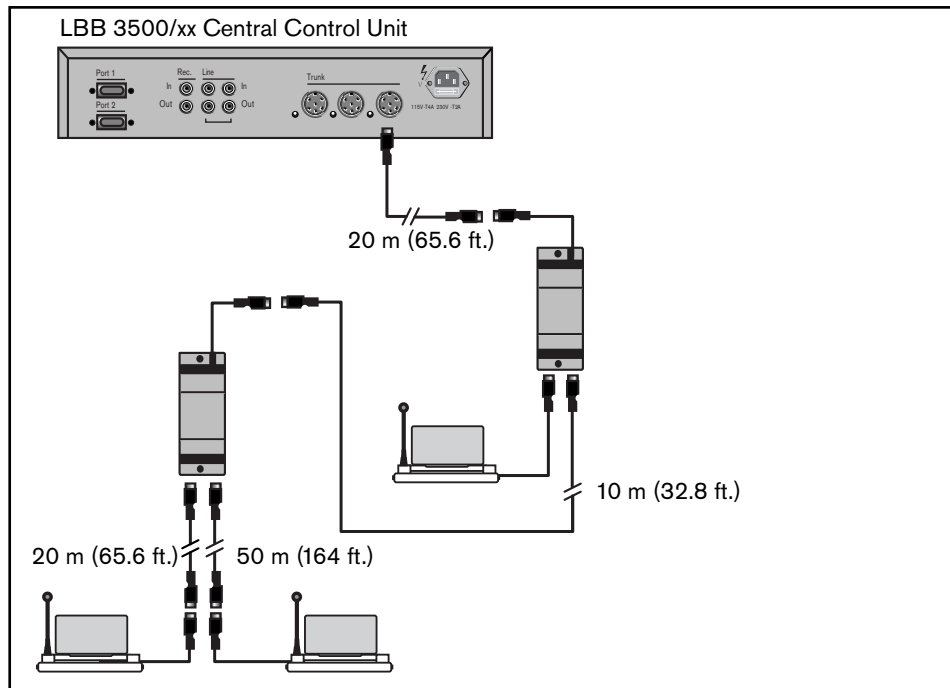


FIG 10-7 Calculating the length of extension cables

10.4.1 Calculating Step-by-Step

Before calculating the PCF of a system, consider the following:

- How many units will be connected, and what is their total PCF value?
- What is the total length of cables used per CCU trunk-outlet, and what is the total length of extension cable used on this trunk-outlet?

Calculation Method

- Using the PCF table (Table 10.1) and the graph (FIG 10-10) calculate the PCF value required for the system. If the PCF value exceeds 60, then more than one of the CCU's Trunk outlets must be used.
 - Calculate the length of the cable for each Trunk outlet. "Maximum cable lengths using Trunk outlets and Tap-offs" when attaining the length of an extension cable.
 - A unit with a regenerative tap-off should be placed every 100 m (328 ft.). This length includes the 2 m (6.5 ft.) cable length of each attached unit.
1. Using the graph, check for each CCU outlet that the cross-over point according to the extension cable length and the PCF value is within the approved system limits. The approved system limits are defined by the grey shaded area of the graph.



NOTES:

1. If only one CCU Trunk outlet is needed, step 2 is not applicable.
2. An Microsoft Excel based DCN calculation tool for use on a PC is available on request.

2. Using the data obtained in step 1, (i.e. the PCF value and the length of extension cable) use the cable correction graph to calculate the PCF value for the relevant Trunk outlets. The PCF values with cable correction are shown within small white squares. Once done add the PCF value for each trunk-line. This summed total gives the system PCF value.



NOTE:

This method of calculation is used for all units with Trunk outlets and Tap-offs

The maximum PCF capacities are:

- 60 PCF for each of the Trunk outlets and Tap-offs
 - 90 PCF in total for the LBB 3500/05 Central Control unit
 - 180 PCF in total for the LBB 3500/15 and LBB 3500/35 Central Control unit
 - 90 PCF in total for the LBB 3508/00 Audio Media Interface unit
 - 180 PCF in total for the LBB 4106/00 Extension Power Supply unit
- When using Trunk-splitters or Tap-off units, their PCF must also be taken into account (see PCF Table 1).

EXAMPLE:

These examples are based on the system configurations shown in FIG 10-8 and FIG 10-9. These configurations show two systems using all three trunk-line connectors.

1. Using the graph shown (FIG 10-10) check that each trunk-line in use is within the approved system limits (i.e. within the grey shaded area).
2. Using the PCF extension cable correction graph, locate the PCF value on the 'Y' axis, that are be connected to the trunk-line. On the 'X' axis, locate the length of extension cable needed. Using standard graph reading procedures join the two together to obtain the PCF value including extension cable length correction. The actual PCF value is shown within small shaded squares.

Table No.10.2 gives the PCF value for the example shown in FIG 10-8

Table No.10.3 gives the PCF value for the example shown in FIG 10-9

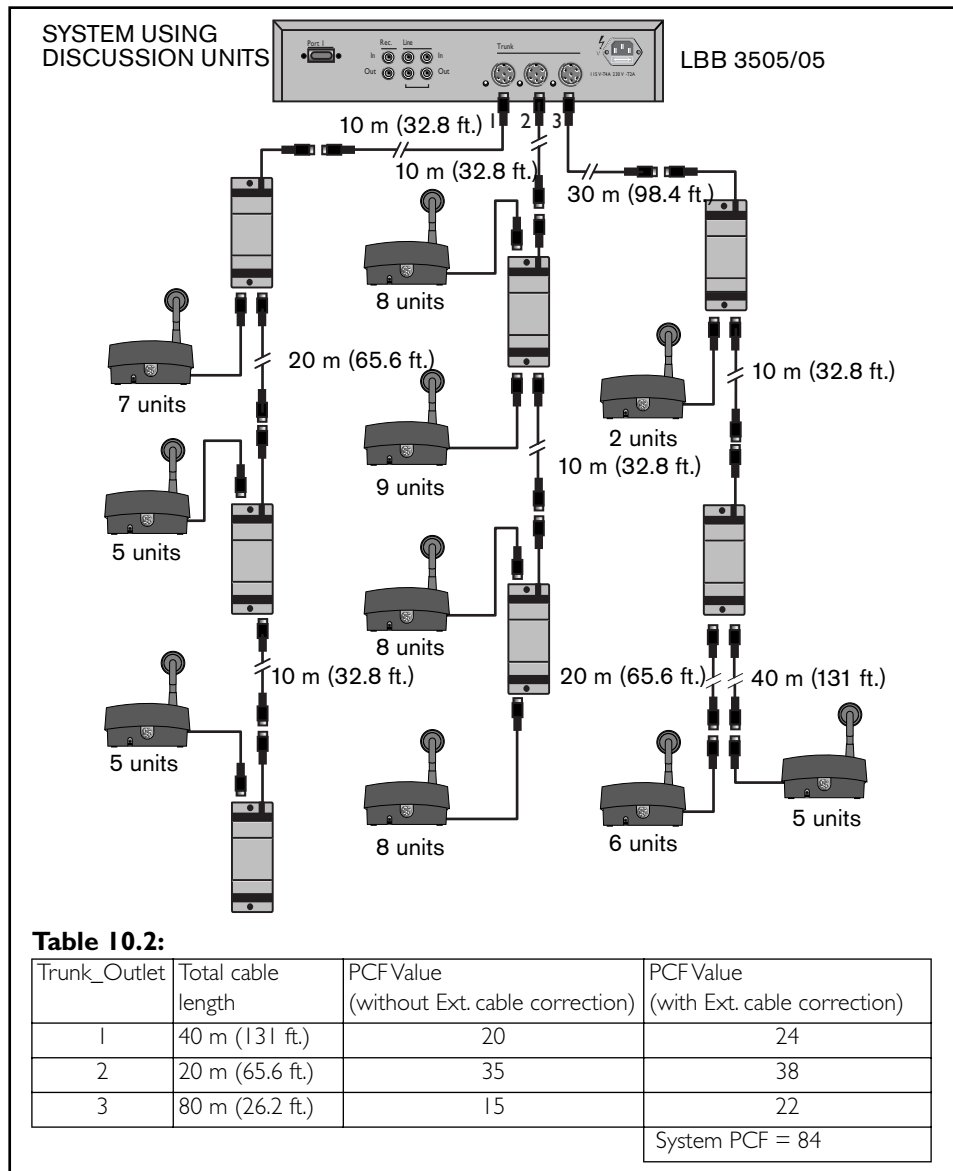


FIG 10-8 Example when calculating the PCF of a system using discussion units (e.g. LBB 3530/00)

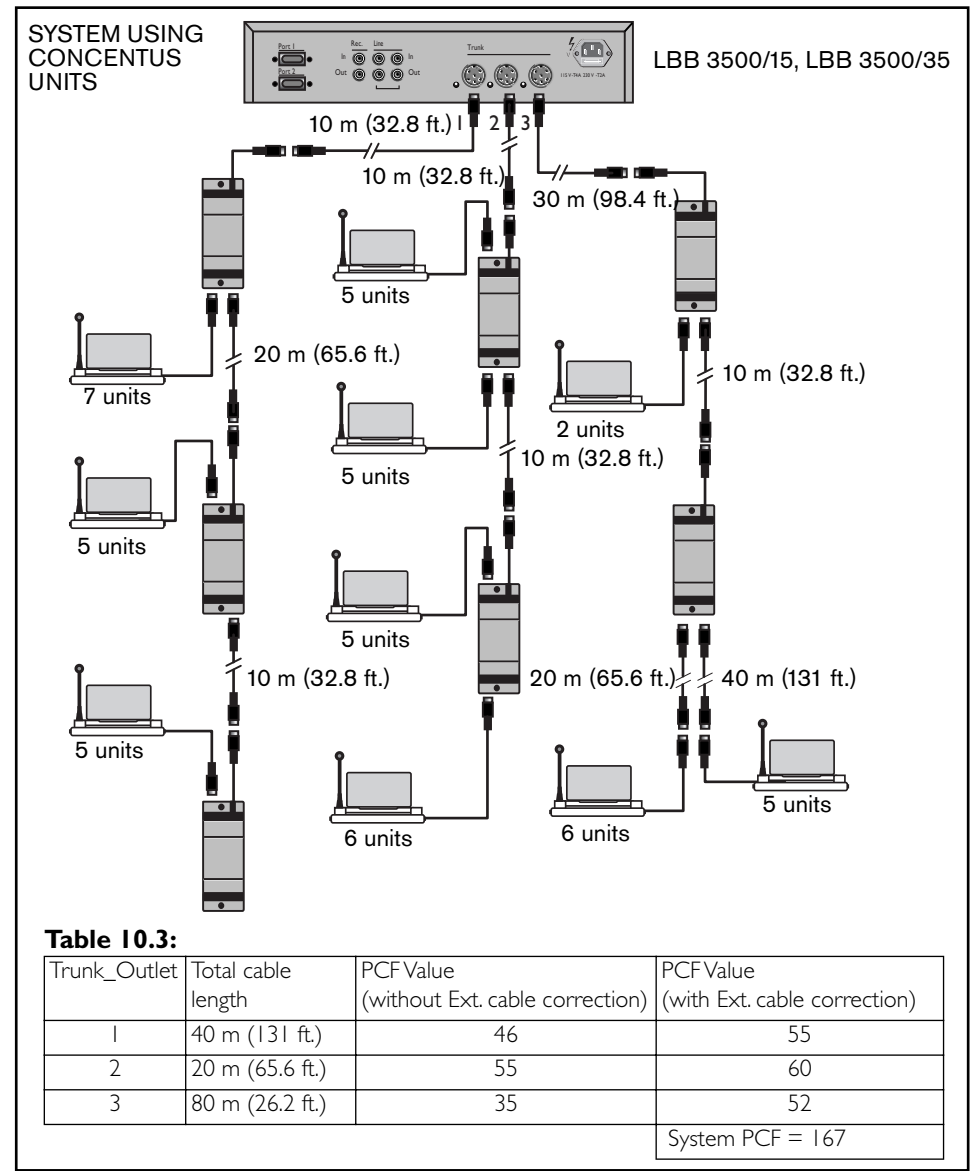


FIG 10-9 Example when calculating the PCF value of a system using Concentus units (e.g. LBB 3544/00, LBB 3545/00, LBB 3546/00 and LBB 3547/00)

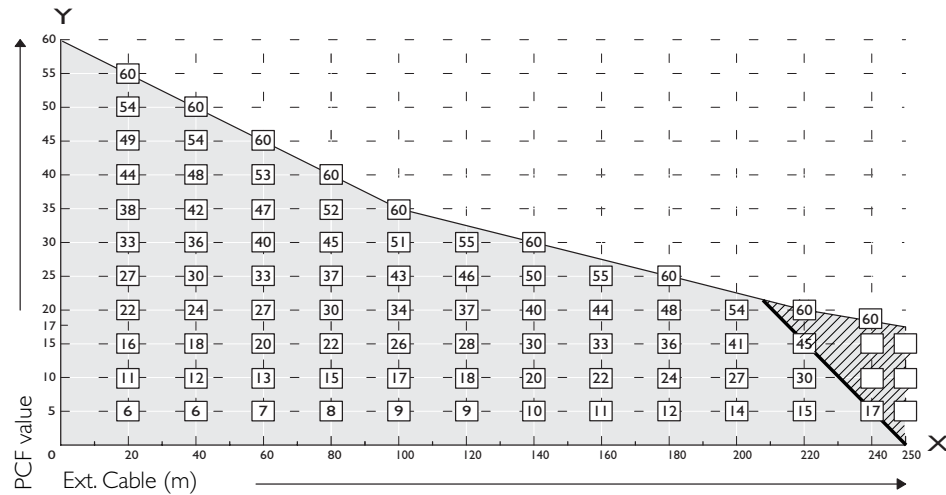


FIG 10-10 Graph for calculating the PCF value of a system including extension cable length correction

10.4.2 Graph explanation

The Y-axis of the graph gives the PCF per trunk-outlet (max. 60 PCF) in relation to the X-axis, which gives the length of extension cable used (max. 250 m (820 ft.)).

If the length of cable from the Trunk outlet exceeds 250 m (820 ft.), the graph shows that no units can be connected. At 240 m (787 ft.), the graph shows that a PCF of 17 can be connected. For an example of a single trunk-outlet limitation refer to FIG 10-11 and FIG 10-11.

For typical PCF graph references in relation to Trunk outlets and Tap-offs for systems with and without extension cables refer to FIG 10-12.

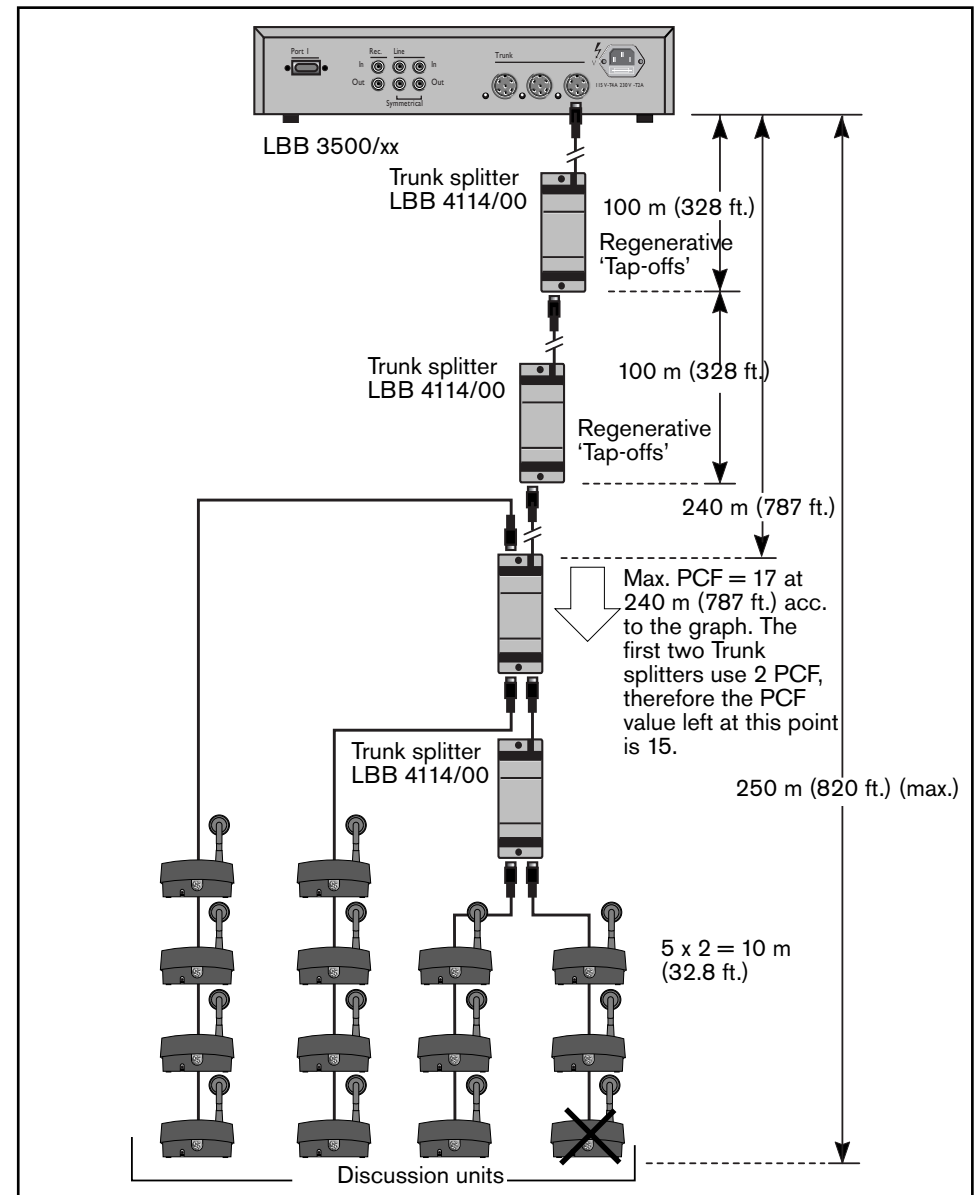


FIG 10-11 Example Single Trunk-outlet limitations

10.4.3 Graph reference examples

FIG 10-12 in combination with the PCF graph (FIG 10-10) gives examples of how to calculate the PCF value of a single trunk-outlet. Using these examples, the total PCF value of all three trunk-outlets of a CCU can be calculated.

- TS = Trunk-splitter
- TT = Table-top discussion units
- CON = Concentus units
- DAI = Dual Audio Interface units
- MPC = Multi-purpose Connection units

NOTE: (1 m = 39.37 in)

GRAPH REFERENCE			
Y axis	X axis (max.)	BLOCK DIAGRAMS	
PCF	Ext. Cable (m)		PCF CALCULATION
60	0		$TT = 59 \times 1 PCF = 59 PCF$ $TS = 1 \times 1 PCF = 1 PCF$ TOTAL = 60 PCF
60	0		$DAI = 40 \times 1.5 PCF = 60 PCF$ TOTAL = 60 PCF
60	0		$MPCU = 30 \times 2 PCF = 60 PCF$ TOTAL = 60 PCF
60	0		$CON = 24 \times 2.5 PCF = 60 PCF$ TOTAL = 60 PCF
35	100		$TT = 34 \times 1 PCF = 34 PCF$ $TS = 1 \times 1 PCF = 1 PCF$ TOTAL = 35 PCF + Ext. cable = 60 PCF
35	100		$DAI = 22 \times 1.5 PCF = 33 PCF$ $TS = 1 \times 1 PCF = 1 PCF$ TOTAL = 34 PCF + Ext. cable = 60 PCF
35	100		$MPC = 17 \times 2 PCF = 34 PCF$ $TS = 1 \times 1 PCF = 1 PCF$ TOTAL = 35 PCF + Ext. cable = 60 PCF
35	100		$CON = 13 \times 2.5 PCF = 32.5 PCF$ $TS = 1 \times 1 PCF = 1 PCF$ TOTAL = 33.5 PCF + Ext. cable = 60 PCF

FIG 10-12 PCF Calculation examples for a single trunk-line

10.5 Control Capacity

The Central Control Unit LBB 3500/05 has a power handling capacity to power up to 90 DCN units, while Central Control Units LBB 3500/15 and LBB 3500/35 have a power handling capacity to power up to 180 DCN units. However, the built-in 'control facilities' of all CCUs are capable of controlling up to a maximum of 240 active units* and an unlimited number of passive units**. A combination of both active and passive units can be connected to any system 'tap-off' or trunk-line outlet connector.

Where more than 240 active units are required, the DCN system can be extended with the Multi-Central Control unit LBB 3500/35 for use in Multi-CCU systems. In combination with a dedicated PC, fitted with a Multi-PC- card LBB 3511/00 and Multi-CCU software LBB 3586/00, the PC can control up to a maximum of 16 CCU's connected in a 75 ohm coaxial loop-through chain. Each CCU in the chain has the same Power handling and control capacity as the Extended CCU (LBB 3500/15). In total, a maximum of 3,840 active units, using sixteen LBB 3500/35 type CCU's can be controlled.

*** Active (contribution) units include:**

- LBB 3530/xx, LBB 3531/xx, Delegate discussion units
- LBB 3533/xx, LBB 3534/xx Chairman discussion units
- LBB 3544/00, LBB 3545/00, LBB 3546/00, LBB 3547/00 .. Conference units (Concentus)
- LBB 3520/10 Interpreter desk
- LBB 3535/00 Dual Audio Interface Unit (See Note 1)
- LBB 3540/00 Multi-purpose Connection Unit
- LBB 3512/00 Data Distribution Board
- LBB 3510/00 PC Network Card
- LBB 3513/00 Analog Audio Input/Output Module

****Passive (distribution) units include:**

- LBB 3524/xx/, LBB 3526/10 Channel Selector Panel (See Note 2)



NOTE 1: The Dual Audio Interface Unit is controlled by the system as a single active unit, however two microphone inputs can be individually switched on or off. Therefore, when using the Dual Audio Interface Unit LBB 3535/00, up to a maximum of 480 microphones can be connected to a single Central Control Unit.



NOTE 2: Up to 10,000 Channel Selector Panels LBB 3524/xx and LBB 3526/xx can be connected to a single Central Control Unit in combination with Extension power supply units and/or Audio Media Interface Units to provide the required power.

10.6 Stand-alone Systems

(using Extension cables, Trunk-splitter and Tap-off units)

All DCN system units are connected to the CCU via its three outlet trunk-line cable connectors.

10.6.1 Basic System (without extension units)

FIG 10-13 shows a basic trunk-line interconnection, without extension units.

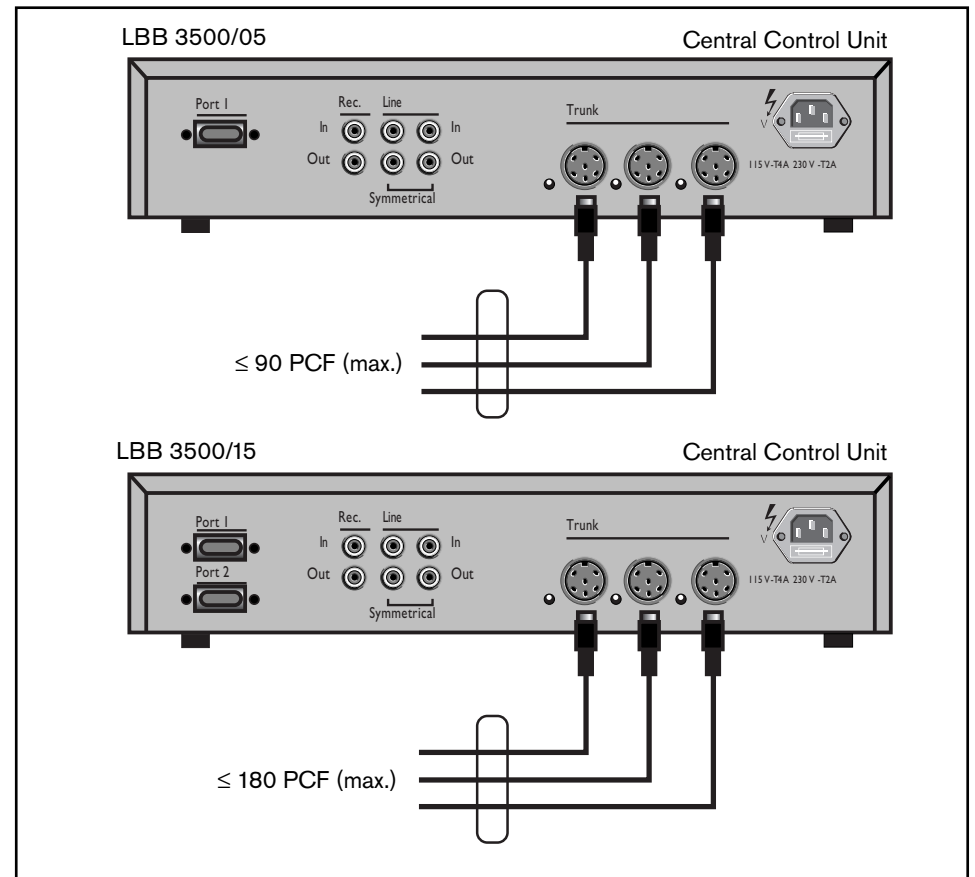


FIG 10-13 System Interconnection without extension unit

10.6.2 System layout (without extension units)

Using extension cables, Trunk-splitters and Tap-off units, the length of cable on a system unit can be lengthened, and cable runs can be laid out in diverse directions. FIG 10-14 gives a typical layout configuration using a Trunk-splitter and extension cables LBB 4116/xx.

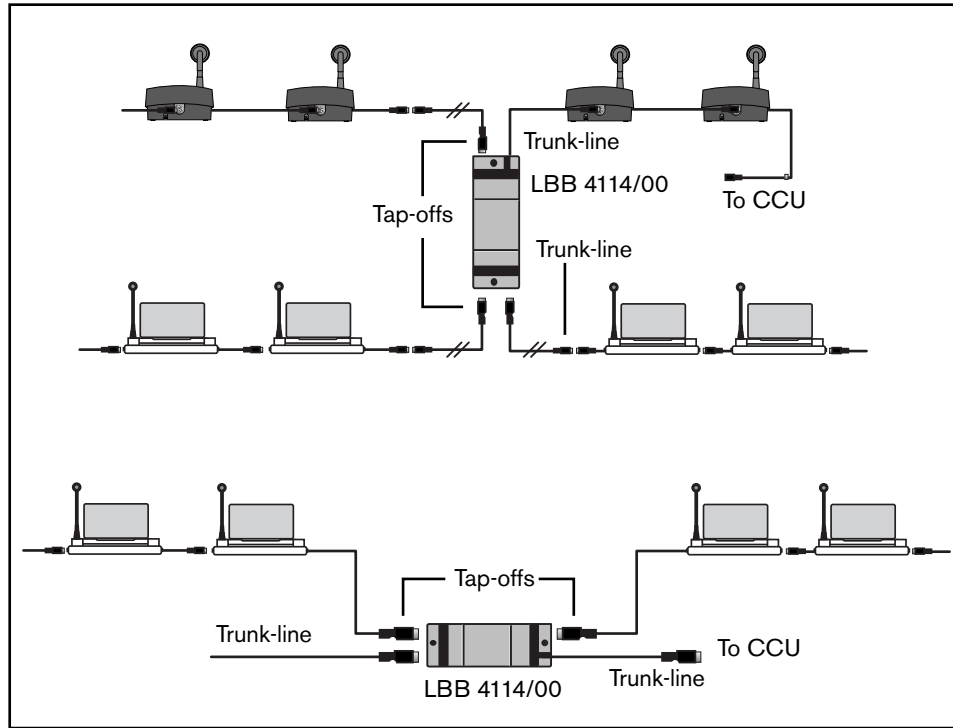


FIG 10-14 Unit layout possibilities using trunk-splitters

10.6.3 System with Extension units

FIG 10-15 shows the Audio Media Interface unit connected directly to the Central Control Unit, however in principle the unit can be connected to any convenient point within the DCN network cabling.

The illustration shows a centralized configuration where all the DCNs Central Control equipment is installed in a 19"-inch rack for example.

In a de-centralized configuration, the Extension Power Supply unit and the Audio Media Interface unit, are placed in different locations separated from the Central Control equipment.

NOTE: The example below uses a Central Control Unit LBB 3500/05 having a total power handling capacity of 90 PCF. Using a Central Control Unit LBB 3500/15 the power handling capacity is limited to 180 PCF (max. 60 PCF per output).

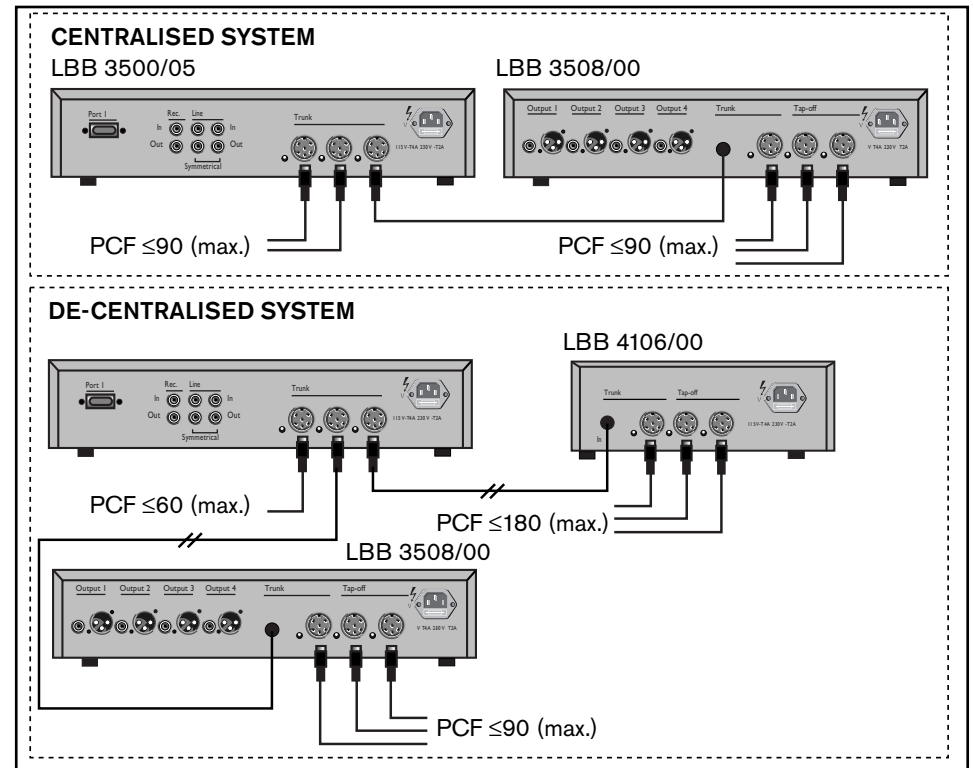


FIG 10-15 Typical system interconnection

10.7 Computer Based Systems

The DCN 2000 system offers two methods for connecting a central control PC to the DCN system: DIRECT and IN-DIRECT.

DIRECT connection (see FIG 10-16). Using this method, the built-in RS232 port located at the rear of the CCU (LBB 3500/15 and LBB 3500/35 only) is used to connect the CCU to a COM-port of the control PC. See also Chapter 5. DCN Control using Personal Computers.



IMPORTANT: When using the DIRECT connection method between the Control PC and the CCU, the central operator has NO facilities on the PC for using headphones or an intercom handset. Additional DCN units are then required to provide these functions.

IN-DIRECT connection see FIG 10-17). Using this method, a Network card LBB 3510/00 (see Chapter 5.2) is installed in the central control PC. Using the cable supplied with the Network card LBB 3510/00, connect the 15-pole D-type connector to the 15-pole D-type socket located on the PC Network card, and connect the DCN 6-pole modular connector to the DCN trunk-line Cabling. Ensure the PC Network card is configured and set-up correctly.

DIRECT Connection from CCU to PC

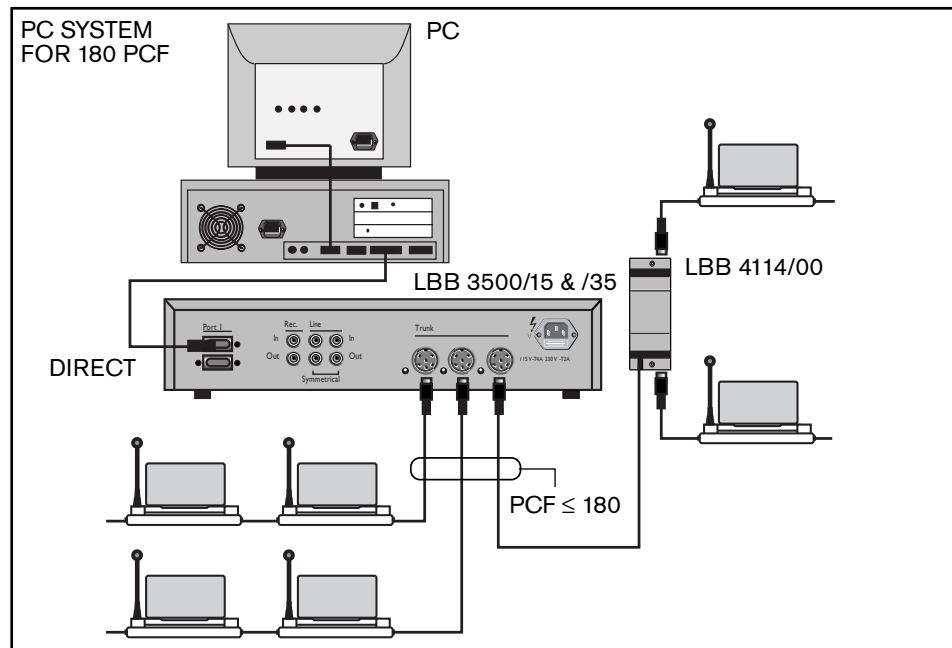
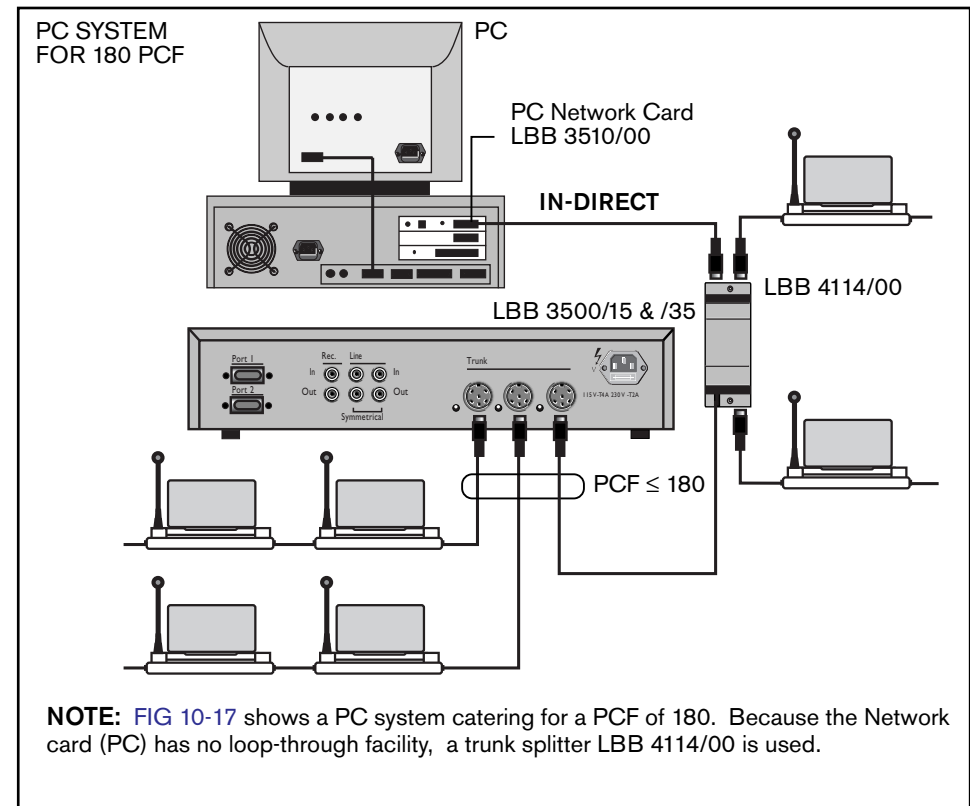


FIG 10-16 Direct connection

IN-DIRECT Connection using PC Network card LBB 3510/0



NOTE: FIG 10-17 shows a PC system catering for a PCF of 180. Because the Network card (PC) has no loop-through facility, a trunk splitter LBB 4114/00 is used.

FIG 10-17 Connection using PC Network card



IMPORTANT:

1. A 'DIRECT' connection is 'MANDATORY' when the control PC uses "Windows NT 4.0", Windows 2000 or Windows XP Professional as the operating system.
2. When using 'Windows 95 or Windows 98 both the 'DIRECT' or 'INDIRECT' method may be used, but NEVER at the same time.
3. When using the IN-DIRECT connection method, facilities are available on the PC Network card for using headphones or an intercom handset.

PC system for 270 PCF

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FIG 10-18 shows a PC system catering for 270 PCF. An Audio Media Interface Unit LBB 3508/00 is used to extend the system by 90 PCF. Because the Network card (PC) has no loop-through facility, a trunk splitter LBB 4114/00 is used.

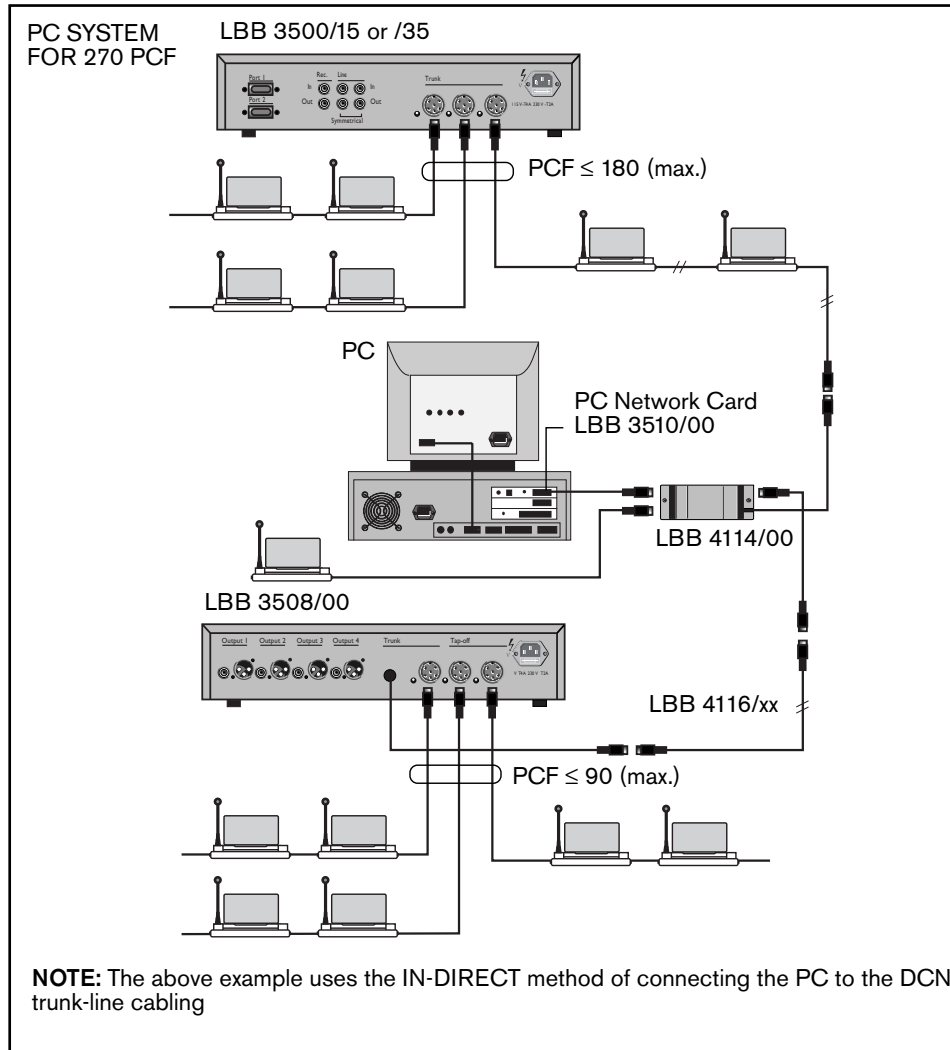


FIG 10-18 PC Control for a PCF of 270

10.7.1 PC Network System

In installations where more than one PC operator control position is required, an additional PC can be connected via a 'Peer-to-Peer' Network, using a separate cable. PC's connected in this method both require an Ethernet card installed in the computer with 'Microsoft operating systems: Windows® 95, 98, 2000, NT 4.0 or XP Professional. See also Chapter 5.. DCN Control Using Personal Computers



NOTE: Information is available on request concerning 'Microsoft® Windows® and for using the Ethernet card .

FIG 10-19 shows a typical configuration with an additional PC installed.

Ethernet requirements

- Ethernet card (3Com recommended)
These cards have to be installed on each PC on a free interrupt e.g 10.
- 'Microsoft Windows® 95, 98, NT 4.0, 2000 or XP Professional.
- Connection between a server and a client PC:
 - UTP cable or
 - 50 Ohm coax cable with:
 - Two 50 Ohm T-pieces
 - Two 50 Ohm terminating plugs



NOTE: The DCN software needed for this function must be version 6.0 or higher.

Software requirements on the PC's

Server PC:

- LBB 3590 Start-up
- LBB 3585 System Installation
- One or more software application modules to control the required functions

Client PC:

- LBB 3590 Start-up
- One or more software application modules to control the required functions

Audio monitoring on the client PC

If the audio monitoring function is also required on the slave PC, a language selector panel can be used or an additional PC network card LBB 3510/00 must be installed in the client PC.

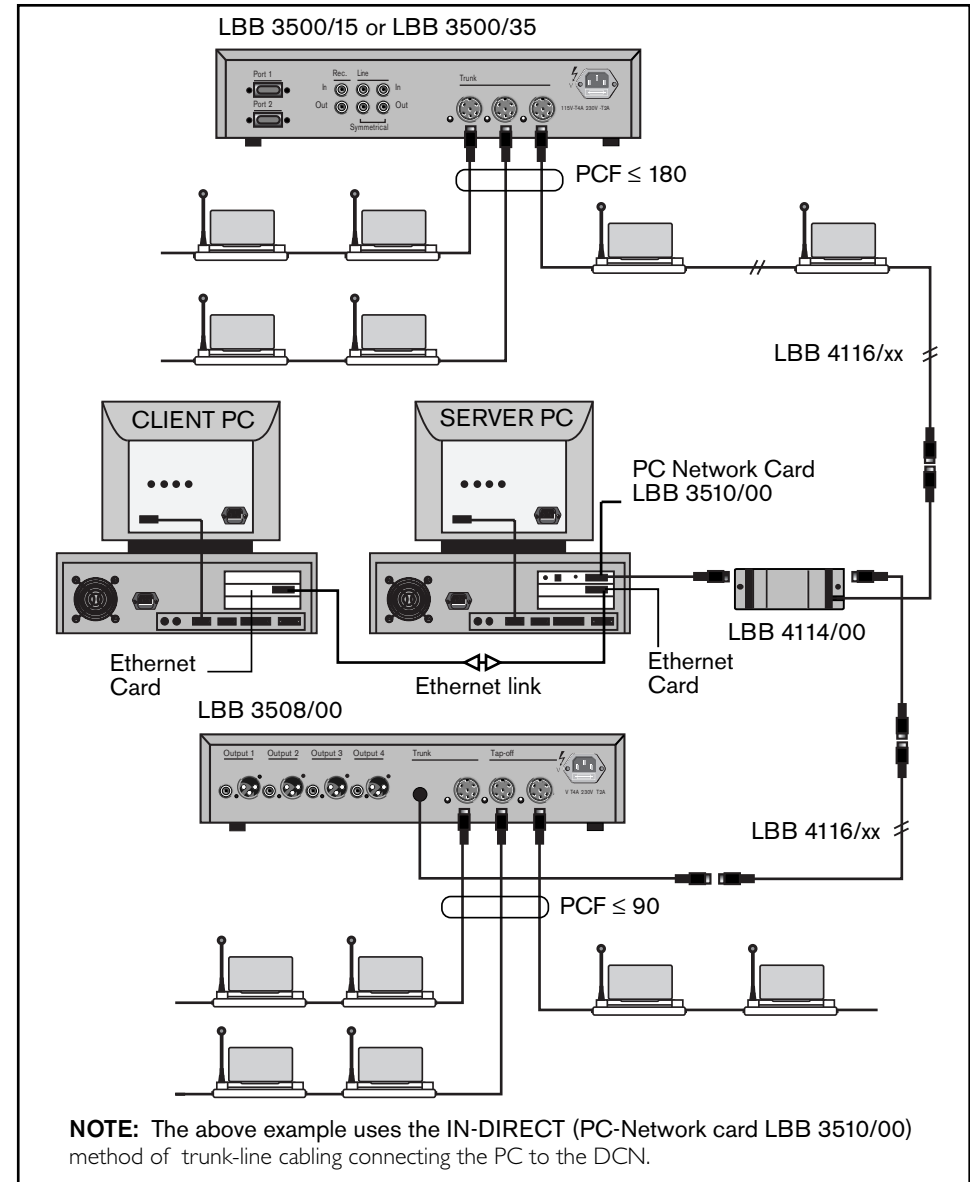


FIG 10-19 Typical solution providing more control positions

10.8 Multi-CCU system

Multi-CCU caters for situations where more than 240 contribution units are required. Multi-CCU systems are controlled from a separate, dedicated PC running OS.2 version 3.00 Warp operating system, the Multi-CCU software (LBB 3586) and equipped with the LBB 3511/00 Network/Multi-CCU card. All Multi-CCU units and the LBB 3511/00 are interconnected via a closed loop. FIG 10-20 shows a typical Multi-CCU configuration, for connection of up to a maximum of 16 LBB 3500/35 CCU's.

10.8.1 Multi-CCU and PC interconnection

For PC setup see Chapter 5.. DCN Control using Personal Computers.



WARNING: Before connecting the computer or the CCU's to the Multi-CCU cabling, ensure that the mains supply is off on all units, and the voltage selection switch on the computer is set for the correct mains voltage.

Using the Multi-CCU BNC cables, connect the Multi-CCU card's OUT-port to the first CCU's IN-port. The next CCU's IN-port must be connected to the previous CCU's OUT-port. The OUT-port of the final CCU must be connected to the Multi-CCU card's IN-port (see FIG 10-20). The interpreter desks can be connected to any CCU if the Multi-CCU mode is selected. However it is recommended to connect all interpreter desks to one and the same CCU.



NOTES:

1. Ensure that the Multi-CCU cabling is always connected from an OUT-port of a unit to an IN-port of another unit.
2. The maximum cable length between interconnected CCUs is 100 m. (328 ft.):

1. Checking the Multi-CCU link

When the Multi-CCU link is operating correctly, the Error LEDs of all interconnected CCU's are off. If not (i.e. error LEDs on), check the interconnections and unit settings.

2. Installing the Multi-CCU software package LBB 3586/00

Information on how to install the Multi-CCU software, can be found in the DCN Software User's Manual delivered with software package LBB 3586/00.



NOTE: For address selection see Chapter 4.7 and Chapter 5.4.

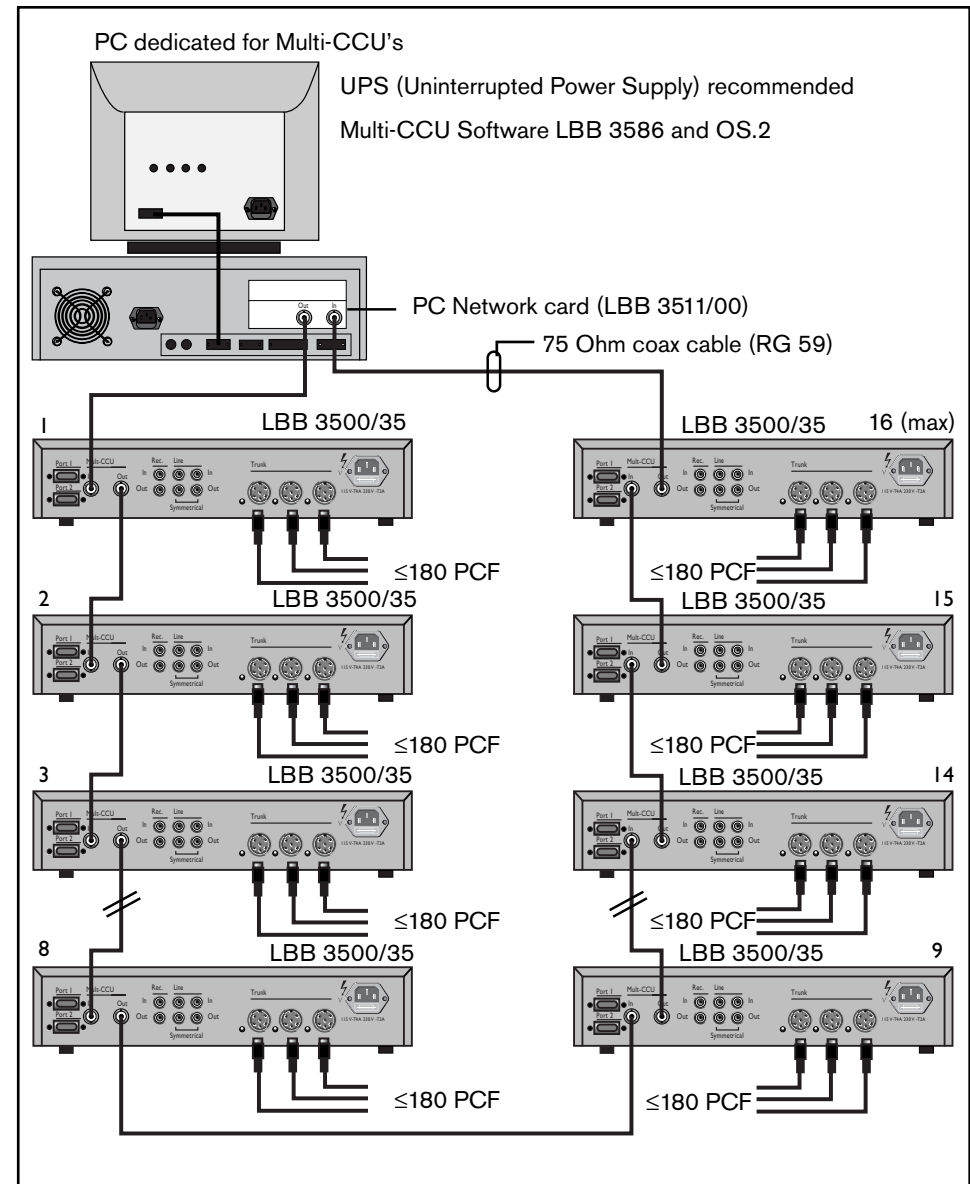


FIG 10-20 Multi-CCU configuration and connection

10.9 Remote Controller

The DCN system provides a facility for connecting to a 'Remote controller. The remote controller can be custom built to your requirements enabling remote control of the following functions'

- Microphone management
- Parliamentary voting
- Attendance registration

Dedicated control panels or control devices such as touch screens for example (available from companies such as Creston and Panja) along with dedicated software interfaces can be used.



NOTE: Remote control is only available with the following CCU's: LBB 3500/15 and LBB 3500/35. The CCU uses its RS 232 serial COM-ports for remote control. The communication between the CCU and the 'Remote controller' is message based (remote functions and update notification). Messages are transported as binary streams of bytes. (Refer to Software User Manual for Remote Control software LBB 3587).

The remote control interface must be configured by setting DIP-switches (S14) on the Trunk Communication Board (TCB 4) See Chapter 4.7.

Requirements

1. The dedicated 'Remote control' software package LBB 3587/00 **MUST BE** installed on an external (remote PC). This remote PC must be installed with the operating system DOS 5.0 or higher and connected to the CCU using an RS232 cable (see Installation).
2. The DCN embedded software version **MUST BE** 7.00 or higher.

10.9.1 Installation

The 'remote control' interface software LBB 3587 can be installed in a 'Single or a Multi CCU system. During installation, options are available for changing the COM-port settings of the remote PC.



NOTE: For detailed functionality, installation, commands and communication protocols refer to the user documentation delivered with the Remote control software package LBB 3587/00. Extended information is available on request.

1. Single CCU System (LBB 3500/15 and LBB 3500/35 (FIG 10-21)

CCU types LBB 3500/15 and LBB 3500/35 have two RS232 serial ports (Port 1 and Port 2) located at the rear of the unit. An RS-232 cable with 1 to 1 wiring (RS232 extension cable) is used to connect the CCU to the remote controller. Note that these CCU's uses hardware handshaking with the CTS and RTS signals. All other 'handshake' signals are internally chained together in the CCU to form the appropriate signals for the remote controller. The maximum cable length between the CCU

and the 'Remote controller' should not exceed 5 m (16.4 ft.). Where longer distances are required an 'interface unit' should be used to ensure correct transmission.



NOTE: The communication protocol and a higher baud-rate for the serial COM-port can be adjusted as necessary (see Chapter 4.6 and Chapter 5.7).

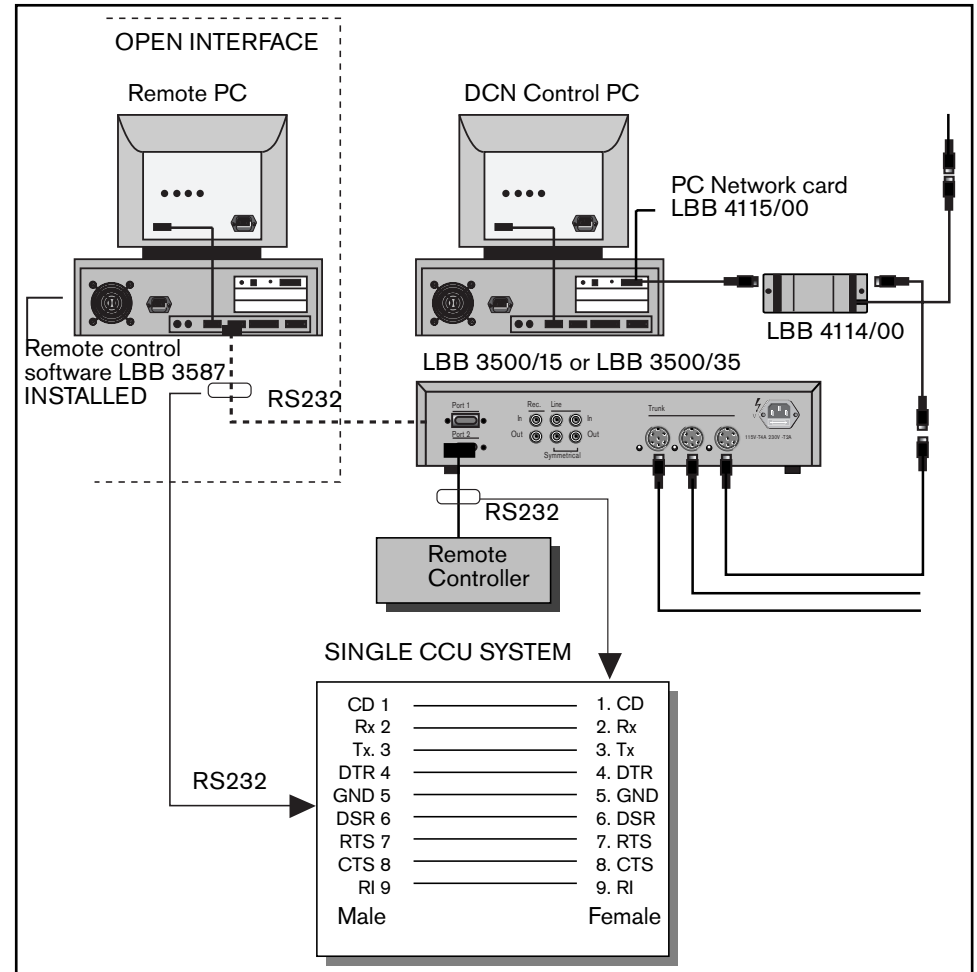


FIG 10-21 Remote control Single CCU System

10.10 Interconnecting Interpretation Equipment

A maximum of six desks can be installed per interpreter booth. The desk can be used stand-alone or as part of a more comprehensive system.



NOTE: The maximum number of channels available in a PC based system is 15. However when using 15 interpretations, it is recommended to use two CCU's, one for contribution and one for interpretation. The maximum number of channels available in a system where one CCU is used for both contribution and interpretation is 11.

10.10.1 Interconnecting Interpreter desks

The interpreter desk, includes the same interconnection facilities as the delegate and chairman units (FIG 10-23). Interpreter desks can be connected in series using the loop-through cabling method, or to a Tap-off Unit LBB 4115/00. When using the Tap-off unit LBB 4115/00, two interpreter desks - one to each tap-off connector only - can be connected to the trunk-line cabling, see FIG 10-24.

10.10.2 Interconnection between booths

FIG 10-24 shows a typical system using either Trunk-splitter LBB 4114/00 or Tap-off unit LBB 4115/00. Using the examples, interpreter desks can be arranged in booths at specific locations where needed. Using the Trunk-splitter method a multiple of units in series are connected to a single Trunk-splitter. Using the Tap-off unit LBB 4115/00, only ONE desks can be connected to a single tap-off, allowing in total only TWO interpreter desks to be connected. In the event of a unit failure, other desks connected to the same line can be affected. Using the Tap-off unit, only one booth is affected, however using the Trunk-splitter all units connected to a single line can be affected.

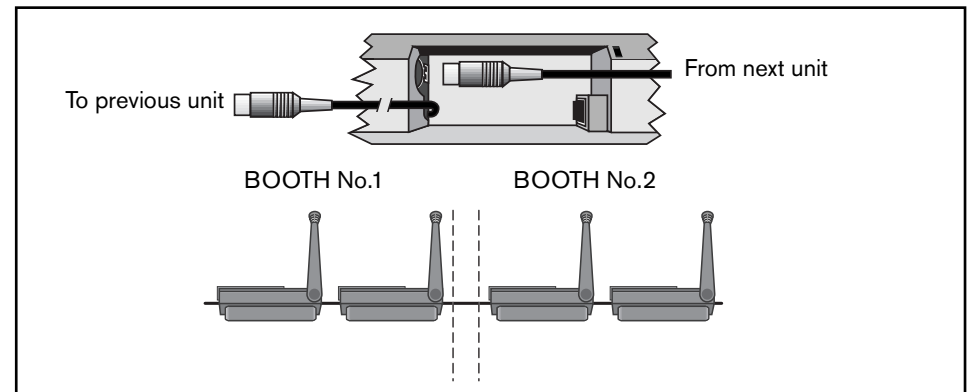


FIG 10-23 Interpreter desk interconnection details

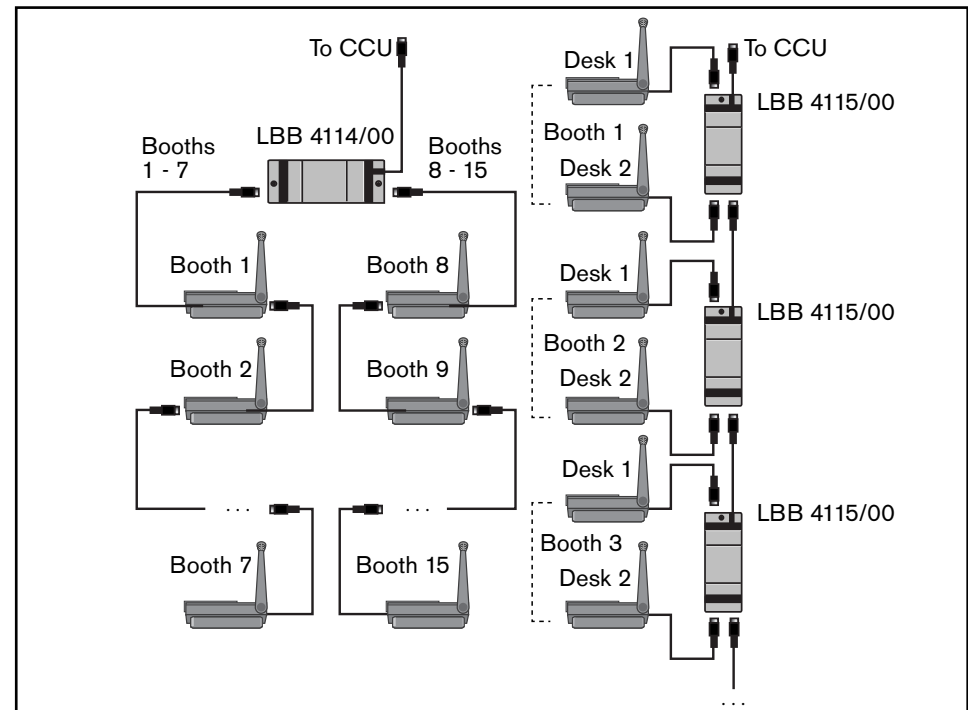


FIG 10-24 Interpretation system layout using trunk-cable splitters and tap-off units

10.11 Language Distribution Equipment

10.11.1 Introduction

Distribution of interpreted languages to delegates can be handled using two different methods of language distribution - Wired and Wireless.

1. Wired

The distribution of interpreted languages through language channels can be handled using the standard DCN system cabling. Delegates with contribution units fitted with channel selection facilities can listen to the language channel of their choice. Stand-alone channel selector units type LBB 3524/xx and LBB 3526/10 are available for use in both portable and fixed installations. In fixed installations the channel selector units can be installed in to table-tops or armrests.

2. Wireless

For those delegates with no access to a channel selector, an infra-red wireless distribution system can be used. Using this system infra-red signals carrying language channels are transmitted from wall or ceiling mounted radiators, and received by delegates using personal infra-red receiver units.

The infra-red language distribution system comprises of an IR transmitter, a Multi-channel Audio Interface Unit LBB 3423, one or more radiators and personal IR receivers with channel selectors for selection of the required language channel.



Integrus digital infra red system

An infra-red system comprises an infra-red transmitter, several radiators and infra-red receivers carried by delegates. A well balanced installation should be based on sufficient direct radiation intensity for the area to be covered. Each situation demands its own solution to maintain a high enough signal-to-noise ratio in order to ensure good clear reception within the conference area. Optimally positioned radiators will both minimize installation and running costs.

For further detailed information on installing an Integrus digital infra red system, particularly on positioning radiators and operating the system, refer to the Infra-red Language Distribution Systems Installation and Operating Instructions manual, Code No. 3122 475 2201x.



FIG 10-25 Integrus digital infra red system

10.11.2 Installation

Distribution of the interpreted languages to conference delegates can be distributed by using a wired or wireless language distribution system.

1. Wired Language Distribution

In a wired distribution system, the interpreted languages are distributed to the delegates via the DCN system cabling using either table-top delegate units fitted with channel selector units or using the dedicated Electronic Channel Selector Panel LBB 3524/xx and LBB 3526/10.

Table Top Language Distribution

In a table-top wired distribution system, the interpreted languages are distributed via table top delegate units, LBB 3531/xx, LBB 3545/00 and LBB 3546/00 and via the chairman unit LBB 3534/xx and LBB 3547/00. These units include a built-in language channel selector and 1.5-digit LC-display for selection and viewing of the interpreted languages.

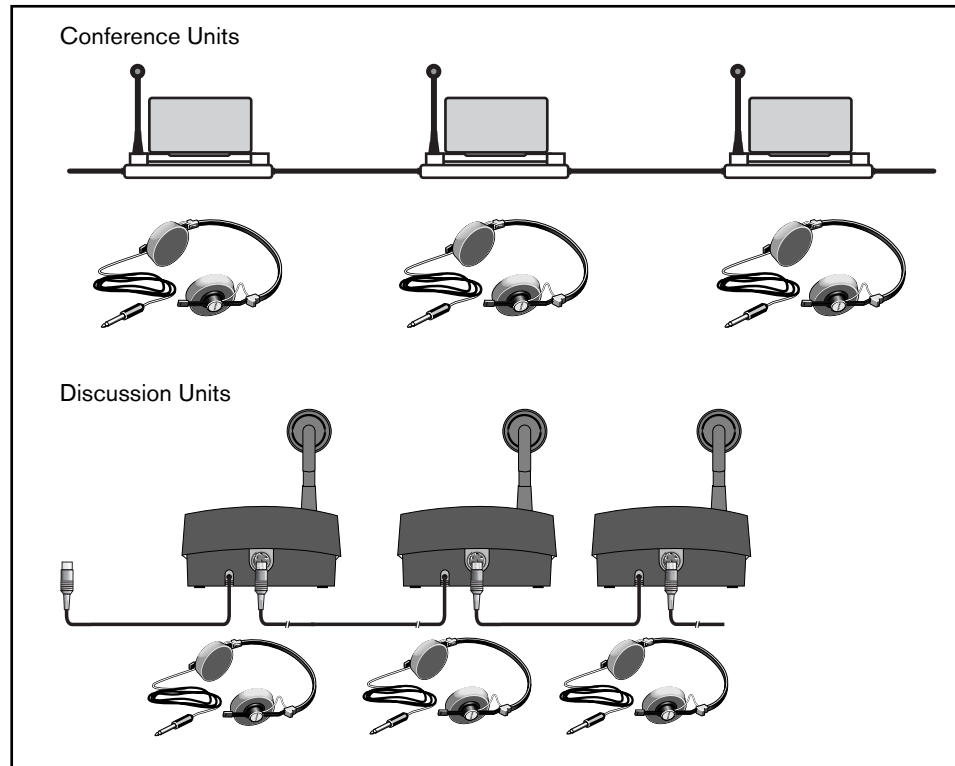


FIG 10-26 Table-top language distribution

Flush Mounted Language Distribution

The main component in a flush-mounted wired language distribution system is the Electronic Channel Selector Panel LBB 3524/xx. In fixed installations, the selector panels can be neatly installed into table-tops or seat armrests, and can be arranged discreetly to follow the delegates' seating arrangements.

Interconnection

The Electronic Channel Selector Panels LBB 3524/xx and LBB 3526/10 can be directly connected to the trunk-line in a loop-through chain, or connected to the trunk-line using a trunk-splitter LBB 4114/00 or tap-off unit LBB 4115/00.

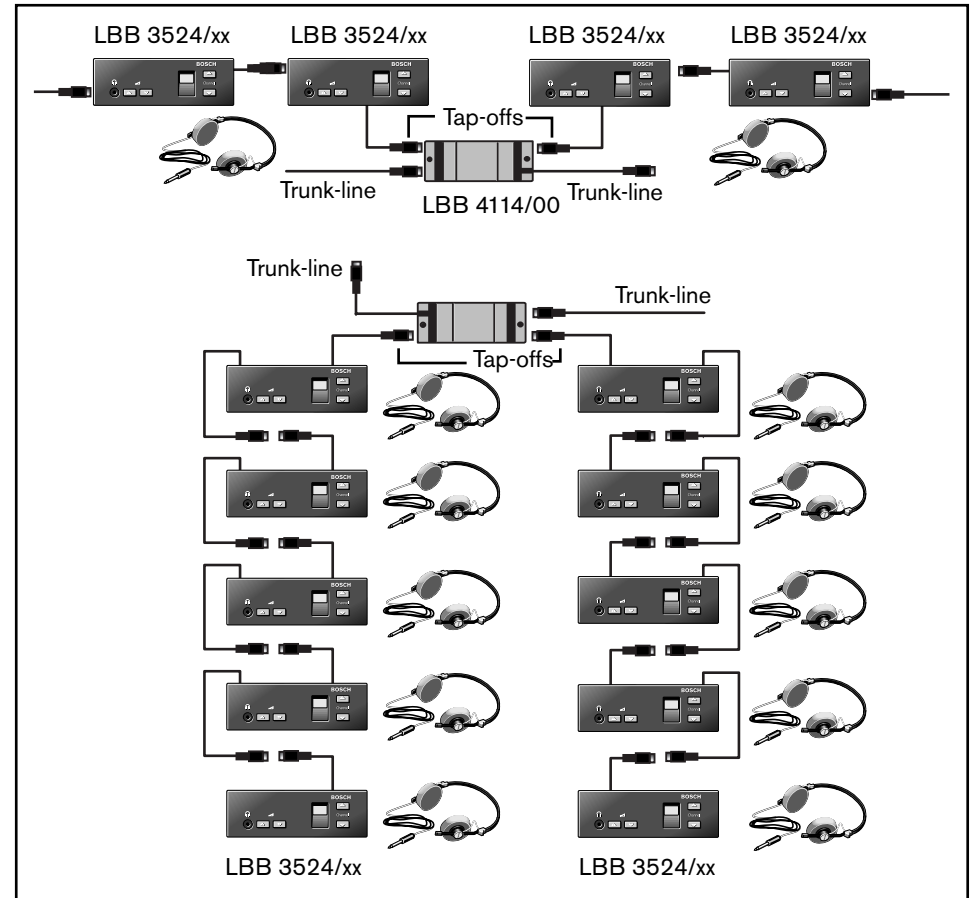


FIG 10-27 Connecting Electronic Channel Selector Panels LBB 3524/00 using trunk-cable splitters and tap-off units

2. Integrus digital Infra red system

For further detailed information when installing an Integrus digital infra-red system - particularly on positioning radiators, and operating the system - refer to the Installation and Operating Manual Integrus Digital Infra Red Distribution System, Code No. 3922 475 2201x.

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Chapter 11. System Set-up & Operation

11.1 Introduction

When all the units in a system have been installed, the system must be initialized and made ready for use. The initialization procedure enables all DCN units installed to be recognized by the CCU. Recognition is given in the form of an address, allocated by the CCU to each active unit in the system. A 'de-init' switch located under each DCN contribution unit is used to clear the units allocated address when conflicts with duplicated addresses occur.

The following describes how to initialize a 'Stand-alone' and PC-based system.

11.1.1 Initializing a stand-alone system (FIG 11-1)

Note: Step 1 is normally not required for systems powered-up for the first time. First-time systems are de-initialized, therefore proceed with step 3 after switching on the CCU for the first-time.

STEP 1. On the CCU locate the push-button and the small recessed switch (Start) under 'Equalizer'. Using a small pointed device (e.g. paper-clip) insert the device into the recess hole (3) and activate the switch while holding down the equalizer 'Start' and 'Equalizer' push-button for at least 10 seconds after switching on the CCU (1). Ensure its power LED is lit. (2). DCN units with LC-display show the firmware release version of the unit itself and not the CCU firmware release version

Bosch Security Systems B.V.
Release : x : xx

STEP 2. All unit addresses have been cleared and the LEDs on all active units illuminate after completing step 1. **NOTE:** If this is not the case resume at step 1 again or remove the unit.

STEP 3. To initialize an individual unit press the units microphone key while the units LEDs are lit (for interpreters desk press the 'Mute' key, the Dual Audio Interface Unit and the Multi-Purpose Connection have their own 'de-init', but can also be initialized by pressing the microphone key of a connected microphone). Once pressed the units LEDs go out. The unit is now recognized in the system by the CCU. Repeat this procedure for all active units installed in the system one by one. Initialize all units one by one (not simultaneously) to eliminate addressing problems.

STEP 4. To clear the individual address of a delegate/chairman unit in the event of an address conflict, press the 'DE-INIT' switch of the relevant unit (see Chapter 2.).



NOTE: After the initialization process, it is recommended that the function of each active unit installed is checked individually.

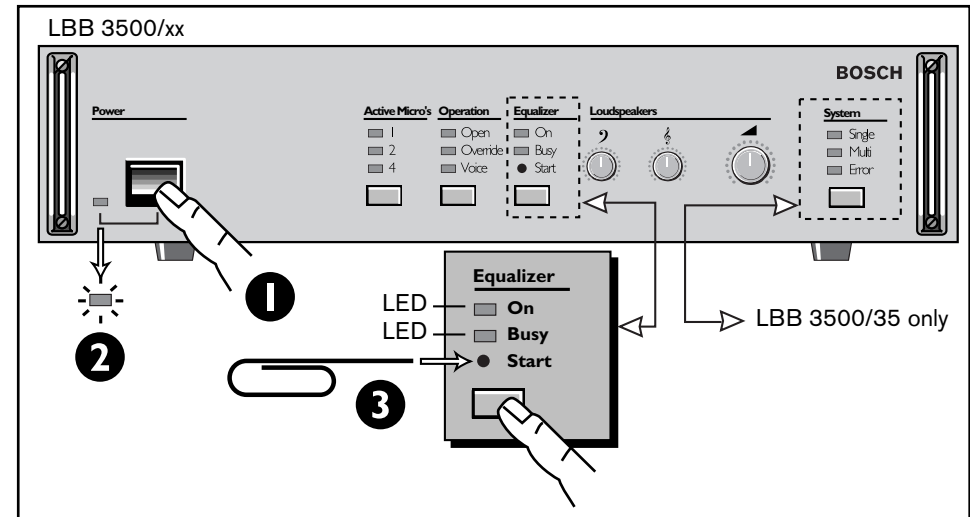


FIG 11-1 De-initializing CCU

11.1.2 Initializing a PC-based system

The clearing of addresses and the initialization procedure for systems using a PC is identical to that of a Stand-alone system. However by using DCN's System Installation Software LBB 3585/00, seat numbers can be linked to units that have already been initialized.

Using Software package LBB 3585, two methods are available for linking active units to seat numbers/ names:

- a. From the hall, by physically pressing delegate unit microphone buttons in sequence. Each microphone unit is then registered by the PC which in turn automatically links a unit to a specific seat number.
- b. From the PC, where the operator simply selects a microphone unit. This unit is then linked to a specific seat number. From this selected seat number the PC assigns the next microphone unit in sequence. This sequence is according to the initialization process.

The Dual Audio Interface unit can be linked to two seat numbers even though the CCU during initialization assigns it with a single address.

11.2 Setting up a stand-alone system

The Central Control unit, in stand alone systems enables four basic conference procedures to be conducted:

- Microphone management using various microphone operating procedures,
- Voting procedures using the basic parliamentary voting procedure,
- Interpretation facilities,
- Intercom to the Intercom Operator.

The programming of the interpretation system (i.e. interpreter desk) in a stand-alone system is done manually (see [Chapter 11.1.1](#) "Programming the interpreter desk").

11.2.1 System mode selection (Multi-CCU LBB 3500/35 only)

Refer to [FIG 11-2 \(4\)](#), Single or Multi-CCU mode can be centrally selected using Multi-CCU software package LBB 3586. Using the 'System' mode push-button, the Multi-CCU LBB 3500/35 can be selected for use in Single mode if the LED indication for Multi-CCU mode is seen to flash.

11.2.2 Microphone control modes ([FIG 11-2 \(2\)](#))

The CCU in stand-alone mode, offers three microphone operational modes:

- 'Open',
- 'Override',
- 'Voice activation'.

In each mode of operation, the maximum number of active microphones (Active Micro's) that can be switched on at the same time during a discussion, can be assigned.

To select the number of active microphones, press the '**Active Micro's**' button, its LED corresponding to the chosen number (1, 2 or 4*) will illuminate.

*The number of active microphones available for selection in Voice activation mode is (2 or 4).

1. 'Open' mode

When the 'Open' mode is selected, delegates activate their microphones by pressing the microphone button on their delegate units. The number of delegates permitted to speak at the same time is limited to the number of active microphones selected. This means for example, - that if 4 Active Micro's have been selected and four delegates are currently speaking, no other delegates may join in the debate. If a fifth delegate wants to join in the debate, this delegates joins a 'Request-to-speak' list. However, if one of the current speakers switches his microphone off, the next delegate to switch on his microphone can join in the debate.

The maximum number of delegates in the Request-to-Speak list is 20.

2. 'Override' mode

When the 'Override mode is selected, delegates activate their microphones by pressing the microphone button on their delegate units. If the number of active microphones is four and the number of current speakers is three then the delegate can join in the debate without interrupting the group of speakers. However if the number of current speakers is four and a new delegate now presses his microphone button to join in the debate, the microphone unit of the first speaker in the group will be switched off (FIFO First-In-First-Out), allowing the new delegate to join in the discussion. Using the override mode, no 'Request-to-speak' list is available.



NOTE: In 'Open' and 'Override' mode the chairman can, at anytime, switch on his microphone.

3. 'Voice Activation' mode (Single CCU systems only)

When the 'Voice Activation' mode is selected, the delegates' microphones are activated when spoken into. However, its light ring indicator is not functional in this mode (*default). The number of delegates permitted to speak at the same time in this mode, is limited to the number of active microphones selected (2 - 4 only). *The default setting can be changed, see [Chapter 2.3.1](#) and [Chapter 2.5.1](#).

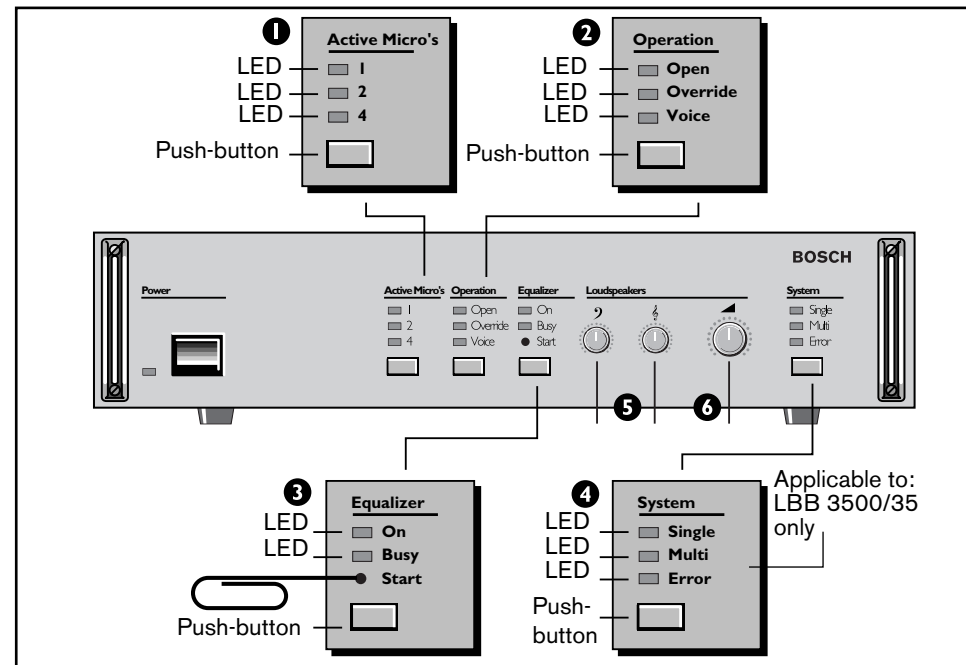


FIG 11-2 CCU (version illustrated LBB 3500/35)

11.3 Multi-CCU Set-up for the first-time.

Proceed as follows:

1. Install the PC-card LBB 3511/00 into the master PC used for the multi-CCU system. Ensure that all DIP-switches and jumpers are set correctly.
2. Ensure that all units are connected correctly, and that the multi-CCU's and master PC are connected to a network as shown in [Chapter 10, FIG 10-20](#).
3. Each CCU connected to the network must have its own unique address. To set the address, remove the cover from the multi-CCU and locate DIP-switch S12 located on the 'Multi-trunk Board'. To set the address see [Chapter 4.7](#), the range of addresses can be set between 0 to 31.
4. Switch-on each CCU one-by-one and ensure that they are in the 'Single' mode. The 'Single' mode is selected by pressing the 'System' push-button located on the units front panel for at least 3-seconds (refer to [FIG 11-2](#)).
5. Initialize all connected units according to the standard procedure as described in [Chapter 11.1](#).
6. Once all units have been initialized, the PC's operating system software OS/2 and the 'Multi-CCU system software LBB 3586/00 must be installed. Refer to the relevant documentation when installing the OS/2 system software and the Multi-CCU software. Once installed the system can be configured according to the user manual delivered with the Multi-CCU software LBB 3586/00.
7. When starting the OS/2 master software, or selecting the 'Operate' menu-item in the master software, all connected CCU's will switch to 'multi-CCU' mode. Check that when changing the operation mode on one of the connected 'multi-CCU's', the other 'multi-CCU's' are also affected. Check that the microphones on all the connected CCU's are operational.



NOTES:

1. Switching a CCU to 'Single-mode' is only possible when the OS/2 master software is not running.
2. When switching OFF the master PC (Multi-CCU) all system mode LED's will begin to flash, indicating that selection of the 'Single-CCU' mode on the CCU is possible. Connected units are disabled when their is a flashing LED.

11.3.1 Downloading Control PC-software

Before you begin to work for the first time, ensure that all CCU's have the same firmware. To download the software from the DCN control PC to all CCU's in the system, select the 'Single' mode.

To download the software to individual CCU's, connect the DCN control PC to one of the CCU's and download the software as described in the 'Software User Documentation'. Once done for the first CCU, connect the DCN control PC to the next CCU and download the software again. Repeat this procedure for all CCU's connected to the system. Once the software has been downloaded to all CCU's, connect the DCN control PC (if needed) to your preferred and configured CCU and select the 'Operate' mode on the master PC.

If you are using a DCN control PC, check in the 'System Config !' window of the "Startup" software that all connected units and the PC-card (when used) are present. To create 'Installation' and 'Names' files use the procedures as used for a single-CCU system. These procedures and descriptions of the relevant software applications, LBB 3580, LBB 3585 and LBB 3590 can be found in their respective software manuals.

11.4 Maintenance Menu

Central Control Units (CCU) with version 4.0 software and higher comprise additional embedded software. This software introduces a 'Maintenance Menu' for a 'Stand-alone' system. Using this menu the following default options can be set:

- Default language for the delegate/chairman's unit LC-displays
- Assign 'Stand-alone' intercom operator.



NOTE: The DCN PC software will terminate if the maintenance mode is selected.

The maintenance menu sets the internal settings for the CCU's 'stand-alone' operation and can only be entered when the CCU is running in 'stand-alone' mode (either 'Single' or 'Multi'-CCU). The maintenance menu is entered by pressing and holding down for at least 3 seconds, one of the following button-combinations:

- Active Micro's + Operation button or
- Active Micro's + Equalizer On button or
- Operation + Equalizer start button.

Once the maintenance menu has been entered into, all units equipped with an LC-display (except Interpreter units) will display the 'Maintenance Menu. Once displayed all congress activities will stop and all CCU control panel LEDs will flash.

While in the 'Maintenance Menu' select a unit to set the menu options. The unit chosen will set the menu options for all connected units. Once a button on the selected unit has been pressed, then LC-display of all other units will be cleared.

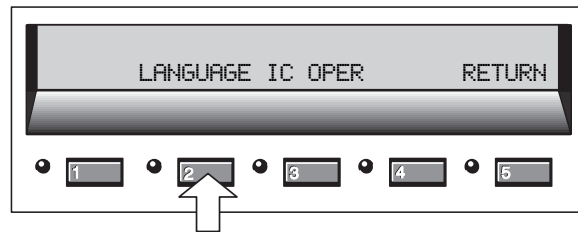
When the selected units <RETURN> softkey has been pressed the CCU reverts back into the congress operational mode. To access the settings of the Maintenance menu on another unit, the 'Maintenance Mode' should be started again.

The displays below shows the units LC-display once the CCU has been entered into the 'Maintenance Menu'.

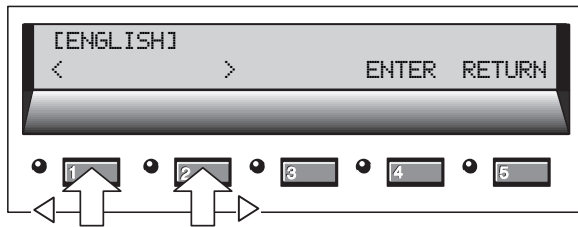
11.4.1 To set system default LANGUAGE

Display language is for all units with an LC-display

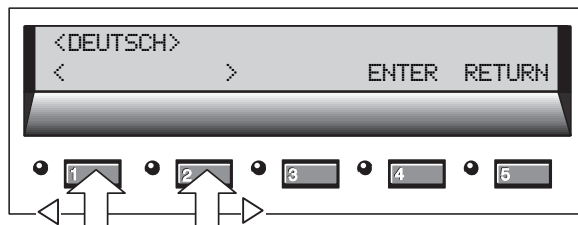
1. Press the key located under the display text <LANGUAGE.>. The current system language is displayed between square brackets i.e. [] .



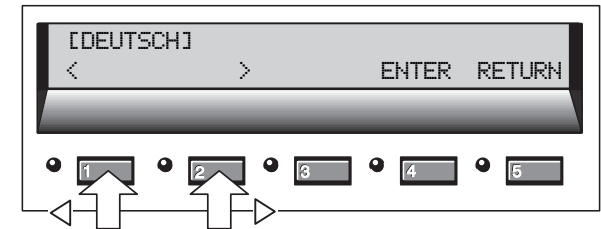
2. To select another language press keys < to show the previous language and press the key > to show the next available language.



3. The selected language is shown between arrowed brackets i.e. < > .



4. To select and confirm the default language press the <ENTER> key when the required language is selected. Confirmation shows the default language enclosed in square brackets i.e. [LANGUAGE].
5. The changed default language takes effect when the <ENTER> key is pressed.



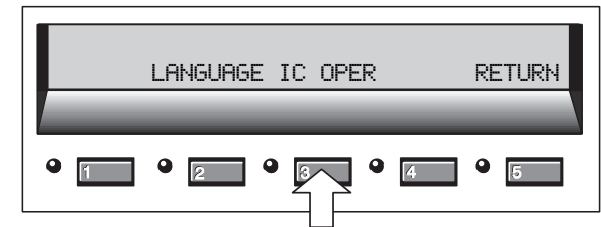
NOTE: When installing DCN software, 6 languages are available for selection. These languages can be selected in the 'MAINT.' menu.

6. Press the <RETURN> key to return to the Maintenance Menu.

11.4.2 To set system INTERCOM OPERATOR POSITION

To set the default position for the system "Intercom Operator" proceed as follows::

1. Press the key located under the display text <IC OPER> to assign this unit as the 'Intercom Operators' position. When set ensure that the unit is equipped with a hand-set.



NOTE: Once the 'Intercom operators' position has been set, no further indication is given

2. The default system intercom operators position will only take effect when the CCU reverts back to the congress operational mode.

11.5 Sound Management

11.5.1 Equalizer function

To produce optimum speech intelligibility for a particular discussion room or conference hall the CCU includes a built-in system audio equalization facility. This facility automatically sets the overall audio characteristics of the DCN unit loudspeakers. (see fig 11-2 9(3)).

NOTE: Channels 12 (line-output) and channel 13 (delegate/loudspeakers) only will be equalized. See Chapter 13.8 Available Audio Down Link Channels.

To Equalize the system proceed as follows:



NOTE: Before carrying out the equalization process, it is recommended that the surrounding area be kept as quiet as possible.

The number of microphones which can be selected for the 'auto-equalization' measurement process can be selected by the user. Proceed as follows:

1. Press the equalizing recess switch 'Start' located on the front of the CCU to enter the microphone selection mode (FIG 11-1). Entry into this mode is indicated by an illuminated busy LED.
2. The chairmans microphone will automatically be selected for the auto equalization procedure, however, the user can select up to 8 microphones to gain better performance. To select additional microphones simply press the ON/OFF button of the relevant microphone. If a chairman unit is not connected to the system, a delegates microphone will be switched on.
3. To activate the 'auto-equalization' procedure press the equalizing recess switch 'Start' once again. A noise will be heard and the busy LED will begin to flash, indicating automatic equalization is being processed. After the measurements, the filter settings are calculated (this may take a few minutes).



NOTES:

1. To abort the auto equalization procedure press any button on the CCU. Aborting restores the previous equalization settings.
2. Selecting the auto-equalization measurement process is only possible when in the "Single CCU" mode.
3. The equalizer function can be used with or without DCN software running. However, the 'Auto' equalizer facility will not function if the DCN software is running.




REMARKS:

1. The frequency response of a room is dependent on the position of microphone and loudspeaker used, particularly if a microphone is relative close to a loudspeaker. Switching between a microphone-loudspeaker combination and another can result in an entire different frequency response. Therefore, equalization has primarily an advantage if the microphone is in the diffuse field of the loudspeaker; for example if a separate PA system is used.
2. The equalizer is only active on the delegate loudspeaker channel and the equalized PA output. The equalized PA output is only available on the Audio Media Interface LBB 3508/00, channel 12.



11.5.2 Loudspeakers

The three rotary loudspeaker controls located on the front panel of the Central Control Unit are used for setting the overall system gain/volume of the DCN's contribution unit loudspeakers.

- Control  (FIG 11-2 (6)) sets the overall volume/gain level of the discussion unit loudspeakers in 1.5 dB steps throughout the entire system.



NOTE: When turned fully anti-clockwise the audio signal to all system units, with the exception of the interpreter desk is switched off.

1. Control  (FIG 11-2 (5)) sets the overall system treble control of the contribution unit loudspeakers.
2. Control  (FIG 11-2 (5)) sets the overall system bass control of the contribution unit loudspeakers.

How to Set System Volume/gain level

1. Switch on the maximum number of Active-Micro's (4 plus a chairman unit).
2. Select a delegate unit and speak loudly into it while adjusting the volume/gain control to the point where audio feedback is just audible.
3. From the feedback point adjust the volume/gain control to just below the feedback level.

11.6 Additional stand-alone operations (applicable to conference units only)

11.6.1 Voting modes

The DCN system in stand-alone operation offers an electronic voting procedure to meet the majority of conference requirements. A voting session is initiated from the chairman unit. The chairman unit includes 5 softkeys, two of which are used to either start the voting session 'Start' or to Stop the voting session 'Stop'. A 'Hold' key enables the chairman to freeze a voting session for as long as is necessary. A 'Restart' key, restarts the session when in the 'Hold' mode.



NOTE: For details on how to conduct a voting session using the chairman unit, refer to [Chapter 11.7.3: "Operation Chairman's unit LBB 3547/00"](#).

The voting mode available with stand-alone systems is the Parliamentary voting procedure. This mode of operation allows delegates to register a 'No', 'Abstain' or 'Yes'.

11.6.2 Intercom Facilities

If a delegate/chairman unit or interpreter desk is provided with an Intercom handset type LBB 3555/00, its user can participate in a two-way conversation with an assigned central Intercom Operator. The central operator position is a single assigned* stand-alone delegate unit with handset.
*Assigned using the CCU maintenance menu.

11.7 Delegate/Chairman unit operation (Conference units only)

11.7.1 Introduction

Microphone management as its term suggest, refers to the technique of managing and controlling the different methods by which delegates are able to use their microphone units.

In PC-based systems, the control of delegates' microphone units can be conducted by a central operator using DCN's dedicated software. For further information refer to DCN User Software Manuals for Synoptic Microphone Control LBB 3571 and Microphone Management LBB 3570.

For unit description see [Chapter 2.4](#) and [Chapter 2.5](#)



FIG 11-3 DCN Conference units



FIG 11-4 DCN Discussion units

11.7.2 OPERATION Delegate Units LBB 3544/00, LBB 3545/00, LBB 3546/00

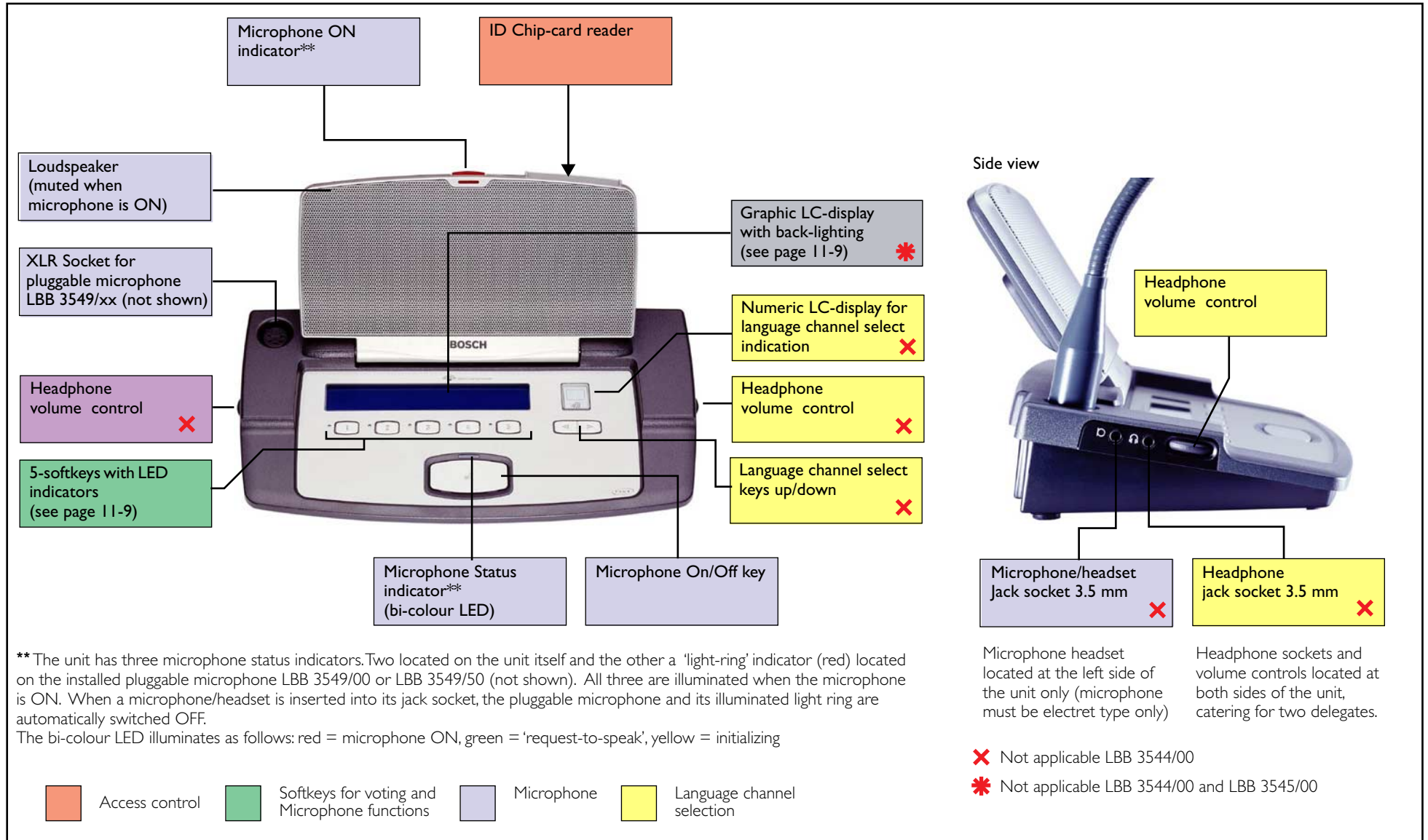



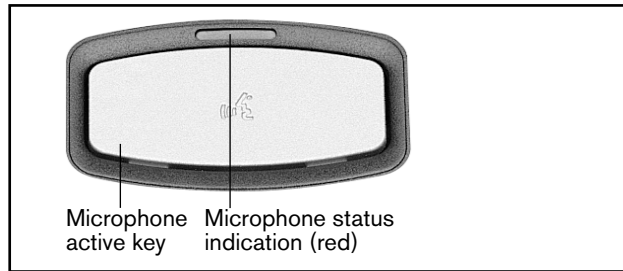
FIG 11-5 Operation CONCENTUS (conference) Delegate units LBB 3544/00, LBB 3545/00 and LBB 3546/00

OPERATION Delegate units LBB 3544/00, LBB 3545/00 and LBB 3546/00

- * Not applicable LBB 3544/00
- ** Not applicable LBB 3545/00
- *** Not applicable LBB 3544/00 and LBB 3545/00




Microphone functions

1. Press the microphone key marked  to switch units microphone ON.



- Three microphone indicators show the status of the microphone:
1. 'Light ring' indicator on pluggable microphone (red = ON)
 2. An indicator located at the top of the flat-panel loudspeaker (red = ON).
 3. Bi-colour LED above microphone push-button (red = ON, green = 'request-to-speak').

NOTE: When an external microphone is used (*3.5 mm jack socket at side of unit) the pluggable microphone LBB 3549/xx (if mounted) is switched OFF automatically along with its light-ring indicator.

- Once switched on the display*** shows 'SPEAK NOW.'
- To switch the microphone OFF, press the  key again. If the green LED flashes after first pressing the  key, the unit has been registered in a 'request-to-speak' list and the microphone function is not yet available. The display*** displays 'REQUEST ACCEPTED.'
- To cancel a 'request-to-speak' press the  key again. The display*** displays 'REQUEST CANCELLED.'

LANGUAGE CHANNEL SELECT*

Insert headphones to switch-on the units numeric LC display. In combination with its select up/down keys, select the required simultaneous interpretation language channel. The headphone volume controls can be used to adjust the headphone listening level.

ID-CARD READER

For use in PC operated systems only, the ID-card reader ensures that only authorized users can use the unit after first inserting an ID-card.

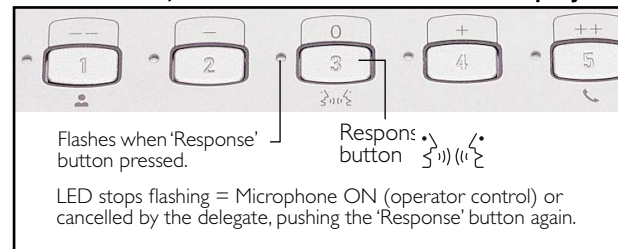
USING THE DISPLAY AND SOFT KEYS***

(see page 11-10)
In its normal operational mode, the units graphic display shows MICRO. Under the MICRO menu two options are available: SPEAKERS* and REQUESTS. Select SPEAKERS* to display the number of participants speaking (Screenline can be displayed if only one participant is speaking). Select REQUESTS* to display the number of delegates waiting to speak.

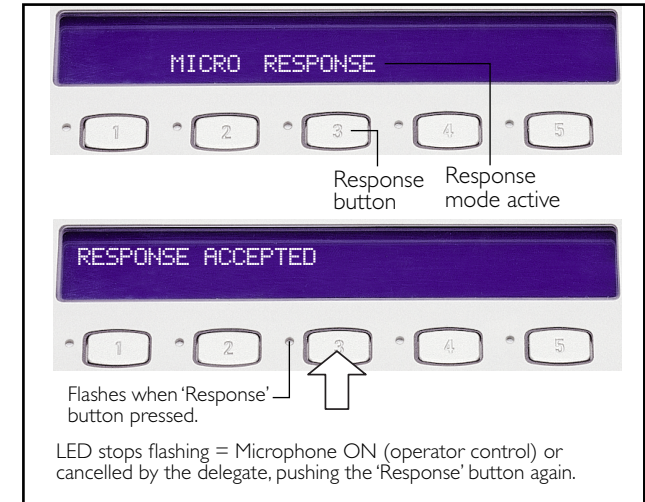
- **Message (PC controlled systems only)**
If MESSAGE is displayed under the 'MAIN' menu, and its associated LED flashes, press its soft-key to display an incoming message.
- **Response (applicable to all delegate units)**
If in PC-controlled systems, the microphone control mode 'Operator with Request and Response List' is selected, delegates can 'respond' by pressing the 'Response' button

The 'response list is shown on the 'operators' PC monitor. The operator then decides which respondents' microphone can be switched ON to 'respond' to the current speaker.

LBB 3544/00, LBB 3545/00 units without display

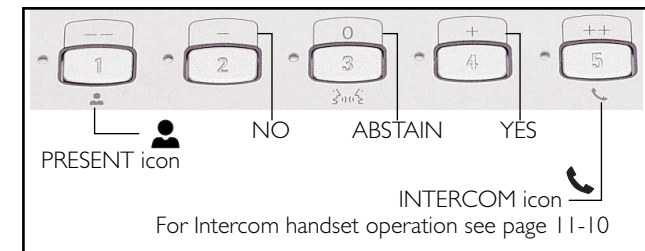


LBB 3546/00 unit with display

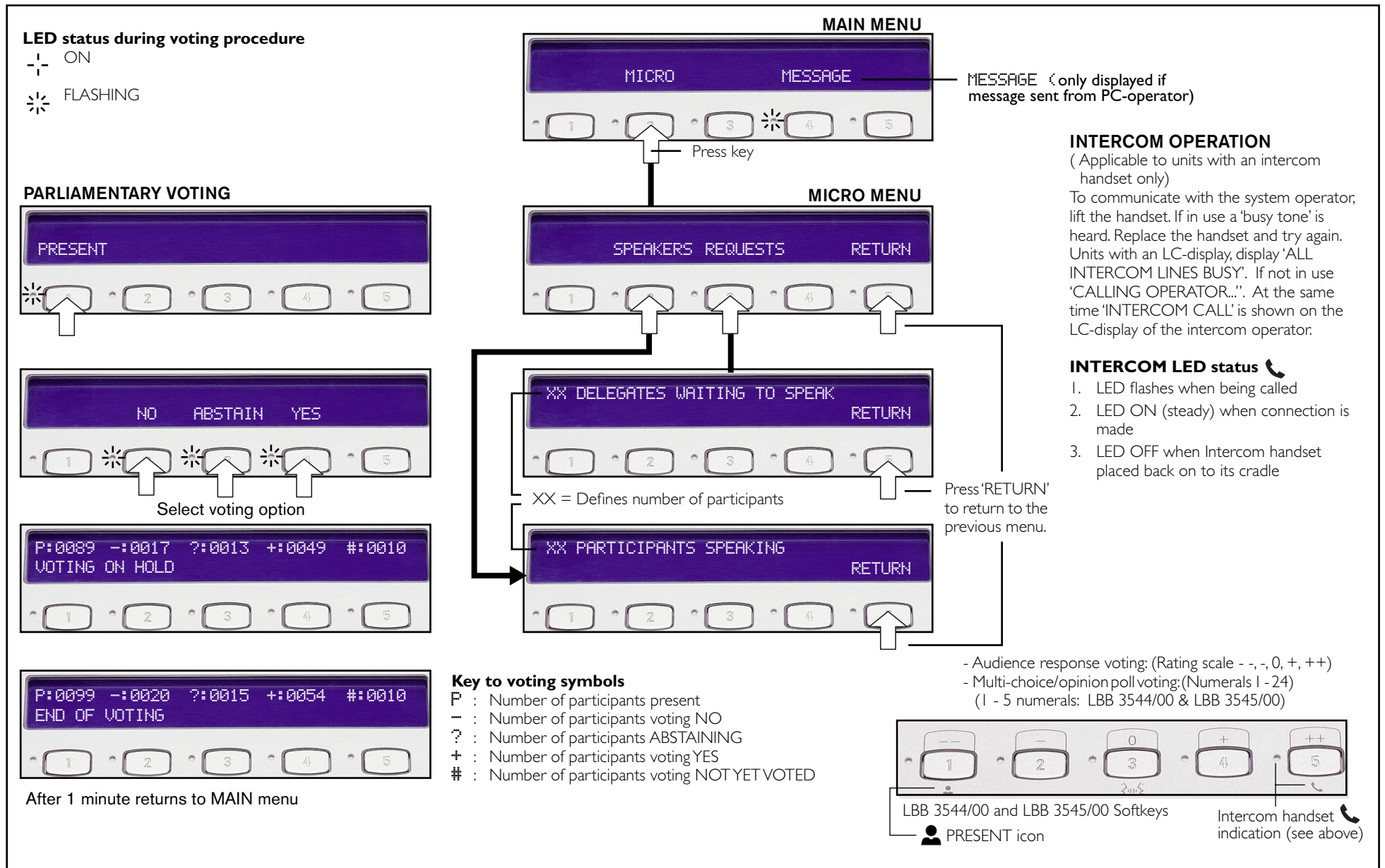


VOTING* (see page 11-10)

Voting sessions are initiated by the chairman. Depending on the application software, the units five softkeys can be used as voting buttons with confirmation indicators (yellow LEDs), enabling participation in voting procedures: e.g. PRESENT, NO, ABSTAIN, YES (Parliamentary voting)



Other voting methods (1/-, 2/-, 3/0, 5/+ and 5/++) are also available using Alpha-numeric characters. Simply enter your choice, the LED of the voting option will illuminate constantly, while the LED of the remaining options will extinguish. Your voting option can be changed as and when required by pressing the relevant voting option key.



11.7.3 OPERATION Chairman Unit LBB 3547/00

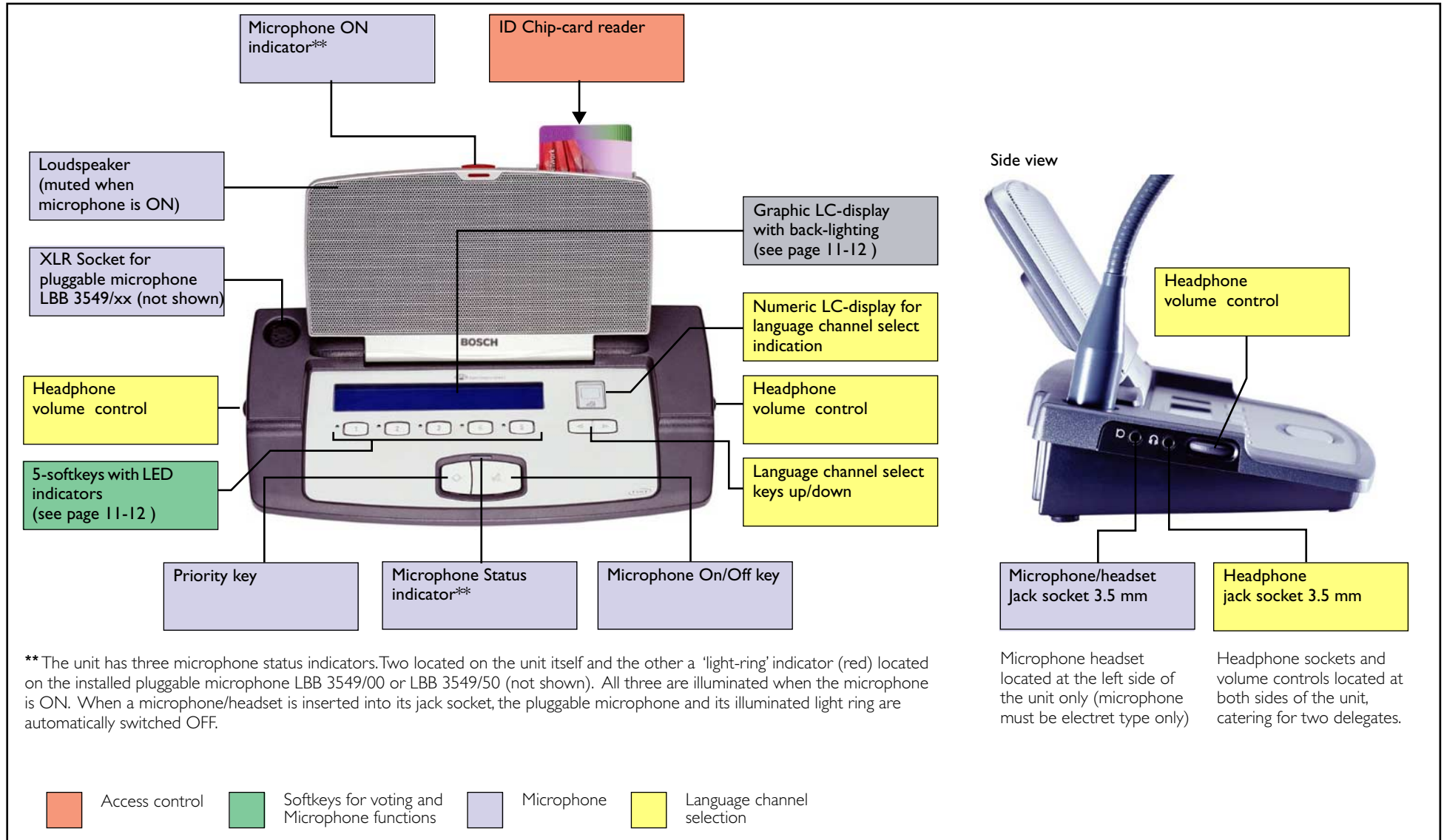

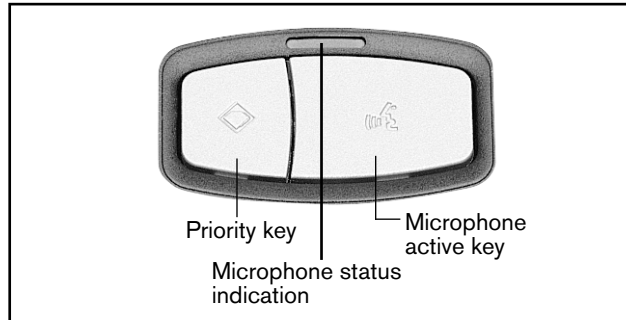


FIG 11-6 Operation CONCENTUS (conference) Chairman units LBB 3547/00

OPERATION CHAIRMAN UNIT LBB 3547/00

Microphone functions

1. Press the microphone key marked  to switch units microphone ON.




Three microphone indicators show the status of the microphone:

1. 'Light ring' indicator on pluggable microphone (red = ON)
2. An indicator located at the top of the flat-panel loudspeaker (red = ON).
3. Bi-colour LED above microphone push-button (red = ON,



When an external microphone is used (*3.5 mm jack socket at side of unit) the pluggable microphone LBB 3549/xx (if mounted) is switched OFF automatically along with its light-ring indicator.

- **Priority key**

The Priority key marked  when pressed, mutes all currently active microphone units for the duration the key remains pressed, or mutes all active microphone units and clears the request-to-speak list (see 11.7.2). An attention tone is heard when this function is activated. This attention tone can be switched on or off in the microphone application software and in the CCU or Master CCU (PC-card LBB 3511/00).

LANGUAGE CHANNEL SELECT

Use the units numeric LC display in combination with its select up/down keys to select the desired simultaneous interpretation language channel. The headphone column control can be used to adjust the volume for listening.

ID-CARD READER

The ID-card reader provides a chairman's unit access function. This function ensures that only authorized users may use the chairman's unit by inserting an ID-card.

USING THE DISPLAY AND SOFT KEYS

The units graphic LC display in its normal operational mode displays the **MAIN** menu. The **MAIN** menu provides the user with a choice of options: **MICROS**, **VOTING**, and **MESSAGE**.

- **MICRO**

The **MICROS** menu provides a microphone management function enabling its user to display the status of the participants microphone. Under **SPEAKER** the number of participants speaking is displayed (Screenline can be displayed if only one participant is speaking), Under **REQUESTS** the number of delegates waiting to speak is displayed. Press the softkey marked **CANCEL ALL** to cancel all activated microphones and microphones from the delegates requesting to speak-list.

- **VOTING**

The voting menu is selected in the **MAIN** menu by pressing the voting softkey. In the voting menu press the softkey **START** to start the voting session. Once started the display invites participants and chairman to cast their votes. To temporarily hold the voting session press the **HOLD** softkey. To restart the session press the **RESTART** softkey. All voting functions are once again available. To end the voting session press the **STOP** softkey, the display returns to the **START** voting menu.



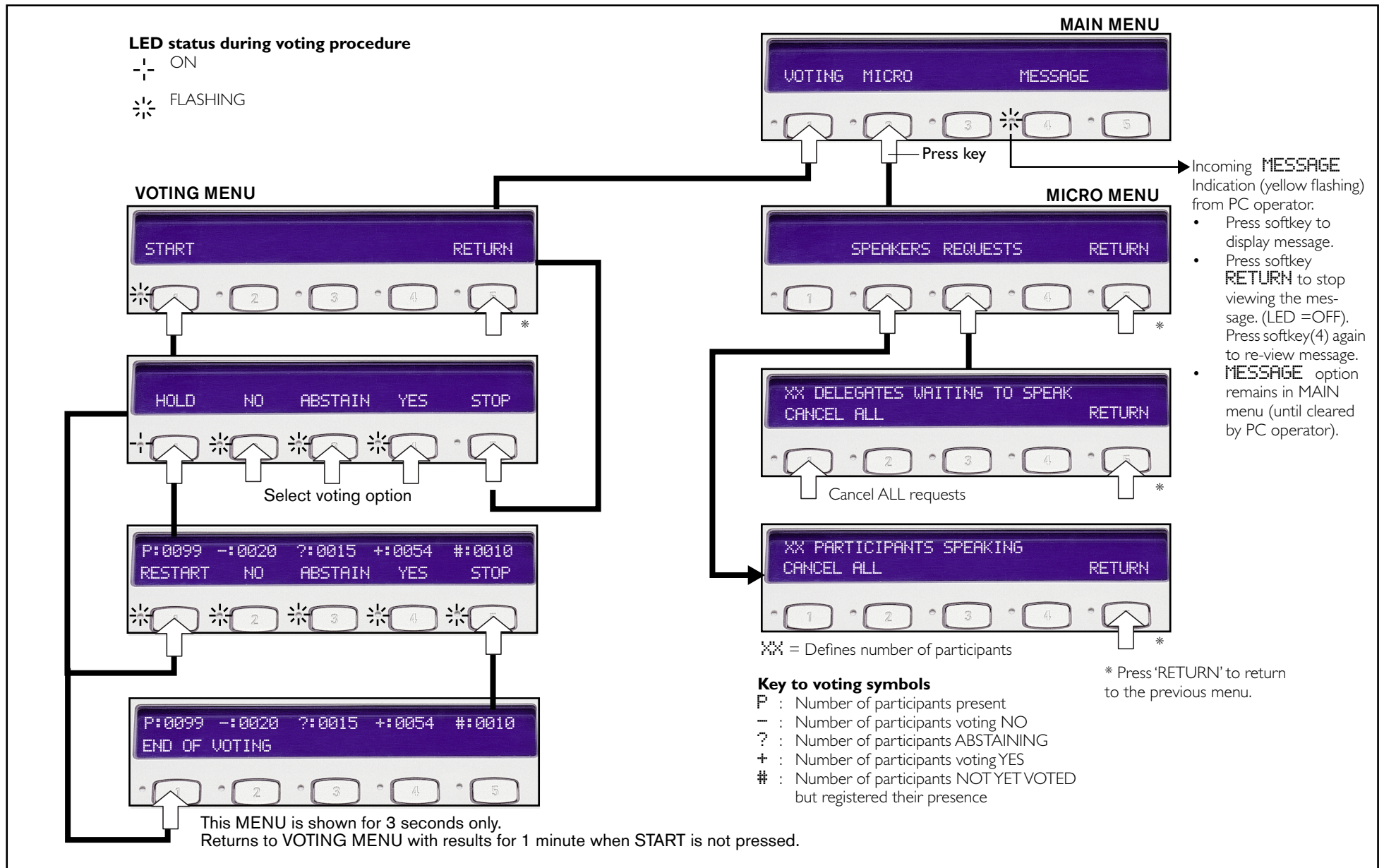
NOTE: The voting procedure described above (parliamentary voting) is for use in a 'stand-alone' system. In PC-controlled systems a selection of voting options are available (i.e. Multiple choice, opinion poll and audience response voting).

- **MESSAGE**

A yellow LED flashes (adjacent softkey 4), if a message has been sent by the PC operator (via the message application software). **MESSAGE** appears in the **MAIN** menu. Press softkey marked (4) **MESSAGE** to display the incoming message. Press the softkey **RETURN** to stop displaying the message (LED = OFF). The option **MESSAGE** remains in the display until cleared by the PC-operator and can be recalled for instant viewing by pressing the softkey (4) again.



NOTE: The chairmans functions described are dependent on the software applications installed on the DCN control PC.



11.8 Operating Delegate/Chairman units (Discussion units only)

For unit description (see [Chapter 2.2](#) and [Chapter 2.2](#))

11.8.1 Microphone

- Press the microphone **(6)** button to switch on the microphone. If the request-to-speak is granted (depending on the 'Operation' mode and the number of 'Active Micros' selected) the units red LED indicator ring **(1)** will illuminate and the mic. bi-colour LED **(7)** illuminates red. If the microphone request has not been granted, the mic bi-colour LED **(7)** will flash green, indicating that the unit is in the 'request-to-speak' mode. Refer to microphone operational modes.



NOTE: In 'Voice' mode, the LED indicator ring is always off (default*) and the red bi-colour LED **(7)** always illuminates. To mute the units microphone press the microphone on/off button. * See [Chapter 2.3.1](#) 'Adjustment setting discussion units' to change default.

- Headphones: Two sockets **(4)** allow a single or two sets of headphones to be connected to the delegate unit for listening to the floor speaker. The volume control **(5)** is used to adjust the headphone listening level. Connecting headphones mutes the units loudspeaker.

11.8.2 Priority function (LBB 3533/xx and LBB 3534/xx only)

- Press the 'Priority' button **(9)** to overrule/mute or cancel other active microphone users. An optional chime tone is available, when the priority function is used. (see Notes)

NOTES: (applicable to chairmans unit LBB 3533/xx and LBB 3534/xx only)

- The priority function can be set at the CCU (S9 see [Chapter 4.5](#)) to temporarily or permanently mute active microphones. In the temporarily mode, active microphones are muted for as long as the priority button is pressed, once released the muted microphones become active again.
- In the permanent mode, active microphones are permanently muted including those on the 'request-to-speak' list and cannot be switched on again until their users press their microphone buttons.
- The optional chime tone can be switched on or off at the CCU (Internal setting).

11.8.3 Language channel selection (LBB 3531/.. and LBB 3534/.. only)

Use the units numeric LC display **(2)** in combination with its select up/down keys to select the desired simultaneous interpretation language channel. The headphone volume control **(5)** can be used to adjust the volume listening level.

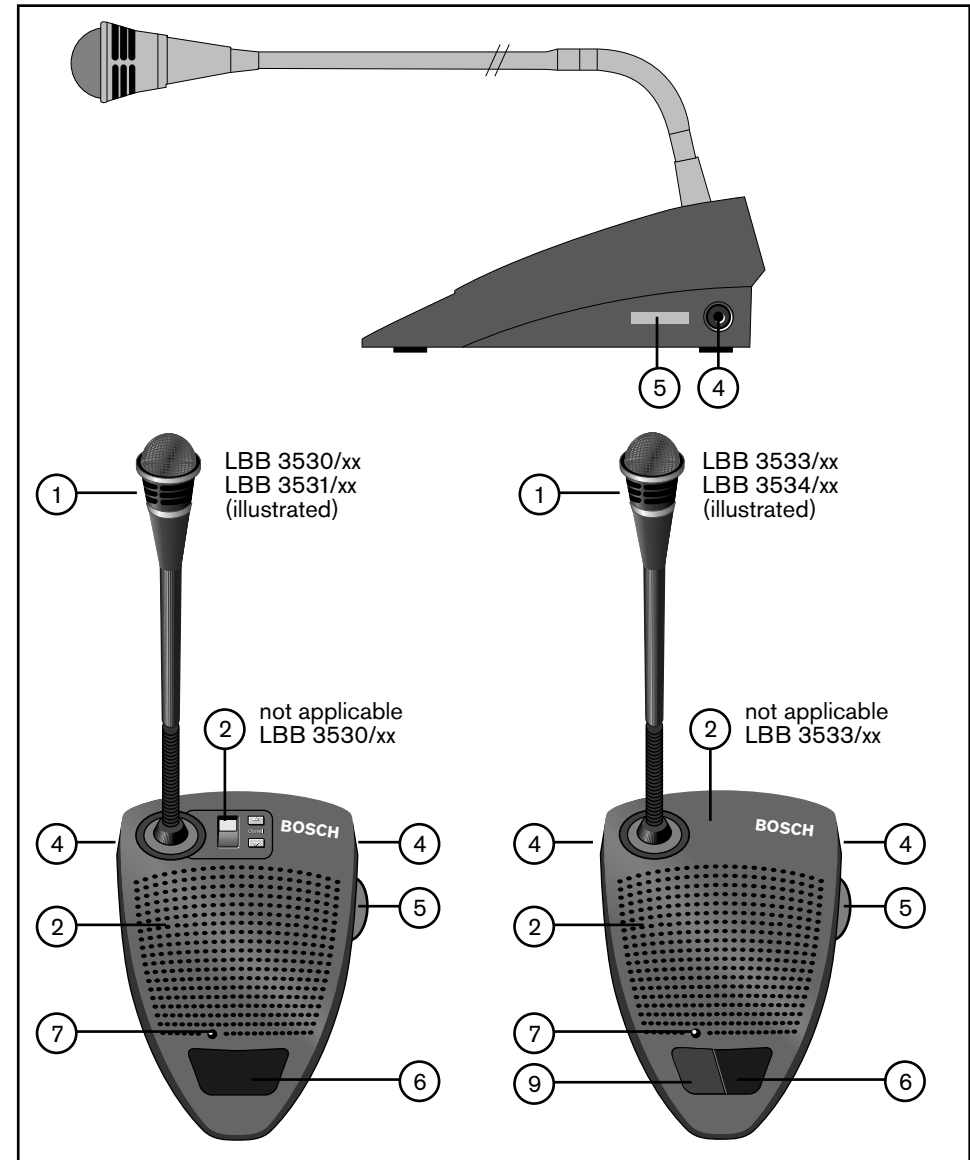


FIG 11-7 Operating Discussion delegate/chairman units

11.9 Interpretation

The interpreter desk has two functional modes: the operational mode and the programming mode. In the operational mode the interpreter desk is divided into two main working sections: the listening section and the speech section. The listening section at the left side of the unit includes headphone and loudspeaker monitoring facilities for listening to the floor or other translations. The speech section at the right of the unit includes controls for the outgoing translation channels. In its programming mode, operational functions can be set before a conference begins. The programming mode under a menu driven display enables audio channels to be assigned to specific languages, the selection of the interpreters A and B output translations, as well as providing an override and interlock facility between and within booths.

11.9.1 Incoming channel control (LISTENING)

Each interpreter desk includes a Relay select rotary switch for selection of the incoming language, as well as three incoming channel pre-select keys a, b, and c. The pre-select keys a, b, and c can be assigned to the interpreters three most familiar or working languages. The incoming language is displayed on the units alphanumeric LC-display together with a quality indication, providing the interpreter with an at a glance indication of the quality of the incoming language. For example the quality indication displays whether the incoming language is direct from the floor speaker (FLOOR) or whether its a translation of the floor language (+) or whether its a translation of a translation of the floor language (-). Monitoring the incoming languages is done via the units built-in loudspeaker (floor only) or by using headphones or headset. Three rotary controls at the lower left of the unit provide headphone volume, treble and bass adjustment. A rotary switch at the top left of the unit provides a loudspeaker volume control adjustment.

11.9.2 Outgoing channel control (SPEAKING)

To distribute the translation, the desk provides two outputs, output A and output B. Output A is a preset output used for the interpreter's normal outgoing output, and output B (if selected during programming) is used for translating from less common languages, or as a second outgoing language output where different languages are to be distributed from the same desk. Selection of the A or B outputs is by means of two push-buttons marked A and B. Red LEDs adjacent to the push-buttons indicate which output has been selected. If output B is selected, the output language from that desk can be automatically distributed to the other interpreter desk (booths) for relay interpretation into other languages (if the auto-relay function is enabled in the desk programming procedure).

11.9.3 Microphone (Micro)

A microphone on/off switch (Micro) controls the status of the units microphone while a Mute push-button temporarily mutes the microphone for as long as the key remains pressed. An illuminated light ring and a microphone status indicator (LED bar) indicates microphone on status.

11.9.4 Microphone locks

In its programming mode, the desk can be programmed with a microphone 'Override' or microphone 'Interlock' function, or given free microphone access 'None'. The microphone interlocks are only active when interpreter desks from different booths, try to gain access to the same channel.

11.9.5 'Override'

If programmed, the 'Override' function allows all interpreters assigned to the same output channel, to switch-on their microphones and access the output channel on a First-In-First-Out basis - thus switching off already active microphones. This function therefore, assures that only one microphone at a time is active on a channel.

'Interlock'

The interlock function permits only one microphone on a channel to be switched on at any time, thus preventing other interpreters from using the same output channel. The 'Interlock' function therefore operates on a First-In-First-Served basis.

'None'

When programmed 'None', interpreters assigned to the same channel can switch on their microphones simultaneously.



NOTE: In PC-based systems the 'Override', 'Interlock' and 'None' facility can be programmed for within booths or between booths. In stand-alone systems the 'Override', 'Interlock' and 'None' facilities are only active between booths.

11.9.6 Relay Interpretation with auto-relay

In circumstances where the original floor-language is 'well known' or not 'so well known', two different operational procedures can be used. In normal operational mode (FIG 11-9) the original floor language is well-known to all interpreters, and they listen to the original floor language for interpretation. The translations are then fed to the language distribution channels. In situations where interpreters are unfamiliar with the floor language and therefore unable to interpret it, the system offers an automated relay interpretation facility (auto-relay - see FIG 11-10). An interpreter assigned to translate the floor language, translates it into another language easily understood by other interpreters. The floor language on all interpreter desks will be replaced by this transfer interpretation. This transfer interpretation or "auto-relay" is then used as the base for further translations. In the example shown in FIG 11-10, Japanese is the floor and the auto-relay facility is enabled on the Japanese interpreter's desk. This interpreter selects outgoing channel B and automatically relays an English interpretation as AUTO-RELAY to all other desks for interpretation and also feeds the English language distribution channel. The incoming channel AUTO-RELAY indicator shows on all other desks that auto-relay is active.

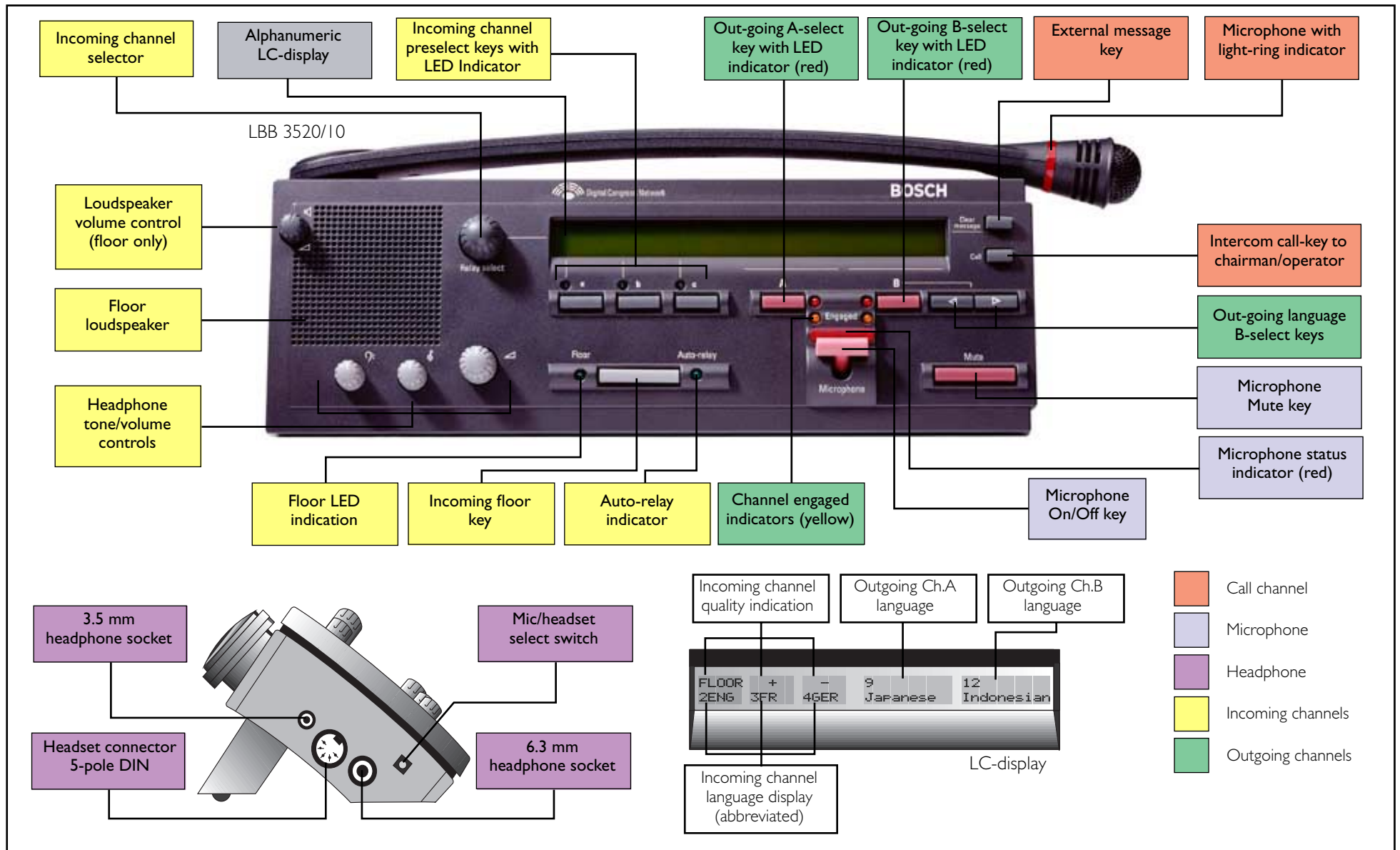


FIG 11-8 Operation Interpreter unit LBB 3520/10

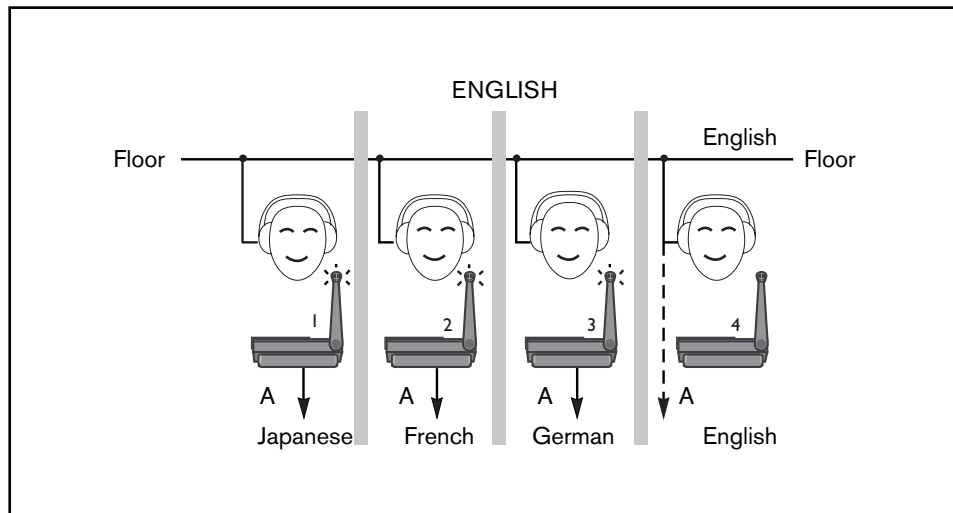


FIG 11-9 Normal operation (floor active)

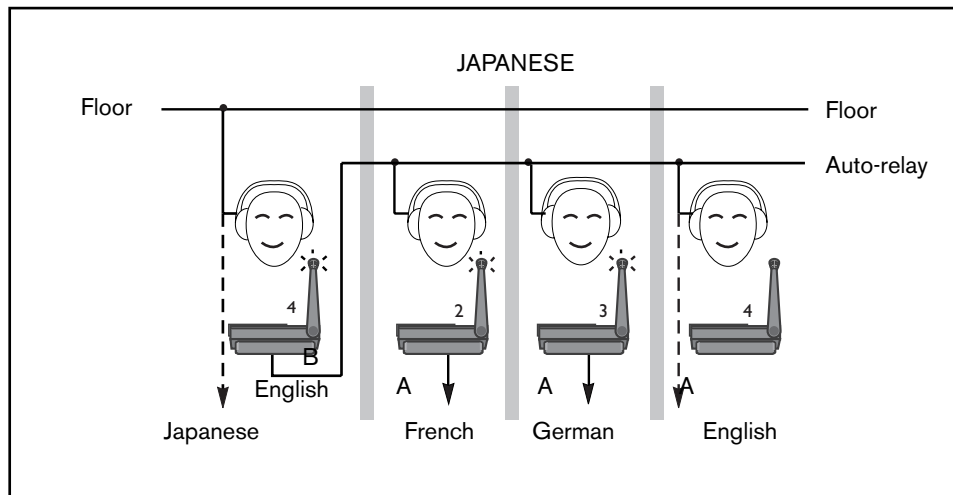


FIG 11-10 Relay Interpretation (Auto-relay active)

11.10 Operating the Interpreter Desk

11.10.1 Incoming Channel Selection

Using the desks three Incoming channel pre-select keys, **a**, **b** and **c**, the interpreter can quickly select, one of three familiar incoming languages for translations. The diagram below shows the three pre-select keys with their LED indicators.



Incoming Channel personal pre-select keys a, b and c

11.10.2 Assigning Pre-select keys

Refer to interpreter desk overlay.

1. Select one of the keys **a**, **b** or **c** that is to be assigned to an incoming language channel.
2. When the assigned key has been pressed and its associated LED is lit, turn the incoming channel selector knob 'Relay select' to the left or right to visually scan and select the required incoming language. The last language selected will be assigned to the selected pre-select key.
3. The above procedure is used to assign the remaining two pre-select keys.

11.10.3 Incoming Floor switch and Auto-relay

1. Pressing the Incoming floor key, switches the incoming language channel to the floor channel or to the Auto-relay channel, if Auto-relay has been programmed. This action illuminates the LED marked 'Floor', or if applicable the LED marked 'Auto-relay'.



11.10.4 Language Quality Indication

The language quality indication gives the interpreter an at-a-glance quality of the incoming language. For example, FLOOR above an incoming language indicates that, that language is the original floor language. A plus sign (+) displayed above an incoming language, indicates that the translation is based on a direct translation of the original floor language. A minus sign (-) displayed above an incoming language indicates that the translation is an indirect translation and based on the translation of another translation derived from the original floor language.




The display below shows the interpreter's desk in its operational mode, displaying three incoming language channels. Channel 2ENG, channel 3FR, and Channel 4GER. For a list of language abbreviations refer to Table 11.1, (PAGE 11-25).



The following display gives an example of the language Quality Indication function. The display indicates that Channel 2ENG is the original floor language, while Channel 4GER (German) (+) is a direct translation based on the original FLOOR language, whereas Channel 3FR (French) (-) is an indirect translation based on a translation of a translation of the original FLOOR language.



11.10.5 Interpreter desk Listening

Two tone controls (bass , and treble ) and one volume control  enables the adjustment of the sound level and sound quality when using headphones or a headset when listening to the floor or selected translations.

A built-in loudspeaker with volume control enables the interpreter to monitor the floor language only. All interpreter desk loudspeakers within a booth are muted, when an interpreter's microphone within that booth is switched on.

11.10.6 Outgoing Channel Selection

To select the required outgoing language channels, the interpreter desk provides the following keys:

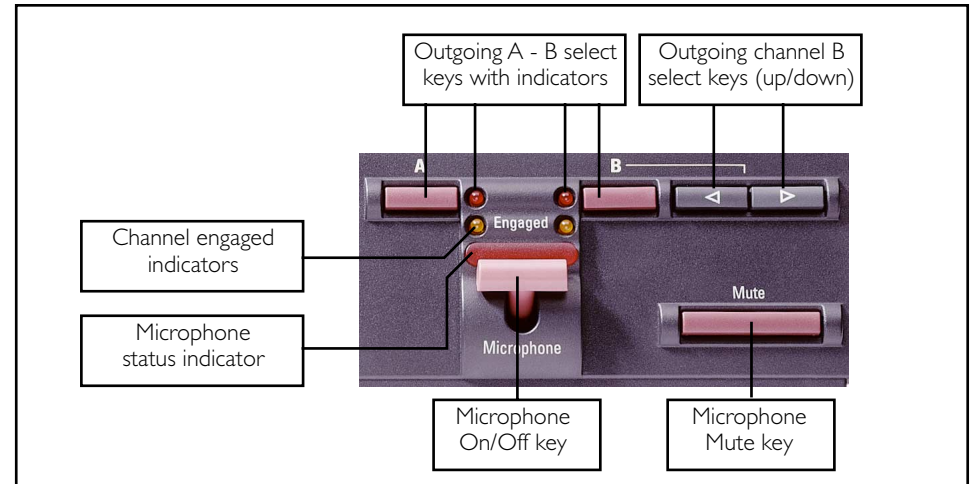


FIG 11-11 Outgoing Channel Selection

The interpreter desk offers three methods of distributing a translation. Using the A-output only, using both the A-output + B-output, and using both the A-output + B-output with the Auto-relay facility.

A- Output

The A-channel is normally reserved for the interpreter's most familiar outgoing language. Press the 'A-Channel select' key to output on the A-Channel, its associated red LED illuminates.

A+B- Output

As well as using the A-output as described above, the interpreter can also select a second outgoing language for distribution on channel B (if programmed), by using the desks 'B-select' up/down keys.

Pressing the '**B-Channel select**' key, activates the Outgoing B-channel, while switching off the Outgoing A-Channel. Their associated red LEDs act accordingly.

A+B-Output + Auto-relay facility

As well as using the outgoing A and B-channels, an additional facility is available for use where an exotic language is unfamiliar to the majority of interpreters. In the desk programming mode the Outgoing B channel of an interpreter desk can be assigned with the auto-relay facility. This facility automatically replaces the incoming floor channel with the assigned auto-relay language, which is distributed to other interpreters to base their translations. To output the auto-relay procedure, the assigned interpreter simply presses the 'Outgoing B' key on his desk.

11.10.7 Typical Displays showing outgoing channels

The following display shows the interpreter desk displaying both the incoming language channels and the outgoing language channels. The incoming languages are displayed in their abbreviated form along with their channel number, and the outgoing channels are displayed in full with the channel number displayed above.



Engaged LEDs

The A and B outgoing channel engaged LEDs, indicate when the relevant channels are occupied. A flashing engaged LED, indicates that this desk's and other interpreter desk(s) microphones are switched on to the same channel.

A flashing engaged LED (depends on the microphone interlock selected) indicates that the desks microphone activating key is in the ON position, but the microphone is not activated. A constant illuminated LED, indicates an attempt to access an occupied channel while the desks microphone activating key is in the OFF position. All indications disappear as soon as the channel is unoccupied.



NOTE: In the software application module 'Simultaneous Interpretation' LBB 3572, the option 'Flashing microphone LED bar when engaged' can be enabled. If enabled, the microphone LED bar above the microphone switch will flash together with the 'Engaged LEDs' giving improved engaged status visibility. This option remains also active when the 'Simultaneous Interpretation' software LBB 3572 or the PC is switched OFF. Disabling this function is only possible via the software module 'Simultaneous Interpretation LBB 3572.

Override/Interlock/None

In the desk's programming mode, the desks can be programmed to provide an 'Override', 'Interlock' or a 'None' function.

Override.

The override function enables interpreters on the same channel to override each others microphone on a First-In-First-Served basis. To activate the microphone when overridden, switch the microphone on/off key to off and switch on once again.

Interlock

The interlock function if programmed permits only one microphone, on one channel, at a time to be activated between and in booths. The interlock function therefore prevents other interpreters located in different booths from using the same Outgoing channel at any one time until the active microphone has been switched off.



NOTE: Note: To activate the microphone in an interlock situation, wait till the engaged LED extinguishes, put the microphone on/off key to off and then switch on again.

None

When programmed None, no override or interlock facility is available, this means that interpreters assigned with the same outgoing channel are able to access the output channel and switch on their microphones simultaneously.



NOTE: In a stand-alone system there is no 'Interlock' or 'Override' facility available within a booth. The system default is set to 'None'. In PC-based systems all functions are available either between booths or within booths.

Microphone operation

To activate the microphone place the microphone activating key forward, the microphone status LED bar and light-ring illuminates. To switch the microphone off pull the microphone switch towards you, the microphone status LED bar extinguishes. If access to the output channel is denied, the system may be interlocked. In such a case, wait till the relevant engaged LED extinguishes, then release the microphone activating key (if on) and switch on again.

The 'Mute' key when pressed temporarily switches the microphone off (if on).

Call

The Call push-button when pressed opens the intercom communication channel, between the interpreters and the intercom operator.

Message distribution

When the central operator distributes a message using the Message Distribution Software Package LBB 3582, the message is shown on the top-line of the display, using additional screens if the message is longer than one screen.

Intercom operation

In a system, interpreter desks fitted with a handset can be used for intercom communication with the intercom operator. To use this facility proceed as follows:

1. Lift the handset to open the intercom communication line
2. At the operator position, an LED illuminates indicating an incoming intercom call.
3. If the intercom-line is in use, a 'busy-tone' is heard. In this case replace the handset and repeat the above steps after an appropriate delay.

In PC-based systems running the DCN software package Intercom LBB 3573, participants using a unit with an installed handset can also participate in private two-way communication.

An incoming intercom call is indicated by a text on the top-line of the display.



NOTE: The intercom function can also be performed with the unit's microphone and the headphone.

11.11 Programming the Interpreter desk

Introduction

Entering the interpreter desk into its programming mode, enables the desk's individual and interpretation system parameters to be programmed manually prior to the start of a conference.

11.11.1 Programming the Interpreter desk

Using the desks built-in LC-display and easy to use menu system the following menus are available: It should be noted however that some menus are applicable only to the desk being programmed, while other menus are applicable to all interpreter desks installed in the system. Therefore the following menus will be assigned as 'Desk only' and 'System'. When programming the 'System' a single desk only should be assigned for the task. This is necessary because all interpreter desks can program the system parameters.

Menu a	Select user language	(System)
Menu b	Select booth number	(Desk only)
Menu c	Select desk number	(Desk only)
Menu d	Select number of channels	(System)
Menu e	Select language list	(System)
Menu f	Select language Channels	(System)
Menu g	Select outgoing channel via A-output	(Desk only)
Menu h	Select outgoing channel(s) via B-output	(Desk only)
Menu j	Select number of auto-relay supply booth(s)	(System)
Menu k	Select auto-relay supply booth	(System)
Menu l	Select Microphone locks between booths	(System)
END	End, use keys 'b' and 'B' to return to operational mode	



NOTE: PC based systems using the DCN Simultaneous software package LBB 3572 have extended control and preset facilities as compared to a stand-alone interpretation system. The B-channel, auto-floor function, and interlock function of individual desks can be over-ruled by the PC. The operator can preset and update the language channel routing on both outgoing A and B outputs on all interpreter desks installed in the system, and assign free or fixed selection of output channel numbers on outgoing output B.

In PC based systems only the Menu **b** (Select booth number) and the Menu **c** (select desk number) need to be programmed manually on each desk. All other menus are programmed from the PC.

When in the programming mode some of the desks keys are re-defined as programming keys. The following is an explanation of the redefined keys.

Explanation of redefined keys:

Normal operational Mode	Programming Mode
1. Relay select	: Input Select (Left Up Right down)
2. Pre-select b	: Mode selection
3. Outgoing B	: Mode selection
4. B-select	: Menu Select (up - down)
5. Mute	: Clear key
6. Floor	: Enter key




FIG 11-12 Redefined programming keys (Interpreter desk LBB 3520/10)

11.11.2 Entering the desks programming mode

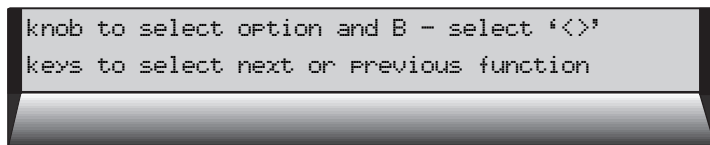
Before attempting to program the interpreter desk, ensure that the system has first been initialized (see Chapter 11.1 Initializing). If the system has been initialized and the display shows 'DESK NOT INSTALLED', the desk is ready to be programmed.




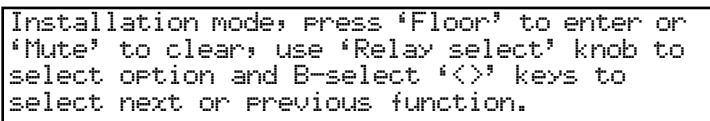
 **NOTE:** Only one desk can be programmed at the same time.

To enter the desk in to its "Programming" mode proceed as follows::

- I. Press the key 'Pre-select b' and the 'Outgoing B' keys simultaneously. The Installation mode is shown as follows:



 **NOTE:** Due to the length of the opening message, the message is displayed over additional screens. The message in full is as follows:



11.11.3 Menu Programming procedures

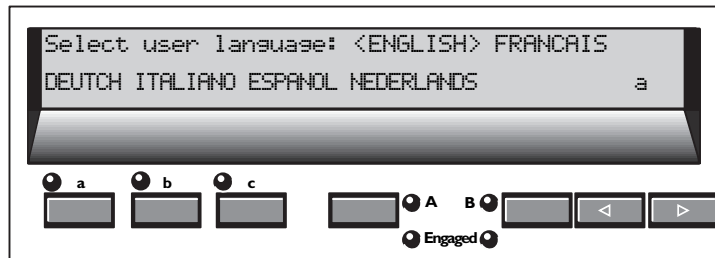
- STEP 1.** Press the 'B-Select' up/down keys < > to scroll through and select the required Installation menu.
- STEP 2.** Once in the chosen menu, rotate the 'Relay select' knob (left, up, right, down) to highlight the required selection. Arrow brackets < . . > highlight the chosen entry. If this function is not available, press the 'Mute' key to clear a previous setting. A previous setting is displayed with square brackets [. .].
- STEP 3.** To input and confirm the selected entry, press the 'Floor' key. Once entered, the selected entry is surrounded with square brackets [. .].
- STEP 4.** Press the 'Mute' key to clear a previous settings. Pressing this key throughout the programming mode allows a previous settings to be cleared, ready for new input data and errors to be corrected.

MENUS

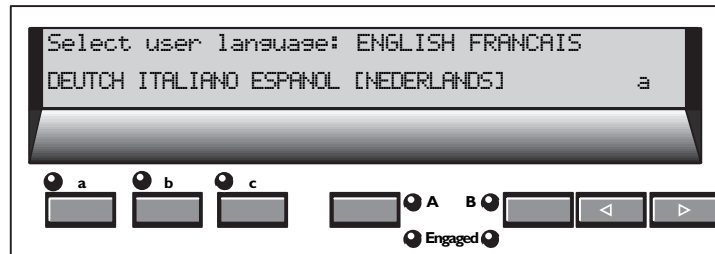
Menu a. SELECT DISPLAY PROGRAMMING LANGUAGE

To set the required language for display when programming the desk. The language set, for all interpreter desks installed in the system. If a language is not set, the desk will revert to its default [ENGLISH].

1. Select Menu **a**, 'Select user Language' menu as described in step 2 (Programming procedures). The following Menu should be displayed:



2. Rotate the 'Relay select' knob to scroll and select the required user language as described in Programming procedures Step 3.
3. To enter the selected language press the 'Floor'. Refer to step 4.

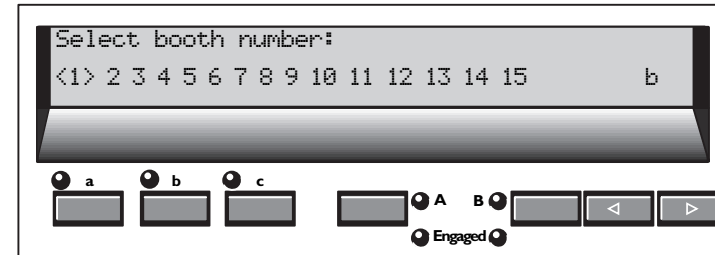


Menu b. SELECT BOOTH NUMBER

To assign the interpreter desk to a specific booth. Each interpreter desk installed in the system needs to be programmed individually.

Procedure:

Select Menu **b**, 'Select booth number' as described in step 2 (Programming procedures). The following Menu is displayed:



1. Rotate the 'Relay select' knob to scroll and select the required booth number as described in Programming procedures Step 3.
2. Press the 'Floor' key to enter the required booth number. Refer to step 4.



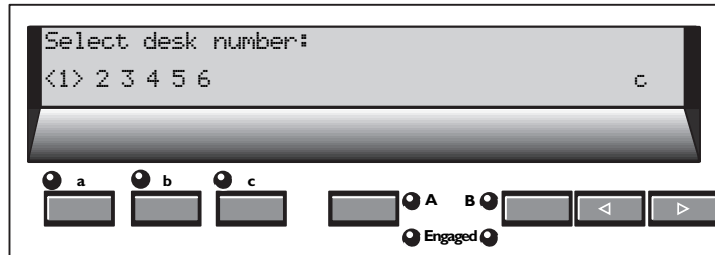
NOTE: The booth number selected can be different from the channel number.

Menu c. SELECT DESK NUMBER WITHIN A BOOTH

To assign the interpreter desk with a specific number within a booth. Each interpreter desk installed in the system needs to be programmed individually.

Procedure:

Select Menu **c**, 'Select desk number' as described in step 2 (Programming procedures). The following Menu is displayed:



1. Rotate the **'Relay select'** knob to scroll and select the required booth number as described in Programming procedures Step 3.
2. Press the **'Floor'** key to enter the required desk number. Refer to step 4.

Menu d. SELECT NUMBER OF CHANNELS

To set the number of language channels. In stand-alone systems the maximum number of channels available is 11 in PC-based systems 15.

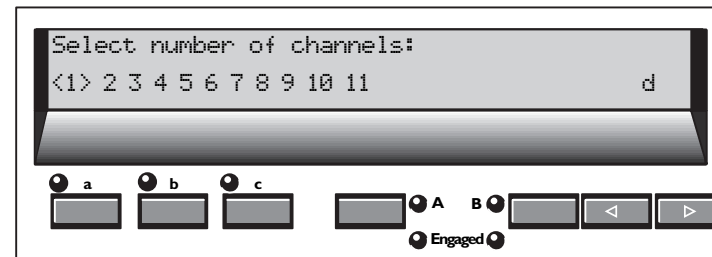


NOTE: Up to 30 interpretation channels are supported with PC software when special interpreter desks and language channel selectors are used. For more information about this functionality refer to the manual for software application 'Simultaneous Interpretation' LBB 3572, Appendix A.

Once set, this number will be applicable for all desks installed in the system, therefore this procedure only needs to be done once.

Procedure:

Select Menu **d**, 'Select number of channels' as described in step 2 (Programming procedures). The following Menu is displayed:



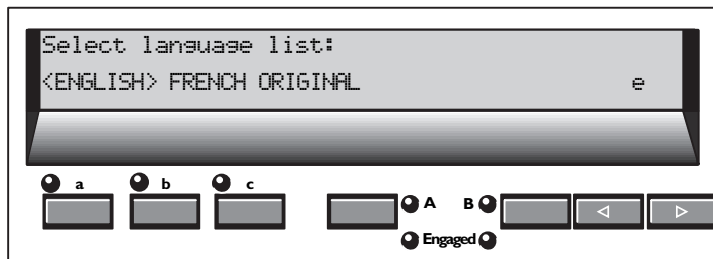
1. Rotate the **'Relay select'** knob to scroll and select the required number of channels as described in Programming procedures Step 3.
2. Press the **'Floor'** key to enter the required number of channels. Refer to step 4.

Menu e. Select language list

To select a list of languages and their abbreviations for display in either 'English', 'French' or in their 'Original' language. The language set is for all interpreter desks installed in the system, therefore this procedure only needs to be done once.

Procedure:

Select Menu **e**, 'Select language list' as described in step 2 (Programming procedures). The following Menu is displayed:



1. Rotate the '**Relay select**' knob to scroll and select the required language list as described in Programming procedures Step 3.
2. Press the '**Floor**' key to enter the required language list. Refer to step 4.



NOTE: Refer to [Table 11.1.](#) for the lists of languages and their abbreviations.

Menu f. Select language for channels

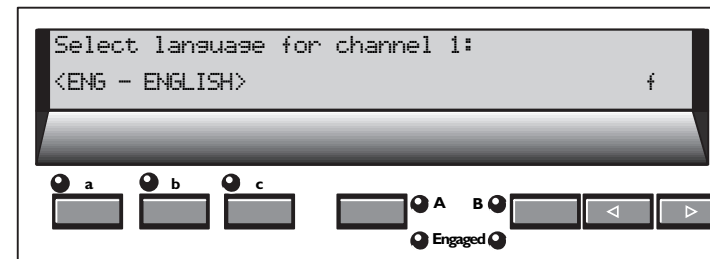
To assign languages (up to 11 channels for stand-alone systems) to a channel for selection by the interpreters. The number of channels assigned is dependent of the number of channels set in menu d 'Select number of Channels. The language(s) set in this menu are set for all interpreter desks installed in the system and therefore needs only to be done once.



NOTE: if no channels were selected in Menu d, this menu will be bypassed and the next programming menu, Menu g will be displayed.

Procedure:

Select Menu **f**, 'Select language for channel' as described in step 2 (Programming procedures). The following Menu is displayed:



1. Rotate the '**Relay select**' knob to scroll and select the required language as described in Programming procedures Step 3.
2. Press the '**Floor**' key to enter the required language to the required channel number. **Refer to STEP 4.**
3. If more than one channel needs assigning, use the B-select '**Up**' key to select the remaining channels. Refer to [Table 11.1.](#) for the lists of languages and their abbreviations.

Table 11.1 Language and Abbreviations

ENGLISH		FRENCH		ORIGINAL	
IN	OUT	IN	OUT	IN	OUT
ALB	Albanian	ALB	Albanais	SQ	Shqip
ARA	Arabic	ARA	Arabe	AR	Arabi
BUL	Bulgarian	BUL	Bulgare	BG	Balgarisk
CAT	Catalan	CAT	Catalan	CA	Catala
CHI	Chinese	CHI	Chinois	ZH	Zhongwen
CZE	Czech	TCH	Tchèque	CS	Cesky
DAN	Danish	DAN	Danois	DA	Dansk
DU	Dutch	HOL	Hollandais	NL	Nederlands
ENG	Dutch	ANG	Anglais	EN	English
FIN	Finnish	FIN	Finnois	FI	Suomi
FR	French	FR	Français	FR	Français
GER	German	AL	Allemand	DE	Deutsch
GRE	Greek	GRE	Grec	EL	Ellinika
HEB	Hebrew	HEB	Hébreu	IW	Iwriith
HUN	Hungarian	HON	Hungrois	HU	Magyar
IND	Indonesian	IND	Indonésien	IN	Indonesian
ITA	Italian	ITA	Italien	IT	Italiano
JAP	Japanese	JAP	Japonais	JA	Nihongo
KOR	Korean	COR	Coréen	KO	Chonso-o
MAL	Malay	MAL	Malais	MS	Malaysian
NOR	Norwegian	NOR	Norvégien	NO	Norsk
PER	Persian	PER	Persan	FA	Farsi
POL	Polish	POL	Polonais	PL	Polski
POR	Portuguese	POR	Portugais	PT	Português
ROU	Romanian	ROU	Roumain	RO	Romana
RUS	Russian	RUS	Russe	RU	Russkij
SER	Serbian	SER	Serbe	SR	Srpski
SPA	Spanish	ESP	Espagnol	ES	Español
SWE	Swedish	SUE	Suedois	SV	Svenska
TUR	Turkish	TUR	Turc	TR	Türkce
...
...
...	OFF.....	...	ARRETTE

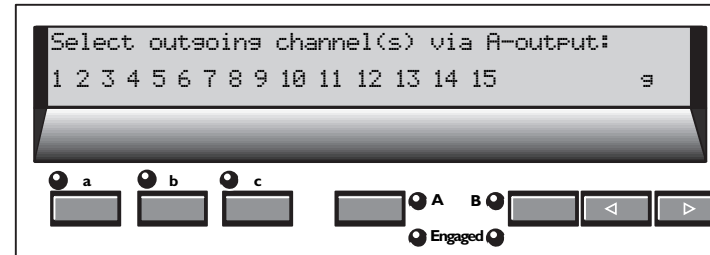
IN = Incoming language channel abbreviations
 OUT = Outgoing language channel text

Menu g. Select outgoing channel via A-output

To set the desk's A-output channel number. The number set is only for the desk being programmed. The number of channels is determined by the number of channels assigned in Menu d.

Procedure:

Select Menu **g**. 'Select outgoing channel via A-output' as described in step 2 (Programming procedures). The following Menu is displayed:



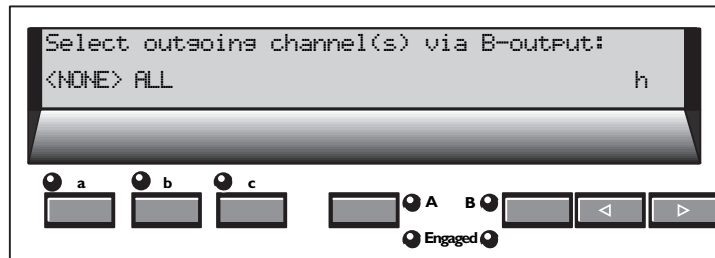
1. Rotate the **'Relay select'** knob to scroll and select the required channel number as described in Programming procedures Step 3.
2. Press the **'Floor'** key to enter the required channel number. Refer to step 4.

Menu h. Select outgoing channel(s) via B-output

To set the interpreter's B-output. The B-output can be assigned to NONE or to ALL channels (applicable to stand-alone systems only). If ALL is selected, this enables the interpreter to use the 'B-select' up/down keys to scroll and select the assigned language channels, assigned in Menu f, for distribution on the B-output. The selection made in this menu is applicable only for the desk being programmed.

Procedure:

Select Menu h, 'Select outgoing channel via B-output' as described in step 2 (Programming procedures). The following Menu is displayed:



1. Rotate the 'Relay select' knob to scroll and select **NONE** or **ALL** as described in Programming procedures Step 3.
2. Press the 'Floor' key to enter the required choice. Refer to step 4.

Menu j. Select number of auto-relay booth(s)

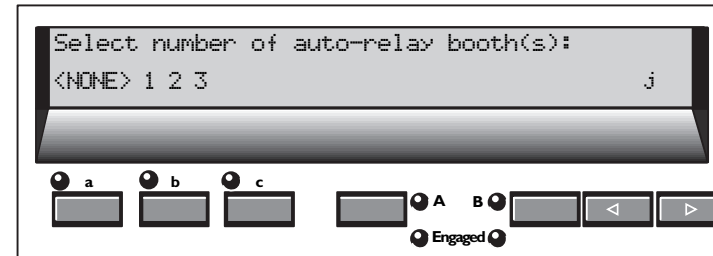
Selecting this menu the number of booths supplying an auto-relay function can be assigned. The number of booths assigned will be set for the interpretation system.



NOTE: If **NONE** is selected the Menu **k** is bypassed.

Procedure:

Select Menu j, 'Select number of auto-relay booths' as described in step 2 (Programming procedures). The following Menu is displayed:



1. Rotate the 'Relay select' knob to scroll and select **NONE** or **1**, **2** or **3** as described in Programming procedures Step 3.
2. Press the 'Floor' key to enter the required choice. Refer to step 4.

NOTES :

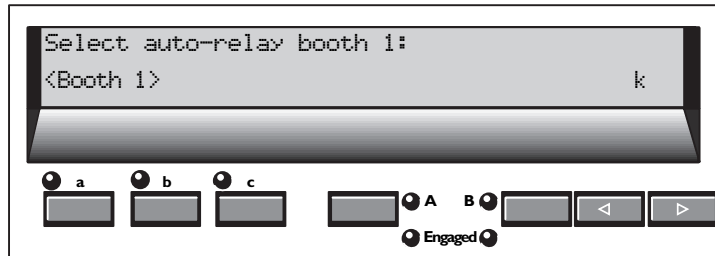
1. When selecting the number of booths providing an auto-relay function, it must be noted that this function will not be available if the required desk within the selected booth has not had its B-output programmed for auto-relay.
2. Using DCN's simultaneous interpretation software package LBB 3572 (from release 8.10) it is possible to set the number of 'auto-relay' booths to 15 (max). However when using the menu on the desk itself, the settings done using the software package LBB 3572 (from release 8.10) will be deleted allowing a maximum of 3 'auto-relay' booths only to be set.

Menu k. Select auto-relay booth

This function is only available if in Menu J, 'Select number of auto-relay booth(s)' is set to either [1, 2 or 3], if [NONE] was selected, this menu is bypassed. The number of booths available for selection is dependent on the number of booths installed. The selection made is set for all interpreter desks installed in that booth. The following screen shows the selection for booth 1 only. If in Menu J, 2 or 3 booths have been selected, use the B-select key to select the remaining number of booths.

Procedure:

Select Menu j, 'Select auto-relay booth n' as described in step 2 (Programming procedures). The following Menu is displayed:



1. Rotate the **'Relay select'** knob to scroll and select the booth number as described in Programming procedures Step 3.
2. Press the **'Floor'** key to enter the required choice. Refer to step 4 or repeat the above steps for the next booth.

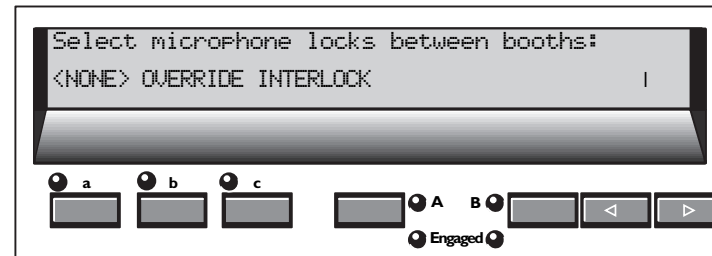
Menu I. Select microphone locks between booths

Using this menu 'Select microphone locks between booths' enables an 'Override' and 'Interlock' facility to be assigned between booths. The 'Override' function allows an interpreter to override another interpreter in a different booth supplying the same interpretation channel. The 'Interlock' function, blocks another interpreter from using the same channel in a different booth.

The function set is for all interpreter desks installed in the system.

Procedure:

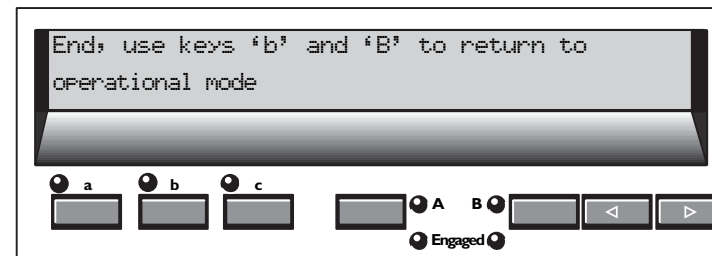
Select Menu I, 'Select microphone locks between booths' as described in step 2 (Programming procedures). The following Menu is displayed:



1. Rotate the **'Relay select'** knob to scroll and select **NONE, OVERRIDE** or **INTERLOCK** as described in Programming procedures Step 3.
2. Press the **'Floor'** key to enter the required choice. Refer to step 4.

End Programming session

To end the programming session and enter the desk in to its normal operational mode press the key **'Relay select b'** and the **'B'** key simultaneously.



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Chapter 12. Environmental Conditions and Maintenance

12.1 System

Where appropriate use cable ducts for extension and mains cables. In order to identify such cables consider using cable tallies. Trunk-lines where appropriate should be divided into manageable geographic locations - for example- use one trunk-line for committee members or dignitaries seated on a stage, and reserve, if appropriate one trunk-line for interpreter desks etc.. It is recommended that the chairman unit and interpreter desks are connected at the beginning of a trunk-line and not at the end. In public areas where connectors and cables could be trampled on, consider using protective metal covers according to the existing protection specification.

12.2 Public areas

12.2.1 Lighting

When placing contribution and channel selector units comprising an LC-display, ensure that the displays are positioned in such away as to avoid direct lighting or sunlight. The recommended viewing distance (due to the size of characters) is at arms length 1.5 m with a minimum light level of 50 lux, or even shorter for channel selector units without back-lighting so as to operate the unit while still having a good viewing angle.

12.2.2 Public displays (placement/viewing distance)

Place public displays in positions where they can be easily viewed by all participants concerned. Avoid placement in direct lighting or sunlight. The size and viewing distance for public displays shall be selected depending on the visibility criteria for each specific system. Aspects such as viewing distance, character size for hall displays, contrast and brightness under the usual lighting conditions shall be taken into account. Advise to be given by the equipment suppliers.

12.2.3 Public walkways

In public areas ensure that the cables attached to the system units, including extension cables, are run and laid out in a neat and tidy manner where they do not interfere and hinder public walk ways.

12.2.4 Headphones with interpreter systems

Where appropriate place headphones/headsets with the relevant contribution units and interpreter desks.



NOTE: Acoustic feedback, causing 'Larsen' effect (howling), is possible when connected headphones/headsets reproducing the floor channel with a high volume, come too close to an activated microphone. The minimum distance recommended between microphone and headphones/headsets to avoid the 'Larsen' effect, depends on the type of headphones/headset, the volume setting and if worn or laid down on a desk or table. User should be instructed to keep sufficient distance or to set the volume level not louder than necessary.

12.2.5 Recommended speaking distance

The recommended speaking distance from microphones is 30 cm (1 ft).

12.3 Technical rooms

It is recommended that in technical rooms where DCN's central control equipment is housed the following conditions should be met:

- When units are mounted in a 19" rack, sufficient rack space is required between heat generating units to allow proper ventilation. Proper precautionary measures should also be taken inside the rack (e.g. forced ventilation inside racks) to keep the ambient temperature well below the maximum allowed temperature so as to extend the life-time of the equipment. Refer to [Chapter 13](#). 'Technical data' for the allowed temperatures.
- Ensure that the area is a dust-free environment.
- Ensure adequate air-conditioning.
- Ensure adequate ventilation.
- Ensure adequate lighting. But ensure that the lighting does not impede the central operators.
- Do not place objects on top of the units, which could fall into vents or which could cover them and prevents proper cooling of the units electronics. This could infiltrate into the unit which could cause trouble such as fire and electric shock.
- Do not expose units to rain or excessive moisture to avoid the risk of shock or permanent damage to the system units.
- Do not attempt to remove the top cover of the Central Control Unit, Audio Media Interface Unit and Extension Power Supply Unit as you will be exposed to a shock hazard. The covers should only be removed by qualified service personnel. The units are designed for indoor use only. Please refrain from subjecting the units to vibration, and never place the units near or over a radiator, heat grill or in direct sunlight.
- In PC based systems, be warned that placing a magnet or loudspeaker system in the vicinity of the PC will corrupt data files stored on the hard or disk or floppy disks.



WARNING: Damage to the power cable may cause fire or a potential shock hazard.

12.4 Interpreter booths

Pressure and speed of work at most international conferences means that interpreters have to take turn and turn about to keep pace and ensure a steady flow of smooth interpretation. This means that each interpreter booth has to be large enough to accommodate at least two or maybe three interpreters. The specification for interpreter booths as laid down by the international organization for standardization is briefly as follows:

- Booths should be constructed at the back or the side of the hall.
- Booths should be elevated to provide an overall, unobstructed view of the chairman, the speakers and any other relevant visual aids.
- A window should be installed across the whole length of the booth.
- The inner pane should be inclined with its upper edge towards the hall to avoid acoustic reflections and mirror effects. There should also be a side window so that interpreters can communicate with one another visually. All glass used should satisfy sound insulation requirements.
- The dimensions of the booth, where possible should have a minimum size of 2.5 m (8.2 ft.) wide, 2.3 m (7.5 ft.) high and 2.4 m (7.8 ft.) deep for up to 6 languages, and 3.4 m (11.15 ft.) wide for 6 to 12 languages.
- Booths should not have interconnecting doors, but should open onto a carpeted corridor which is normally used by delegates or members of staff.
- Air conditioning should be provided so that concentrations of carbon dioxide never exceeds 0.10%.
- Temperature should be controllable between 18 °C (64.5°F) and 22 °C (71.3°F) by means of an individual regulator in each booth. The relative humidity should be maintained between 45% and 65%.
- The A-weighted sound pressure level generated by the air conditioning system, lighting and other sound sources should not exceed 35 dB.
- A large working surface should be provided for each interpreter. This should be at least 50 cm (19 in) deep and not be obstructed by equipment. The surface should be covered with a sound absorbent material. The working surface available to each interpreter (0.4 m² (4.2ft²)) shall have individual lighting to produce a uniform intensity of at least 300 lux.
- Reverberation time inside the booth should not exceed 0.5 seconds for frequencies between 125 and 4000 Hz.
- A rest room should be provided adjacent to the booths. A separate booth should be provided for the engineer handling the control equipment. It should be similar to the interpreter booth.

12.5 Ventilation

Maintain good ventilation. Ventilation holes are provided on top of the central control units. Place the units on a hard and level surface and position at least 4-inches from walls to ensure proper ventilation.

12.6 Cleaning

Do not use alcohol, ammonia or petroleum based liquids or abrasive cleaners to clean the equipment. Unplug and clean with a soft cloth slightly dampened with mild soap and water solution. Allow to dry completely before operating the relevant unit.

12.7 Storage

Disconnect the mains supply from all mains supplied units, if the units are not to be used for an extended period of time. Store in a dust free dry area with adequate ventilation. Do not store in areas affected by direct sunlight or in high or extreme cold conditions. See Technical data [Chapter 13](#). It is recommended that contribution and interpreter desks are stored in their relevant suitcases.

Chapter 13. Technical Data

13.1 Mechanical data

Metric/imperial Conversion

Length

- 2.54 cm = 1 inch
- 1 m = 39.37 inches
- 1 m = 3.28 ft.

Weight

- 1 kilogram = 2.2lbs. approximately
- 454 grams = 1 lbs. approximately

Central Control Equipment

13.1.1 LBB 3500/.. Central Control Units

- Mounting : Free standing on a table-top or mounted into a 19-inch rack (Requires 2HE).
- Dimensions H x W x D : 100 x 440 x 308 mm (3.9 x 17.3 x 12.1 in) excl. plugs
- Width including brackets : 483 mm (19. in)
- Depth including handles : 348 mm (13.7 in)
- Weight :
 - LBB 3500/05 : 9.3 kg (20.5 lb)
 - LBB 3500/15 : 10.9 kg (24 lb)
 - LBB 3500/35 : 11.2 kg (24.7 lb)

13.1.2 Mounting brackets

(included with type No.s LBB 3500/xx, LBB 4106/00, LBB 3508)

Mounting brackets used for mounting central control equipment, and extension units.



NOTE: Two mounting brackets are supplied with each unit.

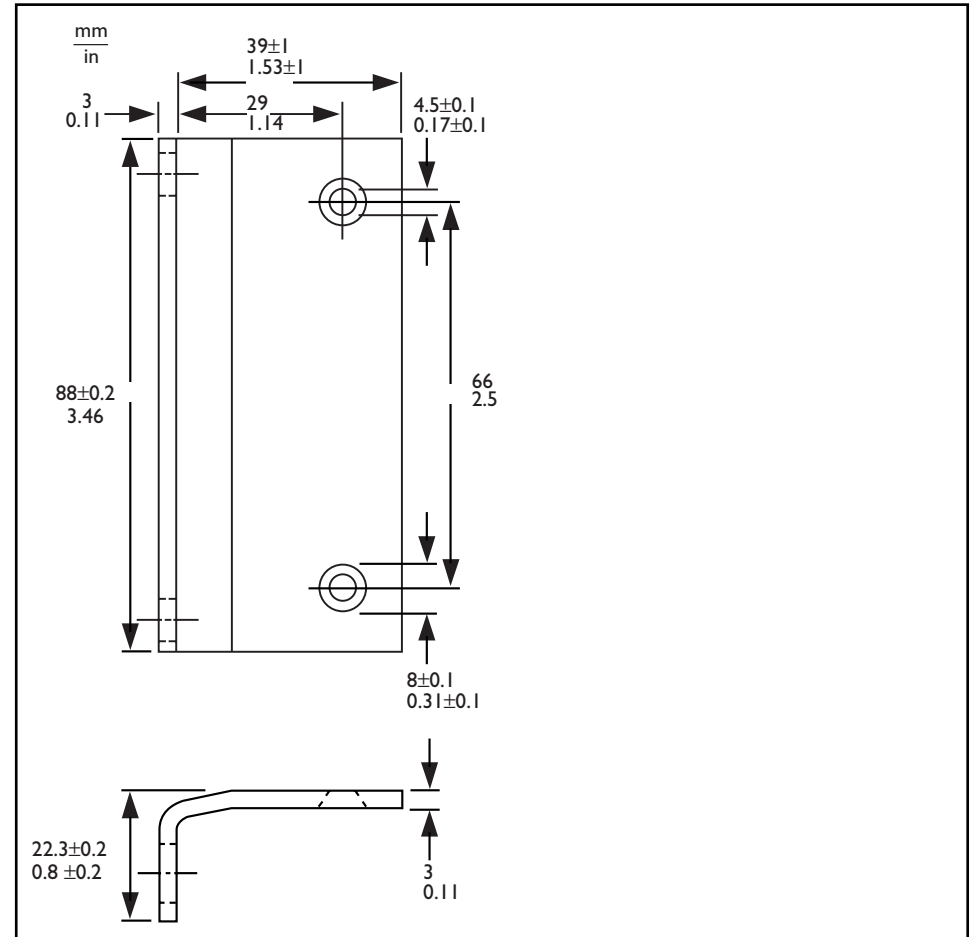


FIG 13-1 Mounting brackets

13.1.3 LBB 4106/00 and LBB 4106/00 (D)**Extension Power Supply Unit**

Mounting	:	Free standing on a table-top or mounted into a 19-inch rack. (Requires 2HE - 0.5 width) See Chapter 4.12 . 19" Rack mounting DCN control units
Dimensions H x W x D	:	100 x 220 x 308 mm (3.9 x 8.6 x 12.1 in) excl. plugs
Depth including handles	:	348 mm (13.7 in)
Weight	:	8.3 kg (18.2 lb)

13.1.4 LBB 3508/00 and LBB 3508 (D)**Audio Media Interface Unit**

Mounting	:	Free standing on a table-top or mounted into a 19-inch rack (Requires 2HE).
Dimensions H x W x D	:	100 x 440 x 308 mm (3.9 x 17.3 x 12.1 in) excl. plugs
Width including brackets	:	483 mm (19. in)
Depth including handles	:	348 mm (13.7 in)
Weight	:	9.1 kg (20. lb)

13.2 Table-top units**13.2.1 Conference Units**

Delegate/chairman unit	:	LBB 3546/00 and LBB 3547/00
Dimensions H x W x D	:	50 x 275 x 155 mm (2.0 x 10.8 x 6.1 in) (free-standing) 30 x 275 x 155 mm (1.2 x 10.8 x 6.1 in) (flush-mounted)
Weight (approx.)	:	1.5 kg

Delegate units	:	LBB 3544/00 and LBB 3545/00
Dimensions H x W x D	:	50 x 275 x 155 mm (2.0 x 10.8 x 6.1 in) (free-standing) 30 x 275 x 155 mm (1.2 x 10.8 x 6.1 in) (flush-mounted)
Weight (approx.)	:	1.4 kg

Pluggable microphones	:	LBB 3549/00 and LBB 3549/50
		LBB 3549/00 LBB 3549/50
Total length	:	330 mm (13.0 in) 500 mm (19.7 in)
Weight (approx.)	:	110 g (0.24 lb) 125 g (0.29 lb)

Interpreter desk	:	LBB 3520/10
Mounting	:	Free standing.
Dimensions H x W x D	:	87 x 300 x 125 mm (3.4 x 11.8 x 4.9 in) excl. plugs
Length when microphone is placed in its transportable position:	:	340 mm (13.34 in)
Weight	:	approx: 1 kg (2.2 lb)

13.2.2 Discussion Units

Delegate units	:	LBB 3530/00, LBB 3530/50, LBB 3531/00 LBB 3531/50
Chairman unit	:	LBB 3533/00, LBB 3533/50, LBB 3534/00, LBB 3534/50
Mounting	:	Free standing.
Dimensions H x W x D	:	
without mic.	:	63 x 124 x 172 mm (2.4 x 4.8 x 6.7 in)
height with folded mic.	:	
(mic. in horizontal position)	:	127 mm (5 in)
length of mic. from	:	
mounting surface	:	/00 versions: 313 mm (12.3 in) /50 versions: 488 mm (19.2 in)
Weight	:	±900 g (±18 lbs)

13.2.3 LBB 3535/00 Dual Audio Interface Unit

Mounting	:	Free standing (table-top) flush mounting, floor or wall mounting.
Dimensions H x W x D	:	35 x 100 x 170 mm (1.3 x 3.9 x 6.6 in) excl. plugs
Weight	:	512 g (1.1 lb)

13.2.4 LBB 3536/xx Hand microphones

Dimensions Diam x H : 28 x 265 mm (1.1 x 10.4 in) Excl. cable
 Weight : 280 g (0.6 lb)/(/00)
 : 320 g (0.7 lb)/(/10)

13.2.5 LBB 3555/00 Intercom handset

Dimensions H x W x L : 57 x 53 x 215 mm (2.2 x 2.0 x 8.4 in)
 Weight : 240 g (0.5 lb)

13.2.6 LBB 3525/00 Channel Selector housing

Mounting: : Free standing, or fixed on a table using the unit's screw mounting facilities and alternative cable in/outlets. Used for mounting Channel Selector Panel LBB 3524/00.

Cable out: : Left or right side of the unit.
 Dimensions H x W x L : 70 x 135 x 95 mm (2.7 x 5.3 x 3.7 in)
 Weight : 210 g (0.4 lb)

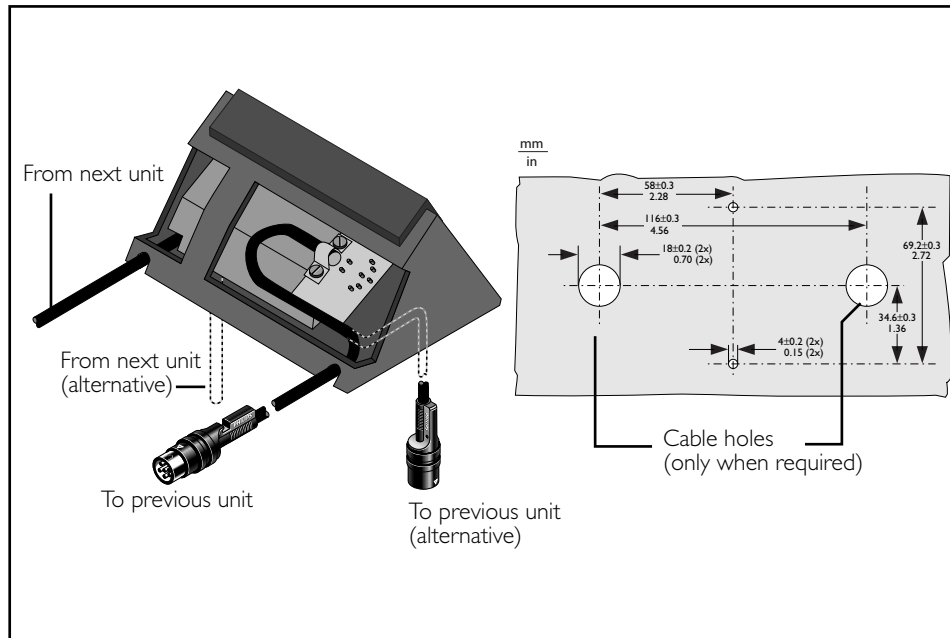


FIG 13-2 Channel Selector Housing

13.2.7 LBB 3527/00 Table-top housing for FM loudspeaker panel

Mounting: : Free standing, or fixed on a table using the unit's screw mounting facilities and alternative cable in/outlets. Used to accommodate 1 x FM loudspeaker panel LBB 3538/00 or 2 -flush-mounted units with dimensions (H x W) 40 x 120 mm (1.57 x 4.72 in). For example: channel selector panel LBB 3524/00 (lower position) and microphone panel LBB 3537/xx (upperpanel) or any other combination of units that fit the panel dimensions.

Cable out: : Left or right side of the unit.
 Dimensions H x W x L : 73 x 120 x 108 mm (2.8 x 4.7 x 4.2 in)
 Weight : 210 g (0.46 lb)

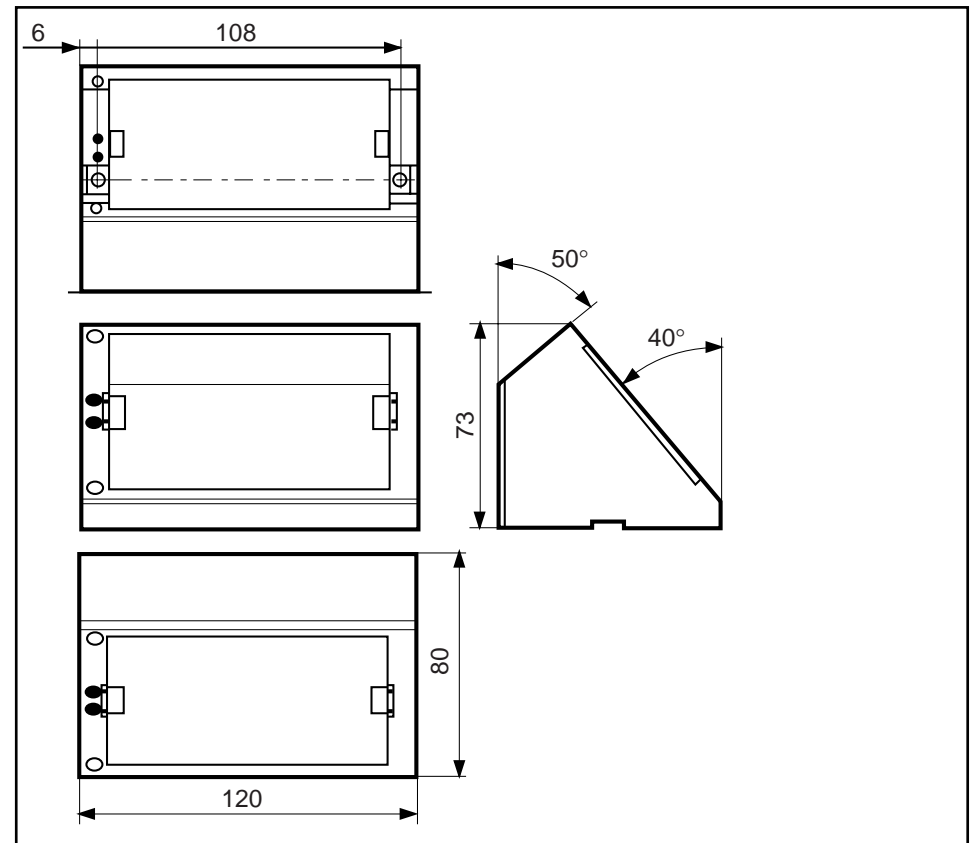


FIG 13-3 Table-top housing for FM Loudspeaker panel

13.3 Flush Mounted Equipment

13.3.1 LBB 3524/00 and LBB 3424/10 FM Electronic Channel Selector Panel

Mounting : Flush mounting using the units click-to-fit mechanism in a metal panel with a thickness of 2 mm, or flush mounting in a wooden surface using the units screw mounting facilities.

Dimensions H x W x D : 40 x 120 x 60 mm (1.5 x 4.7 x 2.3 in)

Weight : 230 g (0.5 lb)

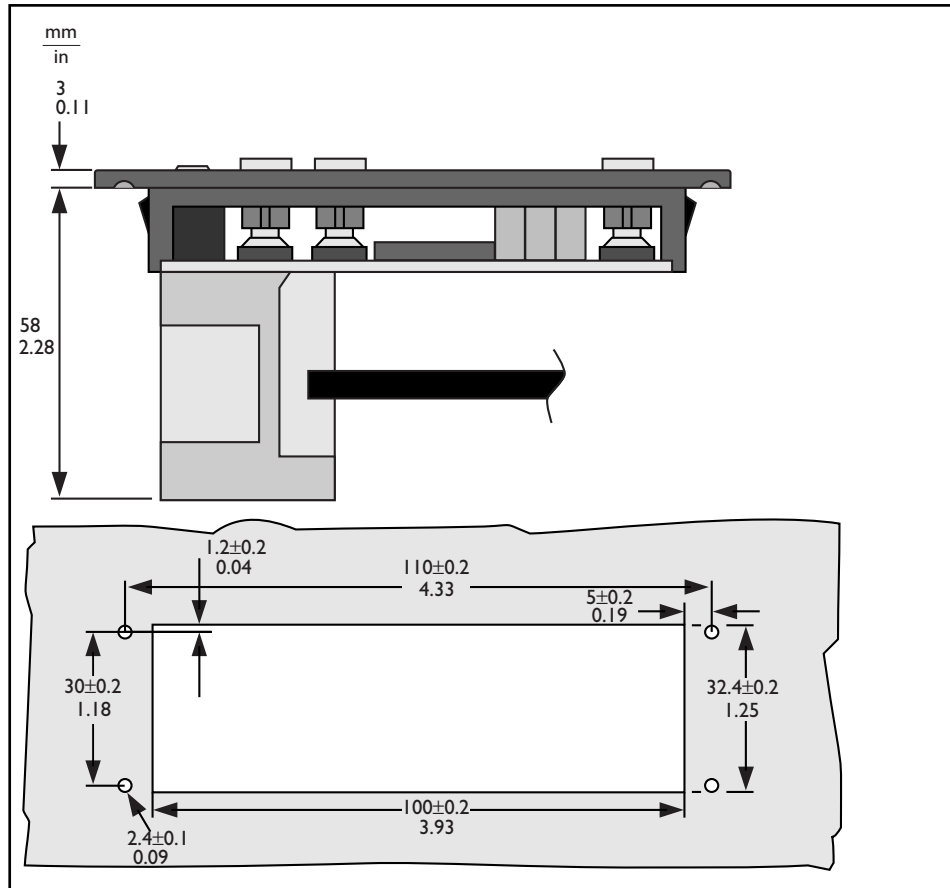


FIG 13-4 Electronic Channel Selector Panel

13.3.2 LBB 3526/10 FM Electronic Channel Selector Panel

Mounting : Flush mounting using the units click-to-fit mechanism in a metal panel with a thickness of 2 mm, or flush mounting in a wooden surface using the units screw mounting facilities.

Dimensions H x W x D : 40 x 144 x 60 mm (1.5 x 5. x 2.3 in)

Weight : 230 g (0.5 lb)

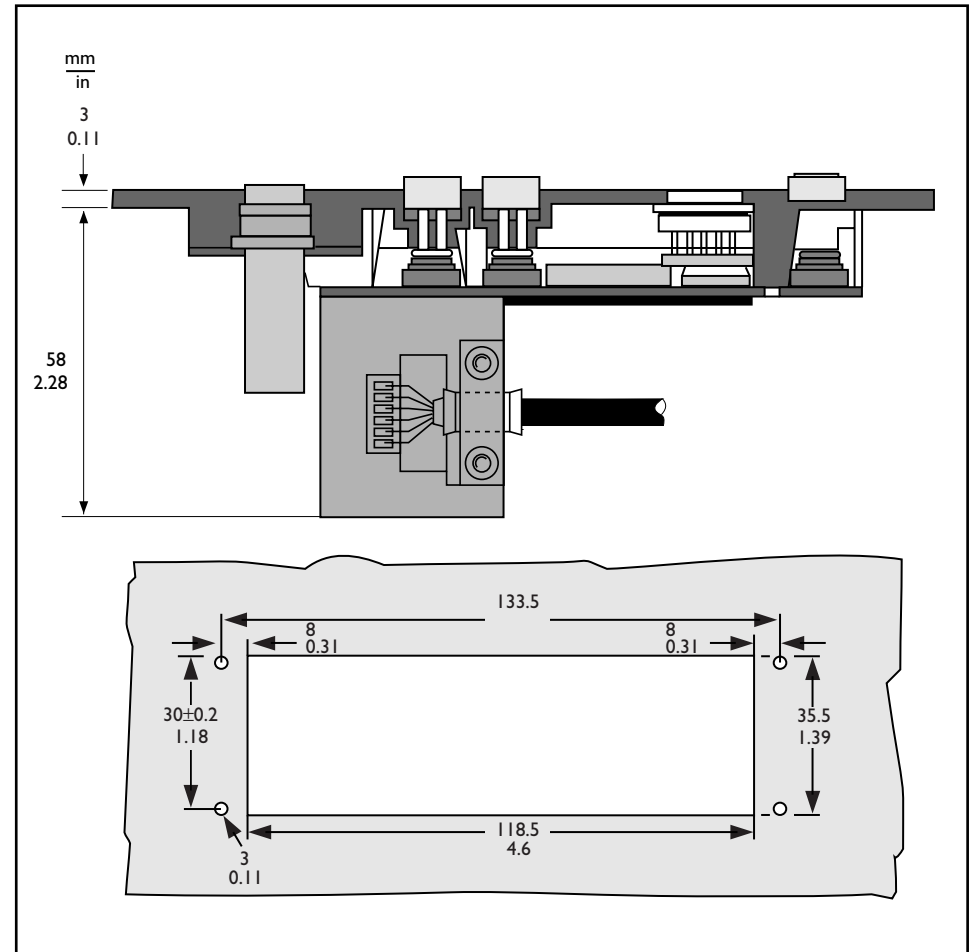


FIG 13-5 Microphone with Flush-mounted Control Panel

13.3.3 LBB 3537/00 and LBB 3537/50 Microphone with FM Control Panel

- Mounting : Flush mounting using the units click-to-fit mechanism in a metal panel with a thickness of 2 mm, or flush mounting in a wooden surface using the units screw mounting facilities (2 screws provided).
- Dimensions L x W : 120 x 40 mm (4.7 x 1.5 in)
- Built-in depth : 30 mm (1.1 in)
- Weight : 165 g (0.36 lb)
- Microphone height : LBB 3537/00 : 310 mm (12.2 in) extended
LBB 3537/50 : 480 mm (18.9 in) extended

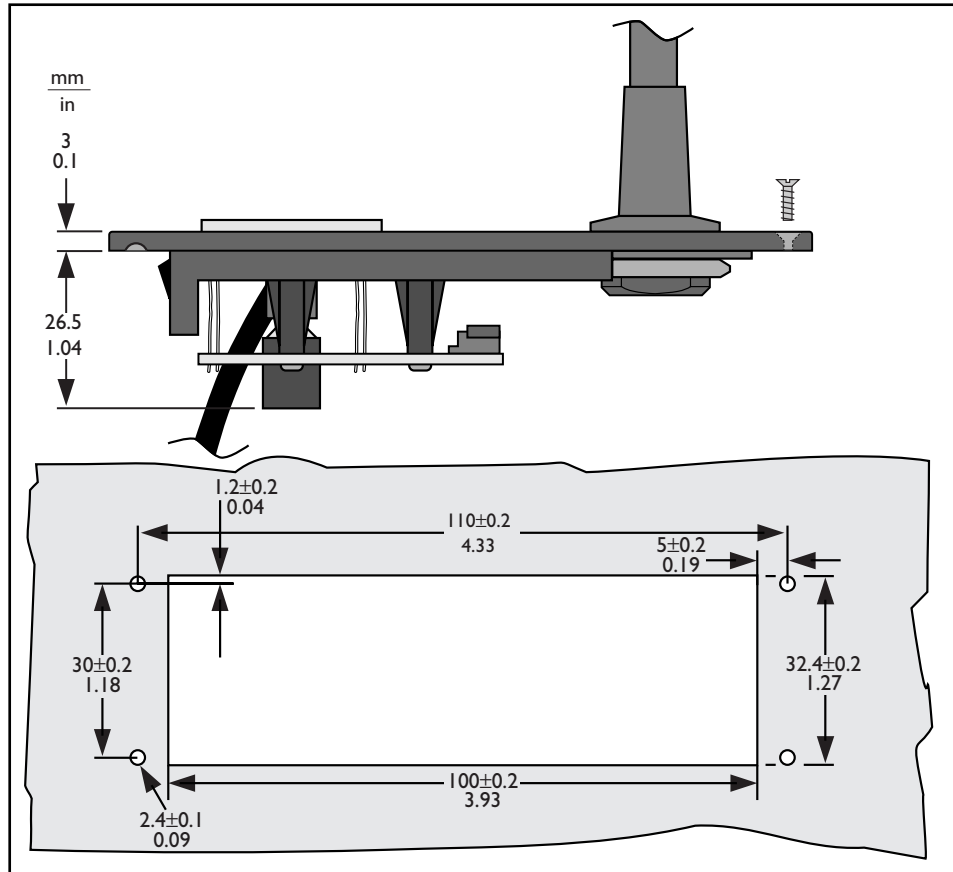


FIG 13-6 Microphone with Flush-mounted Control Panel

13.3.4 LBB 3537/10 FM Chairman Priority Control Panel

- Mounting : Flush mounting using the units click-to-fit mechanism in a metal panel with a thickness of 2 mm, or flush mounting in a wooden surface using the units screw mounting facilities (2 screws provided).
- Dimensions L x W : 120 x 40 mm (4.7 x 1.5 in)
- Built-in depth : 30 mm (1.1 in)
- Weight : 125 g (0.3 lb)
- Microphone height : 310 mm (12.2 in) extended

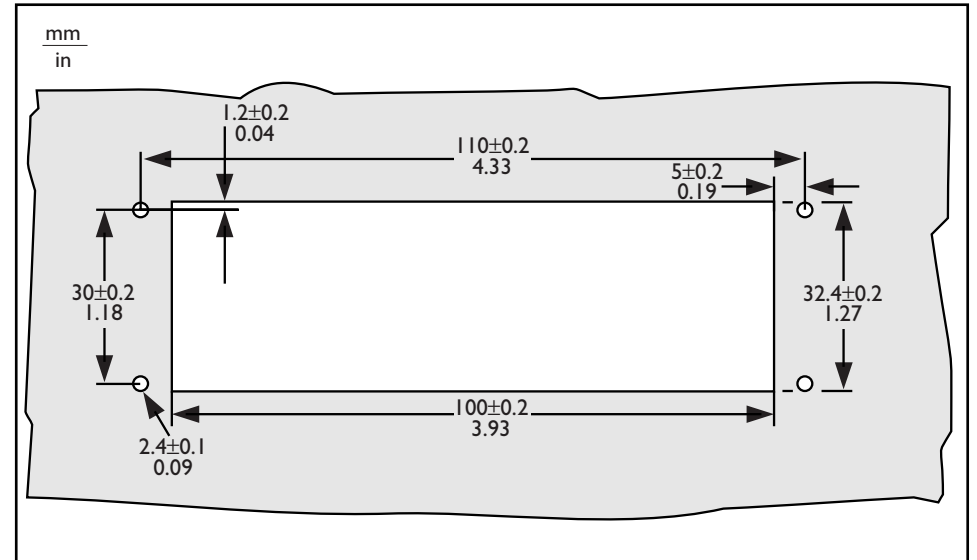


FIG 13-7 Flush-mounted Chairman Control Panel

13.3.5 LBB 3539/00 Blank panel

- Mounting : Flush mounting using the units click-to-fit mechanism in a metal panel with a thickness of 2 mm, or flush mounting in a wooden surface using the units screw mounting facilities (4 screws provided). For cut-out dimensions refer to FIG 13-7.
- Dimensions H x W x D : 40 x 120 x 25 mm (1.5 x 4.7 x 0.9 in)
- Weight : 30 g (0.06 lb)

13.3.6 LBB 3537/20 and LBB 3537/50 FM Microphone Control Panel for microphones LBB 3549/00 and LBB 3549/50

Mounting	:	Flush mounting using the units click-to-fit mechanism in a metal panel with a thickness of 2 mm, or flush mounting in a wooden surface using the units screw mounting facilities (2 screws provided).
Dimensions L x W	:	120 x 40 mm (4.7 x 1.5 in)
Built-in depth	:	30 mm (1.1 in)
Weight	:	125 g (0.3 lb)
Microphone height	:	310 mm (12.2 in) extended

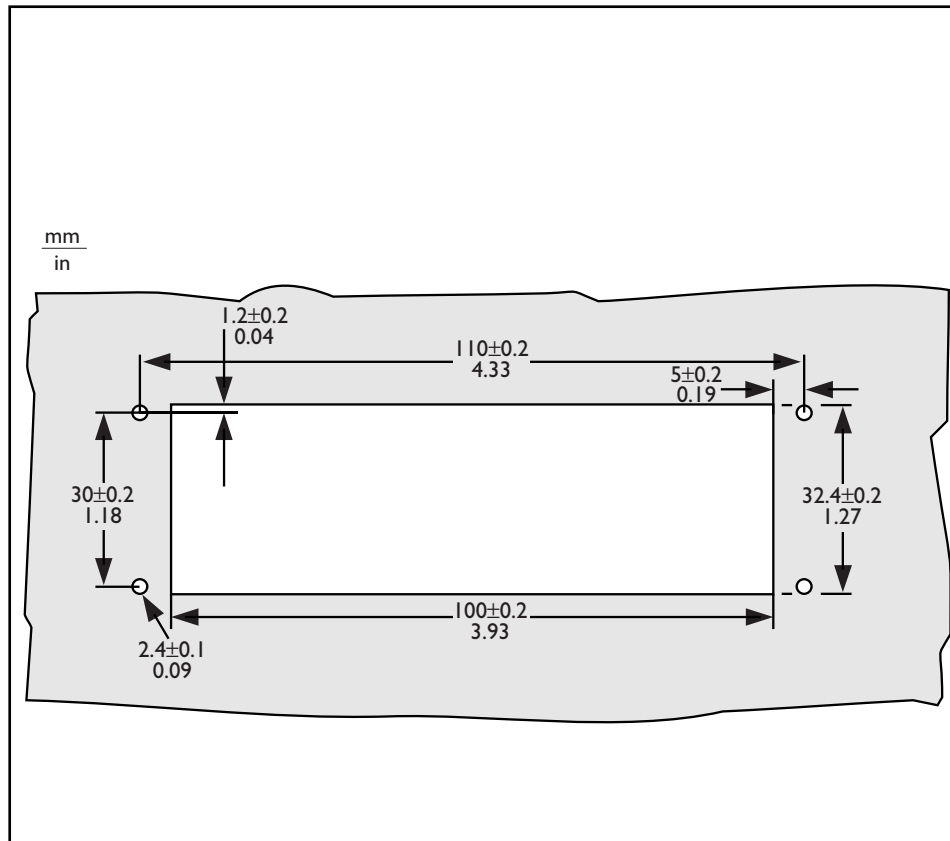


FIG 13-8 Flush-mounted Microphone control panel

13.3.7 LBB 3538/00 FM Loudspeaker panel

Mounting	:	Flush mounting using the units click-to-fit mechanism in a metal panel with a thickness of 2 mm, or flush mounting in a wooden surface using the units screw mounting facilities (4 screws provided).
Dimensions L x W	:	120 x 80 mm (4.7 x 3.1 in) landscape or portrait
Built-in depth	:	30 mm (1.1 in)
Weight	:	175 g (0.38 lb)

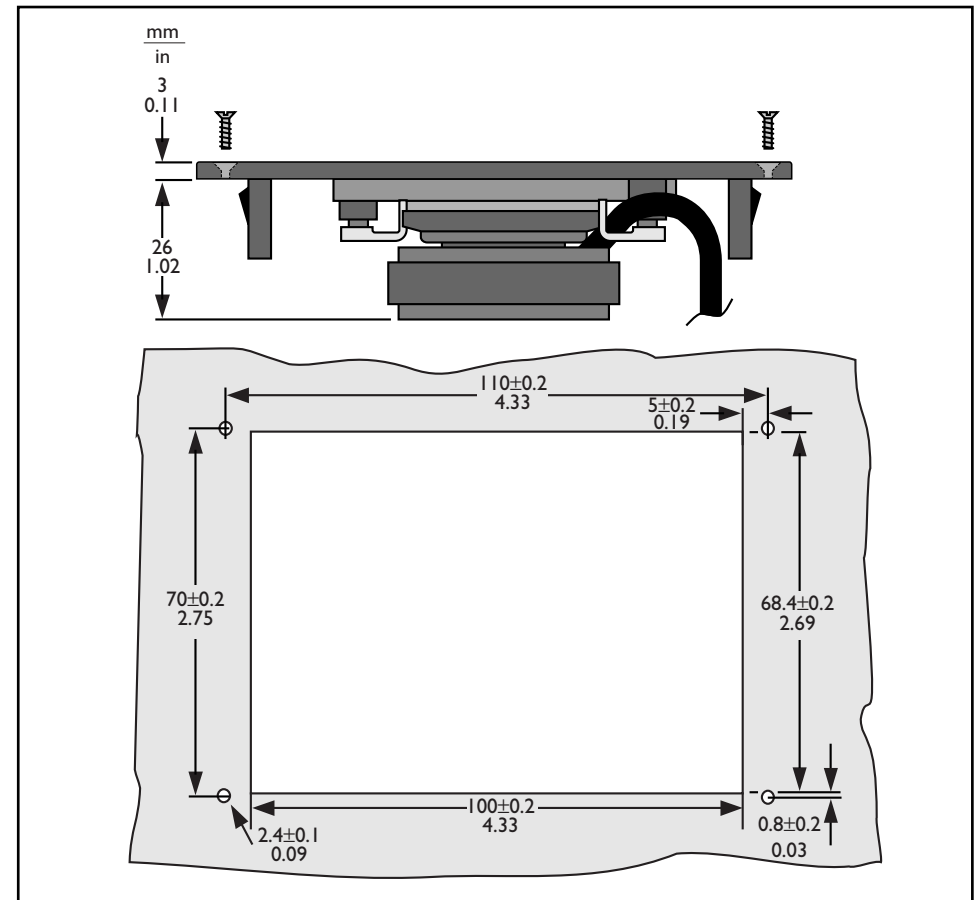


FIG 13-9 Flush-mounted Loudspeaker Panel

13.3.8 LBB 3540/15 Multi-purpose Connection Unit

Mounting : Free standing on a table-top, flush mounting, floor or wall mounting.
 Dimensions H x W x D : 35 x 100 x 170 mm (1.3 x 3.9 x 6.6 in) excl. plugs
 Weight : 530 g

13.3.9 LBB 3541/00 Delegate Voting Control Panel

Mounting : Flush mounting using the units click-to-fit mechanism in a metal panel with a thickness of 2 mm (0.07 in), or flush mounting in a wooden surface using the units screw mounting facilities (4 screws provided)
 Dimensions H x W x D : 40 x 120 x 25 mm (1.5 x 4.7 x 0.9 in)
 Weight : 115 g (0.25 lb)

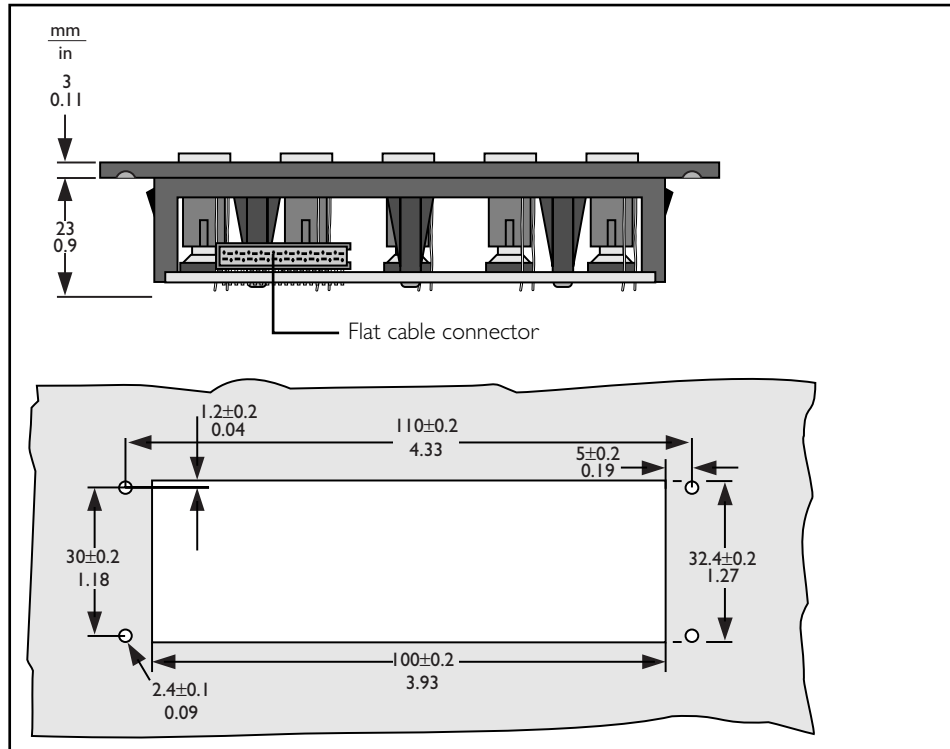


FIG 13-10 Flush-mounted Delegate Voting Control Panel

13.3.10 LBB 3542/00 FM Delegate/Chairman Voting Control Panel with LC-display

Mounting : Flush mounting using the units click-to-fit mechanism in a metal panel with a thickness of 2 mm (0.07 in), or flush mounting in a wooden surface using the units screw mounting facilities (4 screws provided).
 Dimensions H x W x D : 80 x 240 x 30 mm (3.1 x 9.4 x 1.1 in)
 Weight : 260 g (0.57 lb)

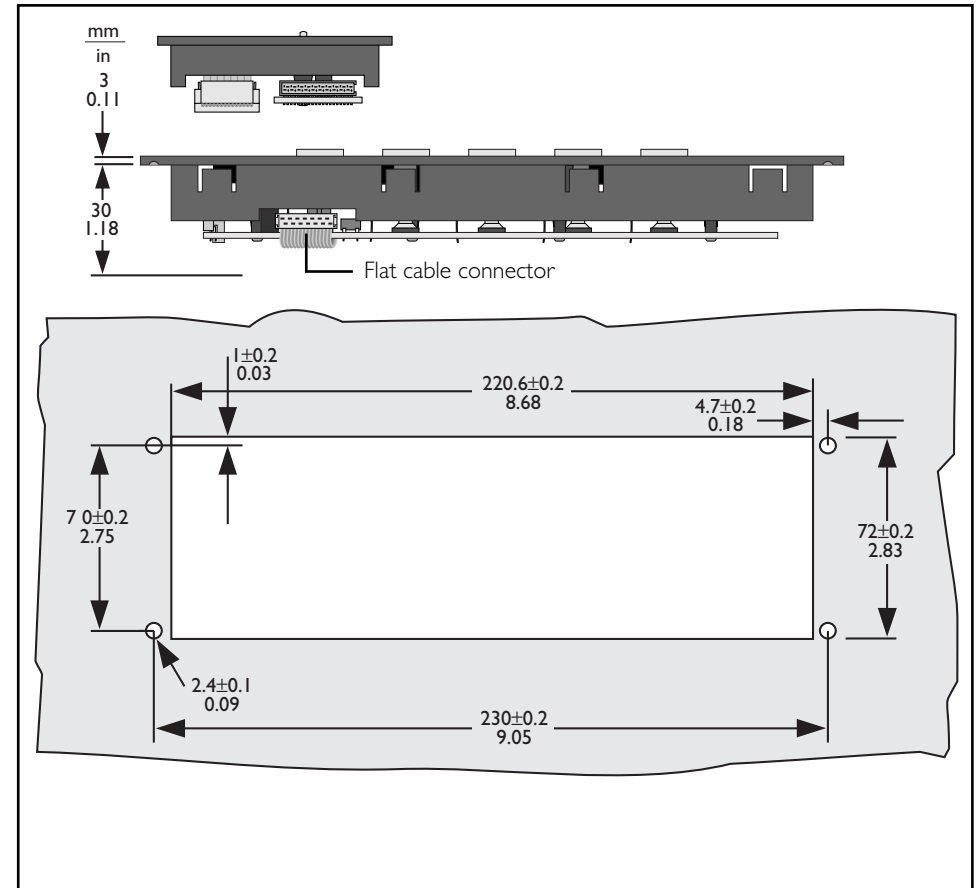


FIG 13-11 Flush-mounted Delegate/Chairman Voting Control Panel

13.3.11 LBB 3543/15 Chip Card Reader

Mounting	:	Flush mounting using the units click-to-fit mechanism in a metal panel with a thickness of 2 mm (0.07 in), or flush mounting in a wooden surface using the units screw mounting facilities (4 screws provided).
Dimensions H x W x D	:	40 x 120 x 84 mm (1.57 x 4.72 x 3.49 in)
Weight	:	165 g (0.36 lb)

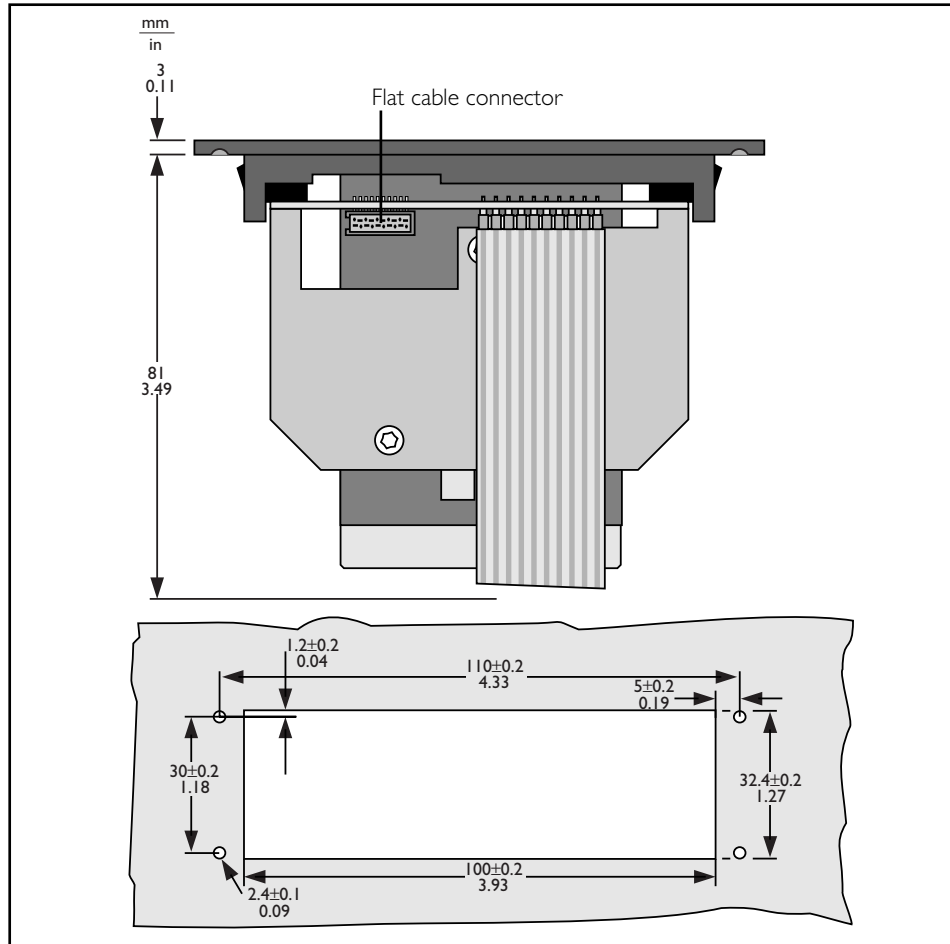


FIG 13-12 Flush-mounted Chip Card Reader

13.4 Installation Accessories

13.4.1 LBB 4114/00Trunk Cable Splitter LBB 4115/00 Tap-off Unit

Mounting	:	Free standing on a table-top, flush mounting, floor or wall mounting.
Dimensions H x W x D	:	35 x 140 x 48 mm (1.3 x 5.5 x 1.8 in)
Weight	:	320 g (0.70 lb)

Cable bending angle using cable assembly LBB 4116/xx : ±90°

13.5 Electrical data

13.5.1 Microphones (General)

Freq. response	: 100 - 16.000 Hz
Transducer type	: Condenser
Directional pattern	: Cardioid
Max. SPL for THD <3%	: 110 dB
Equivalent input noise level	: 24 dB (A)
Sensitivity index (dB)	

Pluggable microphones LBB 3549/xx

Overload microphone level	: 110 dB SPL
Nominal microphone level	: 85 dB SPL±2dB (1kHz)
Typical frequency response	: 100 - 16000 Hz

External microphone for CONCENTUS units

Element	: Electret condenser
Polar pattern	: omni-directional
Operating voltage	: 5V d.c.
Sensitivity	: -62 dB (0 dB = 1V/μbar, 1000 Hz) at load 1.2 KOhms
Frequency response	: 100 Hz - 14 kHz

13.5.2 Headphones

Light weight stereo headphones LBB 3443/00

Impedance	: 32 Ohms
Frequency response	: 50 Hz - 20 kHz (-10 dB)
Max. power	: 98 dB SPL/Earpiece at 1 mW/Earpiece
Weight	: 70 g (0.16 lb)
Colour	: Charcoal with silver

Under the Chin headphones LBB 3441/00

Impedance LBB 3015/04	: 300 Ohms
Frequency response	: 50 Hz - 15 kHz (-10dB)
Max. power	: 60 mW
Sensitivity	: 107 dB SPL/Earpiece at 0 dBV/*
Weight	: 33 g (0.07 lb)
Colour	: black

Interpreter headphones LBB9095/30

Impedance	: 2 x 720 Ohms
Frequency response	: 250 Hz to 13 kHz (-10 dB)
Max. power	: 200 mW
Sensitivity	: 97 dB SPL/Earpiece at 0 dBV/*
	: 96 dB SPL/Earpiece at 1 mW/*
Weight	: 78 g (0.17 lb)
Colour	: black/grey

* = System

Single earphone LBB 3442/00

Impedance	: 32 Ohms
Frequency response	: 100 Hz to 5 kHz (-10 dB)
Max. power	: 5 mW
Sensitivity	: 114 dB SPL at 1mW/*
Weight	: 25 g (0.06 lb)
Colour	: dark grey

Dynamic headphones LBB 3015/04 and LBB 9095/30

Impedance	: 360 Ohms (LBB 9095/30 2 x 720 Ohms)
Frequency response	: 250 Hz to 13 kHz (-10 dB)
Max. power	: 200 mW
Sensitivity	: 97 dB SPL at 0 dBV/*
	: 96 dB SPL at 1mW/*
Weight	: 90 g (0.19 lb)
Colour	: black/grey

13.5.3 Transmission links

- From delegate microphone to interpreter headphone
- From delegate microphone to delegate headphone
- From interpreter microphone to delegate headphone
- From interpreter microphone to interpreter headphone
- From auxiliary input to delegate headphone
- From auxiliary input to interpreter headphone
- From delegate microphone to auxiliary output
- From interpreter microphone to auxiliary output

Frequency response	: 125 Hz - 14.000 Hz *
Harmonic distortion	: < 0.5%
Harmonic distortion at overload	: < 1%
Crosstalk attenuation at 4 kHz	: > 80 dB
Dynamic range	: > 90 dB

* Intercom links 125 - 3.500 Hz

13.5.4 Combined units

- Delegate microphone with transmission link to interpreter headphone
- Delegate microphone with transmission link to delegate headphone
- Delegate microphone with transmission link to auxiliary output
- Interpreter microphone with transmission link to interpreter headphone
- Interpreter microphone with transmission link to delegate headphone
- Interpreter microphone with transmission link to auxiliary output

Typical frequency response	:	125 Hz (-8 dB) - 14.000 Hz (-8 dB)
Front-to random sensitivity index	:	> 4.6 dB
Rated equivalent sound pressure level due to inherent noise	:	< 25 dB (A)
Total harmonic distortion at overload	:	< 1 %
Crosstalk attenuation	:	> 80 dB

13.5.5 System Electrical and Electro-acoustical characteristics

Nominal input level	:	85 dB SPL
Overload input level	:	110 dB SPL
Automatic gain reduction at Overload input level (not applicable to PA-floor output)	:	30 dB (interpretation channels) 18 dB (loudspeaker channel)
Automatic gain reduction with -	:	3 dBm (2 microphones on) 6 dBm (4 microphones on)
Operator master gain control	:	15 x 1.5 dB and OFF (Mute)
Loudspeaker gain control	:	14 x 1.5 dB and OFF

13.5.6 System environmental conditions

Temperature range:

- Transport:-20 to +55 °C (-65 to 131° F)
- Operational:+5 to +45 °C (+41 to 113° F)
- Relative humidity:95% max.
- Safety:acc. to EN 60065, and: acc. to CAN/CSA E65-94 and UL6500 (UL and cUL) for LBB 3500/xxD, LBB 4106/00D and LBB 3508/00D
- EMC emission:acc. to harmonized standard EN 55013 (1988)and FCC rules (part 15) complying with the limits for a class A digital device.
- EMC immunity:acc. to harmonized standard EN 55020 (1987)
- EMC approvals:affixed with the CE mark, EC directive 89/336 EEC
- Shock resistance:acc. to IEC 86.2.29 Eb
- Vibration resistance:acc. to IEC 68.2.6 Fc, procedure A



NOTE: The maximum operational temperature for ALL operational contribution units with LC-display is 40°C. The maximum operational temperature for the Ext. Power supply unit LBB 4106/.. is +40°C.

Safety Standards for North America

- Approvals (CSA, C and USA):CAN/CSA E65 -94 UL 6500

13.5.7 Interface data

LBB 3500/.. Central Control Unit

- Line in/outputs:-18 dBV/ +12 dBV* (nominal/maximum)
- Recorder input/output:-33 dBV/ -3 dBV(nominal/maximum)

* -12 dBV / +18 dBV when used as symmetrical output..

LBB 3508/00 Audio Media Interface Unit

Symmetrical line outputs (XLR)

- Channels 0 up to 11 (Interpretation):+1 dBV/1 dBV (nominal/maximum)
- Channels 12 and 14 (PA):-8 dBV/ +22 dBV
- Channel 13 (del. loudspeaker):+1 dBV/ +13 dBV

Asymmetrical line outputs (Cinch)

- Channels 0 pot 11 (Interpretation) :-10 dBV/ -10 dBV (nominal/maximum)
- Channels 12 and 14 (PA):-19 dBV/ +11 dBV
- Channel 13 (del. loudspeaker):-10 dBV/ +2 dBV

13.5.8 Mains supply

LBB 3500/05 (D), LBB 3500/15 (D),	:	105 - 115 - 125 - 220 - 230 - 240V
LBB 3500/35 (D), LBB 4106/00 (D),	:	+ 6% / -10 %
LBB 3508/00 (D)	:	



NOTE: Upon delivery : 230V

125V (D-versions)

13.5.9 Power consumption (nominal)

LBB 3500/05 (D)	:	175 W
LBB 3500/15, LBB 3500/35 (D)	:	350 W
LBB 4106/00 (D)	:	350 W
LBB 3508/00 (D)	:	175 W

13.6 System limitations

1. The maximum length of cable (including the 2 m cable attached to the DCN system units) that can be connected to a tap-off outlet of a Central Control Unit LBB 3500/.., Audio Media Interface Unit LBB 3508/00 and Extension Power Supply LBB 4106/00 must not exceed 100 m.
2. The cable length between the Central Control Unit and the last unit in any system installation must not exceed 250 m. This includes all extension cables used as well as the 2 m long cable attached to each system unit.
3. The maximum number of serial tap-off outlet connections from the Central Control Unit LBB 3500/.. to the last tap-off in its chain should not exceed four.
Tap-off outlets are available on the Extension Power Supply Unit LBB 4106/00, Audio Media Interface Unit LBB 3508/00, Trunk-cable splitter LBB 4114/00, and Tap-off unit LBB 4115/00.
4. The maximum number of units that can be connected in series, via the trunk outlet loop-through connector, is 60 Units (i.e. units assigned a PCF value of 1) also include, the delegate, chairman and interpreter desks, Dual Audio Interface Unit LBB 3535/00 and the Multi-purpose Connection Unit LBB 3540/15 and trunksplitter LBB 4114/00.

13.7 Connection details

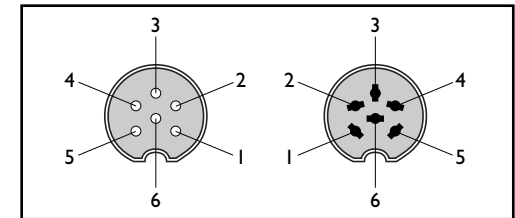
13.7.1 Mains cable

The wires in the mains cable are coloured in accordance with the following code:

Blue	Neutral
Brown	Live
Green/yellow	Earth/Ground

13.7.2 DCN circular connectors

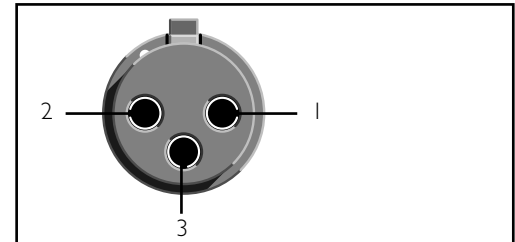
PIN 1	Down-link screen
PIN 2	Down-link signal
PIN 3	< +40 V
PIN 4	Up-link signal
PIN 5	Up-link screen
PIN 6	< +40 V



13.7.3 Cable connection

3-pole XLR connector (female)

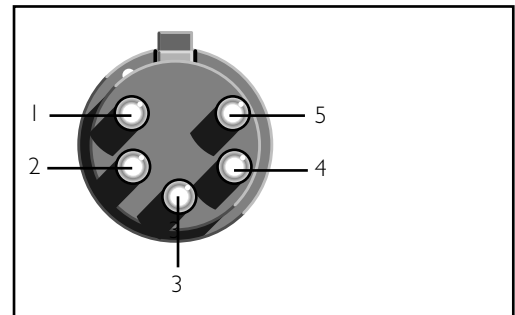
PIN 1	Earth
PIN 2	Signal +
PIN 3	Signal -



13.7.4 Pluggable microphones LBB 3549/xx

5-pole XLR connector (male)

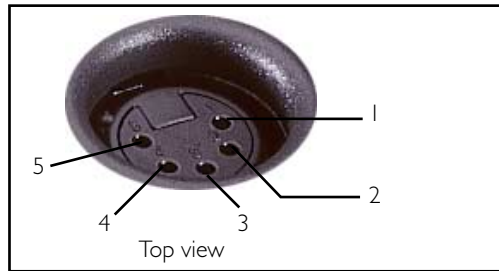
PIN 1	lighting control (active low)
PIN 2	lighting +5V
PIN 3	microphone signal
PIN 4	electrical ground shield
PIN 5	shield



13.7.5 CONCENTUS units

5-pole XLR connector (female) for pluggable microphones LBB 3549/xx

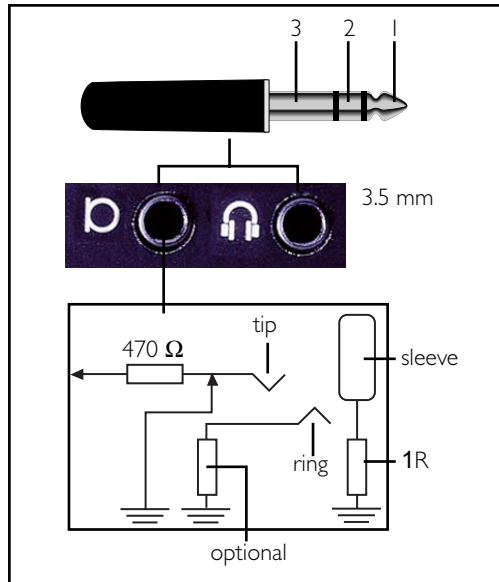
- PIN 1 lighting control (active low)
- PIN 2 lighting +5V
- PIN 3 microphone signal
- PIN 4 electrical ground
- PIN 5 shield



13.7.6 CONCENTUS units

External Microphone connection Stereo or mono 3.5 mm jack plug

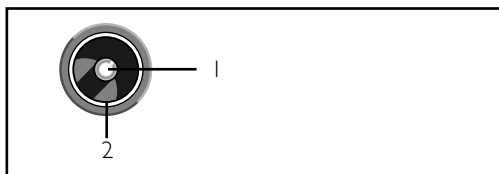
- 1. Tip: Signal (live)
- 2. Ring: Signal (return)
- 3. Sleeve: Electrical earth/screen



13.7.7 Cable connection

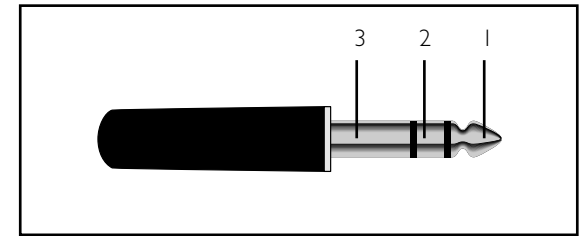
CINCH connector (male)

- 1 Signal +
- 2 Screen



13.7.8 Jack-plug

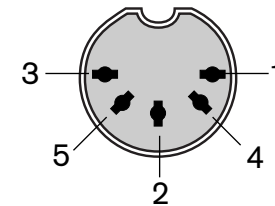
- 1. TIP: Signal (live)
- 2. RING: Signal (return)
- 3. Sleeve: Electrical earth/screen



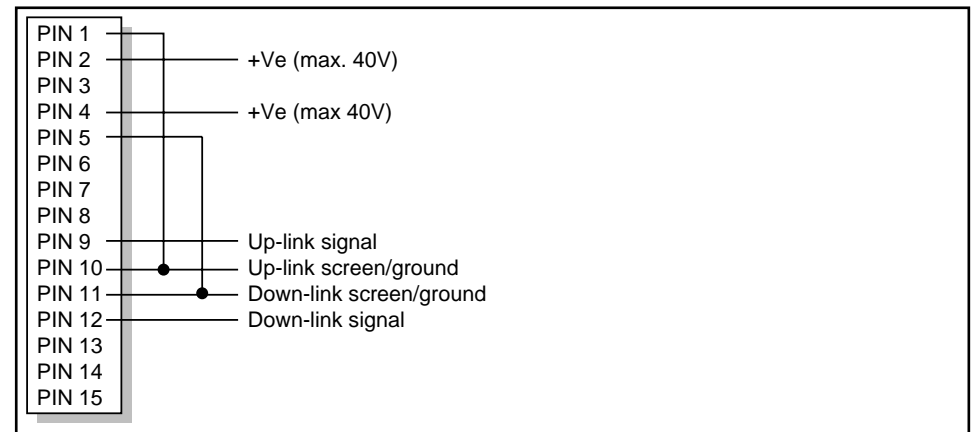
13.7.9 Interpreter desk (headset socket DIN-type)

Headset connector according IEC 268-11

- PIN 1 Mic. supply
- PIN 2 Mic. live
- PIN 3 Left hand headphone
- PIN 4 Return (both headphones)
- PIN 5 Right hand headphone
- Shield Ground



13.7.10 15-pole D-type connector PC Interface



13.8 Available Audio Down Link Channels

The DCN system has a total of 16 down-link audio channels (numbered 0 - 15).

13.8.1 Stand-alone systems

In a stand-alone system, all audio channels are fixed and assigned according to Table 13-1:

The audio output signals, available on different system units are listed according to Table 13-1:

13.8.2 Systems with a PC

In a system using a PC, channels can be assigned to suit system requirements. This is done using software package 'System Installation LBB 3585'.

The channel assignment for a PC system are as follows:

- Channels 1 - 11 can be assigned as interpretation, floor or intercom.
Channels 12 - 15 can be assigned as interpretation,



NOTE:

1. When in Multi-CCU mode, only channels 1 - 11 can be assigned as interpretation channels.
2. Local floor audio of all contribution units connected to a CCU LBB 3500/35 is available via channel 12. This signal can be used for group recording, or for systems requiring speech localization. Channel 12 audio signal output is available via the Audio Media Interface Unit LBB 3508/00 and LBB 3508/00(D) or via the Analog Audio Input/Output Module LBB 3513/00

- Channel 15 is assigned as the intercom channel. Each audio channel assigned to intercom can actually accommodate up to 4 separate intercom channels with limited audio frequency characteristics.

For more information refer to the software user manual for System Installation LBB 3585.

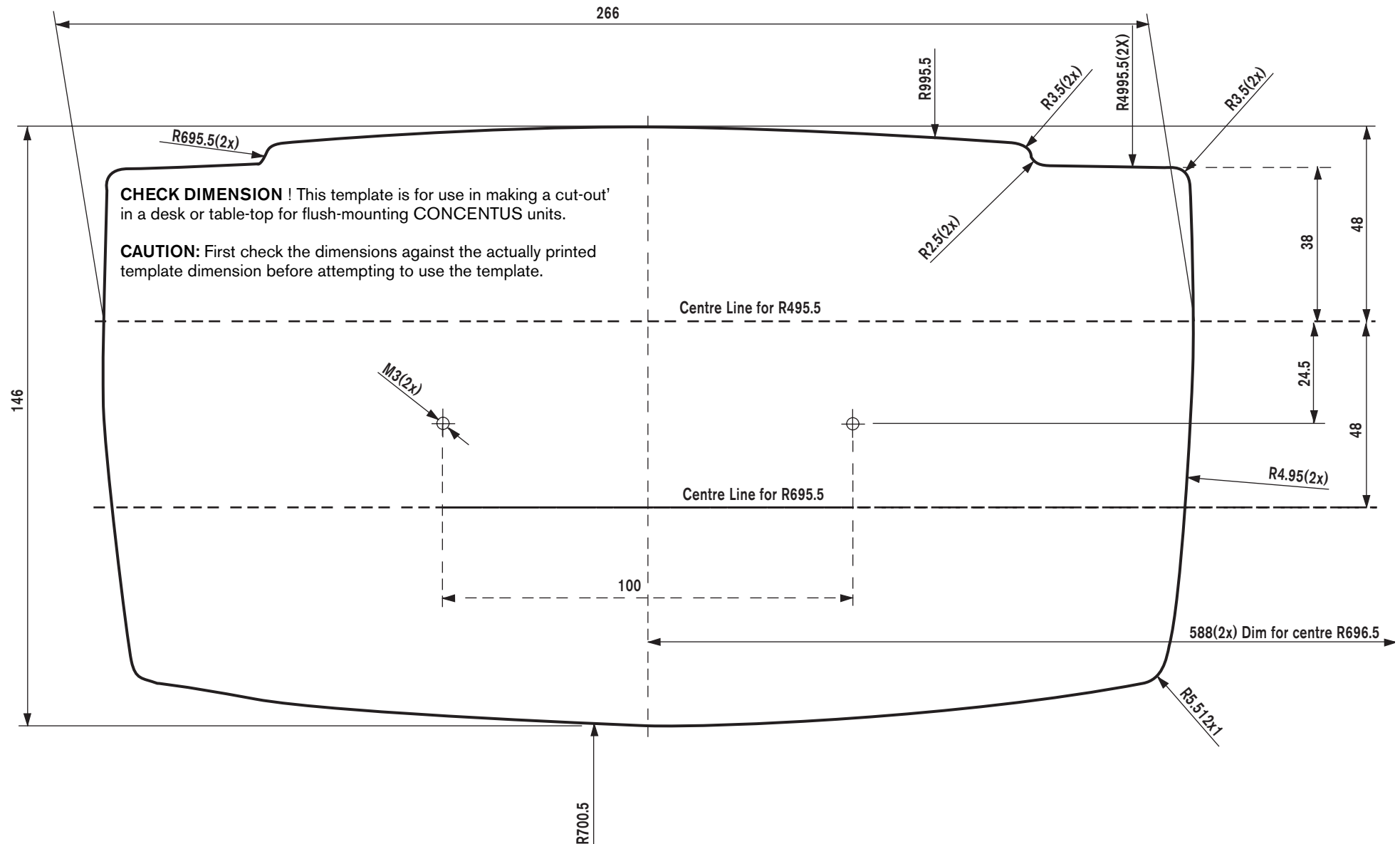
The Table opposite shows the basic configuration. Other configurations can be assigned using the DCN application software.

Table 13-1: Available audio down link channels

+ = Audio outputs			Audio Outputs		
			LBB 3500/..	LBB 3508/00	LBB 3513/00
Channel	Description	Remark			
0	Floor	Interpretation	-	+	+
1	Interpret 1	Distribution 1	-	+	+
2	Interpret 2	Distribution 2	-	+	+
3	Interpret 3	Distribution 3	-	+	+
4	Interpret 4	Distribution 4	-	+	+
5	Interpret 5	Distribution 5	-	+	+
6	Interpret 6	Distribution 6	-	+	+
7	Interpret 7	Distribution 7	-	+	+
8	Interpret 8	Distribution 8	-	+	+
9	Interpret 9	Distribution 9	-	+	+
10	Interpret 10	Distribution 10	-	+	+
11	Interpret 11	Distribution 11	-	+	+
12	Floor	Line output equalized	-	+	+
13	Floor	Delegate loudspeakers equalized	-	+	+
14	Floor	Line output	+		+
15	*Intercom				+ **

* Intercom channels not suitable for distribution
 ** Available for interpretation when channels 1 - 15 are assigned for interpretation.

13.9 TEMPLATE FOR TABLE CUT-OUT OF CONCENTUS UNITS



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