DCN Next Generation

Conference system

en User manual

Table of contents

1 Safety

1.1 Important Safeguards

Please read the Important Safety Instructions before you install or operate the DCN System. The Important Safety Instructions are supplied together with the central control unit.

1.2 DCN-WLIION Battery Pack

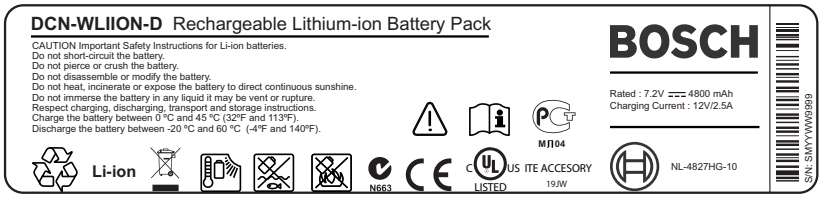


Figure 1.1: Safety instructions

When wireless discussion units with DCN-WLIION battery packs are used, read safety instructions as printed on the label of the battery pack.

1.3 Disclaimers

CobraNet is a trademark of Peak Audio — a division of Cirrus Logic, Inc. — in the United States and/or other countries.

1.4 Statements for Europe

Warning!
This equipment is compliant with Class A of CISPR 32. In a residential environment, this equipment may cause radio interference.

1.5 Statements for FCC & Industry Canada

This Class A digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

The Wireless Discussion Units and the Wireless Access Point comply with Part 15 of the FCC Rules and with RSS-210 of Industry Canada. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.

2. This device must accept any interference received, including interference that may cause undesired operation.

Notice!
Changes or modifications made to this equipment, not expressly approved by **Bosch Security Systems B.V**. may void the FCC authorization to operate this equipment.

Notice!
The Wireless Discussion Units and the Wireless Access Point comply with FCC radiation exposure limits set forth for an uncontrolled environment. The Wireless Discussion Units and the Wireless Access Point should be installed and operated with minimum distance of 20 cm to your body. The RF-parts of the Wireless Discussion Units and the Wireless Access Point must not be co-located or operating in conjunction with any other antenna or transmitter.

2 About this manual

2.1 Function

The Installation and Operation manual gives the installers and the operators the necessary data to install, configure and operate the DCN System.

2.2 Digital version

The Installation and Operation manual is available as a digital file (Portable Document Format, PDF). When the PDF refers to a location that contains more data, click the text. The text contains hyperlinks.

2.3 Alerts and notice signs

Four types of signs can be used in this manual. The type is closely related to the effect that may be caused if it is not observed. These signs - from least severe effect to most severe effect - are:

Notice!
Containing additional information. Usually, not observing a ‘notice’ does not result in damage to the equipment or personal injuries.

Caution!
The equipment or the property can be damaged, or persons can be lightly injured if the alert is not observed.

Warning!
The equipment or the property can be seriously damaged, or persons can be severely injured if the alert is not observed.

Danger!
Not observing the alert can lead to severe injuries or death.

Warning!
Risk of electro-static discharges (refer to *Electro-static discharges, page 11*).

2.4 Electro-static discharges

Electro-Static Discharges (ESD) can damage electric components. Take precautions to prevent electro-static discharges when touch PCBs.

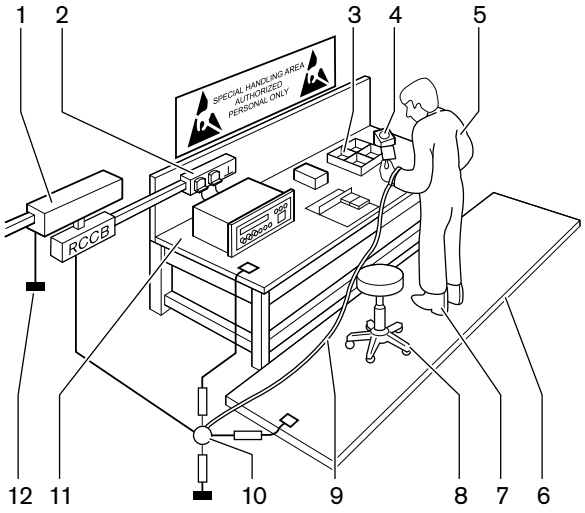


Figure 2.1: ESD prevention

No.	Description
1	Safety isolating transformer
2	Distribution supply box
3	Conductive compartment trays
4	Electro-static voltage sensor
5	Cotton overall
6	Conductive floor mat
7	Conductive boots/heel grounding protectors
8	Conductive stool
9	Strap (resistance 0.5 to 1.0 MΩ)
10	Common reference point
11	Conductive bench top
12	Supply ground

Tab. 2.1: ESD prevention

2.5 Conversion tables

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

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

Tab. 2.2: Conversion of units of length

1 lb =	0.4536 kg	1 kg =	2.2046 lb

Tab. 2.3: Conversion of units of mass

1 psi =	68.95 hPa	1 hPa =	0.0145 psi

Tab. 2.4: Conversion of units of pressure

Notice!
1 hPa = 1 mbar

$$°F = \frac{9}{5} . °C + 32$$

$$°C = \frac{5}{9} . (°F - 32)$$

2.6 Document history

Release date	Documentation version	Reason
2013.11	V4.x	1st edition.
2017.01	V2.2	2nd edition. New products added.
2017.02	V2.3	Sections 2.6 and 7.6 updated Section 6.28 added.
2018.09	V2.4	Safety section updated.

3 System Overview

The DCN System is a system for wired and wireless distribution and processing of audio signals. The system can also be used for voting and simultaneous interpretation.
The DCN System is composed of three parts: the DCN network, the wireless network and the optical network.

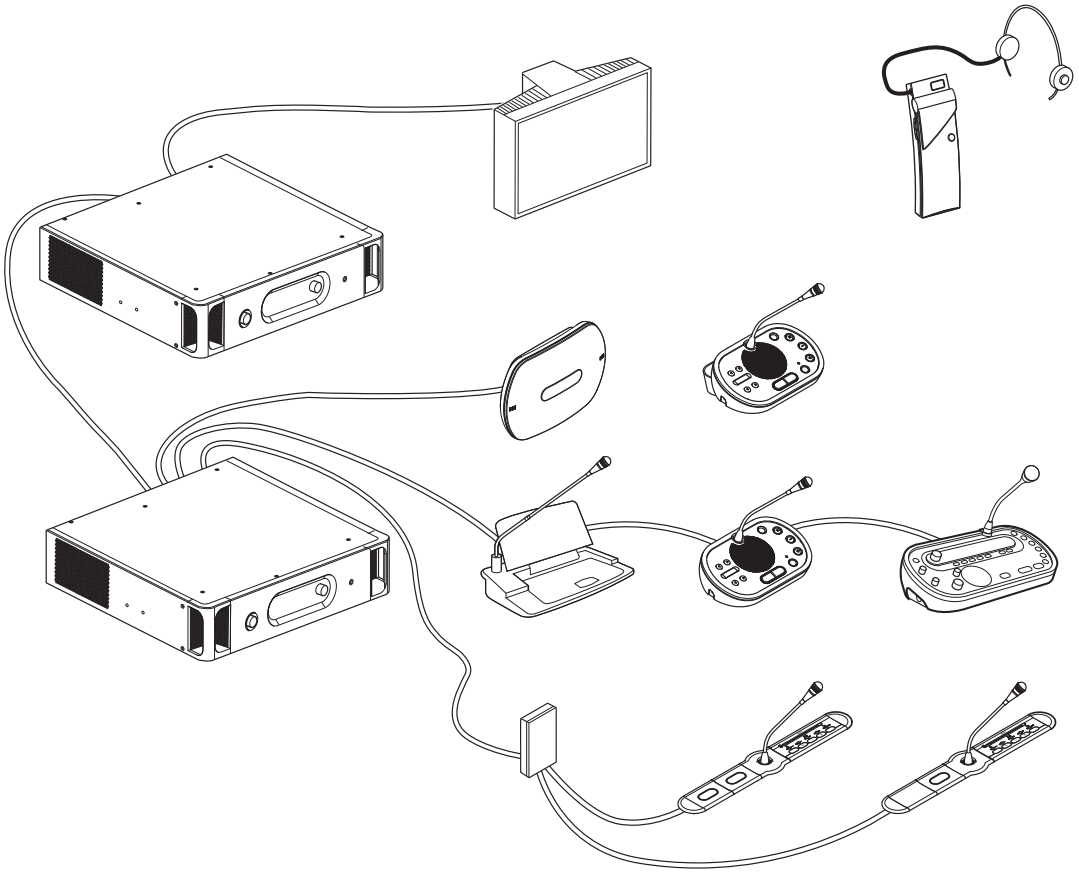


Figure 3.1: DCN System system overview

The DCN System comprises:
- Central control units, audio expanders, Integrus transmitter and/or wireless access point.
- Wireless discussion units, wired discussion units, Consentus units, flush mounted units and/or interpreter desks.
- Installation devices, such as Dual Delegate Interfaces (DDI) and extension power supply units, trunk splitters.

Notice!
Refer to the Integrus manual for all related information.

3.1 DCN-CCU2 and DCN-CCUB2 Central Control Units

The Central Control Unit controls the system. The Central Control Unit can operate with or without a control PC.

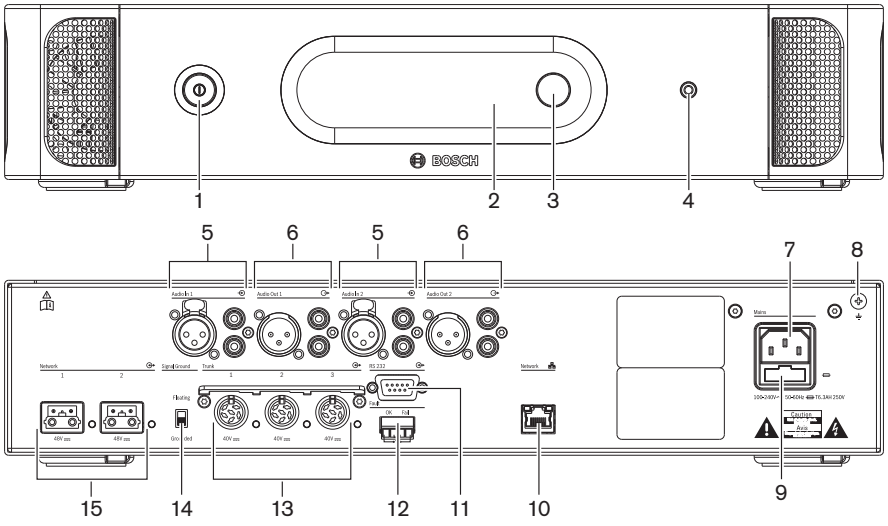


Figure 3.2: Front and rear view of CCU2

1. **On/off switch** - Power on or off the central control unit.
2. **Display** - Shows the configuration menu.
3. **Knob** - Operates the configuration menu and the volume level of the system.
4. **Headphones socket** - Headphone connection.
5. **Audio inputs** - Connect the central control unit to external analog audio sources. The functions of the audio inputs are:
   Audio input 1: Floor
   Audio input 2: Selectable recorder/delegate loudspeaker/ mix-minus/insertion. Interpreter floor insertion/local floor.
6. **Audio outputs** - Connect the central control unit to external analog audio devices. The functions of the audio outputs are:
   Audio output 1: PA
   Audio output 2: Selectable recorder/delegate loudspeaker/ mix-minus/insertion. Interpreter floor insertion/local floor.
7. **Power inlet** - Connects the central control unit to the mains power supply with a power cable.
8. **Ground screw** - Connects the central control unit to ground.
9. **Fuse holder** - Prevents damage to the internal power supply unit of the central control unit.
10. **Ethernet socket** - Connects the central control unit (DCN-CCU2) to the PC, remote controller or in a multi CCU system to the master central control unit.
11. **RS232** - Connects video cameras to the central control unit.
12. **Fault contact** - Connects the central control unit to devices to sense the condition of the central control unit.
13. **DCN sockets with cable locking facility** - Connects the central control unit to the DCN.
14. **Ground lift** - Default: grounded. Do not ground more than one mains powered device to prevent humming sound caused by ground loops.
15. **Optical network sockets** - Connects the central control unit to the optical network.

The DCN-CCUB2 Basic Central Control Unit controls the system. The basic central control unit is a simplified version of the DCN-CCU2 Central Control Unit. The DCN-CCUB2 Basic Central Control Unit:

- Has one XLR output.
- Does not have any XLR inputs.
- Does not have a fault contact.
- Cannot be connected to the optical network Controls, connectors and indicators.

The following sections give more information about the mentioned subject:

- Planning: *Planning, page 65*.
- Installation: *19 inch units, page 91*.
- Connection: *19 inch Units, page 112* and *DCN-CCU2 and DCN-CCUB2 Central Control Units, page 113*.
- Configuration: *19 inch units, page 176* and *DCN-CCU2 and DCN-CCUB2 Central Control Units, page 180*.
- Operation: *DCN-CCU2 and DCN-CCUB2 Central Control Units, page 233*.
- Troubleshooting: *DCN-CCU2 and DCN-CCUB2 Central Control Unit, page 263*.
- Technical Data: *DCN-CCU2 and DCN-CCUB2 Central Control Units, page 277*.

3.1.1 Audio I/O routing

Recorder

The Recorder mode is the default audio I/O routing mode. In the Recorder mode, audio output 2 of the central control unit transmits a signal that can be connected to an external audio recorder. The central control unit has no effect on the volume level of the signal.
In the Recorder mode, the audio input 2 signal of the central control unit is added to the floor signal.

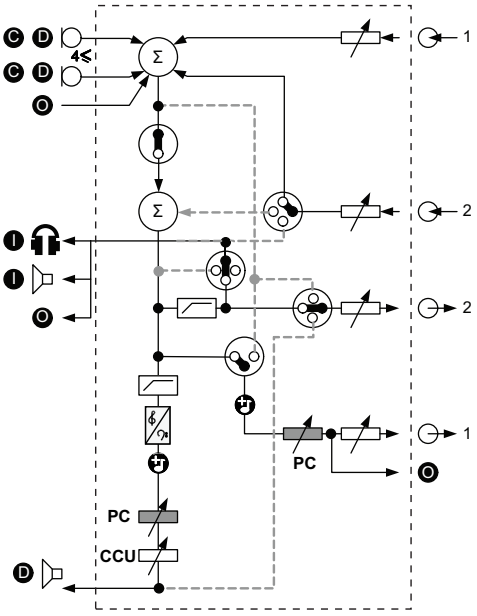


Figure 3.3: Audio processing scheme DCN-CCU2 or DCN-CCUB2

	Contribution device(s)	Wireless discussion units, wired discussion units, Consentus units and/or flush mounted units.
	Delegate	Discussion unit microphones and loudspeakers.
	Optical device(s)	Central control units, audio expanders, Integrus transmitter and/or wireless access point.
	Interpretation device(s)	Interpreter desk
	Microphone	--
	Headphones	--
	Loudspeaker	--
	Summation	Summation of the signal
	Switch	--
	Limiter	--
	Treble control	--
	Bass control	--
	Chime	--

	Level adjuster	--
⊕1	Audio input 1	Floor audio input
⊖1	Audio output 1	Public Address audio output
⊕2	Audio input 2	Selectable audio input
⊖2	Audio output 2	Selectable audio output

Delegate loudspeaker

In the Delegate loudspeaker mode, audio output 2 of the central control unit transmits a signal that can be connected to an external public address system.

The central control unit sets:

– The volume signal level.
– The bass signal level.
– The treble signal level.

In the Delegate loudspeaker mode, the audio input 2 signal of the central control unit is added to the floor signal.

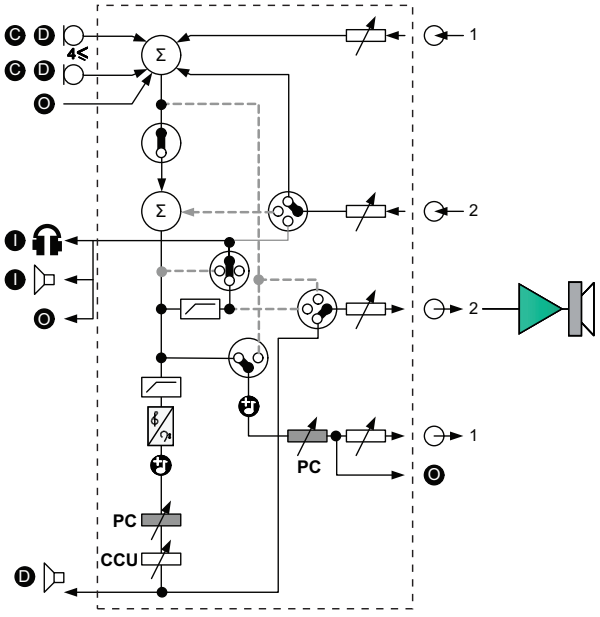


Figure 3.4: Delegate loudspeaker

Insertion

In the Insertion mode, audio output 2 and audio input 2 of the central control unit are both used to add signals from external audio devices. For example, connection of an external audio mixer between audio output 2 and audio input 2 of the central control unit.

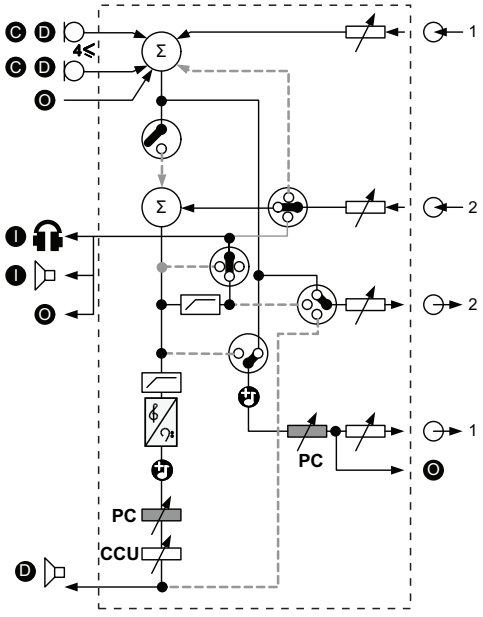


Figure 3.5: Insertion

Notice!

In the Insertion mode, a device between audio output 2 and audio input 2 of the central control unit could be connected. When no device is connected, the audio signals from contribution devices (floor) leave the system, but do not enter the system again.

Mix-minus

Use the Mix-minus mode to connect via audio input and audio output 2:

– A telephone coupler.
– Two systems.

Notice!

The Mix-minus connection prevents acoustic feedback.

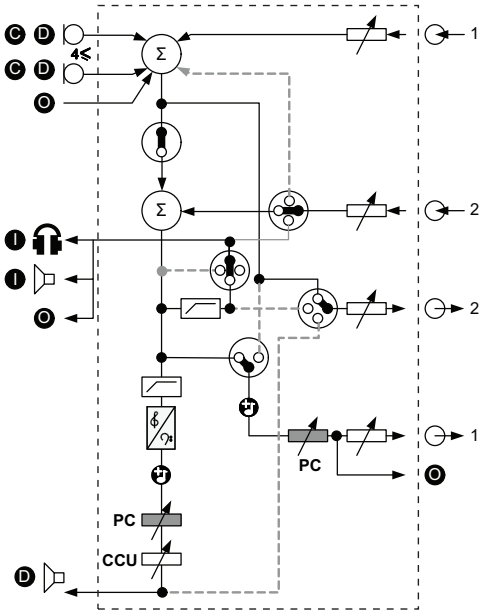


Figure 3.6: Mix-minus

Notice!

Use a telephone coupler, in case of long distances between the two systems

Interpreter floor insertion

Interpreter Floor Insertion is used in applications where interpreters have video screens to view the conference room. In case the video signal has latency, the floor audio for the interpreters, can be delayed with an external device to lip-sync it with the video plus improve S/N ratio for systems with external floor and DCN interpretation Integrus. The external device should be connected to output 2 and input 2.

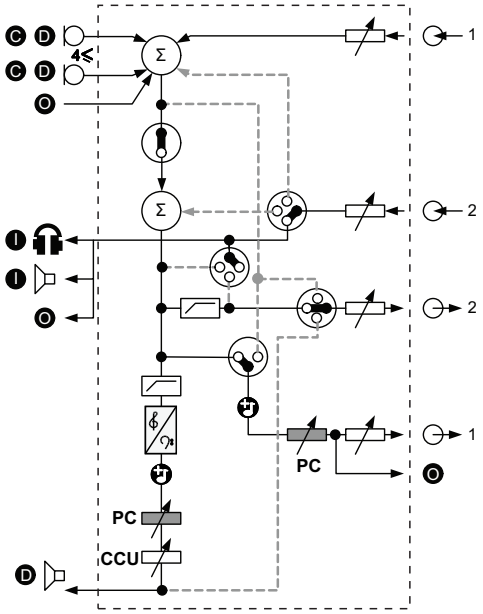


Figure 3.7: Interpreter floor insertion

Insertion no AGC

In the Insertion no AGC mode, audio output 2 and audio input 2 of the central control unit are both used to add signals from external audio devices. For example, connection of an external audio mixer between audio output 2 and audio input 2 of the central control unit. The difference between the Insertion mode is that AGC and the noise gate are disabled. This also results in a 12dB lower audio level.

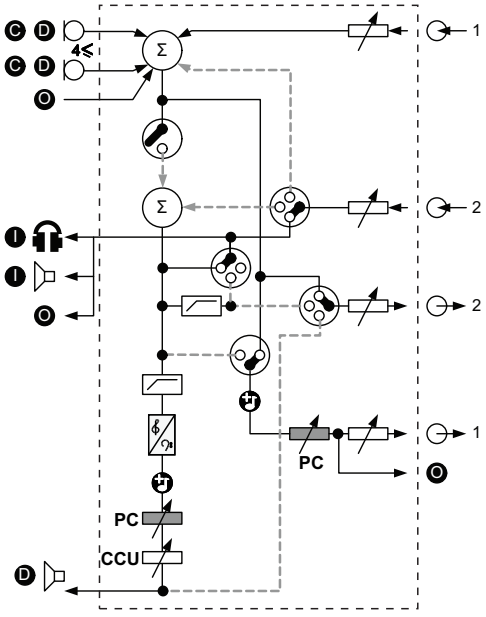


Figure 3.8: Insertion no AGC

Local floor in Multi-CCU sytems

Local floor is applicable only for slave CCUs and is used to create directional sound. In the Local floor mode, audio output 2 of the central control unit only transmits the floor signal of the units connected to the DCN-CCU2. In this way audio outputs 2 of the slave CCUs can be connected to multiple external public address system.

3.2 LBB4402/00 or PRS-4AEX4 Audio Expander

Use the LBB4402/00 or PRS-4AEX4 Audio Expander if the system needs more than two analog audio inputs or audio outputs.

Typically, the audio expander is used to:

– Connect external recording devices to the system.
– Send audio signals to external devices.
– Connect systems.

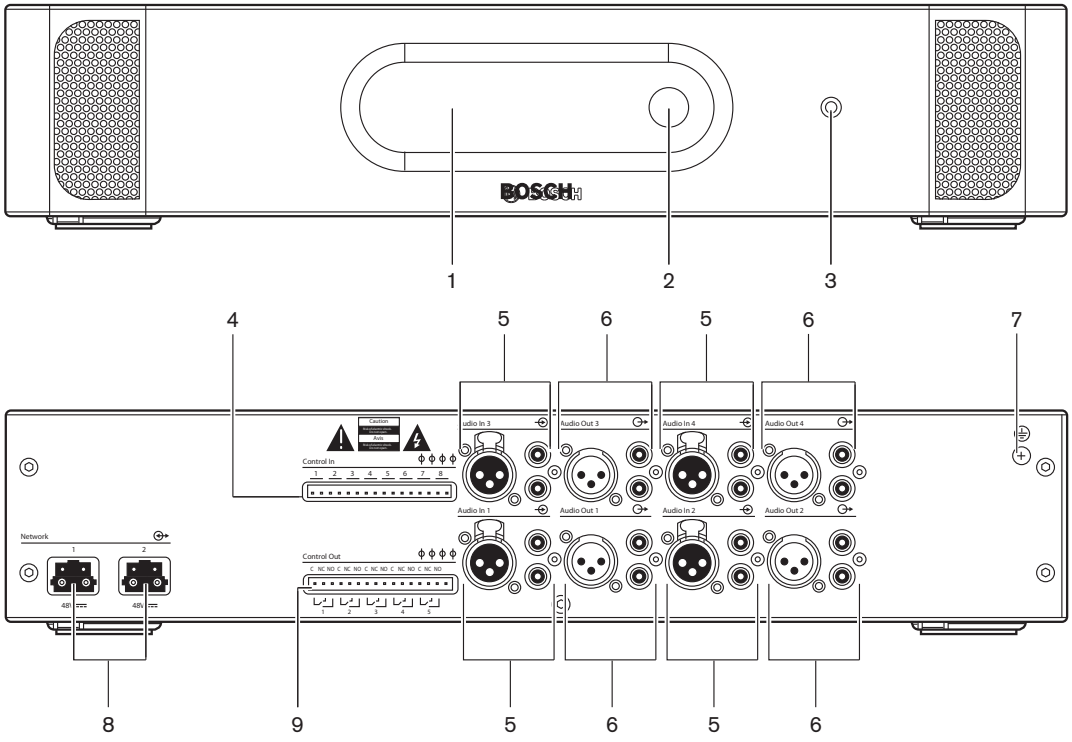


Figure 3.9: Front and rear views

1. **Display** - Shows the configuration menu.
2. **Knob** - Operates the configuration menu.
3. **Headphones socket** - Headphone connection.
4. **Control inputs** - Connects the audio expander to external devices. Through the control inputs, external devices can control the audio inputs and the audio outputs of the audio expander.
5. **Audio inputs** - Connects the audio expander to external analog audio sources.
6. **Audio outputs** - Connects the audio expander to external analog audio devices.
7. **Ground screw** - Connects the audio expander to ground.
8. **Optical network sockets** - Connects the audio expander to the optical network.
9. **Control outputs** - Sends the condition of the audio expander to external devices.

The following sections give more information about the mentioned subject:

– Connection: *LBB4402/00 or PRS-4AEX4 Audio Expander, page 117*.
– Configuration: *LBB4402/00 or PRS-4AEX4 Audio Expander, page 187*.
– Operation: *LBB4402/00 or PRS-4AEX4 Audio Expander, page 239*.
– Troubleshooting: *LBB 4402/00 or PRS-4AEX4 Audio Expander, page 267*.
– Technical Data: *LBB4402/00 or PRS-4AEX4 Audio Expander, page 278*.

3.3 PRS-4DEX4 Digital Audio Expander

Use the PRS-4DEX4 Digital Audio Expander if the system needs digital audio inputs or outputs. Typically, the digital audio expander is used to:

– Connect external recording devices to the system.
– Send audio signals to external devices.
– Connect systems.

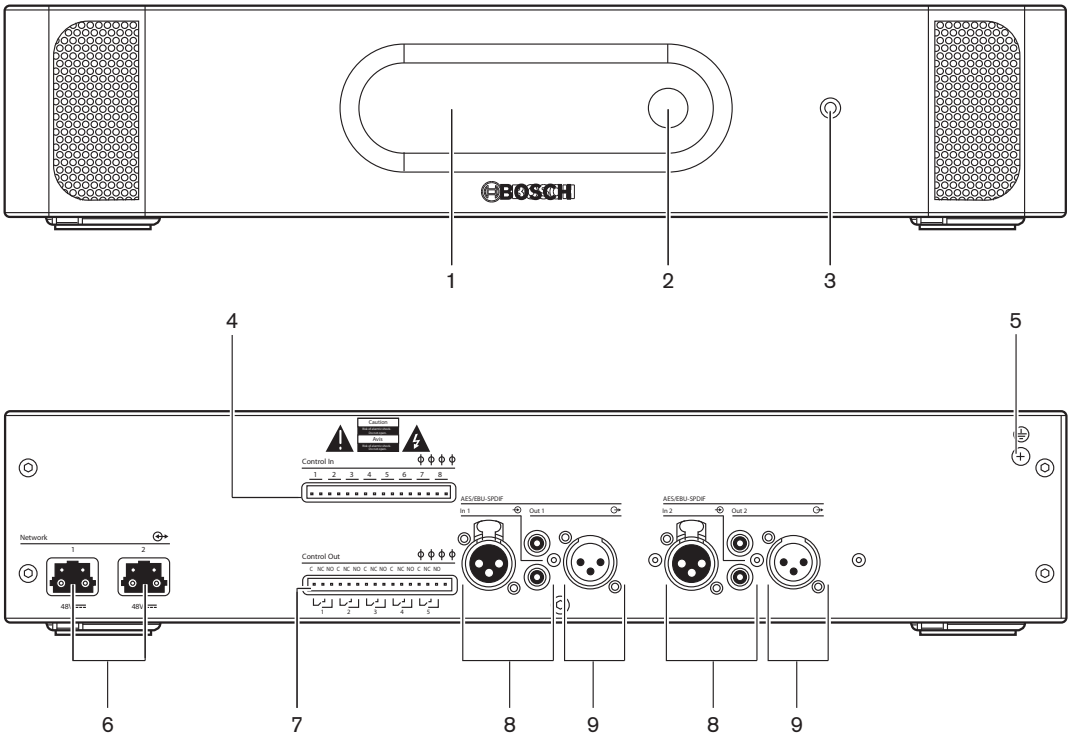


Figure 3.10: Front and rear views

1. **Display** - Shows the configuration menu.
2. **Knob** - Operates the configuration menu.
3. **Headphones socket** - Headphones connection.
4. **Control inputs** - Connects the audio expander to external devices. Through the control inputs, external devices can control the audio inputs and the audio outputs of the audio expander.
5. **Ground screw** - Connects the digital audio expander to ground.
6. **Optical network sockets** - Connects the audio expander to the optical network.
7. **Control outputs** - Sends the condition of the audio expander to external devices.
8. **Audio inputs** - Connects the audio expander to external digital audio sources.
9. **Audio outputs** - Connects the audio expander to external digital audio devices.

The following sections give more information about the mentioned subject:

– Connection: *PRS-4DEX4 Digital Audio Expander, page 120*.
– Configuration: *PRS-4DEX4 Digital Audio Expander, page 190*.
– Operation: *PRS-4DEX4 Digital Audio Expander, page 241*.
– Technical Data: *PRS-4DEX4 Digital Audio Expander, page 279*.

3.4 PRS-4OMI4 OMNEO Media Interface

Use the PRS-4OMI4 OMNEO Media Interface to connect the system to an OMNEO or Dante™ network.

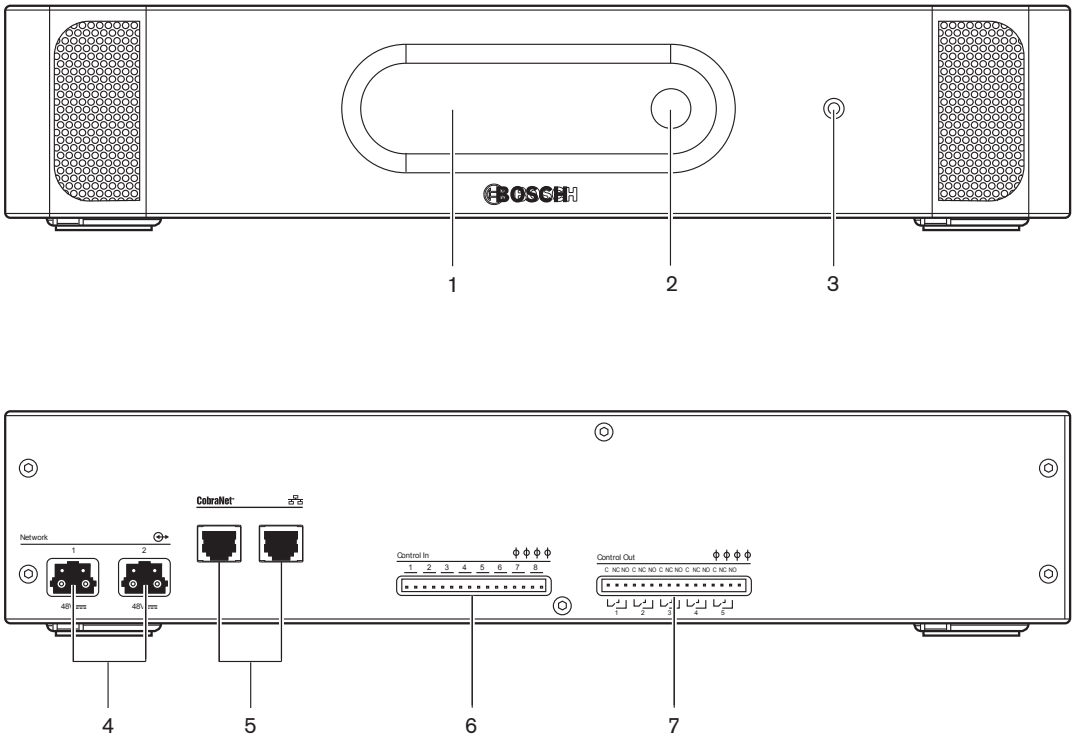


Figure 3.11: Front and rear views

1. **Display** - Shows the configuration menu.
2. **Knob** - Operates the configuration menu.
3. **Headphones socket** - Headphones connection.
4. **Optical network sockets** - Connects the interface to the optical network.
5. **OMNEO sockets** - Connects the interface to the OMNEO or Dante™ network. The OMNEO / Dante™ network contains the audio inputs and the audio outputs of the interface.
6. **Control inputs** - Connects the interface to external devices. Through the control inputs, external devices can control the audio inputs and the audio outputs of the interface.
7. **Control outputs** - Sends the condition of the interface to external devices.

The following sections give more information about the mentioned subject:

– Connection: *PRS-4OMI4 OMNEO Media Interface, page 121*
– Configuration: *PRS-4OMI4 OMNEO Media Interface, page 192*
– Technical Data: *PRS-4OMI4 OMNEO Interface, page 280*

3.5 LBB4404/00 Cobranet Interface

Use the LBB4404/00 Cobranet Interface to connect the system to a CobraNet network.

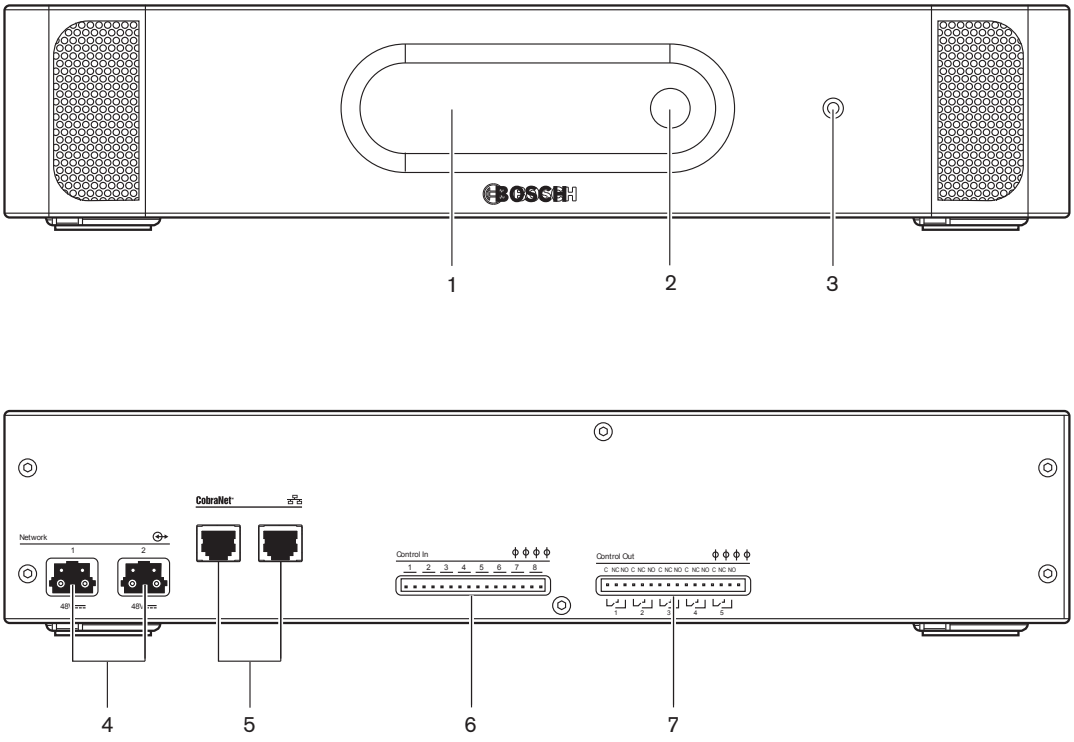


Figure 3.12: Front and rear views

1. **Display** - Shows the configuration menu.
2. **Knob** - Operates the configuration menu.
3. **Headphones socket** - Headphones connection.
4. **Optical network sockets** - Connects the cobranet interface to the optical network.
5. **CobraNet sockets** - Connects the cobranet interface to the CobraNet network. The CobraNet network contains the audio inputs and the audio outputs of the cobranet interface.
6. **Control inputs** - Connects the cobranet interface to external devices. Through the control inputs, external devices can control the audio inputs and the audio outputs of the cobranet interface.
7. **Control outputs** - Sends the condition of the cobranet interface to external devices.

The following sections give more information about the mentioned subject:
- Connection: *LBB4404/00 Cobranet Interface, page 123*.
- Configuration: *LBB4404/00 Cobranet Interface, page 197*.
- Operation: *LBB4404/00 Cobranet Interface, page 243*.
- Technical Data: *LBB4404/00 Cobranet Interface, page 279*.

3.6 DCN-WAP Wireless Access Point

The wireless access point:
- Sends signals from the central control unit to the wireless devices.
- Receives signals from the wireless devices and sends them to the central control unit.

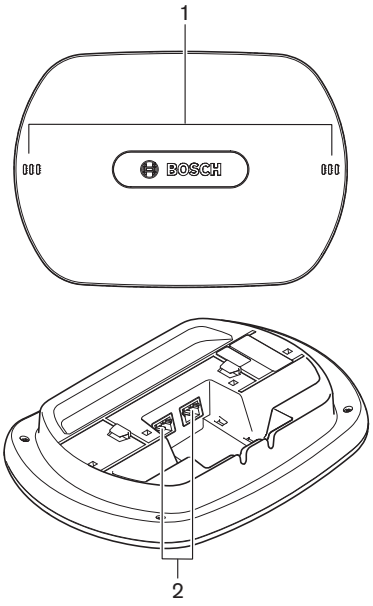


Figure 3.13: Top and bottom views

The wireless access point contains:
1. **Status LEDs** - Gives information about the condition of the wireless network and the wireless access point.
2. **Optical network sockets** - Connects the wireless access point to the optical network.

The following sections give more information about the mentioned subject:
- Installation: *DCN-WAP Wireless Access Point, page 92*.
- Connection: *DCN-WAP Wireless Access Point, page 124*.
- Configuration: *DCN-WAP Wireless Access Point, page 206*.
- Operation: *DCN-WAP Wireless Access Point, page 246*.
- Troubleshooting: *DCN-WAP Wireless Access Point, page 267*.
- Technical Data: *DCN-WAP Wireless Access Point, page 281*.

3.7 DCN-CON Concentus Units

With the Concentus Units (DCN-CON, DCN-CONCS and DCN-CONFF), the delegates can make contributions to a conference.

With the Concentus Chairman Unit (DCN-CONCM), the chairman can monitor and control a conference.

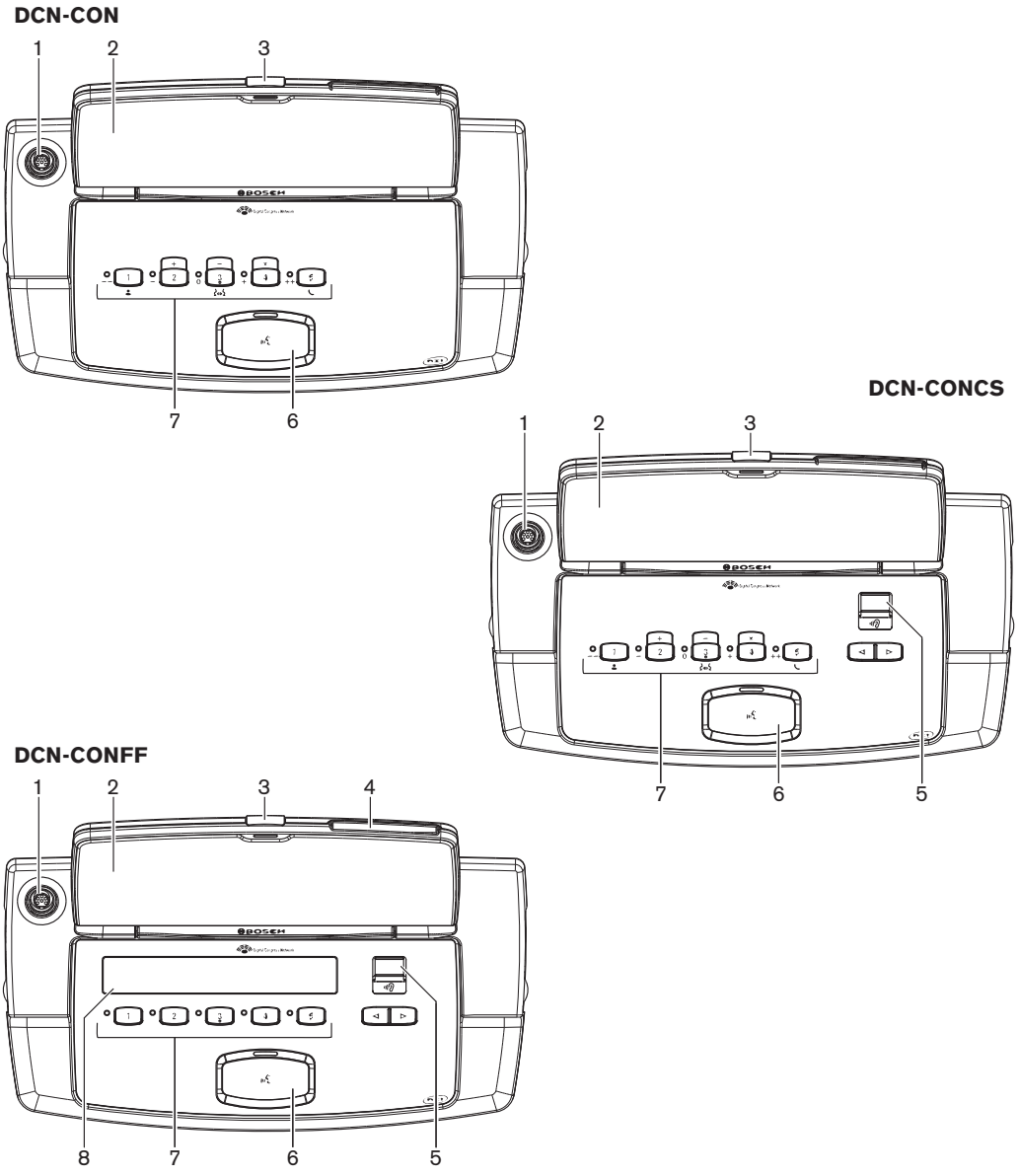


Figure 3.14: Top views

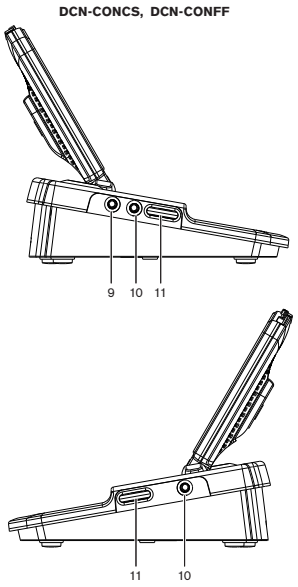


Figure 3.15: Side views

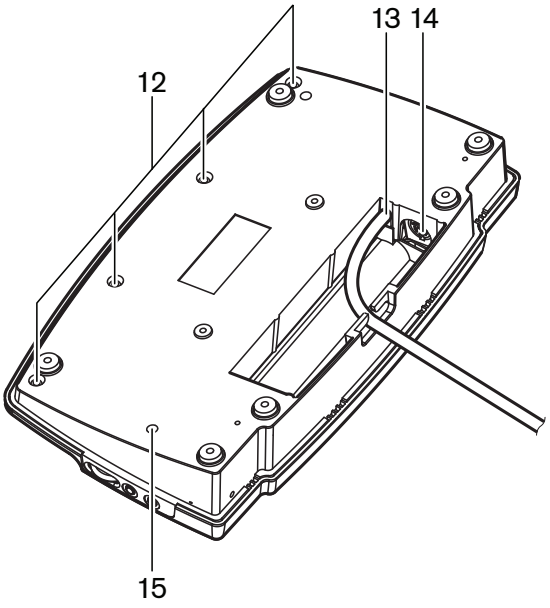


Figure 3.16: Bottom view (1)

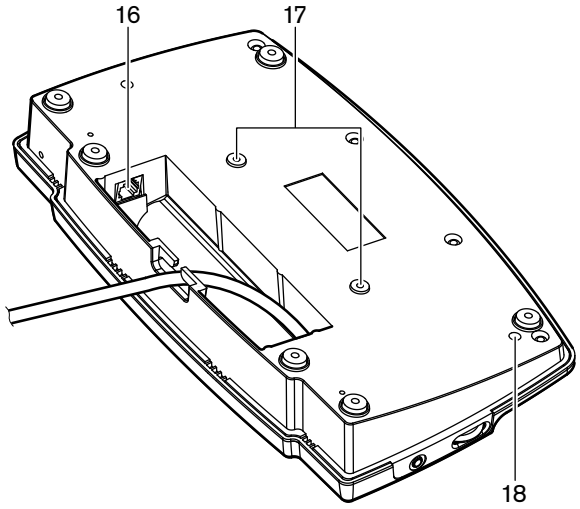


Figure 3.17: Bottom view (2)

1. **Microphone socket** - Connects a Pluggable Microphone (DCN-MICL or DCN-MICS) to the Concentus delegate unit.
2. **Loudspeaker** - Gives the audio signal from the floor to the delegate. When the microphone is enabled, the signal of the loudspeaker is muted.
3. **Microphone LED** - Is on when the microphone is enabled.
4. **Card reader** - Gives access to the Concentus delegate unit.
5. **Channel selector** - Selects the channel that is sent to the headphones.
6. **Microphone button** - Enables or disables the microphone. The microphone button has a LED that shows the condition of the microphone.
7. **Voting buttons** - Operate the Concentus delegate unit. Each voting button has a yellow LED. The LED shows the condition of the voting button.
8. **Display** - Shows the menu of the Concentus delegate unit.
9. **External microphone socket** - Connects an external microphone or the microphone of a headset to the left side of the Concentus delegate unit.
10. **Headphones sockets** - Headphone connection (on both sides).
11. **Volume controls** - Headphone volume level adjustment.
12. **Screws** - Connect the bottom plate to the cover of the Concentus unit.
13. **DCN cable** - Connects the Concentus unit to the DCN.
14. **DCN socket** - Makes a loop-through in the DCN with the Concentus unit.
15. **Sensitivity potentiometer** - Microphone sensitivity adjustment of the connected Concentus unit (+/- 2 dB).
16. **RJ45 socket** - Intercom Handset (DCN-ICHS), external contact or Channel Selector (DCM-FCS) connection.
17. **Screw holes** - Attach the Concentus unit to a flat surface.
18. **De-init switch** - Erases the address of the Concentus unit. All LEDs are on when the Concentus unit does not have an address.

The only difference between the Concentus chairman unit and the Concentus delegate unit is the priority button on the left of the microphone button.

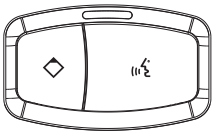


Figure 3.18: Priority and microphone buttons

With the priority button, the chairman can disable the microphones of all delegate devices. At the same time, the priority button enables the microphone of the chairman. The system has the possibility to:

– Play an attention chime when the chairman pushes the priority button.
– Erase the request-to-speak list and the speakers list when the chairman pushes the priority button.

Notice!
The Concentus conference units have pimples, which blind delegates and chairman can use to locate voting button 3.

The following sections give more information about the mentioned subject:

– Installation: *DCN-CON Concentus Units, page 95*.
– Connection: *DCN Concentus Units, page 125*.
– Configuration: *DCN-CON Concentus Units, page 208*.
– Operation: *DCN-CON Concentus Units, page 247*.
– Troubleshooting: *DCN-CON Concentus Unit, page 264*.
– Technical Data: *DCN-CON Concentus Units, page 281*.

3.8 DCN-DIS and DCN-WD Discussion Units

With the discussion units (wired and wireless), the delegates can make contributions to a discussion.

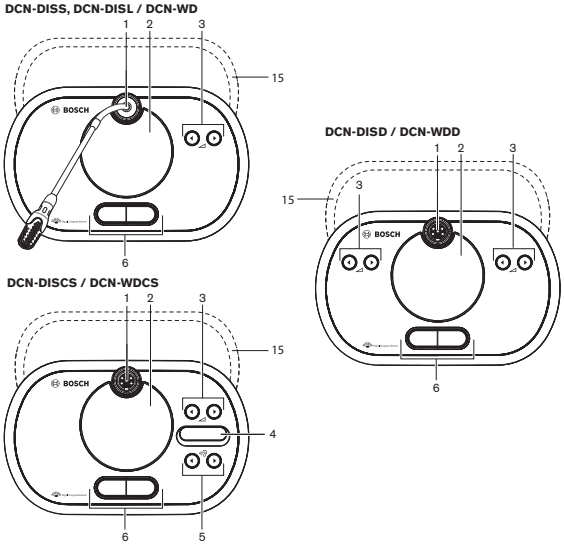


Figure 3.19: Top views (1) wired and wireless

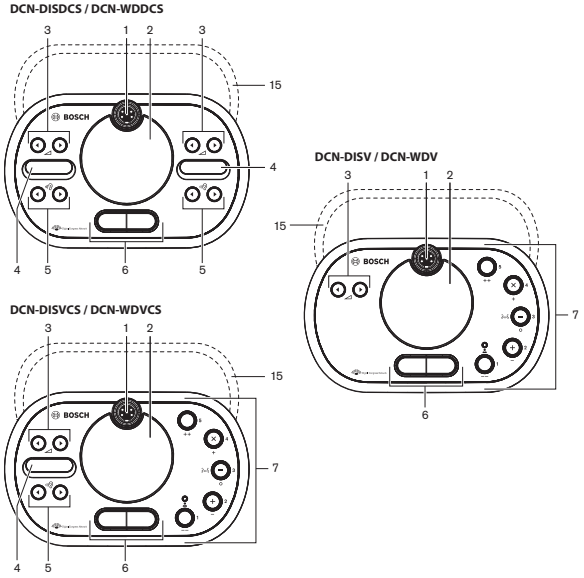


Figure 3.20: Top views (2) wired and wireless

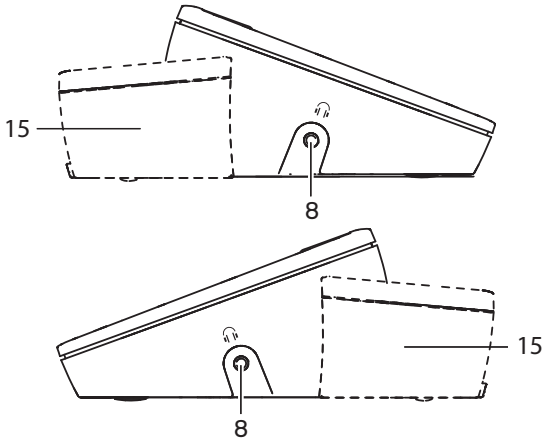


Figure 3.21: Side views, wired or wireless (15)

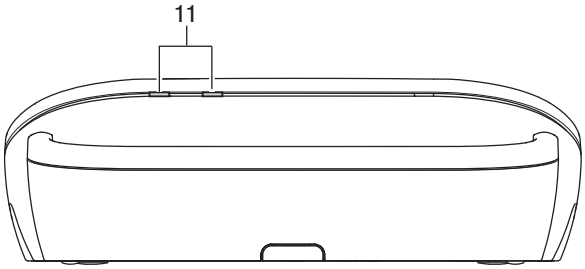


Figure 3.22: Rear view wireless units

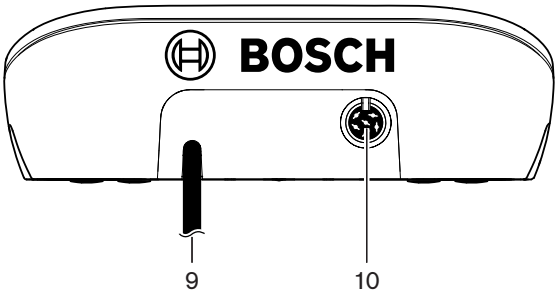


Figure 3.23: Rear view wired units

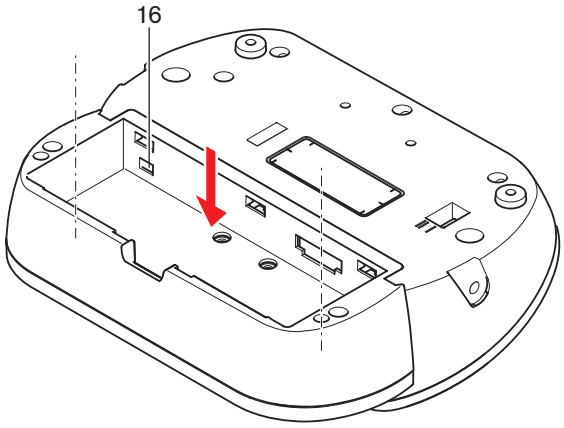


Figure 3.24: Bottom view (1) wireless units

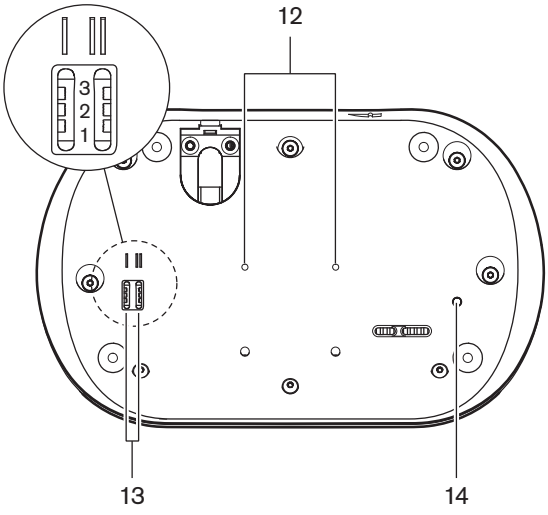


Figure 3.25: Bottom view wired units

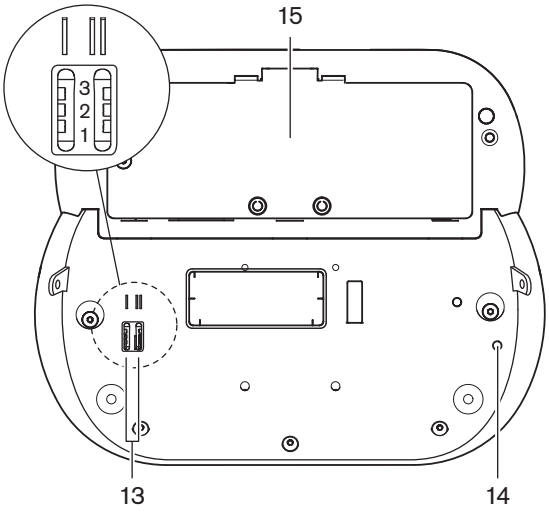


Figure 3.26: Bottom view (2), wireless units

1. **Microphone socket** - Connects a Pluggable Microphone (DCN-MICL or DCN-MICS) to the discussion unit.

Notice!
A DCN-MICL or DCN-MICS Pluggable Microphone cannot used with the DCN-DISL and DCN-DISS Discussion Units. The DCN-DISL and DCN-DISS Discussion Units have fixed microphones.

2. **Loudspeaker** - Gives the audio signal from the floor to the delegate or the chairman. The loudspeaker signal is muted when the microphone is enabled.
3. **Volume buttons** - Headphone signal level adjustment.
4. **Channel selector display** - Shows the number of the language channel and abbreviation of the current headphone audio signal. When the display shows FLR, the floor audio signal is on the headphones.

Notice!
Change the type of language abbreviation with menu e of the installation menu of the interpreter desk (refer to *DCN-IDESK Interpreter Desks, page 222* > Menu screens).

5. **Channel selector buttons** - Select the channel that is sent to the headphones.
6. **Microphone buttons** - Enable or disable the microphone. Each microphone button has a LED that shows the condition of the microphone. The mode of the discussion unit gives the type and number of microphone buttons which must be installed in the discussion unit.
7. **Voting buttons** - Operate the discussion unit. Each voting button has a yellow LED. The LED adjacent to voting button 1 is the attendance LED.
8. **Headphones socket** - Headphone connection.
9. **DCN cable** - Connects the discussion unit (wired) to the DCN.
10. **DCN socket** - Makes a loop-through in the DCN with the discussion unit.
11. **Status LEDs** - Gives information about the condition of the wireless discussion unit.
12. **Screw holes** - Attach the wired discussion unit to a flat surface.
13. **Configuration switches** - Configuration of the discussion unit and sets the mode of the discussion unit.
14. **De-init switch** - Erases the address (wired) / subscription (wireless) of the discussion unit. All LEDs on the discussion unit are on when the discussion unit does not have an address.
15. **Battery pack compartment** - Contains the Battery Pack (DCN-WLION) of the wireless discussion unit.
16. **Power supply socket** - Connects a Power Supply adapter (DCN-WPS) to the wireless discussion unit.

The following sections give more information about the mentioned subject:
- Installation: *DCN-DIS and DCN-WD Discussion units, page 96*.
- Connection: *DCN-DIS Discussion Unit (wired), page 129* and *DCN-WD Discussion Units (wireless), page 130*.
- Configuration: *DCN-DIS and DCN-WD discussion units, page 209*.
- Operation: *DCN-DIS and DCN-WD Discussion Units, page 248*.
- Troubleshooting: *DCN-DIS Discussion Unit, page 265*.
- Technical Data: *DCN-DIS and DCN-WD Discussion Units, page 282*.

Refer to

– *DCN-IDESK Interpreter Desks, page 222*

3.9 DCN-WLIION Battery Pack

The DCN-WLIION Battery pack is used with the wireless devices. It is strongly advised to charge the battery pack (DCN-WLIION-D) immediately after receipt.

Caution!
Use the Battery Charger (DCN-WCH05) to charge Battery Packs (DCN-WLION).

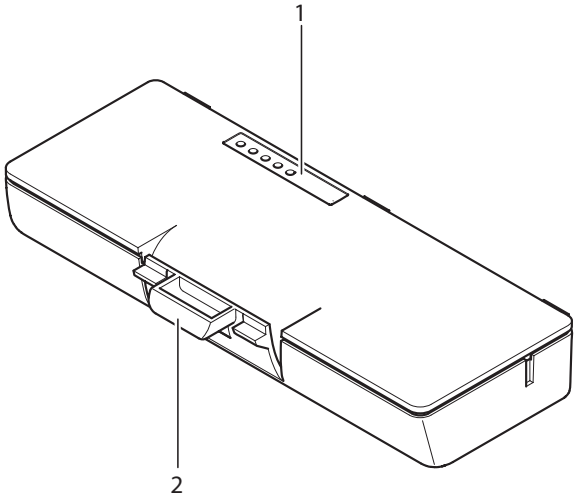


Figure 3.27: Overview

The battery pack contains:
1. **Capacity LEDs** - Show the capacity of the battery pack.
2. **Clip** - Locks the battery pack in, for example, a wireless discussion unit.

The following sections give more information about the mentioned subject:
– Operation: *DCN-WLIION Battery Pack, page 249*.
– Maintenance: *DCN-WLIION Battery Pack, page 269*.
– Technical Data: *DCN-WLIION Battery Pack, page 282*.

3.10 DCN-WCH05 Battery Charger

The Battery Charger charges the Battery Packs (DCN-WLIION). The battery charger can charge a maximum of 5 battery packs at the same time.

Caution!
Remove the battery packs from the battery charger if it is not connected to the mains power supply, this to avoid malfunctioning of the battery packs.

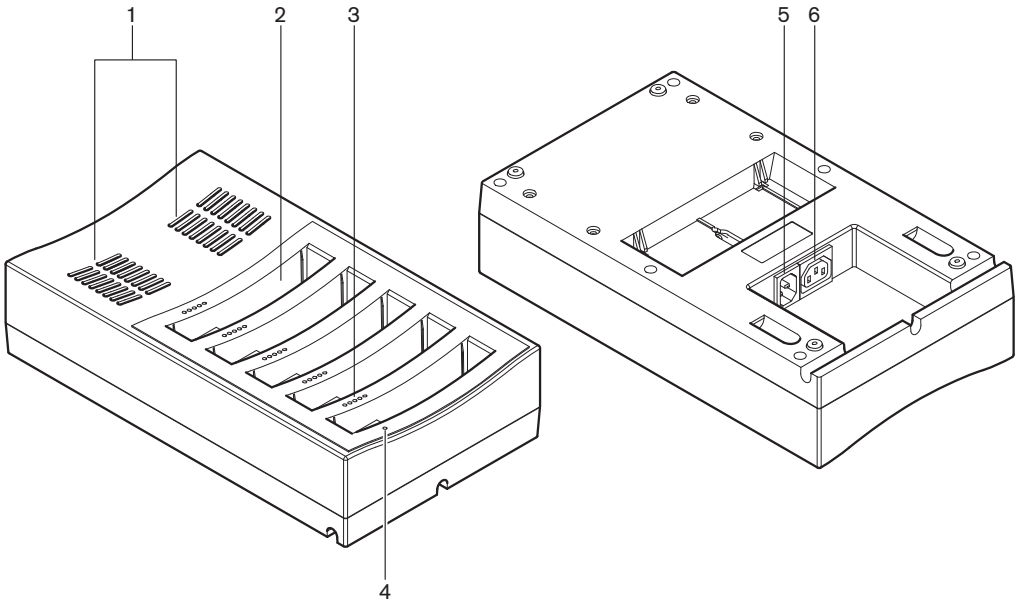


Figure 3.28: Overview

1. **Ventilation grilles** - Make sure that the temperature of the battery charger does not become too high.
2. **Battery pack containers** - Holds the Battery Packs (DCN-WLIION).
3. **Charge level LEDs** - Shows the charging level of the battery pack.
4. **Power on/off LED** - Is on when the power cable is connected to the mains power supply.
5. **Power inlet** - Mains power supply connection.
6. **Loop-through socket** - Connects the battery charger to another battery charger with a power cable.

The following sections give more information about the mentioned subject:
- Installation: *DCN-WCH05 Battery Charger, page 101*.
- Connection: *DCN-WCH05 Battery Charger, page 132*.
- Operation: *DCN-WCH05 Battery Charger, page 250*.
- Technical Data: *DCN-WCH05 Battery Charger, page 282*.

3.11 DCN-WPS Power Supply Adapter

The DCN-WPS Power Supply Adapter is used with the wireless devices. Refer to *DCN-WPS Power Supply Adapter, page 283* for more information.

3.12 DCN-MICL, DCN-MICS Pluggable Microphones

The DCN-MICL and DCN-MICS Pluggable Microphones are used with the contribution and interpretation devices.

Type	Length (mm)
DCN-MICS	310
DCN-MICL	480

Tab. 3.5: Types and lengths

Figure 3.29: Overview

The pluggable microphone contains:

1. **Indicator ring** - Shows the on or off status of the microphone.
2. **Union nut** - Attaches the pluggable microphone to the device.
3. **Microphone plug** - Connects the microphone to devices.

The following sections give more information about the mentioned subject:

– Connection: *DCN-MICL, DCN-MICS Pluggable Microphones, page 132*.
– Operation: *DCN-MICL, DCN-MICS Pluggable Microphones, page 250*.
– Technical data: *DCN-MICL, DCN-MICS Pluggable Microphones, page 283*.

3.13 DCN-ICHS Intercom Handset

The DCN-ICHS Intercom Handset is used along with contribution devices. With the intercom handset, delegates and the chairman can speak to the operator (the person who controls the system). When the Intercom software module is installed, the delegates can also speak with each other.

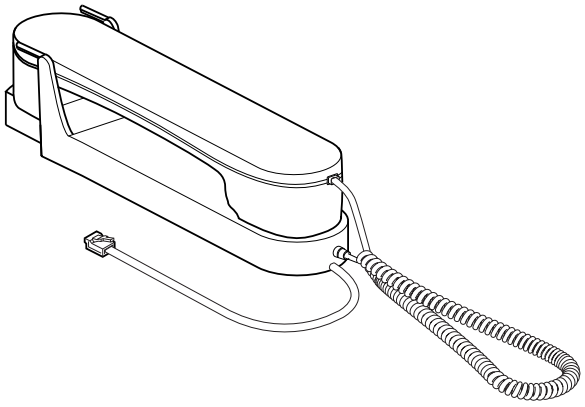


Figure 3.30: Intercom handset

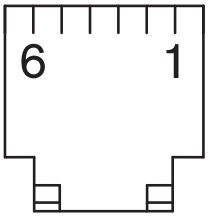


Figure 3.31: Intercom plug (RJ11), connection

Type	Description
DCN-CON	Concentus Delegate Unit
DCN-CONCS	Concentus Channel Selector Unit
DCN-CONFF	Concentus Full Function Unit
DCN-CONCM	Concentus Chairman Unit
DCN-DDI	Dual Delegate Interface

Tab. 3.6: Compatible devices

The following sections give more information about the mentioned subject:

– Technical Data: *DCN-ICHS Intercom Handset, page 284*.

3.14 DCN-FPT Flush Positioning Tool

When using the block-mounting method to install flush-mounted devices, the DCN-FPT Flush Positioning Tool can be used to measure the distance between two couple pieces.

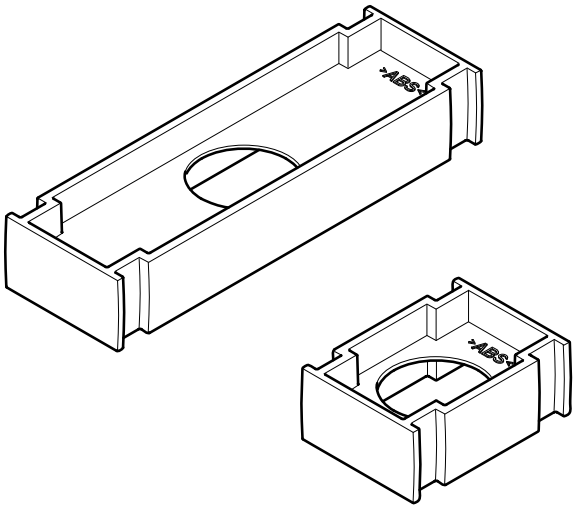


Figure 3.32: Flush positioning tool

The following sections give more information about the mentioned subject:
- Connection: *DCN-Flush mounted products, page 103*.
- Technical Data: *DCN-FPT Flush Positioning Tool, page 285*.

3.15 DCN-DDI Dual Delegate Interface

Use the DCN-DDI Dual Delegate Interface to connect contribution devices with flush-mounted devices.

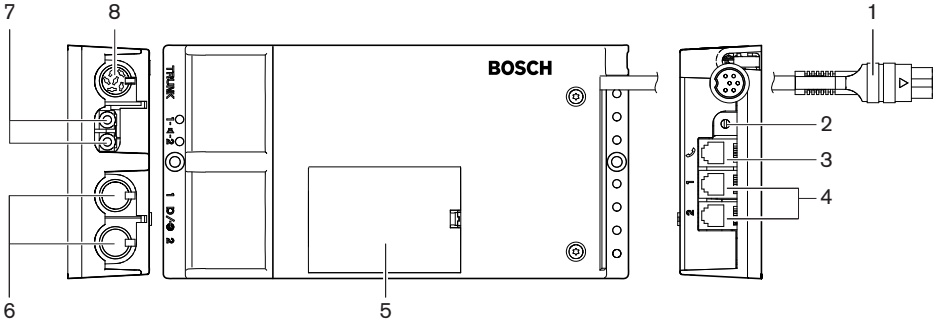


Figure 3.33: Dual delegate interface

The dual delegate interface contains:
1. **DCN cable** - Connects the dual delegate interface to the DCN.
2. **Mode selector** - Sets the mode in which the dual delegate interface operates.
3. **Intercom socket** - Connects an DCN-ICHS Intercom Handset to the dual delegate interface.
4. **Voting/Control inputs** - Connect DCN-FMICB Microphone Control Panels, DCN-FPRIOB Microphone Priority Panels and DCN-FV(CRD) Voting Panels to the dual delegate interface.
5. **Lid** - Gives access to the controls inside.
6. **Audio inputs** - Connects external audio sources to the dual delegate interface.

7. **Audio outputs** - Connects loudspeakers to the dual delegate interface.
8. **DCN socket** - Makes a loop-through in the DCN with the dual delegate interface.

The following sections give more information about the mentioned subject:
– Connection: *DCN-DDI Dual Delegate Interface, page 134*.
– Configuration: *DCN-DDI Dual Delegate Interface, page 214*.
– Technical Data: *DCN-DDI Dual Delegate Interface, page 285*.

3.16 DCN-FMIC Microphone Connection Panel

The DCN-FMIC Microphone Connection Panel connects DCN-MICL and DCN-MICS Pluggable Microphones to the DCN-DDI Dual Delegate Interface.

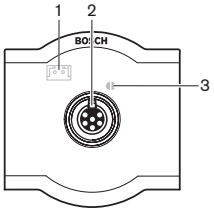


Figure 3.34: Microphone connection panel

The microphone connection panel contains:
1. **Output level plug** - Connects the microphone connection panel to a DCN-FCS Channel Selector to prevent acoustic feedback.
2. **Microphone socket** - Connects a DCN-MICL or DCN-MICS Pluggable Microphone to the microphone connection panel.
3. **Solder spot** - Enables or disables the green LED ring of the connected DCN-MICL or DCN-MICS Pluggable Microphone.

The following sections give more information about the mentioned subject:
– Installation: *DCN-Flush mounted products, page 103*.
– Connection: *DCN-FMIC Microphone Connection Panel, page 136*.
– Configuration: *DCN-FMIC Microphone Connection Panel, page 219*.
– Technical Data: *DCN-FMIC Microphone Connection Panel, page 285*.

3.17 DCN-FMICB Microphone Control Panel

The DCN-FMICB Microphone Control Panel, enables or disables the delegates audio input that is connected to the DCN-DDI Dual Delegate Interface.

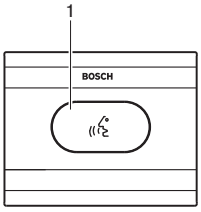


Figure 3.35: Microphone control panel

The microphone control panel contains:

1. **Microphone button** - Enables or disables the microphone. The LED ring of the microphone button shows the condition of the microphone.

The following sections give more information about the mentioned subject:

- Installation: *DCN-Flush mounted products, page 103*.
- Connection: *DCN-FMICB Microphone Control Panel, page 136*
- Configuration: *DCN-FMICB Microphone Control Panel, page 251*
- Technical Data: *DCN-FMICB Microphone Control Panel, page 285*.

3.18 DCN-FPRIOB Priority Panel

With the DCN-FPRIOB Priority Panel, the chairman can disable the microphones of all delegate devices. The priority panel must be used with the DCN-DDI Dual Delegate Interface in the chairman mode.

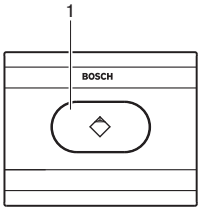


Figure 3.36: Priority panel

The priority panel contains:

1. **Priority button** - Disables the microphones of all delegate devices and enables the microphone of the chairman device when it is pushed. The priority control button has a LED ring that shows the condition of the microphone.

The following sections give more information about the mentioned subject:

- Installation: *DCN-Flush mounted products, page 103*.
- Connection: *DCN-FPRIOB Priority Panel, page 136*.
- Configuration: *DCN-FPRIOB Priority Panel, page 251*.
- Technical Data: *DCN-FPRIOB Priority Panel, page 286*.

3.19 DCN-FLSP Loudspeaker Panel

Connects the DCN-FLSP Loudspeaker Panel to the audio outputs of the DCN-DDI Dual Delegate Interface.

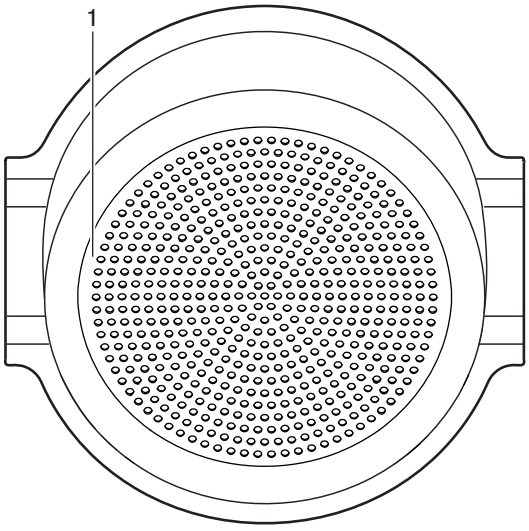


Figure 3.37: Loudspeaker panel

The loudspeaker panel contains:

1. **Loudspeaker** - Gives the audio signal from the floor to the delegate or chairman.

The following sections give more information about the mentioned subject:

- Installation: *DCN-Flush mounted products, page 103*.
- Connection: *DCN-FLSP Loudspeaker Panel, page 136*.
- Technical Data: *DCN-FLSP Loudspeaker Panel, page 286*.

3.20 DCN-FV(CRD) Voting Panel

With the DCN-FV(CRD) Voting Panel, delegates can make votes. The voting panel must be used with the DCN-DDI Dual Delegate Interface.
Refer to the following table for the available types.

Type	Description
DCN-FVCRD	Voting panel with card reader
DCN-FV	Voting panel without card reader

Tab. 3.7: Types

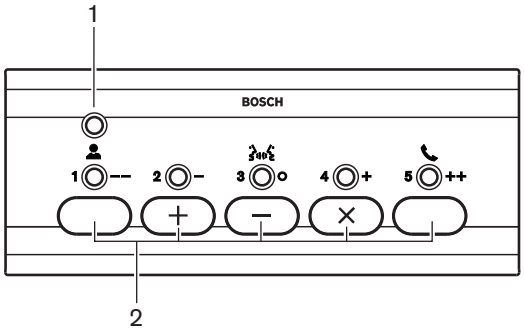


Figure 3.38: Top view (DCN-FV)

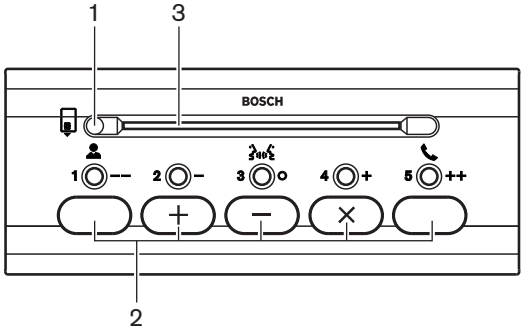


Figure 3.39: Top view (DCN-FVCRD)

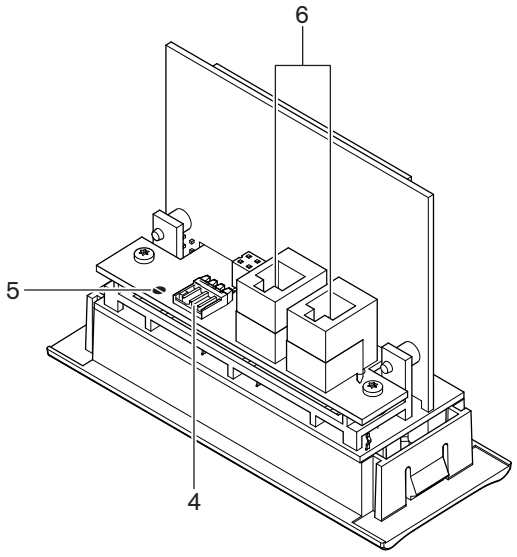


Figure 3.40: Bottom view

1. **Condition LED** - Shows the condition of the voting panel.
2. **Voting buttons** - Operate the voting panel. Each voting button has a yellow LED. The LED shows the condition of the voting button.
3. **Card reader** - Gives access to the voting panel.
4. **External contact plug** - Connects the voting panel to an external contact.
5. **Solder spot** - Configures the external contact plug.
6. **RJ11 sockets** - Connects the voting panel to the DCN-DDI Dual Delegate Interface and the DCN-FMICB Microphone Control Panel.

The following sections give more information about the mentioned subject:
– Installation: *DCN-Flush mounted products, page 103*.
– Connection: *DCN-FV(CRD) Voting Panel, page 136*.
– Technical Data: *DCN-FV(CRD) Voting Panel, page 286*.

3.21 DCN-FCS Channel Selector

With the DCN-FCS Channel Selector, delegates and chairmen can select a channel to listen to.

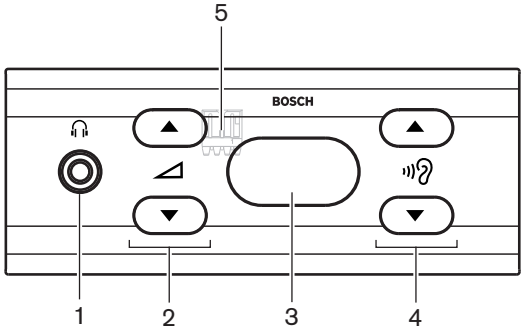


Figure 3.41: Front view

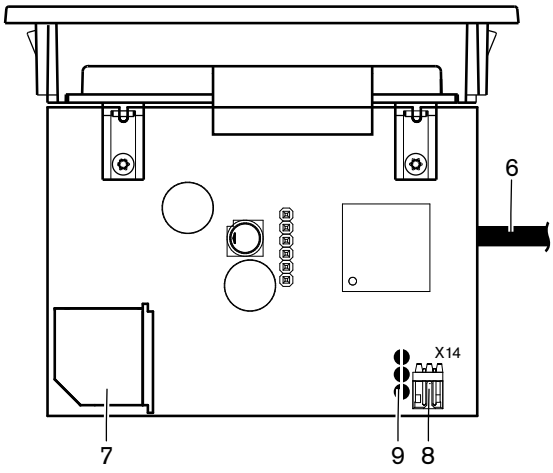


Figure 3.42: Top view

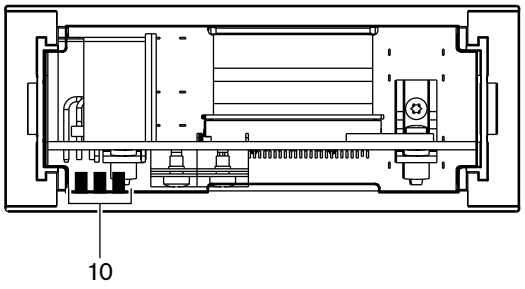


Figure 3.43: Rear view

1. **Headphones socket** - Headphone connection.
2. **Volume buttons** - Controls the volume level of the selected channel.
3. **Display** - Shows the number of the selected channel.
4. **Channel buttons** - Channel selector.
5. **External headphones (plug)** - Connects an external headphones socket to the channel selector.
6. **DCN cable** - Connects the channel selector to the DCN system.
7. **DCN socket** - Makes a loop-through in the DCN system with the channel selector.
8. **Level reduction plug** - Reduces the headphone signal level when the microphone of a connected device is enabled.
9. **Solder spots**
10. **External headphones (solder pads)** - Connect an external headphones socket to the channel selector.

The following sections give more information about the mentioned subject:
- Installation: *DCN-Flush mounted products, page 103*.
- Connection: *DCN-FCS Channel Selector, page 139*.
- Configuration: *DCN-FCS Channel Selector, page 220*.
- Technical Data: *DCN-FCS Channel Selector, page 286*.

3.22 DCN-FVU Voting Unit

With the DCN-FVU Voting Unit, delegates can make votes. Refer the following table for an overview of the different types.

Type	Description
DCN-FVU	Standard version
DCN-FVU-CN	Chinese version

Tab. 3.8: Types

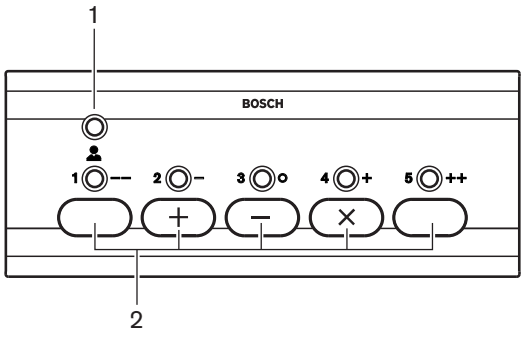


Figure 3.44: Front view (DCN-FVU)

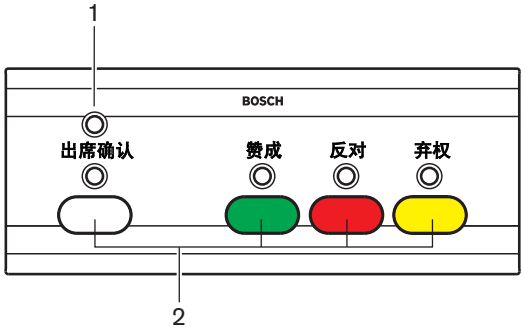


Figure 3.45: Front view (DCN-FVU-CN)

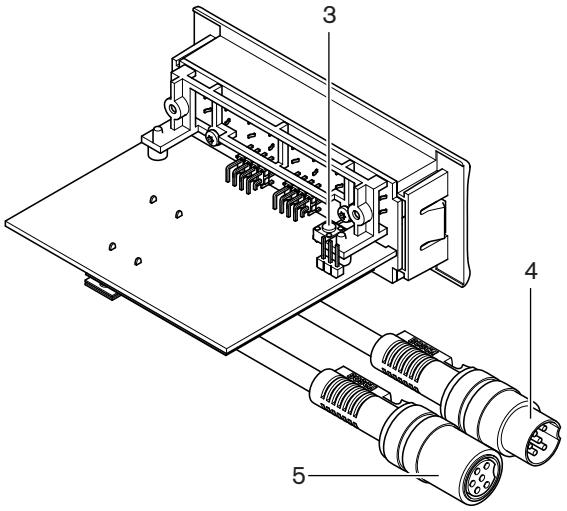


Figure 3.46: Top (all types)

1. **Condition LED** - Shows the condition of the voting unit.
2. **Voting buttons** - Operate the voting panel. Each button has a LED that shows the condition of the button.
3. **De-init switch** - Erases the address of the voting unit. All LEDs on the voting unit come on when the voting unit has no address.
4. **DCN cable** - Connects the voting unit to the DCN.
5. **DCN socket** - Makes a loop-through in the DCN with the voting unit.

The following sections give more information about the mentioned subject:
– Installation: *DCN-Flush mounted products, page 103*.
– Connection: *DCN-FVU Voting Unit, page 141*.
– Operation: *DCN-FVU Voting Unit, page 253*.
– Technical Data: *DCN-FVU Voting Unit, page 287*.

3.23 DCN-FCOUP Couple

Use the DCN-FCOUP Couple to install flush-mounted devices.

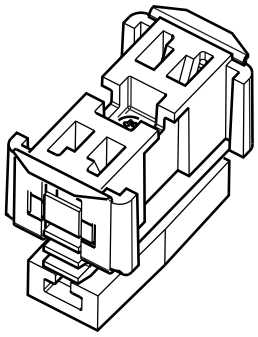


Figure 3.47: End cap

The following sections give more information about the mentioned subject:
- Installation: *DCN-Flush mounted products, page 103*.
- Technical Data: *DCN-FCOUP Couple, page 287* and *DCN-FEC End Caps, page 287*

3.24 DCN-FEC End Caps

Use the DCN-FEC End Caps to install flush-mounted devices.

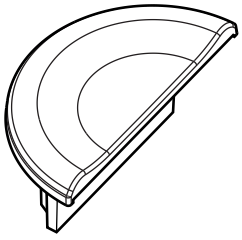


Figure 3.48: End cap

The following sections give more information about the mentioned subject:
- Installation: *DCN-Flush mounted products, page 103*.
- Technical Data: *DCN-FEC End Caps, page 287*.

3.25 DCN-TTH Tabletop Housing

Use the DCN-TTH Tabletop Housing to install flush-mounted devices:
- DCN-FCS Channel Selector
- DCN-FV(CRD) Voting Panel
- DCN-FVU Voting Unit

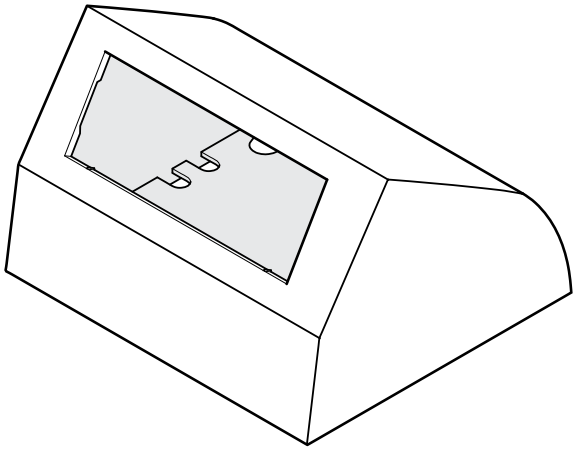


Figure 3.49: Tabletop housing

Refer to section *DCN-TTH Tabletop Housing, page 287* for more information.

3.26 DCN-FBP panels

Use the DCN-FBP (Flush Blank Panel) or the DCN-FBPS (Flush Blank Panel Short) to temporarily close recesses (refer to *DCN-FBP panels, page 287*).

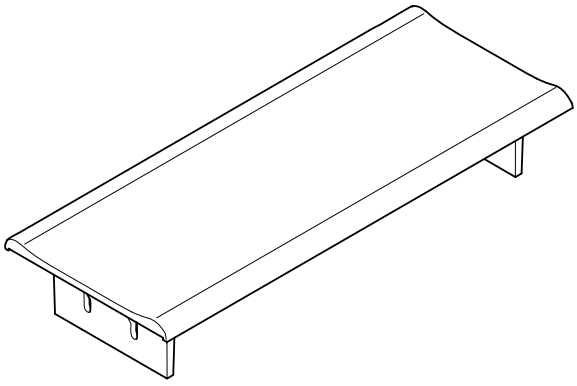


Figure 3.50: Flush blank panel

The following sections give more information about the mentioned subject:
- Installation: *DCN-Flush mounted products, page 103*.
- Technical Data: *DCN-FBP panels, page 287*.

3.27 DCN-IDESK Interpreter Desks

With the DCN-IDESK Interpreter Desks, the interpreters can add interpretations to the discussion or the conference.

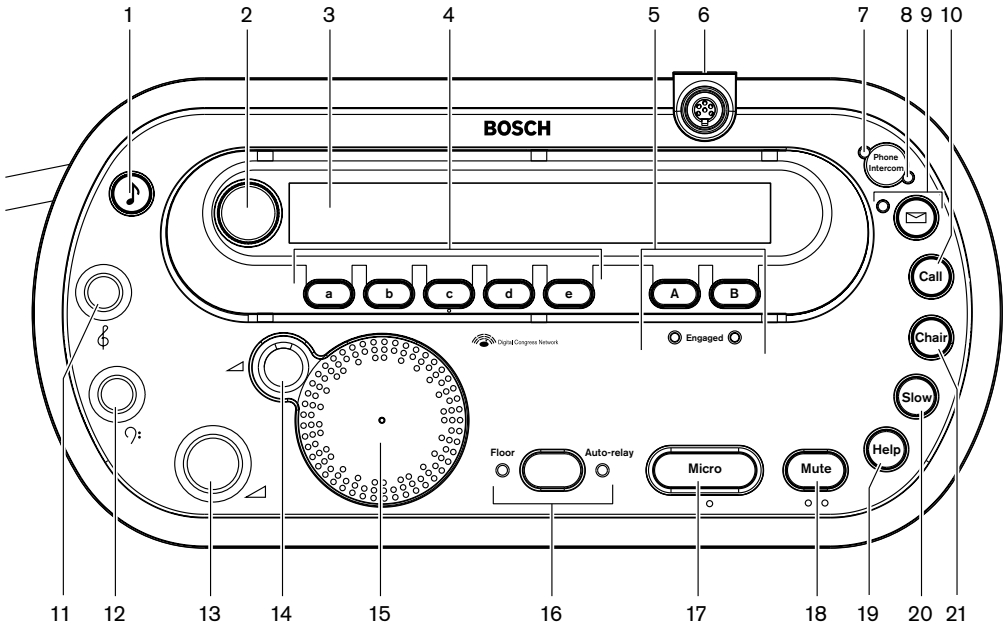


Figure 3.51: Top view

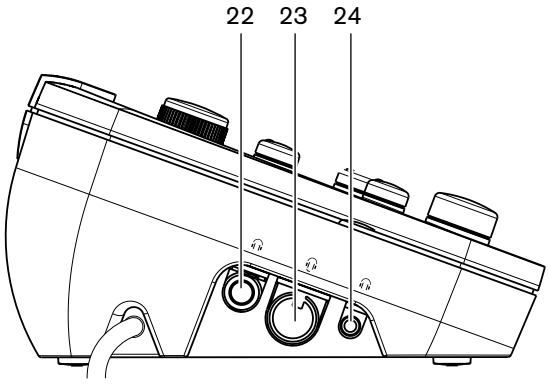


Figure 3.52: Left view

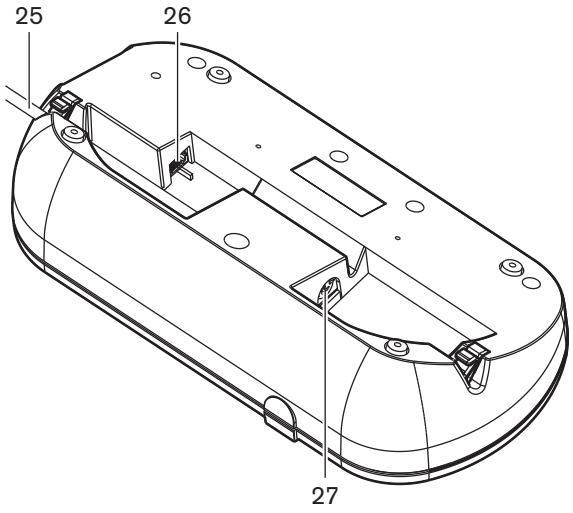


Figure 3.53: Bottom view (1)

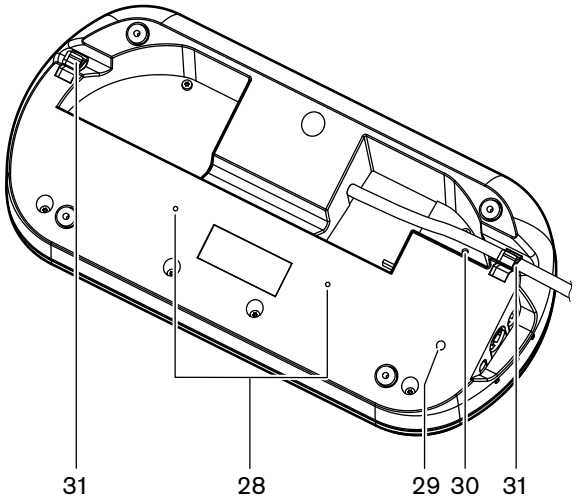


Figure 3.54: Bottom view (2)

1. **Beeps button** - Enables or disables the beeps. This function is for blind interpreters.
2. **Primary knob** - Operates the display to configure and operate the interpreter desk.
3. **Display** - Shows the configuration and user menus.
4. **Pre-select buttons** - Give the interpreters access to a channel from which they can make interpretation.
5. **Output buttons** - Set the output channel to send the target language.
6. **Microphone socket** - Connects a DCN-MICL or DCN-MICS Pluggable Microphone to the interpreter desk.
7. **Telephone LED** - Is on when the interpreter desk receives a phone call from an external telephone system.
8. **Intercom LED** - Is on when the interpreter desk receives an intercom call.
9. **Message button** -Opens / closes channel overview status.
   Opens text messages that are sent to the interpreter desk. When the interpreter desk receives a message, the yellow LED adjacent to the message button blinks.
10. **Intercom button (operator)** - Opens an intercom channel to the operator.
11. **Headphones treble knob** - Adjusts the level of the treble of the signal that is sent to the headphones.

12. **Headphones bass knob** - Adjusts the level of the bass of the signal that is sent to the headphones.
13. **Headphones volume knob** - Adjusts the volume level of the signal that is sent to the headphones.
14. **Loudspeaker volume knob** - Adjusts the volume level of the signal that is sent to the loudspeaker of the interpreter desk.
15. **Loudspeaker** - The loudspeaker is on only when the microphones of all the interpreter desks in the same interpreter booth are off.
16. **Floor/Auto-relay button** - Sets the source of the interpretation.
17. **Microphone button** - Enables or disables the microphone. The microphone button has a red LED that comes on when the microphone is enabled.
18. **Mute button** - Temporarily disables the microphone.
19. **Help button** - For help signaling. Depending on the system, the interpreter will send a signal to a DCN-DDB Data Distribution Board to activate a connected indicator, or to the DCN-SW DCN Conference SW. In case a DCN-DDB is used, the connected indicator will be active as long as the interpreter holds down the help button. In case the DCN-SW Conference SW is used, the software module DCN-SWSMD has to be active; the signal will be active until it is accepted and handled in the software. Help signaling will also be logged by the DCN-SW Conference SW and can be sent to other systems using the DCN-SWSMD.
20. **Speak slowly button** - For speak slowly signaling. Depending on the system, the interpreter will send a signal to a DCN-DDB Data Distribution Board to activate a connected indicator, or to the DCN-SW DCN Conference SW. In case a DCN-DDB is used, the connected indicator will be active as long as the interpreter holds the speak-slowly button down. In case the DCN-SW Conference SW is used, both software modules DCN-SWSMD and DCN-SWSI have to be active; the signal will become active at the key press and stay active for maximum 30 seconds (adjustable in DCN-SW) after key release. A number in the DCN-SW icon shows how many interpreters have pressed the speak-slowly button simultaneously. Speak slow will not be logged by the DCNSW Conference SW and can not be sent to other systems using the DCN-SWSMD.
21. **Intercom button (chairman)** - Opens an intercom channel to the chairman.
22. **Headphones socket (6.3 mm)** - Connects headphones with a 6.3 mm plug to the interpreter desk.
23. **Headset socket** - Connects a headset to the interpreter desk.
24. **Headphones socket (3.5 mm)** - Connects headphones with a 3.5 mm plug to the interpreter desk.

Notice!
The interpreter desks has pimples which blind interpreters can use to locate the Micro, Mute and c buttons.

25. **DCN cable** - Connects the interpreter desk to the DCN.
26. **External devices socket** - Connects a booth-on-air indicator or device that operates the telephone and intercom LEDs on the interpreter desk.
27. **DCN socket** - Makes a loop-through in the DCN with the interpreter desk.
28. **Screw holes** - Attach the interpreter desk to a flat surface.

Notice!
The distance between the centers of the screw holes is 100 mm.

29. **De-init switch** - Erases the address of the interpreter desk. All LEDs on the interpreter desk come on when the interpreter desk does not have an address.
30. **Sensitivity potentiometer** - Adjusts the volume level of the microphone that is connected to the interpreter desk.
31. **Cable lock** - Fixes the DCN cable.

The following sections give more information about the mentioned subject:
– Installation: *DCN-IDESK Interpreter Desks, page 108*
– Connection: *DCN-IDESK Interpreter Desks, page 141*.
– Configuration: *DCN-IDESK Interpreter Desks, page 222*.
– Technical Data: *DCN-IDESK Interpreter Desks, page 287*.

3.28 DCN-EPS (-UL, -JP) Extension Power Supply

The DCN-EPS Extension Power Supply supplies power to the DCN system. Use it to increase the number of devices that can be connected to the system.

Notice!
The DCN-EPS-UL Extension Power Supply is the CSA/UL approved version of the DCN-EPS.
The DCN-EPS-JP Extension Power Supply is the PSE certified version of the DCN-EPS.

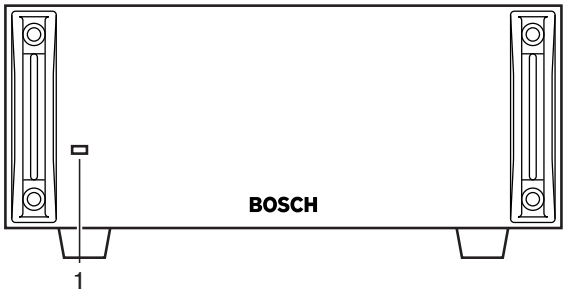


Figure 3.55: Front view

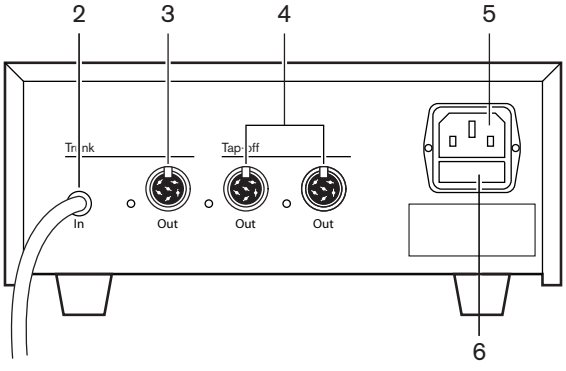


Figure 3.56: Rear view

1. **On/Off LED** - A green LED is on when:
   The power cable is connected to the mains power supply.
   The trunk cable is connected to the system.
   The central control unit is started.
2. **DCN cable** - Connects the extension power supply to the trunk of the DCN system.
3. **DCN socket (trunk)** - Makes a loop-through in the trunk of the DCN system.
4. **DCN sockets (tap-off)** - Make tap-offs in the DCN system. The socket regenerates the DCN system signal.
5. **Power inlet** - Mains power supply connection.
6. **Fuse holder** - Prevents damage to the internal power supply unit of the extension power supply.

The following sections give more information about the mentioned subject:
– Installation: *DCN-EPS Extension Power Supply, page 109*.
– Connection: *DCN-EPS (-UL, -JP) Extension Power Supply, page 143*.
– Configuration: *DCN-EPS (-UL, -JP) Extension Power Supply, page 227*.
– Technical Data: *DCN-EPS Extension Power Supply, page 288*.

3.29 LBB4114/00 Trunk Splitter

Use the LBB4114/00 Trunk Splitter to divide the DCN trunk.

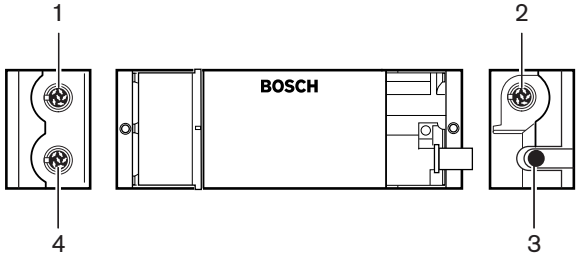


Figure 3.57: Top and side views

1. **DCN socket (tap-off 1)** - Makes a tap-off in the DCN system. The socket regenerates the DCN signal.
2. **DCN socket (tap-off 2)** - Makes a tap-off in the DCN system. The socket regenerates the DCN system signal.
3. **DCN cable** - Connects the trunk splitter in the trunk of the DCN system.
4. **DCN socket (trunk)** - Makes a loop-through in the DCN with the trunk splitter. The socket does not regenerate the DCN system signal.

The following sections give more information about the mentioned subject:
– Installation: *LBB4114/00 Trunk Splitter, page 110*.
– Connection: *LBB4114/00 Trunk Splitter, page 145*.
– Technical Data: *LBB4114/00 Trunk Splitter, page 289*.

3.30 LBB4115/00 Tap-off unit

Use the LBB4115/00 Protected Trunk Splitter to make tap-offs in the DCN that have protection against short-circuits. Typically, the LBB4115/00 Protected Trunk Splitters are used to connect DCN-IDESK Interpreter Desks to the system.

The differences between the LBB4114/00 Trunk Splitter and the LBB4115/00 Protected Trunk Splitter are that the DCN tap-off sockets of the LBB4115/00 Protected Trunk Splitter:
- Each output has a maximum load of 4.5 W
- Trunk and tap-off outlets are protected against short-circuits.

The following sections give more information about the mentioned subject:
- Installation: *LBB4115/00 Tap-off unit, page 110*.
- Connection: *LBB4115/00 Tap-off unit, page 145*.
- Technical Data: *LBB4115/00 Tap-off unit, page 289*.

3.31 LBB4116 Extension Cables

The following extension cable (assembly) products are available:

Type number	Cable length
LBB4116/02	2 m
LBB4116/05	5 m
LBB4116/10	10 m
LBB4116/15	15 m
LBB4116/20	20 m
LBB4116/25	25 m
LBB4116/00	100 m

Tab. 3.9: Extension cables

Except for LBB4116/00, all extension cables have DCN plugs and sockets.

Connectors

Make custom-made cables with the LBB4116/00 Extension Cable (100 m) and the LBB4119/00 DCN Connectors (refer to *LBB4114/00 Trunk Splitter, page 55*).

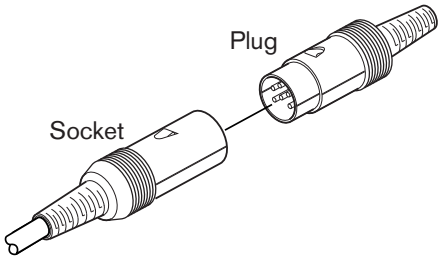


Figure 3.58: LBB4119/00 DCN connectors

Refer to *LBB4116 Extension Cables, page 289* for more information.

3.32 LBB4117/00 Cable Locking Clamps

Use the LBB4117/00 Cable Locking Clamps to lock the connectors of extension cables. Each pair uses one clamp.

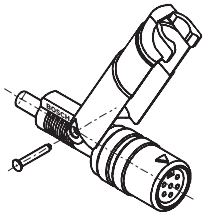


Figure 3.59: Cable locking clamp

Notice!
You cannot use the LBB4117/00 Cable Locking Clamps with the LBB4119/00 DCN Connectors.

3.33 LBB4118/00 Cable Termination Plug

Use an LBB4118/00 Cable Termination Plug to ‘close’ an ‘open-ended’ DCN cable (e.g. for voting units with two cables, or a spare or expansion cable).

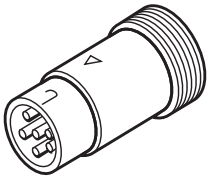


Figure 3.60: Cable termination plug

3.34 PRS-NSP Network Splitter

Use the PRS-NSP Network Splitter to make tap-offs in the optical network that have protection against short-circuits.

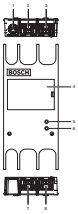


Figure 3.61: Front, rear and top views

1. **External power supply socket** - Connects the network splitter to an external power supply. The external power supply supplies power to the tap-offs. It does not supply power to the trunk.
2. **Optical network socket (tap-off 1)** - Makes a tap-off in the optical network. The socket has a maximum load of 2.5 A that gives protection against short-circuits.
3. **Optical network socket (trunk)** - Connects the network splitter to the trunk of the optical network.
4. **Lid** - Gives access to the controls inside. The rear side of the lid contains a label with an explanation about the internal settings.
5. **Status LED** - A yellow LED that gives information about the condition of the network splitter.
6. **Status LED** - A green LED that gives information about the condition of the network splitter.
7. **Optical network socket (tap-off 2)** - Makes a tap-off in the optical network. The socket has a maximum load of 2.5 A that gives protection against short-circuits.
8. **Optical network socket (trunk)** - Connects the network splitter to the trunk of the optical network.

The following sections give more information about the mentioned subject:
- Installation: *PRS-NSP Network Splitter, page 111*.
- Connection: *PRS-NSP Network Splitter, page 145*.
- Configuration: *PRS-NSP Network Splitter, page 229*.
- Troubleshooting: *LBB4114/00 or LBB4115/00 Trunk Splitter, page 266*.

3.35 PRS-FINNA Fiber Interface

Use the PRS-FINNA Fiber Interface to connect a Plastic Optical Fiber (POF) to a Glass Optical Fiber (GOF). A GOF network can transmit a signal to a larger distance than a POF network.

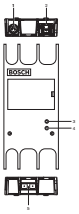


Figure 3.62: Exterior of the fiber interface

1. **External power supply socket** - Connects the fiber interface to an external power supply.
2. **Optical network socket (POF)** - Connects the fiber interface to a POF.
3. **Status LED** - A yellow LED that gives information about the condition of the fiber interface.
4. **Status LED** - A green LED that gives information about the condition of the fiber interface.
5. **GOF socket** - Connects the fiber interface to a GOF.

The following sections give more information about the mentioned subject:
– Installation: *PRS-FINNA Fiber Interface, page 111*.
– Connection: *PRS-FINNA Fiber Interface, page 147*.
– Operation: *PRS-FINNA Fiber Interface, page 257*.

3.36 LBB4416 Optical Network Cables

The optical network cable contains two plastic optical fibers to transmit data and two copper wires to supply the power.

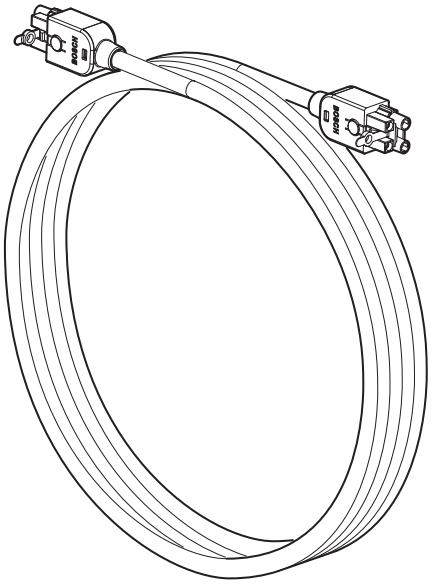


Figure 3.63: Optical network cable

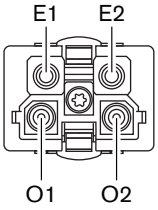


Figure 3.64: Optical network connector, connection

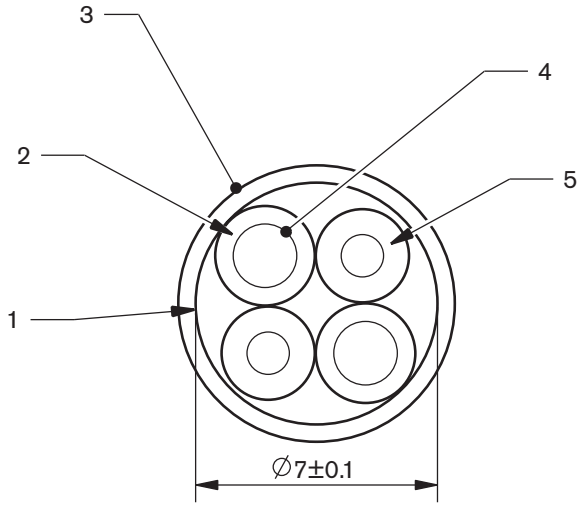


Figure 3.65: Wires

Use the LBB4418/00 Cable-connector Tool Kit to make cables from LBB4416/00 Optical Network Cables and LBB4417/00 Optical Network Connectors.

Type number	Cable length
LBB4416/01	0.5 m
LBB4416/02	2 m
LBB4416/05	5 m
LBB4416/10	10 m
LBB4416/20	20 m
LBB4416/40	40 m
LBB4416/00	100 m

Tab. 3.10: Optical network cables

Except for LBB4416/00, all optical network cables have optical network connectors.

Use the LBB4417/00 Optical Network Connectors to make cables from LBB4416/00 Optical Network Cable (100 m) with the LBB4418/00 Cable-connector Tool Kit.

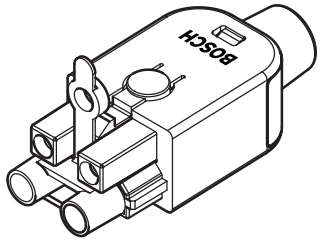


Figure 3.66: LBB4417/00 Optical Network Connectors

Refer to *System, page 261* > Optical network problems for further information.

3.37 LBB4418/00 Cable-connector Tool Kit

The LBB4418/00 Cable-connector Tool Kit is used to make optical network cables from LBB4416/00 Optical Network Cable (100 m) and LBB4417/00 Optical Network Connectors.

Figure 3.67: Tool kit contents

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

Tab. 3.11: Tool kit contents

Tool kit supplier:
Rennsteig Werkzeuge GmbHViernau, Thüringen, GermanySupplier type number: 600 100 PHI

3.38 LBB4419/00 Cable Couplers

Use the LBB4419/00 Cable Couplers to connect optical network cables to each other. A cable coupler causes optical attenuation. Each cable coupler decreases the maximum distance between two devices in the optical network (normally 50 meters) with 20 meters.

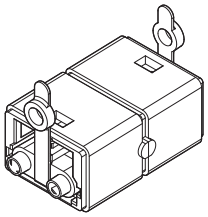


Figure 3.68: Cable coupler (with dust caps)

3.39 DCN-DDB Data Distribution Board

Use the DCN-DDB Data Distribution Board to connect hall displays to the system.

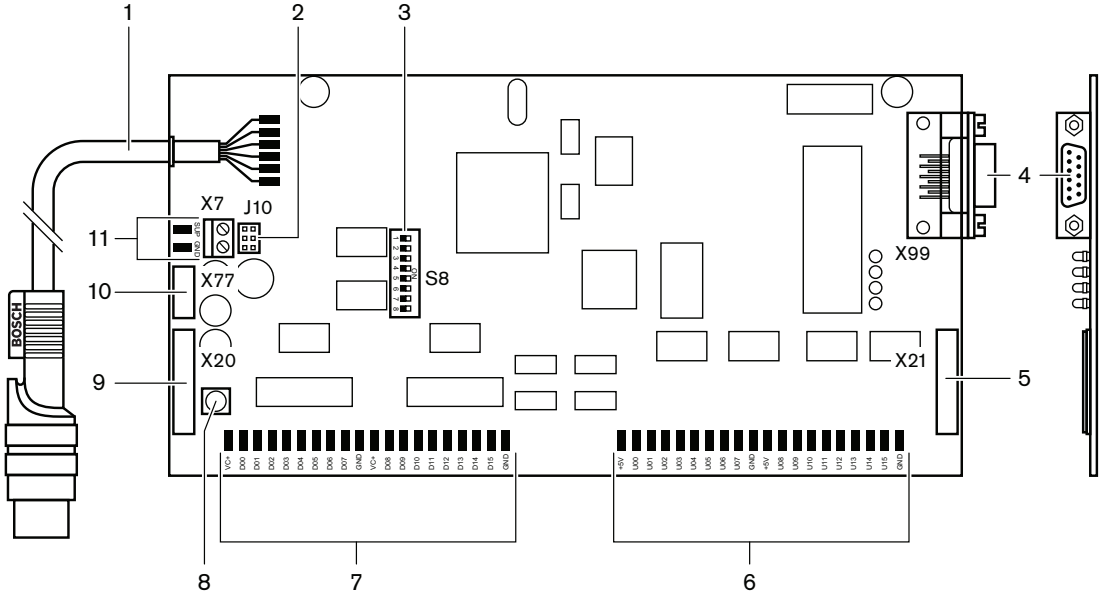


Figure 3.69: Top view of the data distribution board

1. **DCN cable** - Connects the data distribution board to the DCN.
2. **J10 jumper block** - Selects the power supply of the data distribution board.
3. **S8 switches** - Configure the data distribution board.
4. **RS232 port** - To connect the data distribution board to a hall display.
5. **Parallel inputs (connector)** - To make remote controls.
6. **Parallel inputs (solder pads)** - To make remote controls.
7. **Parallel outputs (solder pads)** - To make remote controls.
8. **De-init switch (local)** - Erase the current address of the data distribution board.
9. **Parallel outputs (connector)** - To make remote controls.
10. **De-init switch (remote)**- Erase the address of the data distribution board from a remote site.
11. **Power supply connector** - Connects an external power supply to the data distribution board.

The following sections give more information about the mentioned subject:

– Connection: *DCN-DDB Data Distribution Board, page 150*.
– Configuration: *DCN-DDB Data Distribution Board, page 230*.
– Operation: *DCN-DDB Data Distribution Board, page 257*.

3.40 DCN-IDENC ID-card Encoder

Use the DCN-IDENC ID-card Encoder and the ID-Card Encoder software module, to configure DCN-IDCRD ID-cards.

The following sections give more information about the mentioned subject:
– Technical Data: *DCN-IDENC Chip Card Encoder, page 290*.

3.41 DCN-IDCRD ID-cards

With the DCN-IDCRD Chip Cards delegates and chairmen can identify themselves to the system. Use the chip cards to give the delegates and chairmen access to:
– The microphones of the contribution devices.
– The voting functions on the contribution devices.The intercom functions on the contribution devices.

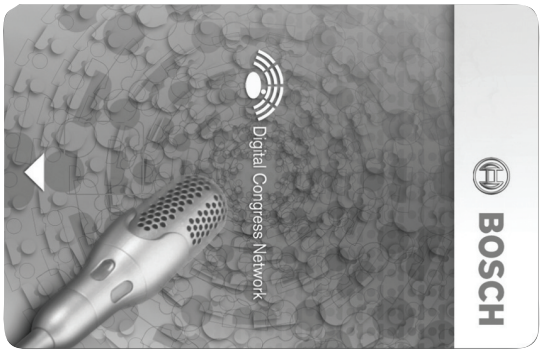


Figure 3.70: ID-card

Notice!
Use the DCN-IDENC ID-card Encoder to configure the ID-cards.

Notice!
Labels that are larger than 72 x 24 mm can be used on the rear of the chip card.

Notice!
Refer to the Delegate Database Software User Manual for instructions to find the code of the card in the chip.

4 Planning

4.1 DCN design

The DCN System has three parts: the DCN network, the wireless network and the optical network.This chapter tells how to design the DCN.

4.1.1 Calculation tool

The calculation tool makes the planning and design of the DCN easier. Find the calculation tool on the DVD that is supplied with your system.

4.1.2 Concepts

This section gives necessary data to understand the limitations.

Trunk and tap-off sockets

The DCN uses two types of socket:

- **DCN trunk sockets**: Use the DCN trunk sockets to make a loop-through in the trunk of the DCN.
- **DCN tap-off sockets**: Use the DCN tap-off sockets to make more branches in the DCN. A DCN tap-off socket always regenerates the digital DCN signal.

Cables

Many devices used in the DCN system have a 2 m cable. If necessary the extension cable (LBB4116) can extend the device cables.

4.1.3 Limits

Make sure these limits are not exceeded when you design the DCN:

Limit 1: Control capacity

- The maximum number of active devices in a DCN that a central control unit can control is 245.
- For the maximum number of active devices that a multi CCU can control. See *Example layouts, page 83* > Multi-CCU system.
- The number of passive devices is without limit (refer to *Control capacity, page 67*).
- The maximum number of data distribution boards in the system is 15.

Limit 2: Power capacity

- The maximum power that one DCN socket of the central control unit can supply is 85 W.

Refer to section *Power capacity, page 68*.

Limit 3: Loop-through

The maximum number of loop-throughs in succession for active devices is 25, where 4 m additional extension cable is the equivalent of 1 active device. If there are more than 25 loop-throughs of active units, or an equivalent mix with additional extension cable, the signal must be regenerated with a trunk splitter (LBB4114/00).

The maximum number of loop-throughs in succession for passive devices is 50, where 2 m additional extension cable is the equivalent of 1 passive device. If there are more than 50 loop-throughs of active units, or an equivalent mix with additional extension cable, the signal must be regenerated with a trunk splitter (LBB4114/00).

In case active and passive units are mixed in the trunk line, all units need to be seen as active units with their corresponding loop-through limit of 25.

Example 1: regeneration is required after using 100 m extension cable and no active or passive devices.

Example 2: regeneration is required after using 20 m additional extension cable plus 20 active devices.
Example 3: regeneration is required after using 20 m additional extension cable plus 40 passive units.
Example 4: regeneration is required after a loop-through of 10 active devices, plus 5 passive devices, plus 40 m additional extension cable.

Notice!
The standard 2 m long device cables connected to active or passive devices are included in the limit and examples above.

Limit 4: Tap-off connections
The maximum number of tap-off connections in succession between the central control unit and the last tap-off in a branch is four. If there are more than four tap-off connections in succession, the system does not operate correctly.

Limit 5: Cable-lengths
- With regenerative tap-offs, the maximum cable length is 250 m from the central control unit to the furthest device in any branch of the DCN. The maximum cable length of 250 m includes the device cables and extension cables.
- Open-ended cables can cause an incorrect operation of the system.

Refer to *Maximum power consumption, page 70*.

4.1.4 Control capacity

Active devices

Active devices are devices that can:

– Receive data from the central control unit.
– Transmit data to the central control unit.

Notice!

Active devices must have an address (refer to *Initialization, page 175*).

Passive devices

Passive devices can only receive data from the central control unit.

Overview

The following table shows the active and passive devices in the DCN.

Device	Type
DCN-CON	Active
DCN-CONCS	Active
DCN-CONFF	Active
DCN-CONCM	Active
DCN-DDB	Passive/Active
DCN-DDI	Active
DCN-DISL	Active
DCN-DISS	Active
DCN-DISCS	Active
DCN-DISD	Active
DCN-DISDCS	Active
DCN-DISV	Active
DCN-DISVCS	Active
DCN-EPS	Passive
DCN-FCS	Passive
DCN-FVU	Active
DCN-FVU-CN	Active
DCN-IDESK	Active
LBB4114/00	Passive
LBB4115/00	Passive

Tab. 4.12: Active and passive devices

4.1.5 Power capacity

Power consumption

The following table shows the power each device in the DCN system uses.

Device	Watt
DCN-CON	3.4
DCN-CONCS	3.7
DCN-CONFF	4.2
DCN-CONCM	4.2
DCN-DISL	2.75
DCN-DISS	2.75
DCN-DISCS	2.9
DCN-DISD	2.8
DCN-DISDCS	3.15
DCN-DISV	3.05
DCN-DISVCS	3.20
DCN-IDESK	3.6
DCN-EPS	0.8
DCN-FCS	0.9
DCN-FVU	1.0
DCN-FVU-CN	1.0
DCN-DDB	2.0
DCN-DDI	4.5
LBB4114/00	1.3
LBB4115/00	1.4

Tab. 4.13: Power consumption

Notice!
The power consumption of the DCN-DDI includes the power consumption of all flush-mounted devices that you can connect to it.

Power supplies

The devices that supply power to the DCN are the central control unit and the extension power supply. The power that the central control unit supplies includes the power that the optical network uses.

DCN-CCU2

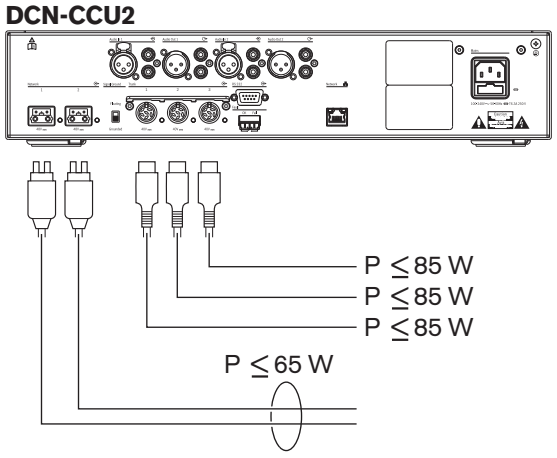


Figure 4.1: DCN power supply: DCN-CCU2

Notice!
If the power taken is higher than shown in the figure an overload situation will occur.

DCN-CCUB2

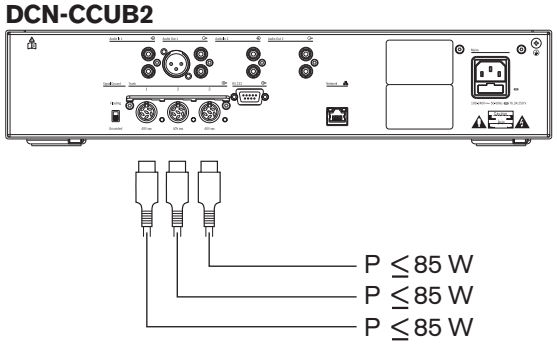


Figure 4.2: DCN power supply: DCN-CCUB2

DCN-EPS

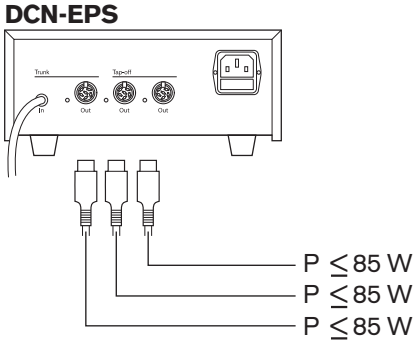


Figure 4.3: DCN power supply: DCN-EPS

Overload indication

Each DCN socket of the central control unit and extension power supply has a red LED that comes on to show that there is a power overload. An overload occurs when:

– The necessary power for the devices is greater than that is supplied.
– A short-circuit occurs.

When an overload occurs, that socket is deactivated, and the connected devices do not operate. The socket checks every 4 seconds (DCN-CCU2, DCN-CCUB2) or 30 seconds (DCN-EPS) for power overloads.

Extension cables

Extension cables (LBB4116) have a direct effect on the available power. The longer an extension cable, the less power is available to drive the connected devices. You must chose the length of the extension cables carefully (refer to *Maximum power consumption, page 70*).

4.1.6 Maximum power consumption

Power correction

The necessary power from a DCN socket of the central control unit and the extension power supply is affected by:

– The type and number of connected devices.
– The lengths of the connected extension cables.

The power correction graph corrects the power level to compensate for the extension cables.

Calculation

To find the correction for each DCN socket of the central control unit and the extension power supply with the graph, you must first calculate:

– The total power consumption of the devices that are connected to the socket.
– The length of the longest extension cable sequence.

Total power consumption

Do as follows:

1. Find the power consumption of each device from the consumption table (refer to *Power capacity, page 68*).
2. Add together the power used by all the devices. The result is the total power consumption of the devices that are connected to the socket.

Length of the longest extension cable sequence

Do as follows:

▸ Add together the lengths of all extension cables in the longest sequence.

For example, an extension cable of 20 m is connected directly to a DCN socket of the central control unit. To the extension cable, a trunk splitter is connected. To each tap-off socket of the trunk splitter, an extension cable is connected. One extension cable has a length of 10 m, the other extension cable has a length of 40 m. The length of the longest extension cable sequence is, in this example: 20 + 40 = 60 m.

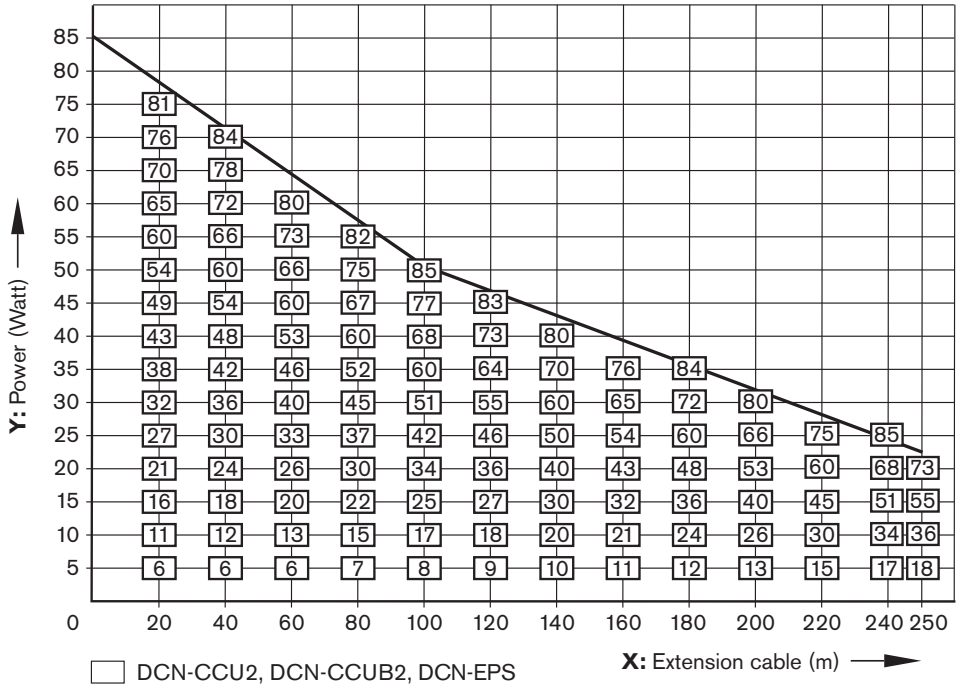


Figure 4.4: Power correction graph

Graph

The power correction graph corrects the power level to compensate for the extension cables. Do as follows:

1. Find the total power consumption (as explained in the previous chapter ‘Total power consumption’) on the vertical axis (Y) of the power correction graph. For example, 40 W.
2. Find the length of the longest extension cable sequence on the horizontal axis (X) of the power correction graph. For example, 60 m.
3. The intersection of both values gives the necessary power from the socket. In this example it is 53 W.
4. The maximum power from a DCN socket of the central control unit or the extension power supply, is 85 W. The necessary power from the socket should not exceed this. This example with only 53 W is therefore within the system limits.

The intersection of both values gives the necessary power from the socket. In this example it is 53 W.

4.1.7 Examples

All examples use the power correction graph.

Discussion devices

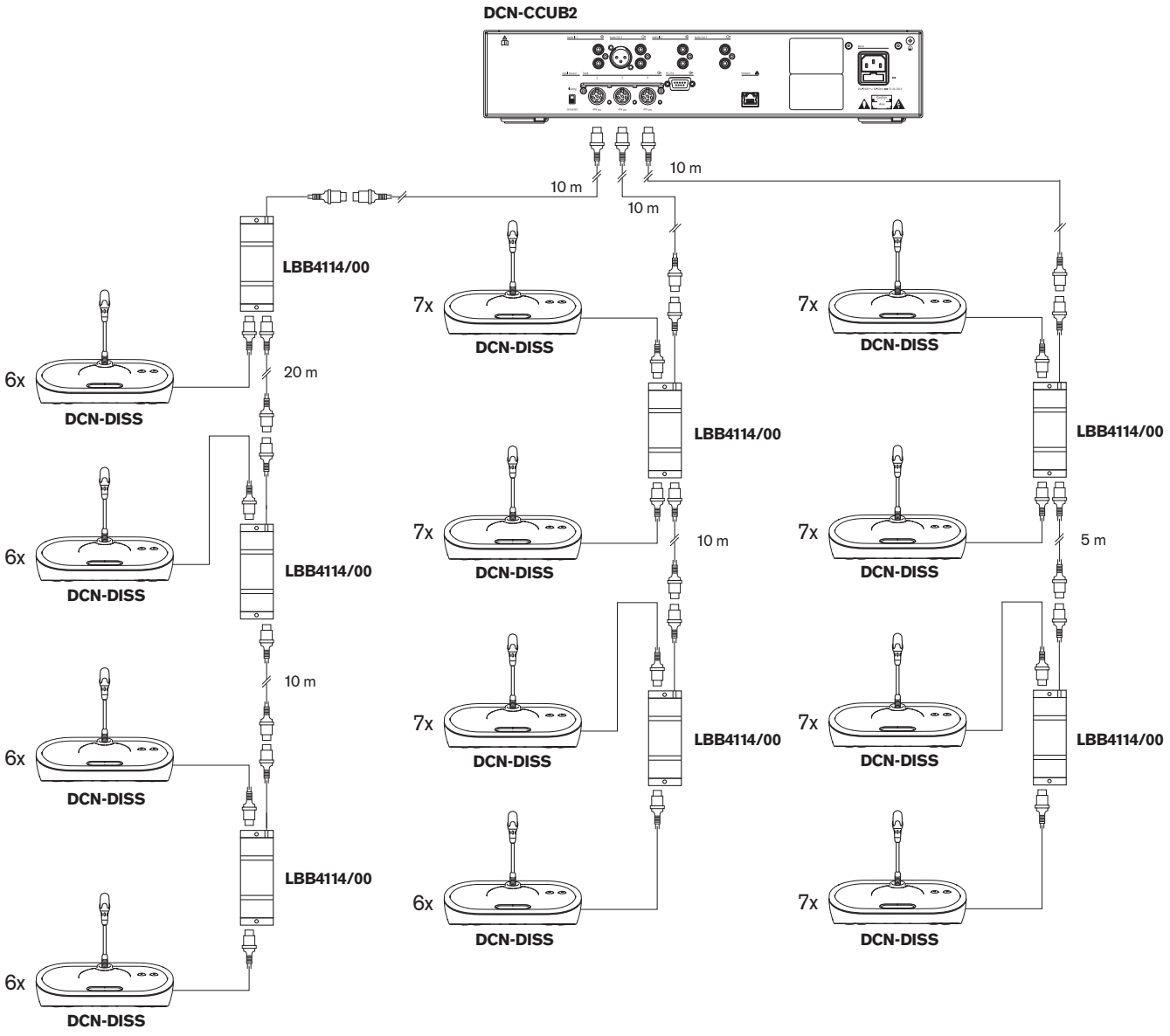


Figure 4.5: Example with discussion units (DCN-DISS)

Socket	Extension cable	Power for devices	Corrected power
Trunk 1	40 m	69.9 W	83.9 W
Trunk 2	20 m	76.8 W	83.8 W
Trunk 3	15 m	79.6 W	84.9 W

Tab. 4.14: Example with discussion units (DCN-DISS)

The example above is within system limits because:

– DCN limit 1; maximum control capacity is not exceeded; this example contains only 78 active devices where 245 is the maximum.

- DCN limit 2; maximum power capacity is not exceeded. The corrected power does not exceed the maximum power of 85W. The corrected power is however close to the maximum, using longer extension cables or adding more discussion devices, or trunk splitters, will exceed the maximum a DCN socket can deliver.
- DCN limit 3; maximum loop-throughs of active or passive devices is not exceeded. The limit is 25, the highest number of loop-throughs in this example is 7.
- DCN limit 4; maximum tap-off connections is not exceeded. The limit is 4, the highest number of loop-through connections in the example is 1.
- DCN limit 5; maximum cable length is not exceeded. The limit is 250m, the longest distance from the central control unit to the furthest device in this example is only 51m.

Conference devices

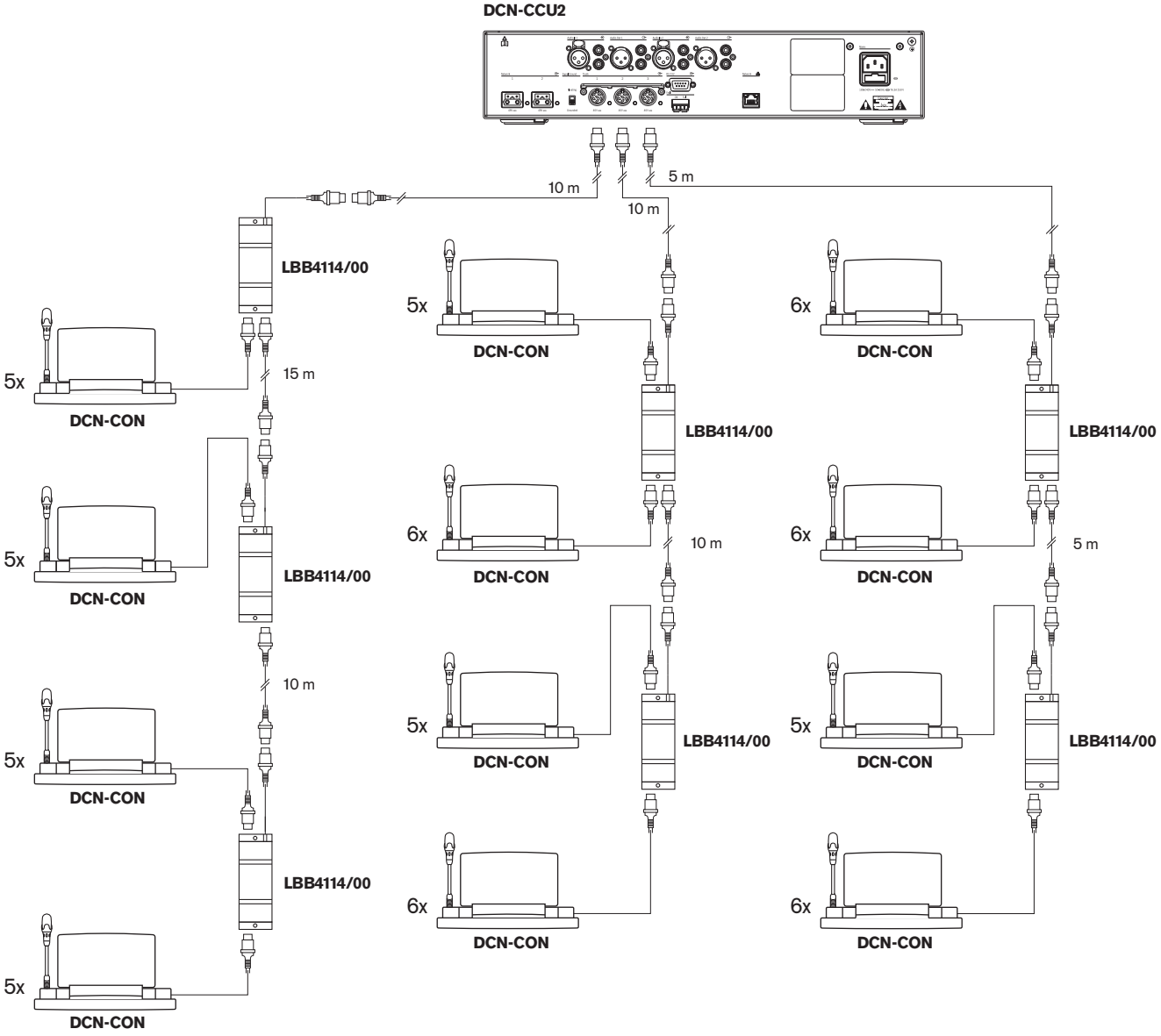


Figure 4.6: Example with conference units (DCN-CON)

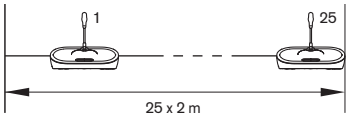
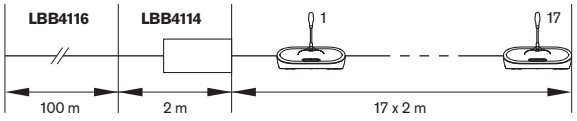
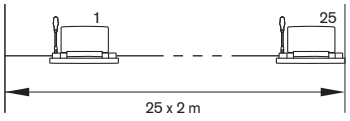
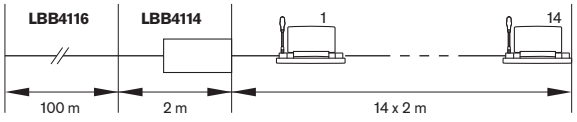
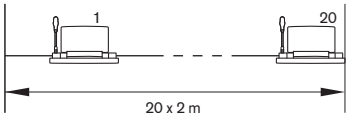
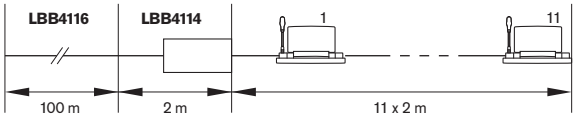
Socket	Extension cable	Power for devices	Corrected power
Trunk 1	35 m	71.9 W	84.2 W
Trunk 2	20 m	77.4 W	84.4W
Trunk 3	10 m	80.8 W	84.3W

Tab. 4.15: Example with conference units (DCN-CON)

The example above is within system limits because:

- DCN limit 1; maximum control capacity is not exceeded; this example contains only 65 active devices where 245 is the maximum.
- DCN limit 2; maximum power capacity is not exceeded. The corrected power does not exceed the maximum power of 85 W. The corrected power is however close to the maximum, using longer extension cables or adding more conference devices, or trunk splitters, will exceed the maximum a DCN socket can deliver.
- DCN limit 3; maximum Loop-throughs of active or passive devices is not exceeded. The limit is 25, the highest number of loop-throughs in this example is 6.
- DCN limit 4; maximum tap-off connections is not exceeded. The limit is 4, the highest number of loop-through connections in the example is 1.
- DCN limit 5; maximum cable length is not exceeded. The limit is 250 m, the longest distance from the central control unit to the furthest device in this example is only 51 m.

DCN-CCU2 or DCN-CCUB2 power correction

Type	Extension cable	Diagram	Power for devices			Corrected power
DCN-DISS	0 m		25 x 2.75	=	68.8 W	68.8 W
DCN-DISS	100 m		17 x 2.75 1 x 1.3	= =	46.75 W 1.3 W + 48.05 W	82.4 W
DCN-CON	0 m		25 x 3.4	=	85.0 W	85.0W
DCN-CON	100 m		14 x 3.4 1 x 1.3	= =	47.6 W 1.3 W + 48.9 W	83.8 W
DCN-CONFF	0 m		20 x 4.2	=	84.0 W	84.0 W
DCN-CONFF	100 m		11 x 4.2 1 x 1.3	= =	46.2 W 1.3 W + 47.5 W	81.4W

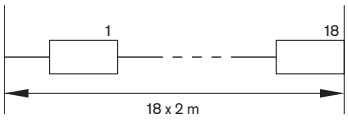
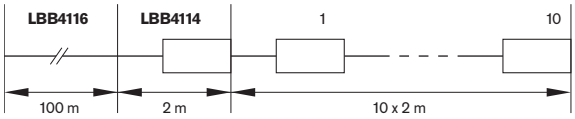
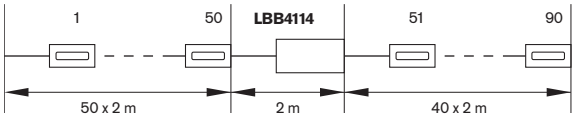
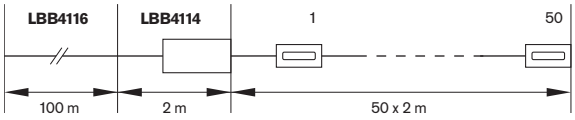
Type	Extension cable	Diagram	Power for devices			Corrected power
DCN-DDI	0 m		18 x 4.5	=	81.0 W	81.0 W
DCN-DDI	100 m		10 x 4.5 1 x 1.3	= =	45.0 W 1.3 W + 46.3 W	79.4 W
DCN-FCS	0 m		90 x 0.9 1 x 1.3	= =	81.0 W 1.3 W + 82.3 W	82.3 W
DCN-FCS	100 m		50 x 0.9 1 x 1.3	= =	45.0 W 1.3 W + 46.3 W	79.4 W

Table 4.16: DCN-CCU2 or DCN-CCUB2 power correction examples

4.1.8 Interpretation devices

The maximum number of interpreter desks you can install in an interpreter booth is six. The below figures show two examples that use LBB4114/00 Trunk Splitter and LBB4115/00 Protected Trunk Splitters.

With an LBB4114/00 Trunk Splitter, you can connect the interpreter desks in series. If an interpreter desk becomes defective, the defective desk can have an effect on all other interpreter desks that have a connection to the same trunk.

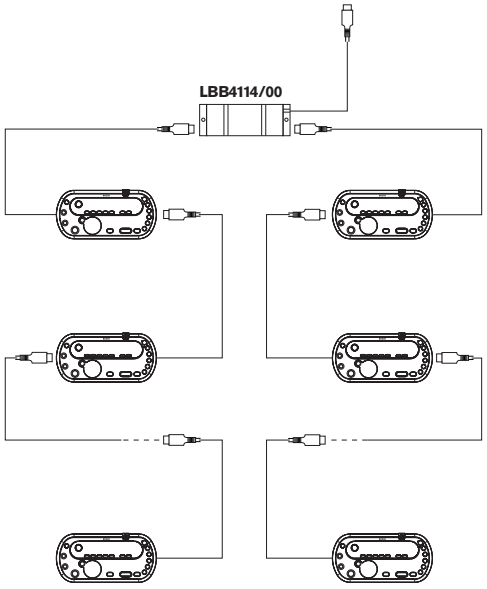


Figure 4.7: Interpreter booths with LBB4114/00

With an LBB4115/00 Protected Trunk Splitter, you can connect two interpreter desks. If an interpreter desk becomes defective, the defective desk has no effect on all other interpreter desks that have a connection to the same trunk.

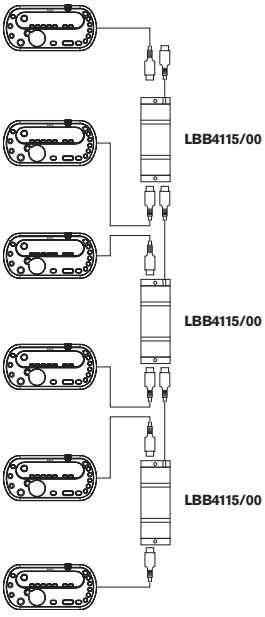


Figure 4.8: Interpreter booths with LBB4115/00

4.2 Optical network design

This chapter tells how to design the optical network.

4.2.1 Calculation tool

The calculation tool makes the planning and design of the optical network easier. You can find the calculation tool on the DVD that is supplied with your system.

4.2.2 Limits

Limit 1: Number of nodes

The maximum number of nodes that you can connect to the optical network of the central control unit, that has 2 nodes, is 61. Refer to *Control capacity, page 78* to see how many nodes the devices have.

Limit 2: Number of WAPs

The maximum number of DCN-WAP Wireless Access Points in the optical network is 1.

Limit 3: Cables

- The maximum length of the standard network cable LBB4416/xx (Plastic Optical Fiber) cable is 50 m.
- If longer cables are required, the PRS-FINNA can be used to convert from plastic to glass and vice versa. The total maximum cable length of Glass Optical Fiber (GOF) plus the Plastic Optical Fiber (POF) is dependent on the total length of GOF and POF plus the equivalent cable length per used device. Refer to *Control capacity, page 78*. This should not exceed
  2090 m. Refer to *Optical fiber length, page 80*.
- The minimum bend radius of a 90 degree bend in a POF cable is 25 mm.
- The minimum coiling radius of a POF cable is 100 mm.

4.2.3 Control capacity

Each device in the optical network has a number of nodes. The maximum number of nodes in the optical network is 63.
Each device in the optical network has a certain delay that is represented with an equivalent cable length. These values are important to be able to determine if optical network limit 3 is not exceeded; refer to the sections *Limits, page 77*and *Optical fiber length, page 80*.

Device	Description	Nodes	Equivalent cable length (m)
DCN-CCU2 / DCN-CCUB2	Central Control Unit	2	24
DCN-WAP	Wireless Access Point	1	18
LBB4402/00	Audio Expander Analog	1	18
PRS-4DEX4	Audio Expander Digital	1	18
LBB4404/00	Cobra Net Interface	1	18
PRS-FINNA	Fiber Interface Non-Addressable	0	16
PRS-NSP	Network Splitter	1	34
LBB4419/00	Cable Couplers	0	20
INT-TX04	Digital 4 Channel Integrus Transmitter	1	18
INT-TX08	Digital 8 Channel Integrus Transmitter	2	24
INT-TX16	Digital 16 Channel Integrus Transmitter	4	36
INT-TX32	Digital 32 Channel Integrus Transmitter	8	59

Tab. 4.17: Nodes

4.2.4 Power capacity

It is important that the devices in the optical network do not use more total power than you supply to the devices. Each device uses power and most devices do not have an independent power supply.

Power consumption

The table shows the power each device in the optical network uses.

Device	Watt
LBB4402/00	7.6
LBB4404/00 or PRS-4OMI4	10.5
PRS-NSP	3.9
PRS-FINNA	4.6
PRS-4DEX4	6.0
DCN-WAP	4.0

Tab. 4.18: Power consumptions

Notice!
The Integrus transmitters do not use power from the system. In a multi CCU system, slave CCUs do not use power from the optical network, nor do slave CCUs deliver power to the optical network.

Power supply
The DCN-CCU2 supplies power to the optical network (refer to section *DCN-CCU2 and DCN-CCUB2 Central Control Units, page 14* DCN-CCU2).

If more power is necessary, you must install external power supplies in the optical network. The devices below can connect to external power supplies:
– PRS-NSP Network Splitter (refer to *PRS-NSP Network Splitter, page 58*).
– PRS-FINNA Fiber Interface (refer to *PRS-FINNA Fiber Interface, page 59*).

DCN-CCU2
The central control unit supplies power to:
– The optical network
– The DCN sockets.
For an overview of the maximum power that the central control unit can supply refer to the figure.

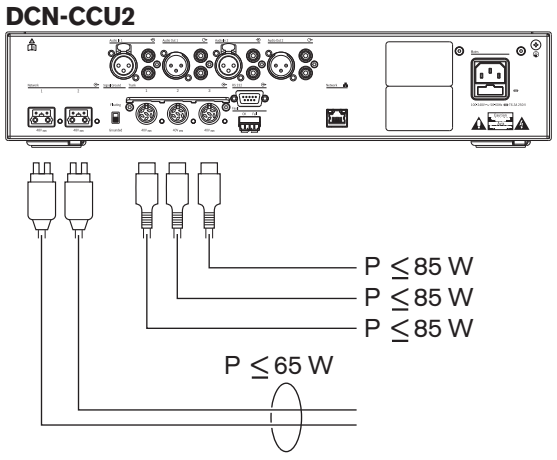


Figure 4.9: Optical network power supply: DCN-CCU2

If the DCN-CCU2 is configured as a master CCU in a multi CCU system or the DCN-CCU2 is in stand-alone mode, it will supply power to the optical network. If a glass optical fiber is used to connect a remote slave CCU, the optical fiber interface needs an external power supply. Refer to chapter ‘Power supply’ earlier in this chapter.

Overload indication

Each optical network socket of the central control unit has a red LED that comes on to show that there is a power overload. An overload occurs when the necessary power for the devices is greater than that supplied. The sockets are set to off and the devices connected to the central control unit do not operate. The socket checks every 4 seconds.

Notice!

If only one of the optical network sockets has a power overload, the two overload LEDs are on, and the power will be removed from both sockets.

4.2.5 Cabling

The devices that communicate via the optical network have two network sockets for loop-through. Close the optical network to a full circle to make the system redundant for optical network disconnections.

The standard optical network cables (LBB4416) are Plastic Optical Fiber (POF) and have a maximum length of 50 m. To cover longer distances, conversion to Glass Optical Fiber (GOF) must be done.

Notice!

The two optical network connectors on the devices are the same, it does not matter if the right or left one is used.

4.2.6 Optical fiber length

Because of optical attenuation, the maximum length of optical network cables (LBB4416) is 50 m. You can use GOF and fiber interfaces to increase the distance between devices to more than 50 m and less than 1500 m (refer to *PRS-FINNA Fiber Interface, page 59*). The total sum of the used Plastic Optical Fiber plus the Glass Optical Fiber plus the equivalent cable length of the used devices should not exceed 2090.

For example (the equivalent cable length between brackets behind each device); On one side of the building are a Central Control Unit (24) and Audio Expander (18) used. On the other side of the building a Central Control Unit (24), Audio Expander (18) and an 8 Channel Integrus Transmitter (24) are used. Both sides are connected in a redundant loop configuration using PRS-FINA (2 x 2 x 16). To connect all equipment on both sides, 7 POF cables are used of 2 m each. The maximum total length of the GOF cables is 1904 meters. Calculation; 2090 – (24 + 18 + 24 + 18 + 24 + 64 + 14) = 1904.

Notice!

If the distance between two devices is less than 100 m, use a network splitter between devices to remove the use of fiber interfaces. Use only the trunk sockets of the network splitter in this case.

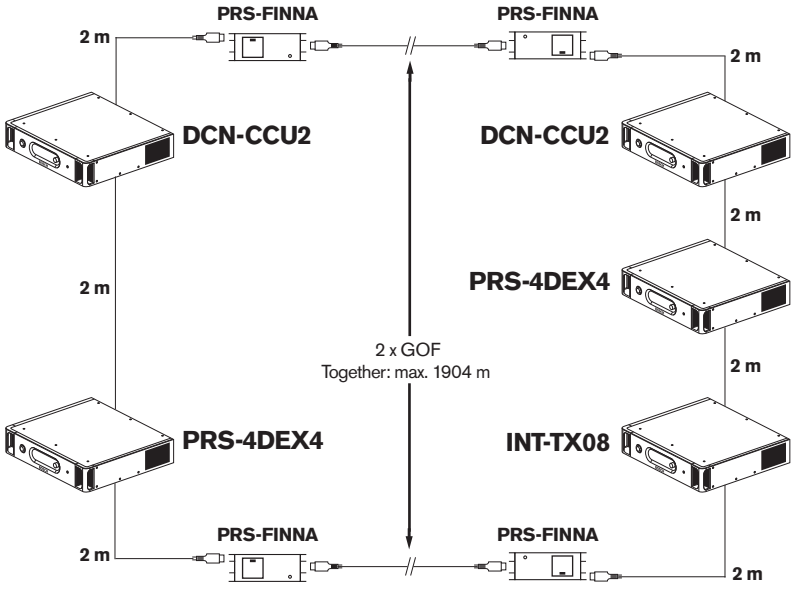


Figure 4.10: Example POF and GOF

4.2.7 Cable couplers

You can use the LBB4419/00 Cable Couplers to connect optical network cables to each other. A cable coupler causes optical attenuation. Each cable coupler decreases the maximum distance between two devices in the optical network (normally 50 meters) with 20 meters.

4.2.8 Bending Network Cable

The minimum bend radius of a 90 degree bend in an LBB4416 cable is 110 mm. A 180 degree bend is the same as two 90 degree bends.

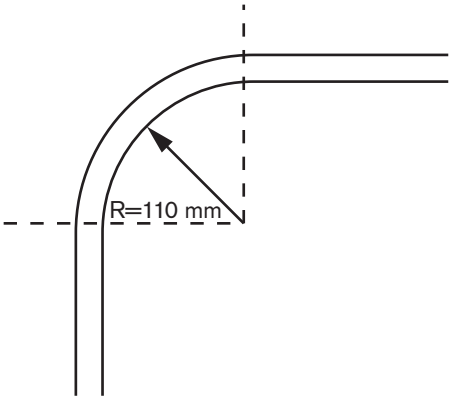


Figure 4.11: Bend radius

Coiling

The minimum coiling radius of an LBB4416 cable is 110 mm.

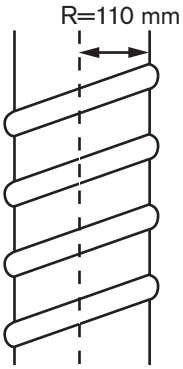


Figure 4.12: Coiling radius

4.2.9 Example layouts

The number and type of devices that make the optical network give the layout of the optical network. This chapter shows examples of the possible layouts of optical networks.

Basic optical network

The below figure is an example of a basic optical network.

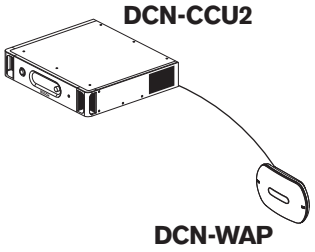


Figure 4.13: Basic optical network

Extended optical network

The below figure is an example of a extended optical network.

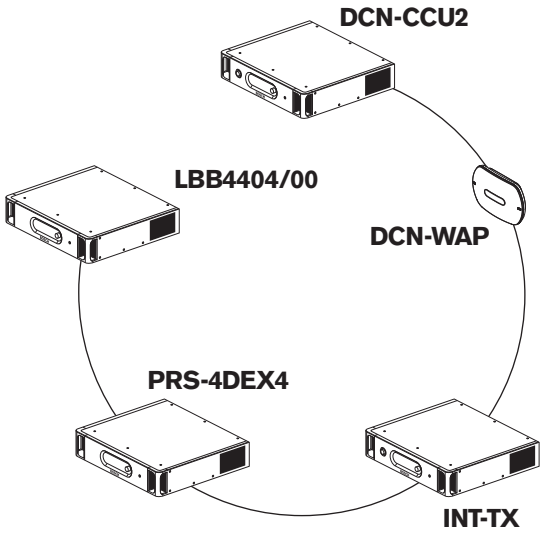


Figure 4.14: Extended optical network

Redundant optical network

If the cable between the central control unit (DCN-CCU2) and the audio expander (LBB4402/00) breaks, the central control unit cannot transmit data to the audio expander. A solution for this problem is to use a redundant cable.

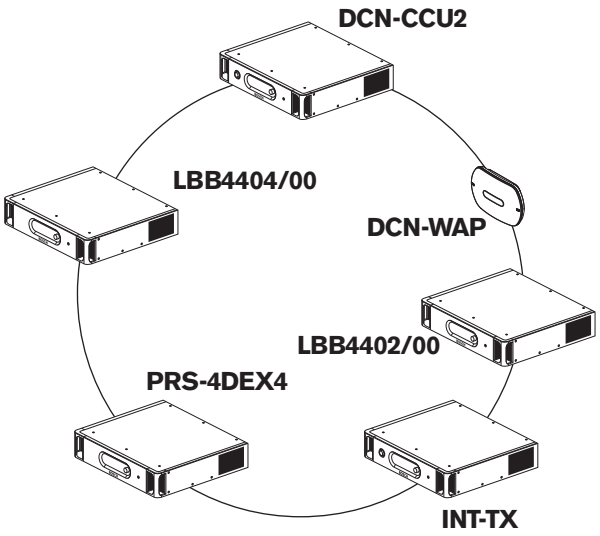


Figure 4.15: Redundant optical network

The basic system with no redundant cables has no connection between the Cobranet interface (LBB4404/00) and the central control unit (DCN-CCU2). A system with redundant cables has a connection between the Cobranet Interface and the central control unit. This connection makes a ring. If a cable breaks, the optical network continues to operate.

The maximum total power of all devices in the redundant optical network is 85 W. If the optical network is defective near the central control unit, the other socket can supply power to all of the optical network.

Tap-offs

The network splitter (PRS-NSP) lets you make tap-offs. Tap-offs cannot be redundant. If the cable between the network splitter and the digital audio expander (PRS-4DEX4), becomes defective, the digital audio expander has no connection to the central control unit.

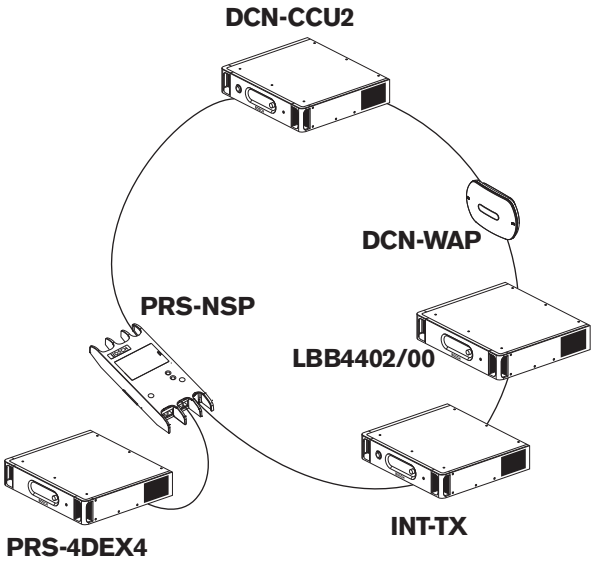


Figure 4.16: Redundant optical network with tap-off

Multi-CCU system

A multi-CCU system is necessary if there is no capacity to connect all required DCN units or if you want to couple multiple rooms. All CCUs need to be connected with an optical cable to each other and with an ethernet cable (Cat5e or better) to the switch (100 Mbit/s or better).

The following can be connected to a multi-CCU system:

– A maximum of 30 DCN-CCU2 devices (refer to *Control capacity, page 78*).
– A maximum of 4000 delegate positions.
– A maximum of 1 DCN-WAP.

Notice!

In a Multi-CCU system, it is not required to close the optical ring as shown in figure 4.16, however closing it makes it redundant as explained in the chapter regarding ‘Redundant optical network’.

Notice!

In case the Multi-CCU system contains only 2 CCUs and no PC-control is required the network switch can be omitted. The network cable can go from the CCU that is assigned as master directly to the CCU assigned as slave. A cross cable is not required, the CCUs are Auto-MDIX. The CCUs should have different static IP addresses in the same subnet.

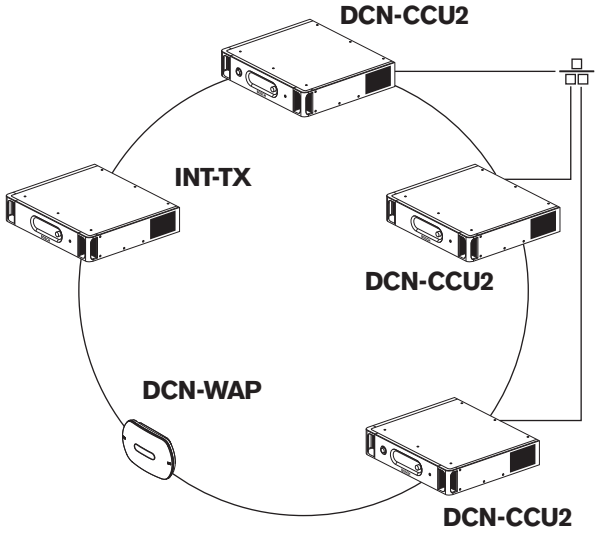


Figure 4.17: Basic multi-CCU system

4.3 Wireless network design

This chapter tells how to design the wireless network.

4.3.1 Limits

Limit 1: Control capacity
The maximum number of devices in the wireless network that the central control unit can control is 245.

Limit 2: Coverage area
For a good operation of the wireless part, all wireless discussion units need to be in range of the wireless access point. The wireless access point has a typical at least coverage area of 30 m by 30 m.

Notice!
You can change the power value of the Wireless Access Point (refer to *DCN-WAP Wireless Access Point, page 206* > Power value).

Limit 3: Frequency
The wireless network must operate in a different frequency band than adjacent wireless (computer) networks (refer to *Frequency band, page 86*).

Limit 4: Number of Language Distribution Channels
The wireless network has a maximum of 10 language distribution channels, excluding the channel for the floor. The total number of language distribution channels in the system, is set via the interpreter desk (refer to *DCN-CCU2 and DCN-CCUB2 Central Control Units, page 180*) or the Conference control software.
If there are more than 10 Language Distribution Channels, only the first 10 channels will be available for the wireless network. All higher channels will only be available for the (wired) DCN network and/or the infrared Integrus network.

4.3.2 Frequency band

802.11g specification
The wireless network is based on the 802.11g specification for WiFi technology. Devices that comply to the 802.11g specification operate in frequency bands between 2.4000 and 2.4835 GHz.

Notice!
Although the system operates on frequencies which are license free world wide, you must be aware of country specific limitations and follow them.

Wireless computer networks
Wireless (computer) networks can also be based on the 802.11g specification for WiFi technology. In the wireless computer networks, 13 overlapping channels are available.

Carriers
In the wireless network of DCN Wireless, three non-overlapping wireless carriers are available.

Interference
The wireless network of DCN Wireless can cause interference on wireless computer networks. You must make sure the DCN wireless carrier does not overlap the WLAN channel.
In the example, the WLAN channel is 3. WLAN channel 3 overlaps DCN wireless carriers 0 and 1. Therefore, use DCN wireless carrier 2.

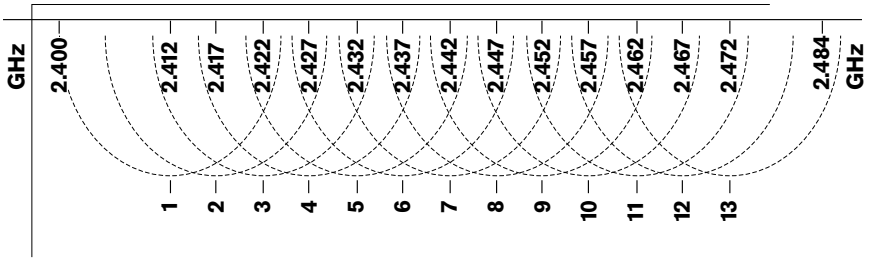


Figure 4.18: WLAN channels

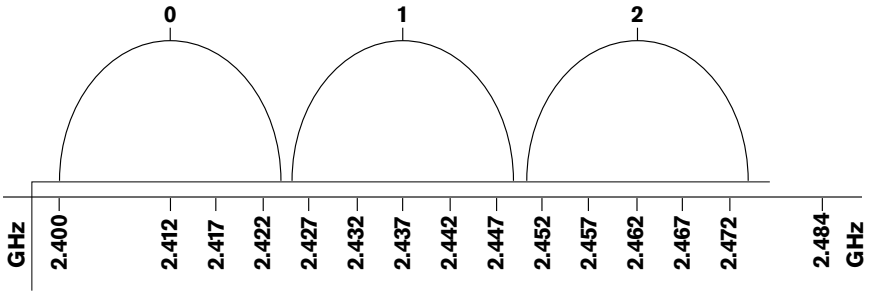


Figure 4.19: DCN wireless carriers

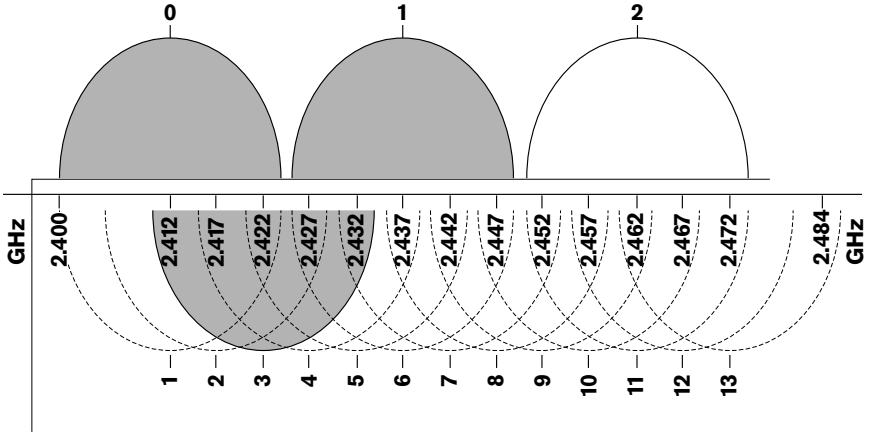


Figure 4.20: Example of interference

4.4 Wireless language distribution

You can connect the system to an Integrus digital infra-red language distribution system. This system has a transmitter, radiators and receivers.

Notice!
Refer to the Integrus Installation and Operation manual for more data.

Figure 4.21: Integrus

4.5 OMNEO

OMNEO and Dante™ are combinations of software, hardware and network protocols that deliver uncompressed, multi-channel, low-latency digital audio over a standard Ethernet network using Layer 3 IP packets.
The DCN System can connect to OMNEO and Dante™ networks with the PRS-4OMI4 OMNEO Interface.
For example, you can use the PRS-4OMI4 OMNEO Interface to:
– Benefit from Ethernet infrastructure
– Transport audio signals over large distances

4.6 CobraNet

CobraNet is a standard for the transport of real-time digital audio and control data through an Ethernet network. A CobraNet network can transport a maximum of 64 channels of 48 kHz, 20-bit audio through a 100 Mbit link connection in each direction. Many manufacturers of professional audio devices support the CobraNet standard.
The DCN System can connect to CobraNet networks with the LBB4404/00 Cobranet Interface.

For example, you can use the LBB4404/00 Cobranet Interface to:
– Benefit from Ethernet infrastructure
– Transport audio signals over large distances

PC data, for example data from the DCN System Open Interface can co-exist with CobraNet data on the same Ethernet network when you use managed Ethernet switches that are approved by Peak Audio.

Notice!
Refer to the CobraNet.info website (www.cobranet.info) for:
More data about CobraNet networks
A list of approved Ethernet switches

4.7 User set-up

4.7.1 Public areas

Hall displays
Put the hall displays in a position where users can easily see the display. Do not put the display in direct lighting or sunlight. The following has an effect on the visibility for the specified system:
– The distance that is necessary to see the display.
– The character size of the displays.
– Contrast and intensity of the lighting conditions.
The supplier of the hall display recommends all necessary adjustments.

Public areas and Walkways
Keep public areas clear of system and extension cables and connections.

Headphones/headsets
Put headphones and headsets with:
– Interpreter desks.
– Concentus delegate and chairman units.
– Channel selectors.
– Discussion units.
– Integrus receivers.

Acoustic feedback between the connected headphones or headsets and the microphone occurs when:
– The volume level is set too high.
– The headphones are too close to enabled microphones.
You must tell the users to keep sufficient distance from the microphones or not to set the volume level higher than is necessary. Refer to section *Acoustic feedback, page 90*.

4.7.2 Speaking distance
The recommend speaking distance from the microphones is 0.2 m to 0.4 m.

4.7.3 Interpreter booths
Make sure each interpreter booth has sufficient dimensions. The International Organization for Standardization (ISO) gives the specification for interpreter booths. For more data, refer to standard ISO 2603 ‘Booths for simultaneous interpretation - General characteristics and equipment’.

4.8 Device set-up

4.8.1 General

Caution!
Do not put objects on top of devices. Objects can fall through the airflow holes. A blockage of the airflow holes can cause a risk of fire.

Caution!
Do not put the devices near or above a radiator, heat grill or in direct sunlight.

Caution!
Do not cause vibration of the devices.

- Make sure that the area is clean.
- Make sure that the air is sufficient cool.
- Make sure that there is sufficient lighting.

4.8.2 Cables

Use different cable ducts for the extension and mains cables. Identify each cable with a label and divide trunks to manageable geographic locations. In public areas where people can touch or move above the connectors and cables, use metal protection covers. Refer to the applicable protection specification of the protection covers.

4.8.3 Temperature

When devices are in a 19-inch rack, make sure there is rack space between the devices to let sufficient airflow. Forced airflow may be necessary to keep the temperature of the devices below the maximum temperature (refer to section *Product Technical Data, page 277*). This extends the lifetime of the devices.

4.8.4 Ventilation

Keep a good airflow. Airflow holes are in the front, right and left sides of all 19-inch devices (for example, the central control unit and the audio expander).

- For table-top use, put the devices on a hard and level surface.
- Use the devices on a horizontal position.
- Put the central control unit at a minimum distance of 0.10 m from walls to let sufficient air flow.
- Use the devices always in a clean and dry environment.

4.8.5 Acoustic feedback

Acoustic feedback (‘howling’) occurs when the sound of the loudspeakers or headphones in the system is sent to the system again by enabled microphones.

5 Installation

5.1 19 inch units

Install in a 19 inch unit rack system or on a flat surface. Four feet and two brackets are supplied.

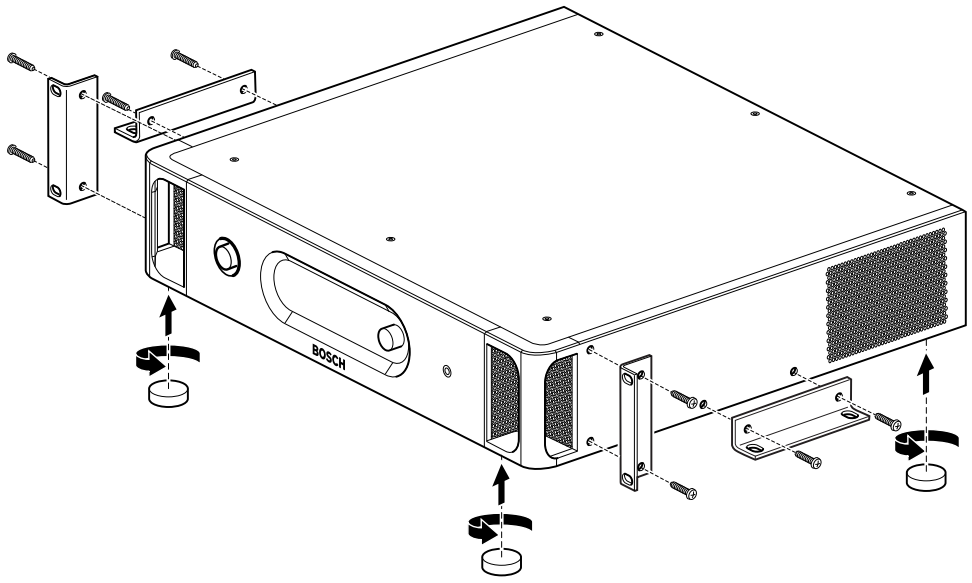


Figure 5.1: Installation

Notice!
The unit extends 36 mm in front of the brackets, when installed in a rack system.

5.2 DCN-WAP Wireless Access Point

General

Caution!
Do not open the wireless access point. Any hardware change makes the product certificates invalid. Only qualified personnel may open the wireless access point.

Wall or ceiling

Use the bracket to attach the wireless access point to a wall or ceiling.

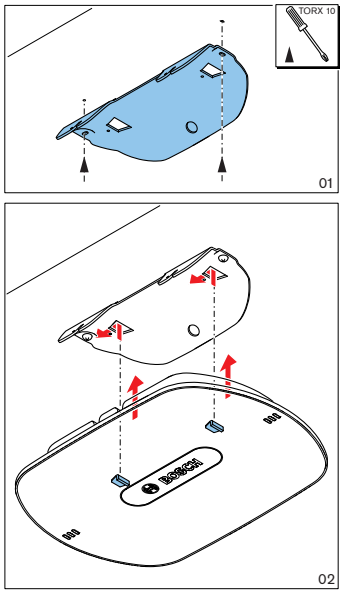


Figure 5.2: Installation, wall and ceiling

Tripod

Use the bracket to install the wireless access point on an LBC1259/00 Universal Floor-stand.

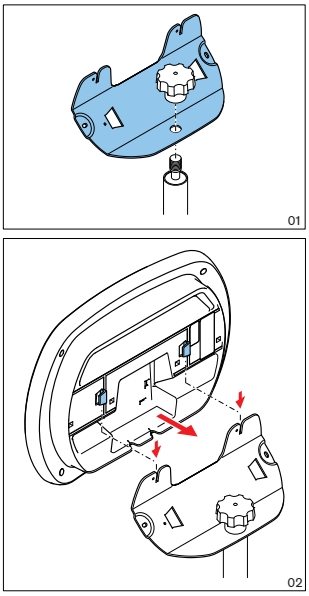


Figure 5.3: Installation, LBC1259/00

Logo

The orientation of the logo could be changed.

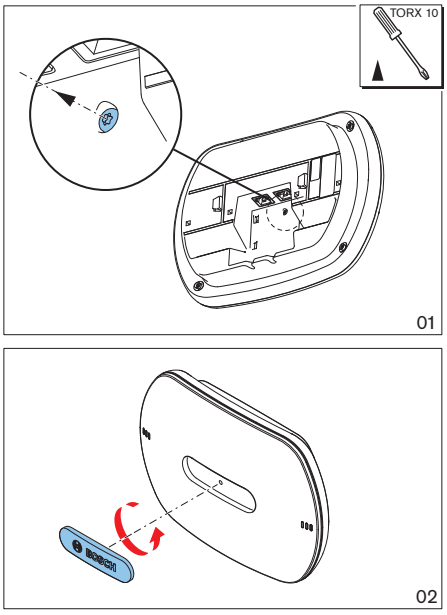


Figure 5.4: Installation of the logo

5.3 DCN-CON Concentus Units

Install the Concentus unit on a flat surface or in a recess.

Notice!
The safety of this equipment has been tested according to the standards for moveable equipment. Contact your supplier in case this equipment is used as stationary equipment in a North American country.

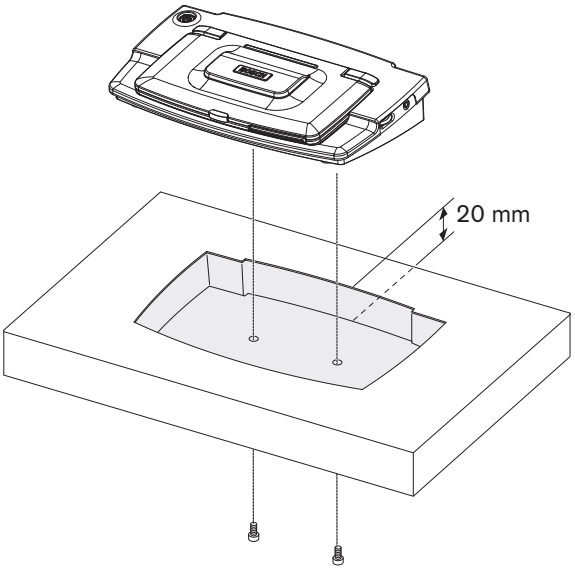


Figure 5.5: Install the Concentus in a recess

When you install the Concentus unit in a recess, use the following template to make the correct contour.

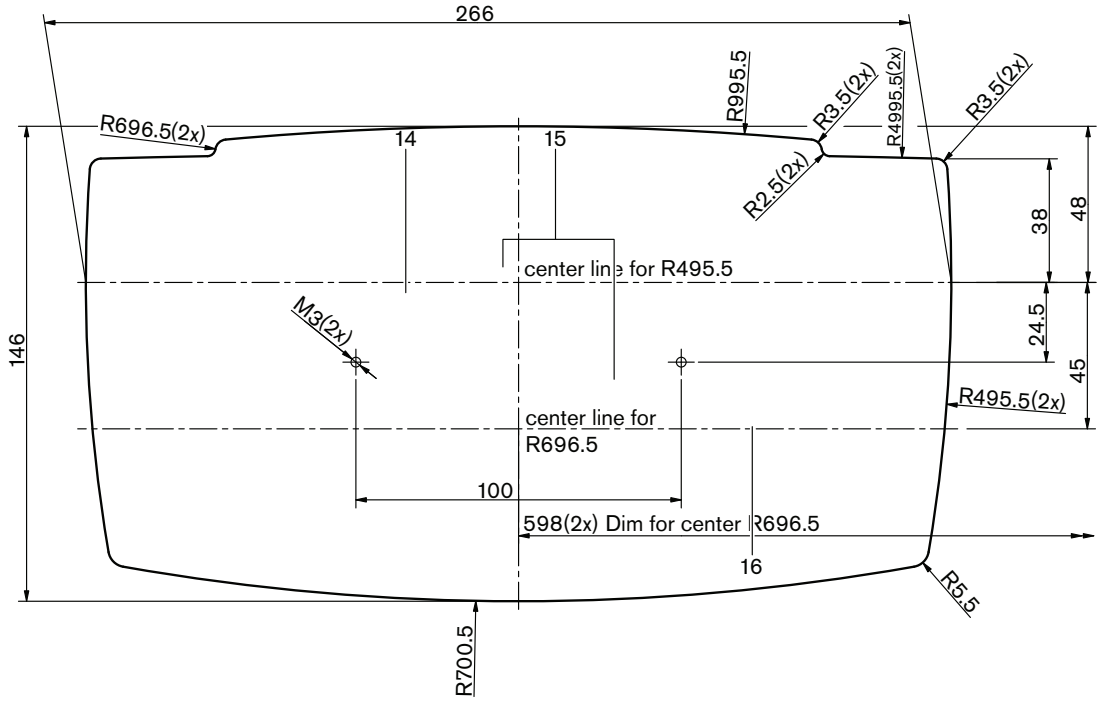


Figure 5.6: Template for recess mounting (refer to *.dwg file on the DVD supplied with the central control unit)

Use screws with a length of 6.5 mm (refer to *DCN-CON Concentus Units, page 27*, no. 17) when attach the Concentus unit to the bottom of the recess. The distance between the centres of the screw holes is 100 mm.

5.4 DCN-DIS and DCN-WD Discussion units

General

Caution!
Do not open the wireless discussion unit. Any hardware change makes the product certificates invalid. Only qualified personnel may open the wireless discussion unit.

Rims

With a rim, the look of the discussion unit can be changed. The discussion units are supplied without rims. Attach a DCN-DISR Rim before you install the discussion unit.
Refer to the following figures for instructions that tell you how to attach a rim to a discussion unit.

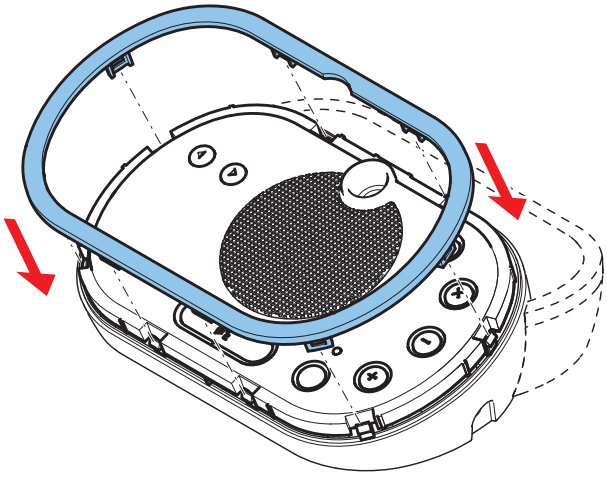


Figure 5.7: Attach a rim

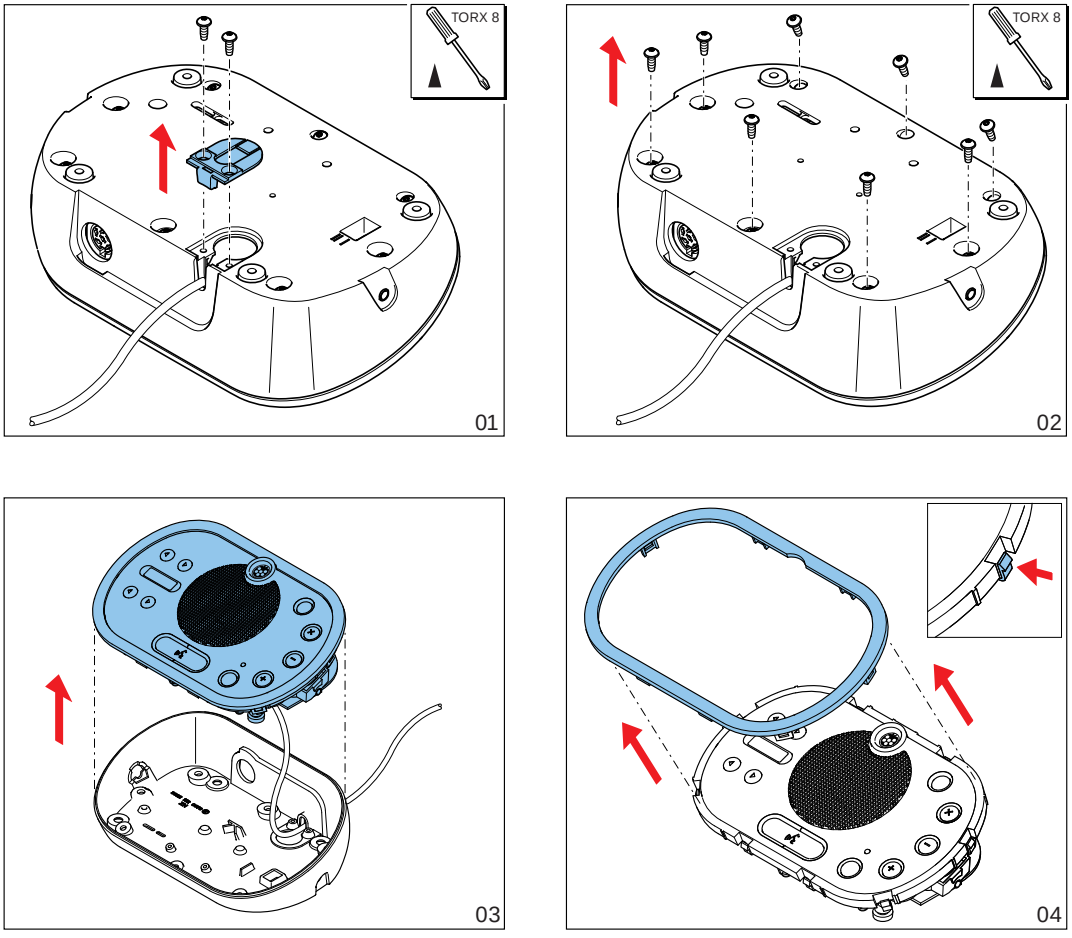


Figure 5.8: Detach a rim

Microphone buttons

The mode of the discussion unit (refer to *DCN-DIS and DCN-WD discussion units, page 209*) indicates the type and number of microphone buttons that must be installed.

Notice!

Before you install the microphone buttons, make sure that the discussion unit operates correctly. Defective discussion units are always replaced with a discussion unit that contains the default microphone button (refer to *DCN-DIS and DCN-WD discussion units, page 209*).

Refer to the following figure how to remove microphone buttons from a discussion unit.

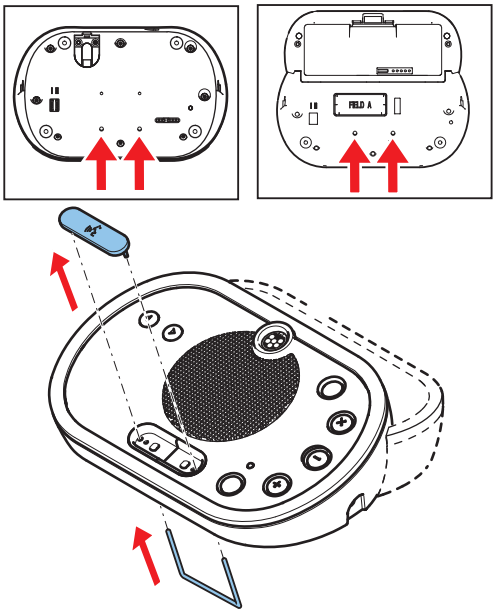


Figure 5.9: Remove microphone buttons

Refer to the following figure to install microphone buttons.

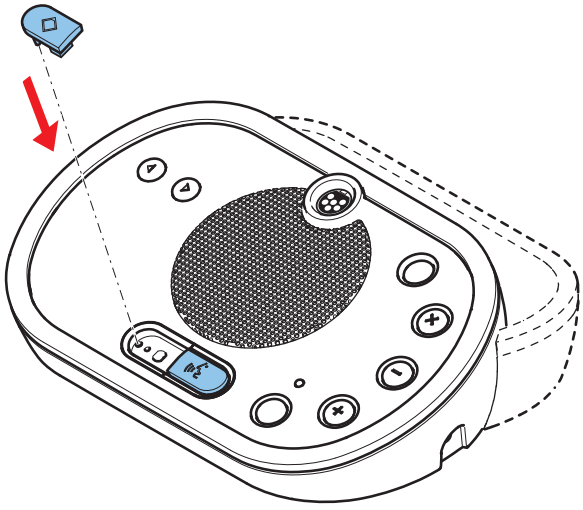


Figure 5.10: Install microphone buttons

DCN-DIS Discussion Units (wired)

You can move the DCN cable from the rear side to the bottom side of the discussion unit.

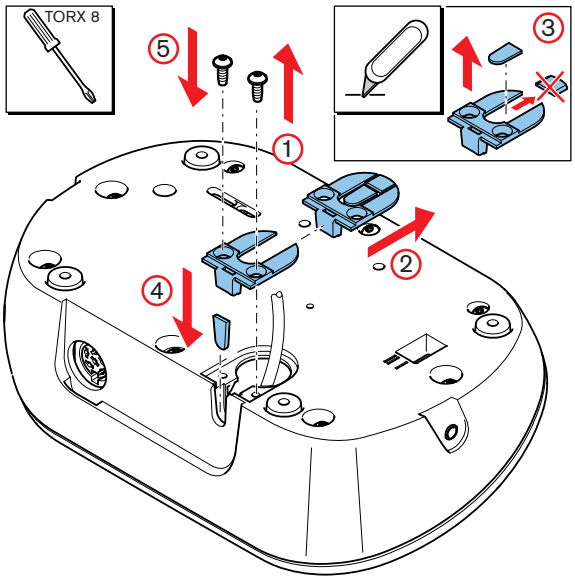


Figure 5.11: Move the DCN cable

Notice!
The safety of this equipment has been tested according to the standards for moveable equipment. Before you use this equipment as stationary equipment in a North American country, contact your supplier.

You can install the discussion unit on a flat surface or in a recess. When you install the discussion unit desk in a recess:

- Use the template.
- Move the DCN cable to the bottom side of the discussion unit.

Notice!
When you install the discussion unit in a recess, make sure that the delegates or the chairman can connect the headphones.

When you attach the discussion unit to a flat surface, put screws with a length of 8 mm in the screw holes (no. 12). The distance between the centres of the screw holes is 34 mm.

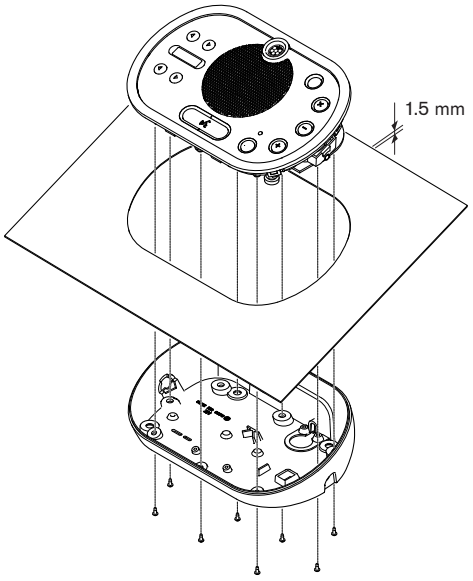


Figure 5.12: Installation

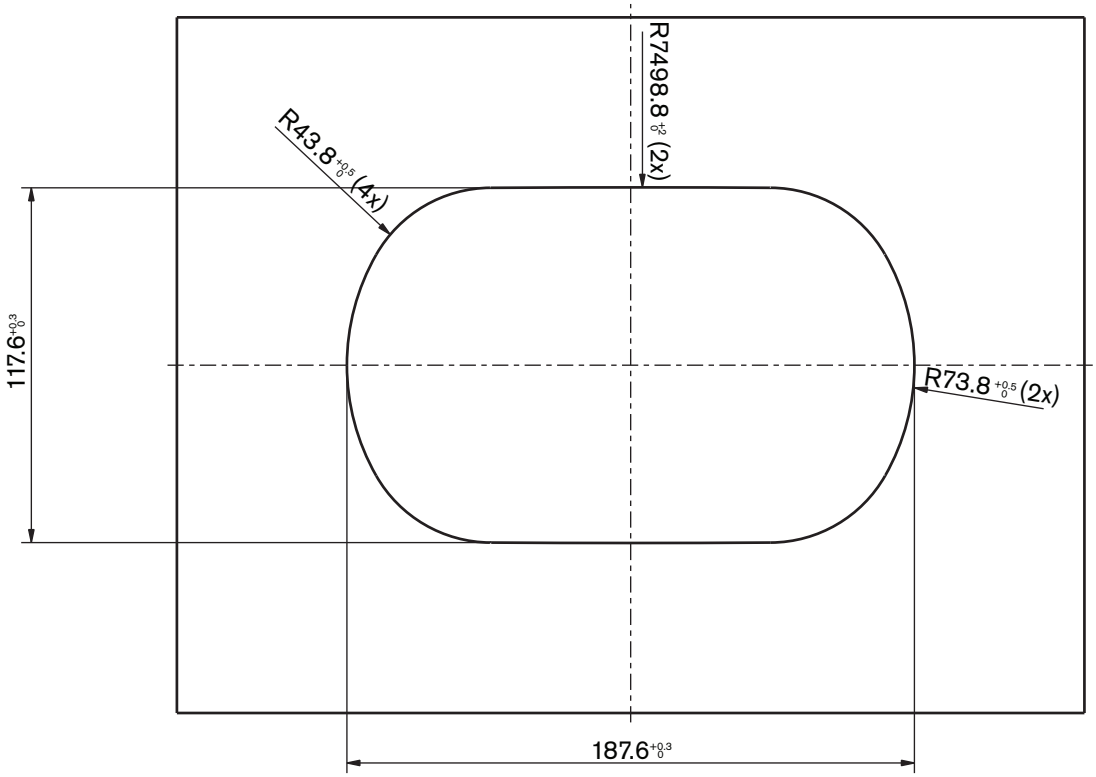


Figure 5.13: Template (refer to the DVD that is supplied with the system for a *.dwg file)

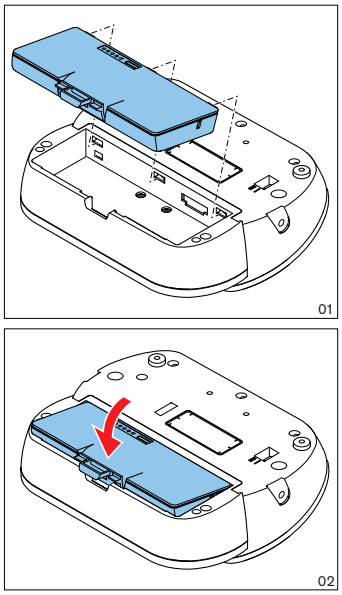


Figure 5.14: Install a battery pack

5.5 DCN-WCH05 Battery Charger

General

Warning!
Do not open the battery charger. Electrical discharges from the battery charger can kill you.

Caution!
Do not obstruct the ventilation grilles. A blockage of the ventilation grilles can cause a risk of fire.

Wall

You can use the bracket to attach the battery charger to a wall.

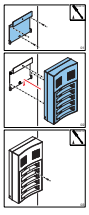


Figure 5.15: Installation, wall

When you attach more than one battery charger to the wall, you must make sure that:
- The vertical distance between two brackets is at least 340 mm (refer to d1 in the figure).
- The horizontal distance between two brackets is at least 195 mm (refer to d2 in the figure).

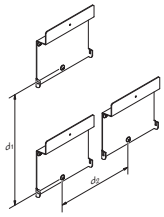


Figure 5.16: Installation, multiple battery chargers

Battery

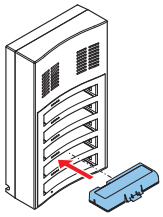


Figure 5.17: Installation, battery

5.6 DCN-Flush mounted products

Snap-mounting

Use the snap-mounting method to install flush-mounted devices in panels with a thickness of 2 mm. The snap-mounting method uses the click-to-fit mechanism of the flush-mounted devices. ‘Click’ the flush-mounted devices in the recess.

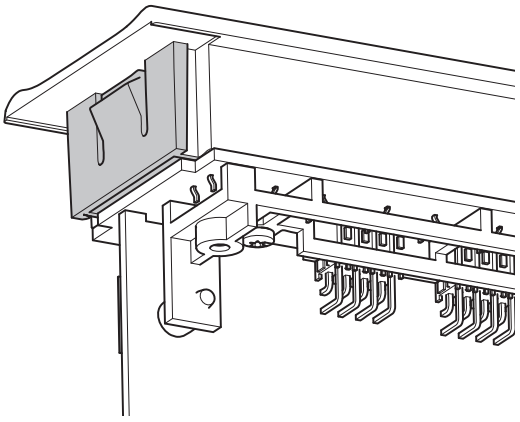


Figure 5.18: Click-to-fit mechanism

Refer to the figure for the dimensions of a recess for the snap-mounting method.

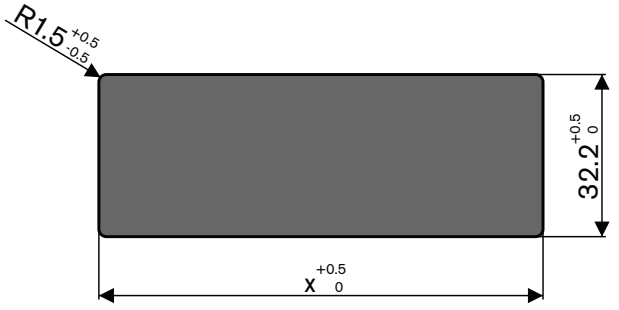


Figure 5.19: Recess, snap-mounting method

The length (x) of a recess depends on the number-size factor (NSF) of the flush-mounted device that must be installed in the recess. To get the length of a recess:

– Get the number-size factor (NSF) of the flush-mounted device.
– Use the NSF to get the length (x) of the recess from the table.

Total NSF	x (mm)
1	38.2
2	88.2

Tab. 5.19: Lengths, snap-mounting method

Block-mounting

Use the block-mounting method to install flush-mounted devices in surfaces with a thickness > 2 mm. The block-mounting method uses the DCN-FEC End Caps, DCN-FCOUP Couple Pieces and DCN-FPT Flush Positioning Tool.

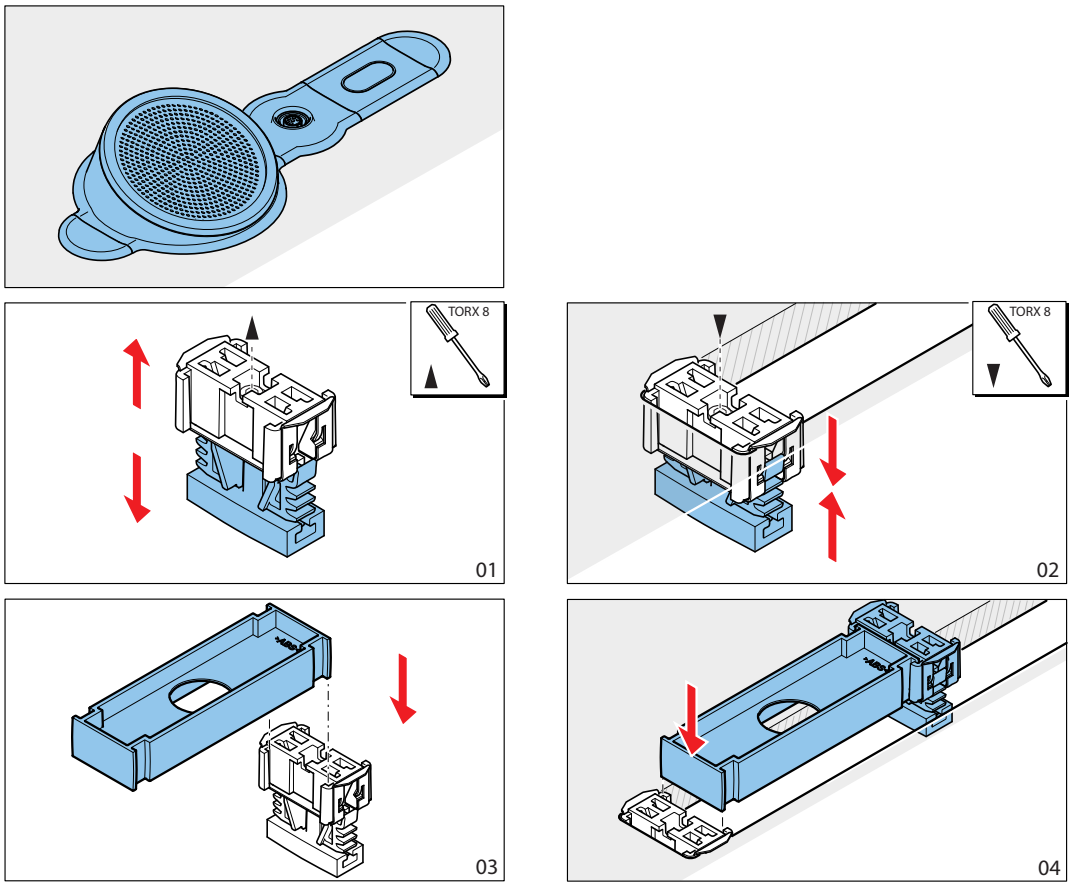


Figure 5.20: Example, block mounting method

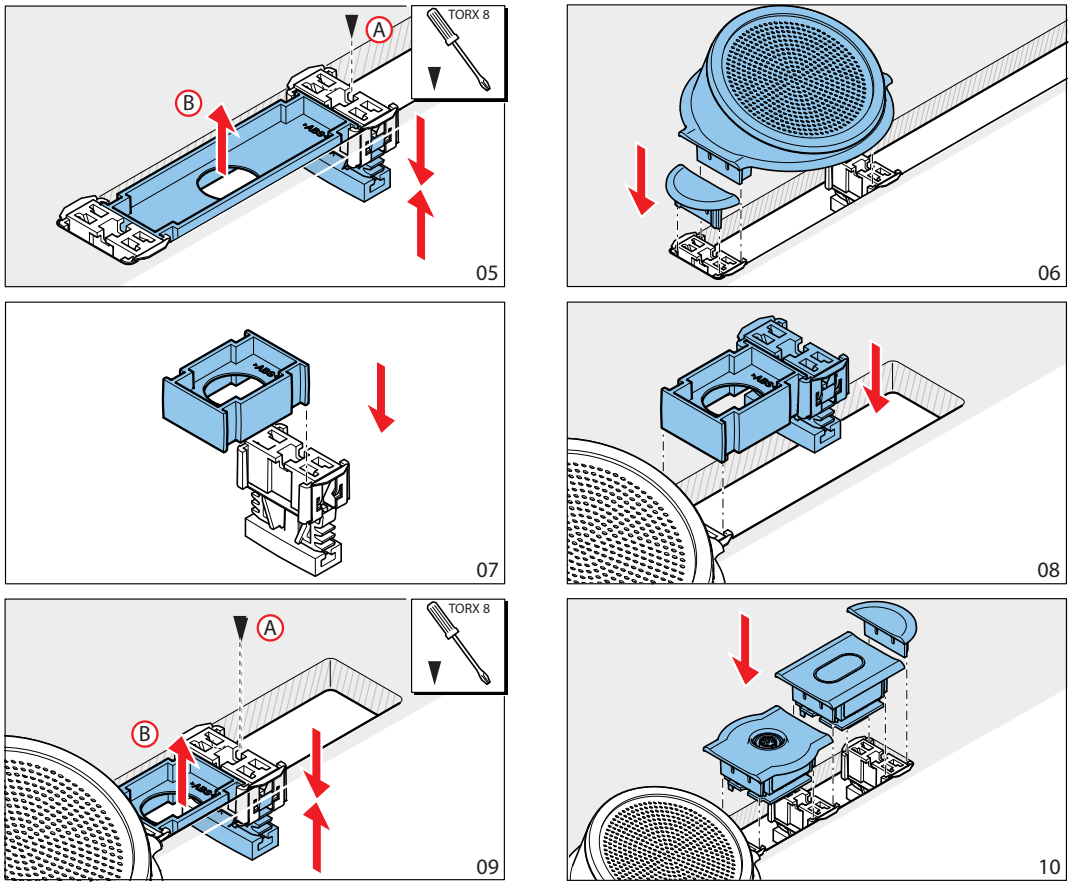


Figure 5.21: Example, block mounting (continued)

Notice!
Use a filling knife to remove flush-mounted devices from a surface.

Refer to the figure for the dimensions of a recess for the block-mounting method.

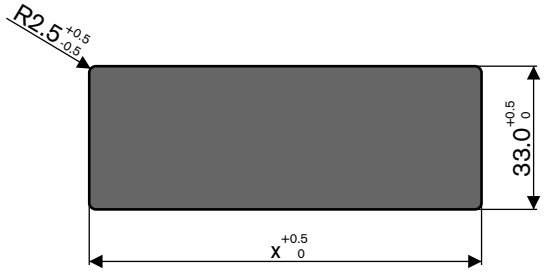


Figure 5.22: Recess, block-mounting method

The length (x) of a recess depends on the total number-size factor (NSF) of the flush-mounted devices that must be installed in the recess. To calculate the length of a recess:

– For each flush-mounted device, get the number-size factor (NSF).
– Add the NSFs of the flush-mounted devices to get the total NSF.

– Use the total NSF to get the length (x) of the recess from the table. The length includes the DCN-FCOUP couple pieces.

Notice!
Install DCN-FEC End Caps on the couple pieces at the two ends of the recess.

Total NSF	x (mm)
1	71.5
2	121.5
3	171.5
4	221.5
5	271.5
6	321.5
7	371.5
8	421.5
9	471.5
10	521.5
11	571.5
12	621.5

Tab. 5.20: Lengths, block-mounting method

Number-size factor

The length of a recess depends on:

– The number of flush-mounted devices that are installed in the recess.
– The size of the flush-mounted devices that are installed in the recess.

To calculate the length of a recess, you must use the number-size factor (NSF, refer the table) of the flush-mounted devices.

Flush-mounted device	NSF
DCN-FCS	2
DCN-FLSP	2
DCN-FMIC	1
DCN-FMICB	1
DCN-FPRIOB	1
DCN-FV	2
DCN-FVCRD	2
DCN-FVU	2
DCN-FVU-CN	2

Tab. 5.21: Number-size factors

DCN-TTH Tabletop Housing

Use the ‘click-to-fit’ mechanism of the flush-mounted devices to install the flush-mounted devices in the tabletop housing. You can attach the tabletop housing to a flat surface with M3 screws.

Notice!

You can temporarily close the tabletop housing with a DCN-FBP (Flush Blank Panel).

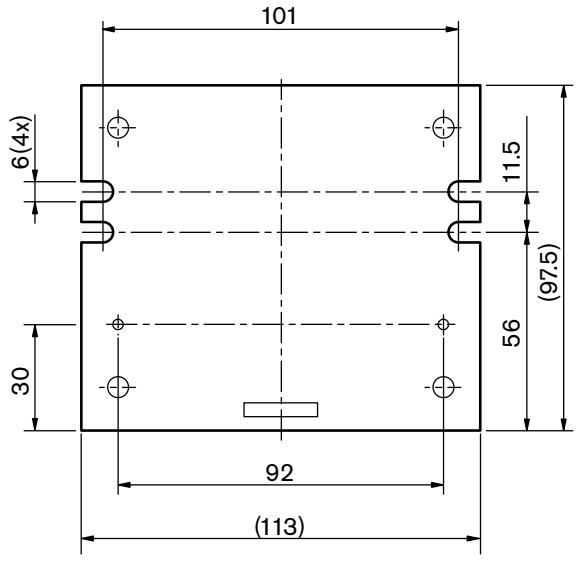


Figure 5.23: Bottom view

5.7 DCN-IDESK Interpreter Desks

Install the interpreter desk on a flat surface or in a recess.

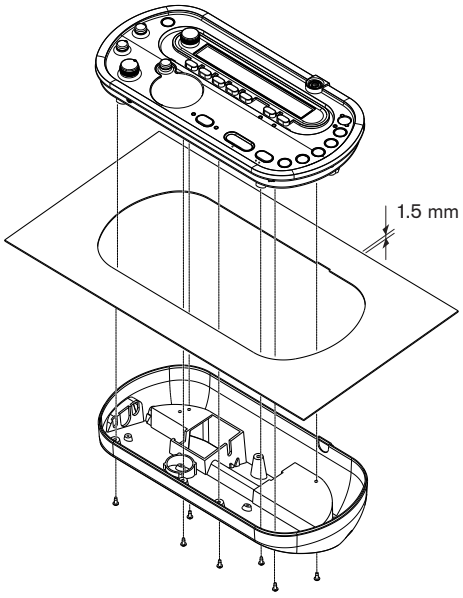


Figure 5.24: Installation

When you install the interpreter desk in a flat surface, use the template.

Notice!
When you install the interpreter desk in a recess, make sure that the interpreter can connect the headphones or the headset.

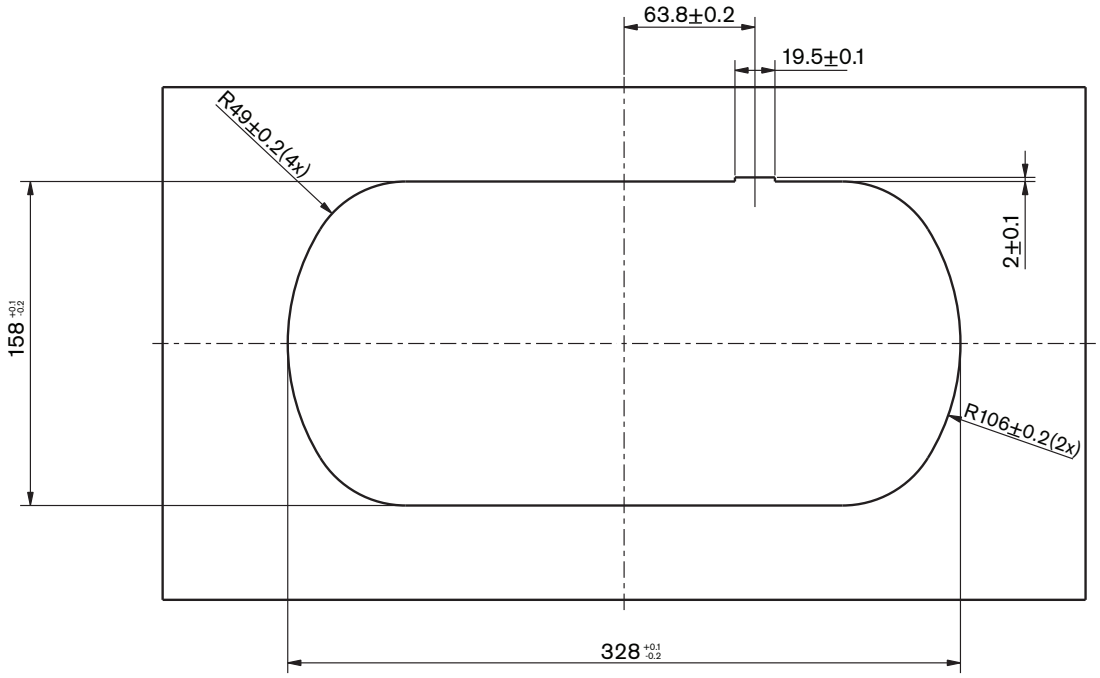


Figure 5.25: Template (refer to the DVD that is supplied with the system for a *.dwg file)

5.8 DCN-EPS Extension Power Supply

Install the extension power supply in a 19-inch rack system or on a flat surface. Two brackets are supplied with the extension power supply.

Notice!
You can only install the extension power supply in a 19-inch rack system together with a second extension power supply.

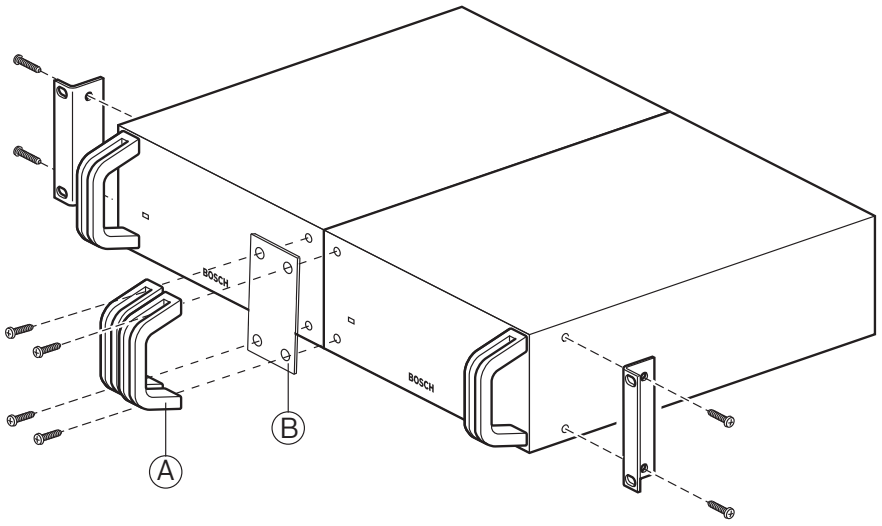


Figure 5.26: Installation

5.9 LBB4114/00 Trunk Splitter

You can install the trunk splitter on a flat surface. Use the lid of the trunk splitter to fix the DCN cables.

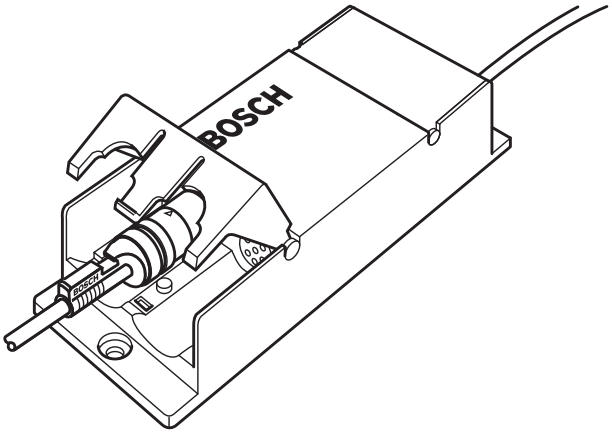


Figure 5.27: Installation

5.10 LBB4115/00 Tap-off unit

Refer to *LBB4114/00 Trunk Splitter, page 110*for information about the installation of the LBB4115/00 Protected Trunk Splitter. The procedures to install the LBB4114/00 Trunk Splitter and the LBB4115/00 Protected Trunk Splitter are the same.

5.11 PRS-NSP Network Splitter

You can attach the network splitter to a flat surface with a bracket. The distance (d) is 40 mm.

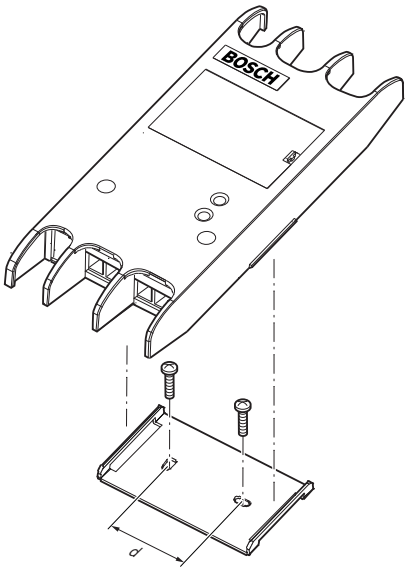


Figure 5.28: Installation

Push the sides of the unit to attach or remove the unit from the bracket.

5.12 PRS-FINNA Fiber Interface

Refer to *PRS-NSP Network Splitter, page 111* for information about the installation of the fiber interface. The procedures to install the network splitter and the fiber interface are the same.

6 Connection

6.1 19 inch Units

Optical network

Connect the trunk of the optical network to the optical network sockets of the 19 inch unit with optical network cables.

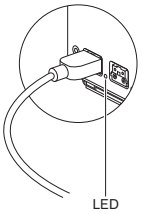


Figure 6.1: Optical network

The optical network socket of the central control unit has a red LED that comes on if there is an overload.

Headphones

You can connect headphones to the headphones socket of the audio expander. The headphones must have a 3.5 mm plug.

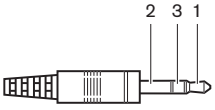


Figure 6.2: 3.5 mm headphones plug, connection

Number	Signal
1	Left
2	Common
3	Right

Tab. 6.22: 3.5 mm headphones plug, connection

Notice!

You can also connect mono headphones to the headphones socket.

You can select the signal that is available on the headphones socket with the configuration menu (refer to *DCN-CCU2 and DCN-CCUB2 Central Control Units, page 233* > Monitoring).

6.2 DCN-CCU2 and DCN-CCUB2 Central Control Units

Power supply

To connect the central control unit to a mains power supply do as follows:

1. Connect a locally approved power cable to the central control unit.

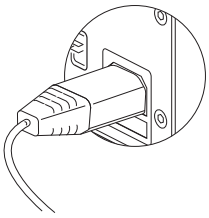


Figure 6.3: Power supply

2. Set the ground lift to correct position. Refer to *DCN-CCU2 and DCN-CCUB2 Central Control Units, page 14*.
3. Connect the power cable to a power supply.

Caution!
Make sure that the mains power supply is grounded. Electrical discharges from the mains power supply can kill you.

DCN

1. Connect the trunk of the DCN to the DCN sockets of the central control unit.
2. Use the cable clamps to lock DCN cables to the central control unit.

Each DCN socket has a red LED that comes on if there is an overload.

Audio inputs

You can connect an external analog audio source to the audio inputs of the central control unit. The DCN-CCU2 has two audio inputs.

Each audio input has:

– 1 XLR socket for balanced signals. The electric circuits behind the XLR sockets contain transformers for galvanic separation.
– 1 double cinch socket for unbalanced signals.

The DCN-CCUB2 has two audio inputs. Each audio input has:

– 1 double cinch socket for unbalanced signals.

Notice!
The audio inputs change stereo signals in mono signals.

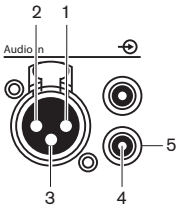


Figure 6.4: Audio input, connection

Pin	Type	Signal	Description
1	XLR	Xternal	Shield/ground

Pin	Type	Signal	Description
2		Live	Positive
3		Return	Negative
4	Cinch	Live	Signal in
5		Return	Shield/ground

Tab. 6.23: Audio input, connection

You can select the procedure that is used to send audio signals through the central control unit with the audio routing modes (refer to *DCN-CCU2 and DCN-CCUB2 Central Control Units, page 180*).

Notice!
You can only connect line level sources to the audio inputs of the central control unit. It is not possible to connect microphone sources.

Audio outputs
You can connect an audio recording device or a public address system to the audio outputs of the central control unit. The DCN-CCU2 has two audio outputs.
Each audio output has:
– 1 XLR plug for balanced signals. The electric circuits behind the XLR plugs contain transformers for galvanic separation.
– 1 double cinch socket for unbalanced signals.

The CCUB2 has two audio outputs. One audio output has:
– 1 XLR plug for balanced signals.
– 1 double cinch socket for unbalanced signals.
The other audio output has:
– 1 double cinch socket for unbalanced signals.

Notice!
The two cinch sockets contain the same mono signal.

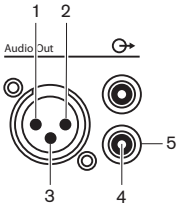


Figure 6.5: Audio output, connection

Pin	Type	Signal	Description
1	XLR	Xternal	Shield/ground
2		Live	Positive
3		Return	Negative
4	Cinch	Live	Signal out

Pin	Type	Signal	Description
5		Return	Shield/Ground

Tab. 6.24: Audio output, connection

You can select the procedure that is used to send audio signals through the central control unit with the available audio routing modes (refer to *DCN-CCU2 and DCN-CCUB2 Central Control Units, page 180*).

Fault contact

Use the fault contact to send the condition of the central control unit to external devices. If the central control unit operates correctly, the OK pins are internally connected.
The central control unit internally connects the Fail pins when:

- The central control unit is stopped.
- The internal power supply unit operates incorrectly.
- The central control unit does a reset.
- The central control unit is “downloading” or “reset to defaults”.

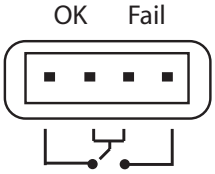


Figure 6.6: Fault contact

Ethernet socket

Use the Ethernet socket to connect a PC. Use Cat5e cable or better.

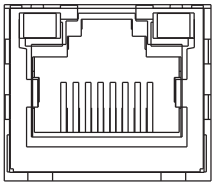


Figure 6.7: Ethernet socket, connection

RS232 ports

Use the RS232 port of the central control unit to connect video cameras or camera switchers.

Notice!
Refer to the manuals of the video switcher and cameras regarding connecting them.

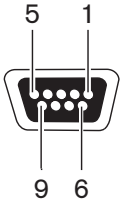


Figure 6.8: RS232 port, connection

Pin	Definition	Description
1	DCD	Data Carrier Detect
2	RxD	Receive Data

Pin	Definition	Description
3	TxD	Transmit Data
4	DTR	Data Terminal Ready
5	SG	Signal Ground
6	DSR	Data Set Ready
7	RTS	Request To Send
8	CTS	Clear To Send
9	RI	Ring Indicator

Tab. 6.25: RS232 port, connection

6.3 LBB4402/00 or PRS-4AEX4 Audio Expander

Audio inputs

You can connect external analog audio sources to the audio inputs of the audio expander. The audio expander has four audio inputs.

Each audio input has:

– 1 XLR socket for balanced signals. The electric circuits behind the XLR sockets contain transformers.
– 1 double cinch socket for unbalanced signals.

Notice!

The audio inputs change stereo signals in mono signals.

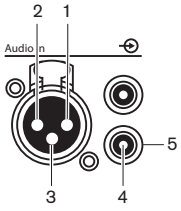


Figure 6.9: Audio input, connection

Pin	Type	Signal	Description
1	XLR	Xternal	Shield/ground
2		Live	Positive
3		Return	Negative
4	Cinch	Live	Signal in
5		Return	Shield/ground

Tab. 6.26: Audio input, connection

You can connect line level sources to all audio inputs of the audio expander.

You can connect microphone sources only to the XLR socket of audio input 1 and audio input 2 of the audio expander.

Use the configuration menu to configure the audio inputs of he audio expander (refer to *LBB4402/00 or PRS-4AEX4 Audio Expander, page 187*).

Notice!

When the interlock mode is None (refer to *DCN-IDESK Interpreter Desks, page 222*), the audio inputs of the digital audio expander are disabled for translation channels only. Audio input channels can route to floor channels.

Audio outputs

You can connect audio recording devices or public address systems to the audio outputs of the audio expander. The audio expander has four audio outputs.

Each audio output has:

– 1 XLR plug for balanced signals. The electric circuits behind the XLR plugs contain transformers.
– 1 double cinch socket for unbalanced signals.

Notice!
The two cinch sockets contain the same mono signal.

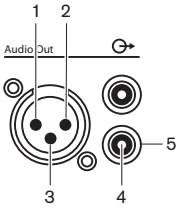


Figure 6.10: Audio output, connection

Pin	Type	Signal	Description
1	XLR	Xternal	Shield/ground
2		Live	Positive
3		Return	Negative
4	Cinch	Live	Signal out
5		Return	Shield/Ground

Tab. 6.27: Audio output, connection

Use the configuration menu to configure the audio outputs of the audio expander (refer to *LBB4402/00 or PRS-4AEX4 Audio Expander, page 187*).

Control inputs
The audio expander has eight control inputs. With the control inputs, remote interpretation systems can control the audio inputs and the audio outputs of the audio expander. Each audio input and audio output has a control input.

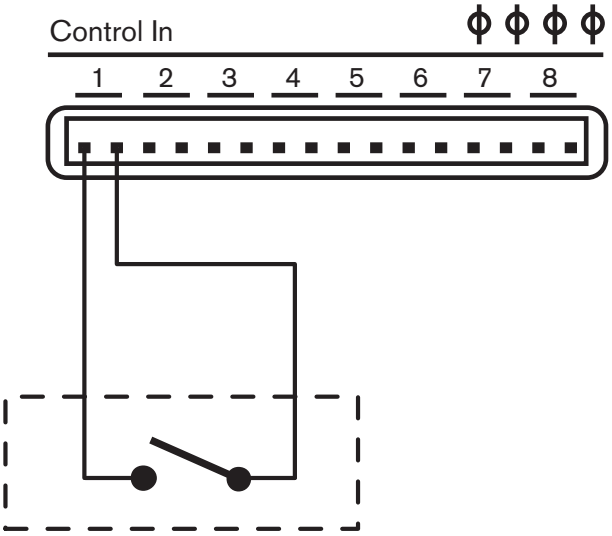


Figure 6.11: Control inputs, connection

Control input	Connection
1	Audio input 1
2	Audio input 2

Control input	Connection
3	Audio input 3
4	Audio input 4
5	Audio output 1
6	Audio output 2
7	Audio output 3
8	Audio output 4

Tab. 6.28: Control inputs, connection

When the circuit that is connected to a control input of an audio input or audio output is open, the audio input or audio output is enabled. Close the control input to disable the audio input or audio output.
When an control input is disabled, an X character replaces the VU meter of the corresponding audio input or audio output on the display.

Control outputs
The audio expander has five control outputs.

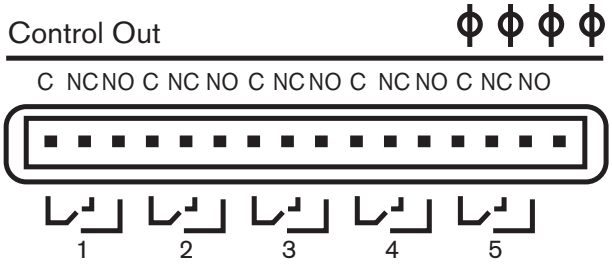


Figure 6.12: Control outputs, connection

With the control outputs, you can:
– Send the condition of the audio outputs to external devices (control output 1,2,3 and 4).
– Send the condition of the connection of the optical network to external devices (control output 5).
– When an audio output is assigned to an individual microphone channel, a corresponding contact can be switched when the level is above threshold. Refer to *LBB4402/00 or PRS-4AEX4 Audio Expander, page 187* > Table.

Control output	Condition of	C-NO contact (Normally Open)	C-NC contact (Normally Closed)
1	Channel attached to audio input 1	Engaged (contact closed)	Not engaged (contact open)
2	Channel attached to audio input 2	Engaged (contact closed)	Not engaged (contact open)
3	Channel attached to audio input 3	Engaged (contact closed)	Not engaged (contact open)
4	Channel attached to audio input 4	Engaged (contact closed)	Not engaged (contact open)

Control output	Condition of	C-NO contact (Normally Open)	C-NC contact (Normally Closed)
5	Optical network	Not available	Available

Tab. 6.29: Control output conditions

6.4 PRS-4DEX4 Digital Audio Expander

Audio inputs

You can connect external digital audio sources to the audio inputs of the digital audio expander. The digital audio expander has two audio inputs.

Each audio input has:

– 1 XLR socket for AES/EBU signals. The electric circuits behind the XLR sockets contain transformers.

– 1 cinch socket for SPDIF signals.

Notice!

You cannot use the AES/EBU and SPDIF connections of the same audio input at the same time.

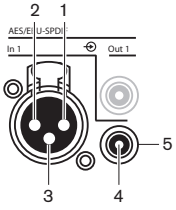


Figure 6.13: Audio input, connection

Pin	Type	Signal	Description
1	XLR	Xternal	Shield/ground
2		Live	Positive
3		Return	Negative
4	Cinch	Live	Signal in
5		Return	Shield/ground

Tab. 6.30: Audio input, connection

Notice!

When the interlock mode is None (refer to *DCN-IDESK Interpreter Desks, page 222*), the audio inputs of the digital audio expander are disabled for translation channels only. Audio input channels can route to floor channels.

Each audio input can contain a maximum of 2 channels (L and R). The digital audio expander does not change stereo signals in mono signals.

Use the configuration menu to configure the audio inputs of the digital audio expander (refer to *PRS-4DEX4 Digital Audio Expander, page 190*).

Audio outputs

You can connect external digital audio devices to the audio outputs of the digital audio expander. The digital audio expander has two audio outputs.

Each audio output has:

– 1 XLR plug for AES/EBU signals. The electric circuits behind the XLR plugs contain transformers.
– 1 cinch socket for SPDIF signals.

Notice!

You cannot use the AES/EBU and SPDIF connections of the same audio output at the same time.

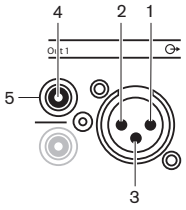


Figure 6.14: Audio output, connection

Pin	Type	Signal	Description
1	XLR	Xternal	Shield/ground
2		Live	Positive
3		Return	Negative
4	Cinch	Live	Signal in
5		Return	Shield/ground

Tab. 6.31: Audio input, connection

Each audio output can contain a maximum of 2 channels (L and R). The digital audio expander does not change stereo signals in mono signals.

Use the configuration menu to configure the audio outputs of the digital audio expander (refer to *PRS-4DEX4 Digital Audio Expander, page 190*).

Control inputs and outputs

The digital audio expander has eight control inputs and five control outputs. With the control inputs remote systems can control the digital audio expander. With the control outputs, you can send the condition of the digital audio expander to external devices. The control inputs and outputs of the audio expander and the digital audio expander do the same (refer to *LBB4402/00 or PRS-4AEX4 Audio Expander, page 117*).

6.5 PRS-4OMI4 OMNEO Media Interface

OMNEO and Dante™

OMNEO and Dante™ are combinations of software, hardware and network protocols that deliver uncompressed, multi-channel, low-latency digital audio over a standard Ethernet network using Layer 3 IP packets.

The DCN System can connect to OMNEO and Dante™ networks with the PRS-4OMI4 OMNEO Interface.

For example, you can use the PRS-4OMI4 OMNEO Interface to:

– Benefit from Ethernet infrastructure
– Transport audio signals over large distances

Connect the OMNEO interface to the OMNEO network with UTP cables.

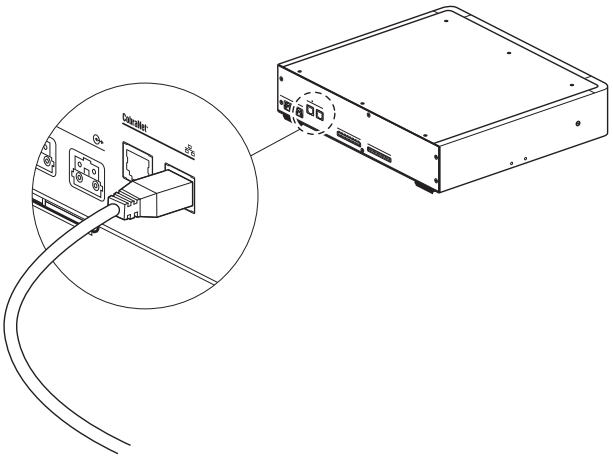


Figure 6.15: OMNEO network

Each OMNEO socket has two LEDs that indicate the condition of the connection of the OMNEO interface to the OMNEO network.

Color	Condition
Red (flash)	Unrecoverable error
Red (on)	Recoverable error

Tab. 6.32: Left LED

Color	Condition
Green (on)	Socket is use
Yellow (on)	OMNEO interface is conductor

Tab. 6.33: Right LED

When you connect the OMNEO interface to a Dante™ network, you must:

– configure the outputs using Audinate's Dante™ controller which can be downloaded via the website from Audinate®.

When you connect the OMNEO interface to a DICENTIS Conference System:

– the DICENTIS services will automatically discover the OMNEO interface and configure the OMNEO part.

Notice!

When the interlock mode is None (refer to *DCN-IDESK Interpreter Desks, page 222*), the audio inputs of the OMNEO interface are disabled for translation channels only. Audio input channels can route to floor channels.

Control inputs and outputs

The OMNEO interface has eight control inputs and five control outputs. With the control inputs remote systems can control the OMNEO interface. With the control outputs, you can send the condition of the OMNEO interface to external devices. The control inputs and outputs of the audio expander and the OMNEO interface do the same (refer to *LBB4402/00 or PRS-4AEX4 Audio Expander, page 117*).

6.6 LBB4404/00 Cobranet Interface

CobraNet

CobraNet is a standard for the transport of real-time digital audio and control data through an Ethernet network. A CobraNet network can transport a maximum of 64 channels of 48 kHz, 20-bit audio through a 100 Mbit link connection in each direction. Many manufacturers of professional audio devices support the CobraNet standard.

The DCN System can connect to CobraNet networks with the LBB4404/00 Cobranet Interface. For example, you can use the LBB4404/00 Cobranet Interface to:

– Benefit from Ethernet infrastructure.
– Transport audio signals over large distances.

PC data, for example data from the DCN System Open Interface can co-exist with CobraNet data on the same Ethernet network when you use managed Ethernet switches that are approved by Peak Audio.

Notice!

Refer to the CobraNet.info website (www.cobranet.info) for: More data about CobraNet networks. A list of approved Ethernet switches.

Connect the cobranet interface to the CobraNet network with UTP cables.

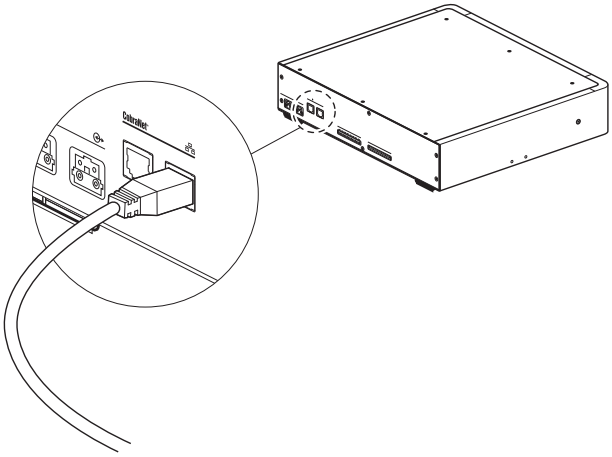


Figure 6.16: CobraNet network

Each CobraNet socket has two LEDs that indicate the condition of the connection of the cobranet interface to the CobraNet.

Color	Condition
	CobraNet connection
Red (flash)	Unrecoverable error
Red (on)	Recoverable error

Tab. 6.34: Left LED

Color	Condition
Green (on)	Socket is use

Color	Condition
Yellow (on)	Cobranet interface is conductor

Tab. 6.35: Right LED

When you connect the cobranet interface to a CobraNet network, you must:
– Give an IP address to the cobranet interface with CobraNet Discovery (refer to *CobraNet Discovery, page 200*).
– Configure the CobraNet network with CNConfig (refer to *CobraNet Configuration, page 202*).

Notice!
When the interlock mode is None (refer to *DCN-IDESK Interpreter Desks, page 222*), the audio inputs of the CobraNet interface are disabled for translation channels only. Audio input channels can route to floor channels.

Control inputs and outputs
The cobranet interface has eight control inputs and five control outputs. With the control inputs remote systems can control the cobranet interface. With the control outputs, you can send the condition of the cobranet interface to external devices. The control inputs and outputs of the audio expander and the cobranet interface do the same (refer to *LBB4402/00 or PRS-4AEX4 Audio Expander, page 117*).

6.7 DCN-WAP Wireless Access Point

Optical network
Connect the optical network sockets of the wireless access point to the optical network with optical network cables.

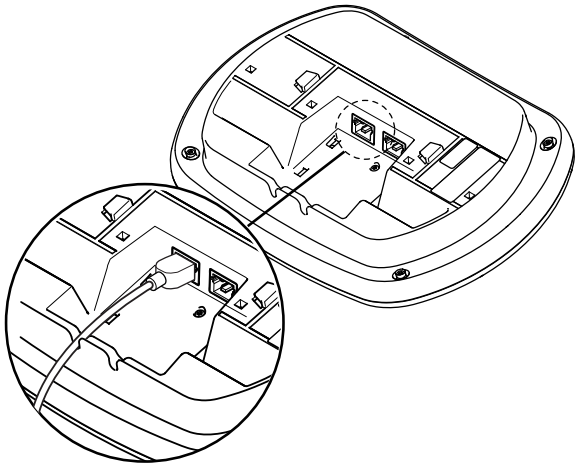


Figure 6.17: Optical network

6.8 DCN Concentus Units

Connect the Concentus delegate unit to the DCN with the DCN cable. You can use the DCN socket to make a loop-through with the next active or passive DCN unit.

External microphone

You can connect an external microphone to the external microphone socket of the DCN-CONCS, DCN-CONFF or DCN-CONCM unit.

Notice!

The DCN-CON does not have a socket for an external microphone.

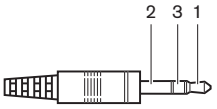


Figure 6.18: 3.5 mm microphone plug, connection

Number	Signal
1	Microphone signal +
2	Microphone GND
3	Not connected (optional GND)

Tab. 6.36: 3.5 mm microphone plug, connection

When you connect a headset to the DCN-CONFF or DCN-CONCM unit, you must connect the microphone of the headset to the external microphone socket.
The Concentus unit senses that an external microphone is connected to the external microphone socket. The Concentus delegate unit internally disconnects the DCN-MICL or DCN-MICS Pluggable Microphone (if connected).

Headphones

You can connect headphones to the headphones sockets of the DCN-CONCS, DCN-CONFF or DCN-CONCM unit. The headphones must have a 3.5 mm plug.

Notice!

The DCN-CON does not have headphones sockets.

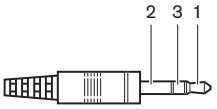


Figure 6.19: 3.5 mm headphones plug, connection

Number	Signal
1	Left
2	Common

Number	Signal
3	Right

Tab. 6.37: 3.5 mm headphones plug, connection

Notice!
You can also connect mono headphones to the Concentus delegate unit.

When you connect a headset to the Concentus delegate unit, use the headphones socket on the left side. Adjacent to this headphones socket is an external microphone socket. Connect the microphone of the headset to this external microphone socket.

Intercom handset
You can connect an DCN-ICHS Intercom Handset to the Concentus delegate unit. The intercom handset must be connected to the RJ45 socket.

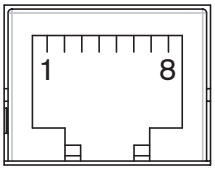


Figure 6.20: RJ45 socket, connection

Pin	Signal
1	Headphones level reduction
2	Microphone, ground
3	Microphone, in
4	Earpiece, positive
5	Earpiece, ground
6	Hook switch
7	Hook switch
8	External contact

Tab. 6.38: RJ45 socket, connection

Notice!
The DCN-ICHS Intercom Headset has a RJ11 plug. This plug fits in the center of the RJ45 socket on the Concentus delegate unit. Pin 1 and pin 8 of the RJ45 socket are not used.

Connect the intercom plug of the intercom handset to the intercom socket of a compatible device.

Pin	Signal
1	Microphone, ground
2	Microphone, in

Pin	Signal
3	Earpiece, positive
4	Earpiece, negative
5	Hook switch
6	Hook switch

Tab. 6.39: Intercom plug (RJ11), connection

For more information refer to *DCN-ICHS Intercom Handset, page 39*.

External contact

You can connect an external contact to the Concentus delegate unit. The external contact must be connected between pin 5 and pin 8 of the RJ45 socket.

Notice!

The external contact is only available in systems that operate with a control PC that has one or more of these software modules:
Parliamentary Voting software module
Multi Voting software module
Attendance Registration software module
Message Distribution
Refer to the applicable Software User Manuals for the instructions that tell you how to use the external contact.

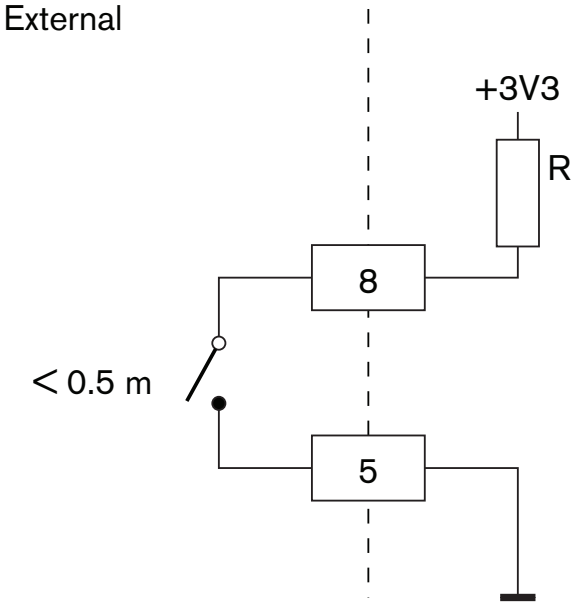


Figure 6.21: External contact, connection

DCN-FCS Headphones level reduction

When you use a Concentus delegate unit with a DCN-FCS Channel Selector, you must connect pin 1 and 5 of the RJ45 socket to the level reduction plug of the channel selector. This prevents acoustic feedback.

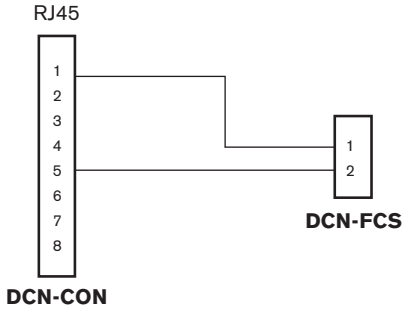


Figure 6.22: Channel selector, connection

When the microphone that is connected to the Concentus delegate unit is enabled, the channel selector automatically decreases the volume level of the signal that is sent to the headphones of the channel selector.

6.9 DCN-DIS Discussion Unit (wired)

Connect the discussion unit to the DCN with the DCN cable. You can use the DCN socket to make a loop-through with the discussion unit.
You can use the cable-to-unit clamps to lock DCN cables to discussion units.

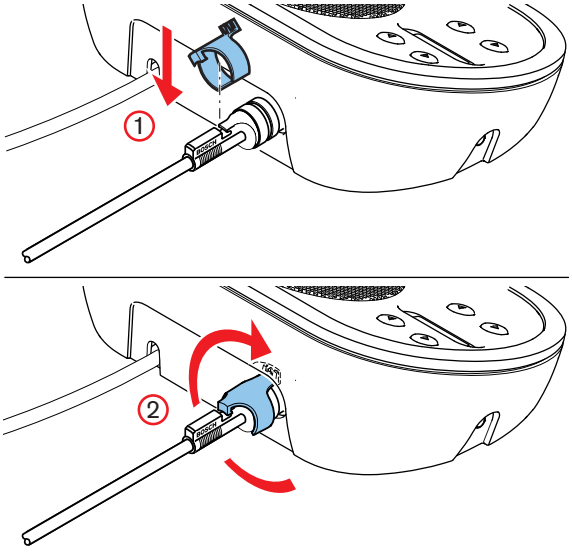


Figure 6.23: Cable-to-unit clamp

Notice!
You can move the DCN cable from the rear side to the bottom side of the discussion unit (refer to *DCN-DIS and DCN-WD Discussion units, page 96*).

Refer to
– *DCN-DIS and DCN-WD Discussion units, page 96*

6.10 DCN-WD Discussion Units (wireless)

DCN-WLION Battery Pack

Refer to the figure for instructions that tell you how to install a DCN-WLION Battery Pack in the wireless discussion unit.

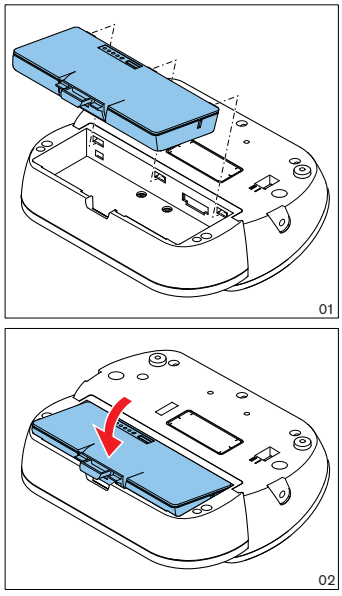


Figure 6.24: Install a battery pack

When you remove the battery pack from the wireless discussion unit, you can connect the wireless discussion unit to a DCN-WPS Power Supply Adapter.

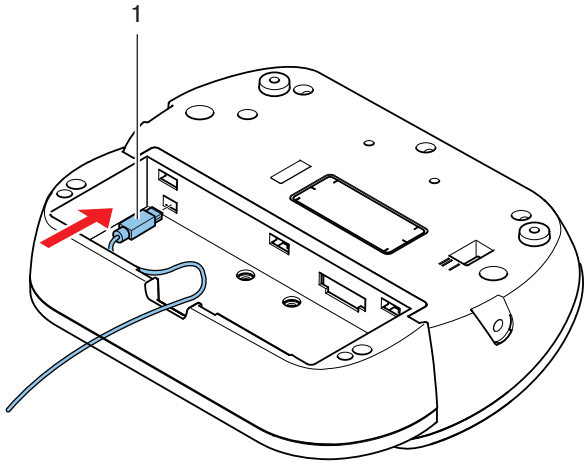


Figure 6.25: Power supply socket, connection

Warning!
DCN-WPS may not be used to other devices. The DCN-WPS Power Supply for WDU is not USB compliant and will damage your device.

You can change the power plug of the power supply adapter.

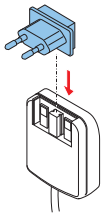


Figure 6.26: Installing power plug

6.11 DCN-WCH05 Battery Charger

Connect a locally approved power cable to the battery charger.

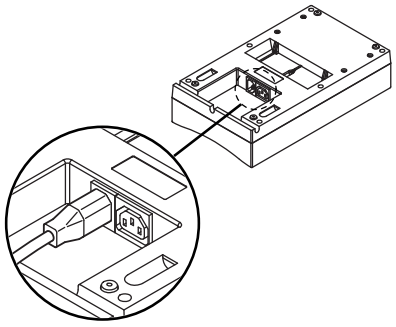


Figure 6.27: Power inlet

With the loop-through socket, you can connect battery chargers.

– If the power supply is 100 - 127 V(AC), 50 - 60 Hz, you can connect a maximum of 5 battery chargers.
– If the power supply is 220 - 240 V(AC), 50 - 60 Hz, you can connect a maximum of 10 battery chargers.

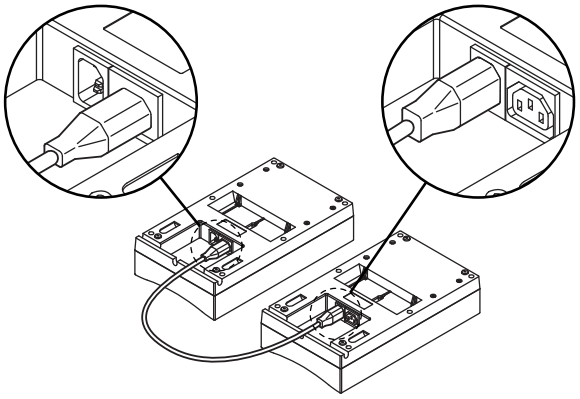


Figure 6.28: Loop-through socket

Battery

To charge the DCN-WLIION battery pack you have to insert it in the DCN-WCH05 battery charger.

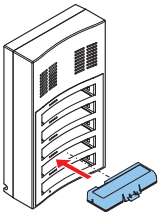


Figure 6.29: Inserting a battery pack

6.12 DCN-MICL, DCN-MICS Pluggable Microphones

Connect the pluggable microphone to compatible devices with the microphone plug.

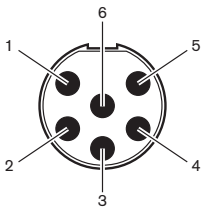


Figure 6.30: Microphone plug, connection

Pin	Signal
1	Indicator ring, red (cathode)
2	Indicator ring common (anode)
3	Microphone signal +
4	Microphone GND
5	Shielding
6	Indicator ring, green (cathode)

Tab. 6.40: Microphone plug, connection

6.13 DCN-DDI Dual Delegate Interface

Connect the dual delegate interface to the DCN with the DCN cable. You can use the DCN socket to make a loop-through with the dual delegate interface.

Notice!
The power consumption of 4.5 W includes the power consumption of all flush-mounted devices that you can connect to the dual delegate interface. These are:
- DCN-FLSP
- DCN-FMIC
- DCN-FMICB
- DCN-FPRIOB
- DCN-FV
- DCN-FVCRD

Audio outputs
You can connect loudspeakers to the audio outputs of the dual delegate interface. The loudspeakers must have 3.5 mm plugs.

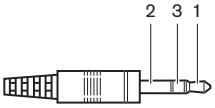


Figure 6.31: 3.5 mm loudspeaker plug, connection

Number	Signal
1	+
2	Not used
3	-

Tab. 6.41: 3.5 mm loudspeaker plug, connection

Typically, you will connect DCN-FLSP Loudspeaker Panels (refer to *DCN-FLSP Loudspeaker Panel, page 43*) to the audio outputs.

Intercom outputs
You can connect an DCN-ICHS Intercom Handset to the dual delegate interface. The intercom handset must be connected to the intercom socket.

Voting/Control inputs
You can use the voting/control inputs to connect these devices to the dual delegate interface:
– DCN-FMICB Microphone Control Panel.
– DCN-FPRIOB Priority Panel.DCN-FV(CRD) Voting Panel.

Audio inputs
You can connect microphone or line level signals to the audio inputs of the dual delegate interface. The audio inputs have DIN-8p-262° sockets.

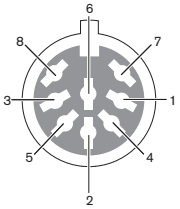


Figure 6.32: Audio input, connection

Pin	Signal
1	Signal in, +
2	Microphone, common
3	Signal in, -
4	Microphone LED (max. 2 mA)
5	Request-to-speak LED (max. 7 mA)
6	Microphone button
7	+12 V(DC) (max. 20 mA)
8	LED ring control

Tab. 6.42: Audio input, connection

Pin	Component
4 (-) to 7 (+)	Microphone on LED
5 (-) to 7 (+)	Request-to-speak LED
6 to 7	Momentarily microphone switch

Tab. 6.43: Connections

Typically, you will connect DCN-FMIC Microphone Connection Panels (refer to *DCN-FMIC Microphone Connection Panel, page 41*) to the audio inputs.

For information about configuration of the DCN-DDI Dual Delegate Interface refer to *DCN-DDI Dual Delegate Interface, page 214*.

6.14 DCN-FMIC Microphone Connection Panel

A cable with a 6-pole CT plug and an 8-pole DIN plug is supplied with the panel. Use this cable to connect the panel to a DCN-DDI Dual Delegate Interface.
When you use a microphone connection panel with a DCN-FCS channel selector, connect the output level plug of the microphone connection panel to the level reduction plug of the channel selector. This prevents acoustic feedback.

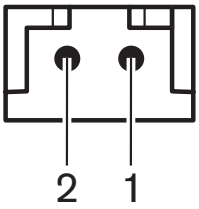


Figure 6.33: Output level plug, connection

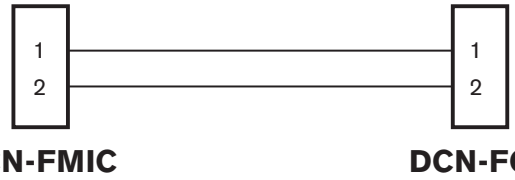


Figure 6.34: Channel selector, connection

When the microphone that is connected to the microphone connection panel is enabled, the channel selector automatically decreases the volume level of the signal that is sent to the headphones of the channel selector.

Notice!
You can connect, for example, an AMP173977-2 socket to the output level plug of the microphone connection panel.

6.15 DCN-FMICB Microphone Control Panel

A Cat-4 cable with RJ11 plugs is supplied with the microphone connection panel. Use this cable to connect the panel to the DCN-DDI Dual Delegate Interface or DCN-FV(CRD) Voting Panel.

6.16 DCN-FPRIOB Priority Panel

A Cat-4 cable with RJ11 plugs is supplied with the priority panel. Use this cable to connect the panel to the DCN-DDI Dual Delegate Interface.

6.17 DCN-FLSP Loudspeaker Panel

A cable with a 3.5 mm plug is supplied with the loudspeaker panel. Use this cable to connect the panel to the DCN-DDI Dual Delegate Interface.

6.18 DCN-FV(CRD) Voting Panel

A Cat-4 cable with RJ11 plugs is supplied with the panel. Use this cable to connect the panel to the DCN-DDI Dual Delegate Interface.

External contact
You can connect an external contact to the voting panel. The external contact must be connected to the external contact plug.

Notice!
The external contact function is only available in systems that operate with a control PC that has one or more of these software modules: • Parliamentary Voting software module • Multi Voting software module • Attendance Registration software module
Refer to the applicable Software User Manuals for the instructions that tell you how to use the external contact.

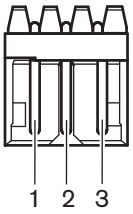


Figure 6.35: External contact, connection

Pin	Signal
1	+5 V(DC) (max. 20 mA)
2	Input, +
3	Input, -

Tab. 6.44: External contact, connection

Notice!
You can connect, for example, an AMP173977-3 socket to the external contact plug of the voting panel.

Use the solder spot (refer to *DCN-FV(CRD) Voting Panel, page 44*, no. 5) to configure the external contact plug. With the solder spot, you can configure the galvanic separation of pin 3 and the ground of the external contact plug.

Solder spot	Description
Not soldered*	Pin 3 and the ground of the external contact plug are not internally connected.
Soldered	Pin 3 and the ground of the external plug are internally connected.

Tab. 6.45: Solder spot (* = default)

Refer to the figure for a circuit diagram of an external contact connection that uses the galvanic separation.

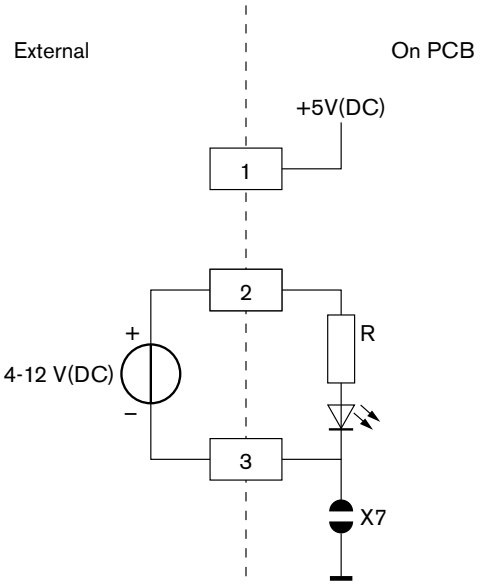


Figure 6.36: External contact, connection (1)

Refer to the figure for a circuit diagram of an external contact connection that does not use the galvanic separation.

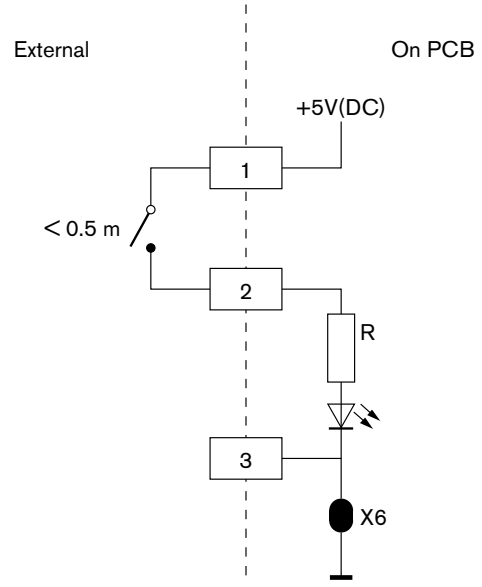


Figure 6.37: External contact, connection (2)

6.19 DCN-FCS Channel Selector

Connect the channel selector to the DCN with the DCN cable. You can use the DCN socket to make a loop-through with the channel selector.

External headphones socket

You can connect an external headphones socket to the channel selector (e.g. a 6.3 mm headphones socket). The external headphones socket must be connected to a plug or to solder pads.

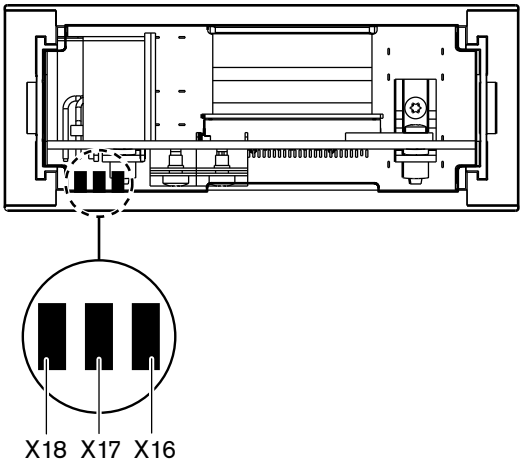


Figure 6.38: External headphones, connection (1)

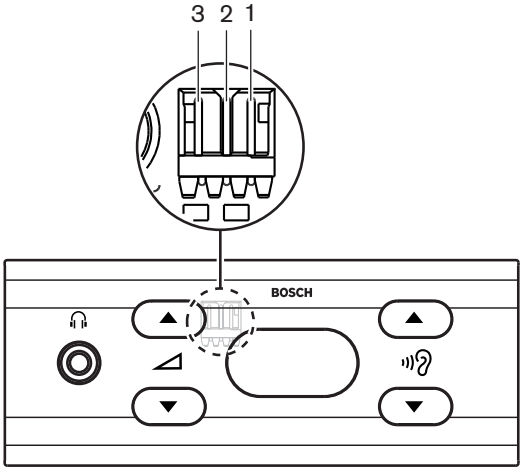


Figure 6.39: External headphones, connection (2)

The solder pads and the plug are internally connected.

Plug (pin)	Solder pad	Signal
1	X18	Left
2	X16	Right
3	X17	Common

Tab. 6.46: External headphones, connection

Notice!
You can connect, for example, an AMP173977-3 socket to the external headphones plug of the channel selector.

Warning!
When using external sockets of DCN-FCS make sure that all connections are electrically floating. In case any connections are part of an earth loop unexpected system behavior can occur.

Level reduction plug
When the channel selector is used with a device that has a microphone, acoustic feedback can occur.Use the level reduction plug to prevent acoustic feedback.

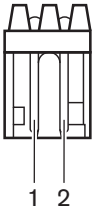


Figure 6.40: Output level plug, connection

Pin	Signal
1	Positive
2	GND

Tab. 6.47: Output level plug, connection

Notice!
You can connect, for example, an AMP173977-2 socket to the level reduction plug of the channel selector.

Connect a voltage to the level reduction plug to decrease the volume level of the signal on the headphones.

Voltage	Description
< 1 V(DC)	The output level of the channel selector is not decreased.
> 3 V(DC)	The output level of the channel selector is decreased.

Tab. 6.48: Output level reduction

These devices have a output level plug that you can connect to the level reduction plug of the channel selector:
- DCN-CON Concentus Delegate Unit.
- DCN-CONCS Concentus Delegate Unit.
- DCN-CONFF Concentus Delegate Unit.
- DCN-CONCM Concentus Chairman Unit.
- DCN-FMIC Microphone Connection Panel.

6.20 DCN-FVU Voting Unit

Use the DCN cable with the DCN plug to connect the voting unit to the DCN. You can use the cable with the DCN socket to make a loop-through with the voting unit.

Notice!
When you do not make a loop-through with the voting unit, connect an LBB4118/00 Cable Termination Plug to the DCN cable with the DCN socket. If you do not connect a cable termination plug, the system can operate incorrectly.

6.21 DCN-IDESK Interpreter Desks

Connect the interpreter desk to the DCN with the DCN cable. You can use the DCN socket to make a loop-through with the interpreter desk.

Headset
You can connect a headset to the headset socket of the interpreter desk. The headset socket (refer to *DCN-IDESK Interpreter Desks, page 51*) must be IEC 268-11 compliant with a 5-pole 180° DIN plug.

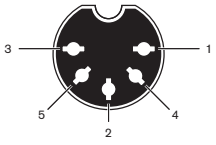


Figure 6.41: Headset socket, connection

Pin	Signal
1	Microphone supply
2	Microphone in
3	Headphones out, left
4	Headphones common
5	Headphones out, right

Tab. 6.49: Headset socket, connection

Headphones
You can connect headphones to the headphones sockets of the interpreter desk. The headphones must have a 3.5 mm plug or a 6.3 mm plug.

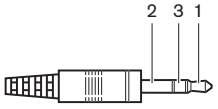


Figure 6.42: 3.5 mm headphones plug, connection

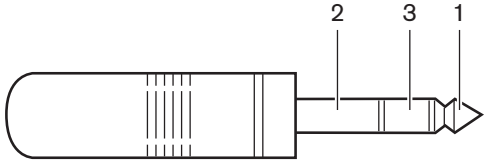


Figure 6.43: 6.3 mm headphones plug, connection

Number	Signal
1	Left
2	Common
3	Right

Tab. 6.50: Headphones plug, connection

Notice!
You can also connect mono headphones to the interpreter desk.

External devices

You can use the external devices socket to connect:

– A booth-on-air indicator to the interpreter desk. An external intercom system to the intercom LED of the interpreter desk. An external telephone system to the telephone LED of the interpreter desk.

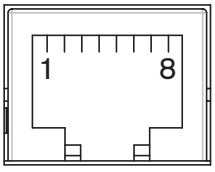


Figure 6.44: External devices socket, connection

Pin	Function	Description
1	---	---
2	Booth-on-air	Pin 2 and 3 are closed when booth-on-air.
3		
4	---	---
5	Telephone	Positive in
6	Telephone	Negative in
7	Intercom	Positive in
8	Intercom	Negative in

Tab. 6.51: External devices socket, connection

Contact rating for the booth-on-air contact:

– 24 V/1 A potential free contact.
– Galvanic separated.

Signal levels for telephone and intercom contacts:

– no call: < 1 V(DC.
– call: > 3 V(DC), max. 24 V(DC).
– Galvanic separated.

6.22 DCN-EPS (-UL, -JP) Extension Power Supply

Mains connection and fuse change procedure:

1. Disconnect the approved power cable from the extension power supply.
2. Pull out the fuse holder.
3. Make sure that the fuse holder on the rear of the extension power supply contains the correct fuse (refer to the table below).
4. Put in the fuse holder.
5. Connect the socket of a locally approved power cable to the extension power supply.

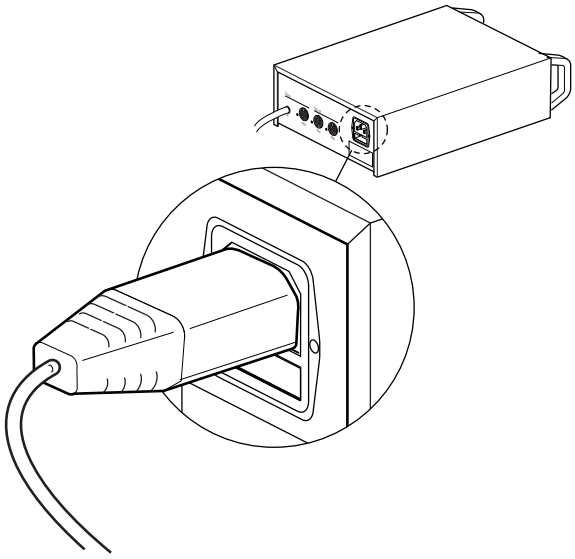


Figure 6.45: Power supply

6. **DANGER!** Connect the plug with the ground pin of the locally approved power cable to a wall socket outlet with ground female of a locally approved mains power supply.

Danger!
Electric shock from the mains power can kill you, if the extension power supply is not grounded! By doubts, please contact an electrician.

Rated voltage of the extension power supply:	**Fuse:**
100V(AC), 120V(AC)	T8A H 250V (approved according to IEC 60127)
220V(AC), 230V(AC), 240V(AC)	T4A H 250V (approved according to IEC 60127)

DCN

Connect the extension power supply to the system with the DCN cable. You can use the DCN trunk socket to make a loop-through with the extension power supply.

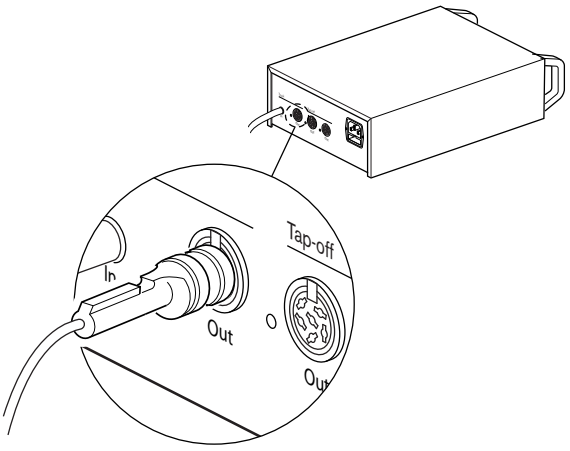


Figure 6.46: DCN trunk

The DCN trunk socket has a red LED that comes on if there is an overload (refer to *Power capacity, page 78*).

DCN tap-offs

With the DCN tap-off sockets, you can make tap-offs in the DCN.

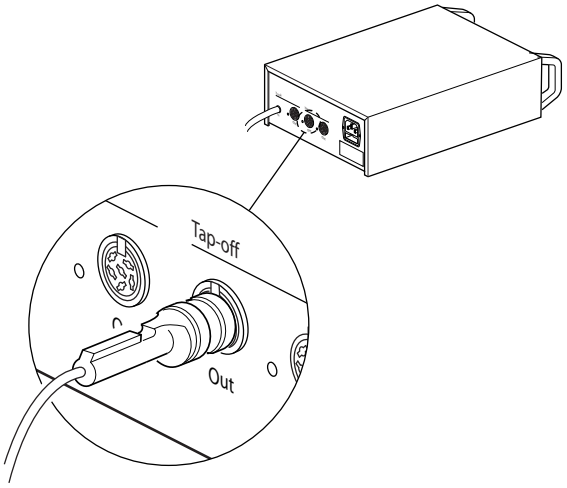


Figure 6.47: DCN tap-offs

Each DCN tap-off socket has a red LED that comes on if there is an overload (refer to *Power capacity, page 78*).

6.23 LBB4114/00 Trunk Splitter

Connect the trunk splitter to the DCN with the DCN cable. You can use the DCN trunk socket to make a loop-through with the trunk splitter. With the DCN tap-off sockets, you can make tap-offs in the DCN.

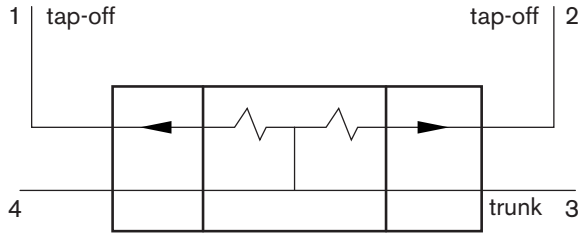


Figure 6.48: DCN

6.24 LBB4115/00 Tap-off unit

The external connections of the LBB4114/00 Trunk Splitter and the LBB4115/00 Protected Trunk Splitter are the same (refer to *LBB4114/00 Trunk Splitter, page 145*).

6.25 PRS-NSP Network Splitter

Optical network

Connect the network splitter to the optical network with the optical network sockets.

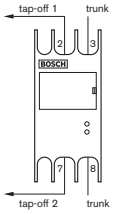


Figure 6.49: Optical network

Notice!
If the distance between two devices is less than 100 m, use a network splitter between devices to remove the use of fiber interfaces. Use only the trunk sockets of the network splitter in this case.

Power supply

You can connect an external power supply to the external power supply socket of the network splitter. The network splitter is supplied with a Kycon KPP-4P plug, which you can connect to this socket. The external power supply only supplies power to the connected tap-offs.

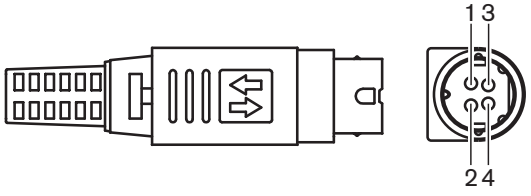


Figure 6.50: Kycon KPP-4P plug, connection

Pin	Signal
1	Ground

Pin	Signal
2	Power from the external power supply. Voltage: 24 - 48 V, max. 5 A.
3	Power from the system. Voltage:48 V, max. 5 A.
4	Not connected

Tab. 6.52: Kycon KPP-4P plug, connection

Notice!
You can, for example, connect a DCN-EPS Extension Power Supply to the Kycon KPP-4P socket of the network splitter.

The Kycon KPP-4P plug is shown in parts.

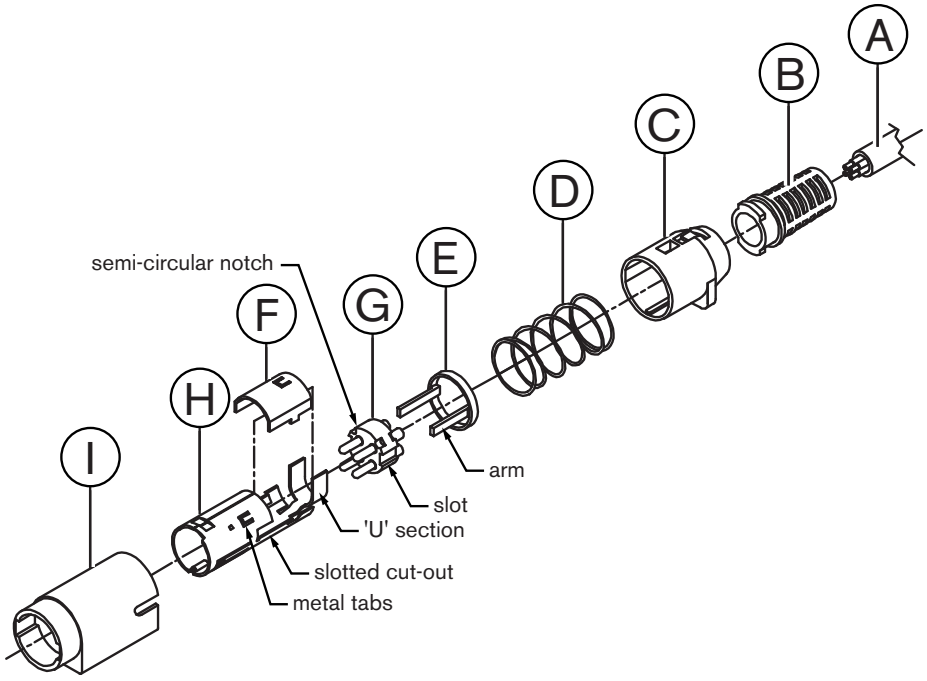


Figure 6.51: Kycon KPP-4P plug, parts

Part	Description
A	Customer cable
B	Strain relief
C	Plastic enclosure
D	Metal spring
E	Plastic guide
F	Top metal cover

Part	Description
G	Pin mold
H	Lower metal sleeve
I	Plastic coupling

Tab. 6.53: Kycon KPP-4P plug, parts

You must assemble the connector before you use it.

1. Attach the Strain Relief (B) to the Plastic Enclosure (C).
2. Pull the Cable (A) through the Strain Relief (B)/Plastic Enclosure (C) assembly, Metal Spring (D) and Plastic Guide Ring (E).
3. Attach the ends of the cable wires to the solder cups on Pin Mold (G).
4. Correctly align the Pin Mold (G) with the Lower Metal Sleeve (H). The slotted sections on the sides of the Pin Mold (G) must align with the slotted cut-outs on the Lower Metal Sleeve (H). The 3 semi-circular notches around the perimeter of the Pin Mold (G) must line up with the 3 metal tabs inside the Lower Metal Sleeve (H).
5. Push the Pin Mold (G) into the Lower Metal Sleeve (H) until they lock.
6. Push the three metal tabs on the Lower Metal Sleeve (H) into the notches in the Pin Mold (G).
7. Crimp the 'U' section of the Lower Metal Sleeve (H) onto the Cable (A).
8. Attach the Plastic Ring Guide (E) to the Lower Metal Sleeve (H) and engage the plastic arms into the correct slots in the sides of the sleeve.
9. Attach the Top Metal Cover (F) to Lower Metal Sleeve (H). Be sure to align all tabs. Make sure that the cover is attached correctly.
10. Push the Metal Spring (D) to the Top Metal Cover (F)/Lower Metal Sleeve (H) assembly. This helps to hold the assembly together.
11. Push the Strain Relief (B)/Plastic Enclosure (C) assembly to the Top Metal Cover (F)/ Lower Metal Sleeve (H) assembly. Align the two assemblies as shown in the drawing. Make sure that the Metal Spring (D) stays in place and does not bend during assembly. A large force can be necessary to attach the two assemblies together.
12. Make sure that the Strain Relief (B)/Plastic Enclosure (C) assembly is locked to the Top Metal Cover (F)/Lower Metal Sleeve (H) assembly. The two assemblies should not be able to be pulled apart.
13. Align the new assembly with the Plastic Coupling (I) shown in the drawing. Push assembly into Plastic Coupling (I) until it locks to the Plastic Coupling. The connector assembly is complete.

For more information refer to *PRS-NSP Network Splitter, page 229*.

6.26 PRS-FINNA Fiber Interface

Optical network

The fiber interfaces connects a POF to a GOF. Use a GOF to connect two pieces of equipment in the optical network that are more than 50 m apart and less than 1,500 m. Use the fiber interfaces as a pair. The first connects a POF to a GOF, the second connects the GOF to a POF.

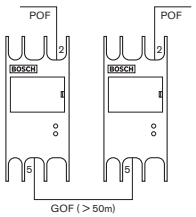


Figure 6.52: Optical network

Notice!
If the distance between two devices is less than 100 m, a network splitter can be used in the middle to remove the use of fiber interfaces. Use only the trunk sockets of the network splitter in this case.

The GOF socket is a double SC socket that uses invisible infra-red light (1300 nm).

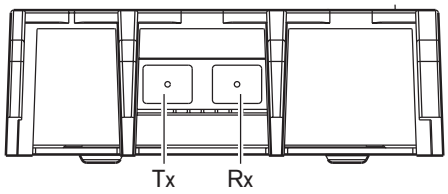


Figure 6.53: Double SC socket, connection

Pin	Signal
Tx	Transmitter
Rx	Receiver

Tab. 6.54: Double SC socket, connection

This figure is an example of a GOF cable with a double SC plug.

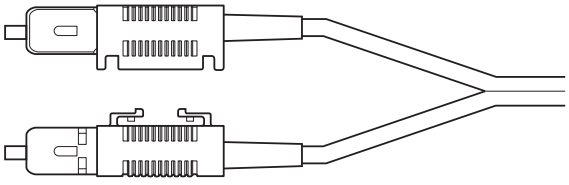


Figure 6.54: GOF with double SC plug

Make sure that all GOF cables:
– Are multi-mode GOF cables. (The system cannot use single mode GOF cables.)Are applicable for light with a wavelength of 1300 nm.Have a maximum attenuation of 2 dB/km.

Power supply
You can connect an external power supply to the external power supply socket of the fiber interface. The fiber interface is supplied with a Kycon KPP-4P plug, which you can connect to this socket (refer to *PRS-NSP Network Splitter, page 145*).

Warning!
For safety reasons, you must use a current limited external power supply complying with the 60065 standard for audio/video usage or equivalent, with a maximum output current of 5A, or you must use an external fuse (5A max, slow) in the wiring to the Kycon KPP-4P connector.

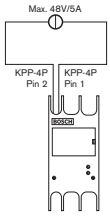


Figure 6.55: Power supply connection

6.27 DCN-DDB Data Distribution Board

Use the DCN cable to connect the data distribution board to the DCN. You cannot make a loop-through in the DCN with the data distribution board.

Notice!
You connect the data distribution board to the DCN with a trunk splitter (LBB4114/00, LBB4115/00) to bypass the data distribution board.

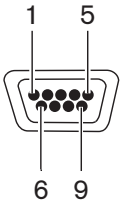


Figure 6.56: RS232 port, connection

Pin	Definition	Description
1	---	Not connected
2	RxD	Receive Data
3	TxD	Transmit Data
4	---	Not connected
5	SG	Signal Ground
6	---	Not connected
7	RTS	Request To Send
8	CTS	Clear To Send
9	---	Not connected

Tab. 6.55: RS232 port, connection

Speak slowly signaling

The interpreter desks (refer to *DCN-IDESK Interpreter Desks, page 51*) have a speak slowly button. With this button, the interpreters can activate an indicator that tells the current speaker to speak slowly. This function of the interpreter desk must always be used along with the data distribution board. Refer to the figure for the physical connections.

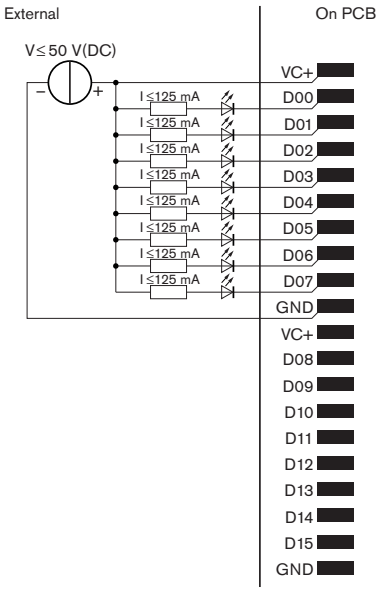


Figure 6.57: Physical connections

Notice!
The parallel outputs are also available on a 20-pole connector (refer to *DCN-IDESK Interpreter Desks, page 51*).

Refer to the figure for a circuit diagram for speak slowly signaling.

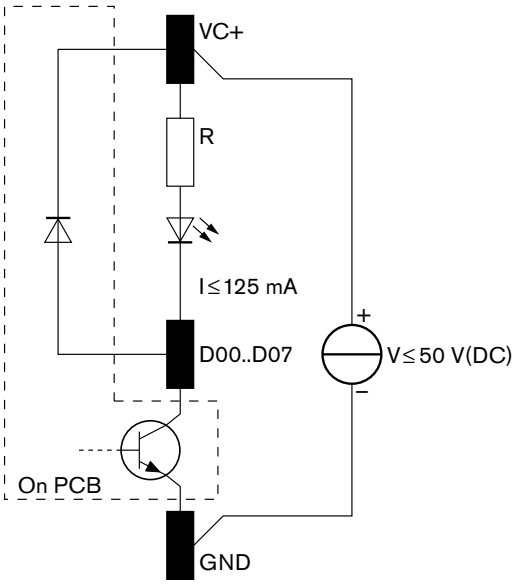


Figure 6.58: Circuit diagram

The first request to speak slowly activates parallel output D00 of the data distribution board. The second request (from a different interpreter booth) activates parallel output D01, the third request activates parallel output D02 etc. The maximum number of activated parallel outputs is eight (D00 to D07).

Help signaling

The interpreter desks (DCN-IDESK) have a Help button. With this button, the interpreters can activate an indicator that tells the operator or chairman that they need assistance. This function of the interpreter desk must always be used along with the data distribution board. Refer to the figure for the physical connections.

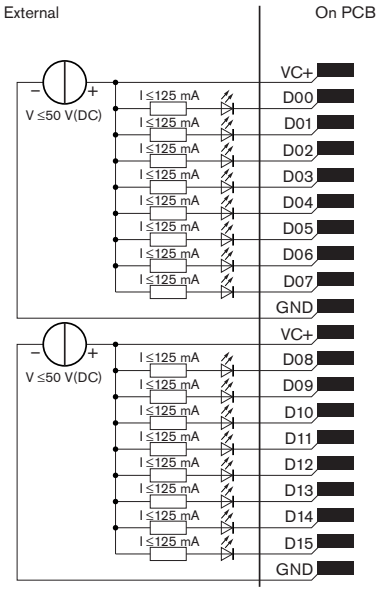


Figure 6.59: Physical connections

Notice!

The parallel outputs are also available on a20-pole connector (refer to *DCN-IDESK Interpreter Desks, page 51*).

Refer to the figure for a circuit diagram for help signaling.

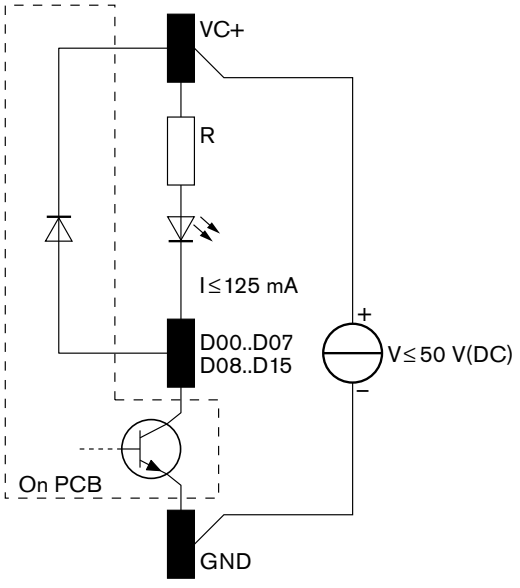


Figure 6.60: Circuit diagram

Requests for assistance that come from interpreter booths 1 through 16 activate parallel outputs D00 to D15 on the data distribution board with address 254. Requests for assistance that come from interpreter booth 17 to 31 activate parallel outputs D00 to D15 on the data distribution board with address 255.

Power supply

You can connect an external power supply to the power supply connector. The external power supply only gives power to the data distribution board. It does not give power to the DCN.

Supply voltage (DCN or external):
10 - 40 V(DC)
Current consumption (DCN):
< 50 mA @ 40 V(DC)

Tab. 6.56: Power supply

You can enable or disable the connected external power supply with the J10 jumper block.

Position	**Power**
A	System power supply
B	External power supply

Tab. 6.57: Jumper setting

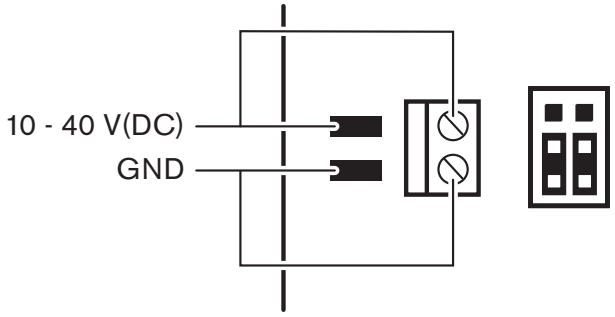


Figure 6.61: Power supply

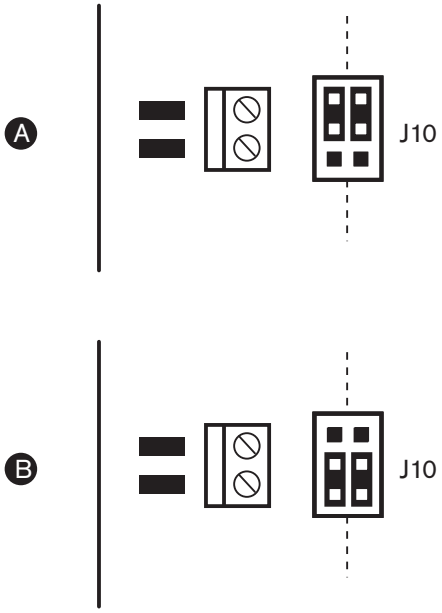


Figure 6.62: Power supply

Remote Controls

You can use the parallel inputs and parallel outputs as remote controls. For example, to switch on lamps, open doors or close curtains in the room.

Notice!

The parallel inputs and parallel outputs are also available on a 20-pole connector.

All parallel inputs and parallel outputs form pairs. For example, parallel input U00 controls parallel outputs D00.

Parallel inputs		**Parallel outputs**	
Pad	Pin	Pad	Pin
VC+	1	VC+	1
U00	2	D00	2
U01	3	D01	3
U02	4	D02	4
U03	5	D03	5
U04	6	D04	6
U05	7	D05	7
U06	8	D06	8
U07	9	D07	9
GND	10	GND	10
VC+	11	VC+	11
U08	12	D08	12
U09	13	D09	13
U10	14	D10	14
U11	15	D11	15
U12	16	D12	16
U13	17	D13	17
U14	18	D14	18
U15	reserved	D15	reserved
GND	20	GND	20

Tab. 6.58: Parallel inputs and outputs

The parallel inputs do not only control the associated parallel output on the same data distribution board.

They also control the associated parallel outputs on all other data distribution boards that are:

– In the passive mode and do not have address 253, 254 or 255.

Notice!
Do not use a parallel output for more than one purpose.

For example, parallel input D00 of a distribution board does not only control parallel output U00 of the same data distribution board. It also controls all the parallel output U00 of all the other data distribution boards that are in the active mode or in the passive mode and do not have address 253, 254 or 255.
Refer to the figure for the physical connections of the parallel inputs.

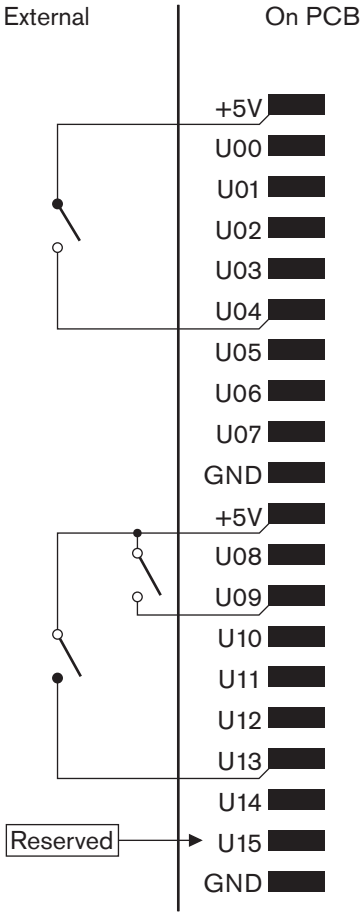


Figure 6.63: Parallel inputs

Refer to the figure for the physical connections of the parallel outputs.

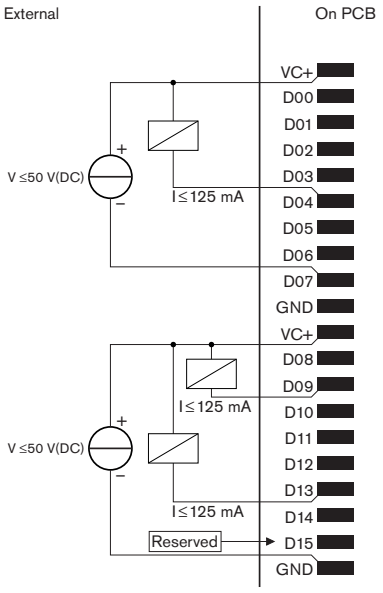


Figure 6.64: Parallel outputs

Refer to the figure for a circuit diagram to connect the parallel inputs.

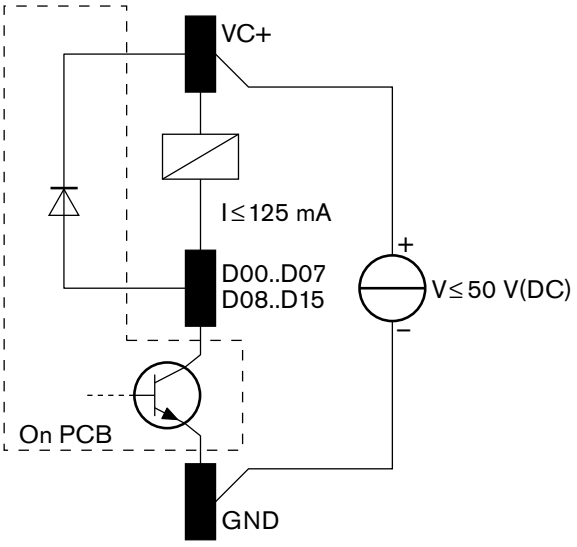


Figure 6.65: Circuit diagram

6.28 INT-TXxx Integrus Infrared Transmitters

The Integrus Infrared Transmitter (INT-TXxx) can be directly connected to the optical network of the DCN Next Generation Conference system. Use an optical network cable to connect one of the optical network sockets of the transmitter to the optical network. The network mode must be enabled with the configuration menu (see section **Set network mode** (4B) of the **Integrus operation manual**).

Caution!

To avoid possible system start-up (Master) conflicts within the DCN-NG system, connect and fully start-up the system devices always in the following order:

1 - DCN-CCU2 or DCN-CCU

2 - INT-TXxx

3 - PRS-4AEX4, PRS-4OMI4, PRS-4DEX4

6.29 Custom made Optical Network Cables

Refer to the figure and table for details about the wires inside the extension cables.

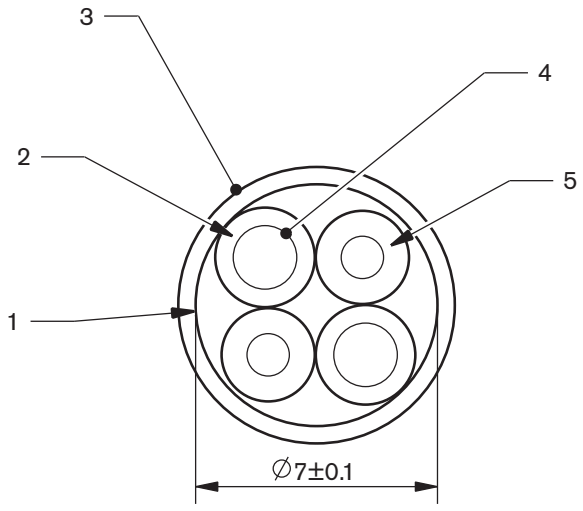


Figure 6.66: Wires

Number	Signal
1	Protective cloth
2	Insulation
3	Outer sheet
4	Stranded wire
5	Optical fiber

Tab. 6.59: Wires

The optical network connector (LBBB4417/00) has 10 parts.

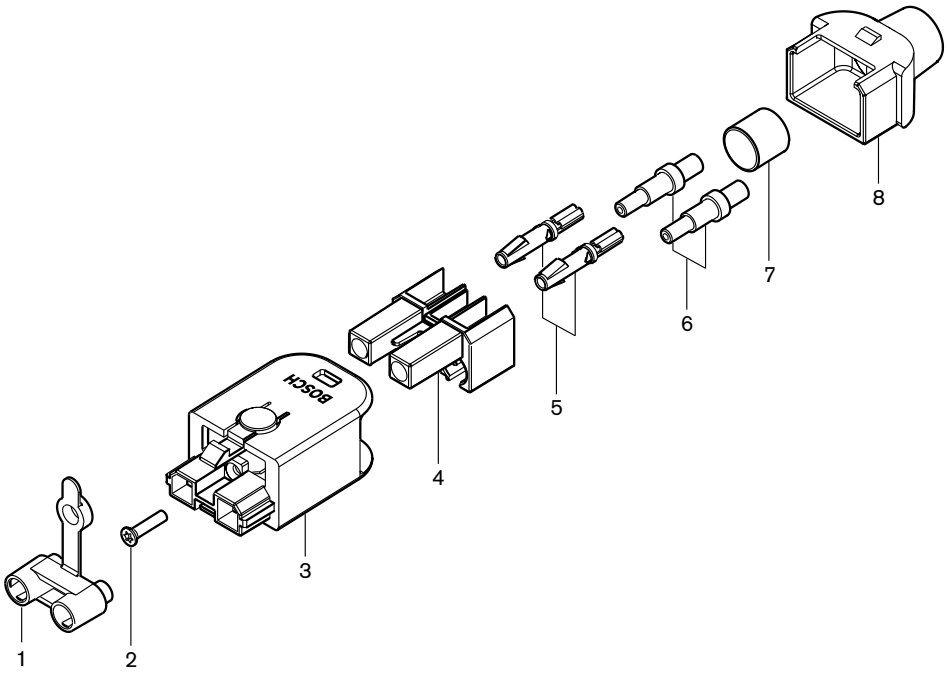


Figure 6.67: Connector assembly drawing

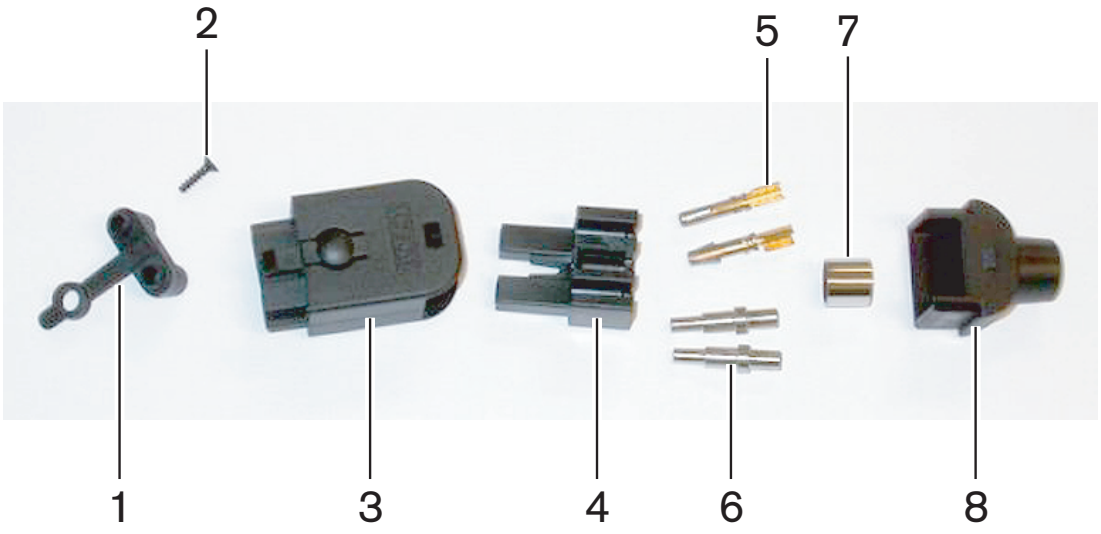


Figure 6.68: Connector components

This procedure shows how to make the cable-connector.
The procedure has these parts:

- Prepare.
- Remove the ends from the copper wires.
- Attach the socket contacts.
- Remove the ends from the optical fibers.
- Attach the ferrules.
- Assemble the connector.
- Crimp the bush.

Cable types

There are two types of optical network cables:

– Type A cables. The plastic optical fibers are adjacent to each other (the figure shows both cable ends).Type B cables. The plastic optical fibers are opposite to each other (the figure shows both cable ends are identical).

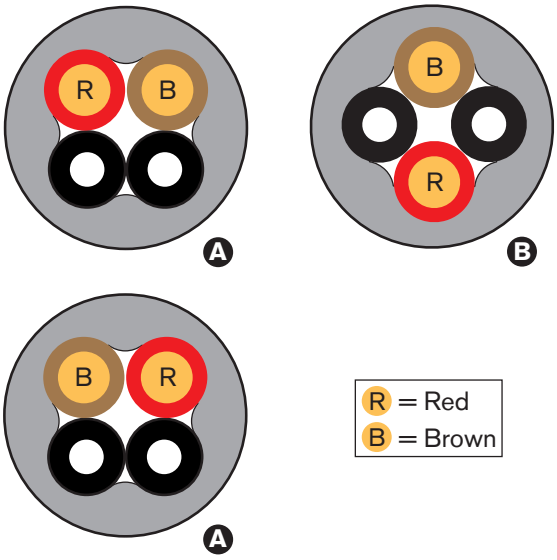


Figure 6.69: Cable types

Prepare

Do as follows:

1. Use the cable cutter (tool 2) to cut the optical network cable to the correct length.

Notice!

Light decreases in intensity through the length of the cable. The length of an optical network cable must be less than 50 m.

2. Examine the cable type. Some steps in the procedure change because of the cable type.
3. Disassemble an optical network connector. An optical network connector has 10 parts.
4. Push the cable through the back housing.

Figure 6.70: Back housing on cable

5. Push the cable through the stripping tool (tool 5) to the mechanical stop.
6. Use the stripping tool to remove the outer sheath of the cable.

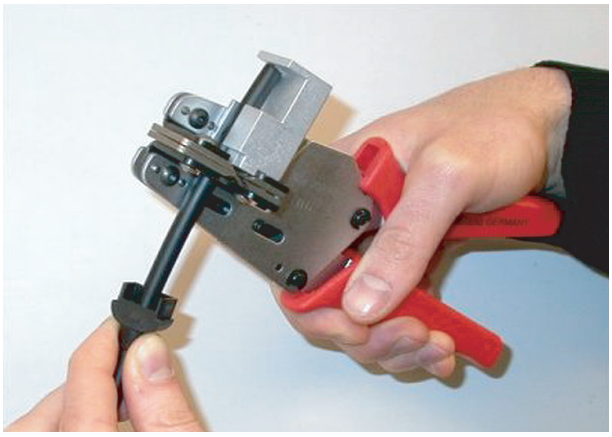


Figure 6.71: Stripping the cable

Crimp the bush

Do as follows:

1. Put the cable end through crimping bush to the end of the outer sheath.

Notice!

The crimping tool (tool 3) makes the circular shape of the cable cross-section and the crimping bush at the end of the outer sheath into a hexagonal shape. Before you crimp the bush, make sure that both plastic optical fibers are parallel to a flat side of the hexagonal cross-section.

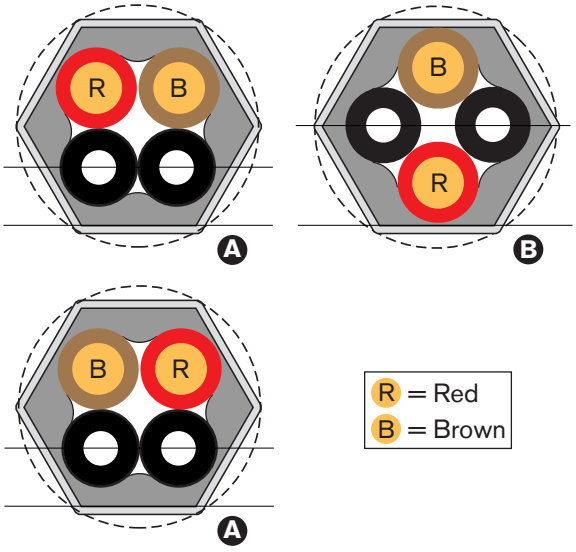


Figure 6.72: Cross-section transformation

2. Use the crimping tool (tool 3) to attach the crimping bush to the outer sheath. The crimping bush stops the cable from rotating in the connector.

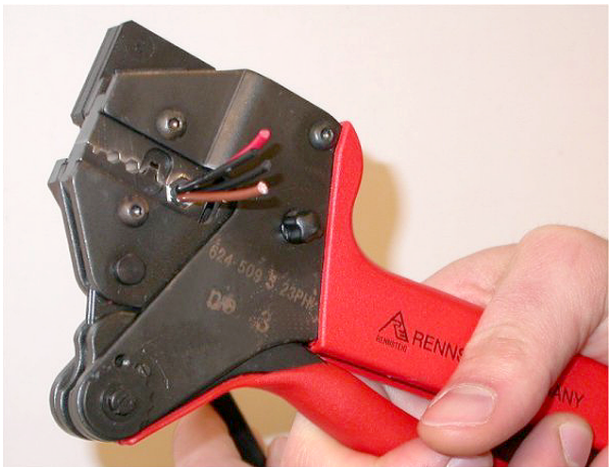


Figure 6.73: Crimping the bush

Remove the ends of the copper wires

Do as follows:

1. Hold the crimping bush in position I with the stripping tool. Cut the copper wires at position II with the cable cutter (tool 2).

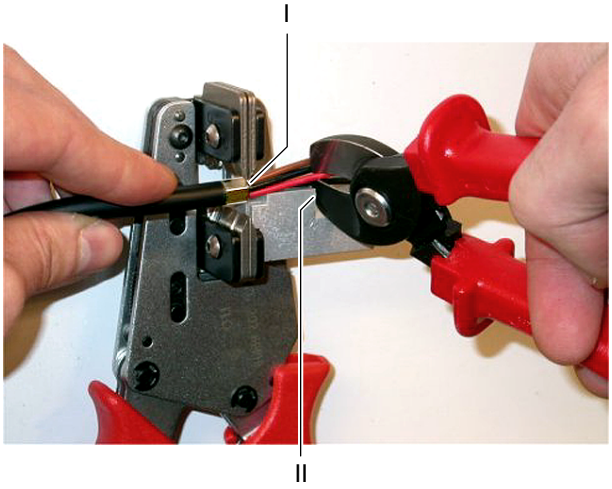


Figure 6.74: Cutting a copper wire

2. Push the copper wires to the mechanical stop of the stripping tool (tool 5). Remove the red and brown insulations from the copper wires.

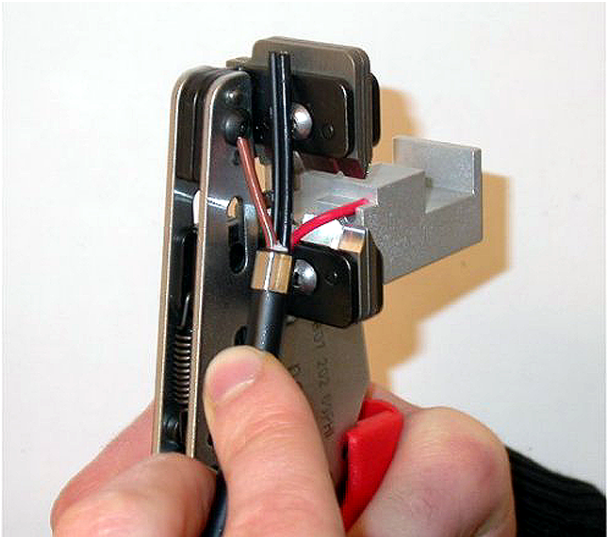


Figure 6.75: Stripping a copper wire

Attach the socket contacts

Do as follows:

1. Put a socket contact in the crimping tool (tool 3). The upper part of the crimping tool contains a ridge to put the socket contact correctly in the tool.

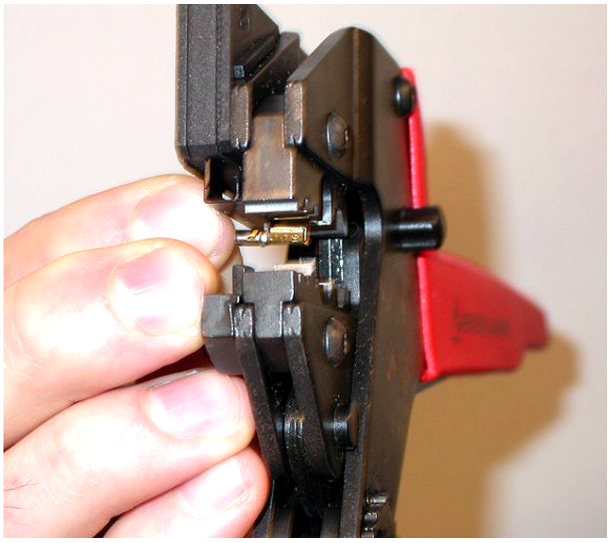


Figure 6.76: Crimping a socket contact (1)

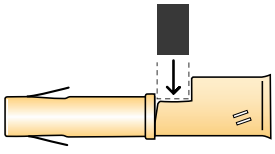


Figure 6.77: Crimping a socket contact (2)

2. Put one of the bare, copper wires into the contact area of the socket contact. Close the crimping tool to crimp the socket contact onto the copper wire.

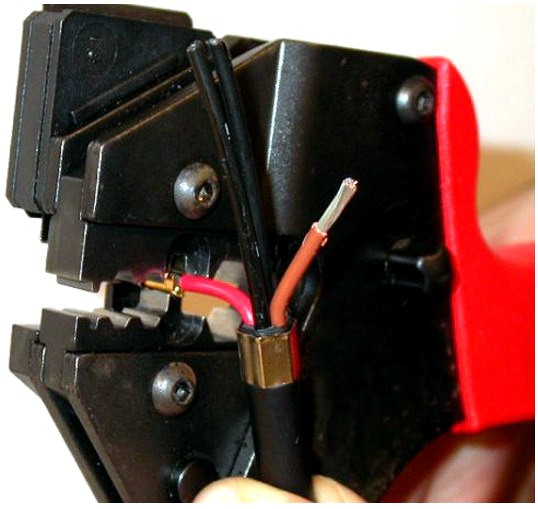


Figure 6.78: Crimping a socket contact (2)

3. Repeat steps 11 and 12 for the other bare copper wire. Refer to the figure to see the result of this part of the cable-connector mounting procedure.

Figure 6.79: Mounted socket contacts

Remove the sheath from the optical fibers

Proceed as follows:

1. Put the plastic optical fibers into the POF cutter/stripping tool (tool 6). The optical fiber that is to be cut must be put in the small guide hole. The other optical fiber must be put in the large guide hole. Push the cable until the crimping bush is against the stop.

Figure 6.80: Cutting a fiber (1)

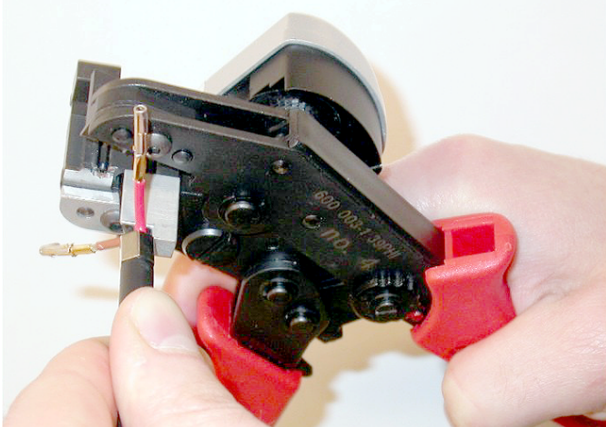


Figure 6.81: Cutting a fiber (2)

2. Close the tool to hold the cable and pull the ‘trigger’ to cut the optical fiber.

Figure 6.82: Cutting a fiber (3)

3. Repeat steps 14 and 15 for the other plastic optical fiber in the cable. Both fibers now have the correct length.
4. Put one of the optical fibers into the front part of the POF cutter/stripping tool (tool 6).

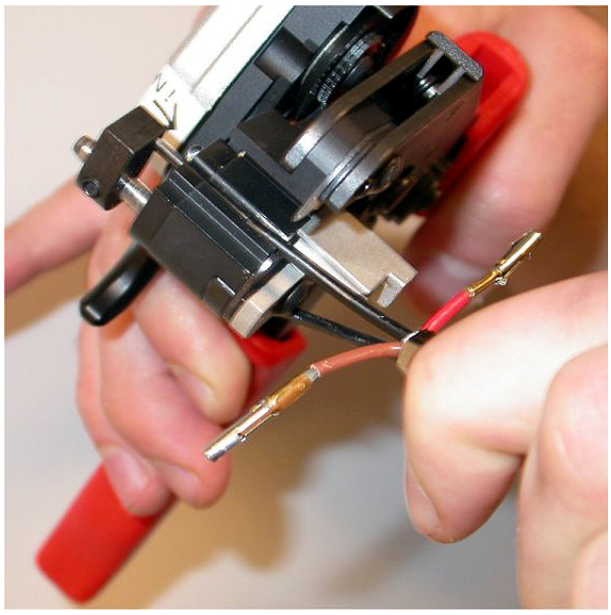


Figure 6.83: Stripping a fiber

5. Close the tool and pull the fiber out to remove the sheath.

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

6. Repeat steps 17 and 18 for the other fiber in the cable. Refer to the figure to see the result of this part of the cable-connector mounting procedure.

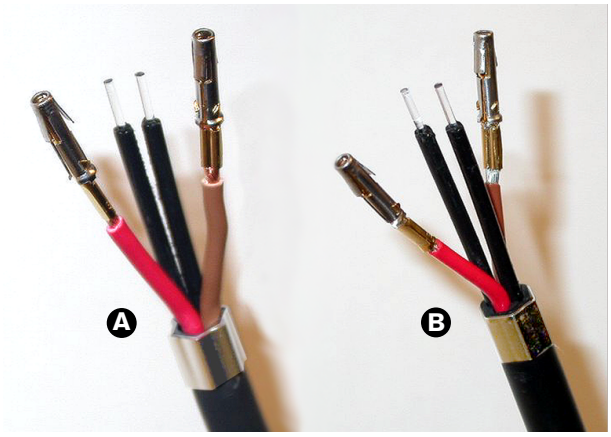


Figure 6.84: Stripped optical fibers

Attach the ferrules

Do as follows:

1. Put a ferrule into the spring-loaded stop of the POF positioning/crimping tool (tool 4).

Figure 6.85: Inserting a ferrule

2. Turn the small lever to lock the ferrule.

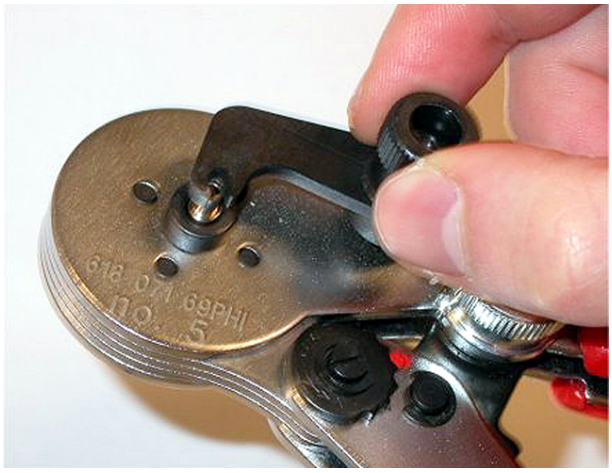


Figure 6.86: Locking a ferrule

3. Put one plastic optical fiber into the ferrule in the spring-loaded stop of the POF positioning tool.

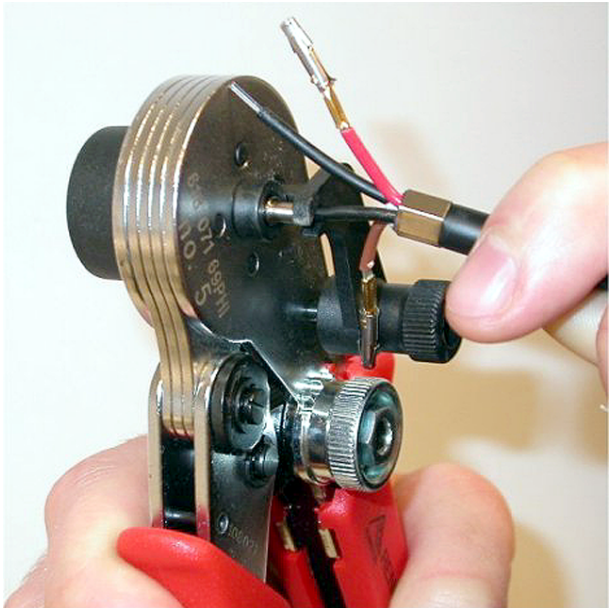


Figure 6.87: Crimping ferrules (1)

4. Close and open the tool to crimp the ferrule onto the core of the fiber.

5. Repeat steps 20 to 23 for the other fiber in the cable. The ferrules only have been crimped on the core of the optical plastic fiber. The next step crimps the ferrules on the sheaths of the fibers.
6. Put both ferrules in the crimping tool (tool 3).

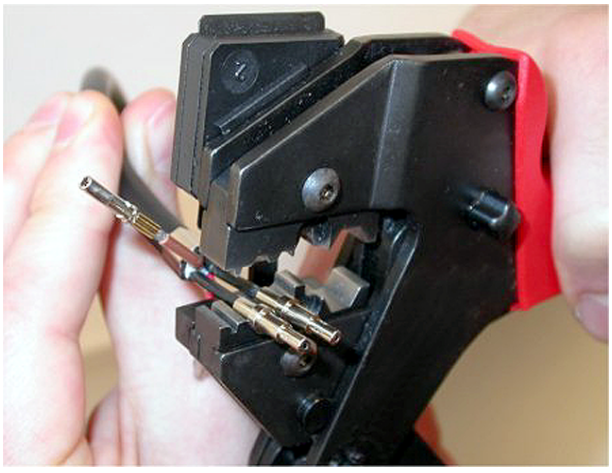


Figure 6.88: Crimping ferrules (2)

7. Crimp the ferrules on the sheath using the crimping tool (tool 3). Refer to the figure for the result of this part of the cable-connector assembly procedure.

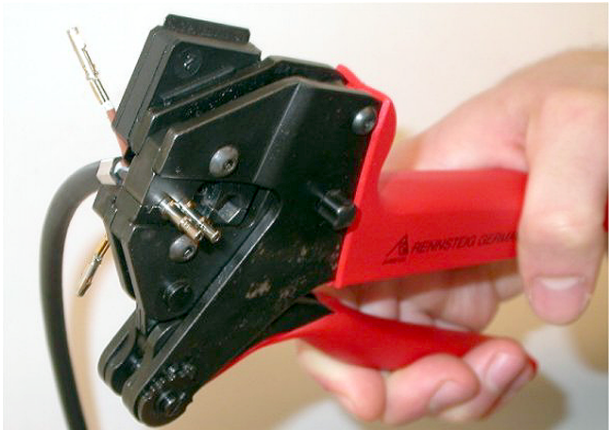


Figure 6.89: Crimping ferrules (3)

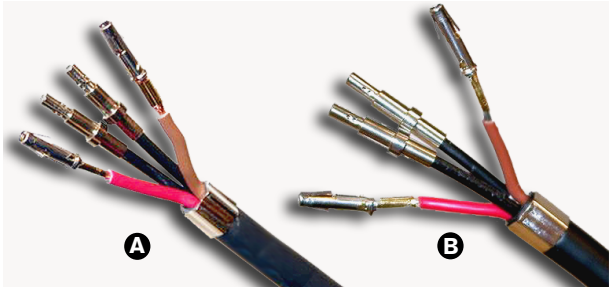


Figure 6.90: Ferrules on fibers

Assemble the connector

Before you start to assemble the connector, the copper wires and the plastic optical fibers for must be correctly put in the connector. The copper wires will be attached to the upper part of the connector, the optical fibers will be attached to the lower part of the connector (refer to Figure 5.42).

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

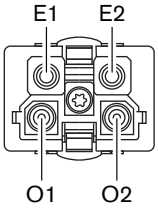


Figure 6.91: Front view of connector

Refer to the wiring diagram and the figures.

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

Tab. 6.60: Optical network connector details

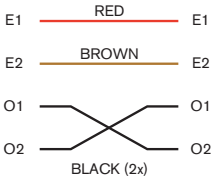


Figure 6.92: Wiring diagram

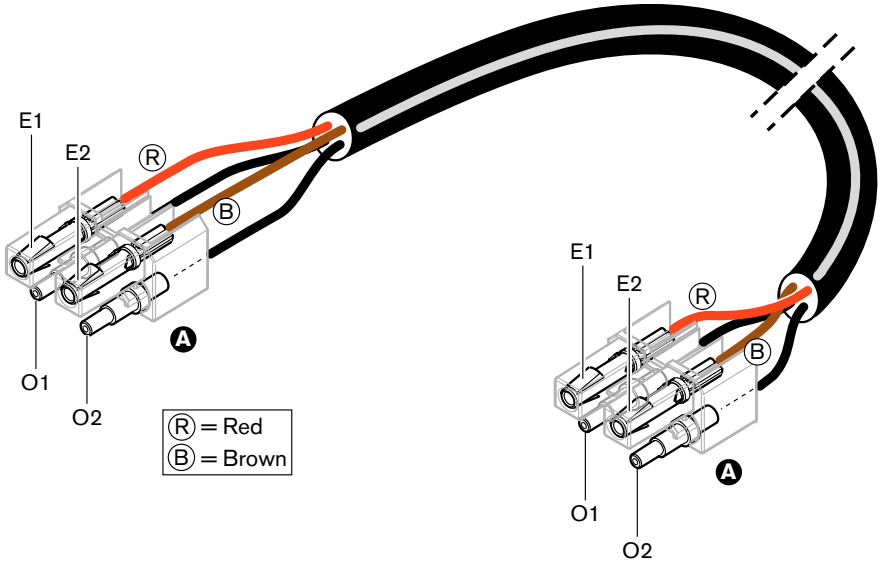


Figure 6.93: Wiring diagram applied to type A optical network cables

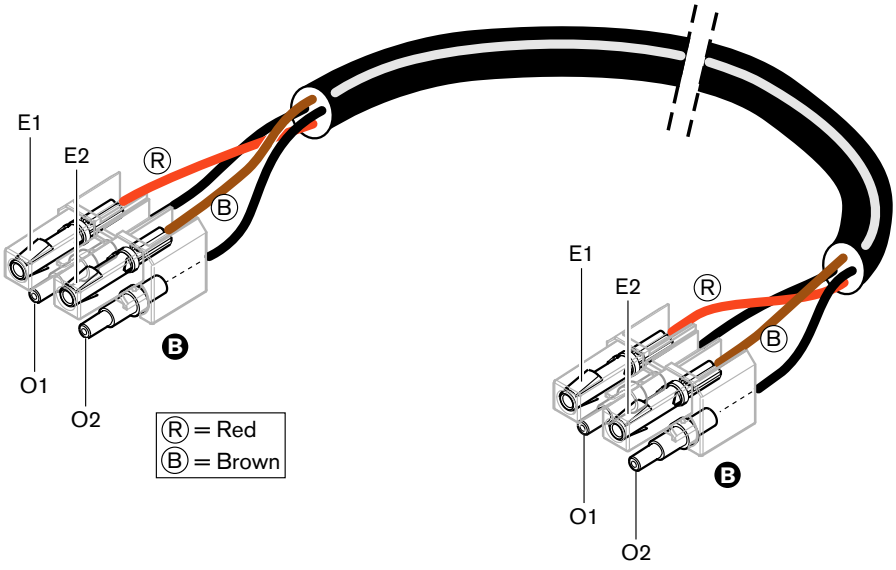


Figure 6.94: Wiring diagram applied to type B optical network cables

Where applicable, the procedure to assemble the connectors for both types of cable is shown in the figures. Do as follows:

1. Make sure the ends of the cables and the plastic optical fibers correct.

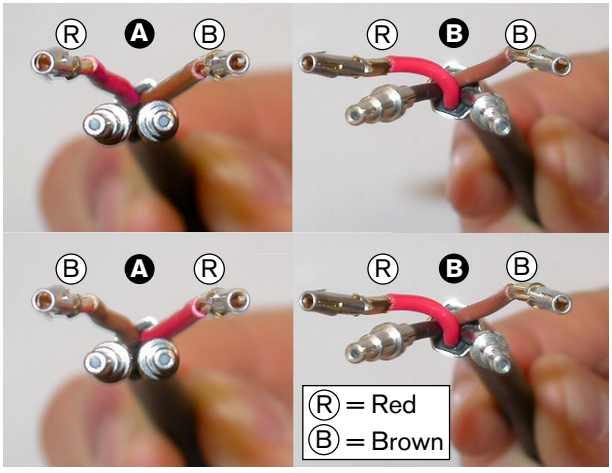


Figure 6.95: Copper wires and fibers

2. Put the ferrules in the mounting block.

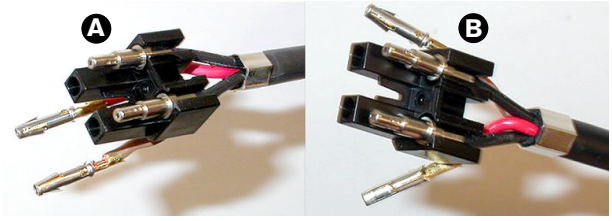


Figure 6.96: Mounting block and back housing

3. Put the socket contacts in the mounting block. Type A cables only: One of the connectors attached to a type A cable, the red and brown copper wires must crossover as shown in the wiring diagram.

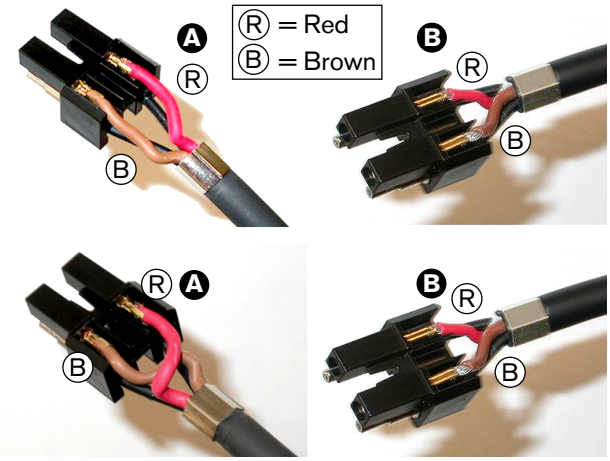


Figure 6.97: Mounting block and back housing

4. Put the mounting block in the back housing.

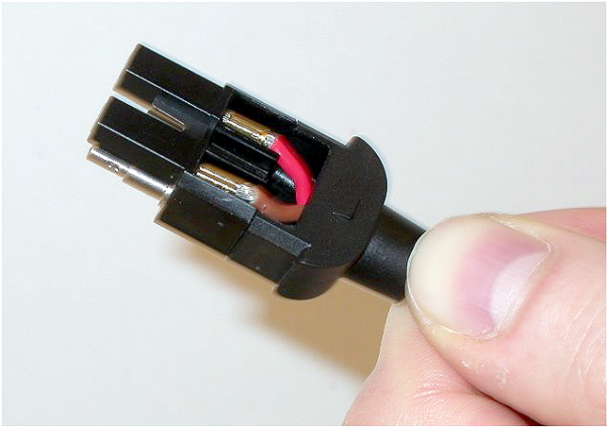


Figure 6.98: Mounting block/back housing assembly

5. Click the front housing on the mounting block/back housing assembly.

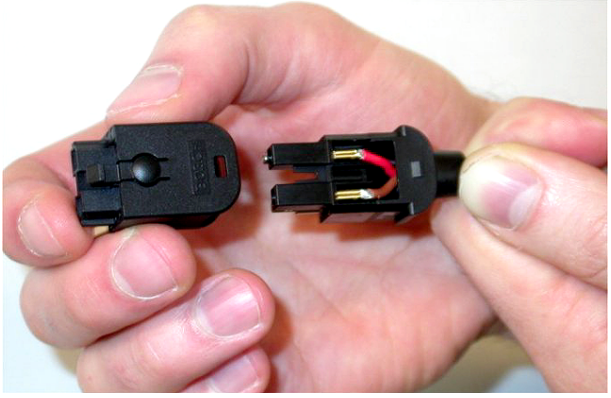


Figure 6.99: Mounting the front housing

6. Insert the Torx screw into the front housing.

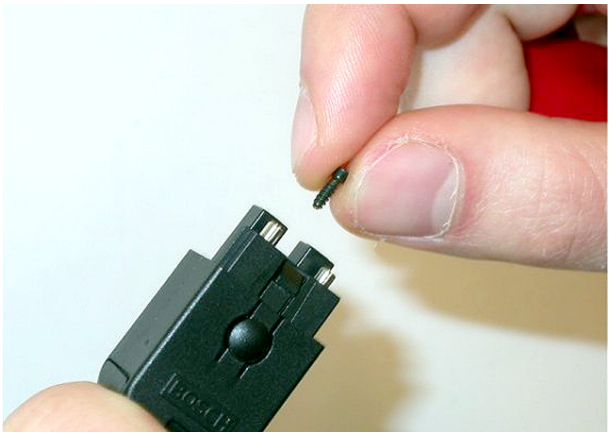


Figure 6.100: Inserting the Torx screw

7. Tighten the Torx screw using the Torx screwdriver (tool 7).

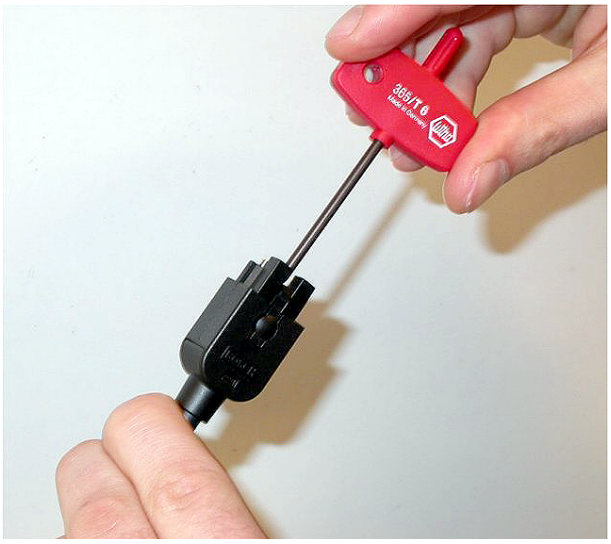


Figure 6.101: Tightening the Torx screw

8. Put the dust cap on the connector to protect the plastic optical fibers.

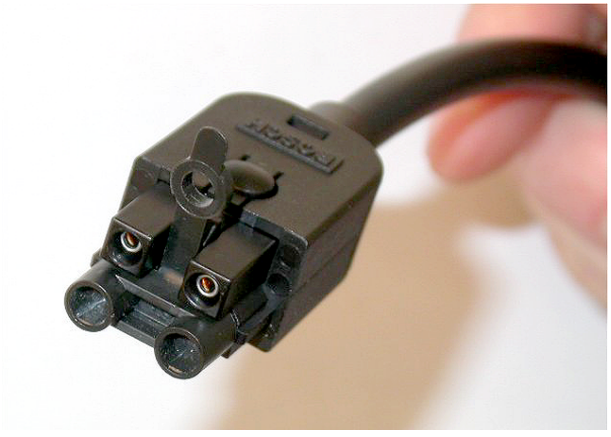


Figure 6.102: Dust cap on connector

6.30 Custom made DCN cables

You can make custom-made cables with the LBB4116/00 Extension Cable (100 m) and the LBB4119/00 DCN Connectors.

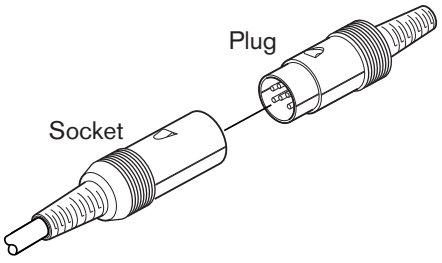


Figure 6.103: DCN plug and socket

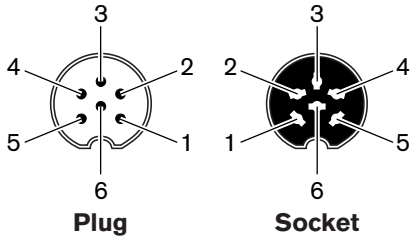


Figure 6.104: DCN plug and socket, connection

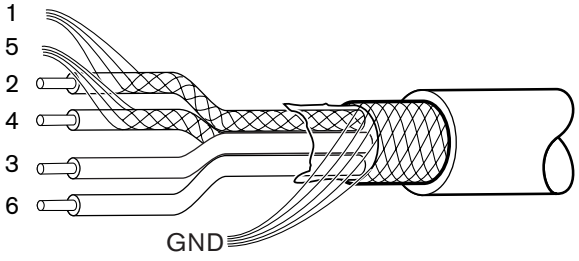


Figure 6.105: DCN cable, connection

Pin	Signal	Color
1	Downlink GND	---
2	Downlink data	Green
3	+40 V(DC)	Brown
4	Uplink data	White
5	Uplink GND	---
6	+40 V(DC)	Blue

Tab. 6.61: DCN cable, connection

7 Configuration

7.1 System Configuration

7.1.1 Downloading

To download the software to a CCU, do the following:

1. Install the download and license tool on a PC (the download and license tool is on the DVD).
2. Connect all central equipment with an optical network connector to the CCU. Be aware of ground-loop settings (refer to *DCN-CCU2 and DCN-CCUB2 Central Control Units, page 14*.)
3. Connect the CCU to the PC.
4. Power-up the CCU and all other central equipment.
5. Select: Download CCU.
6. Select: Download optical devices.

To download the software to a multi-CCU, do the following:

1. Install the download and license tool on a PC (the download and license tool is on the DVD).
2. Connect all central equipment to the master CCU except for the slave CCU.
3. Connect the master CCU to the PC.
4. Select: Download CCU.
5. Select: Download optical devices.
6. Power off the master CCU and the optical devices.
7. Connect the CCUs, one at a time, to the PC.
8. Select: Download CCU.
9. Power off the CCUs, one at a time.

Notice!
The Download and License Tool can be used for upgrading. When “Download Optical devices” is selected, all applicable devices connected to the optical network will be upgraded. In case the DCN-WAP is connected, it will take more than 50 minutes to upgrade the DCN-WAP. Bypass: In case the DCN-WAP does not need to be upgraded, do not connect the DCN-WAP when selecting “Download Optical devices”. This is normal system behavior; it is mentioned here to remind the user.

Notice!
For the system to work correctly, all software and firmware of the central equipment and PC must be of the same release.

7.1.2 Initialization

Each active device in the DCN System (wired and wireless) must have an address. The central control unit cannot send data to an active device that does not have an address. During the initialization, the central control unit gives addresses to the active devices.

De-initialization of a system

1. Select the 8K De-Initialize menu item of the configuration menu of the central control unit.
2. Push the knob to go to the 8K De-Initialize menu item.
3. Set the value of the parameter in the menu item to Yes. The addresses of all active devices in the DCN are erased. All LEDs on all active devices in the DCN come on.

De-initialization of a device

1. For wired units: Push the de-init switch of the active device for less than half a second to erase the address of the active device. All LEDs of the unit come on and the LED around the microphone indicator comes on as red.
2. For wireless units: Push and hold the de-init switch of the active device for more than one second to erase the address and do the initialization at the same time. All LEDs of the wireless discussion unit come ON, and the LED around the microphone indicator ring comes ON as red. The old subscription is erased, and the unit is ready for subscription.

Caution!
Do not use a sharp object, otherwise you might damage the de-init switch. Use a paperclip or similar device to push the de-init switch.

Initialization of a device

- Push the microphone button of each active device in the DCN. When the central control unit gives an address to the active device, the LEDs of the active device go off.

Notice!
Do not push more than one microphone button at the same time. The central control unit cannot give addresses to more than one active device at the same time.

Notice!
The DCN-FVU Voting Units do not have a microphone button. Push voting button 3 to give an address to a voting unit.

Notice!
You can also give an address to a DCN-DDI Dual Delegate Interface with voting button 3 of a connected DCN-FV Voting Panel.

7.2 19 inch units

Menu items

The configuration menu consists of menu items. Refer to *DCN-CCU2 and DCN-CCUB2 Central Control Units, page 180* > Overview, for the parts of a menu item.

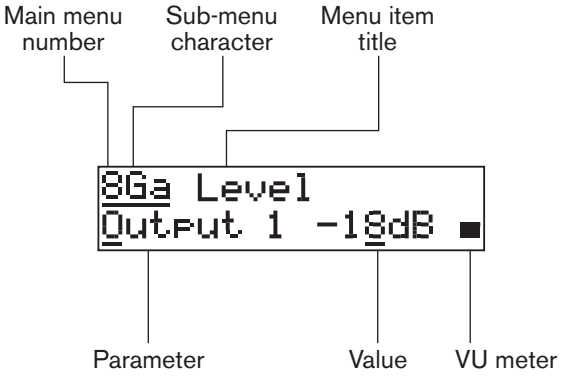


Figure 7.1: Menu item parts

Number and characters

Identify menu items by the main menu number sub-menu character. The number identifies the main menu to which the menu item is connected. The characters identify the sub-menus to which the menu item is connected.

Menu title

Each menu item has a title. The title gives a short description of the function of the menu item.

Parameters and values

Most menu items have one or more parameters. To make adjustments, change the values of the parameters.

VU meter

Some menu items have a VU meter. The VU meter shows the volume levels of signals. The VU meter has seven rows.

VU meter	Description
One row on	No signal
Seven rows on	Maximum signal
Triangle	Clipped signal
Minus	Disabled by control input

Tab. 7.62: VU meter

To open the main menu

To open the main menu, push the knob in the Main menu item. The main menu number and the menu item title flash.

To go through the main menu

– Turn the knob clockwise in the main menu to go to the next menu item in the main menu.
– Turn the knob counterclockwise in the main menu to go to the previous menu item in the main menu.

To open a sub menu

When the display shows a menu item that has three dots (...), the menu item gives access to a sub-menu. To open the sub-menu, push the knob in a menu item that has three dots. (The last sub-menu character and the menu item title flash.)

Notice!
To open the Setup sub-menu, you must push and hold the knob for more than 3 seconds.

To select menu items in a sub-menu
Do as follows:
– Turn the knob clockwise in a sub-menu to go to the next menu item in the sub-menu.
– Turn the knob counterclockwise in a sub-menu to go to the previous menu item in the sub-menu.

To open a menu item
Do as follows:
– Turn the knob to select the applicable menu item.
– When the display shows the correct menu item, push the knob to open the menu item. The display shows a cursor.

To select a parameter
Do as follows:
1. Open the correct menu item.
2. Turn the knob to move the cursor to the parameter that is shown.
3. On the parameter, push the knob. The parameter flashes.
4. Turn the knob to go to the applicable parameter.
5. When the display shows the applicable parameter, push the knob to select the parameter. The display shows a cursor.

To change the value of a parameter
Do as follows:
1. Select the applicable parameter.
2. Turn the knob to move the cursor to the value.
3. Push the knob. The value flashes.
4. Turn the knob to go to the value.
5. When the display shows the correct value, push the knob to select the value. The display shows a cursor.

To close a menu item
Do as follows:
1. Turn the cursor to the last character that identifies the menu item.
2. Push the knob to close the menu item. The last character and the menu item title flash.

To close a sub-menu
Do as follows:
1. Turn the cursor to go to the last character but one that identifies the menu item.
2. Push the knob to close the sub-menu. The last character and the menu item title flash.

To close the main menu
Do as follows:
1. From the main menu, turn the primary knob clockwise to go to the < Back menu item.
2. From the < Back menu item, push the knob to go to the Main menu item.

Example

For an example, do as follows to change the level of audio input 2 of the central control unit:

Notice!

Make sure that when you do this example, you start from the main screen.

1. Push the knob to open the main menu.

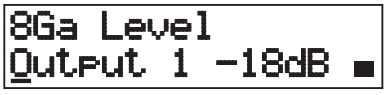
2. Turn the knob clockwise until 8 Setup... is reached.

3. Push-and-hold the knob for 3 seconds to open the sub-menu.

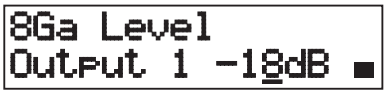
4. Turn the knob clockwise until 8G Audio I/O... is reached.

5. Push the knob to go to the sub-menu.

6. Push the knob to open the sub-menu item.



7. Turn the knob to move the cursor to the value that is shown.



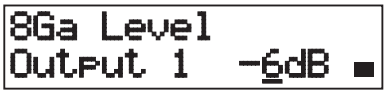
8. On the value, push the knob.

9. Turn the knob to change the value.

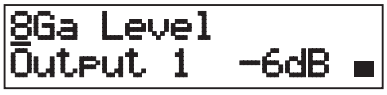
Notice!

In this example, the knob is turned counterclockwise to decrease the value from 0 dB to -6 dB. Turn the knob clockwise to increase the value.

10. Push the knob to deselect the value.



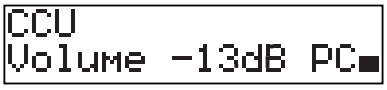
11. Turn the knob to go to the main menu number.



12. Push the knob to go back to the main menu.

13. Turn the knob clockwise to go to the < Back menu item.

14. Push the button to go to the main screen.



7.3 DCN-CCU2 and DCN-CCUB2 Central Control Units

Overview

Use the configuration menu of the central control unit to configure the central control unit and the system.

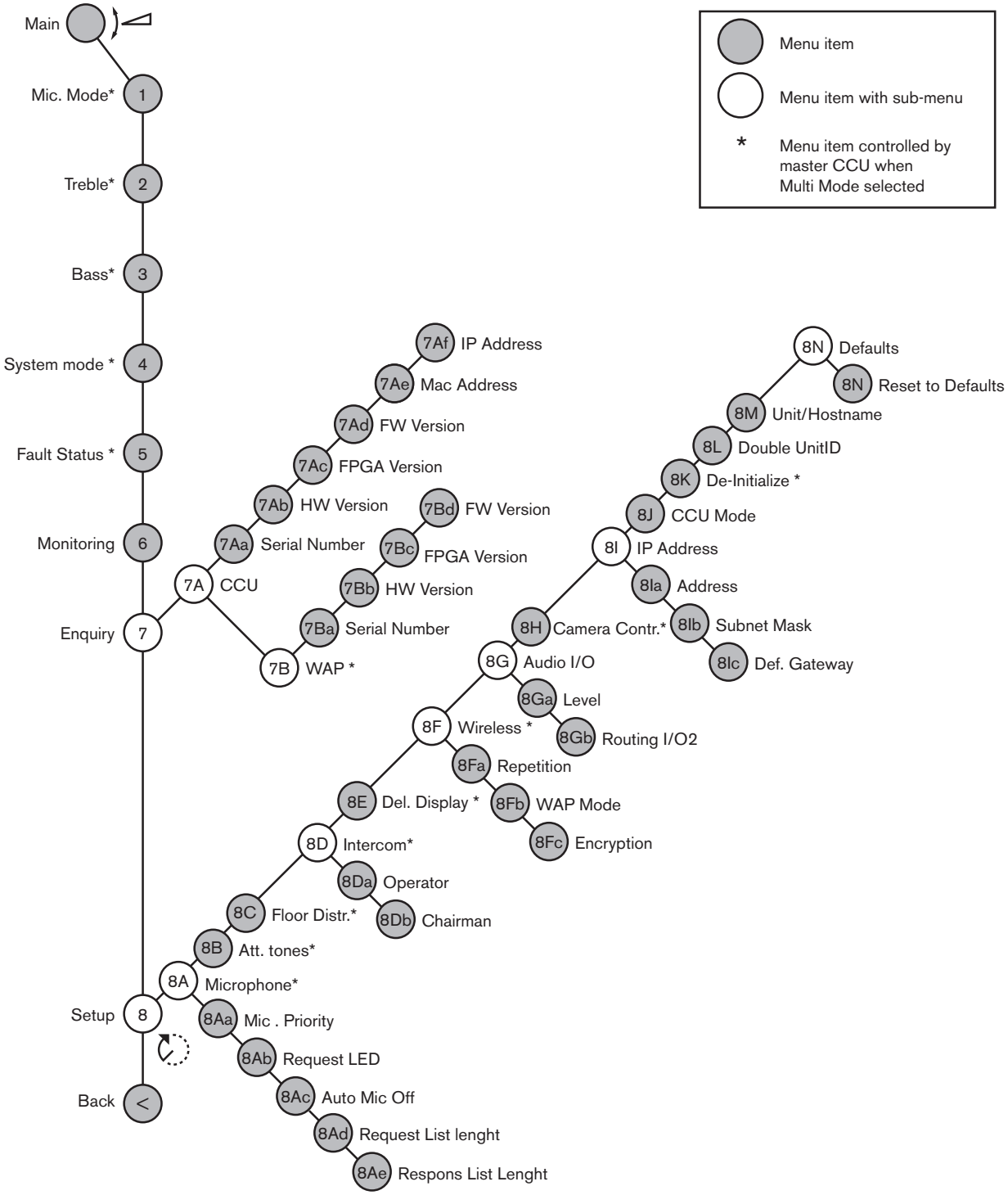


Figure 7.2: Configuration menu

Setup

Use the 8 Setup menu item to open the Setup sub-menu. You can use the menu items in this sub-menu to configure the central control unit and the system.

Microphone

Use the menu items in the 8A Microphone sub-menu to set the microphone.

Menu item	Parameter	Value	Description
8Aa Mic. Priority	---	Temporarily off* Permanently off	The action taken by the system when the chairman releases the priority button.
8Ab Request LED	LED setting	Flashing* Continuous	Sets the behavior of the request LED for the first delegate in the request list.
8Ac Auto Mic. Off		On Off*	Switches active microphones automatically off after 30 seconds no speech. Chairman units and interpreter desks are excluded.
8Ad Request	List Length	1-99	Sets the maximum number of Requests in the queue.
8Ae Respons	List Length	1-25	Sets the maximum number of Responses in the queue.

Tab. 7.63: Microphone sub-menu (* = default)

Refer to the next table for the microphone priority settings

Value	Description
Permanently off	The system does not activate the microphones of the delegates again when the chairman releases the priority button. The requests-to-speak and speakers are erased.
Temporarily off	The system activates the microphones of the delegates again when the chairman releases the priority button. The requests-to-speak and speakers are not erased.

Tab. 7.64: Microphone priority sub-menu values

Attention tones

Use the menu items in the 8B Att. Tones sub-menu to set the attention tones.
The central control unit can play an attention tone when the chairman:

– Pushes the priority button on the chairman device.
– Starts a voting session.

Menu item	Parameter	Value	Description
8B Att. Tones	Event: Priority* Voting	Tone: Off, 1*, 2, 3 Off*, 1, 2, 3	The attention tones of the system.

Tab. 7.65: Attention tones sub-menu (* = default)

Floor distribution

Use the menu item in the 8C Floor Distr. sub-menu to set the floor distribution.

Value	Description
On*	The central control unit sends the floor signal to all unused (empty) interpretation channels in the system.
Off	The central control unit does not send the floor signal to all unused (empty) interpretation channels in the system.

Tab. 7.66: Floor distribution sub-menu values (* = default)

Intercom

Use the menu items in the 8D Intercom sub-menu to identify the location of the chairman and the operator.

Menu item	Value	Description
8Da Assign Operator	No* Yes	Does not start the assign operator procedure. Starts the assign operator procedure. Lift the receiver of the intercom handset of the operator to identify the location of the operator.
8Db Assign Chairman	No* Yes	Does not start the assign chairman procedure. Starts the assign chairman procedure. Lift the receiver of the intercom handset of the chairman to identify the location of the chairman.

Tab. 7.67: Intercom sub-menu (* = default)

Delegate display

Use the menu item in the 8E Del. Display sub-menu to set the display language.

Menu item	Value	Description
8E Del. Display	Language: English* German* French* Italian* Dutch* Spanish*	The language that is used by the displays of the contribution devices. Other languages (e.g. Chinese) can be selected via the DCN-DLT. The English language cannot be selected.

Tab. 7.68: Delegate display sub-menu (* = default)

Wireless

Use the menu items in the 8F Wireless sub-menu.

Menu item	Parameter	Value	Description
8Fa Repetition	--	0* 1 2	Allows the user to exchange latency with robustness.
8Fb WAP Mode	Carrier Power mode	0-2 (0*) High*, Medium, Low	Configures the WAP.

Menu item	Parameter	Value	Description
8Fc Encryption	--	On Off*	Enables the signal encryption for the wireless units.

Tab. 7.69: Wireless sub-menu (* = default)

Notice!
128-bits AES Rijndael encryption can be used in DCN Wireless systems. The encryption key is not stored in the Wireless Access Point (DCN-WAP), but in the Central Control Unit (DCN-CCU2). The DCN-WAP receives the key after connecting to the DCN-CCU2.The DCN-CCU2 and Wireless Discussion Units (version 4.0 or higher) have a default encryption key. Wireless Discussion Units with older versions or with changed encryption keys can not be subscribed and can therefore not be used with a DCN-CCU2 that has the default key and has encryption enabled.The encryption key of the DCN-CCU2 and Wireless Discussion Units can be changed with the Download & License Tool delivered on the DVD that came with the central control unit.By keeping the key field in the Download & License Tool blank (empty), the default encryption key of the DCN-CCU2 and Wireless Discussion Units can be restored.

Audio I/O
Use the menu items in the 8G Audio I/O sub-menu to identify the location of the chairman and the operator.

Menu item	Parameter	Value	Description
8Ga Level	Signal: Input 1* Input 2 Output 1 Output 2	Level: -6 to 6 dB (0 dB*) -6 to 6 dB (0 dB*) -24 to 6 dB (0 dB*) -24 to 6 dB (0 dB*)	The nominal levels of the audio inputs and the audio outputs of the central control unit.
8Gb Routing I/O 2	---	Multi slave mode: – Recorder* – Delegate Ldspkr – Local floor – Insertion or Int. Floor insert Stand alone, Single, Multi Master Mode: – Recorder* – Delegate Ldspkr – Mix-Minus – Insertion, Int. Floor insert or Insertion no AGC	The audio routing mode of the central control unit. Refer to *Audio I/O routing, page 16*.

Tab. 7.70: Audio I/O sub-menu (* = default)

Camera control
Use the menu item in the 8H Camera Cntrl sub-menu to select the type of connected camera system.

Value	Description
Autodome*	The central control unit sends the camera control signal to a Bosch Autodome (Baudrate 9.6 K).
Allegiant	The central control unit sends the camera control signal to a Bosch Allegiant (Baudrate 19.2 K).

Tab. 7.71: Camera control sub-menu values (* = default)

IP address

Use the menu items in the 8I IP Address sub-menu to set the IP address.

Menu item	Value	Description
8Ia Address	192.168.0.100 *	Sets the TCP/IP address.
8Ib Subnet Mask	255.255.255.0 *	Sets the TCP/IP subnet mask.
8Ic Def. Gateway	0.0.0.0 *	Sets the TCP/IP default gateway.

Tab. 7.72: IP Address sub-menu (* = default)

CCU mode

Use the 8J CCU Mode sub-menu item to set the mode of the central control unit.

Menu item	Parameter	Value	Description
8J CCU Mode	Mode: Standalone* Single Multi	Multi CCU slave ID, 01* to 30	Sets the CCU to standalone, single or multi mode.

Tab. 7.73: CCU Mode sub-menu (* = default)

- Use Standalone for systems with only one DCN-CCU2.
- Use Single mode if one of the DCN-CCU2's needs to be (temporarily) isolated from the optical network.
- Use Multi mode for a multi-CCU system with more then two DCN-CCU2's.

Notice!
For DCN-CCUB2, the 8J CCU mode is not selectable.

To configure a multi CCU system:

1. Power-up all CCUs without connections to the optical network and without connection to other CCUs via Ethernet.
2. Use menu 7Ac and 7Ad to verify that all CCUs have the same FPGA and firmware Version. If not, use the Download & Licensing Tool to upgrade all CCUs to the same version.
3. Use menu 8J to select for all CCUs in the multi CCU system the same System-ID between 00-15 (default: 00).
4. Each CCU also needs an individual Slave-ID. Use menu 8J to give each slave CCU a unique Slave-ID from 01 - 30. Slave-ID 01 is reserved for the Master-CCU (default: 01).
5. Use menu 8I to give each CCU a unique IP-address.
   In case a network with DHCP support (Dynamic Host Configuration Protocol) is used, select 'DHCP'and ignore steps 5b thru 5 d and continue with step 6. Note that some

DHCP servers automatically handout new IP-addresses from time to time. This is not preferred for a multi-CCU system; renewing the CCU IP-addresses will cause temporary disconnections between CCUs and cause improper system behavior. With the enquiry menu 7Af, the current IP Address of a CCU can be found.
In case DHCP is not available, use menu 8Ia to give each CCU within the same subnet a unique Static IP-address between: 1.0.0.0 – 223.255.255.255 excluding 127.***.***.***. Default: 192.168.0.100.). As a good example, the master CCU can use the default IP-address; the first slave can use 192.168.0.101, the second 192.168.0.102 and so fort.
Use menu 8Ib to give each CCU the same TCP/IP subnet mask between 0.0.0.0 - 255.255.255.255. Default: 255.255.255.0.
In case one or more DCN control PCs are in another subnet, use menu 8Ic to give each CCU the same TCP/IP default gateway 0.0.0.0 - 255.255.255.255. The default is 0.0.0.0.

6. Switch off all CCUs and connect the Ethernet and optical network cables. Now switch on the CCU that is assigned as master and switch on all CCUs that are assigned as slaves.
7. All CCUs should run now without fault messages, see *DCN-CCU2 and DCN-CCUB2 Central Control Units, page 233* > Pop-up messages.

De-initialize

Use the 8K De-initialize sub-menu item to erase the addresses of all connected contribution devices, wired and wireless, and the interpretation devices.

Menu item	Parameter	Value	Description
8K De-initialize	Are you sure?	No* Yes	Does not erase the addresses. Erases the addresses.

Tab. 7.74: De-Initialize sub-menu (* = default)

Double unitID

Use the 8L Double UnitID sub-menu item to define what the system should do with a double unit ID.

Value	Description
New UnitID* Keep UnitID	Sets the double unit ID with a new address (unit ID). Keeps the old address (unit ID).

Tab. 7.75: Double UnitID sub-menu values (* = default)

If “New UnitID” is selected, the microphone LED of the units with the same unit ID is switched on and the user can assign a new ID by pressing the microphone button of the unit. When “Keep UnitID” is selected, the microphone LED’s starts blinking and button presses are ignored. One of the units with the same unit ID has to be disconnected and optionally replaced, to maintain the ID and solve the issue.

Notice!

For multi-CCU systems menu item 8L Double Unit ID needs to be set for each CCU, slave CCUs do not follow the master CCU.
Menu item 8L Double Unit ID is not applicable for wireless units.

Unit/Hostname

Some networks are able to handle hostnames. In these networks the unique CCU hostnames can be used as well. Use the 8M Unit/Hostname sub-menu item to set the name of the central control unit. The unit name is also used as hostname in a TCP/IP network. The name of the central control unit is maximum 16 characters and only consists characters allowed for hostnames. Default the unit name is the text CCU plus the serial number.
After changing the hostname, the CCU needs to be rebooted (switched off) to make the new hostname visible in the TCP/IP network.

Notice!

Because of hostnames conventions, a unit/hostname may contain only the ASCII letters 'a' through 'z' and ‘A’ through ‘Z’ (on the network, the hostname will be treated case-insensitive) and the digits '0' through '9'. No other symbols, punctuation characters or white space are permitted. The hostname can be made shorter by clearing the last character one by one.

Defaults

Use the 8N Defaults sub-menu to set all parameters to the default values in the configuration menu.

Menu item	Parameter	Value	Description
8N Defaults	Reset to defaults?	No* Yes	Does not put back the default values. Sets all parameters to the default values. This includes the values of the parameters of the interpreter desks, the IP settings and Unit/Hostname. The CCU is also restarted.

Tab. 7.76: Defaults sub-menu (* = default)

7.4 LBB4402/00 or PRS-4AEX4 Audio Expander

The PRS-4AEX4 Audio Expander is the successor of the LBB4402/00 with exactly the same functionality. This change is due to obsolescence of some internal parts of the LBB4402/00. The PRS-4AEX4 requires specific firmware that is incorporated in software release 4.30.

Overview

Use the configuration menu of the audio expander to configure the audio expander.

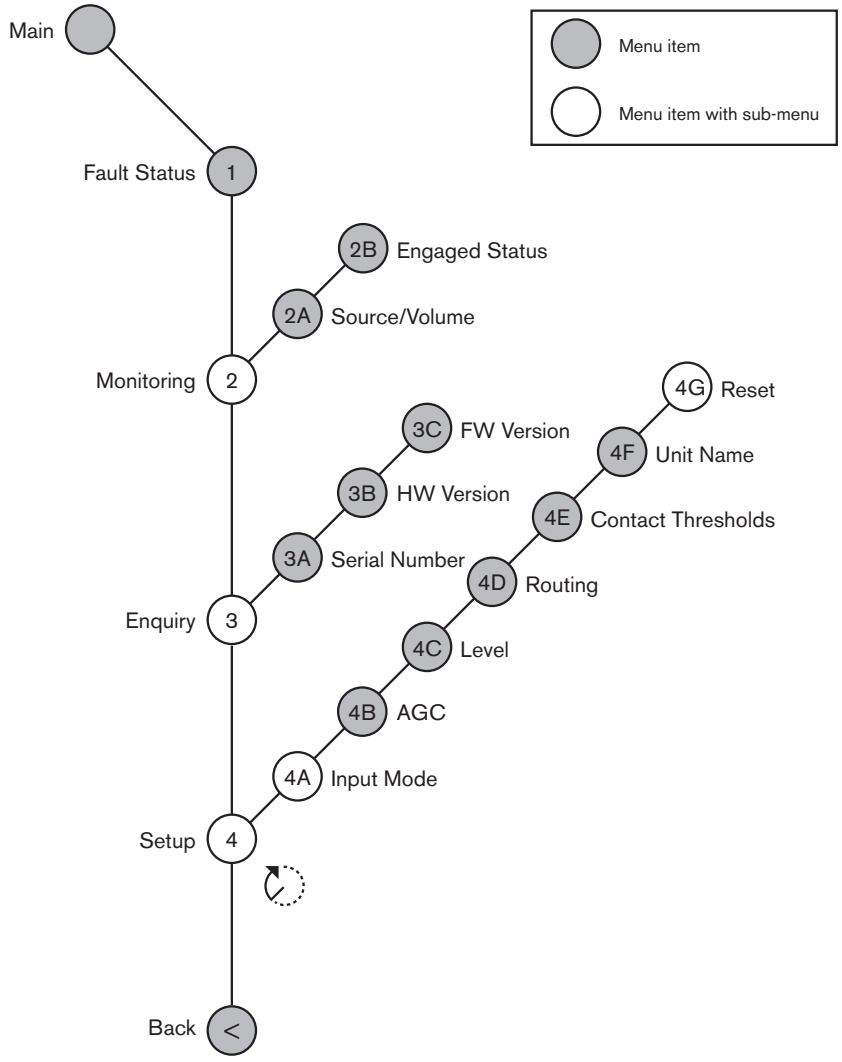


Figure 7.3: Configuration menu

Notice!

When the interlock is None (refer to NoTrans Variables), the audio inputs of the audio expander are disabled for translation channels only. Audio input channels can route to floor channels.

Setup

Use the 4 Setup menu item to open the Setup sub-menu. Use the menu items in this sub-menu to configure the audio expander.

Notice!
To open the Setup sub-menu, you must push and hold the knob for more than 3 seconds.

Menu item	Parameter	Value (read -only)	Description
4A Input Mode	---	---	Gives access to the Input Mode sub-menu (refer to NoTrans Variables).
4B AGC	Input: Input 1 Input 2 Input 3 Input 4	AGC: On, Off On, Off On, Off On, Off	Sets the automatic gain control (AGC) of the audio inputs on and off (refer to: Automatic gain control).
4C Level	Signal: Input 1 Input 2 Input 3 Input 4 Output 1 Output 2 Output 3 Output 4	Level: -6 to 6 dB (0 dB*) -6 to 6 dB (0 dB*) -6 to 6 dB (0 dB*) -6 to 6 dB (0 dB*) -24 to 6 dB (0 dB*) -24 to 6 dB (0 dB*) -24 to 6 dB (0 dB*) -24 to 6 dB (0 dB*)	The levels of the audio inputs and the audio outputs of audio expander.
4D Routing	Signal: Input 1 Input 2 Input 3 Input 4 Output 1 Output 2 Output 3 Output 4	Channel: --, 00 to 31 --, 00 to 31 --, 00 to 31 --, 00 to 31 --, PA, 00 to 31 --, PA, 00 to 31 --, PA, 00 to 31 --, PA, 00 to 31	The channel that is attached to the audio input or audio output of the audio expander. (PA = public address system.)
4E Ctrl Thresh.	Signal: Output 1 Output 2 Output 3 Output 4	Level: -60 to -10 dB -60 to -10 dB -60 to -10 dB -60 to -10 dB	When an output is assigned to an individual microphone channel, the corresponding contact is switched when the level is above threshold.
4F Unit Name	---	Name: Analog Expander* Custom name	The name of the audio expander (max. 16 characters).
4G Defaults	---	---	Resets all of the units to their factory defaults. The unit name is not reset.

Tab. 7.77: Setup sub-menu (* = default)

Input mode

Use the Input mode sub-menu to set the input mode of audio input 1 and audio input 2 of the audio expander. Both inputs accept line level signals and microphone signals. When you connect a microphone signal to an audio input, you can also enable or disable the phantom power supply of the audio input.

Menu item	Parameter	Value	Description
4A Input 1	Input mode Phantom	Line*, Mic On, Off*	The input mode of audio input 1.
4A Input 2	Input mode Phantom	Line*, Mic On, Off*	The input mode of audio input 2.

Tab. 7.78: Input mode sub-menu (* = default)

Automatic gain control (AGC)

Use the AGC menu item to enable or disable the AGC of the audio inputs. If necessary, enable the AGC for the audio inputs that inject external interpretations in the system. The AGC makes sure that the nominal level of the received interpretations is 9 dBV (XLR), -6 dBV (cinch). When the nominal input of an external interpretation is high, the audio of the external interpretations will be too loud compared to the audio of the 'internal' interpretations from the interpreter desks.

Notice!
When channel 00 is assigned to an audio input, the system automatically disables AGC for the audio input. You cannot manually enable AGC for an audio input to which channel 00 is attached.

Notice!
If two systems are connected by audio connections (Cobranet, AEX, or DEX), set the AGC to off.

7.5 PRS-4DEX4 Digital Audio Expander

Overview

Use the configuration menu of the digital audio expander to configure the digital audio expander.

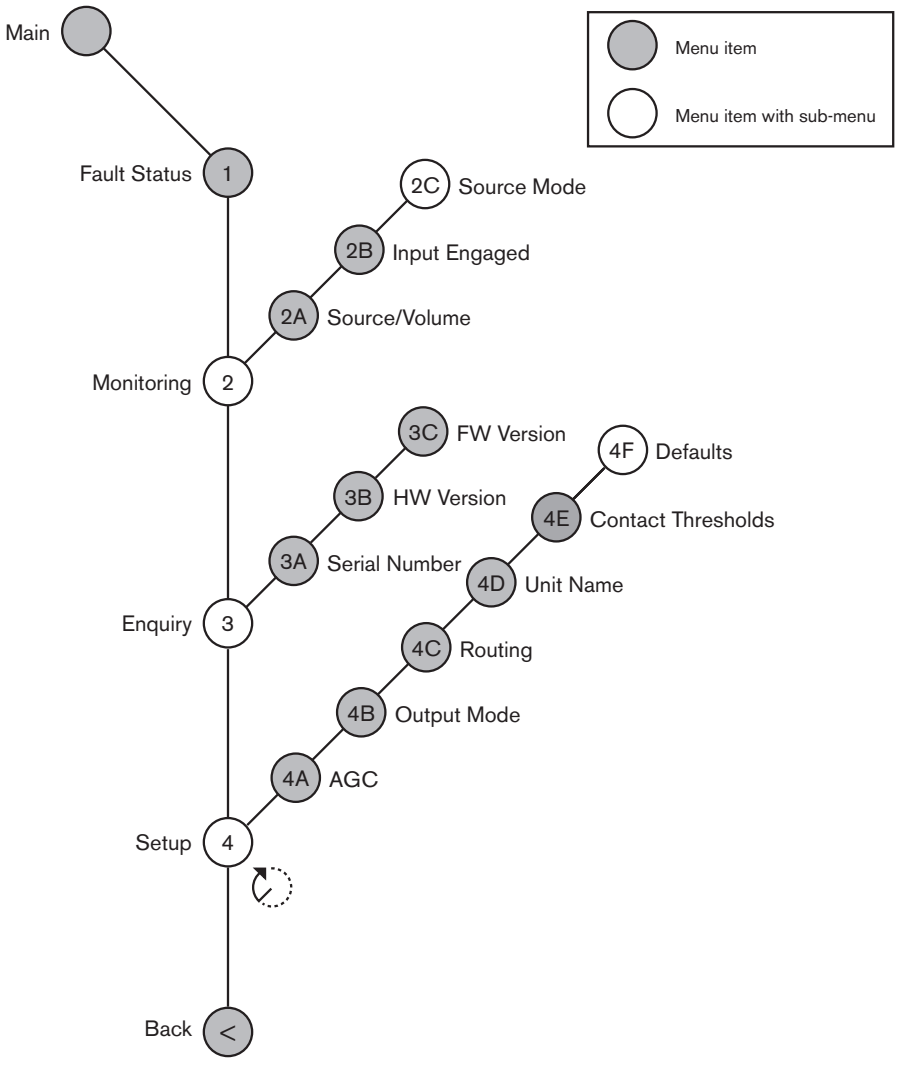


Figure 7.4: Configuration menu

Source modes

Use the menu items in the 2C Source Mode sub-menu to view the formats of the digital audio on the audio inputs of the digital audio expander.

Menu item	Parameter	Value	Description
2C	Audio in / output: Input 1 * Input 2	Format: AES/EBU, SPDIF AES/EBU, SPDIF	Shows the format of the digital audio (read-only). When 'No valid signal' is shown, the audio input does not contain a valid signal.

Tab. 7.79: Monitoring sub-menu (* = default)

Setup

Use the 4 Setup menu item to open the Setup sub-menu. Use the menu items in this sub-menu to configure the digital audio expander.

Notice!

To open the Setup sub-menu, you must push and hold the knob for more than 3 seconds.

Menu item	Parameter	Value	Description
4A AGC	Input: Input 1L Input 1R Input 2L Input 2R	AGC: On, Off On, Off On, Off On, Off	Sets the automatic gain control (AGC) of the audio inputs on and off
4B Output Mode	Output: Output 1 Output 2	Format: AES/EBU*, SPDIF AES/EBU*, SPDIF	The format of the digital audio for audio output 1 and audio output 2.
4C Routing	Input/output: Input 1L Input 1R Input 2L Input 2R Output 1L Output 1R Output 2L Output 2R	Channel: --*, 00 to 31 --*, 00 to 31 --*, 00 to 31 --*, 00 to 31 --*, PA, 00 to 31 --*, PA, 00 to 31 --*, PA, 00 to 31 --*, PA, 00 to 31	The channel that is attached to the audio input or audio output of the digital audio expander. (PA = public address system.)
4D Unit Name	---	Name: Digital Expander* Custom name	The name of the audio expander (max. 16 characters).
4E Ctrl Thresh.	Signal: Output 1 Output 2 Output 3 Output 4	Level: -60 to -10 dB -60 to -10 dB -60 to -10 dB -60 to -10 dB	When an output is assigned to an individual microphone channel, the corresponding contact is switched when the level is above threshold.
4F Defaults	---	---	Resets all of the units to their factory defaults. The unit name is not reset.

Tab. 7.80: Setup sub-menu (* = default)

Automatic gain control

Use the AGC menu item to enable or disable the AGC of the audio inputs. If necessary, enable the AGC for the audio inputs that inject external interpretations in the system. The AGC makes sure that the nominal level of the received interpretations is 9 dBV (XLR), -6 dBV (cinch). When the nominal input of an external interpretation is high, the audio of the external interpretations will be too loud compared to the audio of the ‘internal’ interpretations from the interpreter desks.

Notice!
When channel 00 is assigned to an audio input, the system automatically disables AGC for the audio input. You cannot manually enable AGC for an audio input to which channel 00 is attached.

Notice!
If two systems are connected by audio connections (Cobranet, AEX, or DEX), set the AGC to off.

7.6 PRS-4OMI4 OMNEO Media Interface

The PRS-4OMI4 OMNEO Media Interface is used to interface between an OMNEO or Dante™ network and DCN-NG. The OMNEO interface can convert up to 4 audio channels from DCN-NG to OMNEO and 4 audio channels from OMNEO to DCN-NG at the same time.

Notice!
We assume that you understand the basic theory of OMNEO or Dante™ networks.

Installing Audinate's Dante Virtual Soundcard
Installing Audinate's Dante Virtual Soundcard (DVS) on a PC allows that PC to be used as audio source for a DCN-NG system with the PRS-4OMI4.

Overview
Use the configuration menu of the OMNEO interface to configure the OMNEO interface.

Notice!
When the interlock is None (refer to *DCN-IDESK Interpreter Desks, page 222* > Menu screens), the audio inputs of the OMNEO interface are disabled.

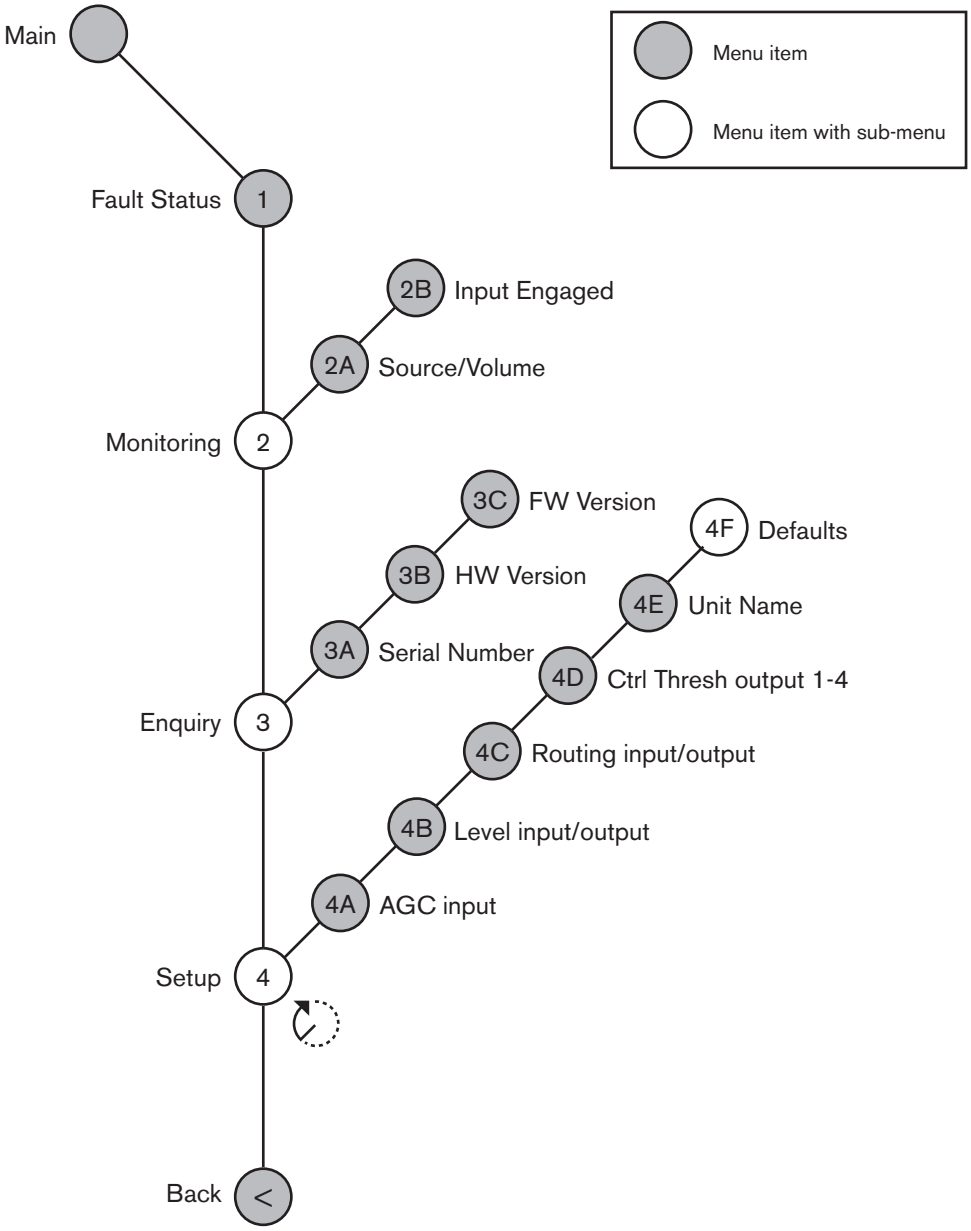


Figure 7.5: Configuration menu

Setup

Use the 4 Setup menu item to open the Setup sub-menu. Use the menu items in this sub-menu to configure the OMNEO interface.

Notice!

To open the Setup sub-menu, you must push and hold the knob for more than 3 seconds.

Menu item	Parameter	Value	Description
4A AGC	Input: Input 1 Input 2 Input 3 Input 4	AGC: On, Off On, Off On, Off On, Off	Sets the automatic gain control (AGC) of the audio inputs on and off.
4B Level	Input/output: Input 1 Input 2 Input 3 Input 4 Output 1 Output 2 Output 3 Output 4	Signal: -12 to +12 dB -12 to +12 dB -12 to +12 dB -12 to +12 dB -12 to +12 dB -12 to +12 dB -12 to +12 dB -12 to +12 dB	The levels of the audio inputs and the audio outputs of the OMNEO interface.
4C Routing	Input/output: Input 1 Input 2 Input 3 Input 4 Output 1 Output 2 Output 3 Output 4	Channel: --, 00 to 31, --, 00 to 31 --, 00 to 31 --, 00 to 31 --, OR 00 to 31 --, OR, 00 to 31 --, OR, 00 to 31 --, OR, 00 to 31	The channel that is attached to the audio input or audio output of the OMNEO interface. (OR = Floor, -- = no assignment, 00 = interpreter floor.)
4D Ctrl Thresh	Signal: Output 1 Output 2 Output 3 Output 4	Level: N.A. N.A. N.A. N.A.	Not used
4EUnit Name	---	Name: OMNEO* OMNEO name	The name of the OMNEO interface (max. 16 characters).
4F Defaults	---	---	Opens the Reset menu item.

Tab. 7.81: Setup sub-menu (* = default)

Defaults

Use the Defaults sub-menu to put back the default values for all parameters in the configuration menu.

Menu item	Parameter	Value	Description
4F Defaults	Reset to defaults	No* Yes	Does not put back the default values. Sets all parameters to the default values. The name is not changed.

Tab. 7.82: Defaults sub-menu (* = default)

Automation gain control (AGC)

Use the AGC menu item to enable or disable the AGC of the audio inputs. If necessary, enable the AGC for the audio inputs that inject external interpretations in the system. The AGC makes sure that the nominal level of the received interpretations is 9 dBV (XLR), -6 dBV (cinch). When the nominal input of an external interpretation is high, the audio of the external interpretations will be too loud compared to the audio of the 'internal' interpretations from the interpreter desks.

Notice!
When channel 00 is assigned to an audio input, the system automatically disables AGC for the audio input. You cannot manually enable AGC for an audio input to which channel 00 is attached.

Notice!
If two systems are connected by audio connections (OMNEO, AEX, or DEX), set the AGC to off.

Disabling encryption

As soon as the PRS-4OMI4 is discovered by a DICENTIS Conference System server, it is automatically set in **secure** mode. In secure mode the PRS-4OMI4 is not available in the Dante™ Controller - Network View.

– In order to use a PRS-4OMI4 in a DCN-NG system as a Dante™ interface, it should be set in **non-secure** mode.

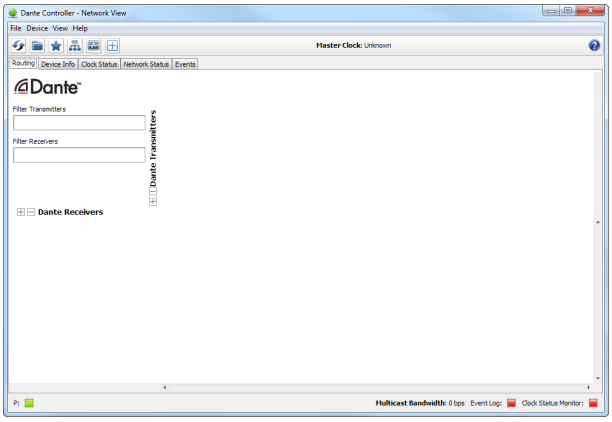


Figure 7.6: Dante Controller - Network View without PRS-4OMI4

Non-secure mode setting

The non-secure mode must be set on the PRS-4OMI4 printed circuit board:

1. press and hold the indicated switch (red circle) for about 8 seconds:

Figure 7.7: PRS-4OMI4 PCB non-secure setting

2. The PRS-4OMI4 will be visible in the Dante Controller - Network View:

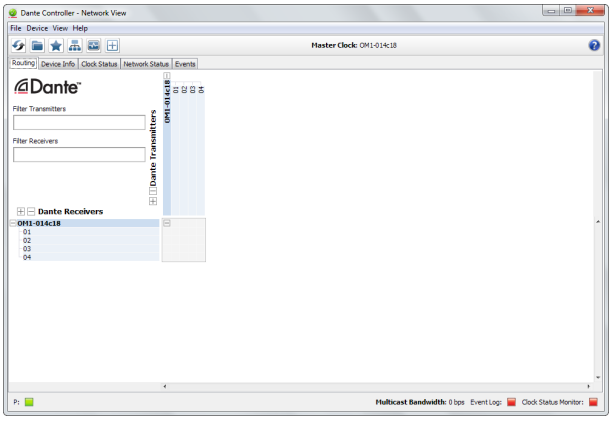


Figure 7.8: Dante Controller - Network View with PRS-4OMI4

Caution!

If the PRS-4OMI4 is (re)connected to a DICENTIS Conference System, the previous procedure must be repeated when reconnected to the DCN-NG system, because it will be automatically set in secure mode by the DICENTIS system, again.

7.7 LBB4404/00 Cobranet Interface

With the CobraNet Discovery, you can:

- Find the IP addresses of the devices that are connected to the CobraNet network with a PC.
- Change the IP addresses of the devices that are connected to the CobraNet network with a PC.
- Change the firmware of the devices that are connected to the CobraNet network with a PC.

Notice!
We assume that you understand the basic theory of CobraNet networks.

Overview
Use the configuration menu of the cobranet interface to configure the cobranet interface.

Notice!
When the interlock is None (refer to *DCN-IDESK Interpreter Desks, page 222* > Menu screens), the audio inputs of the cobranet interface are disabled.

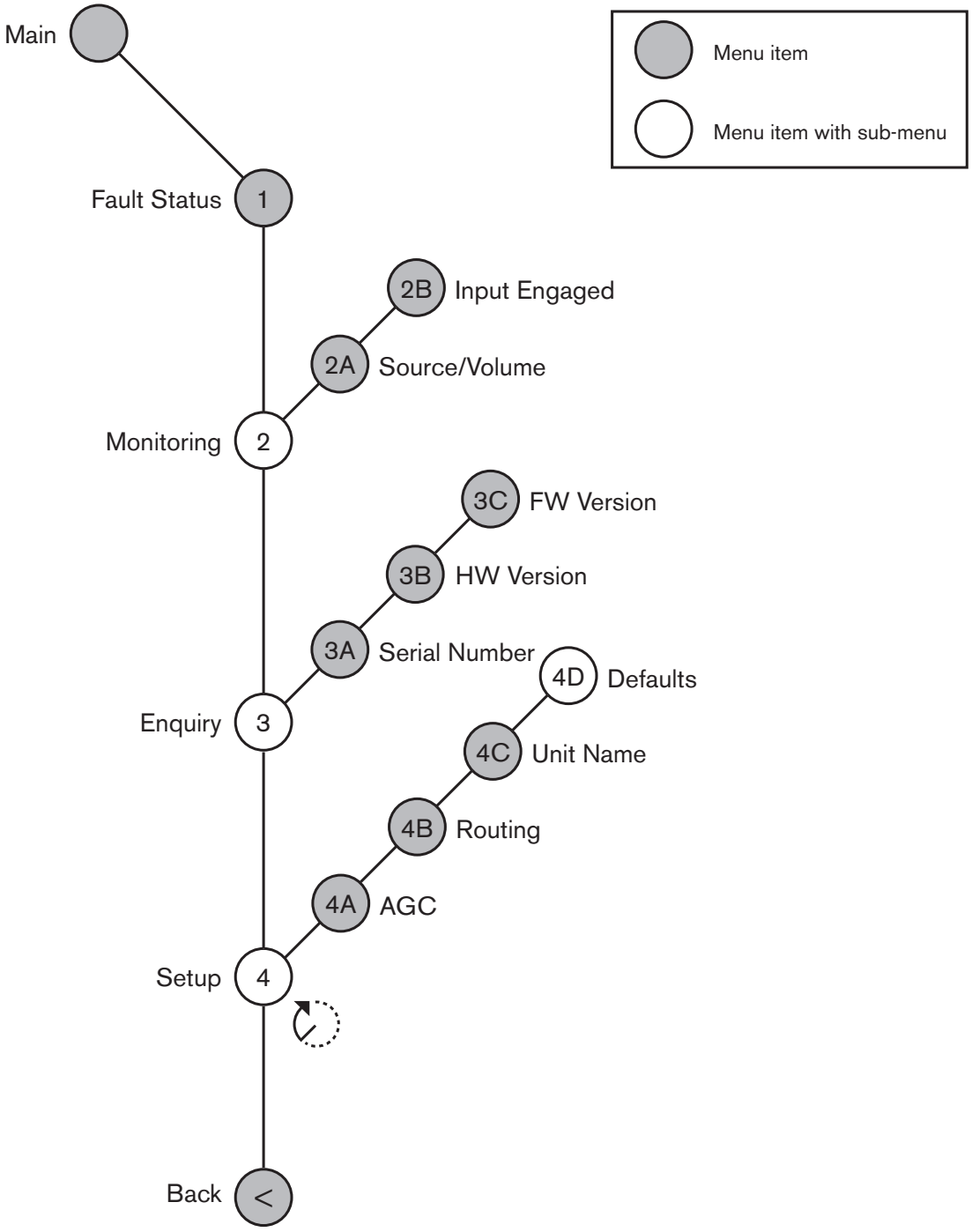


Figure 7.9: Configuration menu

Setup

Use the 4 Setup menu item to open the Setup sub-menu. Use the menu items in this sub-menu to configure the cobranet interface.

Notice!

To open the Setup sub-menu, you must push and hold the knob for more than 3 seconds.

Menu item	Parameter	Value	Description
4A AGC	Input: Input 1 Input 2 Input 3 Input 4	AGC: On, Off On, Off On, Off On, Off	Sets the automatic gain control (AGC) of the audio inputs on and off.
4B Routing	Input/output: Input 1 Input 2 Input 3 Input 4 Output 1 Output 2 Output 3 Output 4	Channel: --, 00 to 31, --, 00 to 31 --, 00 to 31 --, 00 to 31 --, PA, 00 to 31 --, PA, 00 to 31 --, PA, 00 to 31 --, PA, 00 to 31	The channel that is attached to the audio input or audio output of the cobranet interface. (PA = public address system.)
4C Unit Name	---	Name: Cobranet* Customer name	The name of the cobranet interface (max. 16 characters).
4D Defaults	---	---	Opens the Reset menu item.

Tab. 7.83: Setup sub-menu (* = default)

Defaults

Use the Defaults sub-menu to put back the default values for all parameters in the configuration menu.

Menu item	Parameter	Value	Description
4D	Reset to defaults	No* Yes	Does not put back the default values.Sets all parameters to the default values. The name is not changed.

Tab. 7.84: Defaults sub-menu (* = default)

Automation gain control (AGC)

Use the AGC menu item to enable or disable the AGC of the audio inputs. If necessary, enable the AGC for the audio inputs that inject external interpretations in the system. The AGC makes sure that the nominal level of the received interpretations is 9 dBV (XLR), -6 dBV (cinch). When the nominal input of an external interpretation is high, the audio of the external interpretations will be too loud compared to the audio of the ‘internal’ interpretations from the interpreter desks.

Notice!

When channel 00 is assigned to an audio input, the system automatically disables AGC for the audio input. You cannot manually enable AGC for an audio input to which channel 00 is attached.

Notice!
If two systems are connected by audio connections (Cobranet, AEX, or DEX), set the AGC to off.

7.8 CobraNet Discovery

Overview

Install the CobraNet Discovery on your PC with the DVD that is supplied with your system. The DVD contains an automatic set-up program.
With the Configuration window, you can configure CobraNet Discovery. To open the Configuration window, go to Tools > Options.

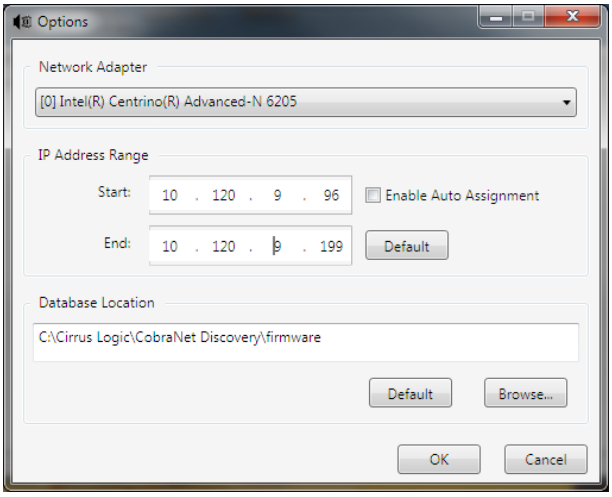


Figure 7.10: CobraNet (tm) Discovery window

Network adapter

In the Network Adapter block, you must choose the Ethernet card of the PC that is used to connect to the CobraNet network.

IP addresses

When you put a checkmark in the Enable Auto Assignment box in the IP Address Range block, CobraNet Discovery automatically gives IP addresses to new CobraNet devices. You can set the range of automatically given IP addresses with the Start and End fields.

Notice!
When you remove the checkmark from the Enable Auto Assignment box, you will get access to the Start and End fields.

Firmware

Normally the firmware does not need updating. If you do have to update the firmware, you must use the database location on the PC.

Start - CobraNet Discovery

Make sure that the PC, on which you installed the CobraNet Discovery, is connected to the CobraNet network. On the PC, go to Start > Programs > CobraNet Discovery. The monitor of the PC shows the CobraNet (tm) Discovery window.

Operation

The CobraNet (tm) Discovery window shows the CobraNet devices on the CobraNet network and their Ethernet parameters.

Notice!

The list also shows PC in which CobraNet Discovery is installed.

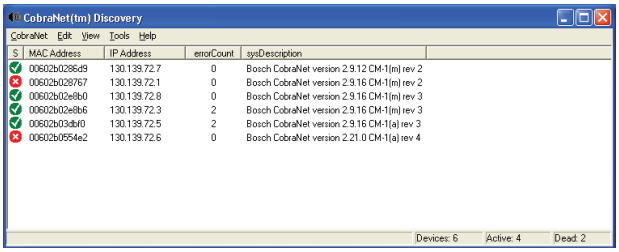


Figure 7.11: CobraNet (tm) Discovery window

The list contains the following data:

1. S(tatus) - Shows the condition of the CobraNet device. If the status column contains a green checkmark, the device is active. If the status column contains a red cross, the device is not active or not connected to the network.
2. MAC Address - Shows the MAC address of the CobraNet device.
3. IP Address - Shows the IP address of the device. Usually, the IP address of new devices is 0.0.0.0. CobraNet Discovery can automatically give addresses to new devices.
4. sysDescription - Shows the name and the firmware version of the CobraNet device.
5. errorCount - Shows the number of errors of the CobraNet device since you started CobraNet Discovery.

To decrease the width of a column:

1. Click-and-hold the left mouse button on the right boundary of the column header.
2. Move the mouse to the left to decrease the width of the column.
3. Release the left mouse button.

To increase the width of a column:

1. Click-and-hold the left mouse button on the right boundary of the column header.
2. Move the mouse to the right to increase the width of the column.
3. Release the left mouse button.

To open the online help:

– Go to X:\Cirrus Logic\CobraNet Discovery\Disco_UserGuide_14.pdf (X is the letter of the harddisk.).

7.9 CobraNet Configuration

CobraNet Discovery can be used to change configuration settings in a CobraNet device. One CobraNet device at a time may be configured. Select the device to be configured in the main CobraNet Discovery window. Then either right click, and select Configure... or select Configure... from the Tools menu. You may also double click on the device to invoke the Configuration dialog.

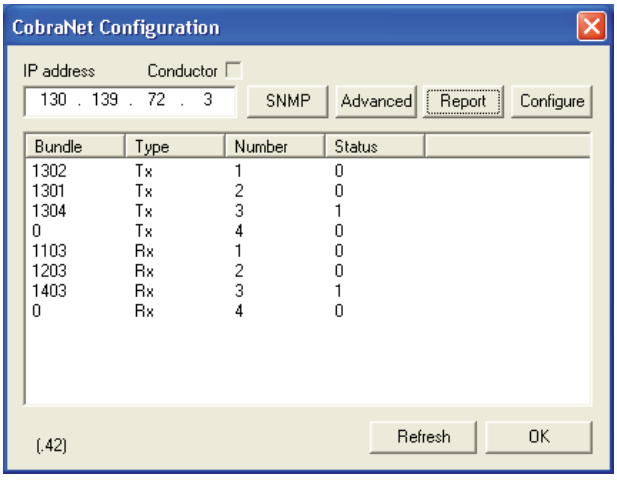


Figure 7.12: CobraNet device configuration window

This dialog shows each transmitter and receiver in the device along with its bundle number assignment and transmission or reception status. A non zero value in the Status column indicates that the transmitter or receiver is receiving or sending a bundle. In addition to transmitter and receiver information, the dialog will also display the IP address currently assigned to the device as well as its conductor status: the Conductor check box will be checked if the device is the conductor for the network.

Bundles

The CobraNet network uses bundles for the transport of audio signals. The CobraNet interface can:

– Receive 4 bundles from the CobraNet network (Rx). Send 4 bundles to the CobraNet network (Tx).

Receiver bundles

Each receiver bundle can have 8 bundle channels. To the bundle channels of a receiver bundle, you can connect the audio inputs of the CobraNet interface. Thus, the audio inputs take audio signals from the CobraNet network and send them to the optical network.

Do as follows to configure a receiver bundle of the CobraNet interface:

1. Highlight the line containing the receiver information and then press the Configure button. Or, double click the line containing the receiver information and then press the Configure button.
2. In the Bundle Number field of the receiver bundle, enter the number of the bundle that the receiver bundle must take from the CobraNet network.
3. Enter the submap number to which the bundle must connect. The CobraNet interface receiver channels 1..4 correspond to SubMap numbers 33..36.

4. SubFormat shows the status of the audio received in a bundle. This will indicate Not Receiving or will show the current sample rate, sample size and transmission latency of the received audio. The colored squares to the right of the SubFormat display provide further status.
   - **Green**: Indicates audio is being received and properly decoded.
   - **Black**: Indicates no audio is being received on this channel.
   - **Red**: Indicates audio is being received but cannot be processed. This is usually due to receipt of audio data that is formatted incompatibly with the current operating mode of this receiving device, i.e. the sample rate and/or latency settings of the transmitting device are different than those of the receiving device. If latency settings are incompatible, it is normal to see the colored indicators alternate between black and red with periodic presses of the Refresh button.

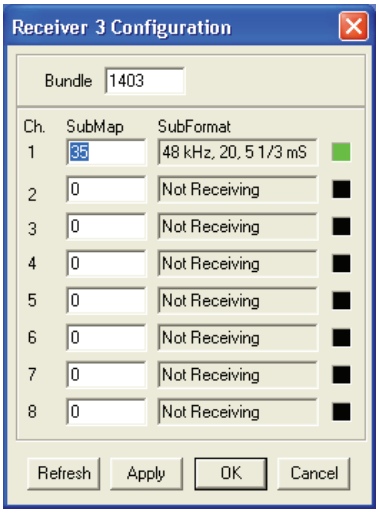


Figure 7.13: Rx Configuration window

Transmitter bundles

Each transmitter bundle can have 8 bundle channels. To the bundle channels of a transmitter bundle, you can connect the audio outputs of the CobraNet interface. Thus, the audio outputs take audio signals from the optical network and send them to the CobraNet network.

Do as follows to configure a transmitter bundle of the CobraNet interface:

1. Lauch the Transmitter configuration dialog from the main Configuration dialog by highlighting the line containing the transmitter information and then pressing the Configure button, or by double clicking on the line containing the transmitter information.
2. In the Bundle Number field of the transmitter bundle, enter the number of the bundle that the cobranet interface sends to the CobraNet network.
3. In the SubMap enter the audio routing channel assigned to this bundle channel. The Clear All button can be pressed to assign a value of 0 (transmit nothing) to all channels in the bundle. The CobraNet interface transmitter channels 1..4 correspond to SubMap numbers 1..4.
4. The SubFromat value contains information defining the sample size, sample rate and transmission latency. As sample rate and sample latency must be in agreement with the current value of the modeRateControl variable (settable from the Advanced dialog) this dialog only allows setting the sample size and will insure that the sample rate and latency

portion of this variable will be in agreement with the value of modeRateControl. Typically the sample size will be the same for all channels in a bundle so the All Same option can be checked to assign the same value to all channels:

- **SubCount**: This variable can be used to limit the number of channels that will be transmitted in the bundle. The default value is equal to 8 but can be set to any value from 0 to 8 in order to minimize bandwidth utilization when desired.
- **UnicastMode**: This value can be used to override or modify the normal unicast versus multicast implications of the assigned bundle number. The normal default value is Never Multicast. The available options are:
  - **Always Multicast**: All bundles are sent multicast regardless of Bundle number.
  - **Multicast over 1**: If more than one receiver is set to receive this bundle, it will be multicast, else it will be unicast.
  - **Multicast over 2**: If more than two receivers are set to receive this bundle, then it will be multicast, else it will be unicast or multi-unicast.
  - **Multicast over 3**: If more than three receivers are set to receive this bundle, then it will be multicast, else it will be unicast or multi-unicast.
  - **Multicast over 4**: If more than four receivers are set to receive this bundle, then it will be multicast, else it will be unicast or multi-unicast.
  - **Never Multicast**: Only a single bundle will be sent unicast.
  - **MaxUnicast**: This value can be set to limit the number of multi-unicast bundles sent by this transmitter. The default for this value is 1 with allowed values of 1 through 4.

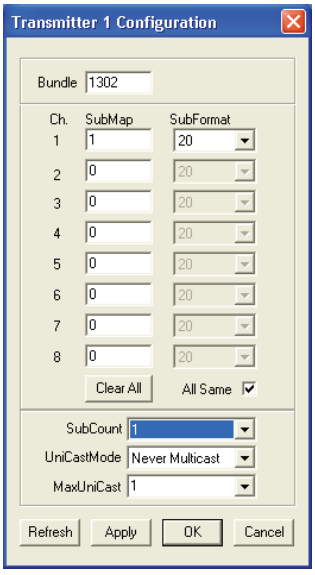


Figure 7.14: Tx Configuration window

Bundle number	Description
0	Bundle not in use.
1 to 255	Multicast bundle
256 to 65279	Unicast bundle

Tab. 7.85: Bundle numbers

Notice!
When the CobraNet network must send the transmitter bundle to one other device on the CobraNet network, make sure that the transmitter bundle is a unicast bundle.

1. With the Tx Configuration window, you can change the audio outputs that are connected to the bundle channels.

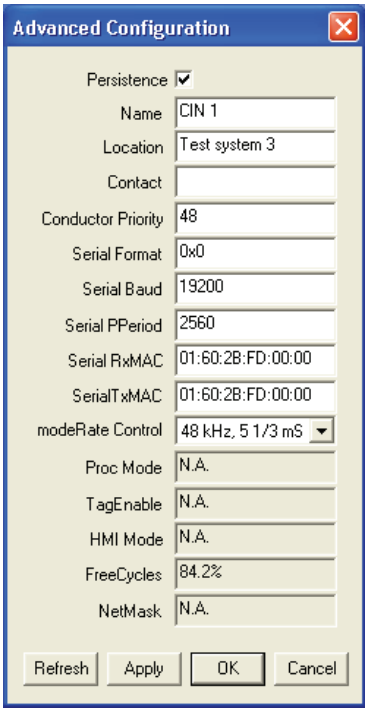


Figure 7.15: Configuration window

Notice!
You can connect an audio output to more than one bundle channel. When you connect an audio output to more than one bundle channel, the system operates correctly.

2. Enter the values of the other parameters of the transmitter bundle.
3. Repeat step 4 to 6 for the other bundle channels in the transmitter bundle.

7.10 DCN-WAP Wireless Access Point

Use the configuration menu of the central control unit to configure the wireless access point.

System ID

Notice!
Set the correct system identity before you do the installation of the system (refer to *Initialization, page 175*). When you change the system identity after you did the initialization, you must do the initialization again.

Set the system identity with the 8J menu item. Adjacent systems must have different system identities and different carriers.

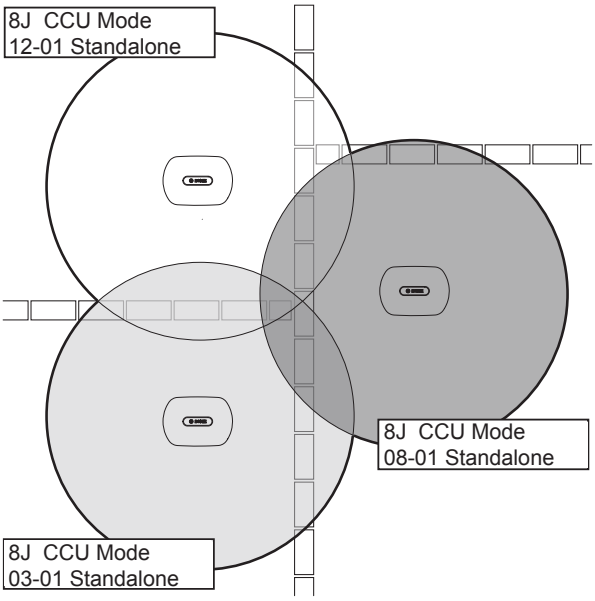


Figure 7.16: System IDs for adjacent systems

Carrier
Set the carrier of the wireless access point with the 8Fb WAP menu item. Adjacent systems must have different carriers and different system identities.

Notice!
If adjacent systems are using the same carrier, they must be separated by a minimum distance of 500 m.

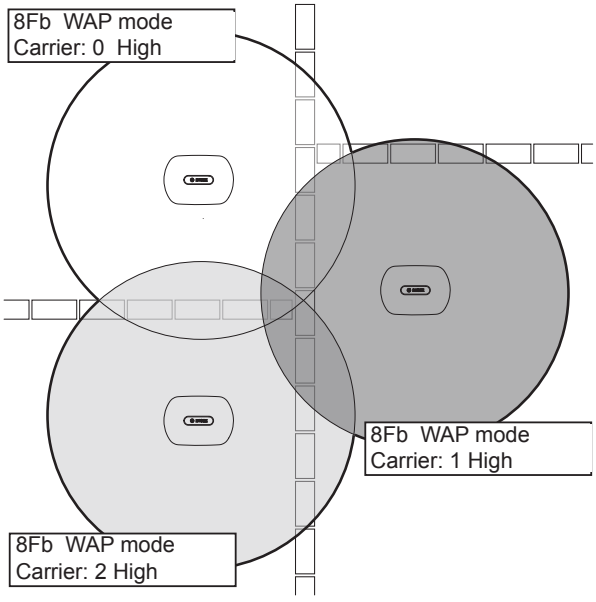


Figure 7.17: Carriers for adjacent systems

You can change the carrier after you did the initialization of the system (refer to *Initialization, page 175*).

Notice!
When you change the carrier during a discussion or conference, you can cause a short audio disruption.

Power value
The wireless access point has a typical maximum coverage area of 30 m by 30 m. To determine the exact coverage area the coverage test kit can be used. The maximum coverage area of the wireless access point is dependent upon its power. Set the power of the wireless access point with the 4Kd WAP menu item.

Value	Typical Coverage Area (m)
High	30 x 30
Medium	20 x 20
Low	10 x 10
Off	0

Tab. 7.86: Power values

You can change the power value after you did the initialization of the system (refer to *Initialization, page 175*). When you decrease the power value, some wireless devices can show that they cannot find the wireless network.

7.11 DCN-CON Concentus Units

Restore channel function

Use the S300 solder spot to enable or disable the restore channel function of the channel selector of the Concentus unit.

Notice!

The DCN-CON does not have a channel selector.

Solder spot	Description
Not soldered*	The restore channel function is disabled. When the channel selector is enabled, it automatically selects channel 0 (the floor)
Soldered	The restore channel function is enabled. When the channel selector is enabled, it automatically selects last known channel.

Tab. 7.87: Solder spot S300 (* = default)

For example, you can enable this function when all delegates and chairmen have a fixed seat number.

Notice!

The Concentus unit saves all channel changes after 5 seconds.

Notice!

When the last know channel number is greater than the maximum number of channels that are available, the channel selector automatically goes to channel 0. When the last known channel becomes available, it is only restored when you did not operate the buttons of the channel selector.

Auto standby function

Use the S302 solder spot to enable or disable the auto standby function of the channel selector of the Concentus unit.

Notice!

The DCN-CON does not have a channel selector.

Solder spot	Description
Not soldered*	The auto standby function is enabled. When the headphones are disconnected, the channel selector is disabled.
Soldered	The auto standby function is disabled. When the headphones are disconnected, the channel selector remains enabled.

Tab. 7.88: Solder spot S302 (* = default)

The Concentus unit detects the presence of the headphones with a switch inside the headphones socket. When the headphones are connected, the switch is closed.

Headphones level reduction
Use the S303 solder spot to enable or disable the headphones level reduction of the headphones that are connected to the Concentus unit.

Solder spot	Description
Not soldered*	The headphones level reduction is disabled. When the red LED ring of the microphone comes on, there is no headphones level reduction.
Soldered	The headphones level reduction is enabled. When the red LED ring of the microphone comes on, the headphones level reduction is 18 dB.

Tab. 7.89: Solder spot S303 (* = default)

For example, you can enable this function to avoid acoustic feedback between the microphone and the headphones of the Concentus unit.

Notice!
To show that there is only one minute of time left for the current speaker, the red LED ring can flash. During this period, the headphones level reduction remains enabled.

Notice!
We assume that you understand the basic theory of CobraNet networks.

7.12 DCN-DIS and DCN-WD discussion units

With the CNConfig, you can change the values of CobraNet parameters of CobraNet devices with a PC.

Internal settings
With the configuration switches on the bottom of the discussion unit, you can configure the discussion unit.

Notice!
The internal settings apply to the discussion unit. When the discussion unit is in the dual delegate mode, the internal settings are the same for the two delegates.

I	II	Internal setting
2	1	Microphone sensitivity. Default: 0 dB.
2	2	Channel/volume restore function. Default: disabled.
2	3	Headphones level reduction. Default: disabled.

Tab. 7.90: Internal settings

Notice!
The central control unit does not keep the internal settings of the discussion units. After you set the mode, the discussion unit keeps the internal settings.

Microphone sensitivity
When the configuration switches are in the correct position, you can adjust the microphone sensitivity of the discussion unit between -2 dB and 2 dB.
– To increase the microphone sensitivity with 0.5 dB, push the > volume button.
– To decrease the microphone sensitivity with -0.5 dB, push the < volume button.
– The color of microphone button LED indicates the microphone sensitivity.

Value in dB	Color of microphone button LED
-2.0	Red
-1.5	Off
-1.0	Orange
-0.5	Off
0.0	Yellow
0.5	Off
1.0	Light Green
1.5	Off
2.0	Green

Tab. 7.91: Microphone sensitivity adjustment

Notice!
When the discussion unit has two sets of volume buttons, configure the microphone sensitivity with the right set of volume buttons. The microphone sensitivity cannot be configured with the left set of volume buttons.

Channel/volume restore function
When the configuration switches are in the correct position, you can enable or disable the channel/volume restore function of the discussion unit and of the headphones connection of the wireless discussion unit.
– To enable the channel/volume/headphones restore function, push the > volume button. (The LED around the microphone buttons come on as green.) When the discussion unit is enabled, it automatically selects the last known channel and volume.
– To disable the channel/volume restore function, push the < volume button. (The LED around the left microphone button comes on as red.) When the discussion unit is enabled, it automatically selects channel 0 (floor) and sets the volume to -18 dB.

Notice!
When the discussion unit has two sets of volume buttons, configure the channel/volume restore function with the right set of volume buttons. The channel/volume restore function cannot be configured with the left set of volume buttons.

For example, you can enable this function in discussions in which all delegates and chairman have a fixed seat number or discussion unit.

Headphones level reduction

When the configuration switches are in the correct position, you can enable or disable the headphones level reduction of the discussion unit.

– To enable the headphones level reduction, push the > volume button. (The LED around the left microphone button comes on as green.) When the microphone is enabled, the headphones level reduction is 18 dB.

Notice!

When the discussion unit is in the dual delegate mode (refer to chapter “Dual delegate” in this section) and the headphones level reduction is enabled:
The signal that is sent to the left headphones socket is decreased when the left microphone button is pushed. The signal that is sent to the right headphones socket is not decreased.
The signal that is sent to the right headphones socket is decreased when the right microphone button is pushed. The signal that is sent to the left headphones socket is not decreased.
To disable the headphones level reduction, push the < volume button. (The LED around the left microphone button comes on as red.) When the microphone is enabled, there is no headphones level reduction.

Notice!

When the discussion unit has two sets of volume buttons, configure the headphones level reduction with the right set of volume buttons. The headphones level reduction cannot be configured with the left set of volume buttons.

For example, you can enable this function to avoid acoustic feedback between the microphone and the headphones of the discussion unit.

Discussion unit Modes

With the configuration switches on the bottom of the discussion unit, you can configure the mode of the discussion unit. Each type of discussion unit can operate in a number of modes. To configure the mode of a wireless discussion unit, it is necessary to remove the battery pack. Use the following procedure.

1. In case of DCN-WD, remove the battery pack from the wireless discussion unit. In case of DCN-DIS disconnect the unit from the system.

Notice!

When you do not remove the battery pack, you can cause an incorrect operation of the wireless discussion unit.

2. Change the mode of the discussion unit.
3. Re-install the battery pack in the DCN-WD (refer to *DCN-WD Discussion Units (wireless), page 130*). Or, connect the DCN-DIS

I	II	Mode
1	1	Single delegate
1	3	Chairman
3	1	Dual delegate
3	3	Single delegate with auxiliary control

Tab. 7.92: Modes

Refer to *DCN-DIS and DCN-WD Discussion units, page 96* for how to change the button.

Single delegate

When the discussion unit is in the single delegate mode, it is a delegate device for 1 delegate. You can put all types of discussion units in the single delegate mode. When you put the discussion unit in the single delegate mode, you must also install the default microphone buttons.

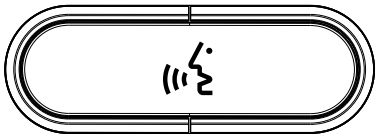


Figure 7.18: Default microphone button

Notice!

All discussion units are delivered with the default microphone button.

Chairman

When the discussion unit is in the chairman mode, it is a chairman device for 1 chairman. You can put all types of discussion units in the chairman mode. When you put the discussion unit in the chairman mode, you must also install the DCN-DISBCM Buttons.

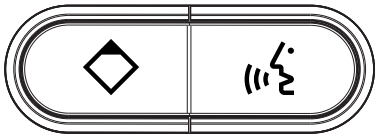


Figure 7.19: DCN-DISBCM Buttons

The only difference between a delegate discussion unit and a chairman discussion unit is the priority button on the left of the microphone button. With the priority button, the chairman can disable the microphones of all delegate devices. At the same time, the priority button enables the microphone of the chairman. The system has the possibility to:

- Play an attention chime when the chairman pushes the priority button.
- Erase the request-to-speak list and the speakers list when the chairman pushes the priority button.
  For more information refer to *DCN-CCU2 and DCN-CCUB2 Central Control Units, page 180*.

Notice!

The DCN-DISBCM button come with a tool that you can use to remove the old buttons from the discussion unit.

Dual delegate

When the discussion unit is in the dual delegate mode, it is a delegate device for 2 delegates. The system sees the discussion unit as two separate devices, but it gives only one address to the discussion unit. You can only put these types of discussion units in the dual delegate mode:

– DCN-DISD
– DCN-DISDCS
– DCN-WDD
– DCN-WDDCS

When you put the discussion unit in the dual delegate mode, you must also install the DCN-DISBDD Buttons.

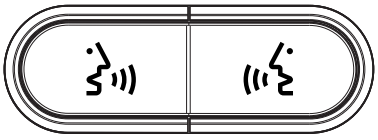


Figure 7.20: DCN-DISBDD Buttons

Notice!

The DCN-DISBDD buttons come with a tool that you can use to remove the old buttons from the discussion unit (refer to *DCN-DIS and DCN-WD Discussion units, page 96*).

Single delegate with auxiliary control

When the discussion unit is in the single delegate with auxiliary control mode, it is a delegate device for 1 delegate. The delegate can use the left microphone button as an auxiliary button. For example, to activate an indicator.

Notice!

When the delegate pushes the auxiliary button, the auxiliary button makes an event. Use the Open Interface to program the actions that must be started by the event. Refer to the applicable Software User Manual for instructions that tell you how to program the Open Interface.

You can only put these types of discussion units in the single delegate with auxiliary control mode:

– DCN-DISD
– DCN-DISDCS
– DCN-DISV
– DCN-DISVCS
– DCN-WDD
– DCN-WDDCS
– DCN-WDV
– DCN-WDVCS

When you put the discussion unit in the single delegate with auxiliary control mode, you must also install two microphone buttons (refer to *DCN-DIS and DCN-WD Discussion units, page 96*). For example, you can use the DCN-DISBCM Buttons.

7.13 DCN-DDI Dual Delegate Interface

Remove the lid of the dual delegate interface to get access to the controls inside.

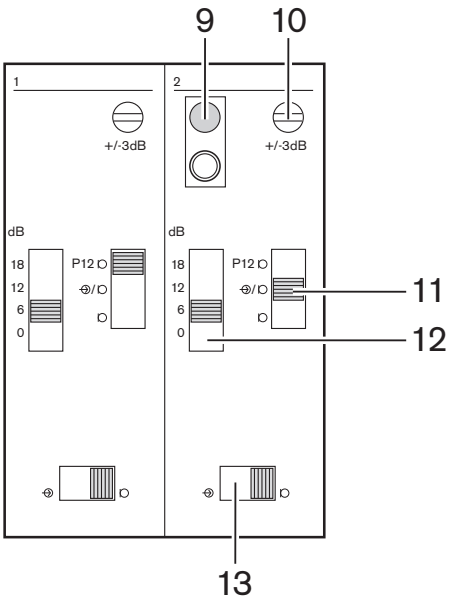


Figure 7.21: Internal settings

1. De-init switch - Erases the address of the dual delegate interface (refer to *Initialization, page 175*). The red LED adjacent to the de-init switch comes on when the dual delegate interface does not have an address.
2. Input adjustment potentiometer - Adjusts the sensitivity of the audio input.
3. Input type switch - Sets the type of audio input.

Position	Description
Upper	Balanced signal with phantom power
Center	Balanced signal without phantom power
Lower	Unbalanced signal*

Tab. 7.93: Input type switch (*= default)

1. Input adjustment switch - Sets the sensitivity of the audio input.
2. Signal level switch - Sets the signal level of the audio input.

Position	Description
Left	Line level signal
Right	Microphone signal*

Tab. 7.94: Signal level switch (* = default)

The number and types of devices that you can connect to the dual delegate interface depends on the selected mode. You can set the mode with the mode selector.

No.	Mode
0*	Dual delegate

No.	Mode
1	Chairman
2	Dual delegate with one microphone
3	Dual delegate with muted loudspeakers
4	Single delegate
5	Entrance unit
6	Exit unit
7	Ambient microphone

Tab. 7.95: Signal level switch (* = default)

Dual delegate

When the dual delegate interface is in the dual delegate mode, it is a delegate device for 2 delegates. The system sees the dual delegate interface as two separate devices, but it gives only one address to the dual delegate interface. Refer to the figure for a typical example.

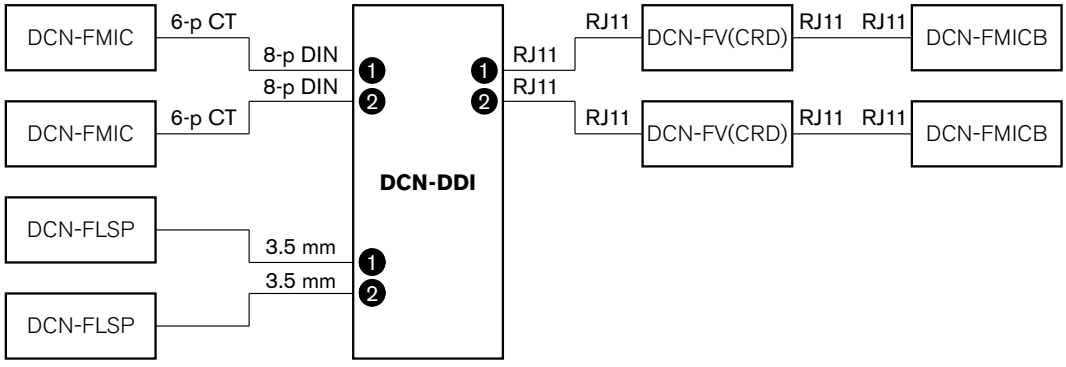


Figure 7.22: Dual delegate mode (0) and Dual delegate with both loudspeakers muted mode (3)

When audio input 1 is enabled, the dual delegate interface disables audio output 1. When audio input 2 is enabled, the dual delegate interface disables audio output 2.

Chairman

When the dual delegate interface is in the chairman mode, it acts as a chairman device for 1 chairman. You can connect 2 audio inputs in the chairman mode. Refer to the figure for a typical example.

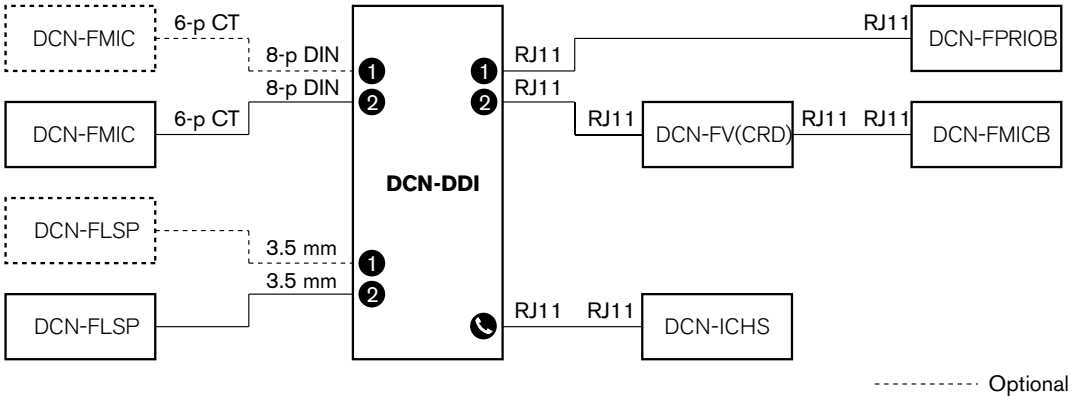


Figure 7.23: Chairman mode (1)

Dual delegate, one microphone

When the dual delegate interface is in the dual delegate with one microphone mode, it acts as a delegate device for 2 delegates, who share 1 audio input. The two delegates can enable or disable the audio input with their own microphone buttons. Refer to the figure for a typical example.

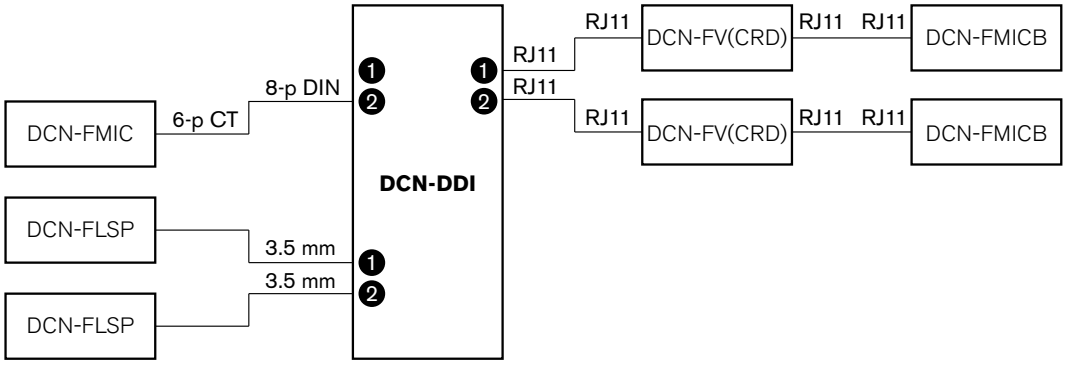


Figure 7.24: Dual delegate mode, one microphone mode (2)

Notice!

You must close the solder spot of the DCN-FMIC (refer to *DCN-FMIC Microphone Connection Panel, page 219*) when:

You connect a DCN-FMIC to the dual delegate interface and

The dual delegate interface is in the dual delegate with one microphone mode.

Dual delegate with both loudspeakers muted

This mode is the same as the dual delegate mode, but both loudspeakers are muted when one of the microphones is active. This prevents unnecessary feedback in the system.

Single delegate

When the dual delegate interface is in the single delegate mode, it acts as a delegate device for 1 delegate. Refer to the figure for a typical example.

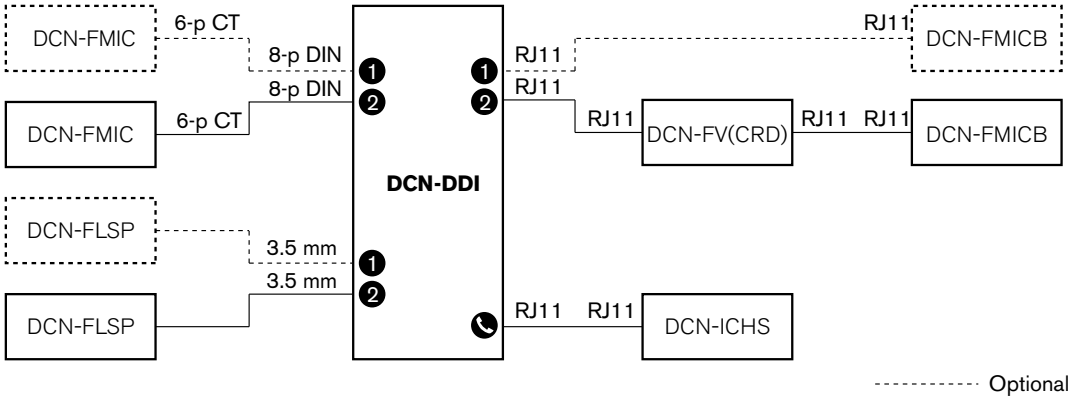


Figure 7.25: Single delegate mode (4)

You can connect an optional DCN-FMICB Microphone Control Panel. The delegate can use the microphone control panel as an auxiliary button. For example, to activate an indicator.

Notice!
The delegate can push the auxiliary button to start an event. Use the Open Interface to program the event (refer to the applicable Software User Manual).

Loudspeakers always active
By default the loudspeaker is muted when the corresponding microphone is active. This prevents unnecessary feedback in the system. However, to deactivate muting, connect the solder spots for the relevant loudspeaker.

Solder spot	Open	Soldered
(X13)	Left loudspeaker muted when microphone active	Left loudspeaker always active
(X12)	Right loudspeaker muted when microphone active	Right loudspeaker always active

Tab. 7.96: Solder spots

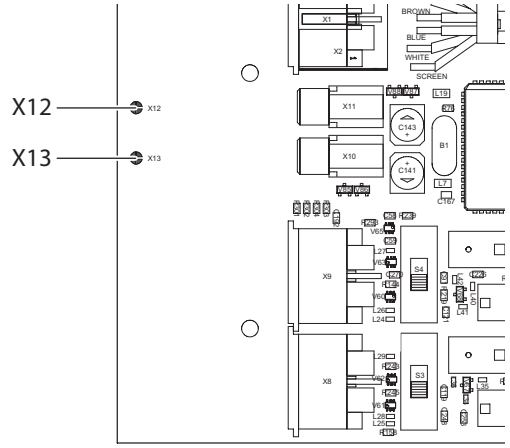


Figure 7.26: Internal top view

Entrance unit

When the dual delegate interface is in the entrance unit mode, it acts as a device that is used at the entrance of the room to create a presence list. Refer to the figure for a typical example.

Exit unit

When the dual delegate interface is in the exit unit mode, it acts as a device that is used at the exit of the room to keep the presence list complete. Refer to the figure for a typical example.

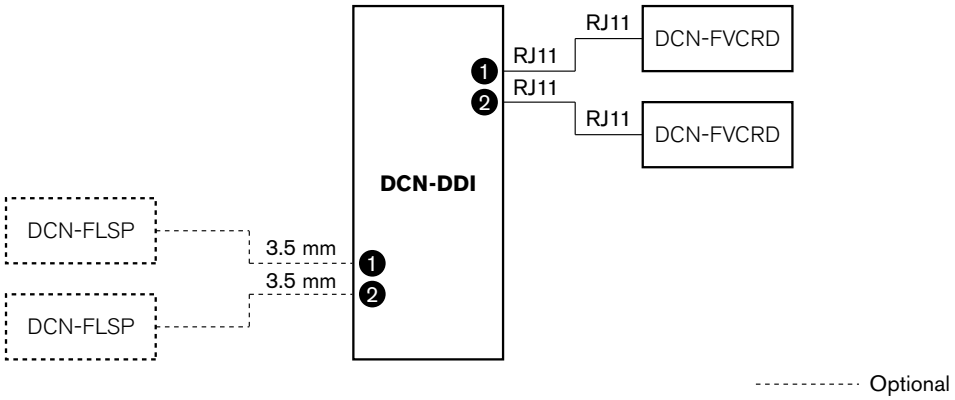


Figure 7.27: Entrance unit mode and exit unit mode (5 and 6)

Ambient microphone

When the dual delegate interface is in the ambient microphone mode, the signal of the connected audio input is sent to the floor when all other microphones in the system are disabled. Refer to the figure for a typical example.

Notice!

The connected DCN-FMICB cannot enable or disable the audio input. You can use the connected DCN-FMICB to give an address to the delegate interface (refer to *Initialization, page 175*).

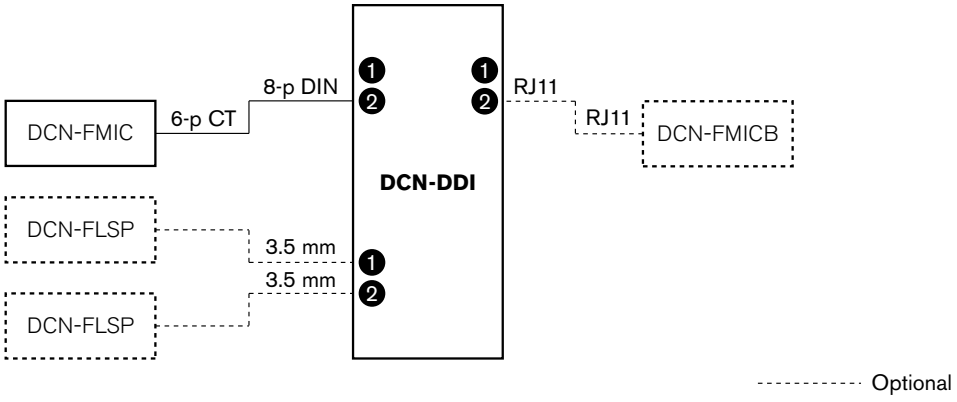


Figure 7.28: Ambient microphone mode (7)

7.14 DCN-FMIC Microphone Connection Panel

Use the solder spot to enable or disable the green LED ring of the connected DCN-MICL or DCN-MICS Pluggable Microphone (refer also to *DCN-MICL, DCN-MICS Pluggable Microphones, page 250*).

Solder spot	Description
Not soldered*	The green LED ring of the connected DCN-MICL or DCN-MICS Pluggable Microphone is enabled.
Soldered	The green LED ring of the connected DCN-MICL or DCN-MICS Pluggable Microphone is disabled.

Tab. 7.97: Solder spot (* = default)

When the microphone connection panel is connected to a dual delegate interface that is in the dual delegate with one microphone mode, you must disable the green LED ring. If you do not disable the LED ring, the LED ring of the connected microphone cannot show the correct condition. For example, first delegate 1 enables the microphone (red) and then delegate 2 makes a request-to-speak (green). Although the microphone is enabled, the green LED ring comes on when delegate 2 pushes the microphone button.

7.15 DCN-FCS Channel Selector

The component side of the PCB of the channel selector contains solder spots. With these solder spots, you can configure the channel selector.

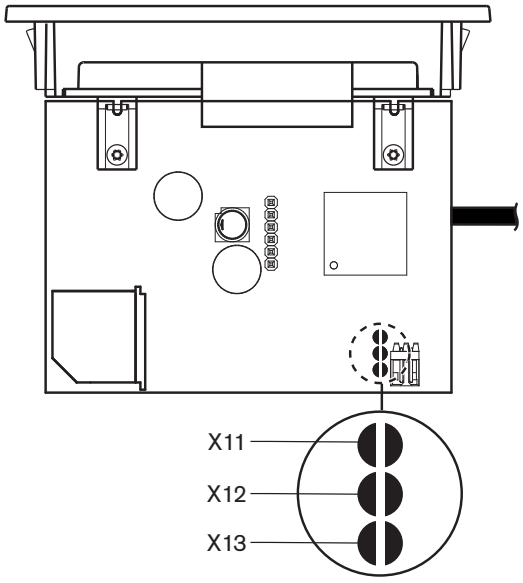


Figure 7.29: Solder spots

Solder spot	Function
X11	Auto-standby function.
X12	Volume increment/decrement function.
X13	Channel/volume restore function.

Tab. 7.98: Solder spots

Auto standby function

Use the X11 solder spot to enable or disable the auto standby function of the channel selector.

Solder spot	Function
Not Soldered*	The auto standby function is enabled. When the headphones are disconnected, the channel selector is disabled.
Soldered	The auto standby function is disabled. When the headphones are disconnected, the channel selector remains enabled.

Tab. 7.99: Solder spot X11 (* = default)

Notice!
When you use the channel selector to record audio, you must close the X11 solder spot.

The channel selector measures the impedance between pin 1 and pin 2 of the headphones plug (see *19 inch Units, page 112* > Headphones). When this impedance is less than 1 kΩ, the channel selector identifies that the headphones are present.

Volume increment/decrement

With the X12 solder spot, you can enable or disable the volume increment/decrement function of the channel selector.

Solder spot	Function
Not Soldered*	The volume increment/decrement function is enabled. When the volume up (down) button is pushed for longer than 0.25 seconds, the volume level is increased (decreased) with 12 dB per second.
Soldered	The volume increment/decrement function is disabled. When the volume up (down) button is pushed, the volume level increases (decreases) with one step of 1 dB.

Tab. 7.100: Solder spot X12 (* = default)

Channel/volume restore function

Use the X13 solder spot to enable or disable the channel/volume restore function of the channel selector.

Solder spot	Function
Not Soldered*	The channel/volume restore function is disabled. When the channel selector is enabled, it automatically: – Selects channel 0 (floor) – Sets the volume level to -18 dB.
Soldered	The volume increment/decrement function is disabled. When the volume up (down) button is pushed, the volume level increases (decreases) with one step of 1 dB. – Select the last known channel. – Sets the last know volume level.

Tab. 7.101: Solder spot X13 (* = default)

For example, you can enable this function when all delegates and chairmen have a fixed seat number.

Notice!

The channel selector saves all channel changes after 5 seconds.

Notice!

If the last known channel number is greater than the maximum number of channels that are available, the channel selector automatically goes to channel 0. When the last known channel becomes available, it is only restored if you did not operate the buttons of the channel selector.

7.16 DCN-IDESK Interpreter Desks

Before the start of a discussion or a conference, the interpreter and system parameters of the interpreter desk can be put manually in the installation mode of the desk.

Overview

The installation mode of the desk consists of a number of menus in which options have to be chosen. Some menus are applicable only to the desk that is being configured, whereas other menus apply to all interpreter desks in the system.

Menu	Description	Scope
a	User language	System
b	Interpreter booth number	Desk
c	Desk number	Desk
d	Number of channels	System
e	Language list	System
f	Language channels	System
g	Outgoing channel A	Desk
h	Outgoing channel B	Desk
j	Number of auto-relay booths	System
k	Auto-relay booths	System
l	Microphone locks	System
m	Speak slowly signaling	System
n	Help signaling	System
o	Speech timer	Desk
p	Microphone source	Desk

Tab. 7.102: Installation mode menus

Notice!

In PC based systems only menus a, b, c, o and p have to be configured manually on each desk. All other menus can be configured from the PC if software package DCN-SWSI is used.

Notice!

PC based systems using the Simultaneous Interpretation software module have extended control and preset facilities as compared to a stand-alone interpretation system.

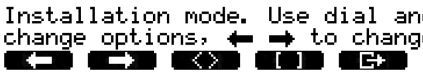
Notice!

A description of the Simultaneous Interpretation software manual is beyond the scope of this manual. Refer for detailed information about this software to its own manual.

Start the installation mode

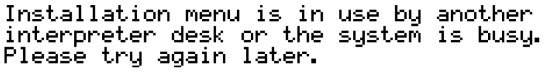
1. Make sure the interpreter desk has an address (refer to *Initialization, page 175*).

2. Push the b preselect channel button and the B output selection button at the same time. The installation mode of the interpreter desk starts.
3. The display shows:



Notice!
Some installation mode screens affect all interpreter desks in the system, only one interpreter desk at a time can be in the installation mode.

4. When one of the interpreter desks in the system already is in the installation mode, the display shows:



Navigation in the installation mode
In the installation mode, only a small number of controls are available (refer *DCN-IDESK Interpreter Desks, page 51*).

Control	Function
Primary knob	Select menu option(s)
Preselect channel button a	Go to the previous menu
Preselect channel button b	Go to the next menu
Preselect channel button d	Clear current selection
Preselect channel button e	Enter current selection
Output selection button B	Exit the installation mode

Tab. 7.103: Controls in the installation mode

Configuration procedures
To select the necessary parameters in the installation menus to configure the interpreter desk do as follows:
1. Push the a and b preselect channel buttons to go to the necessary installation menu. The parameter that is set has square brackets, for example, [option].
2. Push the d preselect channel button to clear the set parameter. The square brackets change to arrow brackets, for example, <option>. This shows that you can select a different choice with the primary knob.
3. Turn the primary knob to go to the necessary parameter. When the correct parameter is selected, push the e preselect channel button. The arrow brackets change to square brackets.

Menu screens
Menu a
Menu a sets the display language of the interpreter desk when in the installation mode. The language is set for all interpreter desks in the system.

Menu b

Menu b sets the interpreter desk to an interpreter booth. It is necessary to set each interpreter desk in turn.

```
Select booth number:
 Booth  [ 1]  of 31                    b
```

Notice!
If an interpreter booth is full, no entry is possible and no response is given.

Menu c

Menu c sets a desk number to the unit in the interpreter booth. It is necessary to set each interpreter desk in turn.

```
Select desk number:
[1]2 3 4 5 6                          c
```

Notice!
If a desk number is already in use, no entry is possible and no response is given.

Menu d

```
Select number of channels:
[26] channels                         d
```

Menu d sets the number of necessary language channels in the system. The number is set for all interpreter desks in the system.
The default number of channels in a system that does not have a control PC is 26.

Language	≤ 26	27	28	29	30	31
Contribution	4	3	2	1	1	1
Intercom	1	1	1	1	0	0
Delegate	1	1	1	0	0	0

Tab. 7.104: Channels

Menu e

Menu e sets the list of languages that are used to display on the interpreter desk display. The language list is set for all interpreter desks in the system.

```
Select language list:
[ENGLISH] FRENCH  ORIGINAL            e
```

Menu f

Menu f sets a language to a specified channel. The number of channels to which a language can be set is the same as the number of channels set in menu d. The language list is set for all interpreter desks in the system.

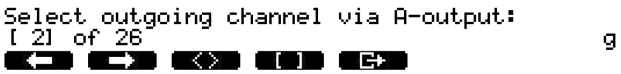
```
Select language for channel 1:
[ALB - Albanian]                      f
```

```
Select language for channel 30:
[DUT - DUTCH]                         f
```

If a language is set to a channel, an asterisk appears in the display. For example:

Menu g

Menu g sets a channel number to output A. The channel number must be available on the interpreter desk. It is necessary to set each interpreter desk in turn.

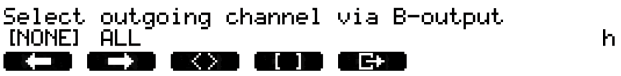


Notice!

When you install the interpreter desk for the first time, the interpreter booth number is the default channel number for output A.

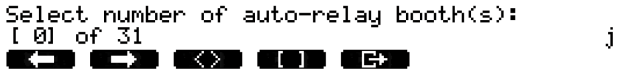
Menu h

Menu h sets a channel to output B of the interpreter desk. It is necessary to set each interpreter desk in turn. Output B can be set either for none or all available channels.



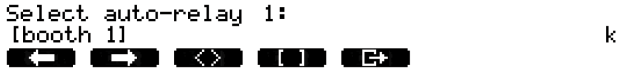
Menu j

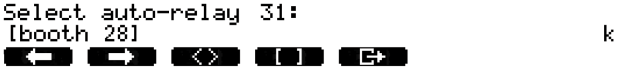
Menu j sets the number of auto-relay interpreter booths in the system. The number is set for all interpreter desks in the system.



Menu k

Menu k sets the interpreter booths that are auto-relay booths. The interpreter booths are set for all interpreter desks in the system.





Menu l

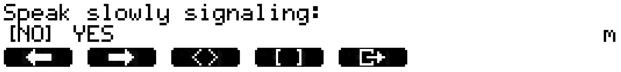
Menu l sets the necessary interlock mode. The interlock mode is set for all interpreter desks in the system.

Option	Description
None	No lock functionality.Audio inputs of the audio expander are disabled for translation channels only.
Override	Allows an interpreter to override another interpreter in another interpreter booth supplying the same interpretation channel.
Interlock	Blocks another interpreter from using the same channel in another interpreter booth.

Tab. 7.105: Microphone lock options

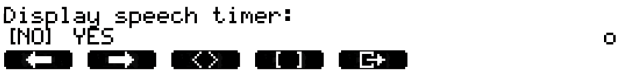
Notice!
When the interlock mode is None and interpreter desks using the same outgoing channel are connected to different CCUs, the interpreter desks work as if the interlock mode is set to Interlock.

Menu m
Menu m sets the speak slowly signal on and off. For Speak slowly signaling refer to *DCN-IDESK Interpreter Desks, page 51*.



Menu n
Menu n sets the help signaling on and off. For Help signaling refer to *DCN-IDESK Interpreter Desks, page 51*.

Menu o
Menu o sets the speech timer of the interpreter desk on and off. It is necessary to set each interpreter desk in turn.



Menu p
Menu p sets the source for the microphone source. It is necessary to set each interpreter desk in turn.

Exit screen
From the exit screen menu you can exit the installation mode.

7.17 DCN-EPS (-UL, -JP) Extension Power Supply

Danger!
The transformer voltage selection as described as follows is only allowed for qualified service personal. Do not open the extension power supply – electric shock from the mains power supply can kill you!

Use the connector block inside the extension power supply to select the voltage on which the extension power supply must operate (see table below).

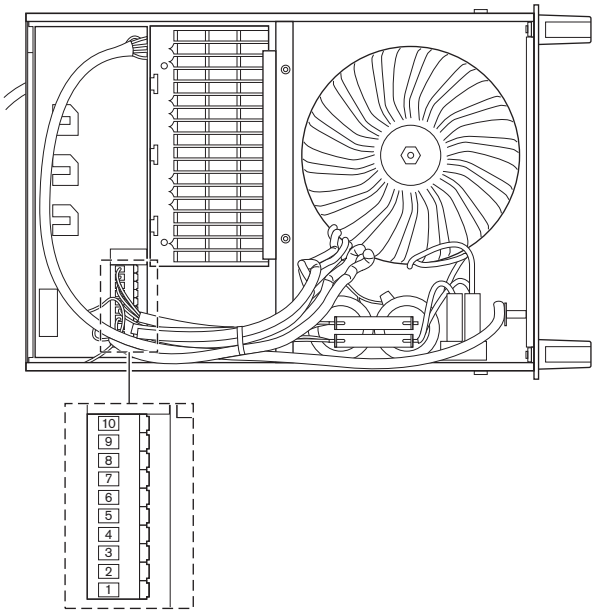


Figure 7.30: Internal settings

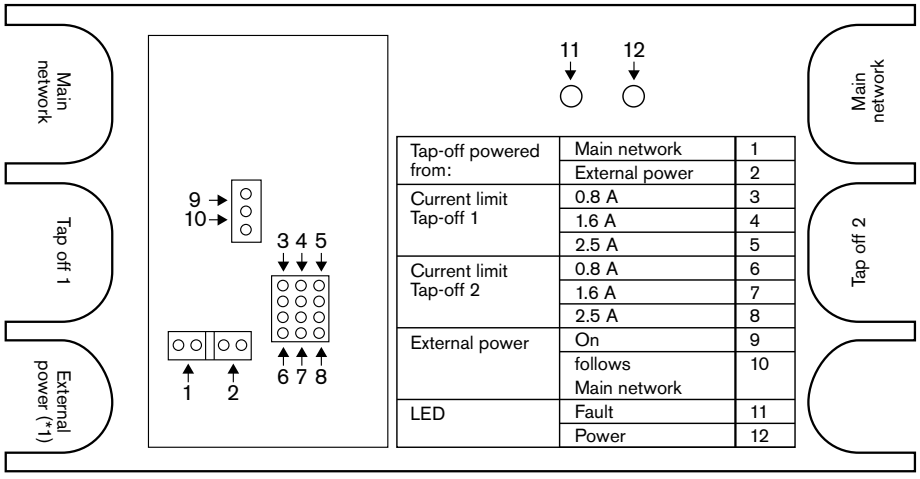
	For the correct fuse, refer to *DCN-EPS (-UL, -JP) Extension Power Supply, page 143*.			**For the correct fuse, refer to *DCN-EPS (-UL, -JP) Extension Power Supply, page 143*.**		
Pin	**105 V(AC)**	**115 V(AC)**	**125 V(AC)**	**220 V(AC)**	**230 V(AC)**	**240 V(AC)**
1	Blue (power)	n.c.	Blue (power)	Blue (power)	n.c.	Blue (power)
2	Black	Green	Green	Green	Green	Green
3	Green	Blue (power)	Black	Green	Black	Black
4	Orange	Orange	Orange	n.c.	Blue	n.c.
5	Blue (transformer)	Blue (transformer)	Blue (transformer)	Blue (transformer)	Blue (transformer)	Blue (transformer)
6	n.c.	Black	n.c.	Violet	Violet	Violet
7	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
8	n.c.	n.c.	n.c.	Orange	Orange	Orange
9	Violet	Violet	Violet	n.c.	n.c.	n.c.
10	Brown	Brown	Brown	Brown	Brown	Brown

Table 7.106: Internal settings (n.c. = not connected)

Notice!
The DCN-EPS is configured for a voltage of 220 – 240V(AC).
The DCN-EPS-UL is configured for a voltage of 100 – 120V(AC).
The DCN-EPS-JP is configured for a voltage of 105V(AC).

7.18 PRS-NSP Network Splitter

The rear of the cover of the network splitter shows a label that gives data of the internal connections. You can change the internal connections with the jumper blocks inside the network splitter.



Tap-off powered from:	Main network	1
	External power	2
Current limit Tap-off 1	0.8 A	3
	1.6 A	4
	2.5 A	5
Current limit Tap-off 2	0.8 A	6
	1.6 A	7
	2.5 A	8
External power	On	9
	follows Main network	10
LED	Fault	11
	Power	12

Figure 7.31: Label inside network splitter

To supply additional power to the tap-offs that are connected to the network splitter:

1. Put jumper shunt 1/2 on position 2.
2. Put jumper shunt 9/10 on position 9.
3. Connect an external power supply to the network splitter (refer to *PRS-FINNA Fiber Interface, page 147*).

7.19 DCN-DDB Data Distribution Board

Overview

Configure the data distribution board with the S8 switches.

Switch	Position	Description
S8-1	ON / OFF*	RS232 enabled / RS232 disabled
S8-2	ON / OFF*	Reserved / Passive mode
S8-3	ON / OFF*	19200 baud / 9600 baud
S8-4	ON / OFF*	Reserved
S8-5	ON / OFF*	Reserved
S8-6	ON / OFF*	Address bit 0 = 1 / Address bit 0 = 0
S8-7	ON / OFF*	Address bit 1 = 1 / Address bit 1 = 0
S8-8	ON / OFF*	Address bit 2 = 1 / Address bit 2 = 0

Tab. 7.107: S8 Dip switch settings (* = default)

RS232 port

You can enable or disable the RS232 port of the data distribution board with the S8-1 switch. Set the baud-rate with the S8-3 switch.

When you connect the data distribution board to a hall display, you must enable the RS232 port of the data distribution board. The baud-rate for all hall displays is 19,200 baud. Only the numeric display can also operate with a 9,600 baud connection.

Mode

Set the mode of the data distribution board with the S8-2 switch. The data distribution board can be:

– A passive unit that receives data from the central control unit (passive mode).
– An active unit that also transmits data to the central control unit (active mode).

Passive mode

You must put the data distribution board in the passive mode when:

– You use data distribution board to send data to a hall display.
– You use data distribution board for speak slowly or help signaling.
– You only use the parallel outputs of the data distribution board.

If the data distribution board is in the passive mode, you must give it an address. This address defines the application of the data distribution board. When you start the system for the first time, you must push the de-init switch of the data distribution board to send its address to the central control unit (refer to *Initialization, page 175*).

When you use the central control unit to erase the addresses of all units (refer to *Initialization, page 175*), you must not push the de-init switch again. The central control unit remembers the addresses of the passive data distribution boards when it is started again.

Addresses

If necessary, set the address of the data distribution board with the S8-6, S8-7 and S8-8 switches. This address is only used when the data distribution board is in the passive mode. The address defines the application of the data distribution board.

Address	S8-6	S8-7	S8-8	Description
248	0	0	0	Numeric display (refer to *DCN-DDB Data Distribution Board, page 257* > Numeric display)
249	1	0	0	Reserved
250	0	1	0	Reserved
251	1	1	0	Status display (e.g. synoptic display)
252	0	0	1	Reserved
253	1	0	1	Speak slowly signaling (refer to *DCN-DDB Data Distribution Board, page 63* > Speak slowly signaling)
254	0	1	1	Help signaling (interpreter booth 1 to 16, refer to *DCN-DDB Data Distribution Board, page 63* > Help signaling)
255	1	1	1	Help signaling (interpreter booth 17 to 31, refer to *DCN-DDB Data Distribution Board, page 63* > Help signaling)

Tab. 7.108: Addresses

Remote de-init switch

You can erase the address of the data distribution board from a remote site with connector X77 (refer to *DCN-DDB Data Distribution Board, page 63*). This 10-pole connector has connections for a de-init switch and a de-init LED.

Pin	Signal
1	+5 V
2	Init
3	Initialisation LED, anode
4	Initialisation LED, cathode
5	Not connected
6	Not connected
7	Not connected
8	Not connected
9	Not connected
10	Not connected

Tab. 7.109: X77 remote initialization connector

The remote de-init switch must be connected between pins 1 and 2. The de-init LED must be connected between pins 3 and 4.

8 Operation

8.1 System operation DCN-Wireless

8.1.1 Start the system

Before starting the system, make sure that:

– The system is correctly installed.
– The required number of wireless discussion units have been subscribed.

Notice!
If you want to use the wireless discussion unit in a new system, but it is already subscribed to another system, you must de-initialize the unit. After the unit has been de-initialized it must be subscribed to the new system.

To start the system, do the following:

1. Push the on/off switch on the central control unit. The display comes on. All devices in the DCN and optical network (including the WAP) are activated.
2. Install the battery packs in the wireless discussion units.
3. Push the microphone buttons on the wireless discussion units to activate the wireless discussion units. The LED around the microphone button comes on as yellow for 250 milliseconds
   If all LEDs of the wireless discussion unit are off, the wireless discussion unit is activated, and ready to use.
   If the LED around the microphone button stays on yellow, and the indicator ring of the microphone comes on red, the wireless discussion unit cannot find the subscribed wireless network. If the wireless network is found within 15 minutes, the wireless discussion unit connects. If not, the wireless discussion unit automatically deactivates.

If the software version of the wireless discussion unit is lower than 2.35, do the following:

1. Push the on/off switch on the central control unit. The display comes on. All devices in the DCN and optical network (including the WAP) are activated.
2. Install the battery packs in the wireless discussion units.
3. Push the microphone buttons on the wireless discussion units to activate the wireless discussion units. The LED around the microphone button comes on as green for 2 seconds
   If all LEDs of the wireless discussion unit are off, the wireless discussion unit is activated, and ready to use.
   If the LED around the microphone button changes between red and yellow for 5 seconds, the wireless discussion unit cannot find the subscribed wireless network. If the wireless network is found within 5 seconds, the wireless discussion unit connects. If not, the wireless discussion unit automatically deactivates.

8.1.2 Stop the system

To stop the system, do the following:

1. Select the 4A Wireless Mode menu item of the configuration menu of the central control unit.
2. Set the value of the parameter in the menu item to Off. All wireless discussion units are deactivated.
3. Push the on/off switch of the central control unit. The display goes off. All devices in the DCN and the optical network are deactivated.

Notice!

If necessary, charge the battery packs. Refer to *DCN-WLIION Battery Pack, page 269*.

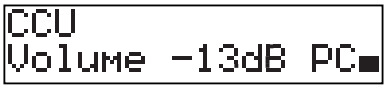
8.2 DCN-CCU2 and DCN-CCUB2 Central Control Units

Main screen

When you start the central control unit, the display first shows “Starting”. The display then shows the main screen.

Standalone mode

The following screen is displayed:



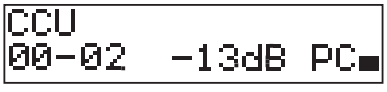
The main screen shows:

– The unit name. The default name is CCU plus the serial number. Change the name with the 8M Unit/Hostname menu item.
– The volume setting in dB (-13 dB).
– The system mode. PC - when the PC control software is connected to the central control unit.
– An indicator that shows the volume level of the loudspeakers of the contribution devices.

You can turn the knob to change the volume level.

Single CCU mode

The following screen is displayed:

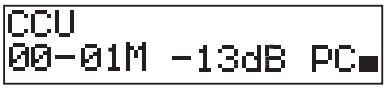


The main screen shows:

– The unit name. The default name is CCU plus the serial number. You can change the name with the 8M Unit/Hostname menu item.
– The System ID (00 - 15).
– The Slave ID (02 - 30).
– The volume setting in dB (-13 dB).
– The system mode. PC - when the PC control software is connected to the central control unit.
– An indicator that shows the volume level of the loudspeakers of the contribution devices.

Turn the knob to change the volume level.

Multimode, master

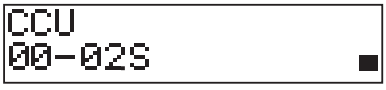


The main screen shows:
- The unit name. The default name is CCU plus the serial number. Change the name with the 8M Unit/Hostname menu item.
- The System ID (00 - 15).
- The Master ID (is fixed to 01).
- Multimaster mode (M).
- The volume setting in dB (-13 dB).
- The system mode. PC - when the PC control software is connected to the central control unit.
- An indicator that shows the volume level of the loudspeakers of the contribution devices.

Turn the knob to change the volume level.

Multimode, slave

The following screen is displayed:



When the CCU is in multi mode, the main screen shows:
- The unit name. The default name is CCU plus the serial number. Change the name with the 8M Unit/Hostname menu item.
- The System ID (00 - 15).
- The Slave ID (02 - 30).
- The Multi slave mode (S).
- An indicator that shows the volume level of the loudspeakers of the contribution devices.

Notice!

If you do not turn or push the knob for three minutes, the display automatically goes back to the Main menu item. The display does not automatically go back to the Main menu item from these menu items and their sub-menus:
6 Monitoring
8Da Assign Operator
8Db Assign Chairman

Pop-up message

When the central control unit detects a fault, the display shows a pop-up message. If there is more than one message, the display shows the most important message.

Messages	Description
No Network	Optical network is disconnected.
No Master CCU	The CCU is in multi-slave mode and the Ethernet connection with the master CCU is lost.
CCU Missing	If the master CCU detects that the Ethernet connection with a slave CCU is lost.

Messages	Description
Download CCU	CCU software does not start up properly or an internal version conflict has occurred.
Download CCUs	If the master CCU detects incompatible software versions between master and one or more slave CCUs.
Download WAP	The WAP contains an incompatible SW version.
Bad Signal	A bad signal for a wireless unit is notified.
Low Battery	A low battery for a wireless unit is notified.

Tab. 8.110: Messages (low to high importance)

When a fault condition is resolved, the fault message will disappear. The message goes out of view when you push the knob.

Microphone mode

Use the 1 Mic. Mode menu item to set the microphone mode.
When the central control unit is connected to the PC control software, the microphone mode can be controlled from the PC and the CCU menu.

Menu item	Parameter	Value	Description
1 Mic. Mode	Mode: Open* Override PTT Voice*** Operator** Response**	NOM: 1, 2*, 3 - 25 1, 2*, 3 - 25 1, 2*, 3 - 25 2*, 3, 4 1, 2*, 3 - 25 1	The microphone mode of the DCN and the maximum number of enabled delegate microphones.

Tab. 8.111: Microphone mode sub-menu under PC control software (* = default). ** only available in PC control. * only available when number of interpretation channels is 26 or less.**

Mode	Description
Open	In the open mode, delegates can enable their microphones with the microphone button on their contribution devices. When the maximum number of delegates speak, the next delegate that enables his or her microphone is added to a request-to-speak list. The microphone is not enabled until another delegate disables his or her microphone.
Override	In the override mode, delegates can activate their microphones with the microphone button on their contribution device. When the maximum number of delegates speak, the next delegate that activates his or her microphone automatically deactivates the microphone that was activated for the longest time.
Voice	In the voice mode, delegates can enable their microphones with their voices. The maximum number of delegates that can speak at the same time is the same as the maximum number of enabled microphones. Delegates can mute their microphones with the microphone button on their contribution devices.

Mode	Description
PTT	In the PTT (push-to-talk) mode, the delegates can activate their microphones with the microphone button on their contribution devices. The microphone is activated as long as the microphone button is pushed. When the maximum number of delegates speak, the other delegates cannot activate their microphones.

Tab. 8.112: Microphone mode parameters

Notice!
In systems without a control PC, the maximum number of enabled chairman microphones is 15.

Notice!
Microphones of chairman units can always be activated in the open, override and PTT mode.

Notice!
In the voice activated mode the LED ring of the microphone does not come on. But, the LED of the microphone button is always on in voice activated mode

Treble
Use the 2 Treble menu to set the level of the treble of the loudspeakers of the contribution devices.

Menu item	Parameter	Value	Description
2 Treble	---	-12 to 12 dB (0 dB*)	The level of the treble.

Tab. 8.113: Treble sub-menu (* = default)

Bass
Use the 3 Bass menu to set the level of the bass of the loudspeakers of the contribution devices.

Menu item	Parameter	Value	Description
3 Bass	---	-12 to 12 dB (0 dB*)	The level of the bass.

Tab. 8.114: Bass sub-menu (* = default)

System mode
Use the 4 System Mode menu item to set the system mode.

Value	Description
On*	Switches on the power of the ACN trunks and the wireless network.
Standby	Puts the wireless units into standby mode and switches off the power of the ACN trunks.
Subscription	Allows the subscription of wireless units during installation.

Value	Description
Off	Puts the wireless units off mode and switches off the power of the ACN trunks.

Tab. 8.115: System mode values. (* = default)

Fault Status

Use the 5 Fault Status menu item to see the condition messages of the central control unit. Bad signal and battery Low will be reported from Slave CCU to Master CCU.

Messages	Description
Restart CCU	The firmware in the CCU stopped unexpectedly and the CCU needs to be restarted manually
No Network	Optical network is disconnected.
No Master CCU	The CCU is in multi-slave mode and the Ethernet connection with the master CCU is lost.
CCU Missing	If the master CCU detects that the Ethernet connection with a slave CCU is lost.
Download CCU	CCU software does not start up properly or an internal version conflict has occurred.
Download CCUs	If the master CCU detects incompatible software versions between master and one or more slave CCUs.
Download WAP	The WAP contains an incompatible SW version.
Bad Signal	A bad signal for a wireless unit is notified.
Low Battery	A low battery for a wireless unit is notified.
No Fault	The CCU operates correctly.

Tab. 8.116: Messages (high or low importance)

Monitoring

Use the 6 Monitoring menu item to open the Monitoring sub-menu.

Menu item	Parameter	Value	Description
6 Monitoring	Signal: Floor* Input 1 Input 2 Output 1 Output 2	Volume level: -31 to 0 dB (-16 dB*) -31 to 0 dB (-16 dB*) -31 to 0 dB (-16 dB*) -31 to 0 dB (-16 dB*) -31 to 0 dB (-16 dB*)	The signal that is available on the headphones socket of the central control unit and its volume level.

Tab. 8.117: Monitoring sub-menu (* = default)

Enquiry

Use the 7 Enquiry menu item to open the enquiry sub-menus. Sub menu item 7A CCU gives general information about the central control unit. Sub menu item 7B WAP gives general information about the WAP.

CCU

Use the 7A CCU menu item to open the CCU sub-menu. The menu items in this sub-menu give general data about the central control unit.

Menu item	Value	Description
7Aa Serial Number	e.g. 22000010 Chk: 32	The hexadecimal serial number and checksum of the central control unit.
7Ab HW Version	e.g. 02.00	The version number of the hardware of the central control unit.
7Ac FPGA Version	e.g. 04.00.3959	The version number of the FPGA firmware of the central control unit.
7Ad FW Version	* e.g. 04.00.4026	The version number of the firmware of the central control unit.
7Ae Mac Address	e.g. 012345-6789AB	The Mac address of the central control unit.
7Af IP Address	e.g. 192.168.0.100	The IP address of the central control unit.

Tab. 8.118: CCU sub-menu (* = default)

WAP

Use the 7B WAP menu item to open the WAP sub-menu. The menu items in this sub-menu give general data about the WAP central control unit.

Notice!
This data must be mentioned in all service requests and failure reports.

Menu item	Value	Description
7Ba Serial Number	e.g. 1E00271F	The hexadecimal serial number of the central control unit.
7Bb HW Version	e.g. 02.00	The version number of the hardware of the central control unit.
7Bc FPGA Version	e.g. 04.00.3909	The version number of the FPGA firmware of the central control unit.
7Bd FW Version	e.g. 04.00.4026	The version number of the firmware of the central control unit.

Tab. 8.119: CCU sub-menu (* = default)

8.3 LBB4402/00 or PRS-4AEX4 Audio Expander

Main

When you start the audio expander, the display first shows Starting. The display then shows the Main menu item.

Notice!

If you do not turn or push the knob for three minutes, the display automatically goes back to the Main menu item. The display does not automatically go back to the Main menu item from the 2 Monitoring menu item and its sub-menus.

The Main menu item contains:

– The name of the audio expander. The default name is Analog Expander. You can change the name with the 4E Unit Name menu item (refer to *LBB4402/00 or PRS-4AEX4 Audio Expander, page 187*). Eight VU meters that show the volume levels of the audio inputs and audio outputs of the audio expander (refer to *19 inch units, page 176*). When an control input is disabled, an X character replaces the VU meter of the corresponding audio input or audio output on the display.

Fault pop-up

When the audio expander detects a fault, the display shows a message. If there is more than one message, the display shows the most important message.

Messages	Description
Downloading	The audio expander downloads software.
Max. CH mismatch	You have attached an audio input or audio output to a channel that does not exist.
No network	The audio expander cannot find the optical network.

Tab. 8.120: Messages (low to high importance)

When a fault condition is resolved, the fault message will disappear. The messages Max. CH mismatch, and No network go out of view when you push the knob.

Fault status

Use the 1 Fault Status menu item to see condition messages of the audio expander. If there is more than one message, the display shows the most important message.

Messages	Description
No Fault	The audio expander operates correctly.
Max. CH mismatch	You have attached an audio input or audio output to a channel that does not exist.
No network	The audio expander cannot find the optical network.

Tab. 8.121: Messages (low to high importance)

Monitoring

Use the 2 Monitoring menu item to open the Monitoring sub-menu.

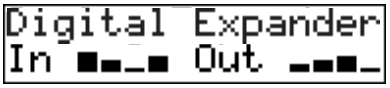
Menu item	Parameter	Value	Description
2A Source/Volume	Signal: In 1* In 2 In 3 In 4 Out 1 Out 2 Out 3 Out 4	Volume level: 31 to 0 dB (-16 dB*) 31 to 0 dB (-16 dB*) 31 to 0 dB (-16 dB*) 31 to 0 dB (-16 dB*) 31 to 0 dB (-16 dB*) 31 to 0 dB (-16 dB*) 31 to 0 dB (-16 dB*) 31 to 0 dB (-16 dB*)	The signal that is available on the headphones socket of the audio expander and its volume level. The menu item also shows the attached channel (read-only).
2B Input Engaged	Audio input: 1, 2, 3, 4		If the menu item shows a audio input number in the display, the language channel corresponding with the audio input is already in use by another (digital) audio expander, a cobranet interface or an interpreter desk.

Tab. 8.122: Monitoring sub-menu (* = default)

8.4 PRS-4DEX4 Digital Audio Expander

Main

When you start the digital audio expander, the display first shows Starting. The display then shows the Main menu item.



Notice!

If you do not turn or push the knob for three minutes, the display automatically goes back to the Main menu item. The display does not automatically go back to the Main menu item from the 2 Monitoring menu item and its sub-menus.

The Main menu item contains:

– The name of the digital audio expander. The default name is Digital Expander. You can change the name with the 4C Unit Name menu item (refer to *PRS-4DEX4 Digital Audio Expander, page 190*).Eight VU meters that show the volume levels of the audio inputs and audio outputs of the digital audio expander (refer to *19 inch units, page 176*). When an control input is disabled, an X character replaces the VU meter of the corresponding audio input or audio output on the display.

Fault pop-up

When the digital audio expander detects a fault, the display shows a message. If there is more than one message, the display shows the most important message.

Messages	Description
Downloading	The digital audio expander downloads software.
Max. CH mismatch	You have attached an audio input or audio output to a channel that does not exist.
No network	The digital audio expander cannot find the optical network.

Tab. 8.123: Messages (low to high importance)

When a fault condition is resolved, the fault message will disappear. The messages Max. CH mismatch, and No network go out of view when you push the knob.

Fault status

Use the 1 Fault Status menu item to see condition messages of the digital audio expander. If there is more than one message, the display shows the most important message.

Messages	Description
No Fault	The digital audio expander operates correctly.
Max. CH mismatch	You have attached an audio input or audio output to a channel that does not exist.
No network	The digital audio expander cannot find the optical network.

Tab. 8.124: Messages (low to high importance)

Monitoring

Use the 2 Monitoring menu item to open the Monitoring sub-menu.

Menu item	Parameter	Value	Description
2A Source/Volume	Audio input or output: In 1L* In 1R In 2L In 2R Out 1L Out 1R Out 2L Out 2R	Volume level: -31 to 0 dB (16 dB*) -31 to 0 dB (16 dB*) -31 to 0 dB (16 dB*) -31 to 0 dB (16 dB*) -31 to 0 dB (16 dB*) -31 to 0 dB (16 dB*) -31 to 0 dB (16 dB*) -31 to 0 dB (16 dB*)	The signal that is available on the headphones socket of the digital audio expander and its volume level. The menu item also shows the attached channel (read-only).
2B Input Engaged	Audio input: 1L, 1R, 2L, 2R		If the menu item shows a audio input number in the display, the language channel corresponding with the audio input is already in use by another (digital) audio expander, a cobranet interface or an interpreter desk.
2C Source Mode	---	---	Gives access to the format digital audio (refer to *PRS-4DEX4 Digital Audio Expander, page 190*).

Tab. 8.125: Monitoring sub-menu (* = default)

8.5 LBB4404/00 Cobranet Interface

Main

When you start the cobranet interface, the display first shows Starting. The display then shows the Main menu item.

Notice!

If you do not turn or push the knob for three minutes, the display automatically goes back to the Main menu item. The display does not automatically go back to the Main menu item from the 2 Monitoring menu item and its sub-menus.

The Main menu item contains:

- The name of the cobranet interface. The default name is CobraNet. You can change the name with the 4B Unit Name menu item (refer to *LBB4404/00 Cobranet Interface, page 197*).
- Eight VU meters that show the volume levels of the audio inputs and audio outputs of the cobranet interface (refer to *19 inch units, page 176*). When an control input is disabled, an X character replaces the VU meter of the corresponding audio input or audio output on the display.

Fault pop-up

When the cobranet interface detects a fault, the display shows a message. If there is more than one message, the display shows the most important message.

Messages	Description
Downloading	The cobranet interface downloads software.
Max. CH mismatch	You have attached an audio input or audio output to a channel that does not exist.
CobraNet: 0xHH	The CobraNet module has a buddy link error. 0xHH is the hexadecimal error code. Refer to the CobraNet documentation on the DVD that was supplied with your system for more information.
Internal: Mute	All audio inputs and audio outputs are muted.
Internal: 0xHH	The CobraNet module has a fault or an error. 0xHH is the hexadecimal error code. Refer to the CobraNet documentation on the DVD that was supplied with your system for more information.
Internal: Fatal	The cobranet interface cannot start the firmware.
No network	The cobranet interface cannot find the optical network.

Tab. 8.126: Messages (low to high importance)

When a fault condition is resolved, the fault message will disappear. The messages CobraNet: 0xHH, Internal: Mute, Internal: 0xHH, Internal: Fatal, and No network go out of view when you push the knob.

Fault status

Use the 1 Fault Status menu item to see condition messages of the cobranet interface. If there is more than one message, the display shows the most important message.

Messages	Description
No Fault	The cobranet interface operates correctly.
Max. CH mismatch	You have attached an audio input or audio output to a channel that does not exist.
CobraNet: 0xHH	The CobraNet module has a buddy link error. 0xHH is the hexadecimal error code. Refer to the CobraNet documentation on the DVD that was supplied with your system for more information.
Internal: Mute	All audio inputs and audio outputs are muted.
Internal: 0xHH	The CobraNet module has a fault or an error. 0xHH is the hexadecimal error code. Refer to the CobraNet documentation on the DVD that was supplied with your system for more information.
Internal: Fatal	The cobranet interface cannot start the firmware.
No network	The cobranet interface cannot find the optical network.

Tab. 8.127: Messages (low to high importance)

Monitoring

Use the 2 Monitoring menu item to open the Monitoring sub-menu.

Menu item	Parameter	Value	Description
2A Source/Volume	Audio input or output: In 1* In 2 In 3 In 4 Out 1 Out 2 Out 3 Out 4	Volume level: -31 to 0 dB (16 dB*) -31 to 0 dB (16 dB*) -31 to 0 dB (16 dB*) -31 to 0 dB (16 dB*) -31 to 0 dB (16 dB*) -31 to 0 dB (16 dB*) -31 to 0 dB (16 dB*) -31 to 0 dB (16 dB*)	The signal that is available on the headphones socket of the cobranet interface and its volume level. The menu item also shows the attached channel (read-only).
2B Input Engaged	Audio input: 1, 2, 3, 4		If the menu item shows a audio input number in the display, the language channel corresponding with the audio input is already in use by another (digital) audio expander, a cobranet interface or an interpreter desk.

Tab. 8.128: Monitoring sub-menu (* = default)

8.6 DCN-WAP Wireless Access Point

The LEDs on the wireless access point give information about the condition of the wireless network and the wireless access point.

Notice!
You can change the condition of the system with the configuration menu of the central control unit (refer to *Configuration, page 174*).

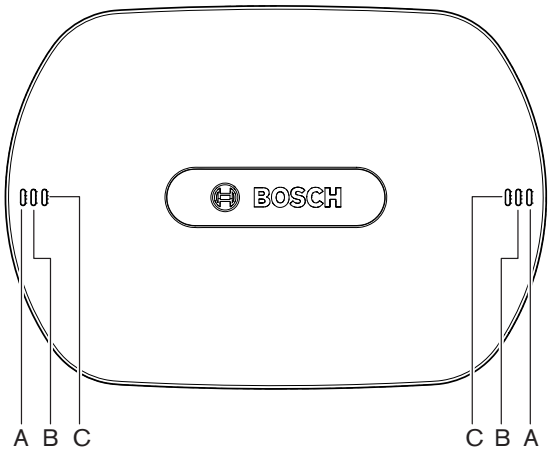


Figure 8.1: Status LEDs

Blue (A)	Red (B)	Blue (C)	Description
Flashing (fast)	Off	Off	The wireless mode is set to On, and no Wireless Discussion Units are connected to the system. Check if another WiFi network is present and if the yellow out-of-range LED on the back of the Wireless Discussion Units is on.
Flashing (fast)	Off	Flashing (fast)	No Wireless Discussion Units are connected, and menu item 3B, one of the 3B submenus, or 4Kd of the configuration menu of the Central Control Unit is open. Use these menu items to configure the Wireless Access Point.
Flashing (fast)	Off	On	The wireless mode is set to Subscription, and no Wireless Discussion Units are connected to the system.
Flashing (slow)	Off	Flashing (fast)	The wireless mode is set to Sleep, and menu item 3B, one of the 3B submenus, or 4Kd of the configuration menu of the Central Control Unit is open. Use these menu items to configure the wireless access point.
Flashing (slow)	Off	Off	The wireless mode is set to Sleep.

Blue (A)	Red (B)	Blue (C)	Description
Off	Flashing (fast)	Off	The Wireless Access Point (DCN-WAP) does not contain valid firmware and needs to downloaded using the Bosch Download and License Tool (DCN-DLT).
Off	Flashing (slow)	Off	The wireless mode is set to Off, or the power value of the Wireless Access Point is set to Off. This LED sequence is also used to indicate that the Central Control Unit is incompatible with the Wireless Access Point (if this is the case, a message “incompatible HW/SW” is also shown on the display of the Central Control Unit).
Off	Off	Off	No power to the Wireless Access Point.
Off	On	Off	The Wireless Access Point lost connection with the optical network. Check replace the optical cable.
On	Flashing (fast)	Off	This indication remains active until the download process is completely finished.
On	Off	Flashing (fast)	One or more Wireless Discussion Units are connected to the system, and menu item 3B, one of the 3B submenus, or 4Kd of the configuration menu of the Central Control Unit is open. Use these menu items to configure the Wireless Access Point.
On	Off	On	The wireless mode is set to Subscription, and one or more devices are connected to the system.
On	Off	Off	The wireless mode is On, and one or more Wireless Discussion Units are connected to the system.
On	On	On	Internal error in Wireless Access Point. Check if: the Software is downloaded, possible error message displayed on the CCU. Or replace the WAP.

Tab. 8.129: Status LEDs

Notice!
Flashing (fast) = one second on, one second off.
Flashing (slow) = one sec on, three seconds off.
Always check the area with the WiFi finder to prevent disturbance from other networks.

8.7 DCN-CON Concentus Units

The color of the LED of the microphone button shows the condition of the microphone that is connected to the Concentus unit.

Color	Condition
Red (on)	Microphone enabled
Red (flash)	Last minute of speech time
Green (on)	Request-to-speak
Green (flash)	First in request-to-speak list

Color	Condition
Yellow (on)	VIP mode

Tab. 8.130: Condition

Notice!
You can only put the Concentus delegate unit in the VIP mode with the Microphone Management software module. Refer to the applicable Software User Manual for instructions that tell you how to enable the VIP mode.

Notice!
Refer to the Quick Reference Card of the Concentus delegate unit for instructions that tell you how to operate the Concentus delegate unit.

8.8 DCN-DIS and DCN-WD Discussion Units

Microphone
The colors of the LEDs of the microphone buttons show the condition of the microphone that is connected to the discussion unit.

Color	Condition
Red (on)	Microphone enabled
Red (flash)	Last minute of speech time
Green (on)	Request-to-speak
Green (flash)	First in request-to-speak list
Yellow (on)	VIP mode

Tab. 8.131: Condition

Notice!
You can only put the discussion unit in the VIP mode with the Microphone Management software module. Refer to the applicable Software User Manual for instructions that tell you how to enable the VIP mode.

Notice!
Refer to the Quick Reference Card of the discussion unit for instructions that tell you how to operate the discussion unit. Refer to the DVD.

Warning!
For the microphones it must be avoided to bend the gooseneck more than 90 degrees or to rotate a (bent) gooseneck. This will cause damage to the windings of the gooseneck.

Attendance LED

Attendance LED	Condition
Yellow (flashing)	The system requests attendance registration.

Attendance LED	Condition
Yellow (on)	The attendance registration is confirmed.

Tab. 8.132: Attendance LED

DCN-WD Discussion Units (wireless)

Activation

Before activating the wireless units, make sure:

– The wireless discussion units are already subscribed to the system. The system is switched on.The wireless discussion units are in range of the system.

Push the microphone button to activate the wireless discussion unit. The LED around the microphone button comes on as yellow for 250 milliseconds. The unit is now connected and can be used.

If the wireless discussion unit does not behave as described above, refer to *DCN-DIS and DCN-WD discussion units, page 209*.

Deactivation

Push and hold down the volume-down and volume-up buttons for 2 seconds.

Quick reference card

Refer to the Quick Reference Card of the wireless discussion unit for instructions that tell you how to operate the wireless discussion unit. Refer to the DVD.

Status LEDs

The status LEDs show the condition of the wireless discussion unit.

– If the yellow LED is on, the wireless discussion unit is out-of-range.If the red LED flashes, the battery pack of the wireless discussion unit will be empty within 1 hour.

If a wireless discussion unit is out of range for more than 15 minutes, it will automatically switch off.

Status channel selector display

If the wireless discussion unit has a channel selector display, additional icons show the condition of the unit:

– If the antenna icon is shown, the wireless discussion unit is in-range.If the battery icon is shown, the battery pack of the wireless discussion unit will be empty within 1 hour.

Figure 8.2: Antenna and battery icon

If a wireless discussion unit is out of range for more than 15 minutes, it will automatically switch off.

8.9 DCN-WLIION Battery Pack

To enable the capacity LEDs, press the button next to the LEDs. The higher the capacity, the higher the number of capacity LEDs that come on.

Notice!

The battery capacity in the table is plus or minus 20%.

No. LEDs on	Battery capacity (hours)
5	18 - 20

No. LEDs on	Battery capacity (hours)
4	13 - 18
3	8 - 13
2	3 - 8
1	< 3

Tab. 8.133: Capacity LEDs

8.10 DCN-WCH05 Battery Charger

The higher the capacity, the higher the number of charge level LEDs that come on.
Refer to *DCN-WLIION Battery Pack, page 249*.

8.11 DCN-MICL, DCN-MICS Pluggable Microphones

The color of the indicator ring shows the condition of the microphone.

Color	Condition
Red (on)	Microphone enabled
Red (flash)	Last minute of speech time
Green (on)	Request-to-speak
Green (flash)	First in request-to-speak list

Tab. 8.134: Condition

Notice!
When the microphone is connected to a DCN-IDESK, it can only show that the microphone is enabled.

Warning!
For the microphones it must be avoided to bend the gooseneck more than 90 degrees or to rotate a (bended) gooseneck. This will cause damage to the windings of the gooseneck.

8.12 DCN-FMICB Microphone Control Panel

The color of the LED ring of the microphone button shows the condition of the microphone that is connected to the microphone control panel.

Color	Condition
Red (on)	Microphone enabled
Red (flash)	Last minute of speech time
Green (on)	Request-to-speak
Green (flash)	First in request-to-speak list
Yellow (on)	VIP mode

Tab. 8.135: Condition

Notice!
You can only put the microphone control panel in the VIP mode with the Microphone Management software module. Refer to the applicable Software User Manuals for instructions that tell you how to enable the VIP mode.

8.13 DCN-FPRIOB Priority Panel

The red LED ring comes on when you push the priority button.

Notice!
The system has the possibility to:
Play an attention chime when the chairman pushes the priority button.
Erase the request-to-speak list and the speakers list when the chairman pushes the priority button.
Refer to 8As Mic. Priority Settings in *DCN-CCU2 and DCN-CCUB2 Central Control Units, page 180*.

8.14 DCN-FV(CRD) Voting Panel

The signs on the voting buttons show the parliamentary votes. The signs adjacent to the LEDs of the voting buttons show the multiple choice votes and the audience response votes.

Notice!
In systems without control PC, it is only possible to make parliamentary votes.

The LEDs of the available voting buttons flash during a voting session. After the delegate has made a vote: The LED of the pushed voting button comes on. The LEDs of the other voting buttons go off. In systems with PC control and voting software, also secret voting can be selected. In secret voting the LED of the pushed voting button does not come on.

The condition LED shows the condition of the voting panel.

LED	Condition
Off	Device or system off
Blue (on)	System on
Blue, flashing @ 5 Hz	No communication
Yellow, flashing @ 2 Hz	Card requested
Yellow, flashing @ 5 Hz	Card rejected
Yellow (on)	Delegate present

Tab. 8.136: Conditions

Notice!
an ID card has been requested (but cannot be used, because the unit does not have a card reader), the LED on the DCN-FV unit will continuously flash yellow.

8.15 DCN-FVU Voting Unit

Refer to *DCN-FV(CRD) Voting Panel, page 252* for information about the operation of the voting panel. The operation of the voting unit and the voting panel are the same, but the condition LED of the voting panel shows less conditions.

LED	Condition
Off	Device or system off
Blue (on)	Device on
Blue, flashing @ 5 Hz	No communication
Yellow (on)	Delegate present

Tab. 8.137: Conditions

Notice!
The chinese version of the voting panel can only be used for parliamentary voting sessions and for/against voting sessions, because the chinese version has 4 voting buttons. All other voting sessions use a minimum of 5 voting buttons.

8.16 DCN-IDESK Interpreter Desks

When you start the central control unit, the interpreter desk starts. The display on the desk shows the hardware and software versions. For example:


```
Bosch Security Systems B.V.
Digital Congress Network
Release: X.XX.XXXX/X.X/X.X
```

The operational mode starts automatically if the desk has the correct configuration. The operational mode is the default mode for the interpreter desk. If the desk is not configured, the display shows the screen:


```
Desk not installed
```

Notice!
You cannot put a desk that is not configured in the operational mode.

Normal interpretation
In the usual procedure for interpreters, the interpreter knows the source floor language. The interpreter makes an interpretation of the source language in the target language. The language distribution channels transmit the target language to the delegate units.

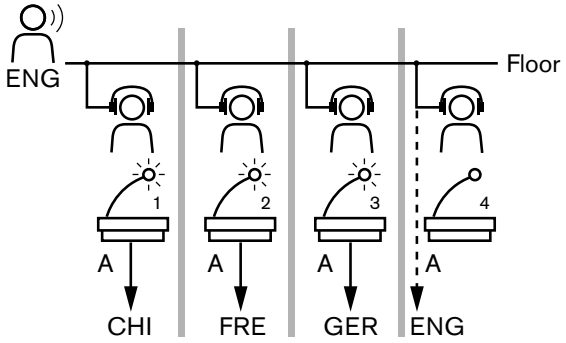


Figure 8.3: Normal interpretation from floor

Auto-relay interpretation
Where the interpreter does not know the source floor language, the system has an automatic relay function.
One interpreter makes an interpretation from the source language (floor signal) in a language that the other interpreters know. This language is the auto-relay interpretation. The auto-relay interpretation automatically replaces the floor signal on all interpreter desks. All interpreters use the auto-relay interpretation to make interpretations.
The example in the figure shows that the floor signal is Chinese. The auto-relay is enabled at the Chinese interpreter desk. The Chinese-to-English interpreter selects output B and sends an English auto-relay interpretation to all other interpreter desks. The LED adjacent to the Floor/Auto-relay button shows on all other interpreter desks that the interpreter desk receive an auto-relay interpretation.

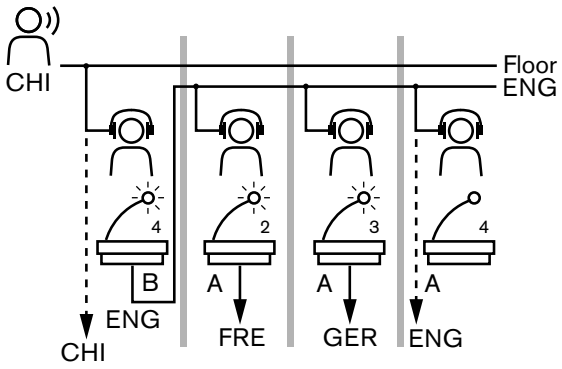


Figure 8.4: Auto-relay interpretation

Notice!
In the installation mode of the interpreter desk, output B can be assigned with an auto-relay function.

Microphone button LED
The colors of the LED around the microphone button shows the condition of the microphone that is connected to the interpreter desk.

Color	Condition
Red (on)	Microphone enabled
Red (flash)	Engaged warning
Green (on)	Interpreter booth off

Tab. 8.138: Condition

Notice!
Refer to the Quick Reference Card of the interpreter desk for instructions that tell you how to operate the interpreter desk.

Beeps
The interpreter desk can generate beeps for notification of special events to support blind interpreters on the headphones.

Notice!
The volume level of the beeps depends on the position of the volume control of the headphones.

The audio beeps can be toggled on and off with the beeps button (refer to *DCN-IDESK Interpreter Desks, page 51*). When beeps are enabled, a musical note appears in the display.

Tone	Event
Beep on	Beeps are enabled.
Beep off	Beeps are disabled.
Microphone on	Microphone is switched on.

Tone	Event
Microphone off	Microphone is switched off.
Quality indication	Own channel is selected while the microphone is on OR the quality of the selected channel is '-'.
External phone call	Incoming phone call (only when beeps are enabled and microphone is off).
Intercom	Intercom call (only when beeps are enabled and microphone is off).

Tab. 8.139: Beeps

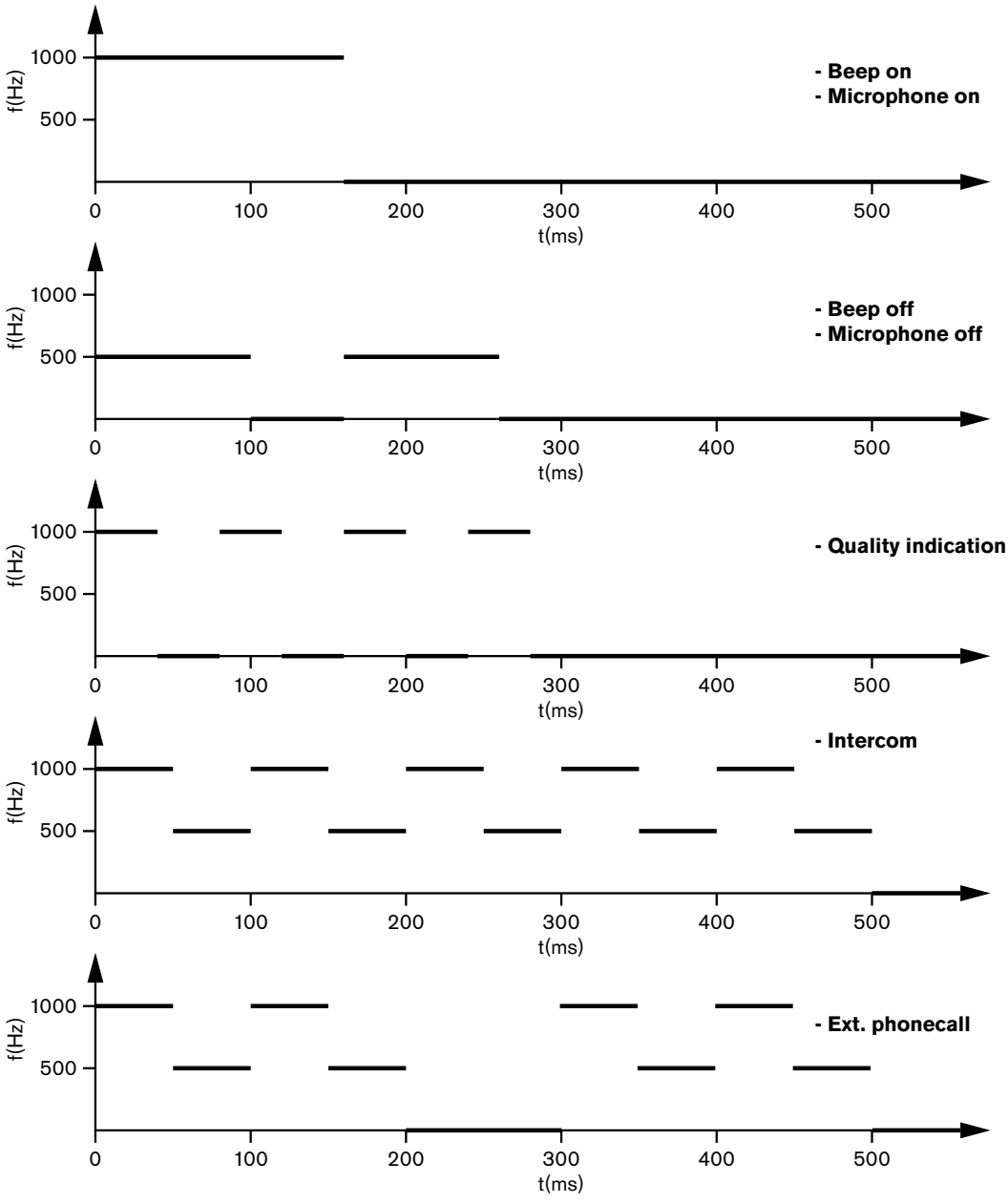


Figure 8.5: Beeps

Notice!
Except for beep on and beep off, all beeps are only available when beeps have been enabled.

8.17 PRS-NSP Network Splitter

The two LEDs on the network splitter give information about the condition of the network splitter.

Green (Power)	Yellow (Fault)	Condition
Off	Off	The network splitter does not receive any power.
Off	On	There is no optical network available or there is a fault in the optical network.
On	Off	The network splitter functions correctly.

Tab. 8.140: Status LEDs

8.18 PRS-FINNA Fiber Interface

The two LEDs on the fiber interface give information about the condition of the fiber interface.

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

Tab. 8.141: Status LEDs

8.19 DCN-DDB Data Distribution Board

Communication
The data distribution board sends serial data to the hall display through the RS232 port. The serial data consists of ASCII text with ANSI escape codes for special functions. Refer to the table for the descriptions of <CR> and <LF> control characters.

Character	Description
<CR>	Moves the cursor to the first location on the current text line.
<LF>	Moves the cursor one row down in the current column

Tab. 8.142: ASCII control characters

The data distribution board only sends ANSI codes and binary data to status displays.

ANSI support

The connected hall display must be able to process all the ANSI escape codes that are listed below.

Notice!

Not all of these codes are currently in use, but they must be implemented in the hall display for future compatibility.

Cursor location

```
<esc>[<line number>;<column number>H
<esc>[<line number>;<column number>f
```

Figure 8.6: Cursor location

Moves the cursor to the specified location. If no text line number and column number is specified, the cursor moves to the upper left corner of the hall display (text line 1, column 1).

Cursor up

```
<esc>[<numlines>A
```

Figure 8.7: Cursor up

Moves the cursor up in the same column. The number of text lines that it is moved is defined by numlines. If the cursor is already in the first text line, the hall display must ignore this escape function. If numlines is omitted, the data distribution board moves the cursor one text line.

Cursor down

```
<esc>[<numlines>B
```

Figure 8.8: Cursor down

Moves the cursor down in the same column. The number of text lines that it is moved is defined by numlines. If the cursor is already in the last text line, the hall display must ignore this escape function. If numlines is omitted, the data distribution board moves the cursor one text line.

Cursor right

```
<esc>[<numlines>C
```

Figure 8.9: Cursor right

Moves the cursor to the right in the same text line. The number of columns that it is moved is defined by numlines. If the cursor is already in the last column, the hall display must ignore this escape function. If numlines is omitted, the data distribution board moves the cursor one location.

Cursor left

```
<esc>[<numlines>D
```

Figure 8.10: Cursor left

Moves the cursor to the left in the same text line. The number of columns that it is moved is defined by numlines. If the cursor is already in the first column, the hall display must ignore this escape function. If numlines is omitted, the data distribution board assumes a default value of 1 column.

Erase display

```
<esc>[2J
```

Figure 8.11: Erase display

Erases the hall display and moves the cursor to its home location (text line 1, column 1).

Erase line

```
<esc>[K
```

Figure 8.12: Erase line

Erases all characters from the location of the cursor to the end of the text line (including the character at the cursor location). The cursor remains in the same place.

Numeric display

On a numeric display, the data distribution board can show parliamentary voting results and a voting timer. A numeric display does not require a control PC.

The data distribution board sends six text lines to the hall display. Each text line contains six locations. This is only applicable for parliamentary voting (Yes / No / Abstain) other voting modes are not supported.

Line	Item
1	Voting timer
2	Number of present delegates
3	Number of delegates who voted ‘Yes’
4	Number of delegates who voted ‘No’.
5	Number of delegates who voted ‘Abstain’.
6	Number of delegates who did not vote.

Tab. 8.143: Numeric display

Notice!

If there is no voting timer, the first text line is empty.

The voting timer is a number of four digits (two for the minutes, two for the seconds). There is no separator between the minutes and the seconds. The separator must be part of the fixed text on the hall display.

Example:

A parliamentary voting session in progress. There are 14 minutes and 25 seconds left. In the room are 1,235 delegates present: 945 delegates voted ‘Yes’, 30 delegates voted ‘No’, 255 delegates voted ‘Abstain’ and 5 delegates did not vote.

Refer to the figure for the data that the data distribution board sends to the hall display.

Notice!

An underscore represents a space.

```
<ESC>[2J1425<CR><LF>
1235<CR><LF>
_945<CR><LF>
__30<CR><LF>
_255<CR><LF>
___5
```

Figure 8.13: Numeric display, example (1)

Refer to the figure for the data that the hall display shows.

Time:	14:25
Present:	1235
Yes:	945
No:	30
Abstain:	255
Not Voted:	5

Figure 8.14: Numeric display, example (2)

9 Troubleshooting

9.1 System

When a problem occurs, do as follows:

- ▸ Examine the system. For example, examine:
- – The LEDs on the devices.
- – The condition messages of the devices.
- ▸ Write down your findings. When you write down your findings, you can give an explanation of your findings to other persons (for example, service engineers).

From our experience and based on data from our repair centres we know that problems on site are often related to the application and not to the performance of the unit(s) individually. It is therefore important that this Installation and Operation manual and the Release notes are read. This will save you time and helps us deploying the quality of Bosch products.
Tip: Make sure you always use the last released software version at an installation.

At bigger systems it is easy to get totally absorbed by the total quantity of units and the possibilities. A step-by-step approach of the smallest possible working system which includes the troubled unit is advisable. The used cabling and connections should not be the integrated cables of the building, but proofed cables with short lengths.

Optical network problems

Make sure that the maximum number of nodes, in combination with cable length, is according the system limits and the bend radius of the optical cable is not too tight. Refer to *Optical network design, page 77*.
The network status could be found on the CCU display information:

- – Navigate with the rotary switch to the faults (1 for the AEX and 4 for the CCU) press for 5 seconds on the rotary button and navigate to network faults.
  Sub menu A is the optical connection information: Redundant (ring), not-redundant (“branch”, the last unit connected will show “end of Branch”) with this you can check if the optical cable is ok.

Example: in case the system is connected redundant and the menu shows “branch”' please check the optical cables.
The menu will also show the logging of network related errors (In this menu the error count can be set to “0”):

- – Connecting or disconnection will log a network error. In case the counter rises without frequency, then there could be a problem related to the optical connections:
  LE: (Lock error) registration of a network change or build up. The counter can go up by connecting units into the optical chain, by a reset of a unit or when switching a unit on.
  RE: (regeneration error) registration of a corrupted data which has been recovered (corrected) by the CRC (data check code). The counter could go up by bad or too long cables (in combination with too many nodes) or by a bad performing unit.
  BE: (Bit error) registration of a corrupted data which couldn't be recovered by the CRC.

Tip: Do not use cable binders.

Problem	Hint
– The display of an optical network device shows No Network.	– The optical network cable that is connected to the optical network device is too long (refer to *Cabling, page 80*).

Problem	Hint
	– More than the maximum nodes are connected.
– The audio inputs of an optical network device do not give an audio signal.	– Make sure that the audio input is enabled with the control inputs (for example, refer to *LBB4402/00 or PRS-4AEX4 Audio Expander, page 117*). – The optical network does not contain more than 16 devices (refer to *Limits, page 77*).

Acoustic feedback

Acoustic feedback (‘howling’) occurs when the sound of the loudspeakers or headphones in the system is sent to the system again by enabled microphones.

Source	Quick solution	
The acoustic feedback is caused by the loudspeakers of the contribution devices.	Decrease the volume level of the system. For example, with the knob on the front of the central control unit (refer to *DCN-CCU2 and DCN-CCUB2 Central Control Units, page 233*).	Do as follows: 1 Install a feedback suppressor between audio input 2 and audio output 2 of the central control unit. 2 Set the audio routing mode of the system to Insertion (refer to *DCN-CCU2 and DCN-CCUB2 Central Control Units, page 180*).
The acoustic feedback is caused by an external public address system that is connected to the DCN System.	Decrease the volume level of the public address system or the DCN System.	Install a feedback suppressor between audio output 1 and the input of the external public address system.
The acoustic feedback is caused by the headphones that are connected to the contribution devices.	Tell the chairmen and the delegates to decrease the volume level of their headphones with their contribution devices.	Install and configure the headphones level reduction of the contribution devices.

System problems

Problem	Hint
Noise can be heard in the system.	Earth the system at one point only (refer to *DCN-CCU2 and DCN-CCUB2 Central Control Units, page 180*).
The system does not operate correctly, but you do not know what the problem is.	– An ‘open-ended’ DCN cable without a cable termination plug can cause the problem. Connect cable termination plugs to all ‘open-ended’ DCN cables.

Problem	Hint
	– A transmitter which was connected while being switched on can cause the problem. Switch the transmitter off and on.

9.2 DCN-CCU2 and DCN-CCUB2 Central Control Unit

Problem	Hint
– You cannot start the CCU	– The central control unit is not connected to a mains power supply.
– The CCU does not control the video cameras correctly.	– The RS232 port of the central control unit are not configured correctly. Refer to *DCN-CCU2 and DCN-CCUB2 Central Control Units, page 180* for instructions that tell you how to configure the RS232 port of the central control unit.
– A trunk does not receive power from the system and the overload LEDs on the CCU or the extension power supply do not come on.	– The trunk is disconnected from the CCU or extension power supply. – The trunk contains a defective extension cable. Find the defective extension cable and replace it. – The system mode of the CCU is set to Standby or Off on front panel of the CCU or conference software. – The trunk contains a defective extension cable. Find the defective extension cable and replace it.
– A trunk does not receive power from the system and the overload LEDs on the CCU or the extension power supply are on.	– The devices that are connected to the trunk ask for too much power. Use the calculation tool to re-calculate the power consumption of the devices and the extension cables that are connected in the trunk.
– A multi CCU system does not operate correctly, but you cannot tell what the problem is.	– Check whether each sub system operates correctly in single CCU mode (refer to *DCN-CCU2 and DCN-CCUB2 Central Control Units, page 180*). – Disturbance on the optical network caused by connecting a device in a running system could cause a problem. If the problem persists: switch off and on one by one all devices connected with the optical

Problem	Hint
	network, starting with the master CCU (refer to *Optical network design, page 77*).
– The display shows: Download WAP	– The WAP contains an incompatible Software version. Download the software version as used on the CCU to the WAP via the DLT program.
– The display shows: Bad Signal	– a bad signal of the wireless discussion units is notified. – Move the unit closer to the WAP. – Check for other WiFi networks.
– The display shows: Low Battery	– a low battery for a wireless discussion unit is notified. – Replace or charge the battery.
– More bad signal warnings then expected on display CCU or in DCN-SWSMV	– In case of heavy disturbance on 2.4GHz, the system informs the operator with a bad signal warning on display CCU or in DCN-SWSMV. In case more investigation is needed, it is possible to analyze the logging file of DCN-SWSMV.

9.3 DCN-CON Concentus Unit

Problem	Hint
– The displays of the Concentus unit(s) show the start-up text.	– The DCN signal is re-generated too many times (refer to *DCN design, page 65*). – The trunk is too long (refer to *DCN design, page 65*). – The DCN signal is not re-generated each 100 m (refer to *DCN design, page 65*).
– Depending on menu setting 8L, the microphone LED on top of the loudspeaker of the Concentus delegate units and Concentus chairman units is flashing or continues red.	The contribution devices have the same address. Make sure that each active device in the DCN has a unique address (refer to *Initialization, page 175* and to *DCN-CCU2 and DCN-CCUB2 Central Control Units, page 180* > Double unitID).
– Languages displayed on the units do not match with the languages set in the PC.	Follow the instructions for downloading (refer to *Initialization, page 175*).
– You can operate the units with their buttons, but the units do not give an audio signal to their loudspeakers or headphones.	The audio routing mode of the central control unit is Insertion and you did not connect a device between audio input 2

Problem	Hint
	and audio output 2 of the central control unit (refer to *DCN-CCU2 and DCN-CCUB2 Central Control Units, page 180*).
– You cannot operate one or more units with their buttons and: The system gives power to the trunks, and the devices do not give an audio signal to their loudspeakers or headphones.	The DCN contains a defective extension cable. Find the defective extension cable and replace it. The defective extension cable can be anywhere in the DCN.

9.4 DCN-DIS Discussion Unit

Problem	Hint
– Not possible to initialize the DCN Discussion Units.	– The DCN signal is re-generated too many times (refer to *DCN design, page 65*). – The trunk is too long (refer to *DCN design, page 65*). – The DCN signal is not re-generated each 100 m (refer to *DCN design, page 65*).
– Depending on menu setting 8L, at two or more units the microphone indicator ring is flashing or continues red. The LEDs of the microphone buttons are off.	The contribution devices have the same address. Make sure that each active device in the DCN has a unique address (refer to *Initialization, page 175* and to *DCN-CCU2 and DCN-CCUB2 Central Control Units, page 180* > Double unitID).
– Unit fully operational but no audio to the loudspeaker or headphones.	The audio routing mode of the central control unit is Insertion and you did not connect a device between audio input 2 and audio output 2 of the central control unit (refer to *DCN-CCU2 and DCN-CCUB2 Central Control Units, page 180*).
– Although the system powers the trunks, units are not operational.	The DCN contains a defective extension cable. Find the defective extension cable and replace it. The defective extension cable can be anywhere in the DCN.
– A unit does not operate as expected.	The discussion unit is not in the correct mode. Refer to *DCN-DIS and DCN-WD discussion units, page 209* > Discussion unit Modes.

9.5 DCN-WD Wireless Discussion Unit

Problem	Hint
– Not possible to subscribe the DCN wireless discussion units.	– System is not in subscription mode.

Problem	Hint
	– The unit is not in range of the wireless access point (WAP). – The maximum number (245) of wireless units has been reached.
– Depending on menu setting 8L, at two or more units the microphone indicator ring is flashing or continues red. The LEDs of the microphone buttons are off.	The contribution devices have the same address. Make sure that each active device in the DCN has a unique address (refer to *Initialization, page 175* and to *DCN-CCU2 and DCN-CCUB2 Central Control Units, page 180* > Double UnitID table). Subscribe the units again.
– Unit fully operational but no audio to the loudspeaker or headphones.	The audio routing mode of the central control unit is Insertion and you did not connect a device between audio input 2 and audio output 2 of the central control unit (refer to *DCN-CCU2 and DCN-CCUB2 Central Control Units, page 180*).
– A unit does not operate as expected.	The discussion unit is not in the correct mode. Refer to *DCN-DIS and DCN-WD discussion units, page 209* > Discussion unit Modes.
– The battery of the wireless unit will not charge.	– It's important to frequently charge stored batteries. (Approx. every 6 months). – Complete discharged batteries could have the result that the batteries can not be charged anymore. – The typical life-time of the batteries is 5 years or 500 charging cycles.
– Not possible to subscribe a Wireless Discussion Unit in a system with encryption enabled. The unit returns in the de-initialize state.	– Encryption for the wireless system is probably enabled and the particular Wireless Discussion Unit has an incorrect encryption key. – Solution: disable encryption on the CCU and subscribe unit again. Or enter correct encryption key in unit and subscribe unit again.

9.6 LBB4114/00 or LBB4115/00 Trunk Splitter

Problem	Hint
The devices that are connected to a tap-off socket of a Trunk Splitter do not operate.	An LBB4115/00 Protected Trunk Splitter can cause the problem. The maximum power that a protected trunk splitter gives to each tap-off is 4.5 W (refer to

Problem	Hint
	LBB4115/00 Tap-off unit, page 56). If necessary, replace the LBB4115/00 Protected Trunk Splitter with an LBB4114/00 Trunk Splitter.

9.7 PC control software

Problem	Hint
– The PC control software shows grey icons.	– The license code is not correct. Make sure that you enter the correct license code. When you do not have a license code, contact your supplier.

9.8 LBB 4402/00 or PRS-4AEX4 Audio Expander

Problem	Hint
The audio signals on the audio outputs of a (digital) audio expanders contains noise.	The optical network cable that is connected to the (digital) audio expander is too long (refer to *Cabling, page 80*).
Input routing does not work after download of optical devices	Change all inputs to CH00 and then to the required channel.
The audio signals on the audio outputs of a (digital) audio expanders contains noise.	The optical network cable that is connected to the (digital) audio expander is too long (refer to *Cabling, page 80*).

9.9 DCN-WAP Wireless Access Point

Problem	Hint
Long time needed for upgrading Wireless Access Point.	– The Download and License Tool can be used for upgrading. When “Down Load Optical” is selected, all applicable devices connected to the optical network will be upgraded. In case the DCN-WAP is connected, it will take more than 30 minutes to upgrade the DCN-WAP – Bypass: In case the DCN-WAP does not need to be upgraded, do not connect the DCN-WAP when selecting “Download Optical”. This is normal system behavior; it is mentioned here to remind the user.
– LEDs on the WAP are: Off / Flashing slow/ Off. – CCU shows ‘incompatible SW’.	– DCN-WAP or CCU contains old SW. – To solve this, use the Download & License Tool to upgrade the CCU and DCN-WAP to the same version.

9.10 DCN-MIC Microphones

Problem	Hint
A pluggable microphone does not operate as expected.	The pluggable microphone is defective. Replace the pluggable microphone.

9.11 DCN-F Flush Mounted units

Problem	Hint
– A flush-mounted device does not operate as expected.	– The dual delegate interface of the flush-mounted device is not in the correct mode. Refer to *DCN-DDI Dual Delegate Interface, page 214*for instructions that tell you how to change the mode of the dual delegate interface.

9.12 DCN-DDB Data Distribution Board

Problem	Hint
– The data distribution board does not operate as expected.	– The data distribution board is not in the correct mode. Refer to *DCN-DDB Data Distribution Board, page 230* for instructions that tell you how to change the mode of the data distribution board.

10 Maintenance

10.1 Cleaning

Cleaning

Caution!
Do not use alcohol, ammonia or petroleum solvents or abrasive cleaners to clean the devices.

1. Disconnect the mains power supply from the devices, if you want to clean the devices.
2. Use a soft cloth that is not fully moist with a weak soap and water solution.
3. Let the device fully dry before you operate the device again.

10.2 Storage

1. Disconnect the mains power supply from the devices, if you do not use the devices for a long time.
2. Keep the devices in a clean and dry area with a sufficient airflow.

10.3 DCN-WLIION Battery Pack

To avoid damage and to extend the lifetime of your battery pack, do not store (almost) empty battery packs. it is strongly advised to charge the battery pack at least every 6 months.

11 Technical Data

11.1 System Technical Data

Conforms to international standard IEC 60914, the international standard for conference systems.

11.1.1 Transmission links

The following transmission links are possible:

- From delegate microphone to interpreter headphones
- From delegate microphone to delegate headphones
- From interpreter microphone to delegate headphones
- From interpreter microphone to interpreter headphones
- From auxiliary input to delegate headphones
- From auxiliary input to interpreter headphones
- From delegate microphone to auxiliary output
- From interpreter microphone to auxiliary output

Frequency response:	**- 125 Hz to 20 kHz (General)** **- 125 Hz to 3.5 kHz (Intercom links)**
Harmonic distortion:	< 0.5%
Harmonic distortion @ overload:	< 1%
Crosstalk attenuation @ 4 kHz:	> 80 dB
Dynamic range:	> 90 dB

11.1.2 Combined devices from input to output

The following transmission links are possible:

- Delegate microphone with transmission link to interpreter headphones
- Delegate microphone with transmission link to delegate headphones
- Delegate microphone with transmission link to auxiliary output
- Interpreter microphone with transmission link to interpreter headphones
- Interpreter microphone with transmission link to delegate headphones
- Interpreter microphone with transmission link to auxiliary output

Typical frequency response:	**125 Hz to 20 kHz**
Front-to-random sensitivity index:	> 4.6 dB
Rated equivalent sound pressure level due to inherent noise:	< 25 dB(A)
Total harmonic distortion @ overload:	< 1%
Crosstalk attenuation:	> 80 dB

11.1.3 Safety

According Low Voltage Directive 2014/35/EU.

- For European countries: according EN60065.Marking: CE
- For international countries: IEC 60065 according B-Scheme.
- For North America:
  USA: ANSI/UL 60065
  Canada: CAN/CSA no. 60065
  Marking c-CSA-us.

11.1.4 Electro-magnetic compatibility

EMC compatibility:	**According ECM Directive 2014/30/EU: CE marking EMC environment: for commercial or professional use**
EMC emission:	According harmonized standard EN 55032 (class A) (prof. audio/ video equipment). According FCC rules (FCC part 15) complying to limits for class A digital devices
EMC immunity:	According harmonized standard EN 55103-2 (E3) (prof. audio/ video equipment). Immune to mobile phones

11.1.5 Wireless devices

Frequency			
2400 - 2483.5 MHz			
Max. transmitting power:			
100 mW e.i.r.p.			
Bandwidth:			
22 MHz			
Leading listed and certified country approvals:			
Europe	CE Standard	 Telecom EMC Safety	 EN 300 328EN 301 489-1EN 301 489-17EN 60950-1
USA	Standard	Telecom, EMCSafety	FCC part 15.247 ANSI / UL 60950-1
Canada	Standard	Telecom, EMCSafety	RSS 210CSA 22.2 no. 60950-1
Japan	Standard	Telecom, EMC	Ordinance regulating radio equipment: Item 19 Article 2

11.1.6 Miscellaneous

Basic standard ESD:	**According EN 61000-4-2.Contact discharge: 4 kV and air discharge: 8 kV**
Basic standard mains harmonics and voltage fluctuations, flicker:	According EN 61000-3-2 and EN 61000-3-3
Basic standard RF electromagnetic fields:	According EN 61000-4-3RF conducted: 150 kHz - 80 MHz: 3 VrmsRF radiated 80 - 1000 MHz: 3 V/m Cellular telephone (GSM) dummy test: at 20 cm speech distance. Criteria: not effecting normal operation.
Magnetic immunity:	Rack mounting: 50 Hz - 10 kHz: 4 - 0.4 A/m No rack mounting: 50 Hz - 10 kHz: 3 - 0.03 A/m
Basic standard low energy electrical fast transients, bursts:	According EN 61000-4-4Mains: fast transients: 1 kV; signal and control data lines: 0.5 kV
Basic standard high energy surges:	According EN 61000-4-5Mains: surges: 1 kV CM and 0.5 kV DM.
Basic standard voltage dips, short interruptions, variations:	According EN 61000-4-11Mains: voltage dips 100% for 1 period, 60% for 5 periods, > 95% for 5 seconds.
Shock resistance:	According to IEC 68.2.29 Eb
Vibration resistance:	According to IEC 68.2.6 Fc, procedure A

Working conditions:	Fixed, stationary, transportable
Temperature range:	– -20 to +70 °C (transport) – +5 to +45 °C (operation) – For EPS and contribution devices with an LCD, the maximum temperature is +40 °C.
Relative humidity:	< 95%

11.1.7 Language list

English		**Original**
Abkhazian	ABK	
African	AFR	Afrikaans
Albanian	SQI	shqipe
Arabic	ARA	arabiy
Armenian	HYE	hayeren
Assamese	ASM	
Aymara	AYM	aymar
Azerbaijani	AZE	
Balinese	BAL	

English		Original
Basque	EUS	euskara
Belarusian	BEL	belaruskaâ
Bengali	BEN	
Bosnian	BOS	bosanski
Bulgarian	BUL	български
Burmese	MYA	myanmasa
Cantonese	YUE	
Catalan	CAT	català
Cebuano	CEB	S(in)ugboanon
Chechen	CHE	noxçiyn mott
Chinese	ZHO	zhongwen
Croatian	HRV	hrvatski
Czech	CES	cesky
Danish	DAN	dansk
Dari	PRS	
Dutch	NLD	Nederlands
Dzongkha	DZO	
English	ENG	English
Estonian	EST	eesti keel
Filipino	FIL	Filipino
Finnish	FIN	suomi
French	FRA	français
Galician	GLG	galego
Georgian	KAT	k’art’uli
German	DEU	Deutsch
Gujarati	GUJ	
Greek	GRE	elliniká
Haitiian	HAT	kreyòl ayisyen
Hebrew	HEB	ivrit
Hindi	HIN	
Hungarian	HUN	magyar nyelv
Icelandic	ISL	íslenska
Indonesian	IND	Bahasa Indonesia

English		**Original**
Irish	GLE	Gaeilge
Italian	ITA	italiano
Japanese	JPN	nihongo
Kannada	KAN	
Kashmiri	KAS	
Kazakh	KAZ	
Khmer	KHM	khmêr
Kirghiz	KIR	Кыргыз
Korean	KOR	choson-o
Kurdish	KUR	Kurdî
Lao	LAO	
Latvian	LAV	latviešu
Lithuanian	LIT	lietuviu
Luxembourg	LTZ	Lëtzebuergesch
Macedonian	MKD	makedonski
Malay	MSA	bh Malaysia
Malayalam	MAL	
Maltese	MLT	il-Malti
Marathi	MAR	
Modern Greek	ELL	Ελληνικά
Moldavian	MOL	moldoveana
Mongolian	MON	
Nepali	NEP	
Norwegian	NOR	norsk
Oriya	ORI	
Punjabi	PAN	
Persian	FAS	fârsky
Polish	POL	polski
Portuguese	POR	português
Pushto	PUS	
Quechua	QUE	Quechua
Romanian	RON	română
Russian	RUS	русский

English		Original
Sanskrit	SAN	
Sepedi	NSO	Sesotho sa Leboa
Serbian	SRP	srpski
Serbo-Croat	HBS	српскохрватски
Sicilian	SCN	sicilianu
Sindhi	SND	
Sinhala	SIN	
Slovak	SLK	slovenčina
Slovenian	SLV	slovenski
S. Ndebele	NBL	Ndébélé
South. Sotho	SOT	Sesotho
Spanish	SPA	español
Swahili	SAW	Sawi
Swati	SSW	siSwati
Swedish	SWE	svenska
Tajiki	TGK	
Tamil	TAM	
Telugu	TEL	
Thai	THA	thai
Tibetan	BOD	
Tshivenda	VEN	
Tsonga	TSO	Xitsonga
Tswana	TSN	Setswana
Turkish	TUR	Türkçe
Turkmen	TUK	türkmençe
Ukrainian	UKR	українська
Urdu	URD	
Vietnamese	VIE	Tiêng Viêt
Welsh	CYM	Cymraeg
Xhosa	XHO	isiXhosa
Zulu	ZUL	isiZulu
.....	...	.....

Tab. 11.144: Language list

Notice!
Dots (refer to last row of the table) indicate that the interpreter desk has been configured for a language that is not in the list.

11.2 Product Technical Data

11.2.1 DCN-CCU2 and DCN-CCUB2 Central Control Units

Supply voltage	100-240 V, 50–60 Hz
Power consumption	360 W
DCN system supply	40 VDC, max 85 W per DCN socket
Optical network supply	40 VDC, max 65 W
Total supply power	320 W
RS-232 connection	1 x nine-pole Sub-D female socket
Frequency response	30 Hz - 20 kHz (-3 dB at nominal level)
THD at nominal level	< 0.5 %
Cross talk attenuation	> 85 dB at 1 kHz
Dynamic range	> 90 dB
Signal-to-noise ratio	> 87 dBA

Audio input	Function	Nominal	Maximum
XLR	Floor	-12 dBV (- 6, + 6 dB)	12 dBV (- 6, + 6 dB)
Cinch	Floor	-24 dBV (- 6, + 6 dB)	0 dBV (- 6, + 6 dB)

Audio output	Function	Nominal	Maximum
XLR 1	PA	-12 dBV (- 24, + 6 dB)	12 dBV (- 24, + 6 dB)
XLR 2	Recorder	9 dBV (- 24, + 6 dB)	12 dBV(- 24, + 6 dB)
XLR 2	Delegate loudspeaker	0 dBV (- 24, + 6 dB)	12 dBV (- 24, + 6 dB))
XLR 2	Insertion/ mix-minus	-12 dBV (- 24, + 6 dB)	12 dBV (- 24, + 6 dB)
Cinch 1	PA	-24 dBV (- 24, + 6 dB)	0 dBV (- 24, + 6 dB)
Cinch 2	Recorder	-3dBV(- 24, + 6 dB)	0 dBV (- 24, + 6 dB)
Cinch 2	Delegate loudspeaker	-12 dBV(- 24, + 6 dB)	0 dBV (- 24, + 6 dB)
Cinch 2	Insertion/ mix-minus	-24 dBV(- 24, + 6 dB)	0 dBV (- 24, + 6 dB)

Monitor	Function	Nominal	Maximum
3.5 mm	Headphones	-1 dBV (mute, - 24 dB, 0 dB)	2 dBV (mute, - 24 dB, 0 dB)

Fault contact (only CCU2)	Function	Signal	Voltage and Current
4-pole plug	Fault relay	Potential-free change-over relay	Max. 30 Vdc / 1 A. Max. 125 Vac / 0.3 A.

Mounting	Tabletop or mounted in a 19” rack

Dimensions (H x W x D)	
for tabletop use, with feet	92 x 440 x 400 mm (3.6 x 17.3 x 15.7 in)
for 19” rack use, with brackets	88 x 483 x 400 mm (3.5 x 19 x 15.7 in)
in front of brackets	40 mm (1.6 in)
behind brackets	360 mm (14.2 in)
Weight	7 kg (15.4 lbs)
Color	Charcoal (PH 10736) with silver

11.2.2 LBB4402/00 or PRS-4AEX4 Audio Expander

Supply voltage	24 to 48 VDC
Power consumption	7.6 W (DC)
Frequency response	30 Hz to 20 kHz (-3 dB at nominal level)
THD at nominal level	< 0.5 %
Cross talk attenuation	> 85 dB at 1 kHz
Dynamic range	> 90 dB
Signal-to-noise ratio	> 87 dBA

Audio input	**Function**	**Nominal**	**Maximum**
XLR	Floor Interpretation	0 dBV (- 6, + 6 dB) 0 dBV (- 6, + 6 dB)	12 dBV (- 6, + 6 dB) 12 dBV (- 6, + 6 dB)
Cinch	Floor Interpretation	-12 dBV (- 6, + 6 dB) -12 dBV (- 6, + 6 dB)	0 dBV (- 6, + 6 dB) 0 dBV (- 6, + 6 dB)

Microphone input	**Function**	**Nominal**	**Maximum**
XLR	Microphone	-57 dBV (- 6, + 6 dB)	-26 dBV (- 6, + 6 dB)
Cinch	Microphone	---	---

Plug or socket	**Function**	**Nominal**	**Maximum**
XLR	PA Interpretation	-12 dBV (- 24, + 6 dB) 9 dBV (- 24, + 6 dB)	12 dBV (- 24, + 6 dB) 12 dBV (- 24, + 6 dB)
Cinch	PA Interpretation	-24 dBV (- 24, + 6 dB) -3 dBV(- 24, + 6 dB)	0 dBV (- 24, + 6 dB 0 dBV (- 24, + 6 dB)

Monitor	**Function**	**Nominal**	**Maximum**
3.5 mm	Headphones	-1 dBV (mute, - 24 dB, 0 dB)	2 dBV (mute, - 24 dB, 0 dB)

Dimensions (H x W x D)	
for tabletop use, with feet	92 x 440 x 400 mm (3.6 x 17.3 x 15.7 in)
for 19” rack use, with brackets	88 x 483 x 400 mm (3.5 x 19 x 15.7 in)
in front of brackets	40 mm (1.6 in)
behind brackets	360 mm (14.2 in)
Weight	7 kg (15.4 lbs)
Mounting	Tabletop, 19”-rack
Color	Charcoal (PH 10736) with silver

11.2.3 PRS-4DEX4 Digital Audio Expander

Supply voltage	24 to 48 VDC
Power consumption	6 W (DC)
Frequency response	30 Hz - 20 kHz
THD at nominal level	< 0.5 %

Monitor	Function	Nominal	Maximum
3.5 mm	Headphones	-1 dBV (mute, - 24 dB, 0 dB)	2 dBV (mute, - 24 dB, 0 dB)

Mounting	Tabletop or mounted in a 19” rack
Dimensions (H x W x D)	
for tabletop use, with feet	92 x 440 x 400 mm (3.6 x 17.3 x 15.7 in)
for 19” rack use, with brackets	88 x 483 x 400 mm (3.5 x 19 x 15.7 in)
in front of brackets	40 mm (1.6 in)
behind brackets	360 mm (14.2 in)
Weight	6 kg (13.2 lbs)
Mounting	Tabletop, 19”-rack
Color	Charcoal (PH 10736) with silver

11.2.4 LBB4404/00 Cobranet Interface

Supply voltage	24 to 48 VDC
Power consumption	10.5 W (DC)
Frequency response	30 Hz - 20 kHz
THD at nominal level	< 0.5 %

Monitor	Function	Nominal	Maximum
3.5 mm	Headphones	-1 dBV (mute, - 24 dB, 0 dB)	2 dBV (mute, - 24 dB, 0 dB)

Dimensions (H x W x D)

for tabletop use, with feet	92 x 440 x 400 mm (3.6 x 17.3 x 15.7 in)
for 19" rack use, with brackets	88 x 483 x 400 mm (3.5 x 19 x 15.7 in)
in front of brackets	40 mm (1.6 in)
behind brackets	360 mm (14.2 in)
Weight	7 kg (15.4 lbs)
Mounting	Tabletop, 19”-rack
Color	Charcoal (PH 10736) with silver

11.2.5 PRS-4OMI4 OMNEO Interface

Supply voltage	24 to 48 VDC
Power consumption	10 W (DC)
Audio Transport	Ethernet (100/1000Base-T)
Channels	4 in / 4 out per interface on OMNEO
Compliance	IEEE 802.3
Audio Transport	24-bit
Sample Rate	48 kHz
Latency	<1 ms
Integrity assurance	Watchdog
Control inputs	8 x
Connectors	Removable screw terminals
Operation	Closing contact (with supervision)
Control outputs	5 x
Connectors	Removable screw terminals

Dimensions (H x W x D)

for tabletop, with feet	92 x 440 x 400 mm (3.6 x 17.3 x 15.7 in)
for 19” rack, with brackets	88 x 483 x 400 mm (3.5 x 19 x 15.7 in)
in front of brackets	40 mm (1.6 in)

behind brackets	360 mm (14.2 in)
Weight	6 kg (13.2 lbs)
Mounting	Tabletop, 19”-rack
Color	Charcoal (PH 10736) with silver

11.2.6 DCN-WAP Wireless Access Point

Power consumption	4 W
Mounting	Ceiling, Wall or Floor Stand (using included bracket)
Dimensions (H x W x D)	
with bracket	59 x284.5 x 201mm (2.3 x 11.2 x 7.9 in)
Weight	
with bracket	907 g (2 lb)
without bracket	643 g (1.4 lb)
Color Light grey	(RAL 000 7500)

11.2.7 DCN-CON Concentus Units

Frequency response	30 Hz to 20 kHz
Headphone load impedance	> 32 ohm
Output power	2 x 15 mW/32 ohm

Headphones	**Function**	**Nominal**	**Maximum**
3.5 mm	Headphones	3 dBV	6 dBV (mute, 0 dB)

Headset	**Function**	**Nominal**	**Maximum**
3.5 mm	Microphone	-34 dBV	-10 dBV

Mounting	Tabletop (portable or fixed mounting) and flush mounting
Dimensions (H x W x D)	
Tabletop (without microphone)	50 x 275 x 155 mm (2.0 x 10.8 x 6.1 in)
Flush mounted (without microphone)	30 x 275 x 155 mm (1.2 x 10.8 x 6.1 in)
Weight	1.4 kg (3.1 lb)
Color top	Charcoal (PH 10736) with silver (RAL 9022) panel
Color base	Charcoal (PH 10736)

11.2.8 DCN-DIS and DCN-WD Discussion Units

Frequency response 30 Hz - 20 kHz

Headphone load impedance > 32 ohm< 1k ohm

Output power 2 x 15 mW/32 ohm

Headphones	Function	Nominal	Maximum
3.5 mm	Headphones	3 dBV	6 dBV (mute, 0 dB)

Plug or socket	Function	Nominal	Maximum
3.5 mm	Headphones	3 dBV	6 dBV (mute, 0 dB)

Mounting Tabletop

Dimensions (H x W x D) (without microphone) 61 x 190 x 160 mm (2.4 x 7.5 x 6.3 in)

Weight
with bracket 485 g (1.07 lb)
without bracket 700 g (1.54 lb)

Color top Silver (RAL 9022)

Color base Charcoal (PH 10736)

11.2.9 DCN-WLIION Battery Pack

Output Voltage 7.2 VDC

Capacity 4800 mAh

Output power 2 x 15 mW/32 ohm

Life time: 500 charge-discharge cycles

Charge time: 3 hours

Dimensions (H x W x D) 61.5 x 136 x 22 mm (2.4 x 5.5 x 0.9 in)

Weight 215 g (0.47 lb)

Color Charcoal (PH 10736)

11.2.10 DCN-WCH05 Battery Charger

Supply Voltage 100 - 240 VAC +/- 10 %
50 – 60 Hz

Maximum power consumption 190W

Dimensions (H x W x D) 340 x195 x 82mm (13.4 x7.6 x 3.2 in)

Weight (without batteries)	1.4 kg (3.08 lb)
Color	Charcoal (PH 10736)

11.2.11 DCN-WPS Power Supply Adapter

Rated input voltage	100-240 VAC (50 – 60 Hz), 150 mA
Rated output voltage	9 VDC (500 mA)
Dimensions (H x W x D)	340 x195 x 82mm (13.4 x7.6 x 3.2 in)
Weight (without batteries)	1.4 kg (3.08 lb)
Color	Charcoal (PH 10736)
Input	100 - 240 VAC 50 - 60 Hz
Output	9 V(DC), 550 mA

11.2.12 DCN-MICL, DCN-MICS Pluggable Microphones

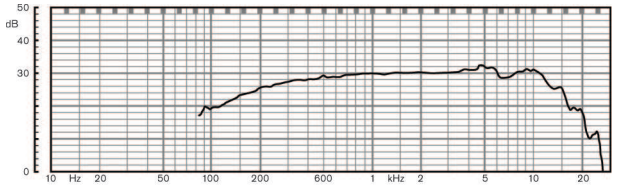


Figure 11.1: Microphone frequency response

Frequency response	100 Hz to 16 kHz
Transducer type	Condenser
Directional pattern	Cardioid
Sensitivity	9.3 mV at 85 dB SPL (RI=3k3, U=5V)
Max. SPL for THD	< 3 % 110 dB
Equivalent input noise level	24 dB lin, 21 dBA

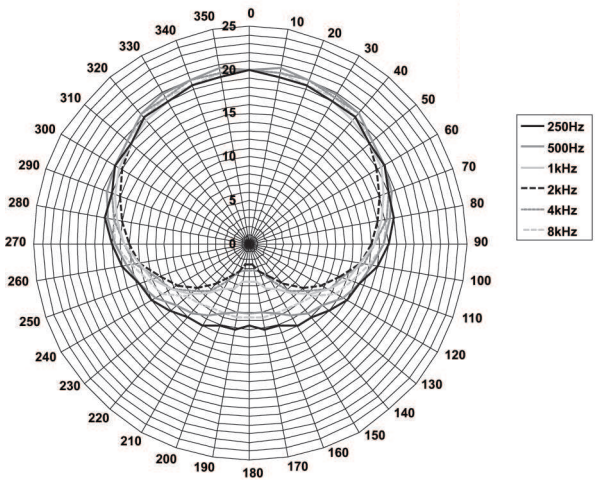


Figure 11.2: Microphone polar diagram of LBB 4149 measured with pink noise in octaves

Rated input voltage	100-240 VAC (50 – 60 Hz), 150 mA
Rated output voltage	9 VDC (500 mA)
Nominal level:	85 dB SPL
Maximum level:	110 dB SPL at < 3% THD
Transducer type:	Electret
Directional pattern:	Cardioid
Equivalent input noise level:	24 dB(A)
Mounting	Plug and fasten into Discussion units, Concentus, flush mounted Microphone connection panels and Interpreter desks
Length	
DCN-MICS	310 mm (12.2 in)
DCN-MICS	480 mm (18.9 in)
Weight	
DCN-MICS	100 g (0.22 lb)
DCN-MICS	115 g (0.25 lb)
Color top	Silver (RAL 9022)

11.2.13 DCN-ICHS Intercom Handset

Mounting	Tabletop or wall-mounted using the 2 screw holes on the cradle
Dimensions (H x W)	53 x 212 mm (2.08 x 8.35 in)
Weight	295 g (0.65 lb)
Color	Charcoal (PH 10736)

11.2.14 DCN-FPT Flush Positioning Tool

Weight	31 g (0.068 lb)
Color	Charcoal (PH 10736)

11.2.15 DCN-DDI Dual Delegate Interface

Plug or socket	Function	Nominal	Maximum
8-pole DIN	Line in 0 dB Line in 6 dB Line in 12 dB Line in 18 dB Mic 0 dB Mic 6 dB Mic 12 dB Mic 18 dB	-18 dBV (- 3, + 3 dB) -12 dBV (- 3, + 3 dB) -6 dBV (- 3, + 3 dB) 0 dBV (- 3, + 3 dB) -46 dBV (- 3, + 3 dB) -40 dBV (- 3, + 3 dB) -34 dBV (- 3, + 3 dB) -28 dBV (- 3, + 3 dB)	12 dBV (- 3, + 3 dB) 12 dBV (- 3, + 3 dB) 12 dBV (- 3, + 3 dB) 12 dBV (- 3, + 3 dB) -16 dBV (- 3, + 3 dB) -16 dBV (- 3, + 3 dB) -16 dBV (- 3, + 3 dB) -16 dBV (- 3, + 3 dB)
3.5 mm	---	-5 dBV	7.5 dBV

Mounting	On wall, under tabletop or seat, in armrests in cable duct
Dimensions (H x W x D)(excl. cables)	35 x 100 x 200 mm (1.4 x 3.9 x 7.9 in)
Weight	500 g (1.10 lb)
Color	Charcoal (PH 10736)

11.2.16 DCN-FMIC Microphone Connection Panel

Mounting	Click-to-fit in a metal panel with a thickness of 2 mm, or in combination with DCN-FCOUP couplings and DCN-FEC end caps in any surrounding
Dimensions (H x W x D)	40 x 50 x 50 mm(1.57 x 1.97 x 1.97 in)
Weight	10 g (0.02 lb)
Color	Silver (RAL 9022)

11.2.17 DCN-FMICB Microphone Control Panel

Mounting	Click-to-fit in a metal panel with a thickness of 2 mm, or in combination with DCN-FCOUP couplings and DCN-FEC end caps in any surrounding
Dimensions (H x W x D)	40 x 50 x 50 mm(1.57 x 1.97 x 1.97 in)
Weight	200 g (0.44 lb)
Color	Silver (RAL 9022)

11.2.18 DCN-FPRIOB Priority Panel

Mounting	Click-to-fit in a metal panel with a thickness of 2 mm, or in combination with DCN-FCOUP couplings and DCN-FEC end caps in any surrounding
Dimensions (H x W x D)	40 x 50 x 50 mm(1.57 x 1.97 x 1.97 in)
Weight	200 g (0.44 lb)
Color	Silver (RAL 9022)

11.2.19 DCN-FLSP Loudspeaker Panel

Mounting	Click-to-fit in a metal panel with a thickness of 2 mm, or in combination with DCN-FCOUP couplings and DCN-FEC end caps in any surrounding
Dimensions (H x W x D)	40 x 100 x 100 mm (1.57 x 3.94 x 3.94 in)
Weight	203 g (0.45 lb)
Color	Silver (RAL 9022)

11.2.20 DCN-FV(CRD) Voting Panel

Mounting	Click-to-fit in a metal panel with a thickness of 2 mm, or in combination with DCN-FCOUP couplings and DCN-FEC end caps in any surrounding
Dimensions (H x W x D)	40 x 100 x 82 mm(1.57 x 3.94 x 3.23 in)
Weight	104 g (0.23 lb)
Color	Silver (RAL 9022)

11.2.21 DCN-FCS Channel Selector

Frequency response	30 Hz - 20 kHz
Headphone Load impedance	> 32 ohm < 1 k ohm
Output power	2 x 15 mW/32 ohm

Headphones	Function	Nominal	Maximum
3.5 mm	Headphones	-1.5 dBV	1.5 dBV (mute, 0 dB)

Mounting	Flush mounted
Dimensions (H x W x D)	40 x 100 x 100 mm(1.6 x 3.9 x 3.9 in)
Weight	0.3 kg (0.66 lb)
Color	Silver (RAL 9022)

11.2.22 DCN-FVU Voting Unit

Mounting	Click-to-fit in a metal panel with a thickness of 2 mm, or in combination with DCN-FCOUP couplings and DCN-FEC end caps in any surrounding
Dimensions (H x W x D)	40 x 100 x 82 mm(1.57 x 3.94 x 3.23 in)
Weight	250 g (0.55 lb)
Color	Silver (RAL 9022)

11.2.23 DCN-FCOUP Couple

Mounting	Screw in to cutout in tabletop
Weight	12 g (0.027 lb)
Color	Black

11.2.24 DCN-FEC End Caps

Mounting	Click-to-fit in DCN-FCOUP couplings
Dimensions (H x W)	40 x 20 mm (1.57 x 0.79 in)
Weight	2 g (0.004 lb)
Color	Silver (RAL 9022)

11.2.25 DCN-TTH Tabletop Housing

Mounting	Free-standing or fixed to the tabletop
Dimensions (H x Wx D)	80 x 120 x 105 mm (3.15 x 4.72 x 4.13 in)
Weight	243 g (0.54 lb)
Color	Charcoal (PH 10736)

11.2.26 DCN-FBP panels

Mounting	Click-to-fit in a metal panel with a thickness of 2 mm, or in combination with DCNFCOUP couplings and DCN-FEC end caps in any surrounding
Dimensions (H x W)	40 x 100 mm (1.57 x 3.94 in)
Weight	17 g (0.04 lb)
Color	Silver (RAL 9022)

11.2.27 DCN-IDESK Interpreter Desks

Headphone connection	
Frequency response	30 Hz - 20 kHz
Load impedance	> 32 ohm

Output power	2 x 30 mW/32 ohm
Headset connection	
Frequency response	30 Hz - 20 kHz
Load impedance	> 32 ohm
Output power	60 mW/32 ohm
Nominal microphone input level	7 mVrms
Overload microphone input level	> 124 mVrms

Headphone	Function	Nominal	Maximum
3.5 mm	Headphones	6.5 dBV	9.5 dBV
6.3 mm	Headphones	6.5 dBV	9.5 dBV

Headset	Function	Nominal	Maximum
5-pole DIN	Microphone Headphones	-24 dBV 6.5 dBV	-10 dBV 9.5 dBV

Mounting	Free-standing or mounted on a table
Dimensions (H x W x D) (with microphone)	82 x 330 x 170 mm (3.2 x 13 x 6.7 in)
Slope	25 degrees
Weight	1.3 kg (2.87 lb)
Color top	Silver (RAL 9022)
Color base	
DCN-IDESK-L	Light grey (RAL 000 7500)
DCN-IDESK-D	Charcoal (PH 10736)

11.2.28 DCN-EPS Extension Power Supply

Supply voltage	105, 115, 125, 220, 230, 240 VAC
Power consumption	350 W
DCN system supply	40 VDC, max 85 W per DCN socket

Mounting	Free-standing on a tabletop or mounted in a 19” rack unit (required 2U, 19” width)
Dimensions (H x W x D)	100 x 220 x 308 mm(3.9 x 8.7 x 12.1 in)
Weight	8.3 kg (18.3 lbs)
Color cabinet	Charcoal (PH 10736)
Color handles	Charcoal (PH 10736)

11.2.29 LBB4114/00 Trunk Splitter

Mounting	Floor, cable duct or wall mounting
Dimensions (H x W x D)	35 x 49 x 140 mm (1.4 x 1.9 x 5.5 in)
Weight	0.3 kg (0.66 lb)
Color	Charcoal (PH 10736)

11.2.30 LBB4115/00 Tap-off unit

Mounting	Floor, cable duct or wall mounting
Dimensions (H x W x D)	35 x 49 x 140 mm (1.4 x 1.9 x 5.5 in)
Weight	0.3 kg (0.66 lb)
Color	Charcoal (PH 10736)

11.2.31 LBB4116 Extension Cables

Dimensions (dia.)	6 mm (0.24 in)
Material	PVC
Color	Grey

11.2.32 LBB4416 Optical Network Cables

Insulation:	LSZH (low smoke/zero halogen), black
Outer diameter:	7 mm
Power supply wires (2):	Copper, stranded 1 mm^2, red and brown insulation, resistance < 0.018 Ω/m
Optical fibers:	– PMMA, 1 mm diameter includes cladding, 2 mm diameter includes insulation (black) – Numeric aperture: 0.5 – Optical attenuation < 0.17 dB/m @ 650 nm – Bending loss < 0.5 dB (r = 20 mm, 90°), according to JIS C6861
Temperature range:	-40 to 65 °C
Pull force:	max. 150 N
Flame retardant:	According to IEC 60332-1 / 60 s
Halogen level:	According to IEC 60754-2, pH > 4.3 and conductivity < 10 uS/mm
Smoke level:	According to IEC 61034-2, light transmittance > 60%

11.2.33 DCN-DDB Data Distribution Board

External supply	7.5 – 35 VDC.
Dimensions (H x W)	100 x 200 mm (3.93 x 7.87 in)

11.2.34 DCN-IDENC Chip Card Encoder

Dimensions (H x W x D)	90 x 70 x 16.5 mm (3.5 x 2.8 x 0.6 in)
Weight	145 g (0.3 lb)

Bosch Security Systems B.V.
Torenallee 49
5617 BA Eindhoven
Netherlands
www.boschsecurity.com

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