

DCN Wireless



Security Systems

en | Installation and User Instructions
Wireless discussion system

BOSCH

Important Safeguards

Before you install or operate the DCN Wireless digital congress network, you must read the Important Safety Instructions. The Important Safety Instructions are supplied together with the central control unit.

Disclaimers

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

About this manual

Function

The Installation and User Instructions gives the installers and the operators the necessary data to install, configure and operate a basic DCN Wireless Discussion System.

When you want to make a more advanced DCN Wireless Discussion System, you also need information from the DCN Next Generation Installation and User Instructions.

The product index (refer to appendix B) tells you where you can find more data about devices that can be connected to DCN Wireless.

Digital version

The Installation and User Instructions is available as a digital file (Portable Document File, PDF).

When the PDF refers you to a location that contains more data, you can click the text to go there. The text contains hyperlinks.

Admonitions and notes

The Installation and User Instructions uses admonitions and notes. The admonition gives the effect if you do not obey the instructions. These are the types:

- **Caution**
If you do not obey the caution, you can cause damage to the equipment.
- **Warning**
If you do not obey the warning, you can cause personal injury or death.

Signs

The Installation and User Instructions shows each admonition with a sign. The sign shows the effect if you do not obey the instruction.



Admonition

General sign for cautions and warnings.



Admonition

Risk of electric shock.



Admonition

Risk of electro-static discharges (refer to the section 'Electro-static discharges').

The sign that is shown along with a note gives more data about the note itself.



Note

General sign for notes.



Note

Refer to another information source.

Electro-static discharges

Electro-static discharges can damage electric components. You must take measures to prevent electro-static discharges when you touch PCBs (refer to figure 1).

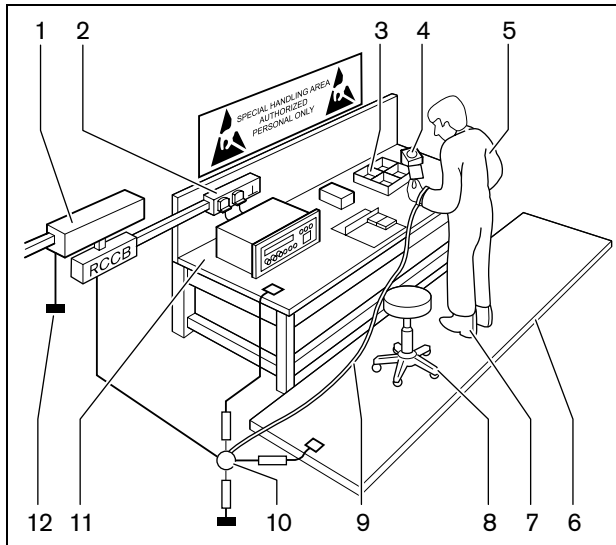


figure 1: ESD prevention

table 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

Conversion tables

Length, mass and temperature are in SI units. Refer to the data below to change SI units to imperial units.

table 2: Conversion of units of length

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

table 3: Conversion of units of mass

1 lb =	0.4536 kg	1 kg =	2.2046 lb
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table 4: Conversion of units of pressure

1 psi =	68.95 hPa	1 hPa =	0.0145 psi
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Note

1 hPa = 1 mbar.

table 5: Conversion of units of temperature

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

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

Table of Contents

Important Safeguards	3
Disclaimers	4
About this manual	5
Table of Contents	7
Section 1 - System Design and Planning	11
1. Wireless network design	12
1.1 Introduction	12
1.2 Limits	12
1.3 Frequency band	12
2. DCN design	14
2.1 Introduction	14
2.2 Calculation tool	14
2.3 Concepts	14
2.4 Limits	14
2.5 Control capacity	15
2.6 Power capacity	15
2.7 Cable lengths	17
2.8 Examples	19
2.9 Interpretation devices	21
3. Optical network design	22
3.1 Introduction	22
3.2 Calculation tool	22
3.3 Limits	22
3.4 Control capacity	22
3.5 Power capacity	22
3.6 Cabling	23
3.7 Example layouts	25
4. Camera control	28
4.1 Introduction	28
4.2 Scenarios	28
5. Infra-red wireless language distribution	28
6. CobraNet	29
7. User set-up	29
7.1 Public areas and walkways	29
7.2 Headphones/headsets	29
7.3 Speaking distance	29
7.4 Interpreter booths	29
8. Device set-up	30
8.1 General	30
8.2 Cables	30
8.3 Temperature	30
8.4 Ventilation	30
8.5 Cleaning	30
8.6 Storage	30
8.7 Acoustic feedback	31

9.	Technical data	32
9.1	System electrical and electro-acoustic characteristics	32
9.2	Environmental conditions	33
9.3	Safety	33
9.4	Electro-magnetic compatibility	34
9.5	Wireless devices	34
9.6	Miscellaneous	35
	Section 2 - Central Devices	37
10.	DCN-WCCU Wireless Central Control Unit	38
10.1	Introduction	38
10.2	Controls, connectors and indicators	38
10.3	Internal settings	39
10.4	Installation	43
10.5	External connections	43
10.6	Configuration menu	49
11.	DCN-WAP Wireless Access Point	60
11.1	Introduction	60
11.2	Firmware	60
11.3	Controls, connectors and indicators	60
11.4	Installation	61
11.5	External connections	63
11.6	Configuration	63
11.7	Operation	65
12.	System configuration	67
12.1	Introduction	67
12.2	Initialization	67
12.3	Wireless modes	68
12.4	Microphone modes	69
12.5	Repetition rate	70
12.6	Audio routing modes	70
12.7	Attention chimes	72
12.8	Erase requests-to-speak and speakers	72
12.9	Floor distribution	72
12.10	Intercom	73
13.	System operation	74
13.1	Start the system	74
13.2	Stop the system	74
	Section 3 - Contribution Devices	75
14.	DCN-WDU Wireless Discussion Units	76
14.1	Introduction	76
14.2	Controls, connectors and indicators	76
14.3	Internal settings	79
14.4	Modes	81
14.5	Installation	83
14.6	Subscription	85
14.7	External connections	86
14.8	Operation	87

15. DCN-MICL, DCN-MICS Pluggable Microphones	89
15.1 Introduction	89
15.2 Controls, connectors and indicators	89
15.3 External connections	90
15.4 Operation	90
16. DCN-WLIION Battery Pack	91
16.1 Introduction	91
16.2 Safety	91
16.3 Controls, connectors and indicators	92
16.4 Installation	92
16.5 Operation	92
17. DCN-WCH05 Battery Charger	93
17.1 Introduction	93
17.2 Controls, connectors and indicators	93
17.3 Installation	94
17.4 External connections	95
17.5 Operation	96
18. DCN-WPS Power Supply Adapter	97
18.1 Introduction	97
18.2 Installation	97
18.3 External connections	97
19. DCN-DDI Dual Delegate Interface	98
19.1 Introduction	98
19.2 Controls, connectors and indicators	98
19.3 Internal settings	99
19.4 Configuration	99
19.5 Installation	101
19.6 External connections	101
20. DCN-WFCD10 Flight Case for Wireless Discussion Units	103
21. DCN-WFCCU Flight Case for DCN-WCCU and DCN-WAP	103
Section 4 - Appendices	105
A Audio levels	106
B Product index	108
C Statements for FCC & Industry Canada	110
D Declarations	111

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Section 1 - System Design and Planning

1 Wireless network design

1.1 Introduction

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

1.2 Limits

Limit 1: Control capacity

The maximum number of devices in the wireless network that the central control unit can control is 150.

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 maximum coverage area of 30 m by 30 m. To determine the exact coverage area the coverage test kit can be used.



Note

You can change the power value of the wireless access point (refer to section 11.6.4).

Limit 3: Frequency

The wireless network must operate in a different frequency band than adjacent wireless computer networks (refer to section 1.3).

1.3 Frequency band

1.3.1 802.11g 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.



Note

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

1.3.2 Wireless computer networks

Wireless computer networks are also based on the 802.11g specification for WiFi technology. In the wireless computer networks, 13 overlapping channels are available (refer to figure 1.1).

1.3.3 Carriers

In the wireless network of DCN Wireless, three non-overlapping wireless carriers are available (refer to figure 1.2).

1.3.4 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.

1.3.5 Example

Refer to figure 1.3. In the example, the WLAN channel is 3. WLAN channel 3 overlaps DCN wireless carriers 0 and 1. Therefore, use DCN wireless carrier 2.

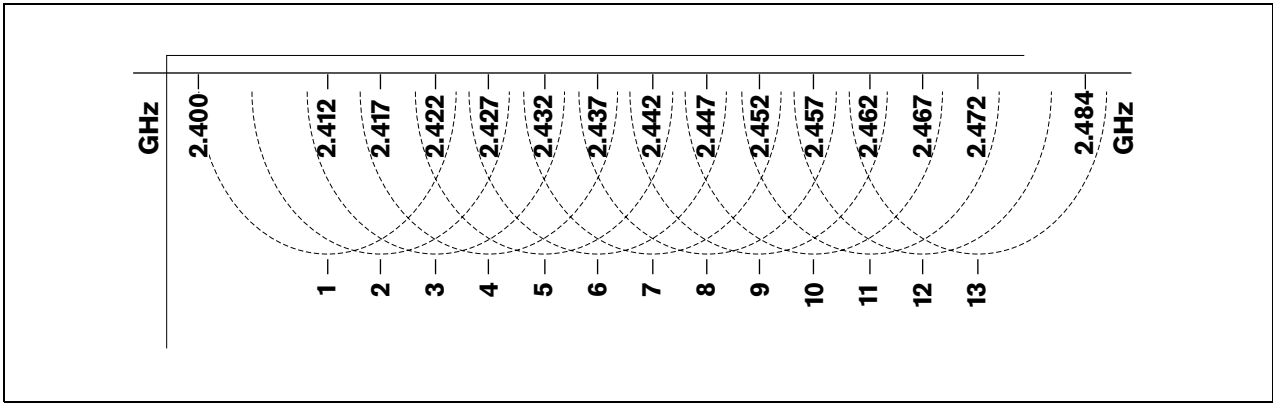


figure 1.1: WLAN channels

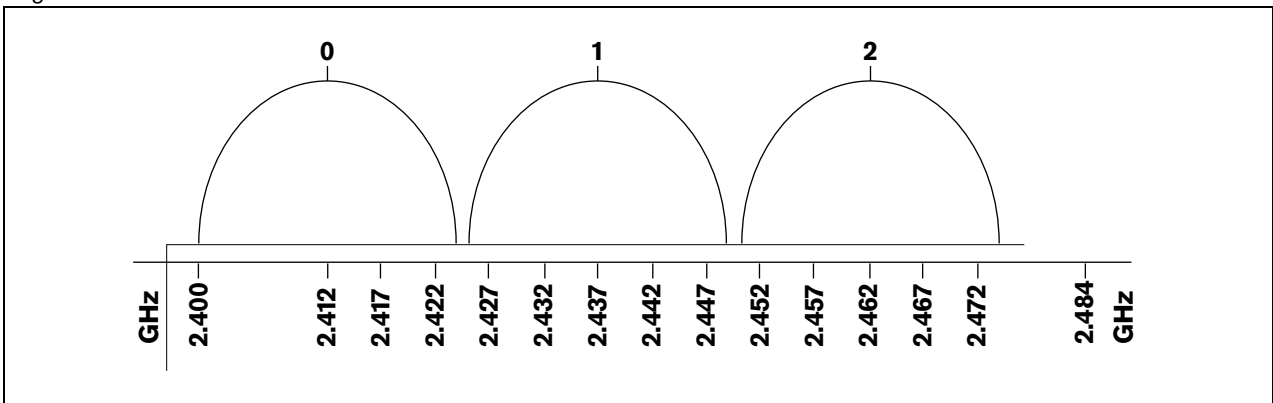


figure 1.2: DCN wireless carriers

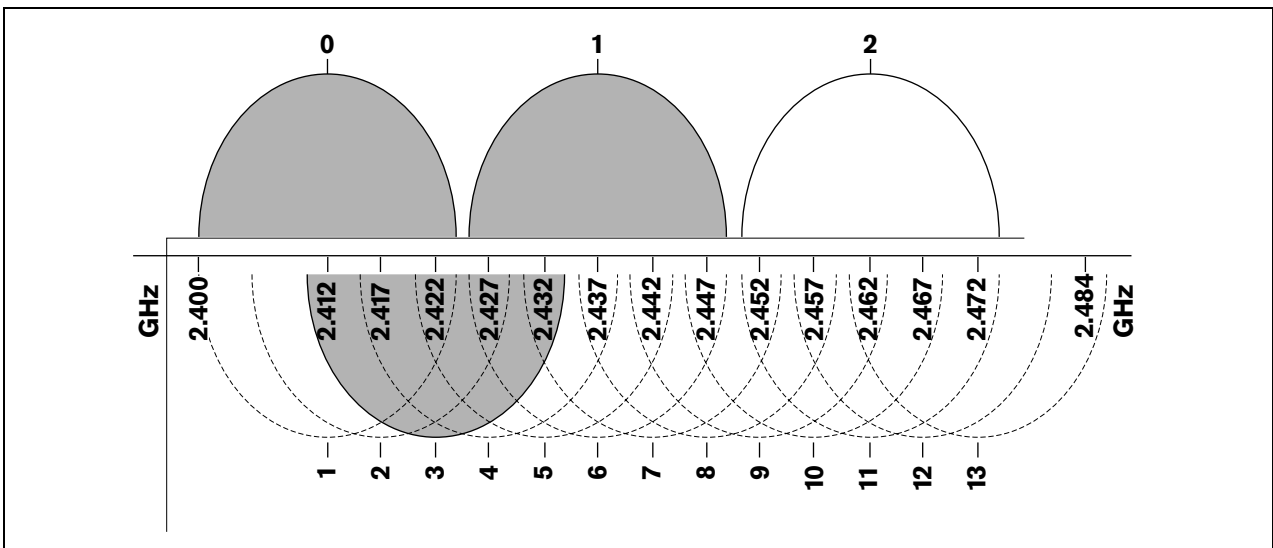


figure 1.3: Example of interference

2 DCN design

2.1 Introduction

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

2.2 Calculation tool

The calculation tool makes the planning and design of the DCN easier. You can find the calculation tool on the CD-ROM that is supplied with your system.

2.3 Concepts

2.3.1 Introduction

This section gives necessary data to understand the limitations in section 2.4.

2.3.2 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.

2.3.3 Cables

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

2.4 Limits

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

Limit 1: Control capacity

The maximum number of active devices that the central control unit can control is 95:

- Max. 93x DCN-IDESK
- Max. 2x DCN-DDI:
 - 1x with intercom handset
 - 1x with ambient microphone

The number of passive devices is without limit (refer to section 2.5).

Limit 2: Power capacity

- The maximum power that one DCN socket of the central control unit can supply is 65 W.
- The total power that the DCN sockets of the central control unit can supply is 130 W.
- The maximum power that one DCN socket of the extension power supply can supply is 85 W
- The total power that the DCN sockets of the extension power supply can supply is 255 W.

Refer to section 2.6.

Limit 3: Loop-throughs

The maximum number of loop-throughs in succession is 50. If there are more than 50 loop-throughs, the signal must be regenerated with a trunk splitter (LBB4114/00).

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

Refer to section 2.7:

- 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 from the central control unit to the first regenerative tap-off is 100 m.
- The maximum length of the cable between regenerative tap-offs is 100 m.
- Open-ended cables can cause an incorrect operation of the system.

**Note**

The total cable length includes the 2 m long device cables.

2.5 Control capacity**2.5.1 Active devices**

Active devices are devices that can:

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

**Note**

Active devices must have an address (refer to section 12.2).

2.5.2 Passive devices

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

2.5.3 Overview

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

table 2.1: Active and passive devices

Device	Type
DCN-DDB	Passive/Active
DCN-DDI	Active
DCN-FCS	Passive
DCN-IDESK	Active

2.6 Power capacity**2.6.1 Introduction**

Each device uses power and most devices do not have an independent power supply.

2.6.2 Power consumption

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

table 2.2: Power consumption

Device	Watt
DCN-DDB	2.0
DCN-DDI	4.5
DCN-FCS	0.9
DCN-IDESK	3.6

2.6.3 Power supplies

2.6.3.1 Introduction

The devices that supply power to the DCN are the central control unit and the extension power supply (refer to figure 2.1 and figure 2.2). The power that the central control unit supplies includes the power that the optical network uses.

2.6.3.2 DCN-WCCU

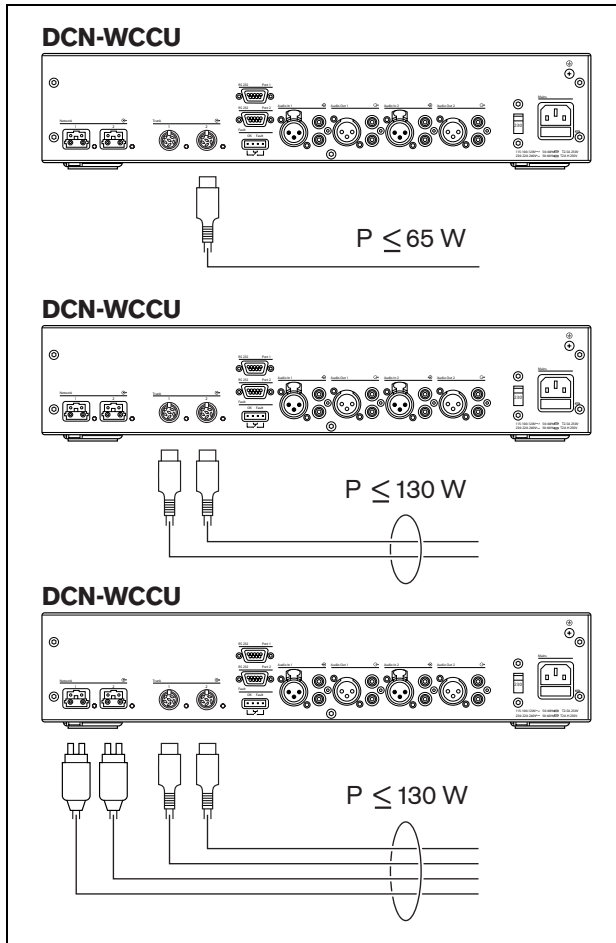


figure 2.1: DCN power supply: DCN-WCCU

Note
If the power is higher than shown in figure 2.1, an overload situation occurs (refer to section 2.6.4).

2.6.3.3 DCN-EPS

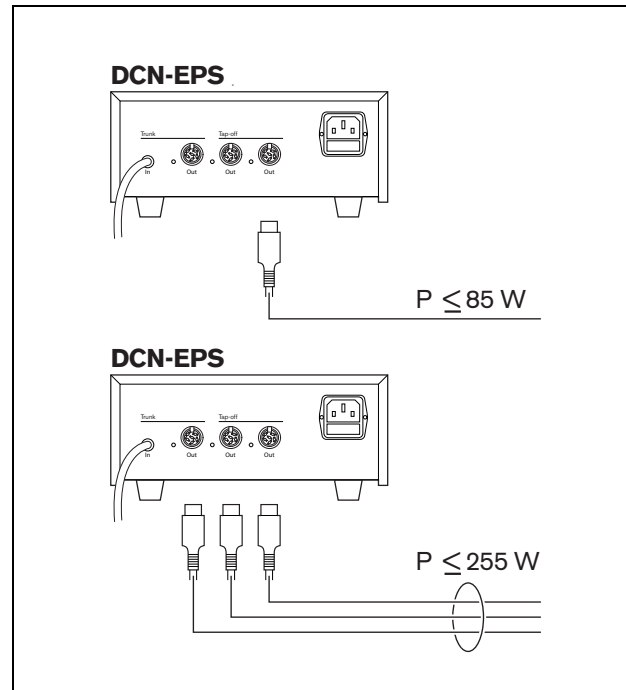


figure 2.2: DCN power supply: DCN-EPS

Note
If the power is higher than shown in figure 2.2, an overload situation occurs (refer to section 2.6.4).

2.6.4 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, the sockets are deactivated and the connected devices do not operate. The socket checks every 8 seconds (DCN-WCCU) or 30 seconds (DCN-EPS) for power overloads.

2.6.5 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 choose the length of the extension cables carefully (refer to section 2.7.5).

2.7 Cable lengths

2.7.1 Maximum length

The cable length between the central control unit and the furthest device from the central control unit must not be more than 250 m. The cable length includes the device cable and extension cables.

2.7.2 To first regenerative tap-off

The total cable length between the central control unit and the first regenerative tap-off socket must not be more than 100 m. This includes the device cables and extension cables.

2.7.3 Between regenerative tap-offs

The total cable length between two regenerative tap-off sockets must not be more than 100 m. This includes the device cables and extension cables.

2.7.4 Open-ended DCN cables

'Open-ended' DCN cables are DCN cables of which the socket is not connected to a device in the DCN.

'Open-ended' cables can cause an incorrect operation of the system. You can 'close' the extension cable with a termination plug (refer to the DCN Next Generation Installation and User Instructions). When the 'open-ended' cable is connected to a termination plug, the system operates correctly.

2.7.5 Power correction

2.7.5.1 Introduction

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 (refer to figure 2.3) corrects the power level to compensate for the extension cables.

2.7.5.2 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. Refer to section 2.7.5.3.
- The length of the longest extension cable sequence. Refer to section 2.7.5.4.

2.7.5.3 Total power consumption

Do as follows:

- 1 Find the power consumption of each device from the consumption table (refer to table 2.2).
- 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.

2.7.5.4 Length of the longest extension cable sequence

Do as follows:

- 1 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.

2.7.5.5 Graph

The power correction graph (refer to figure 2.3) corrects the power level to compensate for the extension cables.

Do as follows:

- 1 Find the total power consumption (refer to section 2.7.5.3) on the vertical axis (Y) of the power correction graph. For example, 40 W.
- 2 Find the length of the longest extension cable sequence (refer to section 2.7.5.4) 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. For example, 53 W.

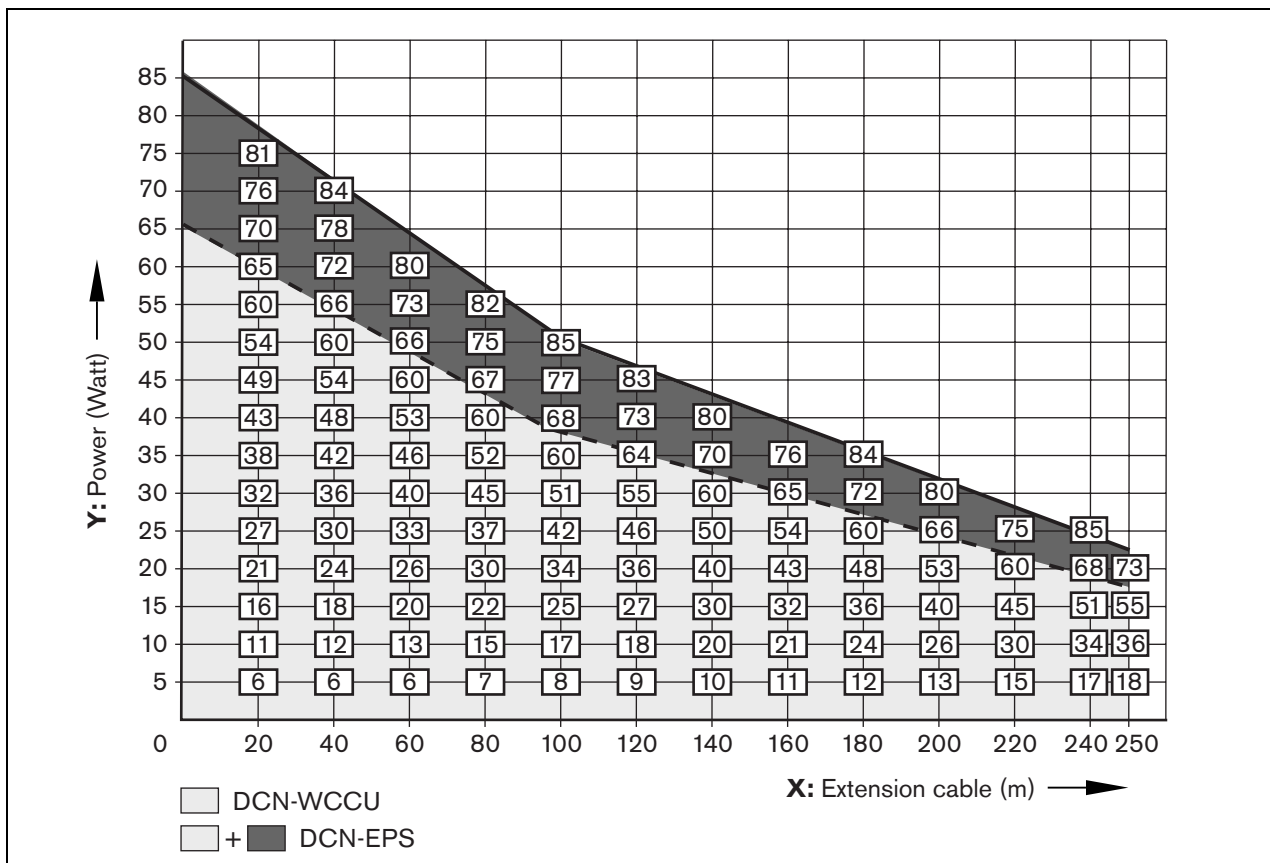


figure 2.3: Power correction graph

2.8 Examples

2.8.1 Cable lengths

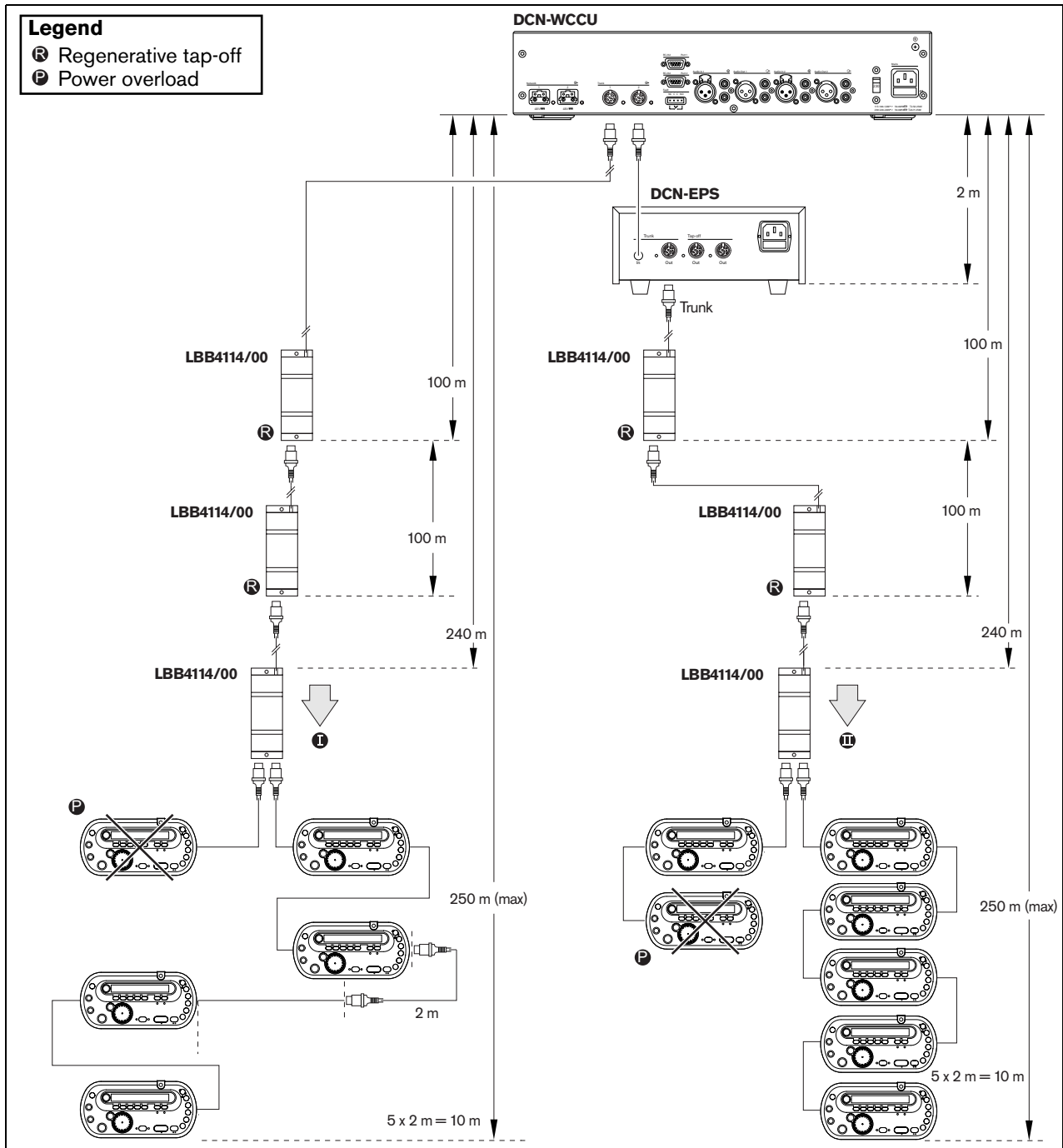


figure 2.4: Example with cable lengths

Point I

The maximum available power with 240 m of extension cables is 19 W (refer to figure 2.3). Because the first and second trunk splitter use 2.6 W, the available power at point I is $19 - 2.6 = 16.4$ W.

Point II

The maximum available power with 240 m of extension cables is 25 W (refer to figure 2.3). Because the first and second trunk splitter use 2.6 W, the available power at point II is $25 - 2.6 = 22.4$ W.

2.8.2 Power correction

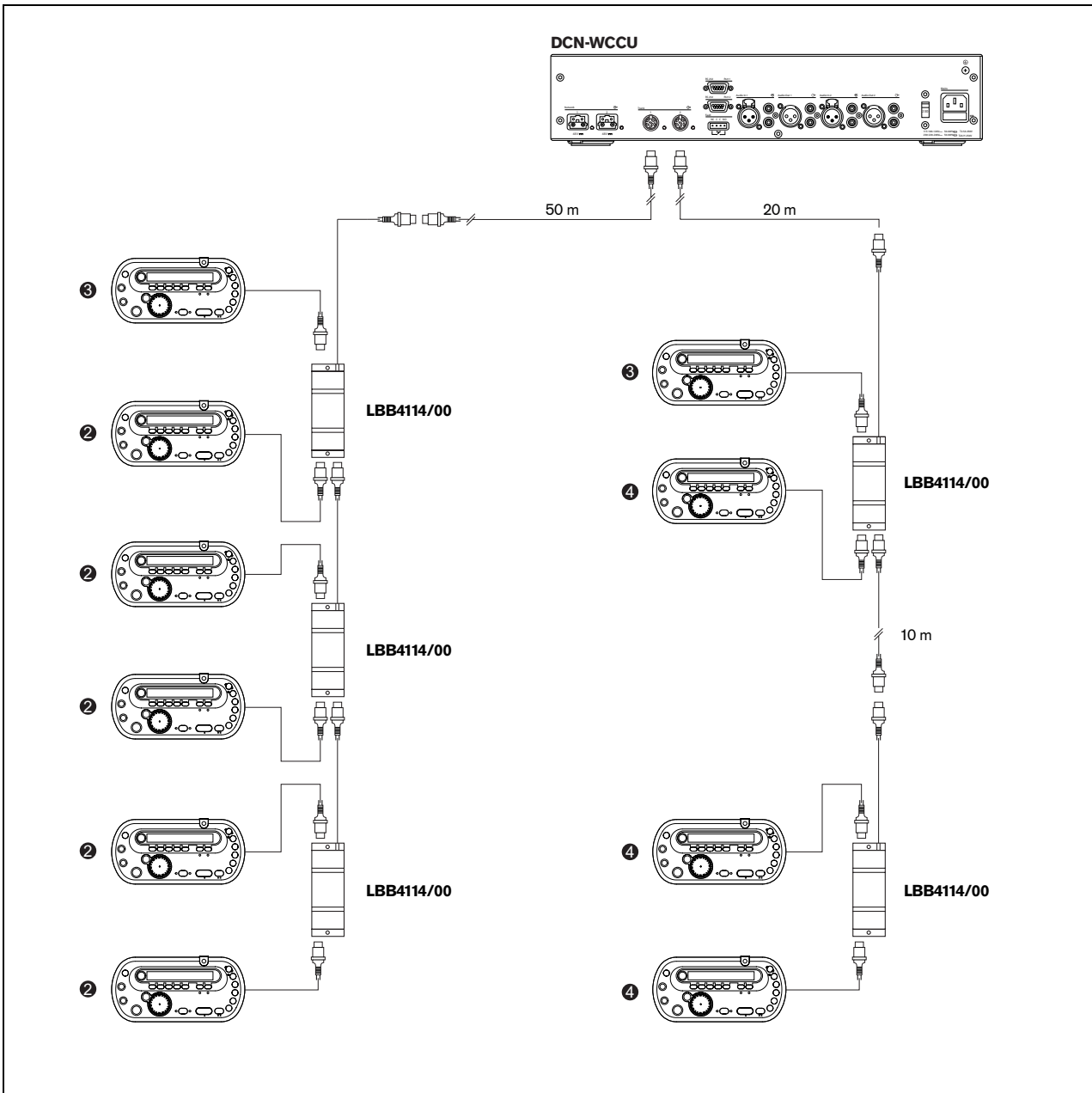


figure 2.5: Example with interpreter desks (DCN-IDESK)

table 2.3: Example with interpreter desks (DCN-IDESK)

Socket	Power for devices	Cable length	Corrected power
Trunk 1	50.7 W	50 m	64.0 W
Trunk 2	56.6 W	30 m	64.7 W

2.9 Interpretation devices

The maximum number of interpreter desks you can install in an interpreter booth is six. Refer to figure 2.6 and figure 2.7 for two examples that use LBB4114/00 Trunk Splitters and LBB4115/00 Protected Trunk Splitters.

With an LBB4114/00 Trunk Splitter, you can connect the interpreter desks in series (refer to figure 2.6). 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.

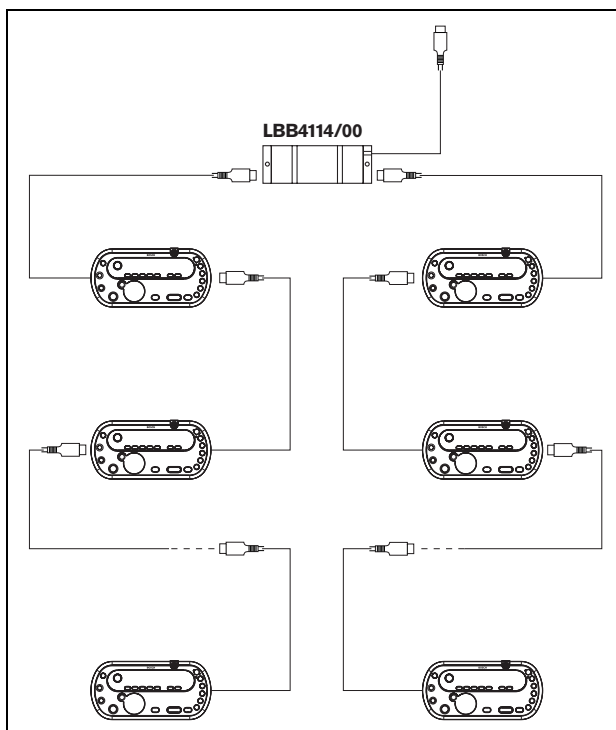


figure 2.6: Interpreter booths with LBB4114/00

With an LBB4115/00 Protected Trunk Splitter, you can connect two interpreter desks (refer to figure 2.7). 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.

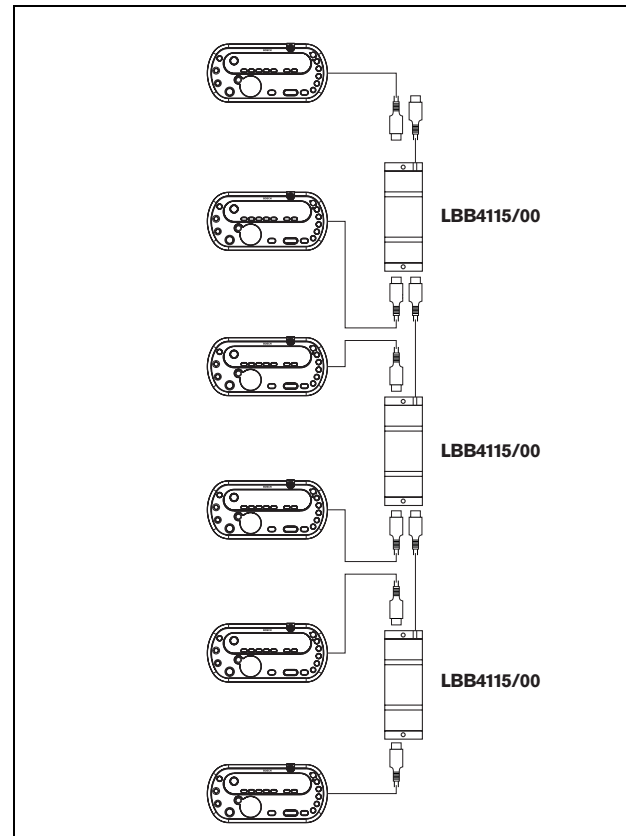


figure 2.7: Interpreter booths with LBB4115/00

3 Optical network design

3.1 Introduction

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

3.2 Calculation tool

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

3.3 Limits

Make sure that these limits are not exceeded when you make the optical network:

Limit 1: Control capacity

The maximum number of nodes in the optical network is 63 (refer to section 3.4).

Limit 2: Number of devices

The maximum number of devices that you can connect to the optical network of the central control unit is 16. The maximum number of DCN-WAP Wireless Access Points in the optical network is 1.

Limit 3: Power capacity

The maximum power that the optical network sockets of the central control unit can supply is 65 W (refer to section 3.5).

Limit 4: Cables

Refer to section 3.6:

- The maximum length of a POF cable is 50 m.
- The maximum cable length (POF and GOF) of the optical network is dependent on the number of nodes in the optical network.
- The minimum bend radius of a 90 degree bend in a POF cable is 110 mm.
- The minimum coiling radius of a POF cable is 110 mm.

3.4 Control capacity

Each device in the optical network has a number of nodes (refer to table 3.1). The maximum number of nodes in the optical network is 63.

table 3.1: Nodes

Device	Nodes
DCN-CCU	2
DCN-WAP	1
LBB4402/00	1
LBB4404/00	1
LBB4410/00	1
LBB4414/10	0
INT-TX04	1
INT-TX08	2
INT-TX16	4
INT-TX32	8
PRS-4DEX4	1

3.5 Power capacity

3.5.1 Introduction

Each device uses power and most devices do not have an independent power supply.

3.5.2 Power consumption

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

table 3.2: Power consumption

Device	Watt
DCN-WAP	4
LBB4402/00	7.6
LBB4404/00	10.5
LBB4410/00	3.9
LBB4414/10	4.6
PRS-4DEX4	6.0



Note

The Integrus transmitters do not use power from the system.

3.5.3 Power supply

The device that supplies power to the optical network is the central control unit, refer to figure 3.1. The power that the central control unit supplies includes the power that the DCN uses.

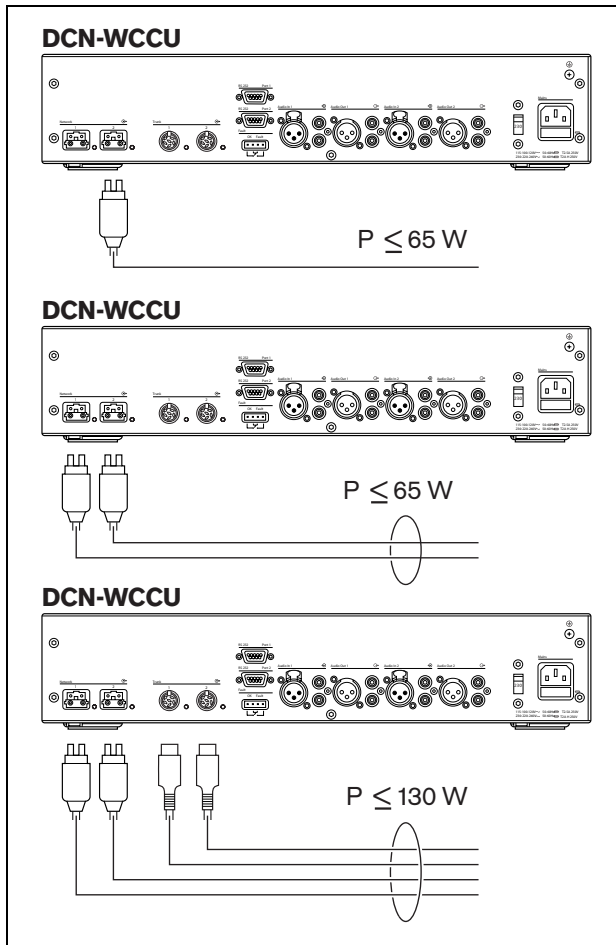


figure 3.1: Optical network power supply

If more power is necessary, you must install external power supplies in the optical network. The devices below can connect to external power supplies:

- LBB4410/00 Network Splitter (refer to the DCN Next Generation Installation and User Instructions).
- LBB4414/10 Fiber Interface (refer to the DCN Next Generation Installation and User Instruction).

3.5.4 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 deactivated and the devices connected to the central control unit do not operate. The socket checks every 8 seconds for power overloads.



Note

If only one of the optical network sockets has a power overload, the two overload LEDs come on.

3.6 Cabling

3.6.1 Introduction

Many devices in the optical network have two optical network sockets that are interchangeable. You can use the two optical network sockets to make a redundant ring.



Note

The two optical network connectors are the same.

3.6.2 Definitions

The optical network uses two types of cable:

- **POF**
Plastic Optical Fiber.
- **GOF**
Glass Optical Fiber.

3.6.3 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 a maximum of 1500 m.



Note

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.

3.6.4 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.

3.6.5 Maximum cable length

The maximum cable length (LBB4416 and GOF) of the optical network is dependent on:

- The number of nodes
- The number of LBB4414/10 Fiber Interfaces

Do as follows:

- 1 Find the number of nodes of each device from the node value table (refer to table 3.1). Add together the nodes of all devices.
- 2 With the value of step 1, use the graph (refer to figure 3.2) to find the maximum cable length without LBB4414/10 Fiber Interfaces.
- 3 Count the number of LBB4414/10 Fiber Interfaces. Each fiber interface decreases the maximum cable length from step 2 with 18 m.

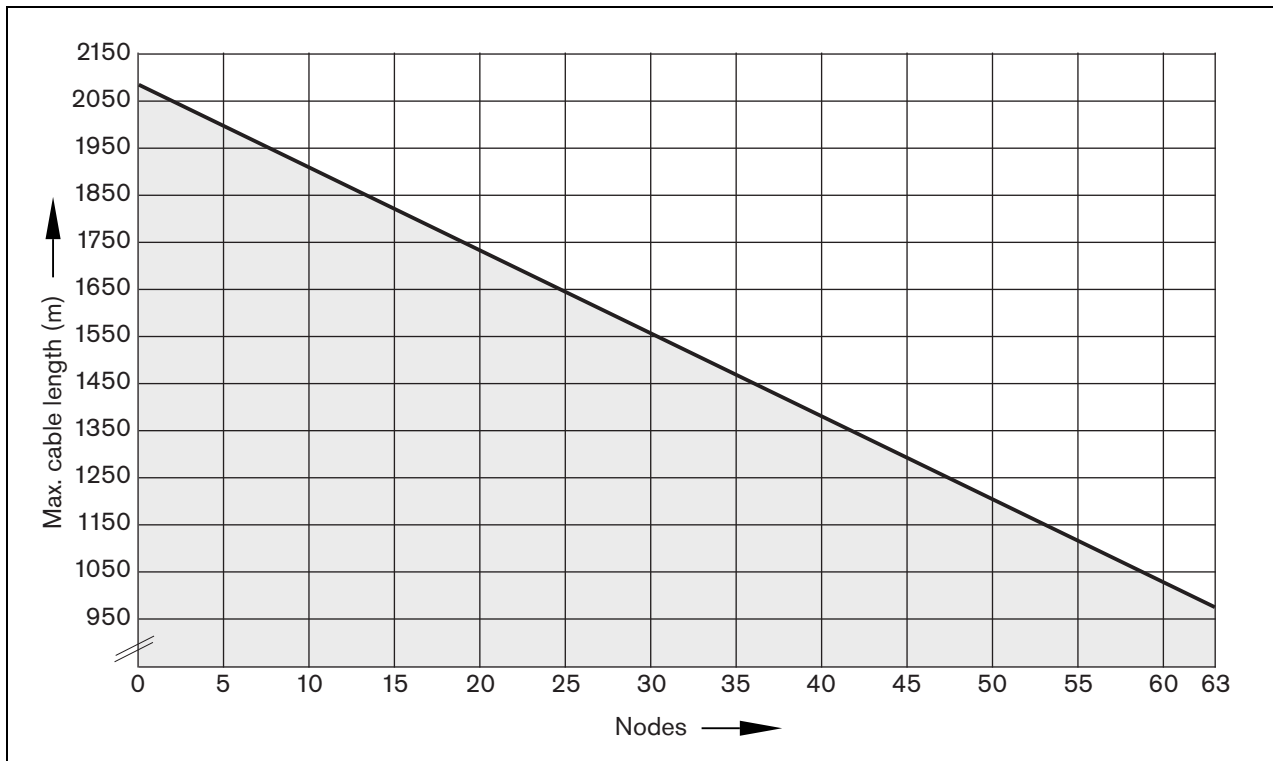


figure 3.2: Cable correction graph

3.6.6 Bending

The minimum bend radius of a 90 degree bend in an LBB4416 cable is 110 mm (refer to figure 3.3). A 180 degree bend is the same as two 90 degree bends.

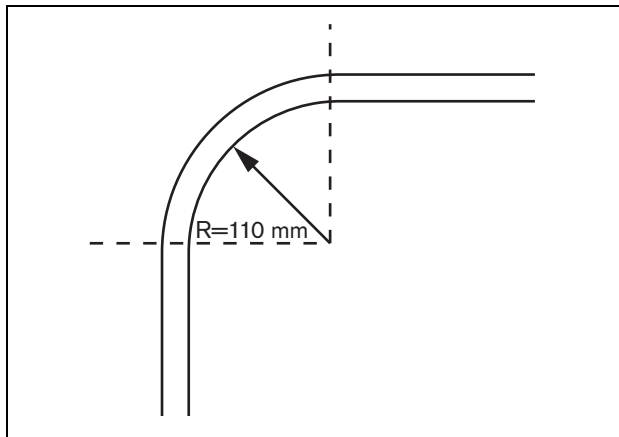


figure 3.3: Bend radius

3.6.7 Coiling

The minimum coiling radius of an LBB4416 cable is 110 mm (refer to figure 3.4).

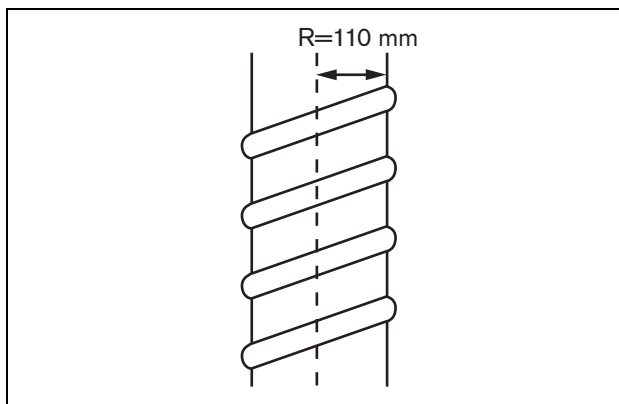


figure 3.4: Coiling radius

3.7 Example layouts

3.7.1 Introduction

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.

3.7.2 Basic optical network

Refer to figure 3.5 for an example of a basic optical network.

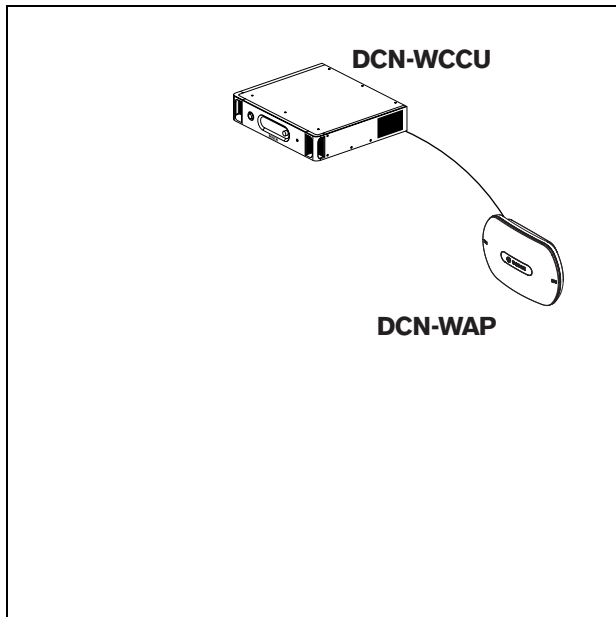


figure 3.5: Basic optical network

3.7.3 Extended optical network

Refer to figure 3.6 for an example of an extended optical network.

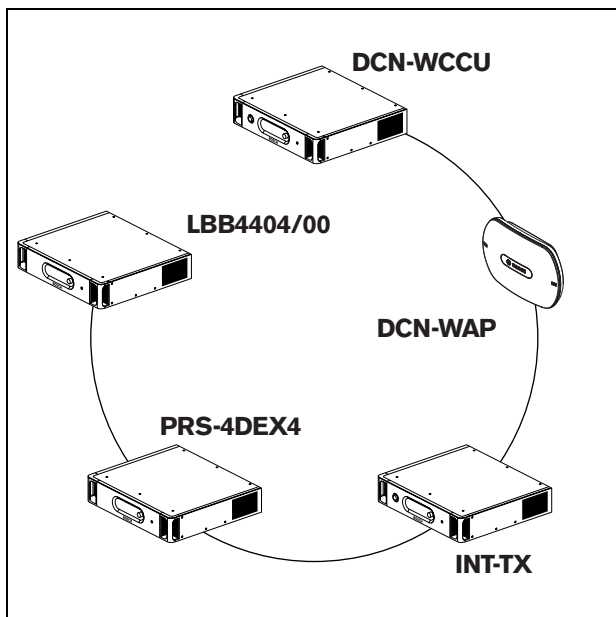


figure 3.6: Extended optical network

3.7.4 Redundant cables

The example of the extended optical network (refer to figure 3.6) has no redundant cable. If the cable between the central control unit (DCN-WCCU) and the wireless access point (DCN-WAP) breaks, the central control unit cannot transmit data to the wireless access point. A solution for this problem is to use redundant cable (refer to figure 3.7 for an example).

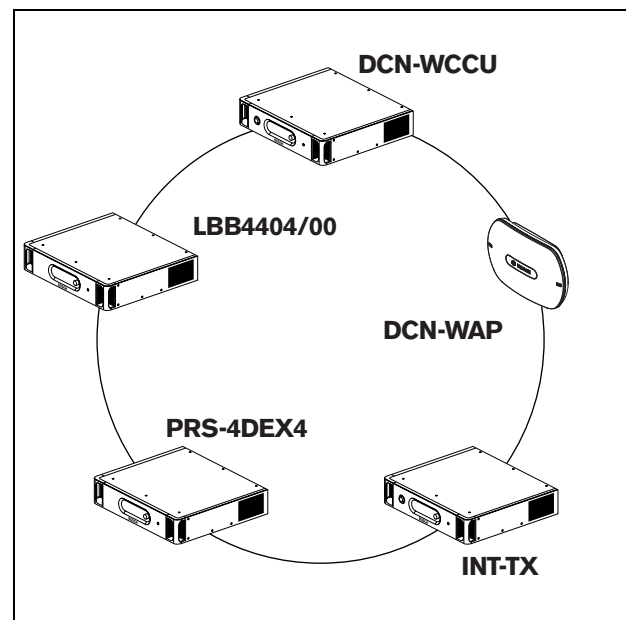


figure 3.7: Redundant optical network

The example of the system without redundant cable (refer to figure 3.6) has no connection between the cobranet interface (LBB4404/00) and the central control unit (DCN-WCCU). The example of the system with redundant cable 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 65 W. If the optical network is defective near the central control unit, the other socket can supply power to all of the optical network.

3.7.5 Tap-offs

The network splitter (LBB4410/00) lets you make tap-offs (refer to figure 3.8 for an example). 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.

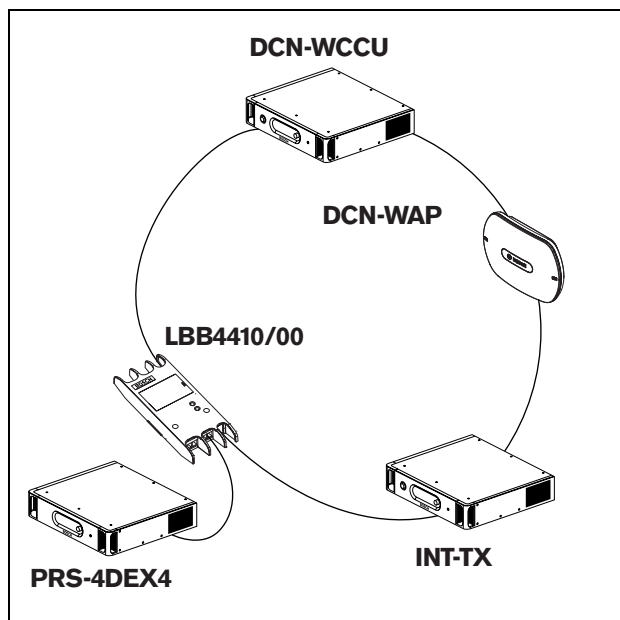


figure 3.8: Redundant optical network with tap-off

4 Camera control

4.1 Introduction

The central control unit can automatically point video cameras in the direction of the delegate or chairman who speaks. You can connect video cameras to the central control unit through a video switcher or directly to the central control unit. Use a video switcher to connect more than one video camera and video display to the central control unit.

4.2 Scenarios

These scenarios are possible:

- Direct camera control in a system without a DCN control PC. Refer to the DCN Next Generation Installation and User Instructions.
- Camera control through a video switcher in a system without a DCN control PC. Refer to the DCN Next Generation Installation and User Instructions.

5 Infra-red 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.



Note

Refer to the Integrus Installation and User Instructions for more data.



figure 5.1: Integrus

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 Wireless digital congress network 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

**Note**

Refer to the DCN Next Generation Installation and User Instructions for the LBB4404/00 Cobranet Interface.

PC data, for example data from the DCN Wireless 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.

**Note**

Refer to the website of Peak Audio (www.peakaudio.com) for:

- More data about CobraNet networks.
- A list of approved Ethernet switches.

7 User set-up

7.1 Public areas and walkways

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

7.2 Headphones/headsets

Put headphones or headsets with:

- Wireless discussion units.
- Interpreter desks.
- Channel selector.
- 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 activated microphones.

7.3 Speaking distance

The recommended speaking distance from the microphone is 0.2 m to 0.4 m.

7.4 Interpreter booths

Make sure each interpreter booth has sufficient dimensions. The International Organization for Standardization (ISO) gives the specification for interpreter booths. Refer to standard ISO 2603 'Booths for simultaneous interpretation - General characteristics and equipment' for more data.

8 Device set-up

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 sufficiently cool.
- Make sure that there is sufficient lighting.

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.

8.3 Temperature

When devices are in a 19-inch rack, make sure there is rack space between the devices to let sufficient air flow. Forced airflow may be necessary to keep the temperature of the devices below the maximum temperature (refer to section 9.2). This extends the lifetime of the devices.

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).

- Put the devices on a hard and level surface.
- Put the central control unit at minimum distance of 0.10 m from walls to let sufficient air flow.

8.5 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.

8.6 Storage

**Note**

If the central control unit is stopped or disconnected from the mains power supply for more than 100 days, the values of all system parameter are erased. This includes all the values of the parameters of the interpreter desks and the wireless access point. This does not include the subscription list.

- 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.

8.7 Acoustic feedback

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

table 8.1: Acoustic feedback

Source	Quick solution	Structural 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 section 10.6.3).	Do as follows: <ol style="list-style-type: none"> 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 section 12.6).
The acoustic feedback is caused by an external public address system that is connected to the DCN Wireless digital congress network.	Decrease the volume level of the public address system or the DCN Wireless digital congress network.	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. (Refer to the section about the contribution devices.)

9 Technical data

9.1 System electrical and electro-acoustic characteristics

9.1.1 General

table 9.1: Electro-acoustic characteristics

Nominal input level:
85 dB SPL
Overload input level:
110 dB SPL
Automatic gain reduction (not for PA-floor output):
<ul style="list-style-type: none"> • 24 dB (interpretation channels) • 12 dB (delegate loudspeaker channel)
Automatic gain reduction with:
<ul style="list-style-type: none"> • 3 dB (2 microphones on) • 6 dB (4 or more microphones on)
Loudspeaker gain control:
24 x 1 dB and off (mute)

9.1.2 Transmission links

- 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

table 9.2: Transmission links

Frequency response:
<ul style="list-style-type: none"> • 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

9.1.3 Combined devices from input to output

- 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

table 9.3: Combined devices from input to 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

9.2 Environmental conditions

table 9.4: Environmental conditions

Working conditions:
Fixed, stationary, transportable
Temperature range:
<ul style="list-style-type: none"> • -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%

9.3 Safety

According Low Voltage Directive 73/23/EEC amended by Directive 93/68 EEC.

- For European countries: according EN60065. Marking: CE
- For international countries: IEC 60065 according CB-Scheme.
- For North America:
 - USA: ANSI/UL 60065
 - Canada: CAN/CSA no. 60065
 - Marking c-CSA-us.

9.4 Electro-magnetic compatibility

table 9.5: Electromagnetic compatibility

EMC compatibility:
According ECM Directive 89/336/EEC amended by Directive 93/68/ECC
European approvals: CE marking
EMC environment: for commercial or professional use
EMC emission:
According harmonized standard EN 55103-1 (E3) (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)

9.5 Wireless devices

table 9.6: 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	EN 300 328 EN 301 489-1 EN 301 489-17 EN 60950-1
USA	Standard	Telecom, EMC Safety	FCC part 15.247 ANSI / UL 60950-1
Canada	Standard	Telecom, EMC Safety	RSS 210 CSA 22.2 no. 60950-1
Japan	Standard	Telecom, EMC	Ordinance regulating radio equipment: Item 19 Article 2

9.6 Miscellaneous

table 9.7: Miscellaneous

<p>Basic standard ESD: According EN 61000-4-2. Contact discharge: 4 kV and air discharge: 8 kV</p>
<p>Basic standard mains harmonics and voltage fluctuations, flicker: According EN 61000-3-2 and EN 61000-3-3</p>
<p>Basic standard RF electromagnetic fields: According EN 61000-4-3 RF conducted: 150 kHz - 80 MHz: 3 Vrms RF radiated 80 - 1000 MHz: 3 V/m Cellular telephone (GSM) dummy test: at 20 cm speech distance Criteria: not effecting normal operation.</p>
<p>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</p>
<p>Basic standard low energy electrical fast transients, bursts: According EN 61000-4-4 Mains: fast transients: 1 kV; signal and control data lines: 0.5 kV</p>
<p>Basic standard high energy surges: According EN 61000-4-5 Mains: surges: 1 kV CM and 0.5 kV DM.</p>
<p>Basic standard voltage dips, short interruptions, variations: According EN 61000-4-11 Mains: voltage dips 100% for 1 period, 60% for 5 periods, > 95% for 5 seconds.</p>

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Section 2 - Central Devices

10 DCN-WCCU Wireless Central Control Unit

10.1 Introduction

The DCN-WCCU Wireless Central Control Unit controls the system. The central control unit can operate with or without a control PC.



Note

The DCN-WCCU-UL is the CSA/UL approved version of the DCN-WCCU.

10.2 Controls, connectors and indicators

10.2.1 Front view

The front of the central control unit (refer to figure 10.1) contains:

- 1 **On/off switch** - Starts and stops the central control unit.
- 2 **Display** - Shows the configuration menu (refer to 10.6).
- 3 **Knob** - Operates the configuration menu (refer to 10.6). You can also change the volume level of the system with the knob.
- 4 **Headphones socket** - Connects headphones to the central control unit (refer to 10.5.4).

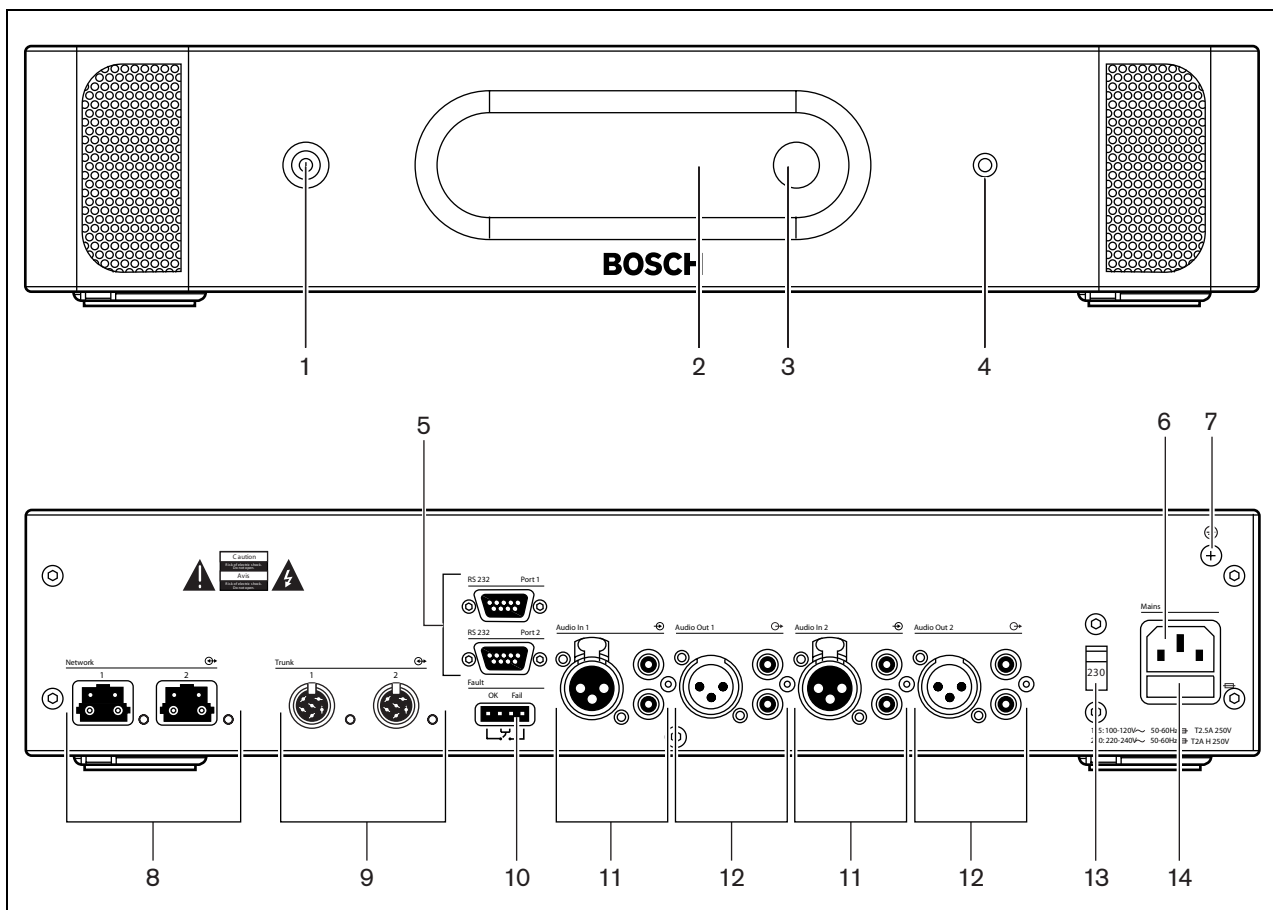


figure 10.1: Front and rear views

10.2.2 Rear view

The rear of the central control unit (refer to figure 10.1) contains:

- 5 **RS232 ports** - Connects a PC, remote controllers or video cameras to the central control unit (refer to 10.5.8).
- 6 **Power inlet** - Connects the central control unit to the mains power supply with a power cable (refer to 10.5.1).
- 7 **Ground screw** - Connects the central control unit to ground.
- 8 **Optical network sockets** - Connects the central control unit to the optical network (refer to 10.5.3).
- 9 **DCN sockets** - Connect the central control unit to the DCN (refer to 10.5.2).
- 10 **Fault contact** - Connects the central control unit to devices to sense the condition of the central control unit (refer to 10.5.7).
- 11 **Audio inputs** - Connect the central control unit to external analog audio sources (refer to 10.5.5).
- 12 **Audio outputs** - Connect the central control unit to external analog audio devices (refer to 10.5.6).
- 13 **Voltage selector** - Selects the voltage on which the central control unit must operate (refer to 10.5.1).
- 14 **Fuse holder** - Prevents damage to the internal power supply unit of the central control unit (refer to 10.5.1).

10.3 Internal settings

10.3.1 Overview



Warning

Before you open the central control unit, disconnect it from the mains power supply. Electrical discharges from the mains power supply can kill you.



Caution

Before you open the central control unit, take measures to prevent electro-static discharges.

The PCBs of the central control unit (refer to figure 10.2) contain:

- 15 **Software LEDs** - Show the condition of the software of the central control unit. When the software runs correctly, the yellow and green LEDs flash.
- 16 **S600 switches** - Reserved (refer to 10.3.2).
- 17 **X605 jumper block** - Enables or disables the watchdog (refer to 10.3.5).
- 18 **Reset switch** - Starts the central control unit again.
- 19 **Optical network processor indicator** - Comes on when the optical network processor operates correctly.
- 20 **S500 switches** - Configure the RS232 ports of the central control unit (refer to 10.3.3).
- 21 **X600 jumper block** - Connects and disconnects the internal back-up battery of the central control unit (refer to 10.3.4).
- 22 **X104 jumper block** - Connects and disconnects the mechanical ground and the electrical ground (refer to 10.3.6).
- 23 **Fuse** - Prevents damage to the electronic components in the central control unit.

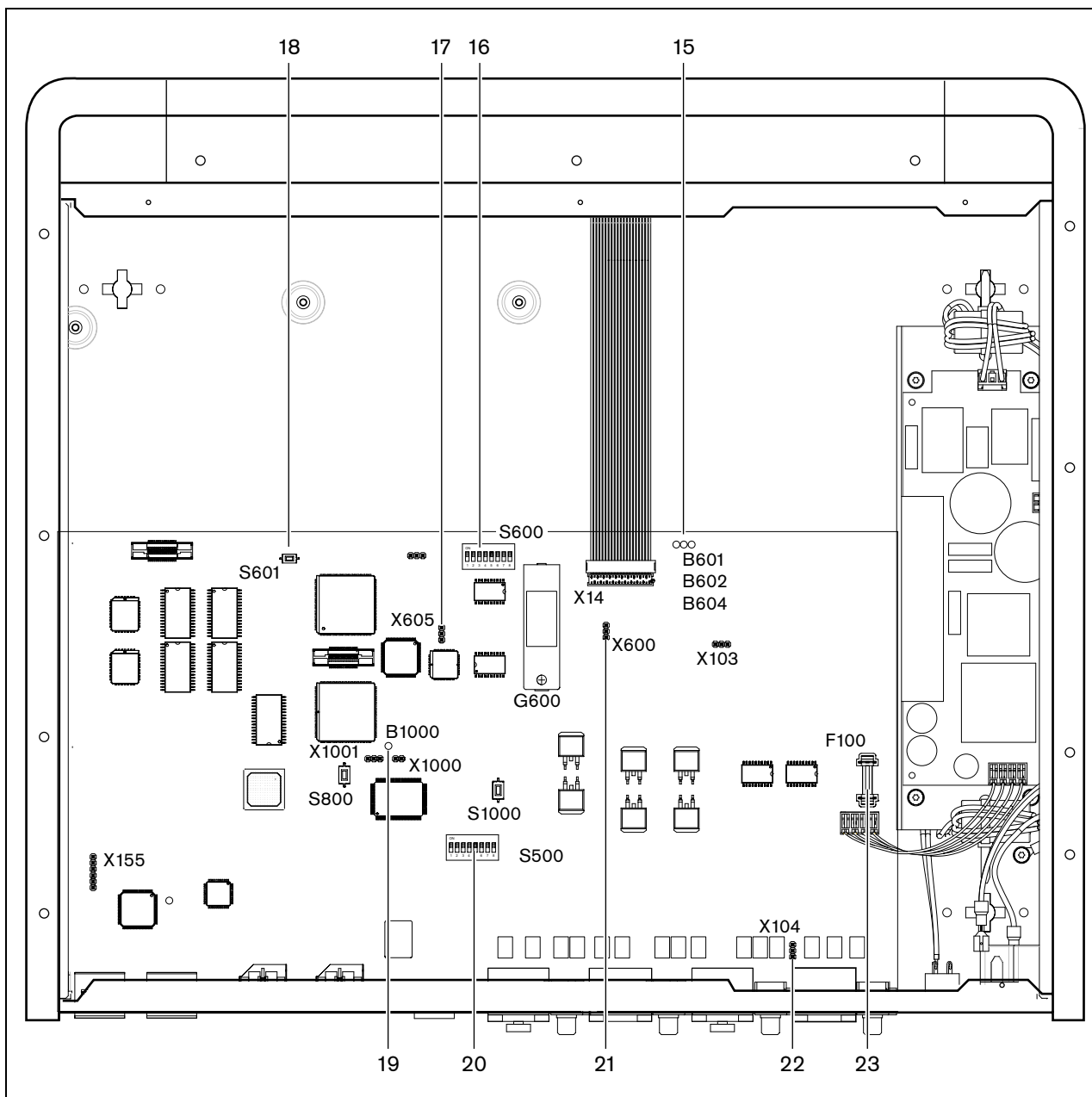


figure 10.2: Internal settings

10.3.2 S600 switches

table 10.1: S600 switches (* = default)

Switch	Position	Description
S600-1	ON* OFF	Reserved. Do not change the position of this switch.
S600-2	ON OFF*	Reserved. Do not change the position of this switch.
S600-3	ON OFF*	Reserved. Do not change the position of this switch.
S600-4	ON OFF*	Reserved. Do not change the position of this switch.
S600-5	ON OFF*	Reserved. Do not change the position of this switch.
S600-6	ON OFF*	Reserved. Do not change the position of this switch.
S600-7	ON OFF*	Reserved. Do not change the position of this switch.
S600-8	ON OFF*	Enables the download of new firmware. Normal operation.

10.3.3 RS232 configuration

Use the S500 switches to configure the RS232 ports of the central control unit (refer to table 10.2 and table 10.3).

table 10.2: RS232 protocol (* = default)

Protocol	Port 1		Port 2	
	S500-1	S500-2	S500-5	S500-6
Open interface	Off	Off	Off	Off
Terminal	Off	On	Off	On
Full	On*	Off*	On	Off
Camera control	On	On	On*	On*

table 10.3: RS232 baudrate (* = default)

Baudrate	Port 1		Port 2	
	S500-3	S500-4	S500-7	S500-8
9.6k	Off	Off	Off	Off
19.2k	Off	On	Off*	On*
57.6k	On	Off	On	Off
115.2k	On*	On*	On	On

10.3.4 Internal back-up battery

Use the X600 jumper block to connect and disconnect the internal back-up battery of the central control unit (refer to table 10.4).



Note

When your central control unit is new, you must energize the central control unit to charge the internal back-up battery. The internal back-up battery is fully charged after 24 hours.

table 10.4: X600 jumper block (* = default)

Jumper shunt	Description
1 and 2 *	Connects the internal back-up battery. When you stop the central control unit, the memory of the central control unit is not erased.
2 and 3	Disconnects the internal back-up battery. When you stop the central control unit, the memory of the central control unit is immediately erased. The memory of the central control unit contains: <ul style="list-style-type: none"> • The license code • The settings of the interpreter desks.



Note

You only have a license code when you use the system in combination with:

- The PC Control Software
- A remote controller



Note

The subscription list is not erased when the internal back-up battery is empty. The subscription list is stored in another location.

10.3.5 Watchdog

Use the X605 jumper to enable or disable the watchdog of the central control unit (refer to table 10.5).

table 10.5: X605 jumper block (* = default)

Jumper shunt	Description
Present	The watchdog is disabled. The central control unit does not start again after an error.
Not present*	Enables the watchdog. The central control unit starts again after an error.



Note

When you disable the watchdog, the system can operate incorrectly.

10.3.6 Ground

Use the X104 jumper block to connect and disconnect the system ground and the ground of the central control unit (refer to table 10.6). For example, you can connect the system ground and the ground of the central control unit to prevent hum.

table 10.6: X104 jumper block (* = default)

Jumper shunt	Description
1 and 2	Connects the system ground and the ground of the central control unit.
2 and 3 *	Disconnects the system ground and the ground of the central control unit.



Note

When you connect the system ground to the ground of more than one device in the system, you can create ground loops. Ground loops can cause hum.

10.4 Installation

Install the central control unit in a 19-inch rack system or on a flat surface. Four feet and two brackets are supplied with the central control unit (refer to figure 10.3).

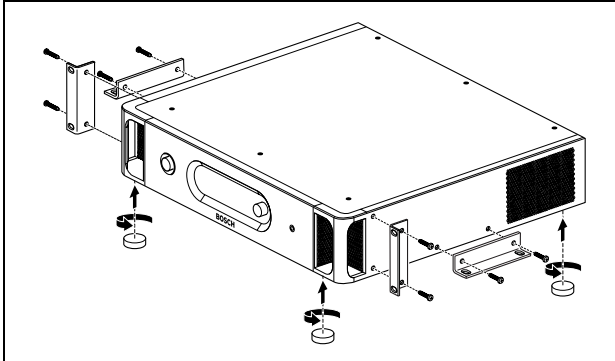


figure 10.3: Installation

table 10.7: Physical characteristics

Dimensions (h x w x d), flat surface:

92 x 440 x 400 mm (without brackets, with feet)

Dimensions (h x w x d), 19-inch rack system:

88 x 483 x 400 mm (with brackets, without feet)

Weight:

6.7 kg (without brackets, without feet)



Note

When you install the central control unit in a 19-inch rack system, the central control unit extends 36 mm in front of the brackets.

10.5 External connections

10.5.1 Power supply

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



Note

The DCN-WCCU is configured for a voltage of 220 - 240 V(AC). The DCN-WCCU-UL is configured for a voltage of 100 - 120 V(AC).

- 1 Set the voltage selector on the rear of the central control unit to the correct position (refer to table 10.8).

table 10.8: Voltage selector

Power supply voltage	Voltage selector
90 to 132 V(AC)	115
198 to 264 V(AC)	230

- 2 Make sure that the fuse holder in the rear of the central control unit contains the correct fuse (refer to table 10.9).

table 10.9: Fuses

Voltage selector	Fuse
115	T2.5A 250 V (UL 248)
230	T2AH 250 V (IEC 60127)

- 3 Connect a locally approved power cable to the central control unit (refer to figure 10.4).

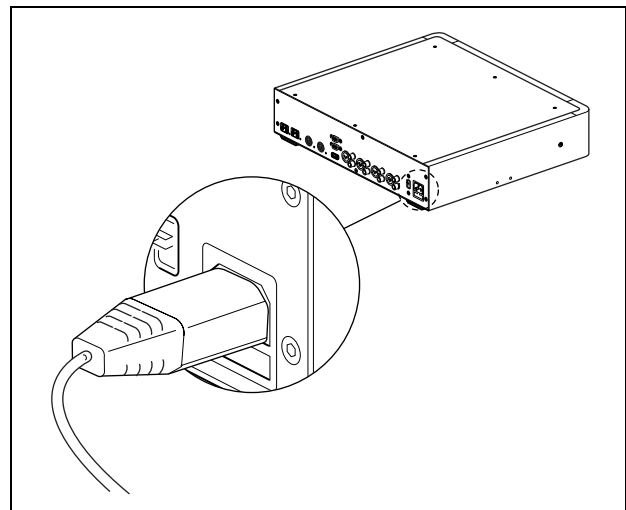


figure 10.4: Power supply

- 4 Connect the power cable to a power supply.



Warning

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

10.5.2 DCN

Connect the trunk of the DCN to the DCN sockets of the central control unit (refer to figure 10.5).

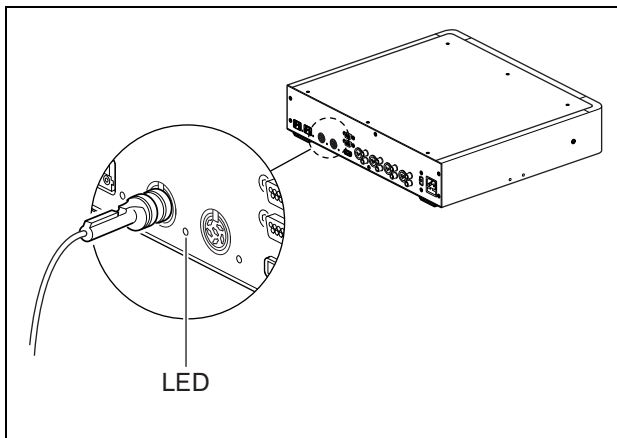


figure 10.5: DCN

Each DCN socket has a red LED that comes on if there is an overload (refer to figure 10.5 and 3.5.4).

table 10.10: DCN connection

Number of connections:
2x DCN socket
Location:
Rear side
Power supply:
max. 65 W (refer to figure 2.1)

10.5.3 Optical network

Connect the trunk of the optical network to the optical network sockets of the central control unit with optical network cables (refer to figure 10.6).

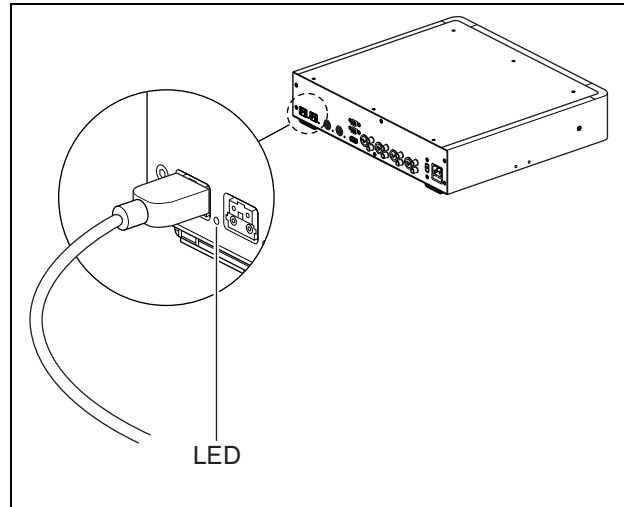


figure 10.6: Optical network

Each optical network socket has a red LED that comes on if there is an overload (refer to figure 10.6 and 3.5.4).

table 10.11: Optical network connections

Number of connections:
2x proprietary sockets
Location:
Rear side
Nodes:
2
Power supply:
max. 65 W (refer to figure 3.1)

10.5.4 Headphones

You can connect headphones to the headphones socket of the central control unit. The headphones must have a 3.5 mm plug (refer to figure 10.7).

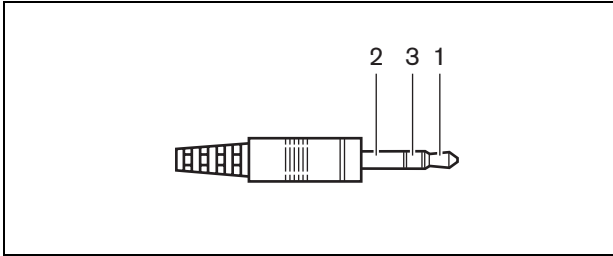


figure 10.7: 3.5 mm headphones plug, connection

table 10.12: 3.5 mm headphones plug, connection

Number	Signal
1	Left
2	Common
3	Right



Note

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 10.6.5).

10.5.5 Audio inputs

You can connect an external analog audio source to the audio inputs of the central control unit. The central control unit has two audio inputs. Each audio input has (refer to figure 10.8):

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



Note

The audio inputs change stereo signals in mono signals.

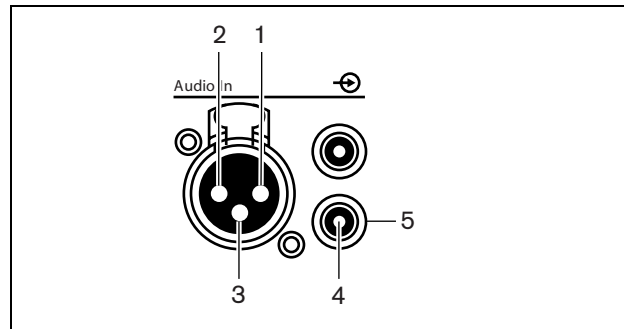


figure 10.8: Audio input, connection

table 10.13: 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

You can select the procedure that is used to send audio signals through the central control unit with the audio routing modes (refer to 10.6.8).

**Note**

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

table 10.14: Audio input details, line level signals

Number of connections:
<ul style="list-style-type: none"> • 1x XLR socket for each audio input • 1x double cinch socket for each audio input
Location:
Rear side
Cable:
Shielded cable
Maximum level:
Refer to appendix A
Nominal level:
Refer to appendix A
Frequency response:
-3 dB @ 30 Hz and 20 kHz
Impedance:
<ul style="list-style-type: none"> • XLR: 22 kΩ • Cinch: 12 kΩ
Signal-to-noise ratio:
> 85 dBA @ max. level
CMRR:
> 60 dB @ 100 Hz
> 50 dB @ 1 kHz
Crosstalk attenuation:
> 85 dB @ max. level
Distortion:
< 0.1% @ 100 Hz @ -3 dB of the max. input

10.5.6 Audio outputs

You can connect an audio recording device or a public address system to the audio outputs of the central control unit. The central control unit has two audio outputs. Each audio output has (refer to figure 10.9):

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

**Note**

The two cinch sockets contain the same mono signal.

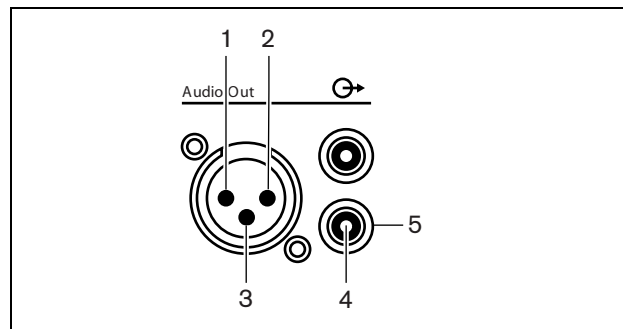


figure 10.9: Audio output, connection

table 10.15: 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

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 10.6.8).

table 10.16: Audio output details

Number of connections:
<ul style="list-style-type: none"> • 1x XLR plug for each audio output • 1x double cinch socket for each audio output
Location:
Rear side
Cable:
Shielded cable
Maximum level:
Refer to appendix A
Nominal level (audio output 1):
Refer to appendix A
Nominal level (audio output 2):
Refer to appendix A
Frequency response:
-3 dB @ 30 Hz and 20 kHz
Impedance:
< 100 Ω
Signal-to-noise ratio:
> 89 dBA @ max. level
Crosstalk attenuation:
> 85 dB @ max. level
Distortion:
< 0.1% @ 100 Hz @ - 3 dB of the max. input

10.5.7 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.

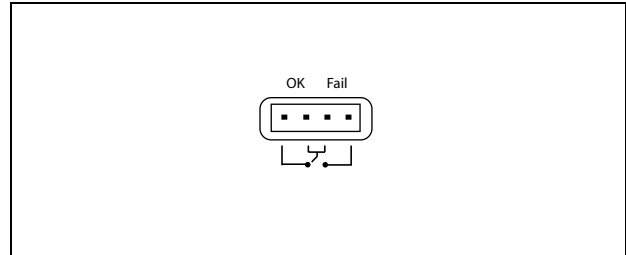


figure 10.10: Fault contact

table 10.17: Fault contact

Number of connections:
4-pole plug
Location:
Rear side
Signal:
Potential-free change-over relay
Voltage:
Max. 24 V(DC), 15 V(AC)
Current:
Max. 500 mA

10.5.8 RS232 ports

You can connect a PC, remote controllers or video cameras to the RS232 ports of the central control unit (refer to the DCN Next Generation Installation and User Instructions). The central control unit has 2 RS232 ports (refer to figure 10.11). You can set the protocol and the baudrate of the RS232 ports with the S500 switches (refer to 10.3.3).

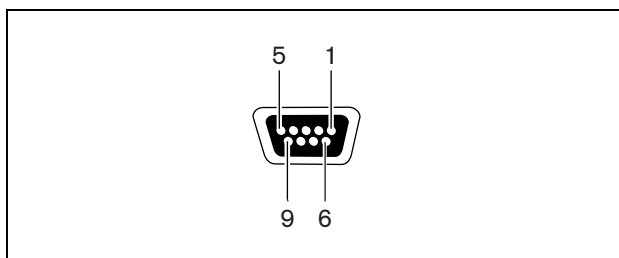


figure 10.11: RS232 port, connection

table 10.18: RS232 port, connection

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

table 10.19: RS232 ports

Number of connections:
2x 9-pole SUB-D socket
Location:
Rear side
Maximum cable length:
9600 baud: 15 m, >9600 baud: 3 m
Signal levels:
EIA RS232-C interface specifications

10.6 Configuration menu

10.6.1 Overview

Use the configuration menu of the central control unit to configure the central control unit and the system (refer to figure 10.12).

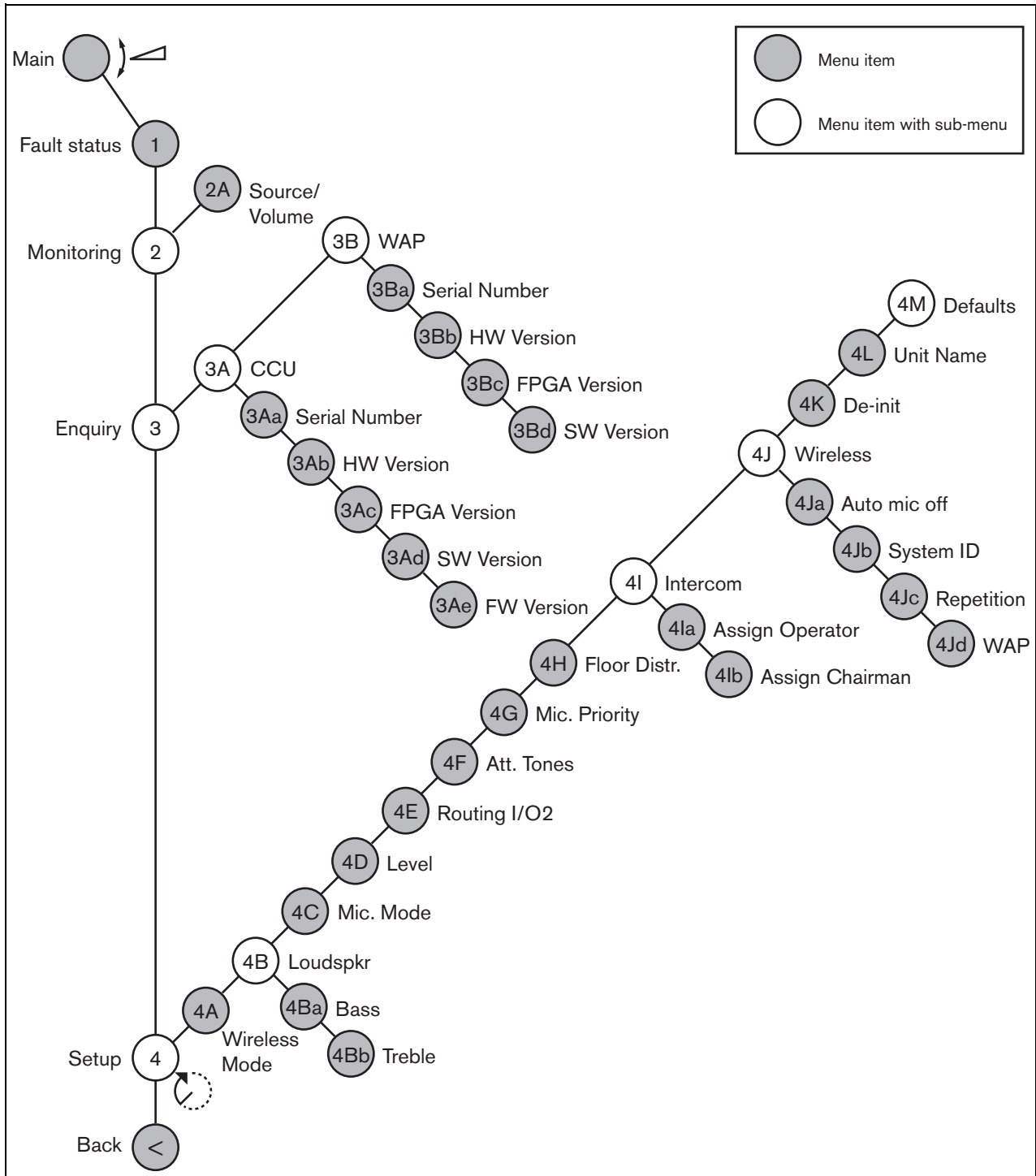


figure 10.12: Configuration menu

10.6.2 Navigation and operation

10.6.2.1 Menu items

The configuration menu consists of menu items. Refer to figure 10.13 for the parts of a menu item.

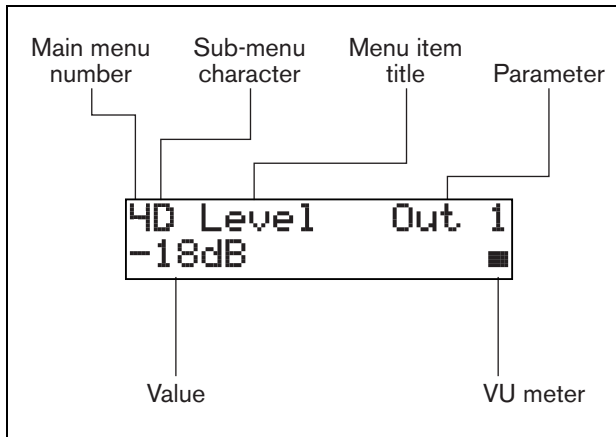


figure 10.13: Menu item parts

10.6.2.2 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.

10.6.2.3 Menu title

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

10.6.2.4 Parameters and values

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

10.6.2.5 VU meter

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

table 10.20: VU meter

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

10.6.2.6 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.

10.6.2.7 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.

10.6.2.8 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.)



Note

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

10.6.2.9 To select menu items in a sub-menu

- 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.

10.6.2.10 To open a menu item

- 1 Turn the knob to select the applicable menu item.
- 2 When the display shows the correct menu item, push the knob to open the menu item. The display shows a cursor.

10.6.2.11 To select a parameter

- 1 Open the correct menu item (refer to 10.6.2.10).
- 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.

10.6.2.12 To change the value of a parameter

- 1 Select the applicable parameter (refer to 10.6.2.11).
- 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.

10.6.2.13 To close a menu item

- 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.

10.6.2.14 To close a sub-menu

- 1 Turn the cursor to go to the second last character that identifies the menu item.
- 2 Push the knob to close the sub-menu. The last character and the menu item title flash.

10.6.2.15 To close the main menu

- 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.

10.6.2.16 Example

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

**Note**

Make sure that when you do this example, you start from the Main menu item.

- 1 Push the knob to open the main menu.

```
1 Mic. Mode
Open          NOM:4
```

- 2 Turn the knob to go to 4 Setup ...

```
4 Setup      ...
```

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

```
4G Mic. Priority
```

- 4 Turn the knob to go to 4D Level.

```
4D Level
Input 1      0dB
```

- 5 Push the knob to open the menu item.

```
4D Level
Input 1      0dB
```

- 6 Turn the knob to move the cursor to the parameter that is shown.

```
4D Level
Input 1  0dB
```

- 7 On the parameter, push the knob.

```
4D Level
Input 1  0dB
```

- 8 Turn the knob to go to Output 2.

```
4D Level
Output 2 0dB
```

- 9 Push the knob to select Output 2.

```
4D Level
Output 2 0dB
```

- 10 Turn the knob to move the cursor to the value that is shown.



Note

In this example, the value is 0 dB. It is possible that your display shows a different value.

```
4D Level
Output 2 0dB
```

- 11 On the value, push the knob.

```
4D Level
Output 2 -0dB
```

- 12 Turn the knob to change the value.



Note

In this example, the knob is turned counterclockwise to decrease the value from 0 dB to -18 dB. Turn the knob clockwise to increase the value.

```
4D Level
Output 2 -18dB
```

- 13 Push the knob to select the value.

```
4D Level
Output 2 -18dB
```

- 14 Turn the knob to go to the main menu number.

```
4D Level
Output 2 -18dB
```

- 15 Push the knob to go back to the main menu.

```
4 Setup
```

- 16 Turn the knob clockwise to go to the < Back menu item.

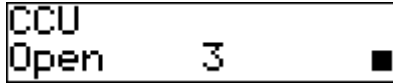
```
< Back
```

- 17 Push the button to go to the Main menu item.

```
CCU
Open 3
```

10.6.3 Main

When you start the central control unit, the display first shows Starting. The display then shows the Main menu item:



The Main menu item contains:

- An indicator that shows the volume level of the loudspeakers of the contribution devices. Turn the knob to change the volume level (refer to 12.6).
- The name of the central control unit. The default name is CCU. You can change the name with the 4L Unit Name menu item (refer to 10.6.8).
- The microphone mode and the maximum number of activated microphones. You can change the microphone mode and the maximum number of activated microphones with the 4C Mic. Mode menu item (refer to 10.6.8).



Note

When a PC is connected to the central control unit, the Main menu item also shows PC.



Note

When the condition of the central control unit changes, the Main menu item shows a message (refer to table 10.21). Such a message goes out of view when you push the knob.



Note

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:

- 2A Source/Volume
- 4la Assign Operator
- 4lb Assign Chairman

10.6.4 Fault status

Use the 1 Fault Status menu item to see the condition messages of the central control unit. If there is more than one message, the display shows the most important message (refer to table 10.21).

table 10.21: Messages (low to high importance)

Messages	Description
No Fault	The central control unit operates correctly.
Low Battery	The battery pack of a wireless device is empty within 1 hour.
Bad Signal	A wireless device has a bad signal reception.
Incompatible SW	The wireless access point has a incompatible software version.
Invalid Software	The central control unit cannot start. The central control unit does not contain the correct software.
Downloading	The central control unit downloads software.

10.6.5 Monitoring

Use the 2 Monitoring menu item to open the Monitoring sub-menu (refer to table 10.22).

table 10.22: Monitoring sub-menu (* = default)

Menu item	Parameter	Value	Description
2A Source/Volume	<u>Signal:</u>	<u>Volume level:</u>	The signal that is available on the headphones socket of the central control unit and its volume level.
	Floor	-31 to 0 dB (16 dB*)	
	Input 1	-31 to 0 dB (16 dB*)	
	Input 2	-31 to 0 dB (16 dB*)	
	Output 1	-31 to 0 dB (16 dB*)	
	Output 2	-31 to 0 dB (16 dB*)	

10.6.6 DCN-WCCU Enquiry

Use the 3A CCU menu item to open the CCU sub-menu. The menu items in this sub-menu give general data about the central control unit (refer to table 10.23).



Note

This data must be mentioned in all service requests and failure reports.

table 10.23: DCN-WCCU Enquiry sub-menu (* = default)

Menu item	Parameter	Value (read-only)	Description
3Aa Serial Number	---	e.g. 20.0.00362	The hexadecimal serial number of the central control unit.
3Ab HW Version	---	e.g. 3.0	The version number of the hardware of the central control unit.
3Ac FPGA Version	---	e.g. 1.06	The version number of the FPGA firmware of the central control unit.
3Ad SW Version	---	MM.mm.bbbb e.g. 2.20.1234	The version number of the software of the central control unit. <ul style="list-style-type: none"> • MM: Major release no. • mm: Minor release no. • bbbb: build no.
3Ae FW Version	---	e.g. 4.00.1234	The version number of the firmware of the central control unit.

10.6.7 DCN-WAP Enquiry

Use the 3B WAP menu item to open the WAP sub-menu. The menu items in this sub-menu give general data about the wireless access point (refer to table 10.23).



Note

This data must be mentioned in all service requests and failure reports.

table 10.24: DCN-WAP Enquiry sub-menu (* = default)

Menu item	Parameter	Value (read-only)	Description
3BA WAP Serial Number	---	e.g. 1E.0.00001	The hexadecimal serial number of the wireless access point.
3Bb WAP HW Version	---	e.g. 01.00	The version number of the hardware of the wireless access point.
3Bc WAP FPGA Version	---	e.g. 01.00	The version number of the FPGA firmware of the wireless access point.
3Bd WAP SW Version	---	MM.mm.bbbb e.g. 2.20.0055	The version number of the software of the wireless access point. <ul style="list-style-type: none"> • MM: Major release no. • mm: Minor release no. • bbbb: build no.

10.6.8 Setup

Use the 4 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 (refer to table 10.25 and table 10.26).

table 10.25: Setup sub-menu (* = default)

Menu item	Parameter	Value	Description
4A Wireless Mode	---	On* Sleep Off Subscription	Sets the mode of the wireless network (refer to 12.3).
4B Loudspkr	---	---	Gives access to the Loudspkr sub-menu (refer to 10.6.9).
4C Mic. Mode	<u>Mode:</u> Open* Override PTT	<u>NOM:</u> 1, 2*, 3 1, 2*, 3 1, 2*, 3	The microphone mode of the DCN and the maximum number of activated delegate microphones (refer to 12.4).
4D Level	<u>Signal:</u> Input 1 Input 2 Output 1 Output 2	<u>Level:</u> -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.
4E Routing I/O 2	---	<u>Mode:</u> Recorder* Equalized PA Mix-minus Insertion	The audio routing mode of the central control unit (refer to 12.6).
4F Att. Tones	<u>Event:</u> Priority Voting	<u>Chime:</u> Off, 1*, 2, 3 Off*, 1, 2, 3	The attention chimes of the system (refer to 12.7).
4G Mic. Priority	---	Temporarily off* Permanently off	The action taken by the system when the chairman releases the priority button (refer to 12.8).

table 10.26: Setup sub-menu (* = default)

Menu item	Parameter	Value	Description
4H Floor Distr.	---	On*, Off	Enables or disables floor distribution (refer to 12.9).
4I Intercom ...	---	---	Gives access to the Intercom sub-menu (refer to 10.6.10).
4J Wireless	---	---	Gives access to the Wireless sub-menu (refer to 10.6.11). When the wireless access point is not connected, the central control unit shows Not Available.
4K De-Init ...	---	---	Gives access to the De-initialization menu item (refer to 10.6.12).
4L Unit Name	---	<u>Name:</u> CCU* Custom name	The name of the central control unit (max. 16 characters).
4M Defaults ...	---	---	Gives access to the Reset menu item (refer to 10.6.13)

10.6.9 Loudspkr

Use the menu items in the 4B Loudspkr sub-menu to set the levels of the bass and treble output to the loudspeakers of the contribution devices (refer to table 10.27).

table 10.27: Loudspkr sub-menu (* = default)

Menu item	Parameter	Value	Description
4Ba Bass	---	-12 to 12 dB (0 dB*)	The level of the bass output.
4Bb Treble	---	-12 to 12 dB (0 dB*)	The level of the treble output.

10.6.10 Intercom

Use the menu items in the 4I Intercom sub-menu to identify the location of the chairman and the operator (refer to table 10.28 and 12.10).

table 10.28: Intercom sub-menu (* = default)

Menu item	Parameter	Value	Description
4Ia Assign	Operator	No*	Does not identify the location of the operator.
		Yes	Identifies the location of the operator.
4Ib Assign	Chairman	No*	Does not identify the location of the chairman.
		Yes	Identifies the location of the chairman.

10.6.11 Wireless

Use the menu items in the 4J Wireless sub-menu to configure the wireless network of the system (refer to table 10.29).

table 10.29: Wireless sub-menu (* = default)

Menu item	Parameter	Value	Description
4Ja	Auto mic off	Enabled*, Disabled	Enables or disables the auto microphone off function (refer to 12.4.5).
4Jb	System ID	0* to 15	Sets the identifier of the system (refer to 11.6.2).
4Jc	Repetition	0* to 2	Sets the number of repetitions of audio packets (refer to 12.5).
4Jd	WAP	<u>Carrier:</u> 0* to 2	Sets the carrier of the wireless access point (refer to 11.6.3).
		<u>Power:</u> High* Medium Low Off	Sets the power of the wireless access point (refer to 11.6.4).

10.6.12 De-init

Use the 4K De-initialize menu item in the 4K De-Init sub-menu to erase the addresses of the contribution devices and the interpretation devices (refer to table 10.30 and 12.2).

table 10.30: De-init sub-menu (= default)*

Menu item	Parameter	Value	Description
4K	De-initialize	None*	Does not erase the addresses.
		Wired	Erases the addresses of the wired devices in the DCN.
		Wireless	Erases the subscription list of the devices in the wireless network.

10.6.13 Defaults

Use the 4M Defaults sub-menu to set all parameters to the default values in the configuration menu (refer to table 10.31). This includes the values of the parameters of the interpreter desks. These parameters are not changed:

- The subscription list of wireless devices
- The name of the central control unit

table 10.31: Defaults sub-menu (= default)*

Menu item	Parameter	Value	Description
4M	Reset to defaults?	No*	Does not put back the default values.
		Yes	Sets all parameters to the default values.

11 DCN-WAP Wireless Access Point

11.1 Introduction

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.

11.2 Firmware

The version numbers of the software of the wireless access point (refer to 10.6.7) and the central control unit (refer to 10.6.6) must be the same.



Note

Use the Download and License Tool to send new software to the wireless access point.

11.3 Controls, connectors and indicators

The wireless access point contains:

- 1 **Status LEDs** - Give information about the condition of the wireless network and the wireless access point (refer to 11.7).
- 2 **Optical network sockets** - Connect the wireless access point to the optical network (refer to 11.5.1).

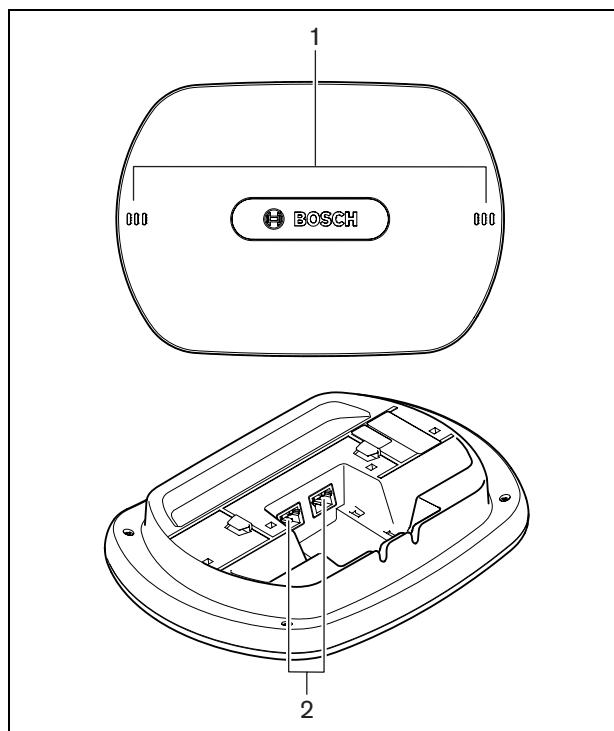


figure 11.1: Top and bottom views

11.4 Installation

11.4.1 General



Caution

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

table 11.1: Physical characteristics

Dimensions (h x w x d):

284.5 x 201.5 x 59 mm

Weight:

- DCN-WAP: 643 g (without bracket)
- Bracket: 264 g

11.4.2 Wall or ceiling

You can use the bracket to attach the wireless access point to a wall or ceiling. Refer to figure 11.2.

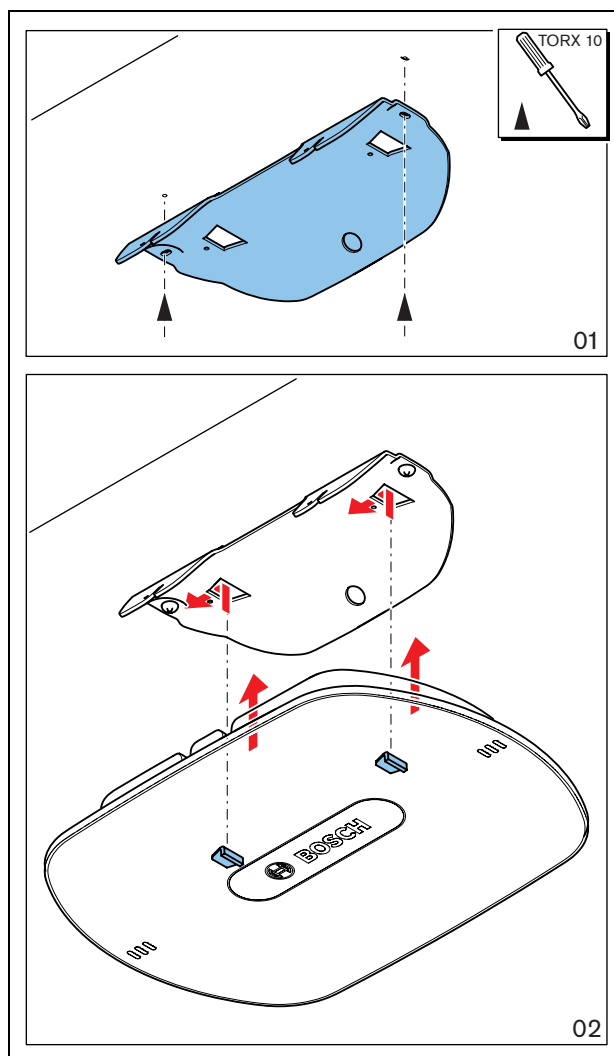


figure 11.2: Installation, wall and ceiling

11.4.3 Tripod

You can use the bracket to install the wireless access point on an LBC1259/00 Universal Floor-stand. Refer to figure 11.3.

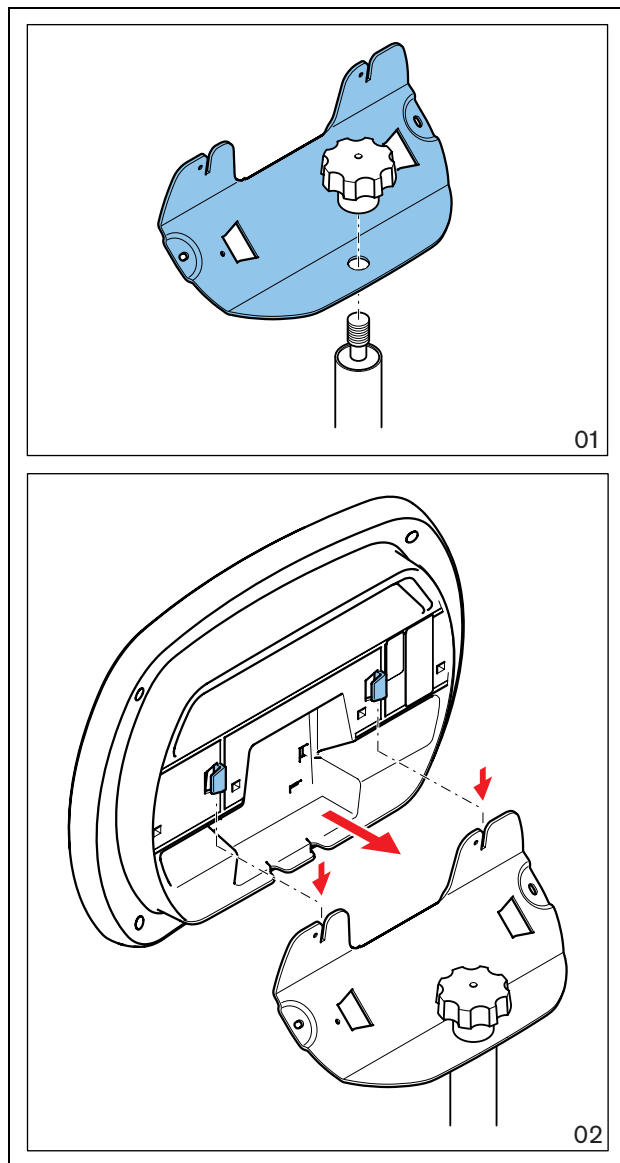


figure 11.3: Installation, LBC1259/00

11.4.4 Logo

You can change the orientation of the logo. Refer to figure 11.4:

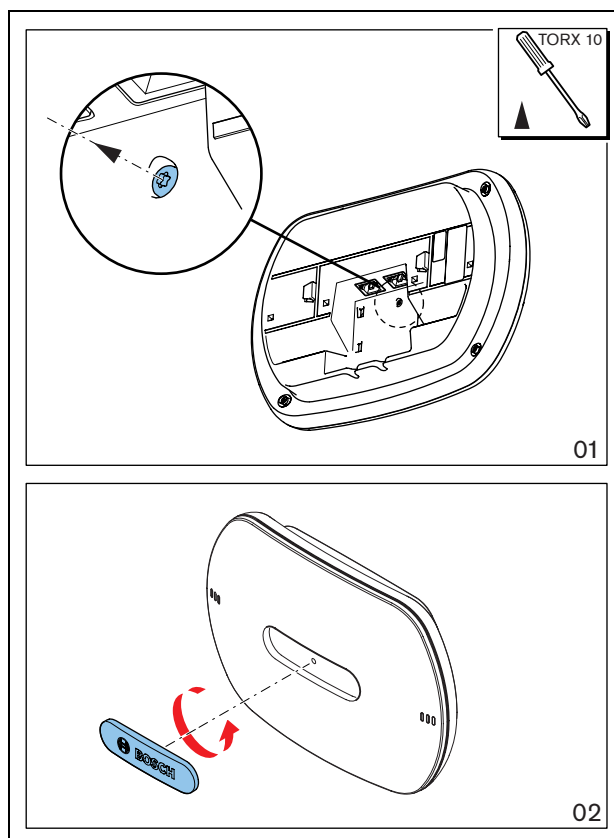


figure 11.4: Installation, logo

11.5 External connections

11.5.1 Optical network

Connect the optical network sockets of the wireless access point to the optical network with optical network cables (refer to figure 11.5).

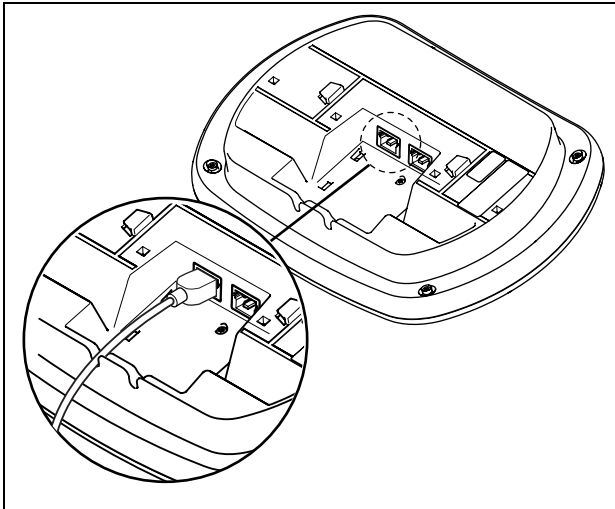


figure 11.5: Optical network

table 11.2: Optical network connections

Number of connections:	2x proprietary sockets
Location:	Bottom side
Nodes:	1
Power consumption	4 W

11.6 Configuration

11.6.1 Introduction

Use the configuration menu of the central control unit to configure the wireless access point.

11.6.2 System ID



Note

Set the correct system identity before you do the installation of the system (refer to section 12.2.2). When you change the system identity after you did the initialization, you must do the initialization again.

Set the system identity with the 4Jb System ID menu item. Adjacent systems must have different system identities (refer to figure 11.6) and different carriers (refer to figure 11.7)

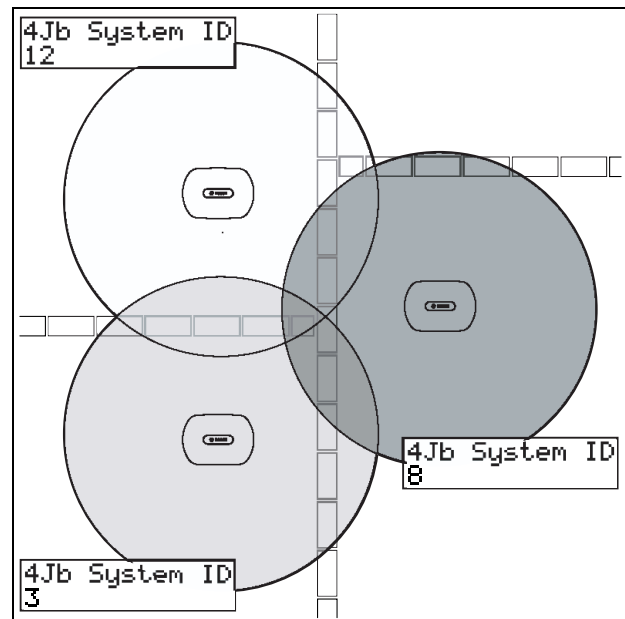


figure 11.6: System IDs for adjacent systems

11.6.3 Carrier

Set the carrier of the wireless access point with the 4Jd WAP menu item. Adjacent systems must have different carriers (refer to figure 11.7) and different system identities (refer to figure 11.6).

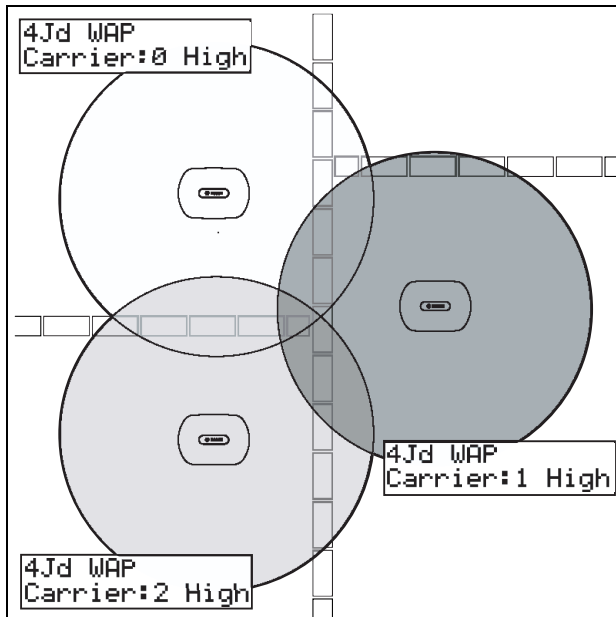


figure 11.7: Carriers for adjacent systems

You can change the carrier after you did the initialization of the system (refer to 12.2.2).



Note

When you change the carrier during a discussion or conference, you can cause a short audio disruption.

11.6.4 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 (refer to table 11.3). Set the power of the wireless access point with the 4Jd WAP menu item.

table 11.3: Power values

Value	Typical Coverage Area (m)
High	30 x 30
Medium	20 x 20
Low	10 x 10
Off	0

You can change the power value after you did the initialization of the system (refer to 12.2.2). When you decrease the power value, some wireless devices can show that they cannot find the wireless network (refer to 14.8.6).

11.7 Operation

The LEDs on the wireless access point give information about the condition of the wireless network and the wireless access point (refer to figure 11.8 and table 11.4).



Note

You can change the condition of the system with the configuration menu of the central control unit (refer to 10.6.11).

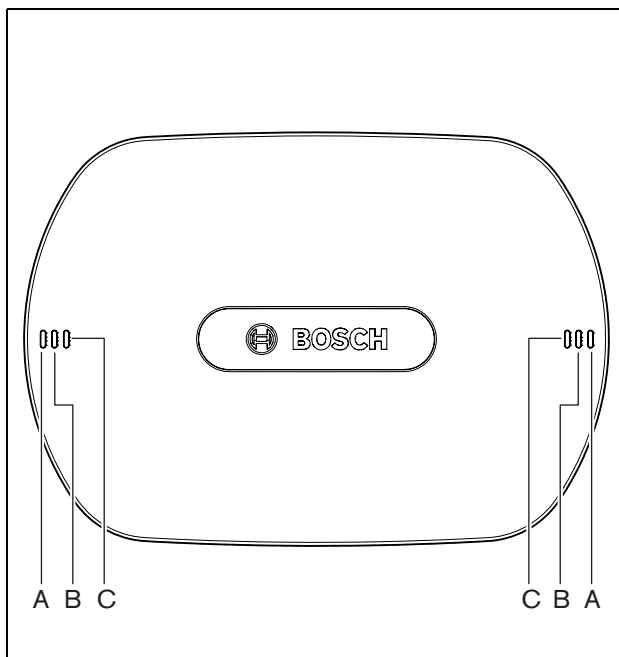


figure 11.8: Status LEDs

table 11.4: Status LEDs

Blue (A)	Red (B)	Blue (C)	Description
Flashing (fast)	Off	Off	The wireless mode is set to On (refer to table 10.25), and no wireless contribution devices are connected to the system.
Flashing (fast)	Off	Flashing (fast)	No wireless contribution devices are connected, and menu item 3B, one of the 3B submenus, or 4Jd of the configuration menu of the central control unit is open. Use these menu items to configure the wireless access point (refer to figure 10.12).
Flashing (fast)	Off	On	The wireless mode is set to Subscription (refer to table 10.25), and no wireless contribution devices are connected to the system.
Flashing (slow)	Off	Flashing (fast)	The wireless mode is set to Sleep (refer to table 10.25), and menu item 3B, one of the 3B submenus, or 4Jd of the configuration menu of the central control unit is open. Use these menu items to configure the wireless access point (refer to figure 10.12).
Flashing (slow)	Off	Off	The wireless mode is set to Sleep (refer to table 10.25).
Off	Flashing (fast)	Off	The system prepares a software transfer to the wireless access point.
Off	Flashing (slow)	Off	The wireless mode is set to Off (refer to table 10.25), or the power value of the wireless access point is set to Off (refer to table 11.3).
Off	Off	Off	The wireless access point is off.
Off	On	Off	The wireless access point lost connection with the optical network.
On	Flashing (fast)	Off	The system sends software to the wireless access point.
On	Off	Flashing (fast)	One or more wireless contribution devices are connected to the system, and menu item 3B, one of the 3B submenus, or 4Jd of the configuration menu of the central control unit is open. Use these menu items to configure the wireless access point (refer to figure 10.12).
On	Off	On	The wireless mode is set to Subscription (refer to table 10.25), and one or more devices are connected to the system.
On	Off	Off	The wireless mode is On (refer to table 10.25), and one or more wireless contribution devices are connected to the system.
On	On	On	The central control unit is not compatible with the wireless access point. The central control unit does not contain the correct software.

Note:

- Flashing (fast) = one second on, one second off.
- Flashing (slow) = one sec on, three seconds off.

12 System configuration

12.1 Introduction

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

12.2 Initialization

12.2.1 Introduction

Each active DCN device in the system must have an address (refer to 2.5.1). The central control unit cannot send data to an active DCN device that does not have an address. During the initialization, the central control unit gives addresses to the active DCN devices.

Each wireless device in the system must have a subscription. The central control unit cannot send data to a wireless device that does not have a subscription. During the initialization, the wireless access point gives subscriptions to the wireless devices.

12.2.2 System

You must do the initialization of the system before you can use the system:



Note

It is not necessary to do an initialization when the system is re-installed in another location and contains the same devices after it is re-installed. Active DCN devices hold their addresses. Wireless devices hold their subscriptions.

- 1 Select the 4K De-initialize menu item of the configuration menu of the central control unit.

```
4K De-Initialize
None
```

- 2 Set the value of the parameter in the menu item to Wired. The addresses of all active devices in the DCN are erased. All LEDs on all active devices in the DCN come on.

```
4K De-Initialize
Wired
```



Note

In the next step, you erase the subscriptions from the wireless devices and the subscription list from the wireless access point.

- 3 Set the value of the parameter in the menu item to Wireless. The LED around the microphone button of the wireless discussion units comes on as yellow for 2 s.

```
4K De-Initialize
Wireless
```

- 4 Select the 4A Wireless Mode menu item of the configuration menu of the central control unit.
- 5 Set the value of the parameter in the menu item to Subscription.

```
4A Wireless mode
Subscription
```

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



Note

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.

- 7 Push the microphone button of each wireless device. When the central control unit gives a subscription to the wireless discussion unit, the LED around the microphone button comes on as green for 2 s.

12.2.3 Extra DCN devices

You can also give addresses to active devices in the DCN after you did the initialization of the system.

- Push the de-init switch of the active DCN device for less than half a second to erase the address of the active device.
- Push and hold the de-init switch of the active DCN device for more than one second to erase the address and do the initialization at the same time.

12.2.4 Extra wireless devices

You can also give subscriptions to wireless device after you did the initialization of the system. Refer to 14.6 for instructions.

12.3 Wireless modes

12.3.1 Introduction

You can set the wireless mode of the system with the 4A Wireless Mode menu item.

12.3.2 On

If the wireless mode is On, the wireless network is activated. The delegates and chairman can use the wireless devices that:

- Have a subscription, and
- Are activated.

12.3.3 Sleep

If the wireless mode is Sleep, the wireless network is in the sleep mode. Use the sleep mode to increase the time between charge of the batteries (for example, during a long break in a discussion or conference).



Note

The wireless devices are not deactivated in the sleep mode.

12.3.4 Off

If you set the wireless mode to Off, the wireless network is deactivated. All wireless devices with a subscription are automatically deactivated.

12.3.5 Subscription mode

If the wireless mode is Subscription, the wireless network is in the subscription mode. Use the subscription mode to give subscription to extra wireless devices (refer to 12.2.4).



Note

The central control unit automatically goes back to the previous wireless mode 15 minutes after the last wireless device got a subscription.

12.4 Microphone modes

12.4.1 Introduction

Select the microphone mode with the 4C Mic. Mode menu item (refer also to 10.6.8). You must also set the maximum number of activated delegate microphones.

**Note**

The system has 4 audio channels. The delegates can use three channels, the chairmen can use one channel. When more than one chairman devices are installed in the system, the next chairman that activates his or her microphone automatically deactivates the microphone of the previous chairman.

12.4.2 Open

In the Open mode, delegates can activate their microphones with the microphone button on their contribution devices. When the maximum number of delegates speak, the next delegate that activates his or her microphone makes a request-to-speak. The microphone is not activated until another delegate deactivates his or her microphone.

**Note**

Microphones of chairman devices can always be activated in the Open mode.

12.4.3 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.

**Note**

Microphones of chairman units can always be activated in the Override mode.

12.4.4 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.

**Note**

Microphones of chairman units can always be activated in the PTT mode.

12.4.5 Auto mic off

Enable or disable the auto microphone off function with the 4Ja Auto mic off menu item. When the auto microphone off function is enabled, the microphones of the wireless devices are automatically deactivated when they are not used for 30 seconds.

12.5 Repetition rate

When other wireless networks cause interference, the audio quality can decrease. In some cases, you can increase the repetition rate of the audio packets to improve the audio quality. You can change the repetition rate of the audio packets with the 4Jc Repetition menu item.



Note

When you increase the repetition rate, the audio delay is increased.

12.6 Audio routing modes

12.6.1 Introduction

You can set the audio routing mode of the system with the 4E Routing I/O 2 menu item. The functions of audio input 1 and audio output 1 of the central control unit are the same in each audio routing mode. The signal on audio input 1 is always added to the floor signal. The signal on audio output 1 is always suitable to connect the system to an external public address system (for example, Praesideo).

12.6.2 Recorder

In the Recorder mode, audio output 2 of the central control unit transmits a signal that you can connect to an external audio recorder (refer to figure 12.1). The central control unit has no effect on the volume level of the signal.

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

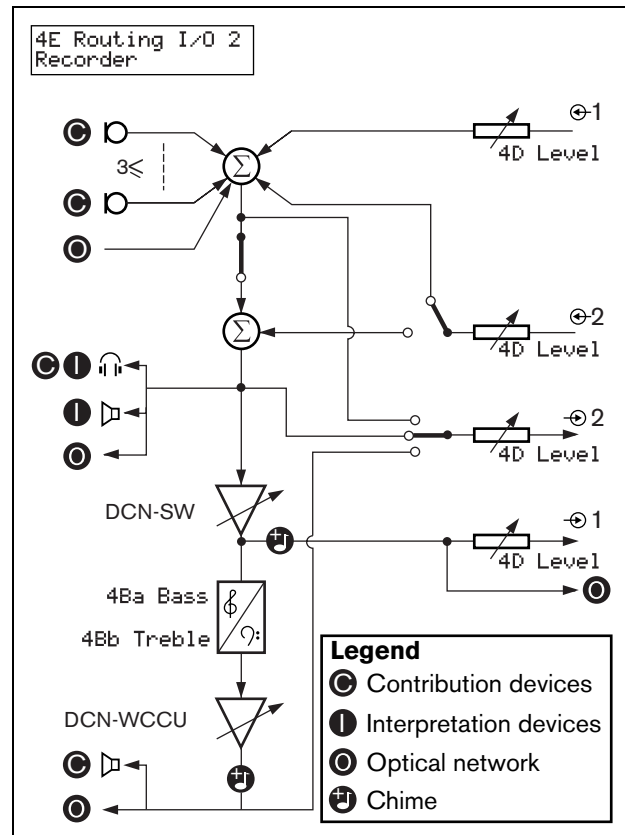


figure 12.1: Recorder

12.6.3 Equalized PA

In the Equalized PA mode, audio output 2 of the central control unit transmits a signal that you can connect to an external public address system (refer to figure 12.2). The central control unit sets:

- The volume level of the signal
- The levels of the bass of the signal
- The level of the treble signal

In the Equalized PA mode, the signal on audio input 2 of the central control unit is added to the floor signal.

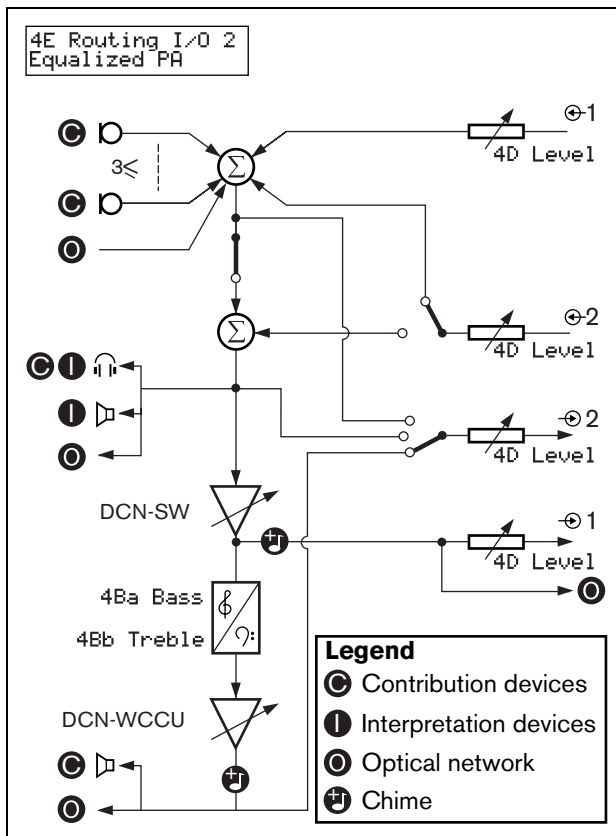


figure 12.2: Equalized PA

12.6.4 Insertion

In the Insertion mode, audio output 2 and audio input 2 of the central control unit are used to add signals from external audio devices (refer to figure 12.3). For example, you can connect an external audio mixer between audio output 2 and audio input 2 of the central control unit.

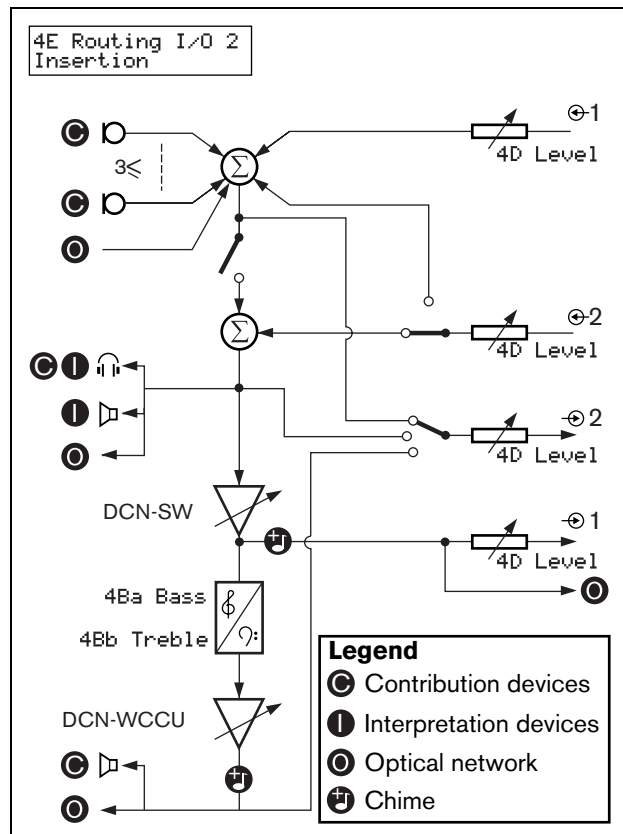


figure 12.3: Insertion

In the Insertion mode, you must install a device between audio output 2 and audio input 2 of the central control unit. When you do not install a device, the audio signals from contribution devices (floor) leave the system, but do not enter the system again.

12.6.5 Mix-minus

In the Mix-minus mode, audio output 2 and audio input 2 of the central control unit are used to connect 2 systems (refer to figure 12.4). Use the Mix-minus mode to connect the audio of two systems. The Mix-minus connection does not cause acoustic feedback.

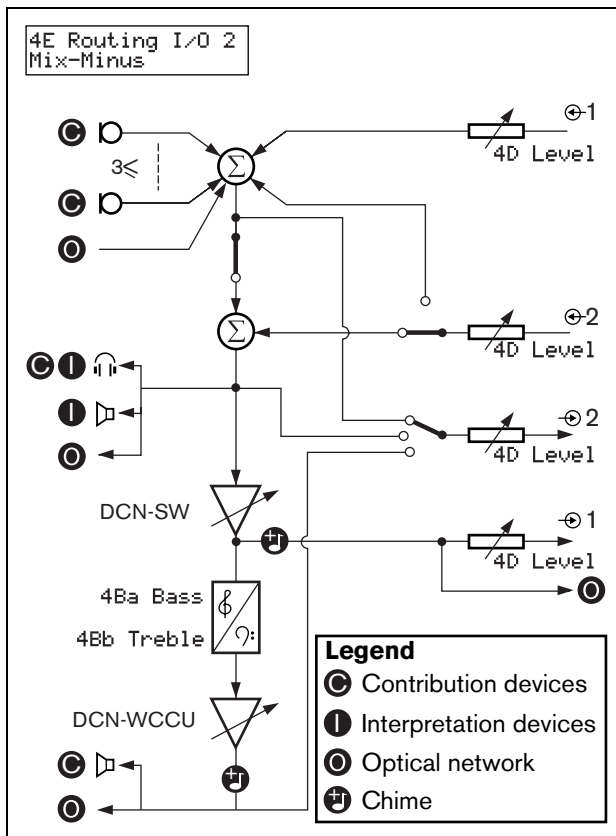


figure 12.4: Mix-minus

When you connect two systems:

- Go to menu item 4E Routing I/O 2 to set the systems in the Mix minus mode.
- Connect audio input 2 of the first system to audio output 2 of the second system.
- Connect audio output 2 of the first system to audio input 2 of the second system.



Note

When the distance between the two systems is great, you can use a telephone coupler to connect the two systems.

12.7 Attention chimes

The central control unit can play an attention chime when the chairman:

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

You can enable or disable attention chimes with the 4F Att. Tones menu item (refer also to 10.6.8). There are 3 different attention chimes available.

12.8 Erase requests-to-speak and speakers

The central control unit can erase the requests-to-speak and speakers when the chairman pushes the priority button on the chairman device. You can enable or disable this function with the 4G Mic. Priority menu item (refer to 10.6.8).

- If you set the menu item to 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.
- If you set the menu item to 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.

12.9 Floor distribution

The central control unit can send the floor signal to all empty channels in the system. You can enable or disable this function with the 4H Floor Distr. menu item (refer to 10.6.8).

- If you set the menu item to Off, the central control unit does not send the floor signal to all empty signals in the system.
- If you set the menu item to On, the central control unit sends the floor signal to all empty channels in the system.

12.10 Intercom



Note

You can make an intercom device with the DCN-DDI Dual Delegate Unit (refer to chapter 19).

12.10.1 Introduction

To enable the intercom you must first identify the locations of the operator and the chairman.

12.10.2 Location of the operator

To identify the location of the operator:

- 1 Select the 4Ia Assign menu item of the configuration menu of the central control unit.

```
4Ia Assign
Operator? No
```

- 2 Set the value of the parameter in the menu item to Yes. The display of the central control unit shows:

```
To Assign
Lift Handset
```

- 3 Lift the receiver of the intercom handset of the operator to identify the location of the operator. When the central control unit identifies the location, the display of the central control unit shows:

```
Operator
Assigned
```

12.10.3 Location of the chairman

To identify the location of the chairman:

- 1 Go to the 4Ib Assign menu item of the configuration menu of the central control unit.

```
4D Level
Output 2 -18dB
```

- 2 Set the value of the parameter in the menu item to Yes. The display of the central control unit shows:

```
To Assign
Lift Handset
```

- 3 Lift the receiver of the intercom handset of the chairman to identify the location of the chairman. When the central control unit identifies the location, the display of the central control unit shows:

```
Chairman
Assigned
```

13 System operation

13.1 Start the system

Do as follows:

- 1 Push the on/off switch of the central control unit.
The display comes on. All devices in the DCN and the optical network are activated.
- 2 Install the battery packs in the wireless discussion units.
- 3 Push the microphone buttons of the wireless discussion units to activate the wireless discussion units.

If the LED around the microphone button of a wireless discussion unit comes on as green for 2 seconds:

- The wireless discussion unit is activated.

If the LED around the microphone button of a wireless discussion unit flashes as red and yellow for 5 seconds:

- The wireless discussion unit cannot find the wireless network.
- The wireless discussion unit is deactivated.

13.2 Stop the system

Do as follows:

- 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.

**Note**

If necessary, charge the battery packs.

Section 3 - Contribution Devices

14 DCN-WDU Wireless Discussion Units

14.1 Introduction

With the wireless discussion units, the delegates and chairmen can make contributions to a discussion. The chairmen can also use their wireless discussion units to monitor and control a discussion.

14.2 Controls, connectors and indicators

14.2.1 Top

The top of the wireless discussion units (refer to figure 14.1) contains:

- 1 **Microphone socket** - Connects a DCN-MICL or DCN-MICS Pluggable Microphone to the wireless discussion unit (refer to chapter 15).
- 2 **Loudspeaker** - Gives the audio signal from the floor to the delegate or the chairman. When the microphone is activated, the signal of the loudspeaker is muted.
- 3 **Volume buttons** - Change the volume level of the signal that is sent to the headphones.
- 4 **Microphone buttons** - Activate or deactivate the microphone. Each microphone button has a LED that shows the condition of the microphone. The mode of the wireless discussion unit (refer to section 14.8.4) gives the type and number of microphone buttons that you must install in the wireless discussion unit.
- 5 **Voting buttons** - Operate the wireless discussion unit. Each voting button has a yellow LED.

14.2.2 Left and right sides

The left and right sides of the wireless discussion units (refer to figure 14.2) contain:

- 6 **Headphones socket** - Connect headphones to the wireless discussion unit (refer to section 14.7.1).

14.2.3 Bottom side

The bottom side of the wireless discussion units (refer to figure 14.3 and figure 14.4) contains:

- 7 **Battery pack container** - Contains the DCN-WLION Battery Pack (refer to chapter 16).
- 8 **Configuration switches** - Configure the wireless discussion unit (refer to section 14.3) and set the mode of the wireless discussion unit (refer to section 14.4).
- 9 **De-init switch** - Erases the subscription from the wireless discussion unit (refer to section 12.2).
- 10 **Power supply socket** - Connects a DCN-WPS Power Supply Adapter to the wireless discussion unit.

14.2.4 Rear side

The rear side of the wireless discussion units (refer to figure 14.5) contains:

- 11 **Status LEDs** - Give information about the condition of the wireless discussion unit (refer to section 14.8).

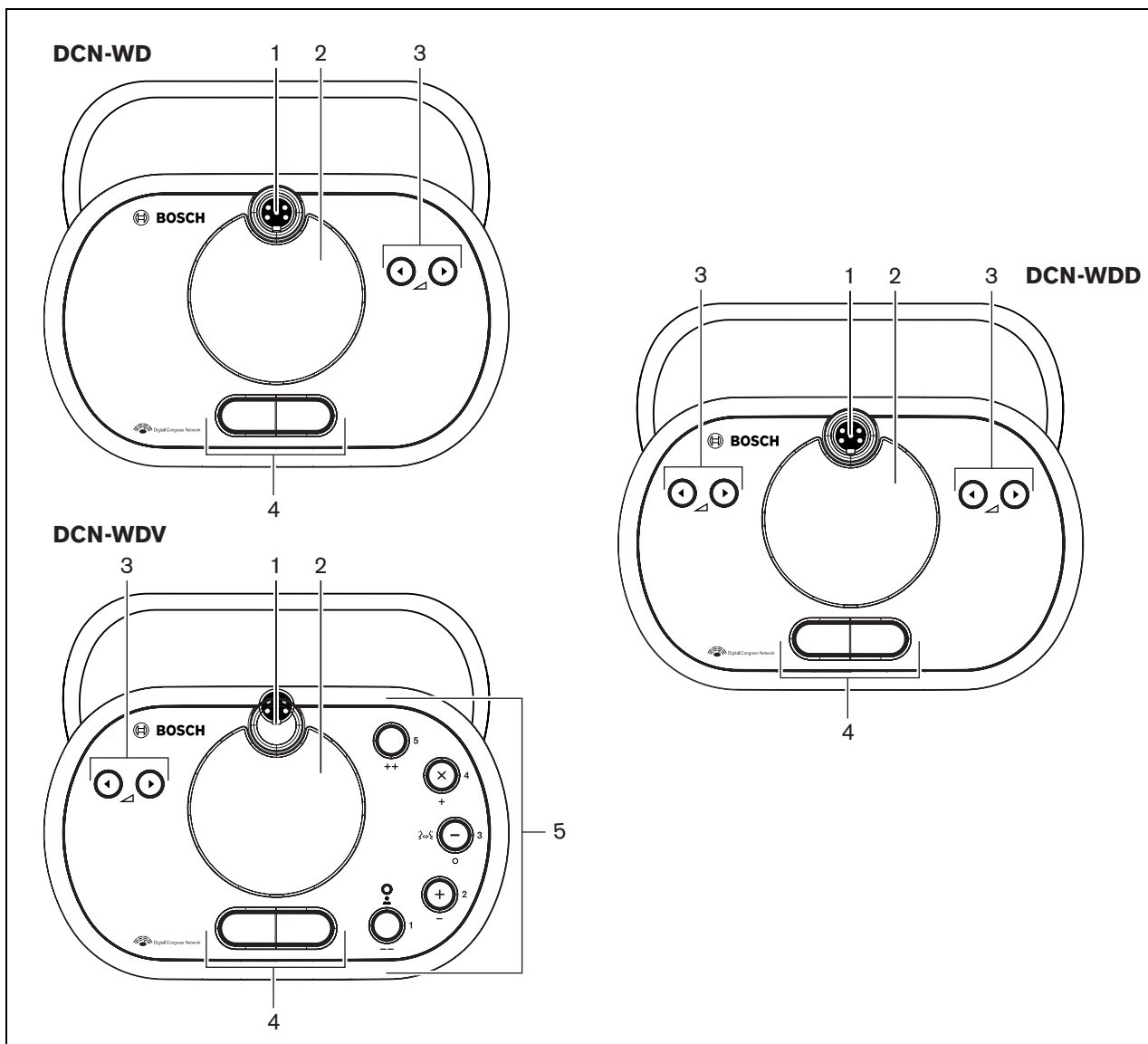


figure 14.1: Top views

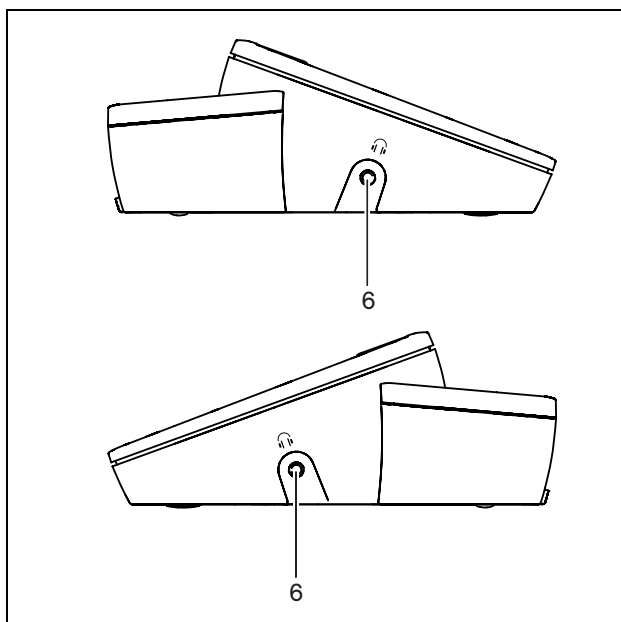


figure 14.2: Side views

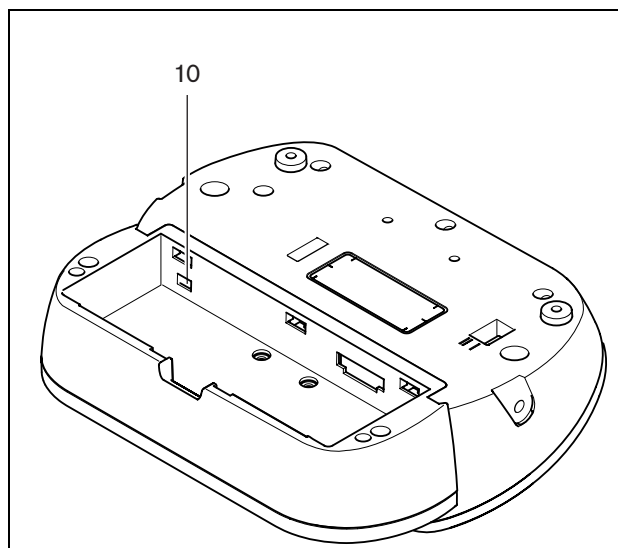


figure 14.4: Bottom view (2)

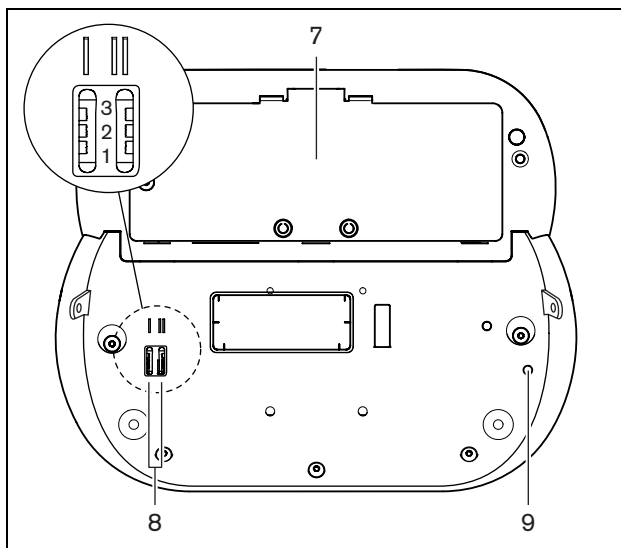


figure 14.3: Bottom view (1)

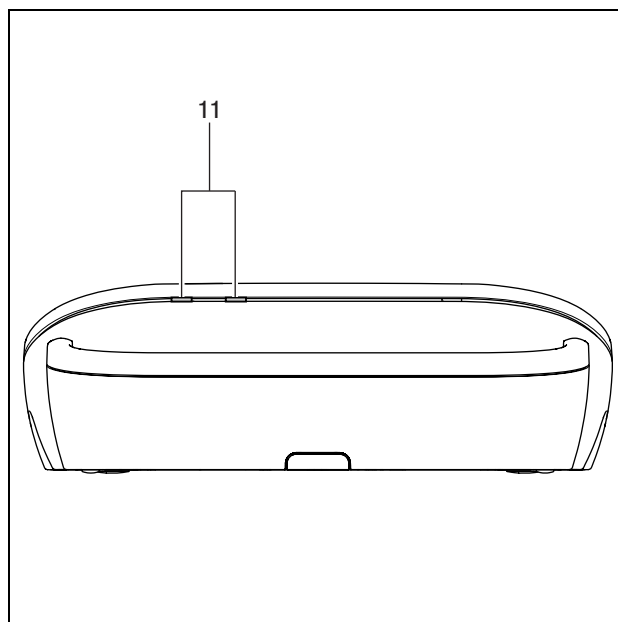


figure 14.5: Rear view

14.3 Internal settings

14.3.1 Introduction

With the configuration switches on the bottom of the wireless discussion unit (refer to figure 14.3, no. 8), you can configure the wireless discussion unit.



Note

The internal settings apply to the wireless discussion unit. When the wireless discussion unit is in the dual delegate mode (refer to section 14.4.5), the internal settings are the same for the two delegates.

table 14.1: Internal settings

I	II	Internal setting
2	1	Microphone sensitivity (refer to section 14.3.2). Default: 0 dB.
2	2	Volume restore function (refer to section 14.3.3). Default: disabled.
2	3	Headphones level reduction (refer to section 14.3.4). Default: disabled.



Note

The central control unit does not keep the internal settings of the wireless discussion units. After you set the mode (refer to section 14.4), the wireless discussion unit keeps the internal settings.

14.3.2 Microphone sensitivity

When the configuration switches are in the correct position (refer to table 14.1), you can adjust the microphone sensitivity of the wireless discussion unit between -2 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.



Note

When the wireless 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.

The LED around the microphone button shows the sensitivity (refer to table 14.2).

table 14.2: Microphone sensitivity

Microphone button LED	Sensitivity
Red	-2 dB
Off	-1.5 dB
Red/Yellow	-1 dB
Off	-0.5 dB
Yellow	0 dB
Green/Yellow	1 dB
Off	1.5 dB
Green	2 dB

14.3.3 Volume restore function

When the configuration switches are in the correct position (refer to table 14.1), you can enable or disable the volume restore function of the headphones connection of the wireless discussion unit.

- To enable the volume restore function of the headphones, push the > volume button. (The LED around the microphone buttons come on as green.) When the wireless discussion unit is enabled, it automatically sets the last known volume.
- To disable the volume restore function of the headphones, push the < volume button. (The LED around the left microphone button comes on as red.) When the wireless discussion unit is enabled, it automatically sets the volume to -18 dB.



Note

When the wireless discussion unit has two sets of volume buttons, configure the volume restore function with the right set of volume buttons. The volume restore function cannot be configured with the left set of volume buttons.

For example, you can enable this function in discussions in which the delegates and chairmen always use the same wireless discussion unit.

14.3.4 Headphones level reduction

When the configuration switches are in the correct position (refer to table 14.1), you can enable or disable the headphones level reduction of the wireless 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.



Note

When the wireless discussion unit is in the dual delegate mode (refer to section 14.4.5) 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.



Note

When the wireless discussion unit has two sets of volume buttons, configure the headphones level reduction with the right set of volume buttons. The headphones level reduction function 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 wireless discussion unit.

14.4 Modes

14.4.1 Overview

With the configuration switches on the bottom of the wireless discussion unit (refer to figure 14.3, no. 8), you can configure the mode of the wireless discussion unit. Each type of wireless discussion unit can operate in a number of modes (refer to table 14.3).

table 14.3: Modes

I	II	Mode
1	1	Single delegate (refer to section 14.4.3)
1	3	Chairman (refer to section 14.4.4)
3	1	Dual delegate (refer to section 14.4.5)
3	3	Single delegate with auxiliary control (refer to section 14.4.6)

14.4.2 Procedure

- 1 Remove the battery pack from the wireless discussion unit.



Note

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 wireless discussion unit (refer to table 14.3).
- 3 Re-install the battery pack in the wireless discussion unit (refer to section 14.5.3).

14.4.3 Single delegate

When the wireless discussion unit is in the single delegate mode, it is a delegate device for 1 delegate. You can put all types of wireless discussion units in the single delegate mode. When you put the wireless discussion unit in the single delegate mode, you must also install the default microphone button (refer to figure 14.6 and section 14.5.2).

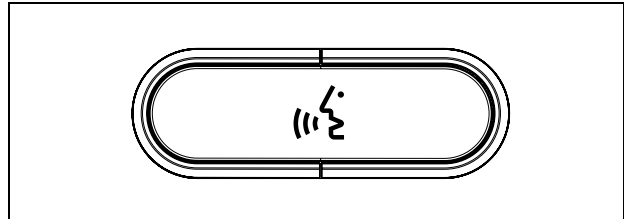


figure 14.6: Default microphone button



Note

All wireless discussion units are delivered with the default microphone button.

14.4.4 Chairman

When the wireless discussion unit is in the chairman mode, it is a chairman device for 1 chairman. You can put all types of wireless discussion units in the chairman mode. When you put the wireless discussion unit in the chairman mode, you must also install the DCN-DISBCM Buttons (refer to figure 14.7 and section 14.5.2).

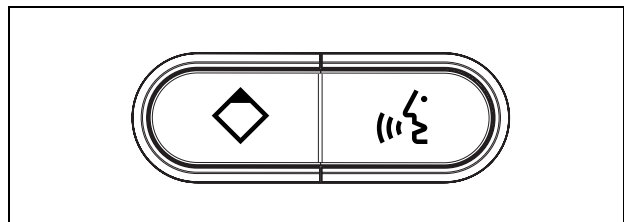


figure 14.7: DCN-DISBCM Buttons

The only difference between a delegate wireless discussion unit and a chairman wireless discussion unit is the priority button on the left of the microphone button. With the priority button, the chairman can deactivate the microphones of all delegate devices. At the same time, the priority button activates the microphone of the chairman. The system has the possibility to:

- Play an attention chime when the chairman pushes the priority button (refer to section 12.7).
- Erase the requests-to-speak and the speakers when the chairman pushes the priority button (refer to section 12.8).



Note

The DCN-DISBCM Buttons come with a tool that you can use to remove the old buttons from the wireless discussion unit (refer to figure 14.9).

14.4.5 Dual delegate

When the wireless discussion unit is in the dual delegate mode, it is a delegate device for 2 delegates. The system sees the wireless discussion unit as two separate devices, but it gives only one address to the wireless discussion unit. You can only put the DCN-WDD in the dual delegate mode.

When you put the wireless discussion unit in the dual delegate mode, you must also install the DCN-DISBDD Buttons (refer to figure 14.8 and section 14.5.2).

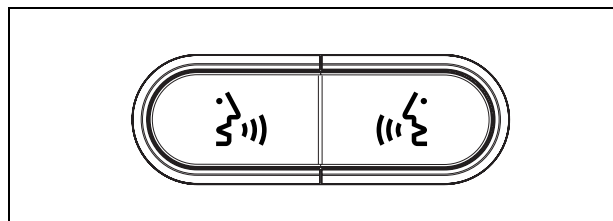


figure 14.8: DCN-DISBDD Buttons



Note

The DCN-DISBDD Buttons come with a tool that you can use to remove the old buttons from the wireless discussion unit (refer to figure 14.9).

14.4.6 Single delegate with auxiliary control

When the wireless 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.



Note

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 wireless discussion units in the single delegate with auxiliary control mode:

- DCN-WDD
- DCN-WDV

When you put the wireless discussion unit in the single delegate with auxiliary control mode, you must also install two microphone buttons (refer to section 14.5.2). For example, you can use the DCN-DISBCM Buttons (refer to figure 14.7).

14.5 Installation

14.5.1 General



Caution

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

table 14.4: Physical characteristics

Dimensions (h x w x d):

61 x 190 x 160 mm

Weight:

- DCN-WD: 0.485 g
- DCN-WDD: 0.500 kg
- DCN-WDV: 0.505 kg

14.5.2 Microphone buttons



Note

Before you install the microphone buttons, make sure that the wireless discussion unit operates correctly. Defective wireless discussion units are always replaced with a wireless discussion unit that contains the default microphone button (refer to figure 14.6).

The mode of the wireless discussion unit (refer to section 14.4) gives the type and number of microphone buttons that you must install in the wireless discussion unit.

Refer to figure 14.9 for instructions that tell you how to remove microphone buttons from a wireless discussion unit.

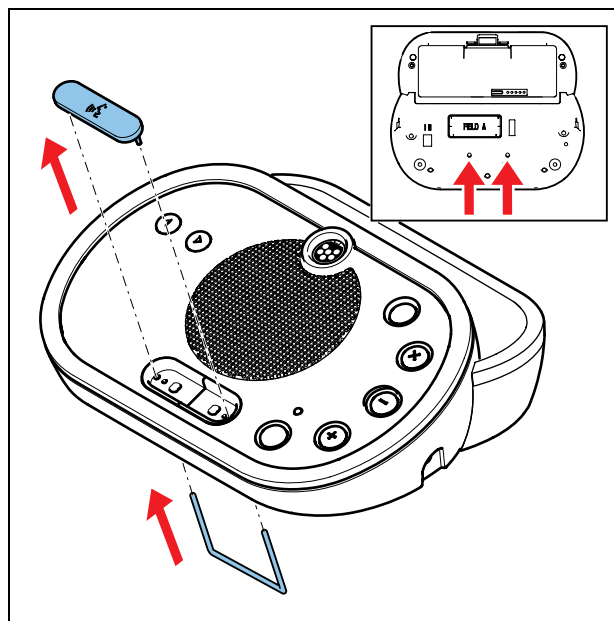


figure 14.9: Remove microphone buttons

Refer to figure 14.10 for instructions that tell you how to install microphone buttons in a wireless discussion unit.

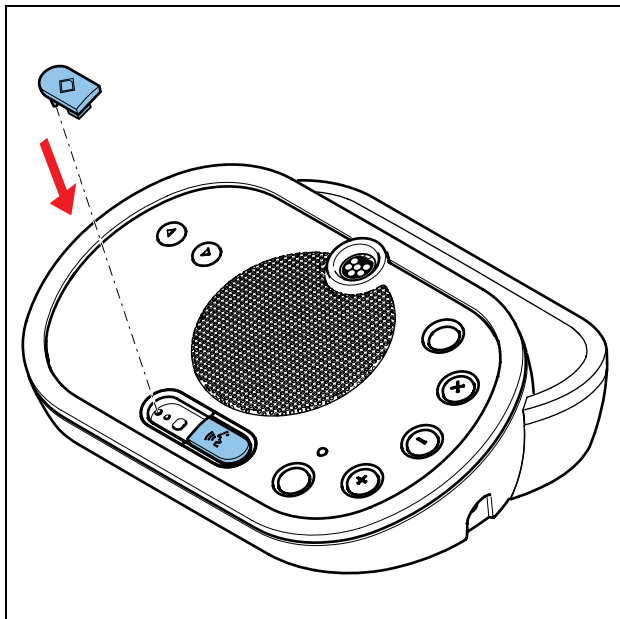


figure 14.10: Install microphone buttons

14.5.3 Battery

Refer to figure 14.11 for instructions that tell you how to install a DCN-WLION Battery Pack in the wireless discussion unit.

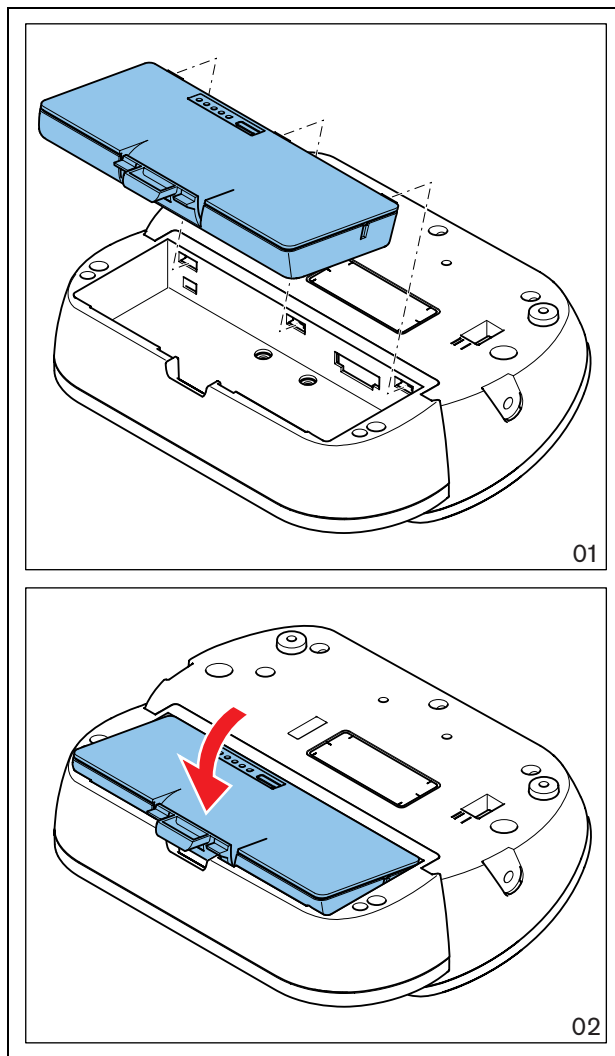


figure 14.11: Install a battery pack

14.5.4 Rims



Note

Before you install the rim, make sure that the wireless discussion units operates correctly. Defective wireless discussion units are always replaced with a wireless discussion unit without a rim.

The wireless discussion units are delivered without rims. With the rims, you can change the look of the wireless discussion unit.

Refer to figure 14.12 for instructions that tell you how to attach a rim to a wireless discussion unit.



Caution

Do not remove the rim from a wireless discussion unit. Only qualified personnel can remove rims from wireless discussion units.

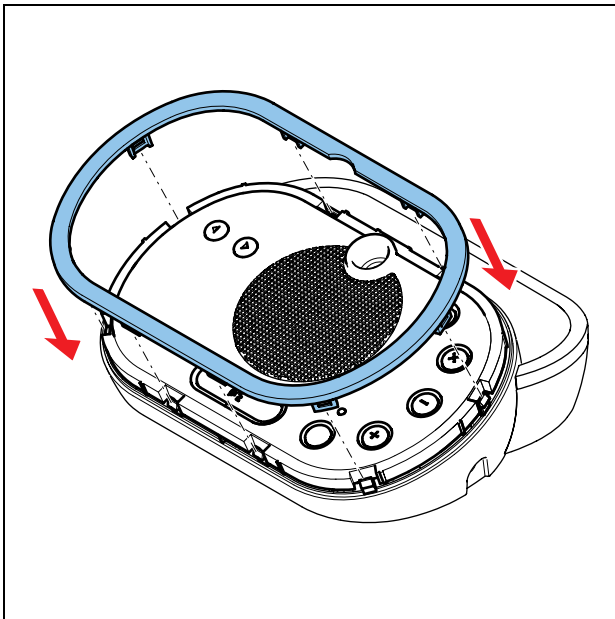


figure 14.12: Attach a rim

14.6 Subscription

14.6.1 Introduction

Each wireless discussion unit in the system must have a subscription. The central control unit cannot send data to a wireless discussion unit that does not have a subscription.



Note

Refer to section 12.2 when the central control unit must give subscriptions to all wireless network devices.

14.6.2 Procedure

The procedure below is applicable for wireless discussion devices without a subscription. When the wireless discussion unit has a subscription, first erase the subscription (refer to section 14.6.3).

Do as follows:

- 1 Set the wireless mode of the system to Subscription.
- 2 Push the microphone button of the wireless discussion unit. All LEDs of the wireless discussion unit come on for 2 seconds.

If the LED around the microphone button of the wireless discussion unit comes on as green for 2 seconds:

- The wireless discussion unit has a subscription.
- The wireless discussion unit is activated.

If the LED around the microphone button of the wireless discussion unit flashes as red and yellow for 5 seconds:

- The wireless discussion unit cannot find a wireless network.
- The wireless discussion unit is deactivated.

If the LED around the microphone button of the wireless discussion unit flashes as red and green for 5 seconds:

- The wireless discussion unit cannot find a wireless network that is in the Subscription mode.
- The wireless discussion unit is deactivated.

14.6.3 Erase the subscription

Do as follows:

- Push-and-hold the de-init button of the wireless discussion unit (refer to figure 14.3, no. 9), and
- Push the microphone button of the wireless discussion unit. The LED around the microphone button comes on as yellow for 2 seconds.



Note

Do not push the de-init button with a sharp object.

14.7 External connections

14.7.1 Headphones

You can connect headphones to the headphones socket of the wireless discussion unit, the headphones must have a 3.5 mm plug (refer to figure 14.13).

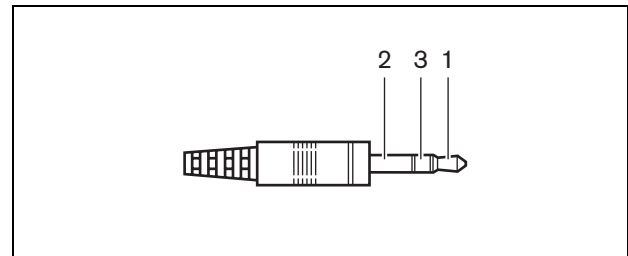


figure 14.13: 3.5 mm headphones plug, connection

table 14.5: 3.5 mm headphones plug, connection

Number	Signal
1	Left
2	Common
3	Right



Note

You can connect mono headphones to the wireless discussion unit.

table 14.6: Headphones sockets, details

Number of connections:
2x 3.5 mm socket
Location:
Right and left sides

14.7.2 External power supply

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 (refer to figure 14.14).

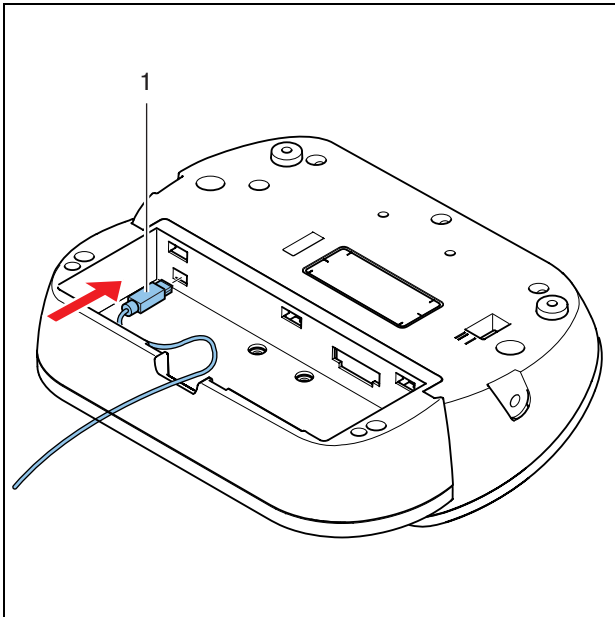


figure 14.14: Power supply socket, connection

table 14.7: Power supply socket, details

Number of connections:
1
Location:
In battery pack container

14.8 Operation

14.8.1 Activation

Push the microphone button to activate the wireless discussion unit. The green LED around the microphone button comes on as green for 2 seconds.

14.8.2 Deactivation

Push-and-hold the volume buttons for 2 seconds.

14.8.3 Quick reference card



Note

Refer to the Quick Reference Card of the wireless discussion unit for instructions that tell you how to operate the wireless discussion unit.

14.8.4 Microphone

The colors of the LEDs of the microphone buttons show the condition of the microphone that is connected to the wireless discussion unit (refer to table 15.5).

table 14.8: Condition

Color	Condition
Red (on)	Microphone active
Red (flash)	Last minute of speech time
Green (on)	Request-to-speak
Green (flash)	First request

14.8.5 Attendance LED

table 14.9: Attendance LED

Attendance LED	Condition
Yellow (flashing)	The system requests attendance registration.
Yellow (on)	The attendance registration is confirmed.

14.8.6 Status LEDs

The status LEDs (refer to figure 14.5, no. 11) 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 is empty within 1 hour.

15 DCN-MICL, DCN-MICS Pluggable Microphones

15.1 Introduction

The DCN-MICL and DCN-MICS Pluggable Microphones (refer to table 15.1 and table 15.2) are used with the contribution and interpretation devices (refer to table 15.3).

table 15.1: Types and lengths

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

table 15.2: Electrical and acoustic properties

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)
Power consumption:	0.25 W

table 15.3: Compatible devices

Type	Description
DCN-WD	Wireless Discussion Unit
DCN-WDD	Wireless Discussion Unit
DCN-WDV	Wireless Discussion Unit
DCN-IDESK	Interpreter Desk
DCN-FMIC	Microphone control panel

15.2 Controls, connectors and indicators

The pluggable microphone (refer to figure 15.1) contains:

- 1 **Indicator ring** - Shows the condition of the microphone (refer to section 15.4).
- 2 **Union nut** - Attaches the pluggable microphone to the device.
- 3 **Microphone plug** - Connects the microphone to devices (refer to section 15.3).

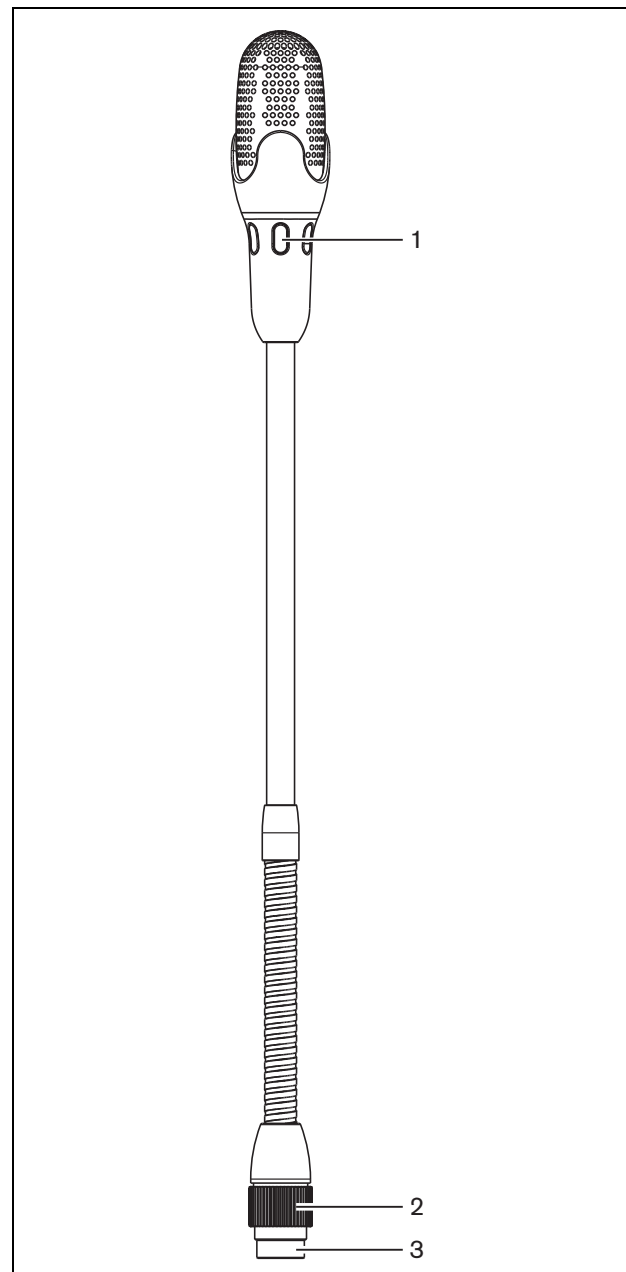


figure 15.1: Overview

15.3 External connections

Connect the pluggable microphone to compatible devices with the microphone plug (refer to figure 15.2).

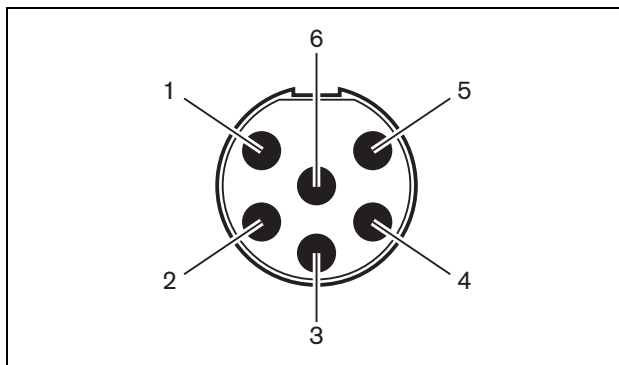


figure 15.2: Microphone plug, connection

table 15.4: 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)

15.4 Operation

The color of the indicator ring shows the condition of the microphone (refer to table 15.5).

table 15.5: Condition

Color	Condition
Red (on)	Microphone active
Red (flash)	Last minute of speech time
Green (on)	Request-to-speak
Green (flash)	First request



Note

When the microphone is connected to a DCN-IDESK, it can only show that the microphone is activated.

16 DCN-WLIION Battery Pack

16.1 Introduction

The DCN-WLIION Battery pack is used with the wireless devices (refer to table 16.4).

table 16.1: Battery capacity

Output voltage:	7.2 V(DC)
Capacity:	4600 mAh
Life time:	500 charge-discharge cycles
Charge time:	3 hours



Caution

Use the DCN-WCH05 Battery Charger to charge DCN-WLION Battery Packs.

table 16.2: Compatible devices

Type	Description
DCN-WD	Wireless Discussion Unit
DCN-WDD	Wireless Discussion Unit
DCN-WDV	Wireless Discussion Unit

16.2 Safety

DCN-WLIION-D Rechargeable Lithium-ion Battery Pack

CAUTION Important Safety Instructions for Li-ion batteries.
 Do not short-circuit the battery.
 Do not pierce or crush the battery.
 Do not disassemble or modify the battery.
 Do not heat, incinerate or expose the battery to direct continuous sunshine.
 Do not immerse the battery in any liquid it may be vent or rupture.
 Respect charging, discharging, transport and storage instructions.
 Charge the battery between 0 °C and 45 °C.
 Discharge the battery between -20 °C and 60 °C.

BOSCH

Rated : 7.2V u 4800 mAh
 Charging Current : 12V/2.5A

Li-ion

LISTED US ITE ACCESSORY 19JW
 NL-4827HG-10
 S/N: SMY1W9999

figure 16.1: Safety instructions

16.3 Controls, connectors and indicators

The battery pack (refer to section figure 16.2) contains:

- 1 **Capacity LEDs** - Show the capacity of the battery pack (refer to section 16.5).
- 2 **Clip** - Locks the battery pack in, for example, a wireless discussion unit.

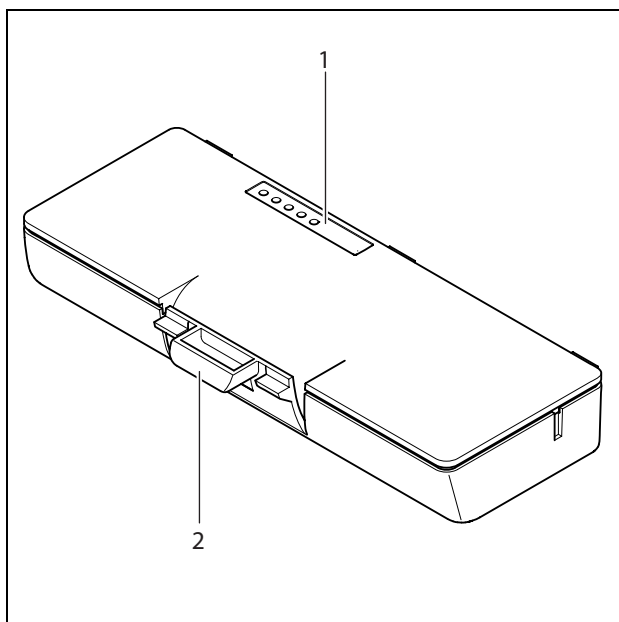


figure 16.2: Overview

16.4 Installation

Install the charged battery pack in a compatible device (refer to table 16.2).

table 16.3: Physical characteristics

Dimensions (h x w x d):

136 x 22 x 61.5 mm

Weight:

215 g

16.5 Operation

The higher the capacity, the higher the number of capacity LEDs that come on (refer to table 16.4).



Note

The battery capacity in table 16.4 is plus or minus 20%.

table 16.4: Capacity LEDs

No. LEDs on	Battery capacity (hours)
5	18 - 20
4	13 - 18
3	8 - 13
2	3 - 8
1	< 3

17 DCN-WCH05 Battery Charger

17.1 Introduction

The DCN-WCH05 Battery Charger charges the DCN-WLIION Battery Packs. The battery charger can charge a maximum of 5 battery packs at the same time.

17.2 Controls, connectors and indicators

17.2.1 Front view

The front of the battery charger (refer to figure 17.1) contains:

- 1 **Ventilation grilles** - Make sure that the temperature of the battery charger does not become too high.
- 2 **Battery pack containers** - Hold the DCN-WLIION Battery Packs.
- 3 **Charge level LEDs** - Show the charge level of the battery pack (refer to section 17.5).
- 4 **Power on/off LED** - Comes on when the power cable is connected to the mains power supply.

17.2.2 Rear view

The rear of the battery charger (refer to figure 17.1) contains:

- 5 **Power inlet** - Connects the battery charger to the mains power supply with a power cable (refer to section 17.4.1).
- 6 **Loop-through socket** - Connects the battery charger to another battery charger with a power cable (refer to section 17.4.2).

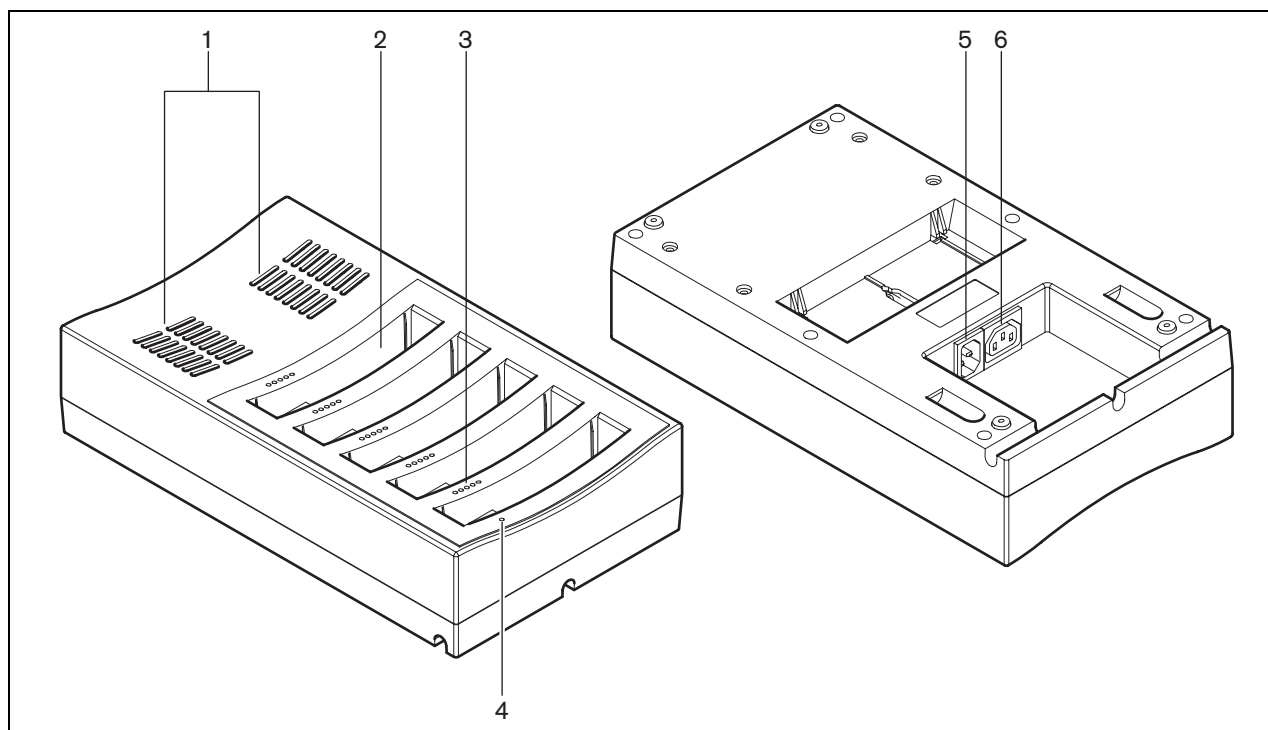


figure 17.1: Overview

17.3 Installation

17.3.1 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.

table 17.1: Physical characteristics

Dimensions (h x w x d):

340 x 195 x 82 mm

Weight:

1.4 kg

17.3.2 Wall

You can use the bracket to attach the battery charger to a wall. Refer to figure 17.2.

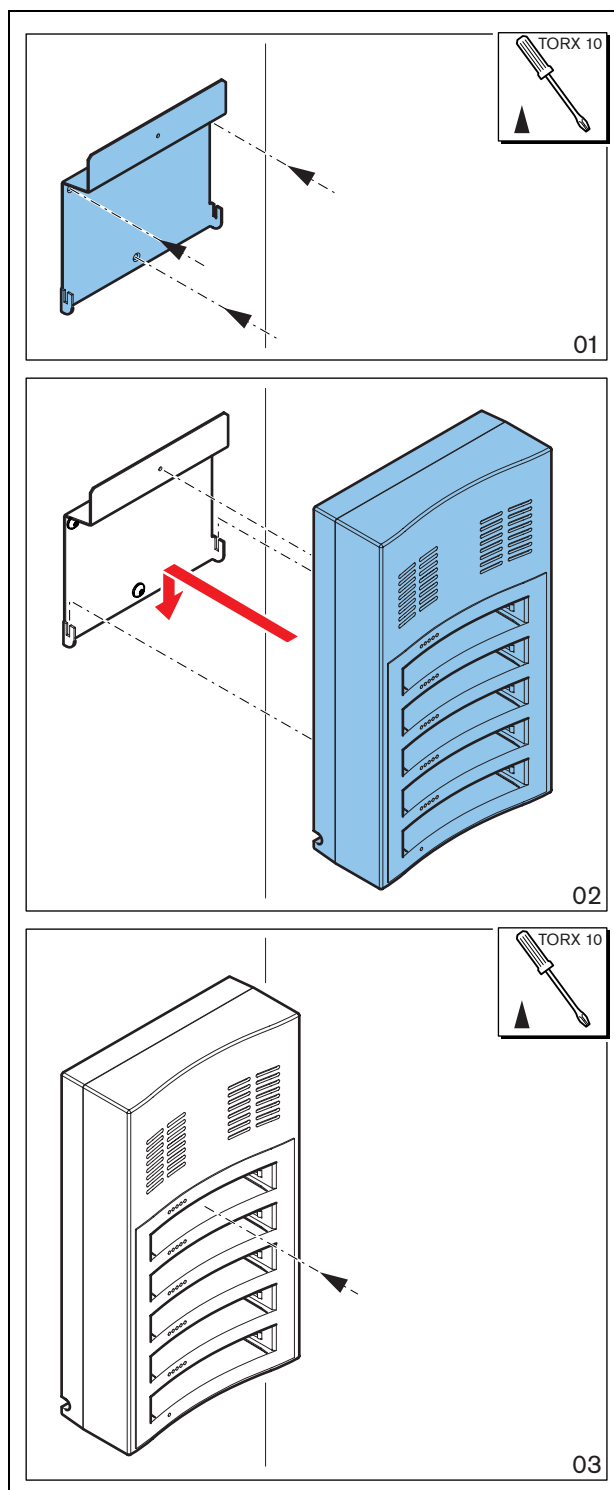


figure 17.2: Installation, wall

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 d_1 in figure 17.2).
- The horizontal distance between two brackets is at least 195 mm (refer to d_2 in figure 17.2).

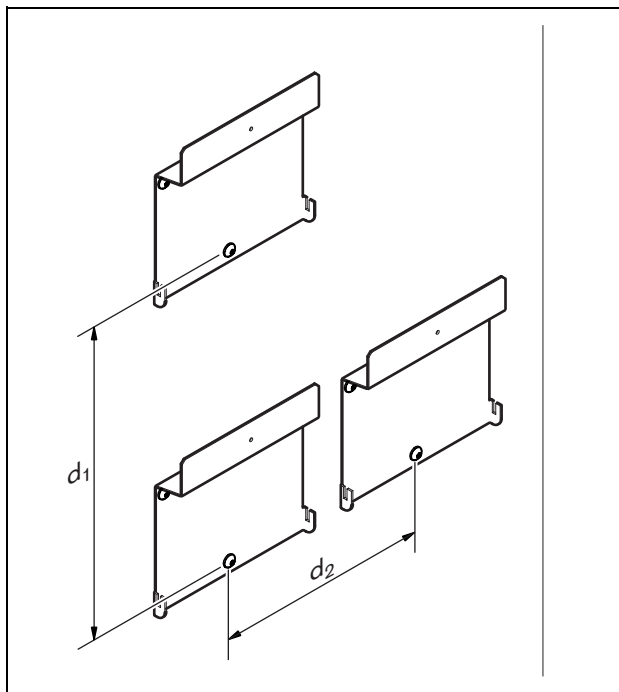


figure 17.3: Installation, multiple battery chargers

17.3.3 Battery

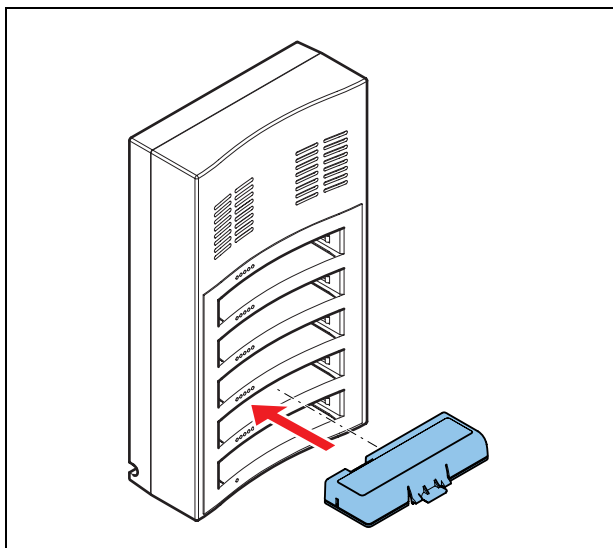


figure 17.4: Installation, battery

17.4 External connections

17.4.1 Power inlet

Connect a locally approved power cable to the battery charger (refer to figure 17.5).

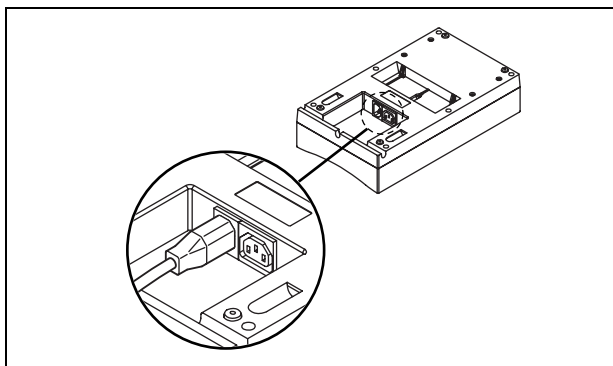


figure 17.5: Power inlet

17.4.2 Loop-through socket

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

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

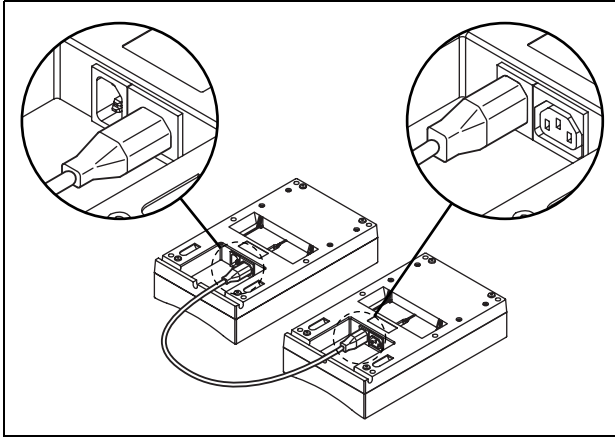


figure 17.6: Loop-through socket

17.5 Operation

The higher the capacity, the higher the number of charge level LEDs that come on (refer to table 16.4).



Note

The accuracy of the battery capacity in table 16.4 is plus or minus 20%.

table 17.2: Charge level LEDs

No. LEDs on	Battery capacity (hours)
5	18 - 20
4	13 - 18
3	8 - 13
2	3 - 8
1	< 3

18 DCN-WPS Power Supply Adapter

18.3 External connections

Connect the power supply adapter to compatible devices (refer to table 18.2) with the supplied cable.

18.1 Introduction

The DCN-WPS Power Supply Adapter is used with the wireless devices (refer to table 18.2).

table 18.1: Electrical properties

Input
100 - 240 V(AC) \pm 10%, 50 - 60 Hz
Output
9 V(DC), 550 mA

table 18.2: Compatible devices

Type	Description
DCN-WD	Wireless Discussion Unit
DCN-WDD	Wireless Discussion Unit
DCN-WDV	Wireless Discussion Unit

18.2 Installation

You can change the power plug of the power supply adapter (refer to figure 18.1).

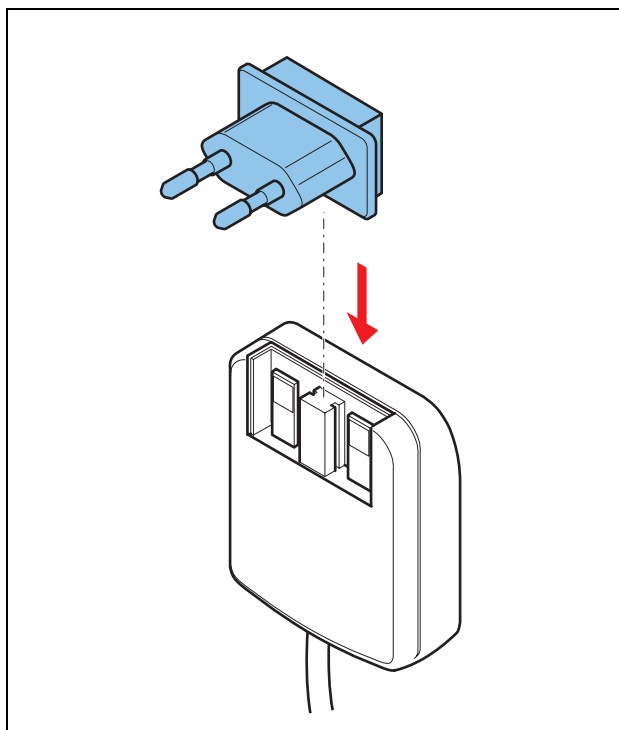


figure 18.1: Installation

19 DCN-DDI Dual Delegate Interface

19.1 Introduction

You can use two DCN-DDI Dual Delegate Interfaces to connect:

- An intercom handset for the operator.
- An ambient microphone.

19.2 Controls, connectors and indicators

The dual delegate interface (refer to figure 19.1) contains:

- 1 **DCN cable** - Connects the dual delegate interface to the DCN (refer to section 19.6.1).
- 2 **Mode selector** - Sets the mode in which the dual delegate interface operates (refer to section 19.4).
- 3 **Intercom socket** - Connects an LBB3555/00 Intercom Handset to the dual delegate interface (refer to section 19.6.2).
- 4 **Voting/Control inputs** - Not supported in a DCN Wireless digital congress network.
- 5 **Lid** - Gives access to the controls inside (refer to section 19.3).
- 6 **Audio inputs** - Connect external audio sources to the dual delegate interface (refer to section 19.6.3).
- 7 **Audio outputs** - Not supported in a DCN Wireless digital congress network.
- 8 **DCN socket** - Makes a loop-through in the DCN with the dual delegate interface (refer section 19.6.1).

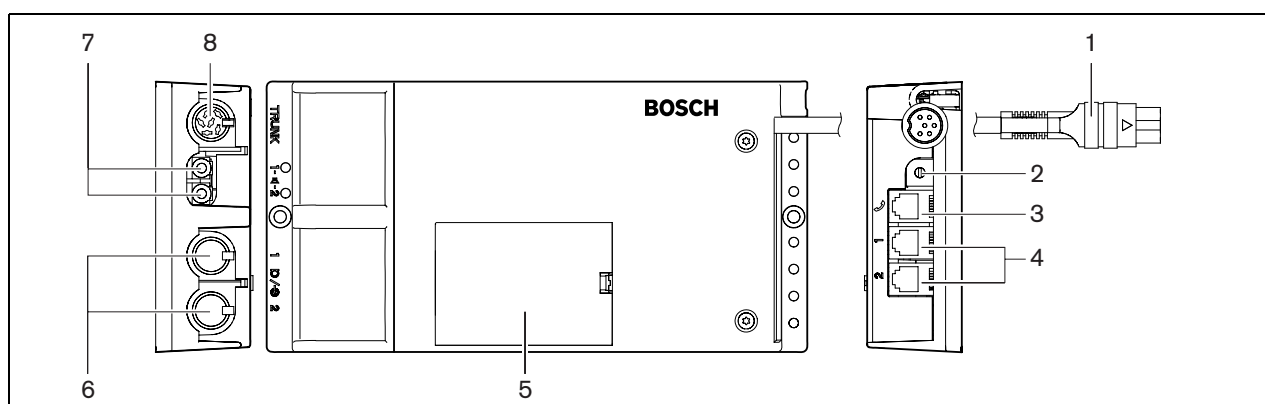


figure 19.1: Dual delegate interface

19.3 Internal settings

Remove the lid of the dual delegate interface to get access to the controls inside (refer to figure 19.2).

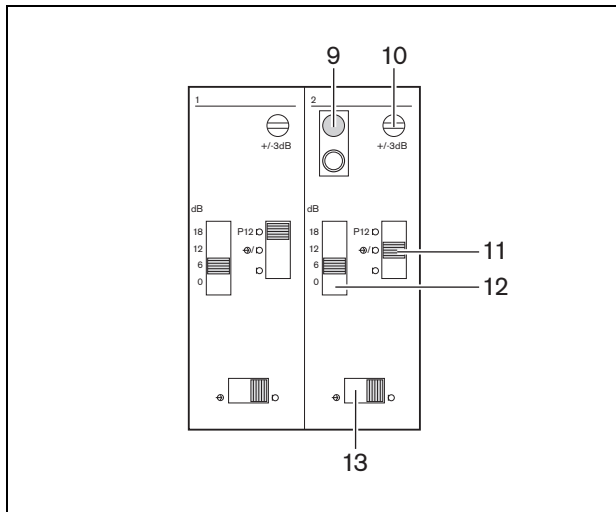


figure 19.2: Internal settings

- 9 **De-init switch** - Erases the address of the dual delegate interface (refer to section 12.2). The red LED adjacent to the de-init switch comes on when the dual delegate interface does not have an address.
- 10 **Input adjustment potentiometer** - Adjusts the sensitivity of the audio input (± 3 dB).
- 11 **Input type switch** - Sets the type of audio input (refer to table 19.1).

table 19.1: Input type switch (* = default)

Position	Description
Upper	Balanced signal with phantom power
Center*	Balanced signal without phantom power
Lower	Unbalanced signal*

- 12 **Input adjustment switch** - Sets the sensitivity of the audio input (refer to table 19.2).

table 19.2: Input adjustment switch (* = default)

Position	Description
18	18 dB
12	12 dB
6*	6 dB
0	0 dB

- 13 **Signal level switch** - Sets the signal level of the audio input (refer to table 19.3).

table 19.3: Signal level switch (* = default)

Position	Description
Left	Line level signal
Right*	Microphone signal

19.4 Configuration

19.4.1 Introduction

The number and types of (flush-mounted) devices that you can connect to the dual delegate interface depends on the selected mode.

19.4.2 Overview

You can set the mode with the mode selector (refer to table 19.4).

table 19.4: Modes

No.	Mode
0	Not supported
1	Not supported
2	Not supported
3	Not supported
4	Intercom
5	Not supported
6	Not supported
7	Ambient microphone

19.4.3 Intercom

When the dual delegate interface is in the intercom mode, it acts as an intercom. Refer to figure 19.3 for a typical example.



Note

The intercom LED of the DCN-FV Voting Panel comes on when the dual delegate interface receives an intercom call.

19.4.4 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 deactivated. Refer to figure 19.4 for a typical example.

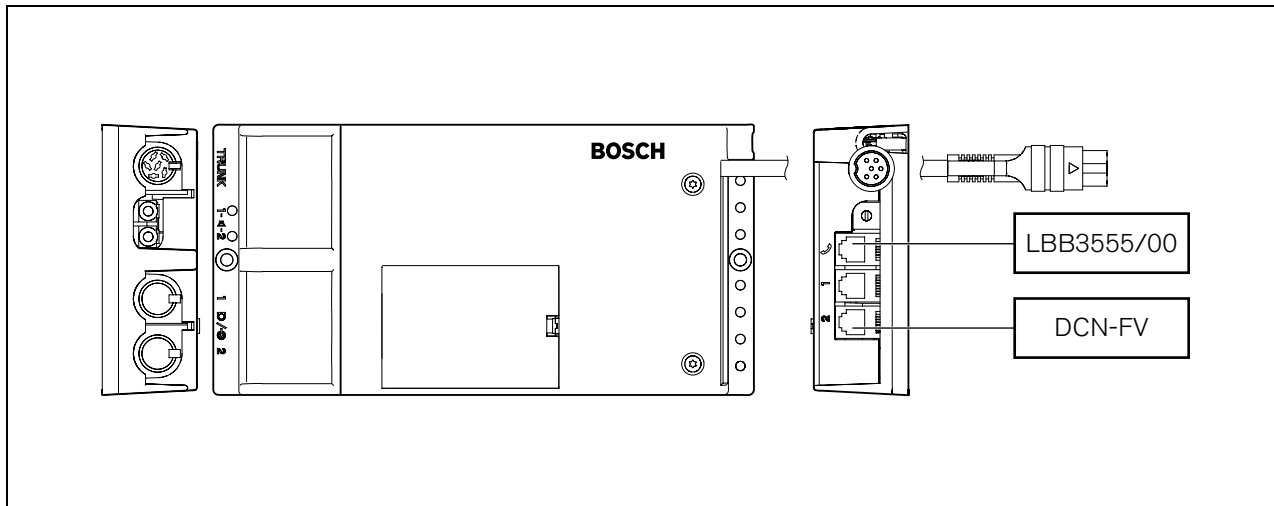


figure 19.3: Intercom mode (4)

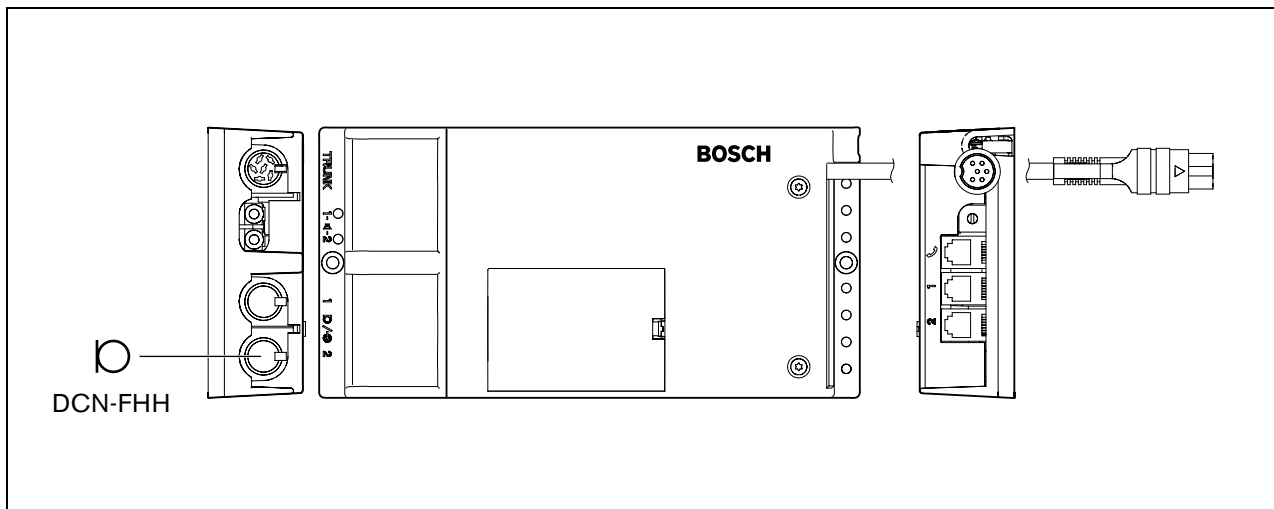


figure 19.4: Ambient microphone mode (7)

19.5 Installation

Install the dual delegate interface on a flat surface (refer to figure 19.5). Use the lid of the dual delegate interface to fix the positions of the DCN cables and the cables of the audio inputs and audio outputs.

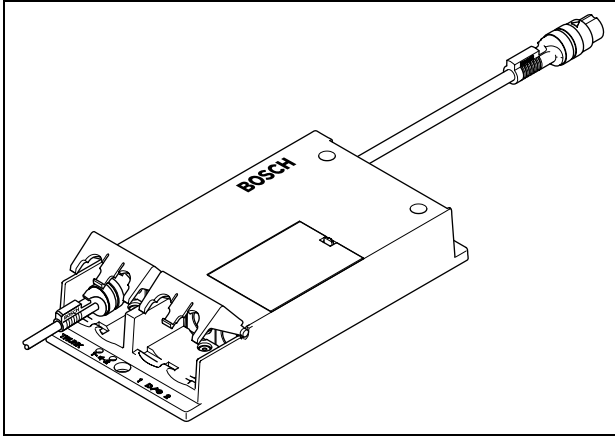


figure 19.5: Installation

table 19.5: Physical characteristics

Dimensions (h x w x d):
200 x 100 x 35 mm
Weight:
580 g

19.6 External connections

19.6.1 DCN

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.

table 19.6: DCN connections

Number of connections:
1x DCN socket
1x DCN cable (2 m) with plug
Location:
Bottom side
Power consumption:
2.2 W (4.9 W)



Note

The power consumption of 4.9 W includes the power consumption of all devices that you can connect to the dual delegate interface.

19.6.2 Intercom handset

You can connect an LBB3555/00 Intercom Handset to the dual delegate interface. The intercom handset must be connected to the intercom socket. Refer to the DCN Next Generation Installation and User Instructions.

19.6.3 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 (refer to figure 19.6).

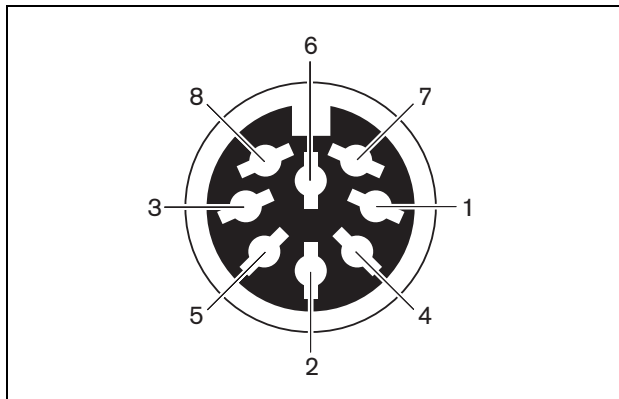


figure 19.6: Audio input, connection

table 19.7: 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

table 19.8: Connections

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

table 19.9: Audio inputs

Number of connections:
2x DIN-8p-262° sockets
Location:
Left side
Cable:
Shielded cable
Audio levels:
Refer to appendix A
Impedance:
Selectable:
<ul style="list-style-type: none"> Asymmetric mic.: > 4 kΩ Symmetrical dynamic mic.: > 2 x 33 kΩ Symmetrical phantom mic.: > 2 x 680 Ω
Phantom supply:
12 V(DC) \pm 10%, max. 15 mA
Signal-to-noise ratio:
> 90 dB
CMRR:
> 85 dBA @ max. level
Crosstalk between inputs:
> 40 dB

20 DCN-WFCD10 Flight Case for Wireless Discussion Units

The DCN-WFCD10 Flight Case accommodates up to 10 wireless discussion units complete with battery packs and microphones (long or short stems). The case also holds 2 DCN-WCH05 Battery Chargers.



Caution

Do not charge the battery packs in the flight case, because you can cause a risk of fire.



figure 20.1: DCN-WFCD10 Flight Case

21 DCN-WFCCU Flight Case for DCN-WCCU and DCN-WAP

The DCN-WFCCU Flight Case provides a secure transportation and storage solution for:

- a DCN-WCCU Wireless Central Control Unit, DCN-WAP Wireless Access Point and optical network cable, or
- 2 DCN-WCCU Wireless Central Control Units (if dividing foam partition is removed from case).



figure 21.1: DCN-WFCCU Flight Case

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Section 4 - Appendices

A Audio levels

A.1 DCN-WCCU

table A.1: Analog line inputs

Plug or socket	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)

table A.2: Analog outputs

Plug or socket	Function	Nominal	Maximum
XLR	PA	-12 dBV (- 24, + 6 dB)	12 dBV (- 24, + 6 dB)
	Recorder	9 dBV (- 24, + 6 dB)	12 dBV (- 24, + 6 dB)
Cinch	PA	-24 dBV (- 24, + 6 dB)	0 dBV (- 24, + 6 dB)
	Recorder	-3 dBV (- 24, + 6 dB)	0 dBV (- 24, + 6 dB)

table A.3: Monitor

Plug or socket	Function	Nominal	Maximum
3.5 mm	Headphones	-1 dBV (mute, - 24 dB, 0 dB)	2 dBV (mute, - 24 dB, 0 dB)

A.2 DCN-WDU

table A.4: Headphones

Plug or socket	Function	Nominal	Maximum
3.5 mm	Headphones	3 dBV	6 dBV (mute, 0 dB)

A.3 DCN-FCS

table A.5: Headphones

Plug or socket	Function	Nominal	Maximum
3.5 mm	Headphones	-1.5 dBV	1.5 dBV (mute, 0 dB)

A.4 DCN-DDI

table A.6: Dual delegate interface

Plug or socket	Function	Nominal	Maximum
8-pole DIN	Line in 0 dB	-18 dBV (- 3, + 3 dB)	12 dBV (- 3, + 3 dB)
	Line in 6 dB	-12 dBV (- 3, + 3 dB)	12 dBV (- 3, + 3 dB)
	Line in 12 dB	-6 dBV (- 3, + 3 dB)	12 dBV (- 3, + 3 dB)
	Line in 18 dB	0 dBV (- 3, + 3 dB)	12 dBV (- 3, + 3 dB)
	Mic 0 dB	-46 dBV (- 3, + 3 dB)	-16 dBV (- 3, + 3 dB)
	Mic 6 dB	-40 dBV (- 3, + 3 dB)	-16 dBV (- 3, + 3 dB)
	Mic 12 dB	-34 dBV (- 3, + 3 dB)	-16 dBV (- 3, + 3 dB)
	Mic 18 dB	-28 dBV (- 3, + 3 dB)	-16 dBV (- 3, + 3 dB)
3.5 mm	---	-5 dBV	7.5 dBV

B Product index

B.1 Central devices

table B.1: Central devices

Product code	Product description	Refer to
DCN-WCCU	Central control unit wireless	Page 38
DCN-WCCU-UL	Central control unit wireless UL	Page 38
DCN-EPS	Extension power supply	DCN Next Gen.
DCN-EPS-UL	Extension power supply UL	DCN Next Gen.
LBB4402/00	Audio expander	DCN Next Gen.
LBB4404/00	CobraNet Interface	DCN Next Gen.
PRS-4DEX4	Digital audio expander	DCN Next Gen.

B.2 Installation devices

table B.2: Installation devices

Product code	Product description	Refer to
LBB4114/00	Trunk splitter	DCN Next Gen.
LBB4115/00	Trunk splitter protected	DCN Next Gen.
LBB4116/00	Extension cable, 100 m	DCN Next Gen.
LBB4116/02	Extension cable, 2 m	DCN Next Gen.
LBB4116/05	Extension cable, 5 m	DCN Next Gen.
LBB4116/10	Extension cable, 10 m	DCN Next Gen.
LBB4116/15	Extension cable, 15 m	DCN Next Gen.
LBB4116/20	Extension cable, 20 m	DCN Next Gen.
LBB4116/25	Extension cable, 25 m	DCN Next Gen.
LBB4117/00	Cable locking clamp	DCN Next Gen.
LBB4118/00	Cable termination plug	DCN Next Gen.
LBB4119/00	DCN connectors	DCN Next Gen.
LBB4410/00	Network splitter	DCN Next Gen.
LBB4414/10	Fiber interface without address	DCN Next Gen.
LBB4416/00	Network cable, 10 m	DCN Next Gen.
LBB4416/01	Network cable, 0.5 m	DCN Next Gen.
LBB4416/02	Network cable, 2 m	DCN Next Gen.
LBB4416/05	Network cable, 5 m	DCN Next Gen.
LBB4416/10	Network cable, 10 m	DCN Next Gen.
LBB4416/20	Network cable, 20 m	DCN Next Gen.
LBB4416/50	Network cable, 50 m	DCN Next Gen.
LBB4417/00	Network connector	DCN Next Gen.
LBB4418/00	Cable-connector tool kit	DCN Next Gen.
LBB4418/50	Spare cutting tool	DCN Next Gen.
LBB4419/00	Cable coupler	DCN Next Gen.

B.3 Contribution devices

table B.3: Contribution devices

Product code	Product description	Refer to
DCN-DDI	Dual delegate interface	Page 98
DCN-DISBCM	Sets of buttons for 10 chairman discussion units	Page 76
DCN-DISBDD	Sets of buttons for 10 dual use discussion units	Page 76
DCN-DISR-D	Set of 10 rims for discussion unit dark	Page 83
DCN-DISR-SR	Set of 10 rims for discussion unit silver	Page 83
DCN-DISRH-SR	Set of 10 rims for discussion unit high gloss silver	Page 83
DCN-DISRMH	Set of 10 rims for discussion unit high gloss metal	Page 83
DCN-DISRMS	Set of 10 rims for discussion unit semi gloss metal	Page 83
DCN-MICL	Pluggable microphone long stem	Page 89
DCN-MICS	Pluggable microphone short stem	Page 89
DCN-WD-D	Wireless discussion unit	Page 76
DCN-WDD-D	Wireless dual discussion unit	Page 76
DCN-WDV-D	Wireless discussion unit with voting	Page 76
DCN-WPS	Power Supply Adapter	Page 97

B.4 Flush-mounted devices

table B.4: Flush-mounted devices

Product code	Product description	Refer to
DCN-FCS	Channel selector unit for 32 channels	DCN Next Gen.

B.5 Interpretation devices

table B.5: Interpretation devices

Product code	Product description	Refer to
DCN-IDESK-L	Interpreter desk for 32 channels	DCN Next Gen.
DCN-IDESK-D	Interpreter desk for 32 channels, dark	DCN Next Gen.

B.6 Peripheral devices

table B.6: Peripheral devices

Product code	Product description	Refer to
LBB4157/00	Card encoder	DCN Next Gen.
DCN-IDCRD	Chip cards	DCN Next Gen.
DCN-DDB	Data distribution board	DCN Next Gen.

C Statements for FCC & Industry Canada

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

The DCN-Wireless equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the
- receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.



Note

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.



Warning

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.

D Declarations

Bosch Security Systems B.V.



BOSCH



CE DECLARATION OF CONFORMITY

Manufacturer **Bosch Security Systems B.V.**
Business Unit Communication Systems
P.O. Box 90106
4800 RA Breda
The Netherlands

We declare under our sole responsibility that the products:

Central Control Unit for DCN Wireless **DCN-WCCU**
Central Control Unit for DCN Wireless **DCN-WCCU-UL**

to which this declaration relates is in conformity with the requirements of the:

Low Voltage Directive 73/23/EEC amended by Directive 93/68/EEC

Comprising the harmonized safety standard:

EN 60065 (2002) (Audio, video and similar electronic apparatus - Safety requirements)

and is in conformity with the requirements of the EMC Directive:

EMC Directive 89/336/EEC amended by Directive 93/68/EEC

Comprising the harmonized EMC standards:

EN 55103-1 (1996) (Emission standard: Product family standard for audio, video, audio-visual and entertainment lighting control)

EN 55103-2 (1996) (Immunity standard: Product family standard for audio, video, audio-visual and entertainment lighting control)

The products comply with the above stated requirements and bear the **CE** marking accordingly.

Quality Assurance

The product is produced by a manufacturing organisation, which is certified on ISO 9001:2000 and ISO 14001:2004 standards.

BL Manager: H. Goudemits
Signed :
Date : 16-11-06

Quality Manager: C. van der Velden
Signed :
Date : 16-11-2005

Bosch Security Systems B.V.**BOSCH****CE DECLARATION OF CONFORMITY**

Manufacturer **Bosch Security Systems B.V.**
BU Communication Systems
P.O. Box 90106
4800 RA Breda
The Netherlands

We declare under our sole responsibility that the product:

Wireless Access Point DCN-WAP

Telecom Requirements

The product complies with the essential requirement of the LVD directive 73/23/EEC, EMC directive 89/336/EEC and R&TTE directive 1999/5/EC if used for the intended purpose.

Standards

IEC/EN 60950-1	(2001)	(ITE, Safety of information technology equipment)
ETSI EN 301 489-1	V1.4.1. (2002)	(ERM, EMC common technical requirements)
ETSI EN 301 489-17	V1.2.1. (2002)	(ERM, EMC specific conditions for 2.4 GHz wideband transmission systems)
ETSI EN 300 328	V1.6.1. (2004)	(ERM, wide band transmission systems; Data transmission equipment operating in the 2.4 GHz ISM band and using wide band modulation techniques)


Application, Intended purpose

The product with radio-part inside is intended for use within the DCN Wireless product family.

Quality Assurance

The product is designed and produced by a manufacturing organization, which is certified on ISO 9001: 2000 and ISO 14001: 2004 standards.

The product is in conformance with the above stated requirements and

bears the marking **CE**0682  accordingly. The 0682 number is the Notified Body number of Cetecom GmbH in Germany.

BL Manager : H. Goudsmits

Quality Manager: C. van der Velden

Signed : 

Signed : 

Date : 16-11-06

Date : 16-11-2006

Bosch Security Systems B.V.**BOSCH****CE DECLARATION OF CONFORMITY**

Manufacturer **Bosch Security Systems B.V.**
BU Communication Systems
P.O. Box 90106
4800 RA Breda
The Netherlands

We declare under our sole responsibility that the products:

Wireless Discussion Unit Dark	DCN-WD-D
Wireless Dual Discussion Unit Dark	DCN-WDD-D
Wireless Discussion Unit with Voting Dark	DCN-WDV-D

Telecom Requirements

The products comply with the essential requirement of the LVD directive 73/23/EEC, EMC directive 89/336/EEC and R&TTE directive 1999/5/EC if used for the intended purpose.

Standards

IEC/EN 60950-1	(2001)	(ITE, Safety of information technology equipment)
ETSI EN 301 489-1	V1.4.1. (2002)	(ERM, EMC common technical requirements)
ETSI EN 301 489-17	V1.2.1. (2002)	(ERM, EMC specific conditions for 2.4 GHz wideband transmission systems)
ETSI EN 300 328	V1.6.1. (2004)	(ERM, wide band transmission systems; Data transmission equipment operating in the 2.4 GHz ISM band and using wide band modulation techniques)


Application, Intended purpose

The product with radio-part inside is intended for use within the DCN Wireless product family.

Quality Assurance

The products are designed and produced by a manufacturing organization, which is certified on ISO 9001: 2000 and ISO 14001: 2004 standards.

The products are in conformance with the above stated requirements and

bear the marking **CE**0682  accordingly. The 0682 number is the Notified Body number of Cetecom GmbH in Germany.

BL Manager :

H. Goudsmits

Quality Manager:

C. van der Velden

Signed :

Signed

Date :

16-11-06

Date

16-11-2006

Bosch Security Systems B.V.



CE DECLARATION OF CONFORMITY

Manufacturer **Bosch Security Systems B.V.**
Business Unit Communication Systems
P.O. Box 90106
4800 RA Breda
The Netherlands

We declare under our sole responsibility that the product:

Rechargeable Lithium-ion Battery Pack DCN-WLIION-D

to which this declaration relates is in conformity with the requirements of the:

R&TTE Directive 1999/5/EC

Comprising the harmonized safety standard:

IEC/EN 60950-1 (2001) (ITE, Safety of information technology equipment)

and is in conformity with the requirements of the EMC Directive:

EMC Directive 89/336/EEC amended by Directive 93/68/EEC

Comprising the harmonized EMC standards:

EN 61000-6-3 (2001) (Generic standards: Emission for residential, commercial and light-industrial environments)

EN 61000-6-1 (2001) (Generic standards: Immunity for residential, commercial and light-industrial environments)

Intended Use

The dedicated battery pack is intended for use within the DCN Wireless product family.

The product complies with the above stated requirements and bears the **CE** marking accordingly.

Quality Assurance

The product is produced by a manufacturing organisation, which is certified on ISO 9001:2000 and ISO 14001:2004 standards.

BL Manager: H. Goudsmits
Signed :
Date : 16-11-2006

Quality Manager: C. van der Velden
Signed :
Date : 16-11-2006

Bosch Security Systems B.V.



CE DECLARATION OF CONFORMITY

Manufacturer **Bosch Security Systems B.V.**
Business Unit Communication Systems
P.O. Box 90106
4800 RA Breda
The Netherlands

We declare under our sole responsibility that the product:

Battery Pack Charger 5-Bins DCN-WCH05

to which this declaration relates is in conformity with the requirements of the:

R&TTE Directive 1999/5/EC

Comprising the harmonized safety standard:

IEC/EN 60950-1 (2001) (ITE, Safety of information technology equipment)

and is in conformity with the requirements of the EMC Directive:

EMC Directive 89/336/EEC amended by Directive 93/68/EEC

Comprising the harmonized EMC standards:

EN 61000-6-3 (2001) (Generic standards: Emission for residential, commercial and light-industrial environments)

EN 61000-6-1 (2001) (Generic standards: Immunity for residential, commercial and light-industrial environments)

Intended Use

The Battery Pack Charger is intended for use within the DCN Wireless product family.

The product complies with the above stated requirements and bears the CE marking accordingly.

Quality Assurance

The product is produced by a manufacturing organisation, which is certified on ISO 9001:2000 and ISO 14001:2004 standards.

BL Manager: H. Goudsmits

Quality Manager: C. van der Velden

Signed :

Signed :

Date :

16-11-06

Date :

16-11-2006

Bosch Security Systems B.V.



BOSCH



CE DECLARATION OF CONFORMITY

Manufacturer **Bosch Security Systems B.V.**
Business Unit Communication Systems
P.O. Box 90106
4800 RA Breda
The Netherlands

We declare under our sole responsibility that the product:

Mains Power Supply Adaptor DCN-WPS

to which this declaration relates is in conformity with the requirements of the:

R&TTE Directive 1999/5/EC

Comprising the harmonized safety standard:

IEC/EN 60950-1 (2001) (ITE, Safety of information technology equipment)

and is in conformity with the requirements of the EMC Directive:

EMC Directive 89/336/EEC amended by Directive 93/68/EEC

Comprising the harmonized EMC standards:

EN 61000-6-3 (2001) (Generic standards: Emission for residential, commercial and light-industrial environments)

EN 61000-6-1 (2001) (Generic standards: Immunity for residential, commercial and light-industrial environments)

Intended Use

The Mains Power Supply Adaptor is intended for use within the DCN Wireless product family.

The product complies with the above stated requirements and bears the CE marking accordingly.

Quality Assurance

The product is produced by a manufacturing organisation, which is certified on ISO 9001:2000 and ISO 14001:2004 standards.

BL Manager: H. Goudsmits

Quality Manager: C. van der Velden

Signed :

Signed

Date :

16-11-06

Date

16-11-2006

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