

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).

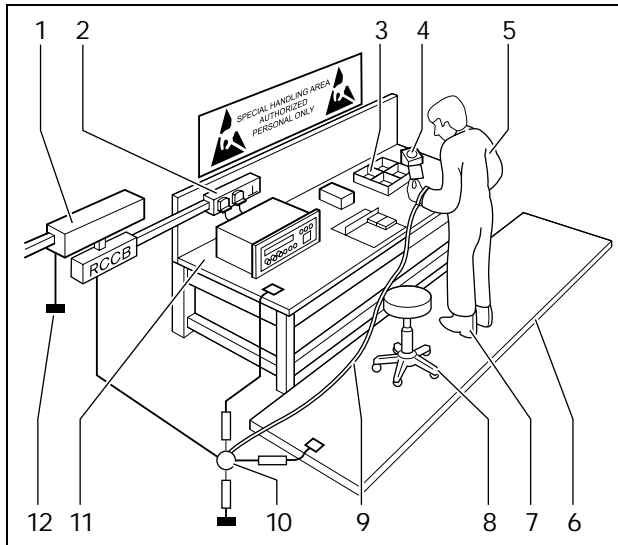


figure 1: ESD prevention

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
--------	-----------	--------	-----------

table 4: Conversion of units of pressure

1 psi =	68.95 hPa	1 hPa =	0.0145 psi
---------	-----------	---------	------------



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

Intentionally left blank.

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.

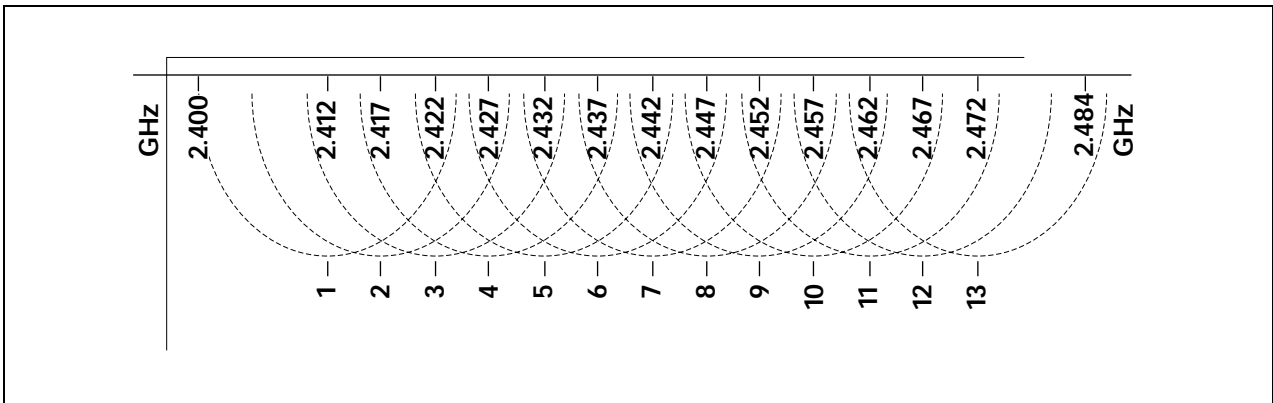


figure 1.1: WLAN channels

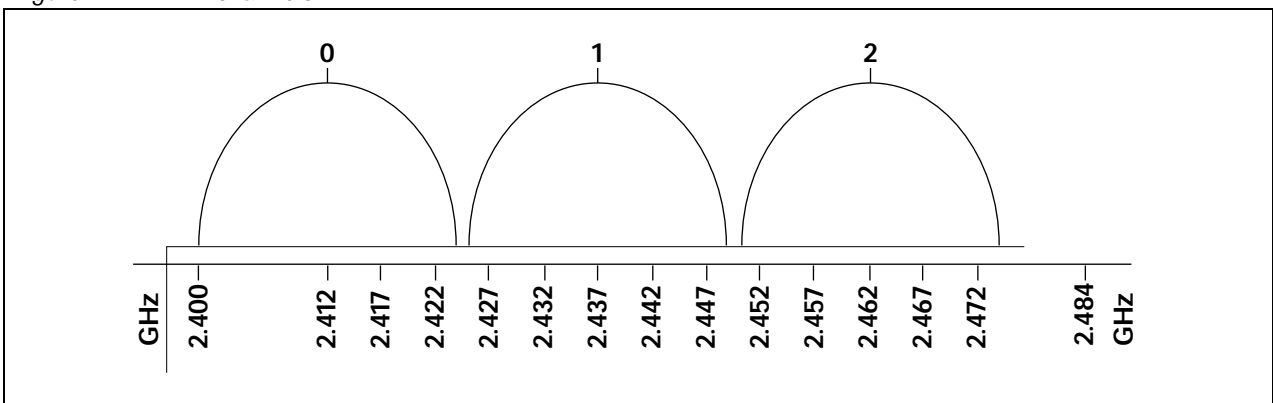


figure 1.2: DCN wireless carriers

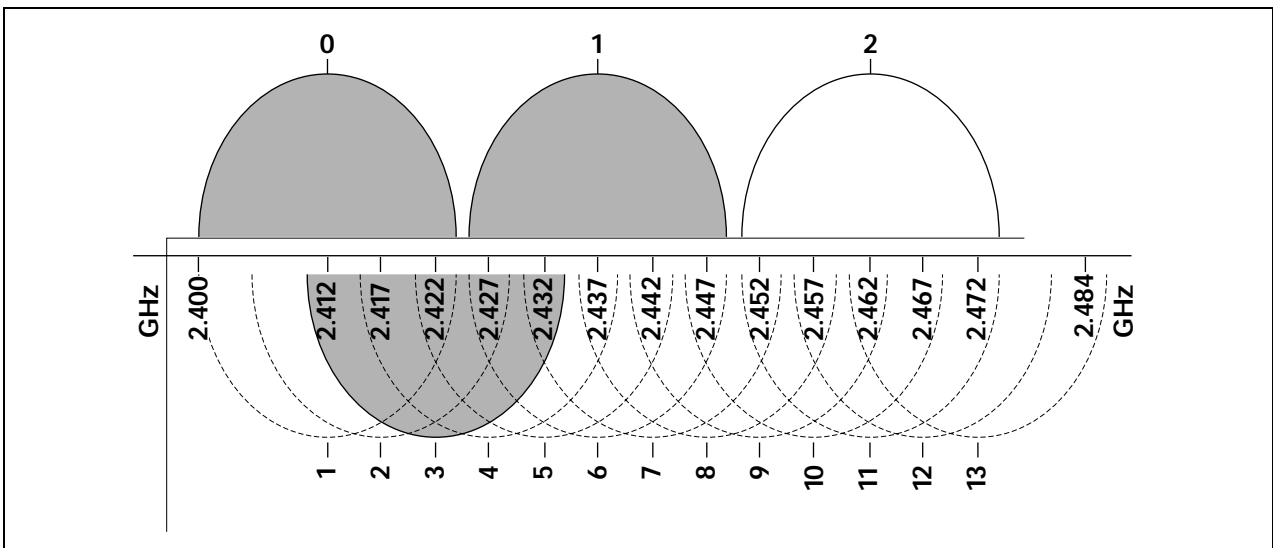


figure 1.3: Example of interference

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

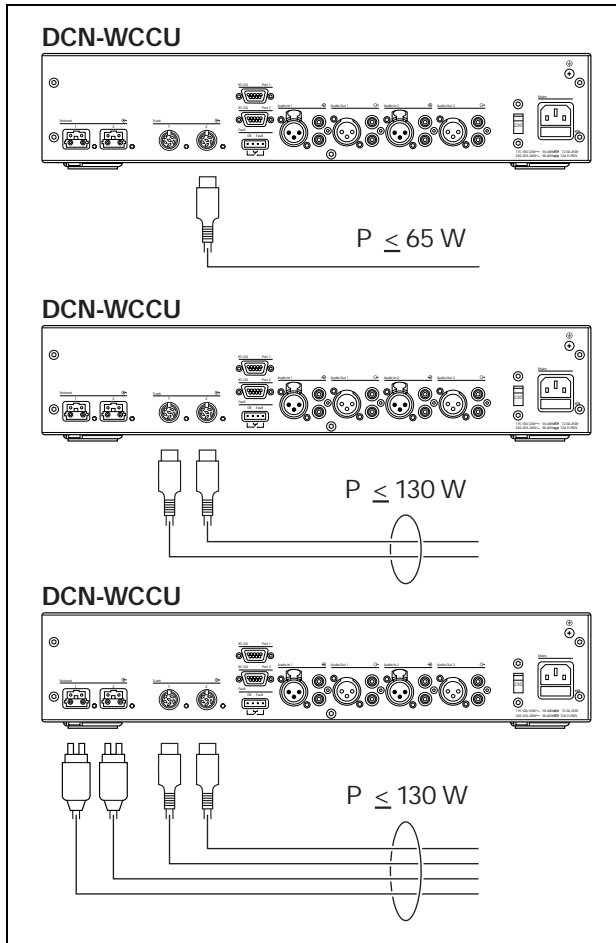


figure 2.1: DCN power supply: DCN-WCCU

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

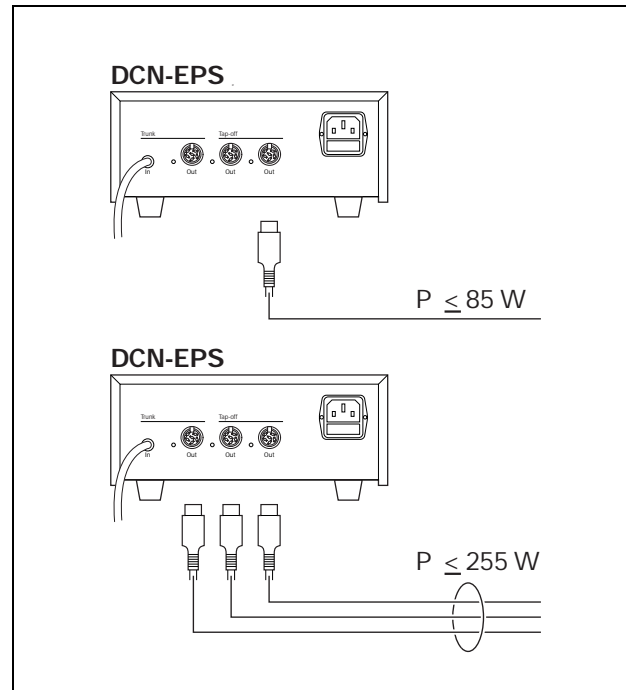


figure 2.2: DCN power supply: DCN-EPS

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.

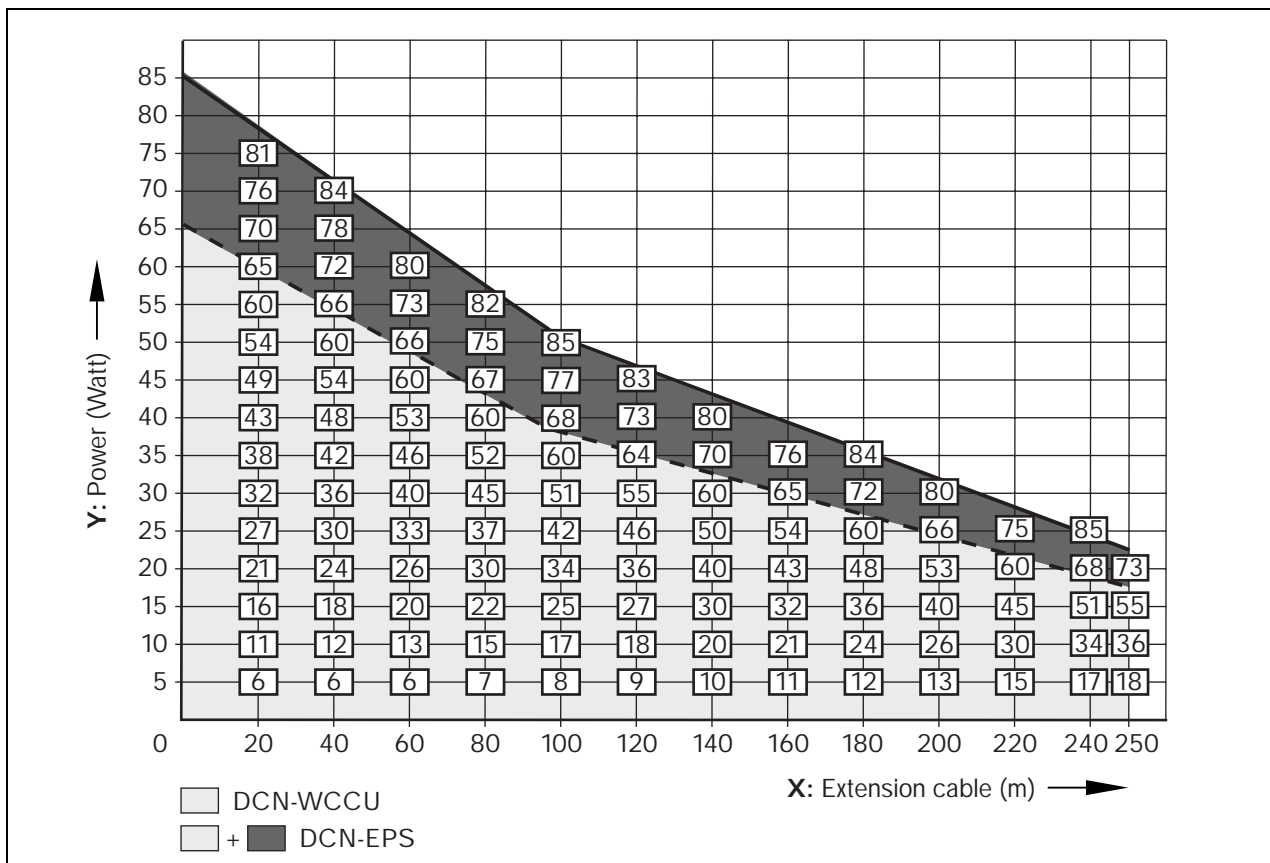


figure 2.3: Power correction graph

2.8 Examples

2.8.1 Cable lengths

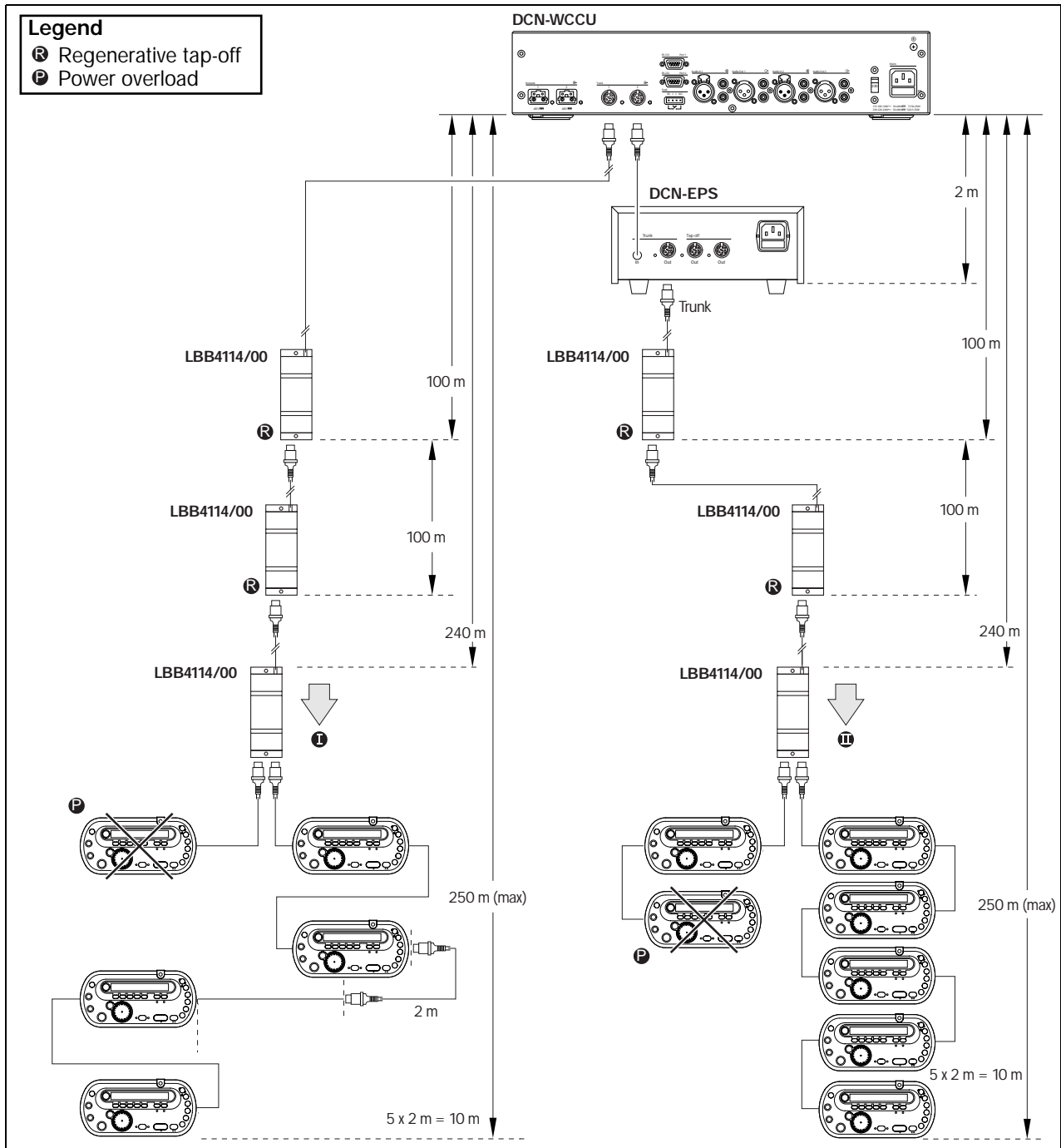


figure 2.4: Example with cable lengths

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

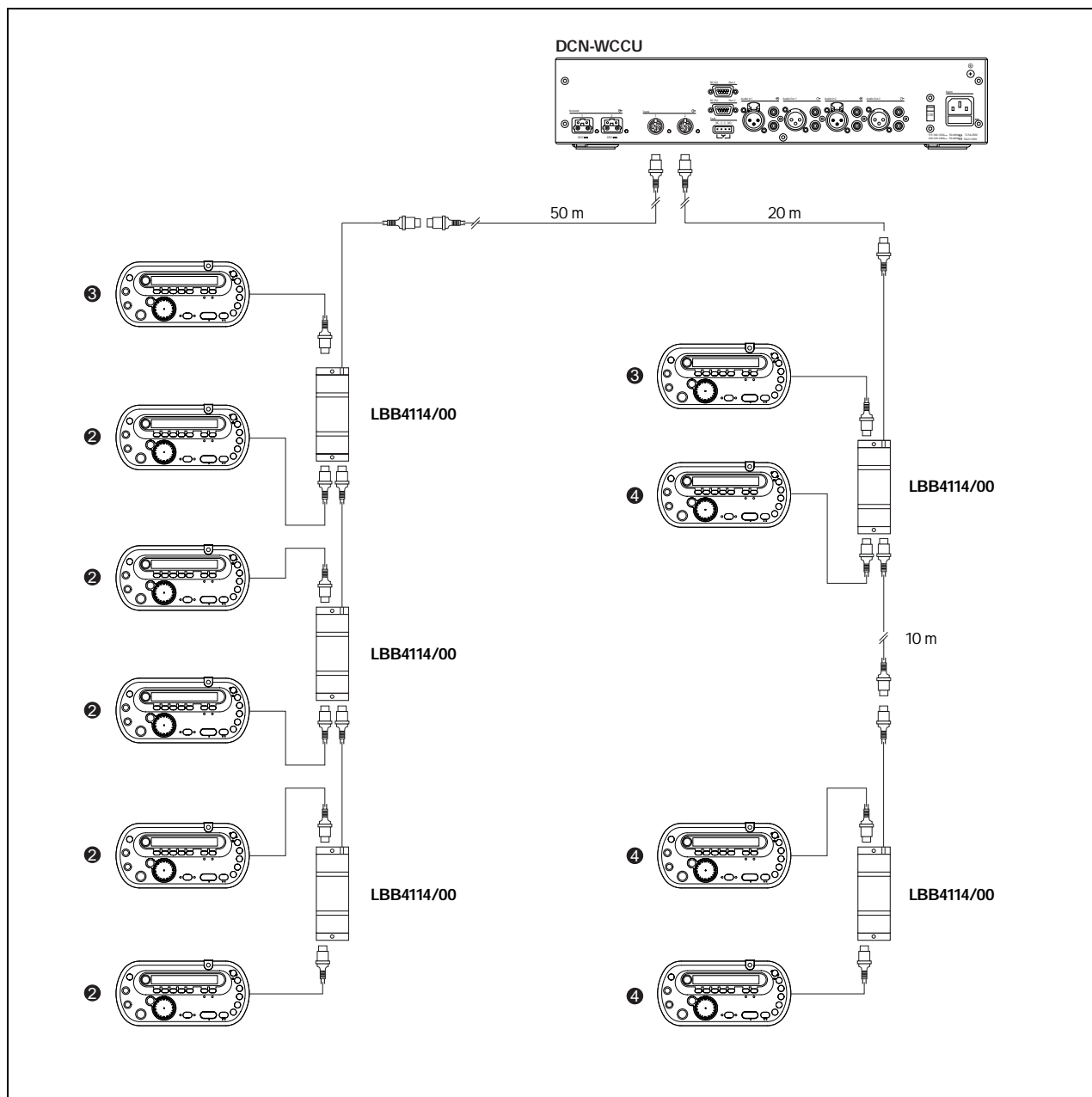


figure 2.5: Example with interpreter desks (DCN-IDESK)

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.

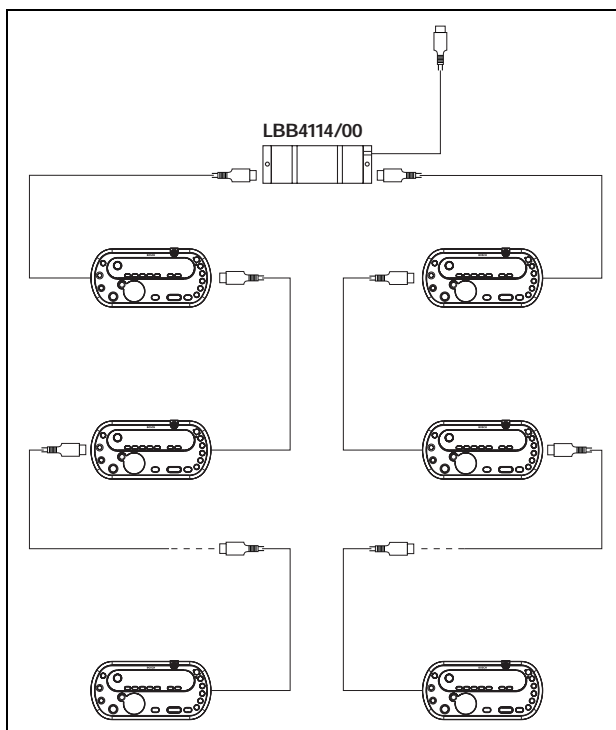


figure 2.6: Interpreter booths with LBB4114/00

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.

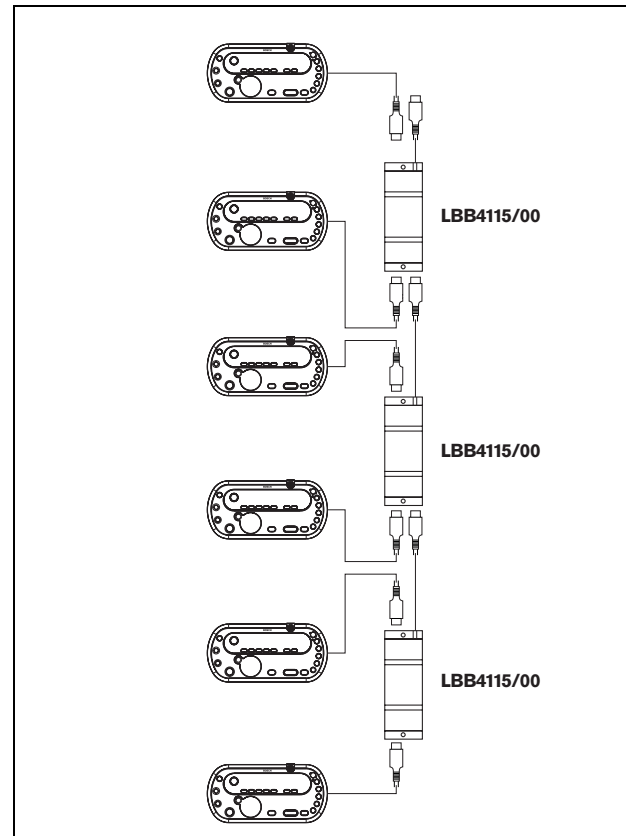


figure 2.7: Interpreter booths with LBB4115/00

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.

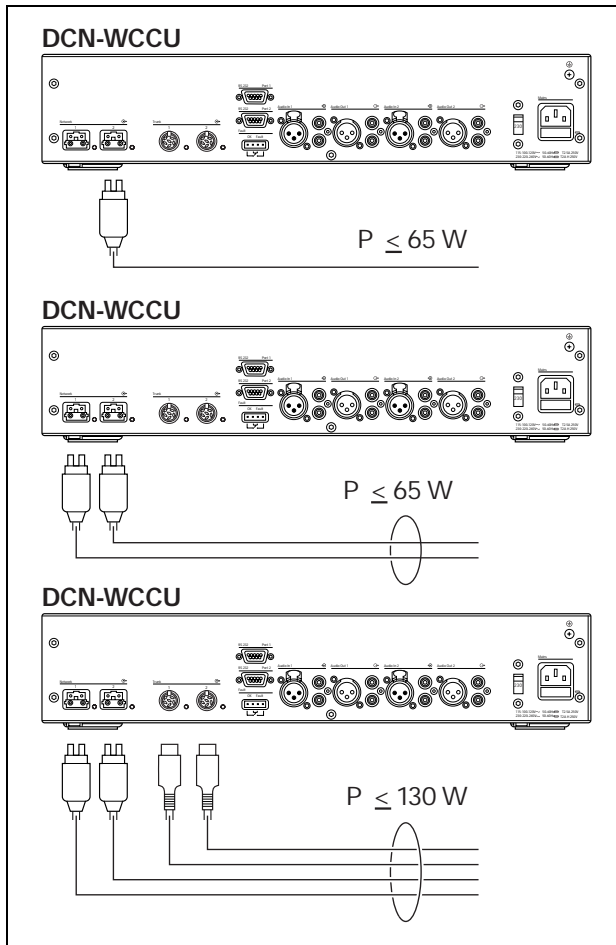


figure 3.1: Optical network power supply

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.

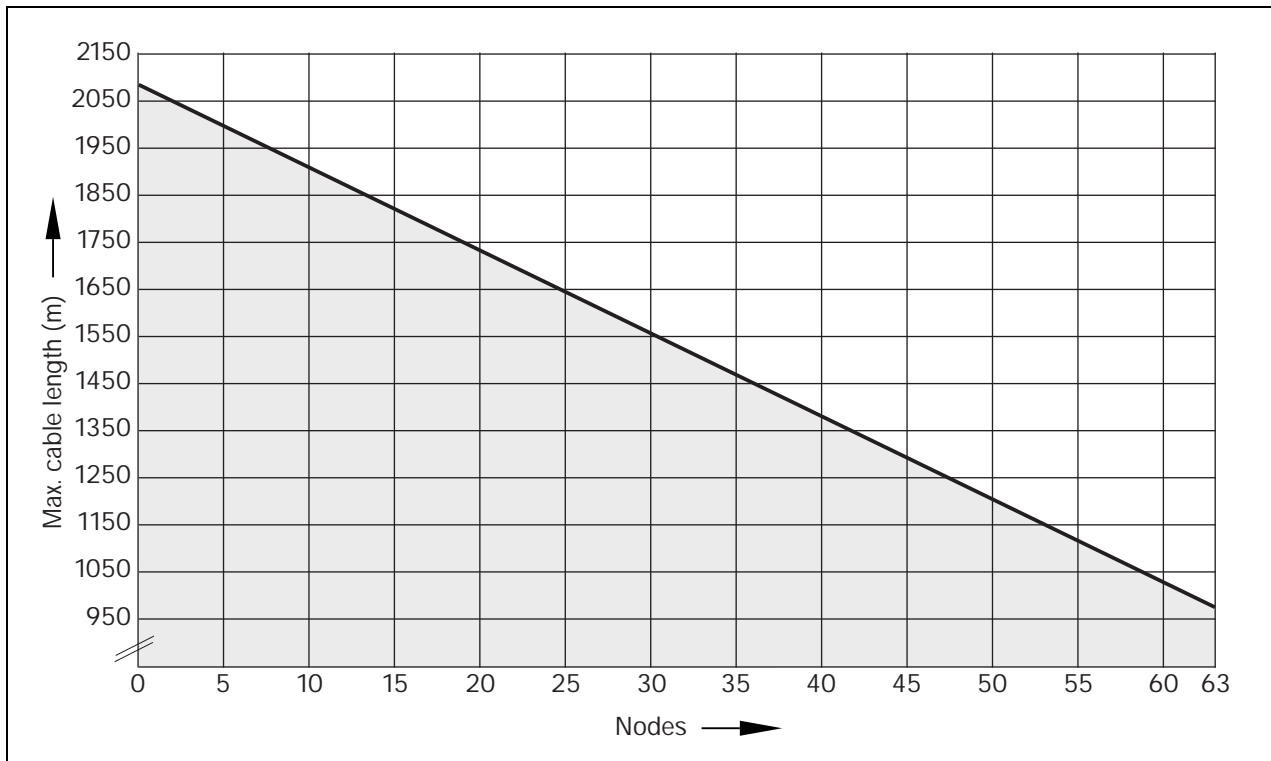


figure 3.2: Cable correction graph

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.

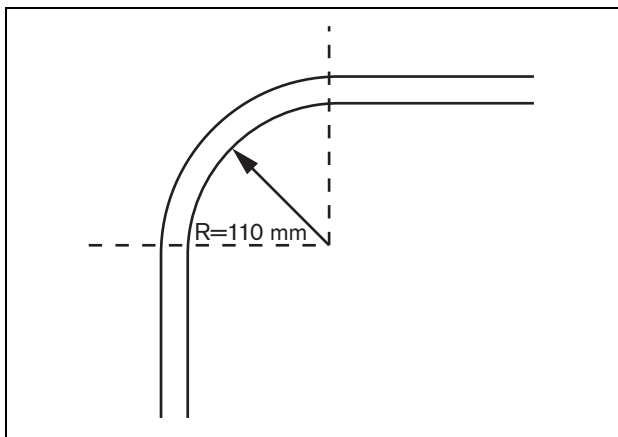


figure 3.3: Bend radius

3.6.7 Coiling

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

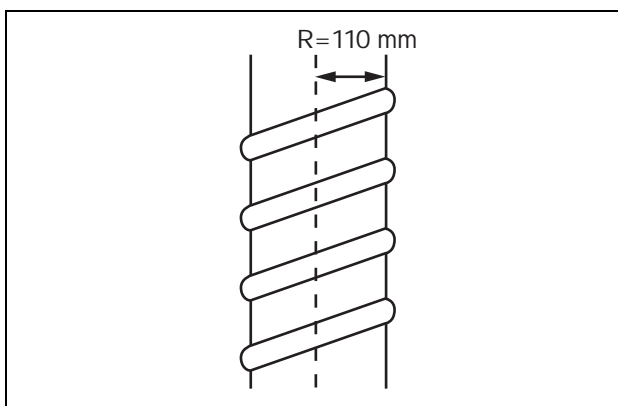


figure 3.4: Coiling radius

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.

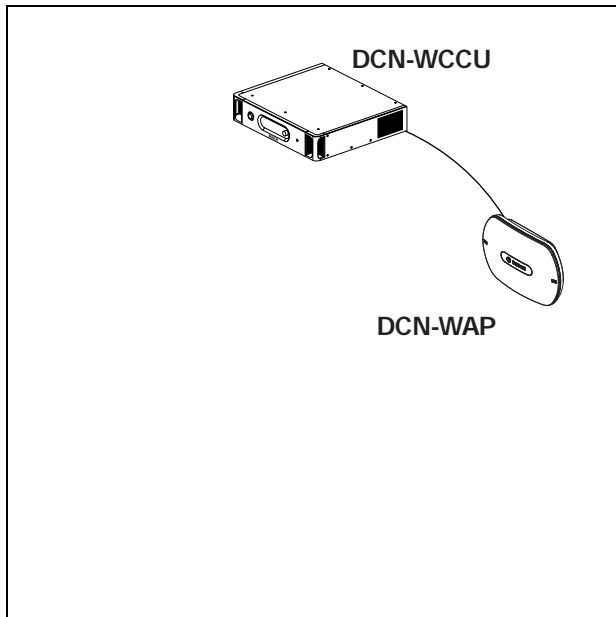


figure 3.5: Basic optical network

3.7.3 Extended optical network

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

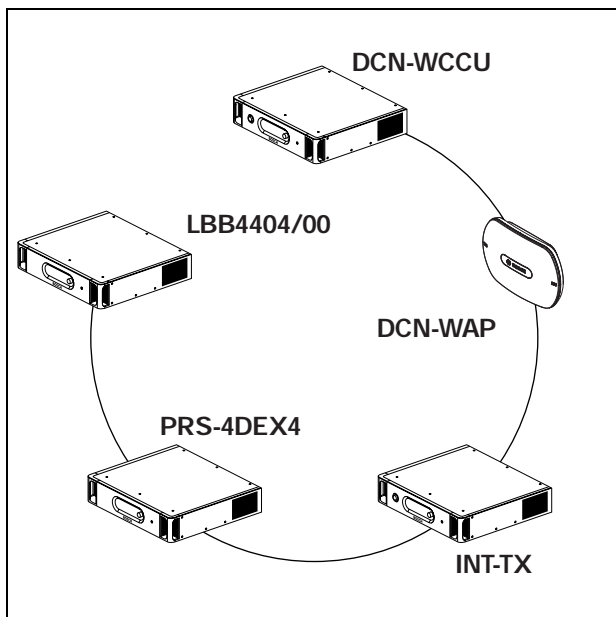


figure 3.6: Extended optical network

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).

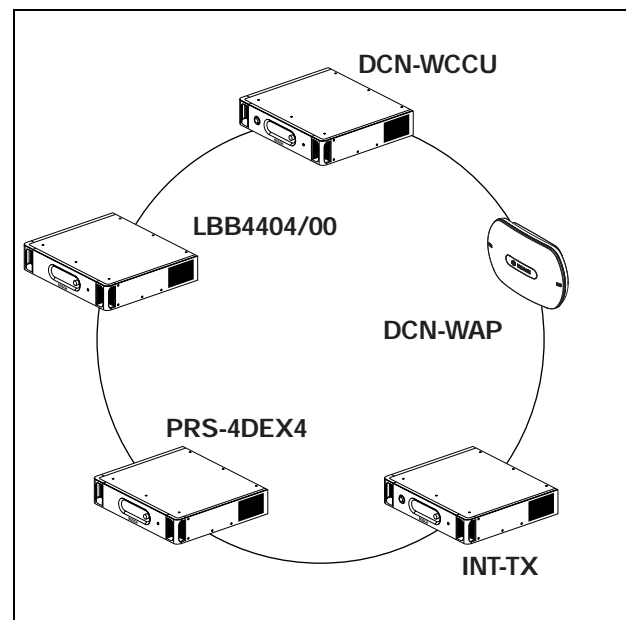


figure 3.7: Redundant optical network

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.

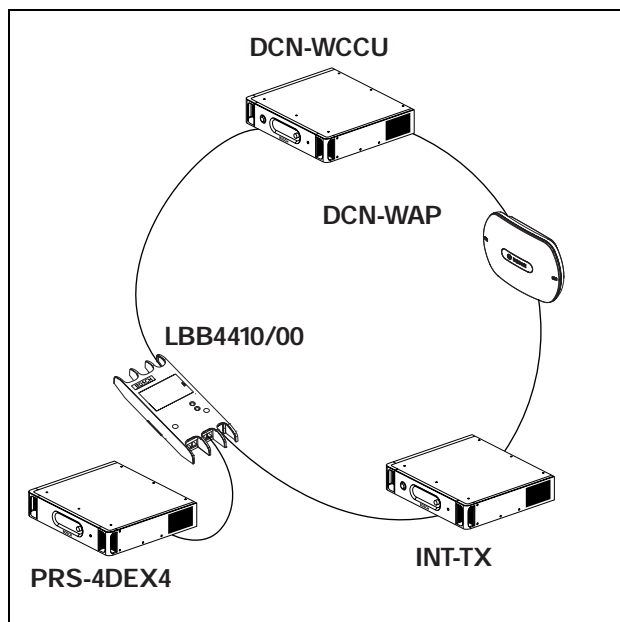


figure 3.8: Redundant optical network with tap-off

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.