TeamConnect
Meeting and audio conference solution

Instruction Manual

SENNHEISER
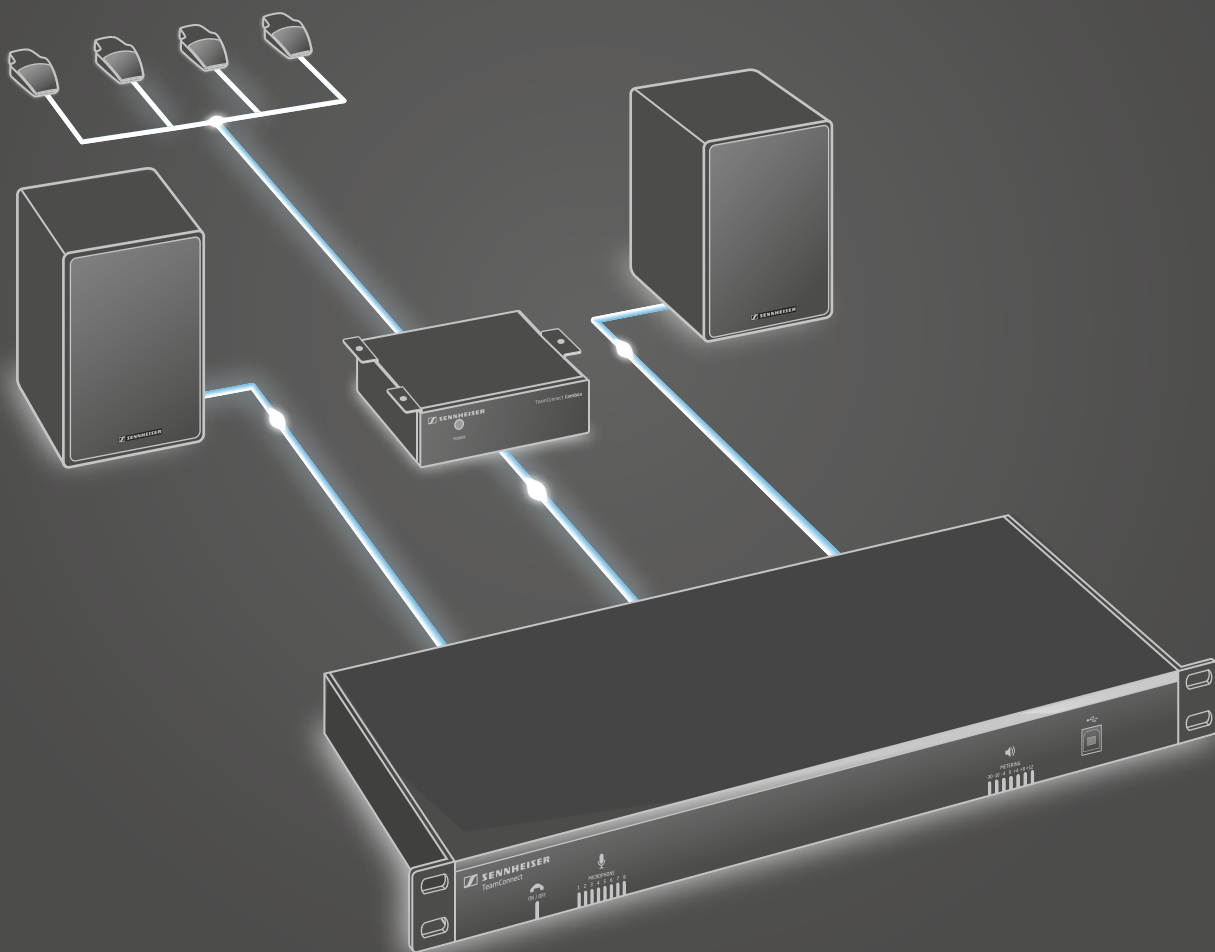
Contents

Important safety instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
10. Only use attachments/accessories specified by the manufacturer.
11. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
12. Unplug this apparatus during lightning storms or when unused for long periods of time.
13. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
14. Use the mains plug to disconnect the apparatus from the mains.
15. Warning: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
16. Do not expose this equipment to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on the equipment.
17. The mains plug of the power supply cord shall remain readily operable.
18. Ensure that the power supply is
    - properly plugged into the wall socket,
    - only operated within the permissible temperature range (see "Specifications"),
    - not covered or exposed to direct sunlight for longer periods of time in order to prevent heat accumulation.
19. The power supply must be readily accessible so that the equipment can be easily disconnected from the AC power.
20. Do not attempt to service the power supply yourself, as opening or removing covers may expose you to dangerous voltage, and will void the limited warranty.

Risk of fire due to overloading

Do not overload wall outlets and extension cables as this may result in fire and electric shock.

Danger of hearing damage due to high volumes

This product is used for commercial purposes. Commercial use is subject to the rules and regulations of the trade association responsible. Sennheiser, as the manufacturer, is therefore obliged to expressly point out possible health risks arising from use.

The product can produce sound pressure exceeding 85 dB(A). 85 dB(A) is the sound pressure corresponding to the maximum permissible volume which is by law (in some countries) allowed to affect your hearing for the duration of a working day. It is used as a basis according to the specifications of industrial medicine. Higher volumes or longer durations can damage your hearing. At higher volumes, the duration must be shortened in order to prevent hearing damage.

The following are sure signs that you have been subjected to excessive noise for too long a time:

- You can hear ringing or whistling sounds in your ears.
- You have the impression (even for a short time only) that you can no longer hear high notes.

Inform all operators about these facts and, if necessary, ask them to set the volume to a medium level.

Intended use

Intended use of the product includes

- using the product for professional purposes,
- having read and understood this instruction manual, especially the chapter ''Important safety instructions'',
- using the product within the operating conditions and limitations described in this instruction manual.

''Improper use'' means using the product other than as described in this instruction manual, or under operating conditions which differ from those described herein.

Package contents

Products

SL TeamConnect CUCB1 Art. No. 506230	1	Central Unit SL TeamConnect CU1
	1	Combox SL TeamConnect CB1
	1	power adapter
	4	rack mount screws
	4	rubber washers for the rack mount screws
	8	3-pin orange terminal connectors
	2	3-pin green terminal connectors
	8	3-pin black terminal connectors
	1	6-pin black terminal connector
	1	RJ-9 cable
	1	RJ-11 cable
	2	RJ-45 cables
	1	RJ-45 patch cable
	1	USB cable
	1	quick guide
	1	quick guide sticker
	1	room sticker
	1	safety guide
SL Mobile Adapter 1 Art. No. 506767	1	SL Mobile Adapter 1
SL Mic Hub 1 Art. No. 506606	1	SL Mic Hub 1
	1	RJ-45 to 12-pin terminal connector adapter cable
	1	6- pin terminal connector cable
	1	quick guide
	1	safety guide
SL Loudspeaker 52 A Art. No. 506243	1	SL Loudspeaker 52 A
	1	SL SpeakerMount 100 wall mounting system
	1	quick guide
	1	safety guide
MAS 1 TC black: Art. No. 506722 white: Art. No. 506723 grey: Art. No. 506724	1	MAS 1 TC
	1	XLR-5 to 7-pin terminal connector cable
	1	quick guide
	1	safety guide
MAS 2 TC black: Art. No. 506603 white: Art. No. 506604 grey: Art. No. 506605	1	MAS 2 TC
	1	XLR-5 to 6-pin terminal connector cable
	1	quick guide
	1	safety guide

MEB 102-L TC	1	MEB 102-L
black: Art. No. 506729	1	XLR-5 to 5-pin terminal connector cable
white: Art. No. 506763	1	quick guide
grey: Art. No. 506764	1	safety guide

MEB 104-L TC	1	MEB 104-L
black: Art. No. 506730	1	XLR-5 to 5-pin terminal connector cable
white: Art. No. 506765	1	quick guide
grey: Art. No. 506766	1	safety guide

MEB 114-S TC	1	MEB 114-S TC with fixed 5-pin terminal connector cable
black: Art. No. 506600	1	quick guide
white: Art. No. 506601	1	safety guide
grey: Art. No. 506602		

Accessories

Mains cable 5 m EU white	Art. No. 506276
Mains cable 5 m UK white	Art. No. 506277
Mains cable 5 m US white	Art. No. 506278
Mains cable 1.8 m EU black	Art. No. 549345
Mains cable 1.8 m UK black	Art. No. 556917
Mains cable 1.8 m US black	Art. No. 556918
3.5 mm jack stereo cable for SL Mobile Adapter 1	Art. No. 556961

Bundles

	TeamConnect System	TeamConnect Standard Fix	TeamConnect Standard Flex	TeamConnect Large Fix	TeamConnect Large Flex
SL TeamConnect CUCB1	1	1	1	1	1
SL Mobile Adapter 1	1	1	1	1	1
SL Mic Hub 1	-	1	1	2	2
SL Loudspeaker 52 A	-	2	2	2	2
MAS 1 TC	-	1	-	2	-
MAS 2 TC	-	1	1	1	1
MEB 104-L TC	-	4	-	8	-
MEB 114-S TC	-	-	4	-	8
Mains cable 5 m	-	2	2	2	2
Mains cable 1.8 m	1	1	1	1	1
3.5 mm jack stereo cable	1	1	1	1	1

Article numbers

TeamConnect System EU	Art. No. 506235
TeamConnect System UK	Art. No. 506236
TeamConnect System US	Art. No. 506237
TeamConnect Standard Fix EU	Art. No. 506737
TeamConnect Standard Fix UK	Art. No. 506738
TeamConnect Standard Fix US	Art. No. 506739
TeamConnect Standard Flex EU	Art. No. 506740
TeamConnect Standard Flex UK	Art. No. 506741
TeamConnect Standard Flex US	Art. No. 506742
TeamConnect Large Fix EU	Art. No. 506743
TeamConnect Large Fix UK	Art. No. 506744
TeamConnect Large Fix US	Art. No. 506745
TeamConnect Large Flex EU	Art. No. 506746
TeamConnect Large Flex UK	Art. No. 506747
TeamConnect Large Flex US	Art. No. 506748

How to read this manual

This instruction manual is divided into two parts:

- The first part gives a general overview of the TeamConnect system, introducing its usage and components. See ''The Sennheiser TeamConnect solution'' on page 11.
- The second part is the installation guide which contains detailed information on how to install, connect and configure the TeamConnect components. See ''Installing and connecting the TeamConnect components'' on page 22.

System Introduction

The Sennheiser TeamConnect solution

The Sennheiser Group, with its headquarters in Germany, is one of the world's leading manufacturers of microphones, headphones and wireless transmission systems. We are shaping today the audio world of tomorrow – that is the ambition that we and our company live by from day to day. This vision statement describes what we are hoping to achieve together. The foundation for this is our history, our culture of innovation and our passion for excellence.

With TeamConnect Sennheiser provides a professional complete audio system for meeting rooms which require a web and telephone conference infrastructure. Due to the optimization for speech intelligibility all TeamConnect components such as microphones and loudspeakers match perfectly.

By using your business devices such as your iPad or your notebook you will be able to start the meeting immediately. All necessary components are provided by Sennheiser with the main objective: you care for your business, Sennheiser for your conversations at meetings.
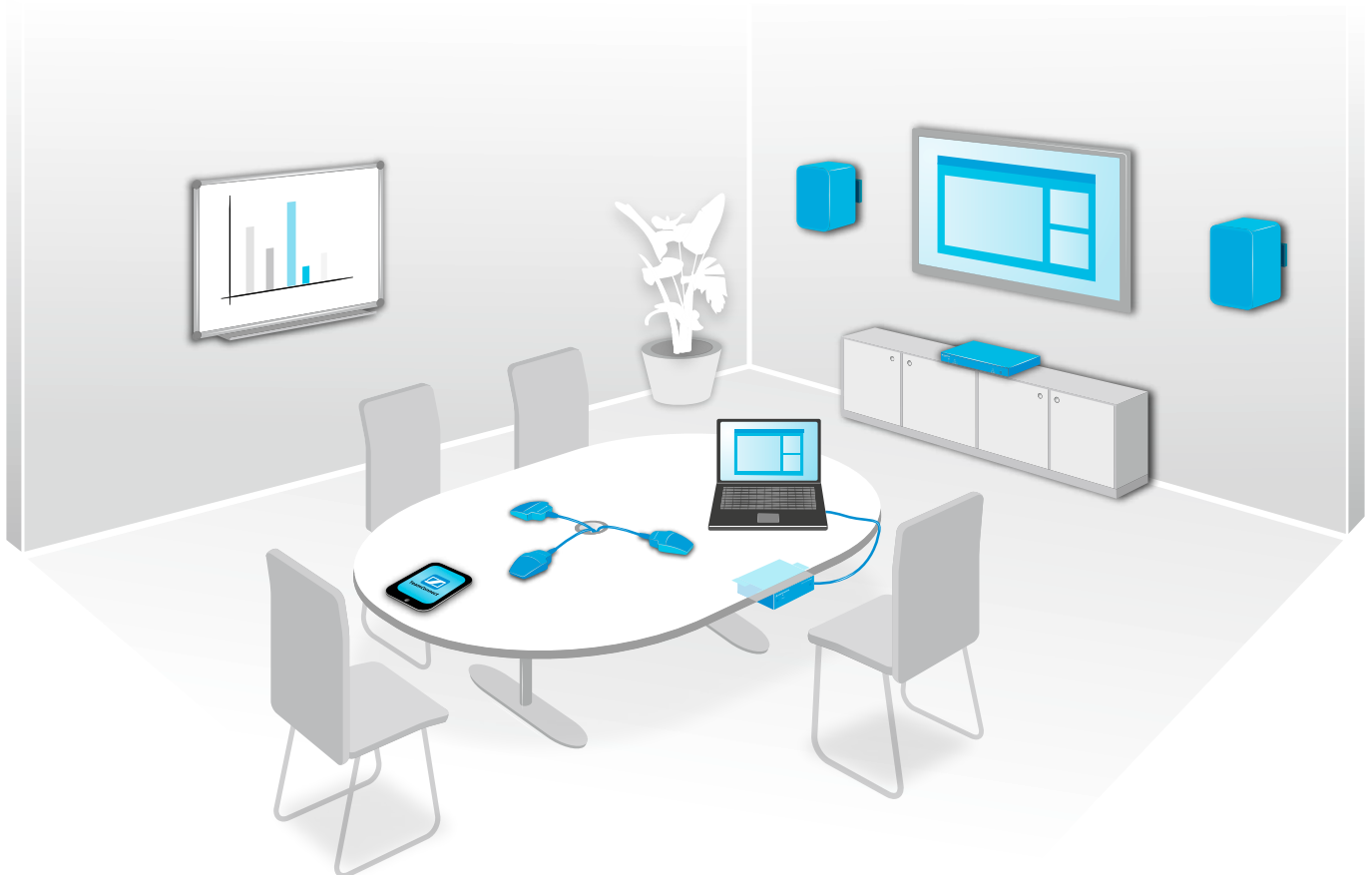
Using the TeamConnect system

The Sennheiser TeamConnect system can be used for both teleconferencing and web conferencing applications.

In teleconferences the system is operated with a mobile dialer iOS App for iPad / iPhone or with a browser-based dialer for computers (e.g. laptop, tablet, etc.). With the dialer you can establish the telephone connection and control the audio signals of the teleconference.

For web conferencing you need a computer with a web conferencing software (e.g. WebEx, Skype, etc.) which you connect via USB to the TeamConnect Combox in the meeting room. The Combox is the audio interface which is required to process the audio signals of the web conference in the TeamConnect system.

> It is possible to use the TeamConnect system for both teleconferencing and web conferencing simultaneously.

The TeamConnect Quick Guide
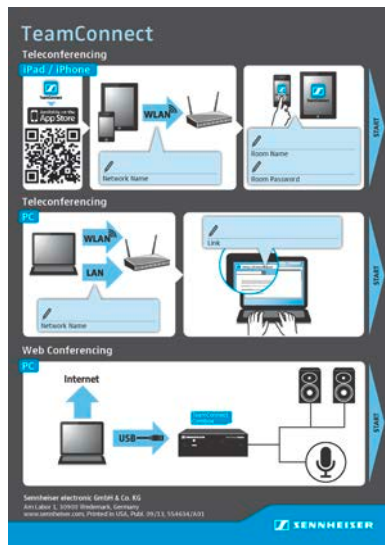
In the meeting room you will find a Quick Guide which provides an overview of how to use your personal device for both teleconferencing and web conferencing. In the designated text fields, the Quick Guide contains all information required to start a teleconference or a web conference.

In case of doubt, refer to your system administrator for help.

Using the TeamConnect system for teleconferencing

For teleconferences the TeamConnect system is used to establish the telephone connection and to process all audio signals of the teleconference. The mobile dialer iOS App or the browser-based dialer are used to operate the TeamConnect system. You can use the dialer to dial the desired telephone number and to control all audio signals of the teleconference.

> ℹ The mobile dialer and the browser-based dialer have the same functionality. You can use both to select the desired meeting room and then dial a telephone number to start the teleconference.

mobile dialer iOS App
"TeamConnect" on iPad / iPhone
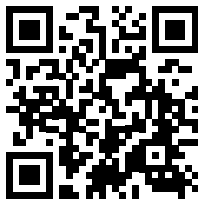
To start a teleconference with the mobile dialer iOS App:

▶ Download the iOS App "TeamConnect" from the App Store and install it on your iPad / iPhone.

You can download the iOS App via the QR code on the left or via this link: https://itunes.apple.com/app/teamconnect/id691162558

You can also perform a search for "Sennheiser TeamConnect" in the App Store.

▶ Connect your iPad / iPhone via WLAN to the desired network.
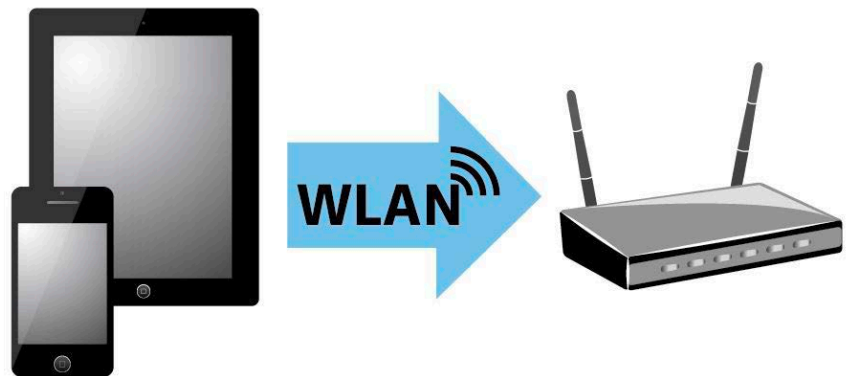
▶ Start the "TeamConnect" mobile dialer iOS App on your iPad / iPhone.
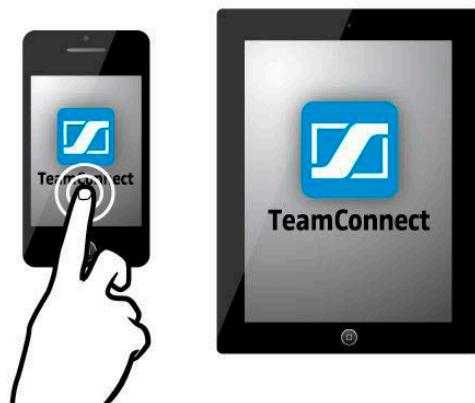
▶ Select the desired meeting room in the ''TeamConnect'' App.
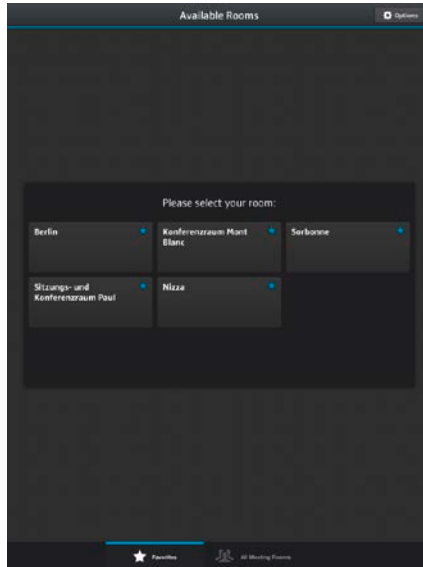
▶ Log in using the room password provided by the system administrator.
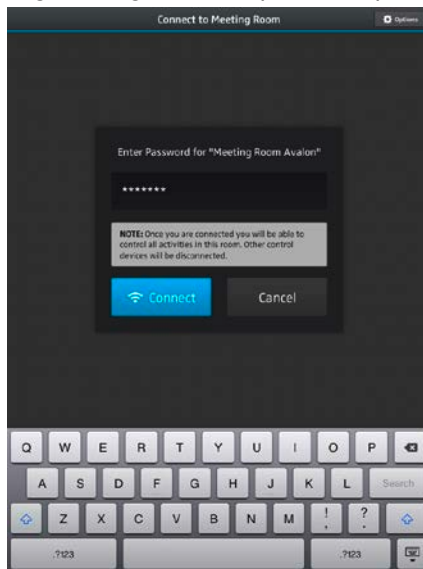
▶ Dial a telephone number or select a number from the TeamConnect Phonebook or the Address Book of your iPad / iPhone to start the teleconference.
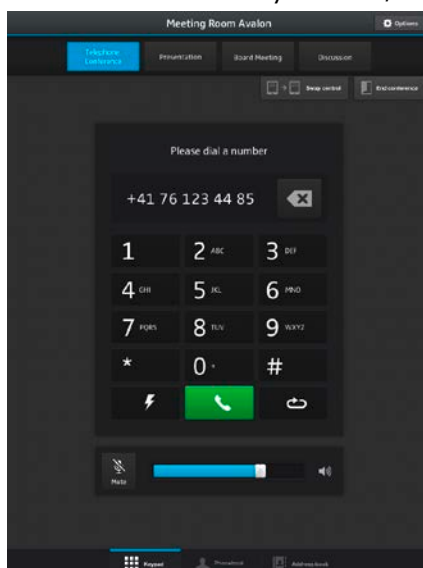
browser-based dialer on computer

To start a teleconference with the browser-based dialer:

▶ Connect your computer via WLAN or LAN to the desired network.
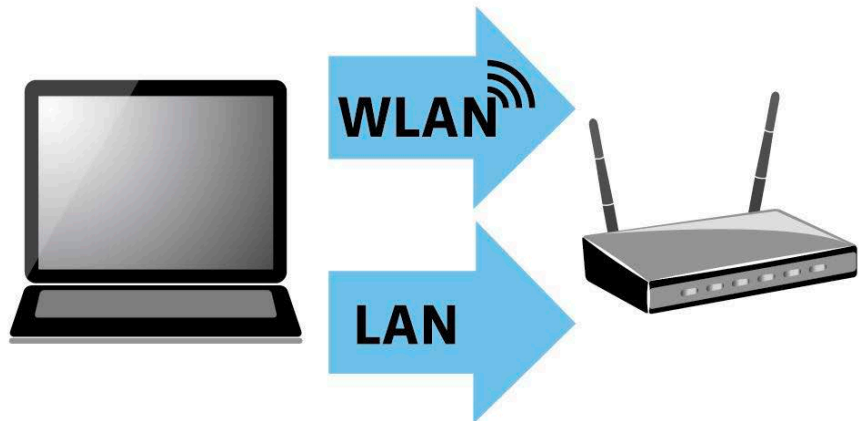
▶ Open a web browser on your computer.
▶ Enter the address of the meeting room in the address bar of the browser. The address is provided by the system administrator.

ℹ In order to use the browser-based dialer please note that JavaScript and Cookies must be enabled in your web browser.

browser-based dialer on computer

To start a teleconference with the browser-based dialer:

▶ Connect your computer via WLAN or LAN to the desired network.

▶ Enter the room password provided by the system administrator.
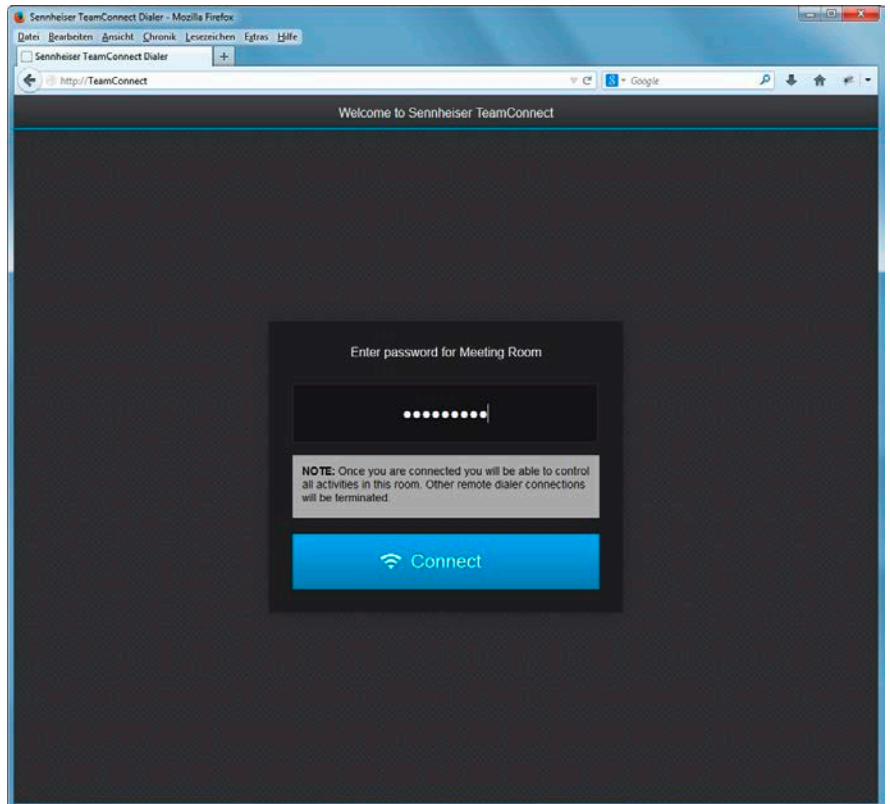
▶ Dial a telephone number or select a number from the TeamConnect Phonebook to start the teleconference.
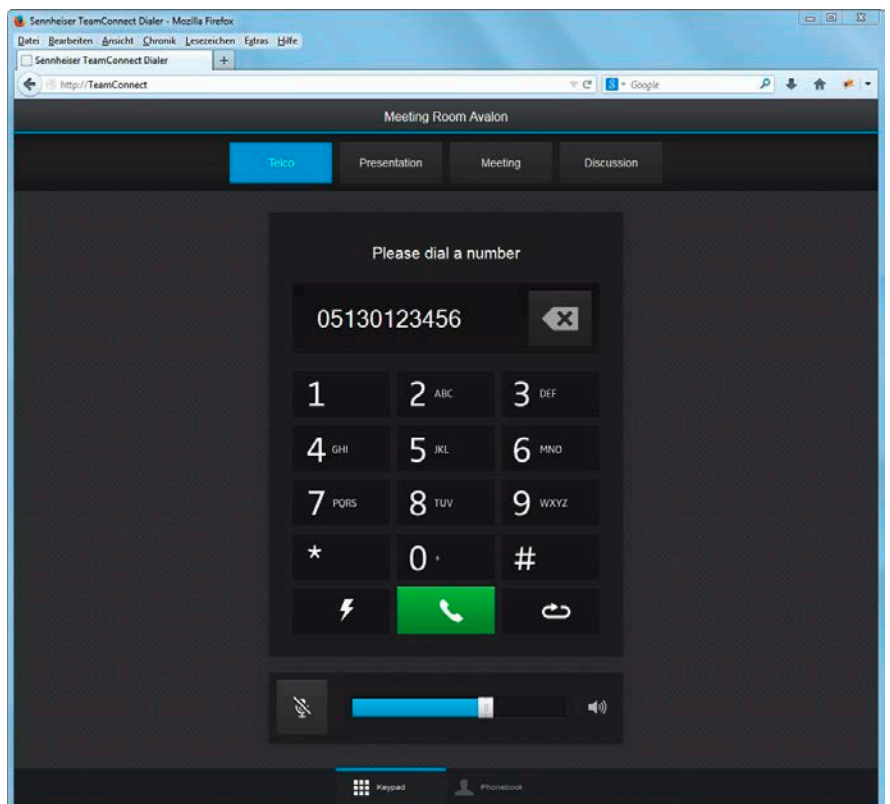
Using the TeamConnect system for web conferencing

For web conferences the TeamConnect system is used to process all audio signals of the web conference. The web conference must be started with a web conferencing software (e.g. WebEx, Skype, etc.) installed on a computer. The computer with the web conferencing software is connected to the TeamConnect system via the TeamConnect Combox in the meeting room, which is the audio interface for connecting the computer to the TeamConnect system.
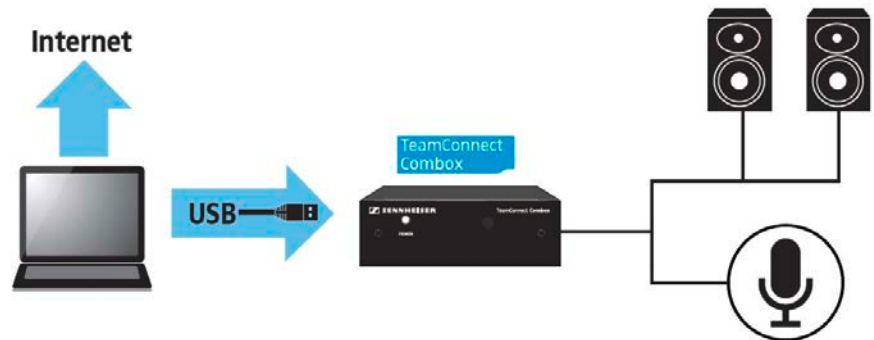
To use the TeamConnect system for web conferencing:

▶ Connect your computer to the TeamConnect Combox with a USB cable.

The TeamConnect Combox is installed in the meeting room.
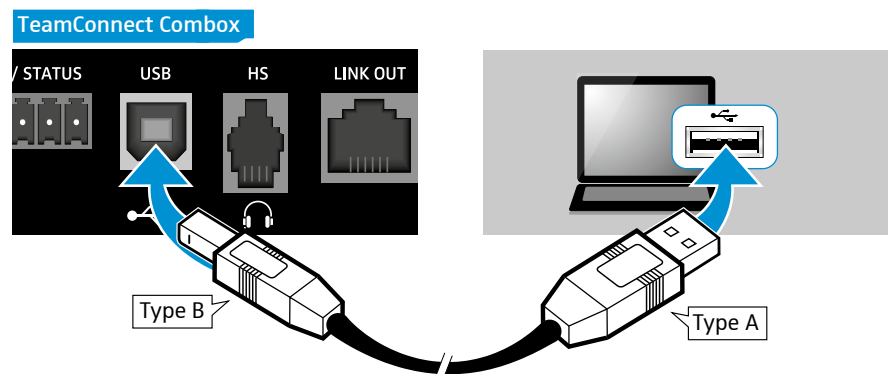
The TeamConnect Combox is detected as the USB audio device "Sennheiser TeamConnect" and is installed automatically on your computer as a plug & play audio device.

▶ Connect your computer to the internet.

▶ Start your web conferencing software.

▶ In your web conferencing software select "Sennheiser TeamConnect" as audio device for incoming and outgoing audio signals.

All audio signals of your web conference are processed and reproduced via the TeamConnect system.

Using the TeamConnect system for conferencing applications with mobile phones or tablet PCs

An additional possibility to start a telephone or web conference is connecting any mobile phone or tablet PC with a 3.5 mm jack socket to the Headset port of the TeamConnect Combox. For that purpose you need the SL Mobile Adapter 1 from 3.5 mm jack socket to RJ-9, which is available as an accessory of the TeamConnect system.

In addition to the SL Mobile Adapter 1 you need a 3.5 mm jack cable, which is also available as a Sennheiser accessory (see page 8).

To connect your mobile phone or your tablet PC to the TeamConnect Combox:

▶ Connect the RJ-9 connector of the SL Mobile Adapter 1 to the HS socket of the TeamConnect Combox.
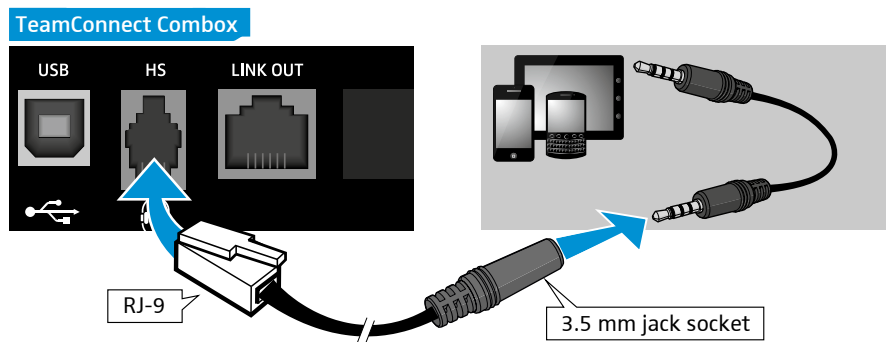
▶ Connect the 3.5 mm jack socket of the SL Mobile Adapter 1 to the 3.5 mm jack socket of your mobile device using the 3.5 mm jack stereo cable.

The audio signals of the applications on your mobile device are processed and reproduced via the TeamConnect system.

The TeamConnect components

The following Sennheiser components are part of or compatible with the TeamConnect system.

TeamConnect Central Unit

The TeamConnect Central Unit is an automatic mixer for processing audio inputs (e.g. microphones, telephone audio, computer audio) and outputs (e.g. loudspeakers) for teleconferencing and web conferencing applications.

All components used with the TeamConnect system are connected to the Central Unit. It has 10 audio input channels for up to 8 microphones and 2 auxiliary audio devices as well as 8 audio output channels. The network and telephone landline connections are also established by the Central Unit.

For using the TeamConnect system you do not need to operate the Central Unit directly. The system is operated via your own device (e.g. tablet, smartphone or computer). That is why the Central Unit can be installed permanently once all connections have been established by the system administrator.

TeamConnect Combox

The TeamConnect Combox is the audio interface of the TeamConnect system. It is connected to the Central Unit and installed in the meeting room. It is used to add USB audio and headset audio to the TeamConnect system.

When you use a computer for web conferencing, the TeamConnect Combox is required to process all audio signals of the computer in the TeamConnect system.

An additional feature of the TeamConnect Combox is the possibility of connecting a telephone headset or an enterprise telephone for processing the audio signal of the headset or the enterprise telephone in the TeamConnect system.

Microphone Hub
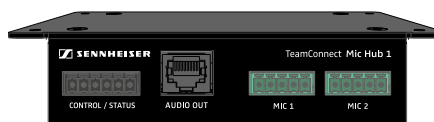
The Microphone Hub simplifies the cabling of the TeamConnect system. It allows for the connection of up to four microphones and two logic control buttons.

Then, all the signals are bundled in only one cable which is connected to the Central Unit. This reduces the amount of cables needed in contrast to all microphones being connected individually to the Central Unit.

SpeechLine microphones and microphone accessories

The Sennheiser SpeechLine microphone series offers a variety of different microphones and microphone accessories for different applications. The following SpeechLine microphones should be used with the TeamConnect system:

MEB 102: in-table boundary layer microphone (omni-directional)

MEB 104: in-table boundary layer microphone (with directional characteristic)

MEB 114: on-table boundary layer microphone (with directional characteristic)

MAS 1 TC: in-table logic control button for microphone mute function

MAS 2 TC: in-table logic control button for telephone hook function

> ℹ For further information on the Sennheiser SpeechLine microphones and microphone accessories refer to the product page of the SpeechLine microphone series at www.sennheiser.com or the instruction manual of the SpeechLine microphone series.

SpeechLine active loudspeakers

The Sennheiser SL Loudspeaker 52 A is part of the SpeechLine product family and is compatible with the TeamConnect solution. It has been developed to provide the best possible audio experience and speech intelligibility in meeting environments.

> ℹ For further information on the Sennheiser SL Loudspeaker 52 A refer to the product page at www.sennheiser.com or the instruction manual of the loudspeaker.

Configuration Manager software
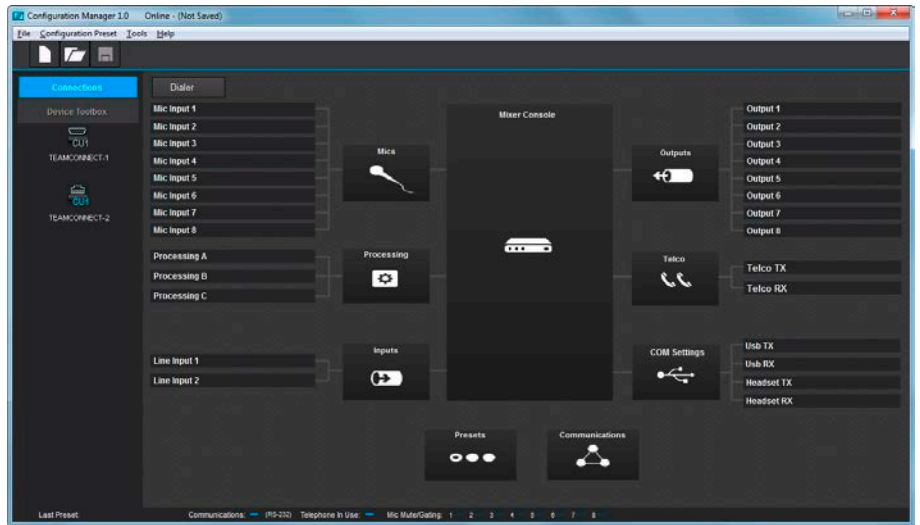
The Configuration Manager software is used by the system administrator to set up and configure all components used with the TeamConnect system. It is not used for operating the TeamConnect system for teleconferencing and web conferencing.

The Configuration Manager software is required to adjust the settings of the installed components.

For information on how to adjust the settings in the Configuration Manager software refer to chapter ''The Configuration Manager software'' on page 41.

Installation Guide

Installing and connecting the TeamConnect components

The Installation Guide is the second part of this instruction manual and provides detailed information on how to install, connect and configure the different components and devices of the TeamConnect solution.

The following illustration provides a schematic overview of the components and connections of the TeamConnect system. The components highlighted in orange must be accessible for the user in the meeting room. The components highlighted in blue form the system infrastructure.
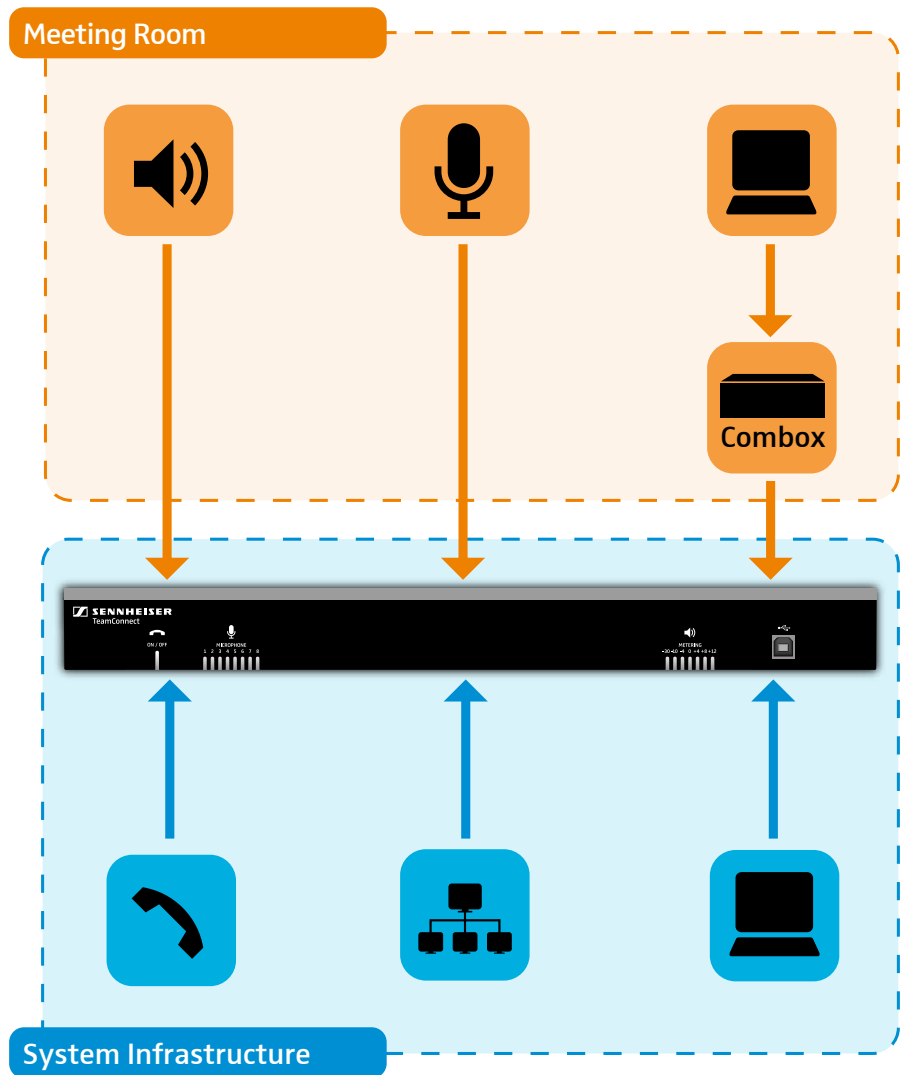
SL TeamConnect CU1 - Product overview

Front

① ON / OFF hook indicator	📞	Indicates if the telephone line is active (blue) or inactive (red)
② MICROPHONE indicators	🎤	Indicate which microphone channels are active (blue) or muted (red)
③ METERING indicators	🔊	Indicate current meter level of the output chosen as the volume channel in the Configuration Manager software
④ USB port	⟨⟩	USB 2.0 port for connecting a computer - only for configuring the CU1 with the Configuration Manager software

Back
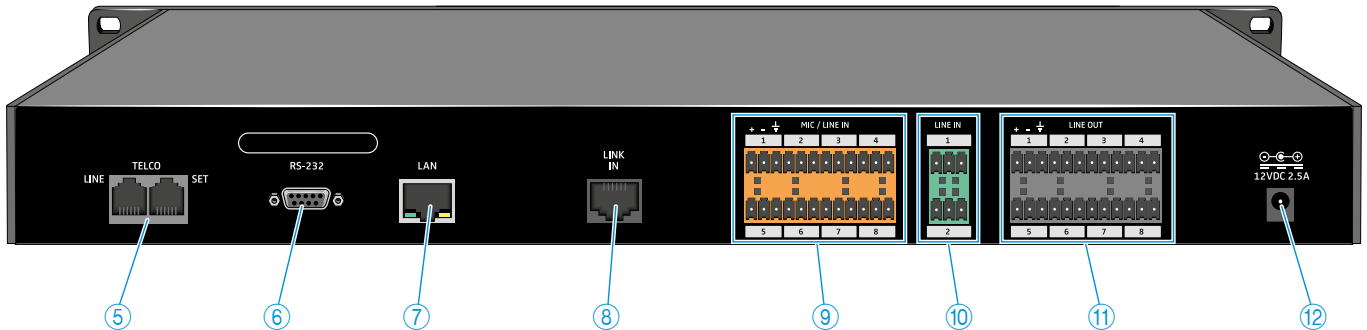
⑤ TELCO telephone interface	LINE: RJ-11 socket for connecting the CU1 to the analog landline network SET: RJ-11 socket for connecting an analog telephone set to the CU1
⑥ RS-232 control port	Control port for connecting a 3rd party media control system (e.g. AMX or Crestron)
⑦ LAN RJ-45 socket	Ethernet port (10/100 Mbps) for connecting the CU1 to a network
⑧ LINK IN RJ-45 socket	Link input for connecting the CB1 to the CU1
⑨ MIC / LINE IN inputs	Audio input terminal for microphone and/or line level inputs
⑩ LINE IN inputs	Audio input terminal for line level inputs only
⑪ LINE OUT outputs	Audio output terminal
⑫ Power adapter input	12 V DC 2.5 A

SL TeamConnect CB1 - Product overview

Front
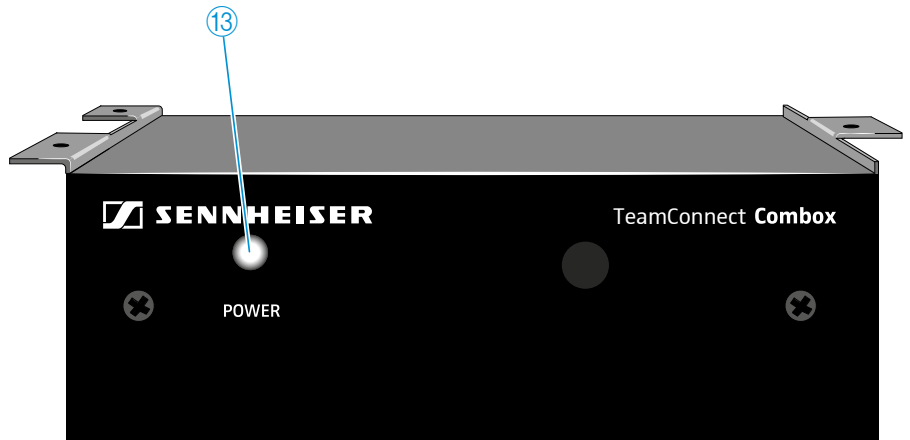
⑬ POWER indicator

Back
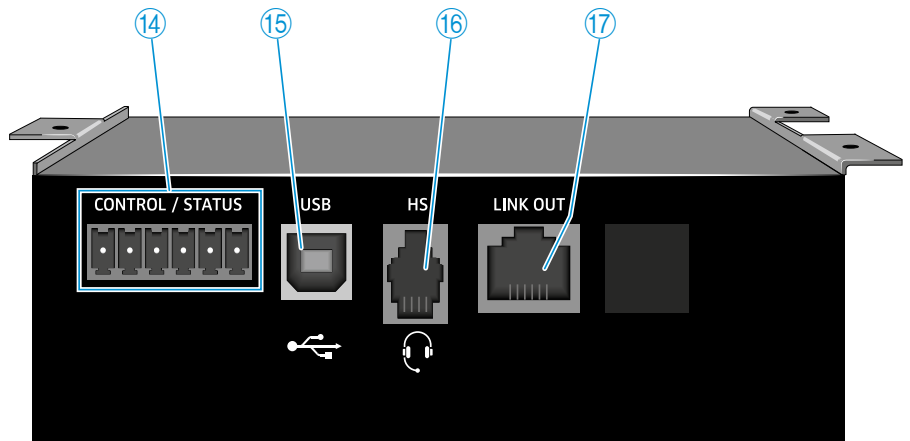
⑭ CONTROL / STATUS socket	GPIO port for connecting external switches or status indicators or the SL Mic Hub 1
	ℹ️ For information on the pin allocation refer to page 31.
⑮ USB port	USB 2.0 port for connecting a computer to the CB1 in order to process the audio signals of the computer with the TeamConnect system
⑯ HS RJ-9 socket	Input for connecting a telephone headset or the headset connector of an enterprise telephone to the CB1
⑰ LINK OUT RJ-45 socket	Link output for connecting the CB1 to the link input of the CU1 with a standard Cat 5 cable

SL Mic Hub 1 - Product overview
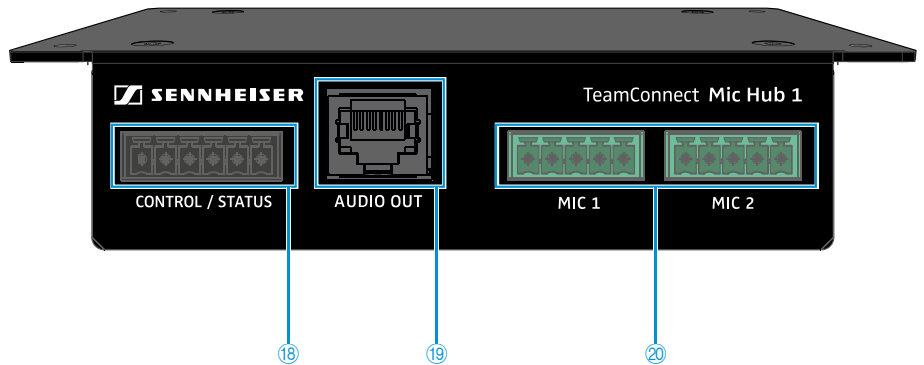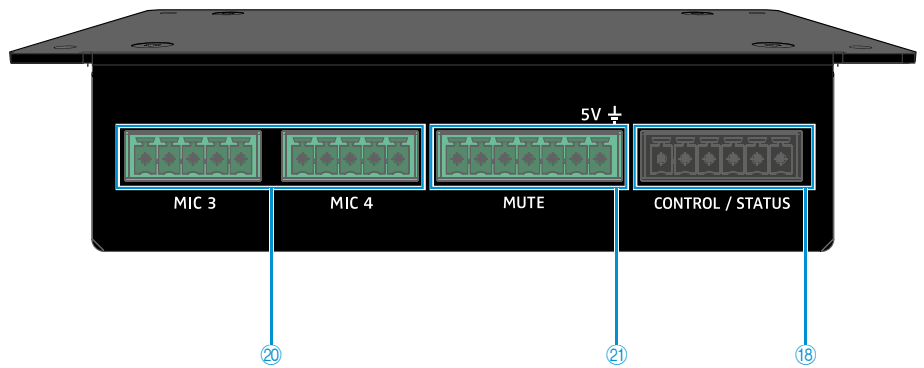
Front

CONTROL / STATUS   AUDIO OUT   MIC 1   MIC 2

⑱   ⑲   ⑳

Back

5V

MIC 3   MIC 4   MUTE   CONTROL / STATUS

⑳   ㉑   ⑱

⑱ CONTROL / STATUS sockets	Logic ports for connecting the MAS 2 TC hook button, the SL TeamConnect CB1 or a second SL Mic Hub 1
⑲ AUDIO OUT socket	RJ-45 socket for connecting the SL Mic Hub 1 to the SL TeamConnect CU1 using the supplied RJ-45 to 12-pin terminal connector adapter cable
⑳ MIC 1 - MIC 4 sockets	5-pin terminal for connecting the TeamConnect microphones
㉑ MUTE socket	7-pin terminal for connecting the MAS 1 TC mute button

Pin allocation

MIC 1 - MIC 4 sockets

1   2   3   4   5
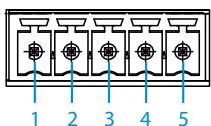
1   mute
2   mute status
3   ground
4   audio +
5   audio -

CONTROL / STATUS sockets

1   2   3   4   5   6
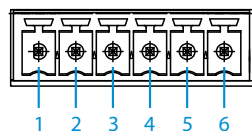
1   mute
2   mute status
3   hook
4   hook status
5   +5V
6   ground

MUTE socket

for external
power supply

1   2   3   4   5   6   7
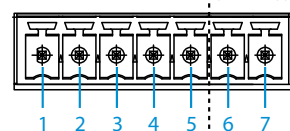
1   +5V out
2   mute
3   red
4   green
5   ground
6   +5V in
7   ground

Installing the SL TeamConnect CU1

All components of the TeamConnect system used in the meeting room setup must be connected to the central control unit SL TeamConnect CU1. When all cables are connected, the SL TeamConnect CU1 can be installed permanently. The user does not need to access the SL TeamConnect CU1 directly. All further configuration and operation is performed via iPad / iPhone or computer.

ℹ The supplied rack mounting brackets and screws allow for an installation of the CU1 in a rack unit.

⚠ **CAUTION**

Danger of injury and material damage due to incorrectly laid cables!

▶ Make sure that all cables to the product are laid so that no one can stumble over them and suffer injury or cause damage to the cables and the product.

Connecting the SL TeamConnect CU1 to the mains power supply

▶ Connect the cable of the power adapter to the power adapter input ⑫ of the SL TeamConnect CU1.
▶ Connect the mains cable to the power adapter.
▶ Connect the mains plug of the mains cable to a power outlet.

Disconnecting the SL TeamConnect CU1 from the mains power supply

▶ Pull out the mains plug from the power outlet.

⚠ **CAUTION**

Product damage due to unsuitable mains cables or power outlets!

An unsuitable power supply can damage the product.

▶ Only use the supplied mains cable and power adapter for connecting the product to the mains power supply.
▶ Only use multi-outlet power strips or extension cables with protective ground contacts.

Establishing a network connection

You can either connect the SL TeamConnect CU1 to an existing network or you can set up a separate wireless network for directly accessing the SL TeamConnect CU1 in telephone or web conferences. After establishing a network connection the mobile dialer iOS App "TeamConnect" or the browser-based dialer can be used to operate the system during conferences. The device which is used for dialing must be connected to the same network as the SL TeamConnect CU1.

Connecting the SL TeamConnect CU1 to an existing network
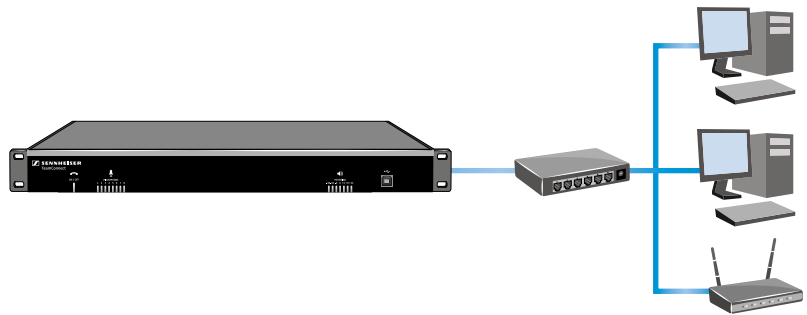
To connect the SL TeamConnect CU1 to a network:
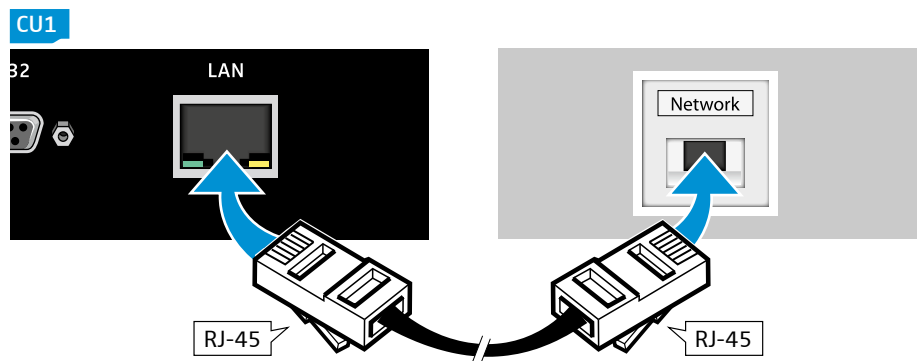
▶ Plug an RJ-45 cable into the LAN socket ⑦ of the SL TeamConnect CU1.

▶ Plug the other end of the RJ-45 cable into a network socket of your existing network.

The IP address is obtained automatically via DHCP.

ℹ️ The SL TeamConnect CU1 has an integrated DHCP client for automatic IP configuration, which is activated by default. In order to use the automatic IP configuration the network must have a DHCP server. The DHCP client of the SL TeamConnect CU1 can be deactivated in the Configuration Manager software for manually configuring the IP address (see page 55). In case of doubt, refer to your IT administrator for further information.

Setting up a separate wireless network

For exclusive access to the SL TeamConnect CU1 you can set up a separate wireless network.

To connect the SL TeamConnect CU1 to a WLAN router:
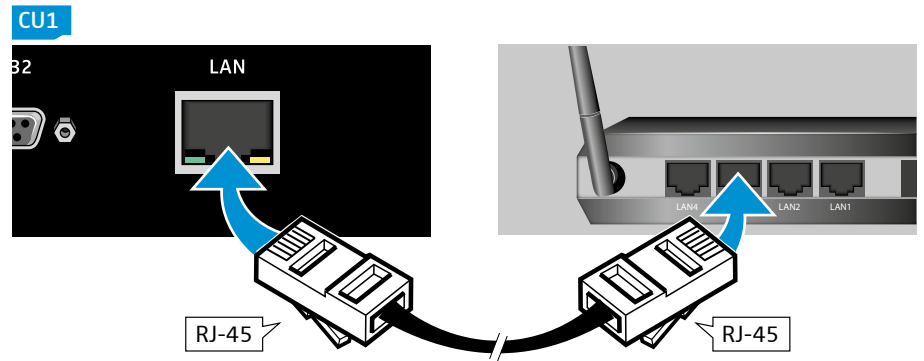
▶ Plug an RJ-45 cable into the LAN socket ⑦ of the SL TeamConnect CU1.
▶ Plug the other end of the RJ-45 cable into a network socket of the WLAN router.

You can now access the SL TeamConnect CU1 wirelessly from an iPad/iPhone or a computer.

For information on configuring the WLAN router refer to the instruction manual of the WLAN router.

Connecting the SL TeamConnect CU1 to the telephone landline network

For teleconferencing the SL TeamConnect CU1 is needed to establish the telephone connection. It must be connected to the analog telephone landline network. The SL TeamConnect CU1 also offers the possibility of connecting an analog telephone set.

Connecting the SL TeamConnect CU1 to an analog phone line

To connect the SL TeamConnect CU1 to the analog landline telephone network:
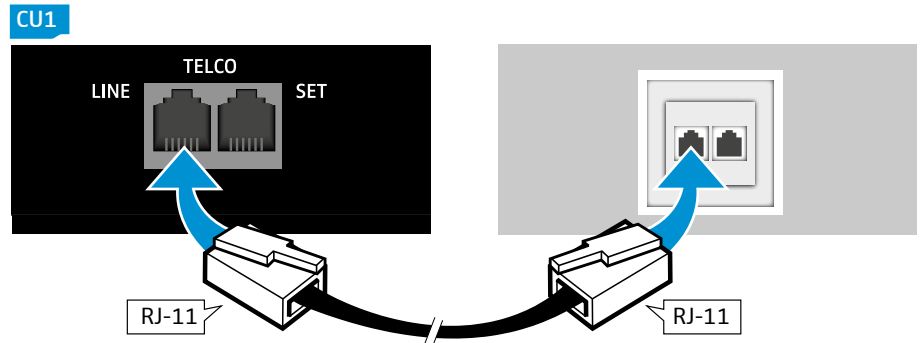
▶ Plug an RJ-11 cable into the LINE socket of the TELCO telephone interface ⑤ of the SL TeamConnect CU1.

▶ Plug the other end of the RJ-11 cable into a telephone wall socket.

  The SL TeamConnect CU1 is now connected to the analog landline telephone network. In teleconferences, the mobile dialer iOS App "TeamConnect" or the browser-based dialer can be used for dialing.

Connecting a telephone set to the SL TeamConnect CU1

To connect a telephone set to the SL TeamConnect CU1:
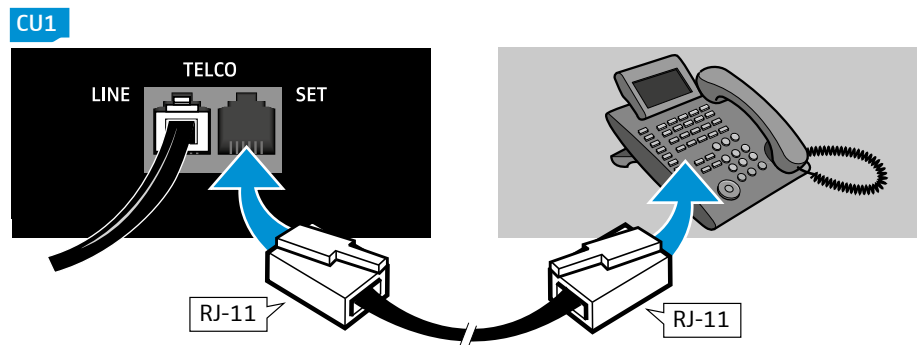
▶ Plug an RJ-11 cable into the SET socket of the TELCO telephone interface ⑤ of the SL TeamConnect CU1.

▶ Plug the other end of the RJ-11 cable into the respective socket of the telephone set.

ℹ The connected telephone set cannot be used as a substitute for the mobile dialer iOS App "TeamConnect" or the browser-based dialer. You cannot establish a teleconference with the connected telephone set. You can only use it for private calls.

Connecting the SL TeamConnect CB1 to the SL TeamConnect CU1

The SL TeamConnect CB1 is the audio interface of the TeamConnect system. It must be installed in the meeting room. The user can connect a computer for using the TeamConnect system for processing the audio signals of web conferences. The SL TeamConnect CB1 can also be used to connect a telephone headset or the headset connector of an enterprise telephone for teleconferences. The SL TeamConnect CB1 is connected to the SL TeamConnect CU1 with a standard Cat 5 RJ-45 cable.

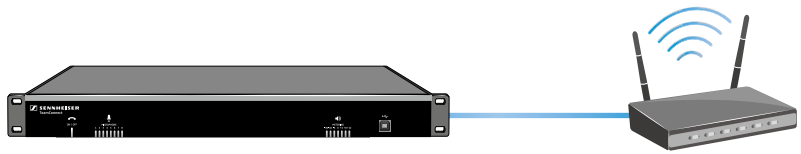To connect the SL TeamConnect CB1 to the SL TeamConnect CU1:
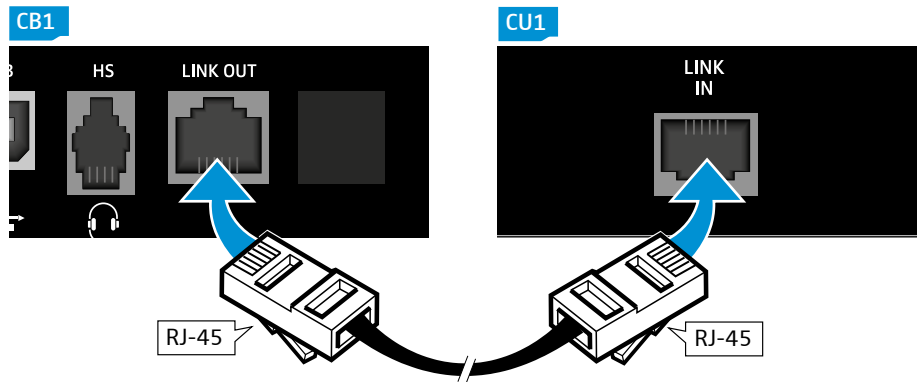
▶ Plug an RJ-45 cable into the LINK OUT socket ⑰ of the SL TeamConnect CB1.

▶ Plug the other end of the RJ-45 cable into the LINK IN socket ⑧ of the SL TeamConnect CU1.

The SL TeamConnect CB1 is now connected to the SL TeamConnect CU1 and can be used for connecting a computer or a headset.

Installing the SL TeamConnect CB1 in a meeting room

The SL TeamConnect CB1 must be installed in the meeting room in such a way that the user has easy access to it in order to connect their computer.

We recommend mounting the SL TeamConnect CB1 underneath the meeting room table with the three mounting brackets of the SL TeamConnect CB1.

Using the GPIO port of the SL TeamConnect CB1

The SL TeamConnect CB1 has a GPIO port where you can connect external switches or status indicators for controlling or indicating the mute status of a microphone or for opening and closing the telephone line.

GPIO port pin allocation

For connecting switches or status indicators observe the following pin allocation:
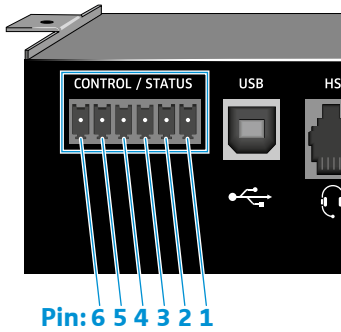
Pin	Allocation	Function
Pin 1	Microphone mute control (3.3 V; internal 10 kΩ pull-up)	Master mute function for all microphones • toggles at falling edge
Pin 2	Microphone mute status (open collector)	Status of the master mute function • output level = low → mute
Pin 3	On/Off hook control (3.3 V; internal 10 kΩ pull-up)	Opens or closes the telephone line • toggles at falling edge
Pin 4	On/Off hook status (open collector)	Sends the status of the telephone line • output level = low → active call
Pin 5	5 V DC (up to 40 mA)	Power supply
Pin 6	Ground	Ground

Using the GPIO port with Sennheiser equipment

Some of the Sennheiser SpeechLine microphones also have logic ports which can be connected to the GPIO port of the SL TeamConnect CB1. This enables the control of the master mute function and the indication of the mute status directly at the microphones. For information on connecting the SpeechLine microphones refer to the instruction manual of the SpeechLine microphone series.

Using the GPIO port with third-party equipment

When you are using third-party equipment please observe the following wiring:
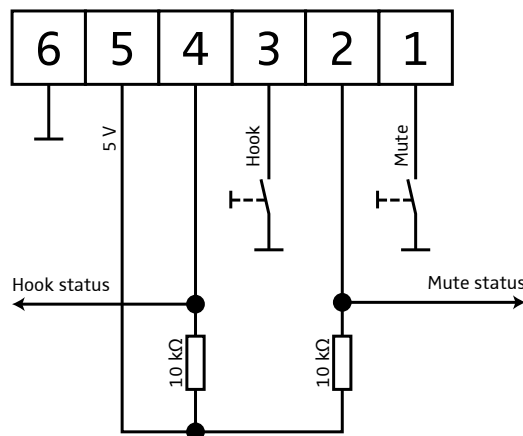
Connecting a computer
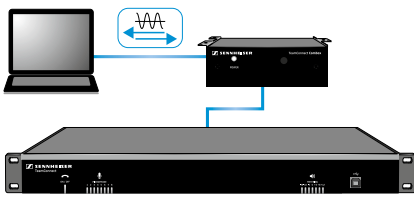
For web conferencing applications the user can use the TeamConnect system to process the audio signals of the web conference. For that purpose the computer must be connected to the SL TeamConnect CB1, which is installed in the meeting room.

To connect a computer to the SL TeamConnect CB1:
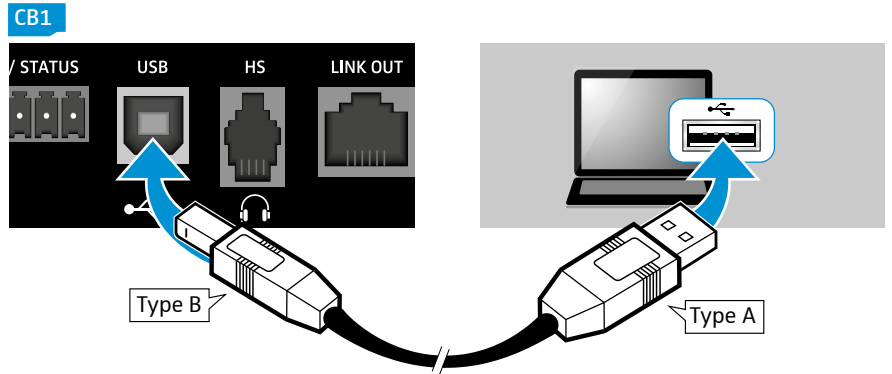
▶ Plug the type B plug of the USB cable into the USB port ⑮ of the SL TeamConnect CB1.

▶ Plug the type A plug of the USB cable into a USB port of the computer.

The SL TeamConnect CB1 is detected as a USB audio device and displayed as ''Sennheiser TeamConnect''. No additional USB driver is required.

Connecting a headset or an enterprise telephone
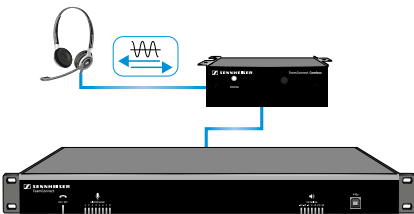
An additional possibility of using the SL TeamConnect CB1 is connecting a telephone headset or an enterprise telephone.

To connect a headset to the SL TeamConnect CB1:
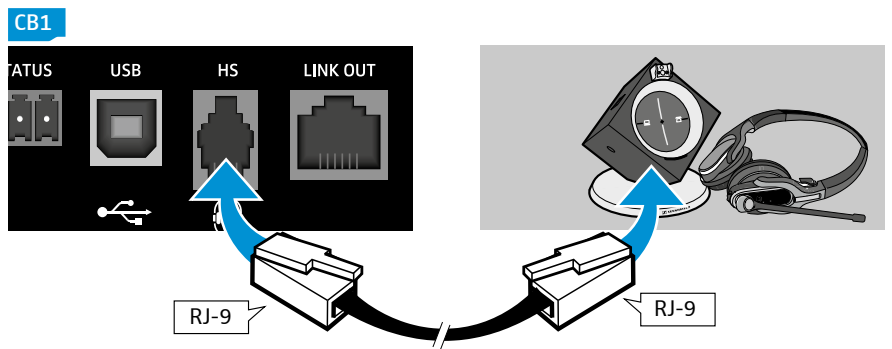
▶ Plug the RJ-9 cable of the headset into the HS RJ-9 socket ⑯ of the SL TeamConnect CB1.

To connect an enterprise telephone to the SL TeamConnect CB1:

▶ Plug an RJ-9 cable into the HS RJ-9 socket ⑯ of the SL TeamConnect CB1.

▶ Plug the other end of the cable into the headset socket of the enterprise telephone.

The audio signal of the enterprise telephone is processend in the TeamConnect system. The enterprise telephone can also be used for dialling. Therefore it must be connected to the telephone line or system.

ℹ Some headsets or enterprise telephones require further configuration of their pin allocation. These settings are configured in the **COM Settings**

configuration window of the Configuration Manager software (see page 54). For additional information refer to the instruction manual of the headset or the enterprise telephone.

Connecting the SL TeamConnect CU1 to a media control system

The TeamConnect system can be used with media control systems of third-party manufacturers (e.g. AMX, Crestron, etc.). The SL TeamConnect CU1 can be connected to a media control system via a serial connection using the RS-232 port of the SL TeamConnect CU1 or via a network connection. For network connections the Telnet protocol is used.
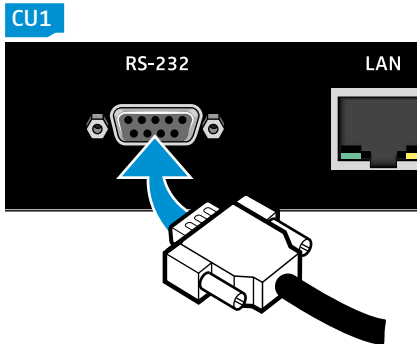
To connect the SL TeamConnect CU1 to a media control system via a serial connection:

▶ Plug an RS-232 cable into the RS-232 port ⑥ of the SL TeamConnect CU1.
▶ Plug the other end of the RS-232 cable into the respective port of the media control system.

To connect the SL TeamConnect CU1 to a media control system via a network connection:

▶ Connect the media control system to the same network as the SL TeamConnect CU1 (see page 27).

ℹ For more information on the media control system refer to the instruction manual of the respective system or the product page of the respective manufacturer.

TeamConnect Media Control Protocol

You will find the list of commands required for using the SL TeamConnect CU1 with a media control system in the TeamConnect Media Control Protocol document ''TeamConnect_Media_Control_Protocol.pdf'' on the TeamConnect product page at www.sennheiser.com.

Connecting and positioning microphones

Microphones can either be connected using the SL Mic Hub 1 or directly to the SL TeamConnect CU1.

Connecting microphones using the SL Mic Hub 1

The SL Mic Hub 1 allows for a very easy and quick connection of the TeamConnect microphones and the TeamConnect logic control buttons.

	SL Mic Hub 1	• microphone hub for connecting the TeamConnect microphones and logic control buttons • includes adapter cables for the connection to the SL TeamConnect CU1 and the SL TeamConnect CB1 • one SL Mic Hub 1 allows the connection of 4 microphones • two SL Mic Hub 1 devices can be cascaded to enable the connection of up to 8 microphones
	MEB 102-L TC	• omni-directional install boundary layer microphone • includes XLR-5 to 5-pin terminal connector adapter cable (length: 3 m)
	MEB 104-L TC	• cardioid install boundary layer microphone • includes XLR-5 to 5-pin terminal connector adapter cable (length: 3 m)
	MEB 114-S TC	• cardioid on-table boundary layer microphone • with fixed 5-pin terminal connector cable (length: 3 m)
	MAS 1 TC	• logic control button for mute function • includes XLR-5 to 7-pin terminal connector adapter cable (length: 3 m)
	MAS 2 TC	• logic control button for telephone hook function • includes XLR-5 to 6-pin terminal connector adapter cable (length: 3 m)
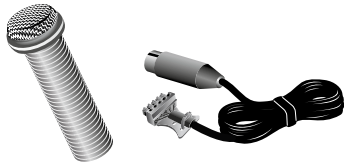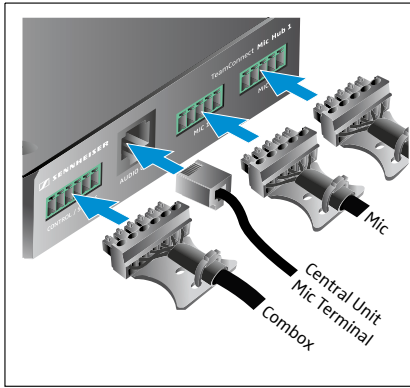
To connect the TeamConnect microphones and accessories:

▶ Connect the AUDIO OUT socket of the SL Mic Hub 1 to the MIC / LINE IN terminal of the SL TeamConnect CU1 using a shielded Cat 5 cable with RJ-45 connectors and the supplied RJ-45 to 12-pin terminal adapter.

▶ Connect the CONTROL / STATUS port of the SL Mic Hub 1 to the CONTROL / STATUS port of the SL TeamConnect CB 1 using the supplied 6-pin to 6-pin terminal connector cable.

▶ Connect the TeamConnect microphones to the MIC 1 to MIC 4 sockets of the SL Mic Hub 1.

You can connect up to 4 microphones to the SL Mic Hub 1.
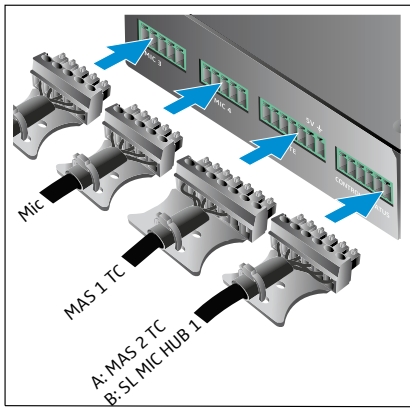
▶ Connect the MAS 1 TC mute button to the MUTE socket of the SL Mic Hub 1 using the supplied XLR-5 to 7-pin terminal connector cable.

▶ Connect the MAS 2 TC hook button to the second CONTROL / STATUS socket of the SL Mic Hub 1 using the supplied XLR-5 to 6-pin terminal connector cable.

OR, if you are using a second SL Mic Hub 1 for using four additional microphones:

▶ Connect the CONTROL / STATUS socket of the second SL Mic Hub 1 to the CONTROL / STATUS socket of the first SL Mic Hub 1 using the supplied 6-pin to 6-pin terminal connector cable.

TeamConnect system setups with the SL Mic Hub 1

Application A. up to 4 on-table microphones

- 1 x SL Mic Hub 1
- 4 x MEB 114-S TC
- 1 x MAS 2 TC

Two Cat 5 cables needed between table and Central Unit

SL Mic Hub 1

Central Unit
SL TeamConnect CU1

Combox
SL TeamConnect CB1
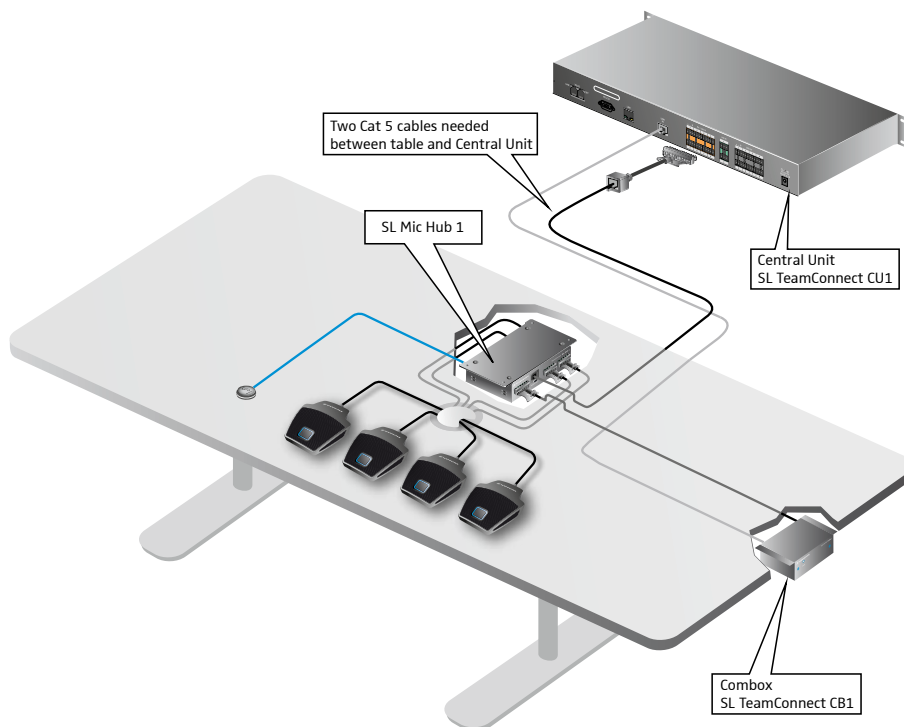
Application B: up to 4 in-table microphones

- 1 x SL Mic Hub 1
- 4 x MEB 102-L TC or MEB 104-L TC
- 1 x MAS 1 TC
- 1 x MAS 2 TC

Two Cat 5 cables needed between table and Central Unit

SL Mic Hub 1

Central Unit
SL TeamConnect CU1

Combox
SL TeamConnect CB1
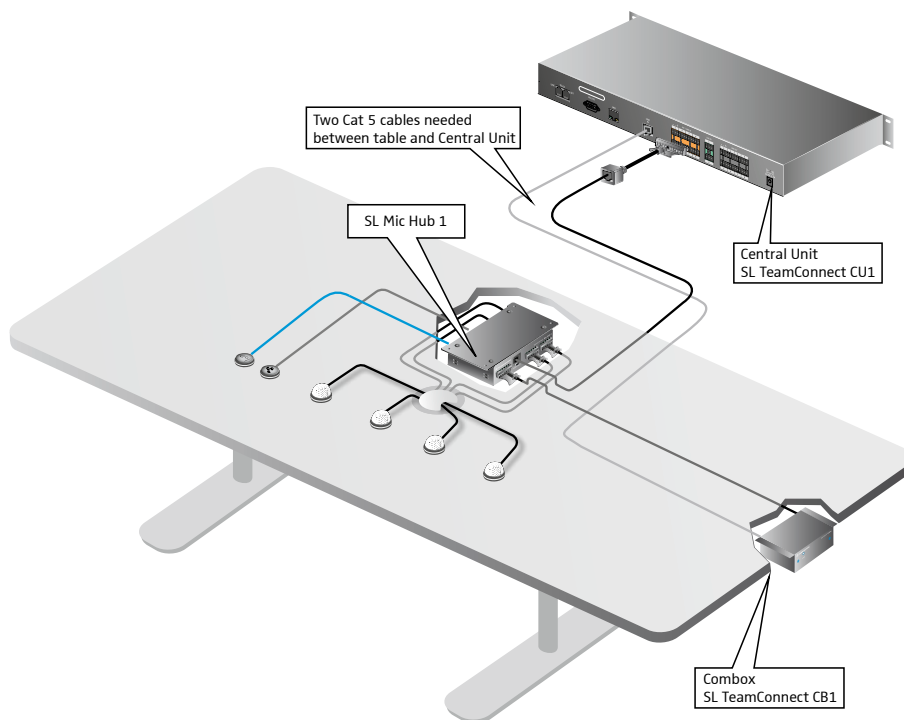
Application C: up to 8 on-table microphones

- 2 x SL Mic Hub 1
- 8 x MEB 114-S TC
- 1 x MAS 2 TC

Three Cat 5 cables needed
between table and Central Unit

SL Mic Hub 1

Central Unit
SL TeamConnect CU1

SL Mic Hub 1

Combox
SL TeamConnect CB1
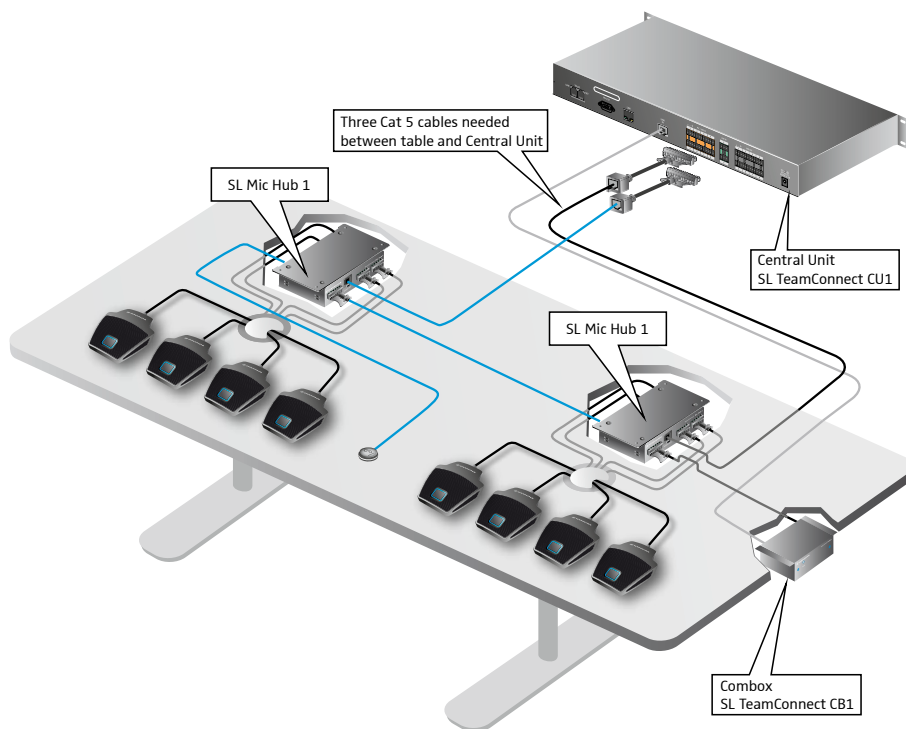
Application D: up to 8 in-table microphones

- 2 x SL Mic Hub 1
- 8 x MEB 102-L TC or MEB 104-L TC
- 2 x MAS 1 TC
- 1 x MAS 2 TC

Three Cat 5 cables needed
between table and Central Unit

SL Mic Hub 1

Central Unit
SL TeamConnect CU1

SL Mic Hub 1

Combox
SL TeamConnect CB1
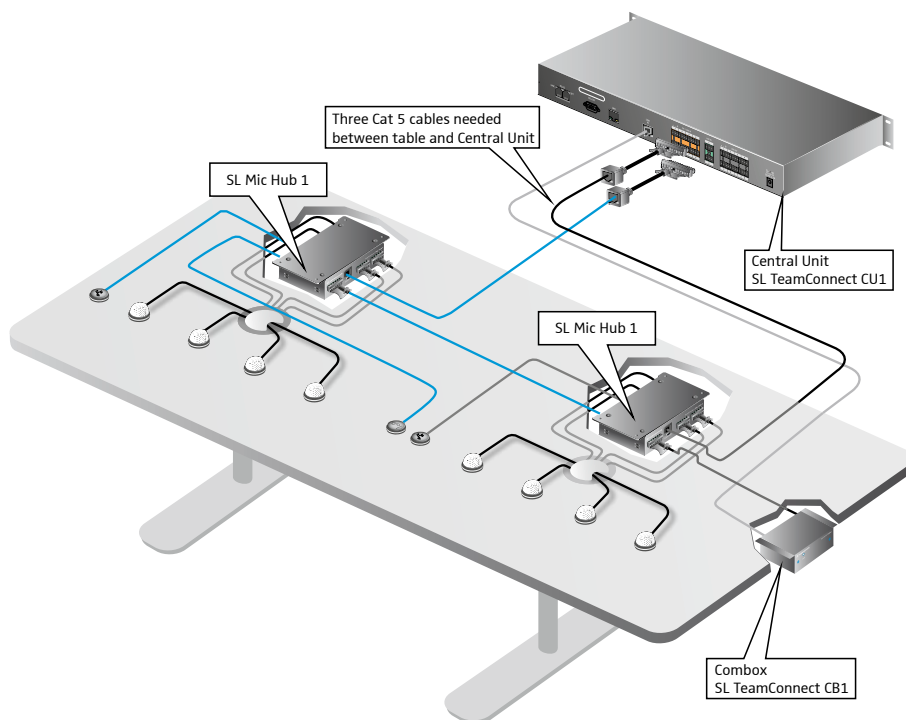
Connecting microphones directly to the SL TeamConnect CU1

You can connect up to eight microphones to the orange MIC / LINE IN terminal of the SL TeamConnect CU1. For attaching the microphone cables you need the supplied terminal connectors.
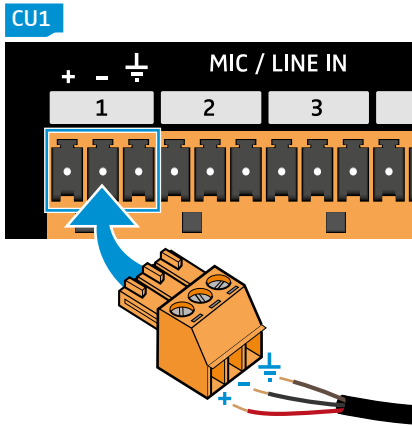
To connect a microphone to the SL TeamConnect CU1:

▶ Remove the insulation from the wires at the end of the microphone cable.

▶ Attach the three wires to the terminal connector observing the correct pin allocation (see figure on the left).

▶ Plug the terminal connector into one of the eight channels of the MIC / LINE IN terminal ⑨ of the SL TeamConnect CU1.

▶ Plug the XLR connector at the other end of the microphone cable into the microphone.

ℹ️ You can also connect line sources to the MIC / LINE IN terminal. For line sources the gain settings of the input must be adjusted in the Configuration Manager software (see "Configuring microphone settings" on page 47).

Installing the microphones in the meeting room

The Sennheiser SpeechLine microphones used with the TeamConnect system must be installed or placed in the meeting room for adequate use in telephone or web conferences.

To install the microphones in the meeting room:

▶ Observe the installation instructions in the instruction manual of the SpeechLine microphone series.

To configure the audio settings of a connected microphone:

▶ See "Configuring microphone settings" on page 47.

ℹ️ For further information on the Sennheiser SpeechLine microphones refer to the instruction manual of the SpeechLine microphone series or the product page at www.sennheiser.com.

Connecting auxiliary audio devices

The green LINE IN input terminal of the SL TeamConnect CU1 allows the connection of auxiliary audio devices. These could be the audio signals of video conferencing systems or DVD players in the meeting room. For attaching the audio cables you need the supplied terminal connectors.
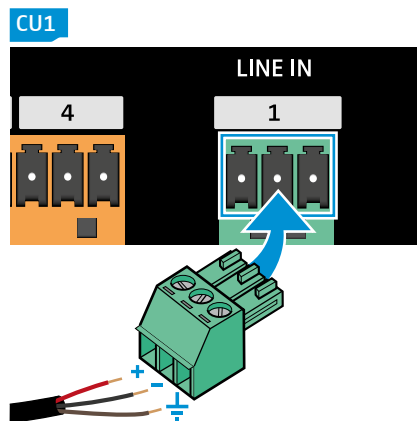
To connect an auxiliary audio device to the SL TeamConnect CU1:

▶ Remove the insulation from the wires at the end of the audio cable.

▶ Attach the three wires to the terminal connector observing the correct pin allocation (see figure on the left).

▶ Plug the terminal connector into one of the two channels of the LINE IN terminal ⑩ of the SL TeamConnect CU1.

▶ Plug the connector at the other end of the audio cable into the respective terminal of the auxiliary audio device.

ℹ️ For unbalanced line sources the negative contact and the ground contact must be bridged.

ℹ️ For further information on the auxiliary audio device refer to the instruction manual of the audio device.

Connecting audio output signals

The black LINE OUT terminal of the SL TeamConnect CU1 has eight audio output channels for connecting audio output signals (e.g. active loudspeakers or other audio devices).
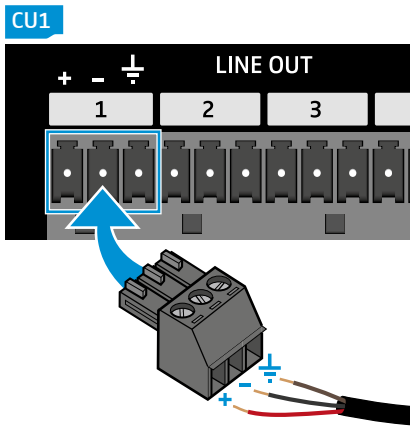
To connect an audio output signal to the SL TeamConnect CU1:

▶ Remove the insulation from the wires at the end of the audio cable.

▶ Attach the three wires to the terminal connector observing the correct pin allocation (see figure on the left).

▶ Plug the terminal connector into one of the eight channels of the LINE OUT terminal ⑪ of the SL TeamConnect CU1.

▶ Plug the connector at the other end of the audio cable into the respective terminal or socket of the active loudspeaker or audio device.

Preparing the Quick Guide and the Room Sticker for the user

The Quick Guide delivered with the product is intended to be placed in the meeting room as a resource to help the user getting started with the TeamConnect system for teleconferencing and web conferencing. The Quick Guide is available in two variants: as a paper variant and as a sticker.

The Room Sticker is a smaller version of the Quick Guide which only contains the text fields for the network and meeting room information without the illustrations.

▶ Fill out the following information in the designated text fields of the Quick Guide and the Room Sticker:

Text field	Information to be provided
Network Name	▶ Indicate the name of the network the SL TeamConnect CU1 is connected to.
Room Name	▶ Indicate the name of the meeting room for the mobile dialer iOS App. The name of the meeting room can be defined in the **Communication Settings** configuration window of the Configuration Manager software (see page 55).
Room Password	▶ Indicate the password of the room for the mobile dialer iOS App and the browser-based dialer. The default password is **Sennheiser**. The password can be changed in the **Communication Settings** configuration window of the Configuration Manager software (see page 55).
Link	▶ Indicate the address of the meeting room for the browser-based dialer. The address is **http://** followed by the device name defined in the **Communication Settings** configuration window of the Configuration Manager software (see page 55).

ℹ The Room Sticker should only be used if the user already knows how the TeamConnect system works. If the user does not know how the TeamConnect system works, the Quick Guide is useful to help them get started with the system.

The Configuration Manager software

The Configuration Manager software is available for download at www.sennheiser.com.

Installing the Configuration Manager software

i For installing and using the Configuration Manager software, you need administrator rights on the computer. Without administrator rights the software cannot be installed or used.

To install the software:

▶ Navigate to the folder where you downloaded the software and double-click **Setup.exe**.

The installation wizard launches.

▶ Follow the steps in the installation wizard.

The Configuration Manager software and the USB driver for the SL TeamConnect CU1 are installed.

i The Configuration Manager software is compatible with Windows XP, Windows Vista, Windows 7 and Windows 8.

Connecting a computer for configuring the system

In order to configure the TeamConnect system with the Configuration Manager software, you have to connect the computer, on which the Configuration Manager software is installed, to the SL TeamConnect CU1. There are three possibilities to connect the computer to the SL TeamConnect CU1:

• via the USB port at the front of the SL TeamConnect CU1
• via the RS-232 port at the back of the SL TeamConnect CU1
• via an Ethernet connection.

Connecting the computer to the SL TeamConnect CU1 via USB

To connect your computer to the SL TeamConnect CU1 via USB:

▶ Install the Configuration Manager software on your computer, so that the USB driver for the SL TeamConnect CU1 is installed on your computer.

▶ Plug the type B plug of the USB cable into the USB port ④ at the front of the SL TeamConnect CU1.

▶ Plug the type A plug of the USB cable into a USB port of your computer.
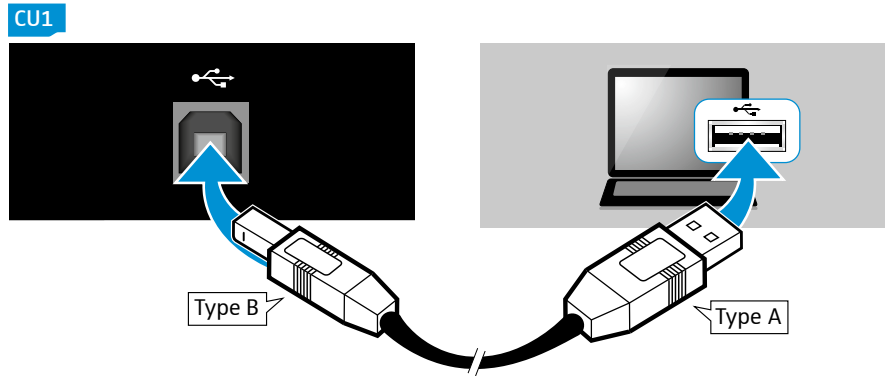
The SL TeamConnect CU1 is detected as a USB device on your computer and the USB driver is installed. The SL TeamConnect CU1 is available in the Configuration Manager software.

Connecting the computer to the SL TeamConnect CU1 via a serial cable

To connect your computer to the SL Team Connect CU1 via the RS-232 control port:

▶ Install the Configuration Manager software on your computer.

▶ Plug an RS-232 cable into the RS-232 port ⑥ of the SL TeamConnect CU1.

▶ Plug the other end of the cable into the serial port of your computer.

The SL TeamConnect CU1 is available in the Configuration Manager software.

Connecting the computer to the SL TeamConnect CU1 via an Ethernet connection

To connect your computer to the SL TeamConnect CU1 via Ethernet:

▶ Connect your computer to the same network as the SL TeamConnect CU 1 (see page 27).

▶ In the Configuration Manager software select the SL TeamConnect CU1.

▶ If prompted, enter the username and password.

The default username is **Admin** and the default password is **Sennheiser**. The username and password can be changed in the **Communication Settings** configuration window of the Configuration Manager software (see page 55).

ℹ️ If your computer is connected via USB or RS-232, you can immediately access the SL TeamConnect CU1 in the Configuration Manager software. Only if your computer is connected via Ethernet, you are prompted for a username and password before connecting. You can only make one connection at a time.
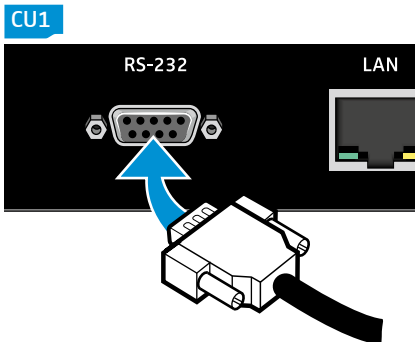
Navigating the Configuration Manager software

ℹ️ For installing and using the Configuration Manager software, you need administrator rights on the computer. Without administrator rights the software cannot be installed or used.

After starting the Configuration Manager software the start screen is displayed.
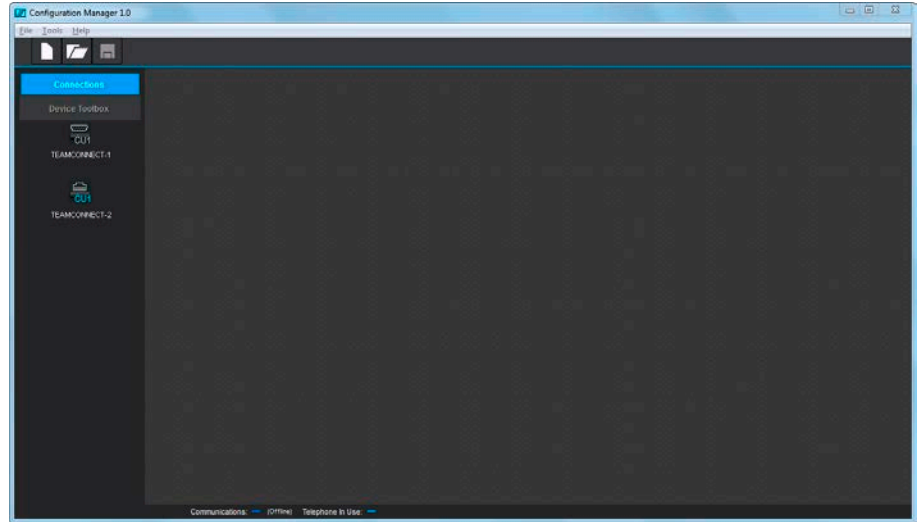
The following elements are important for navigating the Configuration Manager software.

Connections List
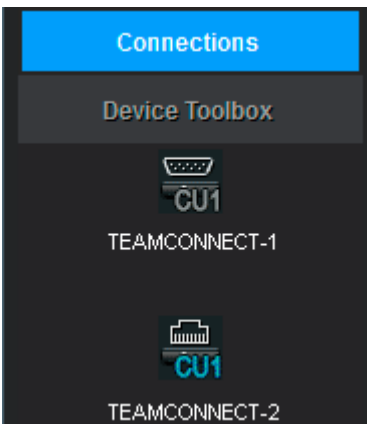
The **Connections** list is generated automatically and displays all SL TeamConnect CU1 devices available in the network or subnetwork. In the icon of each SL TeamConnect CU1 in the **Connections** list you can see the type of connection indicated with a symbol of the respective plug (USB, RS-232 or Ethernet). Underneath the icon the device name of the SL TeamConnect is displayed

To start configuring an SL TeamConnect CU1:

▶ Click on the icon of the desired SL TeamConnect CU1 in the **Connections** list.

The configuration screen of the selected SL TeamConnect CU1 opens.

ℹ️ For detailed information on configuring the SL TeamConnect CU1 refer to ''Configuring the SL TeamConnect CU1'' on page 46.

Device Toolbox

The **Device Toolbox** lists audio setting presets for the Sennheiser SpeechLine microphones and allows creating and editing audio setting presets for other common audio devices like loudspeakers, amplifiers, sound cards, etc.

ℹ️ For detailed information on using the **Device Toolbox** refer to ''Using the Device Toolbox'' on page 56.

Status Indicators

The status indicators on the bottom of the window indicate the following information.

Communications: ▪ (USB)	Telephone In Use: ▪	Mic Mute/Gating: 1 2 3 4 5 6 7 8

Status Indicator	Status
Communications	Indicates if an SL TeamConnect CU1 is connected via USB, RS-232 or Ethernet or not connected.
Telephone In Use	Indicates if the telephone line is in use.
Mic / Mute Gating	Indicates if a microphone channel is muted or gated.

Menu Bar

The menu bar provides access to the following menus and settings:

File menu

Option	Settings
New File	Creates a new configuration settings file (file extension: .CU1). This option opens a new configuration screen. An SL TeamConnect CU1 does not need to be connected. The settings can be configured working offline and can be imported to a connected SL TeamConnect CU1 later.
Open File	Opens an existing configuration settings file (.CU1).
Save File	Saves the current configuration settings as a configuration settings file (.CU1) on your computer.
Save File As	Saves the current configuration settings as a new configuration settings file (.CU1) on your computer.
Import File	Imports a configuration settings file to the currently connected SL TeamConnect CU1. Use this option if the configuration settings have been configured offline and are intended to be applied to a connected SL TeamConnect CU1.
Exit	

Configuration Preset menu

ℹ This menu is only available in the menu bar when a configuration screen is open.

Option	Settings
Save Current Configuration As Preset	Saves the current configuration settings in one of the four preset slots. This menu is only available when a configuration screen is open. ℹ For more information on using the presets refer to chapter "Using presets" on page 61.

Option	Settings
Run Preset 1	Applies the stored Preset 1
Run Preset 2	Applies the stored Preset 2
Run Preset 3	Applies the stored Preset 3
Run Preset 4	Applies the stored Preset 4

Tools menu

Option	Settings
Network Find	Opens a search dialog to find an SL TeamConnect CU1 device in the network via the network name or the IP address.
Phonebook Edit	Opens the **Phonebook** of the SL TeamConnect CU1. The telephone numbers stored in the **Phonebook** can be accessed in the mobile dialer and the browser-based dialer.
Regional Settings	Opens a menu for configuring the local time and time zone settings.
Event Log	Opens the **Event Log** which keeps a user-definable record of events such as passwords, dialing, reboots and errors. The selected events are tracked and listed in the **Event Log**.
Firmware Loader	Updates the firmware of the SL TeamConnect CU1.
Edit Device List	Opens the **Device Toolbox Editor** (see page 56).
TeamConnect Combox Updater	Updates the firmware of the SL TeamConnect CB1.

Help menu

Option	Settings
Help	Opens the software help.
About	Opens manufacturer information of the Configuration Manager software.
Help Language	Selects the language of the software help.

ℹ️ The software help is also available at any time by pressing the **F1** key on the PC keyboard.

Configuring the SL TeamConnect CU1

The audio and communication settings of an SL TeamConnect CU1 are adjusted in the configuration screen of the respective SL TeamConnect CU1.
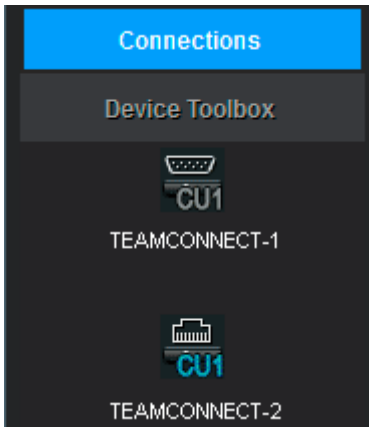
To open the configuration screen of an SL TeamConnect CU1:

▶ Click on the icon of the desired SL TeamConnect CU1 in the **Connections** list.

The configuration screen of the selected SL TeamConnect CU1 opens.
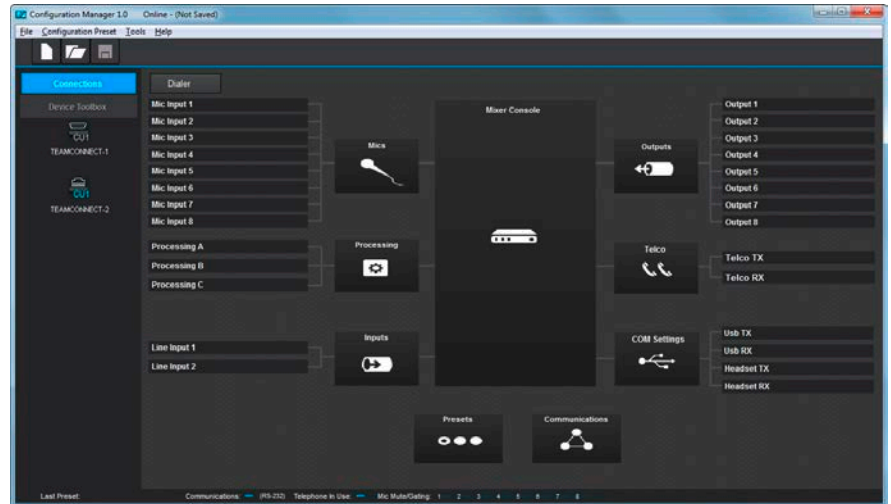
The following configuration menus are available:

Configuration menu	Settings
Mics	Configures the microphone input channels (MIC / LINE IN terminal of the SL TeamConnect CU1).
Processing	Configures additional audio processing channels
Inputs	Configures the line input channels (LINE IN terminal of the SL TeamConnect CU1)
Outputs	Configures the output channels (LINE OUT terminal of the SL TeamConnect CU1)
Telco	Configures the teleconference settings
COM Settings	Configures the SL TeamConnect CB1 for USB audio and telephone headsets
Communications	Configures the network and serial connection settings
Mixer Console	Patches the audio signals of the inputs to the desired outputs
Presets	Saves the current configuration settings in one of the four preset slots.

▶ Click on the desired icon in the configuration screen to adjust the respective settings.

ℹ You can also configure the settings without an SL TeamConnect CU1 being connected. The configuration screen is opened by clicking **File → New File** in the menu bar (see "Menu Bar" on page 44 for more information).

Configuring microphone settings
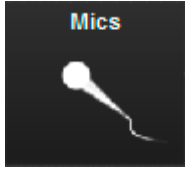
Mics

The audio settings of microphones and audio devices connected to the orange MIC / LINE IN terminal of the SL TeamConnect CU1 are configured in the **Mics** area of the configuration screen.

To configure the microphone settings:

▶ Click on the **Mics** icon in the configuration screen.

The **Mic Settings** configuration window opens.
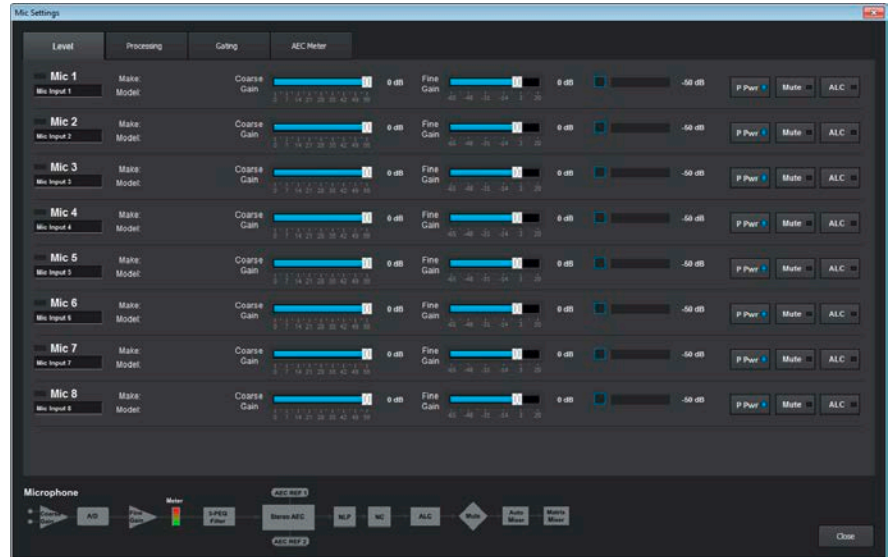
The **Mic Settings** configuration window has four tabs where you can adjust the following settings:

Level tab

Option	Settings
Make / Model	Indicates, if a device from the **Device Toolbox** is used (see page 56).
Coarse Gain / Fine Gain	Adjusts the gain settings of the selected input.
P Pwr	Activates / deactivates phantom power for the selected input.
Mute	Mutes the selected input.
ALC	Activates / deactivates auto level control for the selected input.

Processing tab

Option	Settings
System Settings	Allows the configuration of reference outputs for the acoustic echo cancellation (**Virtual Ref** channels in the **Mixer Console**, see page 59) and for the **PA Adaptive** mode of the gating configuration (see **Gating** tab below).
PTT	Allows the configuration of the Push-To-Talk mode of the microphone connected to the selected input.
NLP	Configures the non-linear processing options
Filter	Activates and configures an audio filter for the selected input.

Gating tab

Option	Settings
Max Number of Microphones	Defines the maximum number of microphones which are active simultaneously.
Gate Mode	• **Auto** (default): Gating depends on the maximum number of microphones. • **Man On**: Gates the channel on. The audio signal is on permanently. The channel is counted in the maximum number of microphones. • **Man Off**: Gates the channel off. The audio signal is attenuated by the specified **Off Attn** level. • **Override On**: Gates the channel on. The audio signal is on permanently. This channel is not counted in the maximum number of microphones. That means this microphone is always active. • **PA Adaptive**: The audio level of the output specified under **System Settings** in the **Processing** tab (see **Processing** tab above) is used as the reference ambient audio level at which the mic is not gated on.
Gate Ratio	Defines how much louder the audio level of the microphone must be compared to the ambient audio level before the channel automatically gates on if **Auto** is selected. The default value is 15 dB.
Hold Time	Defines how long the channel stays gated on after the audio level falls below the specified **Gate Ratio**. The default value is 0.3 seconds.
Off Attn	Defines the attenuation of the audio signal when the channel is gated off. The default value is 12 dB.
Decay Rate	Defines how fast the audio signal is turned off after the specified **Hold Time**. The default value is **Medium**.
Chairman Override	Activates gating priority of the selected mic over any other mic. When a mic with **Chairman Override** enabled gates on, all mics which do not have **Chairman Override** enabled will gate off.

AEC Meter tab (Acoustic Echo Cancellation)

Option	Settings
Echo Return Loss (ERL)	Shows the difference between the reference signal level and the input level to the echo canceller.
Echo Return Loss Enhancement (ERLE)	Shows the difference of the loss through the echo cancellation and the non-linear processing chain
Total Echo	Shows the total ERL and ERLE reduction.

▶ Open the respective tab to adjust the desired settings.

Configuring audio processing settings
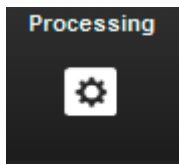
Processing

You can configure three general audio processing channels with different audio settings (equalizer, filter, etc.) which you can apply to selected input and output channels.

To configure the audio processing settings:

▶ Click on the **Processing** icon in the configuration screen.

The **Processing Settings** configuration window opens.
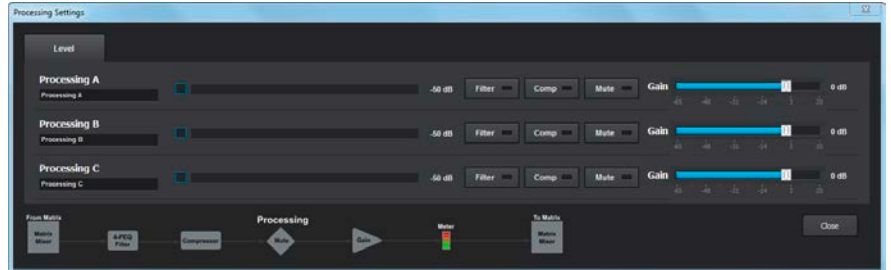
In the **Processing Settings** configuration window you can adjust the following settings:

Option	Settings
Filter	Activates and configures an audio filter for the selected processing channel.
Comp	Activates and configures a compressor for the selected processing channel.
Mute	Mutes the selected processing channel.
Gain	Adjusts the gain setting of the selected processing channel.

To apply the settings of the audio processing channels to input and output channels:

▶ Open the **Mixer Console** (see page 59).

▶ Route the processing channels to the desired audio channels.

▶ Close the **Mixer Console**.

The audio processing settings are applied to the selected channels.

Configuring line input settings
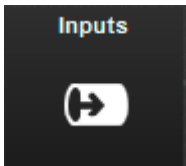
Inputs

The audio settings of audio devices connected to the green LINE IN terminal of the SL TeamConnect CU1 are configured in the **Inputs** area of the configuration screen.

To configure the line input settings:

▶ Click on the **Inputs** icon in the configuration screen.
The **Input Settings** configuration window opens.
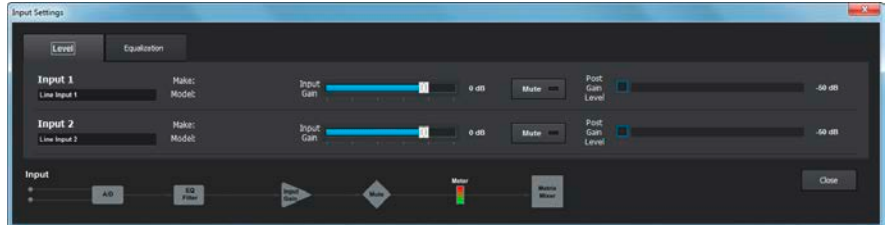
The **Input Settings** configuration window has two tabs where you can adjust the following settings:

Tab	Option	Settings
Level	**Make / Model**	Indicates, if a device from the Device Toolbox is used (see page 56).
	Input Gain	Adjusts the gain settings of the selected input.
	Mute	Mutes the selected input.
Equalization	**Low**	Adjusts the level of the low range frequencies.
	Mid	Adjusts the level of the mid range frequencies.
	High	Adjusts the level of the high range frequencies.

▶ Open the respective tab to adjust the desired settings.

Configuring audio output settings
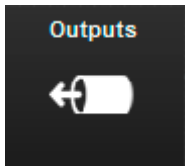
The audio settings of the audio output channels of the black LINE OUT terminal of the SL TeamConnect CU1 are configured in the **Outputs** area of the configuration screen.

To configure the audio output settings:

▶ Click on the **Outputs** icon in the configuration screen.

The **Output Settings** configuration window opens.

In the **Output Settings** configuration window you can adjust the following settings:

Option	Settings
Make / Model	Indicates, if a device from the Device Toolbox is used (see page 56).
Output Gain	Adjusts the gain of the selected output channel.
Output Level	Displays the output level of the selected output channel.
NOM	Activates the NOM function (Number of Open Mics). NOM maintains a constant output level by automatically adjusting gain levels based on the number of microphones gated on and routed to the selected output channel. NOM reduces the output level proportionally by 3 dB for every doubling in the number of open microphones.
Mute	Mutes the selected output channel.

Configuring teleconference settings

The teleconference settings of the TeamConnect system are configured in the **Telco** area of the configuration screen.

To configure the teleconference settings:

▶ Click on the **Telco** icon in the configuration screen.
The **Telephone Settings** configuration window opens.
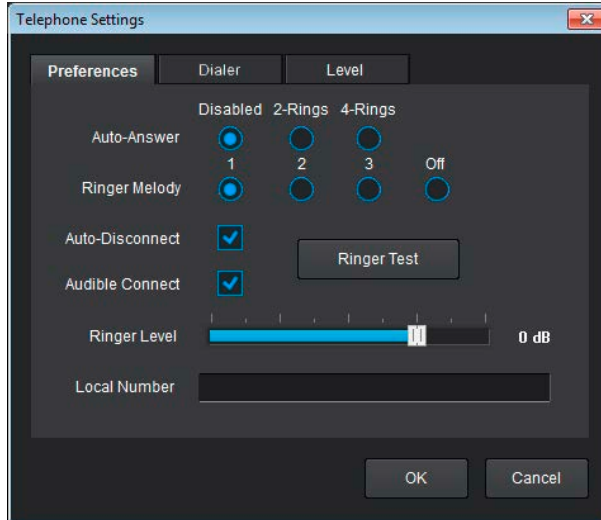
The **Telephone Settings** configuration window has three tabs where you can adjust the following settings:

Tab	Option	Settings
Preferences	**Auto-Answer**	Activates automatic answering of phone calls after 2 rings or 4 rings. **Disabled** deactivates automatic answering.
	Ringer Melody	Selects the ringer melody.
	Auto-Disconnect	Activates automatic disconnection when the SL TeamConnect CU1 detects loop-drop or call progression.
	Audible Connect	Plays a courtesy tone letting the user know when the phone is on or off hook.
	Ringer Level	Adjusts the volume of the ringer melody.
	Ringer Test	Plays the ringer melody.
	Local Number	Allows entering the local number or extension of the SL TeamConnect CU1 in your telephone network.

Tab	Option	Settings
Level	**Receive ALC**	Activates auto level control, which keeps the telephone audio level consistent with audio levels coming from other sources.
	Telco Receive	Adjusts the incoming telephone audio signal.
	ClearEffect	Activates the **ClearEffect**. Telephone lines limit audio bandwidth to a range of 300 Hz to 3.3 kHz. The **ClearEffect** enhances the incoming signal from a telephone line to emulate wideband audio by adding high and low frequencies to the audio signal.
	Telco Transmit	Adjusts the outgoing telephone audio signal.
	NOM	Activates the NOM function (Number of Open Mics). NOM maintains a constant output level by automatically adjusting gain levels based on the number of microphones gated on and routed to the selected output channel. NOM reduces the output level proportionally by 3 dB for every doubling in the number of open microphones.
Dialer	**Country Setting**	Selects the region you are using the TeamConnect system in. If the SL TeamConnect CU1 is connected to the analog landline network: ▶ Select your region If the SL TeamConnect CU1 is connected to a PBX telephone system: ▶ Select the region "US/Canada"
	Flash Setting	Adjusts the appropriate flash value for the local telephone network or the telephone system (PBX).
	Volume Assignment	Defines which channel is controlled with the volume slider in the dialer. If you want to control several channels you can patch them to a processing channel in the Mixer Console and indicate this processing channel here.
	Set Volume	Sets the volume of the selected channel.
	Global Mic	Mutes all microphones. The previous mute settings of the single microphones will be overwritten.

▶ Open the respective tab to adjust the desired settings.

Configuring the settings of the SL TeamConnect CB1
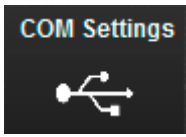
COM Settings

The settings of the USB and Headset ports of the SL TeamConnect CB1 are configured in the **COM Settings** area of the configuration screen.

To configure the settings of the SL TeamConnect CB1:

▶ Click on the **COM Settings** icon in the configuration screen.

The **COM Settings** configuration window opens.

The **COM Settings** configuration window has two tabs where you can adjust the following settings:

Tab	Option	Settings
Level	**USB Tx / USB Rx**	Adjusts transmit and receive levels of the USB port.
	Headset Tx / Headset Rx	Adjusts transmit and receive levels of the headset port.
	Mute	Mutes the selected channel.
	NOM	Activates the NOM function (Number of Open Mics). NOM maintains a constant output level by automatically adjusting gain levels based on the number of microphones gated on and routed to the selected output channel. NOM reduces the output level proportionally by 3 dB for every doubling in the number of open microphones.
	ALC	Activates auto level control, which maintains a consistent level on the Headset Rx channel.
	LEC	Activates line echo cancellation.
	NLP	Activates non-linear processing.
Configuration	**Headset Configuration**	Adjusts headset gain and pin allocation settings.

▶ Open the respective tab to adjust the desired settings.

Configuring communication settings
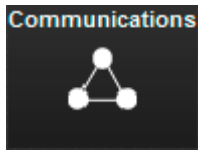
The settings of the network and serial connections of the SL TeamConnect CU1 are configured in the **Communications** area of the configuration screen.

To configure the communication settings:

▶ Click on the **Communications** icon in the configuration screen.

The **Communication Settings** configuration window opens.

The **Communication Settings** configuration window has two tabs where you can adjust the following settings:

Tab	Option	Settings
Networking	**MAC address**	Indicates the MAC address of the SL TeamConnect CU1.
	Device Name	Defines the name of the SL TeamConnect CU1 device in the network. The device name is required for the address of the browser-based dialer. The address is **http://DeviceName**. Example: • Device name: **TeamConnect-123** • Address of browser-based dialer: **http://TeamConnect-123**
	Room Name	Defines the room name required to access the SL TeamConnect CU1 in the mobile dialer iOS App.
	Use DHCP	Defines if the IP address is obtained automatically (DHCP is activated) or if the IP address is static (DHCP is deactivated).
	Use DNS	Defines if a domain name system is used for static IP addresses.
	IP Filters	Defines up to 4 IP filters. If an IP filter is defined, only the devices with the IP addresses entered in the **IP Filters** area can connect to the SL TeamConnect CU1 via an Ethernet connection.
	Change Admin Login	Defines the username and password required to access the SL TeamConnect CU1 via an Ethernet connection in the Configuration Manager software.
	Change Room Password	Defines the room password required to access the meeting room in the mobile dialer iOS App and the browser-based dialer.
Serial	**Baud Rate**	Adjusts the data rate of the RS-232 control port.
	Flow Control	Manages the data rate between two data nodes, preventing a fast sender from outrunning a slow receiver.

▶ Open the respective tab to adjust the desired settings.

ℹ️ Some changes might require a reboot of the SL TeamConnect CU1. During the reboot the audio signals are interrupted.

Using the Device Toolbox

The **Device Toolbox** is a list of audio setting presets for certain audio devices. It contains audio setting presets for the Sennheiser SL Loudspeaker 52 A, for the Sennheiser MEB 102, MEB 104 and MEB 114-S microphones as well as audio setting presets for other common Sennheiser microphones. You can use the listed devices to apply their audio setting presets to an audio channel of the SL TeamConnect CU1. You can also edit the existing devices or create new audio setting presets for common audio devices.

Applying devices to audio channels

To apply a device from the **Device Toolbox** to an audio input or output channel:

▶ Click on the device in the **Device Toolbox** and drag it to the desired audio channel (drag & drop).

The audio setting preset of the selected device is applied to the selected channel. The make and model of the device are listed in the respective channel of the input and output configuration windows.

Adding, editing and deleting devices

Devices are added, edited or deleted in the **Device Toolbox Editor**.

To open the **Device Toolbox Editor**:

▶ Click on **Tools/Edit Device List** in the menu bar.

or

▶ Right-Click on a device in the **Device Toolbox** and select **Device Toolbox Editor**. The **Device Toolbox Editor** opens.
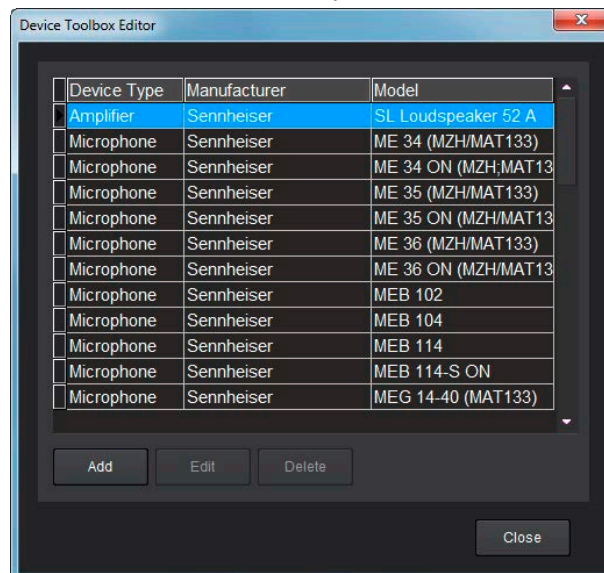
In the Device Toolbox Editor you can edit the audio settings of existing devices, add audio settings for new devices or delete existing devices.

To add a new device to the **Device Toolbox**:

▶ Open the **Device Toolbox Editor**.

▶ Click **Add**.

The **Add Device** dialog box opens.
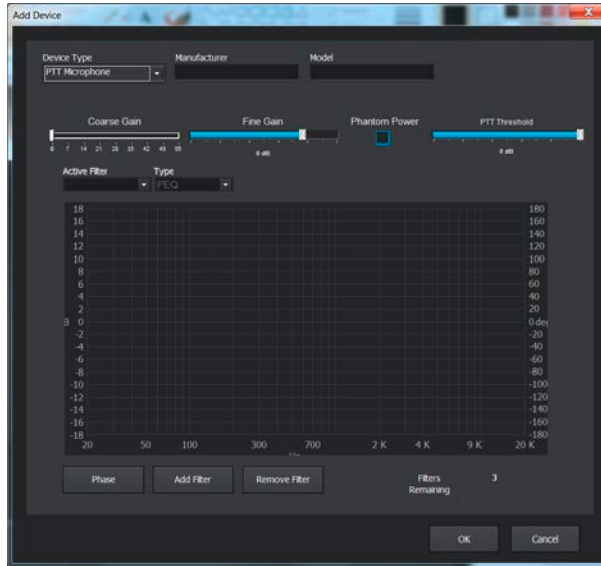
▶ Select a device type in the **Device Type** dropdown menu.

The following device types are available:

Device Type	Description
Video Codec	Use for audio setting presets for e.g. video conferencing systems, etc.
Sound Card	Use for audio setting presets for e. g. PC sound cards.
Record/Playback	Use for audio setting presets for audio devices like CD/DVD/mp3 players, etc.
Amplifier	Use for audio setting presets for amplifiers or self-powered loudspeakers, etc.
Microphone	Use for audio setting presets for microphones.
PTT Microphone	Use for audio setting presets for push-to-talk microphones.

▶ Enter the name of the manufacturer in the **Manufacturer** text field.

▶ Enter the name of the model in the **Model** text field.

The manufacturer name and model will be displayed as **Make** and **Model** in the input and ouput channel configuration windows.

▶ Configure the desired audio settings.

▶ Click **OK** to save the audio settings as a device in the **Device Toolbox**.

To edit an existing device in the **Device Toolbox**:

▶ Open the **Device Toolbox Editor**.

▶ Select the desired device in the list of existing devices.

▶ Click **Edit**.

  The **Edit Device** dialog box opens. It has the same features as the **Add Device** dialog box.

▶ Configure the desired audio settings.

▶ Click **OK** to save the changed settings of the device in the **Device Toolbox**.

To delete an existing device from the Device Toolbox:

▶ Open the **Device Toolbox Editor**.

▶ Select the desired device in the list of existing devices.

▶ Click **Delete**.

  The selected device is deleted from the **Device Toolbox**.

ℹ The audio setting presets of the Sennheiser microphones and loudspeakers cannot be deleted.

Using the Mixer Console

The **Mixer Console** is used to route the audio signals of the inputs to the desired outputs using a matrix array. Any input or combination of inputs can be routed to any output or combination of outputs.

To open the the **Mixer Console**:

▶ Click on the **Mixer Console** icon in the configuration screen.

The **Mixer Console** configuration window opens
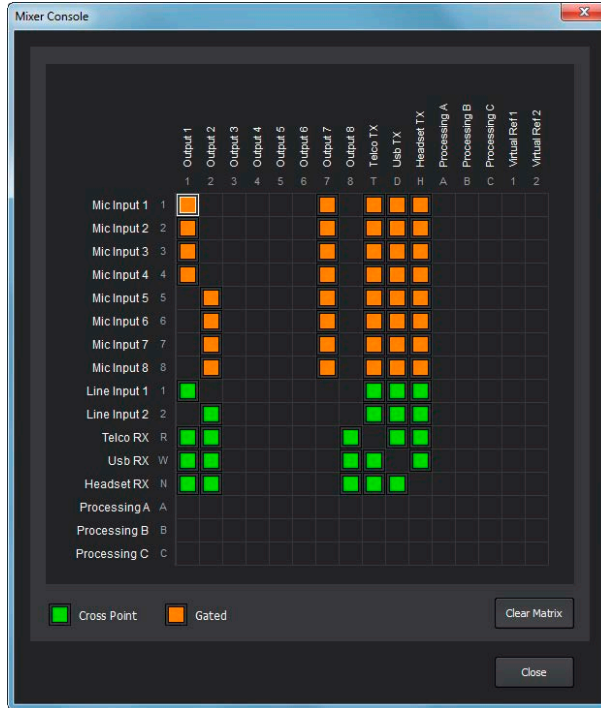
The inputs are listed on the left and the outputs are listed along the top of the matrix. The additional numbers and letters along the labels of the inputs and outputs show the cross point coordinates.

To route an input to an output:

▶ Click on the intersection between the desired input and the desired output in the routing matrix.

The selected input is routed to the selected output. The cross points of the MIC inputs are displayed in orange. The cross points of the other inputs are displayed in green.

> 🛈 There are six restricted routing paths which prevent **Telco**, **Headset Rx**, **USB Rx** and the three **Processing** channels from being routed back to themselves.

To adjust the level of an input-output cross point:

▶ Right-click on the orange or green cell of the input-output cross point.

▶ Select **Cross Point** from the shortcut menu.

▶ Move the slider to adjust the level to the desired value.

Virtual Reference outputs

The Virtual Reference outputs allow the combination of multiple audio sources to create a single combined audio signal which can be used as the reference signal for echo cancellation.

To combine the desired audio signals as a single virtual reference in the **Mixer Console**:

▶ Route the desired audio signals to the desired **Virtual Ref** channel in the Mixer Console.

All channels routed to the respective Virtual Ref channel in the Mixer Console will be treated as one combined audio signal for echo cancellation reference.

To specify the desired virtual reference channel as reference for echo cancellation:

▶ Open the **Mic Settings** configuration window (see page 47).

▶ Navigate to the Processing tab.

▶ Select **Virtual Ref 1** or **Virtual Ref 2** in the **AEC/PA Reference 1** or **AEC/PA Reference 2** dropdown menu.

The selected virtual reference channel is used as reference for echo cancellation.

Using presets
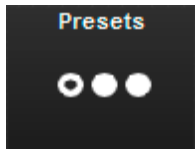
All configuration settings adjusted in the different configuration menus of the Configuration Manager software can be saved as presets for later use. There are four preset slots for saving the settings.

> ℹ The presets are stored directly on the SL TeamConnect CU1. They can be applied later by the user with the dialer. If you save the configuration settings as a configuration settings file (.CU1) on your computer using the **File → Save File As** option in the menu bar (see page 44), the settings cannot be applied as a preset by the user in the dialer.

To save the settings as a preset:

▶ Click on the **Presets** icon in the configuration screen.

The **Presets** dialog box opens.
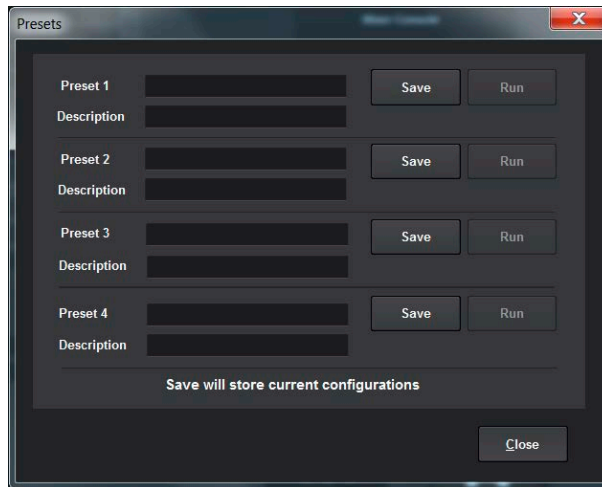
▶ Enter the name of the preset in one of the **Preset #** text fields.
▶ Enter a description of the preset in the corresponding **Description** text field.
▶ Click **Close** to close the dialog box.

To run a saved preset:

▶ Click on the **Presets** icon in the configuration screen.

The **Presets** dialog box opens.
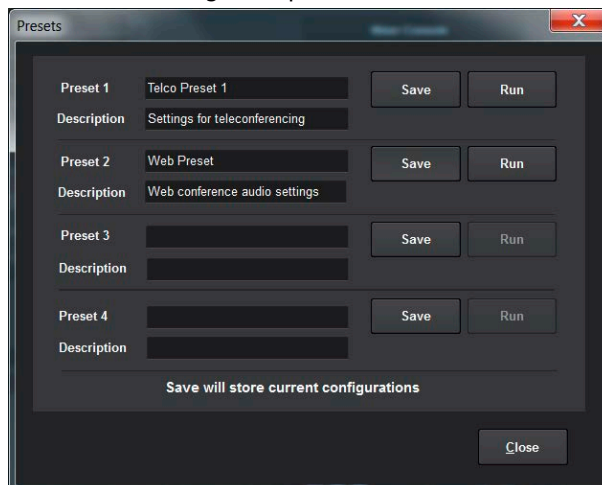
▶ Click on the **Run** button of the desired preset.
▶ Click **Close** to close the dialog box.

The selected preset is applied to all settings.

Cleaning and maintaining the TeamConnect components

CAUTION

Damage to the product caused by liquids!

Liquids entering the product can short-circuit the electronics or damage the mechanics.

Solvents or cleansing agents can damage the surface of the product.

▶ Keep all liquids away from the product.

▶ Do not use any solvents or cleansing agents.

▶ Before cleaning, switch all devices off and disconnect them from the mains power supply.

▶ Only use a dry and soft cloth to clean the devices.

Specifications

SL TeamConnect CU1

Housing

Dimensions (W x H x D)	17" x 7.5" x 2" (43.2 cm x 19.1 cm x 5.1 cm)
Weight	4.5 lbs. (2.25 kg)

Audio performance

Conditions	Unless otherwise specified, all measurements are performed with a 20 Hz to 22 kHz BW limit (no weighting)
Frequency response	20 Hz to 22 kHz BW, max gain
Noise (EIN)	-124 dBu, 22 kHz BW, max gain Rs = 150 Ω
THD+N	< 0.02 %
Dynamic range	100 dB (non A-weighted)
Crosstalk	< -91 dB, rel 17 dBu
Sampling rate	48 kHz
A/D - D/A converters	24-bit

MIC / LINE IN inputs 1-8

Impedance	10 kΩ balanced
Maximum level	-65 dBu to +17 dBu
Echo cancellation	128 ms tail time (works with 12 dB of room gain)
Phantom power	24 V DC at 10 mA

LINE IN inputs 1-2

Impedance	10 kΩ balanced
Maximum level	17 dBu

LINE OUT outputs 1-8

Impedance	50 Ω
Nominal level	0 dBu
Maximum level	17 dBu

Telephone interface

Telephone audio performance conditions	Unless otherwise specified, all measurements are performed with Transmit Limiter and Receive ALC disabled
Frequency response	250 Hz to 3.3 kHz ±1 dB
THD+N	< 0.30 % re-max level 250 Hz to 3.3 kHz
SNR	> 62 dB re-max level

Telco line echo cancellation	Tail time: 32 ms Null: 55 dB nominal
Telephone noise cancellation	6-15 dB attenuation

RS-232 Control port

Connector	DB9 female
Baud rates	9,600 / 19,200 / 38,400 / 57,600 (default) / 115,200
Protocol	8-bit / 1 stop / no parity
Hardware flow control	ON (default)/OFF

Operating and storage conditions

Temperature	Operation: 0 to +40 °C Storage: -30 to +85 °C
Relative air humidity	20 to 90 %

SL TeamConnect CB1

Housing

Dimensions (W x H x D)	4.7" x 5.6" x 1.7" (11.9 cm x 14.3 cm x 4.4 cm)
Weight	1.51 lbs. (0.75 kg)

Audio performance

Frequency response	40 to 3,300 Hz THD
Noise	< 0.04 % re-max level with 0 dB gain at 1 kHz
Dynamic range	> 84 dB (non A-weighted)

Operating and storage conditions

Temperature	Operation: 0 to +40 °C Storage: -30 to +85 °C
Relative air humidity	20 to 90 %

External Power Supply

DC output voltage	+12 V
AC input voltage	100 to 240 V AC
AC input frequency	47 to 63 Hz
Input current	0.8 A (RMS) max. at 115 V AC 0.5 A (RMS) max. at 240 V AC
Output power	30 W
Temperature	Operation: 0 to +40 °C Storage: -30 to +85 °C
Relative air humidity	20 to 90 %

Terminal connectors

3-pin terminal connector	Phoenix Contact MC 1.5/ 3-ST-3.5 (or similar)
6-pin terminal connector	Phoenix Contact MC 1.5/ 6-ST-3.5 (or similar)
Contact spacing	3.5 mm

In compliance with

Europe CE	Access and Terminals (AT): ETSI ES 203021-1/2/3
	EMC: EN 55022 EN 55024 EN 61000-3-2 EN 61000-3-3 Safety: EN 60950-1 RoHS: EN 50581 Energy Efficiency: EC Regulation No. 278/2009 (External Power Supply)
USA/Canada	FCC CFR 47 Part 15b + 68 ICES 003 + CS03 UL/CSA 60950-1

WARNING

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

SL Loudspeaker 52 A

Acoustics

Frequency response ± 3 dB	53 - 30,000 Hz
Max. SPL at 1 m (150 - 5,000 Hz)	97 dB SPL
THD at 90 dB SPL at 1 m > 200 Hz	< 1 %

Electronics

Nominal output power woofer RMS at 1 % THD (with deactivated limiter)	40 W
Nominal output power tweeter RMS at 1 % THD (with deactivated limiter)	40 W
THD + N vs. frequency at 1 W output	0.16 %
SNR at 1 kHz	95 dB
CMRR	71 dB
Crossover frequency	4.5 kHz
Slope low pass woofer	12 dB/oct. (2nd order)
Slope high pass tweeter	24 dB/oct. (4th order)
Resonance frequency high pass woofer	55 Hz; 75 Hz; 100 Hz
Slope high pass woofer	24 dB/oct. (4th order)
HF position adjustments	f = 2,800 Hz, Gain +1.4 dB flat f = 2,800 Hz, Gain -1.5 dB
MF position adjustments	flat f = 100 Hz, Gain -2.7 dB f = 320 Hz, Gain -3.7 dB
LF position adjustments	flat f = 800 Hz, Gain -2.0 dB, 6 dB Lowshelf f = 800 Hz, Gain -4.0 dB, 6 dB Lowshelf
Input sensitivity at 97 dB SPL	Switch positions -6 dBu 0 dBu 10 dBu
Switch-on level switch-on automatics	1.4 mVRMS
Auto standby	20 min
Input impedance: balanced unbalanced	> 10 kΩ > 10 kΩ

Product properties

Power consumption (standby)	230 V AC; 0.47 W / 110 V AC; 0.34 W
Power consumption (idle)	230 V AC; 4.75 W / 110 V AC; 4.53 W
Power consumption (max)	230 V AC; 95 W / 110 V AC; 91 W
Dimensions (H x W x D)	240 mm x 140 mm x 161 mm (9.45" x 5.51" x 6.34")
Weight	3.1 kg
Mounting points	2 x M6 for SL SpeakerMount 100 1 x M6 for safety wire on rear panel with depth 10 mm
Power supply	AC 100 - 240 V~; 50 - 60 Hz

Operating and storage conditions

Temperature	Operation: 0 - +40 °C
	Storage: -25 - +70 °C
Relative humidity	95 % (non-condensing)

In compliance with

Europe	EMC:
	EN 55103-1/-2
	Safety:
	En 60065
USA	47 CFR 15 subpart B
Canada	CAN ICES-3 (B)/NMB-3(B)

SL Mic Hub 1

Housing	metal
Dimensions	144 x 76.3 x 31.5 mm

Ports

4x Mic	5-pin terminal connector
2x Connect/Status	6-pin terminal connector
1x Mute	7-pin terminal connector
1x Audio	RJ-45

Power supply

The SL Mic Hub 1 ist connected to the Combox (SL TeamConnect CB1) via a 6-pin terminal connector cable. The Combox delivers the necessary power supply to operate the bi-color status LEDs of the mute button MAS 1 TC and the hook button MAS 2 TC.

The Combox supplies sufficient power for up to 5 MAS 1/2 buttons. If you want to use more than 5 buttons in your setup, you need to connect an external power supply (5 V, >100 mA, recommended Sennheiser Power supply Art. No. 534480) to pin 6 and 7 of the MUTE socket.

MAS 1 TC | MAS 2 TC

Supply voltage	5 V (12 mA max.)
Connector	XLR-5M
	1 = Switch
	2 = Switch
Pin assignment XLR-5M out	3 = LED red -
	4 = LED green -
	5 = LEDs +5 V in
LED light ring color	red / green
TTL levels for LED activation	12 V
Current consumption LED ring	12 mA
Weight	60 g
Height	81 mm (8 mm above surface)
Diameter	28.5 mm
Thread	M 20
Operating temperature	-10 °C to +50 °C

MEB 102-L TC

Transducer principle	pre-polarized condenser microphone
Acoustic principle	boundary layer microphone
Pick-up pattern	omni-directional
Frequency response	40 Hz – 20 kHz
Nominal impedance at 1 kHz	200 Ohm
Sensitivity	16 mV/Pa
Maximum sound pressure level	125 dB
Equivalent noise level	21 dB (A)
Equivalent noise level weighted as per CCIR 468-3	31 dB (CCIR)
Dynamic range	104 dB (A)
Phantom power	P 24 – P 48
Current consumption	6 mA
Connector	XLR 5
Pin assignment XLR-5M out	1 = gnd 2 = + (Mic +) 3 = - (Mic -) 4 = LED green (trigger signal) 5 = LED red (default)
LED light ring color	red / green
TTL levels for LED activation	high > 2.4 V low < 0.4 V
Connection cable	XLR-5F / Terminal connector 5-pin, length 3 m
Weight	58 g
Height	83 mm (12mm above surface)
Diameter	28.5 mm
Thread	M 20
Operating temperature	0 ° to +40 ℃

MEB 104-L TC

Transducer principle	pre-polarized condenser microphone
Acoustic principle	boundary layer microphone
Pick-up pattern	cardioid
Frequency response	40 Hz – 20 kHz
Nominal impedance at 1 kHz	200 Ohm
Sensitivity	14 mV/Pa
Maximum sound pressure level	125 dB
Equivalent noise level	28 dB (A)
Equivalent noise level weighted as per CCIR 468-3	38 dB (CCIR)
Dynamic range	97 dB (A)
Phantom power	P 24 – P 48
Current consumption	6 mA
Connector	XLR 5
Pin assignment XLR-5M out	1 = gnd 2 = + (Mic +) 3 = - (Mic -) 4 = LED green (trigger signal) 5 = LED red (default)
LED light ring color	red / green

TTL levels for LED activation	high > 2.4 V low < 0.4 V
Connection cable	XLR-5F / Terminal connector 5-pin, length 3 m
Weight	60 g
Height	90 mm (19 mm above surface)
Diameter	28.5 mm
Thread	M 20
Operating temperature	0 ° to +40 °C

MEB 114-S TC

Transducer principle	pre-polarized condenser microphone
Acoustic principle	boundary layer microphone
Pick-up pattern	cardioid
Frequency response	40 Hz – 20 kHz
Nominal impedance at 1 kHz	200 Ohm
Sensitivity	10 mV/Pa
Maximum sound pressure level	140 dB
Equivalent noise level	29 dB (A)
Equivalent noise level weighted as per CCIR 468-3	39 dB (CCIR)
Dynamic range	111 dB (A)
Switchable low cut	at 120 Hz
Phantom power	P 24 – P 48
Current consumption	5,3 mA
Connector	Terminal block 5-pin
Pin assignment	1 - mute 2 - mute status 3 - ground 4 - audio + 5 - audio -
LED light ring color	red / green
Microphone modes	controlled externally
Logic out	high level output voltage > 2.4 V low level output voltage < 0.4 V
Logic in	high level input voltage > 2.0 V low level input voltage < 0.8 V
Weight (without cable)	291 g
Dimensions (WxDxH)	85 x 100 x 25 mm
Operating temperature	-10 °C to +50 °C

Manufacturer Declarations

Warranty

Sennheiser electronic GmbH & Co. KG gives a warranty of 24 months on this product.

For the current warranty conditions, please visit our website at www.sennheiser.com or contact your Sennheiser partner.

SL TeamConnect CU1 and SL TeamConnect CB1

In compliance with the following requirements

- Battery Directive (2006/66/EC)

CE Declaration of Conformity

- RoHS (2011/65/EU)
- R&TTE Directive (1999/5/EC)

External Power Supply

CE Declaration of Conformity

- RoHS (2011/65/EU)
- Low Voltage Directive (2006/95/EC)
- EMC Directive (2004/108/EC)
- ErP Directive (2009/125/EC)

SL Mic Hub 1, MAS 1 TC, MAS 2 TC, MEB 102-L TC, MEB 104-L TC, MEB 114-S TC

In compliance with the following requirements

- WEEE Directive (2012/19/EU)

CE Declaration of Conformity

- RoHS (2011/65/EU)
- EMC Directive (2004/108/EC)

SL Loudspeaker 52 A

CE Declaration of Conformity

- RoHS (2011/65/EU)
- Low Voltage Directive (2006/95/EC)
- EMC Directive (2004/108/EC)

The declarations are available on the product page at www.sennheiser.com.

Trademarks

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Statements regarding FCC and Industry Canada

This device complies with part 15 of the FCC rules. 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.

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

Changes or modifications not expressly approved by Sennheiser electronic Corp. could void the user's authority to operate the equipment.

FCC Part 68 Compliance

US: FBIBR00BINTERACT

Ringer Equivalence Number (REN): 0.0B(ac)

This equipment complies with Part 68 of the FCC Rules Requirements adopted by ACTA . The mixer unit of this equipment contains, among other information, a product identifier in the format US:AAAEQ##TXXXX. If requested, this information must be provided to your telephone company.

The REN is used to determine the number of devices that may be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of the RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to the line, as determined by the total RENs, contact the telephone company to obtain the maximum RENs for the calling area. The REN for this product is part of the product identifier that has the format US:AAAEQ##TXXXX. The digits represented by ## are the REN without a decimal point (e.g. 03 is a REN of 0.3).

If this equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. If advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make the necessary modifications to maintain uninterrupted service.

This equipment uses an RJ11C jack that is used to connect this equipment to the premises wiring and telephone network. This RJ11C jack complies with the applicable FCC Part 68 Rules and Requirements adopted by the ACTA. A compliant telephone cord and modular plug is provided with this product. It is designed to

be connected to a compatible modular jack that is also compliant. See installation instructions for details.

WARNING:

The country code must be set correctly in Console to ensure that the unit operates properly when connected to the Telco network, and that it complies with the country's Telco requirements. Changing this code to a country other than the intended country of operation might cause TeamConnect devices to be non-compliant. 304.

If you experience problems with this equipment, contact Sennheiser Electronic Corp (NY), 1 Enterprise Drive, Old Lyme, CT 06371, or by phone at (877) 736-6434 for repair and warranty information. If the equipment is causing harm to the telephone network, the telephone company may request that the equipment be disconnected until the problem is resolved.

No user serviceable parts are contained in this product. If damage or malfunction occurs, contact Sennheiser Electronic Corp for instructions on its repair or return.

Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information. This equipment cannot be used on telephone company provided coin service.

If your home has specially wired alarm equipment connected to the telephone line, ensure the installation of this equipment does not disable your alarm equipment. If you have questions about what will disable alarm equipment, consult your telephone company or a qualified installer.

IC Compliance

IC: 1970A-INTERACT

Ringer Equivalence Number (REN): 0.0B(ac)

NOTICE: The term ''IC'' before the certification/registration number signifies that Industry of Canada technical specifications were met.

This certification means that the equipment meets certain telecommunications network protective operational and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.

The REN is used to determine the number of devices that may be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of the RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to the line, as determined by the total RENs, contact the telephone company to obtain the maximum RENs for the calling area. The REN for this product is listed above.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the companies inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by Sennheiser Electronic Corp. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system if present, are connected together. This precaution may be particularly important in rural areas.

This product meets the applicable Industry Canada technical specifications. / Le présent matériel est conforme aux specifications techniques applicables d'Industrie Canada.

The Ringer Equivalence Number (REN) is an indication of the maximum number of devices allowed to be connected to a telephone interface. The termination of an interface may consist of any combination of devices subject only to the requirement that the sum of the RENs of all the devices not exceed five. / L'indice d'équivalence de la sonnerie (IES) sert à indiquer le nombre maximal de terminaux qui peuvent être raccordés à une interface téléphonique. La terminaison d'une interface peut consister en une combinaison quelconque de dispositifs, à la seule condition que la somme d'indices d'équivalence de la sonnerie de tous les dispositifs n'excède pas cinq.

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