TeamConnect Ceiling Medium

Ceiling microphone array

PDF Export of the Original HTML Manual

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1. Product overview

Information about the scope of delivery, the device's structure and connections, and available accessories

Delivery includes

Front and back

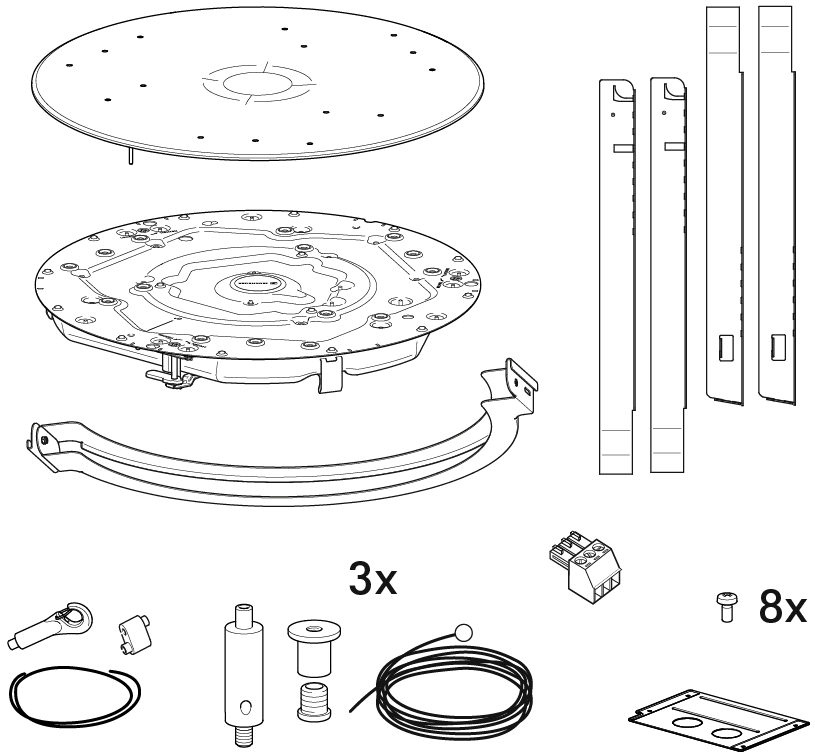
Connectors and controls

Accessories

Delivery includes

The TeamConnect Ceiling Medium is available in the following variants:

Ceiling Mic Flush Mount Kit:

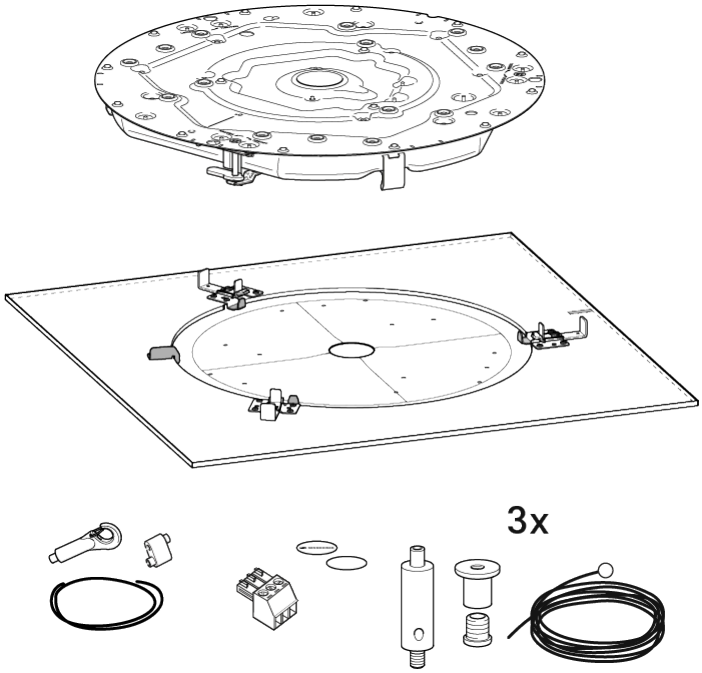


- **TCC M-F-W: white version, article no. 700170**
- **TCC M-F-B: black version, article no. 700234**

- TeamConnect Ceiling M ceiling microphone
- Ceiling flush mount kit
- Front panel
- Chicago junction box cover plate
- Ceiling suspension kit
- Installation rope

- 3-pin Phoenix connector (3.81)
- 8 × M3×6 fillister head screws

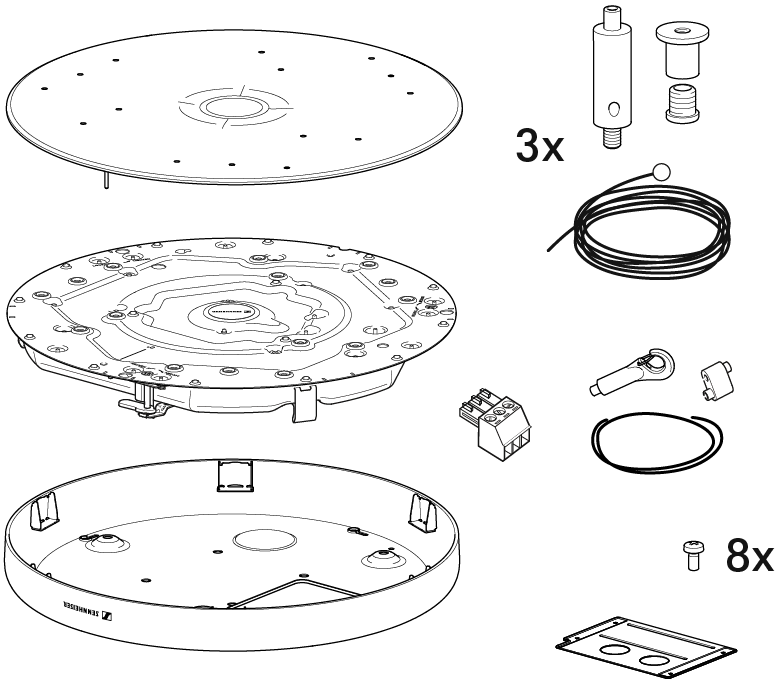
Ceiling Tile Kit:



- **tc-ceiling-medium CT-W: 60 cm grid ceiling set, art. no. 700517**
- **tc-ceiling-medium CT-W 2FT: 2 ft grid ceiling set, art. no. 700518**

- TeamConnect Ceiling M ceiling microphone
- Ceiling Tile mounting plate
- Installation rope
- Ceiling suspension kit
- 3-pin Phoenix connector (3.81)

Ceiling Mic Housing Kit

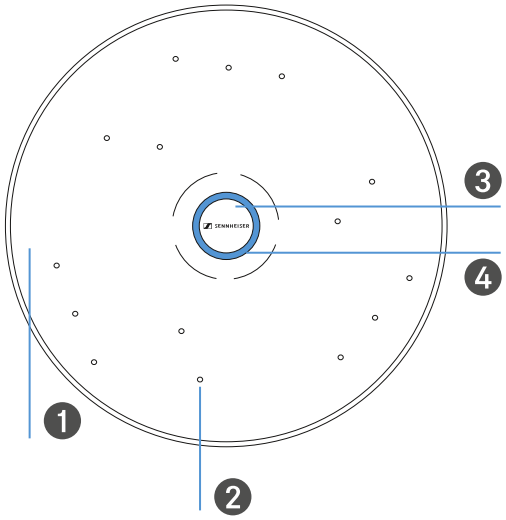


- **TCC M-S-W: white version, article no. 700294**
- **TCC M-S-B: black version, article no. 700295**

- TeamConnect Ceiling M ceiling microphone
- Design housing
- Front panel
- Chicago junction box cover plate
- Ceiling suspension kit
- Installation rope
- 3-pin Phoenix connector (3.81)
- 8 × M3×6 fillister head screws

Front and back

Front



1 Front panel

2 Microphone capsules (15×)

3 Interchangeable logo plate

See “Replacing the logo plate”

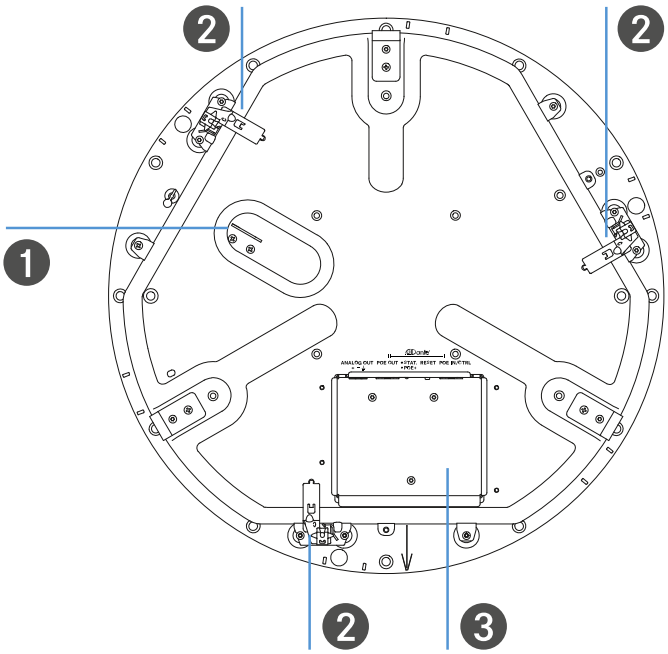
4 Status LED ring

Green: device is switched on (factory setting, can be changed)

Red: device is muted (factory setting, can be changed)

Blue: custom color, can be customized

Back



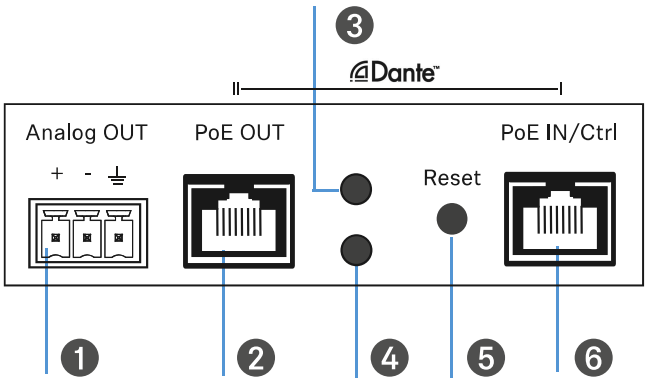
1 Hook for safety wire

2 Clamps for mounting in ceiling housing or design housing.

3 Cable compartment with connection sockets

See “Connectors and controls”

Connectors and controls



1 **Analog OUT**

- Analog audio output
- 3-pin socket
- Suitable for Phoenix Contact MCVW 1.5-3-ST-3.81
- See Outputting analog audio signals

2 **PoE OUT**

- RJ-45 socket
- Dante II
- Daisy chaining
- See Outputting digital audio signals

3 **Daisy chain status LED**

- Flashing: too many devices or insufficient power supply
- Steady light: daisy chain device connected

4 **LED PoE** (Power over Ethernet) supply status

- Steady light: PoE connected / 30–60 W connected

5 **Reset button**

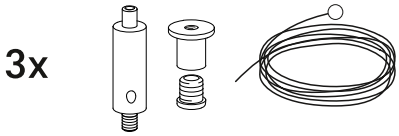
- To reset to factory settings, press and hold the reset button for at least 5 seconds.

6 **PoE IN / CTRL**

- RJ-45 socket
- Dante I
- Power supply via PoE
- Configuration via the software or a media control system
- See Connecting to a network

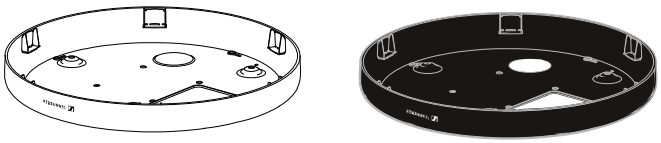
Accessories

Ceiling suspension kit



TCC M SK | Ceiling microphone M suspension kit | Article no. 700237

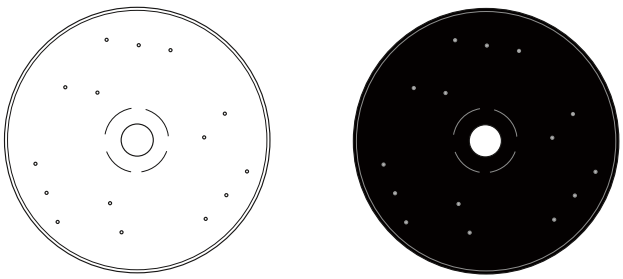
Ceiling microphone housing



TCC M H-W | Ceiling microphone housing, white | Article no. 700238

TCC M H-B | Ceiling microphone housing, black | Article no. 700239

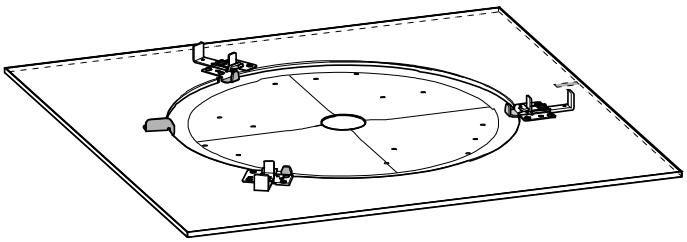
Front panel



TCC M SFP | Replacement front panel, white | Article no. 700235

TCC M SFP | Replacement front panel, black | Article no. 700236

Square front panel



tc-ceiling-medium CTFP-W | tc-ceiling-medium square front panel 60 cm | art. no. 700515

tc-ceiling-medium CTFP-W 2FT | tc-ceiling-medium square front panel 2 ft | art. no. 700516

2. Planning and installation

Information about connecting to a network, audio output and installation planning

Connecting to a network

Outputting analog audio signals

Outputting digital audio signals

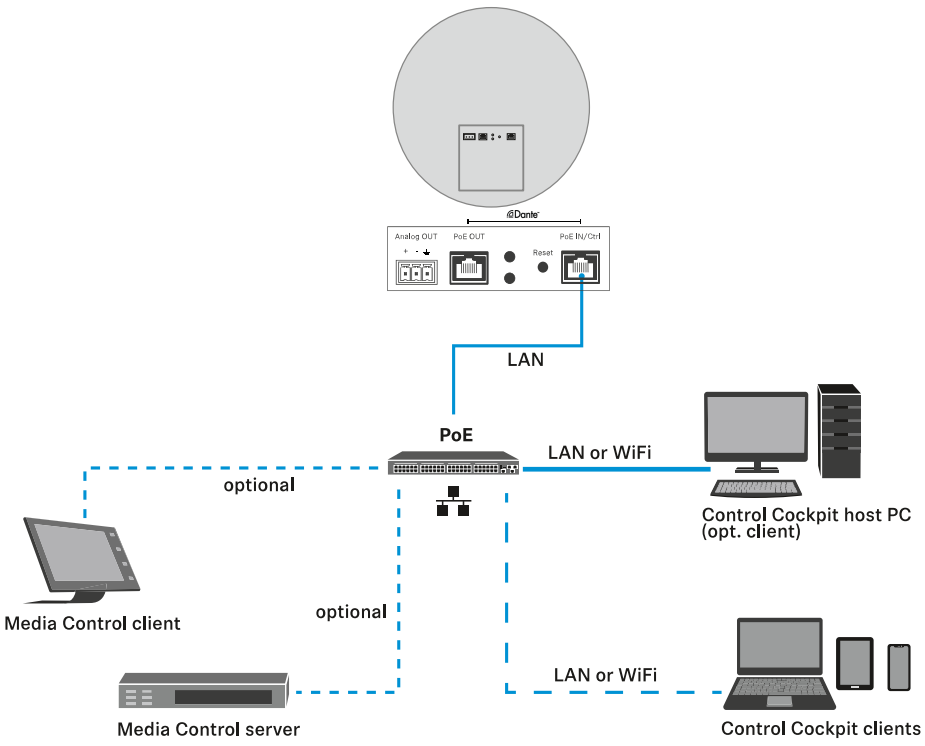
Planning the installation

Connecting to a network

Power supply and configuration

The Ethernet PoE/Ctrl RJ-45 socket is used to both power the TeamConnect Ceiling Medium via Power over Ethernet and configure it using the Sennheiser Control Cockpit software (see Configuring the TeamConnect Ceiling Medium with the Sennheiser Control Cockpit). In your network you can either use a switch that provides PoE or a PoE injector.

> **i** Use only shielded STP network cables that do not exceed an AWG value of 24.

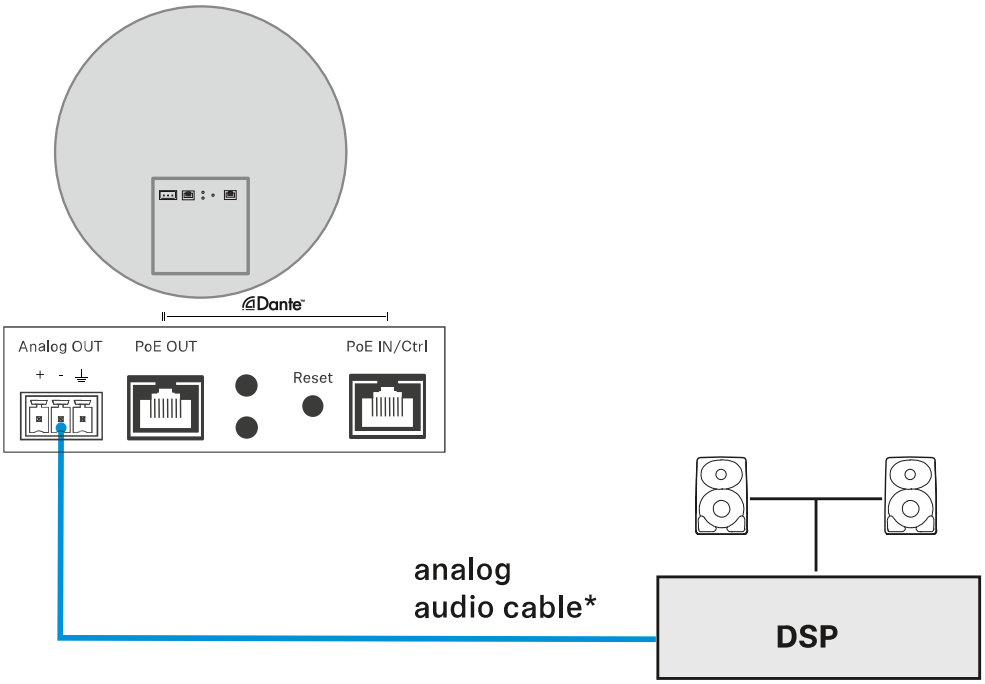


Outputting analog audio signals

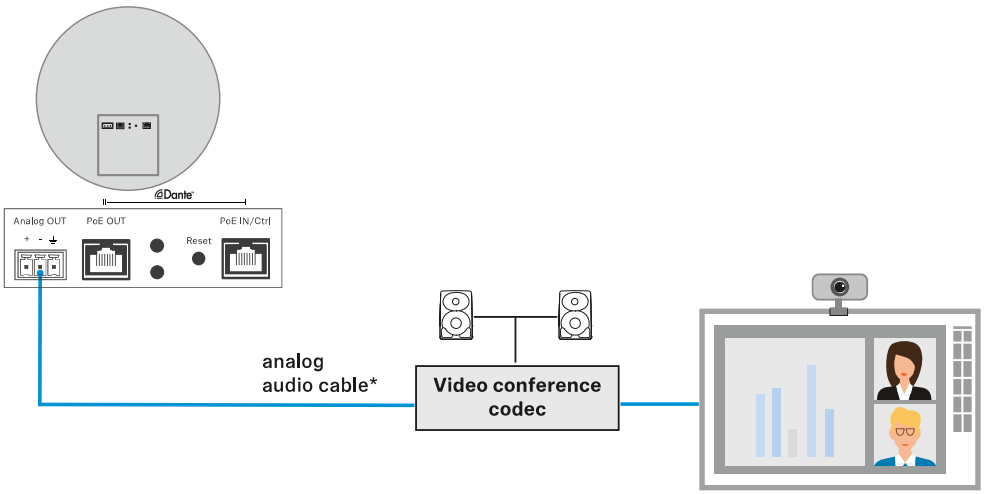
Use the Analog Out socket to output analog audio signals.

> i *The analog audio cable is not included with delivery. Depending on the audio input of your DSP, the cable must connect 3-pin terminal to 3-pin XLR terminal or to jack.

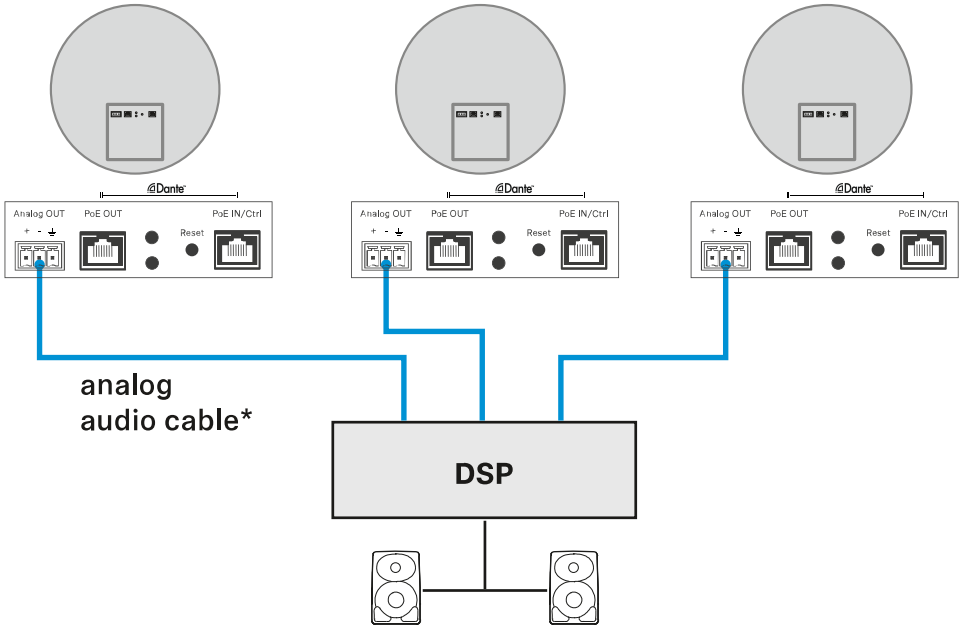
Variant 1: output analog audio signal to a DSP



Variant 2: output analog audio signal to video conference codec



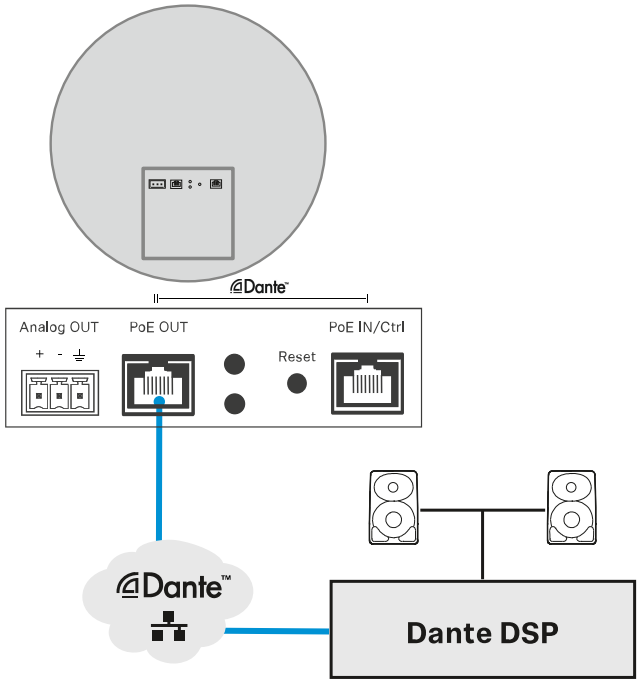
Variant 3: output analog audio signal from multiple ceiling microphones to a single DSP



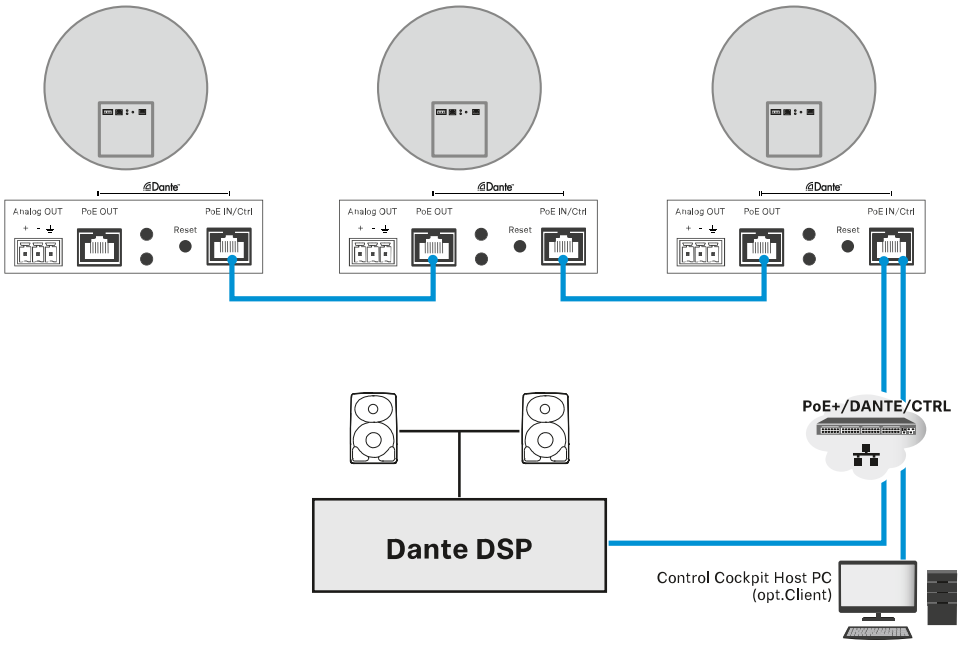
Outputting digital audio signals

The Dante interface with two RJ-45 sockets is used for outputting digital audio signals. The interface supports redundant output and series connection of multiple ceiling microphones (switched mode). The mode is configured using the Dante Domain Manager or Dante Controller from Audinate (www.audinate.com).

Variant 1: output digital audio signal to one Dante network



Variant 2: output digital audio signals from multiple ceiling microphones connected in series to one Dante network

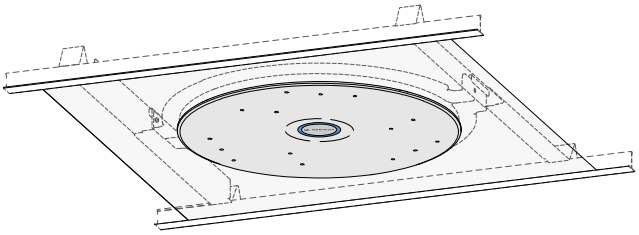


Planning the installation

Possible installation variants

> **i** Detailed installation instructions can be found in the section “Installation and startup.”

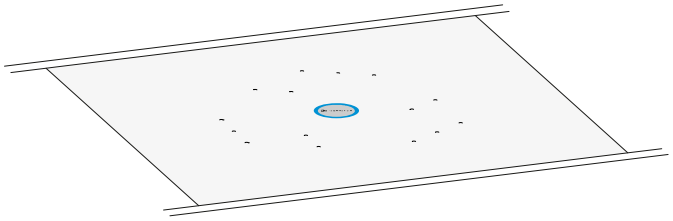
Variant 1: installed flush in a dropped/coffered ceiling



Ceiling microphone mounting kit: TCC M-F-W (white) or TCC M-F-B (black)

- See Variant 1: installed flush in a dropped/coffered ceiling

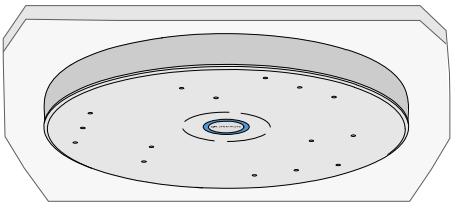
Variant 2: installed flush with the Ceiling Tile panel in a dropped/coffered ceiling



Ceiling microphone mounting kit: tc-ceiling-medium CTFP-W or tc-ceiling-medium CT-W 2FT

- SeeVariant 2: installed flush with Ceiling Tile Element in a dropped/coffered ceiling

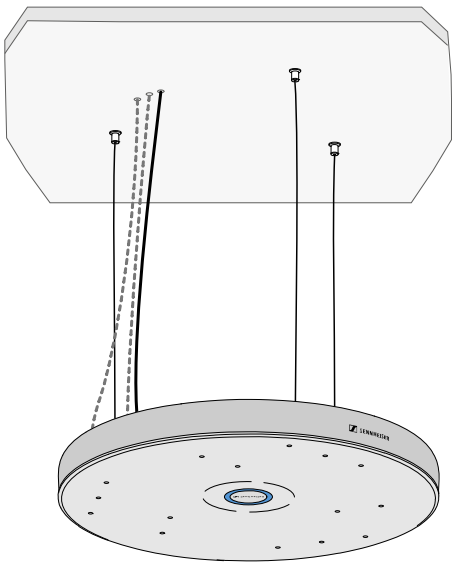
Variant 3: mounted directly below the ceiling



Ceiling microphone housing kit: TCC M-S-W (white) or TCC M-S-B (black)

- See Variant 3: mounted directly below the ceiling

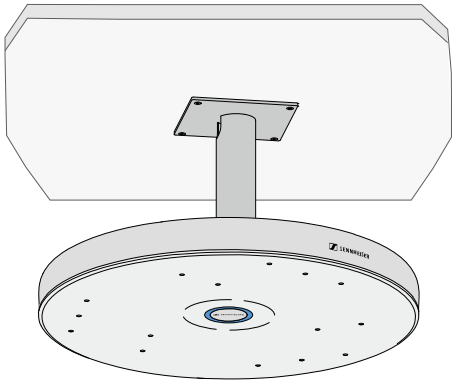
Variant 4: suspended from the ceiling



Accessories required:

- See Variant 4: suspended from the ceiling

VESA mount



Installation information:

- See Mounting the TeamConnect Ceiling Medium on a VESA mount

Adapting the installation height

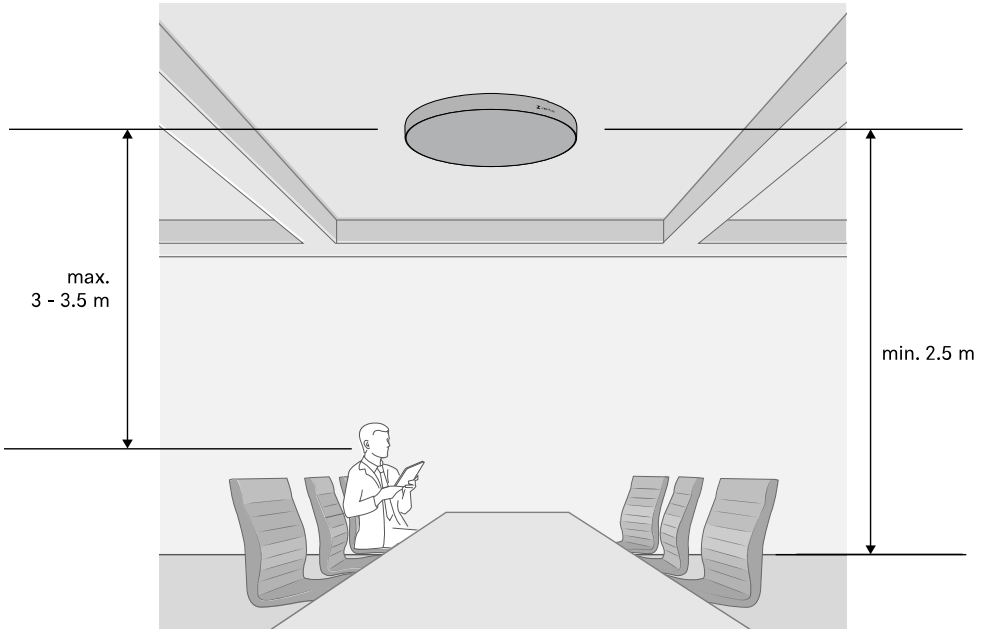
> **i** Observe the following minimum and maximum distances when installing the TeamConnect Ceiling Medium.

The recommended maximum distance from the speaker to the TeamConnect Ceiling Medium is 3 to 3.5 m.

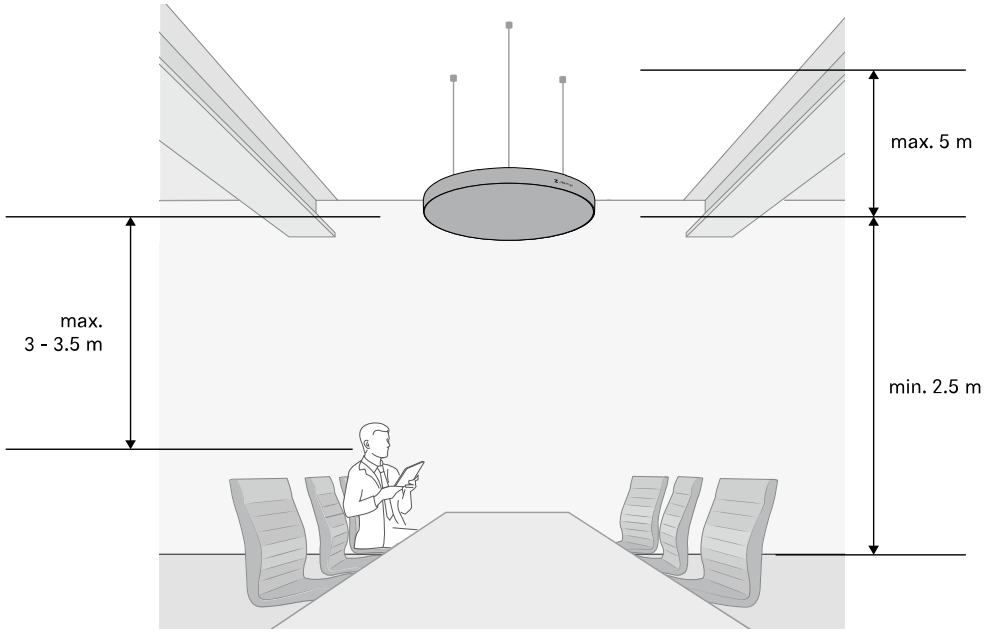
The minimum distance from the TeamConnect Ceiling Medium to the floor is 2.50 m.

> **i** If installation variants 1 or 2 would result in a distance greater than the recommended maximum due to the room height, we recommend installation variant 3.

Recommended distances for variants 1 and 2:



Recommended distances for variant 3:



3. Installation and startup

Instructional chapters on mounting and configuring the device

i Contrary to the TeamConnect Ceiling 2, the TeamConnect Ceiling Medium is delivered with **muted microphones**. It is therefore necessary to configure the device in the Sennheiser Control Cockpit and unmute the microphones before using it for the first time (see Configuring the TeamConnect Ceiling Medium with the Control Cockpit).

1. Connect to the network
2. Download the Sennheiser Control Cockpit
3. Initialize the device in the Control Cockpit (default password is “sennheiser”)
4. Set a new password
5. Configure the device and unmute the microphones

General notes

Variant 1: installed flush in a dropped/coffered ceiling

Variant 2: installed flush with Ceiling Tile Element in a dropped/coffered ceiling

Variant 3: mounted directly below the ceiling

Variant 4: suspended from the ceiling

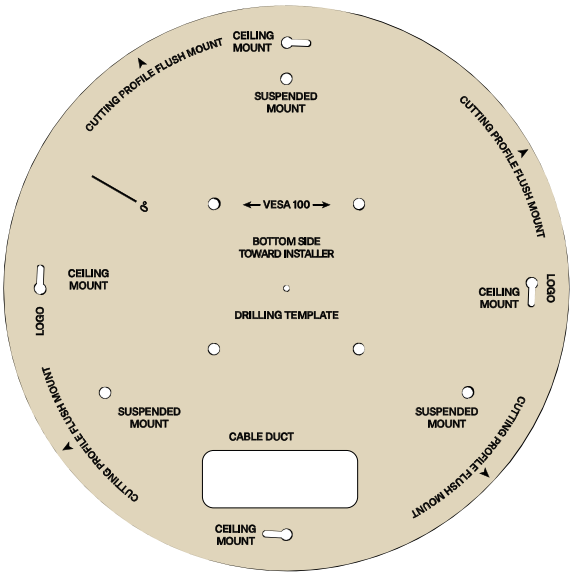
Mounting the TeamConnect Ceiling Medium on a VESA mount

Configuring the TeamConnect Ceiling Medium with the Sennheiser Control Cockpit

Configuring the TeamConnect Ceiling Medium with a media control system

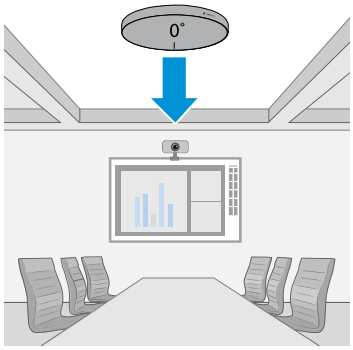
General notes

Drilling template



- Use the drilling template (item no. 594561) included with delivery to draw the drill holes and the circumference of the device.

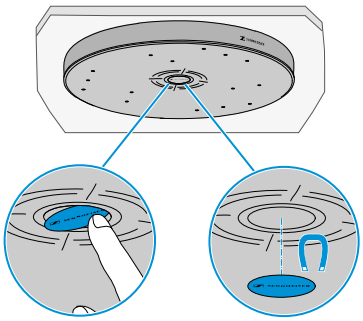
Camera orientation



- Make sure that the microphone is aligned before mounting. This is indicated by the "0°" mark.

Replacing the logo plate

If you want to replace the logo plate on the front of the microphone:



- Push the side of the plate so that it tilts out.
- Remove the plate from the housing.
- Insert the new plate. The magnet will hold it in place.

Variant 1: installed flush in a dropped/coffered ceiling

The TeamConnect Ceiling Medium can easily be installed flush in dropped or closed ceilings.

The TCC M-F product variant includes a ceiling flush mount kit for this purpose. When flush mounting, do not install the TeamConnect Ceiling Medium directly next to lights or other electrical devices in the ceiling.

ATTENTION

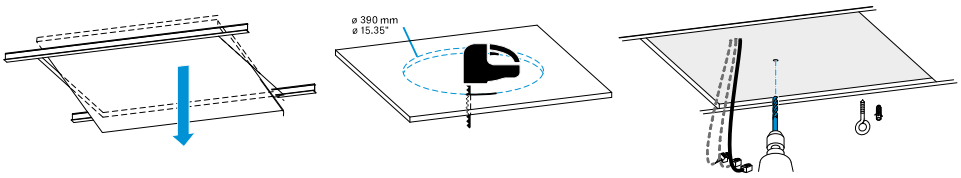
Danger of property damage if the product should fall

If mounted incorrectly, the product may fall.

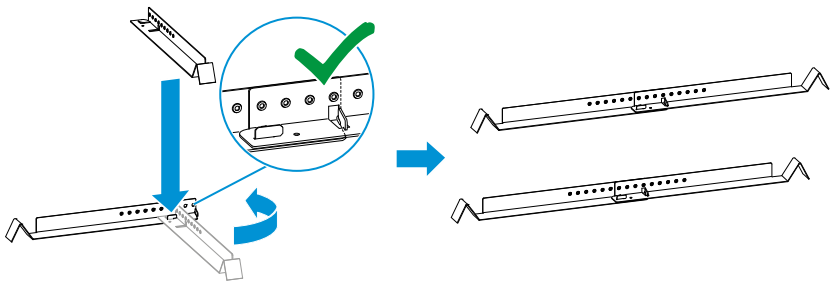
- When installing in the ceiling, always use additional means to secure the TeamConnect Ceiling Medium against falling, e.g. with the TCC M SK ceiling suspension kit included in the scope of delivery (see variant 4: suspended from the ceiling) **and additionally** with the supplied installation rope, which is attached to a ceiling hook and the top of the microphone.

Attaching the ceiling flush mount kit

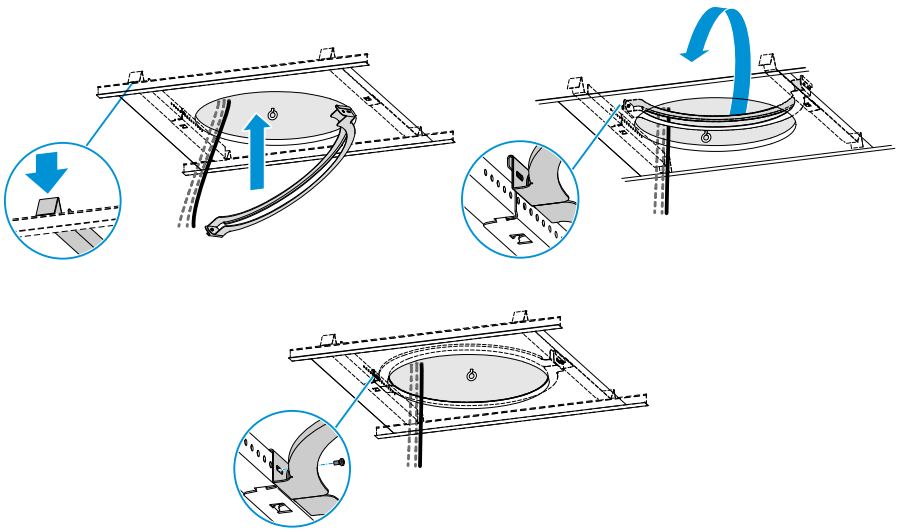
- Remove a tile from the ceiling.
- Trace the circumference using the drilling template supplied and saw the hole.
- Using a suitable anchor, insert an eye bolt into the ceiling to attach the installation rope.
- Reinsert the ceiling tile.



- Assemble the longitudinal sections of the ceiling flush mount kit by hooking them into each other at right angles and then straightening them out until they snap into place.



- Place the longitudinal sections over the crossbeams in the coffered ceiling.
- With the C-ring closed or slightly open, guide it through the hole and unfold it.
- Slide the tabs on the C-ring onto the longitudinal sections on both sides.
- Attach the ceiling flush mount kit by inserting the supplied screws through the slots on both sides.



Securing and connecting the microphone

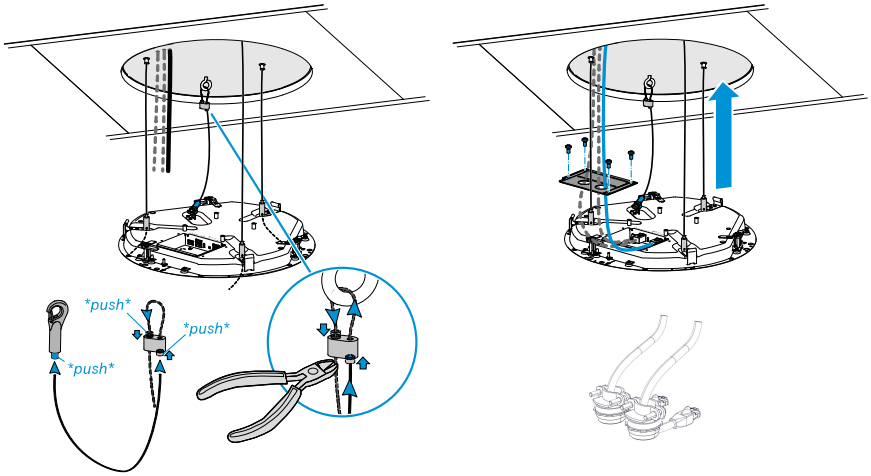
- Fit the installation rope as shown and attach it to the retaining hook and microphone.
- Optionally, mount the TCC M SK ceiling suspension kit (see "Variant 4: suspended from the ceiling").
- Insert the cables you need.
- If required, you can attach a cover plate (included with delivery) and pipe clamps (not included with delivery).

Recommended cabling

Observe the following when connecting and running the cables:

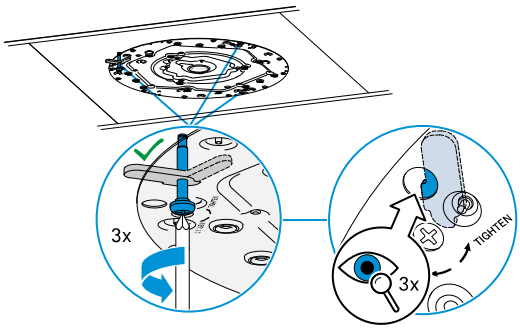
- Always run the cables carefully and in a loop shape inside the installation recess.
- Make sure not to kink the cables to avoid breaking them or damaging the plugs.

- Lift the microphone toward the ceiling, pull the rope tight and cut off any superfluous length of rope.

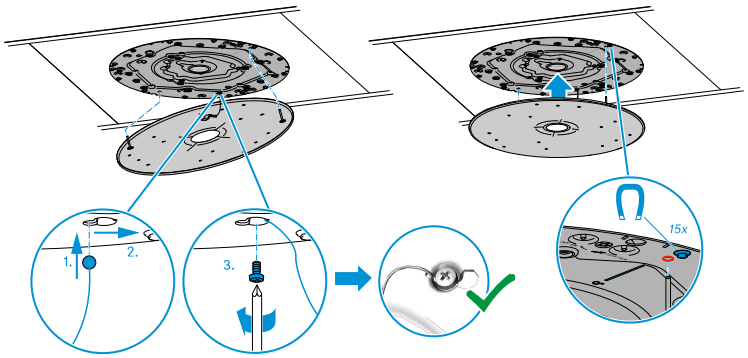


Securing the microphone and attaching the front panel

- Hold the microphone in the ceiling flush mount frame with one hand and use the other hand to screw the three clamps until tight.
- Look through the inspection holes to check that the clamps are properly tightened and the microphone is firmly seated in the frame.



- Insert the guy rope on the front panel into the corresponding recess in the microphone as shown and secure it with the supplied screw.



- Insert the two pins on the retaining plate into the corresponding holes in the microphone (marked in red). Magnets will hold the front panel to the microphone.

Variant 2: installed flush with Ceiling Tile Element in a dropped/coffered ceiling

The TeamConnect Ceiling Medium can be installed flush in closed ceilings with the Ceiling Tile Element without having to saw out an existing ceiling panel.

For this purpose, the tc-ceiling-medium CTFP-W or tc-ceiling-medium CT-W product variant is required. When flush mounting, do not install the TeamConnect Ceiling Medium directly next to lights or other electrical devices in the ceiling.

ATTENTION

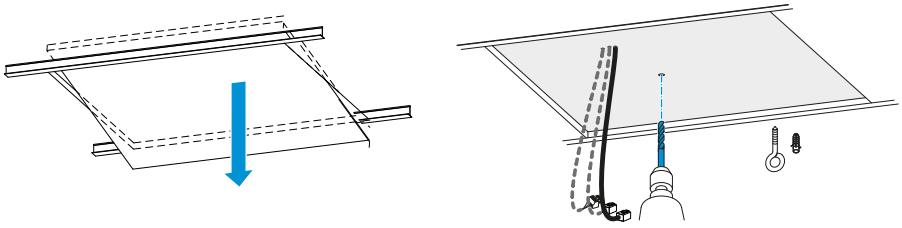
Danger of property damage if the product should fall

If mounted incorrectly, the product may fall.

- When installing in the ceiling, always use additional means to secure the TeamConnect Ceiling Medium against falling, e.g. with the TCC M SK ceiling suspension kit included in the scope of delivery (see variant 4: suspended from the ceiling) **and additionally** with the supplied installation rope, which is attached to a ceiling hook and the top of the microphone.

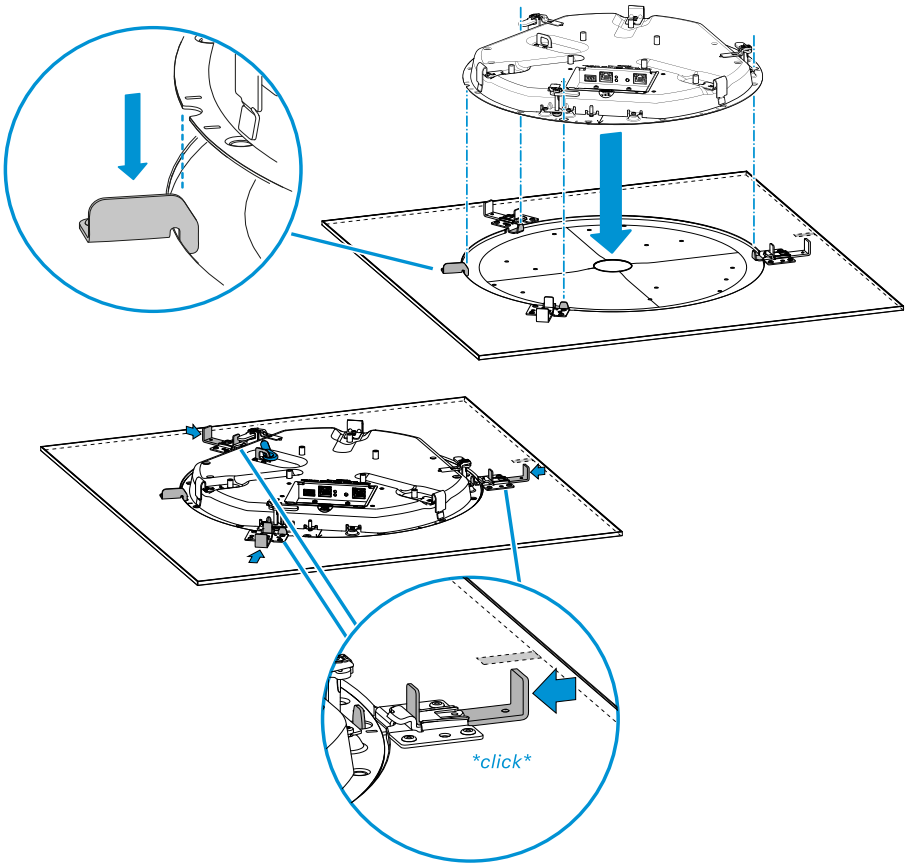
Attaching the ceiling flush mount kit

- Remove a tile from the ceiling.
- Using a suitable anchor, insert an eye bolt into the ceiling to attach the installation rope.



- Insert the microphone into the Ceiling Tile panel. In this context, only one position is possible: the metal lug of the panel must be inserted into the corresponding recess on the microphone, as shown in the illustration.

- The microphone must then be secured using the three latches on the panel. These must snap into place audibly with a "click".

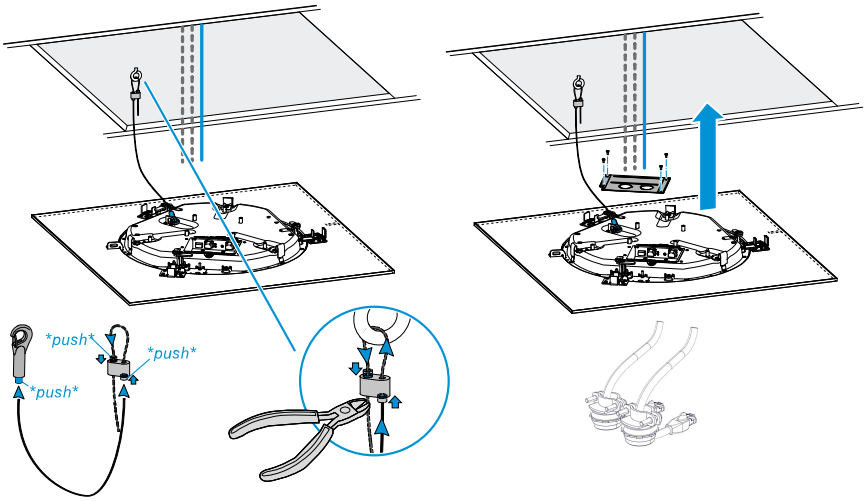


Securing and connecting the microphone

- Fit the installation rope as shown and attach it to the housing and microphone.
- Mount the TCC M SK ceiling suspension kit (see "Variant 4: suspended from the ceiling").
- Insert the cables you need.
- If required, you can attach a cover plate (not included with delivery) and pipe clamps (not included with delivery).

> **Recommended cabling**
> Observe the following when connecting and running the cables:
>
> - Always run the cables carefully and in a loop shape inside the installation recess.
> - Make sure not to kink the cables to avoid breaking them or damaging the plugs.

- Lift the microphone toward the ceiling, pull the rope tight and cut off any superfluous length of rope.



Inserting the microphone

- Insert the microphone which is mounted in the Ceiling Tile into the ceiling.

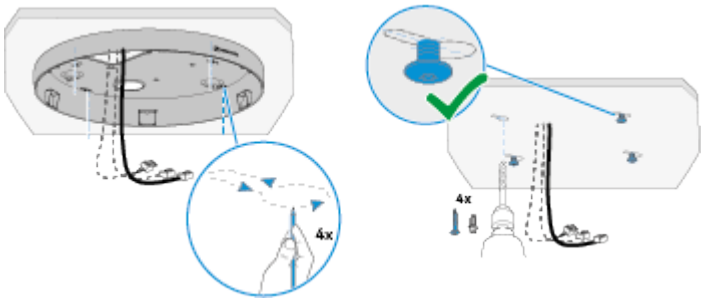
Variant 3: mounted directly below the ceiling

For installation directly below the ceiling, you need the TCC M-S-W or TCC M-S-B product variant, or the TCC M-H-W or TCC M-H-B ceiling microphone housing.

> **i** Screws and anchors for mounting the product to the ceiling are not included with delivery. Use screws and anchors that are appropriate for the particular characteristics of your ceiling.

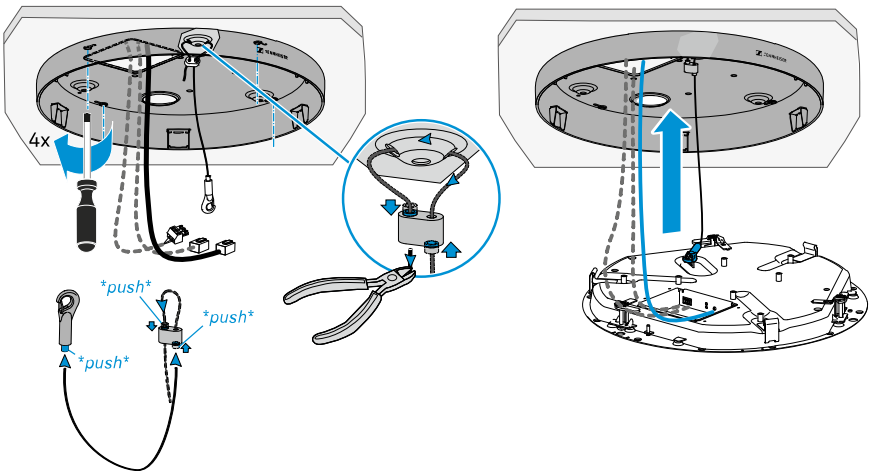
Mounting the ceiling mounting frame

- Use the drilling template or the housing to draw the keyholes on the ceiling.
- Place the screws in the center of the key holes.



Securing and connecting the microphone

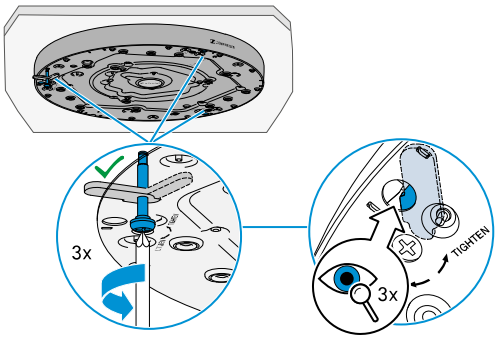
- Fit the installation rope as shown and attach it to the housing and microphone.
- Insert the cables you need.
- Lift the microphone toward the ceiling, pull the installation rope tight and cut off any superfluous length of rope.



> **i** Observe the following when connecting and running the cables: Always run the cables carefully and in a loop shape inside the installation recess. Make sure not to kink the cables to avoid breaking them or damaging the plugs.

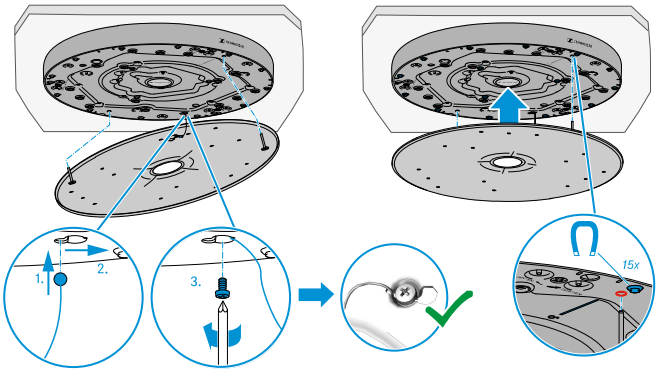
Securing the microphone and attaching the front panel

- Hold the microphone in the housing with one hand and use the other hand to screw the three clamps until tight. Caution: left-hand thread!
- Look through the inspection holes to check that the clamps are properly tightened and the microphone is firmly seated in the housing.



- Insert the guy rope on the front panel into the corresponding recess in the microphone as shown and secure it with the supplied screw.

- Insert the two pins on the retaining plate into the corresponding holes in the microphone (marked in red). Magnets will hold the front panel to the microphone.



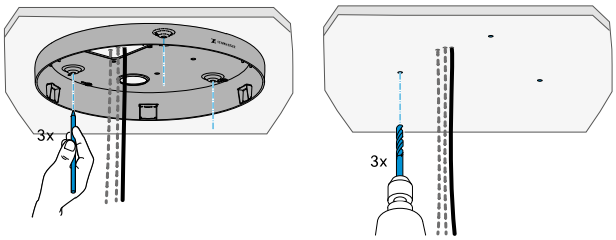
Variant 4: suspended from the ceiling

For suspended mounting, you need the TCC M-SK ceiling suspension kit.

> **i** Screws and anchors for mounting the product to the ceiling are not included with delivery. Use screws and anchors that are appropriate for the particular characteristics of your ceiling.

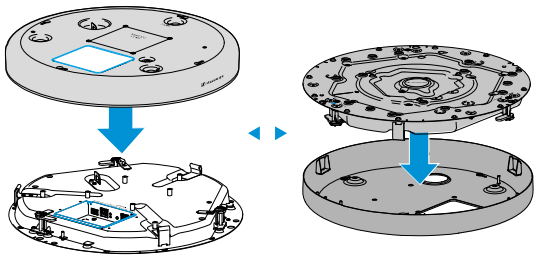
Drawing the drill holes

- Use the drilling template or the housing to draw the keyholes on the ceiling.

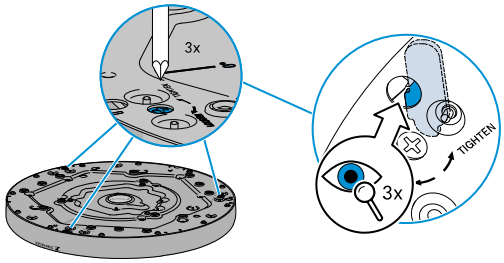


Premounting the microphone

- Insert the microphone into the housing or slide the housing onto the microphone.
- Make sure that the recess in the microphone is aligned with the corresponding hole in the housing.

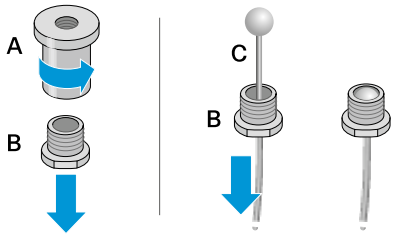


- Secure the microphone using the three clamps. Caution: left-hand thread!



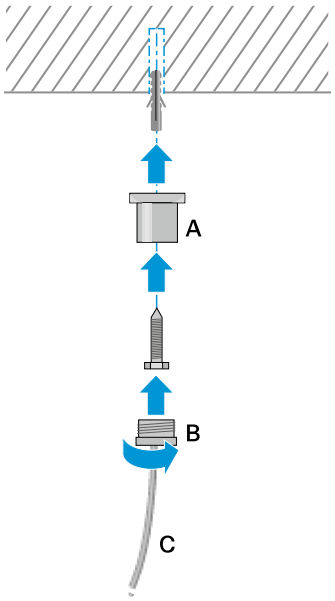
Preparing the ceiling fastener

- Unscrew part A of the ceiling fastener from part B.
- Thread the steel cable C into part B so that the ball on the steel cable is in part B.
- Repeat these steps for the other three fasteners.

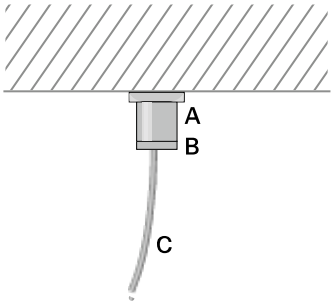


Mounting the ceiling fastener

- Attach part A of the ceiling fastener to the ceiling using a suitable anchor and screw.
- Use the included drilling template to align the drill holes.

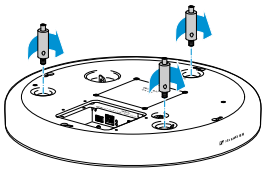


- Then screw part B of the ceiling fastener into part A.
- Repeat these steps for the other three fasteners.

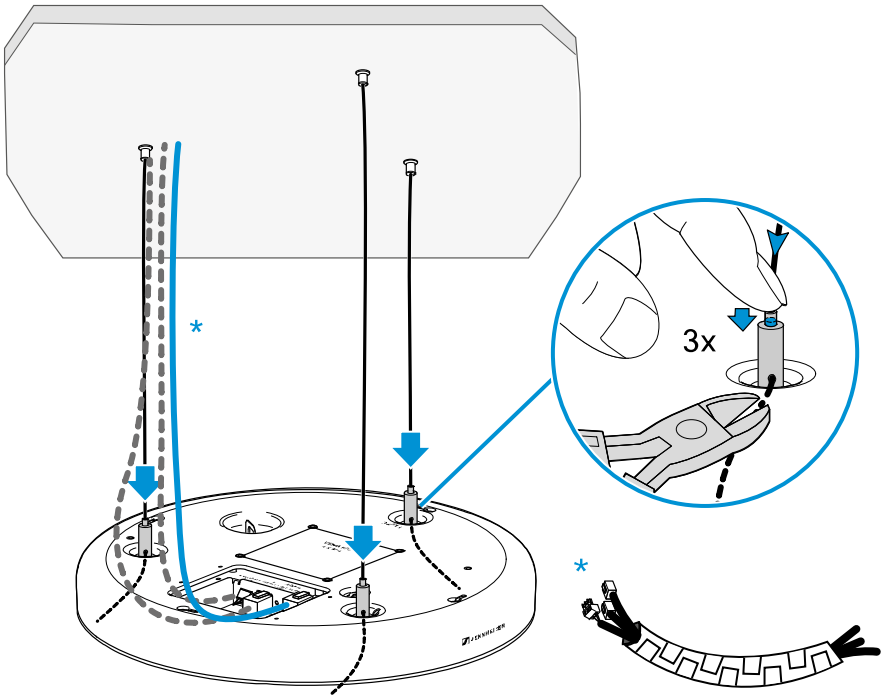


Mounting the product fastener

- As shown in the figure, screw the product fastener into the threaded mounting hole on the top of the TeamConnect Ceiling Medium.



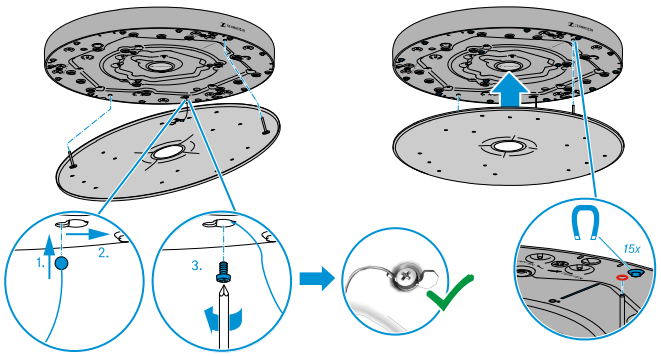
- Set the steel cable C to the desired length by using your finger to press the cable guide into the product fastener and sliding the steel cable as needed.



- Cut the excess steel cable using suitable pliers.
- Repeat these steps for the other three fasteners.
- Insert the cables you need.
- If necessary, use a cable conduit (not included with delivery) to bundle the cables.

Attaching the front panel

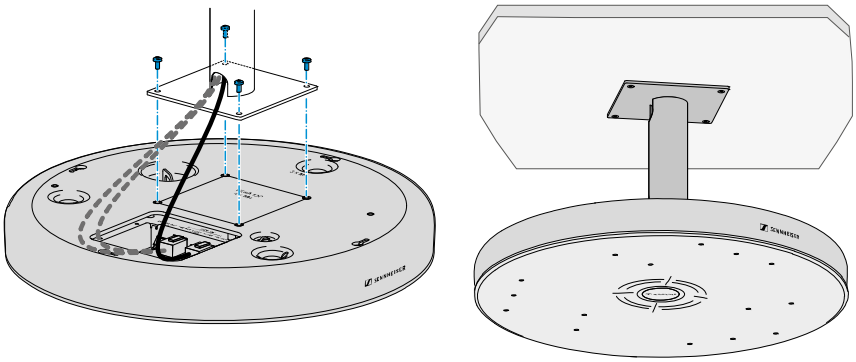
- Insert the guy rope on the front panel into the corresponding recess in the microphone as shown and secure it with the supplied screw.
- Insert the two pins on the retaining plate into the corresponding holes in the microphone (marked in red). Magnets will hold the front panel to the microphone.



Mounting the TeamConnect Ceiling Medium on a VESA mount

The TeamConnect Ceiling Medium can be mounted on standard VESA MIS D mounts.

- Fasten the ceiling mount to the ceiling using suitable screws and anchors.
- Observe the mounting specifications from the manufacturer.
- Then mount the TeamConnect Ceiling Medium on the VESA mount (M4 × 0.7 × 10 mm) as shown in the figure.



Configuring the TeamConnect Ceiling Medium with the Sennheiser Control Cockpit

Contrary to the TeamConnect Ceiling 2, the TeamConnect Ceiling Medium is delivered with **muted microphones**. It is therefore necessary to configure the device in the Sennheiser Control Cockpit and unmute the microphones before using it for the first time (see Configuring the TeamConnect Ceiling Medium with the Control Cockpit).

1. Connect to the network
2. Download the Sennheiser Control Cockpit
3. Initialize the device in the Control Cockpit (default password is “sennheiser”)
4. Set a new password
5. Configure the device and unmute the microphones

Downloading Sennheiser Control Cockpit

To use the Sennheiser Control Cockpit, you must complete a one-time registration with your e-mail address to receive the software activation code.

- To configure and use the TeamConnect Ceiling Medium, you need the free Sennheiser Control Cockpit control software. You can download it here: www.sennheiser.com/control-cockpit-software
- The Sennheiser Control Cockpit must be used to configure/initialize the product for the first time.
- After that, the TeamConnect Ceiling Medium can also be operated using a media control system. To have access to the full range of functions, however, you should use the Sennheiser Control Cockpit.

Claiming the TeamConnect Ceiling Medium for a specific Control Cockpit instance (network solution)

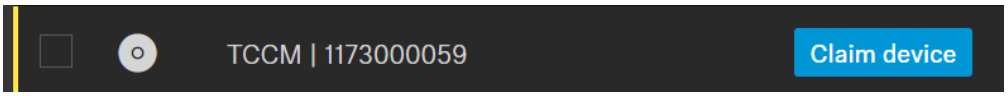
> **i** To set up the device's initial configuration, you have to connect directly to the network via the LAN cable (RJ45).

- A new device claiming feature has been introduced to link the device to a specific instance of Control Cockpit and thus prevent the device from being controlled over the network without authentication. The device is controlled by means of encrypted communication and only with the password you have set.
- To assign the TCC M to a Control Cockpit instance: Connect the device's "Control" network port (PoE+ socket) to the network:

  > **i** Use only network cables with CAT5e (F/STP) standard or better.

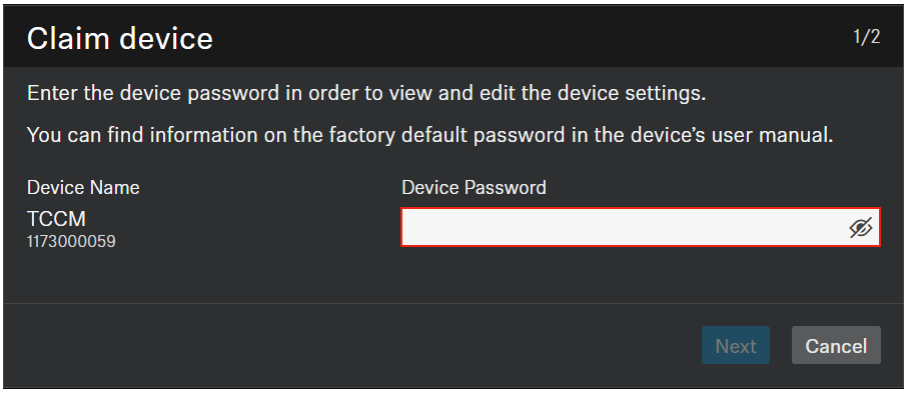
- Open Control Cockpit and click on the "Device list" view.

  ✓ The new device is automatically detected and displayed as "Not claimed." If the device does not appear in the device list, add the device manually by entering an IP address.



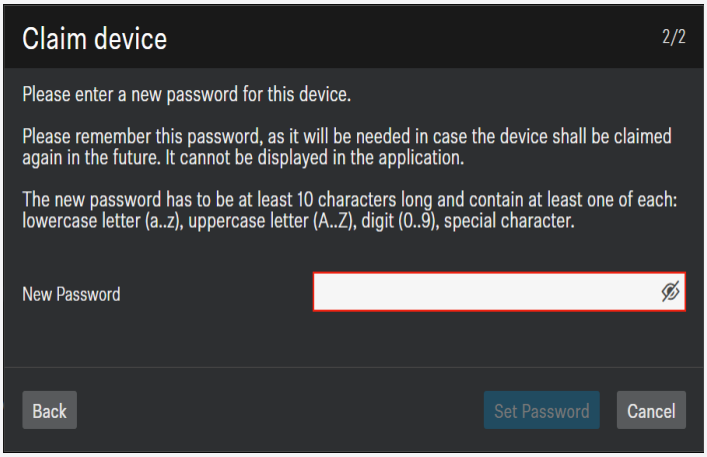
> **i** Please note that the device must be claimed before its full range of functions are available.

- Click "Claim device" and enter the default password "sennheiser".



If the device has been previously claimed by another instance of Control Cockpit, enter the password set previously.
If you do not remember the previous password, please perform a hardware reset of the device and try again with the default password.

To ensure secure access to the device, you will immediately be prompted to enter a new password.



- Enter the new password for your device and click "Set password". The device has now been claimed by your Control Cockpit instance. You can now use all available functions.

Please note that the new password must meet the following requirements:

- At least ten characters
- At least one uppercase letter
- At least one lowercase letter
- At least one number
- At least one special character
- Maximum length: 64 characters

You can change the device password on the "Access" tab of the device page.

You can also install a new instance of Control Cockpit and claim the device by entering the set device password.

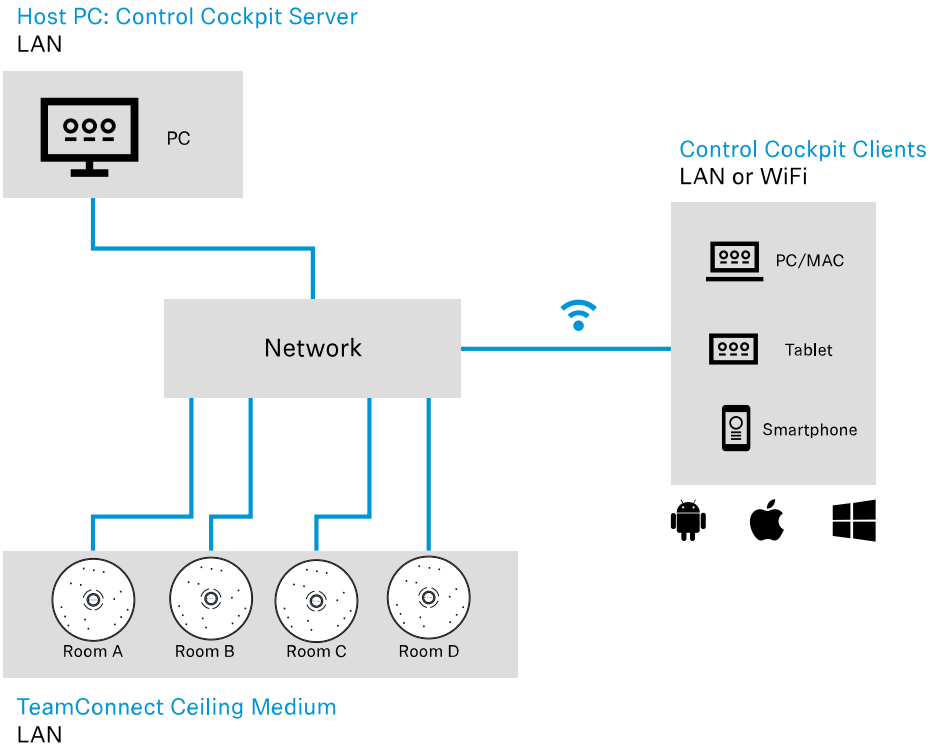
Configuring the TeamConnect Ceiling Medium with the Sennheiser Control Cockpit

There are two ways to operate the TeamConnect Ceiling Medium using the Sennheiser Control Cockpit:

- Variant 1: integrated in an existing network
- Variant 2: as a standalone solution with a PC and a PoE-capable network switch

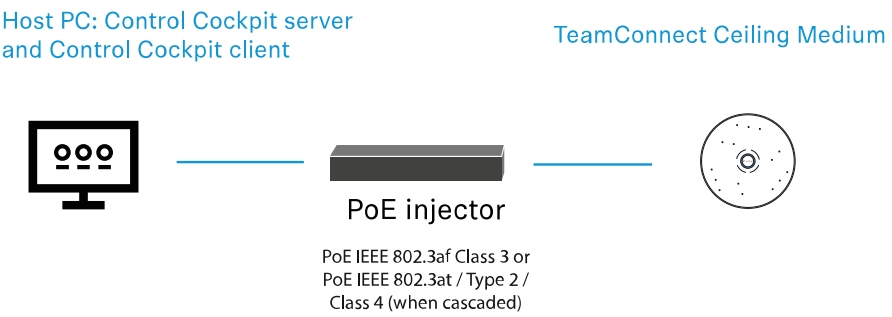
- **Variant 1 – Integrating the TeamConnect Ceiling Medium in an existing network**
  The Sennheiser Control Cockpit should be installed on a host PC (Windows 7 or later) that is in the same network as the TeamConnect Ceiling Medium that you want to configure. The Sennheiser Control Cockpit runs on the host PC as a Windows service.

- Any browser-capable device in the network (e.g. PC/Mac, tablet or smartphone) can operate the product using the Control Cockpit Client, which is accessed at a specific URL in the browser.



The online help contains detailed information about the functions of the Sennheiser Control Cockpit and how to configure the TeamConnect Ceiling Medium and the network. The online help can be found on the Sennheiser Control Cockpit product page (www.sennheiser.com/control-cockpit-software) and in the software itself.

- **Variant 2 – Connecting the TeamConnect Ceiling Medium to a PC and a PoE-capable network switch for standalone use:** To configure the TeamConnect Ceiling Medium using a computer without integrating it in a network, connect the computer to a PoE-capable network switch using a network cable (Cat5e or higher). Alternatively, you can use a PoE injector.
- Connect the network switch to the Ethernet PoE/Ctrl socket on the TeamConnect Ceiling Medium.



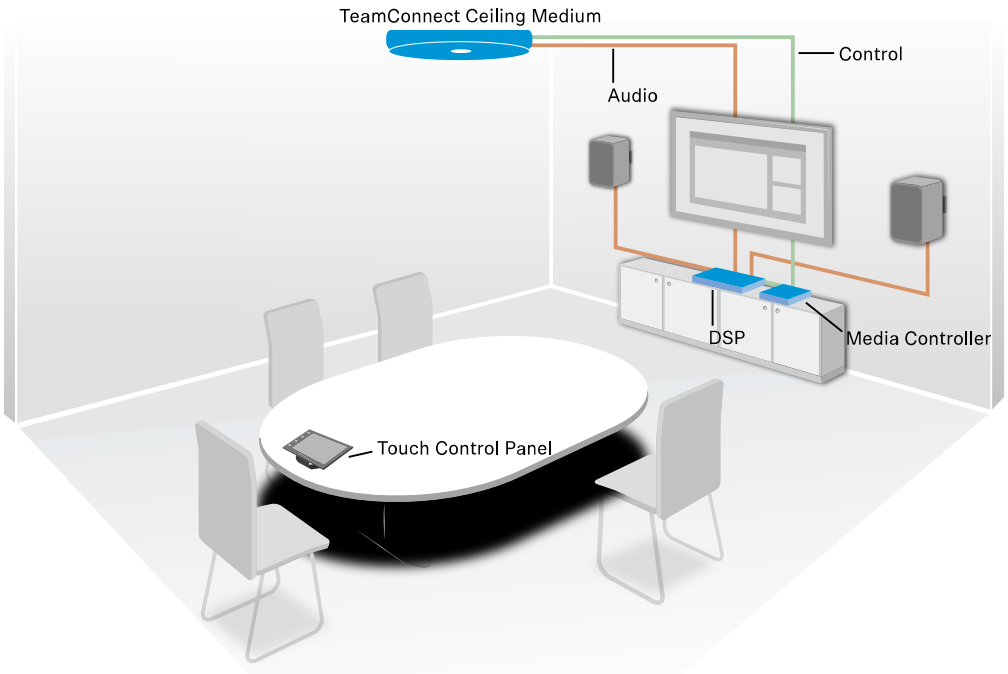
Configuring the TeamConnect Ceiling Medium with a media control system

After initial configuration with the Sennheiser Control Cockpit, the TeamConnect Ceiling Medium can also be operated using a media control system.

A media control system allows you to use a custom user interface with the following functions:

- Control the mute function
- Edit audio parameters (adjust output level, show microphone level, set EQ)
- LED control
- Transmit speaker position

Sample application:



The media control protocol for TeamConnect Ceiling Medium is available for download as a PDF file on the product web page: www.sennheiser.com/tc-ceiling-medium

4. Specifications

Product characteristics and acoustic properties, ambient conditions, polar diagram and frequency response curve

Specifications

Cleaning and maintenance

Specifications

Product properties

Dimensions (Ø×H)

- 407 × 46 mm
- 590.8 mm x 590.8 mm x 45.8 mm (Ceiling Tile)
- 606.5 mm x 606.5 mm x 45.8 mm (Ceiling Tile 2ft)

Weight

- 4.9 kg max.
- 4.5 kg (Ceiling Tile)
- 4.6 kg (Ceiling Tile 2ft)

Audio outputs

- 1 × 3-pin connection socket (suitable for Phoenix Contact MCVW 1.5-3-ST-3.81)
- 1 × digital Dante network audio (RJ-45)

Network/Control

- 1 × RJ-45 Ethernet socket for PoE power supply and data/control

Supply voltage

- PoE IEEE 802.3af Class 3 or PoE IEEE 802.3at / Type 2 / Class 4 (if cascaded)

Power consumption

- approx. 8 W

Security certification

- IEC/EN 62368-1 (including UL 2043 verification and compliance)

Acoustic properties

Transducer principle

- Pre-polarized condenser microphone

AF frequency response

- 100 Hz - 16,000 Hz

Sensitivity

- 0 dBV/Pa (1020 mV/Pa)

Signal-to-noise ratio

- 77 dB(A)

Equivalent noise level

- 17 dB(A)

Number of KE 10 microphone capsules

- 15

Pick-up pattern

- Beam pattern

Max. sound pressure level

- 98 dB SPL

Dynamic range

- 81 dB(A)

Ambient conditions

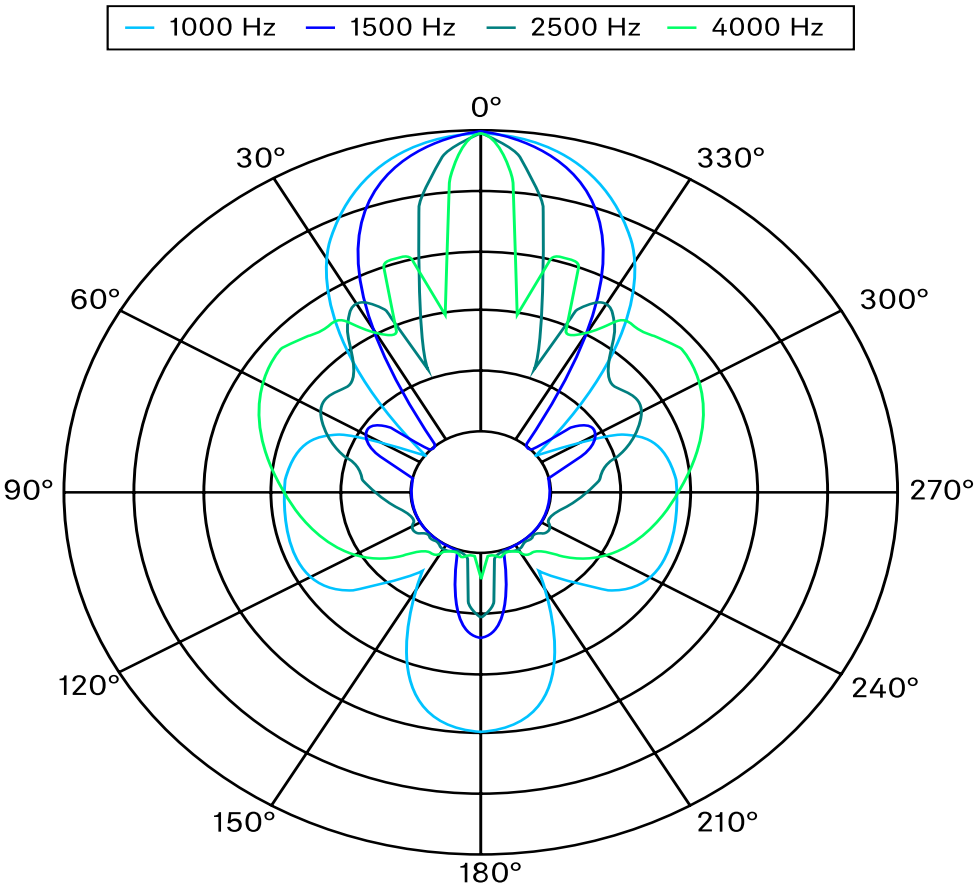
Temperature range

- Operation: 0 to 40 °C (32 °F to 122 °F)
- Storage: -10 to 60 °C (32 °F to 122 °F)

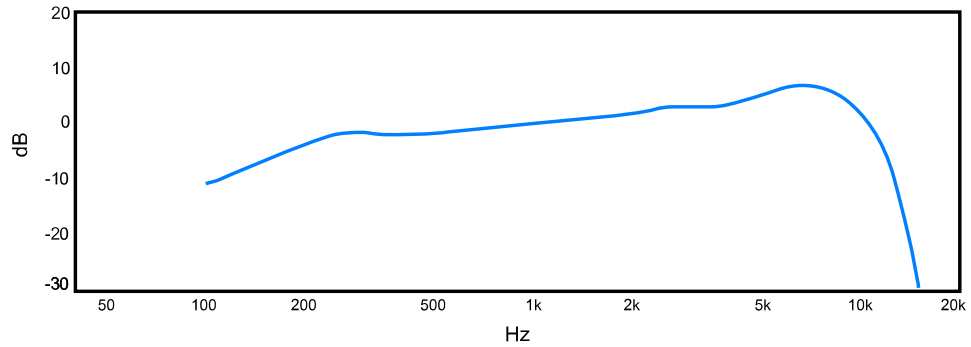
Relative humidity

- 20-95 %, non-condensing

Polar diagram



Frequency response



Cleaning and maintenance

ATTENTION

Liquids can damage the electronics of the product

Liquids entering the product housing can cause a short-circuit and damage the electronics.

- Keep all liquids away from the products.
- Do not use any solvents or cleansing agents.
- Disconnect the products from the power supply system and remove rechargeable batteries and batteries before you begin cleaning.
- Clean all products only with a soft, dry cloth.

1. Disconnect the products from the power supply before you begin cleaning.
2. Clean all products only with a soft, dry cloth.

5. Contact

Contact information in case of questions about our products and/or services.

Sennheiser electronic SE & Co. KG | Am Labor 1 | 30900 Wedemark | Germany