

televic

D-CERNO

INSTALLATION AND USER MANUAL

Latest **D-Cerno** Software Update: 1.2 (May 2024)



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GETTING STARTED

Throughout this guide we use different icons to designate different types of information:



This is a note. A note gives additional information, such as the meaning of the color of a LED. A note also provides information that may only be applicable to some situations.



This is a tip. A tip gives you an alternative way to do a particular step or procedure, or lets you know of an option that you may find helpful.



This is a warning. A warning indicates that something is very important or something you need to do in order to accomplish a certain task.



This is a safety precaution. A safety precaution provides information that you need to be careful about to prevent potential problems when using our systems.

ABOUT D-CERNO

D-Cerno System

D-Cerno is a wired digital discussion system for small or medium-sized conference rooms. The setup is designed to work out-of-the-box by simply connecting all the units to the central engine.

Up to 50 **tabletop and flushmount units** can be connected to the central unit, **D-Cerno AE** (Audio Engine). The central unit can be mounted in a rack or positioned on a table. It has **recording capabilities**, and is compatible with hybrid meetings by connecting a USB cable.

The Operator has full control over the microphone modes and recording settings thanks to the **integrated web-server interface** that is user-friendly.


The main characteristics of the system are:

- › **Digital signal processing**
- › **Integrated web server** for audio configuration
- › **Integrated recording capabilities**
- › **Handsfree mode**
- › **DSP mode (available soon)**
- › **Crystal-clear audio reproduction:** digital signal processing, high-quality GSM interference free microphone and loudspeaker, resulting in excellent intelligibility.
- › **Attractive, stylish design:** contemporary, unobtrusive and low profile, fitting into modern and traditional style conference rooms
- › **Plug-and-play:** easy installation, up and running in no time, ideal for frequently changing environments
- › **High reliability:** built-in redundancy feature – hygienic, easy to clean, consistent performance over the entire lifespan of the product.

Compatibility

This user manual applies to the following products:

Product	Version
D-Cerno AE	1.2.0 min.

 If the D-Cerno AE central unit is to be used with D-Cerno discussion units that were already in stock, make sure to **upgrade the discussion units to the latest version**. Please refer to the "Devices" on page 45 for more information on how to update devices.

GENERAL SAFETY INSTRUCTIONS

All Televic systems are state of the art devices and have been designed to meet all quality standards. Nevertheless, the individual components of the conference system can cause danger for persons and material assets if

- › The conference system is not used as intended,
- › The conference system is set up by personnel not familiar with the safety regulations,
- › The conference system is converted or altered incorrectly,
- › The safety instructions are not observed.

IMPORTANT SAFETY INSTRUCTIONS



This equipment is not suitable for use in locations where children are likely to be present.

1. **Read Instructions.** All the safety and operating instructions should be read before the product, device or system is operated.
2. **Retain Instructions.** The safety and operating instructions should be retained for future reference. The instructions should be kept in the vicinity of the product or system.
3. **Heed Warnings.** All warnings on the product and the operating instructions should be closely adhered to.
4. **Follow Instructions.** All instructions for installation or operating/use should be followed closely.
5. **Cleaning.** Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use only a damp cloth for cleaning.
6. **Ventilation.** Any slots and openings in the device or equipment are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating. These openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.
7. **Heat.** The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat. Do not use or operate any equipment in environments that exceed the standard operating temperatures.
8. **Modifications.** Do not use any modifications, extension, or other attachments not recommended by the product manufacturer as they may cause hazards.
9. **Accessories.** Only use attachments/accessories specified by the manufacturer. Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the product. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.
10. **Water and Moisture.** Do not use this product near water or in a moistures environment - for example, near a bath tub, wash bowl, kitchen sink, or laundry tub; in a wet basement; or near a swimming pool, in an unprotected outdoor installation; and the like.

11. **Moving.** A product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.
12. **Power Sources.** This product should be operated only from the type of power source supplied or approved by Televic with specifications matching the power rating of the D-Cerno AE. If you are not sure of the type of power supply to your home, consult your product dealer or local power company. For products intended to operate from battery power, or other sources, refer to the operating instructions.
13. **Power Lines.** An outdoor system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outdoor system, extreme care should be taken to keep from touching such power lines or circuits, as contact with them might be fatal. U.S.A. models only - refer to the National Electrical Code Article 820 regarding installation of CATV systems.
14. **Grounding or Polarization.** Do not defeat the safety purpose of the polarized or ground-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wider blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
15. **Power-Cord Protection.** Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plug, convenience receptacles, and the point where they exit from the product.
16. **Lightning.** For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet. This will prevent damage to the product due to lightning and power-line surges. (Not applicable when special functions are to be maintained, such as evacuation systems.)
17. **Overloading.** Do not overload wall outlets, extension cords or integral convenience receptacles as this can result in a risk of fire or electric shock.
18. **Object and Liquid Entry.** Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.
19. **Inflammable and Explosive Substance.** Avoid using this product where there are gases, and also where there are inflammable and explosive substances in the immediate vicinity.
20. **Heavy Shock or Vibration.** When carrying this product around, do not subject the product to heavy shock or vibration.

21. **Servicing.** Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
22. **Damage Requiring Service.** Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
 - a. When the power-supply cord or plug is damaged.
 - b. if liquid has been spilled, or objects have fallen into the product.
 - c. If the product has been exposed to rain or water.
 - d. If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
 - e. If the product has been dropped or damaged in any way.
 - f. When the product exhibits a distinct change in performance-this indicates a need for service.
23. **Replacement Parts.** When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.
24. **Safety Check.** Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.
25. **Coax Grounding.** If an outside cable system is connected to the apparatus, be sure the cable system is grounded. U.S.A. models only: Section 810 of the National Electrical Code, ANSI/NFPA No.70-1981, provides information with respect to proper grounding of the mount and supporting structure, grounding of the coax to a discharge apparatus, size of grounding conductors, location of discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

LITHIUM BATTERY

The D-Cerno AE central unit contains a lithium coin cell battery for showing the date and time. It can be removed and replaced as shown in the " " on page 87 section of this manual.



DANGER

Environmental Misuse:

- › Do not leave the battery near the fire or a heated source.
- › Do not throw the battery into the fire.
- › Do not leave, charge or use the battery in a place where the inside temperature may be over 60° C or below -20°C.
- › Do not immerse, throw or submerge the battery in water

Other:

- › Do not store the battery in a pocket or a bag together with metallic objects such as keys, necklaces, hairpins, coins, or screws.
- › Do not pierce the battery with a sharp object such as a needle or a screw driver.
- › Do not heat parts of the battery with heated objects such as soldering iron.
- › Do not hit the battery with heavy objects such as a hammer.
- › Do not step on the battery and throw or drop the battery on a hard floor to avoid mechanical shock.
- › Do not solder on the battery directly.
- › Do not use seriously damaged or deformed battery.
- › Do not put the battery into a microwave oven, dryer, or high-pressure container.



WARNING

- › Keep away from fire immediately when leakage or foul odors are detected. If liquid leaks onto your skin or cloths, wash well with fresh water immediately.

- › If liquid leaking from the battery gets into your eyes, don't rub your eyes and wash them with clean water and go see a doctor immediately.
- › The battery can be used within the following temperature ranges. Don't exceed these ranges:
 - Charging temperature ranges: 5°C ~ 45°C
 - Discharging temperature ranges: -20°C ~ 60°C
 - Storing temperature ranges: 0°C ~ 60°C

MAINTENANCE



Do not put any objects on top of the units. Object falling through the holes of the unit can cause damage.



Do not install the units in a location near heat sources as radiators, air ducts or direct sunlight.



Make sure the units are not exposed to excessive dust, humidity, mechanical vibration or shock.

Cleaning:



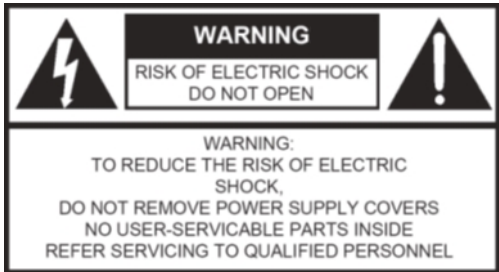
Do not use alcohol, ammonia or petroleum solvents or abrasive cleaners to clean the units.

To keep its original condition it is advised to periodically clean the unit:

- > Use a clean soft cloth that is not fully moist.
- > Make sure the device is completely dry before usage.

POWER CONNECTIONS

For permanently connected equipment, a readily accessible disconnect device shall be incorporated in the fixed wiring; For pluggable equipment, the socket-outlet shall be installed near the equipment and shall be easily accessible.



This label may appear on the bottom of the apparatus due to space limitations.



The lightning flash with an arrowhead symbol, with an equilateral triangle, is intended to alert the user to the presence of un-insulated 'dangerous voltage' within the products enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation mark within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.



To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture. Do not open the cabinet; refer servicing to qualified personnel only.



To prevent electric shock, do not use this (polarized) plug with an extension cord receptacle or other outlet unless the blades can be fully inserted to prevent blade exposure.



Installation should be performed by qualified service personnel only in accordance with the National Electrical Code or applicable local codes.



Installation should be performed by qualified service personnel only in accordance with the National Electrical Code or applicable local codes.

COMPONENTS

A D-Cerno system can consist of the following components:

Product	Parts included
Central unit	<ul style="list-style-type: none"> > D-Cerno AE (71.98.0322) > D-Cerno PS > Main cable > Conference system cable (2 m)
Delegate units	<ul style="list-style-type: none"> > D-Cerno D-SL (71.98.0306) > D-Cerno F-DM (71.98.0311) <p>Microphone not included</p> <ul style="list-style-type: none"> > Conference system cable (2 m)
Chairperson units	<ul style="list-style-type: none"> > D-Cerno C-SL (71.98.0307) > D-Cerno F-CM (71.98.0312) <p>Microphone not included</p> <ul style="list-style-type: none"> > Conference system cable (2 m)
Spare power supply	<ul style="list-style-type: none"> > D-Cerno PS (71.98.0340) > Mains cable
System cables (different lengths available)	<ul style="list-style-type: none"> > DCC2 cable set 4 x 2 m > DCC5 cable set 4 x 5 m > DCC10 cable set 4 x 10 m
Microphones for D-Cerno units D-SL, C-SL, F-DM and F-CM	<ul style="list-style-type: none"> > D-MIC 30 SL (71.98.0053) > D-MIC 40 SL (71.98.0054) > D-MIC 50 SL (71.98.0055) > D-MIC 70 SL (71.98.0057) > D-MIC 40 FF (71.98.0059)

CENTRAL UNIT

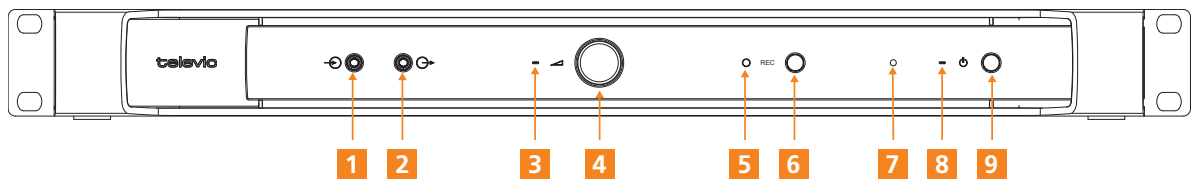
Introduction

The D-Cerno AE (Audio Engine) central unit is the heart of the system. It **controls all delegate units** and can interconnect to other systems via the external audio connections.

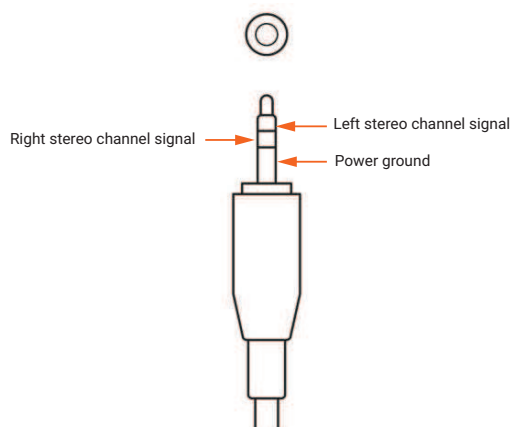


The system operates in a **standalone mode** and controls a maximum of **50 units**. Configuration can be done via the **integrated web server**.

Front Panel



1. Line input (stereo) or Mic input (left ring of the connector only) **(not yet functional)**
2. Line output (stereo) or headphones output (stereo)



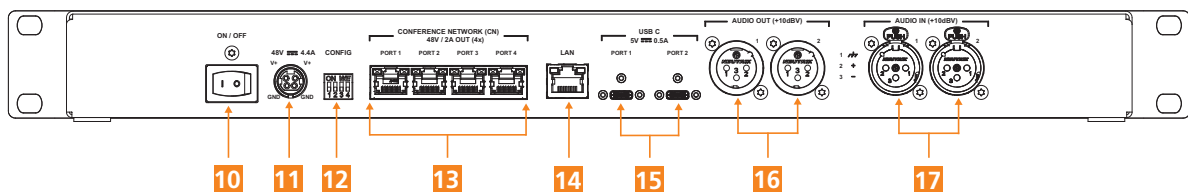
3. LED indicator of the volume

4. Volume
5. LED indicator of the recording button
6. Recording button **(not yet functional)**
7. Reset button
8. LED indicator of the power status:

Color	Description
Off	The device is off
Blinking red	Error
Solid blue	Standby
Solid green	The system is operational
Blinking orange	Update in progress
Blinking green	Booting
Fixed blue then blinking green	System recovery

9. Power button

External Backside Connections



10. **On/off switch** with LED indicator **(not yet functional)**
11. **+48V DC** power connector

12. **DIP switch (not yet functional):**

- DIP 1: 0 = autostart off / 1 = autostart on
- DIP 2: 0 = front panel enabled / 1 = front panel disabled
- DIP 3: 0 = Wake on LAN disabled / 1 = Wake on LAN enabled
- DIP 4: 0 = ECO mode enabled / 1 = ECO mode disabled

13. **Four RJ45 ports** to connect up to 50 delegate units with a **maximum of 25 units per branch or loop**. The **green** LED indicates that a signal is detected without errors (devices are detected). The **yellow** LED indicates that no signal is detected (no devices are connected).



For more information please use the power calculation tool available on Televic Knowledge Base here:

<https://conference.televic.digital/knowledgebase/products/d-cerno/>

14. **LAN connector** (Gigabit Ethernet): for web server connection and AES-67

Through the LAN connector, it is possible to connect the central unit to the local network. This makes it possible to control the recording and configuration by web browser on your PC or mobile device.

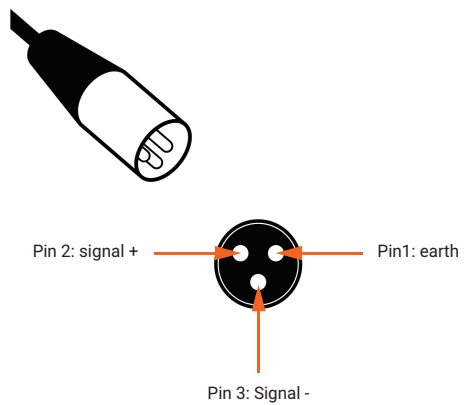
15. **Two USB-C ports** (USB 2.0) (lockable): one USB-C port can be used for audio recording only, the other port for either audio recording and multichannel recording.

- **USB-C Port 1 (not yet functional)**: This port can be used for one-channel recording only. Record the audio by connecting a computer or a USB-C drive.
- **USB-C Port 2**: This port can be used for either one-channel or multichannel recording. Connect a computer or USB-C drive for audio recording, or connect a computer for multichannel recording and hybrid meetings via Zoom, Teams, etc.

16. **Two balanced XLR audio output connectors** to extract analog audio floor signal.

17. **Two balanced XLR analog audio input connector** to add external signals to the floor.

The AUX In connection on the central unit has an XLR 3 Female connector. So a cable with an XLR 3 Male connector should be used to insert an external signal.

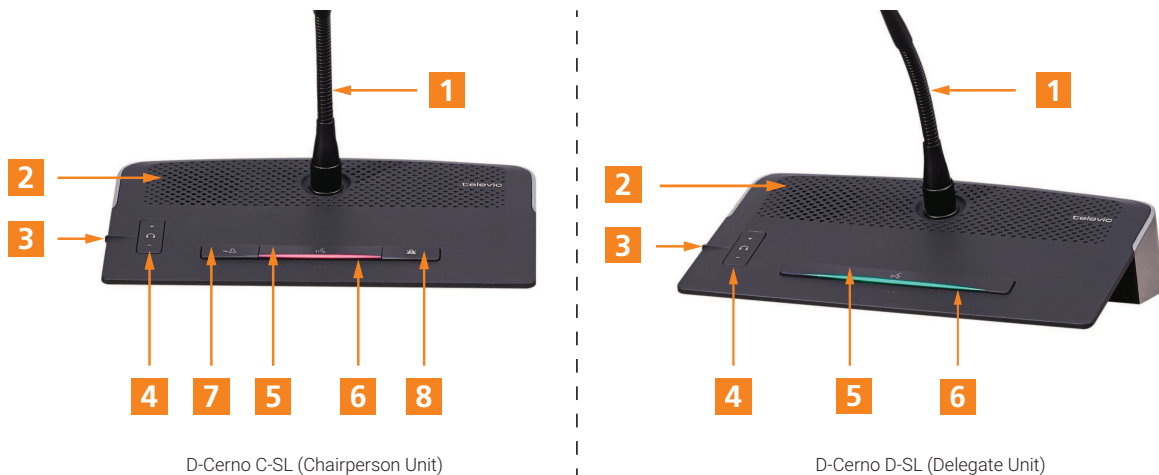


DISCUSSION UNITS

The contribution units consist of delegate and chairman units. Both are used for speech reinforcement in a conference room. The chairperson units are used to guide and control an ongoing discussion. The units come with a screw lock microphone (SL). There are also flushmount units.

D-Cerno Tabletop Units

The D-Cerno tabletop delegate units have the following features:



1. Detachable microphone which you can fix using the screw-lock connector. It has an integrated LED, which shows the status of the microphone).
2. Loudspeaker: distributes the floor channel. Mutes in case microphone is active.
3. Headphone connector: connection of headphones to the unit. Mono and stereo headphones can be used.
4. Volume buttons: change the volume level of the headphones.



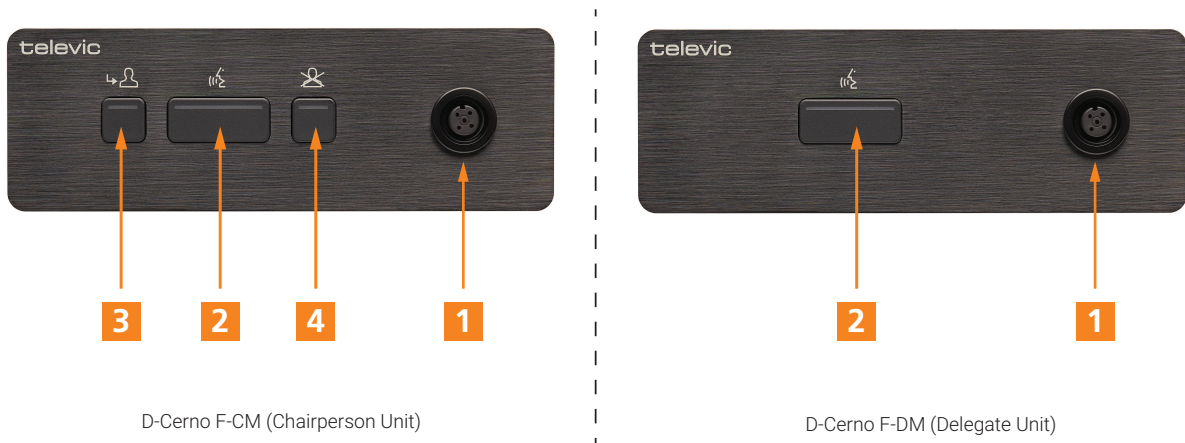
Volume change is only possible when a headphone is connected

5. Microphone button: activation / deactivation of the microphone. Indication LEDs show the status of the microphone. The colors (green and red) are not fixed and can be configured via the web interface.

6. Status LED: Indicates the status of the unit. The colors (green and red) are not fixed and can be configured via the web interface.
7. NEXT button (chairperson unit only): see "Microphone Functions for Chairperson" below.
8. PRIOR button (chairperson unit only): see "Microphone Functions for Chairperson" below.

D-Cerno Flushmount Units

The D-Cerno flushmount delegate unit has the following features:





1. Microphone screw-lock connector to fit a removable microphone (30, 40, 50 or 70 cm).
2. Microphone button: activation / deactivation of the microphone. Indication LEDs show the status of the microphone. (red: active, green: request)
3. NEXT button (chairperson unit only): see "Microphone Functions for Chairperson" below.
4. PRIOR button (chairperson unit only): see "Microphone Functions for Chairperson" below.



The flushmount unit has no loudspeaker, no volume button and no headphone connector. It is intended for use at venues where a room sound system is already installed.

Microphone Functions For Chairperson

A chairperson has two extra buttons that the delegate and VIP do not have:

Buttons	Description
Next-in-line 	The chairperson can activate the next speaker in the request list (in request mode).
Priority 	<p><u>Press and release:</u> the chairperson can deactivate all active delegate microphones, but not other chairperson microphones.</p> <p><u>Press and hold:</u> the chairperson can temporarily deactivate all active delegate microphones, but not other chairperson microphones. When the button is released, the deactivated microphones become active again.</p>

MICROPHONES

List of Compatible Microphones

The D-Cerno units have a screw-lock connector to insert a pluggable gooseneck microphone. The following microphones are compatible with the D-Cerno units:

Reference	Name	Type	Length
71.98.0053	D-MIC 30 SL	Directional microphone	30 cm
71.98.0054	D-MIC 40 SL	Directional microphone	40 cm
71.98.055	D-MIC 50 SL	Directional microphone	50 cm
71.98.0057	D-MIC 70 SL	Directional microphone	70 cm
71.98.0059	D-MIC 40 FF	Directional microphone, fully flexible	40 cm
71.98.0072	D-MIC 40 BC Cardioid	Cardioid broadcast microphone	40 cm
71.98.0073	D-MIC 40 BC Hypercardioid	Hypercardioid broadcast microphone	40 cm

General Microphone Characteristics

The recommended speaking distance from the mouth to the top of the microphone is between 20 to 40 cm. In order to accommodate the variety of speakers and speaking distances, microphones are available in three different lengths (see list above).

Electrical and Acoustic Properties

For information about the microphones, please refer to the corresponding datasheet.

Microphone Components

The microphone contains the following elements:

- › Indicator ring: shows the status of the microphone
- › Union nut: attaches the removable microphone to the unit
- › Microphone plug: connects the microphone to the unit

The color of the microphone indicator ring shows the status of the microphone. The colors (green and red) are not fixed and can be configured via the web interface.



The maximum amount of open microphones open at the same time can be between 1 and 16, including in hands-free mode: up to 12 delegate microphones, and up to 4 chairperson microphones.

Handling of Gooseneck Microphones

Below are safety instructions and prescriptions for proper use, safety warnings, storage and environmental conditions to keep your microphones healthy over a long lasting period.

OPERATING

The flexible arm of your gooseneck microphone is able to keep its position, without sagging or vibrating. Its operation is based on the friction developed between the inner spring, constructed as a metal spiral (steel) and the outer cover made of copper (or brass).

Any external treatment on the flexible arm can affect the mechanical or electrical properties of the microphones flexible tube.

Warnings:

- › Avoid contact with any kind of solid, liquid or gel lubricating substance (oils, soaps, talcum powder, graphite, etc.) since they could cause structural degradation of the product. Even avoid contact with water as it may cause oxidation.

- › Any kind of cleaning needs to be oil or lubricant-free or the product will be permanently damaged. Above products will eliminate the friction between the metal surfaces mentioned earlier and are strictly forbidden.
- › Your gooseneck microphone has been tested for bending angles of up to 90°. Do not try to bend or twist the flexible arm for more than 90° as permanent damage will occur.



USE, MAINTENANCE AND STORAGE

- › Clean the flexible tube only with a dry cloth.
- › Respect the application limits at room temperature ranging between +5° C and + 40° C, and a relative humidity < 60 %.
- › Store your gooseneck microphone at constant temperature and the lowest humidity rate possible (< 50 %) to avoid condensation which can damage the flexible arm as well as the electret microphone cell.
- › Respect the load times and the minimum bending angles stated in our technical sheets.

MAXIMUM ANGLE USE

The microphones mentioned below can be used with the following maximum angle (°), measured from a flat surface (0°):

Reference Number / Microphone Model	Maximum Angle From a Flat Surface
71.98.0053 - D-MIC 30 SL	90°
71.98.0053 - D-MIC 30 SL	90°
71.98.0054 - D-MIC 40 SL	60°
71.98.0055 - D-MIC 50 SL	20°
71.98.0057 - D-MIC 70 SL	00°*
71.98.0059 - D-MIC 40 FF	60°

Reference Number / Microphone Model	Maximum Angle From a Flat Surface
71.98.0072 - D-Mic 40 BC Cardioid	60°
71.98.0073 - D-Mic 40 BC Hypercardioid	60°

* "00" means that it can only be mounted on a horizontal surface

WARRANTY

The warranty automatically expires if the above prescriptions were not fulfilled or if the product has been modified, changed or improperly stored. Any claim should be sent to Televic Conference together with some explanatory technical document. Products can only sent back after prior authorization of Televic.

NETWORK STRUCTURE

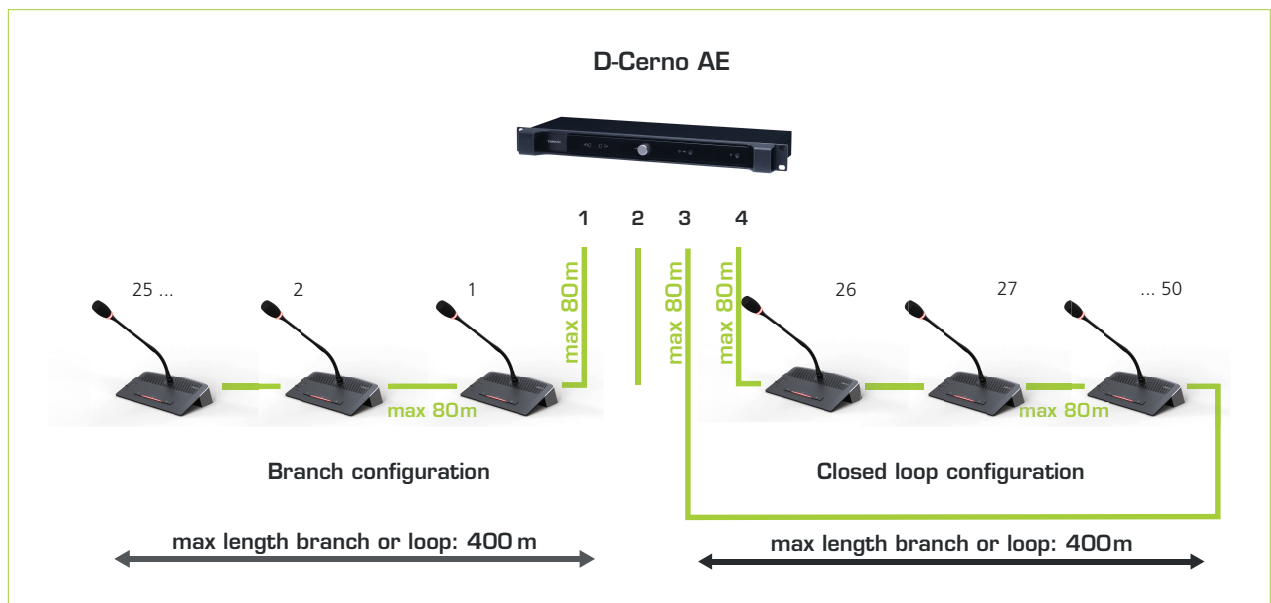


The D-Cerno central unit can control and power a total of 50 units over the four available conference ports. The network can be structured in two ways:

- > Branch configuration
- > Closed loop configuration

Each branch or loop can handle a maximum of 25 units if the total cable length is respected. The total cable length of a branch / loop cannot exceed the maximum of 400 m. The maximal cable length between units or between units and central unit is 80 m. The maximum power consumption of a unit is 2W.

The figure below shows a graphical representation of a configuration of the D-Cerno network. On the left side we see a branch configuration connected to port 1. On the right a closed loop configuration between port 3 and 4 is shown.



Designing a system in a closed loop configuration provides a redundant system and thus increases the reliability of the system. If for some reason a cable or unit malfunctions the system stays operational.

The units have the possibility to detect the flow of the signal automatically, providing a free port selection. If at some point no signal is provided anymore, the signal flow will be reversed automatically. As a result the system configuration stays operational.

The figures below illustrates:

- › Branch configuration in normal operation
- › Branch configuration with cabling error
- › Loop configuration with cabling error



Figure 1-1 D-Cerno system branch configuration, no error



Figure 1-2 D-Cerno system branch configuration with cable error, units after the cable are no longer active



Figure 1-3 D-Cerno system loop configuration with cable error, all units remain functional

INSTALL THE CENTRAL UNIT

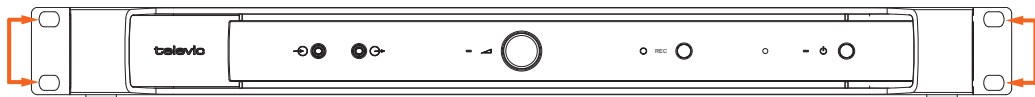


Before you start, make sure to take all necessary precautions. Refer to the safety instructions and ensure that all components are installed and sufficiently powered.

Physical Installation

Before connecting the D-Cerno AE to the other devices of your conferencing system, it has to be physically installed in the room. You can install the D-Cerno AE on a desktop or in a rack. Follow the procedure below:

1. Mount the central unit horizontally (e.g. in a rack, on a desktop):
 - > If mounted on a rack, attach the central unit to the rack using the 4 mounting screws.



- > If placed on a desktop, make sure the central unit is in its permanent location with adequate space for airflow maintenance.
2. Connect the power cord to the power connector of the D-Cerno AE.
 3. Plug the other end of the power cord to a power outlet.
 4. Turn on the power switch.
 5. Connect the central unit to the tabletop and/or flushmount units.

Power Supply

The power supply can operate on an input voltage range of 100-240 VAC, 50-60 Hz.

The output voltage is 48 VDC – 4.4 A max.

System Cable

The cables used in the D-Cerno AE system are shielded Cat 5e (AWG 24 FTP) cables with shielded RJ45 connectors. Contribution units and central units are by default equipped with a pre-made cable of 2 m. In case additional cables are required Televic has standard pre-made cables available in different lengths.



The use of shielded Cat 5e (AWG 24 FTP) cables with shielded RJ45 connectors is mandatory.

Start up



Before switching on the central unit, please make sure all units are correctly connected to the Central Unit.

To start the D-Cerno AE central unit, push the ON/OFF switch at the back of the device on the "I" position, then press the power button on the front panel.

When the color of the power LED indicator on the front panel turns to solid green, the meeting can be started and the settings can be adjusted.

The USB and network functionalities (recording, web browser) are available after 15 seconds.

To put the D-Cerno AE central unit in standby mode, shortly press the power button on the front panel. The LED indicator turns blue.

To switch off the device completely, push the ON/OFF switch at the back on the device on the "0" position.

Reset

To reset the D-Cerno AE central unit to the factory settings, follow the procedure below:

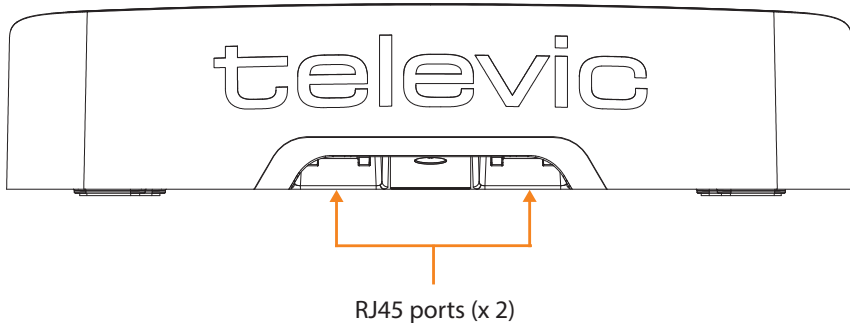
1. Switch off the central unit.
2. While pressing the **Reset** button, switch on the central unit.
3. Keep pressing the **Reset** button for 10 seconds. The LED indicator is blinking white fastly.
4. When the LED indicator becomes permanently white, the reset procedure is over and the **Reset** button can be released.
5. When the recovery page is active is active and the LED indicator is permanently yellow, you can install a new software update.



After a reset procedure has been performed and if the central unit is not connected to the network via DHCP, the default IP address of the central unit is **192.168.0.20**.

INSTALL A MICROPHONE TABLETOP UNIT

D-Cerno units offer the freedom to input /output connectivity to allow flexible cabling. The microphone units can be connected in daisy chain or in loop to ensure redundancy and increase reliability.



Make sure that the units are not positioned too close to each other. It is recommended to keep a distance of 1 m between the units to prevent howling.

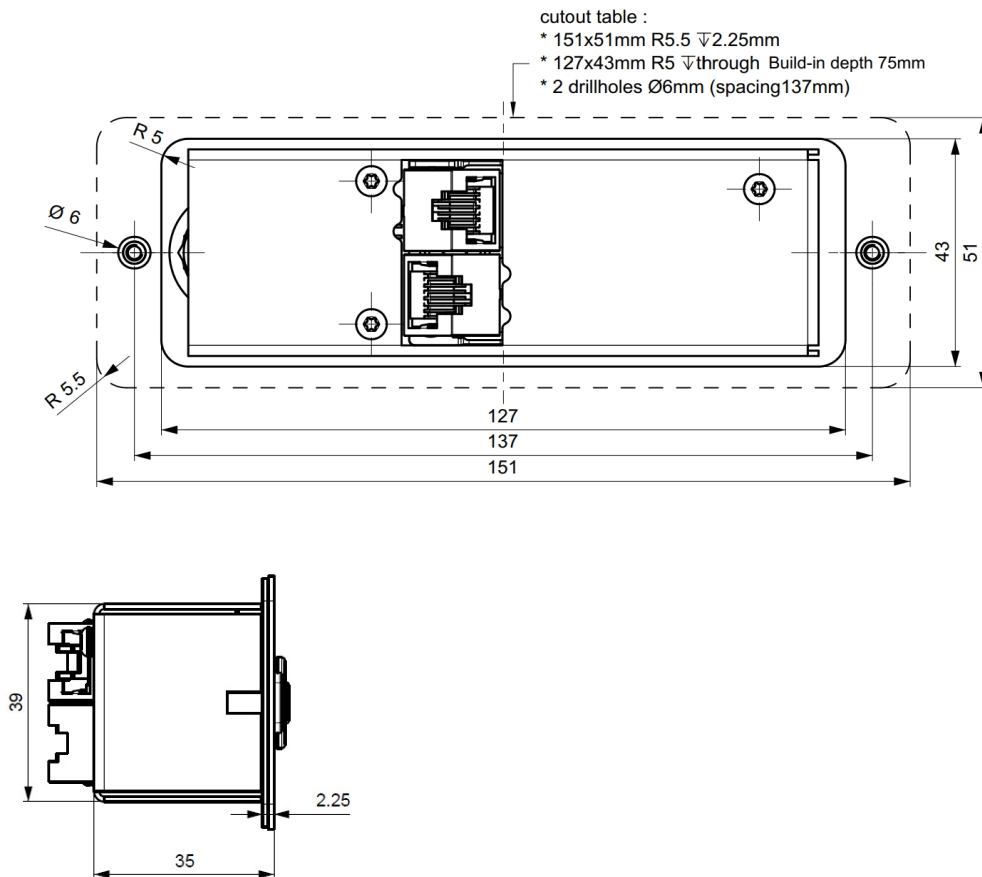
The recommended speaking distance for people to speak to the microphone is between 20 and 40 cm.

INSTALL A FLUSHMOUNT UNIT

The D-Cerno chairperson and delegate units (F-CM and F-DM) are flushmount panels. They need to be integrated into conference furniture.

Mounting type	Flush mounting
Dimensions of the unit (H x W)	150 x 50 mm
Cut-out dimensions (H x W)	127 x 43 mm
Weight	270
Front plate	Steel
Color	Black
Part numbers	71.98.0311 (D-Cerno F-DM) & 71.98.0311 (D-Cerno F-CM)

Make sure to enter the panel straight into the cut-out of the table :



ACCESS TO THE WEB SERVER

The web server is a user-friendly application integrated in the D-Cerno AE central unit for controlling the D-Cerno audio system remotely from a computer.

It can be accessed by entering the **IP address of the central unit*** into a regular web browser. That way, the technician can update the central unit and the discussion units, configure the discussion mode (direct speak, request, group, hands-free), select and configure the audio routing and manage the user roles.



* If the central unit is not connected to the network via DHCP, the default IP address is **192.168.0.20** with subnet mask **255.255.255.0**.

Compatible Operating Systems

- › Microsoft Windows 10 or higher (build 19045.4291)
- › MacOS 12 or higher
- › Android 12 or higher
- › iOS 15 or higher

Recommended Web Browsers

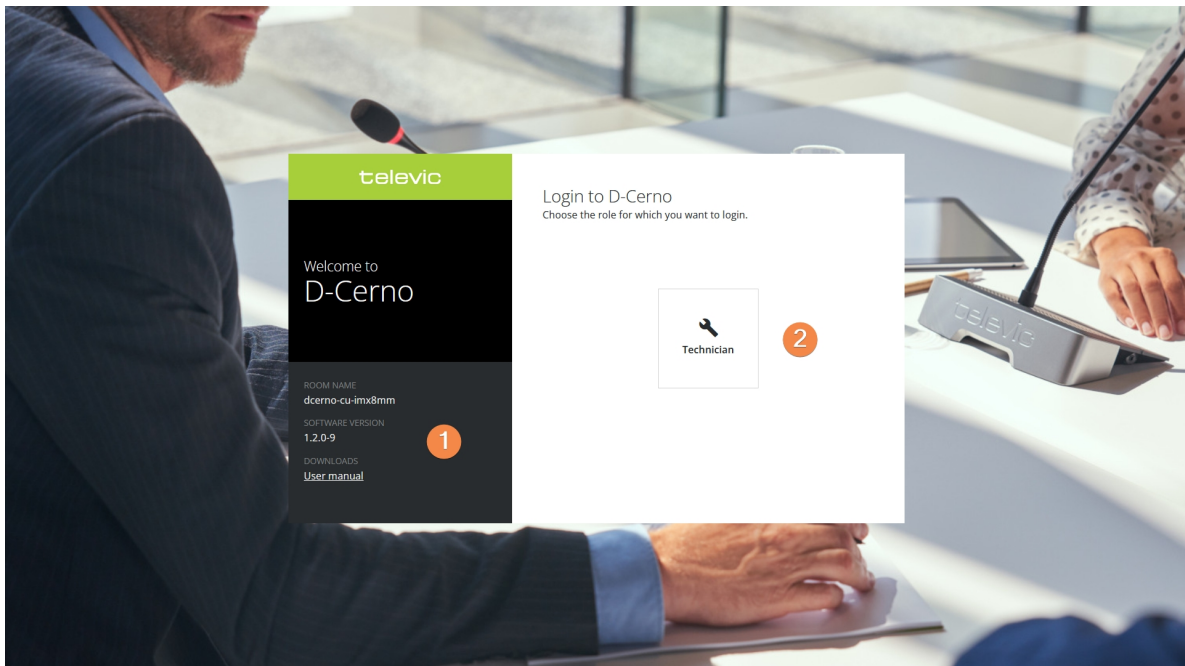
- › Google Chrome ver. 124 or higher
- › Mozilla Firefox ver. 125 or higher
- › Microsoft Edge ver. 124 or higher
- › Safari ver. 17 or higher

Connection To The Web Server



Before connecting to the web server, make sure the local IP Settings of your computer have been properly configured. Refer to the section "Configure The IP Settings" on page 79 for more information.

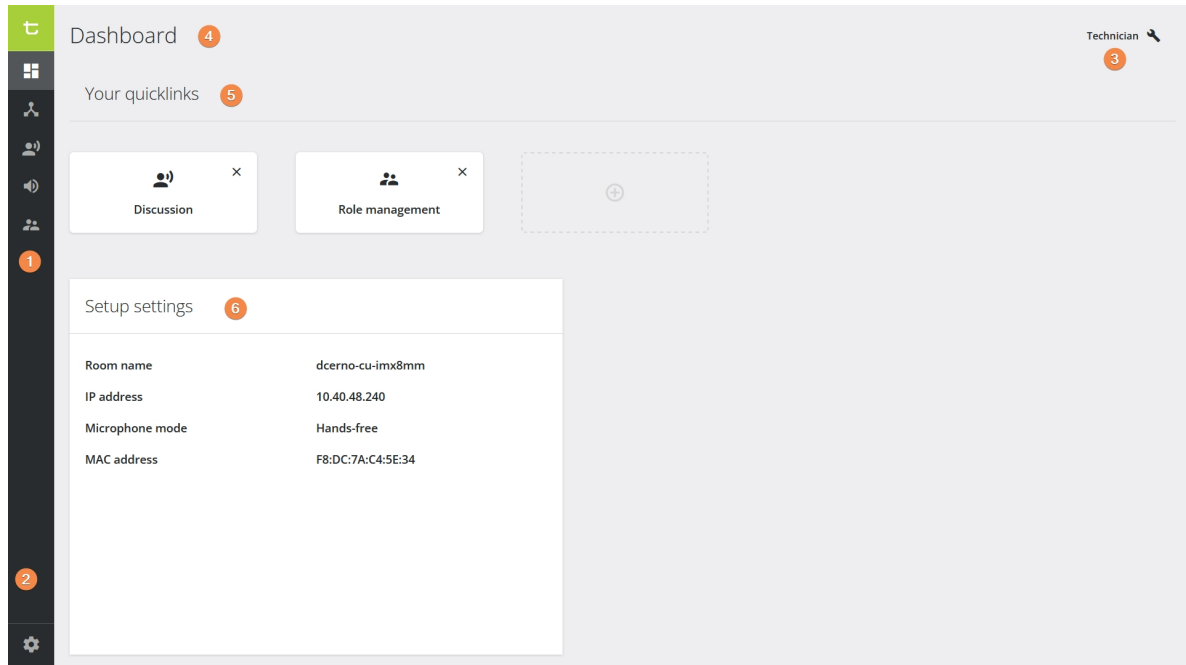
To access the web server of the D-Cerno system, open your web browser and enter the IP address of the central unit. The following page opens:



1. Information about the software (room name, software version, user manual).
2. Click on **Technician** and enter your password when prompted. Please refer to the corresponding section of the manual for more information about the user roles.

DASHBOARD

The **Dashboard** is the landing page of the Technician role after you have logged in as a **Technician**. It shows an overview of the system and allows quick access to the settings that are frequently needs.

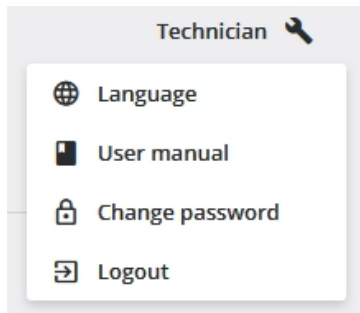


1. General menu that consists of the following pages:

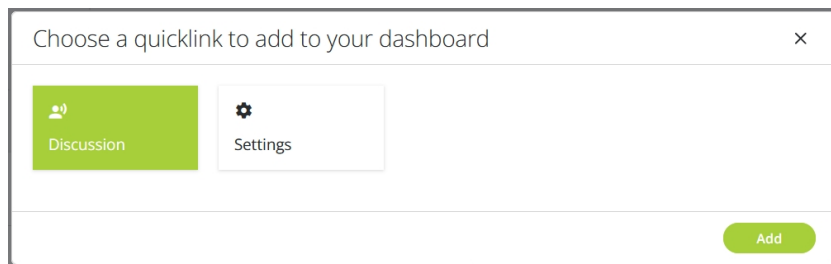
Icon	Description
	Dashboard, where you can add quick links and see an overview of the setup settings
	Devices, where you have an overview of all the devices detected by the system
	Discussion, where you can configure the microphone mode.
	Audio, where you can configure all the audio settings of your system
	Role Management, where you can change or remove the Technician password

2. System settings where you can edit the Network and Camera Protocol settings.
3. Account settings where you can perform quick actions such as:

- › Change the **language** of the interface,
- › Check the user **manual**,
- › Change your **password**,
- › **Log out** of the interface.




4. Name of the page (in this case, the **Dashboard** page).
5. Quick links where you can add the menu items you use the most.
 - › To add a quick link, click **+**. Then in the popup window, choose the menu item you want to add and click **Add**.

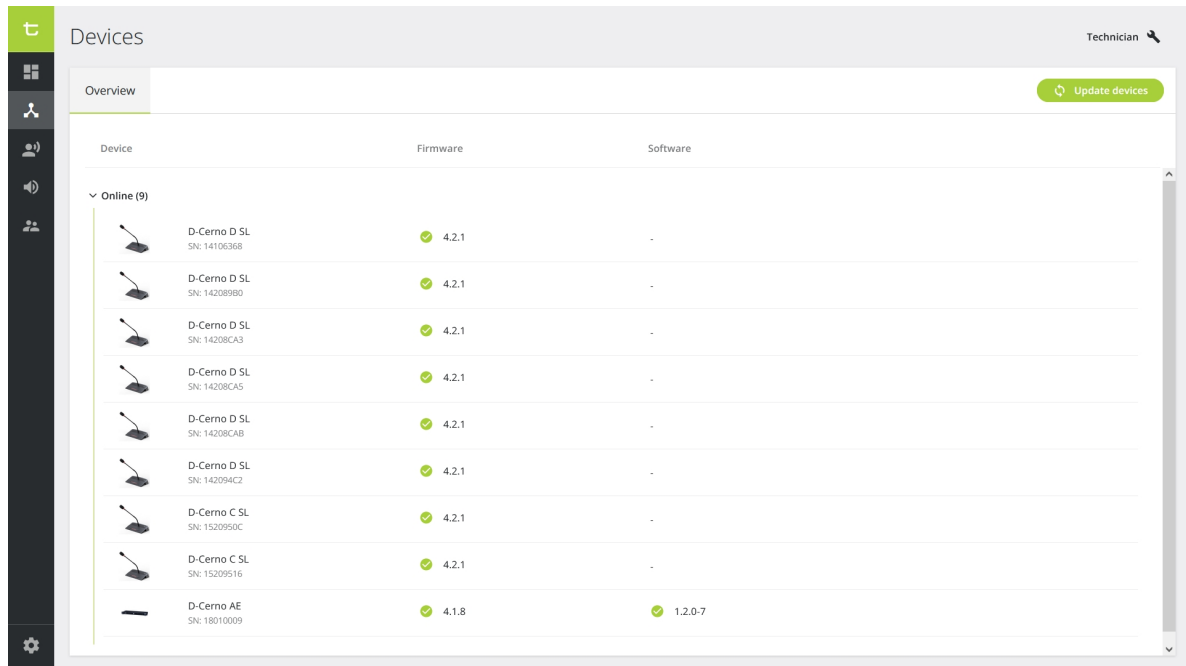


- › To remove a quick link, click the cross **x** in the upper right corner of the quick link. The item is removed.
6. Setup settings where you see a short summary of the defined system settings.

DEVICES

Overview

To access **Devices**, click the icon  in the side menu. The following page opens:



The **Overview** shows all the online and offline devices detected in your D-Cerno network.

Per device, you can see the following information or perform these actions:

- › Small isometric image of the device with device type and serial number.



You can find the serial number of the unit on the bottom of the device. It is best to check that you are replacing the correct unit by checking the serial number of the faulty device and the one listed in D-Cerno.



- › Firmware and software version: shows the version installed on the device.

Update devices



Before updating the devices, visit Televic's Software Updates page and download the latest .TUF file.



If the **D-Cerno AE central unit** is to be used with D-Cerno discussion units that were already in stock, make sure to **upgrade the discussion units to the latest version**.

On the **Devices** page, there is also an option to update your devices. Click the **Update devices** button in the upper right corner and upload the correct .TUF file. Click **Update**.

Update devices ×

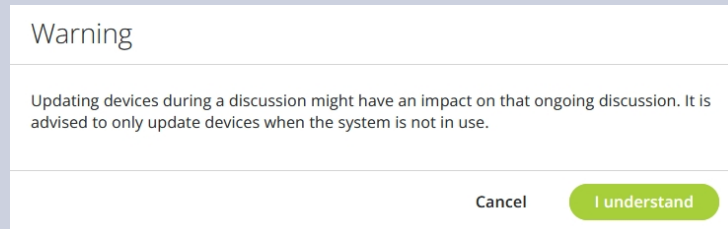
To update your devices, first attach your .tuf update file in the upload field below.

.TUF file *

Upload or drop your file here
(.tuf)

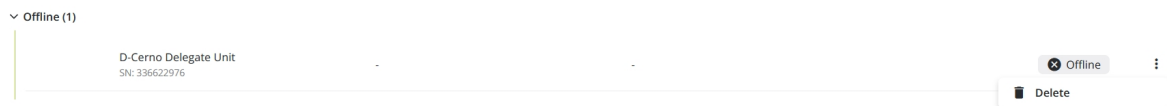
Cancel Update


In case you try to update the system during an ongoing discussion, the following warning message will be displayed.

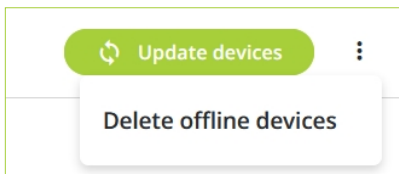


Delete Devices

To delete an offline device, click  on the device line and select **Delete**:



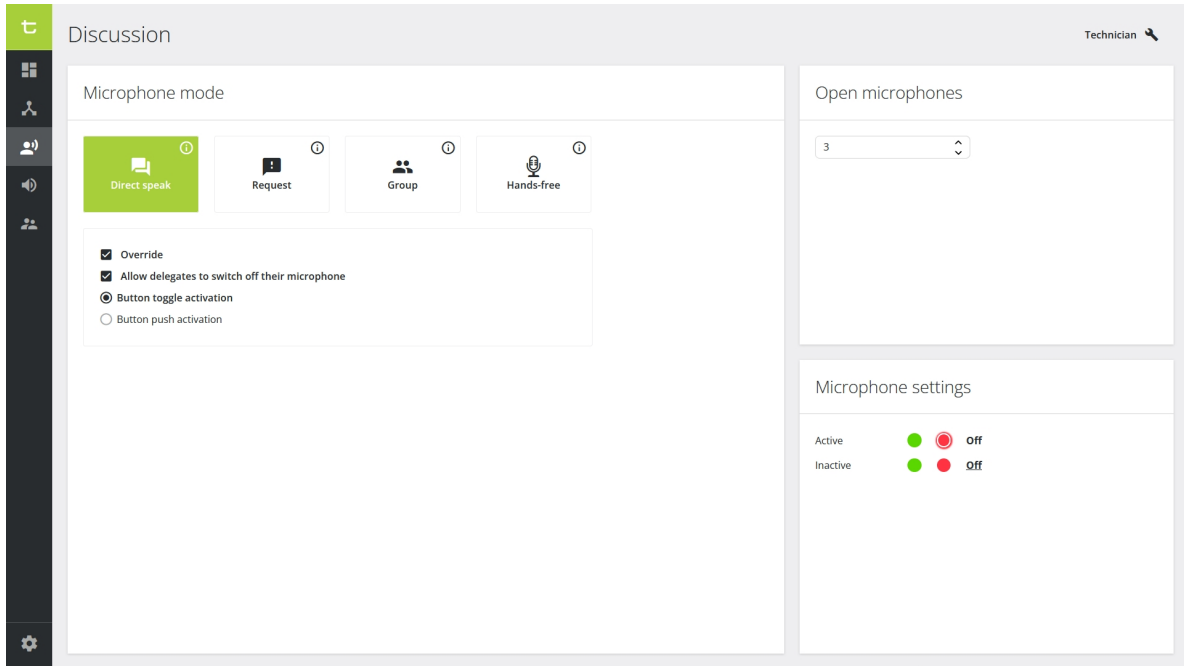
To delete all online devices, click  in the top right of the page and select **Delete offline devices**:



DISCUSSION

In the **Discussion** menu, you can configure some general conference settings such as the microphone mode and the maximum amount of open microphones. To access this page, click the **Discussion** icon

 in the menu on the left.



Microphone Mode

Different microphone modes are available:

- > Direct speak
- > Request
- > Group
- > Hands-free

DIRECT SPEAK

With direct speak, the delegates can activate their own microphone by pushing the microphone button.

The following additional settings are available:

Settings	Description
Override	<ul style="list-style-type: none"> > <u>Not-selected</u>: the microphone will not become active when the maximum number of open microphones is reached and you press the microphone button. Another active microphone must switch off first. > <u>Selected</u>: when the maximum number of open microphones is reached, the first activated microphone will switch off when a delegate presses its microphone button.
Allow delegates to switch off their microphone	<ul style="list-style-type: none"> > <u>Not-selected</u>: when a microphone is active, the delegates are not allowed to switch off their microphone by pressing the microphone button. Only the operator or chairperson is allowed to turn off the delegates' microphone. > <u>Selected</u>: when a microphone is active, the delegates can deactivate their microphone by pressing the microphone button.
Button toggle activation	Press the microphone button once to activate the microphone.
Button push activation	Keep the button pressed to activate to microphone. When you release the button, the microphone will switch off.

REQUEST

In request mode, pressing the microphone button does not automatically activate the microphone but puts the delegate in the request-to-speak list instead. The LED bar and the microphone button turn red on the unit, and the microphone LED ring is blinking green.

In request mode, additional settings can be configured:

Settings	Description
Allow delegates to cancel their request:	<ul style="list-style-type: none"> > <u>Not-selected</u>: the delegates are not allowed to cancel their request to speak by pressing the microphone button. Only the operator or chairperson is allowed to cancel their request by using the web page. > <u>Selected</u>: the delegates can cancel their request to speak by pressing the microphone button.

Settings	Description
Allow delegates to switch off their microphone:	<ul style="list-style-type: none"> > <u>Not-selected</u>: when a microphone is active, the delegates are not allowed to switch off their microphone by pressing the microphone button. Only the operator or chairperson is allowed to turn off the delegates' microphone. > <u>Selected</u>: when a microphone is active, the delegates can deactivate their microphone by pressing the microphone button.
Next person to speak indication	<ul style="list-style-type: none"> > <u>Not-selected</u>: there is no visual indication of the next person to speak. The microphone color stays green. > <u>Selected</u>: The microphone color is blinking red for the next person to speak.





Which delegate may speak first is defined by the "first-in-first-out" principle (FIFO).

GROUP

The group mode is a semi-automatic mode for standalone conferences where less protocol has to be followed and no operator is available. Pressing the microphone button activates the microphone unless the maximum amount of open microphones has been reached. In this case, the microphone will be put in the request list. When another microphone becomes inactive, the first unit in the request list will become active.



When the chairperson presses their priority button , they deactivate all active delegate microphones, but the microphones in the request list do not automatically become active. If they want to continue, the chairperson or operator needs to press the 'Next-in-line' button .

This mode has 3 activation types: **Button toggle activation**, **Button push activation** and **Voice activation**.

Settings	Description
Button toggle activation	Press the microphone button once to activate the microphone or put it in the request list.
Button push activation	Keep the microphone button pressed to activate the microphone or put it in the request list.
Voice activation	<p>The microphone becomes active or is put in the request list when it detects sound above a defined threshold.</p> <ul style="list-style-type: none"> > <u>Threshold</u>: the system will monitor the ambient sound level and will activate the microphone when it is above the configured threshold value. > <u>Hold time</u>: determines the number of seconds the microphone stays active after detecting the last sound above the threshold.

HANDS-FREE MODE

The hands-free mode functionality makes it possible to have **all microphones always open** without the participants having to push a button to speak.

This mode is ideal for small to medium meetings of **up to 16 microphones**. In that case, besides the microphones being open, **gain sharing** and **automatic balancing system** will also be applied.

In case there are **more than 16 microphones** in the meeting room, the first 16 microphones connected will have the hands-free mode activated. On the other ones, the loudspeaker will be on, but the microphone will always be off.



If some seats have been initialized but not assigned, they will be taken into account when selecting the hands-free mode.

Push to Mute

When the checkbox **Push to mute** is activated, the **delegates** can push the microphone button on their unit to **mute/unmute themselves**:

- › When muted, the active color of the microphone will be flashing.
- › When unmuted, the active color of the microphone will be permanent.



If a delegate has been muted by a chairperson or an operator, they cannot unmute themselves.



A chairperson can only mute delegates' microphones. They cannot mute other chairpersons or VIPs.

Open Microphones

Open microphones

MAX NUMBER OF OPEN MICROPHONES (MOM)

With the web server, you can set the number of open microphones between **1 and 12**. This does not include the chairperson microphones. You can activate **up to 4 additional chairperson microphones** on top of the 12 delegate microphones. If more chairperson microphones need to be open at the same time, you have to reduce the number of open microphones for the delegate. E.g.: 8 open microphones for the delegates + 8 open microphones for the chairpersons.





OPEN MICROPHONES FOR CHAIRPERSONS

When a chairperson wants to activate their microphone, they can push the microphone button.

When the maximum number of open chairperson microphones has been reached, the first activated microphone will switch off when another chairperson presses their microphone button.


Additionally, when a microphone is active, a chairperson can deactivate their microphone by pressing the microphone button.

Microphone Settings

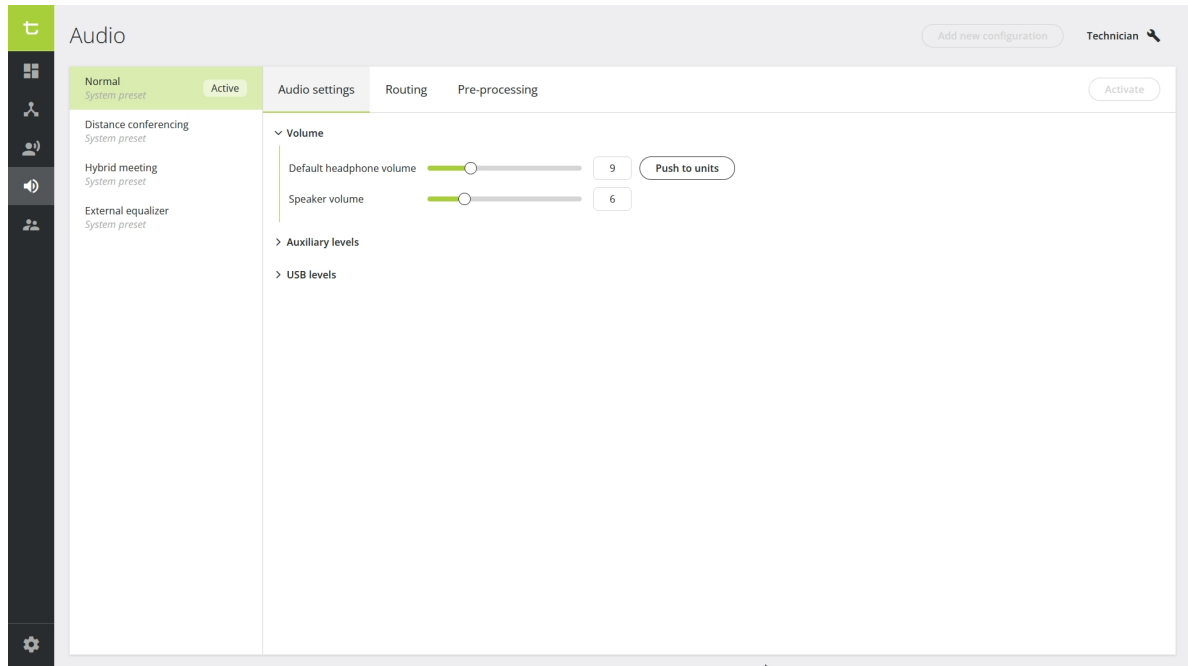
Microphone settings		
Active	 	Off
Inactive	 	<u>Off</u>

Change the LED color of an (in)active microphone or a microphone in request. By default the LED of an active microphone is red and for a microphone in request green.

AUDIO

On the **Audio** page, you can configure all the audio settings of the system. To access the audio settings, click the **Audio** icon in the menu on the left . The following page opens:


Overview



The main page is displayed as follows:

1. **System presets:** a marker shows which preset is active. If you click on another preset, you will be able to activate it.
2. **Tabs:**
 - > Audio settings: volume configuration of the audio inputs and outputs,
 - > Routing: shows the audio routing matrix of the selected preset with routing options,
 - > Pre-processing: dynamics properties and options of the delegate equipment.
3. **Activate** button to activate the preset of your choice. The **Active** marker is displayed next to the current active preset in the list.

System Presets

The left pane displays the list of presets. By default, there are four system presets: **normal**, **distance conferencing**, **hybrid conferencing**, and **external equalizer**. These presets come with a visualized matrix, and the active one is shown by the following indicator: 

Click on the preset of your choice to access the settings, and click on the **Activate** button to activate it.



If a preset is active, every change in the settings that is saved will be implemented immediately. Note that you may experience reduced audio quality when changing the routing of an active preset.

The matrix has rows and columns, representing audio input groups (rows) and output groups (columns). A group can have multiple audio inputs/outputs. The audio is routed from input groups to output groups when the common node is green (linked). Groups can be divided into system groups and user groups. User groups can have a custom name.

The following group types are available:

- › **Floor IN** is a non-editable input group that mixes the audio of all microphones in the system.
- › **Floor LS** is a non-editable output group that is used by all loudspeakers in the system.
- › **Floor HP** is a non-editable output group that is used by all headphones in the system. If this group is not present, then Floor LS is used for the headphones.
- › **Mix Minus IN/OUT** are non-editable input and output groups that are only visible when the Mix Minus configuration (in routing options) is not configured as '0'. Mix Minus groups are used to create a dedicated Floor channel for each individual delegate device, excluding the own microphone audio from that Floor channel. This allows the loudspeaker to remain active when the microphone is active. See also "Mix Minus Reservation " on page 60 below.
- › **USB IN/OUT** are non-editable input and output groups that are used by USB-C devices connected to the D-Cerno AE central unit for one-channel or multichannel recording.

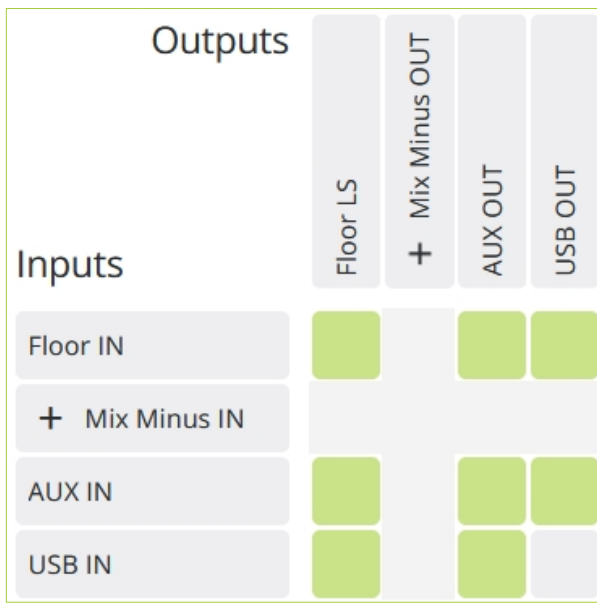


The FLOOR is the actual room where formal meetings are taking place. That is where people sit, make speeches and vote.

DESCRIPTION OF THE SYSTEM PRESETS

Normal

This is the standard audio routing.



Distance Conferencing

Connect two rooms with each other by adding an external signal to the local floor signal via AUX IN, and sending the local floor signal to a different room via AUX OUT.

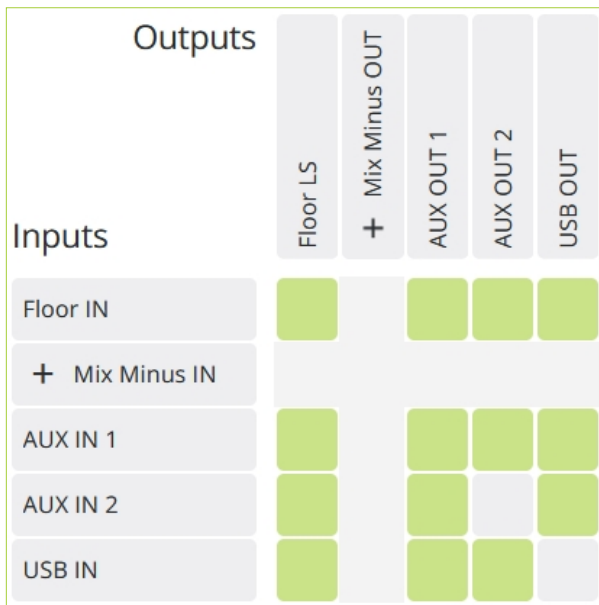


This routing is not useful when there are more than two rooms.



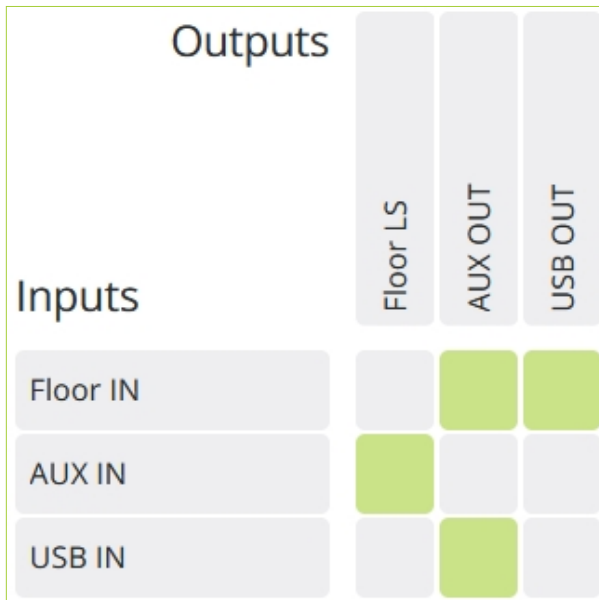
Hybrid Conferencing

Combine the standard and distance conferencing routings by adding an external microphone to the system to be heard on the remote side without feedback.

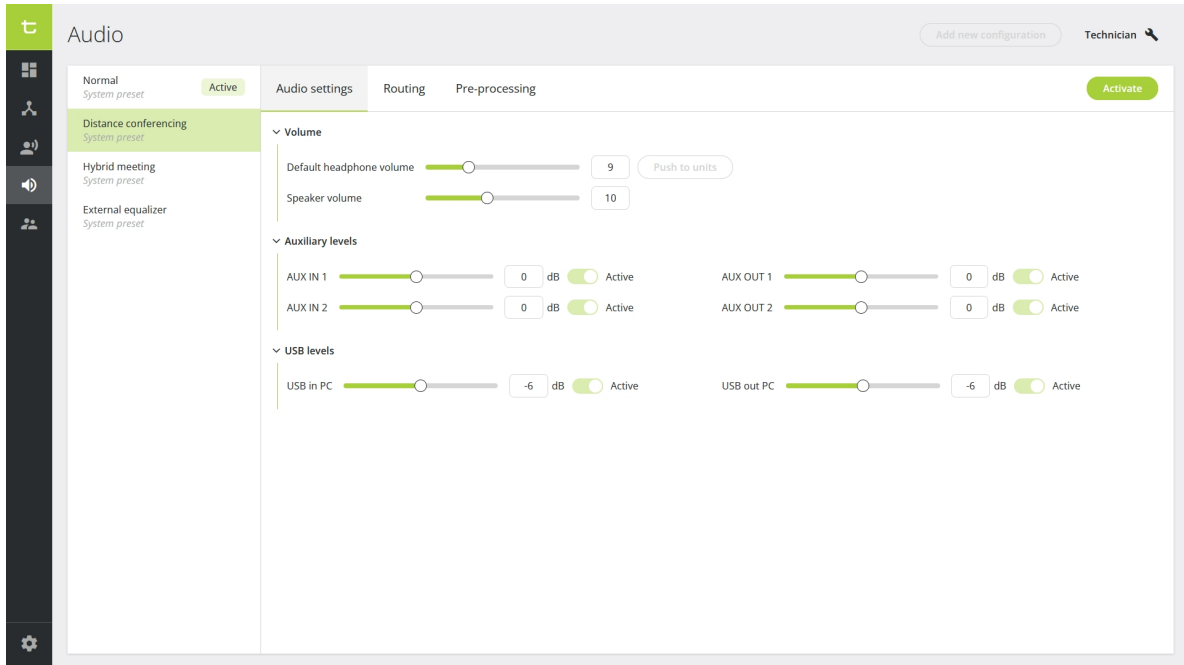


External Equalizer

Route the floor to a separate channel (AUX) for processing with an external device. The microphones are not routed to the loudspeakers.



Audio Settings



VOLUME

Set the default headphones and loudspeaker volume of the discussion units at start-up.

- › The loudspeaker volume will be applied immediately to the discussion units.
- › To apply the headphones volume, make sure the preset has been activated and click on



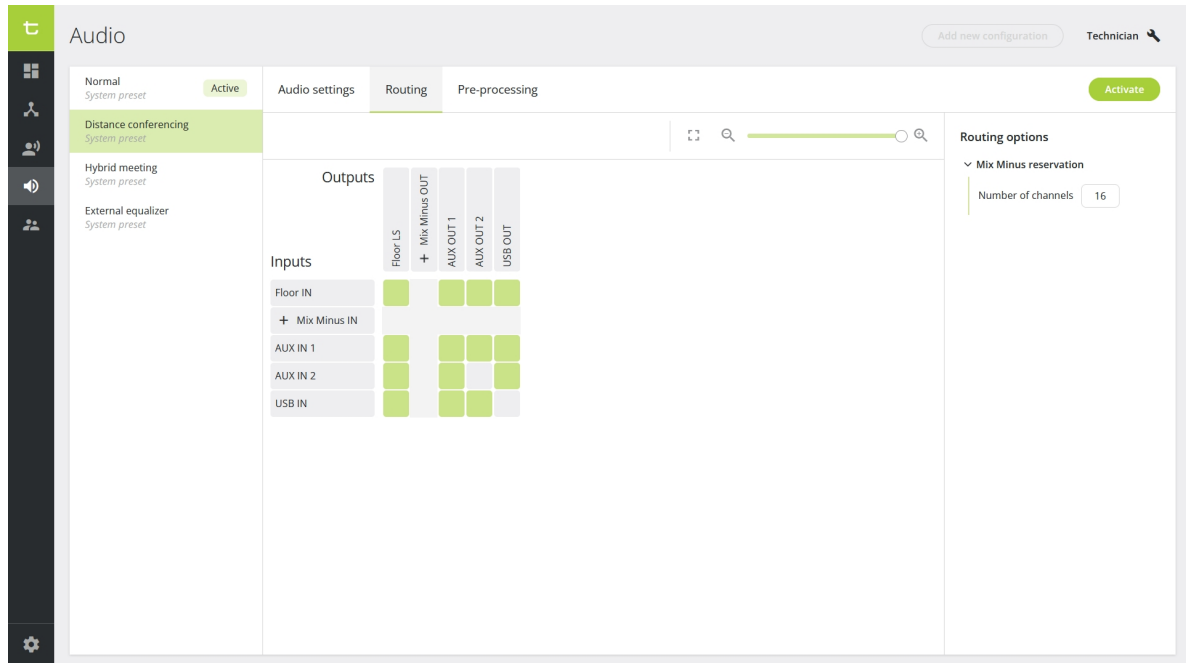
AUXILIARY LEVELS

The gain of the auxiliary and USB inputs and outputs can be adjusted with the slider to obtain the required input and output levels. When set to 0 dB, the maximum level is equal to the level defined in the datasheet of corresponding equipment.

The button at the right of the slider can be used to preserve the gain setting while turning the input/output on (**active**) or off (**muted**).

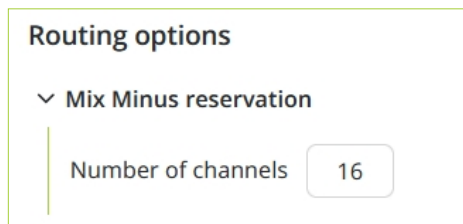
Routing

The selected routing preset is visualized by a matrix.



AUDIO ROUTING OPTIONS

Audio routing options are available in the right pane for controlling the behavior of certain input and output groups, to enable audio resource management or to facilitate audio matrix configurations:



Mix Minus Reservation

With this option, the loudspeaker remains active when the microphone is on, while preventing feedback. This allows better audio coverage in the meeting room since the delegate can hear the other participants speaking (e.g. social distancing or court applications) as well as far-end while their own microphone is active. This option is enabled by default.

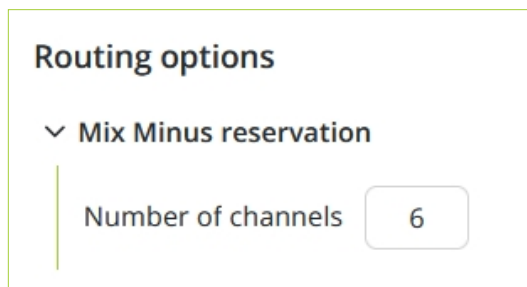
TRADITIONAL



DYNAMIC MIX-MINUS

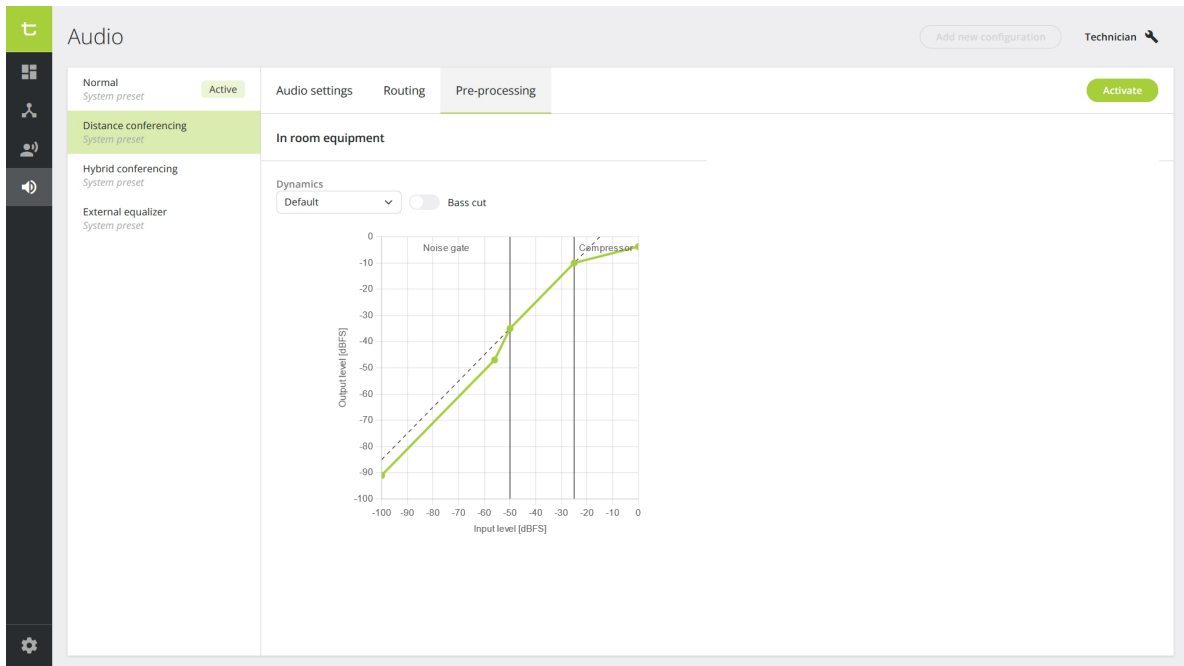


The Mix Minus reservation option can be set in the main routing tab by changing the default number of reserved channels in the corresponding field.



Pre-Processing

The Pre-processing settings are global dynamics settings that are applied to all in-room delegate units. These settings determine the dynamic range of the audio input.



DYNAMICS


The presets available are as follows:

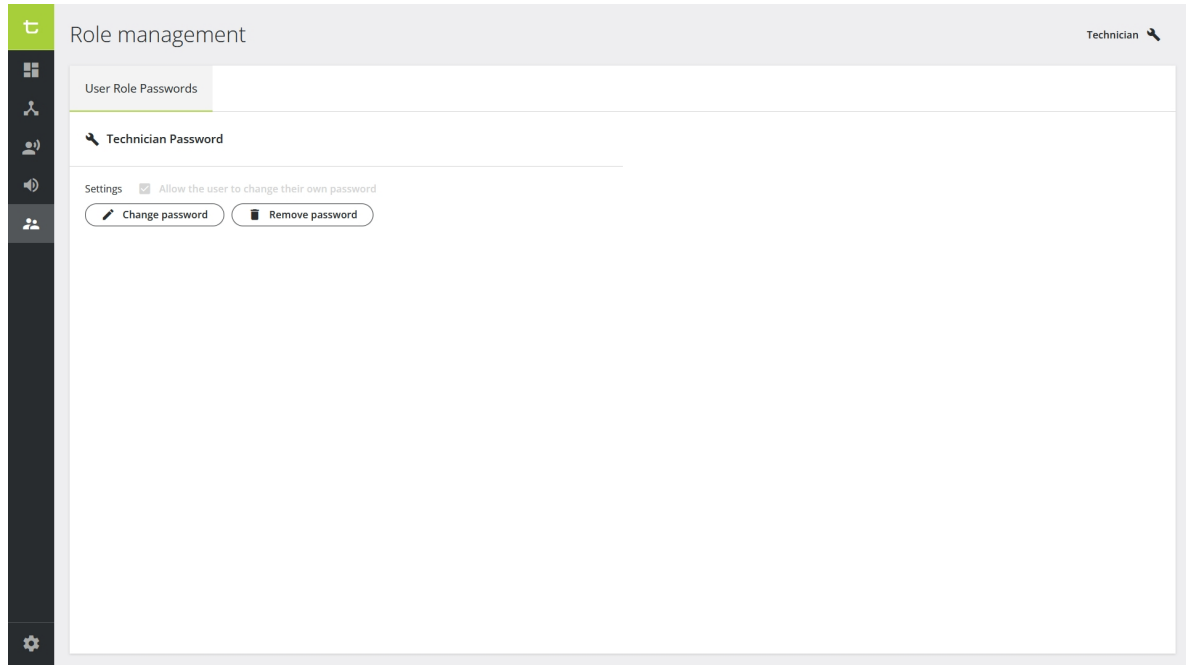
- › **Disabled:** No dynamics processing is applied on the delegate microphone inputs. **In DSP mode,** this setting will allow **external dynamics**.
- › **Default:** This dynamics is the starting point for a normal conference room without external speaker in the room. A large variation of the loudness of a common voice will result in a small variation of the signal used in the system. When there is no microphone input signal, the noise gate will be activated to prevent environment noise pickup.
- › **Default (without noise gate):** removes the noise gate. To be used when the noise in the room is limited.
- › **External speakers:** shifts the knee-point of the compressor stage to a higher input value resulting in less chance of feedback when external speakers are used.
- › **External speakers (without noise gate):** same settings as external speakers, but without the noise gate.

BASS CUT

Cut the bass by putting the slider on the active position. When the bass cut is active, a high pass filter at 200 Hz is activated to reduce the low frequency content. It will prevent applying high energy content by the low frequencies to the headphones, resulting in more comfort and higher intelligibility.

ROLE MANAGEMENT

On the **Role Management** page, you can configure the Technician password. To access the Role Management options click the icon  in the menu on the left.




- › Click on the button **Change password** to enable or change the existing the Technician password. To change a password, you first need to enter the old password before entering a new one.

The user can also change their password themselves if you select **Allow the user to change their own password**.

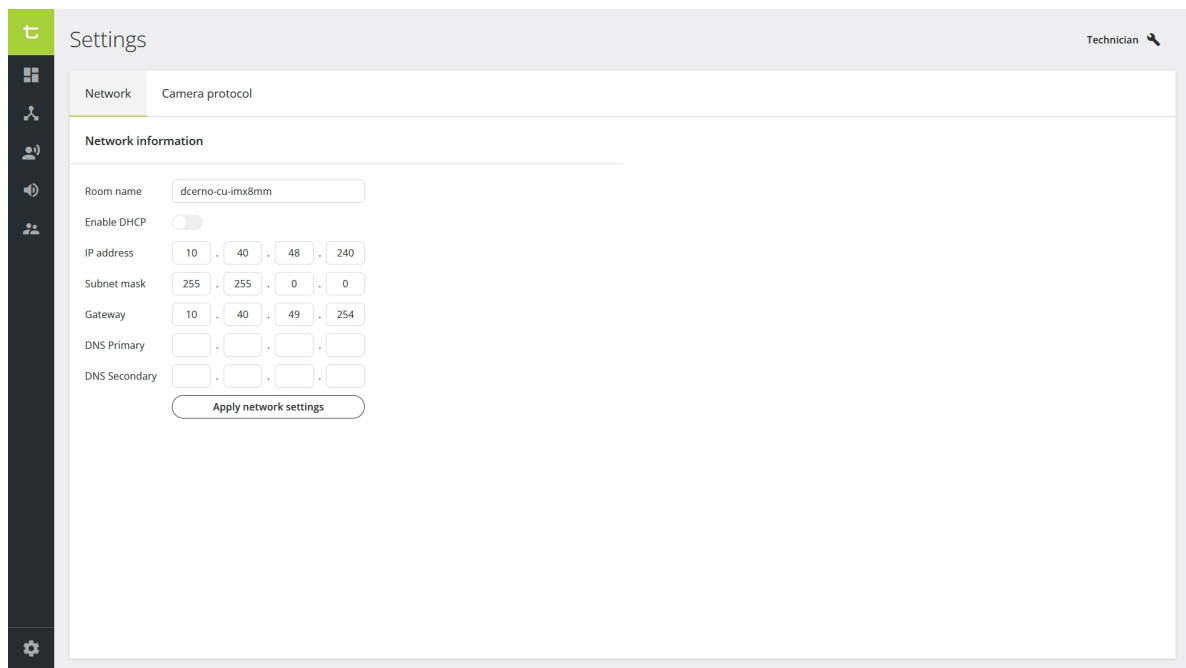
- › Click on the button **Remove password** to disable the password. The Technician interface will therefore be accessible without having to enter a password.

SETTINGS

On the **Settings** page, you can configure the network settings and camera protocol used for camera tracking.

To access the **Settings** page, click the icon  in the menu on the left.

Network



The screenshot shows the 'Settings' page with the 'Network' tab selected. The 'Network information' section contains the following fields:

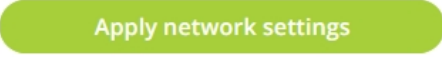
- Room name: dcerno-cu-ix8mm
- Enable DHCP:
- IP address: 10 . 40 . 48 . 240
- Subnet mask: 255 . 255 . 0 . 0
- Gateway: 10 . 40 . 49 . 254
- DNS Primary:
- DNS Secondary:

An 'Apply network settings' button is located at the bottom of the form.

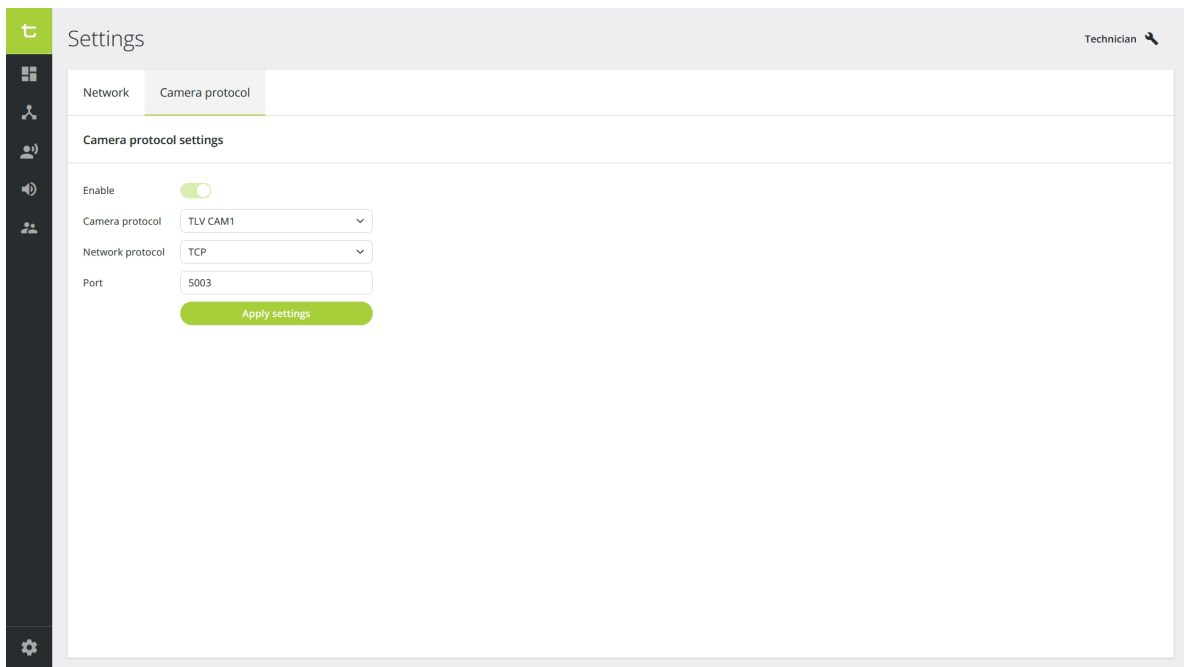
The following network settings are available:

- **Room name:** name you want to give to your room. It is recommended to use a different name for each room to make sure the equipment is properly identified. The name of the room will appear in the **Setup Settings** section of the **Dashboard**.
- **Enable DHCP:** when enabled, all the network fields below are grayed out and cannot be entered manually.
- **IP address:** IP address to access D-Cerno AE central unit. The default value is 192.168.0.20. When you change the IP address, you need to restart the central unit to complete the action.
- **Subnet mask:** default subnet is 255.255.255.0.

- › **Gateway:** access point to another network.
- › **DNS Primary / DNS Secondary:** these fields are required for the NTP server when a domain name is used.

When you change the network settings, click  to validate the changes, and reboot the D-Cerno AE central unit.

Camera Protocol



The screenshot shows the 'Settings' interface with the 'Camera protocol' tab selected. The 'Camera protocol settings' section includes:

- Enable:** A toggle switch that is currently turned off.
- Camera protocol:** A dropdown menu set to 'TLV CAM1'.
- Network protocol:** A dropdown menu set to 'TCP'.
- Port:** A text input field containing '5003'.
- Apply settings:** A green button located below the port field.

The Camera protocol is disabled by default. When you enable the camera protocol, you can configure the following parameters:

- › **Camera protocol:** select the protocol you want to use. Three protocols are available: TLVCAM1, TLVCAM2 and T-CAM. For more information on camera protocols, see **Camera Protocol Explained** in the next section. You can only choose one at a time.
- › **Network protocol:** Choose either TCP/IP or UDP.
- › **Port:** This is the port on the client where the camera protocol is either sent to (UDP) or where the third party client has to listen to on the engine (TCP).

- › **IP address:** When you select UDP, you need to specify the IP address of the destination (third-party).

Camera Protocols Explained

When UDP is not selected, every call needs an acknowledgement. If no acknowledgement is sent back, the system tries to send the call up to 3 times. An acknowledgment is 1 byte long and contains hexadecimal value 0x06.

COMMANDS FOR TLVCAM1 PROTOCOL

A call is made up of four distinct parts and looks like the following: {STX}{Body}{CRC}{ETX}.

STX

STX indicates the start of the command protocol. You can recognize STX because it appears as a percentage sign (%) in the command.

Body

The body is the second part of the protocol. The body itself consists of several parts as well. This is a letter (capitol or small) followed by the microphone number. The microphone number always contains four digits. For example, seat 1 will appear as 0001 in the protocol, seat 2 as 0002, and so on.

- › **P/p:**
 - › When a chairperson device activates, a capital P is used. The P is followed by the number of the microphone.
 - › When a chairperson deactivates their microphone, a small p is used. The p is followed by the number of the microphone.
- › **M/m:**
 - › When a delegate device activates, a capital M is used. The M is followed by the number of the microphone.
 - › When a delegate deactivates their microphone, a small m is used. The m is followed by the number of the microphone.

- › **R:** When the last active microphone is turned off, a 'reset' command is sent. This command starts with a capital R. An example is: (%)R(0052).
- › **S:** Every 5 seconds, a synchronized command is sent. This command starts with a capital S and contains all active microphones. The microphones are in order of activation. The first activated microphone is the first number in this part of the protocol. For example (%)**S00250001**(01DB) means that the first microphone to be activated was microphone 25. Microphone 1 was the second microphone to be activated. If no microphone is active, the synchronization will send S0000 as {Body} in the protocol: (%)**S0000**(0113).

CRC

CRC is the third part of the command protocol. It is an extra check to make sure that nothing went wrong during the transmission.

The CRC is the 16 bit hexadecimal sum of all ASCII characters in {Body}. For example, {Body} can equal S00250001. CRC will then be : $0x53+0x30+0x30+0x32+0x35+0x30+0x30+0x30+0x31 = 0x01DB$

As a result, the command will be as follows: (%)S00250001)**01DB**.

ETX

ETX indicates the end of the command protocol. The ETX is a Carriage Return (CR). The hexadecimal presentation of ETX is **0x0D**.

Examples of TLVCAM1 command protocols

- › If the **chairman microphone is activated**, and the chairman microphone is number '0001', then the following message is sent: **%P00010111<CR>**.
- › When the **chairman microphone is deactivated**, then the following message is sent: **%p00010131<CR>**.
- › If a **delegate microphone is activated**, and that delegate microphone is number '0003', then the following message is sent: **%M00030110<CR>**.
- › When the **delegate microphone is deactivated**, then the following message is sent: **%m00030130<CR>**.
- › Suppose now that the **delegate microphone with number '0003' is active**. On a **synchronization check**, the synchronization message will look like this: **%S00030116<CR>**.

- > Suppose now that the delegate microphones with **number '0002' and '0004' are also active**. On a **synchronization check**, the synchronization message will look like this:
%000300020004029C<CR>.
- > When **no microphones are active**, then the following synchronization will be received:
%000300020004029C<CR>.
- > When the **camera control system should reset itself** to its start position, then the following message will be received: **%R0052**.
- > When **all microphones are deactivated simultaneously**, then the following message is received: **%V00000116**.

COMMANDS FOR TLVCAM2 PROTOCOL

A call is made up of three distinct parts and looks like the following: {STX}{Body}{ETX}.

STX

STX indicates the start of the command protocol. You can recognize STX because it appears as a dollar sign (\$) or an ampersand sign (&) in the command.

Body

The body is the second part of the protocol. The body itself consists of several parts as well. This is a digit (1, 2 or 3) followed by the microphone number. The microphone number always contains four digits. For example, seat 1 will appear as 0001 in the protocol, seat 2 as 0002, and so on.

- > **1:** The microphone of the chairman or a delegate is activated. 1 is followed by the seat number of the microphone. E.g.: (\$) **10001**(<CR><LF>).
- > **2:** The microphone of the chairman or a delegate is deactivated. 2 is followed by the seat number of the microphone. E.g.: (\$) **20001**(<CR><LF>).
- > **3:** All active microphones are deactivated. 3 is followed by number 0000. E.g.: (&) **30000**(<CR><LF>).

ETX

ETX indicates the end of the command protocol. The ETX is an Carriage Return (CR) followed by an Line Feed (LF). The hexadecimal presentation of CR is **0x0D** and the hexadecimal presentation of the LF is **0x0A**.

Examples of TLVCAM2 command protocols

- › If the **chairman microphone is activated**, and the chairman microphone is number '0001', then the following message is sent: **\$10001<CR><LF>**.
- › When the **chairman microphone is deactivated**, then the following message is sent: **\$20001<CR><LF>**.
- › If a **delegate microphone is activated**, and the delegate microphone is number '0003', then the following message is sent: **\$10003<CR><LF>**.
- › When the **delegate microphone is deactivated**, then the following message is sent: **\$20003<CR><LF>**.
- › When all **microphones are deactivated**, then the following message is received: **&30000<CR><LF>**.

COMMANDS FOR T-CAM PROTOCOL

Once the network protocol has been defined (UDP or TCP, refer to the beginning of this section), the camera protocol works as follows:

When there is a change in the state of the microphone, a UDP/TCP data package is sent to the camera. The package is in JSON format and has the following structure: {"UID": seat_number, "status": status_number}.

- › **seat_number**: seat number of the microphone.
- › **status_number**: status of the microphone. There are 2 possible status:
 - › 0: The microphone is deactivated
 - › 1: The microphone is activated

In case of multiple calls to turn off microphones, the activation order applies based on the "first in, first out" principle. For example, the call for the first microphone on will be sent as the first microphone off.

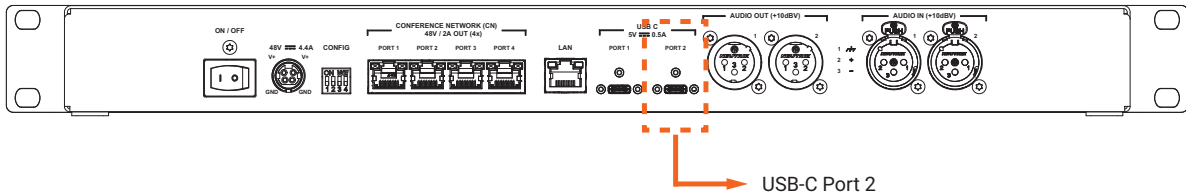
Examples of T-CAM command protocols:

- › If the **delegate microphone is activated**, and the delegate microphone is number 7, then the following message is sent: **{"UID": 7, "status": 1}**.

- If the **delegate microphone is deactivated**, then the following message is sent: **{"UID": 7, "status": 0}**.
- If **delegate microphones number 2, 4 and 7 are deactivated simultaneously** while they were initially activated in order 4, 7 and 2, then the following messages are sent: **{"UID": 4, "status": 0}**, **{"UID": 7, "status": 0}** and **{"UID": 2, "status": 0}**.

USB-C AUDIO INPUT AND OUTPUT

The USB-C Port 2* of the central unit D-Cerno AE allows to **connect a computer with a USB-C or USB-C-to-USB cable** for multichannel recording and hybrid meetings via an online meeting platform (e.g. Zoom, Teams, etc).



* USB 2.0, Audio device 8 x 8 (UAC2, 16 bit, 32 kHz)

Installation of the D-Cerno AE on the computer

1. Connect one edge of the USB-C cable to the USB-C port 2 of the central unit.
2. Connect the other edge of the cable to the USB-C or USB port of your computer.
3. The D-Cerno AE is automatically detected by your computer.

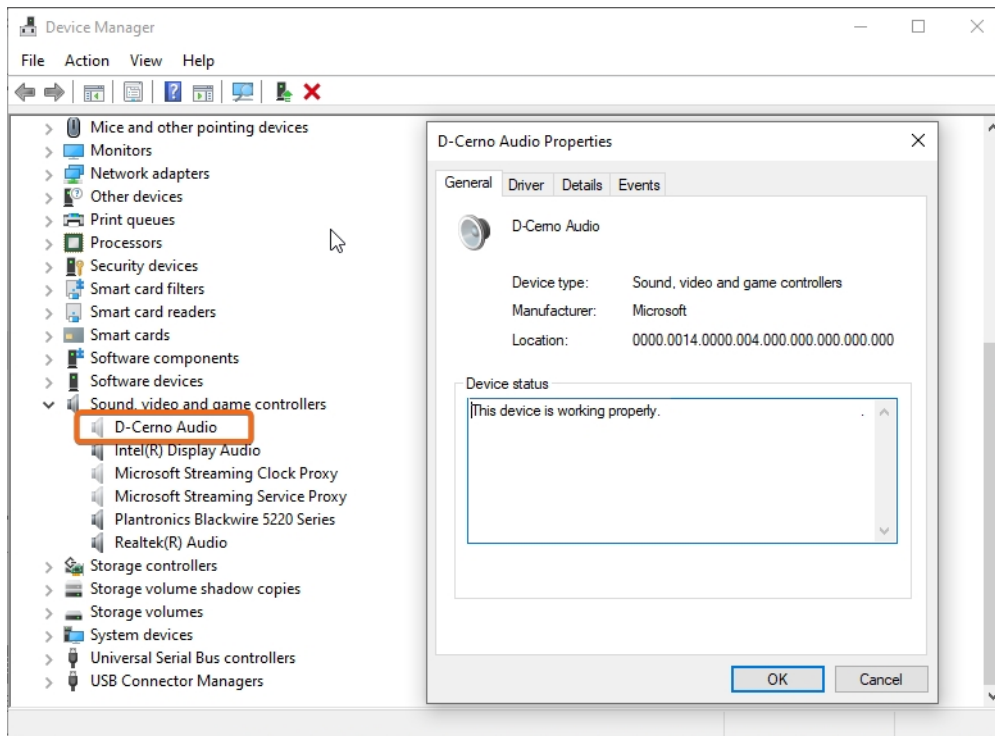
Compatible operating systems:

- › Microsoft Windows 10 or higher (build 19045.4291)
- › MacOS 12 or higher
- › Android 12 or higher
- › iOS 15 or higher



When **connected for the first time**, the driver will be **installed automatically**.
Wait a few seconds until you get the message that the device has been installed successfully.

4. After the installation, you can check the information of the D-Cerno AE device in the Device Manager by right-clicking on **D-Cerno Audio** and selecting **Properties**.

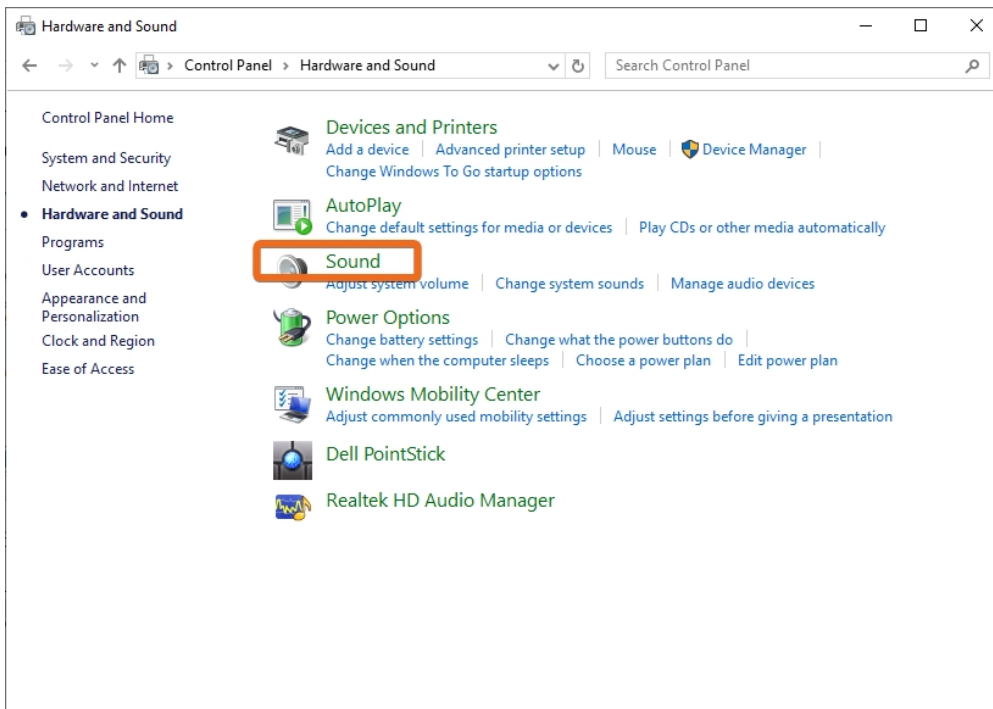


Audio Input

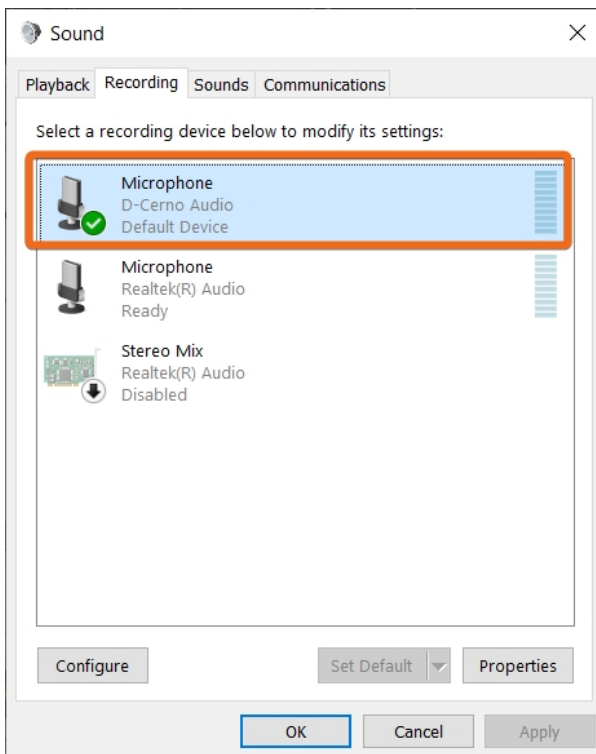
After connecting a computer to the D-Cerno AE central unit, it is possible to record the audio input or use an online meeting platform (e.g. Zoom, Skype, Teams, etc.). The central unit will be automatically detected in the Teams software.

When using USB-C audio for the first time, it is recommended to adjust the volume:

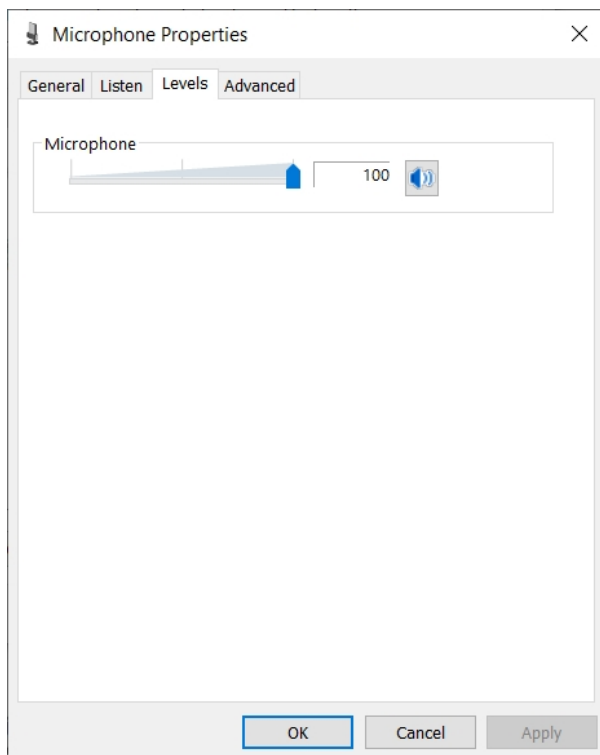
1. Open the **Control Panel** of your computer (or right-click the volume icon on the task bar) and select **Sounds**.



2. In the opening window, click the **Recording** tab. Select **D-Cerno Audio** in the list of devices, then click **Properties**.



3. You can now adjust the sound settings in the various properties tabs.



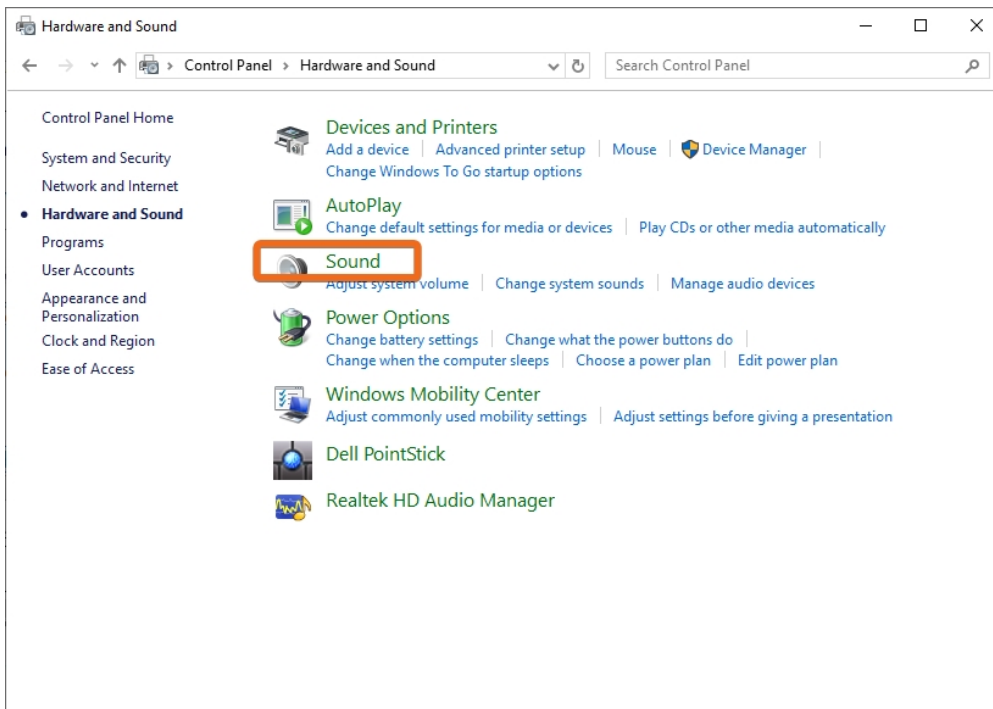
Note that the higher the volume, the higher the distortion.

Audio Output

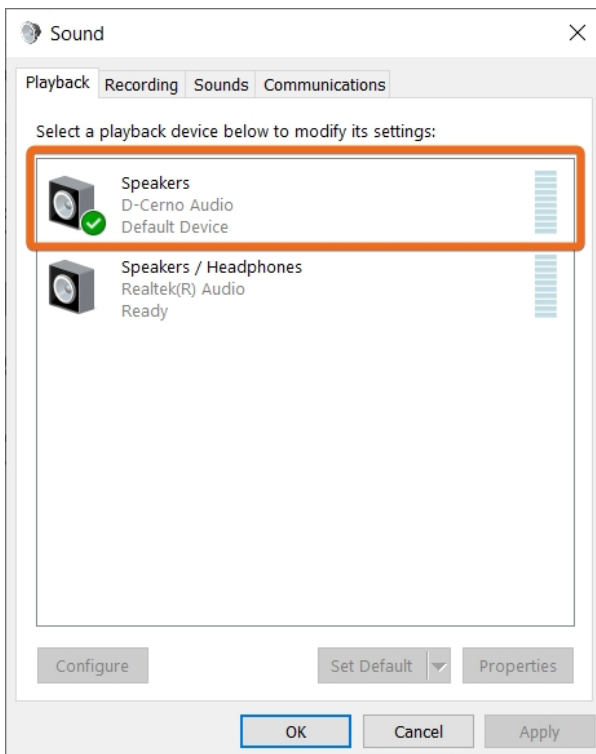
The USB-C Port 2 of the D-Cerno AE can also be used for audio output.

When using USB-C audio for audio output for the first time, it is recommended to adjust the volume:

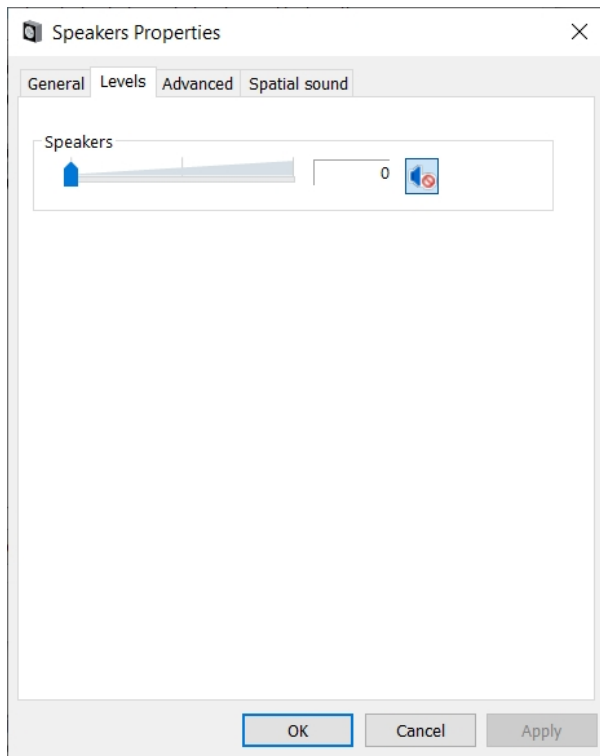
1. Open the **Control Panel** of your computer (or right-click the volume icon on the task bar) and select **Sounds**.



2. In the opening window, click the **Playback** tab. Select **D-Cerno Audio** in the list of devices, then click **Properties**.



3. You can now adjust the sound settings in the various properties tabs.



Make sure that D-Cerno Audio is selected in the audio player you are using for audio output.

ADDENDUM

This section contains repair and/or replacement procedures that should only be performed by a qualified technician.

CONFIGURE THE IP SETTINGS

Before you start using the D-Cerno web server you need to configure your local IP settings to be able to access the web server. Follow the procedure below to configure this.

To be able to access the web server, your computer needs an IP address and subnet mask that can access the IP address of the engine.

The central unit has DHCP on by default with fallback towards the default IP address. It means that:

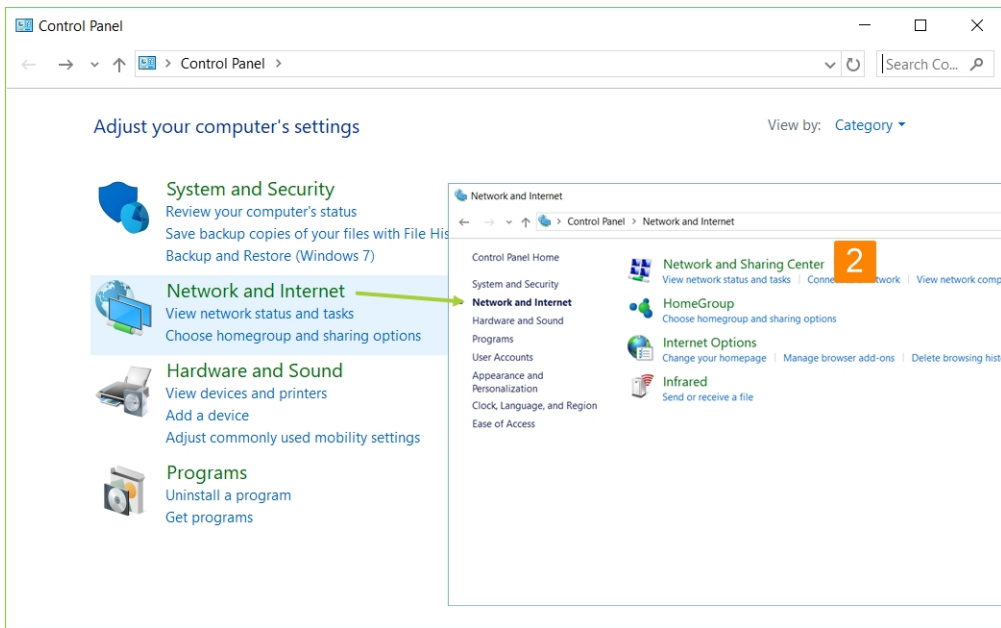
- › When the central unit is connected to a network with DHCP, it will get an address of the server.
- › When the central unit is not connected to a network with DHCP, it will fallback to the default IP address (see below).



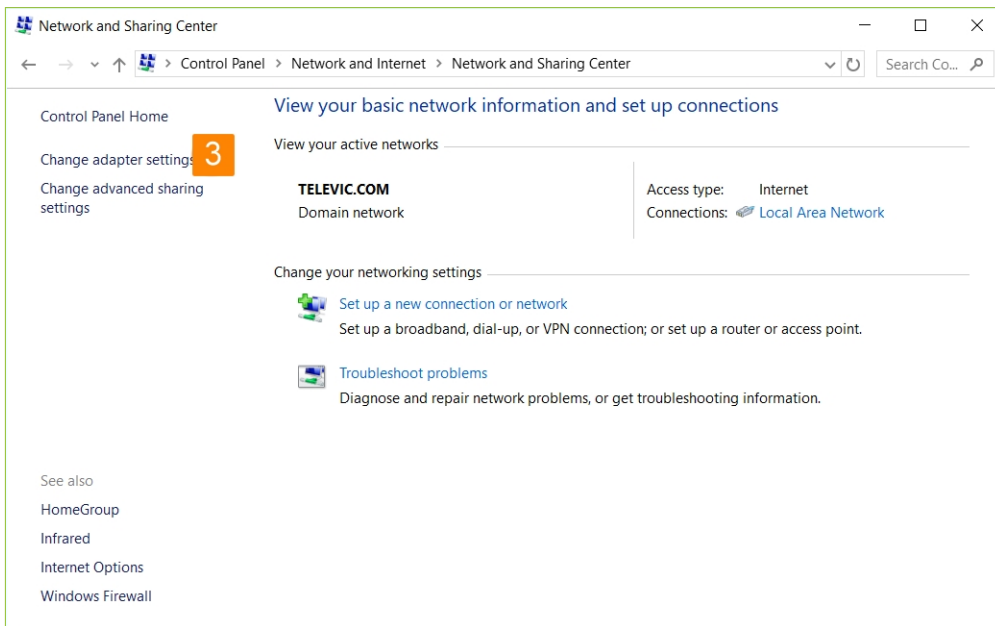
The **default IP address** of the central unit is **192.168.0.20**, which means the computer should have an IP address that is within the same subnet, like 192.168.0.22. The subnet mask must be the same for all equipment on the network, being 255.255.255.0.

Change the IP Settings in Windows

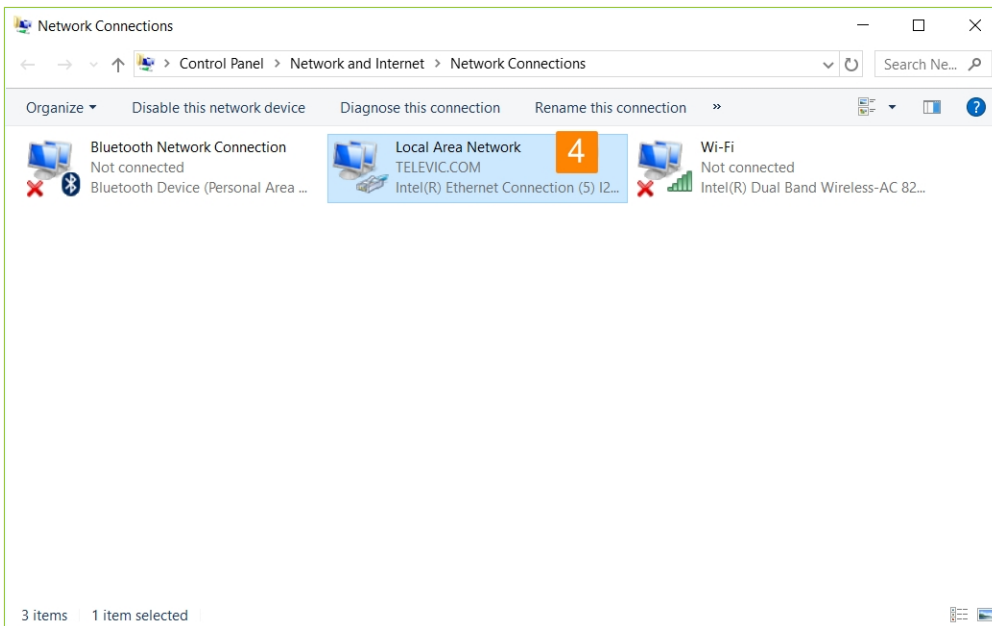
1. Go to Control panel.
2. Click **Network and Internet** and then **Network and sharing center**.



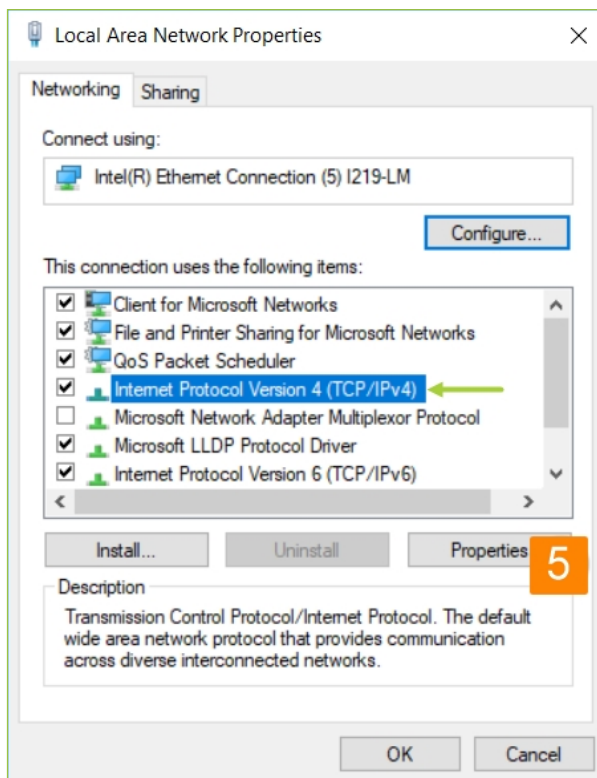
3. Click **Change adapter settings** in the menu on the left.



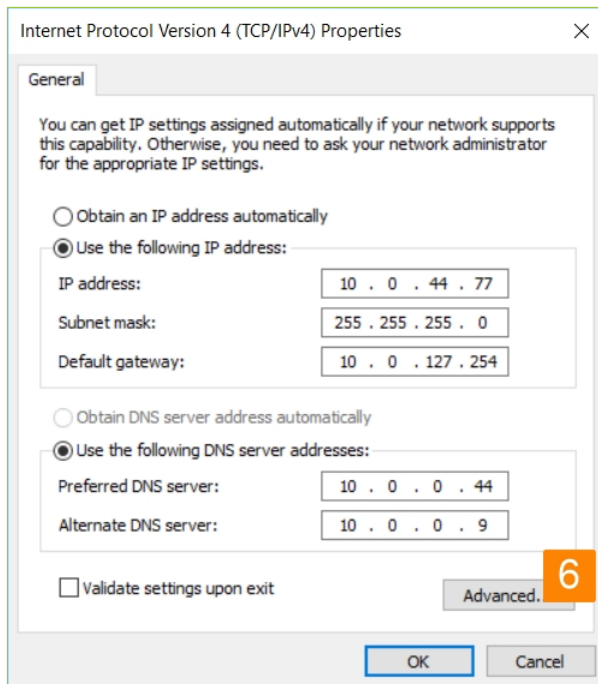
4. Right-click the **Local Area Connection** and select **Properties**.



5. Select **Internet Protocol Version 4 (TCP/IPv4)** and click **Properties**.



6. To assign a fixed IP address to your computer, click **Advanced**.



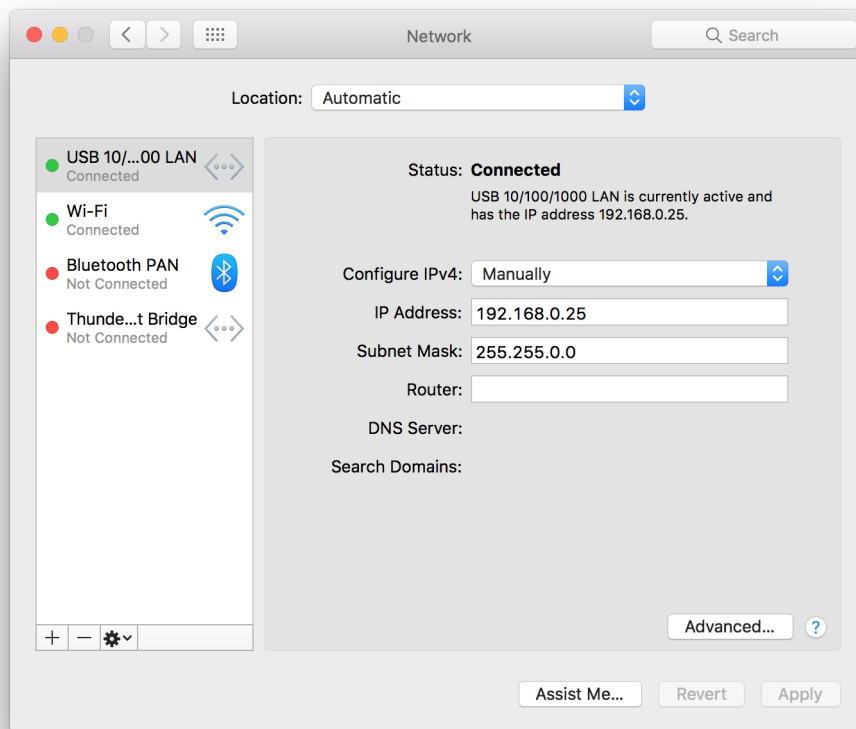
7. Click **Add** in the IP address pane.
8. Enter an IP address in the range of the engine, for example 192.168.0.26. Fill in 255.255.255.0 as subnet mask.
9. Click **OK**. You are now ready to access the engine.

Change IP Settings In MacOS

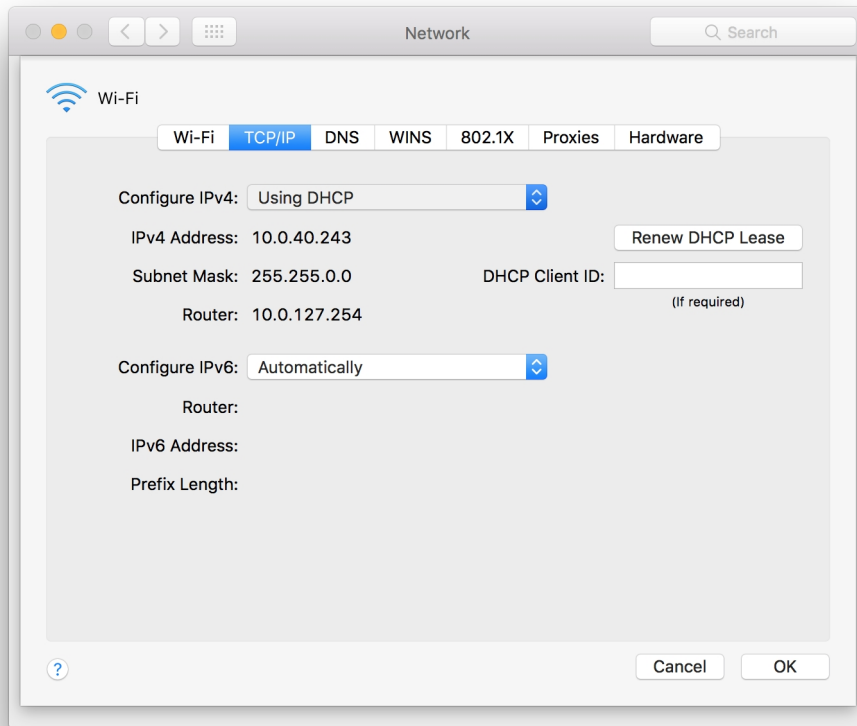
1. Go to the **Apple Menu** and select **System Preferences**.



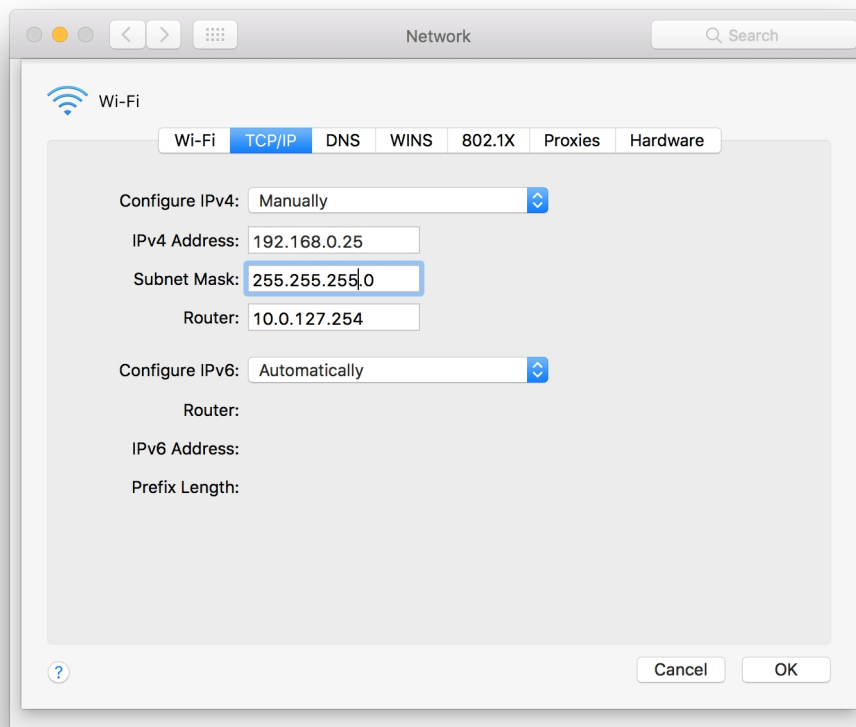
2. Select **Network** from the menu.



3. Click the **Advanced** button.



4. Select **TCP/IP** in the menu on top.



5. Change **Configure IPv4** to **Manually**.
6. Enter an IP address in the range of the engine, for example 192.168.0.25. Fill in 255.255.255.0 as subnet mask.
7. Click **OK**.

REPLACEMENT OF THE COIN-CELL BATTERY IN THE CENTRAL UNIT

The D-Cerno AE central unit contains a lithium coin cell battery for showing the date and time. It can be removed and replaced by following the procedure below.



This procedure should only be performed by the technician in charge of this equipment.



The safety instructions related to the handling of lithium batteries are mentioned at the beginning of this manual and must be strictly followed.



When replacing the coin-cell battery, always use a lithium battery of the same type.

1. Switch off the D-Cerno AE and unplug it from the power outlet.
2. Unscrew the top cover of the device.



3. Locate the battery within the device circuit. It is showed by the **BAT** screening.



4. Use a flat head screwdriver to gently pop up the battery out of its holder as shown by the arrow in the picture below. Do not remove it from the opposite side as you might damage the contacts.



5. Insert a new battery of the same type (CR2032) with the positive side up: gently slide it under the contacts, then push the new coin cell down into its holder.
6. Replace the top cover of the D-Cerno AE. The device is ready to be used again.

televic

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GET IN TOUCH

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