AEQ

CAPITOL IP PLUS

Ultra-Compact Digital Audio Console for Radio and Television

POWER AND SIMPLICITY
IN PERFECT HARMONY

The CAPITOL IP PLUS is a new digital audio broadcast mixing console, specifically designed for ON AIR control but adapts to a diversity of workflows and functionalities.

It incorporates all the basic features required for such operations : automatic monitor muting, cough muting, fader start, control signalling, control signals for automating external equipment, external communications management, talkback or intercom functions, and many more.

The console adapts perfectly to diverse scenarios, including auto-control, traditional Studio-Control operation, small TV audio production controls, general sound production, mixed configurations, and integrates perfectly with AoIP Networked installations. The CAPITOL IP PLUS combines ergonomics, precision, and user-friendly control to meet both basic operational needs and the most demanding requirements.

All essential functions such as channel activation, level adjustment and routing, are directly accessible on each channel of the CAPITOL IP PLUS control surface. Gain adjustment ensures effective and precise regulation of reference audio levels for each channel, while less common adjustments are grouped into a contextual control set on a 7" touchscreen, offering specific functions and detailed settings for each channel. With just one or two taps on the display, the interface ensures simplicity and clarity for dynamic, error-free operation.
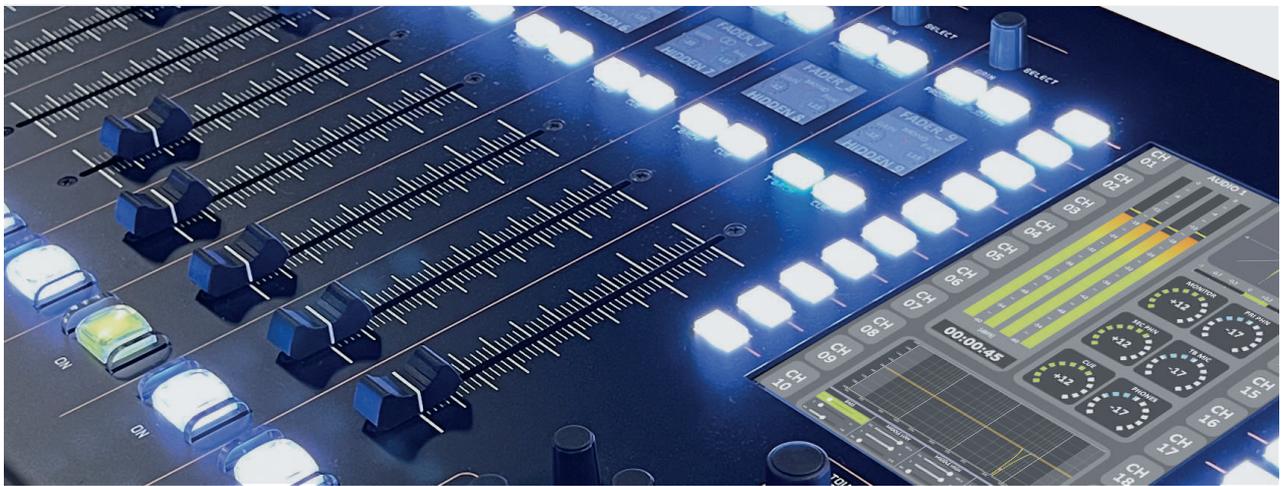

The flexibility of the AEQ CAPITOL IP PLUS configuration allows to assign any system input signal to any control channel and very simple reconfiguration of signal distribution directly from the console surface.

The CAPITOL IP PLUS features a set of memory banks to store channel and signal settings, including the surface' signal distribution, output bus routing, signal processing parameters and their activations. This allows to create a "bespoke" console for for example different programs with diverse technical requirements.

OUTSTANDING FEATURES

- Digital audio mixer with IP connectivity for ON AIR broadcast applications.

- Ergonomic surface with a touchscreen, including local IP audio with a fifth microphone connected to the surface, headphones, Bluetooth connection, and CUE output.

- Audio processing: 4-band parametric equalizer, filters, and dynamics.

- Up to 32 sum-buses for program outputs, ancillaries, monitoring, and clean feeds. Direct signal routing from inputs to multiple outputs without using buses.

- Virtual Capitol option, enabling remote control from a parallel control surface on a PC or tablet, with expanded simultaneous channel usage.
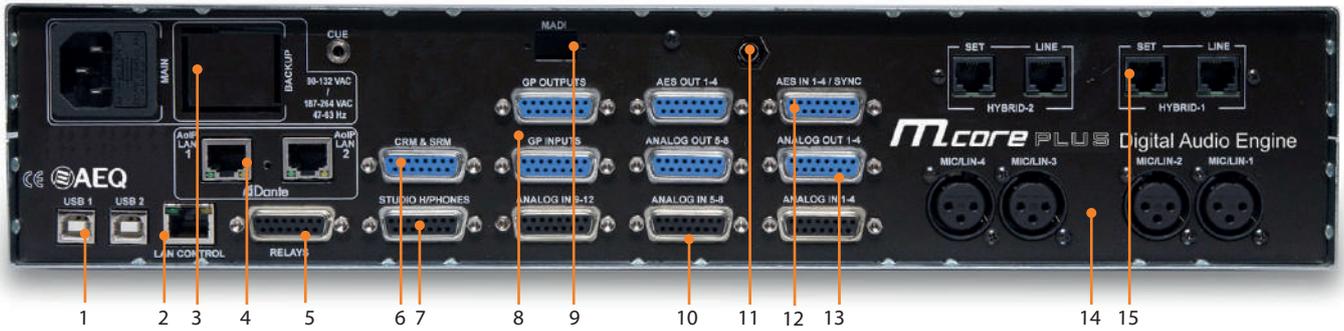
1 USB digital audio Inputs/Outputs
2 LAN
3 Optional redundant Power supply
4 Optional Audinate DANTE™ /AES67 AoIP Digital audio multi-channel Network connectivity
5 Relay GPOs
6 Monitor Output
7 Secondary studio headphones
8 GPI-GPO

9 Optional MADI Digital audio multi-channel connection
10 Analog Inputs
11 Primary studio headphones
12 AES/EBU Inputs/Outputs
13 Analog Outputs
14 Mic./Line Inputs
15 Optional dual line digital telephone hybrid

ENGINE CONNECTIVITY

The CAPITOL IP PLUS features the new M_core PLUS, a compact 2U engine. It is equipped with a fixed configuration of inputs and outputs suitable for a wide range of use scenarios. INPUTS: 4 mic/line inputs, 12 analog line inputs, 4 stereo digital AES/EBU inputs, 2 stereo digital USB inputs and 16 Dante/AES67 AoIP channels. OUTPUTS: 8 analog line outputs, 4 stereo digital AES/EBU outputs, 2 stereo digital USB outputs, 16 Dante/AES67 AoIP channels, Stereo control room and studio monitor outputs, Primary and secondary studio headphone outputs and CUE headphone output.

The default configuration can be expanded with additional options such as 16 additional AoIP Inputs and Outputs, telephone hybrids, and a redundant power supply.

Easy installation and flexibility in configuration were key priorities in the design of the CAPITOL IP PLUS. To facilitate connectivity for cough muting, external device remote control, ON AIR lights, and more, the engine provides:

• 8 General Purpose Input (GPI) ports
• 8 General Purpose Output (GPO) ports
• 4 relay-contact GPOs

CONTROL SURFACE CONNECTIVITY

1 LAN1 (Power PoE++)
2 LAN2 (Dante)
3 RS422

4 CUE
5 Control Headphones
6 MIC 5 (Self-control / Talkback)

Control Surface (channels)

The CAPITOL IP PLUS features 10 fader channels on the left side of the surface and a control section to the right for adjustments, programming, monitoring, and talkback. Signal assignments to channels are fully user-definable, allowing any input signals present in the system to be assigned to any channel. This flexibility enables a single channel to control one signal at a given time and a different signal at another, adapting to various programs or operators. Additionally, these signal-to-channel assignments can be saved in memory for later use by different users or for specific applications.

Combining its compact size with significant flexibility and performance, the CAPITOL IP PLUS allows not only for mixing, processing, and routing of signals on the control surface but also for adjusting the level and routing of hidden signals across the maximum number of inputs and outputs, including those available via Dante network integration.

1 Rotary encoder for the channel input gain. If pressed, the encoder transfers the channel control to the touch screen in the control section and activates the contextual keys to assign the advanced configuration controls: dynamics, equalization, balance and sends to auxiliary outputs, telephones,..,

2 Two direct main routing keys, to send the audio to the program bus and to the audition bus.

3 Channel Display with contextual information relevant to the input signal.

4 FUNCTION button, to program functions according to needs (additional buses, A/B…).

5 CUE switch.

6 100 mm (4") fader.

7 Channel ON/OFF switch and ON-AIR status indicator.

8 Switch Protectors with light signalling

Fader channel display Information

The display represents the name of the input signal assigned to the channel, the gain level, balance or panoramic, the phase configuration (L+R+,L+R-,L-R+,L-R-), the audio mode configuration (Stereo, Mono L, Mono R, L+R) and the ON-AIR status, among other functions. If the console has been programmed for A/B input mode channel operation, the display will show the name of the signal that is currently inactive, indicating whether it is ON-AIR or not. In configuration mode, it shows gain levels, balance or panoramic status, and the selected source.
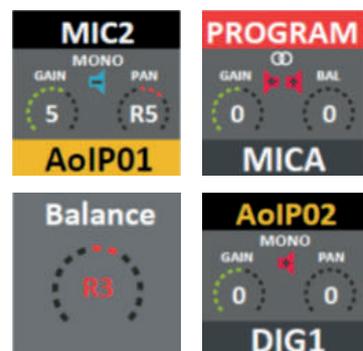
Screen and Advanced Configuration Controls

The control surface display integrates two high-precision stereo digital VU meters, assignable to master outputs or, using the CUE keys, to any selected signal. These two VU meters can be replaced with four smaller meters through configuration.
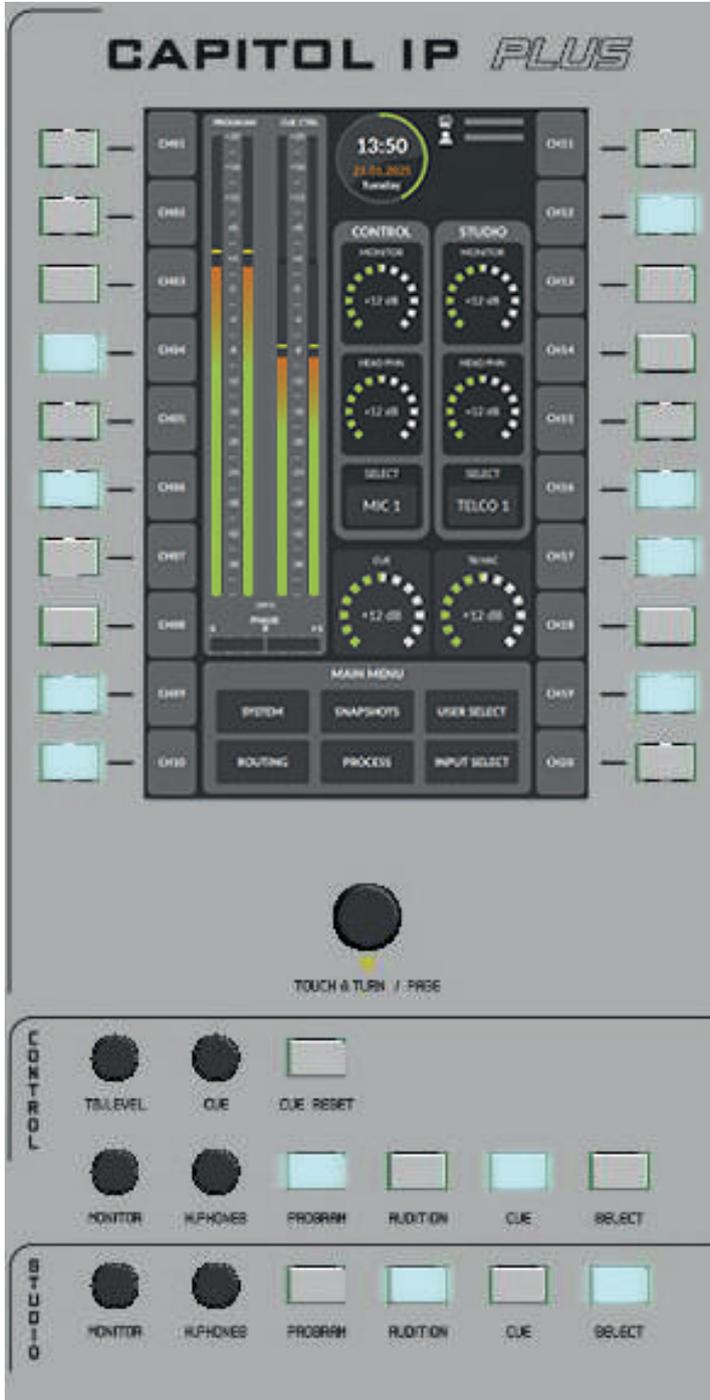
Programmable Keys

The CAPITOL IP PLUS allows the programming of predefined special functions, such as: configuring GPIs and GPOs, controlling hybrids and codecs, sending signals to the VU meters, setting up additional intercom communications. The 20 programmable keys enable users to activate or deactivate these additional functions at will.

Beneath the touchscreen is an encoder with a push-button function. Pressing the encoder switches between programmable key pages, allowing hundreds of different functions to be programmed as needed.

Advanced Configuration

Each fader channel on the CAPITOL IP PLUS control surface includes an encoder labelled GAIN, which also acts as a "SELECT" button to access advanced configuration functions.

This configuration takes place on the multi-function touchscreen located in the control and monitoring section at the far-right side of the control surface.

Operation involves tapping virtual keys on the screen, navigating graphical menus, and using multi-touch gestures. For enhanced precision, the encoder below the screen features a TOUCH & TURN function, enabling precise adjustments of highlighted parameters on the display.

Control and Studio Monitoring

The CAPITOL IP PLUS provides independent monitoring sections for control room and studio. Each section includes independent level controls for control monitors, studio monitors, headphones, and the CUE monitor. When making selections or adjustments, the touchscreen displays a window showing the selected parameters and adjustments in real time.
The CAPITOL IP PLUS also includes centralized and independent control for:
• ON AIR signaling
• Signal assignment to monitors and headphones
• Monitor path levels
• Cough muting
• Remote PFL activations

Talk-back

In the upper-left corner of the control area is the Talkback Level Control. This control allows communication with studio microphones, external 4-wire circuits, hybrids, and audio-codecs. Each channel's FUNCTION key can be programmed for talkback purposes. To communicate via studio monitors, one of the keys adjacent to the main display can be programmed, and this configuration can be replicated across different pages for easier access.

Touchscreen Menus

The touchscreen on the CAPITOL IP PLUS provides instant access to a variety of general functions, including:
• Activation and adjustment of audio effects such as equalization, filters, and limiters.
• Management of configurations and memory presets.
• General deactivation of audio effects.
• Timer and stopwatch for time management.
• Phase adjustment.
• Insertion of a test signal.
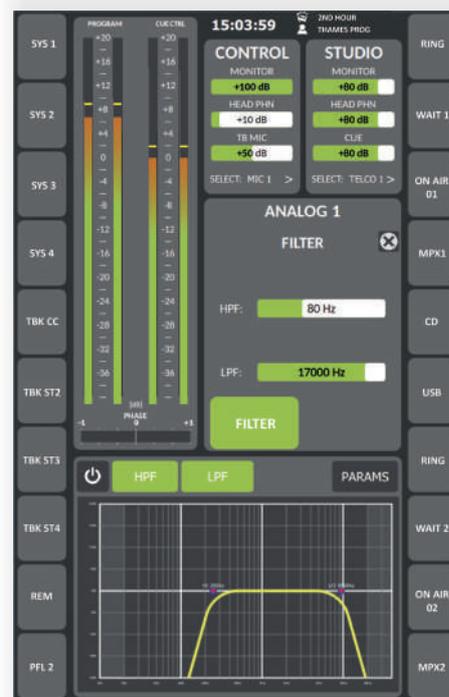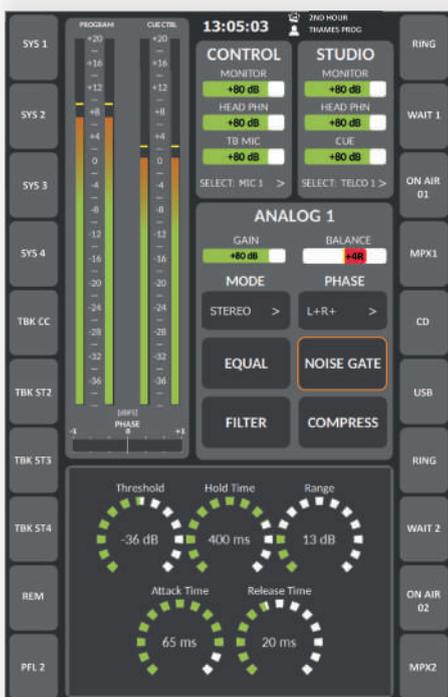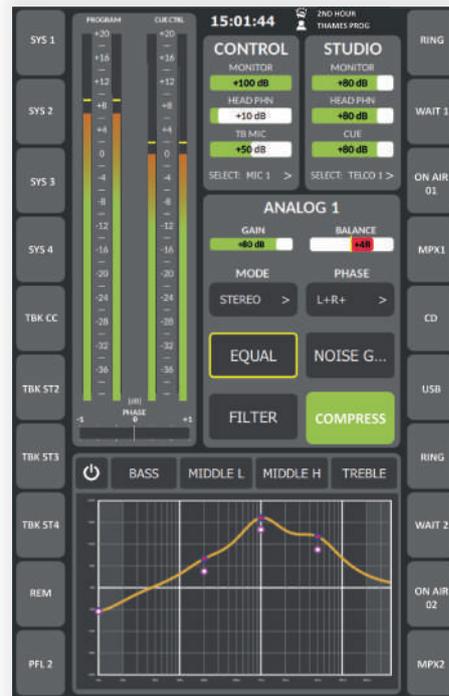
The labels for pageable programmable keys and the main VU meters are always visible. When leaving the idle screen to adjust a process or access another function, the VU meters reduce in size to make room for additional visual elements and operations, ensuring seamless control and usability.

CAPITOL VIRTUAL: YOUR CONTROL SURFACE ON A PC OR A TABLET

This application functions as a complement to the CAPITOL IP PLUS digital console, displaying on a Windows or iOS device, whether PC or tablet:
• An exact representation of the console's control surface, allowing parallel or alternative control of the surface, enabling dual or remote management.
• An additional channel bank to expand the console's capacity, displaying less frequently used sources virtually.

It is, in fact, a virtual copy including the whole range of physical controls available in the physical CAPITOL IP control surface, as well as most advanced functions in its main menu.

You will have full control over CAPITOL IP PLUS without the need to be physically close to the device. You can activate and turn fader channels "ON-AIR", move the faders, activate and modify eq., gain, balance or pan., save and load memory settings, activate the program-mable keys or pre-sets and even handle the phone calls if the console has been equipped with either the fully integrated digital telephone hybrids or external ones.

The vu-meters, control and monitoring section and 10 faders are presented in each screen. There are fader page keys at its top area in order to operate additional faders.

COMPACT DESKTOP SURFACES IN TWO DIFFERENT COLOURS

Black version

Silver version

The CAPITOL IP PLUS surface is designed for fully horizontal installation, simply resting on any desk. It offers a comfortable, low-profile working surface with a slight incline.

CONTROL APPLICATIONS

Software applications compiled for Windows or iOS operating systems and provides an easy way to monitor and adjust parameters as well as the full remote control of the console system. Can be used on standard or touch-screen displays. Hardware not included.

VIRTUAL CAPITOL

This App shows an exact representation of the control surface. To operate the console remotely, or in parallel with its control, simply use the "Virtual Capitol" app.

AUDIO ENGINE OR CORE UNIT : M_CORE PLUS

2U Rack Chassis with the Following Connections:

Power and Control
• General power connection (redundant option available).
• 8 General Purpose Inputs (GPI), 8 General Purpose Outputs (GPO), and 4 relay outputs.
• IP connection for communication with other devices and control of the surface.
• Pair of IP Dante / AES67 connections for sharing audio with the surface and other devices.

Inputs:
• 4 mono mic/line inputs, switchable from the surface.
• Phantom power configurable from the surface.
• 2 stereo digital USB inputs (bidirectional).
• 4 stereo digital AES/EBU inputs, configurable as SPDIF.
• 12 analog inputs (individually configurable in stereo pairs, 6 pairs).
• 16 Dante / AES67 inputs.

Outputs:
• 2 stereo digital USB outputs (bidirectional).
• 4 stereo digital AES/EBU outputs, configurable as SPDIF.
• 8 analog outputs (individually configurable in stereo pairs, 4 pairs).
• 16 Dante / AES67 outputs.

Control and Monitoring Outputs:
• Stereo analog control output.
• Stereo analog studio output.
• CUE output.
• Primary studio headphone output with amplifier (¼" jack).
• Secondary studio headphone output with amplifier (DB15).

M_CORE PLUS ENGINE: FIXED CONFIGURATION FRAME

Internal Modules for Power Redundancy and I/O in Various Formats:

MCORE PLUS FA: REDUNDANT POWER MODULE
Additional internal power module with standard 100-240 V auto-range. 50/60 Hz. Easily installed within the system.

MCORE PLUS HYB: DUAL DIGITAL TELEPHONE HYBRID MODULE
Internal card with two digital hybrids featuring DSP-based echo cancellation. Easily installed within the system.

MCORE PLUS MADI: MADI MODULE
Handles up to 64 audio channels in each direction to interconnect the console with a router or another console up to 2 km away via a simple pair of optical fibers. Easily installed within the system. Incompatible with AoIP Dante.

MCORE PLUS DANTE 16-32: 32-CHANNEL IP MODULE EXPANSION
Optional expansion of the multichannel IP audio link to 32 bidirectional channels over the same two Ethernet connectors. Increases interconnection capacity with other consoles, routers, or devices featuring multichannel AoIP technology.

External accessories and devices
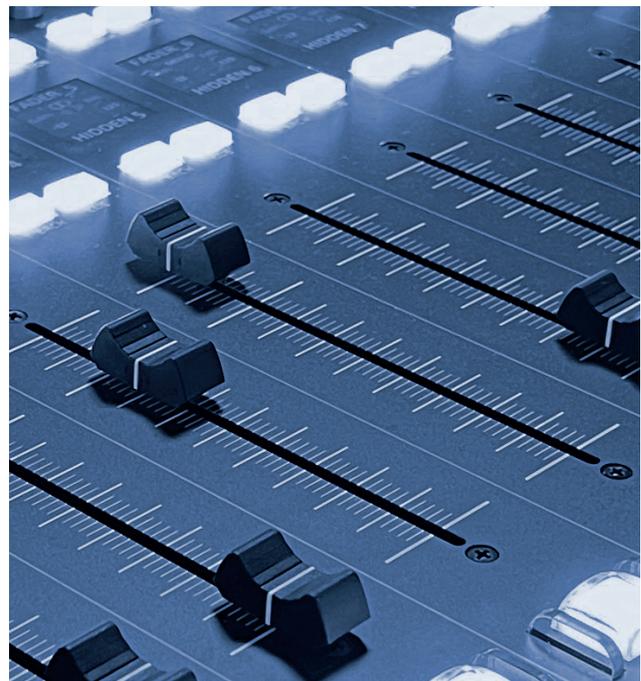
WIRING ACCESSORIES

In order to facilitate a quick connection of the console in any installation, audio and data cables using the console connectors can be provided.

DB15M GPIO: male DB15 connector with 6-meter long unterminated wire for GPI, GPO or relays to be used with M_CORE PLUS engines.

DB15M AU: male DB15 connector with 6-meter long cable including 4 balanced and shielded unterminated pairs, to be used for 4 inputs in FR CORE or 4 inputs or outputs in M_CORE PLUS engines.

2 DB15M AU: two male DB15 connectors with 6-meter long cable including 8 balanced and shielded unterminated pairs, to be used for 8 inputs in FR CORE or 8 inputs or outputs in M_CORE PLUS engines.
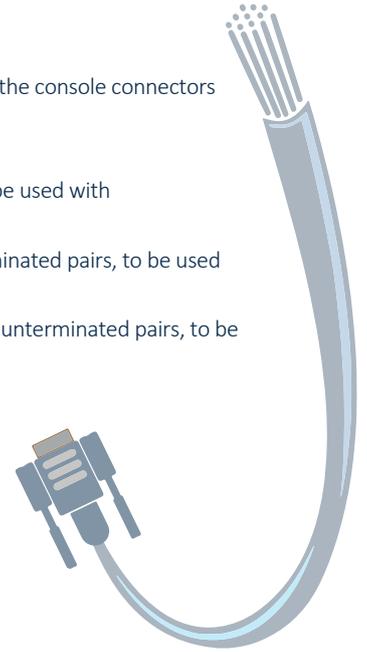
ADDITIONAL EQUIPMENT WITH AoIP INPUT AND OUTPUTS

NETBOX Audio interfaces

Netbox interfaces allow the input or output of audio channels from remote locations to the AoIP Network. These network nodes increase the overall amount of local and remote audio channels with IP network connectivity.

NETBOX 32 AD

Features 16 mono analogue (or 8 stereo pairs) + 8 stereo digital channels. Thanks to its large input / output capacity, it is especially suited for central control and link rooms, or to expand the number of analogue and digital audio channels in large mixing consoles.

NETBOX 8 AD

Provides 8 input and 8 output channels, distributed in 4 analogue mono plus 2 digital stereo connections. Stereo digital signals can be configured to comply with AES/EBU or SPDIF standards. The second digital stereo one can also be switched to a USB connector in order to facilitate the connection to a workstation. It can be useful to connect the console to recording cabins, booths or other auxiliary areas.
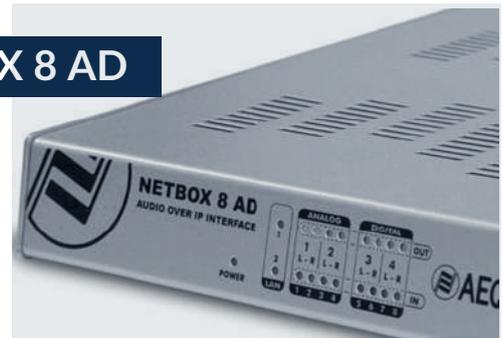
NETBOX 4 MH

Provides 4 micro / line inputs, 4 line outputs and 4 stereo headphone outputs. Includes 4 GPI and 4 GPO, as well as additional GPIOs for signalling boxes such as Studiobox. It can be powered using PoE.

OTHER DANTE INTERFACES

You can use 3rd parties devices in order to increase the I/O capacity of the console.

Functionality

- Cough muting, ON-AIR signaling for control and studio.
- Fader start, remote PFL, talkback, and automatic monitor muting.
- Configurable N-1 outputs.
- Integrated external equipment control (hybrids and AEQ audiocodecs) via programmable keys.
- Independent Pre-Fader/Post-Fader configuration for all routings.
- Auto-start (selectable) with the latest settings or default configuration.
- Assignable signals to any control channel.
- Storage of signal settings in memory: one basic configuration and six user-defined configurations.

General Features

- Independent control and studio monitoring with configurable VU meters for all system signals.
- Two CUE monitoring outputs for Pre-Fader listening.
- Three integrated amplified headphone outputs: Control, Primary, and Secondary.
- Two high-precision stereo VU meters.
- Test tone generator.
- Externally synchronized clock, timer, and stopwatch.
- Silent convection cooling, ideal for self-operated formats.
- Optional redundant power supply.

Common Engine Connectivity

- Analog stereo outputs for Control, Studio, CUE and Studio primary Headphone monitoring.
- Output for CUE.
- 4 mono mic/line inputs with phantom power and electronically balanced microphone inputs.
- 12 analog inputs/8 analog outputs (can be configured as individual stereo pairs).
- 4 AES/EBU digital stereo inputs and 4 AES/EBU digital stereo outputs that can be configured as SPDIF.
- Sampling rate converters for the digital inputs.
- 2 USB (I/O) digital stereo inputs/outputs.
- 8 opto-coupled GPI's, 8 opto-coupled GPO's and 4 GPO's with relays.
- Multichannel: 16 bidirectional channels via internal AoIP module (AES67 technology, Dante format), with 4 channels reserved for communication with the surface.
- Synchronization via AES/EBU and Dante.

Optional Connectivity

- Internal dual digital telephone hybrid with two line connectors and two set connectors.
- Expansion to 32 bidirectional channels via the internal AoIP AES67/-DANTE module.
- Alternatively, supports a MADI module (AES10) with 64 I/O channels via optical fiber (up to 2 km). Incompatible with AoIP Dante.

System processing capabitilies

- 48 kHz, 24-bit internal sampling frequency.
- Gain control.
- Selectable balance/panoramic control on all channels.
- Selective phase reverse.
- Audio processing for 20 stereo signals.
- Pre-defined audio processing that allows manual adjustment.
- Available audio effects: 4 band equalizer, high pass and low pass filters, compressor/limiter, and noise gate.
- Up to 128 audio inputs audio gain adjustment.

Control surface features

CONNECTIVITY

- PoE++ and LAN 1: RJ45, Ethernet (PoE++ injector included).
- LAN 2 and DANTE: RJ45, Ethernet, configurable in Dante Controller.
- CUE: Balanced mono 3.5 mm jack.
- Control headphones: Stereo 6.35 mm jack.
- Microphone: XLR 3-pin, configurable phantom power.
- Bluetooth: Bidirectional, mono output and stereo input.
- Dante: LAN 2, 4 bidirectional audio channels.

FEATURES

- Fader channels: 10 physical channels plus virtual channels.
- Channel display: 1.54-inch color IPS.
- Channel encoder: Rotary with push-button (SELECT, GAIN).
- Programmable channel keys (color): Four keys (7 colors, 2 levels), two for direct routing.
- ON Key: Under fader, color programmable.
- ON Key Protectors: Illuminated and color programmable.
- Main screen: 7-inch TFT-LCD multitouch display.
- Resolution: 1280 x 800, with IPS.
- Encoder with push-button for precise adjustments.
- Internal system: Linux on multicore processor.
- Additional keys near the main screen: 20 color-programmable keys.
- Control and studio monitoring adjustment section: Encoders and push-buttons.

Physical specifications

DIMENSIONS AND WEIGHT

M_ CORE PLUS ENGINE
- Width: 482 mm (19").
- Height: 2U rack (89 mm, 3 ½").
- Depth: 330 mm (13").
- Weight: 5.2 to 6 kg (11.5 to 13.2 lbs) depending on options.

482 mm
89 mm

PHYSICAL CONSOLE: CAPITOL IP PLUS
- Width: 585 mm (23").
- Depth: 402 mm (16").
- Height: 49 mm (1.92").
- Weight: 5.95 kg (13 lbs).

585 mm
402 mm

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