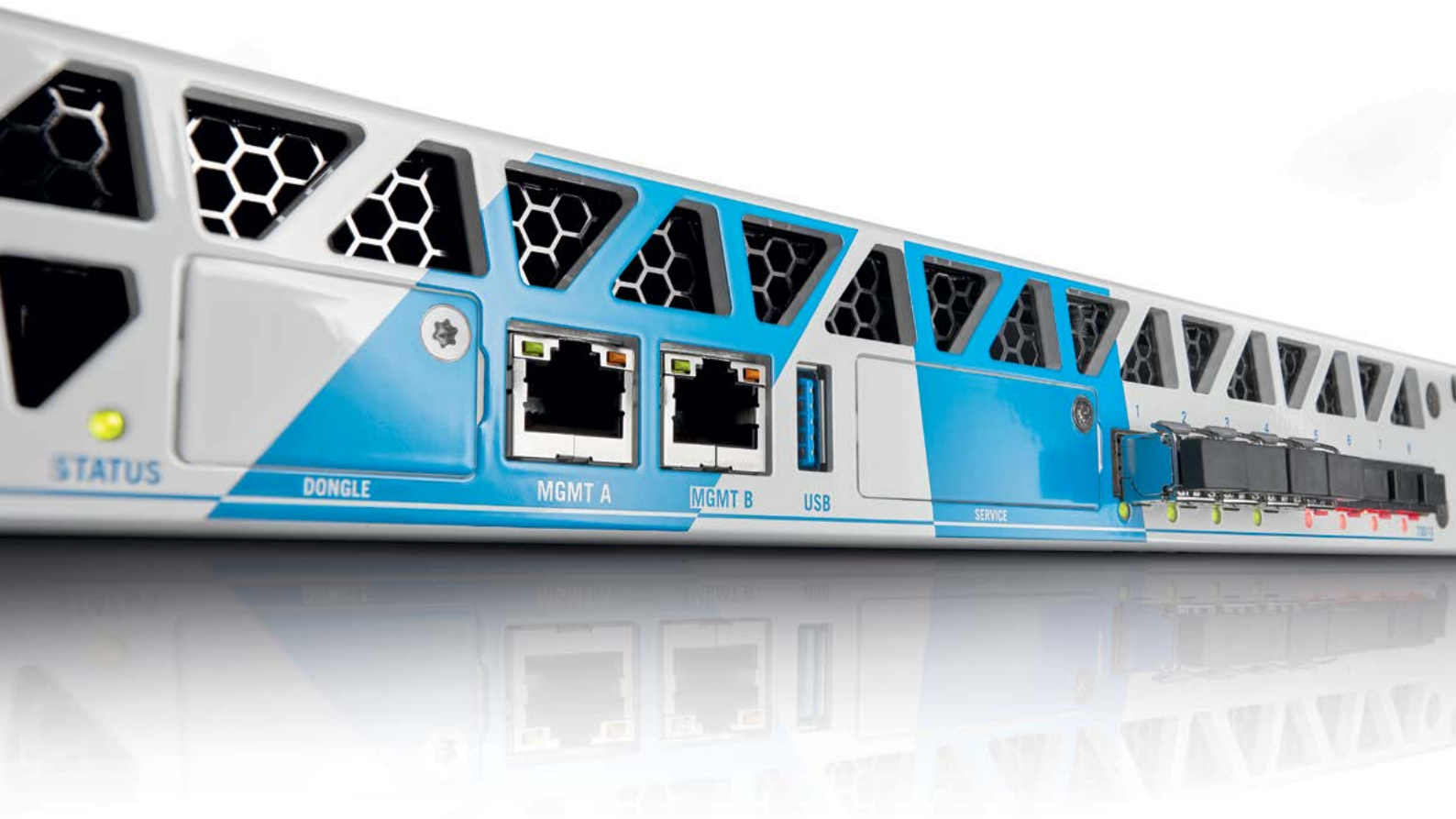
A__UHD Core

ULTRA-HIGH DENSITY IP AUDIO ENGINE



ULTRA
HIGH
DENSITY

A__UHD Core

ULTRA-HIGH DENSITY IP AUDIO ENGINE

KEY FEATURES

- 1,024 Lawo-grade DSP channels on 1RU (512 channels in 96 kHz mode)
- IP network processor based on open standards (SMPTE ST2110-30/-31, AES67, RAVENNA)
- Full redundancy: SPS stream redundancy (SMPTE ST2022-7) with 8x 1GbE-capable independent SFP network interfaces plus hardware redundancy via hot-spare redundancy unit
- Scalable DSP performance via flexible licensing system
- DSP resources shareable amongst multiple consoles
- Designed for mc² 36xp, mc² 56 and mc² 96 consoles
- Future-proof, software-defined hardware – this is just the beginning…

The A__UHD Core is the next generation audio engine for Lawo's mc² audio production consoles. Designed as a network-based, software-defined IP DSP engine with unparalleled processing density, it elevates mc²36xp, mc²56 and mc²96 consoles to the next dimension.

Its ultra-high processing density translates into 1,024 mc²-grade DSP channels, which can either be utilized by a single mc² console, for coping with even the most challenging productions, or be shared between multiple consoles for effective and space-efficient resource pooling.

Thanks to a flexible licensing model, the A__UHD Core is ideal for both mobile applications and facility use. For mobile productions, the scalable DSP performance with temporary licenses is a great way to turn CAPEX into OPEX, whilst in facility applications, the possibility of resource pooling and flexible allocation of DSP resources to multiple physical and GUI-based mixing surfaces maximizes ROI for your audio infrastructure.

The A__UHD Core features low-noise cooling and is ready to meet and exceed your highest production quality and reliability demands. Eight independent 1GbE network interfaces support redundant networking via SMPTE ST2022-7 Class C seamless protection switching (SPS) in both LAN and WAN environments. In addition, full hardware redundancy can be achieved through the deployment of a second "hot spare" unit which permanently mirrors all settings.

In addition to its pristine DSP processing, the A__UHD Core leverages Lawo's HOME platform to make IP setup for Lawo mc² consoles as simple as analog.

Best of all, the A__UHD Core's functionality is defined by its software — making it a future-proof investment with a feature-set that is designed to expand.

A__UHD Core

SYSTEM DESIGN

NEXT-GENERATION SYSTEM RELIABILITY

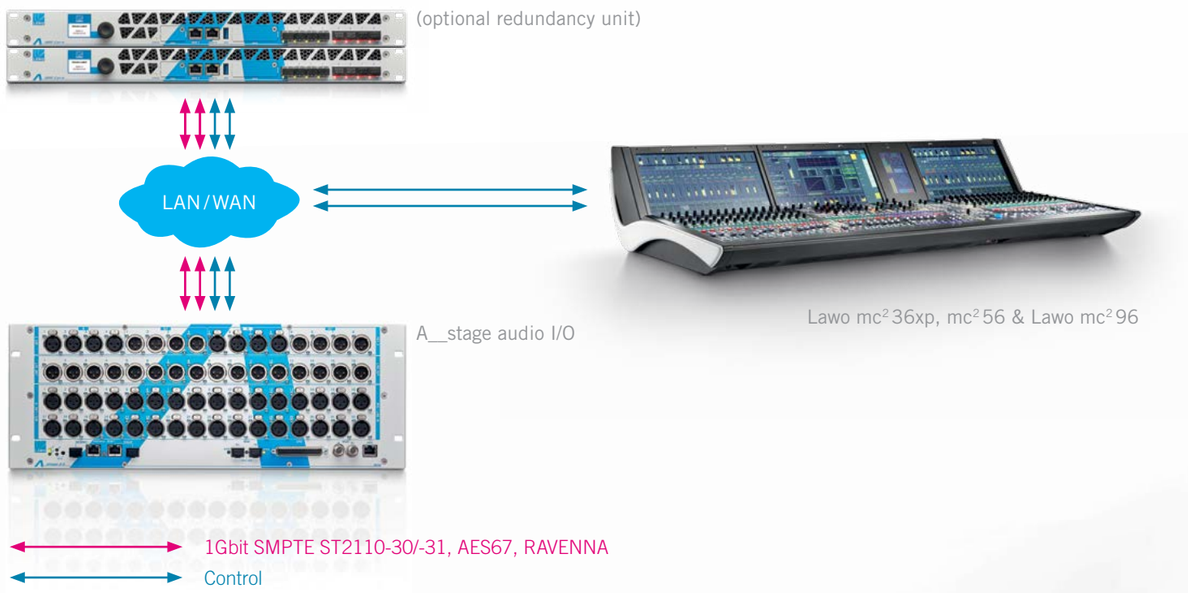
The Lawo name has become almost synonymous with maximum reliability. As such, the A__UHD Core is geared towards 360° resilient architectures to meet even the most stringent production reliability and security requirements.

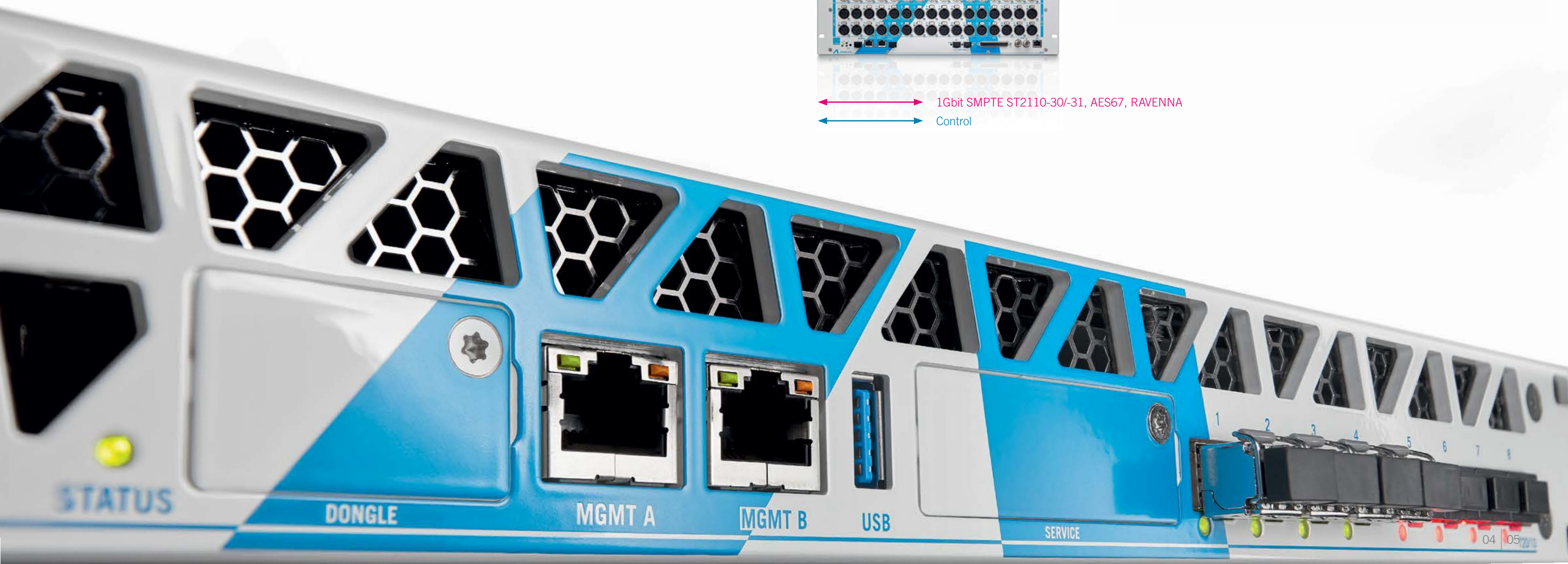
Redundant hot-swappable PSUs are standard. The A__UHD Core also provides network interface redundancy for all streaming and management ports, allowing the device to be connected to two completely independent IP networks utilizing the SMPTE ST2022-7 seamless protection switching (SPS) strategy.

If power and streaming redundancy are not enough for your operation, the A__UHD Core also features 1+1 hot-spare hardware redundancy. In this set-up, a second A__UHD Core with a redundancy license constantly mirrors all settings of the primary device, taking over seamlessly in the unlikely case of a hardware failure.

Like all Lawo IP devices, the A__UHD Core supports SMPTE ST2022-7 Class C extended buffer sizes, which allows the device to operate not only in local area networks (LANs) but also in wide area networks (WAN). With this capability, your redundant A__UHD Core units can be installed just about anywhere on the planet — and still take over instantly if the need arises.

SYSTEM OVERVIEW





A__UHD Core

LICENSE SYSTEM

NEXT-GENERATION CONNECTIVITY

The A__UHD Core features four independent IP audio streaming engines, each with a redundant pair of 1GbE network ports (SFP). The device is fully based on open standards and supports Audio-over-IP via SMPTE ST2110-30/-31, AES67 and RAVENNA. Each network interface supports stream sizes between 1 and 128 audio channels. For ultra-reliable operation, A__UHD Core features full network redundancy with SMPTE ST2022-7 Class C Seamless Protection Switching (SPS).

lives @ HOME

IP MADE EASY: LIVES AT HOME

The A__UHD Core offers native support for Lawo's HOME functionality that make configuring IP setups as simple as analog. HOME allows your mc² consoles to automatically discover devices and make them available to the console at the push of a button. The underlying device management includes all necessary security features such as access control and quarantining of unknown devices.

NEXT GENERATION SCALABILITY

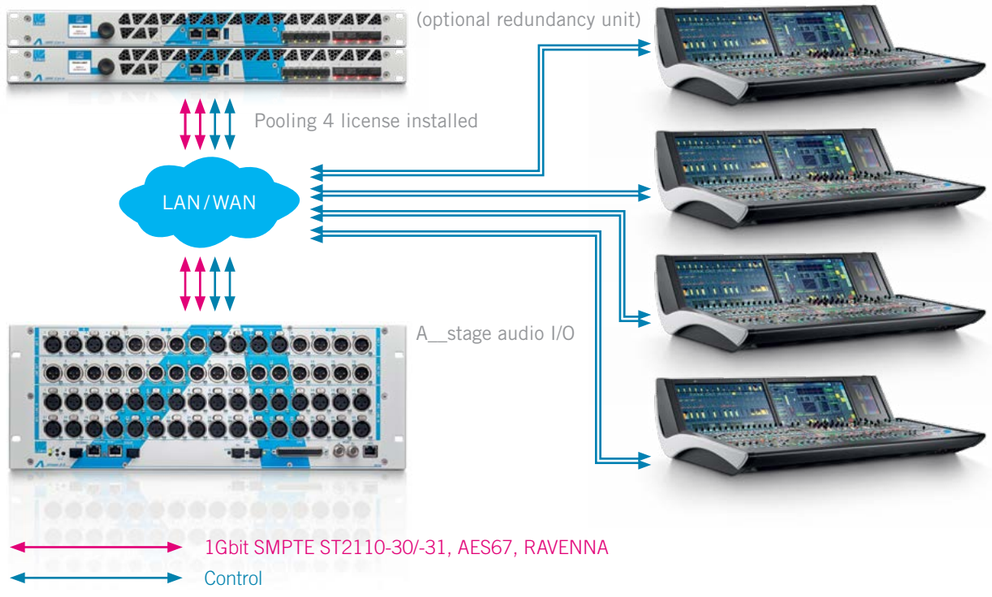
The A__UHD Core's flexible software licensing model offers both fixed and temporary licenses to provide only what you need, when you need it. Licenses are stored on USB dongles and can be conveniently downloaded, allowing seamless transfer between units.

Current A__UHD Core licenses include:

MIX 128 License 128 DSP channels	**+128 TMIXx License** Temp. adding of DSP for x weeks	**RED DSP License** Enables a 2nd unit as redundancy	**POOLING 4 License** DSP split across up to 4 mixers
MIX 256 License 256 DSP channels	**+256 TMIXx License** Temp. adding of DSP for x weeks		**POOLING 8 License** DSP split across up to 8 mixers
MIX 512 License 512 DSP channels	**+512 TMIXx License** Temp. adding of DSP for x weeks		**POOLING 16 License** DSP split across up to 16 mixers
MIX 768 License 768 DSP channels	**+768 TMIXx License** Temp. adding of DSP for x weeks		**POOLING 32 License** DSP split across up to 32 mixers
MIX 1024 License 1,024 DSP channels			

SHARE THE POWER: POOLING LICENSES

The Pooling 4/8/16/32 licenses provide independent "mixer slices" for as many users. The example below illustrates the Pooling 4 license.



NEXT-GENERATION FOOTPRINT

This ultra high-density IP audio engine was created to meet and exceed expectations today — and tomorrow. Compared with its renowned predecessor*, this new console core saves up to 9RU of rack space (up to 90% smaller). Weighing in at only 7.4 kg, it is up to 70% lighter than its predecessor. And its high efficiency results in power consumption of only 220W — roughly 78% less than before.

This efficiency extends to system design. The A__UHD Core's Pooling license allows users to split the massive DSP power between e.g. 4, 8, 16 or 32 independent audio consoles, each with 256 full-featured mc² DSP channels. This way a single A__UHD Core can supply the resouces that previously required four individual console cores. Just imagine what you can do with all the space you'll save.

SIZE

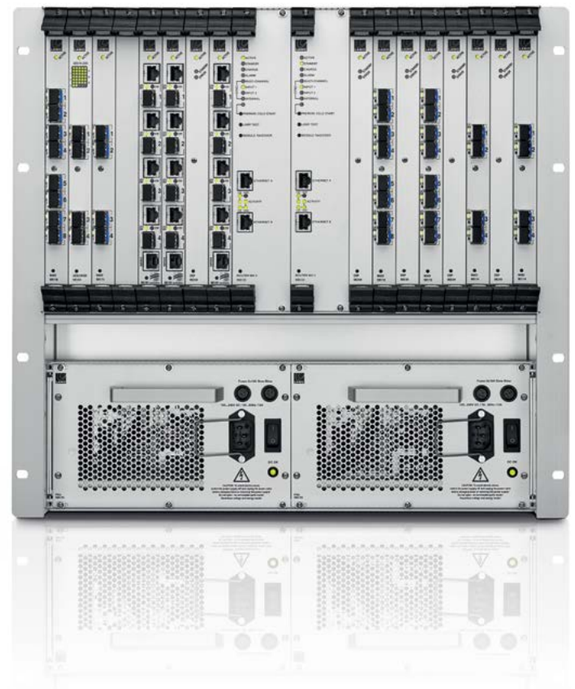
–90%

WEIGHT

–70%

POWER
CONSUMPTION

–78%

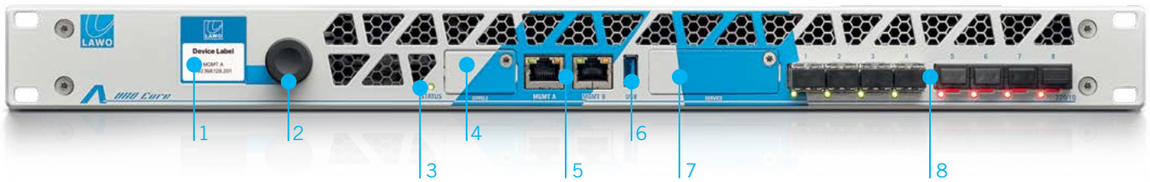


* compared with a Lawo Nova73 core, without redundancy

A__UHD Core

SPECIFICATIONS

A__UHD Core – FRONT VIEW



A__UHD Core – REAR VIEW

1 Status & configuration display
2 Menu control
3 Status LED
4 Dongle port
5 Redundant management ports (1 GbE / RJ45)
6 USB port for local firmware updates
7 Service panel with USB-A & DisplayPort (KVM); USB-B (debugging port), reset
8 4x redundant network I/O ports (1GbE SFP) for SMPTE ST2110-30/-31, AES67 and RAVENNA Audio-over-IP with SMPTE ST2022-7 Class C Seamless Protection Switching (SPS)
9 Serial port
10 Sync In/Out/Thru (WCLK)
11 Hot-pluggable redundant PSUs

SPECIFICATIONS

MECHANICS

- DIMENSIONS (H x W x D): 44mm (1 RU) x 483 mm (19“) x 379 mm (14.9”)
- WEIGHT: 7.4 kg (16.3 lb)
- POWER: Hot swappable PSUs (connector: 2x IEC); Input Voltage: nominal 100~240V AC, 50/60Hz, max. consumption: 220W

CONNECTIVITY

- NETWORK: 8x 1GbE streaming ports via SFP (switchable, RJ45 or fiber options), 2x 1GbE management ports via RJ45
- AUDIO (via external I/O devices): Mic/Line In, Line Out, AES3 In/Out, MADI, SMPTE ST2110-30/-31/AES67/RAVENNA, DANTE®, GPIO, MIDI
- USB ports for firmware updates and license dongles
- SYNC: BNC In/Out/Thru (WCLK)

SIGNAL PROCESSING

- 40-bit floating point
- 1,024 DSP channels (e.g. 768 inputs and 256 summing buses)
- Up to 1,024 inputs with A/B/C input, up to 265 AUX busses, up to 96 groups, up to 96 main sums, 32 Automix groups
- Rapid channel and bus switching to mono/stereo/surround/immersive
- Up to 128 surround channels, 128 VCA groups with metering, 256 GP channels
- Surround/Immersive formats: 4.0, 4.0.4, 5.1, 5.1.2, 5.1.4, 6.1, 7.1 SDDS, 7.1 DTS-HD, 7.1.2, 7.1.4, 7.1.6, 9.1.2, 9.1.4, 9.1.6, diverse panning characteristics, surround/immersive aux bus 2x AFL: 1 surround/immersive, 1 stereo
- 2x PFL stereo
- Audio-follows-Video with 255 events, control via Ember+, GPI or matrix connection, envelope with up to 10s fade time
- Solo In Place
- Various meter pick-up points, adjustable as INPUT, PF, AF, DIROUT
- Loudness Metering according to EBU R128, ATSC A/85 and ARIB, momentary or short term in every channel, integrated measurement on summing channels with display of integrated LUFS value in headline
- Modules: INMIX with MS decoder, digital amp, 2-band fully parametric filter, 4-band fully parametric EQ, 2-band fully parametric side chain filter, insert, delay up to 1800 ms – switchable units: meters, milliseconds, frames
- 5 independent dynamic modules: Expander, Gate, Compressor (incl. parallel compression), De-Esser, Limiter, image, meter, Direct Out
- 32 Automix groups available for mono/stereo/surround channels with unlimited contributing channels each
- Fully-equipped surround channel with coupling of all channel parameters and hyper-panning

AUDIO HANDLING

- HOME-native, routing with dynamic support of network resources
- Internal audio matrix for all RX and TX audio streams
- Up to 2048 network inputs and outputs
- Number of RX & TX streams depending on the configuration
- Stream sizes from 1 up to 128 audio channels
- Up to 96 kHz, 24-bit
- Level adjustment for all inputs and outputs
- Downmixing from up to 9.1.6 to surround, stereo and mono
- Integrated monitoring devices for remote locations, e.g. director’s room
- Configurable number of internal loop-backs
- Full snapshot and production portability independent of console type and licenses

SYNCHRONIZATION

- Wordclock, PTP Slave and Grandmaster modes

REDUNDANCY

- Hot-swappable PSUs
- Network Interfaces: SMPTE ST2022-7 Class C SPS
- 1+1 Hot-Spare hardware redundancy via second unit and redundancy license

REMOTE MAINTENANCE

- Software updates, error diagnostics, remote assistance

CONTROL OPTIONS

- mc²36xp, mc²56 MKIII, mc²96 surfaces, crystal (Controller mode)
- mxGUI: remote control via laptop/tablet PC
- Remote control of all routing, matrix monitoring units and channel parameters via Ember+ control protocol

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