

mc²56



A GLOBAL
STANDARD
RE-DEFINED



FUTURISTIC
FLEXIBLE
FORMIDABLE

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FUTURISTIC. FLEXIBLE. FORMIDABLE.

The 3rd generation of the mc²56 represents the next step in the evolution of a console that has dominated the audio production industry with hundreds of units in operation around the world. Designed to deliver unrivaled innovation, it provides not just pure and simple access to ultimate performance – it's a global standard redefined.

Our newest version of the mc²56 incorporates several groundbreaking features from Lawo's mc²96 flagship console without sacrificing the identity of its predecessors – retaining virtues like compact size, flexibility and versatile design for applications ranging from broadcast trucks and studios to live performance and recording.

For optimized performance within IP video production environments, there is full support for native ST2110, AES67, RAVENNA and DANTE, while Lawo's revolutionary LiveView™ feature enables thumbnail previews of video streams directly in the fader labeling displays. Best-in-class performance in networking applications has been taken to the next level with the addition of unique capabilities such as HOME's simplified network setup and DSCA™ Dynamic Surface-to-Core Allocation. All of this and more, simply reinforces this console's place as the number one choice within complex IP-based production infrastructures.

Push the envelope and take your audio production capabilities even further than you imagined with the new mc²56. Now more than ever, the global standard in audio production consoles.

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OVERVIEW

AT A GLANCE

- Built-in I/O incl. Lawo-grade mic pre-amps
- Frames with 16 to 144 faders
- Up to 1,024 DSP channels
- Up to 256 summing buses
- 48 & 96 kHz operation
- HOME native: IP setup as simple as analog
- Designed for IP-based infrastructures with support for all relevant IP standards: ST2110, AES67, RAVENNA, DANTE®, Ember+, NMOS

HIGH PERFORMANCE FADERS

The mc²56 features dust-proof, long-life performance faders providing consistently smooth and precise fades.

ENHANCED COLOR CODING

In addition to Button-Glow and colored touch-sensitive encoders, new color-TFTs allow for an even more obvious color-coding of the channel strips, resulting in enhanced visibility and faster access even in low light conditions.

THE POWER OF COMPACT

Perfect for outside broadcast vehicle dimensions: 64 faders fit across most standard installations. A 16 fader stand-alone extender may be added at any time for subsequent expansion.

SUPER-PRECISE HD TOUCH-SCREENS

The mc²56 features state-of-the-art capacity sensing 21.5" full HD touch-screens, providing mechanical robustness and super-precise control.

A PERFECT SYMPHONY OF HARDWARE & SOFTWARE CONTROLS

The mc²56's unique design combines large screens with a low overbridge height to provide a more ergonomic profile without compromising an engineer's view. The console's super-precise 21.5" full HD touch-screens work hand-in-hand with the touch-sensitive color-illuminated rotary encoders. An equalizer window will automatically pop-up when touching the equalizer encoders, and after adjusting the parameters the auto-close function will close the window without additional user action to restore the full overview. Close positioning of the TFTs and encoders provides a constant and clear overview of parameters and graphs.

TOUCH-SENSITIVE COLOR-CODED ENCODERS

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INTERACTION

INTEGRATED LOUDNESS METERING

Originally requested for broadcast applications, Lawo has developed built-in loudness metering into a tool that is useful also in live, theater and house of worship applications. The feature provides full loudness control in accordance with ITU 1770 (EBU/R128 or ATSC/A85) and features peak and loudness metering either separately or in combination. In addition to the sums, Lawo Loudness Metering can also measure individual channels, which allows fast and convenient “visual” mixing for things like background singers or multiple-microphone setups for brass sections, strings and choirs.

CUSTOMIZABLE OVERBRIDGE VIEWS

The console’s overbridge can be adapted to your requirements by adjusting the channel display accordingly – just choose and display those parameters that are important and hide any unnecessary or distracting elements. The metering shows all fader levels permanently on the HD display. In addition, multi-row metering allows for permanent metering of signals from other layers or banks.

EXTENDED FREE CONTROLS

The new mc²56’s extended free control section gives direct access to four parameters in addition to gain control. The result: A perfect balance between de-centralized and centralized control workflows. The console allows both global and individual parameter assignments to the free controls of each channel strip.

MULTI-USER OPERATION

In multi-user mode, 64 rotary encoders in each 16-fader bay give direct access to all important parameters to create an additional central control panel and allow for independent operation and monitoring of a second engineer.

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FEATURES



CUSTOMIZABLE FADER USER BUTTONS

INPUT METERING

COLOR CODING

LIVEVIEW™ VIDEO LABELS

In addition to standard channel labeling via channel numbers, individual text labels and static pictures or icons, the mc²56 inherited the mc²96's LiveView™ video thumbnails for even more intuitive channel identification. Simply touch a fader and the LiveView™ thumbnail changes to full-screen mode, providing a more detailed view of that channel's video source such as a camera or a replay machine.

HOME

Being an IP-native device, the mc²56 includes Lawo's HOME functionality that makes any IP setup as simple as analog. The console automatically detects devices and makes them available at the push of a button. Device management includes all required security features such as access control and quarantining of unknown devices. HOME is a management platform for IP-based media infrastructures designed to connect, manage, secure and process all aspects and instances of live production environments.

LOW-NOISE DESIGN

The console is optimized for low power consumption, which allows the use of inaudible, low-spinning fans for cooling. This is especially important in environments such as quiet control rooms, where fan noise is obtrusive.

ABOUT RAVENNA

RAVENNA is a technology for the real-time distribution of audio and other media content in IP-based network environments. Using standard network protocols and technologies, RAVENNA can operate over existing network infrastructures.

It features low latency, full signal transparency, and high reliability. While primarily targeting the professional broadcast market, RAVENNA is also suitable for other pro audio applications like live sound, install and recording: in-house signal distribution in broadcasting houses, theaters, concert halls and other fixed installations, flexible setups at venues and live events, OB van support, inter-facility links across WAN connections, and in production and recording applications. RAVENNA is an open technology standard and fully compliant with the AES67/SMPTE2110-30 standards.

COMPREHENSIVE LOCAL I/O

The mc²56's comprehensive local I/O features 16 Lawo-grade Mic/Line inputs, 16 Line outputs, 8 AES3 inputs and outputs, 8 GPIOs plus a local MADI port (SFP).

REDUNDANT LOCAL I/O CONNECTIVITY

The console's local I/O provides two IP network interfaces for redundant connection of the surface's local I/O to the A__UHD Core in accordance with the ST2022-7 hitless merge principles of stream and port redundancy.

DSCA™

Lawo's mc² consoles feature DSCA™ Dynamic Surface-to-Core Allocation. This unique feature allows the dynamic allocation of multiple mixing surfaces to any available processing core—or slice—when used in an IP-based LAN/WAN environment. As a result, DSP resources can be pooled and flexibly allocated to specific productions. DSCA™ allows for a higher availability of processing power throughout the network, with greater redundancy and more efficient resource utilization that can take your production workflows to the next level.

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CENTRAL CONTROL SECTION

MAKE IT YOUR WAY – USER PANELS

The mc²56's clearly structured central control section delivers an optimal workflow with maximum overview. The console's overbridge contains two bays for individual user panels. These allow the installation of a choice of five options: 40 additional buttons, a TC automation panel, a dedicated Reveal Fader panel, an RTW TM7 Phase Scope or a RTW TM9 Phase Scope (occupies both slots) – the choice is yours.



INTUITIVE MONITORING

The central GUI's monitoring section has been designed for easier access, enhanced flexibility and easy adaptation to user requirements.

PARALLEL COMPRESSION

Parallel compression, also known as New York compression, is a dynamic range compression technique achieved by blending a dry signal with a compressed version of the same signal. Rather than bringing down the highest peaks for the purpose of dynamic range reduction, it reduces the dynamic range by bringing up the softest sounds, which results in adding audible detail. Parallel compression can be applied in every channel, group, aux and sum of the mc²56.

IMMERSIVE BY NATURE

Reflecting today's requirements for 3D/immersive audio productions, the mc²56 provides not only superb tools for surround sound mixing, but also a dedicated elevation controller as standard.

AUDIO-FOLLOWS-VIDEO

Automated transitions and the perfect coupling of image and sound – all of this is provided by the mc²56's Audio-follows-Video function. Each camera tally is assigned to an event, which can be selected in one or more channels, with a total of 128 available events. The Rise Time, On Time, Hold Time, Max Time and Fall Time parameters can be used to set the processing envelope, creating amazingly smooth and natural sounding transitions from camera to camera.

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FEATURES

AUTOMATED MIXING ASSISTANTS

The mc²56's automated mixing capabilities include an Automix function that can automatically adjust the levels of active and inactive microphones, while maintaining a constant, natural sounding ambient level. This feature provides unique functionality especially in live productions with multiple presenters or performers. Automix can be used for any signals—from mono and stereo to multiple surround channels—to minimize background noise and crosstalk with reduced sound coloration. Truncated sentences and late fade-ins are things of the past, enabling the sound engineer to focus on overall balance and sound quality.

The console also features a Downmix function and Lawo's highly acclaimed AMBIT Upmix function, which guarantees perfect conversion of stereo signals into amazingly authentic surround sound using very few parameters. Last but not least, the mc²56 is set for KICK 2.0, Lawo's automated close-ball mixing solution for sports such as football, hockey or basketball.

REMOTE DESKTOP

Lawo's integrated Remote Desktop function allows seamless integration into the console's user interface of multiple external PCs running third-party solutions. With the switch of a button, the external PC and its software applications are displayed in the console's screen while the console's keyboard, touchpad and touchscreen provide control. The seamless integration of external recording systems, effect engines, or other user interfaces, means less equipment – and the engineer has control over the complete set-up, conveniently from a single, central position.

HIGHLIGHTS FOR BROADCAST

- IP-based infrastructure with support for all relevant IP standards: ST2110, AES67, RAVENNA and DANTE
- Easy IP network configuration
- Optimized for multi-user operation
- Advanced mix assist systems (AutoMix, UpMix, DownMix, prepared for KICK)
- Processing capacity with up to 1,024 DSP channels, 256 summing buses and 128 aux buses
- 48kHz & 96kHz operation
- Comprehensive Audio-Follow-Video functionality
- LiveView™ video thumbnails
- Integrated 3D/Immersive mixing tools
- Parallel compression
- Integrated loudness metering
- Enhanced signal management functions for large productions (including swap and relocate)

HIGHLIGHTS FOR RECORDING

- Dynamic timecode automation
- Lawo-grade microphone preamps and processing algorithms
- Machine/DAW remote control
- Merging OASIS Integration
- Fully customizable signal chain with five independent dynamic modules
- Clickless-delay adjustments
- Parallel compression
- Ultra low-noise console design

HIGHLIGHTS FOR PERFORMING ARTS

- Selective Recall
- Oversnaps (relative trim-sets)
- Comprehensive theater automation cue list including multiple triggers (MIDI, GPIO, LTC, ...)
- Waves® Plugin Integration
- Workflow-specific customization of functionality and features
- Clickless-delay adjustments
- Mirror-console operation
- A/B/C input switch
- Cascaded/nested VCAs
- Integrated loudness metering for “visual” mixing

POOLING 4/POOLING 8 LICENSES FOR A__UHD CORE

The optional Pooling 4 and Pooling 8 licenses allow operators to use a single A__UHD Core to power up to four or eight mixing consoles respectively, each utilizing the required DSP channel resources for mc² surfaces, Mix Kitchen setups, VisTool, broadcast controllers, etc. Each slice comes with its own routing matrix and mixing console peripherals, and is operationally completely independent.

AUDIO PROCESSING

A__UHD Core – Ultra-high Density IP Audio Engine



- 19”/1 RU frame
- 1,024 DSP channels
- ST2110-30/-31, AES67, RAVENNA
- Full redundancy
- DSP resources shareable amongst multiple consoles
- Scalable DSP performance via licensing system
- Futureproof, software-defined hardware

AUDIO/VIDEO PROCESSING (SDI)

.edge – Hyper-Density SDI/IP Conversion and Routing Platform



- 19”/2 RU frame
- High-density IP conversion for SDI equipment
- Up to 192 SDI inputs and outputs with MADI* capability
- Flexible Shuffling, De-embedding and Embedding from/to SD, HD and UHD
- On-board WAN capability

AUDIO I/O DEVICES

A__line – WAN-capable Audio-to-IP Interfaces



- A__mic8: 8x Mic/Line in, 4x Line out, 8/8 GPIO
- A__madi6: 6x MADI, 8/8 GPIO, Wordclock, 6x 1 GbE
- A__stage48: 16x Mic/Line in, 16x Line Out, 8x AES3 In/Out, 1x MADI (redundant pair), 8/8 GPIO, Wordclock, 2x 1 GbE
- A__stage64: 32x Mic/Line in, 16x Line Out, 8x AES3 In/Out, 1x MADI (redundant pair), 8/8 GPIO, Wordclock, 2x 1 GbE
- A__stage80: 32x Mic/Line in, 32x Line out, 8x AES3 In/Out, 1x MADI (redundant pair), 8/8 GPIO, Wordclock, 2x 1 GbE
- A__digital64: 32x AES3 inputs (stereo) on SUB-D25 with SRC (28.4~100kHz input fs); 32x AES3 outputs (stereo) on SUB-D25; 2x MADI ports (redundant pair) on SFP

Power Core^{Gateway} – Modular IP Audio I/O Node



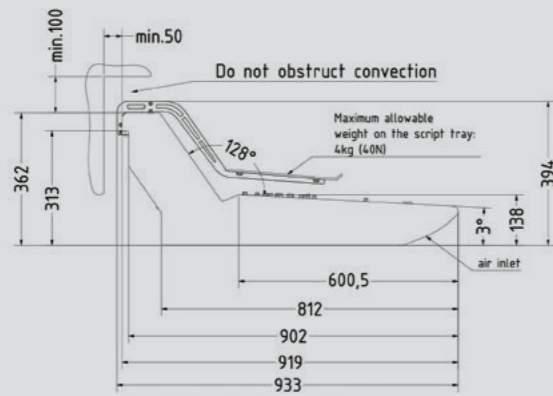
- 19”/1 RU frame
- 128 I/O channels via modular I/O cards: Mic/Line In, Line Out, AES3 In/Out, Dante, MADI, GPIO, Studio
- 64 MADI I/O channels
- 2x 1 GbE IP streaming ports (ST2022-7 Class C)
- ST2110, AES67, RAVENNA
- On-board WAN capability

(*) Licensable option.

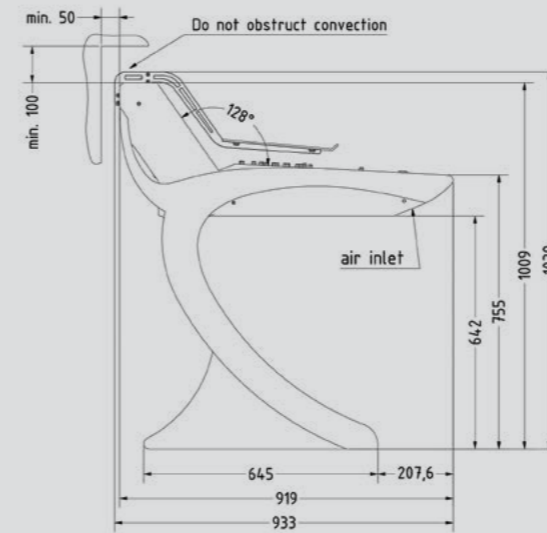
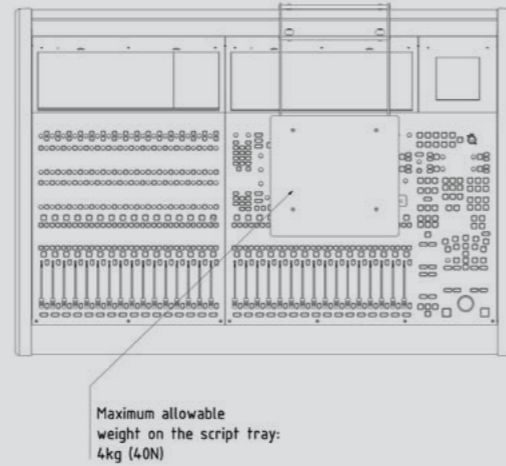
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SPECIFICATIONS

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Per 16 fader extension plus 510 mm width

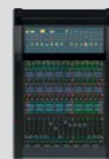


SIGNAL PROCESSING

- 40-bit floating point
- 1,024 DSP channels (number of inputs and buses depends on A__UHD Core and configuration); immersive audio support up to 9.1.6
- Up to 1016 inputs with A/B/C input, up to 128 AUX buses, up to 96 groups, up to 96 main Sums, up to 32 Automix groups per virtual mixer, up to 128 VCA groups with metering, 256 GP channels
- 3D multichannel downmixing for all supported immersive channel counts
- Rapid switching of channel and bus to mono/stereo/surround
- 2 AFL: 1 immersive audio, 1 stereo
- 2 PFL stereo
- Audio-follows-Video with 256 events, control via Ember+, GPI or matrix connection, envelope up to 10s fade time
- Solo In Place
- 5 independent dynamics modules: expander, gate, compressor (incl. parallel compression), limiter, de-esser; image, meter, direct out; multi-channel processing
- Adjustable INPUT, PF, AF, DIROUT, TRACK meter point in channel display
- Loudness metering according to EBU R128 and ATSC A/85, momentary or short term in every channel, integrated measurement on sum 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 1800ms – switchable units: meters, milliseconds, frames

mc²56 STUDIO / LIVE VERSION OB TRUCK VERSION

mc ² 56	STUDIO / LIVE VERSION	OB TRUCK VERSION
16C	<ul style="list-style-type: none"> ▪ Width: 805mm/31.69" ▪ Weight: 46kg/102lb 	<ul style="list-style-type: none"> ▪ Width: 736mm/28.97" ▪ Weight: 47kg/104lb
16+16C	<ul style="list-style-type: none"> ▪ Width: 1315mm/51.77" ▪ Weight: 59kg/130lb 	<ul style="list-style-type: none"> ▪ Width: 1246mm/49.05" ▪ Weight: 60kg/132lb
16+16C+16	<ul style="list-style-type: none"> ▪ Width: 1825mm/71.85" ▪ Weight: 76kg/168lb 	<ul style="list-style-type: none"> ▪ Width: 1756mm/69.13" ▪ Weight: 77kg/170lb
32+16C+16	<ul style="list-style-type: none"> ▪ Width: 2335mm/91.92" ▪ Weight: 94kg/207lb 	<ul style="list-style-type: none"> ▪ Width: 2266mm/89.21" ▪ Weight: 95kg/209lb
16 Fader Stand Alone	<ul style="list-style-type: none"> ▪ Width: 597mm/23.50" ▪ Weight: 28kg/62lb 	<ul style="list-style-type: none"> ▪ Width: 528mm/20.79" ▪ Weight: 30kg/66lb



CONTROL PANEL

- Frames from 16 to 144 faders*
- Remote stand-alone frames of 16 faders
- 6 banks each with 2 layers
- 100mm fader + 4 freely adjustable rotary knobs or 100 mm + 60 mm dual faders + Input-Gain controller + channel display for each fader with sense-triggered change of module display
- TFT metering: mono, stereo or multi-channel immersive including bus assignment, gain reduction for dynamics, AfV status, VCA assignment, Mix-Minus, Signal Patching, Meter selection, Automix state
- GUI page output, e.g. metering, on an external monitor
- 8 user buttons, 4 talkback buttons and 4 user buttons per fader, with 16 functions each
- Optional: two integrated user panels (TC automation panel, 40 user button panel, reveal fader panel, RTW TM7 or TM9 Phase Scope), script tray

* with dual fader option

AUDIO HANDLING

- HOME – Routing with dynamic support of network resources
- Internal matrix for RX and TX audio
- Up to 512 RX & TX streams
- Stream sizes from 1 up to 128 audio channels
- Up to 96kHz, 24-bit
- Downmixing from immersive audio to stereo
- Integrated monitoring devices for remote locations, e.g. director's room
- Internal loop-backs
- Full Snapshot and production portability independent of matrix and DSP size

WAVES® PLUGIN INTEGRATION

- Waves SuperRack SoundGrid® integration with synced snapshot generation in Waves

INTERFACES

- Mic/Line In, Line Out, AES3, MADI, ST2110-30/-31/AES67/RAVENNA, Dante, GPI/O
- Headphones

SYNCHRONIZATION

- Blackburst*, Tri-Level*, Wordclock, PTP Slave and Grandmaster modes

REDUNDANCY

- PSUs, Network Interfaces (SMPTE ST2022-7 Class C)

CONTROL UNIT

- Global A/B/C input switching
- Enhanced mix-minus control with independent off-air conference
- Fader control of all level parameters
- Diverse tally and fader start modes
- Program switch
- DAW Machine control
- Audio-follows-Video, up to 128 camera tallies, Ethernet or GPI controlled
- Camera mic remote via GPI or voltage control

REMOTE MAINTENANCE

- Connection via mxGUI remote software
- Software updates, error diagnostics, remote assistance

EXTERNAL CONTROL SYSTEMS

- Remote control of all routing, matrix monitoring units and channel parameters via Ember+ control protocol
- mxGUI: remote control via Windows®/Android or macOS/iOS laptops and tablets
- External matrix controllers: Lawo VSM, EVS Cerebrum, Broadcast Solutions Hi, GV Ignite, Ross Overdrive & Acuity, Vizrt Viz Mosart, and others

mc² FAMILY COMPARISON CHART

Features	mc ² 36 MkII	mc ² 36 xp	mc ² 56	mc ² 96
Maximum Fader Count	16, 32, 48		16 - 144*	24 - 208*
Faders	Lawo high-performance			Lawo high-quality
Maximum DSP Channels	256		1024	
Number of Channel Displays	Up to 2		Up to 5	Up to 6
Console Core	Internal A__UHD technology	A__UHD Core (external)		
Use external A__UHD Core VMixer Slice	No	Yes		
Touchscreens	HD with PCT precision capacity sensing technology			
Free Controls per Strip	1**		4	6
Multi-user Operation	No		Yes	
– No. of rotaries per fader bay	32**		80	112
– Local save & recall	No		No	Yes
LiveView™	Yes			
Local I/O	Yes			
– Local I/O connectors	XLR		Sub-D	XLR
– ST2022-7 local I/O redundancy	Internal	Non-redundant	Redundant	
Number of User Panels	n/a		2 (w/o RTW), 1 (with RTW TM7), 0 (with RTW TM9)	2 + RTW TM9
Native 3D Audio Controls	Yes			
Parallel Compression	Yes			
Sequence Automation (Cue List)	Yes			
Dynamic TC Automation	Optional license		Yes	
Supports User Panels/Stand	No		Yes	
Supports MCX Redundancy	No		Yes	
Supports DSP Redundancy	No	Yes		

* with dual-fader option **only mc² 36 xp-32/48 and mc² 36 MkII-32/48

* Supported by future hardware revisions.

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HEADQUARTERS

Lawo AG
Rastatt
GERMANY
+ 49 7222 1002 0
sales@lawo.com

INTERNATIONAL OFFICES

BENELUX	+ 31 6 54 26 39 78
CANADA	+ 1 416 292 0078
CHINA	+ 86 10 6439 2518
NORWAY	+ 47 22 106110
SINGAPORE	+ 65 9818 3328
SWITZERLAND	+ 49 7222 1002 0
UK	+ 44 333 444 5296
USA	+ 1 888 810 4468

RENTAL SERVICE

+ 49 7222 1002 0
rental@lawo.com

690-0039-000



www.lawo.com

