

mc²56

Performance, pure and simple.



English



Because sometimes, less means more.

What is the point of flashing control surfaces if the actual quality is not up to scratch? What is the purpose of countless features and clever gizmos, if the fundamental technology does not work. Not a lot, in our opinion. For this reason, there is now a mixing console that concentrates on essentials. Well thought out design and high functionality, featuring hi-tech components and a superb performance in day-to-day operation. The new 56 console carries a well-known seal of quality: it is a Lawo mc².



The name says it all:

The mc² series.

The mc²56 is a member of an extremely respectable family: a family that, as in real life, has various members. Irrespective of the names of the various mixing consoles — be it 90, 66 or 56 — they all belong to the famous mc² family. Thus the latest addition to the mc² series is part of a tradition that always sets new standards, and a tradition founded upon three firm principles:

The High-Tech principle.

All mc² consoles are based on Lawo's current HD core technology. This enables you to benefit from the best-performing routing matrices that are currently on the market. The advantages of this sophisticated leading-edge technology are absolute user-friendliness, ease of operation, and the highest reliability. In real terms, with 96 kHz operation, more than 8,000 crosspoints, over 500 DSP channels, Dolby-E compatibility, and integral signal processing, HD technology offers everything you require from a modern routing matrix.

The Usability principle.

There are many reasons for the worldwide success of the mc² range. One of these is the exemplary ergonomic design and consistent operational philosophy found in Lawo mixing consoles. Apart from intuitive user guidance and a brief learning curve, many innovative console features help to simplify everyday work. All this lets you benefit from a number of Lawo-developed functional principles, that guarantee maximum efficiency in broadcasting operations — from user-friendly design to the pioneering concept of 'assign at destination'.

The Flexibility principle.

Particularly in the development of modularity and networking, are flexible solutions becoming ever more important. It is no surprise then, that mc² mixing consoles also shine with well-conceived design. Each console is not just available in various frame sizes, but can also be expanded with additional equipment. In the case of data transfer between mc² systems, Lawo products excel thanks to their matchless networkability. Entire productions, including audio parameters, can be transferred in just one data file between different mc² consoles, thanks to Lawo's HD core technology.



The mc²90, launched in Paris in 2006, can handle the most demanding operational requirements, and has established itself as a new reference for the HD audio sector.



With over 150 systems sold worldwide, the mc²66 has rapidly achieved a strong position in the market place by covering Formula One racing and World Cup football, as well as studio and OB productions.



The mc²56 stands out with its intelligent mix of maximum power, reduced control density and remarkably compact size.

mc²90



mc²66



mc²56



When performance, rather than size, is important.

The mc²56 is consistently designed for the best performance. For this reason, you have the same processing power with this console that already distinguishes the mc²66 and mc²90. Figuratively speaking, the 'engine' and 'gearbox' are the same as those used on other mc² consoles; what makes the 56 different to its siblings are its features. In the development of the mc²56, there were two core questions: which features are really required for

perfect sound production, and in how small a unit can you package the highest quality? The result is a control surface that reflects the maxim 'reduced to the maximum', but with a compactness that still assures maximum flexibility.

The advantage: compact construction.

- Each fader bay has 16 faders; no wasted space between bays
 - In a width of only 1.2 metres, the mc²56 provides 32 faders in a row; when installed in the width of an OB van, 64 faders are possible
 - Maximum configuration of 144 faders in 2.77 metres
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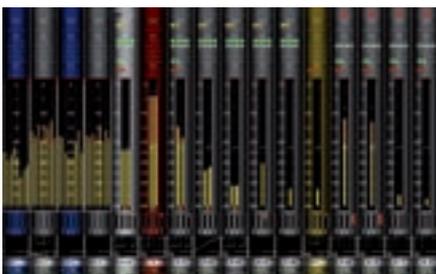
When functionality, rather than luxury, is required.

A mixing console shouldn't just look good in the brochure, it should impress in day-to-day operation. This is why, with the mc²56, you benefit from many proven features of the mc² series — starting with the design principle of 'form follows function', through dynamic automation, and on to rapid access to the most important control parameters ('assign at destination'). A particular feature of the mc²56, however, is the specially designed control layout. Here, the most important functions

are within easy reach, while lesser-used features are accessed exclusively via the touch screen. The result is an ease of operation that really can be described as user-friendly, and a suitability in use that is best summed up as: Performance, pure and simple!

The advantage: down to basics.

- The reduced control density makes the console highly suitable for daily use
 - An ingenious balance between hardware buttons and touch screen operation; many additional features, eg. TC-based automation, EQ bell/shelving etc.
 - The ability to page different channel sections assures the efficient placement of rotary controls and buttons
 - TFT screen metering (5.1 channel), within an optimum field of view, instead of LED ladders on the faders. Clear info display via fader sense
-







Individual configurations:

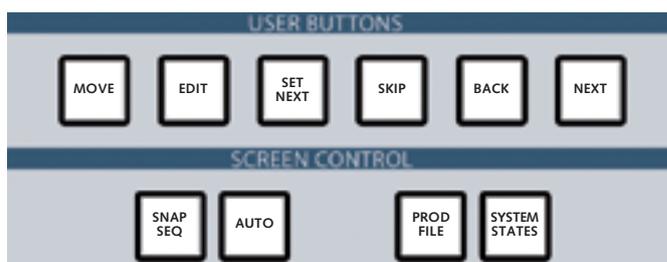
Making the console your own.

Individuality as a standard feature – this defines intelligent technology today, and is certainly the case with the mc²56. Using an online connection, you have direct access to the hardware, and can configure the function of each user button on the 56 console to suit your own requirements. In this way, you can freely, and specifically, decide which console functions you want to have immediate access to. Whether it

be GPI controls in an OB truck, sequence automation on a theatre console, or machine control in post-production, the mc²56 provides the most appropriate solutions customised to your needs.

The advantage: free-assign control presets

- 16 freely-assignable control presets can be assigned to the second encoder row for better efficiency
- 6 freely configurable user buttons per channel. for rapid access to the most important channel parameters

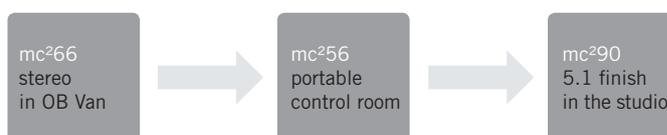


Portability:

All of the family speaking the same language.

Complete compatibility and uncomplicated data transfer – this is what characterises mc² consoles. The networkability of Lawo mixing consoles does not just provide for the flexible expansion of existing mc² installations, but in day-to-day operation, the 100% compatibility of user data, and its tremendous benefits, will also be appreciated.

A typical example: a production starts in stereo, using an mc²66 in the OB van, and is subsequently continued with an mc²56 in a portable control room before the automated mix, complete with snapshots, can be completed in an mc²90 studio in 5.1 – and all this completely independent of the physical number of faders, the size of routing matrix, and the DSP capacity. Thanks to the transferability of all user data, extended configuration times can be avoided, thus leading to even further efficiency in day-to-day production.



Modularity:

Because there are different solutions for different needs.

What is an essential characteristic of the mc² series? Outstanding adaptability to individual requirements, and the series' modularity is of course also available in the case of the 56 console. For example, not only can you select from five different frame sizes, holding up to 80 faders, there are many options in terms of expansion and types of connection. With the mc²56, you are always geared up for the future.

The advantage: frame options.

- Five frame sizes with 32 to 80 faders side by side
- Optional expansion with 16 or 32 fader bays
- Optional remote operation up to 32 faders via Ethernet
- Additional options: double fader rows; external stereo PPMs or phase meters, XLR on control surface for talkback mic



It won't just be sound engineers jumping for joy:

Accountants will join in too!

Attractive quality at an attractive price – this was the objective for the mc²56. To reach this goal, we analysed precisely every mixing console function, and produced a clear list of priorities: 'must-haves', 'good-to-haves', and even some 'unnecessary-to-haves'. This approach made it possible for us to produce a solution

with two persuasive plus points: on the one hand, the mc²56 is particularly cost-efficient while, on the other, the console will be recognised for its simple operation and suitability for everyday use. So the mc²56 won't just preserve your budget, but also the smooth running of your broadcast facility.







mc²56 – Performance, pure and simple.

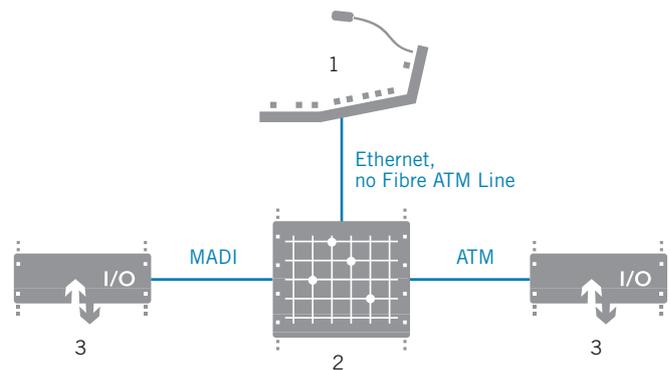
All good things come in threes:

The mc²56 system elements.

The mc²56 system is based on three main elements:

- 1 Mixing console control surface
- 2 DSP and routing matrix (HD core) with integral control system
- 3 DALLIS I/O interfaces

The control surface and the HD core communicate via an optionally redundant Ethernet connection, while the DALLIS stage boxes are connected via multimode glass fibre. This enables the stage box units to be located up to 2 km from the core. An optional monomode connection facilitates distances of up to 8 km.



The heart of all mc² consoles:

The Lawo HD core.



Together with its integrated routing matrix, the mixing console provides the greatest possible flexibility in terms of I/O interfaces and DSP resources.

The advantages are:

- Maximum of 8 DSP cards with up to 384 fully equipped DSP channels running at 96 kHz
- Up to 144 summing buses
- MADI, ATM or AES connections directly to the core
- All conventional analogue or digital I/O and control interfaces via DALLIS
- Transformer microphone cards of the highest quality for critical music audio
- Routing matrix capacity from 3072 x 3072 to 8192 x 8192 mono channels

Hi-Tech for Hi-Fidelity: Audio processing.

Audio processing takes place on DSP cards within the HD core. The core can operate at 48 or 96 kHz sampling frequency, with 40-bit floating point processing, so that an internal dynamic range of 1000 dB is available.

Should a DSP card fail, a redundant DSP card takes over all the crosspoints and DSP parameters within a few milliseconds.

High quality algorithms ensure the finest audio processing. All DSP settings are interference-free, so that even delay settings can be made without interruption, even during runtime.

All audio modules such as input mixing, filters, EQ, dynamics, delay, stereo image and surround panning are available on up to 384 fully equipped DSP channels. In addition, 32 Aux/Send feeds can be sourced from every channel.

Different DSP configurations enable the organisation of DSP resources according to different production requirements. Configuration changes are possible at any time during runtime, without production data being lost, or unpleasant artefacts. Even the parameters on channels that are no longer available will continue to be saved. This means that all your settings remain intact in the case of a renewed change to the DSP configuration.



Surround channel with hyper-panning.

What sounds good can now be particularly simple to operate. For example, you can control surround 'bundles' with one fader that links all channel parameters and 8-channel metering. Lawo hyper-panning makes it possible to turn a surround bundle through 360°, where front width, back width and depth determine the surround source. A further benefit: a mono or stereo source positioned within a surround image can be positioned using a single control. The Reveal function opens a surround bundle onto up to eight faders, enabling direct access to all the offsets of individual channel parameters.



Form follows function:

The mc²56's user-friendly operating philosophy.

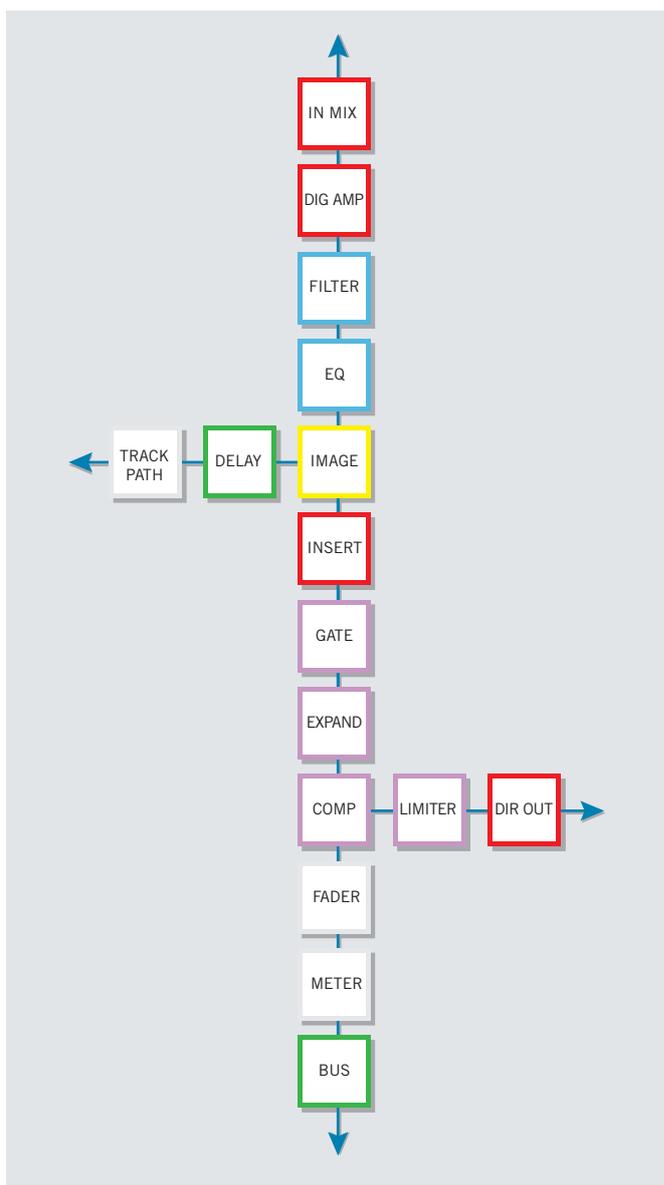
An inspired use of colour and form, and the well-laid out design of all audio modules, provides an optimum overview in critical live situations. Due to the excellent visual feedback, EQ and pan settings can be determined at a glance from the central control panel, and the labelling of individual audio modules is virtually unnecessary. The distinctive 'labelling' on all audio modules enables almost a blind understanding of the mixing console, and provides absolute certainty that you have everything under control, at each phase of a production. In addition, the console's LED illumination means you can always locate the required functions, even under the poorest lighting conditions.

In order to keep an overview of up to 144 faders, the mc²56 offers colour coding of the fader strips similar to that commonly used in analogue days. However, with the mc²56 you don't need to manually change the fader caps because the fader strips are designated using modern LED technology according to the channel type or your individual requirements. This allows you to easily keep track of any fader at any stage in the production.



The DSP channel.

Each of the 384 fully equipped DSP channels handles all audio modules, irrespective of whether they are an input, group, summing, monitor or aux channel. As a new feature, the mc²56 also has an adjustable pick-off point on the track send, which provides a dedicated track path per channel. This makes it possible, for example, to take a pre-fader feed and set a delay on the track path, which will not have any effect on the main bus sum.



Centre Section.

The centre section is designed for maximum functionality. Its reduced width is used to house as many faders as possible, while the easily accessible buttons provide those functions that are needed for every-day operation.

Configuration of the centre section control surface is carried out using the clearly laid out [screen control](#), which provides rapid access to all important parameters.

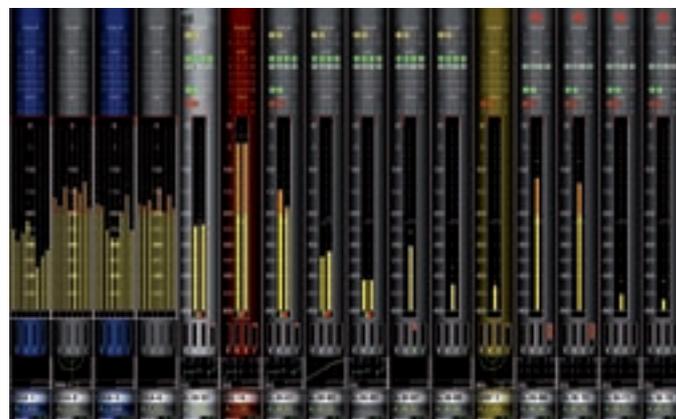
- The 'Access' and 'Assign' functions are used to assign channels to faders. Six banks of two layers can be individually configured, and configurations can be copied between banks and layers
- Thanks to a comprehensive copy function, every DSP channel parameter, as well as the configuration of free controls, can be individually transferred to any channel
- With Fader Control, parameters such as mix amp gain, aux send level and AfV levels can be controlled directly via the 100 mm faders
- Individual faders can be isolated from snapshot control as well as from the control re-assignment function

The mc²56 [centre section](#) also provides convincing, ergonomically and optimally designed, user operation. Key functions such as strip assignment, bus combination, sequence automation and listen functions are all laid out so that they may be readily accessible in the most hectic of situations.



Channel Bays.

- 16 faders per bay
- Fader strip width reduced to 30 mm thanks to new mechanic construction
- 8-character channel ids
- Large buttons on faders for Select, Mute, PFL, AFL
- Simple decentralised operation and two-person operation with individual selection of Banks 1-6, Layer and ISO Bay function, per logical eight-wide bay
- Two free controls can be individually assigned and stored in snapshots, with OLED display for visual feedback
- Clear, high-resolution and easy-to-read metering on 16:10 TFT screens
- Visual feedback of metering in stereo or surround, bus assignment, input gain, free control assignments
- Visualisation by touch sense function allows intuitive channel assignment



New efficiency in audio production:

Snapshots.

Comprehensive snapshot features make it possible to save control surface assignments, DSP settings, routing matrix connects and I/O parameters. Using the filter function, groups of controls, and individual controls or signals can be isolated. All functions can be recalled directly from the snapshot page as well as from a special snapshot/sequence control unit.

Sequences are assembled from snapshots, and their position in a sequence can be changed at any time; there is no limit to the number of snapshots per sequence. Snapshot data can be transferred via the network or USB links.

The mc²56 sequence automation system enables you to manage a number of different sequences without having to export data. Functions such as cross-fading individual parameters between two snapshots, and firing MIDI commands, add to the functional scope of the mc²56's sequence automation.

New efficiency in audio production:

Dynamic automation.

The completely new Lawo Dynamic Automation* is particularly designed for use in modern production studios and mobile control rooms. The automation system follows the mc² series' principles of operation, and enables fast and easy access to mix data, with maximum flexibility. Based on the 'Assign at Destination' principle, all mix parameters can be directly set, and the sound engineer can match any mixing requirement swiftly and precisely.



Trim-Parameter and Oversnap functions.

Snapshots can now also be loaded with trimmed parameters. In other words, individual sections of a channel can be given an offset or written absolutely into a sequence. The trimmed settings can also be stored in so-called Oversnaps. This makes it possible to save and recall different Oversnaps as and when you need them – a feature that will make your work much simpler, particularly in the case of productions that feature a number of different soloists.



- A mix pass tree diagram enables alternative mixes to be simply selected
- Switching between mix passes with concurrent timecode allows mixes to be easily compared
- The dynamic automation provides a comprehensive record of all DSP processing over the complete timeline
- Individual channel sections or groups of sections can be recorded static-dynamically or fully dynamically, at any time
- Stepout modes, Copy functions and Preview or Bypass facilities will assist you to create enjoyable and individual mixes

* Dynamic automation will be available from 2009

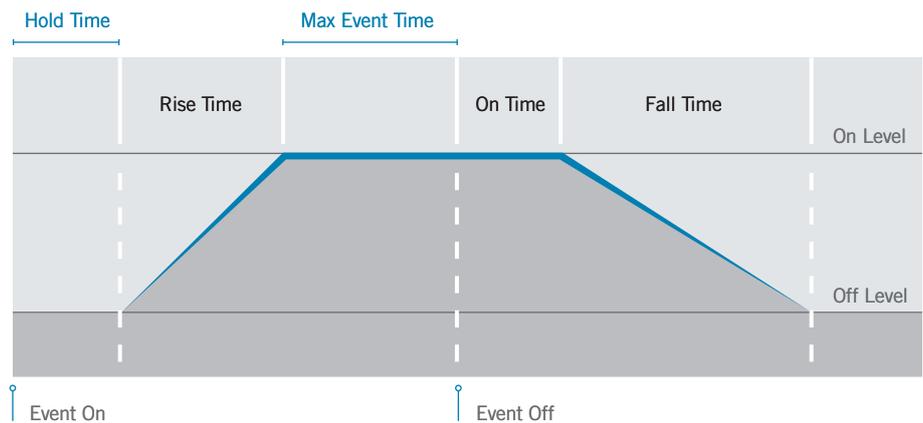


When the ear follows the eye:

Audio-follow-Video.

The mc²56 offers a flexible and comprehensive Audio-follow-Video function (AFV) on every channel. A defined event is assigned to each camera tally; this event can be selected for one or more channels, and 128 events are available. In addition, by the setting of rise time, on time and fall time parameters, the envelope of the process can also be defined. This enables soft pans from camera to camera to be easily handled. Efficiency in operation? – you can set each change of the AFV directly, using rotary encoders on the

control surface, without having to search endlessly through screen menus. Using the Hold Time function, a newly developed feature available for the first time on the mc²56, you can configure a ramp so that, with an tally active, the AFV function will only start after a defined time.

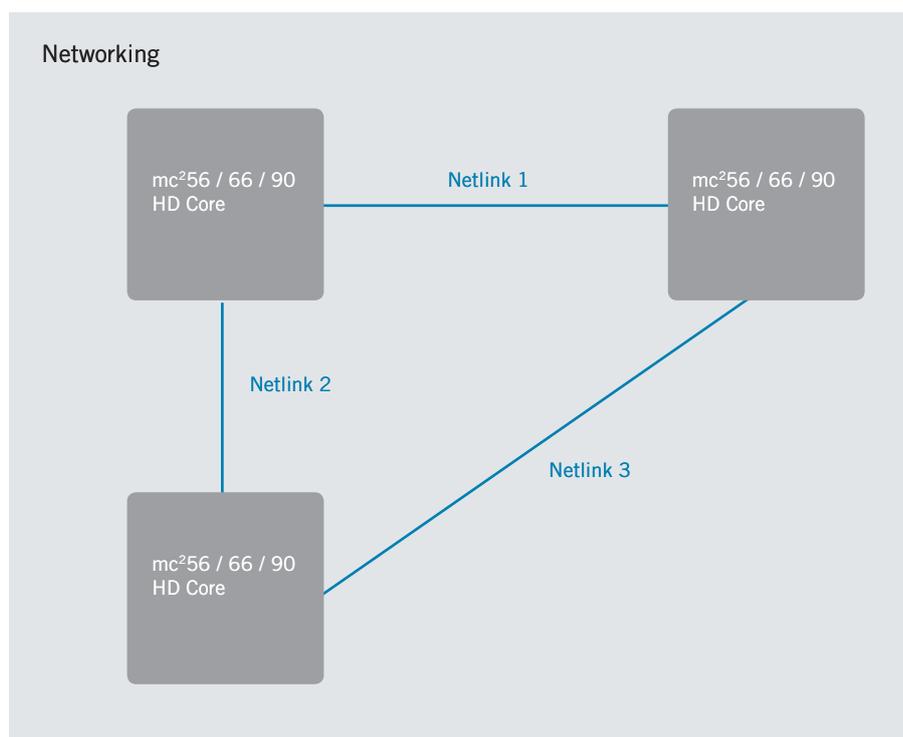


Fitting together:

mc² series networkability.

Optional facilities enable up to 16 Lawo consoles and a Nova73 to be networked. This allows you to freely distribute your I/O resources among the networked systems, and use Netlinks (MADI, ATM, AES or analogue audio) to connect different Lawo consoles to a large routing matrix. The benefits are clear:

- The complex networked systems appear in operation as one routing matrix
- Local sources and feeds are available to other consoles on the network, at the push of a button
- Every consoles can access all parameters (eg. mic preamp, low-cut filter, SRC, etc.), irrespective of whether the sources and feeds are local or networked



Innovation in everyday work:

The General Purpose Channel.

The General Purpose Channel (GPC) is a type of channel in the mc²56 control system that contains all the channel sections of a normal input channel (input mixer, EQ, dynamics, panning, fader level, aux, AFV, etc.). The GPC is not, however, directly linked to the signal processing, but to the console's MIDI and Ethernet interfaces. The mc²56 offers various mapping tables, which you can use to control digital audio workstations or various other MIDI-controlled devices.

Naturally, all the parameters can also be saved in snapshots and recalled at any time. In addition, the mc²56 provides the possibility of using both dynamic automation as well as the AFV function with GPC parameters. A further application of the GPCs is the control of camera microphones —you adjust the setting of a camera microphone directly from the mc²56 control surface, and save the parameters in a snapshot.

A world's first for Lawo:

Complete plugin integration for mixing consoles.

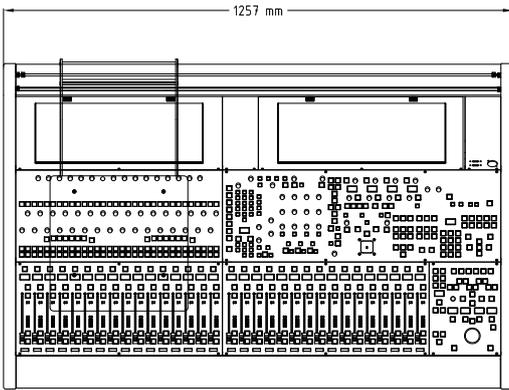


With the Lawo Plugin Server you gain from the benefits of two completely different worlds. Thanks to comprehensive plugin integration, it is now possible to use the live mixing facilities of the mc² series, while easily accessing the widest range of 'outboard' FX. With this exciting new application, Lawo provides demanding audio engineers with a genuine innovation that opens up completely new possibilities in audio production, offering undreamed-of flexibility for live and studio situations. All plugin parameters can, of course, also be imported directly into the mixing console and saved in snapshots.

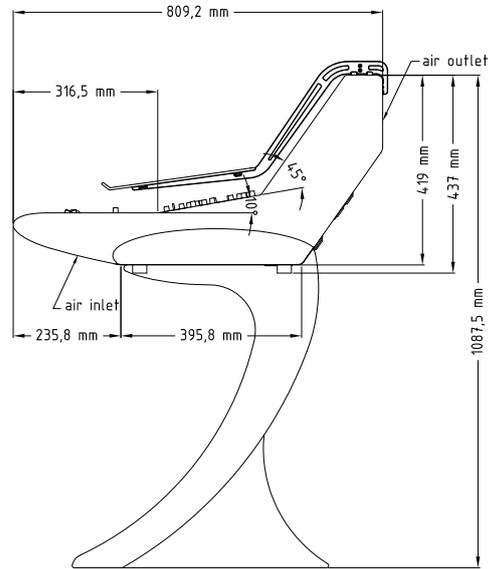


mc²56:

Console dimensions and frame sizes.



Per 16 fader extension plus 510 mm width



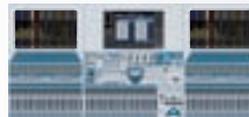
16 + 16C

Width: 1257 mm
Weight: 62,8 kg



16 + 16C + 16

Width: 1767 mm
Weight: 87 kg



32 + 16C

Width: 1767 mm
Weight: 87 kg



32 + 16C + 16

Width: 2277 mm
Weight: 115,2 kg

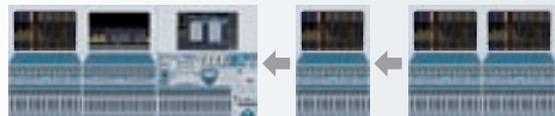


32 + 16C + 32

Width: 2787 mm
Weight: 143,3 kg



16/32 Extender
e.g. OB Mounting,
Flyway Kit



Technical Details:

Everything at a glance.

Control Panel

- Frames from 16 + 16 faders to 64 + 16 faders
- Remote Frames 16 and 32 Faders
- 6 banks per 2 layers each
- 100 mm faders + 2 rotary controls free assignable + Input Gain Controller, channel display for every fader with sense-triggered change of module display in the Channel Display
- TFT metering mono, stereo or 7.1 including bus assignment, gain reduction for dynamics, AfV status, VCA assignment
- External display of GUI Pages e.g. metering
- Desk Light per bay
- 6 User Buttons
- Optional: script tray, PPM integration, T/B mic integration

Signal Processing

- 512 channels and 144 summing buses, 40 bit floating point
- Up to 376 inputs with A/B input, 48 sub groups, 32 aux sends, 96 track busses, 48 main sums, change on the fly from mono to stereo to surround channel and bus
- Up to 64 surround channels, 128 VCA groups with metering, 256 GPC Channels
- Surround formats: DTS/Dolby Digital 5.1, Dolby Pro-logic 4.0, DTS ES / Dolby EX 6.1, SDDS 7.1, Lawo 7.1, diverse panning characteristics, surround aux bus
- 2* AFL: 1*surround 8-channel, 1*stereo
- 2* PFL stereo
- Audio-follow-Video with 128 events, control either via Remote MNOPL, GPI or Matrix Connect, adjustable envelope up to 10 s fade time
- Solo In Place
- Permanent input measuring point in the fader, adjustable measuring points INPUT, PF, AF, DIROUT in the Channel Display
- Modules: Inmix with MS-Decoder, Digital Amp, 2-band fully parametric Filter, 4-band fully parametric EQ, 2-band fully parametric Sidechain Filter, Insert, Delay up to 1800 ms, units in frm, ms and m, 4 independent Dynamics: Expander, Gate, Compressor, Limiter; Image, Meter, Direct Out
- Inline configuration with send/return switching - at the channel or global
- Fully equipped surround channel with coupling of all channel parameters and Hyper Panning (from June 2008)

Routing Matrix

- Up to 8192 crosspoints
- 96 kHz, 24 bit
- Fully redundant signal path
- Level adjustment for all Inputs and Outputs
- Downsizing up to 7.1 to Stereo
- Integrated monitoring devices for remote positions e.g. Director Room

- Full networking of up to 16 HD Cores, share and import of sources and destinations, studio arbitration
- Full snapshot and production portability independent of matrix or DSP size

Plugin Server

- Full VST plugin integration with storing of plugin parameters in snapshots and productions

Interfaces

- Mic/Line, Line Out, AES, SDI, MADI, ATM, GPIO, Serial, MIDI (for details see DALLIS product information)
- Monitoring systems stereo and surround

Synchronisation

- 2 redundant inputs with automatic detection of Blackburst, Wordclock, AES3, MADI

Redundancies

- PSUs, DSP boards, router board
- Fully redundant signal path
- Redundant control system (from 2009)
- PSU for control system and control panel

Control

- Bay-Iso with separate layer and bank switching as well as 2nd PFL/AFL bus
- Global A/B input switching
- Enhanced mix-minus (N-M) control with independent off-air conference
- Fader control of all level parameters
- Diverse tally- and faderstart modes
- Program switch
- Machine control
- Audio-follow-Video, up to 128 camera tallies, Ethernet or GPI-controlled
- Manifold T/B integration
- Camera microphone remote via GPI or voltage control

External Control Systems

- Remote control via network of all routing parameters
- Remote control of monitoring units of remote positions
- Online configuration with AdminHD, graphical configuration of HD Core components
- External matrix controller: VSM, Jupiter, ProBel and others

Remote Maintenance

- Connection via Internet Remote Software
- Software updates, error diagnostics, remote



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