

mc<sup>2</sup>66

Inspired by your needs.



English



**Gets your job done.** When challenging situations have to be tackled, and your work is the centre of attention, Lawo's mc<sup>2</sup>66 provides the ideal solution — because it is, above all, a tool completely tailored to the needs of the user. The mc<sup>2</sup>66 not only impresses with the highest standards of performance where speed, flexibility, and security are concerned, but also with its groundbreaking user-assistance, which makes the mc<sup>2</sup>66 a reference point around the world. Discover the many virtues of the mc<sup>2</sup>66 on the following pages; the high approval of audio engineers is likely to be one of the most convincing arguments in favour of the mc<sup>2</sup>66.

**A milestone in three different versions:**

The mc<sup>2</sup> family.

Ergonomic design, powerful technology and a high degree of reliability in everyday use; Lawo established a new standard with the mc<sup>2</sup> series. This success was due in no small part to the mc<sup>2</sup>66, because it was the first mc<sup>2</sup> console to appear on the market, and because it achieved rapid worldwide acclaim. Even better, the current mc<sup>2</sup>66 has been considerably improved. You will now benefit from new, innovative features — in terms of redundancy, ergonomics and design.

**A powerful tool.**

With the mc<sup>2</sup>66 you will enjoy one of the highest performance routing systems available today. The MKII router has many plus points: This newly developed routing system can provide redundant operation and, thanks to the integrated control computer, has full control computer redundancy. This enables the mc<sup>2</sup>66 to offer maximum reliability. The HD Core technology offers more than 8000 crosspoints, over 500 DSP channels, Dolby® E compatibility, and supports operation at 96 kHz — all with outstandingly easy maintenance and straightforward controls. The HD Core supplies the power that is essential if you are to react quickly and confidently, even during complex productions.

**A user-friendly tool.**

Elegantly designed and easy to use: In terms of usability, the mc<sup>2</sup>66 once again sets an example. The “assign-at-destination” concept inspires with its particularly short learning curve, and the mc<sup>2</sup>66 user guidance is virtually self-explanatory. To add to the console’s ergonomics, a more sophisticated feature, based on the “Form-follows-Function” principle, guarantees a maximum user overview in every situation.

**An innovative tool.**

Numerous innovative features make the mc<sup>2</sup>66 the focus of attention. For example, the plug-in-server that enables you to work in real time with a wide range of signal processing. Or the absolute portability of all data, enabling whole productions to be transferred at will between mc<sup>2</sup> consoles. Or the comprehensive networking capabilities that make the mc<sup>2</sup>66 an ideal tool — perfectly equipped for the requirements of today and tomorrow.



mc<sup>2</sup>90

The mc<sup>2</sup>90, launched in Paris in 2006, can handle the most demanding operational requirements, and has established itself as a new reference in the HD audio sector.



mc<sup>2</sup>66

With over 200 systems sold worldwide, the mc<sup>2</sup>66 has rapidly achieved a strong position in the market place by covering Formula One racing, the Olympics and World Cup football, as well as many studio and OB productions.



mc<sup>2</sup>56

The mc<sup>2</sup>56 stands out with its intelligent mix of maximum power, reduced control density and remarkably compact size.





#### High-tech à la carte:

New modularity for the mc<sup>2</sup>66.

**Top or bottom, left or right, machine control or automation, or both?** Whatever your personal requirements, with the mc<sup>2</sup>66 there is a solution to every problem. You can choose from many different options, and specify a console that will fulfil exactly all your needs.

#### User panels.

An intelligent new feature for the more sophisticated mc<sup>2</sup>66: You can now integrate up to three user panels on the console's control surface. For this purpose we provide a broad range of different panels, which can be flexibly placed in the central module. For example, the automation buttons, when provided on a user panel, become easily accessible, and support rapid workflows.

#### Different frame sizes.

Small, medium, extra large: With the mc<sup>2</sup>66 you benefit from a variety of different console sizes and, thanks to extension frames, up to 96 faders in a row are now possible. Even when future additions are required, virtually any request can be met; the mc<sup>2</sup>66 offers numerous upgrade possibilities. External devices can be integrated effortlessly — from additional metering in the form of external PPMs or a surround goniometer, or even a 19" rack bay.

**For great results:**

Perfect signal processing for the perfect sound.

**Quality made in Germany** — that's what distinguishes Lawo's mc<sup>2</sup> consoles. And real quality doesn't only show in the control surface and its excellent usability, it also shows in the true heart of the console — the signal processing.

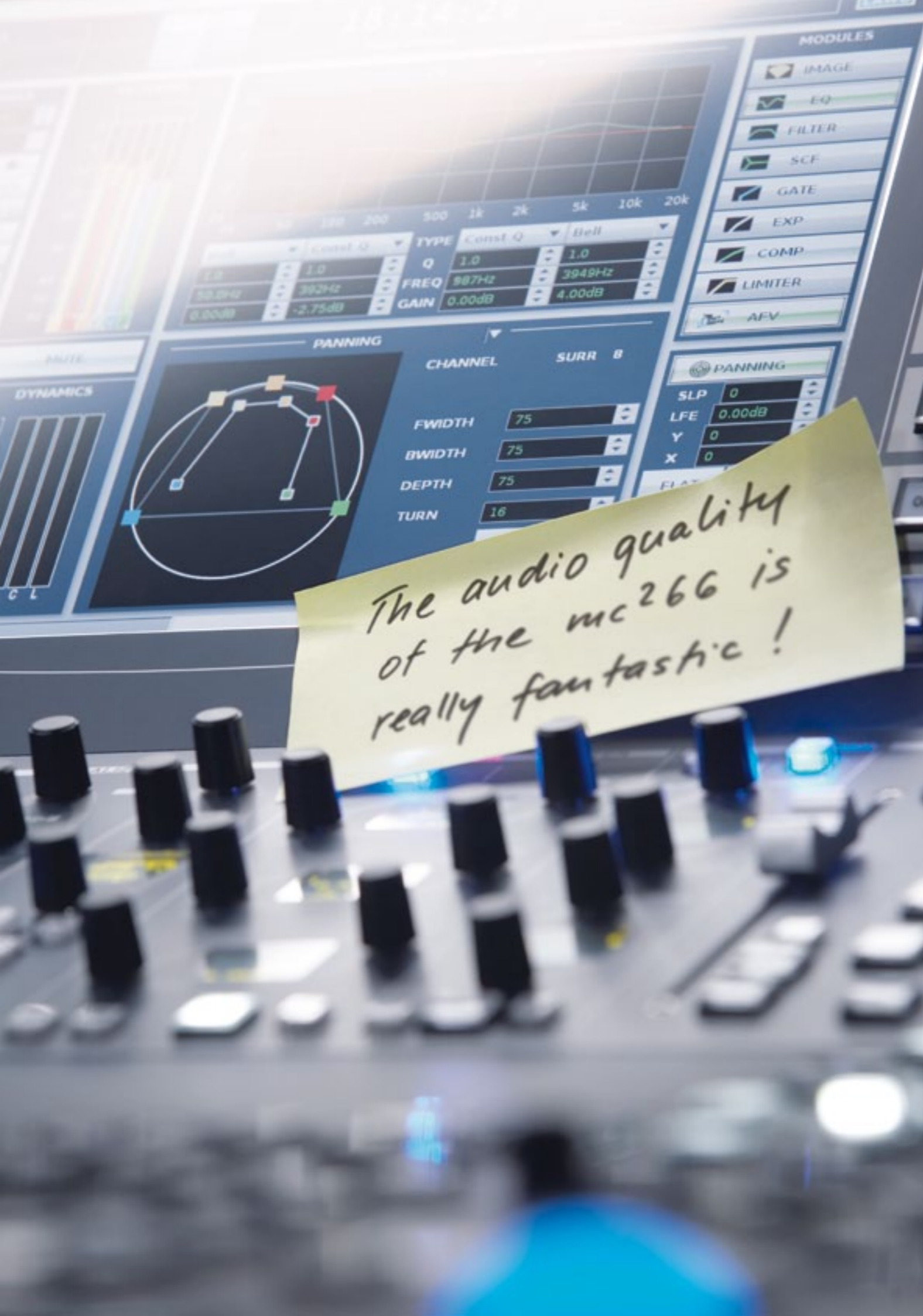
**High-quality signal processing.**

Superb signal processing has been a fundamental tenet for Lawo since 1970. Thus the mc<sup>2</sup>66 impresses with its absolutely precise signal processing, based on particularly high-quality algorithms. The HD Core can be operated at 44.1/48 or 88.2/96 kHz, while the DSP cards use 40-bit floating-point resolution. This results in internal dynamics of 1000dB. Furthermore, changes to the DSP path are, of course, possible without any clicks, and even delay settings can be made noiselessly during runtime.

**New MKII router.**

Following the mc<sup>2</sup>56 and mc<sup>2</sup>90, the mc<sup>2</sup>66 also now benefits from the new high-end MKII router. The sheer power of this router, which boasts an unmatched performance specification, is not its only impressive feature, its operational reliability is one of the best in the audio sector. The mc<sup>2</sup>66 console also features the same control computer redundancy that is used in the mc<sup>2</sup>90, where it guarantees maximum reliability in the most critical situations. Further advantages: The internal control system handles all console control functions, and the control computer can be exchanged during runtime without panels or other modules having to be removed.





A well-designed feature:

Surround channel for creative sound composition.

Audio productions in surround sound have become more and more important in the broadcast sector. The advantages are obvious: On the one hand they provide a fascinating audio experience for an audience that demands high-tech equipment for their home entertainment. On the other hand, surround sound offers possibilities for sound composition that promote creativity where music and voice production are concerned. The mc<sup>2</sup>66 now gives you the technology to demonstrate your skills — to create exciting sound environments that will truly captivate your audience.



Surround channel with hyper-panning.

For modern productions that require 5.1, the mc<sup>2</sup>66 is the ideal answer. The innovative hyper-panning feature guarantees the best use of all the possibilities that surround sound offers. Up to eight surround channels (7.1) can now be controlled with one fader, which is coupled with all the channel parameters and eight-segment metering. Thanks to Lawo's hyper-panning, a surround-bundle can be rotated through 360°, with front-width, back-width and depth determining the surround source. A mono or stereo source placed in the surround image can be easily positioned, while the Reveal function opens up a surround bundle over up to eight faders, enabling direct access to all the individual channel parameter settings.

#### Effective usability:

More efficient operation with “Form-follows-Function”.

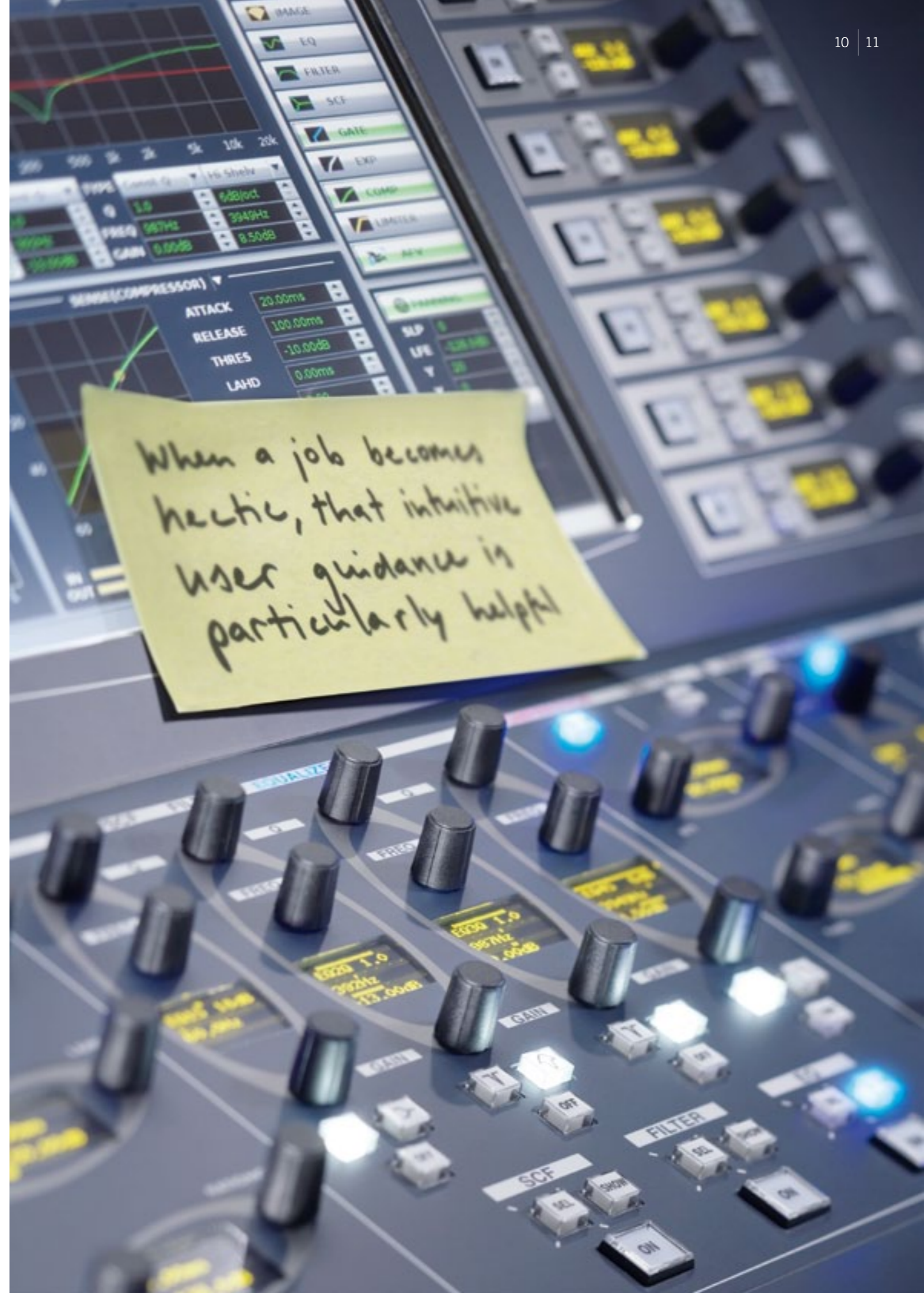
The advantage of intuitive control is particularly relevant in hectic live situations. This is why the mc<sup>2</sup>66 is based on an operating philosophy that considerably simplifies the everyday use of a mixing console. In this respect, the consistent “Form-follows-Function” concept sets new standards, and allows you to benefit from a quick and accurate console overview at any time.

#### Form-follows-Function.

“Form-follows-Function” is based on an effective colour and form concept that has been implemented in both central and decentralized control sections. One glance is enough to distinguish all the audio modules, so labelling them becomes virtually unnecessary. The differentiation of individual functions in terms of colour is achieved through modern LED technology, and each channel can be identified with up to eight characters using OLED displays.

#### Colour Coding.

Further intelligent design uses modern LED technology to colour code fader strips; the corresponding channel strips can also be colour coded. Even with the maximum 96 faders you’ll never lose control, and will always have a clear-cut overview of the entire production.

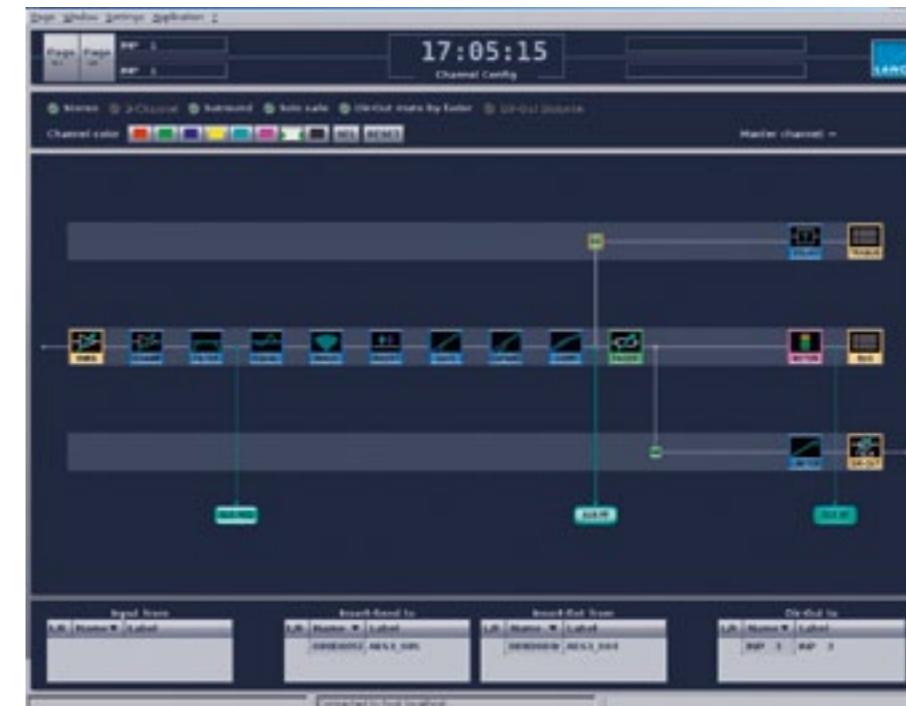


When a job becomes hectic, that intuitive user guidance is particularly helpful



Fully equipped, flexibly arranged:  
The DSP channel.

The mc<sup>2</sup>66 boasts 384 fully equipped DSP channels that handle all audio modules, irrespective of whether they are an input, group, summing, monitor or aux channel. In addition, each channel also has an adjustable pick-off point in the form of a Direct Out, and the Track Send that provides a dedicated track path. 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. Another highlight is that each audio module can be accessed directly, and that all control elements can be arranged in any order. In addition to its wide range of facilities, the mc<sup>2</sup>66 offers a maximum degree of flexibility that makes for particularly efficient operation.



Thanks to the advanced “Look-Ahead” function, the four independent dynamics elements (EXP, GATE, COMP, LIM) provide a winning sound even with significant amounts of dynamics control.



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### Functionality as a principle:

mc<sup>2</sup>66 control sections.

The mc<sup>2</sup>66 is a high-end tool and as such, first and foremost, must function in the most efficient way possible. For this reason, the latest mc<sup>2</sup>66 will impress you with a number of ergonomic features that make for an even more efficient workflow.

#### The centre section.

The new mc<sup>2</sup>66 will inspire you with its outstanding functionality and excellent usability. Now, even more parameters can be accessed directly; the central GUI touch screens and the monitoring provide intuitive control. In addition, the easy integration of PPMs in the centre section, and use of the new user panels, adds to the console's flexibility.

Operation of the mc<sup>2</sup>66 is based on the "Assign-at-Destination" philosophy, where Access and Assign functions are used to configure the entire control surface. Direct access to all GUI displays is possible via the screen control, and nine user-buttons can be assigned to individual displays. Last but not least, the large trackball buttons add to the overall accessibility.

The main characteristic of the central audio section, which controls the DSP modules, is perfect ergonomics. According to the "Form-follows-Function" philosophy, the control units are neatly arranged and allow fast access to all important functions, including channel strip assignment, bus assigns, sequence automation and the listen functions.

- Six banks of two layers can be individually created, 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.



**Decentralized control section.**

The decentralized control section will impress you, not only with its logical arrangement of control elements, but also with the many practical details that allow for efficient operation, even in the most critical situations. It starts with the faders: the mc<sup>2</sup>66 will impress you with its various touch-sensitive fader settings that flatter the fingertips. Thanks to the high-resolution

OLEDs, every channel can be labelled with up to eight characters. There are four “free” controls (FC) per channel strip, each with its own OLED, and FC4 can be switched to second layer control. How about operating the mc<sup>2</sup>66 in a multi-user configuration? No problem. Due to the easy setup using Iso Bay mode, you can get started within seconds.

- FC4 can be switched to 2nd layer control.
- Detailed metering, bus assignments and gain reduction meter are integrated in every channel strip.
- Stereo or surround mode displayed on fader and channel display.
- Graphic PPM with different scales.
- True two-person control with separate PFL/AFL functions.



**What comes together stays together:**

mc<sup>2</sup>66 — the solution for comprehensive networks.

**When you need to put together a complete system from individual components, then the mc<sup>2</sup>66 is the perfect choice.** In terms of compatibility and networking, Lawo consoles are clearly cutting-edge. All consoles in the mc<sup>2</sup> series are designed so that they cannot only be used as stand-alone-solutions, but can also be linked together to create extensive broadcast complexes. The advantages are obvious: If you have network-enabled consoles today, you will be able to react quickly and easily to the demands of tomorrow, and considerably reduce your planning and purchase overheads.

**How single products become integrated systems.**

When you choose the mc<sup>2</sup> series, you choose sustainability. With a combination of mc<sup>2</sup> consoles and the Nova73 HD routing system it is possible to create highly sophisticated broadcasting facilities. In practice this means, for example, that 16 consoles and matrices can be linked and connected to large routing systems via netlinks (MADI, ATM, AES or analogue audio), which allows you to distribute your I/O resources throughout the network without any restrictions. Local sources and destinations can be shared at the push of a button. The result? You are not working with a singular console but have access to all network parameters, and control of an entire, comprehensive, audio complex.





#### Work wherever you want:

Full production data portability with the mc<sup>2</sup>66.

**What has been the standard for PCs is now possible for mixing consoles** — easy and safe data transfer. The most important advantage: Thanks to the portability of even whole productions, extensive re-configuration is a thing of the past, and you can switch between different mc<sup>2</sup> consoles as required, at any time.

#### Easy data transfer.

Coherent and practically oriented solutions have made the mc<sup>2</sup>66 one of the broadcast sector's most successful consoles. The compatibility of Lawo consoles is particularly transparent. You can prepare the job in a normal studio environment and then upload all your data to a mc<sup>2</sup>66 in the OB truck. But what if the show has to be wrapped up on a different console? This is no problem either. Any audio mix already started can be finalised at any time, for example, on a mc<sup>2</sup>90. Naturally, all the data from your original Lawo mc<sup>2</sup>66 is fully compatible with the new mc<sup>2</sup>66. In a nutshell this means that all production data, including snapshots, is fully transferable, regardless of the number of faders, the matrix size or the DSP capacity.

**More is more:**

Important additional features of the mc<sup>2</sup>66.

**New mxGUI.**

A graphical user interface is the link between man and machine, and is therefore critical in terms of daily usability. For this reason, the mc<sup>2</sup>66 is equipped with a new mxGUI, which will impress you with its many innovative features.

**Offline preparation.**

You can now fully prepare your mc<sup>2</sup>66 console offline for the task ahead — from console layout to matrix control in X/Y view, partial snapshots and pre-amplifier settings through to the creation of complete snapshot and production data.

**Greater individual flexibility.**

Thanks to the mxGUI you can change the configuration of the user buttons at any time, and assign automatic control to an extensive list of functions. Demands change — you can now react quickly and appropriately with individual configuration adjustments.

**Remote laptop control.**

Whether for remote maintenance, service or configuration, the console can be simply accessed, even during run time. Using a commercial laptop, up to 16 mxGUI clients can simultaneously sign on to the control system, so that secondary users and service technicians can support the audio engineer, during live broadcasts, if necessary. Not only is this a new feature, it is also highly practical.

**Dynamic automation with TC-Cut.**

The automation system developed by Lawo has already inspired many users. And it gets even better. You can now benefit from a new feature that enables extremely fast and precise operation — the TC-Cut function. This allows automation data to be edited using simple control commands (copy / paste, cut, insert, shift, etc.) and is further proof of how well the mc<sup>2</sup>66 is prepared for every day use.

**Audio-follow-Video.**

Smooth transitions and the perfect tie-up between audio and video — that's what the mc<sup>2</sup>66's "Audio-follow-Video" function offers you. An event, which can be selected from one or more channels, is assigned to every camera-tally, up to a maximum of 128 events. The shape of the envelope can be defined using rise-time, on-time, hold-time, max-time and fall-time parameters, which guarantee extremely smooth transitions from one camera to the next.

**GPC with camera mic.**

The General Purpose Channel offers the possibility to access individual microphones and cameras directly from the console. This allows you to change all the camera mic settings from the mc<sup>2</sup>66, and save the parameters in a snapshot.



**Plug-in server.**

With the complete integration of VST-plug-ins via a plug-in-server, Lawo was able to introduce a real world innovation that, of course, is also available on the mc<sup>2</sup>66. The advantage: You benefit from the live-capability of the mc<sup>2</sup> series but at the same time you can also access a wide range of signal processing. All plug-in parameters can be directly read into the console, and can be saved in snapshots and production data.

**Dolby® E plug-in**

Other groundbreaking innovations, especially developed for the Lawo plug-in server, are Dolby® real-time encode/decode plug-ins that allow Dolby® E streams to be processed even during live operation. Thanks to the plug-in server, all relevant data is held in your console snapshots, which makes for ingenious portability of complete productions. Multiple use of your software license is another feature that is especially useful in day-to-day broadcast operations.

## When facts count:

Technical aspects of the mc<sup>2</sup>66

### Control Surface

- Frame sizes from 16+8 faders to 96+8 faders
- Separate frames with 8, 16 and 24 faders
- 6 banks per 2 layers
- 100mm faders + 4 rotary controls with free assignment + Input Gain controller Channel Display on every fader, with touch-sensitive selection
- TFT metering in mono, stereo or up to 7.1, including bus-assignment, dynamics gain reduction, AfV status, VCA assignment, surround master assignment
- External display of GUI pages, eg. metering
- Fader colour coding, settable via snapshot
- Fader notch and PFL overpress
- 9 user buttons
- Optional: up to three user panels can be integrated (machine control, theatre functions, automation, 40/80 buttons) talkback, script tray, PPM-integration, 2RU 19" integration

### Signal Processing

- 512 channels and 144 summing buses, 40-bit floating point
- Up to 376 inputs with A/B input, up to 48 subgroups, 32 aux sends, up to 96 track buses, up to 48 main sums
- Quick change of channel and bus to mono/stereo/surround
- Up to 64 surround channels, 128 VCA groups with metering, 256 GP channels
- Surround formats: DTS/Dolby® Digital 5.1, Dolby® Pro-logic 4.0, DTS ES/Dolby® EX 6.1, SDDS 7.1, DTS-HD 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; controlled either via RemoteMNOPL, GPI or matrix connection, envelope adjustable up to 10s fade time
- Solo In Place
- Permanent meter point on the fader, selectable to INPUT, PF, AF, DIROUT on the Channel Display
- 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 (units in metres, milliseconds, frames); 4 independent dynamics (Expander, Gate, Compressor, Limiter), Image, Meter, Direct Out
- In-line configuration with send/return switching — on the channel or global
- Fully equipped surround channel with coupling of all channel parameters and Hyper Panning

### Routing Matrix

- Up to 8192 crosspoints, non-blocking
- 96 kHz, 24-bit
- Fully redundant signal path
- Level adjustment of all inputs and outputs
- Downsizing from up to 7.1 to stereo
- Integrated monitoring devices for remote locations, e.g. director's room
- Full networking of up to 16 HD Cores, share and import from sources and destinations, studio intervention
- Full snapshot and production data portability independent of matrix and DSP size

### Plug-in Server

- Full VST plug-in integration with storage of plug-in parameters in snapshots and production data

### Static and Dynamic Automation

- Snapshot automation, multiple sequences with trim and fade
- Dynamic TC-based automation, recording by parameter, recording of all modules in a channel including bus assign, writing in "stop" mode, touch, glide, join, punch in/out
- Trim including "on the fly" mode
- TC-Cut editing (copy, paste, delete, cut, insert, etc.)

### I/O

- Mic/Line with up to 127dB dynamic range, subsonic filter 40, 80, 140 Hz, line out, ADAT® (ADAT 7.1 is a registered trade mark of Alesis, LLC and is used here under licence)
- AES with input and output SRC, transparent Dolby® E routing, balanced and unbalanced
- HD-SDI with up to 270ms onboard delay, MADI 64 and 56 with fibre or coax, ATM, GPIO, serial, MIDI
- Direct intercom connection
- All interfaces at 24-bit, 96 kHz (for details see DALLIS product information)
- Monitoring systems for stereo and surround

### Synchronisation

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

### Redundancy

- PSUs, DSP board, router board
- Fully redundant signal path
- Redundant control system, exchangeable during run time; full data redundancy PSU for control system and control surface

### Control

- Bay-Iso with separate layer and bank switching, plus second PFL/AFL bus
- Global A/B input switching
- Enhanced mix-minus control with independent off-air conference
- Direct out mute by fader
- Mix-minus self monitoring
- IT (IS) summation
- Fader control of all level parameters
- Diverse tally and fader start modes
- Program switch
- Machine control
- Audio-follow-Video up to 128 camera tallies, Ethernet or GPI controlled
- Extensive talkback system integration
- Camera mic remote via GPI or voltage control

### Remote Maintenance

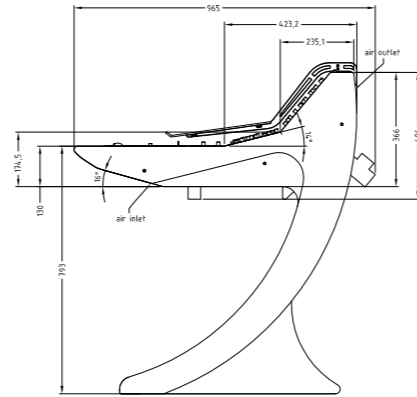
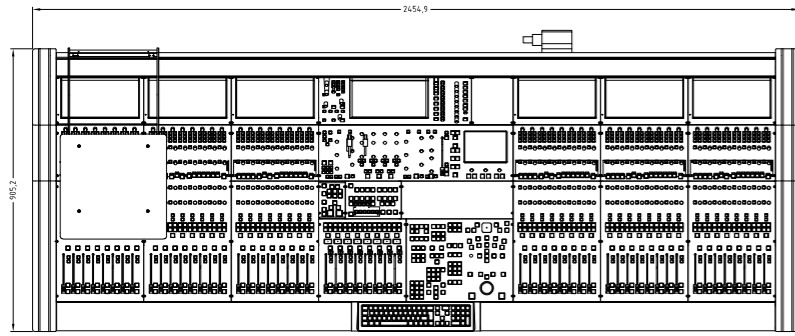
- Remote connection via Internet software
- Remote software updates, error diagnostics
- mxGUI: remote control of console via laptop

### External Control Systems

- Remote control of all routing parameters via network
- Remote control of monitoring units in remote locations
- Remote control of integrated matrix monitoring units
- Remote control of signal parameters such as SDI, silence detects, mic gain and more (for details see the Remote MNOPL protocol documentation)
- Online configuration with AdminHD, graphic configuration of HD Core components
- External matrix controllers: VSM, Jupiter, BFE and others



Large, larger, largest:  
mc<sup>2</sup>66 dimensions and frame sizes.



Per 8 fader extension plus 280 mm width.

Frame	Studio	OB Van
8+8+8	Width: 1337 mm	Width: 1196 mm
16+8+16	Width: 1897 mm	Width: 1756 mm
24+8+24	Width: 2457 mm	Width: 2316 mm
32+8+32	Width: 3017 mm	Width: 2876 mm
40+8+40	Width: 3577 mm	Width: 3436 mm
48+8+48	Width: 4137 mm	Width: 3996 mm



Here is a selection of possible frame dimensions. For further options please contact your sales partner.

As of September 2009. Subject to change without prior notice, no responsibility is taken for the correctness of the details provided.



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