

zirkon

Perfect on-air.



English



Powerful performance, easy to operate: zirkon is the ideal mixing console for radio broadcasting: for highly demanding radio productions, for daily broadcast operations, and for today's radio professionals. zirkon is inspiring not only because of its superb functionality and its intuitive, clearly laid out, control surface; it also delivers reliable engineering, a wide range of extras and an extensive feature list that assure custom solutions for every requirement. Look for yourself – we think you will genuinely enjoy your journey through the following pages.

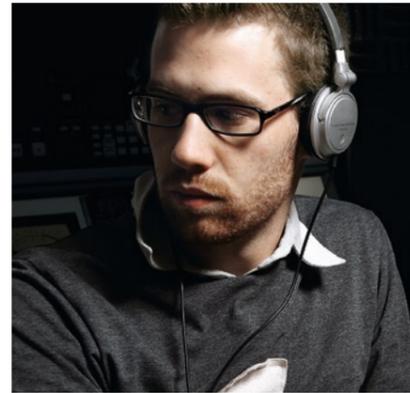


The optimum solution for radio hosts: Maximum results with minimum expense.

Whether you are a radio host, DJ or editor, your one main concern is to produce a show that your audience will want to listen to. That means controversial topics, lively presentation and captivating contributions. It also means the right equipment: equipment that can be operated intuitively, is easy to understand and can still handle the multiple requirements of day-to-day radio work. In other words, the sort of features provided by zirkon – the functional mixing console for hosts who want to focus on what is essential: stunning broadcasts.

zirkon advantages for hosts:

- Reduced control surface requires less time to learn
- Motorised faders for maximum overview and optimum interaction with radio automation systems
- Sophisticated n-1/conference logic for comfortable and secure broadcast operations
- VisTool touch screen software for visualisation and enhanced user interface
- Source-oriented operation – e. g. with stereo and surround formats on one fader



The optimum solution for sound mixers: Flexible configuration for complex requirements.

Be it new technologies, critical presentation schedules or just enormous budget pressures – as a sound mixer you are confronted with new challenges on a daily basis. Thank goodness there is a mixing console just as good at meeting these challenges as you are: the zirkon from Lawo. Although this console was consciously designed to be easy to use by hosts, it provides sound mixers with all the options they need – thanks to its modular design and a wide range of configuration options.

zirkon advantages for audio mixers:

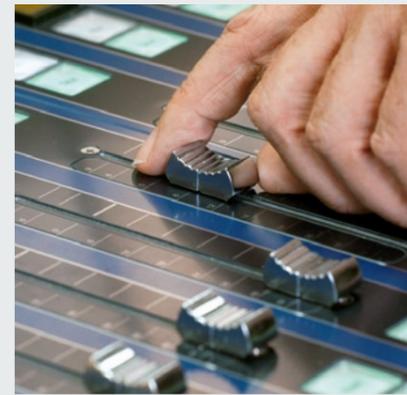
- Ergonomic user interface for rapid access and maximum user confidence
- Access to up to 40 channels even on small layouts (multi-layer operation)
- Flexible configuration for individualised workflows
- High-performance networking of audio and control (for resource sharing or multi-studio operation in broadcast complexes)
- Extensive portfolio of hardware and software components, plus interfaces for remote control (radio automation, audio workstations, routing etc.)

The optimum solution for a broadcast complex: Interconnection of several systems via network.

zirkon is not only a convincing soloist – it also performs as a perfect team player. For example, zirkon can fit perfectly into broadcast networks. Besides the option of low-cost audio connection via MADI interfaces, also at a control level extensive broadcasting setups can be realized –

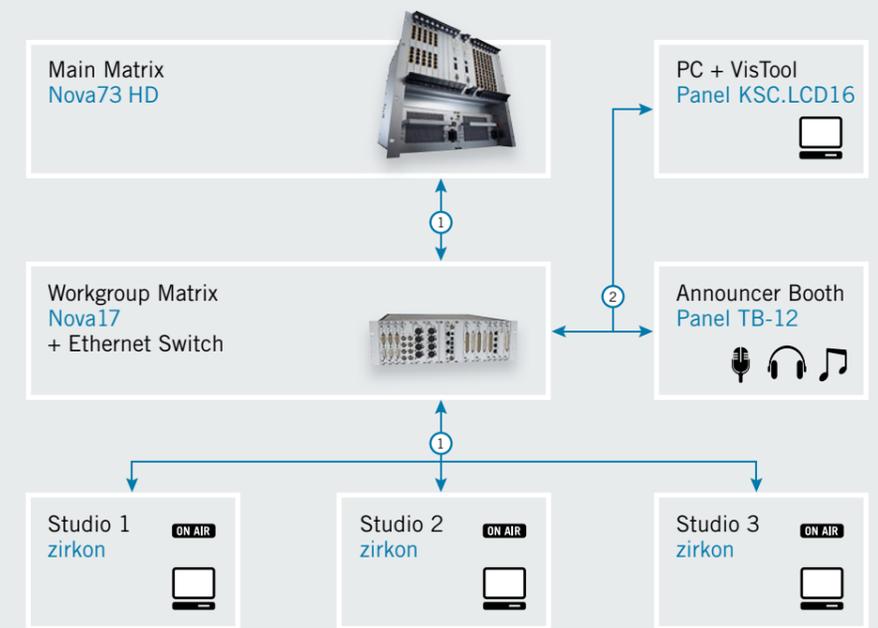
featuring, of course, resource sharing, standby production cubicles and multi-studio operation. At the same time, freely configurable control signals can be distributed via Ethernet-TCP/IP to other independent systems, thus enabling multiple and

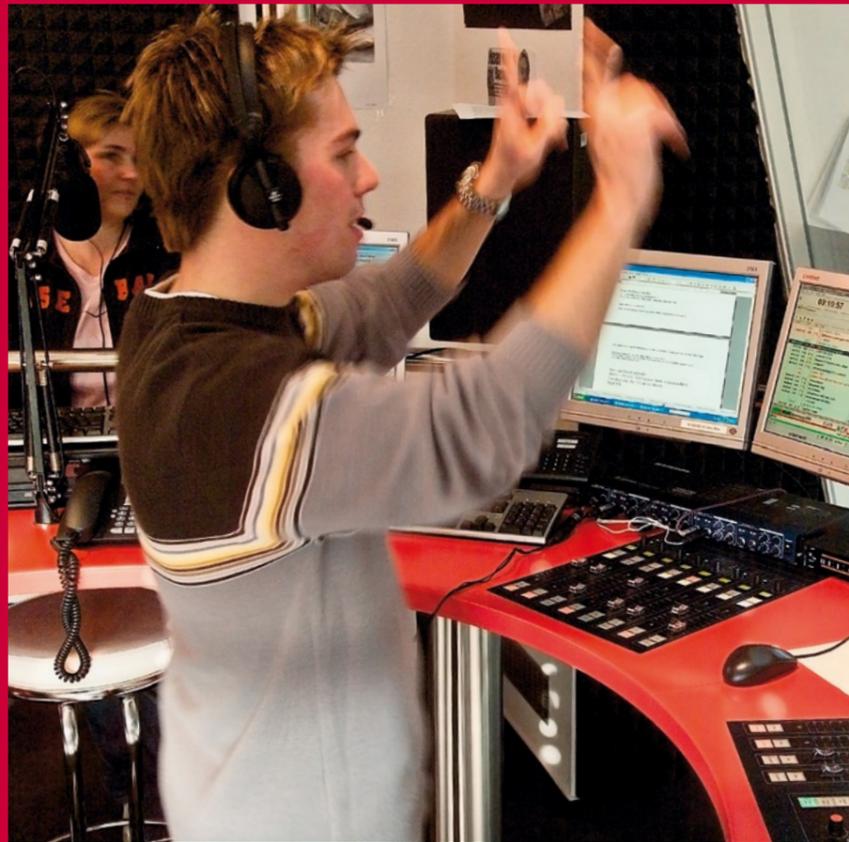
cross-system functions such as program switches, talkback, conferencing, monitoring selections and red light routing. Another benefit: the high cost-efficiency of integrated zirkon solutions.



An example of networking options for a radio broadcaster

Network comprising a Nova17 matrix with three zirkon consoles connected via MADI to a complex broadcast system. In emergencies, the Nova17 and zirkon consoles can be operated independently, thus assuring the greatest security against downtime.





As individual as your needs:
zirkon's four most important components.



Component 1
High-performance core

Based on the proven DALLIS interface, the zirkon core handles routing, control and signal processing (DSP). In addition, it is the interface for console modules and panels, for VisTool software and radio automation systems. But there is more to it than that: the core can also be connected via MAD1 to other matrices – or as the Nova17, even be used as an independent matrix.



Component 2
Different operating layouts

Channel module, central module, the XL variant or the 2s module: with zirkon you can build a mixing console to suit your individual needs. Whether you are operating a small independent studio, a large broadcasting complex or a major TV production facility, the varied layouts offered by zirkon cannot fail to provide the right answer for you. (Fig.: 2s module)



Component 3
Modular extension with custom panels

However you want it: zirkon and Nova17 systems can be extended to include as many as 15 pushbutton panels for the individual requirements of commentator or editorial rooms, for example. All devices are completely integrated into the system configuration, and can be assigned any function. (Fig.: TB-12)



Component 4
More operating satisfaction with VisTool

An improved overview and extended functionality – the VisTool touch screen software makes it all possible. On a graphically attractive screen layout you can keep an eye on signal level and DSP parameters at all times. You will profit from additional tools such as trigger circuits or central snapshot databases, and can freely arrange the console's control panels to meet your own needs.

One principle, many interpretations:
zirkon's different module variants.



Advantages of the modular concept. Your individual requirements will determine which zirkon configuration is the right one for you. All you need to start broadcasting is a central module, a channel module and a couple of interfaces. However, zirkon also has the capacity to meet more demanding needs – for example, by using three additional channel modules, you can have a total of 16 faders at your finger tips. What about sophisticated productions? Lawo provides an appropriate solution here as well – the XL central module. Whatever your requirements, thanks to completely compatible modules, you can cover pretty much any imaginable application with the same technology.

The Channel Module: Several layers on one surface.

The modular console concept allows for up to ten channel modules, each with four faders, so that the largest system gives you direct access to 40 channel strips. Each channel strip is clearly designed and makes the most important functions available, based on a source-oriented concept. Virtual channels also allow you to work on several operating levels – thus

enabling you to use a channel module to access many more channels than the number of physical faders. And, especially practical during installation, modules are connected to each other by only one cable, so they can be placed anywhere on your console; this allows your workspace to be set up anyway you like!



- 1 **Status display** – overload, limiter activity, and signal present indicator
- 2 **Rotary control** – Mic, Line and Aux send levels, plus pan and balance control
- 3 **Multifunctional LCD buttons** – enable direct channel access or source allocation to the corresponding channel strip. In addition to source names, when the rotary control is operated, the corresponding parameter value is displayed
- 4 **Freely programmable buttons** – provide additional switch functions with source-related assignment (eg. talkback, conference or summing bus assignment)
- 5 High quality **motorised faders** – guarantee maximum overview and clear feedback of the current channel setting. In addition, the faders integrate perfectly with any connected broadcast automation system or audio workstation (e.g. ProTools™)
- 6 Two additional, **freely programmable buttons** – can be used e.g. for PFL, On/Off, or Start/Stop control of a remote replay machine

The Central Module: Fast access to all functions.

Together with channel control modules, this provides the ideal solution for smaller mixing consoles and self-op studios. Thanks to a reduced surface area and guidance from a built-in menu, you can benefit from complete access to all functions without being distracted by unnecessary displays and superfluous

information. The most important highlights: very compact central control using twelve LCD buttons and a large monitor section with 24 freely definable buttons and two rotary controls. In addition to internal storage, the central module allows user-related storage of settings via individual Compact Flash cards.



- 1 **Card reader** – Compact Flash cards can be used to store and recall personal settings, even during a live broadcast
- 2 **Central user interface** – enables complete access to every channel. To prevent operator error, the LCD buttons only display the respectively available parameters
- 3 These LCD buttons allow you to assign different sources to individual **channel strips**
- 4 Freely assignable **control and talkback buttons**, for the flexible control of red light, monitoring selection, and studio monitoring etc.

The XL Central Module: All parameters in direct access.

Superbly user friendly, and a compact design with its focus on the essential, the XL central module is completely consistent with proven zirkon philosophy. However, this larger central module is especially designed to meet the requirements of bigger productions. Its control surface, designed for audio operators,

allows direct access to all audio parameters, and thus enables active sound design when editorial times are especially short. Needless to say, those typical zirkon advantages should not be forgotten. The XL also gives you all the benefits of reliable operational security, excellent flexibility, and clear user feedback.

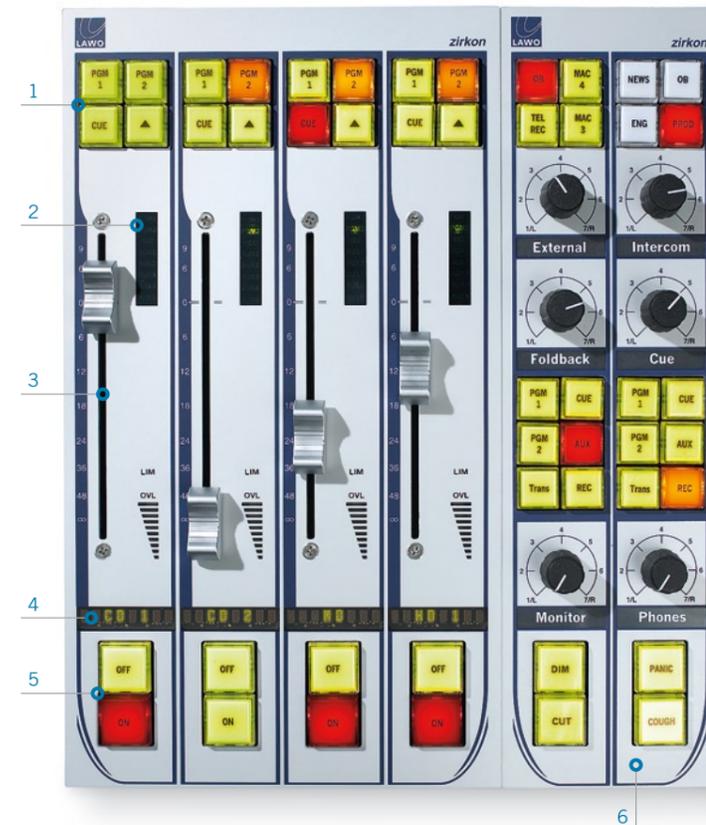


- 1 Card reader – Compact Flash cards enable rapid storage and recall of settings for individual users.
- 2 Level display – Aids correct setting of the channel recording level
- 3 Clearly visible channel settings – control DSP parameters at a glance and intervene immediately as required
- 4 Motorised ACCESS fader – displays the level setting of the currently selected channel. Can be used to control not only the associated channel strip but also virtual channels from other layers
- 5 Freely programmable control and talkback buttons – flexible control of any monitoring group via loudspeakers or headphones

The 2s Module: Functional technology for maximum overview.

In self-op situations, program content and broadcast integrity are necessarily in the operational foreground; by contrast, audio design frequently plays second fiddle. So the radio professional behind the microphone has special expectations: he wants functional technology that gives him the clearest operational overview and the greatest security. These are the needs that the 2s module was developed

to meet, while consciously foregoing a classic central module with a direct access to signal processing. Ideally supplemented by VisTool touch screen software, this variant also allows you to use all those familiar zirkon features and, optionally, to even realize mixing consoles with up to 40 channels.



- 1 Multi-functional buttons – can be freely programmed to provide bus assignments or PFL, or an ACCESS function to interact with VisTool software
- 2 Status display – shows BUS assignments and the level on each channel strip for an essential overview
- 3 High-quality motorised faders – assure maximum overview of levels and clear feedback of the current channel activity. The faders interface perfectly with broadcasting automation systems
- 4 Alphadecimal display – for display of channel labels; ergonomically placed between fader and large functional buttons
- 5 Two additional, freely programmable buttons – can be used as On/Off function, Start/Stop of a remote replay machine, or PFL
- 6 24 freely configurable buttons and 6 potentiometers – multiple control and monitor functions on a separate monitoring module

Better overview for greater ease of use: The VisTool touch screen software.

Innovative, clearly laid out and, optionally, freely configurable – with the optional VisTool software you can add a modern screen-based user interface to zirkon. Now your operators have a control surface with extended functionality and even greater user-friendliness.

Specifically this means that the VisTool Technic variant can offer you, for example, on three switchable pages, different level displays, additional triggers, the graphic display of channel parameters, and miscellaneous status displays. Alternatively,

the VisTool Edit programme: this editor enables you to freely design your own operational overviews using virtual control and display elements. For example, you can combine foldback arbitration with an overview of console settings and level displays for one control surface, and move less frequently used functions to a previous page. Whatever function is the most important for you, VisTool gives your operators an extremely efficient tool with which to handle their daily broadcasting tasks!



More Advantages:

- zirkon functions can be arranged on the touch screen layers in any format, and supplemented by numerous display elements (freely programmable buttons for logic, matrices and DSP control, source and bus assignment)
- Additionally, up to 6 logic-controlled timing elements to trigger any required actions
- Up to 30 simultaneous, switchable level displays
- Overview of DSP parameters (e. g. dynamics and EQ characteristic curves) facilitate signal processing
- Work with snapshots in a central database

Minimum requirements for VisTool:

zirkon console or Nova17 matrix with corresponding master card plus a PC with Windows™ operating system and touch screen (data transfer via Ethernet TCP/IP, up to four PCs may be connected).

Available:

- VisTool 'On-Air' – a pre-configured page with level display, timer, tally buttons and channel status display
- VisTool 'Technic' – as 'On Air', but with two additional pages for multi-level display and visualisation of DSP parameters
- VisTool 'Edit' – editor for free configuration of touch screen surfaces including a runtime (RT) license for operation
- VisTool 'RT' – runtime version for operating self-edited touch screen surfaces



Optional panels: Extension panels for zirkon and Nova17.

With our versatile panel solutions, you can extend the capability of zirkon mixing consoles and the Nova17 matrix. The pushbutton panels or GPIO interfaces are capable of a wide variety of tasks, for example, monitoring and pre-listening, multiplexing, or red/white light control at various locations.

The panels can either be connected inexpensively to the system via the CAN bus or, depending on the panel, be remotely controlled via Ethernet TCP/IP. Each panel can be freely programmed according to requirements, using the configuration software.



Key-60

Panel in the form of a channel module with 60 illuminated buttons

TB-12

19"/1U panel with 12 illuminated buttons, talkback microphone and loudspeaker



KSC.T20

1"/1U panel with 20 illuminated buttons



KSC.LCD16

19"/1U panel with 16 LCD buttons



KSC.LCD15P1

19"/1U panel with 15 LCD buttons and one rotary control for use as level control



KSC.LCD14P2

19"/1U panel with 14 LCD buttons and two rotary controls for use as level controls



KSC.GPIO32

19"/1U panel with 32 GPIO contacts and eight VCA inputs



When performance and reliability count: The zirkon system core.

A car will only perform as well as its engine, and a digital mixing console is only as good as its system core. zirkon features a DSP core, based on the proven DALLIS I/O system that is also used in Lawo's large-scale mc² series mixing consoles, and in Lawo matrices. The innovative STAR² architecture is, of course, included. Thus, zirkon not only benefits from the modular concept and high quality of these

plug-in cards, but also from their continual development.

The system core handles routing, control and central signal processing (DSP). In addition, the core's motherboard provides the interfaces for various connections: from desk modules and panels and external components such as VisTool, radio automation systems or audio workstations,

to maintenance and configuration tools. If the system core is used without surface modules, the special 'Nova17' operating mode makes zirkon's functionality available as a stand-alone or network-capable matrix application. Furthermore, the zirkon core works without a fan or PC, a feature that assures reliability and short boot times.

Optionally, up to 384 input/output channels can be supported with the following interfaces:

- Analog Mic/Line (transformer or electronically balanced)
- Headphones (including VCA interface)
- AES/EBU (AES3) with or without sample rate converter
- ADAT®
- HD/SD SDI (embedded audio)
- Serial data transfer (RS232, RS422, MIDI)
- GPIO (Opto, Relays, VCA)
- Optional: up to four MAD1 interfaces on the motherboard



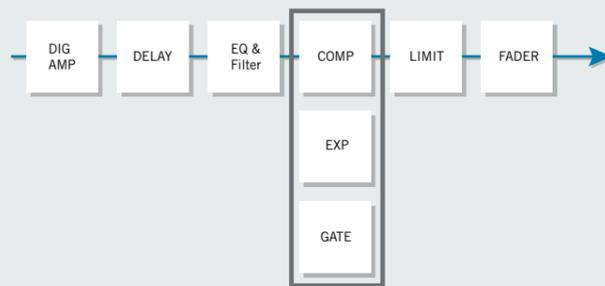
Signal processing in the system core:

Mono, stereo and surround channels with:

- Input gain
- Signal indicator
- Direct out
- Insert
- Fader
- Aux send with Pre/Post switching
- Pan/Balance

In addition, switchable if required:

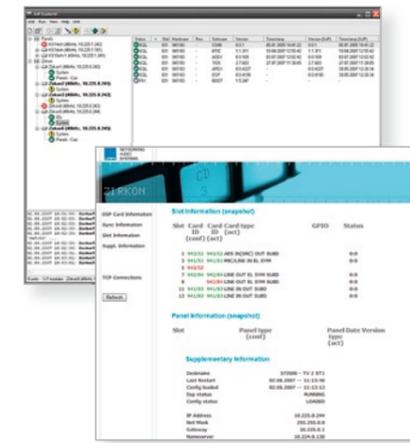
- Equalizer with three fully parametric bands plus high/low pass filters
- Dynamics unit with gate, expander, compressor, limiter
- Delays of up to 340ms with switchable units (metres, milliseconds, frames)



Quick, direct and uncomplicated: zirkon's service features.

These days the central monitoring and easy maintenance of working equipment is becoming increasingly important. Therefore, it is no surprise that in this respect zirkon, once again, meets the stiffest

requirements. For example: enter the IP of your zirkon into a web browser and you get (assuming you are online) an immediate, complete overview of the current status of your mixing console.



zirkon's servicing plus points:

- Hot-plug capable modules that can even be replaced on-air
- For error elimination and central monitoring, a web server is integrated in the PC-free control system. This can be accessed via a typical browser and the integral Ethernet TCP/IP interface
- Alert signals in the logic programming framework can be freely linked, e. g. for status displays on the front panel or on the VisTool screen
- Project specific solutions offer the option of centrally logging alerts and messages from one or several systems
- Simple maintenance – software can be updated from a central location over a network interface

Simple, flexible and tailor-made: zirkon configuration.

Different operator teams, different program formats, individual workflows – and one mixing console that can be adapted advantageously to your needs. Thanks to its high-performance and extensive configuration level, you can set up zirkon to meet your every demand. For example, with the help of the supplied software you can enter individual settings for interfaces, sources and summing mixes, freely assign monitoring systems and remote controls. And all of this by simply using a graphic Windows application.

zirkon's configuration highlights:

- Individual definition of sources, destinations and summing buses including the integral functions and resources
- Freely programmable console buttons and monitoring section
- Simple allocation of names and control functions (such as mix minus, talkback or fader start)
- Extensive programming of logic functions including optocouplers and relays, e. g. red light control
- Restriction of access rights

Technical data:

Everything at a glance.

Panel

- Modular design with up to 40 faders
- 4-fader module with motorised 100mm fader
- Operation possible with multiple operating layers (multi-layer)
- Two central panel variants with CF card reader/writer for snapshot saving
- Modules for building into desk, freely placeable (CAN wiring)
- Panel extendible with additional control panels and VisTool touch screen software

System core

- Modular plug-in card system based on the DALLIS I/O system
- Central motherboard with integrated control system and signal processing (redundantly designed as an option)
- Integrated matrix with up to 384 inputs and outputs (non-blocking)
- PC-independent and fan-free operation
- Optional redundant power supply

Signal processing

- 40 channels (mono or stereo, surround, depending on the available resources) with Input Gain
- Central masterboard with integrated control system and signal processing (optional with redundant design), Pan/Balance, Direct Out and Insert
- 48 equalizers: 3 fully parametric bands and 2 filters (mono*)
- 14 dynamic units: gate, expander, compressor (mono or stereo use)

- 14 limiters (mono or stereo)
- 24 delays: up to 340ms with switchable units: metres, milliseconds, frames (mono*)
- 48 summing buses (mono*, incl. main 1, 2 and PFL, second PFL possible)
- 30 mini-mixers (2 x 2 mixers for monitoring, stereo to mono, etc.)
- Optional: dynamically assigned signal processing (EQ, DYN, LIM) for 40 stereo channels via additional masterboard

(*Stereo coupling possible)

Interfaces

- Analog Mic/Line (transformer or el. balanced)
- Headset (incl. VCA interface)
- AES/EBU (AES3) with and without sampling rate converter (SRC)
- ADAT® (ADAT® is a registered trademark of Alesis, LLC and is used here under license.)
- HD/SD SDI (embedded audio)
- Serial data transfer (RS232, RS422, MIDI)
- GPIO (optocouplers, relays, VCA)
- Optional up to 4 MAD1 ports on the masterboard

Synchronisation

- Wordclock input and internal generator
- Optional via MAD1
- Supported sample rates 48 kHz and 44.1 kHz (depending on motherboard)

Control

- 2 possible PFL buses
- Simulcast production of surround and stereo
- Integrated mix-minus/conference logic
- Freely programmable logic core (redlight, faderstart, program switch, T/B integration, etc.)
- Serial interface for interaction with radio automation systems ('zirkon' operating mode)
- Serial interface for matrix control ('Nova17' operating mode)
- Optional MIDI interface for interaction with audio workstations (HUI protocol e. g. for ProTools™)
- Remote control of external Lawo matrices possible (e. g. source selection)
- Optional control via touch screen (VisTool)
- Optional graphic matrix control (NovaConnect)

Configuration and maintenance

- Software for system configuration and logic programming
- Integrated web server for system diagnosis
- Dedicated SW tool for performing software updates
- Remote maintenance via VPN/ISDN



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