

OnAir 3000

DIGITAL MIXING CONSOLE

Broadcast audio mixing. Your way.



STUDER
by HARMAN



Ultimate flexibility in specification

The Studer OnAir 3000 extends Studer's range of digital broadcast consoles with a completely new design aimed at the medium to upper segment of the radio market including private and public network broadcast stations. The operating concept of the OnAir 3000 will be totally familiar to Studer users, as the wide range of compact and elegant control surface modules incorporates the same patented "Touch'n'Action" philosophy as the highly successful predecessor, the Studer OnAir 2000, using colour GUI screens.

The OnAir 3000 design is based on a completely modular desk and a new DSP engine. The fader module includes six fader strips, and up to eight fader modules may be fitted, giving a maximum console size of 48 channel faders. Layout options range from a highly comprehensive engineer-operated continuity console to a single fader panel for DJ and newsroom use or even a PC-operated system with no physical desk controls.

Modules may be fitted into the customer's own furniture or mounted in a Studer fixed frame table-top or free-standing chassis. Optional motorised faders, and full surround audio management are among the options available for the OnAir 3000.

For larger networks, with multiple types of Studer consoles (Vista, OnAir 2500, for example), Studer RELINK (Resource Linking) offers a comprehensive and flexible I/O sharing system that is easy to install and operate.



The Studer OnAir 3000 at a glance

- Ergonomic, easy to learn Touch'n'Action user interface
- Completely modular and configurable desk surface
- Immediate system overview and fast parameter access via colour fader screens
- From 3 to 48 channel faders, standard or motorised (option)
- Based on the latest powerful Compact SCore or SCore Live DSP engine and D2I m I/O system
- Programmable user authorization system
- Extensive monitoring and talkback system
- Share I/O with other Studer OnAir and Vista consoles with Studer RELINK.
- Complete integration with radio playout systems
- Integrated with Studer CMS Call Management System
- Available as OnAir 3000 Modulo, in fixed frame (tabletop or freestanding) or compact versions.

Hardware Overview

Colour TFT touch screens above each fader strip provide graphical information on all parameter settings such as EQ, dynamics, output signal levels, etc. Touching a specific symbol on the screen expands the function set on the main screen for fast parameter access.

The parameters of the selected function are displayed immediately on the main colour screen. On the left-hand side there are two stereo bargraph meters with correlators, a studio clock and two stop watches. On the upper part of the screen are menu buttons and on the right-hand side eleven freely assignable function keys.

In contrast to radio on air applications where a clean and uncluttered surface is advantageous, in a production application the operator usually wants direct access to a number of parameters on the surface. In this situation one or more Rotary Modules can be added and parameters such as all EQ gains, AUX send levels etc become instantly accessible.



The four rotary encoders used for parameter settings feature a patented system for tactile feedback. The end stops and detent points are set individually in accordance with the currently selected function. A slot for compact flash cards allows for data backup or data transfer if the consoles are not connected into a network.

Completely silent rubber push buttons are used throughout the console, including the stop watch controls.

Modules of three or six faders can be added up to a total of 48 faders if required. The fader strip includes input level metering, five freely configurable push buttons, a rotary encoder and an alphanumeric display. Using only the fader modules and fader screens gives the operator an excellent overview of the console while presenting a very clean surface with the minimum necessary elements.



Studer has developed two new and powerful DSP engines, the Compact SCore and the SCore Live, based on SHARC processors. They use the same digital algorithms for signal processing as the Vista series of broadcast and production consoles, thus guaranteeing the highest level, renowned Studer sound quality. Signal interfacing uses the same D21m I/O system used on the Vista and D950 large frame consoles.

Monitoring and Talkback Modules including freely assignable buttons, red light and on air indication. The incorporated loudspeaker is used for talkback, PFL and MPX monitoring. A gooseneck microphone can be added if desired. The module is available either in a drop-in version for inclusion into custom studio furniture, integrated in the fixed frame version, or as shown here in a table-top housing.



The displays in the Rotary Assign Module show the chosen parameter active in the respective row of the Rotary Modules. For fast changeover the sets of four parameters can be pre-configured and recalled via the push buttons. In large consoles two or more assign modules of each type, working in parallel or per fader module, may be combined for good overview and ergonomics.



The Fader Assign Module is completely at the operator's disposal. The buttons can be configured for console-internal functions such as routing, snapshot recall and channel level meter functions or for console-external functions such as GPIO control, red light control, etc.



OnAir 3000 Fixed Frame

The fixed frame variant of the OnAir 3000 uses the same drop-in modules as the Modulo version. All combinations are possible from a minimum desk with 6 faders, monitoring and talkback module and main screen up to a maximum size of 48 faders with rotaries, assign modules and fader screens. The main control section, which houses the monitoring and talkback module, may be fitted either centrally or anywhere between fader sections, as required. A script space may be specified, and a group of 3 or 6 faders may be fitted for group or master bus control. For smaller applications a compact table-top housing for fader modules is available resulting in a very flexible and space saving desk.



This variant has 12 channel faders and 3 master faders, Monitoring and Talkback and Main Screen. This configuration, with its very simple control surface, is ideal for on air applications. It may also be offered without the 3 master faders and have six of the channel faders fitted in the main section, for compactness.

Quick and intuitive operation

The control surface of this 3rd generation digital on air mixing console is a logical evolutionary progression based on extensive experience gained in many more than a thousand on air installations throughout the world.

It combines the philosophies of the well proven OnAir 5000, OnAir 2000 and OnAir 1000 control surfaces and uses the most modern software and hardware architecture to allow the greatest possible freedom in configuring the system and fulfilling every conceivable user requirement.

The operation of the desk is based on Studer's well proven and worldwide accepted Touch'n'Action user interface concept. Only the most important functions have hardware control elements in the channel strip making the operation of the console very simple and stress-free. Above every fader module a colour touch screen displays all the relevant settings and configurations for each related channel. A simple touch on the respective symbol of a channel function, e.g. equalizer, dynamics, AUX send, immediately opens the corresponding page on the main screen, allowing quick and easy adjustment. This can be done either by the four rotary encoders below the main screen or directly by touching a selection list within the main screen display.

The most important functions are just one finger stroke away, accessible virtually instantly - vital in a hectic live on air situation. The user interface is designed in the same symbolic language as the Vistonics™ system, and adjusted in a very flat hierarchy, without the use of multi-level menus.

The OnAir 3000 offers input parameter settings, such as phase, gain, HPF, pan/balance, 4 band parametric equalizer and additional high pass and low pass filters, full dynamics, i.e. limiter, compressor, expander, noise gate and de-esser in every channel all the time. In addition the contribution to the four stereo AUX sends and the 16 N-X, which can also be configured as stereo AUX sends, is very easily done.

The OnAir 3000 provides fully featured input and output routers displayed on the colour screens and operated via the rotary encoders and touch fields; the crosspoints can be locked against unintentional manipulation and displayed in various ways. Shared audio sources in the OnAir 3000 network, connected physically to remote SCore, are also visible in the routing pages as if they virtually were local sources, once defined in the Configuration menu. The Configuration GUI can be run on the same Main Screen or on a remote PC, e.g. in a support department or MCR over a network.





When the console is being operated in a multi user environment, restrictions may be imposed on the availability of selected functions by setting up user accounts with specific user profiles and access rights, installed by an administrator. Global and private snapshots for control surface set-ups, audio related parameters and routing set-ups can also be stored either locally in the console, via the external compact flash (CF) card reader in the Main Screen or over a network centrally to a file server.

Reliability

Reliability is one of the most important elements in a live broadcasting environment

Studer has therefore designed the OnAir 3000 with strict regard to all potential modes of failure:



- All desk modules are hot swappable. If a module fails, the CAT 5 cable can be disconnected during operation and a replacement module connected. After approximately 6 to 8 seconds the new module will have started up and work can continue with exactly the same settings as before the event.
- The desk and the SCore feature optionally redundant power supplies which are monitored from the control software
- All D21m I/O modules are hot swappable and can be exchanged if necessary during operation
- The DSP cards are hot swappable
- The Controller card is hot swappable; a failure does not interrupt the audio signal
- Error messages are displayed on the GUI and recorded in a log file which can be monitored and analysed from anywhere in the network enabling immediate action
- Error messages may generate an external alarm signal, activate a pager or generate SMS messages on a mobile phone
- The network switch is optionally available in a redundant version with redundant power supplies

Highest flexibility to fit your needs

The control surface of the OnAir 3000 consists of a selection of modules which can be combined to most closely fit the user requirements. In total a theoretical maximum of 64 modules may be connected, with the distance between one module and the distribution point being up to 50m. Alternatively the modules may be mounted in one of the fixed frame options according to customer requirements resulting in the table-top OnAir 3000.

It is also possible to operate the OnAir 3000 in a split mode where for example one part of the desk runs a national programme and the other physically separate part a regional programme. It is also possible to have a single fader module mounted remotely in a voice booth or news suite or to have a control surface in an OB vehicle working in parallel with the desk in the studio.

All buttons on the surface can be freely configured and assigned a specific function, such as On/Off, TB, locate, etc. For example, the On/Off button can be assigned to be either above or below the fader to suit the working practice and the convenience of the operator. All settings, including dynamics, are input source related and follow the source if the routing is changed.

Fader Module

The Fader Module comprises 6 fader strips and up to 8 fader modules can be combined to give the maximum configuration of a 48 fader desk. In addition to these 48 channel faders, additional fader modules may be connected for bringing the bus signals to the control surface, e.g. PGM outputs, groups, AUX masters, etc.



Every fader strip includes five illuminated keys, the fader, an LED input level meter which may be set for AF/PF and N-X send level, with overload indication, an LED gain reduction meter, and an 8 digit alphanumeric channel label display.

A touch sensitive rotary control with one button is available in every fader strip. The function of these elements can be assigned/configured via the Fader Assign Module. If the Rotary is touched the Channel Label display shows the corresponding value, e.g. in dB, according to the function selected. Several functions such as input routing, input gain, balance, N-X level, AUX level, are selectable from a predefined list. The button has, for example, an Enter, ON/OFF or AFL/PFL function depending on the chosen mode.

Alternatively to the 6 fader module a module with 3 faders is available for smaller or detached applications, e.g. a news booth or editor work places.



Motorised Fader Module

The motor fader module extends the great variety of optional OnAir 3000 modules, and is available as part no A943.061000.



The module contains 6 full 100mm faders, 4 large illuminated and configurable pushbuttons with replaceable label, and 12 small illuminated pushbuttons per channel. Two LED's in each fader strip indicate channel overload (red) and active fader start (blue). Level and gain reduction meters are shown on an OLED display on every channel.

Additionally, channel label and channel process parameters are indicated on the OLED as well.

A touch sensitive rotary encoder below every display allows you to change the indicated channel parameters without losing focus on the fader strip.



The OLED display gives outstanding readability of condensed content, even

when exposed to bright surroundings. Eight small push buttons beside every fader allow immediate access to the linked subpage in the main screen of the OnAir 3000 (Touch'n Action) for quick interaction between channel parameters, no matter which content was shown before a button is activated.

Fader Screen Module



The colour 12" touch sensitive fader screens display the input settings, equalizer and dynamics settings, AUX send levels, N-X contribution, input, output and insert routing, bus and group assign, Pan/Bal and channel label, all in real time with real values.

The Fader Screen is also available in a multi functional version with additional DVI input and two buttons on the front to switch between the standard channel display and any external video source (600x800).

Fader Assign Module

Via the rotary encoder a function can be assigned to the row of rotaries in the Fader Module(s). Turning the rotary shows a predefined sequence of the available functions (for example, gain, bal, input routing) in the display next to the rotary.



All other buttons on the module are freely configurable via the console set-up, either for console internal functions such as snapshot recall or routing preset recall or for external GPIO functions such as green/red light control, play next tune in a play list of a playlist system, stop, play, record, etc.

Rotary Module

The rotary module comprises a 6x4 array of rotaries each with an LED ring and two buttons, aligned in rows which are vertically aligned with the fader strips.



The assignment of functions is made via the Rotary Assign Module, where a display shows the respective parameter actually active in one row.

The Rotary Module provides quick access to a large number of functions via dedicated controls, e.g. in production applications. The function of the buttons depends on the parameter chosen and can be e.g. AF/PF, AUX On/Off or no function.

The exact value of the respective parameter is visible either in the channel label display when touching the touch sensitive knob or via the main screen, and also graphically via the fader screen, if available. The user can choose a set of parameters through the Rotary Assign Module.

Rotary Assign Module



The button array enables predefined functions such as EQ LF parameters, AUX 1..4, N-X 5..8 send level, etc.

to be recalled quickly and accessed directly on the rotary modules.

The four displays in the Rotary Assign Module display the parameter name for the respective row of rotaries, whereby for example, the EQ curve can be displayed in the Main Screen simultaneously for direct observation of the settings. More than one Rotary Assign Module may be included in a desk surface even with isolated functions per fader bay.

Monitoring and Talkback Module



The Monitoring and Talkback Module for the control room includes an array for monitoring a configured selection of signal sources. In addition, via the add button, one source can be monitored via e.g. the left CR loudspeaker and a second source on e.g. the right one. This facility may be used when synchronising two external programmes to the local contribution. It is also possible to listen to every source connected to the system in real time by activating and turning the rotary encoder below the buttons.

Located below are the CR loudspeaker controls, the DJ headphone controls and the PFL/TB/MPX loudspeaker controls.

On the right side are the buttons for talkback to destinations other than the input channels (these are accessible via buttons in the fader strip), Slate and configurable buttons for user-definable talkback groups.

On-Air, CR-Mic, Studio 1-Mic, Studio 2-Mic and Studio 3-Mic lamps indicate red light for on-air and open microphones respectively. An optional gooseneck microphone for talkback may be fitted on the right of the lamps.

Depending on the configuration, up to 16 additional external talkbacks (sources and destinations) can be configured.

The Monitoring and Talkback Module also includes an ADAT interface for easy audio connection between the desk and the DSP core. The eight channels carried via the fibre cable are used for the DJ and guest headphones, TB microphone, PFL/TB loudspeaker and the control room monitors, if fitted. In the fixed frame version of the OnAir 3000, the ADAT connector is at the rear of the console housing.

Compact Monitoring and Talkback Desktop Modules



These allow up to 32 additional monitoring places to be added for roles or functions in the studio environment who need to select monitoring sources and talkback functions, such as the Producer, Presenter or Studio Manager. Versions with or without a level control knob are available.

This may also be regarded as an intercom system built into the console. For handling the corresponding audio signals, additional headphone boxes are required.

Main Screen Module

The Main Screen Module includes the central 12" TFT touch screen and four Rotaries with tactile feedback (patented) below the screen; in addition two buttons for control of the stop watch and a slot for a memory card are provided.



The screen includes a studio clock, two stereo bargraph meters each with phase correlators, two stop watches, menu buttons and eleven freely assignable buttons on the right border of the screen. These buttons can be used in the same way as the buttons in the Fader Assign Module.

By touching the label below the meters another predefined source can be monitored.

If the desk is operated without the Fader Screens, the user can access all menus via menu buttons at the top end of the display, i.e. channel parameters, bus settings, monitor settings (used e.g. if the desk is emulated on a PC), input/output routing settings, administration and user management. Direct access to channel parameters may also be given by configuration of a SEL button in the fader strip.

Distribution Box



The Distribution Box includes the power supply for the desk and serves as a star point to connect all desk modules via RS422 on CAT 5 connections. Each module may be up to 50m away from the Distribution Box, and even further if a local power supply is fitted. For larger desk configurations, or if redundant power supplies are required, the Distribution Box is also available in a 19" 2U size including two power supplies. For the fixed frame version of the OnAir 3000 the Distribution Box is mounted within the console.

Studio 1 Box



The OnAir 3000 supports three studios with separate monitoring and talkback next to the control room and feature two PFL circuits, PFL 1 for the CR and PFL 2 for Studio 1. In contrast to the CR Monitoring and Talkback Module, the Studio 1 module does not support the MPX (conferencing facility, V2.2) but includes control of the PFL 2 circuit, the add mode and the rotary for free selection of monitoring sources. This allows the use of Studio 1 as a completely independent studio e.g. in split mode or A/B mode for production of a separate program.

Studio 2/3 Box



The Monitoring and Talkback Box for Studio 2 and Studio 3 have a reduced feature set offering an array of configurable buttons for monitoring source selection and talkback destinations, red light indication, studio loudspeaker and headphone control and connection.

Talkback from every location to every location is possible. All four Monitoring and Talkback Modules are available either in Modulo drop-in version for inclusion into studio furniture, fixed frame version or in table-top housing.

Surround Control Module



The Surround Control Module is an extension to the existing Monitoring and TB Module. The user can easily switch between Internal Stereo Mixdown and External Stereo Encoder (e.g. DOLBY®), mute individual speakers and switch to an alternative Stereo Nearfield speaker set with its own dedicated volume control rotary.

Editor Module



The Editor Module is an extended three-fader module including a subset of monitoring and talkback functionality and buttons for the assignment of the rotary function. Eight freely configurable buttons each for monitoring source selection and talkback destination, four configurable buttons for rotary functions like input routing, gain, etc. and volume control for editor headphone, guest headphone and loudspeaker volume allow for a standalone working environment, e.g. for a journalist or editor.

In a typical application up to four Editor Modules may be connected to a standalone SCore for an editorial and production office. The journalist or editor may connect his/her recording device with the interviews via a D21m stagebox to the SCore, edit it on an editor workstation and mix it with the three faders for final contribution. Via the SCore and the STUDER RELINK (Resource Linking) feature, the operator has access to all configured audio sources in the OnAir 3000 environment.

XL Module



The XL Module enables direct communication to up to 48 outside sources. It features 12 eight digit alphanumeric displays for source label indication, 12 buttons each for PFL of and TB to these individual destinations and a rotary control for individual and sum volume control. In a typical application during, for example, a sports event or election communication where many outside locations need to be controlled, the XL Module is a fast and ergonomic solution.

Monitoring Module with Timer Extension



Every fader channel has a separate fader stop watch, displayed in the label field of the Fader Screen. This timer value can be brought by the technician to the producer or host in the Studio via this extended Studio Monitoring Module. Next to the stop watch display is an additional local stop watch and time of day display.

Headphone Amplifier



This headphone amplifier can be fitted on top or under the table with respective mounting brackets. It can be connected directly to a line output of the D21m I/O system and features a local amplifier with volume control. In addition a talkback signal with separate volume control can be enabled and brought to the guest headphone, heard in split mode and controlled via a GPO signal.

GPIO Boxes

Two types of general purpose desk top boxes in the OnAir 3000 design both with an illuminated button and one box with three additional LEDs are available for many different applications, e.g. cough key, control of external devices, etc. The buttons may be connected to GPIs and the LEDs to GPOs directly and configured for the respective task in the Configuration menu.



Multiple Journalists Desks



OnAir 3000 systems may be combined with up to four 6-fader modules from the new OnAir 1500 console for individual journalist offices, sharing the DSP core among themselves.

Remote GPIO and Custom Logic

Triggering of logical events through the network is possible. Remote GPIO simplifies the networked setup of consoles and makes GPIO wiring between consoles redundant. Instead, logic events of a console in a network are available automatically to any other console in the same network.

It is possible to combine events using Boolean functions. For example, talkback functionality between two consoles can be easily realised with this feature.

Off the Shelf

When the flexibility of the OnAir 3000 Modulo system, with its range of individual modules, is not required, the OnAir 3000 fixed frame, console and compact versions provide the ideal solution, enabling a complete desk surface to be installed quickly and easily either for fixed studio operation or in mobile environments.

Both the fixed frame and the compact versions incorporate the same hardware modules and function blocks as the Modulo version, allowing users to choose any required combinations according to their individual requirements. From the minimum system of one fader block with the Monitoring and Talkback block and the Main Screen in a single frame, up to the full complexity of 48 faders, Rotary blocks, Assign blocks and Fader Screens, any logical combination is possible.

The connection between the fixed frame desk surface and the DSP core consists of one TCP/IP CAT 5 cable and an ADAT fibre link for the audio signals including talkback microphone, headphones, PFL/TB loudspeaker, control room monitors, etc. The desk is powered separately from the core and may include redundant power supplies if required. The Compact version includes an external Distribution bix whereas in the fixed frame version it is included within the frame.

The OnAir 3000 system allows two desk surfaces to operate simultaneously in parallel on the same DSP core. As the system features two independent PFL circuits and supports three studios with separate monitoring and talkback facilities, the two surfaces can be used to produce two different programmes at the same time, with separate snapshots and routings for the two individual desk units.



Example of a fully equipped console with 12 channel faders, including Rotaries, Assign modules, Fader Screens, Monitoring and Talkback, Master Screen and a 3 fader Master section, e.g. used for the three main output buses.

In general it is quite possible to assign any master bus to any fader on the console or as another example to use a 6 fader module for group faders or AUX master bus controls.

The OnAir 3000 desk surface is also available in a Compact version for less demanding applications or where space is restricted. The Fader Modules are fitted in a similar table top housing as the Monitoring and Talkback Module and combined with a Modulo Main Screen giving a complete Desk. All modules are connected via CAT 5 cable to the Distribution Box similar to the Modulo version.



The Console version of the OnAir 3000 is a totally standalone unit, with integral legs and cable management, and so does not require any custom furniture.

Part of the desk may be detached and for example mounted in a news studio either as a table top unit or in the Modulo version as a drop-in module in the studio furniture.



Powerful Functionality for Broadcast workflow

Delay



To compensate for audio to video signal offsets when operating the OnAir 3000 in a TV environment, systems using the SCore Live DSP core enable a delay function. During operation, delay can be activated on input channels, master and aux busses, N-x and subgroups. It is possible to set any delay time between 0 and 5 seconds in a resolution of milliseconds.

Conference MPX (Optional)

The Monitoring section of the Control Room and Studio 1 is extended by the Conference function including its own MPX-Listen Bus with adjustable volume. Members of a conference can easily be added or removed anytime, and can be selected or de-selected with their Channel-Select buttons on the Desk or from within the Main Screen Desk.

Remote Control using the Windows® XP Remote Console application is also provided as are all console functions.

Cue

The CUE function allows the operator to send a selected CUE feed individually to any of the N-X Buses. The User can decide whether the CUE feed shall be the same source as selected for the Control Room monitoring or he can select one of the 10 pre-configurable CUE source buttons - any available Input, Output or Bus can be configured. For both, MPX and CUE, it's obvious that if a Channel goes OnAir, the N-X foldback switches to the signal according to the selected N-X mode.

Configurable Output Routing Preset Keys

Up to 1024 Output Routing Resets can be pre-configured to be activated either from the Main Screen or by GPI and Desk buttons.

In contrast to a regular Output Routing Snapshot, which saves the sources of all Logical Outputs, the Partial Output Routing Snapshots only changes the pre-configured cross points, while leaving all other existing connections untouched.

This feature is invaluable for additional monitoring selector boxes and OnAir transmission control.

VCA Masters

Any of the available 8 subgroups can be operated as a VCA. VCAs have a pure controlling functionality and do not affect the individual audio bus routing of a channel.

Metering

PREL	LOG METER	PREL METER	AUX 1	AUX 2	AUX 3	AUX 4	PREL
00:00:00	PREL METER	PREL METER	LOG METER	LOG METER	LOG METER	LOG METER	PREL

The metering function offers several meter types, including BBC and Digital, of which the digital full scale meter has a configurable headroom indication. A source selector allows a very simple selection of a preferred source to the meter.

Direct Outputs

The OnAir 3000 provides the ability to feed the audio signal for the Output Routing from three different positions within the Channel signal path. If a user routes a Logical Input to an Output, they can select whether the signal shall be taken directly from the source of the Input, Pre- or Post-processing or from the Channel Output (Post-fader). Naturally, all Direct Output signals are also available as routable sources when controlling the OnAir 3000's Output Routing using the ProBel protocol.

Limiter on AUX and N-X Buses

In addition to the Program Master Buses, all AUX and N-X Buses are equipped with a Brick Wall Limiter. Parameters are the same as on the Master Buses and can be preset in the Config GUI. Up to 48 N-X busses are available.

N-I Mode and Full Return Function for Clean Feeds

The additional N-X mode is equivalent to the classical N-I function, which is independent of the Channel's Bus assignment. Desk buttons can be configured to activate Full Return, where all signals (incl. the one of the N-X Bus owner) are sent back. This function can be used if a reporter outside the studio would like to have his own signal back for monitoring purposes, for example.

Reverse Contribution Overview

A routing page on the Main Screen allows a user to route channels to Buses in a matrix style manner other than the conventional assignment where the Bus assignment is done from within the Strip Channels. The Routing page also gives the user a great overview of the inputs currently assigned to a bus while the N-X Buses have an indication of the N-X mode they're set in.

Tie Lines

Tie Lines provide a cheap and robust audio connection between two Studer Cores (Vista – OnAir 3000) for up to 10 m distance. One or more DSP cards of a Core may be directly connected to a DSP Card of the other Core by two HD-Link cables as usually made in a D2Im Hub. Each Tie Line allows the transfer of 96 Mono channels in each direction.

Control Protocols

OnAir systems can use the **MONITORA**, **EMBER** and **PROBEL** protocols. (Licence keys may be required)

Multiple MONITORA Interfaces

Multiple CAB systems can be connected to the Core using the MONITORA Protocol in order to cover various applications like A/B- and Split Desk setups as well as the freedom of connecting more than one system, e.g. Program Play-out system and Jingle Player to a console. To support distributed studio setups, Studer's automation protocol is tunnelled via TCP/IP. Longer distances between console (SCore) and the automation system can be achieved using the existing network interface of the host controller.

Adjustable Output Gain

The output gain of logical and patch outputs is adjustable with the fourth rotary knob on the user GUI's Routing - Output page. Since it is a critical adjustment for on-air operation, access to it is deactivated by default, but can be enabled in the system Configuration Tool for a user requiring it.

Advanced Log System

The Advanced Central Error Logger is equipped with a LogScreen. While the Logger, which can also run as a Windows Service, collects all Error Messages centrally and writes them to the LogFile, the new LogScreen lets an administrator load and inspect saved LogFiles, as well as check the health state of the system by checking ErrorLogs in quasi real time. Extensive filter functions allow the administrator to focus on particular Error Messages.

System Viewer

The System Viewer is another useful administration tool running under Windows® XP. A system administrator can easily detect all systems within the connected network, while having an overview of important information (IP Addresses, MAC Addresses, System- & Container IDs, System- & Container Names and Software Versions) of all individual DNET system components, like Cores, Screens, Central User Management- or Snapshot Server, currently running Remote Consoles or Remote Configuration Tools.

System Surveillance via SNMP

The system state of an OnAir console can be optionally monitored via SNMP messaging. The Simple Network Management Protocol is a common method to monitor and control networked devices independent of type and usage. The way SNMP is implemented enables two different methods of receiving information from a single or multiple OnAir systems in an IP network. Systems can actively send important status information to the connected network. Special messages (Traps) are triggered when parameters reach or surpass predefined thresholds, e.g. a processor's temperature has risen to a critical level or a console's OnAir state is activated. Additionally, traps are sent on any occurring system alert, e.g. PSU error or synchronisation switch-over. Such active sending does not need any user interaction.

Compact SCore Digital Horsepower

The audio heart of the Studer OnAir 3000 is the Compact SCore DSP platform



Housed in a 6U frame which can be equipped in the upper part with up to six DSP cards, the controller card, time and clock synchronization interfaces and GPIO cards, the Compact SCore provides I/O capacity up to 576x576. The lower 3U part includes the standard D21m I/O system.

Audio Processing

A single DSP card of the SCore platform uses six SHARC DSP chips in a cluster arrangement and the DSP cards are connected to a high-speed backplane capable of a data throughput of more than 6 Gbps or an equivalent of 4000 audio channels.



The audio data is processed with a resolution of 40 bit floating point guaranteeing absolute Studer high end audio quality. The SCore and consequently the OnAir 3000 use the same DSP audio algorithms, e.g. for equalisation and dynamics, as are used in the large frame Vista and D950 mixing consoles resulting in unparalleled Studer audio quality.

System Management

The system management of the OnAir 3000 is provided by a single board computer which also provides the communication within the system and to the desk and the network. For both cost and reliability, the best and most up-to-date solution is an industry standard processor which is produced in high volumes and can be relied upon for consistent operation and the highest quality standards. The processor runs the embedded real time industry operating system Windows® CE which is also used in car navigation systems, high reliability tooling machines, military and aerospace applications.

This approach has clear advantages over either an in-house development or a highly specific commercial operating system in that it has been thoroughly tested by a large number of users and proven in very critical applications – either in high tech environments or in the case of the car industry in high volume products with probably the most severe

quality requirements in the industry. The embedded Windows® CE also provides inherently all the necessary facilities for stable and reliable network communication as is used in the OnAir 3000 audio network.

Clock Synchronisation



The Clock Synchronisation board allows the internal clock frequency of the OnAir 3000 to be synchronised to an external master clock. Synchronisation to the following external signals is possible:

AES/EBU: 32 kHz, 44.1 kHz, 48 kHz
Wordclock: 32 kHz, 44.1 kHz, 48 kHz
Video sync.: 25 fps, 29.97 fps, 30 fps

Time Synchronisation

If the SCore is equipped with the Time Synchronisation board, the OnAir 3000's internal clock can be synchronised with an external time reference signal such as DCF 77, a GPS receiver, a Mobatime clock or many other protocols providing a serial output signal. Another possibility is to use the Radio Automation System (CAB) for time synchronisation or the network clock.

SCore Live

Maximum power, Minimum size

Where a larger or more expandable system size is required, or redundancy is a key issue, the OnAir 3000 can be offered with the highly scalable SCore Live DSP core, allowing the choice of DSP size and I/O capacity to be easily expanded at a later date.



With the comprehensive D21m I/O, the SCore Live system can accommodate up to 1728 x 1728 inputs and outputs arranged in a maximum of 18 D21m Hubs or up to 45 MADI Stage Boxes.

The SCore Live offers additional redundancy options for failsafe operation, including DSP Cards and power supplies. The main rack, provides for up to nine DSP cards and can also hold up to 12 I/O cards of various formats, additional GPIO.

Audio Processing

As always with Studer, no compromises are made on sound quality – the SCore Live uses the highest possible quality converters with the very same highly acclaimed

processing algorithms with 40-bit floating point arithmetic to guarantee the best resolution of the audio at all signal levels, particularly in the A/D and D/A converter stages. Floating point summation, a feature not found in many digital console designs, is used in the console busses.

The SCore Live and consequently the OnAir 3000 uses the same DSP audio algorithms, such as equalisation and dynamics, as used in the large frame Vista and D950 mixing consoles resulting in unparalleled Studer audio quality.

The overall DSP and I/O system can be expanded to accommodate up to 1,728 inputs and outputs. I/O frames and their I/O card configuration are automatically recognized, making

porting a remote I/O box (e.g. stagebox) between different consoles on a day by day basis very easy.

Flexible and Optimised DSP usage

Unlike DSP platforms, from other manufacturers however, the SCore Live is user-configurable to maximise the use of the DSP in different applications. The advantage of this is that the user can specify and purchase the optimum amount of DSP for current needs and yet not compromise future production requirements. Fixed configuration DSP platforms can add extensive cost onto a console system.

Peace of Mind

The SCore Live maintains full redundancy, with redundant power supplies and even DSP card redundancy. In the case of a hardware failure any unused DSP card will take over the processing almost immediately.

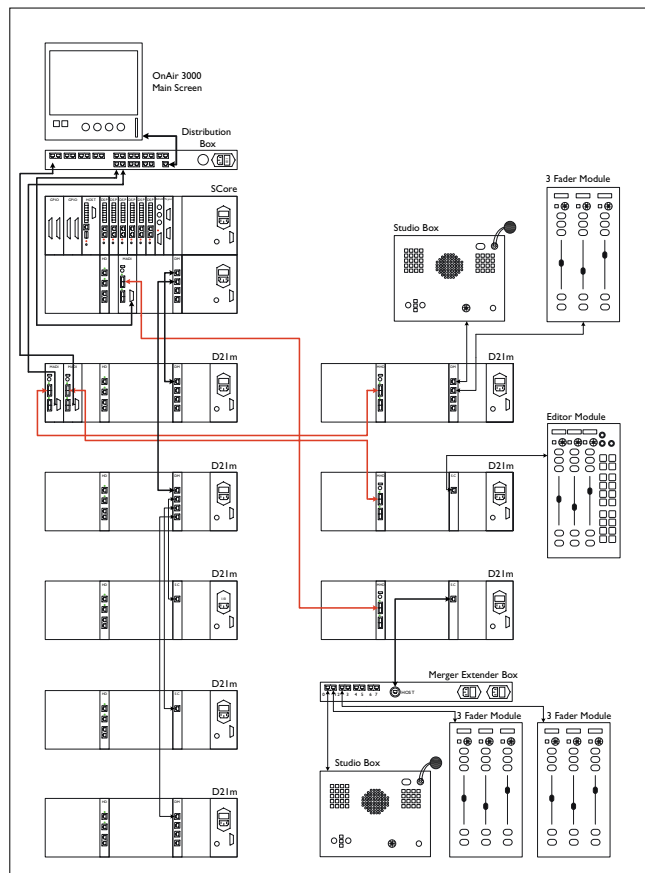
D2I m I/O System

The OnAir 3000 uses Studer's high density D2I m I/O system which is also used in the large frame digital mixing consoles Studer Vista and D950. It is located in the lower 3U part of the SCore frame. Its 12 slots can be equipped individually to the system requirements with different D2I m I/O cards. The D2I m I/O frame is connected via the High Density (HD) link to the DSP card in the upper part of the SCore frame.



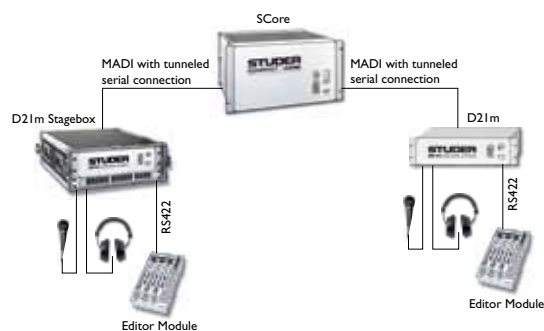
If more inputs or outputs are needed, up to another five external D2I m frames may be added to a Compact SCore, or 12 to an SCore Live, and connected to additional DSP cards per D2I m frame to the maximum of 6 DSP cards. This results in a theoretical maximum of 576 physical input and 576 output signals. with the Compact SCore, or 1728 x 1728 with the SCore Live.

For connection of remote signals MADI stageboxes may be connected. A remote stand alone D2I m I/O frame is connected via an optical MADI link to the SCore whereby remote D2I m cards, such as mic cards are fully supported by the OnAir 3000 control system. The Studer MADI card also allows also tunnelling a serial connection



between the SCore and the stagebox. This serial connection can be used for any information but most beneficially used in a studio environment to connect remote OnAir 3000 desk modules. As an example, an Editor Module may be located in the same place as the MADI stagebox and such be used as a journalist suite. The serial RS422 control of the 3 fader Editor Module is tunnelled together with the audio data to the SCore giving a very elegant solution.

D2I m System Architecture



Input and output modules

The following D21m input and output cards are available:

- Mic/line card, 4 ch with analogue insert extension connector
- HD Mic Card 4ch, with Transformer inputs
- Analogue Insert card - with 4 balanced insert sends & returns
- Line In card, 8 ch - 24 bit Delta-Sigma A/D converter board
- Line Out card, 8 ch - 24 bit Delta-Sigma D/A converter board
- AES/EBU card, 8 ch AES/EBU in, 8 ch AES/EBU out Available either with i/p SFC, with i/p and o/p SFC
- ADAT card, 2 x 8 ch i/p and 2 x 8 ch o/p with optical interfaces
- TDIF card
 - Provides 2 TDIF interfaces
- MADI card
 - Provides optical 64ch MADI interface
- GPIO card
 - 16 opto-coupler general purpose inputs
 - 16 open collector general purpose outputsalso available with relays
- HD card - Core connection card for up to 96 stereo inputs and 96 stereo outputs
- 3G SDI input card (de-embedder for 8 or 16 input channels)
- 3G SDI input/output card (de-embedder/embedder for 8 inputs and outputs)
- Dolby® E/Digital decoder cards (8 or 16 input channels)
- CobraNet® I/O card (32 input and output channels)
- Aviom A-Net® output card (16 output channels)
- EtherSound® I/O card (up to 64 input and output channels, selectable in groups of 8, plus 8 GPIO control signals)
- DTMF Card with 16 audio inputs and 8 audio outputs to GPI (available from BCD Audio, www.bcd-audio.co.uk)

Failsafe Operation, even under fault conditions

The D21m system automatically detects newly inserted cards in real time and sends the appropriate information to the main controller. Additionally, in the case of a card failure an error message is transmitted and displayed on the GUI.

In the case of a total power loss of the system the core will boot independently of the desk and pass audio in under 10 seconds – recalling the last audio settings before the power failure.



Alternative Stagebox Support



The new Compact Stagebox offers a high I/O count-to-rack space ratio at an affordable price. It connects to the console's DSP core either via Cat5/7 cable or, for large distances up to 1500 m, via an optional optical-fibre interface.

The number of inputs and/or outputs can further be increased by using one or two optional D21m card(s).

The Compact Stagebox comes complete with twin redundant power supplies, thermostatically-controlled fan cooling, full LED status monitoring, and an 8-channel GPIO interface.

System operation modes

The OnAir 3000 is more than a digital on air and production mixing console. It is a future proof investment in an integral part of a broadcast system. The modular design of the hardware and the software allows an open architecture permitting new levels of data exchange and remote control.

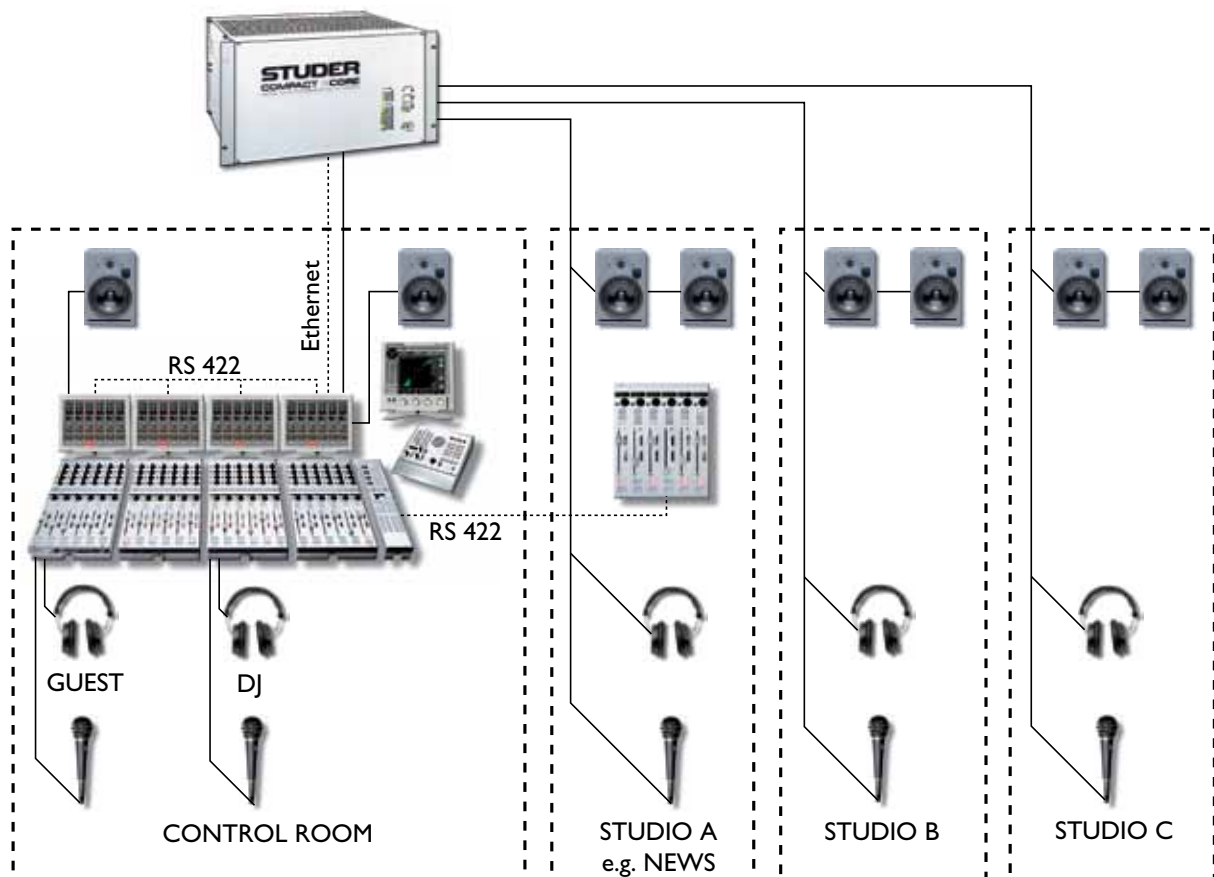
Stand-alone operation

In stand-alone operation the OnAir 3000 is an extremely powerful digital mixer for radio and production applications, whether in DJ self-op or engineering-op mode. It supports up to three studios with separate monitoring and talkback facilities and features two separate PFL circuits. The system consists of the desk

surface and the rack frame including the DSP and I/O interfaces.

The link between the desk surface and the core is provided by a TCP/IP link over a standard CAT 5 cable for the control signals and by a fibre optical ADAT link for the audio signals. This cable is connected to the Monitoring and Talkback Module for the Modulo version or to the back panel for the table top version.

The OnAir 3000 can be set-up in a split desk mode where a section of the surface such as a fader module is located in a studio, for example.



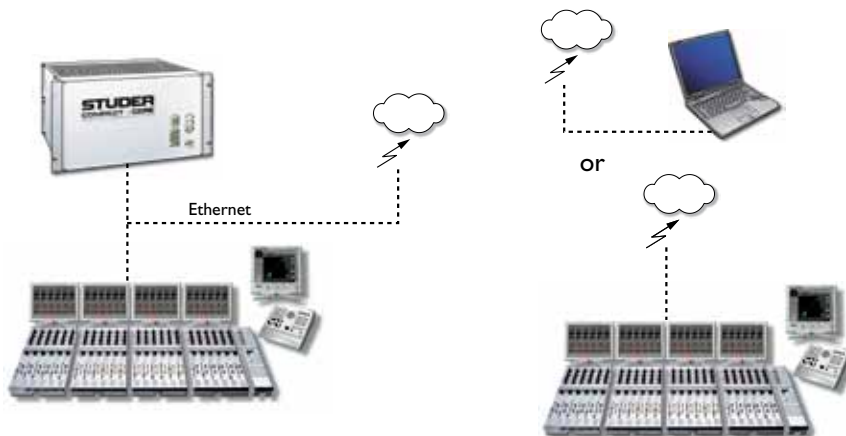
Remote, Parallel and PC only operation

It is also possible to operate the OnAir 3000 remotely. The standard graphical user interface (GUI) which is used on the Main Screen of the OnAir 3000 can be emulated in parallel on any PC or Laptop having network access to the console. It is thus possible to access all parameters including the faders and rotary controls of the physical console from the PC, with the two systems working completely in parallel.

This is extremely useful for the service department both for setting configurations and for dealing with exceptional situations. The technician can check the set-up at any time and make alterations or a fault diagnosis if necessary, reacting more quickly than previously possible even from home. It is also possible for the factory to enter a system anywhere on the world, assuming access permission is given, and provide assistance.

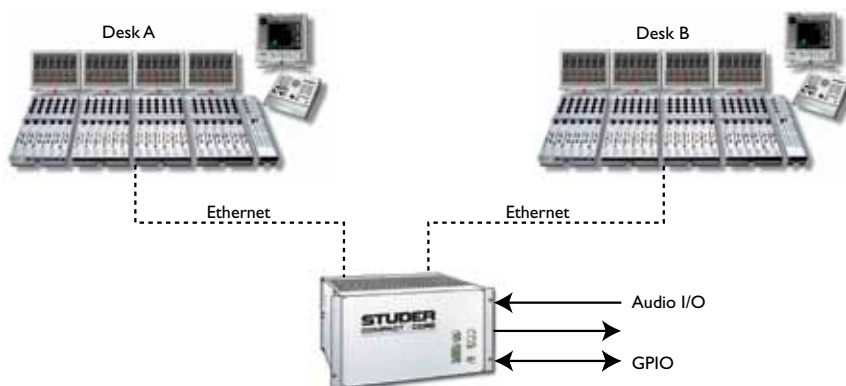
In this parallel mode another application would be an outside broadcast where the console is installed in an OB vehicle and the DJ operates it remotely. In this case a technician can co-moderate in the studio in parallel.

As the desk GUI can be emulated on a PC or Laptop, it is also possible to operate the SCore without any physical desk at all.



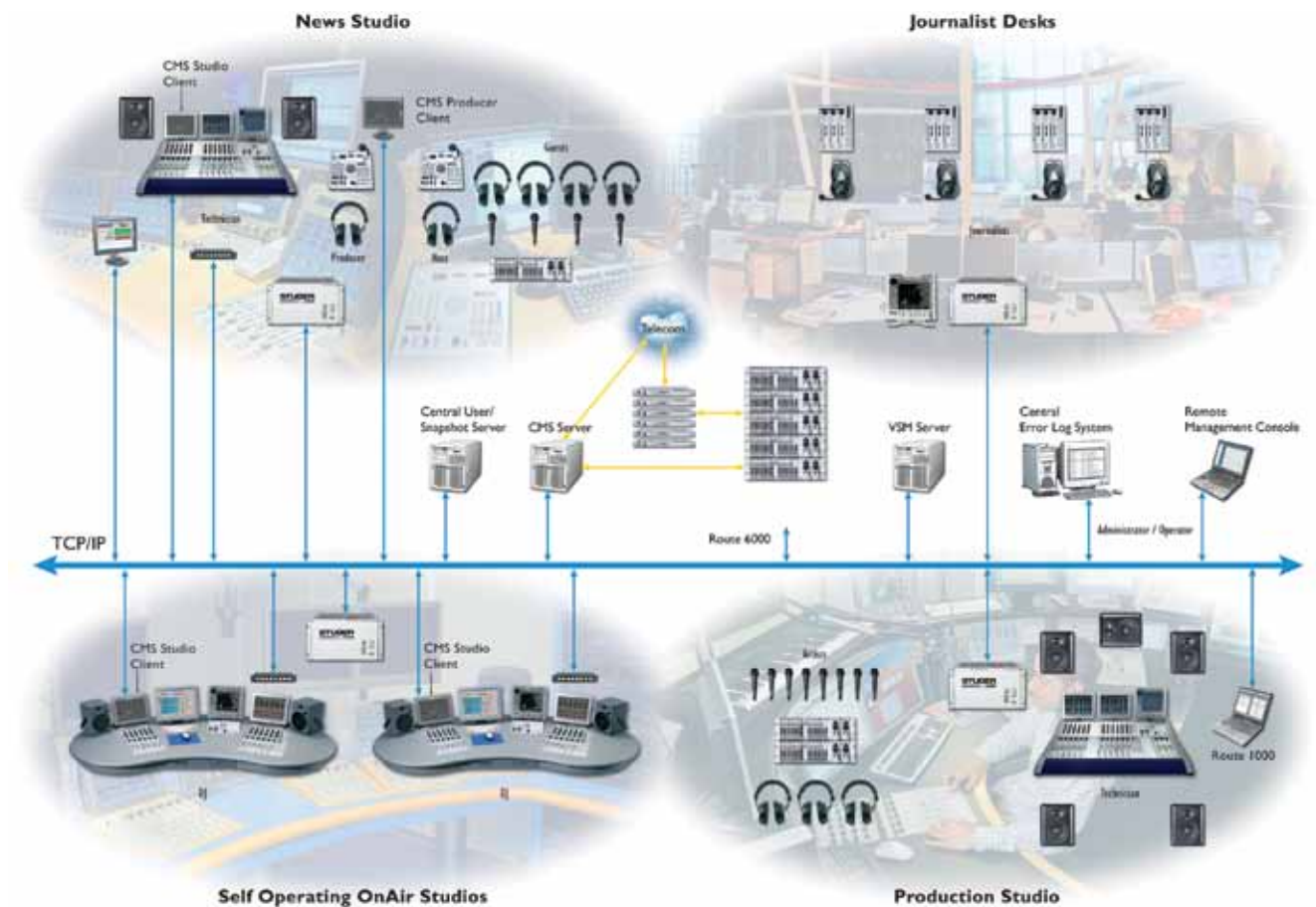
A/B desk operation

The OnAir 3000 supports also two independent desk surfaces on the same SCore at the same time. In this case the two surfaces are isolated and two users can produce two completely independent programs. Loading a snapshot on one desk does not affect the other desk. Sources can be used by both users, however, buses must be shared between both desks.



Call Management with Studer CMS

Studer's Call Management System (CMS), uses VoIP (Voice Over Internet Protocol) technology to supplement or replace expensive physical telephone hybrids and codecs, possibly replacing all the Codecs in a Broadcast facility with all control under the CMS/OnAir 3000 software.



A server PC interfaces to standard POTS and ISDN lines, as well as almost any PBX with a VoIP interface.

Although available as a standalone system, the functionality and control of the CMS greatly increases when integrated with a Studer OnAir 3000 console platform.

The CMS software applications have an intuitive and user friendly GUI to easily cover certain roles in the Broadcaster's daily business (DJ, Producer, Engineer).

Whichever implementation is adopted, thanks to these clear and intuitive GUIs, the system requires only around 2 hours training for any operator to be totally comfortable using it.

Unique to the Studer CMS is the ability to set up holding areas for callers known as **Waiting Rooms**. Here, incoming callers may be held prior to being put on-air, listen to hold music, leave messages on an answering machine or be given messages about the particular show, such as 'the line is now closed, competition is over', or 'all lines are busy'.

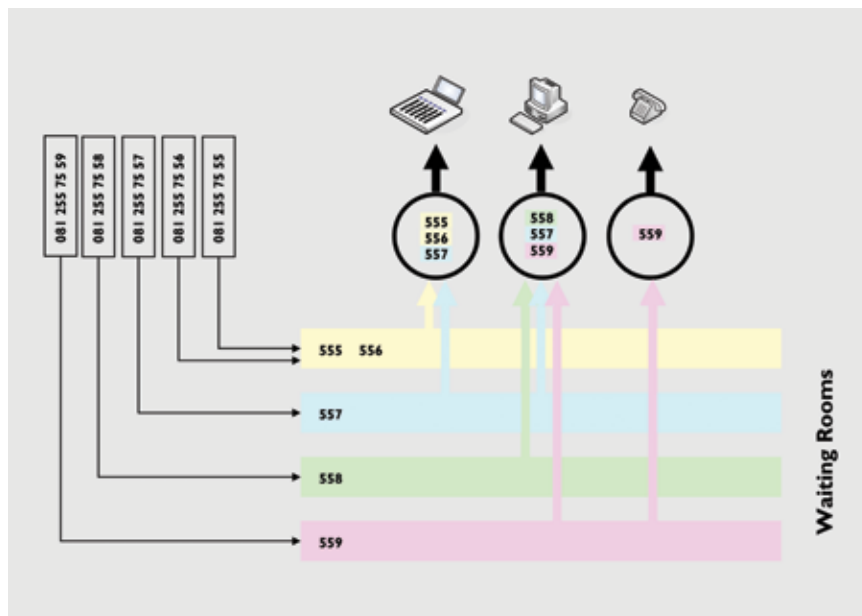
Waiting rooms bring some very interesting possibilities. Specific incoming line numbers may be assigned to waiting rooms so calls are parked there automatically, or callers can be moved to different waiting rooms depending on specific criteria.

Waiting rooms can be shared by users so that the details of a caller held in a particular waiting room are visible to all parties, or just some.

Phone lines can be allocated 'opening hours', where calls will only be routed to the studio at certain times. Outside these times, it is possible to play pre-recorded messages informing the caller that the line is closed, or played music. These opening hours may be predefined or manually changed live by the Broadcaster.

Telephone voting can be accomplished simply with CMS.

Callers may use their telephone keypad to vote for a contestant (multiple choice acts in a talent show, for example), a hot local topic (yes/no voting). As with normal calls, games and waiting rooms, voting can also have opening hours assigned to it so callers will know that the line is closed.



Voting can be done in the background, with the DJ then only needing to be informed of the results. Any user with the required access rights can easily check the vote results in a web browser. Results may be automatically calculated by the CMS.

CMS comes with extensive **caller database** functionality. Where local law permits, data on individual callers may be stored, along with any information the station needs to collect – for example, competition winners may be logged, obscene callers noted or addresses kept, so that the DJ can see any such data when the caller's number comes up, and can interact with that caller. Statistics may be gathered on how many times particular callers phone in, or to see how popular different times of day or different competitions are.



When integrated with a Studer OnAir 3000 console, the system offers a centralised, total radio solution.

Control of CMS functions becomes available on the OnAir 3000 fader screen touch panel, and handling of the outside sources becomes much more intuitive.

Finally, there is a totally integrated solution for Radio which centralises control and functionality at the operators fingertips, yet allows control and accessibility from other parts of an organisation.

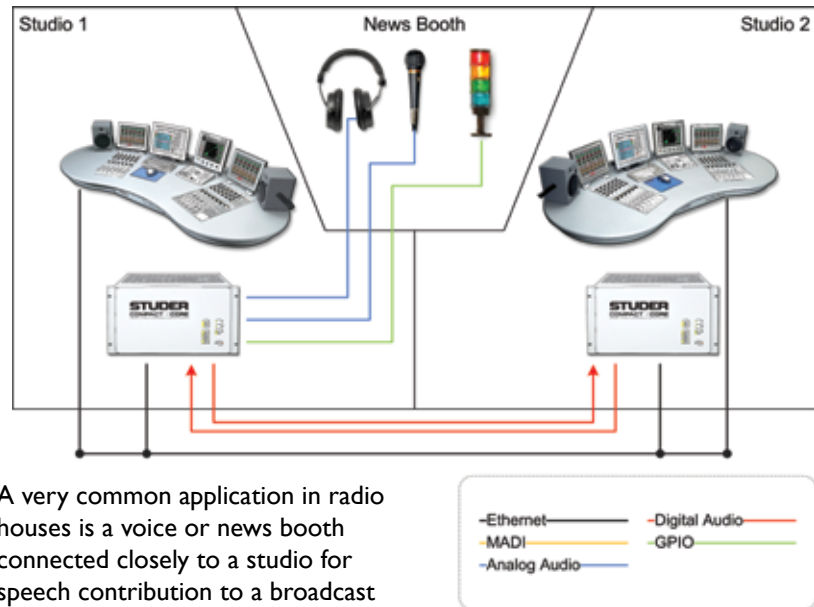
Studer RELINK I/O sharing

The OnAir 3000 can be easily integrated within the Studer RELINK Resource Linking managed I/O sharing system, which can link numerous Studer consoles in various locations of a Broadcast facility to allow audio source and control data sharing across a wide network.

One of the benefits of the Studer RELINK system in comparison to others is that it is based totally on Studer's existing SCore platform which is an integral part of a Studer console architecture, so no additional hardware or breakout boxes are required to complete the network. Communicating over TCP/IP with each other, any combination of Studer Vista (5, 6, 7, 8), the OnAir 2500 and 3000 consoles, as well as Route 6000 can link via RELINK.

RELINK is seamless, scaleable, flexible, and can start with a simple link between two Studer consoles, right through to multi-console systems using a two-step topology where all signals are matrixed through a central device, e.g. the Studer Route 6000 system.

Source selection is transparent, and signal labels are automatically transferred to the consuming locations, so the operator always knows what source is connected. Signal takeover between studios is seamless, so RELINK is well-suited for live transmission switchover. A resilient mic take-over mechanism ensures that mic control parameters such as analogue gain, phantom voltage, etc. are not unintentionally changed but require conscious take-over confirmation. Local monitoring at point of use is turned off automatically to prevent feedback, indicated with red light signalling, automatically following the source, wherever it is used.



A very common application in radio houses is a voice or news booth connected closely to a studio for speech contribution to a broadcast or a recording, while a second studio is used for production. The booth resources (microphone, headphones and indication) are physically connected to one console, usually to the one used most in combination with the booth (the one in Studio 1 in our example). This console provides the monitoring signal for the headphones, controls the microphone parameters as well as the ready/on air indicators. If the second studio (Studio 2) requires the booth for production, I/O Sharing allows forwarding the control of the microphone parameters and the indication from the console in Studio 1 to the one in Studio 2. Via a physical connection (tie line) between both studios, the audio signal is provided to Studio 2. This audio interconnection can be of any type, for example AES3.

The monitoring signal for the headphones is still provided by the console in Studio 1, but the monitoring signal is delivered by the console in Studio 2 via a suitable tie line (e.g. AES3) and routed to the headphones remotely. While Studio 2 works with the booth, it controls the microphone parameters, including analog gain and phantom power. Opening the microphone in Studio 2 activates the red light in the booth, presuming that the 'mic on' parameters are configured accordingly. In this case, existing monitor speakers will be cut remotely as well. Sharing the control information is established via a network connection (Ethernet) between all systems involved.

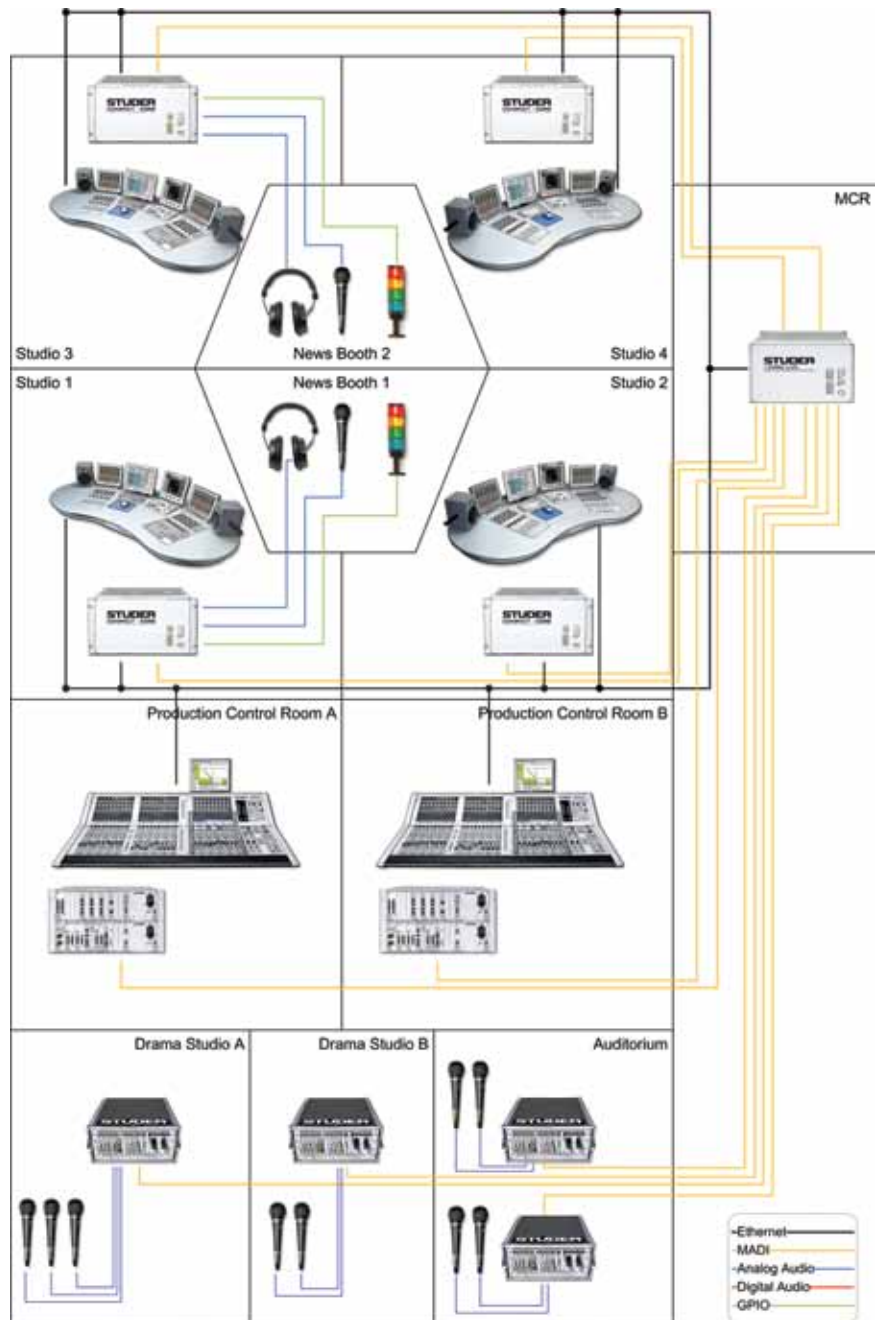
Two-step I/O Sharing is an advanced signal sharing application. It allows sharing of signals between two de-vices 'through' a third device. In the figure above, 'System A' and 'System B' are not connected directly but through the central router device 'System C'. System A provides a set of three microphones to the router. These microphones are available as NETInputs in the router and can be consumed by System B in the same way as local sources.

This example shows a (radio-) broadcast house where production studios and control rooms are located, in addition to the OnAir studios in the same building. The production studios (Drama A, Drama B and Auditorium) are equipped with D2Im stageboxes connected to the Route 6000 in the MCR.

In this way, not only the two Vista 5 consoles in the production control rooms can use mic signals from the stageboxes, but also the four OnAir consoles can use these signals and, if necessary, also get control of the mic parameters.

STUDER RELINK offers probably the most integrated, comprehensive and optimised I/O sharing management available to Broadcasters today.

To utilise STUDER RELINK, consoles must be running at least the following software versions – V4.1 for Vista, V3.1 for OnAir systems and V2.0 for Route 6000 systems.



Totally ready for Digital Surround Broadcasting

The OnAir 3000 is totally equipped to integrate within a surround broadcast system, for TV Live/Continuity work. It is capable of handling 5.1 channels, summation to 5.1 busses and 5.1 monitoring.

Multi-channel Sources

Acquiring and managing multi-channel audio sources has never been easier or more cost effective.

Option cards for the Studer D21m I/O system include a dual-channel Dolby® E decoder, and an SDI de-embedder/embedder in which up to 16 channels of audio can be extracted from the video signal (including Dolby® E signals) and patched to the console. After processing, signals can be re-embedded onto the SDI stream. Using such cards reduces weight and space in critical installation such as OB vehicles.



The Dolby® E card accepts any AES/EBU stream encoded with Dolby E or Dolby® Digital, decodes the stream within the input stage and then provides up to two sets of 8 channels to the console. One D21m I/O frame can take up to 12 of these cards in a 3U rack space, and each card may contain up to 2 decoders, making it possible to decode up to 24 Dolby® E streams in just 3U of rack space. Dolby® Digital or Dolby® E encoded signals may be directly connected to the card's front panel or patched via the console's internal software patch window.



The SDI card accepts the embedded SDI signal via a standard coax BNC connector, and also has a 'Through' BNC connector for passing the original SDI signal unaltered. Once de-embedded, the audio may be processed by the console and then returned to the I/O system to be re-embedded into the SDI stream for onward transmission via either or both of two BNC outputs. As a failsafe for signal continuity, the SDI stream will passively bypass the card in the event of a system failure. 3G versions of the card are available.



RTW TouchMonitor Support

The Onair 3000 also supports the TouchMonitor by RTW, a versatile instrument for multichannel level metering. This unit makes sense together with the OnAir 3000's 5.1 channel option.



The 5.1 Surround option features up to twelve simultaneously usable 5.1 Channels (depending on DSP configuration), two 5.1 Master Buses and two independent 5.1 monitoring sections (CR and STI) per SCore.

The 5.1 Master Buses, which can either be allocated to one Control Room/Studio or split to an A/B-Desk configuration, are equipped with limiters and all the typical OnAir features.

Any Input Channel (Mono/Stereo/5.1) can be assigned to any stereo or 5.1 Master Bus (incl. Sub Groups) desired, while the OnAir 3000 automatically down mixes from 5.1 to Stereo according to the format of the assigned bus.

The internal down mix parameters are set according to ITU-R recommendation but can be adjusted by the system administrator in the Configuration GUI.



The 5.1 Input Channel has its own Input Routing setup accessible from the User GUI, where any configured physical Input can be routed to any of the 5+1 individual Channels.

Each channel has its individual ± 18 dB CAL setting, which is again controlled by a Master CAL rotary. The same STUDER High Quality processing features (EQ/Dynamics / HP/LP) as on the Mono and Stereo Input Channels are available, are handled by one parameter set.

The Channel's Input Fader controls all 6 individual Levels of a 5.1 Input Channel. The individual levels of the Channel can be controlled from the Desk Screen Rotaries to adjust any desired offsets.



The 5.1 Graphical Surround Panner GUI page lets you place Mono and Stereo sources within the Surround field in a very easy and intuitive way, while the individual parameters can also be edited from the Desk Screen Rotaries or the Desk Rotary Modules. There are 4 different Surround panning modes selectable as well as direct assignment to the Center- and LFE-Channels.

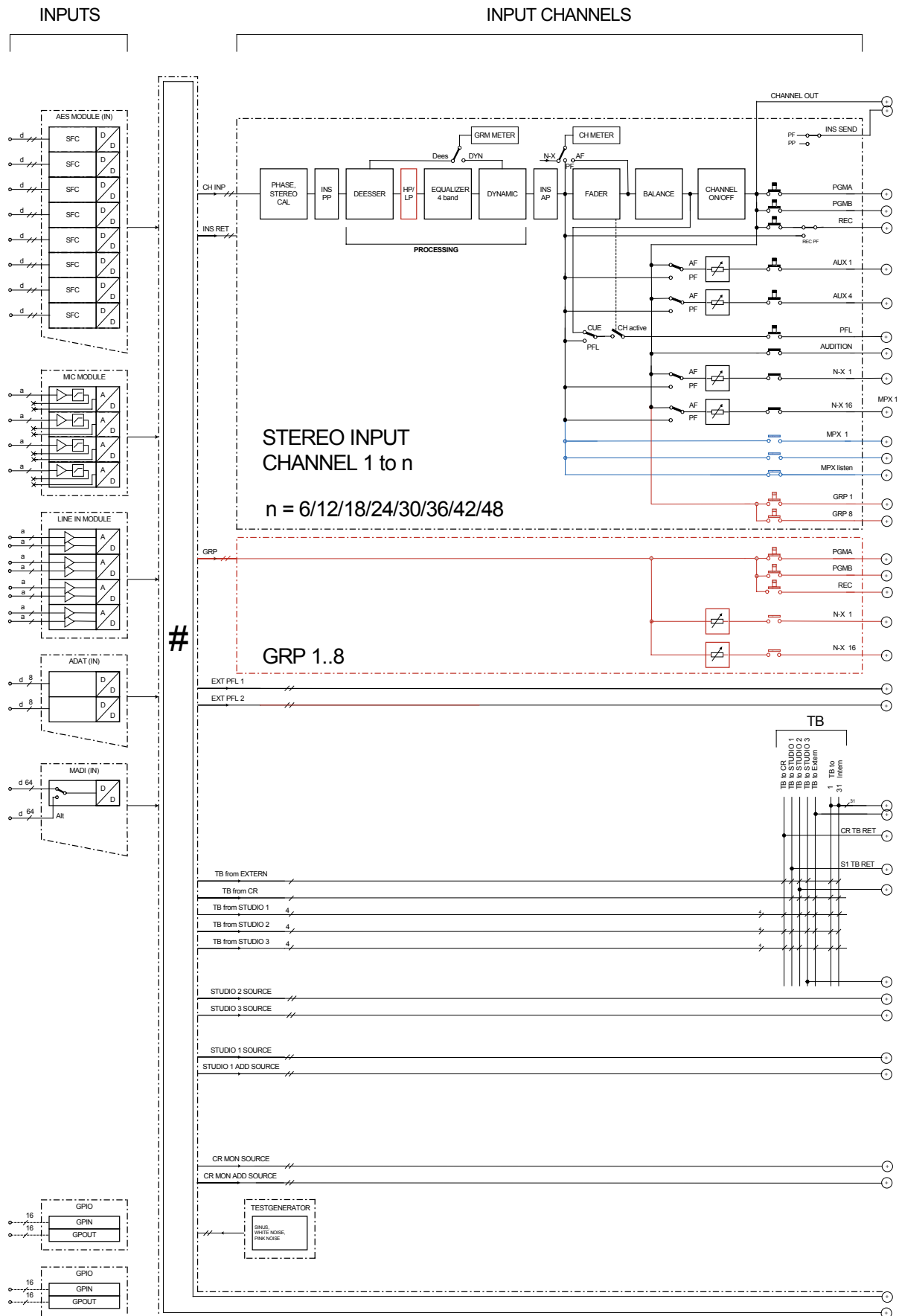
All Mono and Stereo Channels still have their dedicated PAN/BAL controls for mixing to Non-Surround Mix Buses.

Downmixing – done properly

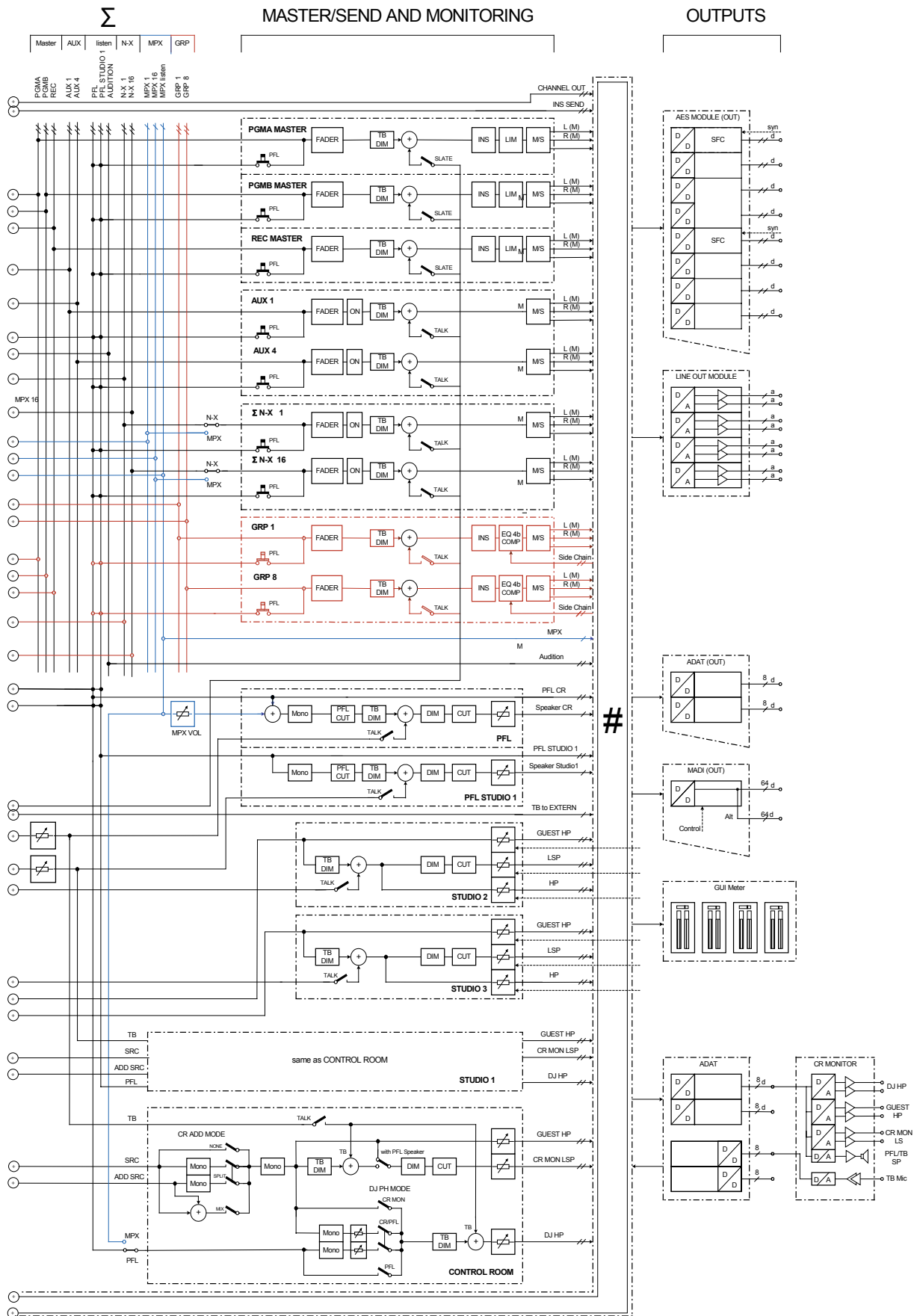


Although Studer OnAir consoles allow the engineer to provide full surround mixes, broadcasters are still required to provide simultaneous stereo (and even mono) downmixes of the program for viewers without surround facilities. Studer have developed sophisticated downmix algorithms which provide multiple downmix options, including stereo and mono.

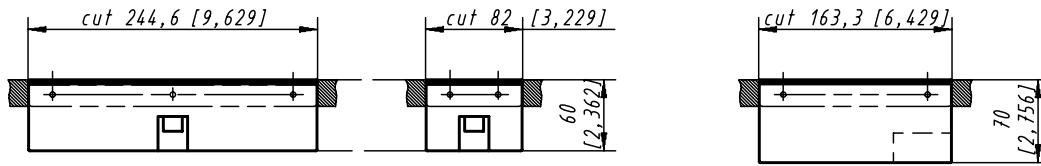
The Surround Control Module is an extension to the existing Monitoring and TB Module. The user can easily switch between Internal Stereo Mixdown and External Stereo Encoder, mute individual speakers and switch to an alternative Stereo Nearfield speaker set with its own dedicated volume control rotary.



Block Diagram



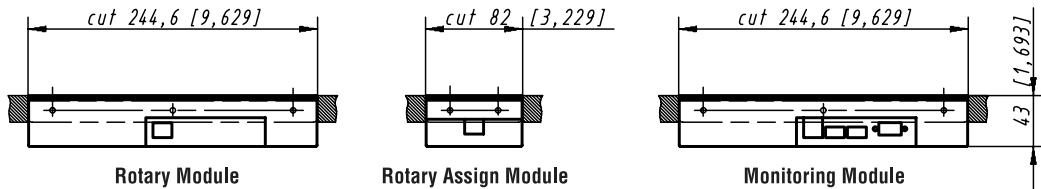
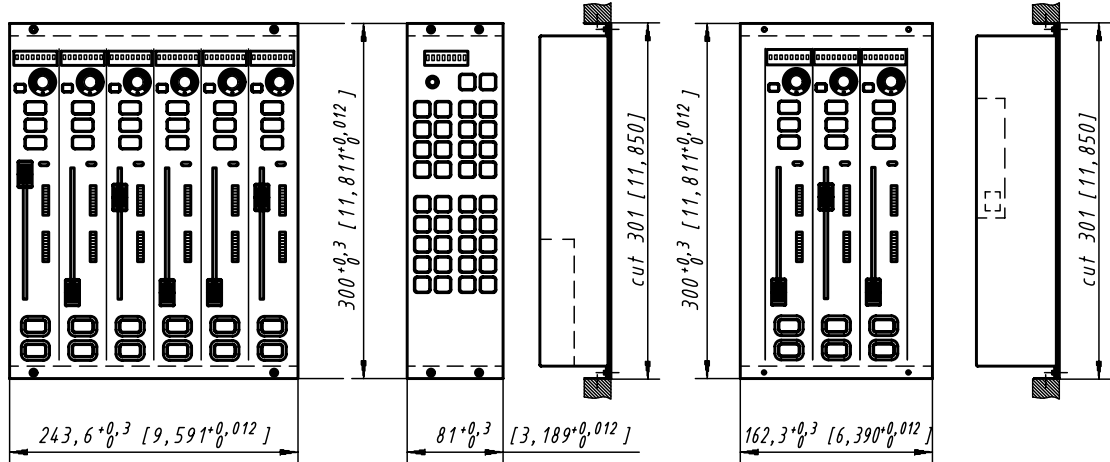
Dimensions OnAir 3000 Modulo



Fader Module

Fader Assign Module

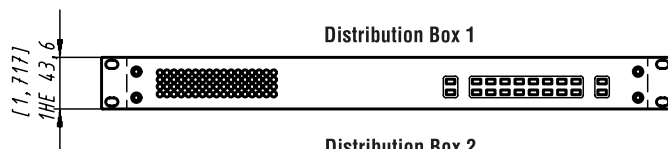
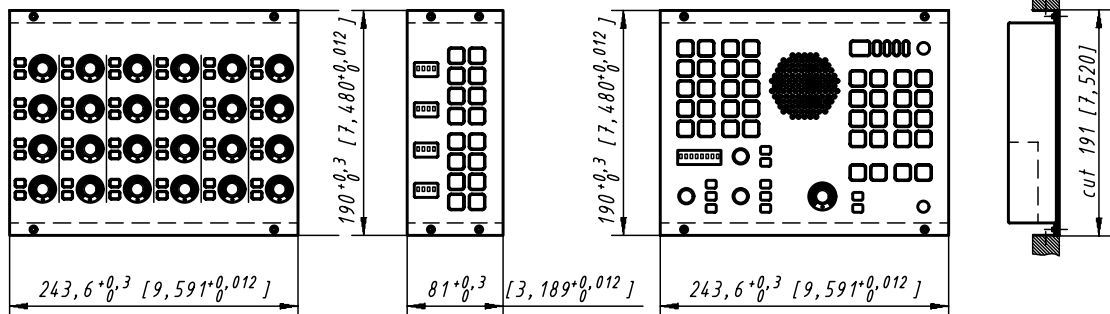
3 Fader Module



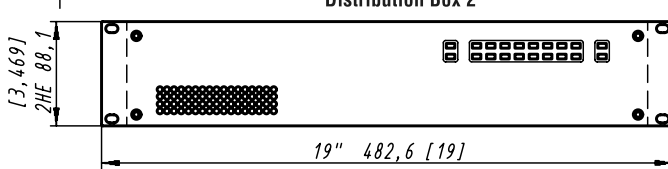
Rotary Module

Rotary Assign Module

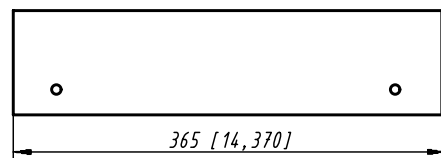
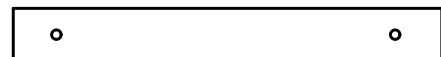
Monitoring Module



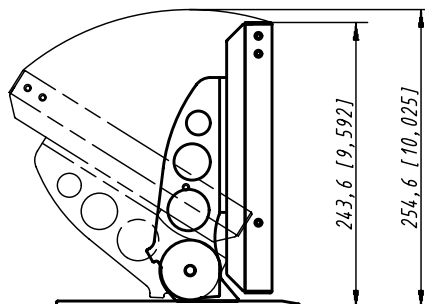
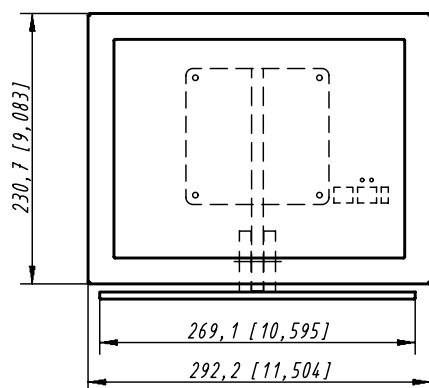
Distribution Box 1



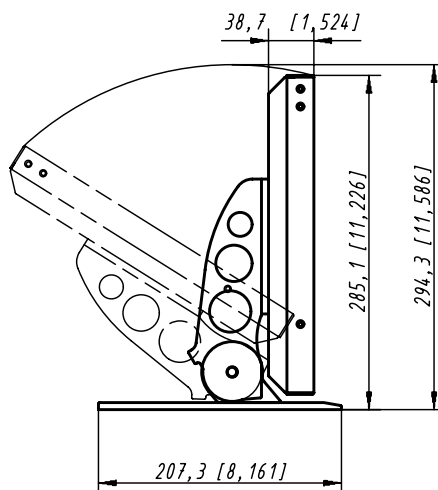
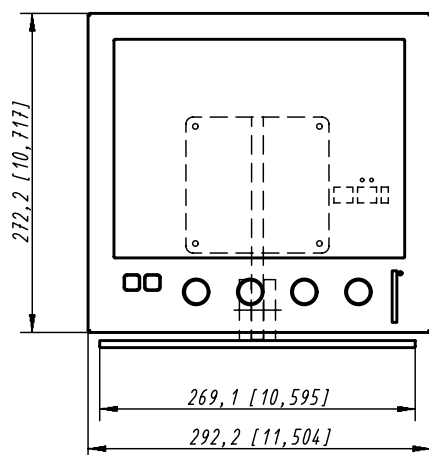
Distribution Box 2



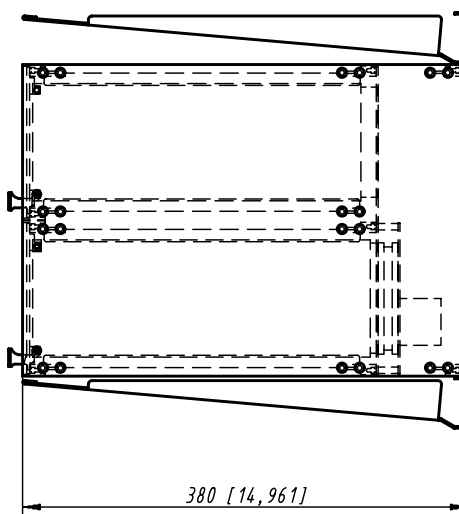
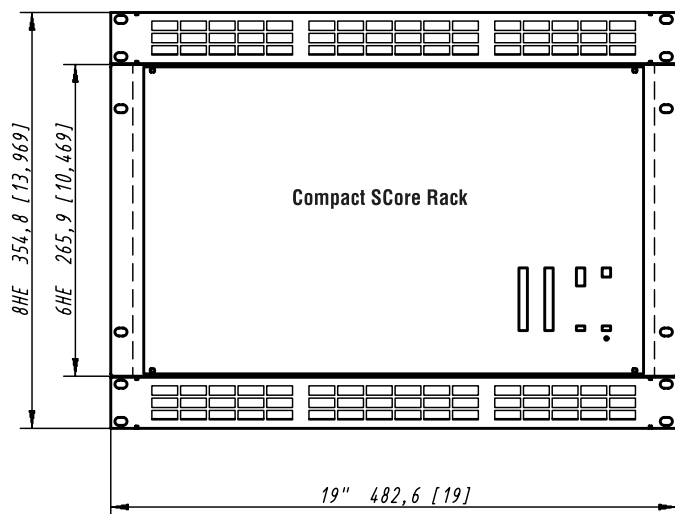
Fader Screen Module



Main Screen Module

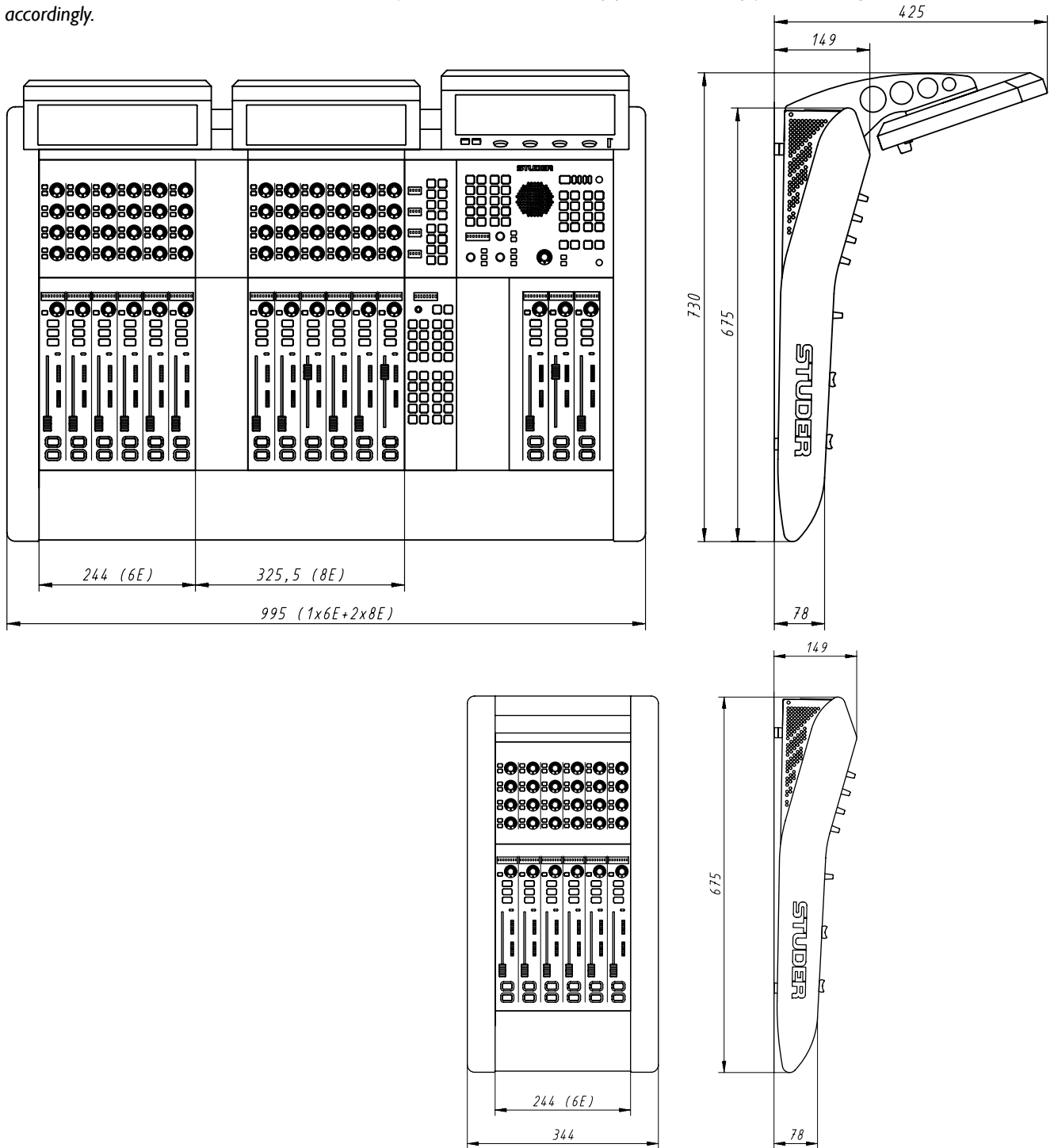


Compact SCore Rack

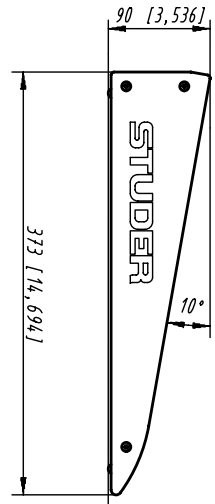
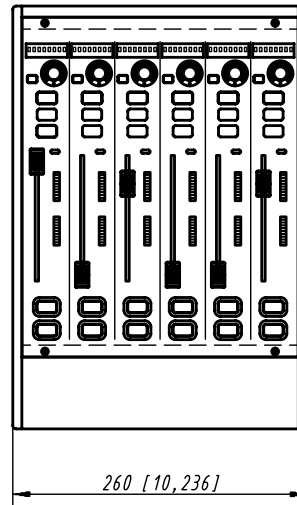
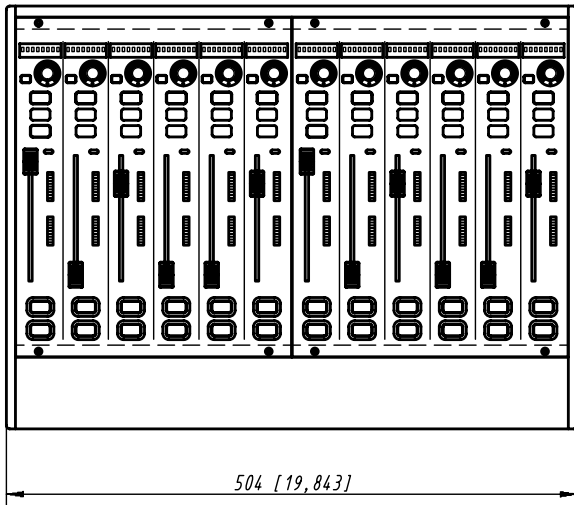


Dimensions OnAir 3000 Fixed Frame

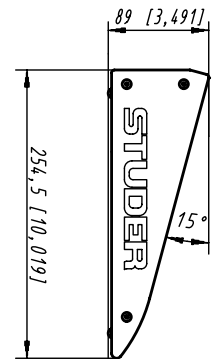
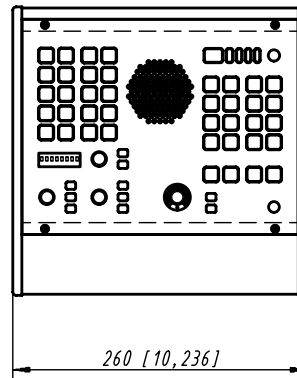
The OnAir 3000 in the fixed frame is assembled mechanically mainly out of module bays with 6E or 8E width. Depending on the number of faders and if Fader Screen Modules are included (Fader Screen Modules imply 8E module bays) the resulting dimensions can be calculated accordingly.



Dimensions OnAir 3000 Compact



The OnAir 3000 Compact consists of a table top fader housing for 6 or 12 faders, a table top housing for the Monitoring and Talkback Module, a standard Modulo Main Screen and a standard Modulo Distribution Box.



Technical Specifications

General

Level specs, digital, in dB _{FS} :	dB, referenced to full modulation (dB _{FS} , dB Full Scale)
Level specs, analogue, in dBu:	0dB Ø 0.775Vrms
Sampling rate:	48 kHz ±50 ppm (internally synchronized)
Headroom adjustable:	0 to 20dB
Default setting:	9dB
Output Level:	15 dBu@0 dB _{FS}

All input faders set to their 0 dB position. External analogue sources: source impedance < 200Ω. Frequency range: 20 Hz to 20 kHz, if not stated otherwise. All input and output cards are standard Studer D21m cards. For detailed description and specifications please refer to the D21m data sheets.

Microphone inputs

Input sensitivity:	-60 dBu...26 dBu for 0dB _{FS}
Gain setting:	in steps of 1dB
Frequency response:	30 Hz...20 kHz, -0.3 dB
High pass filter (12 dB/Octave):	75 Hz
Input impedance:	1.8 kΩ
Insert level (for 0 dBFS)	+15dBu
Dynamic range:	107dB
THD+N (30 Hz ... 20 kHz, -1 dBFS):	-95dB _{FS}
THD+N (1 kHz, -30 dBFS):	-111dB _{FS}
Equivalent input noise (200Ω Ri, max gain):	-124dBu
Crosstalk, 1 kHz:	-110dB
Phantom power, switchable:	48V

Line level inputs

Level (for full scale)	15 or 24dBu fixed (jumper), or 7...26dBu adjustable
Input impedance	min. 10kΩ
Frequency response 20 Hz...20 kHz	-0.2dB
THD & N (35 Hz ... 20 kHz, -1 dBFS), input level fixed	max. -97dB _{FS}
THD & N (1 kHz, -30 dBFS), input level fixed	max. -111dB _{FS}
Crosstalk 1 kHz	max. -110dB

Digital inputs/outputs

Input/Output impedance	110Ω
Output level (into 110Ω)	5V
Input Sampling rate with SFC	32 ... 108kHz

Analogue outputs

Level (for full scale)	15 or 24dBu fixed (jumper), or 7...26dBu adjustable
Output Impedance	40Ω
min. Load at +24 dBu	600Ω
Frequency response 20 Hz ... 20 kHz	-0.2 dB
THD & N (20 Hz ... 20 kHz, -1 dBFS), input level fixed	max. -90 dBFS
THD & N (1 kHz, -30 dBFS), input level fixed	max. -110 dBFS
Crosstalk 1 kHz	max. -110 dBFS

Equalizer

4 Band, each band sweepable 20 Hz...20 kHz:	±18dB
Q-factor	0.27...8.7
HP and LP filter, each sweepable 20 Hz...20 kHz	12/18/24 dB/Oct

Dynamics

Dynamic level	0 dB...+24 dB
Dynamics	ON/OFF

Limiter

Threshold	-39...+9 dB
Attack time	0.2msec...1msec
Release time	10msec...10sec

Compressor

Threshold	-87...+9 dB
Ratio	20:1...1:1
Attack time	0.2msec...20msec
Release time	10msec...10sec

Expander

Threshold	-87...+9 dB
Ratio	20:1...1:1
Attack time	0.2msec...1msec
Release time	10msec...10sec

Noise Gate

Threshold	-87...+9dB
Attenuation	-48 dB...0dB
Attack time	0.2msec...1msec
Release time	10msec...10sec

De-esser

Frequency range	4kHz ... 14kHz
Q-factor	0.27...8.7
Threshold	-87dB...+8 dB Auto Mode
Ratio	20:1...1:1

Power supply

Mains voltage:	100 to 240V, 50/60Hz (auto-ranging)
Power consumption SCore:	typ. System 120 W
Power consumption Desk:	typ. System 150 W

Weight

OnAir 3000 fixed frame 12 fader with Screens	42kg/92lbs
OnAir 3000 fixed frame 18 fader with Screens	47kg/104lbs

Note:

Depending on the application, the OnAir 3000 can have different configurations. For this reason the values mentioned above are applicable only to a typical configuration; in individual cases, the values may differ.

We reserve the right to change specifications as technological progress may warrant.

All Trademarks acknowledged.

E&OE November 2011

OnAir 3000 Main Features

- Ergonomic, easy to learn Touch'n'Action user interface
- Complete system overview and fast parameter access via fader screens
- 3 master buses PRG A, PGM B, REC
- 16 weighted stereo mix-minus buses configurable as AUX sends
- 4 AUX stereo buses (max. 20 AUX if no mix-minus)
- 8 assignable inserts (stereo) plus analogue mic inserts
- 8 stereo groups with 4 band EQ and limiter (optional)
- Multiplex talkback, (MPX), conferencing (optional,V2.2)
- Each Channel with
 - 4 band parametric EQ plus HP, LP filters
 - Limiter, Compressor, Expander, Gate
 - De-Esser
 - Mic Inputs with High Pass Filter and analogue insert
- 2 PFL circuits (Main PFL and Extended Studio Desk PFL)
- External PFL function (e.g. for playout system), Audition bus
- CR monitoring with quick listen function on all inputs and outputs
- 3 independent studio monitoring/talkback circuits
- Different audio I/O modules, standard D2Im series
- Configurable control signals (GPIOs)
- All buttons freely assignable
- Snapshots, user management, user logins
- Graphical user interface with colour TFT touch screen
- Interface to radio automation system(s) (e.g. Monitora)
- Remotely controllable via remote GUI or Probel protocol
- Two box design with all audio and control signals connected to the SCore
- No fans, no hard disks
- Redundant power supplies
- Input and output router with graphical display
- Modular desk surface, scalability of complexity
- Fixed Frame version for easy and fast installation
- Completely adaptable to customer needs
- I/O sharing of audio sources
- Backup and restore of configurations to PC or hard-drive
- Windows® 7 Compatible

STUDER

by HARMAN

Studer Professional Audio GmbH
Riedthofstrasse 214
CH-8105 Regensdorf
Switzerland
Phone: +41 44 870 75 11
Fax: +41 44 870 71 34

Studer USA
8500 Balboa Boulevard
Northridge
CA 91329

Phone: +1 (818) 920 3212

Studer reserves the right to improve or otherwise
alter any information supplied in this document or
any documentation supplied hereafter: E&OE 10/11.
All trademarks are recognised as the property of
their respective owners.

Part No: BD10.265502

studer.ch
usa.studer.ch

