STUDER

Digital
Continuity
Console

Studer OnAir 2000M2

The Studer OnAir 2000M2 in action: Main studio of a private radio station in Switzerland equipped with a 12 fader desk and Studer DigiMedia radio automation system.

A graphic display above each fader strip provides information on all parameter settings such as equalization, level, balance, etc. With a simple touch on the screen, the desired channel function is transferred to the central control unit.

The parameters of the selected function are displayed on the touch screen of the central section. On the right-hand side of the touch-sensitive screen, the system time and stopwatch functions are displayed. Other functions such as telephone inserts, storage and retrieval of snapshots, etc. are also controlled from here.

The Studer OnAir 2000M2 includes an input router. Any two (or six with a hex input module) of maximum 64 input signals can be assigned to any fader channel on the surface. By simply touching on the fader touch-screen, one of two (or six) signals can be selected directly. The user can also toggle between these pre-selected signals, A and B.

The Studer OnAir 2000M2 can be configured with up to four fader sections containing six channel faders each. This results in a modular system with 6, 12, 18 or 24 fader channels. A given configuration can easily be upgraded later in the field, with additional fader sections up to the maximum of 24 faders.

The Studer OnAir 2000M2 reduces the operator controls of each channel strip to one fader and three buttons: ON, OFF and PFL. All other settings are made via the central control screen. The Touch'n'Action concept allows direct access to functions without navigation through complex menu trees.

The four rotary encoders used for parameter settings feature tactile feedback. The end stops and detent points are set individually in accordance with the current function area. The ergonomic convenience of an analog mixing console is now complemented by digital technology.

The central section offers generous work space for the operator. It includes the central touch screen, configurable level meters, and the control field for monitoring and talkback.

Refreshingly Simple to Use

Studer makes highly sophisticated technology easily accessible. The Studer OnAir 2000M2 digital mixing console offers complete flexibility on a comprehensible and intuitively usable operating surface.

Allowing the user to concentrate on his primary task, the Studer OnAir 2000M2 digital mixing console provides only the key operating elements for routine use. This Touch'n'Action approach is both ergonomic in layout use and intuitive in operation. If desired, the operator can access all levels of configuration possibilities by means of touch screens, and adjust the setup to his specific needs.

The Studer OnAir 2000M2 is ready for integration into Computer Assisted Broadcasting (CAB) and radio automation systems such as the Studer DigiMedia system. Remote operation, for example by mobile telephone serving as a modem from nearly every-where, and unattended automatic operation is also possible.

Due to the fully-digital signal processing and processor-controlled operation of the console, specific setups can be stored (snapshots), either in the internal flash memory or on an external memory card. Up to 20 user accounts can be installed including, for example, a specific equalizer filtering curve for the DJ's microphone. Taking control of the console, the DJ has just to load his user profile and is ready to go OnAir. A selection out of maximum 64 input signals can be routed to any fader channel on the surface allowing for broadcast specific set-ups.

Whenever possible, customer-specific require-ments and adaptations will be incorporated in the console to tailor the Studer OnAir 2000M2 digital mixing console to your needs. Please contact your local Studer representative for further information.

The Studer OnAir 2000M2 at a Glance

- Ergonomic and easy-to-learn solution for medium to large broadcast studios
- Modular 6, 12, 18 or 24 faders
- Fully-digital signal processing
- Input router with up to 64 inputs for any number of faders
- Graphical user interface giving complete system overview
- Programmable user authorization system
- Comprehensive monitoring and talkback
- Prepared for system integration
- Ready interface to radio automation systems

Touch'n'Action

The operation of the Studer OnAir 2000M2 is based on a touch-screen user interface. Only the most important functions have hardware control elements. Therefore the operation of the console is very simple.

Every channel strip has its own channel screen section just above the corresponding fader providing information on the key elements of each channel's signal path. To adjust a particular channel parameter, the operator simply touches the symbol area in the channel touch screen. The corresponding control field is instantly expanded on the central section control touch screen. The parameters can then be set in detail using rotary encoders or by choice from a selection table.

The channel screen shows the selected physical input (depending on the input module type, two or six input signals may be connected to one fader channel, whereas the assignment will be set according to the input router setting), selected phase and stereo mode (LR/RL/LL/RR), gain setting, phantom

power on/off, equalizer filter setting curve, AUX bus settings, balance or pan, output bus routing (program and/or record bus) and the source label, for example, DJ mic or Disc 1, etc.

The input router enables any input module to be assigned to any of the available fader channels on the surface. This configuration can also be stored and retrieved from the user profile. Additionally, channel routing presets, which can be prepared for a specific broadcast such as News etc., are easily accessible.


A-B selector field
Input field
Filter field
AUX send field
Pan/Bal field
Source label field

Upon touching the input field, the channel screen expands on the central screen. Here the user can conveniently select the output signal routing or adjust the balance or pan respectively. In the mid right section the user can chose one of the menu buttons to progress deeper into the machine controls.
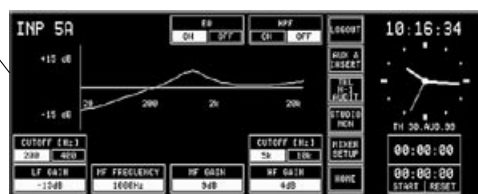

Here the equalizer filter curve setting has been chosen. The user can switch the equalizer on or off and set the frequency and slope of the filter curve. The date and time displayed on the right of the screen can be synchronized with an external time signal. Also available are two stop watches. One of the stop watches can be controlled by a fader start signal or externally.
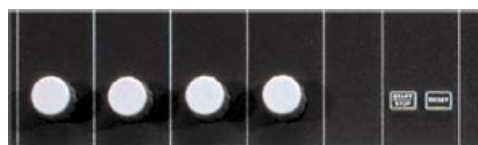
Studer has designed proprietary rotary encoders with purely virtual detents and end stops (pat. pending). A computer-actuated, electromagnetic brake with variable strength generates the feeling of real detents or stops . This overcomes the flaws of traditional encoders. Thanks to the tactile feedback, the operator no longer has to observe the screen to check a setting.

A user authorization system allows control of access rights for many functions of the mixing console. Up to twenty users can be given a log-in name by the administrator to access their working domain. Each user can store and recall his own snapshots or mic settings.
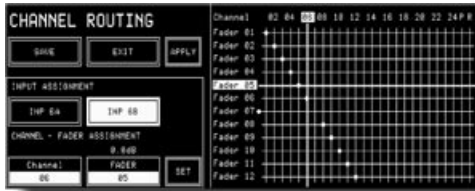
The user can, access permission given, assign the input signals easily to a fader using this graphical representation of the input matrix. The selection is made by choosing a fader and an input channel via the two left rotaries, displayed also by two highlighted lines in the grid. Where these lines cross, the connection is made by touching the set button. The channel routing can be stored in the user profile. In addition, five preset configurations, e.g. for news or sports broadcast, can be accessed globally by all users.
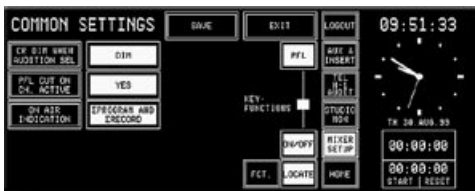
There are a number of system configuration submenus. To open a respective menu page, the operator touches the appropriate soft button on the screen. In the input configuration page of an analog line input, for example, nominal levels and headroom can be adjusted, and features such as fader start, external control, bus assignment, timer start, or the channel label can be customized. Other pages provide a detailed system diagnostics menu and a software dump function used to download global or specific configuration data to a memory card.

Any of the faders can be configured as master fader for one of the two main output busses (PGM or REC bus). This configuration is done in the Channel Routing page (see above) with the two rotary encoders located below the Channel and Fader fields.

The corresponding fader screen section will change to the master display mode while the original channel remains still active in the background. Both the master fader and the channel fader in the background can be controlled by an automation system.

Snapshots and configurations can be stored and retrieved via a memory card (PCMCIA). It allows the user to completely reconfigure the console, or just recall a suitable EQ setting for the DJ's microphone channel. Radio stations often use the same console type for OnAir and production applications. Via the memory card, it is easily possible to reload different settings and turn a production console into an OnAir console within seconds. In addition, new software versions can be downloaded from the memory card to the console.
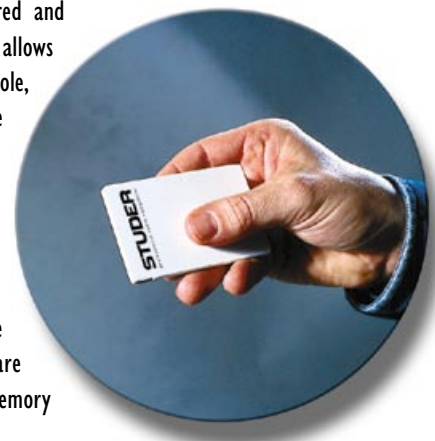
Modular Concept

Thanks to its modular concept, the Studer OnAir 2000M2 can be configured to suit your needs. The console is built around a central section and may include up to four fader sections. The central section includes the Digital Signal Processing (DSP) electronics, the control electronics and the power supplies. It also houses the central touch screen, the level meters and the monitoring controls. Moreover, it offers a generous working space desk for the operators' notes.

Each of the fader sections includes six channel faders and a channel touch screen, as well as the individual input modules for the physical connection of the signal sources to the console. If there are more input modules required than faders, input module extension boxes are available.

The console can be equipped with either 6, 12, 18, or 24 faders (one to four fader sections). Different input module types can be selected according to the specific signal source to be connected. The analog input modules include the A/D conversion of the signal, a preamplifier and the phantom powering in case of an analog microphone input module. The digital input modules support either

The Studer OnAir 2000M2 offers a wide variety of different input module types:

Type	# input	Audio connector
Mic input module	2 mono	XLR
Analog line module	2 stereo	XLR
Digital input module	2 stereo	XLR, Cinch, Toslink
Analog hex line input module	6 stereo	Siemens 39 pin
Digital hex input module	6 stereo	Siemens 39 pin

The user, access permission given, or administrator can choose one of the input modules directly on the router page on the central screen and assign it to a fader. Each fader channel has two or six signals (depending on the input module type) selectable directly on the channel touch screen. Up to 64 signal sources can be connected to the console. The Studer OnAir 2000M2 is self-configuring.

This flexibility makes the Studer OnAir 2000M2 a future-proof investment when migrating a fully digital broadcast system.

For complete system solutions and integration of specific customer requirements, Studer offers a wide range of customer adaptations. Our Systems Group will be delighted to work with you on a turnkey

AES/EBU or S/PDIF formats whereby the digital signal source needs not to be synchronized since the input modules are equipped with an asynchronous sampling frequency converter (SFC).

If any module is changed, the system recognizes the new set-up after powering up the console and automatically adapts to the new hardware.

project to help fulfill your wishes. Please contact your local Studer representative.

Monitoring, Talkback, and Metering

The Studer OnAir 2000M2 offers a comprehensible monitoring and talkback section. In addition to the internal signals, a variety of external sources can be monitored directly from the console. Talkback to several destinations is conveniently accessible to the user.

The monitoring and talkback controls are located on the right side of the central control screen. They provide access to the auxiliary outputs (AUX), the audition bus, the two mix busses (PGM, REC), the pre-fader listening bus (PFL), three external sources (EXT) and an external off-air monitor feed. A dedicated external PFL input is provided for use with radio automation systems. Separate level controls are available for the headphones, the loudspeakers and PFL/talkback signals.

Control room monitoring

Ten keys are available to select one of the six internal and four external signal sources whereby the selected source key is illuminated. The function keys F1 to F5 act as additional source selectors for external analog and digital signals given that the optional Monitor Extension 1 is installed *(see Accessories and Options)*.

The meter section allows installation of four 190 x 40 mm metering modules. The level meters can be installed according to customer specifications, e.g. level meters for PGM and REC bus outputs with VU or PPM characteristics, phase correlator, meters for AUX sends or clean-feed outputs (N-1).

Built-in loudspeakers on each side of the central section of the console are used for talkback and PFL listening in the control room.

Studio monitoring

The built-in studio monitoring functions are based on a touch screen menu on the central control screen. The monitoring source selection can also be controlled directly from the studio via external push buttons. The monitor loudspeaker and headphone levels can be independently remote controlled by two potentiometers in the studio *(see Accessories and Options)*.

Talkback

In the standard configuration, there is a choice of five talkback destinations from the DJ's microphone. A key is assigned for each destination. The two clean-feeds (N-1) can be used as mono outputs to telephone hybrids or to line outputs. Optionally four additional clean-feeds can be installed. The clean-feeds as well as the general purpose audition bus have master level controls accessible via the central touch screen. Talkback to the AUX busses or the studio is directly accessible. In contrast, any of the five function keys F1 to F5 can also be configured as additional talkback target keys.

Radio Automation

The Studer OnAir 2000M2 is ideally suited for integration into a radio automation or Computer Assisted Broadcast (CAB) system. It can be integrated in a network of several computer workstations, CD jukeboxes or other data storage devices. The whole system can also be remote controlled from virtually anywhere by a combination of laptop computer and mobile phone.

For this purpose, the Studer DigiMedia radio automation system Studer DigiMedia has been developed by Studer in cooperation with radio professionals bringing extensive hands-on experience. Studer DigiMedia is a worldwide proven, reliable and very easy-to-use system. The OnAir 2000M2 can be fully controlled by Studer DigiMedia and allows for either completely automated operation, semi-automatic operation or manual use.
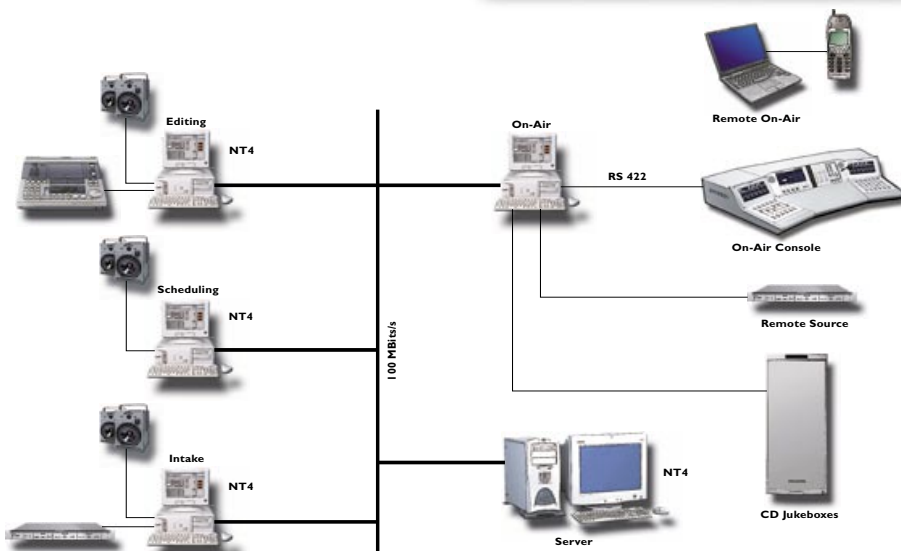
This Studer DigiMedia display shows the sequence control of the OnAir program. In addition to the playback and prelistening of the selections from the play list, access to the entire database is possible. Jingles, format elements or reports can be played directly even if they are not planned in the play list. Access to supplementary functions such as RDS or matrix control is also possible.
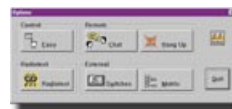
The option panel gives access to various tools such as a Chat Mode, control of an external Audio Matrix, switching of peripheral devices, Radiotext selection and others.
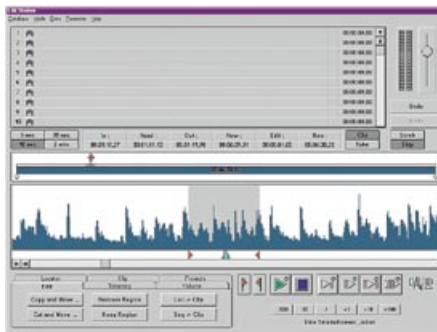
A professional two-channel or multitrack editor with or without mixing tools is built into the Studer DigiMedia software. Edited elements can be stored directly in the database. Elements stored as "Hotnews" are displayed on the OnAir Station and are ready for immediate playback through the Studer OnAir 2000M2 console.

For scheduling, a play list can be generated either automatically or manually on the Edit Station. Modifications are possible any time on the Edit Station as well as on the OnAir Station. The play list may be assembled well in advance or shortly before broadcasting.

The Studer DigiMedia allows for various RDS signals and messages to be sent out. In addition to the automated output of RDS data, instant messages can be transmitted, even images in jpg/gif format can be added, which may be important in view of future digital radio formats.

Networking and remote control: Studer OnAir 2000M2 and Studer DigiMedia can be operated via the screen of a remote workstation. It makes no difference whether the workstation is connected via a LAN or a modem, e.g. the high-speed transmission protocol from a GSM modem. (The Studer DigiMedia software is not part of the Studer OnAir 2000M2 digital mixing console.)

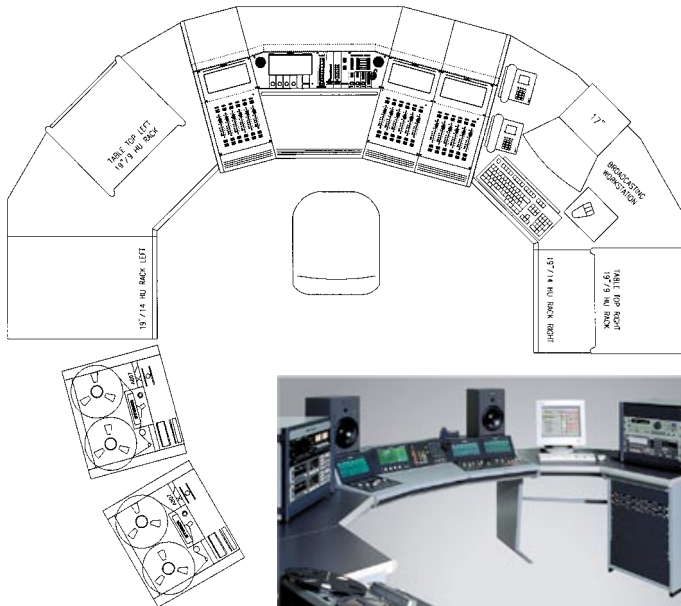# System Integration

Studer as a systems house not only offers high quality mixing consoles but complete turnkey solutions. Over fifty years of intensive customer contact and professional expertise have made Studer one of the leading manufacturers of audio equipment worldwide.

The Systems Group at Studer can help you find the optimum solution for your needs. Studer offers, plans and realizes complete studios for local radio stations or complex broadcast house installations with master control rooms and multiple control rooms and studios.

Example of a radio studio with an 18-fader Studer OnAir 2000 console, a broadcasting workstation running Studer DigiMedia, two Studer A807 tape recorders and additional equipment for DJ operation, planned and installed by Studer.

Studer engineers provide a wide variety of special equipment to fit customer requirements like this remote fader unit which allows the signals to be controlled directly from the studio.

Example of a multi-purpose OnAir complex incorporating a Studer OnAir 2000 and a multi-purpose studio area handling talk and music programming. This is one of two identical studios which can be networked for easy transition at program breaks while offering added redundancy. Studer has built many similar facilities with multiple identical rooms, often using over 20 Studer OnAir 2000M2 consoles in the same installation.

Accessories and Options

Input and output modules

To fit customers' needs, different versions of input and output modules are available:
- Mic/line mono input modules
- Analog line stereo input modules
- Digital input modules
- Analog hex line input modules
- Digital hex input modules
- Analog output modules
- Dual analog output modules
- Digital output modules

Telephone hybrid module

The telephone hybrid module is used to control the usual functions Hold, Drop and OnAir for two independent telephone hybrids directly from the Studer OnAir 2000M2.

Serial interface module

This module provides an RS 232 / RS 422 serial communication link. It can be used for communication with a Computer Assisted Broadcast (CAB) system

Analog insert module

The analog insert module has two electronically balanced stereo insert sends and returns which can be assigned to any of the input channels or to the PGM or REC buses.

Digital insert module

The digital insert module has two transformer-coupled AES/EBU insert sends and returns which can be assigned to any of the input channels or to the PGM or REC buses.

Clock sync module

This module allows the synchronization of the internal clock frequency to an external master clock. Synchronization 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 sync module

Using the time sync module the console's internal clock can be synchronized with an external time reference signal such as DCF 77, a GPS receiver or a Mobatime clock providing a serial output signal.

Monitor module extension

The monitor module can be extended in two steps. The basic function of the standard module will be maintained.

Extension 1 allows five Additional external monitor sources, two of them being digital.

Extension 2 additionally includes two VCA modules, two electronically balanced line outputs, a D/A converter and two relays. It allows the implementation of customer specific circuits.

Studio talkback box

The studio talkback box is equipped with three talkback keys (TB to control room, TB to N-IA [TEL1], TB to N-IB [TEL2], a cough key (mutes the studio microphone), a MIC ON signalling lamp, six selector keys for selection of the source, and separate volume controls for studio loudspeakers and headphones.

Metal stand

For applications where the Studer OnAir 2000M2 will not be installed on or in an existing table, a metal stand is available.

Redundancy

For redundancy purposes, external power supplies can be connected to the console. Each module includes a primary switched-mode power supply and a secondary DC-DC converter.

Input Module Extension Box

If more input modules than faders are required, the Input Module Extension Box is used to house and connect these modules. The Input Module Extension Box has to be placed close to the console. The maximum number of all input modules for the OnAir 2000M2 is 24 resulting in a maximum of 64 input signals.

Service and Support

The Studer OnAir 2000M2 is a time-tested and proven digital mixing console which is in use in hundreds of installations worldwide, 24 hours a day, seven days a week. Due to the modular setup of the OnAir 2000M2, individual function blocks can easily and quickly be exchanged at the customer's site.

We at Studer know that reliability is vital to our customers. Therefore Studer offers worldwide service and support for its products. Studer also offers operator training and service courses on-site or in the factory. Please consult your local Studer representative.

Block Diagram

INPUTS INPUT MODULES INPUT / FADER CHANNELS MASTER AND MONITORING MAIN OUTPUTS

METER 1 METER 2

METER INTERFACE

Inputs column:
- CTRL I/O — DJ MIC 1 — PREAMP.1 — A/D — INSERT
- CTRL I/O — GUEST MIC.1 / STUDIO MIC.1 — PREAMP.2 — A/D — INSERT
- CTRL I/O — GUEST MIC.2 / STUDIO MIC.2 — PREAMP.3 — A/D — INSERT
- CTRL I/O — TEL.HYBR.1 / LINE INP.1 — HL INP.1 — A/D
- CTRL I/O — TEL.HYBR.2 / LINE INP.2 — HL INP.2 — A/D
- CTRL I/O — TAPE 1 / TAPE 2 / TT 1 / TT 2 / EXT.1 / EXT.2 — HL INP.3 — A/D
- ANALOG INP.WITH 6CH SELECTOR (OPTION)
- CTRL I/O — TAPE 1 / TAPE 2 / TT 1 / TT 2 / EXT.1 / EXT.2 — HL INP.4 — A/D
- CTRL I/O — CD 1 — AES INP.1 — D/SFC/D
- CTRL I/O — CD 2 — AES INP.2 — D/SFC/D
- CTRL I/O — JINGLE — AES INP.3 — D/SFC
- CTRL I/O — AUTO 1 / DAT1 — AES INP.4 — D/SFC
- CTRL I/O — AUTO 2 / DAT2 — AES INP.5 — D/SFC/D

INPUT MATRIX

Input / Fader channel stages (repeated):
DC REJ / DIG PAD / PHASE — FILTER/EQU. — (INSERT) — FADER — BALANCE — CHANNEL ON — MUTE

Σ PROGRAM, Σ RECORD, Σ AUDITION, N-1 A, N-1 F*, AUX 1, AUX 2, PFL, TB TO STUDIO, TB TO CR

AF / PF AUX1 AUX2

CHANNEL ON

BUS

Master and monitoring:
- PFL** — Σ FADER** — (INSERT) — LIMITER — (INSERT) — Σ PROGRAM
- PFL** — Σ FADER** — (INSERT) — LIMITER — (INSERT) — Σ RECORD
- Σ AUDITION
- ΣN-1 A — DIM
- äN-1 F — DIM
- N-1 A
- N-1 F*
- C+S TALK
- C+S TALK
- AUX1 MASTER — DIM — C TALK — LIMITER
- AUX2 MASTER — DIM — C TALK — LIMITER
- EXT PFL CONTROL
- EXT.PFL — EXT. TO PFL
- OFF AIR
- EXT.1 / EXT.2 / EXT.3
- EXTERN MONITORING
- EXT TB TO STUDIO
- EXT. TB INPUT
- EXT TB TO CR
- EXTERN TB INPUT (OPTIONAL)
- TB TO C.R.MON

Main outputs:
- Σ PROGRAM D (Σ ON AIR/D)
- Σ PROGRAM A (Σ ON AIR/A)
- Σ RECORD/D
- Σ RECORD/A
- Σ AUDITION (OPTIONAL)
- N-1 A
- N-1 F*
- AUX 1
- AUX 2

STUDIO MONITOR — VCA — STUDIO, STUDIO LSP
TB TO STUDIO, TB TO TEL, MONITOR SELECT, STUDIO MIC SIGN., MIC. SIGN., TB TO C.R.MON
STUDIO CUT — DIM

C.R./ DJ MONITOR
TB TO C.R.MON — VOL CONTR — PFL/TB
C.R.MON — CR/PFL — MONO — DIM — VOL CONTR — DJ
PFL
VCA — GUESTS
C.R. CUT + DIM — VOL CONTR — CR.LOUDSPEAKER

4 x INSERTS (OPTIONAL)
WITH OPTION N-1 C...F, ONLY TWO STEREO INSERTS AVALIABLE
- RET 1 — A/D — LIM — D/A — SEND 1
- RET 2 — A/D — LIM — D/A — SEND 2
- RET 3 — D/SFC — LIM — D/D — SEND 3
- RET 4 — D/SFC — LIM — D/D — SEND 4

Legend:
- —— MONO LINE
- —//— STEREO LINE
- a ANALOG SIGNAL
- d DIGITAL SIGNAL (AES/EBU)
- ✳ CONFIG SELECTION
- ✳ MONITOR SELECTOR
- ⊸ XLR CONNECTOR
- DIN MULTIPIN (39p)
- D-TYPE CONNECTOR
- BANTAM JACK
- HEADPHONE JACK SOCKET
- * N-1 Σ A and B STANDARD / N-1 C...F OPTIONAL
- ** MASTER FADER (IF CONFIGURED)
- *** IF "PFL CUT ON CHANNEL ACTIVE" IS YES

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OA2000_M2_V1.0
STUDER REGENSDORF SWITZERLAND
ON AIR 2000 M2 V4.0
BLOCK DIAGRAM AUDIO

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Dimensions and Features

Studer OnAir 2000M2 features:

- Fully digital OnAir mixing console
- Ergonomic, easy-to-learn Touch'n'Action user interface (pat. pend.)
- Complete system overview
- Rotary encoders with tactile feedback (pat. pend.)
- Console snapshots
- Microphone snapshots
- Memory-card (PCMCIA) for configuration, snapshots and software updates
- 6, 12, 18 or 24 channel faders, each with A/B input selector or hex input (optional)
- Input router
- Up to 64 audio inputs
- User Authorization System

Input modules:

- Microphone inputs with transformer, high-pass filter, phantom powering and analog insert (mono)
- Analog balanced stereo high level inputs with or without transformers
- Analog balanced hex inputs (6 x stereo high level input)
- Digital inputs (2 x stereo, AES/EBU and S/PDIF)
- Digital hex inputs (6 x stereo AES/EBU and S/PDIF) (All digital inputs with SFC (Sampling Frequency Converter))

Output modules:

- Analog outputs (stereo or mono)
- Digital outputs (AES/EBU, stereo or mono)
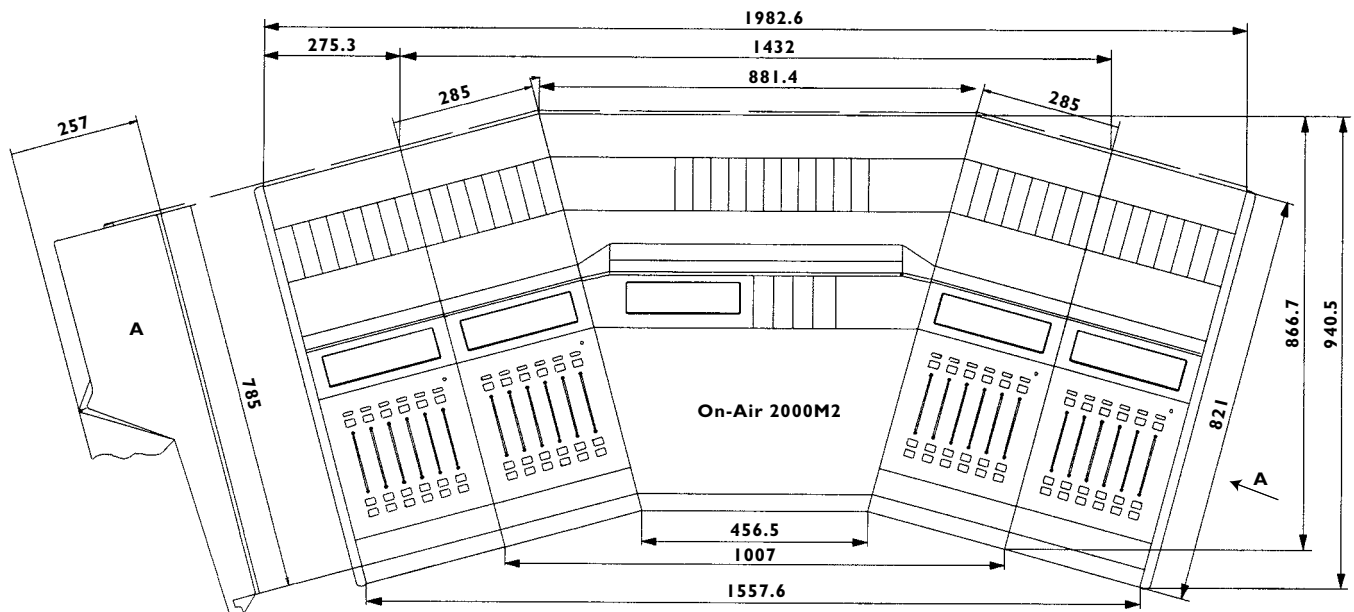
7 output buses:

- Program output (stereo)
- Record output (stereo)
- Audition output (stereo)
- 2 clean-feed/(N-1) (optional 6) outputs (mono)
- 2 Aux outputs (stereo)

Assignable inserts (optional):

- 4 insert sends (stereo)
- 4 insert returns (stereo)

Comprehensive monitoring:

- 6 internal monitoring sources
- 4 external monitoring inputs
- Output for DJ headphones
- Output for guest headphones with VCA control input
- Output for CR monitoring loudspeaker
- Output for studio headphones with VCA control input
- Output for studio loudspeakers with VCA control input
- Talkback to 5 destinations
- Built-in PFL/TB loudspeakers
- External PFL input for broadcast automation systems
- Control signals for studio monitoring unit

Miscellaneous:

- 1 or 2 dual bargraph PPM or VU meter
- Built-in clock/stop watch
- Easy system configuration

Channel functions:

- Calibration (Line Input) / Gain (Mic Input)
- Stereo mode (LR / LL / RR / RL)
- Phase (normal / reversed)
- Equalizer (3 band)
- AUX1 and AUX2 level (AF or PF)
- AUX1 and AUX2 master level
- Balance (stereo inputs) / Panning (mono inputs)
- Bus assignment (Program and Record bus)
- Fader start and signaling

Options:

- Telephone hybrid control module
- Sync module (console synchronization to Wordclock or AES/EBU)
- Time code reader module (clock synchronization)
- RS232 / RS422 interface for e.g. DCF-77, integration with radio automation etc.
- Input Module Extension Box

Dimensions in Millimeters

Technical Specifications

General

Level specs, digital, in dB_{FS}:	dB, referenced to full modulation (dB_{FS}, dB Full Scale)
Level specs, analog, in dBu:	0 dB $\cong$ 0.775 Vrms
Level specs, analog, in dBu_{FS}:	Level in dBu for full modulation ($\cong$ 0 dB_{FS})
Sampling rate:	48 kHz $\pm$50 ppm (internally synchronized)
Headroom adjustable:	0 to 20 dB
Default setting:	9 dB
Output Level	15 dBu @ 0 dB_{FS}

All input faders set to their 0 dB position. External analog sources: source impedance < 200 Ω. Frequency range: 20 Hz to 20 kHz, if not stated otherwise.

Microphone inputs

Microphone input modules have A/B-switchover and are equipped with a balancing transformer and XLR connectors. The signal is routed to an electronically balanced, analog insert point before the A/D-converter.

Input sensitivity:	-60 to +20 dBu_{FS} (with 9 dB headroom: -69 to +11 dBu)
Gain setting:	in steps of 1 dB
Phantom power, switchable:	48 V
Frequency response:	$\pm$0.5 dB
High-pass filter (12 dB/Octave):	-3 dB @ 75 Hz $\pm$5 Hz, switchable
Input impedance:	> 1 kΩ
Insert level:	+15 dBu_{FS} (with 9 dB headroom: +6 dBu)
A/D converter:	24 bit (Delta-Sigma, 64 $\times$ oversampling)
Dynamics:	typ. 102 dB (unweighted)
THD+N:	< -85 dBFS, 20 Hz to 20 kHz, @ -1 dB_{FS}
THD+N:	< -100 dBFS, 20 Hz to 20 kHz, @ -30 dB_{FS}
Noise figure:	typ. < 4 dB @ max. gain, bandwidth 20 kHz, Rs=200Ω
Common mode rejection:	> 50 dB @ 15 kHz, > 75 dB @ 50 Hz

Line level inputs

Analog line level input modules are available in three versions:
- Stereo input with A/B switching, with balancing transformer, XLR connectors
- Stereo input with A/B switching, with electronically balanced input, XLR connectors
- Stereo input with 6-input selector, with balancing transformer. On this module the sources are connected via a 39-pin DIN connector.

Input sensitivity for 0 dB_{FS}:	0 to +24 dBu_{FS} (with 9 dB headroom: -9 to +15 dBu)
Gain setting:	in steps of 1 dB
Frequency response:	$\pm$0.1 dB
Input impedance:	> 10 kΩ
A/D converter:	24 bit (Delta-Sigma, 64 $\times$ oversampling)
Dynamics:	typ. 102 dB (unweighted)
THD+N:	< -94 dBFS, 20 Hz to 20 kHz @ -1 dB_{FS}
THD+N:	< -100 dBFS, 20 Hz to 20 kHz @ -30 dB_{FS}
Common mode rejection:	> 50 dB @ 50 Hz to 15 kHz, with transformer;
	> 47 dB @ 50 Hz to 15 kHz, electronically balanced

Digital inputs

Digital input modules are available either with A/B switching or with a 6-input selector. The module with A/B switching supports the AES/EBU (AES3-1992) and S/PDIF (IEC 958) formats. It is equipped with XLR, Cinch, and Toslink connectors.
The 6-input selector supports the AES/EBU (AES3-1992) format and is equipped with a 39-pin DIN connector for source connection.
All digital inputs are equipped with a sampling frequency converter (SFC).

SFC resolution:	20 Bit
Input sampling rate:	30 to 54 kHz
THD+N:	< -105 dBFS @ 1 kHz, 0 dB_{FS}
Frequency response:	$\pm$0.1 dB
Input impedance:	110Ω (AES/EBU inputs); 75Ω (S/PDIF inputs)

Analog outputs

Analog output modules are available with balancing transformer or with electronically balanced output, XLR connectors.

Output level @ 0 dB_{FS}:	(transformer-balanced)	+4 to +24 dBu @ RL = 100 kΩ;
		+4 to +23 dBu @ RL = 300 Ω
Output level @ 0 dB_{FS}:	(electronically balanced)	+4 to +23 dBu @ RL = 100 kΩ;
		+4 to +22 dBu @ RL = 300 Ω
D/A converter:		24 bit (Delta-Sigma, 128 $\times$ oversampling)
Dynamics:		typ. 101 dB (unweighted)
THD+N:		< -90 dB_{FS} @ 1 kHz, -1 dB_{FS}
Frequency response:		$\pm$0.2 dB
Output impedance:		< 40 Ω

Digital outputs

Digital output modules are equipped with two independent outputs according to the AES/EBU standard (AES3-1992). On each of these outputs, the same signal is fed to two XLR sockets with individual buffers.

Output level	2 to 5 V
Output impedance	110 Ω

Equalizer

Treble control (High)	5 kHz/10 kHz: $\pm$15 dB (depending on Customer Code setting)
Equalizer (Mid)	200 Hz to 10 kHz: $\pm$15 dB
Bass control (Low)	200 Hz/400 Hz: $\pm$15 dB

Crosstalk attenuation

Between channels	> 90 dB
Input fader attenuation	> 100 dB

Power supply

Mains voltage	100 to 240 V, 50/60 Hz (auto-ranging)
Power consumption	150 VA typ. (OnAir 2000M2/24/4)
	Redundant power supply available on request.

Weight

OnAir 2000M2 6/4	34 kg
OnAir 2000M2 12/4	44 kg
OnAir 2000M2 18/4	55 kg
OnAir 2000M2 24/4	63 kg

Note:

Depending on the application, the OnAir mixing consoles can have different configurations. For this reason the values mentioned above are applicable only to a typical configuration; in an individual case, the values may differ. We reserve the right to make changes as technological progress may warrant.

Data subject to change without notice.

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