A Class of Its Own

Studer OnAir 1000
A Class of its Own

The Studer OnAir 1000 digital mixing console sets new standards for professional broadcasting, making access to the new world of digital signal processing a pleasure. The Studer OnAir 1000 is based on the operating principles and many of the components of the famous Studer OnAir 2000 digital mixing console. The simple yet comprehensive operational philosophy offers features and functionality unprecedented in its class. This proven technology is on air in hundreds of studios worldwide, 24 hours a day, seven days a week.

The Studer OnAir 1000 digital mixing console is equipped with a large graphical user interface giving access to all levels of operation. Different modes can be set whereby only the key operating elements for routine operation are provided on the surface, handy and convenient for day-to-day tasks.

The Studer OnAir 1000 offers a versatile monitoring and talkback system providing support for a studio and allowing control of telephone lines directly from the console. Two integrated stereo level meters and phase correlators, together with a wide variety of control inputs and outputs delivered as standard, allow seamless integration in the digital signal processing chain.

Uniquely in this range, the Studer OnAir 1000 is provided with the serial control interface for Computer Assisted Broadcasting (CAB) systems and can easily be connected to the Studer DigiMedia radio automation system. This combination allows for completely unattended, semi-automatic or manual generation of your radio program. It also offers audio editing, access to audio databases or complete integration into your audio network.

Renowned Studer audio quality based on more than 50 years of know-how and experience in the professional audio industry, combined with the ultimate in digital signal processing, make the Studer OnAir 1000 a future-proof investment which offers a standard set of features way beyond the usual.

The Studer OnAir 1000 at a Glance

- Inexpensive and ergonomic solution for small-to mid-range broadcasting studios
- 10 channel faders, 2 master faders
- Integrated input router
- digital signal processing
- easy to operate
- short learning curve
- graphical user interface
- proven Studer quality and reliability
The distinctive design makes the Studer OnAir 1000 an aesthetically pleasing working tool.
The Studer OnAir 1000 is an assignable console, with most channel parameters being centrally assigned through the touch screen, rather than via dedicated per-channel switches and knobs. This results in an extremely uncluttered surface. A channel is assigned by pressing the SEL button above its fader. The screen then displays the main functions — such as input and output routing — for that channel. Further submenus can then be selected (access permitting), for adjustment of less commonly used functions.

When pressing the SEL button in the fader strip, the input configuration page expands on the touch screen. The user can then conveniently select the output signal routing or adjust the balance for instance (example with a microphone input). In the mid right section the user can chose one of the menu knobs and go one step deeper into the machine control.

This example shows that 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. On the right side of the screen, one can see the date and time display which can be synchronized with an external time signal. Also available are two stop watches. One of them can be controlled either by a fader start signal or externally.

Four rotary encoders beneath the touch screen allow the adjustment of parameters or the selection of a parameter from a selection table.

Snapshots and configurations can be stored and retrieved via a memory card (PCMCIA). It allows the user either to reconfigure the console completely or just recall a suitable EQ setting for the DJ’s microphone channel. Radio stations often use the same console type for on-air and production applications. With the memory card, it is easy to reload different settings and turn a production console into an on-air console within seconds, if required. In addition, new software versions can be downloaded from the memory card to the console.
The On-Air 1000 is very simple to use thanks to the patented Touch’n’Action operating concept, renowned for its success in the Studer OnAir 2000. The operator can concentrate on his specific task, making good radio programs, using only the required minimum of operating elements on the console surface.

As the console is based on the larger system’s technology, the Studer OnAir 1000 offers an unprecedented level of functionality for this class. Up to 20 user access accounts can be installed, allowing the system administrator to shape a user profile exactly to the skills and needs of the specific user. Each of these users can generate nearly 200 snapshots of his or her preferred system set-up, or microphone settings in his or her domain. All snapshots and console settings are stored in the internal flash memory or can be backed up to a PCMCIA memory card.

The large touch screen, unique in this type of console, provides information on the system status, the input and output routing, and the level and pan adjustments. All parameters and settings can be adjusted by four rotary encoders beneath the screen or through the screen touch matrix. A three-band equalizer curve can be displayed and adjusted in real time on the screen for all channels independently.

Menu access can be controlled for individual users and this information stored in their profile definition. This allows the console to be simplified for use by non-technical staff, yet remain extremely versatile and sophisticated for the skilled technician.

The integrated input router enables any input signal to be assigned to any fader channel on the surface. This configuration can also be stored and retrieved from the user profile.

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.

There are a number of system configuration submenus. To open a menu page the operator just has to touch the appropriate soft button on the screen. In the input configuration page of an analog line input, e.g. nominal levels and headroom can be adjusted, and features like 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 system dump function, used to download global or specific configuration data to a memory card.
The Studer OnAir 1000 - You’ll Love It …

… in your daily DJ work, e.g. for live interviews with music broadcasted from a radio automation playlist.

… whenever you do production work, e.g. with an audio editing software.
The Studer OnAir 1000 provides the utmost flexibility in monitoring and metering of all signal sources. The DJ or technician can listen to several audio sources and monitor the levels with the built-in LED bargraph meters directly accessible via buttons on the front panel.

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.

Studio Monitoring

The built-in studio monitoring functions are based on a touch menu on the control screen. The monitoring source selection can also be controlled directly from the studio via external push buttons on the studio talkback box.

Talkback

There is a choice of five talkback destinations from the built-in talkback microphone. A key is assigned for each destination. Two clean-feeds (N-1) can be used as mono outputs to telephone hybrids or to line outputs. The clean-feeds as well as the general purpose audition bus have master level controls accessible via the touch screen. Talkback to the AUX busses or the studio is directly accessible.

If required, an external talkback microphone can be connected to the Studer OnAir 1000 as well as a studio talkback microphone.

The Studer OnAir 1000 also supports an external studio, e.g. news studio, whereby an external talkback box, available as an accessory, permits remote control of signal sources and level control of the loudspeakers or headsets in the studio.

Located to the right of the control screen are the monitoring and talkback controls which provide access to the auxiliary outputs (AUX), the audition bus (Audition), the two main stereo busses (PGM, REC), the pre-fader listening bus (PFL), 3 external sources (EXT) and an external off-air monitor feed. There is also a dedicated external PFL input provided for use with radio automation systems. Separate level controls are available for the headphones, the loudspeakers and the PFL/talkback signals.

The Studer OnAir 1000 is equipped with two 30-segment LED stereo bargraph meters. Each of the level meters features an additional phase correlator. The sources to be monitored can be selected from the touchscreen between the main buses (PGM and REC), the two AUX sends, the audition and the cleanfeed bus and the control room monitoring signal. The ballistics of both stereo meters may be switched between PPM or VU.

The Studer OnAir 1000 also supports an external studio, e.g. news studio, whereby an external talkback box, available as an accessory, permits remote control of signal sources and level control of the loudspeakers or headsets in the studio.
Connectivity and Controls

The Studer OnAir 1000 offers a choice of analog and digital input and output configurations. In addition, there are many control interfaces provided as standard, like RS232/RS422 interface, telephone hybrid control, clock synchronization and time synchronization.

The input connection set of the Studer OnAir 1000 digital mixing console is available in two versions.

Input

For studios with most of the equipment in digital format a digitally biased version offers 10 (5x2 with A/B select) digital inputs accepting AES/EBU or S/PDIF signals. The digital signal source needs not be synchronized to the console as all inputs are equipped with sampling frequency converters (SFC). The input can be connected via XLR, Cinch or optical TOSLINK connectors. In addition to these 10 digital inputs the digitally biased version offers 4 (2x2 with A/B select) analog line inputs with XLR connectors and 6 (3x2 with A/B select) mono microphone wide range inputs also with XLR connectors. All microphone inputs feature insert sends and returns and also accept line level signal sources e.g. telephone line signals.

For more traditional analog applications the Studer OnAir 1000 is available in an analog biased version. There are 10 (5x2 with A/B select) analog inputs, 4 (2x2 with A/B select) digital inputs and 6 (3x2 with A/B select) microphone mono wide range inputs at the user's disposal. All inputs feature the same characteristics as described for the digitally biased version.

In addition to these input channels the console offers two analog stereo insert sends and returns which can be routed into any channel or even the main output buses. The active routing is displayed on the surface in the respective channel strip by LEDs.

The Studer OnAir 1000 features an integrated input router allowing to assign any of the input signals to any of the channel faders on the surface in a very easy way.

Output

On the output side the Studer OnAir 1000 console provides one stereo Program Output (PGM), one stereo Record Output (REC) and two stereo AUX send busses. All available in analog and digital format at the same time. Moreover two cleanfeeds, N–1A and N–1B, are available in analog format. Finally the stereo Audition bus can be used for different applications. All outputs are fed to XLR connectors.

The Studer OnAir 1000 includes a set of general purpose inputs and outputs (GPIO open collectors or opto coupler inputs) on every individual input channel which may be used to start and/or cue external devices such as CD players or DAT units, to be controlled by a radio automation system, or for red light indication, etc. The control signals can be triggered by various functions and depend on the selected fader start mode giving the OnAir 1000 greatest possible flexibility for your needs.

Controls

Setting new standards in its class, the Studer OnAir 1000 is equipped with a wide variety of control inputs and outputs. The Time Sync input allows the internal time and date system to be synchronized to external sources. Up to 8 protocols (AFNO r NFS87-500, Seiko serial clock, DCF77 mouse clock, MABTIME IF482, GPS NMEA0183, RCC 8000A Type II, HOPF 6021, LEITCH SMPTE/EBU Time-code) are implemented.

The Clock Sync input provides word clock synchronization to external sources. AES/EBU, word clock for 32 kHz, 44.1 kHz and 48 kHz are accepted as well as Video Ref for 25, 29.97 or 30 frames per second.

The Studer OnAir 1000 can communicate to external devices via RS232 or RS422 serial interfaces. This allows integration with a radio automation system such as Studer DigiMedia through a standard serial protocol. A built-in telephone hybrid control can be used to directly control two external telephone hybrids from the console.

24 V DC Operation

In addition to standard 110-240 VAC, 50/60 Hz mains operation, the Studer OnAir 1000 is equipped with a dedicated 24 VDC input.

Full console operation is possible from a 24 V battery, e.g. in an OB van for mobile applications. The 24 V connection can also be used as a mains failure back up, both power sources may be connected simultaneously and are internally insulated. Complete power supply redundancy may be achieved by external power supplies. An internal power supervisor circuitry monitors all voltages and warns the operator in case of fault status by a red LED on the front panel.
Radio automation becomes increasingly important when positioning a radio format effectively in the open market. CAB systems give the program director the ability to compose titles he or she wants to play, in what airplay weighting and in which time window during the day. A CAB system also helps to improve economy and decreases the access times to music material by using hard disk storage methods.

CAB

Unique in its class, the Studer OnAir 1000 is perfectly suited to seamless integration in a radio automation or Computer Assisted Broadcast (CAB) system. It may be used as a standalone system or integrated in a network of several computer workstations, CD jukeboxes or other data storage devices.

The whole system can also be remotely controlled with a combination of laptop computer and mobile phone from anywhere in the world with a telephone network!

The Studer DigiMedia is a worldwide proven, reliable and very easy-to-use CAB system. The Studer OnAir 1000 can be fully controlled by the DigiMedia and allows either completely unattended operation, semi automatic operation or manual use. (The DigiMedia software is not part of the Studer OnAir 1000 digital mixing console.)
Studer Original Equipment – Designed in Switzerland

For over 50 years, Studer’s commitment to continuous investment in R&D has maintained a position as a world leader in both analog and digital audio technology. The recognition of its importance is demonstrated by the fact that 8% of turnover is spent on research. This has resulted in the award of over 20 technology patents but more importantly, it gives Studer the engineering and design skills to turn these technologies into innovative and often unique products that our customers want to use.

If you are looking for technical solutions, ergonomic solutions, speed-of-operation solutions, I-don’t-know-what-format-I’ll-require-tomorrow solutions, and future-proof solutions, we can offer it. Because of our experience in assembling complete systems, we also know about the smaller items that make the products work together, in both the analog and digital domains. It is all here. All developed and manufactured in Switzerland.

Service and Support

The Studer OnAir 1000 is derived from the Studer OnAir 2000 electronics and uses most of its sub-assemblies. The OnAir 2000 is a time-tested and proven digital mixing console which is in worldwide use in hundreds of installations, 24 hours a day, seven days a week. It forms the basis of the proven quality inherent in the OnAir 1000 design. Moreover the Studer OnAir 1000 is built in a modular form allowing for fast and easy replacement of sub-assemblies when necessary.

We at Studer know that reliability is of paramount importance 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.

More information?

Ask your Studer representative for detailed information, if you would like to discuss what innovative solutions Studer may have for you.
Technical Specifications and Dimensions

**General**

Level specs, digital, in dBFS: 0 dBFS  0.775 Vrms
Level specs, analog, in dBu: 0 to 20 dB
Sampling rate: 48 kHz ±50 ppm (internally synchronized)
Headroom adjustable: 0 to 20 dB
Default setting: 9 dB
Output level: +15 dBu @ 0 dBFS

All input faders set to their 0 dB position. External analog sources: source impedance < 200 Ω.

Microphone Inputs

Microphone inputs 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 (with 9 dB headroom: –69 to +11 dBu) in steps of 1 dB
Gain setting: 48 V
Phantom power, switchable: ±0.5 dB
Frequency response: –3 dB @ 75 Hz ±5 Hz, switchable
High-pass filter (12 dB/Octave): +15 dBu (with 9 dB headroom: +6 dBu)
A/D converter: 24 bit (Delta-Sigma, 64 × oversampling)
Dynamics: typ. 102 dB (unweighted)
THD+N: < –85 dBFS, 20 Hz to 20 kHz, @ –1 dBFS
THD+N: < –100 dBFS, 20 Hz to 20 kHz, @ –30 dBFS
Noise figure: typ. < 4 dB @ max. gain, bandwidth 20 kHz, R = 200 Ω
Common mode rejection: > 50 dB @ 15 kHz, > 75 dB @ 50 Hz

Line Level Inputs

Analog line level inputs are stereo inputs with A/B switching, with electronically balanced input, XLR connectors.

Input sensitivity: 0 to +24 dBu (with 9 dB headroom: –9 to +15 dBu) in steps of 1 dB
Gain setting: ±0.1 dB
Frequency response: > 10 kΩ
A/D converter: 24 bit (Delta-Sigma, 64 × oversampling)
Dynamics: typ. 102 dB (unweighted)
THD+N: < –94 dBFS, 20 Hz to 20 kHz, @ –1 dBFS
THD+N: < –100 dBFS, 20 Hz to 20 kHz, @ –30 dBFS
Common mode rejection: > 47 dB @ 50 Hz to 15 kHz, electronically balanced

Digital Inputs

Digital inputs have A/B switching and support the AES/EBU (AES3-1992) and S/PDIF (IEC 958) formats. They are equipped with XLR, Cinch, and Toslink optical connectors.

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 dBFS
Frequency response: ±0.1 dB
Input impedance: 110 Ω (AES/EBU inputs); 75 Ω (S/PDIF inputs)

**Analog Outputs**

Analog outputs feature balancing transformers, XLR connectors.

Output level @ 0 dBFS: +4 to +24 dBu @ R = 100 kΩ
Output level @ 0 dBFS: +4 to +23 dBu @ R = 300 Ω 2Ω/A converter: 24 bit (Delta-Sigma, 128 × oversampling)
Dynamics: typ. 101 dB (unweighted)
THD+N: < –90 dBFS @ 1 kHz, –1 dBFS
Frequency response: ±0.2 dB
Output impedance: < 40 Ω

**Digital Outputs**

Digital outputs 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: ±15 dB (depending on Customer Code setting)
Equalizer (Mid): 200 Hz to 10 kHz: ±15 dB
Bass control (Low): 200 Hz/400 Hz: ±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: 130 VA typ
Redundant power supply available on request.
DC operating voltage: 24V/5A typ

**Weight**

OnAir 1000: 22 kg

Data subject to change without notice.