



Studer OnAir 500

Digital Mixing Console

Operating Instructions

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A Safety Information



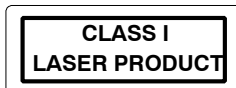
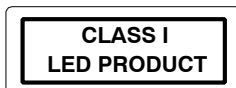
To reduce the risk of electric shock, do not remove covers. No user-serviceable parts inside. Refer servicing to qualified service personnel (i.e., persons having appropriate technical training and experience necessary to be aware of hazards to which they are exposed in performing a repair action, and of measures to minimize the danger of themselves).



This symbol alerts the user to the presence of un-insulated *dangerous voltage* within the equipment that may be of sufficient magnitude to constitute a risk of electric shock to a person.



This symbol alerts the user to *important instructions* for operating and maintenance in this documentation.



Assemblies or sub-assemblies of this product can contain opto-electronic devices. As long as these devices comply with Class I of laser or LED products according to EN 60825-1:1994, they will not be expressly marked on the product. If a special design should be covered by a higher class of this standard, the device concerned will be marked directly on the assembly or sub-assembly in accordance with the above standard.

A1 First Aid

In Case of Electric Shock:

Separate the person as quickly as possible from the electric power source:

- By switching off the equipment,
- By unplugging or disconnecting the mains cable, or
- By pushing the person away from the power source, using dry, insulating material (such as wood or plastic).
- After having suffered an electric shock, *always* consult a doctor.



Warning!

Do not touch the person or his clothing before the power is turned off, otherwise you stand the risk of suffering an electric shock as well!

If the Person is Unconscious:

- Lay the person down
- Turn him to one side
- Check the pulse
- Reanimate the person if respiration is poor
- *Call for a doctor immediately.*

B General Installation Instructions

Please consider besides these general instructions also any product-specific instructions in the “Installation” chapter of this manual.

B1 Unpacking

Check the equipment for any transport damage. If the unit is mechanically damaged, if liquids have been spilled or if objects have fallen into the unit, *it must not be connected to the AC power outlet, or it must be immediately disconnected by unplugging the power cable*. Repair must only be performed by trained personnel in accordance with the applicable regulations.

B2 Installation Site

Install the unit in a place where the following conditions are met:

- The temperature and the relative humidity of the environment must be within the specified limits during operation of the unit. Relevant values are the ones at the air inlets of the unit.
- Condensation must be avoided. If the unit is installed in a location with large variation of ambient temperature (e.g. in an OB-van), appropriate precautions must be taken before and after operation (for details on this subject, refer to Appendix 1).
- Unobstructed air flow is essential for proper operation. Air vents of the unit are a functional part of the design and must not be blocked in any way during operation (e.g. by objects placed upon them, placement of the unit on a soft surface, or installation of the unit within a rack or piece of furniture).
- The unit must not be heated up by external sources of heat radiation (sunlight, spot lights).

B3 Earthing and Power Supply

Earthing of units with mains supply (class I equipment) is performed via the protective earth (PE) conductor integrated in the mains cable. Units with battery operation (< 60 V, class III equipment) must be earthed separately.

Earthing the unit is one of the measures for protection against electrical shock hazard (dangerous body currents). Hazardous voltage may not only be caused by a defective power supply insulation, but may also be introduced by the connected audio or control cables.

If the unit is installed with one or several external connections, its earthing must be provided during operation as well as while the unit is not operated. If the earthing connection can be interrupted, for example, by unplugging the mains plug of an external power supply unit, an additional, permanent earthing connection must be installed using the provided earth terminal.

Avoid ground loops (hum loops) by keeping the loop surface as small as possible (by consequently guiding the earth conductors in a narrow, parallel way), and reduce the noise current flowing through the loop by inserting an additional impedance (common-mode choke).

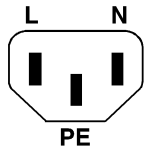
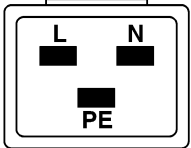
Class I Equipment (Mains Operation)

Should the equipment be delivered without a matching mains cable, the latter has to be prepared by a trained person using the attached female plug (IEC320/C13 or IEC320/C19) with respect to the applicable regulations in your country.

Before connecting the equipment to the AC power outlet, check that the local line voltage matches the equipment rating (voltage, frequency) within the admissible tolerance. The equipment fuses must be rated in accordance with the specifications on the equipment.

Equipment supplied with a 3-pole appliance inlet (protection conforming to class I equipment) *must* be connected to a 3-pole AC power outlet so that the equipment cabinet is connected to the protective earth.

For information on mains cable strain relief please refer to Appendix 2.

Female Plugs (IEC320), Front-Side View:					
 IEC 320 / C13			 IEC 320 / C19		
European Standard (CENELEC)		North American Standard (NAS)			
Brown	L (Live)	Black			
Blue	N (Neutral)	White			
Green/Yellow	PE (Protective Earth)	Green (or Green/Yellow)			

Class III Equipment (Battery Operation up to 60 V_{DC})

Equipment of this protection class must be earthed using the provided earth terminal, if one or more external signals are connected to the unit (see explanation at the beginning of this paragraph).

B4 Electromagnetic Compatibility (EMC)

The unit conforms to the protection requirements relevant to electromagnetic phenomena that are listed in guidelines 89/336/EC and FCC, part 15.

- The electromagnetic interference generated by the unit is limited in such a way that other equipment and systems can be operated normally.
- The unit is adequately protected against electromagnetic interference so that it can operate properly.

The unit has been tested and conforms to the EMC standards of the specified electromagnetic environment, as listed in the following declaration. The limits of these standards ensure protection of the environment and corresponding noise immunity of the equipment with appropriate probability. However, a professional installation and integration within the system are imperative prerequisites for operation without EMC problems.

For this purpose, the following measures must be followed:

- Install the equipment in accordance with the operating instructions. Use the supplied accessories.
- In the system and in the vicinity where the equipment is installed, use only components (systems, equipment) that also fulfill the EMC standards for the given environment.
- Use a system grounding concept that satisfies the safety requirements (class I equipment must be connected with a protective ground conduc-

tor) and that also takes into consideration the EMC requirements. When deciding between radial, surface, or combined grounding, the advantages and disadvantages should be carefully evaluated in each case.

- Use shielded cables where shielding is specified. The connection of the shield to the corresponding connector terminal or housing should have a large surface and be corrosion-proof. Please note that a cable shield connected only single-ended can act as a transmitting or receiving antenna within the corresponding frequency range.
- Avoid ground loops or reduce their adverse effects by keeping the loop surface as small as possible, and reduce the noise current flowing through the loop by inserting an additional impedance (e.g. common-mode choke).
- Reduce electrostatic discharge (ESD) of persons by installing an appropriate floor covering (e.g. a carpet with permanent electrostatic filaments) and by keeping the relative humidity above 30%. Further measures (e.g. conducting floor) are usually unnecessary and only effective if used together with corresponding personal equipment.
- When using equipment with touch-sensitive operator controls, please take care that the surrounding building structure allows for sufficient capacitive coupling of the operator. This coupling can be improved by an additional, conducting surface in the operator's area, connected to the equipment housing (e.g. metal foil underneath the floor covering, carpet with conductive backing).

C Maintenance

All air vents and openings for operating elements (faders, rotary knobs) must be checked on a regular basis, and cleaned in case of dust accumulation. For cleaning, a soft paint-brush or a vacuum cleaner is recommended. Cleaning the surfaces of the unit is performed with a soft, dry cloth or a soft brush.

Persistent contamination can be treated with a cloth that is slightly humidified with a mild cleaning solution (soap-suds).

For cleaning display windows, commercially available computer/TV screen cleaners are suited. Use only a slightly damp (never wet) cloth.

Never use any solvents for cleaning the exterior of the unit! Liquids must never be sprayed or poured on directly!

For equipment-specific maintenance information please refer to the corresponding chapter in the Operating and Service Instructions manuals.

D Electrostatic Discharge during Maintenance and Repair

Caution:



Observe the precautions for handling devices sensitive to electrostatic discharge!

Many semiconductor components are sensitive to electrostatic discharge (ESD). The life-span of assemblies containing such components can be drastically reduced by improper handling during maintenance and repair work. Please observe the following rules when handling ESD sensitive components:

- ESD sensitive components should only be stored and transported in the packing material specifically provided for this purpose.
- *When performing a repair by replacing complete assemblies, the removed assembly must be sent back to the supplier in the same packing*

material in which the replacement assembly was shipped. If this should not be the case, any claim for a possible refund will be null and void.

- Unpacked ESD sensitive components should only be handled in ESD protected areas (EPA, e.g. area for field service, repair or service bench) and only be touched by persons who wear a wristlet that is connected to the ground potential of the repair or service bench by a series resistor. The equipment to be repaired or serviced as well as all tools and electrically semi-conducting work, storage, and floor mats should also be connected to this ground potential.
- The terminals of ESD sensitive components must not come in uncontrolled contact with electrostatically chargeable (voltage puncture) or metallic surfaces (discharge shock hazard).
- To prevent undefined transient stress of the components and possible damage due to inadmissible voltages or compensation currents, electrical connections should only be established or separated when the equipment is switched off and after any capacitor charges have decayed.

E Repair

Removal of housing parts, shields, etc. exposes energized parts. For this reason the following precautions must be observed:

- Maintenance may only be performed by trained personnel in accordance with the applicable regulations.
- The equipment must be switched off and disconnected from the AC power outlet before any housing parts are removed.
- Even if the equipment is disconnected from the power outlet, parts with hazardous charges (e.g. capacitors, picture tubes) must not be touched until they have been properly discharged. Do not touch hot components (power semiconductors, heat sinks, etc.) before they have cooled off.
- If maintenance is performed on a unit that is opened and switched on, no un-insulated circuit components and metallic semiconductor housings must be touched, neither with your bare hands nor with un-insulated tools.

Certain components pose additional hazards:

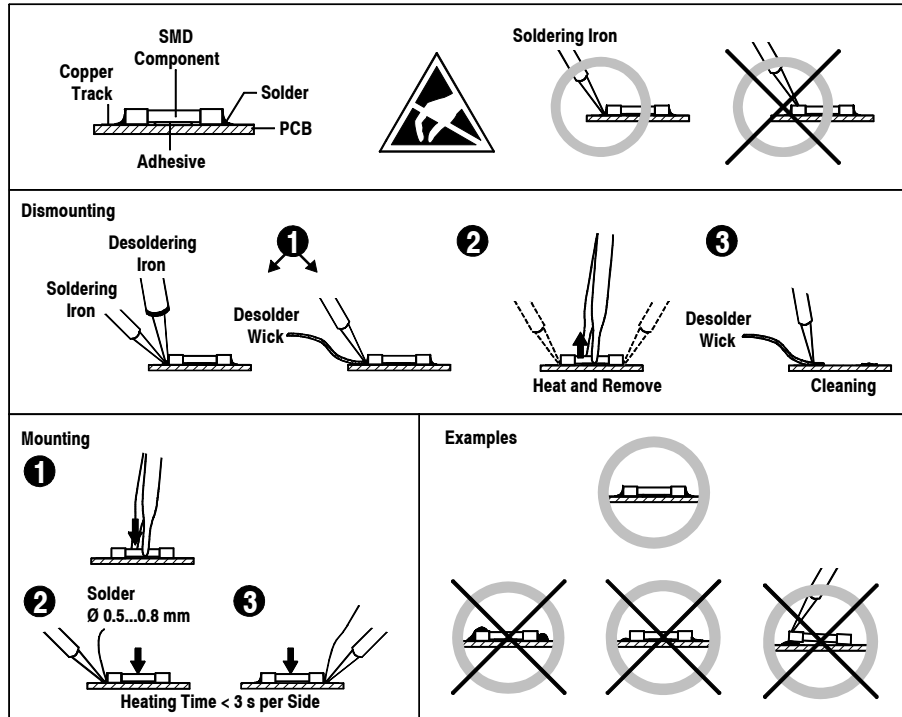
- *Explosion hazard* from lithium batteries, electrolytic capacitors and power semiconductors (watch the component's polarity. Do not short battery terminals. Replace batteries only by the same type).
- *Implosion hazard* from evacuated display units.
- *Radiation hazard* from laser units (non-ionizing), picture tubes (ionizing).
- *Caustic effect* of display units (LCD) and components containing liquid electrolyte.

Such components should only be handled by trained personnel who are properly protected (e.g. safety goggles, gloves).

E1 SMD Components

Studer has no commercially available SMD components in stock for service purposes. For repair, the corresponding devices have to be purchased locally. The specifications of special components can be found in the service manual.

SMD components should only be replaced by skilled specialists using appropriate tools. No warranty claims will be accepted for circuit boards that have been damaged. Proper and improper SMD soldering joints are illustrated below.



F Disposal

Disposal of Packing Materials

The packing materials have been selected with environmental and disposal issues in mind. All packing material can be recycled. Recycling packing saves raw materials and reduces the volume of waste. If you need to dispose of the transport packing materials, please try to use recyclable means.

Disposal of Used Equipment

Used equipment contains valuable raw materials as well as materials that must be disposed of professionally. Please return your used equipment via an authorized specialist dealer or via the public waste disposal system, ensuring any material that can be recycled is. Please take care that your used equipment cannot be abused. To avoid abuse, delete sensitive data from any data storage media. After having disconnected your used equipment from the mains supply, make sure that the mains connector and the mains cable are made useless.

G Declarations of Conformity

G1 Class A Equipment - FCC Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide a reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Caution: Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment. Also refer to relevant information in this manual.

G2 CE Declaration of Conformity

We,

**Studer Professional Audio GmbH,
CH-8105 Regensdorf,**

declare under our sole responsibility that the product

**Studer OnAir 500, Digital Mixing Console
(starting with serial no. 1001)**

to which this declaration relates, according to following regulations of EU directives and amendments

- Low Voltage (LVD):
73/23/EEC + 93/68/EEC
- Electromagnetic Compatibility (EMC):
89/336/EEC + 92/31/EEC + 93/68/EEC

is in conformity with the following standards or normative documents:

- Safety:
EN 60950:2000 (Class I equipment)
- Safety of laser products:
EN 60825-1:1994 + A11 + A2, EN60825-2:2000
- EMC:
EN 55103-1/-2:1996, electromagnetic environments E2 and E4.

Regensdorf, July 21, 2003



B. Hochstrasser, President



P. Fiala, Manager QA

Appendix 1: Air Temperature and Humidity

General

Normal operation of the unit or system is warranted under the following ambient conditions defined by *EN 60721-3-3, set IE32, value 3K3*.

This standard consists of an extensive catalogue of parameters, the most important of which are: ambient temperature +5...+40 °C, relative humidity 5...85% (i.e., no formation of condensation or ice); absolute humidity 1...25 g/m³; rate of temperature change < 0.5 °C/min. These parameters are dealt with in the following paragraphs.

Under these conditions the unit or system starts and works without any problem. Beyond these specifications, possible problems are described in the following paragraphs.

Ambient Temperature

Units and systems by Studer are generally designed for an ambient temperature range (i.e. temperature of the incoming air) of +5...+40 °C. When rack mounting the units, the intended air flow and herewith adequate cooling must be provided. The following facts must be considered:

- The admissible ambient temperature range for operation of the semiconductor components is 0 °C to +70 °C (commercial temperature range for operation).
- The air flow through the installation must provide that the outgoing air is always cooler than 70 °C.
- Average heat increase of the cooling air shall be about 20 K, allowing for an additional maximum 10 K increase at the hot components.
- In order to dissipate 1 kW with this admissible average heat increase, an air flow of 2.65 m³/min is required.

Example: A rack dissipating $P = 800\text{ W}$ requires an air flow of $0.8 * 2.65\text{ m}^3/\text{min}$ which corresponds to $2.12\text{ m}^3/\text{min}$.

- If the cooling function of the installation must be monitored (e.g. for fan failure or illumination with spot lamps), the outgoing air temperature must be measured directly above the modules at several places within the rack. The trigger temperature of the sensors should be 65 to 70 °C.

Frost and Dew

The unsealed system parts (connector areas and semiconductor pins) allow for a minute formation of ice or frost. However, formation of dew visible with the naked eye will already lead to malfunctions. In practice, reliable operation can be expected in a temperature range above -15 °C, if the following general rule is considered for putting the cold system into operation:

If the air within the system is cooled down, the relative humidity rises. If it reaches 100%, condensation will arise, usually in the boundary layer between the air and a cooler surface, together with formation of ice or dew at sensitive areas of the system (contacts, IC pins, etc.). Once internal condensation occurs, trouble-free operation cannot be guaranteed, independent of temperature.

Before putting into operation, the system must be checked for internal formation of condensation or ice. Only with a minute formation of ice, direct

evaporation (sublimation) may be expected; otherwise the system must be heated and dried while switched off.

A system without visible internal formation of ice or condensation should be heated up with its own heat dissipation, as homogeneously (and subsequently as slow) as possible; the ambient temperature should then always be lower than the one of the outgoing air.

If it is absolutely necessary to operate the cold system immediately within warm ambient air, this air must be dehydrated. In such a case, the absolute humidity must be so low that the relative humidity, related to the coldest system surface, always remains below 100%.

Ensure that the enclosed air is as dry as possible when powering off (i.e. before switching off in winter, aerate the room with cold, dry air, and remove humid objects as clothes from the room).

These relationships are visible from the following climatogram. For a controlled procedure, thermometer and hygrometer as well as a thermometer within the system will be required.

Example 1: An OB-van having an internal temperature of 20 °C and relative humidity of 40% is switched off in the evening. If temperature falls below +5 °C, dew or ice will be forming.

Example 2: An OB-van is heated up in the morning with air of 20 °C and a relative humidity of 40%. On all parts being cooler than +5 °C, dew or ice will be forming.

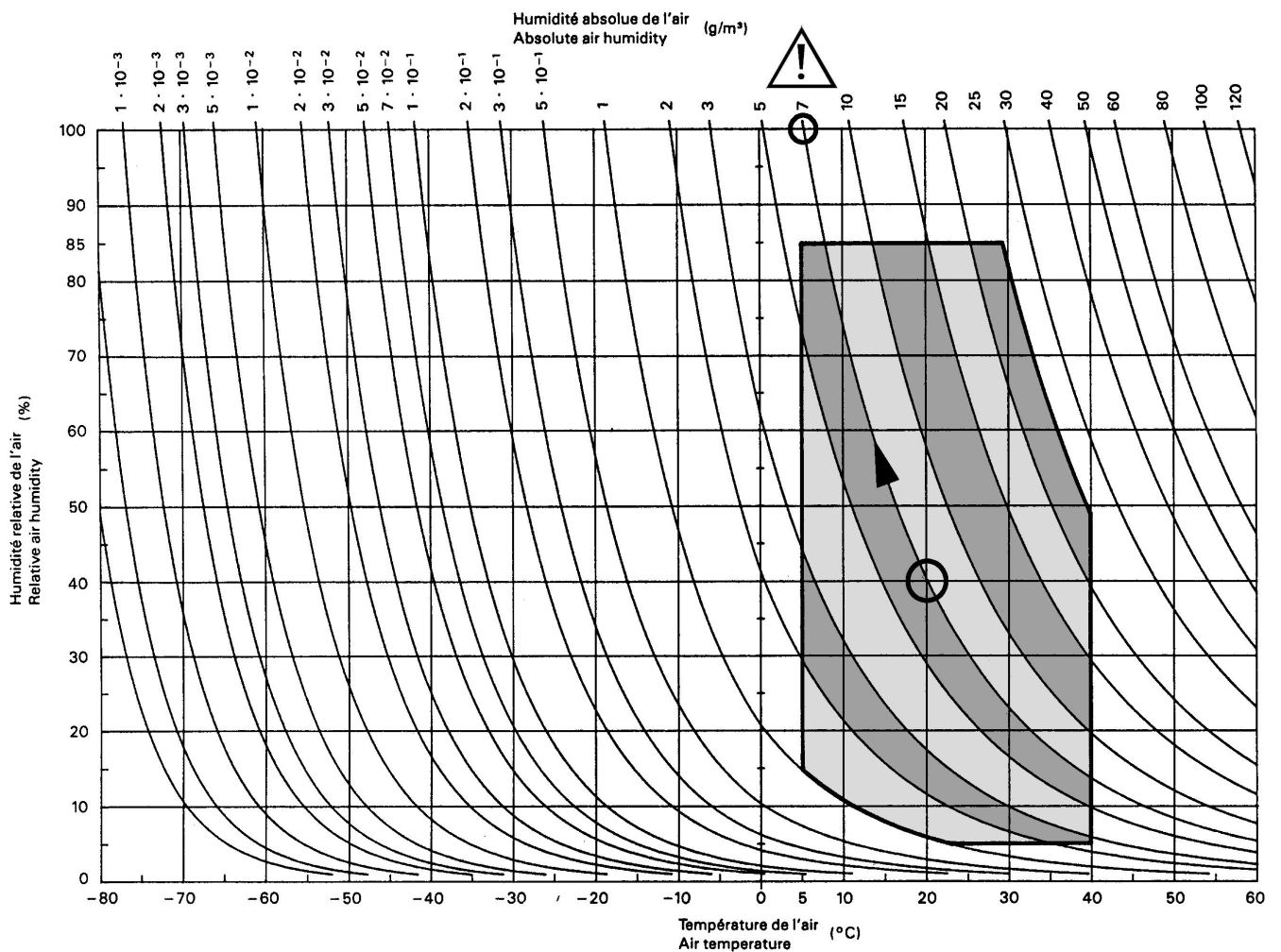
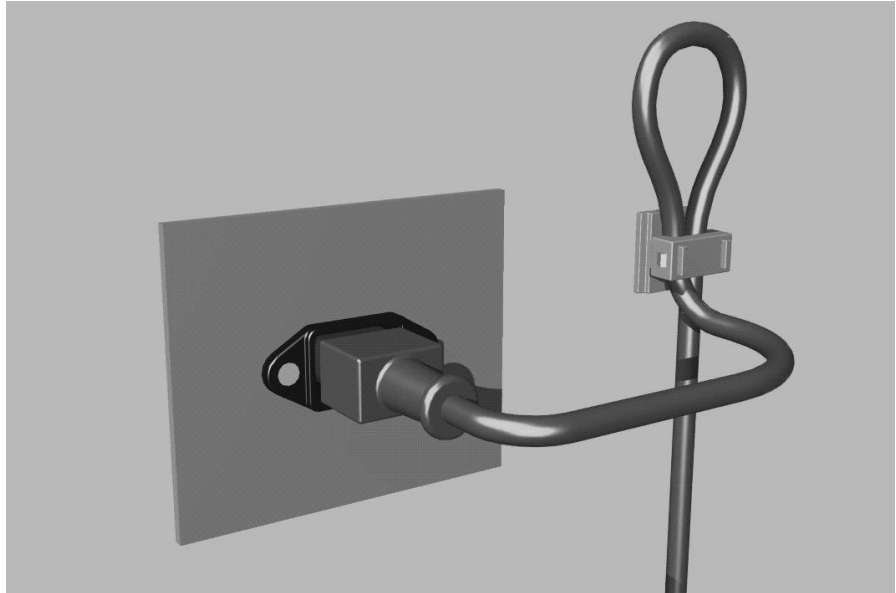


Figure B.3 – Climatogramme pour catégorie 3K3
Climatogram for class 3K3

Appendix 2: Mains Connector Strain Relief

For anchoring connectors without a mechanical lock (e.g. IEC mains connectors), we recommend the following arrangement:



Procedure: The cable clamp shipped with your unit is auto-adhesive. For mounting please follow the rules below:

- The surface to be adhered to must be clean, dry, and free from grease, oil, or other contaminants. Recommended application temperature range is +20...+40 °C.
- Remove the plastic protective backing from the rear side of the clamp and apply it firmly to the surface at the desired position. Allow as much time as possible for curing. The bond continues to develop for as long as 24 hours.
- For improved stability, the clamp should be fixed with a screw. For this purpose, a self-tapping screw and an M4 bolt and nut are included.
- Place the cable into the clamp as shown in the illustration above and firmly press down the internal top cover until the cable is fixed.

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For all issues not covered herewithin, refer to the "General Terms and Conditions of Sales and Delivery" being part of the sales contract.

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1 INTRODUCTION



The Studer OnAir 500 is designed first and foremost as a broadcast radio console, which can simply drop in to any existing setup with a minimum of fuss. This might be as a replacement for older analog equipment, or integration into a totally digital environment. The instantly familiar “analog” control style of the Studer OnAir 500 ensures that users do not have to fight with the technology in order to start using the powerful features on offer. The added benefits of automation to the professional radio presenter are obvious – simple single-key recall of a complete console state with effects, routing and EQ all configured, according to the user’s preferences. Whether in a studio or in an outside broadcast vehicle, the Studer OnAir 500 will offer the user repeatable, detailed control over a powerful feature set, in a simple and efficient manner.

All of this control would have been little use without the intuitive interface incorporating the edit strip, which allows fast access to all audio parameters on the console when used in conjunction with the EDIT key present on each channel. The “Tap and Adjust” functionality of the Studer OnAir 500 provides even the first-time operator with a familiar channel strip and a meter bridge equipped with bar graph meters.

Each channel has full access to the edit strip, which offers three-band EQ with semi-parametric midrange equalization, variable high-pass filter and two auxiliary sends, a digital trim control with a range of ± 12 dB, and a pan/balance control. Every channel has an assignable stereo dynamics processor offering a choice of compression, limiting and gating facilities.

The on-board Lexicon™ effects processor can be accessed from any channel by configuring either the AUX 1 or AUX 2 send to operate as an effects send. Immediacy is critical in the broadcast environment and so it was important to have controls on each channel, like input 2 switching. Also included are advanced but simple-to-use functions, like how the channel ON keys or fader movements can trigger remote equipment, and how the PFL key can activate talkback to cleanfeeds if required. Comprehensive talkback facilities and compatibility with existing systems ensure that the user is never out of touch even during the most complex of outside broadcast links.

The built-in MIDI ports allow full backup and restore of console presets via MIDI system-exclusive data transfers.

1.1 Key Features

The Studer OnAir 500 offers the following features:

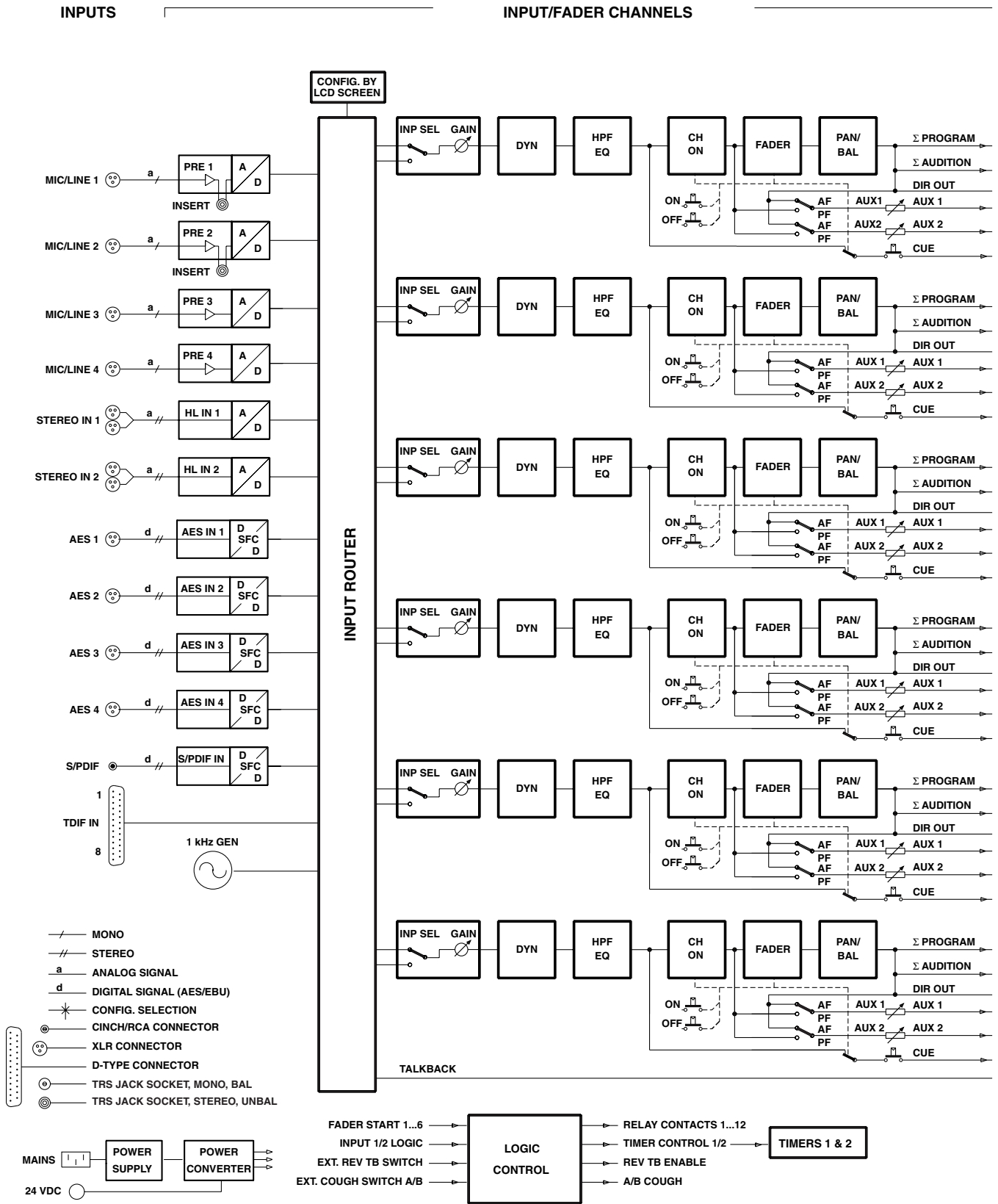
- Six assignable 100 mm faders
- Meter bridge with choice of VU or PPM metering
- Built-in cue/reverse talkback loudspeaker
- Two flexible timers for logging and scheduling
- Flexible routing of inputs
- Easy to use “analog” style user interface
- External monitor muting and equipment control via assignable contact switch outputs
- External control inputs for cough muting and enabling reverse talkback
- Independently assignable line/talkback/cleanfeed outputs with “mix-minus” facility
- Built-in Lexicon™ digital effects processor with 128 available FX presets
- Assignable channel dynamics
- 128 desk presets for storage and recall of digital console parameters
- Backup and restore of snapshot, dynamic and FX presets via MIDI
- Software upgrades via built-in RS232 port
- Backlit LCD screen for parameter editing, global setup and configuration
- Integrated, auto-ranging power supply unit (100...240 V_{AC}, 50...60 Hz)
- Input connector for 24 V_{DC} supply, can be used for first-level PSU redundancy.

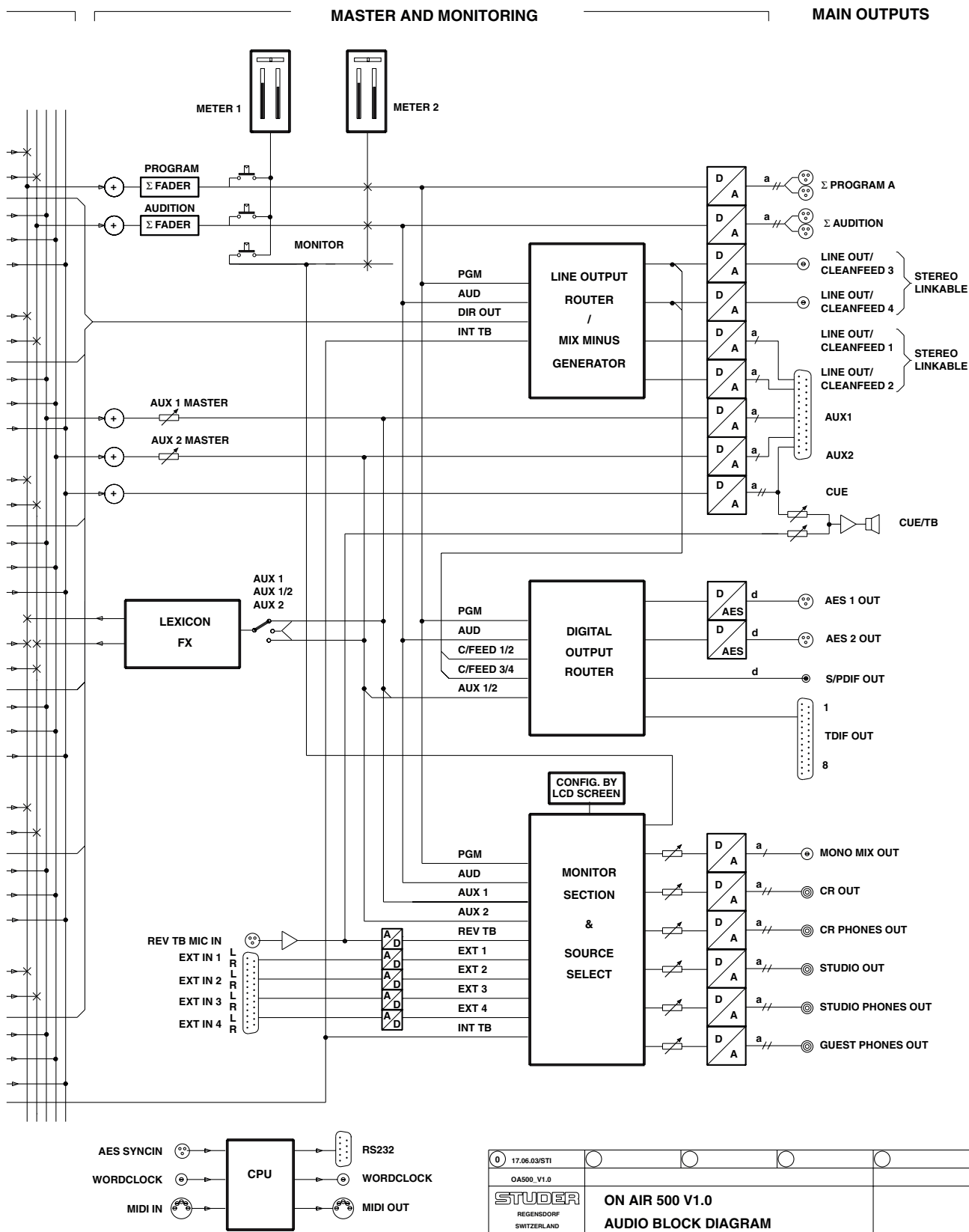
1.2 Feature Overview

- Analog Inputs** The Studer OnAir 500 offers four assignable mic/line inputs, using digitally controlled mic pre-amps. Two mic/line Inputs have an analog insert point using a stereo jack plug, and all have a gain range from 0 to +60 dB, with switchable 48 V phantom power. Two stereo inputs are also available with a gain range from 0 to +18 dB. For monitoring purposes, there are four external stereo inputs accessible via a 37-pin D-type connector, with a gain range from 0 to +18 dB. All of the above inputs are electronically balanced and feature 24 bit, 128 × oversampling A/D converters.
- A further eight analog inputs can be achieved by connecting an external mic/line input interface box to the TDIF port found on the rear of the Studer OnAir 500.
- Analog Outputs** The Studer OnAir 500 offers an array of analog outputs. There are electronically balanced XLR outputs for the PROG and AUD mix buses, and unbalanced outputs for control room and studio monitors. Outputs for guest, studio, and control room headphones are supplied, with a duplicate control room headphone socket located at the front.
- Outputs for AUX buses 1 and 2, line/clean-feed buses 1 and 2, stereo PFL, mono PFL and cue speaker are located on the 37 pin D-type connector.
- A further eight analog outputs can be achieved by connecting an external analog output interface box to the TDIF port found on the rear of the Studer OnAir 500.
- Digital Inputs** Four dedicated AES/EBU inputs and one S/PDIF input for connecting CD, MiniDisc and DAT units are provided on the rear of the Studer OnAir 500. Additional digital inputs are accessed by an eight-channel TDIF connector. With the exception of the TDIF inputs, all other digital inputs are equipped with sample rate converters, simplifying the setup and eliminating the need for all devices in the system to share a common wordclock. All digital inputs can be routed freely to any channel in exactly the same way as the analog inputs, and therefore have the same access to the edit strip (there are, however, limitations regarding the routing of the S/PDIF input - see chapter 4.2 for details).
- A further four AES/EBU inputs (four stereo or eight mono) can be achieved by connecting an AES/EBU input interface box to the TDIF port.
- Digital Outputs** There are two AES/EBU digital outputs provided on male XLR connectors, and one S/PDIF output via an RCA/Cinch connector. The TDIF connector also provides eight additional digital outputs that can be configured to output a variety of mono or stereo sources.
- A further four AES/EBU outputs (four stereo or eight mono) can be achieved by connecting an AES/EBU output interface box to the TDIF port.
- Meters** The Studer OnAir 500 has two stereo bargraph meters with a correlation indicator above each of them. On the METER 1, three easily selected modes show either the PROG or AUD output buses or the control room selection; for METER 2, the same sources are menu-selectable. Metering can be specified at the time of ordering with either VU or PPM characteristics.

(continued on page 1-6)

1.3 Studer OnAir 500 Block Diagram





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	OA500_V1.0			
STUDER	ON AIR 500 V1.0			
REGENSDORF SWITZERLAND	AUDIO BLOCK DIAGRAM			

- (cont.)
- Faders** The 100 mm long-throw faders found on the Studer OnAir 500 work just as you would expect on an analog console. The top end of the fader is calibrated at 0 dB (unity gain). The master faders can be bypassed via the setup menu so that both the PROG and AUD bus outputs are fixed at unity gain.
- Edit Strip** The edit strip places the main controls found on a conventional analog channel strip in one central, easy-to-access area. The edit strip has three-band equalization, variable high-pass filter, two stereo-linkable AUX sends which can be switched either pre- or post-channel fader, a digital gain control and a pan/balance control together with PROG and AUD assignment keys.
- Lexicon™ Effects Processor** The Studer OnAir 500 features a built-in Lexicon™ stereo FX processor that includes reverb, delay, chorus and flange effects and is fed from AUX sends 1 and 2. Customized effects can be stored in user libraries for later recall.
- Stereo Dynamics Processors** Each channel has a dynamics processor that is automatically configured depending on the channel source, for either mono or stereo operation. It is positioned before the digital EQ and gain controls so that limiting can occur during signal peaks.
- Snapshot Presets** Complete recall of all console settings can be stored in up to 128 preset memory locations for recall.
- Audio Quality** All analog inputs and outputs on the Studer OnAir 500 have 24-bit $128 \times$ oversampling A/D and D/A converters, ensuring wide dynamic range and superb sonic performance.
- Power Supply** The OnAir 500 features both AC and DC supply. The internal supply unit is auto-ranging, for supply voltages of $100 \dots 240 V_{AC}$, 50...60 Hz. A DC supply input for connecting an external supply unit, a battery, or an uninterruptible power supply (UPS) is provided as well. Both supply variants can be used simultaneously for redundancy. A power alarm indicator on the front panel is illuminated and warns the operator as soon as either one, the AC or DC supply fails while the other one keeps up running the console.

2 GENERAL

2.1 Utilization for the Purpose Intended



The OnAir 500 mixing console is intended for professional use. It is presumed that the unit is operated only by trained personnel. Servicing is reserved to skilled technicians.

The electrical connections may be connected only to the voltages and signals designated in this manual.

2.2 First Steps

2.2.1 Unpacking and Inspection

Your new mixing console is shipped in a special packing that protects the unit against mechanical shock during transit. Care should be exercised when unpacking so that the surfaces do not get marred.

Verify that the content of the packing agrees with the items listed on the enclosed shipping list.

Check the condition of the equipment for signs of shipping damage. If there should be any complaints you should immediately notify the forwarding agent and your nearest Studer distributor.

Please retain the original packing material because it offers the best protection in case your equipment ever needs to be transported.

2.2.2 Installation

Primary Voltage: The power supply unit is auto-ranging; it can be used for mains voltages in a range of 100 to 240 V_{AC}, 50 to 60 Hz.

DC Operation: The console can be operated from a 24 V_{DC} source (battery, external supply unit, UPS) through the respective 24 V_{DC} connector provided on the rear panel.



For DC operation it is mandatory that a UL approved, external fuse is connected in series with one of the supply lines (T 3.15 A H 250 V UL/CSA). The power switch next to the power inlet only switches the mains voltage; for DC operation, an external power switch has to be foreseen by the installer.

General Precautions: Do not use the unit in conditions of excessive heat or cold, near any source of moisture, in excessively humid environments, or in positions where it is likely to be subjected to vibration or dust. The ambient temperature range for normal operation of the unit is +5...+40° C.



Unobstructed air flow is essential for proper operation. The air vents on the top and bottom of the unit are a functional part of the design and must not be blocked in any way (e.g. by a manual or a computer screen).

Cleaning: Do not use any liquids to clean the exterior of the unit. A soft, dry cloth or brush will usually do. *Never use any solvent for cleaning any surface of your unit!*



For cleaning the display windows, most of the commercially available window or computer/TV screen cleaners are suited. *Use only a slightly damp (never wet) cloth. Never use any solvent!*

Power Connection:



The attached female IEC 320/C13 mains cable socket has to be connected to an appropriate mains cable by a trained technician, respecting your local regulations. Refer to the “Installation, Operation, and Waste Disposal” chapter at the beginning of this manual.

In case of 24 V_{DC} operation, use an appropriate connection to the external DC supply unit or battery, equipped on one end with the attached 10-pole cable socket.



For DC operation it is mandatory that a UL approved, external fuse is connected in series with one of the supply lines (T 3.15 A H 250 V UL/CSA).



For pin assignment of the 24 V_{DC} connector please refer to chapter 12.2.5. *Please check your DC supply cable for correct polarity before connecting it to the console.*

Earthing:



This equipment must be earthed, due to the mains input filter network being connected to the mains earth. Also in case of DC operation, earthing of the unit is mandatory.

Some consideration should be given to the earthing arrangement of the system, at the center of which is the console. The console chassis is earthed to the mains earth via the power supply and/or the dedicated earth connection bolt. Ground loops may occur where signal processing equipment, patched to the console, has its signal earth commoned to the equipment chassis.

2.2.3 Adjustments, Repair

Danger:



All internal adjustments as well as repair work on this product must be performed by trained technicians!

Supply Unit Replacement:



The primary fuse is located within the power supply unit and cannot be changed. In case of failure, the complete supply unit must be replaced. Please contact your nearest Studer representative.

2.3 Technical Specifications

2.3.1 Typical Values (subject to change without notice)

Microphone/Line Level Inputs

Input Sensitivity:	-42...+18 dBu for 0 dB _{FS}
Input impedance:	2.2 kΩ
Frequency response:	±0.5 dB, 20 Hz...20 kHz
Phantom power, switchable:	48 V
A/D converter:	24 bit (128 x oversampling)
Dynamic range:	typ. 106 dB (unweighted, analog in-to-analog out)
Equivalent input noise:	-127 dBu (150 Ω @ max. gain)
THD:	< -80 dB (1 kHz @ 30 dB gain)

Stereo Line Level Inputs

Input sensitivity:	0...+18 dBu for 0 dB _{FS}
Frequency response:	±0.5 dB, 20 Hz...20 kHz
Input impedance:	> 10 kΩ
A/D converter:	24 bit (128 x oversampling)
Dynamic range:	106 dB (unweighted, analog in-to-analog out)
THD:	< -86 dB (1 kHz @ 0 dB gain)

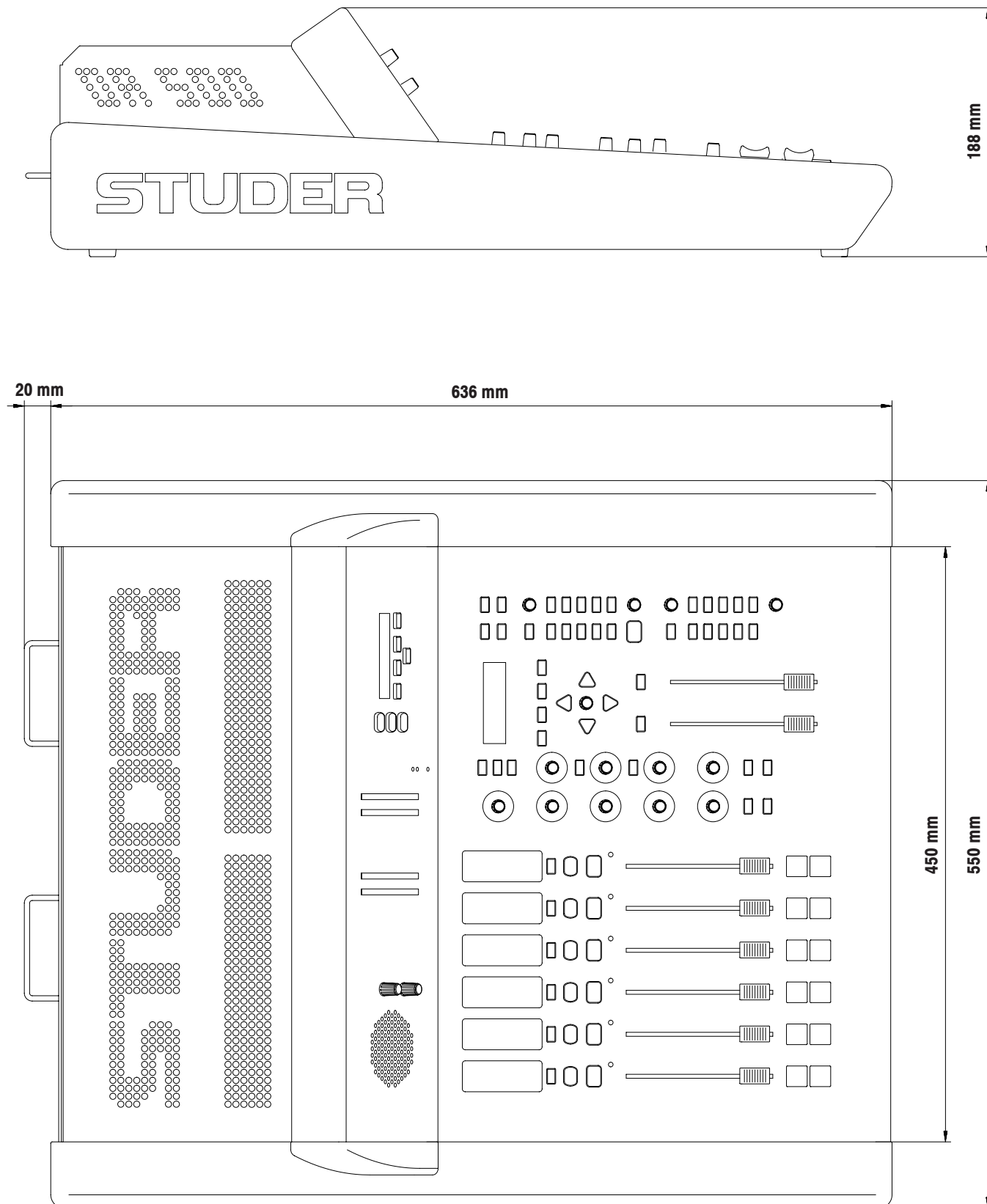
Analog Outputs	D/A converter:	24 bit (128 × oversampling)
	Dynamic range:	106 dB (unweighted, analog in-to-analog out)
	Frequency response:	±0.5 dB (20 Hz...20 kHz)
	Output impedance:	50 Ω

Equalizer	Treble control (hi):	10 kHz: ±10 dB
	Equalizer (mid):	500 Hz...8 kHz: ±10 dB
	Bass control (low):	100 Hz: ±10 dB

Power Supply	Mains voltage:	100...240 V, 50/60 Hz (auto-ranging)
	Power consumption:	80 VA typ.
	DC operating voltage:	24 V / 3 A typ.

Weight		15 kg
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2.3.2 Mechanical Dimensions



3 OPERATING ELEMENTS

3.1 Power Switch

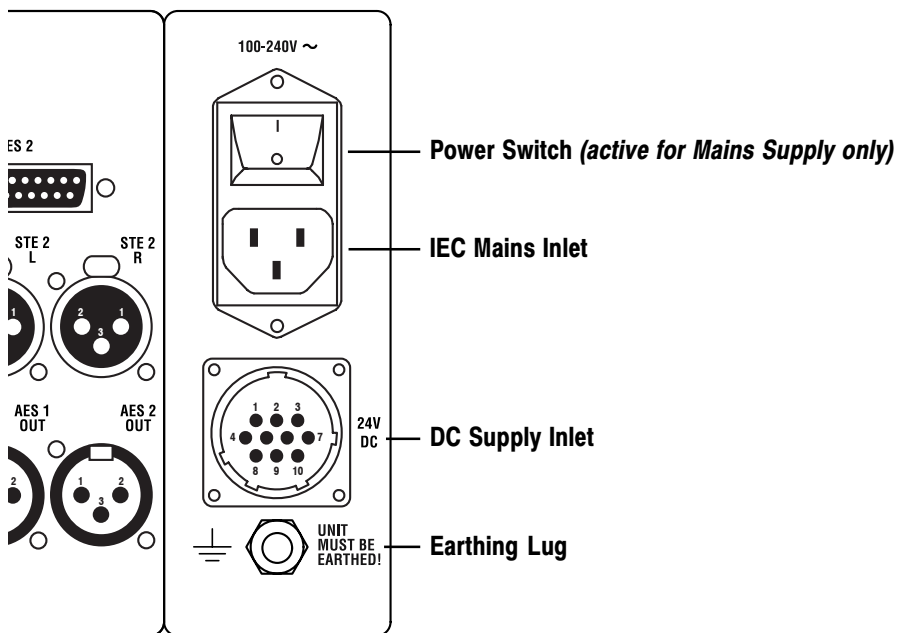
The mains power switch is located on the rear side of the console, next to the power inlet.

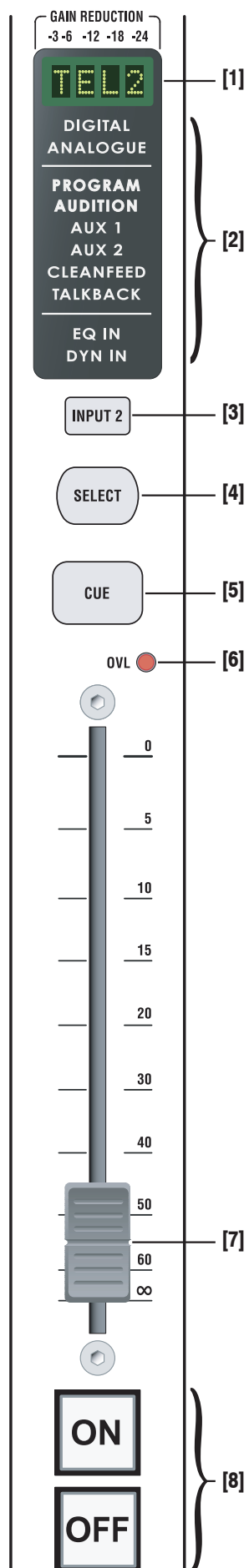
In case of DC operation of the console using an external power supply, a battery or an UPS, the power switch is without function. *In such a case, an external power switch has to be foreseen by the installer.*

The mains inlet and the DC supply inlet can be used at the same time for quasi-redundant operation.

In case of quasi-redundant operation, the **POWER ALARM** LED on the meter bridge illuminates and warns the operator as soon as either one, the AC or the DC supply fails while the other one keeps up running the console. In addition, a power alarm signal is active on one of the pins of the **24V DC** connector.

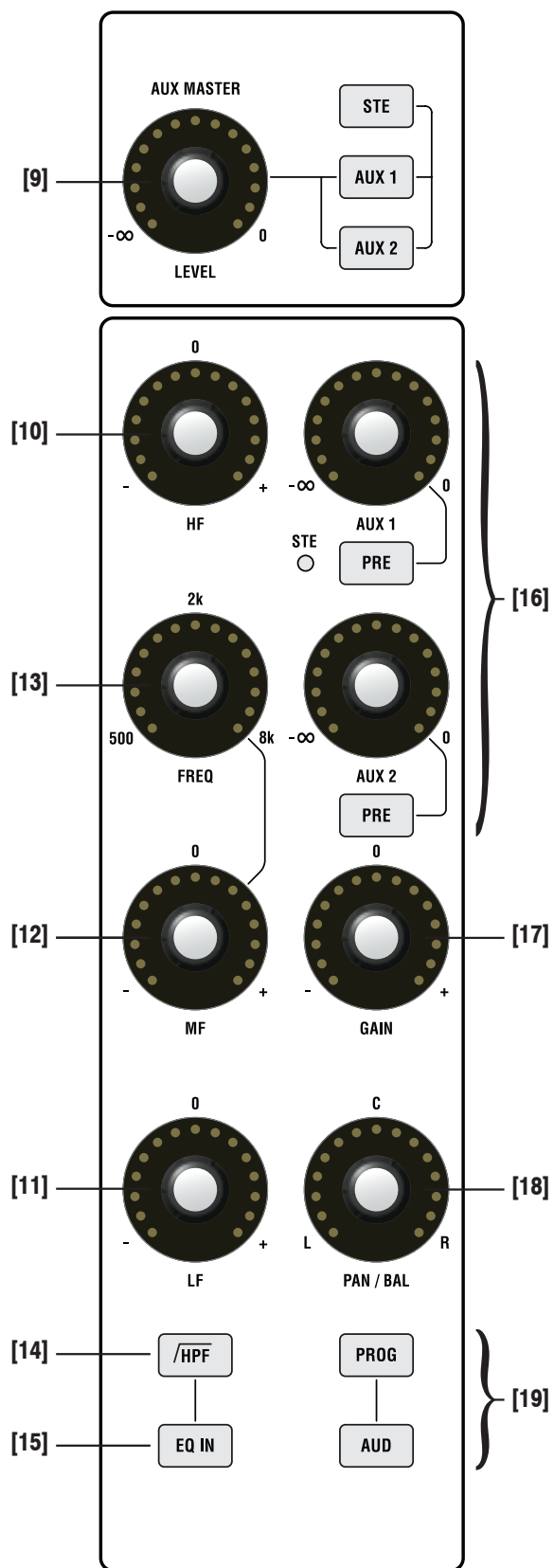
For pin assignment of the **24V DC** connector refer to chapter 12.2.5.





3.2 Channel Strip

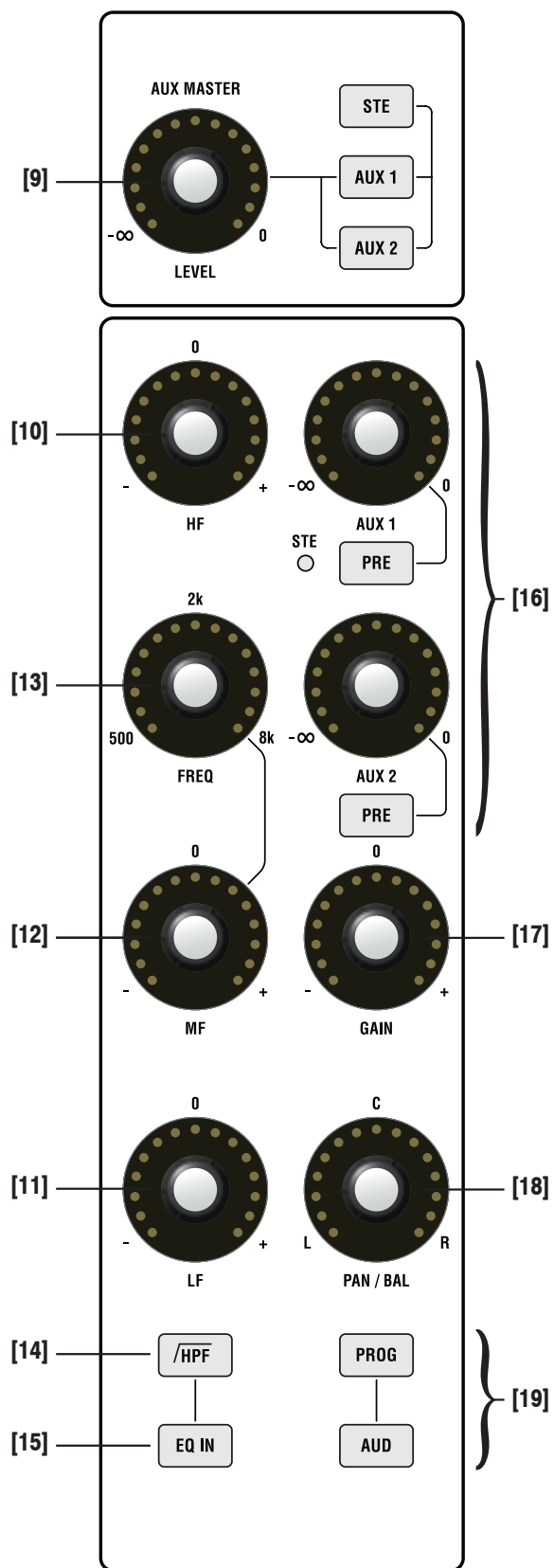
- Input Display [1]** This four-character display normally indicates the currently active channel input (the name of which can be edited, refer to chapter 4.12). If the channel's dynamics processor is active, it indicates compressor/limiter gain reduction and gate activity instead (see chapter 6).
- Status Window [2]** The status window contains individual displays that give constant visual information on:
- Whether the input source is **ANALOGUE** or **DIGITAL**.
 - Whether the channel is assigned to the **PROGRAM** or **AUDITION** outputs.
 - Whether the **AUX 1** or **AUX 2** sends are active on the selected channel (the legend will illuminate as soon as either of the **AUX 1** or **AUX 2** sends are opened).
 - Whether the channel has been configured as a **CLEANFEED** source.
 - Whether the channel has been configured as the **TALKBACK** channel
 - Whether the **EQ IN** button is active on the channel
 - Whether the channel's dynamics processor is active or not (**DYN IN**).
- INPUT 2 [3]** The **INPUT 2** button indicates whether input 1 or input 2 is the current input source for the channel. If the **INPUT 2** button is dark, then input 1 is active. If the **INPUT 2** button is illuminated then input 2 is active.
- Note:* The **REV TB1** (reverse talkback input) and the four external monitoring inputs (on the **ANALOGUE I/O** 37-pin D-type connector) cannot be used as channel inputs.
- SELECT [4]** When the **SELECT** button is pressed, the edit strip will be assigned to the selected channel. The **SELECT** button is also used in conjunction with some of the setup menus, for fast configuration of console functions.
- CUE [5]** The **CUE** button routes the channel source to the CUE/PFL bus. This allows the presenter to listen to any channel source before the fader is opened. The **CUE** button can also be used together with the **TALK** button [34] to send talkback, usually the presenter's microphone, to a designated cleanfeed output. The **CUE** button can be latched by giving it a short press; alternatively it can have a momentary action by holding it down.
- OVL LED [6]** The **OVL** LED indicates clips occurring in the digital domain.
- Channel Fader [7]** The channel fader is a high-quality, 100 mm fader with a logarithmic scale. Any channel fader can be configured in the Assign Channels menu to start external equipment and to trigger the timers (refer to chapters 4.17 and 9.2).
- ON / OFF [8]** The large **ON** and **OFF** buttons are used to switch the channel on and off. They may also be configured for triggering external devices using the remote relay port (refer to chapter 4.17).



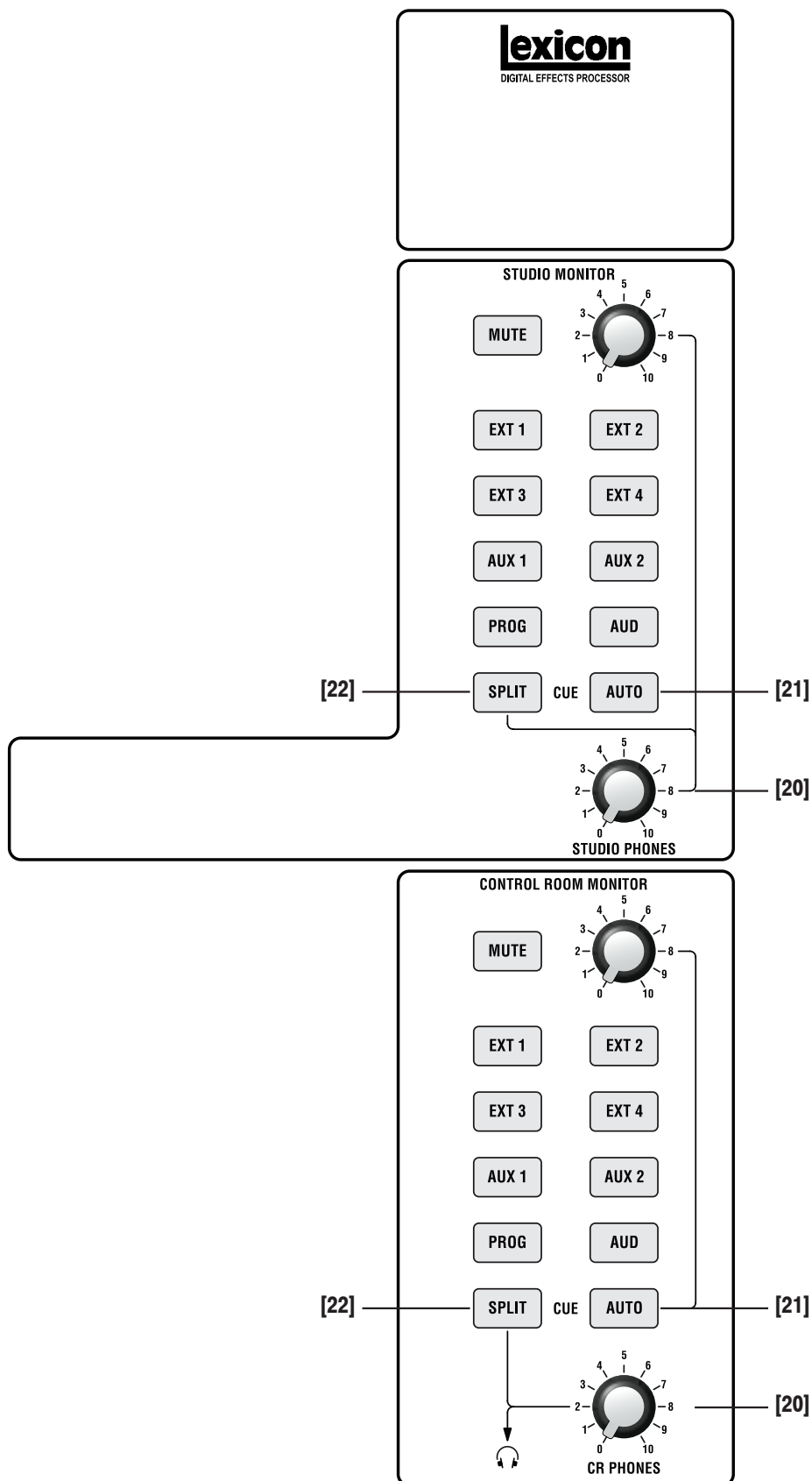
3.3 Edit Strip

The edit strip is a central panel offering all of the usual facilities you would expect to find on a standard channel strip. The edit strip can be applied to any channel by pressing the channel's **SELECT** button [4]. It will remain active on the selected channel until the **SELECT** button of another channel is pressed.

- AUX MASTER** [9] Used in conjunction with the **AUX 1** and **AUX 2** buttons, this control adjusts the overall send level for either the AUX 1 or AUX 2 bus. When the associated **STE** button is pressed, both **AUX 1** and **AUX 2** buttons illuminate, indicating that they are now linked as a stereo pair (**AUX 1** = L, **AUX 2** = R). In this case, the **AUX MASTER** control will adjust the send level as a stereo pair. The red **STE** LED found next to the **AUX 1** send control will illuminate, showing that *stereo link* mode is active.
- Note:* The **AUX MASTER** control and its associated buttons are always active, regardless of which channel is currently selected to the edit strip.
- HF** [10] The **HF** control has a shelving characteristic and offers 10 dB of cut/boost at a frequency of 10 kHz.
- LF** [11] The **LF** control has a shelving characteristic and offers 10 dB of cut/boost at a frequency of 100 Hz.
- MF** [12] The **MF** control has a semi-parametric characteristic and offers 10 dB of cut/boost. The center frequency is adjusted with the **FREQ** control [13].
- FREQ** [13] The **FREQ** control selects the frequency of the **MF** EQ band in a range of 500 Hz to 8 kHz.
- HPF** [14] The **HPF** button inserts the variable high-pass filter into the channel. This is useful for reducing unwanted low frequency interference. The choice of cut-off frequencies for the high-pass filter is 80, 100, 150, 200, 250 Hz.
- EQ IN** [15] The **EQ IN** button switches the EQ section on and off, excluding the high-pass filter (**HPF**) which is not affected by this control.
- AUX 1, AUX 2** [16] Each channel can be routed to the AUX 1 and AUX 2 buses. Turning either control clockwise will activate the AUX send, and the corresponding **AUX** legend in the status window of the selected channel will illuminate. Turning either control fully anti-clockwise ($-\infty$) will mute the AUX send, and the corresponding **AUX** legend in the status window will extinguish. The **AUX MASTER** control determines the overall level of the AUX 1 or AUX 2 bus output. The **PRE** button next to each **AUX** control switches the AUX send between pre- and post-fader modes (when selected, the **PRE** button will turn amber). **PRE**-fader mode will enable an AUX signal to be sent even if the fader is down. If AUX 1 and AUX 2 are stereo-linked, the **PRE** button and **AUX** send level control for AUX 2 will be disabled.



- GAIN [17]** When using EQ, the total amount of signal present on a channel can be radically changed. This can result in clipping, even if the original signal level was ideal before EQ was applied. Clipping is indicated by the **OVL** LED on the corresponding channel strip. The **GAIN** control can modify the digital signal level by ± 12 dB to compensate for signals that are either too soft or too loud.
- PAN / BAL [18]** When a stereo source is routed to the stereo outputs using one or both of the **PROG/AUD** buttons [19], the **PAN/BAL** control will act as a *balance* control adjusting the amount of signal sent to the left and right outputs of the selected stereo bus.
If the selected channel is using a mono source, then the **PAN/BAL** control will *pan* the signal between the left and right outputs of the selected stereo bus.
- PROG / AUD [19]** Each button routes the selected channel to either the PROG or AUD output bus. When routed, the corresponding legend will illuminate in the status window. The channel fader adjusts the level of the signal in that channel being sent to the PROG and AUD output buses.



3.4 Monitoring Section

Both **STUDIO MONITOR** and **CONTROL ROOM MONITOR** sections operate in an identical manner and can be thought of as “zones”.

In the **CONTROL ROOM** zone, the presenter and usually the console are located. Any monitor source selected using the monitor source selector buttons (**EXT 1**, **EXT 2**, **EXT 3**, **EXT 4**, **AUX 1**, **AUX 2**, **PROG**, and **AUD**) will appear on the control room monitor speakers. The **METER 1** meters will display the level of the currently selected monitor source if the **MONITOR** button [39] on the meter bridge is selected.

The **STUDIO** zone would normally be a recording area acoustically isolated from the control room. It has the same monitor source select options as those for the **CONTROL ROOM**.

The **MONITOR** control next to the **MUTE** buttons in each section adjusts the output level sent to the **MONITOR CTRL RM** and **MONITOR STUDIO** outputs. The **MUTE** buttons will silence the speakers in either zone when selected. The output to the headphones remains active when a **MUTE** button is selected. The built-in **CUE** loudspeaker [40] will also mute together with the control room monitor speakers.

Both **MUTE** buttons can be configured to be automatically triggered by any or by all of the channel faders (refer to chapter 4.3).

PHONES [20] The controls labeled **STUDIO PHONES** and **CR PHONES** each adjust their associated headphone volumes (**STUDIO PHONES** and **C/ROOM PHONES** outputs at the rear of the console; for the control room phones, there is an additional socket at the console’s front).

Note: The volume of the guest headphone output (**GUEST PHONES**, at the rear of the console) is set using the *Guest Headphones Level* menu page, refer to chapter 4.10).

What each zone hears, whether over the monitors or the headphones is selected by using one of the monitor source buttons (**EXT 1**, **EXT 2**, **EXT 3**, **EXT 4**, **AUX 1**, **AUX 2**, **PROG**, and **AUD**).

The available options are:

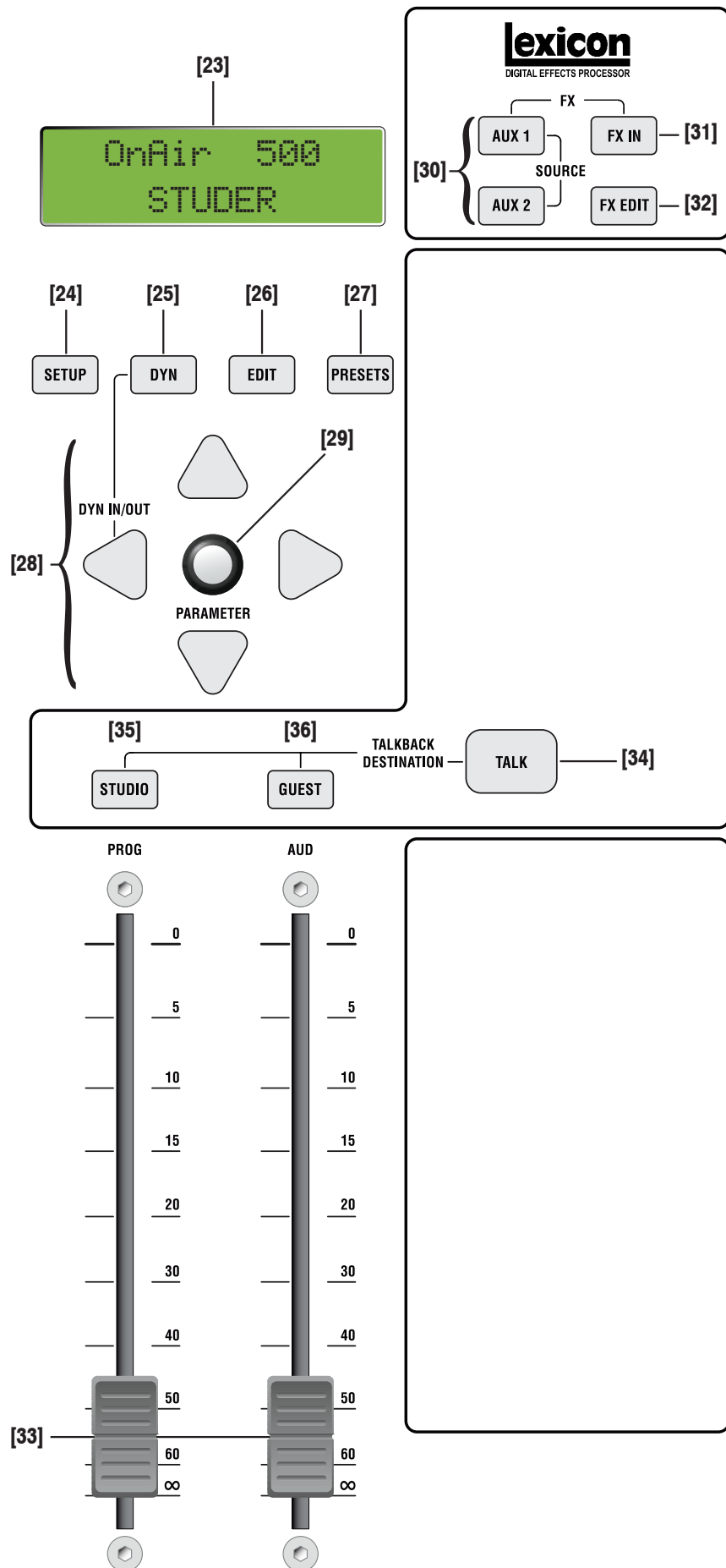
- **EXT 1, 2, 3, 4** – External stereo inputs which *cannot* be routed to any channel (e.g. an off-air receiver for program monitoring).
- **AUX 1, 2** – AUX sends. Both the **AUX 1** and **AUX 2** buttons will illuminate if the **AUX MASTER** control [9] is in stereo mode.
- **PROG, AUD** – The main stereo master outputs from the console.

Note: The *PFL/CUE bus* is automatically routed to the control room headphones, but not the to the studio headphones. Pressing the **AUTO** button in the studio headphones section will allow the *PFL/CUE bus* to be routed automatically to the studio headphones as well.

AUTO CUE [21] When selected, the associated monitor loudspeakers will automatically switch from the previously selected source to the *PFL/CUE bus* when any **CUE** button is pressed. Pressing the **AUTO** button in the **STUDIO MONITOR** section will also route the *PFL/CUE bus* to the studio headphones.

SPLIT CUE [22] If the **SPLIT** button is pressed, then the left earpiece of the studio or the control room headphones will provide *PFL/CUE*, and the right earpiece will carry a mono sum of whatever stereo source is selected above.

Note: The guest headphones cannot be split in this manner.



3.5 Master Section

LC Display [23] Global console parameters and channel settings can be viewed and edited from this screen. The LC display can operate in one of six modes which are selected either by pressing one of the four buttons directly underneath the LC display window, by pressing the **FX EDIT** button [32] in the Lexicon™ effects section, or by pressing the timer **SETUP** button [44] found below the left-hand timer (**TIMER 1**).

The available modes are:

- SETUP [24]** Enters the setup menu pages
- DYN [25]** Enters the dynamics menu pages
- EDIT [26]** LCD screen display of edit strip parameter adjustments.
- PRESETS [27]** Enters the presets menu pages
- FX EDIT [32]** Enters the Lexicon™ FX edit menu pages
- SETUP [44]** (timer section) Enters the timer setup menu pages

Note: If none of the above modes is active, the display will show the currently last recalled preset name in the bottom line.

◀ ▶ ▲ ▼ Arrow Buttons [28] Used in conjunction with the LC display above, the **◀ ▶ ▲ ▼** arrow buttons allow the user to navigate the various menus in order to select parameter data.

PARAMETER [29] This rotary encoder is used to scroll through lists of available parameter data. When making alphanumeric entries, you can scroll from A...Z (upper case), a...z (lower case), and 0...9. The **▲** (up) arrow button will step through the numeric values 0...9 only, and the **▼** (down) arrow button will insert a space or certain punctuation characters.

Most changes happen in real time, i.e., as the encoder is turned, new data is applied immediately. The only time you need to confirm an entry is if the **SETUP** button [24] flashes. The navigation buttons will illuminate to guide you to the next line of the LC display, or to the next branch of the menu tree.

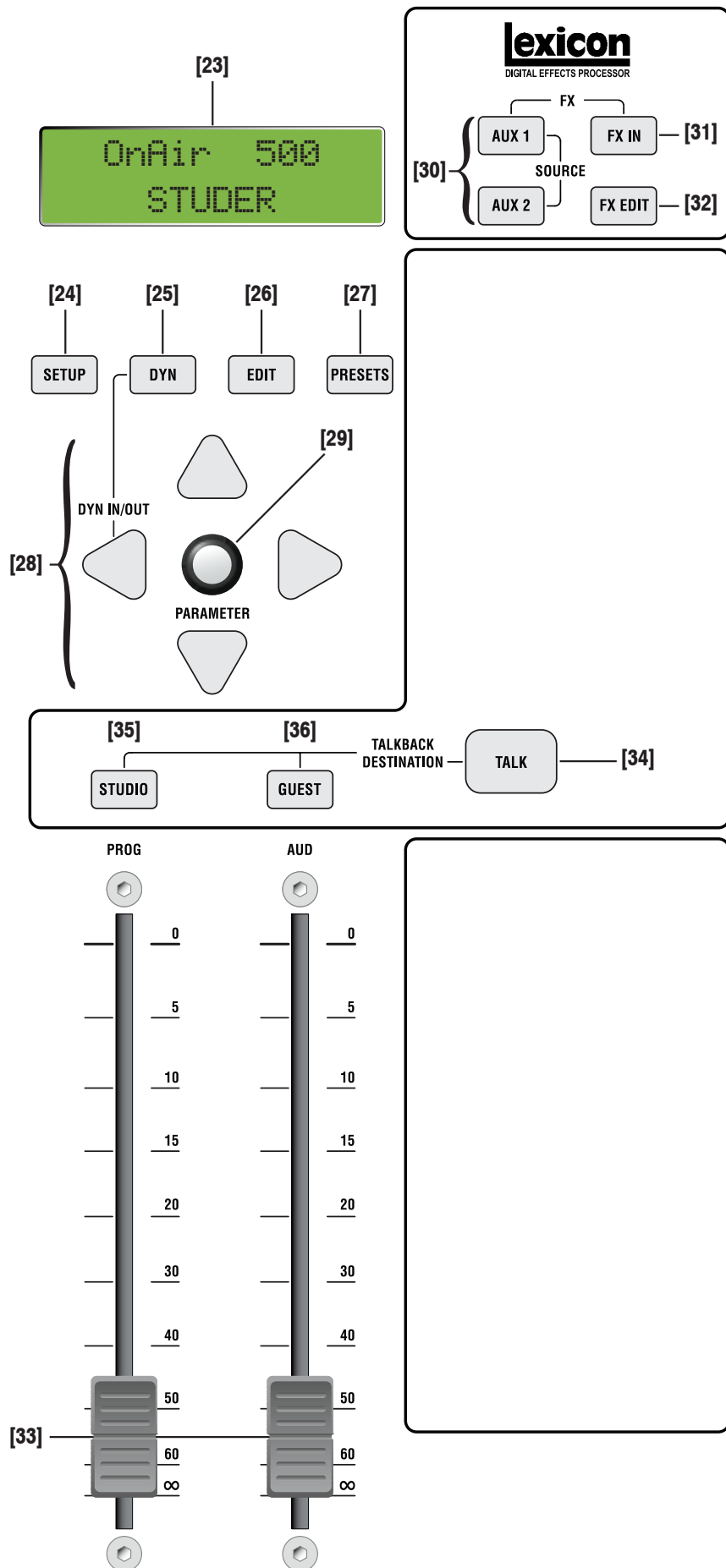
Lexicon™ Effects Processor

The in-built Lexicon™ effects processor offers an array of different digital effects including reverb, delay, chorus, flange, and others.

AUX 1 / AUX 2 SOURCE [30] The two **AUX 1** and **AUX 2 SOURCE** buttons select the input signal to the effects processor from either the AUX 1 or AUX 2 bus. When the **AUX MASTER** control [9] is in stereo mode (**STE** button illuminated), then both **AUX 1** and **AUX 2** buttons in the effects control section will illuminate, indicating that the processor is receiving a stereo input. It is not possible to deselect the input to the effects processor, i.e., the processor is always assigned to one or the other AUX source. The amount of effect which is heard (i.e. the effects mix) is adjusted by controlling the input to the processor by using the **AUX MASTER** control; alternatively, the **FX LevelOut** parameter in the **Current FX Setup** menu can be used.

FX IN [31] The **FX IN** button switches the effects on or off. When the **FX IN** button is illuminated, the effects are switched on.

FX EDIT [32] Pressing the **FX EDIT** button puts the LC display into the effects editing mode where different effects parameters can be edited (refer to chapter 7).



PROG / AUD Master Faders [33] The master faders are identical in specification to the channel faders, they adjust the amount of signal sent to the **PROG** and **AUD** main stereo output buses. These two faders can be completely bypassed (i.e., set to full output at 0 dB) via the setup menu if required.

TALKBACK DESTINATION Selection

TALK [34] The main **TALK** button activates the internal talkback function which routes the assigned talkback channel to any one of three possible destinations:

STUDIO [35] Studio phones output,

GUEST [36] Guest phones output, or

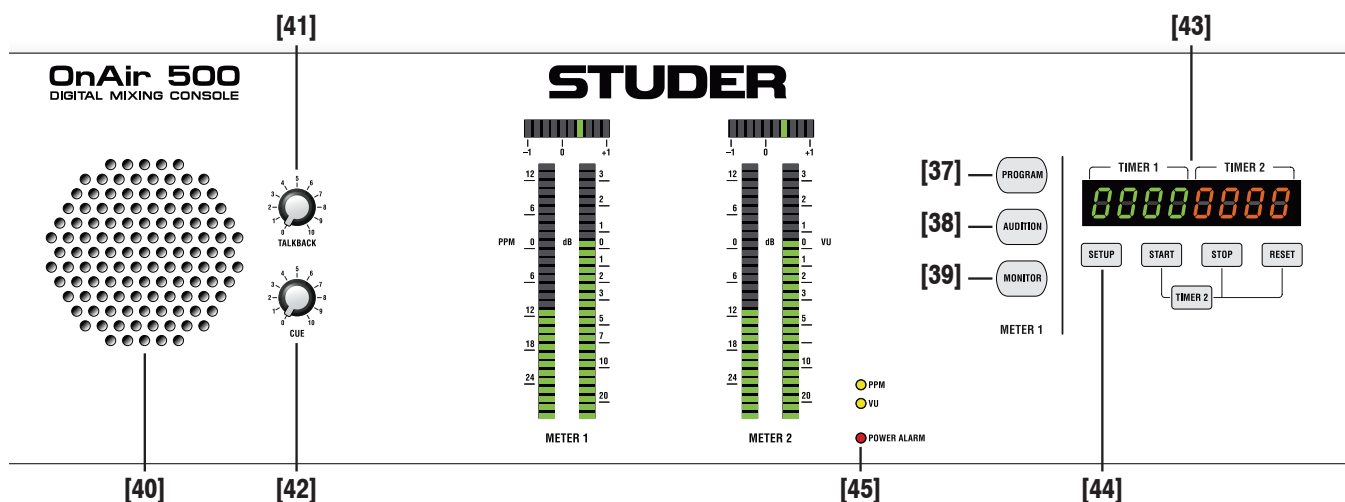
Talkback to a selected line/cleanfeed output.

There can be only one talkback channel assigned using the setup Menu – usually the presenter’s microphone. The associated **STUDIO [35]** and **GUEST [36]** talkback destination buttons will route talkback to the Studio and/or Guest headphones.

The main **TALK** button [34] can be latching (short press) or momentary (by holding it for as long as required), and either of the **STUDIO** and **GUEST** talkback destination buttons can then send talkback to the intended destination when pressed.

In conjunction with the main **TALK** button, any channel that has been assigned to a mix-minus (cleanfeed) output using the setup menu (see chapter 4.13) will be able to send talkback through that same cleanfeed output when its corresponding **PFL** button is active. To enable this mode of operation, both the **TALK** and **CUE** buttons must be illuminated, either latched or momentarily.

3.6 Meter Bridge



For the metering, two 2-channel 30-LED bargraph meters (**METER 1** and **METER 2**) are provided. Both have either PPM or VU characteristics (indicated by the yellow **PPM** or **VU** LEDs). The characteristics selection is factory-set and has been specified at the time of ordering your console. Above both meters, there are two LED bargraph correlation indicators allowing to judge the mono compatibility of your mix (“+1” indication: L/R signals in phase, best mono compatibility; “-1” indication: L/R signals out-of-phase, no mono compatibility).

METER 1 Source Selector

The audio source displayed by **METER 1** can be selected by one of three source selector buttons:

- PROGRAM [37]** Used to monitor the output of the main PROG bus (post fader).
- AUDITION [38]** Used to monitor the output of the main AUD bus (post fader).
- MONITOR [39]** When active, the **METER 1** will display the signal currently selected in the **CONTROL ROOM MONITOR** section. Alternately, the signal from any channel with a **CUE** button active will be displayed. If **SPLIT CUE [22]** mode is selected, the left-channel meter will display the **CUE** signal, and the right-channel meter the main program output signal during a **CUE** condition.

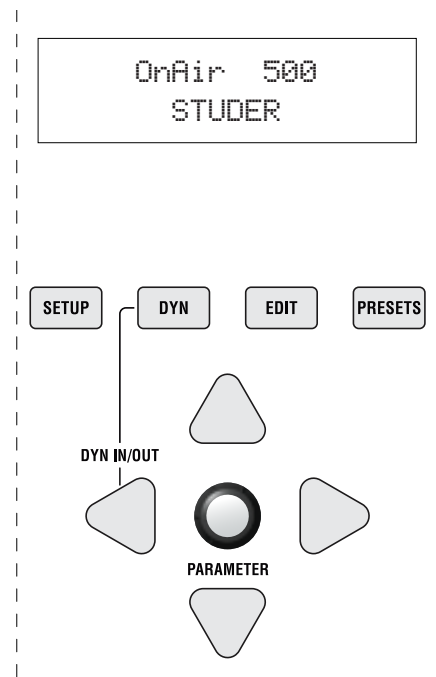
Note: For the **METER 2**, the selection of the same sources (PROG bus, AUD bus, CR monitor selection) is done in the Second Metering Source menu (refer to chapter 4.30).

- CUE / TALKBACK Speaker [40]** The built-in speaker can relay signals from the CUE bus and talkback signals (i.e., talkback from an external location, fed via the **REV TB1 IN** connector on the rear panel).
These signals are entirely independent of any monitor settings; they can each be adjusted in volume by using the associated controls marked **TALKBACK** [41] and **CUE** [42]. The **CUE** control adjusts the overall loudspeaker volume, whereas the **TALKBACK** control only adjusts the talkback signal level.
- Notes:* The **TALKBACK** volume control cannot be turned all the way down. This is intended and normal to protect essential communications.
The built-in speaker will automatically mute along with the **CONTROL ROOM MONITOR MUTE** button.
- TIMER 1, TIMER 2 [43]** Both timers can be triggered either manually (using the associated **START**, **STOP** and **RESET** buttons), or automatically, from any of the channel faders if programmed to do so (see chapter 9.2).
- Note:* The **TIMER 2** button directly below the timer buttons allow you to switch the manual controls between **TIMER 1** and **TIMER 2**.
- SETUP [44]** The **SETUP** button in the timer section enters the timer setup menu pages (refer to chapter 9).
- POWER ALARM LED [45]** In case of redundant supply operation (i.e., AC and DC supply used simultaneously), this indicator illuminates and warns the operator as soon as either one, the AC or the DC supply fails while the other one keeps up running the console. In addition, a power alarm signal is active on one of the pins of the **24V DC** connector.

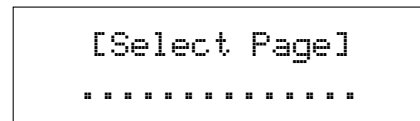
4 THE MENU PAGES

Pressing the **SETUP** button accesses the setup menu pages where specific console configurations can be programmed.

You will use the **SETUP** button, the **PARAMETER** encoder and the ◀ ▶ ▲ ▼ arrow buttons to navigate around the menu pages.



On pressing the **SETUP** button, the LC display will read:



You may now use the **PARAMETER** encoder to select one of the menu pages that you would like to enter. Press the **SETUP** button to enter the selected menu page.

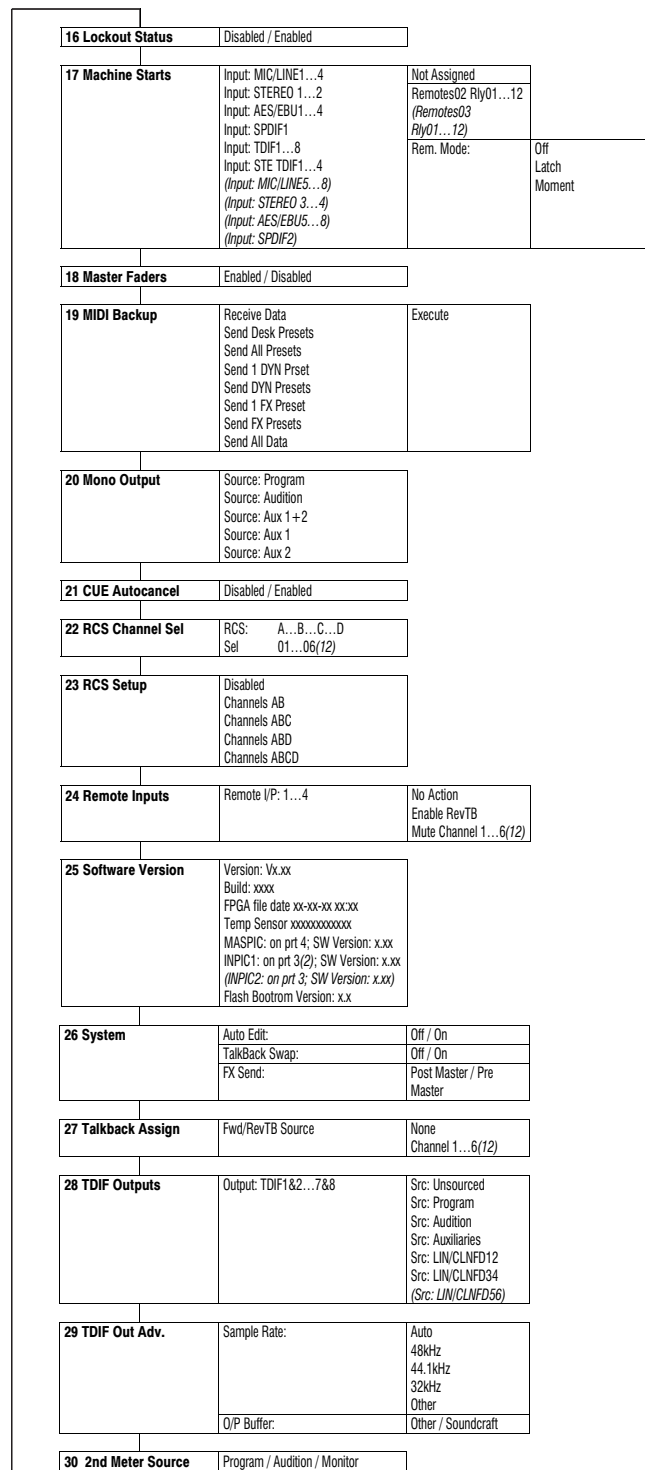
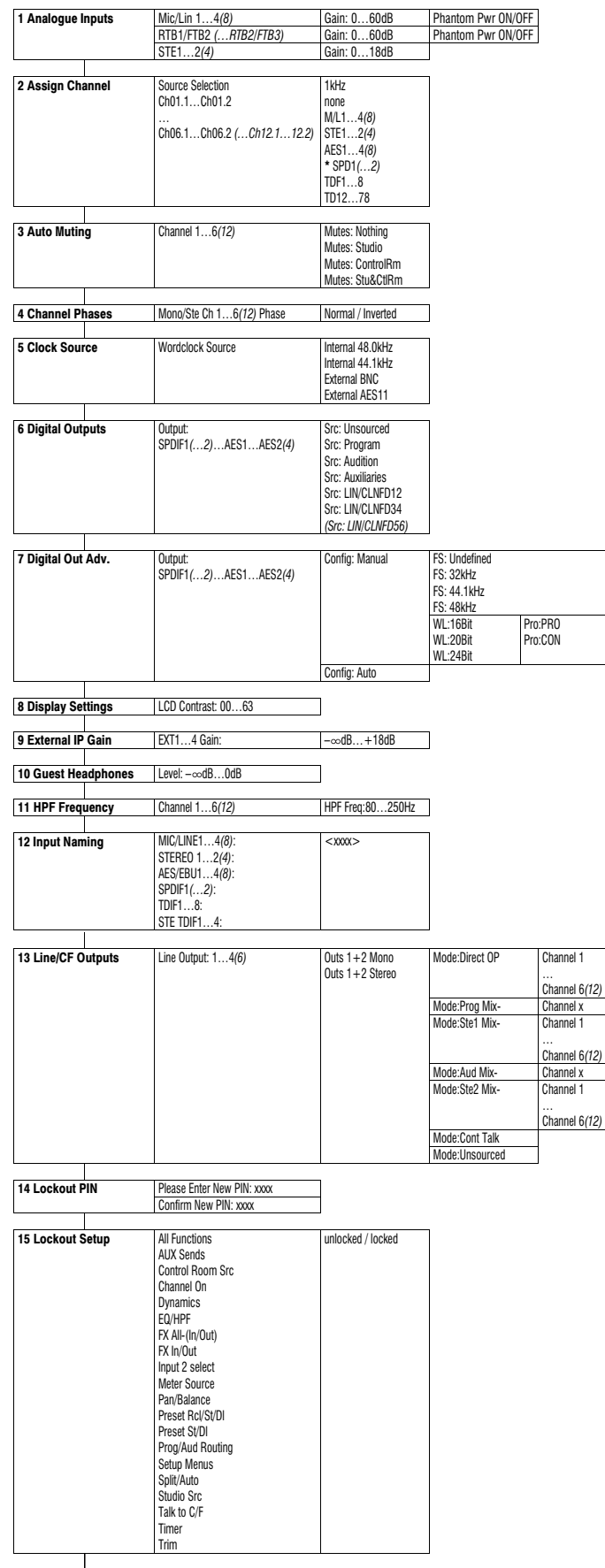
The menu list as found on the Studer OnAir 500:

No.	Menu	No.	Menu	No.	Menu
1	Analog Inputs	11	HPF Frequency	21	CUE Autocancel
2	Assign Channel	12	Input Naming	22	RCS Channel Sel
3	Auto Muting	13	Line/CF Outputs	23	RCS Setup
4	Channel Phases	14	Lockout Pin	24	Remote Inputs
5	Clock Source	15	Lockout Setup	25	Software Version
6	Digital Outputs	16	Lockout Status	26	System
7	Digital Out Adv.	17	Machine Start	27	Talkback Assign
8	Display Settings	18	Master Faders	28	TDIF Outputs
9	External IP (Input) Gain	19	MIDI Backup	29	TDIF Out Adv.
10	Guest Headphones Level	20	Mono Output	30	2nd Meter Source

A menu tree diagram is printed on the next page.

Menu Tree Diagram:

(Values indicated in italics and brackets are valid for OnAir 500 Modulo 12-fader versions only)



* For 12-fader OnAir 500 Modulo versions only: Please note that the SPD1 input can be routed to faders 1...6 only, while the SPD2 input can be routed to faders 7...12 only.

4.1 Analog Inputs

The analog inputs page allows fast access to all of the analog inputs available on the OnAir 500.

The gain settings for each input can be adjusted here; where applicable, 48 V phantom power can be switched on or off.

Options are as follows:

Input Type	Gain Range	48V Phantom Power
Mic/Line 1, 2, 3, 4	0...+60 dB	Yes
Reverse Talkback 1	0...+60 dB	Yes
Stereo Inputs 1, 2	0...+18 dB	No

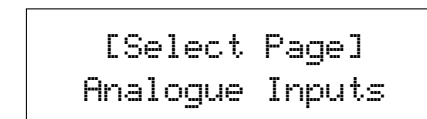
Selected analog stereo inputs also have a choice of the following preferences:

Mode	Action
LR	Default mode – left and right input signals are supplied to the left and right channels, respectively
LL	Left input signal only is supplied to both the left and right channels
RR	Right input signal only is supplied to both the left and right channels
RL	Left and right input signals are reversed (swapped)

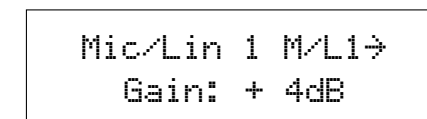
All settings made here can be stored as part of a snapshot preset for instant recall.

Selecting and Adjusting an Analog Input:

- 1 Press the **SETUP** button found below the LC display. This will enter the setup mode.
- 2 Use the **PARAMETER** encoder to scroll through the menu pages to locate the **Analogue Inputs** menu. The LC display will show:



- 3 Press the flashing **SETUP** button again. The LC display will read:



- 4 Use the ▲ (up) arrow button to select the upper line of the LC display. Then select the input to be adjusted, either by using the **PARAMETER** encoder, or by pressing the **SELECT** button (and possibly the **INPUT 2** button) of the desired input channel. This is very handy for quickly accessing different microphone gain levels in a multi-microphone application. Please note that the reverse talkback channel can be selected only by using the **PARAMETER** encoder.

If you press the **SELECT** button of a digital input channel, this page is not used, and a corresponding message is displayed.

- 5 Once you have selected the desired input you may then use the ▼ (down) arrow button to select the gain adjustment field, then adjust the gain by using the PARAMETER encoder.

Note: It is recommended that input gain adjustments are performed in conjunction with selecting the CUE button on the corresponding channel, and by switching the main meter (METER 1) to MONITOR mode, so that adjustments to the input gain level can be accurately displayed.

- 6 For mic/line inputs, the ► (right) arrow button can then be used to select the Phantom Pwr ON/OFF field of the display, and the PARAMETER encoder to select either on or off.

Note: When switching 48 V phantom power on or off it is strongly recommended that the relevant channel's ON and CUE buttons be switched off to avoid possible damage to monitor speakers.

For stereo inputs, the ► (right) arrow button can be used to enter the LR, LL, RR, RL select field of the display, and the PARAMETER encoder can be used to select the desired mode.

Note: For information on phase inversion, refer to [chapter 4.4](#).

- 7 Pressing the SETUP button will exit this menu. However, the SETUP button will still flash, the next menu can be selected for adjustment. To exit completely, press one of the DYN, EDIT, or PRESETS buttons twice.

4.2 Assign Channel

The Studer OnAir 500 is designed to offer maximum flexibility concerning input routing. Every channel has two inputs that can handle mono or stereo, analog or digital input sources. These input signals can be sourced from a pool of digital or analogue inputs (see table below).

A complete input set-up configuration can then be saved as part of a snapshot preset for instant recall. This allows the operator to quickly reconfigure the console for different applications.



Input Type	Mono or Stereo	Analog or Digital
1 kHz Test Tone	Mono	Digital
None	-	-
Mic/Line 1...4	Mono	Analog
STE 1, STE 2	Stereo	Analog
AES 1...4	Stereo	Digital
* SPDIF 1	Stereo	Digital
TDIF 1...8	Mono	Digital
TDIF 1-2...7-8	Stereo	Digital

- * For 12-fader OnAir 500 Modulo versions only: Please note that the SPDIF1 input can be routed to the faders 1...6 only, while the SPDIF2 input can be routed to the faders 7...12 only.

Selecting and Assigning the Input Source:

- 1 Press the **SETUP** button found below the LC display. This will enter the setup mode.
- 2 Use the **PARAMETER** encoder to scroll through the menu pages to locate the **Assign Channel** menu. The **SETUP** button will flash upon selection.
- 3 Press the **SETUP** button to enter the assign channel mode. The LC display will read:

```
Source Selection
Ch01.1: M/L1
```

You can now choose what type of input source you would like to assign, and to which of the two inputs of the chosen channel you would like to assign the input.

- 4 Press the **SELECT** button on the desired channel and select either input 1 or input 2 using the **INPUT 2** button (it will be unlit for input 1, or lit for input 2).

The LC display will now show the selected channel, and which input is currently selected. If for example the **SELECT** button is pressed on channel 1 while the **INPUT 2** button is illuminated, input 2 will become active. The LC display will read:

```
Source Selection
Ch01.2: M/L3
```

Alternatively, if the **SELECT** button is pressed on channel 1 while the **INPUT 2** button is *not* illuminated (meaning that input 1 is active), the LC display will read:

Source Selection
Ch01.1: M/L1

- 5** Now use the **PARAMETER** encoder to scroll through the selection of different inputs until you reach the desired input source.
As you scroll through the different input sources you will see the names of those inputs appearing on the four-character LED display at the top of the selected channel strip.



You will also notice that the **DIGITAL** or **ANALOGUE** legend just below the four-character LED display on the selected channel will illuminate, to confirm that the input source is either digital or analog.

- 6** You may now repeat the procedure above for the alternate input on the selected channel.
- 7** If you are happy with your selection press the **SELECT** button on the next channel you want to set-up.
- 8** Pressing the **SETUP** button will exit this menu. However, the **SETUP** button will still flash, the next menu can be selected for adjustment. To exit completely, press one of the **DYN**, **EDIT**, or **PRESETS** buttons twice.

Note: You can also use the **PARAMETER** encoder to select the channel and input number without using the **SELECT** buttons to select the channels.

4.3 Auto Muting

The OnAir 500's channel faders can be configured in such a way that when a designated fader is opened, a number of different mute activations can be performed.

The available options are as follows:

Mute Command	Action
Nothing	No mutes are activated
Studio	Mute studio monitor speakers only
Control Rm	Mute control room speakers only
Stu & CtlRm	Mute studio and control room speakers

Configuring a Channel for Mute Activation:

- 1 Press the **SETUP** button found below the LC display. This will enter the setup mode.
- 2 Use the **PARAMETER** encoder to scroll through the menu pages to locate the **Auto Muting** menu page. The **SETUP** button will flash upon selection.
- 3 Press the **SETUP** button to enter the Auto Muting set-up mode. The LC display shows the selected channel and will read:

```

Channel 1
Mutes: Nothing

```

- 4 Press the **SELECT** button on the channel you want to configure.
- 5 Now use the **PARAMETER** encoder to select the type of mute activation you require (refer to the table above).
- 6 Pressing the **SETUP** button will exit this menu. However, the **SETUP** button will still flash, the next menu can be selected for adjustment. To exit completely, press one of the **DYN**, **EDIT**, or **PRESETS** buttons twice.

4.4 Channel Phases

In certain applications it may be necessary to reverse the phase of one side of an incoming stereo source to correct for phase problems. There may also be times when inverting the phase of a (mono) microphone may be necessary to prevent phase problems with other microphones set up nearby.

For stereo inputs, the left output channel is inverted, if LR or RL has been selected in the “Analog Inputs” menu (see chapter 4.1); in the remaining (RR, LL) cases, however, always both output channels are inverted.

Reversing the Phase of a Stereo or Mono Input Source:

- 1 Press the **SETUP** button found below the LC display. This will enter setup mode.
- 2 Use the **PARAMETER** encoder to scroll through the menu pages to locate the **Channel Phases** menu page. The **SETUP** button will flash upon selection.
- 3 Press the **SETUP** button to enter the channel phases set-up mode. The LC display will show the current selection:



Mono Ch 1 Phase
Normal

- 4 Press the **SELECT** button on the channel you want to edit. The selected channel's number should appear in the LC display. The display will also show whether the selected channel is mono or stereo.
- 5 Use the ▼ (down) arrow button to select the **Normal/Inverted** field of the display.
- 6 You may now use the **PARAMETER** encoder to select between “Normal” or “Inverted”.
- 7 Pressing the **SETUP** button will exit this menu. However, the **SETUP** button will still flash, the next menu can be selected for adjustment. To exit completely, press one of the **DYN**, **EDIT**, or **PRESETS** buttons twice.

4.5 Clock Source

The OnAir 500 can operate at either 44.1 or 48 kHz when set to its own internal wordclock, but can also be configured to lock to incoming wordclock appearing at either the AES/EBU or S/PDIF digital inputs.

Note: *The four AES/EBU digital inputs and the S/PDIF digital input incorporate sample rate converters (SRC) which allows external digital signals to be connected without the need for the console to be synchronized to the incoming wordclock contained in the digital source signal.*

- Configuring the Clock Source:**
- 1 Press the **SETUP** button found below the LC display. This will enter the setup mode.
 - 2 Use the **PARAMETER** encoder to scroll through the menu pages to locate the **Clock Source** menu page. The **SETUP** button will flash upon selection.
 - 3 Press the **SETUP** button to enter the clock source setup mode.

Available Options
Internal 48.0 kHz
Internal 44.1 kHz
External BNC
External AES11

The LC display will show the current selection:

```

Wordclock Source
Internal 48.0kHz
  
```

- 4 Use the **PARAMETER** encoder to select which wordclock source you want to use. The **SETUP** button will flash.
- 5 Press the **SETUP** button to store the new clock settings.
- 6 Pressing the **SETUP** button will exit this menu. However, the **SETUP** button will still flash, the next menu can be selected for adjustment. To exit completely, press one of the **DYN**, **EDIT**, or **PRESETS** buttons twice.

Note: *If wordclock is lost whilst connected to an external wordclock source, the following display appears:*

```

WORDCLOCK LOST!
SET TO INT 48K
  
```

4.6 Digital Outputs

The OnAir 500 has two AES/EBU digital outputs and one S/PDIF digital output. These outputs can be configured to output a number of different source signals.

Configuring the Digital Outputs:

- 1 Press the **SETUP** button found below the LC display. This will enter the setup mode.
- 2 Use the **PARAMETER** encoder to scroll through the menu pages to locate the **Digital Outputs** menu page. The **SETUP** button will flash upon selection.
- 3 Press the **SETUP** button to enter the digital outputs set-up mode. The LC display will show the current selection:

Output: SPDIF1 Src: Audition

- 4 Use the **PARAMETER** encoder to select which digital output you want to use.

Available Selections
SPDIF1
AES1
AES2

- 5 Press the ▼ (down) arrow button to select the “Src” field, and use the **PARAMETER** encoder to choose the source for the selected digital output.

Available Options
Un sourced
Program
Audition
Auxiliaries
LIN/CLNFD12 (Line/Cleanfeed 1 & 2)
LIN/CLNFD34 (Line/Cleanfeed 3 & 4)

- 6 Pressing the **SETUP** button will exit this menu. However, the **SETUP** button will still flash, the next menu can be selected for adjustment. To exit completely, press one of the **DYN**, **EDIT**, or **PRESETS** buttons twice.

4.7 Digital Out Adv. (Advanced)

The settings found in this menu are for configuring the status bits of the S/PDIF and AES/EBU outputs. In most applications, the “Auto” default settings for these outputs are used, but in certain circumstances it may be necessary to make manual adjustments. The table below shows the options available for each output:

Dig. Output (Output)	Config Mode (Config)	Sample Rate Flag (Fs)	Word Length (WL)	Pro Flag (Pro)
SPDIF1 AES1 AES2	Auto	No selection	No selection	No selection
	Manual	Undefined 32 kHz 44.1 kHz 48 kHz	16 Bit 20 Bit 24 Bit	PRO (Professional) CON (Consumer)

Working with S/PDIF Devices:

When the OnAir 500 is synchronized to an external wordclock source, most digital devices connected to the console’s S/PDIF digital outputs will happily synchronize to the wordclock being sent from the console via the S/PDIF digital output.

In most applications the S/PDIF digital output can be set to “Auto” configure in the Digital Out Adv. setup menu.

In the uncommon event that a receiving device connected to the S/PDIF digital output is not synchronizing correctly, it may be necessary to manually configure the status bits for the S/PDIF output.

This will normally involve setting the *Sample Rate Flag (Fs)* to the same wordclock setting that the OnAir 500 is receiving, and setting the *Word Length (WL)* to match that of the device connected to the OnAir 500’s S/PDIF digital output.

The *Pro Flag* would normally be set to “Consumer” (CON), but could be switched to “Professional” (PRO) if the CON setting does not work correctly.

Working with AES/EBU Devices:

When the OnAir 500 is synchronized to an external wordclock source, most digital devices connected to the console’s AES/EBU digital outputs will happily synchronize to the wordclock being sent from the console via the AES/EBU digital output.

In most applications the AES/EBU digital output can be set to “Auto” configure in the Digital Out Adv. setup menu.

In the uncommon event that a receiving device connected to the AES/EBU digital output is not synchronizing correctly, it may be necessary to manually configure the status bits for the AES/EBU digital output.

This will normally involve setting the *Sample Rate Flag (Fs)* to the same wordclock setting that the OnAir 500 is receiving, and setting the *Word Length (WL)* to match that of the device connected to the OnAir 500’s AES/EBU digital output.

The *Pro Flag* would normally be set to “Professional” (PRO).

Changing Settings:

- 1 Press the **SETUP** button found below the LC display. This will enter the setup mode.
- 2 Use the **PARAMETER** encoder to scroll through the menu pages to locate the **Digital Out Adv.** menu page. The **SETUP** button will flash upon selection.
- 3 Press the **SETUP** button to enter the set-up mode. The LC display will show the current selection:

```
Output: SPDIF1
Config: Auto
```

- 4 You may now use the **PARAMETER** encoder to select between the S/PDIF1, AES/EBU 1, or AES/EBU 2 digital outputs.
- 5 Once the correct digital output is selected, press the ▼ (down) arrow button to enter the “Config” field of the LC display.
- 6 The **PARAMETER** encoder can now be used to toggle between “Auto” or “Manual” (if “Auto” is selected, there is no further access to the other menu pages, as these settings are automatically configured).
- 7 Select “Manual”. The LC display will now show:

```
Output: SPDIF1 →
Config: Manual
```

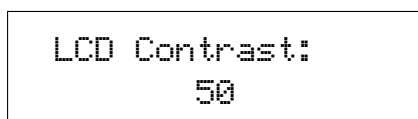
- 8 Press the ► (right) arrow button to enter the manual configuration settings page. The LC display will show:

```
← Fs: 44.1kHz
WL:24Bit Pro:PRO
```

- 9 You can now use the ◀▶▲▼ arrow buttons to navigate between the Sample Rate (**Fs**), Word Length (**WL**), and Pro Flag (**Pro**) parameter settings. The **PARAMETER** encoder is used to make the necessary adjustments to the selected parameters (see the table above for parameter choices).
- 10 Pressing the **SETUP** button will exit this menu. However, the **SETUP** button will still flash, the next menu can be selected for adjustment. To exit completely, press one of the **DYN**, **EDIT**, or **PRESETS** buttons twice.

4.8 Display Settings

- Setting the Display Contrast:**
- 1 Press the **SETUP** button found below the LC display. This will enter the setup mode.
 - 2 Use the **PARAMETER** encoder to scroll through the menu pages to locate the **Display Settings** menu page. The **SETUP** button will flash upon selection.
 - 3 Press the **SETUP** button to enter the display settings set-up mode. The LC display will show the current selection:



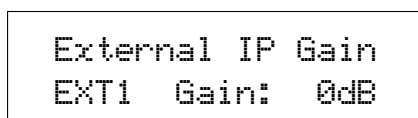
LCD Contrast:
50

- 4 Use the **PARAMETER** encoder to adjust the contrast of the LC display.
- 5 Pressing the **SETUP** button will exit this menu. However, the **SETUP** button will still flash, the next menu can be selected for adjustment. To exit completely, press one of the **DYN**, **EDIT**, or **PRESETS** buttons twice.

4.9 External IP (Input) Gain

The **External IP Gain** menu allows the gain of any of the four external inputs (on the rear of the console) to be adjusted through a range of $-\infty$ to +18 dB.

- Selecting Input and Gain:**
- 1 Press the **SETUP** button found below the LC display. This will enter the setup mode.
 - 2 Use the **PARAMETER** encoder to scroll to the external input gain menu. The LC display will read:



External IP Gain
EXT1 Gain: 0dB

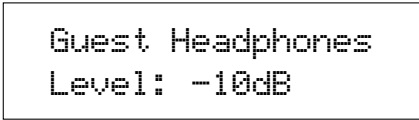
- 3 The **EXT1** field will be flashing, and you may now use the **PARAMETER** encoder to select **EXT1**, **EXT2**, **EXT3** or **EXT4**.
- 4 Once you have made your selection, press the **▶** (right) arrow button to select the **Gain** field and then use the **PARAMETER** encoder to adjust the **Gain**.
- 5 Pressing the **SETUP** button will exit this menu. However, the **SETUP** button will still flash, the next menu can be selected for adjustment. To exit completely, press one of the **DYN**, **EDIT**, or **PRESETS** buttons twice.

4.10 Guest Headphones Level

The GUEST headphones output level is adjusted on the `Guest Headphones` menu page.

Adjusting the Guest Headphones Level:

- 1 Press the `SETUP` button found below the LC display. This will enter the setup mode.
- 2 Use the `PARAMETER` encoder to scroll through the menu pages to locate the `Guest Headphones` menu. The `SETUP` button will flash upon selection.
- 3 Press the `SETUP` button to enter the guest headphones level mode. The LC display will read:



```
Guest Headphones
Level: -10dB
```

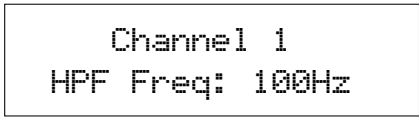
Adjustment range is $-\infty$ to 0 dB, the default setting is -10 dB.

- 4 Pressing the `SETUP` button will exit this menu. However, the `SETUP` button will still flash, the next menu can be selected for adjustment. To exit completely, press one of the `DYN`, `EDIT`, or `PRESETS` buttons twice.

4.11 HPF Frequency

The `HPF Frequency` menu allows selecting the cutoff frequency for the high-pass filter located in the edit strip. Frequencies available are 80, 100, 150, 200 and 250 Hz.

- Selecting the HPF Frequency:**
- 1 Press the `SETUP` button found below the LC display. This will enter the setup mode.
 - 2 Use the `PARAMETER` encoder to scroll through the list of menu pages to locate the `HPF Frequency` menu. The LC display will read:



```
Channel 1
HPF Freq: 100Hz
```

- 3 The frequency field will be flashing.
- 4 Press the `SELECT` button on the channel you want to adjust. The channel number appears in the upper line of the LC display.
- 5 Once you have made your selection use the `PARAMETER` encoder to select the HPF frequency you wish to use.
- 7 Pressing the `SETUP` button will exit this menu. However, the `SETUP` button will still flash, the next menu can be selected for adjustment. To exit completely, press one of the `DYN`, `EDIT`, or `PRESETS` buttons twice.

4.12 Input Naming

Any of the inputs discussed in [chapter 4.2](#) (“Assign Channel”) can be given a personalized name if required. This is very useful for example in permanent set-ups where the inputs to the console do not change often.

If a CD player is connected to the AES/EBU 1 input, then the display name could be changed from AES 1 to read CD_1.

Microphone inputs could also be renamed in this way to show, for example, the presenter’s name.

Note: The naming of inputs is limited to four characters.

Naming an Input Source:

- 1 Press the **SETUP** button found below the LC display. This will enter the setup mode.
- 2 Use the **PARAMETER** encoder to scroll through the menu pages to locate the **Input Naming** menu. The **SETUP** button will flash upon selection.
- 3 Press the **SETUP** button to enter the input naming mode. The LC display will now show the **MIC/LINE1** input, and next to it the current name of that input. For example:

Select Input
MIC/LINE1: <M/L1>

- 4 Use the ◀ ▶ (left/right) arrow buttons to select the left-hand field of the LC display. Then, using the **PARAMETER** encoder, scroll through the different input sources until you find the one you want to rename.
- 5 Now use the ◀ ▶ (left/right) arrow buttons to select one of the four characters on the right side of the LC display.
- 6 You may now use the **PARAMETER** encoder to scroll alphanumerically through all of the available character choices.
You can also use the ▲ (up) arrow button to increment through numbers, and the ▼ (down) arrow button to delete the currently selected character or to create a space.
- 7 Pressing the **SETUP** button will exit this menu. However, the **SETUP** button will still flash, the next menu can be selected for adjustment. To exit completely, press one of the **DYN**, **EDIT**, or **PRESETS** buttons twice.

4.13 Line/CF Outputs

The OnAir 500 has four line/cleanfeed outputs that can be used either as direct outputs (post-fader) for any mixer channel, or for creating a “mix minus” output from either of the **PROG** or **AUD** buses (this is useful for sending a cleanfeed signal back to an incoming telephone caller).

The talkback bus can also be routed to any of the four line/cleanfeed outputs in continuous talkback mode. This allows any microphone channel that has been set-up as a talkback channel to speak directly to a designated line/cleanfeed output as soon as the talkback bus is activated. This is intended for feeding

the designated talkback microphone signal to an external talkback routing system.

Any of the four line/cleanfeed outputs can be configured as mono direct outputs for a selected channel (e.g. for use with a single microphone), or as a “mono summed” output if the channel has been set-up as a stereo channel (e.g. a CD player). A *stereo* direct output can also be achieved by linking the line outputs 1-2 and 3-4.

Configuring a Channel as a Direct Output:

- 1 Press the **SETUP** button found below the LC display. This will enter the setup mode.
- 2 Use the **PARAMETER** encoder to scroll through the menu pages to locate the **Line/CF Outputs** menu page. The **SETUP** button will flash upon selection.
- 3 Press the **SETUP** button to enter the line/CF outputs set-up mode. The LC display will show:

```
Line Output: 1 →
Outs 1+2 Mono
```

- 4 Use the **PARAMETER** encoder to select which of the line/cleanfeed outputs you want to use.
- 5 Press the ▼ (down) arrow button and use the **PARAMETER** encoder to choose whether line/cleanfeed outputs 1-2 and 3-4 are configured to operate as individual mono outputs or as stereo pairs.
- 6 Press the ► (right) arrow button to enter the channel selection page. The LC display will show:

```
← Mode:Direct OP
Channel 1
```

- 7 Press the ▲ (up) arrow button and then use the **PARAMETER** encoder to select “Direct OP” mode (the other choices are “Prog Mix-”, “Aud Mix-”, “Cont Talk”, and “Un sourced”).
- 8 Press the ▼ (down) arrow button and then use the **PARAMETER** encoder to select which channel you want to send to the selected line/cleanfeed output.
- 9 Pressing the **SETUP** button will exit this menu. However, the **SETUP** button will still flash, the next menu can be selected for adjustment. To exit completely, press one of the **DYN**, **EDIT**, or **PRESETS** buttons twice.

Configuring a Channel as a Cleanfeed Channel:

The four line/cleanfeed outputs can be used to supply four mono or two stereo cleanfeed outputs.

The selected line/cleanfeed output will contain either the **PROG** or **AUD** program output signal *minus* the designated channel.

- 1 Press the **SETUP** button found below the LC display. This will enter the setup mode
- 2 Use the **PARAMETER** encoder to scroll through the menu pages to locate the **Line/CF Outputs** menu page. The **SETUP** button will flash upon selection.
- 3 Press the **SETUP** button to enter the line/CF outputs set-up mode. The LC display will show:

```
Line Output: 1 →  
Outs 1+2 Mono
```

- 4 Use the **PARAMETER** encoder to select which of the four line/cleanfeed outputs you want to use.
- 5 Press the ▼ (down) arrow button and use the **PARAMETER** encoder to choose whether Line Outputs 1-2 and 3-4 are configured to operate as individual mono outputs or as stereo pairs.
- 6 Press the ► (right) arrow button to enter the channel selection page. The LC display will show:

```
← Mode:Prog Mix-  
Channel 1
```

- 7 Press the ▼ (down) arrow button and then use the **PARAMETER** encoder to select which channel you want to set up as a cleanfeed channel.
- 8 Now press the ▲ (up) arrow button and use the **PARAMETER** encoder to select **Prog Mix-** or **Aud Mix-**, i.e., whether the cleanfeed output will be sourced from the **PROG** or **AUD** bus.
- 9 Pressing the **SETUP** button will exit this menu. However, the **SETUP** button will still flash, the next menu can be selected for adjustment. To exit completely, press one of the **DYN**, **EDIT**, or **PRESETS** buttons twice.

Continuous Talkback Mode:

In this mode the selected talkback channel can also talk directly to any one of the line/cleanfeed outputs.

Any output that is set-up as a continuous talkback output will receive the talkback bus signal as soon as the fader on the talkback channel is closed.

- 1 Press the **SETUP** button found below the LC display. This will enter the setup mode.
- 2 Use the **PARAMETER** encoder to scroll through the menu pages to locate the **Line/CF Outputs** menu page. The **SETUP** button will flash upon selection.

- 3 Press the **SETUP** button to enter the line/CF outputs set-up mode. The LC display will show:

```
Line Output: 1 →
Outs 1+2 Mono
```

- 4 Use the **PARAMETER** encoder to select which of the line/cleanfeed outputs you want to use.
- 5 Press the ▼ (down) arrow button and then use the **PARAMETER** encoder to choose whether line/cleanfeed outputs 1-2 and 3-4 are configured to operate as individual mono outputs or as stereo pairs.
- 6 Press the ► (right) arrow button to enter the channel selection page. The LC display will read:

```
← Mode:Cont Talk
```

- 7 Use the **PARAMETER** encoder to select “Cont Talk” (continuous talk-back).
- 8 Pressing the **SETUP** button will exit this menu. However, the **SETUP** button will still flash, the next menu can be selected for adjustment. To exit completely, press one of the **DYN**, **EDIT**, or **PRESETS** buttons twice.

4.14 Lockout PIN

The lockout PIN menu allows a personal identification number (PIN) to be chosen for accessing the lockout capabilities of the OnAir 500. Any number with a maximum of four digits may be used.

Selecting the Lockout PIN:

- 1 Press the **SETUP** button found below the LC display. This will enter the setup mode.
- 2 Now use the **PARAMETER** encoder to scroll to the **Lockout PIN** menu.
- 3 Press the flashing **SETUP** button to enter the menu. The LC display will read:

```
Please Enter New
Pin:      ----
```

- 4 You may now use the **PARAMETER** encoder or the ▲ (up) arrow button to select a digit from 0 to 9. Use the ◀ and ▶ (left/right) arrow buttons to move the cursor until you have entered your four chosen digits.
- 5 Now press the flashing **SETUP** button again and you will be prompted to confirm your new PIN. Do this by re-entering your chosen number and then pressing the **SETUP** button.

- 6 The display then reads “New PIN set for Lockout”, confirming that your new PIN can be used for setting up the lockout facility.
- 7 Pressing the flashing SETUP button again will exit the menu.

Note: You can reset the PIN to blank (- - - -) at any time by pressing the ▼ (down) arrow button.

4.15 Lockout Setup

The lockout setup menu is used for choosing which functions are to be “locked out”, i.e., made inaccessible when the lockout function is enabled. You can either select to lockout “All Functions” or choose individually which facilities you wish to lock out.

Lockout Options:

Option	Action
All Functions	All functions except for PFL, EDIT, TALK, SETUP and MUTE buttons are locked out
Aux Sends	Locks out access to the auxiliary sends 1 and 2
Control Room Src	Locks out access to the control room source selection buttons
Channel On	Locks out access to the channel on buttons
Dynamics	Locks out access to the dynamics processors
EQ/HPF	Locks out access to the equalizer and high-pass filter
FX All - (In/Out)	Locks out access to the all effects facilities except for the FX IN button
FX In/Out	Locks out access to the FX IN button
Input 2 select	Locks out access to the INPUT 2 button
Meter Source	Locks out access to the meter source select buttons
Pan/Balance	Locks out access to the PAN/BAL control
Presets Rcl/St/DI	Locks out access to the PRESETS button
Presets St/DI	Locks out access to the preset recall function within the presets menu
Prog/Aud Routing	Locks out access to the PROG and AUD routing buttons
Setup Menus	Locks out access to the SETUP menus
Split/Auto	Locks out access to the split/auto buttons
Studio Src	Locks out access to the studio source selection buttons
Talk to C/F	Locks out access to the talk-to-cleanfeed facility
Timer	Locks out access to the timers
Trim	Locks out access to the trim function

- 1 Press the SETUP button found below the LC display. This will enter the setup mode.
- 2 Now use the PARAMETER encoder to scroll to the Lockout Setup menu.

- 3 Press the flashing **SETUP** button to enter the menu. The LC display will read:



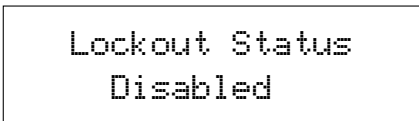
All Functions
Unlocked

- 4 You may now use the ▲ and ▼ (up/down) arrow buttons to step through the various options (see table above) and use the **PARAMETER** encoder to select the chosen facility to be either “Locked” or “Unlocked”.
- 5 When you have selected all of the options you require press the **SETUP** button again to exit the menu page.
- 6 The LC display will now prompt you to re-enter your PIN number (or proceed immediately if your PIN is blank). Re-enter your PIN number and then press the **SETUP** button again. The display will show “Operation Completed”.
- 7 Pressing the **SETUP** button will exit this menu. However, the **SETUP** button will still flash, the next menu can be selected for adjustment. To exit completely, press one of the **DYN**, **EDIT**, or **PRESETS** buttons twice.

4.16 Lockout Status

The **Lockout Status** menu is used for setting the status (either “Enabled” or “Disabled”) of the lockout facility. Once enabled, functions will then be locked out in accordance with the selections made in the **Lockout Setup** menu.

- Enabling the Lockout Facility:**
- 1 Press the **SETUP** button found below the LC display. This will enter the setup mode.
 - 2 Now use the **PARAMETER** encoder to scroll to the **Lockout Status** menu.
 - 3 Press the flashing **SETUP** button to enter the menu. The following LC display will appear:



Lockout Status
Disabled

- 4 You may now use the **PARAMETER** encoder to set the lockout status to “Disabled” or “Enabled”.
- 5 When you have selected the correct status setting, press the **SETUP** button again.
- 6 The LC display will now prompt you to re-enter your PIN number (or proceed immediately if your PIN is blank). Re-enter your PIN number and then press the **SETUP** button again. The display will then confirm that the current status is either “DISABLED” or “ENABLED”.
- 7 The **SETUP** button will still flash, the next menu can be selected for adjustment. To exit completely, press one of the **DYN**, **EDIT**, or **PRESETS** buttons twice.

4.17 Machine Starts

The channel faders on the OnAir 500 can be used to remotely control external devices, such as CD and MiniDisc players.

This is achieved by connecting external equipment to the REMOTES 2 port on the rear of the console. The remote port offers 12 contact closures (refer to [chapter 12](#) for wiring information).

Each input on the OnAir 500 can be assigned to a remote output. The remote start facility will then be active on whichever channel fader the relevant input is assigned to.

Default relay-to-input assignment REMOTES 2 (25-pin D-type):

Relay No.	Assigned per Default to:
01	MIC/LINE1
02	MIC/LINE2
03	MIC/LINE3
04	MIC/LINE4
05	STEREO 1
06	STEREO 2
07	AES/EBU1
08	AES/EBU2
09	AES/EBU3
10	AES/EBU4
11	SPDIF1
12	Not Assigned

Configuration of the Machine Starts:

- 1 Press the **SETUP** button found below the LC display. This will enter the setup mode.
- 2 Use the **PARAMETER** encoder to scroll through the menu pages to locate the Machine Starts menu page. The **SETUP** button will flash upon selection.
- 3 Press the **SETUP** button to enter machine starts set-up mode. The LC display will show the current setting:

```
Input:MIC/LINE1→
Remotes02 Rly01
```

- 4 Now press the ► (right) arrow button to enter the remote mode page. The LC display will now read:

```
←Input:MIC/LINE1
Rem. Mode: Off
```

- 5 Press the ▼ (down) arrow button to select the lower field of the page. The currently selected remote mode flashes.

- 6 Use the **PARAMETER** encoder to select one of the modes “Off”, “Latch”, or “Moment” (pulse).
- 7 When the selected input is assigned to a channel, it is now possible to audition the remote start facility by opening and closing the channel, or by toggling the channel **ON** button on and off. The channel **ON** button toggles between amber (ready) and green (activated).
- 8 Pressing the **SETUP** button will exit this menu. However, the **SETUP** button will still flash, the next menu can be selected for adjustment. To exit completely, press one of the **DYN**, **EDIT**, or **PRESETS** buttons twice.

Custom Configuration of the Machine Starts:

Although the default settings will suffice for most applications, there may be times when you might want to change the relay assignment for a particular input.

- 1 Press the **SETUP** button found below the LC display. This will enter the setup mode.
- 2 Use the **PARAMETER** encoder to scroll through the menu pages to locate the Machine Starts menu page.
- 3 The **SETUP** button will flash upon selection.
- 4 Press the **SETUP** button to enter the machine starts set-up mode.
- 5 The LC display will show the current setting:



```
Input: MIC/LINE1 →  
Remotes02 Rly01
```

- 6 To change the relay assignment for MIC/LINE1, press the ▼ (down) arrow button so that “Rly01” flashes in the lower field of the display.
- 7 Now use the **PARAMETER** encoder to select the relay number you want to use (or “Not Assigned”, if desired).
- 8 Pressing the **SETUP** button will exit this menu. However, the **SETUP** button will still flash, the next menu can be selected for adjustment. To exit completely, press one of the **DYN**, **EDIT**, or **PRESETS** buttons twice.

4.18 Master Faders

The master faders for the PROG and AUD outputs can be switched off if necessary. The output will then be set at unity gain.

Configuring the PROG and AUD Master Faders:

- 1 Press the **SETUP** button found below the LC display. This will enter the setup mode.
- 2 Use the **PARAMETER** encoder to scroll through the menu pages to locate the **Master Faders** menu page. The **SETUP** button will flash upon selection.
- 3 Press the **SETUP** button to enter the master faders set-up mode. The LC display will show the current selection:

Master Faders:
Enabled

- 4 Use the **PARAMETER** encoder to select the master faders to be either “Enabled” or “Disabled”.
- 5 Pressing the **SETUP** button will exit this menu. However, the **SETUP** button will still flash, the next menu can be selected for adjustment. To exit completely, press one of the **DYN**, **EDIT**, or **PRESETS** buttons twice.

4.19 MIDI Backup

A MIDI data filer or MIDI sequencer can be used for archiving OnAir 500 set-up information for recall at a later stage. Copying presets from one console to another one is possible as well. Use standard MIDI wiring as indicated in [chapter 12.2.4](#).

The following options are available:

Type of Information	Description
Receive Data	Console will wait for any incoming MIDI data
Send Desk Preset	Archive a single console preset
Send All Presets	Archive all current console presets
Send 1 DYN Prset	Archive a single dynamics preset
Send DYN Presets	Archive all dynamics presets
Send 1 FX Preset	Archive a single FX preset
Send FX Presets	Archive all FX presets
Send All Data	Archive all current console data

Executing a MIDI Dump:

- 1 Press the **SETUP** button found below the LC display. This will enter the setup mode.
- 2 Use the **PARAMETER** encoder to scroll through the menu pages to locate the **MIDI Backup** menu page. The **SETUP** button will flash upon selection.
- 3 Press the **SETUP** button to enter the MIDI backup set-up mode. The LC display will show the current selection:


```

Receive Data
Execute?

```

- 4 Use the PARAMETER encoder to select the type of MIDI action you want to perform (see the table above for a full description of each option).
- 5 Press the ▼ (down) arrow button to select “Execute”.
- 6 Now press the SETUP button to activate the MIDI dump to the MIDI recording device.
- 7 Pressing the SETUP button will exit this menu. However, the SETUP button will still flash, the next menu can be selected for adjustment. To exit completely, press one of the DYN, EDIT, or PRESETS buttons twice.

Note: When the console has received new presets, they are stored in memory but are not active yet. In order to activate such a preset, it needs to be recalled first (refer to chapters 6.7.2, 7.1, and 8.3).

Receiving MIDI Data:

- 1 Press the SETUP button found below the LC display. This will enter the setup mode.
- 2 Use the PARAMETER encoder to scroll through the menu pages to locate the MIDI Backup menu page. The SETUP button will flash upon selection.
- 3 Press the SETUP button to enter the MIDI backup set-up mode. The LC display will show the current selection:

```

Receive Data
Execute?

```

- 4 Use the PARAMETER encoder to select the “Receive Data” command, and press the ▼ (down) arrow button so that “Execute?” is flashing. Then press the SETUP button. The LC display will read:

```

Waiting for
MIDI Data...

```

- 5 Now start playback of the MIDI device where the data is stored. When the data transfer is complete, the LC display will show:

```

MIDI Dump
Complete

```

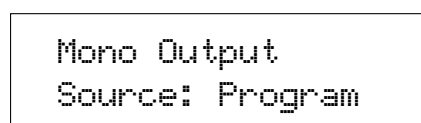
- 6 Pressing the SETUP button will exit this menu. However, the SETUP button will still flash, the next menu can be selected for adjustment. To exit completely, press one of the DYN, EDIT, or PRESETS buttons twice.

Note: When the console has received new presets, they are stored in memory but are not active yet. In order to activate such a preset, it needs to be recalled first (refer to chapters 6.7.2, 7.1, and 8.3).

4.20 Mono Output

The MONO output located at the rear of the console can derive its signal from either the PROG, AUD, AUX 1+2, AUX 1, or AUX 2 buses.

- Configuring the Mono Output:**
- 1 Press the **SETUP** button found below the LC display. This will enter the setup mode.
 - 2 Use the **PARAMETER** encoder to scroll through the menu pages to locate the Mono Output menu page. The **SETUP** button will flash upon selection.
 - 3 Press the **SETUP** button to enter the mono output set-up mode. The LC display will show the current selection:



Mono Output
Source: Program

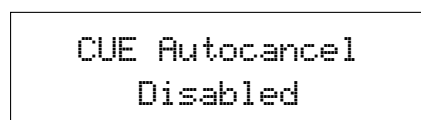
- 4 Use the **PARAMETER** encoder to select the source for the mono output.
- 5 Pressing the **SETUP** button will exit this menu. However, the **SETUP** button will still flash, the next menu can be selected for adjustment. To exit completely, press one of the **DYN**, **EDIT**, or **PRESETS** buttons twice.

4.21 CUE Autocancel

The OnAir 500 can be setup globally so that any active CUE button will be cancelled by opening the fader on the same channel.

Selecting the CUE Autocancel Function:

- 1 Press the **SETUP** button found below the LC display. This will enter the setup mode.
- 2 Use the **PARAMETER** encoder to scroll through the menu pages to locate the CUE Autocancel menu page. The **SETUP** button will flash upon selection.
- 3 Press the **SETUP** button to enter the CUE autocancel set-up mode. The LC display will show the current setting:



CUE Autocancel
Disabled

- 4 Now use the **PARAMETER** encoder to select either “Enabled” or “Disabled”.
- 5 Pressing the **SETUP** button will exit this menu. However, the **SETUP** button will still flash, the next menu can be selected for adjustment. To exit completely, press one of the **DYN**, **EDIT**, or **PRESETS** buttons twice.

4.22 RCS Channel Sel

When operating the console together with an RCS computer-assisted broadcast system (also refer to [chapter 10.2](#)), the allocation of the playout channels A...D of the RCS system to the console channels must be defined.

Note: *The RCS system features TDIF outputs. For correct operation, the input channels selected above must be assigned to the appropriate TDIF inputs. More information on this subject in [chapter 10.2](#).*

RCS Channel Selection:

- 1 Press the **SETUP** button found below the LC display. This will enter the setup mode.
- 2 Use the **PARAMETER** encoder to scroll through the menu pages to locate the **RCS Channel Sel** menu page. The **SETUP** button will flash upon selection.
- 3 Press the **SETUP** button to enter the channel selection mode. The LC display will show the current selection:



```
RCS: A B C D
Sel  01 02 03 04
```

- 4 Use the ◀ and ▶ (left/right) arrow buttons to make the number you want to adjust is flashing. Use the **PARAMETER** encoder to select the desired channel number. Proceed in the same way with the remaining RCS channels.
- 5 Pressing the **SETUP** button will exit this menu. However, the **SETUP** button will still flash, the next menu can be selected for adjustment. To exit completely, press one of the **DYN**, **EDIT**, or **PRESETS** buttons twice.

4.23 RCS Setup

When operating the console together with an RCS computer-assisted broadcast system (also refer to [chapter 10.2](#)), the RCS mode must be enabled on the console (don't change the mode on the RCS PC).

Note: *The RCS system features TDIF outputs. For correct operation, the input channels selected above must be assigned to the appropriate TDIF inputs. More information on this subject in [chapter 10.2](#).*

RCS Setup:

- 1 Press the **SETUP** button found below the LC display. This will enter the setup mode.
- 2 Use the **PARAMETER** encoder to scroll through the menu pages to locate the **RCS Setup** menu page. The **SETUP** button will flash upon selection.
- 3 Press the **SETUP** button to enter the channel selection mode. The LC display will show the current selection:



```
RCS Setup
Disabled
```

- Use the **PARAMETER** encoder to select the desired mode (Channels AB, ABC, ABD, or ABCD). The LC display will show your selection, e.g.:

```

RCS Setup
Channels ABCD

```

- Pressing the **SETUP** button will exit this menu, then it will take a few seconds for the **ON** and **OFF** buttons to refresh. However, the **SETUP** button will still flash, the next menu can be selected for adjustment. To exit completely, press one of the **DYN**, **EDIT**, or **PRESETS** buttons twice.

4.24 Remote Inputs

There are four remote inputs accessible via the **REMOTE 1** connector on the rear panel of the OnAir 500. The remote inputs can perform the following functions:

LC Display Option	Action
No Action	No action is taken
Enable RevTB	Selected remote input enables the reverse talkback signal to the presenters headphones
Mute Channel 1...6	Selected remote input can be configured to mute any of the channels

Configuring the Remote Inputs:

- Press the **SETUP** button found below the LC display. This will enter the setup mode.
- Use the **PARAMETER** encoder to scroll through the menu pages to locate the **Remote Inputs** menu page. The **SETUP** button will flash upon selection.
- Press the **SETUP** button to enter the remote inputs set-up mode. The LC display will show the current selection:

```

Remote I/P :1
No Action

```

- Use the **PARAMETER** encoder to select one of the four remote inputs.
- Press the ▼ (down) arrow button, then use the **PARAMETER** encoder to select which type of action the remote input will control.
- Pressing the **SETUP** button will exit this menu. However, the **SETUP** button will still flash, the next menu can be selected for adjustment. To exit completely, press one of the **DYN**, **EDIT**, or **PRESETS** buttons twice.

4.25 Software Version

The `Software Version` menu is used to check which version of software is currently installed in the OnAir 500.

Checking the Software Version:

- 1 Press the `SETUP` button found below the LC display. This will enter the setup mode.
- 2 Now use the `PARAMETER` encoder to scroll to the `Software Version` menu.
- 3 Press the flashing `SETUP` button to enter the menu. The LC display will read (for example):

Software
Version: Vx.xx

- 4 Pressing the `SETUP` button will exit this menu. However, the `SETUP` button will still flash, the next menu can be selected for adjustment. To exit completely, press one of the `DYN`, `EDIT`, or `PRESETS` buttons twice.

4.26 System

The `System` menu is used for setting global features such as `Auto Edit`, `Talkback Swap`, `FX Send Pre-Post Master`.

Global Feature Setting	Effect
Auto Edit: On/Off	When Auto Edit mode is selected to be "On", the LC display will automatically show parameter values whenever any encoder in the edit strip is adjusted.
TalkBack Swap On/Off	This setting allows the user to activate the Talkback Swap facility (please refer to chapter 5 for further information).
FX Send: Pre/Post Master	This setting allows the user to choose whether the selected send to the Lexicon processor is routed via the AUX MASTER control or not.

Setting System Preferences:

- 1 Press the `SETUP` button found below the LC display. This will enter the setup mode.
- 2 Now use the `PARAMETER` encoder to scroll to the `System` menu.
- 3 Press the flashing `SETUP` button to enter the menu. The LC display reads:

Auto Edit:
Off

- 4 Use the ▲ and ▼ (up/down) arrow buttons to select `Auto Edit On/Off`, `TalkBack Swap On/Off`, or `FX Send Pre/Post Master`.
- 5 Use the `PARAMETER` encoder to make your selection.
- 6 Pressing the `SETUP` button will exit this menu. However, the `SETUP` button will still flash, the next menu can be selected for adjustment. To exit completely, press one of the `DYN`, `EDIT`, or `PRESETS` buttons twice.

4.27 Talkback Assign

Any of the four mic/line inputs (or any other input) can be configured to operate as a talkback source.

When the fader on a microphone channel that has been configured for talkback is fully closed, the microphone's output is automatically routed to the talkback bus.

The talkback facility will switch off as soon as the channel fader is opened again (for further information on the talkback capabilities of the Studer OnAir 500, please refer to [chapter 5](#)).

Assigning the Talkback Microphone:

- 1 Press the **SETUP** button found below the LC display. This will enter the setup mode.
- 2 Use the **PARAMETER** encoder to scroll through the menu pages to locate the **Talkback Assign** menu. The **SETUP** button will flash upon selection.
- 3 Press the **SETUP** button to enter the talkback assign mode. The LC display will read:

Fwd/RevTB Source
None

- 4 Use the **PARAMETER** encoder to select either **Channel 1** to **Channel 6** or **None**, or press the **SELECT** button on the channel you wish to assign. You will notice that the **TALKBACK** legend will illuminate in the display panel of the selected channel, giving instant visual recognition.



Note: When the talkback facility on the selected channel is inactive, the **TALKBACK** legend will flash.

- 5 Pressing the **SETUP** button will exit this menu. However, the **SETUP** button will still flash, the next menu can be selected for adjustment. To exit completely, press one of the **DYN**, **EDIT**, or **PRESETS** buttons twice.

4.28 TDIF Outputs



The TDIF connector on the rear panel is very useful for creating more inputs and outputs in either digital or analog formats. It can easily be connected, for example, to an eight-track digital tape machine or a hard disk recorder for playback or recording, or it could be connected to an external TDIF interface to expand both analogue or digital input capabilities.

Note: *It is important that you understand the TDIF Out Adv. settings (chapter 4.29) before using TDIF outputs.*

The TDIF outputs are configured in pairs and may derive their output signals from the following sources:

TDIF (Output)	Src: (Source)
1 & 2	Un sourced
3 & 4	Program
5 & 6	Audition
7 & 8	Auxiliaries
	LIN/CLNFD12
	LIN/CLNFD34

Configuring the TDIF Outputs:

- 1 Press the **SETUP** button found below the LC display. This will enter the setup mode.
- 2 Use the **PARAMETER** encoder to scroll through the menu pages to locate the **TDIF Outputs** menu page. The **SETUP** button will flash upon selection.
- 3 Press the **SETUP** button to enter the TDIF outputs set-up mode. The LC display will show the current selection:

```
Output: TDIF1&2
Src: Un sourced
```

- 4 Use the ▲ and ▼ (up/down) arrow buttons to select the upper field of the LC display, and the **PARAMETER** encoder to select which pair of TDIF outputs you want to configure.
- 5 Now use the ▲ and ▼ (up/down) arrow buttons to select the lower field of the LC display, and the **PARAMETER** encoder to select where the output signal is derived from.
- 6 Pressing the **SETUP** button will exit this menu. However, the **SETUP** button will still flash, the next menu can be selected for adjustment. To exit completely, press one of the **DYN**, **EDIT**, or **PRESETS** buttons twice.

4.29 TDIF Out Adv.

The settings found in this menu are for configuring the status bits of the TDIF outputs; “Adv.” means “for advanced users only”. In most applications, the default settings for these outputs are used, but in certain circumstances it may be necessary to make manual adjustments.

The table below shows the options available for each output:

Digital Output	Sample Rate Flag	O/P Buffer:
TDIF	Auto 48kHz 44.1kHz 32kHz Other	Other Soundcraft

Working with TDIF Devices:

When the OnAir 500 is synchronized to an external wordclock source, most digital devices connected to the TDIF digital outputs will happily synchronize to the wordclock being sent from the console via the TDIF digital output or the BNC wordclock output.

In most applications the TDIF digital output can be set to `Auto` configure in the `TDIF Out Adv.` setup menu.

In some cases the receiving device connected to the TDIF digital output may not synchronize correctly, and it may be necessary to manually configure the sample rate for the TDIF output.

The sample rate flag must be set to the same wordclock setting that the OnAir 500 is receiving; i.e. if the external clock being sent to the OnAir 500 is 48 kHz, then the sample rate flag is set to 48 kHz as well.

Output Buffer:

The OnAir 500 has two different modes of operation, depending on what type of TDIF-equipped device is connected to the TDIF port.

- 1 TDIF-based devices, such as Tascam digital tape recorders or Soundscape digital audio workstations can connect directly to the TDIF port. In this case the `O/P Buffer` setting should be set to `Other`.
- 2 There are different interface boxes by Soundcraft that can connect to the TDIF port on the rear panel to provide additional digital or analog inputs and outputs. When any of these I/O interface boxes are connected, the `O/P Buffer` setting should be set to `Soundcraft`.

Configuring the TDIF Out Adv. Settings:

- 1 Press the `SETUP` button found below the LC display. This will enter the setup mode.
- 2 Use the `PARAMETER` encoder to scroll through the menu pages to locate the `TDIF Out Adv.` menu page. The `SETUP` button will flash upon selection.
- 3 Press the `SETUP` button to enter the TDIF out adv. set-up mode. The LC display will show the current selection:

```

Sample Rate:  →
Auto
  
```


- 4 You may now use the **PARAMETER** encoder to set the sample rate flag to Auto, 48kHz, 44.1kHz, 32kHz, or Other.
- 5 Once the correct sample rate flag has been selected, press the ► (right) arrow button to enter the **O/P Buffer** field of the LC display.
- 6 The **PARAMETER** encoder can now be used to toggle between **Other** and **Soundcraft**.
- 7 Pressing the **SETUP** button will exit this menu. However, the **SETUP** button will still flash, the next menu can be selected for adjustment. To exit completely, press one of the **DYN**, **EDIT**, or **PRESETS** buttons twice.

Note: If you experience any digital noise problems when connecting a TDIF-equipped device to the OnAir 500, please try both the **Soundcraft** and **Other** settings for the **O/P Buffer**.

4.30 2nd Meter Source

The OnAir 500 has a second set of meters that can be selected to monitor either of the **PROG** or **AUD** buses, or to display the signal currently selected in the **CONTROL ROOM MONITOR** section.

Configuring the Second Meter Source:

- 1 Press the **SETUP** button found below the LC display. This will enter the setup mode.
- 2 Use the **PARAMETER** encoder to scroll through the menu pages to locate the **2nd Meter Source** menu page. The **SETUP** button will flash upon selection.
- 3 Press the **SETUP** button to enter the second metering source setup mode. The LC display will show the current setting:

Second Metering
Source: Program

- 4 Use the **PARAMETER** encoder to select **Program**, **Audition**, or **Monitor**.
- 5 Pressing the **SETUP** button will exit this menu. However, the **SETUP** button will still flash, the next menu can be selected for adjustment. To exit completely, press one of the **DYN**, **EDIT**, or **PRESETS** buttons twice.

5 TALKBACK

The Studer OnAir 500 offers two different modes of talkback operation, providing solutions for both self-op and non-self-op applications.

The information provided below is used in conjunction with the `Talkback Assign` menu (see chapter 4.27) and the `TalkBack Swap` function found in the `System` menu (see chapter 4.26).

General Studio Layout:

For this explanation we will assume that the room housing the console is known as the *control room (CR)*, and the area on the other side of the glass is known as the *studio*.

It is quite possible for guests, performers or indeed the presenter (DJ) to be located in either the control room or the studio.

The default settings of the OnAir 500 assume that the presenter is operating the console from the control room (this is commonly known as *self-op*).

However, at the request of broadcasters who operate with the presenter in a room different from the console (usually the studio), the OnAir 500 provides the `TalkBack Swap` feature.

Below, we have outlined how you should operate the console in each scenario.

5.1 Scenario 1 - Presenter in Control Room (Talkback Swap Off)

The presenter is operating the console and will use his on-air microphone to talk to his guests as well (talkback). This is very convenient and means that there is no need for a separate talkback microphone.

The way this works is that the same channel that the presenter's microphone is connected to must also be set-up as the talkback channel.

- 1 The presenter can then talk to the studio and/or guest headphones whenever all three of the following conditions are met:
 - The **TALK** button is *on* (either momentary or latched)
 - The fader on the talkback channel is *fully closed*
 - The talkback destination is *enabled* (**STUDIO** and/or **GUEST** button selected).
- 2 The presenter can then talk to any of the cleanfeed outputs whenever all three of the following conditions are met:
 - The **TALK** button is *on* (either momentary or latched)
 - The fader on the talkback channel is *fully closed*
 - The **CUE** button is *on* for those cleanfeed outputs to which you want to speak (either momentary or latched).
- 3 Someone wanting to talk to the presenter can use the REV TB1 (reverse talkback) input.

They must have access to a switch physically connected to the relevant connection on the **REMOTES 1** connector. There are four such switches. The relevant switch must be set, via the `Remote Inputs` menu page, to `Enable RevTB` (see chapter 4.24). Then, for as long as the switch is pressed, the program feed to the presenter's headphones will be dimmed, and they will be able to talk to the presenter through his headphones.

5.2 Scenario 2 - Presenter in Studio (Talkback Swap On)

In this scenario an engineer is operating the console from the control room, and the presenter is in the studio.

Setting `TalkBack Swap` to `On` allows the **REV TB1** (reverse talkback) input to act as the talkback channel, and vice versa.

This allows the presenter and the engineer to talk to each other without the engineer's microphone occupying a channel on the input control surface. A microphone will need to be connected to the **REV TB1** input for this to work correctly.

- 1 The engineer can talk to the presenter in the usual way by pressing the **TALK** button, and enabling the **STUDIO** as the talkback destination. The only difference is that the talkback bus is deriving its input from the **REV TB1** input *and not from the nominated talkback channel*.
- 2 Likewise, the presenter can talk to the engineer whenever the following conditions are met:
 - The presenter's channel fader is *fully closed*
 - The selected external remote input switch is *on*
 - The relevant switch is set to `Enable RevTB` on the `Remote Inputs` page.

In other words, when the presenter's microphone is closed to take him off the air, the presenter can speak to the engineer by pressing the external remote input switch he is provided with. For as long as this switch is on, the program feed to the presenter's headphones will be dimmed, and he will be able to talk to the engineer.

Talkback swap, in this way, allows the presenter to speak to the engineer when he is off air, using the same microphone.

Talkback swap connects the **REV TB1** input to the studio and guest headphones, whereas in default mode, it would only ever go to the control room headphones.

6 DYNAMICS

The OnAir 500 offers gating, compression and limiting capabilities to each input channel on the console. The choices are:

- Gate
- Compressor
- Compr Gate (compressor + gate)
- Limiter
- LimiterGate (limiter + gate)

When the **DYN** button is selected, the four-character input display on any channel having a dynamics processor active will automatically switch to showing gain reduction and/or gate open/closed activity.

6.1 Gate

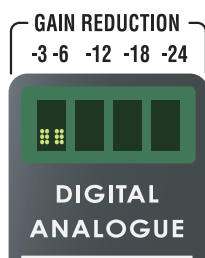
A gate (also referred to as “noise gate”) is used to control unwanted background noise. This is achieved by setting a threshold level, where loud signals will be able to pass through (gate open), while the softer ones will not (gate closed).

A typical example might be a low-level noise coming from an air conditioning unit in the studio that is picked up by the presenter’s microphone. When the presenter is talking into the microphone, his voice is sufficiently loud to “mask” the sound of the air conditioning unit, but when he stops speaking the unwanted sound can be clearly heard.

A gate could be set-up to only remove the low-level noise coming from the air conditioning unit, i.e., when the presenter stops speaking, the gate closes and no signal is passed.

Gate Parameters:	Threshold	As mentioned above, the threshold is the point at which the gate closes, which results in the noise signal being muted. Signals above the threshold level pass through unaffected. Signals below the threshold level will not be able to pass through the gate.
	Attack	The attack time determines <i>how fast the gate opens</i> when a signal exceeds the threshold level.
	Hold	The hold time determines <i>how long the gate stays open</i> after the input signal has dropped back below the threshold level.
	Decay	The decay time determines <i>how fast the gate will close</i> after the hold time has expired.
	Depth	The depth control determines <i>to what level the gate closes</i> . A level of 0 dB will mean that the gate does not close at all, and all signals pass through. A level of –80 dB will mean that the gate closes completely whenever the signal level drops below the threshold setting. This control can be used to prevent the gate’s action being too abrupt and noticeable.

Gate Display:



When a gate is assigned to a channel and the **DYN** button is pressed, the input display will show gate open/closed activity *by illuminating the first two blocks of its lower line when the gate is closed*.

6.2 Compressor

A compressor is a device that acts almost like an “automatic hand” placed on a channel fader. It can reduce the level of signals that are too loud thus preventing signal overload. This is achieved by setting a threshold level, whereby signals that exceed this threshold are reduced (*compressed*) by a pre-determined amount (the *ratio* setting). Signals falling below the threshold level will pass through unaffected.

A typical example of this would be compressing the DJ microphone to avoid sudden jumps in output level if the DJ moves too close to the microphone.

Compressor Parameters: Knee

The knee setting determines *what the transition between the uncompressed signal and the compressed signal is going to be*. If **Knee: HARD** is chosen, then at the point where the signal passes through the threshold point, compression will begin immediately. If **Knee: SOFT** is chosen, then compression will begin slightly before the point at which the signal passes through the threshold point. The **Knee: SOFT** setting will usually make the transition between uncompressed and compressed states sound more subtle and natural.

Threshold

The threshold level *determines the point at which compression begins to occur*. Signals that are above the threshold setting will be compressed according to the setting chosen in the ratio menu. Signals below the threshold level will pass through unaffected.

Ratio

Once the signal has exceeded the threshold level, it will be *reduced* (compressed) *by the amount set using the Ratio setting*. If for example a ratio setting of 5:1 is chosen, a change in signal level of 10 dB above the threshold will result in only a 2 dB change in output level.

Attack

The attack time determines *how fast the compressor will start to act* once the signal has passed the threshold point.

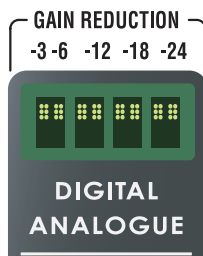
Release

The release time determines *how fast the compressor returns to its normal state* once the signal has dropped back below the threshold point.

Makeup

The makeup control is used to *increase the output level* of the compressor. Adding compression will normally reduce the average level of the signal. The makeup control allows for this level drop to be compensated.

Compressor Display:



When a compressor (or limiter) is assigned to a channel and the **DYN** button is pressed, the input display will show gain reduction *by illuminating the blocks in its upper line from left to right*.

6.3 Limiter

The limiter functions in a very similar manner to the compressor and shares the same parameter options, except for the ratio control.

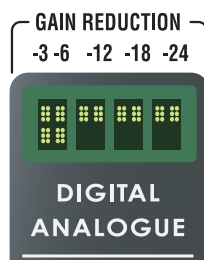
The limiter has a very high, fixed ratio setting that is not adjustable. The reason for this is that the limiter is normally used as a safety mechanism to prevent a sudden loud signal from overloading the channel. The limiter will usually be “invisible” until a very loud signal comes along – at which point it will apply heavy compression (i.e., *limiting*) to prevent the loud signal from possibly overloading equipment further down the line.

6.4 Compressor + Gate / Limiter + Gate

Compressor + gate and limiter + gate are simply a combination of the compressor and the gate (or of the limiter and the gate) mentioned above.

The parameter adjustments for the compressor (or limiter) appear before the parameter adjustments for the gate (see the parameter listing below).

Compressor Gate / Limiter Gate Display:



When compressor (or limiter) and gate are assigned to a channel and the **DYN** button is pressed, gain reduction is displayed from left to right in the top row of the input display, and gate open/close activity is represented by illuminating the first two blocks of its lower line when the gate is closed.

6.5 Assigning the Dynamics Processors

- 1 Press the **DYN** button found below the LC display. This will enter the dynamics mode.
- 2 Now press the **SELECT** button on the channel you want to assign a dynamics processor to. The LC display will show the selected channel's number.
- 3 Use the ▲ and ▼ (up/down) arrow buttons to select the **Type:** page.
- 4 Now use the **PARAMETER** encoder to choose the type of dynamics processor you require.
- 5 The ▲ and ▼ (up/down) arrow buttons can now be used to select the **DYN In/Out:** page, and the **PARAMETER** encoder can be used to switch the dynamics processor in or out.

Tip: The ◀ (left) arrow button can be used to toggle the dynamics processor in and out.

Note: Whenever the **DYN** button is selected, the input display will change from showing the name of the input source to showing gain reduction and gate open/close activity on any channel that has a dynamics processor switched in.

6.6 Adjusting Dynamics Processor Settings

Once you have assigned a dynamics processor to a channel, you may use the ▲ and ▼ (up/down) arrow buttons to step through the relevant parameters and adjust them accordingly. The available parameters are as follows:

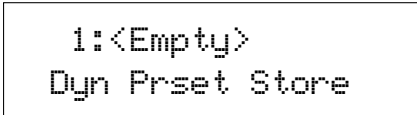
Parameter	Gate	Compressor	Comp Gate	Limiter	Limiter Gate
(Compressor/Limiter) Knee	–	HARD / SOFT	HARD / SOFT	HARD / SOFT	HARD / SOFT
(Compressor/Limiter) Threshold	–	–60 dB ... 0 dB	–60 dB ... 0 dB	–60 dB ... 0 dB	–60 dB ... 0 dB
(Compressor) Ratio	–	1:1 ... 8:1	1:1 ... 8:1	–	–
(Compressor/Limiter) Attack	–	1 ms ... 500 ms	0 ms ... 500 ms	0 ms ... 500 ms	0 ms ... 500 ms
(Compressor/Limiter) Release	–	10 ms ... 10 s	10 ms ... 10 s	10 ms ... 10 s	10 ms ... 10 s
(Compressor/Limiter) Makeup	–	–12 dB ... +12 dB	–12 dB ... +12 dB	–12 dB ... +12 dB	–12 dB ... +12 dB
(Gate) Threshold	–60 dB ... 0 dB	–	–60 dB ... 0 dB	–	–60 dB ... 0 dB
(Gate) Attack	0 ms ... 150 ms	–	0 ms ... 150 ms	–	0 ms ... 150 ms
(Gate) Hold	1 ms ... 500 ms	–	1 ms ... 500 ms	–	1 ms ... 500 ms
(Gate) Decay	10 ms ... 10 s	–	10 ms ... 10 s	–	10 ms ... 10 s
(Gate) Depth	–80 dB ... 0 dB	–	–80 dB ... 0 dB	–	–80 dB ... 0 dB

6.7 Dynamics Presets

6.7.1 Storing and Naming a Dynamics Preset

Once you have programmed the dynamics processor to your requirement, you may store it for later recall by proceeding as follows:

- 1 Make sure the **DYN** button is selected.
- 2 Press the flashing **PRESETS** button. The LC display will read:



```
1: <Empty>
Dyn Prset Store
```

- 3 Use the **PARAMETER** encoder to locate the preset memory location you would like to save to.
- 4 Now use the ▼ (down) arrow button to select the Dyn Prset Store line in the display. The **PRESETS** button will begin to flash.
- 5 Press the **PRESETS** button to select the Store To: page; you may also use the **PARAMETER** encoder to select a preset memory location.
- 6 Press the flashing **DYN** button.
- 7 You will be prompted to rename the preset, which you may do using the **PARAMETER** encoder and the ◀ ▶ ▲ ▼ arrow buttons.
- 8 Once you have finished renaming the preset, press the **DYN** button again to store the preset.

6.7.2 Recalling a Dynamics Preset

You may recall a dynamics preset and assign it to any channel. To recall a dynamics preset, proceed as follows:

- 1 Make sure the **DYN** button is selected.
- 2 Press the flashing **PRESETS** button. The LC display will read:



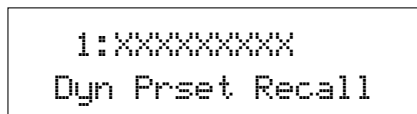
```
1:XXXXXXXX
Dyn Prset Recall
```

- 3 Use the **PARAMETER** encoder to select the dynamics preset you want to recall.
- 4 Press the ▼ (down) arrow button to select the Dyn Prset Recall line of the LC display.
- 5 Now press the **SELECT** button on the channel to which you want to assign the dynamics preset.
- 6 Press the flashing **PRESETS** button to recall the dynamics preset to the selected channel.

6.7.3 Deleting a Dynamics Preset

To delete a dynamics preset, proceed as follows:

- 1 Make sure the **DYN** button is selected.
- 2 Press the flashing **PRESETS** button. The LC display will read:



The image shows a rectangular box representing the LC display. Inside the box, the text is displayed in a monospaced font. The first line reads '1:XXXXXXXX' and the second line reads 'Dyn Prset Recall'.

- 3 Use the **PARAMETER** encoder to select the dynamics preset you want to delete.
- 4 Press the ▼ (down) arrow button to select the Dyn Prset Recall line of the LC display.
- 5 Use the **PARAMETER** encoder to select Dyn Prset Delete.
- 6 Press the flashing **PRESETS** button to delete the selected dynamics preset.

7 LEXICON™ EFFECTS

The Studer OnAir 500 has a built-in Lexicon™ digital effects processor, offering a range of effects that can be used to add another dimension to on air or production applications.

The effects are accessed by using either the AUX 1 or AUX 2 sends (or both in stereo mode) to send signal from a selected channel into the Lexicon™ digital effects processor. The effect output is sent directly to either the PROG or AUD output bus (or both).

The choice of *factory preset effects* is as follows:

Large Hall	Drum Plate	Bright Hall	Open Harp
Vocal Hall	Vocal Plate	Dark Hall	Rich Reson(ator)
Piano Hall	Flanger	Big Hall	Delay
Music Club	Chorus	Plate	Long Delay
Small Room	Canyon	Church	Chorus Delay
Inverse	Multi Tap	Small Gate	Long Echoes
Gated Reverb	Resonate	Large Gate	Sheen Chorus
Rich Plate	Small Hall	Metal Gate	Multi Echoes

7.1 Selecting an Effect

- 1 Before selecting one of the effects, you must decide which of the AUX 1/ AUX 2 buses will be used as the “send” to the effects processor.
- 2 To do this press either the **AUX 1** or **AUX 2** button in the Lexicon™ digital effects processor section to select which one will be the “source”.
- 3 Now press the **FX EDIT** button. The LC display will show the currently loaded effect:

```
Current FX Setup
Type:XXXXXXXX
```

- 4 Now press the flashing **PRESETS** button to enter the effect preset menu. The LC display will show:

```
1:Large Hall
FX Preset Recall
```

- 5 You can now use the **PARAMETER** encoder to select one of the effects from the list above.
- 6 Once you have located the desired effect, press the ▼ (down) arrow button to select the **FX Preset Recall** line of the LC display.
- 7 Press the flashing **PRESETS** button to recall the chosen effect.

7.2 Applying the Effect to a Signal

Once you have selected the desired effect, you will want to apply it to one or more of the channel signals in order to hear how it sounds.

- 1 Press the **SELECT** button on the channel to which you want to apply the effect (this will select the edit strip to the channel).
- 2 Make sure that the **FX IN** button is selected.
- 3 Now turn up the **AUX 1** or **AUX 2** send control (depending on which one you selected as the source).
- 4 You should now begin to hear the effect on your monitor speaker or headphones.
- 5 Use the **AUX 1** or **AUX 2** send control to vary the amount of effect you require.

7.3 Editing, Storing and Renaming an Effect

It is possible to edit the parameters of any of the preset effects to suit your own individual requirements.

- 1 Start by selecting an effect from the presets menu that is close to what you want.
- 2 Press the **FX EDIT** button.
- 3 Now use the ▲ ▼ (up/down) arrow buttons to step through the various parameters. The **PARAMETER** encoder is used to adjust the parameter value.
- 4 Once you are happy with the new edited effect press the flashing **PRESETS** button.
- 5 Use the ▼ (down) arrow button to select the **FX Preset Recall** line of the LC display.
- 6 Use the **PARAMETER** encoder to select **FX Preset Store**.
- 7 Now press the flashing **PRESETS** button. The LC Display will now read:

Store To:
XX: <Empty>

- 8 Confirm the storing procedure by pressing the flashing **FX EDIT** button (or cancel by pressing the **PRESETS** button). The LC display will now read:

Rename Preset?
<Large Hall >

- 9 You may now use the **PARAMETER** encoder and the ◀ ▶ ▲ ▼ arrow buttons to rename the effect.
- 10 Now press the flashing **FX EDIT** button to store the new name.

7.4 Deleting an Effect

- 1 Press the **FX EDIT** button to enter the effects editing mode.
- 2 Press the flashing **PRESETS** button.
- 3 Use the **PARAMETER** encoder to scroll to the preset you want to delete (please note that only the presets no. 33...128 can be deleted).
- 4 Press the ▼ (down) arrow button to select the `FX Preset Recall` line of the LC display.
- 5 Use the **PARAMETER** encoder to select `FX Preset Delete`.

8 PRESETS

The **PRESETS** button allows access to the menu from where the 128 snapshot presets are stored, named, recalled and deleted.

The snapshot presets are one of the most powerful functions of the OnAir 500, because complete console set-ups can be stored and recalled instantly, allowing the console to be completely reconfigured for different applications.

Example: One set-up could be stored as “Preset 1” that includes various CD and MiniDisc players and a couple of presenter’s microphones for a live music show. Another set-up could be stored as “Preset 2” that includes more microphones and a couple of telephone inputs for a talk show.

The two different snapshot presets can be instantly recalled when required, without the need for re-patching any of the inputs to the console, as all we would be doing is re-routing the available inputs to a different destination.

Input	Source Type	Preset 1 Assignment	Preset 2 Assignment
Mic/Line 1	Microphone 1	Channel 1 (mono)	Channel 1 (mono)
Mic/Line 2	Microphone 2	Channel 2 (mono)	Channel 2 (mono)
Mic/Line 3	Microphone 3	-	Channel 3 (mono)
Mic/Line 4	Microphone 4	-	Channel 4 (mono)
Stereo Analog 1	Telephone Hybrid 1	-	Channel 5 (mono)
Stereo Analog 1	Telephone Hybrid 2	-	Channel 6 (mono)
AES/EBU 1	CD Player 1	Channel 3 (stereo)	-
AES/EBU 2	CD Player 2	Channel 4 (stereo)	-
AES/EBU 3	MiniDisc Player 1	Channel 5 (stereo)	-
AES/EBU 4	MiniDisc Player 2	Channel 6 (stereo)	-
S/PDIF 1	CD Player 3	-	-

8.1 Storing a Snapshot Preset

- 1 Press the **PRESETS** button to enter the presets menu. The LC display will read:

```
1:<Empty>
Store Preset
```

- 2 Press the ▼ (down) arrow button. The Store Preset field begins to flash along with the **PRESETS** button.
- 3 Press the **PRESETS** button to store the current console settings. The LC display will now show:

```
1:PRESET 001
Store Preset
```

- 4 Press the ▲ (up) arrow button. The X:Preset XXX field begins to flash.
- 5 Press the **PRESETS** button again to exit the menu.

8.2 Renaming a Snapshot Preset

- 1 Press the **PRESETS** button to enter the presets menu. The LC display will read:

```
1:Preset 001
Recall Preset
```

- 2 Press the ▼ (down) arrow button. The Recall Preset field begins to flash along with the **PRESETS** button.
- 3 Use the **PARAMETER** encoder to select Rename Preset and then press the **PRESETS** button. The LC display will now show:

```
Rename Preset:
<PRESET 001 >
```

- 4 Now use the ◀▶▲▼ arrow buttons to navigate through the characters, and the **PARAMETER** encoder to select the characters.

Note: The ▲ (up) arrow button can be used to increment numbers, and the ▼ (down) arrow button can be used to delete a character or create a space.

- 5 Once you have completed the naming process press the **PRESETS** button. The LC display will show:

```
Renamed
Preset!
```

And then revert to showing:

```
1:Preset 001
Recall Preset
```

- 6 Press the **PRESETS** button again to exit the menu.

8.3 Recalling a Snapshot Preset

- 1 Press the **PRESETS** button to enter the presets menu. The LC display will read:

```
1:Preset 001
Recall Preset
```

- 2 Use the **PARAMETER** encoder to select the snapshot preset that you want to recall.
- 3 Press the ▼ (down) arrow button. The lower field of the LC display begins to flash along with the **PRESETS** button.
- 4 Use the **PARAMETER** encoder to select “Recall Preset” and then press the **PRESETS** button to recall the selected snapshot preset.
- 5 Press the ▲ (up) arrow button to return to the X:Preset XXX field of the LC display.
- 6 Press the **PRESETS** button to exit the menu.



Warning: *Recalling a snapshot preset has the potential to completely re-configure your console settings – please use with caution.*

8.4 Deleting a Snapshot Preset

- 1 Press the **PRESETS** button to enter the presets menu. The LC display will read:

```
1:Preset 001
Recall Preset
```

- 2 Use the **PARAMETER** encoder to select the snapshot preset that you want to delete.
- 3 Press the ▼ (down) arrow button. The `Recall Preset` field of the LC display begins to flash along with the **PRESETS** button.
- 4 Use the **PARAMETER** encoder to select `Delete Preset`, and then press the **PRESETS** button to delete the selected preset. The LC display will show:

```
Deleted
Preset!
```

- 5 Press the ▲ (up) arrow button to enter the upper field of the LC display.
- 6 Press the **PRESETS** button to exit the menu.



Warning: *There is no undo facility when deleting presets!*

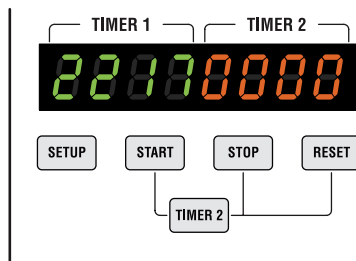
8.5 Recalling the Factory Default Preset

Recalling the factory default preset will reset the control surface to its default settings. This is useful as a starting point when you are setting up a new layout for the control surface.

- 1 Press the **PRESETS** button to enter the presets menu.
- 2 Turn the **PARAMETER** encoder anti-clockwise (i.e. to the left) to select `Factory Default Recall Preset`.
- 3 Press the ▼ (down) arrow button to highlight the `Recall Preset` field of the LC display.
- 4 Press the **PRESETS** button to recall the factory default preset.

9 TIMER OPERATION

The OnAir 500 contains two timers. These can be controlled either directly from the buttons on the meter bridge, or automatically from the channel faders.



9.1 Manual Operation

The **TIMER 2** button indicates which timer the **START**, **STOP**, and **RESET** buttons will operate.

If the **TIMER 2** button is *illuminated*, then the **START**, **STOP**, and **RESET** buttons control **TIMER 2** (the red display on the right). If the **TIMER 2** button is *not illuminated*, the **START**, **STOP**, and **RESET** buttons control **TIMER 1** (the green, left-hand display).

If the timer is running, the **START** button will be illuminated; otherwise the **STOP** button will be illuminated.

- Button Actions:**
- Pressing the **STOP** button will stop the active timer.
 - Pressing the **START** button will start the currently active button.
 - Pressing the **RESET** button will reset the currently active timer, but will not alter its stopped/running state.
 - Pressing the **TIMER 2** button will change the currently active timer from 1 to 2 or vice versa.

9.2 Automatic Operation

The timers can be controlled automatically by the channel faders (there is a menu for configuring and enabling the triggering actions).

- 1 Press the timer **SETUP** button located just below the timer displays. The LC display will read:

```

Channel 1  Tmr1
Not Triggered
```

- 2 Press the **SELECT** button on the channel you want to configure.

- 3 Now press the ► (right) arrow button and use the **PARAMETER** encoder to select your desired mode according to the table below:

Action	Effect
Not Triggered	Moving the channel fader has no effect on the timer
Trigger only	When the channel fader is moved up from the lowest position, the corresponding timer is started. When the channel fader is moved down to its lowest position, the corresponding timer is stopped.
Reset & Trigger	When the channel fader is moved up from its lowest position, the corresponding timer is first reset, and then started. When the channel fader is moved down to its lowest position, the corresponding timer is stopped.

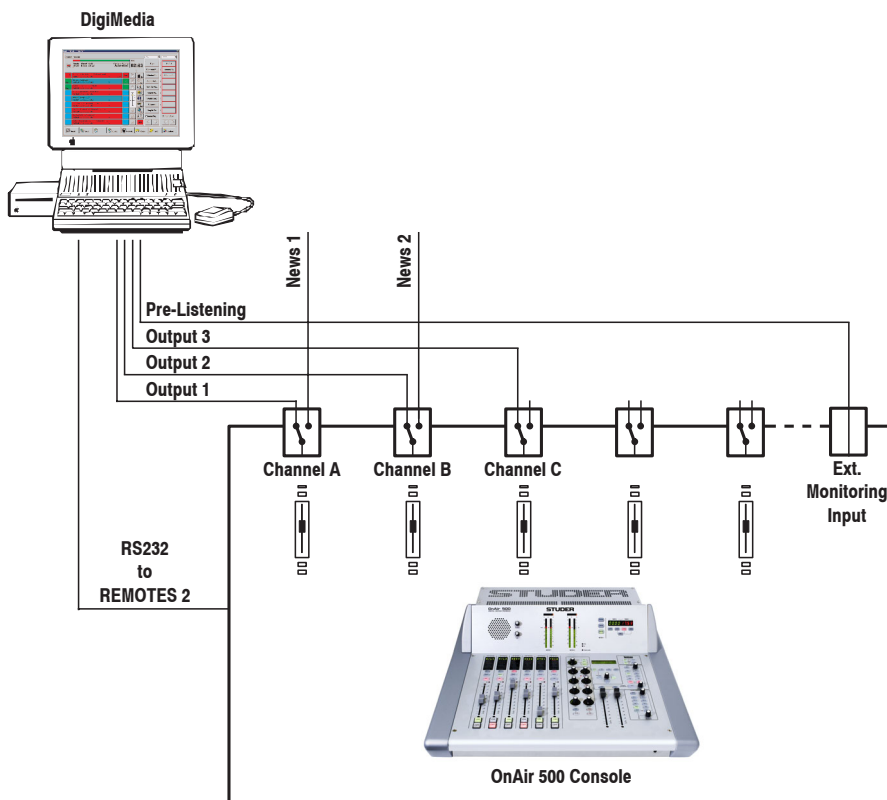
- 4 Press the timer **SETUP** button again to leave the timer setup menu.

Notes: *If automatic timer operation is active, this does not effect the manual operation of the timers, i.e., a timer may be manually operated even though it is configured for automatic fader operation.
The channel fader action on the timers is independent of the channel on/off status.*

10 AUTOMATION OPERATION

10.1 OnAir 500 and Studer DigiMedia

The OnAir 500 has isolated fader start relay outputs on the **REMOTES 2** connector (pinout in chapter 12.2.4). These outputs may be used for controlling the OnAir workstation of a Studer DigiMedia computer-assisted broadcast automation system (CAB) in manual mode. For details on operation of the DigiMedia system, please refer to the corresponding manual.



10.1.1 Control Connections and Setup

Each input of the OnAir 500 can be assigned to one of the relay outputs; the relay will then be active on whichever channel fader the relevant input is assigned to.

These relay contacts are normally open by default. For correct operation, select the *Machine Starts* menu and set the desired relays to *Latch* mode, as described in chapter 4.17.

Connect the **REMOTES 2** port of the OnAir 500 to a 9-pin COM port of the DigiMedia OnAir workstation with a cable according to the following table:

DigiMedia COM port (D 9 f)		On-Air 500 REMOTES 2 port (D 25 m)	
Pin	Signal	Pin	Signal
7	RTS	2, 3, 4	Relays 1 A/2 A/3 A (common)
8	CTS	14	Relay 1 B
6	DSR	15	Relay 2 B
1	DCD	16	Relay 3 B

Note: The length of this cable is limited to max. 5 m.

10.1.2 Audio Connections

Normally three audio output channels of the DigiMedia system are used for its on-air signals. Connect them to the desired inputs of the OnAir 500 and make sure the input routing as well as the relay assignment is set up correctly (refer to chapters 10.1 and 4.17).

A fourth audio output channel of the DigiMedia system is used for pre-listening to a title according to the selection on the DigiMedia screen. Connect this channel to one of the external monitoring inputs (**EXT 1** through **EXT 4**) on the rear of the OnAir 500; these inputs are located on the **ANALOGUE I/O** connector. For connector pin assignment refer to chapter 12.2.3.

10.1.3 Operation

Manual Title Start: Once these connections are established, the DigiMedia system is controlled by the fader start relay contacts. If the fader of one of the channels is opened while the channel is switched **ON** (or the other way round, if the channel is switched **ON** while the fader is already opened), the DigiMedia system starts playing the corresponding title.

Pre-Listening: When starting the pre-listening function in the DigiMedia system by clicking on the LISTEN button on the DigiMedia screen, followed by selecting a title, the DigiMedia system immediately sends the desired title over the fourth channel of its audio card. Make sure that the source (**EXT 1** through **EXT 4**) is correctly selected in the **CONTROL ROOM MONITOR** area of the console, and set the desired pre-listening level with the knob next to the **MUTE** button.

10.2 OnAir 500 and RCS System

RCS is a company specialized in radio playout systems. The playout system is PC (Windows) based, and offers a user interface allowing graphical scheduling of the elements of a radio broadcast. Songs, adverts, sound effects, jingles etc. are all stored on harddisk, allowing entire shows to be prepared and scheduled in advance, alleviating the need for the DJ to change CDs or cartridges etc. during the live broadcast.

A simple RS232 serial protocol exists to allow radio mixing consoles to be integrated into an RCS system. A basic level of integration would support, for example: Lifting a designated fader on the console invokes the next scheduled element to be played.

10.2.1 Connections and Setup

- Two cables connect the RCS PC to the OnAir 500 console:
A TDIF cable carrying eight channels of audio (in four stereo pairs), and a standard 9-pin serial cable, connecting the COM port of the PC to the RS232 port of the OnAir 500, carrying the track sequencing information.
- Select a clock frequency on the OnAir 500 to match the sampling rate of the RCS PC. That is, if the audio was recorded at 44.1 kHz, you will need to go to the `Clock Source` setup page and select `Internal 44.1kHz` (chapter 4.5).
- RCS must be enabled on the console using the `RCS Setup` page; *do not change the mode on the PC because this does not communicate the change to the console. Please note that you cannot enter this menu whilst the RCS system is playing.*
RCS utilizes up to four console channels named A, B, C, D. Select one of the four RCS modes that are named according to the channels involved: `ABCD`, `AEC`, `ABD`, and `AB`.
Once you have selected a mode it will take a few seconds for the **ON** and **OFF** buttons to refresh.
A further mode (`AB.net`) appearing on the pull-down menu of the RCS PC application is not used.
- The `RCS Channel Sel` setup page allows you to choose which channels on the console correspond with which letters.
Default settings: Track A on the RCS sequencer comes through on channel 1, track B comes through on channel 2, C on channel 3, and D on channel 4.
- To hear the triggered track, the correct TDIF stream must be assigned to the RCS channel. The channel audio corresponds to the RCS channels named A...D. Bring the RCS stereo TDIF signals onto the console channels using the `Assign Channel` setup page.

TDIF Input	RCS Channel	Default Console Channel
TD12	A	1
TD34	B	2
TD56	C	3
TD78	D	4

10.2.2 Operation

The RCS sequencer is started on the RCS PC by clicking on the “Master Control” icon on the desktop.

The RCS sequencer has four modes, three of which are operative with the OnAir 500.

Live Assist: Turning off an RCS channel just stops that track. Its up to you to trigger the next track. When you allow a track to finish, the next track will be triggered automatically.

In Live Assist mode RCS channels are either:

- green (playing)
- amber (next to play) – the associated track will play if you press **ON**
- unlit (disabled) – nothing happens if you press the **ON** button on a channel.

Automation: Turning off an RCS channel automatically triggers the next track in the playlist. Whenever a track finishes, the next track will trigger automatically. In Automation mode RCS channels are either:

- green (playing)
- amber (next to play) – the associated track will play if you press **ON**
- unlit (disabled) – nothing happens if you press the **ON** button on a channel.

Manual: Turning off an RCS channel just stops that track. It’s up to you to trigger the next track. When a track finishes that’s it, it’s up to you to trigger the next track.

The Satellite mode is not used in conjunction with the OnAir 500.

Once a channel has been nominated as an RCS channel, the **ON** button becomes a trigger button for the RCS PC, and in doing so ceases to operate as channel **ON/OFF**.

Auto Muting (chapter 4.3) works just the same on RCS channels as during manual console operation; the same applies to automatic timer triggering (chapter 9.2).

CUE Autocancel (chapter 4.21): Active **CUE** buttons cancel when CUE Autocancel is enabled. However, moving a fader up from $-\infty$ will *not* cancel the CUE on that channel.

11 SOFTWARE UPDATE / RE-INITIALIZING

11.1 SW Update

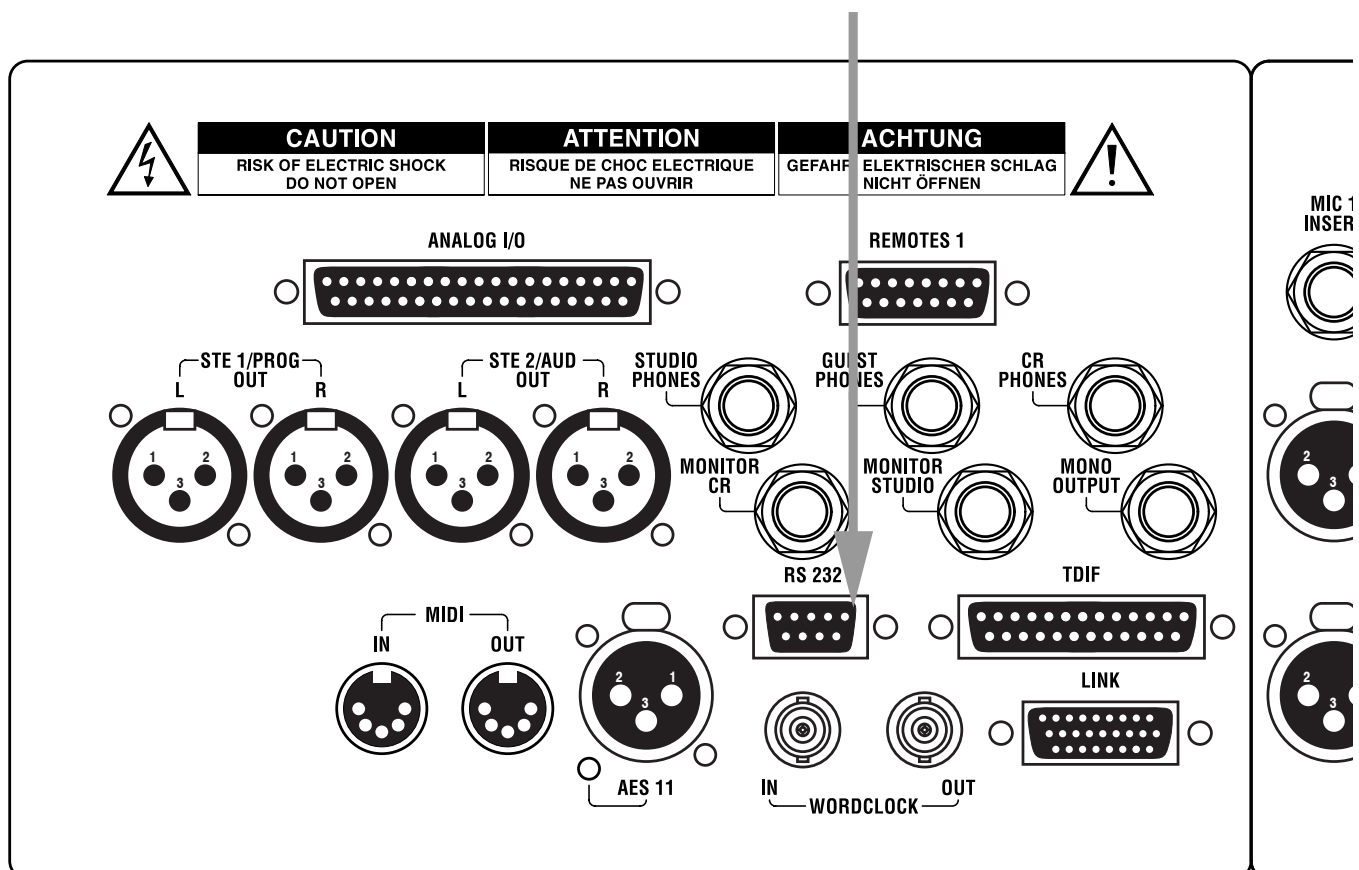
Before you start you will need the following:

- The file containing the new software file on your PC. This will be a file with an “*.abs” extension. Depending on from where you have got the software, it also may be in “*.zip” format, in which case make sure you extract the “*.abs” file before attempting to download to the console. Copy the “*.abs” file into a known directory on your PC, such as “C:\OA500 Software”.
- A cable to connect the PC to the console. This is a standard PC RS232 serial port extension cable, i.e. 9-pin D-type, male to female. This cable should be readily available from most computer accessories outlets.
- If you have a Mac, you will also have to obtain a 9-pin D-type to 8-pin mini-DIN adapter for use with a PC serial cable.

Note: For software updates, please contact your local Studer distributor.

11.1.1 Preparing the Hardware

Switch the PC and the console off and connect them using the serial cable. Use the connector labeled **RS 232** on the rear of the console (see below) and one of the COM port connections on the PC (in the following example, it is assumed that you use the COM 2 port).

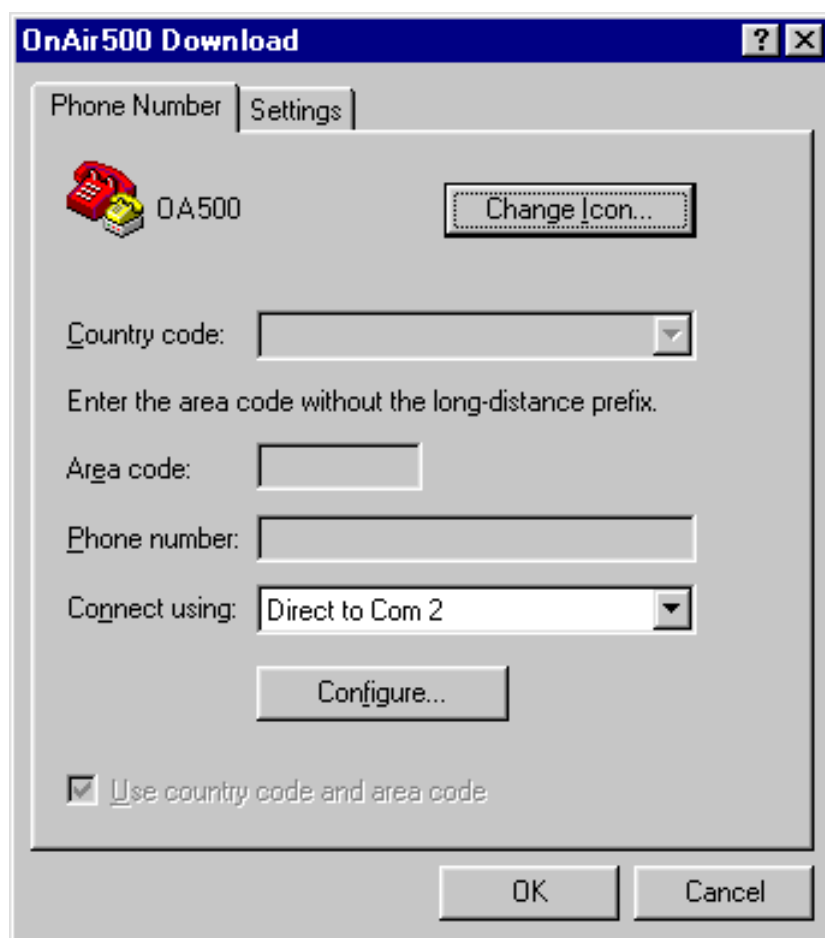


11.1.2 Preparing the PC

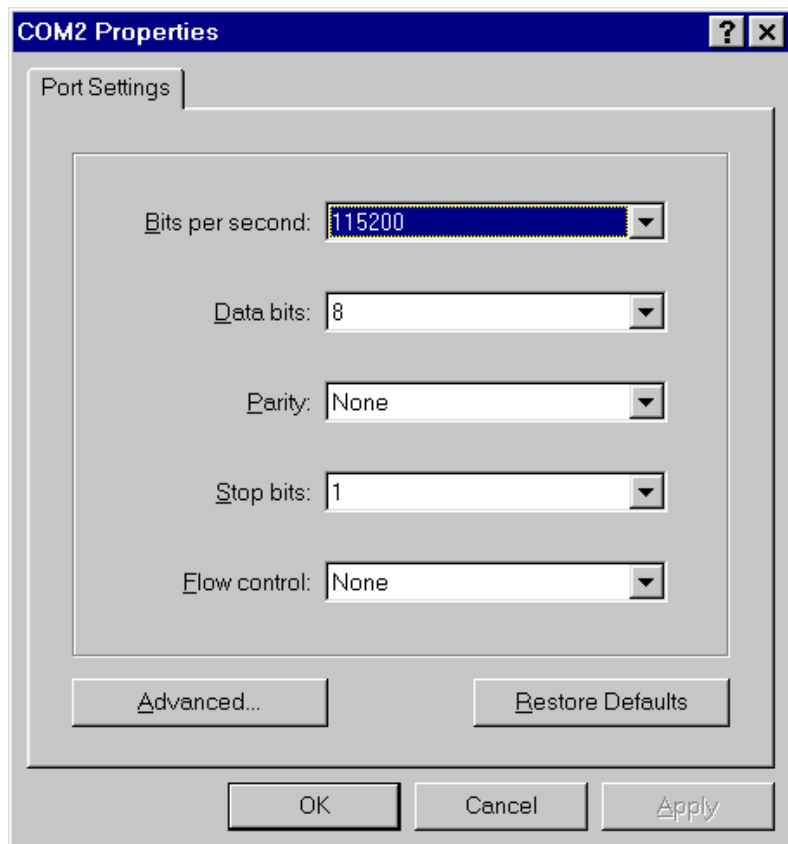
Start HyperTerminal by double-clicking the “Hypertrm” icon in Windows\ProgramFiles\Accessories\HyperTerminal.

Although any communication program that supports Xmodem file transfer protocol may be used, these instructions show “HyperTerminal” (Mac users may use “Z-Term” instead).

- 1 In the dialog box that appears, enter a name for the connection, e.g., “OnAir500 Download”. This will create an icon with the correct settings stored, which can be used at any time in the future when a software upgrade is required.
- 2 In the “Phone Number” dialog box, go straight to the “Connect Using” drop down menu, select “Direct to Com 2” and click “OK” (other COM ports could be used as well – select the one to which you have connected the serial cable).



- 3 Set up the properties in the “COM2 Properties” dialog box, as shown below:



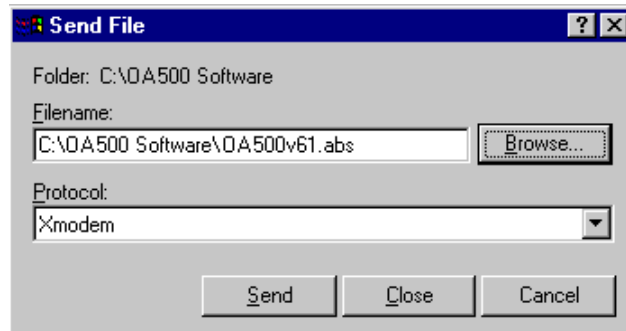
- 4 Click “OK”. Then the HyperTerminal main screen will appear.
- 5 Select “Call/Connect” to establish the connection with the console.

11.1.3 Transferring the Software

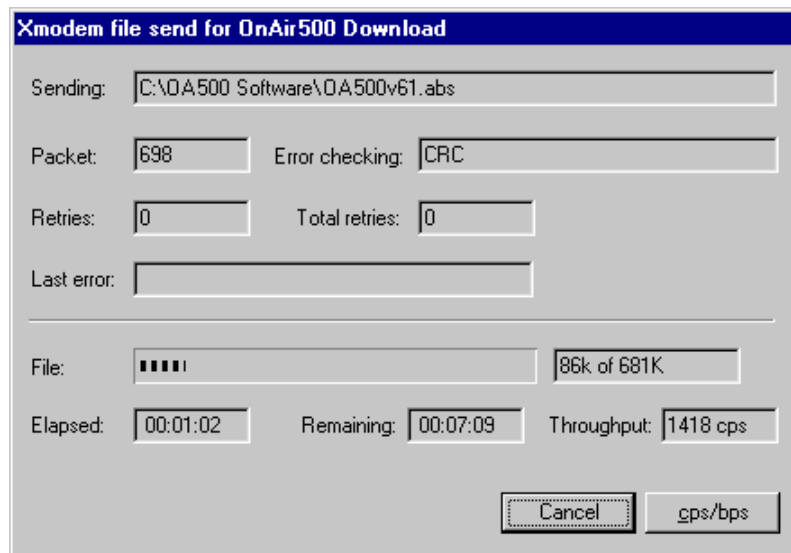
Once the download cable is connected between the PC and the console, and the PC is configured as described, the following procedure needs to be completed to enable the new software to be downloaded:

- 1 Make sure that the OnAir 500 is switched off.
- 2 Hold down the “U” key on your PC keyboard whilst switching the OnAir 500 on.
- 3 The following message should appear in the window of HyperTerminal: “Waiting for application code Upload”.
- 4 Once this message appears, you can release the “U” key.

- 5 Select “Transfer | SendFile” and click “Browse...” to locate and select the “*.abs” file from wherever you put it (e.g., “C:\OA500 Software”). Select the “Xmodem” protocol in the lower box.



- 6 Click “Send”.



While the program is being transferred, HyperTerminal shows a progress box. The transfer will take about 3...4 minutes.

During the transfer, the console’s operating surface will be blank. *This is ok.* As long as the “Packet” number in the Xmodem box is changing, the new software is being transferred correctly.

When the transfer is complete the following message should be displayed: “Press ‘P’ to Program Flash or any key to quit”

Now press the “P” key to program the flash memory. This will take a short while. Then the following message will appear: “Programming Flash. Please wait”

Once the flash memory has been programmed, the following message will appear:

“GOOD: Upgrade complete. Please ReBoot OnAir500 NOW”

Reboot the OnAir 500 at this point (i.e., switch it off, wait a few seconds, then switch it on again).

11.2 Re-Initializing the OnAir 500

There are four different re-initializing processes that can be performed on the OnAir 500.

11.2.1 Total Reset of the OnAir 500

Totally resetting the OnAir 500 will take it back to the status it was in when it left the factory *and will delete all information stored in the console*. This mode is useful if you have purchased the console second-hand and would like to reset it to its default state. To perform a total reset do the following:

- 1 Make sure the console is turned off.
- 2 Whilst holding down the ◀ ▶ ▲ ▼ arrow buttons, switch the console on again.
- 3 Continue to hold the arrow buttons until the LC display shows the following message:



```
Studer OnAir 500
Total Reset Total
```

11.2.2 Effects/Dynamics Presets Reset

Performing this reset will delete *only the effects (FX) and dynamics presets* stored in the user memory locations.

- 1 Make sure the console is turned off.
- 2 Whilst holding down the ◀ ▶ (left/right) arrow buttons, switch the console on again.
- 3 Continue to hold the arrow buttons until the LC display shows the following message:



```
Studer OnAir 500
FX/Dyn Presets Reset
```

11.2.3 Snapshot Presets Reset

Performing this reset will delete *only the presets used for storing snapshots* of the control surface configuration.

- 1 Make sure the console is turned off.
- 2 Whilst holding down the ▲ ▼ (up/down) arrow buttons, switch the console on again.
- 3 Continue to hold the arrow buttons until the LC display shows the following message:



Studer OnAir 500
Preset+Reset+PRe

11.2.4 Restoring the Factory Default Preset

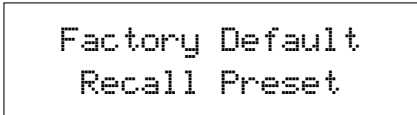
If your console has been used by someone else previously, or before attempting to go through the test hookup and start-up guide (chapter 12.4), you might find it useful to set the control surface back to its default status.

This will avoid confusion, as no signals will be routed to any “hidden” destinations, and no other processing of any kind will be applied to any of the signals.

Note: *Resetting the control surface to its factory default settings does not delete any of the snapshots, effects or dynamics presets.*

To reset the control surface to the factory default settings, proceed as follows:

- 1 Press the **PRESETS** button.
- 2 Now turn the **PARAMETER** encoder fully to the left (anti-clockwise) until the LC display reads:



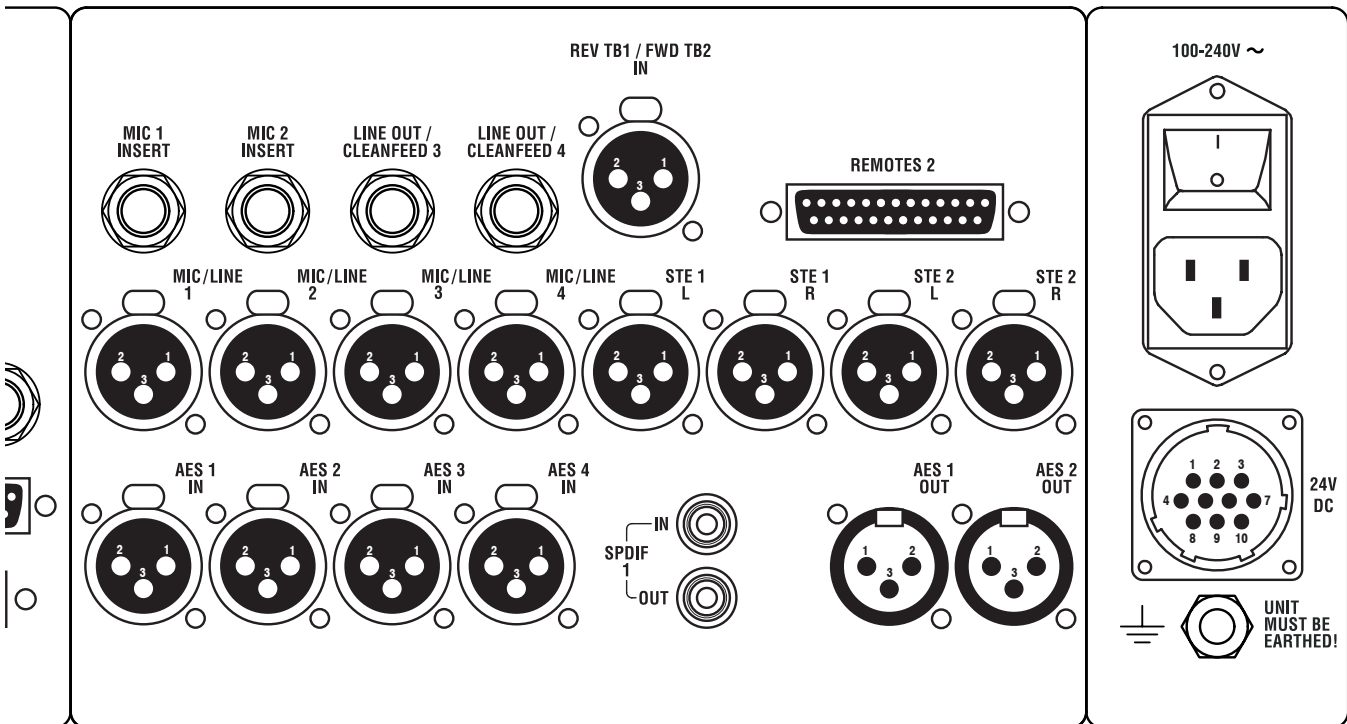
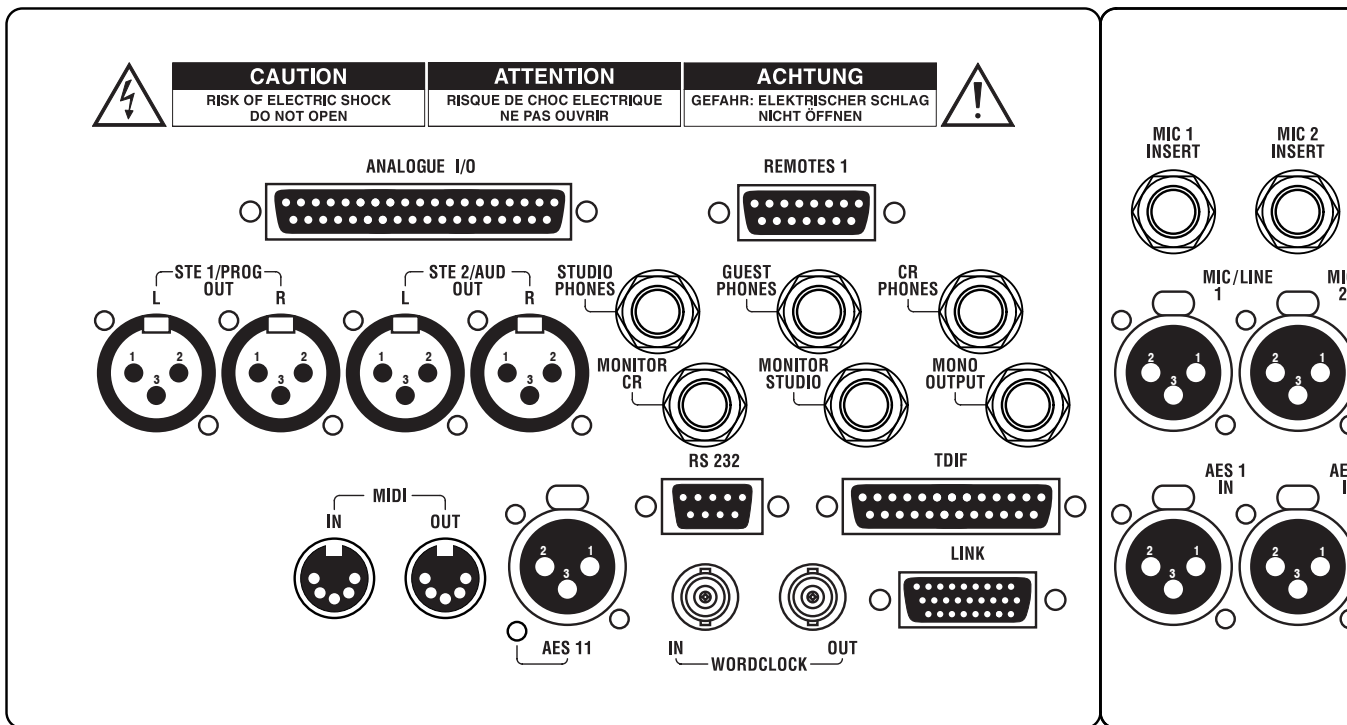
Factory Default
Recall Preset

- 3 Now press the ▼ (down) arrow button to make the Recall Preset field flash.
- 4 Press the flashing **PRESETS** button again to recall the factory settings.

Notes: *If the display stops at preset no. 1, this means that lockout is on, preventing you from recalling the factory default settings. Refer to chapter 4.15. To completely re-initialize the OnAir 500, returning it to the status it was when it left the factory, please refer to chapter 11.2.1.*

12 CONNECTORS, TEST HOOKUP

12.1 Connector Panel



12.1.1 Connector Set

Mating connector sets: order no. 1.942.469.00 for the 6-fader versions, 1.942.468 for the 12-fader Modulo version.

12.2 Connector Pin Assignments

12.2.1 Audio Inputs

MIC/LINE, STE L/R, REV TB1/FWD TB2 IN (electronically balanced); AES IN, AES 11 (transformer-coupled)



Pin	Signal
1	Chassis
2	Input +
3	Input -

A green LED next to the AES 11 sync input will illuminate as soon as a valid AES signal is fed to the input.

SPDIF IN (transformer-coupled)



Pin	Signal
Inner	Input
Outer	GND

12.2.2 Audio Outputs

STE 1/PROG OUT, STE 2/AUD OUT (all electronically balanced); AES OUT (transformer-coupled)



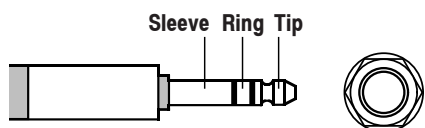
Pin	Signal
1	Chassis
2	Output +
3	Output -

SPDIF OUT (transformer-coupled)



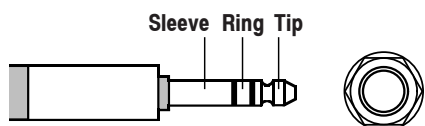
Pin	Signal
Inner	Output
Outer	GND

LINE OUT/CLEANFEED 3/4, MONO OUTPUT (all electronically balanced)



Pin	Signal
Tip	Out +
Ring	Out -
Sleeve	GND

STUDIO PHONES, GUEST PHONES, CR PHONES, MONITOR CR, MONITOR STUDIO (unbalanced)

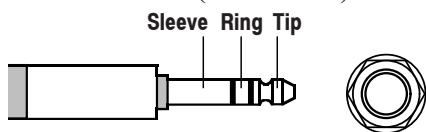


Pin	Signal
Tip	Left channel
Ring	Right channel
Sleeve	GND

Note: The CR PHONES connector is doubled on the console's front at the right.

12.2.3 Miscellaneous Audio Inputs/Outputs

MIC 1/2 INSERT (unbalanced)



Pin	Signal
Tip	Insert return
Ring	Insert send
Sleeve	GND

ANALOGUE I/O (all el. balanced)



Pin	Signal	Pin	Signal
1	Audio GND	20	Ext. In 1 left -
2	Ext. In 1 left +	21	Ext. In 1 right -
3	Ext. In 1 right +	22	Ext. In 2 left -
4	Ext. In 2 left +	23	Ext. In 2 right -
5	Ext. In 2 right +	24	Ext. In 3 left -
6	Ext. In 3 left +	25	Ext. In 3 right -
7	Ext. In 3 right +	26	Ext. In 4 left -
8	Ext. In 4 left +	27	Ext. In 4 right -
9	Ext. In 4 right +	28	Audio GND
10	Chassis GND	29	CUE/PFL out left -
11	CUE/PFL out left +	30	CUE/PFL out right -
12	CUE/PFL out right +	31	AUX 1 out -
13	AUX 1 out +	32	AUX 2 out -
14	AUX 2 out +	33	Cleanfeed 1 out -
15	Cleanfeed 1 out +	34	Cleanfeed 2 out -
16	Cleanfeed 2 out +	35	Meter bridge speaker sign. out -
17	Meter bridge speaker sign. out +	36	RTB IN out - (copy of RTB IN)
18	RTB IN out + (copy of RTB IN)	37	Audio GND
19	Chassis GND		

The ANALOGUE I/O connector is used for the following analog inputs and outputs: External stereo monitor source inputs 1...4, AUX 1/2 outputs, cleanfeed 1/2 outputs, stereo CUE/PFL speaker outputs, as well as copies of the meter bridge speaker signal and of the RTB input signal.

All inputs and outputs are electronically balanced.

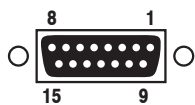
TDIF I/O



Pin	Signal	Pin	Signal
1	DOUT 12	14	GND
2	DOUT 34	15	GND
3	DOUT 56	16	GND
4	DOUT 78	17	GND
5	WCK OUT	18	EMP OUT
6	FS0 OUT	19	FS1 OUT
7	GND	20	FS1 IN
8	FS0 IN	21	EMP IN
9	WCK IN	22	GND
10	DIN 78	23	GND
11	DIN 56	24	GND
12	DIN 34	25	GND
13	DIN 12		

12.2.4 Control Inputs/Outputs

REMOTES 1



Pin	Signal	Pin	Signal
1	Remote In 4	9	Logic GND
2	Remote In 3	10	Logic GND
3	Remote In 2	11	Logic GND
4	Remote In 1	12	Reserved
5	Reserved	13	Reserved
6	Reserved	14	Studio Mute B
7	Studio Mute A	15	Control Room Mute B
8	Control Room Mute A		

The master remotes comprise dedicated, normally-open relay contacts which operate from the studio and control room mute logic and can be used for on-air signaling.

In addition, four normally-open relay contacts can be assigned to control various functions from within the software. The two terminals of each relay contact are designated A and B in the table above.

There are also four remote inputs which are high-impedance logic lines that must be pulled low (i.e. to “logic GND”) via an external switch or open collector to activate. The functions of each remote input are assignable from within the software.

REMOTES 2



Pin	Signal	Pin	Signal
1	Chassis GND	14	Relay 1 B
2	Relay 1 A	15	Relay 2 B
3	Relay 2 A	16	Relay 3 B
4	Relay 3 A	17	Relay 4 B
5	Relay 4 A	18	Relay 5 B
6	Relay 5 A	19	Relay 6 B
7	Relay 6 A	20	Relay 7 B
8	Relay 7 A	21	Relay 8 B
9	Relay 8 A	22	Relay 9 B
10	Relay 9 A	23	Relay 10 B
11	Relay 10 A	24	Relay 11 B
12	Relay 11 A	25	Relay 12 B
13	Relay 12 A		

The fader start remotes are isolated, normally-open relay contacts that can be configured as either momentary (pulsed) or latched. The two terminals of each relay contact are designated A and B in the table above.

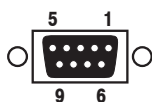
Note: *It is important that no two devices are assigned to the same relay simultaneously as this may cause the console to malfunction.*

WORDCLOCK IN/OUT



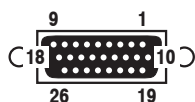
Pin	Signal
Inner	Input or Output
Outer	GND

RS232



Pin	Signal	Pin	Signal
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	GND		

LINK



The LINK connector has no function for the time being. It has been provided for the implementation of future options.

MIDI IN



Pin	Signal
1	n.c. (not connected)
2	n.c. (not connected)
3	n.c. (not connected)
4	Input +
5	Input -
Shield	GND

MIDI OUT

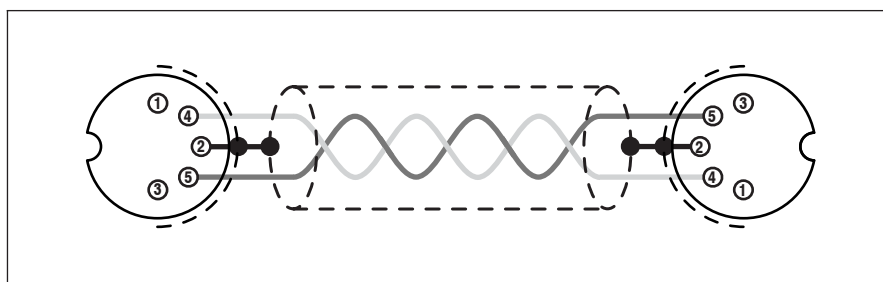


Pin	Signal
1	n.c. (not connected)
2	GND
3	n.c. (not connected)
4	+5 V
5	Output
Shield	GND

MIDI Cables: These are 1:1 connections of pins 2, 4, and 5; the maximum length according to the MIDI specs is 15 m.

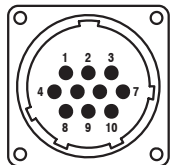
Please note that pin 2 is connected to both the cable shield (common for both wires) and the connector's metal shield on both cable ends. However there is no internal connection of pin 2 and GND at the input socket in order to avoid ground loops.

If making your own MIDI cable(s), use shielded, twisted-pair cable (such as microphone cable). Connect the cable to the 5-pin DIN connectors according to the following illustration; the connectors are shown here from "the inside", i.e. from the side where you will be looking when soldering up the wires:



12.2.5 External 24 V_{DC} Supply

24V DC



Pin	Signal
1	+22...28 V _{DC}
2	+22...28 V _{DC}
3	n. c. (not connected)
4	Power alarm output (see below)
5	n. c. (not connected)
6	n. c. (not connected)
7	n. c. (not connected)
8	GND
9	GND
10	Power alarm enable (see below)

Notes: For DC operation it is mandatory that a UL approved, external fuse is connected in series with one of the supply lines (**T 3.15 A H 250 V UL/CSA**).

The power switch next to the mains power inlet only switches the mains voltage; for DC operation, an external power switch has to be foreseen by the installer.

The power alarm output is an open collector pulling to ground if active (max. 24 V_{DC}, max. 50 mA) that can be used for illuminating an LED or exciting a relay.

It is active if the following conditions are met:

- The power alarm enable input is pulled to GND (the easiest way to do this is a link within the DC supply cable)
- The console is supplied with both AC and DC, and
- Either one of the AC or DC supplies should fail while the other one keeps up running the console.

If the power alarm output is active, the **POWER ALARM LED** on the console's meter bridge is on as well.

External Supply Unit, Cables

An external power supply unit for quasi-redundant operation is available under order no. 1.918.230.00.

Cables for the DC connection may be ordered in different lengths:

2 m	1.925.231.00
5 m	1.925.232.00
7 m	1.925.233.00
10 m	1.925.234.00

12.3 Test Hookup

The goal of this chapter is to quickly take you through the installation procedure and basic features of the OnAir 500.

We will get a signal into the console on channel 1, give it a custom name, route it to the mix outputs, add some EQ and then some reverb.

12.3.1 Before you Start

Make sure that neither the AC nor the (eventual) DC power supply cables are connected to the console, and that the console power switch is set to *off* (“0”). *In addition, please make sure that the installation directions given in chapter 2.2.2 are strictly observed.*

Although not essential to the correct operation of the console, a maintained power feed (UPS) is recommended to protect the station output in case of mains failure. However, if an UPS is to be shared with other items of equipment, ensure that the total load does not exceed the rated specification of the UPS.

Connect an IEC-type mains cable to the mains input socket of the OnAir 500. Connect the other end to the nearest plug socket and set the console power switch to *on* (“I”).

The OnAir 500 will take around 40 seconds to boot up. Please be patient! It is quite normal for all the LEDs on the control surface to light up while booting.

Note: *If desired (in particular if you purchased the OnAir 500 second-hand), you would like to reset your console to the factory default values. Please refer to chapter 11.2.1 for information.*

12.3.2 Audio Test Hookup

For the purpose of this section we will simply use a microphone connected to a MIC/LINE input. It is assumed that an amplifier with some speakers is connected to the **STE 1/PROG OUT L/R** outputs.

Note: *This is a test configuration only.* The **STE 1/PROG OUT L/R** outputs are normally used to carry station output. Speakers normally are connected to the **MONITOR** outputs.

Before starting, make sure that both **PROG** main faders are at their $-\infty$ position (pulled completely downwards) to prevent any unexpected acoustical feedback noise.

12.3.3 Input Assignment

The first step is to decide which input connector – in this case MIC/LINE 1 – we want to use and assign it to either INPUT 1 or INPUT 2 of one of the channels found on the OnAir 500. In the following example we are going to use INPUT 1 of channel 1.

- 1 Press the **SETUP** button found below the LC display and use the **PARAMETER** encoder to scroll alphabetically to the **Assign Channel** menu.
- 2 Press the **SETUP** button again to enter assign channel mode.
- 3 Press the **SELECT** button on channel 1, and then make sure that **INPUT 1** is selected (the **INPUT 2** button should not be illuminated). You will notice that the LC display will show your selection.
- 4 Now use the **PARAMETER** encoder to scroll through the list of named sources, until you find “**M/L1**”. As you scroll through the different input choices, notice how the input names also change in the four-character display found at the top of channel 1.
- 5 You have now assigned the **MIC/LINE 1** input connector to the **INPUT 1** of channel 1. Press the **SETUP** button again to exit setup mode.

***Note:** For 12-fader OnAir 500 Modulo versions, the SPDIF1 input can be assigned to the fader channels 1...6 only, while the SPDIF2 input can be assigned to the fader channels 7...12 only.*

12.3.4 Input Naming

Although not essential, you may choose to give the input connector a custom name for ease of recognition. This is limited to four characters.

- 1 Press the **SETUP** button and use the **PARAMETER** encoder to scroll alphabetically to the **Input Naming** menu.
- 2 Press the **SETUP** button again; the left-hand field of the display will flash. Select **MIC/LINE1** using the **PARAMETER** encoder.
- 3 Use the ◀ ▶ (left/right) arrow buttons to position the cursor over any of the four character spaces in the right-hand field of the LCD. Character-by-character, use the **PARAMETER** encoder to scroll through the whole alphanumeric character list, or press the ▲ (up) arrow button to increment through the numbers, or the ▼ (down) arrow button to delete the current character, or to insert a space.
- 4 Press the **SETUP** button again to exit setup mode.

12.3.5 Connecting an Input

Now that we have assigned the MIC/LINE 1 connector to INPUT 1 of channel 1, we need to adjust the gain of the microphone pre-amplifier.

- 1 Press the **SETUP** button found below the LC display and use the **PARAMETER** encoder to scroll alphabetically to the **Analogue Inputs** menu.
- 2 Press the flashing **SETUP** button again. Use the **PARAMETER** encoder to select **Mic/Lin 1**.
- 3 If the microphone you are using requires 48 V phantom power, then press the ► (right) arrow button to move to the **Phantom Pwr** setting. There, move to the **ON/OFF** field by pressing the ▼ (down) arrow button. Now select **ON** or **OFF** using the **PARAMETER** encoder.

Notes: The Mic/Line inputs can be used for either microphone or line level input signals. There is no difference in hardware, only you will need to apply more gain to mic inputs than to line inputs.



It is crucially important to ensure that phantom power is only used when it is needed to avoid potential damage to either the source outputs or the console inputs.

Always ensure that Phantom Pwr is OFF before connecting to any of the MIC/LINE inputs on the rear of the OnAir 500. This also applies to the reverse talkback input (REV TB1 IN) which functions in the same manner.

- 4 Press the ◀ (left) arrow button to move to the **Gain** section.
- 5 Press the **CUE** button on channel 1, and the **METER 1 MONITOR** button on the meter bridge.
- 6 You may now use the **PARAMETER** encoder to adjust the gain of the microphone pre-amplifier while monitoring the adjustment on the **METER 1** level meter.
- 7 Once you are happy with your gain setting, press the **SETUP** button again.

12.3.6 Channel Output Assignment

You will need to assign channel 1 to the **STE 1/PROG OUT L/R** master bus output in order to monitor the input signal. To do this, proceed as follows:

- 1 Press the **SELECT** button on the channel strip that has the **MIC/LINE 1** input assigned to it (in our example, this is channel 1).
- 2 Press the **PROG** button on the edit strip to assign the selected channel. The **PROGRAM** legend will illuminate in the status window at the upper end of the channel strip.
- 3 Now very carefully (to avoid acoustical feedback) pull up the fader for channel 1, followed by the **PROG** master fader. You should now be able to speak into the microphone, and hear your voice through the amp and speakers connected to the **STE 1/PROG OUT L/R** output.

12.3.7 Add some EQ to the Signal

When a **SELECT** button is pressed on a channel, the edit strip will be assigned to that channel, offering facilities such as panning (**PAN/BAL**), equalization (**HF, MF, FREQ, LF**), **AUX 1** and **AUX 2** sends, and a **GAIN** trim control. To use EQ do the following:

- 1 Press the **SELECT** button on channel 1. The edit strip is now active for this channel.
- 2 Press the **EQ IN** button in the edit strip to switch the equalizer on, and use the three-band EQ to make adjustments.
- 3 While doing this, you can see the frequency or levels you are currently adjusting on the LC display by pressing the **EDIT** button beneath the LC display screen.

12.3.8 Add some Reverb to the Signal

Adding an internal reverb effect to a signal is just like working with an external effect processor. However, the signal remains in the digital domain at all times, and no cables (and no external processor, of course) are required. As you would expect, we will need to send a signal into the effects processor and blend the return signal into the mix.

- 1 Select the **AUX 1 SOURCE** button on the Lexicon™ effects section. This tells the in-built effects unit to receive its input signal from AUX bus 1.
- 2 Make sure the **FX IN** button is illuminated to activate the effects unit.
- 3 Press the **FX EDIT** button to enter the effects menu.
- 4 Press the flashing **PRESETS** button.
- 5 Now use the **PARAMETER** encoder to select **1:Large Hall** from the factory presets.
- 6 Press the ▼ (down) arrow button to select the lower line of the LC display, and use the **PARAMETER** encoder to select **FX Preset Recall**.
- 7 Press the flashing **PRESETS** button to recall the effect.
- 8 Next, make sure that the edit strip is assigned to channel 1 by pressing the **SELECT** button on that channel.
- 9 Press the **AUX 1** button next to the **AUX MASTER** control and turn the control fully clockwise.
- 10 Very carefully (to avoid acoustical feedback) pull up the fader for channel 1, followed by the **PROG** master fader until you hear your voice through the amp and speakers connected to the **STE 1/PROG OUT L/R** output.
- 11 Gradually adjust the **AUX 1** control until you can hear the effect being mixed in with the microphone signal. You will notice that the **AUX 1** legend will illuminate in the channel's status window, indicating that the channel signal is routed to the AUX 1 bus.



12.3.9 Return to the Normal Configuration

Now that you have confidence that the signals do appear on the main program outputs, this would be a good moment to unplug the amplifier driving your speakers from the STE 1/PROG OUT L/R outputs, and to connect it to the control room monitor (MONITOR CTRL RM) output using a stereo ¼" Jack plug.

Although many studios have their own designations, for our monitoring purposes the room in which the OnAir 500 is located would be called the *control room*, and a separate area (e.g. an interview booth or a talk studio) would be called the *studio*.

You will find that with the speakers connected to this output, you can no longer hear the microphone connected to channel 1.

You can select a variety of monitoring sources for your control room and studio speakers. In this instance, you should select the PROG button on the CONTROL ROOM MONITOR panel.

The control room speakers can be completely silenced by pressing the MUTE button; if the button is not active, their volume can be adjusted using the control next to the MUTE button. Note that these controls affect only what is heard through the monitor speakers and headphones, *but not* what is sent to air over the main STE 1/PROG OUT L/R programme outputs.

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