



Studer OnAir 1500

Digital Mixing Console

SW Version 4.1

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For Your Own Safety and to Avoid Invalidation of the Warranty Please Read This Section Carefully

- Read these instructions.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Do not use this apparatus near water.
- Clean only with a dry cloth.
- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not defeat the safety purpose of a polarised or grounding type plug. A polarised plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles and the point where they exit from the apparatus.
- Only use attachments/accessories specified by the manufacturer.
- Use only with the cart, stand, tripod, bracket or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as the power supply cord or plug is damaged, liquid has been spilled or objects fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

Note: It is recommended that all maintenance and service on the product should be carried out by Studer or its authorised agents. Studer cannot accept any liability whatsoever for any loss or damage caused by service, maintenance or repair by unauthorised personnel.

WARNING: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture. Do not expose the apparatus to dripping or splashing and do not place objects filled with liquids, such as vases, on the apparatus.

- No naked flame sources, such as lighted candles, should be placed on the apparatus.
- Ventilation should not be impeded by covering the ventilation openings with items such as newspapers, table cloths, curtains etc.

WARNING: Do not use this apparatus in very dusty atmospheres, or in atmospheres containing flammable gases or chemicals.

- **THIS APPARATUS MUST BE EARTHED.** Under no circumstances should the safety earth be disconnected from the mains lead.
- The mains supply disconnect device is the mains plug. It must remain accessible so as to be readily operable when the apparatus is in use.
- If any part of the mains cord set is damaged, the complete cord set should be replaced. The following information is for reference only. The wires in the mains lead are coloured in accordance with the following code:

- **Protective Earth (Ground):** Green/Yellow (US: Green or Green/Yellow)
- **Neutral:** Blue (US: White)
- **Live (Hot):** Brown (US: Black)

As the colours of the wires in the mains lead may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

- The wire which is coloured Green and Yellow must be connected to the terminal in the plug which is marked with the letter E or by the earth symbol.
- The wire which is coloured Blue must be connected to the terminal in the plug which is marked with the letter N.
- The wire which is coloured Brown must be connected to the terminal in the plug which is marked with the letter L.

Ensure that these colour codes are followed carefully in the event of the plug being changed

- This unit is capable of operating over a range of mains voltages, as marked on the rear panel.

Lithium Battery



Installed lithium batteries must be replaced by the same or an equivalent type. Danger of explosion if batteries are incorrectly replaced or when terminals are shorted.

Installed lithium batteries must not be exposed to excessive heat such as direct sunshine, fire or the like.

Note: 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 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.

This Class A digital apparatus meets the requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la Classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Working Safely With Sound

Although your new console will not make any noise until you feed it signals, it has the capability to produce sounds that, when monitored through a monitor system or headphones, can damage hearing over time. The table below is taken from the Occupational Safety & Health Administration directive on occupational noise exposure (1926.52):

Permissible Noise Exposure:



Duration per day [h]	Sound level [dBA, slow response]
8	90
6	92
4	95
3	97
2	100
1.5	102
1	105
0.5	110
<0.25	115

Conforming to this directive will minimise the risk of hearing damage caused by long listening periods. A simple rule to follow is: The longer you listen, the lower the average volume should be. Please take care when working with your audio system – if you are manipulating controls which you don't understand (which we all do when we are learning), make sure your monitoring level is turned down. *Remember that your ears are the most important tool of your trade. Look after them, and they will look after you. Most importantly: Don't be afraid to experiment to find out how each parameter affects the sound; this will extend your creativity and help you to get the best results.*

A1 Safety Symbol Guide

For your own safety and to avoid invalidation of the warranty, all text marked with these symbols should be read carefully.



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).



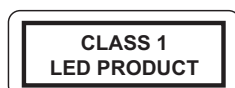
The lightning flash with arrowhead symbol is intended to alert the user to the presence of un-insulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.



Headphones safety warnings contain important information and useful tips on headphone outputs and monitoring levels.



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.



A2 First Aid

In Case of Electric Shock:

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

- By switching the equipment off,
- 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 (refer to Appendix 1).
- 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 (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, spotlights).

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).

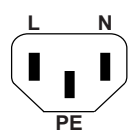
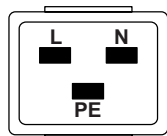
Class I Equipment (Mains Operation)

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 (IEC 320 / C13 or IEC 320 / 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 in such a way 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 VDC)

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 conductor) 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, such as dishwashing detergent.

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 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 lifespan of assemblies containing such components can be drastically reduced by improper handling during maintenance and repair. 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 wearing a wristlet 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 or metallic surfaces (voltage puncture, discharge shock hazard).
- To prevent the components from undefined transient stress 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

By removing housing parts or shields, energized parts may be exposed. 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 while being switched on, no un-insulated circuit components and metallic semiconductor housings must be touched, neither with bare hands nor with un-insulated tools.

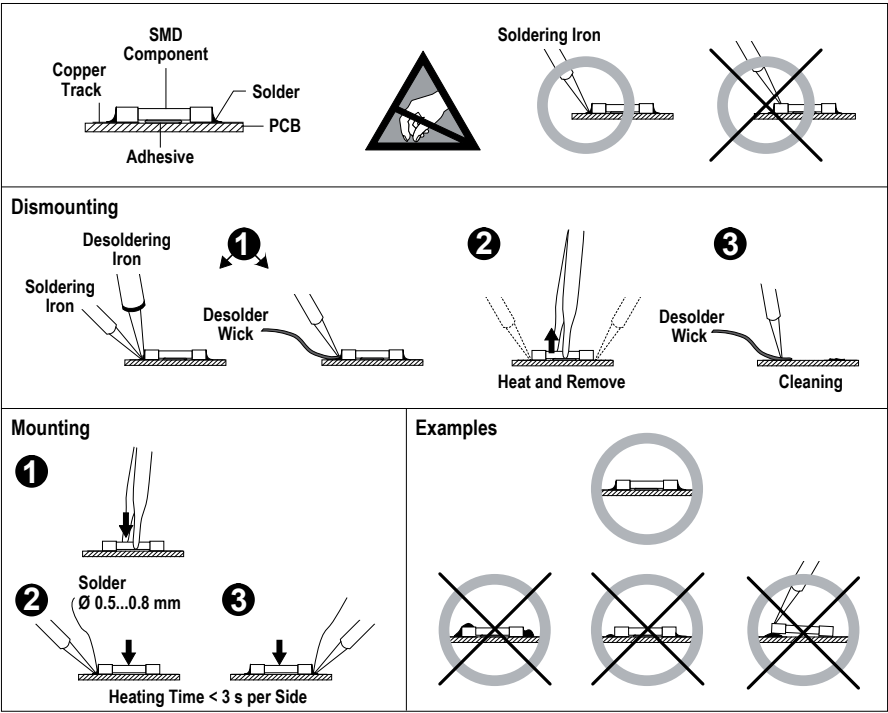
Certain components pose additional hazards:

- Explosion hazard from lithium batteries, electrolytic capacitors and power semiconductors (Observe 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. protection glasses, 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

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.

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.

This Class A digital apparatus meets the requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la Classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

***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 1500, Digital Broadcast Mixing Console
(starting with serial no. 30270026),**
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 60065:2002 and EN 60950:2001 (Class I equipment)
- Safety of laser products:
EN 60825-1:1994 + A11 + A2, EN 60825-2:2000
- EMC:
EN 55103-1/-2:2009, electromagnetic environment E2.

Regensdorf, November 28, 2011



B. Hochstrasser, General Manager



M. Lienert, Manager R&D

Appendix 1: Air Temperature and Humidity

General

Normal operation of the unit or system is warranted under the 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 below.

Ambient Temperature

Units and systems by Studer are generally designed for an ambient temperature range (i.e. temperature of the incoming air) of +5 °C to +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 °C 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 to 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.

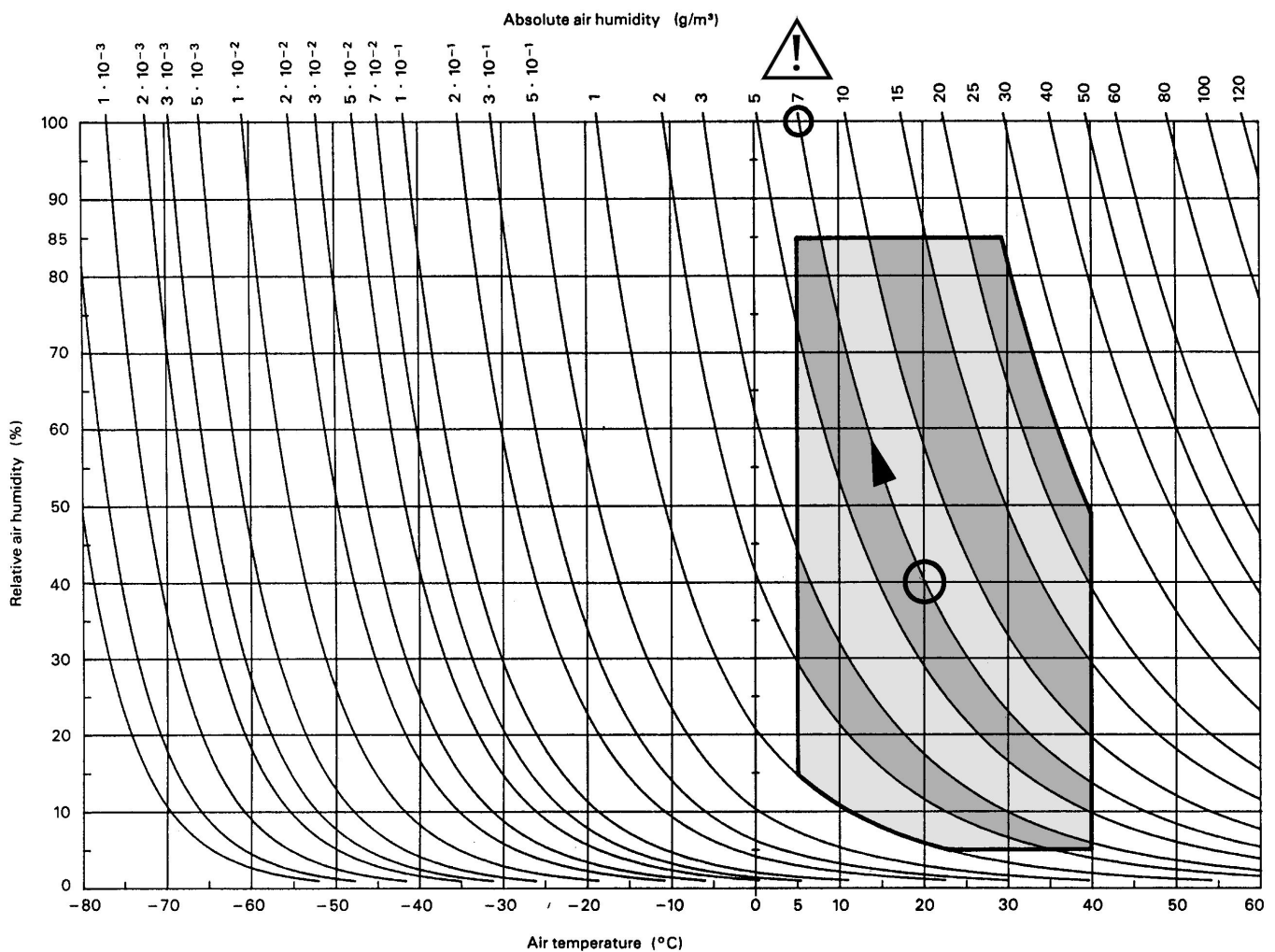
If it is absolutely necessary to operate the cold system immediately within warm ambient air, this air must be dehydrated. In such a case, the absolute humidity must be so low that the relative humidity, related to the coldest system surface, always remains below 100%.

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 such 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.

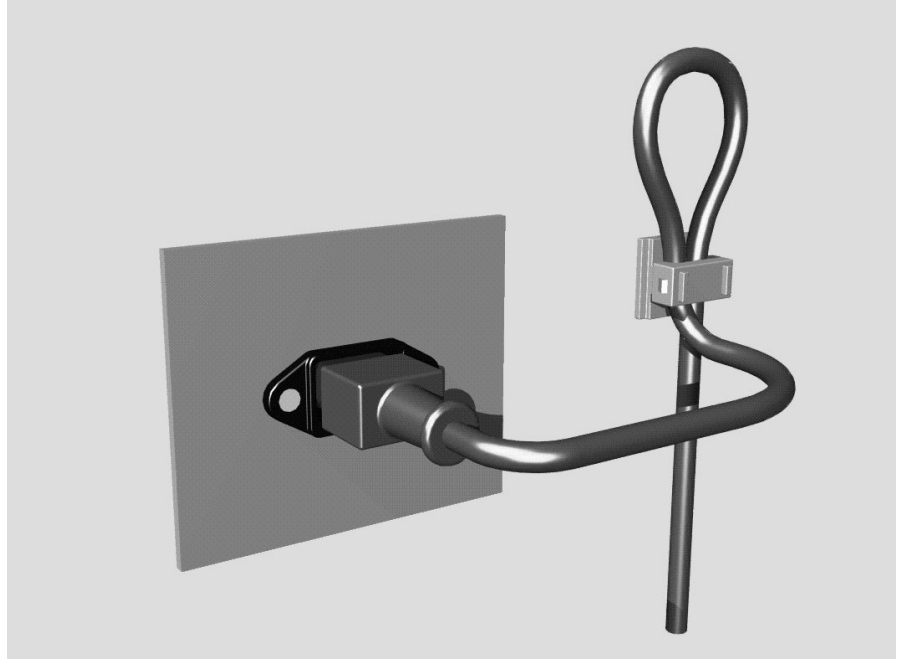
Example 1: An OB-van having an internal temperature of $+20\text{ }^{\circ}\text{C}$ and a relative humidity of 40% is switched off in the evening. If the temperature falls below $+5\text{ }^{\circ}\text{C}$, the relative humidity will rise to 100% (7 g/m^3); dew or ice will be forming.

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



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 °C to +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.

Appendix 3: Software License

Use of the software is subject to the Studer Professional Audio Software License Agreement set forth below. Using the software indicates your acceptance of this license agreement. If you do not accept these license terms, you are not authorized to use this software.

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Warranty, Disclaimer, and Liability

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

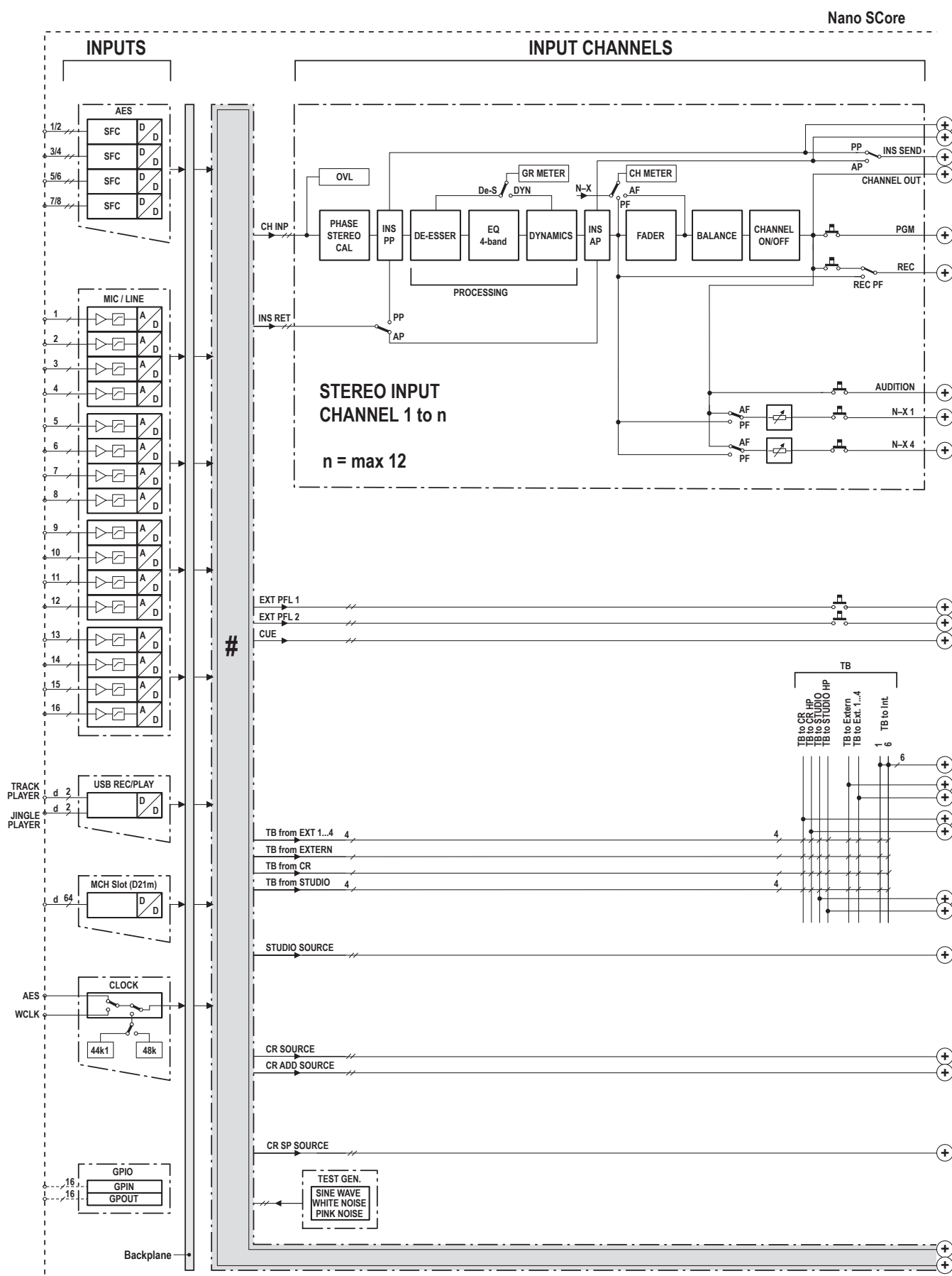


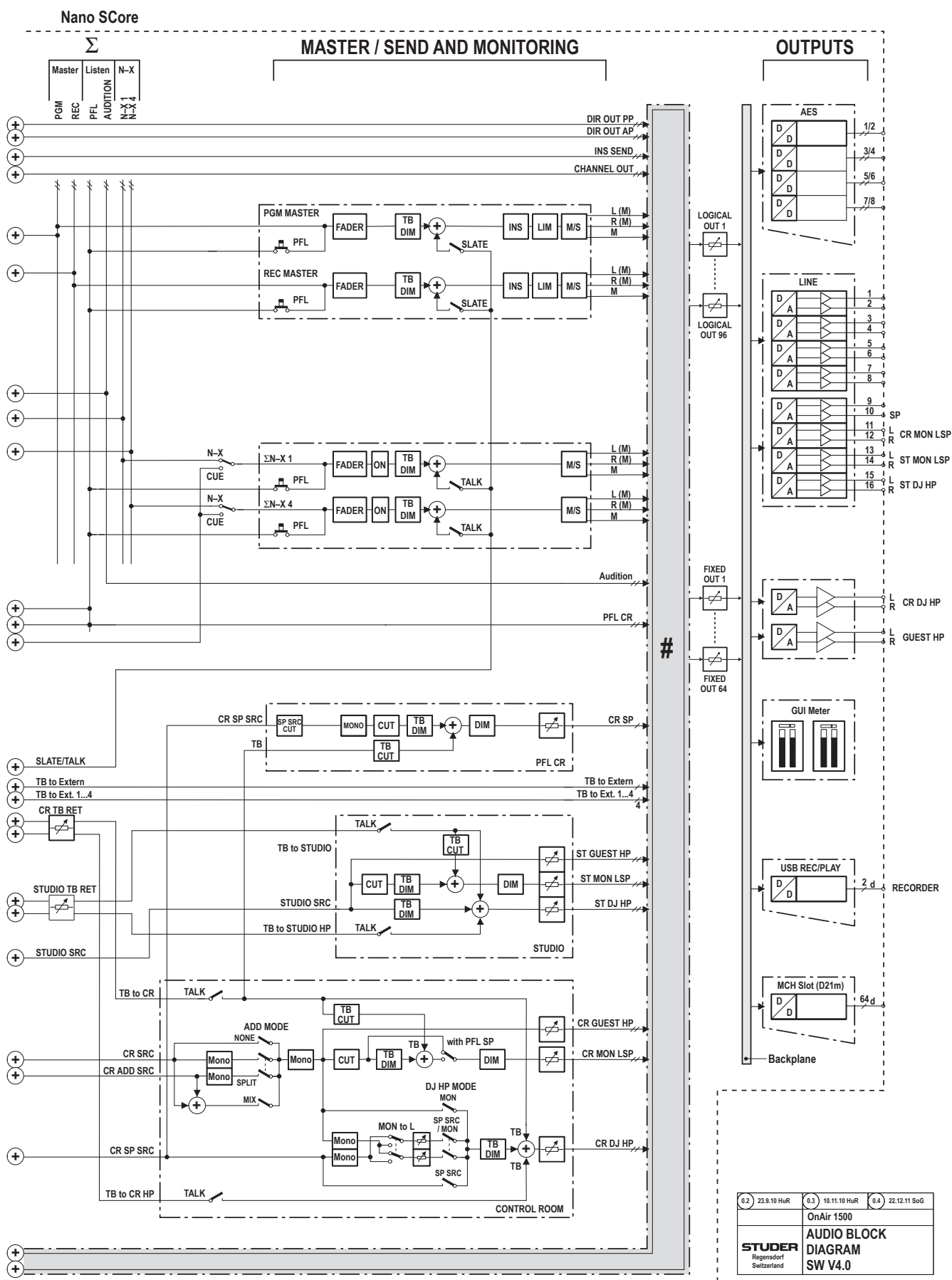
Main Features

- Modular design with extremely low-profile desk; I/O and DSP in separate Nano SCore
- 6-fader layout with 100 mm manual faders, may be upgraded to 12 faders by adding/attaching an optional 6-fader module
- OLED (Organic LED) displays in fader strips and central section for clear, high-contrast indication
- Red lights for on-air and open mic indication in control room and studio
- I/O in established signal formats (16 analog mic/line inputs, 16 line outputs, 4 stereo AES/EBU inputs with SRC, 4 stereo AES/EBU outputs, 8 channels of I/O on a USB socket). Additional, optional I/O in AES/EBU, MADI, ADAT, TDIF formats etc. available. 8 GPI/O for control purposes
- Every channel input with four-band parametric EQ and full dynamics (compressor, limiter, noise gate, expander, de-esser)
- One stereo program bus, one stereo record bus, one audition bus, and four stereo Mix-Minus (N-1/N-X/AUX) busses
- USB track recorder/player and USB jingle player
- Easy networking and integration thanks to I/O sharing ('Relink') and CMS (Studer Call Management System) support
- Complete integration with Radio Automation Systems; optional Ember and Monitors protocols via serial interface or tunnelled via TCP/IP
- Configurable router control via ProBel
- Connections for DVI computer screen and USB mouse/keyboard used during initial setup
- Configurable key functions in case customization is needed.

1.1 OnAir 1500 Audio Block Diagram

V4.0





1.2 Definitions, Acronyms, Abbreviations

	Description
AF	After-fader (as opposed to PF, 'pre-fader')
Bal	Balance (for stereo input sources)
Broadcast PFL	If the 'broadcast PFL mode' (also referred to as 'PFL cut on channel active' function) is enabled, audio signals are cut from the PFL bus if the channel is ON and the fader is open. In such a case the PFL key on the fader strip is illuminated in amber.
CAB	Computer-assisted broadcast (system)
CR	Control room
CUE	Listening after Pan, but before channel ON switch
DJ	Disk jockey
Masters	Main sums = PGM A, PGM B, REC
Mic	Microphone
N-X	Similar to N-1 / mix-minus / clean-feed
Pan	Panorama (for mono input sources)
PF	Pre-fader (as opposed to AF, 'after-fader')
PFL	Pre-fader listening
PFL Cut on Channel Active	If the 'PFL cut on channel active' function (also referred to as 'broadcast PFL mode') is enabled, audio signals are cut from the PFL bus if the channel is ON and the fader is open. In such a case the PFL key on the fader strip is illuminated in amber.
S2	Studio
TB	Talkback
USB	Universal Serial Bus
DVI	Digital Video Interface

1.3 Color Code

A consistent color coding of the different functions has been implemented. The color coding conventions are as follows:

Blue	Input functions, including high-pass filter and test generator
Green	Dynamics/De-Esser functions
Red	Equalizer (EQ) functions
Orange	AUX functions
Yellow	Fader and bus functions, including sums and N-X
Purple	Monitoring and talkback (TB) functions
Gray / Steel Blue	Other functions, such as routing, insert, snapshot and system administration

1.4 Momentary/Latching Key Activation

A lot of key presses during console operation are repetitive for comparing settings or to make quick checks for monitoring purposes. Studer has reduced the amount of needed key presses tremendously by incorporating a special logic for these cases. The control surface distinguishes long and short key presses and reacts accordingly: Pressing and holding a key will automatically reverse its activation upon release of the key – this is, however, applied only where appropriate. All keys featuring momentary/latching activation are labeled with a ⌚ symbol throughout this guide.

For example, holding down a talkback key for one second or longer will automatically cancel the talkback connection upon key release. If the connection should continuously be activated, just 'hit' the key without holding it.

Further examples are for momentary/latching operation are switching audio functions on and off (e.g. EQ, filters, dynamics), or PFL.

1.5 Options / License Key Code

When adding an option to the system (CAB, ProBel or CMS support, I/O sharing, USB track player/recorder), the System ID code is used together with the option's license key in order to generate the Option Key code that is entered using the configuration tool. Unavailable options will not be displayed.

For details on configuration refer to [chapter 6.5.31](#).

1.6 USB Memory Devices

Important



*Any USB memory device **MUST NOT BE REMOVED** from its socket **DURING DATA ACCESS** – only remove it after its LED has stopped flashing in order to avoid data loss!*

The **REC / PLAY** USB socket may, of course, also be used for an external hard drive. If this drive takes its power supply from the USB socket, its consumption must not exceed 500 mA. *Supplying the unit from an external supply unit is strongly recommended.*

REC / PLAY USB Media

For formatting memory devices for track recorder/player and jingle player refer to [chapter 5.15.1.3](#).

Login USB Stick

For creating a login USB stick refer to [chapter 5.16.4.1](#).

CHAPTER 2

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2 GENERAL

2.1 Utilization for the Purpose Intended

The OnAir 1500 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 which protects the units 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 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.

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

2.2.2 Accessories and Options

A943.074501, for 6-Fader Desk

Qty	Description	Part no.
2	Rotary knobs, black	C042.010520
2	Caps for Rotary knobs, black	C042.010613
2	Fader knobs, red	A911.000042
2	Fader knobs, orange	A911.000043
2	Fader knobs, yellow	A911.000044
2	Fader knobs, green	A911.000045
2	Fader knobs, blue	A911.000046
6	Key caps, printed OFF	A943.071033
6	Key caps, printed CUE/TB	A943.071035
12	Key caps, 12.5 × 12.5 mm	A943.071029
20	Key caps, 16 × 12.5 mm	A943.071030
+	Cat5 cable to Nano SCore, 5 m	C054.201048
+	RJ11 cable for PFL speaker, 5 m	A943.071094
+	Sheet with self-adhesive meter labels	A943.071019

A943.074503, for Nano SCore

Qty	Description	Part no.
1	Allen key 2,5 mm	C098.002023
2	USB-Sticks (User login / track recorder/player)	C089.200308
+	Mains cable, international	tbd
+	Quick start guide	BD10.943001
+	DVD-ROM	BD10.471000

A943.074503 to 6-Fader Ext.

Qty	Description	Part no.
6	Key caps, printed OFF	A943.071033
6	Key caps, printed CUE/TB	A943.071035
20	Key caps, 16 × 12.5 mm	A943.071030
1	Linking Set (2 threaded plates, 4 screws M4 × 8)	A943.074600
1	Allen key 3 mm	C098.002024
+	Cable Cat5/RJ45 shielded, to Nano SCore, 5 m	C054.201048

Options:

Description	Part no.
Rack/table mount kit for 6-fader desk	A943.074000
Table mount kit for 6-fader extension module	A943.074100
Monitoring/TB box OnAir 1500	A943.073000
+ Cable Cat5/RJ45 shielded, to Nano SCore, 20 m	C054.201078

2.2.3 Adjustments, Repair, Cleaning**Danger:**

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

Replacing the Supply Unit:

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

Cleaning:

Do not use any liquids to clean the exterior of the unit. A soft, dry cloth or brush will usually do.



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!*

2.2.4 USB Sockets

The OnAir 1500's Nano SCore is equipped with different USB slots that are used for different purposes:

Core, Front:**DATA / LOGIN**

Used for user login as well as for saving/loading console snapshots. This also offers a convenient possibility for backup purposes or for copying parameter settings from one console to a next one. *For creating a login USB stick refer to [chapter 15.4.1](#).*

**REC / PLAY
MCH I/O**

A USB memory device for recording or playing audio data connects here. Direct connection to a DAW for recording/playback of up to 8 channels. These two sockets cannot be used simultaneously. The **REC / PLAY** USB socket may, of course, also be used for an external hard drive. If this drive takes its power supply from the USB socket, its consumption must not exceed 500 mA. *Supplying the unit from an external supply unit is strongly recommended.*

Important

USB memory devices MUST NOT BE REMOVED from the socket DURING DATA ACCESS – only remove any of them after its LED has stopped flashing in order to avoid data loss!

For information on formatting USB memory devices refer to [chapter 1.6](#).

Core, Rear:

The two USB sockets at the rear allow connecting a USB mouse and keyboard in order to facilitate configuration settings if required.

2.3 Technical Specifications (preliminary; subject to change without notice)

2.3.1 Mic/Line Input

	Conditions/Details	Value
Gain	Individually adjustable per input in steps of 1 dB Phantom power +48 V and low-cut filter individually switchable per input	–5 to +58 dB for 0 dB _{FS}
Impedance	Electronically balanced	tbd
Frequency Response	0 dB gain, 20 Hz to 20 kHz	+0.1 dB / –1 dB
	58 dB gain, 20 Hz to 20 kHz	+0.1 dB / –3 dB
THD + Noise	–30 dB _{FS} , 0 dB gain, 20 Hz to 20 kHz	–107 dB _{FS}
	–1 dBfs, 0 dB gain, 1 kHz	–80 dB _{FS}
Equivalent Input Noise	Max. gain, R _i = 200 Ω	–123 dBu
Crosstalk	0 dB gain, 1 kHz	105 dB
	Max. gain, 1 kHz	87 dB
Common Mode Rejection Ratio (CMRR)	50 Hz to 16 kHz	–55 dB

2.3.2 Line Output

	Conditions/Details	Value
Impedance	Electronically balanced	tbd
Frequency Response	20 Hz to 20 kHz	+0 dB / –0.3 dB
THD + Noise	–1 dB _{FS} , 1 kHz	–90 dB
	–30 dB _{FS} , 20 Hz to 20 kHz	–103 dB
Crosstalk	1 kHz	–115 dB
Output Level	Globally adjustable with hardware switch (steps: +6, +9, +12, +15, +18, +20, +22, +24 dBu)	+6 to +24 dBu for 0 dB _{FS}

2.3.3 Ambient Conditions

Operating Temperature Range	0 to 40 °C (32 to 104 °F)
-----------------------------	------------------------------

2.3.4 Power Supply

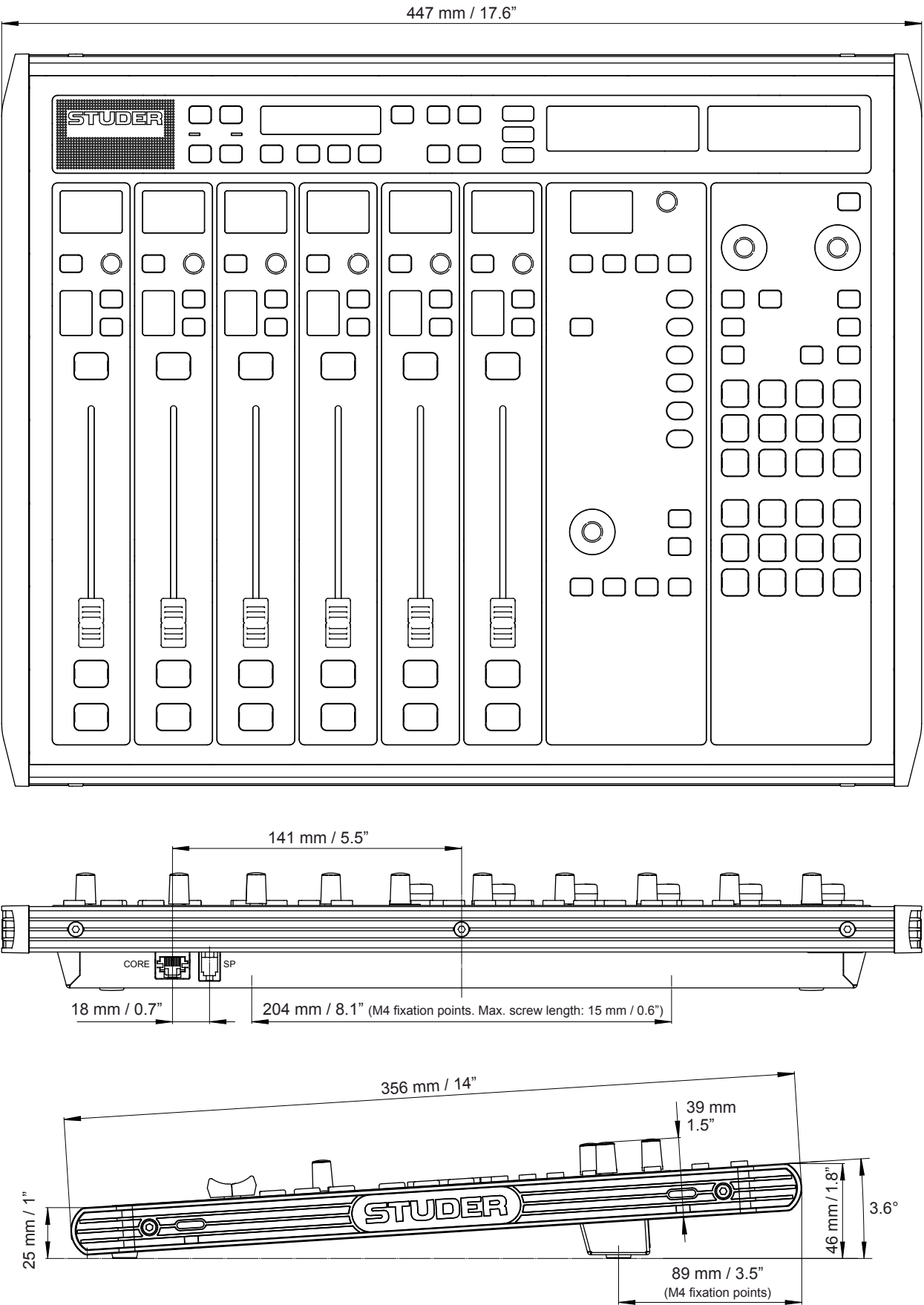
Primary Input Voltage Range	Auto-ranging, with power factor correction; EN/UL approved	80 to 240 V AC, 50 to 60 Hz
DC Input	For redundancy purposes	24 V DC
Power Consumption		max. 100 W

2.3.5 Weights

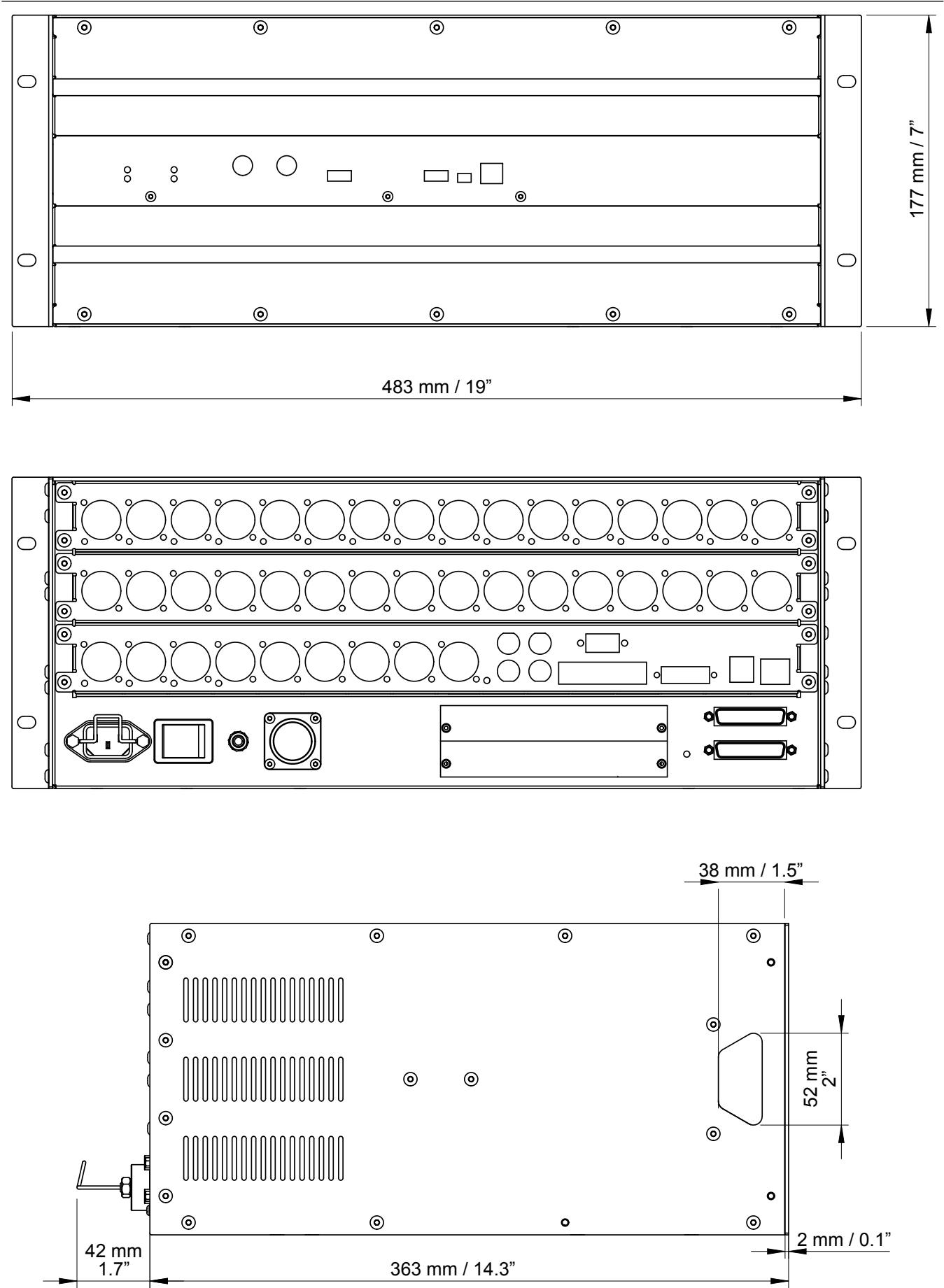
Desk	4 kg
6-Fader Extension	2.7 kg
Core	8.8 kg

2.3.6 Dimensions

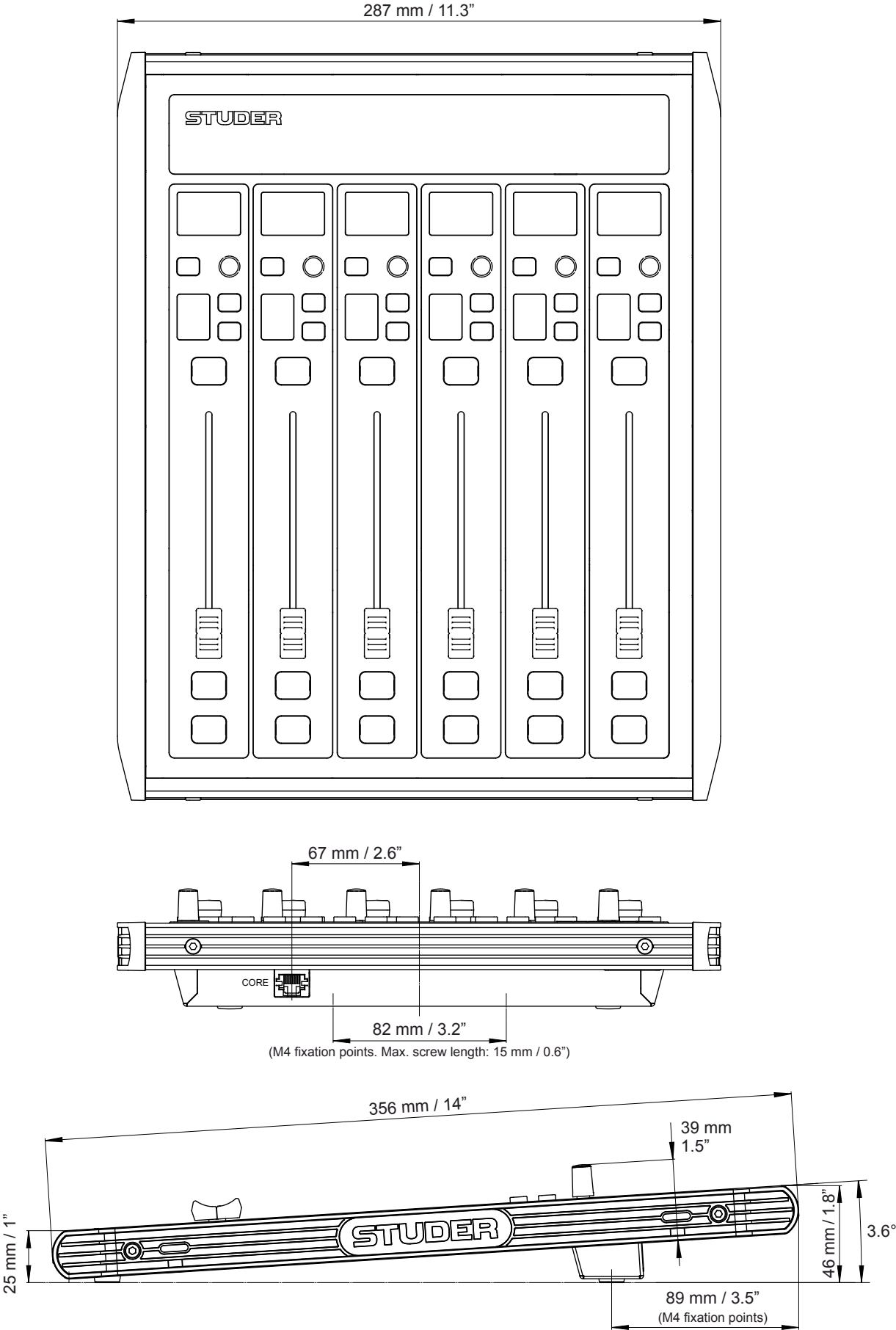
2.3.6.1 Desk Unit



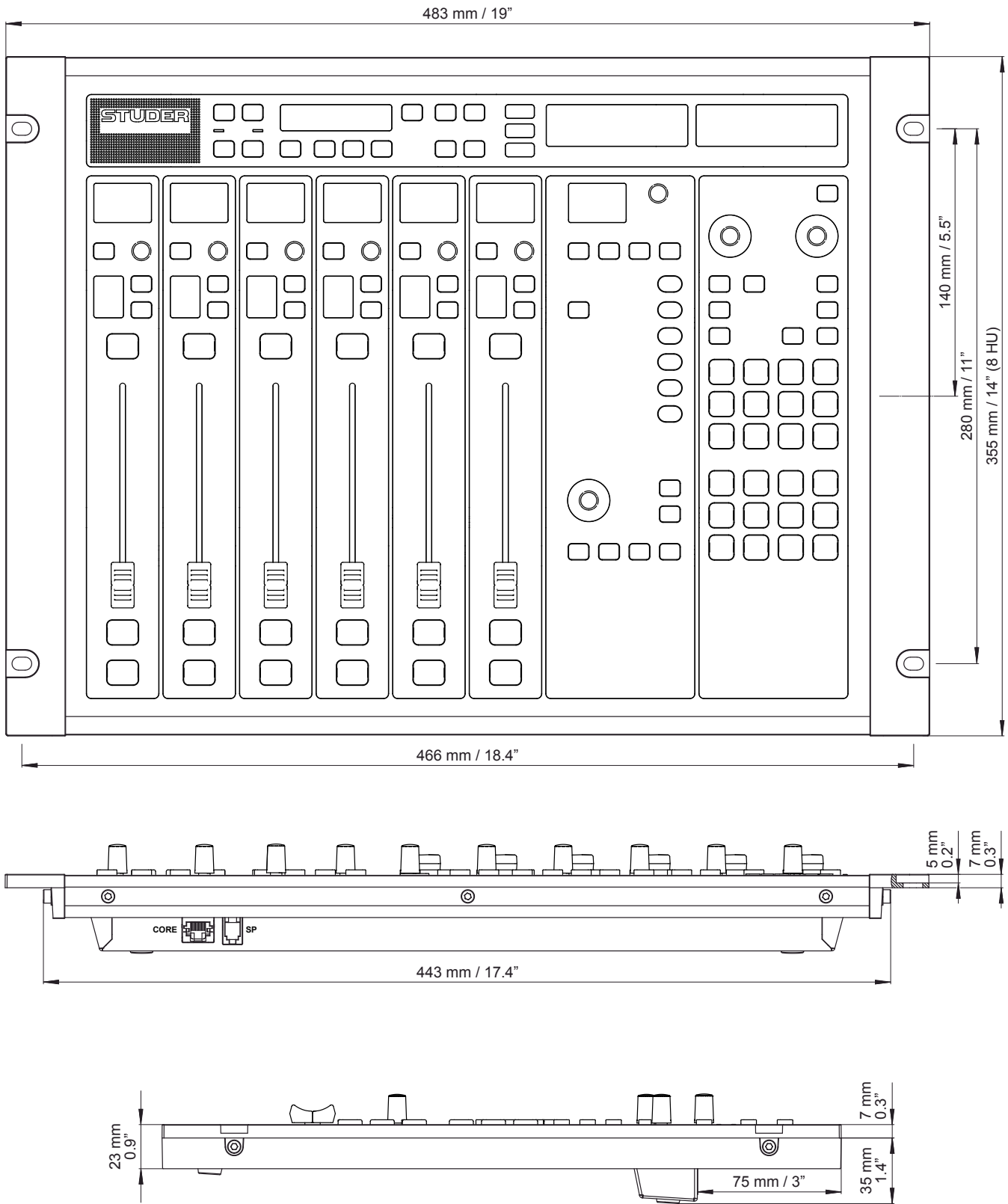
2.3.6.2 Core Frame



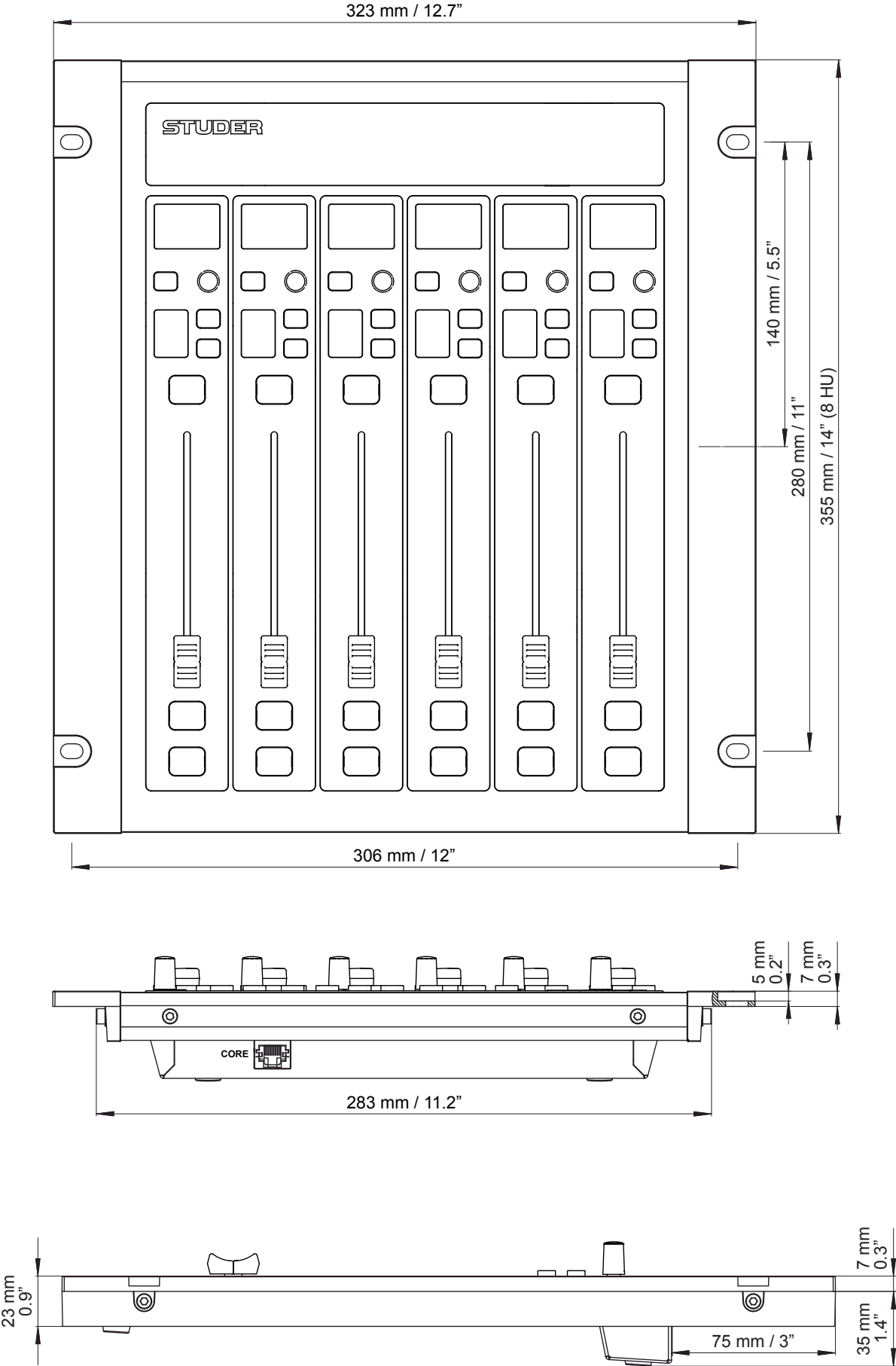
2.3.6.3 6-Fader Extension (Optional)



2.3.6.4 Desk Unit + 19" Rack / Table Mount Kit (Optional)



2.3.6.5 6-Fader Extension + Table Mount Kit (Optional)



CHAPTER 3

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3.5 System Power 7

3 SETUP

Important



It is presumed that all the preparatory steps described in the OnAir 1500 Quick Start Guide shipped with your console have been carefully performed. Nevertheless some information is repeated here for easy reference.

Location

The console must be set up on a flat surface. In any case, free air circulation must be guaranteed through *all* the air vents on the Nano SCore's bottom and sides. *The air vents must never be covered. The Nano SCore must not be placed on a soft surface, and the rubber feet at its bottom must not be removed.*

Temperature Regulations

The unit must not be used 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 0 to +40° C (+32 to +104° F).

Signal Connection

Connect your input and output signals. For a basic test hookup a digital signal (**AES/EBU IN**) or an analog microphone/line source (**MIC/LINE IN**) and a pair of active monitor loudspeakers (**CR MON LS**) or headphones (**CR DJ HP**) will be fine.

Mains 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.

Power Connection



Connect your signal input and output cables before connecting the console to the mains outlet. The supplied mains cable (with female IEC 320/C13 socket) must be connected to a mains plug matching your local standard (German/French, UK and US versions supplied) by a trained technician, respecting your local regulations. Plug the mains cable to the **100-240V ~ 100W 50-60Hz** mains inlet.

External PSU

An optional external/redundant power supply unit (PSU) can be connected to the **24V EXT** socket.

Earthing



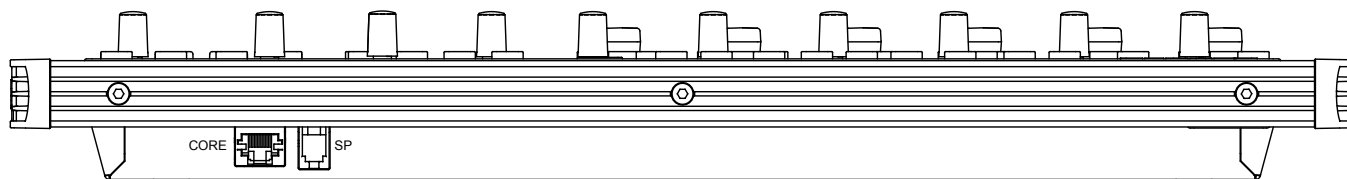
Some consideration must be given to the earthing arrangement of the system, at the center of which is the console chassis. The chassis is earthed to the mains earth via the power supply or the **GND** earth terminal. Ground loops may occur where signal processing equipment, patched to the console, has its signal earth commoned to the console chassis.



The console *must* be earthed, due to the mains input filter network being connected to the mains earth. 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 **GND** earth terminal.

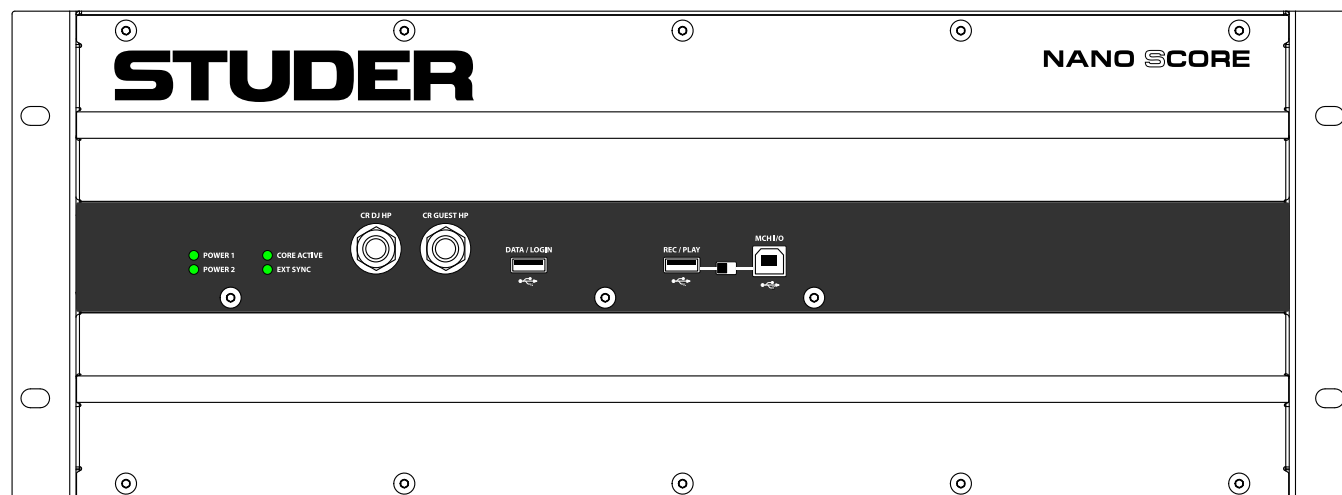
For additional information on ambient temperature, mains connection and earthing please refer to the Safety chapter at the very beginning of this manual.

3.1 Desk Rear View



- The OnAir 1500 desk has two connectors only:
- CORE** (RJ45) for the Cat5 link to the core, and
 - SP** (RJ11) for the analog audio link from the core's **(SPEAKER)** XLR socket to the integrated PFL speaker.
- Note:** The **CORE** cable is not only used for communication between desk and core but also for supplying power to the desk.

3.2 Core Front View



CR DJ HP / CR GUEST HP
DATA / LOGIN

Stereo TRS headphones sockets for the DJ and a guest in the control room. USB socket used for the user login memory stick and for data backup purposes.

REC / PLAY

USB socket used for a USB memory device for jingle playback or track recording and playback; **current consumption must by all means be less than 500 mA.**



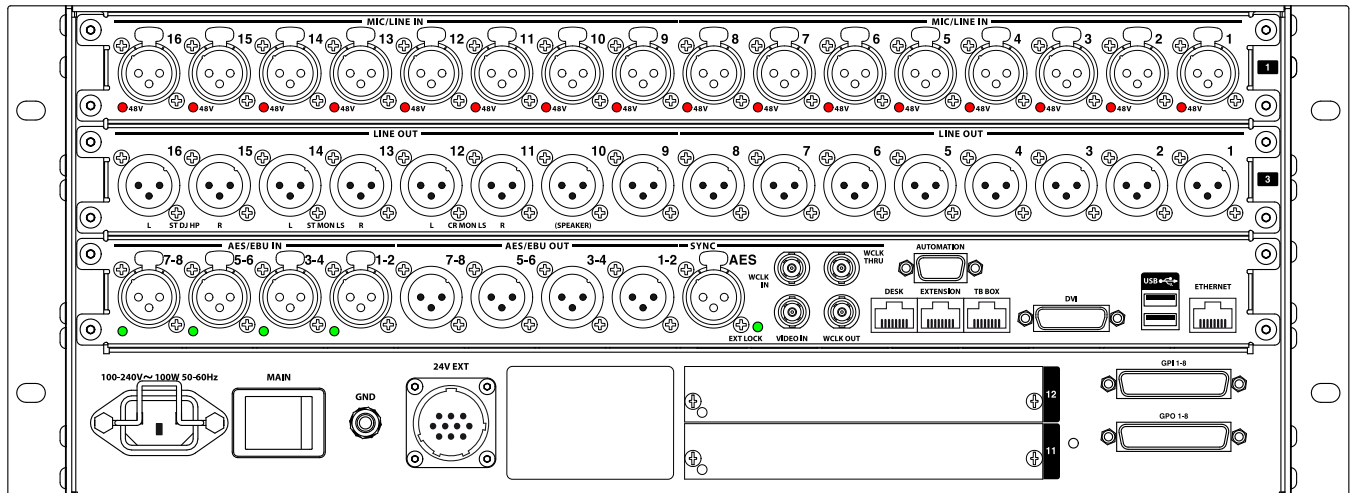
MCH I/O

For USB hard disk drives connected to this socket an external power supply is strongly recommended.

Note:

USB 8-channel digital audio link to a DAW (digital audio workstation). **REC / PLAY** and **MCH I/O** cannot be used simultaneously; the desired socket must be selected with the slide switch between them.

3.3 Core Rear View



MIC/LINE IN

The rear side of the Nano SCore features the following elements:

16 electronically balanced inputs on female XLRs with remote-controlled individual gain, low-cut filter and 48 V phantom power.

LINE OUT

16 electronically balanced line outputs on male XLRs with globally jumper-selectable output level.

Please note that the line outputs no. 10-16 are per default assigned to monitoring lines (10: **(SPEAKER)**, 11/12: **CR MON LS**, 13/14: **ST MON LS**, 15/16: **ST DJ HP**).

AES/EBU IN / OUT

4 stereo AES/EBU digital inputs and outputs each.

SYNC

3 different external **SYNC** inputs:

AES for synchronization to an external AES/EBU signal on a female XLR, **WCLK IN** for synchronization to an external word clock signal on a BNC socket (looped through to **WCLK THRU** for daisy-chaining several units), **VIDEO IN** for synchronization to an external video signal on a BNC socket. For syncing external units to the internal word clock, **WCLK OUT** is used.

AUTOMATION

DESK / EXTENSION / TB BOX

9-pin D-type connector for communication with a CAB system.

3 RJ45 sockets for the links to the desk, to an optional 6-fader extension unit and to an optional, external talkback box.

DVI and USB

These sockets may be used for a computer screen, keyboard and mouse. They are used for the initial console setup or later, if an individual system configuration is required. They can also be thought of as an emergency scenario if the desk should fail – the user GUI is very similar to the one known from the OnAir 2500 and OnAir 3000 consoles, with the exception that, of course, the computer screen has no touch functionality.

ETHERNET

RJ45 network socket used for RELINK (I/O sharing) and other networked applications.

100-240V ~ 100W 50-60Hz

Mains input on an IEC 320/C13 socket.

MAIN

Main power switch for the whole system.

GND

4 mm ground/earth terminal.

24V EXT

Connector for an external 24 V DC power supply (may be used for redundant supply, too).

11, 12

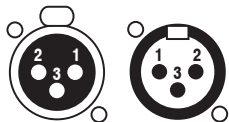
D21m card slots for two single-width or one double-width card(s) for input and/or output expansion.

GPI / GPO 1-8

General-purpose inputs and outputs for control signals, such as red light or fader start.

3.4 Connector Pin Assignments

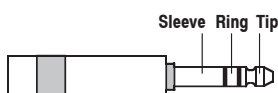
MIC/LINE IN
LINE OUT
AES/EBU / SYNC IN / AES/EBU OUT



(XLR 3f)
 (XLR 3m)
 (XLR 3f/m)

Pin	Signal (Input)	Signal (Output)
1	Screen	Screen
2	In +	Out +
3	In –	Out –

CR DJ HP / CR GUEST HP



(Headphones, 6.3 mm TRS socket)

Pin	Signal
Tip	Left
Ring	Right
Sleeve	Screen/GND

GPI / GPO 1-8



General purpose I/O (25-pin D-type, fem., UNC 4-40 thread; plugs supplied)

Pin	GPI 1-8	GPO 1-8	Pin	GPI 1-8	GPO 1-8
1	GPI 1a	GPO 1a	14	GPI 1b	GPO 1b
2	GPI 2a	GPO 2a	15	GPI 2b	GPO 2b
3	GPI 3a	GPO 3a	16	GPI 3b	GPO 3b
4	GPI 4a	GPO 4a	17	GPI 4b	GPO 4b
5	GPI 5a	GPO 5a	18	GPI 5b	GPO 5b
6	GPI 6a	GPO 6a	19	GPI 6b	GPO 6b
7	GPI 7a	GPO 7a	20	GPI 7b	GPO 7b
8	GPI 8a	GPO 8a	21	GPI 8b	GPO 8b
9	GND (0 V)	GND (0 V)	22-25	V _{CC} (+5 V) *	V _{CC} (+5 V) *
10-13	GND (0 V)	GND (0 V)	* 600 mA max. total		

Inputs

Control inputs (GPI Xa/b) are fully independent and electrically isolated. They may be used either with the internal +5 V DC (V_{CC}) supply voltage, or with external voltages of 5...24 V DC, regardless of the polarity.

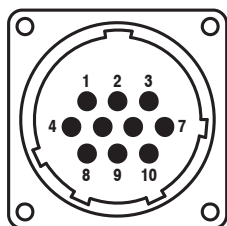
Outputs

Control outputs (GPO Xa/b) are fully independent, electrically isolated relay contacts, active closed. Contact rating is max. 0.5 A / max. 170 V DC / max. 10 VA. The internal +5 V DC (V_{CC}) supply and/or the ground (GND) terminals may be used to generate an output signal.

Note:

Total current drawn from all +5 V DC terminals must not exceed 600 mA.

24V DC IN



(10-pin Hirose, male)

Pin	Signal
1	+22...28 V DC
2	+22...28 V DC
3	n.c. (no internal connection)
4	Power alarm output
5	n.c. (no internal connection)
6	n.c. (no internal connection)
7	n.c. (no internal connection)
8	GND
9	GND
10	Power alarm enable

3.5 System Power

Power Supply

The OnAir 1500's Nano SCore is equipped with an autoranging primary power supply unit (input voltage range 80...240 V AC/50...60 Hz) with power factor correction. The mains switch is located at its rear, next to the power inlet.

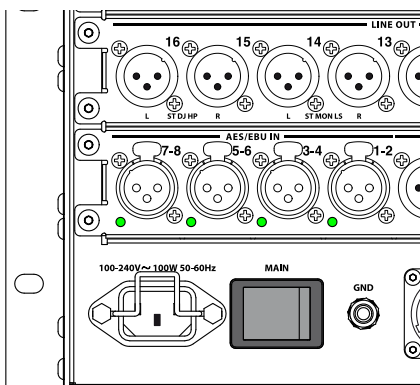
The power supply is EN and UL approved.

Redundancy

The console can be equipped with a second, external 1U power supply unit supplying 24 V DC for redundancy, in addition to the mains power inlet.

UPS

For extra safety against line loss cases, supplying the console by an UPS (un-interruptible power supply) is recommended.



The console is normally switched on and off with the studio master mains switch; it may also be switched on and off with the mains switch on the core or with the one of the external PSU (if used) without any audio parameter settings getting lost.

CHAPTER 4

4 **Operating Elements 3**

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 4.2.1 FUNCTION Controls (‘Rotary Assign Keys’) 6

 4.2.2 MASTER Controls..... 7

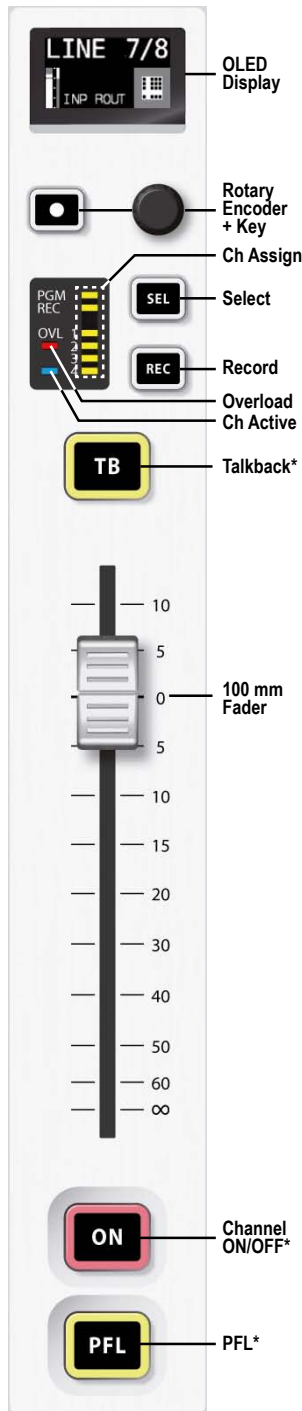
 4.2.3 MONITORING and Talkback Controls 7

 4.2.4 Meter Bridge 8

 4.3 Compact Monitoring/TB Box 11

4 OPERATING ELEMENTS

4.1 Fader Section



The fader section with the OLED (organic LED) display contains six fader strips (*only one of them shown in the illustration on the left; approx. 60% original size*).

The fader strip has been designed with a minimum of operating elements. Parameter settings are available through the new feature nicknamed ‘Mini Vistronics’ or via an external screen, mouse and keyboard. Rarely used and system administration functions (such as system configuration) can be accessed via the external elements only. These are normally connected to the console only if used.

Every fader strip contains 3 large keys the functions of which depend on the selected setup, the fader, a rotary encoder with associated  key, and a graphical OLED channel label display.

There is an additional indicator field with a red overload LED, six yellow LEDs for channel assignment indication, and a blue channel-active LED. A channel is considered as ‘active’ if it is switched ON, its fader is open, this channel is assigned to an master bus, and the master control is open.

* The large keys have snap-on caps for convenient labeling. This allows for example to have **ON** and **OFF** keys at the lower end of the channel strip if required, or to assign a different function such as fader start to the **TB** key if the source is e.g. a CD player. These settings are input source-related and will automatically follow the source in case the routing is changed. The illustration at the left shows the factory default key labeling.

ON Pressing the key toggles the channel on/off function (default configuration). In the audio path, the on/off switch is located *after* fader and panning. On status is indicated by illuminating the key.

* This key may also be a channel **ON** key only (if setup 2 is active).

Channel on/off is disabled if the channel strip is configured as master fader.

 **PFL** The purpose of **PFL** (‘pre-fader listening’) is to feed the pre-fader audio signal of the desired channel, AUX send or master (program, record) to the PFL bus. If active, the key is illuminated in yellow.

If the ‘PFL Cut on Channel Active’ function (also referred to as ‘broadcast PFL mode’) is enabled, audio signals are temporarily cut from the PFL bus as long as the channel is **ON** and the fader is open. In such a case the **PFL** key is illuminated in amber.

* This key may also be a channel **OFF** key (if setup 2 is active).

 **TB** For N–X owner channels, this key’s function is **TB** (talkback) to the N–X return. If more than one owner is configured to the same N–X output, all corresponding **TB** keys work in parallel.

* This key may also be a **TB/CUE** key (if setup 2 is active). The purpose of **CUE** is to feed the after-fader, after-pan and pre-ON audio signal of the desired channel, AUX send or master (program, record) to the PFL bus. If active, the key is illuminated in yellow.

REC The **REC** function is used to assign the channel signal directly to the record bus, regardless of the fader position, the **ON** key, and the bus assignment. If active, the key is illuminated in red.

SEL If one of the oval function keys in the central section is active, the 'Mini Vis-tonics' view for parameter editing is activated for this channel upon pressing this key.

Assignment Display At the left of the **REC** and **SEL** keys an indicator field with a red overload LED, six yellow LEDs for channel-to-bus assignment indication (for PGM, REC, and N-1 1-4 busses) and a blue channel-active LED. A channel is considered as 'active' if it is switched ON, its fader is open, this channel is assigned to an master bus, and the master control is open.

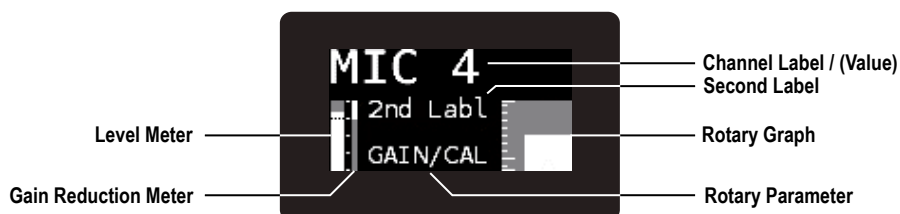
Fader Since the audio path is fully digital, the signal does not pass through the faders; linear-track mono faders with a stroke length of 100 mm are used. When opening the fader, fader start or signaling commands can be released, depending on the configuration.

Rotary A rotary encoder and its  key are available in every fader strip. The function of these elements can be assigned with the **FUNCTION** keys in the central section. If the rotary knob in the fader strip is touched, the channel label display shows the corresponding value, depending on the selected function. Several functions are selectable, such as input routing, input gain, balance, N-X level, etc. The adjacent  key can be, e.g., 'Enter' or 'On'/'Off', depending on the selected function.

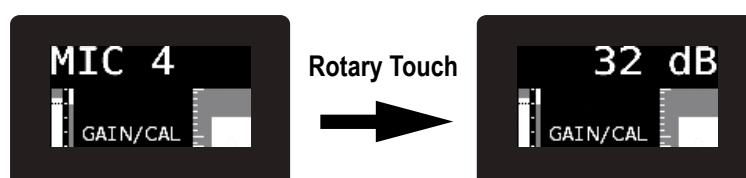
OLED Display, Global View Mode The OLED display in the channel strip normally is in global view mode; i.e. it displays what is selected either with the four **FUNCTION** keys or the   rotary knob in the central section. If a logical input is assigned to the channel strip, it indicates the channel label, a second label (blank except in I/O sharing mode or during input routing), level and gain reduction bar graphs, the rotary graph as well as the function currently assigned to the rotary knob ('rotary parameter').

As long as the rotary knob is touched, the channel label displays the current parameter value.

There is a function called 'screen saver' available for the OLED displays. It automatically reduces the display's brightness after a configurable period of time. The original brightness is restored as soon as a desk key is operated or a touch-sensitive knob is touched. Using this function is strongly recommended in order to increase the lifetime of the OLED channel displays.

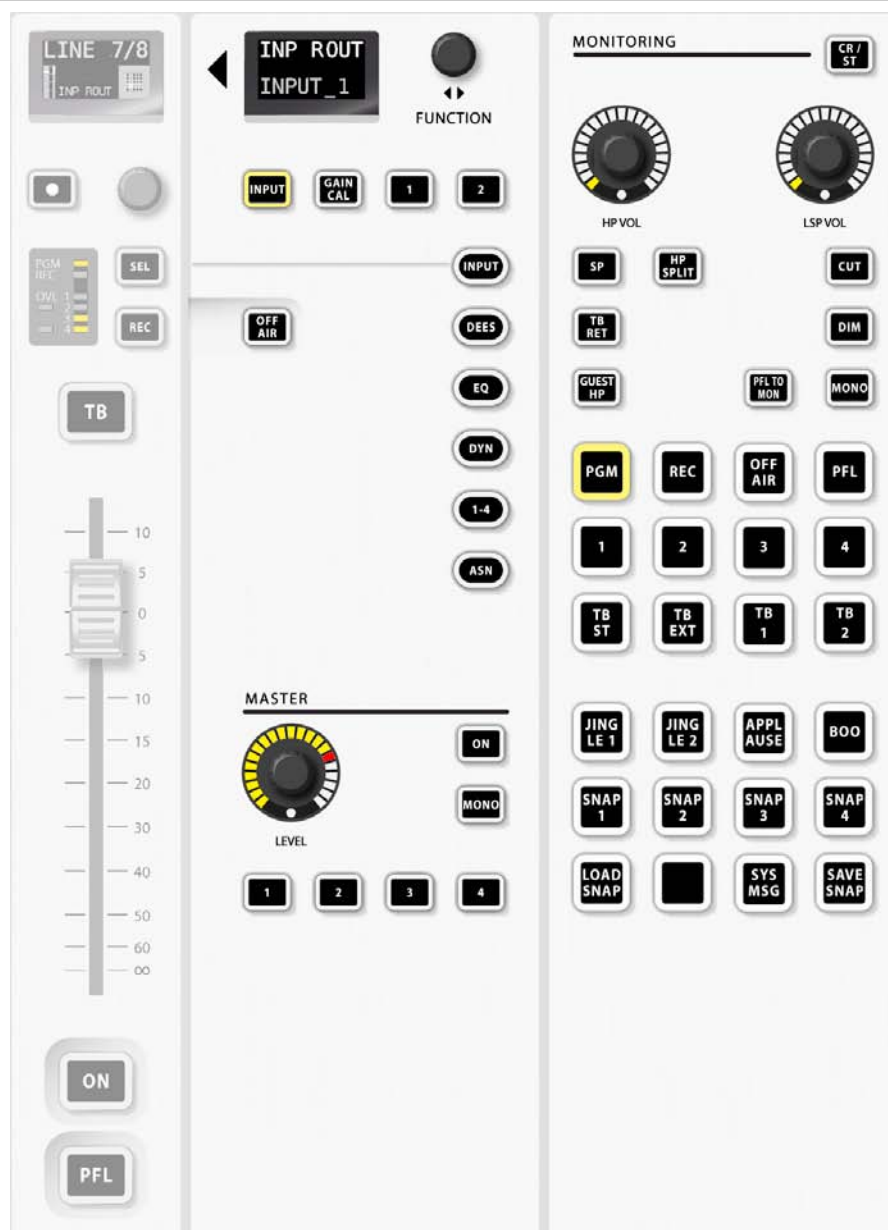


Label The 8-digit *channel label* area normally indicates the (local or remote) channel label if a logical input is assigned to the channel strip. As long as its rotary knob is touched, the display shows the current parameter value, depending on the selected function.



Second Label	The <i>2nd label</i> area is used exclusively for indication of the I/O sharing producer system name. It is blanked as long as the rotary is touched, except during input channel routing.
Rotary Parameter	The <i>rotary parameter</i> area indicates the parameter name if a rotary function is assigned to this channel.
Rotary Graph	The <i>rotary graph</i> area shows a graphical representation of the value of the assigned rotary function.
Level Meter	A small bar graph <i>input level meter</i> is provided in each channel's OLED display, either indicating the input level, or the N-X or AUX send level of the channel (configurable). The value indicated on the meter is depending on the console's headroom setting (default value: 0 dB indication for $-9 \text{ dB}_{\text{FS}}$).
<i>N-X or AUX Send Level Indication:</i>	In this mode the level meter indicates the N-X or the AUX send level of the channel.
<i>Overload Indication, Analog Inputs:</i>	As soon as one sample at an analog input reaches full scale modulation, the overload indicator is on for approx. 300 ms (the idea is that the probability of an A/D converter reaching full scale without clipping is close to zero. Any full scale levels within the path are considered to be overloads).
<i>Overload Indication, Digital Inputs:</i>	Full scale modulation at a digital input is not considered to be an overload – it is simply the output level of a source.
<i>Overload Indication, REC/PGM Outputs:</i>	If one sample of an output signal reaches full scale, the corresponding overload indication is on for approx. 300 ms.
<i>Auto Take-Over Indication:</i>	The physical value and the internal, processed value of the fader may be different. This can be the case after routing, snapshot, or CAB changes. If the values are different, auto take-over mode is enabled. The channel display indicates by FDR UP or FDR DOWN in which direction the fader knob has to be moved. As soon as the fader knob has been moved a bit, the display changes to a numerical value, such as -15 UP or 27 DOWN. When the fader position matches the internal value, TAKEOVER flashes three times; the whole process is quite self-explanatory.
Gain Reduction Meter	The narrow, upside-down bar graph in each channel's OLED display is used as a <i>gain reduction meter</i> . It is activated if the channel's compressor/limiter is active; it can also be configured to be active in De-Esser mode.
OLED Display, Local View Mode	Local view mode is also referred to as 'Mini Vistronics' view. When pressing, e.g., the EQ key in the central section's FUNCTION area, it is illuminated in red. If selecting now any of the channels by pressing its SEL key, the light bars at the bottom of the channel OLED displays are illuminated in red as well. Only this channel's label is displayed, and its SEL key is illuminated now. All other channel labels are blanked, so that the user clearly sees what he adjusts and in which channel. The parameters of this particular channel are displayed on the OLED displays and can be adjusted with the corresponding rotary encoders. The different parameters can be switched on or off using the corresponding  keys. Inactive parameters are indicated by greying them out. If a complete parameter set such as the EQ section can also be switched on/off as a whole, always the  key at the far right is used for this purpose. If a function has more than six parameters – such as the EQ or DYN sections – pressing its oval key successively toggles through all available parameter 'pages'. This whole process is very intuitive, just have a go with it! For more details refer to chapter 5.2.2 .

4.2 Central Section



4.2.1 FUNCTION Controls ('Rotary Assign Keys')

Rectangular Keys

The four rectangular keys in the top row - **INPUT**, **GAIN/CAL**, **1** and **2**) are used for input routing, gain/cal and AUX bus 1/2 settings. Less important functions without dedicated keys – such as pan(orama) or bal(ance) – are selected with the ◀ ▶ rotary knob in the **FUNCTION** field. These elements assign so-called 'global views' to the channel OLED display and to the  key and rotary knob directly below it.

The single **OFF AIR** key activates the off-air recording functionality for all channels that are in **REC** mode. This is an exclusive routing to the recording bus, in contrary to a simple bus routing to a recording output in parallel to the program output.

Oval Keys The oval keys in the **FUNCTION** area (**INPUT**, **DEES**, **EQ**, **DYN**, **1-4**, **ASN**) are dedicated to assign functions to the encoders and their  keys in the fader strips. The function of the  key depends on the selected parameter and can be, e.g., On/Off or Enter.

When pressing, e.g. the oval **EQ** key, it is illuminated in red. If selecting now one of the channels by pressing its **SEL** key, the light bars at the bottom of the channel OLED displays are illuminated in red as well. This is called local view mode (nicknamed ‘Mini Vistonics’).

Only the selected channel’s label is displayed, and its **SEL** key is illuminated now. All other channel labels are blanked. The parameters of this particular channel are displayed on the OLED displays and can be adjusted with the corresponding rotary encoders. The different parameters can be switched on or off using the corresponding  keys. Inactive parameters are indicated by greying them out. If a complete parameter set such as the **EQ** section can also be switched on/off as a whole, always the  key at the far right is used for this purpose.

If a function has more than six parameters – such the **EQ** or **DYN** – pressing its oval key successively toggles through all available parameter ‘pages’. This whole process is very intuitive, just have a go with it! For more details refer to [chapter 5.2.2](#).

4.2.2 MASTER Controls

There is one master rotary control in this section for setting the N–X 1-4 bus send levels (or AUX send levels, if configured). Its function can be assigned to the desired bus with the **1-4** keys. The send level of the currently selected bus is displayed by the LED ring around the rotary control; if the user has no access to send levels the red LED at the bottom of the ring is on. In addition, the currently selected bus can be switched on/off with the **ON** key and switched to mono with the **MONO** key; these keys are illuminated if active. The PGM and REC bus send levels can be set on the GUI’s **Sum - Master** page (refer to [chapter 5.12.3.1](#)), or with a dedicated fader if configured.

4.2.3 MONITORING and Talkback Controls

The monitoring section primarily controls the control room (CR) and studio monitoring. Two rotary controls with LED rings by default set and indicate the volumes of the DJ headphones and the CR monitor loudspeakers.

CR/ST Shifts the whole monitoring section to control the studio monitoring, if illuminated; all functions indicated are now displaying the studio settings. By pressing the momentary keys below the rotary controls, their functions are modified to control:

SP The volume of the built-in PFL speaker

TB RET The volume of the talkback return signal

GUEST HP The volume of the guest headphones.

HP SPLIT Activates split mode for the DJ headphones – where the left ear listens to mono PFL, and the right ear follows the mono monitoring source. 6.3 mm TRS jack sockets for the DJ and Guest headphones as well as line outputs dedicated to CR and studio monitoring are available on the core.

CUT Cuts (mutes) the monitor loudspeakers if pressed, or indicates a cut event if illuminated.

DIM	Dims (attenuates) the monitor loudspeakers if pressed, or indicates a dim event if illuminated.
MONO	Sets the monitor loudspeaker signal to mono if pressed.
PFL TO MON	If active, the PFL signal is switched to monitoring as soon as at least one channel PFL key is activated.
CR/ST	Shifts the whole monitoring section to control the studio monitoring, if illuminated; all functions indicated are now displaying the studio settings.

The 24 *square keys* in the lower part of this section have transparent snap-on caps; if their functions need to be re-configured, corresponding transparent labels (i.e. printed onto OHP transparencies) may be inserted below the caps. The factory default configuration is as follows:

Monitoring Source Selectors:

PGM, REC, OFF AIR, PFL
1-4

For listening to the **PGM**, **REC**, **OFF AIR**, and **PFL** busses.

For listening to the AUX and N-X busses.

Talkback Destination Selectors:

TB ST
TB EXT
TB 1, TB 2

For communication to the studio,

to an external line, and

to the AUX1 and AUX2 busses.

Jingle Player Keys:

For selecting two different station identifier jingles (**JINGLE 1** and **JINGLE 2**) and sound effects (such as **APPLAUSE** and **BOO**ing sounds) from a USB stick plugged to the core.

Snapshot Keys: **SNAP 1-SNAP 4**

For recalling and saving snapshots. These keys have to be pressed while **LOAD SNAP** or **LOAD SNAP** is held.

LOAD SNAP
SAVE SNAP

For loading a global snapshot from the console's memory to the desk.

For saving the current console settings in a private user snapshot.

SYS MSG

Whenever there is a system message from the console (such as a user warning or an error message), this key starts flashing. If pressing it, the OLED display next to the ◀ ▶ rotary knob will display the corresponding help or error information. Should more than one message be active, they can be recalled one after the other by multiple presses of **SYS MSG**. Once all messages have been displayed, the key becomes dark again.

4.2.4 Meter Bridge



The most important section of the meter bridge is the one with the **PROGRAM** and **MONITOR** level meters. Both are 29-segment stereo bargraph meters with an additional correlation display. 6 different meter characteristics may be configured (but only identical characteristics for both the **PROGRAM** and **MONITOR** meters are possible). A yellow correlation meter bargraph is available in both **PROGRAM** and **MONITOR** level meter fields.

The **ON AIR**, **CR** and **ST** lamps indicate red light conditions.

The 7-segment display normally indicates time-of-day but can be switched over to act either as a fader or user stop watch or a countdown timer (refer to [chapter 5.8](#)).

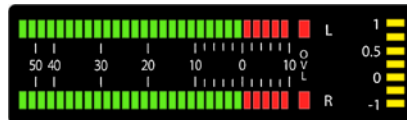
Note: The USB player/recorder keys (**PGM BUS**, **REC BUS**, **REC ●**, **STOP II / ■**, **REC INFO**) are supported since SW V4.1. For details refer to [chapter 5.15](#).

Level Meter Characteristics:

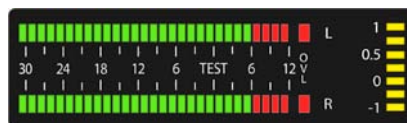
One out of six different meter characteristics can be selected for the main level meters. The selection is performed with the configuration tool.

Available characteristics: PPM DIN (peak program meter), NordicAnalog, NordicDigital, VU Standard, British Standard or Digital FS (full scale) meter. Additional, red clipping indicators are provided at the top of the LED bargraphs.

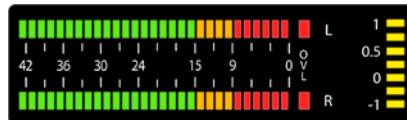
PPM DIN



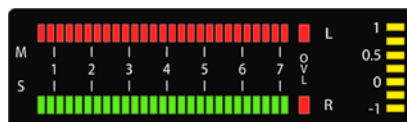
NordicAnalog



NordicDigital



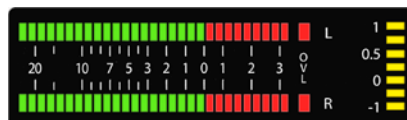
British Standard, L/R Mode



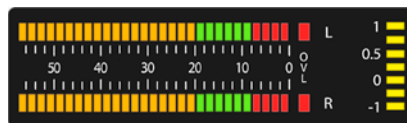
British Standard, M/S Mode



VU Standard



Digital FS



Note: For the Digital FS meter scale, the transition between the green and red areas depends on the current headroom setting; the picture above shows the default headroom setting of 9 dB.

Correlation Meter:

The correlation meter gives a clear indication of the signal's mono compatibility. The higher (i.e. the more *positive*) the indication, the *better* the compatibility. In case of a strong and persistent *negative* indication, a phase inversion problem may be present.

Meter Scale Labels:



For each of the meter characteristics two self-adhesive meter scale labels are provided. Attach the desired labels in the two meter recesses.

Proceed with care – labels once attached are difficult to be removed without damaging the surface of the LED bargraph modules or the label itself. If you are sure that the label will have to be changed sometime, you may want to consider either not to fix it at all by attaching it on a thin, transparent material such as OHP transparency film and laying it into its recess (however it may

get lost in this case), or by attaching it with a thin, transparent, double-sided adhesive tape that can easily be removed (such as Scotch® Poster Tape).



If a label needs to be removed after the adhesive has settled, there are two possibilities. *In both cases first power the console off and disconnect the 2 cables at the desk's rear.*

- If you don't mind losing the label, cut it in two parts with a sharp knife at about 16-17 mm from the right-hand edge (there is a narrow gap between the level and correlation bargraph modules underneath the label). The two parts can be peeled off easier then. Residual adhesive on the bargraph modules can easily be rubbed off (with your fingers or a soft vinyl eraser) or patted away with some adhesive tape. *Do not use any solvent for cleaning the bargraph modules!*
- If you want to retain the label, the procedure is somewhat more complicated and requires removing the desk's top panel.
 - Remove the front, rear and side trim strips (or rack mount hardware – Allen key no. 3).
 - Pull off all rotary and fader knobs and set all fader sliders to approx. their center position. Cover your work surface with a clean layer of soft material such as foam rubber and place the desk upside-down on it.
 - Remove the 20 screws accessible through the holes in the bottom cover and lift it off (Allen key no. 2.5). The smaller screws (Allen key no. 2) fix the cross brace to the bottom cover and should not be removed.
 - The large PCB is fixed to the top panel with several latches at its edges. Start in one corner and manually unclip the latches one by one while carefully lifting the PCB up. Once the PCB is completely loose it can be flipped over.
 - Thoroughly heat the label to approx. 50-60 °C (120-140 °F) with a hair dryer before attempting to remove it. Pulling it away very slowly may help that most of the adhesive remains on the label.
 - Store the label on the label sheet for later use. Any residual adhesive on the bargraph modules can easily be rubbed off (with your fingers or a soft vinyl eraser) or patted away with some adhesive tape. *Do not use any solvent for cleaning the bargraph modules!*
 - Reassembly is in the opposite order. Make sure to set the fader sliders to approx. their center position before positioning the PCB in the top panel. *When inserting the screws make sure that they smoothly fit into their threads by turning them counterclockwise first until you hear/feel a click.* Then turn clockwise to tighten them – but don't overdo it. Remember: Right after very tight comes very loose :-)

4.3 Compact Monitoring/TB Box



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

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

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5 OPERATION

The user surface is based on the desk hardware. In case an additional GUI is desired, a DVI monitor screen and a USB keyboard/mouse can be connected to the Nano SCore, in the same way as for the initial console setup.

The standard OnAir 1500 operating mode makes use of the direct access keys supported by the OLED displays in the fader strip. The very same parameters can be accessed by going through the menu pages on the external screen and selecting the desired channel there.

In addition to these hardware elements on the desk and the optional GUI, the OnAir 1500 can also be operated by a PC or laptop computer running Windows 2000 or XP, remotely emulating the OnAir 1500 user GUI over a network. All hardware controls, such as keys and rotary encoder emulations (except the user stopwatch **START** and **STOP** keys) are available in the remote GUI and can also be operated with a mouse device. This is convenient for service personnel, but may also be thought of as a further redundancy scenario for the desk hardware.

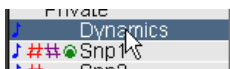
5.1 Mouse and Keyboard Operation (Advanced Users Only)

For the initial setup, the console must be operated from an external USB keyboard and mouse, together with a DVI monitor screen. Experience showed that an (S)VGA monitor with a DVI adapter will not work. The screen display will be familiar for users having operated the OnAir 2500 or OnAir 3000 systems before, except that the external screen doesn't feature the touch functionality. The following rules apply for operation:



Button 'Touch'

Left-click (e.g. for user login, or for switching phase inversion on the **CHAN Input** page on/off, as shown left).



List Selection

Either right-click on the desired item (e.g. selection from the snapshot list), or use the rotary emulation mode, as described below.



Routing Matrix

On every routing page displaying the routing matrix (input, output, mic group, bus assign) a cross point is quickly selected by a right-click. Rotary emulation mode can be used as well, as described below.



Rotary Emulation

Set the mouse pointer to the black field, hold the right mouse button down, and move the mouse left or right in order to change the displayed value or to select from a list (e.g. on the **SNAP** or **ROUT** pages).

Scroll Bars

Scroll bars are displayed in the user GUI and also in the configuration tool whenever the screen cannot display all items. They can be moved by left-clicking-and-holding the mouse pointer on the bar followed by a mouse movement, as known from Windows operation.

In case of selection lists with a vertical scroll bar, also the mouse wheel is supported for scrolling the list.

Keyboard Entries

Enter the desired label, user name, or password etc., either by clicking with the left mouse button on the on-screen keyboard or with the external keyboard. *Please note that the **⇧/Shift** and **Caps Lock** functions of screen and external keyboards are independent; this is important when entering user passwords. Confirm with **Enter**, cancel with **Esc**.*



*On the screen keyboard, **Caps Lock** is active (i.e., dark) by default, as shown left. Please note that the shift function activated by the **Shift** button on the screen is automatically canceled after having entered one character.*

Window Size When the *configuration tool* is displayed on the external screen, the page windows may be minimized, maximized, or resized, as commonly known from standard Windows operation: By double-clicking on the window's title bar, or by clicking on the  (minimize),  (maximize), or  (restore down) buttons in the window's upper right corner. Window size may also be continuously varied by dragging its edge or frame to the desired size.

External USB Keyboard For the keyboard layout, the language settings made with the configuration tool under **User GUI... – Settings – Keyboard Layout** are valid (for the time being, **English US** and **Danish** are provided for selection). This is independent of how the keyboard's keys are labeled. Factory default setting: **English US**.

When using the external keyboard, some extended functionality is available, such as expanding/collapsing items in the configuration menu tree with the arrow keys, or the copy/paste function using the Windows standard keyboard shortcuts **Ctrl-C** and **Ctrl-V**; this is convenient when entering multiple, similar labels or user names.

*Please note that the **⇧/Shift** and **Caps Lock** functions of the on-screen keyboard and the one connected via USB are independent; this is particularly important when entering passwords since these are case-sensitive.*

Details For further details on console operation with external screen, mouse and keyboard please refer to [chapter 5.12](#).

5.2 User Login

It is presumed that during normal operation neither screen nor keyboard/mouse are connected to the OnAir 1500 system. Without them, user login from the user GUI is not possible. The default user is automatically selected when powering the console on.

Since SW V4.1 there is a second, convenient option available for users to login using a USB memory stick.

Important

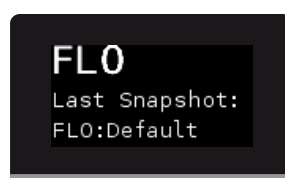


Not all USB sticks are recognized by the system if plugged in before or during start-up. The USB stick shipped with the console permits start-up recognition; it is recommended therefor that this stick is used for login.

In case two different login USB sticks are connected to the system, the last one 'wins'.

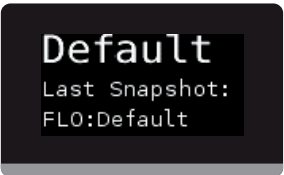
A USB stick intended for user login must contain a file named **Login.ID**. For creating this file the Remote Config Tool is required, refer to [chapter 5.16.4.1](#).

Each time the USB stick containing the login information is plugged into or removed from the **DATA / LOGIN** USB socket, the user is automatically logged in/out. The user name and his last loaded snapshot are displayed for a few seconds in the **FUNCTION** OLED display after logging in. If a default snapshot was saved for this user, it is automatically loaded to the desk as well.

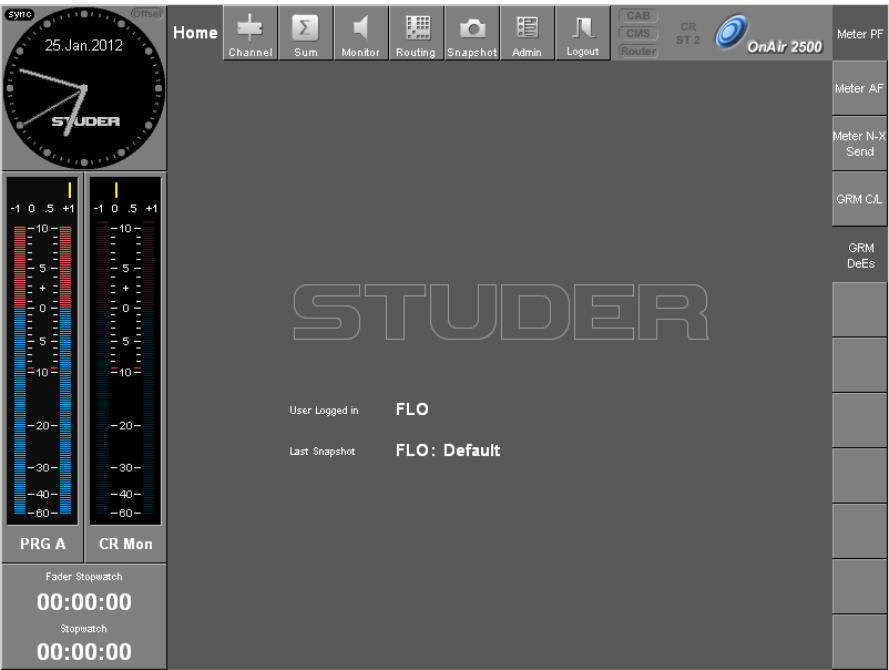


This information can also be displayed during operation by pressing the **FUNCTION** rotary knob.

When logging out (i.e. pulling out the login USB stick), the system automatically activates the default user. The previously loaded console snapshot remains active.



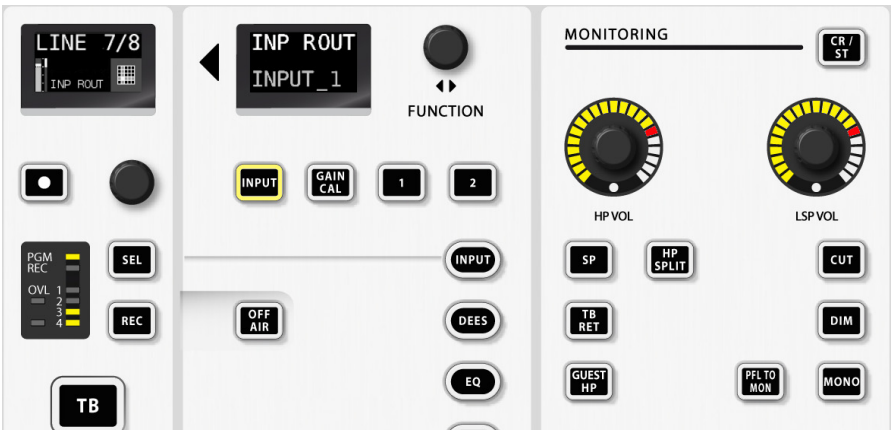
If a screen is connected to the system, the user currently logged in is also shown on the Home page. Upon login the screen automatically changes to the Home page regardless of what has been displayed before.



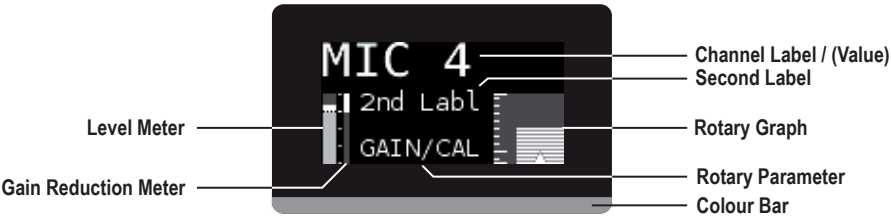
5.3 Desk Operation

Note: *Most of the following functions are available for users with appropriate access rights only, as defined by the system administrator.*
For desk operating elements please refer to [chapter 4](#) and to the printed OnAir 1500 Quick Start Guide shipped with your console.

5.3.1 Global View



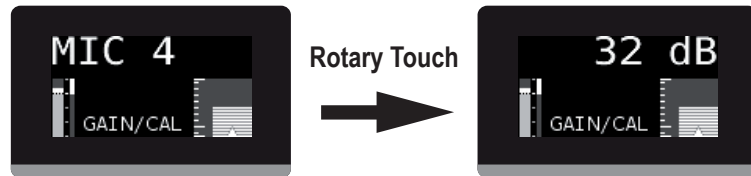
The OLED display in the channel strip normally is in global view mode; i.e. it displays what is selected with one of the four rectangular **FUNCTION** keys or the ◀ ▶ rotary knob in the central section. If a logical input is routed to the channel strip, it indicates the channel label, the second label (which normally is blanked except in I/O sharing mode or during input routing), input level and gain reduction bar graphs, and the graph as well as the function currently assigned to the rotary knob ('rotary parameter').



As long as the rotary knob is touched, the channel label displays the current parameter value.

Note: *There is a function called 'screen saver' available for the OLED displays. It automatically reduces the display's brightness after a configurable period of time. The original brightness is restored as soon as a desk key is operated or a touch-sensitive knob is touched. Using this function is strongly recommended in order to increase the lifetime of the OLED channel displays.*

Channel Label The 8-digit *channel label* area normally indicates the (local or remote) channel label if a logical input is assigned to the channel strip. As long as its rotary knob is touched, the display shows the current parameter value, depending on the selected function.



Second Label The *2nd label* area is used exclusively for indication of the I/O sharing producer system name. It is blanked as long as the rotary is touched, except during input channel routing.

Rotary Parameter The *rotary parameter* area indicates the parameter name if a rotary function is assigned to this channel.

Rotary Graph The *rotary graph* area shows a graphical representation of the value of the assigned rotary function.

Level Meter A small bar graph *input level meter* is provided in each channel's OLED display, either indicating the input level, or the N–X or AUX send level of the channel (configurable). The value indicated on the meter is depending on the console's headroom setting (default value: 0 dB indication for $-9 \text{ dB}_{\text{FS}}$).

N–X or AUX Send Level Indication: In this mode the level meter indicates the N–X or the AUX send level of the channel.

Overload Indication, Analog Inputs: As soon as one sample at an analog input reaches full scale modulation, the overload indicator is on for approx. 300 ms (the idea is that the probability of an A/D converter reaching full scale without any clipping is close to zero. Any full scale levels within the path are considered to be overloads).

Overload Indication, Digital Inputs: Full scale modulation at a digital input is not considered to be an overload – it is simply the output level of a source.

Overload Indication, REC/PGM Outputs:

If one sample of an output signal reaches full scale, the corresponding overload indication is on for approx. 300 ms.

Auto Take-Over Indication: The physical value and the internal, processed value of the fader may be different. This can be the case after routing, snapshot, or CAB changes. If the values are different, auto take-over mode is enabled. The channel display indicates by FDR UP or FDR DOWN in which direction the fader knob has to be moved. As soon as the fader knob has been moved a bit, the display changes to a numerical value, such as -15 UP or 27 DOWN. When the fader position matches the internal value, TAKEOVER flashes three times; the whole process is quite self-explanatory.

Gain Reduction Meter The narrow, upside-down bar graph in each channel's OLED display is used as a *gain reduction meter*. It is activated if the channel's compressor/limiter is active; it can also be configured to be active in De-Esser mode.

Colour Bar The colour bar is only active (illuminated) in the OLED local view (see below).

5.3.1.1 Global View Operation

In global view all OLED displays show the same parameter for every channel strip, while the light bar below the OLED displays remains dark. Any changes to settings as well as the currently active global view will automatically be reset to the default values (i.e. N-X bus 1) when powering the console off and on again. Individual settings may, of course, be saved in a user snapshot if they should remain available for later use.

For selecting the most important global views, four dedicated desk keys (**INPUT**, **GAIN/CAL**, **1**, **2**) are provided in the **FUNCTION** desk area. More global views are available by turning the ◀ ▶ rotary knob.

Input Channel Routing

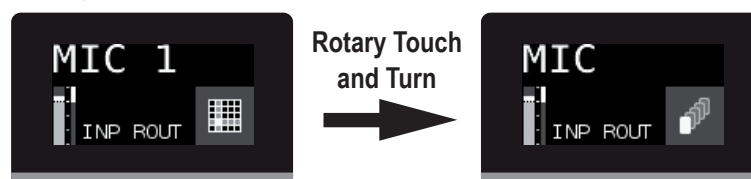


In order to select an input signal for a channel, first press **INPUT** in the **FUNCTION** field. Input channel routing is a three-step process intended for assigning ('routing') physical inputs to fader strips.

If the rotary graph field in the desired channel's OLED display shows the normal matrix symbol, this channel is enabled for input routing.

If the matrix symbol in the rotary graph field is crossed out, input routing is disabled since the channel strip is either locked or virtual.

Touch the rotary knob of the desired channel strip and turn it in order to select one of the displayed input source groups (such as **MIC** in the example below).



To select, press the illuminated ◼ key. Then turn the rotary knob again to select the desired input source from this group (such as **MIC 4** in the example below).



If the rotary graph field shows the adjacent symbol, the selected input is not yet assigned to a channel strip. A *short** press on the illuminated ◼ key assigns the signal to the corresponding channel strip.



The selected input is already assigned to a channel strip on the desk, it will be swapped against the current channel strip by a *short** press on the lighted ◼ key.



The selected input is not yet assigned to a channel strip; however, it cannot be assigned or swapped for one of the following reasons:

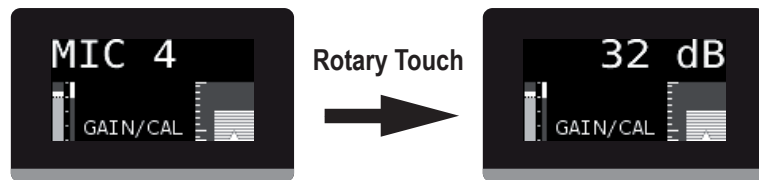
- the input currently assigned to the strip is on-air
- the selected channel strip is locked, or
- there are not sufficient DSP channels available.

***Note:** *There is an additional function here for your convenience:* After selecting an input signal as described above and e.g. **MIC 4** is displayed, but you would rather select a signal from a different group (such as **AES 3/4** from the AES/EBU inputs), you would have to wait for approx. 5 seconds until the display switches back to group selection. When pressing the ◼ key for longer than approx. 1 second instead, the display switches back immediately.

Input Gain / Calibration

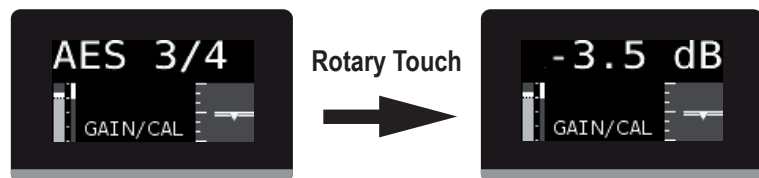
In order to set input gain or calibration for a channel, first press **GAIN/CAL** in the **FUNCTION** field. For local microphone inputs, gain mode is displayed. The rotary knob adjusts either the input gain level for local microphone inputs, or the calibration level for non-microphone inputs as well as shared mic inputs. The **LOCK** key has no function in this case.

Gain Mode:



Cal(ibration) mode is displayed instead of gain mode for analog line and digital inputs. It allows adjusting the calibration level in a range of ± 18 dB. Also when accessing a shared microphone input (i.e., consuming a microphone signal from a remote system, see [chapter 5.13](#)), gain mode automatically switches over to local cal mode since an input gain on a remote system must not be modified.

Calibration Mode:

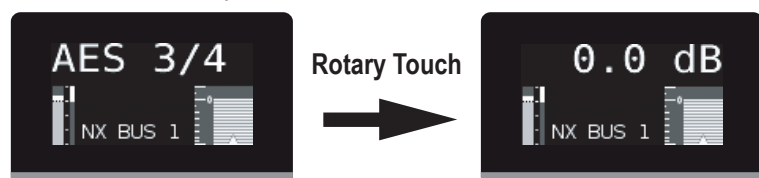


AUX / N-X Contribution Level

The contribution and level setting of the desk channels to the busses no. 1 or 2 is selected with the **1** or **2** keys in the **FUNCTION** field. The N-X busses no. 3 and 4 have no dedicated desk keys but can be selected with the **◀ ▶** rotary knob anyway. The busses no. 1 and 2 are configured as AUX busses, no. 1 is pre-, bus no. 2 is after-fader by default.

Note: By default, the cannels' contributions to the two (AUX) busses no. 1 and 2 are switched off and set to $-\infty$ (Mu t e), the ones to the two (N-X) busses no. 3 and 4 are switched on and set to 0 dB.

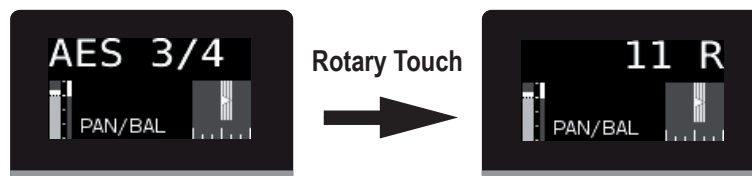
The corresponding **ON/OFF** keys switch the contribution to the selected bus on/off. The rotary graph is greyed out if switched off, but the adjusted value remains displayed. If the bus contribution is switched on, the display is highlighted, and the **ON/OFF** key and the corresponding LEDs **1** to **4** in the channel strip's LED field are lighted. For busses configured as AUX these LEDs are lighted in amber, as N-X in yellow.



The default bus configuration (N-X or AUX pre-/after fader) can be changed using the configuration tool.

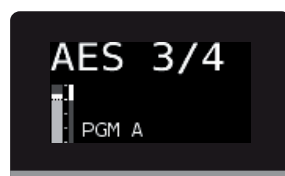
Panorama / Balance

In order to set input pan (L/R panning, for mono channels) or balance (for stereo channels), first use the ◀ ▶ rotary knob in the **FUNCTION** field to select PAN/BAL mode. The channel rotary knob then adjusts panning or balance, both in 30 steps to the left or right from the center position. Using the corresponding  key, balance or panning is set to the adjusted value (on, key is lighted) or to center position (off, key is dark, rotary graph is greyed out), while the adjusted value remains displayed.



PGM A Bus Assignment

In order to change the channels contributing to the PGM A bus, first use the ◀ ▶ rotary knob in the **FUNCTION** field to select PGM A mode. The channel strip  key switches the contribution to the bus on (key is lighted) or off. The rotary knob has no function in this mode.



Note: Since the N-X busses (bus no. 3 and 4) contain the PGM A signal minus the signal of the own channel, this channel contributes nothing to an N-X bus when the channel's contribution to PGM A is switched off. All N-X bus LEDs (**3** and **4**) in the channel's LED field become dark together with the one labeled **PGM**.

Fader Stopwatch (Timer) Setting

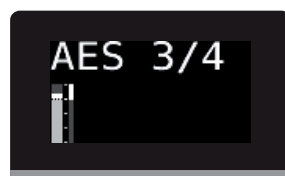
For activating the fader stopwatch of a channel, first use the ◀ ▶ rotary knob in the **FUNCTION** field to select TM SEL mode. The channel strip  key activates (key is lighted) or deactivates the channel fader stopwatch. The channel rotary knob has no function in this mode.



Only one channel can have the fader stopwatch active. When selecting the fader stopwatch with the **FADER** key below the 7-segment display in the meter bridge section. The stopwatch starts at 00:00:00 as soon as the channel goes on air (i.e., fader opened and channel switched **ON**). When closing the fader or switching the channel off, the stopwatch stops. The next time the channel goes on air, the stopwatch restarts at 00:00:00.

OFF (Clear Displays)

The OFF global view can be used to clear the displays; only the channel label and the input level/GRM meters remain.



5.3.2 Local View Operation

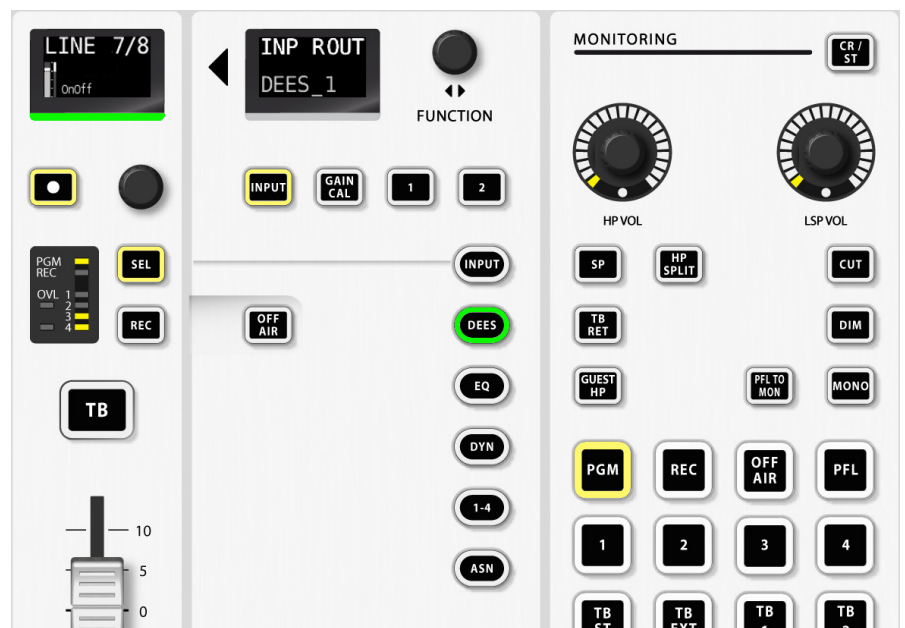
Note: *Most of the following functions are available for users with appropriate access rights only, as defined by the system administrator.*

In the local view (also nicknamed 'Mini Vistonics'), a set of up to six parameters is displayed for one selected channel. Selection is done by first selecting one of the oval local view functions in the **FUNCTION** area followed by pressing the desired channel's **SEL** key that will illuminate afterwards. The oval local view key – the **DEES** key in the example below – is illuminated in its function group's colour, the light bars at the bottom of the channel OLED windows are illuminated in the same colour for a clear indication of what is currently shown. Colours correspond to the convention given below.

Blue	Input functions, including high-pass filter and test generator
Green	Dynamics and De-Esser functions
Red	Equalizer (EQ) functions
Orange	AUX functions
Yellow	Fader and bus functions, including sums and N–X.

These colours are repeated on a GUI screen if one should be connected to the system; however the screen display will not automatically follow the selected channel.

Only this channel's label (e.g. LINE 7/8) and only this channel's input level and gain reduction meters are displayed while local view is active. AutoTakeover indication is suppressed in local view mode.



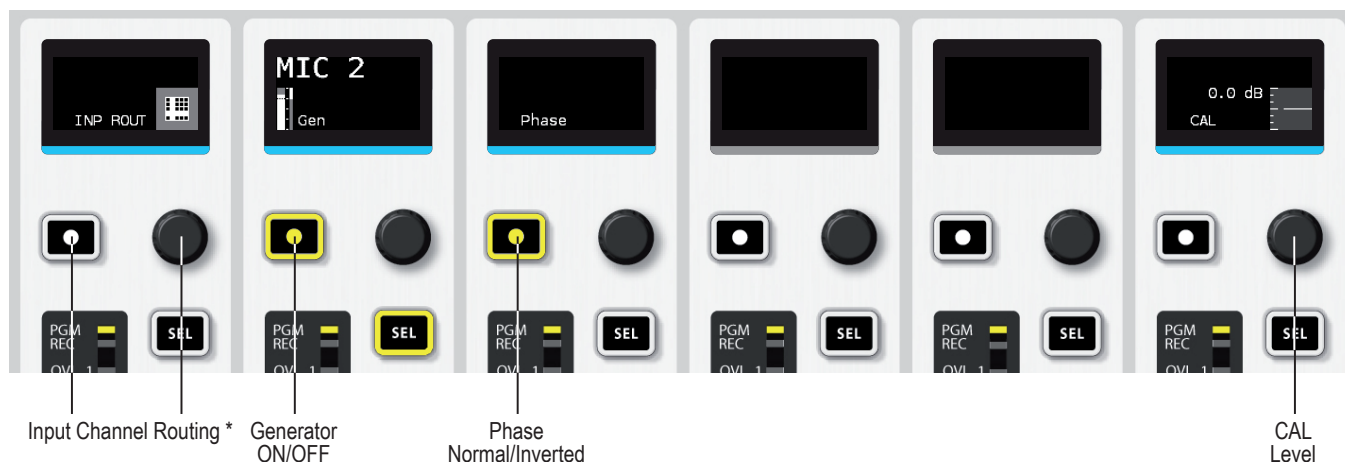
The current parameters, according to the selected function group, are displayed at the bottom of the OLED displays, while their values are indicated in the center line (2nd label area). While the rotary knobs are touched or turned, the parameter value jumps into the label area. The OLED display's graph area gives a graphical representation of the current parameter and value (such as center frequency, boost/cut, threshold setting etc.).

The example above shows the de-esser adjustment selected for the 6th channel strip; this strip's **SEL** key is illuminated. The  key of this channel strip is used to switch the de-esser on and off, it is illuminated if on; if off, the on/off display is dimmed.

Parameter sets of functions consisting of more than 6 parameters (such as EQ or Dynamics) can be toggled through using their oval local view key. Local view can be switched over to a next channel directly with this channel's **SEL** key, or canceled by pressing the currently active **SEL** key again.

5.3.2.1 Input Local Views

Local View 1 for a Microphone Input:



* Input Channel Routing

The local view input channel routing works exactly as described in [chapter 5.3.1.1 'Global View Operation'](#).

Generator ON/OFF

To switch the test generator ON and OFF; the key is illuminated if ON; default setting is OFF.

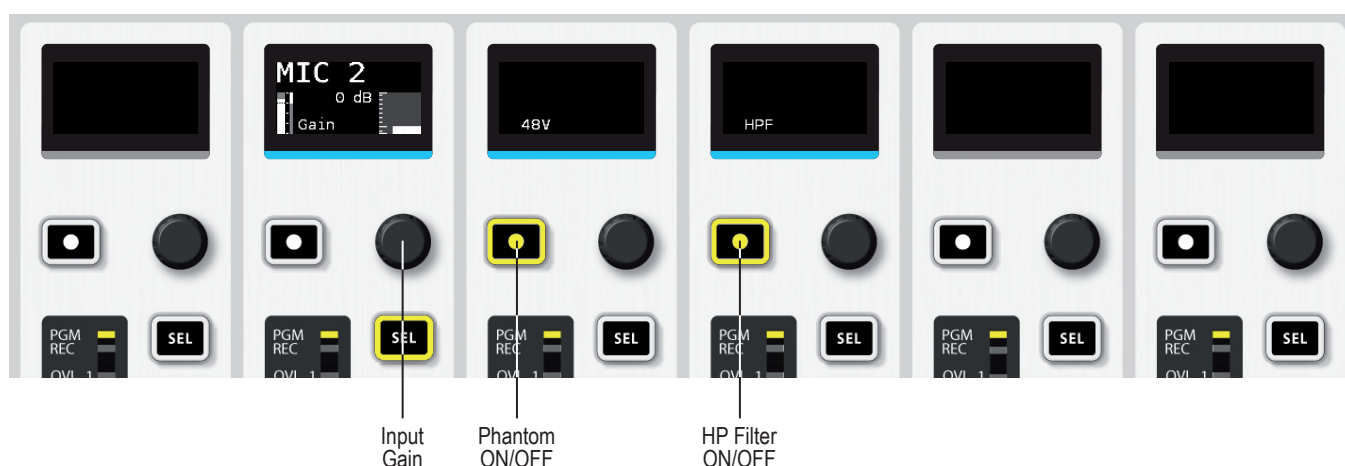
Phase Normal/Inverted

Phase inversion; the key is illuminated if inverted; default setting is normal.

CAL (Calibration) Level

The input level calibration value can be adjusted from -18 to $+18$ dB in 0.5 dB steps; default setting: 0 dB.

Local View 2 for a Microphone Input:



Input Gain

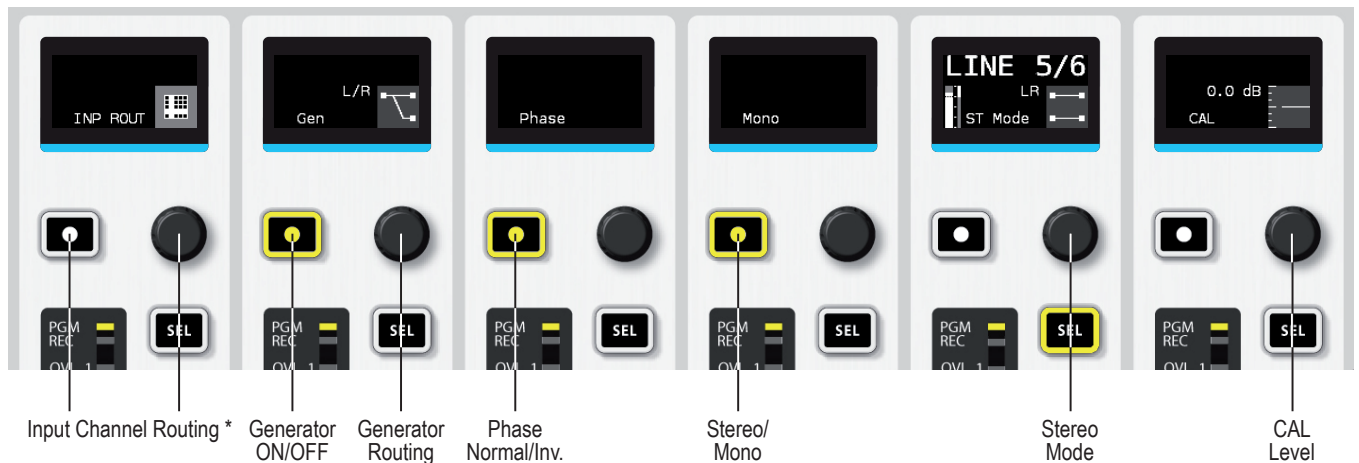
Input gain setting of this channel from -5 to $+58$ dB in 1 dB steps; default setting: 0 dB.

Phantom ON/OFF

Activation of the +48 V phantom power of this channel; the key (and the red LED next to the corresponding XLR input socket) is illuminated if ON; default setting is OFF.

HP Filter ON/OFF

Switches an analog high-pass (low-cut) filter into the signal path; the key is illuminated if ON; default setting is OFF.

Local View 1 for a Stereo Analogue Line or Digital Input (e.g. USB or AES/EBU):*** Input Channel Routing**

The local view input channel routing works exactly as described in [chapter 5.3.1.1 'Global View Operation'](#).

Generator ON/OFF

To switch the test generator ON and OFF; the key is illuminated if ON; default setting is OFF.

Generator Routing

For stereo inputs it can be selected to which channel the generator signal is routed: To none (None), left channel only (L), right channel only (R) or to both the left and right channel (L/R); default setting: L/R.

Phase Normal/Inverted

Phase inversion of the left stereo channel signal, except in RR Stereo Mode setting (see below); the key is illuminated if inverted; default setting is normal.

Stereo/Mono

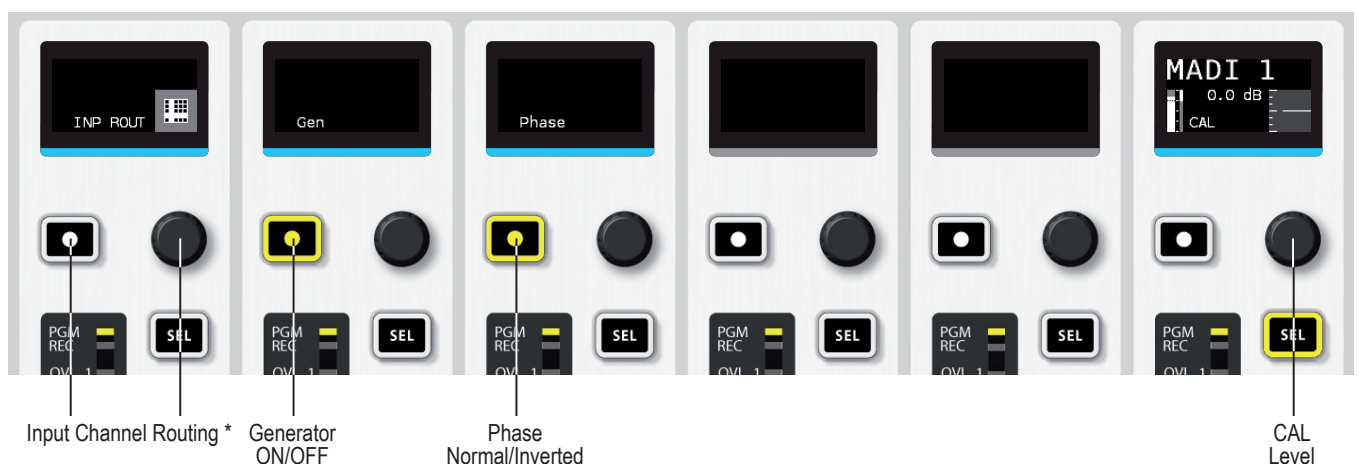
Selects either normal stereo mode or combining the L and R signal to a mono signal. The key is illuminated if mono; Default setting: stereo.

Stereo Mode

Selects left signal-to-left channel/right signal-to-right channel (LR), swapped (RL), left signal-to-both channels (LL), or right signal-to-both channels (RR) modes; default setting: LR

CAL (Calibration) Level

The input level calibration value can be adjusted from -18 to + 18 dB in 0.5 dB steps; default setting: 0 dB.

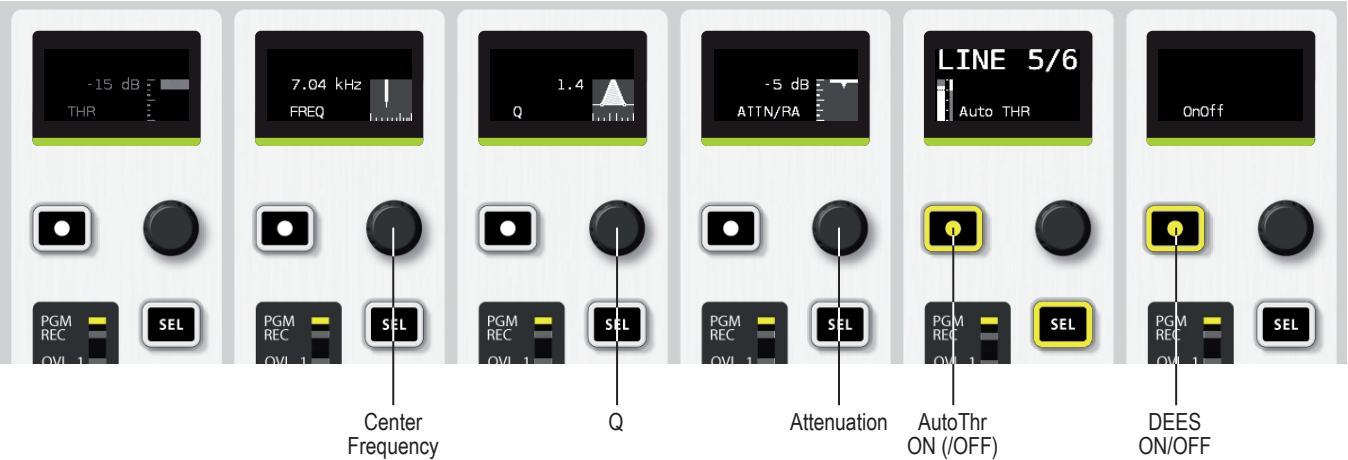
Local View 1 for a Mono Digital Input (e.g. MADI):

Mono digital inputs have the same functionality as stereo inputs, but without the stereo mode and mono selectors, as shown above.

Local View 2 for Analogue Line or Digital Inputs:

While this view is available, all displays are blanked; only the selected channel and its input level meter are displayed.

5.3.2.2 DEES (De-Esser) Local Views



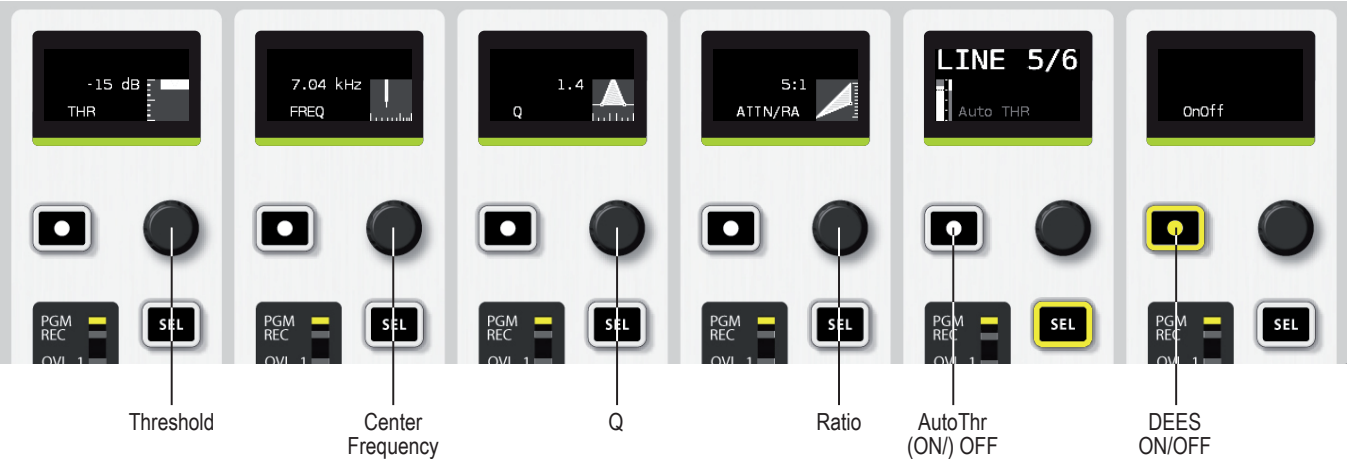
DEES ON/OFF Enables/disables the de-esser section of this channel; the  key is illuminated if ON; default setting is OFF.

Center Frequency Center frequency of the de-esser’s filter band. It is indicated in kHz and can be adjusted in a 4-14 kHz range.

Q Q factor (bandwidth) of the de-esser’s filter, adjustable from 0.27 (wide) through 8.7 (narrow).

Attenuation If Auto Thr is set to ON (see below), the de-esser’s attenuation can be adjusted here in a range of 0 to –50 dB (Max).

Auto Thr ON/OFF Automatic threshold setting depending on the current signal content; the  key is illuminated if ON; default setting is ON, and the THR display at the far left is greyed-out.
If Auto Thr is set to OFF, the Attenuation setting changes to ‘Ratio’, and the THR display at the far left is displayed with the normal brightness, as shown below:

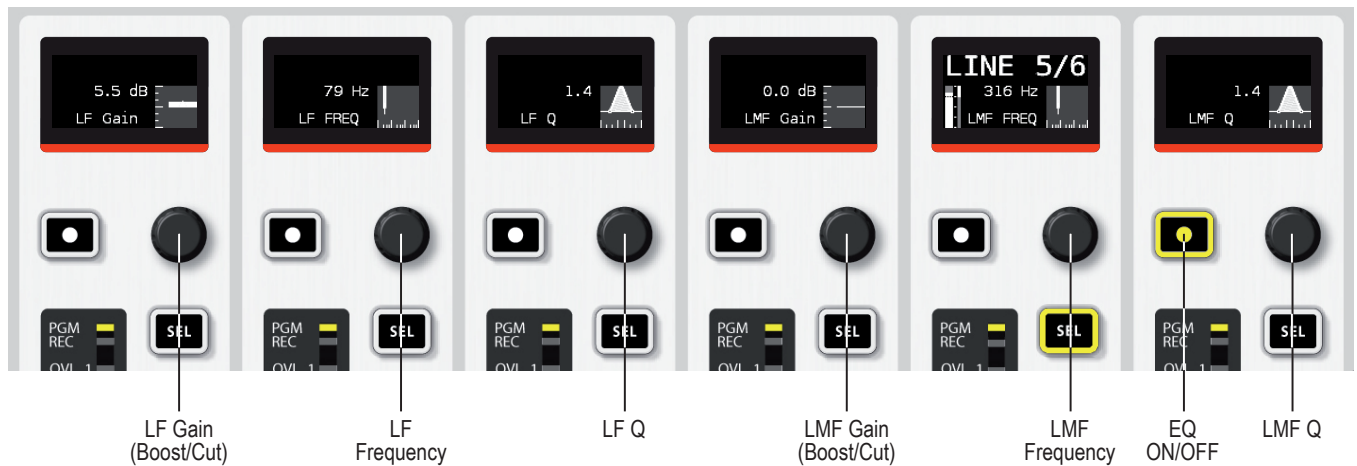


Ratio Level reduction ratio within the filter range if an ‘s’ component is detected in the audio signal. The ratio be set in a range of 1:1 (no effect) through 20:1 (heavy de-essing).

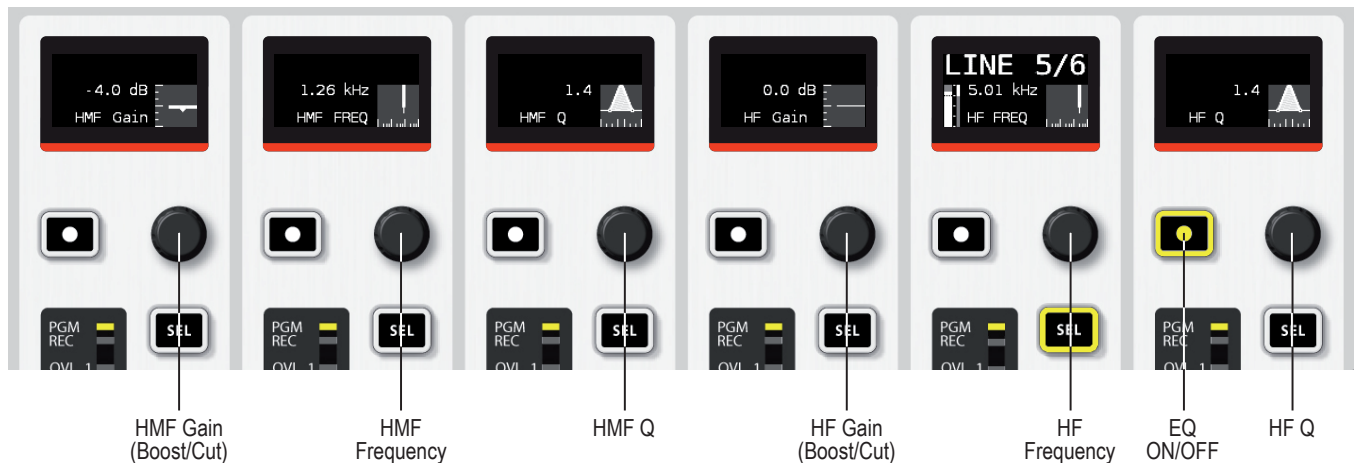
Threshold The threshold is the signal level above which the de-esser starts to act within the selected filter band. It can be set with the rotary knob between +9 and –87 dB.

5.3.2.3 EQ (Equalizer) Local Views

Local View 1 (*Low and Low-Mid Bands*):



Local View 2 (*High-Mid and High Bands*):



LF/LMF/HMF/HF Gain

The gain (i.e. the boost or cut value) of the selected band is adjusted in a ± 18 dB range.

LF/LMF/HMF/HF Frequency

The center frequency of the selected band can be set from 20 Hz through 20 kHz for each band.

LF/LMF/HMF/HF Q

Q-factor (bandwidth) of the selected band, adjustable from 0.27 (wide) through 8.7 (narrow).

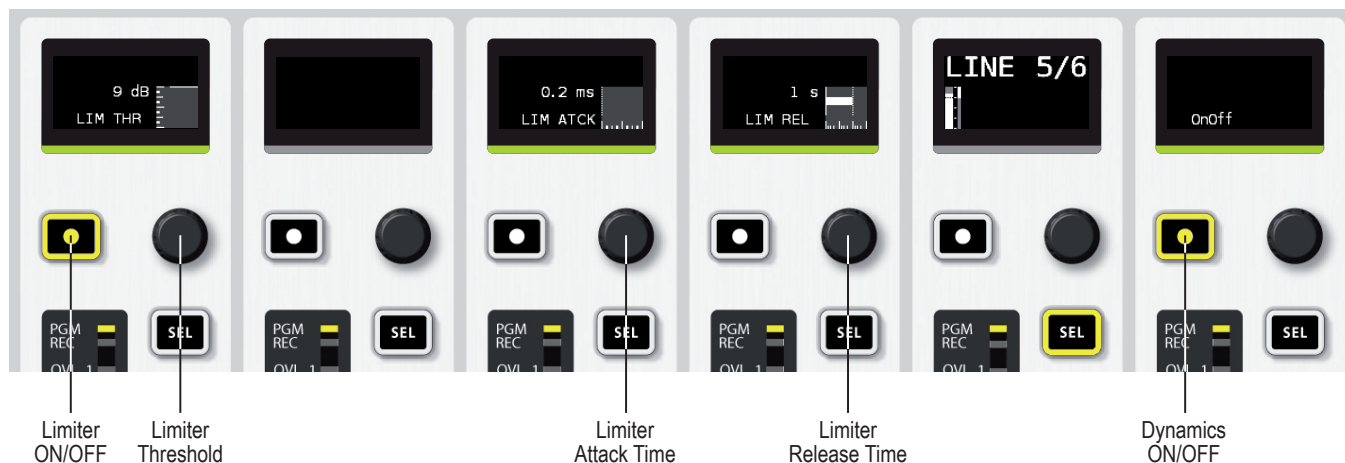
EQ ON/OFF

The complete EQ section can be switched ON or OFF with the  key in either view; the  key is illuminated if ON; default setting is OFF.

5.3.2.4 DYN (Dynamics) Local Views

The dynamics section consists of four different views, one each for limiter, compressor, expander, and gate. Each part can be switched ON/OFF individually, in addition to the ON/OFF switch for the complete dynamics section. Readings in dB automatically consider the console's current headroom setting; 0 dB indication = 0 dB_{FS} – the selected headroom. Default headroom is 9 dB.

Local View 1 (*Limiter*):



Limiter ON/OFF

Individual ON/OFF switch for the limiter part; the key is illuminated if ON; default setting is OFF.

Limiter Threshold

The threshold can be set in a range of 9 through –39 dB.

Limiter Attack Time

The attack time can be set in a range of 0.2 through 20 ms (milli-seconds).

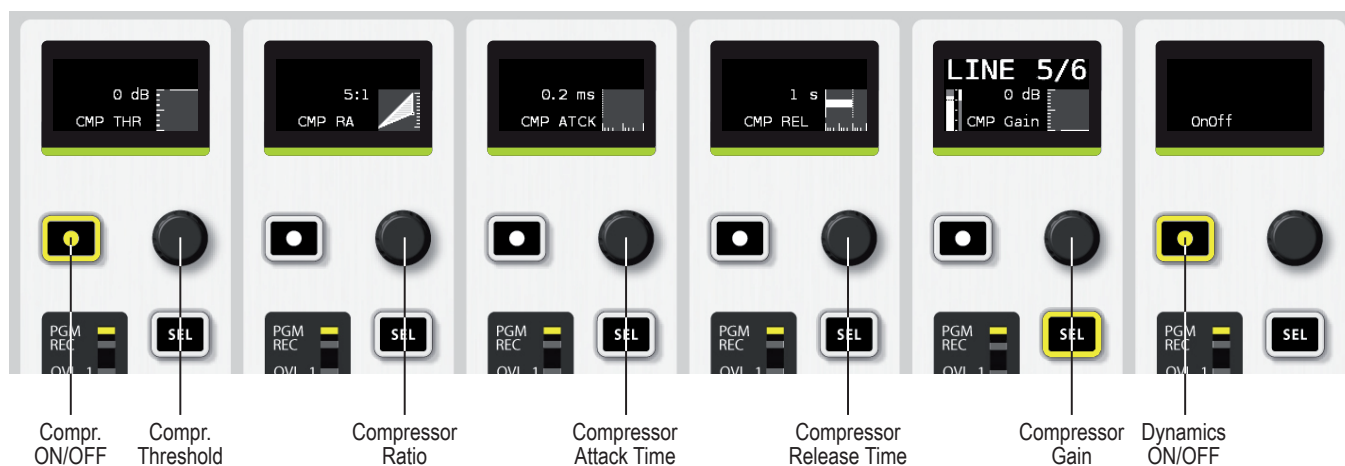
Limiter Release Time

The release time can be set in a range of 10 ms through 10 s.

Dynamics ON/OFF

ON/OFF switch for the whole dynamics section, i.e. for limiter, compressor, expander and gate at once; the key is illuminated if ON; default setting is OFF.

Local View 2 (*Compressor*):



Compr. ON/OFF

Individual ON/OFF switch for the limiter part; the key is illuminated if ON; default setting is OFF.

Compr. Threshold

The threshold can be set in a range of 0 through –96 dB.

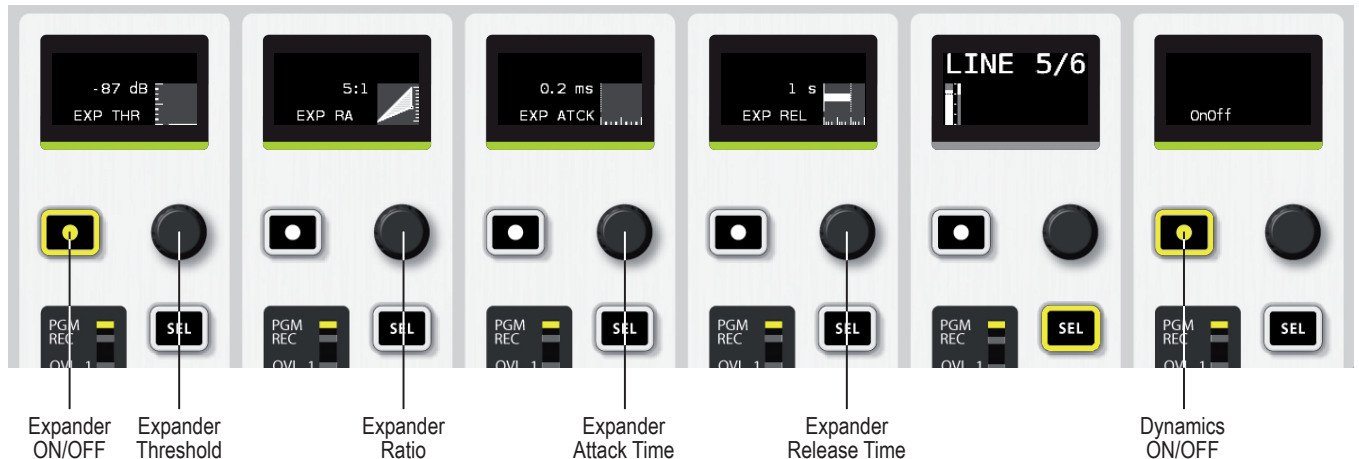
Compressor Ratio

The compression ratio can be set in a range of 1:1 (no compression) through 20:1 (heavy compression).

Compressor Attack Time
Compressor Release Time
Dynamics ON/OFF

The attack time can be set in a range of 0.2 through 20 ms (milli-seconds).
 The release time can be set in a range of 10 ms through 10 s.
 ON/OFF switch for the whole dynamics section, i.e. for limiter, compressor, expander and gate at once; the  key is illuminated if ON; default setting is OFF.

View 3 (Expander):



Expander ON/OFF

Individual ON/OFF switch for the expander part; the  key is illuminated if ON; default setting is OFF.

Expander Threshold
Expander Ratio

The threshold can be set in a range of 9 through –87 dB.

The expansion ratio can be set in a range of 1:1 (no expansion) through 20:1 (heavy expansion).

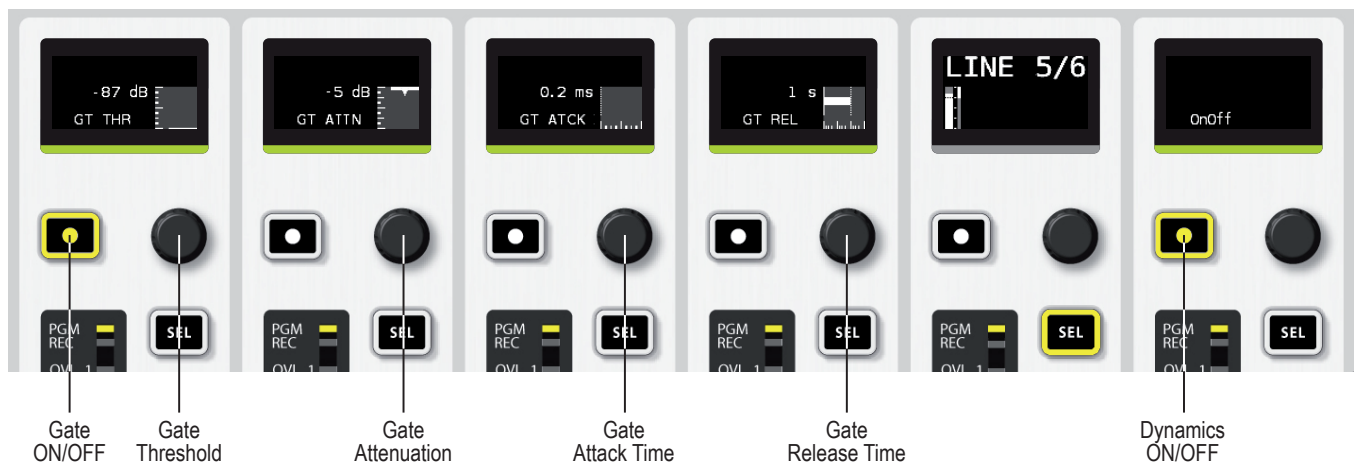
Expander Attack Time
Expander Release Time
Dynamics ON/OFF

The attack time can be set in a range of 0.2 through 1 ms (milli-seconds).

The release time can be set in a range of 10 ms through 10 s.

ON/OFF switch for the whole dynamics section, i.e. for limiter, compressor, expander and gate at once; the  key is illuminated if ON; default setting is OFF.

View 4 (Gate):



Gate ON/OFF

Individual ON/OFF switch for the gate part; the  key is illuminated if ON; default setting is OFF.

Gate Threshold
Gate Attenuation

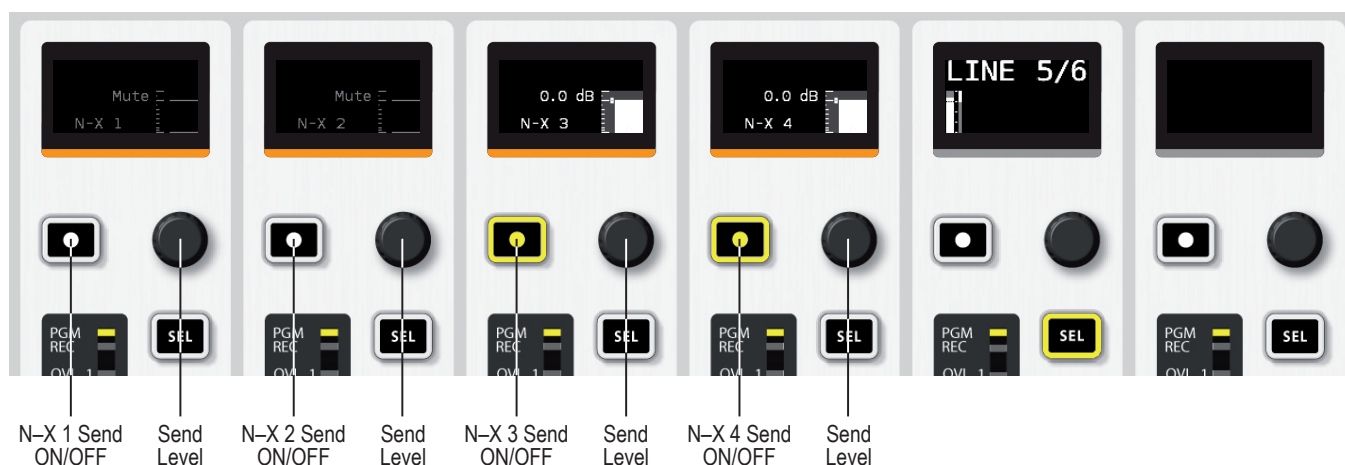
The threshold can be set in a range of 9 through –87 dB.

The attenuation can be set in a range of 0 dB (zero attenuation) through –48 dB (heavy attenuation) and ‘Max.’ (muted).

Gate Attack Time
Gate Release Time
Dynamics ON/OFF

The attack time can be set in a range of 0.2 through 1 ms (milli-seconds).
 The release time can be set in a range of 10 ms through 10 s.
 ON/OFF switch for the whole dynamics section, i.e. for limiter, compressor, expander and gate at once; the  key is illuminated if ON; default setting is OFF.

5.3.2.5 1-4 (AUX / N-X Bus Send) Local View



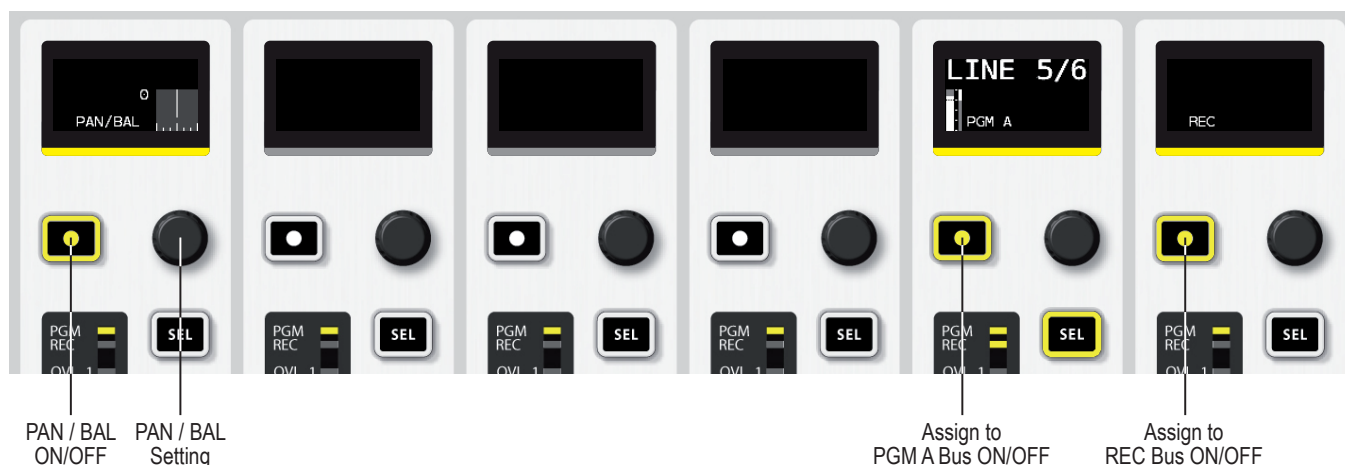
Send ON/OFF

ON/OFF controls for the individual AUX/N-X sends; the  key is illuminated if ON; default setting is OFF for N-X sends 1 and 2, ON for N-X sends 3 and 4.

Send Level

The individual send levels can be set in a range from Mute to +12 dB. Default values are Mute for N-X sends 1 and 2, 0 dB for N-X sends 3 and 4.

5.3.2.6 ASN (Bus Assignment) Local View



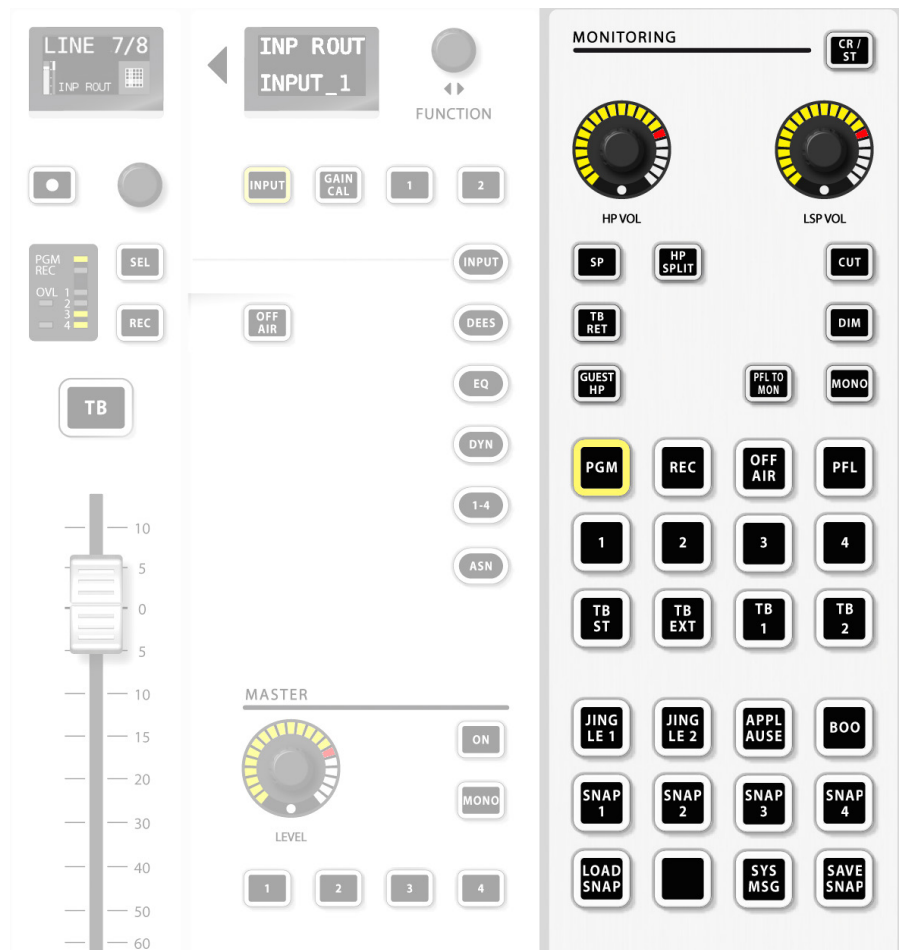
Assign to PGM A Bus ON/OFF

Assigns the selected channel to the PGM A (Program) bus; the  key and the yellow **PGM** LED in the indicator field are illuminated if ON; default setting is ON.

Assign to REC Bus ON/OFF

Assigns the selected channel to the REC (Record) bus; the  key, the yellow **REC** LED in the indicator field are illuminated if ON. In addition, the **REC** key is illuminated in red. Default setting is OFF.

5.4 Monitoring, Talkback



The following description refers to the **MONITORING** part of the desk's central section. All functions may also be handled from the GUI, refer to [chapter 5.12](#).

5.4.1 Control Room Monitoring

In the control room (CR), three possibilities are provided for signal monitoring: control room loudspeakers (**LSP**), DJ headphones (**HP**) and Guest headphones (**GUEST HP**). The corresponding sockets all are located on the Nano SCore; headphone sockets (**CR DJ HP** and **CR GUEST HP**) at its front, control room loudspeakers (**CR MON LS, L** and **R**) at its rear.

Source selection and volume settings are provided for both control room and studio with the **CR/ST** key at the top right of the monitoring area; if the key is dark, controls for the control room are active. If illuminated, the controls affect the studio settings.

The monitor source selector has eight keys for quick selection of the most important sources (**PGM**, **REC** and **OFF AIR** busses, **PFL** and **AUX/N-X** busses **1-4**). The picture above shows the standard configuration, the key of the selected source is illuminated. Only one source can be selected at a time.

Control Room Loudspeakers		The CR loudspeaker's volume is adjusted with the LSP VOL knob; if set to 0 dB, the LED ring shows a red segment, as in the picture above. Three keys are used to control the CR monitoring loudspeakers:
	DIM	The level of the CR monitor speaker output is dimmed (attenuation is configurable, default value 20 dB). DIM is illuminated if the DIM function has been activated either by the key or by one of the TALKBACK keys.
	CUT	The CR monitor speakers output is muted. CUT is illuminated if active. As long as one of the microphones in the control room is on (with configuration 'Sign. = CR'), the CR monitor speakers are automatically muted and the CUT key is illuminated.
	MONO	When selected, both left and right CR monitor speakers are fed with a mono mix of the selected source.
	PFL TO MON	If PFL is active on any channel or if the external PFL input signal is selected, PFL TO MON feeds the PFL signal not only to the DJ headphones but also to the CR monitor speakers. If no signal is routed to the PFL bus, the signal for the monitor loudspeakers is identical to the one selected by the CR monitor source selector. PFL TO MON is illuminated if active.
	LSP VOL	Output level setting of the CR monitor speakers. If talkback is active, the CR monitor speaker level is dimmed and the DIM key is illuminated. If the CR microphone is on, the CR monitor speakers are automatically muted and the CUT key is illuminated.
DJ Headphones	HP VOL	This control sets the level of the DJ headphones. If the studio's talkback key is pressed, the headphones monitoring signal is dimmed and the talkback signal is fed to the headphones. CUT and DIM have no effect on the headphones signal, and the headphones output is not muted if one of the control room microphones is on.
	HP SPLIT	Headphones split mode is only valid for the DJ headphones and has no effect on the CR monitor speakers. If active, one or more channels are routed to the PGM bus, and some channel's PFL is also on, the PGM bus signal is fed to the left, and the PFL signal to the right headphones system.
Guest Headphones		The guest headphones are always fed with the same signal as the CR monitor speakers, but without cut or dim functions.
Internal Speaker		The PFL and talkback return signals are mixed and fed to the internal speaker. If the PFL signal is listened on the CR monitor speakers, it is automatically muted on the internal speaker. If the CR red light is active, the internal speaker is automatically muted.
	SP	For setting the internal speaker's level the HP VOL knob is used while pressing the SP key. Then adjusted level is indicated by the knob's LED ring.
	TB RET	If pressed, the corresponding contribution level to the internal speaker is indicated on the LED ring around the HP VOL knob and can be adjusted individually. The mix ratio of the PFL and talkback return signals also influences the TB return signal on the DJ headphones.

5.4.2 Studio Monitoring

Compact Monitoring/TB Box:



The compact monitoring/TB box offers an array of configurable buttons for monitoring source selection and talkback destinations, red light indication, and studio loudspeaker/headphone control. Talkback between any locations is possible, as well as to external lines, the master, AUX, and N-X outputs but needs to be configured as desired.

Studio Source Selection

Selection of the studio monitoring source can be done on the CR desk or on the compact monitoring/TB box.

Studio Muting

The studio monitoring speakers are automatically muted if at least one of the microphones in the studio (Configuration: Input Location = Studio2) is on. The studio headphones are *not* muted in such a case.

Talkback

During talkback from studio to CR and vice versa, the studio speaker level is automatically dimmed. The talkback signal from CR to studio is not dimmed and has the normal listening level on both the studio speakers and headphones.

5.4.3 Talkback

⌚ Momentary/Latching Talkback Keys

A short press on one of the talkback keys latches this talkback function, meaning that talkback remains active until the same key is pressed a second time. A long press on one of the talkback keys makes this talkback function work in momentary mode, meaning that talkback is automatically canceled upon release of the key.

⌚ Control Room Talkback:

In the Control Room, talkback to one or several destinations is triggered by pressing one of the configurable keys on the compact monitoring/TB box. The **TB** key in the channel strip normally is used for talkback to the N–X output. It is possible to talk to any destination at a time. Talkback to the main buses (PRG A, REC) is not allowed in the default configuration. To do this, one of the talkback keys needs to be assigned to the slate function; then, this slate key must be used in addition to the the talkback key of the main bus in order to prevent talkback from going to these destinations unintentionally.

If talkback (to or from the control room) is active, the corresponding key(s) is/are illuminated.

To simplify talkback to several destinations at a time, talkback groups can be configured.

The input configured as ‘TB Source = CR’ is the audio source for talkback from the CR. This can either be the DJ microphone or any other desired input. The talkback return signal can be listened to with the internal speaker and/or the DJ headphones.

⌚ Channel Strip TB Key

In general, each channel strip has a **TB** key for that particular channel. In default mode, the input routing defines the talkback destination. However, it is configurable what the destination shall be. In cases where talkback does not make sense (e.g. if the input source is a CD player), the button can be used for another purpose (*not supported by the default configuration*).

SLATE

Allows talkback to the main buses (PGM, REC).

In order to prevent talkback from going to these destinations unintentionally, the **SLATE** key must be pressed *together* with the **PGM** or **REC** master talkback keys.

Note: *The **SLATE** function is not available in the default console configuration but may be activated with the configuration tool.*

Studio Talkback:

The control interface to the studio can be configured via the GPIO function pool, where different inputs for talkback destination selection from the studio are available. Possible destinations are: To CR or to N–X.

Inputs that have been configured as ‘TB Source = Studio’ are the audio sources for talkback from the studio. Four studio talkback sources are supported, they are mixed together in the console.

Talkback to the studio is listened to over the studio speakers and headphones. The signaling and the talkback sources can be defined separately for each input if required; this is done in the configuration tool.

Signaling Incoming Talkback:

If incoming talkback is activated, the corresponding talkback key illuminates.

Red-Light Signaling:

The **ON AIR** red-light indicator is doubled on the compact monitoring/TB box.

TB Source Configuration:

Router sources (i.e. physical inputs) of the different talkback inputs must be defined using the configuration tool (see chapter 6.5.25). The following TB sources are available:

TB Sources		No. of TB Buses
1	TBFromExtern	1
1	TBFromExt1	1
1	TBFromExt2	1
1	TBFromExt3	1
1	TBFromExt4	1
4	TBFromCR (exclusive)	1
4	TBFromStudio (simultaneous)	4

Since only one of the four specified physical inputs can be the source for TBFromCR at a time, the user has to select one of them. Up to four keys may be configured, e.g. in the talkback key section, that allow the user selecting the desired physical input without having to start the configuration tool.

5.5 Signaling

The OnAir 1500 has full-way red light signaling, which means that the audio path must be open from the microphone to the master output in order that red light indication becomes active. Signaling settings are performed with the configuration tool.

Signaling is provided for control room and studio; it works with the configured behavior of the inputs describing the microphone locations. Red light indication in the control room is provided in the desk's meter bridge. Possible locations are **CR** (control room) and **ST** (studio).

The **ON AIR** indication may be AND-linked with an external signal, e.g. coming from the master control room, indicating that the signal is actually routed to the antenna (see GPIO section).

Example Red light indication for a particular location is active if:

- at least one microphone input in this location is routed to a channel, AND
- this channel's fader is open, the channel is switched **ON** and is routed to a main master, AND
- this main master's fader (if configured) is open.

5.6 Snapshots

5.6.1 Basic Snapshot Operation

The four snapshot keys **SNAP 1-SNAP 4** can, together with **LOAD SNAP** and **SAVE SNAP**, be used for recalling (load) global snapshots from the console-internal memory to the desk, and, after modification (if required) for saving them as user snapshots of the user currently logged in.

5.6.2 Extended Snapshots (Advanced Users Only)

Initial Snapshots	Initial snapshots contain information used for the start-up of the system (also referred to as 'container'); they are saved locally in the DSP core. Four different initial snapshot types are used.
User Snapshots	There exist different user snapshot types with different read and write authorizations, depending on the user currently logged-in. A user snapshot consists of up to four files containing audio, input routing, output routing, and/or assignment parameters. When creating a snapshot, the user decides which of the four parameter groups are contained in his new snapshot, although he always sees his snapshots as a whole. The individual snapshot files are hidden from him.

Snapshot Type		Read	Write	Audio	Inp. Routing	Outp. Routing	Assignment	Add. Param.
Initial		System, on power-up of core sub-system	Admin *	X	X	X	X	X****
User	Global	All	Admin	X **	X **	X **	X **	-
	Default	System, on login; Admin, every user ***	Admin, every user ***	X **	X **	X **	X **	-
	Private	Admin, every user ***	Admin, every user ***	X **	X **	X **	X **	-****
* possible either from the Admin-Config page of the user GUI (desk settings) or from within the configuration tool (other parameters) ** depending on user selection *** 'every user' signifies that the user has access to his own snapshots only **** The FaderGain and ChannelOn parameters can be included in the initial and user snapshots for SW V3.0 and up. They can be activated in the Configuration GUI. However, to retain snapshot downward compatibility with earlier versions, they must not be used.								

5.6.2.1 Snapshot Files

All snapshot files are stored in the snapshots folder on the local file system of their respective container; for backup purposes or transfer between consoles they may be copied to an external medium.

The snapshots folder contains the initial snapshot files, a folder for global snapshots, and one folder each for every user.

The user's folder name is a unique user ID (administrator = 0, default user = 1, etc.) that makes the file structure independent from the user data management and allows changing a user's name.

Each user folder contains two additional folders: default and private. The default folder contains default snapshot files (optional); the private folder contains all private snapshot files (optional). The number of snapshots is limited by the profile assigned to the user.

Only the initial and the default snapshots have fixed file names. The snapshot file type is distinguished by its DOS file name extension.

Category	Data Type	File Name (SW V3.1 & up)	Extension
Initial	Configuration Part	containerID_initial	.cfg
	Operational Part	containerID_initial	.ops
	User Parameters	containerID_initial	.usr
	License Key Info	containerID_initial	.key
User	Audio	(any individual name)	.aud
	Input Routing	(any individual name)	.irt
	Output Routing	(any individual name)	.ort
	Assignment	(any individual name)	.ass

5.6.2.2 Saving Initial Snapshots

Manual Save Mode

When touching either the Desk Settings - **Save** button on the **Admin - Config** page of the user GUI or one of the **Save ...** buttons in the configuration tool, the corresponding parameters are saved in the corresponding data file(s).

AutoSave Mode

Automatic saving of the initial operational (i.e., desk setting) snapshot can be activated with the configuration tool (refer to [chapter 6.5.24.1](#)). If active, writing a new data file is triggered no longer than 10 seconds after a desk setting has been changed.

Note: AutoSave mode must be switched Off whenever initial snapshot files are copied or moved manually.

5.6.2.3 Snapshot File Contents

5.6.2.3.1 Initial Snapshots

The initial snapshots contain all configuration parameters of the corresponding sub-system ('container').

*.cfg Configuration Snapshot

All parameters of the configuration type, set by the Config Tool, e.g.

- all I/O sharing-relevant parameters set by the Config Tool
- desk resource definition parameters
- partial output routing snapshots.

*.ops Operational Snapshot

All settings within the user GUI and the desk surface:

- the same parameters as an audio snapshot
- the same parameters as the input routing snapshot
- the same parameters as the output routing snapshot
- the same parameters as the assignment snapshot
- monitoring parameters, such as CR or ST2 source

*.usr User Snapshot

- all user-relevant parameters set by the Config Tool
- all policies-relevant parameters set by the Config Tool
- all department-relevant parameters set by the Config Tool.

*.key License key Snapshot

This is the only file that belongs to the start-up configuration of the console (initial snapshot), but is *not* handled by the snapshot extension.

- all license keys for optional software functions.

5.6.2.3.2 User Snapshots

The user snapshots consist of up to four files containing audio, input routing, output routing, and/or assignment parameters.

*.aud **Audio Snapshots**

The audio snapshots contain the following parameters:

- Logical inputs: most of the logical input parameters, including fader gain and channel on/off
- Inserts: assignment and on/off status
- Master channels: fader gain, mono function
- Send channels (AUX, N–X): N–X mode, fader gain, channel on/off, fader gain, mono function

All logical inputs are saved within the audio snapshot.

*.irt **Input Routing Snapshots**

The input routing snapshots contain the complete input routing information.

*.ort **Output Routing Snapshots**

The output routing snapshots contain the output routing information; this is each logical output's source.

*.ass **Assignment Snapshots**

The assignment snapshots contain:

- the currently selected rotary assignment for all the rotary and fader modules
- the input meter mode (AF, PF, N–X send)
- the GRM (gain reduction meter) mode (de-esser, dynamics)
- the MIC group assignment
- the XL input assignment
- TB groups.

All desk parameters are saved for each desk in the system.

5.6.2.4 External Media

Snapshots may be copied from the local flash file system to a USB memory device. The directory structure on the external media is different from the one on the local file system. On the external media, the files are always saved in a folder, due to the fact that a user may have different user IDs on different systems.

Important!



The USB memory device MUST NOT BE REMOVED from the socket DURING DATA ACCESS – only remove it after its LED has stopped flashing.

5.6.2.5 Snapshot Operation Details

For in-depth snapshot operation the user GUI is required.

The available snapshot operations depend on the current selection within the local snapshot list:

Selected Item	>>	<<	Rename	Delete
Global	–	Creates a new global snapshot (Administrator only)	–	–
Any Global Snapshot	Recalls the selected snapshot	Overwrites the selected global snapshot (Administrator only)	Renames the selected global snapshot (Administrator only)	Deletes the selected global snapshot (Administrator only)
User Name	–	–	–	–
Default	–	Creates a new default snapshot, or Overwrites the default snapshot	–	–
The Default Snapshot	Recalls the default snapshot	Overwrites the default snapshot	–	Deletes the default snapshot
Private	–	Creates a new private snapshot	–	–
Any Private Snapshot	Recalls the selected snapshot	Overwrites the selected private snapshot	Renames the selected private snapshot	Deletes the selected private snapshot

The <<, >>, **Rename**, and **Delete** buttons are only visible if the corresponding operation is allowed.

‘Recall’ Loads the selected snapshot parameters into the console.

‘Overwrite’ Updates the selected snapshot parameters within the selected snapshot. Unselected parameter files remain unchanged.
A dialog box ‘Snapshot ‘name’ already exists. Do you want to overwrite it?’ pops up. When answering **Yes**, all selected parameter files will be overwritten.

‘Create’ Creates a new snapshot and saves the selected snapshot parameter files. The keyboard appears for entering a snapshot name; a generic name (such as **New Snap**) is automatically suggested.
If a name is entered of which at least one snapshot file (audio, input/output routing, assign) already exists, a dialog box ‘Snapshot ‘name’ already exists. Do you want to overwrite it?’ pops up. When answering **Yes**, all selected parameter files will be overwritten.

‘Rename’ Renames all snapshot parameter files of the selected snapshot. The snapshot parameter selection buttons (audio, input/output routing, assign) are ignored in order to be consistent.
If a name is entered that already exists for at least one snapshot file, a dialog box ‘Snapshot ‘name’ already exists. Do you want to overwrite it?’ pops up. When answering **Yes**, all selected parameter files will be overwritten.

‘Delete’ Deletes the selected parameters of the selected snapshot. A dialog box ‘Do you really want to delete the selected snapshot parameters’ pops up. When answering **Yes**, all selected parameter files will be deleted.

5.6.2.6 Snapshot/Ext. Media Operation Details

For snapshot/external media operation also refer to [chapter 5.12.6.3](#).

The available snapshot operations depend on the current selection within the local snapshot and the card snapshot lists:

Selected Item		<<	>>
in Local List	in Card List		
Global	Any User Name	–	–
Any Global Snapshot		–	Copies the selected snapshot into the selected user's folder <i>(only if the own user name is selected)</i>
User Name		–	–
Default		–	–
The Default Snapshot		–	Copies the selected snapshot into the selected user's folder <i>(only if the own user name is selected)</i>
Private		–	–
Any Private Snapshot		–	Copies the selected snapshot into the selected user's folder <i>(only if the own user name is selected)</i>
Global	Any Snapshot	Copies the selected snapshot from the external medium to the local file system as a global snapshot <i>(administrator only)</i>	
Any Global Snapshot		Overwrites the selected local snapshot with the snapshot selected from the external medium <i>(administrator only)</i>	
User Name		–	–
Default		Overwrites the local default snapshot with the snapshot selected from the external medium	–
The Default Snapshot		Overwrites the local default snapshot with the snapshot selected from the external medium	Overwrites the snapshot selected on the external medium with the selected local snapshot <i>(either for the administrator, or if one of the current user's own snapshots is selected)</i>
Private		Copies the selected snapshot from the external medium to the local file system as a private snapshot	–
Any Private Snapshot		Overwrites the selected local snapshot with the snapshot selected from the external medium	Overwrites the snapshot selected on the external medium with the selected local snapshot <i>(either for the administrator, or if one of the current user's own snapshots is selected)</i>

The << and >> buttons are only visible if an operation is allowed.

‘Copy’ Copies all available snapshot parameter files with the same name to the destination.
If there already exists a snapshot with the same name, a user warning appears in a modal dialog: ‘Snapshot ‘name’ already exists. Do you really want to overwrite it?’ When answering **Yes**, all selected parameter files will be overwritten.

‘Overwrite’ Updates the selected snapshot parameters within the selected snapshot. Unselected parameter files remain unchanged.

A dialog box 'Snapshot 'name' already exists. Do you really want to overwrite it?' pops up. When answering **Yes**, all selected parameter files will be overwritten.

Note: *If a snapshot containing audio, input routing, output routing, and assignment parameters is overwritten by a snapshot only containing e.g. audio parameters, the old input/output routing and assignment parameters will be lost!*

Selected Item in Local List	Add User
Any User Name	Creates a new folder for the selected user on the external medium (either for the administrator, or if the current user is selected)

'Add User' The **Add User** button is visible only if the operation is allowed and no user folder with the current user's name exists.

Selected Item in Card List	Rename	Delete
Any User Name	Renames the selected user folder on the external medium (administrator only)	Deletes the selected user folder, including all snapshots, from the external medium (administrator only)

Rename Renames the selected user folder on the **external medium**.
The keyboard appears and the user is prompted to enter a new folder name. If there already exists a folder with the same name, a dialog box appears: 'A user with the name 'username' already exists'; if desired, confirm with **OK**.

Delete Deletes the selected user folder from the external medium after having confirmed the dialog box 'Do you really want to delete the selected user?' with **Yes**.
If the selected folder is not empty, a dialog box 'The selected user cannot be deleted. The user's snapshots have to be deleted first' appears. If desired, confirm with **OK**.

Selected Item in Card List	Rename	Delete
Any Snapshot	Renames the selected snapshot on the external medium (either for the administrator, or if one of the current user's own snapshots is selected)	Deletes the selected snapshot from the external medium (either for the administrator, or if one of the current user's own snapshots is selected)

Rename Renames the selected snapshot on the external medium.
The keyboard appears and the user is prompted to enter a new snapshot name. If there already exists a snapshot with the same name, a dialog box appears: 'A snapshot with the name 'snapshotname' already exists. Do you really want to rename the selected snapshot?'. When continuing with **Yes**, all parameter files of the existing snapshot will be deleted before renaming all parameter files of the selected snapshot.

Delete Deletes the selected snapshot from the external medium after having confirmed the dialog box 'Do you really want to delete the selected snapshot?' with **Yes**.
All parameter files of the selected snapshot will be deleted.

5.6.2.7 Snapshots During Login

- On login of any user, this user's *default snapshot* is loaded if available
- On login of the default user (or logout of any other user, respectively), the default user's default snapshot is loaded if available.

The *default snapshot* may include audio, input routing, output routing, and/or assignment parameters, such as any other snapshot.

Please note that login is possible only while the core is powered up, since the user data are stored within the core.

Example: If a user desires his preferred rotary assignment only loaded when logging in, he simply creates in the 'default' folder a snapshot named 'default' that only contains his rotary assignment parameters.

5.6.2.8 Snapshots During Power-up

At system power-up the behavior is the same as a desk power-up, followed by a core power-up. Finally, the default user is logged in, and his default snapshot is automatically loaded.

5.6.2.9 User Warnings

In contrast to the abovementioned local user dialog boxes and warnings generated by the user GUI itself, the snapshot extension also generates its own user warnings, as shown in the table below.

Warning:		SNAPSHOT, Snapshot File 'my FirstSnap' not found or invalid! Snapshot not loaded.	SNAPSHOT, Snapshot cannot be loaded. Incompatible snapshot file version 'my First-Snap'.	SNAPSHOT, Snapshot File 'my FirstSnap' corrupted!
Context:	Warning No.:	5000	5002	5003
User Login		No	Yes...	Yes...
Load Snap via GPIInput		Yes...	Yes...	Yes...
Load Snap via Desk Key		Yes...	Yes...	Yes...
Load Snap from User GUI Shot Page		Yes...	Yes...	Yes...
		... if none of the requested snapshot files (.aud, .irt, .ort, .ass) could be opened.	... if the file cannot be opened, or if the snapshot file version doesn't match the current software status.	... if no snapshot file version is found, or if the CRC checksum is invalid.

5.7 Routing

The OnAir 1500 has an integrated audio input/output router. The intelligent Input Router can be set during operation from the desk or the GUI. The output router can be set from the GUI.

Definition of Terms

- *Physical audio input*: Input connector and input interface (analog mic, analog line, or digital). One physical audio input can be assigned to one or more logical inputs at a time. Physical audio inputs are located at the rear of the Nano SCore.
- *Logical audio input*: Set of input-related audio parameters including the input name (label). Can be assigned to any one of the physical audio inputs, and on the other hand to one of the physical console channels (channel strips). Logical audio inputs are located within the DSP section of the Nano SCore.
- *Physical console channel, or console channel strip*: Set of operating elements on the desk (or on the GUI) to which one of the logical audio inputs can be assigned.
- *Logical audio output*: Link between the output router and the physical audio output, contains the output's name (label). Logical audio outputs are located within the DSP section of the Nano SCore.
- *Physical audio output*: Output interface (analog or digital) and output connector. Physical audio outputs are located at the rear of the Nano SCore.

The routing functionality in an on-air console is different from the routing in a production console. While the OnAir 1500 keeps the channel settings at the input, a re-routed input has the same channel settings as were set the last time it was used.

The OnAir 1500's intelligent input router automatically handles the internal routing and channel layering functionality and so allows easy and intuitive operation.

A source that is always in use can be hot-layered to another channel strip without interruptions to its audio signal.

All physical inputs and outputs can be used for every purpose (e.g. input channel, monitoring, talkback, master, etc.) which is only depending on the configuration of the logical I/Os.

5.7.1 Audio Routing

Audio signals are generally handled as a mono stream, regardless of the audio interface format (mono, stereo). and are put together with the logical inputs.

5.7.1.1 Physical Audio Inputs and Outputs

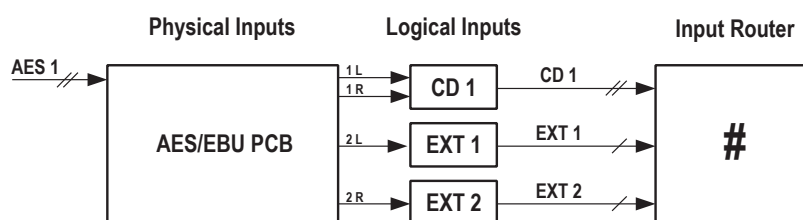
The OnAir 1500's physical audio inputs are internally handled as mono signals, regardless of their audio interface format (mono, stereo) and can be put together with the logical inputs.

5.7.1.2 Logical Audio Inputs

Logical audio inputs are the link between the physical audio inputs and the input router. Only logical inputs/outputs can be routed and will be visible on the operating surface.

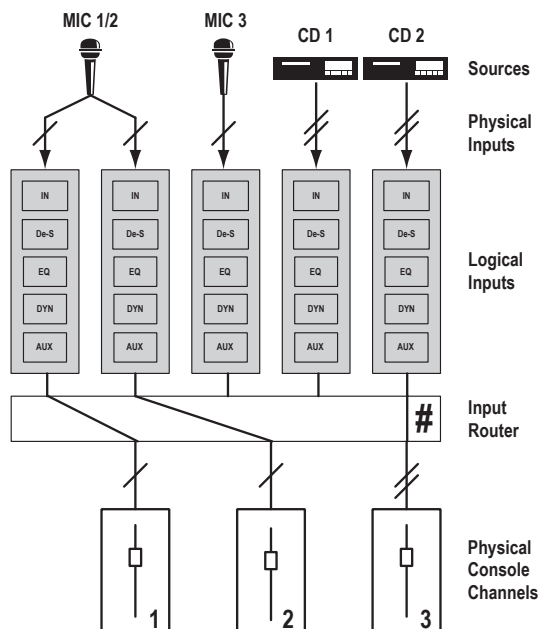
Because the logical audio input holds the channel parameters, a logical input can be assigned *only to one* channel at a time. However, it is possible to have more than one logical audio input with the same physical audio input line.

The example below shows one logical stereo input (CD 1), and two logical mono inputs (EXT 1, EXT 2) that consist of the left and right signals of one physical AES/EBU input (AES 1).



Input-related Channel Parameters

Every logical audio input holds its own set of channel parameters, even if it is currently not routed to a channel. If a previously un-routed logical audio input is re-routed to a channel, its last parameter settings (such as gain, EQ, dynamics, etc.) are automatically activated. The fader setting and the status of the **ON** and **PFL** keys remain at the current channel status.

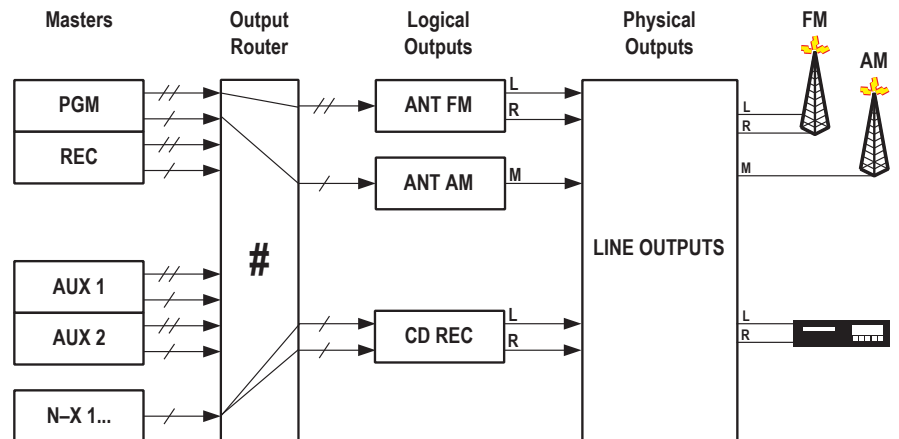


The following information affects the routing and is contained in the configuration of a logical audio input:

- Input label
- Format (mono or stereo)
- Left-channel audio input (physical input)
- If stereo: right-channel audio input (physical input)
- Listen only (inputs that can not be routed to channels, used e.g. for monitoring)
- Talkback audio signals.

5.7.1.3 Logical Audio Outputs

Each stereo master has a stereo and a mono output simultaneously. They can both be routed to logical audio outputs. The example below shows a situation where the PGM master is used for a simultaneous transmission of the program in stereo (FM) and in mono (AM).



A logical stereo output is connected to the master's stereo output, and a logical mono output is connected to the master's mono-mixed output. If a logical stereo output is assigned to a mono master output, as the N-X 1 in the example above, the mono master signal is fed to both the left and right output connectors. The mono/stereo output format is automatically handled and thus not shown in the output router page, from which results a very easy handling of the output router.

5.7.2 Channel Format

The channel format is not fixed as it usually is in a production console, but it automatically follows the format of the routed input source instead. This means that when routing a mono input source to a console channel forces the channel to operate in mono mode, and routing a stereo input source forces the channel to operate in stereo mode.

The channel format affects the controls in the channel page. This is visible in the channel input page, where the LR/RL/LL/RR/Mono buttons are shown for stereo channels only, and in the channel FDR/Bus page, where either a PAN field is shown for mono channels or a BAL field for stereo channels. Formats are automatically adjusted. This means that if a channel is currently in stereo mode and its signal is routed to a mono AUX output, the system automatically inserts a mono summing matrix into the signal path between the channel and this AUX output.

5.7.3 Routing Protection

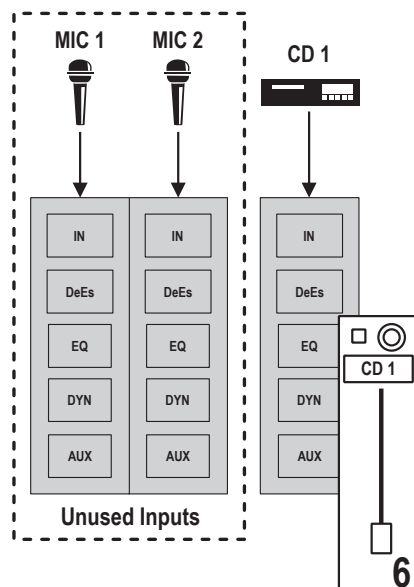
If a channel is currently on-air (i.e., channel ON, channel fader open, channel routed to a master being on-air, master fader open), the input source cannot be changed before the channel becomes inactive. However, hot-swapping of channels is always allowed. In addition, connections can be protected in the configuration tool (e.g. the master channels).

5.7.4 Routing Operation

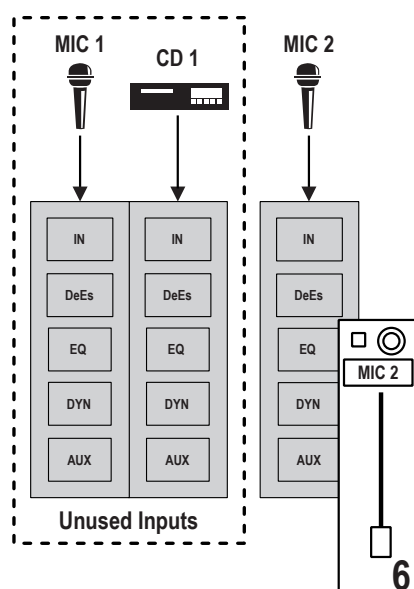
Input Routing

Input routing is either done with the channel's rotary encoder in **INPUT** global view mode ([chapter 5.3.1.1](#)), or in the user GUI's Routing Input page.

Example: Routing a new source (MIC 2 instead of CD 1 to channel strip #6).



- Select **INPUT** global view mode and select the MIC input group with the rotary encoder of channel strip #6.
- Press the corresponding key.
- Turn the rotary encoder again until the desired source is displayed in the channel label display (MIC 2 in the example above).
- Press the key again.



Now, the MIC 2 input is routed to channel strip #6, as shown above. All channel settings are as they were set when this input was used the last time, except for the fader value and the status of the **ON** and **PFL** keys; these are not overwritten and remain in the current channel status before the re-routing took place.

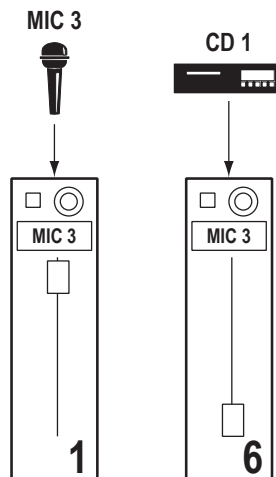
Output Routing

For output routing the user GUI is required; use the Routing Output page.

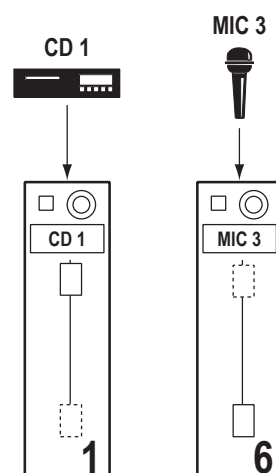
5.7.5 Hot-Swapping

The hot-swapping feature allows 24-hour console operation without an audio interruption, even if the routing is changed and snapshots are loaded. Hot-swapping also works if the source is currently on-air. However, the destination channel must be inactive, otherwise channel protection is active.

Example: Routing the MIC 3 input from channel strip #1 to channel strip #6 without audio interruption.



- Select **INPUT** global view mode and select the MIC input group with the rotary encoder of channel strip #6.
- Press the corresponding  key.
- Turn the rotary encoder again until the desired source is displayed in the channel label display (MIC 3 in the example above).
- Press the  key again.



Now, all channel settings (EQ, DYN, Fader, ON, etc.) are swapped in real time, without audio interruption. Only the physical fader position does not correspond to the internal fader position, indicated by FDR UP or FDR DOWN on the fader strip's OLED display.

- Move the fader knob to the internal fader position with the help of the fader take-over indication in the fader strip's OLED display.

5.8 Watch and Stopwatches

5.8.1 Watch

The OnAir 1500 displays the time-of-day in the meter bridge section as long as the **CLOCK** key is illuminated (default setting).

The standard time reference is an internal real-time clock (RTC) with battery back-up. The RTC continues to run when the console is switched off. Therefore, it is unnecessary to set the watch on each power up. Depending on configuration time display is either in 24 h mode (default setting) or in 12 h mode with PM indication.



The **FADER** and **MAN** keys switch the display over to a fader or user (manual) stopwatch display, respectively. If the user stopwatch is selected with the **MAN** key, the **COUNT DOWN** key activates a countdown timer.



The time-of-day clock and the fader stopwatch are fully independent; if active but not selected, they run in the background. The same applies for the user stopwatch/countdown timer.

5.8.2 Fader Stopwatch

Start / Restart / Stop

The fader stopwatch is controlled by the channel(s) for which the **Timer Start** option has been enabled in the configuration tool under Config – LogicalInputs – Timer Start – on/off (refer to [chapter 6.5.1](#)).

The fader stopwatch always (re-) starts at 00:00:00 (hh:mm:ss) when any of the configured channels goes on-air, i.e. it is switched **ON** while its fader is open, or its fader is opened while it is switched **ON**. It stops when the fader is closed or when the channel is switched off.

It can display a time range of up to 23:59:59. Should this value be exceeded, it restarts at 00:00:00.

It is also operative in the background, i.e. if the time-of-day clock or the user stopwatch (or the countdown timer) is currently displayed.

5.8.3 User Stopwatch

- If activated with the **MAN** stopwatch key, the user stopwatch acts as a normal time counter. It always starts from 00:00:00.
- Start** The user stopwatch is started with **START**. While running, the **START** key is illuminated.
- Restart** While running, the user stopwatch can be restarted from 00:00:00 with a second press on **START**.
- Pause** When pressing **STOP** the user stopwatch is paused at the current reading; pause is indicated by a flashing **START** key. Pressing **START** again resumes the counting on from the current reading.
- Stop** Pressing **STOP** two times stops the user stopwatch and resets it to zero. It can display a time range of up to 23:59:59. Should this value be exceeded, it restarts at 00:00:00.
- It is also operative in the background, i.e. if the time-of-day clock or the fader stopwatch are selected after a **START** command.
- Please note that the user stopwatch and the countdown timer cannot be used simultaneously. However, when activating **COUNT DOWN** while the user stopwatch is running simply reverses the counting direction.

5.8.4 Countdown Timer

- If both the **MAN** stopwatch and the **COUNT DOWN** timer keys are active the display shows a countdown timer.
- Entering a Start Time** The start time can be adjusted with the ◀ (down) and ▶ (up) keys. Pressing one of these keys for an extended time continually increases the setting speed for quick and convenient adjustment. Maximum start time is 23:59:59.
- Start** Once the start time is adjusted the countdown timer is started with **START**. While running, the **START** key is illuminated. When reaching zero, the countdown timer stops, the **START** key becomes dark, and the original start time flashes for a few seconds in the display. Afterwards it is displayed steadily.
- Restart** While running, the countdown timer can be restarted from the adjusted start time by pressing **START**.
- Pause** When pressing **STOP** the countdown timer is paused at the current reading; pause is indicated by a flashing **START** key. Pressing **START** again resumes the countdown from the current reading.
- Stop** Pressing **STOP** two times stops the countdown timer and resets it to the original start time.
- It is also operative in the background, i.e. if the time-of-day clock or the fader stopwatch are selected after a **START** command.
- Please note that the countdown timer and the user stopwatch cannot be used simultaneously. However, when deactivating **COUNT DOWN** while the countdown timer is running simply reverses the counting direction.

5.8.5 GUI Watches

If a user GUI screen is connected, the watch in the upper left corner of the screen gives a permanent display of the current time and date. The standard time reference is an internal real-time clock (RTC) with battery back-up. The RTC continues to run when the console is switched off. Therefore, it is unnecessary to set the watch on each power up. Three different display modes (from left to right: analog, radio and digital clock), and two different date formats (20.Jul.2010 or Jul-20-2010) are available, they can be selected in the configuration tool (see [chapter 6.5.33.1](#)).



5.8.5.1 Time and Date Setting



Both the meter bridge and user GUI watches are simultaneously set in the **Admin - Date Time** page (see [chapter 5.12.7.4](#)). The following parameters can be set:

- Time and date (only if free-running, i.e. **Time Sync Source = None**)
- Offset; used whenever a *temporary* offset between the actual watch time and the time display is desired. If a temporary offset is set, the **Offset** indicator in the upper right corner of the dial turns red, as shown left. *This offset is automatically reset to 0:00 when the console is restarted.*

On the **Admin - Date Time** page, the selected time sync source is displayed for reference.

5.8.5.2 Watch Configuration

The configuration tool allows specifying the time display mode and the time/date format (User GUI - Settings, see [chapter 6.5.33.1](#)) as well as the time sync reference, a time zone selection, and automatic daylight saving time switchover for use with NTP or Monitors synchronisation (Config - System Time, see [chapter 6.5.15](#)).



Possible synchronization sources for the watch:

- None (i.e. free-running, controlled by the internal RTC). The **sync** indicator is displayed in gray, as shown in [chapter 5.8.5.1](#).
- Network (NTP time server)
- Monitors

In NTP and Monitors modes, the **sync** indicator is displayed in white on black background, as shown in [chapter 5.8.5](#). If the synchronization fails, it turns red, as shown left.

In free-running as well as in NTP sync modes, automatic daylight saving time switchover needs to be activated. In NTP mode, time zone selection is important for correct time and date display since the time information received corresponds to UTC, no matter in which time zone the console is located.

If the watch is synchronized using the Monitora protocol (e.g. from a DigiMedia CAB system), it depends on what time information is sent to the console.

Example: In case of a DigiMedia system receiving a DCF77 time signal, you need to select GMT time zone since the time stamp sent by DCF77 is correct for the area within which it can be received (in fact, it is UTC +1 h or +2 h, depending on the current daylight saving time status). The automatic daylight saving time setting needs to be OFF in that case for the same reason.

5.8.5.3 Fader Stopwatches



The upper one of the GUI stopwatches is called the fader stopwatch. It is controlled by the channel(s) for which the **Timer Start** option has been enabled in the configuration tool under Config – LogicalInputs – Timer Start – on/off (refer to [chapter 6.5.1](#)). It always (re-) starts at 00:00:00 (hh:mm:ss) when any of the enabled channels goes on-air, i.e. it is switched **ON** while its fader is open, or its fader is opened while it is switched **ON**. It stops when the fader is closed or when the channel is switched off.

The label of the logical input that has started the stopwatch is indicated next to the stopwatch on the GUI screen (such as **CD 1**, as illustrated left).

Display Range

The fader stopwatches can display a time range of up to 23:59:59. Should this value be exceeded, it restarts at 00:00:00.

Please Note:

The lower one of the two stopwatch displays on the user GUI is inactive and always remains at 00:00:00.

5.9 User Access and Management (Advanced Users Only)

5.9.1 Purpose

OnAir 1500 consoles are used in different studios with different working practice and different personnel structures. A large part of users in broadcast studios is not technically oriented. They request from a mixing console that it is simple to use, reliable, and free of ‘unnecessary’ controls and displays. Setting of a wider range of console parameters, saving of console settings (snapshots) and modifications of the console configuration have to be left for technically more competent users (e.g. studio technicians, chief engineer, etc.). It may also be necessary to protect parts of system data, and to give the permission to change them only to a restricted number of users. In order to satisfy these needs, the OnAir 1500 console supports individual user access rights. By assigning appropriate access rights to each user it is possible to individually adapt the OnAir 1500 console to very different environments.

The access rights for a specific user are defined on two different levels; ‘privileges’ are defined for access to GUI pages and to groups of console parameters.

A set of privileges forms a ‘policy’. One or more policies can be assigned to every user, which means that the access rights for a certain user are the result of a logical OR combination of all policies assigned to him. If no policy is assigned to a particular user, he has no access to any of the console settings.

5.9.2 General

Once a user is logged in via the user GUI, his login information is saved in the user GUI memory (‘container’). The container saves the access rights for the user currently logged in. After start-up of the console, the default user is logged in per default.

5.9.3 Users

The default number of users is 20. This number is defined in the `user.xml` file and may be up to 64; it *cannot* be changed during runtime. If more than 64 users are required, the system must be setup in such a way that the user management is running on a separate computer (see [chapter 5.9.9](#)). The maximum number of users is 4096.

The first user is the system administrator (Admin), the second user is the default user (Default), all following users are ‘ordinary’ users (User3...).

The system administrator has a special, unrestricted ‘Admin’ policy that *cannot be modified*. The default user also has his special ‘Default’ policy that may, however, be modified. For reasons of simplicity and reliability, both the admin and default users have one single, fixed policy only.

The default configuration settings are as follows:

User	Name	Password	User Valid	Policies
User 1	Admin	admin	Yes	Admin (policy 1)
User 2	Default	-	Yes	Default (policy 2)
User 3	User 3	-	No	Policy 3
User 4	User 4	-	No	Policy 3
...	...	-	No	Policy 3
...	...	...	...	...

5.9.4 Privileges

A user GUI page or a console parameter group has a flag indicating whether it can be accessed or not; the flag values are **Grant** and **Deny** (i.e., access to the corresponding page or parameter group is granted or denied). The privileges are checked on every access.

5.9.5 Policies

Policies are groups of privileges and can be considered as roles (e.g. Journalist, Operator, DJ etc.).

The default number of policies is 8. This number is defined in the `user.xml` file and may be up to 16; it cannot be changed during runtime. If more than 16 policies are required, the system must be setup in such a way that the user management is running on a separate computer (see [chapter 5.9.9](#)). Then, the maximum number of policies is 255.

5.9.6 Department Snapshots

Snapshot save and recall rights management is performed with the help of 'departments'. Per default, up to 8 departments can be configured. To every user one or more departments can be assigned, or any department at all. In addition, it can be selected whether he has read-only or read/write access to the different departments.

The system administrator ('Admin') always has read/write access to all departments as well as to all default, global, and private snapshots, whereas the default user normally is restricted to the global and his private snapshots.

5.9.7 Parameters

The following tables show GUI pages and console parameter groups for which privileges may be defined within a policy, together with the pre-defined (default) privileges for the Admin and Default users; there exists a third default privilege provided by the software update wizard to ensure downward compatibility during a software upgrade; in this case, the upgrade wizard will assign it to all users having the ScreenLock feature.

Page	Parameter Groups	Single Parameters (not implemented in V3.0)	Privileges of Default Policy		
			Admin	Default	ScreenLock
Chan::Input	GEN	GEN On/Off	x	x	
		Generator Left	x	x	
		Generator Right	x	x	
	GainCal	MicGain	x	x	
		Cal	x	x	
		GainCal (Strip)	x	x	
	Other Parameters	Phase	x	x	
		MicPhantom (+48V)	x	x	
		MicHPF	x	x	
		MicInsertOnOff	x	x	
		MicClipLimiter	x	x	
		Mono	x	x	
		StereoMode (LR/RL/LL/RR)	x	x	
Chan::DeEs	ON	Deesser_On/Off	x	x	
	Other Parameters	DSAutoThreshold	x	x	
		DSFreq	x	x	
		DSQ	x	x	
		DSThreshold	x	x	
		DSAttenuation	x	x	
		DSRatio	x	x	
Chan::EQ	EQ ON	EQ_On/Off	x	x	
	EQ Gain	LF_gain	x	x	
		LMF_gain	x	x	
		HMF_gain	x	x	
		HF_gain	x	x	
	EQ Parameters	LF_frequency	x	x	
		LF_Q	x	x	
		LMF_frequency	x	x	
		LMF_Q	x	x	
		HMF_frequency	x	x	
		HMF_Q	x	x	
		HF_frequency	x	x	
		HF_Q	x	x	

Page	Parameter Groups	Single Parameters (not implemented in V3.0)	Privileges of Default Policy		
			Admin	Default	ScreenLock
Chan::DYN	DYN	Dynamics_On/Off	x	x	
	COMP/LIM Parameters	Compressor_gain	x	x	
		Auto_make_up_On/Off	x	x	
	LIM	Limiter_On/Off	x	x	
		Limiter_threshold	x	x	
		Limiter_attack_time	x	x	
		Limiter_release_time	x	x	
	COMP	Compressor_On/Off	x	x	
		Compressor_threshold	x	x	
		Compressor_ratio	x	x	
		Compressor_attack_time	x	x	
		Compressor_release_time	x	x	
	EXP	Expander_On/Off	x	x	
		Expander_threshold	x	x	
		Expander_ratio	x	x	
		Expander_attack_time	x	x	
		Expander_release_time	x	x	
	GATE	Gate_On/Off	x	x	
		Gate_threshold	x	x	
		Gate_attenuation	x	x	
		Gate_attack_time	x	x	
		Gate_release_time	x	x	
Chan::AUX Assign	AUX 1	Bus_On/Off	x	x	
		Aux_Pre/After	x	x	
		Bus_Level	x	x	
	AUX 2	Bus_On/Off	x	x	
		Aux_Pre/After	x	x	
		Bus_Level	x	x	
Chan::N-X Assign	N-X 1	Bus_On/Off	x	x	
		Bus_Level	x	x	
		Contr_On_OFF	x	x	
		Contr_Level	x	x	
		BusOnOffNXFullReturn	x	x	
		NXFullReturn	x	x	
	...	...	...	...	
	N-X 8	Bus_On/Off	x	x	
		Bus_Level	x	x	
		Contr_On_OFF	x	x	
		Contr_Level	x	x	
		BusOnOffNXFullReturn	x	x	
		NXFullReturn	x	x	
Chan::FDR Bus	PanBal	Pan_On/Off	x	x	
		Pan_value	x	x	
	Other Parameters	PRGBusA; Bus_On/Off			
		RecBus; Bus_On/Off			
	Record	RecBus; Rec_PF	x	x	
		RecBus; Record	x	x	

Note: The privilege for Insert On/Off is defined in the ROUT::Insert section.

Page	Parameter Groups	Single Parameters (not implemented in V3.0)	Privileges of Default Policy		
			Admin	Default	ScreenLock
SUM::Master	All Parameters	Program_A_Master; Mono	x	x	
		Program_A_Master; Gain	x	x	
		Program_A_Master; DelayOn	x	x	
		Program_A_Master; DelayTime	x	x	
		Record_Master; Mono	x	x	
		Record_Master; Gain	x	x	
		Record_Master; DelayOn	x	x	
		Record_Master; DelayTime	x	x	
SUM::AUX	AUX 1	Mono	x	x	
		DelayOn	x	x	
		DelayTime	x	x	
	AUX 2	Mono	x	x	
		DelayOn	x	x	
		DelayTime	x	x	
SUM::N-X	N-X 1: Other Parameters	Mono	x	x	
		Record_Master; DelayOn	x	x	
		Record_Master; DelayTime	x	x	
	N-X 1: Init	InitLevels	x	x	
	N-X 1: Mode	Mode	x	x	
	...	...	...	...	
	N-X 8: Other Parameters	Mono	x	x	
		Record_Master; DelayOn	x	x	
		Record_Master; DelayTime	x	x	
	N-X 8: Init	InitLevels	x	x	
	N-X 8: Mode	Mode	x	x	
ROUT::Input	All Parameters	DeskDriver; Strips; InputSelector	x	x	
		Connect	x	x	
		Clear	x	x	
		StripChannelX; Routing Locked	x	x	
ROUT::Output	All Parameters	Connect	x	x	
		Clear	x	x	
ROUT::Insert	Insert 1	Insert1 (Source Selector)	x	x	
		Insert_On/Off	x	x	
		InsertPosition	x	x	
	...	...	...	...	
	Insert 8	Insert8 (Source Selector)	x	x	
		Insert_On/Off	x	x	
		InsertPosition	x	x	
ROUT::Mic Group	All Parameters	Assign	x	x	
		Clear	x	x	
ROUT::XL Assign	All Parameters	Input Selector	x	x	
SNAP::Shot	Modify Snapshot	Create	x	x	
		Rename; File & NewName	x	x	
		Delete	x	x	
	Recall Snapshot	Load	x	x	
SNAP::Route	All Parameters	Load	x	x	

Page	Parameter Groups	Single Parameters (not implemented in V3.0)	Privileges of Default Policy		
			Admin	Default	ScreenLock
SNAP::Ext	All Parameters	Save	x	x	
		Recall	x	x	
Admin::Brightness	All Parameters		x	x	
Admin::Fader Cal	All Parameters	DeskDriver; Module Table; FaderCalibration	x		
Admin::Firmware	All Parameters		x		
Admin::Date Time	All Parameters	setOffset	x		
		apply	x		
Admin::Config	All Parameters	SaveDeskSettings	x		
		SaveToExtMedia	x		
		LoadFromExtMedia	x		
		StartConfig	x		
Admin::Scrn Cal	All Parameters		x		
Admin::Setup	All Parameters		x		
Admin::Generator	All Parameters	GeneratorSignal	x		
		GeneratorFrequency	x		
		GeneratorLevel	x		

Additional Parameters: The console parameters below are not necessarily visible on the screen; however, privileges may be defined for them as well.

Page	Parameter Groups	Single Parameters (not implemented in V3.0)	Privileges of Default Policy		
			Admin	Default	ScreenLock
Other Functions	UserKeys1-20	UserKey1-UserKey20	x	x	x
	Meter	Meter (AF, PF, N-X Send)	x	x	x
	GRM	GRM (C/L, DeEs)	x	x	x
	AcceptLogMessages		x	x	x

5.9.8 Internal Access Handling

The extensions providing the interface to the user are responsible for checking the corresponding privileges.

5.9.8.1 User GUI

The user GUI extension checks the privileges on two different levels, i.e. for pages and for console parameters. For a user having no access right to a certain page, this page will not open. Access to a console parameter depends of the current privilege flag setting:

- | | |
|--------------|--|
| Grant | The corresponding button or the black parameter value field above the rotary encoder is visible and allows controlling this parameter. |
| Deny | The corresponding button or the black parameter value field above the rotary encoder is not visible, there is no way for controlling this parameter. |

Special Cases:

Parameters without Privileges

There exist console parameters without privileges, such as fader level, channel on/off, PFL). These parameters can be controlled from the user GUI whenever access to the corresponding page is granted.

Access

The **Access** button on the **CHAN - Input** page allowing the user to request access to the microphone inputs' unique resources is visible only if access to at least one of these parameters is granted.

Insert ON/OFF

The privilege for the **Insert ON/OFF** buttons on the **CHAN - FDR/Bus** and the **Sum - Master** pages is defined in the **ROUT::Insert** section. Therefore the **Insert ON/OFF** button for a certain logical input or master is visible only if the user has access to the insert currently assigned to that logical input or master.

Input Routing

The input routing (strip assignment) can be controlled from both the **CHAN - Input** and the **Routing - Input** pages. The **ROUT::Input - All Parameters** privilege provides access to the strip assignment on *both* pages. As a consequence, the **CHAN - Input** page and the **Input Selection** button on this page can be accessed under the following conditions:

- *For logical inputs:*
 - The **CHAN - Input** page is accessible if either the **ROUT::Input - All Parameters** privilege or at least one of the **CHAN::Input** privileges are granted.
 - The **Input Selection** button on the **CHAN - Input** page is visible if the **ROUT::Input - All Parameters** privilege is granted.
- *For all sum buses:*
 - The **CHAN - Input** page is accessible if the **ROUT::Input - All Parameters** privilege is granted. *Any SUM::... privileges are ignored.*
 - The **Input Selection** button on the **CHAN - Input** page is always visible.

5.9.8.2 Desk

	The desk extension checks the privileges for the desk keys and rotary encoders. Access to them depends of the current privilege flag setting:
Grant	The corresponding key or rotary encoder on the desk surface allows controlling its parameter.
Deny	The corresponding key or rotary encoder on the desk surface has no effect and is not displayed on the OLED display.

5.9.8.3 Configuration Tool

If the configuration tool is running in standalone mode, system selection buttons appear. When selecting a system, the system administrator's password is verified, because only the system administrator has the privilege to configure the console.

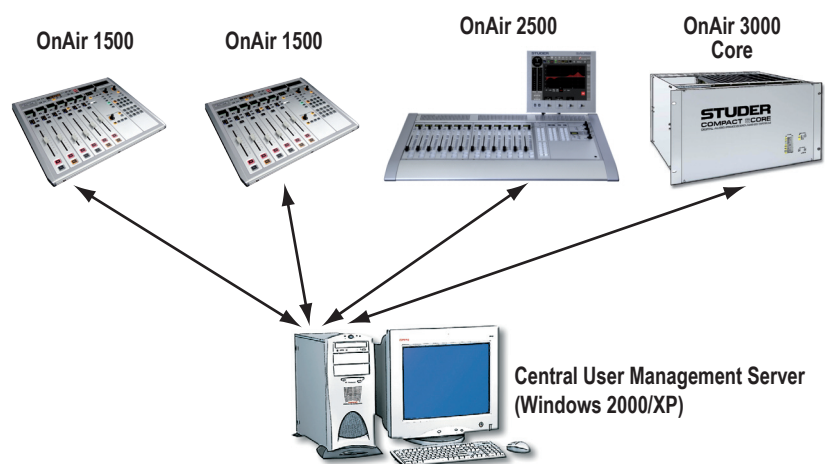
5.9.8.4 Other Extensions

Extensions such as GPIO, CAB or CMS controllers implementing an interface to 3rd-party software do not check any privileges. Access rights must be handled by the 3rd-party software.

5.9.9 Central User Management

'Central User Management' allows central administration of the console users and their privileges in a network of consoles. Configuration of users and privileges is called 'user configuration' below.

For central user management, an additional central user management server, i.e. a Windows 2000 or XP computer, is required within the network; then, each console asks the central user management server for the required user information.



Modifications of the user configuration can be done either on one of the consoles, or on the central user management server, or on both in parallel. Modifications are visible immediately on all consoles within the network or within the same multicast group. New user settings (such as a password) and privileges will be effective when this user logs in the next time.

For configuration information, please refer to [chapter 6.5.30](#).

5.9.9.1 Principles

The 'user' extension that provides the user configuration parameters runs on the central user management server as well as on each system core. The central user extension on the server provides all parameters, as they are used by all consoles in the network. The local user extensions on each core serve as backup solution only in case the central server should fail. These are configured (in the `user.xml` file) to provide at least the Admin and Default user configurations.

The configuration tool always connects to the local user extension. So, for a remote user configuration of the users hosted by the central user extensions, the administrator has to select the system running the central user extensions after having started the ConfigTool.

5.9.9.2 Standalone Systems

Of course, the concept described above also works for a standalone console. However, for a standalone console without central user management the server is not required. The user extension runs locally on the core container, and it can be configured (in the `user.xml` file) to provide up to 64 users and 16 policies.

If more users or policies are required, or if users need to be managed centrally even on a standalone system, an additional container must be started on the server to run the central user extension. The user extension running locally then only provides the Admin and Default user's parameters, as described above.

Standalone Console:

With Central User Management Server:

User Extension on:	Users max.	Policies max.	Comment
Console	64*	16**	As specified by the user.xml file (Defaults: *20 and **8, resp.)
Console	2	2	User configurations of the Admin and the default users are replicated to each console
Server	4096	255	As specified by the user.xml file

5.9.9.3 In Case of a Failure...

Failure of the central user management server or the network connection has the following consequences:

- Login is possible as Admin only.
- The configuration tool provides access to the local user configuration only (i.e. for the Admin and the Default user). A user configuration made while the central user management server or the network connection is down will be overwritten as soon as the central user extension re-appears on the network.

- But:**
- *No consequences* for the privileges of the user currently logged in, as they are temporarily saved in the DSP core locally.
 - Logout remains possible.

5.10 External Audio Synchronization (Advanced Users Only)

The synchronization source may be internal or external. For external synchronization, the type of available external synchronization signal(s), i.e., the sync source, must be selected in the configuration (see [chapter 6.5.29](#)).

Available Sync Sources	Possible Sampling Rates OnAir 1500
INTERNAL	44.1 / 48 kHz $\pm$ 100 ppm (default)
AES/EBU	44.1 / 48 kHz
WORDCLOCK	44.1 / 48 kHz
<i>* NO drop frame sources allowed/possible</i>	

If synchronization is lost while the console is synchronized to an external signal, a message box is displayed, and a warning (Missing External Clock) is added to the error list.

If the console was synchronized to either Wordclock or AES/EBU and the sync signal is lost, the console automatically switches to Internal mode. As soon as a valid external clock is available again, the console is re-synchronized.

5.11 Diagnostics (Advanced Users Only)

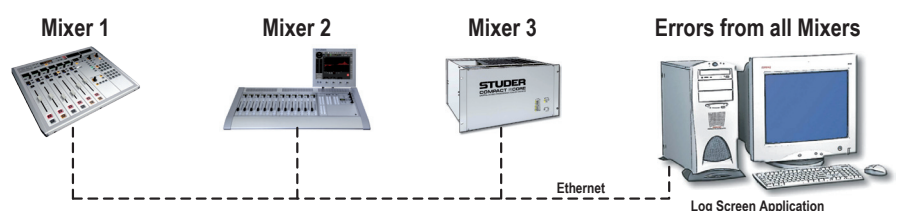
The concept of the OnAir 1500 diagnostics system consists of three topics:

Error Handling	This is the distribution part for the detected errors, warnings and information from the diagnostics system.
System Diagnostics	This is the software running in the background and detecting system errors.
System Tests	System Tests are executed on the service engineer's demand in order to run some specific performance checks, i.e., to check efficiency of buttons and faders. For this purpose the console is switched to a special test mode.

5.11.1 Error Handling

5.11.1.1 Principle

Error messages can be distributed in the whole mixing console system. It is possible to configure each GUI to show and accept errors from each console. Also complete house systems with a central diagnostics station running the 'Log Screen' application can be configured. In the example below, one OnAir 1500, one OnAir 2500 and one OnAir 3000 core (mixer 3) are shown. Each of mixers 1 and 2 displays its own error messages. Since mixer 3 has no GUI, its error messages, together with the ones from the other mixers, are logged by the central log station.



5.11.1.2 Error Types

Information	There are three types of user log messages: Information messages are generated in order to inform the user on a console status that doesn't reduce the functionality of the console. Usually this is the information that an existing problem doesn't appear anymore.
Warnings	Warning messages are generated when a minor problem occurs that can be handled by the system itself. The system may modify some console settings in order to solve the problem. Normal operation is still possible, but probably in a slightly different or restricted way.
Errors	Error messages are generated if a serious problem prevents the console from normal operation. In case of an error the system is not able to handle the problem itself. Example: 'SYSTEM, Fatal software error occurred - System will be stopped. For details see log-file'.

5.11.1.3 Log System

Each mixer has its own internal log list that is automatically displayed if it contains one or more entries.

If a system message occurs, the diagnostics software manages the log list which contains one entry for each system message, completed by time and date of occurrence.

If the log list contains more than one entry, the **PREV** and **NEXT** buttons appear on the Home page, allowing scrolling through the messages.

A user having access permission can accept warning and information entries; this causes the diagnostics software to remove the accepted entry from the log list. The log list is automatically cleared when the console is powered off.

Some entries in the log list need to be indicated immediately on their occurrence. A dialog box does this regardless of the currently selected page on the screen.

Each log list entry consists of:

- Error text
- Error type (information, warning, error)
- Date and time of occurrence.

Central Error Logger	The Central Error Logger is equipped with an improved Log Screen. The logger can also run as a Windows® application. It collects all error messages centrally and writes them to the log file. The new LogScreen allows an administrator loading and inspecting saved log files as well as checking the health state of the system by checking error logs in quasi real-time. Extensive filter functions allow focusing on particular error messages.
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5.11.2 System Diagnostics

System diagnostic is an application running in the background that detects error events in the system during power up and operation.

During Power Up	Items checked by the system diagnostics software at power up: • Hardware Devices • Communication • Configuration – Any difference to the hardware configuration before the last power down (i.e., missing or additional options) results in a warning or information message.
------------------------	--

- During Operation** The system diagnostics software continuously observes the system during operation in order to detect the following conflicts:
- External sync clock loss
 - Power failure
 - Hardware modification.

Restricted Functions Usually, there is no indication of any error or warning if the execution of functions is prohibited in case of restrictions, because the user immediately notes whether the desired function is performed correctly. Nevertheless, some warnings need to be indicated to the user as a feedback, e.g. if a snapshot cannot be saved to the external memory device due to insufficient memory space.

The means to indicate to the user a failure during function execution is a dialog box appearing always at the same position on the screen. It displays a system message and will disappear when the user acknowledges the message by clicking on the **OK** or **Accept** button in the box.

Each of these system messages is also entered to the Log List. In order to be removed from the Log List, it has to be acknowledged by the user.

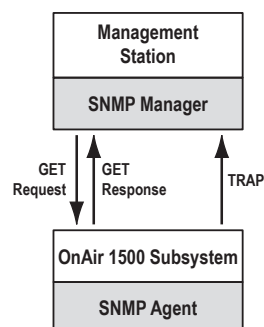
To prevent the user from being annoyed with lots of warning and error message dialog boxes, these are generated only where it is impossible to notice function execution failure. In these cases an error message is generated if the function execution fails completely. A warning is given to the user if a function might be executed partially only.

5.11.3 SNMP (Simple Network Management Protocol)

SNMP is used in network management systems for monitoring devices connected to the network for conditions that require administrative attention.

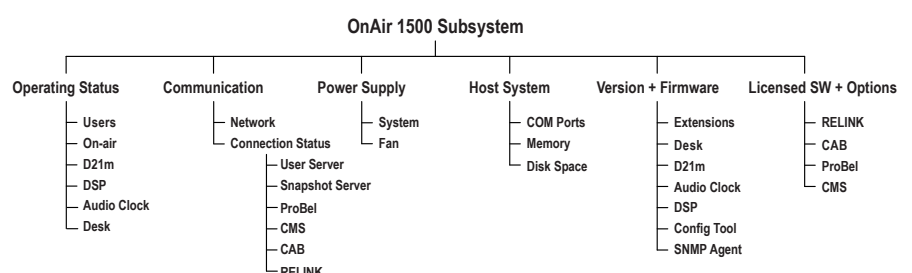
The 'traditional' SNMP management is implemented: The management task is subdivided into two layers – agents and managers. The agents provide management data that is read out and processed by the manager.

Basic Concept



The OnAir 1500 SNMP implementation allows monitoring a large variety of parameters, including operating status, communication, power supplies, etc. These parameters are called 'managed objects'.

Managed Objects Overview



The manager may send requests for available parameter values. Furthermore, an agent can send information to the network in an active way, as soon as a surveyed parameter exceeds a specified threshold (such as a level). Information sent when exceeding a threshold is called 'trap'. Traps are usually used to transfer critical system messages that need to be sent on an emergency basis. An SNMP manager may analyse traps, monitor messages, and alert or even send an SMS to a specified mobile phone.

A management information base (MIB) describes the structure of the management data for OnAir 1500. It uses a hierarchical namespace containing object identifiers (OID). Each OID identifies a variable that can be read via SNMP.

Traps are configured in the `snmp.xml` file. A 'limit' and an 'operator' can be defined for each possible managed object. If a subsystem generates a user message, this may also generate a trap (including message ID, type, text, range, etc.).

SNMP is an integral part of the OnAir 1500 implementation. Some information, such as DSP temperature, are accessible via SNMP only. It is therefore mandatory to have at least one simple SNMP manager installed in every system. Many different SNMP manager softwares are available. If none is present already, an MG-Soft MIB Browser can be provided.

5.11.3.1 Requirements for SNMP Operation

An `SNMP.ini` file must be available in the `Desk` folder for SNMP operation. Renaming the template file is sufficient.

If traps are required, the IP address of the SNMP manager (MIB browser) must be defined in the `SNMP.ini` file. The desired traps must be commented out in the `SNMP.xml` files located in the SNMP folder of every subsystem, they must be configured individually.

5.11.4 Error Messages

5.11.4.1 System

Error Code	Error Type	Error Text / Remarks
1000	ERROR	SYSTEM, Fatal software error occurred - System will be stopped. For details see log-file.
1001	WARNING	SYSTEM, Extension 'TalkBack.ext' could not be started. Reason: 'File 'xml\TalkBack.xml' not found'.
1005	WARNING	SYSTEM, Extension 'User.ext' default settings assumed. Reason: 'Did not find XML-File or XDR-File: xml\User.xml'.
1100	ERROR	SYSTEM, 'Desk' communication failure: Connection to 'System40:Core' lost.
1201	WARNING	SYSTEM, Low Memory on 'System40:Core'. Physical Memory available: 4.802 MB
1202	WARNING	SYSTEM, Not enough physical memory on 'System40:Core' host card. Memory upgrade required.
1401	WARNING	SYSTEM, Initial Snapshot cannot be loaded. Incompatible snapshot file version 'myFirstSnap'.
1402	WARNING	SYSTEM, Initial Snapshot file 'myFirstSnap' is corrupted!
1403	WARNING	SYSTEM, Initial Snapshot files cannot be created. Not enough memory on the 'CORE' file system!
1404	WARNING	SYSTEM, Initial Snapshot file 'c10_initial.iss' cannot be created on the 'CORE'. Error code 3.
1405	WARNING	SYSTEM, Initial Snapshot file 'c10_initial.iss' cannot be created on the 'CORE'. The folder 'snapshots' doesn't exist.
1409	WARNING	SYSTEM, Initial Snapshot cannot be loaded. Incompatible product identification in snapshot 'myFirstSnap'.
1410	WARNING	SYSTEM, The initial Snapshot folder 'path' does not exist. Initial Snapshots could not be loaded nor created.

5.11.4.2 Core Driver

Error Code	Error Type	Error Text / Remarks
2000	ERROR	CORE DRIVER, DSP card failure. DSP card in slot 1 missing.
2001	ERROR	CORE DRIVER, DSP card failure. Firmware download to DSP card in slot 1 failed. File 'sh4.hex' not found.
2002	ERROR	CORE DRIVER, DSP card failure. Firmware download to DSP card in slot 1 failed. Write error.
2003	ERROR	CORE DRIVER, DSP card failure. No communication with DSP card in slot 1. Card is not alive.
2004	ERROR	CORE DRIVER, DSP card failure. No communication with DSP card in slot 1. SH4 is not ready to receive parameters.
2005	ERROR	CORE DRIVER, DSP card failure. Initialization error of DSP card in slot 1. 'Reason'.
2050	ERROR	CORE DRIVER, Failure of DSP card in slot 1. The card is uninitialized.
2051	ERROR	CORE DRIVER, Failure of DSP card in slot 1. The card has a SH4 error.
2052	ERROR	CORE DRIVER, Failure of DSP card in slot 1. The PCI memory is not visible
2100	ERROR	CORE DRIVER, Configuration mismatch. The DSP cards provide only 18 audio channels for the 24 channel console.
2101	ERROR	CORE DRIVER, Cannot load PCI Driver. File 'PCICE.dll' not found.
2200	WARNING	CORE DRIVER, DSP card in slot 1 deactivated.
2201	INFO	CORE DRIVER, DSP card in slot 1 detected.
2202	INFO	CORE DRIVER, DSP card in slot 1 detected. Please make sure, the CORE is rebooted in order to achieve system consistency.
2400	ERROR	CORE DRIVER, No communication to CORE.
2403	ERROR	CORE DRIVER, DSP Card in slot 1 failed! Card has been reset.
2404	ERROR	CORE DRIVER, DSP Card in slot 1 failed! Code reloaded to redundant card in slot 6. Connect HD Link cables of DSP slot 1 to DSP slot 6!
2405	ERROR	CORE DRIVER, Communication to CORE lost.
2406	INFO	CORE DRIVER, Bridge Card firmware was downloaded. This will take effect after next restart of Core.

5.11.4.3 I/O 21

Error Code	Error Type	Error Text / Remarks
3001	INFO	I/O 21, Rack "Int": Reconfiguration required.
3002	INFO	I/O 21, The Rack "Ext 1" was reconfigured. Please make sure, the CORE is rebooted in order to achieve system consistency.
3003	WARNING	I/O 21, Slot change: Card from Slot 2 of the rack 'Internal' removed.
3004	INFO	I/O 21, Slot change: Same Card in Slot 2 of the rack 'External 1' re-installed.
3005	INFO	I/O 21, Slot failure: The Card in Slot 13 must be a GPIO Card.
3006	INFO	I/O 21, Slot change: Card to Slot 2 added. Please reconfigure the rack 'Internal' and reboot the CORE in order to achieve system consistency.
3007	WARNING	I/O 21, Slot failure: Unknown Card found. Card in Slot 3 of the rack 'D21m Rack 1' not supported.
3008	WARNING	I/O 21, Secondary power failure: Analog Power. (Rack 'External 2')
3010	WARNING	I/O 21, Primary Power Supply 1 failed. (Rack 'External 1')
3011	WARNING	I/O 21, Primary Power Supply 2 failed. (Rack 'Internal')
3012	WARNING	I/O 21, Fan failure. (Rack 'Internal').
3013	WARNING	I/O 21, Could not open port COMX.
3014	ERROR	I/O 21, Missing D21m rack 'External 1'.
3015	WARNING	I/O 21, Fan unit disconnected. (Rack 'Internal').
3016	WARNING	I/O 21, Communication to rack 'Internal' lost.
3018	INFO	I/O 21, Invalid module on merger port 13
3021	ERROR	I/O 21, Card in slot 2 of rack 'External 3' is not allowed in this slot. It is not possible to load a consistent configuration.
3022	INFO	I/O 21, Additional HD Link to a DSP card required. Rack 'Int' provides 128 inputs, but only 96 channels are connected to the CORE. 32 inputs not available.
3023	INFO	I/O 21, Additional HD Link to a DSP card required. Rack 'Int' provides 128 outputs, but only 96 channels are connected to the CORE. 32 outputs not available.
3024	INFO	I/O 21, MADi card in slot 3 of the rack 'Int' switched to redundant interface. AUX interface is active.
3025	WARNING	I/O 21, MADi card in slot 3 of the rack 'Int': Neither MAIN nor AUX interface is active.
3026	INFO	I/O 21, Not enough MADi channels from StageBox 'StageBox1' to Rack 'Int'. Provides 80 inputs, but only 64 channels are available. 16 inputs not available.
3027	INFO	I/O 21, Not enough MADi channels from StageBox 'StageBox1' to Rack 'Int'. Provides 80 outputs, but only 64 channels are available. 16 outputs not available.
3029	ERROR	I/O 21, Product Verification Failed. The Product doesn't match the hardware platform.
3030	WARNING	I/O 21, HD-Card unlock. Missing HD-Link input signal. (Rack 'External 2')
3031	INFO	I/O 21, HD-Card lock. HD-Link input signal available. (Rack 'External 2')
3033	WARNING	I/O 21, Configuration mismatch: Card from Slot 2 of the rack 'Internal' and the D21m.xml configuration doesn't match. XML configuration ignored!
3034	WARNING	I/O 21, Configuration mismatch: Card from Slot 2 of the rack 'StageBox1' and the D21m.xml configuration doesn't match. Hardware configuration ignored!
3035	WARNING	I/O 21, Missing GPIO Card(s). 32 GPIInputs configured, 16 GPIInputs found.
3036	WARNING	I/O 21, Missing GPIO Card(s). 32 GPOutputs configured, 16 GPOutputs found.

5.11.4.4 GPIO Functions

Error Code	Error Type	Error Text / Remarks
3102	WARNING	GPIOFunctions, The Input- / OutputFunction 3 doesn't work properly! Please check the selected arguments.
3104	WARNING	GPIOFunctions, Snapshot File 'myGlobalSnap' not found. The Input- / OutputFunction 3 doesn't work properly!

5.11.4.5 Desk / User GUI / Configuration Tool

Error Code	Error Type	Error Text / Remarks
4100	WARNING	DESK, No communication with Fader module at Port 43 on Container100.
4101	WARNING	DESK, File 'fader3.hex' not found. Firmware download to Fader module at Port 43 on Container100 failed.
4102	WARNING	DESK, Fader calibration failed, one or more fader uncalibrated on Fader module at Port 43 on Container100.
4104	WARNING	DESK, Missing Fader module at Port 12 on Container100.
4105	WARNING	DESK, Wrong module type at Port 12 on Container100. A Fader module is expected instead of a Rotary module.
4106	WARNING	DESK, One or more fader uncalibrated on Fader module at Port 43 on Container100.
4107	WARNING	DESK, Could not open port COMX.
4108	WARNING	DESK, Main Power Supply fail.
4109	WARNING	DESK, Redundant Power Supply fail.
4110	WARNING	DESK, Could not found folder 'Firmware'.
4200	WARNING	CONFIG, AutoConfig not completed! No input modules detected. No Initial Snapshot created.
4201	WARNING	CONFIG, AutoConfig not completed! No output modules detected. No Initial Snapshot created.
4202	WARNING	CONFIG, AutoConfig cannot complete to map all input signals to LogicalInputs. Increase the number of LogicalInputs and re-run auto configuration.
4203	WARNING	CONFIG, AutoConfig cannot complete to map all output signals to LogicalOutputs. Increase the number of LogicalOutputs and re-run AutoConfig.
4204	WARNING	CONFIG, AutoConfig detected unknown IO-Card in Slot 7.
4205	WARNING	CONFIG, AutoConfig cannot complete to map all GPIInputs to GPIInputFunctions. Increase the number of GPIInputFunctions and re-run auto configuration.
4206	WARNING	CONFIG, AutoConfig cannot complete to map all GPOutputs to GPOutputFunctions. Increase the number of GPOutputFunctions and re-run auto configuration.
4210	INFO	CONFIG, Screen Lock cannot be activated for the administrator.
4211	WARNING	CONFIG, Alias is already in use! Alias will not be changed.
4212	WARNING	DESK, The Alias 'Input 1' appears twice in the range of LogicalInputs of Desk 'Primary Desk'.
4300	WARNING	SYSTEM, Logon failed: Wrong user name or password.
4301	WARNING	USER, User name is already in use. The user name has to be unique.
4302	WARNING	SYSTEM, No Policy defined. User 'John' logged in, but all access denied.
4303	WARNING	SYSTEM, One or more policies missing. User 'John' logged in, but access privileges may be reduced.
4400	WARNING	DESK, Mic Control Access to input "Mic 1" no longer provided. Desk "PRI DESK" of System "SR-3" has gained access.
4500	WARNING	CONFIG, The CODEC return line of input 'Codec1' is no longer connected to 'Cent 04' of system 'P422'.
4601	WARNING	CONFIG GUI, Could not open file 'D:\Temp\081104' for reading.

5.11.4.6 Snapshot Handling

Error Code	Error Type	Error Text / Remarks
5000	WARNING	SNAPSHOT, Snapshot File 'myFirstSnap' not found or invalid! Snapshot not loaded.
5001	WARNING	SNAPSHOT, Snapshot recall incomplete. Audio parameters of channel '2' on 'Container100' are pending. Input 'Digi1' is on-air.
5002	WARNING	SNAPSHOT, Snapshot cannot be loaded. Incompatible snapshot file version 'myFirstSnap'.
5003	WARNING	SNAPSHOT, Snapshot File 'myFirstSnap' corrupted!
5004	WARNING	SNAPSHOT, Snapshot files can not be created. Not enough memory on the 'CORE' file system!
5005	WARNING	SNAPSHOT, Snapshot files can not be transferred. Not enough memory on external storage media!
5006	WARNING	SNAPSHOT, Snapshot file server not properly configured. Check configuration and network connection.
5009	WARNING	SNAPSHOT, Snapshot file server was shutting down or connection lost.
5010	WARNING	SNAPSHOT, To complete the software update please save the whole start-up configuration. Make sure that all subsystems are running.

5.11.4.7 Routing

Error Code	Error Type	Error Text / Remarks
6000	WARNING	Routing failure. The routing of channel 2 on Container100 could not be changed. Channel 2 on Container100 is virtual.
6001	WARNING	Pending Routing. The routing of channel 2 on Container100 is not yet changed. Input Digi1 is on-air.
6002	WARNING	Routing failure. The routing of channel 2 on Container100 could not be changed. Channel 1 on Container100 is locked.
6003	WARNING	Routing failure. Inexistent Input (#17) cannot be assigned to channel. No Input assigned to channel 2 on Container100.
6004	WARNING	Routing failure. Not enough DSP channels. Input "DVD 5.1" cannot be assigned to channel 2 on Container100.
6102	WARNING	Routing failure. The source of output PGM Out on Container100 could not be changed. The output is locked.

5.11.4.8 System (a)

Error Code	Error Type	Error Text / Remarks
7000	WARNING	CF CARD, Cannot read card. Unidentified Format!
7002	WARNING	SYSTEM, Extension 'UserGUI.ext' could not load User Buttons. Reason: 'Did not find XML-File or XDR-File: xml\ GUI_UserButtons.xml'.
7004	WARNING	SYSTEM, 'UILogic.xml' has an incompatible XDR file. Default settings assumed.

5.11.4.9 Option Manager

Error Code	Error Type	Error Text / Remarks
7100	INFO	LICENSE Manager, System identification has changed. Please enter new license key. Optional software will stop working in 15 days.
7101	INFO	LICENSE Manager, License key was changed. Core and desk(s) must be restarted to take effect of the change.
7102	WARNING	LICENSE Manager, System identification has changed since more than 15 days. Please enter new license key. Optional software is now disabled.
7103	WARNING	LICENSE Manager, License keys cannot be loaded. Incompatible license file version in 'fileName'. Optional software is not enabled.

5.11.4.10 System (b)

Error Code	Error Type	Error Text / Remarks
7111	WARNING	SYSTEM, Connection to CORE 'System71' lost. The Routing Snapshots of that CORE can no longer be recalled remotely.
7200	WARNING	SYSTEM, Number of 'Logical Inputs' has been truncated to '255'.
7201	WARNING	SYSTEM, CustomLogics are not supported on this system. Enable CustomLogics by increasing system memory to 512MByte.
7300	WARNING	SYSTEM, The console set-up cannot be changed, since there is at least one channel on-air. Please make sure no channel is on-air and try again.
7301	WARNING	SYSTEM, The console set-up cannot be changed, since there is at least one remote channel (I/O sharing) on-air. Please make sure no channel is on-air on a remote system and try again.
7302	WARNING	SYSTEM, Please restart core and desk(s) to complete the set-up change.
7303	WARNING	SYSTEM, Please restart the 'Desk' to complete the set-up change.
7400	WARNING	SYSTEM, Product.ini is missing.

5.11.4.11 CAB Extension

Error Code	Error Type	Error Text / Remarks
8001	WARNING	CAB, Broadcast Automation disconnected.
8100	WARNING	CAB (Monitors protocol), SELECT_SOURCE failed: No free stripchannel.
8101	WARNING	CAB (Monitors protocol), SET_SAS_INPUTROUTING failed: HD-Link signal ID out of range. InputLine can not be routed."
8102	WARNING	CAB (Monitors protocol), Could not open port COMX.

5.11.4.12 ProBel Controller Extension

Error Code	Error Type	Error Text / Remarks
8200	WARNING	PROBEL Controller, Could not open port COMX.
8201	WARNING	PROBEL Controller, "Master Channel Base" conflicts with logical input or patch input numbers.
8202	WARNING	PROBEL Controller, Connection lost to External Router Control System (RCS)

5.11.4.13 CMS Controller Extension

Error Code	Error Type	Error Text / Remarks
8301	WARNING	CMS Controller, Connection lost to external Call Management System (CMS)

5.11.4.14 I/O Sharing

Error Code	Error Type	Error Text / Remarks
8500	WARNING	IOSHARING, Did not find XML-file: xml\IoSharing.xml
8501	WARNING	IOSHARING, Could not reset physical connection on HD Link In '22', since it is still in use!
8503	WARNING	IOSHARING, I/O Sharing not enabled on system 'P422'. Missing dongle or license key. IO-Sharing will not work properly.
8504	WARNING	IOSHARING, Audio connection could not be established, since there are too few physical connections available. No audio on 'left' channel of 'Logical Input' 'Label' !
8506	WARNING	IOSHARING, Could not modify NetInput, since it is still in use by 'Ext MonSource16' on system 'P422'.
8507	WARNING	IOSHARING, Connection to producer CORE 'System71' lost.
8508	WARNING	IOSHARING, Conflict while system 'P422' is re-establishing a physical connection. The 'left channel' of the local output 'LogOut44' will be disconnected and re-used for the physical connection to system 'P422'!
8509	WARNING	IOSHARING, Conflict while re-establishing a physical connection to HD Link '35'. Physical output 'Ext 4, Slot 3, Line Out, Ch.33' of system 'P422' is already used by a physical connection to system 'P321'. The physical connection could not be established!

5.11.4.15 Backup/Restore

Error Code	Error Type	Error Text / Remarks
8700	WARNING	BACKUP/RESTORE, Backup Failed! Mandatory configuration file 'config.xml' not found. No backup created.
8701	WARNING	BACKUP/RESTORE, Backup Failed! Not enough memory to store backup files. No backup created.
8702	WARNING	BACKUP/RESTORE, Backup Failed! Configuration file 'config.xml' cannot be backedup. 'Error Text'. No backup created.
8703	WARNING	BACKUP/RESTORE, Backup Failed! File transfer from 'CORE' interrupted. No backup created.
8704	WARNING	BACKUP/RESTORE, Backup Failed! Could not create Backup Directory 'DirName'. No backup created.
8711	WARNING	BACKUP/RESTORE, Restore Failed! Not enough memory on the 'CORE' file system. Restore aborted.
8712	WARNING	BACKUP/RESTORE, Restore Failed! Configuration file 'config.xml' cannot be restored to 'CORE'. 'Error Text'. Restore aborted.
8713	WARNING	BACKUP/RESTORE, Restore Failed! File transfer to 'CORE' interrupted. Restore aborted.
8714	INFO	BACKUP/RESTORE, Missing configuration file! Mandatory configuration file 'config.xml' not found. File not restored to 'CORE'.
8715	WARNING	BACKUP/RESTORE, Restore Failed! Trying to restore a backup to the wrong type of Core. Restore aborted.
8721	WARNING	BACKUP/RESTORE, Rename Backup Failed! Backup 'xyz' not renamed.
8731	WARNING	BACKUP/RESTORE, Delete Backup Failed! Backup 'xyz' not or not completely deleted.
8740	WARNING	BACKUP/RESTORE, Reboot is not possible, since there is at least one channel on-air. Please make sure no channel is on-air and try again.
8750	INFO	BACKUP/RESTORE, Please restart core and desk(s) to complete the restore operation.

5.11.4.16 Custom Logic

Error Code	Error Type	Error Text / Remarks
8800	WARNING	CUSTOM LOGICS, Connection to CORE 'System71' lost. Remote GPIO and Custom Logics from that CORE are not available.
8805	WARNING	CUSTOM LOGICS, More than 10 gates cascaded at Gate 'AND 21'! Source cleared.
8806	WARNING	CUSTOM LOGICS, Feedback detected at Gate 'AND 21'. Source cleared.

5.11.4.17 Time Sync

Error Code	Error Type	Error Text / Remarks
9000	WARNING	TIME SYNC, No communication with Time Sync Card.
9001	WARNING	TIME SYNC, Could not open port COMX.

5.11.4.18 Audio Clock

Error Code	Error Type	Error Text / Remarks
9100	ERROR	AUDIO CLOCK, No communication with Audio Clock Card.
9101	WARNING	AUDIO CLOCK, Could not open port COM1
9102	WARNING	AUDIO CLOCK, Clock reference changed to WordClock.
9103	ERROR	AUDIO CLOCK, Missing external WordClock.
9104	WARNING	AUDIO CLOCK, File 'audioclock_ext.ini' not found.

5.12 GUI Operation (Advanced Users Only)

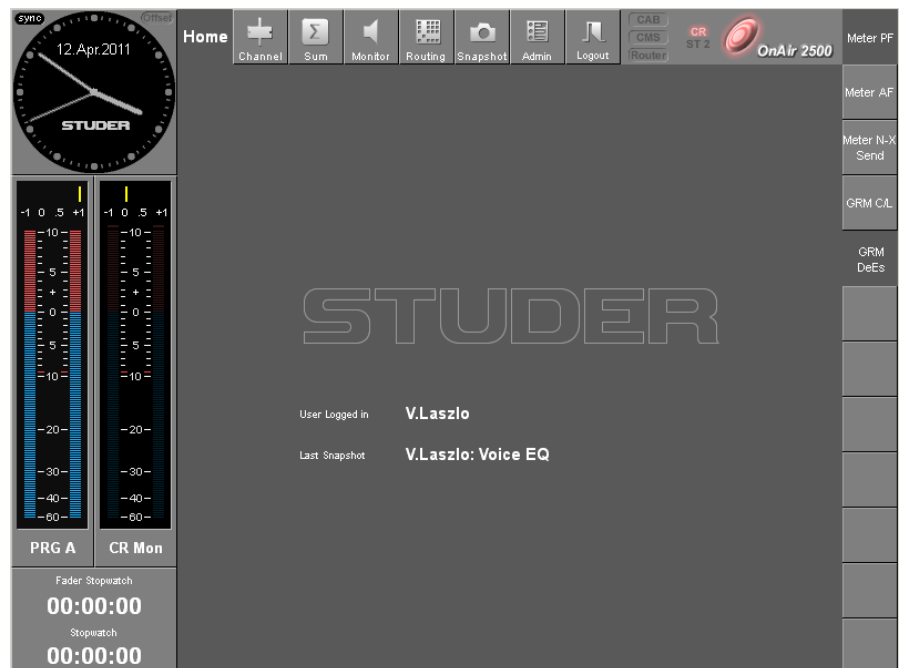
GUI operation requires a DVI screen and a USB keyboard and/or mouse connected to the system. Basic information on mouse/keyboard operation is given in [chapter 5.1](#).

Please Note:



In order to have operating instructions available as fast as possible, the following chapters are temporary copies of the OnAir 2500 manual and will be updated soon. Some features are not supported by the OnAir 1500.

5.12.1 Home Page



The left, upper, and right borders of the screen are always visible. They contain (clockwise):

- Fader stop watch
- Two stereo level meters, a phase correlation meter for each of them, and a label below the level meters that indicates the current meter tap point
- Watch (real-time clock and date)
- Menu buttons
- Red light indicators, 'Frisbee' On-Air indicator symbol
- Configurable function buttons.

The home page's central area displays the user currently logged in as well as the owner and the name of the last loaded snapshot.

An error message window is displayed on the home page as well in case an internal error should occur.

Level Meter Two 130-segment stereo bar graph level meters with configurable characteristics and scale. The 0 dB indication automatically considers the selected headroom (i.e., 0 dB indication = 0 dB_{FS} – selected headroom). Above each level meter bar graph a phase correlation meter with a –1...+1 scale allows judging the mono compatibility of the audio signal (the more positive the indication is, the better mono compatibility is given).

- Level Meter Label** The label below each level meter bar graph indicates the current meter tap point. Touching this label opens a configurable list of the available tap points to select from.
- Red Light Indicators** The **CR** and **ST 2** (control room and studio) indicators work in parallel with the **CR** and **ST** red light indicators in the central section. An on-air condition is indicated by changing the color of the 'Frisbee' symbol next to the **OnAir 1500** label to red (and lighting the central section's **ON-AIR** indicator).
- Interface Indicators** The three indicator fields (**CAB**, **CMS**, **Router**) show the current status of the optional interfaces to the CAB (computer assisted broadcast) system such as a Studer DigiMedia playout system, to the Call Management System, and to an external router control system. Each of them indicates three different statuses:
- | | |
|---|---|
|  | Grayed out – Interface not configured |
|  | White on black – Interface configured and active |
|  | Bright red on black – Interface configured, but not active. |
- GUI Function Buttons** The function of each of the twelve buttons at the right-hand edge of the screen is configurable. For each of them, a selection from a pool of various GPIO (general-purpose inputs/outputs) and other functions (such as talkback destination selection or level meter tap point selection, as shown left) is possible. *Example:* Three of the buttons may be configured with **ON-AIR**, **HOLD** and **TELEPHONE** in order to implement a telephone hybrid remote control over the GPIOs. In such a case, touching a button generates a short output pulse on the corresponding control output; the feedback signals from the telephone hybrid going to the control inputs will highlight the buttons.

5.12.2 Channel Pages

To open the channel page and to automatically select the corresponding channel, click on the **Chan** field in the main menu. The channel page pops up and displays the selected channel functions.

In the lower line of the menu bar, the icons represent the current values. A click on a menu icon opens the corresponding channel page.

Channel Selection: The channel label is indicated in the upper right corner of the page. With the ◀ and ▶ arrow buttons on both sides of the channel label it is possible to scroll the channel up and down. A click on the channel label opens the channel list box where a channel can be directly selected.

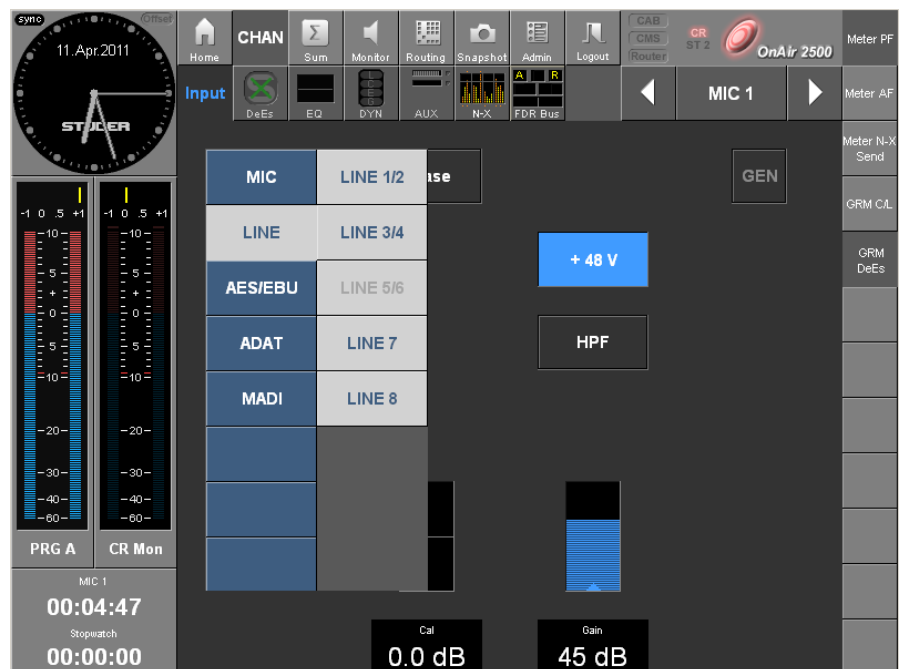
5.12.2.1 Input Page

The **CHAN - Input** page is divided into two sections. The left part shows the parameters of the currently assigned active input (the picture is somewhat depending on the input type – the following screenshots show analog or digital stereo inputs), whereas in the right (**GEN**) part the test generator can be activated if the current user has been given appropriate access rights.

Functions Common to All Input Types

Input Selection

Assigning another audio input to the current fader channel is easily done by A click on the **Input Selection** button, selecting an audio input group from the **MIC/LINE...** input group list box, and then selecting an audio input from the input list box, as shown below.



Phase Inverts the audio signal for mono inputs; inverts the *left* channel signal for stereo inputs, except in the **RR** case (see below) – then of course it makes sense to invert the *right* channel signal. The **Phase** button is highlighted whenever phase inversion is active.

Cal The input level calibration value is indicated by the blue bar graph; the exact value is displayed in dB and can be set with the rotary encoder below.

Note: The mic clip limiter is accessed via the configuration tool only. Refer to [chapter 6.5.1](#).



Functions for Stereo Inputs

Mode Selector

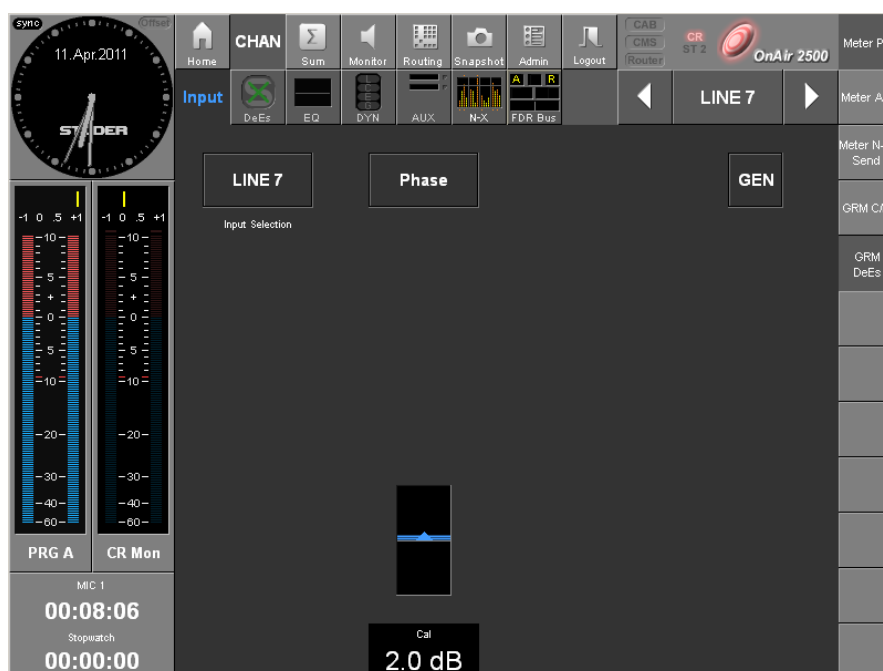
(see the screenshot above)

Stereo signals can be processed in the following modes:

- Mono** Left and right channels are attenuated by 3 dB and mixed together
- LR** Normal stereo mode
- RL** Left/right channels are swapped
- LL** Left signal on both channels
- RR** Right signal on both channels

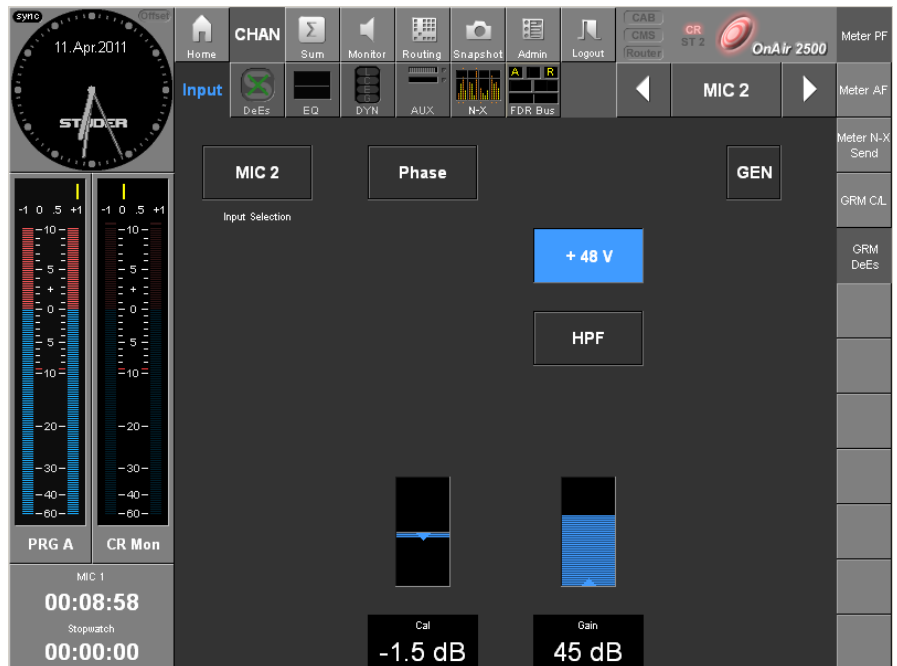
To indicate the current mode, the corresponding button is highlighted.

Functions for Mono Inputs



Mono inputs have the same functionality as the stereo inputs, but without a stereo mode selector, as shown above.

Functions for Microphone Inputs



+48 V Enables/disables the phantom power for the corresponding mic input; the button is highlighted when enabled.

HPF Activates a 75 Hz, 12 dB/oct. high-pass (low-cut) filter only available for microphone inputs; it is part of the analog front end. The button is highlighted if the filter is active in the signal path.

Mic Insert This button appears only if an optional D21m I/O frame with a Mic Input card and an Analog Insert card is used. It activates the corresponding analog mic insert.

Gain The microphone input gain can be set in a range of -11 to $+75$ dB. If gain is set to 0 dB, an input signal with $+15$ dBu corresponds to 0 dB_{FS} (i.e., the same level as on an analog line input set to 15 dBu). The gain is indicated by the blue bar graph and in the **Gain** field; it is adjusted with the rotary encoder below the field.

Notes: *There is no relation between the gain setting and the configured headroom, as the headroom setting is only used for the level meters to indicate 0 dB at nominal level.*

The mic clip limiter on/off button that was found on the **CHAN - Input** pages of microphone inputs with SW versions below 3.0 had to be moved; this function can now be accessed via the configuration tool only. Refer to [chapter 6.5.1](#).

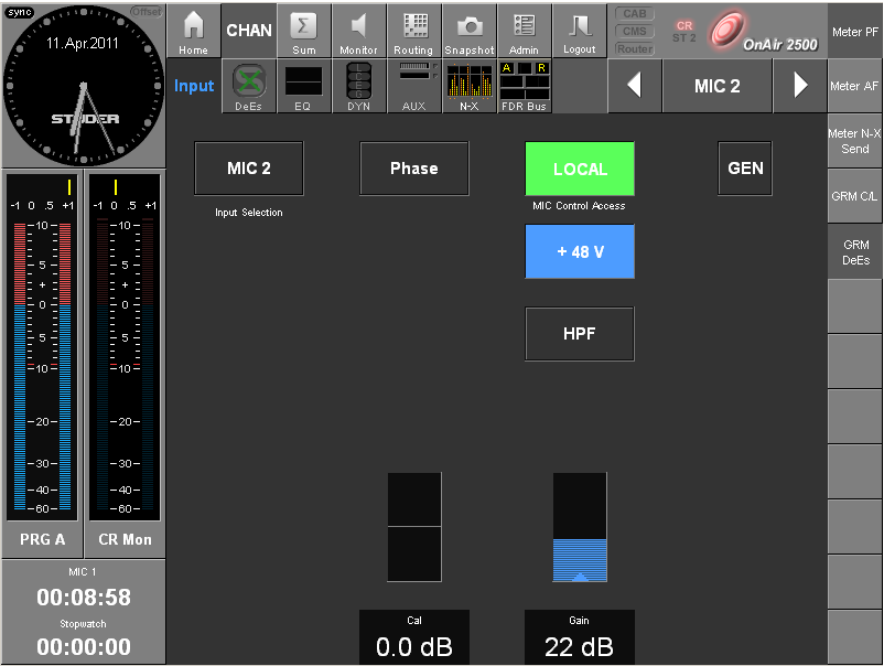
Shared Microphone Inputs

Since the microphone input parameters **+48 V** (phantom power on/off), **HPF**, **Mic Insert** (only in case of an optional, external D21m frame) and **Gain** are realized on the physical microphone input rather than in the DSP channel, they are unique for all sharing logical inputs. In case of I/O sharing operation, these parameters are accessible only by one system at a time. Access to the microphone input parameters must be requested in the **CHAN - Input** page of the user GUI; the corresponding **Mic Control Access** button is visible only if the microphone input is shared. (For information on I/O sharing refer to [chapter 6.5.20](#)).

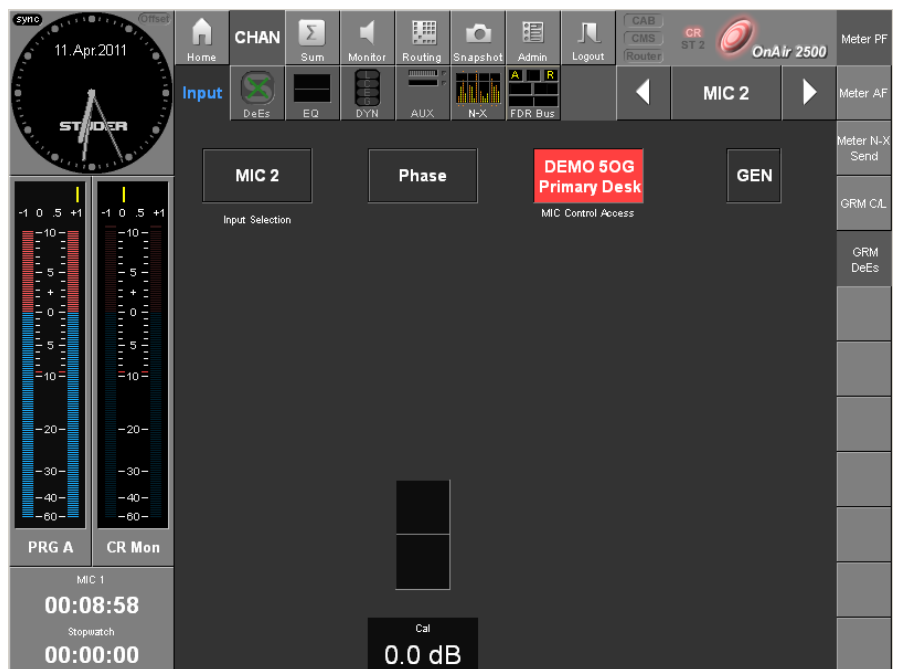
A user requesting access to the mic input parameters can do this only if nobody else has done so already on another system within the same network, the **Mic Control Access** button is gray and indicates **FREE**, as shown below.



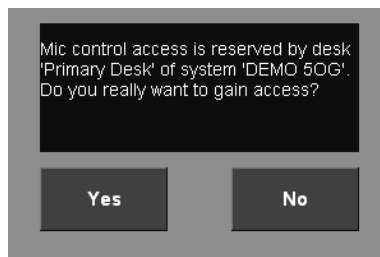
When clicking on the **Mic Control Access** button its label changes to **LOCAL** on green background. At the same time all mic control parameters are displayed and ready to use, as shown in the next screenshot.



On the other systems within the network, the **Mic Control Access** button turns red and displays information on the system currently having access:



If access is requested from another system, a user warning appears there:



After confirmation with **Yes**, access is taken over by the other system where the green **LOCAL** button is displayed now, together with the mic parameter controls.

Test Generator Functions



For test purposes, the OnAir 1500 features an internal test signal generator available for every channel. While the generator is active, the normal channel buttons in the left part of the page are disabled and displayed in gray. The test generator may only be activated by users having the appropriate access rights configured by the system administrator. In addition, the generator cannot be activated while the corresponding channel is on-air; the **GEN** button is grayed-out then. Waveform, frequency and level settings are performed on the **Admin - Gen** page (see [chapter 5.12.7.8](#)).

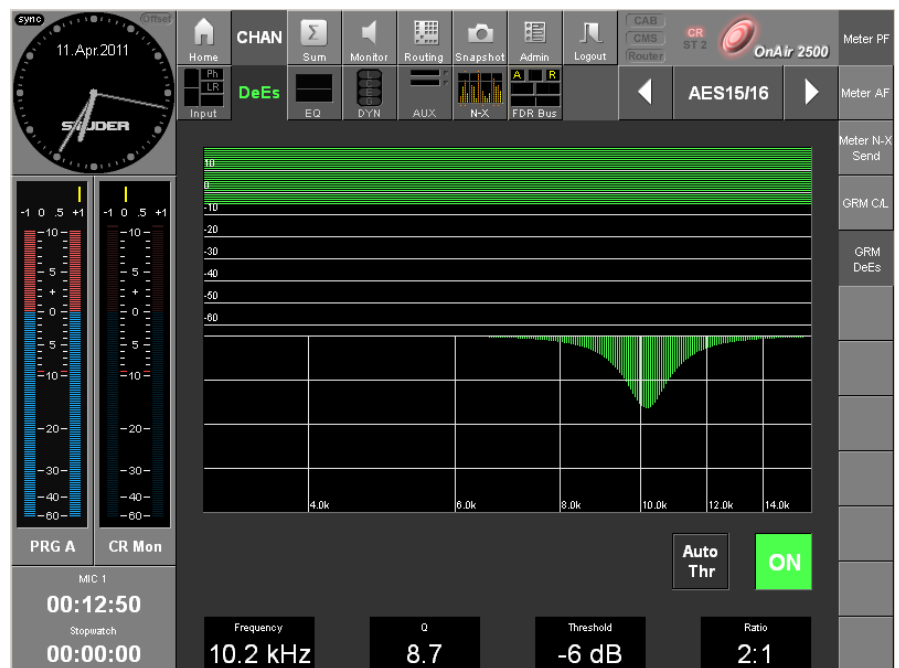
Note: Activating the test generator temporarily switches the channel input from the assigned source signal to the generator's output. Channel settings, such as EQ, dynamics, etc. are not affected, which allows setting the channel parameters to the desired values using the test generator.

GEN Generator on/off button; this button is highlighted when the generator is active.

L, R The format (mono or stereo) of the test generator output follows the current channel output format.

The **L** and **R** buttons route the generator output to the left and/or right channel and are not displayed for mono input channels.

5.12.2.2 De-Esser Page



Each channel has an integrated de-esser. This is a dynamically controlled filter, normally used to reduce the ‘s’ components of a microphone signal. The filter range is placed over the signal’s ‘s’ frequency components; if an ‘s’ component is detected in the audio signal, the level within the filter range is dynamically reduced.

Graph The lower green graph represents the current, static filter curve of the de-esser. The horizontal axis represents the log. frequency, while the vertical axis represents the de-esser’s attenuation. *Please note that this is a static indication only, intended to give you an idea of the current filter settings.* The actual attenuation in the selected range depends on the current signal level, combined with the **Threshold** and **Ratio** settings. The upper green graph indicates the current **Threshold** setting.

ON Button to enable/disable the de-esser section of this channel; highlighted if on.

Auto Thr Automatic threshold setting depending on the current signal content. If **Auto Thr** is on, the button is highlighted and the threshold graph turns gray.

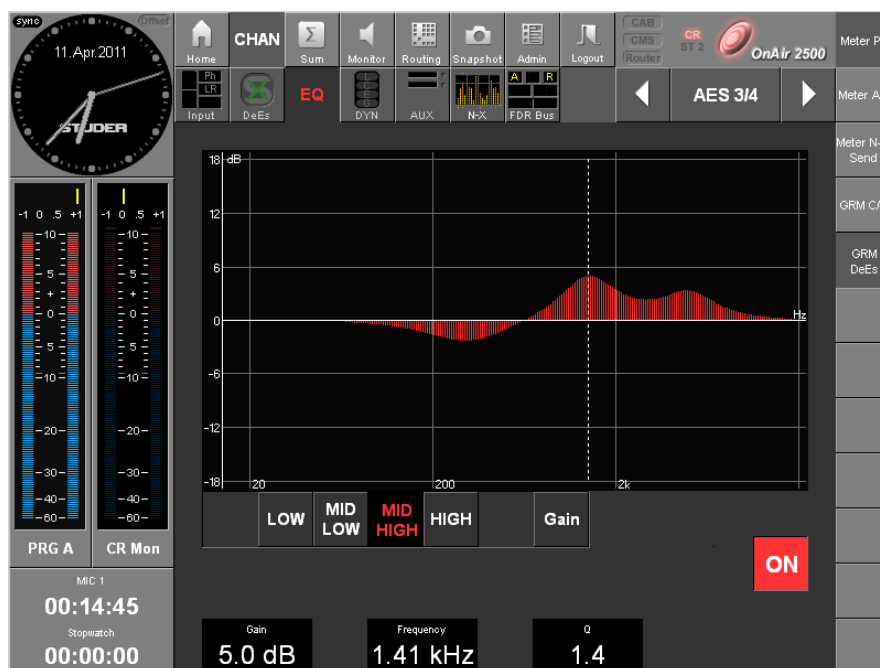
Frequency Center frequency of the de-esser’s filter band. It is indicated in Hz and can be set with the rotary encoder below the field in a 4...10 kHz range.

Q Q factor (bandwidth) of the filter. It is indicated as a plain number and can be set with the rotary encoder below the field in a range of Q = 0.27 (wide) to 8.7 (narrow).

Threshold The threshold is the audio signal level above which the de-esser starts to act within the adjusted filter band. It is displayed in dB and can be set with the rotary encoder below the field in a 96 dB range.

Ratio Level reduction ratio within the filter range, if an ‘s’ component is detected in the audio signal. This can be set with the rotary encoder below the field in a range of 1:1 (no effect) through 20:1 (heavy de-essing).

5.12.2.3 Equalizer Page



Each channel has a parametric four-band equalizer. *If the user has no access permission to the EQ parameters, the **CHAN - EQ** page is not displayed.*

Graph The red graph represents the EQ's current frequency response curve, cumulated from all filters.

LOW, MID LOW, MID HIGH, HIGH

Clicking on one of these edit buttons selects one of the four frequency bands for adjustment. The corresponding, exact **Gain**, **Frequency**, and **Q** (bandwidth) values appear in the fields above the rotary encoders and can be adjusted. The current frequency response curve is displayed in the EQ screen.

Gain The gain (boost/cut value) of the selected band is displayed in dB and can be adjusted in a ± 18 dB range with the rotary encoder below the field.

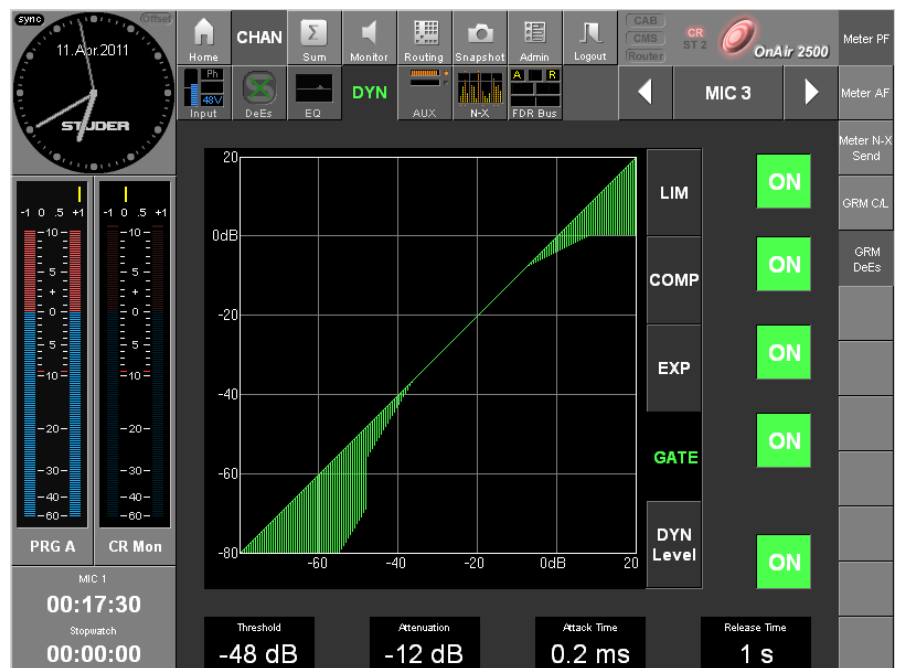
Frequency The center frequency of the selected band is indicated by a vertical, dashed line, as well as displayed in Hz/kHz. It can be adjusted from 20 Hz to 20 kHz with the rotary encoder below the field.

Q (Bandwidth) The Q factor of each band is displayed as a plain number and can be adjusted from 0.27 (wide) to 8.7 (narrow) with the rotary encoder below the field. Should a very high-Q (i.e. narrow) and/or very high/low gain band-pass (peak) or band-stop (notch) filter be required, this can be realized by tuning two or more of the EQ bands to the same frequency and selecting appropriate **Q** and **Gain** values.

Gain Button A click on the **Gain** button displays the gain values of all four EQ bands in the fields above the rotary encoders for adjustment; the center frequencies are indicated by four vertical, dashed lines.

ON Button to enable/disable the complete EQ/filter section of this channel; highlighted if on. If off, the graph gets grayed out.

5.12.2.4 Dynamics Page



Each channel has an internal dynamics processor consisting of a limiter, a compressor, an expander, and a gate section. The dB readings automatically consider the selected amount of headroom (i.e., 0 dB indication = 0 dB_{FS} – selected headroom).

Graph

The green graph represents the current, static parameters of the dynamics processor.

LIM, COMP, EXP, GATE

A click on one of these edit buttons selects one of the four sections (limiter, compressor, expander, gate) of the dynamics processor for adjustment. The corresponding parameter values appear in the fields above the rotary encoders and can be adjusted.

DYN Level

Selects the dynamics unit's input level for adjustment in a 0...+24 dB range.

Limiter/Compressor Parameters:**Ratio**

(Compressor only). The compression ratio is displayed as a ratio and can be adjusted in a range of 1:1 (no compression) through 20:1 (heavy compression) with the rotary encoder below the field.

Threshold

The limiter/compressor threshold is displayed in dB and can be adjusted in a 48 dB range with the rotary encoder below the field.

Attack Time

The limiter/compressor attack time is displayed in ms (milli-seconds) and can be adjusted in a range of 0.2...20 ms with the rotary encoder below the field.

Release Time

The limiter/compressor release time is displayed and can be adjusted in a range of 10 ms...10 s with the rotary encoder below the field.

Expander/Gate Parameters:**Ratio**

(Expander only). The expansion ratio is displayed as a ratio and can be adjusted in a range of 1:1 (no expansion) through 20:1 (heavy expansion) with the rotary encoder below the field.

Attenuation

(Gate only). The gate attenuation is displayed in dB and can be set in a range from **Max.** (i.e. mute) to **0 dB** (zero attenuation) with the rotary encoder below the field.

Threshold The expander/gate threshold is displayed in dB and can be adjusted in a 96 dB range with the rotary encoder below the field.

(Gate only): *Please note that the gate has a fixed 6 dB hysteresis. This means that the gate is closed as soon as the level is equal to or below the adjusted threshold value; it opens again as soon as the level exceeds the threshold value by more than 6 dB.*

Attack Time The expander/gate attack time is displayed in ms (milli-seconds) and can be adjusted in a range of 0.2...1 ms with the rotary encoder below the field.

Release Time The expander/gate release time is displayed and can be adjusted in a range of 10 ms...10 s with the rotary encoder below the field.

ON The upper four **ON** buttons individually enable/disable the sections of the dynamics processor; they are highlighted if active. The lowest **ON** button enables/disables the whole dynamics processor. If some or all sections have been enabled individually but are disabled now by the lowest button, their individual **ON** buttons remain highlighted, but the dynamics curve is displayed in gray.

5.12.2.5 AUX Page



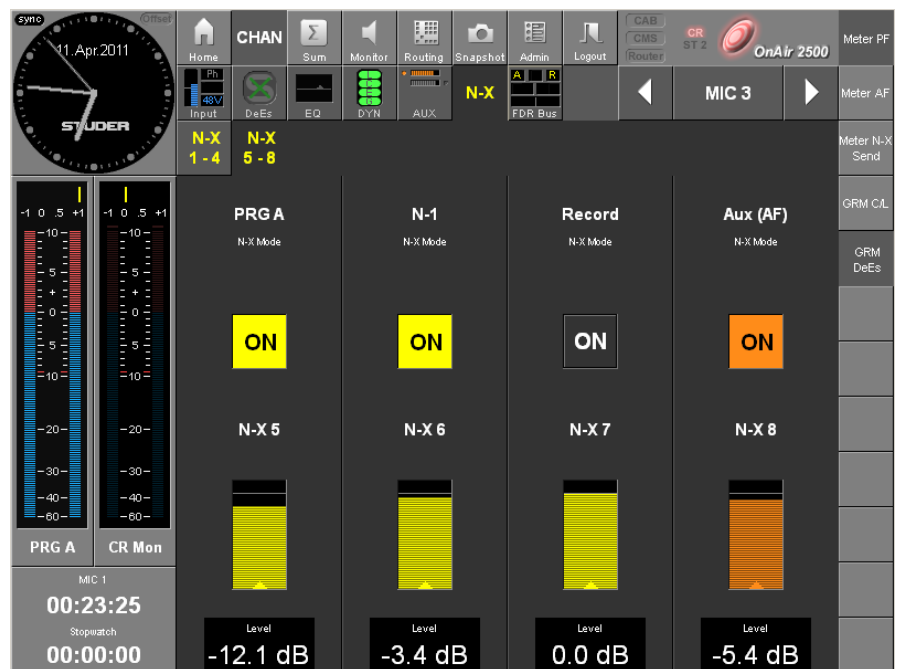
This page contains the controls for the AUX 1 and AUX 2 auxiliary sends .

ON On/off control for the individual AUX sends; highlighted if on. If an AUX send is on, the corresponding bar graph on the **AUX** button is displayed in orange; if off, it is in gray, as shown on the next screenshot.

PF / AF These buttons allow selection whether the signal for the AUX send is tapped before (**PF**, 'pre-fader') or after (**AF**) the fader. The currently active selection is highlighted. If **PF** is selected for an AUX send, a bullet is visible at the *left* of the corresponding bar graph on the **AUX** button, see next screenshot. If **AF** is selected, the bullet is visible at the *right* of this bar graph.

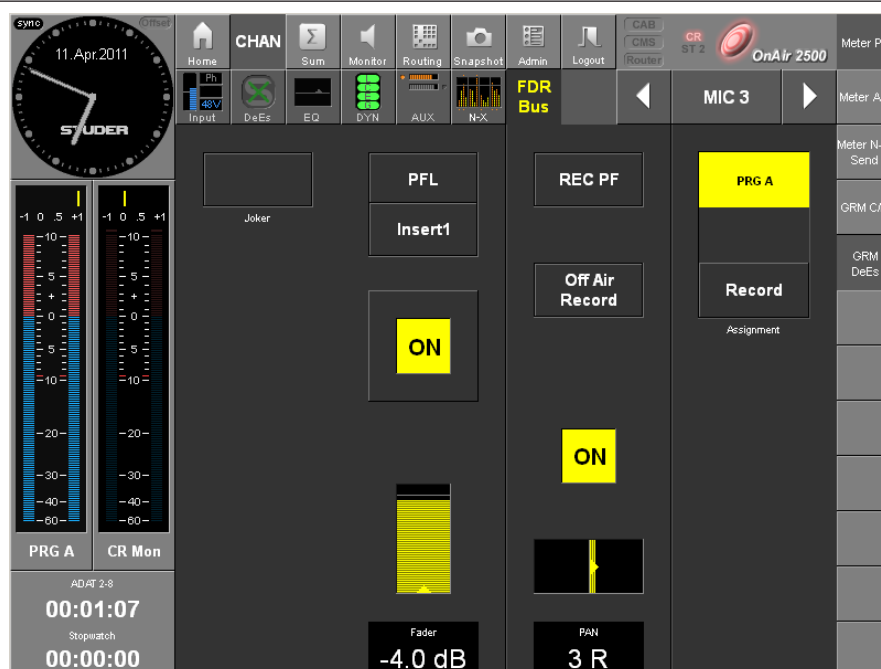
Level The AUX send level is indicated by the orange-colored bar graph. Its exact value is displayed in dB and can be set with the rotary encoder below the field. Maximum setting is +12 dB.

5.12.2.6 N-X Page



- N-X Mode** This is an indication on which main output assignment the channel's contribution to the N-X bus depends (**PRG A** or **REC**), or whether the bus is used as **AUX** bus (**AF** or **PF**); in the latter case, its control elements are displayed in orange as usual for an AUX bus. This assignment is performed on the **Sum - N-X** pages (see [chapter 5.12.3.3](#)). The 'classical' N-1 mode can be activated there as well.
- ON** On/off control for the channel's contribution to the individual N-X buses; highlighted if on.
- Level** The channel's contribution level to the individual N-X buses is indicated by the yellow-colored bar graph. Its value is displayed in dB and can be set with the rotary encoder below the field or on the channel strip. Maximum: +12 dB.

5.12.2.7 FDR/Bus Page



Joker Indicates the function currently configured to the 'Joker' key on the channel strip. For configuration refer to [chapter 6.5.1](#).

PFL Enables/disables pre-fader listening for the current channel (corresponds to the **PFL** key on the fader strip and works in parallel). PFL feeds the pre-fader audio signal of the current channel to the PFL bus. If the function 'PFL Cut on Channel Active' (also referred to as 'Broadcast PFL Mode', refer to [chapter 6.5.14](#)) is enabled, audio signals are cut from the PFL bus as soon as the channel is on and the fader is open. If active, the **PFL** key in the fader strip is illuminated in amber.

Insert This button is visible only if an insert from the inserts pool is assigned to this channel. It toggles the insert send on/off (highlighted if on).

ON Button to toggle the channel on/off, highlighted if on (corresponds to and works in parallel with the **ON** key on the fader strip).

Fader The channel fader value is indicated by the yellow-colored bar graph. The value is displayed in dB and is set with the rotary encoder below the field. The fader value adjusted here and the one of the physical fader in the corresponding fader strip are working in parallel, it is a kind of 'the last wins' circuit. This means that moving the physical fader also effects the bar graph on the screen; the other way round, however, a change with the rotary encoder sets the fader in take-over mode, because the new (electrical) fader value and the fader's (physical) position will then be different.

If the '0 dB on top' fader scale mode is active for the current user, the electrical fader value can be set higher than 0 dB with this rotary encoder. by slightly moving the fader button, control can be taken over again by the physical fader; there will, however, be an audible level jump in such a case.

REC PF Assigns the channel's pre-fader signal to the Record bus.

Off Air Record Assigns the channel's after-fader signal to the Record bus (if, however, **REC PF** is activated simultaneously, the signal will be pre-fader). At the same time it disconnects the channel from the PRG A bus, and all other channels currently not in record mode from the Record bus.

Note: **REC PF** and **Off Air Record** are provided for two different user philosophies. It is recommended to only use one of them. Mixing these two functions while operating the desk does not make sense and is not recommended.

One of the two **REC PF** or **Off Air Record** functions above may be programmed to the **REC** key on the channel strip.

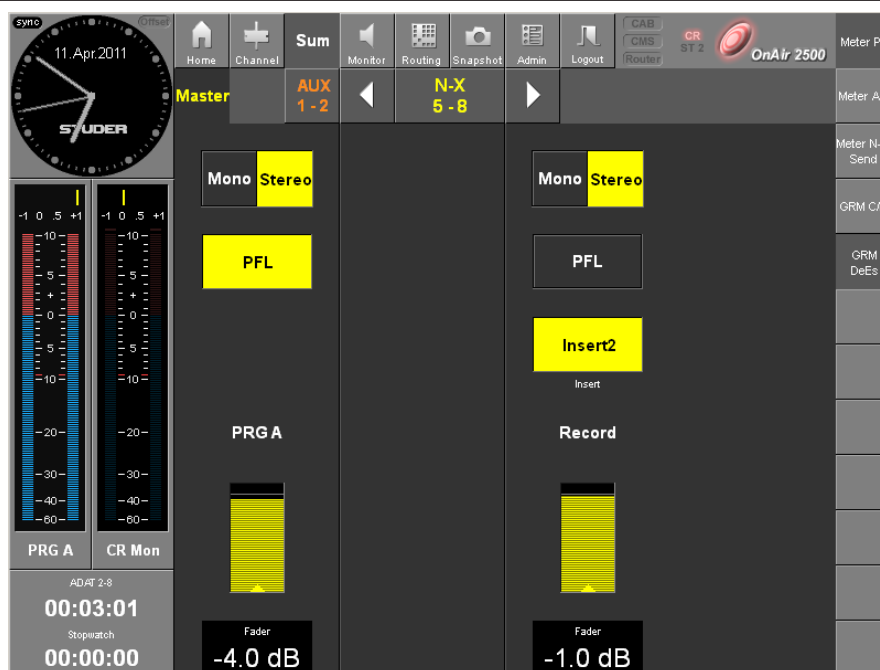
PAN or Balance Depending on the current channel format, this is a panorama (mono), or balance (stereo) function. The **PAN** or **Balance** value is indicated by the yellow-colored bar graph. The exact value is displayed as a numerical value followed by **L** or **R** and can be set with the rotary encoder below the field in a range from **30L** (fully left) over **0** (center) to **30R** (fully right). The **ON** button above the bar graph is highlighted if **PAN** or **Balance** is currently active.

Assignment Using these buttons the channel can be assigned to the main output buses.

5.12.3 Sum Pages

When clicking on **Sum**, the last used **Master**, **AUX** or **N-X** page opens for parameter adjustment.

5.12.3.1 Master Page



This page opens when selecting it from the **Sum** page. It allows parameter adjustments for the two main master buses **PRG A** and **Record**. The master bus labels may be renamed in the configuration tool.

Mono / Stereo

The audio format for each main output bus (Mono/Stereo) is set to **Stereo** by default but can also be set to **Mono** if required. In case of an AES/EBU output, both channels then carry the left/right mono mix.

PFL

PFL feeds the pre-fader audio signal to the PFL bus. This button enables/disables the PFL (pre-fader listening) function on the corresponding main master (highlighted if enabled). The 'PFL Cut on Channel Active' (Broadcast PFL Mode) has no effect on the audio signal.

Insert

This button is visible only if an insert from the inserts pool is assigned to this main master. It toggles the insert return on/off (highlighted if on).

(Master) Fader

The fader value is indicated by the yellow-colored bar graph. The exact value is displayed in dB and can be set with the rotary encoder below the field.

Notes:

Any master output can be assigned to any physical fader on the desk; refer to [chapters 5.12.5](#) and [6.5.11](#). The master outputs have a fixed output limiter; its parameters can be set in the configuration tool.

The fader value adjusted with the mouse and the one of the physical fader in the corresponding fader strip, if assigned, are working in parallel, it is a kind of 'the last wins' circuit. This means that moving the physical fader also effects the bar graph on the screen; the other way round, however, a change with the mouse sets the fader in take-over mode, because the new (electrical) fader value and the fader's (physical) position will then be different.

If the '0 dB on top' fader scale mode is active for the current user, the electrical fader value can be set higher than 0 dB with this rotary encoder. When slightly moving the fader button, control can be taken over again by the physical fader; there will, however, be an audible level jump in such a case.

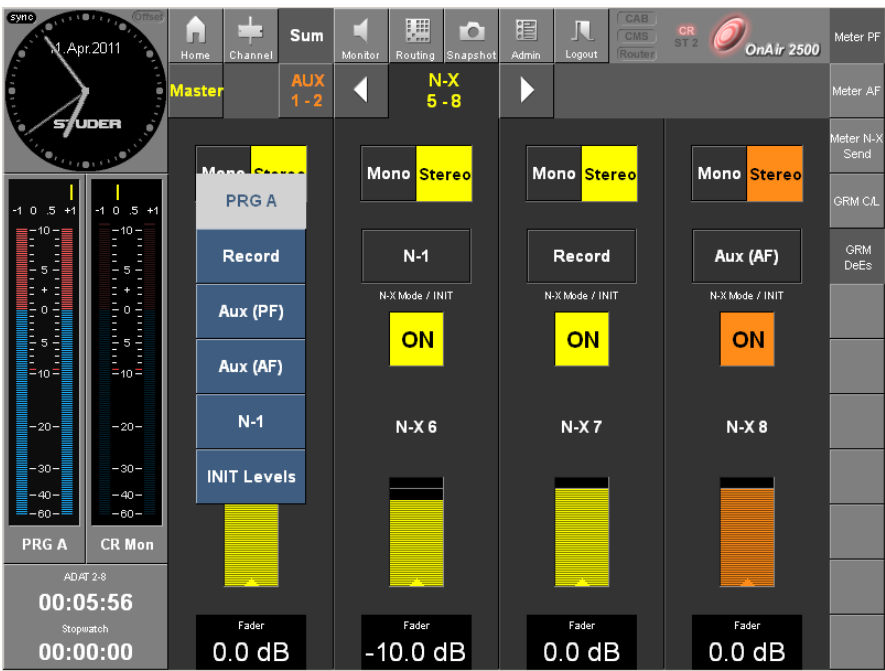
5.12.3.2 AUX Page



This page allows parameter adjustments for the two AUX master buses.

- Mono / Stereo** The audio format (mono or stereo) of each AUX master bus can be set to mono or stereo when clicking on these buttons; the current selection is highlighted.
- PFL** PFL feeds the pre-fader audio signal to the PFL bus. This button enables/disables the PFL (pre-fader listening) function on the corresponding AUX master (highlighted if enabled). The 'PFL Cut on Channel Active' (Broadcast PFL Mode) has no effect on the audio signal.
- ON** Button to toggle the AUX send sum on/off, highlighted if on.
- Label** The label displayed here (e.g. **AUX 1**) may be renamed in the configuration tool, if required (see [chapter 6.5.11](#)).
- (AUX) Fader** The fader value is indicated by the orange-colored bar graph. The exact value is displayed in dB and can be set with the rotary encoder below the field.
- Notes:** Any AUX output can be assigned to any physical fader on the desk.
The fader value adjusted with the mouse and the one of the physical fader in the corresponding fader strip, if assigned, are working in parallel, it is a kind of 'the last wins' circuit. This means that moving the physical fader also effects the bar graph on the screen; the other way round, however, a change with the mouse sets the fader in take-over mode, because the new (electrical) fader value and the fader's (physical) position will then be different.
If the '0 dB on top' fader scale mode is active for the current user, the electrical fader value can be set higher than 0 dB with this rotary encoder. When slightly moving the fader button, control can be taken over again by the physical fader; there will, however, be an audible level jump in such a case.

5.12.3.3 N-X Pages



The control elements for the eight N-X master buses are distributed on two pages with identical layout.

Mono / Stereo

The audio format of all N-X buses can be set to mono or stereo when clicking on these buttons; the active selection is highlighted.

N-X Mode / INIT

An N-X bus may also be used as an AUX bus; *in such a case, however, the pre- or after-fader (PF/AF) selection can only be made for all the contributing channels simultaneously – as opposed to the standard AUX buses.*

Assignment for the N-X buses – **PRG A**, **Rec**, **Aux (PF)** or **(AF)** or **N-1** – can be selected here from the drop-down list. The ‘classical’ N-1 mode is independent from the sum/master bus assignment.

INIT Levels

Initializes the contribution level of all channels to this N-X bus to 0 dB. If the bus is configured as AUX, however, the contribution levels are initialized to $-\infty$ dB (i.e., mute). In addition, the contribution for the N-X bus is switched on, for an AUX bus it is switched off.

ON

Button to toggle the output on/off; highlighted if on.

Label

The label (e.g. **N-X 4**) may be renamed in the configuration tool, if required (see [chapter 6.5.11](#)).

Fader

The fader value is indicated by the yellow-colored bar graph (or orange-colored in case of an AUX assignment). The exact value is displayed in dB and can be set with the rotary encoder below the field.

Notes:

Any N-X output may be assigned to any physical fader on the desk. The fader value adjusted with the mouse and the one of the physical fader in the corresponding fader strip, if assigned, are working in parallel, it is a kind of ‘the last wins’ circuit. This means that moving the physical fader also effects the bar graph on the screen; the other way round, however, a change with the mouse sets the fader in take-over mode, because the new (electrical) fader value and the fader’s (physical) position will then be different.

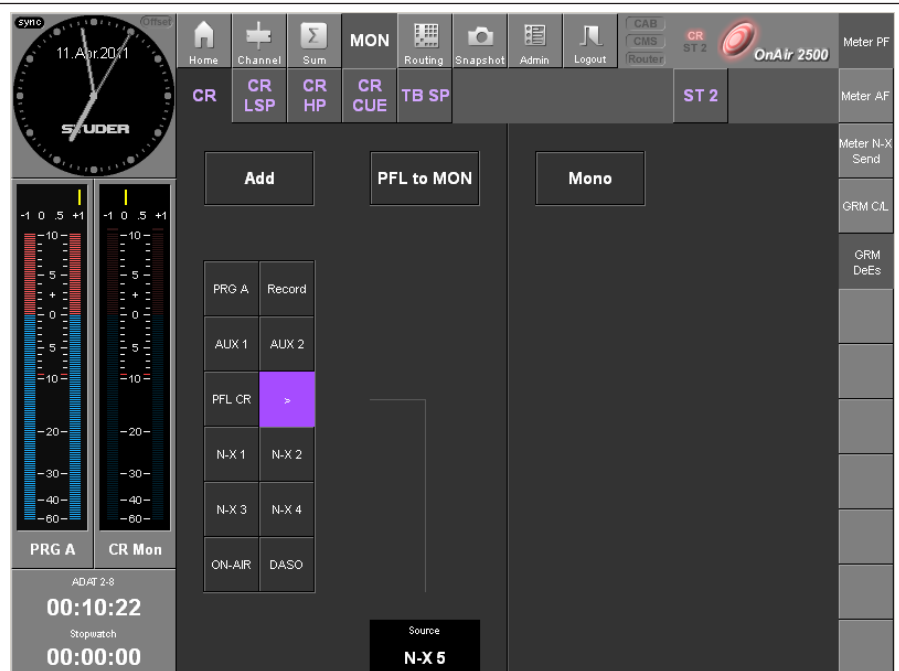
If the ‘0 dB on top’ fader scale mode is active for the current user, the electrical fader value can be set higher than 0 dB with this rotary encoder. When slightly moving the fader button, control can be taken over again by the physical fader; there will, however, be an audible level jump in such a case.

5.12.4 Monitoring Pages

Like all hardware elements, the console's monitoring and talkback controls are available in the GUI as well and work completely in parallel. This has several advantages: A function can be controlled from a remote PC, e.g. for service purposes, or the user can control the parameters in the studio from his desk in the control room.

When clicking on **MON**, the last active monitoring page opens for parameter adjustment.

5.12.4.1 CR (Control Room) Page



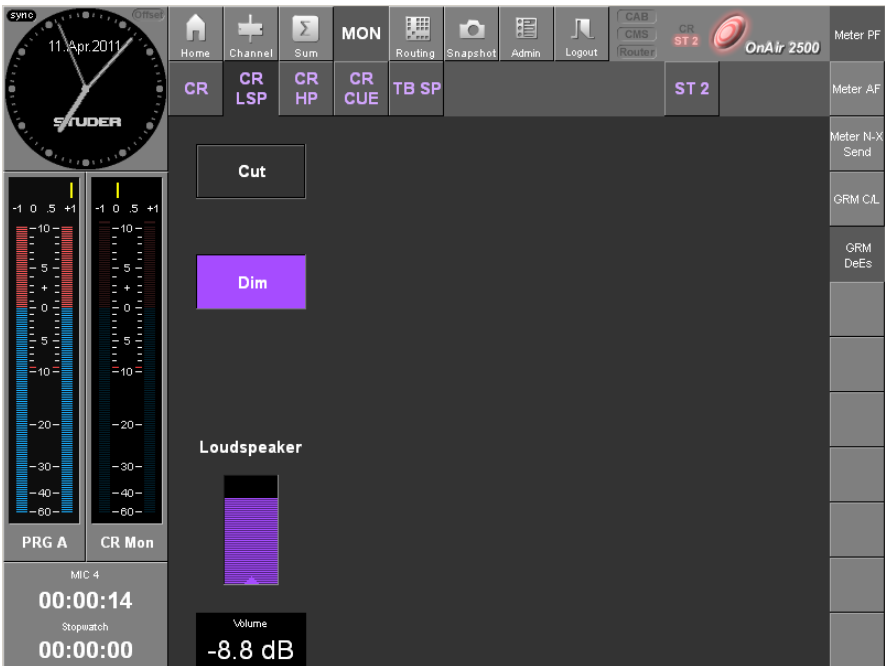
Source Selector The source selector buttons can be configured with the desired sources; the currently selected source is highlighted.

Add This function is very handy for a station takeover. It allows to temporarily select two sources for monitoring. The second source can be added by clicking on **Add**, and, while **Add** is highlighted, selecting a second source. Now both sources are either mixed or sent separately to the two headphone channels (configurable, see [chapter 6.5.22.1](#)); **Add** will be dark, but the source selector keys of both active sources will be highlighted. **Add** is canceled upon selection of a next source.

PFL to MON Switches the PFL signal to the CR monitor loudspeakers.

Mono When active, both the left and right monitor speakers are fed with a mono mix of the selected source.

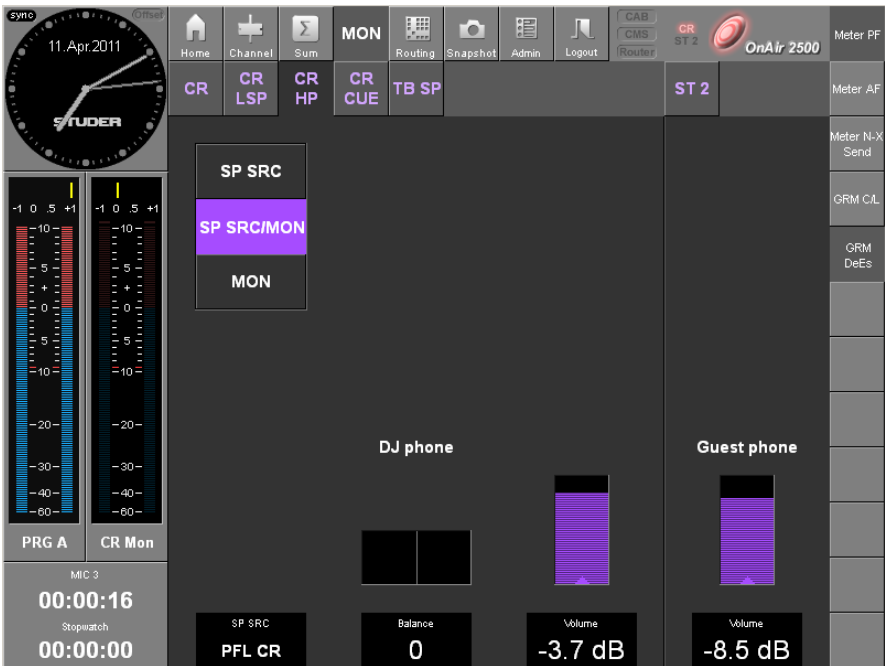
5.12.4.2 CR LSP (Loudspeakers) Page



Cut / Dim These buttons allow muting/dimming the speakers; highlighted if active. The amount of **Dim** attenuation can be configured (see [chapter 6.5.22.1](#)).

(Loudspeaker) Volume The volume of the monitoring system is indicated with the bar graph. The exact value is displayed in dB and set with the adjacent rotary encoder.

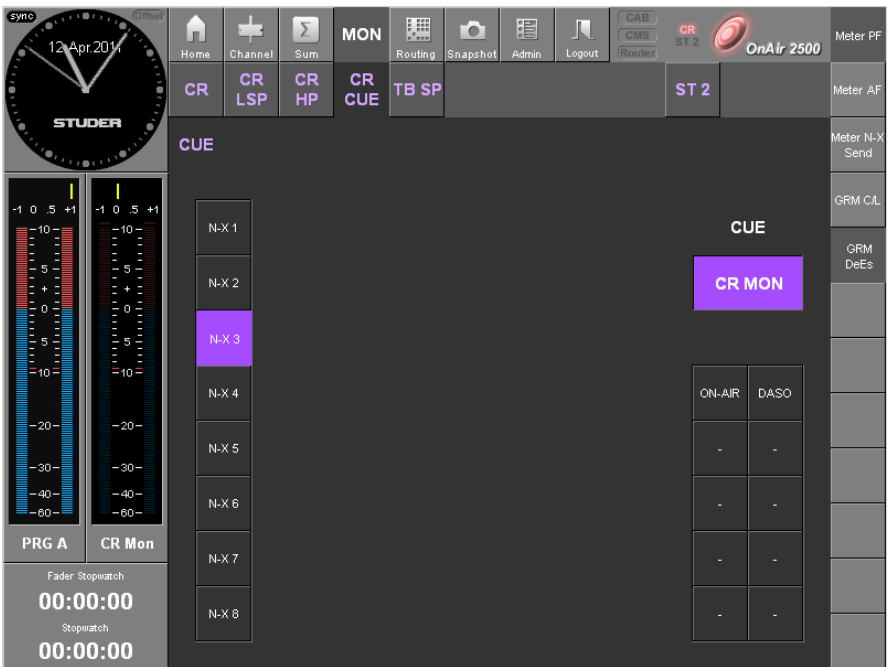
5.12.4.3 CR HP (Headphones) Page



DJ phone In normal mode, **MON** is selected, and the CR headphones are then used for monitoring the source selected on the CR page (see [chapter 5.12.4.1](#)). With the **add** function, a second source can be temporarily selected which is then mixed to the normal monitoring source.

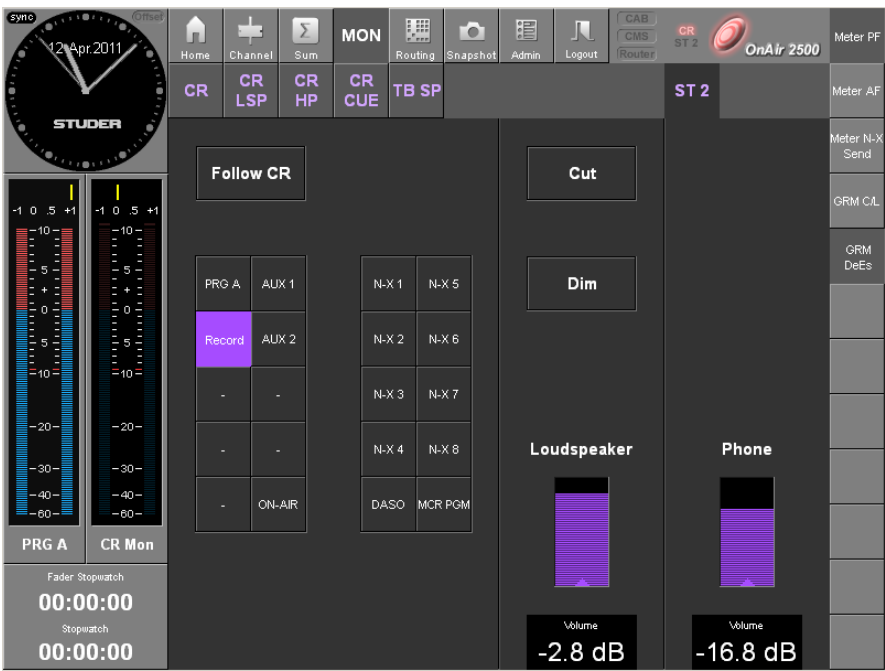
SP SRC	‘Split mode’ - an additional, third signal may be monitored on the DJ phones. This is selected with the SP SRC rotary encoder and its display.
SP SRC/MON	When activating the SP SRC/MON button, this third signal is fed to the left channel; the standard monitor signal plus the one selected with the Add function are then mixed to the right channel.
Balance	The balance between the left and right channels is adjusted with the Balance rotary encoder; the current balance setting is indicated by the adjacent purple bargraph.
DJ / Guest phone Volume	The headphones volume is adjusted with the two Volume rotary encoders; the current volume setting is indicated by the adjacent purple bargraphs. Depending on the configuration, individual talkback to the DJ and the guest headphones may be selected; in such a case, the PFL speaker(s) is/are muted.

5.12.4.4 CR CUE Page



CUE (1...8)	Sends the selected CUE feed to the corresponding N-X bus.
CR MON	Selects the signal that has been selected for CR monitoring as a CUE signal (corresponds to the ‘Follow CR’ function on other monitoring pages).
10 Cue Source Buttons (below CR MON)	(Configurable in ConfigGUI/DeskCommon/Cue-Keys) Select the source that is fed as the cue signal. The 10 sources displayed on these buttons are pre-selected during system configuration (DeskCommon – Cue Keys page).

5.12.4.5 Studio 2 Page



The controls of the studio 2 page are operated in parallel to the controls on the monitoring/talkback box in the studio.

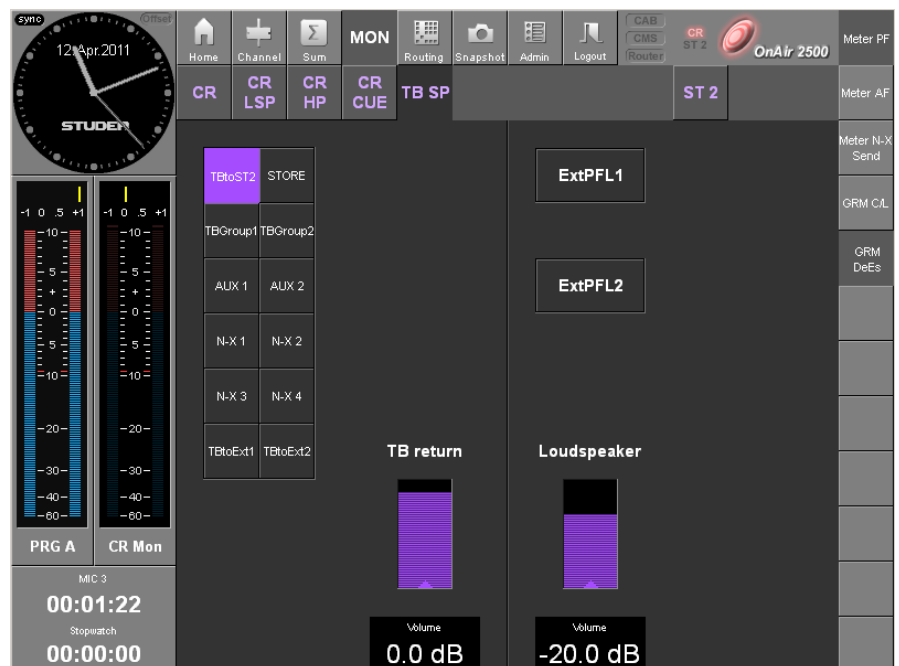
Source Selector The source selector buttons can be configured with the desired sources; the currently selected source is highlighted.

Follow CR Selects the same monitoring source for the studio as is selected for the control room; this also works for sources not configured on any button of the source selector.

Cut, Dim These buttons allow to mute or dim the studio loudspeakers; highlighted if active.

Loudspeaker / Phone Volume Monitoring volumes are indicated with the bar graphs. The exact values are displayed in dB and can be set with the rotary encoders below the fields.

5.12.4.6 TB SP Page



This page contains a part of the functionality found in the desk's central section and works in parallel with its controls. For details refer to [chapter 5.4.3](#).

Talkback Destination Selector

Buttons to select a talkback destination (or a group of destinations). For details refer to [chapter 5.4.3](#).

SLATE

(If configured) Allows talkback to the two main buses (**PRG A**, **Record**). In order to prevent talkback from going to these destinations unintentionally, the **SLATE** button must be clicked on before clicking on one of the **PRG A** or **Record** master talkback buttons.

*The **SLATE** function on the screen is independent from the one on the desk (if configured).*

TB return Volume

Control for the talkback return volume.

Loudspeaker Volume

Volume control for the PFL speaker integrated in the console.

EXT PFL 1 / 2

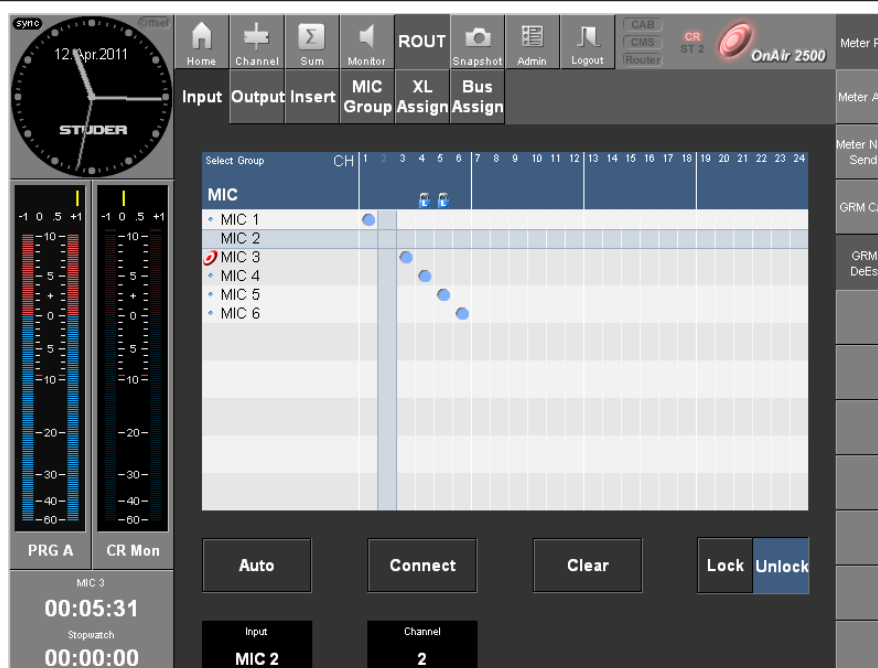
External PFL inputs that are mainly used for pre-listening of a CAB system. They are controlled from the monitoring panel, by the GP inputs, or by the Monitors interface.

Note:

An additional talkback mode may be configured that routes the talkback signal to either the left or right headphones channel; in this case, the normal monitor signal is routed in mono to the other headphones channel during talkback without being dimmed.

5.12.5 Routing Pages

5.12.5.1 Input Page



The input routing page allows setting up the mixing console's input router; the general rule is that each input can be routed to any channel, but to exactly one channel only. For a general description of the routing refer to [chapter 5.7](#).

Note: Monitor routing is not part of this page; this is set in the configuration tool.

Matrix On the graphical representation of the routing matrix, the console's channel strips are displayed from left to right, and the inputs from top to bottom. Connections are indicated by a blue bullet within the matrix as well as by a small blue bullet at the left of the input label. The routing of a channel currently being on-air *cannot* be changed; this status is indicated by a red 'Frisbee' symbol at the left of the input's label, and by blanking the **Clear** button. A connection may be permanently locked during configuration; this is indicated by a padlock symbol below the channel number, and by blanking the **Connect / Clear** buttons.

Select Group For clearness, the different inputs may be arranged in groups. This button opens a list of input groups to select from.

Input Display of the selected input (position of the horizontal cursor line). Input selection is done with the rotary encoder below the field. If more inputs are available than can be displayed by the screen, the matrix automatically scrolls when the cursor line meets its upper or lower limit.

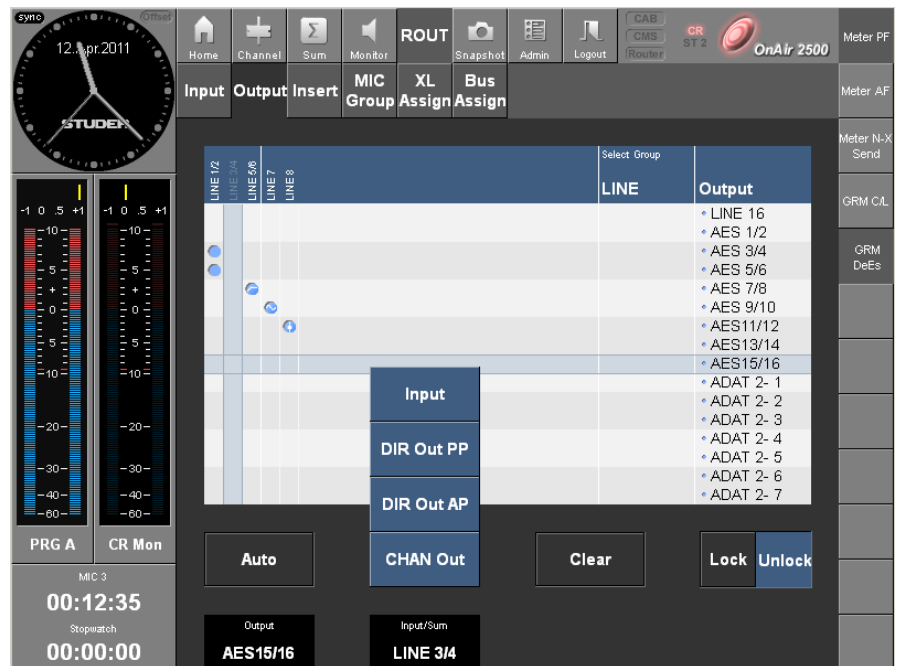
Channel Display of the selected channel strip (position of the vertical cursor line). Channel strip selection is done with the rotary encoder below the field. If more channel strips are available than can be displayed on the screen, the matrix automatically scrolls when the cursor line meets its left or right limit. If a channel strip has no input assigned currently, its number above the matrix is displayed in blue instead of in white. Virtual channel strips are marked by a light-blue background.

Auto If this function is active, the correct page is displayed automatically upon changing a channel, and the **Input** selection is blanked.

Connect / Clear Sets or clears a connection at the current cross point of the vertical (console channel) and horizontal (input) cursor lines.

Lock, Unlock A connection may be protected from changes by selecting it and clicking on the **Lock** button. If locked, the **Connect** and **Clear** buttons are blanked, and a padlock symbol is indicated next to the input label. To unlock, select the connection and click on the **Unlock** button.

5.12.5.2 Output Page



The output routing page allows setting up the mixing console's output router; the general rule is that each input and each master bus can be routed to any output. For a general description of the routing refer to [chapter 5.7](#).

Notes: Monitor routing is not part of this page; it must be set in the configuration tool.

All inputs are listed here as well, which allows routing them directly to an output without any processing by the console (and, subsequently, without consuming any processing power).

- Matrix** On the graphical representation of the routing matrix, the console master buses (and inputs) are displayed from left to right, and the outputs from top to bottom. Established connections are indicated by a blue bullet.
- Select Group** For clearness, the different master buses (and inputs) may be arranged in groups. This button opens a list of items to select from.
- Output** Display of the selected output (position of the horizontal cursor line). Output selection is done with the rotary encoder below the field. If more console channels are available than can be displayed by the screen, the matrix automatically scrolls when the cursor line meets its upper or lower limit.
- Input/Sum** Display of the selected master or input (position of the vertical cursor line). Selection is done with the rotary encoder below the field. If more masters and inputs are available than can be displayed by the screen, the matrix automatically scrolls when the cursor line meets its left or right limit. If an input or master bus has no output assigned currently, its number above the matrix is displayed in blue instead of in white.
- Auto** If this function is active, the correct subpage is displayed automatically upon changing an output.

Connect When clicking on **Connect**, the connection is set at the crosspoint of the cursor lines. The blue bullet at the crosspoint indicates the selected type:

-  Input
-  DIR Out PP (pre-processing)*
-  DIR Out AP (after processing)*
-  CHAN Out (after fader)*

Clear Clears the connection at the cross point of the vertical (master or input) and horizontal (output) cursor lines.

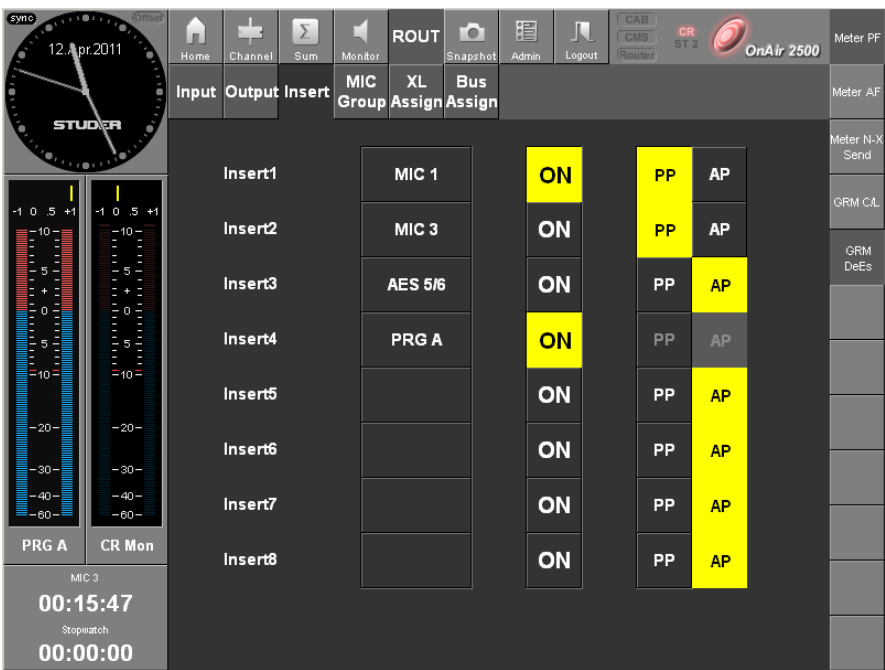
Lock, Unlock A connection may be protected from changes by selecting it and clicking on the **Lock** button. If locked, the **Connect** and **Clear** buttons are blanked, and a padlock symbol is indicated next to the output label.

To unlock, select the connection and click on the **Unlock** button.

* *Since the direct and channel output tap points are located within or after the channel processing, they can deliver an audio signal only if the corresponding input is assigned to a fader.*

It is also possible to route the de-embedded output signal of an SDI input card via the D21 frame's backplane to the input of a Dolby® E input card for decoding multichannel surround signals; this is done in the output routing page.

5.12.5.3 Insert Page



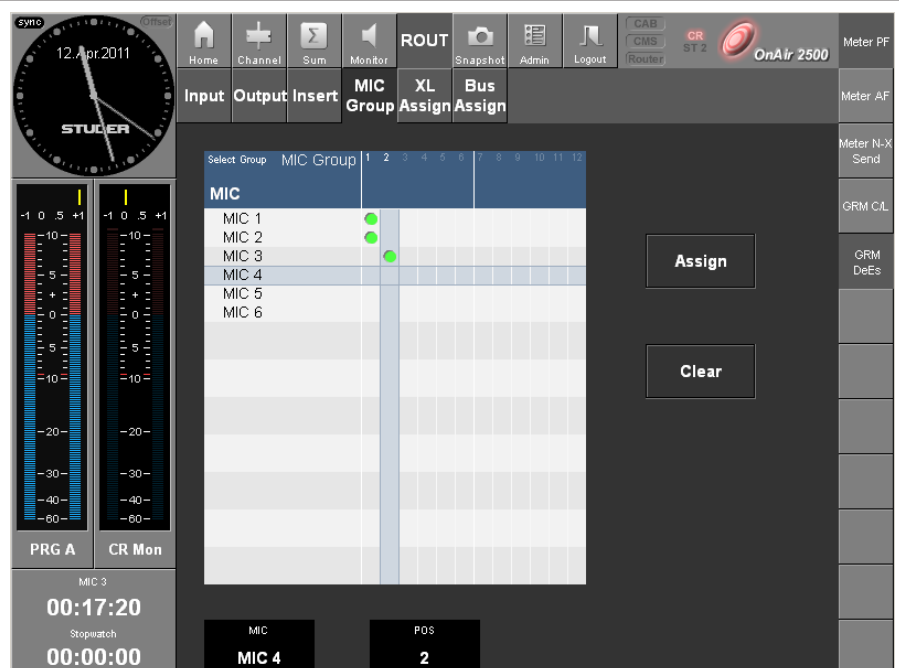
There is a pool of eight inserts. On the insert routing page they can be assigned to the possible insert points (input channels and main master buses) of the console.

The insert can be switched on or off either here with the **ON** button, on the **CHAN - FDR/Bus** page of the channel, or on the **Sum - Master** page of the master to which the insert is assigned. This means that, if an insert is assigned to a channel, the insert **ON** button is displayed on the corresponding channel or bus page.

Note: The audio inputs and outputs used for insert send and return are defined in the configuration tool (see [chapters 6.5.5](#) and [6.5.6](#)).

- INSERT1...8** Clicking on one of these buttons opens a list of the available insert points to select from. The selected insert point is displayed in the field at the right of the **INSERTx** buttons. To de-assign an insert point, select **None** from the list.
- ON** An insert point will become active in the audio signal path either upon clicking on the **ON** button or, as mentioned before, by activating it on the **CHAN - FDR/Bus** page of the channel, or on the **Sum - Master** page of the master to which the insert is assigned.
- PP / AP** For input channels, the insert point can be set to either before (**PP**) or after (**AP**) the signal processing.

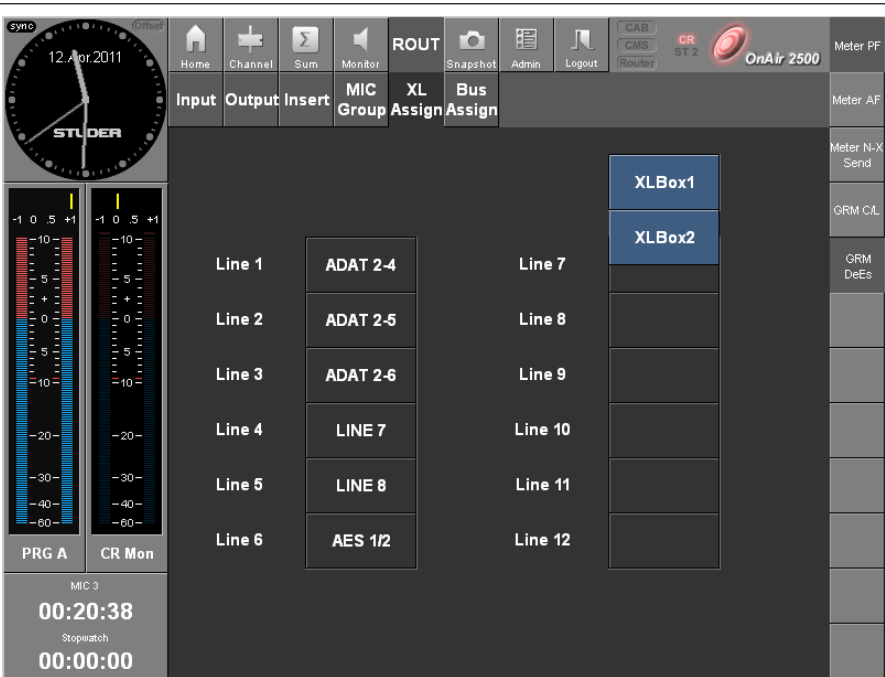
5.12.5.4 Mic Group Page



For ease of control, microphones may be grouped in Mic Groups. All microphones within the same group may be switched on/off with one single, external Mic key (via a GP input).

- Mic / POS** The microphone is selected with the rotary encoder below the **Mic** field, the mic group with the one below the **POS** field.
- Assign / Clear** Assignment of the selected microphone and group is done by clicking on **Assign**; then a green bullet appears at the selected position. A click on **Clear** clears the selected assignment.
- In the example above, the DJ mic and the guest mic #1 are assigned to mic group 1, and the guest mic #2 is assigned to mic group 2; guest mic #3 is ready to be assigned to mic group 2 – just click on **Assign**.

5.12.5.5 XL Assign Page



Extended Line (XL) Module

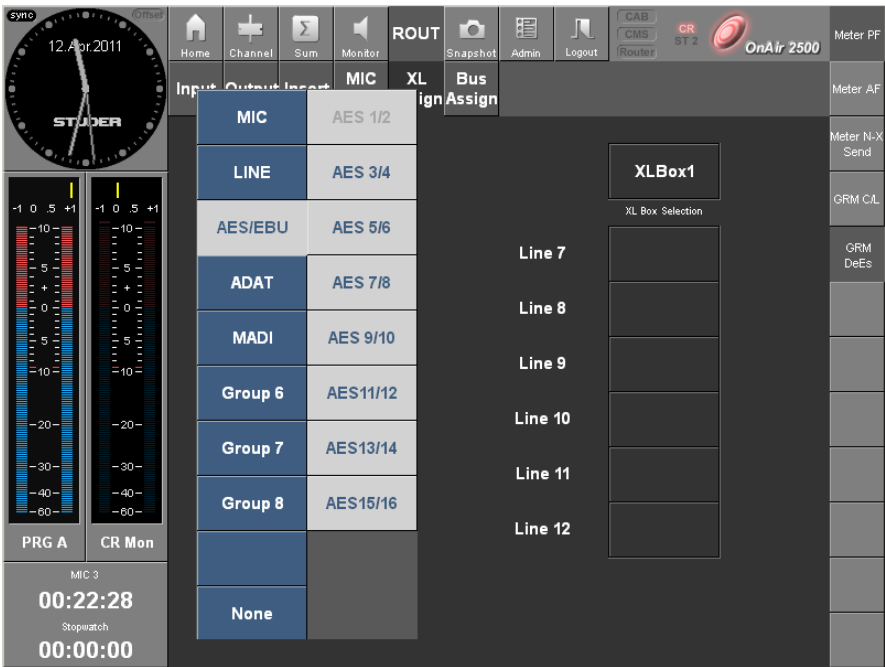
The XL module (‘XL box’) allows direct communication to up to twelve outside sources but may be used for different applications as well. This page allows assigning the desired sources to the XL box keys.

XLBox1 / XLBox2

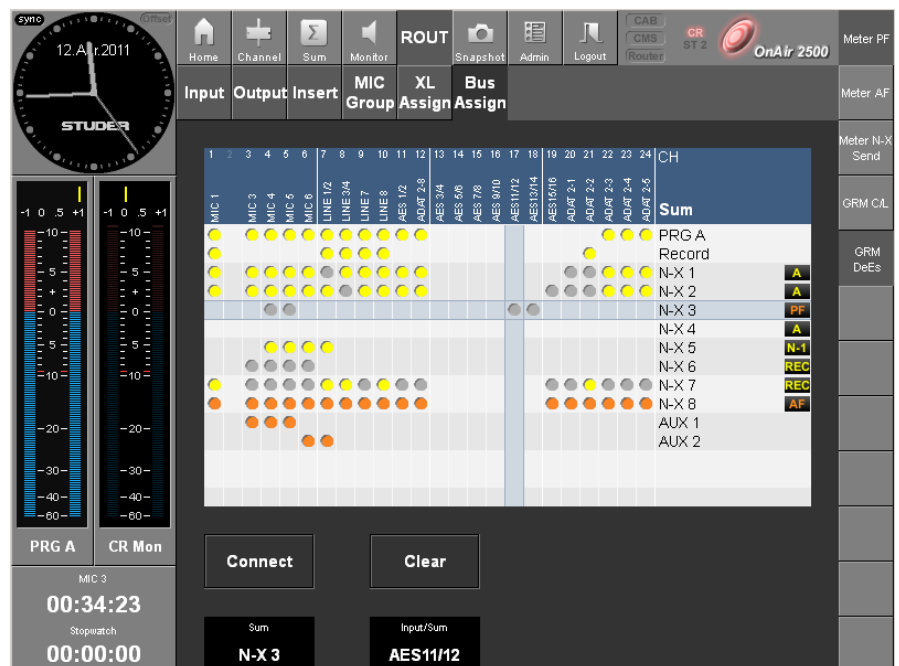
First, select the XL box; when clicking on this button, two selection buttons appear, as shown above.

Line 1...12

When clicking on one of the buttons at the right of the **Line 1...12** labels, first a list of source groups appears for selection; clicking on one of these items opens a list of available sources, as shown below. To assign, click on the desired source’s button.



5.12.5.6 Bus Assign Page



The bus assign page gives a kind of ‘reverse contribution’ overview and allows routing channels to buses in a matrix style, as opposed to the conventional assignment from within the strip channels. It also gives the user a convenient view of the inputs currently assigned to a bus; the N–X buses have an additional indication of the N–X mode they are set to.

This page is also a convenient tool for troubleshooting a routing problem.

Sum, Input/Sum

The rotary encoders below these two fields move the highlighted row and column for selection; the currently selected items are indicated within the two fields.

Connect

To set a connection at the selected crosspoint, click on **Connect**. For impossible connections (such as AUX 1 to N–X 13) both the **Connect** and **Clear** buttons are hidden.

Clear

To clear the connection at the selected crosspoint, click on **Clear**.

A or **REC**

N–X bus comprising all inputs currently switched to the PRG A (or REC) master.

PF or **AF**

N–X bus used as AUX bus; as opposed to a normal AUX bus, the PF (pre-fader) and AF (after-fader) selection can only be made for all contributors simultaneously.

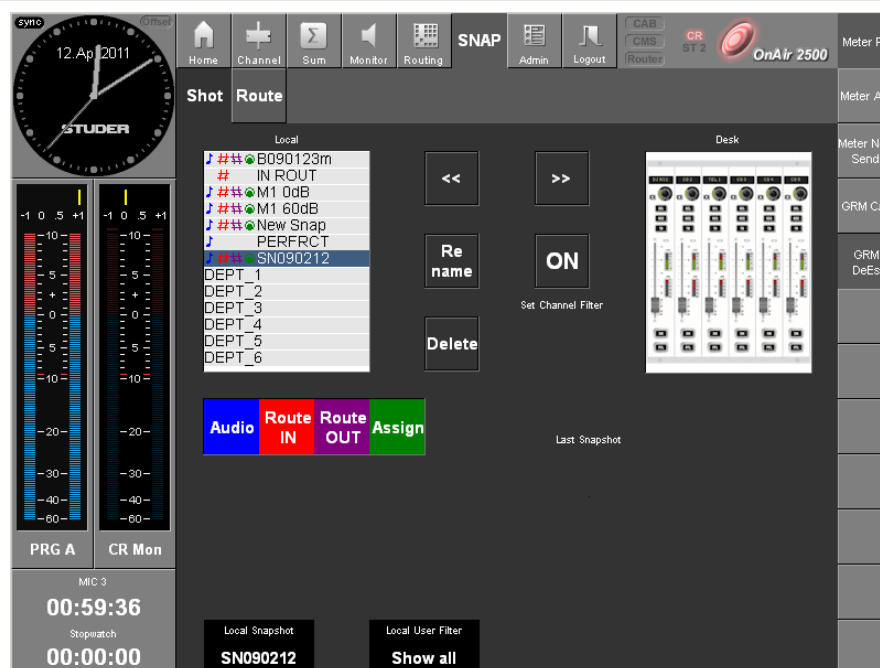
N-1

N–X bus in ‘classical’ N–1 mode; i.e., it is comprising all configured contributors regardless whether they are switched to any master.

5.12.6 Snapshot Pages

On this page the static (snapshot) automation is handled. For a general description of the snapshot handling refer to [chapter 5.6](#).

5.12.6.1 Shot Page



Local Snapshot List

The snapshot list in the left part of the page shows all snapshots available for the current user. One entry can be selected at a time. Selection is done with the **Local Snapshot** rotary encoder.

Local User Filter

If the current user is the administrator, the snapshot list shows all global and all user snapshots. A user filter may be applied to the list with the **Local User Filter** rotary encoder.

Audio, Rout In/Out, Assign

These keys allow partial snapshots of the console. If **Audio** is active, all *audio* parameters of the console will be saved in a snapshot, and a ♪ (blue note) symbol is displayed next to the snapshot name. If **Rout In** is active, all *input routing* parameters of the console will be saved in a snapshot, and a red # (matrix) symbol is displayed. If **Rout Out** is active, all *output routing* parameters of the console will be saved in a snapshot, and a purple # symbol is displayed. If **Assign** is active, the *rotary assignment* (that has been performed with the rotary and fader assign modules) will be saved in a snapshot, and a green ⦿ (rotary knob) symbol is displayed next to the snapshot name. Any combination of these partial snapshots is allowed. For a complete console snapshot, simply activate all four buttons. The ♪, #, #, and ⦿ symbols also indicate which parts of a snapshot saved in memory may be selected for recall.

>> Clicking on >> recalls the snapshot selected from the local snapshot list (selected parts only) from the console's memory and loads it to the desk.

<< Clicking on << saves the current desk setup (selected parts only) as a snapshot to the console's memory; a name must be given to the new snapshot using the keyboard appearing then. When finished, confirm with **Enter**.

Rename

The **Rename** button is displayed only if an entry has been selected in the **Local** snapshot list, and if renaming is available for this entry. It allows

renaming the selected entry with the keyboard appearing then. When finished, confirm with **Enter**.

Delete The **Delete** button is displayed only if an entry has been selected in the **Local** snapshot list, and if deleting is available for this entry. It allows deleting the selected entry after confirmation.

It is also possible to delete only a part (or parts) of a snapshot when selecting one (or more) of the **Audio**, **Rout In/Out**, **Assign** buttons before clicking on the **Delete** button. A confirmation dialog appears then as well.

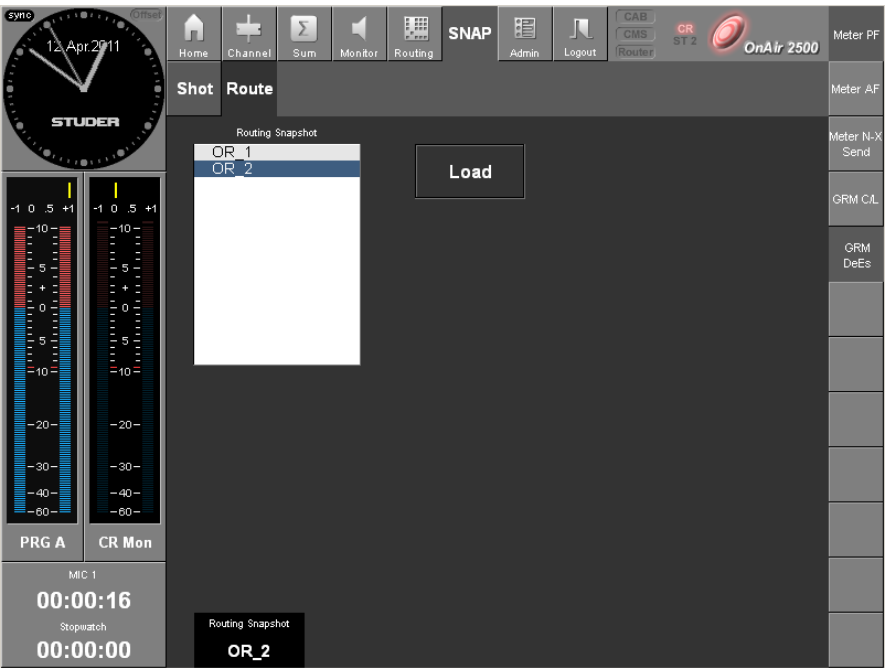
Note: Global snapshots may be written, renamed, or deleted by the system administrator only.

Set Channel Filter ON/OFF The channel filter allows selecting channels to which the snapshot is loaded; if **ON**, the **USR 1** desk keys start flashing. Select the desired channel/s with its/their **USR 1** key (it will be continuously illuminated then). When clicking on **>>**, only the selected channel(s) will be overwritten with the snapshot data of the input(s) with the matching alias label.

The channel filter has no influence on saving a snapshot; always all parameters of all channels are saved.

Set Location Filter ON/OFF When operating in split desk mode, recalling a snapshot in the control room must not affect the logical inputs located on a strip channel in the studio. It is also possible to load a snapshot individually on a split desk or on one of the editor boxes with the SnapshotX desk key function.

5.12.6.2 **Route Page ('Partial Output Routing')**

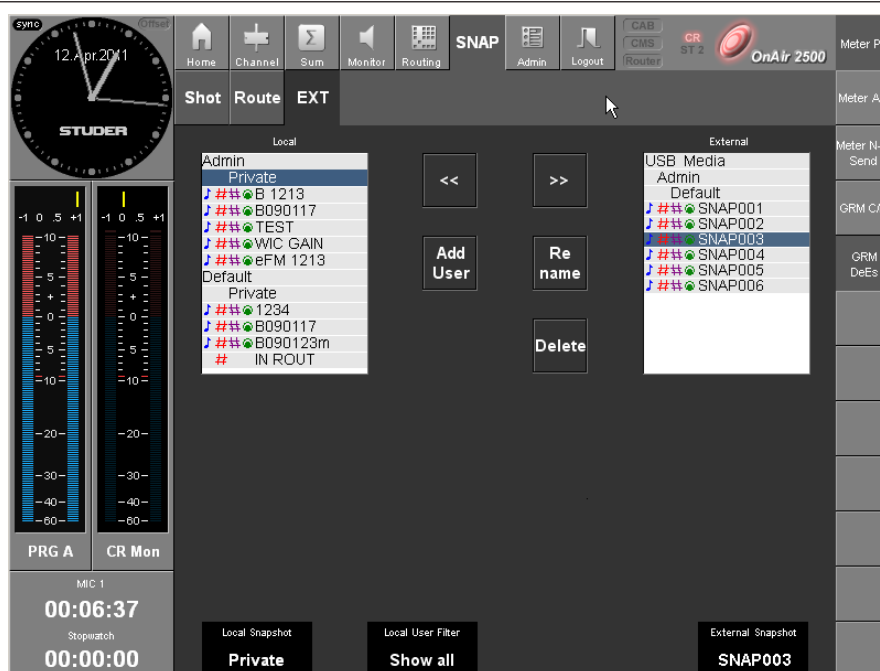


On this page the output routing may be partially changed. A recalled snapshot only changes the routing nodes specified in the snapshot. This comes in very handy if the recent routing of the console shall be kept, but the studio (PRG Out) shall contribute to a different on-air line. The snapshots are configured in the configuration tool (**Config - PartialOutputRouting**).

Routing Snapshot The rotary encoder below the field is used to select the desired routing snapshot from the list.

Load Loads the selected snapshot.

5.12.6.3 EXT Page



Note: This page appears if no central snapshot server is configured within the system (i.e. Snapshot Location is set to Local, refer to [chapter 6.5.24](#)).

Local Snapshot List The snapshot list in the left part of the page shows the local snapshots saved in the console's memory. Only one entry can be selected at a time. Selection is done with the **Local Snapshot** rotary encoder.

Local User Filter If the system administrator is currently logged in, the snapshot list shows all global and all user snapshots. A user filter may be applied to the list. Select the desired initial character or **Show all** with the **Local User Filter** rotary encoder.

External Snapshot List The external snapshot list at the right shows the snapshots on the external USB memory device. Only one entry can be selected at a time. Selection is done with the **External Snapshot** rotary encoder.

The **External** snapshot list as well as the **External Snapshot** field are blank as long as no memory device is inserted in the USB socket at the left of the screen.

<<, >> The << and >> arrow buttons are displayed after entries have been selected in the lists. They allow copying the selected entry from the USB memory device to the console's **Local** memory, and vice versa. If the target snapshot is not empty it will be overwritten.

Rename The **Rename** button is displayed if an entry has been selected in the **External** snapshot list, and if renaming is available for this entry. It allows renaming the selected entry with the keyboard appearing then. When finished, confirm with **Enter**. If required, items in the **Local** snapshot list may be renamed in the **SNAP - Shot** page, refer to [chapter 5.12.6.1](#).

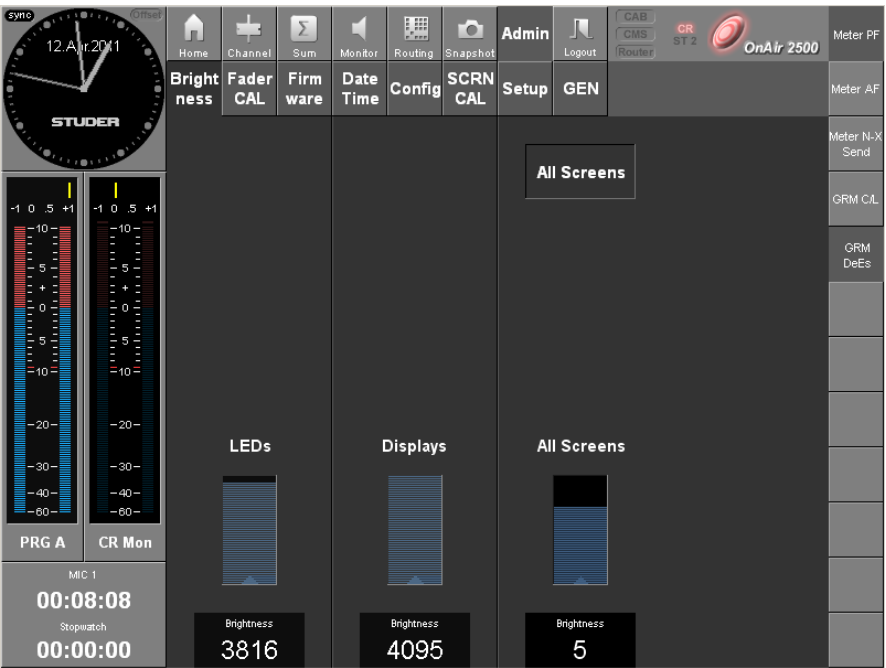
Delete The **Delete** button is displayed if an entry has been selected in the **External** snapshot list, and only if deleting is permitted for this entry. It allows deleting the selected entry after confirmation. Items in the local snapshot list may be deleted in the **SNAP - Shot** page, refer to [chapter 5.12.6.1](#).

Note: Only the system administrator is allowed to copy snapshots from the external USB memory device to the *global section of the local snapshots list*.

5.12.7 Admin (System Administrator) Pages

If the user has access rights to the console configuration, the **Admin** button is displayed. After clicking on it, the **Display**, **Fader Cal**, **Firmware**, **Date/Time**, **Config**, **Scrn Cal**, and **Setup** buttons select the respective pages for basic settings and firmware version display. **Config**(uration) is described in an extra chapter (refer to [chapter 6](#)).

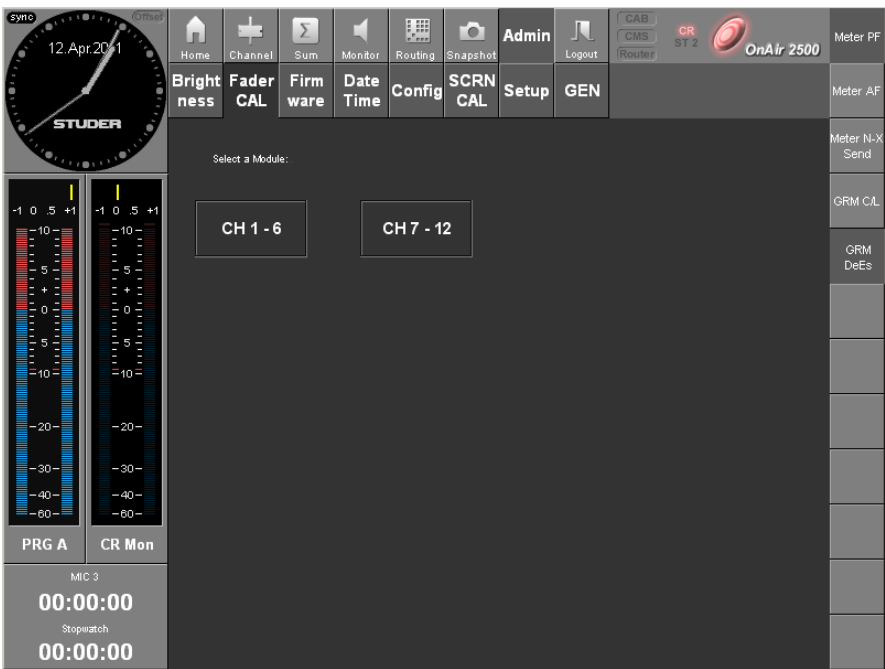
5.12.7.1 Brightness Page



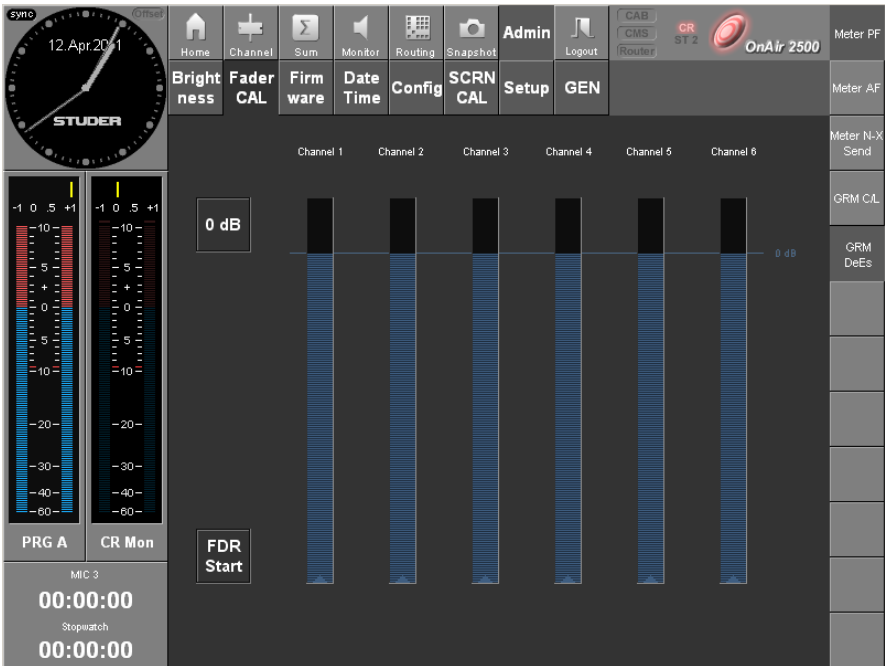
This page is used to independently set the brightness of the LEDs illuminating the keys, the OLED displays in the fader modules and in the central section, and the TFT screen. The steel blue bar graphs indicate the current settings. These are also displayed in numerical values in the **Brightness** fields below the bar graphs and may be adjusted with the corresponding rotary encoders (LEDs in a 0...4095 range, the TFT screen in eight steps from 0 to 7, and the OLED displays in five discrete steps from completely dark to bright – however, with a 0...4095 indication).

All Screens This button is inactive on the OnAir 1500 and OnAir 2500 consoles.

5.12.7.2 Fader Cal Page



First, select the fader module to be calibrated by clicking on the corresponding button. The screen then changes as follows:



0 dB Position *Always required; please note that it is recommended to perform this calibration for all faders of a fader module at a time.*
First, move all faders *not* to be calibrated to their -20 dB position (this position will be ignored during calibration).
Then move the fader(s) to be calibrated to their 0 dB positions.
Click on the **0 dB** button.

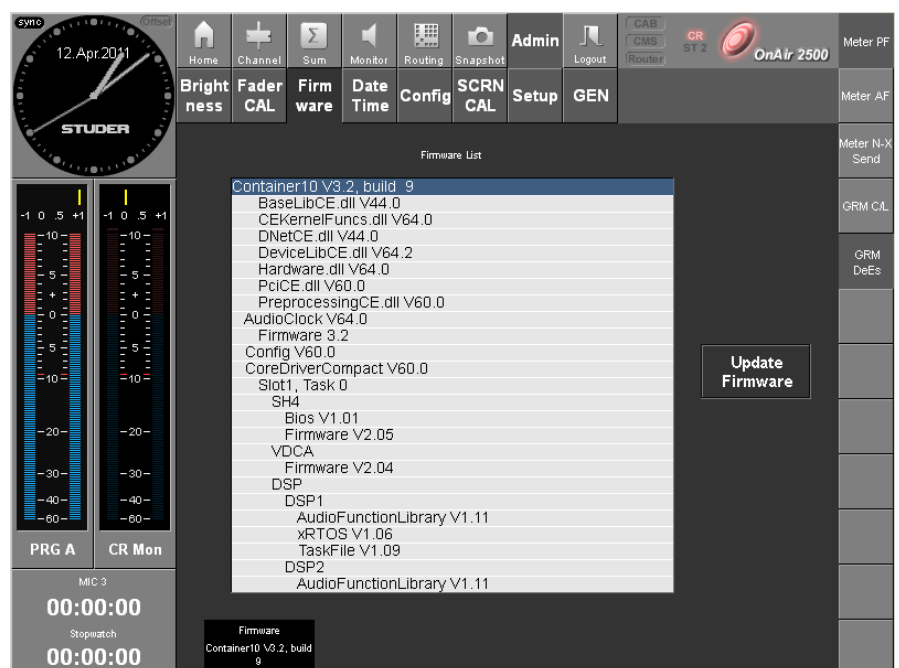
FDR Start Trigger Point *Please note that it is recommended to perform this calibration for all faders of a fader module at a time.*

First, move all faders *not* to be calibrated to their -20 dB position (this position is ignored during calibration).

Center the fader knobs to be calibrated between the $-\infty$ and the -60 markers. This will be the point where the fader start output is triggered after calibration. Click on the **FDR Start** button. To check, close the faders that just have been calibrated; the corresponding fader bars on the screen should disappear.

If you intend to calibrate the second fader module, click on the **Fader Cal** menu button again and select it.

5.12.7.3 Firmware Page

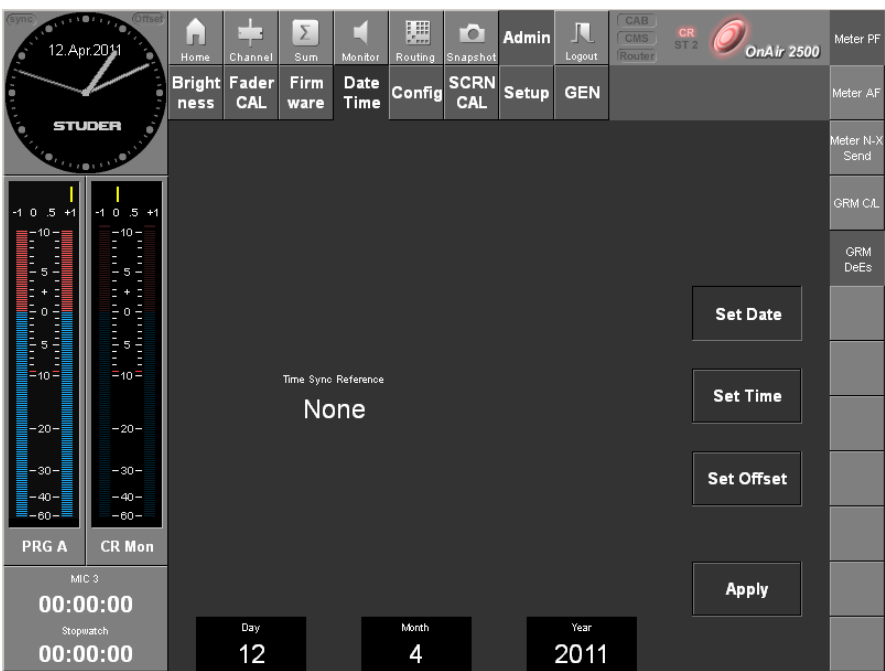


On this page, the version number of all software modules of the console is displayed for reference. A module is selected using the rotary encoder just below the **Firmware** field.

Note: A complete set of firmware for all console modules is saved in the console's memory. After having replaced a module by one that has been e.g. in the spare parts stock for some time, its firmware might not be up-to-date with the ones of the other console modules. Therefore it is recommended to check whether the firmware versions correspond. If not, the current version may be downloaded from the console to the module using the **Update Firmware** function.

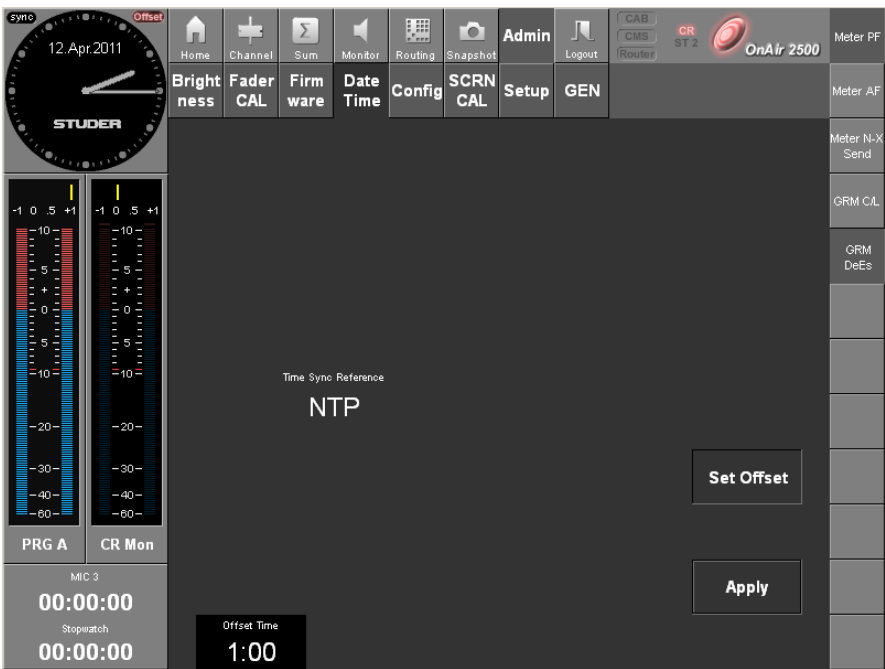
Update Firmware Select a module as described above; if its firmware can be updated, the **Update Firmware** button appears at the right of the list. The module's firmware will be updated when clicking on the **Update Firmware** button.

5.12.7.4 Date Time Page



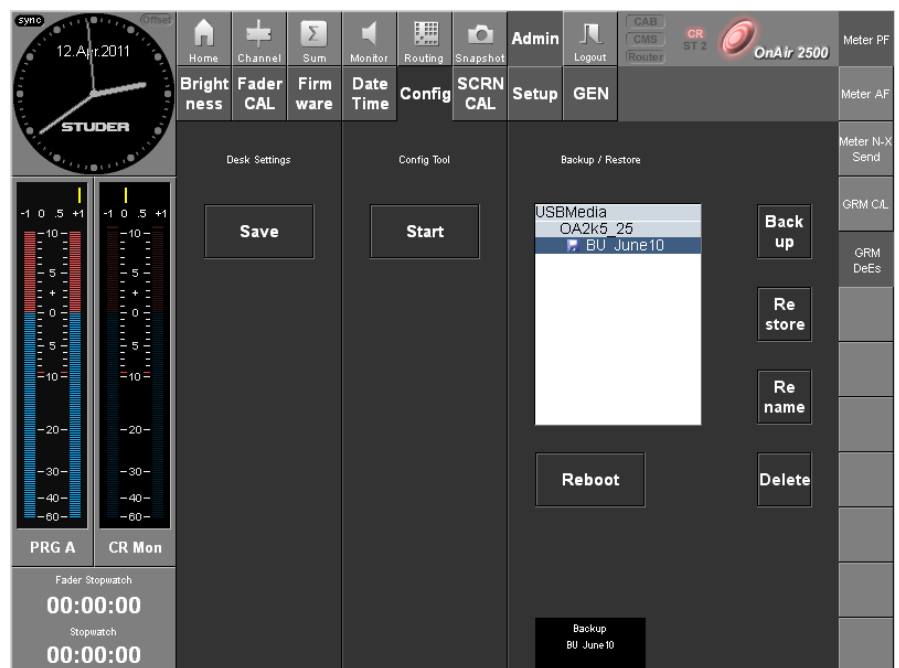
As long as no external time reference signal is configured, the internal clock is used as time reference, the **Time Sync Reference** indication is **None**, and the **sync** indicator in the upper left corner of the clock dial is gray. To set the system date or time, click on the corresponding **Set Date** or **Set Time** button. The current settings are indicated in the **Day/Month/Year** or **Hours/Minutes/Seconds** fields; adjust with the rotary encoders below the fields. To save the new settings, click on **Apply**.

If you need the screen clock to *temporarily* display a time different from the true time, click on the **Set Offset** button; the offset can be entered with the rotary encoder below the **Offset Time** field, in a range of ± 12 hours and with a resolution of 30 minutes. To activate the temporary offset, click on **Apply**. An active offset is indicated by the **Offset** indicator turning red. The offset is automatically reset to 0:00 upon re-booting the console.



If an external time reference signal is selected (requires an NTP or Monitors time signal, configuration in [chapter 6.5.15](#)), the **Set Date** and **Set Time** buttons disappear. If the external time reference is active, the **sync** indicator is white on black background, as shown below; if not, the **sync** indicator turns red. A time offset can be set in the same way as described above.

5.12.7.5 Config Page



Important!



*The system configuration tool ('Config Tool') is intended for trained personnel (such as the system administrator) only; due to the fact that it allows contradictory settings in some points, care must be applied when using it. Before making configuration changes, it is strongly recommended to backup the current configuration on an external medium (USB stick), see [chapter 6.2](#). The USB memory device **MUST NOT BE REMOVED** from the socket **DURING DATA ACCESS** – only remove it after its LED has stopped flashing.*



When using a computer with an appropriate slot, the files on the USB memory device may then be saved to any backup drive for additional data safety. If using the remote configuration tool, the files can be saved to any desired location.

Backup and **Restore** may as well be used for copying configurations between consoles.

Backup

If an external memory medium is inserted, this is displayed in the USBMedia list. After clicking on the **Backup** button, the screen keyboard pops up for giving the backup a name. After clicking on **Enter**, the configuration files are copied to the external medium. This takes a few seconds; the **Backup** button is highlighted during the transfer.

Restore

Select the desired configuration file with the rotary encoder below the Backup field and click on **Restore**. After confirmation the configuration data are loaded into the console's memory; the **Restore** button is highlighted during the transfer. Once finished, the console has to be re-booted by clicking on **Reboot**.

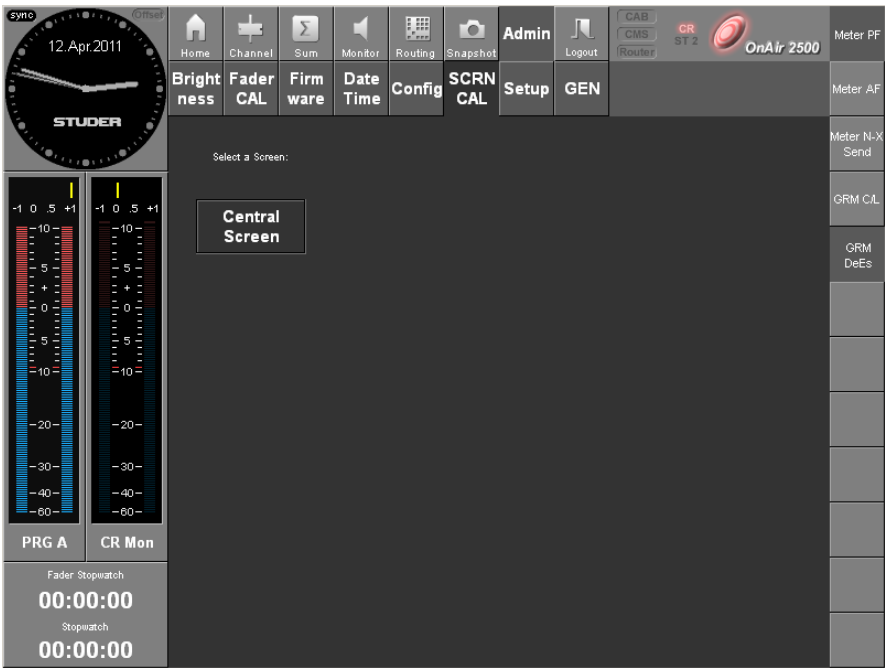
- Rename

For renaming backup configuration files on the external medium. If the new name should already exist, a dialog box appears where overwriting the existing backup has to be confirmed.
- Delete

For deleting backup configuration files from the external medium. A dialog box appears where deleting the selected backup has to be confirmed.
- Reboot

Reboots the selected system. A dialog box appears where rebooting the current system has to be confirmed. If at least one channel should be on-air, the reboot is not executed, but a user warning appears instead in such a case.

5.12.7.6 **SCRN CAL Page (not available for OnAir 1500)**



This page is intended for calibration of the touch-screen functionality of OnAir 2500 and OnAir 3000 consoles. ***This is normally required only during system setup in the factory.***

Select the screen by touching the corresponding button. A sequence of seven calibration spots will be displayed, the center of which must be touched as accurately as possible.

*Neither finger nor fingernail will do for this purpose – **carefully** use a fine tool (such as a PDA pen or a medium-sized screwdriver) that is not too sharply pointed; don't apply excess pressure in order to avoid damaging the touch screen surface.*

Important!

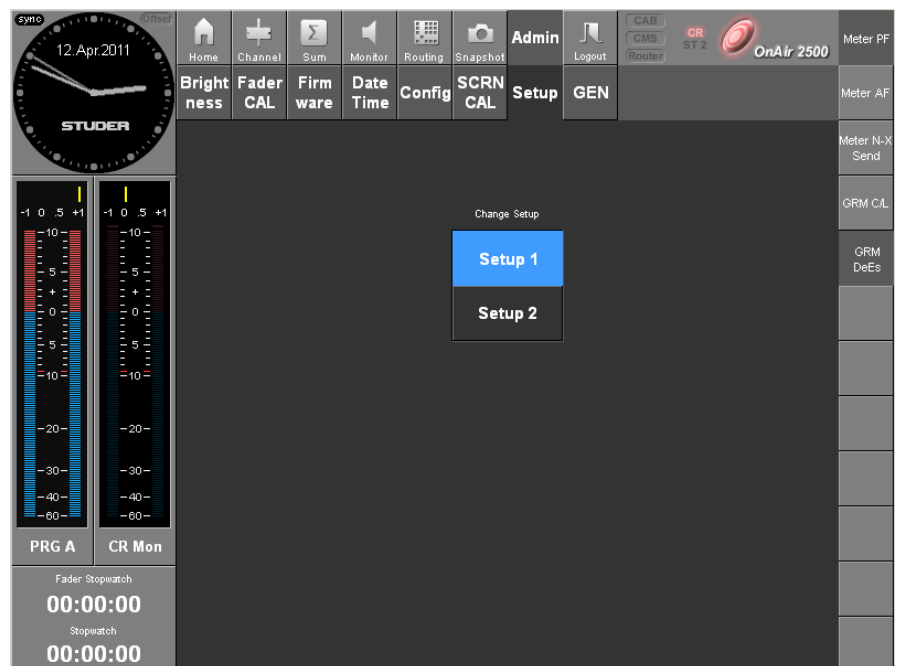
Do this very carefully – a miscalibration may cause the touch screen to become inoperative.** Once finished, a confirmation window appears; **please do not confirm unless you are absolutely sure that everything is ok.

5.12.7.7 Setup Page

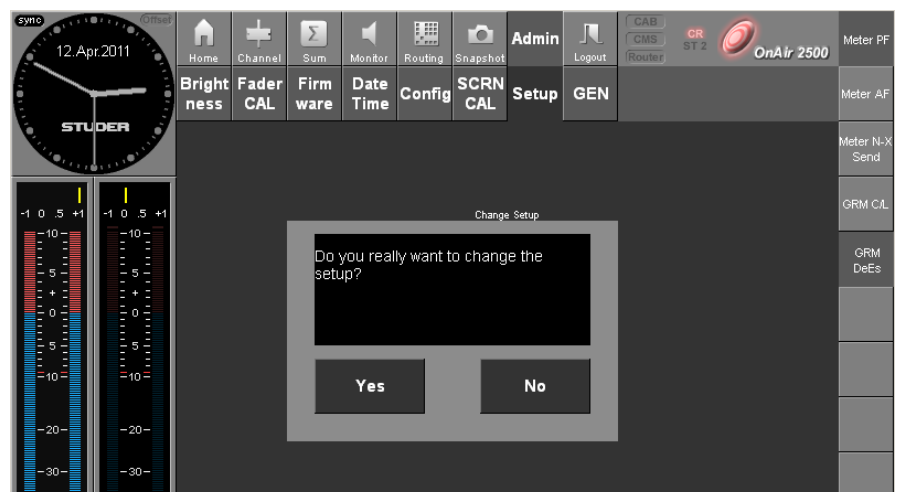
This function allows switching between two different, customer-specific console configurations (i.e., all parameters setup during console configuration, including the key assignment, user access rights and passwords).

When starting the console for the first time, the two setups are identical (unless different factory setups were specified when ordering the console) and correspond to the console's initial snapshot. In order to generate a second setup, select it with the **SETUP 2** button as described above, modify the configuration as desired, and make sure to make an initial snapshot for the new setup by using the **Save Config** button as described in [chapter 6.4.2](#).

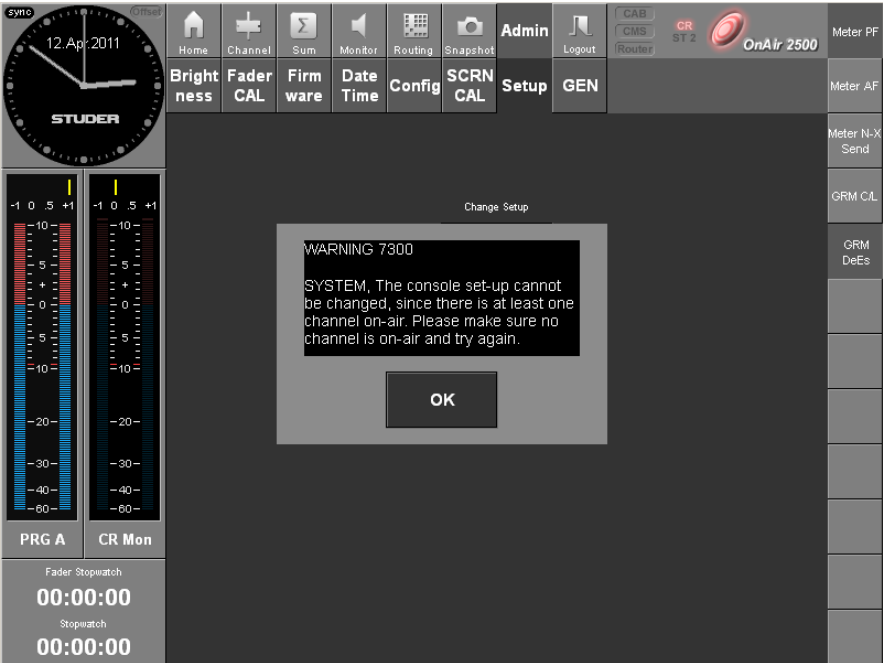
User Data: *Please note that when saving a setup, the complete configuration data are saved, including all user data such as passwords. Unless your system is connected to a user management server, password changes must be saved individually in each setup.*



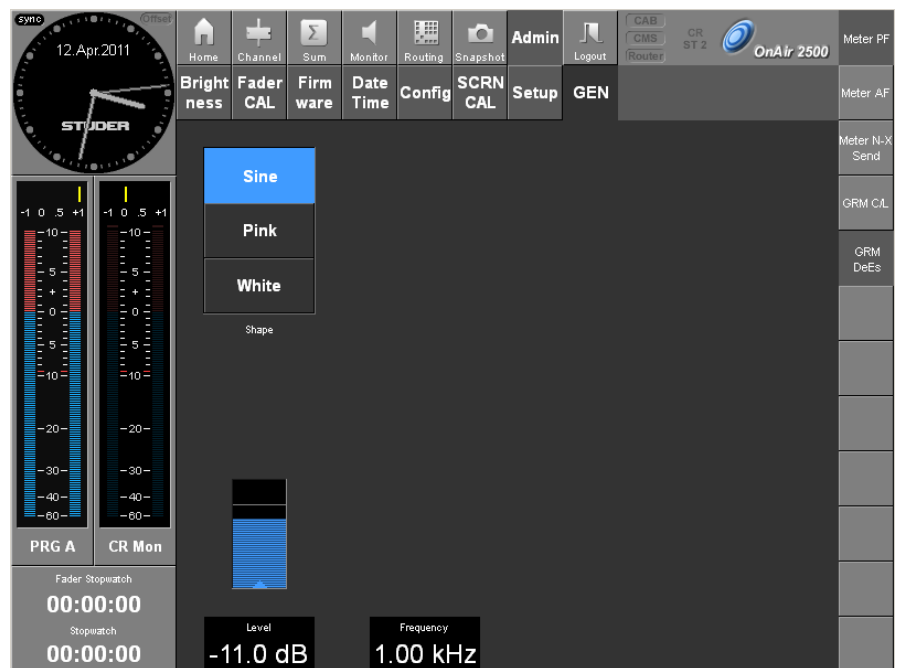
After having selected the desired setup with one of the **SETUP 1/2** buttons, a dialog box appears that must be confirmed for safety reasons:



Selecting a different setup is not allowed as long as any local or remote channels are currently being on-air. In such a case the following message appears:



5.12.7.8 GEN Page



For test purposes, the OnAir 1500 features an internal test signal generator that is activated from the **Chan - Input** page (see [chapter 5.12.2.1](#)) by users having the appropriate access rights configured. Waveform, frequency and level settings are performed here. While the generator is active, the normal channel buttons in the left part of the page are disabled and displayed in gray.

Note: Activating the test generator temporarily switches the channel input from the assigned source signal to the generator's output. Channel settings, such as EQ, dynamics, etc. are not affected, which allows setting the channel parameters to the desired values using the test generator. If no source is routed to the channel, the test generator works with the default channel settings. If the channel is currently on-air, the generator can neither be switched on or off, and the generator buttons are grayed out.

Shape Three buttons allow selecting the desired test waveform: **Sine** wave, **Pink** noise, or **White** noise.

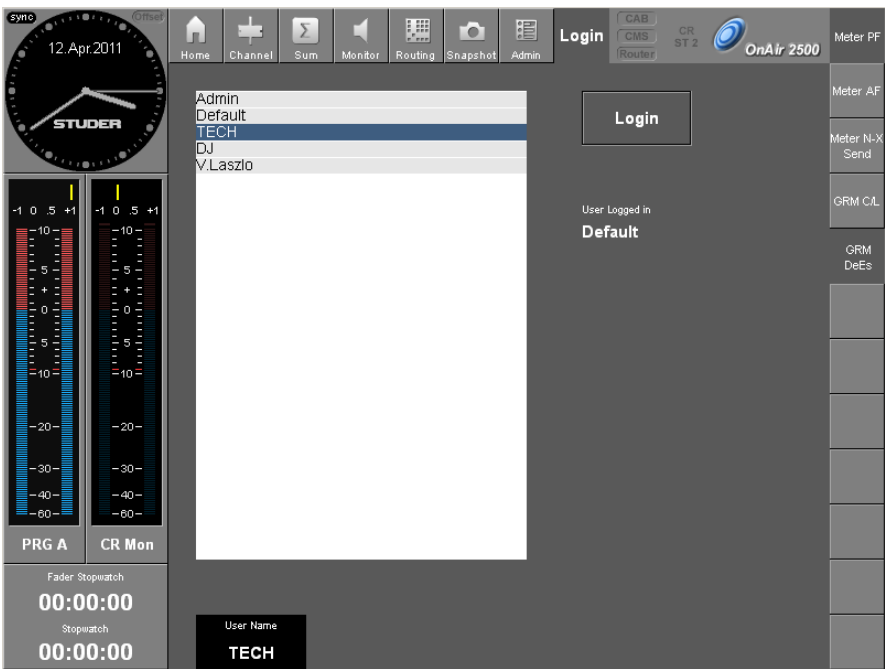
Level The generator output level is indicated by the blue bar graph; its exact value is displayed in dB and can be set with the rotary encoder below the field. Please note that the level setting is exact for the sine wave and pink noise signals only. The white noise signal level is lower by 8 dB.

If the overall gain is set to 0 dB and the bar graph level meter is configured to 'VU meter' characteristics, it indicates the generator output level plus the configured lead (default value: +4 dB) in case of sine wave and pink noise signals, whereby the pink noise level is somewhat fluctuating around the adjusted generator level. The white noise signal level is lower by 8 dB.

The dB readings automatically consider the selected amount of headroom (i.e., 0 dB indication = 0 dB_{FS} minus the selected headroom).

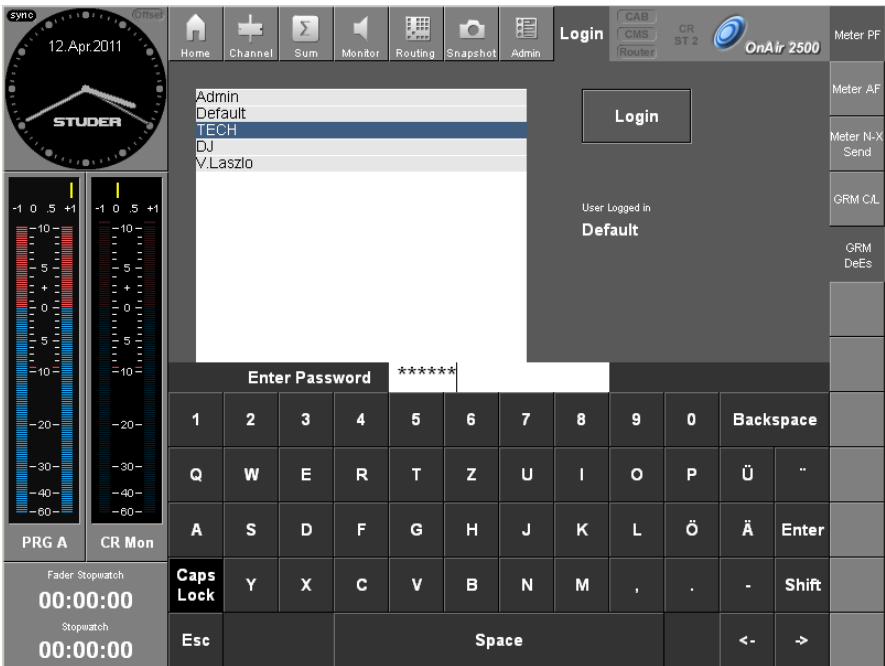
Frequency If **Sine** is selected, the sine wave frequency is displayed in Hz/kHz and can be set with the rotary encoder below the field.

5.12.8 Login Page



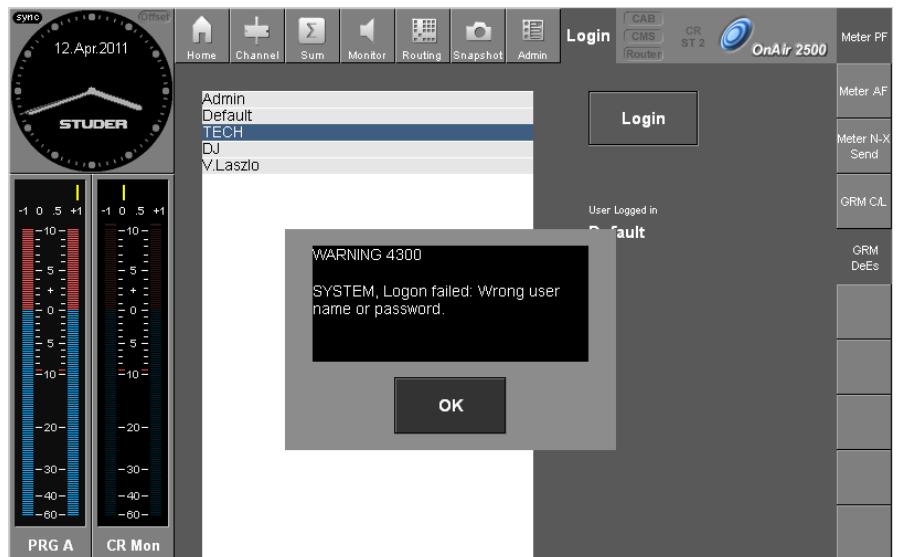
For details of user access rights please refer to [chapter 5.9](#).

To login, a user selects his name from the user list with the rotary encoder below the **User Name** field, followed by clicking on the **Login** button. If more than 50 users should be configured in a system, selection from a list is inconvenient; in such a case a login dialog with a keyboard for entering a user name appears, as described below. If a password has been stored for this user, the keyboard for password entry is displayed:



Please note that the password is case-sensitive. ⬆/Shift and **Caps Lock** functions of the screen keyboard and a USB keyboard possibly connected (see [chapter 5.1](#)) are independent. After typing the correct password followed by **Enter**, the new user is logged in. The **Login** page closes and automatically returns to the **Home** page.

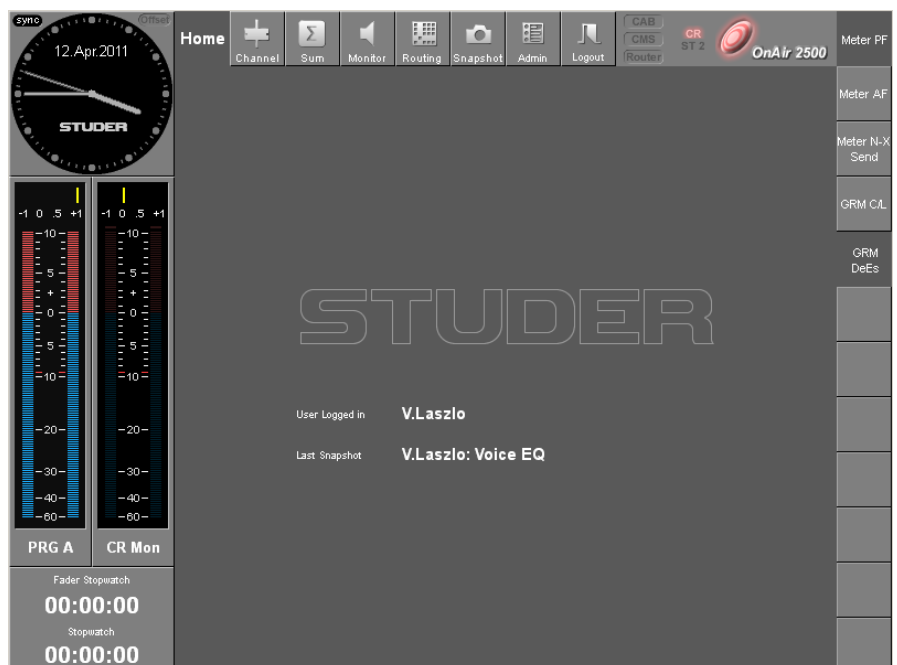
If a wrong password is entered, the login fails and a user warning pops up:



When a user logs in, the system generates an entry in the log file.

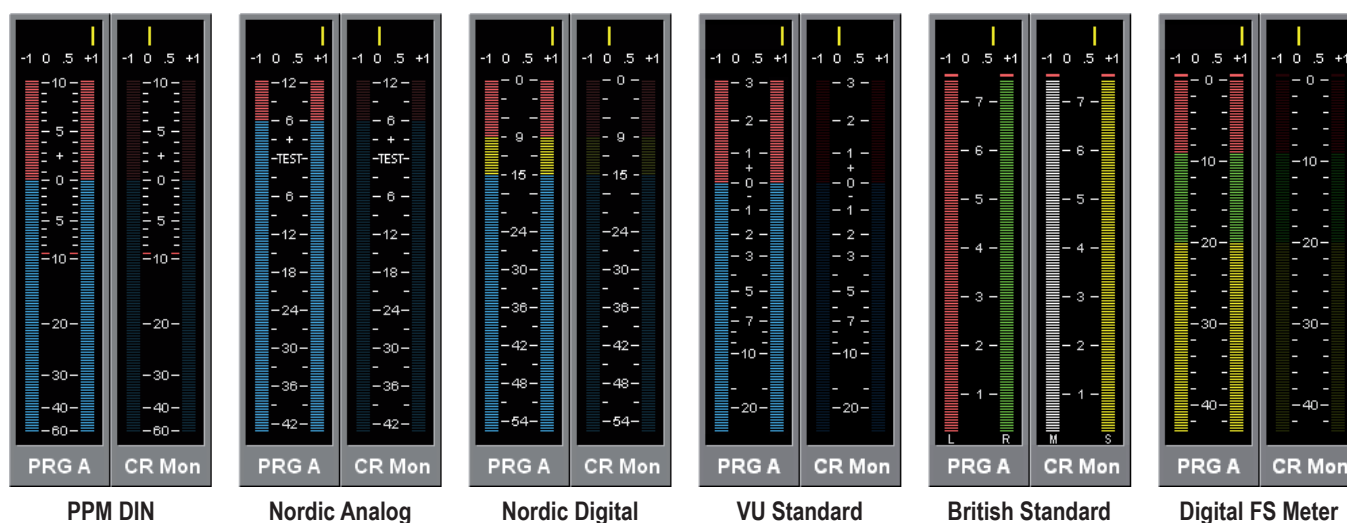
Note: The factory default system administrator password is **admin**. It is recommended that the system administrator modifies his password upon delivery of the system with the configuration tool; for details refer to [chapter 6.5.30.1](#).

5.12.9 Screen Level Meters



The screen always displays two stereo level meter bar graphs with 130 segments each and configurable characteristics and scale. The meter source can be selected by clicking on the label button just below the corresponding meter (this opens a menu with all configured meter sources).

Meter Mode There are six different meter characteristics with their appropriate scales available, as shown below. Meter characteristics can be selected in the configuration tool (Config/Settings/Main Meter Mode, see [chapter 6.5.14](#)).



Meter Indication and Headroom

The console-internal headroom is automatically applied to the meter calibration, which means that the PPM DIN, Nordic Analog and Nordic Digital meters read a level of 0 dB at an internal level of 0 dB_{FS} minus the headroom, regardless of its setting.

The default headroom setting is 9 dB, so that the PPM DIN, Nordic Analog and Nordic Digital meters read 0 dB at an internal level of -9 dB_{FS}. The default lead setting for the VU Standard meters is 4 dB.

The default sensitivity of the analog line inputs (15 dBu) is such that a continuous sine-wave input signal of +6 dBu results in an internal level of -9 dB_{FS} and, if overall gain is set to 0 dB, in a reading of the PPM DIN, Nordic Analog and Nordic Digital meters of 0 dB. In case of VU meters, a continuous sine-wave input signal of +2 dBu reads 0 dB if the default lead (4 dB) is set.

If a different console headroom setting is desired, this can be configured within a range of 0...20 dB in steps of 1 dB. VU meter lead can be configured as well within a range of 0...10 dB in steps of 2 dB (refer to [chapter 6.5.14](#)).

British Standard Meters

If these are active, additional selections are provided by a click within the meter area: Either L/R (in red/green) or M/S (mid/side, i.e. the sum of and the difference between the two channels; in white/yellow). For the M/S setting, an additional 20 dB boost for the S bargraph may be selected as well. This is indicated, as shown above, by L and R, or by M and S (or M and S+20) below the bargraph meters. For the mid (M) meter, a reduction of 3 dB (default setting) or 6 dB is selectable with the configuration tool. The British Standard meter's peak audio level can be set in steps of 1 dB from -48 to 0 dB_{FS}. Additional red 'clip' indicators are provided above the bargraphs.

Digital FS Meter

The Digital FS Meter always displays the current level with reference to full scale modulation (0 dB_{FS}). The current headroom setting defines the transition point from green to red. Additional red 'clip' indicators are provided above the bargraphs.

Correlation Bar Graph

Above the meters, a horizontal phase correlation meter bar graph is located. It helps evaluating the mono compatibility of a stereo signal; the more positive the reading, the better. A negative reading might also be a sign of a phase problem.

External Meters

If required, commercially available external level meters (such as meters by DK-Audio, RTW or Studer) may be installed as an option. Analog VU meters are very popular in some countries, these may be used as well. To do so, external level meter outputs must be provided in the (optional) SCore frame.

5.13 RELINK (Advanced Users Only)

RELINK stands for ‘Resource Linking’, the feature formerly called ‘I/O Sharing’.

The OnAir 1500’s I/O sharing allows routing one *physical* audio input to more than one *logical* audio input.

If a physical audio input has unique control parameters (such as the microphone gain of a microphone input) and if this physical audio input is routed to more than one logical audio input, controlling these resources is working in parallel on all the corresponding channel strips.

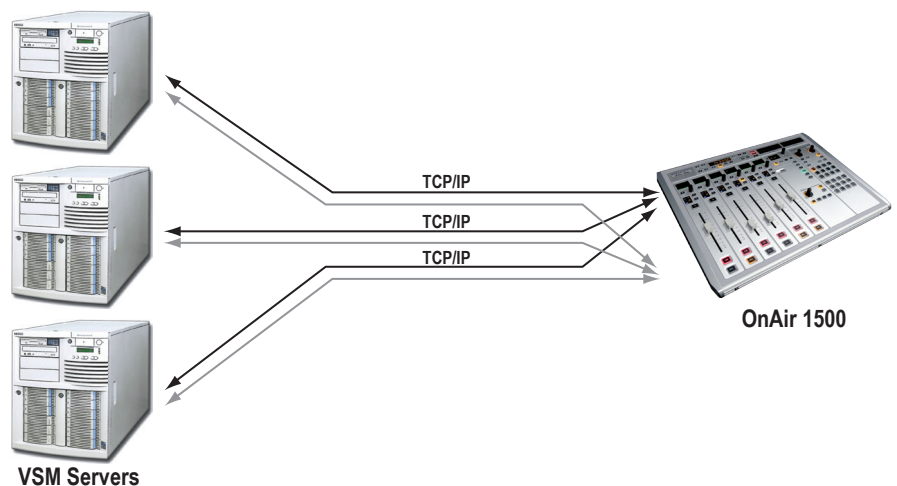
For I/O sharing details and configuration, refer to [chapter 6.5.20](#).

5.14 External Router Control

External router control allows communication and interactions between VSM (Virtual Studio Manager), a control interface of L-S-B Broadcast Technologies GmbH in Germany, and the OnAir 1500 console.

The console does not communicate directly with the router. Commands and status information are exchanged using the Pro-Bel SW-P-08 protocol over TCP/IP socket communication between the console and VSM. The console acts as a *remote device* in the Pro-Bel naming convention while VSM is the *controller*.

VSM initiates the connection to a specific console running in a certain facility, on a given IP address and port number. Since VSM knows the console’s location, the amount of information provided to the console is reduced (name, crosspoints, source names, and destination association names). Within a session, up to eight redundant VSM servers can connect to a console, and up to 16 external inputs can be used by one console at a time.



Logical Inputs / Destination IDs:

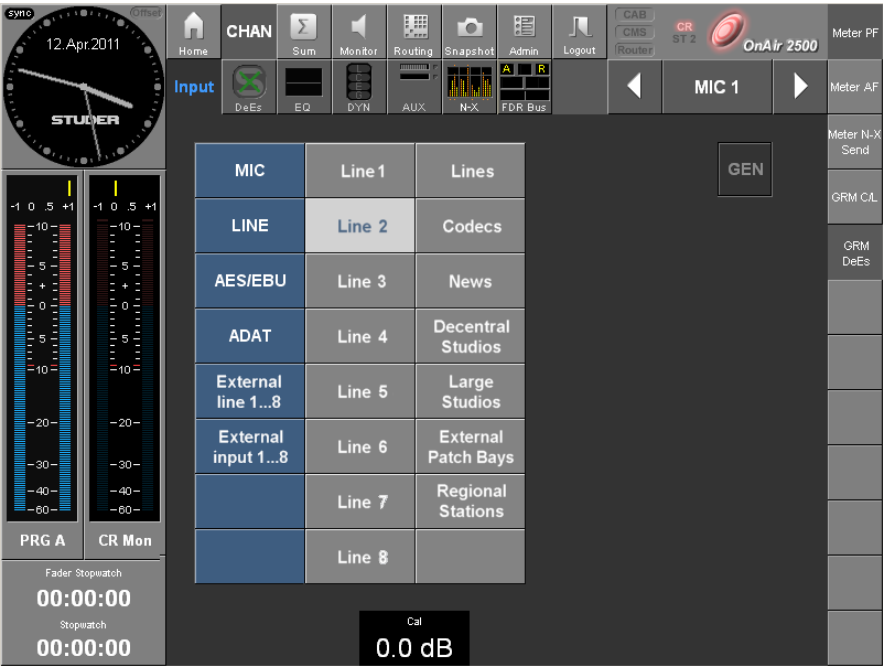
The OnAir 1500 console allows free assignment of destination IDs (as used by VSM for identifying a router output) to the logical inputs to which the router outputs are connected. The destination IDs are used to set crosspoints when the user selects a source in the **CHAN - Input** page (see below), and when VSM reports labels. The *default assignment* is 1:1, i.e., logical input 1 is destination ID 1.

5.14.1 Operation

External Line Selection

Input selection (see [chapter 5.12.2.1](#)) was extended for this purpose; external lines (four-wire connections, i.e. logical inputs controlling an N–X) and external inputs (two-wire connections, logical inputs without N–X control) from the central router have been added to the grouping of internal sources (**MIC**, **LINE**, **AES/EBU**, **ADAT**, etc.) in the input selection dialog.

External line 1...8 opens a list of external four-wire lines from/to a codec for selection. **External input 1...8** allows selecting the input signals without return lines, but from the same codecs. After selecting an external line by clicking on one of the **Line...** buttons, a list with the different router groups opens.



In our example, the **Codecs** button opens a list of all sources provided by the selected router group (codecs in our example) available for selection; it also indicates the current codec status.

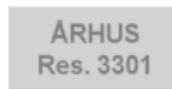


Codec Status

Locked – codec #1 is in use and locked to facility #1304; white text on red button. Cannot be selected. Listen mode is disabled, too.



Busy – codec #12 is in use, including the return line, by facility 3303; gray text on light gray button. May be selected in listen mode.



Reserved – codec #4 is reserved for facility 3301; gray text on light gray button. May be selected only by facility 3301, including the return line. All others may select it in listen mode (external input 1...8).



Active – codec #6 is ready and connected to a codec in Brøndby; blue text on light gray button. It is possible to select this line, including the return line (external line 1...16).



Unused – all codecs without a specific name are not connected; blue text on light gray button.

Busy Return Lines

If an external line is connected to a four-wire input of one facility, the line is busy. The facility's name is distributed by VSM to the other facilities. Connecting a return line from a different facility is prohibited.

A line is busy as long as:

- the four-wire input to which the external line is connected is assigned to a desk fader; de-assigning the input from the desk automatically disconnects the line
- the external line is connected to the four-wire input of a facility. It can be disconnected with the **NONE** button in the **CHAN - Input** page.

Locking a Line

A locked line is currently in use and disabled for selecting or listening to it. Lines can be locked only by VSM in the master control room.

Line Reservation

A reserved line can only be listened to but not selected, except from the facility the line is reserved for. Lines can be reserved only from VSM in the master control room.

5.14.2 Interactions**Label Import**

During power-up initialization, the console asks for all router label names. VSM sends all label names and immediately updates the console as soon as any of the labels is modified.

Source Names

Source names, router groups, and other attributes are used in the **CHAN - Input** page of the user GUI to provide the pop-up lists to select from, as described in [chapter 5.14.1](#). During power-up initialization, the console asks for the names of all sources of the router on the levels 1...4. VSM sends all source names on any level and immediately updates the console as soon as any source changes.

This allows the console to maintain the information for the pop-up input lists.

5.14.3 Configuration

For correct operation, the following points must be considered:

- The assignment of logical inputs to the external router destinations is configured under **Config - LogicalInputs** (configuration tool, [chapter 6.5.1](#)).
- The facility ID of the console is entered under **UserGUI - Settings** (configuration tool, [chapter 6.5.33](#); in the example below, this is 'PRI DESK').

In addition, the same facility ID must be entered in the `ProBel.xml` and `probel_contr_ext.ini` files. A clipping of the `probel_contr_ext.ini` file is given below for reference:

```
# session: Studio ,PRI DESK' (Desk-A), Role: Remote Device, ProBel SW-P-08, ...
begin
  session: PRI DESK
  role:   Remote Device
  protocol: Pro-Bel 08
  port:   7800
end
```

5.15 USB Player/Recorder

5.15.1 Basics

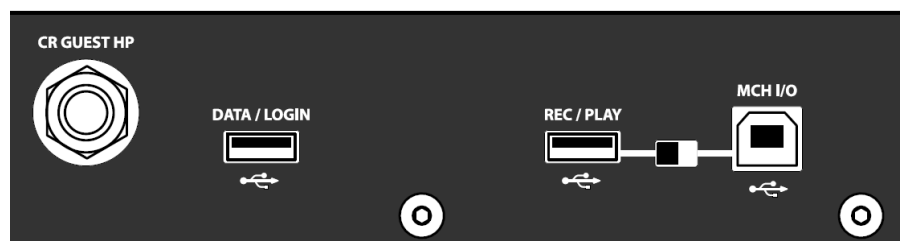
Starting with SW V4.1, the OnAir 1500 console supports an integrated wave file player/recorder for playback from and recording to USB memory devices, such as a USB stick or hard drive.

Jingle Player The jingle player is a stereo playback-only device intended for short audio clips such as station identifier jingles, applause etc., that are triggered from desk keys and immediately start upon pressing one of these keys. Usually these clip files are located on a USB stick. Jingle player and track player (see below) can play simultaneously from the same memory device. Using the jingle player requires a valid license key.

Track Player The track player can be used for playing back stereo audio files from a USB memory device. Normally these files are longer than the jingles, such as reported stories or interviews, but can be of any desired kind of content and duration up to a size of 4 GB (corresponding to approx. 6 hours in 44.1 kHz/16 bit mode). Track player and jingle player (see above) can play simultaneously from the same memory device. Using the track player requires a valid license key.

Track Recorder The track recorder can be used for recording stereo audio files to a USB memory device. When using it together with a large hard drive it can directly be used as a recorder while the console is used for production, or also as a broadcast logging system. Please note that large hard drives must be supplied externally instead of from the USB socket's power. Needless to say that the track recorder can also be used to produce jingles; however the jingle audio files need to be renamed and moved to the correct folder when finished, in order to be recognized by the jingle player. Using the track recorder requires a valid license key.

Multi-Channel USB I/O The multi-channel USB I/O can also be used for recording and playback, but features up to eight channels in either direction, instead of the two channels used for the jingle player and track player/recorder. It is intended for production or mixing but requires a digital audio workstation (DAW).



The track player/recorder and the multi-channel USB I/O cannot be used at the same time. The corresponding USB I/O front panel socket (**REC / PLAY** or **MCH I/O**) must be selected with the slide switch between them.

5.15.1.1 Supported Audio Files

All players/recorders listed above require audio files the following properties:

- USB memory device formatted with FAT32 file system (also refer to [chapter 5.15.1.3](#)); maximum file size is 4 GB.
- Maximum memory size is 2 TB.
- Wave or broadcast wave format, file extension 'wav'.
- Linear PCM coding; sampling rate 44.1 or 48 kHz (for recording, the configured console sampling rate is used); word length is 16 or 24 bit for playback and 16 bit for recording.
- **REC / PLAY** connector: Playback in stereo or mono, recording in stereo.
- **MCH I/O** connector: 8 channels in/out.

5.15.1.2 Files and File Names

Audio files and their names *must* meet the following conditions:

Jingle Player

Jingle audio files must be located within a root folder named **Jingle** (case-insensitive). If the system cannot find this folder when the memory device is connected, it is automatically generated but will be empty.

File names must begin with the character '**J**' followed by a one- or two-digit number (1-8 or 01-08) signifying the desk key it can be started with. The file name extension must be **.wav**. The factory default configuration comprises *four* desk keys (**JINGLE 1 / 2**, **APPLAUSE** and **BOO**ing), as shown below.



The jingle tracks must comply with the file requirements indicated above. Maximum file name length is limited to 60 characters, including the extension. The corresponding key is illuminated during playback of a jingle.

Examples:

J01_Logo_1.wav is the station logo that is played upon pressing the **JINGLE 1** desk key.

The **J3applause.wav** the file is played upon pressing the **APPLAUSE** desk key.

Please note: If two files should be present the names of which both begin with the same key number (such as **J03_Applause_44.1k.wav** and **J03_Applause_48k.wav**), the key assignment is undefined. When pressing the **APPLAUSE** desk key any of the two files may be played then.

Track Player

Tracks to be played must be located within a root folder named **Music** (case-insensitive). If the system cannot find this folder when the memory device is connected, it is automatically generated but will be empty. The file name extension must be **.wav**.

These tracks must comply with the file requirements indicated above. If more than 64 tracks should be located in this folder, some of them will be ignored. Maximum file name length is limited to 60 characters, including the extension.

Track Recorder Recorded files are automatically saved in the **Music** folder and named by the system. The first recorded file is named **T00000.wav**, the next one **T00001.wav** and so on, up to **T99999.wav**. When reaching the file **T99999.wav**, the system selects the lowest gap in the file list between **T00000.wav** and **T99999.wav** for the next track.

Please note: Since the number of files in the **Music** folder is limited to 64, a user warning is generated if it is tried to record a 65th file.

As soon as a USB memory device is connected to the system, all **.wav** files meeting the name convention are verified. Files that cannot be played as they do not meet the system requirements or have a corrupted file header are hidden during track selection (see [chapter 5.15.5.1](#)).

When (re-)naming files, please consider that the channel label area can display eight characters only.

5.15.1.3 Memory Formatting

Memory devices for use with the integrated jingle player and the track recorder/player need to be formatted with the FAT32 file system. Some popular formatting applications will add information that is incompatible with the embedded system of the USB recorder/player.

It is recommended to use the `Fat32Formatter` freeware tool for formatting your USB devices since it has been tested and is known to perform well. It is available from here: <http://tokiwa.gee.jp/EN/Fat32Formatter/>

5.15.2 Physical I/O

Jingle Player / Track Recorder/Player Mode

In playback mode, the jingle player and the track player play to the **REC / PLAY** USB channel 1-2 and 3-4 inputs, respectively; this assignment *cannot* be changed by the user.

In record mode, the track recorder records the signal provided to the logical output mapped to the **REC / PLAY** USB channels 1-2 outputs; this assignment *cannot* be changed by the user.

USB Mode The physical inputs **MCH I/O** USB Ch1-8 can be mapped to any (mono or stereo) logical input.
The physical outputs **MCH I/O** USB channel 1-8 can be mapped to any (mono or stereo) logical output.

5.15.3 Jingle Player Operation

After plugging the memory stick to the Nano SCore's **REC/PLAY** USB socket, the system first checks for valid files. Provided that a compliant file system, a folder named **Jingle** and files with correct names are available, jingle playback is no problem. Payout is via the USB channels 1 and 2 that can be assigned to any desk fader strip.

If not done yet, route the USB channels 1 and 2 to the desired fader strip:

- Press the rectangular **INPUT** key in the desk's **FUNCTION** section. The OLED displays in the fader strips will then show their input mapping and the input routing icon.
- Turn the desired strip's rotary knob until the display shows **USB**.

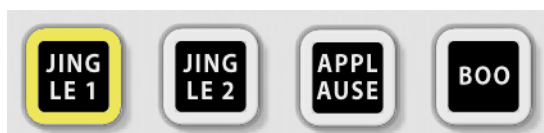


- Confirm the selection by pressing the illuminated  key.
- Turn the rotary knob until the display shows **USB 1/2**.



- Confirm the selection by pressing the illuminated  key.

Jingle playback is triggered by pressing one of the desk jingle keys (**JINGLE 1 / 2**, **APPLAUSE** and **BOO**). Jingle playback starts immediately after pressing a jingle key; the key is illuminated in yellow during jingle playback.

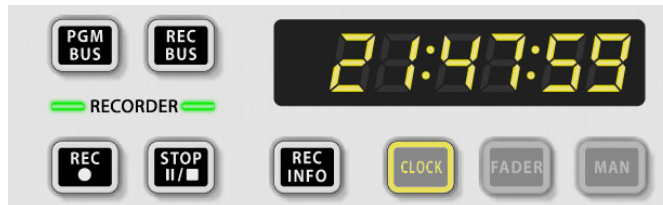


When pressing any jingle key while a jingle is already playing, playback is stopped and the corresponding jingle immediately starts playing. A jingle can also be restarted while it is already playing by pressing its illuminated key again.

Please note: If the sampling rate of the audio file and the internal sampling rate of the console should not match, the jingle is played nevertheless, but with the wrong pitch, and an error message is generated in this case.

5.15.4 Track Recorder Operation

After plugging the USB memory device to the Nano SCore's **REC / PLAY** USB socket, the system first checks for valid files. Provided that a compliant file system, a folder named **Music** and free memory are available on the memory device, the two LEDs next to **RECORDER** are lighted in green, and recording is allowed.



In case of a problem, recording is inhibited, and one of the following indications is output:

RECORDER LEDs are dark: No memory device is connected.

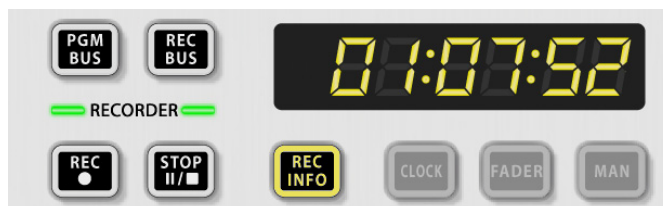
RECORDER LEDs are illuminated in red: A USB memory device is connected, but either the files have an unknown format or the device verification has failed.

RECORDER LEDs are flashing in green: The remaining recording time is less than one minute.

RECORDER LEDs are flashing in red: Firmware is uploaded to the console, please wait a few minutes until the LEDs stop flashing.

Recorder Keys The five keys used for operating the recorder are shown in the figure above.

When a USB memory device has been inserted and the **RECORDER** LEDs are lighted in green, **REC INFO** changes the clock display over to indicate the remaining time for recording (i.e. the free memory space); this can then look as shown below. The current time-of-day can still be recalled by pressing the **CLOCK** key.

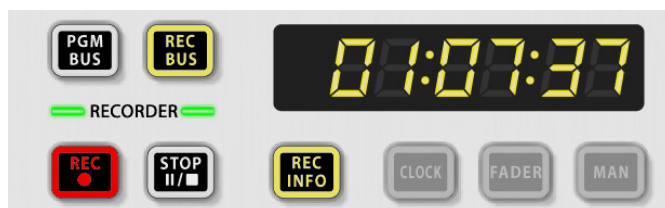


REC BUS and **PGM BUS** are a sort of routing snapshot keys that select one of the two busses for recording, regardless of what was routed to the **REC / PLAY** USB channel 1 and 2 outputs before.

The **REC ●** and **STOP II / ■** keys are used to start and pause or stop the recording. Recordings are saved in the **Music** folder and automatically named, as already mentioned.

Recording is started by pressing the **REC ●** key. The signal to be recorded is taken either from what is routed to the **REC / PLAY** USB channel 1 and 2 outputs, or, if selected with **REC BUS** or **PGM BUS**, from one of these two busses. The recorded track is automatically given a file name according to the naming conventions outlined in [chapter 5.15.1.2](#).

During recording the **REC ●** key is illuminated in red.



If during recording the remaining time counter is selected with **REC INFO**, it is displayed counting backwards indicating the remaining recording time.

If **REC ●** is pressed during recording, a new track is started immediately. If the recorded file size reaches 4 GB, a new track is automatically started as well.

A first press on the **STOP II / ■** key pauses recording; during a pause the **REC ●** key flashes.

If **REC ●** is pressed during a pause, recording of the same track continues, no new track is generated then.

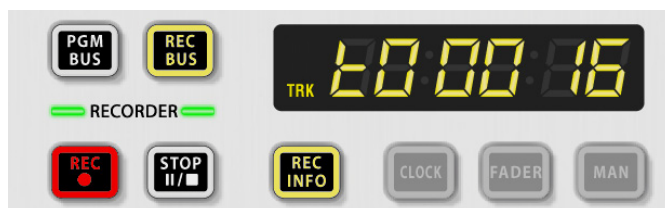
A second press on **STOP II / ■** switches from pause to stop, and the **REC ●** key becomes dark.

A next recording can be started by simply pressing **REC ●** again.



Recording stops automatically if the sampling rate changes during recording or if the USB memory device is full.

If **REC INFO** is pressed repeatedly during recording or record pause, the display toggles between remaining time and the name of the track that is currently recorded (or paused), see below. In stop mode, it toggles between remaining time indication and the name of the last recorded track. Names of the recorded tracks are automatically generated according to the naming conventions outlined in [chapter 5.15.1.2](#).



5.15.5 Track Player Operation

The USB track player offers some convenient and intuitive features for selecting the file to be played as well as for pre-listening to the file and starting payout.

After plugging the memory device (USB stick or hard disk drive) to the Nano SCore's **REC / PLAY** USB socket, the system first checks for valid files. Provided that a compliant file system, a folder named **Music** and files with correct names are available, track playback is no problem. Payout is via the USB channel 3 and 4 outputs that can be assigned to any desk fader strip.

5.15.5.1 Track Selection

Let us assume that the memory device contains tracks named **T00001.wav** to **T00017.wav** in the **\Music** folder, and that track **T00005.wav** should be played.

If not done yet, route the USB channels 3 and 4 to the desired fader strip:

- Press the rectangular **INPUT** key in the desk's **FUNCTION** section. The OLED displays in the fader strips will then show their input mapping and the input routing icon.
- Turn the desired strip's rotary knob until the display shows **USB**.



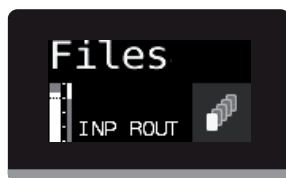
- Confirm the selection by pressing the illuminated  key.
- Turn the rotary knob until the display shows **USB 3/4**.



- Confirm the selection by pressing the illuminated  key.

Now the playback file can be selected:

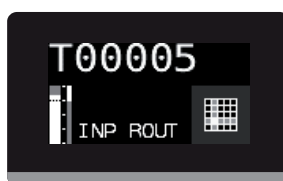
- When touching the rotary knob now, the display shows **Files**.



- Confirm by pressing the illuminated  key. The first playable track is displayed. If a track is displayed in grey it has a different sampling rate than the one the console is currently set to (it can be played anyway, but will have a wrong pitch).
- The available tracks are listed by turning the rotary knob. Turn until the desired track is displayed.



- Confirm the selection by pressing the illuminated  key. The track name scrolls into the display, the selection icon is replaced by the input routing icon, and the track is selected for playback, as shown below.



From now on, the file name is displayed instead of the channel label until either the memory device is removed from the system, a different track is selected or the system is restarted.

5.15.5.2 Track Pre-Listening

PFL	Once a track is selected, it can be pre-listened. To do so, press the PFL key. The track is played from the start, and the PFL key is illuminated.
Stop and 'Rewind'	When deactivating PFL by pressing the key a second time playback stops and the track is 'rewound' to its start.
Pause	While PFL playback is active, the  key is illuminated, signifying that it can be used for the playback pause function. Pressing it  pauses PFL playback, and the  key starts to flash.
Resume PFL	To continue PFL playback, press the flashing  key. The  pause key can also be used if the beginning of a track should be skipped. During PFL playback just press the  pause key at the desired location; when activating track playback (see below) playout will start precisely at the position where the track was paused before.

5.15.5.3 Track Playback

Playback	The selected track is played back as soon as the channel becomes active; i.e. its fader is opened, the ON key is activated and the channel is routed to one of the master busses (this status is indicated with the blue 'channel active' LED and the red ON AIR signal in the meter bridge).
Pause	For playback pause, either the fader can be closed, the ON key can be deactivated, or, as with the PFL function described above, the illuminated  pause key can be used. During a pause the  pause key flashes. A direct transition from pause to stop is only possible if pause mode was entered by closing the fader or deactivating the ON key (channel inactive), followed by pressing the flashing  pause key.
Resume Playback	Playback is resumed by either a second press on the flashing  pause key or by switching the channel off and on again, either with the ON key or by closing and re-opening the fader.
Stop	For a direct transition from pause to stop, the pause mode must have been entered by either closing the fader or deactivating the ON key (channel inactive), followed by pressing the flashing  pause key.
Playback and PFL	When activating PFL during track playback the track will continue playing without interruption, no matter whether PFL is active or not. The only effect of activating the PFL function is that the PFL signal is fed to the selected monitoring or headphones outputs instead of the master signal. If the track is paused by pressing the  pause key (channel remains active), activating and deactivating PFL still has no effect on the track currently playing.

Notes: If however the **PFL** function is activated while the track is paused by either closing the fader or deactivating the **ON** key (channel inactive), PFL playback is resumed from the current track position; when deactivating **PFL** the track player is switched to stop.

*Although this case may not be very probable, please be careful when using the channel active controls and **PFL** at the same time; a track player that is paused (by either closing the fader or deactivating the **ON** key) followed by a restart with **PFL** immediately plays out to the master right from the current position as soon as the channel is activated again (fader up or channel **ON**)!*

LED Display As long as **CLOCK** is active in track playback/pause mode, the LED display shows the current time-of-day. When pressing **REC INFO** repeatedly, it toggles between the remaining recording time on the USB memory device (showing a constant time value) and blanks except the small **TRK** indicator, as shown below.



5.16 Remote Operation

Studer OnAir mixing consoles are networkable. There are three applications for remote access or control via a network available.

System Viewer This application can be helpful in case of network problems. It displays all devices within the OnAir network.

Remote Console Studer OnAir mixing consoles can either be controlled and configured directly at the console (using their GUI and/or a connected USB keyboard and mouse), or over a network using the Remote Console application running on a Windows PC.

Remote Configuration Tool The Remote Configuration Tool application has additional, increased flexibility by allowing the remote configuration of different networked consoles from one single location.

***Note:** Up to three of these application may run simultaneously on your PC – so you can e.g. control three consoles at the same time, or control one console while configuring two others.*

5.16.1 Preparation

During the installation process you will have to enter the ID of and a name for your System. The system ID is defined as the 3 least-significant digits of the Nano SCore's serial number you are connecting to. In case these 3 digits should be greater than 255, it is equal to [the last 3 digits modulo 255]. Calculate as follows: Subtract 255 from the last 3 digits as many times as needed for a remainder between 0 and 255; the remainder is the result.

Example: If the last 3 digits are 621, enter 111 ($621 - 255 = 366$, and $366 - 255 = 111$). The system ID can also be found out using the System Viewer application, see below.

The system name can be freely chosen. However it is recommended to give the system a name that is somehow connected to the System ID, such as P1K5_111. The same name must then be used for the Remote Console application.

Of course, it is mandatory that the PC and the console are located within the same network.

PC Network Settings Check **Network Connections** (or similar). Make sure that the PC has an IP address and that it is located within the same network as the OnAir system you want to connect to. Since these settings are varying between different Windows versions, no guidelines can be given here. Please ask your IT/network administrator for assistance if necessary.

5.16.2 System Viewer Application

Installation



Important for Windows Vista and Windows 7 PCs: Make sure that you have write access to the selected location.

- Locate the `x_SW_Vx.x.x.xx` folder for your console type on the Product DVD shipped with your console. Navigate to the `win2k_Compilations/Release Systemviewer` folder.
- Copy the complete folder to a location of your choice on your computer.
- Open the folder you have copied before and make a copy of the `multicastGroups_template.ini` file; rename the copy to `MulticastGroups.ini`.

- The short `multicastGroups.ini` file defines which addresses are used for multicast communication. If the default addresses are not ok, please ask your IT/network administrator for assistance and modify them. The default `multicastGroups.ini` file is shown below.

```
#####
# Define here multicast groups that will
# be joined to receive container infos.

MulticastGroup = 239.255.0.1
MulticastGroup = 239.255.0.2
MulticastGroup = 239.255.0.3

#
#####
```

- Generate a shortcut to `systemViewer.exe` and move it to your desktop for a convenient start of the tool.
- Installation is complete now.

Operation



Start the System Viewer either by a click on its desktop icon (shown left) or on `systemViewer.exe` within in its folder. The System Viewer window will look similar to the screenshot below.

IP Address	MAC Address	System Id	Container Id	System Name	Container Name	Product	Version	DNet Version
10.64.87.24	00-e0-4b-2e-73-f2	76	10	Star76	Core	Route6000	V2.1 Build 5	V37.0
10.64.87.12	00-e0-4b-29-2a-08	90	10	P422	CSCore	OnAir3000	V4.0 Build 7	V51.0
10.64.87.99	00-d0-c9-92-f0-04	96	10	OA3k_96	Core	OnAir3000	V4.0 Build 7	V51.0
10.64.87.53	00-30-d6-08-8c-39	111	10	P1K5_111	CORE	OnAir1500	V4.0 Build 7	V51.0
10.64.87.27	00-e0-4b-1f-25-7e	192	10	P2K5_192	Core	OnAir2500	V4.0 Build 7	V51.0
10.64.87.37	00-e0-4b-22-68-50	194	10	OA2k5_194	CORE	OnAir2500	V4.0 Build 7	V51.0
10.64.87.41	00-08-c7-8c-17-33	2	20	System	Container	Unknown	V3.4 Build 7	V51.0
10.64.87.11	00-07-e9-07-c7-ea	90	20	P422	Standalone ConfigGUI	Unknown	V3.4 Build 7	V51.0
10.64.87.35	f0-de-f1-17-b9-62	111	20	P1K5_111	ConfigTool	Unknown	V3.4 Build 6	V50.0
10.64.87.11	00-07-e9-07-c7-ea	100	40	LogSystem	Logger	Unknown	V3.2 Build 3	V41.0
10.64.87.40	08-00-27-fc-18-51	192	40	P2K5_192	Logger	Unknown	V3.2 Build 3	V41.0
10.64.87.43	00-14-22-24-dc-80	82	50	System82	Treeviewer81	Undefined	V4.0 Build 7	V51.0
10.64.87.11	00-07-e9-07-c7-ea	95	50	DIGI-PC	TreeViewer	Undefined	V4.0 Build 7	V51.0
10.64.87.35	f0-de-f1-17-b9-62	111	50	P1K5_111	TV	Undefined	V4.0 Build 7	V51.0
10.64.87.40	08-00-27-fc-18-51	192	50	P2K5_192	Treeviewer81	Undefined	V4.0 Build 7	V51.0
10.64.87.43	00-14-22-24-dc-80	200	71	UserManagement	Central Server	CentralServer	V4.0 Build 7	V51.0
10.64.87.13	00-d0-c9-9e-fd-4c	90	100	P422	PRI DESK	OnAir3000	V4.0 Build 7	V51.0
10.64.87.53	00-30-d6-08-8c-39	111	100	P1K5_111	PRI DESK	OnAir1500	V4.0 Build 7	V51.0
10.64.87.27	00-e0-4b-1f-25-7e	192	100	P2K5_192	Desk192	OnAir2500	V4.0 Build 7	V51.0
10.64.87.37	00-e0-4b-22-68-50	194	100	OA2k5_194	PRI DESK	OnAir2500	V4.0 Build 7	V51.0
10.64.87.15	00-d0-c9-9e-fd-54	90	110	P422	Channel1	OnAir3000	V4.0 Build 7	V51.0
10.64.87.16	00-d0-c9-67-04-92	90	112	P422	Channel3	OnAir3000	V4.0 Build 7	V51.0
10.64.87.17	00-d0-c9-9e-fd-2d	90	114	P422	Channel5	OnAir3000	V4.0 Build 7	V51.0
10.64.87.18	00-d0-c9-9e-fd-4d	90	115	P422	Channel6	OnAir3000	V4.0 Build 7	V51.0
10.64.87.14	00-e0-4b-31-12-9c	90	150	P422	SEC DESK	OnAir3000	V4.0 Build 7	V51.0
10.64.87.34	00-1b-21-4f-13-bd	111	150	P1K5_111	RemtCons	Undefined	V4.0 Build 7	V51.0

Number of Containers: 26

As you can see, this is a fairly large networked system. The list can be sorted per column, as familiar from Windows operation, by clicking on the title bar of the desired column. The Remote Console application from our example has a Container ID of 150 and is listed at the System Viewer's bottom line.

In case of a network problem, the System Viewer window will be empty.

5.16.3 Remote Console Application

Installation



Important for Windows Vista and Windows 7 PCs: Make sure that you have write access to the selected location.

- Locate the `x_SW_Vx.x.x.xx` folder for your console type on the Product DVD shipped with your console. Navigate to the `win2k_Compilations/Release RemoteConsole` folder.
- Copy the complete folder to a location of your choice on your computer (perhaps to the desktop).
- Open the folder you have copied before and make a copy of the `container_template.ini` file; rename the copy to `container.ini`.
- Edit the `container.ini` file (an example of a `container.ini` file is located on the following pages):
 - First, set the `systemid` parameter to the System ID of your core (i.e., to 111 in our example). Please note that on both sides of the '=' sign a blank is mandatory. The system ID is defined as the 3 least-significant digits of the Nano SCore's serial number you are connecting to. In case these 3 digits should be greater than 255, it is equal to [the last 3 digits modulo 255]. Calculate as follows: Subtract 255 from the last 3 digits as many times as needed for a remainder between 0 and 255; the remainder is the result.
Example: If the last 3 digits are 621, enter 111 for it ($621 - 255 = 366$, and $366 - 255 = 111$). The system ID can also be found out using the System Viewer application, refer to [chapter 5.16.2](#).
 - Set `systemname` to the System Name of your core (i.e., "P1K5_111" in our example).
 - Set the container ID – you may use, e.g. the Secondary DESK (parallel) ID that equals 150. The 'container' in this case is the PC that runs the Remote Console application.
 - Give the container a name, such as `containername = "Remote Console"`.
 - If your console(s) is/are working with multicasts in your network, uncomment one or several of the `# MulticastGroup = ...` lines (i.e., delete the '#' hash mark and the following blank), and enter the multicast address(es) that your IT administrator should be able to give you.
 - When using multicasts, uncomment the `MulticastTimeToLive` line and enter a value of 10 or higher, depending on the number of routers through which the multicast has to travel.
 - If your computer has more than one network adapter, the MAC address must be uncommented and specified. You will find the MAC address under your computer's network settings, such as `MAC = 00-1B-21-4F-13-BD` in our example.
- Save and close the `container.ini` file. Generate a shortcut to `RemoteConsole.exe` and move it to your desktop for a convenient start of the tool.

Installation is complete now.

The Remote Console `container.ini` file used for this example is printed on the following pages.

```
#####
#
# container.ini: Necessary for initialization of each container (.exe)
#
# Digital Mixing Console: OnAir3000
# Studer Professional Audio GmbH, Regensdorf, Switzerland
#
#   Last modification      : Sep, 1st 2006
#   Compatible with OATreeLib : V2.1
#   Author                 : xSP, SO
#
# Rules:
# =====
# - always leave one blank before and after the '=' (e.g. systemid=1 NO!)
# - never change the left expression
# - the right expression of systemid, containerid, systemname
#   and containername MUST be defined
#
#####

# The systemid identifies the mixing console system to which this container
# belongs to. The systemid is a unique number within a network.
# The serial number of the CORE shall be used as systemid.

systemid = 111

# The systemname identifies the mixing console system in a readable way
# and must be unique within a company resp. network. It is recommended
# not to use more than 8 characters due to visualization aspects.
# "Undefined" is not allowed!

systemname = "P1k5_111"

# The containerid identifies this container
# and must be unique within the mixing console system
#
# The following container IDs are defined:
#
# containerid = 10      : CORE
# containerid = 15      : BridgeCard
# containerid = 20      : Standalone ConfigGUI
# containerid = 30      : Digimedia (not used any more - last used for OnAir V3.2)
# containerid = 40      : Logger
# containerid = 50      : TreeViewer
# containerid = 60      : SoftwareUpdateWizard
# containerid = 71      : Central OnAir 3000 Server (User server, Snapshot server, Logger)
# containerid = 80      : Route1000

# containerid = 100     : Primary DESK
# containerid = 101     : Standalone DeskDriver of the Primary Desk
# containerid = 110     : CHANNEL Screen of the Primary Desk for Channels 1..6
# containerid = 111     : CHANNEL Screen of the Primary Desk for Channels 7..12
# containerid = 112     : CHANNEL Screen of the Primary Desk for Channels 13..18
# containerid = 113     : CHANNEL Screen of the Primary Desk for Channels 19..24
# containerid = 114     : CHANNEL Screen of the Primary Desk for Channels 25..30
# containerid = 115     : CHANNEL Screen of the Primary Desk for Channels 31..36
# containerid = 116     : CHANNEL Screen of the Primary Desk for Channels 37..42
# containerid = 117     : CHANNEL Screen of the Primary Desk for Channels 43..48
# containerid = 118     : CHANNEL Screen of the Primary Desk for Channels 49..54 (virtual
#                          Strip Channels)
# containerid = 119     : CHANNEL Screen of the Primary Desk for Channels 55..60 (virtual
#                          Strip Channels)
#
# containerid = 150     : Secondary DESK (parallel)
# containerid = 151     : Standalone DeskDriver of the Secondary Desk
```

```

# containerid = 160      : CHANNEL Screen of the Secondary Desk for Channels 1..6
# containerid = 161      : CHANNEL Screen of the Secondary Desk for Channels 7..12
# containerid = 162      : CHANNEL Screen of the Secondary Desk for Channels 13..18
# containerid = 163      : CHANNEL Screen of the Secondary Desk for Channels 19..24
# containerid = 164      : CHANNEL Screen of the Secondary Desk for Channels 25..30
# containerid = 165      : CHANNEL Screen of the Secondary Desk for Channels 31..36
# containerid = 166      : CHANNEL Screen of the Secondary Desk for Channels 37..42
# containerid = 167      : CHANNEL Screen of the Secondary Desk for Channels 43..48
# containerid = 168      : CHANNEL Screen of the Secondary Desk for Channels 49..54 (virtual
#                          Strip Channels)
# containerid = 169      : CHANNEL Screen of the Secondary Desk for Channels 55..60 (virtual
#                          Strip Channels)

# containerid = 240      : DNet TestFramework

# containerid = 254      : SNMPAgent

containerid = 150

# The containername identifies this container in a readable way
# and must be unique within the mixing console system. It is recommended
# not to use more than 8 characters due to visualization aspects.
# "Undefined" is not allowed!

containername = "RemtCons"

# Multicast
# -----
# If you use IGMP multicasts instead of broadcasts in your network,
# you have to uncomment the lines below. It is possible that a
# container is member of one or more than one multicast groups.
#
# NOTE: For an optimal performance, make sure that all network ressources
#       (Switches, Routers...) support IGMP.
#
# NOTE: To avoid IP conflicts, check the available addresses for
#       multicast groups (www.iana.org). Use preferable addresses from the
#       local scope (239.255.0.0/16) described in RFC 2365.
#
# NOTE: If the multicast should reach computers beyond the local subnet
#       Set MulticastTimeToLive > 1 (1 is default)

MulticastGroup = 239.255.0.1
MulticastGroup = 239.255.0.2
MulticastGroup = 239.255.0.3
MulticastTimeToLive = 10

# Multiple Network Adapters
# -----
# When more than one network adapter is enabled on the computer, the MAC Address has to be
# specified
#
MAC = 00-1B-21-4F-13-BD

# Demo Version
# -----
# Enable this parameter if you want to enable the OnAir 3000 Demo Version. The OnAir Demo
# Version has all software options (I\O Sharing, CMS...) enabled, but no network connection and
# the DSP extension will not be loaded.
# Don't use this parameter on windows CE!
#
# DemoVersion

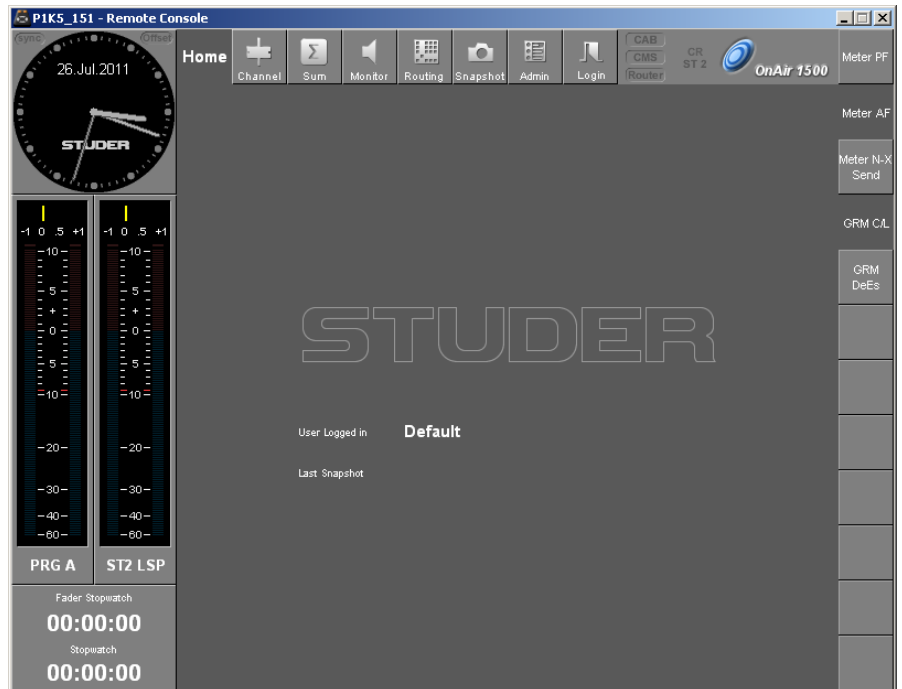
#####

```

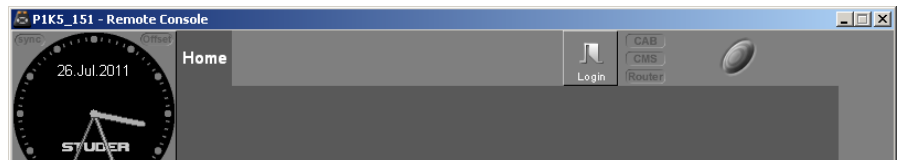
Operation



Start the Remote Console application by a double-click on either the desktop shortcut (shown left) or directly on `RemoteConsole.exe` in its folder. If everything is correct, the **Home** page of your console will pop up:



On from here, the console can be operated as usual. In case of a network problem, only the **Home** and the **Login** buttons are displayed at the upper edge of the page. This will then look as shown below:



Operation with Multiple Systems:

It is as well possible to control more than one OnAir console from a single computer, provided that these consoles are located in the same network as the computer. To do so, just copy the `release RemoteConsole` folder as many times as needed to your computer, edit every `container.ini` file appropriately and generate a desktop shortcut for every console. Up to 3 Remote Console applications may run simultaneously if no System Viewer application or Remote Configuration tool is used at the same time.

5.16.4 Remote Configuration Tool

The (Remote) Configuration Tool is very similar to the Configuration Tool that can be started from the Remote Console's **Admin - Config** page. The only difference is that it allows selection of the console to be configured – so it is, in fact, useful only in case of a larger networked system.

Installation



Important for Windows Vista and Windows 7 PCs: Make sure that you have write access to the selected location.

- Locate the folder `x_SW_vx.x.x.xx` for your console type on the Product DVD shipped with your console. Navigate to the `win2k_Compilations/Release ConfigTool` folder.
 - Copy the complete folder to a location of your choice on your computer.
 - Open the folder you have copied before and make a copy of the `container_template.ini` file; rename the copy to `container.ini`.
 - Edit the `container.ini` file:
 - Select a system ID that is not used by another system (you can use the System Viewer for information), such as `systemid = 80`.
 - Give the system a name that makes sense, such as `systemname = "Admin"`.
 - In the container ID list there already exists an entry 'Standalone ConfigGUI' that may be selected – so enter `containerid = 20`.
 - Give the container a name, such as `containername = "CnfgTool"`. It makes sense to use no more than 8 characters due to visualization aspects.
 - If your console(s) is/are working with multicasts in your network, uncomment one or several of the `# MulticastGroup = ...` lines (i.e., delete the '#' hash mark and the following blank), and enter the multicast address(es) that your IT administrator should be able to give you.
 - When using multicasts, uncomment the `MulticastTimeToLive` line and enter a value of 10 or higher, depending on the number of routers through which the multicast has to travel.
 - If your computer has more than one network adapter, the MAC address must be uncommented and specified. You will find the MAC address under your computer's network settings, such as `MAC = 00-1B-21-4F-13-BD` in our example.
 - Save and close the `container.ini` file. Generate a shortcut to `ConfigTool.exe` and move it to your desktop for a convenient start of the tool.
- Installation is complete now.

Nice to know: *It is possible to configure different consoles being not part of the same multicast group from a single computer. Just enter all required multicast groups here; this will allow the configuration tool accessing the consoles, but the consoles will not 'see' each other although they are within the same network.*

The Config Tool `container.ini` file used for this example looks as follows:

```
#####
#
# container.ini: Necessary for initialization of each container (.exe)
#
# Digital Mixing Console: OnAir3000
# Studer Professional Audio GmbH, Regensdorf, Switzerland
#
#   Last modification       : Sep, 1st 2006
#   Compatible with OATreeLib : V2.1
#   Author                  : xSP, SO
#
# Rules:
# - always leave one blank before and after the '=' (e.g. systemid=1 NO!)
# - never change the left expression
# - the right expression of systemid, containerid, systemname
#   and containername MUST be defined
#
#####

# The systemid identifies the mixing console system to which this container
# belongs to. The systemid is a unique number within a network.
# The serial number of the CORE shall be used as systemid.

systemid = 80

# The systemname identifies the mixing console system in a readable way
# and must be unique within a company resp. network. It is recommended
# not to use more than 8 characters due to visualization aspects.
# "Undefined" is not allowed!

systemname = "Admin"

# The containerid identifies this container
# and must be unique within the mixing console system
#
# The following container IDs are defined:
#
# containerid = 10      : CORE
# containerid = 15      : BridgeCard
# containerid = 20      : Standalone ConfigGUI
# containerid = 30      : Digimedia (not used any more - last used for OnAir V3.2)
# containerid = 40      : Logger
# containerid = 50      : TreeViewer
# containerid = 60      : SoftwareUpdateWizard
# containerid = 71      : Central OnAir 3000 Server (User server, Snapshot server, Logger)
# containerid = 80      : Route1000

# containerid = 100      : Primary DESK
# containerid = 101      : Standalone DeskDriver of the Primary Desk
# containerid = 110      : CHANNEL Screen of the Primary Desk for Channels 1..6
# containerid = 111      : CHANNEL Screen of the Primary Desk for Channels 7..12
# containerid = 112      : CHANNEL Screen of the Primary Desk for Channels 13..18
# containerid = 113      : CHANNEL Screen of the Primary Desk for Channels 19..24
# containerid = 114      : CHANNEL Screen of the Primary Desk for Channels 25..30
# containerid = 115      : CHANNEL Screen of the Primary Desk for Channels 31..36
# containerid = 116      : CHANNEL Screen of the Primary Desk for Channels 37..42
# containerid = 117      : CHANNEL Screen of the Primary Desk for Channels 43..48
# containerid = 118      : CHANNEL Screen of the Primary Desk for Channels 49..54 (virtual
#                          Strip Channels)
# containerid = 119      : CHANNEL Screen of the Primary Desk for Channels 55..60 (virtual
#                          Strip Channels)
#
# containerid = 150      : Secondary DESK (parallel)
# containerid = 151      : Standalone DeskDriver of the Secondary Desk
# containerid = 160      : CHANNEL Screen of the Secondary Desk for Channels 1..6
```

```

# containerid = 161      : CHANNEL Screen of the Secondary Desk for Channels 7..12
# containerid = 162      : CHANNEL Screen of the Secondary Desk for Channels 13..18
# containerid = 163      : CHANNEL Screen of the Secondary Desk for Channels 19..24
# containerid = 164      : CHANNEL Screen of the Secondary Desk for Channels 25..30
# containerid = 165      : CHANNEL Screen of the Secondary Desk for Channels 31..36
# containerid = 166      : CHANNEL Screen of the Secondary Desk for Channels 37..42
# containerid = 167      : CHANNEL Screen of the Secondary Desk for Channels 43..48
# containerid = 168      : CHANNEL Screen of the Secondary Desk for Channels 49..54 (virtual
#                          Strip Channels)
# containerid = 169      : CHANNEL Screen of the Secondary Desk for Channels 55..60 (virtual
#                          Strip Channels)

# containerid = 240      : DNet TestFramework

# containerid = 254      : SNMPAgent

containerid = 20

# The containername identifies this container in a readable way
# and must be unique within the mixing console system. It is recommended
# not to use more than 8 characters due to visualization aspects.
# "Undefined" is not allowed!

containername = "CnfgTool"

# Multicast
# -----
# If you use IGMP multicasts instead of broadcasts in your network,
# you have to uncomment the the lines below. It is possible, that a
# container is member of one or more than one multicast groups.
#
# NOTE: For an optimal performance, make sure that all network ressources
#       (Switches, Routers...) support IGMP.
#
# NOTE: To avoid IP conflicts, check the available addresses for
#       multicast groups (www.iana.org). Use preferable addresses from the
#       local scope (239.255.0.0/16) described in RFC 2365.
#
# NOTE: If the multicast should reach computers beyond the local subnet
#       Set MulticastTimeToLive > 1 (1 is default)

MulticastGroup = 239.255.0.1
MulticastGroup = 239.255.0.2
MulticastGroup = 239.255.0.3
MulticastTimeToLive = 10

# Multiple Network Adapters
# -----
# When more than one network adapter is enabled on the computer, the MAC Address has to
# be specified
#
MAC = 00-1B-21-4F-13-BD

# Demo Version
# -----
# Enable this parameter if you want to enable the OnAir 3000 Demo Version. The OnAir Demo
# Version has all # software options (I\O Sharing, CMS...) enabled, but no network connection
# and the DSP extension will not be loaded.
# Don't use this parameter on windows CE!
#
# DemoVersion

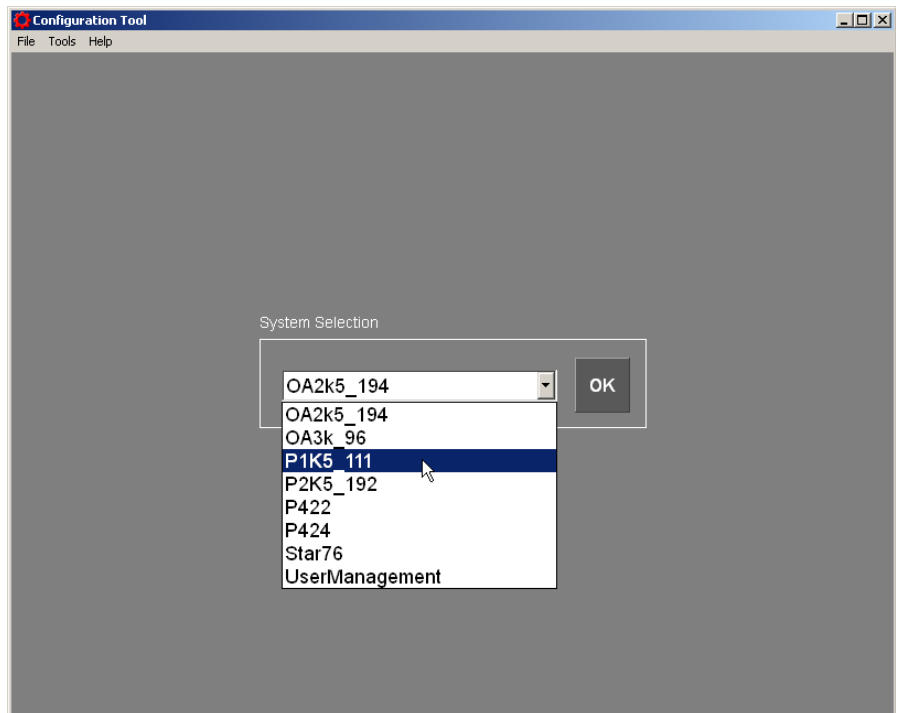
```

Operation



Start the Remote Config Tool application by a double-click on either the desktop shortcut (shown left) or directly on `ConfigTool.exe` in its folder.

When started, the Config Tool window will look similar to the screenshot below:



When clicking on the arrow button in the **System Selection** field, a list drops down for selecting the desired system. Click on it, then on **OK**. This will open the familiar configuration pages.

5.16.4.1 Login USB Stick

Important

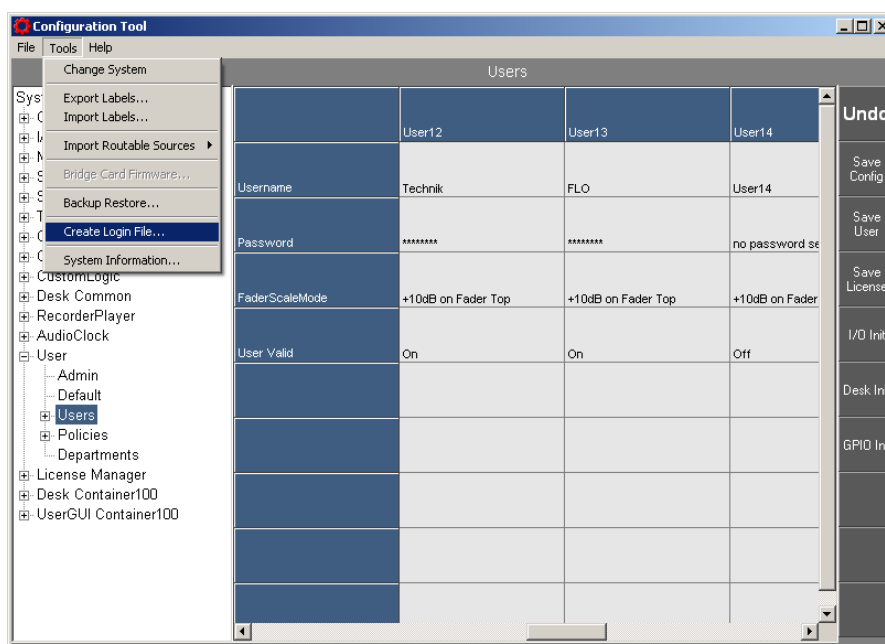


Not all USB sticks are recognized by the system if plugged in before or during start-up. The USB stick shipped with the console has been tested for start-up recognition; it is recommended therefore that this stick is used for login.

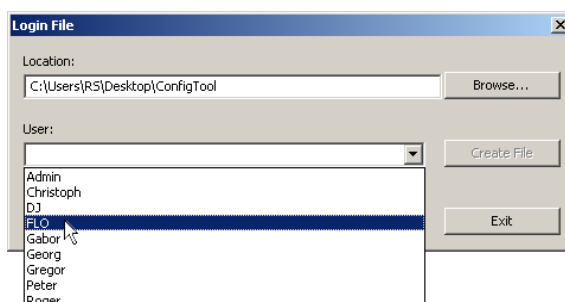
If two login USB sticks are connected to the console, the last one 'wins'.

A USB stick intended for user login must contain a file named `Login.ID`. Normally this file is created by the system administrator; he must use the Remote Config Tool to do so.

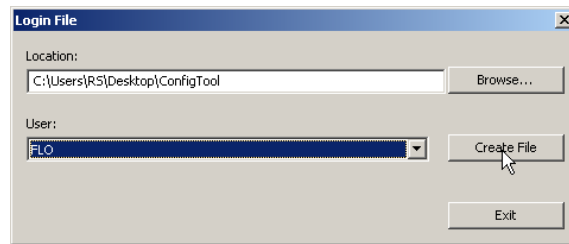
- 1 Start the Remote Config Tool and select the system as outlined in [chapter 5.16.4](#). The configuration window opens.
- 2 Expand the **User** item in the configuration menu tree by a click on the '+' button next to the item and click on **Users**.
- 3 Create a new user (name and password) and activate him by entering On in the **User Valid** field. The user name created in our example is **FLO**, his password is **Ferro**. Please remember that user names and passwords are case-sensitive, both when creating and using them.
- 4 Save the new user by clicking the **Save User** button at the right edge of the window. The user must be created on every system that he will use.
- 5 Select **Tools** from the menu bar and select **Create Login File...**, as shown below.



- 6 The Login File window pops up; select the new user from the **User:** dropdown menu:



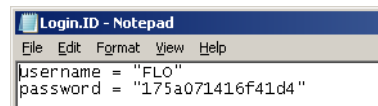
7 Click on Create File.



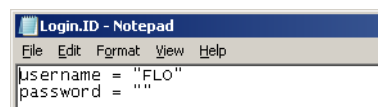
The newly created `Login.ID` file is saved in the same folder that contains the Remote Config Tool application.

8 Copy it from there to the user's USB stick.

When opening this file with a text editor such as Notepad, you will see its contents: the user's name and his encrypted password:



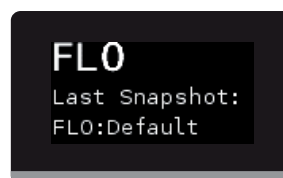
Note: If no password is needed for a user, the procedure described above can be skipped; the file can then also be created in a text editor without using the Remote Config Tool. Just copy the syntax exactly, enter the user name and leave the password entry empty, such as shown below.



When this is done, save the file on the user's USB stick under the name `Login.ID`.

User Login

Each time the user's USB stick is plugged into or removed from the **DATA / LOGIN** USB socket, the user is automatically logged in/out. The user name and his last loaded snapshot are displayed for a few seconds in the **FUNCTION** OLED display after logging in. If a default snapshot was saved for this user, it is automatically loaded to the desk as well.



When pressing the **FUNCTION** rotary knob during operation, the OLED display indicates this user information, too.

When logging out (i.e. pulling out the login USB stick), the system automatically activates the default user but will keep the last loaded snapshot.



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6 CONFIGURATION

Please Note:



In order to have operating instructions available as fast as possible, the following chapters are temporary copies of the OnAir 2500 manual and will be updated soon. Some features are not supported by the OnAir 1500.

One of the strong points of the OnAir 1500/2500/3000 consoles is their extensive flexibility. Flexibility from the hardware on one side – for the OnAir 3000 in particular – but also a huge amount of flexibility on the system integration side. This implies the need for a means to configure all the different interfaces to the overall system, such as labels, fader starts, GPIOs, etc.

The configuration part of the user interface is only used for console set-up and exclusively reserved to the system administrator. Therefore it is strictly separated from the user GUI intended for daily use by the console operators.

Important!



The system configuration tool ('Config Tool') is intended for trained personnel (such as the system administrator) only; due to the fact that it allows contradictory settings in some points, care must be applied when using it.

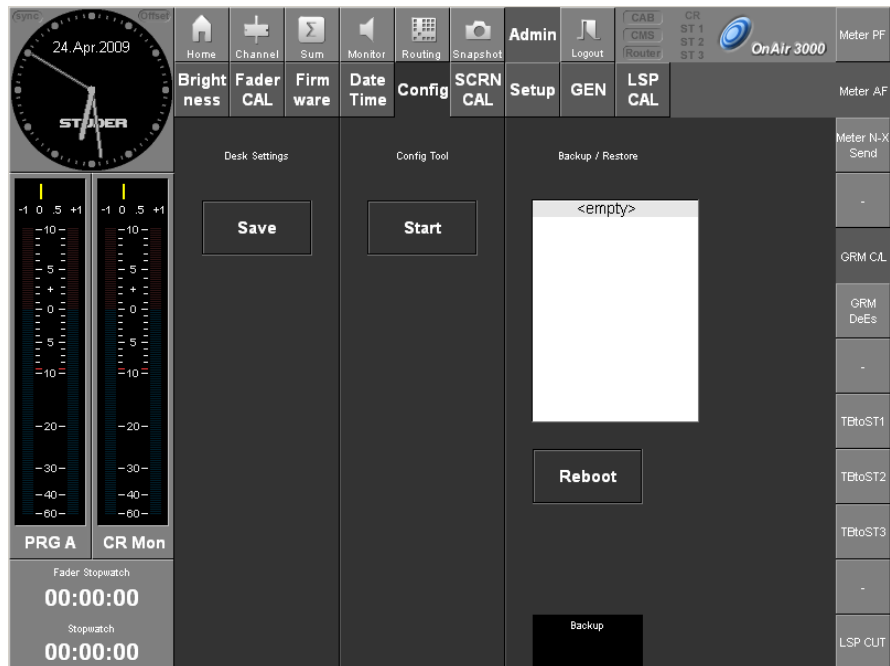
When making configuration changes, it is strongly recommended to backup the current configuration on an external medium (e.g. USB stick) before, see [chapter 6.2](#); when using a computer with an appropriate socket, the files on the external medium may then be saved to any backup drive for additional data safety.

Notes: OnAir 1500 does not support a main screen. Therefore external components must be used for configuration: either a DVI screen, USB keyboard and mouse (refer to [chapter 5.1](#)) or a Windows PC connected to the Nano SCore via Ethernet running the Remote Console or the Remote Configuration Tool application (refer to [chapter 6.6](#)). Both methods do *not* support the touch screen functionality known from OnAir 2500 and OnAir 3000.

Remote Console or Remote Configuration Tool networked operation is, of course, also available for OnAir 2500 and OnAir 3000.

Many of the screenshots are identical or nearly identical for OnAir 1500, OnAir 2500 and OnAir 3000; in this case, only an OnAir 3000 screenshot is given.

The Config Tool can be accessed from the main screen in the **Admin** menu. Its concept is based on the touch screen and the rotary encoders below the screen. Alternatively, the Config Tool may also be handled as a part of the GUI application on a remote PC that is connected to the console. In doing so, the desk parameters can be accessed via a network, even without the need of being in the same location.



If the system administrator is logged in, a **Config** button appears in the **Admin** screen's menu bar. When touching it, the central part of the screen is subdivided into three sections:

Desk Settings – **Save** ([see chapter 6.1](#)),

Config Tool – **Start**, and

Backup / Restore, **Reboot** ([see chapter 6.2](#)).

6.1 Desk Settings

If you want the current desk settings* to be part of the initial snapshot (startup configuration) of the console – i.e., the changes will be permanent, even if the console is switched off and on again – then the **Desk Settings - Save** button can be used, as shown on the screenshot below. A message **Do you really want to overwrite the startup configuration of the console?** appears that has to be confirmed by touching the **Yes** button.

There is an automatic desk settings saving routine provided by default that saves all settings in intervals of 10 seconds, i.e. not longer than 10 seconds after the last change. This is configured in the **Snapshot - Parameters** page as well ('InitialSnapshot: AutoSave Desk Settings').

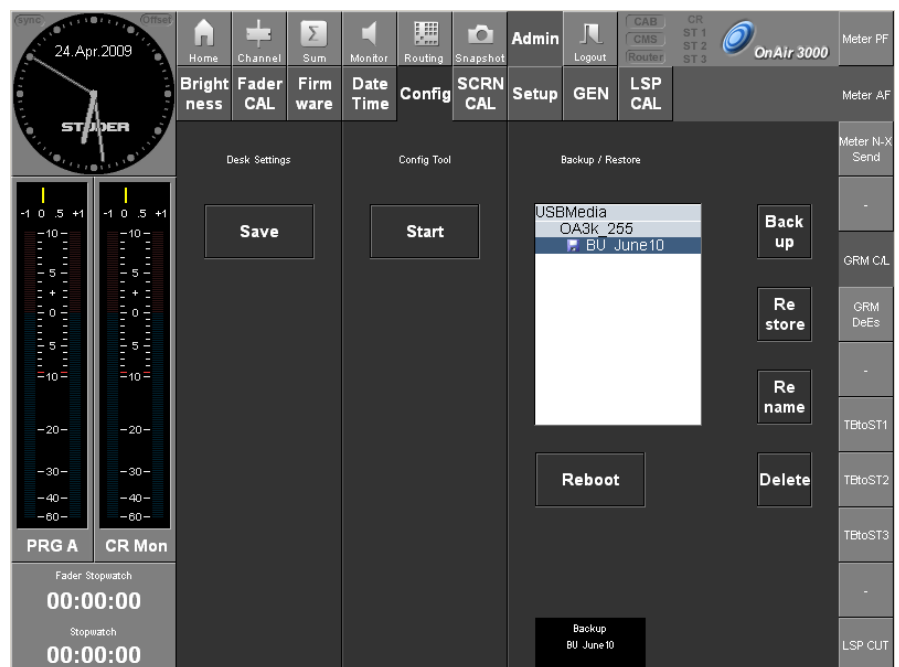
* The initial snapshot contains *all desk settings, including input fader gain*. However, if recalling the input fader gain settings in addition to the other parameters is desired as a part of the initial snapshot, this needs to be configured in the **Snapshot - Parameters** page ('InitialSnapshot: Loading Input Fader Gain', refer to [chapter 6.5.24.1](#)).

6.2 Configuration Backup

Backup/restore allows backup and restoring the complete console configuration to or from external media. This consists of the start-up configuration, the operational initial snapshot, all *.xml and *.ini files. User snapshots are excluded but can be saved to and restored from external media separately.

Slots for external memory media are provided (**OnAir 3000**: CF card and USB sockets, **OnAir 1500/2500**: USB socket). If using the remote configuration tool, the files can be saved at any desired location.

Backup and restore may as well be used for copying configurations between consoles.



Backup If an external memory medium is inserted, this is displayed in the list (e.g. USBMedia). After touching the **Backup** button, the screen keyboard pops up for giving the backup a name. After touching **Enter**, the configuration files are copied to the external medium; this takes a few seconds, the **Backup** button is highlighted during the transfer.

Restore Select the desired configuration file with the rotary encoder below the Backup field and touch **Restore**. After confirmation the configuration data are loaded into the console's memory; the **Restore** button is highlighted during the transfer. Once finished, the console has to be re-booted by touching **Reboot**.

Rename To rename backup configuration files on the external medium. If the new name should already exist, a dialog box appears where overwriting the existing backup has to be confirmed.

Delete To delete backup configuration files from the external medium. A dialog box appears where deleting the selected backup has to be confirmed.

Reboot Reboots all sub-systems of the selected system, e.g. core, desks and channel screens of the OnAir 3000. A dialog box appears where rebooting the current system has to be confirmed. If at least one channel should be on-air, the reboot is not executed but a user warning appears in such a case.

Important



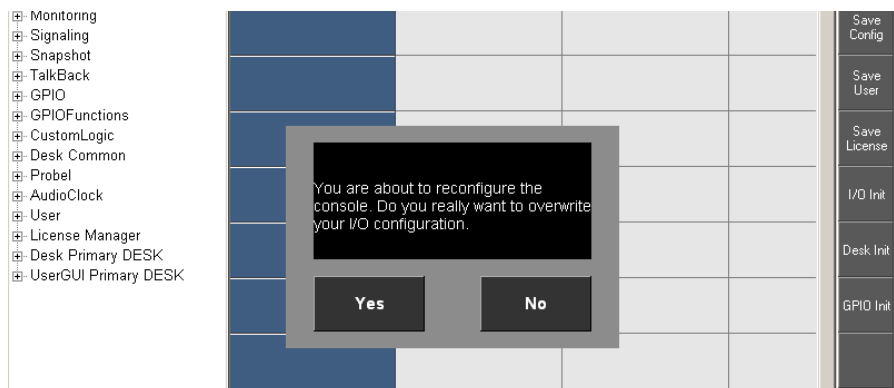
The USB memory device *MUST NOT BE REMOVED* from the socket DURING DATA ACCESS – only remove it after its LED has stopped flashing!

6.3 Auto(matic) Configuration

Unless the console is shipped with a specific, customer-defined configuration, the *automatic configuration functions* may be applied when powering it up for the first time. Manually configuring all the different parameters can be a quite time-consuming task, so Auto Configuration is the recommended procedure in such a case.

Auto Configuration considers the currently installed I/O hardware, creates logical inputs and outputs that are mapped to the physical input and output modules, provides a common desk setup allowing the user to operate the console, and specifies the GPIO functions. Thus the configuration effort is reduced to a minimum. Of course, some manual fine tuning will be necessary afterwards, such as editing the input/output labels displayed by the desk.

Auto Configuration may be activated by a user having access to configuration (this usually is the system administrator only). Since SW V3.1, the three ...Init buttons are located at the right-hand edge of the Config Tool instead of on the **Admin - Config** page. Hence the Config Tool needs to be started first by touching the Config Tool - **Start** button (see [previous page](#)). When touching one of the ...Init buttons, a user warning pops up, saying ‘You are about to reconfigure the console. Do you really want to overwrite your I/O / desk / GPIO configuration’, as shown below.



After confirmation with **Yes**, the configuration process starts. It takes a few seconds to be completed, depending on system size. Save the new configuration by touching **Save Config**, or exit the Config Tool by touching **Exit**.

Note:



If one of the Auto Configuration functions has inadvertently been started, the current console configuration will immediately be overwritten. However, the previous configuration may be rescued by powering the console off and on again, as long as the Save Config button was not used before.



It is strongly recommended to have a backup of the current configuration files available on an external memory medium (see [chapter 6.2](#)).

6.3.1 I/O Init

- **I/O Init** detects the I/O hardware in the console and/or in the D21m I/O frame(s) and maps the physical input and output signals provided by/to the I/O frame to the logical inputs and outputs in a reasonable order.
- It generates basic input labels that can be manually modified later.
- It assigns input locations, signaling sources, talkback inputs and monitoring outputs.

Notes: If the desired input format for line or AES/EBU inputs should be 'mono', this setting must be made manually using the Config Tool application after I/O Init has been completed.

Since OnAir 1500/2500 consoles are available in fixed configurations only, I/O Init is normally not necessary - unless the console is combined with an external D21m I/O frame.

After **I/O Init**, the changes have to be saved as initial snapshot by touching the Save Config button.

6.3.2 Desk Init

Desk Init is *not* a factory reset function; it is, however, the basic initialization of specific parameters such as rotary assignment functions, master outputs, monitoring and meter sources, talkback destinations etc.

The system administrator's password is initialized to **admin** during the init phase.

After **Desk Init**, the changes have to be saved as initial snapshot by touching the Save Config button.

6.3.3 GPIO Init

GPIO Init is not a factory reset function; it is, however, the basic initialization of specific parameters as listed below, according to pre-defined rules.

After **GPIO Init**, the changes have to be saved as initial snapshot by touching the Save Config button.

Caution!



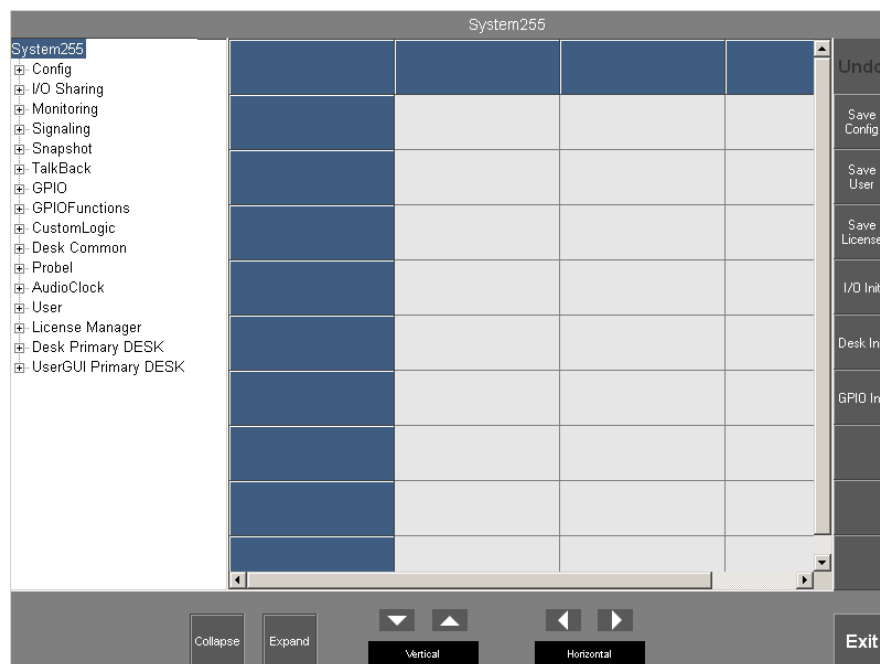
If one of the Auto Configuration function has been started inadvertently, the current console configuration will immediately be overwritten. However, the previous configuration may be rescued by powering the console off and on again, as long as the Save Config button was not used before.



It is strongly recommended to have a backup of the current configuration files available on an external memory medium (see [chapter 6.2](#)).

6.4 Configuration Tool

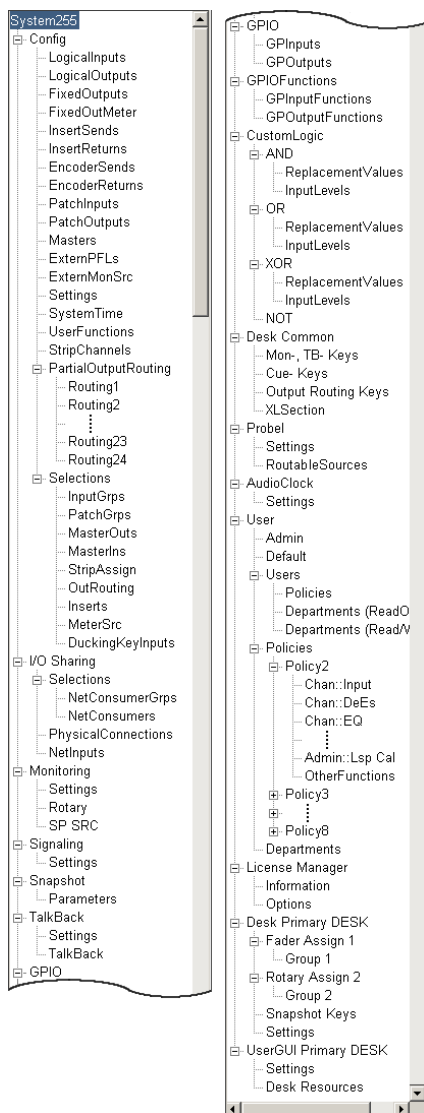
After having touched the Config Tool - **Start** button, a blank configuration page appears, showing the collapsed configuration menu tree at the left.



The configuration parameters are divided in function groups. Each function group can be selected and edited on separate pages (details in the following chapters).

Notes: *The optional Probel function group also appears on consoles not equipped with the option, but in such a case it cannot be expanded. Some of the menu tree items are supported by the OnAir 3000 only and will not be displayed on an OnAir 2500.*

6.4.1 Navigation and Handling



Two basic options are available for the configuration procedure. You can either use the touch screen and the rotary encoders located below the screen (standard case), or, if a PC running the configuration application is connected to the system, operate the tool with the computer mouse and keyboard (also useful if there is no touch screen at the system administrator's location).

For the following descriptions it is assumed that touch screen operation is used. However, everyone who once has operated a Windows PC with mouse and keyboard will immediately be familiar with the second option.

You will always work your way from the left to the right, first selecting a group of parameters from the configuration menu tree. As the menu tree entries are somewhat narrow to be easily hit on the touch screen, they may be selected with the leftmost rotary encoder as well. Once the desired function group is highlighted, touch **Expand** (or **Collapse**, respectively) to expand (or collapse) the group; if a USB keyboard is connected to the main screen's USB port, the → and ← arrow keys may be used for expanding/collapsing. An expanded configuration menu tree is shown left.

Scrolling within the grid is done by touching the ▲ or ▼ buttons for vertical movement, and ◀ or ▶ for horizontal movement. Alternatively, the rotary encoders located just below the **Vertical** and **Horizontal** fields may be used. If more items are available than can be displayed on the screen, horizontal and/or vertical scrollbars appear.

After touching one of the matrix fields on the screen, a selection menu appears, and the current selection is highlighted. The menu allows selecting from various options by touching the desired item. In case the selection menu should be higher than the screen, scrolling up/down arrows, **PgUp/PgDown**, and **Top/Bottom** buttons appear at the menu's upper and lower margins. For scrolling, either touch one of these buttons, or (regardless where the selection menu is located on the screen) use the *rightmost* rotary encoder for scrolling. The selection can then be done by touching the desired menu item.

The optional Probel function group also appears on consoles not equipped with the option, but cannot be expanded in such a case.

Some of the menu tree items are supported by OnAir 3000 only and will not be displayed on an OnAir 1500/2500.

6.4.2 Undo / Exit / Save Config

Normally, configuration changes are immediately executed. Configuration changes may be undone step by step when touching **Undo**.

When touching the **Exit** button, the configuration page is left, *and the configuration changes are used temporarily, just for the current session*. This means that the configuration changes will be reset once the console is switched off and on again.

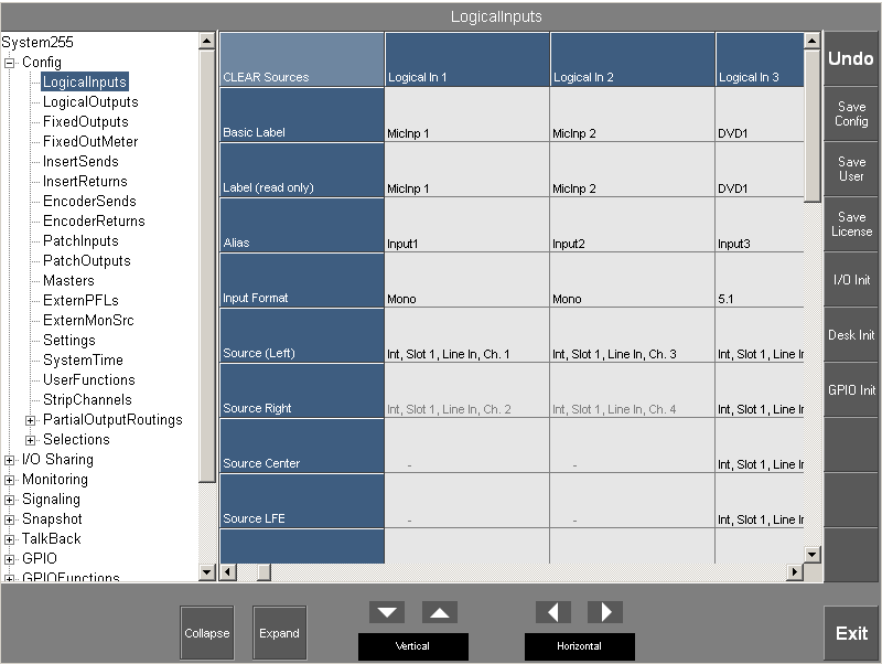
*If the configuration changes should become part of the startup configuration of the console – which means that the changes will be permanent, even if the console is switched off and on again – then touch the Save Config button before exiting the configuration. A message 'Do you really want to overwrite the startup configuration of the console?' appears that has to be confirmed by touching **Yes**.*

Note: *In case of a networked system, all system components (desks, SCores, etc.) must be operative when saving a new configuration.*

6.5 Configuration Procedure

6.5.1 Logical Inputs

For every logical input that shall be routable to an input channel strip, a physical input (or, if required, a master output or, if required and configured, a tie line) has to be defined. For tie line configuration [refer to the service manual](#).



Basic Label This is the channel label that is normally displayed in the channel strip and in the GUI if this input is routed. The label may have up to eight characters. When touching, for example, the upper DVD 1 button – i.e., the label of Logical In 6 – a keyboard for editing the channel label appears. At the top of the keyboard the current channel label is displayed. For editing, just type the desired label name; please note that the screen keyboard always appears with **Caps Lock** active. Once finished, touch **Enter**. If the current label is ok and should be retained, then touch **ESC** instead. Please note that **Save Config** must be touched in order to permanently save your edits, as indicated in [chapter 6.4.2](#).



Label (read only) This is the label actually displayed in the channel strip and in the GUI; normally, this corresponds to the **Basic Label** mentioned above. However, it may be temporarily overwritten by I/O sharing, label import from an external router control system (VSM) via Pro-Bel, a caller name imported from the Call Management System (CMS), or during CAB operation via the Monitors protocol. It is marked ‘(read only)’ since it cannot be modified manually here.

Alias The alias label is a convenient feature for transferring snapshots between different consoles, e.g. in A/B desk operation or for I/O sharing in networked systems. When loading an imported snapshot, the data of the input with the alias label 'DJ MIC' are loaded to the same channel strip, and also have the same channel settings.

An alias label may be renamed in the same way as the input label described before; it may consist of up to eight characters as well. For standalone systems, the default alias labels need, of course, not be changed.

Input Format Defines the audio format of the logical input. Selections: **Stereo**, **Mono**, or **5.1**. The format selected here will be automatically assigned to the console channel to which this logical input is routed.

OnAir 1500/2500: *5.1-channel inputs not supported.*

OnAir 3000: *5.1-channel support optional.*

Source (Left), Source Right...

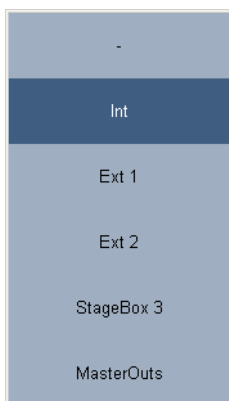
Source (Left) defines the physical audio input that is used to establish the left (or mono) channel for the logical input. **Source Right** defines the physical audio input that is used to establish the right channel for a logical stereo input. If the **Input Format** is set to **Mono**, no second source is used; when changing **Input Format** from **Stereo** to **Mono**, a second source that already has been defined will be grayed-out. If a surround source is defined, the remaining sources (**Source Center**, **Source LFE**, etc.) must be assigned to physical inputs as well, and **Input Format** must be set to **5.1**. Alternatively, if a stereo or 5.1-channel *master* output is selected, it is sufficient to define **Source (Left)** only.

OnAir 1500/2500: *5.1-channel inputs not supported.*

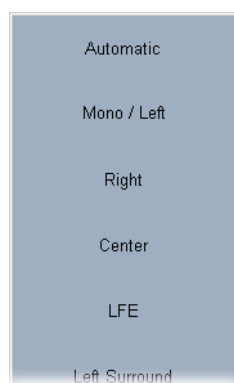
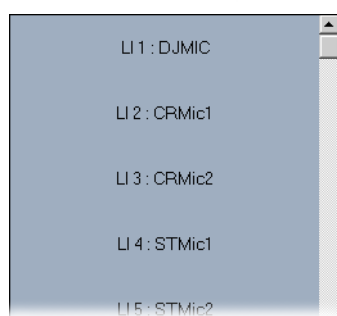
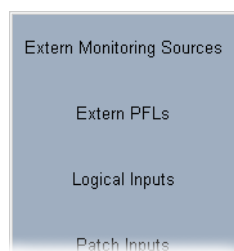
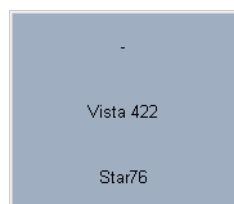
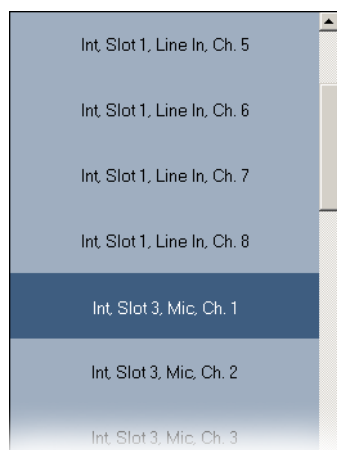
OnAir 3000: *5.1-channel support optional.*



After touching one of the **Source** fields, first a list appears for selecting either a source of the local system (**Local Source**), or, if I/O sharing is enabled, a shared source of a neighbor system (**Net Source**), or none (-).



After having selected **Local Source**, a list appears for selecting in which frame (i.e. from the internal SCore frame **Int**, from additional external **D21m Ext...**, or stagebox frames **StageBox...**, master outputs **MasterOuts**, or none (-) the desired input card is located.



Then a list for selection of the desired physical input appears. It can be scrolled up and down with the rightmost rotary encoder or the navigation buttons at its upper and lower margins. However, when using a Remote Config Tool running under Windows XP, the navigation buttons are replaced by a vertical scrollbar.

Indication example: Frame (Int = internal I/O cards in SCore frame; Ext # = additional, external D21m frame; StageBox # = D21m frame in stagebox), Slot #, Card type, and Input # (e.g. Int, Slot 1, AES, Ch. 1), or '-' (if no physical input is assigned to the logical input).

If more sources are assigned to a physical input than are defined by the Input Format field (e.g. an additional right source for a mono input), these sources will be displayed in gray.

An external frame or a stage box may have a name different from the default name, depending on what name was given to the D21m hub or stage box during their configuration.

If, on the other hand, a shared Net Source has been selected, first a systems dialog list appears, showing the available I/O sharing-enabled systems that also have physical connections defined.

Since all sources consumed by one I/O sharing input need to be from the same system, this systems dialog only appears when defining the first source.

Now, select a source group from the desired I/O sharing producer system.

After that, the available logical inputs of the producer system are listed for selection.

A format dialog appears in case of a Source (Left); for the further sources it appears only if the selected source provides more than one signal.

At last, the connection is selected. Automatic only appears if Source (Left) was selected first; then the remaining sources are filled in automatically. The list also offers buttons for selecting individual mono signal legs for every single source.

Line / Mic

Changes the view of the channel page in such a way that only the parameters corresponding to the input type are displayed. Selections: Line or Mic. If Mic is selected, remote control of the mic preamplifier is automatically enabled.

Mic Clip Limiter	Since SW V3.0, the mic clip limiter is activated here instead of on the main screen. It is only available for local sources; in case of a net source it is displayed in gray. Selections: On or Off.
Input Location	This parameter is used for the monitoring dim/cut (mute) function. Selections: ControlRoom, Studio 1-3, none.
<i>OnAir 1500/2500:</i>	<i>Studios 1 and 3 not supported.</i>
Signaling Source	This parameter is used for activating the red light indication in the location defined by the Input Location parameter of the current channel. Selections: On or Off.
<i>OnAir 1500/2500:</i>	<i>Studios 1 and 3 not supported.</i>
TBMicCut Enable	Since SW V3.2, this function is configurable per logical input instead of for the whole console at once. If a microphone different from the internal TB mic is used for talkback, the default selection (On) cuts this microphone's signal from the input channel to which it is routed as long as it is used for talkback. For special applications, this function may be canceled when configuring Off.
Audition Bus	With this parameter the contribution of the current input to the audition bus is set On or Off.
Timer Start	If this parameter is set to On, the global and the input fader stopwatches are started when the channel to which this logical input is routed is switched ON and its fader is opened. For details on global and input fader stopwatches refer to chapter 5.7 .

Fade In/Out Target Gain, Fade In/Out Time [ms]

If the fader should be controlled by a GP Input, four parameters must be set here: **Fade In Target Gain** and **Fade Out Target Gain** (the default settings are 0.0 dB and Mute, resp.), and **Fade In Time** and **Fade Out Time** (can be set between 0 and 20'000 ms, i.e. 20 s, in millisecond steps with the pop-up keyboard; default settings for both **Fade In Time** and **Fade Out Time** are 1000 ms = 1 s). For details on GPIO settings refer to [chapter 6.5.26](#).

NX-Control / TB Destination	Selects the owner that controls the N–X send level, or talkback to N–X, provided that the Joker Function Name (below) is set to TALK; at the same time, the possibility to send back the own signal is disabled.
<i>OnAir 1500/2500:</i>	<i>Joker key is not supported by the default configuration.</i>
I/O Sharing Net Mode	Logical connections may either be defined as Static (permanently reserved for a certain signal) or Dynamic (default; used by the system only as long as required, which is more economical).
Codec Return Output *	Specifies the patch output to which the codec's input is connected. • In case of a logical input (net source is 0), the Config Tool provides a list of all local logical and patch outputs. • In case of a net logical input (net source different from 0), the Config Tool provides a list of all logical and patch outputs of that net source.
Codec Return Source *	Specifies the source that is connected to the patch output when the (net) logical input is assigned to a fader. • In case of a logical input (net source is 0), the Config Tool provides a list of all local N–X buses. • In case of a net logical input (net source different from 0), the Config Tool provides a list of all net patch inputs on the system of that net source that are consuming an N–X send from the local system.

Codec Return Activation * Specifies the way in which the return line is connected to the patch output when the (net) logical input is assigned to a fader. Available selections: **Connect Never**, **Connect If Not In Use**, **Connect Always**.

* For details on codec management refer to [chapters 5.13](#) and [6.5.21](#).

Joker Function Name Basically, all corresponding keys in the fader strip have the same function throughout the whole console. However, for some functions of certain input sources this doesn't make sense (such as talkback to a CD player). For this reason, one exception from this rule may be configured that will then be source-related, i.e., linked to a particular source, and that will also be considered once this source should be re-routed to a different channel strip. This function key is called the 'Joker' key.

Currently, the following functions may be selected for the Joker key: **TALK** (talkback function), **LOC/RDY** (locate/ready function), **PFL/TALK** (activates PFL and talkback simultaneously), **PFL/LOC** (for pre-listening e.g. to a CD player parked at a cue point; when releasing the key, the player automatically re-locates to the same cue point), **TALK/READY** (talkback function with additional ready indication controlled by a GPIInput), **USR1/2** (user keys) or blank (no function).

OnAir 1500/2500: *Joker key is not supported by the default configuration.*

External Router Destination With SW V2.1 and later, this parameter is used to assign a destination ID of an external router output to the logical input; this is used for importing and displaying labels from the VSM router control system as well as for controlling the router.

Selection: - (none) or 0-1023. The default assignment is 1:1, i.e. logical input 1 corresponds to destination ID 1.

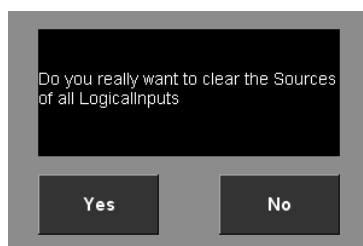
In addition, a **Facility ID** must be entered in the **UserGUI - Settings** configuration page (refer to [chapter 6.5.33.1](#)), together with the corresponding settings in the `ProBel.xml` and `probel_contr_ext.ini` files.

External CMS Fader With SW V2.1 and later, the console can communicate commands and status messages with the Studer Call Management System (CMS) via TCP/IP.

Selection: - (none) or **1-16**.

In addition, a **Facility ID** must be entered in the **UserGUI - Settings** configuration page (refer to [chapter 6.5.33.1](#)), together with the corresponding settings in the `cms_contr_ext.ini` file.

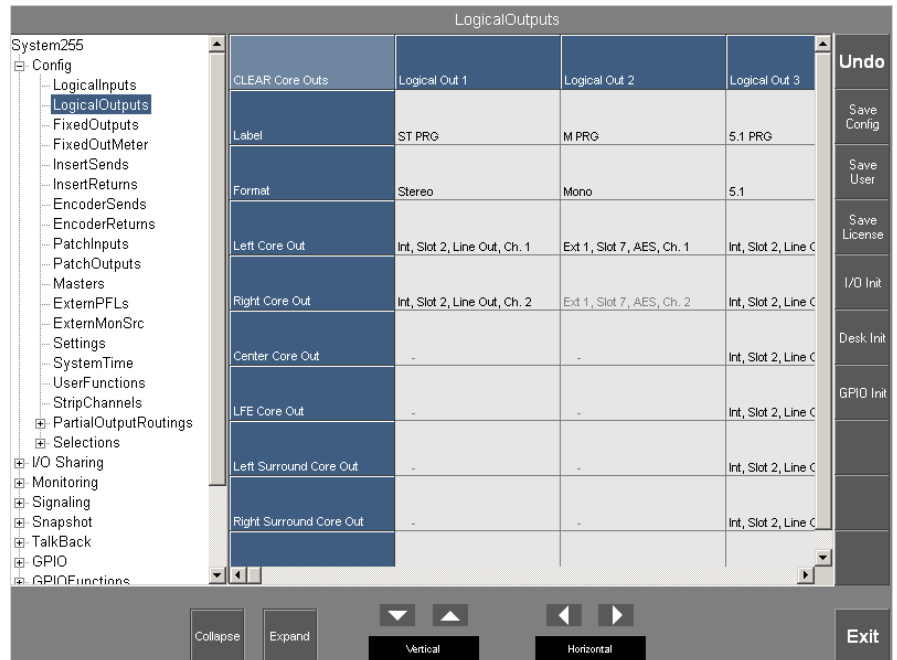
CLEAR Sources The top left **CLEAR Sources** field is colored brighter than the others; it can be used to *clear all configured sources*. If it is touched, clearing the sources has to be confirmed in the following dialog box:



In case that all configured sources should have been cleared inadvertently, and the current configuration has not been saved yet, they can be restored step by step when touching the **Undo** button, as mentioned in [chapter 6.4.2](#).

6.5.2 Logical Outputs

For every physical output that should be accessible in the output routing page, a logical output has to be defined.



Label This is the string displayed in the output routing page. The label may have up to eight characters and is defined as described in [chapter 6.5.1](#).

Format Defines the audio format of the logical output. Selections: **Stereo**, **Mono**, or **5.1**. All stereo buses, such as the masters, the AUX buses, and the N–X buses may be assigned to a physical stereo and mono output at a time. In the example above, the PRG output has its stereo format output (labeled ST PRG) on Logical Out 1 and its mono format output (M PRG) on Logical Out 2.

Left / Right / ... Core Out **Left Core Out** defines the physical audio output used to establish the left (or mono) channel for the logical output. **Right / Center / LFE... Core Out** define the physical audio outputs used to establish the remaining channels for the logical output, depending on the **Format** definition (below).

If more core outputs are assigned to a physical output than defined by the **Format** field (e.g. an additional right output for a physical mono output), the selection will be displayed in gray.

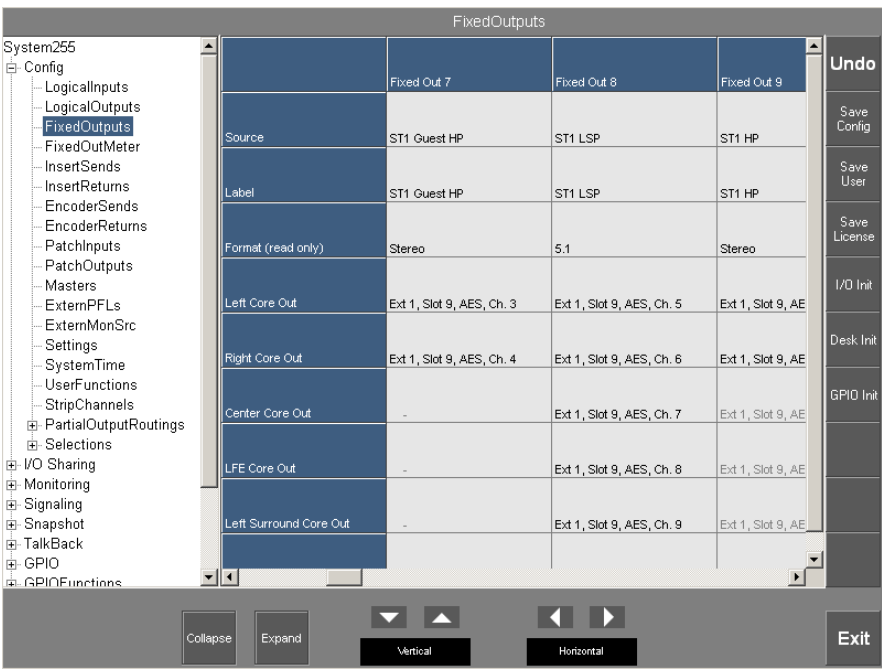
Indication: Frame (Int = internal I/O cards in SCore frame; Ext # = additional, external D21m frames; Stagebox # = D21m frame in stagebox), Slot #, Card type, and Output # (e.g. Int, Slot 2, Line Out, Ch. 2), or ‘–’ (if no physical output is assigned to the logical output).

CLEAR Core Outs The top left **CLEAR Core Outs** field is colored brighter than the others; it can be used to clear all configured core outputs at once. If it is touched, clearing the core outputs has to be confirmed. In case that all configured core outputs should have been cleared inadvertently and the current configuration has not been saved yet, they can be restored step by step when touching the **Undo** button, as mentioned in [chapter 6.4.2](#).

OnAir 1500/2500: 5.1-channel outputs are not supported.

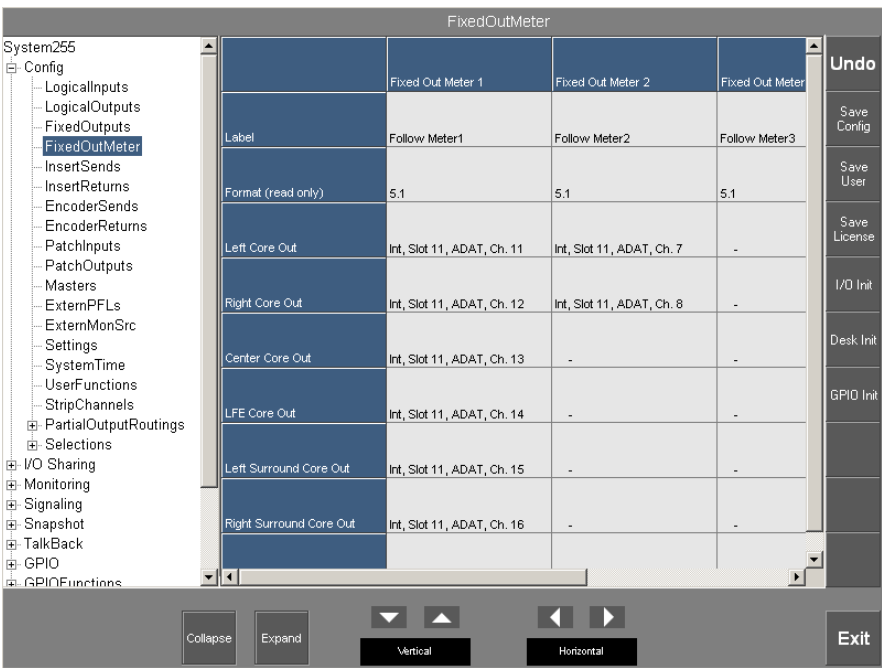
OnAir 3000: 5.1-channel outputs are optional.

6.5.3 Fixed Outputs



Fixed outputs are used for dedicated outputs, such as monitoring outputs; for them, the same applies as is said in [chapter 6.5.2](#) above, except that the Format parameter is read only and cannot be set.

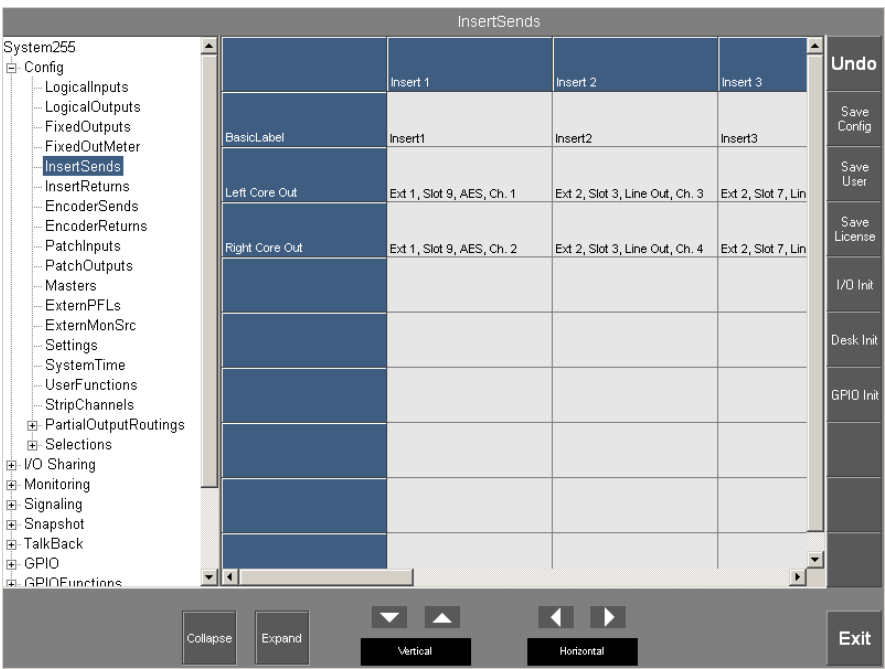
6.5.4 Fixed Out Meter



The two dedicated metering outputs automatically follow the main screen meters. These outputs may be used to connect external level meters and are defined here. The same applies as is said in [chapter 6.5.2](#) above, except that the Format parameter is read only. For systems with primary/secondary desk configuration, up to four meter outputs can be configured (two per desk).

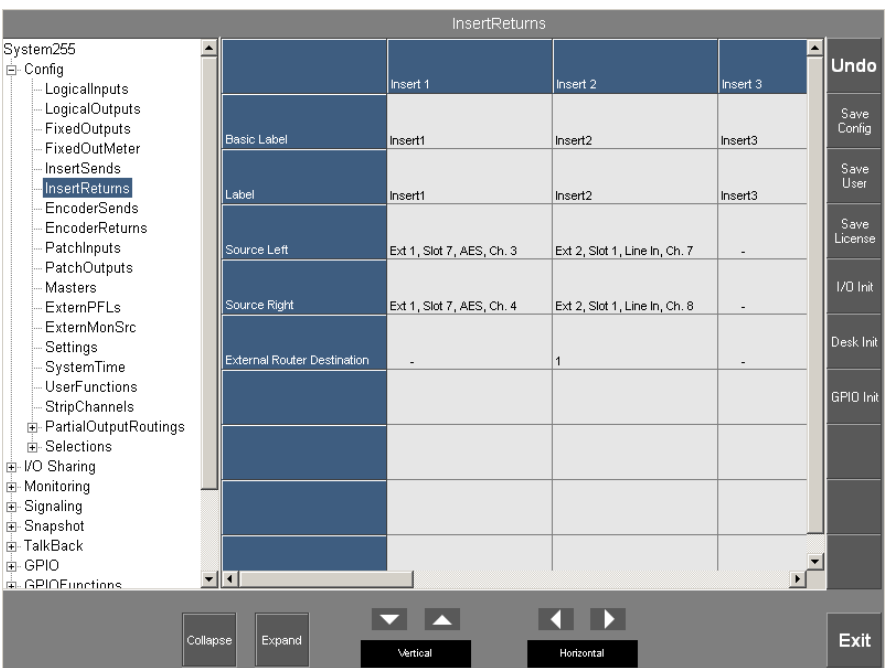
OnAir 1500/2500: *OnAir 1500/2500 only support stereo metering outputs. These are configurable for the OnAir 1500/2500 as well, but will not be used by default.*

6.5.5 Insert Sends



For each of the eight inserts available in the digital domain, a send/return pair may be configured. For the insert sends, the same applies as is said in [chapter 6.5.2](#) above, except that no Format parameter is available here. Please note that the insert returns are configured on the Insert Returns page (refer to [chapter 6.5.6](#)).

6.5.6 Insert Returns

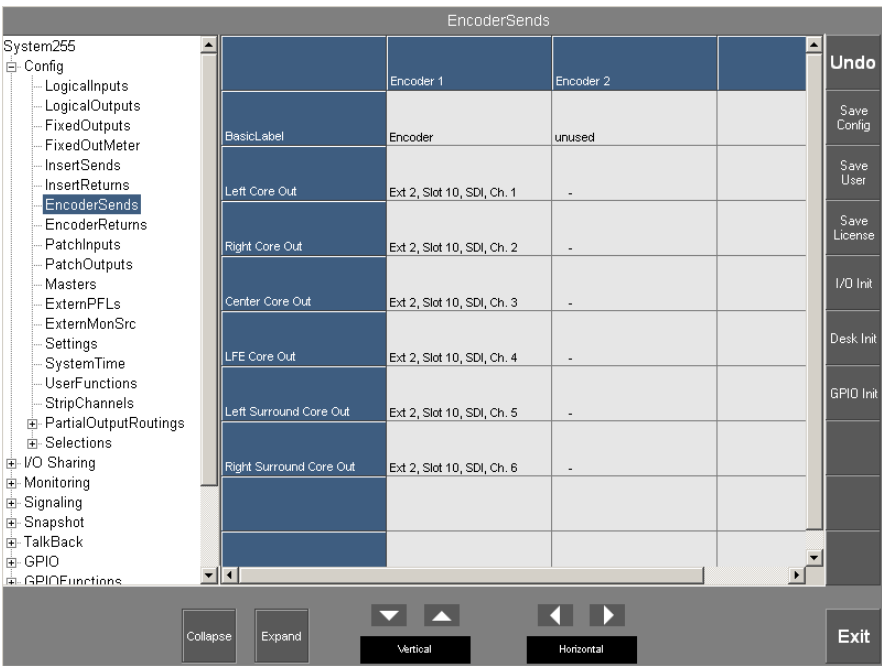


Basic Label / Label The labels are copied from the Insert Sends page ([chapter 6.5.5](#)) and cannot be edited here. They are displayed in the output routing page.

Source Left / Source Right **Source Left** and **Right** define the physical audio inputs used to establish the insert return.
After touching the **Source...** field, a list appears for selection of the SCore, external D21m, or stagebox frame, or '-'. Then a list for selection of the desired physical input is displayed. It can be scrolled up and down with the navigation buttons at its upper and lower margins, or with the rightmost rotary encoder.
Indication: Frame (Int = internal I/O cards in SCore frame; Ext # = additional, external D21m frame; Stagebox # = D21m frame in stagebox), Slot #, Card type, and Input # (e.g. Ext 1, Slot 7, AES, Ch. 3), or '-' (if no physical input is assigned to the logical input).

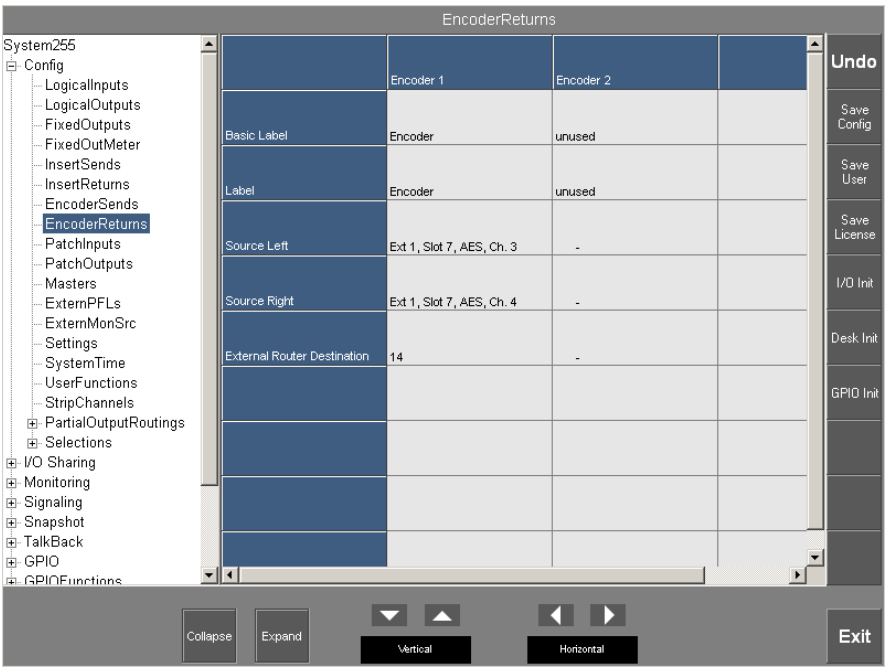
External Router Destination With SW V2.1 and later, this parameter is used to assign a destination ID of an external router output to the insert return; this is used for importing and displaying labels from the external router control system as well as for controlling the router.
Selection: - (none) or 0-1023. The default assignment is 1:1, i.e. logical input 1 corresponds to destination ID 1.
In addition, a **Facility ID** must be entered in the **UserGUI - Settings** configuration page (refer to [chapter 6.5.33.1](#)), together with the corresponding settings in the `ProBel.xml` and `probel_contr_ext.ini` files.

6.5.7 **Encoder Sends** *(supported by OnAir 3000 only)*



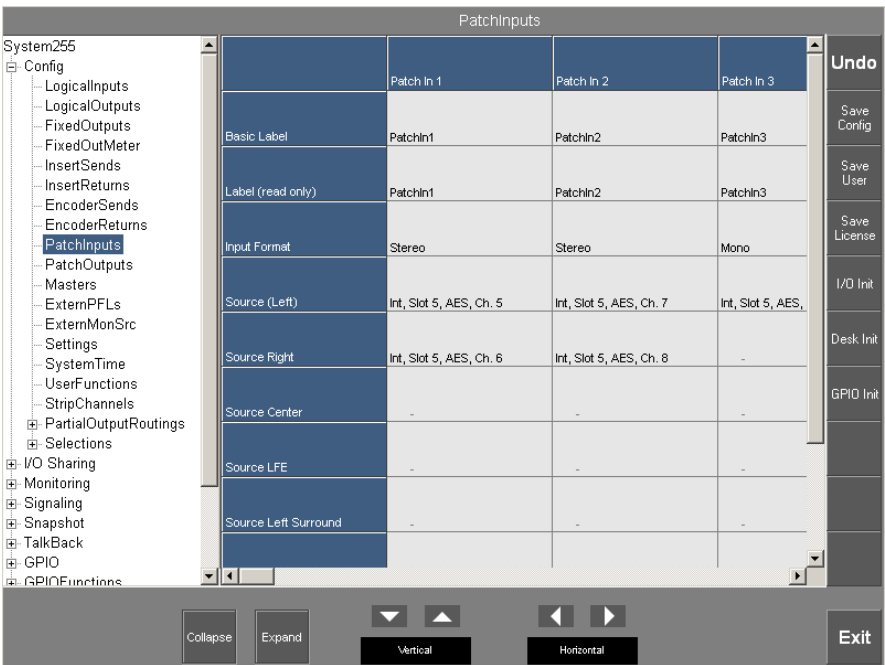
On this page the outputs to an external surround decoder are defined. Proceed according to [chapter 6.5.2](#).

6.5.8 Encoder Returns (supported by OnAir 3000 only)



On this page the inputs from an external surround decoder are defined. Proceed according to [chapter 6.5.6](#).

6.5.9 Patch Inputs (supported by OnAir 3000 only)



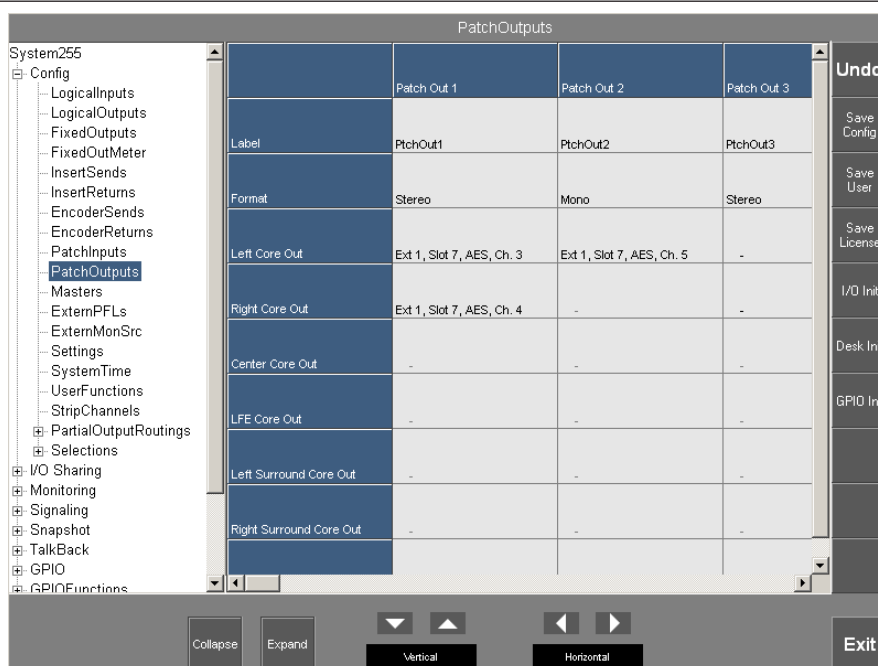
Basic Label / Label (read only) This are the strings displayed in the output routing page. They may have up to eight characters and are defined as described in [chapter 6.5.1](#).

Input Format Defines the audio format of the logical input. Selections: Stereo, Mono, or 5.1. The format selected here will be automatically assigned to the console channel to which this logical input is routed.

OnAir 3000: 5.1-channel support optional.

Source (Left), Source Right...	These fields define the physical audio inputs that are used to establish the channels for the logical input. For details refer to chapter 6.5.1 .
I/O Sharing Net Mode	Logical connections may either be defined as Static (permanently reserved for a certain signal) or Dynamic (default; used by the system only as long as required, which is more economical).
External Router Destination	With SW V2.1 and later, this parameter is used to assign a destination ID of an external router output to the patch input; this is used for importing and displaying labels from the external router control system as well as for controlling the router. Selection: - (none) or 0-1023. The default assignment is 1:1, i.e. logical input 1 corresponds to destination ID 1. In addition, a Facility ID must be entered in the UserGUI - Settings configuration page (refer to chapter 6.5.33.1), together with the corresponding settings in the <code>ProBel.xml</code> and <code>probel_contr_ext.ini</code> files.

6.5.10 Patch Outputs (supported by OnAir 3000 only)



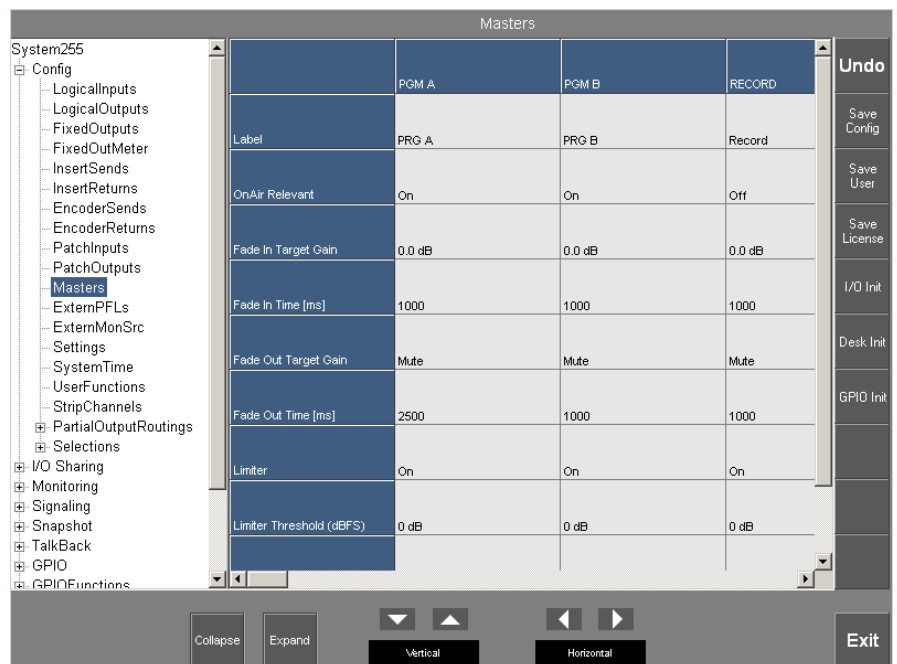
Label This is the string displayed in the output routing page. It may have up to eight characters and is defined as described in [chapter 6.5.1](#).

Format Defines the audio format of the logical output. Selections: Stereo, Mono, or 5.1.

OnAir 3000: 5.1-channel support optional.

Left / Right / ... Core Out Left Core Out defines the physical audio output used to establish the left (or mono) channel for the patch output. Right / Center / LFE... Core Out define the physical audio outputs used to establish the remaining channels for the patch output, depending on the Format definition (below).
If more core outputs are assigned to a physical output than defined by the Format field (e.g. an additional right output for a physical mono output), they will be displayed in gray.

6.5.11 Masters



The parameters for the summing (master) outputs are set here. Not all parameters are available for all of the masters; the audition output, e.g., only has a label.

Label This is the string displayed in the routing output page. The label may have up to eight characters and is defined as described in [chapter 6.5.1](#).

OnAir Relevant For each of the main master outputs, it is configured here whether it contributes to the On Air indication or not. The On Air indication is active only if at least one channel is switched **ON**, has the its fader open and is assigned to an active main master. Selections: On / Off.

Fade In/Out Target Gain, Fade In/Out Time [ms]

If the fader should be controlled by a GP Input, four parameters must be set here: Fade In Target Gain and Fade Out Target Gain (the default settings are 0.0 dB and Mute, resp.), and Fade In Time and Fade Out Time (can be set between 0 and 20'000 ms, i.e. 20 s, in millisecond steps with the pop-up keyboard; default settings for both Fade In Time and Fade Out Time are 1000 ms = 1 s). For details on GPIO settings refer to [chapter 6.5.26](#).

(Output) Limiter Each of the tree main output buses features a transmission limiter that can be configured here. Setting: On / Off.

(Outp.) Limiter Threshold (dB_{FS}) The output limiter's threshold can be set in a range of 0 to -48 dB_{FS} in steps of 1 dB.

Note: *This indication is always referenced to full scale modulation (FS), regardless of the currently selected headroom – which means that, if a headroom of 9 dB is set and limiting to 0 dB on the PPM level meters is desired, a limiter threshold of -9 dB_{FS} must be selected.*

(Output) Limiter Release Time The output limiter's release time can be set in 13 steps in a range of 1 ms (millisecond) to 1 s.

Joker Function Name Basically, all corresponding keys in the fader strip have the same function throughout the whole console. For this reason, one exception from this rule may be configured that will then be source- or master-related, i.e., linked to a particular source or master, and that will also be considered once this master should be re-routed to a different channel strip. This function key is called the ‘Joker’ key.

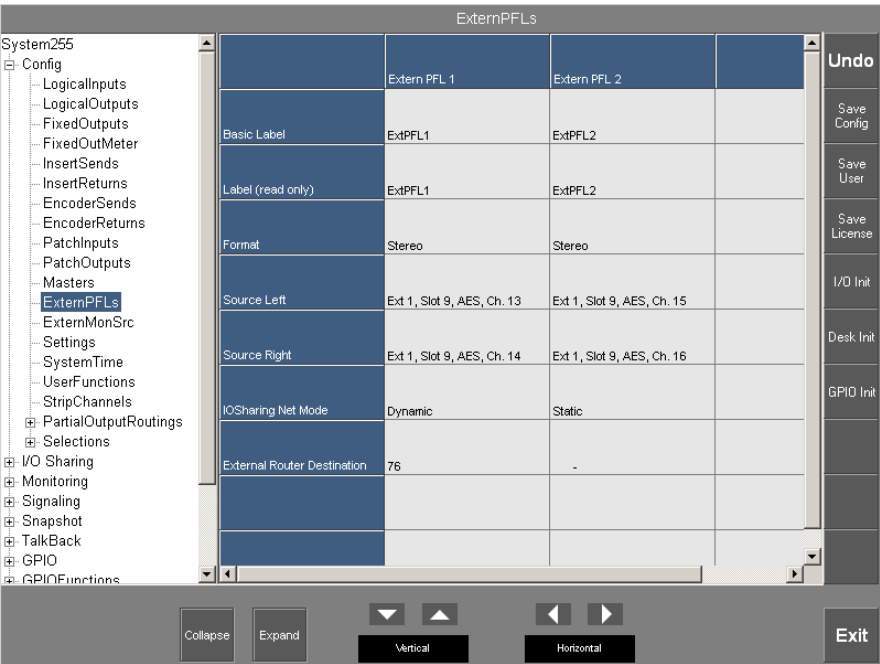
Currently, the following functions may be selected for the Joker key: TALK Jokerction), LOC/RDY (locate/ready function), PFL/TALK (activates PFL and talkback simultaneously), PFL/LOC (for pre-listening e.g. to a CD player parked at a cue point; when releasing the key, the player re-locates to the same cue point), TALK/READY (talkback function with additional ready indication controlled by a GPInput) , USR1/2 (user keys) or blank (no function).

OnAir 1500/2500: The Joker key is not supported by the default configuration.

Subgroup Mode Sub-group masters can be switched over to VCA masters here (selections: Subgroup or VCA).

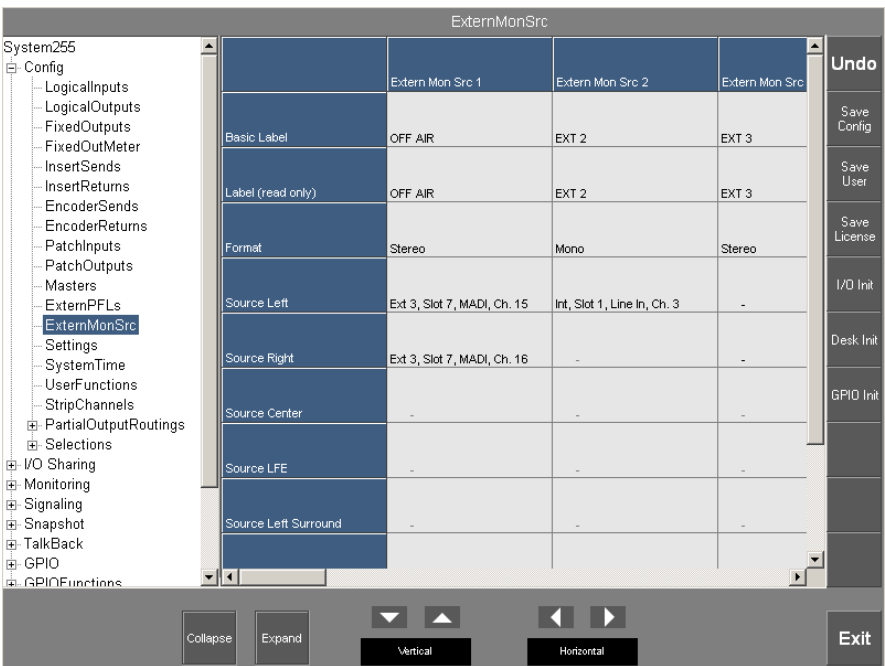
OnAir 1500/2500: Neither sub-groups nor VCA masters supported.

6.5.12 Extern PFLs



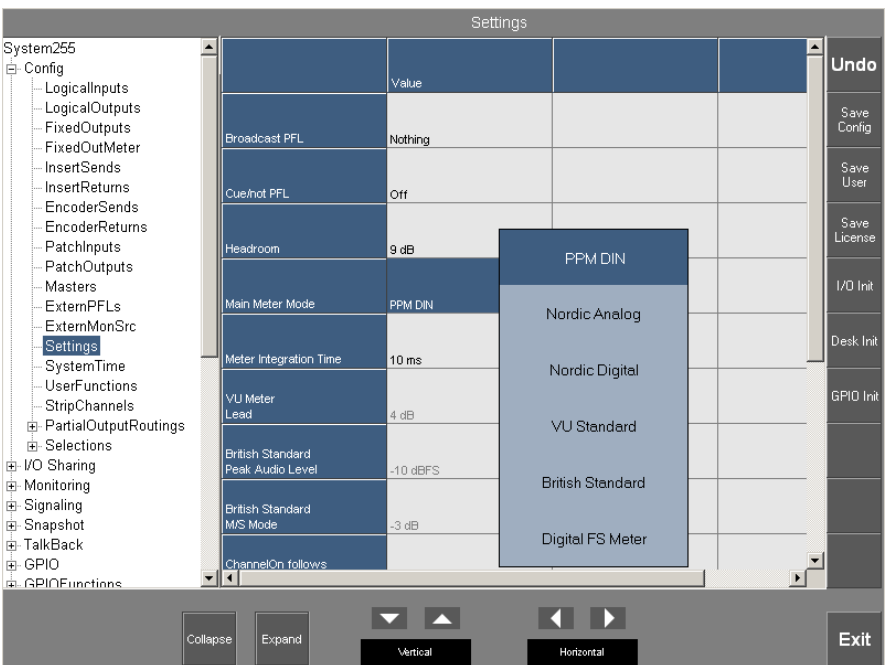
For the external PFL inputs used for pre-listening from a CAB system, the same parameters can be set as described in [chapter 6.5.10](#), except that the Format can be selected only from Mono or Stereo, and no more than two Sources can be defined.

6.5.13 Extern Mon Src



For the 16 external monitor sources (inputs), the same parameters can be set as for the patch inputs; refer to [chapter 6.5.9](#).

6.5.14 Settings



On this page global parameters valid throughout the whole console are set.

Broadcast PFL Two different versions of this function are available. Selections: PFL Cut on channel active, the PFL audio signal of a channel is cut from the PFL bus while the channel is active, but the PFL function remains active ‘in the background’; or PFL Off on channel active, the PFL function is cancelled from a channel becoming active; or Nothing.

Cue/not PFL The function that can be selected here replaces the standard PFL mode; it is sometimes also referred to as 'Positional Solo', i.e., listening after the channel panner. Selections: On / Off.

Headroom The console-internal headroom is set here; the default setting is 9 dB. This means that the peak level meters (i.e. PPM DIN, Nordic Analog and Nordic Digital) indicate 0 at an internal audio level of -9 dB_{FS} (or $+9\text{ dB}$ at an internal audio level of 0 dB_{FS}).

The default sensitivity of the analog line inputs is such that an input level of $+6\text{ dBu}$ results in an internal audio level of -9 dB_{FS} and hence in a level meter indication of 0, if overall gain is set to 0 dB.

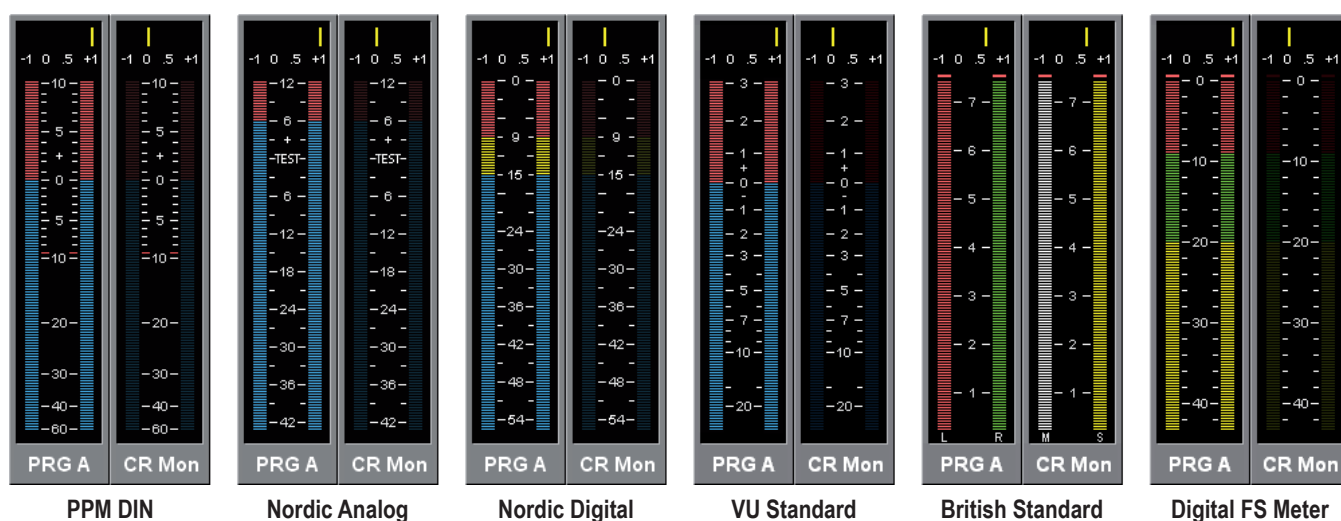
If a different console headroom setting is desired, it can be set in a range of 0 to 20 dB in steps of 1 dB.

The line input sensitivity of analog line I/O cards may be fine-adjusted with trimmer potentiometers on the card (refer to the D21m manual).

Main Meter Mode Selects PPM DIN (peak program meter), Nordic Analog, Nordic Digital, VU Standard, British Standard or Digital FS Meter (full scale) characteristics for the main screen bar graph meters. The meter scales on the main screen automatically match the selected characteristics and headroom. Additional red clipping indicators are provided above the bargraphs.

If British Standard meters are configured, additional selections are provided by a touch within the meter area: Either L/R (in red/green) or M/S (mid/side, i.e. the sum of and the difference between the two channels; in white/yellow). For the M/S setting, an additional 20 dB boost for the S bargraph can be selected as well. This is indicated either by L and R, or by M and S (or M/S+20) below the bargraph meters. Additional red clipping indicators are provided above the bargraphs.

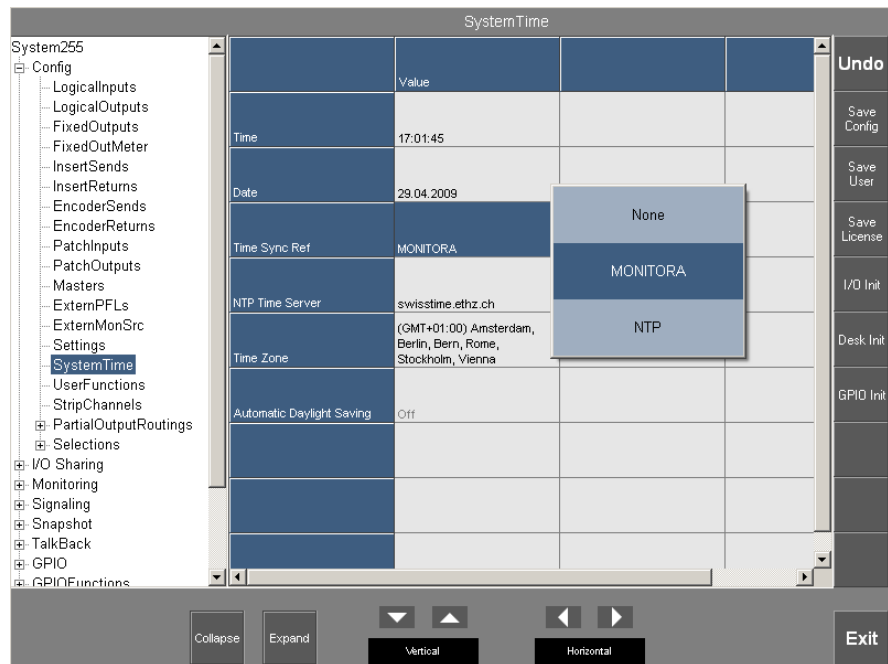
The Digital FS Meter always displays the current level with reference to full scale modulation (0 dB_{FS}). The current headroom setting defines the transition point from the green to the red part of the bargraph meters. Additional red clipping indicators are provided above the bargraphs.



Meter Integration Time The meter integration time, i.e. the rise time, can be set here to 0, 1, 5, and 10 ms (milliseconds), the default value is 10 ms. If VU Standard or British Standard is selected, the integration time is fixed, and the Meter Integration Time field is grayed out.

VU Meter Lead	The default VU meter lead is 4 dB; it can be adjusted in steps of 2 dB within a range of 0 to 10 dB.
British Standard Peak Audio Level	Can be selected in steps of 1 dB within a range of -48 to 0 dB_{FS} (default value: $-10\text{ dB}_{\text{FS}}$).
British Standard M/S Mode	Level reduction of the M meter can be selected from -3 or -6 dB (default value: -3 dB).
ChannelOn follows FaderOpen	If active, this function automatically switches a channel ON while its fader is open. Selections: On or Off.
Gen. off for on-air channels	If set to On, this function disables the GEN button on the channel pages for all channels currently being on-air.
Reset Timer On Fader Close	If set to On, cumulative time measurement is selected for the input fader stopwatches; a running stopwatch is stopped by switching the channel OFF ; <i>it is reset only when the fader is closed</i> . Also refer to chapter 5.7 .
Channel TB	Selections: Nothing, or TB Off on Channel Active. If the latter is selected, talkback to a channel currently being active is inhibited.
5.1 to Stereo Mixdown...	Sets the contribution level of surround and center channels for the internal stereo downmix, as well as the overall level.
Surround Level	Adjustable in steps of 1 dB between 0 and -10 dB; default setting: -3 dB.
Center Level	Adjustable in steps of 1 dB between 0 and -10 dB; default setting: -3 dB.
Trim Level	Adjustable in steps of 1 dB between 0 and -10 dB; default setting: 0 dB.
OnAir 1500/2500:	<i>5.1-channel outputs not supported.</i>

6.5.15 System Time



On this page, all settings for operation with the internal real-time clock or an external time reference signal are made.

Time / Date

The system time and date may be set either on this page or on the **Admin - Date Time** page. When touching one of these fields, a keyboard pops up; enter the desired time or date as described in [chapter 6.5.1](#). *The colons in the Time field can be entered by using the decimal point button.*

Time Sync Ref

The type of external time reference signal can be selected here from: **None**, **MONITORA** (time information according to the Monitara protocol, e.g. from a Studer DigiMedia CAB system), **Ext.Time Sync***, or **NTP** (if the console has access to an internet time server over a network). If **None** is selected, the console operates on its own, internal real-time clock.

OnAir 1500/2500: *

Ext.Time Sync is not supported by the OnAir 1500/2500 console.
The Ext. Time Sync button is displayed only if an optional Time Sync card is installed and connected to a time receiver; selection of the input signal format is performed with DIP switches on the card (refer to OnAir 3000 service instructions, chapter 3). The optional Time Sync card can be used with Compact SCore systems and, since SW V3.1, with SCore Live systems as well. In the latter case, it must be installed in a custom 19"/1U frame and linked to the COM2 serial port of the SCore Live frame.

NTP Time Server

If NTP has been selected above, the NTP time server's web address is set here. When touching this button, a keyboard appears for entering the address. Proceed according to the corresponding paragraph in [chapter 6.5.1](#). For SW V3.0 and up, IP addresses are supported for defining the NTP time server as well.

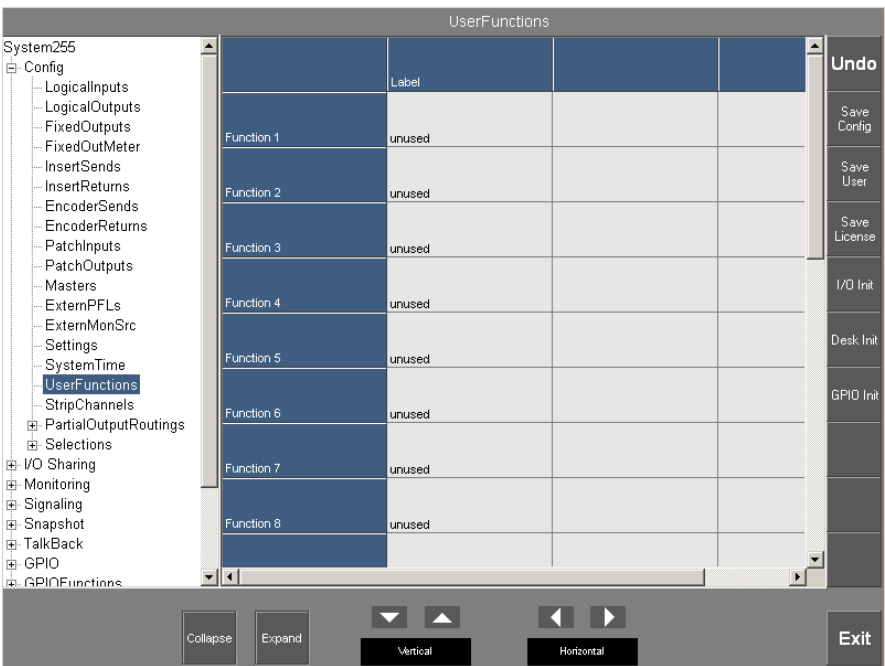
Time Zone

Enter your local time zone here. In the example above, the (GMT +01:00) Amsterdam/Berlin/Bern/Rome/Stockholm/Vienna time zone is selected.

Automatic Daylight Saving

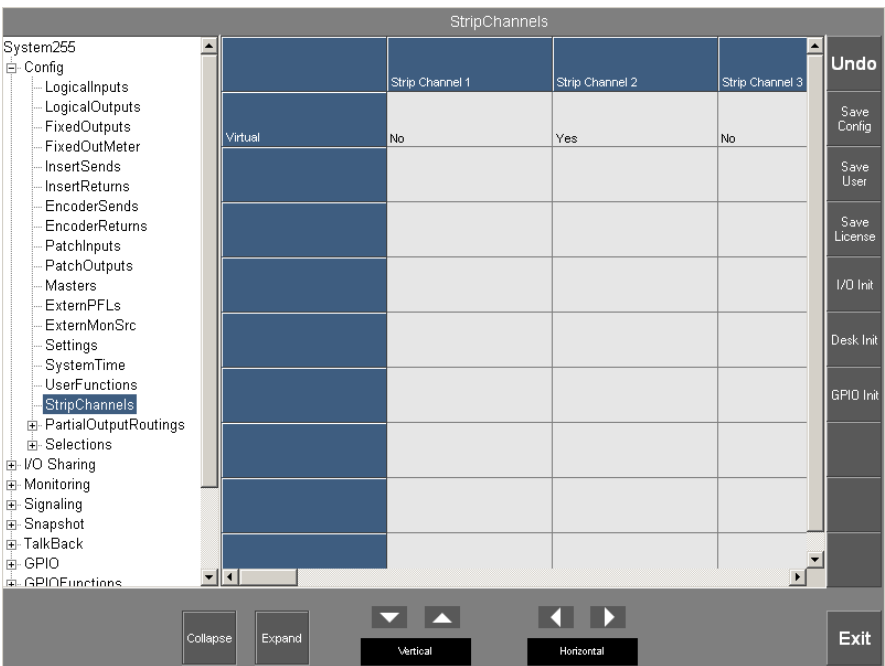
Automatic daylight saving time for the *internal watch* can be activated here, according to the selected time zone; this is *independent* from the current external time sync reference.

6.5.16 User Functions



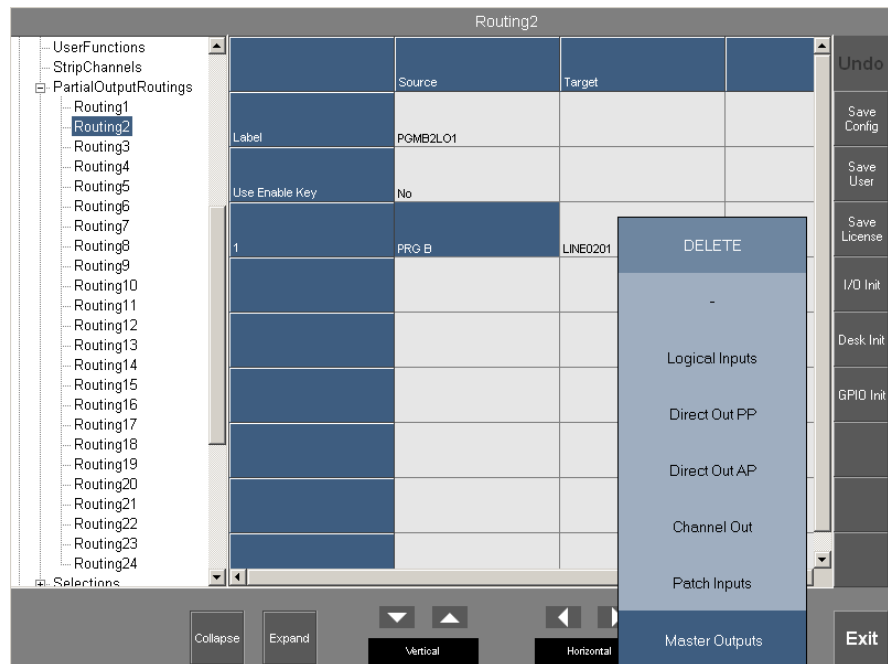
User Functions can be assigned as arguments for the ‘UserLED’ GPI function and for the ‘UserKey’ GPO function. This page is used to enter labels for up to 20 user functions. The labels may have up to eight characters and are defined as described in [chapter 6.5.1](#).

6.5.17 Strip Channels



This page is used for configuring Virtual channels, if e.g. master faders are desired on the desk. No inputs can be routed then to these channels. Virtual channels do not consume any DSP power; in cases where DSP power is limited, virtual channels may be defined for outputs.

6.5.18 Partial Output Routing



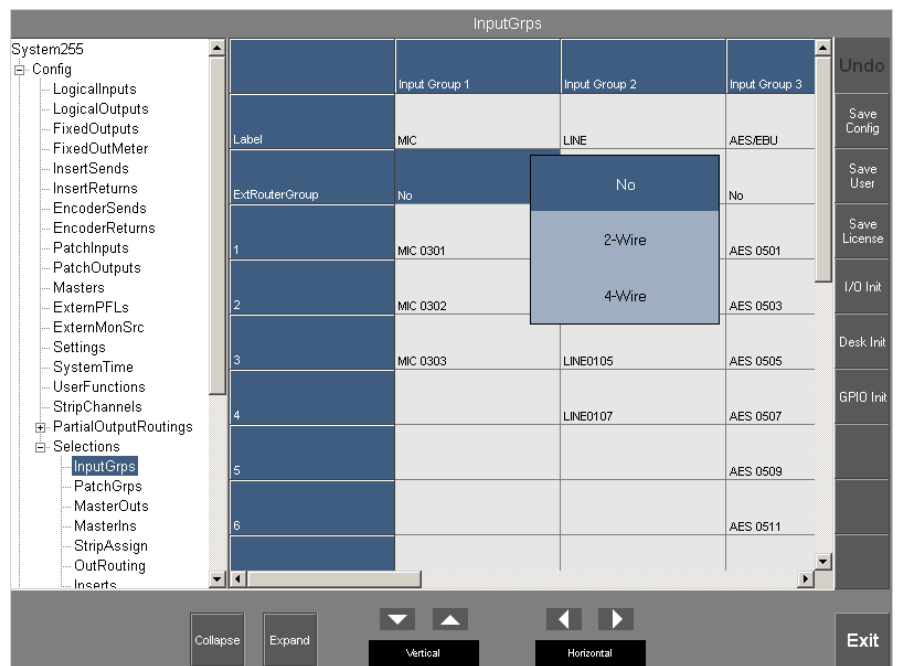
Up to 1024 partial output routing presets may be preconfigured in order to be activated either from the **Snap - Route** page, or by general purpose inputs (GPI) and/or desk keys. Partial output routings can be configured here.

- Label** Enter the partial output routing snapshot's label here, as described in [chapter 6.5.1](#).
- Use Enable Key** For SW V3.1 and up, partial output routing snapshot recall can be protected by an additional **ENABLE** desk key or a GPI function (if a a special, external key is desired for safety reasons, e.g. for transmission control). If selecting **Yes**, the additional **ENABLE** desk key has to be used for recalling a partial output routing. Default setting: **No**.
- Source Field** When touching an empty **Source** field, a list pops up that allows selecting from several source groups first (Logical Inputs, Direct Out PP (pre-processing), Direct Out AP (after processing), Channel Out, Patch Inputs, Master Outputs, or DELETE). When touching one of these fields, a second list appears, offering the available sources from the selected group. DELETE also clears the **Output** field (see below).
- Output Field** After selecting a source, touch an empty **Output** field. Again a list pops up where the desired output group (Logical Outputs, Patch Outputs) can be selected from. When touching one of these fields, a second list appears, offering the available outputs from the selected group.
- Delete** In order to delete a routing preconfiguration, touch either the source or the output field and select **DELETE** from the pop-up list.
- Remote Activation** For SW V3.0 and up, partial output routings configured on one system can be recalled from any other OnAir console within the same network, if using desk keys of the remote console. *Please note that this feature is not available when using the remote console's **Snapshot** page or one of its GP inputs.*

6.5.19 Selections

‘Selections’ is a special section that allows selecting various I/O, insert, and meter parameters.

6.5.19.1 Inp Grps

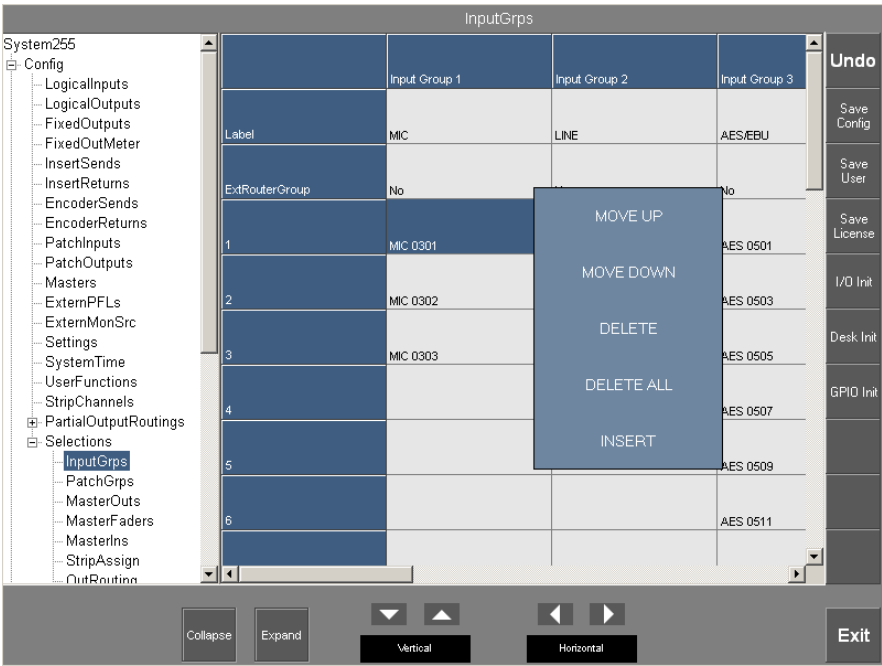


This page defines the grouping of inputs when touching the **Input Selection** field on the **CHAN - Input** page, or in the alphanumeric display in the fader strip if the **INP** (input) function is selected on the fader assign module while the fader strip rotary encoder is touched. In addition, each input group can be given a label.

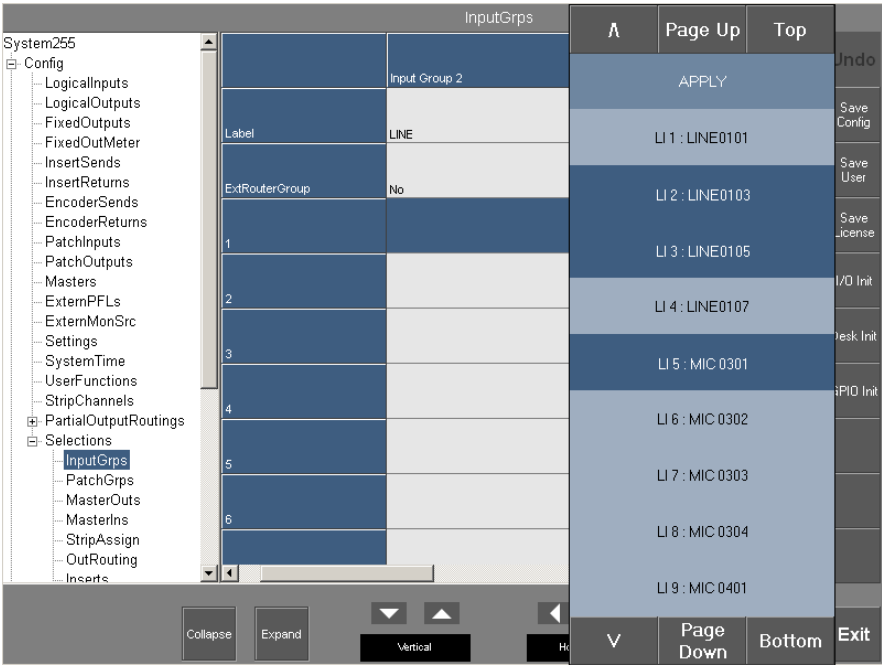
Ext Router Grp Defines whether the current input group is internal (**No**) or external (**2-Wire**: External input, **4-Wire**: External line). For details of external router control refer to [chapter 5.13](#).

1, 2, 3... Assign inputs to the current input group; since the same input label may exist more than once – e.g. in A/B desk configurations – the input ID is displayed together with the input label, as shown below.

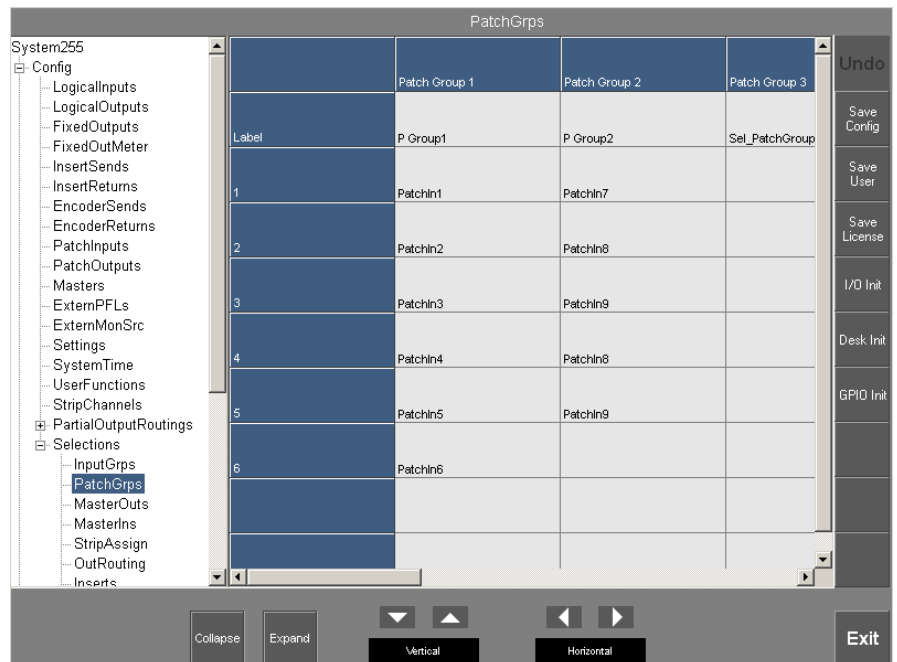
First, a list appears for selecting what to do with the highlighted item; in order to delete all entries from a column, select **DELETE ALL**.



When touching INSERT, a list of all available inputs appears. Navigation within this list depends on whether you are currently working at the console or with the Remote Console application on a PC; in the former case, you can either use the **A/Page Up/Top** or **V/Page Down/Bottom** buttons or the right-most rotary encoder, in the latter case just use the scrollbar at the right-hand edge of the list. For selecting several items at once, first touch **SELECT MULTIPLE**, then simply touch the desired items followed by **APPLY**, or, on a PC, click on them while the $\hat{u}$ (Shift) or Ctrl key is pressed, followed by a click on **APPLY**.

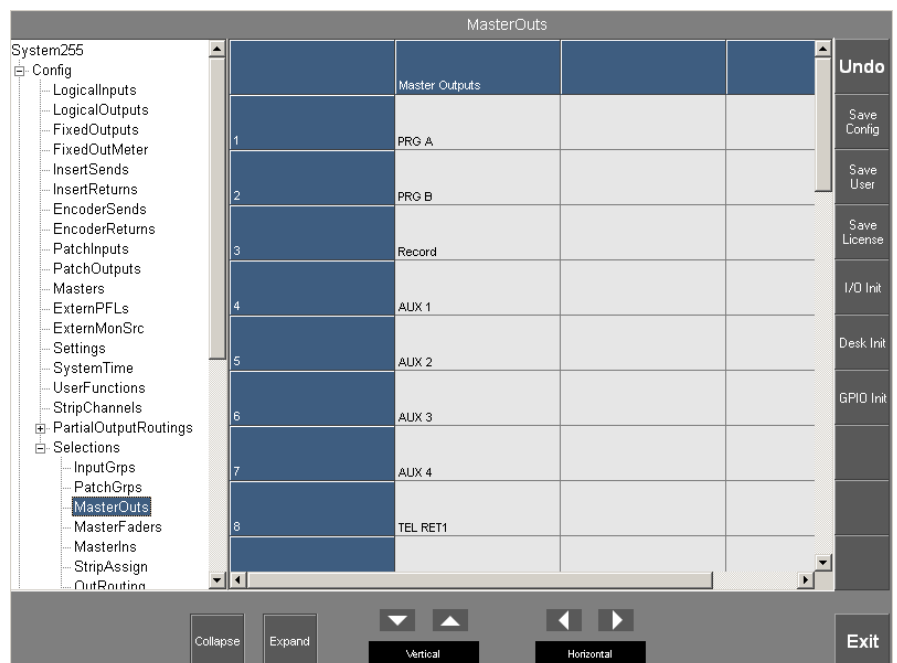


6.5.19.2 Patch Grps (supported by OnAir 3000 only)



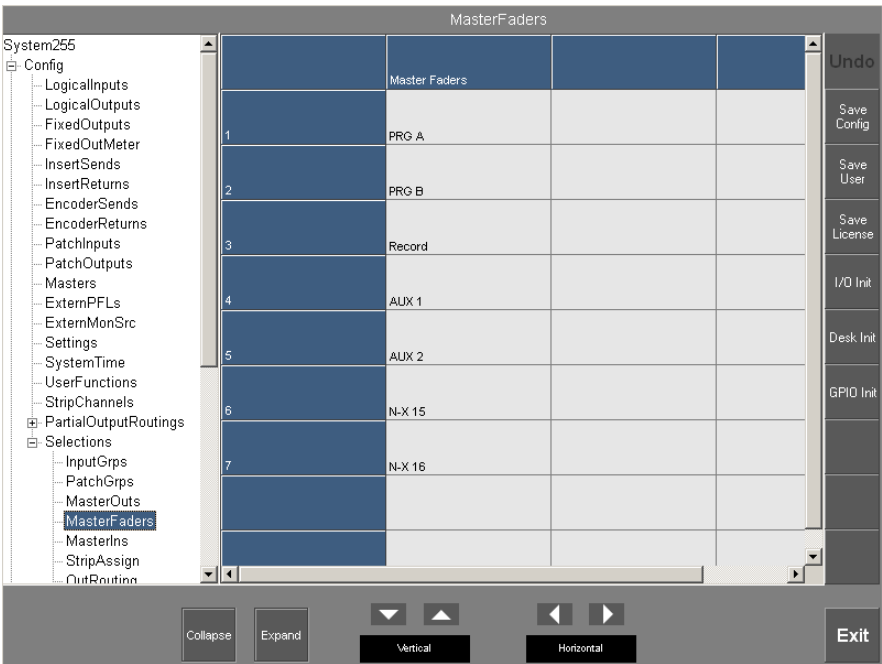
This page defines the assignment of patch inputs to patch groups that are displayed in the **ROUT - Output** page. Selection is done as described in [chapter 6.5.19.1](#). In addition, each patch group can be given a label.

6.5.19.3 Master Outs



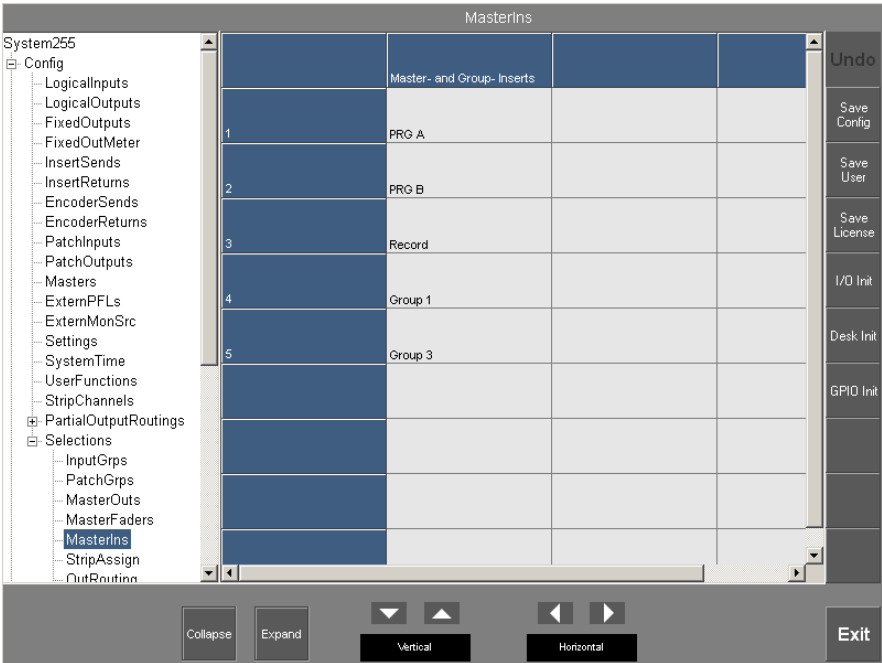
This page defines the order in which the Master Outputs are displayed in the (horizontal) row on the **ROUT - Output** page, and in the (vertical) column on the **ROUT - Input** page. Selection is done as described in [chapter 6.5.19.1](#). The definitions made here are used for strip assignment (**StripAssign**, [chapter 6.5.19.6](#)), and output routing (**OutRouting**, [chapter 6.5.19.7](#)) configurations.

6.5.19.4 Master Faders



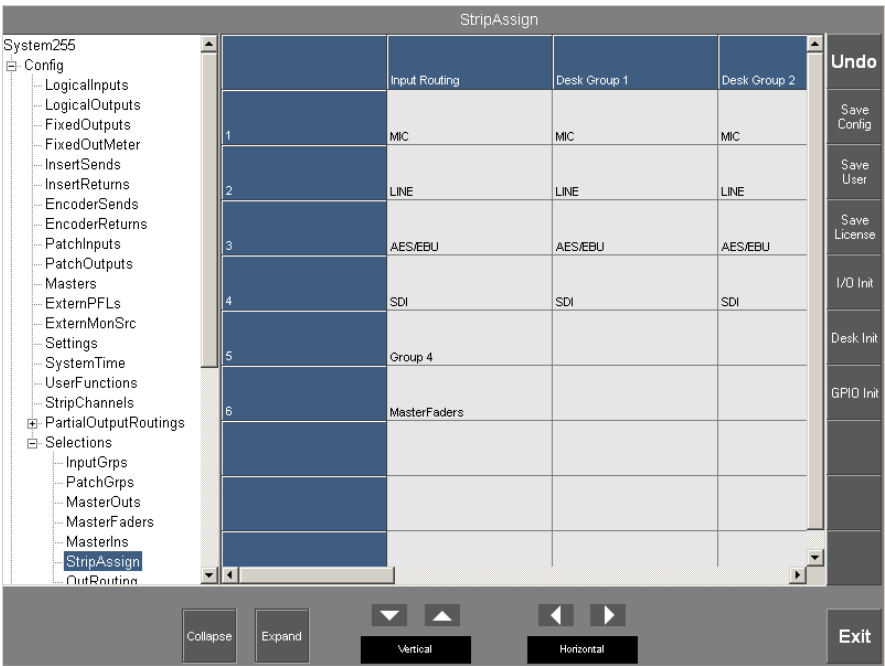
This page defines the summing buses and groups that can be assigned to a fader. Selection is done as described in [chapter 6.5.19.1](#).

6.5.19.5 Master Ins



This page defines the summing buses and groups to which an insert can be assigned. Selection is done as described in [chapter 6.5.19.1](#).

6.5.19.6 Strip Assign

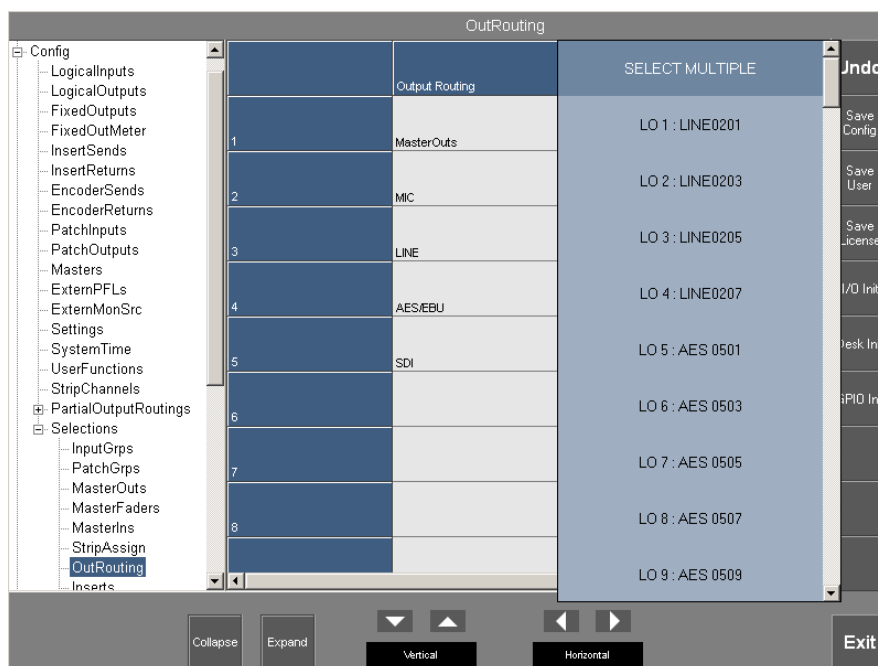


This page defines the presentation of the **ROUT - Input** page.

Input Routing Column shows the input groups displayed in the **ROUT - Input** page when touching the **Select Group** field.

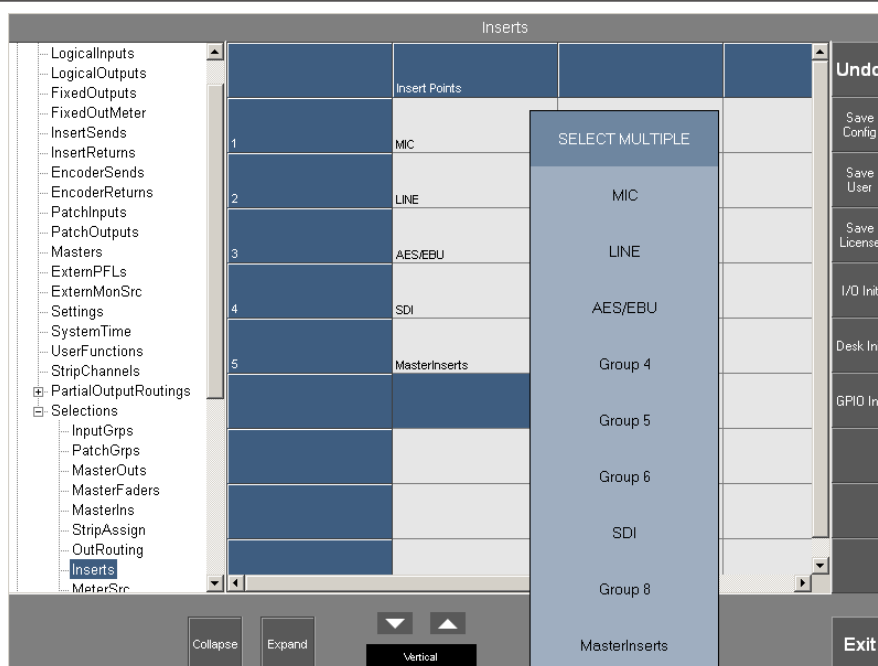
Desk Group 1-8 Columns shows the input groups displayed in the **Chan - Input** page when touching the **Input Selection** button, or in the alphanumeric display in the fader strip if the **INP** (input) function is selected on the fader assign module while the fader strip rotary encoder is touched. Selection is done as described in [chapter 6.5.19.1](#).

6.5.19.7 Out Routing



This page defines the presentation of the **ROUT - Output** page when touching the Select Group field, and the logical outputs displayed in the rows on the **ROUT - Output** page. Since the same output label may exist more than once – e.g. in A/B desk configurations – the output ID is displayed together with the output label in the selection list, as shown above. Selection is done as described in [chapter 6.5.19.1](#).

6.5.19.8 Inserts



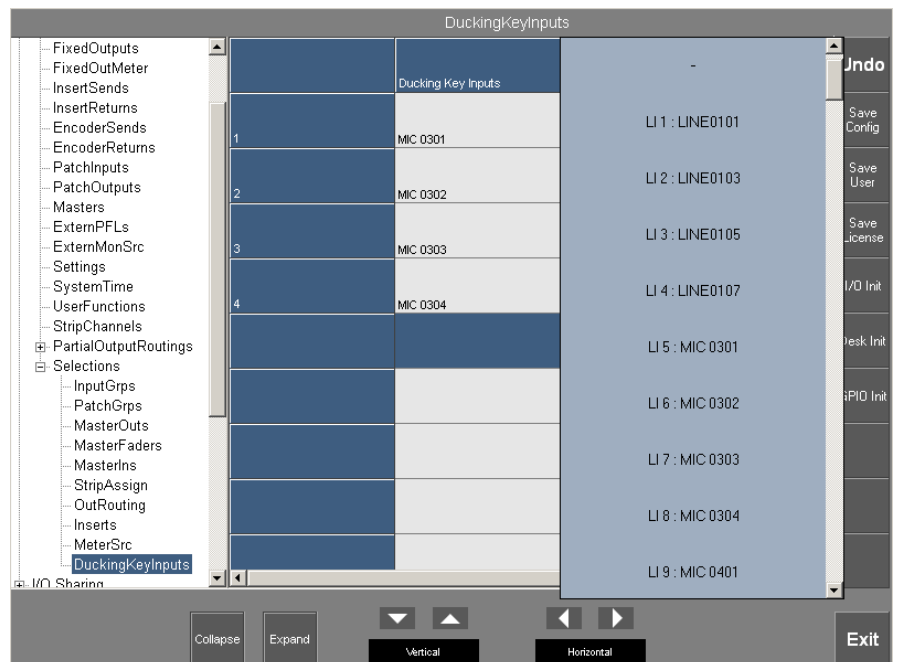
This page defines the presentation of the **ROUT - Insert** page, using the settings made in Inp Grps ([chapter 6.5.19.1](#)), and Master Ins ([chapter 6.5.19.5](#)). Selection is done as described in [chapter 6.5.19.1](#).

6.5.19.9 Meter Src



For both level meters on the main screen as well as for the two optional, external meters, a list of inputs may be defined for selection with the label button located below the corresponding meter on the main screen. Selection is done as described in [chapter 6.5.19.1](#).

6.5.19.10 Ducking Key Inputs (supported by OnAir 3000 only)



This page allows selecting the keying signals for the automatic ducker. Selection is done as described in [chapter 6.5.19.1](#).

6.5.20 I/O Sharing (Option)

I/O sharing allows accessing any signal (input, master, PFL, monitoring, etc.) of one system by another one within the same controller network. When connecting several systems, some additional things must be considered during configuration:

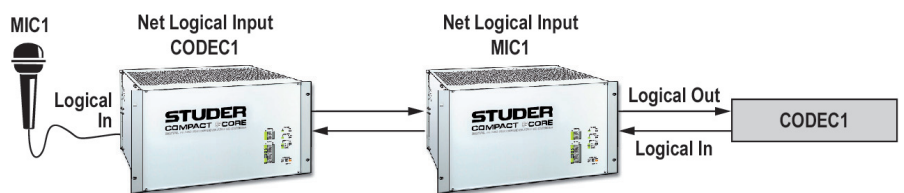
- *Hard-wired ('physical') connections* between the SCoreS (MADI, ADAT, AES/EBU, or even analog) must be established.
- These *physical connections* must be defined within in the system, because the system just needs to know which outputs and inputs are linked through hard-wired connections. This is performed in the Config Tool of the *target* system (see [chapter 6.5.20.2](#)).
- *Logical connections* may either be defined as *static* (i.e. permanently reserved for a certain signal) or *dynamic* (i.e. used by the system only as long as required, which is more economical).
- A simple point-to-point configuration called 'single-step I/O sharing' (as shown in the first example below) only needs *physical connections* to be defined (see [chapter 6.5.20.2](#)).
- In larger, 'two-step I/O sharing' configurations, *Net inputs* represent objects in the star system that provide signals (e.g. Logical Input A) from the source system to the target systems connected to the star system, as shown in the second example below; Net inputs are defined according to [chapter 6.5.20.3](#).
- To make things easier :-) different systems may act as star system simultaneously; in the second example below, Target System 3 also acts as a Star System by providing the Logical Input B of the (pale) Source System 7 to Star System 2 – which, in this case, acts just as another Target System. In other words: Each system may be Net Source, Star, and Net Consumer system at the same time.

Glossary:	Physical Connection	Hard-wired connection between two SCoreS; for these, MADI, ADAT, AES/EBU, or even analog connections may be used.
	Logical Connection	Connection between two SCoreS running on a hard-wired Physical Connection; may be defined as <i>static</i> (permanently reserved) or <i>dynamic</i> (used by the system only as long as required). For Net Inputs, only static Logical Connections are allowed.
	Logical Input	The term Logical Input not only comprises the audio signal of this input but also its signal processing parameters, such as EQ, filters, dynamics, etc.
	Net Input	Object on the Star System that is provided to other systems connected to the Star System.
	Net Source	Object on the Source System that has specified a local source (e.g. input, master, external PFL input, monitoring source, etc.).
	Net Consumer	Object on the Target system to which a mono or stereo signal must be assigned (e.g. input, master, external PFL input, external monitoring source, etc.).
	Net Consumer Active	A Net Consumer is called active as long as it is using the allocated Net Source.

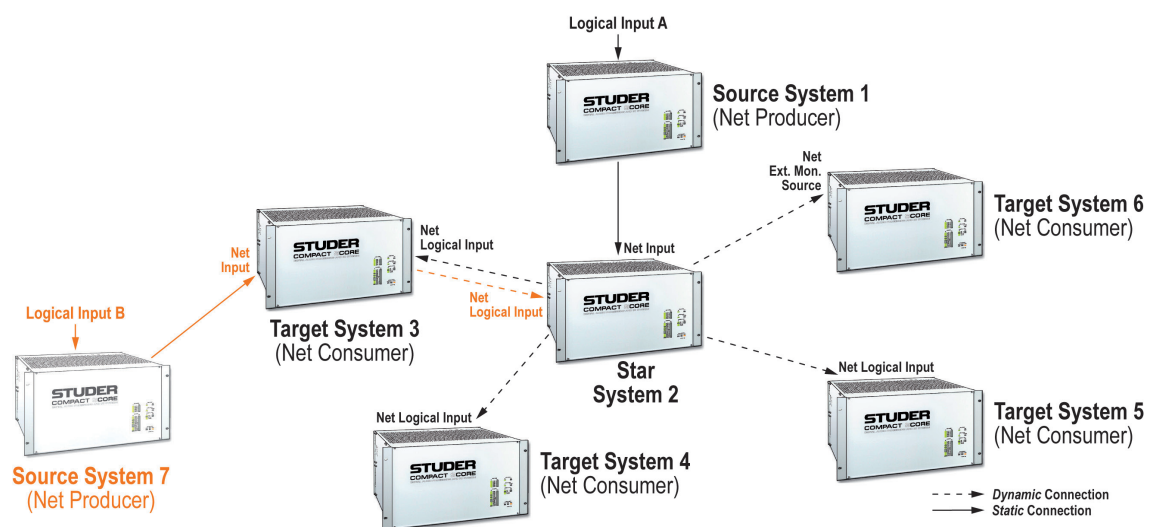
Consumer Type:	is active if the corresponding Net Consumer is:
Net Logical Input	assigned to a channel strip, or selected as a monitoring source, or assigned to a logical output via output routing
Net Ext. Monitoring Source	selected as a monitoring source
Net Ext. PFL	switched to at least one PFL bus
Net Talkback	switched to at least one talkback destination

Notes: Processing parameters (such as EQ, filters, dynamics, panorama/balance, timer start, etc.) of Net inputs are linked to the target system when defining the logical connection; however, they may be individually modified once the connection is established, and saved in snapshots, too. Signaling parameters of Net inputs, such as red-light signals and dim/cut of the monitoring speakers for microphone inputs, are automatically linked to the parameters of the target system.

In the example below, a simple configuration shows two SCore in a point-to-point arrangement. The left-hand system can access the output of CODEC1, and the right-hand system also sees the MIC1 signal thanks to the physical and logical connections between them.



In the following example, a star configuration of six SCore (Systems 1-6) is shown, where systems 2-6 may access the logical input of source system 1 through *dynamic* logical connections, because it is fed to a net input of star system 2 through a *static* logical connection.



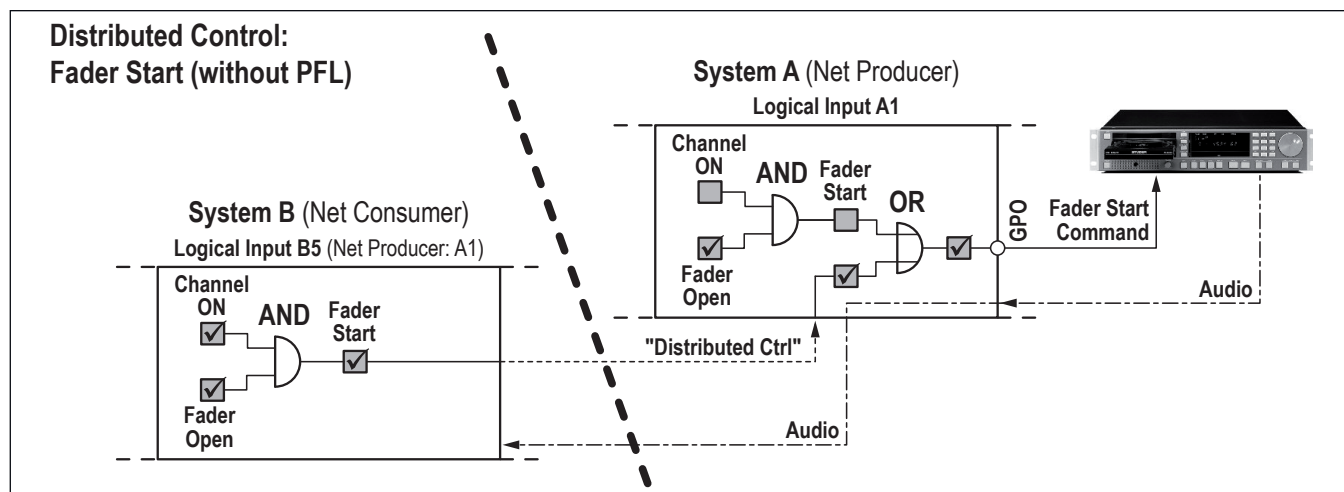
Notes: In order to benefit from the I/O sharing option, at least two consoles with one SCore each are required. To activate this mode, a dongle chip or the 'I/O sharing option' license key must be inserted on *every* SCore Audio Clock Card (1.943.330.xx) within the system. If these dongles are not installed, the I/O sharing configuration is disabled.

I/O sharing configuration is always performed on the target system.

I/O sharing configuration data are saved on the target system only.

6.5.20.1 Distributed Control

Starting with SW V2.1, the distributed control feature has been introduced for the Fader Start, On Master, Locate, and Ready control functions. This allows using a GP output or input on a Net Producer system as a control output or input for one or several Net Consumer system(s) *without additional wiring*.



In the example shown above, a playback source such as a CD player has its fader start control input connected to one of the GPOs of Net Producer System A, and its audio output is connected to Logical Input A1 of System A.

Net Consumer System B can access the same audio signal on its Logical Input B5. If the corresponding channel on System B is on and this channel's fader is open, the fader start command is sent to Logical Input A1 of System A, where it is OR-linked with System A's internal fader start command. The fader start command goes to the CD player, regardless whether it has been generated by System A (to which the CD player is directly connected), by the remote System B, or by any other remote system connected to the same I/O sharing network and consuming the Logical Input A1 of System A.

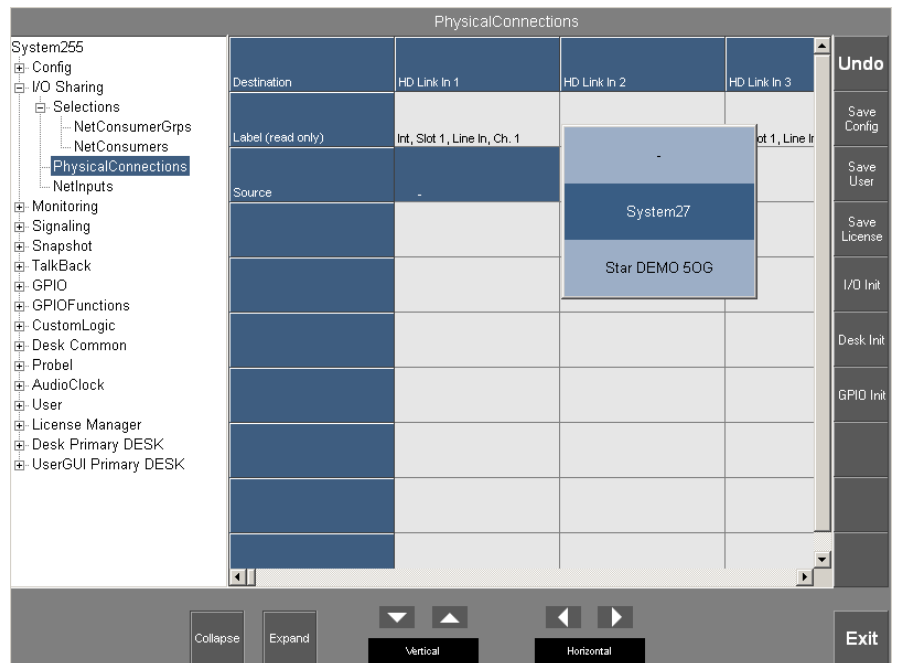
Note: There exists a second fader start function 'with PFL' – where in each channel is an additional OR link; in this case, the fader start output is active if Fader Start is active *or* if PFL is active, *or* both.

The same applies for all functions listed below:

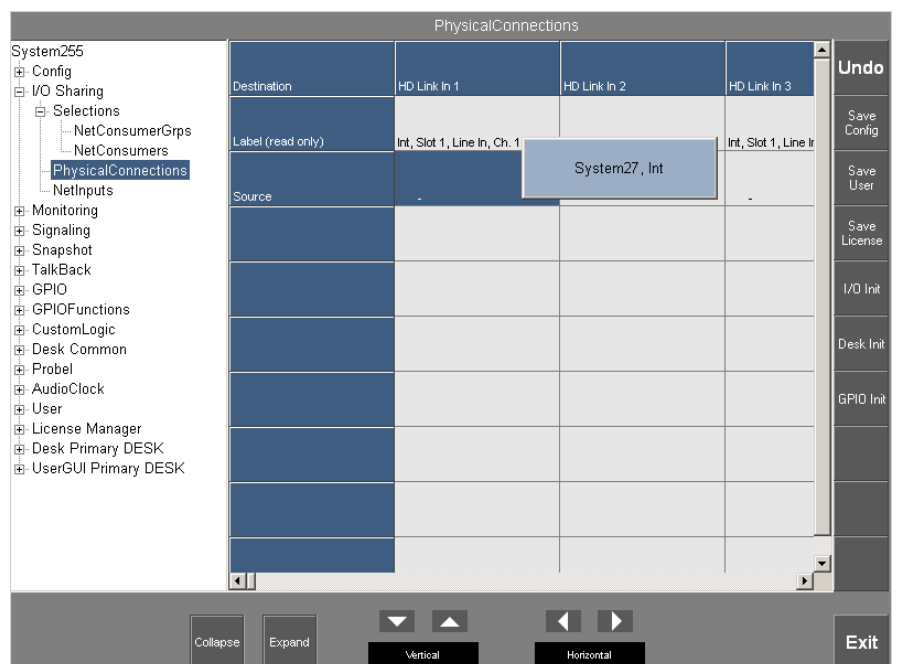
Function	Parameter	Used by	SW Ver.
Red Light CR	Signaling Source, Channel ON Master of all logical inputs in CR	GPO: Red Light CR	2.0
Red Light St1	Signaling Source, Channel ON Master of all log. inputs in St1	GPO: Red Light St1	2.0
Red Light St2	Signaling Source, Channel ON Master of all log. inputs in St2	GPO: Red Light St2	2.0
Red Light St3	Signaling Source, Channel ON Master of all log. inputs in St3	GPO: Red Light St3	2.0
Red Light Input	Signaling Source, Channel ON Master	GPO: Red Light Input	2.0
Channel ON Master	Channel ON Master	GPO: ON Master	2.1
Fader Start	Channel on/off, Fader Open, PFL on/off	GPO: Fader Start; Fader Start with PFL	2.1
Mic Mute	Mic Mute	GPI: Mic Mute; GPO: Mic Mute Active	2.0
TB Mic Cut	Remote TB Source Active (linked to Local TB Source Active)	Internal TB Mic Cut function	2.0
Ready	Ready	GPI: Ready	2.1
Locate	Locate	GPO: Locate	2.1

6.5.20.2 Define Physical Connections

Using the Config Tool on the *target* system, select I/O Sharing - Physical Connections and select an input with the Horizontal rotary encoder (HD Link In 1 in the example below). Then define a source for it by first touching the Source field that is, in our case, still empty (indicated by a '-' dash).

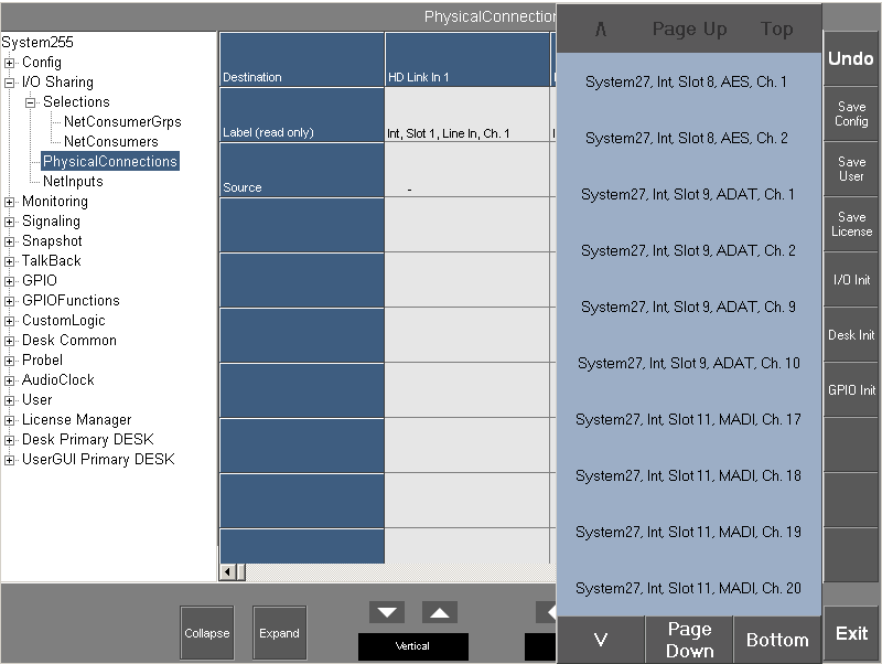


A pop-up menu lists the names of all systems (in our case, System27 and Star DEMO 50G) to select from, as shown above. After having selected System27, all its I/O frames (Int and, if available, Ext) will be listed. In our case, this is just one frame called System27, Int, as shown below.

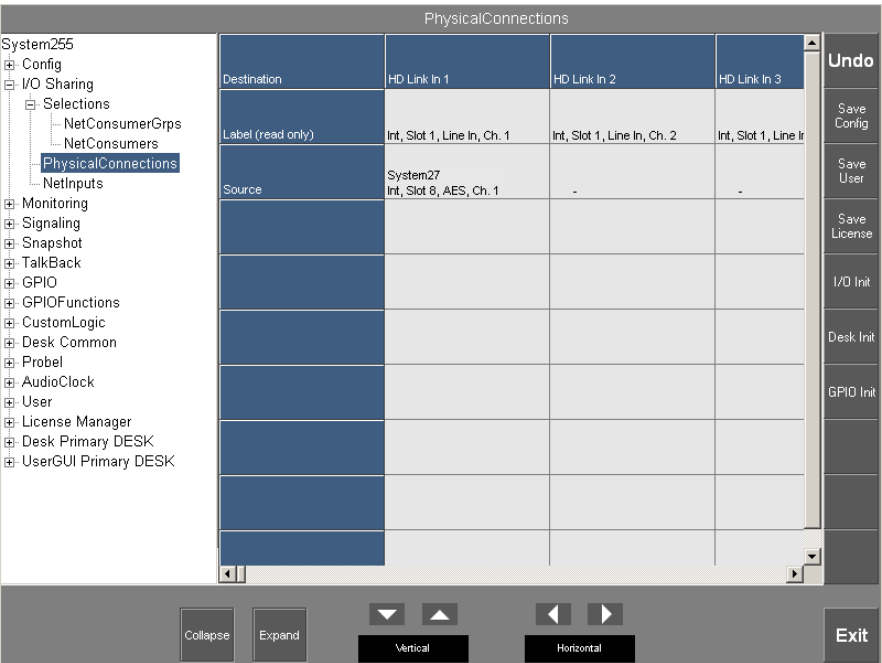


After having selected an I/O frame, the labels of all available outputs are displayed.

Note: The definition *must* represent the actual physical (hard-wired) connections established by MADI, AES/EBU etc. wiring.



Select one of the outputs (System27, Int, Slot 8, AES, Ch. 1) to define the physical connection. It is displayed afterwards in the corresponding Source field, as shown below.

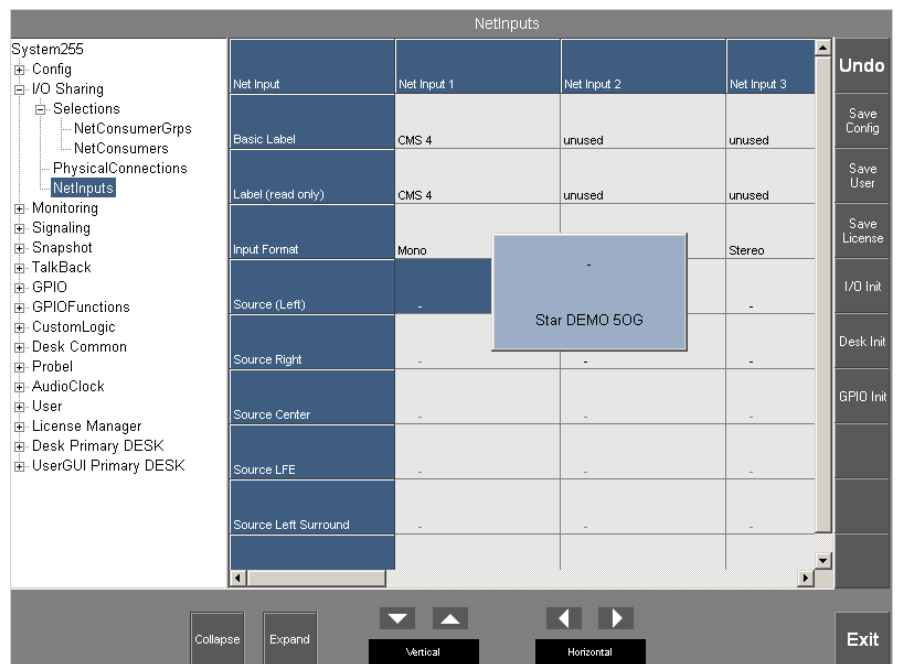


In order to save this physical connection, touch the Save Config button.

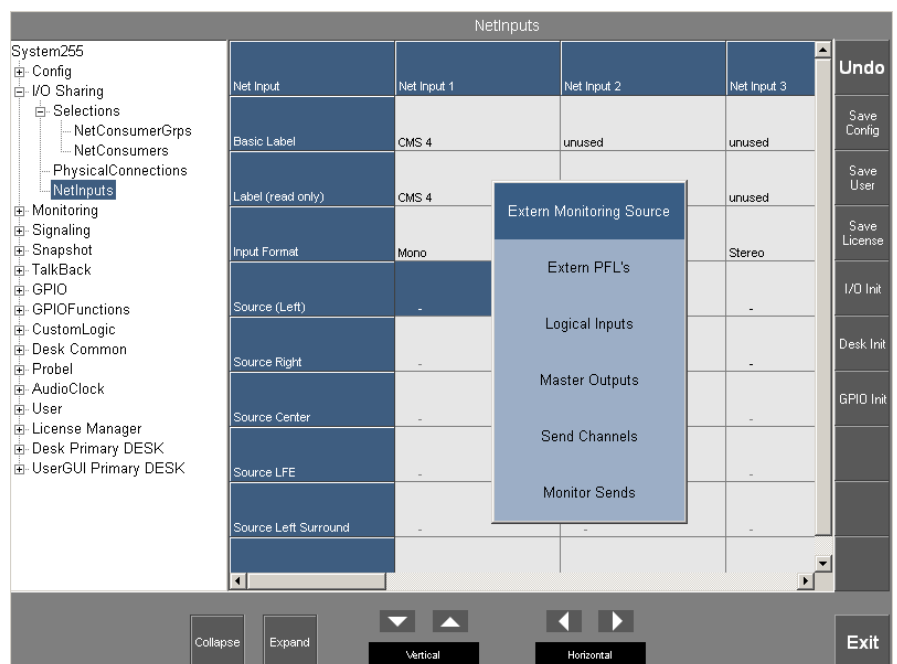
Clear a Physical Connection: In order to clear a physical connection, remove the existing relation between an input and an output of a neighboring system. Select the input the Source parameter of which should be cleared and touch the '-' field.
If the specified input is currently in use by a Net Input, the connection cannot be cleared, and a user message is displayed.

6.5.20.3 Define Net Inputs

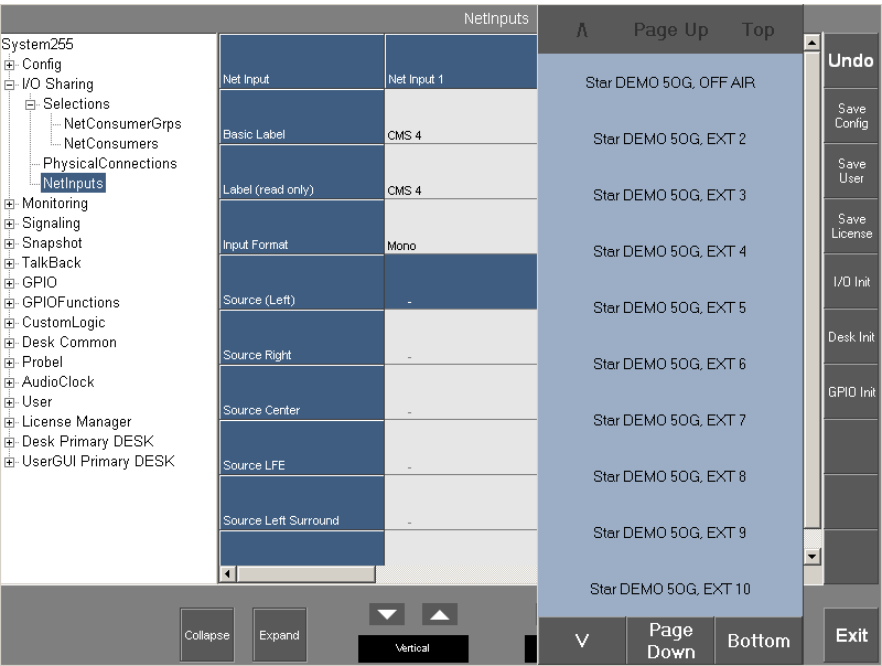
In two-step I/O sharing, Net Inputs must be defined in order to make a neighboring Net Source available, e.g. on the Star DEMO 50G system. Start the Config Tool on the target system and select I/O Sharing - Net Inputs. When selecting the Net Source parameter, the Config Tool shows a pop-up menu listing the names of all systems that can be reached by physical connections. *Net Input connections are always static.*



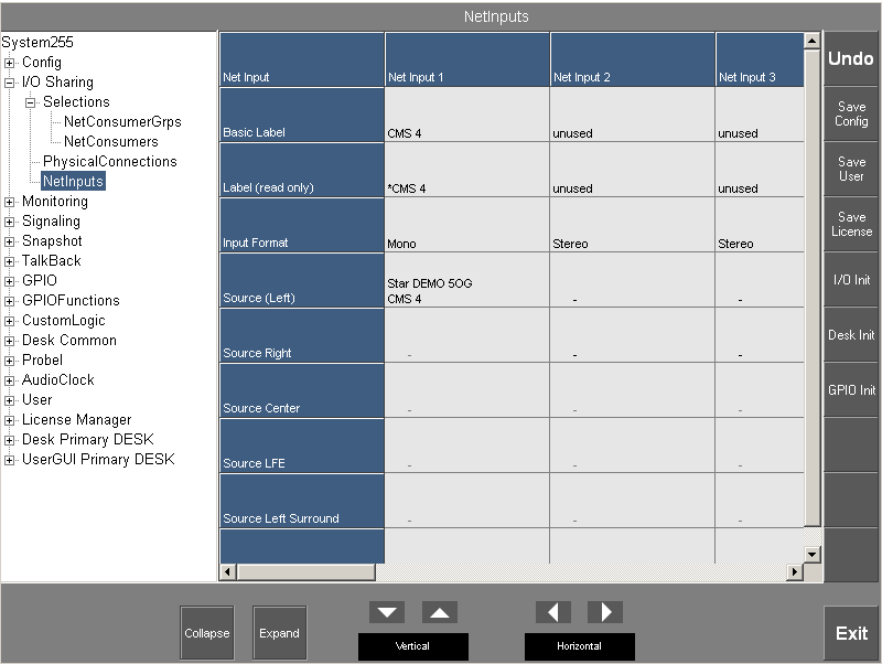
After having selected a system, the Net Source groups pop up. Select one of them (e.g. Extern Monitoring Source).



Then a list of all possible Net Sources pops up (in our example, all external monitoring sources available). Select one of them, e.g. OFF AIR.



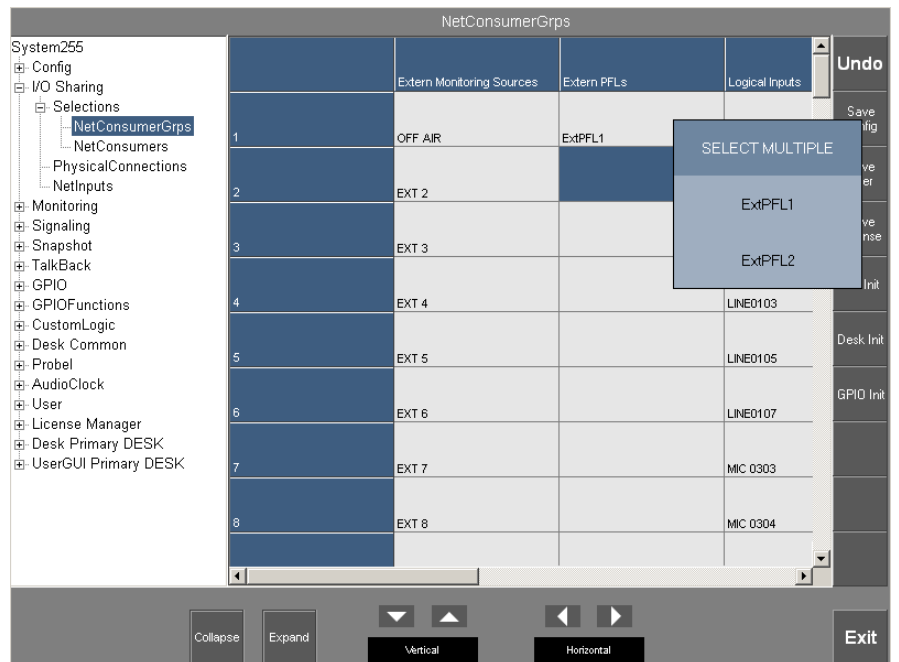
The label of the specified Net Source is copied to the Net Input, and audio will be connected immediately. If there is any problem connecting to the source system, the label indicates an asterisk (*), as shown below.



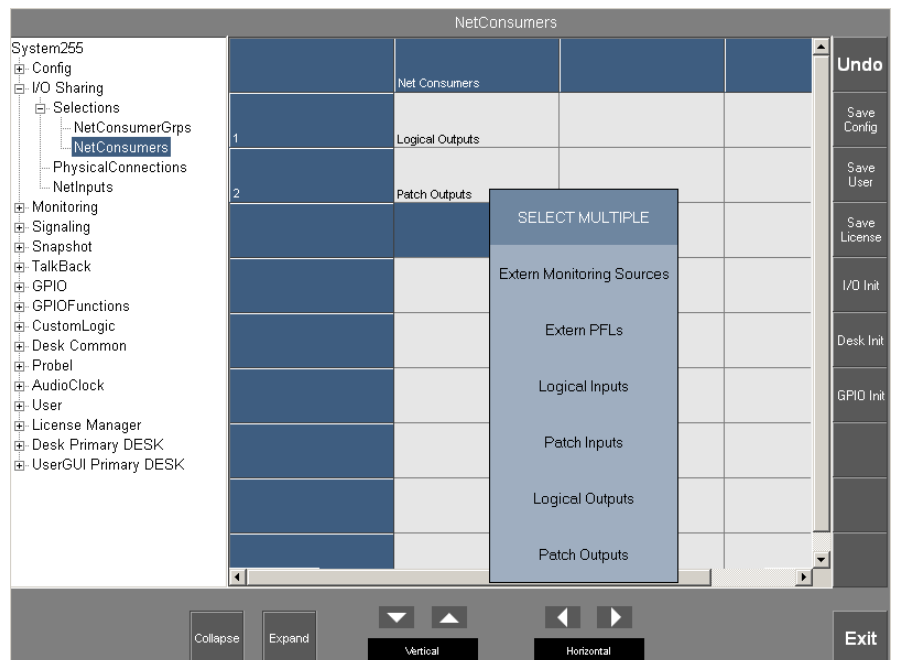
To save this Net Input definition, touch the Save Config button.

Release a Net Input: To release a Net Input, remove the existing allocation to the Net Source of the neighboring system. Select a Net Input and clear its Net Source parameter by touching the '-' field. If the specified Net Input is currently in use (e.g., on-air or assigned to a fader strip), it cannot be released, and a user message is displayed.

6.5.20.4 Define Net Consumer Groups / Net Consumers



These two pages are used for editing the different net consumer groups (above) and the net consumers (below). Selection is done as described in [chapter 6.5.19.1](#).



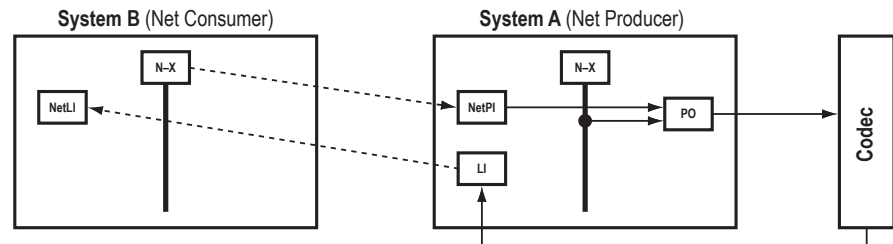
6.5.21 Codec Management

6.5.21.1 Basics

I/O Sharing

Sharing of common codecs, either from independent systems with the I/O sharing option, or from an A/B desk, is called *codec management*.

The concept is explained on a dual, I/O sharing system; the goal is that a codec connected to system A may also be used on system B.



- Two logical I/O sharing connections (- - - - -) are required.
- The net logical input (NetLI) on system B consumes the logical input (LI) from system A.
- A net patch input (NetPI) on system A consumes the N-X bus of system B that is specified as N-X control of NetLI.

This allows system B sending any signal to the codec, as long as NetPI is routed to the patch output (PO) connected to the codec's input.

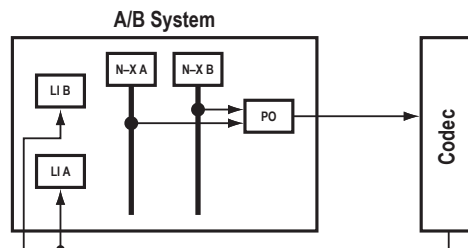
Both systems may 'listen' to the codec's output at the same time, but only one system can provide its N-X bus output to PO. In the output routing, the source for PO is either the I/O sharing NetPI, or the local N-X bus assigned to the producer system's (local) LI.

The source for PI is usually controlled on the desk where LI or NetLI is located. It may also be controlled from the **Routing - Output** page of system A to which the codec is directly connected (MCR).

Note: A logical output (LO) could also be used instead of a patch output (PO) for the connection to the codec's input. However, since patch outputs are not part of the output routing snapshot, they will not be affected by loading an output routing snapshot on system A.

A/B desk

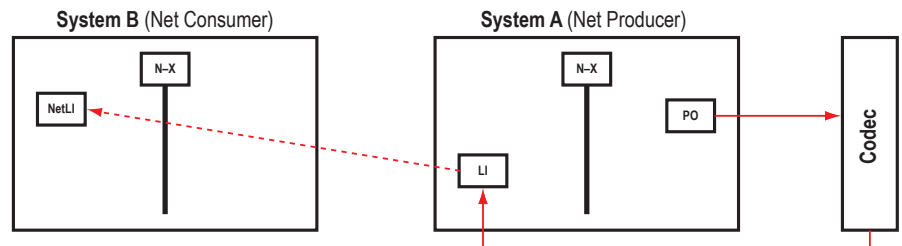
In case of an A/B desk configuration, I/O sharing is not required. Both desks may 'listen' to the codec's output at the same time – logical input A (LI A) on system A, and logical input B (LI B) on system B. Only one system can provide its N-X bus output to the patch output (PO). In the output routing, the source for PO is either the N-X B bus specified as N-X control in LI B, or the N-X A bus assigned to LI A.



6.5.21.2 Configuration

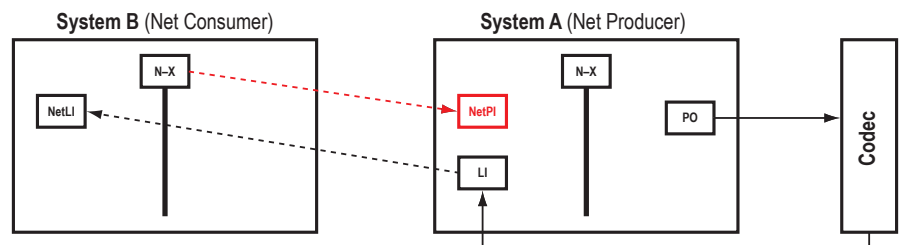
Configuration details of the I/O sharing option see [chapter 6.5.20](#).

Step 1:



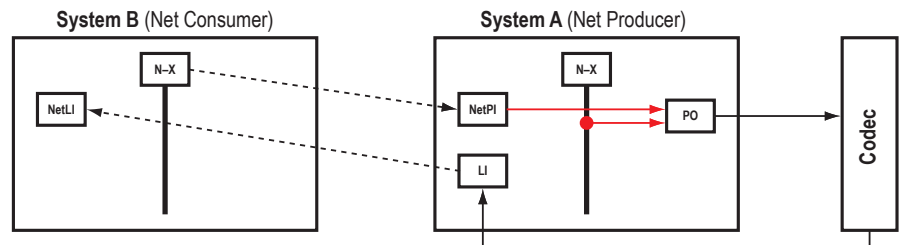
The codec's input must be mapped to a patch output (PO). The codec's output must be mapped to a logical input (LI) that is an N-X bus owner. In case of I/O sharing, i.e. when another system shares the codec, a net logical input is required that is an N-X bus owner as well.

Step 2:



On the producer system A a net patch input (NetPI) must be created, consuming the N-X bus associated with the net logical input (NetLI) of system B.

Step 3:



Finally, for both the logical (LI) and the net logical (NetLI) inputs, the source for the patch output (PO) must be specified. This is done in the Config Tool on the **Config - LogicalInputs** page. The related parameters are:

Codec Return Output

Specifies the patch output (PO) to which the codec's input is connected.

- In case of a logical input (LI, net source is 0), the Config Tool provides a list of all logical and patch outputs of system A.
- In case of a net logical input (NetLI, net source is different from 0), the Config Tool provides a list of all logical and patch outputs of that net source.

Codec Return Source

Specifies the source that is connected to the patch output (PO) when the (net) logical input is assigned to a fader.

- In case of a logical input (LI, net source is 0), the Config Tool provides a list of all N-X buses of system A.
- In case of a net logical input (NetLI, net source is different from 0), the Config Tool provides a list of all net patch inputs on system A of that net source that consume an N-X send from system B.

Codec Return Activation

Specifies the way in which the return line is connected to the patch output when the (net) logical input is assigned to a fader. Available selections: **Connect Never**, **Connect If Not In Use**, **Connect Always**.

6.5.21.3 Operation

Basically, if a codec input is assigned to a fader, the corresponding return line (N–X) can be connected manually or automatically to the codec output of the console. Different operating scenarios are possible, depending on the **Codec Return Activation** mode mentioned above: **Connect Never**, **Connect If Not In Use**, or **Connect Always**.

The **RET LINE** rotary function (on the fader or rotary assign module) is used to assign a rotary encoder and its adjacent  key to return line activation mode; it allows manual switching between two- and four-wire connections.

2-Wire Connection

When assigning the (net) logical codec input to a fader strip on the desk, *no* return line is connected to the codec's patch output ('listen only' mode). The status is indicated by a *dark*  key. This connection type is automatically established if **Codec Return Activation** is set to **Connect Never**.

Return Line Unused

However, if the return line is not used by another console already, a four-wire connection can be established anyway by pressing the corresponding  key; the key will then be *bright*.

Return Line Used

If the return line should already be in use, no connection is established upon pressing the  key, and the key will *flash*. When touching the corresponding rotary knob, the 8-character display shows the name of the desk container currently using the return line output. To 'steal' the return line connection, turn the rotary knob until the display shows **CONNECT**, and press the  key again to confirm the action; the key will then be *bright*. This will take away the return line from the other console and create a user warning on its main screen as well as in the log file of the central log screen.

The return line is released either when pressing the  key again, or when removing the codec input from the fader strip.

Conditional 4-Wire Connection

When assigning the (net) logical codec input to a fader strip on the desk surface, the return line is connected to the codec's patch output if the return line is not used by another console already. The  key will then be *bright*. This connection type is automatically established if the **Codec Return Activation** is set to **Connect If Not In Use**.

Return Line Used

If the return line should already be in use, no connection is established upon pressing the  key, and the key will *flash*. When touching the corresponding rotary knob, the 8-character display shows the name of the desk container currently using the return line output. To 'steal' the return line connection, turn the rotary knob until the display shows **CONNECT**, and press the  key again to confirm the action; the key will then be *bright*. This will take away the return line from the other console and create a user warning on its main screen as well as in the log file of the central log screen.

The return line is released either when pressing the  key again, or when removing the codec input from the fader strip.

Forced 4-Wire Connection

When assigning the (net) logical codec input to a fader strip on the desk surface, the return line is connected to the codec's patch output immediately, and the  key will then be *bright*. This connection type is automatically established if the Codec Return Activation is set to **Connect Always**.

If the return line should be used by another system already, it is automatically taken away from the other system without further user action. A user warning is created on the other system's main screen and in the log file of the central log screen.

Note: *Codec return line control is currently not supported by the user GUI. Operation is possible with the hardware controls only, as described above. However, codec return lines may be remotely connected and disconnected in the **Routing - Output** page of the producer system, i.e., the system to which the codec is physically connected.*

Producer System Status

The three different return line control modes described above can, of course, only work out properly if the producer system is operative. If this should not be the case, the following restrictions must be considered:

- Codec return lines can be (automatically or manually) activated only while the producer system is running.
- If the producer system shuts down, the status of all 4-wire connections is forced to 2-wire connection.
- If the producer system starts up while a net logical input of the consumer system is in 2-wire connection status, this status is retained.

6.5.22 Monitoring

6.5.22.1 Settings



LSP Dim Level Allows setting the control room and studio loudspeaker dim level attenuation in a range of 0 to 80 dB in steps of 1 dB.

TB Dim Level Allows setting the talkback dim level (attenuation of the program while talkback is active) in a range of 0 to 80 dB in steps of 1 dB.

PFL Speaker Dim Level Allows setting the PFL loudspeaker dim level (attenuation of the talkback/PFL speaker while the TB mic is active) in a range of 0 to 80 dB in steps of 1 dB.

LSP Dim on outgoing TB Selects whether the CR and studio loudspeaker levels are attenuated (DIM) or remain unchanged (NO DIM) as long as the talkback microphone is active.

LSP Dim on incoming TB Selects whether the CR and studio loudspeaker levels are attenuated (DIM) or remain unchanged (NO DIM) as long as incoming talkback is active.

TB to Headphone Mode If talkback to the host's headphones is active, this parameter allows selection of both or only one of his headphone's channels. Selections: TB to both, TB to left, TB to right.

CR PFL Speaker Yes defines whether an extra PFL speaker is installed in the control room (CR).

ST1 PFL Speaker Yes defines two separate PFL circuits for control room and studio 1.
OnAir 1500/2500: *Studio 1 not supported.*

CR / ST1 ADD Mode If **ADD** is activated on the monitoring module, two sources can be monitored simultaneously – a handy function for e.g. station takeover. If **Split** is selected, the two sources are routed to the left and right monitor speakers separately; if **Mix** is selected, both sources are mixed and routed to both monitor speakers.
OnAir 1500/2500: *Studio 1 not supported.*

CR / ST1 Audition DIM Mode Setting of the behavior of the CR and Studio1 monitor speakers, if the Audition bus is selected as CR monitoring source, and if a CR microphone channel is **ON**. Selections: DIM (attenuate), CUT (mute), or Nothing (no action).

OnAir 1500/2500: **Studio 1 not supported.**

CR / ST1 HP Split: Monitoring on left channel

Either the monitor signal is on the left headphones channel, and the PFL signal on the right one (Yes), or vice versa (No).

OnAir 1500/2500: **Studio 1 not supported.**

CR / ST1 HP Split: Monitor Gain

Headphones monitor signal gain setting in split mode. Range: –89.9 to +12 dB, or Mute.

OnAir 1500/2500: **Studio 1 not supported.**

CR / ST1 HP Split: PFL Gain

Headphones PFL signal gain setting in split mode. Range: –89.9 to +12 dB, or Mute.

OnAir 1500/2500: **Studio 1 not supported.**

CR / ST1 PFL to SP SRC

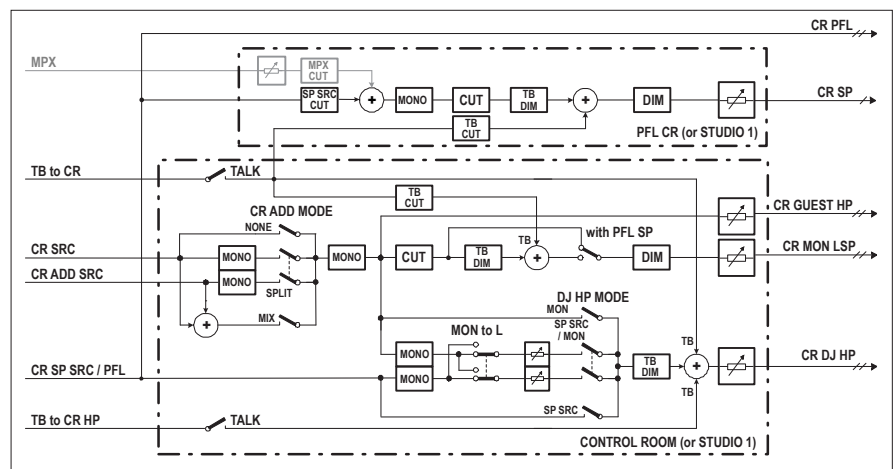
Routes the CR or Studio 1 PFL signal to the PFL/TB speaker. Settings: Yes/No.

OnAir 1500/2500: **Studio 1 not supported.**

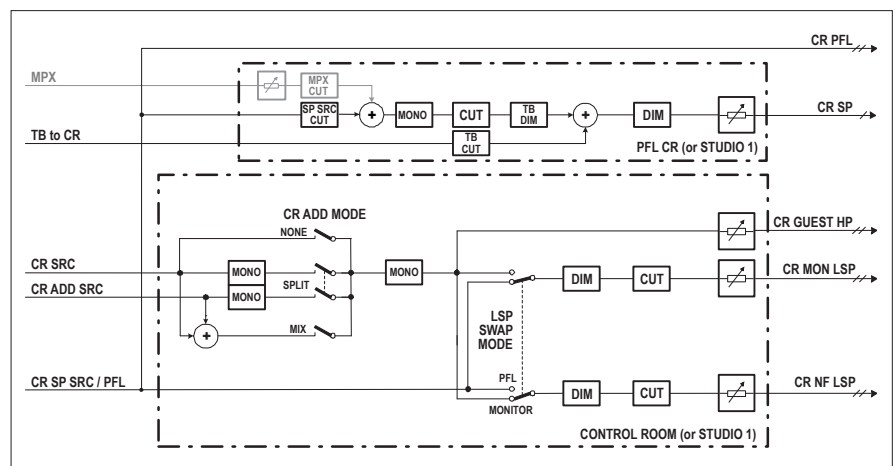
CR / ST1 Monitoring Mode

Selects Mode I (Normal) or Mode II (Nearfield). Mode II (Nearfield) converts the CR/Studio 1 DJ headphones output to a nearfield speakers output (refer to the block diagrams below).

OnAir 1500/2500: **Monitoring Mode II not supported.**



CR / ST1 Monitoring Mode I (DJ Headphones)

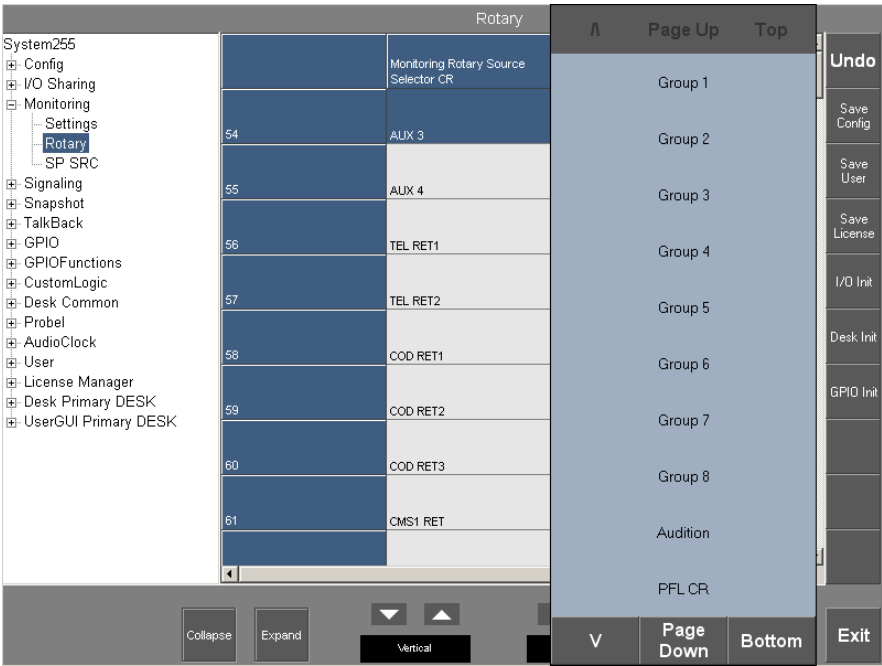


CR / ST1 Monitoring Mode II (Nearfield Speakers)

CR / STx LSP Mode on RedLight Selects whether the CR or studio loudspeaker levels are attenuated (DIM), muted (CUT) or remain unchanged (Nothing) as long as a microphone is open (and, subsequently, the red light is on). Since SW V3.2, the CUT Allow TB function has been added; it allows talkback to loudspeakers although a microphone is open. This function is also known as ‘Re-Injection’ or ‘Rehearsal Mode’. Re-Injection mode may be activated either with desk keys (up to 4 per location) or, if a main screen is available, with soft buttons at its right edge.

OnAir 1500/2500: Studio 1 / Studio 3 not supported.

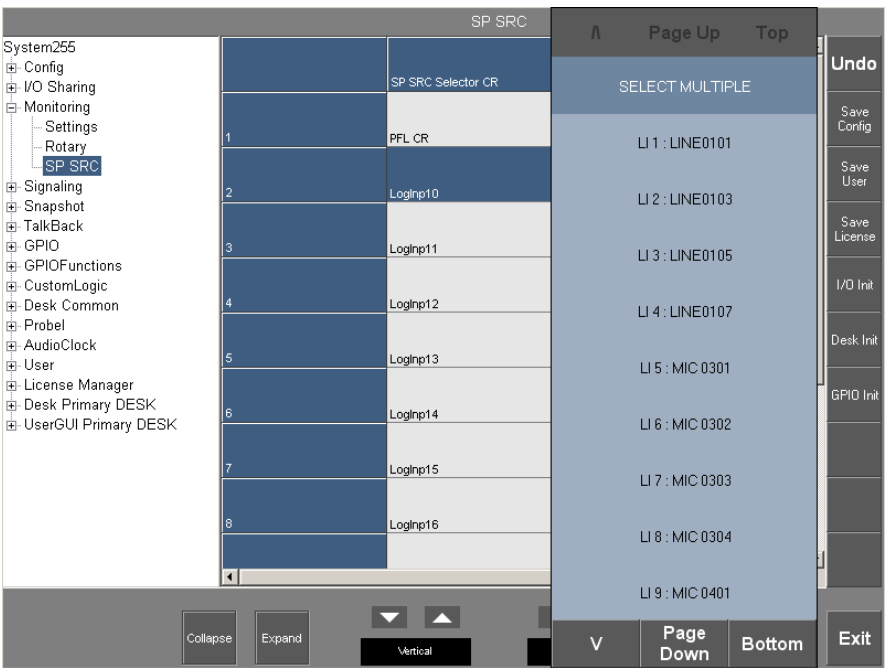
6.5.22.2 Rotary



Monitoring Rotary Source Selector CR / ST1 The list of sources for the monitor speakers (**MON**) that can be selected with the **SELECT** rotary encoder on the CR (control room) and ST1 (studio 1) monitoring/talkback modules is defined here. Selection is done as described in [chapter 6.5.19.1](#).

OnAir 1500/2500: Studio 1 not supported.

6.5.22.3 SP SRC



SP SRC (Source Selector CR/ST1)

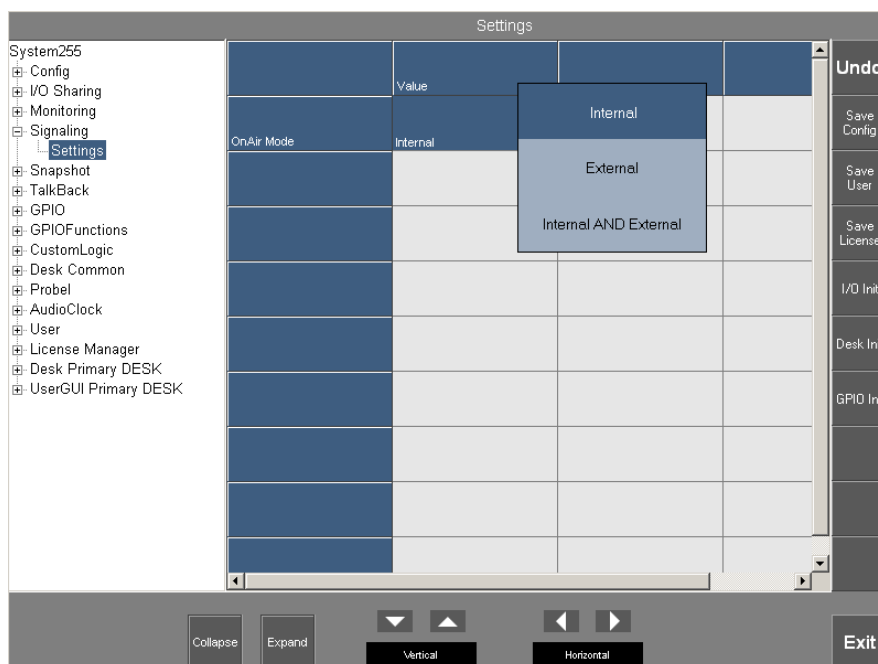
The list of sources for the PFL/TB speaker (**SP**) that can be selected with the **SELECT** rotary encoder on the CR (control room) and ST1 (studio 1) monitoring/talkback modules is defined here (for details see [chapters 5.3.1](#) and [5.3.2](#)). Selection is done as described in [chapter 6.5.19.1](#).

All router inputs and outputs may be selected here for monitoring purposes.

OnAir 1500/2500: *Studio 1 not supported.*

6.5.23 Signaling

6.5.23.1 Settings



OnAir Mode Selects the condition for switching the **ON AIR** light on: **Internal** (i.e., when at least one channel fader is open, this channel is ON, assigned to a master output, this master is defined to be OnAir Relevant - see [chapter 6.5.11](#) - and the master fader is open), **External** (i.e., when an external on-air input on the GPI interface is active), or **Internal AND External** (i.e., a logical AND operation of both conditions).

6.5.24 Snapshot

6.5.24.1 Parameters

On this page either the parameters required for **Local** snapshot operation, or the ones needed for accessing a central snapshot file server (**Remote**) can be configured.

Snapshot Location - Local

System255

- [-] Config
- [-] I/O Sharing
- [-] Monitoring
- [-] Signaling
- [-] Snapshot
- [-] Parameters
- [-] TalkBack
- [-] GPIO
- [-] GPIOFunctions
- [-] CustomLogic
- [-] Desk Common
- [-] Probel
- [-] AudioClock
- [-] User
- [-] License Manager
- [-] Desk Primary DESK
- [-] UserGUI Primary DESK

Parameters

	Value		
Snapshot Location	Local		
InitialSnapshot: Loading Input Fader Gain	Off		
InitialSnapshot: AutoSave Desk Settings	Off		
UserSnapshot: Loading Input Fader Gain	Off		
UserSnapshot: Loading Input ChannelOnOff	Off		

Vertical Horizontal

Snapshot Location Selects the location of the snapshots displayed in the user GUI; either **Local**, i.e., in the console memory, or **Remote** (in case of a central snapshot server). The parameters listed below are displayed in case of **Local** only.

InitialSnapshot: Loading Input Fader Gain

If set **Off**, the initial snapshot does not contain the input fader values; i.e. when powering the console on, the input fader values (or fader positions in case of optional motor faders) remain as they are. If set **On**, the input fader values/positions are saved with the initial snapshot *and become updated with the saved values when the console is powered on*. Default: **Off**.

InitialSnapshot: AutoSave Desk Settings

If set **On**, the initial snapshot is automatically updated in intervals of 10 s max., in order to memorize the current desk settings in case of powering the console off (or a power outage). Default: **Off**.

Note: AutoSave must be switched Off whenever initial snapshot files are moved or copied manually.

UserSnapshot: Loading Input Fader Gain

If set to **Off**, *the user snapshots do not contain the input fader values*; i.e. when loading a user snapshot, the input fader values (or fader positions in case of optional motor faders) remain as they are. If set **On**, the input fader values/positions are saved with the user snapshot *and get updated with the saved values when the snapshot is loaded to the console*. Default: **Off**.

UserSnapshot: Loading Input ChannelOnOff

If set **Off**, the user snapshots do not contain the channel **ON/OFF** settings; i.e. when loading a user snapshot, the channel **ON/OFF** settings remain as they are. If set **On**, the channel **ON/OFF** settings are saved with the user snapshot and get updated when the snapshot is loaded to the console. Default: Off.

Snapshot Location - Remote

All global and user snapshots may be saved on a *central file server*. This is a convenient feature whenever a user works on several different consoles within a network; no matter on which console he is currently logged in, he has access to his snapshots.

Note: System requirements for saving snapshots on a central snapshot file server:

- SMB file server (Windows 2003 server not supported yet), and
- WINS server must be present within the network.

Parameter	Value
Snapshot Location	Remote
Remote Share	\\Servername\OA3000
Remote Path	Snapshots
Username	Domainname \Username
Password	*****

Snapshot Location Selects the location of the snapshots displayed in the user GUI; either Local, i.e. in the console memory, or Remote, i.e. on the central snapshot file server. The parameters listed below are displayed in case of **Remote** only.

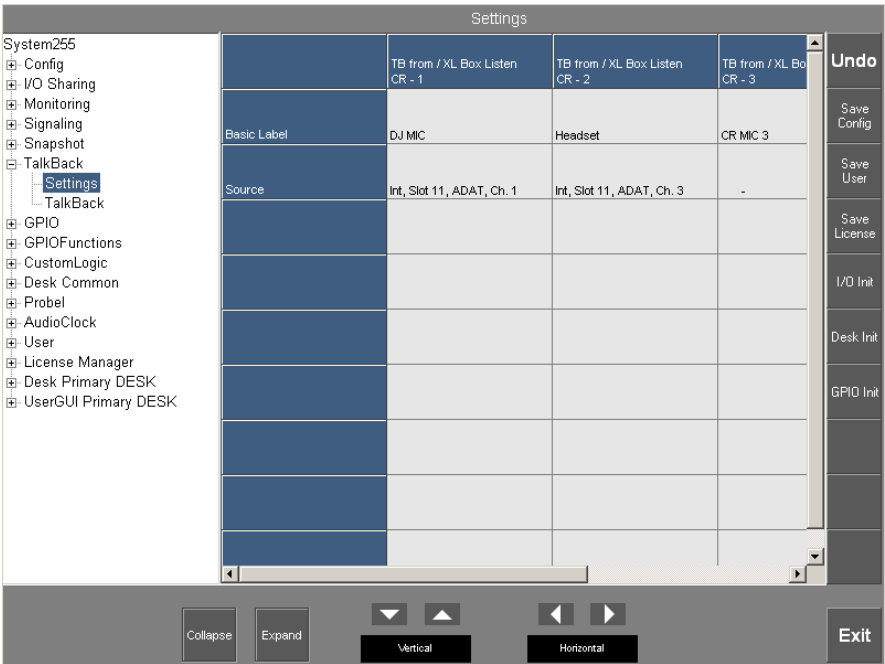
Remote Share The share made available by the central snapshot file server is entered here.

Remote Path (Optional) Entry of the remote path.

Username / Password For login on the central snapshot file server, the required domain and user names and password are entered here.

6.5.25 TalkBack

6.5.25.1 Settings



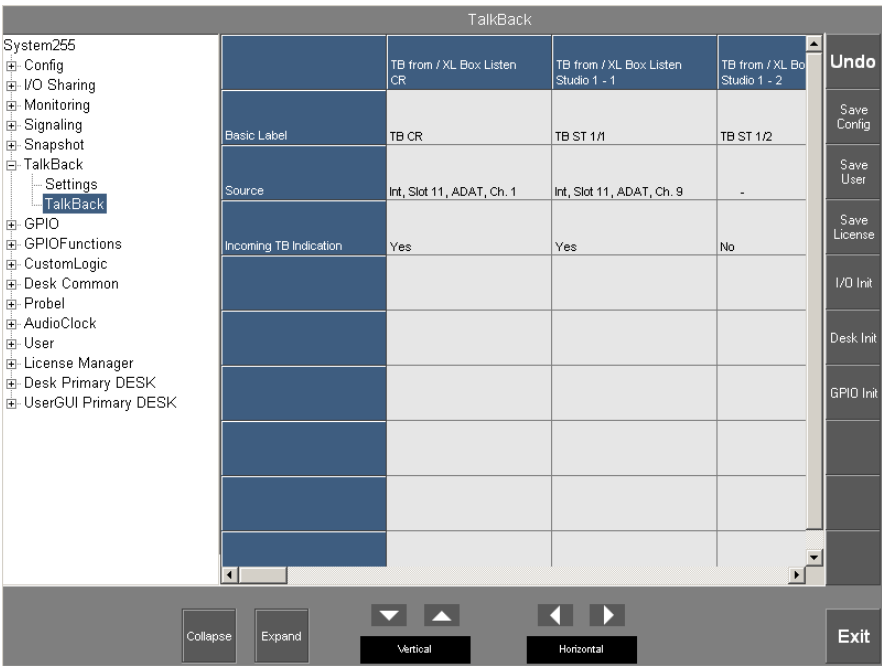
In contrast to the studios, the control room features only one dedicated input for talkback to the studios. If this should not be sufficient, up to four physical inputs may be defined for use as alternate talkback sources to the studios, such as the DJ mic, a Headset mic, etc. Only one of these four may be active at a time.

Basic Label The basic label may be entered here as described in [chapter 6.5.1](#).

Source Defines the physical audio input that is used to establish the mono channel for the logical input.
Indication: Frame (Int = internal I/O cards in SCore frame; Ext # = additional, external D21m frames), Slot #, Card type, and Input # (e.g. Int, Slot 11, ADAT, Ch. 1), or '-' (if no physical input is assigned to the logical input).

Note: In order to select these physical talkback microphone inputs in the control room talkback sources, one desk key must be configured for each of them (in the Desk_KeyMapping.xml file).

6.5.25.2 TalkBack



This page defines the physical inputs used as talkback return sources: up to four summed microphones per studio, one external talkback source TB from Extern, and 16 or 48 additional external talkback sources TB from Ext 1..., depending on the DSP core configuration.

OnAir 1500/2500: *Talkback from studios 1 and 3 not supported. Up to 4 external talkback sources supported.*

- Basic Label

The basic label may be entered here as described in [chapter 6.5.1](#).
- Source

Defines the physical audio input that is used to establish the mono channel for the logical input.
Indication: Frame (Int = internal I/O cards in SCore frame; Ext # = additional, external D21m frames), Slot #, Card type, and Input # (e.g. Int, Slot 11, ADAT, Ch. 9), or '-' (if no physical input is assigned to the logical input).
- Incoming TB Indication

When selecting No, the key illumination on incoming talkback may be suppressed for any external TB input. This makes sense if an external TB input is used for listening to an external source instead of for talkback.

6.5.25.2.1 TB/XL Box Configuration Examples/Tutorials

The following paragraphs can be used as configuration guides for two different XL box 'advanced mode' applications:

- Standard intercom
- Listening to external lines that are not assigned to a fader strip.

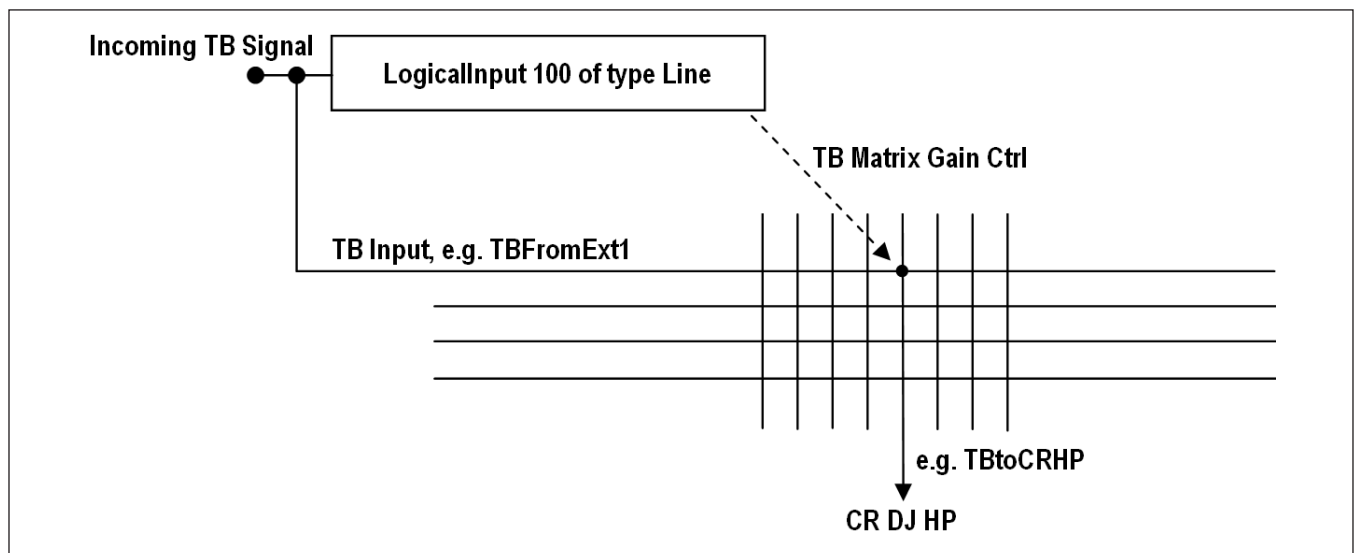
Intercom With XL Box

Instead of using the TB section of a Monitoring/Talback module, the XL Box may be used for talkback control; it supports:

- Software indication of the TB source (label of the LogicalInput is indicated in the 8-character display)
- Indicate incoming TB (flashing **TALK** key)
- Talk to a to an external location, such as an external intercom system or a different OnAir console (**TALK** key)
- Controlling the digital input gain of each TB input (± 24 dB; hold the **PFL** key and adjust with the rotary encoder)
- Setup of the analog gain of a mic input (Channel – Input page of the user GUI)
- Master volume control using the rotary encoder (TB return level)

Depending on the DSP configuration, a total of up to 49 TB inputs (TBfromExtern, TBfromExt1..TBFromEx48) and 49 TB outputs are supported. In each of the four monitoring locations up to four XL boxes allow talkback from/to 48 external locations. This makes a total of 16 XL boxes connected to a desk, i.e. four XL boxes per location using the same listening bus.

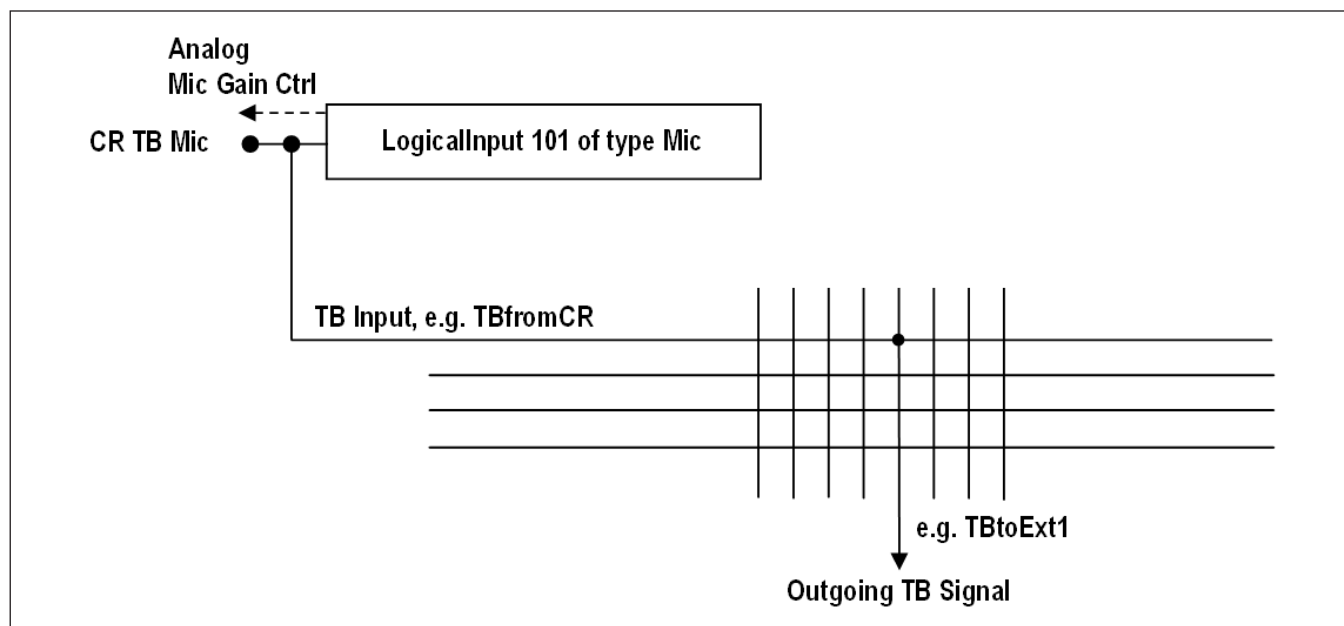
Incoming TB:



- Config – LogicalInputs – LogicalInputX – Source(Left):
Take an unused LogicalInput for each incoming TB signal. It should not be in any of the InputSelections as we do not want to assign it to a channel strip. Configure it as Source (Left) of a TB input.
Note: If using a studio TB input, the studio should not be used, since the studio LSP will DIM on incoming TB.
- Config – LogicalInputs – LogicalInputX – Input Format:
Set the input to Mono.

- Config – LogicalInputs – LogicalInputX – Line/Mic:
Set the input to Line
- TalkBack – TalkBack – Source:
For each incoming TB signal, set the source of a TB input to the appropriate LogicalInput
- Desk Common – XLSection – Listen
Specify the Listen bus for the XL Box as TB to the desired monitoring location, where you want to listen to incoming TB.

Outgoing TB:

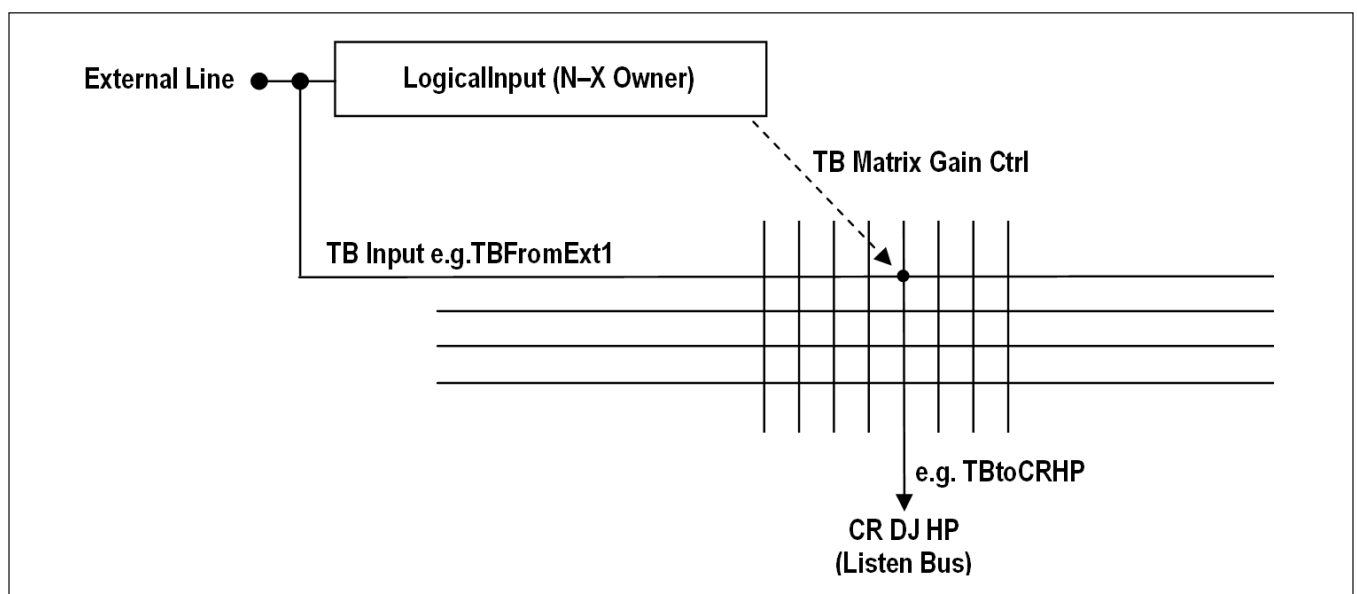


- Config – LogicalInputs – LogicalInputX – Source(Left):
Select a used LogicalInput for the TB mic. It should not be in any of the InputSelections as we do not want to assign it to a StripChannel (shall not be assigned to a channel strip).
Configure the Source(Left) to be the TB Mic signal.
- Config – LogicalInputs – LogicalInputX – Input Format:
Set the input to mono.
- Config – LogicalInputs – LogicalInputX – Line/Mic:
Set the input to mic.
- In order to setup the analog mic gain of the TB mic (must be connected to a mic input card), assign it temporarily to a strip channel and tweak the gain from within the Channel – Input page of the user GUI.
- TalkBack – TalkBack – Source:
Set the source of a TB input from the desired monitoring location, where you want to talk from, to the appropriate LogicalInput.
- Desk Common – XLSection – TB Source:
Specify the TB source for the XL box to be the TB input where the LogicalInput is connected to.
- Config – FixedOutputs – Left Core Out:
Configure the physical output mapping of each TB destination to the desired output signal.

Listening to External Lines *not* assigned to a Fader (Advanced Mode, V3.2 or higher)

In contrast to the 'legacy mode' where the XL box uses a PFL, AUX or N–X bus for listening, the 'advanced mode' provides:

- Listening to external lines that are currently not on a fader
- Automatic listening on HP, TB Speaker or monitor LSP without selecting the XL box listening bus as monitor source
- Incoming call signaling, e.g. a DTMF decoder indicated by Ready GPInput (PFL button light is flashing)
- Control of the digital input gain of each TB input (± 24 dB; hold the **PFL** key and adjust with the rotary encoder)
- Master volume control using the rotary encoder (TB return level)
- Talk to external lines (**TALK** key)
- Setup of the analog gain of a mic input (Channel – Input page of the user GUI).



Configuration:

The following configuration steps only relate to the 'advanced mode' configuration of the XL Box. It is assumed that the following configuration steps are already done properly:

- LogicalInputs for external 4-wire connections, including N–X Control/TB Destination
- N–X buses as return line for external 4-wire connections
- Monitoring, and
- the XL box assignment is done in the main screen ROUT – XL Assign page.

TalkBack – TalkBack – Source:

Use a TB Input for each LogicalInput used as external 4-wire connection. The LogicalInput shall be the source of the corresponding TB input, e.g. TBfromExt1-TBfromExt48 for 48 4-wire connections.

Note: If you use a studio TB input, the studio should not be used, as the studio LSP will dimmed when listening to the external line (on incoming TB).

- Config – LogicalInputs – TBMicCutEnable:
Turn OFF TBMicCut Enable of each LogicalInput used as external 4-wire connection, since it should not be cut while listening.
Otherwise, pressing the PFL button for listening causes the TB input to which the LogicalInput is assigned to be activated, cutting the LogicalInput if it is on-air.
- TalkBack – TalkBack – Incoming TB Indication:
Turn OFF incoming TB indication for each TB input used for listening on the XL box.
Otherwise, the button light of the corresponding TBtoExt output would be flashing while listening to an external 4-wire connection input.
- Desk Common – XLSection – Listen:
Specify the XL box listening bus as TBto output of the monitoring location where the external 4-wire connection inputs should be listened to. Listening is also possible on TBtoExt1-TBtoExt4.
If more than one XL Box is used in a certain location, all of them will use the same listening bus.
- GPIOFunctions – GPInputFunctions:
Use a GPInputFunction for each LogicalInput used as external 4-wire connection to set the READY status, in order to indicate external calls (flashing **PFL** key).
- GPIOFunctions – GPInputFunctions – Source:
The GPInput coming e.g. from the DTMF decoder cards.
- GPIOFunctions – GPInputFunctions – Function Type:
Ready.
- GPIOFunctions – GPInputFunctions – Argument 1:
The LogicalInput of the corresponding external 4-wire connection.

6.5.26 GPIO

6.5.26.1 General

	The GPIO (General Purpose Input/Output) interfaces allow different console functions being controlled by external control signals as well as generating control signals depending on the current status of different console functions. Assignment of functions and control signals to the GPIO connector pins as well as the behavior of the I/O signals can be freely configured.
Distributed Control	Please note that in I/O sharing applications, a GP input may also control a function of a neighboring system, and a GP output may be controlled from a function of a neighboring system without additional wiring; refer to chapter 6.5.20.1 .
Extra GPIO Frame	Systems with the Compact SCore can consist of the internal plus up to five external frames. Since SW V2.2, one additional frame with GPIO cards only may be used.
OnAir 1500/2500	Only 16 <i>internal</i> GPIOs, <i>plus</i> one GPIO card with 16 GPIOs in an optional, <i>external</i> D21m I/O frame supported.

6.5.26.1.1 SW V3.2 Enhancements

Remote GPIO	Remote <i>logical</i> sources for the GPIO configuration were required. Earlier, every logic status of one particular console needed on another one had to be distributed in the old-fashioned way via GPIO and external wiring. Typical user applications require forwarding parameters from another console within the network, e.g. to a local key LED. In order to avoid external wiring, Remote GPIO was introduced. This allows accessing the local and the remote systems' internal logic states in a comfortable way.
Custom Logic	Experience showed that typical, essential functionalities (such as switching the fader start of a channel on/off, start a device manually and indicating device 'ready') could only be realized with a bunch of GPIs and GPOs. System logic was accessible as general purpose inputs and outputs (GPI and GPO), but only in combination with a (physical) control input or output. Therefore, customization was coming along with additional wiring in most cases. This has been solved with the introduction of the Custom Logic feature.
OnAir 2500	<i>Using custom logic on an OnAir 2500 console requires a memory upgrade to 512 MB. The configuration tool of OnAir 2500 consoles with the standard 256 MB memory will display the custom logic configuration pages, but the number of gates is fixed to 0.</i>

6.5.26.1.2 SW Upgrade

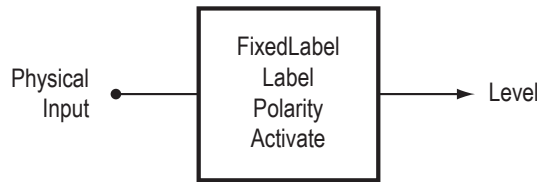
When upgrading an OnAir console to software V3.2 (that provides enhanced GPIO functionality as specified above), no further user interactions are required. The software update wizard converts the configuration in such a way that for each V3.1 GPIInput a GPIInput is automatically mapped to a GPIInput Function providing the same functionality. The same applies for V3.1 GPOOutputs. Here, the GPOOutputs are automatically mapped to GPOOutput Functions. *Any desired remote GPIO functionality may be configured by the system administrator after the upgrade.*

6.5.26.2 (Remote) GPIO

Remote GPIO is a powerful building brick of the Studer RELINK concept. In order to make GPIO ready to be used for internal Custom Logic as well as to allow access to remote systems, GPInputs and GPOutputs have been split up into *GPInputs/GPOutputs* (physical control inputs/outputs) and *GPInput/GPOutput functions*.

GPInputs and *GPOutputs* are handled as producers and consumers in the sense of I/O Sharing. A *GPInput function* can be compared to a LogicalInput, where a *GPOutput function* is the counterpart of a LogicalOutput.

GPInput A GPInput consists of a control input on a D21m GPIO or Ethersound card and the appropriate input logic.



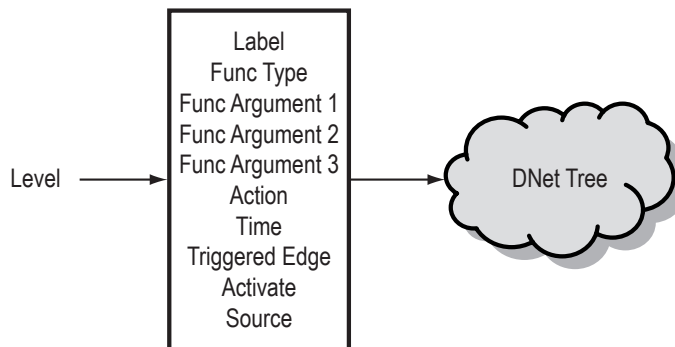
FixedLabel is defined by the system and remains ‘read only’. It contains a text specifying the location of the physical input, such as ‘Int, Slot 3, In 2’. *Label* is initialized by the software as ‘GPInput N’ by default. It can be changed by the user.

For further details on the parameters and the ‘Level’ term, refer to [chapter 6.5.26.2.1](#).

The number of GPInputs is configured in the `D21m.xml` file. It has to match the number of available physical GP inputs in the D21m system.

GPInputs are either *producers* or *net sources* that also may be accessed from remote systems.

GPInput Function A GPInput function consists of the part of the former GPInput function (SW V3.1 and earlier) that had implemented the logic as specified by the `Func_Type` parameter. GPInput functions are, e.g., TBFromExtern, LSP Cut, Channel ON/OFF, etc.



Label is initialized by the software as ‘GPInputFunction N’ by default. It can be changed by the user. However it does *not* follow the label of its producer as the I/O Sharing consumer labels do).

Source allows defining a ‘Level Producer’ since GPInput functions are (net-) consumers. The following producers are allowed:

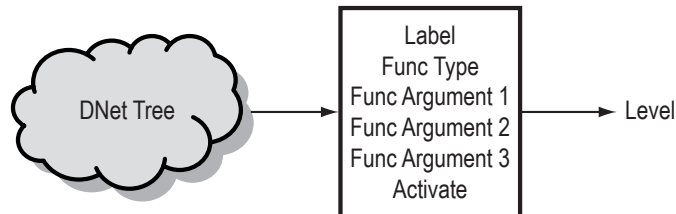
- Local or remote GPInput
- Local or remote GPOutput function
- Local or remote Custom Logic

For further details on the parameters and the ‘Level’ term, refer to [chapter 6.5.26.2.1](#).

The number of GPIInput functions can be configured in the `GPIO Functions.XML` file.

GPOutput Function

A GPOutput function consists of the part of the former GPOutput function (SW V3.1 and earlier) that had implemented the logic as specified by the `Func_Type` parameter. GPOutput functions are, e.g., `TBToExtern`, `FaderStart`, `Channel ON/OFF`, etc.



Generator was added as a new GPOutput function. Depending on its mode (`Funct_Argument 1`) it creates a static high, static low, or an alternating output level (synchronous with the desk LEDs).

Label is initialized by the software as ‘GPOutputFunction N’ by default. It can be changed by the user. However it does *not* follow the label of its producer as the I/O Sharing consumer labels do).

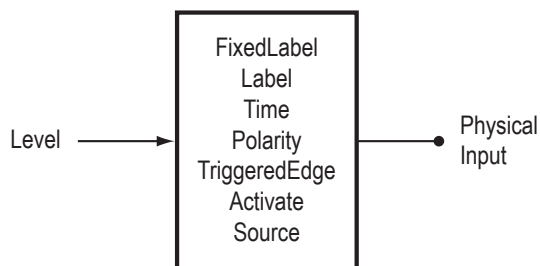
For further details on the parameters and the ‘Level’ term, refer to [chapter 6.5.26.2.1](#).

The number of GPOutput functions can be configured in the `GPIO Functions.XML` file.

GPOutput functions are producers or net sources that can be accessed from remote systems as well.

GPOutput

A GPOutput consists of a control output on a D21m GPIO or Ethersound card and the appropriate output logic.



FixedLabel is defined by the system and remains ‘read only’. It contains a text specifying the location of the physical output, such as ‘Int, Slot 3, Out 2’. *Label* is initialized by the software as ‘GPOutput N’ by default. It can be changed by the user.

Source allows defining a ‘Level Producer’ since GPOutputs are (net-) consumers. The following producers are allowed:

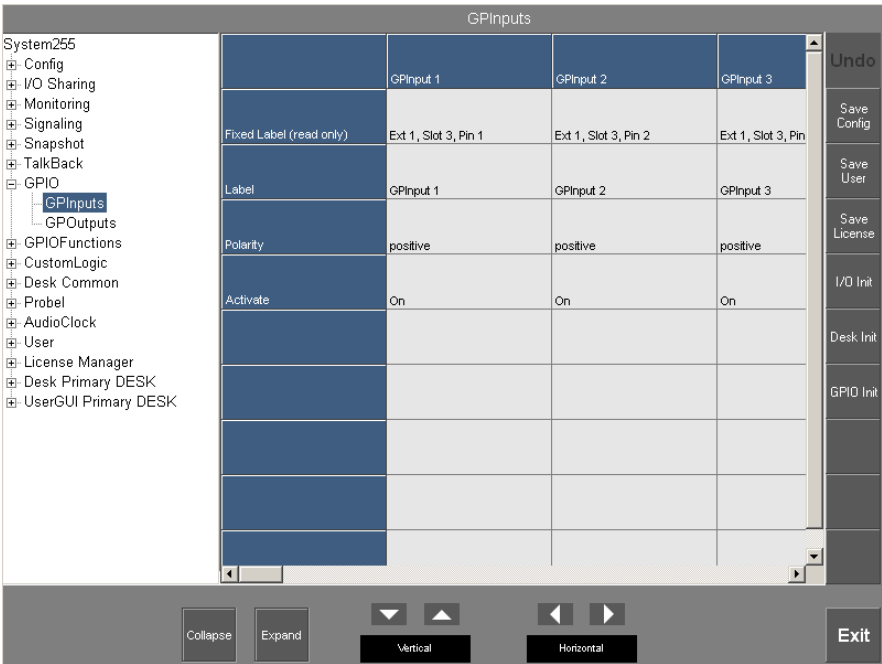
- Local or remote GPIInput
- Local or remote GPOutput function
- Local or remote Custom Logic

For further details on the parameters and the ‘Level’ term, refer to [chapter 6.5.26.2.1](#).

The number of GPOutputs is configured in the `D21m.xml` file. It has to match the number of actually available physical GP outputs in the D21m system.

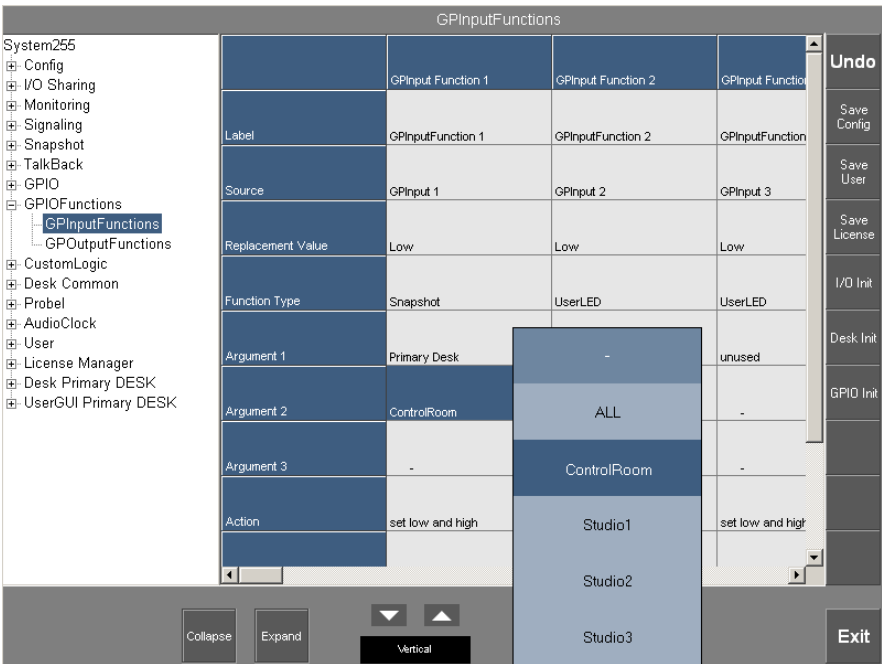
6.5.26.2.1 GPIO Configuration Details

GP Inputs



- Fixed Label (read only)** The label of the corresponding frame/GPIO card/input pin is displayed here for reference only.
- Label** A label may be assigned to the GPI here as described in [chapter 6.5.1](#).
- Polarity** Polarity selection of the signal at the input pin: Active high is **positive**, active low is **negative** polarity.
- Activate** Used to activate/deactivate an input pin. The GPInput’s output only changes if **Activate** is **On**.

GP Input Functions



- Label** A label may be assigned to the GP input function here as described in [chapter 6.5.1](#).

Source	Here it is defined where the input control signal to the GP input function comes from: Local Source (i.e. from within the same system), Net Source (from a networked system), or '–' (nothing).
Replacement Value	In case the input Level should not be available, a replacement value may be entered here (low or high).
Function Type	When touching this button, a menu appears where all available functions can be selected from. For function/argument descriptions see table below.
Argument 1-3	Depending on the selected function, up to three different parameters ('arguments') contribute to the internal processing of the input control signal. These can be selected here. For function/argument descriptions see table below.
Action	Action is only relevant if Triggered Edge is falling or rising. In this case, it defines if the specified edge activates (set only high), deactivates (set only low), or toggles the output Level (set low and high). Usually Action is set to set low and high . set only high and set only low are used in case of linked GP Inputs (e.g. separate ON and OFF keys).
Time	Defines the minimum length that an input Level pulse must have in order to be interpreted as 'momentary'. Time is only relevant if Triggered Edge is set to both . Possible values are 0 ms or 40 ms to 1 s.
Triggered Edge	Defines which edge of the input Level causes the output to change: falling , rising , or both .
Activate	Used to activate/deactivate the GP input function. Its output only changes if Activate is On.
Notes:	On power up, the output status is initialized according to either the input Level or, if none is available, to the specified Replacement Value. Action, Time, Polarity, and Triggered Edge <i>must not be changed while the GP input function is active.</i> <i>For correct take-over after a modification, it is important to select Active to On, because it is automatically set to Off when a modification is made.</i> There are four different types of GPInput Functions categorized by the way they transfer the Level to the DNet Tree parameter(s).

Defined by Triggered Edge and Action Settings (Toggle)

In contrast to the GPIInput Functions specified in 'Defined by Triggered Edge and Action Settings (InputLevel)' below, these functions toggle the specified DNet parameters in cases where Triggered Edge is not BOTH and Action is ALTERNATE.

GPI Function	Arguments	Description
ExtON	Logical Input / Strip Channel / AUX / N-X	Parallel to the ON key in the channel strip
PFL	EXT PFL / CR / * ST1 / Logical Input / Strip Channel / Master	PFL control signal from the CAB system is active
Ready	Logical Input	External source is ready for playback
Outgate	GP Output Pin	Output x is only active if the Out function is active <i>and</i> the Gate input is active
* ManualDucking	SubGroup1...8	External control of manual ducking
UserKey	User Function	External control of the User Key status
ChannelUserKey	Logical Input	External control of the Channel User Key status
ExternOnAir	–	ON AIR LED activation (configured in 'Signaling Settings')
EnableOutput Routing	Desk Group 1...8	Sets the enable parameter of the corresponding DeskGroup
UserLED	User LED device ID	Sets the specified User LED parameter according to the GP input signal. <i>This function connects the signal of a GP input pin to a User LED Parameter. If the LED of a user key on the desk (e.g. Fader Assign Module) is assigned to that parameter, the input can provide a status feedback to the LED of a user key (also refer to the 'UserKey' GPO function).</i>
ChannelUserLED	Logical Input / Master / User Function 1 / User Function 2	Sets the specified User LED Parameter according to the GP Input signal. <i>This function connects the signal of a GP input pin to the specified Channel User LED parameter of the specified channel. If the LED of a user key on the desk (e.g. Fader Module) is assigned to that parameter, the GPI can provide a status feedback to the LED of a channel user key (also refer to the 'ChannelUserKey' GPO function).</i>

* OnAir 3000 only

Defined by Triggered Edge and Action Settings (InputLevel)

In contrast to the GPIInput Functions specified in 'Defined by Triggered Edge and Action Settings (Toggle)' above, these functions set the specified DNet parameters according to the InputLevel given by the Input Logic in cases where Triggered Edge is *not* BOTH and Action is ALTERNATE.

GPI Function	Arguments	Description
LinkInput	GP Input Pin	Links the GP input to an existing GP input function (e.g. when two keys shall be used for an On/Off function). Tree Parameter: GPIOFunctions - GPIInputFunctions - GPIInputFunctionX - FInputLogic - InputLevel. If Triggered Edge of the corresponding GPIInput Pin equals 'both', InputLevel is set according to InputLevel (momentary). Otherwise, if Action is either ACTIVATE or DEACTIVATE, InputLevel is set according to Action. Otherwise, InputLevel is set to InputLevel. In a case where two GP Inputs are linked, the Action of the GP Input Functions should be configured in such a way that one function activates the InputLevel and the other deactivates it.

Momentary and Latching User Requests

UserKey and User ON/OFF Requests.

GPI Function	Arguments	Description
Cough	Logical Input	Cough key, for mic <i>and</i> line inputs; input is muted, but no change in signaling. Controls all logical inputs using the same physical mic input; 'time' must not be set to >0
TalkBack	Source: CR / *ST1 / ST2 / *ST3 and Ext. Destination: All TB destinations	Talkback from Source to Destination (Source = Destination not allowed for SW up to V3.1)
LS_CUT	CR / *ST1 / ST2 / *ST3 / User / Machine	Monitor speakers CUT
LS_DIM	CR / *ST1 / ST2 / *ST3 / User / Machine	Monitor speakers DIM

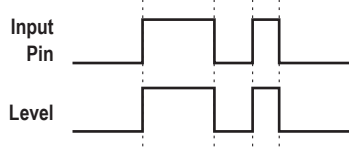
* OnAir 3000 only

Event-Driven Actions

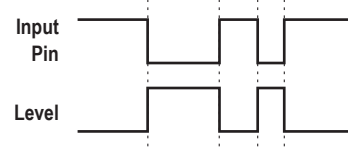
The following GPIInput functions are only activated if the Input Logic sets the InputLevel to TRUE.

GPI Function	Arguments	Description
* ST1 Source Selector	All monitoring sources, Follow CR/ST2/ST3	Studio 1 monitor source selector
ST2 Source Selector	All monitoring sources, Follow CR/*ST1/*ST3	Studio 2 monitor source selector
* ST3 Source Selector	All monitoring sources, Follow CR/ST1/ST2	Studio 3 monitor source selector
Snapshot	Primary Desk/*Secondary Desk/Not Spec. / All/CR/*ST1/ST2/*ST3 / String	Recall the global snapshot with the name specified by 'String' for the given location
LSP Mode On Red Light		
FadeIn	Logical Input / Master	Starts the fade-in ramp of the specified LogicalInput or of the LogicalInput of the specified StripChannel, respectively.
FadeOut	Logical Input / Master	Starts the fade-out ramp of the specified LogicalInput or of the LogicalInput of the specified StripChannel, respectively.
OutputRoutingIn	Partial Output Routing 1...24 / – / Ignore Enable Key / Desk Group1...8	Recall of Output Routing Snapshot with the name specified by 'String'. Argument 2 is either undefined (for downward compatibility), IgnoreEnableKey, or a valid desk group 1...8. All partial output routings with the option UseEnableKey set to 'true' need Argument 2. If Argument 2 is IgnoreEnableKey partial output routings are loaded unconditionally. If Argument 2 is DeskGroup1...8, partial output routings check on loading the enable status of the corresponding desk group. If Argument 2 is not defined, the snapshot is <u>not</u> loaded! Partial output routings with the option UseEnableKey set to 'false' are loaded unconditionally and do not need Argument 2.
Next In	StartNextA/B_Request	Start key
MicGroupKey	MicGroup1...12	Mic Group On Request key according to specified ext. Mic Box key is on

* OnAir 3000 only

Example 1, Momentary Mode:

Pin Attributes	Setting
Activate	On
Time	0 ms
Polarity	positive
Action	--
Triggered Edge	both

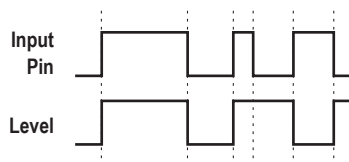


Pin Attributes	Setting
Activate	On
Time	0 ms
Polarity	negative
Action	--
Triggered Edge	both

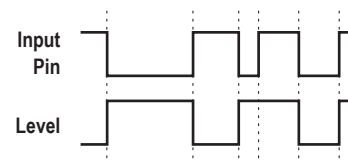
Note: In order to avoid inconsistencies, please be careful when using a GP input in momentary mode in parallel with a desk key for the same function.

Example 2, Momentary/Latching Mode:

If the input pulse is shorter than the time specified, the level is latched. The falling (or, in case of negative polarity, the rising) edge is ignored in this case.



Pin Attributes	Setting
Activate	On
Time	> 0 ms
Polarity	positive
Action	--
Triggered Edge	both

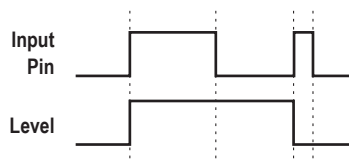


Pin Attributes	Setting
Activate	On
Time	> 0 ms
Polarity	negative
Action	--
Triggered Edge	both

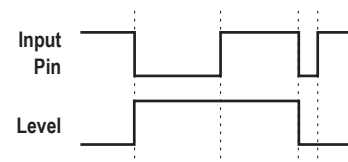
Note: In order to avoid inconsistencies, please be careful when using a GP input in momentary/latching mode in parallel with a desk key for the same function.

Example 3, Latching Mode:

To achieve latching mode only, the triggered edge attribute is set to rising or falling; the time attribute is then ignored.



Pin Attributes	Setting
Activate	On
Time	--
Polarity	--
Action	set low and high
Triggered Edge	rising

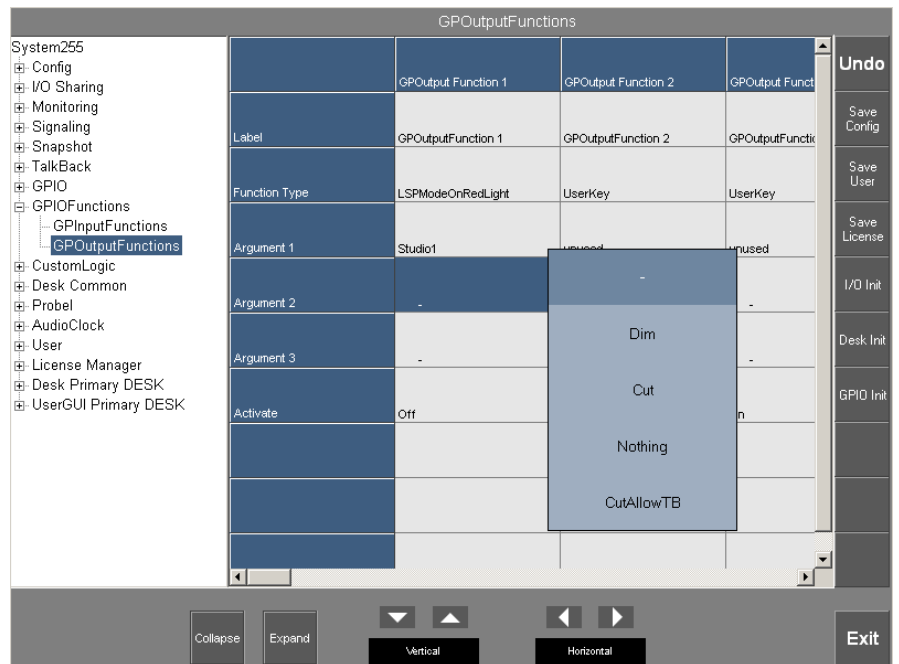


Pin Attributes	Setting
Activate	On
Time	--
Polarity	--
Action	set low and high
Triggered Edge	falling

Note: In order to avoid inconsistencies, it is recommended to use a GP input in latching mode if a desk key is used in parallel for the same function.

GP Output Functions

The GP output logic generates an output signal depending on the GP output function, its parameters, and the argument(s).



Label The label of the corresponding frame/GPIO card/output pin is displayed here for reference.

Function Type When touching this button, a menu appears where all available functions can be selected from, as shown above. For a function and parameter description see the table below.

Argument 1-3 Depending on the selected function, one or more parameters ('arguments') contribute to the processing of the output control signal. These can be selected here. For a function and parameter description see the table below.

Activate Used to activate/deactivate an output pin. The **Level** used as input to the GP output only changes if **Activate** is On.

GP Outputs

	GPOutput 1	GPOutput 2	GPOutput 3
Fixed Label (read only)	Ext 1, Slot 3, Pin 1	Ext 1, Slot 3, Pin 2	Ext 1, Slot 3, Pin
Label	Fader Start CD1	GPOutput 2	GPOutput 3
Source	GPOutputFunction 1	GPOutputFunction 2	GPOutputFunction 3
Replacement Value	Low	Low	Low
Time	0 ms	0 ms	0 ms
Polarity	positive	positive	positive
Triggered Edge	both	both	both
Activate	On	On	On

Fixed Label (read only) The label of the corresponding frame/GPIO card/output pin is displayed here for reference.

Label A label may be assigned to the GP output here as described in [chapter 6.5.1](#).

Source Defines where the control signal to the GP output comes from: **Local Source** (i.e. from within the same system), **Net Source** (from a networked system, if available), or ‘–’ (nothing).

Replacement Value In case the **Level** input signal should not be available, a replacement value may be entered here (low or high).

Time Defines the duration of the pulse at the output pin. Time is only relevant if **Triggered Edge** is falling or rising.
Possible values are 0 ms or 40 ms to 1 s, in 20 ms steps.

Polarity Defines the polarity of the output pin signal: Active high is **positive**, active low is **negative** polarity.

Triggered Edge Defines which edge of the **Level** input signal causes the output to change: falling, rising, or both.

Activate Used to activate/deactivate an output pin. The **Level** input signal used as input to the GP output only changes if **Activate** is On.

Notes: On power up, the output is initialized according to the **Level** input signal. Time, Polarity, and Triggered Edge *must not be changed while the GP output is active*.

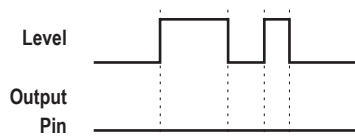
For correct take-over after a modification, it is important to select Activate to On, because it is automatically set to Off when a modification is made.

GPO Function	Arguments	Description
FaderstartWithPFL	Logical Input	Fader start with ON key and fader, or PFL
FaderstartWithoutPFL	Logical Input	Fader start with ON key and fader
RedLight_ONAIR	-	Active if the ON AIR LED is on
RedLight_PGMA	-	Active if PGM A is on air
* RedLight_PGMB	-	Active if PGM B is on air
RedLight_REC	-	Active if REC is on air
* RedLight_5.1A	-	Active if 5.1 A is On Air
* RedLight_5.1B	-	Active if 5.1 B is On Air
RedLight_CR	-	Active if Control Room red light indication is on
* RedLight_ST1	-	Active if Studio 1 red light indication is on
RedLight_ST2	-	Active if Studio 2 red light indication is on
* RedLight_ST3	-	Active if Studio 3 red light indication is on
RedLight_Input	Logical Input	Active if specified strip channel is on
MicMuteActive	Logical Input	Active if mic is muted
ON	Logical Input Strip Channel AUX N-X	Active if ON key is on
PFL	LogicalInput StripChannel MasterFaders ExtPFL	Active if the specified input or master is assigned to the specified PFL bus
** TransparentOut	Device ID	Active if the value of the specified parameter is different from zero (this function is normally used for factory testing only). Only 64-bit device ID numbers in hex format are accepted as argument 1 – i.e., 0x followed by 16 digits (e.g. 0x1122334455667788)
** LinkOutput	GP Output pin	Links the GP output to another GPO function
UserKey	Device ID of a user key parameter	Active if the value of the specified user key parameter is true
ChannelUserKey	Logical Input Master User Function 1 User Function 2	Active if the value of the specified user key parameter is true. If a channel user key on the desk (e.g. Fader Module) is assigned to a Channel User Key parameter, and the 'ChannelUserKey' GPO function connects that parameter to a GP output pin, the channel user key can control the GPO.
TB	Sources: CR *ST1 ST2 *ST3 External Destinations: All TB destinations	Active if the specified Talkback from Source to Destination is active (since SW V3.2, also Source = Destination is allowed)
Locate	Logical Input	Active if LOC/READY key of the logical input is on
OnMaster	Logical Input	Active if channel on master is active
Next_Out	StartNextA/B_State	Flashing if status = Ready, continuous if status = Next
MicGroupReady	MicGroup	Active if ext. mic group key is Ready
MicGroupActive	MicGroup	Active if ext. mic group key is Active or On Air
MicGroupOnAir	MicGroup	Active if ext. mic group key is On Air
Setup	Setup1 Setup 2	Active if the specified setup is active
LastSnapshot	PrimaryDesk / *SecondaryDesk / Not Spec. All / CR / *ST1 / ST2 / *ST3 String	Active if the last loaded Global Snapshot is the one with the name specified by 'string'
OutputRoutingOut	Partial Output Routing	Active if the cross points of the specified partial output routing are set as specified by 'string'
** ForwardInput	GP Input Pin	Active if the specified input pin is active
Generator	StaticHigh / StaticLow / Alternate	Creates the Level according to the mode specified by Argument 1. StaticHigh: Level is always high StaticLow: Level is always low Alternate: Level is alternating synchronously to the parameter Config - Flashers - Flasher - FOutput - Level
* LSPModeOnRedLight	CR / *ST1 / ST2 / *ST3 Dim / Cut / Nothing / Cut, but allow TB	Indicates LSPModeOnRedLight

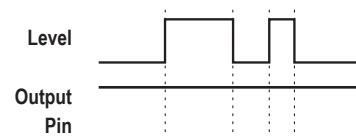
* OnAir 3000 only.
 ** See paragraph 'Notes' at the end of this chapter.

Example 1, Inactive

If the output is deactivated, the output signal remains constant, regardless of the 'Level' attribute.



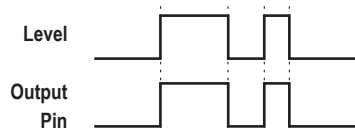
Pin Attributes	Setting
Activate	Off
Time	--
Polarity	positive
Triggered Edge	both



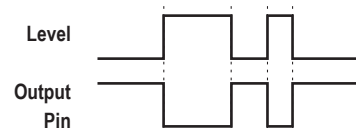
Pin Attributes	Setting
Activate	Off
Time	--
Polarity	negative
Triggered Edge	both

Example 2, Normal Output Mode

To make the output follow the 'Level' attribute, the 'Active' attribute must be set, and the 'Triggered Edge' attribute must be set to 'both'. The 'Time' attribute is ignored in such a case.



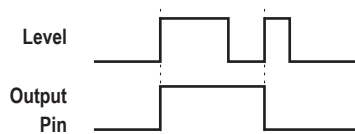
Pin Attributes	Setting
Activate	On
Time	--
Polarity	positive
Triggered Edge	both



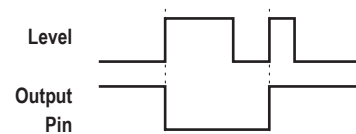
Pin Attributes	Setting
Activate	On
Time	--
Polarity	negative
Triggered Edge	both

Example 3, Latching Mode:

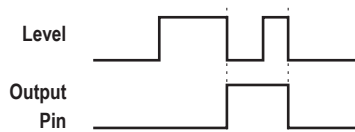
To get the level latched at the output pin, the 'Triggered Edge' attribute must be set to either 'rising' or 'falling', the 'Time' attribute must be 0 ms.



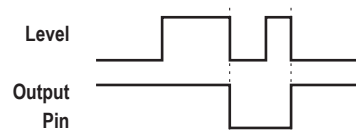
Pin Attributes	Setting
Activate	On
Time	0 ms
Polarity	positive
Triggered Edge	rising



Pin Attributes	Setting
Activate	On
Time	0 ms
Polarity	negative
Triggered Edge	rising



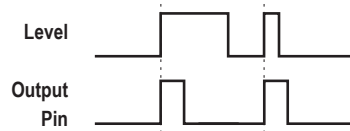
Pin Attributes	Setting
Activate	On
Time	0 ms
Polarity	positive
Triggered Edge	falling



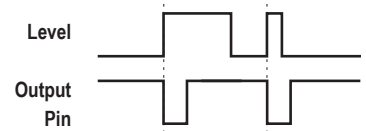
Pin Attributes	Setting
Activate	On
Time	0 ms
Polarity	negative
Triggered Edge	falling

Example 4, Pulse Output Mode

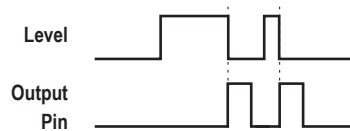
To get a pulse at the output pin, the 'Triggered Edge' attribute must be set to either 'rising' or 'falling', the 'Time' attribute (> 0 ms) defines the pulse duration.



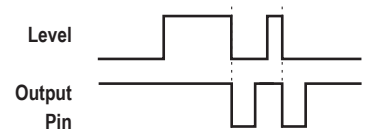
Pin Attributes	Setting
Activate	On
Time	> 0 ms
Polarity	positive
Triggered Edge	rising



Pin Attributes	Setting
Activate	On
Time	> 0 ms
Polarity	negative
Triggered Edge	rising



Pin Attributes	Setting
Activate	On
Time	> 0 ms
Polarity	positive
Triggered Edge	falling



Pin Attributes	Setting
Activate	On
Time	> 0 ms
Polarity	negative
Triggered Edge	falling

Notes:

- **TransparentOut Function**

Active if the value of the specified parameter is different from zero. This function is normally used for factory testing only.

However, by entering the address of a parameter (i.e., the device ID number), a particular function may be monitored by a GP output. In this way it is possible to check, e.g., whether any channel is set to PFL.

Only 64-bit device ID numbers in hex format are accepted as argument 1 – i.e., '0x' followed by 16 digits, such as 0x1122334455667788.

This function is intended for experts only, since localizing a device ID number requires the 'Tree Viewer' application and its handling.

- **LinkOutput Function**

This function can be used to link a GP output to another GPIO function. The linked output may then be set to answer to the same input conditions, but with different logic – such as a pulse signal, whereas the original GP output is a continuous signal.

- **ForwardInput**

This function can be used to mirror a GP input status of a remote stage box on a GP output of the console I/O system, if the remote stage box is connected to the I/O system via a MADI link.

6.5.26.3 Custom Logic

Custom logic was introduced in order to replace external wiring. It is configurable in the ConfigTool during commissioning the console, its setup during manufacturing, but also later by the system administrator. By combining several custom logic gates of any predefined type, logic circuits can be designed that are processed in real time by the core host software. Any combination of up to 10 cascaded gates is allowed. *Feedback loops are not allowed. If doing so anyway, an error message will be displayed. This means that no RS flip-flops can be implemented using gates.*

A *custom logic gate* is understood as a logical function. The status at its output (High or Low) depends on a Boolean operation and on a certain amount of logical inputs (arguments).

The following Boolean functions are defined as custom logic gates:

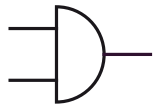
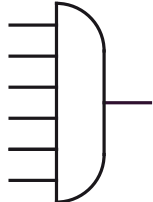
- AND (2 to 6 inputs)
- OR (2 to 6 inputs)
- XOR (exclusive OR, 2 inputs)
- NOT (inverter, 1 input).

Restrictions Please note that there are no RS flip-flops available.

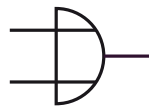
Using custom logic on an OnAir 2500 console requires a memory upgrade to 512 MB. The configuration tool of OnAir 2500 consoles with the standard 256 MB memory displays the custom logic configuration pages, but the number of gates is fixed to 0.

6.5.26.3.1 Custom Logic Gates

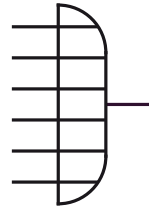
AND Gates Custom logic AND gates can be defined with up to six sources ('inputs'). The output of an AND gate only goes *High* if *all* defined sources are *High*; or, in other words, it goes *LOW* if *at least one* of the defined sources is *Low* (the remaining sources do not matter then, i.e. '–'). Refer to the truth table examples for two and six sources below.

	In1	In2	Out
	L	L	L
	L	–	L
	–	L	L
	H	H	H
	L	L	L
	L	–	–
	–	L	–
	–	–	L
	–	–	L
	–	–	L
	–	–	L
	–	–	L
	–	–	L
	–	–	L
	–	–	L
	H	H	H
	H	H	H
	H	H	H
	H	H	H

OR Gates Custom logic OR gates can be defined with up to six sources ('inputs'). The output of an OR gate goes *High* if *at least one* of the defined sources is *High* (the remaining sources do not matter then, i.e. '–'); or, in other words, it only goes *Low* if *all* defined sources are *Low*. Refer to the truth table examples for two and six inputs below.



In1	In2	Out
L	L	L
H	-	H
-	H	H
H	H	H



In1	In2	In3	In4	In5	In6	Out
L	L	L	L	L	L	L
H	-	-	-	-	-	H
-	H	-	-	-	-	H
-	-	H	-	-	-	H
-	-	-	H	-	-	H
-	-	-	-	H	-	H
-	-	-	-	-	H	H
H	H	H	H	H	H	H

XOR Gate

Custom logic XOR gates always have two sources ('inputs') only. The output of an XOR gate goes *High* if the two defined sources are *different*; or, in other words, it goes *Low* if *both* defined sources are *either High or Low*. Refer to the truth table below.



In1	In2	Out
L	L	L
H	L	H
L	H	H
H	H	L

NOT Gate

Custom logic NOT gates always have one single source ('input'). The output of a NOT gate goes *High* if the defined source is *Low*, and *vice versa*. The simple 'truth table' below has been added for completeness.



In	Out
H	L
L	H

Common for AND and OR Gates

Undefined sources are ignored, which means that the gate has just as many inputs (2...6) as defined with the configuration tool.

The default value of the (output) level is Low.

Common for XOR and NOT Gates

The output level is always Low as long as at least one of the sources ('inputs') is undefined.

Common for All Gates

The following is valid for all types of custom logic gates:

The default value of the output level is Low. It is used for defined local sources that are unavailable.

The default value of the 'Replacement Value' is Low. It is used for defined remote sources that are unavailable.

The labels are initialized by the software as 'AND nnn', 'OR nnn', 'XOR nnn' or 'NOT nnn', respectively.

The number of available gates is defined in the `CustomLogics.xml` file; the maximum number of gates allowed is defined in the corresponding Configuration Limits implementation Note for OnAir3000 or Route6000.

Since custom logic gates are (net-) consumers, they also allow the definition of a 'level producer'. The following producers are allowed:

- Local or remote GPIInputs
- Local or remote GPOutput Functions
- Local or remote Custom Logic.

6.5.26.3.2 Synchronization

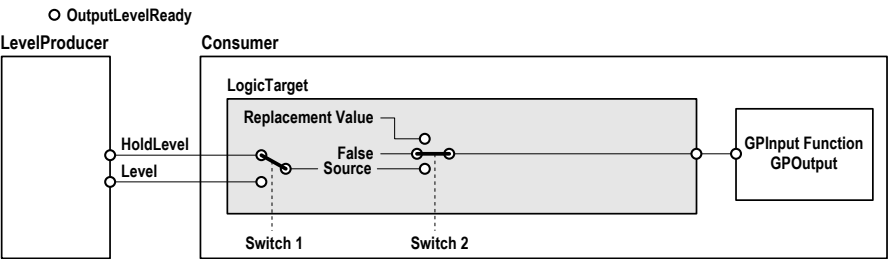
In order to provide stable and significant output signals of any user-configured circuit, all operations of the custom logic elements within a system are processed synchronously. The logical operations are processed in three steps:

- Latching all input levels to the custom logic ‘cloud’
- Processing all logic operations
- Latching the output levels to the custom logic ‘cloud’.

This cycle takes 20 ms, resulting in a latency of max. 20 ms for any circuit up to the permitted limit of ten cascaded logical operations.

6.5.26.3.3 Consumer Details

The Custom Logic synchronization mechanism requires all consumers (GPInput functions and GPOutputs).



The setting of switch 1 depends on the ‘Level Producer’ specified by the corresponding Source of an Input.

Source	SWITCH 1
Local or Remote GPInput	Level
Local or Remote GPOutput function	Level
Local or Remote Custom Logic	Hold Level

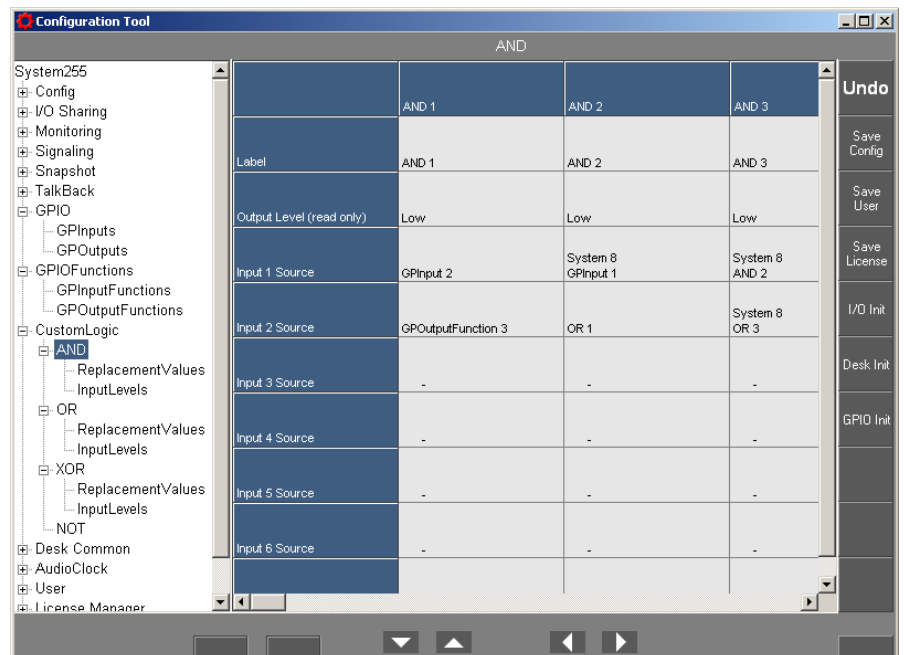
For cases where the ‘Level Producer’ is a remote system that may not always be available for any reason, a replacement value can be defined. This is done individually for every input in the ConfigTool.

The setting of switch 2 is defined as follows:

Source	SWITCH 2
If the source of the local system is not available (container missing or not ready yet, missing tree parameter, etc.)	Low
If the source is from a remote system currently not available	Replacement value
Otherwise	Source

6.5.26.3.4 Custom Logic Configuration

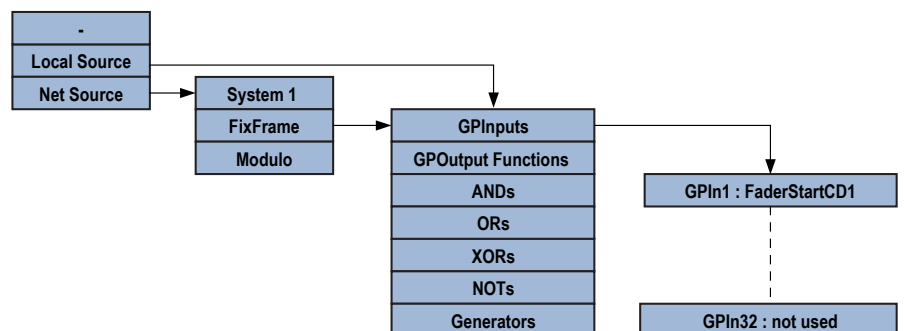
A 'Custom Logic' submenu has been added to the configuration menu tree. It contains a subpage for each of the four gate types described above.



Defining a Source

Defining a 'Level Producer' as a source for a consumer (Gate input, GPOutput or GPInput function) is the same for producers of both local and remote systems. The Source selection procedure is similar to the one for I/O Sharing audio NetConsumers. It consists of several levels.

When remote systems are available in the network, the source selection menu offers a remote systems selection field (–/Local Source/Net Source), otherwise only local sources are selectable (–/Local Source).



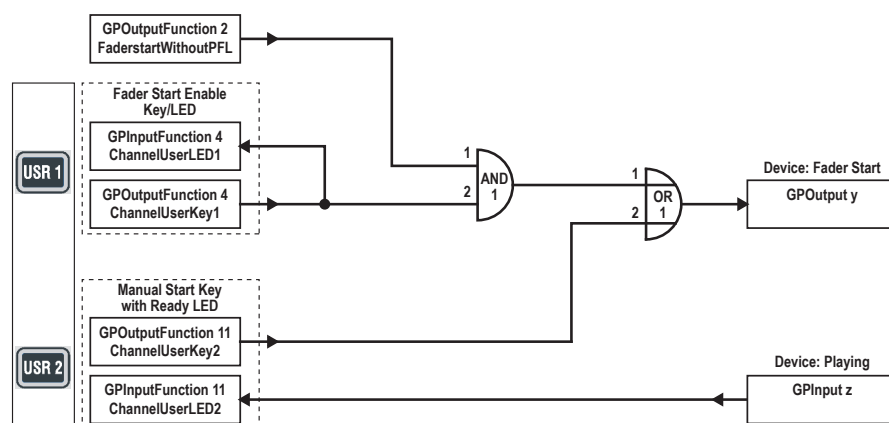
Once the system is selected, a submenu opens, showing a selection of producer categories. These are:

- GPInputs
 - GPOutput Functions
 - AND Gates
 - OR Gates
 - XOR Gates
 - NOT Gates
 - Generators (can be used for applications such as make a key LED flash).
- Selecting one of these categories provides another selection, showing the ID and Label of all 'Level Producers' of that category, such as
- 'GPOut 1: FaderStartCD1' for the GPOutput Functions category, or
 - 'AND 67: EnableFaderStartCD1' for the AND Gates category.

6.5.26.3.5 Custom Logic Examples

1 - Fader Start Application:

For enabling/disabling the fader start function of a particular channel strip, the **USR1** key can be used in this example (illuminated in case of 'enabled'). In addition, the playout device (such as a CD player) controlled by the fader start switch may also be started manually using the **USR2** key. This key's LED is used to indicate that the playout device is playing. It is stopped again either with a second press on the **USR2** key or by closing the fader.



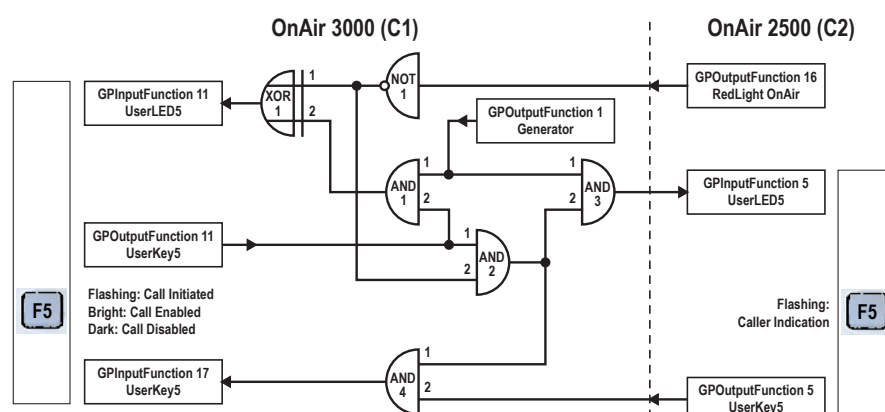
2 - Signaling Between Consoles:

i.e., from a console 1 (C1, OnAir 3000) to a console 2 (C2, OnAir2500). The C1 operator can send a call signal to the control room of C2 by pressing a user key (**F5** in our example). User key **F5** on C2 flashes to indicate the incoming call. User key **F5** on C1 flashes as well and indicates that the call has been sent out.

However, the call signal is sent only if C2 is not on-air (i.e., the red-light signal of C2 is off). This is indicated to the C1 operator by an illuminated **F5** key.

The C2 operator can confirm the call signal by pressing his (flashing) **F5** key which goes dark afterwards; **F5** on C1 goes dark, too, to indicate to the C1 operator that his signal has been received.

If no confirmation takes place at C2, the call signal can be canceled by pressing **F5** on C1 a second time – it will then be illuminated again, provided that C2 remains off-air.



- 1st Case** Let's assume that C2 is *off-air* for a start (i.e., GPOutputFunction 16 of C2 is low). The **F5** user key on C2 is dark. The **F5** user key on C1 is illuminated, indicating that a call signal from C1 to C2 is allowed.
- The C1 operator presses his **F5** key; GPOutputFunction 11 and input 1 of AND2 go high. The output of AND2 goes high, too
 - The output of AND3 alternates with the rate of GPOutputFunction 1 (generator), and the GPIInputFunction 5 of C2 makes the C2 **F5** key (UserLED5) flash.
 - The output of AND1 alternates too and makes the **F5** key on C1 (UserLED5) flash via XOR1.
 - Operator C2 confirms the call signal by pressing his flashing **F5** key. Input 2 of AND4 goes high. Since input 1 of AND4 (output of AND2) is high as well, the output of AND4 goes high and turns, via the GPIInputFunction 17, the GPOutputFunction 11 off again.

- 2nd Case** If C2 is *on-air* (i.e., GPOutputFunction 16 of C2 is high), the C1 **F5** key is dark.
- The C1 operator presses his **F5** key; GPOutputFunction 11 and input 1 of AND2 go high.
 - Since input 2 of AND2 is low (output of NOT1 is low), the output of AND3 remains low and the **F5** key on C2 remains dark; the C2 operator is not disturbed.
 - The output of AND1 still alternates and makes the **F5** key on C1 flash, telling the C1 operator that his call has been sent out.
 - As soon as C2 goes off-air, the output of NOT1 changes from low to high, opening the call signal path to C2; the **F5** key on C2 flashes.
 - Operator C2 confirms the call signal by pressing his flashing **F5** key. Input 2 of AND4 goes high. Since input 1 of AND4 (output of AND2) is high as well, the output of AND4 goes high and turns, via the GPIInputFunction 17, the GPOutputFunction 11 off again.

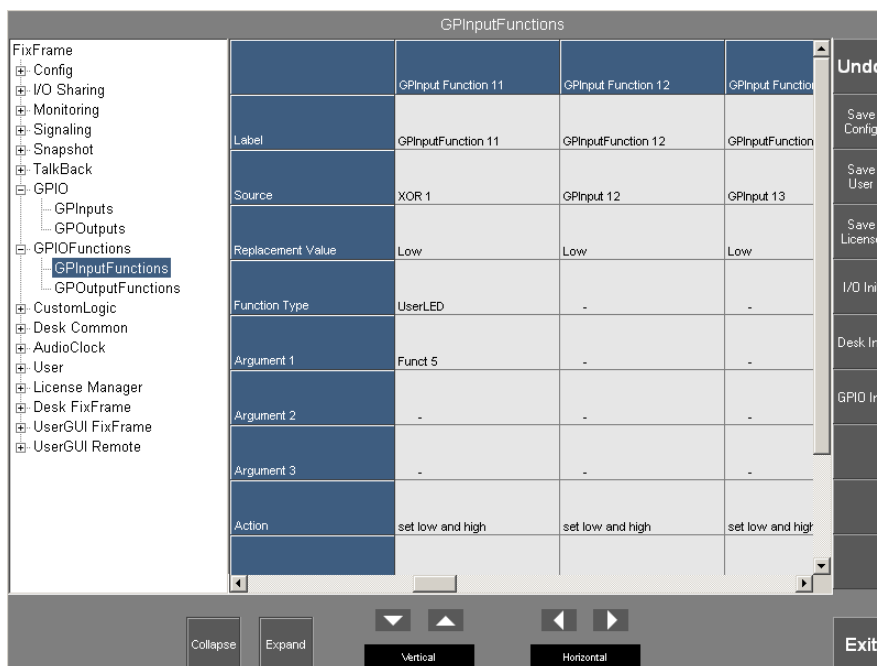
Notes *As can easily be seen from the diagram above, the whole logic is implemented in console C1. This is not mandatory, but allows implementing custom logic in a system that also incorporates OnAir 2500 consoles without a memory upgrade.*

Configuration Procedure Although the logic diagram is not very complicated, a structured procedure is recommended. Implementing the desired functionality is much easier if a diagram is available where also the gate inputs are numbered.

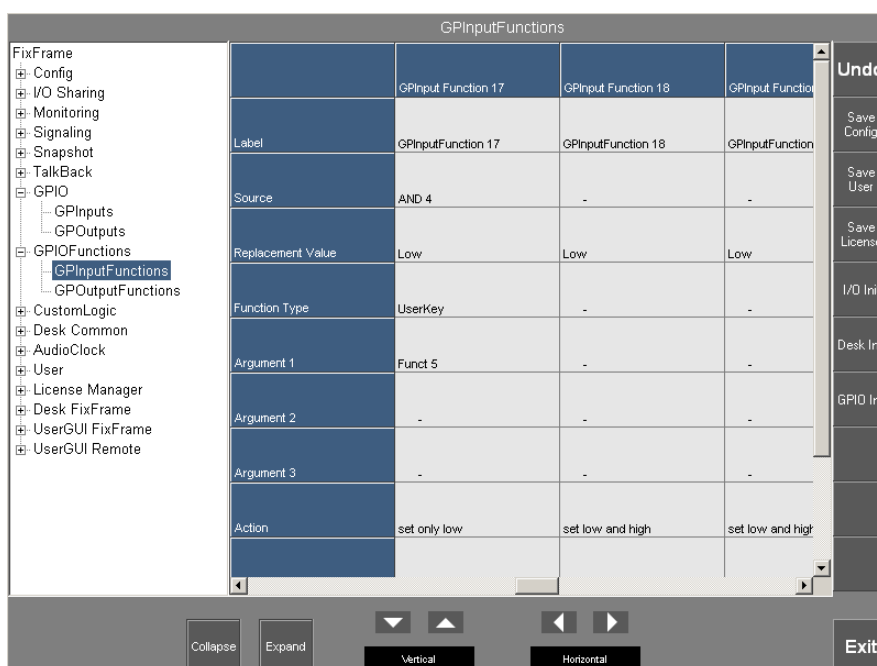
First of all, since no hardware GPIOs are used, neither GPIInputs nor GPOutputs need to be configured in our case – all that needs to be done takes place in the GPIOFunctions and CustomLogic sections of the configuration tool.

C1 Configuration Console 1 is an OnAir 3000, its identifier is FixFrame in our example.

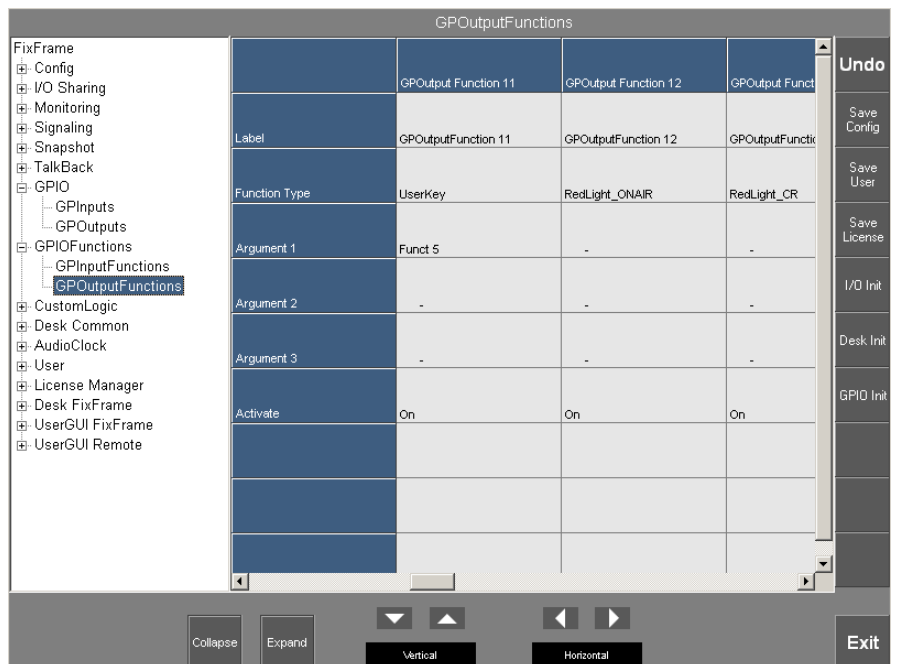
Step 1 GPIInputFunction 11 is set to UserLED and Funct 5; this way, with its input signal, the LED of user key no. 5 can be turned on or off (of course this needn't be GPIInputFunction 11; just select the first free function available). After scrolling down, the parameters Time are set to 0 ms, Triggered Edge to both, and Activate to On.



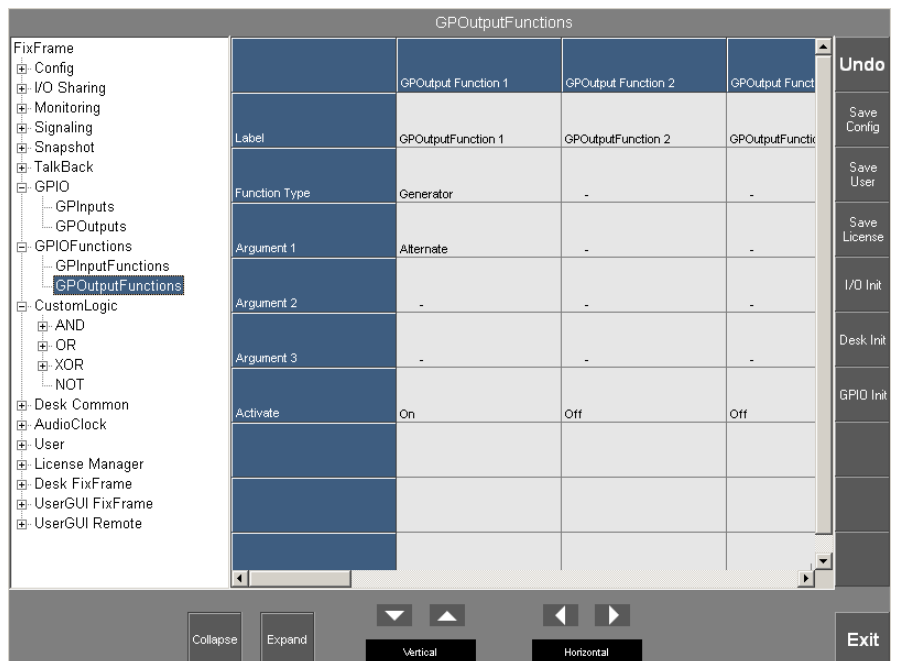
Step 2 GPIInputFunction 17 is set to UserKey and Funct 5, which means that user key no. 5 may also be operated remotely instead of manually. The control Source is the output of AND 4. Since its Action parameter is set to set only low, it can only be turned *off* remotely. After scrolling down, the parameters Time are set to 0 ms, Triggered Edge to rising Edge, and Activate to On.



Step 3 GPOutputFunction 11 is set to UserKey and Funct 5, with the Active parameter set to On.



Step 4 GPOutputFunction 1 is set to Generator and Alternate, with the Active parameter set to On. This is used to make the key LEDs flash.



Step 5 In the AND section, perform the settings as shown below; the gate and gate input designators correspond to the ones in the logic diagram above.

AND					
	AND 1	AND 2	AND 3	AND 4	Undo
Label	AND 1	AND 2	AND 3	AND 4	Save Config
Output Level (read only)	Low	Low	Low	Low	Save User
Input 1 Source	GPOutputFunction 11	NOT 1	AND 2	AND 2	Save License
Input 2 Source	GPOutputFunction 1	GPOutputFunction 11	GPOutputFunction 1	QA2K5 GPOutputFunction 5	I/O Init
Input 3 Source	-	-	-	-	Desk Init
Input 4 Source	-	-	-	-	GPIO Init
Input 5 Source	-	-	-	-	
Input 6 Source	-	-	-	-	

Step 6 Set all ReplacementValues for the AND gates 1-4 to Low.

ReplacementValues					
	AND 1	AND 2	AND 3	AND 4	Undo
Label	AND 1	AND 2	AND 3	AND 4	Save Config
Input 1 Replacement Value	Low	Low	Low	Low	Save User
Input 2 Replacement Value	Low	Low	Low	Low	Save License
Input 3 Replacement Value	Low	Low	Low	Low	I/O Init
Input 4 Replacement Value	Low	Low	Low	Low	Desk Init
Input 5 Replacement Value	Low	Low	Low	Low	GPIO Init
Input 6 Replacement Value	Low	Low	Low	Low	

Step 7 In the AND – InputLevels page (this is a read-only page) you will see the input no. 1 levels of AND gates 1 and 3 alternating since they are connected to the generator's output.

InputLevels					Undo
	AND 1	AND 2	AND 3		
Label	AND 1	AND 2	AND 3		Save Config
Input 1 Level (read only)	Low	High	Low		Save User
Input 2 Level (read only)	Low	High	Low		Save License
Input 3 Level (read only)	-	-	-		I/O Init
Input 4 Level (read only)	-	-	-		Desk Init
Input 5 Level (read only)	-	-	-		GPIO Init
Input 6 Level (read only)	-	-	-		

Step 8 'Connect' the inputs 1 and 2 of XOR 1 to NOT 1 and AND 1, as shown below.

XOR				
	XOR 1	XOR 2	XOR 3	Undo
Label	XOR 1	XOR 2	XOR 3	Save Config
Output Level (read only)	Low	Low	Low	Save User
Input 1 Source	NOT 1	-	-	Save License
Input 2 Source	AND 1	-	-	I/O Init
				Desk Init
				GPIO Init

Step 9 Set the ReplacementValues of XOR 1 to Low.

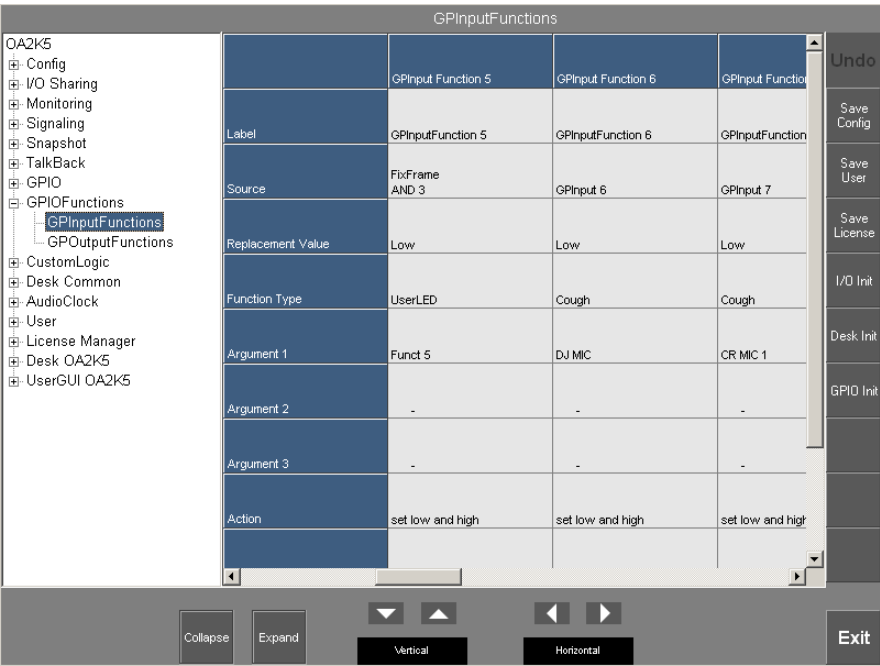
ReplacementValues				
	XOR 1	XOR 2	XOR 3	Undo
Label	XOR 1	XOR 2	XOR 3	Save Config
Input 1 Replacement Value	Low	Low	Low	Save User
Input 2 Replacement Value	Low	Low	Low	Save License
				I/O Init
				Desk Init
				GPIO Init

Step 10 Set the NOT 1 parameters as shown below.

NOT				
	NOT 1	NOT 2	NOT 3	Undo
Label	NOT 1	NOT 2	NOT 3	Save Config
Output Level (read only)	Low	Low	Low	Save User
Input Source	OA2K5 GPOutputFunction 16	-	-	Save License
Input Replacement Value	Low	Low	Low	I/O Init
Input Level (read only)	High	-	-	Desk Init
				GPIO Init

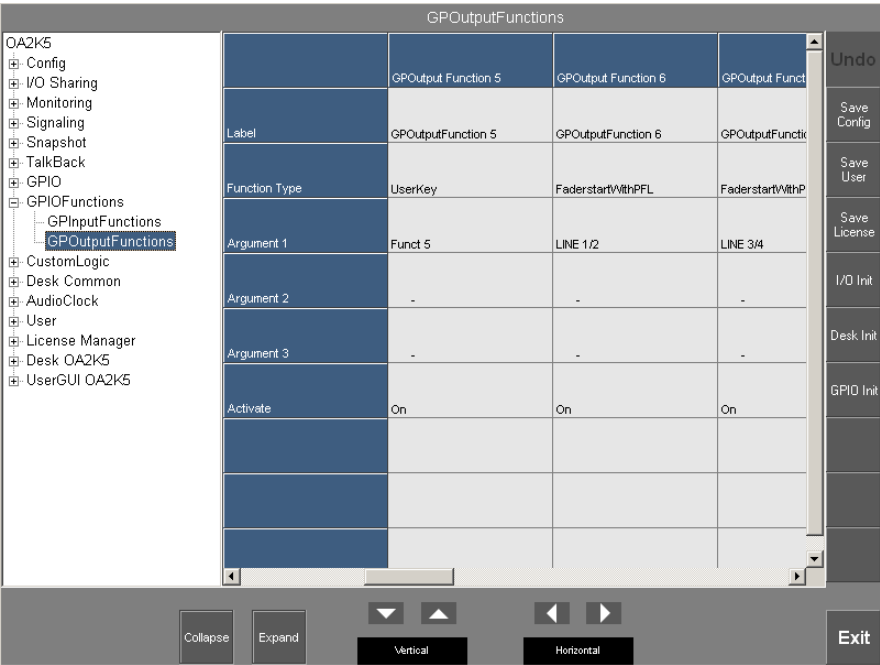
Now, the console 1 configuration is done; on console 2, only three more steps remain.

Step 11 On console 2, set the GPIInputFunction 5 parameters as follows:

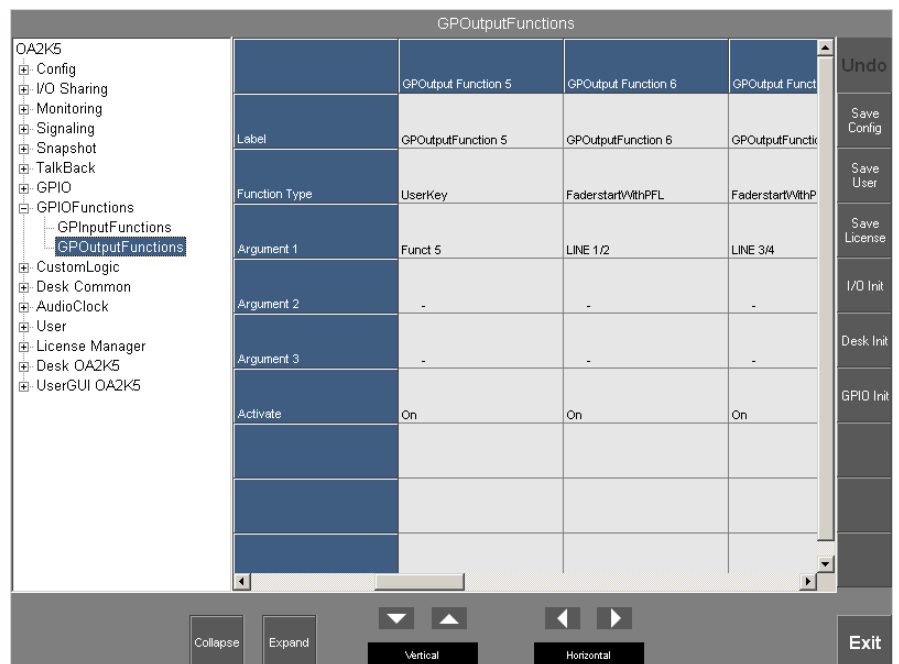


After scrolling down, the parameters Time are set to 0 ms, Triggered Edge to both, and Activate to On.

Step 12 Set the GPOutputFunction 5 parameters on console 2 as follows:



Step 13 Set the GPOutputFunction 16 parameters on console 2 as follows:



Now we're ready for a test:

- Console 2 (the OnAir 2500) is currently *not on-air*, so the **F5** key on console 1 is dark.
- Press **F5** on console 1 (the OnAir 3000).
- The console 2 **F5** key starts to flash. The **F5** key on console 1 flashes too, indicating that the call has been sent.
- The console 2 operator can confirm the incoming call by pressing his **F5** key which turns dark again. The **F5** key on console 1 goes dark, too.
- In the mean time, console 2 has been switched *on-air*, and the **F5** key on console 1 indicates this by illuminating.
- Press **F5** on console 1 (the OnAir 3000).
- The console 2 **F5** key remains dark in order to not disturb the operator. The **F5** key on console 1 flashes, indicating that the call has been sent.
- As soon as console 2 is *no more on-air*, its **F5** key starts to flash.
- The console 2 operator can confirm the incoming call by pressing his **F5** key which turns dark again. The **F5** key on console 1 goes dark, too.

If the test was successful and you want to keep this functionality, remember to save both console 1 and console 2 configurations.

6.5.26.3.6 Error Handling

GPIO If the number of installed GPIO cards doesn't match the number of GPIInputs specified in the D21m.xml file, the following user message appears in a modal dialog during power-up:

User Warning 3035: I/O 21, Missing GPIO Card(s). **32** GPIInputs configured, **16** GPIOs found.

If the number of installed GPIO cards doesn't match the number of GPOutputs specified in the D21m.xml file, the following user message appears in a modal dialog during power-up:

User Warning 3036: I/O 21, Missing GPIO Card(s). **32** GPOutputs configured, **16** GPIOs found.

Custom Logic If the DNet connection to a remote system from which at least one one of its 'Level Producers' is consumed by a Custom Logic, GPOutput or GPIInput function, the following user warning appears in a modal dialog:

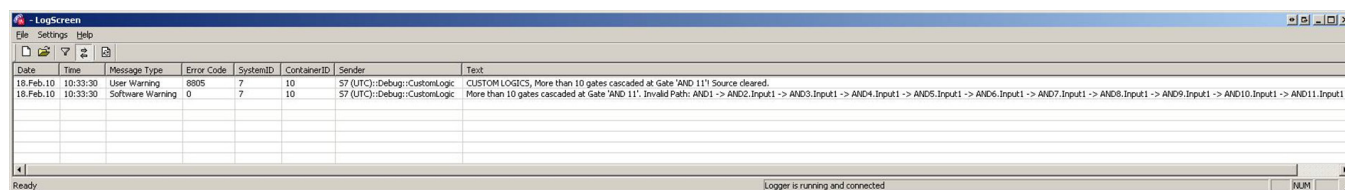
User Warning 8800: CUSTOM LOGIC, Connection to CORE '**System71**' lost. Remote GPIO and Custom Logic from that CORE are not available.

In order to keep the system stable and with good performance, the Custom Logic configuration is validated during configuration of the sources of Custom Logic gates. The system keeps track of each connection between gates and creates one of the user warnings described below. Custom logic will automatically clear the source. This makes sure that no erroneous configuration can be saved in the console configuration (initial snapshot.cfg).

If a Source is configured that exceeds the limit of maximum 10 cascades, the following user warning is displayed:

User Warning 8805: CUSTOM LOGICS, More than 10 gates cascaded at Gate '**AND 11**'! Source cleared.

To help identifying the cascade, a software warning is written into the log file of a running Logger, as shown below.

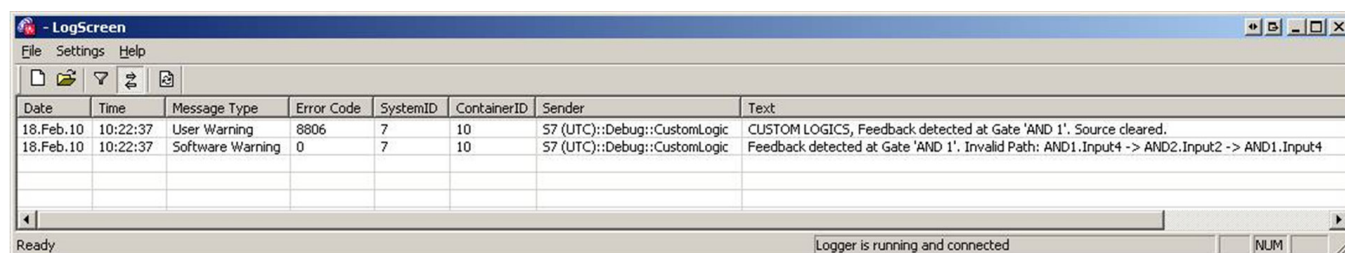


Date	Time	Message Type	Error Code	SystemID	ContainerID	Sender	Text
18.Feb.10	10:33:30	User Warning	8805	7	10	S7 (UTC)::Debug::CustomLogic	CUSTOM LOGICS, More than 10 gates cascaded at Gate 'AND 11'! Source cleared.
18.Feb.10	10:33:30	Software Warning	0	7	10	S7 (UTC)::Debug::CustomLogic	More than 10 gates cascaded at Gate 'AND 11'. Invalid Path: AND1 -> AND2.Input1 -> AND3.Input1 -> AND4.Input1 -> AND5.Input1 -> AND6.Input1 -> AND7.Input1 -> AND8.Input1 -> AND9.Input1 -> AND10.Input1 -> AND11.Input1

If a Source is configured that creates a feedback, the following user warning is displayed:

User Warning 8806: CUSTOM LOGICS, Feedback detected at Gate '**AND 1**'. Source cleared.

To help identifying the feedback loop, a software warning is written into the log file of a running Logger, as shown below.

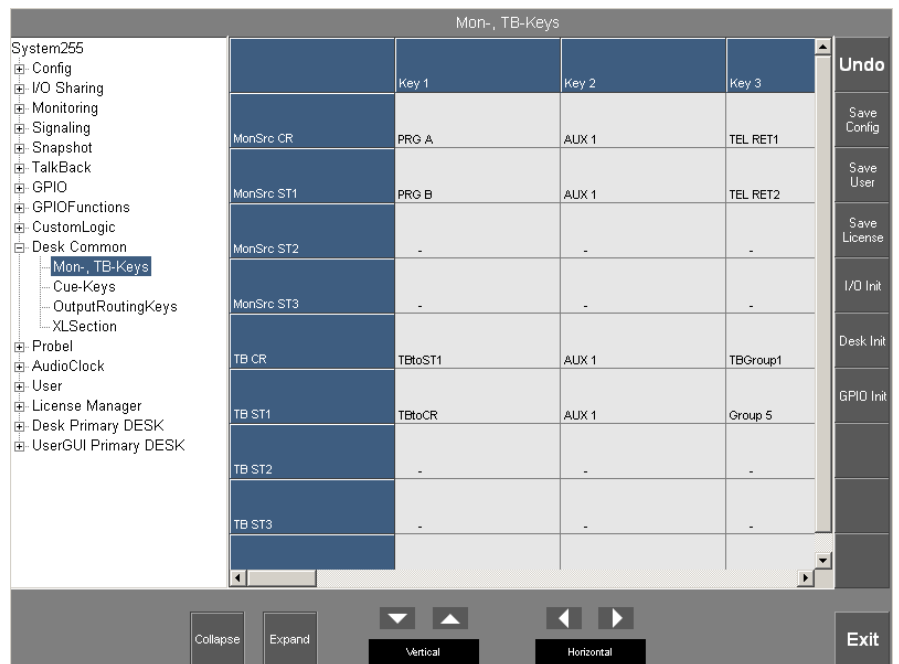


Date	Time	Message Type	Error Code	SystemID	ContainerID	Sender	Text
18.Feb.10	10:22:37	User Warning	8806	7	10	S7 (UTC)::Debug::CustomLogic	CUSTOM LOGICS, Feedback detected at Gate 'AND 1'. Source cleared.
18.Feb.10	10:22:37	Software Warning	0	7	10	S7 (UTC)::Debug::CustomLogic	Feedback detected at Gate 'AND 1'. Invalid Path: AND1.Input4 -> AND2.Input2 -> AND1.Input4

6.5.27 Desk Common

6.5.27.1 Mon, TB Keys

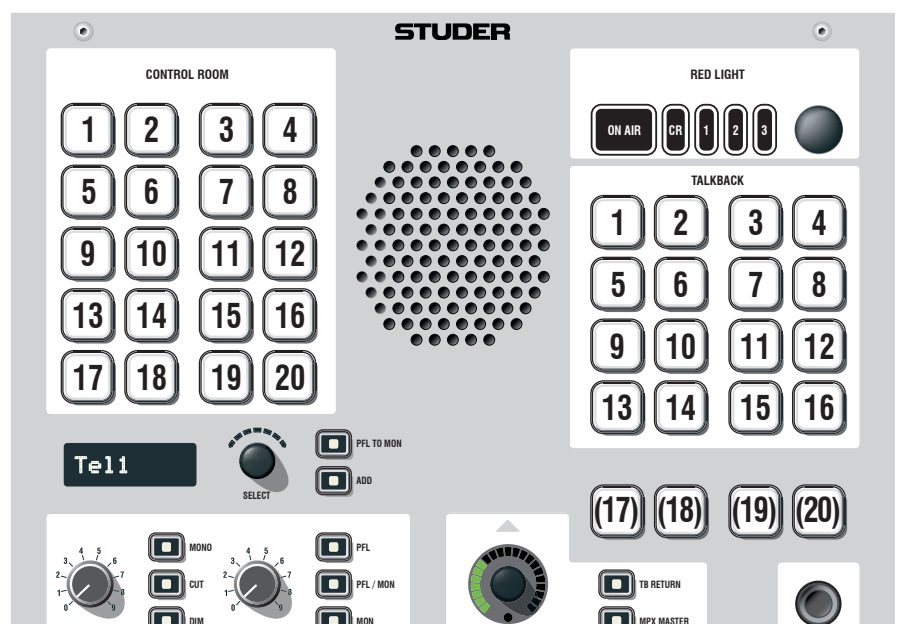
OnAir 3000



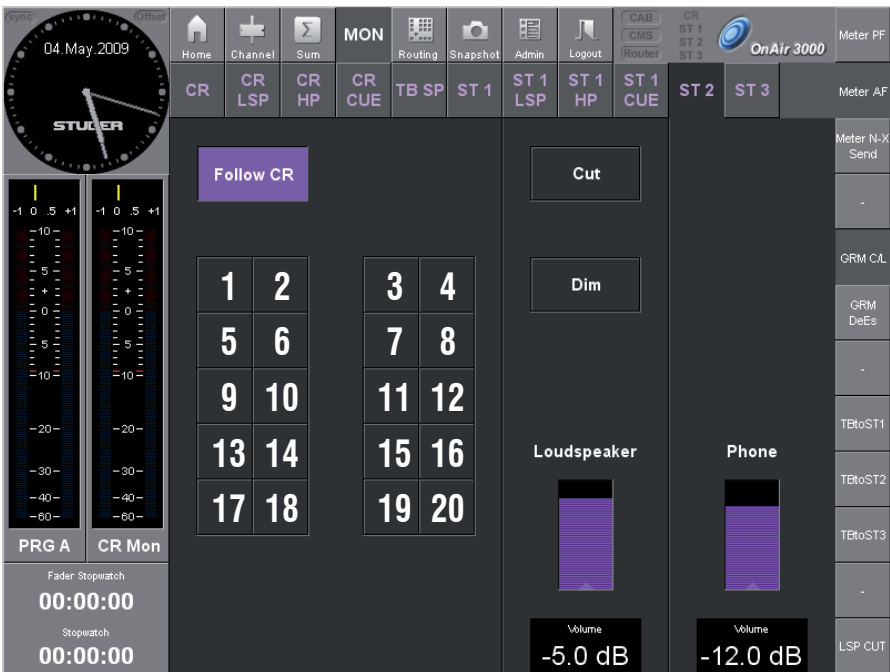
This page allows assigning monitoring sources to the **CONTROL ROOM / MONITOR** and talkback destinations to the **TALKBACK** key fields of the monitoring/talkback modules in the control room and in the studios. The Rotary parameter stands here for the ▼ key (no. 17) in the **CONTROL ROOM / MONITOR** field. These keys are duplicated by the 20 buttons on the **MON - CR** and **MON - ST1-3** GUI pages, as well as by the 16 buttons on the **MON - TB SP** GUI page.

Both fields contain 20 keys/buttons (16 in case of the **MON - TB SP** GUI page), their numbering is given in the illustrations below. Normally, for the **TALKBACK** field only 16 keys are used, and the keys 17-20 are labeled **F11** to **F14** (user functions). For special requirements these keys may be defined as talkback keys as well.

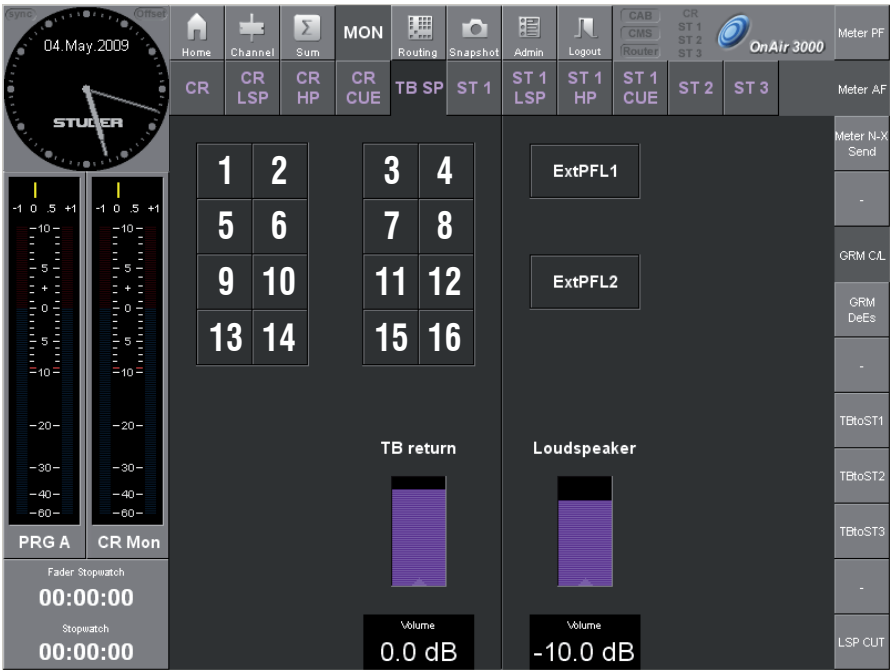
Mon/TB Module Key Nos.:

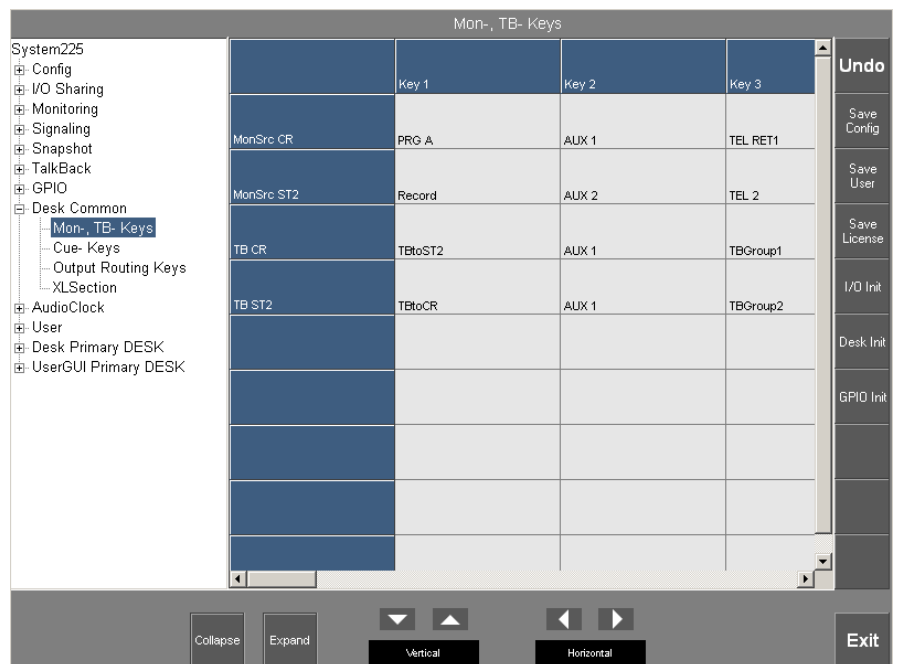


OnAir 3000 ST1-ST3 Key Nos.:

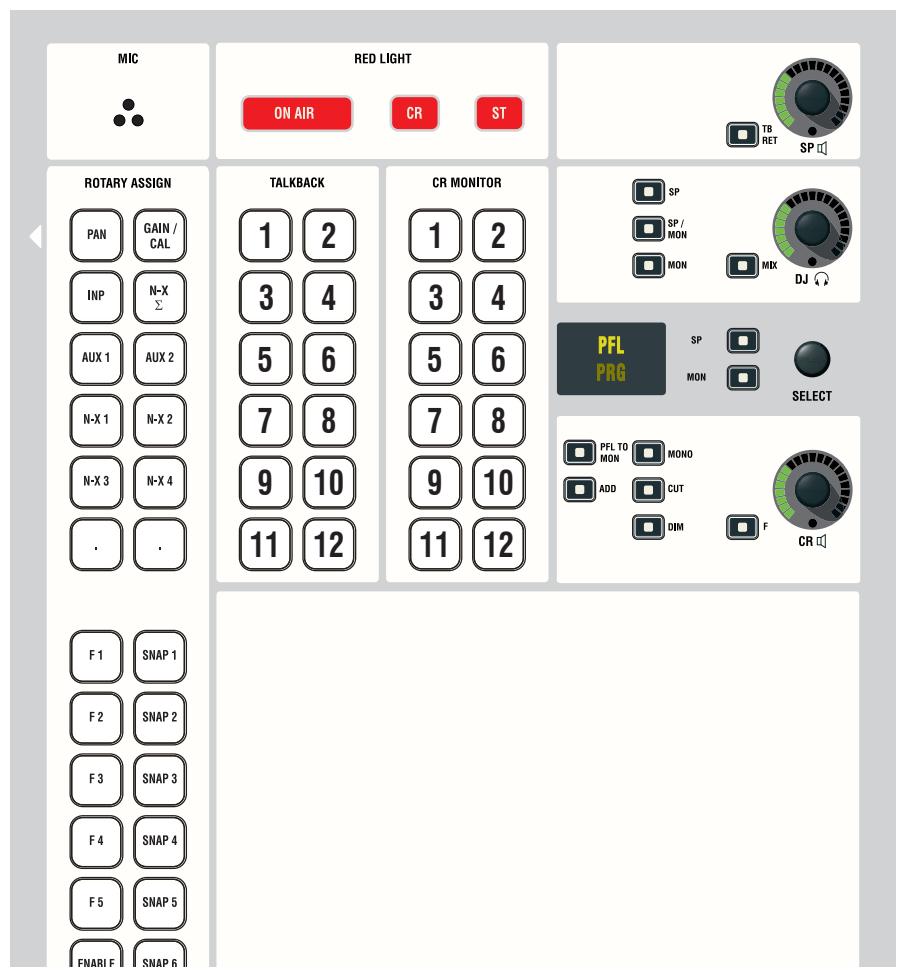


OnAir 3000 TB SP Key Nos.:

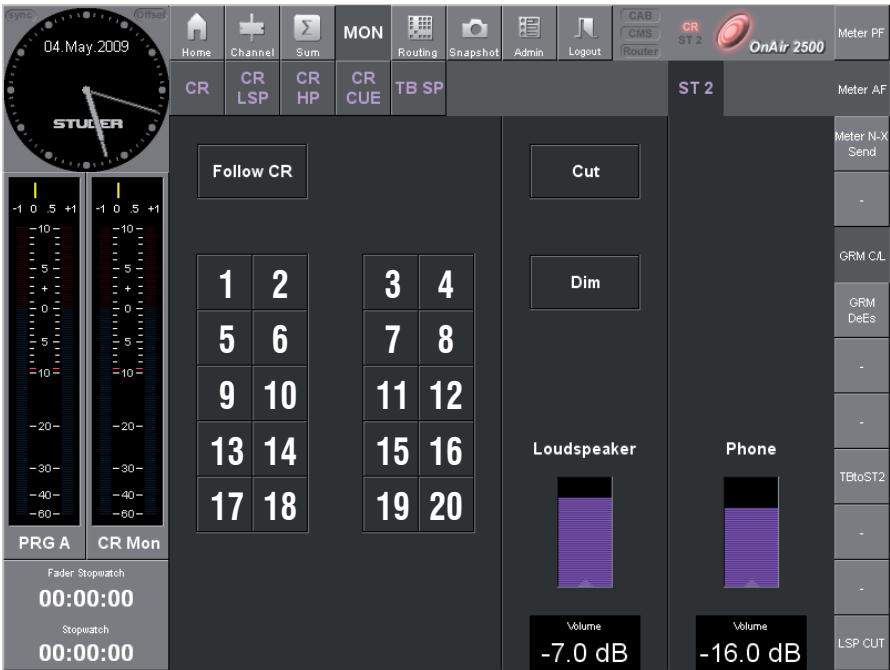


OnAir 2500

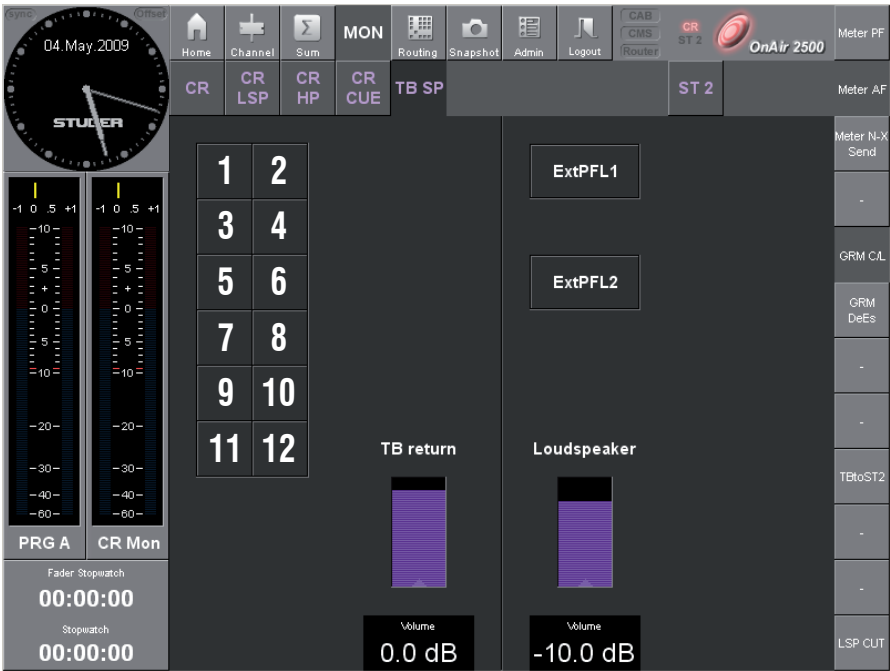
This page allows assigning monitoring sources to the **CR MONITOR** and talk-back destinations to the **TALKBACK** key fields of the console's central module. The **Rotary** parameter stands here for the **►** key (no. 6) in the **CR MONITOR** field. These keys are duplicated by the 20 buttons on the **MON - CR** and **MON - ST2** GUI pages, as well as by the 12 buttons on the **MON - TB SP** GUI page. The key/button numbering is given in the illustrations below.

CR MONITOR/TALKBACK Key Nos.:

OnAir 2500 ST2 Key Nos.:

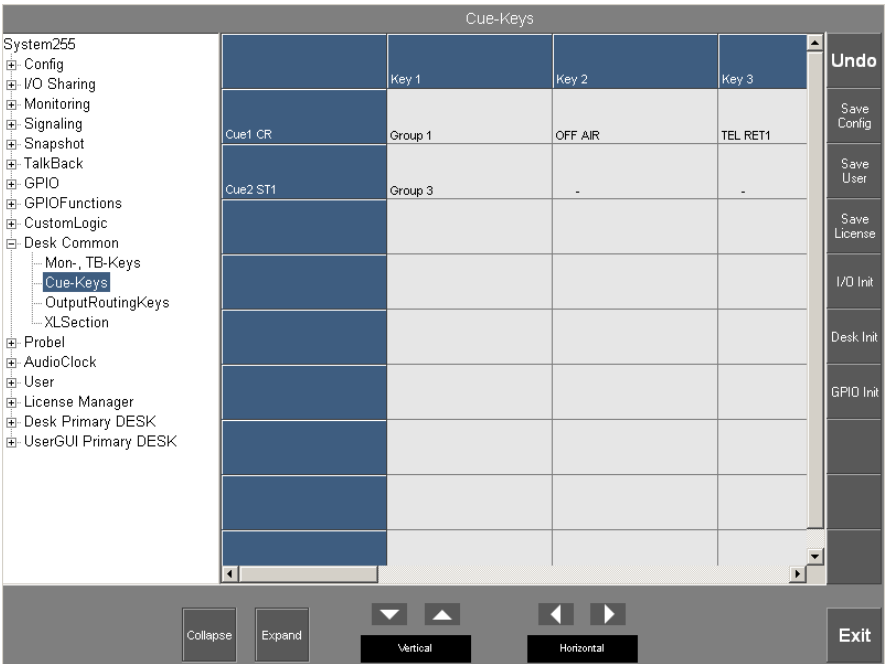


OnAir 2500 TB SP Key Nos.:

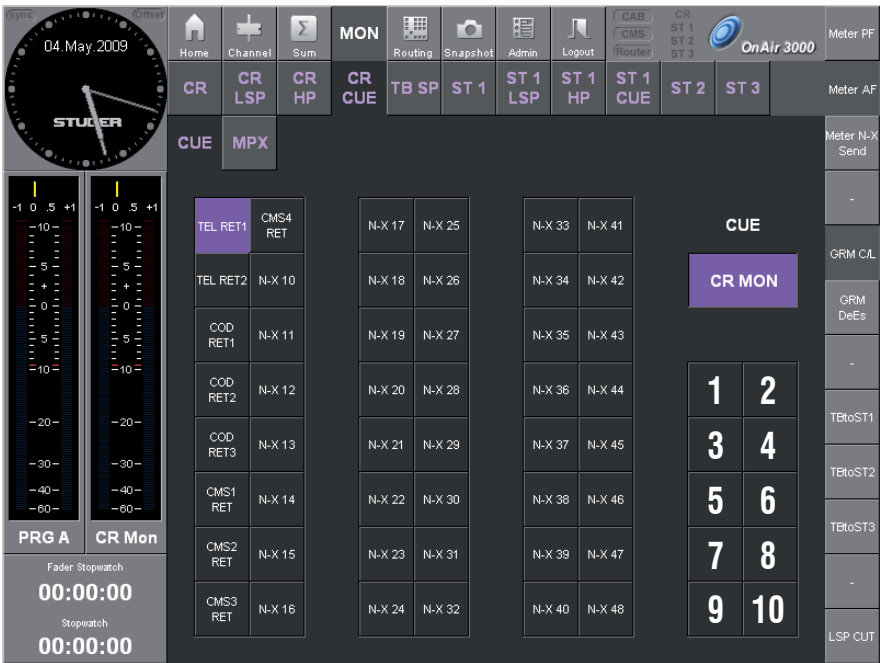


6.5.27.2 Cue Keys

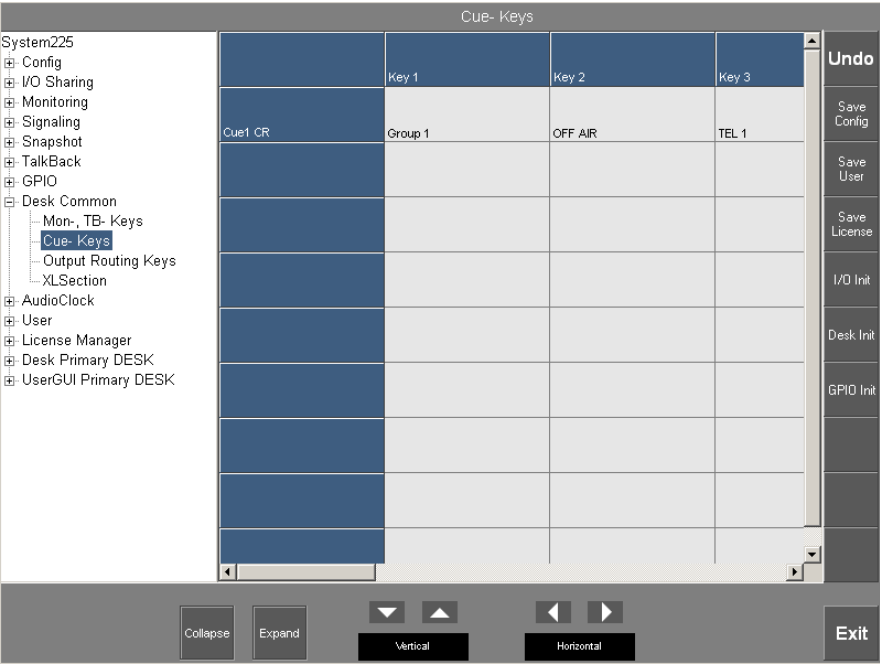
OnAir 3000



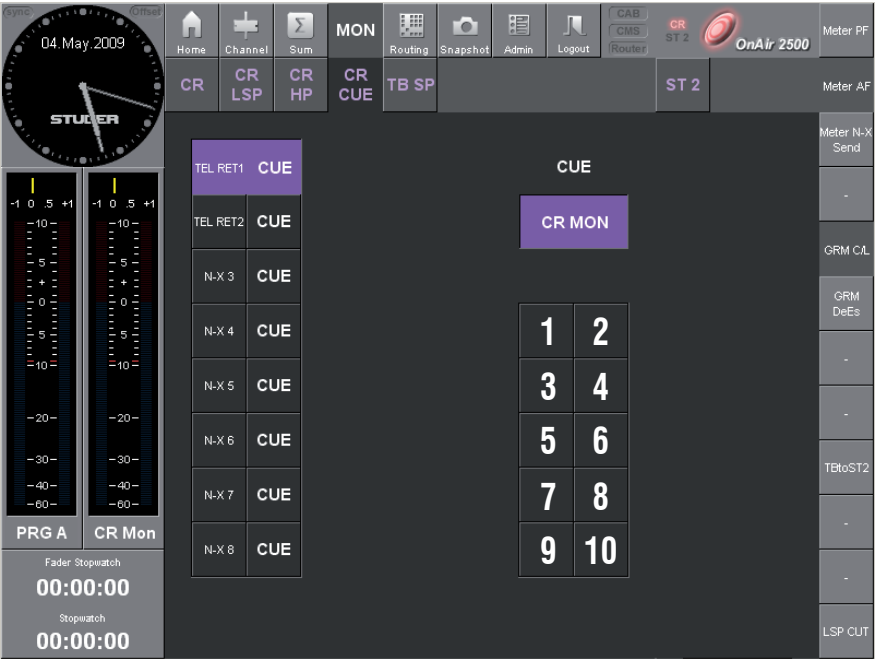
This page allows assigning ten selected cue feeds (i.e., any available input, output, or bus) to the **CUE** button field of the GUI **MON - CR CUE** and **MON - ST1 CUE** pages (in the control room and in studio 1).



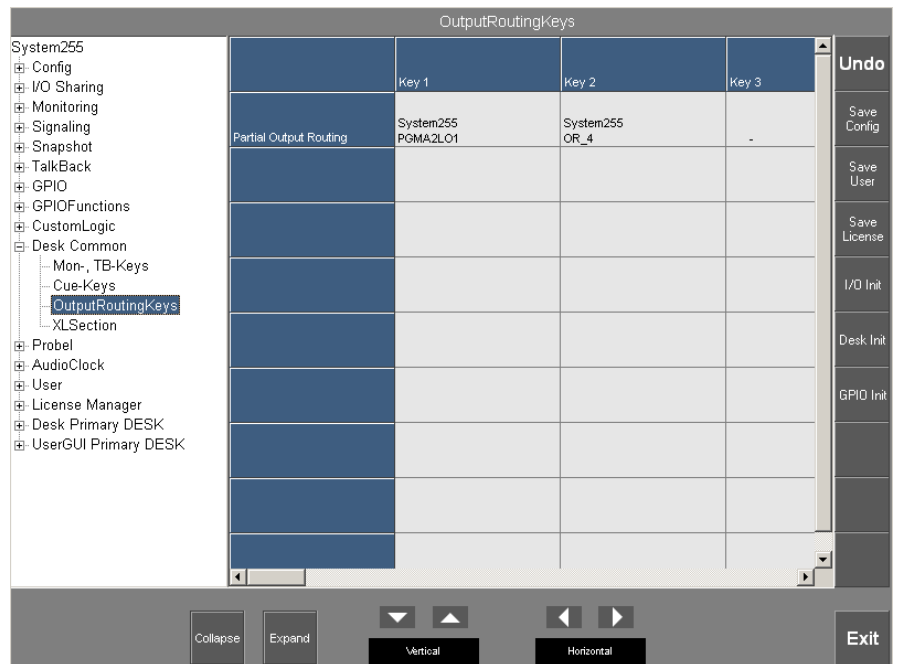
OnAir 2500



This page allows assigning ten selected cue feeds (i.e., any available input, output, or bus) to the **CUE** button field of the on the GUI **MON - CR CUE** page (in the control room).

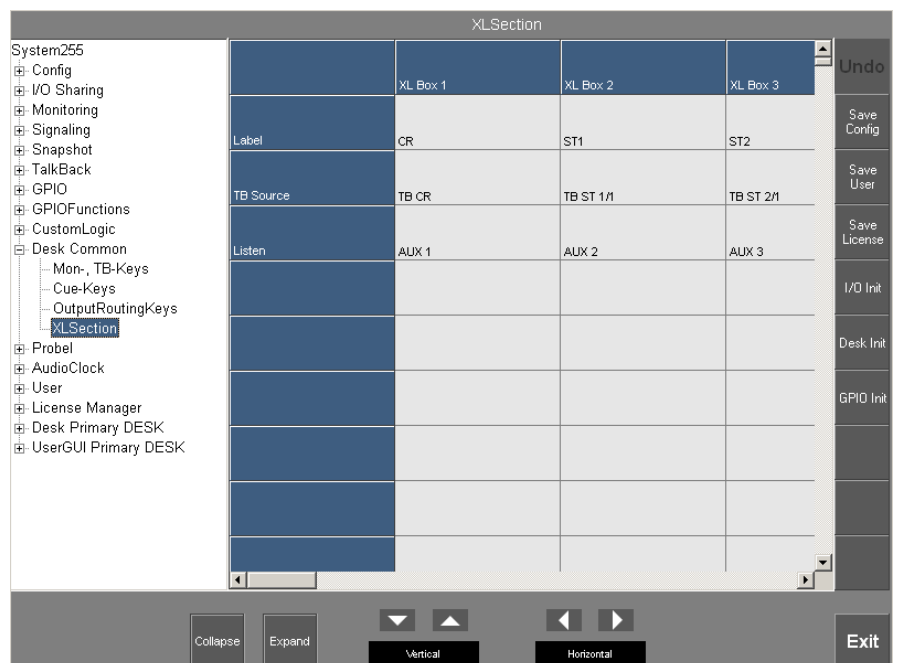


6.5.27.3 Output Routing Keys



This page allows assigning up to 24 Partial Output Routings to the output routing keys. Which hardware keys this will be on the desk must be defined in the Desk_KeyMapping.xml file.

6.5.27.4 XL Section



The AUX bus required to listen to outside sources as well as the talkback source location are defined on this page. Per default, AUX 1 is assigned to the XL box in the control room, AUX 2 to the XL box in studio 1, AUX 3 to the one in studio 2, and AUX 4 to the one in studio 3. Source selection is performed in the user GUI's **Route – XL Assign** page (also refer to [chapter 5.11.5.5](#)).

SW V3.0 and later allow assigning up to 20 different XL boxes. Since SW V3.2, the XL box configuration features ‘advanced’ and ‘legacy’ modes. Advanced mode is supported by systems with SCore Live and console configuration C109 only. It allows listening to a maximum of 48 external sources not being assigned to a fader, as well as comfortable intercom functions. Legacy mode only supports all XL box functions available before V3.2; it is active as long as any of the ‘conventional’ buses (such as PFL, N–X or AUX) is selected in the Listen field; advanced mode is automatically entered if one of the TB matrix outputs is selected.

OnAir 2500 AUX3/4 and studio 1/3 not supported; only up to two XL boxes supported; advanced mode not supported.

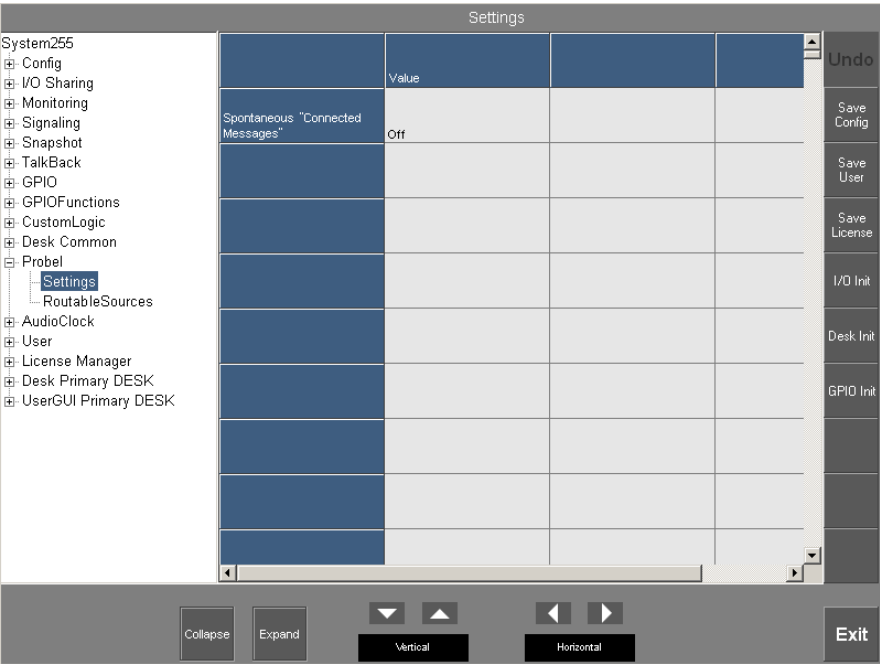
6.5.28 Pro-Bel

The Pro-Bel extension provides an interface to remotely set or remove audio connections in the output routing of a controlled device. A remote device can send messages through a serial COM port or via TCP/IP, using the ‘Pro-Bel General Switcher Communication Protocol’. This protocol provides a robust and asynchronous method of controlling routers and is the preferred method of communication.

Supported Physical Connections:

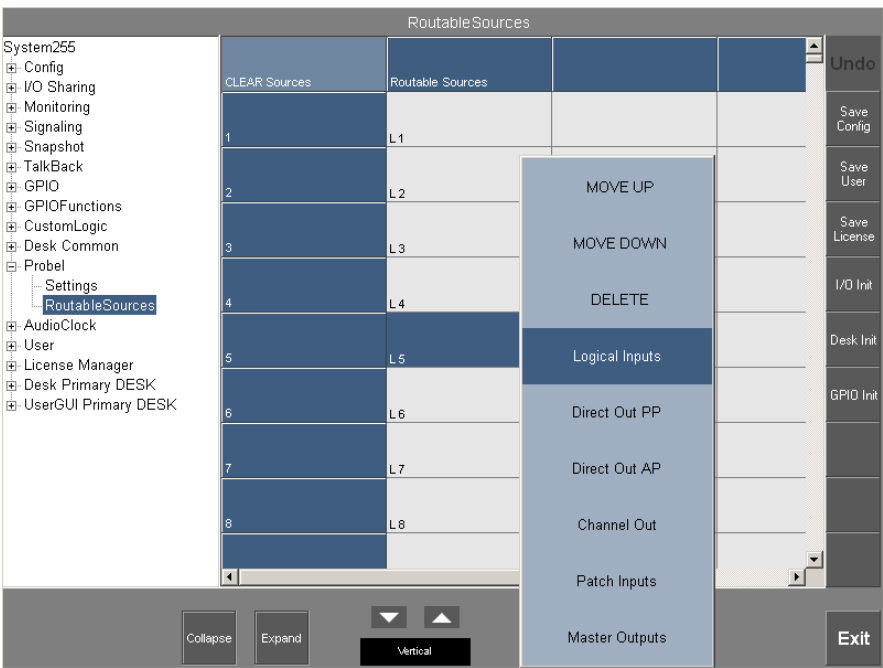
Protocol	Serial via RS232/422	TCP/IP via Ethernet	SW Version
SW-P-02	Yes	Not supported	V1.1
SW-P-08	Yes	Yes	V2.1.6

6.5.28.1 Settings



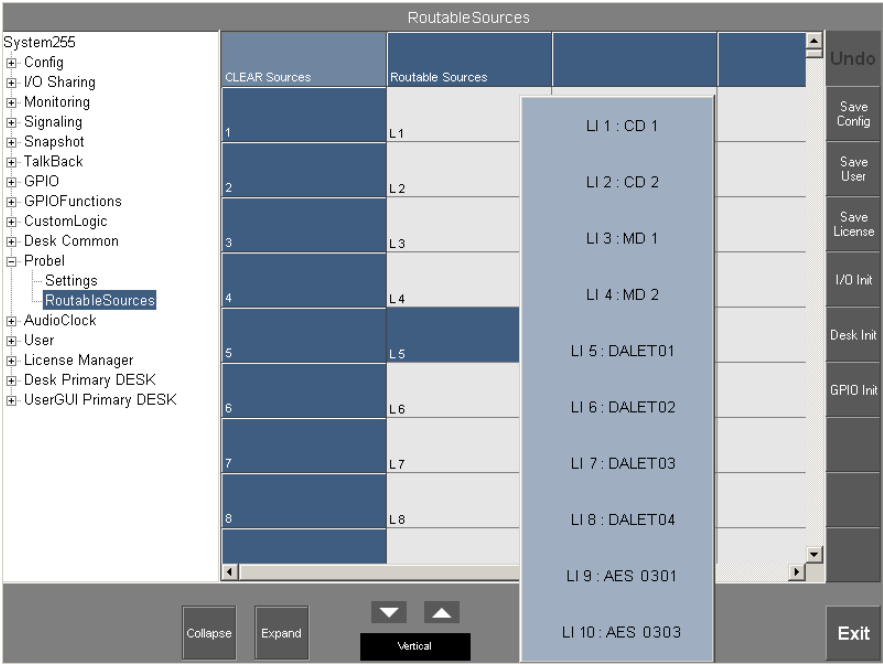
On this page the ‘connected’ or ‘disconnected’ user messages can be enabled or disabled (default setting: Off).

6.5.28.2 **Routable Sources**



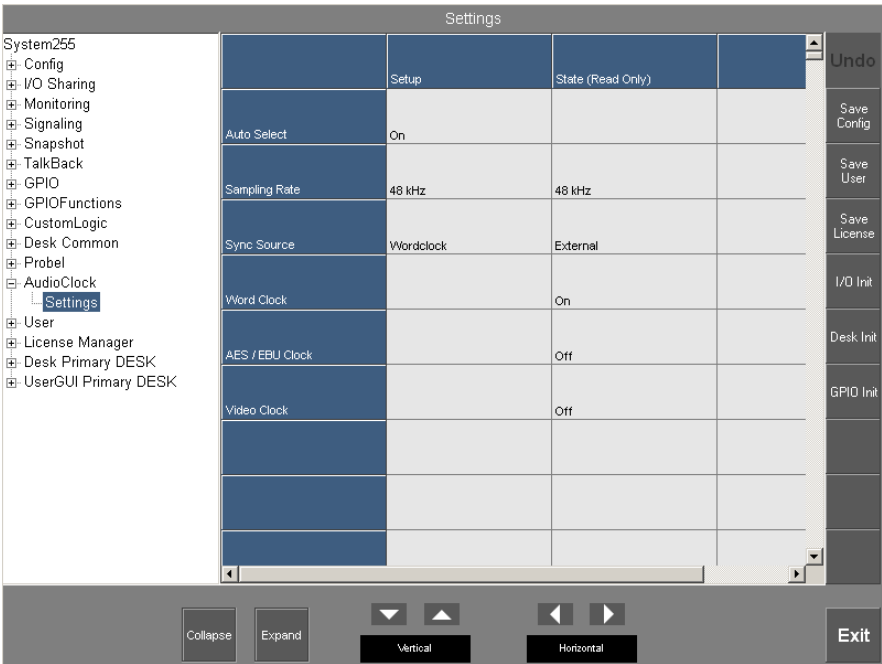
CLEAR Sources The top left CLEAR Sources field is colored brighter than the others; it can be used to clear all configured sources. If it is touched, clearing the sources has to be confirmed in a dialog box.

L1, L2,... define the physical audio inputs used to establish the logical input. After touching one of the L... fields, a list appears for selection of the routable sources. When touching e.g. the Logical Inputs field, a list for selection of all possible logical inputs appears.



6.5.29 Audio Clock

6.5.29.1 Settings



On this page the current audio clock parameters are displayed in the right State (Read Only) column; settings are made in the Setup column.

Auto Select Defines the behavior of the console once the external clock should fail. If Off is selected, the console will automatically switch to its internal clock whenever the selected external Sync Source clock is missing. If On is selected, the priority of the external clock signals is as follows:

Priority	Audio Clock (Sync) Source
1	Video Clock
2	AES/EBU Clock
3	Word Clock
4	Internal

Note: (*OnAir 2500 only*): If MADI Clock is selected, Auto Select *must* be set to Off.

Sampling Rate can be selected from 44.1 kHz and 48 kHz. The coefficients of any filter or EQ frequency are automatically modified when changing the sampling rate; frequency parameters are always displayed correctly.

Sync Source can be selected from Internal, AES / EBU Clock, Word Clock, and either Video Clock (*OnAir 3000 only*) or MADI Clock (*OnAir 2500 only*).

Word Clock On/Off status display.
Supported by SW V3.0 and up. The following (or higher) firmware releases are required for compatibility:

- Compact SCore: S943.095421 on Audio Clock card
- SCore Live: S943.092822 on Bridge card.

AES / EBU Clock On/Off status display.

Video Clock On/Off status display (*supported by OnAir 3000 only*), or
MADI Clock On/Off status display (*supported by OnAir 2500 only*).

6.5.30 User (User Management)

6.5.30.1 Admin

The system administrator ('Admin', user no. 1) automatically has access to all features of the console and its configuration; for him, only the Admin policy (no. 1) is valid. No other policy may be assigned to him; however, the Admin policy may be assigned to other users, if required.

The administrator's user name and his password may be changed using the pop-up keyboard; the factory default settings are Admin for his user name, and **admin** for his password. *Please note that the password is case-sensitive – this is important for correct log-in.*

FaderScaleMode

Since SW V3.2 an additional setting can be made here: Either the standard +10 dB on Fader Top or the new 0 dB on Fader Top. This can be set individually for every user.

Depending on the used fader modules and the physical fader positions, different behaviours have to be considered; however, the functionality has been designed in such a way that the switchover either causes no level jump at all or that an unavoidable level jump is kept as small as possible. During everyday operation, the function is switched over only when a different user logs in and the faders are down.

Switchover Behaviour:

When switching from 0 dB on Fader Top to +10 dB on Fader Top: No level jumps occur in any case.

When switching from +10 dB on Fader Top (standard) to 0 dB on Fader Top:

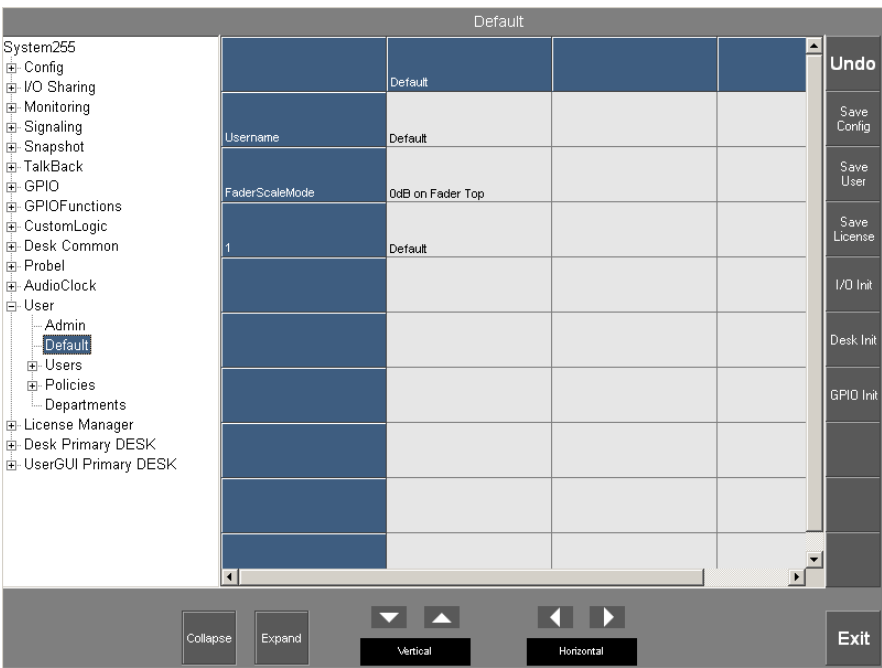
Motor Fader Module

- Physical fader position *below* the 0 dB marker: The fader knob moves up by 10 dB, no audio level jump occurs.
- Physical fader position *above* the 0 dB marker: The fader motor is turned off; *upon touching the fader knob, the audio level jumps down by 10 dB; this cannot be avoided, except if taking care that the faders are below the 0 dB marker on switchover.*

Non-Motor Fader Module

The fader goes into take-over mode, regardless of its physical position; when moving the fader button until the physical and the electrical fader positions match again, no level jump occurs in any case.

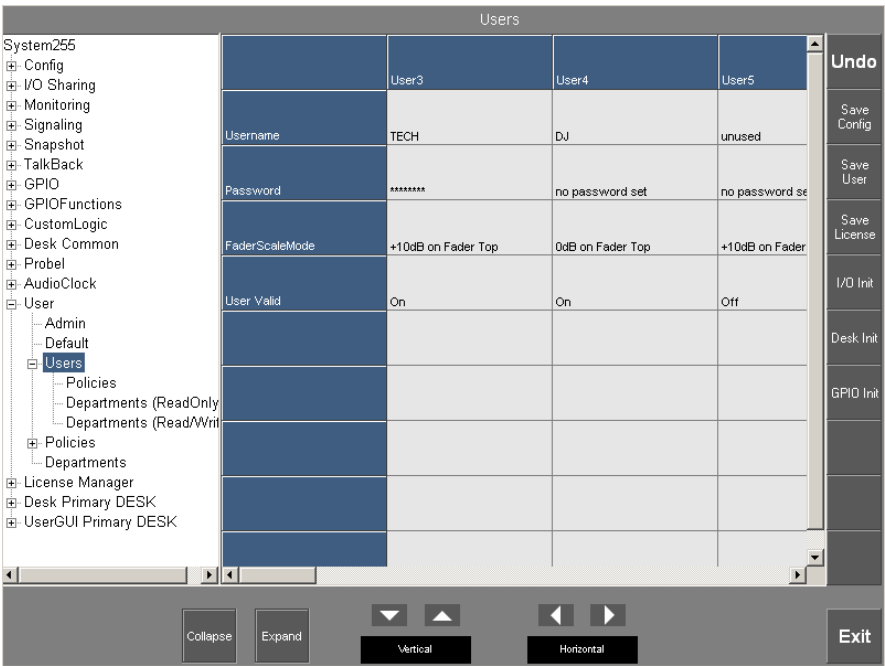
6.5.30.2 Default User



For the default user ('Default', user no. 2) only the Default policy (no. 2) is valid, no different policy can be assigned to him; however, the Default policy may be assigned to other users too, if required. The default user's name is **Default**; it may be changed using the pop-up keyboard, if required. No password is available or required for the default user.

FaderScaleMode The 0 dB on Fader Top function is available for the default user, too – refer to [chapter 6.5.30.1](#).

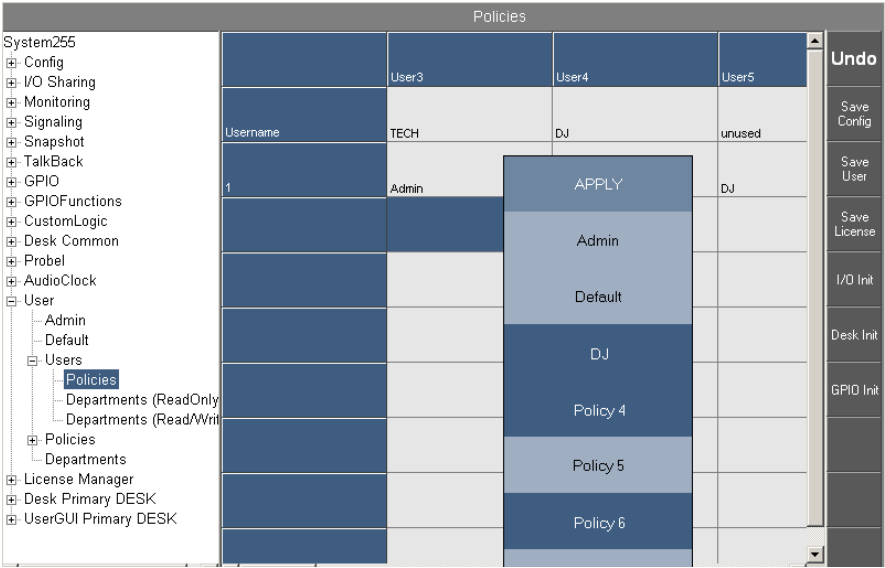
6.5.30.3 Users



The Users page is used to enter the names and passwords for users no. 3-20 (or up to 64 if defined in the `user.xml` file) on a standalone system. For the system administrator (Admin, user no. 1) and the default user (Default, user no. 2) separate pages are available, as mentioned above. If more than 64 users and/or more than 16 policies are required, central user management must be used (refer to [chapter 5.8.9](#)).

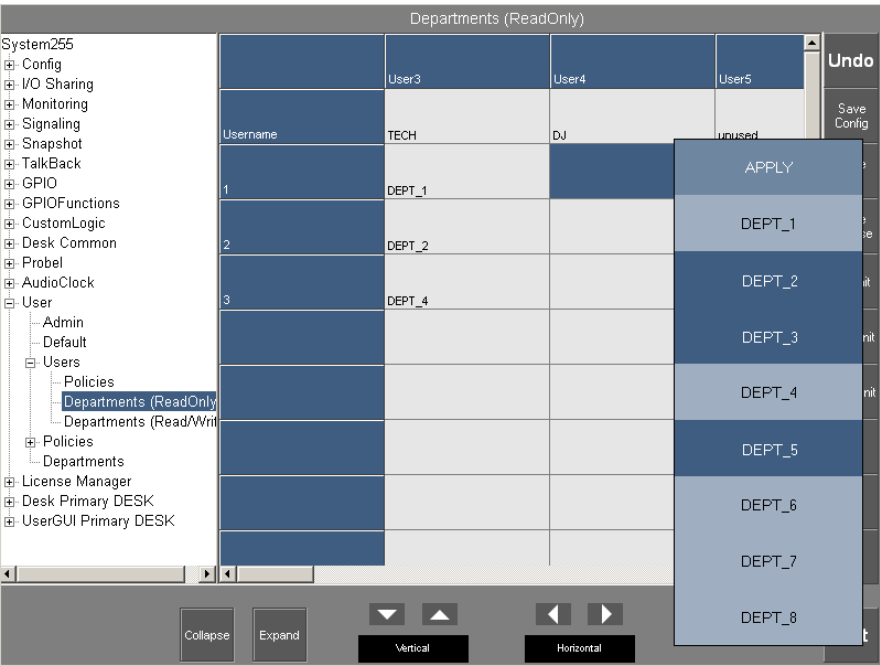
When touching one of the Username or Password fields, the same keyboard appears that is used for label entries. *Please note that the password is case-sensitive – this is important for correct user log-in.*

By setting User Valid to Off, access for a particular user can be blocked.



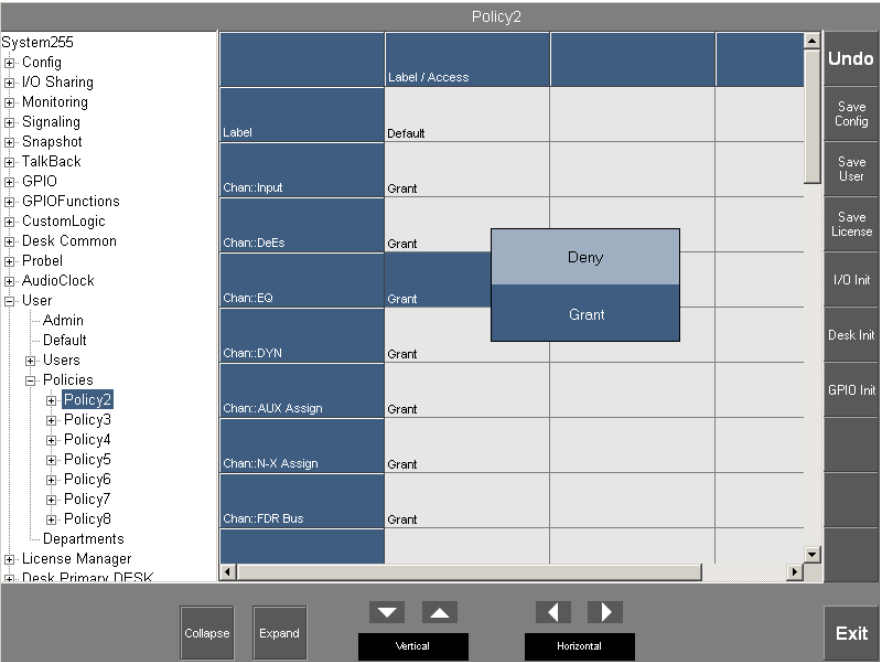
Users – Policies

For managing user access rights, one or more Policies may be assigned to all users except the Admin and Default users. If more than one policy is assigned to a user, this results in a logical OR combination of the policies. For more information on user privileges and policies, please refer to [chapter 5.8](#).



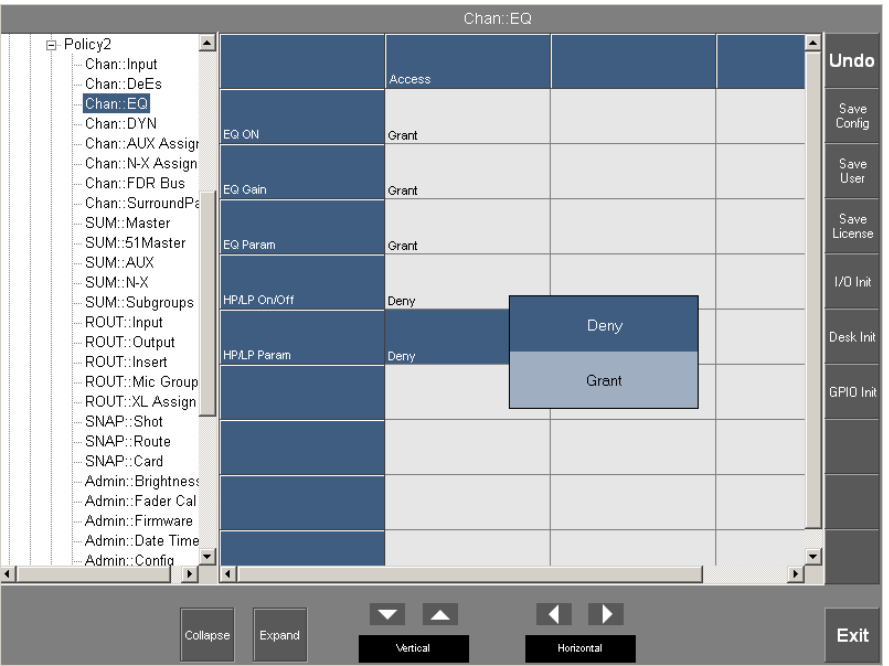
Users – Departments For snapshot management, one or more departments can be assigned to each user. In addition, it can be defined whether the user can only *read* snapshots from a certain department (**Read Only**), or whether he is allowed to *modify or create* department snapshots (**Read/Write**).

6.5.30.4 Policies, Departments

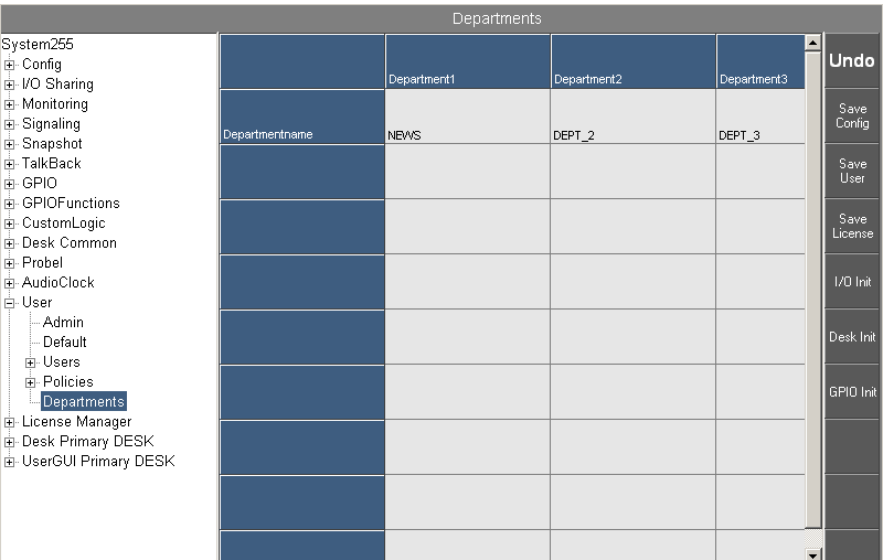


Policies A set of eight policies is available per default. *Policy no. 1 (Admin)* grants access to all parameters and is normally assigned to the system administrator only; it may, however, be assigned to other users as well, if required (refer to [chapter 6.5.30.3, Users – Policies](#)). The maximum number of policies is 16 (unless central user management is operated from an extra computer. Then the maximum number of policies is 255); it is defined in the `user.xml` file.

The default setting for the policies no. 2-8 grants access to most of the console parameters, except from some typical administrator-only settings, such as fader calibration, date/time settings, console configuration, or screen calibration. The screen above shows a part of the configurable functions, such as Chan::Input (channel – input parameters), Chan::DeEs (channel – de-esser parameters). Grant is displayed for a function if at least one parameter or one parameter group of this function is set to Grant in the parameter groups page shown below.



Access to the different parameter groups can be granted (Grant) or denied (Deny). If denied, the main screen buttons corresponding to that parameter or parameter group are blanked. For details on the parameters contained in the parameter groups please refer to [chapter 5.8.7](#).

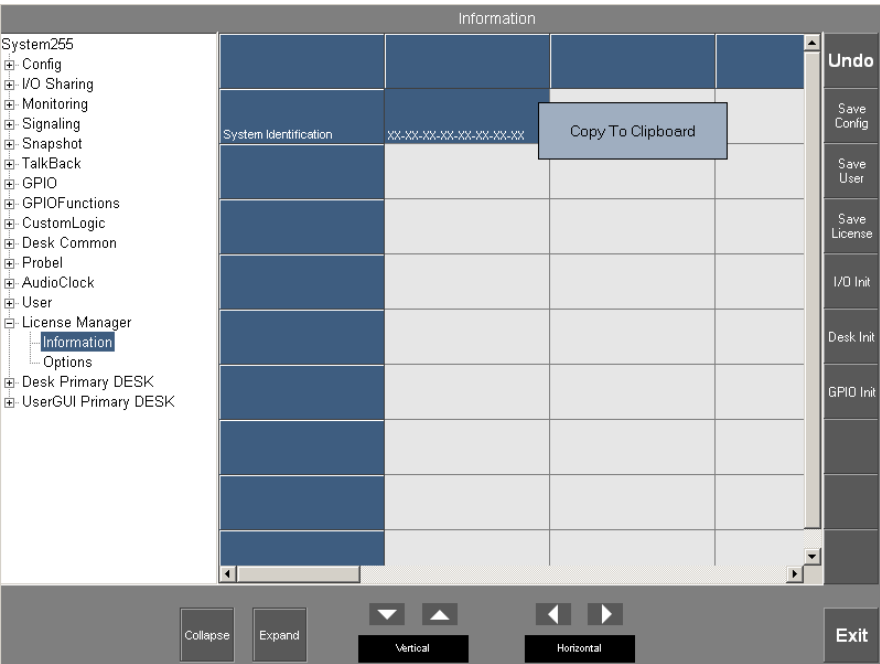


Departments

The purpose of this page is entering particular names, such as NEWS, for the eight departments available. When touching one of the matrix fields the pop-up keyboard appears for entering the desired name.

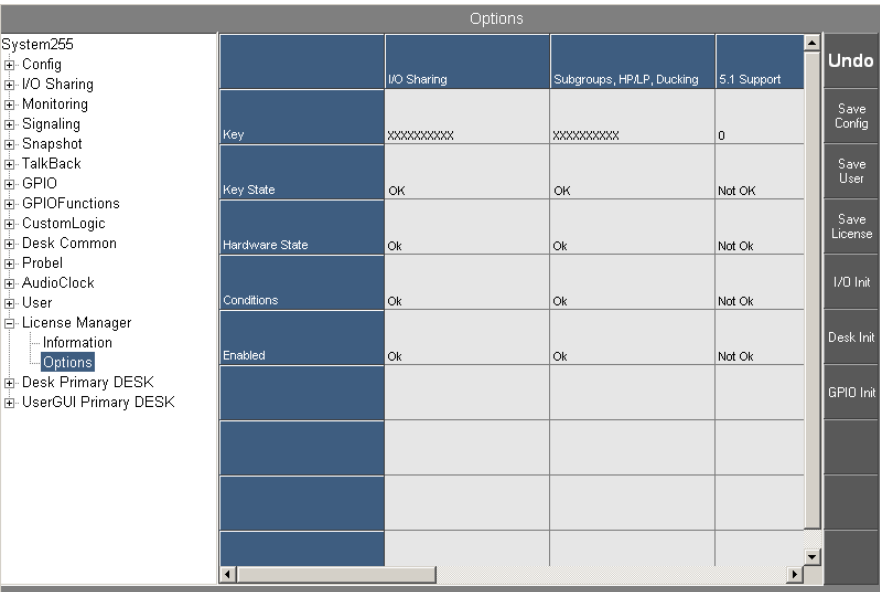
6.5.31 License Manager

6.5.31.1 Information



On this page the System Identification (System ID) code is displayed. When adding an option to the system, this code is used (by copying it to the clipboard) together with the option’s license key, in order to generate the Option Key code that has to be entered for this option (see below).

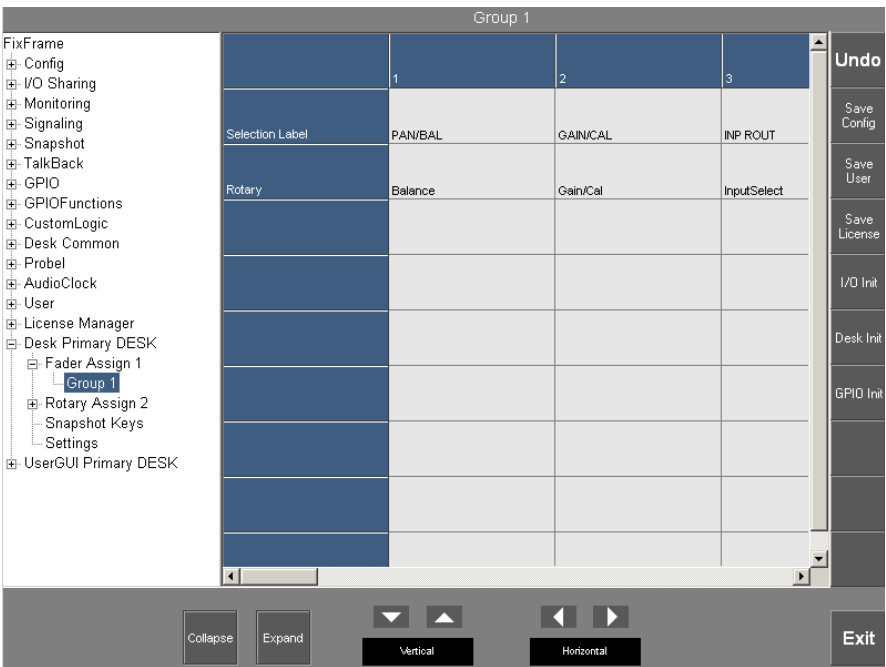
6.5.31.2 Options



When adding an option (such as I/O sharing, Subgroups + HP/LP Filter + Ducking, or 5.1 channel, MPX, CAB, ProBel or CMS support) to the system, the System ID code is used together with the option’s license key in order to generate the Option Key code that is entered here. *Unavailable options (such as Subgroups or MPX for OnAir 1500/2500) are not displayed.*

6.5.32 Desk

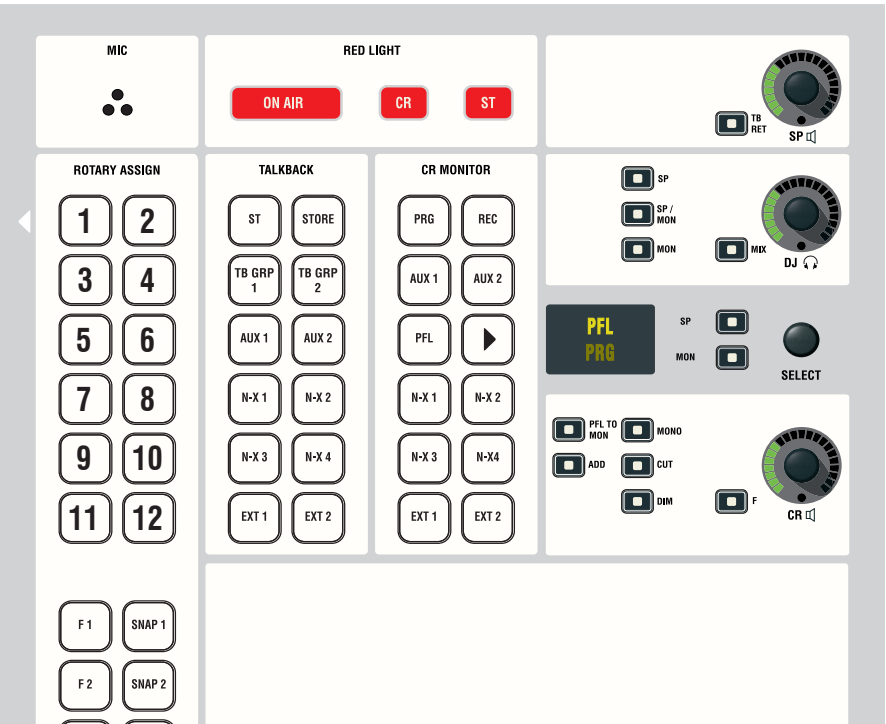
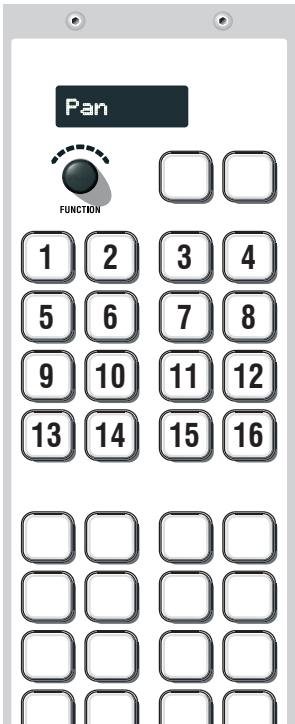
6.5.32.1 Fader Assign 1 - Group 1



OnAir 3000
OnAir 2500

This page is used to assign functions to the fader rotary assign keys. Additional tree items may appear in case of split desk or A/B desk configurations.
16 keys on the optional fader assign module(s), see below/left.
12 **ROTARY ASSIGN** keys in the central section, see below.

These keys allow selecting the functions of the rotary encoders in the fader strips. For **F 1** to **F 5** refer to the configuration examples in [chapters 6.5.27.1 and 6.5.27.2](#); for **SNAP 1** to **SNAP 6** refer to [chapter 6.5.32.6](#). The Selection Label fields allow modifying the 8-digit labels that appear in the display if required; for this purpose the screen keyboard pops up.



6.5.32.2 Rotary Assign 2 - Group 2 (supported by OnAir 3000 only)

FixFrame

- Config
- I/O Sharing
- Monitoring
- Signaling
- Snapshot
- TalkBack
- GPIO
- GPIOFunctions
- CustomLogic
- Desk Common
- Probel
- AudioClock
- User
- License Manager
- Desk Primary DESK
 - Fader Assign 1
 - Rotary Assign 2
 - Group 2
 - Snapshot Keys
 - Settings
- UserGUI Primary DESK

Group 2			
	1	2	3
Selection Label	EQ_GAIN	COMP_G	EQ_HF
Rotary 1	EQ_HF_Gain		
Rotary 2	EQ_HMF_Gain	Comp_Gain	EQ_HF_Gain
Rotary 3	EQ_LMF_Gain	Comp_Ratio	EQ_HF_Q
Rotary 4	EQ_LF_Gain	Comp_Threshold	EQ_HF_Freq

Undo

Save Config

Save User

Save License

I/O Init

Desk Init

GPIO Init

Collapse

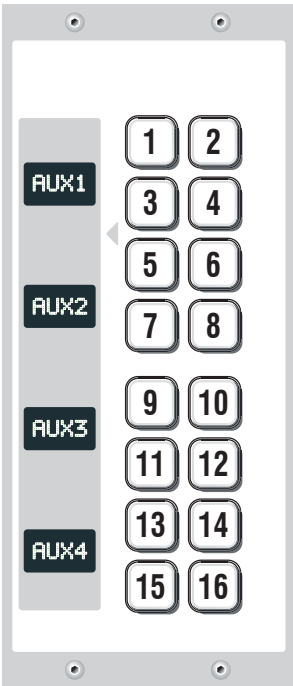
Expand

Vertical

Horizontal

Exit

This page is used to assign functions to the 16 rotary assign keys of the OnAir 3000’s optional rotary assign module(s), see below. These keys allow selecting the functions of the rotary encoders of the optional rotary modules (usually installed above the fader modules).



6.5.32.3 Assignable Rotary Functions

			(Fader Module)	(Rotary Module)
				
			Key 2: Key 1:	
Function Name	Rel. in SW	Rotary Function	Key 1 Function	Key 2 Function
* 51AssignmentMode	V2.2	5.1 Assignment Mode	-	-
* 51Divergence/CenterLevel	V2.2	5.1 Divergence/Center Level	-	-
* 51FrontRearPan	V2.2	5.1 Front/Rear Pan	-	-
* 51LR_PanBal	V2.2	5.1 LR Pan/Bal	-	-
Aux1	V1.0	Aux 1 Level	Aux 1 On/Off	Aux 1 Pre/After
Aux2	V1.0	Aux 2 Level	Aux 2 On/Off	Aux 2 Pre/After
* Aux3	V1.0	Aux 3 Level	Aux 3 On/Off	Aux 3 Pre/After
* Aux4	V1.0	Aux 4 Level	Aux 4 On/Off	Aux 4 Pre/After
Balance	V1.0	Pan	Pan On/Off	-
Cal	V1.0	Cal	-	-
Codec_ReturnLine	V2.1	Codec Return Line Rotary	Codec Return Line	-
Comp_Attack	V1.0	Compressor Attack Time	Dynamics On/Off	Compressor On/Off
Comp_Gain	V1.0	Compressor Gain	Dynamics On/Off	Compressor On/Off
Comp_Ratio	V1.0	Compressor Ratio	Dynamics On/Off	Compressor On/Off
Comp_Release	V1.0	Compressor Release Time	Dynamics On/Off	Compressor On/Off
Comp_Threshold	V1.0	Compressor Threshold	Dynamics On/Off	Compressor On/Off
Deesser_Attenuation	V2.1	Deesser Attenuation	Deesser On/Off	-
Deesser_Freq	V1.0	Deesser Frequency	Deesser On/Off	-
Deesser_Q	V1.0	Deesser Q	Deesser On/Off	-
Deesser_Ratio	V1.0	Deesser Ratio	Deesser On/Off	-
Deesser_Threshold	V1.0	Deesser Threshold	Deesser On/Off	-
* Delay	V3.0	Delay Time	Delay On/Off	Delay Time Format
* Ducker_AttackTime	V2.1	Ducker Attack Time	Ducker Manual	-
* Ducker_Attenuation	V2.1	Ducker Attenuation	Ducker Manual	-
* Ducker_HoldTime	V2.1	Ducker Hold Time	Ducker Manual	-
* Ducker_ReleaseTime	V2.1	Ducker Release Time	Ducker Manual	-
* Ducker_Threshold	V2.1	Ducker Threshold	Ducker Manual	-
EQ_HF_Freq	V1.0	Equalizer HF Frequency	Equalizer On/Off	-
EQ_HF_Gain	V1.0	Equalizer HF Gain	Equalizer On/Off	-
EQ_HF_Q	V1.0	Equalizer HF Q	Equalizer On/Off	-
EQ_HMF_Freq	V1.0	Equalizer HMF Frequency	Equalizer On/Off	-
EQ_HMF_Gain	V1.0	Equalizer HMF Gain	Equalizer On/Off	-
EQ_HMF_Q	V1.0	Equalizer HMF Q	Equalizer On/Off	-
* EQ_HP_Freq	V2.0	Equalizer HP Frequency	Equalizer On/Off	Equalizer HP On/Off
* EQ_HP_Slope	V2.0	Equalizer HP Slope	Equalizer On/Off	Equalizer HP On/Off
EQ_LF_Freq	V1.0	Equalizer LF Frequency	Equalizer On/Off	-
EQ_LF_Gain	V1.0	Equalizer LF Gain	Equalizer On/Off	-
EQ_LF_Q	V1.0	Equalizer LF Q	Equalizer On/Off	-
EQ_LMF_Freq	V1.0	Equalizer LMF Frequency	Equalizer On/Off	-
EQ_LMF_Gain	V1.0	Equalizer LMF Gain	Equalizer On/Off	-
EQ_LMF_Q	V1.0	Equalizer LMF Q	Equalizer On/Off	-
* EQ_LP_Freq	V2.0	Equalizer LP Frequency	Equalizer On/Off	Equalizer LP On/Off
* EQ_LP_Slope	V2.0	Equalizer LP Slope	Equalizer On/Off	Equalizer LP On/Off
Exp_Attack	V1.0	Expander Attack Time	Dynamics On/Off	Expander On/Off
Exp_Ratio	V1.0	Expander Ratio	Dynamics On/Off	Expander On/Off
Gate_Threshold	V1.0	Gate Threshold	Dynamics On/Off	Gate On/Off
InputSelect	V1.0	Input Select	Input Select Enter	-

			(Fader Module)	(Rotary Module)
				
			Key 2: Key 1:	
Function Name	Rel. in SW	Rotary Function	Key 1 Function	Key 2 Function
Lim_Attack	V1.0	Limiter Attack Time	Dynamics On/Off	Limiter On/Off
Lim_Release	V1.0	Limiter Release Time	Dynamics On/Off	Limiter On/Off
Lim_Threshold	V1.0	Limiter Threshold	Dynamics On/Off	Limiter On/Off
* NXBus1-16Level (** 1-8)	V1.0	N-X 1-16 Master Send Level	N-X 1-16 Master On/Off	-
* NXBus1-16LevelOnly (** 1-8)	V1.0	N-X 1-16 Master Send Level	-	-
* NXBus1-16LevelFullReturn (** 1-8)	V2.1	N-X 1-16 Master Send Level	N-X 1-16 Master Full Return On/Off	-
* NXBus1-16ContrLevel (* 1-8)	V2.1	N-X 1-16 Contr Level	N-X Bus 1-16 Contr On/Off	-
* NXBus1-16ContrLevelOnly (** 1-8)	V2.1	N-X 1-16 Contr Level	-	-
* NXBus1-16ContrLevelFullReturn (** 1-8)	V2.1	N-X 1-16 Contr Level	N-X*** Master Full Return On/Off	-
* NXBus17-48Level	V3.2	N-X 17-48 Master Send Level	N-X 17-48 Master On/Off	-
* NXBus17-48LevelOnly	V3.2	N-X 17-48 Master Send Level	-	-
* NXBus17-48LevelFullReturn	V3.2	N-X 17-48 Master Send Level	N-X 17-48 Master Full Return On/Off	-
* NXBus17-48ContrLevel	V3.2	N-X 17-48 Contr Level	N-X Bus 17-48 Contr On/Off	-
* NXBus17-48ContrLevelOnly	V3.2	N-X 17-48 Contr Level	-	-
* NXBus17-48ContrLevelFullReturn	V3.2	N-X 17-48 Contr Level	N-X*** Master Full Return On/Off	-
NXSend	V1.0	N-X*** Master Send Level	N-X*** Master On/Off	-
NXSendCue	V2.1	N-X*** Master Send Level	N-X*** Master Cue On/Off	-
NXSendLevelOnly	V1.0	N-X*** Master Send Level	-	-
PGMA_OnOff	V2.0	-	PGM Bus A On/Off	-
* PGMB_OnOff	V2.0	-	PGM Bus B On/Off	-
Rec_OnOff	V2.0	-	Rec Bus On/Off	-
* SubGroup1_OnOff	V2.0	-	Sub Group 1 On/Off	-
* SubGroup2_OnOff	V2.0	-	Sub Group 2 On/Off	-
* SubGroup3_OnOff	V2.0	-	Sub Group 3 On/Off	-
* SubGroup4_OnOff	V2.0	-	Sub Group 4 On/Off	-
* SubGroup5_OnOff	V2.0	-	Sub Group 5 On/Off	-
* SubGroup6_OnOff	V2.0	-	Sub Group 6 On/Off	-
* SubGroup7_OnOff	V2.0	-	Sub Group 7 On/Off	-
* SubGroup8_OnOff	V2.0	-	Sub Group 8 On/Off	-
* Group_VCA1_2_OnOff	V3.2	-	Sub Group 2 On/Off	Sub Group 1 On/Off
* Group_VCA3_4_OnOff	V3.2	-	Sub Group 4 On/Off	Sub Group 3 On/Off
* Group_VCA5_6_OnOff	V3.2	-	Sub Group 6 On/Off	Sub Group 5 On/Off
* Group_VCA7_8_OnOff	V3.2	-	Sub Group 8 On/Off	Sub Group 7 On/Off
* Sur51BusA	V2.2	-	Surround 5.1 Bus A On/Off Rotary	-
* Sur51BusB	V2.2	-	Surround 5.1 Bus B On/Off Rotary	-
TimerSelectA..D	V2.1	-	Timer Select A-D	-
* not supported by OnAir 1500/2500				
** supported by OnAir 1500/2500				
*** of the N-X bus controlled by the corresponding logical input				

6.5.32.4 Assignable Global Functions

Global functions are not channel strip-related. They allow assigning a function to a desk element in the `Desk_KeyMapping.xml` file (refer to the 'Assignable to-' columns below).

Function	Rel. in SW	Assignable to:						Details
		Key Group	Key Unit	LED	Display	Display Module	Rotary Unit	
Bus functions								
Aux1-4_Master_On/Off	V2.1		●					
Aux1-4_PFL_On/Off	V2.1		●					PFL ControlRoom
Aux1-4_PFLStudio_On/Off	V2.1		●					PFL Studio1
NX1-16MasterOnOff	V2.1		●					
NXBus1-16Mode	V2.1	●						assign to a KeyGroup, use dummy Keys (not existing element no) for not used NX modes: Key 0=PGMA, 1=PGMB, 2=REC, 3=AUX(PF), 4=AUX(AF), 5=N-1, 6=5.1A, 7=5.1B
Ducker_ManDuck_SubGroup1-8	V2.1		●					sets manual ducking of the corresponding sub group bus
PFLActive_CR	V2.0		●					reset PFL CR function, shows if PFL CR is active
PFLActive_ST1	V2.0		●					reset PFL ST1 function, shows if PFL ST1 is active
Rec_PFLActive	V2.0		●					reset Rec PF function, shows if Rec PF is active
RecordActive	V2.0		●					reset (Off Air) Record function, shows if Record is active
Extern PFL functions								
ExtPLF1toCR_On/Off	V1.0		●					
ExtPLF1toS1_On/Off	V1.0		●					
ExtPLF2toCR_On/Off	V1.0		●					
ExtPLF2toS1_On/Off	V1.0		●					
Setting & assignment functions								
AssignSubGroup	V1.0	●			●		●	assigns one of the configured AssignUnitFunction to all of the AssignSubGroup subordinated AssignUnits (RotaryUnits)
StripDisplay_Selector	V2.1		●					switches within the AssignGroup the StripDisplays form InputLabel to RemoteSystem name, key in momentary mode
ChannelScrDeEsser	V2.2		●					show DeEsser parameters on the ChannelScreen
ChannelScrLayout	V2.2		●					toggle between DeEsser and 5.1 panning parameters
ChannelScrNX48	V3.2		●					show all 48 N-X bus parameters on the ChannelScreen
ChannelScrSur51	V2.2		●					show 5.1 panning parameters on the ChannelScreen
Cue	V1.0		●					signal for PFL bus is taken post-fader (Cue/notPFL=On)
PFL	V1.0		●					signal for PFL bus is taken pre-fader (Cue/notPFL=Off)
MeterGRM_Mode	V1.0	●						assign to a KeyGroup: Key 0=GRM Comp/Lim, 1=GRM Deesser
MeterLevel_Mode	V1.0	●						assign to a KeyGroup: Key 0=Inp. Level PF, 1=Inp. Level AF, 2=NXSend Level
DisplayBright	V1.0						●	sets the display brightness
LedBright	V1.0						●	sets the LED brightness
MicGroup functions								
MicKey1-10	V2.0		●					set the MicGroup on and off, signals: 0=OFF, 1=ACTIVE (LED2). 2=READY (LED1). 3=ONAIR (LED2)

Function	Rel. in SW	Assignable to:						Details
		Key Group	Key Unit	LED	Display	Display Module	Rotary Unit	
Monitoring ControlRoom (CR) functions								
MonHPDJMode	V1.0	•						assign to a KeyGroup: Key 0=CR MON, 1=CR MON/PFL, 2=PFL
MonHPDJVol	V1.0						•	sets either the HPVolume (default) or HPSplitBalance depends on the MonSetHPSplitBalToHPVol function
MonSetHPSplitBalToHPVol	V3.0		•					assign the HPSplitBalance to the MonHPDJVol control, key in momentary mode
MonSetHPSplitBalToHPVol_LO	V3.0		•					assign the HPSplitBalance to the MonHPDJVol control, key in latching mode
MonHPGuestVol	V1.0						•	
MonLsCRCut	V1.0		•					
MonLsCRDim	V1.0		•					
MonLsCRMono	V1.0		•					
MonLsCRVol	V1.0						•	
MonPFLSPVol	V1.0						•	sets either the PFLSpeaker~Vol (default), TBReturnVol, MPX~Vol or HPSplitBalance depends on the MonSetTBRetVol, MonSetMPXVol and MonSetHPSplitBal functions.
MonSetHPSplitBal	V2.1		•					assign the HPSplitBalance to the MonPFLSPVol control, key in momentary mode
MonSetMPXVol	V1.0		•					assign the MPX-Vol to the MonPFLSPVol control, key in momentary mode
MonSetMPXVol_LO	V1.0		•					assign the MPX-Vol to the MonPFLSPVol control, key in latching mode
MonSetTBRetVol	V1.0		•					assign the TBReturnVol to the MonPFLSPVol control, key in momentary mode
MonSetTBRetVol_LO	V1.0		•					assign the TBReturnVol to the MonPFLSPVol control, key in latching mode
MonSrcAdd	V1.0		•					
MonSrcFollowS1_CR	V2.1		•					
MonSrcFollowS2_CR	V2.1		•					
MonSrcFollowS3_CR	V2.1		•					
MonSrcKey1-20	V1.0		•					for possible monitoring sources see chapter ‚Monitoring Source Key‘ of: OA3000 Implementation Notes Input Output Selections.doc
MonSrcPFLtoMON	V1.0		•					
MonSrcRotary	V2.1						•	selects either the rotary source (default) or the 3rdHP source depends on the MonSrcSetHPSource function
MonSrcRotary3rdHPDisplay	V3.0				•			Display function, shows either the selected rotary source or the selected 3rdHP source depends on the MonSrcSetHPSource function
MonSrcRotary3rdHPActive	V3.0					•		DisplayMode function, is used to dim the display of the MonSrcRotary3rdHPDisplay function
MonSrcRotaryDisplay	V3.0				•			Display function, shows the selected rotary source
MonSrcRotaryActive	V3.0					•		DisplayMode function, is used to dim the display of the MonSrcRotaryDisplay function
MonSrc3rdHPDisplay	V3.0				•			Display function, shows the selected 3rdHP source
MonSrc3rdHPActive	V3.0					•		DisplayMode function, is used to dim the display of the MonSrc3rdHPDisplay function
MonSrcSetHPSource	V2.1		•					assign the 3rdHPSource selector to the MonSrcRotary control, key in momentary mode

Function	Rel. in SW	Assignable to:						Details
		Key Group	Key Unit	LED	Display	Display Module	Rotary Unit	
MonSrcSetHPSource_ON	V2.1		•					assign the 3rdHPSource selector to the MonSrcRotary control, key can only switch on remove the 3rdHPSource selector from the MonSrcRotary control assign the 3rdHPSource selector to the MonSrcRotary control, key in latching mode switches the monitoring mode between mode I and mode II
MonSrcSetHPSource_OFF	V2.1		•					
MonSrcSetHPSource_LO	V2.1		•					
NearfieldPFL_CR	V2.0		•					
Monitoring Studio1 (S1) functions								
MonHPDJMode_S1	V2.0	•						see MonHPDJMode
MonHPDJVol_S1	V1.0						•	see MonHPDJVol
MonSetHPSplitBalToHPVol_S1	V3.0		•					see MonSetHPSplitBalToHPVol
MonSetHPSplitBalToHPVol_S1_LO	V3.0		•					see MonSetHPSplitBalToHPVol_LO
MonHPGuestVol_S1	V1.0						•	
MonLsCut_S1	V1.0		•					
MonLsDim_S1	V1.0		•					
MonLsMono_S1	V2.0		•					
MonLsVol_S1	V1.0						•	
MonPFLSPVol_S1	V1.0						•	see MonPFLSPVol
MonSetHPSplitBal_S1	V2.1		•					see MonSetHPSplitBal
MonSetMPXVol_S1	V2.2		•					see MonSetMPXVol
MonSetMPXVol_S1_LO	V2.2		•					see MonSetMPXVol_LO
MonSetTBRetVol_S1	V2.0		•					see MonSetTBRetVol
MonSetTBRetVol_S1_LO	V2.0		•					see MonSetTBRetVol_LO
MonSrcAdd_S1	V2.0		•					
MonSrcFollowCR_S1	V1.0		•					
MonSrcFollowS2_S1	V2.1		•					
MonSrcFollowS3_S1	V2.1		•					
MonSrcKey1-20_S1	V1.0		•					see function MonSrcKey1-20
MonSrcPFLtoMON_S1	V1.0		•					
MonSrcRotary_S1	V2.1						•	see MonSrcRotary
MonSrcRotary3rdHPDisplay_S1	V3.0				•			see MonSrcRotary3rdHPDisplay
MonSrcRotary3rdHPActive_S1	V3.0					•		see MonSrcRotary3rdHPActive
MonSrcRotaryDisplay_S1	V3.0				•			see MonSrcRotaryDisplay
MonSrcRotaryActive_S1	V3.0					•		see MonSrcRotaryActive
MonSrc3rdHPDisplay_S1	V3.0				•			see MonSrc3rdHPDisplay
MonSrc3rdHPActive_S1	V3.0					•		see MonSrc3rdHPActive
MonSrcSetHPSource_S1	V2.1		•					see MonSrcSetHPSource
MonSrcSetHPSource_S1_ON	V2.1		•					see MonSrcSetHPSource_ON
MonSrcSetHPSource_S1_OFF	V2.1		•					see MonSrcSetHPSource_OFF
MonSrcSetHPSource_S1_LO	V2.1		•					see MonSrcSetHPSource_LO
NearfieldPFL_ST1	V2.0		•					see NearfieldPFL_CR

Function	Rel. in SW	Assignable to:						Details
		Key Group	Key Unit	LED	Display	Display Module	Rotary Unit	
Monitoring CR & S1 functions								
MonNearField	V2.2		•					function is depending on the module location which is either ,ControlRoom' or ,Studio1'
MonNearFieldVol	V2.2						•	
MonTBRetVol	V3.2						•	
MonSurExtDownmixOff	V2.2		•					
MonSurExtDownmixOn	V2.2		•					
MonSurFormat51	V2.2			•				
MonSurFormatStereo	V2.2			•				
MonSurLSP_Center	V2.2		•					
MonSurLSP_Left	V2.2		•					
MonSurLSP_LeftSur	V2.2		•					
MonSurLSP_LFE	V2.2		•					
MonSurLSP_Right	V2.2		•					
MonSurLSP_RightSur	V2.2		•					
MonSurModeDirect	V2.2		•					
MonSurModeStereo	V2.2		•					
MonLsOnRedLight_Dim	V3.2		•					set the LS behaviour to DIM if RedLight is active
MonLsOnRedLight_Cut	V3.2		•					set the LS behaviour to CUT if RedLight is active
MonLsOnRedLight_Nothing	V3.2		•					set the LS behaviour to Noting if RedLight is active
MonLsOnRedLight_CutAllowTB	V3.2		•					set the LS behaviour to CUT allow TB if RedLight is active
Monitoring Studio2/3 (S2, S3) functions								
MonHPDJVol_S2/3	V1.0						•	
MonHPGuestVol_S2/3	V1.0						•	
MonTBRetVol	V3.2						•	
MonLsCut_S2/3	V1.0		•					
MonLsDim_S2/3	V1.0		•					
MonLsVol_S2/3	V1.0						•	
MonSrcFollowCR_S2/3	V1.0		•					
MonSrcFollowS1_S2/S3	V2.1		•					
MonSrcFollowS2_S3	V2.1		•					
MonSrcFollowS3_S2	V2.1		•					
MonSrcKey1-20_S2/3	V1.0		•					see function MonSrcKey1-20
MonLsOnRedLight_Dim	V3.2		•					set the LS behaviour to DIM if RedLight is active
MonLsOnRedLight_Cut	V3.2		•					set the LS behaviour to CUT if RedLight is active
MonLsOnRedLight_Nothing	V3.2		•					set the LS behaviour to Noting if RedLight is active
MonLsOnRedLight_CutAllowTB	V3.2		•					set the LS behaviour to CUT allow TB if RedLight is active

Function	Rel. in SW	Assignable to:						Details
		Key Group	Key Unit	LED	Display	Display Module	Rotary Unit	
MPX functions								
MPX_CR_OnOff	V2.2		•					to define the MPX configuration with the StripSelect function, this temporarily invalidates the common interaction of StripSelect and UserGUI
MPX_CR_Selection	V2.2		•					
MPX_ST1_OnOff	V2.2		•					
MPX_ST1_Selection	V2.2		•					see MPX_CR_Selection
Snapshot & PartialOutputRouting functions								
Snapshot_SLATE	V2.0		•					a key with the Snapshot_SLATE function is required to recall a snapshot by a desk snapshot key, both keys has to be pressed simultaneously
Snapshot1-80	V2.0		•					recalls the corresponding snapshot
DefineStripFilter	V2.2		•					to define a snapshot strip filter, this temporarily invalidate the common interaction of StripSelect and UserGUI
PartialOutputRoutingKey1-1024	V2.2		•					recall the corresponding partial output routing
PartialOutputRoutingEnableKey	V3.1		•					set the enable option of the modules desk group
Signaling functions								
OnAir	V1.0			•				LED function
OnAirPGMA	V2.0			•				LED function
OnAirPGMB	V2.0			•				LED function
OnAirREC	V2.0			•				LED function
RedLight_CR	V1.0			•				LED function
RedLight_ST1-3	V1.0			•				LED function
Next functions								
StartNextA	V2.0		•					
StartNextB	V2.0		•					
TalkBack functions								
TBActiveFrom_CR	V2.0		•					reset TB from CR function, shows if TB fromCR is active
TBActiveFrom_Extern	V2.0		•					reset TB from Extern function, shows if TB fromExtern is active
TBActiveFrom_ST1-3	V2.0		•					reset TB from ST function, shows if TB fromST is active
TBCRMicSelector	V1.0	•						assign to a KeyGroup, use dummy Keys (not existing element no) for not used TB CRMics: Key 0=CRMic1, 1=CRMic2, 2=CRMic3, 3=CRMic4
TBKey1-20	V1.0		•					for possible TB destinations see chapter 'TB Destination Key' of: OA3000 Implementation Notes Input Output Selections.doc
TBKey1-20_S1-3	V1.0		•					see TBKey1-20
TBKeyMO1-20	V2.0		•					momentary function of TBKey1-20
TBKeyMO1-20_S1-3	V2.0		•					momentary function of TBKey1-20_S1-3
User and CAB button functions								
CABButton1-48	V2.0		•					function without LED, key mode is momentary for long-press and latching for short-press actions
UserButton1-20	V1.0		•					
UserButton21-64	V2.1		•					

Function	Rel. in SW	Assignable to:						Details
		Key Group	Key Unit	LED	Display	Display Module	Rotary Unit	
UserButtonLO1-20	V1.0		•					function without LED, key mode is always latching for long-press and short-press actions
UserButtonLO21-64	V2.1		•					see UserButtonLO1-20
UserButtonMO1-20	V1.0		•					function without LED, key mode is always momentary for long-press and short-press actions
UserButtonMO21-64	V2.1		•					see UserButtonMO1-20
UserLed1-20	V1.0			•				only LED function
UserLed21-64	V2.1			•				see UserLed1-20
UserLedAlwaysOn1-20	V2.0			•				only LED function, LED lights always
UserLedAlwaysOn21-64	V2.1			•				see UserLedAlwaysOn1-20
UserLedButtonState1-20	V2.0			•				only LED function, shows the user button state
UserLedButtonState21-64	V2.1			•				see UserLedButtonState1-20
Watch functions								
FaderStopWatch1_Label	V2.1				•			Display function
FaderStopWatch1_Time	V2.1				•			Display function
FaderStopWatch2_Label	V2.1				•			Display function
FaderStopWatch2_Time	V2.1				•			Display function
GUITime	V2.1				•			Display function
StopWatch1	V2.1				•			Display function
StopWatch1_Start	V2.1		•					
StopWatch1_Stop	V2.1		•					
StopWatch2	V2.1				•			Display function
StopWatch2_Start	V2.1		•					
StopWatch2_Stop	V2.1		•					
StopWatch3	V2.1				•			Display function
StopWatch3_Start	V2.1		•					
StopWatch3_Stop	V2.1		•					
StopWatch4	V2.1				•			Display function
StopWatch4_Start	V2.1		•					
StopWatch4_Stop	V2.1		•					
XL Box functions								
XL_Bus_MixLevel	V2.1						•	
XL_Line1-12_Bus_On/Off	V2.1		•					
XL_Line1-12_InputLabel	V2.1				•			Display function
XL_Line1-12_TB	V2.1		•					
Central UserGUI module functions								
CentralRotary1IncDec	V3.0						•	
CentralRotary2IncDec	V3.0						•	
CentralRotary3IncDec	V3.0						•	
CentralRotary4IncDec	V3.0						•	
CentralRotaryStart	V3.0		•					start button of the stop watch, function without LED
CentralRotaryStop	V3.0		•					stop button of the stop watch, function without LED

6.5.32.5 Assignable Channel Strip Functions

Channel strip functions are related to a channel strip. They normally refer to the input or bus currently routed to this channel strip and allow assigning a function to a desk element in the `Desk_KeyMapping.xml` file. Please note that the color of the key illumination is depending on the module type (one or two LEDs per key).

Two LEDs per Key (red/yellow)

One LED per Key (yellow)

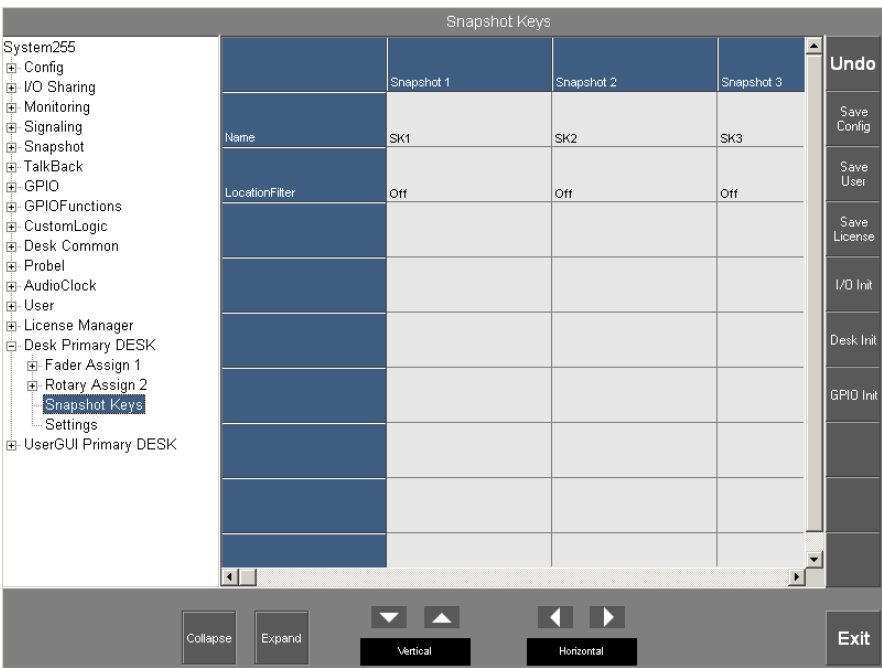
- on all fader modules
- on the editor module (OnAir 3000)
- on rotary and rotary assign modules (OnAir 3000)
- on fader assign modules (OnAir 3000)
- on monitoring modules
- on the XL module
- on the central module (OnAir 2500)

Function		Assignable to:		Details
	Rel. in SW	Module with 2 LEDs per key (red & yellow)	Module with 1 LED per key (yellow)	
Channel On/Off functions				
Channel_Mute	V1.0	red	yellow	Inverse function of Channel_On/Off
Channel_Off	V1.0	-	-	
Channel_On	V1.0	red	yellow	
Channel_On/Off	V1.0	red	yellow	
Channel_On/Off_Both	V2.0	orange	yellow	
Channel_On/Off_CMS	V2.1	red/orange/ yellow	yellow	
Channel_On/Off_Yellow	V2.0	yellow	-	
Channel_On_CMS	V2.1	red/orange/ yellow	yellow	
PFL & TalkBack functions				
PFL_LocMomentary	V2.0	yellow/ orange	-	if BroadcastPFL mode is set to 1 it lights orange while the PFL signal is cut
PFL_On/Off	V1.0	yellow/ orange	-	if BroadcastPFL mode is set to 1 it lights orange while the PFL signal is cut
PFL_On/Off_momentary	V2.0	yellow/ orange	-	if BroadcastPFL mode is set to 1 it lights orange while the PFL signal is cut
PFL_TBMomentaryfromSrc1-4	V2.0	red/orange/ yellow	-	two LEDs: red (TALK), yellow (PFL), orange (TALK&PFL active)
TBfromSrc1	V1.0	red	yellow	common used TB function for CR, ST1-3
TBfromSrc2-4	V1.0	red	yellow	TB source 2-4 only for ST1-3 available
TBfromSrcMO1	V2.0	red	yellow	momentary function of TBfromSrc1
TBfromSrcMO2-4	V2.0	red	yellow	momentary function of TBfromSrc2-4
TBPFLfromSrc1	V1.0	red	yellow	this function sets TB and PFL simultaneously but indicates only TB stats, see also TBfromSrc1
TBPFLfromSrc2-4	V1.0	red	yellow	this function sets TB and PFL simultaneously but indicates only TB stats, see also TBfromSrc2-4
TBPFLfromSrcMO1	V2.0	red	yellow	momentary function of TBPFLfromSrc1
TBPFLfromSrcMO2-4	V2.0	red	yellow	momentary function of TBPFLfromSrc2-4
TBREADYfromSrc1	V3.2	red/orange/ yellow	-	two LEDs: red (TALK), yellow (Ready), orange (TALK & READY active)
TBREADYfromSrc2-4	V3.2	red/orange/ yellow	-	two LEDs: red (TALK), yellow (Ready), orange (TALK & READY active)
TBREADYfromSrcMO1	V3.2	red/orange/ yellow	-	momentary function of TBREADYfromSrc1
TBREADYfromSrcMO2-4	V3.2	red/orange/ yellow	-	momentary function of TBREADYfromSrc2-4

Function	Rel. in SW	Assignable to:		Details
		Module with 2 LEDs per key (red & yellow)	Module with 1 LED per key (yellow)	
Strip select functions				
SelectPage_Ass	V3.0	red	yellow	
SelectPage_AUX	V3.0	red	yellow	
SelectPage_DeEs	V3.0	red	yellow	
SelectPage_Dyn	V3.0	red	yellow	
SelectPage_EQ	V3.0	red	yellow	
SelectPage_Input	V3.0	red	yellow	
SelectPage_Ins	V3.0	red	yellow	
SelectPage_NX	V3.0	red	yellow	
StripSelect	V1.0	yellow	-	
StripSelect_LED1	V3.0	red	yellow	
StripSelect_SplitDesk	V2.1	yellow	-	this function doesn't have any effect on the UserGUI it is used only for snapshot filter
StripSelect_SplitDesk_LED1	V3.0	red	yellow	see StripSelect_SplitDesk
Channel Input(Status) functions				
ChannelActiv	V1.0	orange	yellow	LED only, condition: Ch_open & Master_assigned
ChannelOnAir	V1.0	red	yellow	LED only, condition: Ch_onMaster & OnAir_relevant
ChannelOnMaster	V2.0	red	yellow	LED only, condition: Ch_activ & Master_fdr_open
JokerFct	V1.0	red/orange/ yellow	yellow/-	Joker functions: TALK, LOC/RDY, PFL/TALK, PFL/LOC two LEDs: red (TALK, RDY), yellow (PFL) one LED: yellow (TALK, RDY), dark (PFL)
JokerFctMO	V2.0	red/orange/ yellow	yellow/-	momentary only of above Joker functions, PFL/TALK and PFL/LOC only TALK and LOC respectively can bee operated
Locate	V1.0	-	-	
Locate/Ready	V1.0	yellow	-	
Ready	V1.0	yellow	-	LED only
Next	V1.0	yellow	-	obsolete, same as NextA
NextA	V2.0	yellow	-	
NextA_LED1	V3.0	red	yellow	
NextB	V2.0	yellow	-	
NextB_LED1	V3.0	red	yellow	
TimerSelectA-D	V2.1	red	yellow	
TimerSelectA-D_Yellow	V2.1	yellow	-	
Channel user functions				
ChannelUserFct1_Button	V3.1	red	yellow	momentary and latching
ChannelUserFct1_ButtonLO	V3.1	red	yellow	latching only
ChannelUserFct1_ButtonMO	V3.1	red	yellow	momentary only
ChannelUserFct1_Led	V3.1	red/yellow	yellow	LED only
ChannelUserFct2_Button	V3.1	red	yellow	mentary and latching
ChannelUserFct2_ButtonLO	V3.1	red	yellow	latching only
ChannelUserFct2_ButtonMO	V3.1	red	yellow	momentary only
ChannelUserFct2_Led	V3.1	red/yellow	yellow	LED only
Bus assignment functions				
PGMBusAOnOff	V1.0	red/orange	yellow	bus assignment (red/yellow), temporary off state (orange/yellow)
PGMBusAOnOff_Rotary	V1.0	red	yellow	without temporary off state signaling

Function	Rel. in SW	Assignable to:		Details
		Module with 2 LEDs per key (red & yellow)	Module with 1 LED per key (yellow)	
PGMBusAOnOff_Both	V2.0	orange/red	yellow	bus assignment (orange/yellow), temporary off state (red/yellow)
PGMBusAOnOff_Yellow	V2.0	yellow/ orange	-	bus assignment (yellow), temporary off state (orange)
PGMBusBOnOff	V1.0	red/orange	yellow	see PGMBusAOnOff
PGMBusBOnOff_Rotary	V2.1	red	yellow	see PGMBusAOnOff_Rotary
PGMBusBOnOff_Both	V2.0	orange/red	yellow	see PGMBusAOnOff_Both
PGMBusBOnOff_Yellow	V2.0	yellow/ orange	-	see PGMBusAOnOff_Yellow
Rec_PF	V1.0	red	yellow	
RecBusOnOff	V1.0	red/orange	yellow	see PGMBusAOnOff
RecBusOnOff_Rotary	V2.1	red	yellow	see PGMBusAOnOff_Rotary
RecBusOnOff_Both	V2.0	orange/red	yellow	see PGMBusAOnOff_Both
RecBusOnOff_Yellow	V2.0	yellow/ orange	-	see PGMBusAOnOff_Yellow
Record	V2.0	red	yellow	
SubGroup1-8OnOff	V2.0	red/orange	yellow	see PGMBusAOnOff
SubGroup1-8OnOff_Rotary	V2.0	red	yellow	see PGMBusAOnOff_Rotary
Sur51BusAOnOff	V2.2	red/orange	yellow	see PGMBusAOnOff
Sur51BusAOnOff_Rotary	V2.2	red	yellow	see PGMBusAOnOff_Rotary
Sur51BusAOnOff_Both	V2.2	orange/red	yellow	see PGMBusAOnOff_Both
Sur51BusAOnOff_Yellow	V2.2	yellow/ orange	-	see PGMBusAOnOff_Yellow
Sur51BusBOnOff	V2.2	red/orange	yellow	see PGMBusAOnOff
Sur51BusBOnOff_Rotary	V2.2	red	yellow	see PGMBusAOnOff_Rotary
Sur51BusBOnOff_Both	V2.2	orange/red	yellow	see PGMBusAOnOff_Both
Sur51BusBOnOff_Yellow	V2.2	yellow/ orange	-	see PGMBusAOnOff_Yellow
Aux1-4_On/Off	V1.0	red/orange	yellow	see PGMBusAOnOff
Aux1-4_On/Off_Rotary	V1.0	red	yellow	see PGMBusAOnOff_Rotary
Aux1-4_Pre/After	V1.0	red	yellow	
NXBus1-16OnOff	V1.0	red/orange	yellow	see PGMBusAOnOff
NXBus1-16OnOff_Rotary	V1.0	red	yellow	see PGMBusAOnOff_Rotary
NXBus17-48OnOff	V3.2	red/orange	yellow	see PGMBusAOnOff
NXBus17-48OnOff_Rotary	V3.2	red	yellow	see PGMBusAOnOff_Rotary
NXMasterCueOnOff	V2.2	red	yellow	
NXMasterOnOff	V1.0	red	yellow	
Dynamic, EQ & Pan functions				
Comp_On/Off	V1.0	red	yellow	
Deesser_On/Off	V1.0	red	yellow	
Delay_On/Off	V3.0	red	yellow	
Dyn_On/Off	V1.0	red	yellow	
EQ_HP_On/Off	V2.0	red	yellow	
EQ_LP_On/Off	V2.0	red	yellow	
EQ_On/Off	V1.0	red	yellow	
Exp_On/Off	V1.0	red	yellow	
Gate_On/Off	V1.0	red	yellow	
Lim_On/Off	V1.0	red	yellow	
Pan_On/Off	V1.0	red	yellow	

6.5.32.6 Snapshot Keys



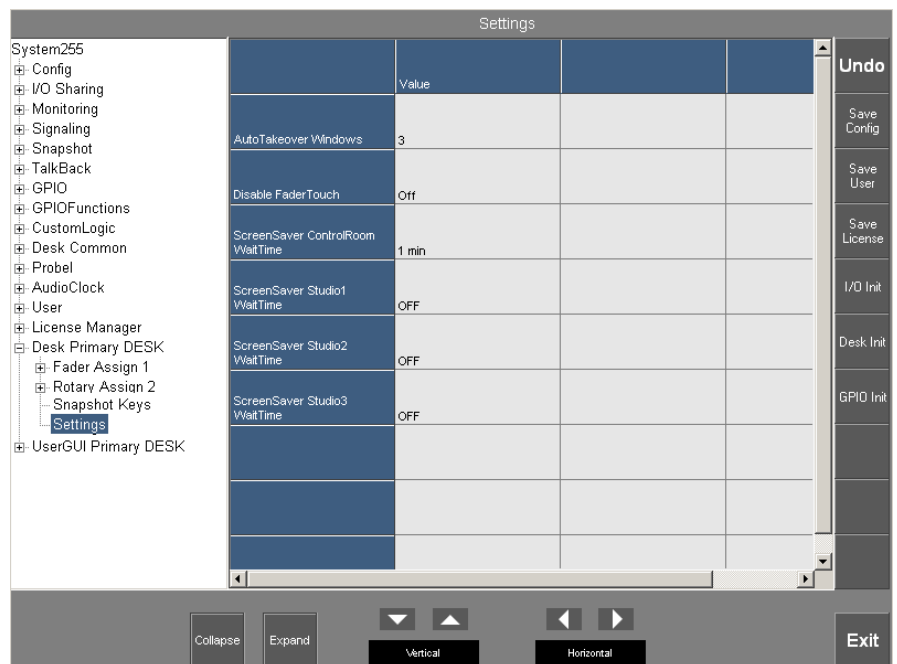
OnAir 2500 By default, the OnAir 2500 desk has six snapshot keys **SNAP 1** to **SNAP 6** available. They are used to recall the six global snapshots **SK1** to **SK6** contained in the factory configuration. At time of delivery they are identical with the initial snapshot but may be modified anytime by the system administrator. These snapshots can be recalled by any user when holding down the **ENABLE** key, then pressing one of the **SK1** to **SK6** keys; they may, of course, also be recalled from the main screen’s **Snapshot** page, as usual. *For OnAir 2500 consoles the LocationFilter parameter must always be set to Off.*

OnAir 3000 The same applies as mentioned above for OnAir 2500 consoles; however, the snapshot recall keys are not defined by default. Definition of any desk key as a snapshot key is possible via the corresponding XML file; up to 80 snapshot keys are possible if this should be required. Split desk configurations usually have individual snapshots and snapshot keys for every desk, so the **LocationFilter** parameters must be set accordingly.

Global Snapshot Recall via GPI Global snapshots may also be recalled via GPI control inputs. For more information on GPIO configuration refer to [chapter 6.5.26](#).

Last Snapshot Indication via GPO The last recalled global snapshot may also be communicated via GPO; GPO configuration is identical with the GPI configuration given above, except that the **Function Type** must be **LastSnapshot**, and there exists no **Action** item.

6.5.32.7 Settings



This page is used to set some parameters valid throughout the whole desk.

AutoTakeoverWindows The size of the **AutoTakeoverWindows** is set here (1-5); for normal operation, the default setting of 3 is recommended.

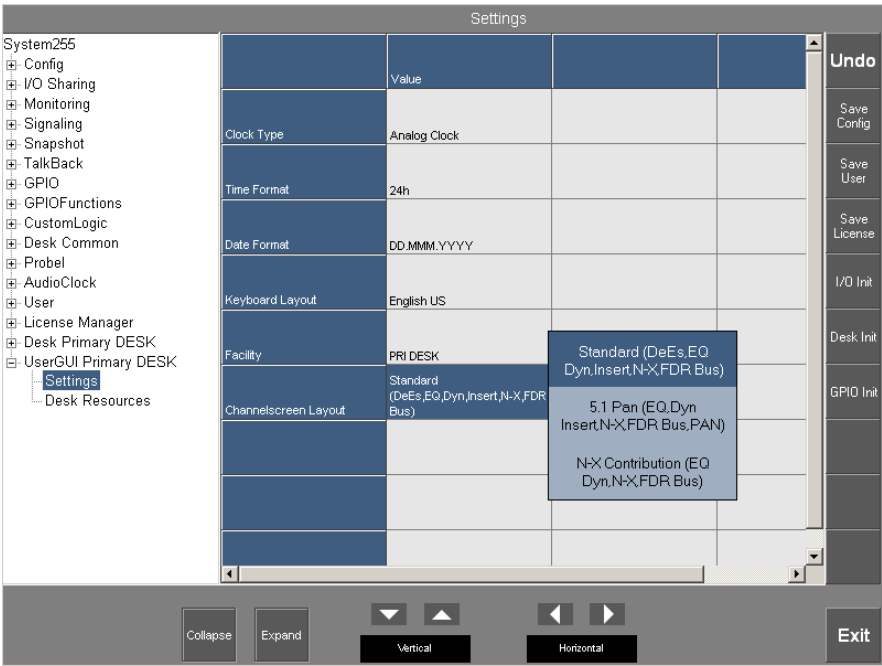
Disable FaderTouch In case of problems with the fader touch sensor it can be deactivated here by setting **Disable FaderTouch** to On. *This is also the default setting if no (optional) motor fader modules are installed.*

ScreenSaver ... WaitTime These four parameters were introduced with V3.1 in order to increase the life time of the LED and OLED displays in the fader, fader assign, rotary assign, monitoring/talkback and XL modules. The displays are automatically dimmed after a selectable time (1-120 min), individually per location. The original display brightness setting (adjustable with the **Display** rotary knob on the **Admin - Brightness** page) is independent from this **ScreenSaver**, and it will automatically be restored as soon as one of the touch-sensitive desk controls or screen buttons is touched, or a key or a fader is operated.

Note: The *desk LEDs*, the *desk key illumination* and the *screen backlight* are not affected by the 'screen saver' feature.

6.5.33 User GUI

6.5.33.1 Settings



This page is used for user GUI settings.

Clock Type Selects the type of the real-time clock displayed in the upper left corner of the main screen.
Available selections: Analog Clock, Radio Clock, or Digital Clock (below, left to right).



Time Format Selects 12 hours AM/PM or 24 hours time display format for the Radio Clock and Digital Clock types shown above.

Date Format Selects the date display format. Selections: DD.MM.YYYY (shown in the examples above), or MMM-DD-YYYY.

Keyboard Layout Selects the national character set of the pop-up keyboard; currently, English US or Danish are available.

Note: This selection is only valid for the pop-up keyboard and the console. Keyboard layout and language settings of the computer running the Remote Console application are automatically valid for the Remote Console application; this cannot be changed here.

Facility When touching this field, the keyboard appears for entering a facility ID used for displaying labels imported from a VSM router control system, and/or for communication with the Studer Call Management System (CMS). Also refer to [chapter 5.13](#) as well as to External Router Destination and External CMS Fader, [chapter 6.5.1](#)

In addition, the corresponding settings in the `ProBel.xml` and `probel_contr_ext.ini` files or in the `cms_contr_ext.ini` file must be entered, respectively.

Channelscreen Layout Selects the layout of the channel screens (Standard, 5.1 Pan or N–X Contribution) for the whole console.

OnAir 2500 *Since the OnAir 2500 console doesn't feature channel screens, this setting is not supported.*

6.5.33.2 Desk Resources (supported by OnAir 3000 only)

	Strip Channel	AUX	N-X
First	StripChannel1	AUX 1	TEL RET1
Range	24	4	48

This page contains a part of the most important settings for A/B desk configuration, such as the number of the first StripChannel, of the first AUX bus, of the first N–X bus, etc., and their respective number for this desk.

