STUDER
by HARMAN

Studer OnAir 1500

Digital Mixing Console
SW Version 4.0

Quick Start Guide

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Subject to change

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 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.**

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

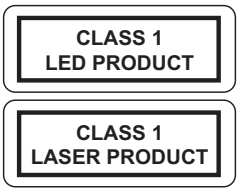
For your own safety and to avoid invalidation of the warranty, all text marked with these symbols should be read carefully.

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).

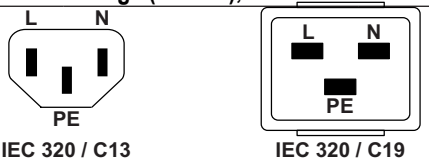
B3 Earthing and Power Supply

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:



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.

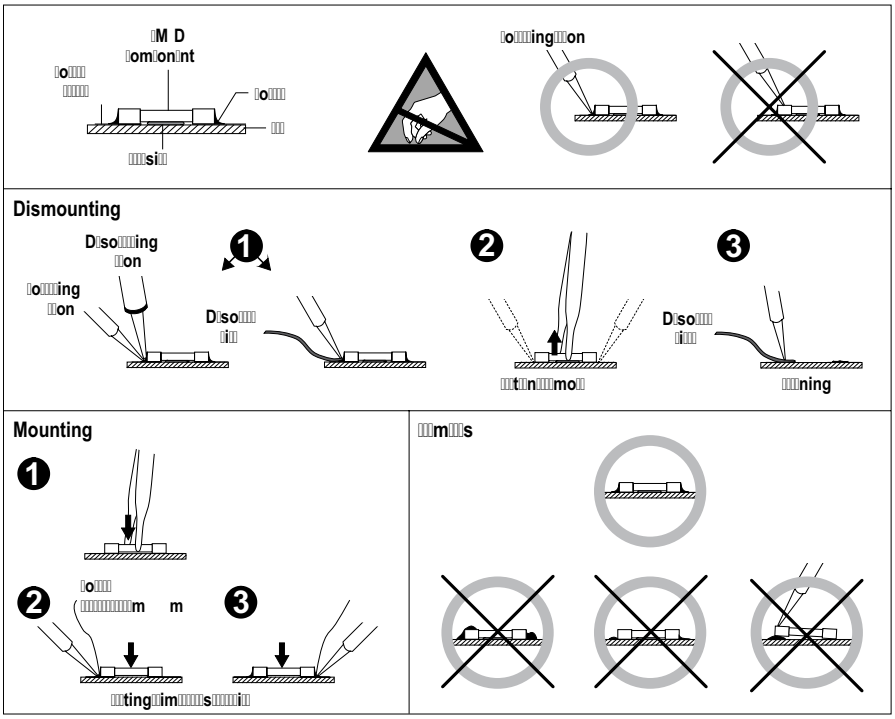
Certain components pose additional hazards:

- 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.*

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 W* requires an air flow of *0.8 * 2.65 m³/min* which corresponds to *2.12 m³/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

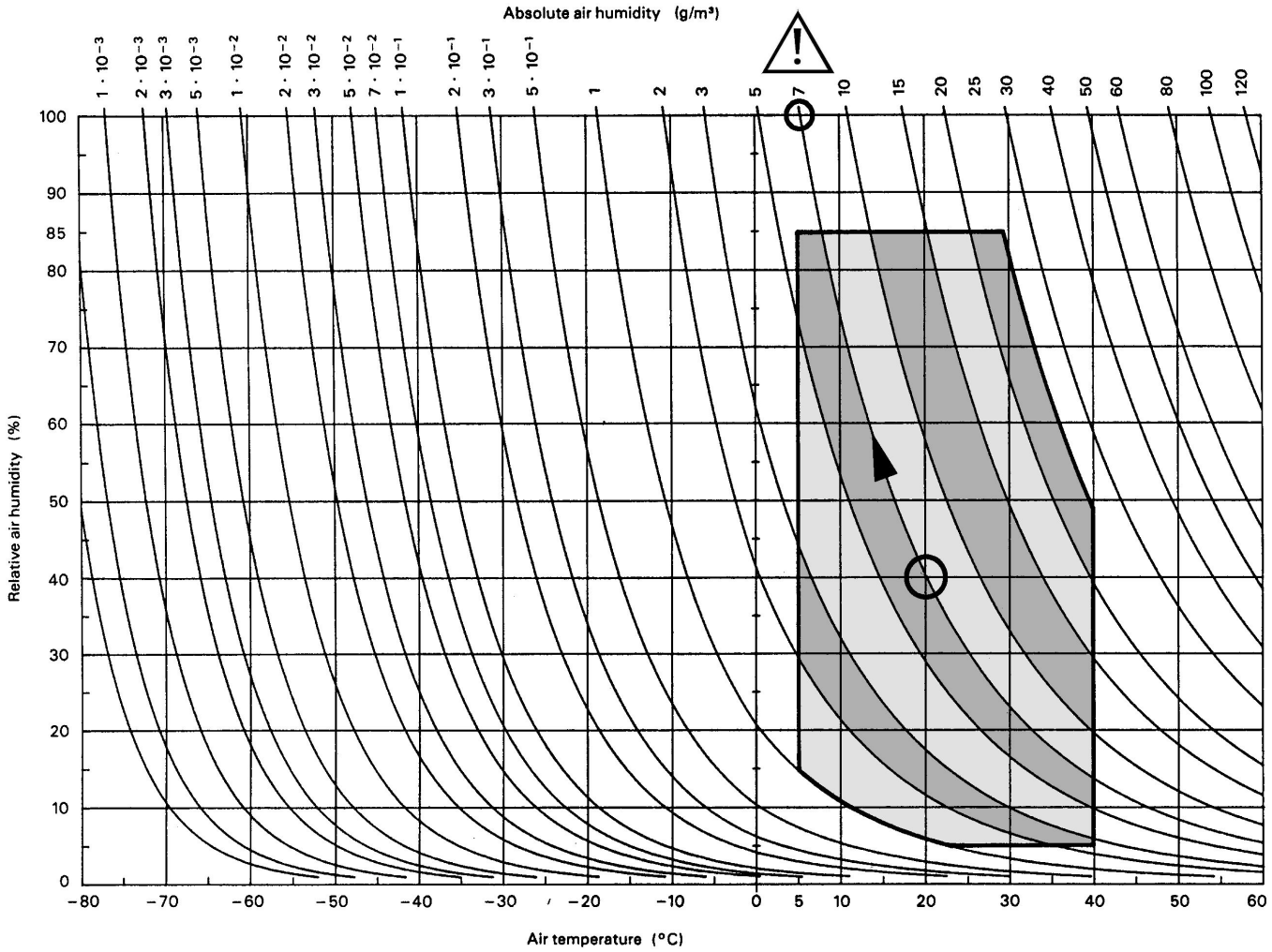
The unsealed system parts (connector areas and semiconductor pins) allow for a minute formation of ice or frost. However, formation of dew visible to the naked eye will already lead to malfunctions. In practice, reliable operation can be expected in a temperature range above –15 °C, if the following 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 °C* and a relative humidity of *40%* is switched off in the evening. If the temperature falls below *+5 °C*, the relative humidity will rise to *100% (7 g/m³)*; dew or ice will be forming.

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

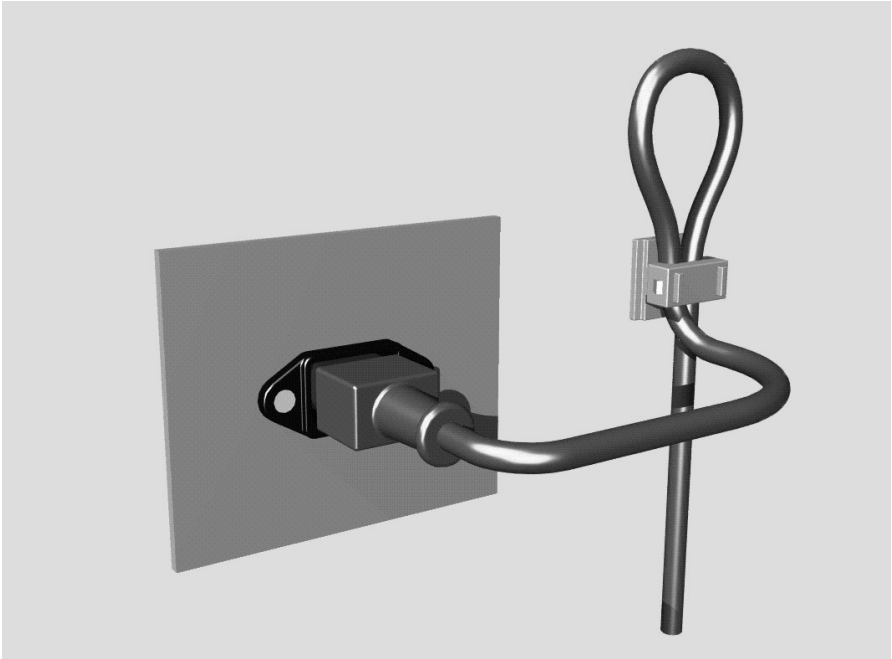


721-3-3 © CEI:1994

Climatogram for class 3K3

Appendix 2: Mains Connector Strain Relief

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



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

- The surface to be adhered to must be clean, dry, and free from grease, oil, or other contaminants. Recommended application temperature range is +20 °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.

Under the condition and within the scope of the following Terms and Conditions, Studer Professional Audio GmbH (hereinafter 'Studer') grants the right to use programs developed by Studer as well as those of third parties which have been installed by Studer on or within its products. References to the license programs shall be references to the newest release of a license program installed at the Customer's site.

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License Programs of Studer

The following Terms and Conditions grant the right to use all programs of Studer that are part of the System and/or its options at the time of its delivery to the Customer, as well as the installation software on the original data disk and the accompanying documentation ('License Material'). In this Agreement the word 'Programs' shall have the meaning of programs and data written in machine code.

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Principle

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The Customer is not entitled to alter or develop further the License Material except within the expressly permitted configuration possibilities given by the software installed on the system or elsewhere. All altered programs, including but not limited to the products altered within the permitted configuration possibilities, are covered by this License Agreement.

Reverse Engineering

Reverse engineering is only permitted with the express consent of Studer. The consent of Studer can be obtained but is not limited to the case in which the interface software can not be provided by Studer. In any case Studer has to be informed immediately upon complete or partial reverse engineering.

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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.

ONAIR 1500 QUICK START GUIDE

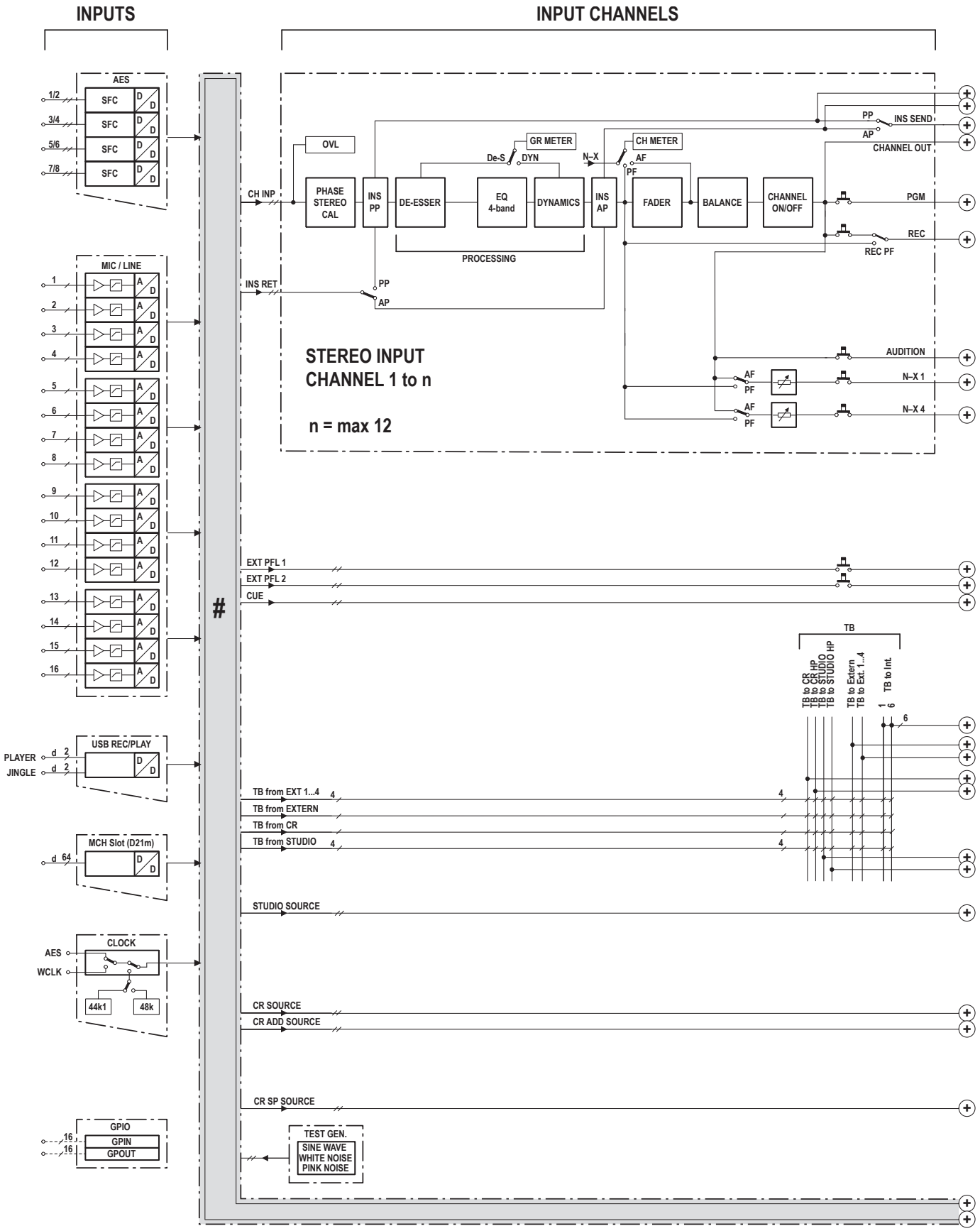
1 INTRODUCTION

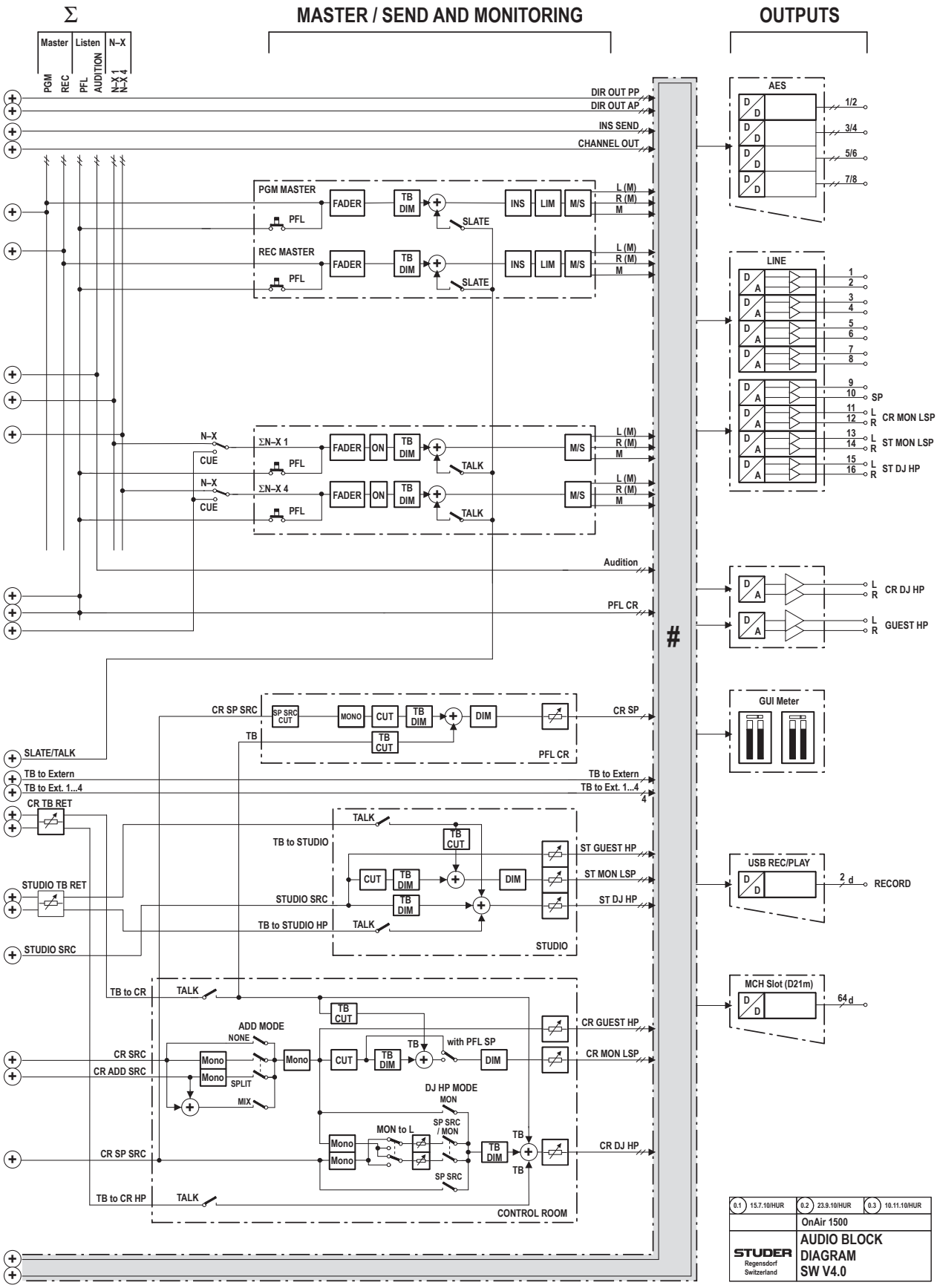
Main Features

- 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). 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 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 Monitora 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




Σ
MASTER / SEND AND MONITORING
OUTPUTS
Master
Listen
N–X
PGM
REC
PFL
AUDITION
N–X 1
N–X 4
DIR OUT PP
DIR OUT AP
INS SEND
CHANNEL OUT
AES
1/2
3/4
5/6
7/8
PGM MASTER
REC MASTER
FADER
TB DIM
INS
LIM
M/S
PFL
SLATE
L (M)
R (M)
M
LINE
1
2
3
4
5
6
7
8
9
10
SP
11
12
CR MON LSP
13
14
ST MON LSP
15
16
ST DJ HP
N–X
CUE
ΣN–X 1
ΣN–X 4
ON
TALK
Audition
PFL CR
CR DJ HP
GUEST HP
#
GUI Meter
CR SP SRC
SP SRC CUT
MONO
CUT
DIM
CR SP
TB
TB CUT
SLATE/TALK
TB to Extern
TB to Ext. 1...4
CR TB RET
STUDIO TB RET
STUDIO SRC
TB to STUDIO
TB to STUDIO HP
ST GUEST HP
ST MON LSP
ST DJ HP
STUDIO
USB REC/PLAY
2 d
RECORD
MCH Slot (D21m)
64 d
TB to CR
TB to CR HP
ADD MODE
NONE
SPLIT
MIX
CR SRC
CR ADD SRC
Mono
with PFL SP
CR GUEST HP
CR MON LSP
DJ HP MODE
MON
MON to L
SP SRC / MON
CR DJ HP
CONTROL ROOM
0.1 15.7.10/HUR
0.2 23.9.10/HUR
0.3 10.11.10/HUR
OnAir 1500
STUDER Regensdorf Switzerland
AUDIO BLOCK DIAGRAM
SW 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

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

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 x 12.5 mm	A943.071029
20	Key caps, 16 x 12.5 mm	A943.071030
+	Cat5 cable to Nano SCore, 5 m	C054.201048
+	RJ11 cable for PFL speaker, 5 m	tbd
+	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
+	USB-Stick	tbd
+	Mains cable	tbd
+	This Quick Start Guide	BD10.943001

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 x 12.5 mm	A943.071030
1	Linking Set (2 threaded plates, 4 screws M4 × 8	A943.074600
1	Allen key 3 mm	tbd
+	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 Memory Device

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

Core, Front:

DATA / LOGIN Used for saving/loading console snapshots. This also offers a convenient possibility for backup purposes or for copying parameter settings, snapshots or the complete configuration from one console to a next one.

REC / PLAY A USB memory stick for jingle audio data playback connects here.

MCH I/O Not implemented yet.

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

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!***

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, Ri = 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

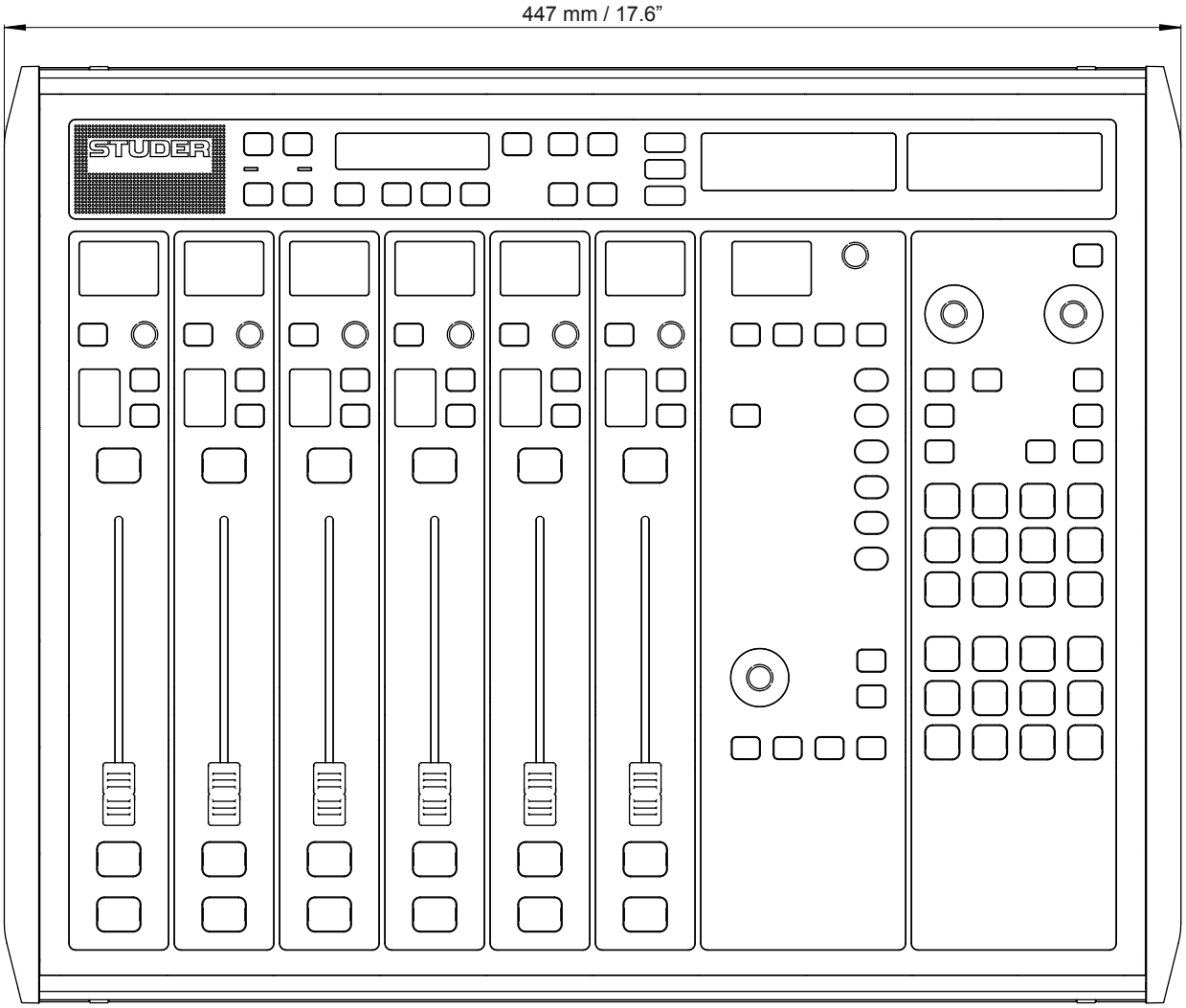
	Value
Operating Temperature Range	0 to 40 °C (32 to 104 °F)

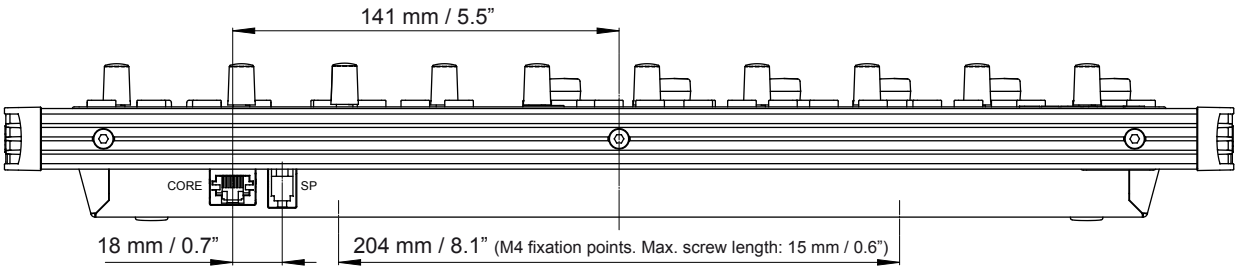
2.3.4 Power Supply

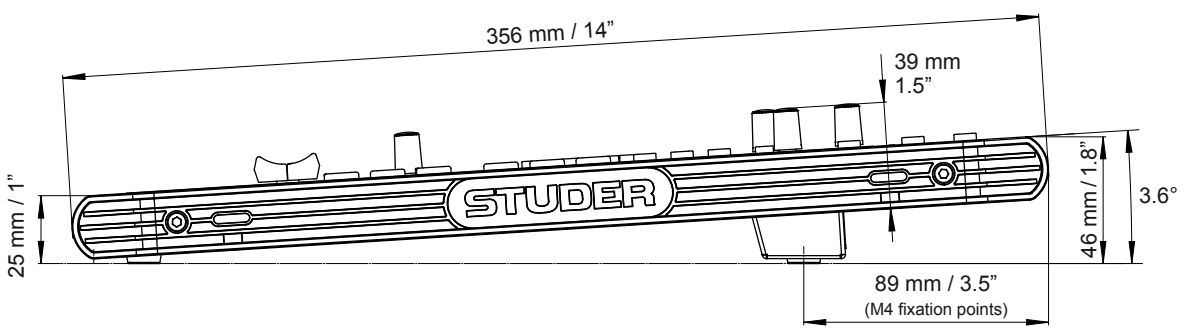
	Conditions/Details	Value
Primary Input Voltage Range	Auto-ranging, with power factor correction; EN/UL approved	80 to 240 V AC, 50 to 60 Hz
DC Input	For redundancy purposes	24 V DC

2.3.5 Dimensions

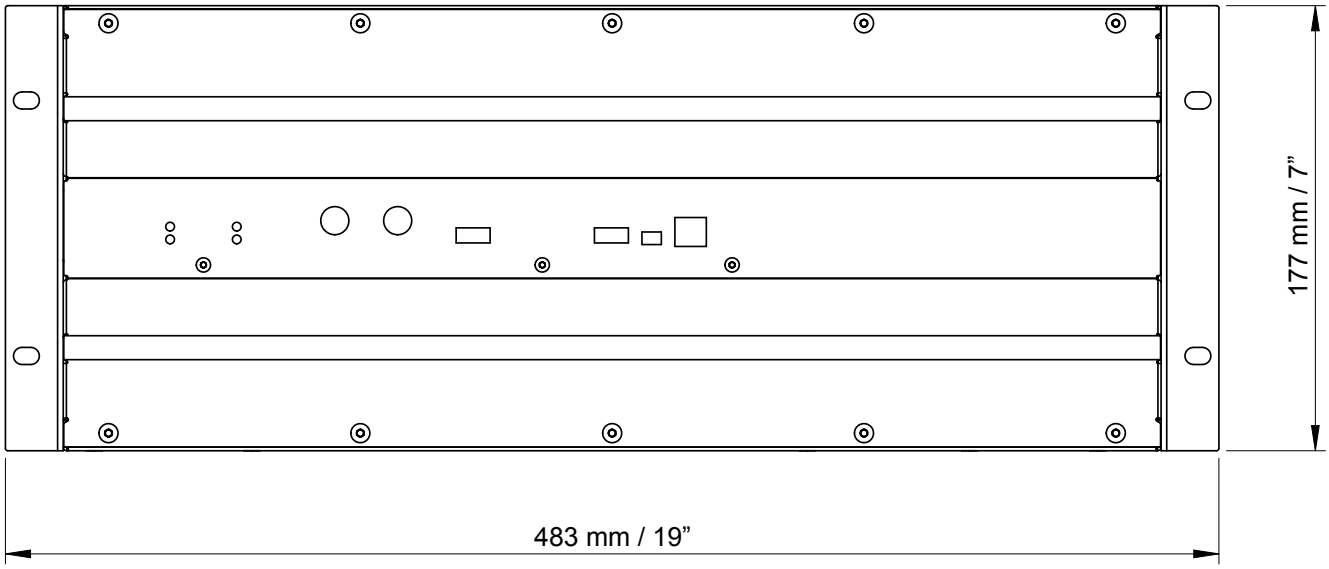
2.3.5.1 Desk Unit

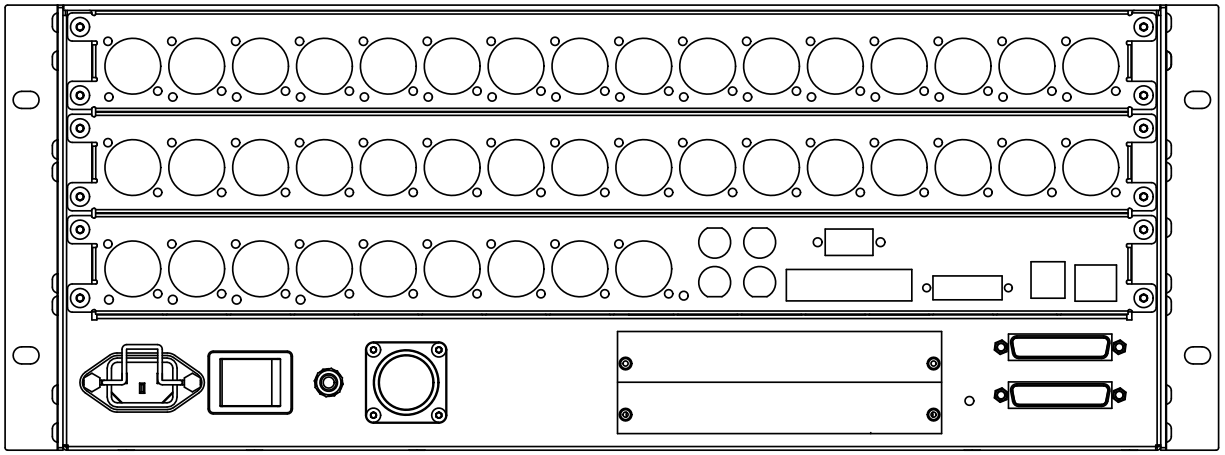


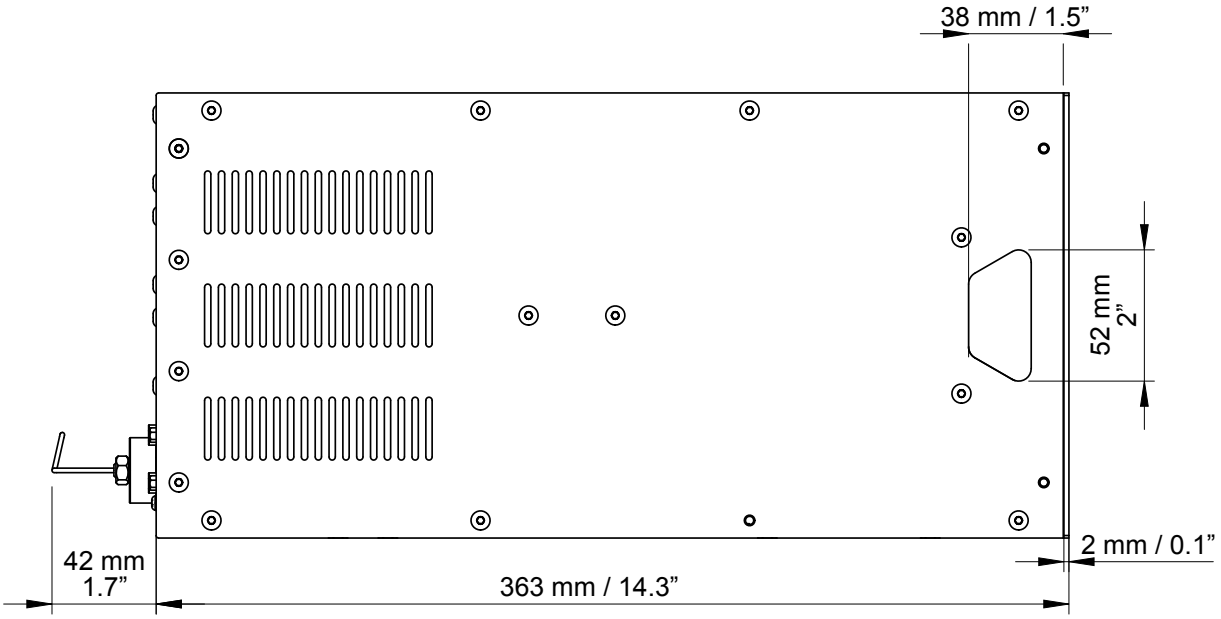




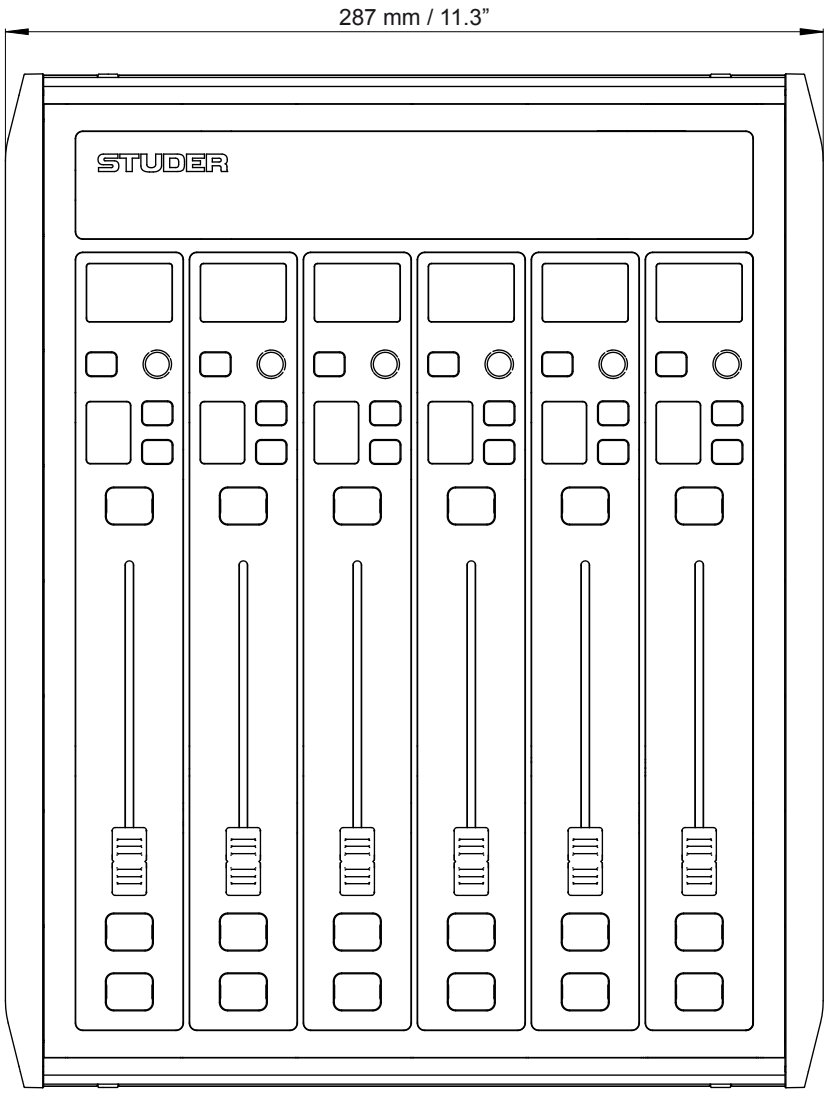
2.3.5.2 Core Frame

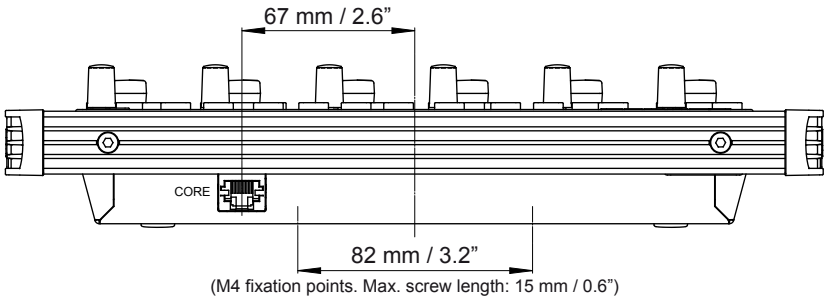




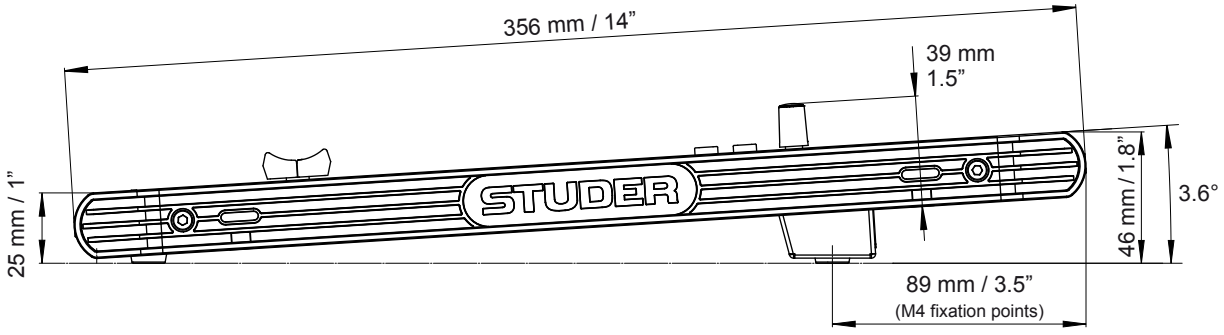


2.3.5.3 6-Fader Extension (Optional)

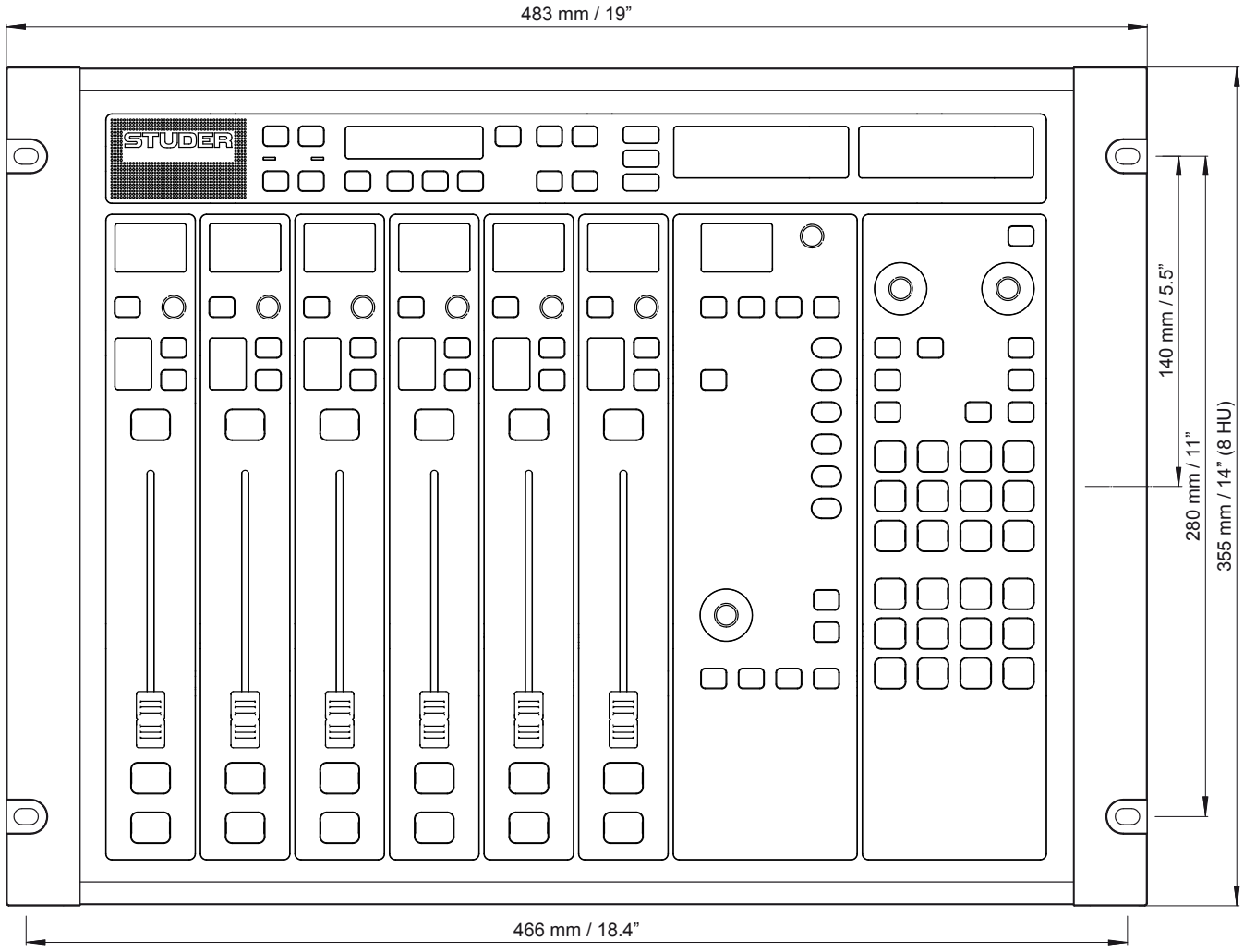


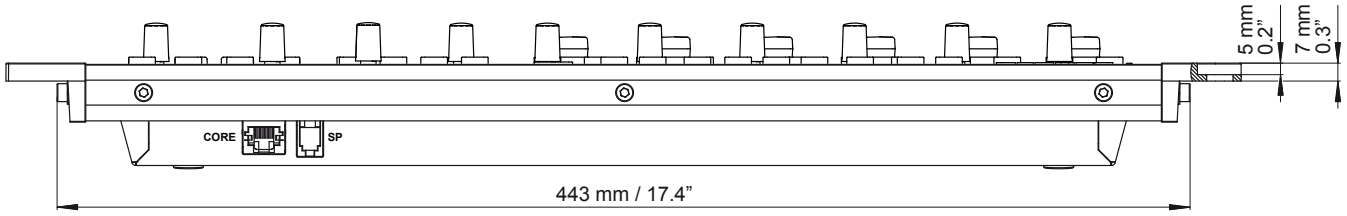


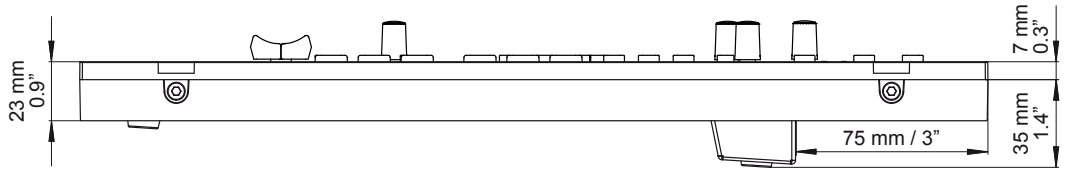
(M4 fixation points. Max. screw length: 15 mm / 0.6”)



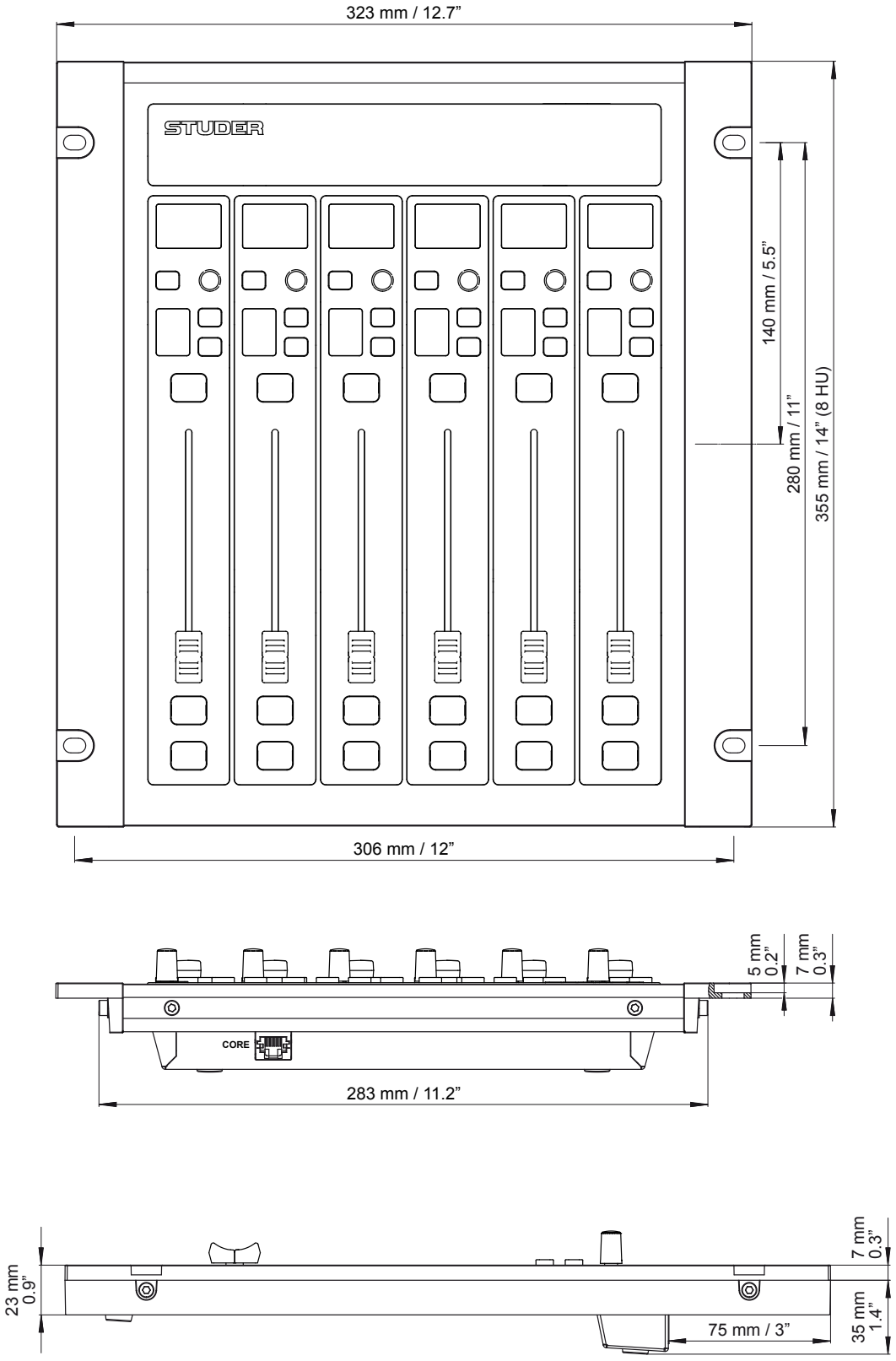
2.3.5.4 Desk Unit + 19” Rack / Table Mount Kit (Optional)







2.3.5.5 6-Fader Extension + Table Mount Kit (Optional)



3 BASIC OPERATION

Normal operation of the Studer OnAir 1500 has been kept as simple as possible, since it will mainly be operated by technically inexperienced users. This has been achieved by minimizing the number of operating elements. The OLED displays just show the elements that are currently needed.

Key Labels Some of the keys can be freely configured and assigned. They either have printed caps that can be replaced by other printed caps that are contained in the accessories set, or they have transparent caps that allow inserting individual labels. However, in the following descriptions and examples the default key labels are used.

3.1 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.

3.2 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

3.3 Options / License Key Code

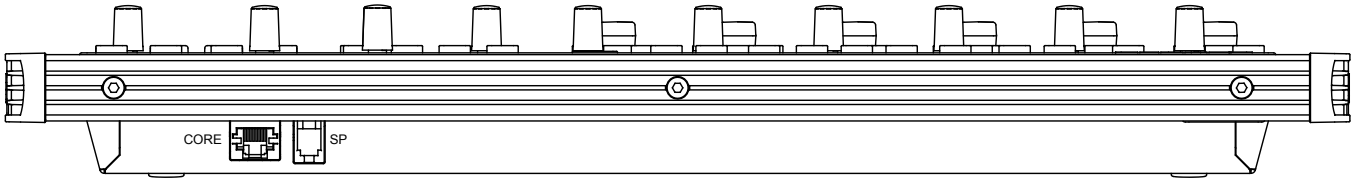
When adding an option to the system (CAB, Ember, ProBel or CMS support, I/O sharing), the System ID code is used together with the option's license key in order to generate the Option Key code that is entered using the configuration tool. Unavailable options will not be displayed.

3.4 USB Memory Device

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!

3.5 Desk Rear View



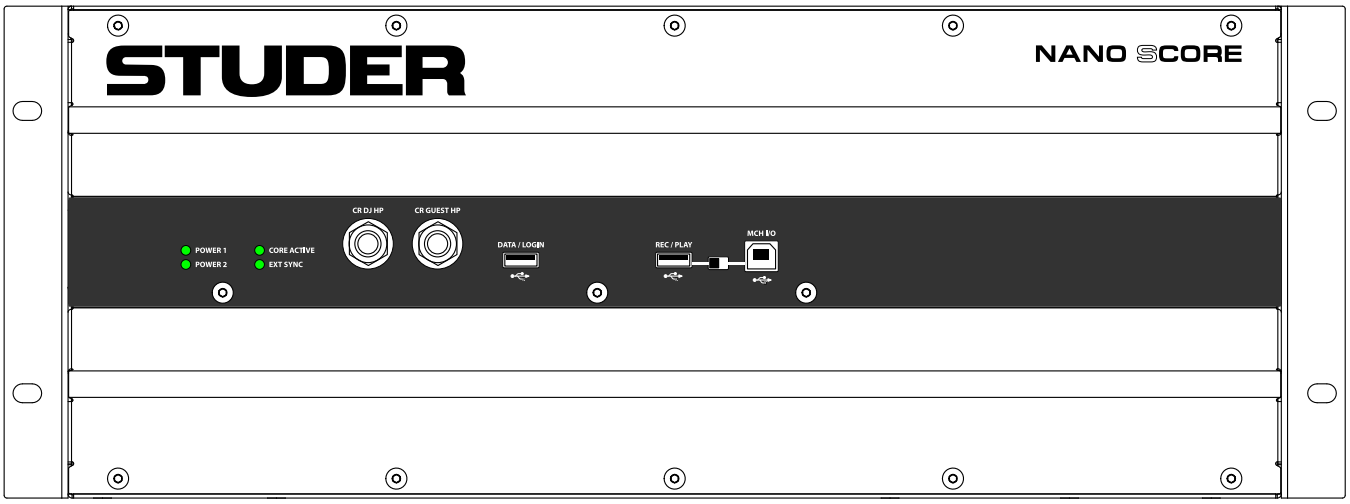
The OnAir 1500 desk has two connectors only:

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.

3.6 Core Front View



CR DJ HP / CR GUEST HP Stereo TRS headphones sockets for the DJ and a guest in the control room.

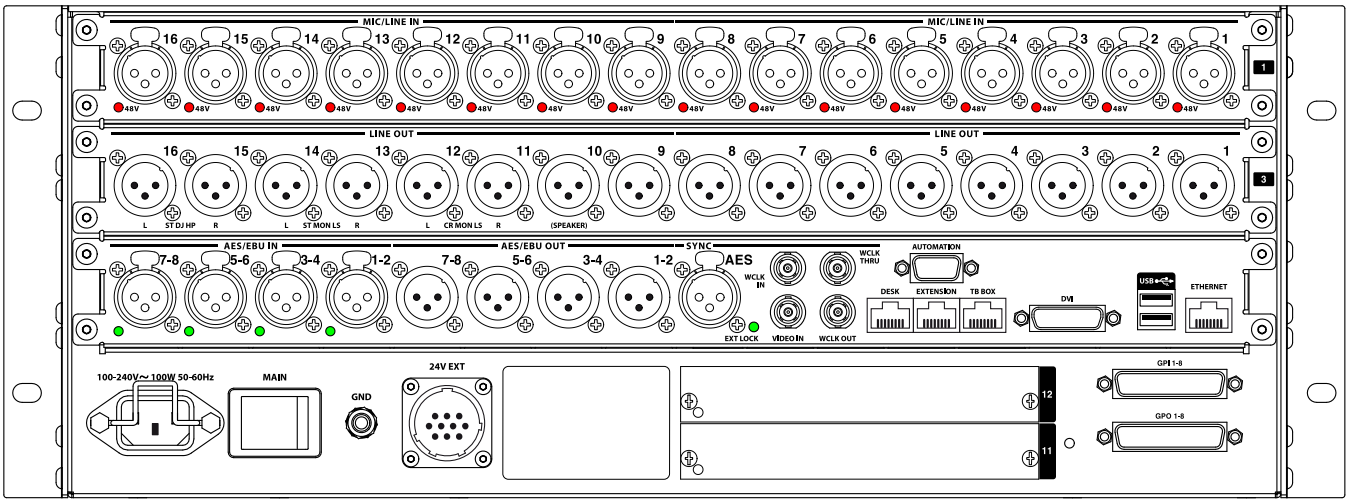
DATA / LOGIN USB socket used for the user login memory stick and for data backup purposes.

REC / PLAY USB socket used for a USB memory stick for jingle playback.

MCH I/O Provided for future functions.

Note: **REC / PLAY** and **MCH I/O** cannot be used simultaneously; the desired socket must be selected with the slide switch between the two.

3.7 Core Rear View



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

MIC/LINE IN 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 (7 of these outputs are used for monitoring).

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

DESK / EXTENSION / TB BOX 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.

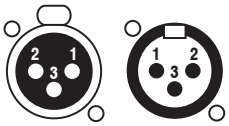
24V EXT Connector for an external 24 V DC power supply (may be used for redundant supply, too).

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.

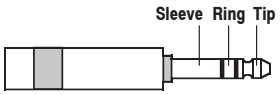
3.8 Connector Pin Assignments

MIC/LINE IN (XLR 3f)
LINE OUT (XLR 3m)
AES/EBU / SYNC IN / AES/EBU OUT (XLR 3f/m)



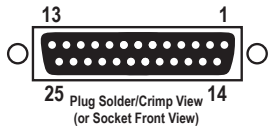
Pin	Signal (Input)	Signal (Output)
1	Screen	Screen
2	In +	Out +
3	In –	Out –

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)



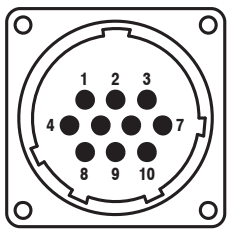
Pin	GPI 1-8	GPO 1-8	Pin	GPI 1-8	GPO 1-8
1	GPI 1a	GPO 1a	14	GPI 1b	GPO 1b
2	GPI 2a	GPO 2a	15	GPI 2b	GPO 2b
3	GPI 3a	GPO 3a	16	GPI 3b	GPO 3b
4	GPI 4a	GPO 4a	17	GPI 4b	GPO 4b
5	GPI 5a	GPO 5a	18	GPI 5b	GPO 5b
6	GPI 6a	GPO 6a	19	GPI 6b	GPO 6b
7	GPI 7a	GPO 7a	20	GPI 7b	GPO 7b
8	GPI 8a	GPO 8a	21	GPI 8b	GPO 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 0.5 A at 125 V AC, 0.7 A at 30 V DC, or 0.3 A at 100 V AC. 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

3.9 System Power

Power Supply

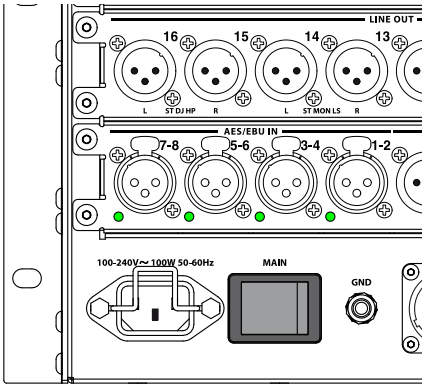
The OnAir 1500's Nano SCore is equipped with an autoranging primary power supply unit (input voltage range 80...240 V AC/50...60 Hz) with power factor correction. The mains switch is located at its rear, next to the power inlet.
The power supply is EN and UL approved.

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.

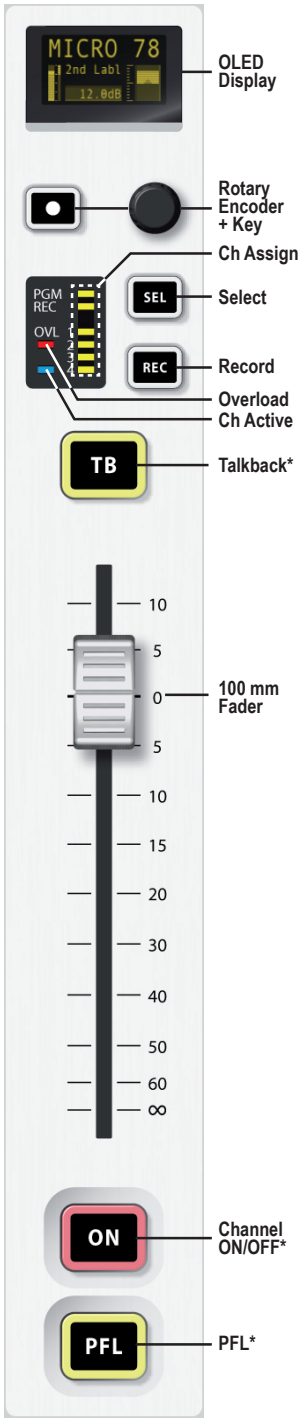
UPS

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 Nano SCore or with the one of the external PSU (if used) without any audio parameter settings getting lost.

3.10 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 Vistonics' 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 a 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.

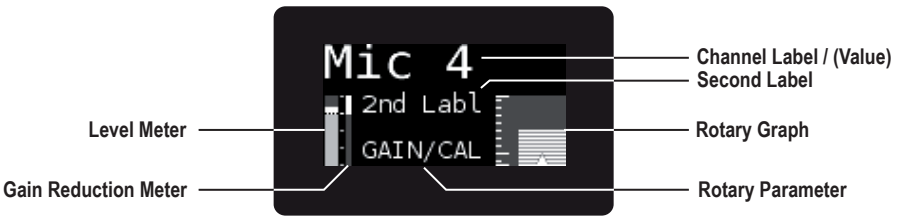
SEL If one of the oval function keys in the central section is active, the 'Mini Vistonics' view for parameter editing is activated for this channel upon pressing this key.

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.

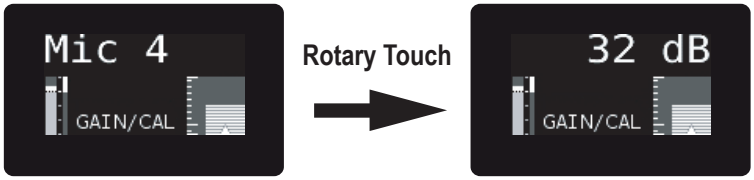
Fader Since the audio path is fully digital, the signal does not pass through the faders; linear-track mono faders with a stroke length of 100 mm are used. When opening the fader, fader start or signaling commands can be released, depending on the configuration.

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.

Display If a logical input is assigned to the channel strip, the channel display 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 *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 dB_{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 clipping is close to zero. Any full scale levels within the path are considered to be overloads).

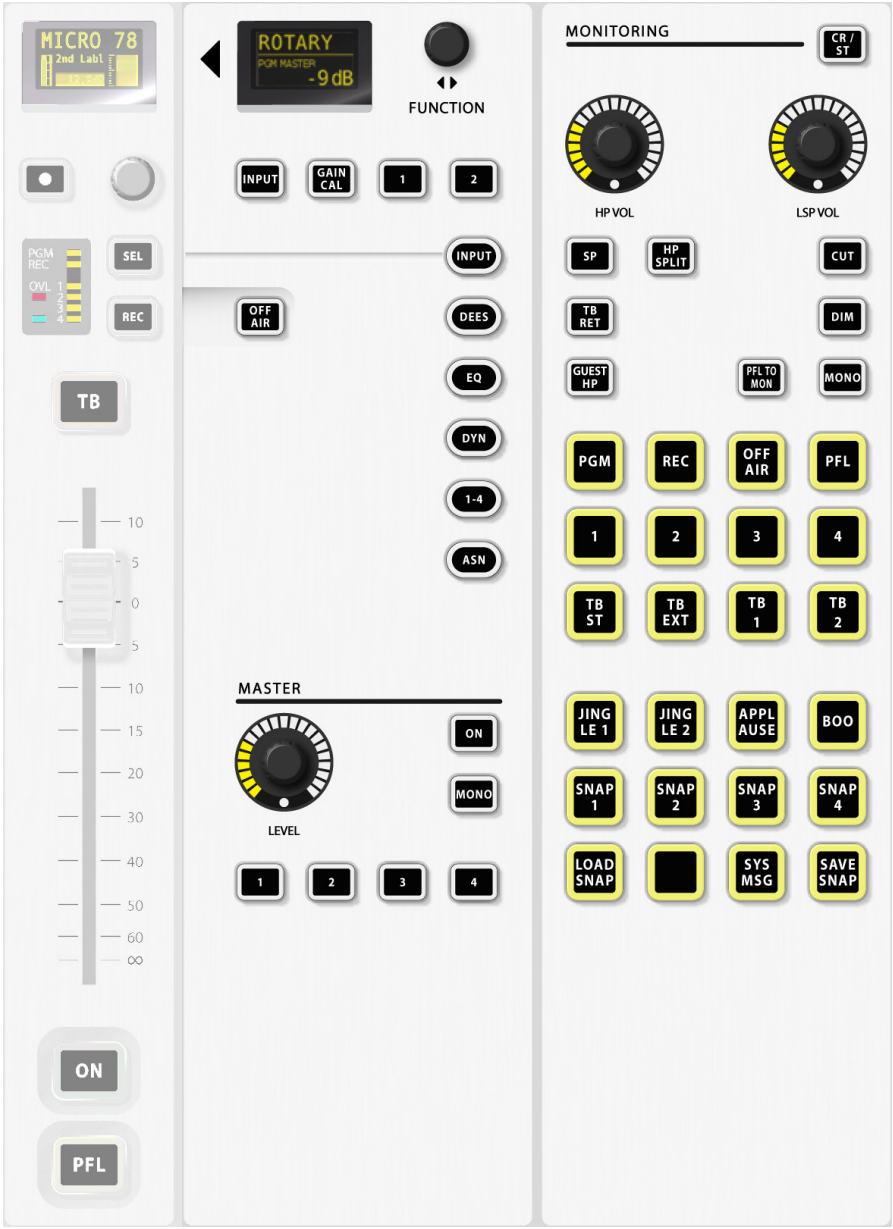
Overload Indication, Digital Inputs: Full scale modulation at a digital input is not considered to be an overload – it is simply the output level of a source.

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.

3.11 Central Section



3.11.1 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 or cal and N–X 1/2 settings. Less important functions without dedicated keys – such as pan(orama) or bal(ance) – are selected with the **FUNCTION** rotary knob.

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.

'Mini Vistonics' This is where the feature called 'Mini Vistonics' comes in: When pressing, e.g., **EQ**, the key 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. 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 and. The different parameters can be switched on or off using the corresponding ● keys. Inactive parameters are clearly 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 the OnAir 1500 operating instructions manual.

3.11.2 MASTER Controls

There is one master rotary control in this section for setting the most important bus send levels. Its function can be assigned to the desired bus with the **1**-**4** keys (**1** for the **PGM** bus, **2** for the **REC** bus, **3** and **4** for AUX1 and AUX2 busses. 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.

3.11.3 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 labels may be inserted below the caps. The factory default configuration is as follows:

Monitoring Source Selectors:

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

1-4 For listening to the AUX1, AUX2, N–X1 and N–X2 busses.

Talkback Destination Selectors:

TB ST For communication to the studio,

TB EXT to an external line,

TB 1, **TB 2**. to the AUX1 and AUX2 busses.

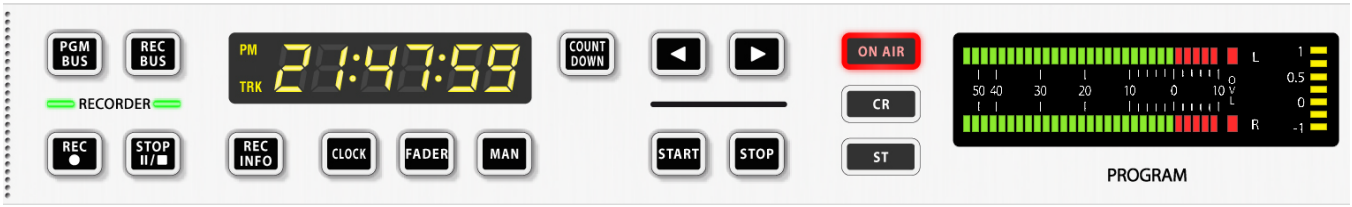
Jingle Player Keys: For selecting two different station identifier jingles (**JINGLE 1** and **JINGLE 2**) and sound effects (such as **APPLAUSE** and **BOO**ing sounds) from a USB stick plugged to the core.

Snapshot Keys: **SNAP 1-SNAP 4** To recall the private snapshots SK 1...SK 4. These keys have to be pressed while **LOAD SNAP** is held.

SAVE SNAP For saving console settings in a 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 **FUNCTION** rotary knob will display the corresponding help or error information.

3.11.4 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). 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.

ON AIR, **CR** and **ST** lamps indicate red light for open microphones.

The 7-segment display normally indicates time-of-day but can be switched over to act either as a manual or a fader stop watch.

The keys around the 7-segment display are provided for future functions.

4 INITIAL SETUP

There are some settings that must be made during installation of the console, such as entering user names and passwords, or setting the current date and time since this depends on the local time zone. This procedure is described in the following chapter. It is assumed that it is performed by the user designated as the system administrator.

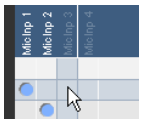
4.1 Some Basics First: Mouse and Keyboard Operation

Important!

For the initial setup, the console must be operated from an external USB keyboard and an USB 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 already, except that the external screen doesn't feature any touch screen functionality. The following rules apply for operation:

Button 'Touch' Left-click (e.g. for user login on the **Home** page, 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 configuration tool whenever the screen is too small to 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 large 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.

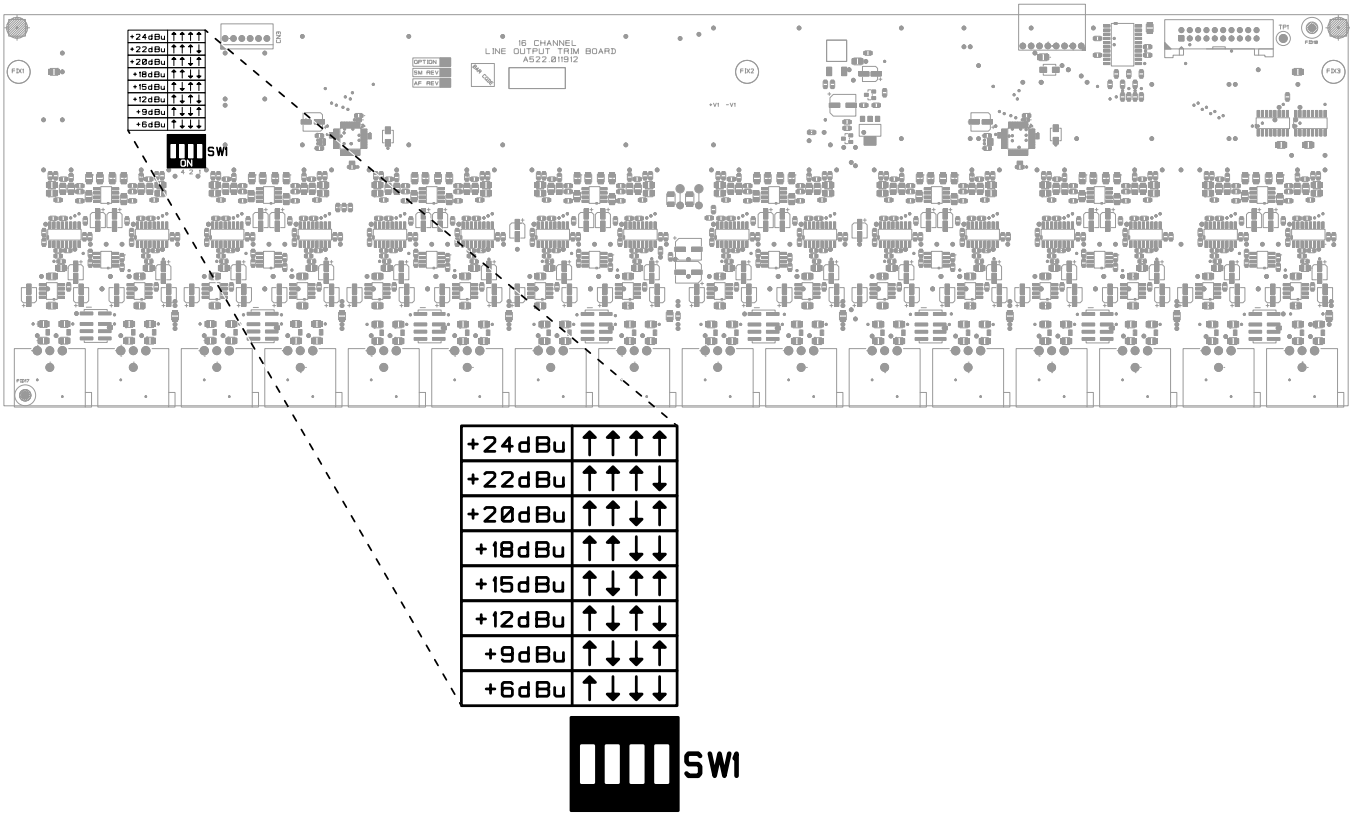
External USB Keyboard For the keyboard layout, the language settings made with the configuration tool under User GUI... – Settings – Keyboard Layout are valid (for the time being, English US and Danish are provided for selection). This is inde-

pendent of how the 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 using the arrow keys, or the copy/paste function using the Windows-standard keyboard shortcuts Ctrl-C and Ctrl-V; this is very convenient when entering multiple, similar labels or user names. *Please note that the* ⇧/Shift *and* Caps Lock *functions of screen and USB keyboards are independent; this is particularly important when entering passwords since these are case-sensitive.*

4.2 Setup Procedure

4.2.1 Output Level

Disconnect the mains cable. Unscrew the line output module from the Nano SCore (4 screws, Allen key no. 2.5). The module can be carefully pulled out far enough without having to remove any wiring. Set the desired maximum output level (i.e., the output level for 0 dB_{FS}) with DIP switch SW1 according to the PCB silkscreen. Reinstall the line output module afterwards.



4.2.2 Key Caps

The factory key cap setting is channel **ON**/off combined on a single key (i.e., first key press: channel on, next key press: channel off). You can as well have separate channel **ON** and **OFF** keys, but then the key caps labeled **PFL** need to be replaced by the caps labeled **OFF**. The key caps can easily be pulled off from the rubber key mat using their recesses at their left and right sides; the new ones can be snapped on then. Information on selecting these key functions will follow later.

4.2.3 Options

6-Fader Extension

For mechanically linking a 6-fader extension module to a desk unit, two linking straps and 4 screws M4 × 10 (Allen key no. 3) are shipped with the extension module. The linking straps fit into the slots of the side trim strips of both the desk unit and the extension module and are fixed with the screws from the bottom.

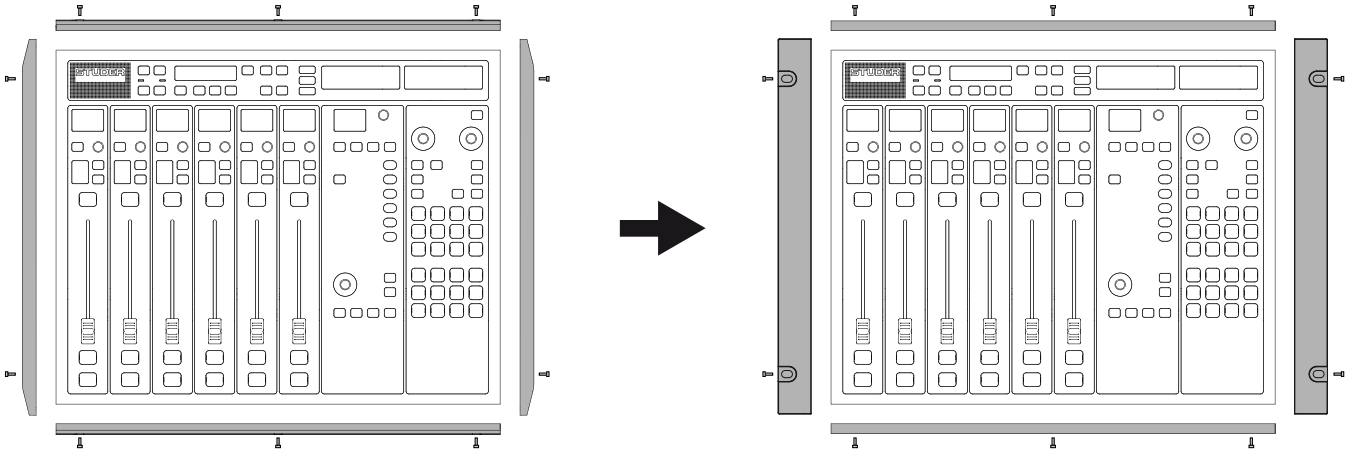
The 6-fader extension module is intended to be located at the right of the desk unit. Its fader strips are, therefore, numbered from 7-12 per default. If it is desired to have it at the left of the desk unit, an additional configuration step will be necessary (configuration information follows later).

Desk Unit – Rack/Table Mounting Kit (A943.074000)

The rack mounting brackets for the desk unit can also be used for flush-mounting the desk unit within a table.

Remove the front, rear, and side trim strips (2 screws on each side; 3 screws on front and rear; Allen key no. 3). Retain the screws for later use.

Attach the replacement front and rear profiles and the rack mounting brackets from the rack/table mounting kit with the same screws. The desk depth will then be 355 mm/14”, i.e., it occupies 8 units if mounted vertically in a rack.

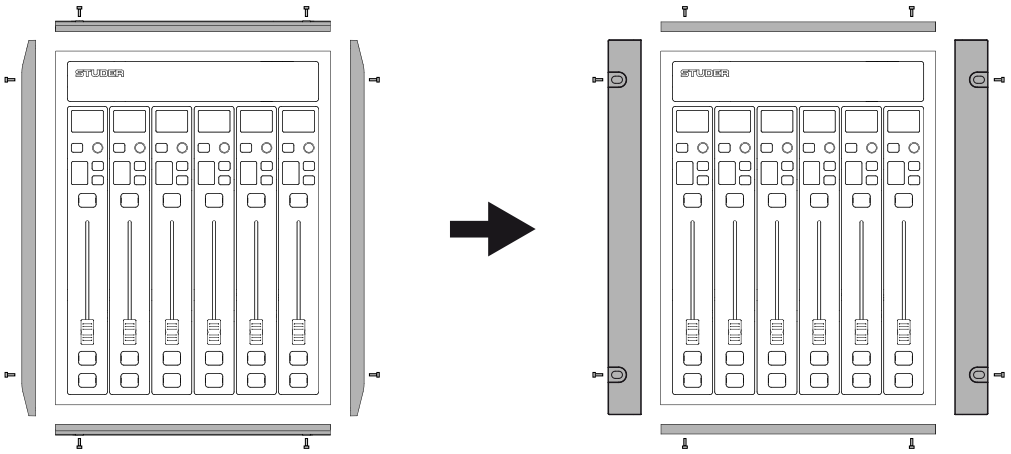


6-Fader Extension Unit – Table Mounting Kit (A943.074100)

The desk mounting brackets for the 6-fader extension unit cannot *be used for rack-mounting the unit since the module is less than 13” wide.*

Remove the front, rear, and side trim strips (2 screws each on the sides, front and rear; Allen key no. 3). Retain the screws for later use.

Attach the replacement front and rear profiles and the mounting brackets from the kit with the same screws.



4.2.4 Connections

Connect the desk (and an extension unit, if available) to the core using Cat5 cable.

⚠ ***Make sure not to accidentally confuse these cables with other network cables since they also carry the supply voltage for the desk unit and an optional 6-fader extension module.***

Connect a DVI computer screen, USB mouse and keyboard to the core. If there is no keyboard available, you can also operate the on-screen keyboard with the mouse in cases where a keyboard is needed; however using a hardware computer keyboard is somewhat more convenient. These external components are only needed for the initial configuration and may be disconnected for normal operation.

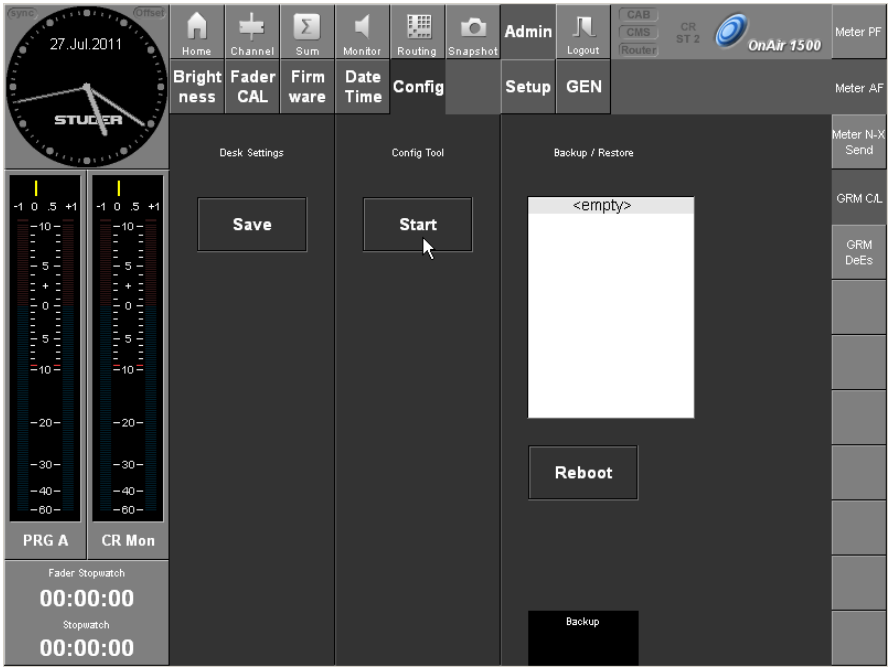
Connect the whole system to the mains supply and power it up. When the console has booted after approx. 40 seconds, the screen will show the **Home** page, as possibly already known from the OnAir 2500 and OnAir 3000 systems.

4.2.5 Initial Configuration

⚠ *It is assumed that the following settings are performed by the user who has been designated as the future system administrator.*

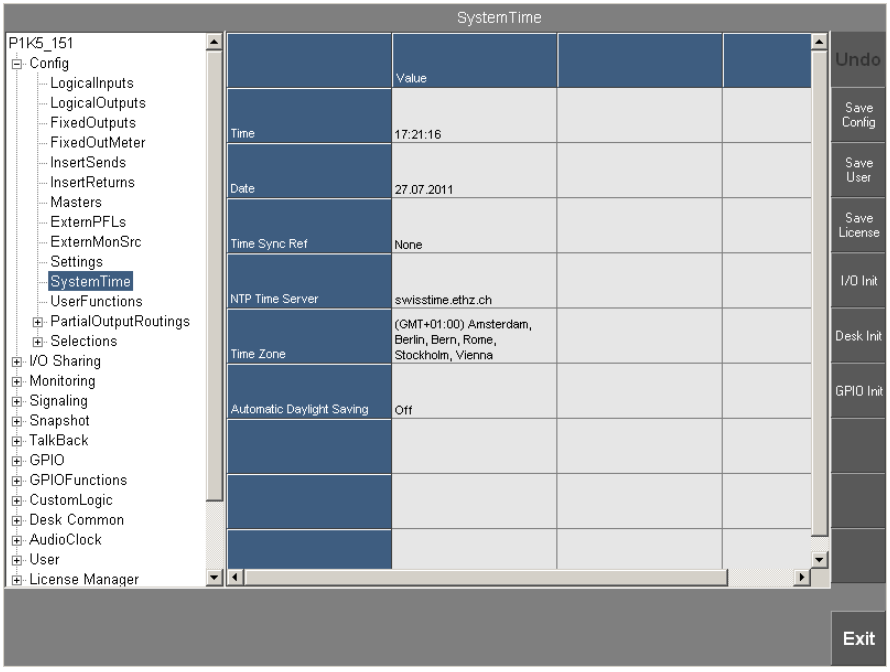
4.2.5.1 Start the Configuration Tool

Click on **Admin - Config** and start the configuration tool by selecting the Config Tool **- Start** button.



4.2.5.2 Date, Time, Time Zone

Set the date, clock and time zone: Select Config - SystemTime.



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 clicking in one of these fields, a keyboard pops up for entering the current date and time. *For entering the colons in the* Time *field the decimal point button is used.*

Time Sync Ref

The type of external time reference signal can be selected here from: None, MONITORA (time information according to the Monitora protocol, e.g. from a Studer DigiMedia CAB system), 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.

NTP Time Server

If NTP has been selected above, the NTP time server's web address is set here. When clicking on this button, a keyboard appears for entering the address. IP addresses are supported for defining the NTP time server as well.
Please note that a correct Time Zone setting is required since the NTP time is the same throughout the world.

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.

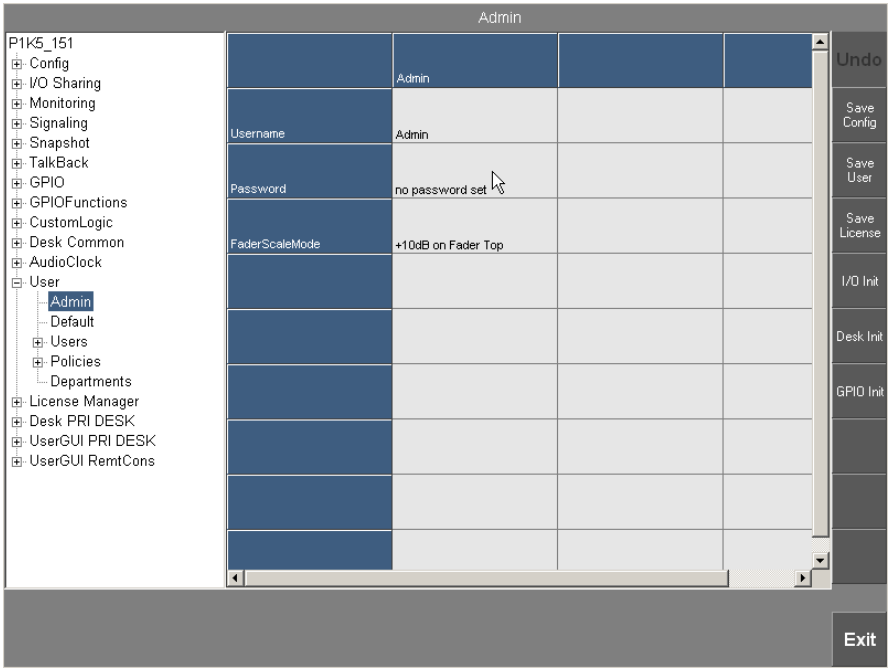
Automatic Daylight Saving

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.

4.2.5.3 User Passwords

Admin

Set the system administrator and the user password(s) for future login:
First select User - Admin.

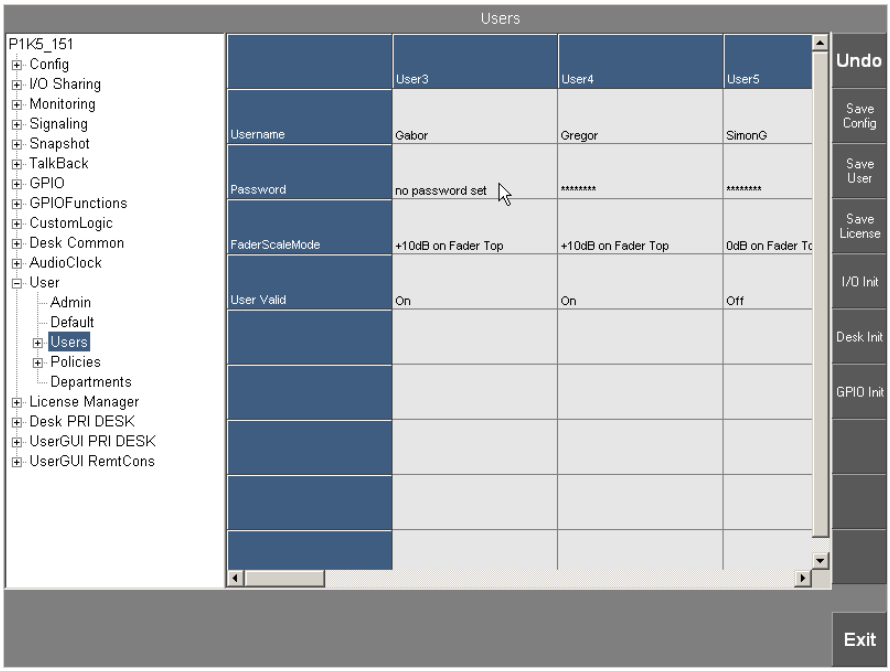


The system administrator ('Admin', user no. 1) automatically has access to all features of the console and its configuration.
The administrator's default user name and password may be changed using either the on-screen or the external keyboard; factory default settings are Admin for his user name, and **ADMIN** for his password. *Please note that the password is case-sensitive – this is important for correct log-in.*

Default User

The default user's name is Default; it may be changed using either the on-screen or the external keyboard, if required (e.g. if there is only one user of the console). A password is neither available nor required for the default user.

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.
Please note that the passwords are case-sensitive – this is important for correct user log-in.
By setting User Valid to Off, access for a particular user can be canceled (not available for Admin and Default user).

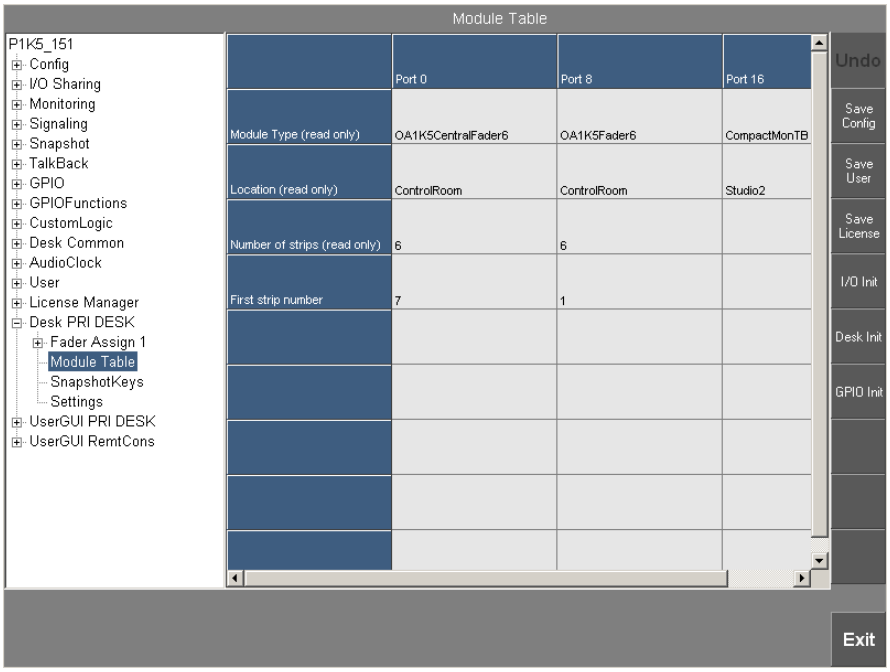
Note: *With the current SW version, at least a DVI screen and a USB mouse must be connected to the system for user login. It is therefor recommended to use the system as default user or to leave the screen/mouse and perhaps also the USB keyboard connected.*

4.2.5.4 Fader Scale Mode

On the same page, for special applications, individually per user, 0 dB on Fader Top may be selected for special applications; this shifts the whole fader scale in such a way that unity gain (i.e. 0 dB) is at the fader's upper stop instead of +10 dB (factory default).

4.2.5.5 6-Fader Extension Module

If an optional 6-fader extension module is used, it is presumed that it is located at the *right* side of the desk unit, i.e., its default channel strip numbering is 7-12. If it is located at the desk unit's *left* side, the strip numbering must be swapped with the one of the desk.



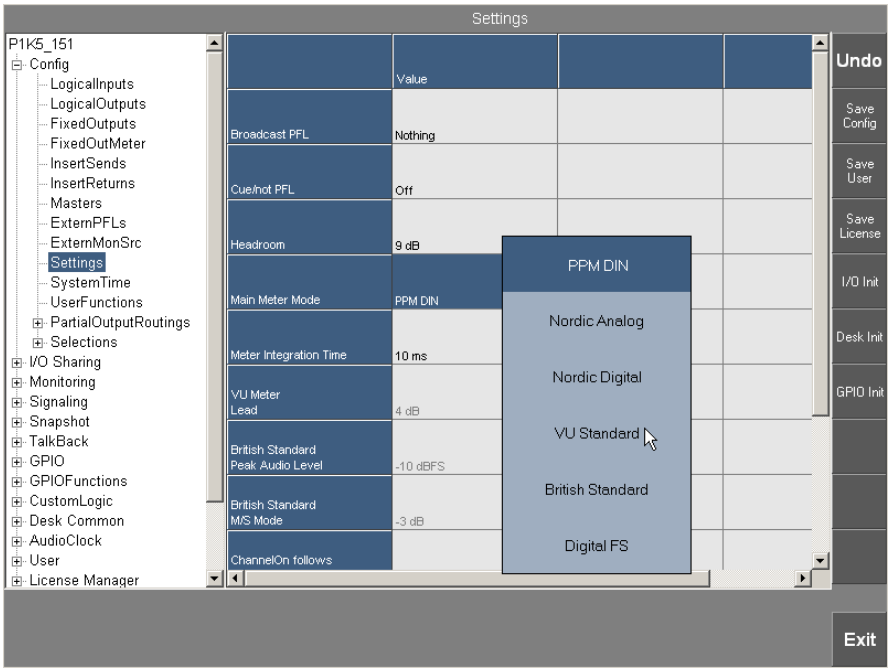
This is done on the Desk... - Modules page; just select 1 as the First strip number of the unit physically located at the *left*, and 7 for the next one. In the example above, the 6-fader extension unit is placed at the *left* side of the desk unit.

4.2.5.6 Headroom and Meters

Select Config - Settings.

Headroom

The console-internal headroom is set here; the default setting is 9 dB. This means that peak-responding level meters with characteristics such as PPM DIN, Nordic Analog or Nordic Digital indicate 0 at an internal audio level of –9 dB_{FS} (or +9 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 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.



Main Meter Mode

Selects PPM DIN (peak program meter), NordicAnalog, NordicDigital, VU Standard, British Standard or Digital FS (full scale) meter characteristics for the LED bargraph meters. The self-adhesive meter scale labels have to be selected accordingly (please also refer to the next chapter). Additional red clipping indicators are provided at the top of the LED bargraphs.
If British Standard meters are configured, additional selections are provided by a click within the on-screen 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 on the screen, in green/orange on the LED bargraph meters). 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 and S+20) below the on-screen meters; on the LED bargraph meters, the **M** and **S** dots at the far left of the scale are active in M/S mode. Additional red clipping indicators are provided at the top of the LED 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 LED bargraph meters. Additional red clipping indicators are provided at the top of the LED 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.

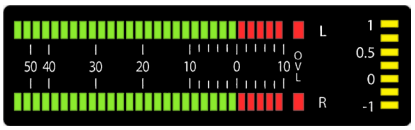
VU Meter Lead — The default VU meter lead is 4 dB; it can be adjusted in steps of 2 dB within a range of 0 to 10 dB.

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 dB_{FS}.

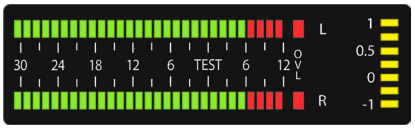
British Standard M/S Mode — Level reduction of the M meter can be selected from –3 or –6 dB (default value: –3 dB.

Note: Meter characteristics (Main Meter Mode) are always identical for both the **PROGRAM** and **MONITOR** meters; having different characteristics for the **PROGRAM** and **MONITOR** meters wouldn't make sense.

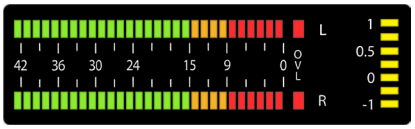
PPM DIN **Scale**



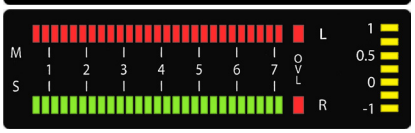
NordicAnalog **Scale**



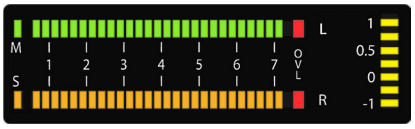
NordicDigital **Scale**



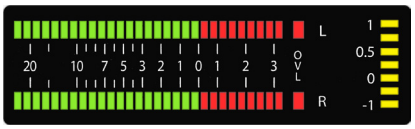
British Standard **Scale,** L/R **Mode**



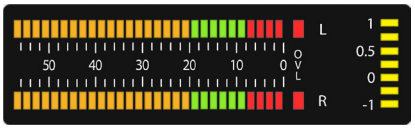
British Standard **Scale,** M/S **Mode**



VU Standard **Scale**



Digital FS **Scale**



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.

4.2.5.7 Meter Scale Labels

A selection of six different characteristics for the LED bargraph meters can be configured, as described in the chapter above.
Attach the self-adhesive meter labels matching the meter characteristics.

⚠ 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 a label needs to be removed nevertheless, there are two possibilities:

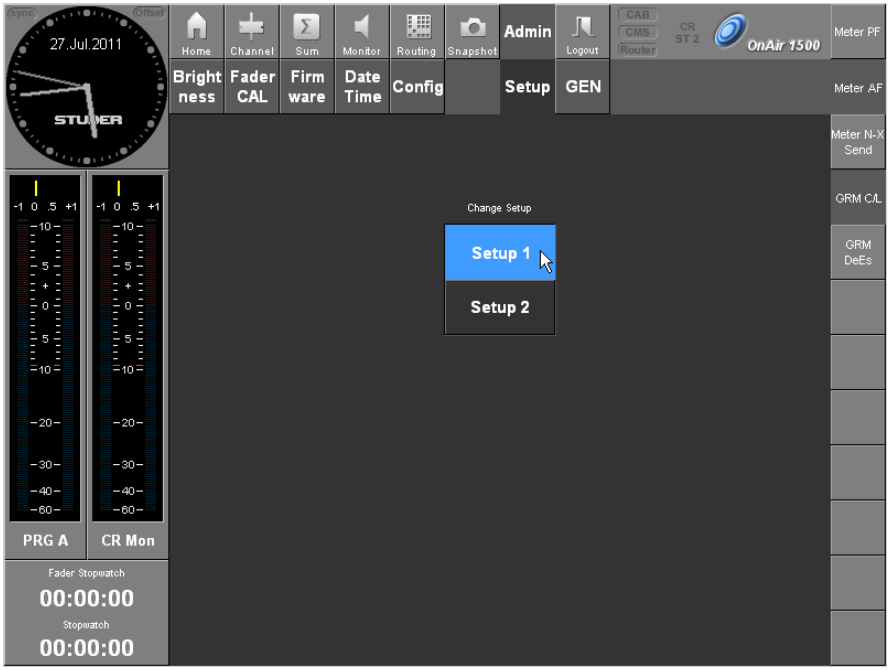
- If you don't mind losing the label, cut it in two parts with a sharp knife at about 16-17 mm from the right-hand edge (there is a narrow gap between the level and correlation bargraph modules underneath the label). The two parts can be peeled off easier then. Residual adhesive on the bargraph

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!*

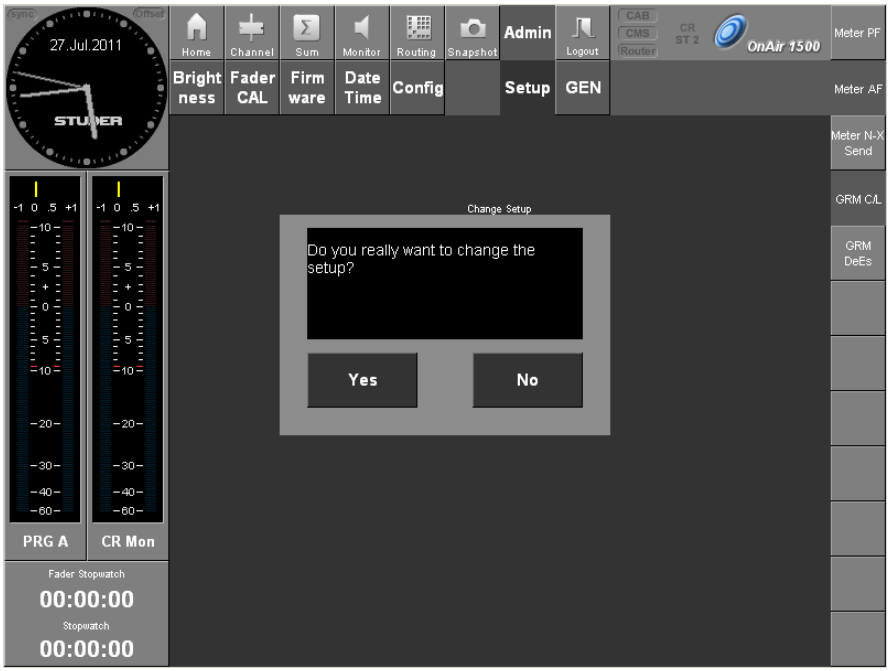
- If you want to retain the label, the procedure is somewhat more complicated and requires removing the desk's top panel.
  - To do so, first power the console off and disconnect the 2 cables at the desk's rear.
  - Remove the front, rear and side trim strips (or rack mount hardware – Allen key no. 3).
  - 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 completeley 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.

4.2.5.8 Select Setup

If it is ok with you to have the channel **ON**/off function on single keys (i.e. first key press: channel on, next key press: channel off) you can skip this step. If, however, you require separate channel **ON** and **OFF** keys you should select **Setup 2** now on the **Admin - Setup** page.



A dialog box appears that must be confirmed for safety reasons:

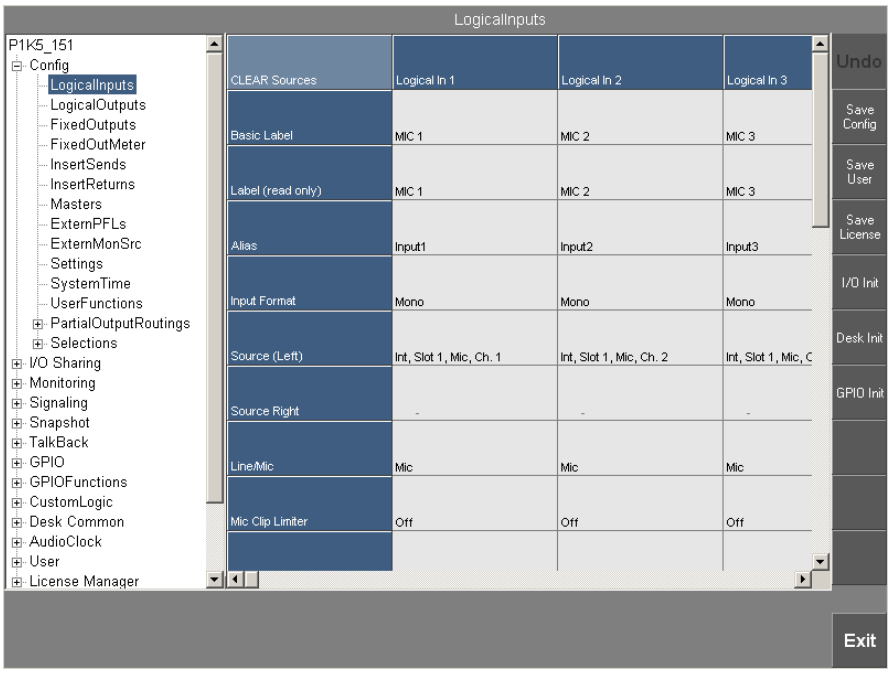


4.2.5.9 Inputs

The default input mapping (1-6 for a 6-fader desk, 1-12 for a desk with the optional 6-fader extension unit) is as given in the table below.

Physical Input	Log. Input	Label	N–X Ctrl TB Dest.	Format	Location	Sign.	Joker Key
MIC/LINE IN 1	1	MIC 1	-	Mono	CR	On	-
MIC/LINE IN 2	2	MIC 2	-	Mono	CR	On	-
MIC/LINE IN 3	3	MIC 3	TBtoST2	Mono	ST2	On	TALK
MIC/LINE IN 4	4	MIC 4	TBtoST2	Mono	ST2	On	TALK
MIC/LINE IN 5&6	5	LINE 5/6	-	Stereo	-	-	-
MIC/LINE IN 7&8	6	LINE 7/8	-	Stereo	-	-	-
MIC/LINE IN 9&10	7	LINE9/10	-	Stereo	-	-	-
MIC/LINE IN 11&12	8	LIN11/12	-	Stereo	-	-	-
MIC/LINE IN 13	9	LINE 13	N-X 3	Mono	-	-	TALK
MIC/LINE IN 14	10	LINE 14	N-X 4	Mono	-	-	TALK
MIC/LINE IN 15	11	LINE 15	-	Mono	-	-	-
AES/EBU IN 1&2	12	AES 1/2	-	Stereo	-	-	-
AES/EBU IN 3&4	13	AES 3/4	-	Stereo	-	-	-
AES/EBU IN 5&6	14	AES 5/6	-	Stereo	-	-	-
AES/EBU IN 7&8	15	AES 7/8	-	Stereo	-	-	-
MCH I/O, USB CH1&2	16	USB 1/2	-	Stereo	-	-	-
MCH I/O, USB CH3&4	17	USB 3/4	-	Stereo	-	-	-
MCH I/O, USB CH5&6	18	USB 5/6	-	Stereo	-	-	-
MCH I/O, USB CH7&8	19	USB 7/8	-	Stereo	-	-	-

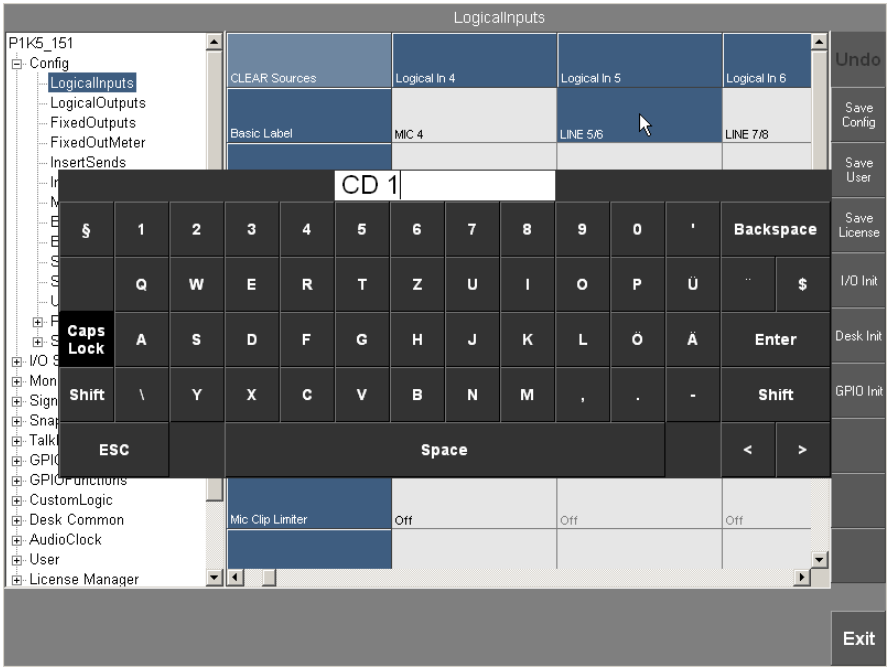
It is recommended to leave the input mapping as it is for the moment. In case anybody should have tinkered around with your console before and the input mapping has been modified already, there is an easy way to revert to the default values:
Click on **Admin - Config** and start the configuration tool by selecting the Config Tool **- Start** button. Then click on the I/O Init button at the right edge of the screen.



This will start the automatic I/O configuration that depends on the current physical inputs and outputs of the console. I/O configuration is reset to the values from the table above. Save it by a click on Save Config.

Basic Label

A channel label that is normally displayed in the channel strip and on the Screen if this input is selected.
If desired, the default labels may be overwritten by labels of your choice. Select Config - LogicalInputs. Enter the input parameters and labels according to your specific requirements. The label may have up to eight characters.



When clicking, for example, on the upper LINE 5/6 button – i.e., the label of Logical In 5 – 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, click on **Enter**. If the current label is ok and should be retained, click on **ESC** instead. Please note that Save Config must be clicked in order to permanently save your edits.

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 Monitora protocol. It is marked (read only) since it cannot be modified manually here.

4.2.5.10 Bus Outputs

The default output mapping is as follows:

Log. Output	Source	Label	Format	Physical Output(s)
1	PGM	LINE 1/2	Stereo	**LINE OUT 1&2**
2	REC	LINE 3/4	Stereo	**LINE OUT 3&4**
3	N-X 1	LINE 5/6	Stereo	**LINE OUT 5&6**
4	N-X 3	LINE 7	Mono	**LINE OUT 7**
5	N-X 4	LINE 8	Mono	**LINE OUT 8**
6	-	USB 1/2	Stereo	**MCH I/O**, USB CH1&2
7	-	USB 3/4	Stereo	**MCH I/O**, USB CH3&4
8	-	USB 5/6	Stereo	**MCH I/O**, USB CH5&6
9	-	USB 7/8	Stereo	**MCH I/O**, USB CH7&8
10	PGM	AES 1/2	Stereo	**AES/EBU OUT 1-2**
11	REC	AES 3/4	Stereo	**AES/EBU OUT 3-4**
12	N-X 2	AES 5/6	Stereo	**AES/EBU OUT 5-6**
13	N-X 3	AES 7	Mono	**AES/EBU OUT 7**
14	N-X 4	AES 8	Mono	**AES/EBU OUT 8**

4.2.5.11 Monitor Outputs

Connect your monitor amplifier/speakers (or powered speakers) to the **CR MON LS L/R** connectors at the rear of the core, and/or your headphones to the **CR DJ HP** socket at the front of the core. If your monitor amplifier or powered speakers feature a level control, turn it to minimum.
In addition, a cable from the Nano SCore's **LINE OUT 10 (SPEAKER)** output to the desk's **SP** RJ11 socket is required in order to have the PFL/talkback signal on the integrated desk speaker.

4.2.5.12 Signal Source(s)

Close all faders, switch all channels off and reduce the gain of all channels to minimum.
Connect your audio signal sources to the core (or at least one of them for a first check).

Make sure that phantom power is only activated for a microphone requiring it, and only after having connected the microphone to its input to avoid damaging the microphone and/or the console.

Strictly avoid activating the phantom power for unbalanced input signals.

4.2.5.13 Input Settings

Set the input gain of the channel you want to monitor. To do so, first press the rectangular **GAIN CAL** key in the **FUNCTION** area to assign the gain parameter to the channel strip rotary knobs. Then adjust the gain in the desired channel. Use the OLED channel bargraph meter as a guide.
Set this channel's fader to the **0** (dB) mark and switch it **ON**. Since it is mapped

to the **PGM** bus by default, the send level may be adjusted now by pressing the **1** and **ON** keys in the master section, and turning the **MASTER LEVEL** control clockwise. The blue 'channel active' LED in the channel strip will illuminate, and you will see the current **PGM** bus level on the **PROGRAM** bargraph meter.

4.2.5.14 Monitoring

Select the channel you want to monitor as the monitoring source (or select **PFL** in the **MONITORING** section and activate the **PFL** function of the desired channel).
Set the monitor volume with **HP VOL** (for headphones) or **LSP VOL** (for the control room monitor loudspeakers) while using the **MONITOR** bargraph level meter as a guide.

Carefully (or, in case of using a microphone as signal source: *very* carefully – acoustical feedback may damage your hearing or your speakers!) open the level control of your monitor amplifier or powered speakers. You should hear the input signal now.

4.2.5.15 Signal Processing

For signal processing, adjust EQ, dynamics and de-esser by first pressing the corresponding oval **EQ**, **DYN** or **DE ES** key in the **FUNCTION** area, then press the desired channel's **SEL** key in order to call up the 'Mini Vistonics' view on the OLED displays. Adjust the desired parameters with the channel rotary knobs.
If a function should have more than six parameters the further parameters may be toggled through with the corresponding oval **FUNCTION** key.
Just check it out – this whole process is self-explaining, very intuitive, and much easier to perform than to describe.

4.2.5.16 Screen/Keyboard/Mouse

If the external screen, the keyboard and the mouse are no more needed, you may want to disconnect them now. As usual with USB connections, keyboard and mouse may be plugged and unplugged while the system is powered on. The external screen also may be plugged to/unplugged from the Nano SCore without powering the system down.

4.2.5.17 Output Line(s)

Unless you should want to learn more about operation, it might be the right moment now to start connecting your transmitter to the Nano SCore and to go on-air. The PGM bus is mapped to the **LINE OUT 1** (analog, left) and **LINE OUT 2** (right) and to the **AES/EBU OUT 1-2** (digital) outputs simultaneously.