



# Studer OnAir 1000

*Digital Mixing Console*

*SW Version 4.0/4.03*

**Operating Instructions**

Prepared and edited by  
Studer Professional Audio GmbH  
Technical Documentation  
Althardstrasse 30  
CH-8105 Regensdorf – Switzerland  
<http://www.studer.ch>

Copyright by Studer Professional Audio GmbH  
Printed in Switzerland  
Order no. 10.27.4872 (Ed. 0405)

Subject to change

## A Safety Information



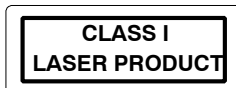
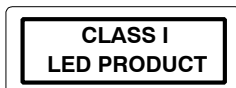
To reduce the risk of electric shock, do not remove covers. No user-serviceable parts inside. Refer servicing to qualified service personnel (i.e., persons having appropriate technical training and experience necessary to be aware of hazards to which they are exposed in performing a repair action, and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



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



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



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

### A1 First Aid

#### In Case of Electric Shock:

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

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



**Warning!**

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

#### If the Person is Unconscious:

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

---

## **B General Installation Instructions**

---

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

---

### **B1 Unpacking**

---

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

---

### **B2 Installation Site**

---

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

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

---

### **B3 Earthing and Power Supply**

---

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

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

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

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

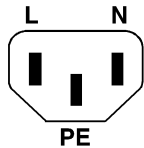
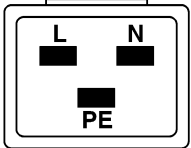
**Class I Equipment (Mains Operation)**

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

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

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

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

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

**Class III Equipment (Battery Operation up to 60 V<sub>DC</sub>)**

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

**B4 Electromagnetic Compatibility (EMC)**

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

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

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

For this purpose, the following measures must be followed:

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

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

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

## C Maintenance

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

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

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

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

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

## D Electrostatic Discharge during Maintenance and Repair

### Caution:



Observe the precautions for handling devices sensitive to electrostatic discharge!

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

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

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

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

## **E Repair**

---

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

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

Certain components pose additional hazards:

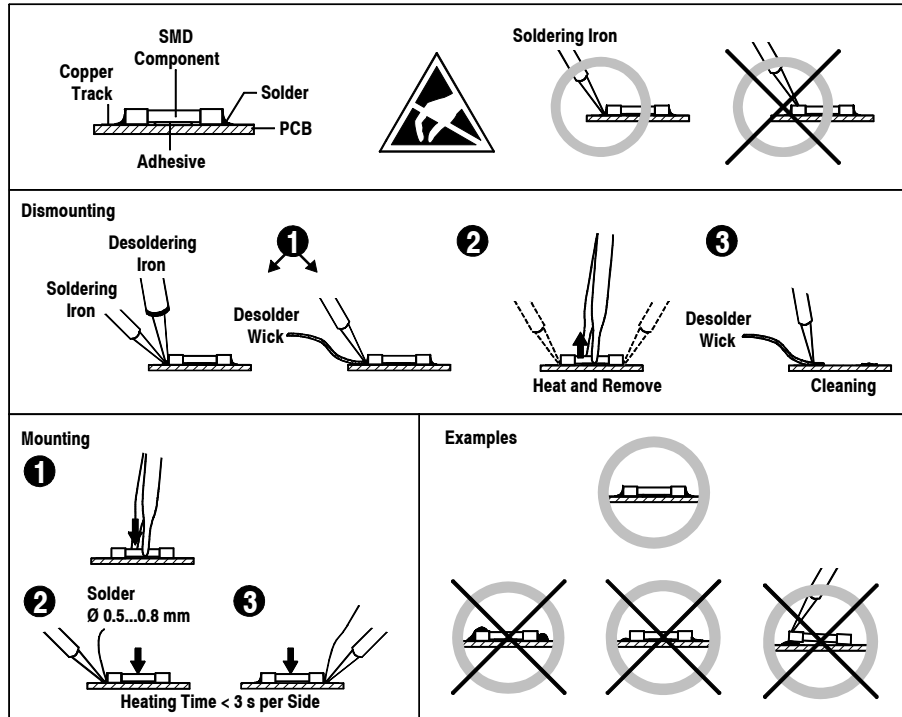
- *Explosion hazard* from lithium batteries, electrolytic capacitors and power semiconductors (watch the component's polarity. Do not short battery terminals. Replace batteries only by the same type).
- *Implosion hazard* from evacuated display units.
- *Radiation hazard* from laser units (non-ionizing),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

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

**E1 SMD Components**

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

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



**F Disposal**

**Disposal of Packing Materials**

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

**Disposal of Used Equipment**

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



---

**G      Declarations of Conformity**

---

**G1      Class A Equipment - FCC Notice**

---

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

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

---

**G2      CE Declaration of Conformity**

---

We,

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

declare under our sole responsibility that the product  
**Studer OnAir 1000, Digital Mixing Console,  
(starting with serial no. 1000)**

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

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

is in conformity with the following standards or normative documents:

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

Regensdorf, December 18, 2000



B. Hochstrasser, President



P. Fiala, Manager QA

## Appendix 1: Air Temperature and Humidity

### General

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

This standard consists of an extensive catalogue of parameters, the most important of which are: ambient temperature +5...+40 °C, relative humidity 5...85% (i.e., no formation of condensation or ice); absolute humidity 1...25 g/m<sup>3</sup>; rate of temperature change < 0.5 °C/min. These parameters are dealt with in the following paragraphs.

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

### Ambient Temperature

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

- The admissible ambient temperature range for operation of the semiconductor components is 0 °C to +70 °C (commercial temperature range for operation).
- The air flow through the installation must provide that the outgoing air is always cooler than 70 °C.
- Average heat increase of the cooling air shall be about 20 K, allowing for an additional maximum 10 K increase at the hot components.
- In order to dissipate 1 kW with this admissible average heat increase, an air flow of 2.65 m<sup>3</sup>/min is required.

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

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

### Frost and Dew

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

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

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

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

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

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

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

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

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

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

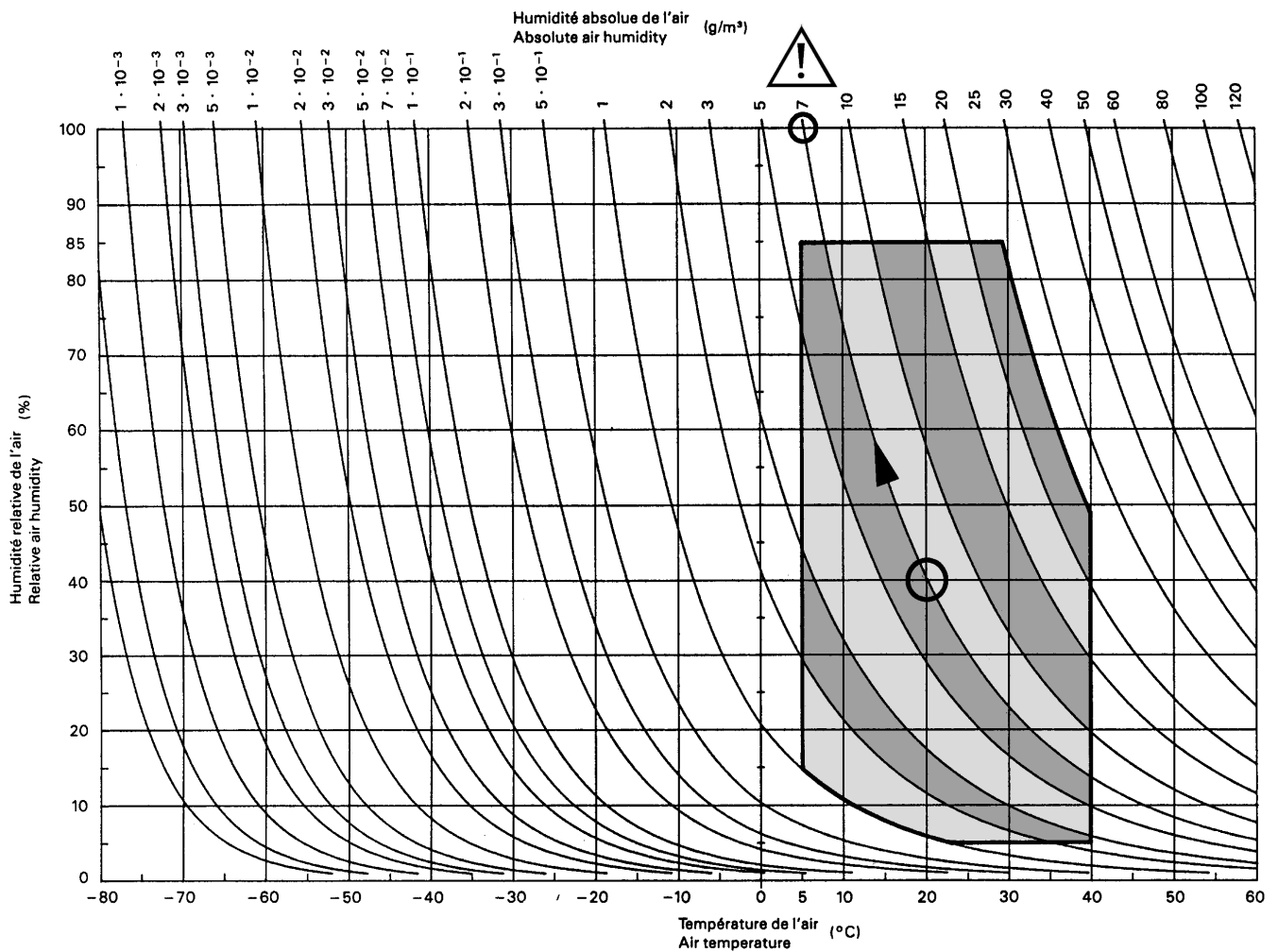
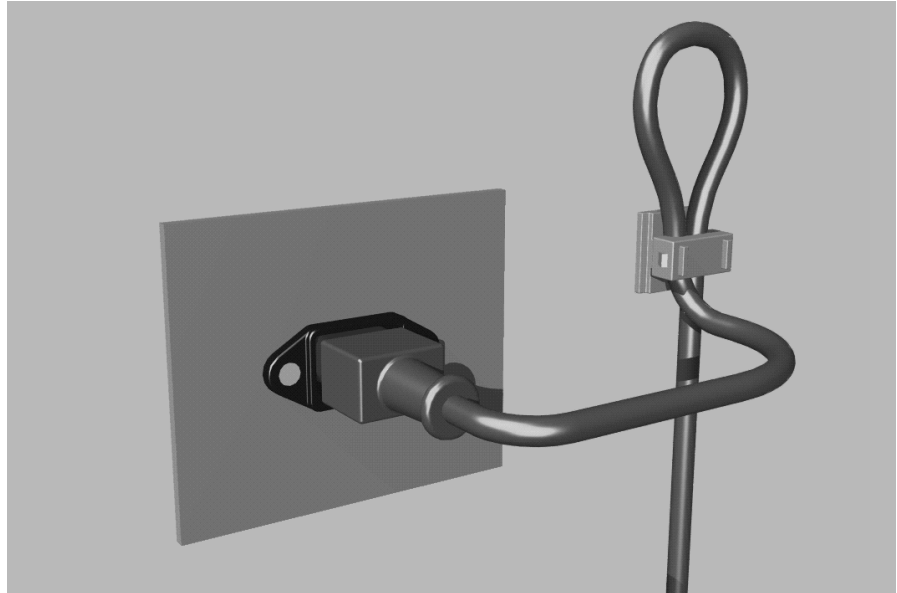


Figure B.3 – Climatogramme pour catégorie 3K3  
Climatogram for class 3K3

721-3-3 © CEI:1994

## Appendix 2: Mains Connector Strain Relief

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



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

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

## 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.

### Programs Covered by the Agreement

---

**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.

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.

**Programs of Third Parties** Programs of third parties are all programs which constitute part of the System and/or its options at the time of delivery to the Customer but have not been developed by Studer. The following conditions are applicable to programs of third parties:

- The right to use third parties’ programs is governed by the License Agreement attached hereto (if applicable), which is an integral part of this Agreement. The Customer shall sign any and all License Agreements for all further programs of third parties installed on the system. The Customer shall be deemed to have received all License Agreements upon delivery of the system and/or its options.
- Studer shall accept no responsibility or liability for, and gives no warranties (express or implied) as to the programs of third parties. The Customer waives any and all claims versus Studer for any consequential damages, which might occur due to defects of these programs.

### Right of Use

---

**Principle** Studer grants the Customer the non-exclusive right to use the License Material in one copy on the system and/or its options as laid down by the Sales Agreement concluded between the parties and all Terms and Conditions which shall be deemed to form and be read and construed as part of the Sales Agreement. This right is assignable according to the “Assignability” paragraph hereinafter.

**Customized Configurations** 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.

**Copying the License Material** The Customer is entitled to make one copy of all or parts of the License Material as is necessary for the use according to this Agreement, namely for backup purposes. The Customer shall apply the copyright of Studer found on the License Material onto all copies made by him. Records shall be kept by the Customer regarding the amount of copies made and their place of keeping. The responsibility for the original program and all copies made lies with the Customer. Studer is entitled to check these records on first request. Copies not needed anymore have to be destroyed immediately.

**Disclosure of License Material** The License Material is a business secret of Studer. The Customer shall not hand out or in any way give access to parts or the complete License Material to third parties nor to publish any part of the License Material without prior written consent of Studer. The Customer shall protect the License Material and any copies made according to the paragraph above by appropriate defense measures against unauthorized access. This obligation of non-disclosure is a perpetual obligation.

Third parties are entitled to have access to the License Material if they use the License Material at the Customer's site in compliance with this Agreement.

Under no circumstance are third parties entitled to have access to the installation software on the original data media. The Customer shall safeguard the original data media accordingly.

**Assignability** The rights granted to the Customer according to this License Agreement shall only be assignable to a third party together with the transfer of the system and/or its options and after the prior written consent of Studer.

## **Rights to License Material**

---

With the exception of the right of use granted by this License Agreement all proprietary rights to the License Material, especially the ownership and the intellectual property rights (such as but not limited to patents and copyright) remain with Studer even if alterations, customized changes or amendments have been made to the License Material.

Studer's proprietary rights are acknowledged by the Customer. The Customer shall undertake no infringements and make no claims of any patent, registered design, copyright, trade mark or trade name, or other intellectual property right.

## **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.

---

## NEW FEATURES WITH SW V4.02/V4.03

---

### 1 Momentary/Latching Key Functions

---

#### 1.1 PFL and Talkback Keys

---

**Latching:** If a PFL key or one of the talkback keys (N-1 A, N-1 B, AUX 1, AUX 2, or STUDIO) is pressed for less than 0.2 s, the function is now latching, and the key is illuminated. To release the function, an other short press of the key is required.

The same functionality applies for the F1...F5 keys if configured as additional talkback keys. *For this purpose, please refer to the “MONITOR EXPANDER page, Talkback Functions” paragraph below.*

**Momentary:** When pressing a PFL or TB key longer than 0.2 s, it acts as a momentary key, i.e., the function is automatically canceled upon releasing the key.

*Basic information on this subject to be found in chapters: 3.1.4 / 6.1 / 6.3*

#### 1.2 Monitoring Keys

---

**Mutually Releasing / Latching:** If one of the Monitoring Selector keys is pressed for less than 0.2 s, the former monitoring source selection is canceled, and the new monitoring source selection becomes active. The selection is latching and the key is illuminated until any other Monitoring Selector key is pressed.

**Mutually Releasing / Momentary:** If one of the Monitoring Selector keys is pressed for longer than 0.2 s, it acts as a momentary key. The former monitoring source selection is canceled, and the new monitoring source selection becomes active. Upon releasing the key, the former monitoring source selection is reactivated.

*Uhm... This may sound a bit confusing, but in everyday use it is a very convenient feature – just give it a try!*

## 2 Talkback and PFL Signaling

---

### 2.1 Talkback Signaling from CR to Studio, and Vice Versa

---

**CR to Studio:** When talkback from the control room (CR) to the studio is activated, pin 23 of the STUDIO MON CTRL connector is activated (i.e. pulled to ground). This pin was formerly labeled as “Spare OUT 1”. Now it can be used for illuminating the CR lamp on an external talkback box.

*Please refer to the pin assignment diagram and table on the next page.*

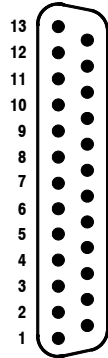
**Studio to CR:** When talkback from the studio to the CR is activated (e.g. when using the external talkback box), the TALK BACK STUDIO key in the console’s central section is illuminated.

*Basic information on this subject to be found in chapters: 3.1.4 / 6.3 / 14.11*

2.2 PFL Signaling

When a PFL key is activated, pin 11 of the STUDIO MON CTRL connector is activated (i.e. pulled to ground). This pin was formerly labeled as “Spare OUT 2”.

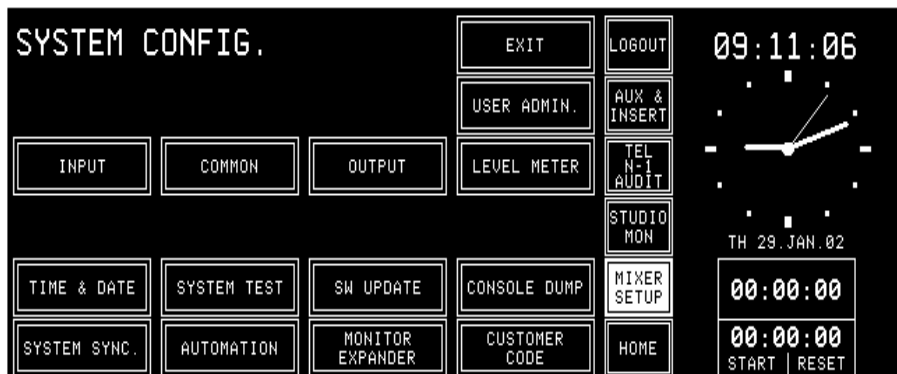
**STUDIO MON CTRL (D-type, 25 pin, male):**



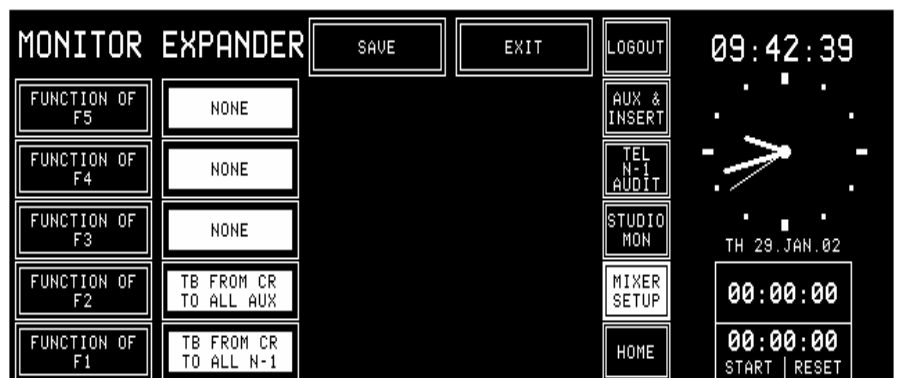
Pin	Signal	Pin	Signal	Pin	Signal
1	+5 V SUPPLY	10	Lamp EXTERN	19	Switch TB TO TEL2
2	COMMON	11	Lamp PFL SIGN.	20	Lamp PGM
3	Switch AUX1	12	n.c.	21	Lamp AUX2
4	Switch OFF AIR	13	GND	22	Lamp PFL
5	Switch EXTERN	14	+5 V SUPPLY	23	Lamp TBTOSTUDIO
6	Switch TB TO TEL1	15	Switch PGM	24	Lamp STUDIO MIC ON
7	n.c.	16	Switch AUX2	25	GND
8	Lamp AUX1	17	Switch PFL		
9	Lamp OFF AIR	18	Switch TB TO CR		

3 MONITOR EXPANDER Page, Talkback Functions

The MONITOR EXPANDER page, possibly known from your experience with OnAir 2000M2 consoles, can now be opened on the OnAir 1000 consoles as well. For this purpose, the SYSTEM CONFIG. Page has an additional “MONITOR EXPANDER” button, as shown below:



When touching this button, the MONITOR EXPANDER page opens and allows to assign three different functions to any of the F1...F5 buttons:



TB FROM CR TO ALL AUX, TO ALL N-1, or TO ALL (meaning all AUX and all N-1), or NONE (no function at all).

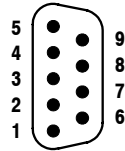
*However, no Monitor Extension module can be installed in an OnAir 1000 console, which means that no other functions (as known from OnAir 2000M2 consoles) can be configured.*



## 4 Additional REC Signaling Output

An additional REC signaling output has been provided on pin 9 of the SIGN. connector (formerly labeled as “Spare OUT”) to extend the on-air signaling features.

**SIGN.** (D-type, 9 pin, male):



Pin	Signal	Pin	Signal
1	+5 V SUPPLY	6	COMMON
2	ON AIR IN -	7	Spare IN - or Ext. CR DIM IN - *
3	CR MIC OUT	8	STUDIO MIC OUT
4	PGM OUT	9	REC OUT
5	GND	<i>* depending on Customer Code setting</i>	

For the ON AIR INDICATION setting on the COMMON SETTINGS page, a fourth selection item ( PROGRAM/ REC) was created. Depending on this setting, the two signaling outputs are active according to the following table:

ON AIR INDICATION setting	PROGRAM output on-air	REC output on-air	SIGN output:	
			Pin 4 (PGM OUT)	Pin 9 (REC OUT) (new output)
1) PROGRAM AND REC	0	0	0	0
	1	0	1	1
	0	1	1	1
	1	1	1	1
2) PROGRAM	0	x	0	0
	1	x	1	0
3) REC	x	0	0	0
	x	1	0	1
4) PROGRAM / REC (new setting)	0	0	0	0
	1	0	1	0
	0	1	0	1
	1	1	1	1

In other words:

- For the 1<sup>st</sup> setting, both signaling outputs are active whenever any audio signal is routed either to the program or the record output (or both).
- For the 2<sup>nd</sup> setting, only the PGM OUT signaling output is active while an audio signal is routed to the program output. An audio signal routed to the record output has no effect.
- For the 3<sup>rd</sup> setting, only the REC OUT signaling output is active while an audio signal is routed to the record output. An audio signal routed to the program output has no effect.
- For the 4<sup>th</sup> (new) setting, only the PGM OUT signaling output is active while an audio signal is routed to the program output, and only the REC OUT signaling output is active while an audio signal is routed to the record output. If audio signals are routed to both the program and the record outputs, both the PGM OUT and REC OUT signaling outputs are active.

*Basic information on this subject to be found in chapter 11.2.2*

## 5 Additional Customer Codes

---

- Code 0x0000800:** Used to disable dimming of the CR monitor speakers during talkback from the studio to the control room.
- Code 0x00001000:** Used to disable dimming of the studio monitor speakers during talkback from the control room to the studio.
- Code 0x00002000:** Used to swap the functions of the PFL and the OFF keys next to the faders, regardless whether they are used for the standard PFL and OFF functions, or whether other functions are configured for any of these keys.  
*Basic information on this subject to be found in chapter 9*
- Code 0x00004000:** If this code is active, whenever a channel is activated by moving its fader up from its lower stop while it is switched ON (or the other way round, by switching the channel ON while its fader is positioned above the lower stop), this channel's Channel Control page pops up automatically and allows for immediate changes of the channel settings. This Channel Control page remains displayed until another channel is activated, or until another page is selected using one of the five buttons next to the clock dial.
- Code 0x00008000:** If this code is active, the status of the channel ON/OFF switch of channels currently not routed to the console surface will be saved in the flash memory when powering the console off. At power on, the ON or OFF status of these channels will automatically be re-established.  
If this code is inactive, the channels not routed to the console surface will always be set to OFF at power on.

*Basic information on Customer Code to be found in chapter 11.2.11*

---

# CONTENTS

---

<b>1</b>	<b>Introduction.....</b>	<b>1-1</b>
1.1	Block Diagram OnAir 1000, SW V4.0.....	1-2
1.2	Definition of Terms .....	1-4
<b>2</b>	<b>General .....</b>	<b>2-1</b>
2.1	Utilization for the Purpose Intended .....	2-1
2.2	First Steps .....	2-1
2.2.1	Unpacking and Inspection.....	2-1
2.2.2	Installation .....	2-1
2.2.3	Adjustments, Repair.....	2-2
2.2.4	PC-Card .....	2-2
2.3	Technical Specifications .....	2-3
<b>3</b>	<b>Operating Concept .....</b>	<b>3-1</b>
3.1	Operating Elements.....	3-1
3.1.1	Power Switch .....	3-1
3.1.2	Touch-Screen Unit.....	3-2
3.1.3	Metering Section.....	3-3
3.1.4	Monitoring and Talkback Section.....	3-4
3.1.5	Fader Section .....	3-6
3.2	Connector Panels .....	3-8
<b>4</b>	<b>Channel Functions.....</b>	<b>4-1</b>
4.1	Keys .....	4-1
4.2	Faders.....	4-2
4.3	LED Indicators .....	4-2
4.4	Channel Control Page, Microphone Input .....	4-4
4.5	Channel Control Page, Line Input.....	4-5
4.6	EQ/Filter Page, Microphone Input.....	4-7
4.7	EQ/Filter Page, Analog Line/Digital Input .....	4-8

<b>5</b>	<b>Master Functions.....</b>	<b>5-1</b>
5.1	Login/Logout.....	5-1
5.2	AUX and Insert Control.....	5-2
5.3	N–1/Audition Bus and Telephone Hybrid Control.....	5-3
5.3.1	N–1 and Audition Bus Routing.....	5-4
5.4	Studio Monitoring.....	5-5
5.5	Mixer Setup.....	5-6
5.6	Snapshots.....	5-7
5.6.1	Recall a Snapshot from Memory.....	5-7
5.6.2	Save a Snapshot to Memory.....	5-8
5.6.3	Delete a Snapshot from Memory.....	5-8
5.7	Mic Settings.....	5-9
5.7.1	Recall a Mic Setting from Memory.....	5-9
5.7.2	Save a Mic Setting to Memory.....	5-10
5.7.3	Delete a Mic Setting from Memory.....	5-10
5.8	Routing.....	5-11
5.8.1	Channel Routing.....	5-11
5.8.2	Recall a Channel Routing from Memory.....	5-14
5.8.3	Save a Channel Routing to Memory.....	5-14
5.8.4	Delete a Channel Routing from Memory (Administrator Only).....	5-15
5.8.5	Channel Routing Administration.....	5-15
5.9	Using PC-Cards.....	5-16
5.9.1	Load a Snapshot/Mic Setting/Channel Routing from PC-Card.....	5-16
5.9.2	Save a Snapshot/Mic Setting/Channel Routing to PC-Card.....	5-17
5.9.3	Delete a Snapshot/Mic Setting/Channel Routing from PC-Card.....	5-17
5.10	Administrator.....	5-18
5.10.1	Features.....	5-18
5.10.2	Admin Selection of Snapshots/Mic Settings/Channel Routings.....	5-19
5.10.3	Users with and without a Password.....	5-20
5.11	User Administration.....	5-21
5.12	System Configuration.....	5-21
5.13	Watch and Stopwatch.....	5-22
5.13.1	Watch.....	5-22
5.13.2	Fader Stopwatch.....	5-23
5.13.3	User Stopwatch.....	5-23
5.14	PGM and REC Master Faders.....	5-24
5.14.1	Fixed Master Levels.....	5-24
<b>6</b>	<b>Monitoring.....</b>	<b>6-1</b>
6.1	Control Room Monitoring.....	6-1
6.2	Studio Monitoring.....	6-3
6.3	Talkback.....	6-4
6.3.1	Talkback Settings.....	6-5
6.4	External PFL.....	6-6
<b>7</b>	<b>Signaling.....</b>	<b>7-1</b>

<b>8</b>	<b>Machine Control.....</b>	<b>8-1</b>
8.1	Keys and LEDs.....	8-1
8.2	Control Outputs.....	8-3
8.2.1	CTRL OUT1.....	8-3
8.2.2	CTRL OUT2.....	8-3
8.3	Control Inputs.....	8-4
8.3.1	CTRL IN.....	8-4
8.3.2	EXT PFL Input.....	8-4
8.4	CTRL OUT1/2 & CTRL IN Application Examples.....	8-5
<b>9</b>	<b>Automation.....</b>	<b>9-1</b>
9.1	Introduction.....	9-1
9.2	Features of the OnAir 1000 CAB Support.....	9-1
9.3	Application Handling.....	9-2
9.3.1	Configuration for Automation Control.....	9-2
9.3.2	Communication Time-Out.....	9-2
9.3.3	Output Selection.....	9-3
9.3.4	Start a New Title from Schedule.....	9-3
9.3.5	Indication of the Currently Playing Input Line.....	9-4
9.3.6	Pre-Listening.....	9-4
9.3.7	Time Synchronization.....	9-4
<b>10</b>	<b>User Modes.....</b>	<b>10-1</b>
10.1	Purpose of User Modes.....	10-1
10.2	Access to Configurable Functions of the Console.....	10-2
10.3	User Administration.....	10-4
10.4	Administration Functions.....	10-5
10.5	Log-in Procedure and Defaults.....	10-7
<b>11</b>	<b>Configuration.....</b>	<b>11-1</b>
11.1	Configuration Handling.....	11-1
11.2	Configuration Procedure.....	11-1
11.2.1	Input.....	11-3
11.2.2	Common Settings.....	11-6
11.2.3	Output.....	11-7
11.2.4	Level Meter.....	11-7
11.2.5	Time and Date.....	11-8
11.2.6	System Test.....	11-9
11.2.7	Software Update.....	11-10
11.2.8	Console Dump.....	11-10
11.2.9	System Synchronization.....	11-11
11.2.10	Automation.....	11-12
11.2.11	Customer Code.....	11-13

<b>12</b>	<b>SW Update</b> .....	<b>12-1</b>
12.1	Software Structure .....	12-1
12.1.1	CPU Software Package .....	12-1
12.1.2	DSP Software Package .....	12-1
12.1.3	Important Information for Software Update to V4.0 .....	12-1
12.2	SW Update Procedure.....	12-2
12.2.1	Error Handling .....	12-4
<b>13</b>	<b>System Diagnostics and Error Handling</b> .....	<b>13-1</b>
13.1	Error, Warning, and Information Messages.....	13-1
13.1.1	System Diagnostics .....	13-2
13.2	Indication on Failure of Restricted Functions .....	13-6
13.3	System Test.....	13-7
13.3.1	Buttons/Faders Test.....	13-7
13.3.2	Display Test .....	13-8
13.3.3	PC-Card Test.....	13-9
13.3.4	SW Versions Display .....	13-9
<b>14</b>	<b>Wiring and Hardware information</b> .....	<b>14-1</b>
14.1	DC Supply.....	14-1
14.2	Redundant Power Supply.....	14-3
14.3	Mic Input.....	14-6
14.4	Analog Line Input.....	14-8
14.5	Digital Input .....	14-8
14.6	TB Mic Input .....	14-9
14.7	Telephone Hybrid Interface .....	14-10
14.8	Analog Output.....	14-11
14.9	Digital Output .....	14-11
14.10	Analog Insert.....	14-12
14.11	Monitoring .....	14-13
14.12	Serial Interface .....	14-19
14.13	Clock Sync Interface.....	14-19
14.14	Time Sync Interface.....	14-20
	System Wiring, Standard Version.....	14-21
	System Wiring, Redundant Supply Version .....	14-22

<b>15</b>	<b>Dip Switches and Jumpers .....</b>	<b>15-1</b>
15.1	Input Units .....	15-1
15.2	TB Mic Input Units.....	15-2
15.3	Telephone Hybrid Interface.....	15-3
15.4	Analog Output Units .....	15-4
15.5	Digital Output Units.....	15-5
15.6	Insert Unit .....	15-5
15.7	Clock Sync Interface.....	15-5
15.8	Time Sync Interface.....	15-6
15.9	Monitoring Controller PCB .....	15-7
15.10	Level Meter PCB .....	15-7
15.11	PSU Sub Board.....	15-7
15.12	DSP PCB .....	15-8
15.13	Control Front Board I.....	15-8
<b>16</b>	<b>Index .....</b>	<b>16-1</b>





## 1 INTRODUCTION



The OnAir 1000 is a smart but yet powerful digital mixing console for “on-air” and small recording and editing studio applications. It has ten input channels, each with two physical inputs, and two master faders.

There are two different basic versions available:

- An analog-biased version with five analog stereo line and two digital input channels, and
- A digital-biased version with two analog stereo line and five digital input channels.

Both versions feature three mono microphone input channels with switchable high-pass filter and phantom power. Both versions can be ordered with double, redundant mains power supply. For more information on this subject, please refer to [chapter 14.2](#).

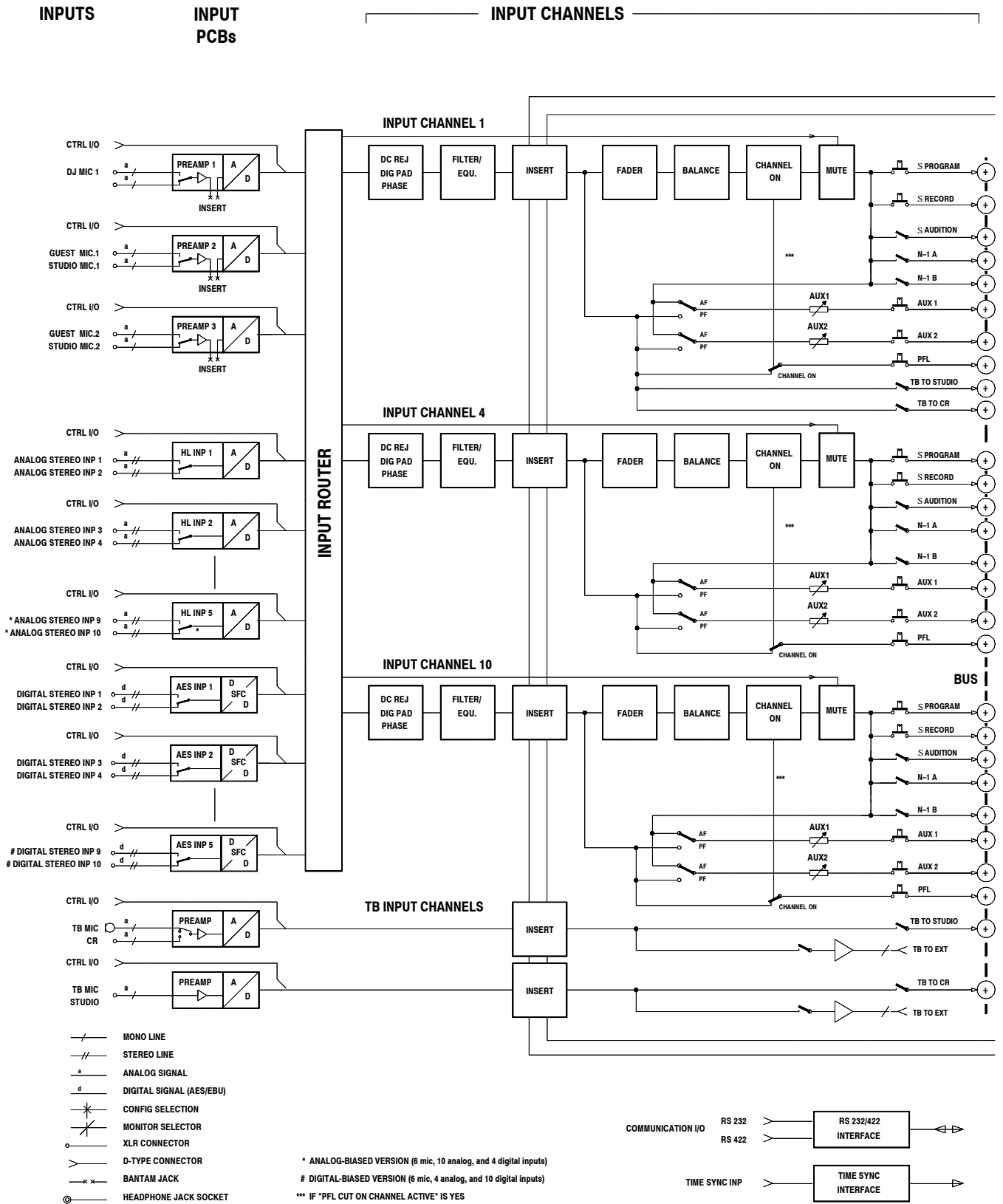
The OnAir 1000 can be integrated seamlessly with a broadcast automation system (CAB) like Studer’s DigiMedia.

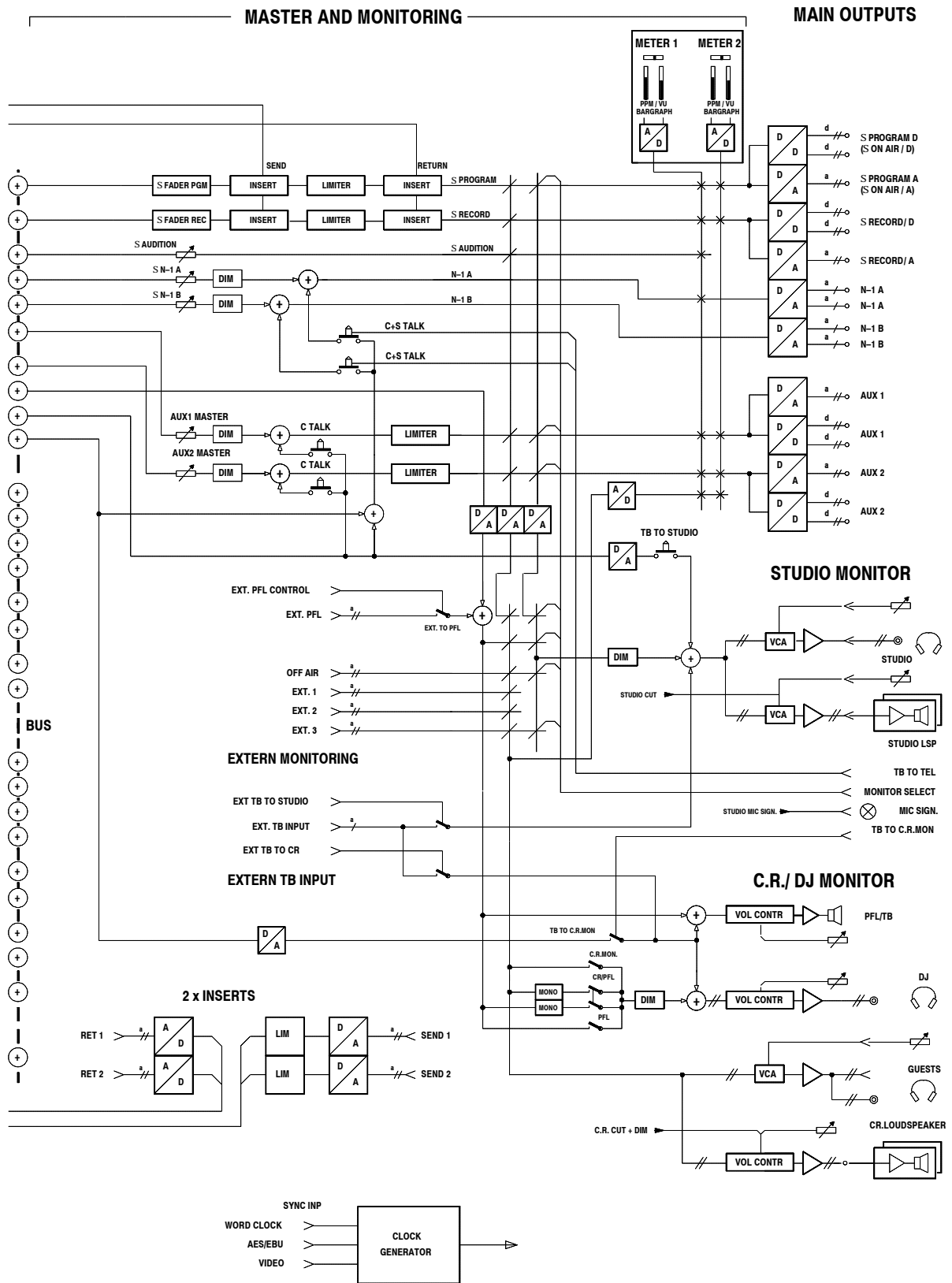
The OnAir 1000 is based on a touch-screen user interface. Only the most important functions have hardware control elements, making it very easy to use. It has everything integrated in a single, lightweight console and does not need any external racks or power supplies (except the Redundant Supply versions, refer to [chapter 14.2](#)).

Since it is fully digital, it can individually be adapted to the current user using snapshot automation. Extensive configuration possibilities allow the OnAir 1000 to be integrated into almost any broadcast studio environment.

For an overview, please refer to the OnAir 1000 block diagram located on the following two pages.

# 1.1 Block Diagram OnAir 1000, SW V4.0





## 1.2 Definition of Terms

---

Terms used in this manual:

**Inputs:** The physical inputs of the input unit; all input units have mono or stereo inputs with A/B selection.  
Analog inputs are equipped with 3-pin XLR connectors.  
Digital inputs are equipped with AES/EBU inputs on XLR connectors, and S/PDIF inputs on Cinch/RCA and optical (TOSlink) connectors.

**Input Unit:** An input unit is a hardware assembly installed within the console. All input units contain two selectable mono or stereo inputs; all input signals to the input units are connected to the input connectors at the rear of the console.  
Microphone input units have transformer-balanced mono inputs on XLRs, with selectable 48 V phantom supply and A/B selection.  
Analog Line input units have two electronically balanced stereo inputs on XLRs, with A/B selection.  
On Digital Line input units, there is a selection of AES/EBU inputs on XLR connectors, and S/PDIF inputs on Cinch/RCA and optical (TOSlink) connectors available.  
Each (A or B) input of every input unit is equipped with general-purpose control inputs and outputs (GPIO) that can be used for fader start, mute, signaling, etc.; these control inputs and outputs are available on D-type connectors.

**Input Channel:** An input channel is the combination of all signal processing functions that can be assigned to a fader strip, as A/B input selection, gain, filter, EQ, pan/balance etc.; each input channel can be routed to any fader strip thanks to the input channel routing performed in the DSP section of the console.

**Fader Strip:** A fader strip contains the operating elements for an input channel, as a linear fader and a few keys and LEDs (e.g. ON, OFF, and PFL keys, and OVL and AUTO TAKEOVER LEDs).  
As the number of operating elements is reduced to a minimum, the adjustment of some less often used input channel functions, as e.g. EQ setting, is performed on the center touch-screen and the rotary encoders located next to this screen.

## 2 GENERAL

### 2.1 Utilization for the Purpose Intended



The OnAir 1000 mixing console is intended for professional use. It is presumed that the unit is operated only by trained personnel. Servicing is reserved to skilled technicians.

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

### 2.2 First Steps

#### 2.2.1 Unpacking and Inspection

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

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

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

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

#### 2.2.2 Installation

**Primary Voltage:** The power supply unit is auto-ranging; it can be used for mains voltages in a range of 100 to 240 V<sub>AC</sub>, 50 to 60 Hz.

**DC Operation:** The console can be operated from a 24 V<sub>DC</sub> source through the respective 24 V<sub>DC</sub> connector provided on the rear panel.



*For DC operation it is mandatory that a UL approved, external fuse is connected in series with one of the supply lines (T 10 A H 250 V UL/CSA). The power switch next to the power inlet only switches the mains voltage; for DC operation, an external power switch has to be foreseen by the installer.*



**Dual (Redundant) Power Supply:** For information on the Dual Power Supply versions refer to [chapter 14.2](#).

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



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

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



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

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



In case of 24 V<sub>DC</sub> operation, use an appropriate connection to the external DC supply unit or battery, equipped on one end with the attached 10-pole cable socket.



*For DC operation it is mandatory that a UL approved, external fuse is connected in series with one of the supply lines (T 10 A H 250 V UL/CSA).*



For pin assignment of the 24 V<sub>DC</sub> connector please refer to [chapter 14.1](#). Please check your DC supply cable for correct polarity before connecting it to the console.

**Earthing:**

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



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

### 2.2.3 Adjustments, Repair

**Danger:**



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

**Replacing the Supply Unit:**



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

**Fuse for DC Supply:**



For DC operation there is a second fuse located on the PSU Sub Board (please refer to [chapter 14.1](#) for details). In case of failure, this fuse must be replaced by a spare fuse of exactly the same type and value.

### 2.2.4 PC-Card

A standard OnAir 1000 mixing console is equipped with a PC-Card socket. Using the industry-standard SRAM PC-cards, the user can save important console information on a card. This information can then be used to restore the console to the same state at a later moment. Since the information stored on the card is DOS compatible, it is easily transferred to an IBM-compatible PC for data storage and backup.

**Note:**

Although it is possible to format an SRAM card in a PC, the card must be re-formatted in the OnAir 1000; therefore, the write protect tab must be set to OFF when the card is used in the mixing console for the first time.

It is also possible for new software releases to be downloaded from an SRAM PC-card. This feature is only available for users in possession of the correct files. For more information on this subject, refer to [chapter 12](#).

The mixing console PC-card support is restricted to 5 V, Type 1, SRAM memory cards with capacities of 64 kbytes to 32 Mbytes. Hot-swapping is supported, too.

## 2.3 Technical Specifications (subject to change without notice)

### General

Level specs, digital, in dB <sub>FS</sub> :	dB, referenced to full modulation (dB <sub>FS</sub> , dB Full Scale)
Level specs, analog, in dBu:	0 dBu $\cong$ 0.775 V <sub>rms</sub>
Level specs, analog, in dBu <sub>FS</sub> :	Level in dBu for full modulation ( $\cong$ 0 dB <sub>FS</sub> )
Sampling rate:	48 kHz $\pm$ 100 ppm (internally synchronized)
Headroom adjustable:	9 to 19 dB
Default setting:	9 dB
Output level:	15 dBu @ 0 dB <sub>FS</sub>

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

### Microphone Input Units

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

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

### Line Level Input Units

Analog line level input units have A/B-switchover and are equipped with an electronically balanced input and XLR connectors.

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

### Digital InputUnits

Digital input units have A/B-switchover. AES/EBU (AES3-1992) and S/PDIF (IEC 958) formats are supported; XLR, Cinch/RCA, and Toslink connectors are available.

All digital input units are equipped with a sampling frequency converter (SFC).

SFC resolution	20 Bit
Input sampling rate	30 to 54 kHz
THD+N	< -105 dB <sub>FS</sub> @ 1 kHz, 0 dB <sub>FS</sub>
Frequency response	$\pm$ 0.1 dB
Input impedance	110 $\Omega$ (XLR connectors); 75 $\Omega$ (Cinch/RCA connectors)

**Analog Outputs**

Analog outputs are transformer-balanced with XLR connectors.

Output level	+4 to +24 dBu @ $R_L = 100\ \Omega$ ; +4 to +23 dBu @ $R_L = 300\ \Omega$
D/A converter	24 bit (Delta-Sigma, 128 × oversampling)
Dynamics	typ. 101 dB (unweighted)
THD+N	< -90 dB <sub>FS</sub> @ 1 kHz, -1 dB <sub>FS</sub>
Frequency response	±0.2 dB
Output impedance	< 40 $\Omega$

**Digital Outputs**

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

Output level	2 to 5 V
Output impedance	110 $\Omega$

**Equalizer**

Treble control (High)	5 kHz/10 kHz: ±15 dB (depending on Customer Code setting; refer to <a href="#">11.2.11</a> )
Equalizer (Mid)	200 Hz to 10 kHz: ±15 dB
Bass control (Low)	200 Hz/400 Hz: ±15 dB

**Crosstalk Attenuation**

Between channels	> 90 dB
Input fader attenuation	> 100 dB

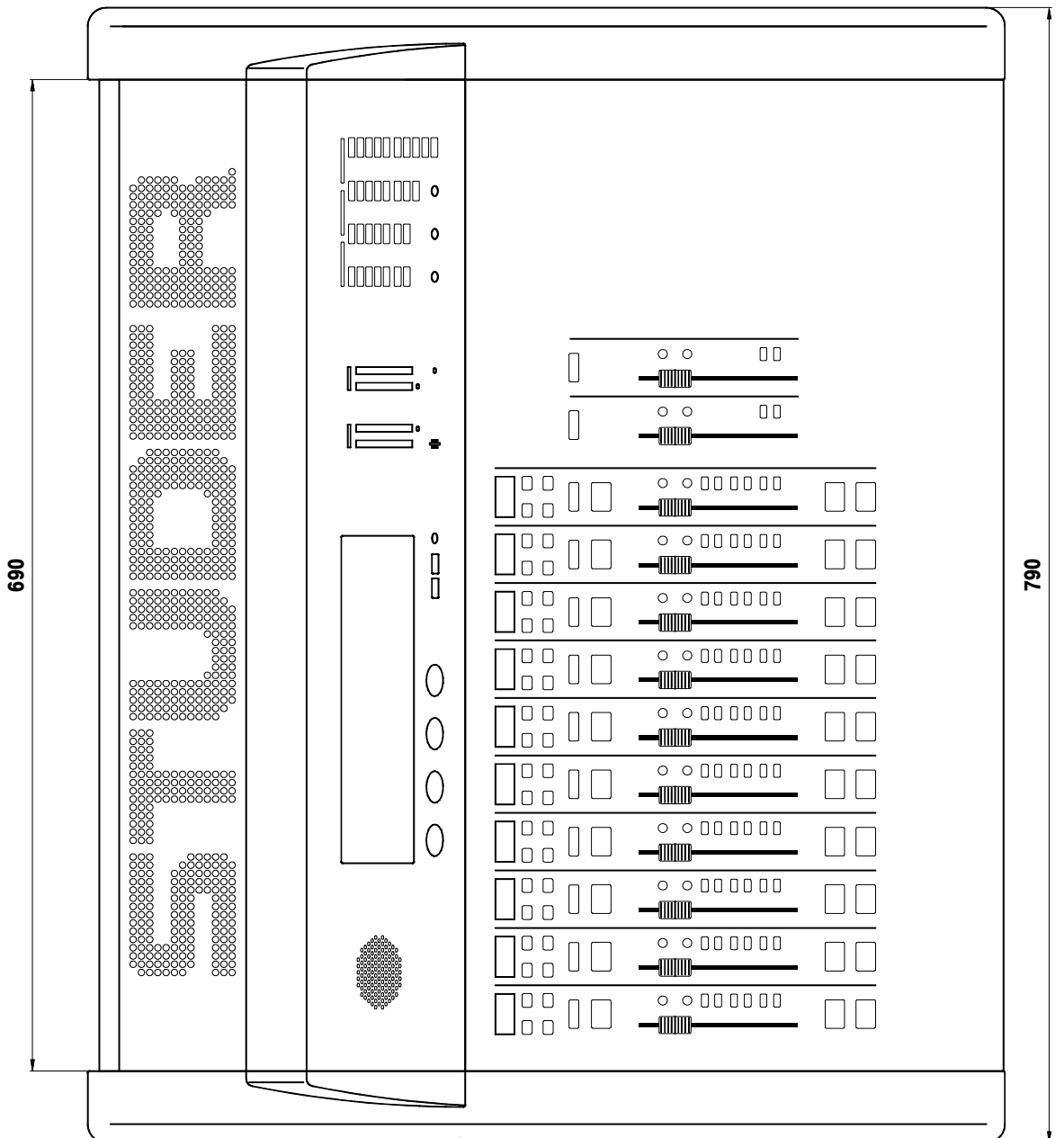
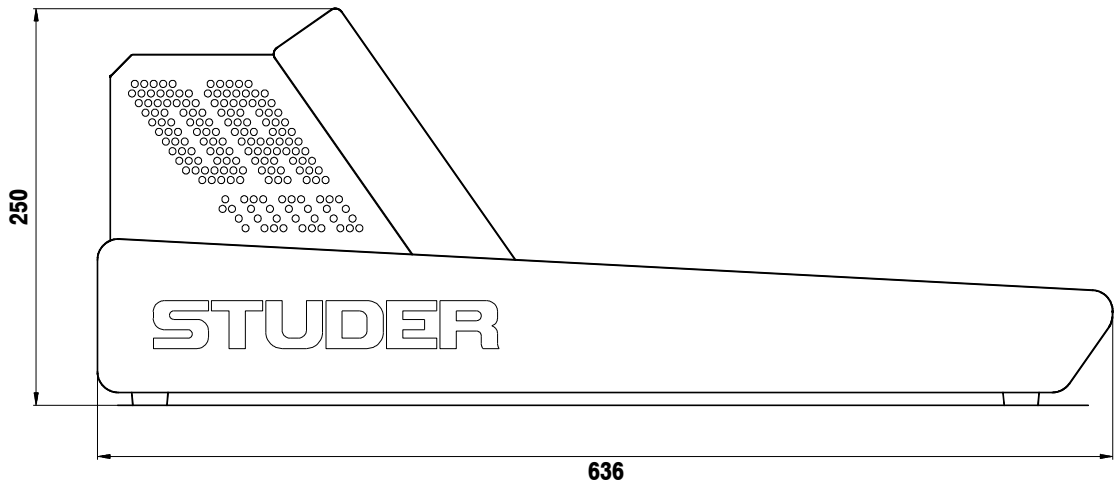
**Power Supply**

	Redundant power supply available on request.
Mains voltage	100 to 240 V, 50/60 Hz (auto-ranging)
Power consumption	130 VA typ.
DC operation	24 V <sub>DC</sub> +15/-10 %; typ. 5 A @ 24 V

**Note:** The abovementioned values are typical values; in an individual case, the values may differ. We reserve the right to make changes as technological progress may warrant.



Dimensions  
(in mm)





### 3 OPERATING CONCEPT

The normal operation of the console is as simple as possible. This has been achieved by reducing the number of operating elements to the minimum. Nevertheless, high flexibility has been achieved thanks to the use of touch-screen technology that just shows those operating elements needed at a certain time.

A linear fader and some keys (ON, OFF, PFL, SEL, EQ, A, B) are the only hardware operating elements within a fader strip. All other functions are available through the touch-screen user interface. To maintain a good console overview, several LEDs are provided, together with four-character channel label displays indicating the label for each channel. Pressing either one of the SEL or EQ keys assigns the touch-screen to this function for that specific channel. Parameters can now be entered via the four rotary encoders (e.g. equalizer parameters), or directly through the assigned touch-screen (e.g. EQ ON/OFF). This innovative user surface is called the “Touch’n’action” concept and is patented by Studer.

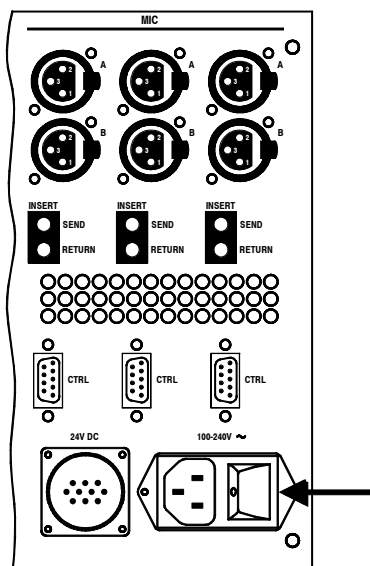
In broadcast applications many DJs and operators without a special technical education work on the same mixing console. Every DJ has his preferred console settings, mainly EQ parameters for his microphone. In the OnAir 1000, individual settings can be stored; by simply pressing a few keys, every operator can recall his particular, tailor-made setting and concentrate afterwards upon his essential task – presenting a radio program meeting the needs of the listeners.

Radio stations often use the same mixing console type for on-air and production. The “Snapshot” feature easily turns the production console into an on-air console within seconds, if required.

Thanks to the integrated input channel router, the user/administrator can place any input unit's signal to any fader strip on the console surface at his convenience. Through a straightforward representation of the available signals and faders on the screen, the input channel routing is easily done.

#### 3.1 Operating Elements

##### 3.1.1 Power Switch

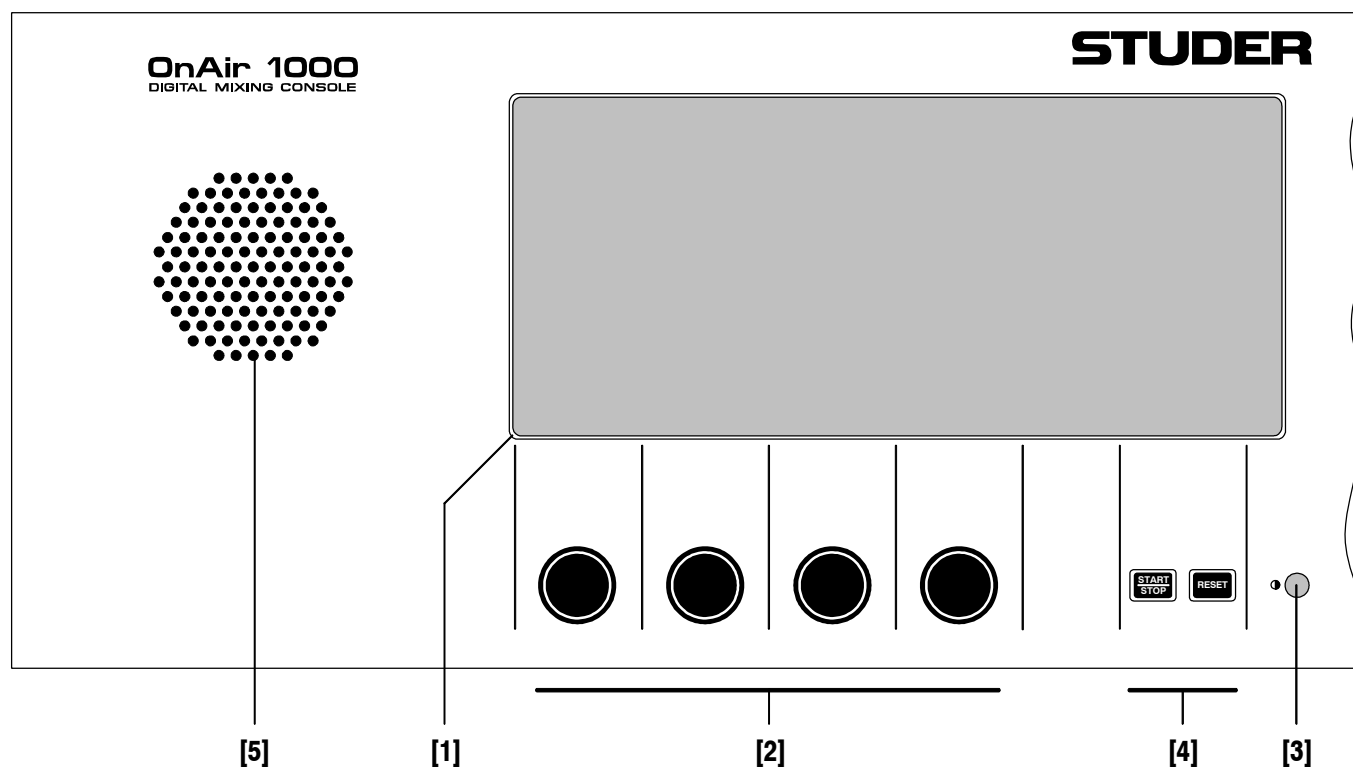


For the two standard (single power supply) versions of the OnAir 1000 console, the mains power switch is located on the rear side of the console next to the power inlet.

In case of DC operation of the console using an external power supply or a battery, this power switch is without function; an external power switch has to be foreseen by the installer. Please refer to [chapter 14.1](#) for details on DC operation.

Information on connection and operation of the two redundant power supply versions of the OnAir 1000 with their external power supply unit is given in [chapter 14.2](#).

### 3.1.2 Touch-Screen Unit



#### [1] Touch-Screen

The touch-screen display is used for parameter entries; it normally displays the current time and date in digital and analog formats, as well as the fader and the user stopwatches.

#### [2] Rotary Encoders

Depending on the current status, the rotary encoders are used for parameter settings.

#### [3] Contrast Knob

For setting the touch-screen display contrast, depending on the desired viewing angle and the ambient light conditions.

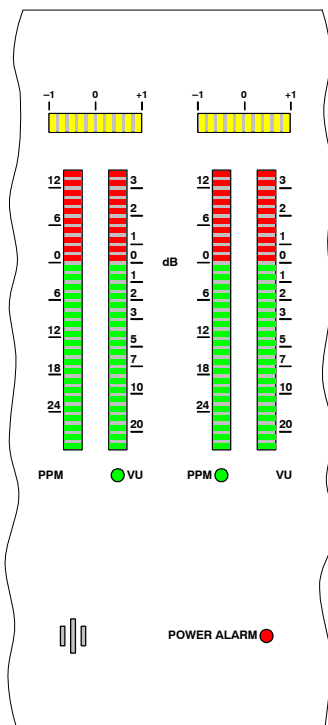
#### [4] User Stopwatch Control

Keys to control the user stopwatch (lower). Refer to [chapter 5.13](#).

#### [5] Loudspeaker

For PFL and talkback signals.

### 3.1.3 Metering Section



The OnAir 1000 mixing console is equipped with two dual 30-LED stereo level meters and one correlator meter for each of the level meters. The meters can be set to simultaneously display either VU or PPM. Two LEDs below the respective scale indicate the selected mode (for mode setting, please refer to the OnAir 1000 Service Manual). It is configurable for both meters which signal they display; the following sources can be selected in the configuration menu:

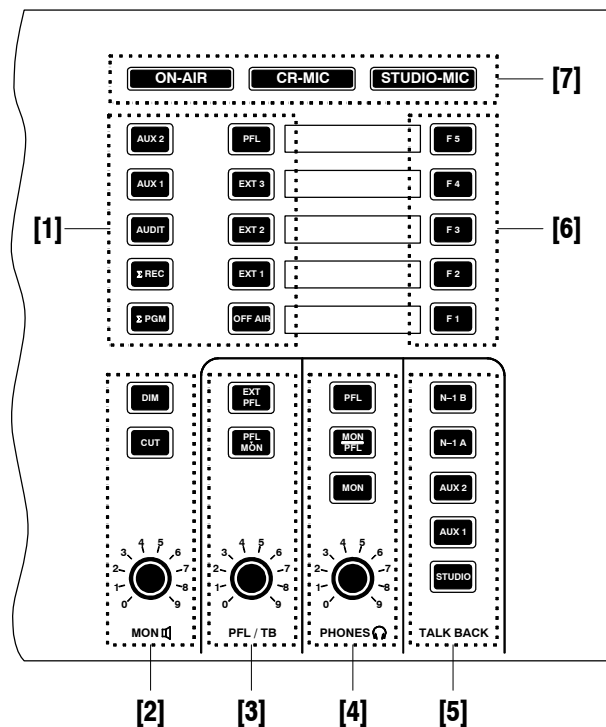
Meter 1	Meter 2	Source
X	X	CR MONITOR
X	X	PROGRAM
X	X	RECORD
X	X	AUX 1
X	X	AUX 2
X		AUDIT
X		N-1 A

For configuration details refer to [chapter 11.2.4](#).

Below the meters an electret talkback microphone is integrated into the console that can be used as a talkback source. If desired, an external talkback microphone can be connected to the rear of the console (for details, refer to [chapters 14.6 and 15.2](#)).

If the console is powered by the mains voltage and an additional 24 V<sub>DC</sub> supply is used for redundancy, or if the (optional) redundant power supply is used, the red POWER ALARM LED indicates a failure of one of the power supplies, allowing for timely repair without interruption of the continuity program.

### 3.1.4 Monitoring and Talkback Section



#### [1] Control Room (CR) Monitoring Selector

Ten mutually releasing keys for selecting the control room monitoring signal from the following sources:

- AUX 2/AUX 1:** Auxiliary, general purpose outputs;
- AUDIT:** Auxiliary, general purpose output with configurable inputs;
- Σ REC:** Recorder output;
- Σ PGM:** Program (on-air) output;
- PFL:** PFL (pre-fader listening);
- EXT 3:** External analog input signal;
- EXT 2:** External analog input signal;
- EXT 1:** External analog input signal;
- OFF AIR:** External analog input signal (e.g. tuner for off-air listening).

#### [2] CR Monitor Speaker Control


**MON  $\square$ :** Monitoring volume control.

**DIM:** If pressed, the monitor speaker level is reduced by 20 dB.

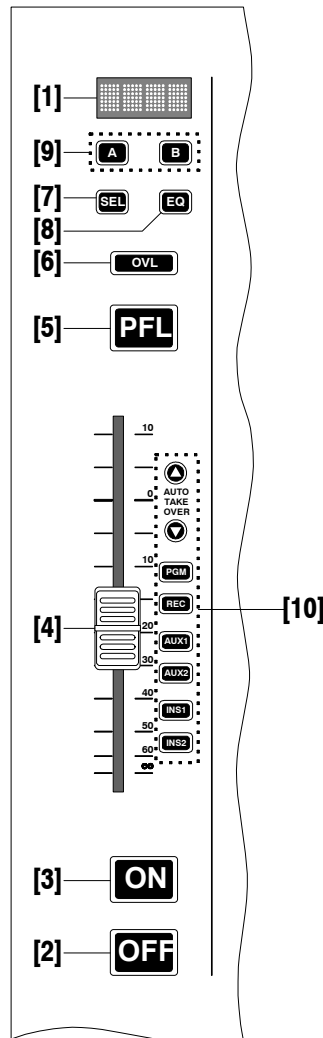
The DIM function is activated automatically if one of the TALK BACK keys is pressed. If “CR DIM WHEN AUDITION SEL” is set in the COMMON SETTINGS page (details: refer to [chapter 11.2.2](#)), the monitoring source is AUDIT, and the DJ microphone is on, the AUDIT level is not muted but reduced by 20 dB.

If DIM is active, the DIM key is illuminated.

**CUT:** If pressed, the monitor speakers are muted, and the CUT key is illuminated. As long as one of the CR or DJ microphones is on, the monitor speakers are automatically muted, and the CUT key is illuminated.

- [3] PFL/TB**
- PFL/TB:** Volume control for the built-in PFL/TB speaker.
- EXT PFL:** The EXT PFL input can be used as an external PFL input to the monitoring unit. If pressed, the key is illuminated, the external signal is routed to the PFL output, and the external PFL control output is active.
- PFL>MON:** If PFL is active on any channel, the PFL signal is routed to the main monitor speakers. If no PFL is selected, the monitoring signal is the stereo CR signal as selected. The PFL>MON key is illuminated if active.
- [4] Headphones**
- PHONES :** Headphones volume control. The headphones socket (6.3 mm TRS jack) is located below the hand rest on the left side of the console.
- Three keys allow different monitoring modes:
- PFL:** PFL and TB signals are routed to the headphones.
- MON/PFL:** The left-channel headphones signal is the mono PFL signal, while the right-channel headphones signal is the mono CR signal as selected by the monitoring source selector [1]. If no PFL is selected, the headphones signal is the stereo CR signal as selected.
- MON:** The headphones signal is the same stereo signal as selected by the monitoring source selector [1]. It is, however, not affected by the DIM and CUT functions.
- [5] Talkback**
- Selector for five talkback destinations:
- N-1 B/N-1 A:** Connection between the talkback microphone\* in the control room and the corresponding clean-feed (N-1) output; this allows talking e.g. to the connected telephone hybrid(s) or communication lines.
- AUX 2/AUX 1:** Connection between the talkback microphone\* in the control room and the AUX 2 or AUX 1 outputs.
- STUDIO:** Connection between the talkback microphone\* in the control room and the studio speakers and headphones.
- The built-in PFL/TB loudspeaker and/or the headphones are used for talkback listening in the control room.
- \* If a console is equipped with an external talkback microphone, this microphone is used instead of the integrated talkback microphone.
- [6] F1 to F5**
- Spare keys for future functions.
- [7] Signaling Lamps**
- ON-AIR** Is turned on by a control signal on the “SIGN.” control connector on the monitoring part of the connector panel.
- CR-MIC** Is on if at least one microphone in the control room is routed to the program or to the record output (i.e. the corresponding output is selected, the input channel is ON, the input channel fader and the master fader are opened).
- STUDIO-MIC** Is on if at least one microphone in the studio is routed to the program or to the record output (i.e. the corresponding output is selected, the input channel is ON, the input channel fader and the master fader are opened).

**3.1.5 Fader Section**



**[1] Channel Label Display**

Four-character display, indicating the label of the input channel momentarily selected. The channel label can be set in the INPUT CONFIG. page; refer to [chapter 11.2.1](#). When pressing the A or B key, the label will scroll by in full length.

- [2] OFF** (“key no. 3”)
- [3] ON** (“key no. 2”)

Keys for deactivating or activating an input channel. Can be reconfigured. For details please refer to [chapters 8 and 14.3](#).

**[4] Linear Fader**

The audio path is fully digital, therefore the signal does not pass through the fader; stroke length is 100 mm. For details concerning fader start control please refer to [chapters 8 and 14.3](#).

**[5] PFL** (“key no. 1”)

Key for activating/deactivating the PFL (pre-fader listening) function.

**[6] OVL**

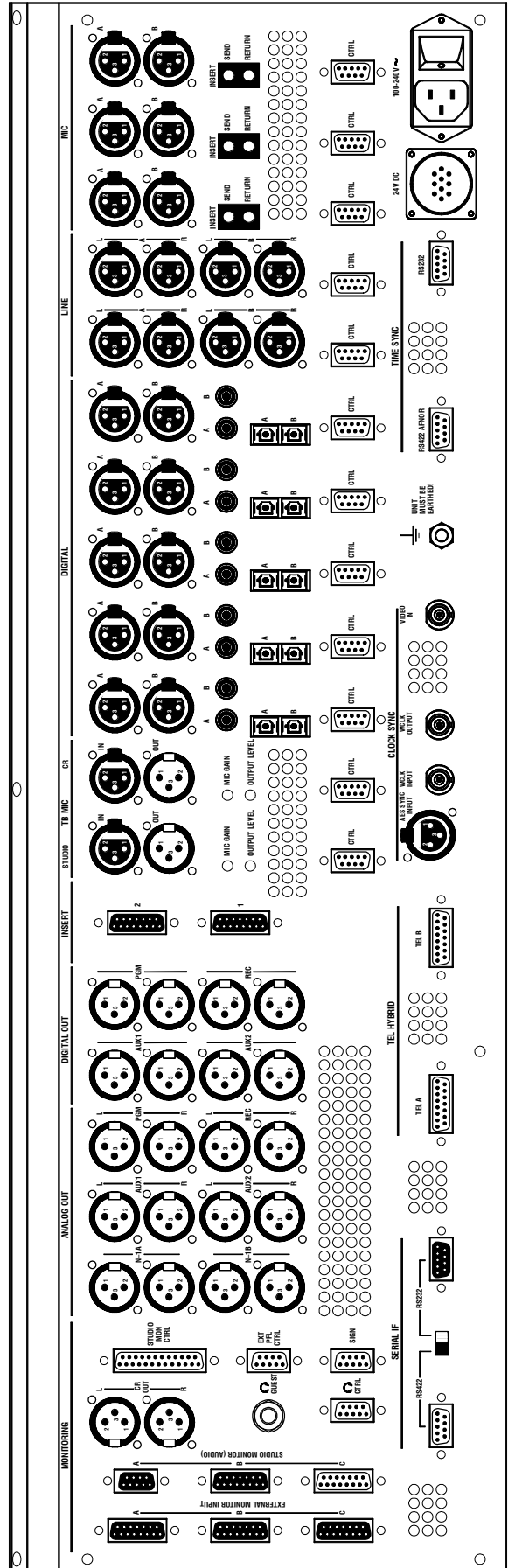
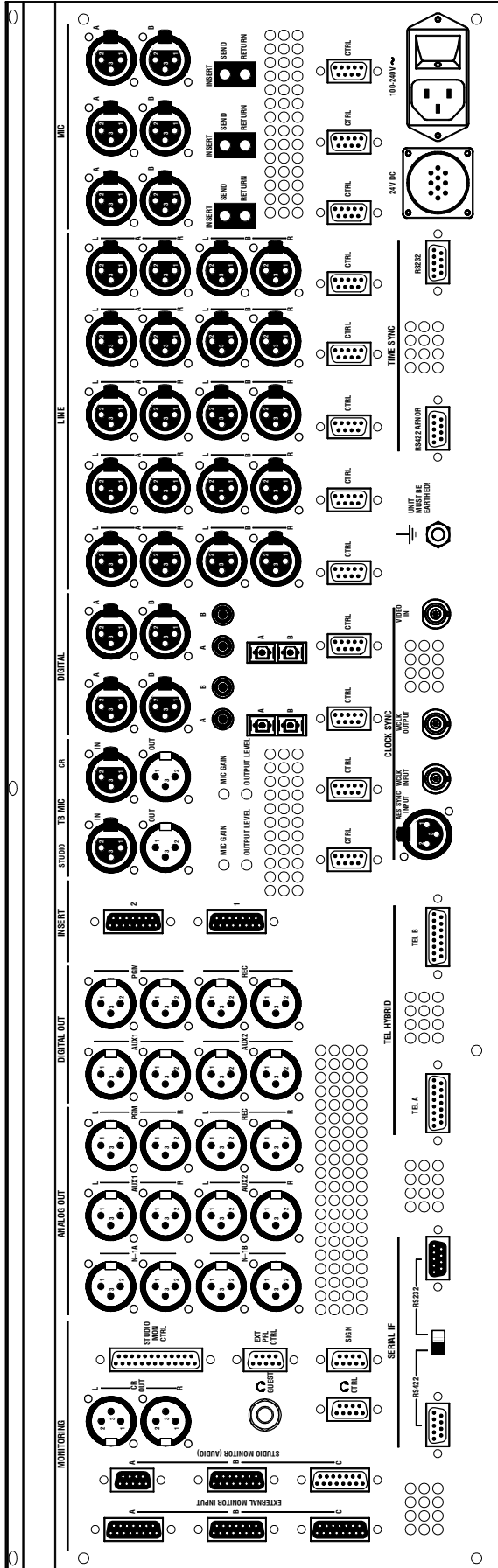
Channel overload indicator.



- [7] **SEL** Multi-function key:
- For activating the Channel Control page on the touch-screen for this respective input channel. For details please refer to [chapters 4.4 and 4.5](#).
  - If the INPUT CONFIG. page is already displayed on the central touch-screen, pressing the SEL key in a fader strip selects the corresponding input channel for configuration.
  - If the Mixer Setup page (SNAPSHOTS/MIC SETTING) is already displayed on the central touch-screen, pressing the SEL key in a microphone input fader strip selects the corresponding input channel for configuration.
- [8] **EQ** For activating the EQ/filter page on the touch-screen for this respective input channel. For details please refer to [chapters 4.6 and 4.7](#).
- [9] **A, B** For selecting the physical inputs A or B of this input unit. Each time one of these keys is pressed (even if this physical input is currently active), the full-length label scrolls by in the four-character channel label display.
- [10] **LEDs AUTO TAKEOVER** Up/Down Arrow LEDs. After having modified the channel routing or during radio automation (CAB) operation, they indicate that the fader has to be moved upward/downward to match the physical and the logical positions.
- PGM** LED indicating that this input channel signal is routed to the Program output.
- REC** LED indicating that this input channel signal is routed to the Record output.
- AUX1** LED indicating that this input channel signal is routed to the AUX1 output.
- AUX2** LED indicating that this input channel signal is routed to the AUX 2 output.
- INS1** LED indicating that this input channel signal is routed over the analog insert 1.
- INS2** LED indicating that this input channel signal is routed over the analog insert 2.

### 3.2 Connector Panels

Analog-biased (left) and digitally-biased (right) versions



## 4 CHANNEL FUNCTIONS

The OnAir 1000 has ten input channel faders and two master faders on the surface. The input channel fader strips consist of a four-character channel label display, two input selector keys, a SEL key, an EQ key, an OVL overload indication, a PFL key, the fader, an ON and an OFF key. All keys are equipped with LED indicators. Six LEDs (PGM, REC, AUX1, AUX2, INS1, INS2) display the signal routing of this respective input channel. If the console is remote-controlled by a radio automation system (CAB), the two AUTO TAKEOVER arrow LEDs indicate in which direction the fader has to be moved in order to match the physical and the logical position of the fader.

**Input Router:** Through the integrated input router, the output signal of every individual input unit can be assigned to any input fader strip on the console surface (see [chapter 5.8](#)). The input channel parameters relate to the input unit and not to the fader strip. They will be re-routed when the input unit is assigned to another fader. Exception: The position of the two master faders is fixed and cannot be re-routed.

**Access Permission:** In the following chapters we assume that the user has access permission to all functions, unless otherwise noted. Access permission may be limited to some users by the administrator, causing that certain screen parts are hidden. Full access permission is in such a case only obtained when entering a password. For a description of how to set up the access permission, refer to [chapter 10](#).

### 4.1 Keys

#### Channel Functions:



The channel key functions are configurable; this configuration is valid for the whole console (and not per input channel). The different configuration possibilities are:



Configuration	Key 1 ("PFL")	Key 2 ("ON")	Key 3 ("OFF")
1 (Default)	PFL	ON	OFF
2	PFL	ON/OFF	LOCATE
3	PFL	ON	LOCATE
4	PFL	ON/OFF	NEXT

For details on the key configuration refer to [chapter 8](#).

#### A/B Input Keys:



For microphone, analog line, and digital input units, the input keys A and B directly select one of the two physical input signals. The selected input is indicated by an LED integrated in the respective key, and the source name appears in the channel label display. If the input channel is active (i.e. input channel ON, fader open, and output selected), the input selection is disabled.

If the input channel is connected to an automation system, scrolling of the channel label display indicates that this input channel is "ON AIR". For more details on this topic, please refer to [chapter 9](#).

#### SEL Key:



By pressing one of the SEL (select) keys, the Channel Control page is opened on the touch-screen. Parameters for this input channel can now easily be entered with the four rotary encoders and the touch-screen fields. The SEL key of the corresponding fader strip is illuminated.

**EQ Key:**

The EQ key opens the EQ/filter page on the touch-screen, and the corresponding SEL key is illuminated, indicating that parameters of this input channel are displayed.

The EQ key is illuminated if the equalizer is on.

By observing if the EQ keys are illuminated, it can be determined at a glance in which input channels the equalizer settings are active.

## 4.2 Faders

Since the audio path is fully digital, the signal does not pass through the faders. Therefore, linear-track mono faders are used. The stroke length is 100 mm. When opening the fader, fader start or signaling commands can be released, depending on the configuration (refer to [chapter 8](#)).

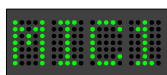
**Master Faders:**

On the right-hand side of the input channel faders, a master fader for each the program and the record output is provided (refer to [chapter 5.14](#)). These two master faders can be enabled or disabled at the user's convenience.

## 4.3 LED Indicators

In each fader strip, LEDs display the actual routing of the signals. The selected physical input being (either A or B) is indicated by the illuminated A or B selector key, and the filtering of the signal by the equalizer function is indicated by the illuminated EQ key.

With all these displays, the operator has an immediate overview of the major console settings at a single glance.

**Channel Label Display:**

The four-character channel label display shows the name of the selected physical input. The channel label is entered in the Mixer Setup menu of the INPUT CONFIG. page, using a soft keyboard appearing on the touch-screen.

**OVL (Overload):**

A red OVL indicator per fader strip signals an overload condition anywhere within the corresponding input channel's signal processing path.

Signals in the OnAir 1000 are processed with sufficient digital headroom through the entire signal processing chain. Besides, most outputs (PGM, REC, AUX1, AUX2, INSERT SEND1/2) are equipped with limiters in order to prevent overloads. All limiters are set to 0 dB<sub>FS</sub> with fixed attack and release times.

Overload in an input channel is indicated if the signal level reaches 0 dB<sub>FS</sub>. Due to the output limiters, normally distortions will be avoided even in case of an overload.

**PGM / REC:**

The PGM and/or REC LEDs are on if the respective input channel's signal is routed to the PGM and/or the REC output(s). The output routing can be changed in the Channel Control page on the touch-screen that is opened by pressing the SEL key. The “ΣPROGRAM” and/or “ΣRECORD” touch-screen fields are highlighted if selected.

**AUX1 / AUX2:**

The AUX1 and AUX2 LEDs are on if the respective input channel's signal is routed to the AUX output(s). The AUX settings can be changed in the Channel Control page on the touch-screen that is opened by pressing the SEL key. There, both auxiliaries can be independently set as “AF” (after-

fader), “PF” (pre-fader), “ON” or “OFF”. These touch-screen fields are highlighted if selected.

**INS1 / INS2:**



The INS1 or the INS2 LED is on if the respective input channel's signal is routed through one of the analog inserts 1 or 2. The inserts are controlled in the AUX MASTER/INSERTS page on the touch-screen.

**AUTO TAKEOVER Arrow LEDs:**



After having modified the channel routing or during radio automation (CAB) operation, they indicate that the fader has to be moved upward/downward to match the physical and the logical positions.

If the console is used together with an automation system, the fader value can be set by the automation system via the “Monitors” protocol. In case the user would like to take-over the control of the signal with the fader, the AUTO TAKEOVER arrow LED(s) of the input channels being controlled by the automation system indicate in which direction the fader has to be moved to match its physical and its logical position. If the positions are matched, or if, by chance, the fader is in the exact position, both arrow LEDs remain illuminated as long as this input channel is on air.

If an input channel is currently on air, its label continuously scrolls by in the channel label display.

<p>Channels <i>not</i> controlled by a CAB system</p>	<p>Audio level above the fader position – move fader <i>down</i></p>	<p>Audio level below the fader position – move fader <i>up</i></p>	<p>Audio level equal to the fader position</p>

## 4.4 Channel Control Page, Microphone Input

The Channel Control page for a microphone input channel is opened by pressing the SEL key of a mic channel's fader strip.



**PHANTOM** Touching the “ON” part of the PHANTOM field turns the 48 V phantom power on; a touch on the “OFF” part of the field turns it off again. The status is indicated by highlighting the corresponding field.

**PHASE** The phase of the microphone signal is inverted by touching the “INV” part of the PHASE touch-screen field; “INV” is highlighted. Touching “NORM” de-activates the phase inversion.

**GAIN** The microphone preamp's gain is set with the first rotary encoder (in a  $-5\dots+75$  dB range); the adjusted value is indicated in the GAIN field.

**AUX 1 / AUX 2** The AUX 1/2 ON and OFF touch-screen fields route the input channel signal to the corresponding auxiliary bus, if “ON” is selected (and highlighted).

The AF/PF touch-screen fields allow selection whether the signal is taken after- (AF) or pre-fader (PF). The current selections are highlighted.

The AUX levels ( $-\infty$  to  $+10$  dB; 0 dB position is marked with a dash) are adjusted with the second and third rotary encoder. The settings are graphically displayed in the fields right above the rotary encoders.

The output routing of this particular input channel is performed with the “ΣPROGRAM” and “ΣRECORD” touch-screen fields.

**PAN** The fourth rotary encoder positions the source within the stereo image, the PAN (-ning) indicator shows the adjusted position.

## 4.5 Channel Control Page, Line Input

The Channel Control page for a line input channel is opened by pressing the SEL key of a digital or an analog line input channel's fader strip.



**MODE** Line level inputs have a MODE field defining whether the input is processed in “ST”(-ereo) or in “MONO” mode. In mono mode the stereo input signal from the input unit is added to a mono signal and attenuated by 3 dB.

Stereo signals are processed in the following modes:

- LR: Normal stereo mode;
- RL: Left/right stereo channels swapped;
- LL: Left signal on both stereo channels;
- RR: Right signal on both stereo channels.

**PHASE** The phase (*of the left input path only*) is inverted by touching the “INV” part of the PHASE touch-screen field; “INV” is highlighted. Touching “NORM” de-activates the phase inversion. Only in the “RR” case, the phase inversion takes place in the R input path.

**CAL** In the CAL field, the gain deviation referred to nominal level setting is displayed; max. deviation:  $\pm 15$  dB, adjustment with the first rotary encoder.

**AUX 1 / AUX 2** The AUX 1/2 “ON” and “OFF” touch-screen fields route the input channel signal to the corresponding auxiliary bus, if “ON” is selected (and highlighted).

The “AF” / “PF” touch-screen fields allow selection whether the signal is tapped after- (AF) or pre-fader (PF). The current selections are highlighted.

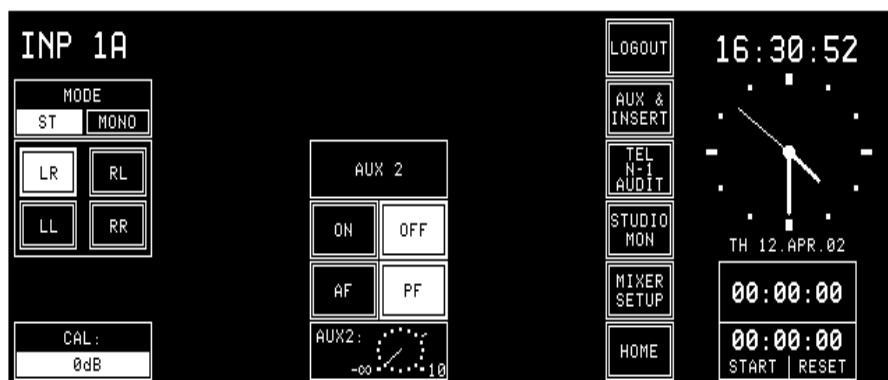
The AUX levels ( $-\infty$  to +10 dB; 0 dB position is marked with a dash) are adjusted with the second and third rotary encoder. The settings are graphically displayed in the fields right above the rotary encoders.

The bus assignment is performed with the “ΣPROGRAM” and “ΣRECORD” touch-screen fields.

**BAL** The fourth rotary encoder adjusts the position of the stereo image, the BAL indicator shows the adjusted position.

**Access Permission:** Depending on the access permission (see [chapter 10](#)) of the user currently logged in, the functions not available to this user will not be displayed on the Channel Control page; an example is given below. This user cannot access the following parameters:

- PHASE
- AUX 1
- Output summing buses ( $\Sigma$ PROGRAM,  $\Sigma$ RECORD)
- PAN/BAL.

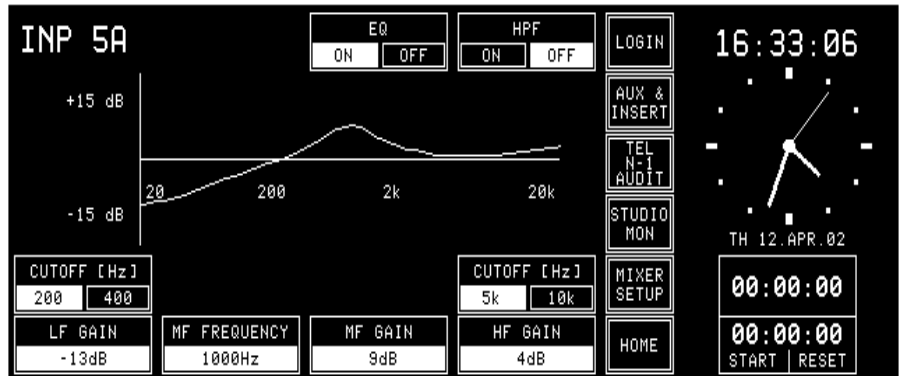


If the user has no access permission at all, the Channel Control page will not be displayed.



## 4.6 EQ/Filter Page, Microphone Input

The EQ/filter page for a microphone input channel is opened by pressing the EQ key of a microphone input channel's fader strip. If the user has no access permission to the EQ and filter parameters, the EQ/filter page will not be displayed.



**HPF** The HPF “ON” / “OFF” touch-screen field is a high-pass filter switch. The filter is part of the analog front end and is available on microphone input channels only. “ON” is highlighted if the filter is active.

**EQ** The EQ “ON” / “OFF” touch-screen fields activate or bypass the equalizer. If the equalizer is active (i.e. “ON”), the EQ key will be illuminated. If the EQ is bypassed (i.e. “OFF”), the preset frequency curve is displayed on the touch-screen nevertheless.

The four rotary encoders are the control elements for the equalizer. The low-frequency section is a shelving-type filter with two selectable turnover frequencies and variable boost/cut. The frequency is selected by the left-hand “CUTOFF” touch-screen fields, the gain is set with the first (left-most) rotary encoder. The second rotary encoder sets the frequency of the mid-frequency section which is a peaking-type filter. The third rotary encoder controls the mid-frequency boost/cut. The fourth (rightmost) rotary encoder controls the gain of the high-frequency section which again is a shelving-type filter with two selectable turnover frequencies. The right-hand “CUTOFF” touch-screen fields allow frequency selection of the high-frequency shelving filter.

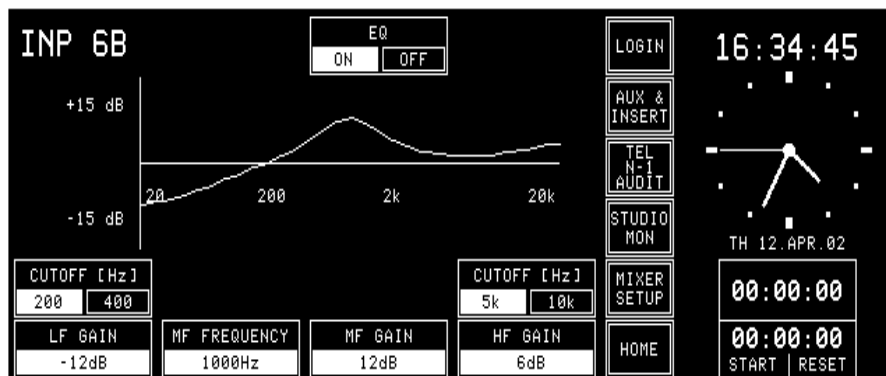
**Note:** The HF cutoff frequencies can be reduced by approx. one octave (resulting in an increased filter effect) when activating Customer Code 0x00000002; refer to [chapter 11.2.11](#).

**EQ Specs:**

Filter	Mode	Frequency	Gain range	Comment
High-pass filter	HPF	-3 dB @ 80 Hz	ON/OFF	Analog, 12 dB/oct., mic input ch only
EQ low-frequency	Shelving	200 Hz/400 Hz	-15 dB...+15 dB, 1 dB steps	-
EQ mid-frequency	Peaking	200 Hz...10 kHz, 1/6 octave steps	-15 dB...+15 dB, 1 dB steps	Q = 0.7
EQ high-frequency	Shelving	5 kHz/10 kHz	-15 dB...+15 dB, 1 dB steps	see Customer Code ( <a href="#">11.2.11</a> )

## 4.7 EQ/Filter Page, Analog Line/Digital Input

The EQ/filter page for a line input channel is opened by pressing the EQ key of an analog or digital line input channel's fader strip. If the user has no access permission to the EQ parameters, the EQ/filter page will not be displayed at all.



The only difference between the analog line/digital and the microphone EQ/Filter pages is the missing HPF high-pass filter switch on analog line/digital input channels.

## 5 MASTER FUNCTIONS

Master functions are not input channel-related but global functions. These are audio functions (AUX master level, studio monitoring), non-audio functions (telephone hybrid control, clock, stopwatch), snapshot management, and system configuration.

Touching one of the LOGIN, AUX & INSERT, TEL, STUDIO MON, MIXER SETUP, or HOME-CHN ON/OFF fields will always lead to the corresponding page.

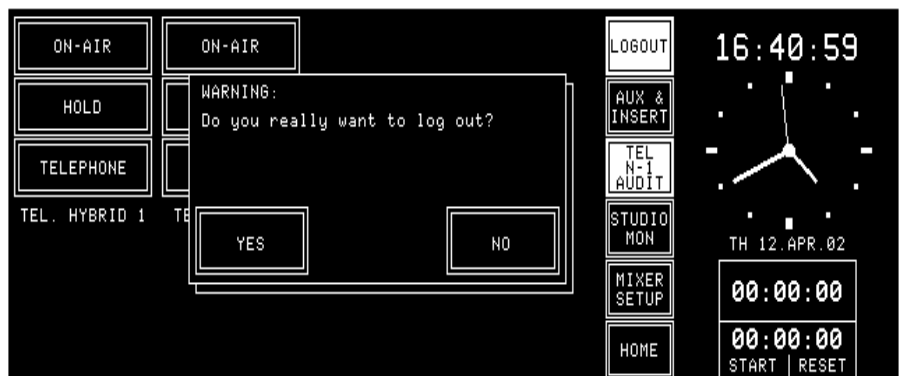
### 5.1 Login/Logout

The console always starts up in default user mode. If the user wants to work in his own environment, he must log-in. He has to touch the LOGIN field on the touch-screen. The LOGIN page will appear where the user can touch the field with his own name.



More information on the login procedure can be found in [chapter 10.5](#).

After having logged in, the LOGIN field changes to LOGOUT; when the user leaves the console, this field must be used. After having touched LOGOUT, a dialog box appears, asking for confirmation. This is used as a protection against logging out inadvertently.



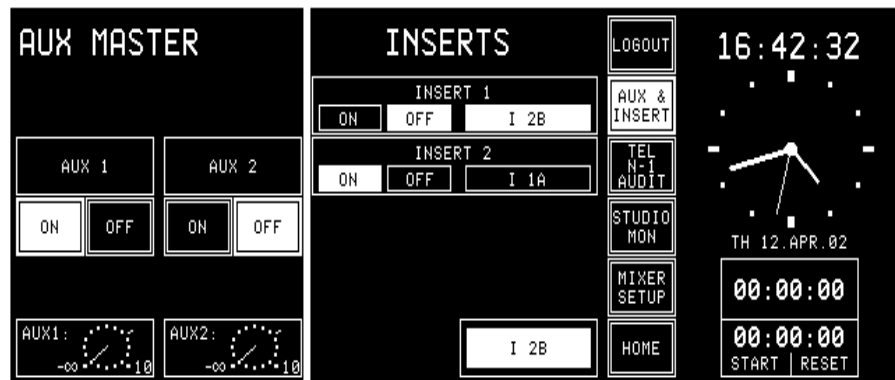
If a console is operated by one person only, the system administrator simply can enable all access rights for the default user. This is the way the user can control all console functions (except the administration functions) without having to log-in. A default user is always defined in the User ad-

ministration table, his name is DEFAULT USER. The access permissions of this user can be edited. His record cannot, however, be deleted, and no password can be defined for him.

## 5.2 AUX and Insert Control

The AUX MASTER/INSERTS page is entered by touching the AUX & INSERT field on the touch-screen.

If the user has no access permission for the AUX and/or insert parameters, there will appear a text next to AUX MASTER and/or INSERTS, telling the user that he cannot modify the parameters.



**AUX MASTER:** The two rotary encoders below the AUX 1 and AUX 2 gain indication symbols are used to adjust the desired level of the corresponding AUX master. The gain can be adjusted in a range of  $-\infty$  to +10 dB; the 0 dB position is marked with a dash.

ON/OFF selection of the AUX master buses is done by touching the corresponding fields on the screen. A highlighted background indicates the current status.

The AUX 1 and AUX 2 gain indication symbols are always displayed, even if no output unit is jumper-configured for AUX 1 and/or AUX 2.

**INSERTS:** On the same page, the insert points can be assigned. Assignment is possible to any of the following signals:

- CH1 to CH10,
- PROGRAM bus,
- RECORD bus,
- Talkback to Studio output,
- Talkback to Control Room (CR) output,
- NONE.

A signal can only be assigned to an insert while the insert is set to OFF, by touching the channel/bus label field of the insert box. The label field is highlighted. Then it can be changed with the rightmost rotary encoder. If the insert is set to ON, the channel/bus label field cannot be highlighted, and the insert assignment cannot be changed.

The insert send always follows the setting as displayed on the screen; it remains active while the insert is switched OFF. If the insert is switched ON, a switchover from the internal connection to the insert return is performed.

Each signal can be assigned to one insert only. If a signal is already assigned to an insert, it will not appear in the channel/bus label field during signal selection for another insert.

The insert is assigned per input unit and not per physical input, which means that the insert assignment is always valid for both physical inputs A and B of an input channel.

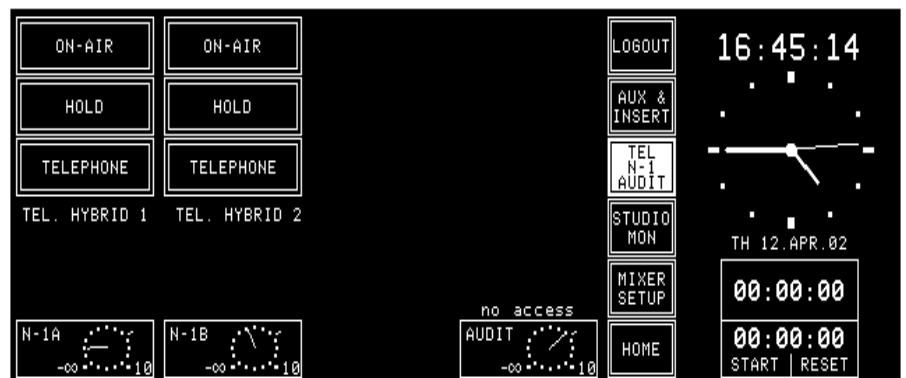
The insert assignment and the insert ON/OFF setting are included in snapshots.

The insert assignment is displayed in the corresponding fader strip by an illuminated INS LED for as long as the insert is active (ON).

### 5.3 N-1/Audition Bus and Telephone Hybrid Control

Two clean-feeds (N-1A, N-1B) are provided. The clean-feeds can be used as mono outputs to telephone hybrids, or as mono line outputs. The audition bus can either be used as a special stereo monitoring bus (for information on the special CUT and DIM conditions, please refer to [chapter 11.2.2](#), “CR DIM WHEN AUDITION SELECTED”), or as a third, mono or stereo clean-feed.

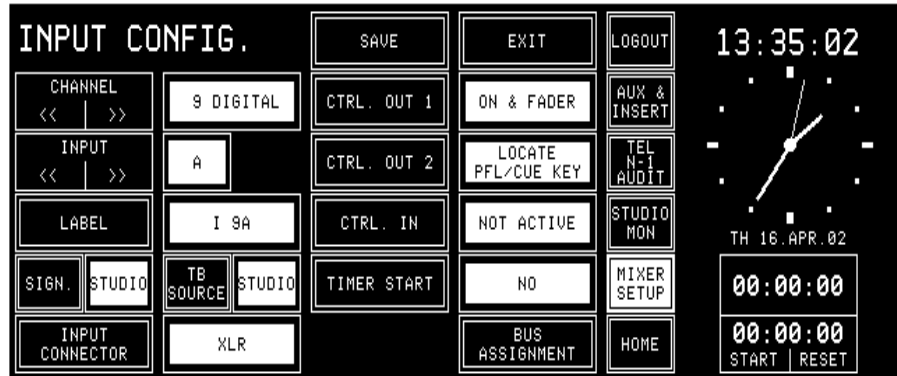
If the user has no access permission for the clean-feed and/or audition bus parameters, there will appear a text next to the corresponding field, telling the user that he cannot modify the parameters.



The clean-feeds as well as the audition bus have master level controls that can be accessed on the N-1/audition master and telephone hybrid page (opened by touching the TEL/N-1/AUDIT field). The output levels are controlled with the rotary encoders; the output gain range is  $-\infty$  to +10 dB, the 0 dB position is marked with a dash.

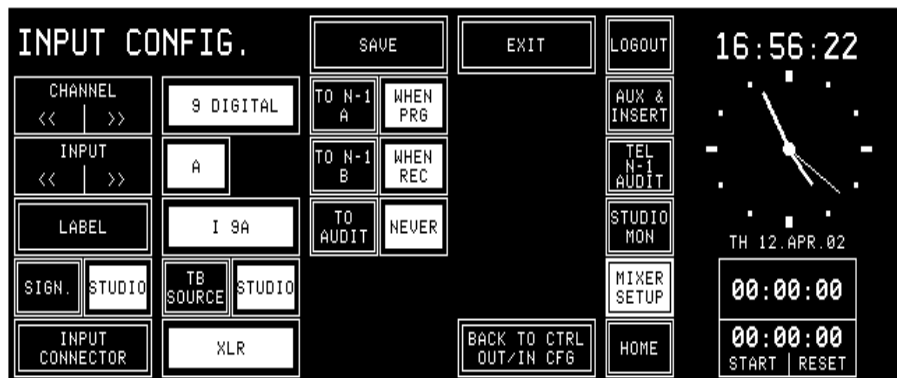
Two telephone hybrid interfaces to which the clean-feeds are fed can be controlled by the ON-AIR, HOLD, and TELEPHONE fields on this page. TELEPHONE switches the telephone line to the telephone. By touching HOLD, the telephone line is routed to the telephone hybrid interface. The return signal is connected, but the incoming signal is not fed to the console. Only when touching ON-AIR, both the incoming and the return signals are connected to the console.

**5.3.1 N-1 and Audition Bus Routing**



For bus routing, first open the INPUT CONFIG. page of the desired input channel (the example above shows the INPUT CONFIG. page of a digital input channel; for a mic input channel, the INPUT CONNECTOR field is not displayed, and for an analog line input channel, there will be the LEVEL and HEADROOM fields displayed instead).

When touching the BUS ASSIGNMENT field on this page, it changes as follows, allowing to select the N-1 A/B and audition bus routing:



In the TO N-1 A, TO N-1 B, and TO AUDIT fields, the input signal is routed to the N-1A, N-1B, or audition bus, with the options given in the table below.

Setting	Meaning
NEVER	The input channel is never routed to N-1 or AUDIT
WHEN PG/REC	The input channel is routed to N-1 and/or AUDIT if the input channel is either assigned to the program or to the record bus
WHEN PRG	The input channel is routed to N-1 and/or AUDIT if the input channel is assigned to the program bus
WHEN REC	The input channel is routed to N-1 and/or AUDIT if the input channel is assigned to the record bus
ALWAYS	The input channel is always routed to N-1 and/or AUDIT, regardless of the bus assignment

The audition bus is similar to the N-1 buses, but it is a stereo bus that can be selected as a monitoring source in the control room.

Once the bus routing is completed, return to the INPUT CONFIG. page by touching the BACK TO CTRL OUT/IN CFG. field.

The N-1 A/B and the audition output levels are set using the rotary encoders on the TEL/N-1/AUDIT page, as described in [chapter 5.3](#) above.

## 5.4 Studio Monitoring

The STUDIO MONITORING SOURCE page is opened by touching the STUDIO MON field. This page allows selecting one of six signals to be routed to the studio monitoring loudspeakers and headphones. This selection can also be done via a pushbutton remote control from the studio (optional accessory “Studio Talkback Box” available). The field of the currently selected signal source is highlighted.

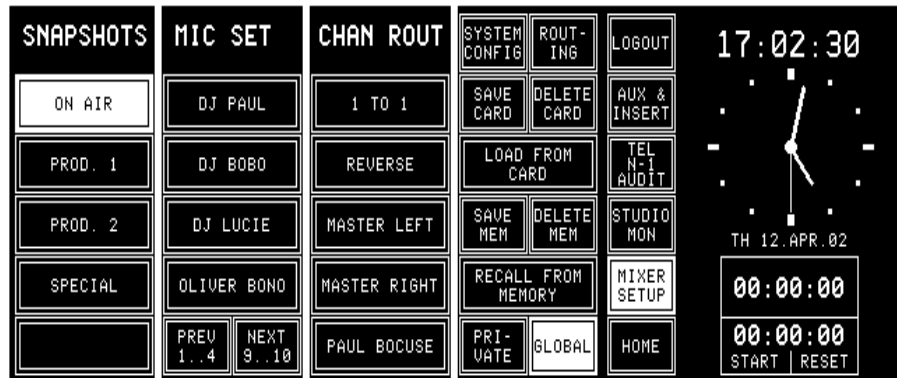
The signal selected with the EXT3 field is the same as the one selected with EXT3 on the CR monitor selector on the right hand side of the console; this signal is fed to the console via the 15-pin EXTERN MONITOR INPUT (B) connector at the rear of the console.



For a more detailed description of the monitoring system, see [chapter 6](#).

## 5.5 Mixer Setup

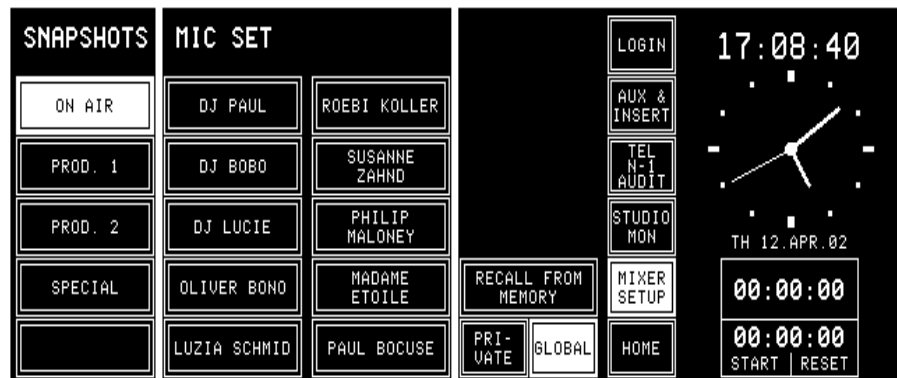
The Mixer Setup page (SNAPSHOTS/MIC SET/CHAN ROUT) gives access to several function groups used for setting the general status of the console. These are: Global snapshots, private snapshots, global microphone (mic) settings, private microphone settings, global channel routings.



At the left of the Mixer Setup page there is the SNAPSHOTS area. The five fields allow snapshot selection.

Up to ten mic settings can be selected in the MIC SET area; either all of them are displayed, or – if the CHAN ROUT section is visible on this page as well – they are displayed in groups of four and can be browsed using the NEXT... and/or PREV... fields, as shown above.

Five global channel routings are accessible in the CHAN ROUT area. If no global channel routings should have been defined by the system administrator, the CHAN ROUT area is not displayed, as shown below.



The right part of the Mixer Setup page also provides the following command fields:

- PRIVATE/GLOBAL:** Users can select between private and global snapshots and mic settings.
- SYSTEM CONFIG:** This field leads to the second level of mixer setup functions. These are accessible only for users having the corresponding access right set in the user configuration. A new page is displayed, allowing to select from several groups of configuration parameters.
- ROUTING:** This field leads to the CHANNEL ROUTING. page. This page is only accessible for users having the corresponding access right set in the user configuration.

The use of snapshots, mic settings, and channel routings is described in the following chapters, followed by some information on user administration and the watch/stopwatch functions.



## 5.6 Snapshots

A snapshot is a copy of a momentary console setup. It contains all parameters (as input selection, input gain, phase, phantom power, balance or panorama setting, EQ settings, AUX settings, input channel ON/OFF, and insert assignment), except fader positions and PFL. A snapshot does *not* contain any parameters being part of the console configuration (input channel routing, channel labels, control signal functions, clean-feed bus assignment, level meter assignment, etc.).

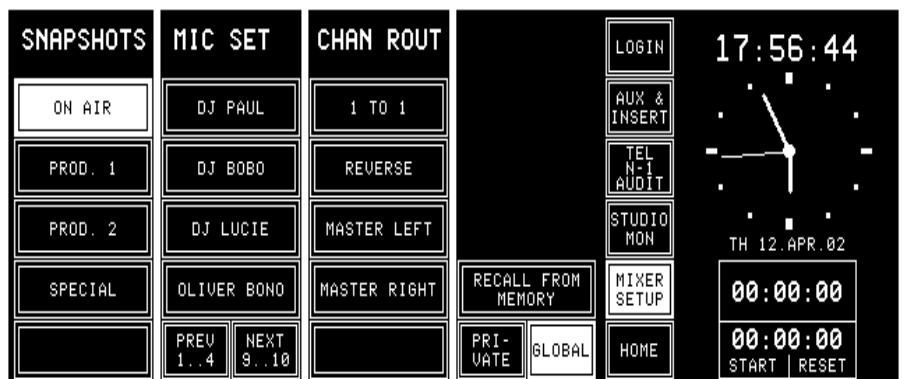
Each user having a personal password can save up to four private snapshots (max. 20 users), and up to five global snapshots (available for every user) can be saved in the console's flash memory. More snapshots can be saved on a PC-Card (refer to [chapter 5.9](#)) and loaded from the card into the console's flash memory if required.

A name can be given to every snapshot which is displayed in the leftmost field column.

### 5.6.1 Recall a Snapshot from Memory

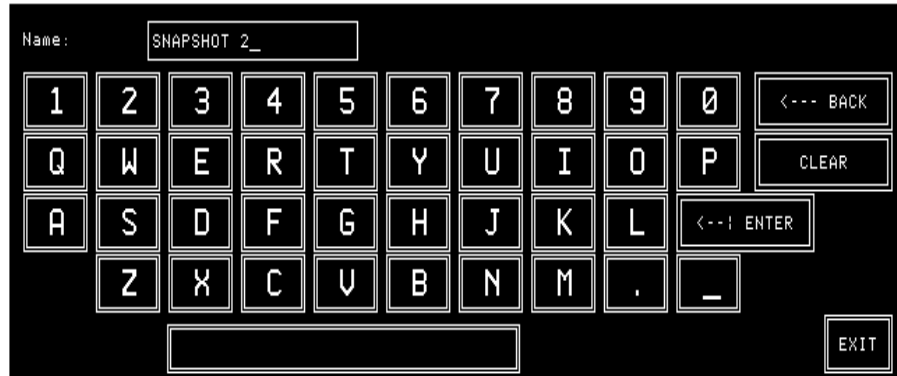
Select a snapshot by touching one of the name fields. The name of the selected snapshot is highlighted. When touching the RECALL FROM MEMORY field, the snapshot will immediately be recalled from the console's internal flash memory, except if the current input channel is active (switched to the program or the record bus); then the recall operation is delayed until the input channel is closed.

During execution of the snapshot RECALL function, the system compares the configuration parameters of each input channel with the configuration parameters saved together with the snapshot. If there is a mismatch, the snapshot will not be executed for this input channel.



### 5.6.2 Save a Snapshot to Memory

Saving a snapshot is done by touching a snapshot field, followed by SAVE MEM. The keyboard page appears where the snapshot name can be entered or edited (max. 20 characters). If the existing name is to be kept, just touch the <---| ENTER field.



CLEAR is used to clear the text field for entering a new name with the keyboard.

<--- BACK is used to delete one character to the left of the cursor.

EXIT is used to leave the keyboard page without saving the new name.

When touching <---| ENTER, the keyboard page is left and the snapshot data are saved.

**Note:** Global snapshots can be saved by the system administrator only. Logged-in users only can save their private snapshots.

### 5.6.3 Delete a Snapshot from Memory

When saving a snapshot, the previously saved snapshot data are overwritten. A snapshot can be deleted, too, without overwriting it with new data. For deleting a snapshot from the console's internal flash memory, the desired snapshot has to be selected. The selected field is highlighted. After touching the DELETE MEM field a dialog box appears. If it is confirmed, the snapshot will be permanently removed from the memory, and the name within the selected field is cleared.

## 5.7 Mic Settings

A mic (microphone) setting is a set of parameters (EQ, gain, phantom power) for a single microphone input channel. Thus, every DJ or announcer can store his preferred mic settings and recall them at any time. Up to four private mic settings for each user (max. 20 users), and up to ten global mic settings can be stored in the console's flash memory; additional mic settings can be stored on a PC-Card as well (refer to [chapter 5.9](#)).

If the CHAN ROUT section is also displayed on the Mixer Setup page, the global mic settings are displayed in groups of four. To display the other groups, use the NEXT... and/or PREV... fields below the MIC SET label fields.

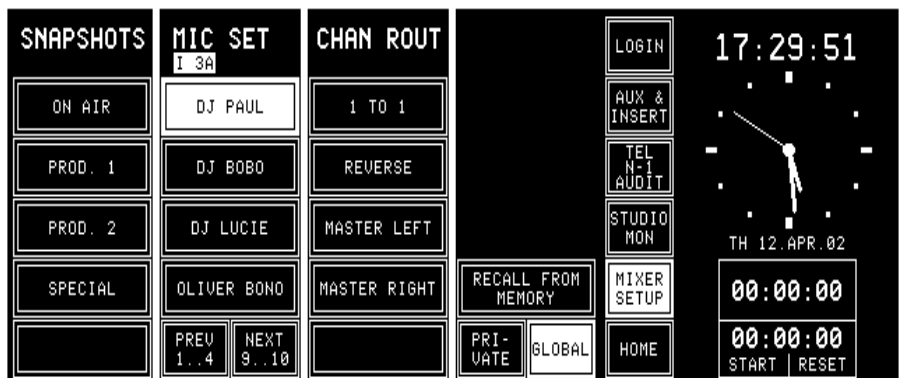
Mic settings can be named, as the snapshots; these names are displayed on the corresponding touch field columns on the Mixer Setup page.

### 5.7.1 Recall a Mic Setting from Memory

To recall a mic setting from the console's internal flash memory, first open the Mixer Setup page (SNAPSHOTS/MIC SET/CHAN ROUT) by touching MIXER SETUP, then select a microphone input channel by pressing the SEL key of the desired channel, then touch the desired MIC SETTING field. The name of the selected mic setting is highlighted.

Then touch the RECALL FROM MEMORY field. The selected input channel's parameters are immediately set to the values of the mic setting.

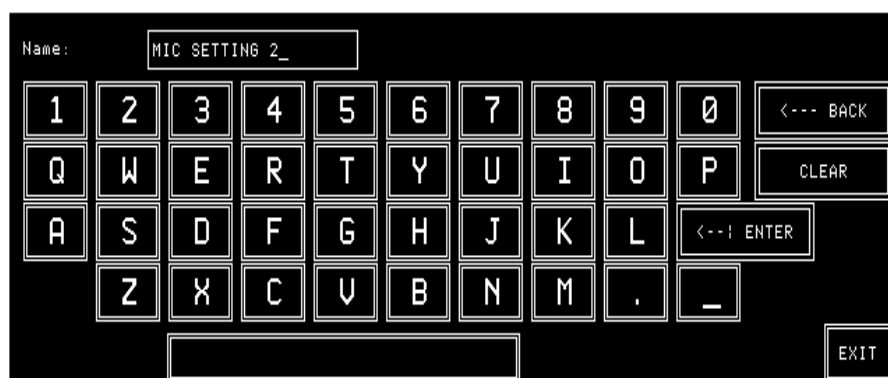
Selection of another type of input channel (line or digital) is treated as an error and will not be accepted by the system.



If the last modification was made on a microphone input channel, this channel is automatically selected and shown in the top line of the Mixer Setup page. To change the input selection, just touch the SEL key of the desired fader strip. The physical input being currently active (A or B) of this input channel is now selected and shown in the top line of the Mixer Setup page.

## 5.7.2 Save a Mic Setting to Memory

Creating a mic setting means saving a set of equalizer and gain parameters for a single microphone input channel under a given name into the console's internal flash memory. This is done by first selecting the microphone input channel to be stored, then touching a MIC SET field, followed by SAVE MEM. The keyboard page appears where the mic setting's name can be edited. Any MIC SET field (also one of these that have already been used and have a name assigned) can be selected. It will, however, be overwritten by the new mic setting.



Now a new name can be generated, or the already present name can be overwritten or edited. When touching <--| ENTER, the mic setting data and its new name are saved.

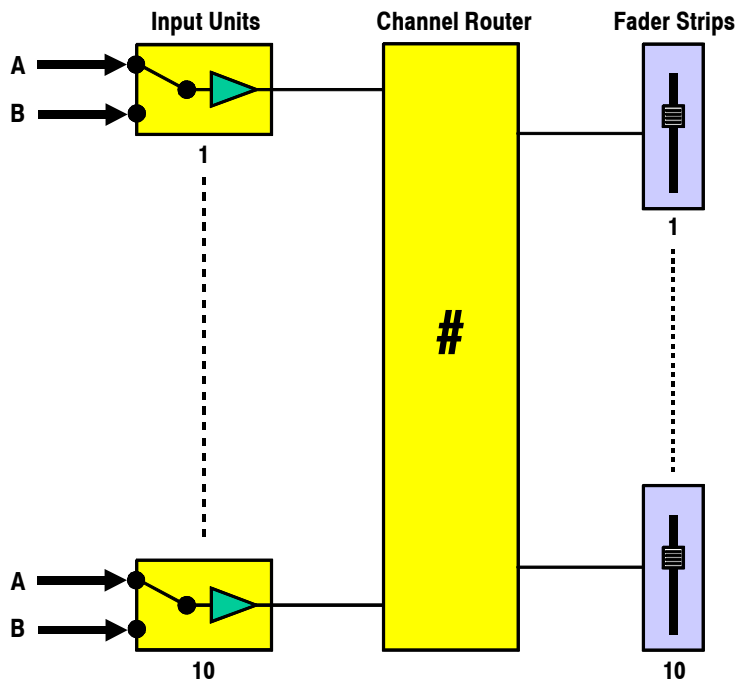
## 5.7.3 Delete a Mic Setting from Memory

When saving a mic setting, the previously saved data are overwritten. A mic setting can be deleted, too, without overwriting it with new data. For deleting a mic setting from the console's internal flash memory, the desired mic setting has to be selected. The selected field is highlighted. After touching the DELETE MEM field, a dialog box will appear. If it is confirmed, the mic setting will be permanently removed from the memory, and the text within the selected field is cleared.

## 5.8 Routing

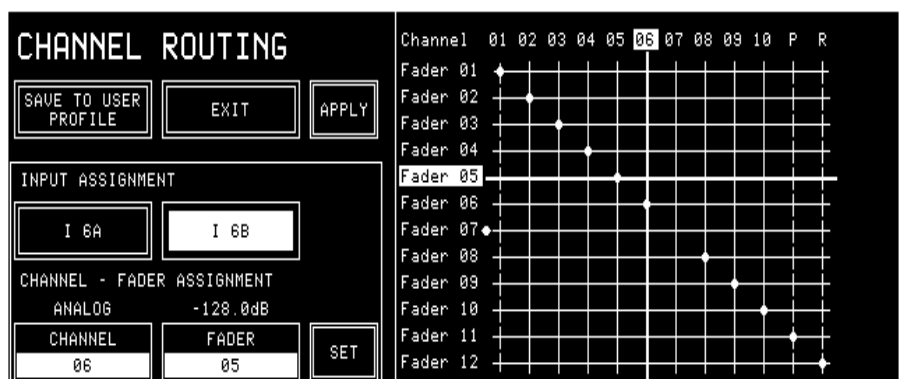
The OnAir 1000 features an input channel router that allows to route the output of any input unit (including the complete parameter set, as stereo mode, gain, filter, sends, bus assignment) to any fader strip. Please note that the two physical inputs A and B of the same input unit *cannot* be assigned to different fader strips, as the input selector switch is located before the preamplifier.

An input unit signal *cannot* be routed to more than one fader strip.



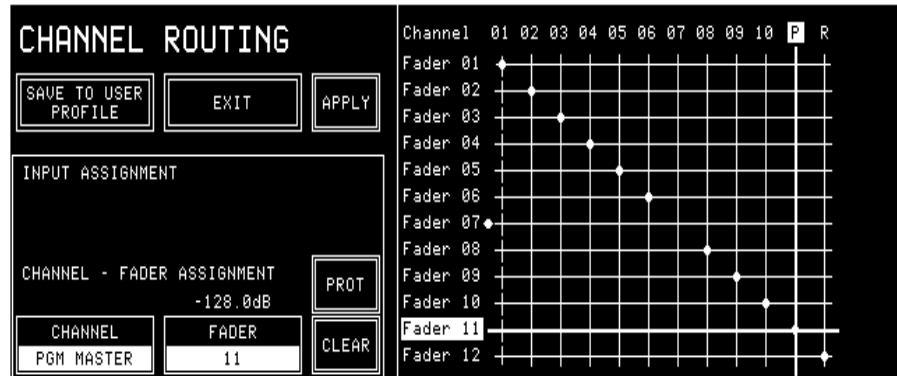
### 5.8.1 Channel Routing

The channel routing, i.e. the input unit-to-fader strip assignment, is accessed on the CHANNEL ROUTING page. There is only one user-specific channel routing per logged-in user available. Should the user have no access permission to the channel routing, this page is not displayed.



The right part of the CHANNEL ROUTING page displays a matrix with the corresponding number of faders and input channels. The current input unit-to-fader strip assignment is indicated by the crosspoints.

The program and record master fader assignment is fixed (PGM MASTER to fader no. 11, REC MASTER to fader no. 12). These two faders can be disabled (CLEAR) and re-enabled (SET), but not re-assigned to input channels. They are located at the far right of the grid (“P” and “R”). An example of this particular CHANNEL ROUTING page is shown below:



**Making a Crosspoint**

On the left part of the CHANNEL ROUTING page, the input unit-to-fader strip assignment is performed with the two left rotary encoders below the touch-screen. When turning these encoders, the highlighted horizontal and vertical lines are moved within the grid. The input channel and fader numbers are displayed above the two rotary encoders, as well as the type of the selected input unit (MIC/ANALOG/DIGITAL) and the position of the currently selected fader.

Above the input unit-to-fader strip assignment, the input labels are displayed.

The channel routing relates to the physical input. This means that, for example, input B can be selected; when loading this set-up later, input B with all its input parameters (as input gain, EQ settings, etc.) is automatically selected. These parameters are input-related and will be automatically re-routed when the input channel is assigned to a different fader.

When the desired crosspoint is found, touch the SET field. A dot appears at this crosspoint in the grid, indicating the established connection.

The fader to which this input channel had been assigned before is free now, and its dot jumps outside the grid to the left (fader 07 in the picture above). The same happens when the CLEAR field is touched after having selected a connection.

When all settings are done, touch the APPLY field. The new channel routing is loaded to the work memory. There are two ways to proceed now:

**Temporary Routing**

When touching the EXIT field, the page is left without saving, and the user can work with the new channel routing.

However, the new routing is not stored in the user's profile. When the user logs out, the temporary channel routing is lost, and his original channel routing will be loaded when logging in the next time.

**Permanent Routing**

To store the new channel routing within the user's profile, the SAVE TO USER PROFILE field has to be touched before exiting the page with EXIT.

**Clearing a Crosspoint**

When the CLEAR field is touched after having selected a connection, then this fader strip is free now, and its dot jumps outside the grid to the left.

**Protected Connections**

One or several connections can be protected by the administrator from being modified, even by users having access permission to the CHANNEL

ROUTING page. In such a case, a *dashed vertical line* is displayed for the corresponding input unit (channels 01, P, and R in the picture above).

### Input Units not Connected to a Fader Strip

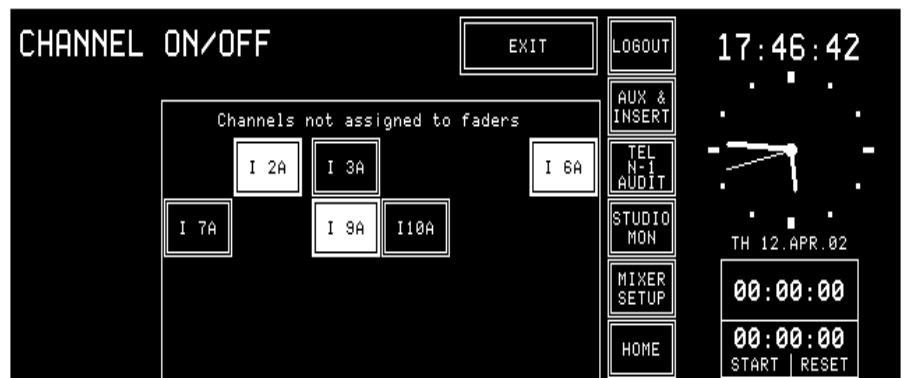
There are cases where the signals must be routed “to the background”, i.e., it is possible for input channels to be active, but without operating elements on the console surface, e.g. if the user deliberately decides that some input channels must be in the background.

All input channels currently routed to the background can be displayed in the CHANNEL ON/OFF page; this page is selected by touching CHN ON/OFF in the HOME page.

When routing an input unit signal to the background, the audio path remains open, and the audio passes through the console with the fader level set at the moment of routing the signal to the background. This can be used, for example, for input channels being controlled in the background by a broadcast automation system (e.g. DigiMedia) using the serial port. External MUTE control for the input channel is still available.

**Notes:** This could be dangerous for a new user taking over the console, or for un-experienced users. Therefore being in the HOME page, the HOME field toggles to CHN ON/OFF. When touching this field, the CHANNEL ON/OFF page is opened (see below), displaying all input channels not assigned to fader strips (i.e., being in the background); the highlighted ones are open for audio signals (“ON”). Now, the user can switch any input channel ON or OFF on this page directly by touching the corresponding field on the screen.

When the PFL function is active at the moment of routing an input channel to the background, it is automatically switched off.



When powering the console off and on again, the input channels in the background are always set to OFF, to prevent audio from being played out unintentionally.

**Auto Takeover** When a new channel routing is loaded or when a user logs in, the input unit-to-fader strip assignment is modified. In this moment, the audio level of an input signal may not correspond to the physical position of the new fader. As the OnAir 1000 does not feature motorized faders, in such a case the Auto Takeover LEDs indicate in which direction the fader knob has to be moved to “catch” the audio level and to get the signal under control again.

### 5.8.2 Recall a Channel Routing from Memory

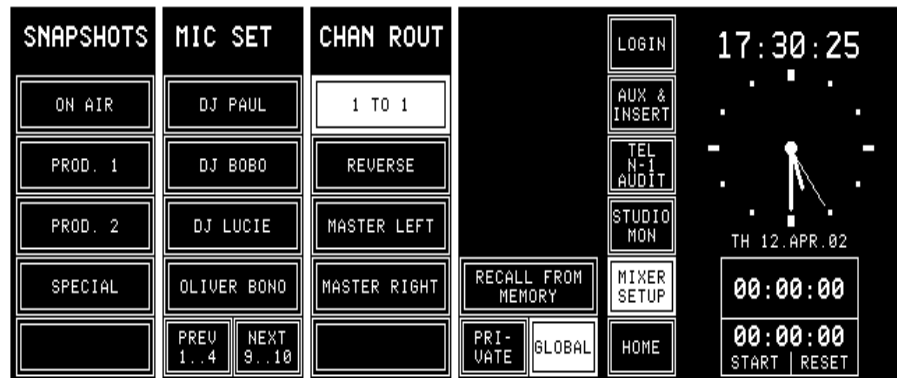
**Automatical Recall:** Every logged-in user has his own user channel routing that is loaded either automatically when logging-in, or manually. This is defined by customer code 0x00000200 (see chapter 11.2.11).

Usually it is easier to load the user-specific channel routing automatically at log-in; in some cases, however, the channel routing must not be changed (e.g. when the administrator makes some changes in a user domain).

When the console is switched on, the last channel routing (i.e. the one that was active before power off) is automatically loaded.

**Manual Recall:** A user can recall one of the five global channel routings or, when logged in, his own user channel routing at any time. This is done in the Mixer Setup page, either after selection of GLOBAL (up to five channel routings can be recalled by selecting one of them and touching RECALL FROM MEMORY), or PRIVATE (only one user channel routing can be recalled for logged-in users by selecting RECALL USER ROUTING).

When the console is switched on, the last channel routing (i.e. the one that was active before power off) is automatically loaded.



### 5.8.3 Save a Channel Routing to Memory

After having configured the channel routing as desired (see chapter 5.8.1), touch the APPLY field. The new channel routing is loaded to the work memory. When touching the EXIT field, the CHANNEL ROUTING page is left, and the user can work with the new channel routing. However, this routing is not yet stored in the user's profile. When the user logs out, the temporary channel routing is lost; if customer code 0x00000200 is set (see chapter 11.2.11), his original channel routing will be loaded when logging in the next time.

To store a modified channel routing within the user's profile, the SAVE TO USER PROFILE field has to be touched before exiting the page with EXIT.

**Note:** The system administrator can set and save his own user channel routing as described above.

For administrator setting and saving of global channel routings or user channel routings, please refer to chapter 5.8.5 and chapter 5.10.2.



### 5.8.4 Delete a Channel Routing from Memory (Administrator Only)

Previously stored channel routing data are overwritten when saving a channel routing, as described in [chapter 5.8.3](#).

For the administrator, it is also possible to delete a global channel routing *without* overwriting it by new data. To do this, first the desired channel routing has to be selected. The selected field is highlighted. After touching the DELETE MEM field, a dialog box will appear. If it is confirmed, the channel routing will be permanently removed from the memory, and the text within the selected field is cleared.

For more information on deleting global channel routings please refer to [chapter 5.10.2](#).

### 5.8.5 Channel Routing Administration

In addition to the user's own user channel routing, the administrator can save the current channel routing to one of the five globally-accessible channel routings. These can be recalled in the Mixer Setup page. The default and global channel routings can be saved or edited by the administrator; the default user's user routing can also be saved or edited by any user not logged-in (i.e. the default user), if access permission is given.

**Channel Routings:**

**User Channel Routing**

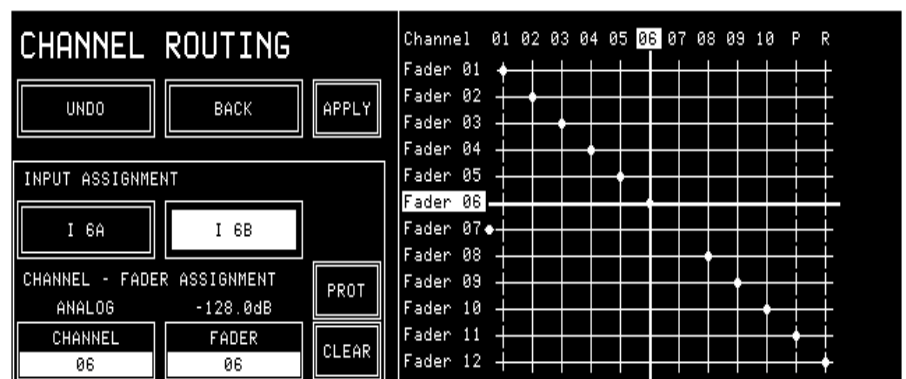
The procedure for the system administrator changing a user's channel routing is described in [chapter 5.10.2](#).

**Global Channel Routings**

Five globally accessible channel routings can only be created by the administrator, allowing users to set-up the channel routing for specific transmissions, e.g. news broadcasts or sports events. Users do not have access to the global channel routings configuration. However, access permission given, a user could load a global channel routing, edit it, and store it in his own user profile.

**Administrator Protection:**

The administrator can protect specific connections within the channel routing by selecting the desired cross-point with the horizontal and vertical lines, and then touching the PROT field. A protected connection is indicated by a dashed vertical line in the grid (see below); this connection cannot be changed by the users, even if they are allowed to change their channel routing. Only the administrator may UNPROT this connection again.



However, the user can change the input selection (A/B) of this input channel, if he has the INPUT SEL access permission.

## 5.9 Using PC-Cards

Snapshots, mic settings, and global channel routings can be saved to a PC-Card or loaded from the card into the console's flash memory. Using PC-Cards, parameter settings of a console can also be copied to an other console, provided that both have the same configuration.

A PC-Card with a capacity of 64 kB can hold about 20 snapshots.

**Notes:** Using PC-Cards, it is also possible to exchange snapshot, mic setting, and/or channel routing data between OnAir 1000, OnAir 2000, and OnAir 2000M2 consoles. However, some restrictions must be considered if the consoles have different hardware configuration (e.g. number of channels, number of fader strips, different input unit types).

*Only the administrator is allowed to load, save, and delete global channel routings from/to PC-Card.*

**File Name Extensions:** The three-character DOS file name extensions on the PC-Card will be generated automatically. The relationship between the file name extension and the file content is shown in the following table.

Data type	File name extension
Global snapshot	.gss
Private snapshot	.pss
Global mic setting	.mis
Private mic setting	.mip
Global channel routing	.gfm

### 5.9.1 Load a Snapshot/Mic Setting/Channel Routing from PC-Card

To load a snapshot, a mic setting, or a global channel routing from a PC-Card, touch MIXER SETUP followed by LOAD FROM CARD. The page below will be displayed (*please note that the CHAN ROUT area is only displayed for the administrator*). The USER FILTER allows to select different user's data with the fourth rotary encoder.



Snapshots, mic settings, or a global channel routing can only be loaded as long as there is sufficient empty space available in the console's flash memory; if not, some of them must be deleted first. They can be selected for loading by scrolling with the corresponding << or >> fields, followed by LOAD. After having loaded a snapshot, a mic setting, or a channel routing, it is not automatically active, but it is available in the Mixer Setup page and must be recalled with RECALL FROM MEMORY, as described in [chapters 5.6.1, and 5.7.1, or 5.8.2](#), respectively.

### 5.9.2 Save a Snapshot/Mic Setting/Channel Routing to PC-Card

To save a snapshot, a mic setting, or a channel routing to a PC-Card, first select a snapshot, a mic setting, or a channel routing in the Mixer Setup page. Then touch the SAVE CARD field. A keyboard appears for entering a file name (max. 8 characters, no dots, no spaces), as described in [chapters 5.6.2, 5.7.2, and 5.8.3](#).

After confirmation with ENTER, the snapshot, the mic setting, or the channel routing is saved on the card.

If an empty file name is entered or if EXIT is touched, the action is cancelled without saving anything to the PC-Card.

*Please note that only the administrator is allowed to save channel routings on the PC-Card.*

- Exceptions:**
- If the file name already exists on the PC-Card, the action must be confirmed before the file is overwritten.
  - If a user tries to store a file under a file name that is already existing but has been given by an other user, the existing file will (after confirmation) be overwritten; it will no more be visible for the initial user.
  - If the card is full, a dialog box appears, telling that the file cannot be saved.

### 5.9.3 Delete a Snapshot/Mic Setting/Channel Routing from PC-Card

To delete a snapshot, a mic setting, or a channel routing from the PC-Card, DELETE CARD must be touched. The page below is displayed; (*please note that the CHAN ROUT area is only displayed for the administrator*).



A snapshot, a mic setting, or a channel routing can be selected for deleting by scrolling with the corresponding << or >> fields. The selected file and the snapshot, mic setting, or channel routing names contained in this file are displayed to the right of the << / >> fields. When touching DELETE, the console asks for confirmation. After confirmation, the file is deleted permanently. *Once deleted, the data cannot be recovered.*

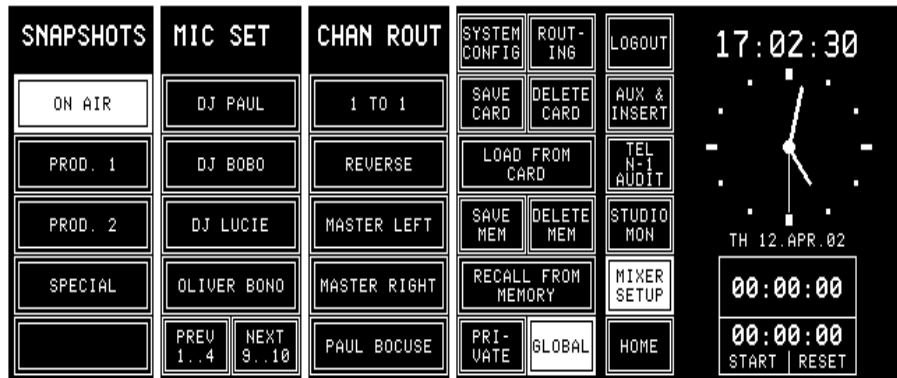
A user can only delete his own, private data from the card. The administrator, however, has access to all (global and private) files on the card. Depending on what selection the administrator has made in the Setup page, either only the global or only the private files are displayed for him.

The DELETE FROM PC-CARD page remains until either EXIT or one of the main menu fields is touched.

## 5.10 Administrator

### 5.10.1 Features

- The administrator has access to *all* private and global snapshots, mic settings, and channel routings.
- *The administrator has no private snapshots or mic settings, but one user channel routing.*



The administrator's Mixer Setup page is shown above. In this case all SAVE, DELETE, RECALL, and LOAD actions correspond to *global* snapshots, mic settings, and channel routings.

When the administrator touches the PRIVATE field and selects one of the users, he can modify the private settings of this user (see [chapter 5.10.2](#)).

**Summary:**

The displayed private snapshots, private mic settings, and user channel routing depend on the user logged-in to the console; global snapshots, global mic settings, and global channel routings are the same for all users. When a user is not logged-in, i.e. he has not entered any password, he is automatically treated as the default user. The default user, too, has private settings; these will, however, not be password-protected, so they can be overwritten by any other user which is *not* logged-in to the console. Global parameter settings can be recalled by any user, but modified by the system administrator only.

Access Rights:	Global Snapshots	Private Snapshots	Global Mic Settings	Private Mic Settings	Global Channel Routings	User Channel Routings
Administrator	read/write	read/write*	read/write	read/write*	read/write	read/write
Logged-in user, default user	read	read/write	read	read/write	read	read/write

\* The administrator can read and write the private snapshots and mic settings of any user, but he has no own snapshots or mic settings.

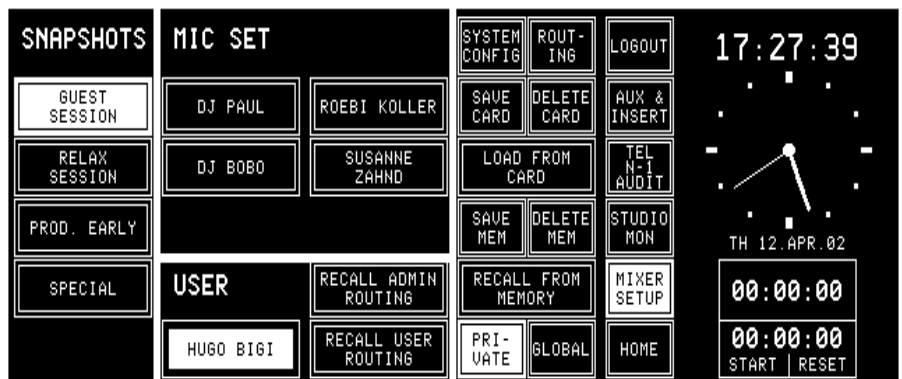
Number of Parameter Sets:			
Data Type	Number	Multiplied by	Total Data Records
Global snapshots	5	1	5
Global mic settings	10	1	10
Global channel routings	5	1	5
Private snapshots	4 per user	20	80
Private mic settings	4 per user	20	80
User channel routings	1 per user	22	22

### 5.10.2 Admin Selection of Snapshots/Mic Settings/Channel Routings

The system administrator can display and modify the private snapshot, mic setting, and channel routing data of any user.

This feature has been implemented in order to enable the setting of parameters in a private snapshot, mic setting, or channel routing to which the particular user has no access. All actions, such as RECALL FROM MEMORY, SAVE (to) MEM, DELETE (from) MEM, LOAD FROM CARD, SAVE (to) CARD, and DELETE (from) CARD, concern the selected user's data. No other actions on the console can be affected.

**Snapshots and Mic Settings:** After selecting PRIVATE in the Mixer Setup page, the second rotary encoder from the left (the one below the user's name label) allows to select the user's name. In this mode the system administrator can LOAD, RECALL, SAVE, or DELETE all the data being displayed.



**Channel Routing:** With RECALL USER ROUTING, the system administrator can activate the user channel routing of the user selected with the rotary encoder. With RECALL ADMIN ROUTING he activates his own user channel routing.

The procedure for changing a user's channel routing is as follows:

- Log-in as administrator,
- touch MIXER SETUP,
- SYSTEM CONFIG,
- USER ADMIN,
- select the desired user,
- touch EDIT,
- SET CHANNEL ROUTING,
- modify the channel routing,
- touch BACK,
- SAVE,
- EXIT.

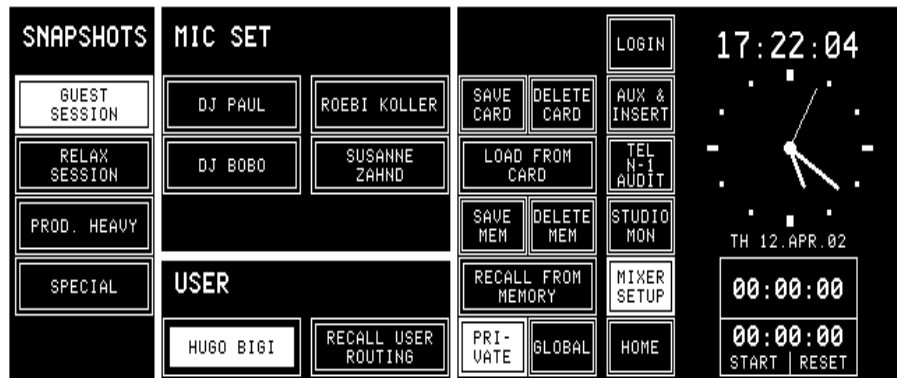
**5.10.3 Users with and without a Password**

When a normal user enters the Mixer Setup page before logging-in (which means he is treated as the *default user*), he works with the default user's data. He can LOAD, RECALL, SAVE, or DELETE all of the default user's data in the console's memory or on the PC-Card. These data can, however, be used, saved, overwritten, or deleted by any other user who is not logged in.

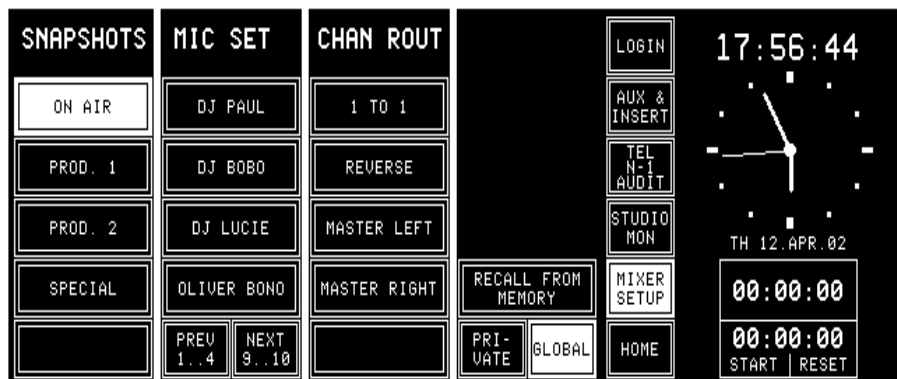
The Mixer Setup page offers a PRIVATE field next to the GLOBAL field, allowing the user – after having logged-in – to access his own, protected private snapshots and mic settings.

A user can recall his user channel routing in the Mixer Setup page, after selection of PRIVATE (only one user channel routing can be recalled by selecting RECALL USER ROUTING); for more information on this subject please refer to [chapter 5.8.2](#).

Should the user have access permission to the system configuration and/or channel routing, the corresponding SYSTEM CONF./ROUTING fields would be displayed here as well.



A user can decide to work with the global data although he is already logged-in. If the GLOBAL field is touched, the Mixer Setup page will look as shown below, where he can recall (but not modify) the global snapshots, mic settings, and channel routings; the CHAN ROUT area is suppressed if no global channel routings are available. Should the user have access permission to the system configuration and/or channel routing, the corresponding SYSTEM CONF./ROUTING fields would be displayed here as well.



## 5.11 User Administration



USER ADMINISTRATION is only accessible for the system administrator. Refer to [chapter 10](#) for details on how to set up function access permission and new user accounts.

## 5.12 System Configuration

System configuration is a separate function group that can be accessed only by the system administrator or by users having access permission. It is separately described in detail (refer to [chapter 11](#)).

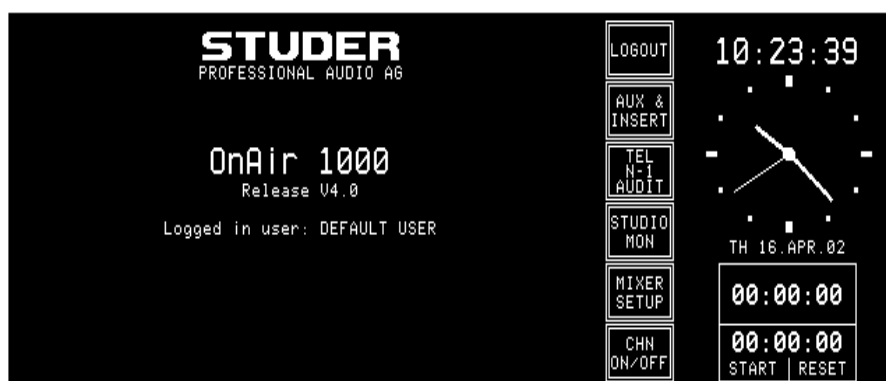
## 5.13 Watch and Stopwatch

The watch and stopwatch functions are displayed on the right-hand side of the touch-screen (except when the keyboard or routing pages are active).

The term “watch” refers to the time-of-day in analog and digital format, the day-of-week, and the date in an abbreviated format.

The term “stopwatch” refers to both the fader and the user stopwatches. The fader stopwatch measures the time the most recently used channel fader has been opened. The user stopwatch works like a normal stopwatch with START/STOP and RESET keys located directly below the touch-screen.

Below, the HOME page with the watch and stopwatch displays and functions is shown.



### 5.13.1 Watch

The watch gives a time, day-of-week, and date display. The default time reference is an internal, battery-buffered real-time clock (RTC). The RTC continues to run even when the console is switched off. Therefore it is unnecessary to set the watch at power-up. The RTC can also be synchronized by the time signal fed to the TimeSync input connector. If synchronization is established, the top right corner of the touch-screen shows a small “S” (Sync OK).

Changes to the internal time reference and the time and date formats can be made by the system administrator on the TIME page (MIXER SETUP, SYSTEM CONFIG., TIME). For details, refer to [chapter 11.2.5](#).

Both time and date can be displayed in two formats, as shown below:

Time Format	Digital Time Indication
05:00:00 p.m.	12 hour time format
17:00:00	24 hour time format
Date Format	Example
DD.MMM.YY	MO 20.MAR.02
MMM-DD-YY	MO MAR-20-02



### 5.13.2 Fader Stopwatch

The upper one of the two stopwatches is called the fader stopwatch. It always restarts at 00:00:00 when a new audio channel is activated (e.g. channel ON, fader open, and output bus selected). In other words, it displays the elapsed time of the audio channel opened last.

This function can be enabled or disabled for any desired audio channel via the MIXER SETUP/SYSTEM CONFIG./INPUT menu, item TIMER START YES/NO.

The counter stops when the audio channel that started the stopwatch is switched OFF, or its fader is closed.

**Note:** If more than one audio channel has caused the fader stopwatch to restart, only the last audio channel's time is displayed.

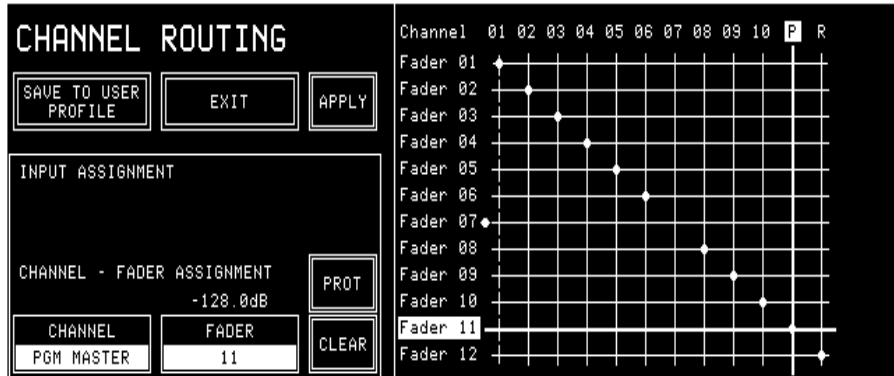
### 5.13.3 User Stopwatch

The user stopwatch is located just below the fader stopwatch. It is controlled by two keys on the console's surface located below the digits of the display. One key starts and stops the timer, the other resets the timer.

Key	Label	Description
	START	Start timer if stopped
	STOP	Stop timer if running
	RESET	Reset timer regardless whether stopped or running

## 5.14 PGM and REC Master Faders

The console provides two master faders (PGM, fader no. 11, and REC, fader no. 12) located on the far right of the CHANNEL ROUTING page (“P” and “R”). Their assignment is fixed, they cannot be re-assigned to input channels.



**Specifications:**

- In the audio path, the master faders are located before the insert points (also refer to the block diagram in [chapter 1](#)). If an insert is assigned to one of the master outputs, the corresponding IN1 or IN2 LED is on;
- No ON/OFF function is available for the master outputs;
- PFL function is not available;
- Overload indication is available;
- Master level can be controlled by Monitors extended commands;
- Signaling (ON-AIR, CR-MIC, and STUDIO-MIC) as well as CR/Studio CUT/DIM are logically linked to the master faders.

### 5.14.1 Fixed Master Levels

If only fixed levels of the PGM and/or REC master output signal(s) are required, it is possible to enter these levels in the DEFAULT MASTER LEVEL window on the COMMON SETTINGS page in a -7...+5 dB range. The fixed level for a master output becomes active when the corresponding master fader is disabled by selecting CLEAR in the CHANNEL ROUTING page. For re-enabling, the CLEAR field then changes to SET.


















**Important:** *This setting directly affects the level of the main output signals. Please be careful when changing this parameter.*



## 6 MONITORING


### 6.1 Control Room Monitoring

The CR monitoring source selector has 10 keys to select one out of six internal and four analog external sources. The key of the selected source is illuminated.

Key	Source	Description
	Auxiliary 2	General purpose output bus. AUX2 is illuminated if selected.
	Auxiliary 1	General purpose output bus. AUX1 is illuminated if selected.
	Audition	General purpose output bus. The input channels to the audition bus are configurable. AUDIT is illuminated if selected.
	Record output	Output signal of the record master output. ΣREC is illuminated if selected.
	Program output (on-air)	Output signal of the on-air master output. ΣPGM is illuminated if selected.
	PFL	PFL sum. PFL is illuminated if selected.
	External 3	General purpose analog stereo input signal. EXT3 is illuminated if selected.
	External 2	General purpose analog stereo input signal. EXT2 is illuminated if selected.
	External 1	General purpose analog stereo input signal. EXT1 is illuminated if selected.
	Off-air	General purpose analog stereo input signal (e.g. tuner). OFF AIR is illuminated if selected.
    	Function keys F1 to F5	Spare keys for future functions.

Two additional keys are used to control the monitoring loudspeakers in the control room. The functions of these keys are described in the table below.

Key	Function	Description
	-20 dB	The output level to the CR monitor loudspeakers is reduced by 20 dB. DIM is illuminated if selected.
	Mute	The output to the CR monitor loudspeakers is muted. CUT is illuminated if selected.

A volume control knob (MON ) is used to set the level sent to the CR monitor speakers.

As long as one of the microphones in the control room (DJ or guest microphone) is on, the monitor speakers are muted. In this case the CUT key is illuminated.

If the monitoring source is AUDIT (audition bus), the monitor speakers are either dimmed (DIM key illuminated), muted (CUT key illuminated), or not affected at all, according to the configuration (see [chapter 11.2.2](#) for details).




If talkback is active, the level of the monitor speakers is dimmed by 20 dB and the DIM key is illuminated.

**External CR DIM:**

Provided that the corresponding Customer Code has been activated, an additional control input signal on the “SIGN.” connector allows to reduce the level of the CR monitor speakers by 20 dB (refer to [chapters 11.2.11 and 14.11](#) for details).


The signal on the PFL bus is reproduced by the console’s built-in speaker. The same speaker is used for talkback. The volume is adjusted with the PFL/TB potentiometer.

For monitoring purposes, a headphones connector is provided on the left side below the hand rest of the console. Three keys allow different monitoring modes, as described below:

Key	Function	Description
	PFL	The headphones signal is the stereo PFL signal. PFL is illuminated if selected.
	PFL/CR monitor	The left headphones signal is the mono PFL signal, while the right headphones signal is the mono CR signal as selected by the monitor source selector. If no PFL is selected, the headphones signal is the stereo CR signal as selected. MON/PFL is illuminated if selected.
	CR monitor	The headphones signal is the same stereo signals as selected by the source selector for the monitor speaker. MON is illuminated if selected.

The CUT and DIM keys have no effect on the headphones signal. The headphones output is not muted if one of the control room microphones is on. The incoming talkback signal from the studio is mixed to the headphones output. For improved intelligibility, the monitoring signal is attenuated by 20 dB.

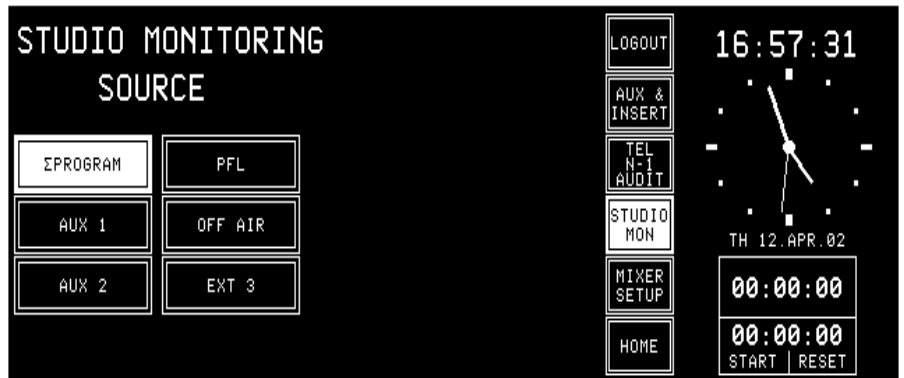
The PFL to MONITOR function feeds the PFL signal to the monitor loudspeakers, if PFL is selected on any channel. The normal monitoring signal is muted for as long as any PFL keys are active.

Key	Function	Description
	PFL to MONITOR	The PFL signal is routed to the monitor speakers if PFL on any channel is active. If no PFL is selected, the monitoring signal is the stereo CR signal as selected. PFL > MON is illuminated if active.

A volume control knob (PHONES ) adjusts the headphones listening level.

## 6.2 Studio Monitoring

The built-in studio monitoring functions are based on a touch-screen menu on the control screen. The STUDIO MONITORING SOURCE page allows one of six sources to be selected for routing to the studio speakers and headphones.



The table below lists the available sources.

Label	Function	Description
ΣPROGRAM	Program output (on-air)	Output signal to the transmitter. ΣPROGRAM is highlighted if selected.
AUX 1	Auxiliary output 1	General purpose output sum. AUX1 is highlighted if selected.
AUX 2	Auxiliary output 2	General purpose output sum. AUX2 is highlighted if selected.
PFL	Pre-fader listening output	PFL sum. PFL is highlighted if selected.
OFF AIR	External Off-air input	General purpose input signal, usually from receiver. OFF AIR is highlighted if selected.
EXT 3	External input	General purpose input signal. EXT 3 is highlighted if selected.

As soon as one of the fields is touched, the corresponding signal is routed to the studio, and the field is highlighted.






The monitoring source selection can be controlled from the studio via external pushbuttons thanks to the parallel interface. The monitor speaker and headphones levels can independently be controlled by two potentiometers located in the studio.

The studio monitoring speakers are muted if one of the studio microphones is on. The headphones are not muted in this case.

During talkback from the CR to the studio, the volume for the studio speakers is reduced by 20 dB. The talkback signal from the CR to the studio is not reduced and has therefore the normal listening level on both the studio monitor speakers and the studio monitor headphones.

## 6.3 Talkback

There is a choice among five talkback destinations from any control room (CR) microphone. A key is assigned for each destination as can be seen in the table below.

Key	Function	Description
	TB to Telephone 2	The connection between DJ mic and Clean-feed B (N-1B, e.g. telephone 2) is established for as long as this key is pressed.
	TB to Telephone 1	The connection between DJ mic and Clean-feed A (N-1A, e.g. telephone 1) is established for as long as this key is pressed.
	TB to Auxiliary 2	The connection between DJ mic and Auxiliary 2 is established for as long as this key is pressed.
	TB to Auxiliary 1	The connection between DJ mic and Auxiliary 1 is established for as long as this key is pressed.
	TB to Studio	The connection between DJ mic and the Studio is established for as long as this key is pressed.

Any microphone in the control room, including the integrated TB microphone, can be the CR microphone, if “TB SOURCE” is set to “CR” in the INPUT CONFIG. page.

The console’s built-in PFL/TB loudspeaker and the headphones are used for talkback listening in the CR, while in the studio the monitoring speakers and the headphones are used.

The parallel studio interface on the “STUDIO MON CTRL” connector allows the connection of three pushbuttons for talkback target selection. The possible targets are: CR, Clean-feed 1 (N-1 A/TEL1), and Clean-feed 2 (N-1 B/TEL2). For talkback from the studio, the studio microphones are used (“TB SOURCE” is set to “STUDIO”).

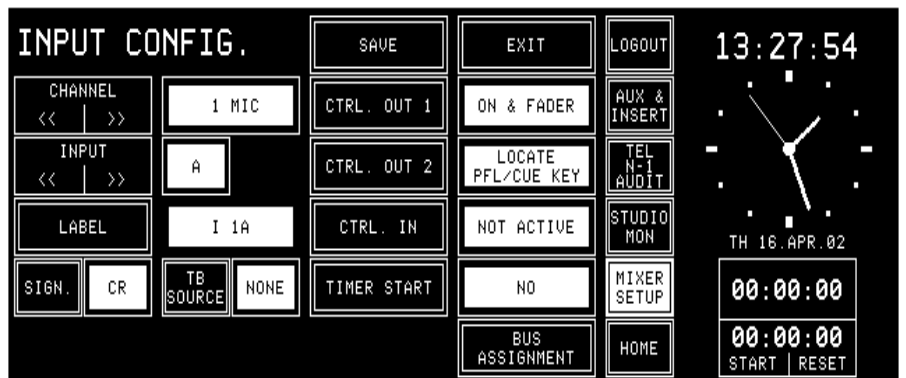
An additional, electronically balanced talkback line input on the “STUDIO MONITOR (AUDIO) B” connector as well as additional talkback to CR and to studio control inputs (on the “EXT PFL CTRL” connector) are provided.

Please refer to the pin assignment tables and the connection diagrams in [chapter 14.11](#).

### 6.3.1 Talkback Settings

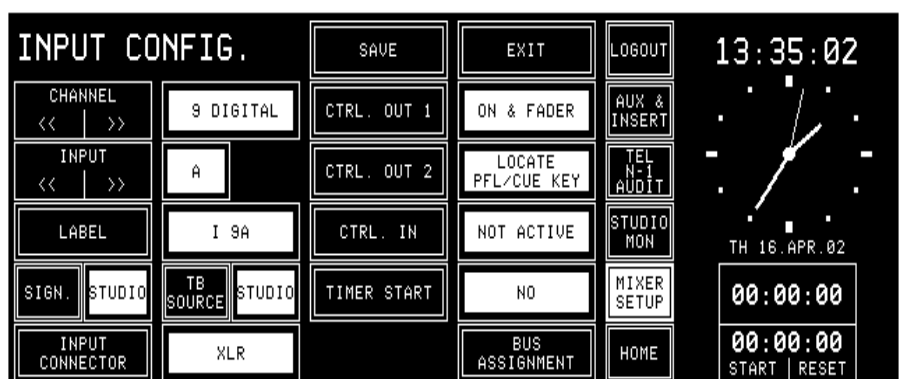
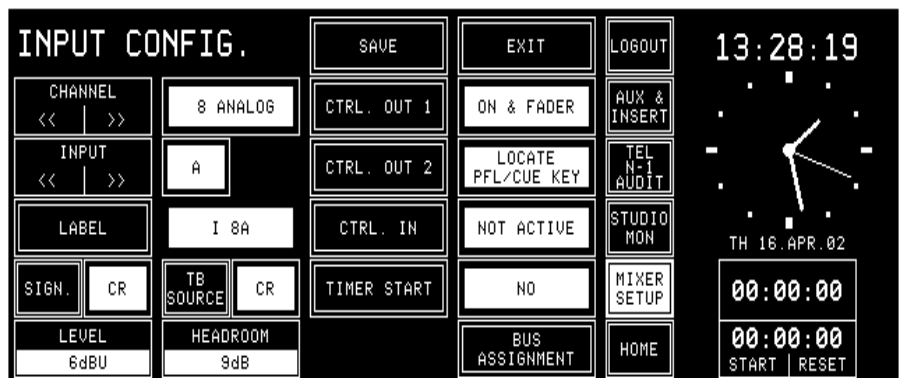
Signaling and talkback can be configured independently. The “SIGN.” setting in the INPUT CONFIG. page is used only for signaling (red light) and monitoring (cut and dim).

The “TB SOURCE” parameter in the INPUT CONFIG. page sets the assignment of the talkback source, i.e. the input channel to the TB bus (NONE, from CR, or from Studio).

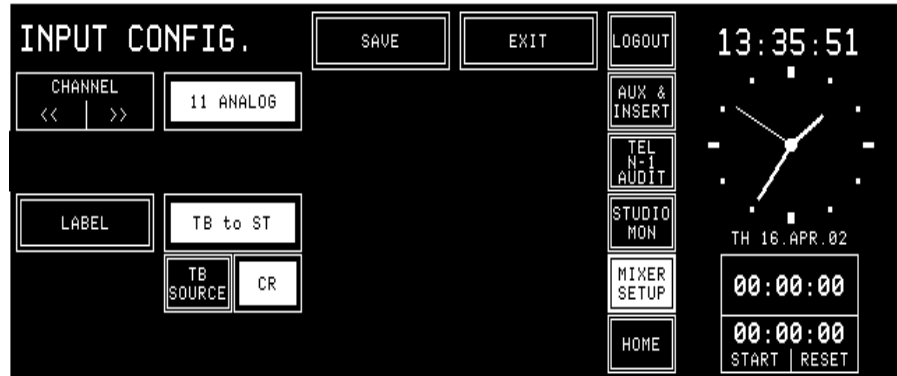


During talkback from the Studio, the studio speakers are dimmed only if at least one input channel is configured as “SIGN.” = STUDIO and “TB SOURCE” = STUDIO. The same applies for talkback from the control room.

**Note:** Configuration of talkback and signaling is also possible for analog line or digital input channels as well as for a TB mic input channel, as shown by the following screenshots.




For deactivating the internal TB microphone and activating the external TB mic inputs, the INPUT CONFIG. page for the channels 11 and 12 is used:



## 6.4 External PFL

The OnAir 1000 provides an external PFL audio input. If the EXT PFL key is pressed, the key is illuminated, and the signal at the EXT PFL input (EXTERNAL MONITOR INPUT A connector) is routed to the PFL bus. A control output is activated if EXT PFL is active. In addition, the EXT PFL function can be activated by a dedicated control input on the EXT PFL CTRL connector (refer to [chapter 14.11](#)).

With this feature, the OnAir 1000 is well-suited for the integration with a broadcast automation (CAB, computer-assisted broadcasting) system. These systems need a separate PFL input that can be activated by the CAB system itself.

Key	Function	Description
	External PFL	Switches the EXT PFL OUT control output on and off, and routes the EXT PFL audio input signal to the PFL bus. The key is illuminated if active, or if a control signal is applied to the EXT PFL input.



## 7 SIGNALING

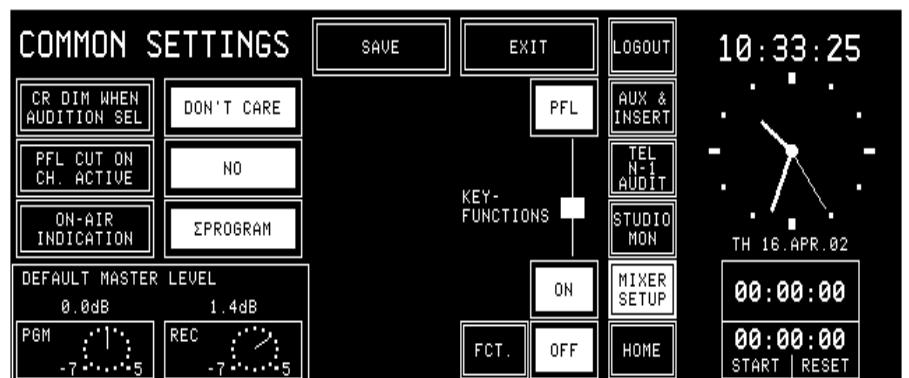
For control room and studio, signaling is provided by means of open-collector outputs (9-pin D-type connector “SIGN.” on the rear of the console; for connection details, refer to [chapter 14.11](#)).

One output is available for each of the following statuses:

- Control Room microphone is on-air,
- Studio microphone is on-air, and
- Any signal from the console is on-air (i.e., a fader is open, this channel's ON key is active, its signal is routed to the PROGRAM and/or the RECORD bus, and, if configured, the corresponding master fader is open).

The CR-MIC and STUDIO-MIC indicators in the monitoring section of the console are illuminated when the corresponding control output is active.

SIGN. Output	Active if:
CR MIC OUT	At least one input channel of a CR or DJ microphone is active (channel ON, fader open, assigned to program or record bus, corresponding master fader open).
STUDIO MIC OUT	At least one input channel of a studio microphone is active (channel ON, fader open, assigned to program or record bus, corresponding master fader open).
PGM OUT	Depending on ON-AIR INDICATION condition selected in the COMMON SETTINGS page: <ul style="list-style-type: none"> <li>• <math>\Sigma</math>PROGRAM AND <math>\Sigma</math>RECORD – at least one input channel is active (channel ON, fader open, assigned to program or record bus, corresponding master fader open).</li> <li>• <math>\Sigma</math>PROGRAM – at least one input channel is active (channel ON, fader open, assigned to program bus, PGM master fader open).</li> <li>• <math>\Sigma</math>RECORD – at least one input channel is active (channel ON, fader open, assigned to record bus, REC master fader open).</li> </ul>



The ON AIR INDICATION condition for the PGM OUT control signal can be set in the COMMON SETTINGS page (reached by touching MIXER SETUP followed by COMMON), if access permission is available.

An additional ON AIR IN opto-coupler input on the SIGN. connector can be used for illuminating the ON-AIR indicator in the monitoring section of the console.

**Note:** For information on the DEFAULT MASTER LEVEL window on the COMMON SETTINGS page, please refer to [chapter 5.14.1](#).



## 8 MACHINE CONTROL

The OnAir 1000 provides different control inputs and outputs. These can be used e.g. for switching an input channel on and off, or for starting, stopping, and cueing of the connected source unit (as CD/cartridge/MD players, tape recorders, or a CAB system). The control inputs and outputs are input channel-related and are re-assigned together with the input channel signal to the respective fader strip if the channel routing is changed.

Each audio input holds two control outputs and one control input on D-type connectors. The signals are:

- CTRL OUT 1 (normally used for fader start, but configurable for other functions; see [chapter 8.2.1](#))
- CTRL OUT 2 (configurable functions see [chapter 8.2.2](#))
- CTRL IN (configurable functions see [chapter 8.3.1](#))

The status of the output signals depends on the control elements of the fader strip (keys 1 to 3, fader, input selection, channel routing, and output bus assignment), as well as on the console configuration.

Each input channel has two physical audio inputs, each of them with own control input and two control outputs, allowing to control every external source separately.

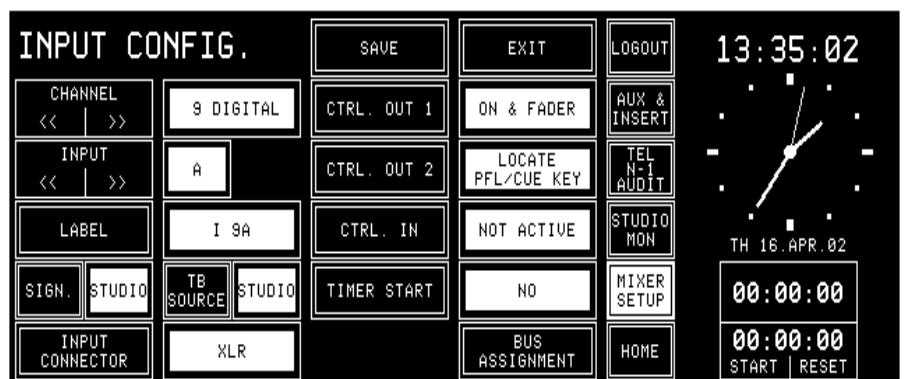
### 8.1 Keys and LEDs

#### Key 1/LED 1



The first key (labeled “PFL”) is always used to activate/deactivate the PFL function; if active, LED 1 is illuminated.

The PFL function can affect the CTRL OUT1 and/or CTRL OUT2 control signals, depending on the configuration. This configuration is performed in the center part of the INPUT CONFIG. page and is identical for all types of input units.



#### Key 2/LED 2

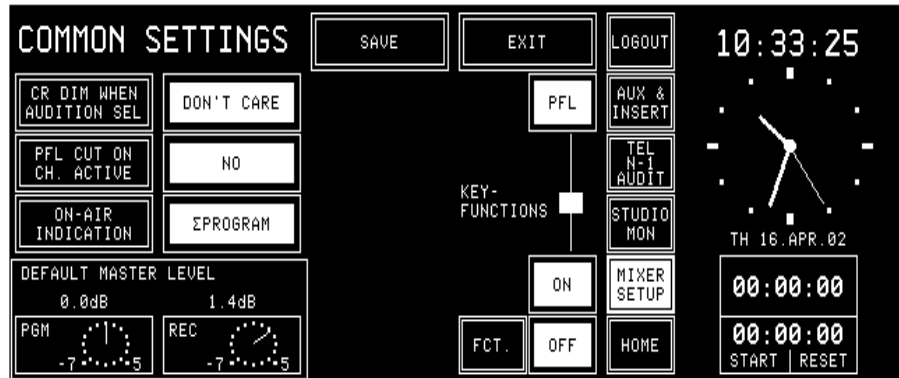


The second key (labeled “ON”) is used either to switch the input channel ON or to toggle the input channel ON/OFF, depending on the configuration of key 3. This function affects the CTRL OUT1 control signal. LED 2 always indicates the input channel's ON/OFF status.

**Key 3/LED 3**



The functionality of the third key (labeled “OFF”) depends on the console configuration. It can act as channel OFF key or trigger a LOCATE function. The key 3 functionality is set in the COMMON SETTINGS page:



Console configuration (valid for all channels):	
Key 3 (“OFF”) function	Key 2 (“ON”) function
(Channel) OFF	(Channel) ON
LOCATE	(Channel) ON/OFF
LOCATE	(Channel) ON *

Channel ON/OFF affects the CTRL OUT1 control signal of the selected input channel, and the LOCATE function defines the status of the CTRL OUT2 control signal of the selected input channel.

- \* To protect a channel from being switched off inadvertently, the OFF function can be disabled. This setting is performed in the COMMON SETTINGS page; *it is valid for all channels of the console simultaneously.*
- Note:** If this setting is selected, no input channel can be switched off by pressing a key – therefore, either closing the fader must do, or an external pushbutton per input channel has to be added. For this purpose, a CTRL IN control input per input channel is provided; please refer to [chapter 8.3.1](#). Select the option “CTRL. IN – EXT. ON/OFF” in the INPUT CONFIG. page.

LED 3 is illuminated if an external device indicates ready status using the CTRL IN input signal of the selected input channel, or if the CAB system indicates “ready for playback” via the serial interface (“Monitora” protocol, refer to [chapter 9](#)).

## 8.2 Control Outputs

### 8.2.1 CTRL OUT1

This open-collector output is normally used to start external devices, such as CD players or a CAB system, to play the next track. On the INPUT CONFIG. page (see [chapter 8.1](#)), other functions can be assigned individually for each audio input.

Input configuration (for each channel individually):	
CTRL OUT1 mode	CTRL OUT1 signal
NOT ACTIVE	Output always open (inactive).
PFL/ON & FADER	Active if either PFL key is pressed (independent of fader position), or if ON key is pressed and fader is open (fader start function, causing the source to be started as well when PFL key is pressed).
ON & FADER	Active if ON key is pressed and fader is open (standard fader start function).
ON LAMP	Active if input channel is ON; used as acknowledgement if the input channel is remotely controlled.

### 8.2.2 CTRL OUT2

This open-collector output can be used to re-park an external device, such as a CD player, after cueing, or for signaling, or as an acknowledgement for ON status. It can be configured individually for each input in the INPUT CONFIG. page (see [chapter 8.1](#)).

Input configuration (for each channel individually):	
CTRL OUT2 mode	CTRL OUT2 signal
NOT ACTIVE	Output always open (inactive).
LOCATE KEY	Active if key 3 ("OFF", configured as LOCATE key) is pressed while the channel is closed (fader closed or channel OFF). Using this function, a source that has been pre-listened before can be reset to the start point.
PREVIEW	Active as long as key 1 ("PFL") is pressed while the channel is closed (fader closed or channel OFF). Using this function, a source can be started for pre-listening.
LOCATE PFL KEY	Active for approx. 0.3 s when key 1 ("PFL") is switched off while the channel is closed (fader closed or channel OFF). Using this function, a source can be given a locate command to return to the start point.
LOCATE PFL / LOC KEY	Combination of the LOCATE KEY and LOCATE PFL KEY functions: <ul style="list-style-type: none"> <li>Output is active for approx. 0.3 s when key 1 ("PFL") is switched off while the input channel is closed (fader closed or channel OFF). Using this function, a source can be given a locate command to return to the start point.</li> <li>Output is active if key 3 ("OFF", configured as LOCATE key) is pressed while the input channel is closed (fader closed or channel OFF). Using this function, a source that has been pre-listened before can be reset to the start point.</li> </ul>
ATTENTION	Active as long as key 3 ("OFF", configured as LOCATE key) is pressed; can be used for "ready" signaling.
ON LAMP	Active if input channel is ON; used as acknowledgement if the channel is remotely controlled.
FADER STOP_PULSE	Generates a fader start pulse (approx. 0.2 s) at CTRL OUT 1 and a fader stop pulse (approx. 0.3 s) at CTRL OUT 2, but only if CTRL OUT 1 is configured as ON & FADER or PFL/ON & FADER.

## 8.3 Control Inputs

### 8.3.1 CTRL IN

A CTRL IN control input is available for each audio input channel. This input channel's function can be selected in the INPUT CONFIG. page (see [chapter 8.1](#)).

Input configuration (for each channel individually):	
CTRL IN mode	CTRL IN signal
NOT ACTIVE	No function (input signal is ignored)
READY	Key 3 ("OFF") is illuminated as long as CTRL IN is active
EXT. MUTE	Input channel is muted as long as CTRL IN is active (e.g. cough key)
EXT. ON/OFF	Toggles the channel ON/OFF; used e.g. for ON/OFF button on speaker's desk, or for remote control through CAB system

**Note:** An optional, external control interface (1.942.803.xx) can be used for the following functions of a single input channel:

- Electrical isolation between CTRL OUT and the connected source (relay with make contact);
- Conversion from the continuous fader start signal to electrically isolated start and stop pulses;
- Remote control of an input channel using separate ON and OFF keys, logically linked with the ON LAMP signal. The ON and OFF keys in the console remain functional;
- Remote control of an input channel through a CAB system sending a continuous control signal as long as an input channel must be on, logically linked with the ON LAMP signal. The external command is overridden by the ON and OFF keys in the console.

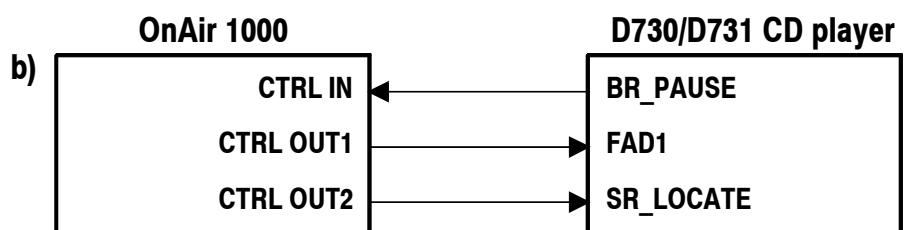
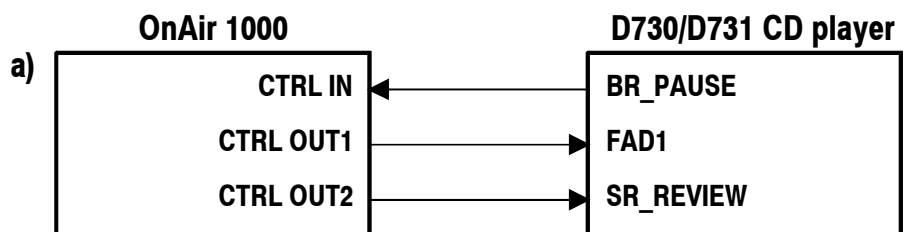
Additional information on this interface can be found in the circuit diagrams chapter of the OnAir 1000 Service Manual.

### 8.3.2 EXT PFL Input

An external PFL control input is available on the "EXT PFL CTRL" connector at the rear of the console (refer to [chapter 14.11](#)). It allows e.g. to open the EXT PFL pre-listening audio path by a CAB system.

### 8.4 CTRL OUT1/2 & CTRL IN Application Examples

Application	Configuration CTRL OUT1; see Note 4	Configuration CTRL OUT2; see Note 4	Configuration of key 3 ("OFF"/LOCATE); see Note 4	Connection(s) OnAir 1000 → controlled source (e.g. CD player, cart/tape recorder)
Fader start/stop with: Fader open/close, or channel ON/OFF	ON & FADER	—	—	CTRL OUT1 → remote control input "fader start"
Fader start/stop with: Fader open/close, or channel ON/OFF, or PFL ON/OFF	PFL / ON & FADER	—	—	CTRL OUT1 → remote control input "fader start"
Review function of Studer D730/D731: pre-listening with PFL and subsequent locate to the last cue address. Afterwards: PLAY with fader start; <b>see Notes 1 and 2</b>	ON & FADER	PREVIEW	—	CTRL OUT2 → Studer D730/D731, remote control input "SR_REVIEW"; <b>see fig. a)</b>
Pre-listening with PFL and subsequent locate to the start; console sends an 0.2 s locate pulse on CTRL OUT2. Afterwards: PLAY with fader start; <b>see Note 1</b>	PFL / ON & FADER	LOCATE PFL KEY	—	CTRL OUT1 → remote control input "fader start", CTRL OUT2 → remote control input "locate"; <b>see fig. b)</b>
Manual locate to the start, using OFF/LOCATE key 3; <b>see Note 1</b>	—	LOCATE KEY	LOCATE	CTRL OUT2 → remote control input "locate"; <b>see fig. b)</b>
Pre-listening with PFL and subsequent locate to the start. Manual locate also available; <b>see Note 1</b>	PFL / ON & FADER	LOCATE PFL / LOC KEY	LOCATE	CTRL OUT1 → remote control input "fader start"; CTRL OUT2 → remote control input "locate"; <b>see fig. b)</b>
Fader start pulse and fader stop pulse (on different control outputs)	ON & FADER or PFL / ON & FADER	FADER STOP PULSE	—	CTRL OUT1 → fader start pulse, CTRL OUT2 → fader stop pulse; used for any remote control input using pulses instead of a static signal
Control of any external signal with key 3 ("OFF")	—	ATTENTION	LOCATE	CTRL OUT2 → any control input
Reflects the ON lamp status to CTRL OUT1	ON LAMP	—	—	CTRL OUT1 → any control input
Reflects the ON lamp status to CTRL OUT2	—	ON LAMP	—	CTRL OUT2 → any control input
<p><b>Note 1:</b> Function is available only if the corresponding console channel is <b>not</b> active; "channel active" = fader open <b>and</b> channel ON <b>and</b> channel assigned to PGM or REC bus.</p> <p><b>Note 2:</b> D730/D731 configuration checksum example, suited for this function: <b>4050631164470</b>. For more information on this subject, please refer to the D730/D731 operating instructions manual, order no. 10.27.1672</p> <p><b>Note 3:</b> Combination of different applications is possible if allowed by the CTRL OUT1/2 wiring.</p> <p><b>Note 4:</b> <i>DO NOT change the settings while any of the control output signals is active!</i></p>				







## 9 AUTOMATION

### 9.1 Introduction

The OnAir 1000 supports external CAB (computer-assisted broadcasting) systems. A serial interface (RS232/RS422) is used for communication with the CAB system.

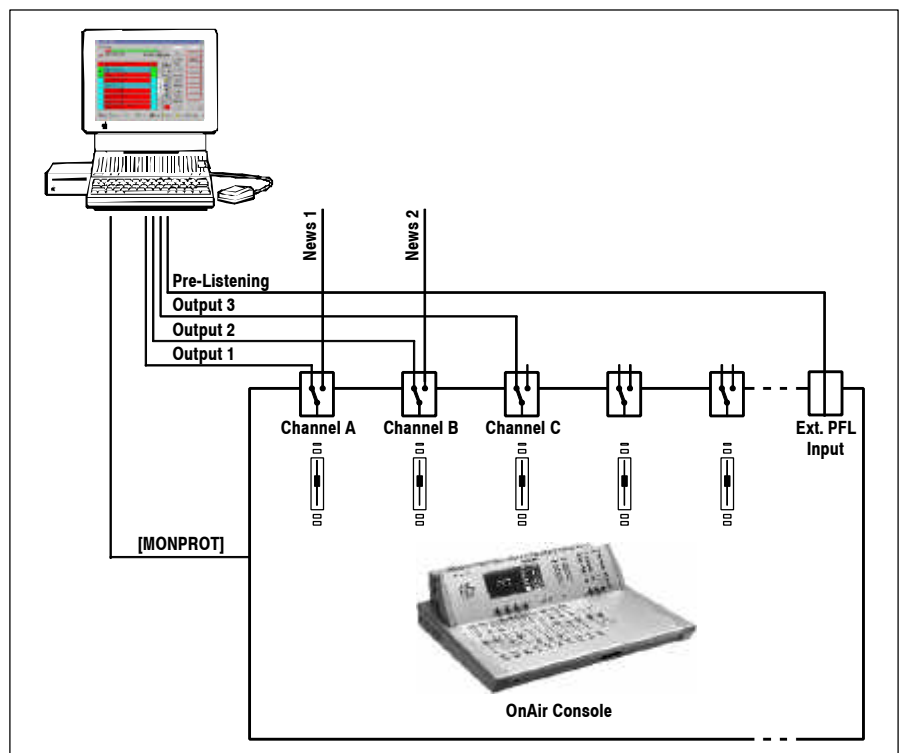
**Studer DigiMedia:** Information on how to connect and operate the OnAir 1000 mixing console with a DigiMedia CAB system is given in the current DigiMedia operating instructions.

The serial interface protocol is based on the “Schnittstellen-Spezifikationen Regiepult” of DSA (Digitale Steuerungs- und Automations-technik, Thomas Volgmann) furthermore called [MONPROT], which was defined by VCS and Siemens.

The implementation in the OnAir 1000 is a subset of [MONPROT].

*For detailed information on the telegrams implemented in the OnAir 1000, please refer to the “Communication Protocol for Broadcast Automation” document [BCACOM] (available on request).*

### 9.2 Features of the OnAir 1000 CAB Support

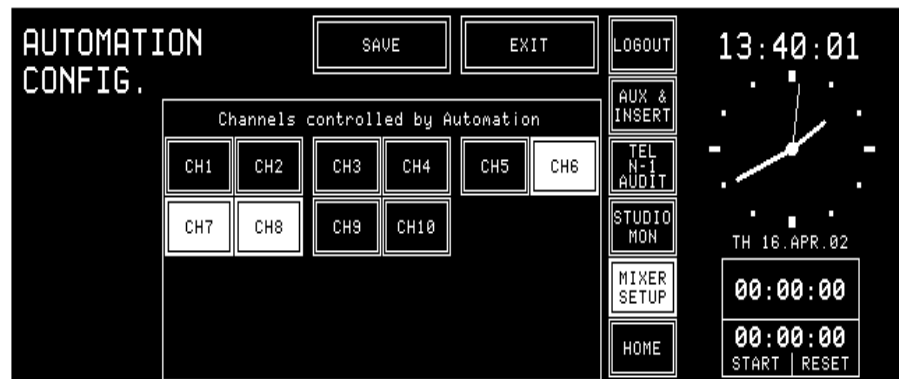


- Serial interface: Serial RS232/RS422 standard communication interface based on [MONPROT].
- 2 x 12 character text display per channel.
- Music and speech output:  
The CAB can control the output assignment (program/record bus) of the currently selected input of a channel.

## 9.3 Application Handling

### 9.3.1 Configuration for Automation Control

Input channels must be assigned to the automation system in the console configuration in order to be controlled by an external CAB system. AUTOMATION CONFIG. is reached from the SYSTEM CONFIG. page:



The AUTOMATION CONFIG. page allows each input channel to be assigned to the CAB system.

Please note that these channels' labels *must* be named “DIGI 1” through “DIGI 3”. Normally three input channels are used with the CAB system; a fourth “DIGI 4” input channel is possible, but unusual.

### 9.3.2 Communication Time-Out

If no valid telegram is received from the CAB within approx. 30 seconds, the OnAir 1000 assumes that the communication is interrupted.

In this case it stops sending telegrams and the following actions are performed:

- All input channels are deselected;
- A warning: “Communication to Broadcast Automation lost!” is displayed.

After the next or first telegram from the CAB, communication will be re-established.

The information: “Communication to Broadcast Automation established!” is generated.

### 9.3.3 Output Selection

The CAB is able to control the output assignment (program/record bus) of the currently selected input of any input channel. This allows, for instance, to route speech to the program output, and music to the record output.

### 9.3.4 Start a New Title from Schedule

In automation mode, the CAB can start a new title automatically (it is also possible to start new titles manually; then, the operator opens the fader while the input channel is already switched ON, or switches the desired channel ON while the fader is already open).

#### Automatic New Title Start:

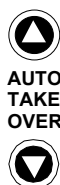
The CAB can control the console automatically. This automatic mode must be activated from within the CAB and can, for example, be used for controlling a program during the night without any assistance.









If the CAB runs in automatic mode, it starts playback of the source and opens the appropriate input channel with the pre-defined level and fade-in time. This will send a new audio level to the DSP, and switch the input channel ON in any case.

If a take ends, the CAB performs a cross-fade on its audio card, the selected channels on the console remain open.

If the CAB changes the audio level, the channel changes into *auto takeover mode*. This means that the audio level (i.e. actual DSP level) and the fader level (i.e. physical position of the fader knob) differ for more than a specified auto takeover window. If the fader is moved now, nothing will change until the physical position of the fader knob is within the auto takeover window. Then the auto takeover mode is left.

Auto takeover mode is indicated in the fader strip by the two AUTO TAKEOVER arrow LEDs. The operator can recognize the direction in which he has to move the fader in order to leave auto takeover mode and take control of the signal level. If the physical position of the fader is brought within the auto takeover window or if it accidentally is situated within the window, both arrow LEDs will be illuminated.



 AUTO TAKE OVER 	 AUTO TAKE OVER 	 AUTO TAKE OVER 	 AUTO TAKE OVER 
Channels <i>not</i> controlled by a CAB system	Audio level above the fader position – move fader <i>down</i>	Audio level below the fader position – move fader <i>up</i>	Audio level equal to the fader position

### 9.3.5 Indication of the Currently Playing Input Line

As the OnAir 1000 is not equipped with motor faders, a clear indication of the channel currently “playing” is necessary.

Under the following conditions the respective channel label is in continuous scrolling mode, indicating “ON-AIR” if:

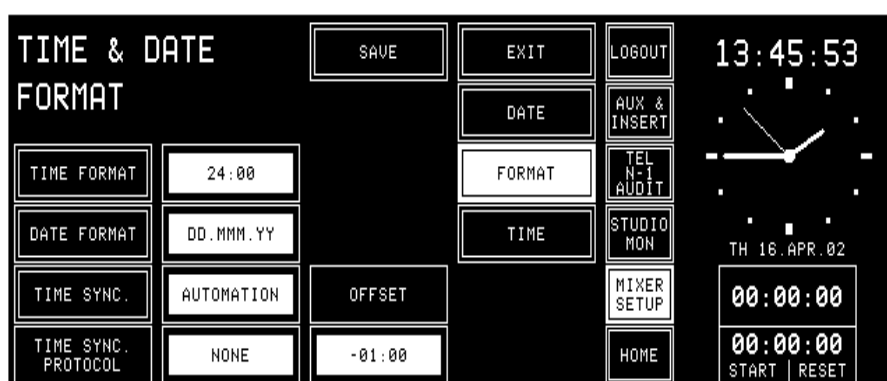
- Fader (audio level) is open;
- The channel is switched ON;
- The channel is assigned to program and/or record bus (as defined in the Common Settings page);
- The channel is selected by the CAB (SOURCE\_SELECTION).

### 9.3.6 Pre-Listening

When starting the pre-listening function in the CAB system by clicking on the LISTEN button on the CAB screen, followed by selecting a title, the CAB system immediately sends the desired title over the fourth channel of its audio card. At the same time, it opens the external PFL input, so that the desired title is audible in the console's PFL loudspeaker.

### 9.3.7 Time Synchronization

The CAB is able to set the console's internal clock (time and date) if TIME SYNC. is set to AUTOMATION in the TIME & DATE FORMAT page; refer to [chapter 11.2.5](#).



## 10 USER MODES

---

### 10.1 Purpose of User Modes

---

The console is used in different studios with different working practice and different personnel structure. A large part of users in broadcast studios is not technically oriented. A mixing console meeting their requirements must be simple to use, reliable and free of “unnecessary” controls and displays. Setting of a wider range of console parameters, saving of console settings (snapshots), and modifications of the console configuration have to be left for technically more competent users (studio technicians, chief engineer). It is also necessary to protect parts of system data and give the permission to change them only to a restricted number of users. In order to satisfy these needs, the OnAir 1000 console supports individual user access rights.

Three classes of users are defined for the OnAir 1000; these are:

- |                              |                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Default User:</b>         | <ul style="list-style-type: none"><li>• No password required;</li><li>• Private snapshots and mic settings;</li><li>• User channel routing;</li><li>• Function access rights according to the configuration.</li></ul>                                                                                                                                                                                                        |
| <b>Normal User:</b>          | <ul style="list-style-type: none"><li>• Password-protected;</li><li>• Private snapshots and mic settings;</li><li>• User channel routing;</li><li>• Function access rights according to the configuration.</li></ul>                                                                                                                                                                                                          |
| <b>System Administrator:</b> | <ul style="list-style-type: none"><li>• Password-protected;</li><li>• User channel routing;</li><li>• Unlimited access rights to all functions;</li><li>• Defines new users;</li><li>• Defines access rights for all users;</li><li>• Stores global snapshots, global mic settings, and global channel routings.</li><li>• Stores private snapshots, private mic settings, and user channel routings for all users.</li></ul> |

The table in [chapter 10.2](#) shows the functions to which access is configurable in the OnAir 1000.

## 10.2 Access to Configurable Functions of the Console

Function Description	Default User	Normal User	Administrator
<b>Loglist management</b>			
Accept an entry (delete entry from list)	configurable	configurable	accessible
View the log list	accessible	accessible	accessible
<b>Aux Master</b>			
Inserts on AUX page	configurable	configurable	accessible
Aux 1 and 2 parameters	configurable	configurable	accessible
<b>AUDIT master</b>			
AUDIT level on TEL N-1 AUDIT page	configurable	configurable	accessible
<b>N-1 master</b>			
N-1A/N-1B levels on TEL N-1 AUDIT page	configurable	configurable	accessible
<b>Channel input parameters</b>			
<i>Aux 1 parameters:</i>			
Set channel input as AF for Aux 1 Set channel input as PF for Aux 1 Add channel input to Aux 1 Remove channel input from Aux 1 Aux 1 level	configurable	configurable	accessible
<i>Aux 2 parameters:</i>			
Set channel input as AF for Aux 2 Set channel input as PF for Aux 2 Add channel input to Aux 2 Remove channel input from Aux 2 Aux 2 level	configurable	configurable	accessible
<i>Phase parameters:</i>			
Set phase to invert Set phase to normal	configurable	configurable	accessible
<i>Phantom parameters:</i>			
Set phantom to ON Set phantom to OFF	configurable	configurable	accessible
<i>Stereo mode parameters:</i>			
Set channel to stereo mode Set channel to mono mode Set stereo mode to LR Set stereo mode to LL Set stereo mode to RL Set stereo mode to RR	configurable	configurable	accessible
<i>Gain/cal parameters:</i>	configurable	configurable	accessible
<i>Pan/balance parameters:</i>	configurable	configurable	accessible
<i>Sum selection:</i>			
Add/remove chn to/from ON-AIR bus Add/remove chn to/from RECORD bus	configurable	configurable	accessible

Function Description	Default User	Normal User	Adminis- trator
<i>EQ parameters:</i>			
Switch EQ for this channel input on Switch EQ for this channel input off Set EQ high shelving corner freq. to low Set EQ high shelving corner freq. to high Switch high-pass filter off Switch high-pass filter on Set EQ low shelving corner freq. to low Set EQ low shelving corner freq. to high Switch phantom power off Switch phantom power on Set the low filter gain Set the peak filter corner frequency Set the peak filter gain Set the high filter gain	configurable	configurable	accessible
<b>Channel common parameters</b>			
Input selection	configurable	configurable	accessible
All other parameters	accessible	accessible	accessible
<b>Mixer setup</b>			
Delete selected global snapshot/mic setting/ channel routing	–	–	accessible
Create global snapshot/mic setting/ channel routing	–	–	accessible
Recall global snapshot/mic setting/ channel routing	accessible	accessible	accessible
Delete selected private snapshot/mic setting	accessible*	accessible*	accessible
Create private snapshot/mic setting	accessible*	accessible*	accessible
Recall private snapshot/mic setting	accessible*	accessible*	accessible
Recall user channel routing	accessible*	accessible*	accessible
<b>Channel routings</b>			
Enter channel routing page	configurable	configurable	accessible
<b>User administration</b>			
Enter user administration	–	–	accessible
<b>System configuration</b>			
Display system configuration page	configurable	configurable	accessible
<b>* accessible for a user = his own data only</b>			

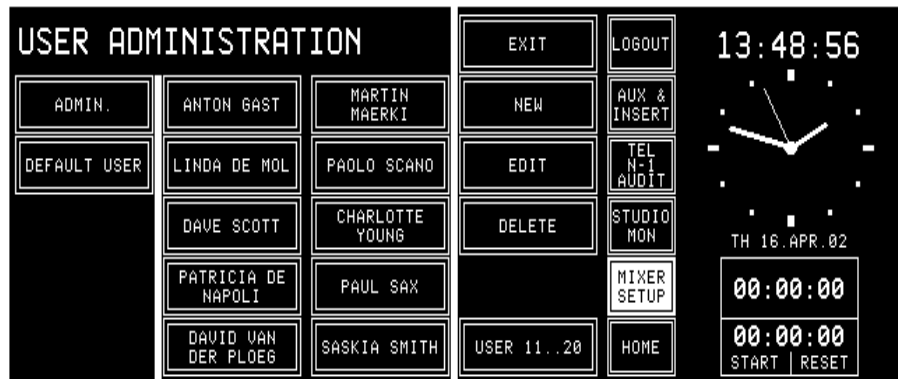
### 10.3 User Administration

The described access permission allows different functionality ranges to important console functions for each user. By assigning an appropriate access permission to each user, it is possible to fit the OnAir 1000 console to very different working environments.

This user administration is done with the help of a User Administration table that is part of the console configuration. This table can be edited by the system administrator only.

The users supposed to use the console with basic functionality do not need an account. To adjust the console to differently trained staff, it is possible to change the access permissions of the default user.

A user who wants to store his own, private data (snapshots, mic settings and/or channel routing) must have an account containing his name, his access permission table, and an optional password.



The USER ADMINISTRATION page can only be opened by the system administrator, by touching USER ADMIN in the SYSTEM CONFIG. page. Ten users will be listed. With the USER 11..20 field, the administrator can list the remaining users. When the second block of users is displayed, the USER 11..20 field changes to USER 1..10.



## 10.4 Administration Functions

By the system administrator, a user record can be created (NEW), changed (EDIT), or deleted (DELETE).

**Create User Record:** To create a new user record, touch NEW in the USER ADMINISTRATION page. The NEW USER page appears with empty input fields:

The USER NAME and PASSWORD fields are filled in, using the keyboard page. The maximum length of the password is 22 characters. The user name may consist of up to 20 characters. If the new user is not accepted (e.g. because the user name already exists), an error message tells the system administrator that the new user will not be registered. A user name can be entered without a password, too.

Access permission is configured by touching the corresponding function fields on the NEW USER page. With SET LIKE DEFAULT USER, the access permission setting and the channel routing of the default user are copied to the user currently being edited and can subsequently be edited again. The new user record is stored with SAVE.

Two users are already predefined: The default user and the administrator. Both can only be edited, *but not created or deleted*.

**Change User Record:** A user record is selected by touching the appropriate name field in the USER ADMINISTRATION page, followed by EDIT. The USER EDIT page, containing the user's individual data, appears.

The data can be edited in the same way as described above, except that the user name is displayed but cannot be modified. The only way to rename a user while preserving his snapshots, mic settings, and channel routings is to save them to a PC-card, delete the user, create a new one with the de-

sired name, and then reload the snapshots, mic settings, and channel routing from the card. After touching SAVE, the old record is replaced by the new one. This procedure has to be performed this way in order to avoid name conflicts in the console's memory and on the PC-card.

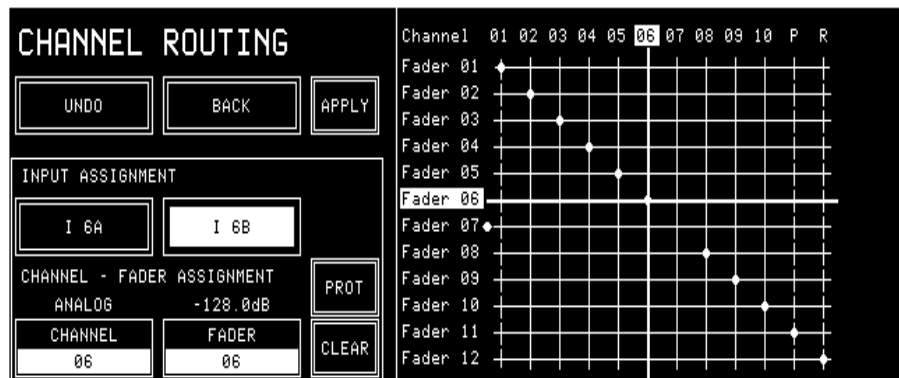
When editing the default user, the USER EDIT page looks similar, except that no password field is displayed.

When editing the administrator, the USER EDIT page neither displays the access permission fields nor the USER NAME field, but the password field is enabled.

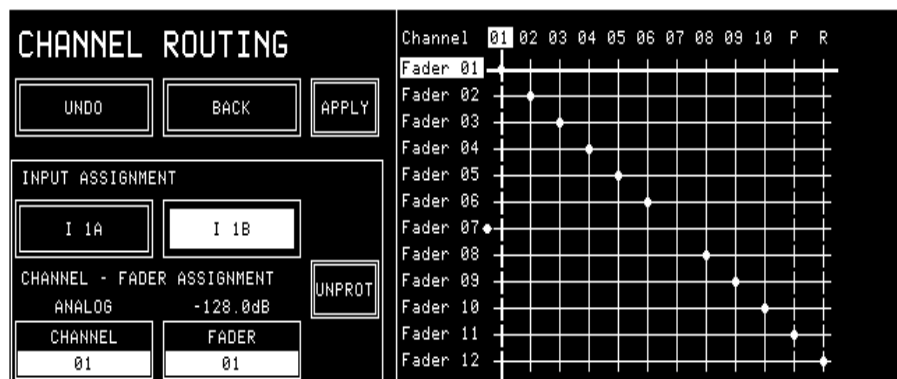
**Set User Channel Routing:**

The system administrator can define the user channel routing (surface definition) for every user by touching the SET CHANNEL ROUTING field in the USER EDIT page. In addition, the administrator can allow a user to change his own channel routing.

When the SET CHANNEL ROUTING field is touched, the CHANNEL ROUTING page appears and displays this specific user's channel routing. Instead of the SAVE TO USER PROFILE field, a BACK field is displayed, leading back to the USER EDIT page.



The system administrator can protect specific connections within the channel routing by selecting the desired cross-point with the horizontal and vertical lines, and then touching the PROT(ect) field. A protected connection is indicated by a dashed vertical line in the grid (see below); this connection cannot be changed by the user, even if he might be allowed to change his channel routing. Only the administrator can UNPROT(ect) this connection again. However, the user can change the input selection (A/B) of this input unit, if he has the INPUT SEL access right.



**Delete User Record:** To delete a user record from the user administration table, a record must be selected by touching the desired name field. A dialog box appears; if deleting the user is confirmed there, the selected user is permanently removed from the memory, and the user record disappears from the USER ADMINISTRATION page.

The default user and the administrator can be edited only, but not deleted.

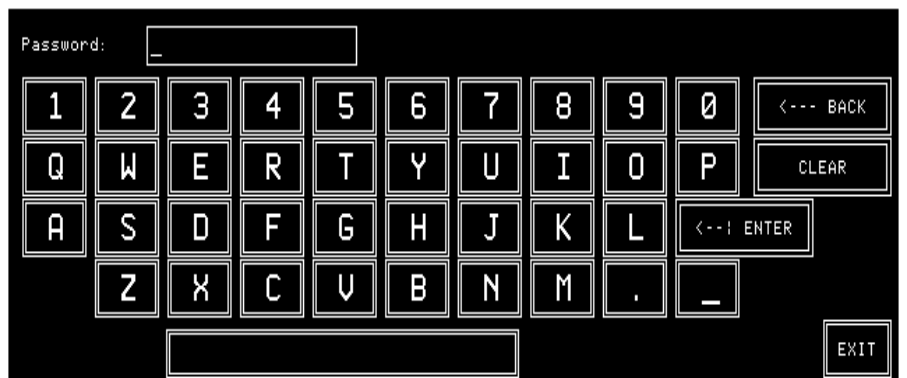
## 10.5 Log-in Procedure and Defaults

The console always starts up in default user mode. The default user's access permission is activated automatically when a user logs out. If the corresponding customer code is activated (refer to [chapter 11.2.11](#)), the default user's channel routing is also recalled automatically.

If the user is a registered user, and if he wants to work in his own, private environment, he must log-in. After touching the LOGIN field, the LOGIN page will appear where the user can touch the field with his own name.



If a password is defined for this user, he has to enter it on the keyboard page.



If the password is correct, the system automatically returns to the page on which the user touched the LOGIN field. If the password is not valid, a dialog box will appear on the LOGIN page telling the user that the password was not correct. The user can leave the LOGIN page via the EXIT field which brings him back to the previous page.

If no password is defined for a user, the system does not show the keyboard page after a touch on a name field in the LOGIN page. The system directly jumps back to the page where the LOGIN field was touched. As

the system does not check for a password in this case, this user's private data are not protected, and any other user can access them.

If a console is operated by one person only, the system administrator simply has to enable all access rights for the default user. This is the way the user can control all console functions (except the user administration functions) without having to log-in.

A default user is always defined in the user administration table. His name is DEFAULT USER. The access permission of this user can be edited, but the record cannot be deleted, and no login code can be defined for this user.

## 11 CONFIGURATION

In order to meet the requirements for different studio environments, the OnAir 1000 is highly configurable.

A configuration is “static”, which means that it cannot be changed during normal operation. Although snapshots rely on a certain configuration, the configuration data are not stored together with the snapshots. Therefore, snapshots cannot change the console configuration.

### 11.1 Configuration Handling

System configuration can be changed by the system administrator, or by any user with access right to the SYSTEM CONFIG. page. System configuration includes data for:

- Channel labels
- Control signal modes
- Nominal input levels
- Level meter assignment, etc.

An OnAir 1000 configuration can be stored on a PC-Card, or loaded from the PC-Card into the console.

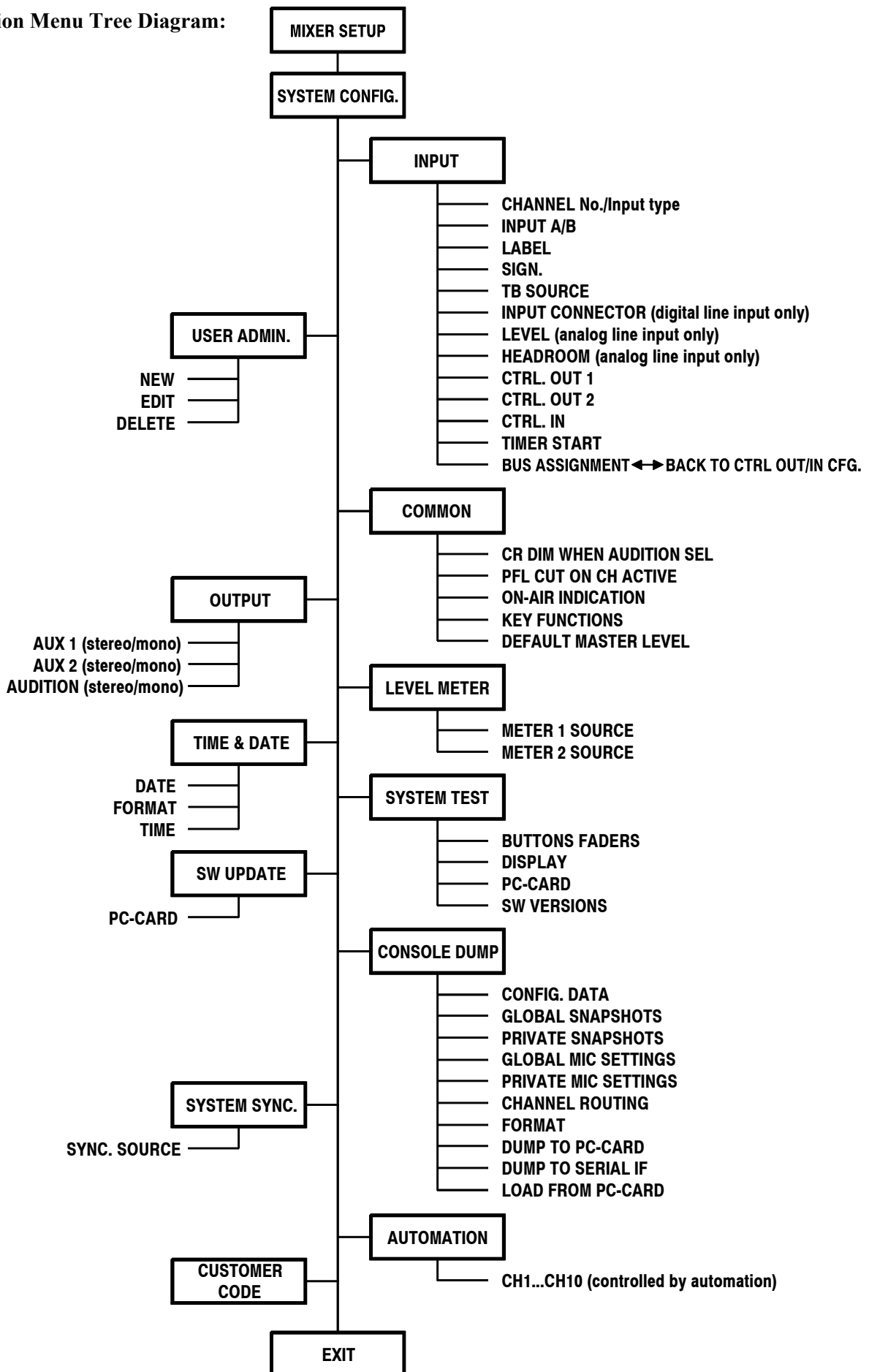
### 11.2 Configuration Procedure



The console configuration can be changed in the SYSTEM CONFIG. page. This page can only be reached from the Mixer Setup page by an operator with system administrator permission.

The configuration parameters are subdivided in groups. Each group is edited on a separate page accessed from the SYSTEM CONFIG. page.

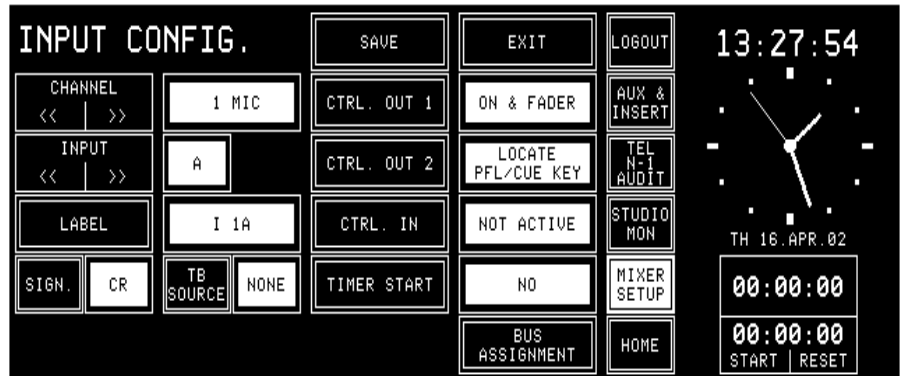
Configuration Menu Tree Diagram:



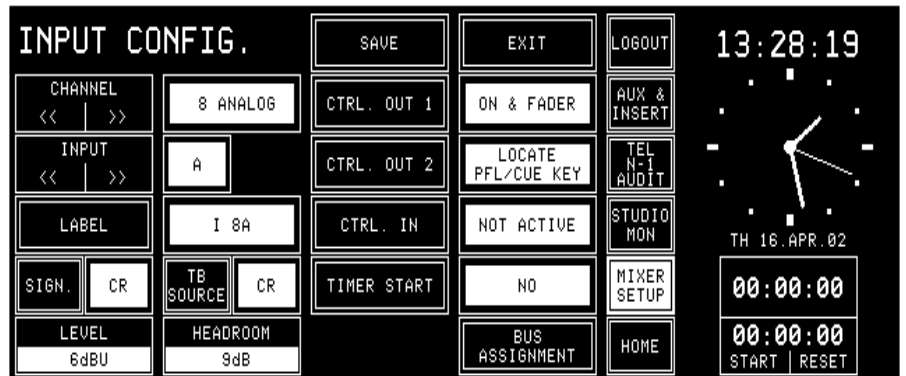
### 11.2.1 Input

There are three slightly different INPUT CONFIG. pages for editing input configurations, depending on the type of input unit. The pages for microphone, analog line, and digital line input channels are shown below.

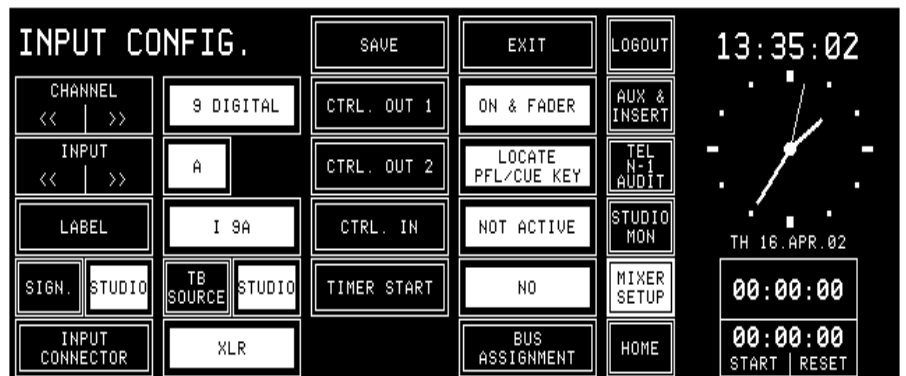
#### Microphone Input Channel



#### Analog Line Input Channel



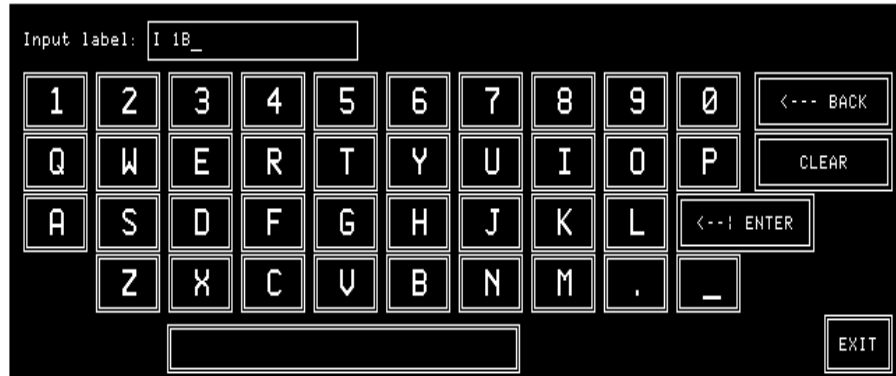
#### Digital Input Channel



Channel and input are selected with the CHANNEL and INPUT forward (>>) and backward (<<) fields. Channel and input can also be selected by pressing the SEL key of a channel. The display will show the current configuration data for the selected input and channel. To change a parameter, the corresponding field must be touched; it will change to the next possible value. Consecutive touching toggles through the available options.

*Exceptions:* Touching the LABEL field will open the keyboard page where an input label can be edited. The values in the LEVEL and HEADROOM fields (analog line input channels only) can be adjusted with the rotary encoders next to these fields. Touching BUS ASSIGNMENT opens the BUS ASSIGNMENT page where the routing to the N-1 and to the AUDIT buses is performed.

**LABEL** The LABEL field is used for giving a name to a channel. Touching this field, the keyboard page opens.



The channel label display in the fader strip can display labels with up to four characters (upper case only). The whole name scrolls by in the display as long as the respective input selector key A or B is pressed, or after a new name has been saved. During scrolling, three dots are displayed between the end of the name and its next start for clarity.

If a name is longer than four characters, only the first two and the last two characters are displayed, so a little care has to be taken when generating the names. The following table illustrates some possibilities:

Name	Channel display label
ABC 12	AB12
ABC 1234	AB34
MIC1	MIC1
CD02	CD02

When completed, touch <---! ENTER followed by SAVE to keep the changes, or EXIT to cancel without changes.

**SIGN. / TB SOURCE** SIGN. is used for signaling (red light) and monitoring (cut and dim), the available options are NONE, CR, and STUDIO.

The TB SOURCE parameter in the INPUT CONFIG. page sets the assignment of the input channel to the TB bus (NONE, from CR, or from STUDIO).

*During talkback from the studio, the studio speakers are dimmed only if at least one input is configured as SIGN. = STUDIO and TB SOURCE = STUDIO. The same applies for talkback from the control room.*

**INPUT CONNECTOR** *(for digital input units only)*

Each (A and B) input of a digital input unit has three different input connectors (XLR, Cinch/RCA, and optical/TOSlink). This option selects independently for the A and the B inputs which connector is used.

**LEVEL** *(for analog line input units only)*

“Level” is the nominal studio level expressed in dBu.

**HEADROOM** *(for analog line input units only)*

“Headroom” is the difference between the A/D converter's clipping level and the nominal studio level.

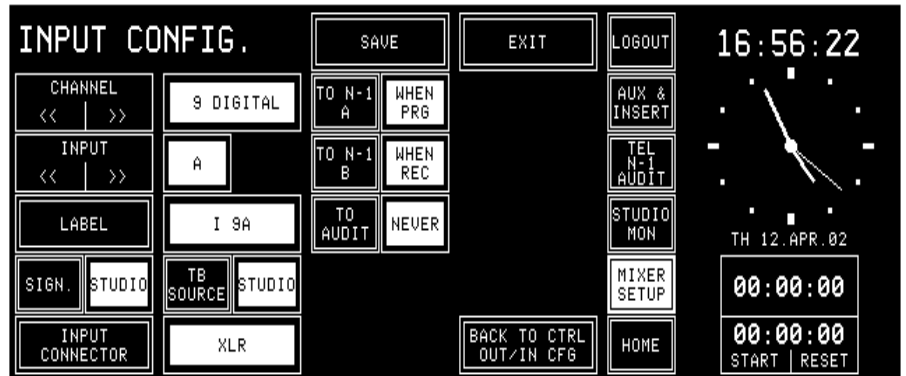
Example: An input with a level setting of +6 dBu and a headroom setting of 9 dB will accept a +15 dBu signal before the A/D converter comes into overload.



**CTRL. OUT 1/2** Please refer to [chapter 8](#) for details on this subject.

**CTRL. IN** Please refer to [chapter 8](#) for details on this subject.

**BUS ASSIGNMENT** When touching the BUS ASSIGNMENT field, the display changes as follows, allowing to select the N–1 and the audition bus assignments:



The TO... fields allow routing the input signal to the corresponding N–1 (A...B) or to the Audition bus. The Audition bus is similar to the N–1 buses, but it is a stereo bus that can be selected as a monitoring source in the control room.

N–1 and Audition bus assignment is related to the input signal and is re-routed with the input signal when the input unit assignment is changed.

**N–1/AUDIT Configuration:**

Setting	Meaning
NEVER	The input channel is never routed to N–1 or AUDIT
WHEN PG/REC	The input channel is routed to N–1 and/or AUDIT if the channel is either assigned to the program or to the record bus
WHEN PGM	The input channel is routed to N–1 and/or AUDIT if the channel is assigned to the program bus
WHEN REC	The input channel is routed to N–1 and/or AUDIT if the channel is assigned to the record bus
ALWAYS	The input channel is always routed to N–1 and/or AUDIT, regardless of the bus assignment

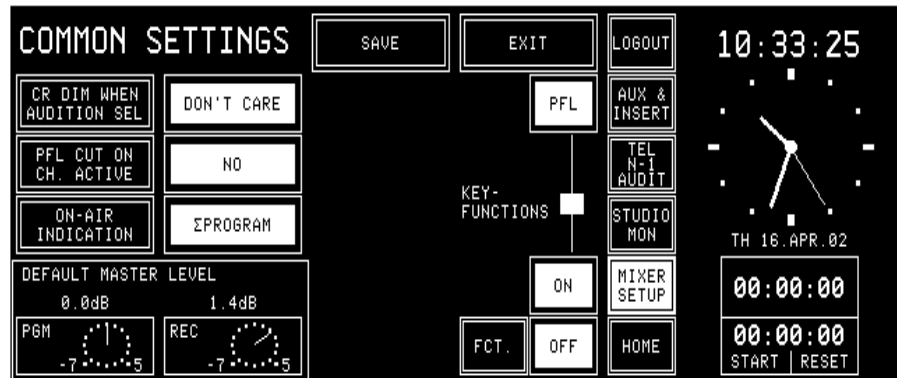
**Notes:** The output levels of the N–1 and the Audition bus are controlled on the TEL/N–1/AUDIT page using the rotary encoders. For details, please refer to [chapter 5.3.1](#).

When touching BACK TO CTRL OUT/IN CFG, the display switches back from the bus assignment option to the standard INPUT CONFIG. page.

**TIMER START** If TIMER START is set to YES, the fader stop watch will be started/reset by the corresponding fader, if the input channel is ON and the fader is opened. TIMER START is related to the input signal and will be re-routed when the input unit assignment is changed.

**SAVE / EXIT** The Input Configuration must be saved for each input channel. If the user switches to a different input channel, a dialog box will call his attention to the fact that the changes will be cancelled if he does not save the current Input Configuration. The program remains in the Input Configuration page when saving a channel. Once a change has been saved, it will not be cancelled when leaving the Input configuration page with EXIT.

## 11.2.2 Common Settings



The COMMON SETTINGS page contains the following configuration possibilities:

### CR DIM WHEN AUDITION SEL

When the Audition bus is selected as a CR monitoring source, and a CR microphone input channel is ON, the CR monitor speaker level will be attenuated (DIM), muted (CUT), or nothing happens at all (DON'T CARE).

### PFL CUT ON CH. ACTIVE

If YES is selected, the signal of a channel is taken off the PFL bus when the channel is ON, although the PFL function is active (the PFL function remains active).

### ON AIR INDICATION

Three possibilities are available: ΣPROGRAM, ΣRECORD, or ΣPROGRAM AND ΣRECORD.

The ON-AIR signaling is only active if at least one channel is ON, if this channel's fader is open, and if this channel is assigned to the selected bus (ΣPROGRAM, ΣRECORD, or either of them).

In automation operation, ON-AIR is continuously scrolling in the channel label of the input channel selected by the automation system. FADER-STATUS is ON-AIR if the input channel is assigned to the selected bus (ΣPROGRAM, ΣRECORD, or either of them).

### KEY FUNCTIONS

Functions of the channel keys labeled ON and OFF.

The ON key either switches the input channel ON or has an ON/OFF toggle function, depending on the function selected for the OFF key.

If the OFF function is selected for the OFF key, the input channel is switched off by pressing this key; if LOCATE is selected, the ON function automatically changes to a channel ON/OFF toggle function (also refer to [chapters 8.2 and 8.3](#)).

### DEFAULT MASTER LEVEL:

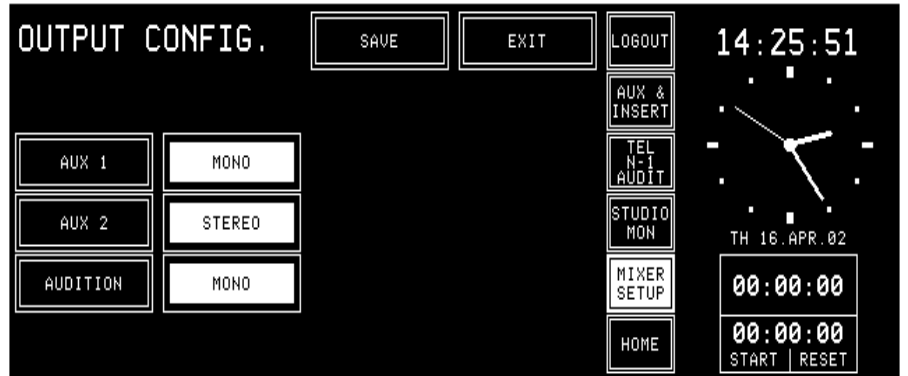
The level of the PGM and REC master outputs can be biased in a range of  $-7$  to  $+5$  dB using the two rotary encoders below the corresponding fields. This setting is only valid if no fader strips are assigned to the ΣPGM and/or ΣREC outputs; please note that this setting must be done with care, as it directly affects the level of the main outputs.

#### Note:

The MASTER FADER ASSIGNMENT function for PGM and REC master outputs that was available on this page in earlier software versions has been moved. Activation and deactivation of the PGM and REC master faders is performed on the CHANNEL ROUTINGS page now; please refer to [chapter 5.14](#).

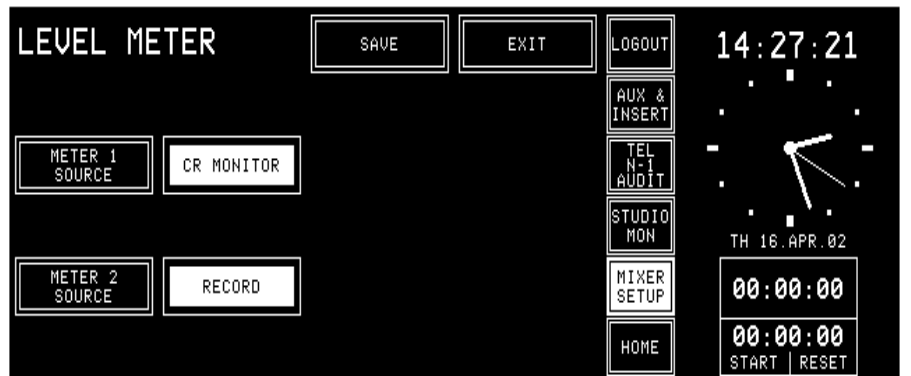
**11.2.3 Output**

On the OUTPUT CONFIG. page, the types of the output signals on the AUX 1, AUX 2, and AUDITION buses can be set.



**11.2.4 Level Meter**

The LEVEL METER configuration page defines the signal sources for the level meters no. 1 and no. 2. The sources for the phase correlators always are the same as the ones selected for the respective level meter.



Available signal sources:

- METER 1 SOURCE** CR MONITOR, PROGRAM, RECORD, AUX 1, AUX 2, AUDIT, N-1 A.
- METER 2 SOURCE** CR MONITOR, PROGRAM, RECORD, AUX 1, AUX 2.

**11.2.5 Time and Date**

The watch gives a time, day-of-week, and date display. The standard time reference is an internal battery-buffered real-time clock (RTC). The RTC continues to run even when the console is switched off. Therefore it is unnecessary to set the watch at power-up.

The RTC may also be synchronized by a time signal on the Time Sync input or by a broadcast automation system (CAB). If time synchronization is established, the top right corner of the center screen shows an “S”.

Changes to the time or date settings are made on the TIME page. Access permission to the SYSTEM CONFIG. page is required.

From the HOME page, this page is found by selecting MIXER SETUP, followed by SYSTEM CONFIG., TIME & DATE, and TIME.

An example of the TIME page is given below:



The hours, minutes, and seconds are adjusted with three of the rotary encoders located next to the corresponding fields. By touching “SAVE”, the parameters are updated. If they are invalid, the parameter changes are ignored.

The DATE page is shown below. This page is displayed by touching the “DATE” field on either the TIME or the FORMAT page.



The day, month, and year is adjusted with three of the rotary encoders located next to the corresponding fields. By touching “SAVE”, the parameters are updated. If they are invalid, the parameter changes are ignored.

The watch configuration is done in the TIME & DATE FORMAT page. This page is displayed after touching the “FORMAT” field on either the TIME or the DATE page.



Both time and date can be displayed in two formats (select with TIME FORMAT or DATE FORMAT, respectively), as shown below:

Time Format	Digital Time Indication
05:00:00 p.m.	12 hour time format
17:00:00	24 hour time format

Date Format	Example
DD.MMM.YY	MO 20.MAR.02
MMM-DD-YY	MO MAR-20-02

TIME SYNC. defines the means to set and maintain time and date. The following settings are available:

Time Sync	Sync Reference	Date Setting	Time Setting
INTERNAL	Internal quartz	By user	By user
TIME SYNC. UNIT	Internal quartz, periodically updated by the external time reference signal	By user, periodically reset by ext. time reference signal (century never overwritten by ext. ref.)	By user, periodically reset by the external time reference signal
AUTOMATION	Internal quartz, periodically updated by automation time reference	By user, periodically reset by automation time reference	By user, periodically reset by automation time reference

The Time Sync input can process different time reference signal formats, the current format is selected with a DIP switch on the Time Sync interface. The setting of this switch is displayed in hexadecimal in the TIME SYNC. PROTOCOL field for easy verification. For details please refer to [chapter 15.8](#).

The time zone offset can always be set, regardless whether it makes sense to set an offset in conjunction with the time sync source or not.

Offset	Watch Function
-12:00 to +12:00 (resolution: 1 h)	Compensates the sync time by the given offset before setting (synchronizing) the internal watch.

## 11.2.6 System Test

More information on this subject can be found in [chapter 13.3](#).

## 11.2.7 Software Update

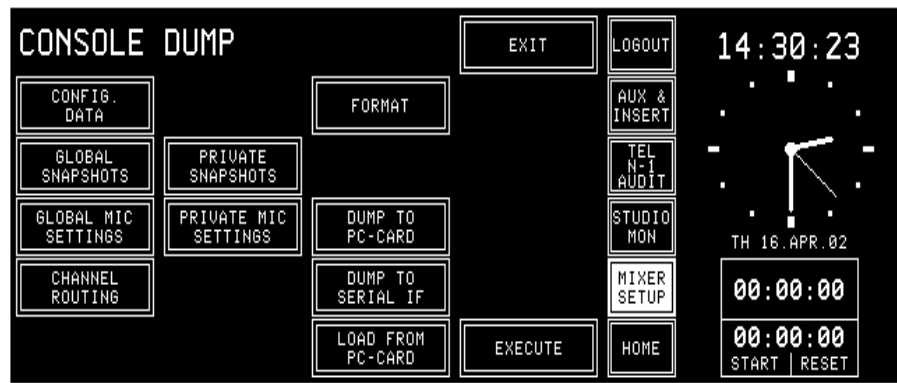
More information on this subject can be found in [chapter 12.2](#).

## 11.2.8 Console Dump

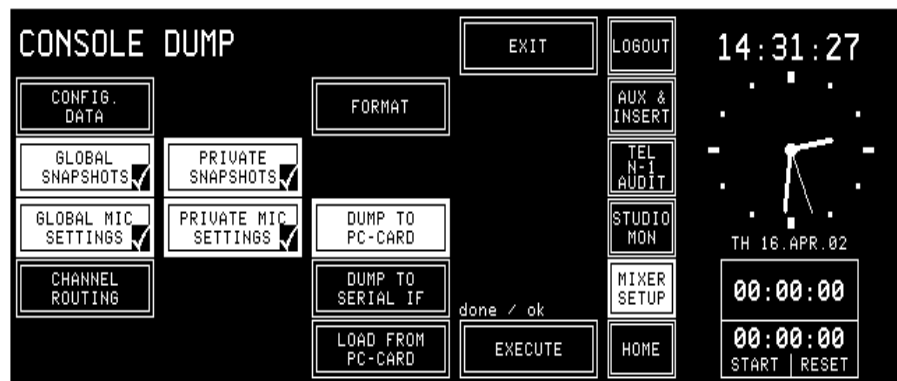
A “console dump” consists of configuration data (CONFIG. DATA), snapshots (global and private), mic settings (global and private), and channel routings.

### Formatting the PC-Card

Before dumping any data, the PC-Card has to be formatted. This is done in the console's PC-Card slot. Touch FORMAT followed by EXECUTE. A dialog box appears where the user can confirm the formatting (i.e. erasing the card completely). While formatting, the EXECUTE field flashes.



The CONSOLE DUMP page allows the user to save mixer setup data on a PC-Card, to send them to the serial port, or to load mixer setup data from a PC-Card. This feature can be used for back-up purposes, for copying data from one console to another, or for diagnostics. A PC-Card can contain one console dump only. It is possible to dump or to load the mixer setup data completely or partially only. The selection is done with the CONFIG. DATA, GLOBAL and PRIVATE SNAPSHTS, GLOBAL and PRIVATE MIC SETS, and CHANNEL ROUTING fields. The function can then be selected with the fields in the center of the page and will be started by touching the EXECUTE field.



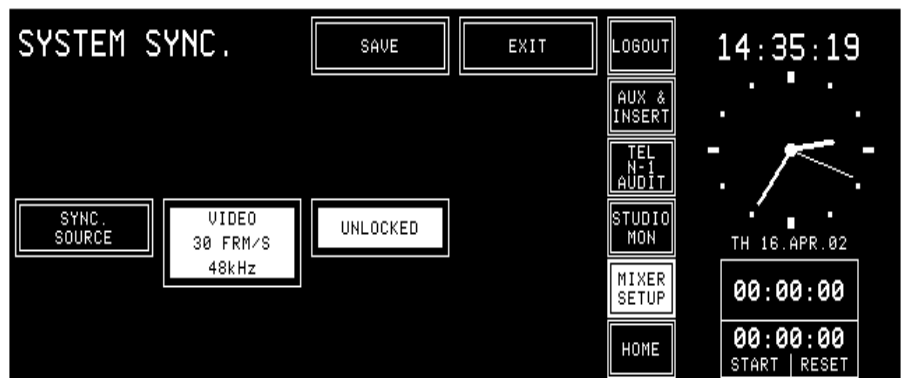
A checkmark appears in the corresponding field when done, and “done / ok” is displayed after the selected operation(s) have been successfully completed, as shown above (or “done / error” if there is a problem).

When loading data from the PC-Card, the console data will be overwritten. Therefore this procedure has to be confirmed in a dialog box. The EXIT field returns to the SYSTEM CONFIG. page.

- A Configuration** is loaded into the console by selecting CONFIG. DATA, LOAD FROM PC-CARD, and EXECUTE. An error message is displayed if the configuration cannot be loaded completely (e.g. Channel Type Mismatch).
- Snapshots** are loaded into the console by selecting GLOBAL (or PRIVATE) SNAPSHOTS, LOAD FROM PC-CARD, and EXECUTE. Snapshots existing in the console will be overwritten.
- Mic Settings** are loaded into the console by selecting GLOBAL (or PRIVATE) MIC SETS, LOAD FROM PC-CARD, and EXECUTE. Mic settings already existing in the console will be overwritten.
- Channel Routings** are loaded into the console by selecting CHANNEL ROUTING, LOAD FROM PC-CARD, and EXECUTE. Channel routings already existing in the console will be overwritten.

### 11.2.9 System Synchronization

On this page the system synchronization is configured. The synchronization source can be internal or external; for an external source, the sync signal type must be defined.



Possible sync modes:

Sync source	Sampling rate
INTERNAL 48 kHz	48 kHz ±100 ppm default, or 48 kHz, precision adjustable on clock sync IF; adjustment range approx. ±1000 ppm
WORDCLOCK 32/44.1/48 kHz	32/44.1/48 kHz
AES/EBU 32/44.1/48 kHz	32/44.1/48 kHz
VIDEO 25 FRM/S 48 kHz	48 kHz
VIDEO 30 FRM/S 48 kHz	48 kHz
VIDEO 29.97 FRM/S 47.952 kHz	47.952... kHz
VIDEO 29.97 FRM/S 48 kHz	48 kHz

**Note:** The OnAir 1000 is designed to run at a sampling rate of 48 kHz. Due to this fact, filter parameters are accurate at 48 kHz only. If the console is synchronized to 44.1 kHz, the actual center and turnover frequencies of the EQ are lower by 8.125 %; if the clock frequency is 32 kHz, the frequencies will be lower by approx. 33.3 %.

If the console is synchronized to an external signal, a message box is displayed if synchronization is lost; a “Missing External Clock” warning is added to the error list.

If the console was synchronized to either WORDCLOCK or AES/EBU and a “no sync” condition is detected, the console automatically selects the INTERNAL mode; however, the external clock selection in the SYSTEM SYNC page is not changed. As soon as a valid external clock signal is available, the console will be re-synchronized.

If synchronization to a video source is lost, only a message box is displayed. The sync source remains in VIDEO mode.

If the Clock Sync interface is removed, sync source selection changes to INTERNAL mode, and no other sync source can be selected.

### **11.2.10 Automation**

---

More information on this subject can be found in [chapter 9](#).



## 11.2.11 Customer Code

There is a possibility to activate optional, customer-specific functions. For this purpose, a feature called Customer Code is used. *Please note that the customer codes are displayed and entered in hexadecimal.*

**Code 0x00000000** **Default Setting**

**Code 0x00000002** **High Shelving Filter Modification**

When selected, the turnover frequency of the high-shelving filter is reduced by approx. one octave, resulting in increased filter effect. For more information on EQ and filters, please refer to [chapters 4.6 and 4.7](#).

**Code 0x00000004** **External CR DIM Function**

The spare control input on the Monitoring Module (“SIGN.” connector P4, 9-pin D-type) can be used as CR DIM control input. If activated by an external control signal, the CR monitor speakers are attenuated by 20 dB. Please refer to the pin assignment table and connection diagram in [chapter 14.11](#).

**Code 0x00000008** **MONITORA: SAS\_INPUTROUTING**

Allows to ask for the SAS\_INPUTROUTING, even if no SOURCE was selected for that fader.

**Code 0x00000010** **MONITORA: SET\_FADER\_LEVEL**

If the broadcast automation system sets a level (SET\_FADER\_LEVEL) to 0 dB and the current physical position of the corresponding fader is between +4.5 dB and –4.5 dB, then the channel’s level is set according to the physical fader position instead of 0 dB.

This avoids the console to enter the Auto Takeover mode.

*Note: Not implemented for the SET\_FADER\_LEVEL\_ONLY command.*

**Code 0x00000040** **Longer Reverb Time**

Increases the delay for the switching from CR Cut or CR Dim to CHANNEL ON, or from CHANNEL OFF to CR UnCut or CR UnDim from 40...50 ms to 160...170 ms.

This delay is used to avoid acoustical feedback noise from the CR monitor speakers to a microphone channel being opened (CHANNEL ON), when the control room has an unusually long reverb time.

**Code 0x00000080** **Faders 0 dB on Top**

For applications where the 0 dB point of the faders is desired to be at the fader's upper end position, this code can be used. It shifts the DSP gain setting with respect to the mechanical fader position by –10 dB.

**Code 0x00000100** **Fader Start and Stop Pulse**

When CTRL OUT1 mode is set to “ON & FADER” in the INPUT CONFIG. page (refer to [chapter 8.2](#)), 200 ms pulses are generated instead of a static signal at the CTRL OUT1 output when the status is activated (fader open and input channel ON) and when it is de-activated (fader closed and input channel OFF).

*Note: There is a second possibility to generate start and stop pulses without activating this customer code; using this feature, however, different outputs are used for the two pulses. For this purpose, set CTRL OUT1 mode to “ON & FADER”, and CTRL OUT2 mode to “STOP PULSE” in the INPUT CONFIG. page (refer to [chapter 8.2](#)).*

**Code 0x00000200 Automatic Channel Routing**

When activated, the user's own channel routing is automatically activated during log-in. Otherwise, the channel routing has to be manually loaded after having logged-in.

**Code 0x00000400 Higher Attenuation of Sum Signal During Talkback**

Allows to attenuate the "N" content of the N-1 signal by a further 10 dB, improving the intelligibility of the TB voice.

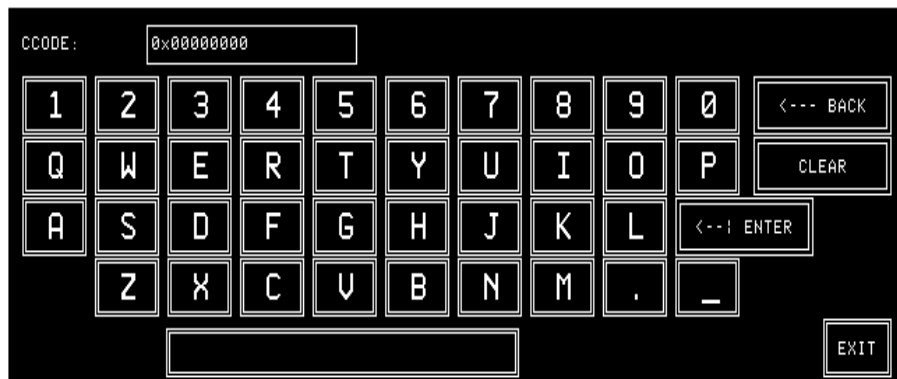
**Customer Code Combinations:**

If more than one of the Customer Code functions are desired, the corresponding codes can be accumulated by just adding the code numbers. *Please note that the customer codes are displayed and entered in hexadecimal.*

For activating both the 0x00000004 and 0x00000008 codes, enter a customer code sum of 0x0000000C.

**Customer Code Setting:**

After touching CUSTOMER CODE on the SYSTEM CONFIG. page, the keyboard appears where the new code can be entered.



After confirmation with ENTER, the following dialog box appears. Now, you can either re-boot the system (REBOOT) which is necessary for the new code to become active, or continue (CONT.), then the code modification becomes active at the next power up of the console:



## 12 SW UPDATE

---

### 12.1 Software Structure

---

The OnAir 1000 software consists of the following packages:

- CPU software
- DSP software
- Peripheral modules and surface control software.

#### 12.1.1 CPU Software Package

---

**Boot Software** The boot software part is installed in an EPROM and consists of:

- Hardware initialization
- Elementary hardware tests
- Start-up (or loading) of the application.

**Application Software** The application part of the software package covers the remaining console functions. Program and data (current status, snapshots, configuration...) remain stored in memory after power-off, so that neither program nor data have to be loaded during normal operation. This is achieved by using a Flash memory.

The application software is loaded at the first start-up of the console (in the factory), and afterwards due to new releases and upgrades only. Program and data are installed in a Flash memory.

The application software is loaded from PC-Cards. For this purpose, read-only cards can be used.

#### 12.1.2 DSP Software Package

---

The DSP software package is treated the same way as the CPU software package (application software).

#### 12.1.3 Important Information for Software Update to V4.0

---



Software V4.0 requires compatible Control Front Board I firmware.

If software V4.0 is loaded without the corresponding firmware, the console will be blocked and cannot be used. In this case, either the former main software has to be re-loaded, the new Control Front Board I firmware must be installed, or the Control Front Board has to be replaced.



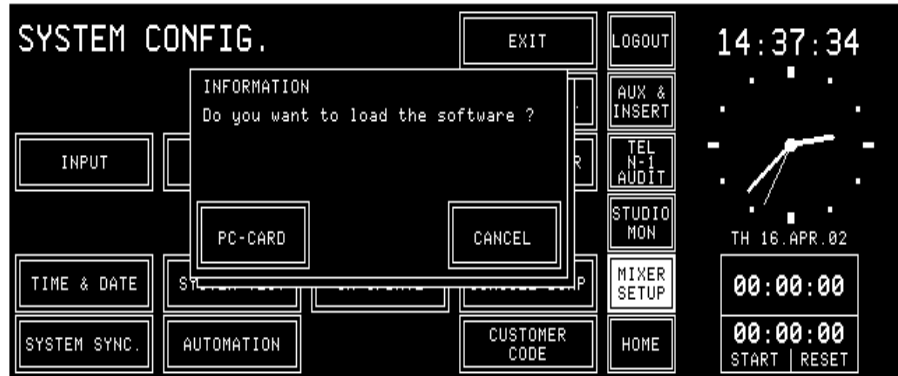
*Studer will not take any responsibility nor accept warranty claims for not following this procedure.*



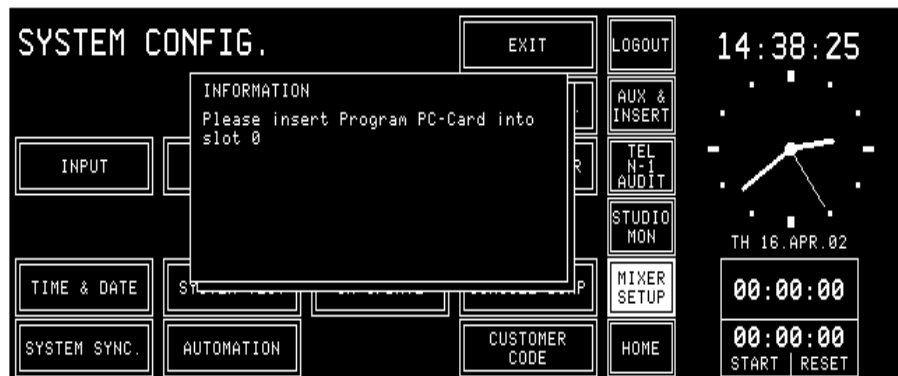
Please make sure that the console data are backed-up prior to any modification as the internal data structure is different. Note the current customer code setting (refer to [chapter 11.2.11](#)).

## 12.2 SW Update Procedure

After touching the SW UPDATE field in the SYSTEM CONFIG. page, a dialog box appears, where the user can decide whether he wants to load the software (PC-CARD), or whether he wants to stop the software update procedure (CANCEL).



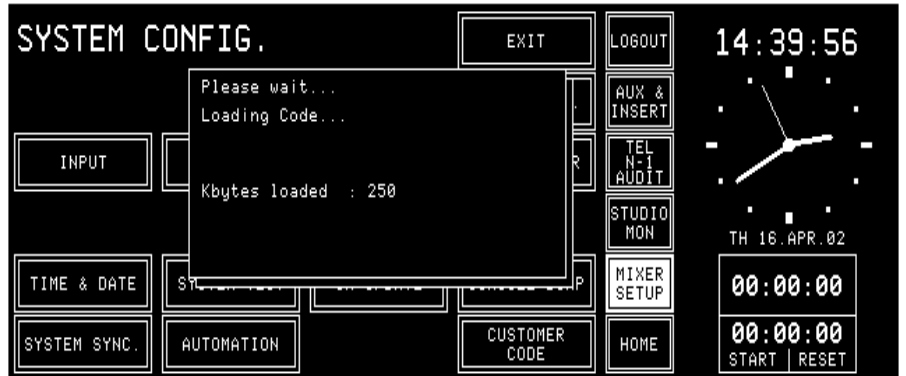
When canceling the software update, the program returns to the SYSTEM CONFIG. page. After touching the PC-CARD button in the dialog box, the next dialog box appears.



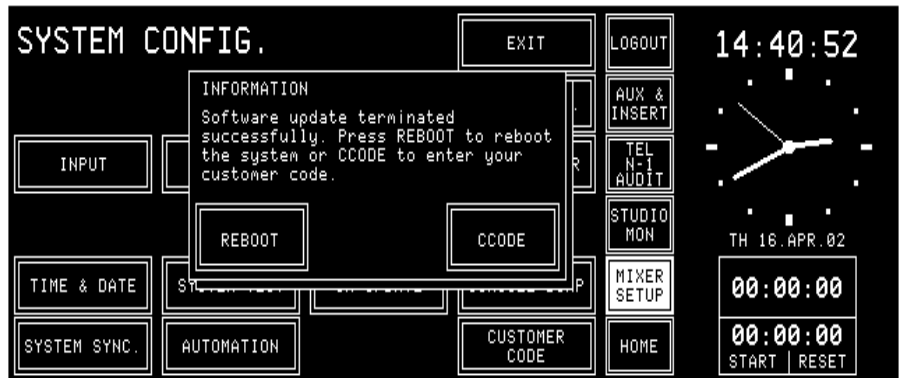
As soon as the software has detected a PC-Card in the card slot, the card is checked. If the PC-Card contains valid code, the software download procedure starts. In a first step, the previous program of the console is erased.



Then the new software is copied from the PC-Card into the console's Flash EPROM. This will take several minutes.

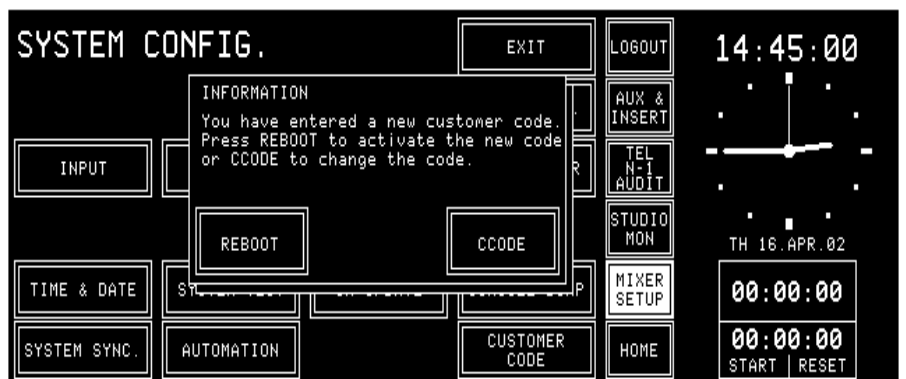


Finally the last dialog box appears. The system can now be re-booted (REBOOT) with the new software, or, if required and available, an optional customer code (CCODE) can be entered.



Any customer code (see [chapter 11.2.11](#)) will be reset to the default value (0x00000000) when updating the system software. This means that if your system had a customer code before, you need to re-enter it in order to have the particular features again.

After confirmation with ENTER, the following dialog box appears. Now, you can either re-boot the system (REBOOT) or touch CCODE to change the customer code:



## 12.2.1 Error Handling

If the software update is interrupted by any reason, the system has to be rebooted. Afterwards, a message box appears with the message that the system software must be updated.



Should the PC-Card not contain valid code, the following dialog box appears. Insert a PC-Card with a valid software version; the download will then be restarted. If the download cannot be terminated correctly, the console can be used no more.



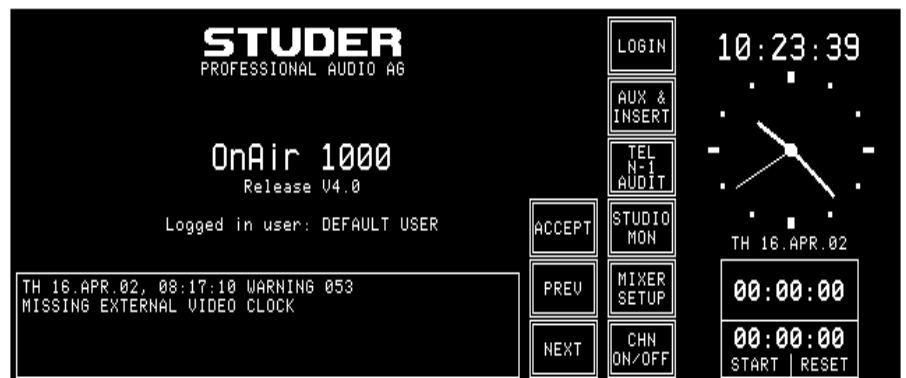
## 13 SYSTEM DIAGNOSTICS AND ERROR HANDLING

The OnAir 1000 error system concept consists of three topics:

- Diagnostics and Error Handling** The system diagnostics software works completely in the background. The user takes notice of the diagnostics only in case of an irregularity. The system diagnostics consists of finding out the console's hardware configuration and detecting discrepancies to the system configuration. It also effects a hardware performance check during power-up. The error handling describes indications and actions on occurrence of errors and irregular behavior of the console detected by the system diagnostics software.
- Failure of Restricted Functions** Most of the OnAir 1000's functions do not have any restriction. However, there exist several functions that are restricted in some situations, e.g. loading a snapshot into a console the input channel types of which do not match the ones of the snapshot (Mic/Line input channels). The behavior of the console in case of restrictions is defined at the place where the function is described. The way the user is told about failures is defined globally in the following.
- System Tests** They are executed on the service engineer's demand to run some specific performance controls, e.g. to check the function of touch fields and faders. The console is switched to a special test mode for this purpose.

### 13.1 Error, Warning, and Information Messages

A message field in the HOME page is used by the system diagnostics software to indicate any messages.



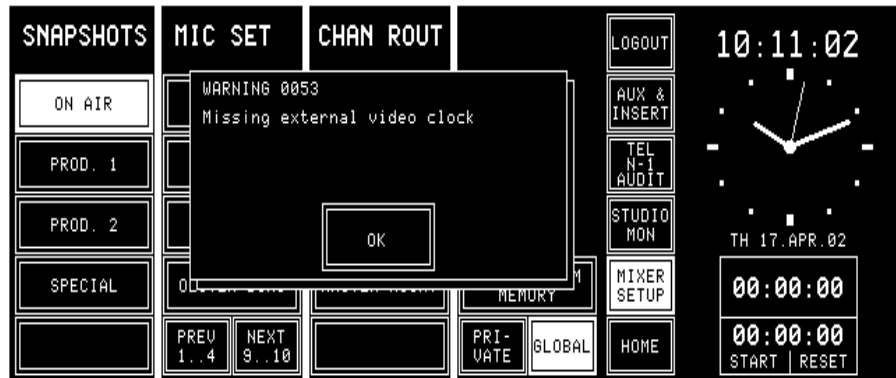
- There are three types of messages: *Errors*, *Warnings*, and *Information*.
- Errors** are serious problems detected by the diagnostics software. Error messages are generated if a problem prevents the console from normal operation. In case of an error, the error handler cannot solve the problem.
- Warnings** are given to the user if the action required by the occurrence of a problem automatically changes any settings of the console so that operation is no longer the same.
- Information** An information-type message is used by the system diagnostics telling the user that an action required by any conflict automatically changes console settings, but the console can at least be operated as it could before.

As more than one system message can occur at the same time, the diagnostics software manages a Log List containing one entry for each system message, completed by time and date of occurrence. If the Log List contains more than one entry, the PREV and NEXT fields appear on the touch-screen. This allows scrolling through different messages.

The Log List will be lost on power-down.

Warning and information messages can be acknowledged by the user, provided he has got access permission. This causes the diagnostics software to remove the message from the Log List.

Some entries in the Log List need to be indicated to the user immediately on their occurrence. A dialog box does this, regardless of the page currently selected on the touch-screen.



System diagnostics is performed during power-up as well as during operation. For more information see [chapters 13.1.1 and 13.2.](#)

### 13.1.1 System Diagnostics

- |                                   |                                                                                                                                                                                                          |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Hardware Performance Check</b> | On power-up the diagnostics software executes some hardware device checks which may result in conflicts.                                                                                                 |
| <b>Communication Check</b>        | On power-up the diagnostics software tries to establish communication to other microprocessors. If communication fails, an error message is displayed.                                                   |
| <b>Configuration Check</b>        | On power-up the diagnostics software finds out the current physical hardware configuration. Any difference to the hardware configuration before the last power-down results in a warning or information. |



<b>Diagnostics and Error Handling – System Configuration Detection</b>				
<b>Error ID</b>	<b>Type</b>	<b>Indication</b>	<b>Diag. Box</b>	<b>Error Text (Conflict)</b>
000	Information	no	no	Module for Channels [n] - [m] installed!
001	Information	yes	no	Module for Channels [n] - [m] added!
002	Warning	yes	no	Module for Channels [n] - [m] removed!
003	Information	no	no	Central Module installed!
004	Information	no	no	Central Module added!
005	Error	yes	yes	No communication to Central Module!
006	Information	no	no	Input Module for Channel [n] installed!
007	Information	yes	no	Input Module for Channel [n] added!
008	Warning	yes	no	Input Module for Channel [n] removed!
009	Information	yes	no	Channel [n] Input Type changed to Mic Input!
010	Information	yes	no	Channel [n] Input Type changed to Analog Line Input!
011	Information	yes	no	Channel [n] Input Type changed to Digital Line Input!
012	Information	yes	no	Channel [n] Input Selector changed to A/B!
013	Information	yes	no	Channel [n] Input Selector changed to 1/2/3/4/5/6!
014	Information	no	no	Digital Output Module for [output] installed!
015	Information	yes	no	Digital Output Module for [output] added!
016	Warning	yes	no	Digital Output Module for [output] removed!
017	Information	yes	no	Insert [n/m] Input Type changed to Analog Line Input!
018	Information	yes	no	Insert [n/m] Input Type changed to Digital Line Input!
019	Information	no	no	Monitoring Module installed!
020	Information	yes	no	Monitoring Module added!
021	Error	yes	yes	No communication to Monitoring Module!
022	Information	no	no	Time Sync Module installed!
023	Information	yes	no	Time Sync Module added!
024	Warning	yes	no	Time Sync Module removed!
025	Information	no	no	Insert [n/m] Module installed!
026	Information	yes	no	Insert [n/m] Module added!
027	Warning	yes	no	Insert [n/m] Module removed!
028	Information	no	no	Sync Module installed!
029	Information	yes	no	Sync Module added!
030	Warning	yes	no	Sync Module removed - Now Running on 48 kHz internal Clock Reference!
031	Information	no	no	Telephone Hybrid Control Module installed!
032	Information	yes	no	Telephone Hybrid Control Module added!
033	Warning	yes	no	Telephone Hybrid Control Module removed!
034	Information	no	no	Channel DSP for Channel [m/n] installed!
035	Information	yes	no	Channel DSP for Channel [m/n] added!
036	Warning	yes	yes	No communication to Channel DSP for Channel [m/n]!
038	Information	yes	no	Number of Channels increased to [n]!
039	Warning	yes	no	Number of Channels decreased to [n]!
043	Information	no	no	Sum DSP installed!
044	Warning	yes	yes	No communication to Sum DSP!
045	Information	no	no	Insert DSP installed!
046	Warning	yes	yes	No communication to Insert DSP!
047	Information	no	no	Aux DSP installed!
048	Warning	yes	yes	No communication to Aux DSP!
049	Information	yes	no	Channel Front Board type is OnAir 1000!
050	Information	yes	no	Channel Front Board type is OnAir 1000!
156	Information	yes	no	Number of Faders increased to [n]! ( <i>n in hexadecimal</i> )
157	Information	yes	no	Number of Faders decreased to [n]! ( <i>n in hexadecimal</i> )
158	Information	yes	no	Channel Routing reset to 1:1 mapping, since the number of Channels has been changed!
159	Information	yes	no	Channel Routing reset to 1:1 mapping, since the number of Faders has been changed!

<b>Diagnostics and Error Handling – Hardware Performance</b>				
<b>Error ID</b>	<b>Type</b>	<b>Indication</b>	<b>Diag. Box</b>	<b>Error Text (Conflict)</b>
051	Warning	yes	yes	Watch RTC Failure! - RTC Device Missing - Device Faulty - Battery Low
052	Warning	yes	no	Missing External Clock - Now Running on 48 kHz internal Clock Reference!
053	Warning	yes	no	Missing External Video Clock

Diagnostics and Error Handling – Flash Checksum Tests				
Error ID	Type	Indication	Diag. Box	Error Text (Conflict)
054	Warning	yes	yes	Flash verification - All Snapshots, Mic Settings and Channel Routings lost due to software version mismatch!
055	Warning	yes	yes	Flash verification - Customer Configuration corrupted!
056	Warning	yes	yes	Flash Verification - Console Configuration corrupted!
057	Warning	yes	yes	Flash Verification - Current Console State corrupted!
058	Warning	yes	yes	Flash Verification - Snapshot Block Checksum Verification Failure! [n] of [m] Global Snapshots loaded.
059	Warning	yes	yes	Flash Verification - Mic Setting Block Checksum Verification Failure! [n] of [m] Global Mic Settings loaded.
072	Warning	yes	yes	Flash verification - Channel Routing Block Checksum Verification failure! [n] of [m] channel routings loaded.

Diagnostics and Error Handling – PC-Card Battery Tests				
Error ID	Type	Indication	Diag. Box	Error Text (Conflict)
060	Information	yes	yes	PC-Card Slot [%] – Card battery low. Replace battery immediately!
061	Warning	yes	yes	PC-Card Slot [%] – Card battery dead. Replace battery immediately!

Diagnostics and Error Handling – Flash Checksum Tests				
Error ID	Type	Indication	Diag. Box	Error Text (Conflict)
062	Warning	yes	yes	Flash verification – Snapshot Block Checksum Verification failure! [n] of [m] Private Snapshots loaded.
063	Warning	yes	yes	Flash verification – Snapshot Block Checksum Verification failure! [n] of [m] Private Mic Settings loaded.

Configurator				
Error ID	Type	Indication	Diag. Box	Error Text (Conflict)
064	Information	yes	yes	Load Configuration Failure due to channel type mismatch! Channel [n] input parameters not reconfigured.
065	Information	yes	yes	Load Configuration Failure due to missing Channel Data in Configuration File! Channel [n] - [m] not reconfigured.
066	Information	yes	yes	Load Configuration Failure due to missing Input Data in Configuration File! Channel [n] Input 3 - 6 not reconfigured.
067	Information	yes	yes	Restore Configuration Failure due to channel type mismatch! Channel [n] not restored during EXIT.
068	Information	yes	yes	Restore Configuration Failure due to number of channels mismatch! Channel [n] - [m] not restored during EXIT.
069	Information	yes	yes	Restore Configuration Failure due to number of inputs mismatch! Channel [n] Input 3 - 6 not restored during EXIT.
073	Information	yes	yes	Input Selection for Channel [n] not activated, since the number of Inputs is 2 instead 6!
074	Information	yes	yes	New Channel Routing not activated, since the number of Channels or the number of Fader strips doesn't match the current configuration!
075	Information	yes	yes	Global Channel Routing not activated, since the number of Channels or the number of Fader strips doesn't match the current configuration!

Snapshot Controller				
Error ID	Type	Indication	Diag. Box	Error Text (Conflict)
080	Information	yes	yes	Snapshot Recall not completed due to missing Input Data in Snapshot! Channel [n] Input 3 - 6 not recalled.
081	Information	yes	yes	Snapshot Recall not possible due to corrupted Snapshot Data!
096	Information	yes	yes	All Global Channel Routings used. - Only [n] of [m] Global Channel Routings loaded!
097	Information	yes	yes	All Global Snapshots used.- Only [n] of [m] Global Snapshots loaded!
098	Information	yes	yes	All Private Snapshots used.- Only [n] of [m] Private Snapshots loaded!
099	Information	yes	yes	Snapshot Recall Failure due to channel type mismatch! Channel [n] not recalled.
100	Information	yes	yes	Snapshot Recall not completed due to missing Channel Data in Snapshot! Channel [n] - [m] not recalled.
101	Information	yes	yes	All Global Mic Settings used.- Only [n] of [m] Global Mic Settings loaded!
102	Information	yes	yes	Mic Setting not created - Input must be of type microphone!
103	Information	yes	yes	Mic Setting not recalled - Input must be of type microphone!

Snapshot Controller (cont.)				
104	Information	yes	yes	Mic Setting not recalled due to corrupted Mic Setting Data!
105	Information	yes	yes	Snapshot not loaded because user [%s] (owner of the Snapshot) is not defined on this mixing console!
106	Information	yes	yes	Mic Setting not loaded because user [%s] (owner of the Mic Setting) is not defined on this mixing console!
107	Information	yes	yes	All Private Mic Settings used. - Only [n] of [m] Private Mic Settings loaded!
108	Information	yes	yes	Recall not possible as selected Snapshot is not defined!
109	Information	yes	yes	Recall not possible as selected Mic Setting is not defined!
110	Information	yes	yes	Snapshot recall failure - channel [n] not available for insert assignment! Insert [m] not recalled.

PC-Card Controller				
Error ID	Type	Indication	Diag. Box	Error Text (Conflict)
113	Information	yes	yes	PC-Card Slot [%] - Empty!
114	Information	yes	yes	PC-Card Slot [%] - Card not supported!
115	Information	yes	yes	PC-Card Slot [%] - Card not formatted!
116	Information	yes	yes	PC-Card Slot [%] - File not found!
117	Information	yes	yes	PC-Card Slot [%] - Card already formatted!
118	Information	yes	yes	PC-Card Slot [%] - Card write protected!
119	Information	yes	yes	PC-Card Slot [%] - Please wait, formatting in progress!
120	Information	yes	yes	PC-Card Slot [%] - Card formatted!
121	Information	yes	yes	PC-Card Slot [%] - Card write error, IFX errorcode = [n]
122	Information	yes	yes	PC-Card Slot [%] - Card read error, IFX errorcode = [n]
123	Information	yes	yes	PC-Card Slot [%] - Volume not mounted, no IFX workspace.
124	Information	yes	yes	PC-Card Slot [%] - Volume not mounted, bad BIOS Parameter Block.
127	Information	yes	yes	PC-Card Slot [%] - File Empty!
128	Information	yes	yes	PC-Card Slot [%] - Snapshot Block Checksum Failure! [n] of [m] Snapshots loaded.
129	Information	yes	yes	PC-Card Slot [%] - Mic Setting Block Checksum Failure! [n] of [m] Mic Settings loaded.
130	Information	yes	yes	PC-Card Slot [%] - Configuration Checksum Failure! Configuration not loaded.
131	Information	yes	yes	PC-Card Slot [%] - Snapshot Block Software Version mismatch!
132	Information	yes	yes	PC-Card Slot [%] - Mic Setting Block Software Version mismatch!
133	Information	yes	yes	PC-Card Slot [%] - Configuration Software Version mismatch!
134	Information	yes	yes	PC-Card Slot [%] - SW Update Prohib Version mismatch! SW not loaded.
136	Information	yes	yes	PC-Card slot [%] - Channel Routing Block Checksum failure! [n] of [m] Channel Routings loaded.
137	Information	yes	yes	PC-Card slot [%] - Channel Routing Block software version mismatch!
138	Information	yes	yes	PC-Card slot [%] - SW update central Module firmware incompatibility! Software not loaded.

Flash Programming				
Error ID	Type	Indication	Diag. Box	Error Text (Conflict)
144	Error	yes	yes	Flash: Sector is protected. AMD error code = [n]
145	Error	yes	yes	Flash: Programming failure. Addr = [adr], prevData = [x], newData = [y], AMD error code = [n]
146	Error	yes	yes	Flash: Erase failure. AMD error code = [n]
147	Error	yes	yes	Flash: Odd address invalid with word access
148	Error	yes	yes	Flash: Memory access failed at address = [adr]
149	Error	yes	yes	Flash: AMD error code = [n]

User Interface				
Error ID	Type	Indication	Diag. Box	Error Text (Conflict)
176	Information	yes	no	Due to insufficient memory the first 10 messages have been removed from the loglist

Automation Interface				
Error ID	Type	Indication	Diag. Box	Error Text (Conflict)
192	Warning	yes	no	Communication to Broadcast Automation lost!
193	Information	yes	no	Communication to Broadcast Automation established!

## 13.2 Indication on Failure of Restricted Functions

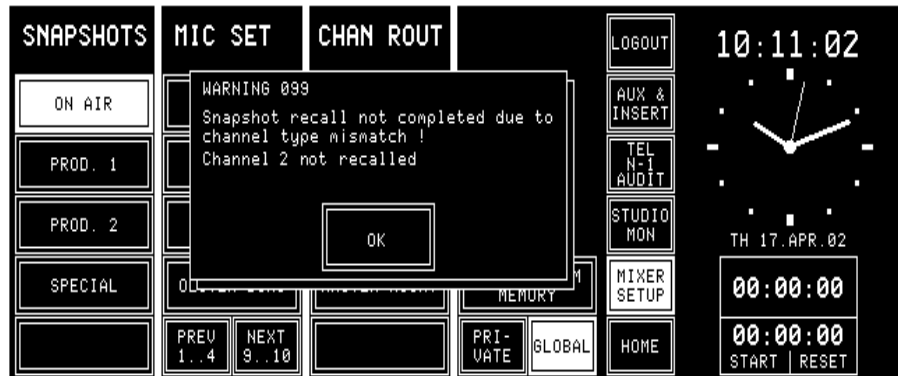
Usually, there is no indication of any error or warning if the execution of functions is prohibited in case of restrictions, because the user immediately notices whether the desired function is performed correctly. Nevertheless, some warnings need to be indicated to the user as a feedback, e.g. if a complete console dump fails because of a write-protected memory card.

The means to indicate to the user a failure during function execution is a dialog box appearing always at the same position on the touch-screen. It displays a system message and will disappear when the user acknowledges the message by touching the “OK” field in the box.

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

To prevent from annoying the user with lots of warning and error message dialog boxes, they are generated only where it is not possible to notice function execution failure. In these cases an error message is generated if the function execution fails completely. A warning is given to the user if a function might be executed partially only.

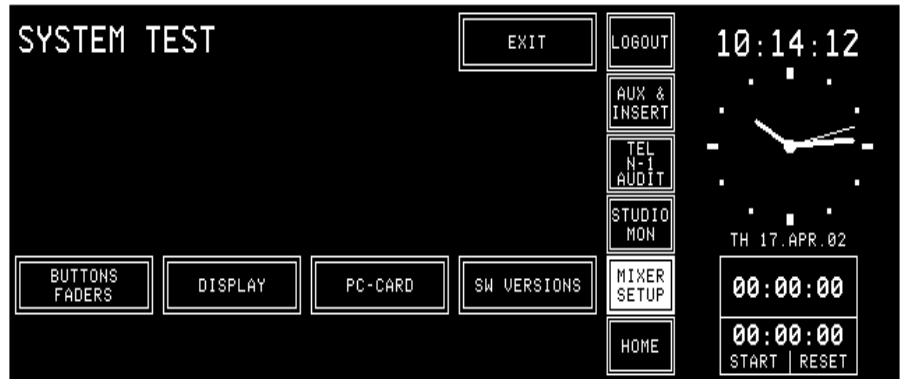
**Example:** The snapshot recall function could not set all channels due to different input channel types:



The user has to acknowledge the dialog box before any other action on the touch-screen will be accepted. Touching configuration keys, e.g. SEL or EQ, which would lead to a different page on the touch-screen, will also be ignored as long as the dialog box has not been acknowledged.

### 13.3 System Test

The system test can be activated by touching the SYSTEM TEST field on the SYSTEM CONFIG. page. The SYSTEM TEST selection page appears on the touch-screen:



#### 13.3.1 Buttons/Faders Test

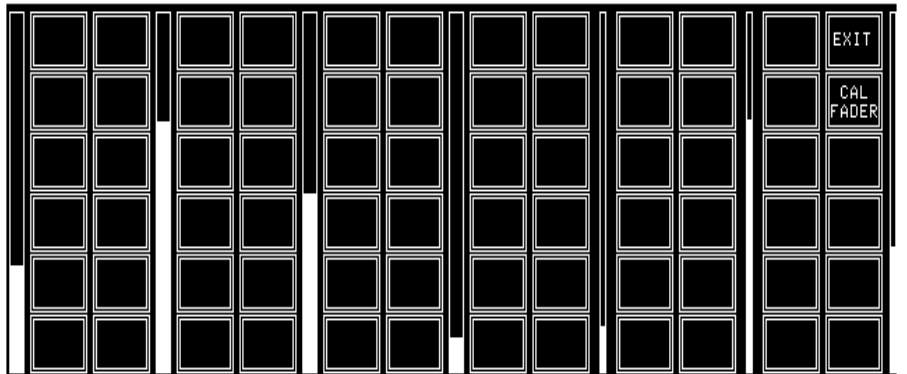
Selecting the BUTTONS/FADERS test brings the console into a mode where the controls of the console can be checked. To return to the SYSTEM TEST selection page, the EXIT field has to be touched.

**Keys and Lamps Test:**

If one of the keys OFF, ON, PFL, SEL, EQ, A, or B is pressed, it is illuminated. To check the LEDs next to the fader and the OVL LED, move the fader knob from its lowest position up to the highest position. All LEDs will be on consecutively.

**Touch-Screen Test:**

If a field is touched on the touch-screen, it is highlighted.

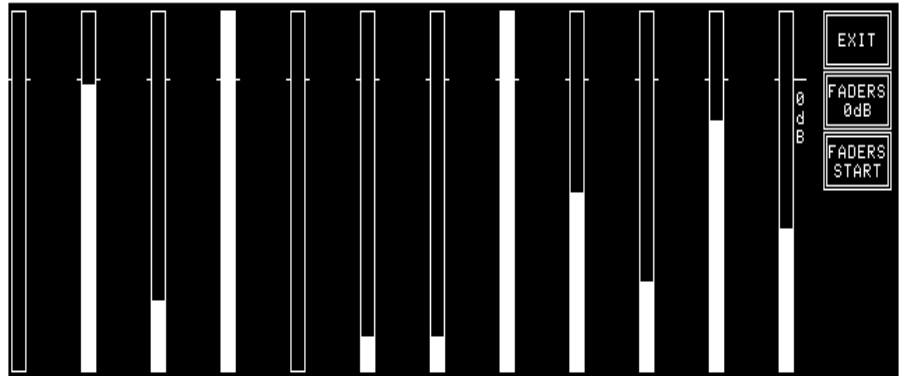


**Rotary Encoders Test:**

If a rotary encoder is turned clockwise, the bar graph next to it encoder increases. The three narrow bar graphs in the right-hand part of the screen are used for the MON, PFL/TB, and PHONES knobs. The full length of the bar graph corresponds to a complete turn of the rotary encoder.

**Fader Calibration:**

Touching the CAL FADER field brings up the CAL FADER page which allows checking and calibrating the faders:



For each fader, a bargraph indicates the current fader position. There are two calibration possibilities: The 0 dB point, and the fader start trigger point.

**Fader 0 dB Point:** *(always required)*

- Move all faders not to be calibrated to their  $-20$  dB position (this position is ignored during calibration).
- Move the fader(s) to be calibrated to their physical 0 dB position.
- Touch FADERS 0dB.

**Fader Start Trigger Point:**

The fader start trigger point must be calibrated only in case of problems with the fader start control output signal, i.e. if fader start is active even if the fader is completely closed.

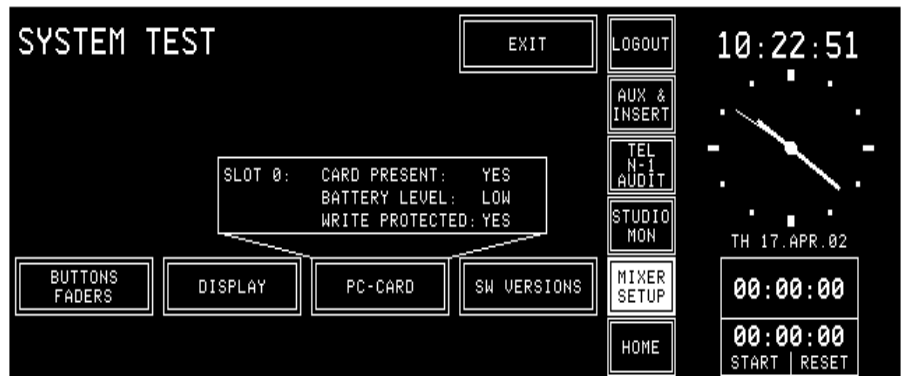
- Move all faders not to be calibrated to their  $-20$  dB position (this position is ignored during calibration).
- Move the fader(s) to be calibrated, starting from the lower end, and set them to a position about 2 to 3 mm above the lower end. This will be the point where the fader start output gets active after calibration.
- Touch FADERS START.

**Exit:** To return to the system test selection page, the EXIT field has to be touched.

### 13.3.2 Display Test

Selecting DISPLAY generates a test pattern on the touch-screen allowing to check for faulty LCD pixels. This mode remains on until the screen is touched again.

**13.3.3 PC-Card Test**



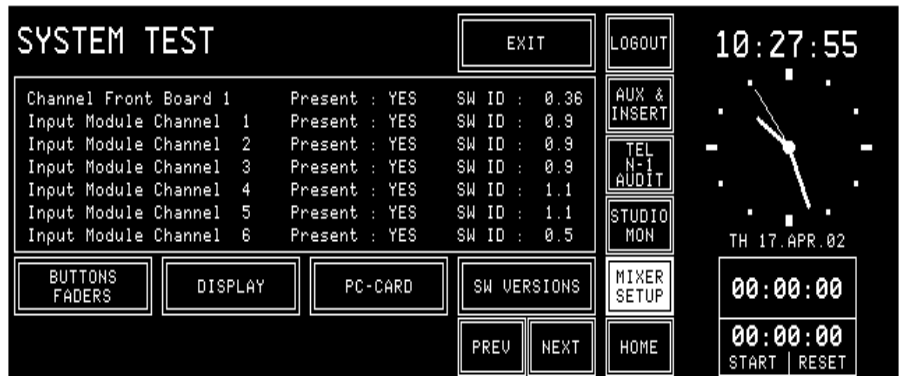
Two types of PC-Cards are used with the console:

- Program card, used for software upgrade
- Data card, used for storing and recalling console configuration, snapshot data, and mic settings

When having touched PC-CARD, the inserted PC-Card is checked for battery voltage and write protection.

**13.3.4 SW Versions Display**

When having touched SW VERSIONS, the current software versions are displayed for every processor in the system.



With the PREV and NEXT fields, all available pages can be browsed.





## 14 WIRING AND HARDWARE INFORMATION

### 14.1 DC Supply

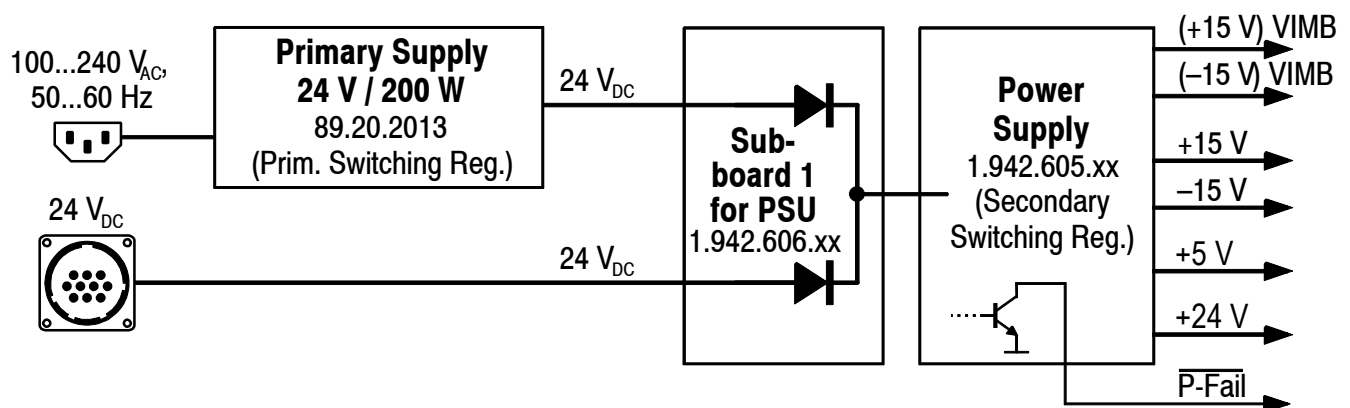
The power supply is made of a primary switching power supply unit, delivering a  $24\text{ V}_{\text{DC}}$  voltage to the secondary Power Supply that converts this voltage to the required  $\pm 15\text{ V}$ ,  $+5\text{ V}$ , and  $+24\text{ V}$ .

On the Primary Supply Unit (89.20.2013) the mains voltage selection is performed automatically. It is short-circuit proof. The fuse, however, is soldered into the circuit and *must not* be replaced in the field. In case of a failure, the complete power supply unit must be replaced.

The secondary Power Supply (1.942.605.xx) generates all the voltages required, except the  $+48\text{ V}$  phantom power; this voltage is generated on the Controller Board.

Power consumption of an OnAir 1000 console is about 125 VA.

The OnAir 1000 can be powered by the mains voltage ( $100\text{...}240\text{ V}_{\text{AC}}$ ) as well as by an external  $24\text{ V}_{\text{DC}}$  voltage (connector labeled “24V DC”). For redundancy, these two power sources can also be connected to the console simultaneously.



#### Internal/External Fuses



For DC operation there is a fuse (F1: T 8.0 A H 250 V UL/CSA) located on the PSU sub board (see component layout diagram below). In case of failure, this fuse must be replaced by a spare fuse of exactly the same type and value.



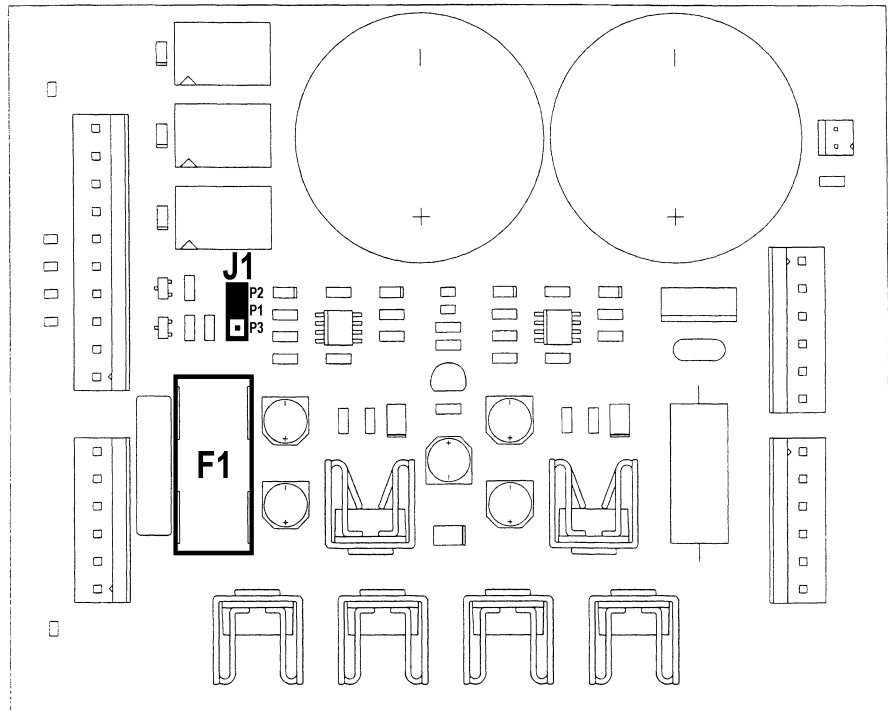
*Please note that for DC operation, an additional, external fuse is required for cable and connector protection (T 10 A H 250 V UL/CSA)!*

#### Wiring

If using the 10pin  $24\text{ V}_{\text{DC}}$  connector, all  $+24\text{ V}$  pins (no. 1...3) and the GND pins no. 8...10 have to be used in parallel.

Depending on the power supply mode, wire bridges have to be inserted into the 10pin cable socket for correct processing of the power alarm output's voltage thresholds. Refer to the following table:

Supply mode	Bridge(s) from pin no. to pin no.
100...240 $\text{V}_{\text{AC}}$ only	No bridge required
$24\text{ V}_{\text{DC}}$ only	6-7 and 5-7
100...240 $\text{V}_{\text{AC}}$ and $24\text{ V}_{\text{DC}}$	6-7



**Alarm Output**

Power alarm is triggered if the internal or external supply voltage drops below 23.0 V; then the POWER ALARM LED on the front panel is illuminated, and a power alarm signal is output on pin 4 of the DC supply connector.

The power alarm signal is a relay contact (max. 40 V/200 mA). Its behaviour depends on jumper J1 on the PSU sub board (see component layout diagram on the previous page); either pin 4 is normally floating and pulled to GND if alarm is active (P1 and P2 connected, default factory setting), or pin 4 is normally pulled to GND and becomes floating if alarm is active (P1 and P3 connected).

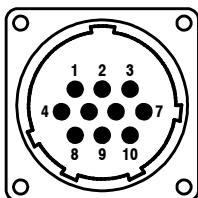
Should the supply voltage drop below 21.6 V, the console automatically shuts down after having stored all relevant data.

*For correct start of the console a supply voltage of min. 22.0 V is required.*

**Pin Assignment:**

**24 V DC connector (10pin, male)**

Matching female connector: Hirose JR21PK-10S, order no. 54.20.2010



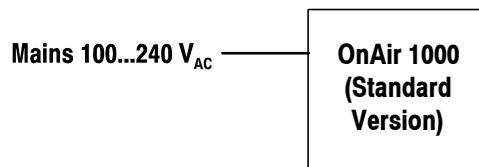
Pin	Signal
1	+22...28 V <sub>DC</sub>
2	+22...28 V <sub>DC</sub>
3	+22...28 V <sub>DC</sub>
4	Power alarm output (see "Alarm Output" above)
5	Power supply select 2 (see "Wiring" above)
6	Power supply select 1 (see "Wiring" above)
7	GND
8	GND
9	GND
10	GND

## 14.2 Redundant Power Supply

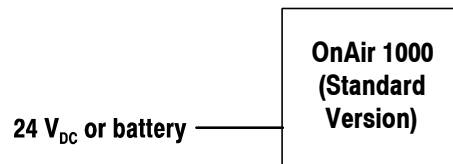
**Redundant Supply Versions:** There exist four basic versions of the OnAir 1000 Digital Mixing Console: Analog- and digitally-biased versions both are available with standard mains and/or 24 V<sub>DC</sub> supply, as well as with dual, redundant 24 V<sub>DC</sub> supply together with a separate, external 19" dual supply unit.



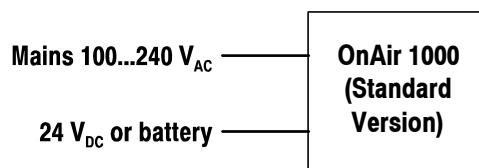
a – Mains voltage operation only, *no redundancy*:



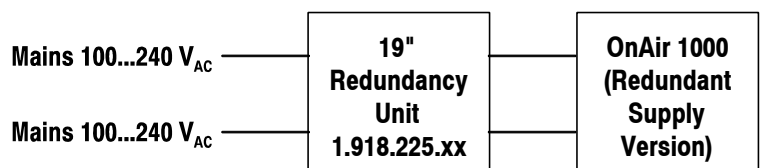
b – 24 V<sub>DC</sub> operation, *no redundancy*:



c – Mains and 24 V<sub>DC</sub> operation, *semi-redundant (only primary power supply doubled)*:



d – *Fully redundant version* with ext. 19" unit



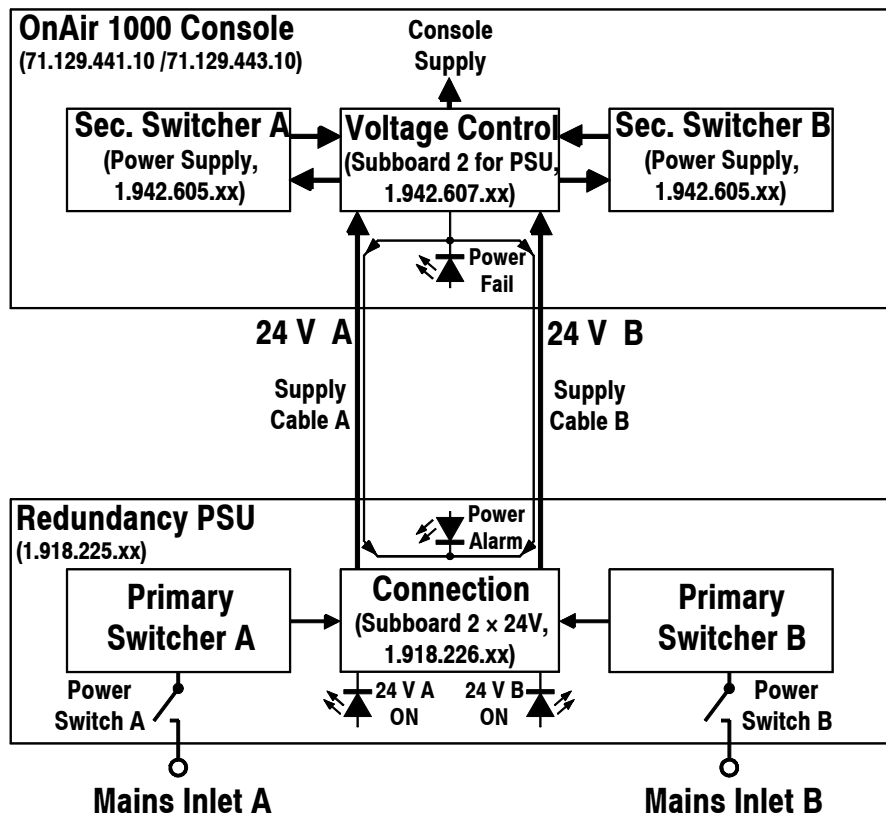
The diagram above shows the different possibilities with the standard versions (a...c) and the dual-supply redundant version (d).

The fully redundant version includes two complete and identical power supply paths, with separate mains inlets (preferably connected to two dif-

ferent phases of the mains), two mains switches, two primary power supplies, two separate DC cables to the console, and two separate secondary DC-DC converters within the console.

The primary AC/DC converters are contained in an external 19" rack mount case. On the front panel two mains switches are fitted, together with LED indicators for both 24 V voltages and an eventual power alarm. On the rear side two connectors are available for the mains inlet, and two connectors where the supply cables to the console can be attached. The 19" case is equipped with a very low noise fan.

The OnAir 1000 versions with fully redundant power supplies use the existing 24 V<sub>DC</sub> connector at the rear panel for one of the supply cables. In place of the mains inlet connector of the standard versions there is a second 24 V<sub>DC</sub> connector for the second cable. The cable harness and the decoupling PCB inside the console are different from the ones of the standard versions, too.



The OnAir 1000 consoles with fully redundant power supply are delivered under two different order numbers (see below) and come complete with the 19" Redundancy PSU. However, the cables have to be ordered separately, depending on the required cable length (two cables required per console).

**Internal Fuses**



There are *two* fuses (T 8.0 A H 250 V UL/CSA) located on the Sub Board 2 (1.942.607.xx) within the console. In case of failure, these fuses must be replaced by spare fuses of exactly the same type and value.

**Alarm Output**

Power alarm is triggered if one of the external supply voltages drops below 23.0 V or if one of the internal supply voltages fails. The "POWER FAIL" LED on the console is illuminated; in addition, the power alarm signal is

output on pin4 of both DC supply connectors of the console, illuminating the "POWER ALARM" LED on the front panel of the Redundancy PSU. The power alarm output is a relay contact (max. 40 V/200 mA). Its behaviour depends on jumper J1 on the PSU sub board.

Pin4 is normally floating, and pulled to GND if alarm is active (P8 and P9 connected, default factory setting), or pin4 is normally pulled to GND and becomes floating if alarm is active (P7 and P8 connected).

**Note:** *It is recommended to leave the jumper setting as it is. If it is changed, the POWER ALARM LED on the front panel of the 19" supply unit will be illuminated if everything is alright, and vice versa.*

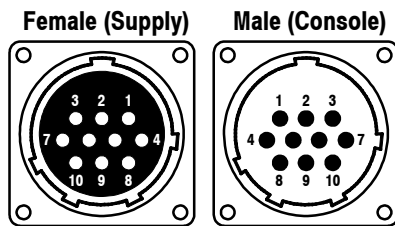
**Power-Down**

Should the supply voltage drop below 21.6 V, the console automatically shuts down after having stored all relevant data.

*A supply voltage of min. 22.0 V is required for correct start and operation of the console.*

**Pin Assignment**

"24 V A" and "24 V B" connectors on the supply unit (10pin, female)  
 "24 V A" and "24 V B" connectors on the console (10pin, male).



Pin	Signal
1	+22...28 V <sub>DC</sub>
2	+22...28 V <sub>DC</sub>
3	+22...28 V <sub>DC</sub>
4	Power alarm output (see "Alarm Output" above)
5	not used
6	PSS1, Power supply select 1 (see "Single Supply for Redundant Version" below)
7	GND
8	GND
9	GND
10	GND

Mating cable connectors: 54.20.2010 (female), 1.918.210.01 (male).

**Single Supply for Red. Version:**

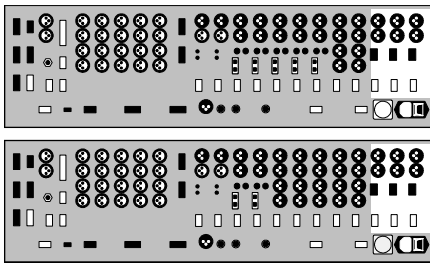
*If only one 24 V<sub>DC</sub> supply should be connected to an OnAir 1000 Redundant Supply Version, this supply must be connected to the console's "24 V A" connector. In such a case, a bridge from pin6 (PSS1) to pin7 (GND) must be inserted in the female 10pin 24 V<sub>DC</sub> connector. It is recommended to insert this bridge in a second 10pin connector plugged to the console's "24 V B" connector.*

*Even if there is only one 24 VDC supply, the secondary switchers are still doubled for redundancy.*

**Ordering Information**

- OnAir 1000 Analog-biased version, for red. supply ..... 71.129.441.10
  - OnAir 1000 Digitally-biased version, for red. supply ..... 71.129.443.10
  - 24 V<sub>DC</sub> connection cable, 2 m (1 pce.)..... 1.925.230.00
  - 24 V<sub>DC</sub> connection cable, 5 m (1 pce.)..... 1.925.231.00
  - 24 V<sub>DC</sub> connection cable, 7 m (1 pce.)..... 1.925.232.00
  - 24 V<sub>DC</sub> connection cable, 10 m (1 pce.)..... 1.925.233.00
- Note:** Cables must be ordered separately (2 pcs. needed)
- Redundancy PSU, 19" rack-mount external supply unit (included in the OnAir 1000 Red. Supply versions) ..... 1.918.225.00
  - OnAir 1000 Analog-biased version, standard supply..... 71.129.440.10
  - OnAir 1000 Digitally-biased version, standard supply ..... 71.129.442.10

### 14.3 Mic Input

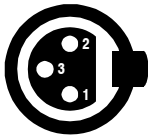


Each microphone input unit features two inputs and A/B switchover. Inputs A and B are transformer-balanced mono microphone inputs. The maximum input level is such that also mono line level signals can be processed if required.

The analog path has an insert point right after the preamplifier stage. Both the insert send and return signals are electronically balanced. The nominal send and return levels are +6 dBu, with 9 dB headroom for 0 dB<sub>FS</sub>.

**Pin Assignments:**

**MIC inputs A/B (XLR, 3pin, female):**

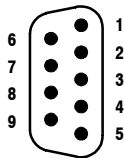


Pin	Signal
1	Chassis
2	Input +
3	Input -

**INSERT connectors (Bantam jacks):**

Pin	Signal
T	Signal +
R	Signal -
S	Chassis

**CTRL connector (D-type, 9pin, male):**



Pin	Signal	Pin	Signal
1	CTRL OUT 1A	6	COMMON
2	+5 V SUPPLY	7	CTRL OUT 2B
3	CTRL OUT 2A	8	CTRL IN B
4	CTRL IN A	9	GND
5	CTRL OUT 1B		

Two control outputs (CTRL OUT xA/B) are available for each individual input, which can be used to start and/or cue external devices such as CD players, R-DAT units, or a radio automation system, or for red light signaling. The control signals can be triggered by various functions and depend on the selected fader start mode (INPUT CONFIG. page). For details please refer to [chapter 8](#).

*For CTRL OUT 1A/B, four operating modes are available:*

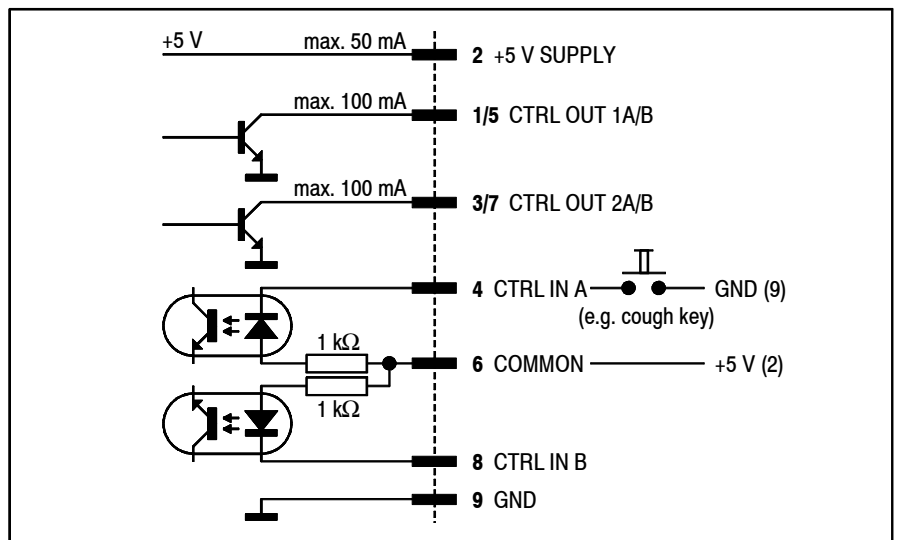
- NOT ACTIVE** Output is always open.
- ON & FADER** Output is closed (i.e. pulled to GND) if ON key is pressed *and* fader is open.
- PFL/ON & FADER** Output is closed if *either* PFL is active (independent of the fader position), *or* ON key is pressed *and* fader is open.
- ON LAMP** Output is closed while the ON lamp is illuminated.

*For CTRL OUT 2A/B, seven operating modes are available:*

<b>NOT ACTIVE</b>	Output is always open.
<b>LOCATE KEY</b>	Output is closed (i.e. pulled to GND) if the OFF key is pressed and the input channel is active.
<b>PREVIEW</b>	Output is closed if the PFL key is active and the PREVIEW function has been activated; the input channel must be switched off.
<b>LOCATE PFL KEY</b>	Output produces a pulse if the PFL key is deactivated (LOCATE function is activated).
<b>ATTENTION</b>	Output is closed as long as the OFF key is pressed, independent of whether the input channel is open or closed.
<b>ON LAMP</b>	Output is closed while the ON lamp is illuminated.
<b>LOCATE PFL/LOC KEY</b>	Combination of the LOCATE KEY and LOCATE PFL KEY functions. For details, please refer to <b>chapter 8</b> .

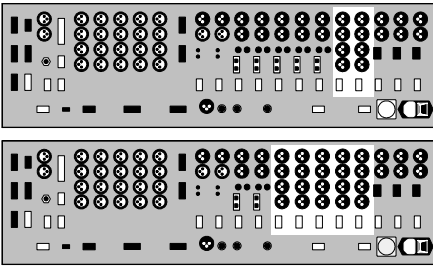
*The CTRL IN A/B can be used for muting the input channel, for remote control of the ON/OFF key or for entering ready status. Four operating modes are available:*

<b>NOT ACTIVE</b>	Input is inactive.
<b>READY</b>	Acknowledgement of a ready signal.
<b>EXT. MUTE</b>	Channel is muted (e.g. cough key).
<b>EXT. ON/OFF</b>	External ON/OFF switchover.



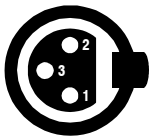
**Notes:** “COMMON” can be wired either to “+5 V SUPPLY” or to an external power supply (max. +15 V<sub>DC</sub>). An active low control signal is connected between “CTRL IN A” or “CTRL IN B” and “GND”. The inputs are optocoupler inputs with internal 1 kΩ current limiting resistors. All outputs are open-collector outputs. Small loads, such as LEDs, optocouplers, or relays can be driven directly. Maximum current per open-collector output must *not* exceed 100 mA. The “+5 V” output can supply up to 50 mA for opto-couplers or relays. *The sum of all “+5 V” outputs for all input CTRL connectors of the whole console must not exceed 300 mA!*

## 14.4 Analog Line Input



Each analog line input unit has an input selector for two stereo input sources (A and B). Both inputs A and B are electronically balanced and are equivalent.

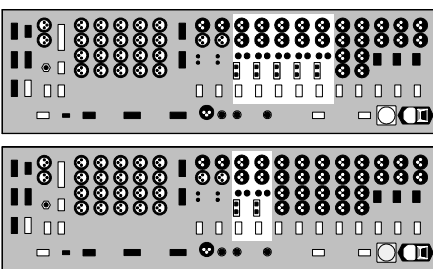
**Pin Assignments:** **LINE inputs A/B (XLR, 3pin, female):**



Pin	Signal
1	Chassis
2	Input +
3	Input -

**CTRL connector** (D-type, 9pin, male): Please refer to [chapter 14.3](#) for details.

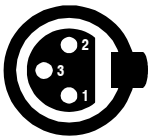
## 14.5 Digital Input



Each digital input unit has an input selector for two digital signals A and B. Each of the inputs has all connectors (XLR, Cinch/RCA, Toslink) required for supporting the AES/EBU and S/PDIF standards.

The most important C-bits (Professional, Audio, Emphasis, Sampling rate, Stereo) are read on the interface and transferred to the host controller. Audio and Emphasis bits are processed. The digital source needs not to be synchronized to the console since all digital input channels are equipped with a 20-bit sampling frequency converter (SFC).

**Pin Assignments:** **AES/EBU inputs A/B (3pin, female):**



Pin	Signal
1	Chassis
2	Input +
3	Input -

**S/PDIF connectors A/B (Cinch/RCA):**



Pin	Signal
Inner	Input
Outer	GND

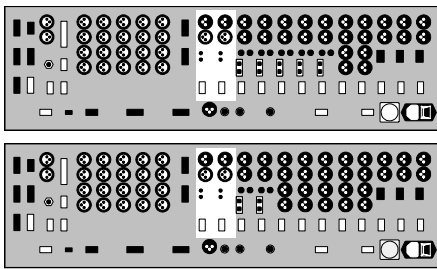


**Optical connectors A/B (Toslink):** For optical-fibre cables.

**CTRL connector** (D-type, 9pin, male): Please refer to [chapter 14.3](#) for details.



## 14.6 TB Mic Input

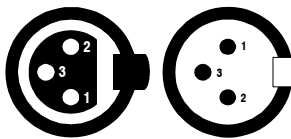


The TB Mic input units are used for connecting internal and/or external talkback microphones. In the standard configuration, the OnAir 1000 features an internal electret talkback microphone internally connected to the “CR” TB Mic input unit. The second, “Studio” TB Mic input unit can be used for talkback from the studio. If ever wished, the user can disconnect the internal microphone and connect an external CR talkback microphone to the “CR” TB Mic input unit; input selection is performed by means of an on-board jumper. A transformer-balanced XLR input with jumper-selectable 48 V phantom power is provided. The balanced input is available on a 3pin AMP connector on the PCB as well. The input gain is set with a jumper (LO/HI) and is adjustable with a rear-panel trimmer potentiometer. An on-board limiter protects the output from an accidental overload.

The analog TB outputs are transformer-balanced. They are fed to XLR connectors at the rear panel and to AMP connectors on the PCBs; unbalanced AMP outputs are available on the PCBs. The levels of the balanced outputs are adjusted with rear-panel trimmer potentiometers.

The analog TB outputs must be activated by external control signals or by wire bridges in dummy plugs on the CTRL connectors (connect pins 2-6 and 4-9).

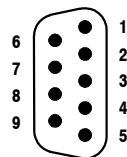
### Pin Assignments:



### TB MIC IN/OUT (XLR, 3pin, female/male)

Pin	Signal
1	Chassis
2	Input +/Output +
3	Input -/Output -

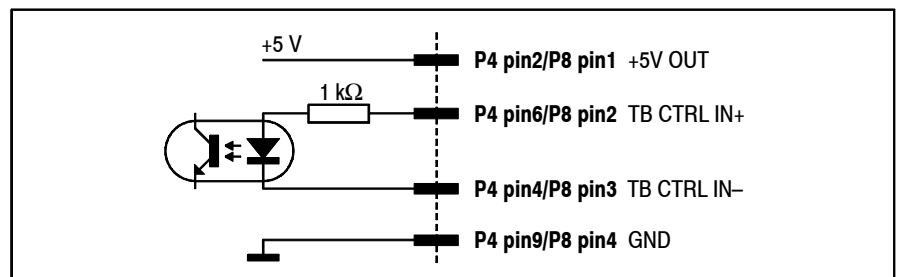
### CTRL connector P4 (D-type, 9pin, male), P8 (on PCB AMP, 4pin, male)



P4, pin	P8, pin	Signal	P4, pin	P8, pin	Signal
1	-	n.c.	6	2	TB CTRL IN +
2	1	+5 V OUT	7	-	n.c.
3	-	n.c.	8	-	n.c.
4	3	TB CTRL IN -	9	4	GND
5	-	n.c.			

### Control Input:

If a control signal is applied to “TB CTRL IN+” and “TB CTRL IN-”, the EXT TB MIC OUTPUT is activated.

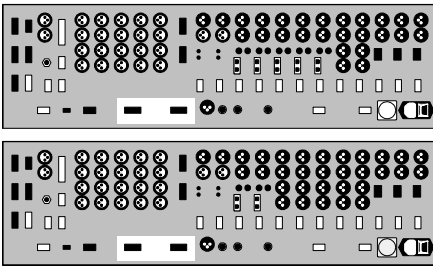


**Notes:** “TB CTRL IN +” can be wired either to “+5 V OUT” or to an external supply (max. +15 V<sub>DC</sub>). An active low control signal is connected between “TB CTRL IN -” and “GND”. The input is an opto-coupler input with an

internal 1 kΩ current limiting resistor. The “+5 V OUT” output can supply up to 50 mA. *The sum of all “+5 V” outputs for all input CTRL connectors of the whole console must not exceed 300 mA.*

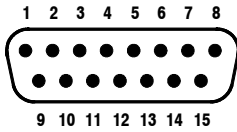
**External TB Mic:** The TB Mic input units are equipped with a balanced mic input (XLR, 3pin, female) for the connection of external microphones. Selection of internal/external TB mic is done with a jumper on the PCBs (see [chapter 15.2](#)).

## 14.7 Telephone Hybrid Interface

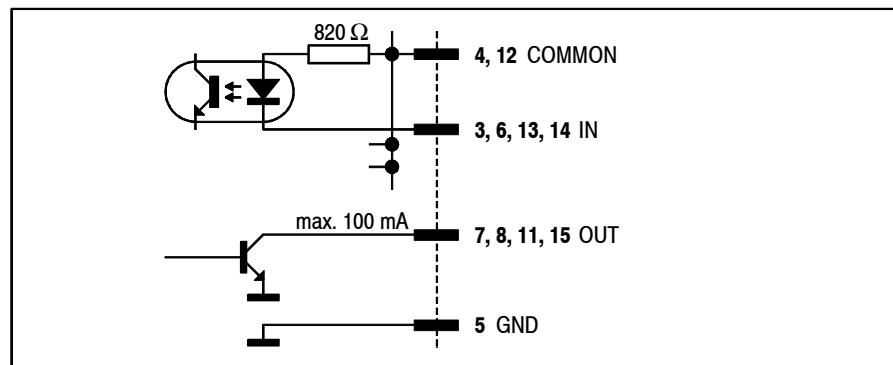


The telephone hybrid interface is used to control two external telephone hybrid units from the console.

**Pin Assignment:** TEL HYBRID A/B (D-type, 15pin, male):



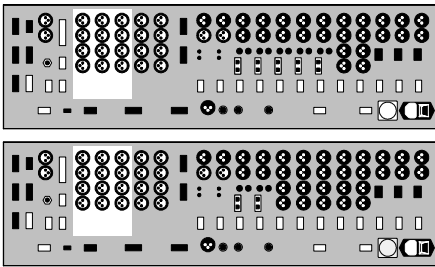
Pin	Signal	Pin	Signal	Pin	Signal
1	n.c.	6	Hold IN	11	Spare OUT
2	n.c.	7	Studio OUT	12	COMMON
3	Spare IN	8	Tel OUT	13	Tel IN
4	COMMON	9	n.c.	14	Studio IN
5	GND	10	n.c.	15	Hold OUT



The inputs are opto-coupler inputs with internal 820 Ω current limiting resistors.

All outputs are open-collector outputs. Small loads, such as LEDs, opto-couplers, or relays can be driven directly. *Maximum current per open-collector output must not exceed 100 mA.*

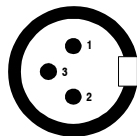
## 14.8 Analog Output



The analog output units provide a transformer-balanced, dual stereo or mono output signal (selectable with a jumper). Output signal selection is performed on the PCB by means of jumpers; refer to [chapter 15.4](#).

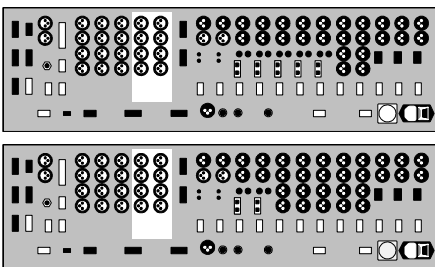
In mono mode, the output signals of the stereo DAC are added in the analog domain to increase the converters' dynamic range. Therefore, if the DAC input signal is a stereo signal, the resulting mono output level is increased by 3 dB referred to the stereo output, and if the DAC input signal is a mono signal, the resulting mono output level is increased by 6 dB. For compensation of these level differences, the output level can be adjusted with trimmer potentiometers located on the PCB; refer to [chapter 15.4](#) for component location.

**Pin Assignment:** ANALOG OUT A/B (XLR, 3pin, male):



Pin	Signal
1	Chassis
2	Output +
3	Output -

## 14.9 Digital Output

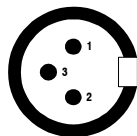


Each digital output unit delivers two independent AES/EBU output signals. The most important C-bits (Professional, Audio, Emphasis, Sampling rate, Stereo) are set by the host controller. The output sampling rate is that of the console (i.e., usually 48 kHz).

A pair of XLR connectors with separate signal drivers are provided for each of the two AES/EBU output signals.

Output signal selection is performed on the PCB by means of jumpers; refer to [chapter 15.5](#).

**Pin Assignment:** DIGITAL OUT A/B (XLR, 3pin, male):

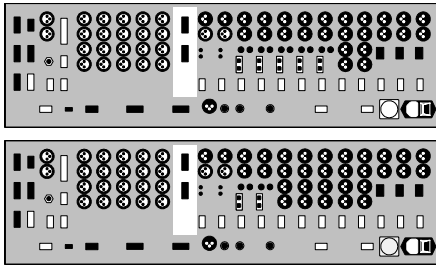


Pin	Signal
1	Chassis
2	Output +
3	Output -

**C-Bits:** The abovementioned C-bits are set as follows:

- Professional: PRO
- Audio: AUDIO
- Emphasis: NO EMPHASIS
- Stereo: depending on output configuration
- Sampling rate: According to the internal sampling rate measurement.

## 14.10 Analog Insert



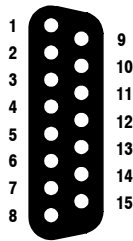
There are two analog, electronically balanced stereo insert sends and returns (1 and 2) that can be assigned to any of the input channels, or to the program or the record bus.

Selection of the input channel to be assigned to the insert is performed on the AUX MASTER/INSERT page by means of the fourth rotary encoder. Selection is possible only if the corresponding insert is set to OFF (i.e., the return signal is not routed to the output).

The insert send is always active; the return, however, is only active if the ON field of the corresponding insert (on the AUX MASTER/INSERT page) is activated.

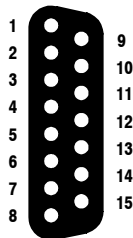
The sends are equipped with an internal limiter located before the D/A converter to avoid overloads. Nominal insert level is +6 dBu with 9 dB headroom (i.e. maximum level is +15 dBu for 0 dB<sub>FS</sub>).

**Pin Assignment:** INSERT 2 (upper; D-type, 15pin, female):



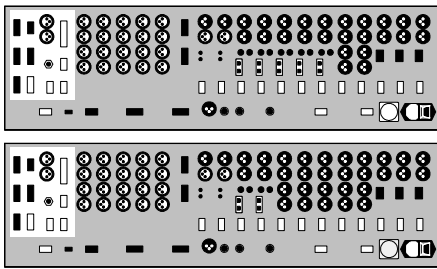
Pin	Signal
1	Return 2 right +
2	Chassis
3	Send 2 right -
4	n.c.
5	Return 2 left +
6	Chassis
7	Send 2 left -
8	n.c.
9	Return 2 right -
10	Chassis
11	Send 2 right +
12	n.c.
13	Return 2 left -
14	Chassis
15	Send 2 left +

**INSERT 1 (lower; D-type, 15pin, female):**



Pin	Signal
1	Return 1 right +
2	Chassis
3	Send 1 right -
4	n.c.
5	Return 1 left +
6	Chassis
7	Send 1 left -
8	n.c.
9	Return 1 right -
10	Chassis
11	Send 1 right +
12	n.c.
13	Return 1 left -
14	Chassis
15	Send 1 left +

## 14.11 Monitoring



The monitoring section is a (mainly analog) monitoring unit. It has five external analog inputs in addition to the console’s internal buses. It provides analog output signals for headphones and loudspeakers in the control room as well as in the studio.

For details refer to the block diagram in [chapter 1](#), which is an overview over the complete signal processing functionality.

The parallel “STUDIO MON CTRL” interface (25pin D-Type, male) allows the construction of a studio monitoring unit. Signals on this interface:

- 6 × monitor source selector in (opto-coupler inputs)
- 3 × talkback destination in (opto-coupler inputs)
- 6 × source selector feedback out (open collector outputs)

The monitor sources and the talkback destinations are described in [chapter 6](#), “Monitoring”.

One of the external analog inputs on the monitoring section is used as a PFL input provided for a CAB (radio automation) system.

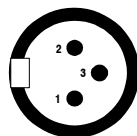
For this purpose, the following control signals are available:

- 1 × External PFL IN (opto-coupler input)
- 1 × External PFL OUT (open-collector output)

The “EXT PFL CTRL” D-Type connector (9pin, male) is used for the control signals from and to a CAB system. If “External PFL IN” is activated, the “EXT PFL” audio signal on the “EXTERN MONITOR INPUT” connector is routed to the PFL bus.

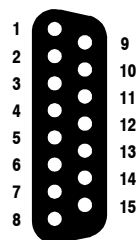
When pressing the “EXT PFL” key in the monitoring section, the “External PFL OUT” control signal on the “EXT PFL CTRL” connector is active, and the “EXT PFL” audio signal on the “EXTERN MONITOR INPUT” connector is routed to the PFL bus as well.

### Pin Assignments:



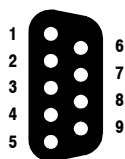
### CR OUT L/R (XLR, 3pin, male):

Pin	Signal
1	Chassis
2	Output +
3	Output –



### EXTERN MONITOR INPUT A/B/C (15pin D-type, female):

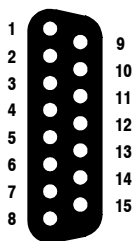
Pin	Connector A (upper) Signal	Connector B (mid) Signal	Connector C (lower) Signal
1	EXT PFL right +	EXT3 right +	EXT2 right +
2	Chassis	Chassis	Chassis
3	EXT PFL left –	EXT3 left –	EXT2 left –
4	n.c.	n.c.	n.c.
5	n.c.	OFF AIR right +	EXT1 right +
6	Chassis	Chassis	Chassis
7	n.c.	OFF AIR left –	EXT1 left –
8	n.c.	n.c.	n.c.
9	EXT PFL right –	EXT3 right –	EXT2 right –
10	Chassis	Chassis	Chassis
11	EXT PFL left +	EXT3 left +	EXT2 left +
12	n.c.	n.c.	n.c.
13	n.c.	OFF AIR right –	EXT1 right –
14	Chassis	Chassis	Chassis
15	n.c.	OFF AIR left +	EXT1 left +

**STUDIO MONITOR (AUDIO) A** (volume control, 9pin D-type, female):

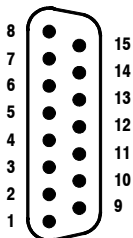
Pin	Signal
1	GND
2	Speakers volume pot, wiper ( <i>note 1</i> )
3	n.c.
4	Phones volume pot, wiper ( <i>note 1</i> )
5	GND
6	+5 V ( <i>note 2</i> )
7	Chassis
8	Chassis
9	+5 V ( <i>note 2</i> )

**Note 1:** 10 kW lin. volume control potentiometers connected between +5 V and GND.  
Volume is maximum if wiper voltage is +5 V.

**Note 2:** 100 W series resistors provided internally for short-circuit protection.

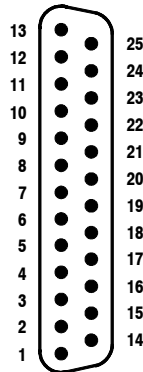
**STUDIO MONITOR (AUDIO) B** (talkback in, 15pin D-type, female):

Pin	Signal
1	Ext. TB in +
2	Chassis
3	n.c.
4	n.c.
5	n.c.
6	Chassis
7	n.c.
8	n.c.
9	Ext. TB in -
10	Chassis
11	n.c.
12	n.c.
13	n.c.
14	Chassis
15	n.c.

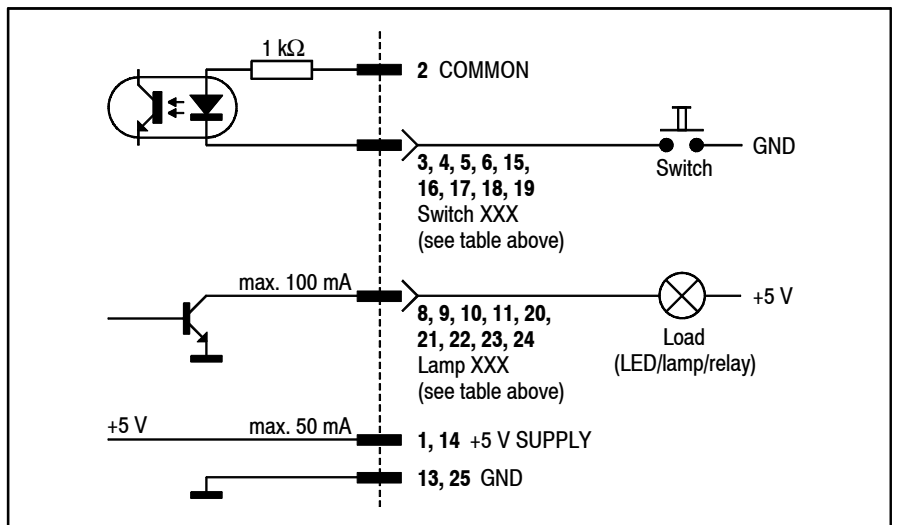
**STUDIO MONITOR (AUDIO) C** (15pin D-type, male):

Pin	Signal
1	Phones right
2	Chassis
3	GND
4	n.c.
5	Loudspeaker right +
6	Chassis
7	Loudspeaker left -
8	n.c.
9	GND
10	Chassis
11	Phones left
12	n.c.
13	Loudspeaker right -
14	Chassis
15	Loudspeaker left +

STUDIO MON CTRL (D-type, 25 pin, male):

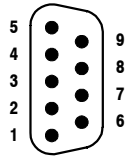


Pin	Signal	Pin	Signal	Pin	Signal
1	+5 V SUPPLY	10	Lamp EXTERN	19	Switch TB TO TEL2
2	COMMON	11	Lamp Spare2	20	Lamp PGM
3	Switch AUX1	12	n.c.	21	Lamp AUX2
4	Switch OFF AIR	13	GND	22	Lamp PFL
5	Switch EXTERN	14	+5 V SUPPLY	23	Lamp Spare1
6	Switch TB TO TEL1	15	Switch PGM	24	Lamp STUDIO MIC ON
7	n.c.	16	Switch AUX2	25	GND
8	Lamp AUX1	17	Switch PFL		
9	Lamp OFF AIR	18	Switch TB TO CR		

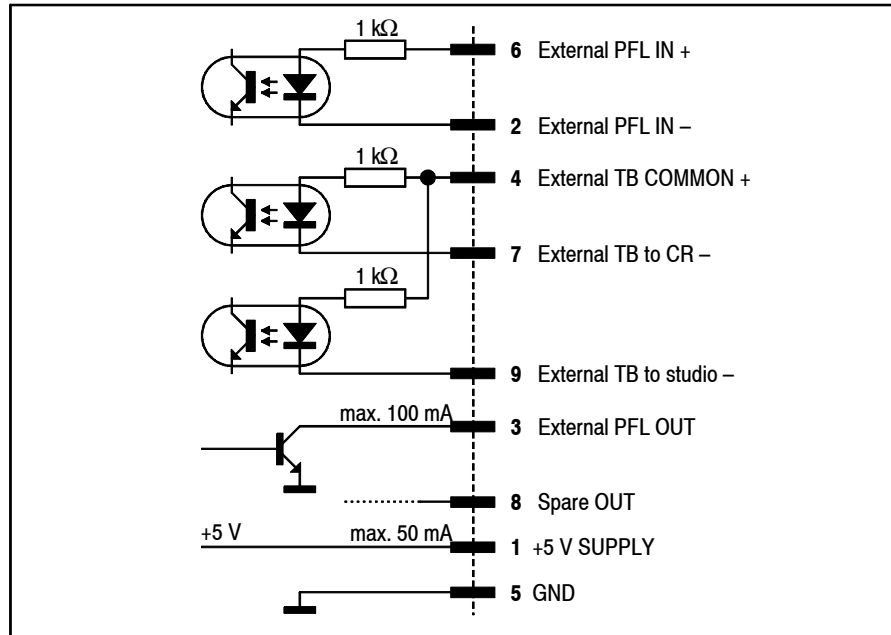


**Notes:** “COMMON” can be connected either to “+5 V SUPPLY” or to an external power supply (max. +15 V<sub>DC</sub>). Active-low control signals are connected between “Switch XXX” and “GND”. The Switch inputs are opto-coupler inputs with an internal 1 kΩ current limiting resistor each. The “Lamp XXX” outputs are open-collector outputs; small loads, such as LEDs, opto-couplers, or relays, can be driven directly. *The current must not exceed 100 mA per output.* *The “+5 V” supply current for LEDs or relays must not exceed 50 mA in total.*

**EXT PFL CTRL (D-type, 9 pin, male):**



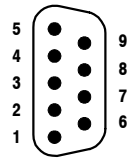
Pin	Signal	Pin	Signal
1	+5 V SUPPLY	6	External PFL IN +
2	External PFL IN -	7	External TB to CR -
3	External PFL OUT	8	Spare OUT
4	External TB COMMON +	9	External TB to Studio -
5	GND		



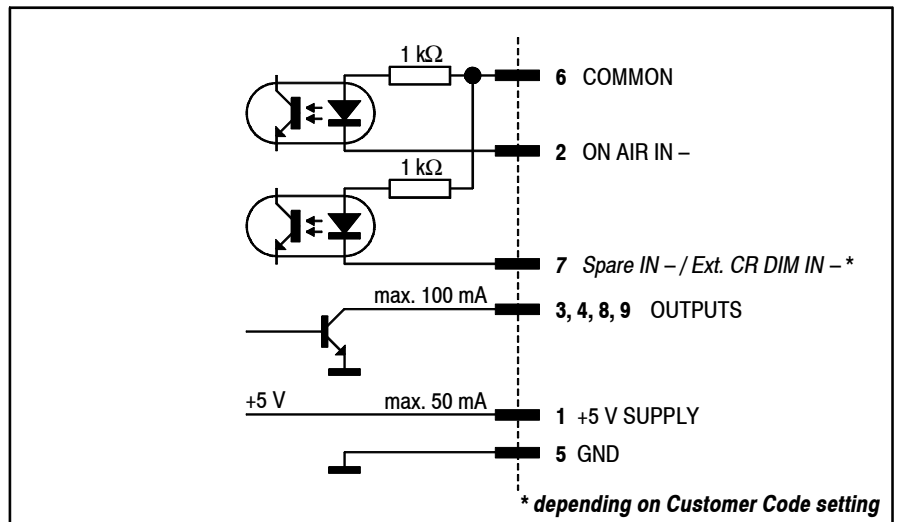
**Notes:** “External PFL IN +” and/or “External TB COMMON” can be connected either to “+5 V SUPPLY” or to an external power supply (max. +15 V<sub>DC</sub>). A pushbutton or an active-low control signal from a radio automation system is connected between the “-” control inputs and “GND”. The inputs are opto-coupler inputs with internal 1 kΩ current limiting resistors. The “External PFL OUT” output is an open-collector output; a small load, such as an LED, an opto-coupler, or a relay can be driven directly. *The current must not exceed 100 mA.* The “+5 V” supply current for LEDs, opto-couplers, or relays must not exceed 50 mA in total.



**SIGN.** (D-type, 9 pin, male):



Pin	Signal	Pin	Signal
1	+5 V SUPPLY	6	COMMON
2	ON AIR IN –	7	Spare IN – or Ext. CR DIM IN – *
3	CR MIC OUT	8	STUDIO MIC OUT
4	PGM OUT	9	Spare OUT
5	GND	* depending on Customer Code setting	



The “ON AIR IN –” signal turns on the “ON AIR” lamp on the console's monitoring section.

The “CR MIC OUT” output is active if any microphone in the control room is on (i.e. fader open, ON pushbutton active, signal routed to the PROGRAM or RECORD bus).

The “STUDIO MIC OUT” output is active if any microphone in the studio is on (i.e. fader open, ON pushbutton active, signal routed to the PROGRAM or RECORD bus).


The “PGM OUT” output is active if any input channel is on (i.e. fader open, ON pushbutton active, signal routed to the PROGRAM or RECORD bus).

If set with the Customer Code (refer to [chapter 11.2.11](#)), an external control signal at the “Ext. CR DIM IN –” input reduces (dims) the level of the CR monitor speakers by 20 dB.

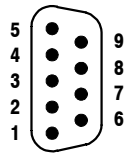
**Notes:** “COMMON” can be connected either to “+5 V SUPPLY” or to an external power supply (max. +15 V<sub>DC</sub>). Active-low control signals are connected between the control inputs and “GND”. The inputs are opto-coupler inputs with internal 1 kΩ current limiting resistors.

The outputs are open-collectors; small loads, such as LEDs, opto-couplers, or relays can be driven directly. *The current must not exceed 100 mA per output.*

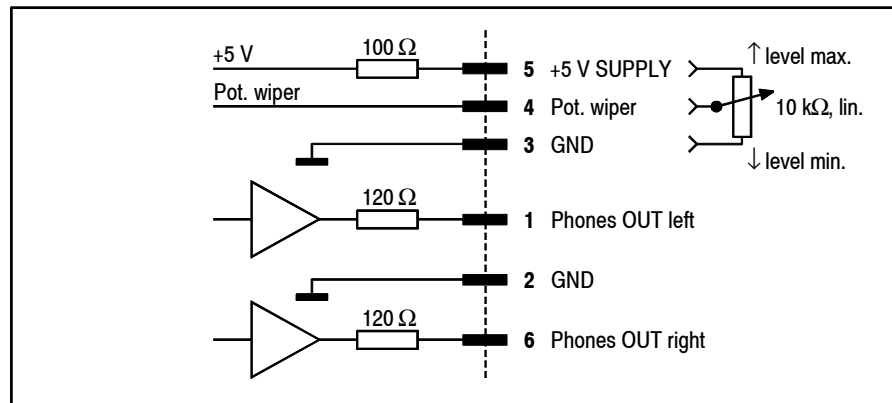
*The “+5 V” supply current must not exceed 50 mA.*

 **CTRL** (D-type, 9 pin, male):

This connector provides all the signals required for a guest headphone. The “Phones OUT” signal is the same as the one on the GUEST jack socket on the same PCB.

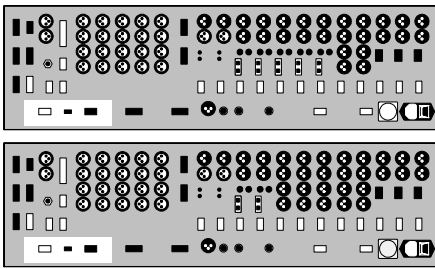


Pin	Signal	Pin	Signal
1	Phones OUT left	6	Phones OUT right
2	GND	7	n.c.
3	GND	8	n.c.
4	Potentiometer wiper	9	n.c.
5	+5 V SUPPLY		



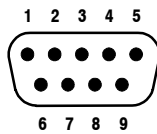
**Notes:** A linear 10 kΩ volume control potentiometer can be connected between “+5 V SUPPLY” and “GND”. The volume is maximum if the wiper voltage is at +5 V.  
The signal on pins 1 and 6 is the same as the one on the GUEST headphones jack socket.

## 14.12 Serial Interface



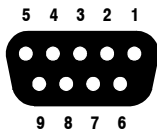
The serial interface provides a serial communication link according to either RS232 or RS422 specification (switch-selectable). It is used for the connection to and communication with a computer-assisted broadcasting system (CAB); for details on CAB systems refer to [chapter 9](#).

**Pin Assignments:** RS422 (D-type, 9 pin, male):



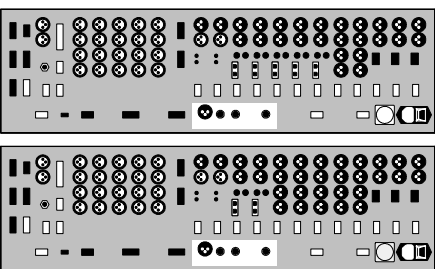
Pin	Signal	Pin	Signal
1	GND	6	n.c.
2	RX + (PC to console)	7	RX – (PC to console)
3	TX – (console to PC)	8	TX + (console to PC)
4	n.c.	9	n.c.
5	n.c.	TX: transmit; RX: receive	

RS232 (D-type, 9 pin, female):



Pin	Signal	Pin	Signal
1	DCD ( <i>Note 1</i> )	6	DSR ( <i>Note 1</i> )
2	TX (console to PC)	7	RTS ( <i>Note 2</i> )
3	RX (PC to console)	8	CTS ( <i>Note 2</i> )
4	DTR ( <i>Note 1</i> )	9	n.c.
5	GND	TX: transmit; RX: receive	
<i>Note 1:</i> DCD, DTR, and DSR are connected internally			
<i>Note 2:</i> RTS and CTS are connected internally			

## 14.13 Clock Sync Interface



The clock sync interface allows the console to be synchronized to external clock sources. Synchronizing to the following external signals is provided:

*AES/EBU:* 32 kHz, 44.1 kHz, 48 kHz;

*Word Clock:* 32 kHz, 44.1 kHz, 48 kHz;

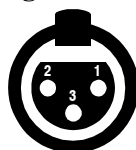
*Video Sync:* 25 frames/s, 29.97 frames/s, 30 frames/s.

Termination is jumper-selectable, refer to [chapter 15.7](#).

If synchronized to video sync, the sampling rate is either 48 kHz or, for 29.97 fr/s, 47.952 kHz.

If no valid external clock signal is available, the console runs from its own internal 48 kHz clock reference.

**Pin Assignments:** AES SYNC INPUT (3pin, female):



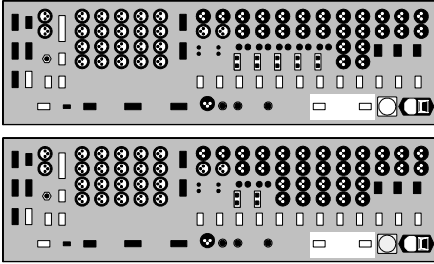
Pin	Signal
1	Chassis
2	Input +
3	Input –

WCLK INPUT, WCLK OUTPUT, VIDEO IN (BNC, 75 Ω):



Pin	Signal
Inner	Input
Outer	GND

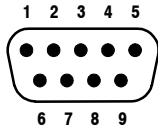
## 14.14 Time Sync Interface



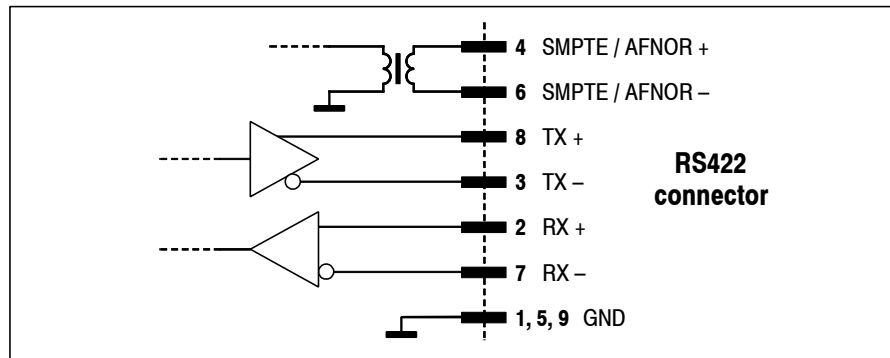
With the time sync interface, the console's internal clock can be synchronized to an external time reference signal, such as a DCF77 or GPS receiver, or a Mobatime clock providing a serial output signal. The current software supports AFNOR and Seiko protocols, as well as SMPTE bi-phase timecode (Leitch).

For either of these time reference units (except AFNOR and SMPTE) the connector labeled RS232 is used. For AFNOR and SMPTE signals, a transformer-balanced input is available on the RS422 connector. Please note that the configuration ([chapter 11.2.5](#)) and the DIP switch and jumper setting ([chapter 15.8](#)) depend on the type of reference signal being used.

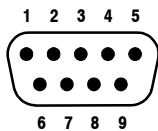
**Pin Assignments:** **RS422** (D-type, 9 pin, male):



Pin	Signal	Pin	Signal
1	GND	6	SMPTE/AFNOR -
2	RX + (unit to console)	7	RX - (unit to console)
3	TX - (console to unit)	8	TX + (console to unit)
4	SMPTE/AFNOR +	9	GND
5	GND	TX: transmit; RX: receive	

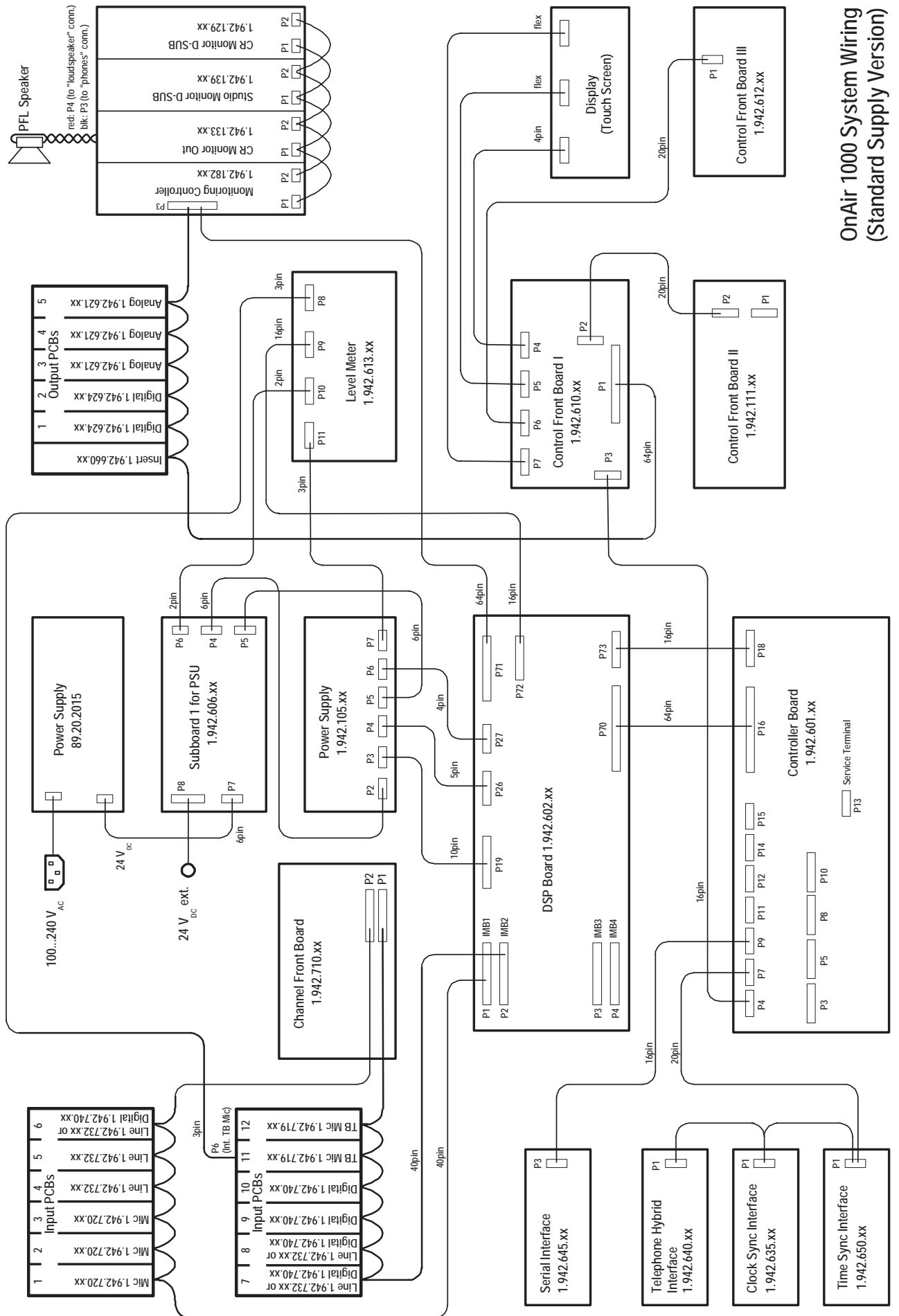


**RS232** (D-type, 9 pin, male):

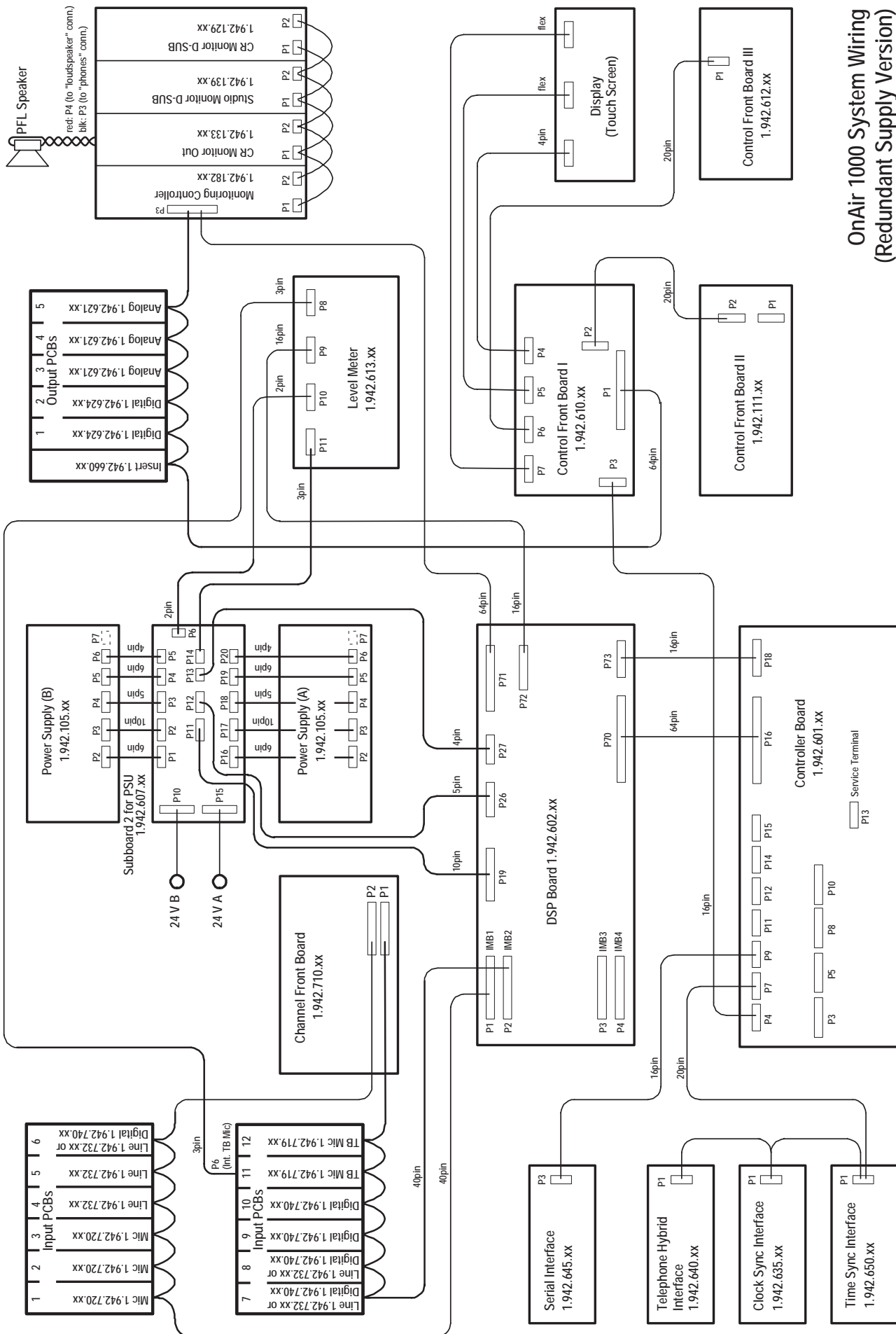


Pin	Signal	Pin	Signal
1	+12 V ( <b>Note 1</b> )	6	+12 V ( <b>Note 1</b> )
2	RX (unit to console)	7	-12 V ( <b>Note 1</b> )
3	TX (console to unit)	8	-12 V ( <b>Note 1</b> )
4	+12 V ( <b>Note 1</b> )	9	n.c.
5	GND	TX: transmit; RX: receive	

**Note 1:** These voltages are available if jumpers 12-13 and 10-11 are inserted. These outputs are very high-Z and must not be used, except for the specified DCF77 and MOBA receivers only!



OnAir 1000 System Wiring  
(Standard Supply Version)



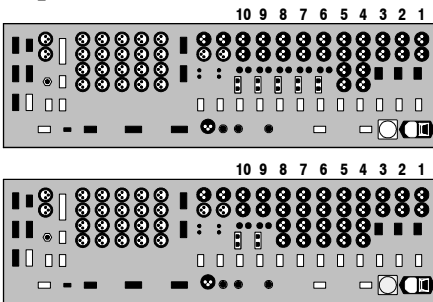
OnAir 1000 System Wiring  
(Redundant Supply Version)

## 15 DIP SWITCHES AND JUMPERS

The DIP switch and jumper positions are printed on the PCBs, except for the TB Mic input unit and the Analog Output unit; for these two assemblies, drawings have been included in the following chapters for component location.

### 15.1 Input Units

#### Input Unit Position:



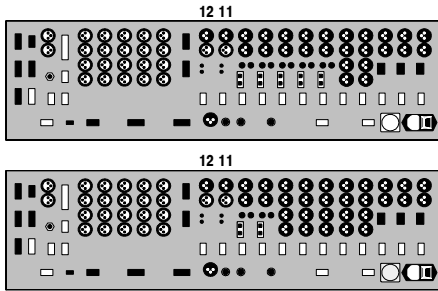
Correct assignment of the input unit position relative to the input channel is mandatory. For this purpose, every input unit needs to be addressed. On the Mic, Line, and Digital input units, this address is set with a DIP switch. On the Talkback Mic input units, however, the address is set with a jumper (refer to [chapter 15.2](#)).

When replacing one of the input units, please make sure that the address setting corresponds to the following table:

Unit Position:		DIP Switch no.:							
		1	2	3	4	5	6	7	8
1 (Mic In 1)	7 (Line In 4/Dig. In 2)*	OFF	ON	ON	ON	ON	ON	ON	OFF
2 (Mic In 2)	8 (Line In 5/Dig. In 3)*	ON	OFF	ON	ON	ON	ON	ON	OFF
3 (Mic In 3)	9 (Dig. In 1/Dig. In 4)*	OFF	OFF	ON	ON	ON	ON	ON	OFF
4 (Line In 1)	10 (Dig. In 2/Dig. In 5)*	ON	ON	OFF	ON	ON	ON	ON	OFF
5 (Line In 2)		OFF	ON	OFF	ON	ON	ON	ON	OFF
6 (Line In 3/Dig. In 1)*		ON	OFF	OFF	ON	ON	ON	ON	OFF
* depending on basic console version									

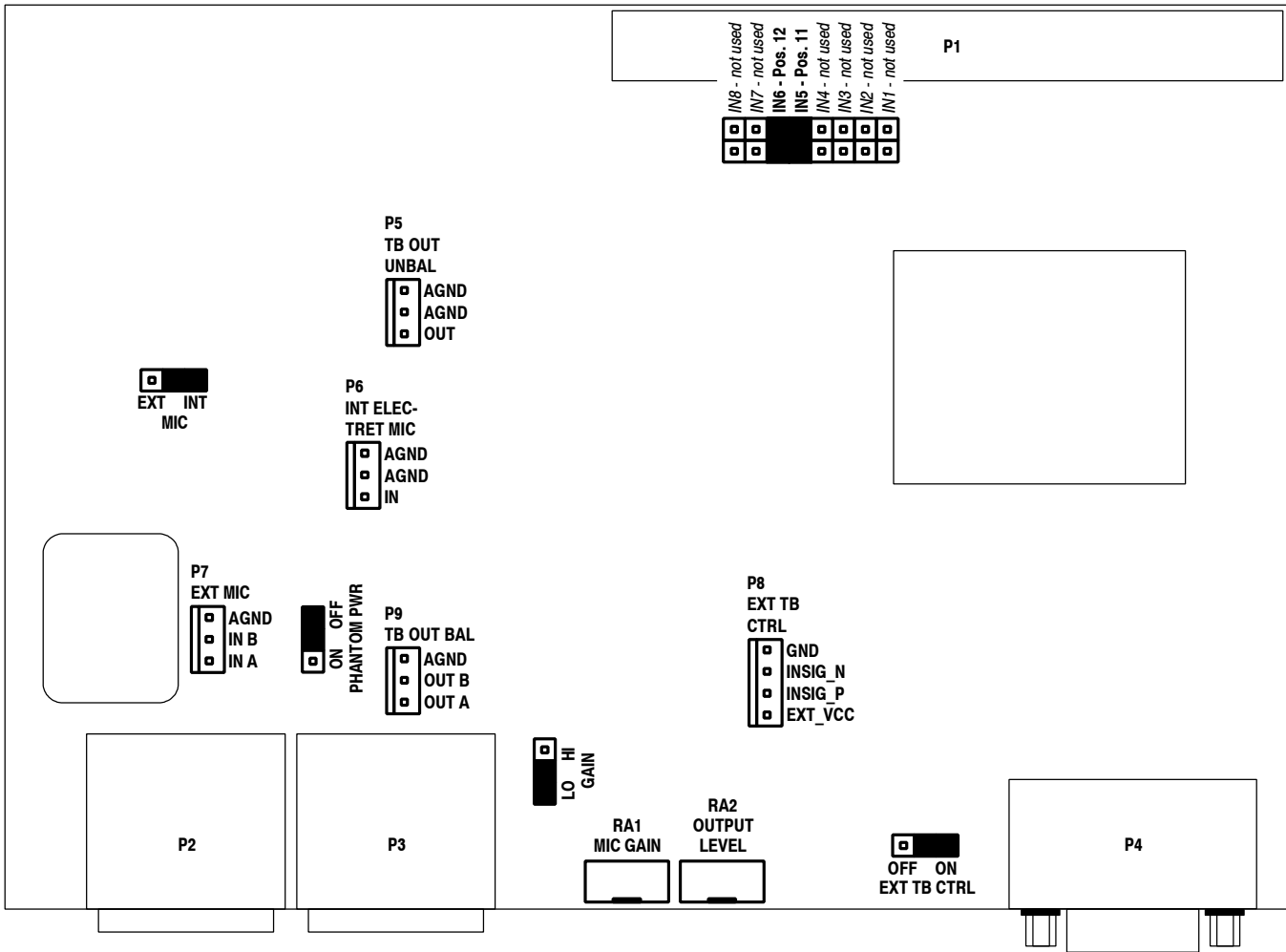
## 15.2 TB Mic Input Units

### Input Unit Position:



On the Talkback Mic input units, the position is set with a jumper:

Unit Position:	Jumper Position:
11 (TB Mic Input CR)	IN 5
12 (TB Mic Input Studio)	IN 6



### Jumper Setting:

#### MIC INT/EXT

Input selection – either internal, unbalanced microphone (i.e. the built-in electret TB mic with fixed supply voltage), connected to P6, or external, balanced microphone with switchable phantom power, connected to P2 or to P7. *Factory setting for pos. 11: INT MIC; for pos. 12: EXT MIC.*

#### PHANTOM PWR ON/OFF

Selection of 48 V phantom power for the balanced mic input (P2 or P7). *Factory setting: PHANTOM PWR OFF.*

#### GAIN HI/LO

For the internal standard electret TB mic, the LO position (nominal input level: -60 dBu) is used. In HI position, the mic input gain is increased by 20 dB, i.e. nominal input level -80 dBu. *Factory setting: GAIN LO.*



**Jumper Setting (cont.):**

- EXT. TB CTRL ON/OFF**    Activates or deactivates the external TB control input on P4 or P8. *Factory setting: EXT. TB CTRL ON.*
- IN1...8**    Address selection. *Factory setting for position 11, TB Mic Input "CR" (i.e., the built-in electret TB mic): IN5; for position 12, TB Mic Input "Studio": IN6.* These jumper positions must not be modified.

**On-Board Connectors:**

- P6**    Internal electret TB mic input (unbalanced, with fixed supply voltage)
- P7**    External, transformer-balanced mic input (parallel to XLR connector P2)
- P5**    Unbalanced TB output
- P9**    Transformer-balanced TB output (parallel to XLR connector P3)
- P8**    External TB control input (parallel to D-type connector P4).

**Adjustments:**

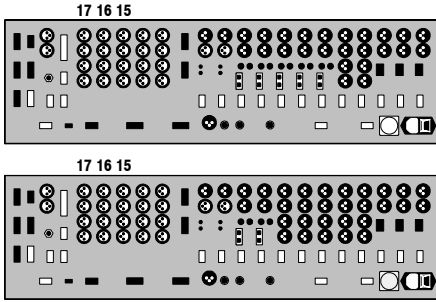
- RA1**    MIC GAIN; the factory setting is performed for the built-in electret TB mic. The integrated limiter just starts limiting at input levels above -60 dBu (GAIN jumper in LO position).
- RA2**    OUTPUT LEVEL; the factory setting corresponds to the customer-specified line level (adjustment range -10...+14 dBu).

**15.3 Telephone Hybrid Interface**

The address on the Telephone Hybrid interface must *always* be set according to the following table:

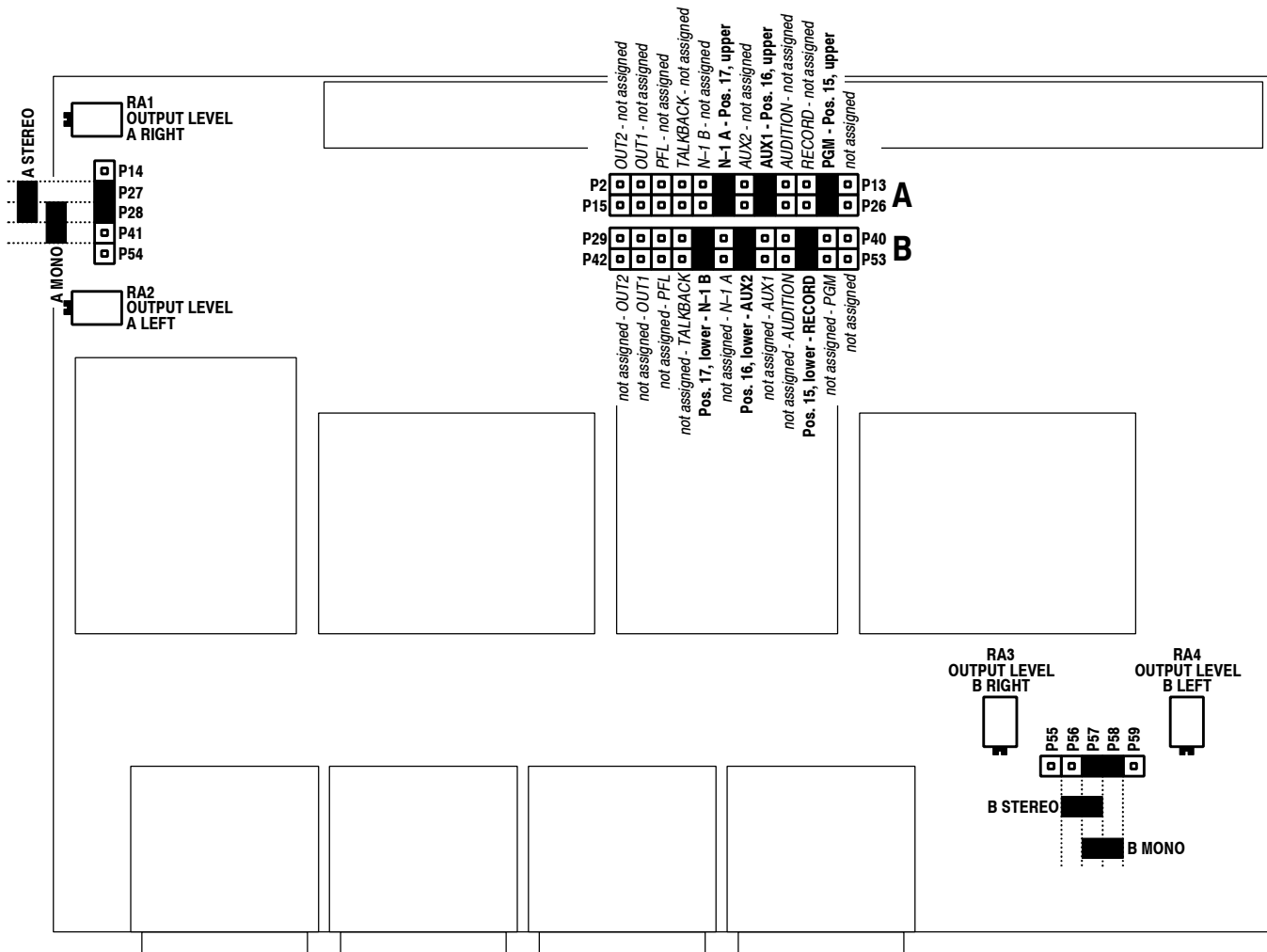
DIP Switch no.:							
1	2	3	4	5	6	7	8
OFF	OFF	ON	ON	ON	ON	ON	OFF

## 15.4 Analog Output Units

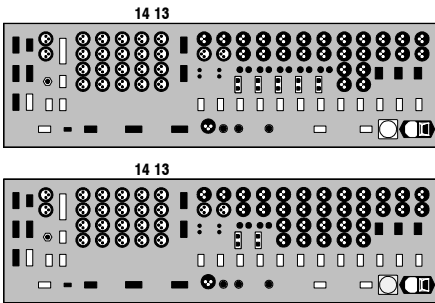


The Analog Output units have jumpers for mono/stereo selection and for selecting the desired output signal, individually for each of the outputs A and B.

The output level is set with trimmer potentiometers, separate by outputs A/B and by left/right channels.



## 15.5 Digital Output Units



The Digital Output units have two DIP switches (marked A and B on the PCB) for selection of the desired output signal for each of the two independent outputs. Selection is done according to the following table:

Output Signal and Unit Position	DIP Switch no.:							
	1	2	3	4	5	6	7	8
PROGRAM (PGM, ON-AIR) (pos. 13, upper – factory set)	ON	OFF	OFF	ON	ON	ON	ON	OFF
RECORD (REC) (pos. 13, lower – factory set)	OFF	OFF	OFF	ON	ON	ON	ON	OFF
AUDITION (AUD) (not assigned)	ON	ON	ON	OFF	ON	ON	ON	OFF
N-1 A (not assigned)	OFF	ON	ON	OFF	ON	ON	ON	OFF
N-1 B (not assigned)	ON	OFF	ON	OFF	ON	ON	ON	OFF
AUX 1 (pos. 14, upper – factory set)	OFF	OFF	ON	OFF	ON	ON	ON	OFF
AUX 2 (pos. 14, lower – factory set)	ON	ON	OFF	OFF	ON	ON	ON	OFF

## 15.6 Insert Unit

The address on the Insert unit must *always* be set according to the following table:

DIP Switch no.:							
1	2	3	4	5	6	7	8
ON	ON	OFF	ON	ON	ON	ON	OFF

## 15.7 Clock Sync Interface

If P7 and P8 are connected with a jumper, the 75 Ω termination of the VIDEO IN input is active. If this jumper is removed, the input is terminated with 110 Ω.

## 15.8 Time Sync Interface

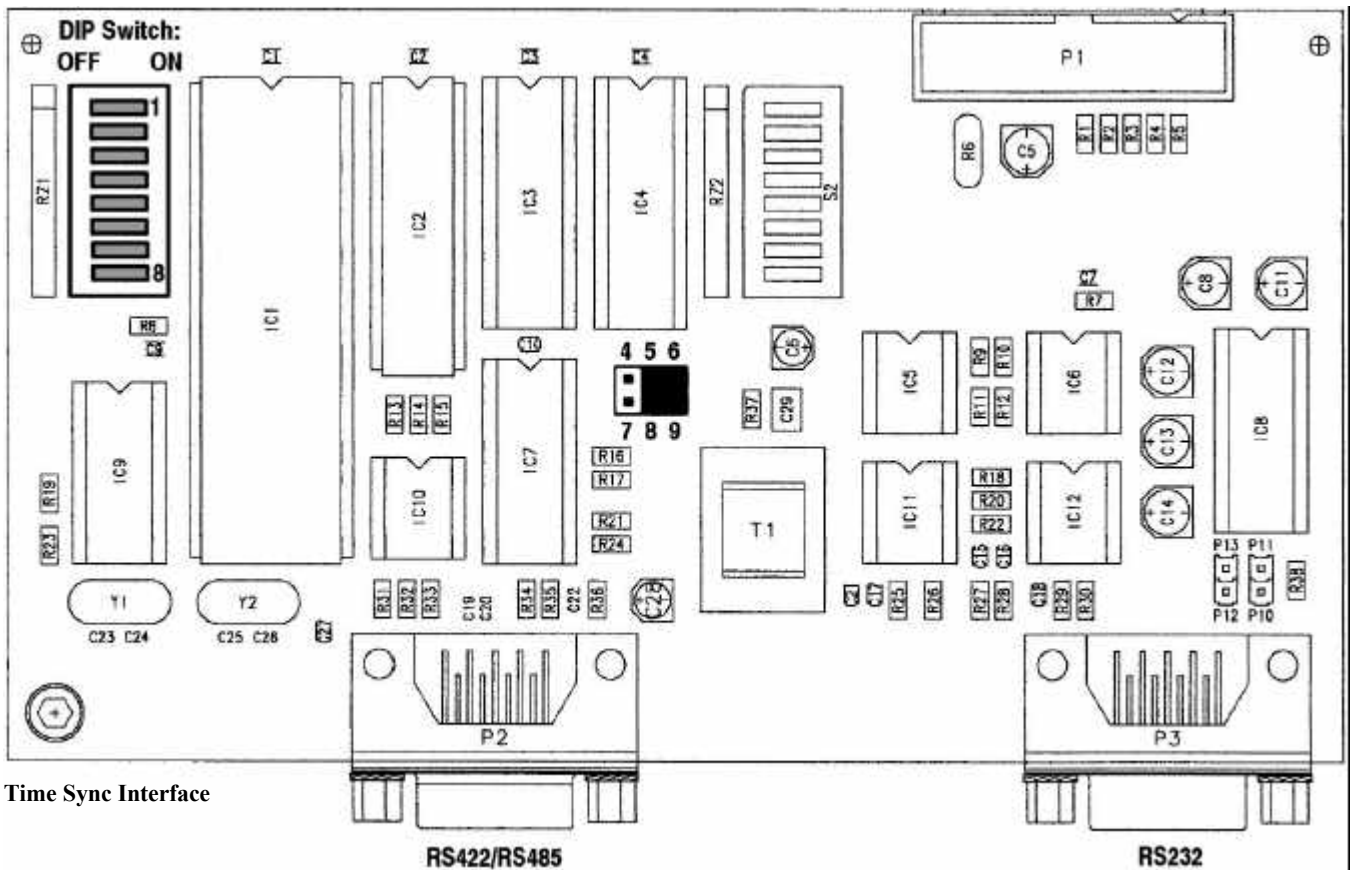
**DIP Switch** The external time reference signal for the Time Sync interface is selected with a DIP switch. The DIP switch setting is displayed in hexadecimal on the TIME & DATE FORMAT page (TIME SYNC. PROTOCOL field) for easy verification.

Time source	Hex Display	DIP switch no.:							
		1	2	3	4	5	6	7	8
NONE	NONE	ON	ON	ON	ON	ON	ON	ON	ON*
AFNOR NFS87-500	1	OFF	ON	ON	ON	ON	ON	ON	ON*
DCF77 (expert mouse clock)	2	ON	OFF	ON	ON	ON	ON	ON	ON*
MOBATIME (IF482; 9600 baud)	3	OFF	OFF	ON	ON	ON	ON	ON	ON*
GPS (NMEA 0183 V1.5, V2.0; 4800 baud)	4	ON	ON	OFF	ON	ON	ON	ON	ON*
SEIKO serial clock (RS485; 2400 baud)	5	OFF	ON	OFF	ON	ON	ON	ON	ON*
RCC 8000A (9600 baud)	6	ON	OFF	OFF	ON	ON	ON	ON	ON*
HOPF 6021 telegram (9600 baud)	7	OFF	OFF	OFF	ON	ON	ON	ON	ON*
VORTEX 482D (9600 baud), opt. "0"	8	ON	ON	ON	OFF	ON	ON	ON	ON*
LEITCH CSD-5300 (300 baud)	9	OFF	ON	ON	OFF	ON	ON	ON	ON*
SMPTE bi-phase input (LEITCH format)	A	ON	OFF	ON	OFF	ON	ON	ON	ON*
SEIKO QC-7CF2	B	OFF	OFF	ON	OFF	ON	ON	ON	ON*
SIPRONIKA SAT520 protocol (9600, 7E2)	C	ON	ON	OFF	OFF	ON	ON	ON	ON*
GORGY ASCII format (2400 baud)	D	OFF	ON	OFF	OFF	ON	ON	ON	ON*
Reserved for future use		all remaining combinations							
		* Standard setting: ON This switch can be set to OFF in order to mask out the validity bits in some data formats (e.g. it is possible to use Mobatime data from a Mobatime clock that has no DCF reception and thus sends "M" instead of "A")							

### Jumper Setting

IF type	Jumper setting	Used for:
RS232	8-9, 5-6	DCF77, Hopf, MOBA, RCC8000A, Seiko
RS422/RS485	7-8, 4-5	GPS, Leitch (SMPTE TC), AFNOR
Supply (high-Z)	10-11, 12-13	<b>DCF77 or MOBA only!</b>

**Note:** For DIP switch and jumper locations refer to the drawing on the next page.



Time Sync Interface

RS422/RS485

RS232

## 15.9 Monitoring Controller PCB

On the Monitoring Controller PCB, *all* DIP switches must be set to their OFF position.

## 15.10 Level Meter PCB

For information on jumper setting and level meter calibration, please refer to the OnAir 1000 Service Manual.

## 15.11 PSU Sub Board

**Jumper Setting:** The power alarm signal (pin4 of the 10pin 24 V<sub>DC</sub> connector) is a relay contact (max. 40 V/200 mA). Its behaviour depends on jumper J1 on the PSU sub board (see component layout diagram in [chapter 14.1](#)); either the output pin is normally floating and pulled to GND if alarm is active (P1 and P2 connected, default factory setting), or it is normally pulled to GND and becomes floating if alarm is active (P1 and P3 connected). Please note that wire bridges have to be inserted into the 10pin cable socket for correct processing of the power alarm output's voltage thresholds. Refer to [chapter 14.1](#).

## **15.12 DSP PCB**

---

**Jumper Setting:** On the DSP PCB, only the “CFG1” jumper must be inserted. *Do not change this setting.*

## **15.13 Control Front Board I**

---

**DIP Switches:** On the Control Front Board I, *all* DIP switches must be set to their OFF position.

**16 INDEX****A**

A, B ..... 3-7  
 A/B Input Keys ..... 4-1  
 Access Permission ..... 4-5  
 Access Rights ..... 5-19  
 address ..... 15-1  
 adjustments ..... 2-2  
 administrator ..... 5-19  
 AES SYNC INPUT ..... 14-19  
 AES/EBU ..... 11-11, 14-19  
 AES/EBU inputs A/B ..... 14-8  
 AF/PF touch-screen fields ..... 4-4  
 AFNOR ..... 14-20, 15-6  
 Alarm Output ..... 14-2, 14-4  
 Analog Insert ..... 14-12  
 Analog Line Input ..... 14-8  
 ANALOG OUT A/B ..... 14-11  
 Analog Output ..... 14-11  
 Analog Output PCBs ..... 15-4  
 Application Software ..... 12-1  
 arrow LEDs ..... 4-1, 4-3  
 AUDIT ..... 3-4, 6-1  
 audition bus ..... 5-3  
 AUTO TAKEOVER ..... 3-7, 4-3, 5-13  
 Automatic Channel Routing ..... 11-14  
 AUTOMATION CONFIG. page ..... 9-2  
 AUX & INSERT ..... 5-1  
 AUX 1 ..... 3-7, 4-2, 4-4, 4-5, 5-2, 6-1, 6-3  
 AUX 2 ..... 3-7, 4-2, 4-4, 4-5, 5-2, 6-1, 6-3  
 AUX 2/AUX 1 ..... 3-4, 3-5  
 AUX and Insert Control ..... 5-2  
 AUX MASTER ..... 5-2  
 AUX MASTER/INSERTS page ..... 5-2

**B**

BAL ..... 4-5  
 Block Diagram ..... 1-2  
 boost/cut ..... 4-7  
 Boot Software ..... 12-1  
 broadcast automation system ..... 1-1  
 BUS ASSIGNMENT ..... 11-5  
 BUS ASSIGNMENT page ..... 11-3  
 Buttons/Faders Test ..... 13-7

**C**

CAB ..... 9-1  
 CAB system ..... 9-1  
 CAL ..... 4-5  
 C-bits ..... 14-11  
 CD/cartridge/MD players ..... 8-1

Central Screen Test ..... 13-7  
 Change User Record ..... 10-5  
 Channel ..... 1-4  
 Channel Control page ..... 4-1, 4-4, 4-5  
 Channel Functions ..... 4-1  
 Channel Label ..... 3-6  
 channel label display ..... 4-2  
 channel OFF ..... 8-2  
 channel ON ..... 8-1  
 channel ON/OFF ..... 8-1  
 channel router ..... 5-11  
 channel routing ..... 5-11  
 CHANNEL ROUTING page ..... 5-11  
 Channel Routings ..... 11-11  
 channels in the background ..... 5-13  
 clean-feed ..... 3-5, 5-3  
 Cleaning ..... 2-1  
 clock sync interface ..... 14-19  
 Common Settings ..... 11-6  
 COMMON SETTINGS page ..... 7-1, 11-6  
 Communication Check ..... 13-2  
 Communication Time-Out ..... 9-2  
 computer-assisted broadcasting ..... 9-1  
 Configuration ..... 11-1, 11-11  
 Configuration Check ..... 13-2  
 Configuration Menu Tree Diagram ..... 11-2  
 configuration parameters ..... 11-1  
 Connector Panels ..... 3-8  
 Console Dump ..... 11-10  
 CONSOLE DUMP page ..... 11-10  
 Contrast Knob ..... 3-2  
 Control Front Board I ..... 15-8  
 control input ..... 8-1, 8-4, 14-9  
 control inputs and outputs ..... 8-1  
 control outputs ..... 8-1, 8-3  
 control room monitoring ..... 3-4, 6-1  
 correlator meter ..... 3-3  
 CR DIM WHEN AUDITION SEL ..... 11-6  
 CR Monitor Speaker ..... 3-4  
 CR monitoring source selector ..... 6-1  
 CR OUT L/R ..... 14-13  
 Create User Record ..... 10-5  
 CR-MIC ..... 3-5, 7-1  
 CTRL ..... 14-18  
 CTRL connector ..... 14-6, 14-8, 14-9  
 CTRL IN ..... 8-1, 8-2, 8-4  
 CTRL IN A/B ..... 14-7  
 CTRL OUT 1 ..... 8-1  
 CTRL OUT 1A/B ..... 14-6  
 CTRL OUT 2 ..... 8-1  
 CTRL OUT 2A/B ..... 14-7

CTRL OUT1 .....	8-3
CTRL OUT1/2 & CTRL IN Appl. Examples .....	8-5
CTRL OUT2 .....	8-3
CTRL. IN .....	11-5
CTRL. OUT 1/2 .....	11-5
customer code.....	4-7, 5-15, 11-13
Customer Code Combinations .....	11-14
Customer Code Setting .....	11-14
CUT.....	3-4, 5-3, 6-1
CUTOFF .....	4-7

**D**

date .....	5-23, 11-8
DATE FORMAT .....	11-9
DATE page.....	11-8
Date setting .....	11-9
day.....	11-8
day-of-week.....	5-23, 11-8
DC operation .....	2-1, 2-2, 3-1
DC Supply.....	14-1
DCF77.....	14-20, 15-6
Default Master Level .....	5-24, 11-6
default user.....	10-1, 10-8
Defaults .....	10-7
Definition of Terms.....	1-4
Delete a Mic Setting.....	5-10
Delete a Snapshot.....	5-8
Delete a Snapshot/Mic Setting/Ch. Routing .....	5-18
DELETE CARD.....	5-18
DELETE MEM.....	5-8, 5-10, 5-16
Delete User Record .....	10-7
Diagnostics.....	13-1
DigiMedia .....	1-1, 9-1
Digital Input .....	14-8
DIGITAL OUT A/B.....	14-11
Digital Output .....	14-11
Digital Output PCBs .....	15-5
DIM.....	3-4, 5-3, 6-1
Dimensions.....	2-5
DIP switch.....	15-1
Display Test .....	13-8
DSP PCB.....	15-8

**E**

Earthing.....	2-2
Emphasis .....	14-11
EQ .....	3-7, 4-7
EQ Key.....	4-2
EQ/filter page.....	4-2, 4-7, 4-8
Error .....	13-1
Error Handling .....	12-4, 13-1
EXT 1.....	3-4, 6-1
EXT 2.....	3-4, 6-1

EXT 3.....	3-4, 5-5, 6-1, 6-3
EXT PFL .....	3-5
EXT PFL CTRL.....	6-6, 14-16
EXT PFL input.....	6-6
EXT PFL Input.....	8-4
EXTERN MONITOR INPUT A/B/C .....	14-13
External analog input .....	3-4
External CR DIM .....	6-2, 11-13
External PFL .....	6-6
External TB Mic.....	14-10
external time reference signal .....	15-6

**F**

F1 to F5 .....	3-5
Fader.....	3-6
Fader 0 dB Point.....	13-8
Fader Calibration.....	13-8
Fader Start and Stop Pulse .....	11-13
Fader Start Trigger Point.....	13-8
fader stopwatch .....	5-24
Fader Strip.....	1-4
Faders .....	4-2
Faders 0 dB on Top.....	11-13
Failure of Restricted Functions.....	13-6
File Name Extensions .....	5-17
fixed master levels.....	5-24
Formatting the PC-Card .....	11-10

**G**

GAIN.....	4-4
general purpose output .....	3-4
global channel routings .....	5-6, 5-16
global mic settings.....	5-6
global snapshots .....	5-6
GPS .....	14-20, 15-6

**H**

Hardware .....	14-1
Hardware Performance Check .....	13-2
Headphones.....	3-5
HEADROOM.....	11-3, 11-4
High Shelving Filter .....	11-13
Higher Attenuation of Sum .....	11-14
high-pass filter.....	1-1, 4-7
HOME-CHN ON/OFF .....	5-1
Hopf.....	15-6
HPF .....	4-7

**I**

Information.....	13-1
Input .....	1-4
INPUT CONFIG. page.....	5-4, 6-5, 11-3



INPUT CONNECTOR .....	11-4	mains voltages.....	2-1
Input PCB .....	1-4	MASTER FADER ASSIGNMENT.....	11-6
input unit position.....	15-1	Master Faders.....	4-2
input unit-to-fader strip assignment.....	5-13	Master Functions .....	5-1
input router.....	3-1, 4-1	Meinberg.....	15-6
INS1 .....	3-7	Mic Input.....	14-6
INS1 / INS2.....	4-3	MIC inputs A/B .....	14-6
INS2 .....	3-7	mic settings .....	5-6, 5-9, 11-11
INSERT 1 .....	14-12	Missing External Clock .....	11-12
INSERT 2 .....	14-12	Mixer Setup .....	5-1, 5-6
INSERT connectors.....	14-6	mixer setup data.....	11-10
Insert PCB address.....	15-5	Mixer Setup page.....	5-6
INSERTS .....	5-2	Mobatime .....	14-20, 15-6
INTERNAL.....	11-11, 11-12	MODE.....	4-5
Internal Fuses.....	14-4	MON .....	3-4, 3-5, 6-2
Internal/External Fuses.....	14-1	MON/PFL .....	3-5, 6-2
<b>J</b>		Monitoring .....	6-1, 14-13
jumper.....	15-1	Monitoring Controller PCB.....	15-7
<b>K</b>		mono/stereo selection .....	15-4
Key 1.....	8-1	month .....	11-8
Key 2.....	8-1	<b>N</b>	
Key 3.....	8-2	N-1.....	3-5
KEY FUNCTIONS.....	11-6	N-1 and Audition Bus Routing .....	5-4
keyboard page.....	5-8, 11-3	N-1 B/N-1 A.....	3-5
Keys and Lamps Test.....	13-7	N-1/AUDIT .....	11-5
<b>L</b>		N-1/Audition Bus.....	5-3
LABEL.....	11-3, 11-4	N-1A.....	5-3
LEDs .....	3-7	N-1B.....	5-3
Leitch.....	14-20, 15-6	New Title Start.....	9-3
LEVEL.....	11-3, 11-4	NEW USER page.....	10-5
level meter.....	3-3, 11-7	no sync .....	11-12
LEVEL METER configuration page.....	11-7	normal operation.....	3-1
Level Meter PCB .....	15-7	Normal User.....	10-1
LINE inputs A/B.....	14-8	<b>O</b>	
Load a Snapshot/Mic Setting/Channel Routing .	5-17	OFF .....	3-6, 8-2
LOAD FROM CARD .....	5-17	OFF AIR .....	3-4, 6-1, 6-3
LOCATE.....	11-6	OFF function.....	11-6
LOCATE function .....	8-2	OFF key .....	11-6
LOGIN .....	5-1	ON.....	3-6, 8-1
LOGIN page.....	5-1, 10-7	ON AIR IN opto-coupler input.....	7-1
Log-in Procedure .....	10-7	ON AIR INDICATION.....	7-1, 11-6
Login/Logout .....	5-1	ON function .....	11-6
Longer Reverb Time .....	11-13	ON key .....	11-6
Loudspeaker.....	3-2	ON/OFF toggle function.....	11-6
<b>M</b>		ON-AIR.....	3-5, 11-6
Machine Control .....	8-1	Operating Elements.....	3-1
mains cable .....	2-2	Optical connectors A/B.....	14-8
mains earth.....	2-2	Output .....	11-7
		OUTPUT CONFIG. page .....	11-7
		Output Selection .....	9-3
		output signal selection .....	15-4, 15-5

OVL.....3-6  
 OVL (Overload).....4-2

**P**

packing.....2-1  
 PAN.....4-4  
 parallel studio interface.....6-4  
 password.....5-21, 10-1, 10-5  
 PC-Card.....2-2, 11-10  
 PC-Card Test.....13-9  
 peaking-type filter.....4-7  
 Permanent Routing.....5-12  
 PFL.....3-2, 3-4, 3-5, 3-6, 6-1, 6-2, 6-3, 8-1  
 PFL > MON.....3-5, 6-2  
 PFL CUT ON CH. ACTIVE.....11-6  
 PFL function.....8-1  
 PFL to MONITOR.....6-2  
 PFL/TB.....3-5  
 PFL/TB loudspeaker.....3-5, 6-4  
 PGM.....3-7, 4-2, 5-25  
 PHANTOM.....4-4  
 phantom power.....1-1, 4-4  
 PHASE.....4-4, 4-5  
 POWER ALARM.....3-3  
 power alarm signal.....15-7  
 Power Connection.....2-2  
 Power Supply.....2-1  
 power switch.....3-1  
 Power-Down.....14-5  
 Pre-Listening.....9-4  
 primary fuse.....2-2  
 private mic settings.....5-6  
 private snapshots.....5-6  
 PRIVATE/GLOBAL.....5-6  
 Professional.....14-11  
 Program output.....3-4  
 Protected Connections.....5-12  
 PSU Sub Board.....15-7

**R**

RCC.....15-6  
 real-time clock.....5-23, 11-8  
 REC.....3-7, 4-2, 5-25  
 Recall a Mic Setting.....5-9  
 Recall a Snapshot.....5-7  
 RECALL FROM MEMORY.....5-7, 5-9, 5-17  
 Recorder output.....3-4  
 redundancy.....3-3  
 Redundant Power Supply.....1-1, 14-3  
 repair.....2-2  
 RESET.....5-23, 5-24  
 Restricted Functions.....13-1  
 Rotary Encoders.....3-2

Rotary Encoders Test.....13-7  
 routing.....3-1, 5-6, 5-11  
 RS232.....9-1, 14-19, 14-20, 15-6  
 RS422.....9-1, 14-19, 14-20, 15-6  
 RS485.....15-6  
 RTC.....5-23, 11-8

**S**

S/PDIF connectors A/B.....14-8  
 Sampling rate.....14-11  
 SAVE / EXIT.....11-5  
 Save a Mic Setting.....5-10  
 Save a Snapshot.....5-8  
 Save a Snapshot/Mic Setting/Channel Routing.....5-18  
 SAVE CARD.....5-18  
 SAVE MEM.....5-8, 5-10  
 Seiko.....14-20, 15-6  
 SEL.....3-7, 4-1  
 serial interface.....9-1, 14-19  
 SET LIKE DEFAULT USER.....10-5  
 Set User Channel Routing.....10-6  
 shelving-type filter.....4-7  
 SIGN.....6-5, 14-17  
 SIGN. / TB SOURCE.....11-4  
 Signaling.....7-1  
 Signaling Lamps.....3-5  
 SMPTE.....15-6  
 SMPTE bi-phase timecode.....14-20  
 snapshot.....1-1, 5-6, 5-7, 11-11  
 Software Structure.....12-1  
 START.....5-24  
 START/STOP.....5-23  
 STOP.....5-24  
 stopwatch.....5-23  
 STUDIO.....3-5  
 STUDIO MON.....5-1  
 STUDIO MON CTRL.....6-4, 14-15  
 STUDIO MONITOR (AUDIO) A/B/C.....14-14  
 studio monitoring.....5-5, 6-3  
 STUDIO MONITORING SOURCE page.....5-5, 6-3  
 STUDIO-MIC.....3-5, 7-1  
 SW Update.....12-1  
 SW Update Procedure.....12-2  
 SW Versions Display.....13-9  
 Sync source.....11-11  
 System Administrator.....10-1  
 SYSTEM CONF.....5-6  
 SYSTEM CONFIG. page.....11-1  
 SYSTEM SYNC page.....11-12  
 System Synchronization.....11-11  
 System Tests.....13-1, 13-7

**T**

talkback.....	3-2, 3-4, 3-5, 6-4
talkback destinations.....	3-5
talkback listening.....	3-5, 6-4
Talkback Mic Input unit position.....	15-2
Talkback Settings.....	6-5
tape recorders.....	8-1
TB MIC IN/OUT.....	14-9
TB Mic Input.....	14-9
TB SOURCE.....	6-5
TB to Auxiliary 1.....	6-4
TB to Auxiliary 2.....	6-4
TB to Studio.....	6-4
TB to Telephone 1.....	6-4
TB to Telephone 2.....	6-4
Technical Specifications.....	2-3
TEL.....	5-1
TEL HYBRID A/B.....	14-10
TEL/N-1/AUDIT.....	5-3
Telephone Hybrid.....	5-3
Telephone Hybrid Interface.....	14-10
Telephone Hybrid PCB address.....	15-3
Temporary Routing.....	5-12
time.....	11-8
TIME & DATE FORMAT page.....	11-9
Time and Date.....	11-8
TIME FORMAT.....	11-9
TIME page.....	5-23, 11-8
Time setting.....	11-9
TIME SYNC.....	11-9
Time Sync input.....	11-9
time sync interface.....	14-20, 15-6
TIME SYNC. PROTOCOL.....	15-6
Time Synchronization.....	9-4
time zone offset.....	11-9
timecode.....	14-20
time-of-day.....	5-23
TIMER START.....	11-5
TO AUDIT.....	5-4
TO N-1 A.....	5-4
TO N-1 B.....	5-4
touch-screen.....	1-1, 3-1, 3-2
turnover frequencies.....	4-7

**U**

user access rights.....	10-1
User Administration.....	5-22, 10-4
USER ADMINISTRATION page.....	10-4
User Channel Routing.....	5-16
user channel routing setup.....	10-6
USER EDIT page.....	10-5
User Modes.....	10-1
USER NAME.....	10-5
user record.....	10-5
user stopwatch.....	5-24
User Stopwatch.....	3-2
Using PC-Cards.....	5-17

**V**

VIDEO.....	11-11
VIDEO IN.....	14-19
VIDEO IN termination.....	15-5
Video Sync.....	14-19
volume control.....	6-1, 6-2
Vortex.....	15-6

**W**

Warning.....	13-1
watch.....	5-23
WCLK INPUT.....	14-19
WCLK OUTPUT.....	14-19
Wiring.....	14-1
Word Clock.....	11-11, 14-19

**Y**

year.....	11-8
-----------	------

**Z...**

ΣPGM.....	3-4, 6-1
ΣREC.....	3-4, 6-1
ΣPROGRAM.....	4-4, 4-5, 6-3
ΣRECORD.....	4-4, 4-5

