PROFESSIONAL PORTABLE MIXING CONSOLE

SONOSAX SX42

User's Manual

Audio Equipment Manufacturer

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1. INTRODUCTION

Congratulations on your purchase of your SONOSAX SX42 professional portable mixing console, which has been manufactured to deliver many years of excellent performance. The reliability of the SONOSAX SX42 is due to a high-tech design, combining the highest components density as possible, with a meticulous hand assembly.

As with all SONOSAX products, the SX42 portable mixer is built without any compromise in quality, using only the best components available and a severe quality control. The result of this research and development project is an ergonomic mixing console with extraordinary characteristics.

The information and instructions contained in this manual are necessary to ensure safe operations of your equipment and to maintain it in good working condition; please read it carefully.

2. GENERAL DESCRIPTION

The SONOSAX SX42 is an ENG/EFP mixer of the last generation, designed in 2002, using the latest available technologies, with the unequaled SONOSAX design and ergonomics.

Our 25 years of experience have helped us to develop and build this mixer which is designed to obtain a minimum of 10 years life-span, despite an intensive use under the worst possible conditions. It can be used in the rain and it's resistant to water splashes and compliant to the IP45 standard.

Built in a strong, rugged and anodized aluminum case, the SONOSAX SX42 mixer provides the best solution whenever top performance, versatility and small size are important. All potentiometers are especially made for SONOSAX and watertight according to IP45. All switches are achieved with an original and very innovative SONOSAX design. There are magnets outside the box, controlling Reed contacts inside the box. All the Reed-type switches are watertight (IP45) and airtight. All capacitors are of professional type, with low loss and a long life-span.

2.1 Key Features

- Ultra-low noise 4 inputs, 2 outputs, portable ENG/EFP mixer
- Low consumption, battery or 12V DC powered mixer
- Electronically balanced, transformerless inputs and outputs
- High quality rotary fader on each input/output channel
- Watertight IP45 Reed contact switches and faders
- Discrete mic preamps with +48V phantom power on all input channels
- A MS decoder is available on inputs 1-2 and 3-4
- Signal/Overload LED indicator on each channels
- Large scale level-meter indicators with tempered glasses
- A link function allows you to control audio levels with only one fader for two channels and also for both output channels
- Two separate limiters are present and linkable on both output channels

2.2 Options

The SX42 mixer as been designed with the possibility of host some useful internal accessories in mind.

For all internal accessories, a separate power supply is also included. Please contact your nearest SONOSAX dealer or the factory for any inquiry.

2.2.1 Two channels equalizer

A three-band equalizer is available as an option, only for input channel 1 and 2.

2.2.2 A/D converter

A high quality analog-to-digital converter, 24-bit resolution and 48/96 kHz sampling frequency is currently under development and will be available soon as an option for the SX42.

2.2.3 HF transmitter/receiver

There is the possibility to internally include one transmitter and/or one HF receiver (depending on its size) as an accessory. In this case, the audio connections are to be done inside the mixer. The receiver connector(s) are designed to be placed on the "user panel" located on the right side of the unit.

2.2.4 External power supply

An universal 100-240V~ auto-ranging, 12V DC OUT power supply unit is available and recommended for optimum performances with accessories. Its SONOSAX part number is: SX 008420.

2.2.5 Accumulators

A set of four 1.2V, 7Ah Nickel-Metal-Hydride (NiMH) accumulators is available as SONOSAX part number: SX 002108/4.

2.2.6 Batteries charger

A universal batteries charger for NiCd or NiMH accumulators is available as SONOSAX part number: SX 008415.

2.2.7 Nylon case

A black nylon bag is available for an easy and protected transportation of your SX42 mixer. Its SONOSAX part number is: SX 005110.

3. OPERATING INSTRUCTIONS

3.1 Safety Instructions

- Read all the safety and operation instructions before operating the SX42 mixer and its external power supply.
- Keep the instructions for further reference.
- Follow all warnings, notes and instructions in this operation manual.
- Keep the SX42 mixer and its external power supply away from heat sources such as radiators or other devices that produce heat.
- Connect the SX42 mixer only to the optional external power supply delivered by SONOSAX. Route power supply cords so that they are not likely to be walked on or pinched by items placed on or against them, paying particular attention to cords at plugs, inlets and the point where they exit the console. Keep power cords away from audio cords.
- Do not drop objects or spill liquids onto the SX42 mixer and its power supply.
- The SX42 mixer and its external power supply should be serviced only by qualified service personnel as your nearest SONOSAX authorized reseller.
- Do not defeat the grounding or polarization of the SX42 mixer or its power supply.
- Line voltage selectors should only be reseted and equipped with a proper plug for alternate voltage by a qualified service technician.
- To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture.
- Internal settings must be executed by an authorized SONOSAX distributor or reseller. Damage due to manipulations inside the unit cancels the SONOSAX warranty immediately.

3.2 Battery Power Mode

The SONOSAX SX42 mixer can be battery powered with four alkaline D-cells (LR20) or four LR20 rechargeable Nickel-Cadmium (NiCd) or Nickel-Metal-Hydride (NiMH) accumulators. To carry on less battery weight, four AA (LR6) batteries can also be used with special size adaptors.

NOTE: The autonomy of the mixer can drastically change depending on batteries type (alkaline, NiCd or NiMH) and quality, microphones type and LEDs light intensity.

3.2.1 Opening the battery compartment

The battery compartment is located on the right panel and it can be opened by un-tightening the screw using a flat screwdriver. Remove the anodized aluminum cover and insert four D-cells batteries or accumulators with their **negative side first**.

WARNING: Never leave discharged batteries in your SX42. To ensure optimal autonomy, use only professional alkaline D-cells. Also check the manufacture date of the D-cells for best performances.

3.2.2 Closing the battery compartment

Replace the anodized aluminum cover and tight the screw using a flat screwdriver.

NOTE: Certain D-Cells are longer than standard D-Cell batteries and slight difficulty may be found in closing the compartment if such batteries are used. Your nearest SONOSAX dealer or the manufacturer in Switzerland can provide assistance if a problem arise due to this difference in length.

NOTE: A special screw with wings is also available if you don't want to use each time a screwdriver to open and close the battery compartment. Ask your nearest SONOSAX dealer or the factory.

3.2.3 Batteries charger (optional)

An external NiCd or NiMH batteries charger is available as an option for the SX42. It can charge simultaneously up to four 1.5V D-cells (LR20) or up to six AA (LR6) accumulators.

NOTE: It will take approx. 6 hours to fully recharge four NiCd or NiMH D-cell accumulators.

WARNING: Never attempt to charge alkaline D-Cell batteries!

3.2.4 Battery test

When the BATT push-button is depressed, the needle of the right level meter will indicate the average charge per battery cell (minimum: 1V, maximum: 1.6V). In case of use with the external power supply, the meter will indicate the voltage divided by four. For instance: a 1.5V indication means that the external voltage is equal to 6V DC.

3.2.5 Low battery alarm

When the average charge per cell reaches 1.05V, the LED between the meters becomes red. This alarm means that about 10 to 20 minutes are remaining before the mixer automatically turns off. This auto-stop at 1V per cell will protect the accumulators from an excessive discharge.

3.3 External DC Power Mode

The SONOSAX SX42 mixer can be powered from a 6V to 12V DC power supply capable of delivering at least a current of 1A peak. The average power consumption is approximately 2 to 3 Watts, depending on microphones type and LEDs light intensity.

3.3.1 Fuse replacement

Some safety fuses protects the units from serious defects. As we are using multi-fuses instead of traditional fuses, there's no need to physically replacing it. The fuses will reset automatically; if this is not the case, contact your nearest SONOSAX dealer or the factory.

3.4 Switching On The Mixer

- Using D-cells, NiCd or NiMH batteries

  Insert four D-cell batteries with their negative side first in the battery compartment located on the right side of the mixer. Then set the POWER switch located on the front right corner, on the ON position to turn on the unit. The LED between the two level meters must come green, if not:

  - Check that batteries have been inserted correctly inside the battery compartment, with their negative side first!

- Using the external DC power supply

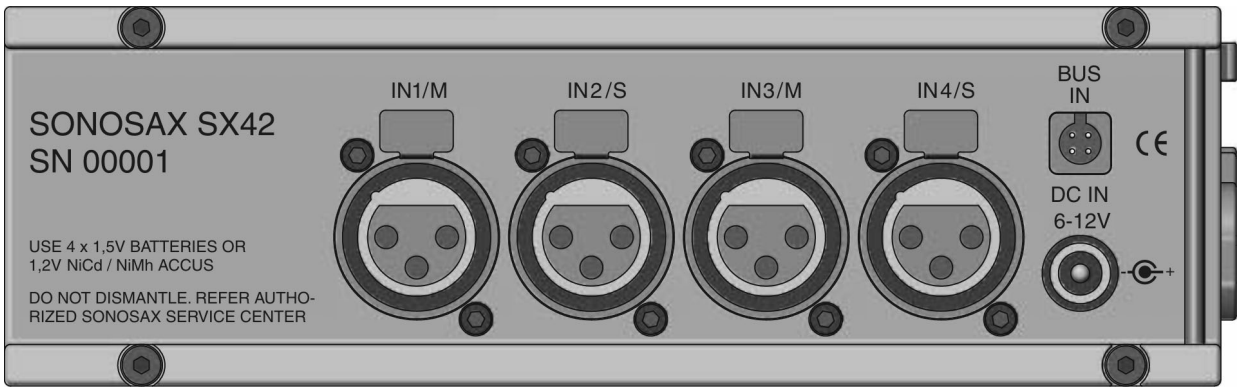
  Connect the external power supply DC plug to the DC IN connector located on the left side of the mixer. Then set the POWER switch located on the front right corner of the mixer on the ON position to turn on the unit. The LED between the two level meters must come green, if not:

  - Check that the DC output voltage selector located on the external power supply is on the 12V position.

4. DETAILED DESCRIPTION

4.1 Left Panel

The left panel includes four Mic/Line balanced inputs, an external DC input and a bus input as shown hereunder:



4.1.1 Inputs (IN1 to IN4)

Each mono input channel is electronically floating balanced, transformerless and optionally equipped with RF filters.

The input connectors are XLR type connectors where: PIN 1=GND, PIN2=HI (or +) and PIN3=LO (or -).

To connect the mixer to an unbalanced source like consumer CD or MD player, make a bridge between PIN1 and PIN3, and connect this to the GND of the source. Then, use PIN2 as the unbalanced signal input.

NOTE: Never use the Phantom power (48V) in this case! You can destroy the source!

4.1.2 Bus input (BUS IN)

This input allows you to connect any other external device WITHOUT ANY CONTROL over the two mix busses of the mixer. For example you can use this stereo input to connect two SONOSAX SX42 mixers together to obtain an 8 channels mixer.

This stereo input is unbalanced and its sensitivity is factory adjusted at +6dBu for 0dB. The sensitivity can be internally adjusted by your nearest SONOSAX dealer or at the factory.

The BUS IN connector is a 4 poles BINDER, where: PIN1=GND, PIN2=Left, PIN3=Right and PIN4=NC.

The corresponding cable connector is BINDER part number: REF 09-9767-70-04 or SONOSAX part number: SX 860273.

4.1.3 External DC input (DC IN)

You can provide power to your SX42 mixer from an external power supply. The voltage must be stabilized in a range between 6V to 12V DC. The average current consumption is around

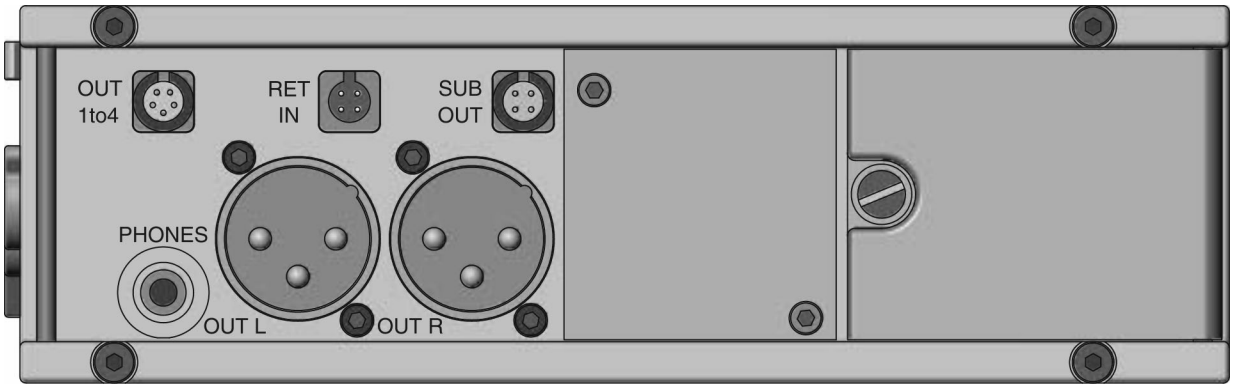
500mA, but due to the internal DC/DC converter of the SX42 mixer, the peak current when the unit is turned ON reaches 1A.

For the best performance we recommend to use the optional external power supply provided by your nearest SONOSAX dealer or by the factory. Its SONOSAX part number is: SX 008420.

The DC IN connector is a coax-socket type connector and it can be reordered by your nearest SONOSAX dealer or at the factory. Its SONSAX part number is: SX 860712.

4.2 Right Panel

The right panel includes: two balanced main outputs (OUT L and OUT R), a headphones output (PHONES), a direct line1 to line4 output (OUT 1to4), an external return input (RET IN) and another stereo output (SUB OUT). The user panel and the batteries compartment are also located here as show hereunder:



4.2.1 Main outputs (OUT L & OUT R)

The two main output channels (L & R) are electronically floating balanced.

The output connectors are XLR type connectors where: PIN 1=GND, PIN2=HI (or +) and PIN3=LO (or -).

The nominal level is +6dBu or -40dBu (see Output attenuator) and the output impedance is less than 50 ohms. It can be internally adjusted by your nearest SONOSAX dealer or at the factory.

To connect to an unbalanced input like a consumer CD or MD player, make a bridge between PIN1 and PIN3 and connect this to the GND of the other device. Then, use PIN2 as the unbalanced signal output.

NOTE: Even if the SX42 mixer as an internal protection, avoid sending Phantom power (+48V) into outputs.

4.2.2 Stereo sub output (SUB OUT)

This connector provides you a subsidiary unbalanced stereo output channel. The nominal output level is +6dBu and can be internally adjusted by your nearest SONOSAX dealer or at the factory. You can use this output to connect for example a consumer DAT or MD recorder.

NOTE: This output can also be internally adjusted to provide one or two mono channels. Remark: In a mono channel the audio signal is the sum of Left and Right channels.

The SUB OUT connector is a 4 poles BINDER, where: PIN1=GND, PIN2=Left, PIN3=Right and PIN4=NC.

The corresponding cable connector is BINDER part number: REF 09-9764-70-04 or SONOSAX part number: SX 860274.

4.2.3 Headphones output (PHONES)

This output allows you to connect any kind of headphones with impedance from 35ohms up to 400ohms. The nominal level is 0dBu in position 3, and it can be internally adjusted by your nearest SONOSAX dealer or at the factory. Positions 1 to 5 have 6dB/step. See the PHONES switch on the Front Panel and Headphones level adjustment in the INTERNALS SETTINGS section.

NOTE: The headphone amplifier of the SX42 mixer is very loud, and in some cases this can damage you hears!

4.2.4 Direct outputs (OUT 1to4)

This is a four channels unbalanced output, corresponding to the four input channels of the SX42 mixer. The nominal output level is 6dBu and it can be internally adjusted by your nearest SONOSAX dealer or at the factory. Default setting is PRE, and it can be POST on request.

The OUT 1to4 connector is a 5 poles BINDER where: PIN1=GND, PIN2=IN1, PIN3=IN2, PIN4=IN3, and PIN5=IN4.

The corresponding cable connector is BINDER part number: REF 09-9790-71-05 or SONOSAX part number: SX 860276.

4.2.5 External input (RET IN)

This is an unbalanced stereo input, mainly used for tape monitoring purpose. The nominal input level is 6dBu and it can be internally adjusted by your nearest SONOSAX dealer or at the factory.

The RET IN connector is a 4 poles BINDER where: PIN1=GND, PIN2=Left, PIN3=Right and PIN4=NC.

The corresponding cable connector is BINDER part number: REF 09-9767-70-04 or SONOSAX part number: SX 860273.

4.2.6 User panel

After two decades of manufacturing audio mixers, we find out that all customers have some different manner to connect the mixer to the rest of their equipments. The user panel is here for this. You can add any type of connector you need on this place. To do this, you must be a qualified technician, or refer to an official SONOSAX service center or at the factory.

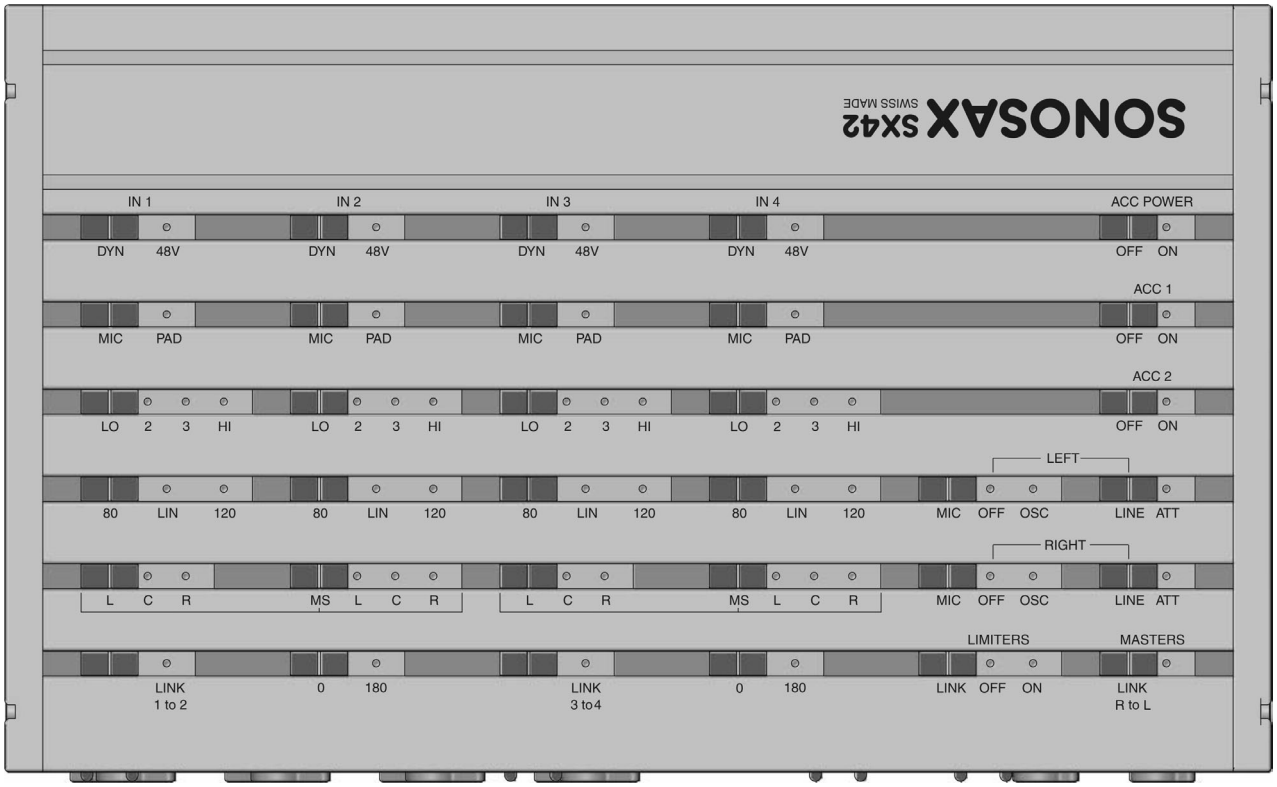
Look at the bloc diagram to find what you need, unscrew the user panel with a 2mm hexagonal wrench and modify the panel for your connector. If you made any mistake, the user panel can be reordered as SONOSAX part number: SX 951630.

4.2.7 Batteries compartment

In this compartment you can place four D-Cells or four AA-Cells with size adaptors. Open the door with a flat screwdriver and introduce the batteries with their negative side first.

4.3 Top Panel

The top panel includes all the settings usually fixed before the shooting. These settings are especially designed to avoid a bad movement during the shooting.



INPUTS SECTION (IN1 to IN4)

This section describes all settings available for each input channel IN1 to IN4.

4.3.1 Phantom power (DYN 48V)

This switch allows you to turn ON or OFF the phantom power of the corresponding input channel (IN1 to IN4):

DYN position: 48V phantom power is OFF – to use with dynamic microphones or line.
48V position: 48V phantom power is ON – to use with condenser microphones.

NOTE: For more than 10 years all professional microphones can work with 48V. Due to a much better common mode rejection ratio (CMRR), we have decided to include only this kind of microphone power.

WARNING: Never use the 48V phantom power if you have connected any unbalanced or line level device. This setting can destroy the connected device!

4.3.2 Input attenuator (MIC PAD)

This switch allows you to turn ON or OFF the 30dB input attenuator of the corresponding input channel (IN1 to IN4):

MIC position: the input attenuator is OFF.
PAD position: the input attenuator is ON.

NOTE: The PAD position should be used with high input levels, like the ones obtained when using high sensitivity microphones. But for a better signal to noise ratio it is better to use the mixer without PAD if possible.

4.3.3 Gain (LO 2 3 HI)

This four positions switch allows you to adjust the gain level of the corresponding input channel (IN1 to IN4) according to the following:

LO position:	an input gain of 16dB is activated.
2 position:	an input gain of 36dB is activated.
3 position:	an input gain of 56dB is activated.
HI position:	an input gain of 76dB is activated.

NOTE: Gain control should be used with care since the adjustment range is extensive. A signal level set too high can cause distortion and will leave you with less headroom; a level set too low can cause a bad signal-to-noise ratio.

4.3.4 LF filter (80 LIN 120)

This switch allows you to turn ON or OFF the low frequencies filter of the corresponding input channel (IN1 to IN4) according to the following:

80 position:	the low cut frequency is 80 Hz, the slope is 12dB/octave.
LIN position:	the low cut filter is turned OFF.
120 position:	the low cut frequency is 120 Hz, the slope is 12dB/octave.

NOTE: You can use this filter to remove unwanted low frequency noises such as room rumble, wind noise, popping, etc.

4.3.5 Pan (MS L C R)

This switch allows you to route the audio signal of the corresponding input channel (IN1 to IN4) to the main outputs, according to the following:

MS position:	a MS decoded signal is routed on both Left and Right output channels.
L position:	the signal is routed on the Left output channel only.
C position:	the signal is routed on both, Left and Right output channels.
R position:	the signal is route on the Right output channel only.

NOTE: The MS position is only available on channels 2 and 4, to activate MS on inputs 1-2, and/or inputs 3-4.

In the MS-mode the M channel is routed to both Left and Right output channels in phase and the S channel is routed in phase to the Left output channel and out of phase to the Right output channel.

WARNING: When the MS position is selected on input channel 2 and/or 4, the pan setting for input channel 1 and/or 3 will have no effects and thus becomes useless.

4.3.6 Input level link (LINK 1 to 2 and LINK 3 to 4)

This switch allows you to link level controls (rotary faders) of input channels 1 and 2 (and respectively input channels 3 and 4) to the single level control of input channel 2 (respectively

input channel 4). Thus, you only need to adjust one level control, for example on input channel 4, to set the audio level of input channels 3 AND 4.

NOTE: The input level link switch is only available on input channels 1 and 3.

4.3.7 Phase reversal (0 180)

This switch allows you to reverse the signal phase of channels 2 and/or 4. This setting is useful if you have a phase problem between two microphones or if you use MS microphones.

0° position: the signal is on phase.
180° position: the signal phase is inverted by 180°.

NOTE: The phase reversal switch is only available on input channels 2 and 4.

WARNING: If the MS position is selected on the pan switch and you decide to invert the signal phase (of the same input channel), then the whole MS image will be inverted on the output channels.

OUTPUTS SECTION (L&R)

This section describes all settings available for the two output channels.

4.3.8 Talkback and oscillator (MIC OFF OSC)

This three positions switch allows you to select one of the two possible sources that will be sent on the corresponding output channel (Left and/or Right):

MIC position: sends the talkback microphone signal to the output channel.
OFF: position: the talkback microphone and the oscillator are turned off.
OSC position: the internal oscillator generates a 1 kHz sine wave tone which is sent to the output channel (this function is usually used during a calibration or a test process).

NOTE: The nominal output level is +6dBu (level meters @ 0dB) when the master pot is on the 0dB position.

4.3.9 Output attenuator (LINE ATT)

This switch allows you to turn ON or OFF the 46dB line attenuator of the corresponding output channel (Left and/or Right) according to the following:

LINE position: the attenuator is turned OFF – nominal output level is +6dBu.
ATT position: the attenuator is turned ON – nominal output level is -40dBu.

4.3.10 Limiter (LINK OFF ON)

This three positions switch allows you to turn ON or OFF the two independents internal output limiters according to the following:

LINK position: Left and Right output limiters are linked (stereo mode) and ON.
OFF position: Left and Right output limiters are turned OFF.
ON position: Left and Right output limiters are turned ON.

NOTE: The use of these high quality limiters helps you to avoid the overload of the output or your recorder input. Where stereo balanced limiting is needed use the LINK position.

4.3.11 Master levels link (LINK R to L)

This switch allows you to link the Right output channel level control (rotary fader) to the Left output channel level control. Thus, you only need to adjust the level control of the Left output channel to set the audio level of both output channels (L & R).

ACCESSORIES SECTION

This section describes all settings available for the optional internal modules.

4.3.12 Accessories power (OFF ON)

This switch allows you to turn ON or OFF the power of any internal accessory located inside the mixer, for example a HF transmitter.

NOTE: If the mixer is turned OFF, the accessory power is also turned OFF even if the ACC POWER is ON.

WARNING: The internal power supply will provide to the accessories a maximum current of 200mA under 9V DC and/or a maximum current of 200mA under 5V DC.

4.3.13 ACC 1 switch (OFF ON)

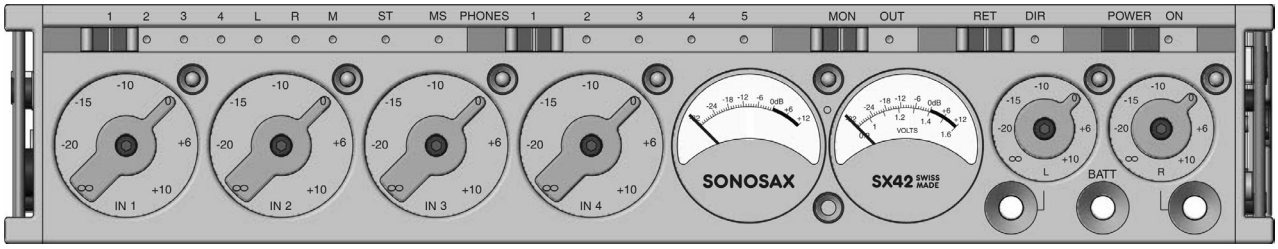
This two position switch has no particular function. It has been intentionally left free for a later use with an internal accessory. Feel free to connect it according to your needs.

4.3.14 ACC 2 switch (OFF ON)

This two position switch has no particular function. It has been intentionally left free for a later use with an internal accessory. Feel free to connect it according to your needs.

4.4 Front Panel

The front side of the SX42 includes all the figures used during the shooting, and all the monitoring functions.



4.4.1 Input rotary faders (IN1 to IN4)

These four rotary potentiometers (faders) allow you to progressively adjust the desired audio level of the corresponding input channel (IN1 to IN4), within a wide level range going from -∞ to +10dBu.

4.4.2 Input signal peak indicator (OVD LED)

This small level indicator uses a two colors LED that will light:

GREEN:	when an audio signal is present at approx.-50dB.
RED:	when an audio signal is close to overload (6dB before clipping).

NOTE: There are tree levels of LED's light intensity depending of the detected daylight. If more daylight is detected LED's light intensity will be increased.

MONITORING SECTION

In this area you find all the necessary switches and buttons for the headphone's monitoring.

4.4.3 Monitor source (1 2 3 4 L R M ST MS)

This ten positions linear switch allows you to select the source you want to monitor according to the following:

1 position:	the input channel 1 is selected.
2 position:	the input channel 2 is selected.
3 position:	the input channel 3 is selected.
4 position:	the input channel 4 is selected.
L position:	the Left output channel is selected.
R position:	the Right output channel is selected.
M position:	a mono output (sum of Left and Right channels) is selected.
ST position:	a stereo output (Left and Right channels) is selected.
MS position:	a MS-decoded signal is sent to the monitor output.

NOTE: In MS position, be sure to also check the setting of the Monitor Select switch to avoid any confusion on the source.

4.4.4 Phones level (1 2 3 4 5)

This five positions switch allows you the set the headphones level according to the following:

1 position:	headphones level is -12dBu.
2 position:	headphones level is -6dBu.
3 position:	headphones level is 0dBu (nominal level).
4 position:	headphones level is +6dBu.
5 position:	headphones level is +12dBu.

NOTE: The nominal headphones output level is fixed at 0dBu and it can be internally adjusted by your nearest SONOSAX dealer or at the factory.

4.4.5 Meters source (MON OUT)

This switch allows you to select which audio signal will drive the two level meter indicators according to the following:

MON position:	level meters will follow the monitor source signal.
OUT position:	level meters will follow the output channels signal.

4.4.6 Monitor select (RET DIR)

This switch allows you to route the direct (L & R) or the return (RET IN) audio signal to headphones output, according to the following:

RET position:	the signal from the RET IN input is routed to the phones output.
DIR position:	the signal from Left and Right output channels is routed to the phones output.

4.4.7 Level meters

Two moving coil level meter indicators are presents to visualize the current level of the audio signal (in VU or Peak mode, see NOTE). They have a large scale ranging from -32dB to +12dB, are compensated in temperature and closed on the front side by tempered glasses. The right level meter indicator also show the battery voltage, when the BATT push button is depressed.

NOTE: The factory setting is Peak for both level meters and it can be internally adjusted by your nearest SONOSAX dealer or at the factory.

4.4.8 Meters backlight

The two level meter indicators have a red backlight with an automatic power ON or OFF function. As soon as the detected daylight goes under a certain level, the meters backlight will light ON. Thus, when using the SX42 mixer in a normal daylight environment the backlight is turned OFF.

4.4.9 Power LED

This small power level indicator uses a two colors LED that will light:

GREEN:	when the SX42 mixer is turned ON and it is ready to operate.
RED:	when the SX42 mixer is turned ON and the batteries are low.

4.4.10 Talkback microphone

A small electret microphone with an automatic level control is located between the two level meters and it is used for the talkback function. To use it: first select the MIC position on the Talkback and Oscillator switch (4.3.8) located on the Top Panel and then depress the left or right talkback push button to send the microphone signal to the corresponding output channel.

MASTERS SECTION

In this section you will find the output level controls and indicators, the talkback function and the battery test control.

4.4.11 Power (OFF ON)

This switch allows you to turn ON or OFF the SX42 mixer.

OFF position:	the SX42 is turned OFF.
ON position:	the SX42 is turned ON.

4.4.12 Output signal peak indicators (OVD LED)

This small level indicator uses a two colors LED that will light:

GREEN: when the Limiter is active.
RED: when an audio signal is close to overload (6dB before clipping).

NOTE: There are three levels of LED's light intensity that will depend on the amount of detected daylight. Thus, if more daylight is detected LED's light intensity will be increased.

4.4.13 Output rotary faders (L & R)

These two rotary potentiometers (faders) allow you to progressively adjust the desired audio level of the corresponding output channel (L & R), within a wide level range going from -∞ to +10dBu.

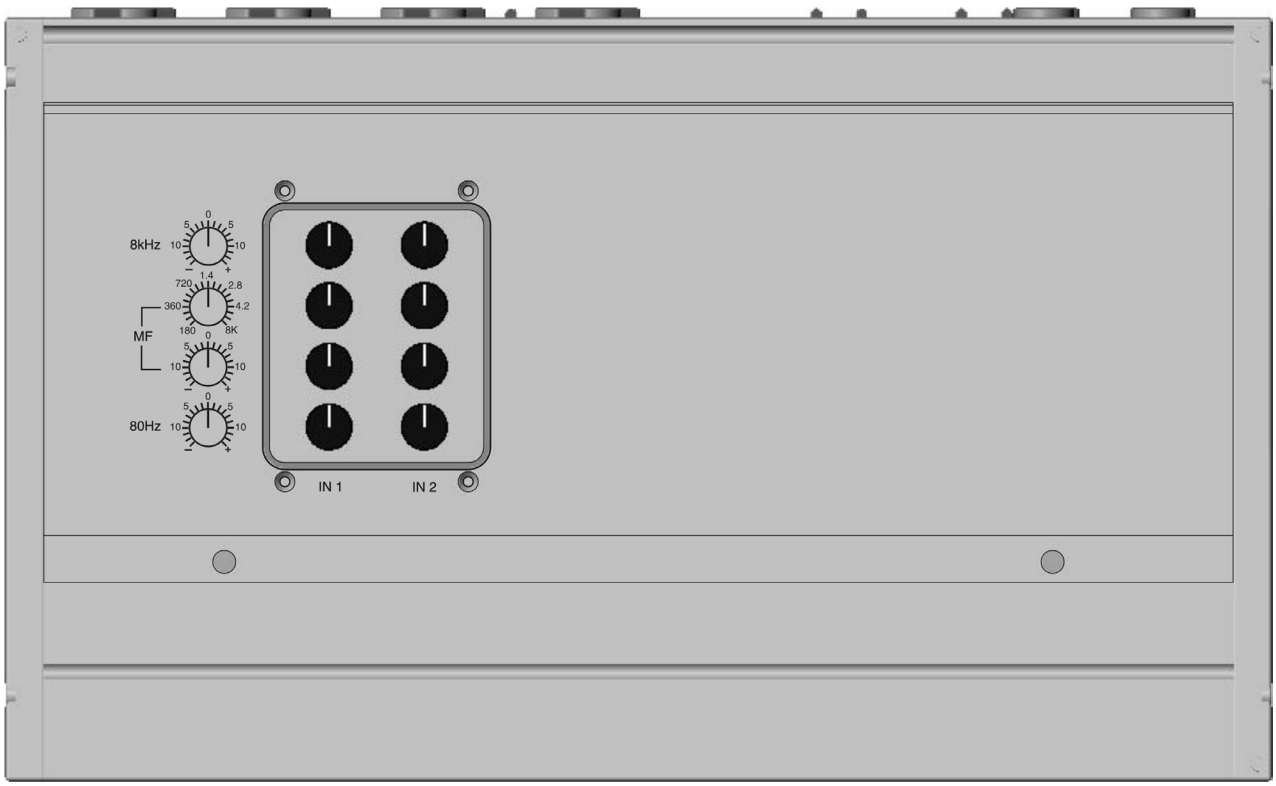
4.4.14 Talkback push buttons (L & R)

When these push buttons are depressed the signal of the selected internal source (the talkback microphone or the oscillator) is fed to the corresponding output channel.

4.4.15 Battery test (BATT)

When this push-button is depressed, the needle of the right level meter will indicate the average voltage per battery cell (minimum: 1V, maximum: 1.6V). In case of use with an external power supply, the meter will indicate the voltage divided by four. For instance: a 1.5V indication means that the external voltage is equal to 6V DC.

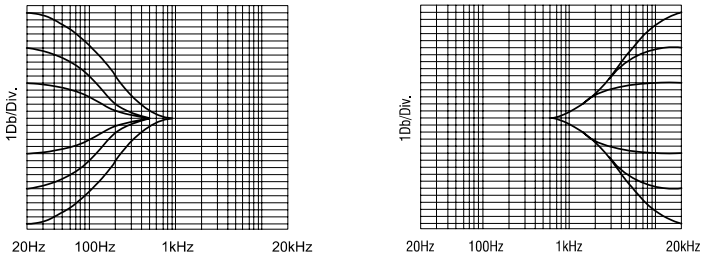
4.5 Bottom Panel



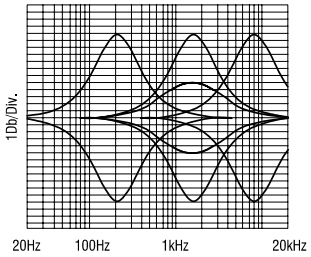
4.5.1 Equalizer (optional)

A three-band equalizer is available for input channel 1 and 2. Use the following controls to set the equalizer according to your needs:

- 80 Hz and 8 kHz: bass and treble adjustments are achieved by using two separate ±15 dB knobs.



- MF: medium frequencies adjustment is achieved by using one knob to progressively adjust the central frequency from 180 Hz to 8 kHz, and by using another knob to adjust the amplitude within a ±11 dB range.



4.6 Internal Settings

Please pay attention that these internal adjustments must be executed by a qualified technician or by a SONOSAX appointed distributor or dealer. Any damage due to manipulations inside the unit cancels the SONOSAX warranty immediately. See the appropriate schematic for proper jumper or trimmer location.

To access all internal settings (jumpers and trimmers), you have to open and remove the anodized cover located in the middle of the Bottom Panel (see 4.5). Simply unscrew the two slotted screws present on the Bottom Panel and remove the anodized cover with care to avoid damaging the cables and connectors that may be present if you have the optional equalizer installed.

4.6.1 Headphones level adjustment

The two trimmers T3 (Left) and T4 (Right) located on top middle of the Front Board (see 5.4) allow you to precisely adjust the nominal headphones output level The factory setting is 0dBu for both channels on position 3.

NOTE: As all positions of the PHONES switch have a fixed step of 6dB among them, you only have to adjust the nominal output level of position 3 to shift up or down the whole output level range.

4.6.2 Inputs monitoring signal

Four jumpers S30 (IN1), S29 (IN2), S31 (IN3) and S32 (IN4) are located on the top middle of the Front Board (see 5.4) and allow you to select if the monitoring signal of the corresponding input channel (1to4) should be PRE or POST fader. The factory setting is PRE fader for the four input channels.

4.6.3 Sensitivity of the return input

The two trimmers T7 (Left) and T8 (Right) located on the left side of the Front Board (see 5.4) allow you to precisely adjust the sensitivity of the return input (RET IN) located on the Right Panel. The factory setting is +6dBu for both channels.

4.6.4 Output limiters level adjustment

The two trimmers T10 (Left) and T11 (Right) located on the left side of the Main Board (see 5.3) allow you to precisely adjust the working level of the two output limiters. The factory setting is +6dBu for both limiters.

4.6.5 Subsidiary output level adjustment

The two trimmers T7 (Left) and T8 (Right) located on the bottom middle of the Main Board (see 5.3) allow you to precisely adjust the nominal output level of the subsidiary stereo output (SUB OUT), located on the Right Panel. The factory setting is +6dBu for both channels.

Two jumpers S112 (Left) and S111 (Right) are also located on the Main Board and allow you to select a mono output signal (sum of the Left and Right channel), instead of the corresponding Left or Right output signal.

4.6.6 Direct outputs level adjustment

The four trimmers T15 (OUT1), T4 (OUT2), T5 (OUT3) and T6 (OUT4) located on the right bottom side of the Main Board (see 5.3) allow you to precisely adjust the nominal output level of the corresponding input channel 1 to 4 which are present on the direct outputs connector (OUT 1to4), located on the Right Panel. The factory setting is +6dBu for the four direct output channels.

Four jumpers S105 (OUT1), S106 (OUT2), S107 (OUT3) and S108 (OUT4) are also located on the right bottom side of the Main Board and allow you to select for each corresponding input channel 1 to 4 if its output signal should be PRE or POST fader. The factory setting is PRE fader for the four channels.

4.6.7 Sensitivity of the bus input

The two trimmers T2 (Left) and T1 (Right) located on the Main Board (see 5.3) allow you to precisely adjust the sensitivity of the stereo bus input (BUS IN) located on the Left Panel. The factory setting is +6dBu for both channels.

4.6.8 Level meters mode

Eight jumpers (S33 to S40) are located on the top middle of the Front Board (see 5.4) and allow you to select the VU or Peak mode of both level meters. Please refer to the table located on the bottom left of the Front Board (see 5.4) for the appropriate settings.

5. APPENDIX

5.1 Specifications

All specifications mentioned hereafter apply to standard models only. SONOSAX SAS SA reserves the right to modify these characteristics at any time without prior notice.

For measures and/or settings the reference is: 0dBu = 0.775V (i.e. +6dBu = 1.55V).

5.1.1 Summary of characteristics

Frequency response:	20 Hz to 20 kHz ± 0.1dB
Global gain:	98dB to -14dB
Input headroom:	approx. 35dB (master faders at maximum)
Crosstalk between 2 inputs:	better than 80dB
Level meters:	Vu, Peak or Peak IEC-268-10 type 1 (internally selectable)
Operating temperature:	-25°C (-13°F) to 70°C (158°F)

GAIN	98dB	76dB	56dB	36dB	16dB	0dB
Nominal level:	-92dBu	-70dBu	-50dBu	-30dBu	-10dBu	+6dBu
Maximum level:	-45dBu	-45dBu	-25dBu	-5dBu	+15dBu	+25dBu
THD*	0.05%	0.05%	0.02%	0.01%	0.01%	0.01%
CMRR**	>100dB	>100dB	>100dB	>90dB	>65dB	>60dB
Noise LIN**	-128.6dBu	-128.4dBu	-128.0dBu	-121.8dBu	-103.5dBu	-91dBu

* 22 Hz to 22 kHz, at maximum input level
** Equivalent input noise from a 150Ω source

OUTPUT NOISE

Master faders closed:	-104.5dBu, 20 Hz to 20 kHz
Master faders at 0dB:	-91dBu, 20 Hz to 20 kHz
One input ch. at unity gain:	-93.5dBu, 20 Hz to 20 kHz

5.1.2 Mic/Line inputs

Input type:	electronically balanced, transformerless
Input impedance:	6.8kΩ, 4kΩ with PAD, linear from 22 Hz to 22 kHz
RF filters:	optional
PAD attenuator:	30dB
Low frequency filter:	12dB/octave, -3dB at 80Hz or 120Hz
Signal/Overload indicator:	will light GREEN if audio signal present at -50dB will light RED 6dB before clipping level
Microphone power:	+48V (phantom power)
Bus Input level:	+6dBu (internally adjustable from 0dBu to +18dBu)
Bus Input impedance:	6kΩ @ +6dBu, 3kΩ @ 0dBu and 25kΩ @ +18dBu
Return Input level:	+6dBu (internally adjustable from 0dBu to +20dBu)
Return Input impedance:	10kΩ

5.1.3 Main outputs

Main output type:	floating balanced, transformerless
Main output impedance:	<50Ω
Nominal output level:	+6dBu (internally adjustable from 0dBu to +15dBu), -40dBu with the line attenuator switched ON
Maximum output level:	+20dBu @600Ω
Sub output type:	unbalanced
Sub output level:	+6dBu (internally adjustable from 0dBu to +15dBu)
Phones level control:	6dB/step
Headphones output level:	0dBu in position 3, +11dBu@75Ω and max. +13dBu @150Ω, (internally adjustable from -2dBu to +12dBu)
1to4 direct output type:	unbalanced
1to4 direct output level:	+6dBu (internally adjustable from -5dBu to +11dBu)
Limiters level:	+6dBu (internally adjustable from -5dBu to +11dBu)
Internal oscillator:	1 kHz with THD <1%
Slate microphone:	electret with automatic level control
Led level indicators:	RED: 6dB before clipping, GREEN: when limiter is active

5.1.4 Equalizer (optional)

Low frequencies filter:	4 dB/octave, ±12dB at 80 Hz, ±15dB at 40 Hz
High frequencies filter:	4 dB/octave, ±12dB at 8 kHz, ±15dB at 16 kHz
Mid sweep filter:	6 dB/octave, ±11dB 180 Hz to 8 kHz

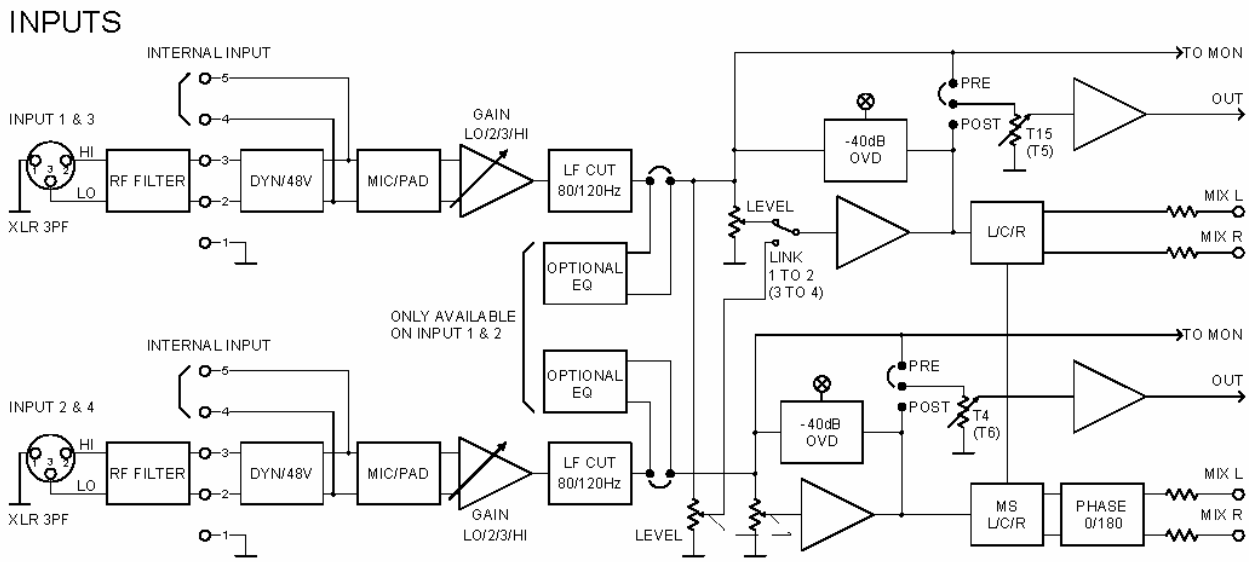
5.1.5 Power supply

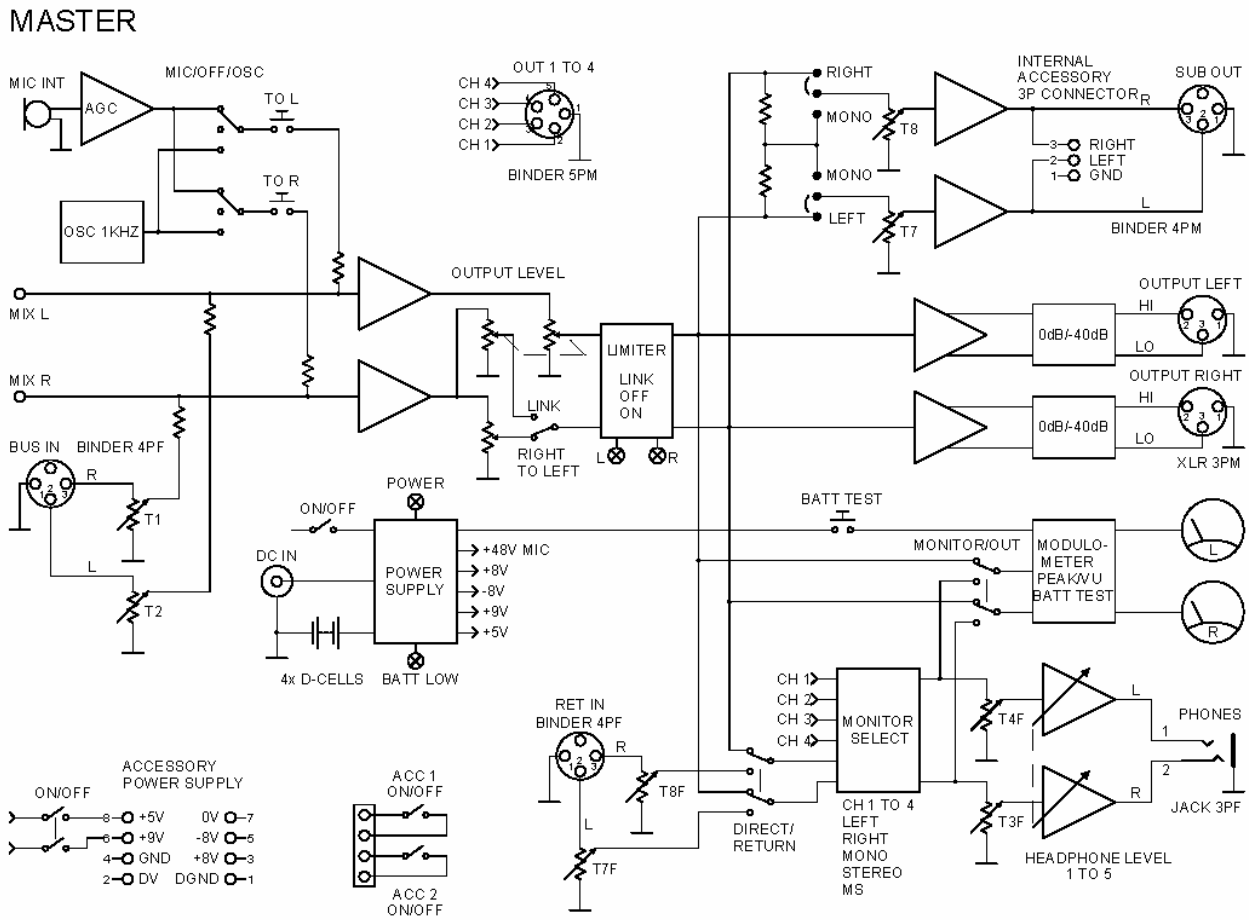
Supply voltage:	6V DC provided by four LR20 (D) cells or four LR6 (AA) cells with size adaptors. You can use standard 1.5V alkaline batteries, 1.2V 4Ah NiCd or 1.2V 7Ah NiMH accumulators
External power:	6V to 12V DC, 1A peak, 500mA average
Autonomy:	approx. 16h with four LR20 (D) alkaline batteries, approx. 12h with four LR20 (D) NiMH accumulators, approx. 4h with four LR6 (AA) NiMH accumulators

5.1.6 Dimensions and weight

Dimensions (H*W*D):	266mm x 160mm x 50mm (10.48'' x 6.3'' x 1.97'')
Net weight (without batt.):	1.65 kg (3.64 lbs)
Weight with batteries:	1.8 kg (3.95 lbs) with four AA batteries & size adaptors 2.2 kg (4.85 lbs) with four alkaline D-cells (LR20)

5.2 Block Diagram





Contact arrangements with view on solder termination side

Improvement may cause change of features and specifications without notice 0203

SX42 CONNECTORS			CORRESPONDING CABLE CONNECTOR	CONTACT ARRANGEMENTS
BUS IN	BINDER 4PF	REF 09-9766-30-04 (SX 860254)	REF 09-9767-70-04 (SX 860273)	1=GND 2=LEFT 3=RIGHT 4=NC
RET IN	BINDER 4PF	REF 09-9766-30-04 (SX 860254)	REF 09-9767-70-04 (SX 860273)	1=GND 2=LEFT 3=RIGHT 4=NC
SUB OUT	BINDER 4PM	REF 09-9765-30-04 (SX 860253)	REF 09-9764-70-04 (SX 860274)	1=GND 2=LEFT 3=RIGHT 4=NC
OUT 1 TO 4	BINDER 5PM	REF 09-9791-30-05 (SX 860255)	REF 09-9790-71-05 (SX 860276)	1=GND 2=CH1 3=CH2 4=CH3 5=CH4

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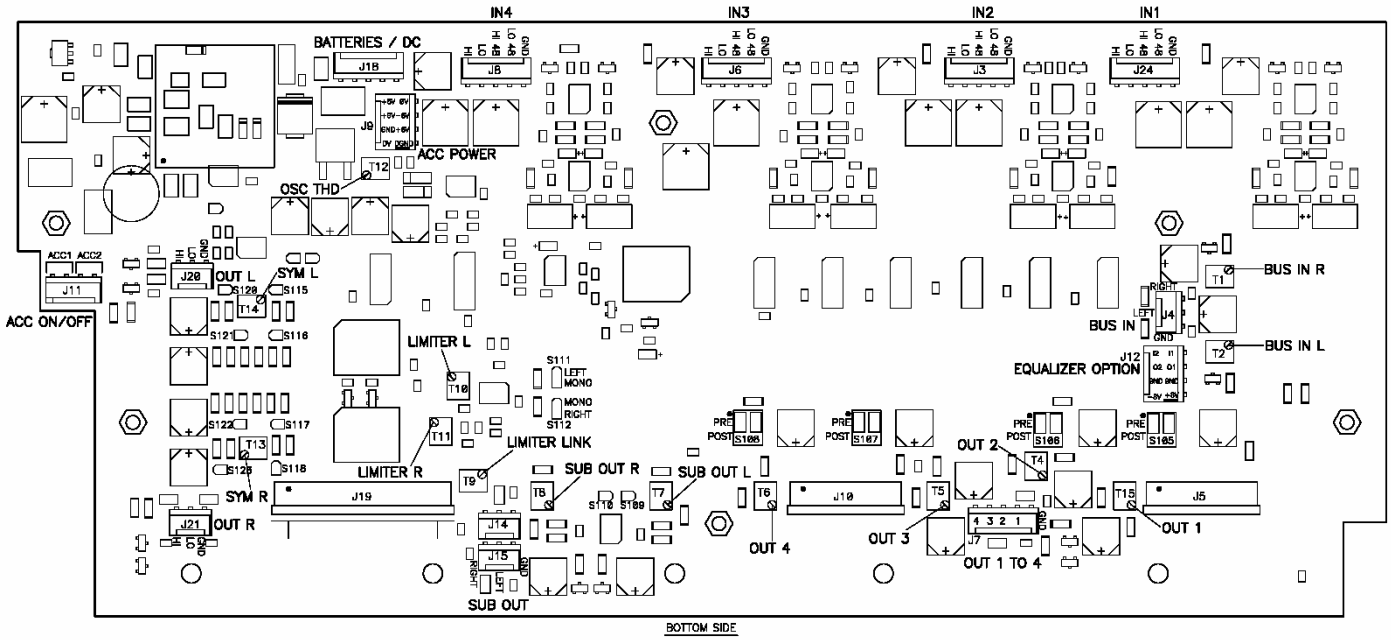
5.3 Main Board Adjustments

TRIMMERS		FACTORY SETTINGS
T2 (LEFT) T1 (RIGHT)	BUS IN	+6dBu
T15 (OUT1) T4 (OUT2) T5 (OUT3) T6 (OUT4)	OUT 1 TO 4	+6dBu
T7 (LEFT) T8 (RIGHT)	SUB OUT	+6dBu
T9	LIMITER LINK	DO NOT ADJUST
T10 (LEFT) T11 (RIGHT)	LIMITER	+6dBu
T14 (LEFT) T13 (RIGHT)	SYMETRY	DO NOT ADJUST
T12	OSCILLATOR THD	DO NOT ADJUST

JUMPERS	DESCRIPTION		FACTORY SETTINGS
S105 (OUT1) S106 (OUT2) S107 (OUT3) S108 (OUT4)	OUT 1 TO 4	PRE / POST	PRE
S109 S110	OUT 1 TO 4	NONE / POWERED	POWERED
S115 S116 S120 S121	OUT L	+4dBu NA / +6dBu ASS	+6dBu
S117 S118 S122 S123	OUT R	+4dBu NA / +6dBu ASS	+6dBu
S111	SUB OUT L	LEFT / MONO	LEFT
S112	SUB OUT R	MONO / RIGHT	RIGHT

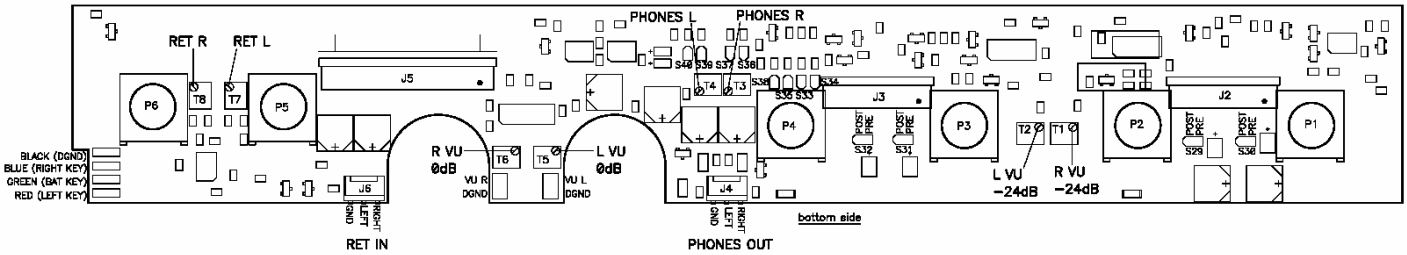


SX42 MAIN PCB	DRAWN BY ALA	MODIFIED Tue Mar 11, 2003
		FILE NAME F061612.PCB
SONOSAX SAS SA CH. DE LA MAZ 38 CH-1052 LE MONT-SUR-LAUSANNE TEL +41 21 651 01 01	061612	1

5.4 Front Board Adjustments

TRIMMERS		FACTORY SETTINGS
T7 (LEFT) T8 (RIGHT)	RET IN	+6dBu
T5 (LEFT) T6 (RIGHT)	0dB VU	DO NOT ADJUST
T2 (LEFT) T1 (RIGHT)	−24 dB VU	DO NOT ADJUST
T4 (LEFT) T3 (RIGHT)	PHONES	POS 3, 0dBu (6dB/STEP)

JUMPERS	DESCRIPTION		FACTORY SETTINGS
S30	IN1 MONITORING	PRE / POST	PRE
S29	IN2 MONITORING	PRE / POST	PRE
S31	IN3 MONITORING	PRE / POST	PRE
S32	IN4 MONITORING	PRE / POST	PRE



VU−METERS

	INTEGRATION			RETURN TIME	
	S39 S35	S38 S40		S33 S37	S34 S36
0	ASS	NA	0.6s / 20dB	ASS	ASS
5ms	NA	ASS	1.1s / 20dB	ASS	NA
10ms	NA	NA	1.7s / 20dB	NA	ASS
			3.4s / 20dB	NA	NA

	INTEGRATION	RETURN TIME
FACTORY SETTINGS	0	1.7s / 20dB
IEC 268−10 typ I	5ms	1.7s / 20dB

SX42 FRONT PCB	DRAWN BY ALA	MODIFIED Fri Mar 14, 2003
		FILE NAME F061622.PCB
SONOSAX SAS SA CH. DE LA MAZ 38 CH-1052 LE MONT-SUR-LAUSANNE TEL +41 21 651 01 01	061622	1

5.5 Tips On Using Your Mixer

The SONOSAX SX42 has been designed to ensure unsurpassed performance. However, bear in mind that a good sound recording greatly depends on dynamics.

We thus recommend the following:

- Adjust the input gain level at maximum level BEFORE overload, i.e. with a modulation level between 0 dB and +6 dB on the level meters.
- Input rotary faders should be between the 0dB and the +10dB position.
- Output rotary faders should be below the maximum position.
- Preferably try to operate at highest possible levels at the first amplification stage or at microphone pre-amp levels.
- Make sure that interconnections between your SX42 mixer and other equipments are correct and optimal.
- Optimize operating conditions (location, quality of microphones, etc.) rather than using the optional equalizer.
- Avoid operating with equalization filters at maximum.

Considering the extensive possibilities offered by your SONOSAX SX42 mixer, this instruction manual may not answer all questions that may arise during normal operation of your equipment. Please contact your nearest SONOSAX dealer for any further information.

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