Back to SX-S Page

USER MANUAL

PROFESSIONAL PORTABLE

MIXING CONSOLE

SONOSAX SX-S/SX-V

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INTRODUCTION

Your SONOSAX SX-S or SX-V mixing console has been manufactured to deliver many years of excellent performance. The reliability of the SONOSAX SX-S and SX-V is due to a design combining the highest possible density with meticulous hand assembly.

This professional mixer of optimum performance and reliability is the result of selection of choice electronic components and severe quality control.

The information and instructions contained in this manual are necessary to ensure safe operation of your equipment and to maintain it in good working condition.

NOTE: The specifications mentioned hereafter apply to all standard models as of serial numbers SX-S 16150, and SX-V 120022.

SONOSAX reserves the right to modify these characteristics at any time without prior notice.

TABLE OF CONTENTS

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1. PREPARATION

1.1 Opening the cover

Release the 2 slide-locks and simultaneously slide out the cover.

1.2 Closing the cover

Replace the cover and slide all the way in until the locks catch.

1.3 Removing the battery compartment

Make sure that the handle is in rest position. Remove the battery pack by releasing the 2 slide-locks, tilting the compartment diagonally towards you and lifting it out over the handle.

IMPORTANT: Keep the slide-locks pressed towards the center untill the battery compartment is completely lifted out of the mixer.

1.4 Opening the battery compartment

The battery compartment may now be opened by loosening the screw on the left. Remove the plastic side cover. Insert:

- 8 alkaline D-cells or 8 rechargeable nickel-cadmium batteries for the SX-S6
- 10 alkaline D-cells or 10 rechargeable nickel-cadmium batteries for the SX-8 or SX-S10.

NOTE: On the left of the battery compartment, you will find the hex wrench (2mm) which will enable you to completely disassemble the SX-S without using any other tool.

WARNING : Never leave discharged batteries in your SX-S. Make sure before charging that your SX-S only contains rechargeable NiCd batteries. To ensure optimal autonomy, use only professional alkaline D-cells. Also check the manufacture date of D-cells.

1.5 Closing the battery compartment

Replace the plastic side cover.

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 agent or the manufacturer in Switzerland can provide assistance should a problem arise due to this difference in length.

Replace the battery compartment while holding in the slide-locks and making sure the power contacts are correctly positioned.

The battery compartment is in place when the slide-locks return easily to their original position.

1.6 External power supply (also refer to 2.2 and 2.3)

SONOSAX SX-S mixers can be powered from a 9-15V DC (SX-S6) or 11-15 DC (SX-S8/10) power supply capable of delivering at least 1.5A. Average power consumption is approximately 500mA.

The DC power supply input connector (LEMO, Type FGJ IB 303CLLD62, SONOSAX Part nb. 860202) is located on the rear panel of the SONOSAX mixer. Pin No.3 is allocated to the NiCd batteries charge current. Nominal current is 400mA and nominal charging time is 15 hours.

WARNING : DO NOT ATTEMPT TO CHARGE D-CELL BATTERIES.

1.7 Power supply block diagram

1.8 Fuses

Your SONOSAX SX-S is protected against overloads and reversed polarity by two T2.5A fuses located : INSIDE THE BATTERY COMPARTMENT (ON THE RIGHT). To replace the fuse,remove the cover on the right of the battery compartment with the hex wrench.**NOTE :** Here you will find spare T2.5A fuses.

- ON THE EXTERNAL DC PC BOARD. Located below the two faders of the master module. To gain access to this fuse, remove the bottom of the SX-S mixer with the hex wrench.

RETURN TO TABLE OF CONTENTS

---

2. OPERATING INSTRUCTIONS

2.1 Switching on the SONOSAX mixer

Using D-cells or NiCd batteries:

Depress POWER push-button on the master module. The two control LEDs of the modulometer should light up within 3 seconds. If they do not light up:

- Check that batteries have been inserted correctly inside the battery compartment.

- If necessary change the batteries.

Using the Sonosax external power supply:

IMPORTANT : Before turning on the unit, make sure the voltage selector is correctly positioned at either 110V or 220V depending on local current supply. If needed, change selector position by using a screwdriver, a ball point pen or similar instrument. At 110V, the mixer may be powered from 100 to 125V , 50 to 60 Hertz; at 220V, from 200 to 260V, 50 to 60 Hertz.

Newer SX-S Mixers use an autoranging power supply. It may be powered from 100 to 250 VAC 50 to 100 Hertz.

- The POWER button on the master module should not be pressed while using the external power supply or while charging accumulators.
- The GND button separates the SX-S from ground (in case of ground loop).

2.2 Using an external power supply

Apply current indicated (see 1.6) between points 1 (+) and 2 (0V) of the LEMO connector. Do not press the "POWER" button while using an external power supply or while charging accumulators.

2.3 Battery test

When BATT TEST push-button is depressed, the LEDs of the modulometer will indicate the average charge per cell (minimum 1V, maximum 1.5V).

2.4 Low charge alarm

When the average charge per cell reaches 1.05V, the two LEDs will automatically start to blink. This alarm means that about 10 to 20 minutes remain before the mixer automatically turns off. This auto-stop protects the accumulators from excessive discharge.

2.5 Charging the NiCd batteries

WITH SONOSAX SX-S POWER SUPPLY :

This external accessory will automatically charge the NiCd batteries while the mixer is being used. Simply press the charge 0,4A button. The green "CHARGE" LED on the power supply as well as the green LED on the Master Module should light up. Nominal charge current is 400mA and nominal charging time is 15 hours.

WITH ANOTHER EXTERNAL POWER SUPPLY :

Apply current charge of 400mA to pin 3 of the LEMO connector. Nominal charging time is 15 hours.

IMPORTANT: Never charge D-Cell batteries!

RETURN TO TABLE OF CONTENTS

---

3. INPUT MODULE (after serial nb 16579)

Traditional professional mixing consoles are all based on the same input structure. The signal from the microphone goes through a phase reversal switch and then to a pad to attenuate the signal before going to the first amplification stage. Some mixers even introduce a transformer before the first stage to simplify the circuits. Reducing the signal level before amplifying it increases any noise. It also limits the range of input signal that can be accommodated before overload distortion. This type of circuit has been OK for analog recording.

The new SONOSAX SX-S input stages do not reduce the microphone level before amplification. Instead we control the amount of amplification. No new noise is introduced by this method.

By careful design of the input amplifier stages, it is now possible to handle a significant increase in the input level before overload. Conventional input stages require the operator to do a delicate balancing act between the input gain control and the channel fader to prevent unexpected input overload or so much gain that the noise comes up. Thus, heretofore unattainable low noise input figures and high input headroom figures are a reality.

The new SONOSAX SX-S input modules have a new profile. The "Limiter Threshold", "AUX Level" and "PAN" controls have been recessed. This removes any obstacles beside the P&G faders. Functionally the input modules are the same as they have been for over a decade. The electronic components and the circuitry are modern. The functionality was perfected many years ago. The SONOSAX SX-S still has the best limiter in the industry and equalization control equaled by none.

The new SONOSAX SX-S input module has mini-switches on the back to change several parameters of its operation. The "High Pass" filter can be switched in or out of the signal path with the "Equalization" or it can be in the circuit all the time. The ON/OFF switch can actually turn the power to the channel OFF to preserve the batteries, or it can be a "Mute" switch which can activate the channel without a pop in the signal. The switch to select "Phantom 12V" or "T12V " power is of course still there.

The new modules are prefitted with connectors for VCA operation and the installation of the four Channel Matrix Module and the AUX Module.

3.1 SONOSAX SX-S Input Module Specifications:

GAIN	**85 dB** Fader at +10 dB	**60 dB** Fader at 0 dB	**40 dB** Fader at 0 dB	**20 dB** Fader at 0 dB	**0 dB** Fader at -4 dB
Nom. input level	87 uV	1.55 mV	15.5 mV	155 mV	1.55 V
Max. Input level	2.57 mV	12 mV	120 mV	1.2 V	7.0 V
THD & N%	0.028	0.016	0.01	0.007	0.007
CMRR at 1kHz	-103 dB	-103 dB	-104 dB	-95 dB	-78 dB
CMRR 20 Hz to 20	-85 dB	-85 dB	-85 dB	-80 dB	-60 dB

Equivalent input Noise Ohm Source

GAIN	**85 dB** Fader at +10 dB	**60 dB** Fader at 0 dB	**40 dB** Fader at 0 dB	**20 dB** Fader a t0 dB	**0 dB** Fader at -4 dB
Noise linear	-129.3 dB	-128.4 dB	-125.6 dB	-110.5 dB	-91.4 dB
Noise ASA A	-131.6 dB	-130.6 dB	-127.4 dB	-111.9 dB	-92.5 dB

Bus Noise

6 Channels assigned @ Gain Fader at -4 dB	-86 dBu
1 Channels assigned @ Gain Fader at -4 dB	-91.4 dBu

6 Channels assigned Faders Down	-89.5 dBu
Master Faders @ OdB, all channels off	-94.2 dBu
Master Faders Down	-95.5 dBu

3.2 Installation Procedure

Disconnect the Neutrik and dual Bantam connector from the module circuit board and install them in the appropriate blank holes on the mixer's back panel.

First install the Neutrik connector with the lock towards the top of the SX-S, then install the Bantam plug with the cables oriented towards the top of the mixer.

Install the module into the appropriate slot, reattach the three connectors and connect the module to the ribbon connector.

If the mixer is fitted with an Aux module and / or Matrix module connect J-5 tothese modules.

Before reattaching the cover, select mute or power mode with S-4, Lo frequency cut with EQ-switch or continuous with S-5 and "Phantom " or " T12V " with Switch S-8.

3.3 Phase reversal

Reverses signal phase without reversing mic powering.

3.4 HI / CAL / LO Switch position

The Cal position is calibrated for unity gain if faders are at zero. For example a Line Input of + 6 dBu will output + 6dBu. The Gain control has no effect in this position. The HI position gives 20 to 75 dB range of the Gain control Faders at unity gain.

3.5 LO position

The LO position gives 7 to 42 dB range of the Gain control Faders at unity gain.

3.6 Equalizer

The SONOSAX SX-S equalizer is equipped with the following filters:

- L.F. CUT: low frequency filter at fixed slope 12 dB per octave. The cutting frequency is progressively adjustable from 20 Hz to 500 Hz. **NOTE:** The EQ in switch can be configured to include the LO frequency cut or not depending on the position of S-6 on the circuit board
- 80 Hz and 8 kHz: bass and treble adjustement
- M.F : medium frequency adjustement, from 200 Hz to 8 kHz.
- The EQ switch allows the filtering of 80 Hz, 8 kHz and MF tones.

3.7 Pan Pot (Panoramic Potentiometer)

The Pan Pot allows progressive switching of the modulation from left to right.

3.8 ON Switch

With S-4 on the circuit board in Power position this switch turns the entire power to the module on and off. An audible pop will be introduced on the mixer's output if this switch is used during operation. This function is useful to conserve power when only a few channels are being used.

With S-4 on the circuit board in Mute position all power is applied to the module but its output is muted unless the switch is depressed. Channels can be preset and switched on to the mix bus during operation with no pop.

3.9 Aux level

The AUX potentiometer (auxiliary) allows separate mixing of different inputs for mono output or special effects such as an echo room, etc. The PRE/POST push button allows selection of the modulation before (PRE) or after (POST) the fader.

3.10 Limiter

Each input module is equipped with a limiter. The audio level above which the limiter is activated (Limiter LED lit) is controlled by the THRESHOLD knob. The limiter may be automatically activated if the input gain is too high. This will avoid saturation and ensure a supplementary margin of 6 dB over the maximum input level. This is why the limiter cannot be switched off.

NOTE: The limiter has no effect whatsoever provided the Limiter LED does not light up.

3.11 Overload LED

The OVD LED lights up 4 dB before saturation level. Overload is measured at mic amplifier output and the equalizer output levels.

3.12 Pre - Fader Listening

The PFL selector allows pre-fader listening of each input after equalization.

3.13 Input Connector

The SONOSAX SX-S is equipped with NEUTRIK input connectors equivalent to XLR, Canon, Switchcraft, etc. The standard SX-S version is equipped with female connectors.

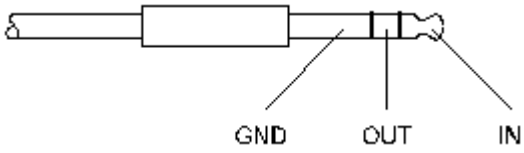
The input is floating balanced, transformerless, to ensure optimal performance. On request, the SONOSAX SX-S inputs may be equipped with high frequency R.F. filters.

NOTE: Bridge PIN 3 to PIN 1 for asymetrical use! **DO NOT USE MIC POWER!**

3.14 Insert Connectors

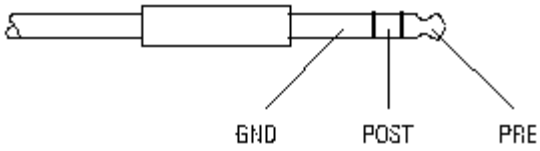
These are 3-pole, 4.4mm Mini-Jacks. The corresponding connector with 2 meters of cable, other end free is: SONOSAX Part Nr 860133. Plugging the jack in INSERT opens the circuit between the LF cut output and the equalizer, for insertion of a filter special effect, with asymetric send-return. This jack may also be used as a line input. In this case, use only the return contact of the jack. The line input at this point avoids passing through the

input pre-amplifier.



3.15 Line out connectors

Same Mini-Jacks as INSERT connectors. Independent asymetrical output. One of the contacts gives the modulation before fader (PRE) and the other after the fader (POST).



3.16 Input module configuration

RETURN TO TABLE OF CONTENTS

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4. STANDARD INPUT MODULE
Differences from the newer Power / Mute modules

4.1 Power on/off push-button (red knob)

Each input module is equipped with an ON/OFF switch (red knob) in order to optimize power consumption, if all inputs are not used.

WARNING: Do not switch on an input module during a sound recording as this causes a pop.

Optional MUTE push button (gray knob), replaces Power on/off: supplies constant module powering. The gray knob turns modulation on and off silently (no pops).

4.2 30 dB PAD (Input attenuator)

To be switched on when the OVD LED lights up at minimum gain control setting. This happens, for instance, when high level input sources such as a tape recorder or a condenser microphone at high acoustic levels are used.

4.3 GAIN

This potentiometer allows adjustment of the global gain from 24dB to 85dB, and with PAD on from -6dB to 30dB. The gain control should be used with great care since the adjustment range is extensive.

4.4 L.F. CUT

Low frequency filter at fixed slope 12dB per octave. The cutting frequency is progressively adjustable from 20Hz to 500Hz.

NOTE : This filter is not disconnected by switching off the EQ push-button.

RETURN TO TABLE OF CONTENTS

---

5. MASTER MODULE

5.1 Master faders

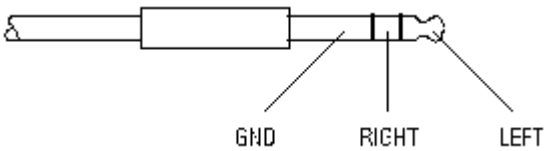
There are two separate faders to permit different adjustments between right and left. Calibration position (0dB) is at the end of the fader stroke length.

5.2 Monitor level & mono test

The control section of the SONOSAX SX-S includes the modulometer, the output listening (phones) and the output monitor. As long as no PFL button has been switched on, the modulometer and the output listening are controlled by the main L+R output signal. As soon as a PFL button is depressed, the modulometer and the output listening automatically switch over to the input selected.

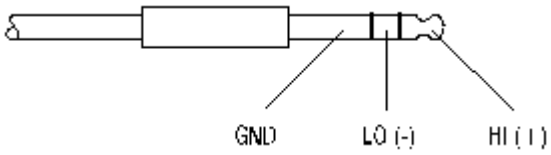
NOTE: It is normal to hear a clicking sound as the buttons are depressed. Under no circumstance does this sound go through the main output or any of the modulation outputs.

The MONO push-button switches the modulometer and monitor output listening to Mono in order to easily detect a phase error. This button does not in any way affect the main output. The MONITOR output gives the same modulation as the monitor output listening at +6 dBu,to feed, for instance, a power amplifier.



5.3 AUX master

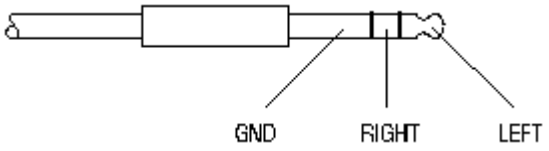
The AUX potentiometer regulates the general mixing level of the inputs (3.9). This output is connected with a Mini-Jack. Nominal level is +6dBu, ground compensated.



The PFL selector of the AUX section allows modulation control before the AUX Master potentiometer.

5.4 EXT or Tape return

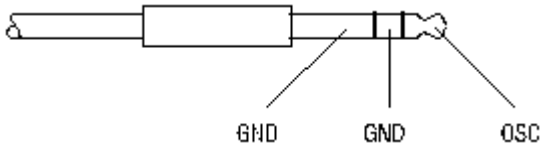
This stereo input is connected directly to the main outputs, before the MASTER Faders. This input is intended for Tape Return or for interconnecting 2 SONOSAX SX-S. It connects with a Mini-Jack, and is adjusted by the TAPE potentiometer. The PFL selector of the Tape section controls stereo modulation before the potentiometer.



5.5 Oscillator

Your SONOSAX SX-S includes an internal oscillator. The oscillator may be switched on as follows:

- THROUGH THE OSC SWITCH: In this case, the oscillator signal goes into the right and left outputs, before the Master Faders. With the faders at 0dB, the signal is at 0dB on the modulometer scale. It is possible to regulate the faders for a -20dB level to check the azimuth of a tape recorder.
- BY PLUGGING A MINI-JACK INTO THE OSC 0dB PLUG: In this case, the OSC switch must not be switched on. With a cable fitted with a Mini-Jack and an XLR male plug, you may completely check your SX-S by re-injecting the oscillator signal into the inputs.



RETURN TO TABLE OF CONTENTS

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6. SX-S EXTENSION MODULE **view of the BLOC DIAGRAM (pdf file)**

The SX-S Extension module is designed to interconnect with SONOSAX SX-S mixers Serial Number 16220 and up. Circuit differences make it impossible or impractical to install this module in earlier mixers.

Introduction

The SX-S Extension module is especially designed for the film and broadcasting industries' needs and for any other situation where extensive intercommunication and/or monitoring features are required.

6.1 The Extension module includes:

- Communication with Boom operator over a "private line" with sidetone
- Mono feed with the ability to talk to the agency folk
- Special feed for video assist
- Additional line output for a back up recorder
- Subaudable tone on slate
- Internal or external slate mic
- MS decoding for the mixer's and boom operator's monitor
- Remote roll for Stelladat and Nagra
- Switchable VU or PPM for both channels
- Phase correlation meter
- Nagra 4.2. and IV-S audio in and out connectors
- The extension module connects via a cable to the extension box that carries a wide variety of input and output connectors.

6.2 Extension box

The extension box carries the following inputs and outputs:

- 1 Left & 1 Right balanced output on standard XLR
- 1 Left & 1 Right balanced input on standard XLR
- Mono balanced output on standard XLR
- Guest Line balanced output (mono-mix including talk - to guestline feature) on standard XLR
- Left and Right Video assist output on unbalanced RCA/Cinch connectors
- 1 - 7-pin Tuchel connector to interface directly to the NAGRA IV-S Stereo inputs
- 1 - 7-pin Tuchel connector to interface directly to the NAGRA IV-S Stereo outputs as well as Stop/Roll functions
- 1 - 7-pin Tuchel connector to interface directly to the NAGRA 4.2. Mono inputs and outputs as well as Stop/Roll functions
- 1 - 9 pin sub-d connector to interface directly to the Stelladat's inputs and outputs as well as Roll/Stop functions (Stelladat must be set for single button record)

A Selector switch on the Extension box lets you choose which recorder you are going to work with. Of course, you can always back up your work on a second recorder.

A mini-switch lets you choose between Stop and Pause operation of the Stelladat.

6.3 The Boom Box

The Boom Box connects to the SX-S extension module via a 2-pair cable with 6-pin Neutrik connectors. On the Boom Box is a boom-operator's headphone Jack (6,3mm, stereo), a standard XLR female plug to connect to a talkback mic, or to the Boom mic if used with Y-splitters on the SX-S end. A button provides the boom operator with the ability to call the mixer operator. A LED indicates to the boom operator that the tape is rolling.

6.4 Metering

The two high quality meter movements show the program level's Left and Right channels. The upper meter shows the Left channel and the lower shows the Right channel. The VU-peakmeter switch selects whether the meter movements are in VU-meter or in peakmeter mode. The mono-stereo switch selects between mono and stereo operation. In mono mode the upper or left meter functions as a phase correlation meter, while the lower or right meter always indicates the greater of the two signals L or R. LEDs indicate which channel is greater. The meters can be backlit. A three position switch selects Low, High and Off.

6.5 Mixer Operator's Monitor

The mixer operator's monitoring headphone amplifier is on the left hand side of the module. A selector switch chooses between the different sound sources: Off, Left, Right, Mono, Stereo and Auxiliary. A switch selects between normal or MS-decoded monitoring. In MS-mode the M-(left) channel is applied to both L & R channels in phase and the S-(right) channel is applied in phase to the left channel and out of phase to the right channel. The ratio M to S is fixed (this decoder is only for monitoring and does not affect the main mix).

The phones potentiometer controls the headphone level for the mixer operator. The Mic potentiometer controls the level of the operator's slate microphone. The SX-S has a built-in slate microphone that is located next to the Stop/Roll switch on the module. An external slate microphone can be connected to the extension module. Many operators prefer to use a slate microphone on their Headsets, which guarantees them more freedom while working. If you have been using the internal slate microphone and want to use an external slate microphone, you should ask your dealer for the external slate mic input. An internal jumper, JP-1 (on the operator ext. Module PCB), lets you select 48 volt phantom power operation on the slate microphone. Sidetone is available on the monitor and is adjustable by means of an internal trimmer (P-3). Sidetone is either pre mic level or post mic level. (Jumper-4 : pos. 1-2 pre, pos. 2-3 post).

6.6 Boom Operator's Monitor

The boom operator's monitoring headphone amplifier is on the right hand side of the module. A selector switch chooses between the different sound sources: Off, Left, Right, Mono, Stereo and Auxiliary. A switch selects between normal or MS-decoded monitoring. In MS-mode the M-(left) channel is applied to both L & R channels in phase and the S-(right) channel is applied in phase to the left chanel and out of phase to the right channel. The ratio M to S is fixed (this decoder is only for monitoring and does not affect the main mix).

The phones potentiometer controls the headphone level for the boom operator. The Ret potentiometer controls the (Return) level of the boom operator's talkback microphone. The boom operator's talkback microphone connects to the boom box or, with the necessary Y-cables on the SX-S side, to a microphone transmitter or any other cable. An internal jumper, JP-1 (on the Boom ext module PCB), lets you select 48 volt phantom power operation for the boom operator's tbk mic. Sidetone is available on the monitor and is adjustable by the means of an internal trimmer (P-3). Sidetone is either pre mic level or post mic level. (Jumper-4 : pos. 1-2 pre, pos. 2-3 post).

6.7 Communication

The SX-S Extension Module has comprehensive communication features. The mixer operator can talk to three different destinations and can receive calls from the boom operator.

6.8 Slate button

The slate button routes the slate microphone to the main L & R outputs, and if jumper 9 is installed, also to the AUX mix-bus (jumper 9-slate to AUX). By selecting pos. 4 on the DIP mini-switch a 27 Hz slate tone is sent to the main mix, and AUX (if jumper 9 is installed), every time you press the slate button.

6.9 Guest button

When pressing the Guest button the slate microphone is routed to the guest monomix. This allows the mixer operator to talk to the agency folk independently and lets her or him keep the so called "private line " with the boom operator.

6.10 Boom button

The boom button routes the slate microphone to the boom operator's headphone monitor and it also routes the boom operator's tbk microphone to the mixer operator's headphone monitor if "Boom active" is off. If boom active is on, (DIP mini-switch S-1 pos. 2 on), the boom operators tbk mic is permanently routed to the mixer operator's headphone monitor.

6.11 Boom LED

This LED lights as soon as the boom operator pushes his call button on the boom box, (provided that pin-6 of the 6 pin Neutrik and Gnd are connected to the Boom Box and the SX-S). This feature is used for the boom operator to call the mixer operator without disturbing the mixer operator in his work. There are 2 modes configurable by the DIP-mini switch:

- Memory: The call LED will light and stay lit until the mixer operator pushes the boom operator button on the extension module which resets the LED. This operation implies that the mixer operator and boom operator can talk to each other while the mixer operator is pushing the boom button. After the operation is completed the LED will be off until the boom operator calls again.

- Call LED momentary: (DIP mini-switch S-1 pos. 3 on), In this mode the call LED lights only momentarily while the boom operator is pressing the call button.

6.12 STOP/ROLL

The STOP/ROLL controls the recorder connected to the SX-S. In Stop the recorder is in Stop mode and in Roll the recorder is in Record mode and is recording audio material through the SX-S Mixer. One exception is the Stelladat; the mini-switch on the extension box selects Stop or Pause. That is: Stop on the extension module can either be Stop or Pause on the Stelladat, Roll is in both cases Record mode. A minor modification in the extension box will remove the stop or pause mode; this allows a Stelladat user to go into record and record a new Start ID by each press of the roll button. However, in this way, to stop the recorder, the mixer operator needs to push stop on the recorder itself. (The Stelladat needs to be in one button record mode).

6.13 Roll Indication on the Boom Operator Box

An LED indicates a roll situation to the boom operator, thus the boom operator knows when the mixer operator is recording, provided that pin-6 of the 6-pin Neutrik and Gnd are connected to the Boom Box and the SX-S.

6.14 TAPE/DIRECT Switch

The Tape / direct switch selects between monitoring the Audio signal before the tape or after the tape (off-tape-monitoring). This allows you to immediately check the recorded program material, provided your recorder has the tape monitoring feature. A Dip switch provides you with the choice of a manual or an automatic Tape/direct function. In manual mode you use the tape direct switch to listen either before or after the tape. In automatic mode as soon as you press the roll button you monitor the signal from tape and as you press stop the direct signal. (DIP mini-switch 1 off auto/ on manual).

The Tape return rotary switch on the extension box selects the tape return source.

Configurations:

DIP Switch S-1

Position	Function	Factory Setting	Switch
1	Manual / Tape direct	Automatic	Off
2	Boom active	Switched	Off
3	Call LED momentary	Lamp on	Off
4	27 Hz Slate tone	Off	Off

Wiring of the 6 Neutrik connector (Boom Box connection)

Pin nb	Cable nb	Cable	Function
6	2	Cable call (GND)	CALL
5	2	Brown	Hi Mic Boom
4	2	White	Low Mic Boom
3	1	GND	GND
2	1	Red	Right channel H.phones
1	1	White	Left Channel H.phones

Jumper positions:

- JP-1 48 Volts ON-OFF (Factory setting off)
- JP-4 Pre or post mic level Sidetone pos. 1-2=pre / pos. 2-3 post (Factory setting post)
- JP-9 Slate to AUX bus (Factory setting on)

The SX-S Extension Module is available in various configurations. It will occupy two spaces in the mixer.

6.15 SX022241 SX-S Stereo analog level & Phase meter

This module consists of two very high quality meter movements for the Left and Right channels. The meter scales can be illuminated with two intensities. The meters can be switched to indicate as VU meters or as peak-meters. They can also be switched between mono and stereo. In mono mode the left meter functions as a phase correlation meter while the right channel meter always indicates the greater of the two signals. LEDs indicate which channel is the greater.

6.16 SX022270 SX-S Extension module

This module contains the SX022241 Stereo Analog Level & Phase Meter, plus the monitoring and communication functions, (including MS decoding). It is shipped with the necessary Neutrik 6-pin chassis connector (SX860180) for connection to the SX-S Boom Box (SX022260) and the 12-pin chassis connector (SX860208) for connection to the SX-S Extension Box. (SX022251). It also includes the necessary mounting hardware and connectors for

installation in an existing SX-S mixer.

6.17 SX022251 SX-S Extension box

The Extension Box is a signal distribution box (300mm x 56mm x 40mm) shipped with 1,5m of cable with the necessary connectors. Various connectors are installed in the distribution box to interface the SX-S mixer with the Extension Module directly with the Stelladat, Nagra 4.2, and Nagra IVS, or other equipment.

6.18 SX022260 SX-S Boom box

This small box connects to the SX-S Extension Module with an optional cable (SX922120). The box incorporates a 1/4" headphone socket, a 3 pin XLR socket for a talkback microphone and a switch to call the mixer's operator with a "Roll" indicator.

6.19 SX922120 SX-S Boom box cable

2-pair shielded cable 10 meters in length (longer on request) with 6 pin XLR connectors on each end to connect the Boom Box with the SX-S Extension Module.

RETURN TO TABLE OF CONTENTS

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7. INSTALLATION INSTRUCTIONS
for SX022270 SX-S Extension Module

7.1 Equipment:

- 022270 SX-S Extension Module
- SX922130 Internal cable extension module - Extension Box
- SX922140 Internal cable extension module - Boom Box
- SX860141 Socket 1/4" with 150mm shielded cable and Dubox case
- SX8600342 6 Pin socket connector
- SX860500 6 Pin socket connector with 300mm flat cable
- SX942291 Blank Panel Jack 4.4 (2x)
- SX980124 Allen head screw M2,5x8 (4x)
- SX980123 Allen head screw M2,5x6 (4x)
- SX986420 Washer ribbed M2,5 (8x)

- SX981134 Conical head screw M3x8 (4x)
- SX642403 24 kOhms 1% R0805 Resistor (2x)
- SXS351220 22pF 1% C0805 (1x)
- SXS644990 49,9 Ohms 1% R0805 Resistor (1x)
- SXS641503 15 kOhms 1% R0805 Resistor (1x)
- SX860131 Bantam mini-jack pre-wired (1x)
- SX140002 NPN-Transistor BC 550 C

When installing an SX022270 SX-S Extension Module in an SX-S mixing console with serial-number 16585 or lower R-64 and R-65 on the extension module operator board need to be replaced by 24kOhms 1% SMD R0805.

7.2 Procedure

On the Master Board (solder side) solder the 6 conductors of the ribbon cable(see PCB Layout)

Change Q1 (BC337) on the Masterboard with BC 550C (SX140002).

Mount the 12-pin Hirose socket in place of the last Input's 3-pin Neutrik.

Install the 6-pin Neutrik socket next to the 12-pin Hirose socket.

Install the Extension module beside the master board and connect the wires asindicated on the PCB Layout. Do not forget to install the additional 26-pin connector on the SX-S10 ribbon cable.

SX-S 10: Disconnect the Aux. XLR 3-pin male and replace it with SX860141,socket 1/4" with 150mm shielded cable and Dubox case.

SX-S 6 SX-S 8: Remove the existing 1/4" Jack, unsolder the connections on the Masterboard and reconnect to the Bantam Jack with cable provided. Install the SX860141, socket 1/4" with 150mm shielded cable and Dubox case.

Click here for Illustration of INTERNAL connections, ajustments and switches

Click here for Master Module PCB Layout

NOTE: The ribbon cable connects to the PCB (from Left to right) Yellow - Brown - Orange - Green - Red - Blue.

Connections of the 6 pole Flatcable

Brown Cable	1	PFL-BUS-left	Connected to pin No 1 OP-7
Red Cable	2	MASTER-BUS-right	Connected to pin No 1 OP-3
Orange Cable	3	PFL-BUS-right	Connected to pin No 7 OP-7
Yellow Cable	4	Auxiliary BUS	Connected to cursor Aux potentiometer
Green Cable	5	PFL Control-CDE (sense)	Connected to point R-6/R-5/collector of Q1
Blue Cable	6	MASTER-BUS-left	Connected to pin No 7 OP-3

7.3 Optional

External Slate MIC for the Mixer's operator

To make the external slate Mic operational you will need to solder in R-7=15kOhms (R-5=49.9) and C-11=22pF remove R-10 on the extension module operator board. Unsolder the internal mic on Connectors J-10 & J-11.

Then connect J-12 to the Bantam jack. Make sure that Jumper 2 is in position 2,3.

NOTE: The internal Slate Mic is deactivated by this procedure.

SX-S10 only: Remove the unused wire on the Bantam connector.

7.4 Y Cables for Boom Operator with tbk mic transmitter.

Click here for DIAGRAMof "Y" Cable

Internal connections of the Boom-Box (022260)

Click here for BOOM BOX Wiring Diagram

860162		860179			860141	
Pin No		Cable	Pin No	Cable	Pin	
			1	White	Tip	White
			2	White	Ring	Red
1	GND	Black	3	White	GND	GND
3	White	Black	4			
2	Red	Black	5			
			6			

922110 External cable between SX-S extension module and SX-S extension box

Click here for MALE and FEMALE Socket Wiring

Pin No	Pair No	Cable	Designation
12	4	Shield	GND
11	4	White	-12V
10	4	Yellow	+12V
9	3	Orange	Guest
8	3	White	Roll
7	3	Shield	12V micro
6	2	Red	Right from Ext. Box
5	2	White	Left from Ext. Box
4	2	Shield	GND from Ext. Box
3	1	Brown	Right to Ext. Box
2	1	White	Left to Ext. Box
1	1	Shield	GND to Ext. Box

RETURN TO TABLE OF CONTENTS

8. FOUR CHANNEL MATRIX MODULE

The four-channel matrix provides four outputs and four tape returns to accomodate 4-track recorders while still allowing a normal stereo or two-track mix.

Connections to the 4-track device is made through a 10 pin LEMO connector and Lemo to XLR adaptor cable.

8.1 Channel assign Switches:

The first 9 rows of switches select which Input (1 through 9) is directed to which output (A through D). Switch up is off, switch down is selected. The signal is taken from the channel after the fader and is still available on the Left & Right mix bus.

For example: To direct channel 1 to Output C, Switch 1-C would be down.

To direct channel 3 to output B, Switch 3-B would be down.

8.2 Master assign Switches:

The switches L & R direct the signals from the L & R Master Faders to Output A through D.

Caution should be exercised if a L or R mixed Output is combined with the output of an individual channel.

A Mono mix can be obtained on a single channel by selecting the same output for both L & R.

8.3 Overload indicators

Overload indicators light whenever a channel is being overdriven.

8.4 Monitor Switches

The IN/OUT A to D Switches direct the Output of the mixer or the Input to the mixer to the monitoring circuit. These switches are provided with a center Off position.

PFL light on the Master module indicates if one or more of these switches is active.

8.5 Trim pots

The four Trim pots on the circuit board will control the return level.

The module is supplied with a ribbon cable with connectors to attach to J-5 of each of the Input modules.

RETURN TO TABLE OF CONTENTS

9. ADDITIONAL AUX MODULE

The Aux Module provides 2 additional Auxiliary Outputs available on two Bantam Jacks on the rear of the mixer.

9.1 AUX Send potentiometers

The signal of each of the Inputs can be directed to the 2 Auxiliary Outputs through the potentiometer pairs marked 1 through 8.

9.2 External Input

If fitted the signal from one external source can be applied to the auxiliary Outputs through the potentiometer pair marked ext.

9.3 Aux Master control

The potentiometers marked Masters control the final level of the mixed signals to each of the Auxiliary Outputs.

9.4 Talkback Microphone

If fitted, a 3-pin XLR on the rear panel of the mixer can direct the signal from a microphone through either or both of the pushbuttons to their respective Aux Output. This provides a simple means of slating to an Aux bus. A limiter circuit prevents overload from the Tbk mic.

9.5 Installation

Attach the necessary XLR and Bantam Jacks to the mixer's rear panel and fit the module into its slot. The module requires 2 connections to the mix bus ribbon cable. (An additional 26-pin connector must be installed on the mix bus ribbon cable).

A ribbon connector is provided with connectors to attach to J-5 of each Input module. The signal is taken before the Fader of the Input modules.

Click here for Drawing of AUX Module Connections

- J-3 (on both boards) Auxiliary output that connects to the Bantam Jacks
- J-4 connects to the Tkb mic XLR connector
- J-5 connects to the external Input XLR connector
- P-11 (on both boards) controls output symmetry, is factory adjusted and should not be touched.
- P-12 is the Level control for the Tbk mic.

- P-13 is the Gain control for the Tbk mic.

RETURN TO TABLE OF CONTENTS

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10. INPUT MONITORING MODULE (SX-V only)

Click here for Picture

The 8-Input monitoring module provides monitoring for 8 different external stereo sources.

Switches 1 through 8: these switches select the input source, the signals are switched to the monitoring circuit.

10.1 Mode switch (upper right corner)

The mode switch defines whether you are listening to the input signal in stereo, mono, only to the left channel on both headphones or only to the right channel on both headphones. The active mode is always indicated by the corresponding LED. If in Left / Right mode, pushing the channel switch 1 to 8 on the left will monitor the left channel ; pushing the switch on the right will monitors the right channel. When you push the left button in L/R mode the left LED will light and vice versa. Push the mode switch several times to go through all the different modes.

The slide switch is used to attenuate the input signals.

The 8 Stereo Inputs are made through a 25-pin Sub-D connector on the rear of the mixer.

RETURN TO TABLE OF CONTENTS

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11. BALANCED TRANSFORMER OUTPUT MODULE

When installed the electronically balanced outputs are rerouted to a pair of Bantam Jacks. The XLR Outputs are then transformer coupled Outputs.

11.1 Operating level switch

The nominal operating level can be switched between 1.55 and 4.4 Volts at 600 Ohms.

11.2 Output selector switch

A switch will select between the right Output or the AUX Bus.

11.3 Limiter

A switch will select normal operation or a limiter which limits the level to the nominal operating level (1,55 or 4,4 Volts depending on the output level selected).

11.4 Left and Aux / right LEDs

These LEDs illuminate to indicate limiter activity.

RETURN TO TABLE OF CONTENTS

---

12. SONOSAX SX-V

The SX-V series is derived from the SX-S. The technology and the modules are similar.

The following are all the modifications concerning the SX-V.

12.1 Power supply

The SX-V cannot accept batteries or accumulators inside. However, it can be powered with either 12V DC or through the mains outlet. The AC voltage range varies from 100 to 260V AC, 40Hz to 60Hz without any modification, which allows use of the console worldwide.

12.2 Frame

There is only one frame size for the SX-V, that is 10 input modules. Needless to say that you can purchase a console with less modules, or even replace one of them with a transformer output module.

The handle, the cover and the battery pack have been removed. Two optional brackets allow for an SX-V 19" rackmount to be fitted.

12.3 Circuit

The INSERT IN, INSERT OUT & LINE OUT connectors have been removed.

The XLR AUX output is connected in parallel with a 1/4" jack.

12.4 VCA option

The SX-V modules can be mounted with VCAs instead of plain faders. A DB25 computer type connector allows control of the VCA with an external DC voltage (for example a video editor). The control voltage ranges from 0 to 5 volts. When used with an external controllers, the faders must be positioned at 0dB.

RETURN TO TABLE OF CONTENTS

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13. TIPS ON USING YOUR MIXER

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

We thus recommend the following:

- Adjust the input gain level at maximum level BEFORE overload, that is with a modulation level between 0dB and +6dB on the modulometer (PFL ON)
- Input faders should be between 0dB and +10dB.
- Output faders should be below maximum.
- Preferably operate at highest possible levels at the first amplification stages or at the mic pre-amp levels.
- Make sure that interconnection between the SONOSAX SX-S and other equipment is correct and optimal.
- Optimize operating conditions (location, quality of mic) rather than using the equalizer.
- Avoid operating with filter at maximum.
- Switch off unused input modules and make sure that the gain potentiometer is on MIN.

Considering the extensive possibilities offered by your SONOSAX SX-S, this instruction manual may not answer all questions that may arise during operation of your equipment.

Please contact your nearest SONOSAX dealer for any further nformation.

NOTE: The specifications mentioned in this manual apply to standard models. SONOSAX SA reserves the right to modify these characteristicsat any time.

Subject to change without notice

RETURN TO TABLE OF CONTENTS

Back to SX-S Page

12/04/99 LG