USER MANUAL

PROFESSIONAL MIXING CONSOLE

SONOSAX
SX-ST / SX-VT

TABLE OF CONTENTS

INTRODUCTION

Congratulations, by purchasing your SONOSAX SX-ST or SX-VT professional mixing console, you have acquired a product of the highest quality, manufactured to deliver many years of outstanding performances.

The SONOSAX SX-ST or SX-VT Series are the most compact modular mixing consoles on the market. Meanwhile their reduced size, they offer a maximum of possibilities to suit each user needs, with unequalled characteristics.

As with all SONOSAX products, the SX-ST and SX-VT series are built without any compromise in quality. Our 25 years of experience have helped us to develop and build this mixer which is designed to last a minimum of 12 to 15 years. The reliability of the SONOSAX SX-ST or SX-VT is due to a high-tech design, the choice of the best components available, a meticulous hand assembly and a severe quality control.

Each stage of the modules has been extensively studied to give the highest in quality and performances. The result of the research and development is an ergonomic mixing console with extraordinary characteristics.

Key Features

- Compact and fully modular construction
- Un-compromised choice of components
- Ultra-low noise mic preamps with +48V phantom power available on all input channels
- Electronically balanced, transformer less inputs and outputs
- Wide bandwidth10Hz to 200kHz, suitable for SACD and next converters generations
- High dynamic range and large headroom
- Direct Outputs selectable Pre-EQ, Post-EQ or Post Fader
- 8 Groups individually selectable Pre or Post Pan
- 4 Auxiliaries individually selectable Pre or Post Fader
- Limiter on each input channel
- High quality conductive plastic linear fader
- Dual peak meters on each input for Pre and Post Fader level indications
- Triple Monitoring section with 2 Private Lines for communications
- Large scale level-meter indicators switch able to level and phase correlation meter
- Internal 8 channels of high quality A to D converter (optional)
- Integrated 8 track Hard disk and Compact flash Card recorder (optional)
- Compact size and low weight
- Low consumption

---

1. GENERAL DESCRIPTION

The **SONOSAX SX-ST** and **SX-VT** Series is a line of extremely compact, portable, self-contained mixing consoles, designed for professional mobile and studio applications.

Built in a strong, rugged and anodised aluminium chassis, the **SONOSAX SX-ST** and **SX-VT** Series provide the best solution whenever top performances, reduced size and low consumption are important.
Due to its versatility, the **SONOSAX SX-ST** and **SX-VT** are the ideal mixing consoles for numerous applications, such as:

- video, television and cinema production and post-production
- fixed and mobile recording studio and broadcast
- OB Van
- digital or analogue sound recording
- very high quality sound systems for concert halls, theaters, etc.

The **SONOSAX SX-ST** and **SX-VT** have been created taking into consideration the possibility of working with digital sound recording, as well as synchronization and automation with other existing or future equipments.

1.1 SONOSAX SX-ST series

Battery or DC powered, the **SX-ST** series are available with configurations of up to 10 inputs modules. The Master & Monitoring module provides with 8 Master outputs, 4 Auxiliaries, 3 independent Monitoring selectors, two independent Private Line for communication
Two frame sizes for the **SX-ST** series are available:

SX-ST8D, for up to 8 input modules with space provided for optional Digital or Recorder module
SX-ST10, for up to 10 input modules, or up to 9 inputs and one Digital or Recorder module

The **SX-ST** series being fully modular you can purchase with a few number of modules and add more modules or options at a later date.

1.2 SONOSAX SX-VT series

The **SX-VT** series uses the same technologies as the **SX-ST** series but is available with configurations from 12 to 48 inputs. Thus, the technology and the modules are similar, the battery pack have been removed as the **SX-VT** series can only be DC powered from its external main to DC adapter or from a suitable DC power source such as a large battery bank.
The supplied AC to DC adapter has a voltage range from 100 to 260V AC, 47Hz to 64Hz allowing the use of the console worldwide without any modification. For OB-Van applications, we can provide a special power supply to power the mixer from the 12V or 24 V vehicle battery bank.
The **SX-VT** series comes with the same Master & Monitoring module as the **SX-VT**.
Each **SONOSAX SX-VT** mixing console is composed of standard modules combined and assembled according to the needs and desires of the user. In this way, it is adapted as closely as possible to the required specifications and at the same time, remains expandable.

1.2.1 VCA and Compressor options

As an option, the **SX-VT** series can be equipped with VCA's (voltage controlled amplifier) input modules with Compressor and optional VCA grouping.
A DB25 computer type connector allows control of the VCA with an external DC voltage source (for example a video editor or an automation system) thus allowing external level control for each input.
The compressor is of a very particular type and does not have the "pumping" effect so often found with this kind of circuitry. The user is therefore assured at all times, particularly when working with digital systems, that there will be no saturation that could lead to catastrophic effects.

> **NOTE:** When used with external controllers, faders must be positioned at 0 dB.
> Due to power consumption of VCA's, these options are not available on the **SX-ST** series

2. INSTALLATION

2.1 Safety Instructions

- Read all the safety and operation instructions before operating the SX-ST / SX-VT console and its power supply.

- Keep the instructions for further reference.

- Follow all warnings, notes and instructions in this operation manual.

- Do not use the SX-ST / SX-VT console and its power supply near water, avoid moisture.

- Keep the SX-ST / SX-VT console and its power supply away from heat sources such as radiators or other devices that produce heat.

- Connect the SX-ST / SX-VT console only to the original power supply included with the console or to one with same characteristics as described in these instructions.

- 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 SX-ST / SX-VT console and its power supply.

- The SX-ST / SX-VT console and its power supply should only be serviced by qualified service personnel. Please contact factory or your nearest **SONOSAX** authorized reseller.

- Do not defeat the grounding or polarization of the SX-ST / SX-VT console or its power supply.

- Line voltage selectors should only be set 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. There is no user serviceable parts inside the mixer. Damage due to manipulations inside the unit cancels the **SONOSAX** warranty immediately..

2.2 Battery Power Mode (SX-ST Series only)

2.2.1 Removing the battery compartment

Remove the battery pack by releasing the two slide-locks, tilting the compartment diagonally towards you and lifting it out.

IMPORTANT: Keep the slide-locks pressed towards the centre till the battery compartment is completely lifted out of the mixer.
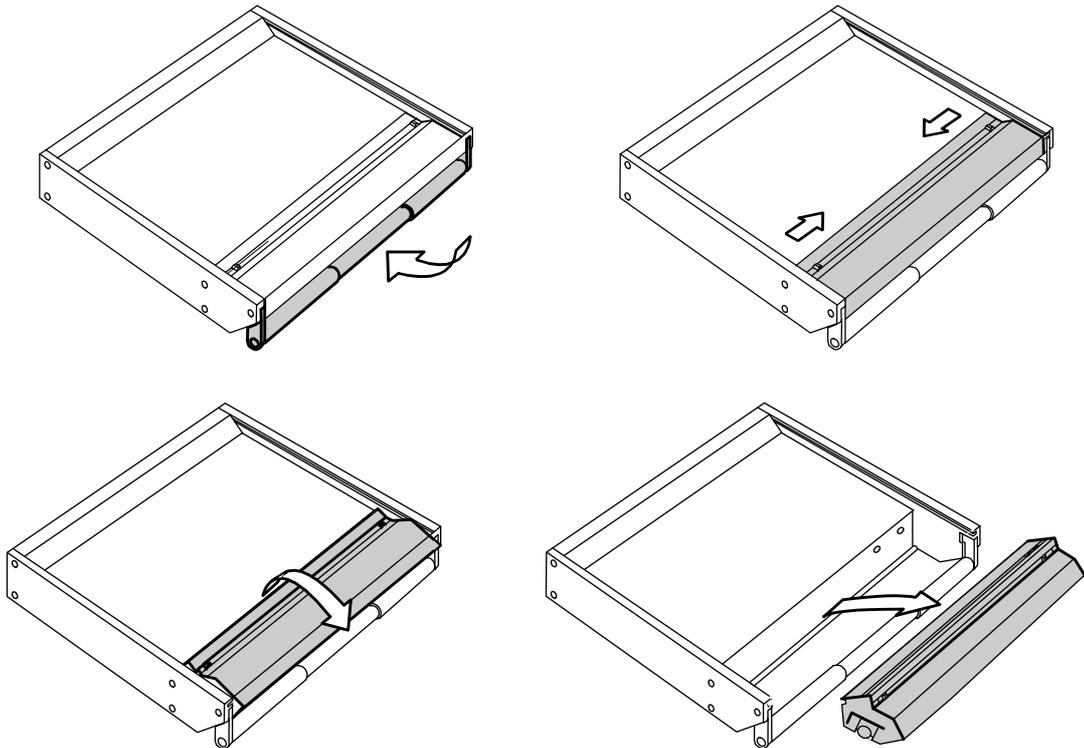
2.2.2 Opening the battery compartment

The battery compartment may now be opened by un-tightening the screw on the left side. Remove the plastic side cover and insert 12 alkaline D-cells or 12 rechargeable Nickel-Cadmium (NiCd) or Nickel-Metal-Hydride (NiMH) batteries.
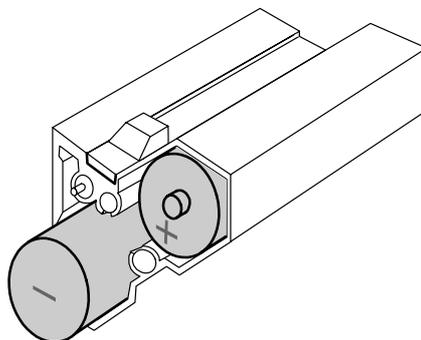
NOTE: On the left side of the battery compartment, you will find the hexagonal wrench (2 mm) which enable you to completely disassemble the SX-ST without using any other tool.

WARNING: Never leave discharged batteries in your SX-ST. Make sure that your SX-ST only contains rechargeable NiCd or NiMH batteries before charging. When using dry cells, use only professional alkaline batteries to ensure optimal autonomy. Also check the manufacture date

2.2.3 Closing the battery compartment

Replace the plastic side cover and tighten the screw. (Do not over tighten)

> **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 if a problem arise due to this difference in length.

Replace the battery compartment while holding in the slide-locks and make sure the power contacts are correctly positioned. The battery compartment is in place when the slide-locks return easily to their original position.
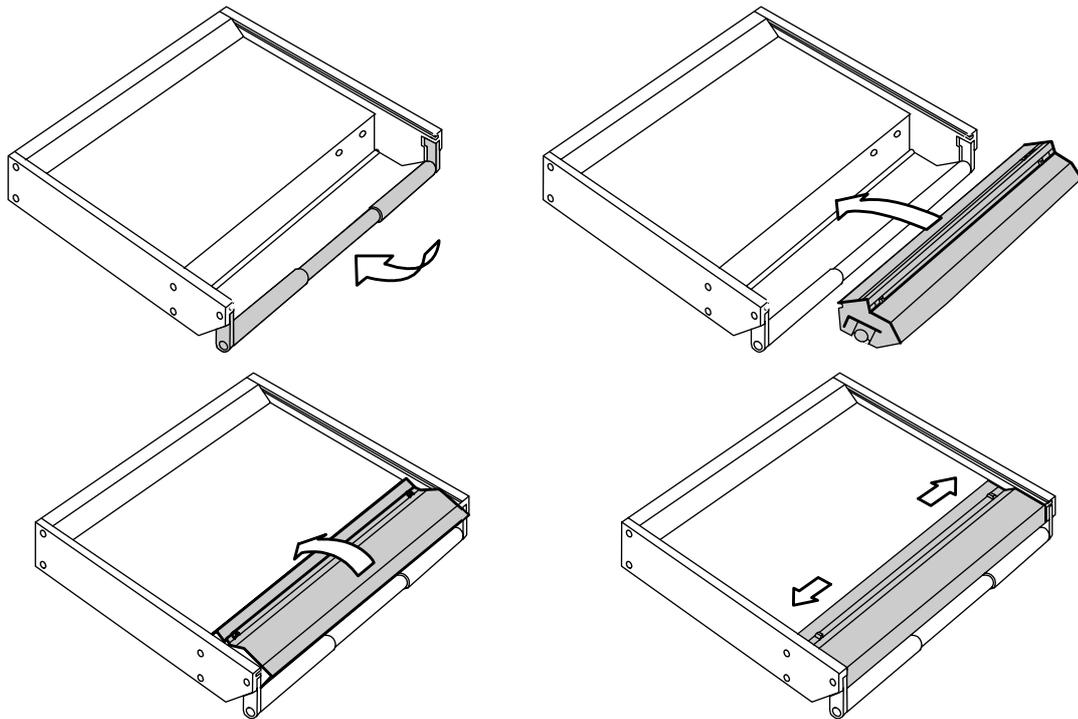
2.2.4 Batteries charger (option for SX-ST Series only)

An external NiCd or NiMH batteries charger is available for the SX-ST Series. (part nr SX 008415)
You do not need to remove the cells from the battery tray to individually recharge the batteries.
A connector located at the right side of the battery tray is provided to recharge all 12 cells at once. Simply remove the battery compartment as described at section 2.2.1 and connect appropriate charger to the battery pack.

> **WARNINGS**:
> - Never attempt to charge alkaline D-Cell batteries (high risk of explosion !)
> - Charger must be suitable for 14,4 V batteries
> - Make sure that your NiCd or NiMh batteries accept high current charge when using a fast charger

2.3 External DC Power Mode (SX-ST Series only)

The **SONOSAX SX-ST** mixer can be powered from an external 10,5 to 18 Volts regulated DC power supply, capable of delivering at least 2.5A. The average power consumption is approximately 2A.
The **SX-ST** series is supplied with an auto-ranging power supply 100 to 240 VAC 50 or 60 Hertz, that can be used worldwide without modification or setting changes.

The DC power supply input connector (XLR 4 pin, **SONOSAX** Part Number xxxxxxxx) is located on the rear panel of the SX-ST mixer. Pin 1 is 0V or negative / Pin 4 is positive +10,5 to +18VDC

2.4 AC Power Mode (SX-VT Series only)

The connection of mains the power supply is made by using a mains cable and a standard IEC receptacle. It meets all of the international safety certification requirements.

Please make sure that the unit has a proper ground connection. For your own safety, it is advisable not to remove the ground connection at the power supply or fail to make this connection at all.

2.4.1 Operating voltage switch

The external Main Power Supply is designed for an AC voltage range from 100 to 260V AC, 40Hz to 60Hz without any modification.

3. OPERATING INSTRUCTIONS

3.1 Switching ON your SONOSAX SX-ST / SX-VT mixer

The POWER ON switch is located on the Master Module at the right side of the lower level meter. Turn to Power position to activate the internal DC/DC Converter that will power up your mixer. The green LED should lit up within 2 to 3 seconds, if not:

- Check that batteries have been inserted correctly inside the battery compartment.
- If necessary change the batteries.
- Check the external DC Power supply

3.2 Using an External DC Power Supply

Apply External DC Voltage from 10,5 to 18VDC (see 1.6) between points 4 (+Vdc) and 1 (0V) of the XLR-4 connector. The external DC power supply must be regulated and capable to deliver a continuous current of at least 2,5 Amp

3.3 Battery Test

When the BATT TEST momentary switch, located below the Level Meters, is depressed, the lower level meter will indicate the average charge per cell (minimum 1V, maximum 1.5V).

3.4 Low Battery Alarm

When the average charge per cell reaches 1.05V, the **Low Batt** LED 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.

3.5 Automatic changeover of power source (SX-ST Series only)

The internal DC/DC converter circuitry is designed to automatically changeover between the internal batteries and the external DC power supply. You do not need to power OFF the SX-ST to change the power source.

While powering up the mixer, when both the external DC power supply is connected and the internal batteries are installed, the internal DC/DC converter will first connect to the external DC power supply even if the external DC voltage is lower than the battery pack voltage. If the external power voltage drops below 10.5 Volts then the DC/DC converter will automatically switch to the battery pack

When the voltage of the internal batteries drops below 1.00V per cell the DC/DC converter will switch automatically to the external DC power supply if connected to the mixer after the power up procedure.

   NOTE: there is absolutely no noise, pops or clicks during a power source changeover

4. MIC / LINE INPUT MODULE
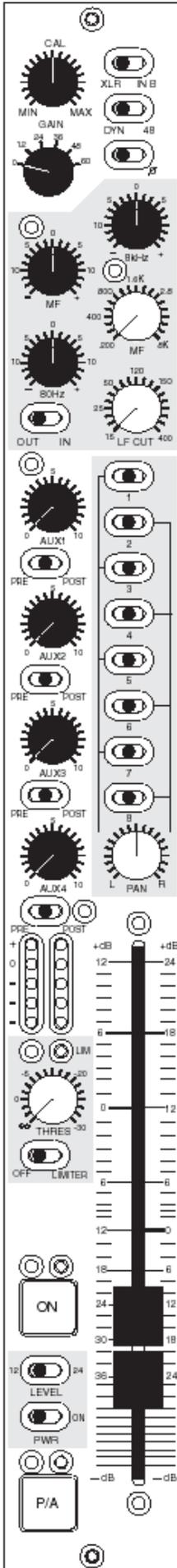
Traditional professional mixing consoles are generally based on the same input structure. The signal from the microphone goes through a phase reversal switch and then to a pad to attenuate the signal before going to the first amplification stage. Some mixers even introduce a transformer before the first stage to simplify the circuits. Reducing the signal level before amplifying it increases noise. It also limits the range of input signal that can be accommodated before overload distortion occurs. Some consoles even add a LF Cut before the transformer to avoid saturating it in presence of low frequencies at high level, meanwhile this might be useful under certain conditions, like strong wind noise, this causes phase shifting.

For ages this type of circuit has been used for analogue recording and nowadays

The new **SONOSAX SX-ST** & **SX-VT** input stages do not reduce the microphone level before amplification. Instead we control the amount of amplification and therefore no additional noise is introduced by this method. Using transformer less circuitries avoids unnecessary phase shifting, eliminate the risk of transformer saturation at low frequencies, offers a much better slew rate and allows very wide bandwidth with a flat frequency response as required for SACD

With a careful design of the input amplifier stages and selecting only the best of today's available components, 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.

4.1 Input Select Switch

The SX-ST / SX-VT provides with two different connections type per input: one is on a conventional XLR-3F receptacle and the "B" input on a multi-lines 25pin Sub-D connector. This is useful when different sources are frequently swapped (e.g. a set of microphones and a multi-track recorder/player) or when a set of microphones are connected using a stage box and a multi-ways cable

    Position XLR: the XLR input is selected
    Position IN B: the 25pin Sub-D connector is selected

NOTE: The 25pin Sub-D connector is NOT a Line level input only, it provides with the same facilities as on the XLR's like phantom power and phase reverse. The wiring conforms with most popular equipments to allow the use of "standard" ready made multi-ways cables - see also section xxxx for pin assignment.
All XLR's are wired with pin#2 High (1 = Gnd / 2= High / 3 = Low)

4.2 Mic power switch

Used to turn ON or OFF the phantom power:

    Position DYN: 48V phantom power is OFF – for use with dynamic mics or line
    Position 48:   48V phantom power is ON – for use with condenser mics

WARNING: The 48V will be applied to either the XLR or the 25pin Sub-D according to the Input Select switch position. Caution must be taken when equipments other than a condenser microphone is connected to the 25pin Sub-D.

NOTE: The SX-ST / SX-VT mixers do not provide with T12 and P12 voltage supply. Some 48V phantom to T12 or P12 adapters are available on the market

4.3 ∅ Phase reversal switch

This switch reverses the phase of the input signal without affecting the microphone powering.
It reverses the phase of any audio signal connected to the either the XLR or the 25p Sub-D connector.

4.4 Gain Controls

The primary input stage allows a wide range of gain setting, from - 20 dB up to +80 dB.
The rotary switch is used to set a primary fixed gain of: 0, 12, 24, 36, 48 or 60 dB.
Then, the rotary potentiometer (also called TRIM) is used for a progressive and fine adjustment of the input gain, within a range of -20dB to +20 dB from the centre CAL position.
An additional +12dB or +24dB of gain is available on the linear Fader (see also section 4.11.1)

NOTE: Gain controls should be used with care since the adjustment range is extensive. Check input level using the LED's Pre-Fader Level Meter and/or activate the PFL mode to avoid an overload or a weak signal level. A signal level set too high can causes distortions and will leave you with less headroom, a level sets too low causes a bad signal to noise ratio.

4.5 LF Cut and Equalizer

The **SONOSAX SX-ST / SX-VT** series input module is equipped with a powerful filtering and equalization section. Its design is derived from our previous model **SONOSAX SX-S** on which the efficiency and sonic integrity have been well proven in practice for decades.

The Equalizer IN or OUT switch activates or bypasses the filtering of 80 Hz, 8 kHz and MF tones. It is also used for instant comparison of filtered and non-filtered audio.

> **NOTE:** The EQ IN/OUT switch can be configured to include the LF Cut or not, depending on the position of the jumper S-7 on the circuit board. By default, the LF Cut is not dependant of the EQ In/Out switch.

Following filters are available:

- **LF CUT**: also called High Pass Filter, this Low Frequencies filter has a fixed slope of 18 dB per octave. The cut-off frequency is progressively adjustable from 15 Hz up to 400 Hz.
  This filter is commonly used to remove unwanted low frequency noises such as room rumble, wind noise, popping, etc. For quality reasons, the LF Cut is located after the pre-amp stage, however in cases of extreme high wind noise or loud room rumble, it may becomes difficult to capture clear sound. In such cases, we recommend to use an external LF Filter like e.g. the LC60 or LC120 made by Shoeps.
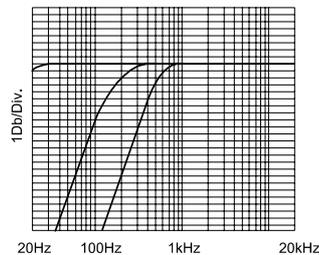
- **80 Hz** and **8 kHz**: bass and treble adjustments are achieved using two ± 15 dB knobs.
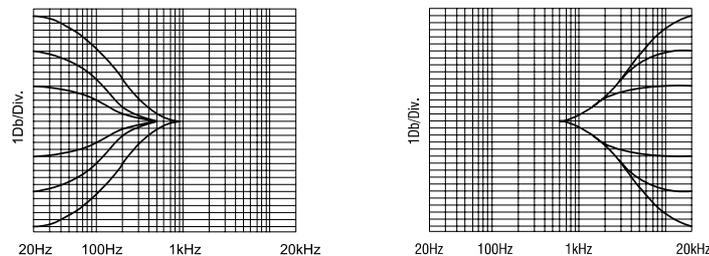
- **MF**: is a semi-parametric (swappable) equalizer with a broad fixed bandwidth. (Q Factor: xx)
  Medium frequencies adjustment is achieved using one knob to progressively adjust the central frequency from 200 Hz to 8 kHz, the other to adjust the amplitude within a range of ±15 dB.
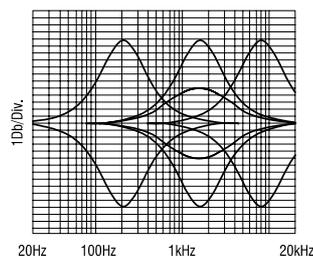
4.6 Mix busses 1 to 8 assignment

The **SX-ST / SX-VT** series are equipped with eight groups (or tracks) mix busses. Channels can be assigned to mix busses Pre or Post PAN Pot using the advanced routing selector switches to create either 8 individual mono groups or up to 4 stereo groups or free combinations of mono and stereo groups.

Logically, an individual group is Mono and therefore should not be affected by the PAN Pot. Alternatively, the PAN Pot is needed to build a stereo group.

This advanced bus assignment selector allows complex routing configurations. For example, channels can be individually assigned or mixed Pre Pan to a mono group for multi-track recording and simultaneously mixed Post Pan onto a stereo group for e.g. pre-mix purposes

The 3 positions switches of the routing selector 1 to 8 are used to individually assign channels to the mix busses 1 to 8 either Pre or Post PAN Pot as follow:

Switches 1 to 8 in Centre Position :   OFF , no audio is assigned to the corresponding mix bus

Switches 1-3-5-7 in Left position :   assign the channel to Odd busses Post PAN
Switches 1-3-5-7 in Right position :   assign the channel to Odd busses Pre PAN

Switches 2-4-6-8 in Right position :   assign the channel to Even busses Post PAN
Switches 2-4-6-8 in Left position :   assign the channel to Even busses Pre PAN

The two lines drawn either sides of the selector give a clear view of the Pre/Post PAN assignment: when the switches are set toward the drawn line, corresponding busses are assigned Post Pan.

A good tip is to remember that, conventionally, Odd busses are defined as Left channels and Even buses are defined as Right channel in a stereo group. Therefore, by setting Odd switches to the Left and Even switches to the Right you logically assign the busses Post Pan.

On the Master module, the eight tracks are grouped per pairs: 1/2 – 3/4 - 5/6 – 7/8 thus allowing to control the output levels of a stereo group by mean of a single Master Fader.

4.6.1 Pan Pot (Panoramic Potentiometer)

The PAN Pot. knob progressively balances the modulation from left to right when used in conjunction with the Mix Busses Selector switches located above.

4.7 AUX Sends 1 to 4

The **SX-ST / SX-VT** mixers provide with 4 Auxiliary Sends mix busses. AUX 1 to 4 are used to create mixes for headphone cueing, effect sends, stage monitor mixes and all kinds of different sub-mixes.
When turned fully clockwise, an additional 10dB gain is added to the Aux send bus.

4.7.1 AUX 1 to 4 PRE/OFF/POST switches

A 3 positions switch Pre/Off/Post assigns the modulation to the Aux busses before (PRE) or after (POST) the channel fader. In its centre OFF position, no signal is sent to the corresponding AUX bus.

4.8 Dual Peak Level Meters

A dual 5 Leds Peak Meter provided on each input module, shows the Pre and Post Fader levels:
- Red :   +6dB lights on xx dB before overload
- Orange :   0dB nominal level
- Green :   -10dB
- Green : - 20dB
- Green : - 40dB

When an overload occurs while the meters are set as Bargraph, all Leds turn Off except the upper Red Led
When an overload occur while the meters are set to Dot mode, all led's tun on

   NOTE: the PRE fader level can still be monitored even if the channel is turned Off (Muted)

4.9 Limiter (non VCA version only)

Each input module is equipped with a Limiter switch able ON or OFF. The THRES knob (threshold) sets the level above which the limiter becomes active. The threshold level can be adjusted between infinite and - 30dB. The attack time is very fast (half sine wave only) and the release time is program dependant.

> **NOTE:** The limiter will be automatically activated when the level applied at the input exceeds 25dBu, even if the Limiter is switched Off. This will protect the input stage, avoid saturation and ensure a supplementary margin of 6 dB over the maximum input level.

4.9.1 Limiter LED

The green LED above the threshold knob lights ON only when the modulation reaches the level sets with the threshold knob, indicating that the limiter becomes active. As long as the LED remains dark, the Limiter is inactive and has absolutely no effect on the audio signal.

4.10 ON Push button

It turns all the mix bus sends and channel outputs ON or OFF (Mute). This function is absolutely noiseless and affects the mix busses 1 to 8, the Pre and Post fader Aux Sends, the channel solo, the direct output and the Insert send/return.

> **NOTES:** - While powering up the mixer, all channels are turned OFF by factory default. Channels can be turned ON during power up by implementing jumper S8.
> - For monitoring purposes, the PFL signal and Pre Fader level meter remain available even if the channel is turned OFF (Muted)
> - The ON/OFF push button can be controlled from an external device. (SX-VT and VCA's type only)

4.10.1 ON status LED

The LED lit ON to indicate the "ON" status of the input module (factory default).

> **NOTE:** By implementing jumper S9, this Led will turn ON to indicate the OFF (or MUTE) status.
> This status may also displayed on a remote control panel for a better global view. (SX-VT series only)

4.11 Channel Fader

The 100mm channel Fader precisely controls the level of the signal sent to mix busses 1 to 8, to the Post Fader Auxiliary Sends 1 to 4 and also to the direct Line Out post-fader signal.
The Fader has a logarithmic course and, to match with the level switch setting (see chapter below) two different scales in dB's are printed either side of the Fader for exact and repeatable level adjustments.
The scale on the left is conventional from minus infinite to +12dB, on the right side it goes up to +24dB.

4.11.1 Level switch 12 / 24 (SX-ST series only)

The 12 / 24 level switch lets you choose between two maximum gain on the channel Fader.
In position 12, the fader has a conventional course from minus infinite up to +12dB of gain. In position 24, an additional amplification of 12dB is applied BEFORE the fader for total gain of up to +24dB on the fader.

While recording "on location" huge dynamic jumps are very common and sometime difficult to handle as the input gain must be rapidly adjusted to avoid either overloads or weak audio levels. This forces the sound engineer to frequently use both hands on one channel to make a delicate adjustment between the input gain and the mix level on the fader.
The input stage in the SX-ST / SX-VT is having such a significant headroom that it is normally not necessary to reduce the input gain. However, when the ambiance sounds become more silent, it may be necessary to increase the level so much that the traditional +12dB fader gain is not enough. Switching to the +24 position ensure sufficient gain margin on the fader to keep hands and concentration for the mix rather than loosing attention in controlling the input gain.

> **NOTES:** the level switch should not be used during recording as it causes a level jump of 12dB.
> The additional 12dB of gain apply to all post fader signals.

4.12 Channel Power switch (SX-ST series only)

It powers ON or OFF the entire input module. This function is useful to save the battery power when only a few numbers of channels are being used. An audible pop will be introduced in the mixer's outputs if this switch is used during normal operation.

4.13 PFL/AFL push button

The P/A push button is used to monitor the channel signal Pre-Fader PFL or After-Fader AFL and to check its level on the main level meters. A mode selector located on the Master/Monitoring Module let you choose between the 3 operating modes of the P/A button: SOLO/AFL/PFL

> **NOTES:**
> - you can still monitor the PFL signal even if the channel is turned OFF (Muted)
> **-** Jumper S12 (L) and S13(R) determine whether the AFL is taken Pre or Post PAN pot

4.13.1 P/A LED

The P/A LED lights ON to indicate when the PFL/AFL push button is depressed. This LED is blinking to warn you when the SOLO Mode is selected.

4.14 VCA's Group Selector (SX-VT Series with VCA input module only)

The SX-VT series can be equipped with VCA's Mic/Line Input module (Voltage Controlled Amplifier).
Thus, the channel fader do not control the audio modulation but, instead, a DC voltage that controls the VCA circuitry.
This technology offers the possibility to build up an optional VCA grouping system of up to 8 independent groups.
A VCA Group allows to use just one fader to control the global mix level of a large group of channels (such as drums, horns, backing vocals, etc.) and thus, providing an easier global control of that particular mix group.

The VCA Group Selector assigns the channel to one of the 8 VCA Groups. Each group is then controlled by a Master Group Fader located on a Master Fader Module by means of a DC voltage.

> **NOTE:** when position "0" or "9" is selected, the channel is disconnected from the VCA grouping system

4.15 Compressor (SX-VT series with VCA input module only)

This switch enables or disables the channel compressor. The compressor is used to limit the dynamic range of the modulation. In case of extreme amplitudes or signal peaks, heavy distortion may occur, especially with digital recording equipment. To avoid this kind of distortion or, for example, to avoid loudspeakers getting damaged by overload, use the compressor. Compressors can also be used to change the sound of an instrument by applying extreme settings. The principle function used in these devices is dependent on an automatic gain control which reduces the amplitude of loud passages and therefore restricts the original dynamics to a desired range.

4.15.1 Threshold

This control sets the threshold level for the compressor. It has a range of -30 to +infinity. Generally threshold levels for compressors are set below the normal operating level to allow upper dynamics to be musically compressed. For high ratio settings (limiter function), the threshold point is set above the normal operating level in order to provide reliable signal limiting and thus, protects subsequent equipments.

4.15.2 Ratio

It controls the compression ratio between the input and output levels for all signals exceeding the threshold point. The control range can be adjusted with the RATIO knob from a 1:1 ratio to an infinity:1 ratio.

4.15.3 Compressor LED

This Led will light ON only when the compressor becomes active and turns OFF when the compressor is inactive, depending if the signal level is equal to or higher than the threshold point.

4.16 On Air signaling (SX-VT serie only)

ON AIR signaling is available on each input channel and can be enabled with Dip switch S5-B. The On Air signalisation is turned On or Off by moving the Fader up and down, providing that the channel is turned ON.

The ON AIR Led on the Master module will light On and Off accordingly, and a ON AIR logic command is available on the "Remote and Signaling" 25pin Sub-D connector.

When ON, a +3,3VDC voltage is available on this connector. Please take note that a maximum of 20mA can be drawn on this comand which is only foreseen to drive a low power external device such as a relay or an optocoupler system. Usually it is that external system that will drive the ON AIR lamps in the control room and the studios.

4.17 MUTE function

a MUTE function can be indidually enabled on each Mic/Line input module (with or without VCA) with Dip switch S5-A located underneath the channel fader.

As soon as any "Mute enabled" channel is turned ON and its channel fader is ON, the MUTE Led on the Master module will turn ON, indicating the the Mute function is activated, and the control room volume will be attenuated by 20dB.

The Mute function can also be activated by toggeling the On/Off button, providing that the fader is moved up.

This function is used by DJ's and operators that need to talk into the program material to avoid feedback trough the control room loudspeakers

5. Stereo Line Input Module
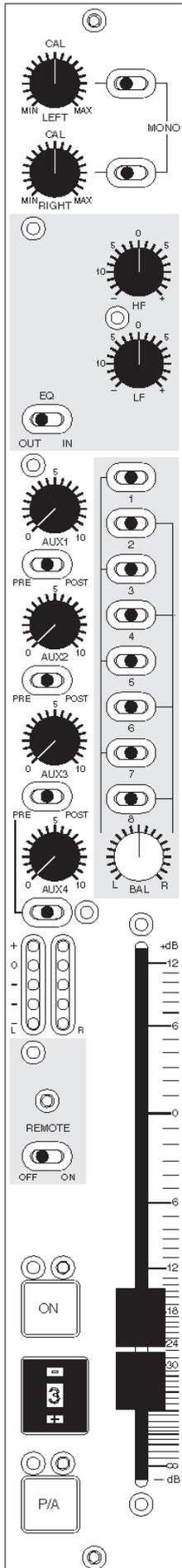
The Stereo Input Module is available for the SONOSAX SX-VT series only. It accepts stereo line signals from –14dBu to +25dBu.

The Stereo Line Input module is VCA controlled and can be automated from an external device or controlled from an optional built in Master VCA Group Fader if the mixer is equipped with a VCA Grouping system.

In following sections, the "Post Fader" signal is obviously always Post VCA and the "Pre Fader" is always Pre VCA.
Please keep in mind that the Balance L / R potentiometer is part of the VCA circuitries and therefore all Post Fader signal are affected by the Balance.

5.1 Left & Right Gain Control

These gain controls are used to individually trim the appropriate input level of the Left and the Right Channel in a wide range of – 20dB to + 20dB from its centre CAL Position
In its centre "CAL" position the line level remain unaffected (Gain 0dB) and thus reflect the nominal input level.

5.2 MONO selector

If both of the "Mono" selector are switched toward their left position, the Left channel is routed to the Left or the Odd channel of a mix bus and the Right channel is routed to the Right or Even channel of a mix bus.

If the selector of the Left input channel is switched toward its right position, the Left input signal is routed to both the Left and Right mix busses.
If the selector of the Right input channel is switched toward its right position, the Right input signal is routed to both the Left and Right mix busses.

When both selectors are switched toward their right position, then the Left and the Right input signals are mixed into a Mono signal and routed to both the Left and Right mix busses.

5.3 Stereo Equalizer

The Equalizer IN or OUT switch activates or bypasses the Equalizer. It is also used for instant comparison of filtered and non-filtered audio.

The HF controls a fixed shelving equalizer for treble adjustment. Shelving equalizers work on a very broad range of frequencies and, consequently, are very "musical". In an 8 kHz shelf like this section, the upper harmonics of a sound are raised evenly, keeping their original musical relationship to each other
  8 kHz / 4dB per octave / ±12 dB at 8 kHz / ±15 dB at 16 kHz

The LF controls a fixed shelving equalizer for bass adjustment. A low frequency shelving equalizer will add or remove bass in a smooth, musical fashion
  80 Hz / 4dB per octave / ±12 dB at 80Hz / ±15 dB at 40Hz

5.4 AUX Sends 1 to 4

The **SX-VT** mixers provide with 4 Auxiliary Sends mix busses. AUX 1 to 4 are used to create mixes for headphone cueing, effect sends, stage monitor mixes and all kinds of different sub-mixes.
When turned fully clockwise, an additional 10dB gain is added to the Aux send bus.

5.4.1 AUX 1 to 4 PRE/OFF/POST switches

A 3 positions switch Pre/Off/Post assigns the modulation to the Aux busses before (PRE) or after (POST) the channel fader. In its centre OFF position, no signal is sent to the corresponding AUX bus.

In this Stereo Module the AUX sends are paired, therefore the Left channel is sent to the odd AUX 1 & 3 while the Right channel is sent to even AUX 2 & 4.

  NOTES: AUX sends signal is taken after the MONO selector and therefore the Left and / or Right channel can already have been routed to either of L or R channels or being MONO mixed.
  - If AUX sends are selected Post Fader, the pair 1/2 and 3/4 are also affected by the Balance potentiometer

5.5 Dual Peak Level Meters

A dual 5 Leds Peak Meter provided on each stereo input module, shows the levels of the Left and Right channel:
  * Red :   +6dB
  * Orange :   0dB   nominal level
  * Green :   -10dB
  * Green : - 20dB
  * Green : - 40dB

When an overload occurs while the meters are set as Bargraph, all Leds turn Off except the upper Red Led
When an overload occur while the meters are set to Dot mode, all led's turn on

  NOTES:- soldering jumpers S13 & S14 selects whether the Peak Meters are assigned Pre or Post Fader

- if PRE fader is selected, the level can still be monitored even if the channel is turned Off (Muted)

5.6 Channel Fader

The Stereo Input module is equipped with two VCA circuitries (Voltage Controlled Amplifier), one for each of the L & R signal. The channel fader controls the L & R audio levels in a range from – infinite to +12dB by means of a single DC voltage equally applied to both VCA's.

5.7 Balance Left – Right

The Balance knob also take part of the VCA circuitry. It balances the stereo signal between the odd (Left) and the even (Right) sides of a mix bus pair by means of a DC voltage applied in an opposite way to the VCA's.

NOTE: the Balance also affects the AUX pairs 1/2 & 3/4 when selected Post Fader

5.8 Mix busses 1/2 to 7/8 assignments

The advanced routing selector switches are used to assign the stereo signal to the Mix busses per pair either Pre Fader or Post Balance (Post Balance being obviously post fader !)

The **SONOSAX SX-VT** series are equipped with eight mix busses. Thus, Stereo channels can be assigned to any pair of mix busses using the 8 switches to create up to 4 stereo groups using pairs 1/2 - 3/4 – 5/6 – 7/8.

Logically, if a stereo signal has been Mono mixed by using the MONO selector, then the Mono signal can be assigned as such to any of the 8 mix busses.

The 3 positions switches of the routing selectors 1 to 8 are used to assign the mix busses either Pre Fader or Post Balance as follow:

Switches 1 to 8 in Centre Position :   OFF , no assignment

Switches 1-3-5-7 in Left position :   assign the channel to Odd busses Post Balance
Switches 1-3-5-7 in Right position :   assign the channel to Odd busses Pre Fader

Switches 2-4-6-8 in Right position :   assign the channel to Even busses Post Balance
Switches 2-4-6-8 in Left position :   assign the channel to Even busses Pre Fader

The two lines drawn either sides of the selector give a clear view of the Pre Fader / Post Balance assignment: when the switches are set toward the drawn lines, corresponding busses are assigned Post Balance.

A good tip is to remember that, conventionally, Odd busses are defined as Left channels and Even buses are defined as Right channel in a stereo group. Therefore, by setting Odd switches to the Left and Even switches to the Right you logically assign the stereo busses Post Balance.

5.9 ON Push button

It turns all the mix bus sends ON or OFF (Mute). This function is absolutely noiseless and affects the mix busses 1 to 8, the Pre and Post fader Aux Sends, and the channel solo.

NOTES: - While powering up the mixer, all channels are turned OFF by factory default. Channels can be turned ON during power up by soldering jumper S10.
- For monitoring purposes, the PFL signal and Pre Fader level meter remain available even if the channel is turned OFF (Muted)
- The ON/OFF function can be controlled from an external device. (optional on SX-VT only)

5.9.1 ON status LED

The LED lit ON to indicate the "ON" status of the input module (factory default).

NOTE: By implementing jumper S11, this Led will turn ON to indicate the OFF (or MUTE) status.
This status can be displayed on a remote control panel for a better global view. (optional on SX-VT only)

5.10 Remote

This switch enables the Fader Start function of the Stereo input. The Start / Stop function of any connected device with Fader Start option can be controlled by the Stereo input, and the Remote Led indicates the status :

- the Stop mode is activated when the Fader is closed and/or the channel is OFF, then the Led is blinking
- the Play mode is active when the Fader is open, even slightly, and the channel is ON, then the Led lights On

You can Start and Stop any connected device by either moving the Fader up and down or by switching the channel ON and OFF.

The Remote logic circuitries actuate two relays for the Start (K3) and Stop (K1) function. Thus the logic circuitries are totally isolated from external devices for optimal protection.

In normal mode, a Start and a Stop pulse of 125ms is sent to the corresponding relay everytime the start/stop satus is changed.
The operational mode can be changed from Pulse to State by switching internal Dip switch S9-A to On (or 1).
If State mode is choosen, then only the Stop relay is activated as follow:
- In Stop mode, the relay is open
- In Play mode, the relay is closed

5.11 PFL/AFL push button

The P/A push button is used to monitor the channel signal Pre-Fader PFL or After-Fader AFL and to check its level on the main level meters. A mode selector located on the Master/Monitoring Module let you choose between the 3 operating modes of the P/A button: SOLO/AFL/PFL

NOTES:
- you can still monitor the PFL signal even if the channel is turned OFF (Muted)
- the AFL being taken post VCA, the signal is then obviously post Balance

5.11.1 P/A LED

The P/A LED lights ON to indicate when the PFL/AFL push button is depressed. This LED is blinking to warn you when the SOLO Mode is selected.

5.12 VCA's Group Selector (optional on SX-VT Series only)

The VCA group selector works the same way as on the Mic/Line input with VCA.
Please refer to this section for detailled informations

6. 8 CHANNELS A/D CONVERTER
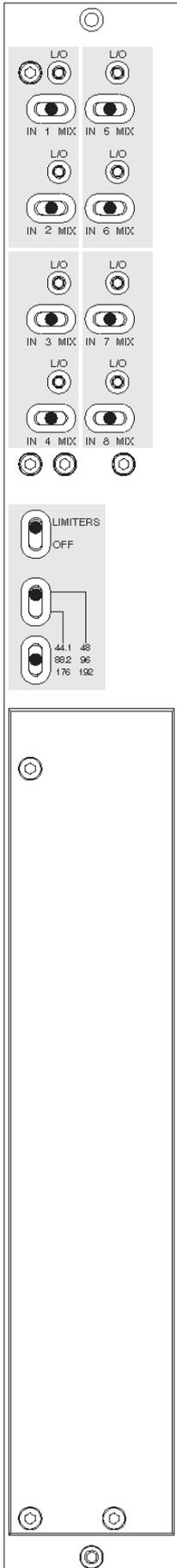
With the optional 8 channels 24 bits A/D converter, the SX-ST / SX-VT series provide with 8 digital outputs, combined in 4 AES/EBU pairs available on a 25pin Sub-D connector.

The 3 position switches "IN 1 MIX" to "IN 8 MIX" select which sources are routed to the A/D converters:

IN (left position) : feeds the direct output of the corresponding Input channel to the converter. It is the same signal as on the Direct Output connector.

MIX (right position): feeds the Mix of the corresponding Group (Master) to the ADC

OFF (center position): the A/D converter is powered OFF, thus reducing power consumption when not in use. Note that an audible click is heared while turning the ADC On and Off.

The L/O red Led above the switches lits ON either when the Limiter becomes active (L) or when the modulation reaches or overflows the OdBFS (O)

Each of the 8 channels is equipped with a fast peak limiter. The LIMITERS switch turns all limiters ON and OFF. The Limiter becomes active at –3 dBFS

Then sample rate frequency can be selected from 44,1kHz up to 192kHz. The frequency is selected for all ADC with two switches:
The upper switch selects either 44,1kHz or 48kHz
The lower switch selects their respective multiples.

Clock and Sync:

The ADC's are running on an internal clock with an accuracy of +/- 20 ppm. The same clock is used to synchronize the internal DC/DC converter that power the entire mixer to avoid phasing effects.

The internal clock works as "Master" and has no external sync capability. A WordClock output is available on the 5pin Lemo connector to synchronize external devices such as digital recorder.

7. MASTER & MONITORING MODULE
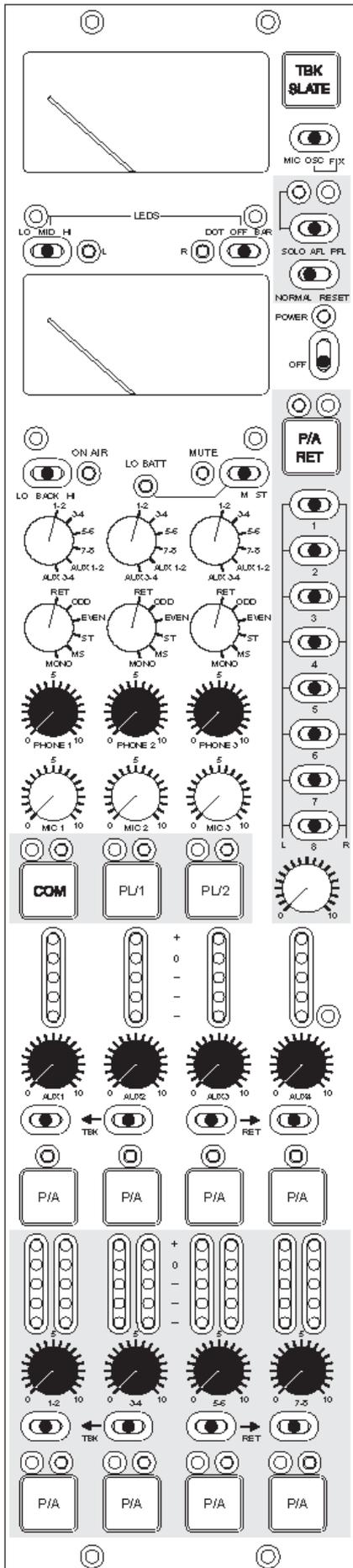
7.1 Meters

Two high precision moving coil Peak Meters read the audio levels selected by the Main Monitor rotary switch, offering a wide range of 44dB from –32dB up to +12dB.
The upper meter shows the Left channel or the phase correlation,
The lower meter shows the Right channel or the battery level.
When any P/A button is depressed, the meters show the corresponding AFL/PFL signal

7.1.1 ST / M / Low Batt switch

This 3 positions switch lets you choose the operating mode of the Meters.

ST (stereo) : the meters display on a conventional way the Left and Right audio.

M (mono) : the upper or Left meter shows the phase correlation of the selected mix to easily detect a phase error and check for mono compatibility. The lower or Right meter reads the highest level of either the L or R channel. The two red Led's between the meters indicate which one of the Left or the Right peak signal is being displayed.

Low Batt : Press the switch to its momentary left most position to check the battery level. The lower will then indicate the average voltage per cell.

7.1.2 Meter's Backlight switch

This three positions switch allows you to dim or to turn off the backlight of the two moving coil meters:

OFF position: Backlights are OFF.
MID position: Medium backlight intensity (dim).
HI position: Maximum backlight intensity.

7.1.3 LEDS switches

Two switches between the Meters define the operation mode and intensity of all Led's and Bargraph meters present in the console.

The left switch sets the LED's intensity:

LO position: Minimum (low) LED's light intensity.
MID position: Medium LED's light intensity.
HI position: Maximum (high) LED's light intensity.

The right switch sets the operating mode of the meters:

DOT position: only the LED of the corresponding level is lighting to show the level
OFF position: all meters are turned OFF.
BAR position: peak meters operate as Bargraph

7.1.4 ON AIR and MUTE Leds (SX-VT series only)

On Air signalling and Monitor Mute are two functions commonly found in Broadcast applications. These functionalities can be activated by the dip switches located under the channel fader on each input module.

When a channel is turned ON, the On Air and/or the Mute functions will be activated as soon as the Channel Fader is opened. The On Air and Mute signaling Led's will light On accordingly.

For detailed information, please refer to the corresponding section in the Input modules chapters

7.2 Talkback/SLATE and Oscillator

The SX-ST/SX-VT mixers feature an advanced Talkback/Slate functionalities. Pressing the Talkback/Slate push button located on the upper right corner of the Master & Monitoring module will send either the external Communication / Slate microphone signal or the internally generated 1kHz tone to a bus that can be individually routed and mixed to any of the Mains and the Auxiliaries outputs.
For clarity reason we call it the "Talkback bus". The switch position labelled ←TBK underneath the Mains and Auxiliaries Master Faders refers to this "Talkback bus" (see section xx)

NOTE: the Talkback/Slate bus is totally independent of the Communication and Private Line circuitries, meanwhile they are using the same external microphone

7.2.1 MIC/OSC/FIX switch

This three positions switch selects which of the two possible sources is assigned to the talkback bus:

MIC position:　　the (external) talkback/slate microphone signal is momentary sent to the talkback bus when the TBK/Slate button is depressed
OSC position:　　the internal oscillator generates a 1 kHz sine wave tone which is momentary sent to talkback bus when the TBK/Slate button is depressed
FIX position:　　the 1 kHz sine wave tone is permanently sent to the talkback bus. (for calibration or test procedures).

7.3 PFL/AFL/SOLO and operating mode

These are new features of the SX-ST/SX-VT series that allow users to configure the functionalities and the operating modes of all the P/A push buttons available on the input channels, the Mains and Aux sends.

PFL position:　　P/A buttons are configured for PFL (Pre Fader Listening)
AFL position:　　P/A buttons are configured for AFL (After Fader Listening)
SOLO :　　P/A buttons are configured for SOLO (true SOLO In Place) It is used for "soloing" one (or more) channel "In Place" of the others. When one or more P/A buttons is depressed, all other channels are muted ! Therefore the red Led above the switch starts flashing, warning you that the SOLO function is selected.

7.3.1 Normal/Reset switch

Normal :　　This mode is additive, so one or more P/A buttons can be individually activated.
Reset :　　This will automatically reset and override any previously activated P/A buttons.

7.4 Power ON/OFF

Turns On and Off the internal DC/DC converter that powers the entire mixer. Please refer to chapter 4.

7.5 Returns 1 to 8

A 25 pin Sub-D "Return" receptacle is available to connect up to 8 "Return" to the SX-ST / SX-VT mixer.

It can be used to monitor and/or assign and re-mix the return of a multi-track recorder or any external lines to any of the Groups or Auxiliary sends. A row of eight switches is used to individually assign and mix the return channels to a stereo "Return" bus:

Left position:　　　　assign the track to the left channel of the return mix bus
Middle OFF position:　the return is not assigned
Right position:　　　　assign the track to the right channel of the return mix bus

The switch position labelled →RET underneath the Mains and Aux Master Fader refer to this "Return Bus".

7.5.1 Return Mix master level

The rotary potentiometer underneath the switches adjusts the level of the Return Mix bus between –infinite to +10dB

7.5.2 P/A RET push button

The P/A push button is used to monitor the return tracks Pre- (PFL) or Post- (AFL) the Return Fader depending of the P/A mode selector.

7.6 Monitoring

The **SONOSAX SX-ST** and **SX-VT** offers 3 identical and independent stereo Monitoring sections.

The left most Monitor section (the Main Monitor) is dedicated to the sound engineer working on the mixer. The upper rotary switch selects the source for the phone output, the monitor output and the peak-meters. As soon as a PFL/AFL button is depressed, the monitor outputs and the modulo-meters automatically switch over from the monitor source to the selected P/A.

The lower rotary switch changes the listening mode (mono –stereo – M/S) of the selected source.

The two additional middle and right most monitor sections are available for independent remote monitoring and communication purposes, both having an separate communication system (Private Lines). They can be used to return different monitoring selections to e.g. the boom operator and the director/producer while on location recording, or to a speaker cabin and to the video control room in broadcasting applications.

7.6.1 Monitor Source Selector

The upper three rotary switches select the source to be monitored:

    1-2 to 7-8 :   select Master Groups per pair 1 (Left) – 2 (Right) / 3 (Left) – 4 (Right) etc
    AUX 1-2 :   select Aux Sends 1 (Left) and 2 (Right)
    AUX 3-4 :   select Aux Sends 3 (Left) and 2 (Right)

7.6.2 Monitor Mode selector

The lower three rotary switches define the listening mode of the selected source:

    RET :   monitors the after fader stereo mix of the 8 Return tracks
    ODD :   the odd channel only of the selected stereo source is monitored in Mono
    EVEN :   the even channel only of the selected stereo source is monitored in Mono
    ST :   the selected source is monitored in stereo
    M :   the selected stereo source is summed in Mono to easily check the Mono compatibility and
                to detect phase errors
    MS: decode a MS signal for monitoring purposes.

The decoder is for monitoring purpose only and does not affect the main. 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 M/S decoder has a fixed ratio of 50%

  NOTE: in Odd, Even and Mono modes, the signal is monitored in mono on both left and right sides.

7.6.3 Phones Level 1 to 3

Set the level of the corresponding monitor output (1 to 3) from - infinite (Mute) to +15 dBu

7.7 Communication and Private Lines

The SX-ST / SX-VT offers three independent communication systems: a main COM for general purposes and 2 full duplex Private Lines used for communication within the 2nd and 3rd monitoring sections.

    COM :   talk to all communications lines, incl. PL and PL2
    PL1 :   talk to second monitor section
    PL2 :   talk to third monitor section

An external electret or condenser microphone must be connected to the 5 pin binder COM connector. The Talkback/Slate is using the same microphone. (see connectors section for pin assignment)

  NOTE: The internal switch S3 selects the mic. powering voltage: 48V phantom or 6VDC for electret

7.7.1 Mic 1 to 3

Adjust the send level of the external Communication/Slate microphone that will be fed into the respective COM, PL1 or PL2 lines. from - infinite (Mute) to +10 dB.

7.8 Groups and Aux Master Sections

7.8.1 Group Master rotary faders

The outputs levels of the Groups 1 to 8 are controlled per pairs. The four rotary Master Faders adjust the output level of the corresponding pair of Groups from - infinite (Mute) to 0dB (unity gain).

7.8.2 Master Auxiliary sends 1 to 4

These four rotary faders are used to control the output level of the corresponding Auxiliary sends within a range from - infinite dB (Mute) to 0 dB (unity gain).

7.8.3 Peak Level Meters

A 5 Led's Peak Meter shows Post Fader levels of each of the Main and Auxiliary output:
- Red :   + 6dB
- Orange :   0dB   nominal level
- Green   - 10dB
- Green   - 20dB
- Green   - 40dB

When an overload occurs while the meters are set as Bargraph, all Leds turn Off except the upper Red Led
When an overload occur while the meters are set to Dot mode, all led's turn On

7.8.4 P/A push buttons

The P/A buttons in the Groups and Auxiliary master sections are used to monitor the corresponding buses Pre- (PFL) or Post- (AFL) Fader, depending of the PFL/AFL mode selector.

   NOTE: The Main Groups are monitored in stereo, the Auxiliaries are monitored in mono

7.8.5 P/A Led's

The corresponding P/A LED lights ON to indicate when its respective PFL/AFL push is depressed.

7.8.6 Talkback / Off / Return → switches

These three states switches underneath Groups and Auxiliaries master faders assign and mix either the "Talkback/Slate bus" or the "Return bus" to the corresponding pair of Groups and Auxiliary busses:

Left ← TBK position: assign the talkback/Slate bus to the Main or Aux mix bus
Middle OFF position: No assignment to mix bus.
Right → RET position: assign the Return bus to the Main or Aux mix bus

8. SPECIFICATIONS

General and notes

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).

Summary of characteristics

Frequency response :	10Hz to 200kHz ± 0.5dB
	20Hz to 200kHz ± 0.1dB

Equivalent input noise :	-128dBu (20Hz to 200kHz - 150 Ω source @ 60dB gain)

Input gain Fixed Steps :	60dB 48dB 36dB 24dB 12dB 0dB
Input gain Fine :	± 20dB from CAL Position (40dB end to end)
Fader gain :	selectable +12dB or +24dB
Global gain range:	fader @ 0dB - 20dB to +80dB
	fader @ +12dB - 8dB to +92dB
	fader @ +24dB +4dB to +104dB

Overall dynamic range :	128dB
Input headroom :	24 dB

Crosstalk between 2 channels :	better than 100dB 10Hz to 1kHz
	better than 90dB 10Hz to 20kHz

Overall THD+N :

Main Level meters:	moving coil Peak Meters IEC-268-10 type 1 (factory default)
	internally selectable to IEC-268-10 type 2 or absolute Peak
	large level scale from -32dB to +12dB
	reading 0dB at nominal level
	switchable to Level and Phase Correlation meter
	battery level indication

LED's Level indicators :	red +6dB
	yellow 0dB nominal level
	green - 10dB
	green - 20dB
	green - 40dB
	overload indication: turns all leds ON 6dB before clipping
	Led level reading accuracy: ± 0.1dB

Nominal output level :	+6dBu or +4dBu
	0dB reading on all Peak level meters reflect the nominal level
	An internal jumper sets the global nominal level of the entire mixer.
	It automatically affects the setting of all peak-meters, output levels,
	the internal 1kHz ref tone, the 0 setting of the limiters.

Mic/Line inputs

Input type:	electronically balanced
Input impedance:	6.8kΩ , linear from 10 Hz to 200 kHz
RF filters:	standard

Microphone power: +48V (phantom power)

GAIN :	60dB	48dB	36dB	24dB	12dB	0dB
Nominal level:	-54dBu	-42dBu	-30dBu	-18dBu	- 6dBu	+ 6dBu
Maximum input level:	-30dBu	-18dBu	-6dBu	+6dBu	+18dBu	+25dBu
THD* (Fader version) :						
THD* (VCA version) :						
CMRR* @ 1kHz:	>100dB	>100dB	>100dB	>90dB	>65dB	>60dB
CMRR* 22Hz - 22kHz:	>100dB	>100dB	>100dB	>90dB	>65dB	>60dB
Noise LIN 22Hz - 22kHz:	-68dBu	-79.8dBu	-90.4dBu	-96.9dBu	-98.5dBu	-100.3dBu
Equivalent Input noise :	-128dB	-127.8dB	-126.4dB	-120.9dB	-110.5dB	-100.3dB

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

Low frequency Filter (LF Cut) :	18dB/octave, 15Hz to 400Hz
Low frequencies Equaliser :	4 dB/octave, ±12dB at 80 Hz, ±15dB at *40 Hz??*
High frequencies Equaliser :	4 dB/octave, ±12dB at 8 kHz, ±15dB at *16 kHz ??*
Mid sweep Equaliser :	6 dB/octave, ±11dB 200 Hz to 8 kHz

Direct Output Level:	internally selectable Pre EQ, Pre Fade or Post Fader
	+6dBu or +4dBu *depending on global nominal level setting*
	electronically balanced, output impedance <50•
	typical output noise if Pre-Eq selected -130dBu

Insert Output Level (optional) :	+0dBu unbalanced, output impedance <50•
Insert Return Level (optional) :	+0dBu unbalanced, input impedance 10k•

Limiter :	from infinite to -30dB below internal nominal level
	attack time: ....us, release time: ..ms *(programm dependent?)*

Compressor (VCA version) :	attack time: ..... us, release time: .... ms

Main outputs

Output type:	electronically balanced
Output impedance:	<50•.
Nominal output level:	+6dBu or +4dBu *depending on global nominal level setting*
Maximum output level:	+25dBu (+22.5dBm Z-load 600)
Output Noise :	unweighted 20Hz to 22kHz
Master faders closed:	-1xx dBu
Master faders at max:	-100.0dBu
One input ch. at unity gain:	- 92.0dBu
Frequency response :	10Hz to 200kHz ± 0.5dB
Distortion THD+N :	0.03% at 10 Hz / 0.005% 100Hz to 22kHz
Crosstalk (stereo pair) :	100dB 10Hz to 1kHz / 90dB at 22kHz

Auxiliary outputs

Output type:	electronically balanced
Output impedance:	<50•.
Nominal output level:	+6dBu or +4dBu *depending on global nominal level setting*
Maximum output level:	+25dBu (+22.5dBm Z-load 600)
Output Noise :	unweighted 20Hz to 22kHz
Master faders closed:	-1xx dBu
Master faders at max:	- 84.0dBu
One input ch. at unity gain:	- 84.0dBu
Frequency response :	10Hz to 200kHz ± 0.5dB
Distortion THD+N :	0.035% at 10 Hz / 0.005% 100Hz to 22kHz
Crosstalk:	87dB 10Hz to 1kHz / 80dB at 22kHz

Monitor outputs

Output type:	stereo, unbalanced, transformerless
Output impedance:	<xx•.
Maximum output level:	*+20dBu*
Headphones output level:	*0dBu in position 3, +11dBu@75. and max. +13dBu @150•.*
Load impedance :	xx• minimum for each monitor output

Return Inputs

Input type:	electronically balanced
Input impedance:	6.8k• , linear from 10 Hz to 200 kHz
Nominal input level:	+6dBu *or +4dBu*

OSC ref tone

Frequency:	1kHz
Level :	nominal level , according the global level setting
Distortion THD+N :	xxx

Slate/Comm Mic Input

Input type:	electronically balanced
Input Gain:	
Mic powering:	selectable 6Vdc for Electret or 48V phantom for Condenser microphone

Power requirements

Supply voltage, internal : 18,0V nominal with 12x LR20 (D) standard 1.5V alkaline batteries
or 14,4V nominal with 12x LR20 (D) 1.2V NiCd or NiMH accumulators

Estimated battery life : approx. .... with 12x LR20 (D) standard alkaline batteries
approx. .... with 12x LR20 (D) 4Ah NiCd accumulators
approx. .... with 12x LR20 (D) 8Ah NiMh accumulators

External power supply : 10V to 20V DC, ... mA peak, ... mA average

Power consumption : average 16 watts
maximum 22 watts, all channel On with nominal level modulation
all Led's Meters and Meters backlight

Operating temperature : -25°C (-13°F) to 70°C (158°F)

Dimensions and weight

SONOSAX SX-ST8D (w*d*h) : 409mm x 437mm x 74mm (16.10'' x 17.20'' x 2.91'')
Net weight (without battery) : 7,930 kg (17.5 lbs)
Weight with batteries ** : 9,400 kg (20.7 lbs) with 12x D cells batteries

SONOSAX SX-ST10 (w*d*h) : 441mm x 437mm x 74mm (17.36'' x 17.20'' x 2.91'')
Net weight (without battery) : .... kg (....... lbs)
Weight with batteries ** : .... kg (....... lbs) with 12x LR20 (D) batteries

** indicative only as battery weight greatly depends on type and manufacturing

SONOSAX SX-VT 10 : width 441mm (17.36'') weight xxxx kg (xxxlbs)
SONOSAX SX-VT 12 : width 513mm (20.20'')
SONOSAX SX-VT 16 : width 657mm (25.87'')
SONOSAX SX-VT 24 : width 945mm (37.68'')
SONOSAX SX-VT 32 : width 1233mm (48.54'')
SONOSAX SX-VT 40.: width 1521mm (59.88'')

Standard depth and height: D: 437mm (17.20'') x H: 74mm (2.91'')

Other version can be made according to user specifications.

Free Manuals Download Website

http://myh66.com

http://usermanuals.us

http://www.somanuals.com

http://www.4manuals.cc

http://www.manual-lib.com

http://www.404manual.com

http://www.luxmanual.com

http://aubethermostatmanual.com

Golf course search by state

http://golfingnear.com

Email search by domain

http://emailbydomain.com

Auto manuals search

http://auto.somanuals.com

TV manuals search

http://tv.somanuals.com