

SQN-5S Miniature 5:2 ENG Audio Mixer

**A new broadcast quality stereo portable mixer for TV, film and radio locations
With five full mic-powering input channels**

The new SQN-5S has a long and excellent pedigree, reaching back to 1984 when the first version of its immediate ancestor, the SQN-4S was introduced. Since then, the 4S has appeared in many incarnations as its design has been refined to keep it at the leading edge. Now, the addition of an extra full channel brings about a change of name and the SQN-5S is born.

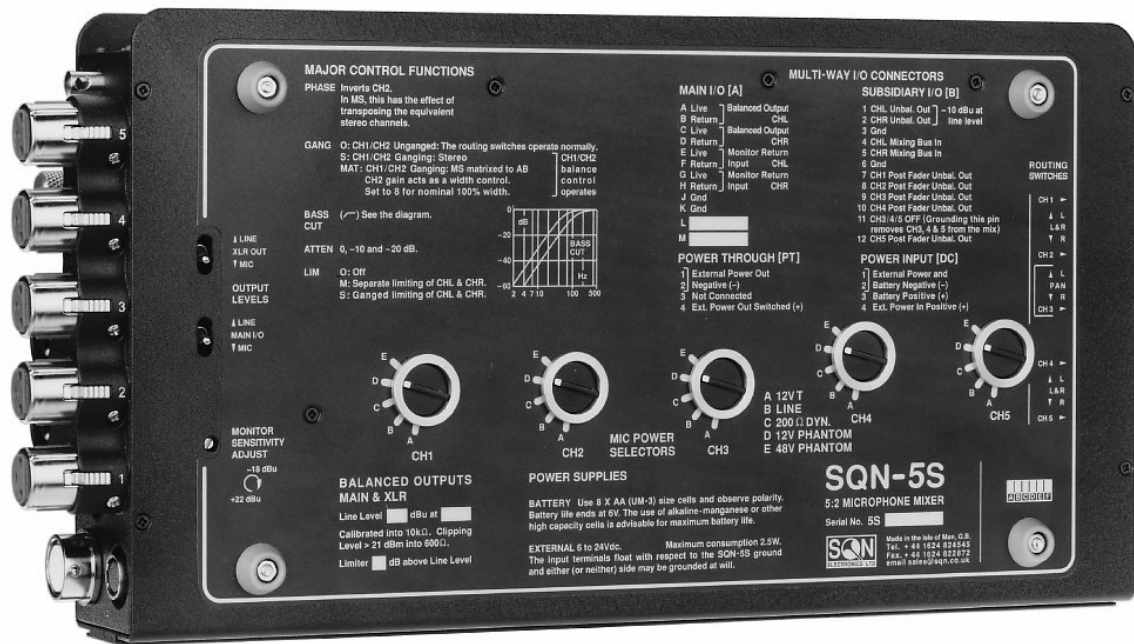


The SQN-5S, as the newest member of the SQN family, is the natural successor to the classic SQN-4S. It offers the same convenience of operation in the same slim case but with five full channels and reduced weight and power consumption. Anyone familiar with the earlier mixer will be immediately at home with the SQN-5S. Any organization that is currently using the 4S will find that the new mixer is completely compatible with the old.



The new SQN-5S retains all of the advantages of its predecessor: transformerless input amplifiers, virtually unbreakable analogue level meters, pre-fade listening, slating microphone, superb limiter, optional feed for all five output channels and logic processing of most switching functions leading to a minimal length audio path. The output line drivers are now transformerless and electronically balanced giving the advantages of reduced weight and uninhibited bass performance. Powered by 8 AA size internal alkaline cells, the SQN-5S will easily get through the working day without reloading. Its sophisticated power supply delivers 48V phantom power until the batteries are exhausted, and the quick change battery compartment permits reloading in a few seconds. The mixer will also accept a wide range of external supplies (6V to 24V dc) of either polarity without adjustment.

SQN-5S Specification



The essential information for connecting to and operating the mixer is permanently printed on the baseplate.

Features and Specification - SQN-5S

Mixer Inputs Five transformerless balanced inputs using XLR-3 type female connectors. Each channel is switchable for

Powering:

- a) 12V T (Din AB)
- b) 12V Phantom
- c) 48V Phantom
- d) Dynamic (150 to 600 Ohms)

Attenuation:

0dB, -10dB or -20dB

Setting an internal switch on each channel enables automatic insertion of an extra 10dB of attenuation when mic powering is selected. This is achieved without compromising the noise performance of the microphone.

Bass Cut:

Flat, -6dB or -16dB at 50Hz

Line Attenuation:

Adds 50dB attenuation before the mic preamp.

Sensitivity -78dBu for nominal line level (PPM4, 0VU) with the channel gain at maximum and the master gain at 0dB

Max Level, Mic Inputs -20dBu (+4dBu with full attenuation)

Noise Figure -130dBu (A weighted) from a 200 Ohm source.

Frequency Response 20Hz to 20kHz +0, -1dB, referred to 1kHz.

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Crosstalk	Isolation, channel to unrelated channel: 75dB at 1kHz, 60dB at 15kHz.
Channel Configuration	The mixer has five input channels, all of which have the same input selectors, bass cuts and attenuators. The routing arrangements for CH1 & 2 differ from those for CH3, 4 & 5.
Channels 1 & 2 [GANG 1-2]	<p>The operation of the CH1, CH2 pair is controlled by the GANG 1-2 switch on the front panel. This switch has three positions:</p> <p>Twin MONO [O] in which the channels are ungang and each input channel can be routed to either or both of the output channels.</p> <p>Stereo [S] ganging in which the Channel 1 fader controls the gain of both channels and a stereo balance control on the side panel comes into play.</p> <p>Mid-Side [MAT] ganging in which the Channel 1 fader controls the gain of both channels and the Channel 2 fader acts as an image width control. The incoming signal is assumed to be in MS format and is matrixed to AB. The stereo balance control remains active and will balance the matrixed signal.</p>
Phase Switch	A front panel switch inverts CH2 phase. This also interchanges left and right in an MS encoded signal.
Channel 3	CH3 can be routed to LEFT, RIGHT or to a PANpot.
Channels 4 & 5	Each of CH4 and CH5 can be routed to LEFT, RIGHT or CENTRE (both).
Monitor Return Input	Balanced inputs with a range of sensitivity from -20dBu to +20dBu for loudness parity with the internal monitoring. The sensitivity is adjusted by a screwdriver preset on the base, with an internal range switch.
Mixing Bus Inputs	Two inputs directly into the summing amplifiers with their gain adjustable inside the mixer. Maximum sensitivity is 0dBu for +8dBu at the balanced outputs with the master gain set at 0.
Balanced Outputs	Two electronically balanced line drivers. The outputs are available on individual XLR connectors and a combined Multi-way connector.
Output Attenuators	Switches on the base allow attenuation by 50dB at either set of connectors for microphone level feed.
Line Drivers	Electronically balanced sources. Clipping level is +20dBm into 600 Ohms. Distortion at the nominal peak level of +8dBm is less than 0.01% with a 600 Ohm load 20Hz to 20kHz. The output resistance is below 10 Ohms. It is permissible to forcibly unbalance the outputs to drive unbalanced loads. The balanced Mic-Level sends are derived from attenuator pads across the main outputs. Their source impedance of 200 Ohms is essentially resistive.
Unbalanced Outputs	A SUBSIDIARY I/O connector carries separately buffered outputs at 6dB below the main outputs.
Post-Fader Outputs, All Channels	The SUBSIDIARY I/O connector carries buffered outputs at a nominal level of -12dBu from a 10k Ohm source resistance. If an external link is made on the connector, CH4 and CH5 are removed from the mix and the operation of the signal routing for CH3 is changed. Selecting PAN for CH3 will now switch the channel out of the mix instead of to the PANpot. This arrangement allows the five channels to be extracted separately.
Meters	Twin peak reading, logarithmic level meters with Peak Programme Meter (PPM) dynamics. Scaling may be BBC PPM, Nordic Norm, or SMPTE. VU meters can also be provided. The meters are normally calibrated with the mixer driving a bridging load of 10k Ohms. While the mixer is operating the meters are illuminated by low power light emitting diodes.

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Line Output Level	The nominal line level is normally set at 0dBu for PPM metered mixers and +4dBu for VU metered mixers. Peak level, which is used as a reference for the limiters, is considered to be 8dB above this setting. Other calibration levels are readily available to order.
Output Limiters	[O]ff [M]ono [S]tereo (ganged) Attack time constant 0.5ms, release time 100ms. The limiter range is 20dB. An LED for each output channel indicates limiter action. This Graph shows the entry into limiting on a steady signal for a nominal peak level of 8dBu
Line-up Tone	The Line-up tone is a sine wave at 1kHz with distortion below 0.1% which is inserted into both channels, displacing the audio output. When the [GANG 1-2] switch is in either of the ganged positions, the left hand channel tone is interrupted for 250ms every 3s. The tone switch on the front panel is a three position toggle, shared with the Slating Microphone.
Monitoring	The mixer has a pair of headphone amplifiers with adjustable gain. These are capable of driving most types of headphone to a suitable level. Pre-Fade listening to four of the input channels is possible as is MS matrixing of the two output channels so that an MS recording may be monitored in the equivalent AB stereo. The headphone gain control is the tall knurled knob easily accessible on the left side panel.
Monitoring Mode Selector	The monitoring mode rotary selector switch on the front panel [PHONES] has the following functions. S Stereo R Right Channel L Left Channel MS MS Matrix (MS heard as AB stereo) L-R Left minus Right (MS stereo equivalent Right) L+R Left plus Right (MS stereo equivalent Left or Phase Check)
Monitoring Source Selector	A front panel toggle switch selects the monitoring source as either internal [MXR] or external [AUX]
Pre-Fade Listen	A pair of front panel toggle switches selects Pre-Fade Listen for channels 2 or 3 and 4 or 5. The switches are three position, centre off.
Slating Microphone	A microphone is mounted behind the front panel near the centre of the mixer. When in use, the output of the microphone is levelled by a compressor and displaces the normal audio, appearing on the mixer outputs and in the monitoring system. While the microphone is active, the monitoring mode automatically reverts to the internal or [MXR] setting. The Slating Microphone switch on the front panel is a three position toggle, shared with the Line-up tone.
Batteries	Eight AA size cells housed in a quick-change compartment. The acceptable range of voltages is 6 to 24 Vdc allowing the use of most cell technologies
Battery Drain	130mA at 12 Vdc with unpowered mics. Battery life with alkaline cells will be about 10 hours.
Battery Test	The right channel meter is fitted with a suppressed-zero battery voltage scale, brought into operation by a front panel push button.

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External Power	A supply in the range 6 to 24 Vdc may be used. The maximum consumption will be 2.5W and quiescent consumption, without microphones, 1.6W. The input terminals float with respect to ground. Either (or neither) side may be grounded at will, thereby allowing the use of floating supplies or grounded supplies of either polarity. There will be no possibility of hum-loops.
Power Distribution	The mixer carries two four-way connectors, one of which [DC] gives access to the internal batteries for charging and also serves to connect to an external power source. The second connector [PT] is an output which provides a switched, short circuit proof connection to the power supplied to [DC]. This allows the mixer to be used as the focal point for a system of interconnected devices, all controlled from the mixer's power switch.
Temperature Range	The mixer is designed to work over the temperature range of -20 to +60 °C.
Dimensions	The dimensions of the mixer case are: Height 47mm, Width 297mm, Depth 161mm
Construction	<p>The outer case of the mixer is made of aluminium. The end blocks holding the connectors and the panpots are milled from solid aluminium bar. Inside the mixer is an inner compartment of steel, tin-plated after forming, which contains all of the circuitry that might be sensitive to radio frequency interference. The top and bottom of this compartment are sealed by copper screens and rf gasket material and all inputs to and outputs from this compartment are filtered. The circuitry is constructed on multi-layer printed circuit boards with internal ground and power planes which ensure the integrity of the internal grounding system.</p> <p>All control knobs are special to SQN and are turned and milled from solid aluminium bar. The internal battery compartment is milled and bored from a solid block of polyacetal engineering plastics material and the moving parts are aluminium and stainless steel.</p> <p>All labels and legends on the mixer are permanent. On the end blocks they are engraved; on the front panel they are printed into the hard-anodised surface; on the baseplate they are reverse printed on a polycarbonate label.</p> <p>The mechanical construction is a development of a system which has proven in the past to be resistant to mechanical damage.</p>
Weight	The weight of the mixer without batteries is 2.1kg

The SQN-5S mixer offers the professional recordist:

Unsurpassed sound quality	Lowest running costs
Industry standard acceptability	Highest resale value
User friendly ergonomic layout	Long trouble-free service
Tried and tested electronic design	The utmost in portability
Superior mechanical engineering	Efficient factory back-up service