

Studio Notes

SQN-3 Mono Microphone Mixer

The SQN-3 Mixer

The SQN-3 audio mixer is a 4 into 1 monophonic mixer. It is powered from 6 AA size alkaline batteries and these are located at the rear right of the unit. To access these, slide the battery door catch towards the front of the unit to release it.

The connections panel is located on the left side of the unit and is shown in figure 1:

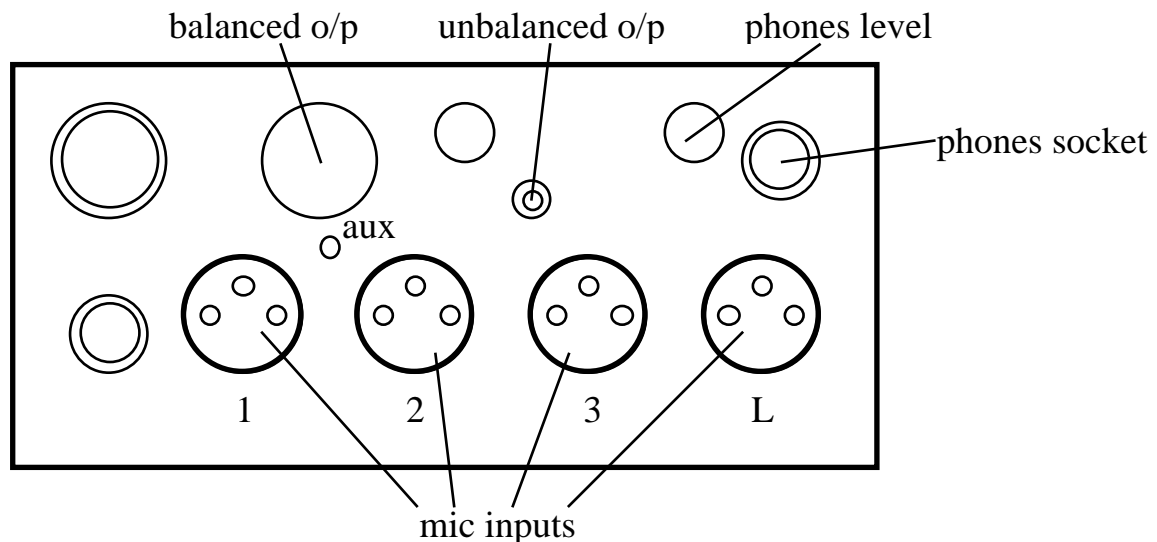


Figure 1: The Connections Panel On The SQN-3 Mixer

- Three XLR female sockets where the microphones are plugged in.
- A line level balanced input, also an XLR female connector. There is an input level knob above this socket, when not in use set it to 0 to avoid the possibility of unwanted noise from being generated.
- A balanced line output, an XLR male connector.
- A five pin locking balanced line level output.
- A 3.5mm jack unbalanced output.
- A 6.4mm headphone jack output.

The front panel of the unit is shown in Figure 2.

To the left is the **level indicator meter**. This shows the level of the incoming signal from the input sockets. Although it looks like a VU

meter, the meter characteristics are closer to that of a Peak Program Meter, 0dB on the scale represents peak level (=PPM 6). This meter also doubles as a **battery level indicator**, gently pressing the **battery test button** to it's right, will indicate the charge in the batteries. When the batteries are running low, distortion in the headphones occurs first before distortion appears in the line out signal

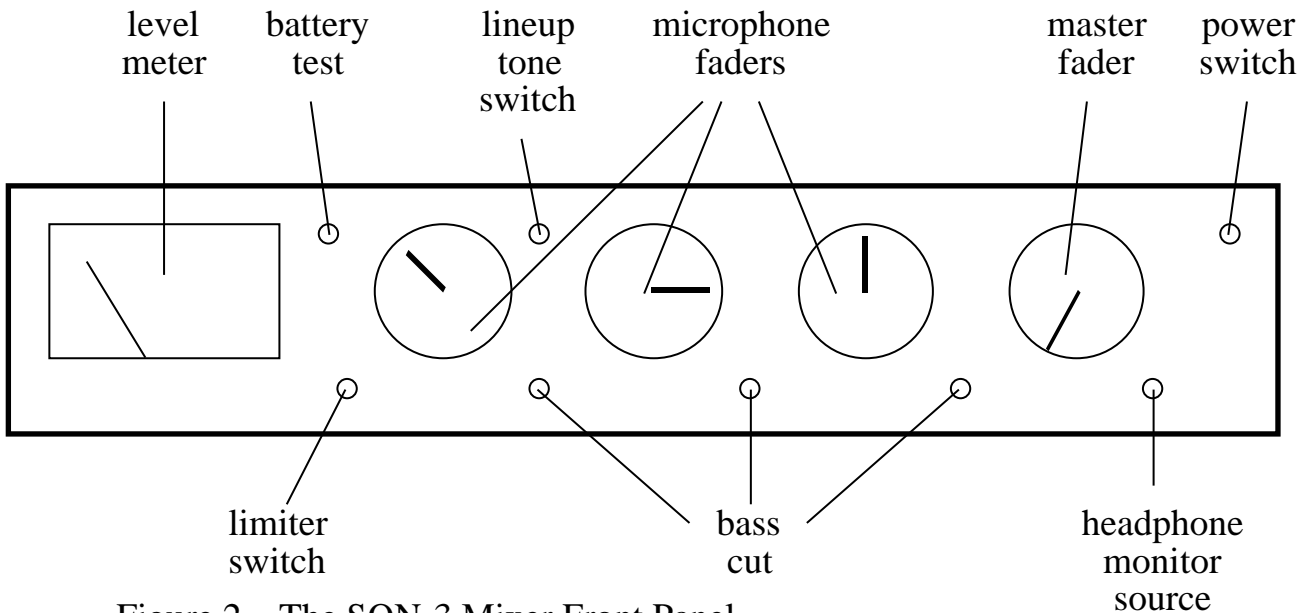


Figure 2. The SQN-3 Mixer Front Panel

The three dials to the right of the level meter are the **microphone input faders** and they are used to set the level of the signals from the microphones into the mixer.

To the right of these is the **master fader** which is used to set the level of the whole program mix that is sent out of the mixer.

At the top right of the panel is the **power switch**, which has three settings as follows;

INT sets the unit to run on batteries.

OFF switches the unit off.

EXT sets the unit to run from an external power supply.

At the top right of the channel 1 fader is a **tone switch**. Pressing this sends a 1.1kHz tone from the output at a level of -8dB, the industry standard. This is used for setting the record levels on the camera.

To the lower left of each of the microphone faders is a **bass cut switch**, this is used to cut bass frequencies from the microphone signal at 100Hz. These switches have three positions, 10, 4 and 0. 0 gives a flat response, that is, no bass is cut. Use this setting where possible since it doesn't colour the signal. The positions 10 and 4 give bass cuts of -10dB and -4dB respectively and are used to reduce handling noise, chest cavity booming, distant traffic rumble etc. where such phenomena cause a problem in your recording. Position 4 will not colour the sound and can be used to cut the level of microphone handling and air conditioning. position 10 will colour the sound, but can be useful for, say, helping to reduce the noise of background traffic.

To the lower left of the panel is the **limiter switch**, which has two positions, on and off. The limiter is used to attenuate high transient peaks so that they do not distort in the recording. When switched on, it operates when the input level is just below peak level and this is indicated by a red LED below the meter lights. It should only flash occasionally when unexpected level peaks are received, if the indicator is lit continuously, then the input level is too high and must be reduced. Using the limiter to even out your recording will give rise to undesirable audible effects.

At the lower right of the panel is the monitor source, it has two positions as follows;

MXR selects the mixer output for the headphone monitor source.

AUX selects the auxiliary monitor input as the monitor source. Choose this option to monitor the signal that's coming from the video camera in order to monitor the signal that is being "heard" by it, this way you can be sure that a signal is being recorded.

Underneath the mixer are a few controls that can be used to set the mixer for different functions as follows.

To the left of the base panel, next to the microphone inputs, are three dials used to set **powering** for condenser microphones. They all have four settings, A, B, C and D which are to set 12V, 12V phantom, 48V phantom and dynamic respectively. Dynamic microphones should have this set to setting D, condenser microphones should be set to B or C, depending on the power requirements of the microphone. Most of the condenser microphones you will be supplied with come with their own power in the form of batteries anyway. The safest option is to set this dial to D, 48V phantom power, this guarantees that the microphone will get power.

Channel 3 has an extra setting, E, and this is to set it to a line level input.

Along the front end of the panel are three more dials, (there's a lot on this mixer, isn't there?), and these are used to **attenuate**, (reduce the level of),

the signal from the microphone. The settings are a choice from A (0dB), B (-10 dB), and C (-20dB). Start with this set to 0, it should give a respectable signal. If your microphone signal is overloading (too loud), then try setting B or C to see which gives the best level. If you microphone signal is too quiet, then try setting A or B to see which gives the best signal.

To the far centre left of this panel is a switch with two positions. This sets the balanced output of the mixer to either Line or Mic level. When using this with the video camera have this set to the **Line** position.

Wiring Up The Equipment.

Wiring up the equipment is relatively easy.

Plug the microphone leads into the balanced mic input sockets on the left side of the mixer.

Plug the 5-pin XLR on the lead supplied into the 5-pin balanced output on the mixer and plug the XLR plug at the other end of this lead into the channel 1 input socket on the video camera.

Coming out of this plug is a short lead with a 3.5mm jack plug on the end, plug this into the EAR (headphone) socket on the camera. This provides a monitor signal back to the mixer and allows you to hear what's being recorded by the camera.

That's it.

Setting The Equipment Up For Action

On the video camera:

Set the **audio in selector** for channel 1 to **LINE**.

Set the **audio in selector** for channel 2 to **CAM**.

Set the **audio selector switches** for both channels to **MAN**.

Set the **monitor select** to **CH-1**.

On the SQN-3 mixer:

Switch the mixer on to the **INT** position.

Set the **monitor source** switch to the **AUX** position.

Set the **bass cut** switches to **0** (to start with)

Setting The Record Levels

Press the **tone** button on the SQN-3 mixer. This generates a tone of 1.1kHz at a level of -8dB. Set the **record level** on **channel 1** on the camera, using the record level dial, so that the meter reads **-8dB** (On

digital video recorders, set it to -20dB). The record level is now set to its optimum.

Before leaving the university, after collecting the equipment, check the batteries in the camera and in the mixer by pressing their respective battery test buttons to make sure that the levels are up in the high regions of the scales. If the meters show no level at all, check in the battery compartments to make sure that batteries have been supplied(!)

Also, wire and set up the equipment, as above, and speak into the microphone, make sure that the level indicator on both the mixer and the camera are responding to your voice. Listen through the headphones, with the mixer monitor source set to AUX, and make sure you can hear the signal. If you cannot hear anything, then get the lead between the mixer and the camera inspected to make sure it is not faulty. If you cannot hear anything with the monitor source on the mixer set to MXR then get the microphone leads inspected to make sure it is not faulty.

Recording

Location recording is really a two person job, one to handle the microphone and one to check the record levels, it is really quite difficult for one person to do both jobs.

If you are recording sound on a drama, then take advantage of the rehearsal runs to check your position and use of the microphone and to check the record levels.

If you are getting the odd high peak, then try switching on the limiter on the SQN-3 mixer, remember, if this results in a constantly lit LED, then turn down the microphone fader for that channel.

In quiet periods, it would be advisable to record some atmospheric wild track in case you need it when you come to do your sound design. If available, you could use a portable DAT recorder for this.

When using a gun microphone on a fishpole, remember that it must not be seen in shot, use rehearsal time to get the best positions for your mic, both for the best sound and the best position. Check with the camera operator to make sure that your position is good.

Remember that gun microphones are highly directional, point them slightly off target and you're sure to suffer high frequency loss, resulting in a muffled recording. This will not necessarily be indicated by a drop in level on the level meters, you must check for this through your headphones. Use rehearsal time to practice your microphone movements to keep on target.

Remember that as a sound recordist you are part of a team that is lead by the director. The project you are working on is ultimately the directors responsibility and you are responsible to the director for the sound. Quite often directors may be more interested in the shots they are filming than the sound. If you feel that better sound could be recorded by setting things up differently, then suggest it. The director will probably be

grateful for suggestions you may have to make the sound better, but if the director does not take you up on any of these suggestions, it is their decision.