

# S8 Manual

## LIVE MIXER WITH DSP EFFECTS + USB



## 1. Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this item near water.
6. Clean only with dry cloth.
7. Do not block any of the ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves or other items (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarised plug. The wide blade is provided for your safety. If the provided plug does not fit into the item or the mains socket, consult an electrician for replacement.
10. Protect the power cord from being walked on or pinched particularly at plug, convenience receptacles, and point where they exit from the item.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with a cart, stand, tripod, bracket or table specified by the manufacturer, or sold with the item. When a cart is used, use caution when moving the cart/item combination to avoid injury.
13. Unplug this item during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the item has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the item, the item has been exposed to rain or moisture, does not operate normally, or has been dropped (note: accidental or cosmetic damage is not covered by the items 12 month warranty)
15. Please keep the unit in a safe environment.
16. Do not store anything on top of the item.



**CAUTION**  
**RISK OF**  
**ELECTRIC SHOCK**



To reduce the risk of electric shock, do not remove any cover. No user-serviceable parts inside. Refer servicing to qualified personnel only.



The lightning flash with arrowhead symbol within the equilateral triangle is intended to alert the user to the presence of un-insulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock.



The exclamation mark within the equilateral triangle is intended to alert the user to the presence of important operation and maintenance (servicing) instructions in the literature accompanying this appliance.

## 2. Control Elements and Connectors

This chapter describes the various control elements of your mixing console. All controls, switches and connectors will be discussed in detail.

### 2.1 Mono channels

#### 2.1.1 Microphone and line inputs



Fig. 2.1: Connectors and controls of mic/line inputs

#### MIC

Each mono input channel offers a balanced microphone input via the XLR connector and also features switchable +48 V phantom power supply for condenser microphones. The studio grade preamps provide undistorted and noise-free gain normally only found on costly outboard preamps.

- ♦ Please mute your playback system before you activate the phantom power supply to prevent switch-on thumps being directed to your loudspeakers. Please also note the instructions in chapter 2.4.2 “Voltage supply, phantom power and fuse”.

#### LINE IN

Each mono input also features a balanced line input on a 6.3mm connector. Unbalanced devices (mono jacks) can also be connected to these inputs.

- ♦ Please remember that you can only use either the microphone or the line input of a channel at any one time. You can never use both simultaneously!

#### LOW CUT

The mono channels of the mixing consoles have a high-slope LOW CUT filter for eliminating unwanted low-frequency signal components (75 Hz, 18 dB/octave).

#### GAIN

Use the TRIM control to adjust the input gain. This control should always be turned fully anti-clockwise whenever you connect or disconnect a signal source to one of the inputs.

#### COMPRESSOR

Each mono channel features a built-in compressor which lowers the dynamic range of the signal and increases its perceived loudness. The loud peaks are squashed down and the quiet sections are boosted.

Turn the COMP knob clockwise to add more compression effect. The adjacent LED will light when the effect is engaged.

#### 2.1.2 Equalizer

All mono input channels include a 3-band equalizer. All bands provide boost or cut of up to 15 dB. In the central position, the equalizer is inactive.

The circuitry of the 3-band EQs is based on the technology used in the best-known top-of-the-line consoles and provides a warm sound without any unwanted side effects. The results are extremely musical equalizers which, unlike basic equalizers, cause no side effects such as phase shifting or bandwidth limitation, even with extreme gain settings of  $\pm 15$  dB.



Fig. 2.2: The equalizer of the input channels

The upper (HI) and the lower band (LO) are shelving filters that increase or decrease all frequencies above or below their cut-off frequency. The cut-off frequencies of the upper and lower band are 12 kHz and 80 Hz respectively. The mid band is configured as a peak filter with a center frequency of 2.5 kHz.

#### 2.1.3 Aux sends



Fig. 2.3: The AUX SEND controls in the channel strips

Aux sends take signals via a control from one or more channels and sum these signals to a single bus. This bus signal is sent to an aux send connector and then routed, for example, to an active monitor speaker or an external effects device. The return from an external effect can then be brought back into the console via the aux return connectors.

For situations which require effects processing, the aux sends are usually switched post-fader so that the effects volume in a channel corresponds to the position of the channel fader. If this were not the case, the effects signal of the channel would remain audible even when the fader is turned to zero. When setting up a monitor mix, the aux sends are generally switched to pre-fader; i.e. they operate independently of the position of the channel fader.

Both aux sends are mono, are sourced after the equalizer and offer up to +15 dB gain.

- ♦ If you press the MUTE/ALT 3-4 switch, aux send 1 is muted, provided that it is switched post-fader. However, this does not affect the aux send 2 of the S8.

## AUX 1 (MON)

In the M-Series, aux send 1 can be switched pre-fader and is thus particularly suitable for setting up monitor mixes.

## PRE

When the PRE switch is pressed, aux send 1 is sourced pre-fader.

## AUX 2 (FX)

The aux send labelled FX is for sending to effects devices and is thus set up to be post-fader.

In the M8DSP, the FX send is routed directly to the built-in effects processor.

- ◊ If you wish to use the internal effects processor, the STEREO AUX RETURN 2 connectors should not be in use.
- ◊ You can also connect an external effects processor to aux send 2, however the internal effects module will be muted.

### 2.1.4 Routing switch, solo and channel fader

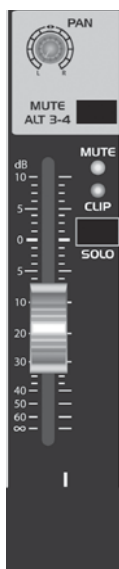


Fig. 2.4: Panorama and routing controls

## PAN

The **PAN** control determines the position of the channel signal within the stereo image. This control features a constant-power characteristic, which means the signal is always maintained at a constant level, irrespective of position in the stereo panorama.

## MUTE/ALT 3-4

You can use the **MUTE/ALT 3-4** switch to divert the channel from the main mix bus to the Alt 3-4 bus. This mutes the channel from the main mix.

## MUTE-LED

The **MUTE LED** indicates that the relevant channel is diverted to the submix (Alt 3-4 bus).

## CLIP-LED

The **CLIP LED** lights up when the input signal is driven too high. In this case, turn down the GAIN control and, if necessary, check the setting of the channel EQ.

## SOLO

The **SOLO** switch is used to route the channel signal to the solo bus (Solo In Place) or to the PFL bus (Pre Fader Listen). This enables you to monitor a channel signal without affecting the main output signal. The signal you hear is sourced either before (PFL, mono) or after (solo, stereo) both the pan control and the channel fader (see chapter 2.3.6 "Level meters and monitoring").

The channel fader determines the level of the channel signal in the main mix (or submix).

## 2.2 Stereo channels

### 2.2.1 Channel inputs



Fig. 2.5: Stereo channel inputs and LEVEL switch

Each stereo channel has two balanced line level inputs on 6.3mm connectors for left and right channels. If only the connector marked "L" is used, the channel operates in mono. Stereo channels are designed to handle typical line level signals.

Both inputs can also be used with unbalanced jacks.

## LEVEL

For level matching, the stereo inputs feature a **LEVEL** switch which selects between +4 dBu and -10 dBV. At -10 dBV (home-recording level), the input is more sensitive than at +4 dBu (studio level).

### 2.2.2 Equalizer stereo channels

The equalizer of the stereo channels is, of course, stereo. The filter characteristics and crossover frequencies are the same as those of the mono channels. A stereo equalizer is always preferable to two mono equalizers if frequency correction of a stereo signal is needed. There is often a discrepancy between the settings of the left and the right channels when using separate equalizers.

### 2.2.3 Aux sends stereo channels

In principle, the aux sends of the stereo channels function in just the same way as those of the mono channels. As aux send paths are always mono, the signal on a stereo channel is first summed to mono before it reaches the aux bus.

### 2.2.4 Routing switch, solo and channel fader

## BAL

The function of the **BAL** (balance) control corresponds to the PAN control in the mono channels.

The balance control determines the relative proportion between the left and right input signals before both signals are routed to the main stereo mix bus.

The MUTE/ALT 3-4 switch, the MUTE-LED, the CLIP-LED, the SOLO switch and the channel fader function in the same way as the mono channels.

## 2.3 Connector panel and main section

Whereas it was useful to trace the signal flow from top to bottom in order to gain an understanding of the channel strips, we now look at the mixing console from left to right. The signals are, so to speak, collected from the same point on each of the channel strips and then routed to the main section all together.

### 2.3.1 Aux sends 1 and 2



Fig. 2.6: AUX SEND controls of the main section

A channel signal is routed to aux send bus 1 if the AUX 1 control is turned up on the corresponding channel.

#### AUX SEND 1

The AUX SEND control acts as master control for aux send 1 and determines the level of the summed signal.

#### AUX SEND 2 (FX)

Similarly, the FX control (AUX SEND 2) determines the level for aux send 2.

#### SOLO

You can use the SOLO switch to separately monitor the aux sends via the CONTROL ROOM/PHONES outputs and check these with the level meters.

- ♦ If you want to monitor the signal of just one AUX bus, none of the other SOLO SWITCHES should be pressed and the MODE switch must be in the SOLO position (not pressed down).

### 2.3.2 Aux send connectors 1 and 2



Fig. 2.7: Aux send connectors

#### AUX SEND 1

If you use aux send 1 pre-fader, you would usually connect the **AUX SEND 1** connector to monitors via a power amp (or an active monitor system). If you use aux send 1 post-fader, proceed as described under aux send 2.

#### AUX SEND 2

The **AUX SEND 2** connector outputs the signal you picked up from the individual channels using the FX control. You can connect this to the input of an effects device in order to process the FX bus signal. Once an effects mix is created, the processed signal can then be routed from the effects device output back into the STEREO AUX RETURN connectors.

### 2.3.3 Stereo aux return connectors



Fig. 2.8: Stereo aux return connectors

#### STEREO AUX RETURN 1

The **STEREO AUX RETURN 1** connectors generally serve as the return path for the effects mix generated using the post-fader aux send. This is where you connect the output signal of the external effects device. If only the left connector is used, the AUX RETURN automatically operates in mono.

- ♦ You can also use these connectors as additional line inputs.

#### STEREO AUX RETURN 2

The **STEREO AUX RETURN 2** connectors serve as the return path for the effects mix generated using the FX control. If these connectors already function as additional inputs, you can route the effects signal back into the console via a different channel, with the added benefit that the channel EQ can be used to adjust the frequency response of the effects return signal.

- ♦ In this instance, the FX control of the channel being used as an effects return should be turned fully anti-clockwise, otherwise feedback problems could occur!
- ♦ If you wish to use the internal effects processor, no connectors should be plugged into STEREO AUX RETURN 2.

### 2.3.4 Stereo aux return



Fig. 2.9: Stereo aux return controls

#### STEREO AUX RETURN 1

**STEREO AUX RETURN 1** is a stereo control which determines the level of the signal in the main mix. If STEREO AUX RETURN 1 is used as effects return, you can add the effects signal to any "dry" channel signal.

- ♦ In this instance, the effects device should be set at 100% effect.



## STEREO AUX RETURN MON

The **STEREO AUX RETURN MON** control has a special function: it can be used to add an effect to a monitor mix. For example:

### Monitor mix with effect

In this instance, the effects device should be set up as follows: AUX SEND 2 is connected to the L/Mono input of your effects device, while its outputs are connected to STEREO AUX RETURN 1. Connect the amplifier of your monitor system to AUX SEND 1. The AUX SEND 1 master control determines the volume of the monitor mix.

You can now use the STEREO AUX RETURN MON control to adjust the level of the effects signal routed to the monitor mix.

## STEREO AUX RETURN 2 (FX)

The STEREO AUX RETURN 2 control determines the level of signals fed into the AUX RETURN 2 connectors which are routed to the main mix.

### MAIN MIX/ALT 3-4

The MAIN MIX/ALT 3-4 switch routes the signal connected to STEREO AUX RETURN 2 to either main mix (not pressed) or submix (Alt 3-4, pressed).

## 2.3.5 2TK/USB



Fig. 2.10: 2-track connectors

### 2TK/USB INPUT

Twin RCA connectors are provided for connecting a stereo playback machine, sub-mixer or any stereo line input to be added into the main mix.

If a PC/Mac computer is connected via the rear USB connection, the digital audio from the host computer is converted and fed into the 2TK input in the same way as if connected to the RCA inputs.

### 2TK/USB OUTPUT

Twin RCA connectors are provided for feeding the main mix output to a recording device or monitoring amplifier.

If a PC/Mac computer is connected via the rear USB connection, a copy of the main mix is converted to digital format and fed out to the host computer for processing and/or recording.

## 2.3.6 Level meter and monitoring

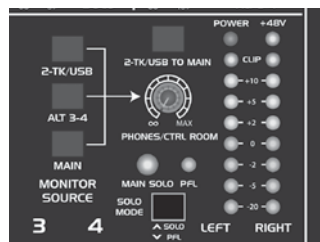


Fig. 2.11: Control room/phones section, level meter

### 2TK/USB

The **2TK/USB** switch routes the signal from the 2TK input or USB connectors to the level meter, the CONTROL ROOM OUT outputs and the PHONES connector this is a simple way to check recorded signals via monitor speakers or headphones.

### ALT 3-4

Similarly, the **ALT 3-4** switch routes the signal from the Alt 3-4 bus to the same path for monitoring purposes.

### MAIN MIX

The **MAIN MIX** switch sends the main mix signal to the above-mentioned outputs and to the level meter.

### PHONES/CTRL Room

Use this control to set control room output level and headphones volume respectively.

### 2TK/USB TO MAIN

When the **2TK/USB TO MAIN** switch is depressed, the 2TK input or USB is routed to the main mix and thus serves as an additional input for tape machines. You can also connect MIDI instruments or other signal sources here that do not require any further processing. At the same time, this switch disables the main mix to **2TK/USB** output link.

### POWER

The blue **POWER** LED indicates that the device is switched on.

### +48 V

The red **+48 V** LED lights up when the phantom power supply is switched on. The phantom power supply is necessary for condenser microphones and is activated using the switch on the rear of the device.

- ⚠ Please do not connect microphones to the mixer (or the stagebox/wallbox) while the phantom power supply is switched on. Connect microphones before you switch on the power supply. In addition, the monitor/PA loudspeakers should be muted before you activate the phantom power supply. After switching on, wait approx. one minute to allow for system stabilization.

### LEVEL METRE

The high-precision level metre accurately displays the appropriate signal level.

## LEVEL SETTING:

When recording to a digital device, the recorder's peak metre should not exceed 0 dB. This is because, unlike analog recordings, slightly excessive levels can create unpleasant digital distortion.

When recording to an analog device, the VU metres of the recording machine should reach approx. +3 dB with low-frequency signals (e.g. kick drum). The VU metres tend to display too low a signal level at frequencies above 1 kHz. This is why, for example, a Hi-Hat should only be driven as far as -10 dB. Snare drums should be driven to approx. 0 dB.

The peak metres of your **M-Series** display the level virtually independent of frequency. A recording level of 0 dB is recommended for all signal types.

## SOLO MODE

The **SOLO MODE** switch determines whether the channels' SOLO switch operates as PFL (Pre Fader Listen) or as solo (Solo In Place).

## PFL

To activate the PFL function, depress the **SOLO MODE** switch. The PFL function should, as a rule, be used for gain setting purposes. The signal is sourced pre-fader and assigned to the mono PFL bus. In the "PFL" setting, only the left side of the peak metre operates. Drive the individual channels to the 0 dB mark of the VU metre.

## Solo

When the **SOLO MODE** switch is not depressed, the stereo solo bus is active. Solo is short for "Solo In Place". This is the customary method for listening to an individual signal or to a group of signals. As soon as a solo switch is pressed, all channels in the control room (and headphones) that have not been selected are muted thereby retaining stereo panning. The solo bus can carry the output signals of the channel pan controls, the aux sends and the stereo line inputs. The solo bus is, as a rule, switched post-fader.

- ♦ The **PAN** control in the channel strip offers a constant power characteristic. This means that the signal is always at a constant level, irrespective of its position in the stereo panorama. If the **PAN** control is moved fully left or right from centre, the level increases by 4 dB in that channel. This ensures that, when set in the centre, the audio signal is not louder. For this reason, with the solo function activated (Solo in Place), audio signals from the channels with **PAN** controls that have not been moved fully to the left or right are displayed at a lower volume than in the PFL function.

As a rule, solo signals are monitored via the control room outputs and headphones connector and are displayed by the level metres. If a solo switch is pressed, the signals from the tape input, Alt 3-4 and main mix are blocked from the control room outputs, the headphone connector and the level metre.

## MAIN SOLO

The **MAIN SOLO LED** lights up as soon as a channel or aux send solo switch is pressed. The **MODE** switch also has to be set at "Solo".

## PFL

The PFL LED indicates that the peak metre is set to PFL mode.



Fig. 2.12: PHONES connector

## PHONES

You can connect headphones to this 6.3mm TRS connector. The signal on the PHONES connection is sourced from the control room output.

### 2.3.7 Alt 3-4 and main mix fader

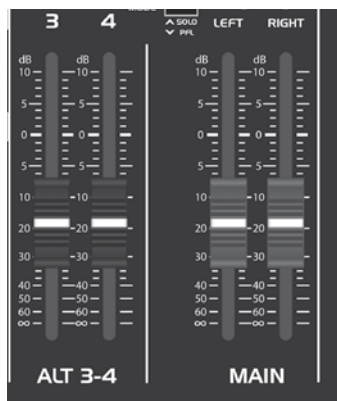
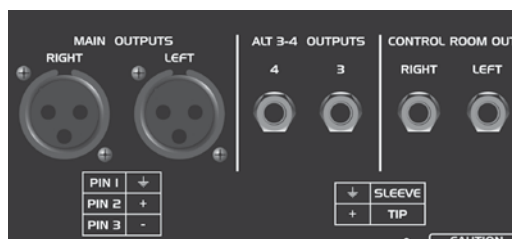


Fig. 2.13: Alt 3-4 and main mix fader

Use the high-precision faders to control the output level of the Alt 3-4 subgroup and main mix.

## 2.4 Rear view of S8

### 2.4.1 Main mix outputs, Alt 3-4 outputs and control room outputs



## MAIN OUTPUTS

The **MAIN** outputs carry the MAIN MIX signal and are on balanced XLR connectors with a nominal level of +4 dBu.

## ALT 3-4 OUTPUTS

The **ALT 3-4** outputs are unbalanced and carry the signals of the channels that you have assigned to this group using the MUTE switch. This can be used to route a subgroup to a further mixing console for example, or it could be used as a recording output working in tandem with the main output. This means you could record to four tracks simultaneously. The icing on the cake, so to speak, is that you could connect Y-cables to these four outputs and then connect your 8-track recorder in such a way that you have 2 x 4 tracks (e.g. channel 1 feeds track 1 and track 2, etc.). In the first recording pass, you record on tracks 1, 3, 5 and 7 and in the second pass, on tracks 2, 4, 6 and 8.

## CONTROL ROOM OUTPUTS

The control room output is normally connected to the monitor system in the control room and provides the stereo mix or, when required, the solo signal.

## USB INPUT/OUTPUT



Fig. 2.15 USB input/output

The M-Series mixer line has built-in USB connectivity, allowing stereo signals to be sent to and from the mixer and a computer. The audio sent from the mixer to a computer is identical to the MAIN MIX. Audio being sent to the mixer from a computer can be routed to the main mix with the 2-TK/USB TO MAIN button.

Connect the USB type B plug into the USB jack on the mixer, and the other end into a free USB port on your computer. There are no required drivers.

The system uses generic ASIO drivers. Check for updates for your operating system if there are any problems

### 2.4.2 Voltage supply, phantom power and fuse



Fig. 2.16: Voltage supply and fuse

## FUSE HOLDER

The console is connected to the mains via the cable supplied which meets the required safety standards. Blown fuses must only be replaced by fuses of the same type and rating.

## IEC MAINS RECEPTACLE

The mains connection is via a cable with IEC mains connector. An appropriate mains cable is supplied with the equipment.

## POWER

Use the **POWER** switch to power up the mixing console.

## PHANTOM

The **PHANTOM** switch activates the phantom power supply for the XLR connectors of the mono channels which is required to operate condenser microphones. The red +48 V LED lights up when phantom power is on. As a rule, dynamic microphones can still be used with phantom power switched on, provided that they are wired in a balanced configuration. In case of doubt, contact the microphone manufacturer!

- ♦ After the phantom power supply has been switched on, do not connect microphones to the mixer (or the stagebox/wallbox). Connect the microphones before you switch phantom power on. In addition, the monitor/PA loudspeakers should be muted before activating the phantom power supply. After switching on, wait approx. one minute to allow the system to stabilize.
- ♦ Caution! You must never use unbalanced XLR connectors (PIN 1 and 3 connected) on the MIC input connectors if you want to use the phantom power supply.

## 3. Digital Effects Processor



Fig. 3.1: Digital effects module

### 24-BIT MULTI-EFFECTS PROCESSOR

Here you can find a list of all presets stored in the multi-effects processor. This built-in effects module produces high-grade standard effects such as reverb, chorus, flanger, delay and various combination effects. The integrated effects module has the advantage of requiring no wiring. This way, the danger of creating ground loops or uneven signal levels is eliminated at the outset, completely simplifying the handling.

These effect presets are designed to be added to dry signals. If you move the DSP return control, you mix the channel signal (dry) and the effect signal.

This also goes for mixing effects signals with the monitor mix. The main difference is that the mix ratio is adjusted using the DSP to AUX1 control. Of course, a signal has to be fed into the effects processor via the FX control in the channel strip for both applications.

- ♦ On the following page, you will find an illustration showing how to connect your foot switch correctly.



LEVEL

The LED level metre on the effects module should display a sufficiently high level. Take care to ensure that the clip LED only lights up at peak levels. If it is lit constantly, you are overloading the effects processor and this could cause unpleasant distortion. The DSP control (AUX SEND 2) determines the level that reaches the effects module.

PROGRAM

You can select the effect preset by turning the **PROGRAM** control. The display flashes the number of the current preset. To recall the selected preset, press the button; the flashing stops. You can also recall the selected preset with the foot switch.

4. Installation

4.1 Cable connections

You will need a large number of cables for the various connections to and from the console. The illustrations below show the wiring of these cables. Be sure to use only high-grade cables.

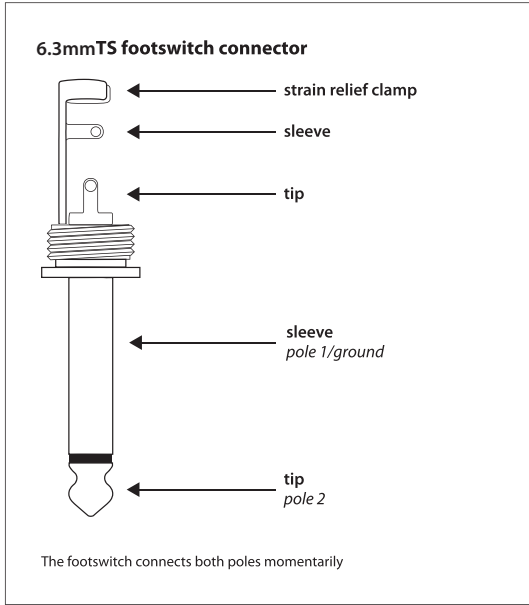


Fig. 4.1: connector for foot switch

4.1.1 Audio connections

Please use commercial RCA cables to wire the 2-track inputs and outputs.

You can, of course, also connect unbalanced devices to the balanced input/outputs. Use either mono plugs, or ensure that ring and sleeve are bridged inside the stereo plug (or pins 1 & 3 in the case of XLR connectors).

⚠ **Caution! You must never use unbalanced XLR connectors (pin 1 and 3 connected) on the MIC inputs if you intend to use the phantom power supply.**

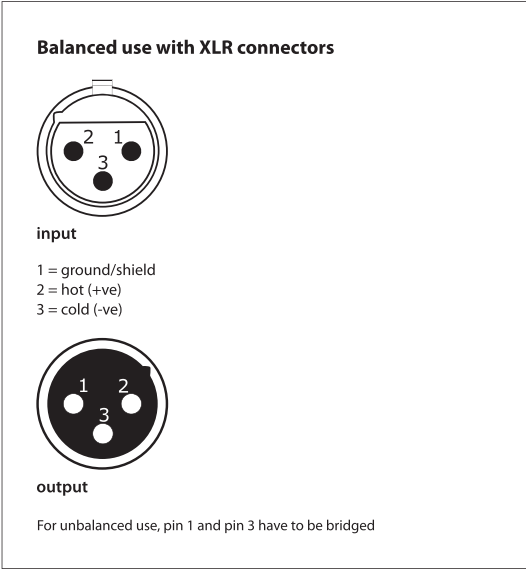


Fig. 4.2: XLR connections

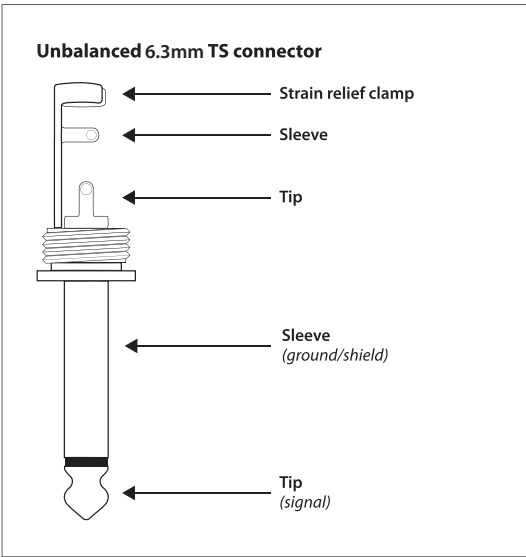


Fig. 4.3: TS connector

4.1.1 Audio connections cont.

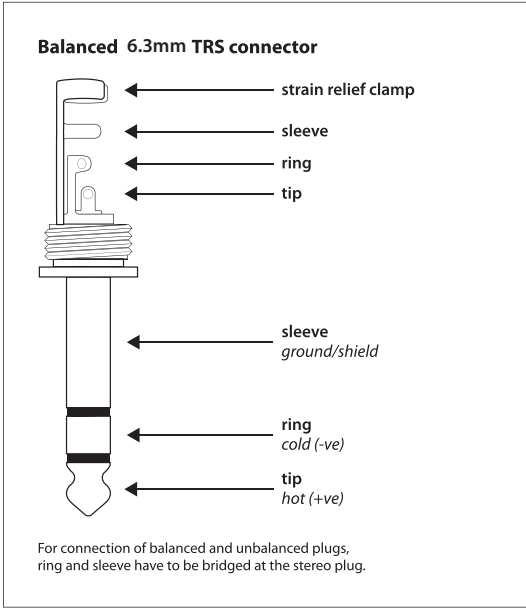


Fig. 4.4: TRS connector

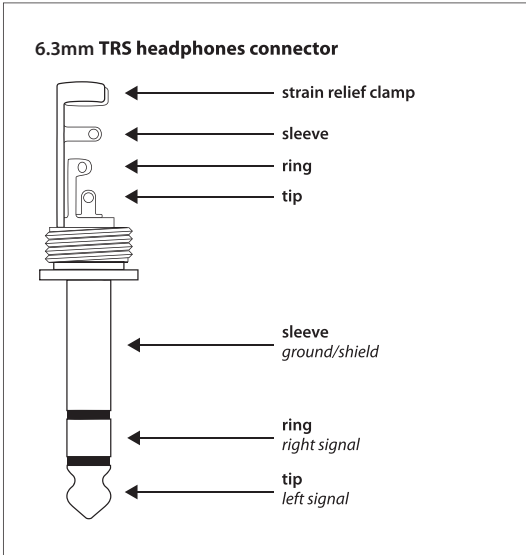


Fig. 4.5: TRS connector for headphones

5. Features

- 16 effect DSP engine with parameter control
- Integral USB interface for PC/Mac
- Variable compressor per mono channel
- +48V phantom on XLRs (globally switched)
- 75Hz lo-cut filter per mono channel
- Multiple pre/post fade Aux feeds
- PFL/Solo monitoring with separate outputs
- Channel inserts/direct per mono channel
- Stereo return for each Aux feed
- Balanced/unbalanced outputs
- Internal power supply (mains IEC)

6. Specifications

Model no.	M8DSP
Order ref.	170.820
Power consumption	40W
Power supply	110-240Vac 50/60Hz (IEC)
Phantom power	+48V (globally switched to XLR inputs)
Input level : Mic	+22dBu
Input level : Line	+20 dBu
Output level : Line	+28dBu (XLR); +22dBu (jack)
Frequency response	20Hz - 30kHz (±1dB)
Effects	16-programme 24-bit DSP engine
T.H.D.	<0.005% (+14dBu @ 1kHz)
Crosstalk	>89dB @1kHz
S/N ratio	-97dBu (channel fader down)
Low-cut filter	75Hz 18dB/oct (mono inputs)
USB port	Stereo in/out 16-bit, 48kHz
Inputs : Mic/Line	4 XLR/jack (bal/unbal)
Inputs : Line	2 mono/stereo jack (bal/unbal)
EQ: High	12kHz shelving ±15dB
EQ: Mid	2.5kHz peaking ±15dB
2-track	L+R RCA in/out
Outputs	Main (XLR); Alt3-4; Control Room
Dimensions	315 x 110 x 397mm
Weight	3.91kg

Note: Specifications and design are subject to change without notice for purpose of improvement.