

Solid State Logic

SOUND | | VISION



Super-Analogue™ Outboard X-Rack Stereo EQ User's Guide

This documentation package contains the User's Guide for your new X-Rack Stereo EQ module. Depending on the age of your X-Rack, these pages may already be present in your X-Rack Owner's Manual – please check to see if these pages match your Manual. If they do not, these pages should be filed alongside it.

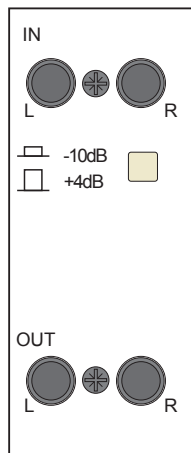
Please Note. X-Rack units prior to serial number XRK1450 (early 2011) fitted with multiple Stereo EQ modules (greater than three) may require an up-rated buscard (SSL part no. 629620X2, revision 2 or later) – please contact SSL if in doubt.

For correct operation of this module, your X-Rack unit must be running V1.4/8 or later software. Please refer to your X-Rack Owners Manual for instructions on how to check the current software version and how to obtain and install a newer version if required.

There may be a newer version of the X-Rack Owner's Manual available for download from our website (www.solidstatellogic.com)

M. Stereo EQ Module

M.1 Connection



The module input and output gains can be set to operate at a nominal level of either +4dBu or -10dBV, using a switch on the connector panel. To select the appropriate level for the equipment you are connecting to, please check the operating manual for your mixer or DAW. The switch should be released for +4dBu operation: push it in for -10dBV operation.

M.2 Operation

The X-Rack Stereo EQ module is a 4-band stereo equaliser that can be switched between two different sets of curves, one based on the latest version of the classic SSL E Series EQ and the other based on SSL's G Series EQ.

The two G-EQ buttons **1** independently switch the HF/LF ('X' button) and HMF/LMF ('∩' button) bands from 'E' operation to 'G' operation.

The IN button **2** switches the entire section in and out of circuit.

M.2.1 Frequency Sections

The different frequency sections are as follows:

HF Section: Frequency range 1.5kHz – 22kHz
Gain ±20dB

LF Section: Frequency range 40Hz – 600Hz
Gain ±20dB

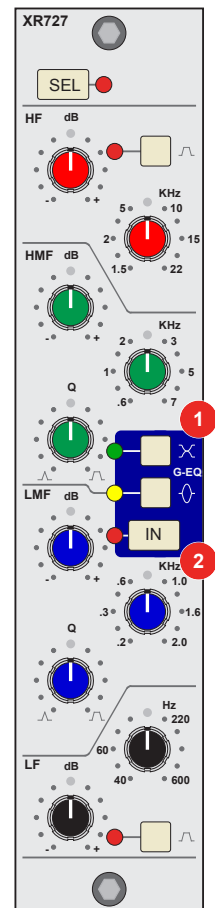
The HF/LF sections provide shelving equalisers with variable turnover frequency and a gentle slope. Selecting the 'G-EQ' ('X') button provides a slightly steeper slope for both sections with a degree of overshoot/undershoot (depending on whether you are boosting or cutting) below the selected HF frequency (or above the selected LF frequency). Selecting '∩' ('Bell') in either mode switches the equaliser to a peaking curve.

HMF Section: Centre frequency 600Hz – 7kHz
Gain ±20dB
Continuously variable Q (0.7 – 2.5)

LMF Section: Centre frequency 200Hz to 2.0kHz
Gain ±20dB
Continuously variable Q (0.7 – 2.5)

Normally, the bandwidth of the HMF and LMF sections will remain constant at all gains – at lower gains the EQ curves are comparatively narrower for a given Q setting. This is particularly useful for drums since relatively high Q is available at low gain settings but is less suitable for overall EQ or subtle corrections because the Q must be adjusted to maintain the same effect as the gain is changed.

When the HMF/LMF band is switched to 'G-EQ' ('∩') operation, the bandwidth will vary with gain so an increase in boost or cut increases the selectivity of the EQ. This type of EQ can sound most effective when used at moderate settings; the gentle Q curve lends itself to the application of overall EQ on combined sources and subtle corrective adjustments to instruments and vocals.



M.3 Performance Specification

The following pages contain audio performance specification figures for the X-Rack Stereo EQ Module. No other Solid State Logic products are covered by this document and the performance of other Solid State Logic products can not be inferred from the data contained herein.

M.3.1 Measurement Conditions

For each set of figures on the following pages, the specific unit and test setup will be stated at the beginning of that section. Any changes to the specified setup for any particular figure(s) will be detailed beside the figures to which that difference applies.

M.3.2 Measurement References

Unless otherwise specified the references used in this specification are as follows:

- Reference frequency: 1kHz
- Reference level: 0dBu, where 0dBu \approx 0.775V into any load
- Source impedance of Test Set: 50 Ω
- Input impedance of Test Set: 100k Ω
- All unweighted measurements are specified as 22Hz to 22kHz band limited RMS and are expressed in units of dBu
- All distortion measurements are specified with a 36dB/Octave low pass filter at 80kHz and are expressed as a percentage
- The onset of clipping (for headroom measurements) should be taken as 1% THD
- Unless otherwise quoted all figures have a tolerance of \pm 0.5dB or 5%
- All measurements are made with the operating level switch set for +4dBu

M.3.3 Performance

Signal applied to Input and measured at Output. EQ switched In. All EQ controls set centre as appropriate.

THD + N	< 0.007% at +20dBu 1kHz < 0.007% at +20dBu 10kHz
Frequency Response	\pm 0.5dB from 20Hz to 20kHz -3dB at 90kHz
Output Headroom	> +26dBu at onset of clipping (+4dBu operating level) > +13.5dBV at onset of clipping (-10dBV operating level)
Noise	< -70dBu (+4dBu operating level) < -72dBV (-10dBV operating level)

M.3.4 Curves

The module contains a four band equaliser that can be switched between two different sets of curves, one based on the latest version of the classic SSL E Series EQ and the other based on SSL's G Series EQ.

HF Band controls:

Frequency	Variable from 1.5kHz to 22kHz
Gain	Variable between \pm 20dB
'Q'	2.5 (on '∩' setting)

HMF Band controls:

Frequency	Variable from 600Hz to 7kHz
Gain	Variable by > \pm 20dB
'Q'	Variable from 0.7 to 2.5 (may also vary with gain)

LMF Band controls:

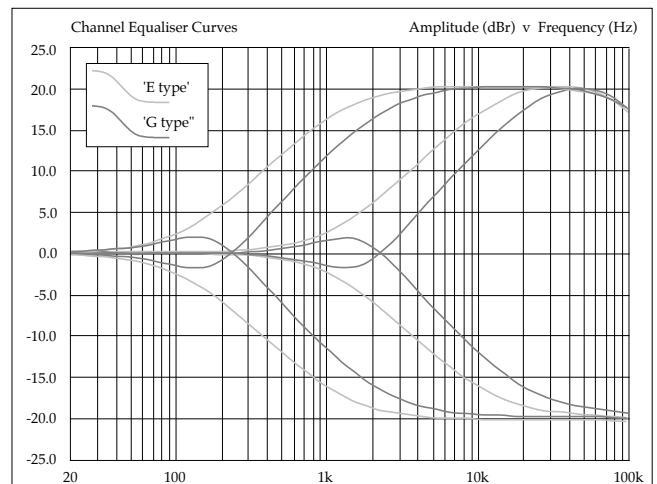
Frequency	Variable from 200Hz to 2.0kHz
Gain	Variable by > ±20dB
'Q'	Variable from 0.7 to 2.5 (may also vary with gain)

LF Band controls:

Frequency	Variable from 40Hz to 600Hz
Gain	Variable between ±20dB
'Q'	2.5 (on '∩∪' setting)

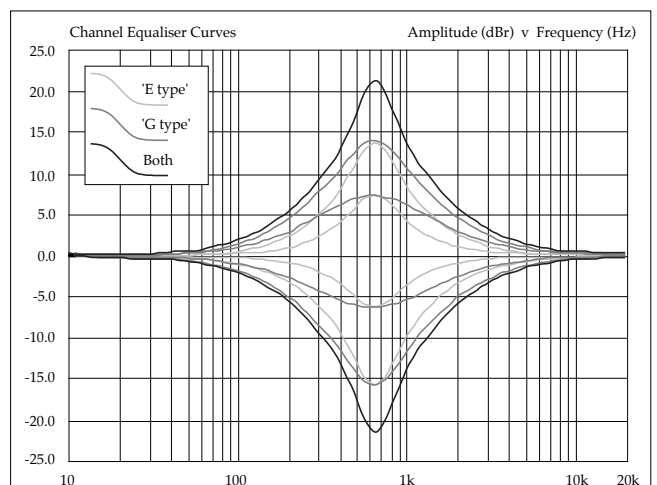
The LF and HF bands have variable turnover frequency with switchable bell/shelving and selectable response curves:

- Normal ('E type') curves – with the 'G-EQ' ('X') switch OUT – follow conventional cut or boost characteristics.
- The 'G type' curves – with the 'G-EQ' ('X') switch IN – have a modified slope which provides a degree of overshoot/undershoot for increased selectivity.



The two parametric bands have selectable characteristics which affect the relationship between frequency bandwidth and gain:

- With the 'G-EQ' ('⊕') switch OUT, the frequency bandwidth is constant at all gains.
- When the 'G-EQ' ('⊕') is switched IN, the frequency bandwidth will reduce with increased gain, thereby increasing the selectivity of the EQ as the gain is increased.
- At full boost or cut both are identical.



M.4 Calibration Information

The X-Rack Stereo EQ module requires no calibration.

M.5 Connector Details

Audio Input	
Location:	Rear Panel
Conn' Type:	Stereo 1/4" Jack Socket
Pin	Description
Tip	Audio +ve
Ring	Audio -ve
Sleeve	Chassis

Audio Output	
Location:	Rear Panel
Conn' Type:	Stereo 1/4" Jack Socket
Pin	Description
Tip	Audio +ve
Ring	Audio -ve
Sleeve	Chassis

M.6 Physical Specification

Depth:	200mm / 7.9 inches	<i>including front panel knobs, excluding connectors</i>
	275mm / 10.9 inches	<i>including front panel knobs and connectors</i>
Height:	171mm / 6.75 inches	
Width:	35mm / 1.4 inches	<i>front/rear panels</i>
	49mm / 1.9 inches	<i>overall width (front and rear panels are offset)</i>
Weight:	260g / 9.5 ounces	
Boxed size:	190mm x 290mm x 70mm / 7.5" x 11.5" x 2.5"	
Boxed weight:	460g / 16.5 ounces	

** All values are approximate*

M.7 Environmental Specification

As per X-Rack – see page 19.