

# *XL42*

## OPERATORS MANUAL

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XL42 Dual Channel Strip Operators Manual

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In line with the company's policy of continual improvement, specifications and function may be subject to change without notice. E&OE.

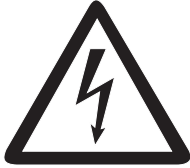




# IMPORTANT SAFETY INSTRUCTIONS



These symbols are internationally accepted symbols that warn of potential hazards with electrical products.



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



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

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any of the ventilation openings. Install in accordance with the manufacturers instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments / accessories specified by the manufacturer.
12. Unplug this apparatus during lightning storms or when unused for long periods of time.
13. Refer all servicing to qualified personnel. Servicing is required when the apparatus is damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.





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## DECLARATION OF CONFORMITY

We, **Klark Teknik Group (UK) PLC**

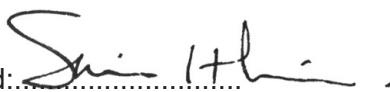
of, Klark Teknik Building, Walter Nash Road, Kidderminster, Worcestershire, DY11 7HJ

Declare that a sample of the following product:-

Product Type Number	Product Description	Nominal Voltage (s)	Current	Freq
XL42	Dual Channel Strip	230V/115V	70mA / 140mA	50/60Hz

to which this declaration refers, is in conformity with the following directives and/or standards:-

Directive(s)	Test Standard(s)
89/336/EEC Electromagnetic Compatibility Directive amended by 92/31/EEC & 93/68/EEC 73/23/EEC Low Voltage Directive amended by 93/68/EEC	
Generic Emissions Standard	EN55013:1990
Generic Immunity Standard	EN50082:1992
Electrical Safety	UL6500-03(Pending at time of publication)
	E60065-03(Pending at time of publication)
	EN60065:2002(Pending at time of publication)

Signed: 

Date: 7th May 2004

Name: Simon Harrison

Authority: Research & Development Director, Klark Teknik Group (UK) PLC

### Attention!

Where applicable, the attention of the specifier, purchaser, installer or user is drawn to special limitations of use which must be observed when these products are taken into service to maintain compliance with the above directives. Details of these special measures and limitations to use are available on request and are available in product manuals.



**Thank you** for using a Midas XL42 dual channel creative equaliser. The XL42 has been developed to meet the needs of demanding live sound engineers and meets the quality of build and performance that you would expect from a Midas product.

The XL42 is backed up by the standard Midas Three Year Warranty.

Please take the time to complete and return the registration card. In view of this flexibility, we hope that you will spend a little time reading through this operators' manual, as this will allow you to obtain the best results from your XL42 with a minimum of effort.

Finally, enjoy your new Midas XL42!

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**The Midas XL42** is a 1U rack mounting, dual channel creative equaliser incorporating the XL4 four-band parametric equalisation and XL4 mic/line pre-amplifiers with +48V phantom power.

Each channel has input gain, output level and pan rotary controls, 10-segment LED metering plus a switchable insert send and return point. The XL42 also features Automute scene control from the Automute masters of XL consoles, which are enabled by DIP switches on the rear of the unit.

The purpose of this unit is threefold:

1. To improve the audio quality of an inferior console by adding a Midas mic pre-amp and EQ.
2. To create custom mixing consoles through the ability to daisy chain multiple units. When linked together, the combined outputs will sum, producing discrete L&R channels.
3. If a production requires, for example, 10 channels more than the input capacity of the master console, five XL42s can be fitted in a standard rack together with any required dynamic processing, which can be inserted via the XL42's insert points; thus creating a custom 10 into 2 mixer via the output daisy chain feature. The resulting L and R outputs may then be routed to the master console via any convenient point, such as, a pair of aux returns, group inputs, matrix inputs etc.

As a stand-alone unit, the XL42 is ideally suited to applications requiring a high quality front end, such as stereo recording etc.

## Installation Precautions

Do not install this unit in a location subjected to excessive heat, dust or mechanical vibration. Allow for adequate ventilation around the unit, making sure the unit's vents are not obstructed. To avoid excessive heating of the unit, avoid mounting the unit directly above power amplifiers or other devices that radiate significant amounts of heat. Where necessary, use fan-cooled racks.

## Voltage Selection and Power Connection

Mains power to the XL42 is supplied by means of a standard fused IEC power socket. The XL42 is designed to operate at nominal mains voltages of 115V and 230V AC at either 50 or 60 Hz, however, upon first use (and whenever the mains supply is changed) the input voltage selector on the rear of the unit must be set to reflect the local power supply. This information is also printed on the rear of the unit, below the mains inlet socket.

This device must be earthed and must use an approved mains fuse. Before connecting to the mains supply, ensure the fuse fitted is the correct type and rating as indicated on the rear panel (adjacent to fuse holder) and that the correct mains supply voltage is selected.

## Safety Warning

To completely disconnect this equipment from the AC mains, set the power switch to the off position. The power switch shall remain readily operable.

Do not expose this equipment to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on the equipment.

For safety reasons the earth lead for this unit should never be disconnected. In the event of ground loop problems, under no circumstances must the mains earth be removed. Instead, disconnect the signal screen at one end of the connecting cables. Please note that this can only be done when the unit is being used within a balanced system.

To prevent shock or fire hazard, do not expose the unit to rain or moisture. To avoid electrical shock do not remove covers. Refer servicing to qualified personnel only.

## Attention! Cables

The inputs and outputs are balanced on conventionally wired XLRs (pin 1 screen, pin 2 hot and pin 3 cold). This product should only be used with high quality, screened twisted pair audio cables, terminated with metal-bodied 3-pin XLR connectors. Any other cable type or configuration for the audio signals may result in degraded performance due to electromagnetic interference.

**Note:** The +48V phantom power can only be used with balanced cables.

## Electric Fields

Should this product be used in an electromagnetic field that is amplitude modulated by an audio frequency signal (20Hz to 20kHz), the signal to noise ratio may be degraded. Degradation of up to 60dB at a frequency corresponding to the modulation signal may be experienced under extreme conditions (3V/m, 90% modulation).

No permanent damage or degradation of performance will be caused by these conditions.

# After You Have Unpacked the Unit

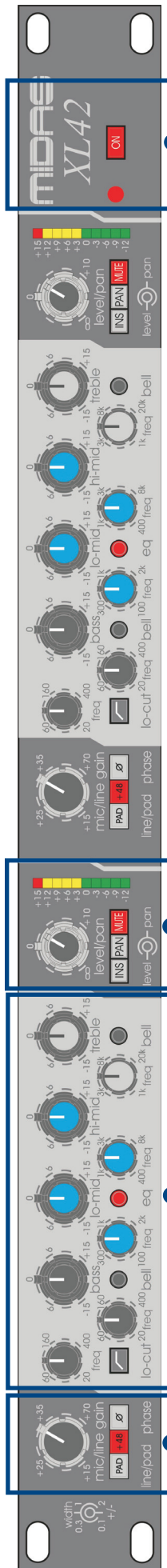
Before unpacking the XL42, check packaging for signs of damage, as this could be an indication of damage to the unit inside.

After unpacking the XL42, check the unit for signs of damage to the casing. Damage to consignments must usually be reported to the courier within 24 hours in order for a claim to be made.

Please retain the packaging for your XL42, as it will prove useful if you need to transport the unit.

Please also retain the XL42's Operators Manual (this document) and any other associated documentation.

## After You Have Unpacked the Unit



The XL42 is a highly featured 1U 19" rackmount, dual channel strip. The unit is split into two identical channel strips, each with identical functionality but having independent inputs and outputs.

**Power On/Off switch:** Conventional latching type switch, which is on when in its fully in position and off when fully out. The action of the switch is firm but does not require excessive force, which may damage the unit. A red LED, to the left of the power switch, illuminates to indicate that the XL42 is receiving mains power.

Output section

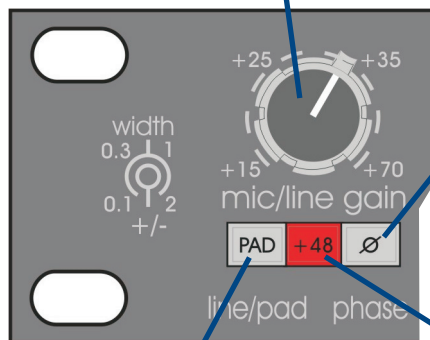
EQ section

Input section

## Input section

**mic/line gain** control knob: Gives a continuously variable input gain control depending upon the input selected, where:

- Mic: +15dB to +70dB gain
- Mic (PAD enabled): -10dB to +45dB



**Ø switch:** Phase switch inverts the input signal by applying a 180° phase shift.

**+48 switch:** Phantom power +48V switch allows connection of devices that require phantom power, such as, condenser microphones, direct inject (DI) boxes etc.

**PAD switch:** The **line/pad** switch provides 25dB of attenuation to the input signal and allows the connection of high output microphones or line level signals. If using the XL42's optional transformer-coupled input, the pad greatly reduces the risk of saturation at very low frequencies.

## EQ section

The bass, lo-mid, hi-mid and treble bands use dual concentric rotary controls. The outside ring controls the band cut and boost in the range -15dB to +15dB. The inner ring of the dial controls the bandwidth of the filter in the range 0.1 to 2 octaves (with a centre detent at 0.5 octave).

**treble dual concentric rotary control knob:** Treble band gain/attenuation adjustment is via inner control knob. Treble bandwidth is adjusted using outer control ring, activated by **bell** switch (immediately below).

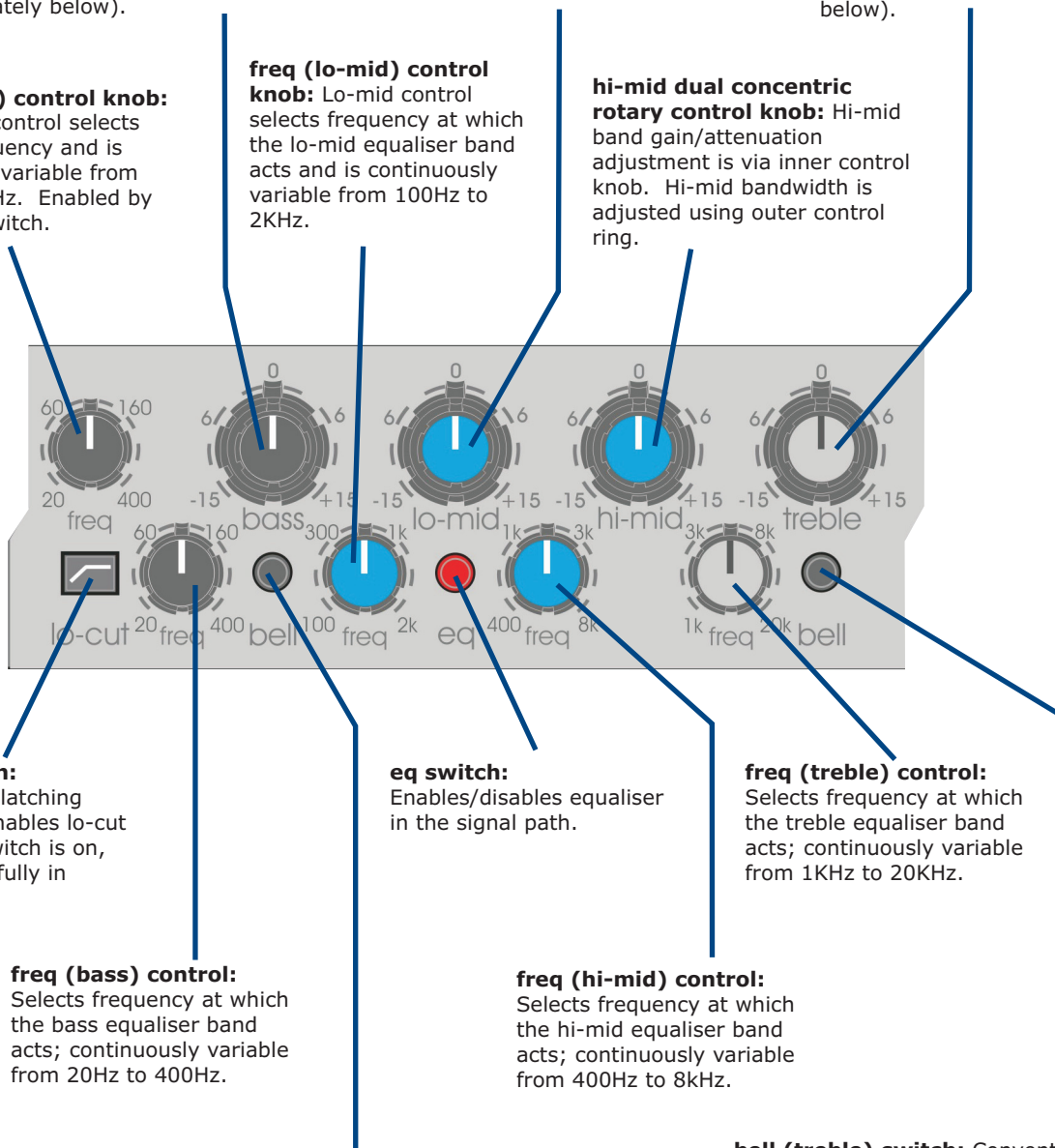
**lo-mid dual concentric rotary control knob:** Lo-mid band gain/attenuation adjustment is via inner control knob. Lo-mid bandwidth is adjusted using outer control ring.

**bass dual concentric rotary control knob:** Bass band gain/attenuation adjustment is via inner control knob. Bass bandwidth is adjusted using the outer control ring, enabled via **bell** switch (immediately below).

**hi-mid dual concentric rotary control knob:** Hi-mid band gain/attenuation adjustment is via inner control knob. Hi-mid bandwidth is adjusted using outer control ring.

**freq (lo-mid) control knob:** Lo-mid control selects frequency at which the lo-mid equaliser band acts and is continuously variable from 100Hz to 2KHz.

**freq (lo-cut) control knob:** Lo-cut filter control selects the HPF frequency and is continuously variable from 20Hz to 400Hz. Enabled by the **lo-cut** switch.



**freq (treble) control:** Selects frequency at which the treble equaliser band acts; continuously variable from 1KHz to 20KHz.

**eq switch:** Enables/disables equaliser in the signal path.

**lo-cut switch:** Conventional latching switch that enables lo-cut filter when switch is on, that is, in its fully in position.

**freq (hi-mid) control:** Selects frequency at which the hi-mid equaliser band acts; continuously variable from 400Hz to 8kHz.

**freq (bass) control:** Selects frequency at which the bass equaliser band acts; continuously variable from 20Hz to 400Hz.

**bell (bass) switch:** Conventional latching switch enables/disables parametric EQ for the bass band. When switch is in fully in position, equaliser band will work in full parametric mode. Otherwise, equaliser band acts like a traditional MIDAS shelving response EQ.

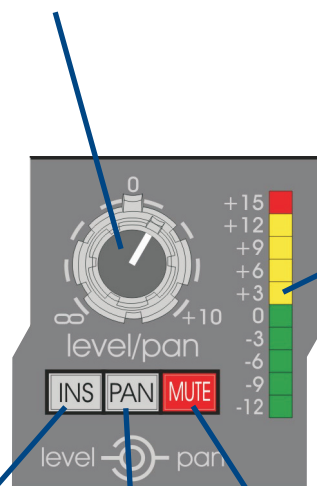
**bell (treble) switch:** Conventional latching switch enables/disables parametric EQ for the treble band. When switch is in fully in position, equaliser band will work in full parametric mode. Otherwise equaliser band acts like a traditional MIDAS shelving response EQ.

## Output section

**level/pan dual concentric rotary control knob:** Adjusts pan or output level.

Pan control places the input within a stereo (left/right) mix and has a constant power law such that, at its centre position, each output is attenuated by 3dB. Pan control is enabled by the **PAN** switch (immediately below) and is adjusted using the outer control ring. With **PAN** switch off, the XL42 is essentially two independent channel strips. With **PAN** switch on, the output signal from each input strip is distributed between the two outputs.

The output level, adjust by the inner control knob, controls the output level in the range  $-\infty$  (infinity) to +10dB.



**Output peak level meter:** Monitors the level of the channel. By default, this is post-output level and pan, although it may be internally set to be pre-level pan and insert.

**INS switch:** Selects whether the insert circuitry is patched into the audio signal path. When the switch enabled (on, fully in position) then the insert jacks are patched into the audio signal path.

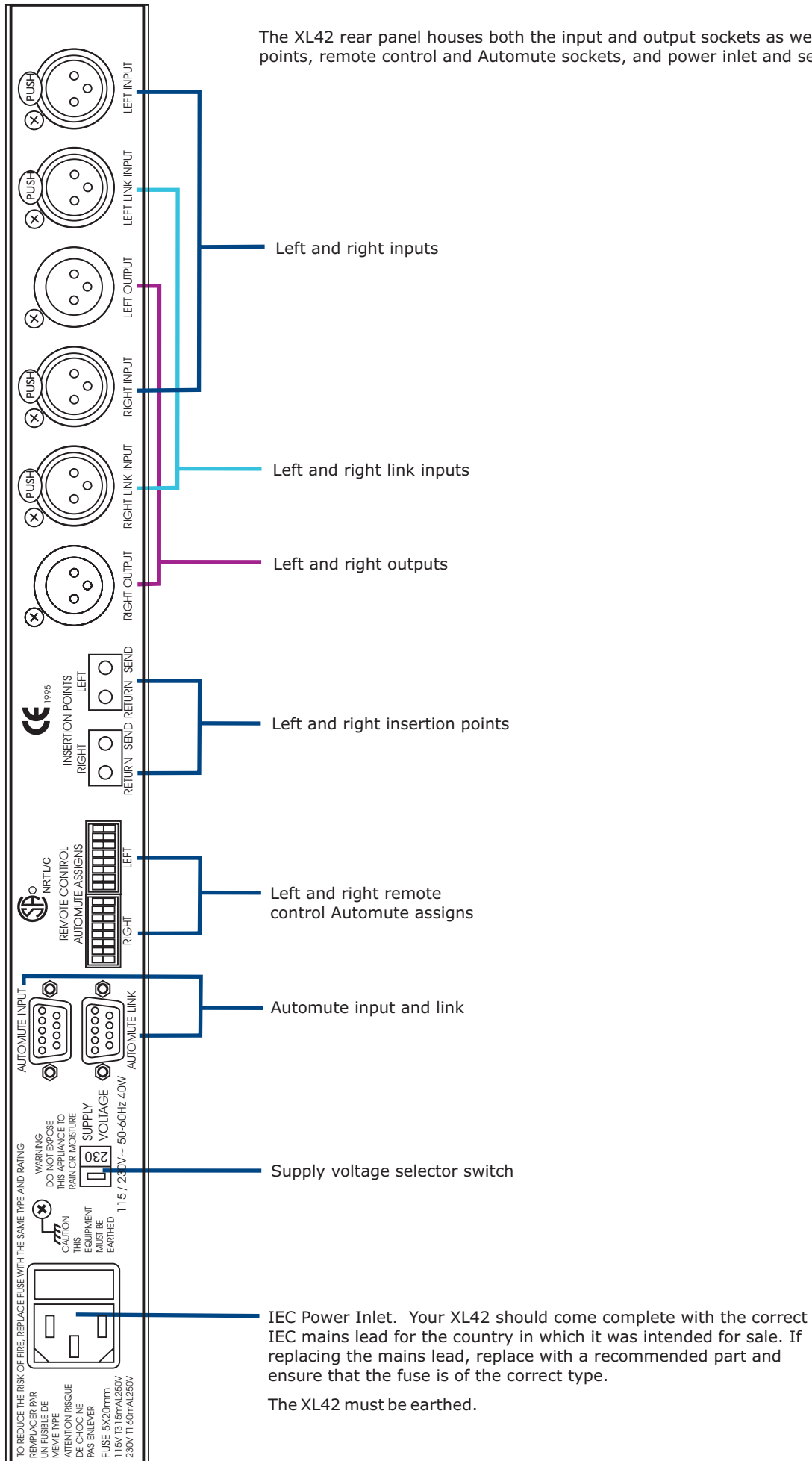
**Note:** the insert point can be configured internally using jumpers to be pre- or post- EQ. The factory default setting is Pre-EQ.

**MUTE switch:** Mutes the channel outputs. Mute may also be controlled via the Automute link selected via the "REMOTE CONTROL AUTOMUTE ASSIGNS" DIP switches on the rear panel

**PAN switch:** Enables the pan control on the **level/pan** dual concentric rotary control knob.



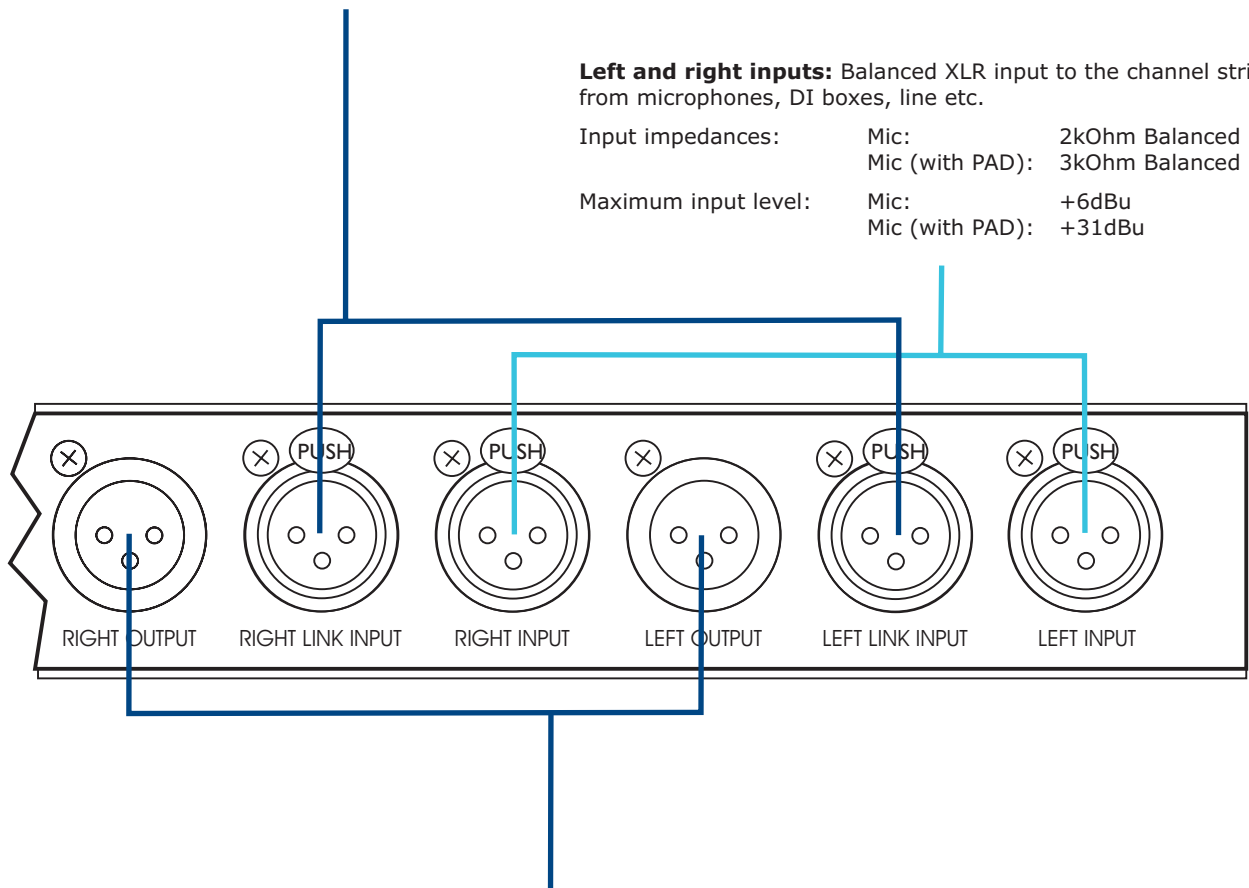
The XL42 rear panel houses both the input and output sockets as well as the insert points, remote control and Automute sockets, and power inlet and selector.



**Left and right link inputs:** When used in a daisy chain, the link input is summed with the output from the XL42's input channels to the output so that the daisy chain may continue. A much larger console can be created by adding extra XL42s using the output from the last XL42 in the chain as the master output.

Input impedances: 20kOhm Balanced  
 Maximum input level: +21dBu

The Left and Right link inputs may be configured using internal jumpers to sum with the channel input Pre- or Post- Output Level, Pan and Mute. The factory default setting is post Output Level, Pan and Mute.



**Left / Right Output:** Balanced XLR output from the channel strip.

The output signal will be a combination of the link input plus the output from the XL42's input channels. If pan is selected on either of the inputs, the outputs will be a stereo combination of the input channels plus the link input. If pan is disabled on the channels, the output will be a combination of the input channel and the link input only.

Please note that if one input channel has pan enabled and one does not, the channel with pan enabled obeys the pan law of the pan pot. However, no signal is introduced into the other output. Only when both channel pan switches are enabled does the unit enter full stereo mode, that is, either output can be a combination of either input.

Maximum output level: +21dBu

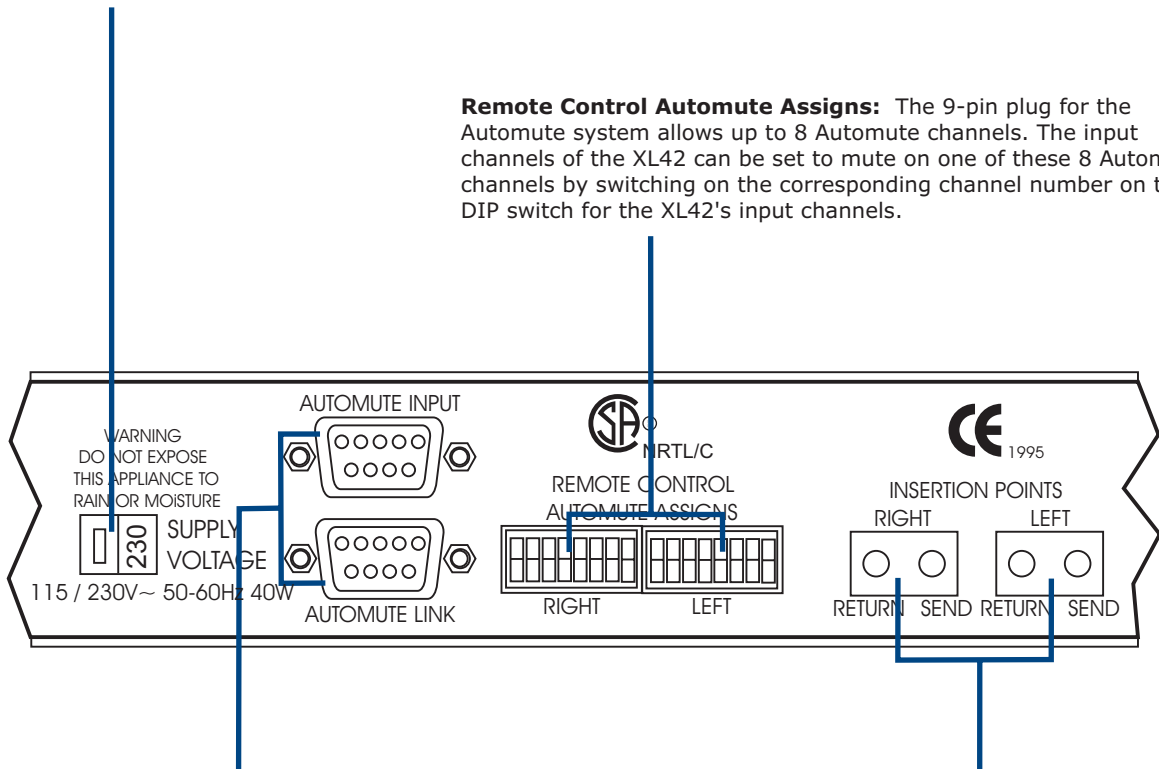
The Left and Right Outputs may be internally configured using jumpers to be pin 2 or pin 3 hot. Factory default setting is pin 2 hot.

**Supply voltage selector switch:** The supply voltage is switchable between 115VAC and 230VAC, and should be set to the mains power supply available in the country in which the unit is to be used.

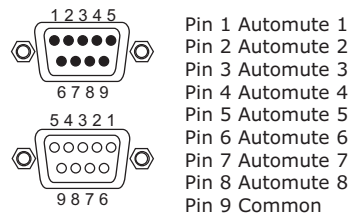
**Caution!**

**The supply voltage selector switch must be set BEFORE plugging the unit into the mains. UNDER NO CIRCUMSTANCES should the switch be changed whilst the unit is plugged in.**

**Remote Control Automute Assigns:** The 9-pin plug for the Automute system allows up to 8 Automute channels. The input channels of the XL42 can be set to mute on one of these 8 Automute channels by switching on the corresponding channel number on the DIP switch for the XL42's input channels.



**Automute link/Automute input:** Automute link socket can be used to extend the Automute connection to other XL42s in the daisy chain. Automute input should be wired according to diagram below.



**Left and right insertion points:** Insert points can be used to add additional processing into the signal path, for example Dynamics Processors, Graphic EQ, Effects, etc.

Input impedance: 20kOhm Balanced  
Maximum input level: +21dBu

The insert send and return are on independent balanced Bantam Jacks.

The insert point can be configured internally using jumpers to be pre- or post- EQ. The factory default setting is Pre-EQ.



# System Connection

The XL42 is a versatile expansion to any system, or a complete system on its own.

You can use it:

As a **replacement for an inferior mic pre-amp**.

- Plug the microphone or DI box into the XL42 and the output into the line input of your console. You can also use the XL42 EQ and bypass your console's EQ. Set PAN to off for mono operation or on for stereo operation.

As a **better EQ** section for your console.

- Plug the XL42 into the insert point of your console (Desk Send to XL42 Input and XL42 Output to Desk Return). Set the **PAD** switch on the XL42 to the in position in for a line level signal.

As an **expansion** to your console.

- Connect your XL42s in a daisy chain configuration. Connect outputs from the last XL42 into a stereo channel (or two mono channels) on your console or into a stereo/effects return.

As a high quality **pre-amp and EQ**.

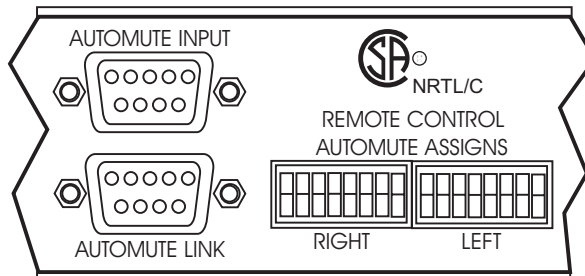
- Plug your microphones, such as a stereo condenser pair for recording, into the XL42 and the outputs into a DAT, CD or hard disk recorder.

The XL42 is the perfect companion for any system and could even be used for computer audio or drum sub-mixing where a high quality pre-amp and EQ is required.

# Auto-Mute Operation

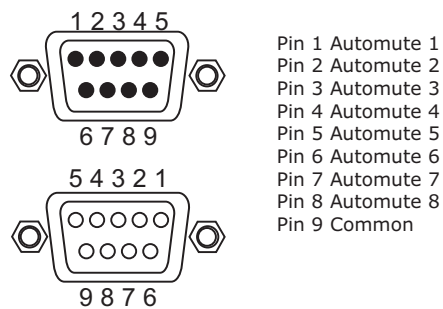
The XL42 can be used within an Automute system. The standard 9-pin plug can control up to eight independent mono channels, each of which can be addressed by the XL42.

To assign an Automute address for each channel, the REMOTE CONTROL AUTOMUTE ASSIGNS should be turned on for the desired Automute address, that is, LEFT ASSIGN 2 would make the left-hand channel of the XL42 mute on channel 2 of the Automute system.



Each channel may be assigned to more than one Automute channel by switching each of the required DIP switches.

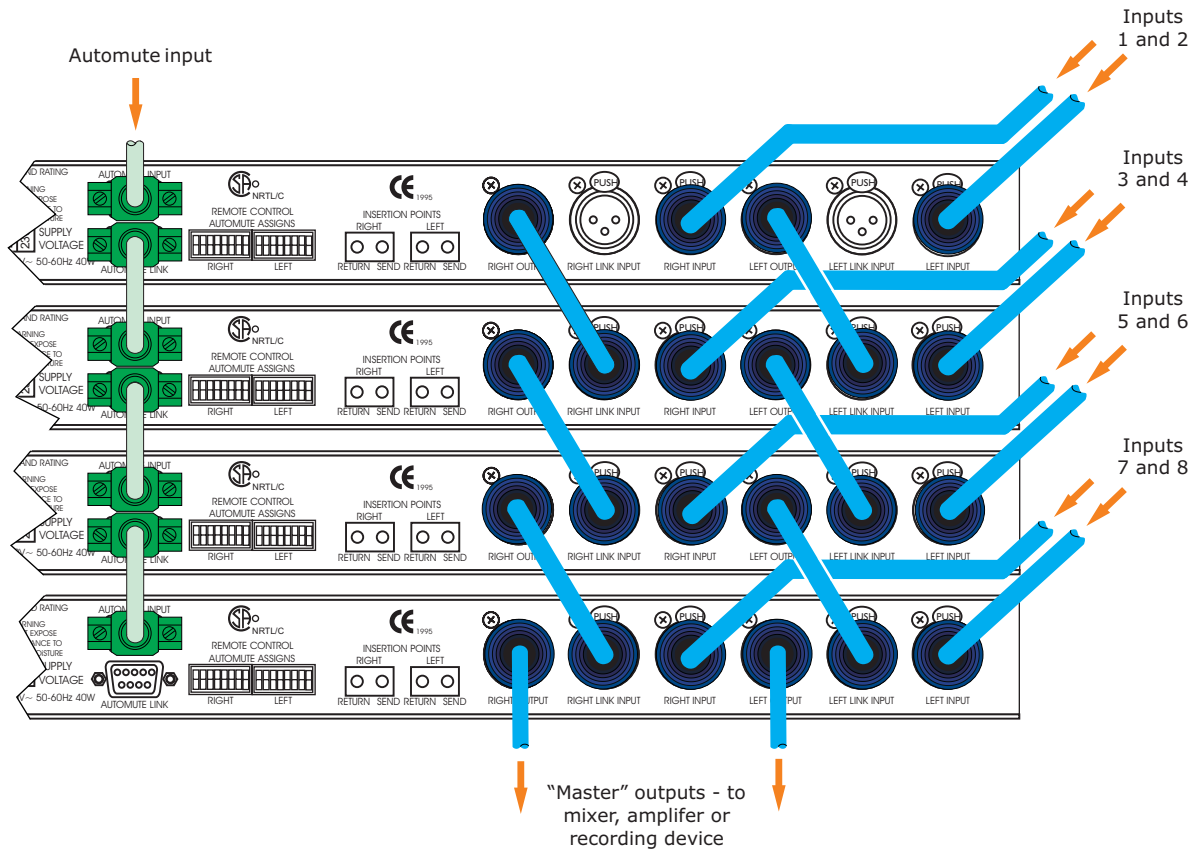
The Automute plugs are wired as follows:



The XL42 Automute system is compatible with all MIDAS XL series consoles, hence the XL42 is an ideal expansion to an XL series console when extra channels are required.

# Daisy-Chain Operation

A number of XL42s can be connected in a daisy chain configuration to form a larger console or to expand an existing console. (32 channels of XL quality EQ and mic pre-'s will fit into a 16U.)



As shown in the diagram above, each channel has its own input plus the output from the previous XL42 so that at the last point of the chain, the output is a combination of each input.

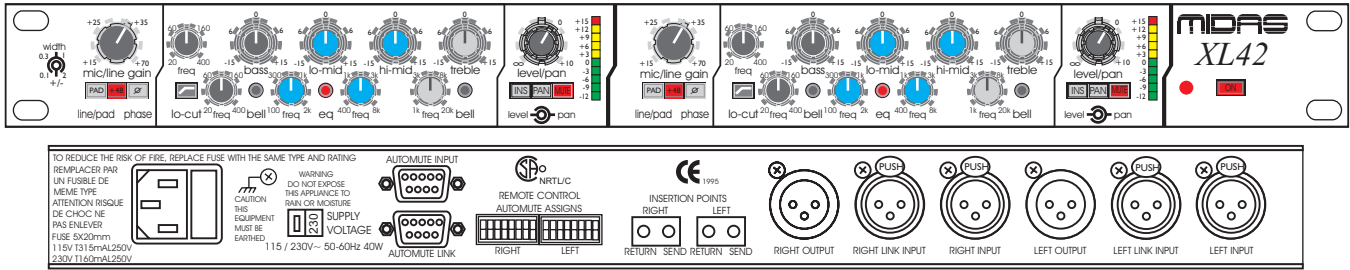
Depending on the use of each channel PAN, this may be a stereo image or all the left-hand channels grouped and all the right-hand channels grouped.

Optionally, you may wish to use the Automute feature. Here the output from the master console (any MIDAS XL series) is inserted at the top of the chain and linked into each unit.





# Technical Specification



## Input Impedance

Mic	2kOhm Balanced
Mic + Pad	3kOhm Balanced
Link & Insert	20kOhm Balanced

## Input Gain (all controls at 0dB)

Mic	Continuously variable from +15dB to +70dB
Mic + Pad	Continuously variable from -10dB to +45dB
Link & Insert	0dB

## Maximum Input Level

Mic	+6dBu
Mic + Pad	+31dBu
Link & Insert	+21dBu

## CMR at 1kHz

Mic (gain + 60dB)	>70dB
Mic + Pad (gain +35dB)	>50dB
Link & Insert	>60dB

## Frequency Response (20Hz to 20kHz)

Any input	+0dB to -1dB
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## Noise (20Hz to 20kHz)

Mic EIN ref. 150 Ohm (gain + 60dB)	-129dBu
Transformer Mic Input EIN ref. 150 Ohm (gain + 60dB)	-127dBu
System Noise at 0dB (one channel only)	-88dBu

## System Noise (20 to 20kHz)

Summing Noise (12 channels routed with faders down)	-83dB
Line to Mix Noise (12 channels routed at 0dB, pan centre)	-81dB
Summing Noise (48 channels routed with faders down)	-81dB
Line to Mix Noise (48 channels routed at 0dB, pan centre)	-75dB

## Distortion at 1kHz

Mic (+ 40dB gain, 0dBu output)	<0.03%
Link (0dBu)	<0.03%

## Output Impedance

All Outputs	50 Ohm Balanced Source to drive >600 Ohm
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## Maximum Output Level

All Outputs	50 Ohm Balanced Source to drive >600 Ohm into >600 Ohm +21dBu
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# Technical Specification

## Metering

Type 10 Segment LED Bargraph - Peak Reading

## Equaliser

Hi pass slope 12dB/Oct  
Hi pass frequency Continuously variable -3dB point from 10Hz to 400Hz

Treble Gain

Continuously variable +15dB to -15dB  
Centre detent = 0dB

Treble Shelving Freq.  
Treble Bell Freq.  
Treble Bell Bandwidth

Continuously variable - 3dB point from 1kHz to 20kHz  
Continuously variable centre from 1kHz to 20kHz  
Continuously variable 0.1 Oct. to 2 Oct  
Centre detent = 0.5 Oct

Hi Mid Gain

Continuously variable +15dB to -15dB  
Centre detent = 0dB  
Continuously variable centre from 400Hz to 8kHz  
Continuously variable 0.1 Oct. to 2 Oct.  
Centre detent = 0.5 Oct

Hi Mid Freq.  
Hi Mid Bandwidth

Lo Mid Gain

Continuously variable +15dB to -15dB  
Centre detent = 0dB  
Continuously variable centre from 100Hz to 2kHz  
Continuously variable 0.1 Oct. to 2 Oct  
Centre detent = 0.5 Oct

Lo Mid Freq.  
Lo Mid Bandwidth

Bass Gain

Continuously variable +15dB to -15dB  
Centre detent = 0dB  
Continuously variable - 3dB point from 20Hz to 400Hz  
Continuously variable centre from 20Hz to 400Hz  
Continuously variable 0.1 Oct. to 2 Oct  
Centre detent = 0.5 Oct

Bass Shelving Freq.  
Bass Bell Freq.  
Bass Bell Bandwidth

## Automute System

Channel Quantity 8  
Mute ON Voltage +3 to +20V  
Mute Off Voltage -20 to +2V  
Mute Line Load >500kOhm

## Power

Nominal Mains Voltage 115V/230V  
Mains Consumption 40W  
Phantom Voltage Supply +48V  $\pm$  5%  
Maximum Phantom Current <10mA

## Dimensions

Width 482mm (19 inches)  
Depth 250mm (10 inches)  
Height 44mm (1.75 inches)

## Weight

Nett 3kg  
Shipping 4kg

## Options

Mic Transformer Factory-Fit Only

Output Transformer Factory-Fit or Retro-fit



