ALE - XL4 - PREAMP

Hardware Overview

The ALE-XL4-PRE is a premium microphone preamplifier based on the groundbreaking design first used in the mid-1990's on all Midas XL4 consoles. The design goals and original performance from that time have been carefully reproduced by Alex Cooper, who was the Midas the design engineer at the time, but now realised using modern components and manufacturing techniques. These allow changes in the physical format and control so that for the first time in 30 years the preamplifier hardware is available in a pocket-sized Karno SEPIA module that can be supported by any SEPIA host for connectivity and control.

Just like its predecessor the ALE-XL4-PRE is characterised by a vast 75dB gain range and internal "current feedback" topology that maintains constant bandwidth and total circuit stability under all conditions. This is the key to its natural sounding reproduction and graceful tolerance of transient overloads. It also provides constant input impedance, frequency response and distortion performance at all gain settings and allows optimised rejection of RFI and common mode signals.

The input impedance and wide gain range mean that the ALE-XL4-PRE is suitable for use with any microphone or even line level equipment, e.g.:-

- Line level **Wireless Receiver** output
- High level powered **Broadcast** microphone
- Studio **Condenser** microphone
- Stage **Dynamic** microphone
- **Vintage Ribbon** microphone

Audio signals as low as 1mV rms can be amplified to line level and yet the input headroom extends to 60V pk-pk (balanced).

Hardware Specification

Max Input Balanced	+28dBu (60V pk-pk)
Max Input Un-balanced	+22dBu (30V pk-pk)
Max Output Balanced	+22dBu
Max Output Un-Balanced	+22dBu
Phantom Power Voltage	+48V
Input Impedance	2k (all gain settings)
Output Impedance	50R
Phantom Power Impedance (current limiting)	6k8
Analogue Gain Range	75dB (26 steps from -6dB to +69dB)
Sensitivity for +12dBu output (max gain)	1mV rms
Frequency Response 20Hz to 20kHz	+0dB to -1.0dB (all gain settings)
System Bandwidth (-3dB)	10Hz (12dB/Oct.) to 40kHz (12dB/Oct.)

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Operation and Features

The ALE-XL4-PRE is designed to operate in conjunction with a Karno SEPIA host that provides it with power, signal connectivity and control. Instructions for operating the host are available from Karno but as an overview just plug the module into the host and let the firmware discovery systems detect the modules presence. From there the Karno SEPIA remote control software will allow naming of the channel and control routing, application of 48V phantom power, and also control of the preamplifier gain and polarity via this screen:-

GAIN.
The preamp gain is controlled by a single on screen rotary control knob. Turn the control clockwise to increase the gain and turn the control anticlockwise to reduce the gain. The gain range matches that of the original XL4 going from -6dBu to +69dBu and allowing operation with pretty much any analogue signal source.

METER.
An on-screen meter measures the peak output from the mic preamplifier with a colour coded image of LED's making it clear when signals are becoming close to clipping (yellow LED starts to show 9dB below clipping).

POLARITY.
When using multiple microphones in close proximity, and especially if they are facing each other, there may be some interference or cancelation of low frequency signals. Sometimes reversing the phase of one channel will cure this problem and the ALE-XL4-PRE provides a switch to do this. It is silent during operation so that it can be used live without risk of clicks or pops. The on-screen LED indicator image shows when the polarity is reversed.

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