

# LEGENDARY PREAMPLIFIER



**TRIDENT®**

**A-RANGE® 500 PREAMP**

OWNERS HANDBOOK

## Introduction

Trident Recording Studio's started operations back in the 1960's as a recording studio. Many things came out of the Recording Studio that led to what Trident Audio Developments is today.

Trident Recording Studios recorded legendary bands like David Bowie, The Beatles, James Taylor, Queen, Supertramp, Mott The Hoople, Bad Company, Free, Rush, Elton John, Manfred Mann, T-Rex and so many more, we simply do not have the space to list them all here. These recordings were done by incredible recording engineers like Roy Thomas Baker, Ken Scott, Tony Platt, Tony Visconti, Adam Moseley, Dave Hentschel, and many others. Trident Studios was the place known by the most famous bands as the place to record in London.

Trident studios were the first studio to acquire the first ever 8 Track from Ampex. No one in London had an 8 Track...not even EMI. When Trident got its first 16 track recorder, they decided to buy a new recording console but simply could not find any commercially available console to do 16 track recording with the feature set they needed. It was decided by the powers to be at Trident that between the recording engineers, and the technical staff under the direction of Barry Porter, Trident would attempt to build their own custom console.

The first console was designed purely for Trident Studios and was designated the 'A' Series. It was hand built to the need of the facilities and designed to be ergonomic. In those days, the integrated circuit (I.C.) had not been invented, so all the circuits used individual transistors (known as discrete design). This and the use of inductors in the lower and upper mid equaliser sections are said to account for much of the unique sound of the 'A' Series. From this first successful design was borne Trident Audio Developments Ltd, which went on to become a leading manufacturer of music recording consoles. One of the company's earliest advertising slogans was 'designed by recording engineers for recording engineers'.

This became a key component of what made the 'Trident Sound' unique. As a recording engineer rather than an electronics engineer, Trident Audio Developments was designed by the engineer's ears, rather than a textbook of electronic design, and it is this, coupled with over thirty years' experience that has enabled Trident Audio Developments to develop its own 'philosophy of sound' that is Trident's trademark.

The "A" Series eventually led to the development of the "A" Range Console, which became the console everyone wanted to work and record on. The "A" Range was quickly labelled as the best sounding console ever. It should be noted, a large part of this sound, along with the legendary sounding EQ was the unique warm sound of the A-Range's all discrete microphone preamplifiers.

There were only thirteen A Range consoles ever built back in the 1970's, and almost all of them have been rebuilt and are still in use today, despite being nearly forty years old. This says a lot about the heritage of these iconic items of recording equipment and the artists that have used them.

We hope you will enjoy the A Range 500 Series MIC PRE as much as we have enjoyed designing it.

## Operating The Mic Pre

The input section of the A-Range® Mic Pre consists of a very high-quality transformer-coupled discrete microphone amplifier and discrete line amplifier designed specifically for professional audio applications. The microphone transformer is custom designed to the exact original Trident A-Range specifications. All outputs of the 500 Mic Preamp run through the output transformer.

The microphone amplifier is designed to handle signal levels from -60dBu to as high as +6dBu without needing a separate pad switch. The 15-position combined mic/line gain switch is calibrated in accurate 6dB steps to provide precise matching of either microphone or line level signals. In conjunction with the 'Output' level control, very fine adjustment of signal level is achievable.

The preamplifier exhibits very low noise while maintaining extremely fast transient response and a frequency response that extends beyond 40kHz. Naturally, best results are achieved when using a high-quality condenser microphone. The microphone amplifier will also bring out the best in dynamic and ribbon microphones.

The front panel XLR is paralleled to the rear connector XLR input, providing the option of either microphone input through a lunchbox power supply such as a Trident Decadent or directly via the mic pre front panel.

When connecting a microphone to the Mic Preamp, set the 'Input Level' rotary switch to its minimum ('+6') position and the 'Output' level control to its '0' position. The 'Mic / Line' switch should not be depressed. If required, engage the '+48V' phantom power switch while the 'Input Level' control is at minimum. The associated LED will show that phantom power is present. Allow up to 30 seconds for the microphone to reach normal operating level and advance the 'Input Level' control until a suitable level is achieved at the output of the unit. The 'Sig' LED signal indicator at the output stage of the circuit is designed to illuminate red when a signal level of +17dBu occurs at either the input or output stage (4dB before actual internal signal clipping), this will otherwise illuminate a varying intensity green when a signal is present. This provides plenty of overload margin as the A-Range® is capable of very high output levels (up to +22dBu) into a balanced load. However, by setting the level as described above, adequate headroom is maintained and there should be no danger of overloading following equipment.

## Technical Specification \*

### Specifications

**Power** : +16V =18mA, -16V=14mA  
+48V=13mA (Max 27mA when Phantom activated)

### Microphone Input to Output

**Input Impedance** : 1.5K $\Omega$   
**Gain** : Variable  $-\infty$  to +70dB (Input gain -6dB to +60dB and Output gain from  $-\infty$  to +10dB).  
**Bandwidth Min Gain** : 12Hz to 75KHz (+/- 0.5dB 20Hz to 15KHz) – Output level at max and input level at min).  
**Bandwidth Max Gain** : 15Hz to 70KHz (+/- 0.5dB 20Hz to 15KHz) – Output level at max and input level at max).  
**Distortion** : THD + Noise = 0.02% 100Hz to 20KHz (+15dBu Output).  
**EIN** : Better than -126dBu @+70dB gain with 150 $\Omega$  input load.  
**Noise** : -94dBu (Measured at Min Input Level and O/P level set at 0dB gain (22Hz/22KHz)  
**Max Output** : +22dBu.

### Line Input

**Input Impedance** : >20K $\Omega$   
**Gain** : Variable  $-\infty$  to +46dB (Input level -24dB to +36dB and Output level from  $-\infty$  to +10dB).  
**Bandwidth Min Gain** : >100KHz (Output level at max and input level at min).  
**Bandwidth Max Gain** : > 70KHz (Output level at max and input level at max).  
**Distortion** : THD + Noise = < 0.05%  
**Noise** : -87dBu (22Hz/22KHz filtered) – Output at Max.  
**Max Output** : +22dBu

### Hi-Z Line Input

**Input Impedance** : Front panel switchable unbalanced 500K $\Omega$  to 5M $\Omega$  Internally range can be switched from 500K $\Omega$ /2.5M $\Omega$  or 1M $\Omega$ /5M $\Omega$ .  
**Gain** : Variable  $-\infty$  to +58dB (Input level -3dB to +48dB and Output level from  $-\infty$  to +10dB).  
**Distortion** : <0.06% @+15dBu output.  
**Noise** : -94dBu (Min Input level) to -43dBu (Max Input Level) – With Output level set a unity (0) level.

\* In the interests of product development, Trident Audio may change technical specifications without notice.

**Safety** - This product is intended for professional use only and it is assumed that the user is familiar with the 500 Series Modular Rack system. Always switch off the rack power before inserting or removing this (or any other) module or damage may occur. Do not expose this product to direct heat, moisture or mechanical shock.



**Warranty** - This product is warranted free from defects in material or workmanship, for a period of one year from date of purchase. During this period, PMI Audio Group will repair or replace this product by prior arrangement free of charge, providing the product is determined to be defective and has been returned, freight prepaid, in its original or similarly protective packaging, to a PMI Audio Group Service Center. PMI Audio Group is not obligated to provide the Purchaser with a substitute unit while repairs are carried out.

**Environmental** - This product complies with the RoHS directive and contains no lead or other banned hazardous materials. In accordance with the WEEE directive, this product must be disposed of responsibly at its end of life, by means of local authority approved recycling systems.



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For further information, or to register your purchase,  
visit: [www.tridentaudiodevelopments.com](http://www.tridentaudiodevelopments.com)

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Designed in England and assembled in China to strict  
Trident Audio specifications.

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