

THE TFPRO P9 TDE

OPERATION MANUAL.

1) INPUTS AND OUTPUTS.

The TDE is designed to work at 'line level', which means an electronic volume level of between -10dB (about 100 millivolts) and $+8\text{dB}$ (about 4 volts). The inputs are floating balanced and will work successfully with any type of signal, whether it is balanced or unbalanced, and will offer the best possible sound quality and freedom from hum and noise.

The input is on an XLR connector. Pin 1 is connected to chassis ground. Pin 2 is +ve phase, pin 3 is -ve phase and may be connected to pin 1 for unbalanced use.

NOTE! This is a transformer input. It is very important to connect pin 3 to either a signal input -ve phase, or to pin 1 (for unbalanced use), the input will not work if pin 3 is left floating.

The main outputs from the TDE are via XLR connectors, they are low impedance and are designed to operate at line level.

Pin 1 is connected to chassis ground, pin 2 is signal +ve phase, pin 3 is signal -ve phase.

The balanced audio output may be operated unbalanced by connecting pin 3 to pin 1.

NOTE! The output stages of the P9 TDE will not operate properly if pin 3 of the XLR output is left floating.

The secondary or 'monitor' outputs of the TDE are $\frac{1}{4}$ inch jack sockets, independent of the main outputs, and have balanced characteristics. They may be operated as either balanced or unbalanced, with audio signal appearing on jack tip.

The audio level on the monitor outputs is 6dB lower than on the main outputs.

The 'main' and 'monitor' outputs operate from separate amplifiers so that they are completely independent of one another.

2) LEVEL SETTING

The input gain switch (labeled INPUT) is calibrated in 'dB gain'. If a signal level of say -10dB is fed into the input, then the input gain switch can be set to '+10' to compensate.

Below the gain switch there is an LED meter array that shows peak levels of audio signal. With the EQ switched out, the input gain switch should be set initially so that the meter indicates levels of '0dB' or +6dB maximum.

The output gain switch (labeled OUTPUT) is also calibrated in dB gain and is used to set the required output volume level to suit the equipment being driven..

3) FILTERS

The 'High pass' and low pass' filter switches operate at all times, they are NOT affected by the EQ in/out switch.

The 'high pass' filter removes extreme (subsonic) low frequency signals. It works at a slope of 12dB per octave. The three frequencies are the frequencies at which the signal is reduced by 3dB. (The 'turnover' frequency).

The 'low pass' filter removes unwanted sounds above the turnover frequency.

When the filters are switched to 'off' they have no effect.

4) THE EQUALISERS

Common teaching is that an 'equaliser' changes the relative volume levels of different frequencies in an audio signal. It is more correct to say that an equaliser affects both volume levels and relative phases at different frequencies; the processing and shifting of phase is of great importance to the musicality of the sound created.

The TDE achieves its distinctive sound by manipulation of phases, although reference is made throughout to 'gain' rather than 'phase shift' for clarity..

The equaliser is divided into four 'bands'. These are Low, low-mid, high-mid, and high. (LF, Lo-Mid, Hi-Mid, and HF)

Each of the bands has a 'gain' control switch giving 12 positions of gain or loss, calibrated in dB from 0 to 12, giving 23 gain possibilities. A toggle switch selects gain (lift) or loss (cut).

The Low and High frequency bands have 'shelving' characteristics. The frequency selection switches set the frequency at which the 'gain' control starts to have significant effect.

The Lo-Mid and Hi-Mid sections are peaking equalisers with similar controls to the HF and LF sections except that they have an additional 'sharpness' control. This alters the 'Q' value of the tuned circuit, altering the character of the sound. With the switch in the 'sharp position, the 'Q' value is about 1.5, in the normal (switched to the right) position, the 'Q' value is close to 1)

5) THE EQ IN OUT SWITCH

The toggle switch marked 'EQ IN' brings the four equaliser bands into circuit. The switch is UP for on.

When the switch is in the 'down' position, the filters remain in circuit, but the EQ section is by-passed.

6) USING THE EQUALISER

The 'class A' amplifiers in the P9 require a significant warm-up time so it is recommended that the unit be powered up for 3 or 4 minutes before use.

During the warm-up time, it is possible for some of the switches to cause slight clicks when they are operated, this is normal and will disappear after a few minutes.

It is normal to read warning notices about the dangers of using excessive lifts with conventional equalisers, however the P9 has very high overload capability and it is unlikely that any distortion would be caused except by severe misuse.

As long as the level meter is operating in the range -12 to +12, and the overload indicator LED is not remaining on, then the P9 is being used correctly. If the level meter is indicating peaks below the -12 mark, then the P9 is being operated at too low a level and signal/noise ratio could be impaired.

7) TECHNICAL PERFORMANCE

INPUT XLR balanced line 20Kohm impedance, transformer balanced.
Level range -20dBu to +28dBu.

OUTPUTS Main output XLR balanced line out. Source impedance 200 ohms.
Max level +28dBu (+22dBu when operated unbalanced)
Monitor output on ¼ inch 3-pole jack. Source impedance 400 ohms
max level +22dBu.

AMPLITUDE FREQUENCY RESPONSE +0 -1dB 15Hz to 18KHz.

DISTORTION 2nd harmonic within 0.02%, 3rd and upper harmonics less than 0.001% within normal range.

NOISE Signal/noise ratio approx 118 dB. (122dB with EQ switched out)

METER Peak reading meter.

POWER 115/230 VAC 5 watts.