



# Sound Skulptor

## TS500 Tape Simulator

### User manual

Thank you for purchasing the TS500 Tape Simulator. We hope that this tool will enrich your work technically and artistically.

Please note the security warnings below before you use this product.

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#### Security

Like any electrical devices that are mains powered, the TS500 case must not be opened by an unqualified person.

The TS500 Tape Simulator is an electrical device that produces some heat. It must be installed in a ventilated area where the heat can be naturally removed.

Like any electrical device, the TS500 must not be in contact with any kind of liquids. In case of incident (beer, rain or other) immediately disconnect the TS500 and have it cleaned/dried by a qualified person.

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#### Description

The TS500 includes the electronics of a vintage tape recorder with input transformer, variable gain input stage, pre-emphasis stage, recording amplifier, constant current driven tape head, playback amplifier, NAB de-emphasis stage and a pure class A output stage driving the output transformer.

The TS500 can simulate a tape recorder rolling at 3 different speeds: 7.5 ips, 15 ips and 30 ips. Each speed gives a different frequency response.

The tape can be chosen between 3 formulations giving 3 levels of saturation from light to heavy.

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#### Installation

The lunchbox (or rack ) hosting the TS500 must be installed in a well ventilated area. Class A circuits are known to produce heat. Do not omit the 2 fixing screws on the module front plate before moving. The weight would put too much pressure on the back connector.

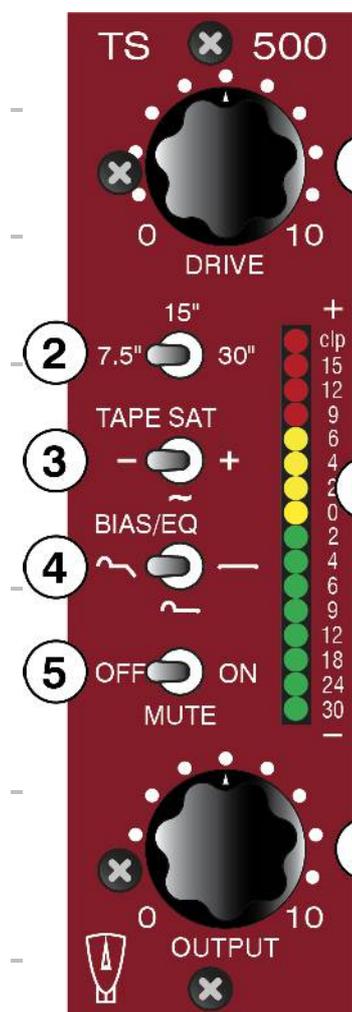
Warning: Avoid installing the TS500 next to a device that radiates heavy electromagnetic fields, such as a power transformer. The TS500 circuits are sensitive and hum noise could be induced.

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#### Connections

The TS500 connects to the rear female XLR for the audio source and to the rear male XLR for output.

Pin 1 = Ground, Pin 2 = Hot, Pin 3 = Cold.



### 1. DRIVE potentiometer

Adjusts the input gain of the TS500. The potentiometer action is directly visible on the peak-meter as well as on the effect intensity.

### 2. Tape speed 7.5"-15"-30"

Modifies the bandwidth and the head bump frequency in the way a tape recorder rolling at 7.5, 15, 30 ips would do.

### 3. Tape saturation

3 tape formulations giving 3 saturation levels from [-] less to [~] medium to [+] more saturation.

### 4. BIAS/EQ

Defines how the bias and EQ settings of the recorder will correct the frequency response defaults.

Left position: no correction, you get the head bump and high frequency roll off,  
Centre position: head bump only,  
Right position: full correction, no head bump, no roll off.

### 5. Bypass switch

OFF: the effect is disconnected. The signal still goes through the input and output transformers.

MUTE: output is muted.

ON: The effect is on.

### 6. Meter

The high resolution meter is a tool that lets you calibrate the simulation and get repeatable results. The clip LED at the top indicates that the signal is clipping in the input stages.

### 7. OUTPUT potentiometer

Adjusts the output level and allow compensating the level changes induced by the DRIVE potentiometer. It has no effect on the simulation.

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## In use

The TS500 has several simultaneous effects on the sound.

Some distortion is produced at low frequencies by the magnetic material. It is mostly third harmonic and it has the effect of reinforcing the low end perception. It is present at fairly low levels and increases with signal amplitude.

The ultrasonic frequencies are filtered. This removes some harshness to the sound and brings roundness.

At high levels, a frequency dependent limiting effect is produced by the emphasis/de-emphasis circuits. Above +4dB, saturation appears affecting the high frequencies first. The result is a high frequency roll-off after de-emphasis on the level peaks.

The speed switch modifies the frequency response:

7.5 ips: low frequencies are privileged  
15 ips: balanced response  
30 ips: tight low end and extended highs

On a stereo mix signal, the TS500 effect should be used with moderation, the vu-meter staying mostly in the green.

On a channel signal it is possible to push the TS500 more. The effect is remarkable on percussive sounds which tolerate high modulation levels. The result is a very warm compression effect.