

SM PRO



# TUBEBOX

500 SERIES TUBE MIC PREAMP

Operating Manual  
V1.1



# CONTENTS

<b>1</b>	<b>Safety instructions</b>	<b>3</b>
<b>2</b>	<b>Foreword</b>	<b>4</b>
2.1	<b>Important Notes:</b>	<b>4</b>
<b>3</b>	<b>Introduction</b>	<b>5</b>
3.1	<b>unboxing</b>	<b>5</b>
3.2	<b>connecting</b>	<b>5</b>
<b>4</b>	<b>Audio Connections</b>	<b>6</b>
<b>5</b>	<b>Preamp control</b>	<b>6</b>
	<b>Rotary INPUT GAIN (labelled 0 to 10),</b>	<b>6</b>
	<b>PAD(-20dB)</b>	<b>6</b>
	<b>48V Phantom power switch.</b>	<b>6</b>
<b>6</b>	<b>Optical Compressor</b>	<b>6</b>
<b>7</b>	<b>Output level</b>	<b>7</b>
7.1	<b>Phase reversal switch</b>	<b>7</b>
7.2	<b>80Hz low-cut</b>	<b>7</b>
<b>8</b>	<b>Making sound</b>	<b>7</b>
<b>9</b>	<b>Let's play</b>	<b>8</b>
9.1	<b>Line Input Level</b>	<b>8</b>
9.2	<b>Tube Bypass</b>	<b>8</b>
<b>10</b>	<b>Specs</b>	<b>9</b>
<b>11</b>	<b>Warranty</b>	<b>10</b>
11.1	<b>Warranty Registration</b>	<b>10</b>
11.2	<b>Warranty</b>	<b>10</b>
11.3	<b>Return Authorization Number</b>	<b>10</b>
11.4	<b>Warranty Regulations</b>	<b>10</b>
11.5	<b>Claim for Damages</b>	<b>11</b>
11.6	<b>Other Warranty Rights</b>	<b>11</b>
<b>12</b>	<b>FCC and CE Regulation</b>	<b>12</b>
<b>13</b>	<b>Correspondence</b>	<b>12</b>

# 1 SAFETY INSTRUCTIONS

**CAUTION:** Please ensure power to your 500 series power chassis is OFF before installing or removing your 500 series modules. Hot Swapping, (exchanging of 500 series modules with the power on) is NOT recommended. If the power is on whilst exchanging modules, the pins on the modules multipin connector may short and burn the regulator. For this reason, hot swapping of modules is not covered under the SM Pro Audio warranty.

## **DETAILED SAFETY INSTRUCTIONS:**

All safety and operation instructions of this manual should be read and adhered to before operation.

### **Retain Instructions:**

Please retain all safety and operating instructions for future reference.

### **Follow instructions:**

All operation and user instructions should be followed.

### **Water, liquid and Moisture:**

The appliance should not be used near water, rain or other liquids. Make sure that no liquid can leak, spill or otherwise seep into the appliance.

### **Ventilation:**

Please place the appliance so no obstacles interfere or impede the flow of air through the ventilation openings.

### **Heat:**

The appliance should be situated away from other heat sources such as heaters, radiators, ovens, or other appliances that produce heat.

### **Power Source:**

Make sure your appliance is set to the correct voltage for the country in which it will be use before switching the device ON.

### **Grounding and Polarization:**

Precautions should be taken so that the grounding or polarization means of an appliance is not defeated.

### **Power-Cord Protection:**

Power supply cords should be routed so that they are not likely to be walked on, pinched, damaged, worn, or rubbed by any other device or obstacle.

### **Cleaning:**

The appliance should be cleaned only with a light soft cloth. Do not use any damaging or corrosive products on the unit.

### **Periods of inactivity:**

The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time or in case a lightning storm occurs.

### **Damage Requiring Service:**

The appliance should be serviced by qualified service personnel when:

- The power supply cord or the plug has been damaged; or
- Objects have fallen, or liquid has been spilled into the appliance; or
- The appliance has been exposed to rain; or
- The appliance does not appear to operate normally or exhibits a marked change in performance; or
- The appliance has been dropped, or the enclosure damaged.

### **Servicing:**

The user should not attempt to service the appliance beyond that is described in the Operating Instructions.

**All other servicing should be referred to qualified service personnel.**

## 2 FOREWORD

Dear Customer,

Thank you for purchasing this SM Pro Audio product. Our Tubebox has been designed as a usable tool for home & professional studios, P.A. rental companies, Schools, Houses of Worship and in many other situations where audio products would be used.

With vast experience in the audio industry over a long period of time, and along with valuable suggestions from our customers, our engineers have developed a product that we know you will be satisfied with. We guarantee you uncompromising quality as well as excellent technical and audio properties at an extremely affordable price.

We hope you enjoy making music with SM Pro Audio!

### 2.1 IMPORTANT NOTES:

Every effort has been made to ensure all information provided in this manual is accurate at the time of writing.

SM Pro Audio is not liable for any incorrect information contained in this manual and extends no liabilities in regard to this manual other than those required by local law.

SM Pro Audio may update the contents of this manual at any time without prior notice. The latest version of this manual is available from the SM Pro Audio website at all times.

<http://www.smproaudio.com>

# 3 INTRODUCTION

Tubebox is a single-slot 500-series tube microphone preamp with pristine audio output. It features a Class A tube preamplifier circuit, switchable phantom power, phase invert, selectable -20dB pad, and a super fast in-line optical compressor. The front panel includes a TRS microphone input.

The interchangeable 12AX7 preamp tube allows you to experiment with a variety of modern and vintage tubes to customize the Tubebox's sound and performance to your taste. The switchable (in/out) compressor provides adjustable attack and release, and **when using the compressor, the on-board VU meter automatically changes from displaying master level, to amount of gain reduction**, so you can view the exact results of the compression being applied. Last but not least: The Tubebox audio circuit uses LME49720 ultra-low distortion/low noise Op Amps, for superb audio output.

## 3.1 UNBOXING

Your SM Pro Audio Tube Box was carefully packed in the factory and the packaging was designed to protect the unit from rough handling. Nevertheless, we recommend that you carefully examine the packaging and its contents for any signs of physical damage, which may have occurred in transit. If the unit is damaged, please do not return it to us, but notify your dealer and the shipping company immediately, otherwise claims for damage or replacement may not be granted. Shipping claims must be made by the consignee.

## 3.2 CONNECTING

The SM Pro Audio TubeBox is a 500 series compatible module, which connects to a 500 series power chassis via the rear card slot. **Please ensure the power is off before slotting your module into your 500 series power supply.** Below is the feature layout of the Tubebox multipin connector.

Terminal	1 CHASSIS
	2 OUTPUT + (+4 Level)
	3 Output + (-2 Level)
	4 OUTPUT -
	5 GND
	6 STEREO LINK
	7 INPUT - (-2 Level)
	8 INPUT - (+4 Level)
	9 INPUT + (-2 Level)
	10 INPUT + (+4 Level)
	11 GAIN TRIM RESISTOR
	12 +16V DC
	13 GND
	14 -16V DC
	15 +48V DC



# 4 AUDIO CONNECTIONS

The Tube Box features a 1/4" (6.5mm) TRS connector on the front panel for connection of a Balanced Microphone or unbalanced instrument. All other connections are done thru the back panel multipin connector. Note: The Tube Box accepts mic or line level input signals. Do not connect your power amplifier outputs to the Tube Box inputs!

# 5 PREAMP CONTROL

Input controls for the preamp are:

Rotary INPUT GAIN (labelled 0 to 10),

PAD(-20dB)

48V Phantom power switch.



A Peak LED is also provided to indicate when the input level exceeds the preamps operational level and sends the unit into square wave (distortion), which sometimes may be a desirable effect.

# 6 OPTICAL COMPRESSOR

## Why Optical Compression?

Optical compressors have a smooth gradual release curve making them very musical. This style of release is not usually found on a solid state or tube compressor. It acts as an attenuator on your volume path, splitting the signal between a resistor and an LED light.

## COMP - Compression on/off switch

Simply turns the compressor stage on or off. When you switch on the compressor, the VU meter will change to show Gain Reduction rather than output volume.

## Rotary compression control

The rotary compression control (labelled 0 to 10), sets the amount of compression. It expresses the difference between the input level change and the output level change. The higher the amount of compression, the smaller the dynamic range.



## Att - Rotary attack encoder

The rotary attack control allows for adjustment in milliseconds. Attack is the time it takes the compressor module to respond to the corresponding input signal before gain reduction occurs. Short attack times quickly bring down the level of the loud, fast transients in the audio signal; long attack times let more sound through before the compressor engages, resulting in a punchier sound.

## Rel - Rotary release encoder

The release control sets the time in seconds it takes for the compressor module gain to return to the point of no gain reduction in the absence of audio program material. Short release times create a more exaggerated effect ("breathing"), whereas long release times have a more gradual decay.

# 7 OUTPUT LEVEL

The output level (labelled 0 to 10) is a rotary control that simply controls the output level of the TUBE BOX.

## 7.1 PHASE REVERSAL SWITCH

A phase reverse switch is available for reversing the phase of the signal by 180 degrees. This can be desired in situations such as recording a snare drum from above and below the drum simultaneously. By reversing the phase on one of your microphone signals you will achieve a better result, recording full range of signal without a phase cancellation occurring. It is also used for matching the rest of your gear or recordings or removing feedback when recording stereo pairs.

## 7.2 80HZ LOW-CUT (HIGH-PASS) FILTER SWITCH

The low-cut (high-pass) filter switch enables and disables the 80Hz high-pass filter. Engaging this filter effectively removes low frequency “rumble” and other unwanted noise by attenuating the signal dB below 80Hz.



# 8 MAKING SOUND

## Make your physical connections ...

Simply make your signal connections by either connecting an instrument (guitar, bass, mic etc) to the instrument input on the front panel, or connecting an input to the rear of a 500 series power supply box.

## Do you need phantom power? ... or to change the phase of your input signal?

If you are using a condenser microphone that requires phantom power, select the phantom power switch to the on position. You can also choose to switch the polarity of your signal at this stage if required.

## Set your input gain control ...

Set your input level. Adjust the input rotary control to an acceptable level. This is a good time to check the clip indicator to ensure you are not overdriving the tube pre-amp with too much signal. If your signal is too strong, reduce the amount with the rotary control. If you cannot reduce the signal enough to stop the clip indicator constantly illuminating, you can enable the -20dB PAD to assist in reducing the incoming signal gain.

## Do you desire compression? ...

You can now choose to add some optical compression to your signal if desired. To initiate, press the compressor on/off switch to the on position. Set your attack and release pots to the desired settings, and adjust the compression ratio rotary control until you are satisfied with the result.

## Set your output level ...

Adjust your master output level rotary control to the required amount.

## 9 LET'S PLAY

The Tube Box's opamps are in DIP8 sockets, this simply means that users can interchange between different types of opamps to achieve different results, and we would be happy if you report the results to us as well. Please note that any damage caused in this process cannot be covered under warranty.

### 9.1 LINE INPUT LEVEL

On the main board, right next to the Tube, you will find a Blue square colored trimpot. This trimpot is for the adjustment of the input level from the 500 series connector. To make the unit as compatible as possible we left this as a variable resistor so that users can match the level to their own system.

### 9.2 TUBE BYPASS

The Tube in the TUBE BOX can be exchanged with various compatible types. The 12AX7 tube simply pulls out of the white socket base. On the main board near the Tube, is small selector Pad, you can bypass the tube section entirely and use the TUBE BOX purely as an optical compressor.



# 10 SPECS

## Audio Inputs

Mic input connector	TRS balance
Impedance	3k Ohms
Mic input gain	10dB to 60dB
Phase reversal	switchable
Phantom power	+ 48V, switchable
Instrument input con.	1/4" jack unbalanced (or XLR from back panel)
Instrument input gain	0dB to 45dB

## Audio Outputs

Connectors	XLR & 1/4" jack (back panel)
Type	Balanced & Unbalanced

## Amplitude Frequency Response

Line in	10Hz to 40kHz within 1dB
Mic in	10Hz to 40kHz within 2.5dB

## Compressor

Photoresistive servo operated	
Ratio	1:1 - 10:1
Attack	1 ms – 100 ms
Release	0.1 s – 3 s

## Filter

Shelving filter at 80 Hz  
Slope: 16 dB

## Meter

VU meter	-20 dBu – + 3 dBu
Switched to Gain reduction when the compressor is switched ON	

## Performance

THD (Unweighted)	0.05%
Signal to noise	> 101dB

## Power Supply

500 series power supply required

SM ProAudio is constantly striving to maintain the highest professional standards. As a result of these efforts, modifications may be made from time to time to existing products without prior notice. Specifications and appearance may differ from those listed or shown.

# 11 WARRANTY

## 11.1 WARRANTY REGISTRATION

To be protected by this warranty, please register your purchase using our online registration form at <http://www.smproaudio.com/index.php/en/service/register>

## 11.2 WARRANTY

SM ProAudio warrants the mechanical and electronic components of this product to be free of defects in material and workmanship for a period of **three (3) years** from the original date of purchase, in accordance with the warranty regulations described below. If any defects occur within the specified warranty period that are not caused by normal wear or inappropriate use, SM Pro Audio shall, at its sole discretion, either repair or replace the product through its local distributor.

Warranty claims other than those indicated above are expressly excluded.

## 11.3 RETURN AUTHORIZATION NUMBER

To obtain warranty service, the buyer must: a. return the product to its place of purchase, or b. contact your local distributor, or c. email [service@smproaudio.com](mailto:service@smproaudio.com) BEFORE returning the product. All warranty requests must be accompanied by a description of the problem and an original purchase receipt. If you have previously registered your purchase (via the SM Pro Audio web site), you will then be issued with a return authorization number. If you have not previously registered your purchase, then you must forward a proof of purchase document (retail dealers invoice) before a return authorisation can be provided.

The product must then be returned in its original shipping carton, together with the return authorization number.

## 11.4 WARRANTY REGULATIONS

Any product deemed eligible for repair or replacement by SM Pro Audio under the terms of this warranty will be repaired or replaced in the best possible manner.

If the product needs to be modified or adapted in order to comply with applicable technical or safety standards on a national or local level, in any country which is not the country for which the product was originally developed and manufactured, this modification/adaptation shall not be considered a defect in materials or workmanship.

The warranty does not cover any such modification/adaptation, irrespective of whether it was carried out properly or not. Under the terms of this warranty, SM Pro Audio shall not be held responsible for any cost resulting from such a modification/adaptation.

Free inspections, maintenance/repair work and replacement of parts are expressly excluded from this warranty, in particular if caused by inappropriate use. Likewise, the warranty does not cover defects of expendable parts caused by normal wear of the product. Expendable parts are typically pots, potentiometers, switches and similar components.

Damages/defects caused by the following conditions are not covered by this warranty:

Misuse, neglect or failure to operate the unit in compliance with the instructions given in the user or service manuals.

Connection or operation of the unit in any way that does not comply with the technical or safety regulations applicable in the country where the product is used.

Damages/defects that are caused by any other condition beyond the control of SM Pro Audio.

Any repair carried out by unauthorized personnel will void the warranty.

Products which do not meet the terms of this warranty will be repaired exclusively at the buyer's expense. SM Pro Audio will inform the buyer of any such circumstance. If the buyer fails to submit a written repair order within 4 weeks after notification, SM Pro Audio will return the unit C.O.D. with a separate invoice for freight and packing. Such cost will also be invoiced separately when the buyer has sent in a written repair order.

## **11.5 CLAIM FOR DAMAGES**

Failure of SM Pro Audio to provide proper warranty service shall not entitle the buyer to claim (consequential) damages. In no event shall the liability of SM Pro Audio exceed the invoiced value of the product.

## **11.6 OTHER WARRANTY RIGHTS**

This warranty does not exclude or limit the buyer's statutory rights provided by national law, in particular, any such rights against the seller that arise from a legally effective purchase contract.

## 12 FCC AND CE REGULATION

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution: Any changes or modifications in construction of this device with are not expressly approved by the party responsible for compliance, could void the user's authority to operate equipment.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense. If necessary, consult an experienced radio/television technician for additional suggestions.

## 13 CORRESPONDENCE

For technical support, warranty claims, and all other enquiries, please contact your local SM Pro Audio distributor.

Contact details of all SM Pro Audio distributors list can be found online at <http://www.smproaudio.com/index.php/en/dealers-distributors>

The information contained in this manual is subject to change without notice. No part of this manual may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording of any kind, for any purpose, without the express written permission of SM Pro Audio.

ALL RIGHTS RESERVED © 2013 SM Pro Audio