



# **TB101 & TB202**

## **Operating Manual**

## **SAFETY INSTRUCTIONS**

**CAUTION:** To reduce the risk of electrical shock, do not remove the cover or rear panel of this unit. Do not expose this appliance to rain or moisture. No user serviceable parts inside. Please refer servicing to qualified personnel only.

### **Retain Instructions:**

Please retain all safety and operating instructions for future reference.

### **Ventilation:**

Do not impede the flow of air through the ventilation openings. Take care when selecting appropriate installation locations so obstacles do not obscure proper ventilation.

### **Heat:**

This product should be situated away from other heat sources such as fire, high heat emitting devices, heaters, etc.

### **Power Source:**

Make sure the product is set to the correct voltage for the location in which it is being used.

### **Grounding and Polarization:**

Never defeat the products power grounding means.

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

Power supply cords should be connected or placed in a fashion that could allow possible exposure to damage. Take care to avoid wear and tear, rubbing, squashing, etc.

### **Cleaning:**

The product should be cleaned only with a soft cloth. Do not use any corrosive products on the unit.

### **Inactivity:**

The power cord of the product should be unplugged from the outlet when left unused for a long period of time.

### **Service requirement:**

Service by qualified service personnel when:

- The power supply cable has been damaged in any way
- Liquid has been spilled onto or into the product
- The product has been exposed to rain
- The product exhibits faults or obvious performance degradation
- The product has been damaged in a way that exposes components

The user should not attempt to service this product beyond what is described in this operating manual.

## **TB101 / TB202 Main Features**

Professional, multi-purpose pre-amplifier channel strip for studio applications

- High quality microphone/instrument pre-amplifier
- hand tested 12AX7 tubes used
- Switchable Phantom Power per channel
- Switchable Phase reversal per channel
- High quality Optical Compressors
- Independent EQ circuitry
- Input gain control per channel
- -20dB pad per channel
- Master Volume control

## **FOREWORD**

Dear Customer,

Thank you very much for expressing your confidence in SM ProAudio products by purchasing this unit. The TB101 / TB202 units have been designed to be used as a standard tool for home/pro studios. With much 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 we know you will be satisfied with. We guarantee you uncompromising quality (manufactured under ISO9000 certified management system) as well as excellent technical and audio properties at an extremely affordable price.

Regards,

SM ProAudio

*\* It should be pointed out, that extreme output volumes may damage your ears and/or your head-phone units. Turn down the LEVEL controls before you switch on the unit.*

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## **1. INTRODUCTION**

In purchasing the new SM TB101/202, you have acquired a tube microphone pre-amplifier channel strip of high class that meets many of the demands of the home/pro studio.

For your reference in this manual, the TB101 and TB202 units are either single or dual channel designs of the same circuitry. The TB101 is the single channel unit that is half rack size, whereas the TB202 is a dual channel unit, just like 2 x TB101's side by side.

The market size for digital audio interfaces and computer based digital editing has increased in a massive way. With systems available at very low prices, more and more users are utilizing this technology. One of the main problems with many of these systems is the input stage only consisting of unbalanced line inputs or very low (or no mic pre) gain structure for the balanced input stage and the unavailability of Phantom power.

The TB101/202 comes to the rescue with either one or two channels (TB101 or TB202) of balanced input with a tube microphone preamplifier, optical compression, 3 band EQ, Phantom power, phase reverse switch, and for output volume for each channel. Both the TB101 or TB202 units can now solve many of the connectivity issues which are raised in a large range of situations, whether in the home or professional studio.

## **2. THE DESIGN CONCEPT**

### **2.1 High quality components and design**

The philosophy behind SM ProAudio products guarantees a no-compromise circuit design and employs the best choice of components. The components used in the SM TB101/202, are exceptional. They boast extreme linearity and very low distortion characteristics. The tubes used are hand selected and tested for optimum performance.

### **2.2 Inputs and outputs**

All inputs and outputs are secured firmly to the exterior chassis housing. This ensures robust quality and confidence in performance under all conditions.

### **3. INSTALLATION**

Your SM ProAudio SM TB101/202 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.

#### **3.1 Desktop TB101 or Rack Mounted TB202**

The TB101 is a compact half rack-mount sized unit perfect for environments with limited space. Perfect for sitting on the desktop, the TB101 is suitable for just about any installation.

The SM ProAudio SM 202 fits into one standard 19" rack unit of space (1 3/4"). Be sure that there is enough air space around the unit for cooling. As to avoid overheating, please do not place the SM TB101/202 on high temperature devices such as power amplifiers.

#### **3.2 Mains Power**

The SM TB101/202 ship with a standard external power supply. Connect the power supply to your mains power and to the rear of your SM TB101/202.

#### **3.3 Audio connections**

##### *Analog inputs*

Front Panel - On the front of the SM TB101/202 you will find the 1/4" jack instrument input/s marked 'instrument'.

Rear Panel - On the rear of the SM TB101/202 you will find the XLR balanced microphone input/s marked 'Mic In' and 1/4" unbalanced line input/s marked 'Line'.

##### *Analog outputs*

Rear Panel - On the rear of the SM TB101/202 you will find both XLR balanced and 1/4" Unbalanced jack output/s.

## 4. FRONT PANEL CONTROLS

The SM TB101/202 front panel has a very simple design including Input stage, Compressor stage, EQ stage, and output level control stage.



### 4.1 Input stage

#### *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.

#### *Phantom power switch/s*

You can enable or disable phantom power each channel of input. This is required for condenser microphones without a battery or stand alone power supply.

#### *LED clip indicator*

The clip indicator LED illuminates when there is too much incoming signal strength.

#### *-20dB PAD switch*

The PAD switch enables or disables the PAD which reduces the input signal by 20dB. Useful if your incoming signal is too powerful and cannot be reduced prior to insertion into the TB101/202.

#### *Rotary input control*

The rotary input control sets the input gain level of the incoming signal.

### 4.2 Compressor stage

#### *Compression on/off switch & LED Indicator*

Turns the compressor stage on or off. The indicator shows the on/off status of the compressor.

#### *Rotary compression control*

The rotary compression control sets the compression ratio of the compressor. The compression ratio expresses the difference between the input level change and the output level change. A compression ratio of 6:1, for example, indicates that for every 6dB of level change on the input signal there is only 1dB of level change on the compressed signal. The higher the compression ratio, the smaller the dynamic range.

#### *Fast/slow attack switch & LED Indicator*

This switch toggles the attack setting of the compressor between fast and slow attack times. The indicator shows the status 'fast' of the the attack setting. The attack setting on a compressor determines how fast it will react to the input sound. 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.

#### *Fast/slow release switch & LED Indicator*

This switch toggles the release setting of the compressor between fast and slow release times. The

indicator shows the status 'fast' of the the release setting. The release setting on a compressor determines how quickly the signal level returns to its original level after the compressor has engaged. Short release times create a more exaggerated effect ("breathing"), whereas long release times have a more gradual, natural sound.

### 4.3 EQ Stage

#### *EQ Bypass*

The EQ Bypass switch enables or disables the EQ.

#### *80Hz low shelving rotary control*

This rotary control allows for cutting or boosting an 80Hz low shelving EQ by approx 16dB.

#### *1.8kHz low shelving EQ rotary control*

This rotary control allows for cutting or boosting a 1.8kHz mid-frequency by approx 16dB.

#### *8kHz high shelving EQ rotary control*

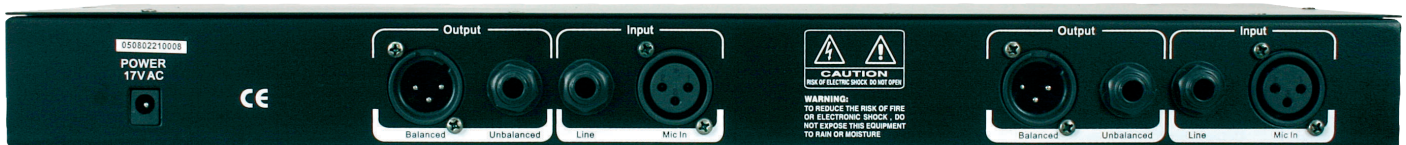
This rotary control allows for cutting or boosting an 8kHz high shelving EQ by approx 16dB.

### 4.4 Output stage

#### *Rotary output control*

This controls the master output signal level.

## 5. REAR PANEL



### 5.1 Input connections

#### *Mic In*

XLR balanced microphone input/s

#### *Line*

1/4" unbalanced line input/s

### 5.2 Output connections

#### *Balanced*

XLR balanced output/s

#### *Unbalanced*

1/4" unbalanced output/s



## 6. APPLICATION

### 6.1 Using the SM TB101/202

It could not be simpler to use and operate the SM TB101/202.

#### **Step by step:**

##### *Make your physical connections ...*

Simply make your signal connections by either connecting an instrument (guitar, bass, etc) to the instrument input on the front panel, or connecting a microphone to the XLR mic input on the rear of the unit. Connect the output of the unit to your destination device (sound-card, recorder, mixer, etc).

##### *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. You can select the compressor on/off switch to the on position. Set your attack and release switches to the desired settings (fast/slow), and adjust the compression ratio rotary control until you are satisfied with the result.

##### *Do you desire EQ to tailor your sound? ...*

You can now choose to EQ your signal if desired. Use the high and low shelving rotary controls in conjunction with the mid frequency cut/boost control to tailor your sound to your desired result.

##### *Set your output level ...*

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

## 7. SPECIFICATIONS

### AUDIO INPUTS

Mic input connector	XLR balanced
Impedance	3k Ohms
Mic input gain	10dB to 60dB
Phase reversal	switchable
Phantom power	+ 48V, switchable
Instrument input con.	1/4" jack unbalanced
Instrument input gain	0dB to 45dB

### AUDIO OUTPUTS

Connectors	XLR & 1/4" jack
Type	Balanced & Unbalanced

### AMPLITUDE FREQUENCY RESPONSE

Line in	6Hz to 20Hz within 1dB
Mic in	8Hz to 20Hz within 2.5dB

### COMPRESSOR

Photoresistive servo operated	
Ratio minimum	1.5 to 1
Ratio maximum	10 to 1
Attack time	1mS/5mS
Release time	500mS/1500mS

### EQ

Shelving high and low frequency controls 8kHz & 80Hz  
Mid frequency cut/boost control (1.8kHz)  
Cut boost level approx 16dB

### METERS

LED	-25dBu to + 18dBu
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### PERFORMANCE

THD (Unweighted)	0.05%
Signal to noise	> 90dB
Power supply rejection	> 98dB

### POWER SUPPLY

Transformer	External
Input	17v AC

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.

## **8. WARRANTY**

### **8.1 WARRANTY CARD &/OR WEBSITE REGISTRATION**

To be protected by this warranty the purchaser of the product must complete an SM Pro Audio product registration procedure.

Product registration is available via two methods:

- Complete and return the enclosed warranty card within 14 days of the date of purchase to SM Pro Audio (see address below).
- Complete an online product registration form at the SM Pro Audio website. [www.smproaudio.com](http://www.smproaudio.com)

### **8.2 WARRANTY**

- SM Pro Audio warrants the mechanical and electronic components of this product to be free of defects in material and workmanship for a period of one (1) year from the original date of purchase.
- SM Pro Audio will at its sole discretion either repair or replace the product if any defects occur that are not caused by normal wear or inappropriate use within the warranty period.
- This warranty does not apply if the product has been damaged by negligence, non-authorized modifications, accident, abuse, misuse, misapplication, or as a result of unauthorized service other than performed by that of SM Pro Audio's service department.
- All freight charges incurred for transport of justified warranty claims are at the buyer's expense.
- All other warranty claims other than those indicated above are excluded.

### **8.3 HOW TO REQUEST A RETURN AUTHORIZATION NUMBER**

To obtain warranty service, the purchaser must call SM Pro Audio during normal business hours before returning the product (Tel.: +61 3 9555 8081). An SM Pro Audio representative will discuss any issues with you over the telephone and then issue a return authorization number if deemed appropriate.

Please ship original shipping cartons along with your return authorization number to the following address:

SM Pro Audio  
Service Department  
Warehouse 25  
Roberna Business Park  
26-28 Roberna St  
Moorabbin 3189  
Melbourne, Victoria  
Australia

#### **8.4 WARRANTY REGULATIONS**

- Warranty can only be serviced when accompanying proof of purchase is provided. Dealers invoice and date stamp required.
- SM Pro Audio will endeavor to repair or replace any product under the terms of this warranty within 30 days of receipt of the product at SM Pro Audio.
- Modifications performed in order to comply with any applicable technical or safety standards in any country which is not the country for which the product was originally developed and manufactured shall not be considered a defect in materials or workmanship. SM Pro Audio shall not be held responsible for any costs incurred or resulting from any such modification whether performed correctly or not.
- This warranty does not cover defects of parts caused by normal operational wear. These parts are typically switches, knobs, and other similar components.

Product damage caused by the following conditions are not covered by this warranty:

- Operation of the unit in a way that does not comply with the safety regulations applicable in the country where the product is used.
- Damages or defects caused by conditions beyond the control of SM Pro Audio.

#### **8.5 WARRANTY TRANSFERABILITY**

This warranty is non transferable and available exclusively to the original purchaser.

#### **8.6 DAMAGE CLAIMS**

Failure of SM Pro Audio to provide proper warranty service does not entitle the purchaser to claim further damages. SM Pro Audio's liability shall in no way exceed the invoiced value of the product.

#### **8.7 OTHER WARRANTY RIGHTS**

This warranty does not exclude or limit any statutory rights provided by national law.

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