

# *BlueTube*

Two Channel Microphone / Instrument  
Tube Preamplifier



User's Manual

# Blue Tube

T W O   C H A N N E L

M I C R O P H O N E / I N S T R U M E N T

T U B E   P R E - A M P L I F I E R

## USERS MANUAL

Version 1.0

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## 1.1 INTRODUCTION

Thank you for purchasing the PreSonus BlueTube Two Channel Microphone / Instrument Tube Preamplifier . This pre-amp was designed using state of the art components to deliver crystal clear audio for an infinite period of time. We believe the BlueTube to be an exceptional sounding unit and an exceptional value. Please contact us at 1-800-750-0323 with your questions or comments regarding this product. PreSonus Audio Electronics is committed to constant product improvement and believes the best way to accomplish this task is by listening to the *experts* on our gear, our valued customers. We appreciate the support you have shown us through the purchase of this product.

Please pay close attention to how you connect your BlueTube to your system. Improper grounding is the most common cause of noise problems found in studio or live sound systems. We urge you to scan this manual before hooking up your BlueTube to familiarize yourself with its features and various applications.

Good luck and enjoy your BlueTube!

## 1.2 FEATURES

The following is a summary of your Blue Tube's features:

- **Dual Servo Gain Stage.** Each channel of your BlueTube contains a dual servo gain stage (no capacitors). This provides ultra low noise performance and wide dynamic control. This gives

the Blue Tube the ability to boost the desirable signal without increasing unwanted background noise.

- **Phantom Power.** Each channel of the BlueTube has 48V Phantom power available. When the Phantom power switch is engaged, power is supplied at a constant rate to both channels whether one or both channels are used. This assures optimum performance of your condenser microphone(s) and that the signal will be free of distortion due to insufficient power.
- **Phase Reverse.** A phase reverse switch is provided on each channel. This switch enables the user to invert the phase of a microphone if phase cancellation is noticed when using identical microphones in close proximity to one another. The phase reverse switch also can compensate for different XLR connector hook-ups where pin connections have been inverted.
- **-20 dB Pad.** A 20 dB pad is available on each channel for reducing the in-coming signal level. This pad provides a more manageable signal from high output devices giving the operator greater control over the in-coming signal and a much reduced chance of over-driving the input and thereby avoiding distortion.
- **Mic/Instrument Input.** Each channel of the BlueTube has a separate Neutrik Combo© XLR / ¼ inch connector is provided on the front of the Blue

Tube for signal input from mic XLR or instrument ¼ inch input.

- **Drive.** The Blue Tube provides a Drive potentiometer on each channel for controlling the amount of signal routed to the 12AX7 vacuum tube. This feature lets you control how much saturation of the signal occurs. Greater levels of tube saturation give the signal greater warmth and a richer sound. This works equally well on mics and instruments.

## 2.1 FRONT PANEL BASIC LAYOUT



Notice that the front panel of the Blue Tube is divided evenly at the +48V switch in the center of the unit. The input and controls are a mirror image of each other from left to center and from right to center. Identical preamplifier sections - Channel One (left to right) and Channel Two (right to left) – comprise the front panel .

Both preamp channels contain:

- Combination Microphone (XLR) and Instrument (1/4 inch) input
- Phase Reverse Switch
- Drive Control (0 to 30dB)
- -20db Pad
- Gain Control (0 to 40dB)

A single +48 volt phantom power switch is used for both channels.

- Phantom Power Switch



**Phantom Power** is available to each channel input of the **Blue Tube**. The **48 volts** is supplied by way of the XLR connector for condenser mics and any other devices requiring continuous power through the XLR input. This power is supplied at a constant level allowing use of both inputs simultaneously.

PIN 1	GND
PIN 2	+48v
PIN 3	+48v

#### **XLR connector wiring for Phantom Power**

**Phase Reverse Switch** allows the user to invert the polarity of the XLR connector by switching pins two and three. The inversion of the pins of the XLR connector may be necessary to alter the audio phase of two like microphones to compensate for phase cancellation. It may be required that the wiring of a cable's XLR connector be switched to successfully utilize Phantom power.

**-20 dB Pad** provides -20 decibels of attenuation with the push of a button. This is a very useful feature for rapidly reducing the level coming into the MP20 and thus preventing the input signal from over-modulating (distorting) the input. This may occur due to high output level from a microphone or line device. Padding the input serves to provide increased "headroom" for the operator.

**Drive.** The Blue Tube Drive control increases the amount of signal routed through the 12AX7 vacuum tube. The effect achieved by this procedure can be subtle to extreme, depending on the setting being used. A "warming up" of the sound can be noticed at lower

settings. This desirable effect is especially good for microphones and on an electric bass and the resulting sound is infinitely richer and sweeter. An overdriven signal can be achieved by significantly raising the level of the Drive control. This overdriven tube effect is extremely useful in providing cool guitar sounds and way cool for use with harmonicas for that authentic "Blues harp" vibe. The limits on the possibilities of the Drive control are up to you, your application and your imagination. Experiment!

**Gain.** This control governs the amount of boost to the signal being processed by the pre-amplifier. Dynamic mics and instruments without pre-amps will normally require more gain than condenser mics and instruments that have a built-in pre-amp (care should be taken with instruments having their own built-in pre-amp not to overdrive the input of the Blue Tube). If you should require more signal out of the pre-amp for a hotter recording level or to drive an input of some down stream device harder, cranking up the gain should provide all the signal that you'll need.

#### 2.4 BACK PANEL BASIC LAYOUT

PIN 1	GND
PIN 2	High (+)
PIN 3	Low (-)

##### Cable Wiring Diagram for Input and Output XLR

The **Output XLR Connector** is servo balanced and operates at +4dBu.

TIP High (+)

SLEEVE GND (-)

##### Cable Wiring Diagram for Input and Output 1/4" Phone Plug

The **Output 1/4" Phone Connector** is unbalanced and operates at -10 dBv.

### 3.1 DYNAMIC MICROPHONES

Dynamic microphones are characterized by lower output levels. Hence, more gain is needed to amplify a dynamic microphone to operating level. Occasionally it is necessary to add the -20dB pad to the microphone to avoid distortion (e.g. when recording percussion). Do not use phantom power when using dynamic microphones.

### 3.2 PHANTOM POWERED MICROPHONES

Phantom powered microphones such as condenser and some ribbon microphones require external power to pre-amplify the microphone acoustic pickup. These microphones typically have much higher output than dynamic microphones. Hence the -20dB pad is almost always necessary when close micing to avoid clipping the amplifier.

### 3.3 INSTRUMENT INPUT

The instrument input is designed to handle ¼" plugs from instruments such as guitars and basses. This instrument input is an ultra high impedance amplifier designed to allow the full audio potential of an acoustic or electric instrument pickup to be realized. Care should be taken not to overdrive the input with instrument preamplifiers.

### 3.4 SOME THOUGHTS ON VACUUM TUBES

The Blue Tube comes supplied with a 12AX7 vacuum tube that meets or exceeds the stated performance criteria for the unit. We expect some owners of the Blue Tube will try different tubes to investigate the various performance possibilities they might provide. Tube replacement can be easily accomplished by first unplugging the unit from the electrical outlet and removing the screws which attach the top to the chassis. The tube is mounted in a transverse fashion and care should be taken to properly align the pins on the tube to the corresponding holes in the receptacle. Make sure the tube is completely seated in the receptacle and replace the top of the unit before restoring power to it. Remember: Tube life and performance are affected by how often a tube is used and by how hard the tube is driven when in use. Signs of wear may be exhibited by poor performance or by the tube becoming "microphonic". Periodic replacement of vacuum tubes is recommended. The time between the suggested replacement varies greatly with use. If you notice a deterioration in sound quality then it's time to change the tube.

### **Mounting Instructions for the PreSonus Custom**

## **Rack Rack Mount Adapter**

*When mounting the Blue Tube In a PreSonus rack adapter with a Blue Max, the Blue tube **must** be mounted on the left side of the rack adapter to avoid hum being introduced into the unit by proximity to the power transformer in the Blue Max. The Mounting of the Blue Tube to the left of the Blue Max will minimize any field effect the magnetism that the Blue Max's transformer may have. It should be noted that proximity to computer CPU's, power supplies, or other electrical devices may introduce undesired audio artifacts into the output signal of the Blue Tube or any microphone preamplifier. Care should be taken with where a mic pre-amp is placed during operation to insure no electrical interference can occur.*

## **Blue Tube Technical Specifications:**

Number of Channels	Two
<b>Performance</b>	
THD + Noise(Unweighted) 10% @ 30dB Tube Drive	0.05% @ 0dB Tube Drive
Noise Floor	-94dBu
Signal to Noise	>90dB
Power Supply Rejection	>98dB
Amplifier Type	Dual Servo
<b>Input</b>	
Connectors	Neutrik™ Combo
Input Impedance, XLR	5k Ohms
Input Impedance, High Z ¼"	1Meg Ohms
<b>Output</b>	
Output Impedance, XLR Balanced	51 Ohms
Output Impedance, ¼" TRS Unbalanced	51 Ohms
<b>Panel Controls</b>	
Tube Drive	0dB to +30dB
Gain	0dB to +40dB
Phase Reversal	
- 20dB Pad	
+ 48V Phantom Power	
<b>Metering</b>	
8 Segment LED	-28dBu to +18dBu
<b>Power Supply</b>	
Type	Linear Supply
Input	18 VAC/100mA
Power	15 WATTS
<b>Physical</b>	
Weight	4lbs.
Size	½ U Rack
Dimensions	8" X 5" X 1.75"
Mounting	Universal Rack Tray Insert
Chassis	Steel
Front Panel	Brushed Aluminum

As a commitment to constant improvement, PreSonus, Inc. reserves the right to change any specification stated herein at any time in the future without notification.

