

**iSP**  
**Technologies**

# ACTIVE SERIES



**THETA GUITAR AMPLIFIER  
OWNERS MANUAL**

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# INTRODUCTION

Congratulations on your purchase of the THETA Head. You are now the owner of the most innovative guitar amplifier ever produced. The THETA Head was designed to provide the maximum possible over the top performance. With dual front end preamplifiers, a full complement of pre and post gain tone, over the top screaming gain (more than any amplifier available) in the distortion channel, dual Decimator noise reduction systems, studio quality digital reverberation, 300 watts of built in power and the 6 button THETA Foot controller the THETA Head defines a new standard in guitar amplification. The THETA Head has dual processing channels, Clean and Distort, both incorporating independent Decimator noise reduction systems allowing the use of extreme gain with absolutely no noise. The THETA Head also incorporates ISP proprietary "dynamic gain modulation" providing "the feel" answering the quest of the professional guitar player.

Please read this manual carefully for a through explanation of the THETA Head and its functions.

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## PRECAUTIONS

NOTE: IT IS VERY IMPORTANT THAT YOU READ THIS SECTION TO PROVIDE YEARS OF TROUBLE FREE USE. THIS UNIT REQUIRES CAREFUL HANDELING.

All warnings on this equipment and in the operation instructions should be adhered to and all operating instructions should be followed.

Do not use this equipment near water. Care should be taken so that objects do not fall onto and liquids are not spilled into the unit through any openings.

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

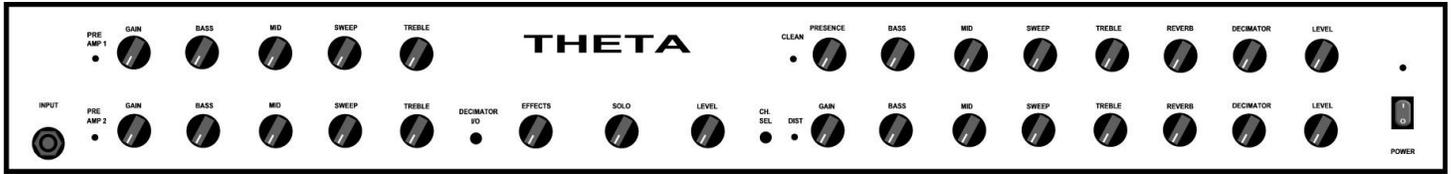
DO NOT ATTEMPT TO SERVICE THIS EQUIPMENT. THIS EQUIPMENT SHOULD BE SERVICED BY QUALIFIED SERVICE PERSONNEL ONLY. DO NOT MAKE ANY INTERNAL ADJUSTMENTS OR ADDITIONS TO THIS EQUIPMENT AT ANY TIME. DO NOT TAMPER WITH INTERNAL ELECTRONIC COMPONENTS AT ANY TIME. FAILURE TO FOLLOW THESE INSTRUCTIONS WILL VOID THE WARRANTY OF THIS EQUIPMENT, AND MAY CAUSE A SHOCK HAZZARD.

## POWER REQUIREMENTS

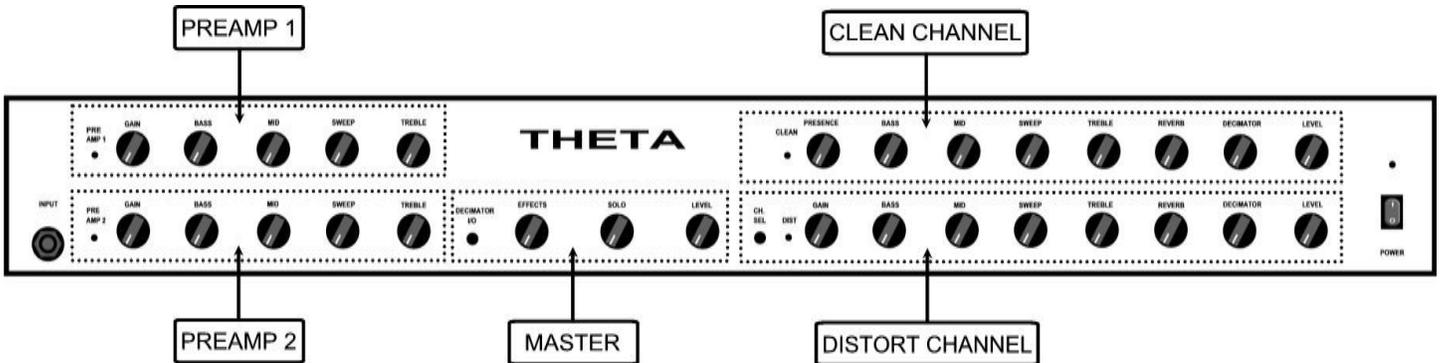
This unit requires connection to a 120-volt AC outlet. Do not cut or disconnect the ground pin on the power cord. Do not attempt to connect this unit to any power source other than the specified 120VAC. The THETA Head will typically draw approximately four amps of current when driving a 4-ohm load.

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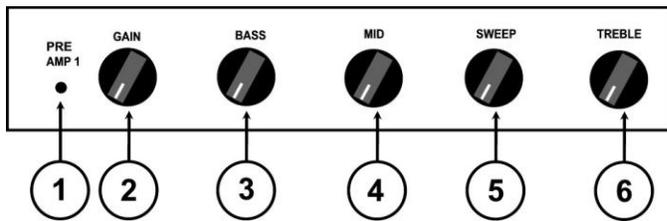
# FRONT PANEL



## Understanding the THETA amplifier



## THETA PREAMP1



### 1. PREAMP1 ON LED

This led indicates when PREAMP1 is active and in the signal path. NOTE: The **PREAMP1** switch on the THETA FOOTCONTROLLER switches **PREAMP1** on and off. **PREAMP1** is functional only when the CLEAN channel is selected. **PREAMP1** and PREAMP2 will automatically switch with the channel selected.

### 2. PREAMP1 GAIN CONTROL

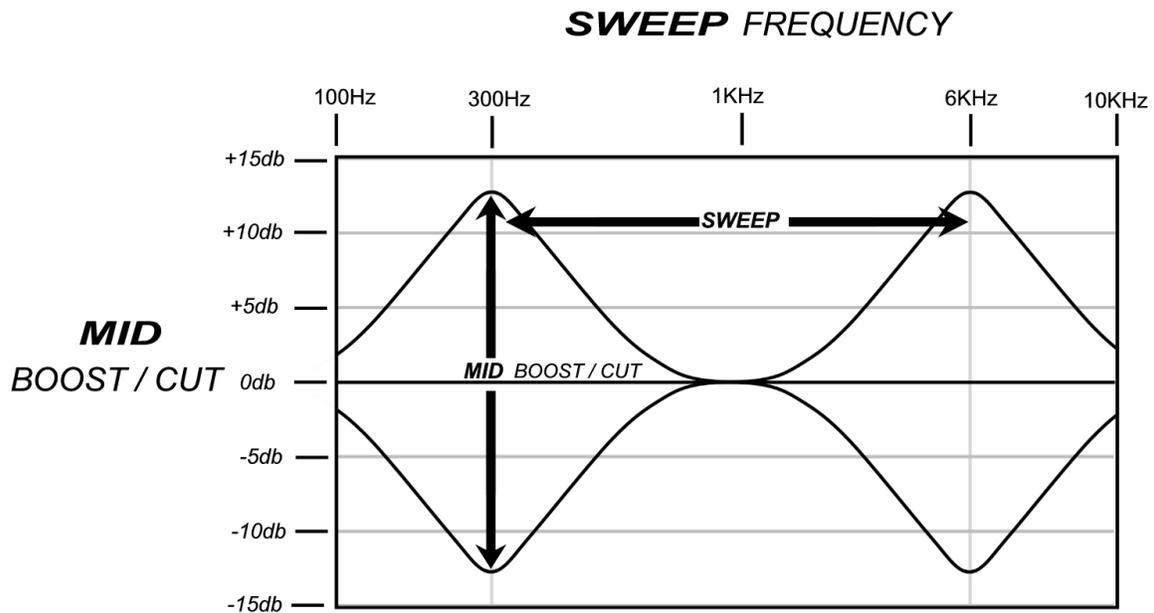
This control adjusts the amount of gain in the signal path of PREAMP1.

### 3. BASS

This control adjusts the amount of boost or cut in the low frequency portion of the spectrum of PREAMP1. The available BASS boost and cut range is +/-15 decibels.

### 4. MIDRANGE BOOST/CUT CONTROL

This control works in conjunction with the SWEEP frequency control 5. The MID and SWEEP controls work together to provide a semi-parametric tone control. When the MID control is set at 12:00 straight up there is no boost or cut in the MID frequency portion of the spectrum. The graph below shows the response of the MID boost/cut and SWEEP controls. The MID control allows +/- 12db of boost or cut to be applied at the frequency determined by the SWEEP control.



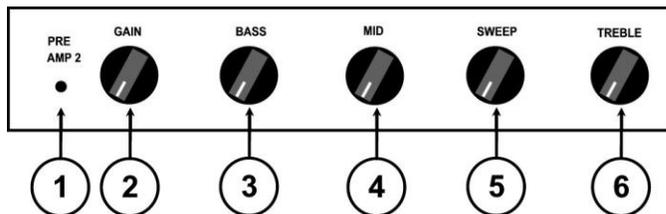
## 5. SWEEP FREQUENCY CONTROL

This control works in conjunction with the MID boost/cut control and adjusts the center frequency of the MID boost or cut signal. At the full counter clockwise setting the midrange frequency will be at 300Hz, at the full clockwise setting the center frequency of the midrange will be at 6KHz. NOTE: when the MID control is set at 12:00 straight up the SWEEP will not have any affect on the signal since there is not boost or cut being applied.

## 6. TREBLE CONTROL

The TREBLE control adjusts the boost or cut that is applied in the high frequency portion of the spectrum of PREAMP1. The available TREBLE boost and cut range is +/-15 decibels.

# THETA PREAMP2

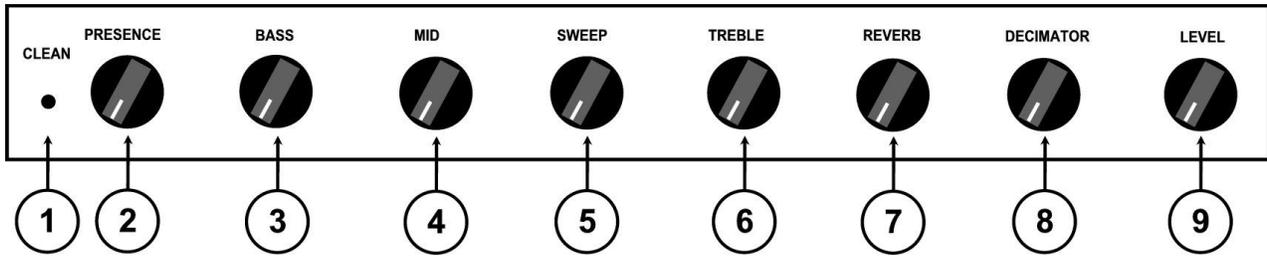


### 1. PREAMP2 ON LED

This led indicates when PREAMP2 is active and in the signal path. NOTE: The **PREAMP2** switch on the THETA FOOTCONTROLLER switches **PREAMP2** on and off. **PREAMP2** is functional (active) only when the DISTORT channel is selected. **PREAMP2** and PREAMP1 will automatically switch with the Distort or Clean channel is selected.

**NOTE: ALL OF THE REMAINING FUNCTIONS OF PREAMP2 ARE IDENTICAL TO PREAMP1 AND WILL NOT BE REPEATED.**

# THETA CLEAN CHANNEL



## 1. CLEAN CHANNEL ON LED

This led indicates when the CLEAN CHANNEL is active. NOTE: The **CHANNEL SELECT** switch on the THETA FOOTCONTROLLER switches between the CLEAN CHANNEL and DISTORT CHANNEL. **THE CLEAN** can be selected by using either the THETA FOOTCONTROLLER CHANNEL SELECT switch or by pushing the CHANNEL SELECT switch on the front panel of the THETA amplifier.

## 2. PRESENCE CONTROL

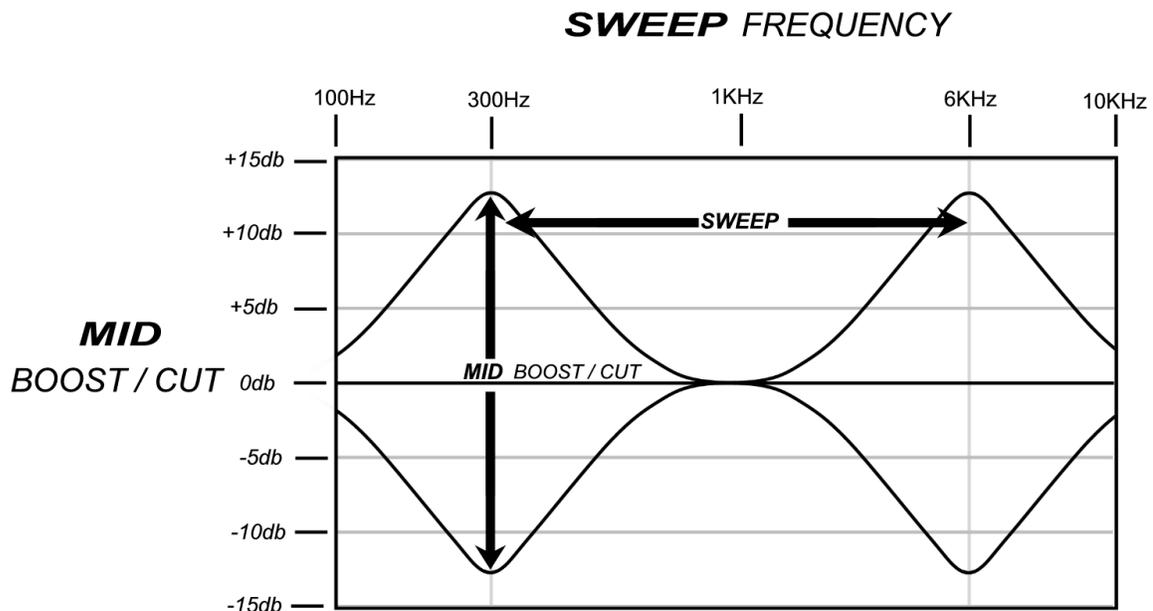
This control adjusts the amount of high frequency presence in the CLEAN channel. The corner frequency of the PRESENCE control is set at 15Khz with a maximum of 15db of boost.

## 3. BASS

This control adjusts the amount of boost or cut in the low frequency portion of the spectrum of PREAMP1. The available BASS boost and cut range is +/-15 decibels.

## 4. MIDRANGE BOOST/CUT CONTROL

This control works in conjunction with the SWEEP frequency control 5. The MID and SWEEP controls work together to provide a semi-parametric tone control. When the MID control is set at 12:00 straight up there is no boost or cut in the MID frequency portion of the spectrum. The graph below shows the response of the MID boost/cut and SWEEP controls. The MID control allows +/- 12db of boost or cut to be applied at the frequency determined by the SWEEP control.



**5. SWEEP FREQUENCY CONTROL**

This control works in conjunction with the MID boost/cut control and adjusts the center frequency of the MID boost or cut signal. At the full counter clockwise setting the midrange frequency will be at 300Hz, at the full clockwise setting the center frequency of the midrange will be at 6KHz. NOTE: when the MID control is set at 12:00 straight up the SWEEP will not have any affect on the signal since there is not boost or cut being applied.

**6. TREBLE CONTROL**

The TREBLE control adjusts the boost or cut that is applied in the high frequency portion of the spectrum of CLEAN CHANNEL. The maximum TREBLE boost and cut range is +/-15 decibels.

**7. REVERB LEVEL CONTROL**

The REVERB control adjusts the amount of digital reverb that is added when using the CLEAN channel. The digital REVERB in the THETA amplifier has a bandwidth of 18KHz and also includes a digital implementation of the Decimator noise reduction to ensure that the digital reverb has a dynamic range greater than 110db.

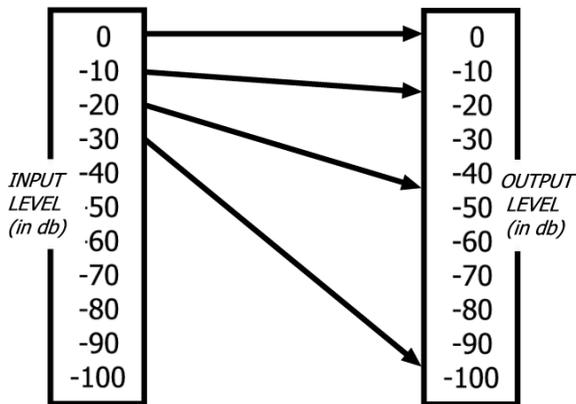
**8. DECIMATOR NOISE REDUCTION**

The CLEAN channel DECIMATOR control adjusts the threshold of the CLEAN channel noise reduction. The DECIMATOR noise reduction is a down low-level downward expander incorporating ISP's patent pending TIME VECTOR PROCESSING.

**A BRIEF EXPLANATION OF THE DECIMATOR NOISE REDUCTION SYSTEM**

Low Level Downward Expansion is performed by use of a high quality voltage controlled amplifier controlled by an RMS based audio level detection circuit. A Time Vector Processing circuit is used which varies the release response over a 1000 to 1 ratio and controls the release response of the Downward Expander. The release response will be extremely fast, on the order of 2 milliseconds, if the input signal has a fast decaying envelope and upwards of 2 seconds if the input signal has a slow decaying signal. Downward Expansion takes place when the input signal level drops below the preset threshold. For example: if the threshold is set for 0db and input signal of 0db with produce no expansion. As the input signal drops below 0db, downward expansion starts and increases exponentially the farther the input signal drops below the threshold point. The figure below shows the response of the Expander with a 0db threshold.

**TYPICAL EXPANSION RATIO with a threshold setting of 0db.**



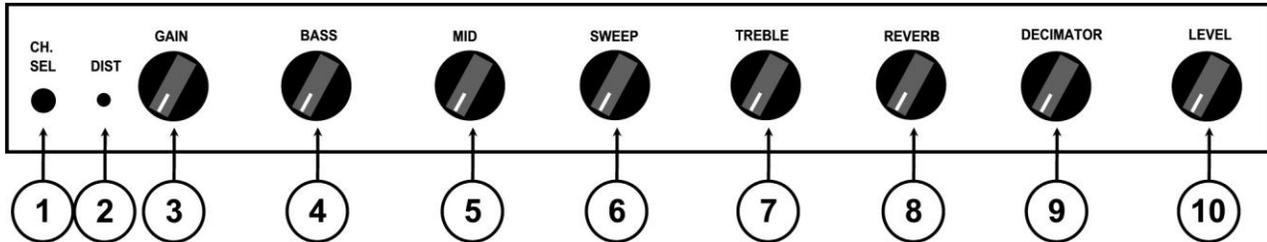
*As the input signal level decreases at the input below the threshold*

*This output signal level will decrease exponentially*

## 9. LEVEL CONTROL

The LEVEL control adjusts the output LEVEL of the CLEAN channel. NOTE: The final output level is determined by the setting of the MASTER LEVEL CONTROL.

# THETA DISTORT CHANNEL



### 1. CHANNEL SELECT SWITCH

The CHANNEL SELECT switch changes the THETA operating channel from CLEAN to DISTORT. The CHANNEL SELECT switch is a momentary switch that changes the channel upon pushing the switch. This switch can be used with or without the THETA FOOTCONTROLLER connected.

### 2. DISTORT CHANNEL ON LED

This led indicates when the DISTORT CHANNEL is active. NOTE: The **CHANNEL SELECT** switch on the THETA FOOTCONTROLLER switches between the DISTORT CHANNEL and CLEAN CHANNEL. **THE DISTORT CHANNEL** can be selected by using either the THETA FOOTCONTROLLER CHANNEL SELECT switch or by pushing the CHANNEL SELECT switch on the front panel of the THETA amplifier.

### 3. GAIN CONTROL

This control adjusts the amount of gain in the DISTORT CHANNEL. The maximum amount of gain will be determined by the setting of the DISTORT CHANNEL GAIN and PREAMP2 gain only if PREAMP2 is switched on. The maximum amount of available gain is greater than 140db if PREAMP2 is switched on.

### 4. BASS CONTROL

This control adjusts the amount of boost or cut in the low frequency portion of the spectrum of the DISTORTION circuit. The available BASS boost and cut range is +/- 15 decibels.

### 5. MIDRANGE BOOST/CUT CONTROL

This control works in conjunction with the SWEEP frequency control 5. The MID and SWEEP controls work together to provide a semi-parametric tone control. When the MID control is set at 12:00 straight up there is no boost or cut in the MID frequency portion of the spectrum. See the graph shown in the CLEAN CHANNEL section, which shows the response of the MID boost/cut and SWEEP controls. The MID control allows +/- 12db of boost or cut to be applied at the frequency determined by the SWEEP control.

## 6. SWEEP FREQUENCY CONTROL

This control works in conjunction with the MID boost/cut control and adjusts the center frequency of the MID boost or cut signal. At the full counter clockwise setting the midrange frequency will be at 300Hz, at the full clockwise setting the center frequency of the midrange will be at 6KHz. NOTE: when the MID control is set at 12:00 straight up the SWEEP will not have any affect on the signal since there is not boost or cut being applied.

## 7. TREBLE CONTROL

The TREBLE control adjusts the boost or cut that is applied in the high frequency portion of the spectrum of DISTORTION CHANNEL. The maximum TREBLE boost and cut range is +/-15 decibels.

## 8. REVERB LEVEL CONTROL

The REVERB control adjusts the amount of digital reverb that is added when using the DISTORTION channel. The digital REVERB in the THETA amplifier has a bandwidth of 18KHz and also includes a digital implementation of the Decimator noise reduction to ensure that the digital reverb has a dynamic range greater than 110db.

## 9. DECIMATOR NOISE REDUCTION

The DISTORTION channel DECIMATOR control adjusts the threshold of the CLEAN channel noise reduction. The DECIMATOR noise reduction is a down low-level downward expander incorporating ISP's patent pending TIME VECTOR PROCESSING.

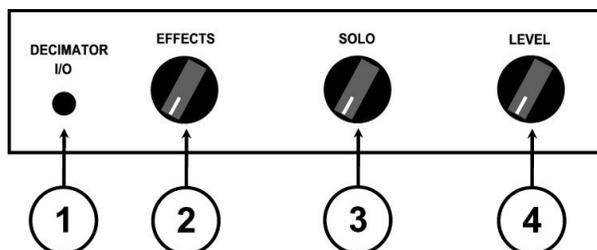
### Setting the Decimator Noise Reduction System:

Setting the Decimator Threshold for proper use with the Distortion channel is easy if you follow these instructions. Set the Decimator Threshold full counterclockwise. Adjust the Distortion gain and Preamp2 gain as desired for your playing. Slowly increase the Decimator Threshold until the background noise just disappears. This will be the best possible setting for the Decimator. Increasing the Threshold beyond this point will cause expansion to be more aggressive than desirable. Some experimentation may be required to get the best possible Threshold setting.

## 10. LEVEL CONTROL

The LEVEL control adjusts the output level of the DISTORTION channel. NOTE: The final output level is determined by the setting of the DISTORTION LEVEL and the MASTER LEVEL CONTROL.

# THETA MASTER CONTROLS



## 1. DECIMATOR IN/OUT SWITCH

This master DECIMATOR IN / OUT switch activates both the CLEAN channel and DISTORTION channel DECIMATOR noise reduction systems.

## 2. EFFECTS LEVEL CONTORL

This control adjusts the level of an externally connected effects processor. NOTE: The loop must be turned on via the THETA FOOTCONTROLLER in order for the EFFECTS level to operate.

## 3. SOLO LEVEL

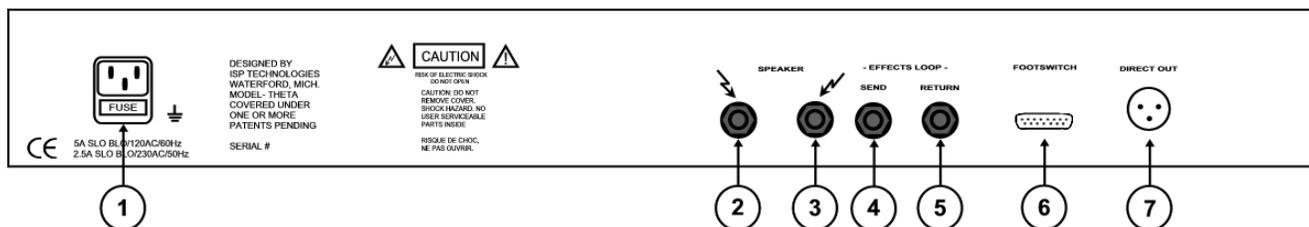
This control adjusts the amount of boost that will be applied to the output signal when the THETA FOOTCONTROLLER boost switch is activated. This control allows the user to switch on and off via the THETA FOOTCONTROLLER up to 6db of output level boost if desired for soloing.

## 4. LEVEL / MASTER OUTPUT LEVEL

This control determines the master output LEVEL of the THETA guitar amplifier.

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# THETA REAR PANEL



## 1. AC POWER RECEPTICAL / FUSE

The AC power cord connects to this receptacle. The AC receptacle also houses the power line fuse. Replace the fuse only with the same size and type as used originally installed in the THETA guitar amplifier.

## 2. SPEAKER OUTPUT JACK

This 1/4" PHONE jack provides the output signal for connection to an external speaker. The minimum load impedance should be 4 ohms total between output 2 and 3.

## 3. SPEAKER OUTPUT JACK

This 1/4" PHONE jack provides the output signal for connection to an external speaker. The minimum load impedance should be 4 ohms total between output 2 and 3.

## 4. SEND OUTPUT JACK

The SEND output jack is used to connect an external signal processor/effects unit. Connect the SEND output to the input of the external effects processor.

## 5. RETURN INPUT JACK

The RETURN input jack is used to connect to the output of an external effects processor. The external effects processor connected to the THETA is switched in and out via the THETA FOOTCONTROLLER.

## 6. FOOTSWITCH CONNECTOR

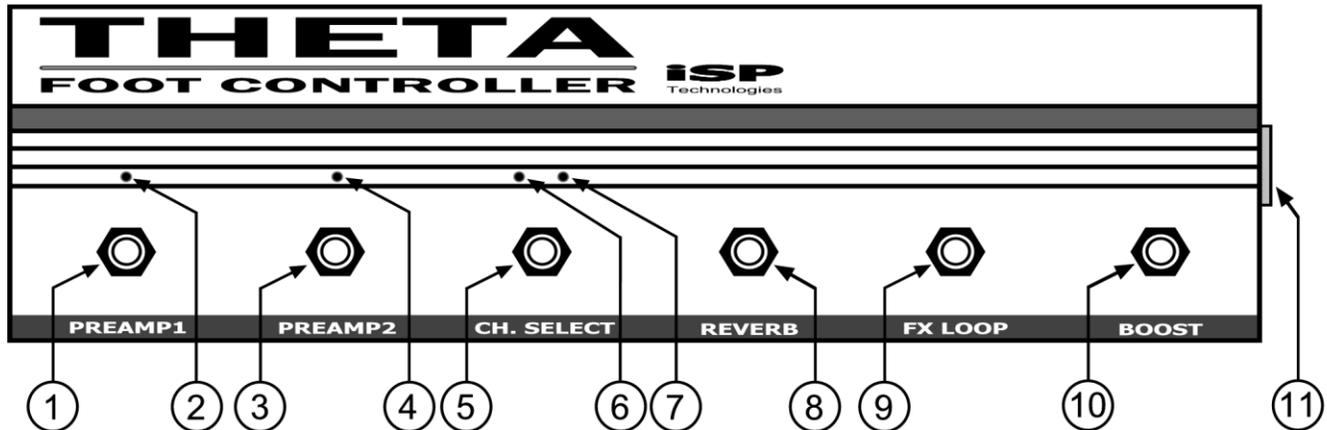
This connector is used to connect the THETA FOOTCONTROLLER. The THETA FOOTCONTROLLER is connected using the 15-pin Dsub cable supplied with the THETA.

## 7. DIRECT OUT

The DIRECT OUT provides a speaker simulated recording output for direct connection to a mixing console.

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# THETA FOOTCONTROLLER



### 1. PREAMP1 SWITCH

This switch turns on and off PREAMP1 the CLEAN channel preamp on the THETA.

### 2. PREAMP1 LED

When this LED in on PREAMP1 is active, switched on.

### 3. PREAMP2 SWITCH

This switch turns on and off PREAMP2 the DISTORTION channel preamp.

### 4. PREAMP2 LED

When this LED in on PREAMP2 is active, switched on.

### 5. CHANNEL SELECT SWITCH

This switch changes the channel selected between CLEAN and DISTORT.

### 6. CLEAN CHANNEL LED (RED)

This red LED indicates when the CLEAN CHANNEL is on and active.

### 7. DISTORT CHANNEL LED (BLUE)

This Blue LED indicates when the DISTORTION CHANNEL is on and active.

### 8. REVERB SWITCH

This switch turns on and off the THETA's internal digital reverb. NOTE: The digital reverb will only function when the THETA FOOTCONTROLLER is connected and the reverb circuit is switched on.

### 9. FX LOOP

This switch turns on and off the external effects loop allowing use of an external effects processor. NOTE: The FX LOOP will only function when the THETA FOOTCONTROLLER is connected and the FX LOOP is switched on.

## 10. BOOST

This switch turns on and off the THETA BOOST function allowing up to 6db of boost of the output level of the amplifier.

## 11. D-SUB CONNECTOR

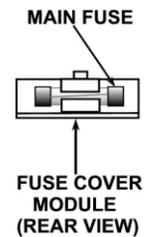
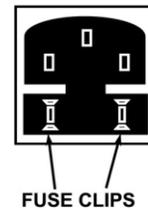
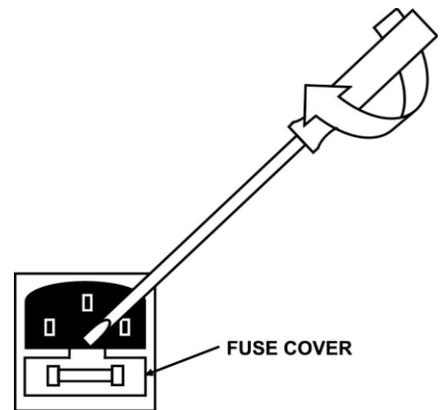
Connect the 15-pin D-SUB connector between this connector and the D-SUB connector on the back of the THETA amplifier.

## FUSE REPLACEMENT

1. Use a small screwdriver as shown to slide the fuse cover out from the power inlet module. The fuse can be found inside the fuse cover module after it is pulled out.

NOTE: A SMALL COMPARTMENT IS ALSO PROVIDED WITHIN THE FUSE COVER MODULE FOR STORING A SPARE FUSE.

2. After replacing the fuse with another of identical specifications, push the fuse cover module fully back into place, ensuring that the fuse has snapped onto the fuse holder inside the power inlet module.



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## THETA SPECIFICATIONS

<b>Input Impedance</b>	<b>500k ohms</b>
<b>Maximum Gain in Distortion channel</b>	<b>Greater than 140db</b>
<b>Treble Control /Preamp 1 and 2</b>	<b>+/-15db at 10Khz</b>
<b>Treble Control /Clean and Distort</b>	<b>+/-15db at 10Khz</b>
<b>Bass Control /Preamp 1 and 2</b>	<b>+/-15db at 80Hz</b>
<b>Bass Control /Clean and Distort</b>	<b>+/-15db at 80Hz</b>
<b>Mid Sweep Frequency /Preamps</b>	<b>300Hz to 6KHz</b>
<b>Mid Sweep Frequency /Channels</b>	<b>300Hz to 6KHz</b>
<b>Mid Boost/Cut Range /Preamps</b>	<b>+/-12db</b>
<b>Mid Boost/Cut Range /Channels</b>	<b>+/-12db</b>
<b>Presence Range (Clean Channel)</b>	<b>-0db to +18db</b>
<b>Decimator Effective Noise Reduction</b>	<b>Greater than 80db</b>
<b>Digital Reverb bandwidth</b>	<b>18Khz</b>
<b>D-CAT amplifier output power</b>	<b>150watts @ 8 ohms/300watts @ 4ohms</b>
<b>D-CAT amplifier protection</b>	<b>Thermal shutdown/short circuit protect</b>
<b>Boost Level</b>	<b>Variable 0db to +6db</b>
<b>Direct recording output level</b>	<b>-20dbu typical</b>
<b>THETA footswitch cable</b>	<b>15 pin D-Sub</b>
<b>THETA power consumption</b>	<b>4 amps peak / 2 amps typical</b>
<b>Fuse Slo Blo</b>	<b>4 amp-120 volt / 2 amp-220 volt</b>
<b>Dimensions</b>	<b>29" x 11.75" x 9"</b>
<b>Weight</b>	<b>40lbs</b>

# WARRANTY AND SERVICE

The Internal Circuitry is fully guaranteed to be free of defects under normal use and service for a period of three years from the date of purchase. The Speakers and Cabinet that are used in this product are fully guaranteed to be free of defects under normal use and service for a period of three years.

Any damage resulting from the misuse or the failure to follow the precautions and instructions will void the warranty.

In the event that the unit needs to be repaired, please return the unit to ISP Technologies directly. Simply repack the unit, send a copy of the original receipt, a note stating the problem, and send it to:

ISP Technologies, LLC  
5479 Perry Drive Unit B  
Waterford, MI 48329  
Attn: Repair Dept.

All shipping charges must be fully prepaid.

ISP will not be responsible for any damages incurred in shipping of any unit. Any claim will need to be settled with the shipping company.

The warranty will be voided if the serial number has been tampered with in any way.

The warranty card must also be filled out and returned in order to activate the warranty.

Should you have any questions for the repair department prior to returning the product please call 1-(248)-673-7790

NOTE: This Product may be covered under one or more of the following patents or patents pending: 7,035,413; 6,944,305; 6,931,134; 6,831,514; 6,091,013



ISP TECHNOLOGIES, LLC  
5479 PERRY DRIVE UNIT B  
WATERFORD, MI. 48329  
248-673-7790  
FAX: 248-673-7696  
[www.isptechnologies.com](http://www.isptechnologies.com)