

Suhr[®]

PT15 I.R.

User Guide



Table of Contents

- Overview..... 3
- IMPORTANT SAFETY INSTRUCTIONS..... 4
- Front Panel Overview..... 5
- Rear Panel Overview..... 6
- Channel 1 (Clean)..... 7
- Channel 2 & 3 (High-Gain)..... 8
- Presence & Master Volume..... 9
- Speaker Outputs..... 10
- Speaker Output Use Cases..... 11
- Line Output..... 12
- FX Loop & Footswitch..... 13
- Impulse Response Section & Channel Select Button..... 14
- Managing Impulse Responses with a Computer..... 15
- Headphone Out & Aux in Section..... 16
- How to Silently Practice with Headphones..... 17
- How to Connect to a DAW (Digital Audio Workstation)..... 18
- Live Set-Up With Stage Volume..... 19
- Tubes, Fuses & Power Requirements..... 20
- Impulse Responses Included With PT-15 I.R..... 21
- Technical Specifications..... 22
- Warranty..... 22



Thank you for purchasing the Suhr PT-15 I.R.™

Please take the time to read this User Guide to get the most out of the PT-15 I.R. The more you familiarize yourself with the features of this unit, the more you will enjoy its benefits and maximize its potential.

Overview

The PT-15 is the latest innovation to come from Suhr. Three of the foremost authorities on tone, John Suhr, his son Kevin Suhr and the legendary guitar player and recording artist Pete Thorn have collaborated once again to design a new, groundbreaking version of his revolutionary PT-100.

The PT-15 is a brand new evolution of the PT signature amp in a smaller, lighter and lower wattage package. The 3 channels of tone arrived after decades of research and development Pete and John conducted over the years, yet with the expanded versatility of an on-board Reactive Load I.R. AND impulse response loader, bundled with IRs from Celestion along with seven proprietary IR blends made by Pete Thorn himself.

Now, the PT amplifier has evolved once again to combine the best of the analog and digital worlds, leveraging both to their fullest extent to create this bar-raising amplifier. Classic tube circuitry generating dynamics, overdrive, saturation and harmonics while digital technology and using impulse responses to capture the highly complex frequency response which results in the nuances of the sonic character of a speaker and its relationship to a mic. This simply can not be replicated with an analog circuit. With the awesome capability of a programmable IR for each channel that will automatically switch to your selected IR when you switch your channels, you can use the power of impulse responses to vastly alter the tone of your signal.

This makes the PT-15 I.R. the MOST versatile amplifier produced today, analog and digital with absolutely no compromises.



IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions
2. Keep these instructions
3. Heed all warnings
4. Follow all instructions
5. Clean only with dry cloth
6. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
7. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
8. Protect the power cord from being walked on or pinched particularly at plugs and the point where they exit from the apparatus.
9. Only use attachments/accessories specified by the manufacturer.
10. Unplug this apparatus during lightning storms or when unused for long periods of time.
11. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
12. **CAUTION:** To disconnect the unit completely from the MAINS, unplug the unit. Turning the power switch off does not disconnect the unit completely from the MAINS.
13. The unit shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the unit.
14. **WARNING:** This is a Class I apparatus. It should be connected to a MAINS socket outlet with a protective earthing connection.



Headphone Out

1/8" Stereo Headphone output for easy monitoring or practice.

Aux In

1/8" Stereo Auxiliary Input for connecting smart-phone or other audio device.

I.R. Channel link

To link any I.R. to a specific channel for instant recall, select channel and desired I.R., then hold the 'Bank Select Button' and 'Cab Select Button' for one second. To reset all channels, hold Bank, Cab *and* Channel select button for 3 seconds.

Bank & Cab Select buttons & LED

These buttons allow you to switch between banks 1-4. Each bank has 4 cabs for a total of 16 I.R.s.

Stand By (On/Off)

Power (On/Off)

Channel Select button

Press to cycle between the amps three channels.

Master Volume knob

Adjusts overall volume.

Master Presence knob

Adjusts the amount of high frequencies. Turning it clockwise will add more high end and sparkle.

Channel 1 (Green)

Clean channel with Gain, Level, Bass, Treble controls and Bright Switch.

Channel 2 (Blue) & 3 (Red)

High Gain Channels
Seperate Gain, Level and Bright Switch per channel and shared Bass, Middle and Treble controls.



Speaker Output (RED ring) (Reactive Load Disabled)

When using this jack you **MUST** have a load (Cabinet) connected, This jack delivers full power and volume to your cabinet.

Speaker Output (Black ring) (Reactive Load Enabled in Parallel)

When using this jack the reactive load is enabled in parallel with your cabinet, reducing overall volume by -3dB SPL. (equivalent to half power) See page 10 for more details

Impedance Selector

Set this switch to match the impedance of the cabinet(s) being used. When no speaker cabinet is connected, set impedance selector to 8Ω to match the internal reactive load.

Mains Input

Connect the supplied AC cable to this inlet to supply power.

H.T. Fuse

F.5 Amp/240V (Fast-Blow)

Mains Fuse

T1.5A/250V (Slow-Blow) - 100/120VAC

T.75A/250V (Slow-Blow) - 230/240VAC

Line Output

Use this as a direct line level out from your amp for easy recording and live applications.

USB In

Connect to a computer to manage the installed impulse response files.

I.R. Bypass

Press to bypass the I.R. filter i.e. no impulse response affecting the tone.

Fx Loop Send

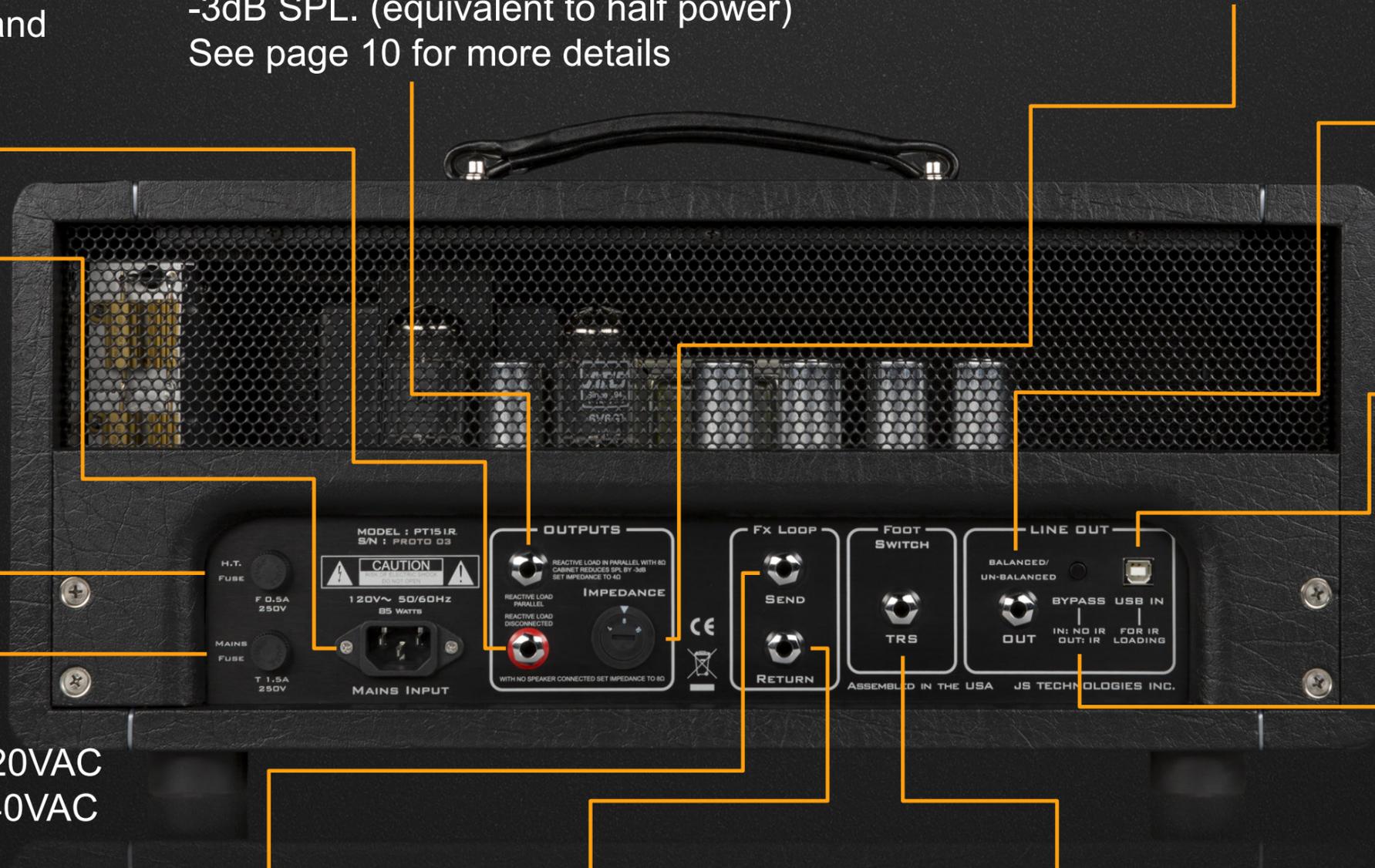
Connect this output to the input of your effects device or chain.

Fx Loop Return

Connect this input to the output of your device or chain.

Foot Switch

Connect the supplied foot switch here via stereo cable (TRS).



Channel 1 (Clean)

The PT15 I.R. has a clean channel in a league of its own. American voiced, bold, clear, punchy responsive tone with tons of headroom.

Things to know:

1. **GAIN** - Adjusts the overall gain of channel 1.
2. **LEVEL** - Adjusts the overall output of channel 1.
3. **BASS** - Adjusts the amount of bass. Turning it clockwise increases the amount of bottom-end, giving you a fuller, richer tone, without losing definition. Turning it counter clockwise will reduce the bottom-end for a tighter tone, which is useful when performing at louder volumes.
4. **TREBLE** - Adjusts the treble. Turning it clockwise increases the amount of top-end, giving your tone clarity and brightness. Turning it counter clockwise will produce a warmer sound, ideal for dialing in smoother Jazz-like tones.
5. **BRIGHT SWITCH** - Introduces added brightness and sparkle that brings out a chimy organic top end.

 **HELPFUL TIP:** Although channel 1 has no midrange control, the bass and treble settings will interactively affect this channel's midrange response. Turning up the bass and treble will effectively scoop the mids. Turning down the bass and treble will push the midrange front and center.



Channel 2 & 3 (High-Gain)

The PT15 I.R. high gain channels are based on vintage modded British tones, except more gain to spare. These channels shine at all settings, from crunch to searing metal, low, mid and high gain, it's all there with rich harmonic overtones and limitless sustain.

Things to know:

1. **GAIN** - Adjusts the overall gain of channel 2 or channel 3.
2. **LEVEL** - Adjusts the overall output of channel 2 or channel 3.
3. **BASS** - Adjusts the amount of bass. Turning it clockwise increases the amount of bottom-end, giving you a fuller tone. Turning it counter clockwise will reduce the bottom-end, which is useful when performing at louder volumes.
4. **MIDDLE** - Adjusts the midrange. Turning it clockwise increases the amount of mids. Turning it counter clockwise will reduce the mids and produce a mid-scooped sound.
5. **TREBLE** - Adjusts the treble. Turning it clockwise increases the amount of top-end, giving your tone clarity and brightness. Turning it counter clockwise will produce a warmer sound, excellent for dialing in smooth fluid-like lead tones .
6. **BRIGHT SWITCH** - Adds brightness and sparkle.



Presence & Master Volume

The Presence & Master Volume controls of the PT-15 I.R. affect all of the channels.

Things to know:

1. **MASTER** - Adjusts the overall volume output of all channels.
2. **PRESENCE** - Adjusts the amount of high frequencies added to your tone. Turning it clockwise will add more sparkle.



Speaker Outputs

 The built-in 8Ω reactive load is always enabled UNLESS a speaker cabinet is connected to the **Reactive Load Disconnect** (red ring jack) output. This speaker output disables the internal reactive load.

Speakers Outputs:

Reactive Load In Parallel:

When using this jack the reactive load is enabled in parallel with your cabinet, reducing overall volume by -3dB SPL (equivalent to half power)

Reactive Load Disabled:

When using this jack you **MUST** have a load (Cabinet) connected.

Using this speaker output disables the internal reactive load, delivering full power and volume to your cabinet.

Impedance Selector:

The impedance must be set at all times to the total load on the amp. When the internal Reactive Load is in use, it places an 8Ω load on the amp. If a cabinet is used in parallel with the Reactive Load, the 8Ω internal load must be included in the impedance calculation.

If playing through a speaker cab with the RL disabled, set the impedance to match the connected cab(s).

One 16 Ω cabinet, set impedance selector to 16 Ω

One 8 Ω cabinet, set impedance selector to 8 Ω

One 4 Ω cabinet, set impedance selector to 4 Ω

If you plug two cabinets in to both speaker out, you must set the impedance selector to the total load (impedance) of both cabinets being used.

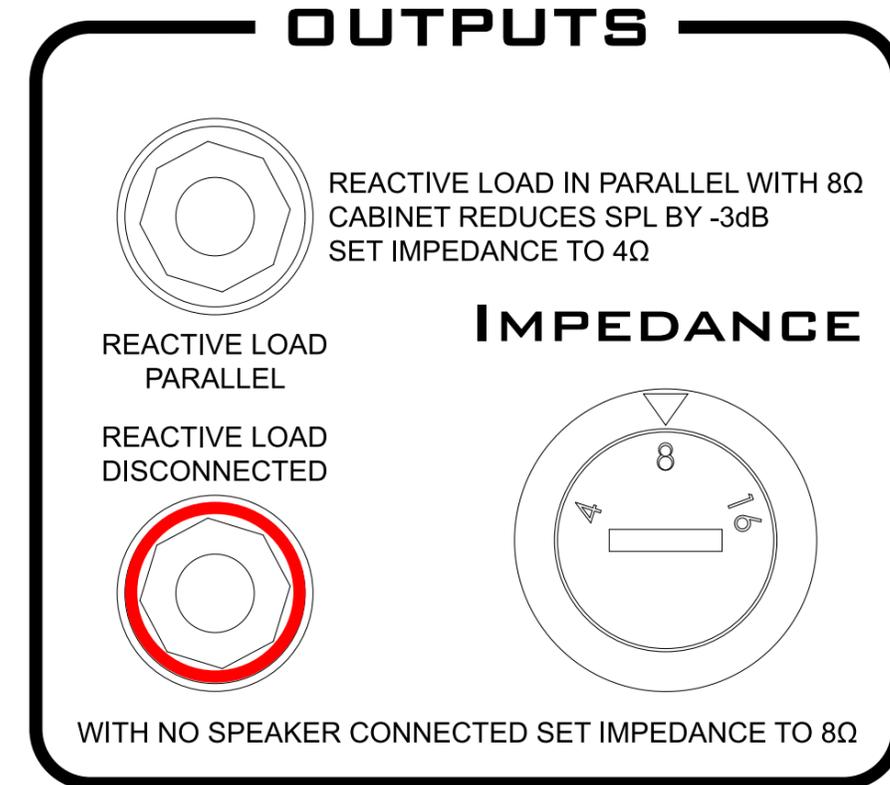
Remember, if you are using both speaker outs the reactive load will be disabled.

However, the Line Out will still be active.

Two 16 ohm cabinets = 8 ohm total load

Two 8 ohm cabinets = 4 ohm total load.

(Using two 4 ohm cabinets simultaneously is not recommended)



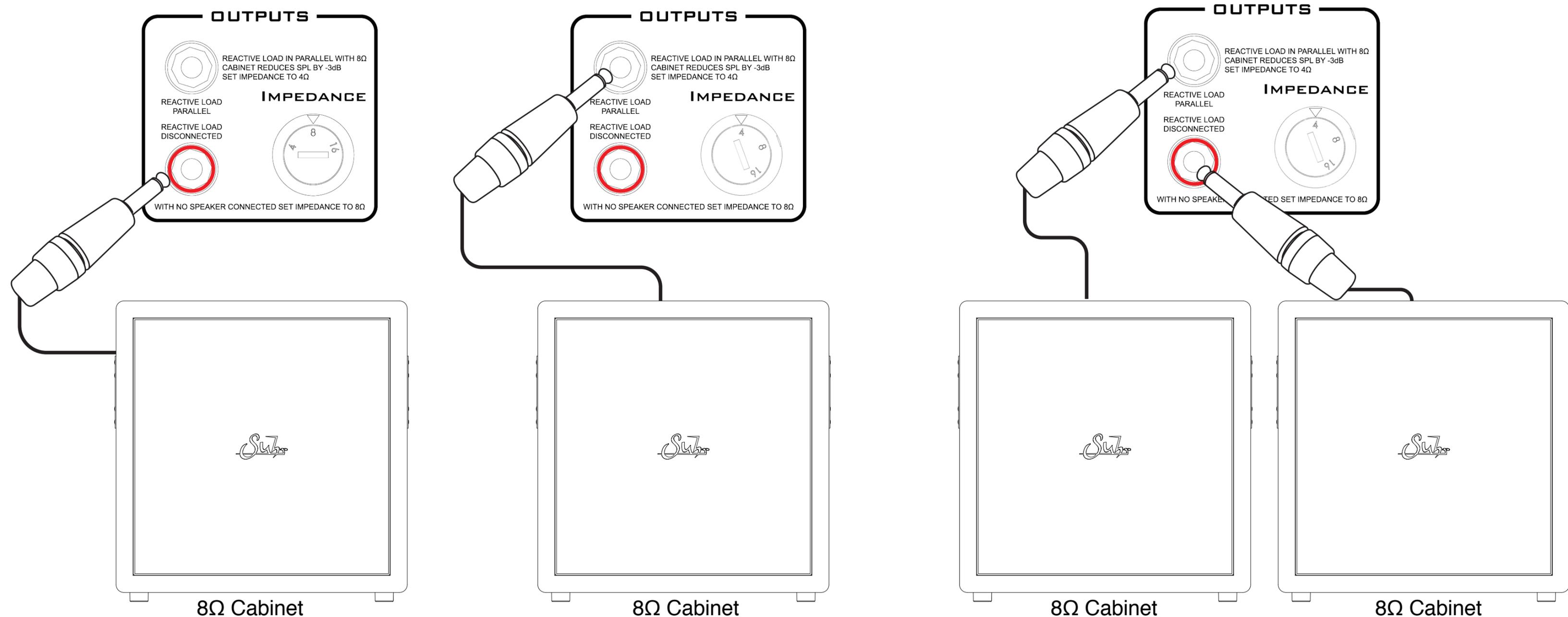
Speaker Output Use Cases

Here are a few usage cases with different speaker cabinet set ups using 8Ω cabs.

Connect an 8Ω cab to this speaker output with the impedance selector switched to "8Ω." This set up will deliver full power and volume to your cabinet.

Connect an 8Ω cab to this speaker output with the impedance selector switched to "4Ω." This set up will reduce overall volume by -3dB SPL (equivalent to half power.)

To connect two 8Ω speaker cabinets, the reactive load will be disabled and thus the impedance selector must be selected to 4Ω.



Line Output

The PT15 I.R. features an onboard impulse response loader which offers perfectly mic'ed, studio quality cabinet tone via the line output. This can be used in the studio for recording or be sent to FOH when playing live.

Line Out:

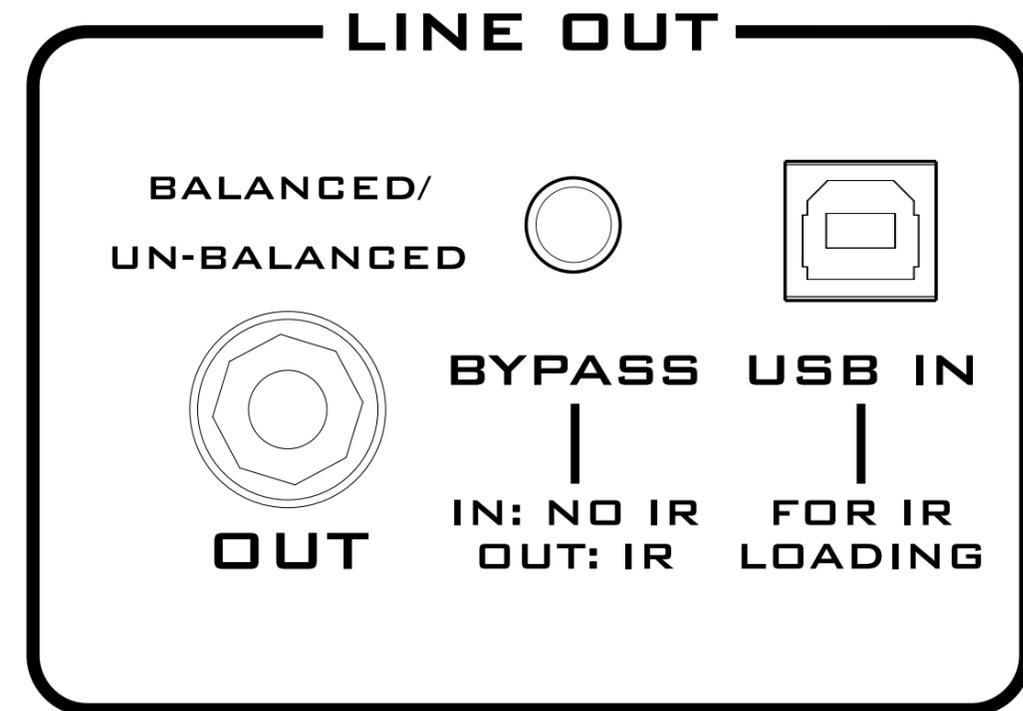
Balanced/Unbalanced Out:

Use this as a direct, line level out from your amp, for easy recording and live applications.

We recommend running this signal into a line level input on your audio interface or console. This connector supports both balanced and unbalanced connections, depending on the type of 1/4" cable used.

I.R. Filter Bypass Button:

This button allows you to bypass the I.R. filter and lets you hear your tone without the impulse response applied to the signal. This is required when using an external device to process impulse responses, such as a DAW.



FX Loop & Footswitch

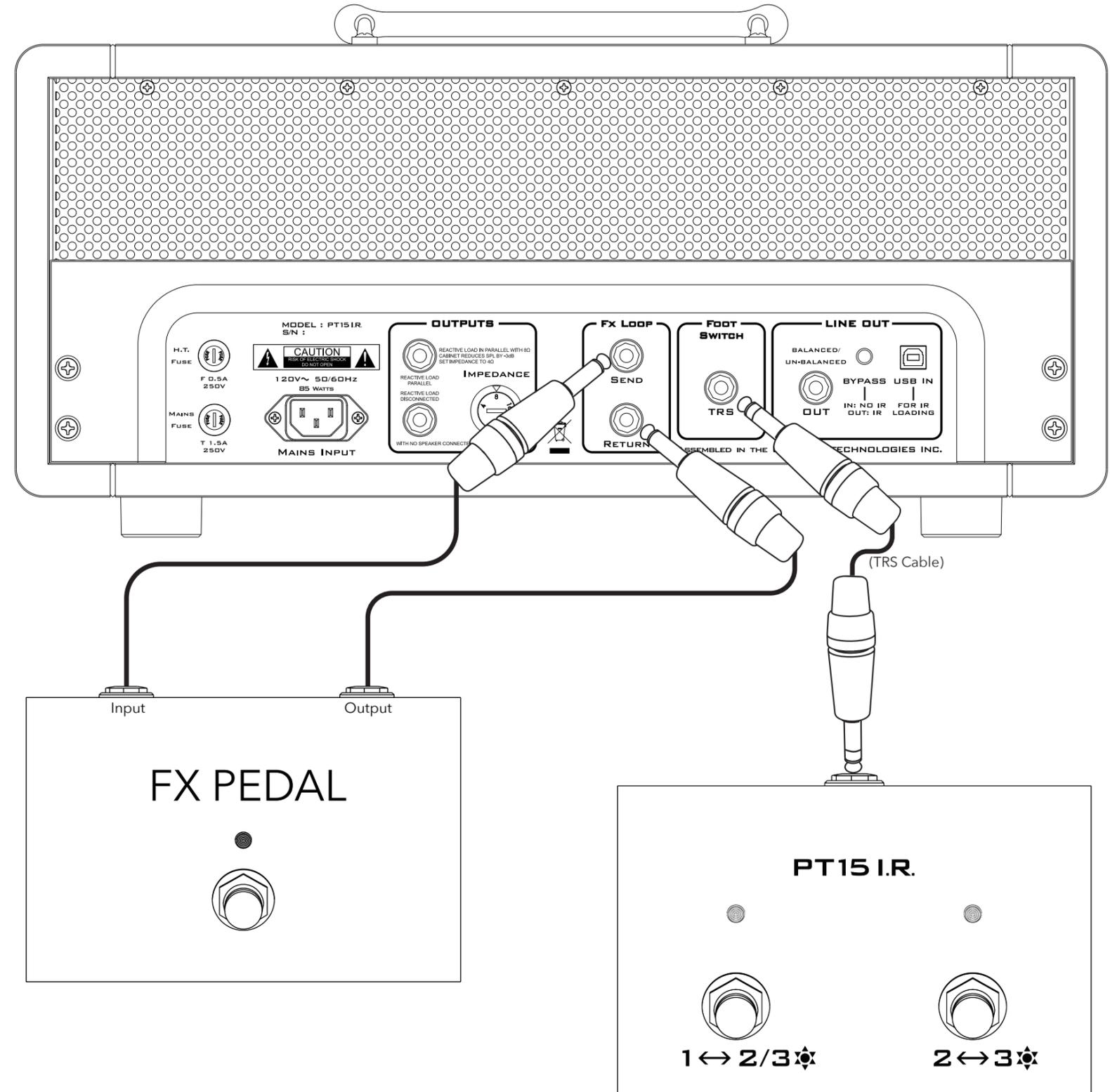
The PT15 I.R. also comes with an All Tube effects loop which allows you to put effects pedals and other devices post-pre-amp.

FX Loop Steps:

1. Connect the **FX LOOP–SEND** to the input of your effects device or chain.
2. Connect the **FX LOOP–RETURN** to the output of your effects device or chain.
3. The level appearing at this jack is dependent on the setting of the channel's level.

Footswitch Steps:

1. Connect Footswitch a stereo (TRS) cable to the **FOOTSWITCH–TRS** jack.
2. The left button (1 ↔ 2/3) will switch between the Clean channel and High-Gain channels.
3. The right button (2 ↔ 3) will switch between the two high-gain channels, channels 2 and 3. When the light is off, when you switch to the high channels, it will switch to channel 2. If the light is illuminated, it will make channel 3 active.
4. The high-gain channel you have selected (2 ↔ 3) will remain active when you switch back and forth from the clean channel.



Impulse Response Section & Channel Select Button

Things to know:

1. **BANK button** selects between 4 banks (1-4) of 4 impulse responses for a total of 16 different cab choices.
2. **CAB button** selects between 4 (1-4) impulse responses in the selected bank.
3. **Channel Link Technology**—
Push and Hold BANK & CAB buttons for 1 second to assign your selected I.R. to the current channel selected. This will allow instant recall of your choice of cab and channel, even when the unit is powered on and off.
4. **Resetting Channel Link**
Push and Hold CHANNEL, BANK & CAB buttons for 5 seconds to "clear" all of your saved channel/cab combinations to start assigning each channel a different cabinet from scratch.

To see a full list of the preloaded impulse responses see page 21.



Managing Impulse Responses with a Computer

Steps:

1. Connect PT-15 I.R. to computer via USB cable
2. The PT-15 I.R. will appear on your computer as "**SUHR_PT15**"
3. Click "**SUHR_PT15**" to find 4 folders named "**Bank_1**" - "**Bank_4**"
4. Each "**Bank_x**" folder will contain 4 folders named "**Cabinet_1**"-"**Cabinet_4**" these are where you will find the impulse responses in the form of .WAV files.

 **IMPORTANT NOTE:** Save a backup of the original "**SUHR_PT15**" folder to a safe place on your computer in case you want to restore PT15 I.R. to factory settings.

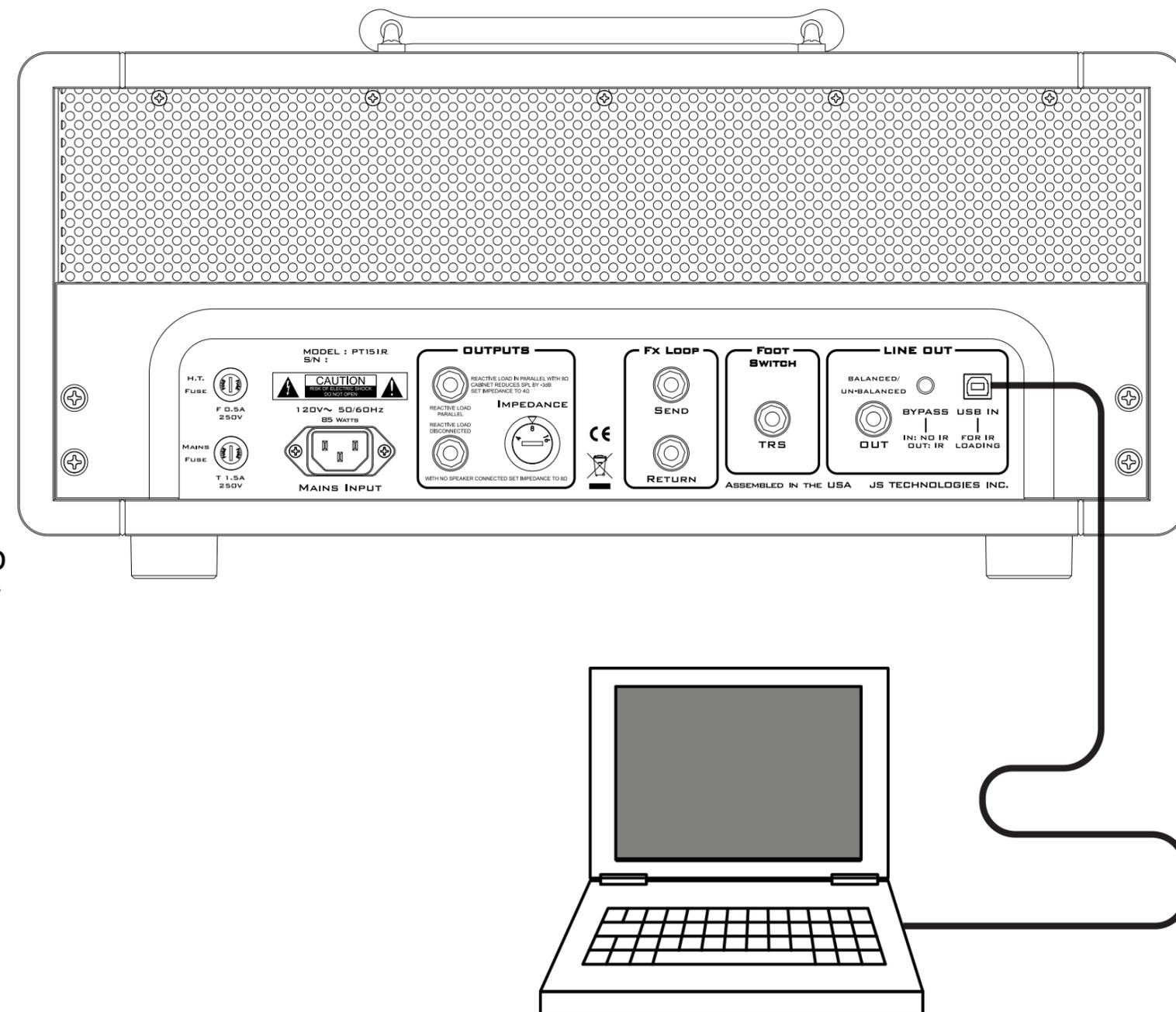
 **HELPFUL TIP:** Close mic impulse responses work best. I.R.s greater than 20.5 milliseconds (ms) will be truncated to 20.5 ms.

5. After doing so, you can delete any existing I.R. (.WAV file) and simply drag and drop any 3rd party impulse response (.WAV, Mono, 24bit, 48kHz) in to its place. Use only one I.R. file (.WAV) per cabinet folder.

 **IMPORTANT NOTE:** After making **ANY** changes to the I.R.s loaded on the device, the unit **MUST** be power cycled in the following manner

- **Eject (unmount) "SUHR_PT15"** from your computer.
- If "SUHR_PT15" reappears on computer after ejecting, it IS safe to disconnect, as long as no files are transferring at the time.**
- **Disconnect USB** from the PT-15 I.R. to your computer.

6. Your PT-15 I.R. now is filled with your own I.R.s



Headphone Out & Aux in Section

Things to know:

1. **Turn IR LEVEL** to increase the volume of the impulse response filtered signal sent to the headphone out.
2. **AUX IN** - 1/8" stereo input for connection to an external audio source with 1/8" stereo output capability (mp3 player, smart-phone, etc.)

 **IMPORTANT NOTE:** The signal from the **AUX IN** will only be sent through the **HP OUT** (headphones), **NOT** the **DI / LINE OUT**.

 **HELPFUL TIP:** Use your audio source's on board volume controls to set the levels you hear through the **HP OUT**. i.e. if you need to hear more of your smart-phone, turn up the volume on the device, **NOT** the **HP LEVEL** on the PT-15 I.R.



How to Silently Practice with Headphones

Steps:

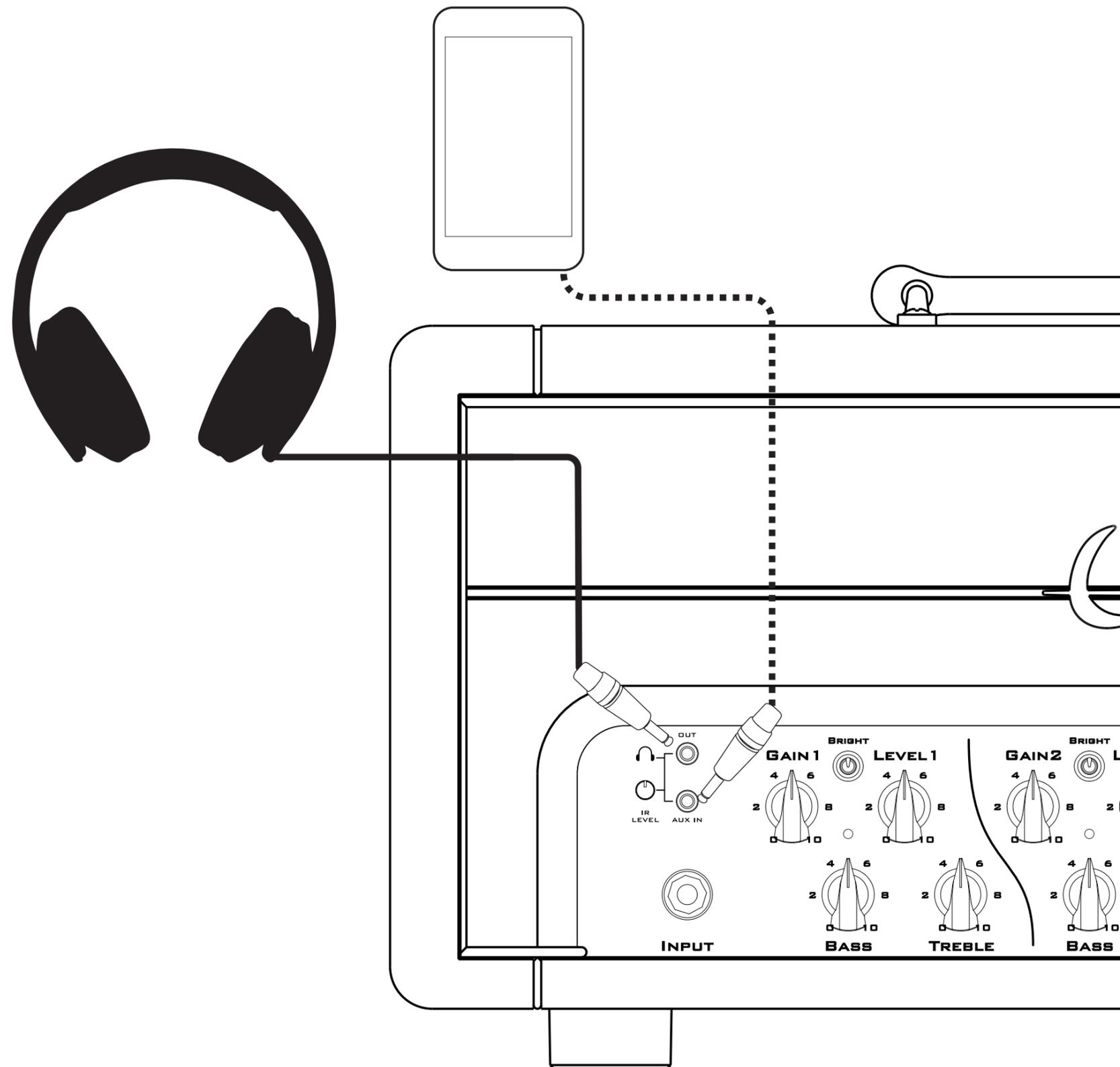
1. Connect HP OUT via 1/8" stereo cable to any headphones.
2. Adjust **IR LEVEL** (Headphone Section in detail, page 16)

-Optional connection- (dotted lines on diagram)

3. Connect a smart-phone or other audio source via 1/8" stereo cable

 **IMPORTANT NOTE:** The signal from the **AUX IN** will only be sent through the **HP OUT** (headphones), **NOT** the **LINE OUT**.

 **HELPFUL TIP:** Use your audio source's on board volume controls to set the levels you hear through the **HP OUT**. i.e. if you need to hear more of your smart-phone, turn up the volume on the device, **NOT** the **IR LEVEL** on the PT-15 I.R.



How to Connect to a DAW (Digital Audio Workstation)

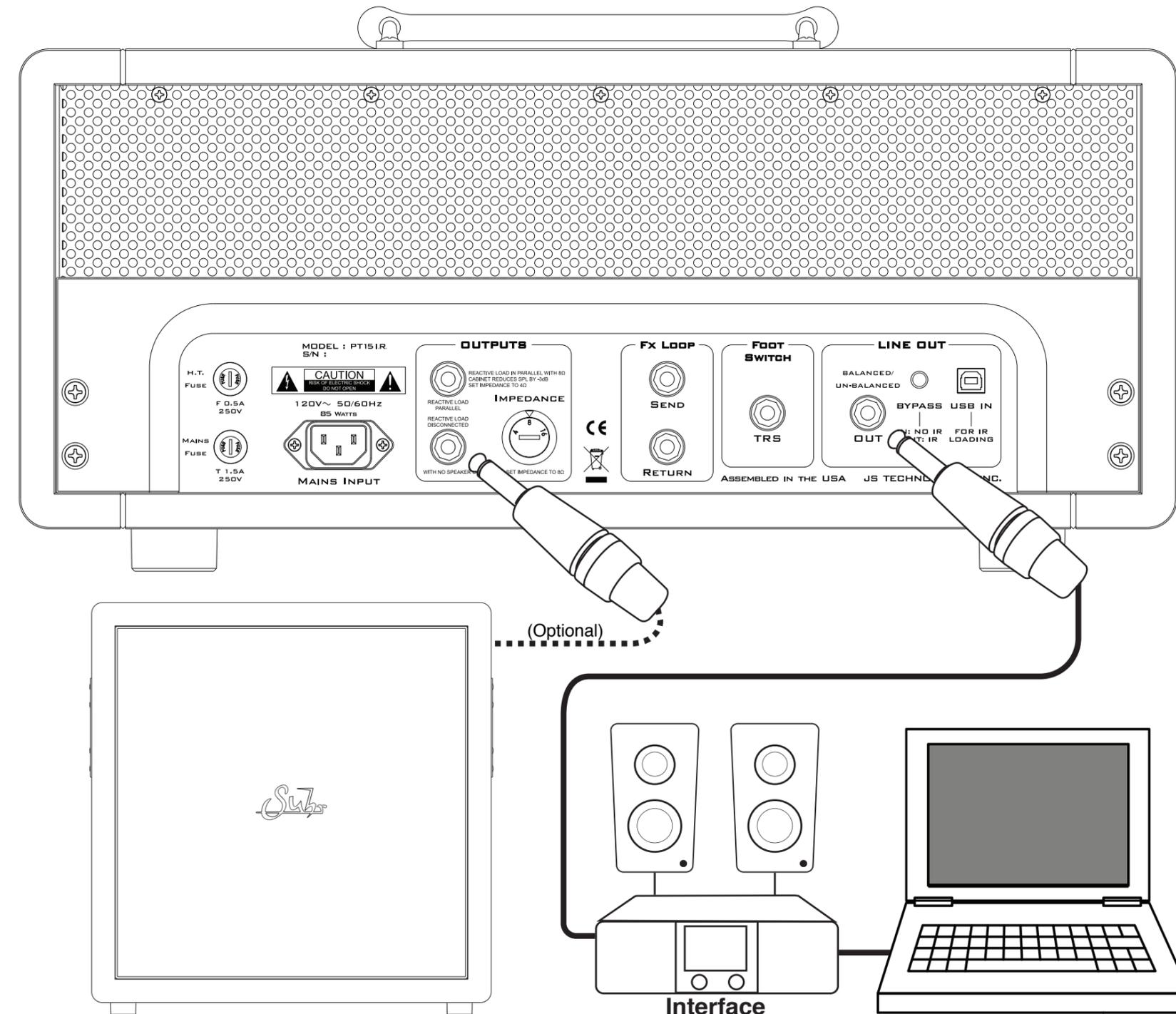
Steps:

1. Connect the **LINE OUT** to record a signal that is affected by the I.R. filter.
2. Press **BANK & CAB** select buttons to pick an I.R.

–Optional connections– (dotted lines on diagram)

3. Press the **BYPASS** button for a signal that is **NOT** affected by the I.R. filter, meaning it is just your amp's tone (with no speaker filtration), for later processing in your DAW. If you'd still like to run a speaker cabinet, connect the **REACTIVE LOAD DISABLED** jack using a 1/4" speaker cable to a speaker cabinet.

! **IMPORTANT NOTE:** Using the **REACTIVE LOAD DISABLED** output disconnects the internal load of the Reactive Load I.R. To optimize performance and avoid damage, match the impedance of your amplifier to the connected speaker cabinet.
NEVER CONNECT THIS OUTPUT TO INSTRUMENT, MIC OR LINE LEVEL INPUTS.



Live Set-Up With Stage Volume

This section will explain how to use the PT15 I.R. in a live setting with stage volume from a cab and a D.I. signal (with an I.R.) going to front of house.

Steps:

1. Connect the **LINE OUT** jack to mixer.
2. Press the **BANK & CAB** buttons to pick an I.R.

-Optional connection- (dotted lines on diagram)

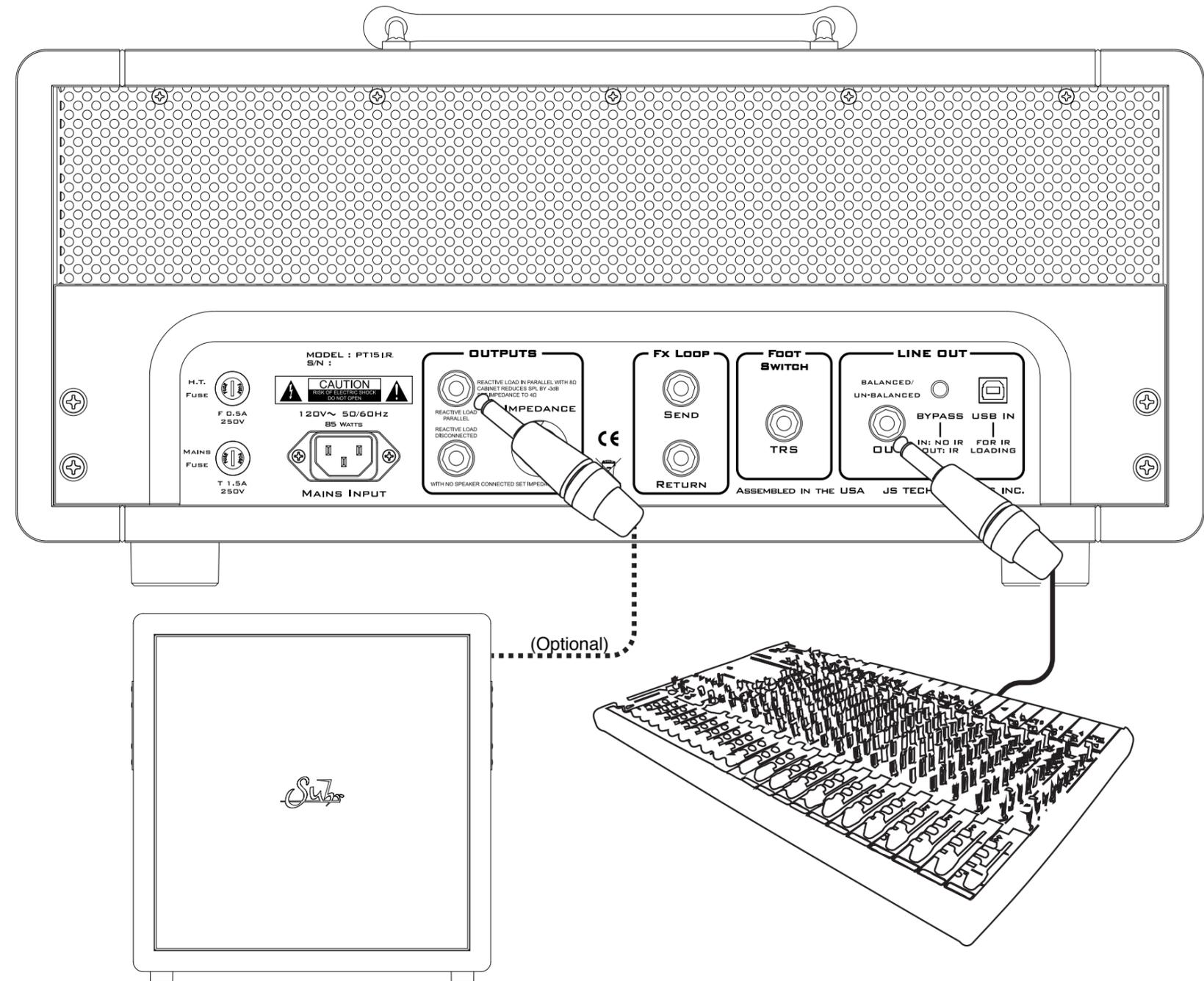
3. Connect the **REACTIVE LOAD PARALLEL** or **REACTIVE LOAD DISCONNECTED** jack via 1/4" speaker cable to a speaker cabinet for stage volume.

Two 16 ohm cabinets = 8 ohm total load

Two 8 ohm cabinets = 4 ohm total load.

(Using two 4 ohm cabinets simultaneously is not recommended)

IMPORTANT NOTE: Using the **REACTIVE LOAD DISABLED** output disconnects the internal load of the PT15 I.R. To optimize performance and avoid damage, match the impedance of your amplifier to the connected speaker cabinet.
NEVER CONNECT THIS OUTPUT TO INSTRUMENT, MIC OR LINE LEVEL INPUTS.



Tubes, Fuses & Power Requirements

Tubes:

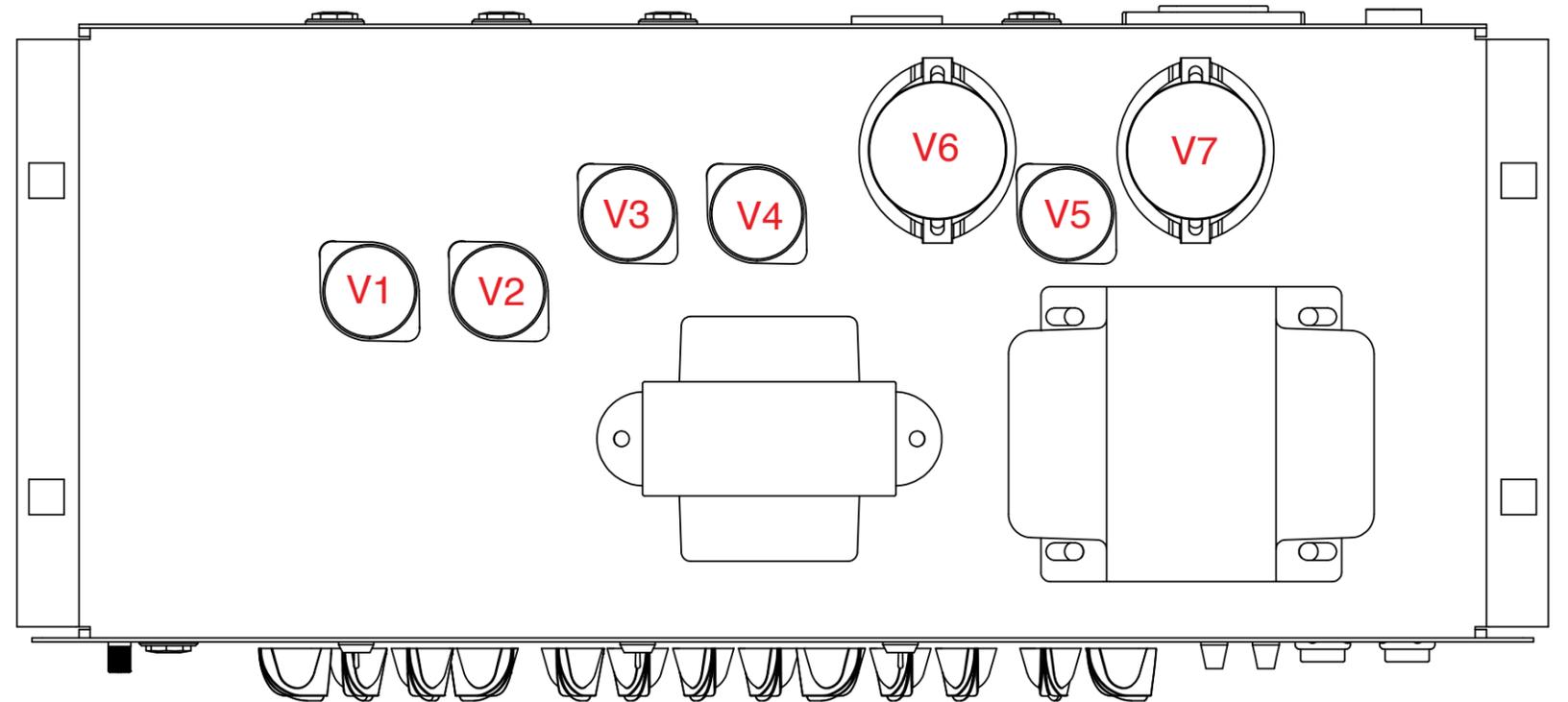
The power section of the PT15 I.R. is driven by 2x 6V6GT output tubes.

Power Section: 2x 6V6GT

Preamp, Effects loop, Phase Inverter: 5x 12AX7

TUBE POSITION LIST

V1 – (closest to input jack) Channel 1, 1st/2nd Gain Stage	12AX7A (CHN)
V2 – Channel 2 / 3, 1st/2nd Gain Stage	12AX7A (CHN)
V3 – Channel 2 / 3, Pre-EQ Buffer/Gain Stage	12AX7A (CHN)
V4 – Effects Loop Send / Return	12AX7A (CHN)
V5 – Phase Inverter	12AX7A (CHN)
V6 – Power	6V6GT (JJ)
V7 – Power	6V6GT (JJ)



Fuses & Power Requirements:

The Mains fuse used will be different depending on whether your unit is a 100V, 120V or 230V, 240V.

100V & 120V (USA,...)

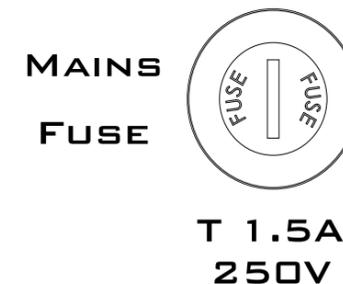
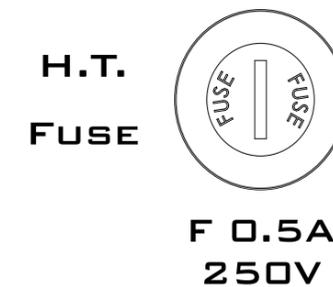
Mains Fuse: **T1.5A/250V (Slo-Blo)** - 100/120VAC

H.T. Fuse: **F.5A/250V (Fast-Blo)**

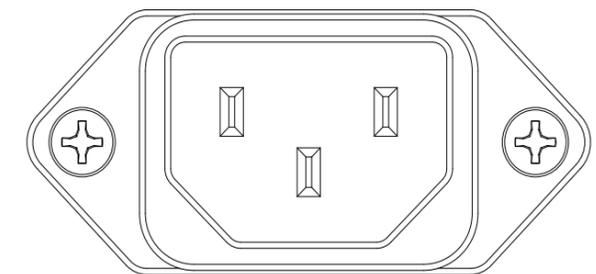
230V & 240V (UK, EUROPE,...)

Mains Fuse: **T.75A/250V (Slo-Blo)** - 230/240VAC

H.T. Fuse: **F.5A/250V (Fast-Blo)**



120V~ 50/60Hz
85 WATTS



MAINS INPUT

(120V Version)

Impulse Responses Included With PT-15 I.R.

Bank 1:

- (1.1) Cab 1 : Suhr G12M Greenback 4x12 C Hi-Gn 121+57 Celestion
- (1.2) Cab 2 : Suhr G12M Greenback 412 C PT-Thick-Smooth **
- (1.3) Cab 3 : Suhr G12M Greenback 4x12 C SM57 Balanced Celestion
- (1.4) Cab 4 : Suhr G12M Greenback 4x12 C SM57 Dark Celestion

Bank 3:

- (3.1) Cab 1 : Suhr PT G12-75H Creamback 2x12 C Hi-Gn 121+57 Celestion
- (3.2) Cab 2 : Suhr G12-75H Creamback 212 C PT-Thick-Fat **
- (3.3) Cab 3 : Suhr PT G12-75H Creamback 2x12 C SM57 Balanced Celestion
- (3.4) Cab 4 : Suhr PT G12-75H Creamback 2x12 C SM57 Dark Celestion

Bank 2:

- (2.1) Cab 1 : Suhr V30 4x12 C Hi-Gn 121+57 Celestion
- (2.2) Cab 2 : Suhr V30 412 C PT-Warm-Smooth**
- (2.3) Cab 3 : Suhr V30 4x12 C SM57 Balanced Celestion
- (2.4) Cab 4 : Suhr G12M+V30 412 C PT-Balanced-Blend**

Bank 4:

- (4.1) Cab 1 : Suhr Bella V-Type 112 O PT-Clear-Blend **
- (4.2) Cab 2 : Suhr Bella V-Type 112 O PT-Warm-Blend **
- (4.3) Cab 3 : Suhr Hedgehog G12-65 212 O Hi-Gn 121+57 Celestion
- (4.4) Cab 4 : Suhr Hedgehog G12-65 212 O PT-Blend **

** = Proprietary I.R. blends made by Pete Thorn.

Technical Specifications

Channels: 3

Output: 15 watts

Front Panel: Input, Aux Input, Headphone Input, IR Level, (CH1) Bright Switch, Gain 1, Bass, Treble, Level 1, (CH 2/3): Bright 2/3 Switch, Gain 2, Gain 3, Bass, Middle, Treble, Level 2, Level 3, Channel Select Switch, I.R. Bank Select Button, I.R. Cab Select Button, I.R. LEDs, Power & Stand By switch

Back Panel: H.T. Fuse, Mains Fuse, Mains Input, Reactive Load Parallel Output, Reactive Load Disconnected Output, Impedance Selector, FX Loop Send, FX Loop Return, Footswitch (TRS) jack, Balanced/Unbalanced Line Out, I.R. Filter Bypass Button, USB Jack

Tubes: 2 x 6V6GT (Power Section), 5 x 12AX7

FX Loop: Tube driven, buffered

Mains Fuse: T1.5A/250V (Slo-Blo) - 100/120VAC

T.75A/250V (Slo-Blo) - 230/240VAC

H.T. Fuse: F.5A/250V (Fast-Blo)

I.R. Format: .WAV, Mono, 24bit, 48kHz, 20.5 ms

(I.R.s greater than 20.5 ms will be truncated to 20.5 ms)

I.R. Output Latency: 1.2 milliseconds

Dimensions: 20.5" (W) x 8.25" (D) x 9.25" (H)

Weight: 24.7 lbs.

Warranty

JS Technologies, Inc. (JST) warrants for lifetime from date of purchase by the initial retail purchaser that this product shall be free from defects in workmanship. Electronic components such as capacitors, resistors, filters, transformers, jacks, and pots are covered for 5 years. Any parts determined defective by JST within the five (5) year term shall be repaired or replaced by JST without charge for parts and labor provided the unit is returned, transportation costs prepaid, to JS Technologies, Inc., 601 Crane Street, Unit A, Lake Elsinore, CA 92530, or to such facility authorized by JST. JST will pay shipping costs to return the unit to its owner. Defects in workmanship will be determined by JST for limited lifetime coverage.

This warranty does not cover damage caused by accident, misuse, abuse, neglect, unauthorized or improperly performed repairs, alterations, and/or wear and tear occasioned by use of the product, and does not include any expense for inconvenience or loss of use while the product is being repaired or replaced. JST expressly disclaims any liability for consequential damages arising from the sale, use, or inability to use the product. Any warranty implied by law, including any warranty of merchantability or fitness, is expressly limited to the one (5) year warranty term for the parts on our amplifiers and electronic products. The foregoing statements of warranty are exclusive and in lieu of all other remedies. Workmanship lifetime warranty is limited strictly to the original retailer purchaser of the instrument registered with JST within 10 days of purchase from an authorized JST dealer or distributor. JST will pay shipping costs to return the unit to its owner within the mainland U.S.

The above warranty policy only applies to customers in USA. If you are an international customer, please check with your distributor and the dealer in your country for warranty matters. Warranty issues must be handled through your dealer or distributor. If you are an international customer who purchased (or plan to purchase) from a US dealer, we can handle warranty matters direct but you will be responsible for shipping both ways. We encourage international customers to purchase through your local distributor or dealer for this reason. Our international distributors are set up to handle warranty issues in their respective countries. If you do not have an authorized Suhr dealer in your country, please contact us direct for further details.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: - Reorient or relocate the receiving antenna. - Increase the separation between the equipment and receiver. - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected. - Consult the dealer or an experienced radio/ TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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.