

Owner's Manual



Herron Audio

VTSP-3A

**Vacuum Tube
Stereo Preamplifier**

VTSP-3A

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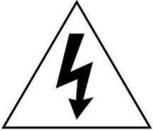
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General Safety, Installation, and Operation Instructions

It is important to read this document before attempting to use this product. Pay close attention to safety instructions.



Appears on the component to indicate the presence of uninsulated, dangerous voltages inside the enclosure – voltages that may be sufficient to constitute a risk of shock.



Appears on the component to indicate important operation and maintenance instructions included in the accompanying documentation.



Appears on the component to indicate compliance of with the EMC (Electromagnetic Compatibility) and LVD (Low-voltage Directive) standards of the European Community.

WARNING

WARNING Calls attention to a procedure, practice, condition, or the like that, if not correctly performed or adhered to, could result in personal injuries or death.

CAUTION

CAUTION Calls attention to a procedure, practice, condition, or the like that, if not correctly performed or adhered to, could result in damage or destruction to part or all of the component.

Note

Note Calls attention to information that is essential to highlight.

Please read the Owner's Manual Completely BEFORE operating the unit

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Important Safety Instructions

- 1. Read these instructions**
- 2. Keep these instructions.**
- 3. Heed all warnings.**
- 4. Follow all instructions.**
- 5. Do not use this apparatus near water.**
- 6. Clean only with a dry cloth.** Great care and attention has gone into the materials chosen to produce the product. A gentle wipe with a dry, clean cloth is all that is required to remove any dust. Treat it as you would a fine piece of furniture because that is how they have been designed.
- 7. Do not block ventilation openings.** Install in accordance with the manufacturer's instructions.
- 8. Do not install near any heat sources** such as radiators, heat registers, stoves, or another apparatus that produces heat.
- 9. Do not defeat the safety purpose of the polarized or grounding-type plug.** A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or third prong is provided for safety. If the provided plug does not fit into the outlet, consult an electrician for replacement of the obsolete outlet.
- 10. Protect the power cord from being walked on or pinched,** particularly at plugs, convenience receptacles, or the point where it exits from the apparatus.
- 11. Only use attachments and accessories specified by the manufacturer.**

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12.



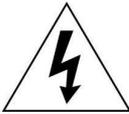
Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury or tip over.

13. Unplug this apparatus during lightning storms or when unused for long periods of time.

14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when the power cord or plug has been damaged; liquid has been spilled or objects have fallen into the apparatus; or the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

15. No naked flame sources, such as candles, should be placed on the apparatus.

16.



The appliance coupler is used as the disconnect device, the disconnect device shall remain readily operable.

17. Terminals marked with this symbol may be considered HAZARDOUS LIVE and the external wiring connected to these terminals requires installation by an INSTRUCTED PERSON or the use of ready-made leads or cords.

18.



This exclamation point within an equilateral triangle is intended to alert the user to the presence of important maintenance (servicing) instructions in the literature accompanying the appliance.

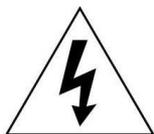
Warning! To reduce the risk of fire or electric shock, do not expose the apparatus to rain or moisture. Do not place objects containing liquid, such as vases, on this apparatus.

Please read the Owner's Manual Completely BEFORE operating the unit

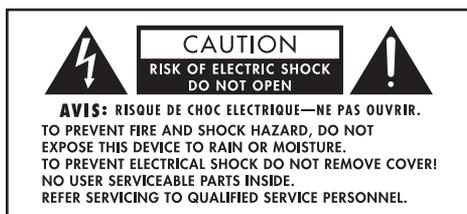
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Warning

- TO PREVENT FIRE OR SHOCK HAZARD, DO NOT USE THIS PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE
- TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE
- TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE PLUG TO WIDE SLOT AND FULLY INSERT



This lightning flash with an arrow head symbol, within an equilateral triangle, is intended to alert the user to the presence of un-insulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to the persons.



Warning: To reduce the risk of electric shock, do not remove cover (or back), no user-serviceable parts inside. Refer servicing to qualified service personnel.



This exclamation point within an equilateral triangle is intended to alert the user to presence of important maintenance (servicing) instructions in the literature accompanying the appliance.

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IMPORTANT! (U.K. only)

This unit is supplied in the U.K. with mains lead fitted with a moulded 13 amp plug. If, for any reason, it is necessary to remove the plug, please remove the fuse holder and dispose of the plug safely, out of reach of children.

It must not be plugged into a mains outlet.

The wires in the mains lead supplied with this appliance are coloured in accordance with the following code:

Green and yellow.....Earth
Blue.....Neutral
Brown.....Live

WARNING - This appliance MUST be earthed

As the colours of the wires of the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in the plug, proceed as follows:

The wire which is coloured green-and-yellow must be connected to the terminal in the plug which is marked with the letter E or coloured green or green-and-yellow, or by the earth symbol :

The wire which is coloured **brown must be connected to the terminal which is marked with the letter L or coloured red.**

The wire which is coloured **blue must be connected to the terminal which is marked with the letter N or coloured black.**

If connecting to a BS1363 plug, a 13 amp fuse must be used.

WARNING:

ANY MODIFICATIONS TO THIS PRODUCT NOT EXPRESSLY APPROVED BY HERRON AUDIO WHO IS THE PARTY RESPONSIBLE FOR STANDARDS COMPLIANCE COULD VOID THE USER'S AUTHORITY TO OPERATE THIS EQUIPMENT.

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Welcome!

Thank you for your investment in the Herron Audio VTSP-3A Vacuum Tube Stereo Preamplifier, a milestone in high-precision audio playback equipment. The VTSP-3A is a new design, benefiting from insights gained during continuous refinement of the highly-praised and award-winning VTSP-2. The care in engineering and manufacturing of this product anticipates a lifetime of musical enjoyment. Years of research into circuit design and component performance were applied to the development of the VTSP-3A and new implementations of components have led to a breakthrough in performance while maintaining conservative operation for extended tube life. As with all Herron Audio products, the VTSP-3A is engineered to be reliable and user friendly.

Manufacturing of the VTSP-3A is performed under the tightest of quality controls. Its limited production permits hand matching of components to the most exacting standards in the industry. Tubes are burned in, bench tested, and matched to extremely tight tolerances, both as sets within a given unit and to the original design to ensure unprecedented performance and lack of unit-to-unit variation.

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Features

The VTSP-3A incorporates an infrared remote control for convenient operation of many of the preamplifier's front-panel functions. This remote uses 38kHz modulation and detection of this signal initiates the VTSP-3A's decoder circuitry, which is otherwise dormant in order to prevent the unwanted noise usually associated with remote control circuitry. A flashing red light in the display window indicates the initiation of the remote control decoding process in the VTSP-3A. When the red light is off, this circuitry goes to "sleep" mode.

The VTSP-3A utilizes two extremely low distortion precision electronic stepped attenuators (one for each channel) in a fashion similar to the VTSP-1A/166, and VTSP-2. The VTSP-3A has a total of 100 volume steps, and the precise volume level is shown as three digits in the front-panel display window. The use of electronic stepped attenuators ensures continued high-quality performance without any of the oxidation and corrosion that degrades conventional mechanical stepped

attenuators and volume control potentiometer wiper contacts.

At startup, the display on the VTSP-3A goes through a lamp test, and then successively displays the model of the unit "SP3A" and the time in seconds from 60 (while the filaments and high voltage are slowly brought on) until the unit automatically un-mutes. The input display will show the last input in use from the last time the unit was on. When the countdown is complete the mute will be disengaged (if it was not on the last time the unit was shut down), the function displays will indicate the last state of use, and the volume will be ramped up to a relatively low level of 10. At this point the user will be able to change the settings.

The VTSP-3A incorporates circuitry to switch the phase of the audio signal by 180 degrees for absolute polarity control. The amber "**Invert**" light on the front panel will indicate if the phase is being inverted. The phase switching circuitry of the VTSP-3A is designed so that no coloration is added in either mode and the true effects

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of recorded phase polarity are audible in either mode. The invert mode can be controlled from both the front panel and the remote control.

Note: When the invert mode of the VTSP-3A is switched, the unit automatically mutes before changing modes in order to prevent any unwanted “pops” during switching. The unit unmutes after the invert mode is changed. The process takes less than a second.

The display brightness of the VTSP-3A can be dimmed from both the remote and the front panel by pushing the “**Display**” button. Operating the “Display” button again will return the brightness to its previous setting. The blue “Display” indicator on the front panel indicates dim-display mode.

Source input selection in the VTSP-3A incorporates gold-contact sealed relays located at the input connectors, keeping the signal path length to an absolute minimum. This innovative configuration eliminates the distortion-generating wipers of conventional selectors and long runs of wire from the rear panel to the switch. An additional benefit of

using sealed relays, the contacts are not prone to corrosion, dirt, or the same kind of wear as conventional selector switches.

The VTSP-3A has a power-polarity switch on the back panel for reversing the power line polarity connection to the primary of the power transformer. This can be used to minimize the capacitive reactance effects from the power line on the audio quality of the unit and system. This switch should be operated with the unit muted and comparison after unmuting can be made in order to determine the best-sounding power polarity switch setting.

The “**Video**” input of the VTSP-3A can be placed in unity-gain mode by pressing and holding the “Video” button on the front panel for a few seconds. The volume display will indicate “PAS” on the display when the pass-through mode is initiated; only the video input will be at unity gain. Selecting any other input will shut off the pass-through mode, and the volume will return to 10.

Note: The pass-through mode cannot be selected from the remote control.

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The VTSP-3A has an instant shut-down circuit that mutes the output upon loss of full line voltage (power loss). This feature provides protection from loud “pops” or noises from input equipment that may damage speakers. With a power loss of more than a few seconds, the unit will totally shut down, and go through the

full start-up sequence when power is restored. If the power outage is brief, the unit will mute and wait 10 to 15 seconds to unmute when the power is restored. This delay will allow DC signals from input components enough time to normalize so that loud “pops” will be minimized.

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Design Considerations

- Multifunction remote control
- Volume level display (0 - 100)
- Unity gain pass-through function-initiated by holding video button
- Two gain modes—selected by holding the phono button on the front panel
- Class A operation
- Switchable absolute polarity
- 100-step electronic volume control system with precision tracking and very low distortion
- Full-range, infinite-resolution indirect signal path balance control
- Stereo/mono switch
- Mute control
- Display brightness control
- Tape out/in loop
- Low noise design
- High input-signal capacity without overload
- Automatic muting at startup and shutdown
- Gold plated, Teflon-insulated RCA connectors
- Handpicked components for accurate response and consistent unit-to-unit quality
- Reversing power line (AC) polarity switch for minimizing line-to-chassis reactive currents and noise pickup
- Each unit is given an extensive burn-in, including rigorous bench and listening tests

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Front Panel Features



The three-digit volume level display in the display window at the center of the front panel indicates the volume level (0 to 100) and the parameters of the unit during start-up. It also indicates "PAS" during pass-through mode and Ldb or Hdb gain modes when the phono button is pushed.

The selected input is indicated by the blue lights on the left side of the front panel.

These inputs are:

- **Phono**
- **Aux**
- **CD**
- **Tuner**
- **Video**

The VTSP-3A has two gain modes for system matching. The VTSP-3A gain modes can be switched by holding the phono button in for 2 seconds. The high gain "Hdb" mode has 14 db gain and the low gain "Ldb" mode has 8 db total gain. The "Ldb"

gain mode is indicated by a decimal point in the volume level display window. The mode "Hdb" or "Ldb" are also indicated in the volume level display window anytime the phono mode button is pressed on the front panel or from the remote control. The Ldb mode is indicated by a decimal point in the volume display. The gain can only be changed from the front panel phono button and not from the remote control.

The **tape input** (loop) indicator is on the right side of the front panel. This input can be selected from either the front panel or the remote control after the unit has gone through the start-up sequence.

The **balance control** provides a full range of adjustment for relative balance between the right and left channels. In the centered position, each channel is equal in signal sensitivity. Rotating the balance

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control in the clockwise direction (to the right) decreases the volume in the left channel relative to the right channel. Rotating the balance control in a counter-clockwise direction (to the left) decreases the volume in the right channel relative to the left.

In the fully clockwise or counter-clockwise position, the left or right channel respectively will be muted. Normal operation is provided when the balance control is in the centered position. The "Balance" knob operates an infinitely variable control that is barely in the circuit at center position.

Note: The balance control cannot be operated from the remote.

The "**Volume**" knob operates a stepped encoder. Rotating the volume knob to the right increases the volume level, or to the left to decrease the volume level. The level is displayed from 0 to 100 in the display window. The volume can also be controlled from the remote control.

Note: Since the volume control is a stepped attenuator the individual steps of the volume control as it is raised or lowered may produce "clicks" for a short period after the unit, or input device has been turned on. This will be most noticeable between steps 29 and 30. These "clicks"

are the result of a D.C. voltage at the input of the unit causing instantaneous D.C. level shifts as the volume control steps up or down. This condition will usually subside after a few minutes as the D.C. level at the input from the source component dissipates.

The **red "Mute" light** indicates that the preamplifier is in mute mode and no signal will pass through the unit. During mute, the stepped attenuators are set to zero level and the output is shorted by a relay. The mute mode can be initiated or disengaged from the front panel or the remote control.

The **orange "Mono" light** indicates that the preamplifier is in monoaural mode. In mono mode, the unit mixes the left and right signals to monoaural so that the signals coming from the left and right channels are the same. Mono mode can be initiated or disengaged from the front panel or the remote control.

The **amber "Invert" light** indicates that the preamplifier is in phase-inverting mode. The invert mode reverses the absolute phase of both channels. The invert mode can be initiated or disengaged from the front panel or the remote control.

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The **amber “Tape” light** indicates that the tape input has been selected. The tape input allows the user to loop the selected input (source) signal out from the tape output through a tape machine or other processor, and listen to the signal coming back into the tape input. The tape input mode can be initiated

or disengaged from the front panel or the remote control.

The **blue “Display” light** indicates display mode. The display mode can be initiated or disengaged from the front panel or the remote control. Alternate function of the display mode dims the front panel display.

Rear Panel Features



The rear panel was designed for flexibility and ease of access to less-frequently used functions. The high-precision RCA input jacks are gold-plated to minimize signal-degrading corrosion. The special Teflon insulation material in the RCA connectors maintains purity of the signal from the input cable into the unit.

Power Connection

An IEC power cord connector is provided for attaching either the factory-provided power cord or another (appropriate cord) chosen by the user.

Power Switch

When the unit's POWER switch is placed in the on (“up”) position, the unit is powered up. At power up, the unit is automatically muted until full operational capabilities are reached and the voltages are stable at the tubes. When the switch is moved to the off position, the unit is automatically muted and powered down.

Power Line Polarity Switch

This switch selects the power-line polarity. AC line polarity may affect performance. The following is the

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recommended procedure for determining the best operation:

- With the mute engaged, set the power line polarity switch to the "A" position then disengage the mute.
- Set the volume control to the desired level and listen closely to the quality of the reproduction. This will be used as a baseline for determining AC polarity.
- Engage the mute function and change the AC polarity of the pre-amplifier by switching the power line polarity switch to the "B" position then disengage the mute for listening. Repeat the process, listening to the same source.
- Place the AC polarity switch in the position that sounds best. It may be necessary to change the AC polarity if you make other equipment or power connection changes in your audio system.

Note: The AC polarity switch should only be operated with the unit muted.

Inputs

The inputs are grouped by channel: the upper bank contains the left-

channel inputs, the lower contains the right-channel inputs. The left/right input pairs are arranged vertically. The input pairs are arranged on the back in the same order as on the front panel and remote (with the exception of the tape loop input).

RCA input plugs should be inserted firmly into the input jacks while the unit is powered down. Any individual ground-bleed connections should be connected to the gold ground lug located near the end of the banks of input jacks.

Outputs

There are two types of outputs in the VTSP-3A. The main outputs are intended for connection to high-quality power amplifiers or a multi-channel electronic crossover. Two pairs of main outputs are provided so that users may distribute the audio signal to multiple amplifiers.

The tape outputs are provided to allow monitoring of the selected audio signal after the input relays.

The signal from the tape output corresponds to the input chosen by the user and displayed on the front panel.

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Remote Control

Remote control functions:

- Input Selection
- Absolute Polarity
- Display Brightness
- Volume, Mute, and Mono/Stereo

The remote control is laid out in a fashion similar to the front panel of the VTSP-3A.

The input controls on the left side (top to bottom) are in the following order:

- **Phono**
- **Aux**
- **CD**
- **Tuner**
- **Video**

The volume is controlled with the two white buttons at the top center of the remote. The V2 button on the left decreases the volume. The V1 button on the right increases the volume.

The controls on the right side of the remote (top to bottom) are in the same order as the front panel:

- **Mute**
- **Mono**
- **Invert**
- **Tape**
- **Display**



Remote Control

NOTE: The balance control cannot be operated from the remote control.

The remote control will only control the unit if the top of the remote is pointed toward the display window of the VTSP-3A. The remote control uses two CR2025 3-volt lithium batteries.

Note: the + indicator on the batteries must be facing the back side of the remote. Installing the batteries in the wrong direction may damage the remote control.

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Installation and Operation

Operation of the Herron VTSP-3A stereo preamplifier is straightforward. As with any fine audio component, careful setup and integration into one's system is important for optimum performance, safety, and reliability. Please read through the following setup instructions completely prior to operating the unit.

Procedure

1. Position the unit in a well-ventilated area on a firm, stable surface, away from equipment that generates alternating magnetic fields such as motors, transformers, etc. Magnetic fields of this type can introduce hum into the signal path.
Good ventilation is important in order to prevent overheating of the unit. Excess heat will shorten the life of the unit.
2. Connect the signal cables from the source components (CD, phono preamplifier, VCR, tuner, etc.) to the VTSP-3A's rear panel jacks, left-to-left and right-to-right. Connect any ground bleed wires to the ground connector of the phono preamplifier.
3. Plug the amplifier and tape recorder input cables into the corresponding outputs, left-to-left and right-to-right.
4. Plug the power cord into the IEC socket. Make sure it is firmly seated prior to inserting the plug into an AC outlet.
5. Plug the power cord into a 115-volt (U.S. spec units) AC outlet.
6. Power up the source components.
7. Power up the VTSP-3A by switching on the power switch.
8. Once the VTSP-3A is powered up and operating, power up the downstream amplifier(s) and crossover, if any, as recommended by their manufacturers.
9. With the Volume control in the lowest position, gradually increase the gain until the desired level is reached.
10. When the listening session is complete, it is suggested, but not required, that the VTSP-3A be powered down after the crossover, amplifiers, and tape recorder, and before the source components.

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Power Requirements

It is recommended that the VTSP-3A stereo preamplifier be connected to the same power source (dedicated circuit) as the other source components (phono stage, turntable, CD player, SACD player, etc.) and power amplifiers in the audio system.

This will reduce the component-to-component differential RFI (radio frequency interference from power lines which act as receiving antennas) level that will be required to be conducted by the audio interconnects, which are a very important part of the audio chain. RFI can add brightness and lack of clarity to an audio system.

With the higher definition and detail available through the VTSP-3A, careful attention to the setup of other components will

yield significant benefits. There may also be considerable gains from the upgrade of existing electronics.

We recommend the use of high-quality interconnecting cables between the source components and the VTSP-3A, and between the VTSP-3A and components downstream of it (the power amplifiers and speakers).

Due to the increased definition of detail, it may be necessary to make minor adjustments in speaker position or active crossover settings to optimize their performance. We have determined that minor time alignment changes in a setup can produce major advances in the overall quality of the reproduced signal, bringing the listener closer to the original performance.

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Changing Tubes

We do not recommend changing tube brands for the purposes of “improving sonic performance.” Tubes of even the same part number (6922 in the case of the VTSP-3A) from different manufacturers and different production lots generally vary considerably in many operating parameters. The Herron VTSP-3A stereo preamplifier has been optimized for the tubes that were supplied by the factory. The original tubes should provide many years of good performance due to the design’s conservative plate voltage and current operating requirements. If replacement tubes are required, Herron Audio recommends the use of our factory-matched sets of tubes.

These tubes have been selected for their superior performance.

All 6 tubes in the Herron VTSP-3A are of the type 6922.

When changing tubes, the VTSP-3A should be unplugged and left off for a minimum of 30 minutes prior to opening the unit, to insure that hazardous voltages in the power supply have time to discharge.

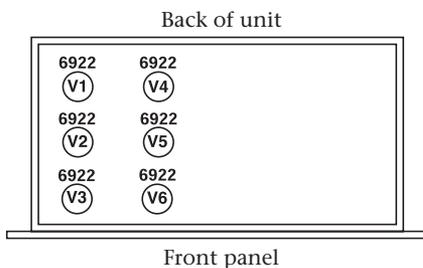
Left channel:

Tubes V1, V2, and V3

Right channel:

Tubes V4, V5, and V6

Tube Locations



CAUTION



When changing tubes, the VTSP-3A should be unplugged and left off for a minimum of 30 minutes prior to opening the unit to insure that hazardous voltages in the power supply have time to discharge before entering the unit.

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Technical Specifications

Frequency response:	1 Hz to beyond 100 kHz, 20 Hz to 20 kHz \pm 0.1 dB volume at 30
Output impedance:	100 ohms nominal at 1 kHz
Input impedance:	100,000 Ohms
Gain:	14 dB in Hdb mode, 8 dB in Ldb mode
Volume control:	100-position electronic stepped attenuator, maximum differential 0.1 dB channel to channel
Absolute polarity:	Switchable
Front panel:	Available in black or clear anodized aluminum
Tubes:	Qty. six, 6922 dual triodes
Dimensions:	17.6" wide \times 4" high \times 10.5" deep
Warranty:	3 years, parts and labor; tube warranty: 90 days

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FCC Notice

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.

Caution!

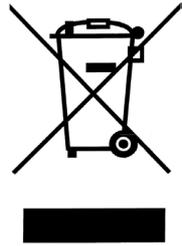
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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Re-cycling

Correct Disposal of Waste Electrical and Electronic Equipment (WEEE) by User in Private Households in the EU.

This symbol on the product or accessories indicates that they must not be disposed of with your household wastes throughout the EU. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. Instead it is your responsibility to dispose of your waste equipment by handing it over to a designated WEEE collection point for recycling. The separate collection and recycling of your waste equipment will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment.



For more specific information about where you can take your equipment for recycling please contact your local city/council office, your local waste disposal service or the outlet where you purchased your RadiusHD product.

RoHS Compliance

Directive 2002/95/EC of the European Parliament and of the Council on the reduction of the use of certain hazardous substances in electrical and electronic equipment, January 2003.

Background

The RoHS directive restricts the use of Lead (Pb), Cadmium (Cd), Mercury (Hg), hexavalent Chromium (CrVI), polybrominated biphenyl (PBB) compounds, and polybrominated diphenyl ether (PBDE) compounds in electrical and electronic equipment sold in the European Union.



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