

EMOTIVA®



XSP-2

Differential Reference™ Stereo Preamplifier

User Manual

Important Safety Precautions and Explanation of Symbols



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important installation, operation, and service instructions in this manual.



The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated dangerous voltages within the enclosure that may be of sufficient magnitude to constitute a risk of electrical shock to the user.

Please read this manual thoroughly before attempting to install, configure, or operate the XSP-2 Differential Reference Stereo Preamplifier. After successful installation and configuration of the XSP-2, be sure to retain this manual in a safe place for future reference.

Safety is a key component to a long lasting and trouble free installation. Please read and follow all instructions and heed all warnings on the XSP-2 and in this manual. The vast majority of the subsequent safety precautions are common sense. If you are not comfortable with the installation of audio/video entertainment equipment, you should seek the services of a qualified installation professional or call us for help.



WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT USE THE XSP-2 NEAR WATER OR IN WET LOCATIONS, DO NOT EXPOSE IT TO RAIN OR MOISTURE, DO NOT EXPOSE IT TO DRIPPING OR SPLASHING FROM OTHER SOURCES, AND ENSURE THAT NO OBJECTS FILLED WITH LIQUIDS (SUCH AS VASES) ARE PLACED ON IT. DOING SO MAY RESULT IN DAMAGE TO THE UNIT AND THE RISK OF ELECTRIC SHOCK, WHICH MAY RESULT IN BODILY INJURY OR DEATH.



WARNING: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE THE COVER FROM THE XSP-2. THERE ARE NO USER-SERVICEABLE PARTS INSIDE THE UNIT. REFER ALL SERVICE TO QUALIFIED SERVICE PERSONNEL.

Do not install the XSP-2 near or above any heat sources such as radiators, heating vents, or other apparatus' that produce heat. Do not block any ventilation openings or heat sinks. Avoid installing the unit directly above other heat-producing equipment unless sufficient ventilation or forced-air cooling is provided.

Do not install the XSP-2 in locations without proper ventilation. The XSP-2 should not be operated on a bed, sofa, rug, or similar surface that may block vents. The unit should not be installed in an enclosed location such as a bookcase, cabinet, or closed equipment rack unless sufficient forced-air ventilation is provided.

Always install your XSP-2 according to the manufacturer's instructions and only use attachments or accessories specified by the manufacturer.

Do not install the XSP-2 on any stand, shelf, or other piece of furniture that is unable to support its weight. If a cart is used to move the unit, use caution to avoid injury from tip-over.

Connect the XSP-2 only to power sources of the correct voltage (as shown in this manual and on the XSP-2 unit).

Protect power supply cables from being pinched, walked on, or otherwise damaged. Be especially careful where the power cable enters the power outlet and the unit.

Only connect the XSP-2 to an electrical outlet or extension cord of appropriate type and rating.

DO NOT defeat the safety purpose of a grounding or polarized plug by removing ground pins or using unsafe adapters. A polarized plug has two blades - one wider than the other. A grounding plug has a third ground prong in addition to the two main conductors. The wide blade or third grounding prong is provided for your safety. If the provided plug does not fit your outlet, consult an electrician to replace your obsolete outlet. If you replace the power cord, only use one of similar type and equal or greater current rating.

The power cable for the XSP-2 should be unplugged from the outlet during severe electrical storms, or when unused for a long period of time.

Only replace the fuse(s) in the XSP-2 with fuse(s) of proper value and voltage rating.



The XSP-2 should only be cleaned as directed in the manual. Avoid spraying liquids directly onto the unit and NEVER spray liquids into the vents. Care should be taken so that small objects do not fall into the inside of the unit.

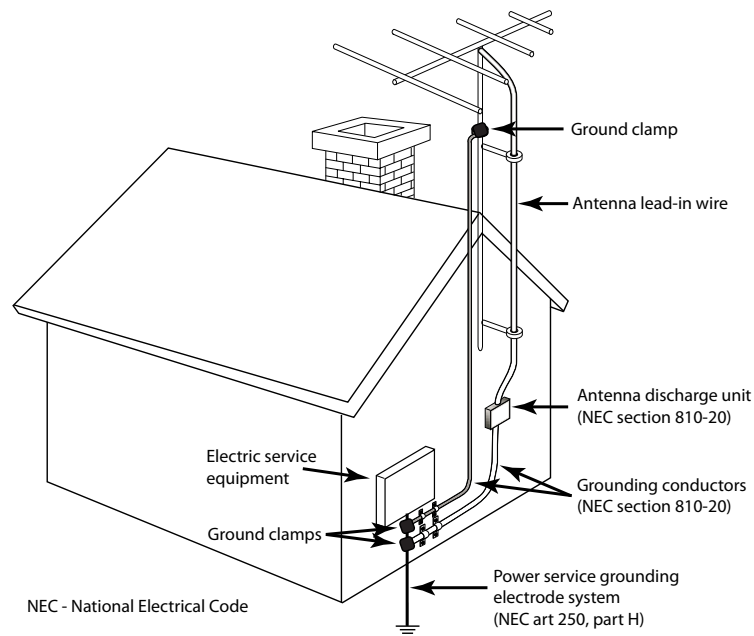
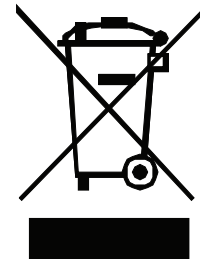
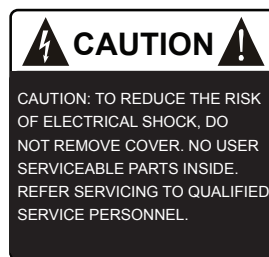


You should seek service for your XSP-2 by qualified service personnel if any of the following occur:

1. The power-supply cord or the plug has been damaged.
2. Objects or liquid have fallen or spilled into the vents.
3. The unit has been exposed to rain.
4. The unit exhibits a marked change in performance.
5. The unit has been dropped, or its enclosure or chassis is damaged.

NOTE: TO COMPLETELY DISCONNECT THE XSP-2 FROM THE AC POWER MAINS, DISCONNECT THE AC POWER CORD FROM THE AC RECEPTACLE.

NOTE: THE POWER CORD ON THE XSP-2 MUST REMAIN READILY ACCESSIBLE AT ALL TIMES.



FCC Statement

1. 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.

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

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.

Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20 cm between the radiator & your body.



XSP-2 *Differential Reference* Stereo Preamplifier

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XSP-2 *Differential Reference* Stereo Preamplifier

Introduction

The XSP-2 Differential Reference Stereo Preamplifier is the culmination of our years of experience in designing and building audiophile quality analog stereo preamps. The XSP-2 features a fully analog fully differential signal path, from its balanced analog inputs to its balanced main and subwoofer outputs, and that includes a fully balanced precision bass management filter system. All signal switching is implemented using high quality sealed subminiature relays, controlled by sophisticated processor based logic, for the ultimate in convenience. The XSP-2 includes two balanced stereo analog inputs, and four unbalanced stereo analog inputs, as well as a superb phono preamp, which supports both Moving Coil and Moving Magnet cartridges, and a processor loop for connecting legacy equalizers and other similar devices. The XSP-2 also includes a Home Theater Bypass input which accepts both balanced and unbalanced inputs.

However, since many of our customers now also have a variety of digital audio sources, when you receive your XSP-2 it will arrive with one of its two expansion ports occupied by our audiophile grade DAC module. The DAC module, which is entirely isolated from the analog circuitry in the XSP-2, with the exception of its connection to an internal analog input on the preamp, adds a selection of digital inputs, including dual Coax and Toslink S/PDIF inputs, supports two-channel PCM digital audio via USB at sample rates up to 768k, and even includes an HDMI-ARC input that can accept digital audio directly from your TV. An optional audio streamer expansion module is planned for the near future.

The XSP-2 can be controlled via its front panel controls, which include a Volume knob calibrated in precise 0.5 dB steps, or via the included all-metal infrared remote control. The sharp bright blue OLED display shows the Input you have selected and your current Volume setting, can be adjusted over a wide range of brightness settings, and can be fully dimmed if you prefer. When fully dimmed the display will still illuminate momentarily when the status changes or you operate a control. The front panel also includes a full-sized 1/4" headphone jack, powered by a powerful low distortion buffer amplifier, which can power any normal headphone to satisfactory listening levels.

The Bass Management on the XSP-2 is handled by sets of fully balanced fixed frequency 12 dB/octave filters, which enable you to independently adjust the low-pass and high-pass frequencies over a series of precise 10 Hz steps, and Bass Management can be configured for either full stereo operation or to provide a summed monaural subwoofer output.

In short, the Emotiva XSP-2 Differential Reference Preamplifier is everything we would want in a top quality stereo preamp... and we're sure you'll agree.

Happy listening!

The Emotiva Team

About This Manual

This manual will provide you with all the information you need to get started enjoying your XSP-2 Differential Reference Preamplifier.

We suggest that you read through the entire manual; we kept things as short and direct as possible. Even if you're an expert user, you will probably find some interesting information and useful suggestions.

You may wish to keep a copy of this manual with your records, and record serial numbers or other purchase information on the Notes page at the back.

XSP-2 *Differential Reference* Stereo Preamplifier

Features

The XSP-2 Differential Reference Preamplifier has so many features that we hardly know where to begin. The following is just a short list of some of the most important ones.

- **A fully balanced, fully differential, purely analog, signal path** - First and foremost the main signal path in the XSP-2, from its balanced XLR inputs, to its balanced XLR Main and Subwoofer outputs, is fully balanced and fully differential. That includes a fully balanced Volume control and fully balanced precision Bass Management High Pass and Low Pass Filters.
- **Relay switching** - All audio switching is done using fourth generation hermetically sealed subminiature relays to maintain absolute signal purity throughout the entire audio signal path.
- **Premium audiophile quality active components used throughout** – including Burr Brown OPA1678 op amps for line level signals, Burr Brown OPA1656 ultra low noise op amps and Burr Brown OPA1678 low distortion op amps in the phono preamp, and Burr Brown OPA1688 high current drivers for the headphone output.
- **Audiophile quality ladder network Volume Control** – The Rohm BD34701KS2 premium volume control chip provides precision, perfectly matched, fully balanced, and fully analog control for the analog signal paths inside the XSP-2, while offering the convenience and precision of digital control.
- **Independent precision-tuned Bass Management filters** – Each Low Pass and High Pass filter, for each channel, is implemented as a separate precision 12 dB/octave fixed frequency filter circuit. This ensures both precise frequency selection, and perfect matching between channels, and between low pass and high pass filters. (The configuration option simply chooses which filter is switched into the signal path.)
- **Full stereo Bass Management** – Fully independent Bass Management is provided for each channel. The two Subwoofer Outputs can be kept separate to offer true stereo Bass Management. Or, if you prefer, or only have one Sub, the Subwoofer Outputs can receive a summed mono Subwoofer signal.
- **A full selection of analog inputs for all of your analog sources** – including four pairs of unbalanced line level inputs, two pairs of balanced line level inputs, one pair of phono inputs, and one pair of unbalanced Processor Loop inputs.
- **A Home Theater Bypass Input** – which allows you to route the input from a separate balanced or unbalanced source directly to the output of the XSP-2 bypassing the circuitry and controls in the XSP-2.
- **A Processor Loop** – which can be used to insert an external processor, like a graphic equalizer, or a dedicated speaker equalizer box, into the signal path.
- **Top quality parts and construction** - Double sided FR4 circuit boards with plated through holes, SMD construction, and high quality parts throughout, ensure that your XSP-2 will continue to provide years of reliable service.
- **Highly optimized circuit layout** – ensures the best possible sound quality, with low distortion, wide bandwidth, and a virtually silent noise floor.

XSP-2 *Differential Reference* Stereo Preamplifier

- **Large blue OLED display and flexible menu system** – The large blue high resolution OLED display is easy to read, gives you all the information you need, and can be fully dimmed for intimate listening. The flexible menu system offers easy access to all important features and makes menu navigation a breeze.
- **Mute control** – allows you to mute the audio output on your system, and then return precisely to your previous listening level, at the push of a knob or the click of a button.
- **Separate headphone output with intelligent headphone level control** – A separate high current buffer amplifier delivers a high quality signal to drive your favorite headphones for personal listening. The intelligent level feature independently remembers the levels you set for your headphones and your main outputs.
- **Full function remote control** – lets you operate all of the controls without getting out of your favorite listening seat. Quick access buttons allow you to quickly select between your favorite analog or digital inputs.
- **Heavy steel 3RU chassis with milled aluminum face plate** - provides strength and rugged good looks.
- **Universal AC line voltage operation** - The XSP-2 has a high performance low noise switch mode power supply that can operate on anything from 100 VAC to 240 VAC.
- **Full five year warranty** - ensures that you'll be able to enjoy your XSP-2 for years to come.

The XSP-2 has a fully balanced, fully differential, pure analog main signal path.

However, the XSP-2 also includes a pair of rear panel slots, which enable the XSP-2 to act as a host for digital input options, like a precision DAC or an audiophile quality streamer, while keeping them totally isolated from the pristine analog signal paths in the XSP-2, except at the point where their analog outputs are coupled to internal analog inputs on the XSP-2.

Your XSP-2 will be shipped with our matching audiophile quality high performance DAC module pre-installed in one of its expansion slots. The following digital features are provided by this DAC module.

- **A full selection of digital inputs for all of your digital sources** – including two Coax S/PDIF Inputs and two Toslink optical S/PDIF Inputs, which both support sample rates up to 24/192k, a high performance USB DAC Input that supports two-channel PCM audio at sample rates up to 24/768k, and an HDMI-ARC Input.
- **A true audiophile quality DAC** – Digital to analog conversion is performed by the ESS ES9038Q2M SABRE³² Reference DAC chip, which includes superb audio performance, excellent built-in jitter immunity, and support for a wide variety of sample rates.
- **Premium audiophile quality active components here too** – including Burr Brown OPA1656 low noise op amps in the critical I/V converter stages.
- **Complete isolation between digital circuitry and the analog signal path** – The DAC module in the XSP-2 is entirely separate from the analog circuit path. The only connection between them is the signal path between the analog output of the DAC and an internal analog input on the XSP-2.

Unpacking

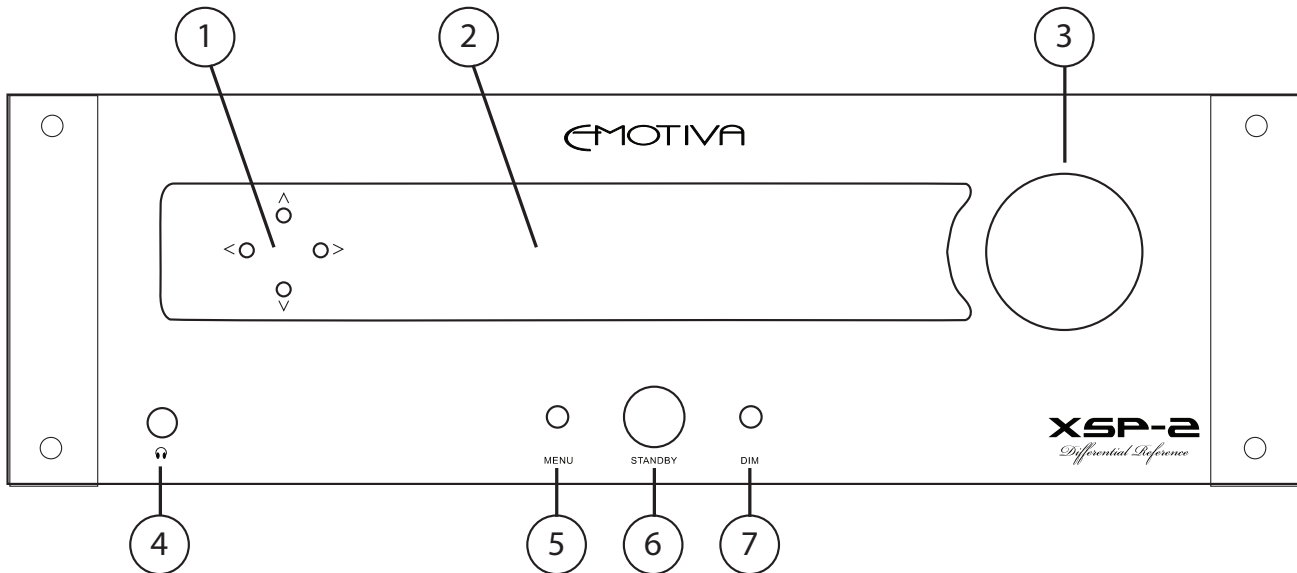
Your XSP-2 Differential Reference Preamplifier was carefully packed and should reach you in perfect condition. If you notice any shipping damage or other issues when you unpack it, please contact Emotiva immediately.

Gently remove your XSP-2 unit from the packing carton and remove all wrappings and shipping material.

It is important to save the box and all packing materials in case your preamplifier unit ever needs to be moved or shipped back to the factory for service.

We truly value customer feedback and would like to hear from you.

XSP-2 Front Panel



1. Volume / Input Select / Menu Navigation Buttons

In normal operation the Up and Down arrow buttons are used to adjust the Volume.
In normal operation the Left and Right arrow buttons cycle through the available Inputs.
Pressing the Volume Knob momentarily toggles the Mute function On and Off.
All four arrow buttons are also used to navigate the Menu.

2. High Resolution Blue OLED Display

In normal operation the bright easy-to-read blue OLED display shows the currently selected Input and Volume setting. It displays a graphical Volume Bar momentarily when you adjust the Volume and various Menu items when you navigate the menu. The brightness of the display can be adjusted in five steps, or it can be completely dimmed, only brightening momentarily when you make an adjustment. The brightness of the halo rings around the front panel controls also follows the brightness you set for the display.

3. Volume Knob

The Volume Control knob on the XSP-2 is a digital encoder which controls the precision digitally controlled analog ladder Volume Control in discrete 0.5 dB steps. The lowest step fully mutes the output and pressing the Volume Knob momentarily toggles the Mute on and off.

4. 1/4" Headphone Output

Use this jack to connect a pair of high quality headphones. The main outputs are muted when headphones are inserted. The Volume setting for the headphones is set and retained separately from the main Volume setting.

5. Menu Button

Press the Menu Button once to enter the Menu System and again to return to normal operation.

See the ***XSP-2 Display and Menu System*** section for more details.

6. Standby Button

When the XSP-2 is in Standby the halo ring around the Standby Button will be lit Amber. Press the Standby Button once to turn the XSP-2 On when it is in Standby.

When the XSP-2 is On the halo ring around the Standby Button will be lit Blue. The halo rings around the Volume Control and buttons, and the display, will also be lit. Press the Standby Button once to set the XSP-2 to Standby when it is in On.

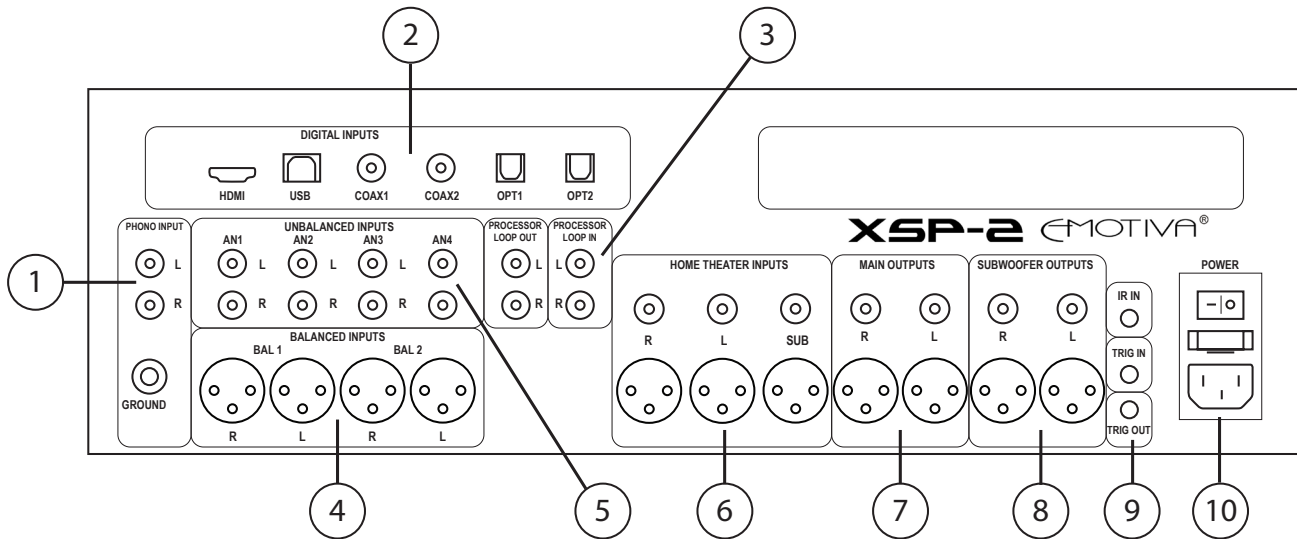
Note: The Rear Panel Power Switch must be On in order for the XSP-2 to operate.

Note: If the Dim setting is set to Dim Off then the display and the halo rings will only light momentarily when you press a button or change the Volume.

7. Dim Button

This setting affects the brightness of the OLED display and the halo rings around the buttons. Pressing the Dim Button cycles through the display brightness options; Dim 1 is the lowest and Dim 5 is the brightest. If the Dim setting is set to Off then the display, the halo rings, and the front panel LEDs will only light momentarily when you press a button or change the Volume.

XSP-2 Rear Panel



1. Phono Input

Connect the Left and Right outputs from your turntable to the Phono Inputs on the XSP-2. If your turntable provides a separate ground connection connect it to the Ground lug.

SET THE CORRECT CARTRIDGE TYPE FOR YOUR PHONO CARTRIDGE IN THE SETUP MENU.
(Cartridges will be either Moving Magnet (MM) or Moving Coil (MC).)

Note: Some turntables may not provide a separate ground lead. You may also find that, even on some turntables that provide a ground lead, you get less hum when it is disconnected.

Note: The Phono Input is intended to accept the low-level output from a moving magnet or moving coil phono cartridge, and includes RIAA phono equalization. **DO NOT** connect a line level source to this input or the sound will be distorted and you may damage the Phono Input. If your turntable has a built-in phono preamp, and provides a line level output, then you should connect it to a Balanced or Unbalanced Analog Input instead.

Note: The manufacturers of some phono cartridges may instruct you to set the gain switch to MM for a “high output moving coil cartridge”; always follow manufacturer’s recommendations.

Note: Connecting a low-level output from a cartridge to the XSP-2, with the cartridge type set incorrectly, will result in **VERY** poor - and typically muffled - sound quality, but will not damage anything.

2. Digital Audio Inputs

The XSP-2 provides several different digital audio inputs to accommodate a variety of digital audio sources.

- The asynchronous USB Input accepts digital audio from a computer or other digital audio source that supports an external USB audio device. It supports stereo PCM digital audio at all standard sample rates up to 24/768k.
- The Coax Inputs accept PCM electrical S/PDIF digital audio signals up to 24/192k. These inputs are often used to connect the digital audio output from a CD player or Blu-Ray disc player. These inputs ONLY accept STEREO PCM audio signals. If you connect a Coax output from a surround sound device to one of these inputs be sure to configure the source device for 2.0 Channel Stereo PCM.
- The Optical Inputs accept PCM optical S/PDIF digital audio signals, often referred to as Toslink, up to 24/192k. These inputs are used to connect the Toslink output from a TV, disc player, or media player. These inputs ONLY accept STEREO PCM audio signals. If you connect a Toslink output from a surround sound device or TV to one of these inputs be sure to configure the source device for 2.0 Channel Stereo PCM.

Note: The USB audio input on the XSP-2 utilizes an asynchronous USB Audio Class 2 type input, which can be connected directly to Windows 10 computers, and to Apple computers with standard USB audio outputs, and should work without installing a separate driver.

3. Processor Loop In and Processor Loop Out

The Processor Loop is used to route the selected Input signal through an external equalizer or other audio processor device. (In older gear this was sometimes referred to as a Tape Monitor.)

THE OPTION TO ENABLE AND DISABLE THE PROCESSOR LOOP IS CONTROLLED ONLY FROM THE REMOTE CONTROL (NOT THE SETUP MENU).

When the Processor Loop is On the signal from whatever Input is selected is routed to the external processor device via the rear panel Processor Loop Out jacks and should be routed back to the XSP-2 via the rear panel Processor Loop In jacks.

Note: ALL OTHER SIGNAL PATHS IN THE XSP-2 ARE FULLY BALANCED, but the Processor Loop is unbalanced, and offers only unbalanced connections. Both Balanced and Unbalanced Inputs and Outputs will work normally if you use the Processor Loop, but signals that are routed through the Processor Loop will no longer be fully balanced, and will be converted internally.

Note: The Front Panel Display will momentarily display PRO Loop ON or PRO Loop OFF when you engage or disengage the Processor Loop. (But there will be no other indication when the Processor Loop is engaged.)

4. Balanced Line Level Analog Inputs

Use these inputs to connect your Balanced Analog (XLR) Line Level sources. If your source offers both balanced and unbalanced connections the balanced connection is generally considered to be the best option.

5. Unbalanced Line Level Analog Inputs

Use these inputs to connect your Unbalanced Analog (RCA) Line Level sources. If your source offers both balanced and unbalanced connections the balanced connection is generally considered to be the best option.

6. Home Theater Bypass Inputs (Balanced and Unbalanced)

The Home Theater Bypass on the XSP-2 allows you to use the amplifier and speakers connected to the XSP-2 with other sources - typically with a surround sound system.

The Home Theater Bypass on the XSP-2 offers the option of connecting *EITHER* a Balanced (XLR) *OR* an Unbalanced (RCA) source. When Home Theater Bypass is On the source connected to the Home Theater Bypass Inputs is routed directly to the Main Outputs of the XSP-2 and bypasses all of the controls and Bass Management in the XSP-2 (including the Volume Control).

Both balanced and unbalanced sources will be routed to both balanced and unbalanced outputs (unbalanced inputs will be converted to balanced signals if necessary).

THE OPTION TO CONFIGURE WHETHER TO USE THE BALANCED OR UNBALANCED HOME THEATER BYPASS INPUTS IS LOCATED IN SETUP MENU.

THE OPTION TO TURN THE HOME THEATER BYPASS ON OR OFF IS CONTROLLED ONLY FROM THE REMOTE CONTROL (NOT THE SETUP MENU).

Note: The Front Panel Display will momentarily display HT Bypass ON or HT Bypass OFF when you turn the Home Theater Bypass On or Off. (But there will be no other indication when the Home Theater Bypass is engaged.)

7. Main Outputs (Balanced and Unbalanced)

This is the main Analog Output that you will connect to the inputs of the amplifier that powers your main left and right speakers. Both Balanced (XLR) and Unbalanced (RCA) outputs are active at all times and are controlled by the main Volume Control.

THE XSP-2 HAS FULLY INDEPENDENT BASS MANAGEMENT OPTIONS ON THE MAIN AND SUBWOOFER OUTPUTS WHICH ARE CONFIGURED IN THE SETUP MENU.

THE MAIN OUTPUTS CAN BE CONFIGURED FOR FULL RANGE OUTPUT OR WITH A PRECISION HIGH PASS FILTER AT A CHOICE OF 40Hz, 60Hz, 80Hz, or 100Hz APPLIED (HIGH PASS FILTER).

8. Subwoofer Outputs (Balanced and Unbalanced)

These are the outputs that you will connect to the inputs of one or two powered subwoofers.

THE XSP-2 HAS FULLY INDEPENDENT BASS MANAGEMENT OPTIONS ON THE MAIN AND SUBWOOFER OUTPUTS WHICH ARE CONFIGURED IN THE SETUP MENU.

THE SUBWOOFER OUTPUTS CAN BE CONFIGURED FOR FULL RANGE OUTPUT OR WITH A PRECISION LOW PASS FILTER AT A CHOICE OF 40Hz, 60Hz, 80Hz, or 100Hz APPLIED (LOW PASS FILTER).

THE SUBWOOFER OUTPUTS CAN BE CONFIGURED FOR EITHER FULL STEREO OPERATION OR WITH A SUMMED MONO OUTPUT DELIVERED TO BOTH SUBWOOFER OUTPUTS (MONO / STEREO).

THE LEVEL OF THE SUBWOOFER OUTPUTS CAN BE ADJUSTED USING THE SUBWOOFER TRIM ADJUSTMENT - WHICH IS ACCESSED USING THE REMOTE CONTROL (SUB).

9. IR In / Trigger In / Trigger Out

Use this input to connect a standard passive "IR eye" to the XSP-2 to extend the range of the remote control.

A 12 VDC signal is sent from the Trigger Output of the XSP-2 to turn on other devices when the XSP-2 is turned on. This signal can be used to turn on other trigger-enabled audio equipment such as a power amplifier.

The XSP-2 will turn on when it receives a trigger signal from another trigger enabled device. The XSP-2 will accept trigger signals between 5V and 12V AC or DC. (Most devices use a 12 VDC trigger signal.)

Note: A trigger signal will only turn on the XSP-2 if the XSP-2 is in Standby mode - with the rear panel AC Power Switch in the On position.

10. AC Power Switch / Fuse Holder / IEC Power Cable Receptacle

The AC Power Switch is used to turn the main AC power to the XSP-2 On and Off.

When the AC Power Switch is Off the XSP-2 will not respond to the front panel or remote control.

The XSP-2 can be used with any three-wire standard IEC power cable.
(A high quality power cable is included with the XSP-2.)

If you suspect that the fuse on your XSP-2 has blown you can test it using a standard continuity tester.

If you suspect or have confirmed that the fuse has blown it should be replaced with a fuse of the same size and rating.

If the replacement fuse blows immediately then please contact the Emotiva Service Department for support.

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The fuse holder on the XSP-2 is located on the rear panel between the power switch and the power cable. The fuse is located inside the fuse holder - which opens like a drawer.

Replace the fuse in the XSP-2 with a 20mm 500mA/250V Time Delay (slow blow) fuse.

(The fuse that ships in your XSP-2 may have a non-standard number code on it.)

If the fuse blows immediately after you replace it, or blows repeatedly in the future, please contact Emotiva Support.

To access or change the fuse do the following:

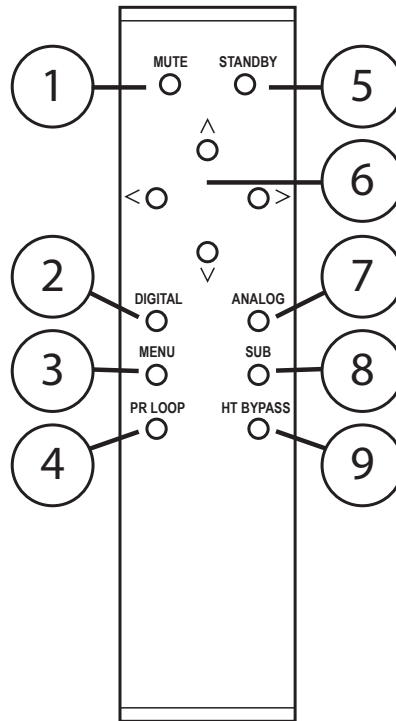
- Remove the power cable.
- Pry outwards on the cover of the fuse holder. (The easiest way to do this is to use a small screwdriver or dull knife. With your screwdriver held flat against the rear panel, reach across the power cable opening, and pry outwards on the small tab on the edge of the cover of the fuse holder toward the opening. The fuse holder will snap - slide outwards like a drawer - and stop before coming fully out.)
- Now, with the fuse holder out as far as it will go, grasp it firmly by the sides, as close to the rear panel of the unit as you can. If you now squeeze the sides of the fuse holder firmly, while gently wiggling it from side to side, the fuse holder will come completely out of the XSP-2.
- You will then be able to access or replace the fuse.
- To replace the fuse holder simply insert it in the proper location and press it firmly into the unit. The fuse holder will snap in place when it is fully inserted.

Note: Replace the fuse in the XSP-2 with a 20mm 500mA/250V Time Delay (slow blow) fuse. (The fuse that ships in your XSP-2 may have a non-standard number code on it.)

Note: The fuse holder drawer has two openings on the top. The fuse goes in the compartment towards the inside end of the drawer.

Note: The fuse in the XSP-2 may come with a small split black rubber band around it. This band helps keep the fuse from falling out when you handle the drawer. If you replace the fuse, you may transfer the rubber band to the new fuse, but don't worry if you lose it.

XSP-2 Remote Control



1. Mute Button

Press this button to mute the audio output; press it again to return the audio to its previous level.

2. Input Select Button (Digital)

The first time this button is pressed it selects the last used Digital Input. Each time you press it after that will sequence through the available Digital Inputs.

3. Menu Button

This button toggles the Setup Menu on and off.

4. Processor Loop Button

This button toggles the Processor Loop On (Enabled) and Off (Disabled).

When you press the button the status will change and the current status will be displayed momentarily on the Front Panel Display.

When the Processor Loop is enabled, whatever Input is selected on the XSP-2 is routed to the rear panel Processor Loop Output, and the signal that comes back from your external processor through the Processor Loop Input is passed on the the preamp, and eventually to the Main Output.

Note: *The Processor Loop Input and Output are unbalanced. When the Processor Loop is Enabled, any balanced Input signal that is selected will be converted into an unbalanced signal to send to the external processor, and the unbalanced signal returned by the processor will be converted back into a fully balanced signal, before being routed back to the fully balanced circuitry inside the preamp.*

5. Standby Button

Press the Standby Button once to turn the XSP-2 On when it is in Standby.
Press the Standby Button once to set the XSP-2 to Standby when it is in On.

Note: *The Rear Panel Power Switch must be On in order for the XSP-2 to operate.*

6. Navigation Buttons

In normal operation, pressing the Left and Right arrows will switch Inputs, and the Up and Down arrows will raise and lower the Volume.

Note: *When the Setup Menu is engaged, the arrows are used for menu navigation.*

Note: *Unlike the Analog and Digital Input Select Buttons the Left and Right arrow buttons cycle through ALL Inputs - both Digital and Analog.*

7. Input Select Button (Analog)

The first time this button is pressed it selects the last used Analog Input.
Each time you press it after that will sequence through the available Analog Inputs.

Note: *When the Setup Menu is engaged, the arrows are used for menu navigation.*

8. Subwoofer Button

This button accesses the Subwoofer Level Trim function.

When you press this button the current Subwoofer Trim Level will be displayed, and you will be able to raise or lower the level of your Subs, relative to the Main speaker level, by up to +/- 10 dB, in 1 dB steps.

After making your adjustment you may return to normal operation by pressing the Sub Button again or by pressing the Left Arrow Button.

Note: *THESE SETTINGS ARE RETAINED.*

9. Home Theater Bypass Button

The Home Theater Bypass on the XSP-2 allows you to use the amplifier and speakers connected to the XSP-2 with other sources - typically with a surround sound system.

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The Home Theater Bypass on the XSP-2 offers the option of connecting *EITHER* a Balanced (XLR) *OR* an Unbalanced (RCA) source. When Home Theater Bypass is On the source connected to the Home Theater Bypass Inputs is routed directly to the Main Outputs of the XSP-2 and bypasses all of the controls and Bass Management in the XSP-2 (including the Volume Control).

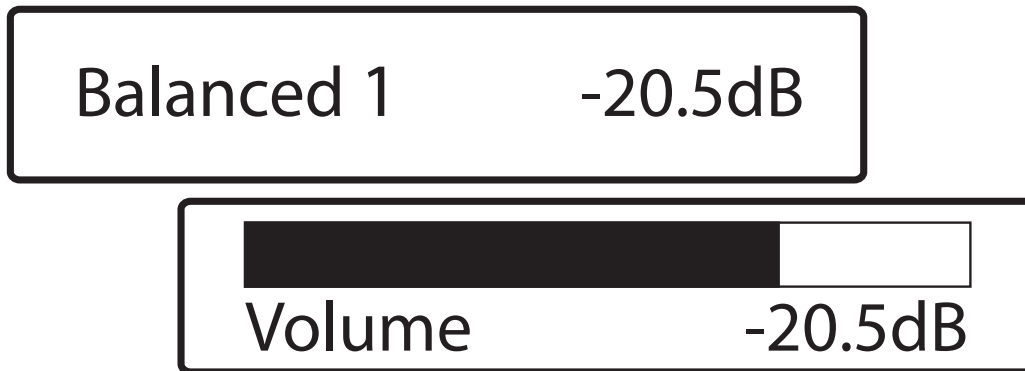
Both balanced and unbalanced sources will be routed to both balanced and unbalanced outputs (unbalanced inputs will be converted to balanced signals if necessary).

THE OPTION TO CONFIGURE WHETHER TO USE THE BALANCED OR UNBALANCED HOME THEATER BYPASS INPUTS IS LOCATED IN SETUP MENU.

THE OPTION TO TURN THE HOME THEATER BYPASS ON OR OFF IS CONTROLLED ONLY FROM THE REMOTE CONTROL (NOT THE SETUP MENU).

Note: The Front Panel Display will momentarily display BT Bypass ON or HT Bypass OFF when you turn the Home Theater Bypass On or Off. (But there will be no other indication when the Home Theater Bypass is engaged.)

XSP-2 Display and Menu System



The XSP-2 features a large, easy to read, blue OLED display which keeps you informed of the current status at all times.

In normal operation this display will show the currently selected Input and the current Volume setting. When you change the Volume setting, the display will momentarily switch to a numerical display of the Volume setting, with a thermometer bar showing the relative Volume setting above it. When you are navigating the Menu the display will show two lines of text indicating the current Menu information or chosen value. The Front Panel Display can be configured with a choice of five different brightness settings, or set to be fully Off, using the Dim function.

(If the Display is set to Off, it will still illuminate momentarily when you press a button or change a setting, or when the digital input signal changes, but will then return to fully off.)

The Volume settings for the Main Output and the Headphone Output are retained separately on the XSP-2. This means that, if you change the Volume while headphones are plugged in, the change will only affect the headphones. When you unplug the headphones the Volume on the Main Output will return to what it was previously; and, when you again plug in headphones, the Volume on the headphones will return to the Volume you previously set for the headphones.

The front panel of the XSP-2 includes a full-sized 1/4" headphone jack. The Main Outputs are muted when you insert headphones. The headphone output on the XSP-2 is powered by a high quality high current buffer amplifier - which can easily drive most normal headphones and deliver excellent sound quality.

Using the XSP-2 Menu System

The Menu System on the XSP-2 is quite straightforward and can be accessed and navigated in a variety of ways.

From the Front Panel:

Press the Menu Button to enter the Menu System.

Use the Navigation Buttons to Navigate the Menu System.

Use the Up and Down Buttons to switch between main items...

Use the Right Button to select an item...

Use the Up and Down Buttons to change the value...

Exit by using the Left Button or by pressing the Menu Button.

Any changes you make are retained when you exit the menu.

The Volume control also usually duplicates the action of the Up and Down Buttons.

From the Remote Control:

Press the Menu Button to enter the Menu System.

Use the Navigation Buttons to Navigate the Menu System.

Use the Up and Down Buttons to switch between main items...

Use the Right Button to select an item...

Use the Up and Down Buttons to change the value...

Exit by using the Left Button or by pressing the Menu Button.

Any changes you make are retained when you exit the menu.

Note: The Processor Loop ON and Processor Loop OFF functions are ONLY available from the remote control and so are NOT available from the Menu System. However this setting is retained just like any other setting you change in the Menu System.

Note: Subwoofer Trim Level is ONLY available from the remote control and so is NOT available from the Menu System. However this setting is retained just like any other setting you change in the Menu System.

XSP-2 Menu System Options

DIM - Adjusts the brightness of the Front Panel display, halo rings, and indicator LEDs.
(DIM 1, DIM 2, DIM 3, DIM 4, DIM 5, DIM OFF with DIM 5 being the brightest.)

BALANCE - Adjusts the relative signal level between the left and right channels.
(Left 10 -- 00 -- Right 10)
This is a precision adjustment that adjusts the balance by up to 20 dB while accurately maintaining the summed signal level on both channels.

CARTRIDGE TYPE - Selects the type of cartridge you have connected to the Phono Input.
(Moving Magnet or Moving Coil)
See the notes in the **Phono Input** description for more details.

HIGH PASS FILTER - Configures the Bass Management High Pass Filter on the MAIN OUTPUTS.
(Full Range, 40 Hz, 60 Hz, 80 Hz, 100 Hz)
Filters are implemented using individual precision fixed 12dB/octave filter circuits.

LOW PASS FILTER - Configures the Bass Management Low Pass Filter on the SUB OUTPUTS.
(Full Range, 40 Hz, 60 Hz, 80 Hz, 100 Hz)
Filters are implemented using individual precision fixed 12dB/octave filter circuits.

Note: The High Pass Filter on the Main Outputs and the Low Pass Filter on the Subwoofer Outputs are fully independent on the XSP-2. If you have a Subwoofer that has its own controls it's usually best to set your Sub to LFE or Flat and allow the preamp to handle the Bass Management. It's also usually best to start with the High Pass and Low Pass Filters set to the same frequency. However the XSP-2 gives you an amazing amount of flexibility to tune your system for the best sound in your particular listening situation.

SUBWOOFERS - Configures the Mono Bass Management option on the XSP-2
(Mono or Stereo)
When set to Mono a SUMMED Subwoofer signal is sent to both Subwoofer Outputs.
When set to Stereo Bass Management is fully independent for Left and Right channels.

HT BYPASS - Configures WHICH HT BYPASS INPUT IS USED WHEN HTBYPASS IS ENGAGED.
(Balanced or Unbalanced)
See the notes in the **Home Theater Bypass Inputs** description for more details.

VERSION - Displays the version of the internal firmware installed on your XSP-2.

RESET - Removes all user settings and resets your XSP-2 to its Factory Default configuration.
(Press the Right Arrow Button to confirm this choice after selecting it.)

Care and Maintenance

Periodic Maintenance

Your XSP-2 requires no periodic maintenance or calibration.

Cleaning your XSP-2

- If necessary, the XSP-2 should be cleaned gently with a soft rag.
- If something sticky gets on the front panel or case of the XSP-2, it should be cleaned with a mild cleaning solution applied to a soft rag, followed by wiping with a clean rag dampened with plain water and drying with a soft dry rag or cloth.

Note: DO NOT spray water or cleaning solution directly onto the XSP-2 or into the vents.

Specifications

Analog Inputs

- 4 pairs – stereo unbalanced (RCA) line level Inputs.
- 2 pairs – stereo balanced (XLR) line level Inputs.
- 1 pair – stereo unbalanced (RCA) Processor Loop Inputs.
- 1 pair – stereo Phono Inputs (switchable; moving magnet or moving coil).
- 1 set (L/R/sub) – unbalanced (RCA) HT Bypass Inputs.
- 1 set (L/R/sub) – balanced (XLR) Bypass Inputs.

Digital Inputs

- 1 – HDMI-ARC Input.
- 1 – digital USB (DAC Input); stereo; supports up to 24/768k.
- 2 – digital coax (S/PDIF) Inputs; stereo; support up to 24/192k.
- 2 – digital optical (Toslink) Inputs; stereo; support up to 24/192k.

Audio Outputs

- 1 pair – stereo line level balanced (XLR) Left and Right Main Outputs.
- 1 pair – stereo line level unbalanced (RCA) Left and Right Main Outputs.
- 1 pair – stereo line level balanced (XLR) Left and Right Subwoofer Outputs.
- 1 pair – stereo line level unbalanced (RCA) Left and Right Subwoofer Outputs.
- 1 pair – stereo unbalanced (RCA) Processor Loop Outputs.

Control Inputs and Outputs

- 1 - 12 VDC Trigger Output – delivers 12VDC trigger signal when unit is On.
- 1 - Trigger Input – accepts inputs between 5V and 12V AC or DC.
- 1 - IR input; wired; accepts standard “passive IR eye”.

Note: The XSP-2 will work with a variety of passive 3-wire IR sensors.

This is one we have confirmed will work: <https://www.amazon.com/dp/B0FJG814X5>

Remote Control

Compact full-function all metal infrared remote control (which uses two AAA batteries).

Note: The back of the XSP-2 remote control is held on by magnets.

To replace the batteries gently pry the back off by inserting a small screwdriver carefully into the small notch at the lower end of the back plate. Replace the batteries with standard AAA batteries. (The minus terminal on each battery should be against the spring in the holder.)

Analog Audio Performance (Line Level Inputs)

Maximum output level; balanced (XLR) 8 VRMS.
Maximum output level; unbalanced (RCA): 4 VRMS.
Frequency response: 20 Hz to 20 kHz +0 / -0.1 dB.
Frequency response: 5 Hz to 80 kHz +0 / -2.7 dB.
THD+noise; 1 kHz; A-weighted: <0.0005%
S/N ratio; balanced (XLR); A-weighted: > 119 dB.
S/N ratio; unbalanced (RCA); A-weighted: > 117 dB.

Analog Audio Performance (Phono Input)

THD+noise; 1 kHz; A-weighted; Moving Magnet: <0.01%
THD+noise; 1 kHz; A-weighted; Moving Coil: <0.1%
S/N ratio; A-weighted; Moving Magnet: > 95 dB.
S/N ratio; A-weighted; Moving Coil: > 80 dB.

Audio Performance (Digital Inputs)

Frequency response: 20 Hz to 20 kHz +0 / -0.1 dB.
Frequency response: 5 Hz to 80 kHz +0 / -2.7 dB.
THD+noise; 1 kHz; A-weighted: <0.0008%
S/N ratio; A-weighted: > 112 dB.
Frequency response shown was measured with a high resolution digital source.
At lower sample rates the frequency response will be limited by the sample rate of the content.

Power Requirements

115 VAC or 230 VAC @ 50 / 60 Hz (automatically detected).

Dimensions and Weight

17" wide x 5-1/4" high (without feet) x 14-1/2" deep (without connectors).
17" wide x 5-2/4" high (including feet) x 15" deep (including knobs and connectors).
Weight: 13 pounds (unboxed).

Expansion

The XSP-2 includes two rear panel slots for expansion modules.
17" wide x 5-1/4" high (without feet) x 14-1/2" deep (without connectors).
17" wide x 5-2/4" high (including feet) x 15" deep (including knobs and connectors).
Weight: 13 pounds (unboxed).

Emotiva Audio Corporation Five-Year Limited Warranty

What does this warranty cover?

Emotiva Audio Corporation (Emotiva) warrants its products against defects in materials and workmanship. This warranty, and all rights provided hereunder, is granted to the original owner, and may be transferred by the current owner to a new owner if the unit is gifted or sold. In the event the original owner transfers ownership of the Product prior to the expiration of the applicable term described below, this Warranty shall terminate at the end of the original term.

This Warranty only applies to Products purchased directly from Emotiva or any of its Authorized Dealers or International Distributors.

Emotiva warrants any replacement product or part furnished hereunder against defects in materials and workmanship for the longer of the following: (i) the amount of time remaining under the original warranty, or (ii) 120 days from your receipt of the repaired or replaced product. The duration described in this paragraph is hereinafter referred to as the "Term".

TO THE FULLEST EXTENT PERMITTED BY LAW, ALL IMPLIED WARRANTIES RELATED TO THE ORIGINAL PRODUCT AND ANY REPLACEMENT PRODUCT OR PARTS (INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE) ARE EXPRESSLY LIMITED TO THE TERM OF THIS LIMITED WARRANTY. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

The original owner must make a claim within the Term of the Warranty. A claim shall not be valid (and Emotiva has no obligation related to the claim) if it is not made within the Term and if it is not made in strict compliance with the requirements of the "How do you get service?" section.

How long does this coverage last?

The warranty on the Emotiva XSP-2 commences on the date of retail purchase by the original retail purchaser and runs for a period of five years thereafter. This warranty may be transferred by the current owner to a new owner at any time during the original term. Emotiva warrants any replacement product or part furnished hereunder against defects in materials and workmanship for the longer of the following: (i) the amount of time remaining under the original warranty, or (ii) 120 days from your receipt of the repaired or replaced product. The duration described in this paragraph is hereinafter referred to as the "Term".

*Accessories, cables, and remote controls have a one-year warranty to the original owner.

What will Emotiva do?

Emotiva will, at its option, either: (i) repair the product, or (ii) replace the product with a new consumer product which is identical or reasonably equivalent (in Warrantor's sole discretion) to the product. In the event Warrantor, in its sole discretion, is unable to replace or repair the Product or it is not commercially practicable to do so, then: (i) if the claim was submitted during the first 365 days of the Term, Warrantor shall refund to you the purchase price that you paid for the Product; and (ii) if the claim was submitted after the first 365 days of the Term, Emotiva shall issue you a credit equal to the purchase price that you paid for the product. The credit may only be used for the purchase of merchandise from Emotiva, and cannot be used for freight charges.

When a Product or part is repaired or replaced, any replacement item becomes your property and the replaced item becomes Emotiva's property. When a refund or credit is given, the Product for which the refund or credit is provided must be returned to Emotiva and becomes Emotiva's property.

What is not covered by this warranty?

This warranty does not apply: (i) to damage caused by use with products not manufactured by Emotiva, where the non-Emotiva product is the cause of the damage; (ii) to damage caused by service or maintenance performed by anyone who is not a representative of Emotiva; (iii) to damage caused by accident, abuse, misuse, flood, fire, earthquake or other external causes; (iv) to a product or part that has been modified after its retail purchase, where the modification caused or contributed to the damage; (v) to consumable parts, such as batteries or failure of or damage to the Product caused by batteries; (vi) if any Emotiva serial number has been removed or defaced on the product; (vii) glass or plastic panels, cabinetry, trim or other appearance items; (viii) cosmetic wear or damage to remote controls by user.

EMOTIVA SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING FROM OR RELATED TO ANY DEFECTS IN OR DAMAGES TO ITS PRODUCTS. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

How do you get service?

In order to make a claim under the Warranty, you must:

1. Call a customer service representative at 1-615-790-6754 or e-mail to support@emotiva.com. You must provide a description of your problem, the serial number of the Product for which the warranty claim is being made, and the original purchase date.
2. Then, you will be provided with a warranty service authorization number ("WS").
3. Next, you must ship the Product to the following address, with the WS written in large, bold numbers on the outside of the box, and with the letters "WS" written before the number, for example: WS1234. Parcels arriving without a WS number on the outside of the box will be refused. The customer pays for the shipping to Warrantor. Warrantor pays for the shipping back to the customer within the continental United States only. Customer is responsible for shipping charges on all other warranty claims.

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**Emotiva Audio Corporation
Attn: Repair Department
139 Southeast Parkway Court
Franklin, TN 37064**

Units will be refused by Emotiva for the following:

Product was sent without the WS#
Product was sent with inadequate packaging.
Product was damaged in transit.
Product was shipped collect for shipping charges.

How does state law apply?

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

What if my product is damaged on the way to you?

Emotiva is not liable for damages that may incur while an item is in transport to us. Please purchase insurance when you ship your item. If your Product was not adequately packaged, we will refuse receipt and the damaged package will be returned to you at your cost. If you do not have the original Emotiva Audio packaging, please check with our sales department to purchase replacement-shipping cartons.

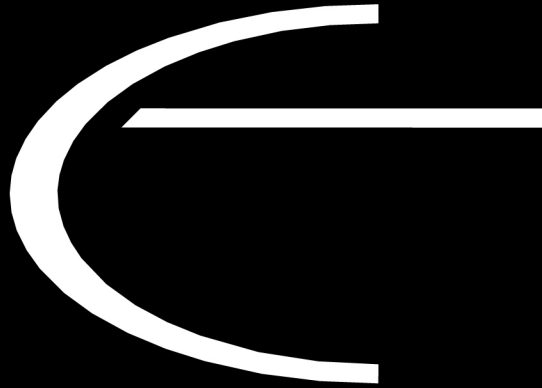
How does the Warranty and service apply to international orders?

The Product Warranty is only valid in the country where the Emotiva product was originally shipped via an authorized dealer, distributor, or direct from the Emotiva factory. The Warranty is subject to change at any time depending on the laws and regulations within your specific country. Please check with your distributor for a complete understanding of the warranty in your county.

If you purchased your Emotiva Product outside of the USA and wish to have it serviced at the factory, all freight charges are your responsibility. If you do not have an authorized distributor or repair center in your country, your Product must come back to the Emotiva USA factory for warranty service.

Notes

All information contained in this manual is accurate to the best of our knowledge at the time of publication. In keeping with our policy of ongoing product improvement, we reserve the right to make changes to the design and features of our products without prior notice.



Emotiva Audio Corporation
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