

constellation audio
Simply, Light Years Ahead.



Hercules II power amplifier
owner's manual



CAUTION

To reduce risk of electric shock, do not remove any of the amplifier's cover plates or screws. There are no user serviceable parts inside. Contact qualified service personnel.

WARNING

To reduce risk of fire or electric shock, do not expose this amplifier to moisture, rain, or excessive humidity.



The lightning flash with arrowhead, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electrical shock to persons.



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

Thank you for purchasing the Constellation Audio Hercules II amplifier. You are about to experience what we believe is one of the finest amplifiers ever built.

Because of their very high power output, this amplifier demands careful and thoughtful installation in order to deliver the performance it is designed to achieve. This is especially true of the Hercules II Mono, which delivers double the power of the Hercules II Stereo. By reading through this brief manual and following the simple steps outlined within, you can ensure that your amplifier performs at its very best.

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Before you install the amplifier

Unpacking

At more than 200 pounds each, the Hercules II amplifier is too heavy for one person to lift safely. Four strong people are required to lift each amplifier and to move it from place to place.

Likewise, do not place this amplifier on surfaces that cannot safely support their weight. Lightweight furniture and equipment racks should not be used to support these amplifiers.

Lift the amplifier by hooking your fingers under the side edges, as indicated by the arrows in the photos at right. It's a good idea to wear soft gloves to protect your fingers and help avoid fingerprints on the amplifier.

AC connection

Each Hercules II should be plugged into its own dedicated 20-amp AC outlet, with no other component but the Hercules II connected to that AC circuit. In the U.S., all 20-amp AC outlets have a T-shaped hole next to an I-shaped hole, as shown in the photo.

Confirm at your home's electrical box that the outlet you use to power the Hercules is connected to a 20-amp circuit breaker. A 15-amp breaker will trip often due to the Hercules' high current demands.

Do not use a "cheater" cord to plug the Hercules II into a 15-amp AC socket—you will significantly reduce the amplifier's maximum power output. Also, do not plug two Hercules amplifiers into the same 20-amp AC socket or into the same AC circuit. If you do, each amp will get only half the AC current it needs for maximum performance, and you will probably trip your home's circuit breaker often. Each amplifier should be connected to its own 20-amp circuit with its own circuit breaker at the electrical box.

Do not plug the Hercules II into a power strip or AC line conditioner—few such units are designed to handle the current that the Hercules II can pull.

When you connect or disconnect the AC cord, always grasp it by the plug, not by the cord itself. Pulling the plug out by the cord can damage the cord, the AC socket, and/or the Hercules.



Location

The Hercules II must be installed in an area with adequate ventilation. There should be at least 6 in/15 cm of clearance between the vents on the side of the amplifier(s) and the nearest wall or cabinet. Ensure that no curtains or shades can be lowered in a way that will block the amplifier's vents. If the amplifier is installed in a cabinet or in an equipment closet, ensure that the cabinet/closet has adequate ventilation. Installation in an unventilated cabinet or closet may cause the amplifier to overheat.

The amplifier requires a room-temperature environment to operation properly. Ambient temperature should be about 70°F/21°C, plus or minus 10°F/5°C. Never install the amplifier in a place where it may be exposed to direct sunlight, and do not install it next to a room heater, radiator, air conditioner, etc. Ambient temperature can rise even more quickly with two Hercules II Monos, so if you place both of them in an enclosed or tight space, make extra sure to provide plenty of ventilation and air flow.

Make sure that the amplifier will not be exposed to moisture. Do not locate it in an area where it might be spilled on, and do not place it in a humid location (such as an unfinished basement).

Installing the Hercules II Mono or Stereo in a place where it will be exposed to direct sunlight or moisture, or where it will not have adequate ventilation, will void your warranty.

Speakers

The Hercules II Mono and Stereo both have sufficient voltage and current to drive practically any loudspeaker made, regardless of the speaker's impedance, sensitivity, or "power rating." However, the Hercules II Stereo and, especially, the Hercules II Mono have enough power to damage some loudspeakers if used carelessly. When you turn up the volume on your preamp, do it gradually. If you hear distortion, crackling noises, or mechanical thumps from the speaker, turn the volume down immediately.

You can best appreciate the amplifier's performance by connecting it to a large set of full-range loudspeakers. It will sound excellent with small speakers, too, but if you connect it to a small set of speakers, avoid turning the volume on your preamp to maximum.

Constellation Audio is not responsible for damage of any speaker connected to the Hercules II amplifiers.

In the event of malfunction

Do not under any circumstances open the cabinet of the amplifier. There are no user-serviceable parts inside. Opening the cabinet can present a shock hazard even if the AC power is disconnected. Any alteration or modification of the amplifier's internal parts or circuit will immediately void your warranty.

If your amplifier does not function correctly, refer to the Troubleshooting section at the end of this manual. If you are still unable to resolve the problem, contact your Constellation Audio dealer.

If any liquid is spilled on the amp, or if any metal object (such as a staple or a paper clip) is inadvertently forced in through the vents, immediately disconnect the AC power and contact your Constellation Audio dealer.

Connections

1. BAL input

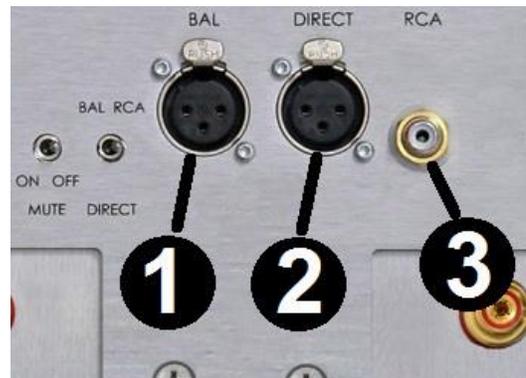
Use this XLR balanced input for connection to balanced-output preamps of other brands. To select this input, set the input switch to BAL (left position). To remove the XLR plug, push on the tab above the jack and pull the plug out.

2. Direct input

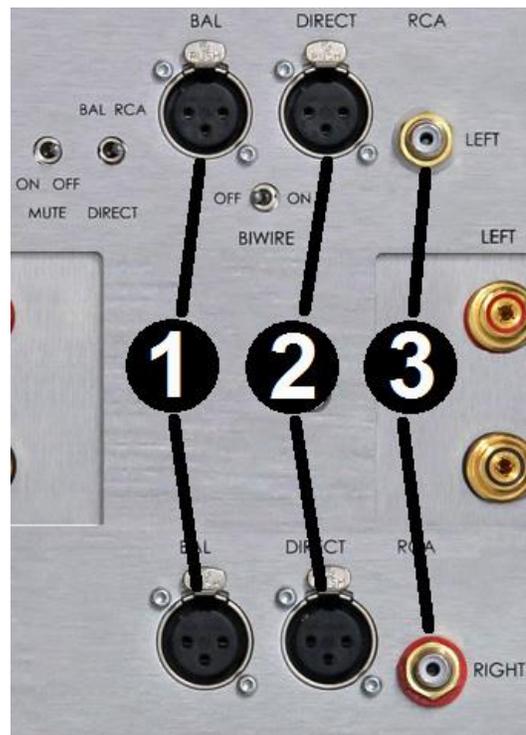
Use this XLR balanced input only for connection to the Constellation Audio Virgo or Altair preamp. This connection forms the Constellation Direct—an audio interface that is, in essence, perfectly balanced. The positive- and negative-going halves of the signal will exhibit near-zero difference except for their polarity. To select this input, set the input switch to Direct (middle position). To remove the XLR plug, push on the tab above the jack and pull the plug out.

3. RCA input

This input is provided as a convenience. You can use it if you elect to feed the amplifier with an unbalanced signal source. To select this input, set the input switch to RCA. However, to get the best performance from the Hercules II you must use an XLR input.



Hercules II Mono Input Jack layout



Hercules II Stereo Input Jack layout

4. Speaker-cable binding posts

On the Hercules II Mono, two sets of binding posts are provided for the output. These can be used for standard cabling (with a two-conductor cable running from the amp to the speaker) or in a biwired arrangement with separate cables going from one amp to the speaker's woofer and midrange/tweeter drivers. Consult your speaker's manual for more information. On the Hercules II Stereo, one set of binding posts is provided for each channel. These may also be used for biwiring—see the discussion of the Biwire switch on page 9.



Hercules II Mono binding post layout

For Hercules II Mono, connect the marked connector or cable conductor for the left speaker cable to the left positive (+ or red) binding post and the unmarked connector to the negative (- or black) binding post underneath. Repeat with the right speaker cable on the other amp. Make sure the speaker cables on both channels are connected identically—marked cable conductor or connector to red, unmarked conductor or connector to black. For Hercules II Stereo, connect the left cable to the left binding posts and the right cable to the right binding posts as described above.



Hercules II Stereo binding post layout

The binding posts accept spade lugs or banana plugs. Make certain that the spade lugs on your cables will fit the amplifier's binding posts—do not force the spade lugs onto the posts if they do not fit. Do not use bare wire connections, because the amplifiers' high power output might vaporize any stray wires that touch.

The binding posts are designed to be tightened only by hand. Do not use tools to tighten the binding posts.

Before you turn on the power, check at the terminals of the speakers and the amplifier to make sure the positive and negative leads of the speaker cables are separated and not touching.

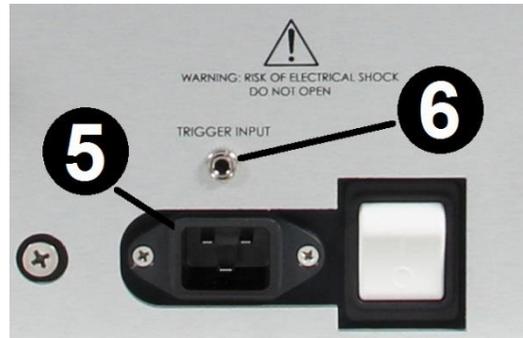
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5. 20-amp IEC AC socket

Connect the supplied 20-amp AC cord here. You may also use an aftermarket power cord if you wish.

6. Trigger input

This 3.5mm jack accepts a 12-volt DC on/off trigger signal from preamps and third-party control systems. When a 12-volt DC trigger signal is input to the jack, the Hercules II will turn on. When the trigger signal stops, the amplifier will turn off.



Controls / displays / indicators

7. Front power/mute switch

The bar running across the front of the amplifier is the power/mute switch. Press on the left end of the bar and hold it for 3 seconds to turn the amp on and off. Press and release the left side of the bar to activate and deactivate mute mode.

8. Status indicator LED

This LED shows if the amp is on or off, and also indicates mute, warm-up, and cool-down modes. Here are the LED modes:

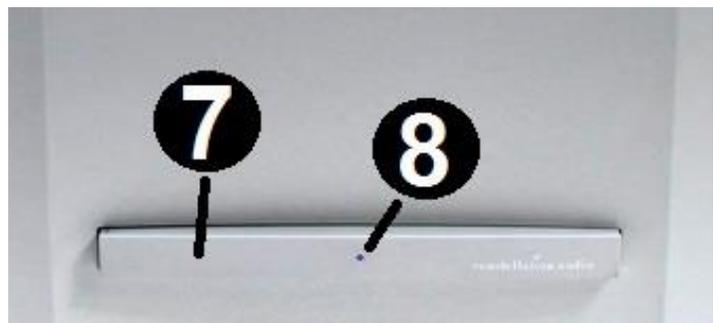
SOLID RED: Standby mode. Amp is powered down but ready to use.

FLASHING RED: Cool-down mode. Amp is powered off but cooling down. The power button cannot be used in this mode. This mode lasts 1 minute.

FLASHING GREEN: Warm-up mode. Amp power is on but amp is warming up and cannot be used. This mode lasts 1 minute.

SOLID BLUE: On mode. Amp power is on and the amplifier is fully functional.

FLASHING BLUE: Mute mode. Amp is powered but will produce no sound.



9. Master power switch

This switch disconnects the amplifier from AC power.

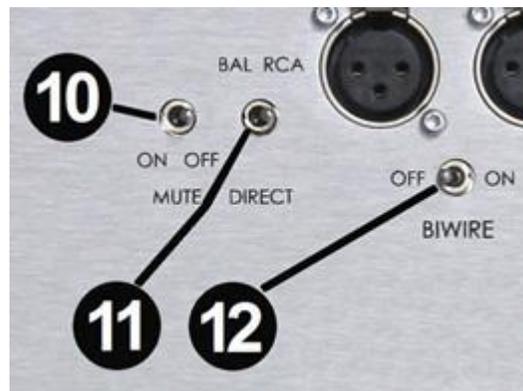
If the switch is set to the Off position, the front power switch will not be active and the status indicator LED will not be illuminated. If the switch is set to the On position, the front power switch will become active and the LED will glow solid red, indicating standby mode.

This switch also resets the amplifier's internal circuit breaker. If the circuit breaker trips, flip the switch off and on again to reset it.



10. Mute switch

This switch puts the amplifier into mute mode. In this mode, the amplifier is fully powered up, but the sound is muted. Use this mode if you wish to mute the sound, of course, but also when you are checking the connections into and out of the amplifier. In the event of an accidental disconnection, using the mute mode will prevent unwanted bursts of sound from coming through the speakers.



11. Input select switch

Use this switch to select which of the amplifier's inputs you wish to use. The BAL setting (left position) selects the balanced input, which should be used with balanced-output preamps not manufactured by Constellation Audio.

The Direct setting (middle position) selects the Direct input, which should be used for connections to the Constellation Audio Virgo or Altair preamp. This setting and input form half of the Constellation Direct—an audio interface that is, in essence, perfectly balanced. The positive- and negative-going halves of the signal will exhibit near-zero difference except for their polarity.

The RCA setting (right position) selects the RCA input, used with preamps that do not offer balanced output. This connection is provided for convenience only; for best performance, use a preamp with balanced output.

12. Biwire switch (Hercules II Stereo only)

This switch, found only on the Hercules II Stereo, allows easy configuration of the amplifier for biwiring—using one channel of the amp to power the speaker's woofer and the other channel to power the tweeter and midrange drivers. (This arrangement is also known as passive biamping.) To use this switch, you must have speakers that are designed for biwiring, i.e., that have at least two sets of binding posts.

To biwire your speakers, connect one channel of the Hercules II Stereo to the speaker's lower set of binding posts, and the other channel to the speaker's upper set of binding posts. Set the Biwire switch to on. Use only the right-channel (lower) input on the Hercules II. Turning Biwire on sends this signal to both channels of the amp.

Operation

Initial installation and power-up

STEP 1: Before making any connections, make sure the amplifier's master power switch is turned off. If the AC has not been connected, connect the amplifier(s) to the wall AC power socket using the supplied cord.

STEP 2: If you are using Hercules II Monos, connect a high-quality speaker cable from the left speaker to the left amplifier's binding posts, and repeat the process for the right speaker/channel. If you are using a Hercules II Stereo amp, connect the speaker cable from the left channel binding posts to the left speaker, and repeat for the right channel/speaker. Be sure to connect the marked (often red) connector or cable to the positive (red or +) binding post on the amplifier, and the unmarked (often black) connector or cable to the negative (black or -) binding post on the amplifier. If you are using Hercules II Monos, you may use either of the two positive (red or +) posts and either of the two negative (black or -) posts; just make sure that the red/+ post is connected to the red/+ cable and that the black/- post is connected to the black/- cable. Repeat for the right speaker.

If you are biwiring/biamping your speakers using the Hercules II Stereo amp, set the Biwire switch to on, connect one channel of the Hercules II Stereo to the speaker's lower pair of binding posts, and the other channel to the speakers upper pair of binding posts.

Make sure that the conductors of the cables do not touch; that there are no stray wires coming from the cables that might cause a short circuit; and that the amplifier and speakers do not come into contact with metal objects that might cause a short circuit. While the amplifier is internally protected against short circuits, it delivers enough current to vaporize small wires, so a fire hazard can result in the event of a short circuit.

STEP 3: Connect a high-quality XLR balanced audio interconnect from the left channel of the preamp output to the left Hercules II Mono's XLR input or the Hercules II Stereo's left channel XLR input. Use the Direct input if you are using a Constellation Audio Virgo or Altair preamp; the BAL input if you are using a balanced XLR connection from a different brand of preamp, and the RCA input if your preamp offers only unbalanced RCA output. Repeat for the right channel.

If you are biwiring/biamping your speakers using a pair of Hercules II Stereo amps, connect the signal from the left-channel output of the preamp to the right-channel (lower) input of the left Hercules II Stereo, and the right-channel preamp output to the right-channel (lower) input of the right Hercules II Stereo.

STEP 4: Using the input select switch near the amplifier's input jacks on the back panel, select the input to which you connected the interconnect cables. Set the switch to BAL (left position) if using the regular balanced inputs, Direct (middle position) if using the Constellation Direct Direct inputs, or RCA if using the unbalanced RCA inputs.

STEP 5: Make sure the mute switch is set to Off (on both amps if you are using Hercules II Monos or two Hercules II Stereo amps).

STEP 6: Turn on the master power switch on the back of the amplifier (both amps if you are using Hercules II Mono or biwiring with Hercules II Stereos), above the connection for the AC cord. The front LED status indicator on the amplifier(s) should glow red. If it does not, check your AC connection.

STEP 7: To power up the amp, push the left side of the bar on the front panel for 3 seconds. The LED status indicator in the middle of the bar will start flashing green, which indicates that the amplifier is warming up. After 1 minute the indicator will turn solid blue and the amp will be active. If the preamp and a source are connected and playing, and the volume on the preamp is up, you should hear sound.

STEP 8: To mute the amplifier, press and release the left side of the bar on the front panel. The LED status indicator will start flashing blue and the sound will stop. To unmute the amp, press and release the left side of the bar again.

STEP 9: To turn the amplifier off, press and hold the left side of the bar on the front panel for 3 seconds. The LED status indicator will start to blink red, indicating that the amp is in cool-down mode. It will remain in this mode for 1 minute, and during this time, you will not be able to use the front power button. After 1 minute, the LED will glow solid red and you can power up the amp again.

Normal operation

Once the amplifier is installed and properly set up, it normally requires no user operation except for turning the amplifier on and off.

Other than the power button on the front panel, the only control that you might want to use on a regular basis is the mute function, which can be activated from the front power button or the rear mute switch. However, this function is provided mainly as a convenience—you would normally use the mute function on your preamp or the pause button on your source device to mute the sound from your audio system.

Maintenance

The Hercules II amplifiers require no regular maintenance.

If the amplifier's surface becomes dusty, simply wipe it off with a soft dry cloth. Do not spray cleaners on the surface.

To clean fingerprints from the surface of the amplifier, spray a small amount of mild window cleaner such as Windex onto a soft dry cloth, then use the cloth to remove the fingerprints. Do not spray the cleaner directly onto the amplifier.

If dust collects inside any of the amplifier's vents, vacuum it out with a hand vac or shop vac. Use a brush attachment if available in order to avoid scratching the surface of the vents. If you do not have a brush attachment, do not touch the surface of the vent with the nozzle of the vacuum, in order to avoid scratching the surface.

Troubleshooting

Amplifier will not turn on

1. Check to see if the front status indicator LED is illuminated red. If it is not, try the following steps in order. If any one of the steps restores the power, there is no need to continue to the next steps.

- A. Make sure the master power switch on the rear of the amplifier is turned on.
- B. Check to make sure the AC cord is connected to the amplifier and to a wall outlet.
- C. Flip the master power switch off and on again. This will reset the amplifier's internal circuit breaker.
- D. Check the circuit breaker in the electrical box to make sure it has not been tripped. If it has, check to make sure a short circuit does not exist at the amplifier's speaker terminals or the speaker's input terminals. If no short circuit exists, flip the breaker on and off to reset it.

- E. If none of these conditions restores power, it is likely one of the amplifier's internal fuses is blown. Do not attempt to change the fuse yourself—the amplifier requires the use of special high-voltage fuses that are not commonly available. Contact your Constellation Audio dealer for service.
2. If the front status indicator LED is illuminated red, push the left side of the front power switch bar and hold it for 3 seconds. The LED should begin flashing green. If it does, wait for 1 minute for the amplifier to warm up. When the LED turns blue, the amplifier is ready to use. If the LED glows red but does not change color when you push and hold the power switch, contact your Constellation Audio dealer.

Amplifier is on but no sound is produced

1. Make sure the front status indicator LED is glowing blue, indicating that the amp is warmed up and in active mode. If the LED is glowing red, push it and wait 1 minute for the amp to warm up and the LED to glow blue. Sound should now be restored.
2. If the LED is flashing blue, the amplifier is in mute mode. Push the left side of the front power switch bar and release it. The LED should glow solid blue and sound should be restored. If not, check to make sure the rear mute switch is set to Off.
3. If the switch is glowing blue and you hear no audio, try the following steps in order. If any one of the steps restores the power, there is no need to continue to the next steps.
 - A. Check to make sure your preamp and signal source are both turned on, and your preamp is not in mute mode.
 - B. Make sure the desired source is selected on your preamp.
 - C. Make sure the source device is putting out signal—i.e., if it is a CD player, make sure that the CD is playing and not in pause mode.
 - D. Check the connections between the amplifier(s) and the preamp, and between the preamp and the audio source device. If a cable is disconnected, reconnect it. If this does not restore sound, try substituting a different set of cables in order to make sure the original set was functioning properly.
 - E. Check the connections between the amplifier(s) and the speakers. Make sure the speaker cables have not come loose. If it has, turn the power off on the amplifier(s), wait for the front LED to glow red, then re-install the cable.
 - F. If you are using two Hercules II Stereo amps for biwiring, make sure the input cables are connected to the right-channel (lower) inputs of the amplifier.

Sound comes from the wrong speaker

If left-channel sounds are coming from the right or vice-versa (i.e., the violins in an orchestral recording come from the right speaker, not the left), check the cable connections between the amplifier(s) and the speakers, between the amplifier(s) and the preamp, and between the preamp and the source device. Make sure left-channel interconnect cables are connected to the left channels of the source, preamp and amp, and right to the right channels. Make sure the left speaker is connected to the Hercules II Stereo's left-channel binding posts, or to the Hercules II Mono or biwired Hercules II Stereos used for the left channel. Check the right speaker connection in the same way.

Sound comes from only one speaker

1. If you are using Hercules II Monos or biwired Hercules II Stereo amps, make sure both amps are plugged in and powered up. If you encounter difficulties, follow the troubleshooting steps under "Amplifier will not turn on" above. If you are using biwired Hercules II Stereo amps, make sure the Biwire switch is set to on.
2. Switch the preamp to a different input and play music from a different source device. If sound now comes from both speakers, check the connection between the source device and the preamp.
3. If you get sound from only one speaker no matter which preamp input you select, check the cable(s) connecting the preamp to the amplifier(s) and the amp(s) to the speakers. Make sure the speaker cables are firmly connected to the amplifier and the speaker, and that the cables have not been damaged. Then check to make sure the interconnect cables are connected correctly between the source component and the preamp, and between the preamp and the amplifier(s), and that all of the interconnect cables are in good condition.

4. If these steps do not restore sound to both speakers, turn the rear power switch off on the Hercules II Mono or biwired Hercules II Stereo connected to the speaker that is not working, or on the single Hercules II Mono amp. Leave the music playing, and allow it to continue to play until the sound dies out. This will discharge the power supply to avoid possible electrical shock or amplifier damage. If you are using Hercules II Monos or biwired Hercules II Stereo amps, connect the left speaker to the amplifier normally used for the right channel, and vice-versa. If you are using a non-biwired Hercules II Stereo amp, switch the speaker cables, connecting the left speaker to the amplifier's right channel and the right speaker to the amplifier's left channel. If the same speaker doesn't work—if, say, the left speaker was silent before and it's still silent after you switch the cables—you probably have a malfunction in that speaker. If the sound moves to the other speaker—i.e., if only the left speaker was playing but now only the right speaker is playing—contact your Constellation Audio dealer.

Sound seems unfocused

1. Play a CD of typical pop vocals and sit in front of your speakers at an equal distance from both (at least 8 feet away from each speaker). If the vocals seem to come from between the speakers, they are connected correctly. Alternatively, you can use the “barking dog” test from the *Stereophile Test CD* or a similar phase check test from another test CD.
2. If the vocals seem to come from all around you, make sure that the cables on both Hercules II Monos (or both channels of the Hercules II Stereo amp) are connected properly, with the marked connectors or cables connected to the positive (red or +) binding post on the amplifier, and the unmarked connectors or cables connected to the negative (black or -) binding posts.
3. If you need to change the speaker cable connection, turn the amplifier off first. To avoid possible electrical shock or damage to the amplifier, you must discharge the energy stored in the power supply. To discharge the power supply, turn the power off with music playing. It may take up to a minute or so for the sound to die out. After the sound dies out, it is OK to change or adjust the cables.

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Specifications: Hercules II Mono

Inputs	1 Constellation Direct XLR 1 standard balanced XLR 1 unbalanced RCA
Outputs	dual metal binding posts
Power output, 8Ω (1 kHz @ 1% THD+N)	1.1 kW
Power output, 4Ω (1 kHz @ 1% THD+N)	1.5 kW
Power output, 2Ω (1 kHz @ 1% THD+N)	2 kW
Frequency response	10 Hz to 100 kHz +1/-0.5 dB
Gain	14 dB Constellation Direct 26 dB Balanced & RCA
THD+N (1 kHz @ up to 90% of rated power)	<0.05%
Output impedance	0.05Ω
Damping factor (8Ω load)	150
Input impedance	20KΩ Constellation Direct 20KΩ XLR balanced 10KΩ RCA unbalanced
Output noise watts	<500 μV, -100 dB @ 250
Weight	220 lbs/100 kg
Dimensions (hwd)	13.00 x 19.00 x 32.00 in 330.2 x 482.6 x 812.8 mm

Specifications: Hercules II Stereo

Inputs	2 Constellation Direct XLR 2 standard balanced XLR 2 unbalanced RCA
Outputs	metal binding posts
Power output per channel, 8 Ω (1 kHz @ 1% THD+N)	550 W
Power output per channel, 4 Ω (1 kHz @ 1% THD+N)	750 W
Power output per channel, 2 Ω (1 kHz @ 1% THD+N)	1 kW
Frequency response	10 Hz to 100 kHz +1/-0.5 dB
Gain	14 dB Constellation Direct 26 dB Balanced & RCA
THD+N (1 kHz @ up to 90% of rated power)	<0.05%
Output impedance	0.05 Ω
Damping factor (8 Ω load)	150
Input impedance	20K Ω Constellation Direct 20K Ω XLR balanced 10K Ω RCA unbalanced
Output noise watts	<500 μ V, -100 dB @ 250
Weight	220 lbs/100 kg
Dimensions (hwd)	13.00 x 19.00 x 32.00 in 330.2 x 482.6 x 812.8 mm

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For more information

Your Hercules II Mono or Hercules II Stereo amplifier should give you many years of trouble-free, maintenance-free service. If you encounter any problems you cannot solve or have technical questions, please contact your Constellation Audio dealer.

For more information about Constellation Audio products, please visit our website:

www.constellationaudio.com

