constellation

Audio that inspires.

Centaur II Power Amplifier
owner's manual

Thank you for purchasing the Constellation Audio Centaur II power amplifier.
You are about to experience one of the finest amplifiers ever built. Because of its very high power output, this amplifier demands careful installation in order to deliver the performance it is designed to achieve. This is especially true of the Centaur II Mono, which delivers double the power of the Centaur II. By reading through this manual and following the steps outlined within, you can ensure that your amplifier performs at its very best.

Contents

Limited warranty

New Constellation Audio products are warranted to be free from manufacturing defects for ninety (90) days from date of purchase from an authorized dealer or distributor. If the product is registered on our website: https://www.constellationaudio.com/warranty/register within this period, the warranty shall be extended to three (3) years from the original date of sale. The warranty includes parts and labor. Complete warranty details are on the included warranty card.

CAUTION: NO USER SERVICEABLE PARTS INSIDE. Do not open the amplifier chassis or remove any of its screws. Contact Constellation or your dealer if you have service needs.

WARNING: Do not expose this amplifier to moisture or excessive humidity, and do not use it outdoors. Fire hazard may result.

 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 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.

Before you install the Centaur II

Unpacking

DO NOT lift the Centaur II amplifier by the power button on the front panel. Lift it only by the side edges as described below and shown at right.

At nearly 100 pounds each, the Centaur II is too heavy for one person to lift safely. Two strong people are required to lift each amplifier and to move it from place to place. Likewise, do not place these amplifiers on surfaces that cannot safely support their weight. Lightweight furniture and equipment racks should not be used to support these amplifiers.

Lift each 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.
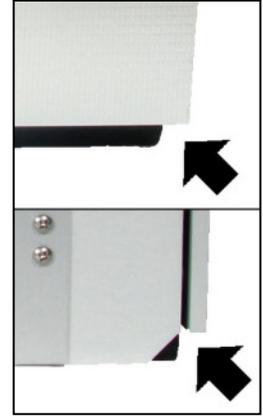
AC connection

For best performance, each amplifier should be plugged into its own dedicated 15- or 20-amp AC outlet, with no other component but the amplifier connected to that AC circuit. It is especially important to provide a dedicated AC output if the amplifier is used with a speaker that has impedance dips down into the 2- or 3-ohm range at certain frequencies, a high-level signal at these frequencies can draw potential peaks well over 1,000 watts per channel. Do not plug the amplifier(s) into a power strip or AC line conditioner—few such products are designed to handle the current that these amps can pull.

While it may be tempting to plug two Centaur II Monos into a single AC circuit, we strongly caution against it, especially if you have 15-amp AC circuits. A single 15-amp circuit provides only 1,800 watts of power, which isn't sufficient to allow two Centaur II Monos to reach their peak output capability, especially with low-impedance speakers. Not only will sound quality suffer, your listening sessions will likely be interrupted often when the Centaur II Monos' considerable power draw trips your home's circuit breaker.

Before you make or change any connections to the Centaur II, be sure to turn off the master power switch on the back panel and let the unit cool down for at least 1 minute.

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 amplifier.

Location

The Centaur 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 Centaur 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 Centaur II 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 Centaur II produces sufficient voltage and current to drive practically any loudspeaker made, regardless of the speaker's impedance, sensitivity or power rating. However, the Centaur II Stereo and, especially, the Centaur 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 Centaur II'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 Centaur II.

Before you make or change any speaker connections, be sure to turn off the master power switch on the back panel and let the unit cool down for at least 1 minute.

BE VERY CAUTIOUS if you intend to connect the output of the Centaur II to the speaker-level input of a powered subwoofer or subwoofer amplifier. It could result in serious damage to the Centaur II amplifier. Before attempting this, read the full explanation on page 7.

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.

Input and output connections

Centaur II Mono inputs

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, Altair or Inspiration Preamp 1.0 preamps. 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 Centaur you must use an XLR input.

Centaur II Stereo inputs

4. Speaker-cable binding posts

On the Centaur II Mono, two sets of binding posts are provided for each amp's output. These can be used for standard cabling (with a two–conductor cable running from the amp to the speaker) or biwired 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 Centaur II Stereo, one set of binding posts is provided for each channel. These may also be used for biwiring, although you will have to "stack" two cables in each of the binding posts.

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. Repeat with the right speaker cable. Make sure the speaker cables on both channels are connected identically—marked cable conductor or connector to red, unmarked conductor or connector to black. Note that on the Centaur II Mono, the positive (+ or red) terminals are on the left side (seen from the rear) and the negative terminals (- or black) are on the right side.

SPECIAL NOTE FOR CONNECTING THE CENTAUR II TO A SUBWOOFER: If you intend to connect this amplifier to the speaker-level inputs of a powered subwoofer or a subwoofer amplifier, **BE VERY CAUTIOUS**. The negative input terminals of a powered subwoofer or subwoofer amp are almost always grounded together, and this is incompatible with the Balanced Bridged design of the Centaur II amplifiers. Serious damage to the Centaur II amplifier could result. Consult the manufacturer of the subwoofer or subwoofer amplifier to find out if the negative speaker input terminals are grounded together.

Centaur II Mono binding posts

Centaur II Stereo binding posts

If the manufacturer doesn't know, use a digital multimeter (available for less than $10 on Amazon) to check. Set the multimeter for ohms (Ω). When you touch the probes from the meter together, it should read 0 ohms (or maybe 0.1 or 0.2 ohms). Now touch the probes to the metal parts of the two negative (black) binding posts on the subwoofer's input. If it reads 0 or some tiny amount like 0.1 ohms, **DO NOT** connect the Centaur II to this input. Instead, use a line-level connection from your preamp,which will prevent damage to the Centaur II and will also deliver better sound quality.

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.

Do not allow the speaker cable terminals to touch each other or to touch the amplifier chassis. 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.

5. RS-232 connector

This connector allows control of the Centaur II from third-party home automation systems. Consult your Constellation Audio dealer for more information.

6. USB jack

This jack allows control of the Centaur II from third-party home automation systems. Consult your Constellation Audio dealer for more information.

7. 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 Centaur II will turn on. When the trigger signal stops, the amplifier will turn off.

8. 20-amp IEC AC socket

Connect the supplied 20-amp AC cord here. You may also use an aftermarket power cord if you wish, but it must have a 20-amp connector.
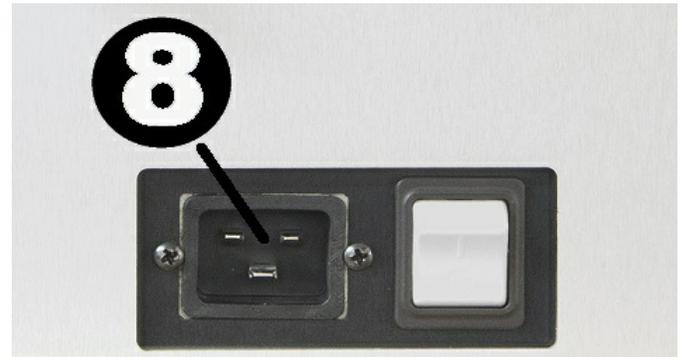
Controls / displays / indicators

9. Front power/mute switch

NEVER use this button to lift the amplifier. 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.

Use mute 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.
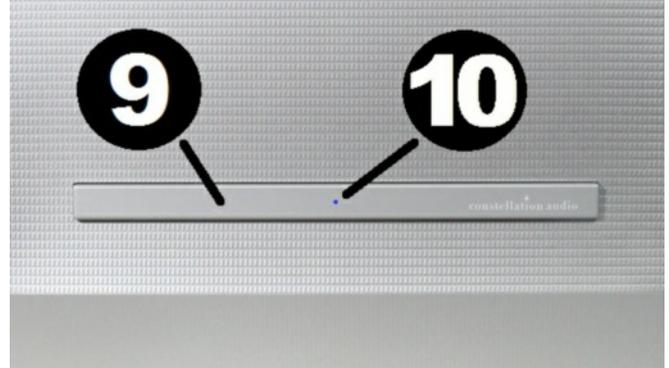
10. Status indicator LED

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.

11. 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.
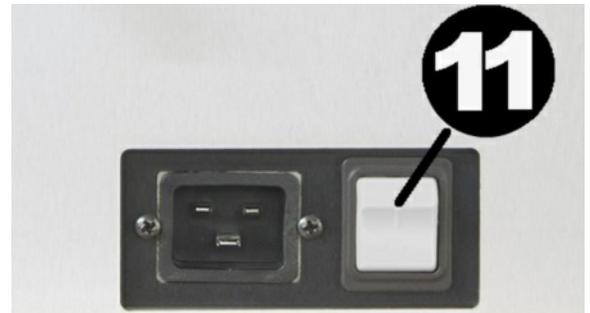
12. Mute switch

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.

13. Input select switch

Use this switch to select which of the amplifier's inputs you wish to use: balanced (BAL), Direct or RCA. The BAL setting (left position) selects the balanced input, which should be used with balanced-output preamps not manufactured by Constellation Audio. The middle position selects the Constellation Direct input, which should be used only with Constellation Audio preamps. The right position selects the RCA input, which should be used only if your preamp does not offer balanced output.

Operation
Initial operation and power-up

STEP 1: Before making or changing any connections, make sure the amp'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 Centaur 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 Centaur 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 Centaur 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.

BE VERY CAUTIOUS about connecting the output of the Centaur or Centaur Mono to the speaker-level input of a powered subwoofer or subwoofer amplifier. It could damage the amp. See page 7 for a full explanation.

If you are biwiring/biamping your speakers using the Centaur stereo amp, set the Biwire switch to on, connect one channel of the Centaur 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 Centaur Mono's XLR input or the Centaur'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 Centaur stereo amps, connect the signal from the left-channel output of the preamp to the right-channel (lower) input of the left Centaur, and the right-channel preamp output to the right-channel (lower) input of the right Centaur.

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 Centaur Monos or two Centaur stereo amps).

STEP 6: Turn on the master power switch on the back of the amplifier (both amps if you are using Centaur Monos), 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 pre-amp or the pause button on your source device to mute the sound from your audio system.

Maintenance

The Centaur Mono and Centaur 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.

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 Centaur II Stereo's left-channel binding posts, or to the Centaur Mono 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 Centaur II Monos, 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.

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 cables connecting the preamp to the Centaur II Stereo or the two Centaur II Monos, and between 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 Centaur II Stereo or on the Centaur II Mono connected to the speaker that is not working. 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 Centaur II Monos, connect the left speaker to the amplifier normally used for the right channel, and vice-versa. If you are using a Centaur II Stereo amp, switch the speaker cables, connecting the left speaker to the Centaur II Stereo's right channel and the right speaker to the amp'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 Centaur II Monos (or both channels of the Centaur 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.

Specifications: Centaur II Mono

Inputs	1 Constellation Direct XLR
	1 standard balanced XLR
	1 unbalanced RCA
Outputs	dual Mundorf binding posts
Power output, 8Ω (1 kHz @ 1% THD+N)	500 watts
Power output, 4Ω (1 kHz @ 1% THD+N)	800 watts
Power output, 2Ω (1 kHz @ 1% THD+N)	1000 watts
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	0.1Ω
Damping factor (8Ω load)	80
Input impedance	20KΩ Constellation Direct
	20KΩ XLR balanced
	10KΩ RCA unbalanced
Output noise	<70 µV, 500 kHz bandwidth
	-116 dB @ 250 watts
Weight	103 lbs/47 kg
Dimensions (hwd)	11 x 17 x 20 in
	280 x 432 x 508 mm

Specifications: Centaur II Stereo

Inputs	2 Constellation Direct XLR
	2 standard balanced XLR
	2 unbalanced RCA
Outputs	Mundorf binding posts
Power output per channel, 8Ω (1 kHz @ 1% THD+N)	250 watts
Power output per channel, 4Ω (1 kHz @ 1% THD+N)	500 watts
Power output per channel, 2Ω (1 kHz @ 1% THD+N)	800 watts
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)	160
Input impedance	20KΩ Constellation Direct
	20KΩ XLR balanced
	10KΩ RCA unbalanced
Output noise	<70 µV, 500 kHz bandwidth
	-116 dB @ 250 watts
Weight	98 lbs/44.5 kg
Dimensions (hwd)	11 x 17 x 20 in
280 x 432 x 508 mm	

For more information

Your Centaur II 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

constellation audio