

Since 1984

Boulder

2110 Preamplifier

Owners Manual

10/26/2016

P/N: 91040



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Thank You

Congratulations and thank you for selecting the Boulder 2110 Preamplifier for your high-performance sound system. We are certain it will provide you with many years of unrivaled listening pleasure.

The 2110 represents the concerted efforts of numerous Boulder craftsmen, designers, engineers, and technicians working to bring you the very finest audio playback components in the world. The 2110 preamplifier is also the culmination of thirty years of evolving design expertise and improvements in manufacturing processes that enable it to stand out in a world of lesser products.

Please take a few minutes to read through this owner's manual prior to using your 2110. This will help you to understand the numerous functions, user-adjustable settings, and various abilities of your preamplifier in order to realize its full performance potential and maximize your enjoyment of the 2110.

The serial numbers of your new Boulder preamplifier and power supply are:

2110 Preamplifier: _____

2100 Power Supply: _____

As with all Boulder products, these components have undergone intense laboratory testing for safety, functionality, and performance. In addition, your preamplifier has been subjected to rigorous listening trials in our sound room, utilizing a wide variety of musical material. Finished products never leave our factory until we are completely satisfied that they perform as designed—to achieve the greatest possible potential.

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Getting Started

Introduction

Congratulations on your selection of the Boulder 2110 Preamplifier. Please be sure to read this manual before attempting to connect or use the 2110.

Before You Start

To get started listening, you only need to connect the 2110 as you would any other preamplifier and the power supply as on page 1-3, but you should take note of the following.

WARNING: The polished volume control is attractive. Because it is optically controlled and has no stops, it is very tempting to spin it. **ONLY DO THIS WITH THE POWER OFF!** It must be given respect as it can rotate incredibly quickly and has ability to get loud very fast. By the time you have turned it up to -40.0 dB with a source connected and turned on, you should hear music. If not, do not continue to raise the volume until the problem is solved. Please see the troubleshooting section.

If your 2110 is connected to other Boulder components through Boulder Link, The rear panel MASTER/SLAVE switch should be set to MASTER.

Getting Started



Getting Started

Placement of the 2110 Preamplifier

Your Boulder 2110 Preamplifier is designed to reduce the effects that external magnetic fields and radio frequencies (RF) have on its circuitry. While placement is not critical, known magnetic fields should be avoided whenever possible. Also, the preamplifier should be placed in line of sight from the intended listening position. This is necessary for the remote control to function properly.

Because the preamplifier and its power supply are heavy, a solid, stable surface should be used. Both chassis will generate some heat, so they should be placed with plenty of good air circulation around them. In particular, make sure that the slots on the rear of the power supply are not blocked. You may also want to have some access to the rear panels for cable changes.

Getting Started



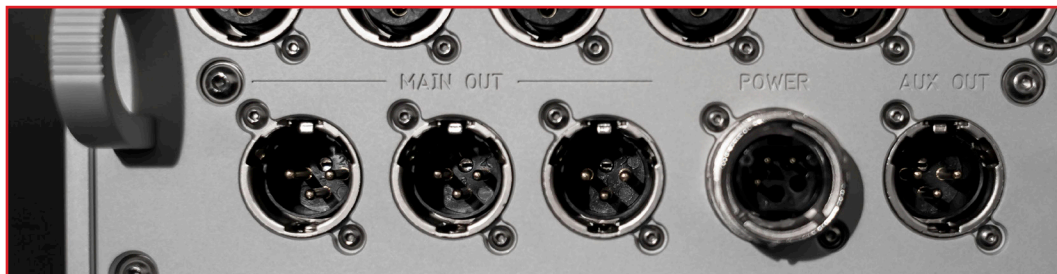
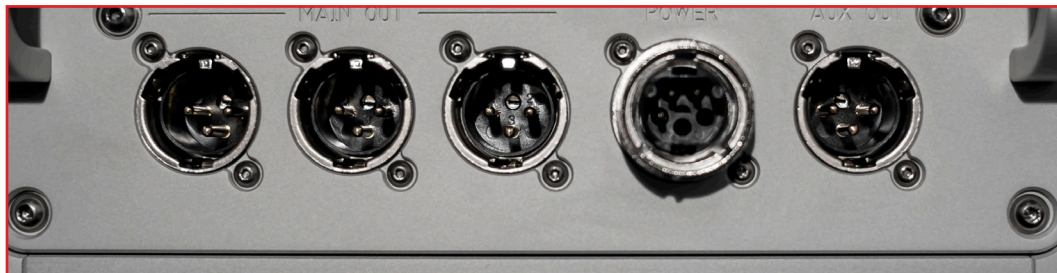
Getting Started

Connecting the 2100 Power Supply to the 2110 Chassis (part 1)

Your Boulder 2110 Preamplifier is supplied with a Boulder 2100 Power Supply. Each of the four internal supplies is independent of the others except for the front panel LED, which confirms the correct operation of all four internal power supplies.

Three cables are provided for connecting the power supply to its matched preamplifier chassis. Two of these cables have 5 pin connectors and are used for connecting the left and right audio supplies ($\pm 27V$). The third one has 7 pin connectors and is used for the digital supply (+5V). Care must be taken not to confuse these as any attempt to insert the wrong connector will result in damage.

CAUTION: Connect and disconnect these cables **ONLY** after the power supply has been turned off for at least one minute.



Getting Started

Connecting the 2100 Power Supply to the 2110 Chassis (part 2)

Alignment of the male and female connectors is best accomplished by positioning the connectors so that the flat edge of the contact housing is facing downward (see figure 1). To assist in alignment, ensure that the embossed arrows on the stainless collar of the connectors is facing upward (see figure 2). To make connection, ensure all pins are aligned with their corresponding contacts and press the cable connector into the rear panel connector. Then lock the cable in place by rotating the stainless ring clockwise until it 'clicks'.

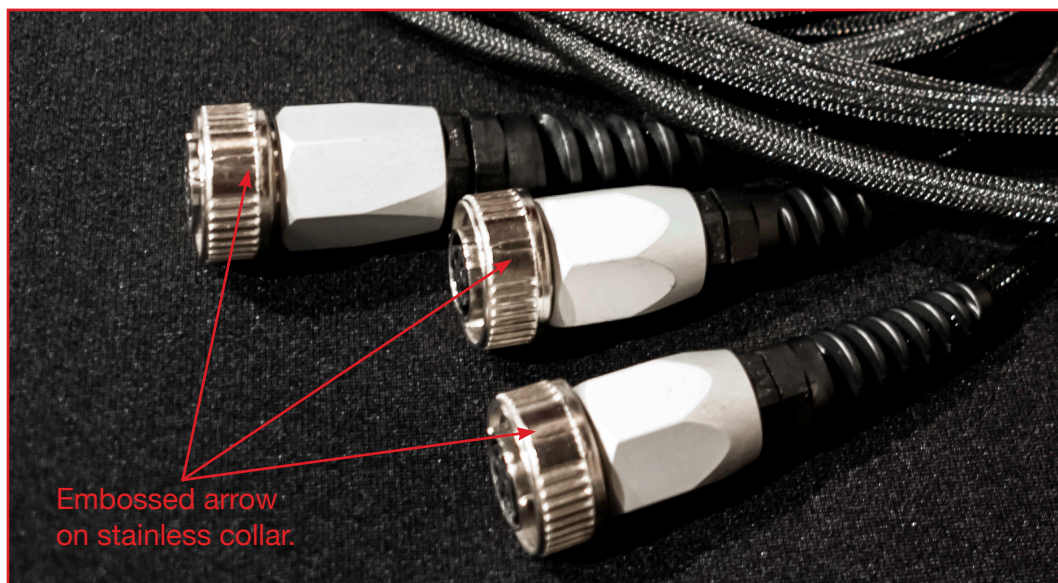
CAUTION: Connect and disconnect these cables ONLY after the power supply has been turned off for a minimum of one minute.

Getting Started



Flat edge of contact housing.

Figure 1



Embossed arrow on stainless collar.

Figure 2

Getting Started

Connecting to the Mains Outlet

Your 2110 Preamplifier is supplied with a mains cord appropriate for the location it was purchased.

The 2100 power supply is universal and automatically adjusts for the mains voltage. Simply plug it into any standard outlet. Exact voltage and frequency compatibility is stated in the specifications section.

Getting Started



Getting Started

Polarity

Please note that the 2110 Preamplifier conforms to the standard of pin 2 as high or “hot” for all analog balanced inputs and outputs. Because input and output polarities are handled through the program menu and the remote control, concern for polarity is unnecessary while connecting sources.

Connecting to a Balanced Source

To fully realize the sonic potential of your 2110 Preamplifier, use balanced connections whenever possible. Balanced cables minimize interference from magnetic and RF sources.

Connect each line source to one of the six inputs provided. Later, you will be able to program each input with the source’s name, so you may want to make a list as you connect them.

Getting Started



Getting Started

Connecting to an Unbalanced Source

Although the inputs are all of the 3 pin type, an unbalanced source is easily accommodated by using a special cable. This cable has an RCA phono type connector on the source end and a 3 pin connector for the input on the 2110 Preamplifier.

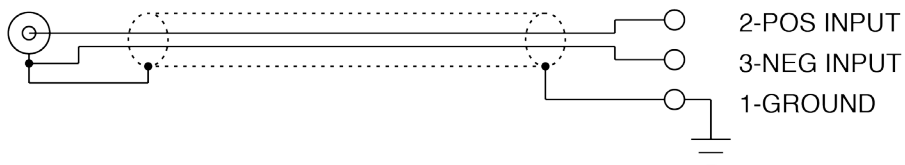
The negative input (pin 3) should be wired to ground only at the RCA phono connector. This brings the minus input reference of the 2110 to the unbalanced source ground, thus reducing ground loops.

Another option for accommodating unbalanced sources is that of the Boulder ABL2 input adapter. It converts a balanced input into a RCA phono input right at the rear of the 2110. Like the above cable, the negative input of the 2110 is connected to the ground of the RCA phono. However, this negative side will then share the shield wire with the chassis ground and will not have the best hum rejection.

Getting Started



UNBALANCED INPUT CABLE



Getting Started

Connecting to a Balanced Power Amplifier

With your 2110 Preamplifier's balanced outputs driving the balanced input of a power amplifier, you can realize the sonic advantage by having short speaker cables and correspondingly longer interconnect (input) cables. With the low output impedance of the 2110, distances of more than 50 meters between preamplifier and power amplifier are practical.

Connect the amplifier inputs to the preamplifier outputs labeled "MAIN OUT". If desired, the 2110 can be used with up to six power amplifiers. This can be accomplished by utilizing splitters. If in doubt, consult your Boulder dealer.

Getting Started



Getting Started

Connecting to an Unbalanced Amplifier

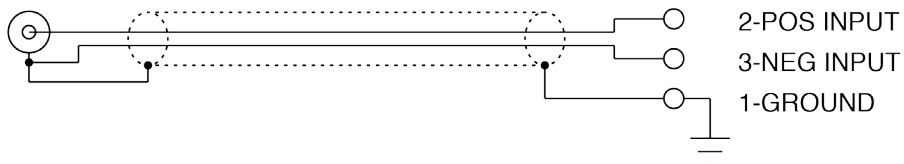
A special cable is required to make this connection. This cable connects pin 1 to the shield and pin 2 to the center pin of the RCA. It leaves the output (pin 3) unconnected.

Connecting the unused output pin (usually pin 3) to ground will cause excessive ground currents and degrade performance. Use an ohmmeter or continuity checker to determine how the cable is wired.

Getting Started



UNBALANCED INPUT CABLE



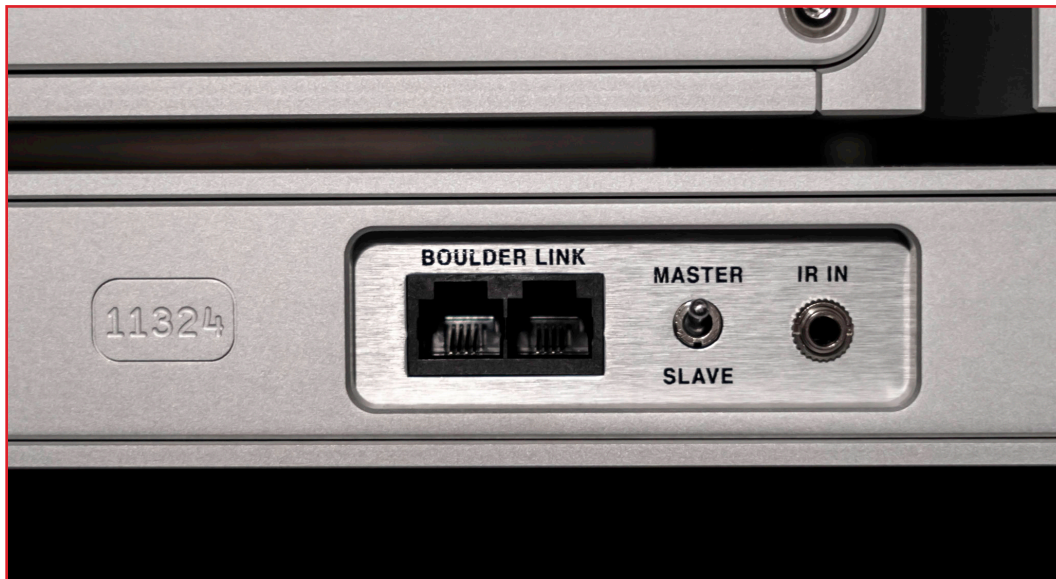
Getting Started

Setting The Boulder Link Switch

By default, the Boulder Link MASTER / SLAVE switch is set to MASTER when shipped from the factory. However, it is a good idea to ensure that this switch is in fact set MASTER during installation.

For more information on Boulder Link, see section 5 of this manual, entitled “Boulder Link”.

Getting Started



Powering Up

With all your connections made, you are ready to listen to your Boulder 2110 Preamplifier.

Press the upper portion of the master AC rocker switch on the rear panel of the 2100 Power Supply. Then push the STANDBY button on the far right side of the preamplifier's front panel. The LED on the front of the power supply should now illuminate white.

The indicator will be white during normal operation. If for any reason, any of the power supplies' voltages are low, the front panel LED will change to red.

The front panel power button is used for toggling in and out of standby, which turns everything off except the mains microprocessor.

Operation

Operation



Input Selections

To select an input, press one of the push buttons labeled ONE through SIX on the front panel. The respective input will be shown on the left side of the display and that signal will be routed to the main outputs. For example, if input ONE is chosen, “1. INPUT 1” will show in the left display.

Holding down any of the push buttons labeled ONE through SIX for several seconds will cause no input to be selected, and “SOURCE NONE” will show in the left display.

NOTE: There will be a slight delay when switching from one source to another. This is necessary to allow the circuitry to adjust to the new input source.

To select an input for auxiliary output press the AUX push button, followed by the corresponding push button for the input you wish to select. An input can be programmed to be recordable if desired. If you try to record an input that has not been programmed to be recordable, the display will show “AUX ERROR” and the input will not change.

The auxiliary output can be set to follow the main outputs. See the programming section.

Operation



Main Input



Auxiliary Input

Volume

Because the precise feel of the Boulder 2110 volume control may be different from what you are used to, we recommend starting the source device so that an audio signal is fed to the 2110 before increasing the volume.

The right display will show “VOL INFINITE” to indicate maximum attenuation, or no output. By rotating the volume control in a clockwise direction, the volume will increase and an indication, such as “VOL - 40.0dB” will appear in the right side of the display, showing the respective volume.

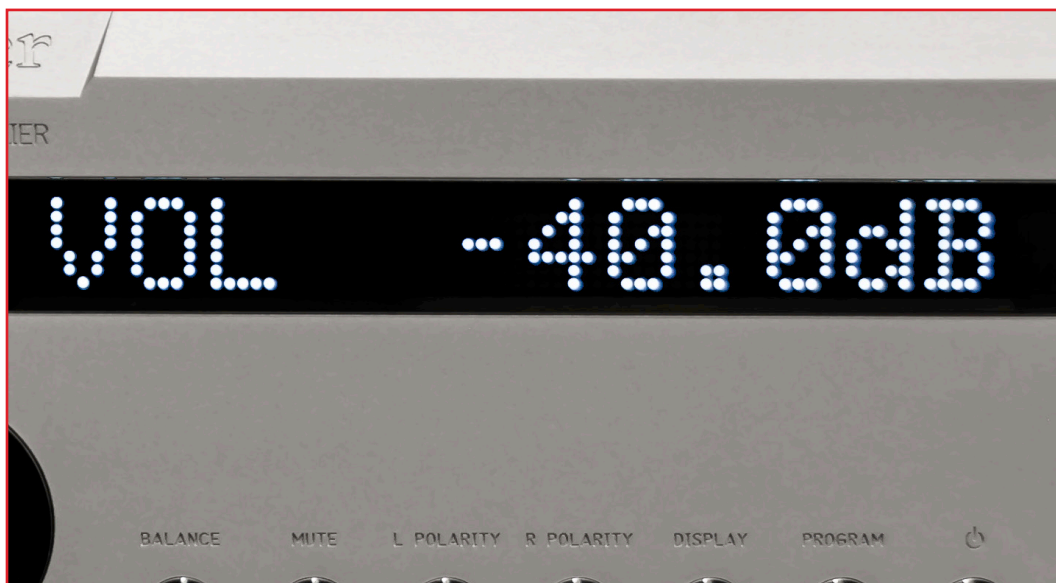
At this point you should be listening to music. The level of volume step resolution may be changed—see the programming section.

WARNING: The volume control must be given respect, as it has the ability to get loud very quickly.

WARNING: If the selected input is programmed to be in “THEATER MODE,” the volume control will have no effect.

NOTE: The actual output level is the volume level indicated in addition to the programmed input level. Input level can be adjusted during input programming (see pg. 4-1).

Operation



Balance

To change the left to right level balance, press the BALANCE push button. “BAL CENTERED” will show in the right display. Rotating the center control will now change the balance instead of the volume for as long as “BAL...” is displayed.

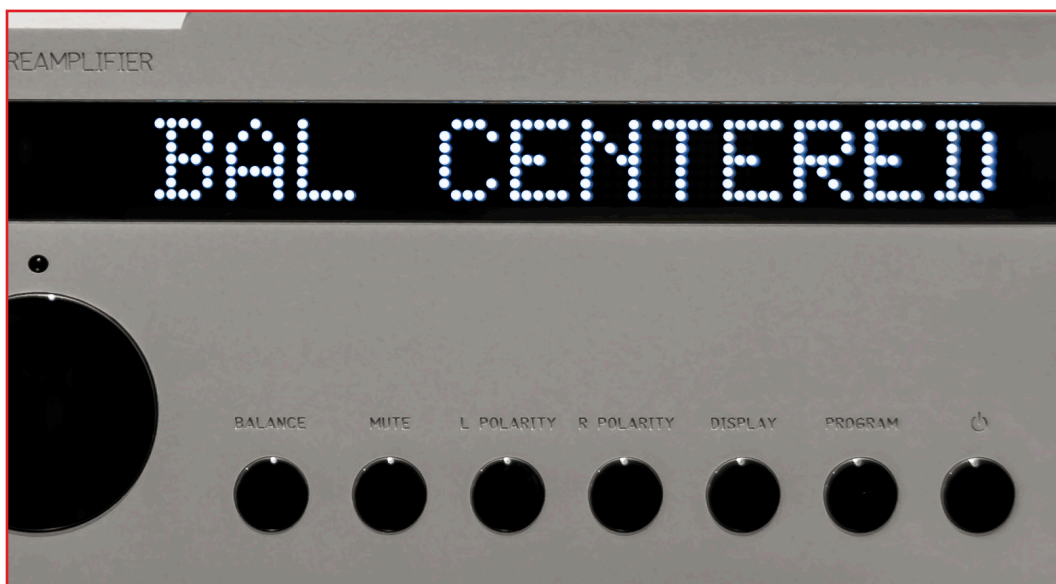
Turning the control clockwise (right) will cause an indication such as “BAL L -2.0 dB” in the right display. This means that the left channel has been attenuated -2.0 dB below the right channel, regardless of volume setting, making the right channel louder.

The range of balance offset is limited to -20.0 dB. If the control is then rotated further clockwise, the “BAL L MUTED” will be displayed to indicate that only the right channel is on.

After several seconds of not changing the balance, the right display will return to the “VOL...” Indication. You may also return to controlling volume by again pressing the BALANCE push button. The balance resolution will be the same as programmed for the volume control.

NOTE: The actual balance setting is the balance indicated plus the programmed input balance offset and programmed output balance offset. Input balance offset is adjusted during input programming (see pg. 4-3). Output balance offset is adjusted during volume control programming (see page 4-11).

Operation



Theater Mode and Balance

Sometimes it is desired that an input be set to unity gain, such as with a surround sound processor. The 2110 has the ability to set any input to unity gain while in the program mode. This is called Theater Mode. When an input has been programmed for Theater Mode, the control knob will have no affect on volume nor balance levels. VOL THEATER or BAL THEATER will be displayed.

WARNING: Theater mode should be used with extreme caution as there is no way to control the volume of the 2110 while in Theater Mode. If it is used carelessly, damage to speakers and other components may occur.

WARNING: If the input is programmed to be in “THEATER MODE,” then the balance control will have no effect.

Operation



Operation

Mute

To temporarily reduce the volume, press the MUTE push button. "MUTE -60.0dB" will show in the right display, replacing the volume indication. Pressing the MUTE push button again will return the volume to the same level setting in use prior to being muted. While muted, the level of both channels will be reduced by the amount indicted in the display, regardless of volume setting.

The amount of mute level reduction may be changed. See section 4-13.

Operation



Operation

Polarity

NOTE: Polarity is often referred to as phase. However, phase indicates any angle between two channels, from 0 to 360 degrees. The term polarity is used to indicate 180° phase change, or inversion, which is available in the 2110 Preamplifier.

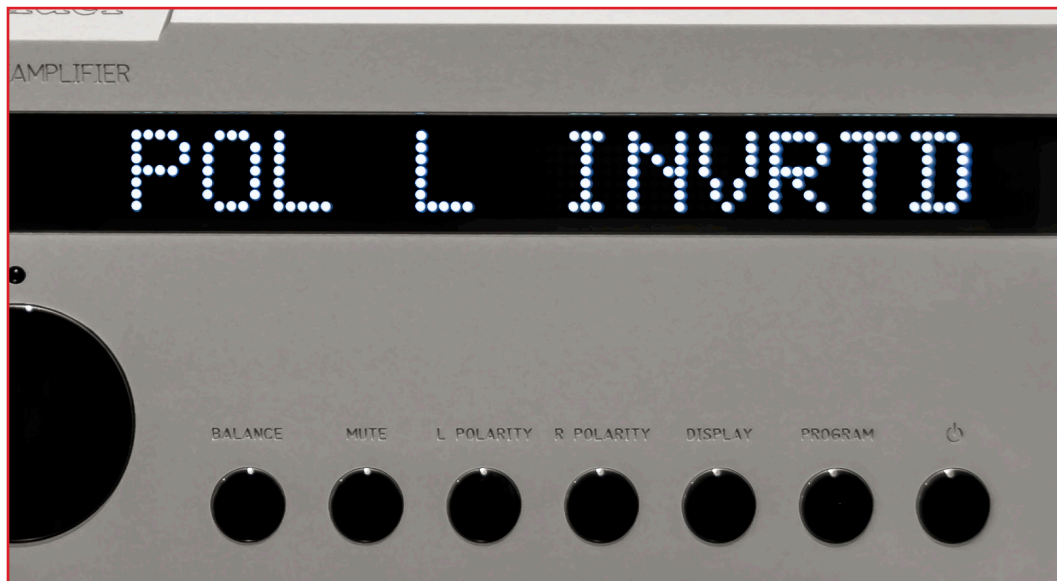
To activate a polarity change only in one channel, start by pressing either the L POLARITY or R POLARITY push buttons. “POL NORMAL” will show in the right display. If you want to change the polarity in the left channel, press the L POLARITY push button while “POL...” is displayed. “POL L INVRTD” will show in the right display and the output polarity of the left channel will be inverted.

Similarly, you may change the polarity only in the right channel, by pressing R POLARITY while “POL...” is displayed. “POL R INVRTD” will show in the right display and the output polarity of the right channel will be inverted.

To activate a polarity change in both channels, again start by pressing one of the polarity push buttons. “POL NORMAL” will show in the right display. Now press the L POLARITY push button and then press the R POLARITY push button while “POL...” is displayed. “POL INVERTED” will show in the right display and the output polarity of both channels will be inverted.

To return to normal (non inverted) polarity, again press one of the polarity push buttons. While “POL...” is displayed, press the L POLARITY and R POLARITY push buttons until “POL NORMAL” is displayed. Both channels will no longer be inverted.

Operation



Display

The display brightness may be set to any of 8 brightness levels and display completely off.

To change the brightness level, press the DISPLAY push button. “DISPLAY 8” will show in the right display. Rotate the center control until the desired brightness is obtained, for example “DISPLAY 6.” The number in the display indicates the relative brightness.

After several seconds of not changing the brightness level, the right display will automatically return to the “VOL...” indication. You may also return to controlling volume by again pressing the DISPLAY push button.

With the display at a brightness less than that of 8, any operation of a push button or the volume control will cause the display to go to full brightness for several seconds, and then return to the desired brightness. This ensures that if a function is changed, it will be noticed whether intentional or inadvertent.

Operation



Operation

Remote Control

Batteries

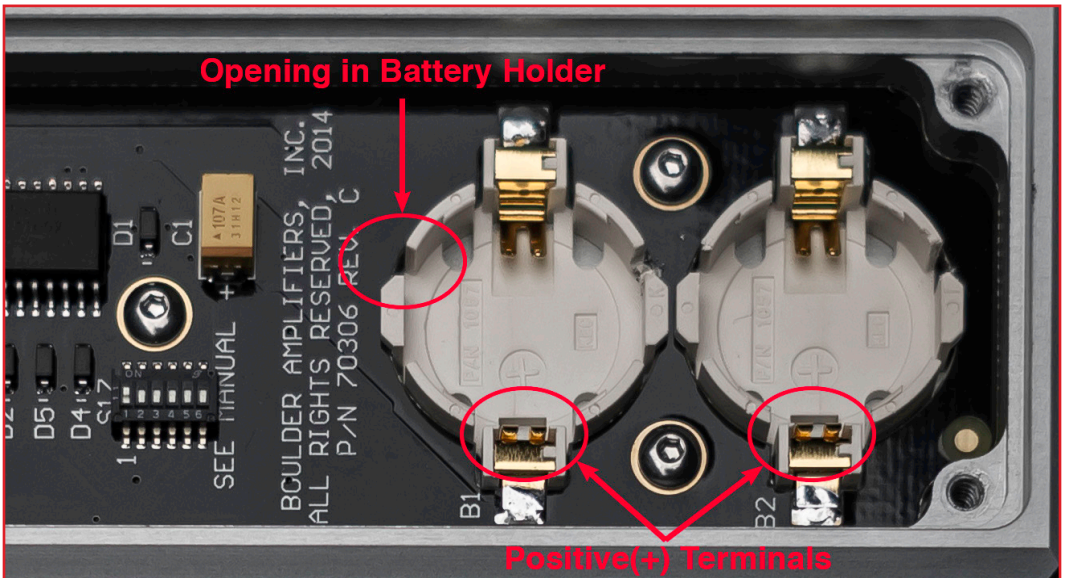
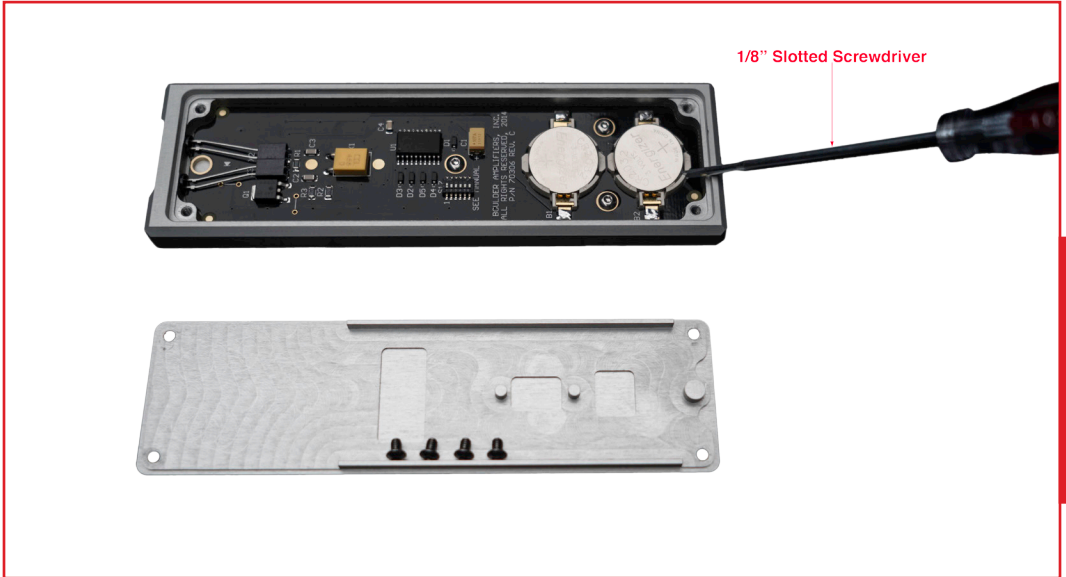
A 1/8" slotted screwdriver is required to remove the existing batteries.

Turn the remote control over and remove the four screws located on the back cover of the remote control. Lift off the cover and set aside.

Insert the tip of the slotted screw driver under the coin cell battery, through the most accessible opening on the battery holder (see figure 2). Carefully pry the coin cell battery out of its holder, then repeat the process on the second battery.

Once the batteries are removed, set them aside and retrieve the replacement CR2032 coin cell batteries.

Remote Control



Remote Control

Batteries

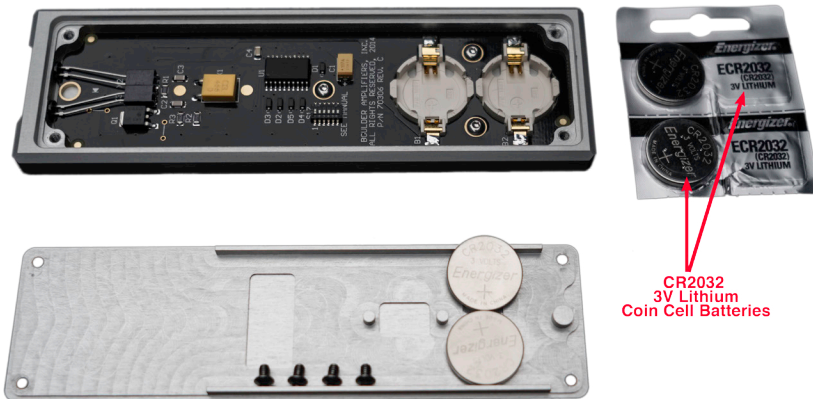
A standard 1/8" Hex Allen Key is required to install the two CR2032 coin cell batteries.

Care must be taken when installing the batteries, as the positive (+) contacts of the battery holder are delicate and can be bent easily. Following these guidelines will minimize any chance of bending or misshaping the contacts during battery installation.

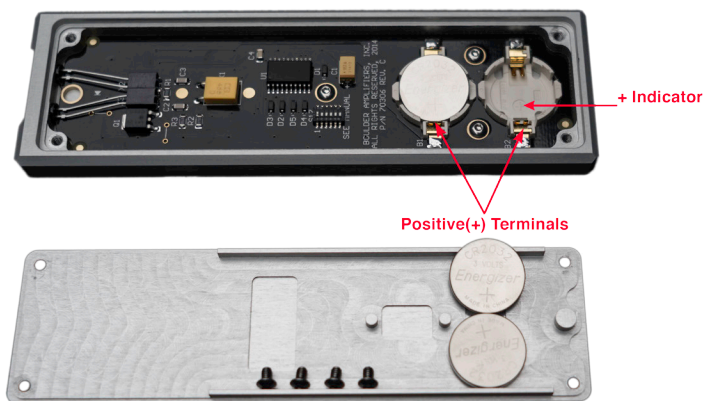
The best method for installing the batteries is to begin by inserting them into their holders at an angle, ensuring that the outer edge of the coin cell is first to make contact with the inner plane of the positive(+) contacts. Once one edge of the battery is seated against the upright contacts, gently press down on the opposite edge of the coin cell. Continue by carefully applying downward pressure on the battery until it clicks into place. Make sure that the battery is firmly seated in its holder before proceeding to the next battery. Repeat the process with the second battery.

Once both batteries are secured in their holders, it is a good idea to test the remote by pressing the "Standby" button. If the 2110 responds, you have successfully installed both batteries. Proceed by replacing the back cover and screws, then return to your listening pleasure.

Remote Control



Remote Control



Remote Control

Source Selection

To select an input (source), press the desired input number (1 through 6) on the remote. You will now be listening to your desired source, and it will be shown in the left display.



Remote Control

Remote Control

Volume, Balance, and Mute

To increase the volume, press the button marked UP. To reduce, press DOWN. Holding either button down will cause the volume to change continuously until released.

To change the balance to the left, press the button marked LEFT until the display shows “BAL CENTERED” and continue holding until the display shows the desired balance change. Similarly, you may change the balance to the right by holding RIGHT.

To temporarily mute the audio, press MUTE. To return to normal audio level again, press MUTE.

Remote Control



Remote Control

Remote Control

Polarity

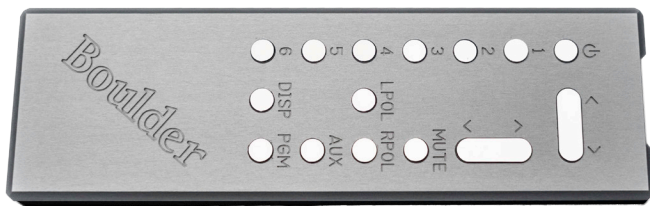
NOTE: Often polarity is mistakenly called phase. As phase indicates any angle between two channels from 0 to 360 degrees, the correct term of polarity is preferred to indicate the 180° phase change, or inversion, available in the 2110 Preamplifier.

To change polarity only in one channel, start by pressing either the L POL or R POL push button. “POL NORMAL” will show in the right display. Then to actually change the polarity in the desired channel, press the L POL or R POL push button while “POL NORMAL” is displayed. “POL L INVRTD” or “POL R INVRTD” will show in the right display and the output polarity of the desired channel of the main outputs will be inverted.

To activate a polarity change in both channels, again start by pressing the POL push button. “POL NORMAL” will show in the right display. Now press the LEFT push button and then press the RIGHT push button while “POL...” is displayed. “POL INVERTED” will show in the right display and the output polarity of both channels of the main outputs will be inverted.

To return to normal (non inverted) polarity, again press the POL push buttons. While “POL...” is displayed, press the LEFT and RIGHT push buttons until “POL NORMAL” is displayed. Both channels of the main outputs will now be non inverted.

Remote Control



Remote Control

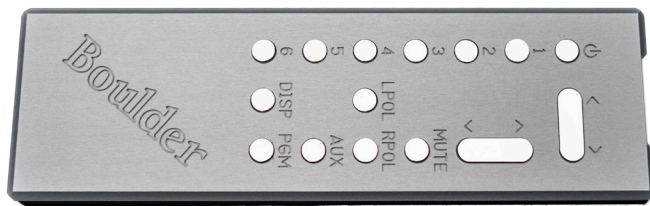
Remote Control

Display Brightness

To change the display brightness, press the “DISP” push button on the remote control. “DISPLAY”, followed by a number representing the brightness setting will be shown in the right side of the display (for example “DISPLAY 8”. To change this setting, press the DISP button repeatedly until the desired brightness setting is reached.

NOTE: In total, there are 9 different brightness settings. Levels one through eight are represented numerically (1-8), which increase in sequence with the brightness. “DISPLAY OFF” is shown to indicate the setting in which the display is completely off. Like all brightness settings, the display will automatically increase to the max level (8) during interaction with any of the controls on the front panel or remote control.

Remote Control



Remote Control



Programming

While it is not necessary to ever use any optional programming functions, you will probably find them helpful in using your Boulder 2110 Preamplifier.

All programming is accomplished by pressing the PROGRAM push button which causes “PROGRAM MODE” to be displayed in the left display and “SELECT?” in the right display.

This is the starting point for all of the following programming options. You may leave program mode whenever “PROGRAM MODE” is showing in the left display by again pressing the PROGRAM push button.

Inputs

Each input has several features associated with it. These include assigning an alphanumeric name of your choosing, setting an individual offset attenuation, correcting polarity, balance offset, theater mode, and setting recordability.

From “PROGRAM MODE” press the input source number you wish to program from ONE through SIX.

If you selected ONE, then “1.NAME?” will show in the left display and “NO” will show in the right display. Rotating the center control will allow you to choose “YES” if you do want to name the input. Press the same input source number again to continue.

If you chose to assign a name, then “1._INPUT 1” will be displayed in the right display with a blinking cursor in the name’s first character. Rotate the center control until the desired character appears. Press the same input source number to accept the displayed character and go to the next character. Continue in this manner until all 10 characters are set. For example, “1.BoulderDAC” can be used for the Boulder 2120 Advance D/A Converter.

Programming

PROGRAM MODE

SELECT?

1. NAME?

NO

Programming

If you make a mistake repeatedly press the same input source number until all ten characters are passed by and then continue until the other settings are passed through and the name assignment display reappears.

NOTE: The “space” character is just before the exclamation point (!).

After the tenth character is assigned, “1.LEVEL?” will show in the left display and “0.0dB” will show in the right display. Rotating the center control will change the display and the main output levels simultaneously. This allows calibration of each input using test tones if desired.

For example, setting the display to “-6.0dB” will allow a source which has twice the output of the other sources to be heard at the same level. The maximum level setting is -25 dB

After the desired level is reached, or if no change is desired, press the same input source number.

Programming the Input Features

I. Input Balance:

- A. “1. BALANCE?” will show in the left display and “0.0 dB” in the right. Rotate the center control until the desired balance offset is obtained as indicated in the right display. A maximum of 12.0 dB may be set.
- B. For example, rotate the center control until “R -2.0 dB shows in the right display. The level of the right channel will be reduced by 2.0 dB for this input only after you leave program mode.
- C. After the desired balance is reached, or if no change is desired, press the same input source number push button.

II. Input Polarity:

- A. “1.POLARITY?” will show in the left display and “PIN 2 HIGH” will show in the right display. As you rotate the center control to “PIN 3

Programming

1. LEVEL?

0.0dB

1. BALANCE?

0.0dB

1. POLARITY?

PIN 2 HIGH

Programming

HIGH” the polarity relays will immediately activate. (If uncertain of source polarity, check the owners manual of the source or consult your dealer.)

- B. After the desired polarity is selected or if no change is desired, press the same input source number.

III. Input Mode:

- A. “1. MODE?” will now appear in the left display and “NORMAL” will appear in the right display. Rotating the center control will change the mode to “!THEATER!”
- B. Theater Mode sets the 2110 gain to ‘unity’ and balance to center. This allows the 2110 to be easily integrated into a surround sound or theater system. Theater Mode is only intended to be used with a surround sound processor. When the 2110 is operating in Theater mode, the volume control is disabled. Therefore, only the surround sound processor can control the volume level.

WARNING: Use Theater Mode with extreme caution. It is important to remember that the 2110 volume control is disabled for this input immediately upon exiting the program menu.

NOTE: Input level remains inoperative when theater mode is active.

IV. Record Mode:

- A. “1.RECORDABLE” will show in the left display and “YES” will show in the right display. Use of this program feature will be described in the “Recording” section.

By pressing the input source number one last time, you will return to the Programming Home Menu. Press the “Program” button to exit this menu.

Programming

1. MODE?

NORMAL

! THEATER !

1. RECORDABLE

YES

Programming

Programming the Volume Control

Precise volume control of the Boulder 2110 is easily configurable. By default, the 2110 functions in a volume scale of -100 dB to 0 dB, and the resolution changes in 0.5 dB steps. Both of these settings can be adjusted to your preference.

To adjust these features, begin by pressing the PROGRAM push button. Next press the DISPLAY push button. “VOL SCALE?” will show in the left display, and the initial values of “-100 TO 0” will show in the right display.

I. Volume Scale:

- A. Rotating the center control will change the setting from “-100 TO 0” to “0 TO 100” or anywhere in between. This feature allows you to set the volume control of the 2110 to the scale of your choice. For example, one possibility would be to set the scale to “-80 TO 20”—indicating the actual gain, in dB, of the Boulder 2110 Preamplifier.

II. Volume Resolution:

- A. Once you have chosen your scale, press the DISPLAY push button again. “RESOLUTION?” will appear in the left display, and “0.5dB/STEP” will appear in the right display. Rotate the center control to select “0.1 dB”, “0.5 dB” (default), or “1.0 dB” per step as shown in the right display.
- B. Press the DISPLAY push button again to continue through the menu options.

Programming

VOL SCALE?

-100 TO 0

RESOLUTION?

0.5dB/STEP

Programming

III. Unit ID:

- A. "UNIT ID?" will show in the left display and "UNIT IS 16" (default) in the right display. This indicates the current Boulder Link address of the 2110. The Boulder Link address can be set from 16 to 31 by rotating the center control. For more information, see the Boulder Link section.
- B. Press the DISPLAY push button again.

IV. Remote ID:

- A. "REMOTE ID?" will show in the left display and "REMOTE IS 0" (default) will show in the right display. This indicates the current remote control address. The remote control address can be set from 0 to 6 by rotating the center control. To function properly, the remote ID number in the 2110 and handset must match. To set the remote ID number in the handset, a corresponding switch inside the remote control will have to be set. Contact your Boulder dealer for more information.
- B. Press the DISPLAY push button again.

V. Baud Rate:

- A. "BAUD RATE?" will show in the left display
- B. "62500 BAUD *" will show in the right display. This option selects the baud rate at which the Boulder Link communicates. By rotating the center control, you can select either 4800 baud or the standard 62500 baud. Unless you have a specific reason for using 4800 baud, this option should be left at 62500 baud.
- C. Press the DISPLAY push button again to return to the programming mode starting point.

Programming

UNIT ID?

REMOTE ID?

BAUD RATE?

62500 BAUD *

Output Balance Offset

Some listening situations call for having a “permanent” output balance offset. This could be due to inconsistent speaker sensitivity or an asymmetrical room. The output of the Boulder 2110 can be adjusted to always be offset, even though the display shows “BAL CENTERED.”

WARNING: This programmed setup is easy to forget about. If you are wondering if the balance is off, check this setting.

From “PROGRAM MODE” press the BALANCE push button. “BAL OFFSET?” will show in the left display, and “0.0dB” will show in the right display. Rotate the center control until the desired output balance is obtained as indicated in the right display. A maximum of 20.0dB may be set.

For example, rotate the center control until “R -2.0 dB” shows in the right display. The level will be reduced in the right channel once you leave program mode.

Then press the BALANCE push button again to return to the program mode starting point.

Press the PROGRAM push button to activate the balance change and leave program mode.

Programming

BAL OFFSET?

0.0dB

Programming

Mute Level

The mute feature allows for temporary level reduction without losing the original setting. Because everyone's use of this feature varies, the actual level reduction is adjustable.

From "PROGRAM MODE" press the MUTE push button. "MUTE LEVEL?" will show in the left display and "MUTE -60.0dB" will show in the right display. Rotate the center control until the desired mute level is reached as displayed in the right display.

For example, setting the display to "MUTE -25.0dB" will allow a level reduction suitable for conversation. Then press the MUTE push button again to return to the program mode starting point.

NOTE: The muted output level is relative to the normal listening level. Therefore, if the "MUTE LEVEL" is set to -60.0dB, the volume will be decreased by 60dB from its current level when "Mute" is pressed.

Programming

MUTE LEVEL?

MUTE -60.0dB

Programming

Main Output Polarity

The polarity of the main outputs may be adjusted to match the power amplifiers used. If you are using a Boulder 102, 250 or 500 series, this should be set to “PIN 3 HIGH.” For Boulder series 1000, 2000, 2100, and 3000 amplifiers, it should be set to “PIN 2 HIGH.” For other brands, consult the product’s owners manual.

Press the “Program” button, then press the L POLARITY push button. “MAIN OUT PL?” will show in the left display and “PIN 2 HIGH” will show in the right display. Rotate the center control until the desired polarity is shown in the right display. The polarity changes simultaneously with the display. Then press the L POLARITY push button again to return to the program mode starting point, or press the “Program” button to exit this mode.

Programming

MAIN OUT PL?

PIN 2 HIGH

Programming

Auxiliary Output Polarity and Source

The polarity of the auxiliary output may be adjusted to match the equipment used. Consult the respective owners manual.

From “PROGRAM MODE” press the R POLARITY push button. “AUX OUT POL?” will show in the left display and “PIN 2 HIGH” will show in the right display. Rotate the center control until the desired polarity is shown in the right display. The polarity changes simultaneously with the display. Then press the R POLARITY push button again to return to the program mode starting point.

To leave program mode, press the PROGRAM push button.

In some installations, you may want the auxiliary output to follow the main outputs during input selection. To set this feature, press the AUX push button. The left display will show “AUX = MAIN?” and the right display will show “NO.” By rotating the center control, you can set this to “YES.” When set to “YES” the auxiliary output will always connect to the same input as the main outputs.

Press the AUX push button again to take you back to the program mode starting point.

Programming

AUX OUT FOL?

PIN 2 HIGH

AUX = MAIN?

NO

Programming

Restore to Factory Defaults

Should you wish to have all settings reset to original factory defaults, you may execute a master reset. Normally, this function is not used.

From “PROGRAM MODE” press the STANDBY push button. “RESET ALL?” will show in the left display and “1=YES 2=NO” will show in the right display.

To leave all settings as they currently are, press the TWO push button.

To reset all settings, press the ONE push button.

All other push buttons are inoperative during this time. The 2110 Preamplifier will then return to normal operating mode.

WARNING: All settings which you have programmed in will be lost, including the names of each input.

Programming

RESET ALL?

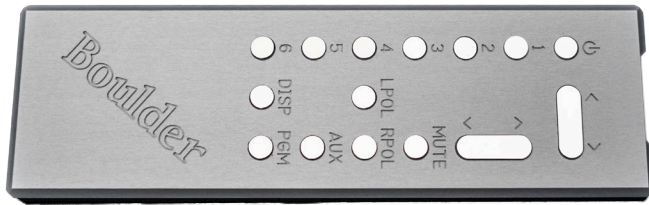
1=YES 2=NO

Programming

Programming from the Remote Control

Programming may also be conveniently done from the remote control. Similar to programming from the front panel, all programming is done by pressing the PGM button which causes “PROGRAM MODE” to be displayed in the left display. You may leave program mode whenever “PROGRAM MODE” is showing in the left display by again pressing the PGM push button.

Programming



Programming

PROGRAM MODE

Programming

Program the Inputs from the Remote Control

From “PROGRAM MODE” press the number of the input you want to program. If you selected ONE, then “1.NAME?” will show in the left display and “NO” will show in the right display. Press the DOWN button to choose “YES” if you want to name the input. Press the AUX button again to continue.

If you chose to assign a name, then “1._INPUT 1” will be displayed in the right display with a blinking cursor in the name’s first character. Press the UP and DOWN buttons until the desired character appears. Again press the AUX button to accept the displayed character and go to the next character. Continue in this manner until all 10 characters are set.

If you make a mistake press the AUX button repeatedly until all ten characters are passed by and then continue until the other settings are passed through and the name assignment display reappears.

After the tenth character is assigned, “1.LEVEL?” will show in the left display and “0.0dB” will show in the right display. Press the UP and DOWN buttons to change the main output’s level offset. After the desired level is reached, or if no change is desired, press the AUX button again.

“1. BALANCE?” will show in the left display and the amount of balance offset will show in the right display. Pressing the LEFT and RIGHT buttons will change the amount of balance offset, or if no change is desired, press the AUX button.

“1. POLARITY?” will show in the left display and “PIN 2 HIGH” will show in the right display. Press the UP button to display “PIN 3 HIGH” and the DOWN button to display “PIN 2 HIGH”, the polarity relays will immediately activate. After the desired polarity is selected with the UP and DOWN buttons, or if no change is desired, press the AUX button.

Programming

1. NAME?

NO

1. LEVEL?

0. 0dB

1. BALANCE?

0. 0dB

1. POLARITY?

PIN 2 HIGH

Programming

"1. MODE?" will show in the left display and "NORMAL" will show in the right display. Press the UP button to display "! THEATER !" and the DOWN button to display "NORMAL". Mode changes do not take affect until after programming mode is exited.

WARNING: Theater Mode sets the selected input to unity gain with no control of the volume. It should only be used in conjunction with a surround sound processor or similar device. Use extreme caution when selecting this option!

After the desired mode is selected with the UP and DOWN buttons, or if no change is desired, press the AUX button.

"1.RECORDABLE" will show in the left display and "YES" will show in the right display. Press the UP button to display "YES" and the DOWN button to display "NO". This feature prevents an input from being connected to the auxiliary outputs (which could cause feedback). Use of this program feature is fully described in the "Using a Recorder" section.

Press the AUX button to return to the program mode starting point.

Programming

1. MODE?

NORMAL

1. RECORDABLE

YES

Programming

From “PROGRAM MODE” press the DISPLAY button. “VOL SCALE?” will show in the left display, and “-100 TO 0” will show in the right display. Use the UP and DOWN buttons to change the setting from “-100 TO 0” to “0 TO 100” or anywhere in between.

Press the DISPLAY push button again.

“RESOLUTION?” will show in the left display, and “0.5dB/STEP” will show in the right display. Use the UP and DOWN buttons to select 0.1, 0.5, or 1.0 dB per step as displayed in the right display. Then press the DISPLAY push button again to return to the program mode starting point.

Programming

PROGRAM MODE

VOL SCALE?

-100 TO 0

RESOLUTION?

0.5dB/STEP

Programming

“BOULDER LINK ID?” will show in the left display and “UNIT IS 16” in the right display. This indicates the current Boulder Link address of the 2110. The Boulder Link address can be set from 16 to 31 by pressing the UP and DOWN push buttons. See the Boulder Link section.

Press the DISPLAY push button again.

“REMOTE ID?” will show in the left display and “REMOTE IS 0” will show in the right display. This indicates the current remote control address. The remote control address can be set from 0 to 6 by pressing the UP and DOWN push buttons. A corresponding switch will have to be set inside the remote control. Contact your Boulder dealer for more information.

Press the DISPLAY push button again.

“BAUD RATE?” will show in the left display and “62500 BAUD **” will show in the right. This option selects the baud rate at which the Boulder Link communicates. Use the DOWN push button to select 4800 baud or the UP push button to select the standard 62500 baud. Unless you have a specific reason for using 4800 baud, this option should be left at 62500 baud.

Press the DISPLAY push button again to return to the programming mode starting point.

Programming

UNIT ID?

UNIT IS 16

REMOTE ID?

REMOTE IS 9

BAUD RATE?

62500 BAUD *

Programming

Output Balance

From “PROGRAM MODE” press the LEFT or RIGHT buttons. “BAL OFFSET?” will show in the left display, and “0.0dB” will show in the right display. Press the LEFT and RIGHT buttons until the desired output balance is obtained as indicated in the right display. A maximum of -20.0dB may be set.

Then press the PGM button again to activate the balance change and leave program mode. (Press the PGM button again if you wish to return to program mode.)

Mute Level

From “PROGRAM MODE” press the MUTE button. “MUTE LEVEL?” will show in the left display and “MUTE -60.0 dB” will show in the right display. Press the UP and DOWN buttons until the desired mute level is reached as displayed in the right display. Then press the MUTE push button again to return to the program mode starting point.

Output Polarity

From “PROGRAM MODE” press the L POL button. “MAIN OUT PL?” will show in the left display and “PIN 2 HIGH” will show in the right display. Press the UP and DOWN buttons until the desired polarity is shown in the right display. The polarity changes simultaneously with the display.

Press the R POL button. “AUX OUT POL?” will show in the left display and “PIN 2 HIGH” will show in the right display. Press the UP and DOWN buttons until the desired polarity is shown in the right display. Then press the R POL button again to return to the program mode starting point.

Programming

BAL OFFSET?

0.0dB

MUTE LEVEL?

MUTE -60.0dB

MAIN OUT PL?

PIN 2 HIGH

AUX OUT POL?

PIN 2 HIGH

Boulder Link

Boulder Link is a means of interconnecting most Boulder products so that their microprocessors can talk to each other and pass important information. Among the key features, Boulder Link allows sequential initiation of power amplifiers and other products when the 2110 Preamplifier is turned on. Power amplifiers can send messages to the 2110 which are then shown on its display.

Connecting Boulder Link

Turn off all products, which are to be linked before connecting Boulder Link cables and setting Boulder Link ID and MASTER/SLAVE switches.

A Boulder Link adapter (BLAB), along with cables in various lengths, are available as an accessories from your Boulder dealer. Two connectors are provided on the back of the 2110 and other Boulder Link enabled products.

All the chassis are connected together in a daisy chain manner. Start by connecting one chassis to another—then from that chassis to the next until all are connected. The order does not matter.

A special interface may be obtained to enable Boulder Link to be used with other control systems. Contact your Boulder dealer for details.

Setting Boulder Link ID Numbers

Every Boulder Link system must have one “MASTER” component, and only one component can be set to MASTER. Usually this is the preamplifier. Power amplifiers and other products not having a MASTER/SLAVE switch are always Slaves.

On the 2110, set the Boulder Link toggle switch to MASTER.

Boulder Link



Boulder Link

Boulder Link

Each component is required to have a unique Boulder Link ID number. The 2110 ID is preset to 16 at the factory and/or when a master reset sequence is executed. If multiple preamplifiers are connected together, see pages 4-5 through 4-6 for instructions on how to change the ID numbers of the additional units.

Each Boulder 1000, 2100, and 3000 power amplifier has a push button switch on the rear panel. Start by setting the first switch to 0, then increasing sequentially from there without duplication. Use of the lowest numbers will speed up turn on as each amplifier is allowed about 3 seconds before the next. This spreads out the power line inrush currents thus preventing house circuit breakers from unnecessary tripping. To minimize turn on time, the amplifier's ID should be set to the lowest possible number in the sequence. For example, use "0", "1", and "2", instead of "13", "14", and "15". An amplifier set to ID "15" will take 47 seconds to turn on. Up to 16 power amplifiers may be connected together in one Boulder Link cable daisy chain.

Power Up By Boulder Link

With each component connected together with a Boulder Link cable pressing the preamplifier's "STANDBY" push button will initiate the turn on sequence of all components.

The first time a master is powered up, it will search for any "SLAVE" units connected to it. As the MASTER finds each SLAVE, the SLAVE's ID number will be shown on the display.

If any of the connected SLAVE units are amplifiers, then each time the MASTER is turned on it will display "WAITING FOR AMPS." Each amplifier will be turned on in the order of their Boulder Link ID.

Boulder Link



Boulder Link Messages

Each component in the system can send a message to the preamplifier which is shown on its display. This is particularly helpful in confirming the operation status of each amplifier in a multiple amplifier system. Typical messages on a 2110 Preamplifier are as follows.

“AMP 1 Error” means that an internal power supply has failed and the amplifier has turned itself off to protect the speakers from damage.

“AMP 1 DC” means that it has muted due to a DC offset voltage being detected at its inputs.

“AMP 1 HOT” means that the amplifier has muted due to a higher than normal temperature condition on the heat sinks.

“AMP CLIP” means that the amplifier’s output has momentarily reached its voltage limitation.

“1 OFFLINE” means that the slave is no longer responding via Boulder Link. Its Boulder Link cable may have become disconnected, or the mains power has been disconnected or that the Boulder Link ID# has been changed.

“1 ONLINE” means that the slave is now responding via Boulder Link in a normal manner and has been recognized by the master.

Boulder Link

AMP 1 ERROR

AMP 1 HOT

AMP 1 DC

AMP CLIP

1 OFFLINE

1 ONLINE

Connecting a Recording Device

A recording device may be connected to the Boulder 2110 Preamplifier. You may use balanced or unbalanced connections for both input and outputs as previously described in the sections on connecting sources and power amplifiers.

One output labeled “AUX OUT” is provided on the rear panel of each channel. Connect these to the inputs of your recording device.

Recording



Record Source Selection

Any one of the 6 inputs may be routed to the auxiliary output. Select an input by pressing the AUX push button on the front panel, and then one of the buttons labeled ONE through SIX. The respective input will be displayed in the left display. For example, if input one is chosen, “A1 INPUT 1” will show in the left display.

While “A...” is showing in the left display, holding down any of the buttons labeled ONE through SIX for several seconds will cause no input to be selected, and “AUX NONE” will show in the left display.

To return to the listening input selection, press the AUX push button. The left display will show the main input previously chosen for listening.

If the input selected has not been programmed for recording, “A... REC ERROR” will show in the left display and the record output will be connected to the last source. See the following section.

If you have programmed the auxiliary outputs to follow the main outputs and you press the AUX push button, the left display will show “AUX = MAIN.”

Recording

A1 INPUT 1

A2 INPUT 2

A3 INPUT 3

1. RECORDABLE

YES

AUX = MAIN?

Recording

Programming for Recording

Instead of having hardware-dedicated inputs for playback (tape) monitors, any input may be chosen for this purpose through software selection. Connect the outputs of these recorders to any of the 6 inputs you choose.

Then for each chosen input, follow the instructions in the programming section for “INPUTS” until “...RECORDABLE” shows in the left display. To prevent that input from being connected to the auxiliary output (which would cause feedback) turn the center control until “NO” shows in the right display.

This feature may be changed at any time by going through the programming steps. You would need to do so if you wanted to dub from one recorder to another. Make certain that only the source for the playback device is changed to “YES” and not the recording device’s source.

It is good practice to return the source’s mode back to “NO” immediately after the dubbing is finished.

The recordable option may also be changed using the remote control. Follow the instructions in the programming from the remote control section for “Inputs” until “...RECORDABLE” shows in the left display. Press the UP and DOWN buttons until the desired mode is reached.

Recording

1. RECORDABLE

NO

YES

NO

1. RECORDABLE

Specifications

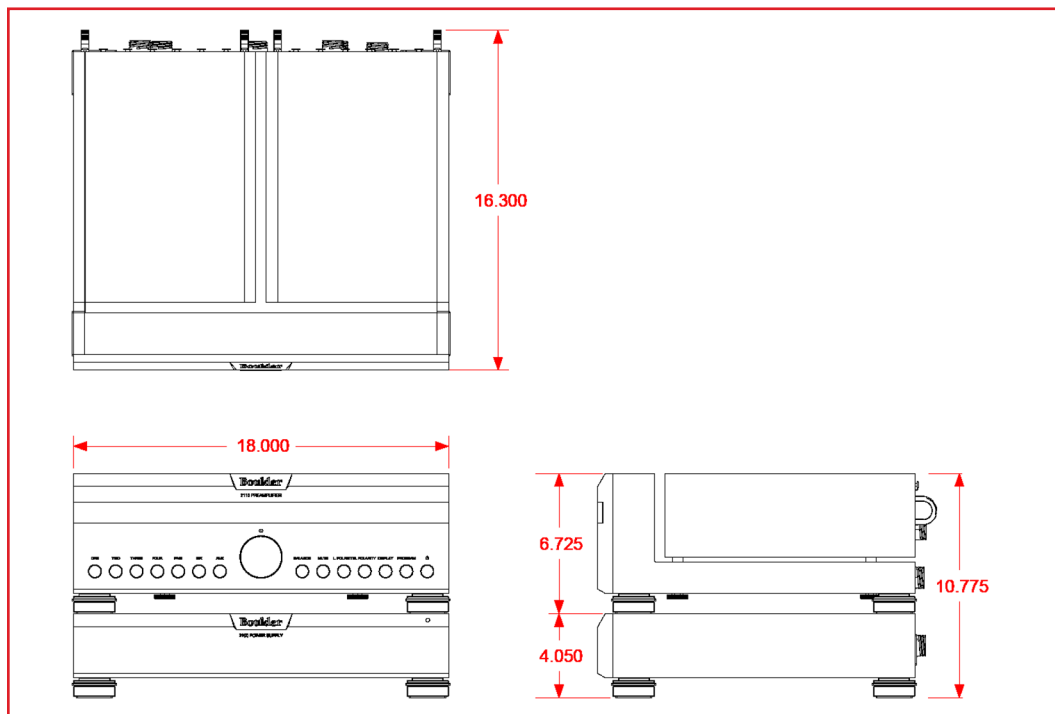
Balanced Inputs	6 x 3-pin XLR
Main Balanced Outputs	3 x 3-pin XLR
AUX Balanced Outputs	1 x 3-pin XLR
Maximum Input Level	7 Vrms
Maximum Output Level	28 Vrms
THD+N, 2V Output, from 20 Hz to 5kHz	0.0008% (-102 dB)
at 20 kHz	0.001% (-100 dB)
Maximum Voltage Gain	20 dB
Volume Range	100 dB
Volume Steps	0.1, 0.5, 1.0 dB \pm 0.01 dB
Aux Path Gain	-1 dB
Frequency Response, 20 Hz to 5kHz	+0.00, -0.03 dB
Frequency Response, -3 dB	0.02 Hz & 300 kHz
Crosstalk, L to R or R to L	-134 dB or better, 20 Hz to 20kHz
Crosstalk, Adjacent Inputs	-134 dB or better, 20 Hz to 20kHz
Crosstalk, Main to AUX	-130 dB or better, 20 Hz to 20kHz
Input Impedance	333k Ω Balanced
Output Impedance	100 Ω Balanced
Power Requirements	90-120V / 200-240V, 50 - 60 Hz
Power Consumption	240W Max, 85W On (Idle), 500mW Standby

All specifications taken at 240 VAC mains Power

Appendix

Preamplifier Weight	63 lbs. (28.6 kg),
Shipping	77 lbs. (34.9 kg).
Power Supply Weight	48 lbs. (21.8 kg),
Shipping	58.5 lbs. (26.5 kg).

2110 Preamplifier Dimensions, Inches:



Appendix

Troubleshooting

SYMPTOM	CAUSE	REMEDY
No Power Indication	Rear panel power switch is not on	Turn on power switch
	Preamplifier is not plugged in	Connect to an AC Mains outlet
	Home circuit breaker is tripped	Have line voltage checked
Red power indication	Low line voltage	Reset breakers on rear panel
	Defective power cable	Have cable tested
	Defective power supply	Return to dealer for service
White power indication, but no sound from one channel	No signal from one channel of source	Check source controls, cables, and connections
	One Channel is muted by balance control	Re-center balance on preamp
	No signal out to Preamplifier	Check connections from preamplifier.

Appendix

Appendix

Notes:

Appendix

Notes: