
MOON 850P

Reference Dual-Mono Preamplifier



Owner's Manual

M O O N
by SIMAUDIO

Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves or another apparatus that produces heat.
9. Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for safety. If the provided plug does not fit into the outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus. Unplug mains cord during transportation.
11. Only use attachments and accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when the power cord or plug has been damaged; liquid has been spilled or objects have fallen into the apparatus; or the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. No naked flame sources, such as candles, should be placed on the apparatus.



WARNING:

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.



Important Safety Instructions (cont'd)



The lightning flash with the arrowhead symbol, 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 electric shock to persons.



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



Marking by the "CE" symbol (shown left) indicates compliance of this device with the EMC (Electromagnetic Compatibility) and LVD (Low Voltage Directive) standards of the European Community

Please read all instructions and precautions carefully and completely before operating your MOON 850P Preamplifier.

1. **ALWAYS** disconnect your entire system from the AC mains before connecting or disconnecting any cables, or when cleaning any component. To completely disconnect this apparatus from the AC mains, disconnect the power supply cord plug from the AC receptacle.
2. The MOON 850P must be terminated with a three-conductor AC mains power cord which includes an earth ground connection. To prevent shock hazard, all three connections must **ALWAYS** be used. Connect the MOON 850P only to an AC source of the proper voltage; Both the shipping box and rear panel serial number label will indicate the correct voltage. Use of any other voltage will likely damage the unit and void the warranty
3. AC extension cords are **NOT** recommended for use with this product. The mains plug of the power supply cord shall remain readily accessible.
4. **NEVER** use flammable or combustible chemicals for cleaning audio components.
5. **NEVER** operate the MOON 850P with any covers removed. There are no user-serviceable parts inside. An open unit, especially if it is still connected to an AC source, presents a potentially lethal shock hazard. Refer all questions to authorized service personnel only.
6. **NEVER** wet the inside of the MOON 850P with any liquid. If a liquid substance does enter your MOON 850P, immediately disconnect it from the AC mains and take it to your MOON dealer for a complete check-up.
7. **NEVER** spill or pour liquids directly onto the MOON 850P.
8. **NEVER** block air flow through ventilation slots or heatsinks.
9. **NEVER** bypass any fuse.
10. **NEVER** replace any fuse with a value or type other than those specified
11. **NEVER** attempt to repair the MOON 850P. If a problem occurs contact your MOON dealer.
12. **NEVER** expose the MOON 850P to extremely high or low temperatures.
13. **NEVER** operate the MOON 850P in an explosive atmosphere.
14. **ALWAYS** keep electrical equipment out of reach of children.
15. **ALWAYS** unplug sensitive electronic equipment during lightning storms.
16. **WARNING:** Do not expose batteries or battery pack to excessive heat such as sunshine, or fire or the like.

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Date Code: 20161101

Introduction

Thank you for selecting the **MOON 850P** Dual-Mono preamplifier as a part of your music/cinema system. This preamplifier has been designed to offer state-of-the-art high-end performance in an elegant package, while retaining all the sonic hallmarks on which Simaudio has made its reputation. We have spared no effort to ensure that it is the finest two-channel preamplifier available. We have been building high-performance audio equipment for over 30 years, and the know-how gained through our cumulative experience is an important reason why **MOON** preamplifiers are so musically satisfying.

Your new preamplifier is a true dual-mono design, whereby each channel operates completely independent of the other. The performance of your **850P** will continue to improve during the first 400 hours of listening. This is the result of a "break-in" period required for the numerous high quality electronic parts used throughout this preamplifier.

Before setting up your new **MOON 850P**, we encourage you to please read this manual thoroughly to properly acquaint yourself with its features. We hope you enjoy listening to the **MOON 850P** dual-mono preamplifier as much as the pride we have taken in creating this fine audio product. We understand the power and emotion of music and build our products with the goal of faithfully capturing these elusive qualities.

The information contained in this manual is subject to change without notice. The most current version of this manual is available on our official website at <http://www.simaudio.com>

Your **MOON 850P** dual-mono preamplifier incorporates many significant design features to achieve its "world-class" level of performance. This is an abbreviated list of the more important features:

2-chassis design with one chassis (Controller) housing the power supply, digital controller circuitry, software processing and the LED display. The other chassis (Preamplifier) contains ONLY audio circuitry.

Our proprietary **M-Octave Damping** system that virtually eliminates the sonically degrading "microphonic effect" by mounting the main audio circuit board on an 8-point floating suspension.

Custom proprietary toroidal transformer design with lower magnetic, electrical and thermal loss, yielding an improved power transfer and lower regulation factor. The result is increased current speed and better dynamics.

An **oversized dual-mono power supply** features 6 stages of DC voltage regulation and choke filtering.

SimLink™ controller port allows for 2-way communications between other compatible MOON Evolution Series components.

M-Ray volume control circuit based on the R-2R resistor array configuration that uses thin film surface mount resistors with 0.1% tolerances, resulting in no sonic degradation of the audio signal regardless of the selected volume setting.

530 individual volume steps in 1dB and 0.1dB increments.

M-Lock circuit for "user selectable" maximum volume setting lock-out for each line input.

Power supply voltage regulation includes **i²DCf** (Independent Inductive DC Filtering); 1 inductor for each and every IC in the audio circuit's signal path – 40 stages in all.

Full unsolicited **RS-232** bidirectional feedback.

Gain offset for each line input with a ± 10 dB range.

Each line input is fully configurable to be "**home theater ready**", where the volume control of the 850P is bypassed.

Four-layer PCB tracings; The advantages include better ground and power supply circuit layouts resulting in a much shorter signal path and dramatically improved signal-to-noise ratio.

Ultra rigid chassis construction to minimize the effects of external vibrations.

Unpacking

The **MOON 850P** preamplifier and power supply/controller should be removed from its crate with care.

The following accessories should be included inside the box with your preamplifier:

- ✓ *AC power cable*
- ✓ *FRM-3 remote control with three 'AAA' batteries*
- ✓ *Three (3) color-coded cables to connect the preamplifier to its power supply/controller chassis*
- ✓ *SimLink™ cable with 1/8" mini plug terminations on each end*
- ✓ *This owner's manual*
- ✓ *Warranty and product registration information* (USA and Canada only)

Once the **850P** is unpacked, inspect it thoroughly and report any damage to your dealer immediately. We suggest that you keep all of the original packaging, storing it in a safe, dry place in case you're required to transport this product. The customized packaging is specially designed to protect the **850P** from any potential damage during transit.

Please write the serial number of your new **MOON 850P** in the space provided below for future reference.

Serial Number

Installation

The **MOON 850P** dual-mono preamplifier is very heavy and should be placed on a solid, level surface. You should avoid placing it near a heat source or inside a closed cabinet that is not well ventilated as this could compromise the preamplifier's performance and reliability.

If the surface you have chosen isn't perfectly level, each of the four (4) legs of both your **850P** and its power supply / controller are height adjustable; carefully using your fingers, you can either raise each leg by turning the cone underneath clockwise, or lower each leg by turning it counterclockwise.

We strongly recommend that you leave these cones mounted to the component at all times for reasons related to both performance and aesthetics.

Connecting the 850P Preamplifier & Controller

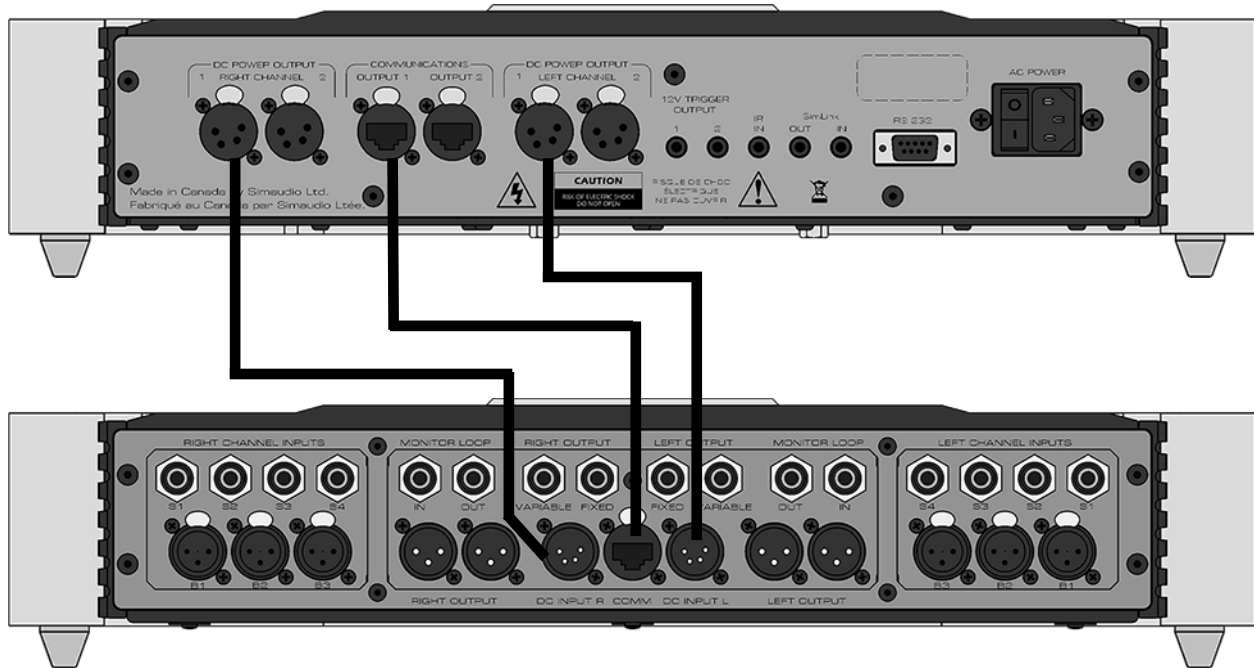


Figure 1: Connecting the MOON 850P Preamplifier (bottom) and 850P Controller (top)

There are three (3) connections that must be made between the **MOON 850P** Preamplifier's chassis and its separate controller chassis as shown above in Figure 1.

First, using one of the two supplied 4-pin XLR cables, connect the end with the male pin socket to the plug labeled "DC Power Output Right Channel" located on the rear panel of the controller. Connect the other end of the cable, with the female socket, to the plug labeled "DC Input R" located on the rear panel of the preamplifier. Next, using the other 4-pin XLR cable, repeat the same process between "DC Power Output Left Channel" and the "DC Input L" socket. Then, using the supplied 8-pin Ethercon cable (both ends are identically terminated), connect one end to the plug labeled "Communications Output 1" located on the rear panel of the controller. Connect the other end of the cable to the plug labeled "Comm" located on the rear panel of the preamplifier. You will notice that there are two sets of each output connector on the controller, however only one of each is required to operate this preamplifier; the other connectors are for possible future use with other components. Do not attempt to modify the lengths these cables – they are specifically designed for optimal performance.

Finally, connect the supplied AC power cable to the IEC receptacle, located on the rear panel of the preamplifier's controller chassis. Ensure that the AC wall outlet you use has a functioning ground. For the best sonic performance, it is preferable that you plug your **850P** preamplifier directly into a dedicated AC outlet and avoid using an extension cord.

The **MOON 850P** is equipped with our **M-Octave Damping** system, whereby the main audio circuit board is coupled to the chassis using an 8-point floating suspension that is designed to eliminate distortion caused by the "Microphonic effect" of airborne vibrations. All audio connectors are directly mounted to this main audio circuit board. As a result, a dual-layered rear panel is required to accommodate this suspension, with the outer layer affixed to the **850P's** chassis and the inner layer – with the audio connectors – affixed to the main audio circuit board. *Consequently, when you connect cables to (or disconnect cables from) the **850P**, this inner rear panel will move slightly – This is normal.* These rear panel layers are completely independant of each other, only coming into physical contact when either connecting or disconnecting cables.

Front Panel Controls

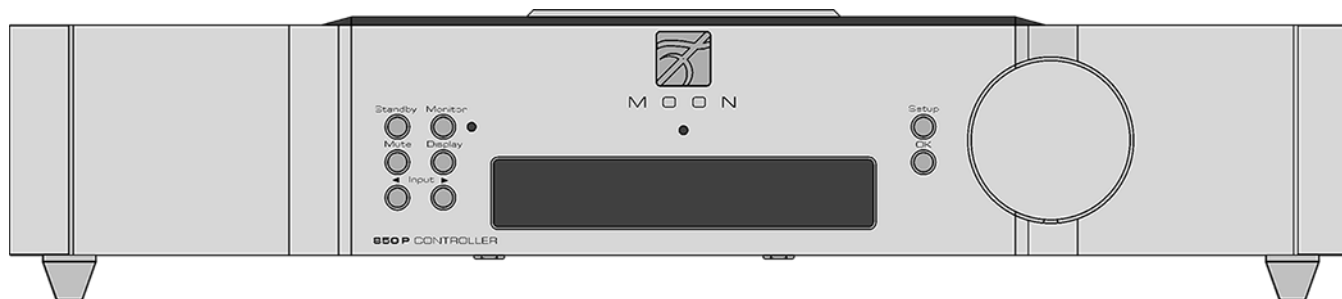


Figure 2: Front panel of MOON 850P dual-mono Controller

The front panel will look similar to Figure 2 (above). The large display window normally indicates the current volume level and, whenever you change the input, it will briefly show the selected input.

The "Standby" button disengages the input section from the rest of the **850P's** circuitry and turns off the digital display. However, when in "Standby" mode all audio circuitry remains powered up to help maintain optimal performance. When switching back from "Standby", both the 'input' and volume settings are re-established from the previous listening session. The blue pilot LEDs will not be illuminated, on both the Preamplifier and Controller, when the **850P** is in "Standby" mode.

The "Monitor" button provides for a dedicated loop to be used with either a component that can record & playback (Cassette Deck, DAT, CD-Recorder, etc.) or a signal processor such as an equalizer. Pressing this button allows you to 1) monitor the recording as it occurs on the recording device or 2) engage the effects of the signal processor. The monitor component's outputs must be connected to the **850P's** "Tape Monitor In" and its inputs must be connected to the **850P's** "Tape Monitor Out". The monitor output level is fixed and independent of the **850P's** volume setting. The LED immediately to the right of this button will illuminate when the "Monitor" function is engaged.

The "Mute" button reduces your volume setting to zero. Pressing the "Mute" button a second time will return the output volume to its previous level. As well, adjusting the volume level while the "Mute" function is engaged will effectively defeat the muting function.

The "Display" button allows you to adjust the brightness of the large digital display window. It also provides you with the option of turning off the display.

There are three (3) different levels of brightness; The default is medium. Pressing the "Display" button once will increase the level to medium. Pressing the button a second time will further increase the brightness to the highest setting. Pressing the "Display" button a third time returns the display to its default setting of medium.

If you want to turn the display off, press and hold the "Display" button for 2 seconds. When the display is turned off, it will still come back on for a short period of time whenever you press any of the buttons located on the front panel or the remote control, using the brightness level that was previously set; the display will automatically turn off again once you are done. To turn the display back on, simply press and hold the "Display" button for 2 seconds.

The "Input ►" and "Input ◀" buttons allow you to choose which input source you wish to listen to. The **MOON 850P** dual-mono preamplifier has a total of seven (7) inputs; The first three (3) inputs are fully-balanced and use XLR connectors labeled B1, B2 and B3. The next four (4) inputs are single-ended and use RCA connectors labeled S1, S2, S3 and S4. Assuming that you're currently listening to a source component connected to input B1, the "►" allows to sequentially scroll forward through the available inputs from B2 to S4. The "◀" button allows you to sequentially scroll backwards from S4 to B2. Holding down either the "►" or "◀" input buttons will allow only a single change of the selected input. You must press the button again to select the next or previous input.

The rotary “volume” control determines the gain setting, which ranges from ‘0.0dB’ (no output) to ‘80.0dB’ (full output). This control does not function like a typical volume: When you rotate the dial, either clockwise to raise the volume or counter-clockwise to lower the volume, you are actually engaging a precision optical encoder which selects, via a relay network, very high quality thin film resistors that the audio signal passes through. The result is a proprietary gain circuit, called **M-Ray**, that doesn’t degrade the audio signal regardless of the setting, unlike all potentiometer based circuits. Since this circuitry operates in a fully balanced differential mode, no noise is introduced to the audio signal. Furthermore, since there are no actual moving parts, this technology has a minimum life expectancy of one million rotations.

The **MOON 850P** preamplifier provides a range of five-hundred and thirty (530) unique volume settings. This is achieved as follows: Within the 0.0dB to 30.0dB range, you can increase and decrease the volume in 1.0dB steps. From the 30.0dB to 80.0dB range, you can increase and decrease the volume by either 0.1dB or 1.0dB steps; By rotating the volume control slowly, the level will change by 0.1dB increments. A quicker rotation will change the volume in 1.0dB increments.

Note: To change the balance between the left and right channels, please refer to the section “Remote Control Operation”.

The “Setup” and “OK” buttons are used for programming the numerous software functions available on this preamplifier. The next section, entitled “Software Setup”, explains their usage in detail.

Software Setup

The **MOON 850P** preamplifier includes powerful software that allows you to configure it to meet your specific needs. For each of the seven (7) inputs, you can assign a *label* to replace the factory assigned name (i.e. B1, S1, etc.), assign a *maximum volume* level of less than 80.0dB, create an *offset volume* level ranging from – 10.0dB to +10.0dB, *bypass* the volume control (to exclusively use the source component’s volume instead) and *disable* the input completely when it’s not in use. As well, you can assign any and all inputs to activate each of the **850P**’s two 12 Volt triggers.

Finally, there’s a facility to reset all software settings back to their factory defaults.

Please refer to the accompanying quick reference diagram for a snapshot of the entire Setup menu layout.

When you are in Setup mode, there are three (3) front panel items used to program this preamplifier; The “Setup” button for navigating up and down through the various menu levels, the rotary volume control for scrolling through the available choices within each programmable item, and the “OK” button for confirming and saving your selections.

What follows are step-by-step examples of how to configure an input, assign the two 12 Volt triggers and reset the software back to the factory default. We will begin by walking through all 5 available options for the “B1” input:

1. To enter the Setup mode, begin by pressing the “Setup” button; “SETUP” will appear in the display window.
2. Rotate the volume control clockwise until “INPUTS” appears in the display. Press “OK”.
3. Rotate the volume control clockwise until “B1” appears in the display. Press “OK”.
4. “LABEL” will appear in the display. Press “OK”.
5. “AUX1” will appear in the display. By rotating the volume control clockwise, you will scroll through more than 25 generic choices appearing in alphabetical order (AUX1 ... CD ... TUNER, etc.), various MOON source model names (i.e. ANDROMEDA ... ORBITER, etc) and finally a choice called “CUSTOM” which allows you to create your own text label of up to 8 characters in length (refer to the example at the end of this section for more details). When you assign the “B1” input label to “MiND” (for the *MOON intelligent Network Device* music streamer), you are also automatically configuring this component’s internal software which will allow it to operate with the MiND app, provided that the proper SimLink connections have been made with your other MOON components. Functions available using the MiND app are discussed in the next section.

6. When the label name you wish to assign to the B1 input appears in the display, press the "OK" button. "SAVED" will briefly appear in the display followed by "LABEL".
7. Press the "Setup" button and the label you've just assigned to the B1 input will appear in the display.
8. At this point you can (i) continue configuring other options for the B1 input (see the next step), (ii) configure another input such as B2 (rotate the volume control clockwise to access the B2 input), or (iii) leave the Setup mode (press the "Setup" button once and "INPUTS" appears in the display; the press it again and "EXITING" will appear in the display).
9. The next option to configure for the B1 input is the maximum volume setting. Press "OK" and "LABEL" will appear in the display. Then slowly rotate the volume control clockwise until "MAX VOL" appears in the display. Press "OK" and the factory default of "80.0dB" will appear in the display; this is the maximum volume level.
10. The maximum setting can be changed by rotating the volume control. A slow rotation makes 0.1dB adjustments and a faster rotation results in 1.0dB adjustments. Once you've found a desired setting, press "OK" and "SAVED" will briefly appear in the display followed by "MAX VOL". The lowest possible setting is 40.0dB.
11. The next option to configure for the B1 input is volume offset. This allows you to compensate for the different output levels amongst your various source components you will be connecting to the **850P**. Slowly rotate the volume control clockwise and "OFFSET" will appear in the display. Press "OK" and the factory default of "+6.0dB" will appear in the display.
12. You can adjust the volume offset in either 0.1dB (slow rotation) or 1.0dB (faster rotation) increments to either +10.0dB by rotating the volume control clockwise or -10.0dB rotating the volume control counter-clockwise. Once you've found the appropriate setting, press "OK" and "SAVED" will briefly appear in the display the "OFFSET".
13. The fourth configurable option is the volume bypass feature for use with home-theater processors and source components that have their own volume control. When activated, the volume control of the **850P** is bypassed and the volume level is adjusted using the component connected to the input. Slowly rotate the volume control clockwise and "BYPASS" will appear in the display. Press "OK".
14. The factory default of "BYPASS N" will appear in the display. Use the volume control to alternate between "BYPASS N" and "BYPASS Y" and then press "OK". Next you will be asked to confirm your selection as "SURE ? N" will appear in the display. Rotate the volume control until "SURE ? Y" appears in the display. Press "OK" and "SAVED" will briefly appear in the display followed by "BYPASS". When you set the volume bypass to "Y", the volume setting you saved for the input with "OFFSET" will be maintained.
15. The fifth and final configurable option for the B1 input is to disable it when it won't be used. Slowly rotate the volume control clockwise and "ENABLE" will appear in the display. Press "OK".
16. The factory default is "ENABLE Y" which will appear in the display. Use the volume control to alternate between "ENABLE N" and "ENABLE Y". Press "OK" and "SAVED" will briefly appear in the display followed by "ENABLE". When an input has been disabled it will appear only in the Setup menu as "B1 N/A".
17. You have now passed through all five configuration options for the B1 input. At this point, you can (i) repeat the above process for the another input by pressing the "Setup" button and then use the volume control to select the next input to configure, (ii) exit from the Setup procedure by pressing the "Setup" button three times or (iii) continue with the Setup procedure and either assign the 12 Volt trigger outputs or reset the **850P** back to factory default status (see the following examples).

The **MOON 850P** is equipped with software that allows the MiND app to control various features of this preamplifier. With the MiND app you will be able to adjust the volume level, mute the output, place the preamplifier into 'Standby' mode and then place it back into operational mode. As well, when you begin playing a music track from the MiND app, the **850P** will automatically switch to the input configured for the MiND. With the MiND app, you are essentially controlling your entire MOON system using a hand-held Apple (iPad, iPhone, iPod Touch) device.

You don't need to LABEL an input with "MiND" to achieve these aforementioned functions, but you must configure one input for MiND functionality. An example for this scenario would be the **MiND** streaming device feeding a digital signal to a **MOON 650D DAC /Transport**, which then outputs its analog signal to the **MOON 850P**.

Only one of the five inputs may be configured for the MiND. "B1" is the default input. If, in the previous section, you already assigned the "MiND" label to one of this preamplifier's inputs, then there's nothing required to do here – The corresponding input has been automatically configured for MiND and cannot be changed until you change the input 'LABEL' assignments. However, if you haven't assigned the "MiND" label to one of the **850P**'s inputs, the following example shows how to configure an input for MiND functionality:

1. You may either continue where we left off in the previous example by pressing "Setup" twice to return to the main menu and then turn the volume control until "MiND" appears in the display OR enter into the "Setup" mode from the beginning by pressing the "Setup" button and rotating the volume control until "MiND" appears in the display.
2. Press "OK" and "MiND:B1" will appear in the display.
3. Rotate the volume control clockwise until the input you want to configure appears in the display.
4. Press "OK" and "SAVED" will appear briefly in the display followed by "MiND".
5. Press the "Setup" button and "EXITING" will appear in the display.

Assigning a custom label to an input:

1. Using the example from the previous page for configuring an input, repeat steps 1 through 5.
2. When "CUSTOM" appears in the display press the "OK" button. The display will show ".....".
3. Rotate the volume control clockwise to scroll through the 26 letters of the English alphabet, first in uppercase and then lowercase, followed by the numbers 0 through 9, and finally several miscellaneous symbols including the space character. When you see the letter, number, or symbol you wish to use, press "OK" to select it and then repeat this step for the next character.
4. You must assign all 8 characters when creating a custom input label; If your label requires only 5 characters, you will need to input a blank space for the remaining 3 characters. Note: If you decide to create a custom input label for MiND, it must be spelled exactly as it appears here – the software is case sensitive.
5. Once you've filled the last position, press "OK" and "SAVED" will briefly appear in the display followed by "INPUTS".
6. Press the "SETUP" button to exit from the Setup menu

The **MOON 850P** is equipped with two 12 Volt trigger outputs. When an input is assigned to a 12 Volt trigger, the device connected to the trigger will automatically start-up whenever you switch to that input. The default setting for all seven inputs is on. When you set the IR input to "Y", all inputs previously set to "Y" for that trigger will automatically be set to "N". Then the trigger will be controlled exclusively by an external IR signal. The following example shows how to configure one of them:

1. You may either continue where we left off in the previous example by pressing "Setup" twice to return to the main menu and then turn the volume control until "TRIG 1" appears in the display OR enter into the "Setup" mode from the beginning by pressing the "Setup" button and rotating the volume control until "TRIG 1" appears in the display.

2. Press "OK" and "B1 : Y" will appear in the display.
3. To disable the 12 Volt trigger, press "OK" and "B1 ? Y" appears in the display; rotate the volume control to alternate from "Y" to "N" .
4. Press "OK" and "SAVED" will appear briefly in the display followed by "B1 : N".
5. To configure another input, rotate the volume control until that input appears in the display, then press "OK".
6. Repeat steps 3 and 4
7. When you have finished with all of the inputs for the "TRIG 1" press the "Setup" button and "TRIG 1" will appear in the display. From this point you may go to four different locations in the Setup menu:
 - To configure the second 12 Volt trigger output, rotate the volume control until "TRIG 2" appears in the display then press "OK" and repeat the above process beginning with step 3.
 - To exit from the Setup procedure, press the "Setup" button again and "EXITING" will appear in the display.
 - To reset the software settings back to their factory defaults, rotate the volume control until "RESET" appears in the display (see the next example).
 - To configure the inputs (previous example) rotate the volume control until "INPUT" appears in the display.

If you want to control the **MOON 850P** using a wired aftermarket infrared remote control receiver with a universal remote control, you can disable the IR sensor located on the front panel as follows:

1. You may either continue where we left off in the previous example by pressing "Setup" twice to return to the main menu and then turn the volume control until "INFRARED" appears in the display OR enter into the "Setup" mode from the beginning by pressing the "Setup" button and rotating the volume control until "INFRARED" appears in the display.

2. Press "OK" and "NORMAL" will appear in the display.
3. To disable the **MOON 850P's** front panel IR sensor, rotate the volume control to alternate from "NORMAL" to "DISABLED".
4. Press "OK" and "SAVED" will appear briefly in the display followed by "INFRARED"
5. Press the "Setup" button to exit from the Setup menu.

The **MOON 850P** is equipped with a rear mounted IR input for use with aftermarket wired infrared remote control receivers. In the event that you want to control the **MOON 850P** with a universal remote control and **NOT** the one included (FRM-3), you can change the RC-5 remote control system codes. This procedure is recommended when you have a large custom install setup that uses multiple integrated amplifiers and/or preamplifiers that operate on the RC-5 standard and you need to make each component unique w.r.t. remote control operation – up to 4 components. Before making the following change, you should have a basic understanding how to program a universal remote control. The following example shows how to change the IR codes that the **MOON 850P** will recognize:

1. You may either continue where we left off in the previous example by pressing "Setup" twice to return to the main menu and then turn the volume control until "IR CODE" appears in the display OR enter into the "Setup" mode from the beginning by pressing the "Setup" button and rotating the volume control until "IR CODE" appears in the display.
2. Press "OK" and "DEFAULT" will appear in the display.
3. To change the RC-5 system codes, rotate the volume control to scroll through the available sets of RC-5 compatible codes: "SYS11", "SYS14", "SYS15", and "SYS19".
4. Once you've decided on one, Press "OK" and "SAVED" will appear briefly in the display followed by "IR CODE".

5. From this point you can (i) exit from the Setup procedure by pressing the "Setup" button again and "EXITING" will appear in the display or (iii) continue with the Setup procedure by disabling the infrared remote sensor, changing the IR codes, resetting the **850P** back to factory default status (see the following example), configure the 12 Volt Trigger Output or configure more inputs (examples on previous pages).

Reset the MOON 850P software settings back to their factory defaults:

1. You may either continue where we left off in the previous example by turning the volume control until "RESET" appears in the display OR enter into the "Setup" mode from the beginning by pressing the "Setup" button and then rotating the volume control until "RESET" appears in the display.

2. Press "OK" and "RESET N" will appear in the display.
3. Rotate the volume control until "RESET Y" appears in the display.
4. Press "OK" and "SURE ? N" will appear in the display.
5. Rotate the volume control until "SURE ? Y" appears in the display.
6. Press "OK" and "SAVED" will briefly appear in the display followed by "RESET".
7. Press the "Setup" button again and "EXITING" will appear in the display.

Rear Panel Connections

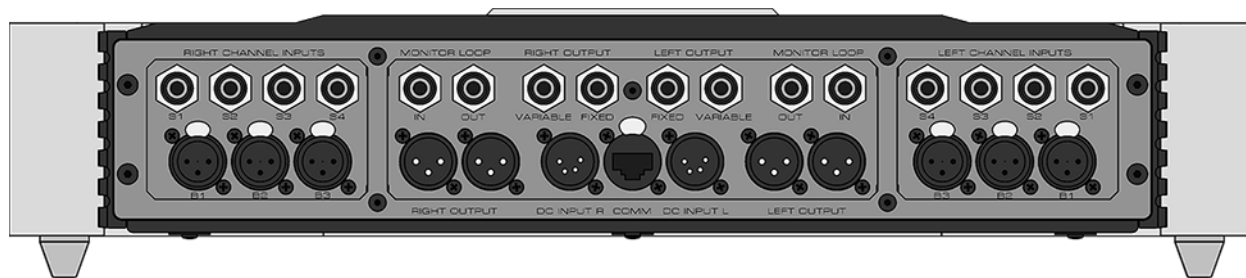


Figure 3: Rear panel of the MOON 850P Preamplifier

The rear panel of the **MOON 850P** dual-mono preamplifier will look similar to Figure 3 (above). There are two rows of connectors; the top row contains single-ended RCA inputs/outputs and the bottom row contains balanced XLR inputs/outputs, as well as the three input connections from the separate digital controller chassis. There are three (3) pairs of balanced inputs on XLR connectors (B1, B2, B3) and four pairs (4) of single-ended inputs on RCA connectors (S1, S2, S3, S4). As a result of this preamplifier's dual-mono design, the left channel inputs are located on the left side and the right channel inputs are located on the right side.

This preamplifier is also equipped with a single-ended monitor loop; the input and output connectors for each channel are located on their respective sides of the rear panel. The **850P** has two (2) pairs each of balanced

outputs and single-ended outputs. Both balanced outputs are variable; One single-ended output is variable and the other one is fixed, meaning that it bypasses the volume control.

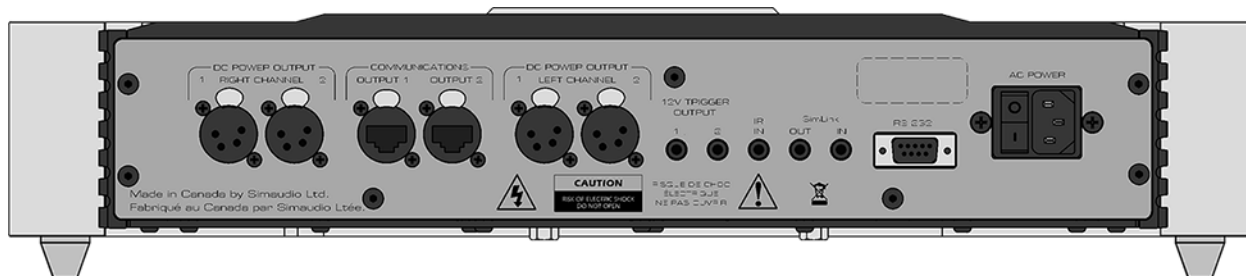


Figure 4: Rear panel of the MOON 850P Controller

The rear panel of the **MOON 850P** controller will look similar to Figure 4 (above). It is equipped with full-function bi-directional RS-232 port control and status for custom integration or automation. This is located in the upper-middle section and uses a DB9 connector. Immediately to the right of the RS-232 port are two (2) "SimLink" connectors labeled "in" and "out" on 1/8" mini jacks. Please refer to the next section entitled SimLink for more details. Your **MOON 850P** preamplifier has a 1/8" mini jack input for use with aftermarket infrared remote control receivers. The "IR in" connector is located on the upper right section of the rear panel. Across the lower section you will find the 3 pairs of output connectors that are used for powering the preamplifier chassis. To the right of these connectors are two 12 Volt trigger outputs, each on a 1/8" mini-jack.

Finally, on the far right side are the "AC Fuse" socket cover; the power "main switch"; and the "AC Input" IEC receptacle for the power cord. All rear panel connectors have been chosen because they provide the best possible connections for your unit. A poor contact will degrade the signal substantially, and plugs and sockets should all look clean and free of dirt and corrosion. The easiest way to clean them is to remove the cables from their sockets and push them back in again. This procedure requires that your preamplifier and the rest of your components be completely turned off.

SimLink™

The SimLink™ provides communication features between various **MOON** components. For example, if you were to connect the **650D** DAC/CD Transport to the **850P** Preamplifier via the SimLink™, pressing the ► (play) button on the **650D** would cause the preamplifier automatically switch to it's designated input for the CD Player. ***You must assign the input with the name "650D" for this feature to work.*** If you were to adjust the brightness level of the large digital display window using the "Display" button on the **850P**, the brightness level of the **650D**'s display will automatically adjust to the same brightness level as that of the **850P**. Conversely, since the SimLink™ is a true bi-directional connection, adjusting the **650D**'s brightness level will automatically adjust the brightness level of the **850P**.

A third feature of SimLink™ involves the "Standby" function. By pressing down and holding the "Standby" button for 2 seconds on the **850P**, all other **MOON** components connected via the SimLink will go into "Standby" mode along with the **850P**. The same logic applies when switching from "Standby" to active mode.

The connection rules for the SimLink™ are very basic. You must always connect the supplied cable between one component's "SimLink™ Out" jack and another component's "SimLink™ In" jack. If you inadvertently connect the cable between either two "SimLink™ In" or two "SimLink™ Out" jacks, the SimLink™ communication feature will not function. Also, there is no master component in a SimLink™ chain; no one particular component operates as the main communications controller.

If you are using your **MOON 850P** with an older MOON product such as a SuperNova, you will need to update the software of the older product to allow for complete SimLink™ functionality. Contact your retailer for further details.

Operating the 850P

We recommend that you leave your **MOON 850P** dual-mono preamplifier powered up at all times to maintain optimal performance. In the event that you plan to be away from your home for a few days, powering off the preamplifier may not be a bad idea. Once fully "broken-in", please keep in mind that your **850P** will require several hours of playing time before it reaches its peak performance after you've powered it up again.

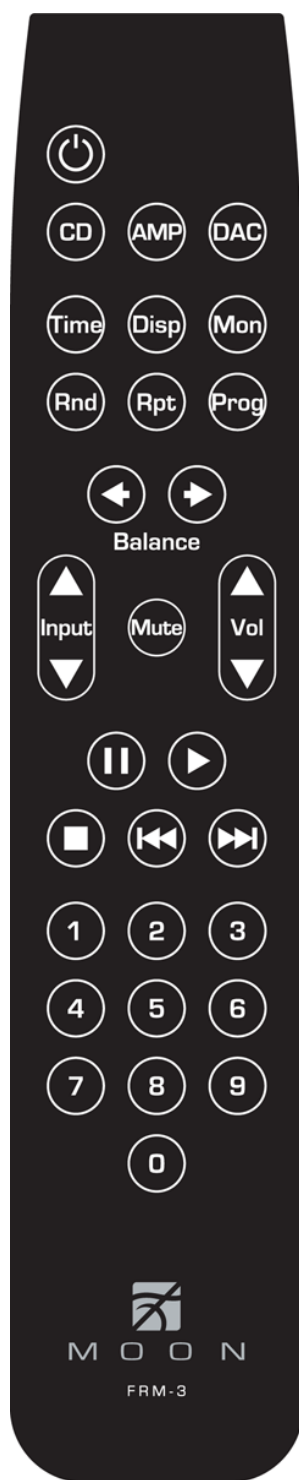
Turning on your MOON 700i for the first time

Prior to turning the preamplifier on for the first time, make sure that every cable is properly connected to avoid any problems. Flick the main rocker switch, located on the rear panel of the controller, labeled "POWER" to the '1' (on) position to place your **850P** in to standby mode. Next, briefly press the push button labeled "Standby" located on the front panel. You will hear a very faint click sound confirming that everything is in order. The blue LED's on both front panels will illuminate, indicating that the **850P** is now powered up and ready for use.

On and Off Sequence

To avoid having any annoying noises (ie. "thumps" and "pops") emanate from your speakers when powering your **850P** on or off, you should always power up your **850P** preamplifier before powering up your amplifier. As well, always power down your **850P** after powering down your amplifier.

Remote Control Operation



The **MOON 850P** Dual-Mono preamplifier uses the '**FRM-3**' full function, all aluminum backlit remote control (figure 5). It operates on the Philips RC-5 communication protocol and is can be used with other MOON components such as CD Players, DAC's, Integrated Amplifiers, as well as other Preamplifiers.

The '**FRM-3**' remote uses three AAA batteries (included). To install them, use a Phillips head screwdriver #1 to remove the three screws located on the rear plate; insert the batteries in the correct direction and then screw the rear plate back into place.

To operate the **850P** with this remote control, you must first press the **AMP** button located on the second row from the top.

The  power button switches the **850P** between 'Standby' and 'On' mode.

The **Balance** ◀ and **Balance** ▶ buttons control channel balance; Pressing the left arrow button causes a decrease in the volume level of the right channel; pressing the right arrow button causes a decrease in the volume level of the left channel. The balance adjustment operates in 1% increments. When the balance is equal for both channels, "◀ 00 ▶" will briefly appear in the front panel display. The range for the balance control varies from "◀ 100" for left channel only to "100 ▶" for right channel only.

The **Input** ▲ and **Input** ▼ buttons allow you to sequentially scroll through each of the preamplifier's inputs, performing the identical function as the 'Input' buttons located on the **850P**'s front panel

The **Mute** button, located between the input and volume buttons, reduces your volume setting to zero, performing the identical function as the 'Mute' button located on the **850P**'s front panel.

The **Vol**▲ and **Vol**▼ buttons increase and decrease the volume level. From 30 to 80dB, holding either button down results in 1.0dB volume changes; repeatedly pressing either button very briefly results in 0.1dB volume changes.

The **Disp** button allows you to adjust the brightness of the digital display window. It also provides you with the option of turning off the display, performing the identical function as the 'Display' button located on the **850P**'s front panel.

Mon engages (and disengages) the Monitor loop, performing the identical function as the 'Monitor' button located on the **850P**'s front panel.

Figure 5: FRM-3 Remote Control

Backlight Function

Your **FRM-3** features a backlight capability that allows you to effortlessly operate this remote control in a darkened environment. Since battery lifespan is substantially reduced when the backlighting feature is activated, the **FRM-3** includes 3 different operational modes to help preserve battery life:

Default Mode (#1): The backlight is triggered on by either moving the remote control (via an internal motion detector) or by pressing any button on the remote's keypad; The backlight will remain illuminated for a full five (5) seconds after the last event (motion or pressed button). To activate the "Default Mode", press and hold the "CD" button for three (3) seconds. The backlight will illuminate once, very briefly for confirmation.

Button Mode (#2): The backlight is triggered **ONLY** by pressing any button on the remote's keypad - the internal motion detector is deactivated; The backlight will remain illuminated for a full five (5) seconds after the last button is pressed. To activate the "Button Mode", press and hold the "AMP" button for three (3) seconds. The backlight will illuminate twice, very briefly for confirmation.

Off Mode (#3): The backlight feature is completely disabled. To activate the "Off Mode", press and hold the "DAC" button for three (3) seconds. The backlight will illuminate three times, very briefly for confirmation.

Remote operation with multiple MOON components

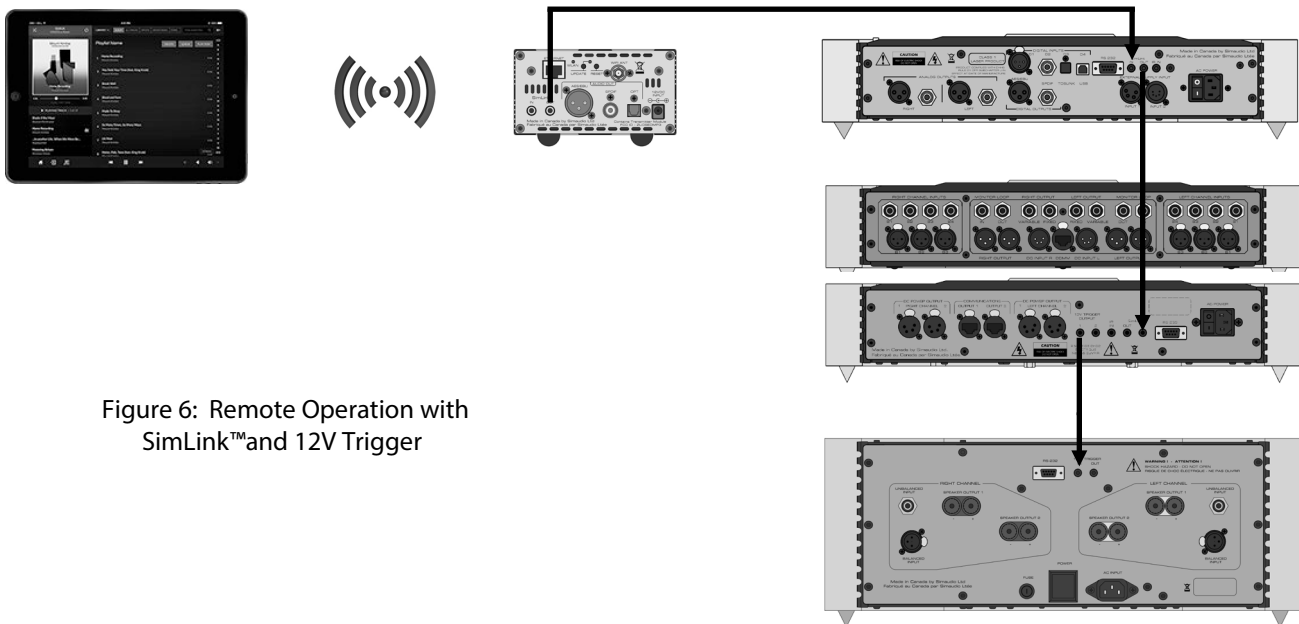


Figure 6: Remote Operation with SimLink™ and 12V Trigger

In figure 6 we have a MiND Music Streamer connected to a **650D** DAC via their respective SimLink™ ports (using a 1/8" mini-jack cable), and the **650D** connected to a **850P** Preamp also via their respective SimLink™ ports. Finally, the **850P** is connected to a **870A** amplifier via their respective 12V Triggers (also using a 1/8" mini-jack cable); The 12V trigger output on the **850P** is connected to the 12V trigger input on the **870A**. When you launch the MiND App on your Apple smart device (full list on the MiND page of our website) and select this system's ZONE, the MiND will turn on, as will the **650D**, **850P** and **870A**; The **850P** will automatically switch to the "MiND" assigned input, as described previously in the "Software Setup" section. To shut down the system, press "Off" for this ZONE in the MiND app.

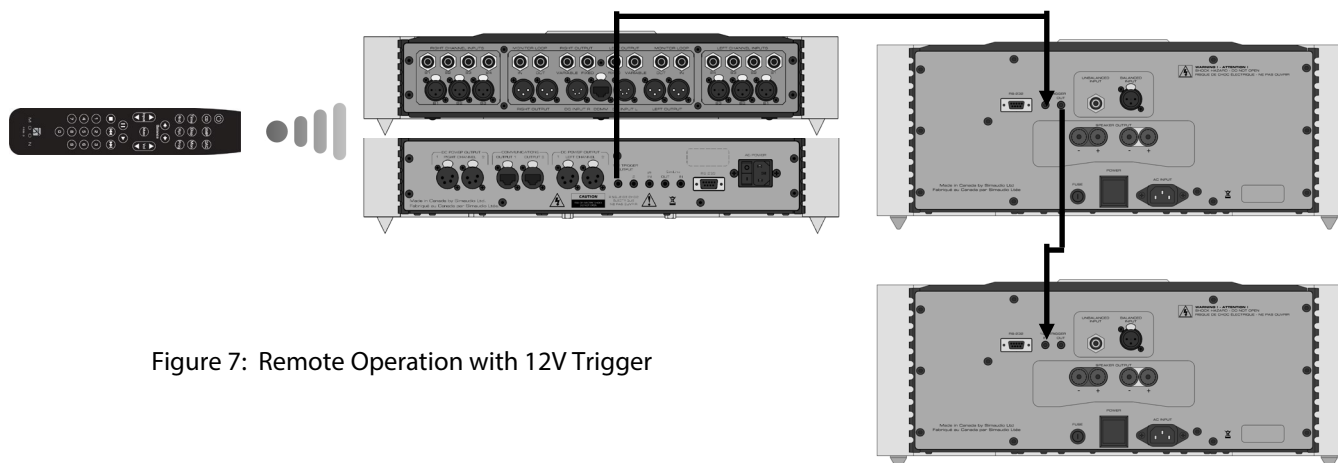


Figure 7: Remote Operation with 12V Trigger

In figure 7 we have a **850P** Preamplifier and a pair of **880M** amplifiers connected together via their respective 12V triggers; The 12V trigger output on the **850P** is connected to the 12V trigger input on the top **880M** (using a 1/8" mini-jack cable). The 12V trigger output from this **880M** connects to the 12V trigger input on the bottom **880M** (also using a 1/8" mini-jack cable). When you turn on the **850P** via remote control (or its Standby button), both **880M**'s will turn on automatically. The same rule applies when you put the **850P** into Standby mode.

Balanced Operation

When using an unbalanced interconnect, the audio signal runs through both the center wire and the shield/ground wire. Any noise picked up by this interconnect (ie. nearby magnetic fields such as an AC power cord) will be reproduced by the integrated amplifier, then heard through the loudspeakers. Conversely, a balanced interconnect has three separate conductors; one for the ground and two for the actual signal.

These two signals are identical except that one is 180 degrees out of phase with the other. For example, when one conductor is carrying a signal of +10 Volts, the other will be carrying a signal of -10 Volts. When these two inverted signals on a balanced line are output from the **MOON 850P**, any noise picked up by the interconnect will be eliminated since a differential circuit amplifies only the difference between these two signals: Noise on a balanced interconnect will be equal on both conductors and therefore cancel out.

Specifications

Configuration	Fully balanced differential, dual-mono
Balanced inputs (XLR)	3 pairs
Single-ended inputs (RCA)	5 pairs
Monitor Loop (RCA)	1 pair
Input Impedance	11,000Ω
Input Sensitivity	200mV – 4,0V RMS
Balanced outputs (XLR)	2 pairs
Single-ended outputs (RCA)	2 pairs (fixed and variable)
Output Impedance	50Ω
Gain Control	M-Ray (Fully Discrete R-2R circuit)
Gain	9dB
Signal-to-noise Ratio	130dB @ full output
Frequency Response	5Hz - 100kHz +0/-0.1dB
Crosstalk @ 1kHz	130dB
Intermodulation Distortion	0.0001%
THD (20Hz - 20kHz)	0.0005%
Remote Control	All Aluminum Full-Function (FRM-3)
Display Type	8 character dot matrix LED
Power Consumption @ idle	25 W
AC Power Requirements	120V / 60Hz or 240V / 50Hz
Shipping Weight	151 lbs / 67 Kgs
Dimensions - each chassis (W x H x D, inches / cm.)	18.75 x 4.0 x 16.5 / 47.6 x 10.0 x 41.9

Balanced Input Pin Assignment:

Pin 1	Ground
Pin 2	Positive
Pin 3	Negative

NOTE: If you require the RS-232 codes for your **850P**, please visit the "Contact Us" page and complete the "Information request" form on our website at www.simaudio.com.



Fuse Replacement: For the 120V version use a 0.4A slow blow (5 x 20mm size).
For the 230V version use a 0.2A slow blow (5 x 20mm size).

Quick Reference: MOON 850P Setup Menus

