Owners Manual For The

Metro

Subwoofer System

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Owners Record

The serial number is located on the rear of the unit. Record this number in the space provided below. Refer to this when calling your dealer regarding this product.

Model: Metro
Serial No: _____
Date of purchase: _____

Thank you for selecting a Legacy Loudspeaker System. These hand-crafted instruments will provide you with many years of listening enjoyment.

The Cabinetry / Our Commitment

Handcrafted
Beneath the surface of Metro's elegant exterior lies rigid MDF construction. Interlocking joinery maximizes the strength of the cabinet parts. Polyester fiberfill is selected for internal damping. A sharp rap on the enclosure will leave you with little more than bruised knuckles.

Each cabinet is impeccably finished on all exposed surfaces with select veneers. The exquisite finish is hand-rubbed several times to assure a patina at home with the most elegant decor.

Our Commitment
A great deal of forethought, love and satisfaction is instilled in each piece of Legacy workmanship. We take pride in getting to know many of our customers on a first name basis.

Your purchase of this product is backed by the renowned "Legacy Satisfaction Guarantee".

Warranty

Legacy Audio supports its customers and products with pride. We cheerfully warrant our loud- speaker products we manufacture from defects in materials and workmanship for a period of seven (7) years. Electronic components such as internal amplifiers and digital processors are covered for three (3)years. Please register your product with Legacy Audio. Should you require service Legacy will require a proof of purchase in order to honor the warranty - so please keep your receipt.

- The warranty applies to the original owner and is not transferable.
- The warranty applies to products purchased from an "Authorized Legacy Dealer".
- The warranty on active components such as digital processors or internal amplifiers is limited to three (3) years of coverage.
- The warranty on dealer stock will extend for a maximum of two years from invoice.

The warranty does not cover transportation costs of product to or from the customer, distributor or dealer, or related shipping damage.

Exclusions from Warranty

The following situations or conditions are not covered by the Legacy Audio warranty:

- Accidental damage, electrical abuse or associated equipment failure.
- Use inconsistent with recommended operating instructions and specifications
- Damage caused by modification or unauthorized service
- Costs associated with the removal and reinstallation of defective products. Consequential damage to other products.
- Normal wear such as fading of finishes due to sunlight.

Unpacking Your Speakers

Your new speaker system has been very carefully packaged to insure that it travels to you safely. Each speaker is protected by a double- wall outer carton with heavy V-board corner protectors. Molded foam end caps are used to protect the elegant cabinetry, and a plastic liner is provided as waterproofing. Please save this packing for future transportation. If cartons become damaged or misplaced, new ones can be purchased from Legacy Audio.

Speaker Placement

Since the human ear is rather poor at localizing radiation frequencies below 125 Hz, good results may be obtained in a variety of room placements. Careful adjustment of the convenient front panel controls will lead to seamless transition.

Low frequency reinforcement occurs whenever woofers are placed near room boundaries. The distance from the walls, floor and ceiling correspond to the wavelengths of the frequencies, which will reflect in phase and thus reinforce bass output. Therefore, the actual dimensions of your listening room play a definite role in what ultimately arrives at your ear. In fact, rooms tend to have their own set of favored frequencies.

We can calculate what the most strongly reinforced frequencies in a room will be by the formula shown below:

Resonant Frequency = (1130 ft/sec) / (ft. between boundaries x 2) For example, a room with an 8 ft. ceiling height has a strong resonance at: (1130 ft/sec.) / (8 ft. x 2) = 71 Hz.

Speaker Placement

Now, while such reinforcement might actually be beneficial at very low frequencies, excessive excitation can cause "overhang" or a droning effect at mid-bass frequencies. A way to minimize excitation of these resonances is to place your subwoofer asymmetrically relative to room boundaries. For instance, if the subwoofer is 2 ft from one corner wall, then place it 1.5 ft to 3 ft from the other.

Placing the subwoofer in a corner will reduce the radiation angle and thus increase efficiency. It will also excite the maximum number of room modes and decrease distortion.

A best case scenario is to actually use two subwoofers, one to each side of the listener. The subs should be placed 90° out of phase with each other. This improves spaciousness and bass uniformity, with a reduction in room level peaks.

Hooking Up Cables

The ideal conductor would have negligible resistance, inductance and capacitance. The table below shows how a few actual speaker cables measure up.

Cable	Ωs/ft	pF/ft	μH/ft
12 ga.	0.0033	24	0.21
14 ga.	0.0048	17	0.13
16 ga.	0.0079	16	0.18
18 ga.	0.0128	28	0.21

Capacitance is considered insignificant in each cable because its ef- fect is well out of the audio bandwidth; inductance can be de- creased (at the expense of increased capacitance) by keeping the conductor pair closely spaced.

How long would a cable have to be before inductance effects would impinge on the audio spectrum? Approximately 300 feet of 12 gauge would be required to establish a corner frequency of 20 kHz with an 8 Ohm loudspeaker. As you see, inductance is not a problem for most of us.

Hooking Up Cables

What about phase shift due to frequency dependent travel times down the speaker cable? Measurements show that 100 Hz waves will be delayed about 20 billionths of a second behind 10 kHz waves when traveling to the end of a 10 foot speaker cable. Since the cilia of the ear requires 25,000 times longer than this just to transmit phase information, phase shifting is obviously not the primary concern when considering speaker cables.

What about resistance? Finally we are getting somewhere. Resistance is the control- ling factor of the amplifier/loudspeaker interface. Excessive resistance can cause ma- jor shifts of speaker crossover frequencies. The lower the impedance of the loud- speaker, the greater the effects of series resistance. A 20 foot run of 18 gauge cable can cause up to 10% deviations of crossover center frequencies. That same 20 feet can un-damp your damping factor and reduce your systems' output by one half deci- bel.

In summary, there are no perfect cables. The best way to approximate the ideal would be to keep loudspeaker leads as short as is practical.

Speaker Connections

Once you've found a place in your room, the next step is connecting the Metro to your existing system. Listed below you will find 3 options.

Option 1: Connecting the Metro using the stereo Low Level preamp/processor inputs.

NOTE: if using the low-level inputs, we suggest using cables that are no longer than 5 meters. Longer lengths of RCA cable can result in greater noise and attenuation of the signal.

If using Left/Right output jacks from the preamp, the internal circuit module of the Metro will sum the two channels together. When using the left and right low level inputs on the subwoofer, the internal crossover of the subwoofer is being used. The crossover frequency and level will be controlled by the appropriately labeled controls on the rear panel of the sub.

The Left/Right line output jacks can be used to send a crossed over high frequency signal.

Option 2: Connecting single sub out

Connect the preamp/processor's "sub out" to the left channel RCA input (mono).

Option 3: Connecting the Metro using the High Level Inputs (from amplifier)

If using the high level inputs it is highly recommended that you connect them in parallel with your main left and right loudspeakers.

NOTE: DO NOT use the output from a differential Monobloc amplifier as a high level input to the subwoofer. When using high level inputs from a stereo amplifier be sure that they are polarized correctly with the power amplifier, (positive output to positive input, negative output to negative input.) Failure to do so may result in damage to your subwoofer, power amplifier and any associated equipment connected to it. Terminating your wire leads with banana plugs or gold spade lugs is recommended.

Speaker Connections

Powering Up Metro

1. Power Cable: The supplied power cable will plug into the socket on the back terminal plate of the unit.

NOTE: Try to plug into the same AC circuit as the rest of your audio system, as this will avoid hum from ground loops.

2. Power Up: In the rear of the subwoofer to the immediate left of the power cable input is the power switch. This switch controls current flow to the entire unit as follows:

I = Auto On
0 = Off

Fine Tuning

Adjusting the Metro Subwoofer

On the back panel of the Metro Subwoofer you'll notice four controls: Level, Freq., and Phase. These allow an extraordinary amount of control over your subwoofer. These controls will allow you to tailor the sound of the sub to your room and integrate with your main speakers.

Level (Min/Max): This will allow you to adjust the volume level played by the subwoofer. It only controls the subwoofer level, not the level of any of the other loudspeakers in the system, even if they're hooked up in parallel.

Freq.: This control allows you to adjust the low frequency information. The crossover frequency range of Metro is 40 Hz -200 Hz.

Fine Tuning

Phase (0 °/-180 °): This control is essential in the proper setup of your subwoofer. If not set up properly, your main speakers and subwoofer can actually work against each other. If operating out-of- phase the subwoofer and mains will cancel, creating nulls at some frequencies (primarily upper bass).What is desirable is to have the subwoofer and the mains operating in phase, relative to the primary listening position. Here is an effective method of accomplishing this:

While seated at your listening position, have someone sweep the phase control slowly from one extreme to the other.

Using pink noise or a 50-60 Hz test tone, listen for the strongest output. Now take note of that setting. Next, play music program material and optimize the level and phase settings further; adjusting for the smoothest output.

Specifications

System Type:	Subwoofer, pneumatically coupled
Subwoofer:	Aura 12" spun aluminum with encapsulated neo motor
Radiator:	Down-firing 15"
Low Frequency Alignment:	6th Order
Internal Amplification:	500 watt, Class D
Freq. Response (Hz, +/-2dB):	20-150
Impedance:	10k
Phase Adjustment:	Cont. +/-180
Blend EQ:	Level Control
Max. SPL:	117dB @ 1m
Low Pass Filter Slope:	18 dB per octave
Crossover Hz:	40-150
Inputs:	2 RCA, 1 pair high level
Dimensions (Inches):	16 x 16 x 16
Weight:	47 lbs.

CE Declaration of Conformity

Legacy Audio
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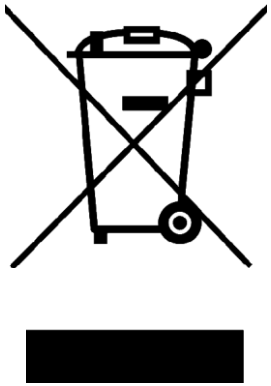
800-283-4644
States that this product is in conformity with the with the essential requirements and other relevant provisions of:
Low Voltage Directive 2006/95/EC
EMC Directive 2004/108/EC

CE

WEEE Compliance



Product Disposal—
Certain international, national and/or local laws and/or regulations may apply regarding the disposal of this product. For further detailed information, please contact the retailer where you purchased this product or
the Legacy Audio Distributor in your country. A listing of Legacy Audio Distributors can be found on the Legacy Audio website www.legacyaudio.com
or by contacting Legacy Audio at:
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