

# V33 Fully-Balanced Phono Preamplifier

## OWNER'S MANUAL

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#### Introduction

Thank you for buying the azog-audio V33 fully-balanced phono preamplifier. This product has been carefully engineered and extensively auditioned to allow rare insight into vinyl recordings, offering true listener engagement. Please read this manual carefully before operating your preamplifier to ensure that you get the best out of it and avoid installation and setup problems or loss of warranty. We at azog-audio are certain that you will enjoy many hours of listening pleasure through it.

#### Placement

As with all phono preamplifiers, due to the very small input signal level, to get the best possible sound reproduction the installation location is especially important. Strong magnetic fields emanating from mains cables, motors and mains transformers found in other equipment can induce considerable hum onto the audio signal. This is true of all phono preamplifiers, not just your new unit, and although V33 has been engineered specifically to offer the highest levels of immunity to common-mode noise such as mains frequency artifacts, it can still be affected by poor placement. Physical separation is the best way to reduce as much as possible or eliminate any hum problems that such undesired coupling can create. It is usually both the radial distance and the azimuth of the sensitive phono cartridge, cabling and preamplifier input circuits in relation to the aggressor device that affects the coupling level. Experiment with off-axis placement and distancing of the aggressor to your turntable and preamplifier. This includes the preamplifier's own external power supply, which should not be placed nearer than half a meter on any axis from the sensitive preamplifier input circuitry.

Keep your preamplifier away from sources of heat and allow natural air circulation around it to prolong its life. It is not recommended to leave the unit permanently powered on, as this will reduce its useful life. This is because V33 contains highly-biased circuits, which as such get warm. Azog-audio recommends utilizing the standby switch, located at the bottom side of the preamplifier enclosure, below the front-face logo. About half an hour of warm-up time in the switched on position will bring the unit close to its maximum sound quality potential.

#### Connections

The V33 phono preamplifier is compatible only with so-called "low output" moving coil phono cartridges. This type of cartridge produces no more than 1mV of output voltage at 1KHz, 5cm/sec, and requires a resistive termination ranging from tens of ohms up to ~1KOhm, depending on make and model. The reason MM cartridges are not supported by V33 is that within its cost budget corners would have to be cut in the design of the unit to support both cartridge types, resulting in suboptimal performance.

MC cartridges are inherently balanced transducers, that is they produce an electrical signal of equal amplitude on a pair of terminals in antiphase. No ground reference exists, nor is it necessary when a balanced, low differential and high common-mode impedance connection from the cartridge coils to your V33 phono preamplifier is maintained. In fact, maintaining an electrically 'clean' ground connection between different units is very difficult to achieve in practice, and ground loops can be easily formed. Hence the best approach is to design interconnections and equipment such that signal

transfer is as independent and least affected by ground noise as possible, and have a single ground connection serving only as a common-mode reference potential between units, albeit as much decoupled from the audio signal transmission as possible.

A balanced connection between the cartridge output and the preamplifier input maintains a high common-mode impedance across the whole audio frequency spectrum and beyond. This requires suitable connectors, cabling and suitably designed preamplifier circuitry. Incidentally, cinch connectors, commonly found on many turntables, are not designed for balanced interconnection and perform relatively poorly as a balanced interface compared to connectors such as XLR or DIN. If the cartridge or the turntable cabling shorts one of the cartridge signal connections to ground, the electrical interface is forced to become unbalanced. This approach, practiced by some turntable manufacturers, makes balanced interconnection impossible and must thus be avoided. To detect if such a wiring scheme has been employed by your turntable manufacturer on a turntable equipped with cinch (RCA) connectors, using a multimeter check for continuity both between the L and R channel cinch connector outer rings, and between each of these and the separate turntable ground wire. If there is connectivity between any of these, unless the turntable is modified accordingly, a balanced signal connection between the turntable and the preamplifier is not possible.

### **Connections to the V33 input**

Four turntable-V33 interconnection wiring options are shown below. Only the first two should be employed. The 3rd and 4th options are only included to aid understanding of the possible interconnection options.

1st option: DIN-to-XLR balanced connection:

This is the preferred interconnection option. There is no need for a separate ground wire to connect the turntable ground to the V33 chassis ground, as this is accomplished through the cable assembly. This option provides the lowest differential and highest common-mode impedance, so it will yield the best sonic results.

2nd option: Cinch-to-XLR balanced connection:

For turntables equipped with Cinch connectors, this interconnection option is an attempt to have as close to a balanced interface as possible. With reference to the above diagram, with the cable assembly not connected to V33 there should be no electrical continuity between pin3 and either pin1 or the shield of the XLR connector. There must also exist no electrical continuity between the turntable ground and the outer ring of the Cinch connectors. A separate ground wire is required.

3rd option: In this option a special type of XLR-to-Cinch adapter, where XLR pin 3 is connected only to the outer Cinch connector contact and not to pin1 is inserted to the input of V33.

With this option humming may occur as the exposed unbalanced cable shield carries one phase of the signal and differential impedance is high. The benefits of common-mode rejection of the balanced transducer and V33 will be severely affected, hence this interconnection method should be avoided.

4th option: unbalanced turntable interface with Cinch connectors connected to commonly encountered Cinch-to-XLR adapters having XLR pins 1 and 3 shorted. This option is not compatible with V33, and should not be employed. If such an interconnection is made, the electrical interface is no longer balanced and the preamplifier's input impedance will be halved.

### **Connections to the V33 output**

Best results will be obtained when the balanced output is used, feeding a balanced preamplifier input. If balanced downstream input is not present and a single-ended connection is necessary, use the Cinch connector output. The latter will yield 6dB reduced gain compared to a fully balanced interconnection and no common-mode noise rejection between V33 and the rest of the system. However, the benefits of a balanced turntable to V33 interconnection, as described in options 1 and 2 of the previous section, are still important to maintain.

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In general, XLR-to-Cinch adapters directly short the inverted phase signal present on pin3 of the XLR connector to pin1, i.e. the ground pin. Under no circumstances should such an XLR-to-Cinch adapter be connected to the output of V33, as it will short the output circuitry of V33 and may result in equipment damage.

Another output interconnection option which can yield good results is the use of a balanced to single-ended high quality transformer. In this scheme the full V33 gain is utilized and common-mode noise at the output of V33 is rejected.

### **Adjustments and Operation**

There are two rotary controls on the front side of the unit. The left one has five positions and selects the cartridge termination resistance between 50, 100, 220, 470 and 1000 Ohms, respectively, in a clockwise direction. Consult your cartridge manufacturer for recommendations on the optimum cartridge loading value. You can also tailor the sound to your liking to some extent through this setting. The setting may be changed freely during unit operation, so finding the optimum setting is practical.

The rotary control to the right of the unit has three positions and sets the gain between 56, 62 and 68dB respectively. These gains apply to a fully balanced connection between the output of V33 and the preamplifier or integrated amplifier to which the unit is connected. On the single-ended Cinch output the gain is correspondingly 6dB less. In general, a lower output level phono cartridge requires a higher gain setting, but this is also dependent on the entire system gain.

We recommend that you start critical listening evaluation with the gain set to its minimum value, and start increasing it only if you find that the overall system gain is not enough. This helps maintain the lowest noise and distortion characteristics, as, contrary to other units, V33 offers its lowest noise floor at the lowest gain setting. Overload margin is also higher at lower gain settings.

Azog-audio preamplifiers need to be broken in. We recommend at least one week of running in, but expect sound quality of a new unit to keep improving roughly over the first month of operation.

### **Design highlights**

- Fully-balanced circuitry from input to output
- DC coupled throughout
- Extremely low noise discrete transistor input stage
- No series connected switches or relays in the signal path
- Mundorf RIAA filter capacitors
- External discrete-regulated power supply
- No clocked digital devices, only combinational logic used in the control section
- Individual, discrete, exceptionally quiet voltage regulators per amplification stage
- RF input filtering
- Shortest signal path
- Fully dual-mono circuitry, all the way from the mains connection

- Medical-grade mains filtering
- Non-magnetic metal-film resistors used extensively
- Shielded DC power umbilical chord for EMI/RFI immunity

### **Specifications**

Cartridge termination: user-selectable 50/100/220/470/1000 Ohms, custom values on request

Gain at 1KHz: user-selectable, 56/62/68dB balanced output, 6dB less single-ended output

Output impedance: 70 Ohms single-ended, 140 Ohms balanced

RIAA de-emphasis accuracy: +/-0.5 dB, 20Hz - 20KHz

THD: <0.03%, 1KHz tone, 20KHz BW

Power consumption: 30W in operation, <1W stand-by

Dimensions (WxDxH): 430x350x55mm main unit, 103x220x53mm external power supply

Input/output audio connectors: XLR in/out, Cinch out

Input/output power connectors: IEC mains inlet, 7-pin circular connectors for DC transfer

Mains fuse: 250mA slow blow for 230V units, located within mains filter on power supply unit

Weight: approximately 6.5Kg main unit, 1.9Kg external power supply