

Gordon Model 6 Series Microphone Preamplifier System User Guide

Model 61 – 1-channel preamplifier with inboard gain controls
Model 62 – 2-channel preamplifier with inboard gain controls
Model 62R – 2-channel preamplifier without gain controls
GC62 – 2-channel gain control
GC64 – 4-channel gain control

Unpacking – SAVE THE PACKING MATERIAL for return shipping or carrier inspection and notify Gordon Instruments of any damage. An accessories bag is enclosed with each preamp. **Rack kits** (included: a pair of rack ears and four mounting screws) are attached to the sides of the preamp and gain control for rack mounting.

CAUTION – The preamp may be damaged by using screws longer than the 3/8” screws supplied with the rack kits and outriggers.

Outriggers (a pair and four mounting screws) are attached to both ends of the preamp's right side panel for freestanding applications. The rack ears can self-store by mounting on both ends of the left side panel.

Placement – For best results, the preamp should be located as close to the microphone or instrument as possible, avoiding high vibration or sound pressure levels, with a gain control at the monitor location. Audio cable length and connections should be kept to a minimum, particularly between the microphone or instrument and preamp input.

Preamp installation – The preamp runs warm and, like any electronic gear, has better reliability when kept cool; however, there are no special cooling requirements. In a rack or case, when possible, maintain a 1U rack space above or below for cooling and avoid installing the preamp next to warmer equipment.

The left (audio) half of the preamp should be located away from any magnetic interference sources. The power supply magnetic components have magnetic shields (to contain magnetic interference); however, the audio circuitry does not. Magnetic materials (including shielding) in or near the audio signal path are also a source of magnetic interference and have been omitted in the preamp. Indications of magnetic interference are distortion (less clarity) and noise (hum).

Cooling and magnetic interference are not a consideration with freestanding applications.

Gain control installation – The gain control does not handle audio signal and has no installation restrictions.

Front panel

INPUT ¼” jack is connected in parallel with the main INPUT XLR on the rear panel and the input stage. The balanced ¼” input accepts balanced and unbalanced sources. Unbalanced sources should be connected across the tip and sleeve, with the ring shorted to the sleeve, or use a tip/sleeve plug. Also see *Signal path configurations*. Pinout:

- Sleeve – Screen/common/case and negative phantom supply
- Tip – Positive signal and positive phantom supply
- Ring – Negative signal and positive phantom supply

CAUTION – Mute before changing input connections.

STATUS lamp indicates normal operation of the preamplifier and gain control. The STATUS lamp is off when the ac supply is interrupted and flashes under the following conditions:

- **Ac supply turn-on/low-line** enables the mute function for thirty seconds at turn-on and for the duration of ac low-line.
- **Phantom supply turn on/off** enables the mute function and lasts for thirty seconds.

• **Gain control fault** enables the mute function and can be caused by an ac-coupled, shorted, broken, or disconnected control run.

• **Output overload** enables electronic protection to limit the output signal.

• **Standby** is enabled by a lengthy mute and is indicated by a shorter flash than the other conditions.

A flashing STATUS lamp in the absence of the above causes may indicate an internal fault – contact Gordon Instruments.

• **+48V switch** controls the phantom supply with a soft turn-on/off, applying +48 volt dc to the input via 6.81k ohm resistors. Audio out is muted briefly when the phantom supply is turned on or off.

CAUTION – Do not change input connections while the phantom supply is on.

Gain control sets the gain for each channel in 2.5dB steps from 12.5 to 70dB.

True gain control – The gain control sets the amount of open-loop gain in the signal path. This contributes to operational advantages, including:

- No gain staging – The signal path is automatically configured across the gain range for the least signal processing at minimum distortion and maximum dynamic range.
- No attenuators, including input pads – The input clips after the output, across the gain range, and the output clips above +30dBm.
- No sweet spot – In addition to dynamic range, bandwidth is maintained across the gain range. Noise is less at lower gain settings, and roll-off and balance shift are minimized over the gain range.

• **+24dBu peak indicator** monitors pin 2 of the main OUTPUT XLR and flashes a minimum of 100 milliseconds (for transients) up to a continuous one-second blink to indicate level is within 6dB of maximum output.

• **MUTE switch**, when depressed, overrides the adjacent gain control to provide a full audio mute on each channel.

• **Standby** is enabled after a channel has been muted continuously for 10 hours, reducing bias, phantom, and power consumption for that channel. Unmute to disable standby. An internal jumper can disable standby or extend the mute interval from 10 to 20 hours.

• **INVERT switch** inverts the main input signal at the output by reversing the signals to the XLR pins 2 and 3.

• **AUX IN switch** selects between the main input and the AUX input for the main output's source, or for the AUX output's source, when equipped with the Aux output option. Also see *AUX input/output options*.

• **REMOTE switch** selects between the inboard controls and an outboard gain control for remote control via an XLR cable plugged into the GAIN CONTROL connector on the rear panel.

Rear panel

IEC-320 power connector/fuse holder – Connect the supplied power cord here and to a grounded ac line with voltage as marked on the rear panel (100V, 115V, or 230V). After the turn-on sequence (about thirty seconds), twenty minutes of warm up is recommended. Production burn-in (150 hours with signal applied) was performed before final testing and the preamp will continue to “season” with use.

WARNING – Do not break the safety ground connection through the power cord.

Fuse:

- For 100V – T600mA, time-lag, 5x20mm (two required, included)
- For 115V – 500mA, time-delay, 1/4x1-1/4in (included)
- For 230V – T250mA, time-lag, 5x20mm (two required, included)

WARNING – Replacement fuses (not included) must be the same type and rating.

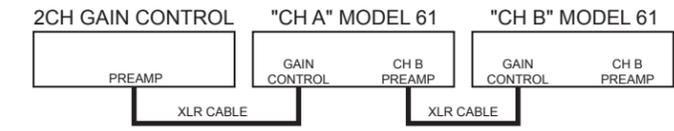
To replace a fuse, disconnect the power cord at the preamp and locate either of two small slots in the edge of the fuse holder, adjacent to the socket for the power cord. Insert the blade of a small screwdriver and gently pry open the fuse holder cover to reveal the fuse block. Gently pry out the fuse block, change the fuse(s), reinsert the fuse block, close the cover, press until it snaps in flush, and connect the power cord.

GAIN CONTROL connector is a male three-pin XLR for connecting a standard microphone cable as a control run to an outboard gain control. Control cables from the GC62 and GC64 gain controls each carry two channels of control signals for one Model 62/R or two Model 61s. The control signal is a dc voltage that is compatible with mic snakes and capable of tolerating noise and runs of several hundred meters. Pinout:

- Pin 1 – Screen/return/preamp case
- Pin 2 – Channel A control signal
- Pin 3 – Channel B control signal

Note – Control cables should be straight-wired on all three pins (no flips, lifts or transformers).

CH B PREAMP connector is used to make a serial control connection to the second "CH B" preamp of two Model 61s:

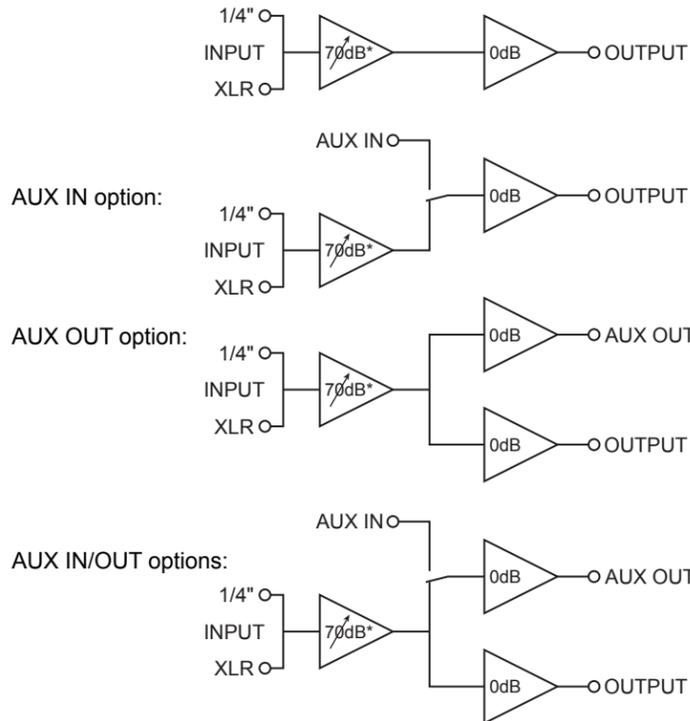


PREAMP/1/2 connector, on the rear panel of the gain control, is a female three-pin XLR for connecting control lines from preamplifiers. Pinout:

- Pin 1 – Screen/return
- Pin 2 – Channel A control signal
- Pin 3 – Channel B control signal

AUX input/output options apply the benefits of the output stage to an AUX output, a line buffer via an AUX input, or both, forming an insert/process loop. The main OUTPUT becomes the send, the AUX IN is the return, the AUX OUT becomes the main output, and the AUX IN switch becomes the insert out/in or pre/post control.

Signal path configurations per channel, including AUX input and/or output options:



*The variable-gain amplifiers include the mute and invert functions.

INPUT connector – Connected in parallel with the ¼” jack on the front panel, the female three-pin XLR accepts balanced and unbalanced sources. Unbalanced sources should be connected across pins 2 and 1, with pin 3 shorted to pin 1. Pinout:

- Pin 1 – Screen/common/case and negative phantom supply
- Pin 2 – Positive signal and positive phantom supply
- Pin 3 – Negative signal and positive phantom supply

CAUTION – Mute before changing input connections.

Input impedance – The inputs are high-impedance and do not require an impedance match (no input transformer). This can allow higher performance from a variety of input sources, active and passive, including DI sources.

If a lower preamp input impedance/higher load is required, a resistor can be plugged into the unused input of the parallel ¼ “ and XLR input pair. For a balanced load, connect across tip and ring (XLR pins 2 and 3), parallel with the internal 2M ohms (13.6k ohms with phantom). For an unbalanced load, connect across tip and sleeve (XLR pins 2 and 1), parallel with the internal 1M ohms.

Note – High noise levels are typical when high-impedance inputs are left open. Noise levels will drop to normal when either one of the parallel inputs is connected to an input source.

AUX IN connector is a balanced female three-pin XLR line-level input to the main output stage when the AUX IN switch is depressed. When equipped with the Aux output option and the AUX IN switch is depressed, the AUX IN is instead connected to the AUX output stage. Pinout:

- Pin 1 – Screen/common/case
- Pin 2 – Positive signal
- Pin 3 – Negative signal

Note – The AUX input to the output stage is high-impedance and non-differential with unity (0dB) gain and bypasses the mute and invert functions.

Output load compensation – The operating parameters of the output stage can be varied to optimally drive a wide range of output loads. The preamp senses the combined impedance connected to the output (input impedance, cables, etc.) and automatically sets the operating parameters for the lowest distortion.

OUTPUT and AUX OUT connectors are balanced male three-pin XLRs with output stage direct-coupled line drivers on pins 2 and 3. Unbalanced loads should be connected across pins 2 and 1, with pin 3 open.

Note – Neither pin 2 nor pin 3 should be grounded, as electronic protection will clamp both in case of an overload. Sensing for load compensation is on pin 2. Sensing for the +24 peak indicator is on pin 2 of the main OUTPUT only.

The outputs feature soft power-up and power-down with an impedance (to ground) of about 20 ohms when the preamp is off. The active output impedance is even lower for better rejection of interference, noise and crosstalk, and lowers noise and distortion of input(s) downstream. Combined with the direct-coupling and open-loop topology, output bandwidth and stability are maintained with lower impedance and higher capacitance loads. Pinout:

- Pin 1 – Screen/common/case
- Pin 2 – Positive signal
- Pin 3 – Negative signal

With INVERT switch in:

- Pin 1 – Screen/common/case
- Pin 2 – Negative signal
- Pin 3 – Positive signal

Warranty – Gordon Instruments will repair or replace, at no charge, any unit found to be defective due to factory materials or workmanship for a period of five years.

Service – Contact Gordon Instruments with any questions or concerns.

+1.615.665.1005

info@gordonaudio.com

rev12.22