



# Grommes~Precision Precision Electronics



## G228 INSTRUCTION MANUAL

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## Grommes~Precision

847-599-1799 · 800-SINCE-46 · FAX: 847-599-6178

1331 Estes Ave. · Gurnee, IL 60031 · USA

[www.grommesprecision.com](http://www.grommesprecision.com)

Grommes~Precision

Grommes~Precision is an American manufacturer of original, custom, and private labeled audio/electronic equipment for use in commercial, consumer, and industrial applications since 1946.

# G228 INSTRUCTIONS

*Thank you for purchasing from Grommes~Precision!*

*Grommes~Precision and its commercial audio division, Precision Electronics, has been designing, engineering, and manufacturing quality sound equipment in the United States since it started operation in March of 1946. Over a half century of quality, service, and flexibility as “Your Personal Manufacturer” have made us one of the last American audio manufacturers. If you have any questions with this or any one of our other fine products, give us a call. When you talk with a member of the Grommes~Precision team you’ll be speaking with someone who had a hand in concept, design, production, or testing of this very product.*

## I. UNPACKING PROCEDURES

### **INSPECTION**

This unit was carefully checked and packed before leaving the factory. However, it is always a good idea to inspect the shipping container and unit for indication of improper handling. If the unit has been damaged, make an immediate claim to the dealer or distributor from whom it was purchased. If the unit was shipped to you, notify the transportation company without delay, saving all packing materials, in order to process the claim.

### **INITIAL PERFORMANCE CHECK**

Continue the inspection by running a performance check. Connect the preamplifier output to an amplifier and speaker. Connect a microphone or test signal to the inputs. If the preamplifier fails to operate and no damage is visible, notify the factory. CAUTION: TO PROTECT THE SPEAKER FROM DAMAGE, DO NOT TURN THE UNIT ON UNTIL ALL CONNECTIONS HAVE BEEN MADE. IN ADDITION, MAKE SURE THE UNIT IS GROUNDED BEFORE TESTING. If the unit should be inoperable and no damage is noted, please notify the factory at 1-847-599-1799 and ask for Technical Support.

## II. INSTALLATION INFORMATION

### **RACK MOUNTING**

For best results use a 10-32 class UNF-2B or 12-24 class UNC-2B rack and 0.625 inch machine screws (metric: M5X8-6H or M6X1-6H, 15.88mm). It is recommended that the drive of these screws be phillips in order to protect the finish from unnecessary scratches. Also recommended are nylon or plastic washers which will not only help protect the finish but also aid in retaining the screws.

### **TECHNICAL SUPPORT**

A troubleshooting chart is located at the end of this manual for your convenience. If you are in need of further assistance, you can reach our design engineers at 1-847-599-1799. Grommes~Precision is based in Gurnee, Illinois and is on Central Standard Time. Our hours of operation are Monday - Friday from 8:00am to 4:00pm. Troubleshooting information can also be found at our website [www.grommesprecision.com](http://www.grommesprecision.com).



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## III. DESCRIPTION & SPECIFICATIONS

### DESCRIPTION

The Grommes~Precision G228 is a solid-state commercial high fidelity mixing preamplifier using IC circuitry. It has 6 Microphone / Auxiliary channels, plus another AUX-only channel having two selectable inputs. Also featured is a mute Precedence switch that enables the 1st channel to mute all other channels, or channels, or channels 1-6 to mute the AUX-only channel. A red "Peak" LED indicates relative signal levels. Optional isolation transformers are available for the 6 Microphone inputs. G228 height is only 1 RU (1.75 inches).

### ACCESSORIES

- Optional Input Isolation Transformer (T) for MIC Inputs
- Tel-Page Line Lightning Suppressor (TLS)
- Rack Mountable with RP-1UA Kit
- 600 ohm Line Lightning Suppressor (LLS)

### SPECIFICATIONS

<b>Distortion @ RPO:</b>	≤0.05%
<b>Mixing Channels:</b>	7
<b>Inputs:</b>	From 6 MIC & 1 AUX to 7 AUX.
<b>Outputs:</b>	600 ohm BALANCED / MIC LEVEL / LINE LEVEL
<b>Frequency Response Direct Line:</b>	+/-0.5dB 20-20kHz +/-1dB 20-20kHz
<b>Microphone:</b>	Screw Terminals With Optional Isolation Transformer



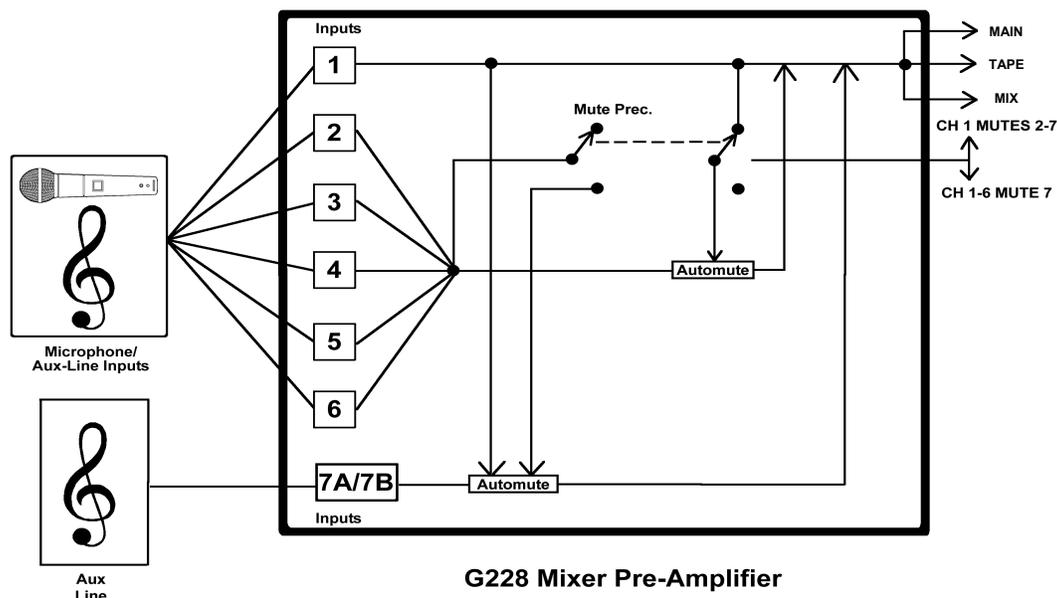
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## IV. PRODUCT OVERVIEW



## V. INPUT CONNECTIONS

### INPUT CONNECTIONS

#### **Microphone:**

The G228 volume control should be fully OFF (fully counterclockwise) when making any connection to a microphone input. Any low impedance 150 to 600 ohm microphones may be used: Connect the microphone cable shield to the ground screw terminal. Connect the two "hot" wires to the - and + microphone input terminals on the G228.

#### **Auxiliary:**

The Input Impedance of each Auxiliary input is 10K ohms. Connect a CD player, radio tuner, or tape deck to any Auxiliary input using an audio patch cable having standard RCA type phono plug at each end. The Auxiliary input of each channel is internally mixed with the MIC input. If you have both a microphone and an auxiliary signal source connected simultaneously to a channel and you want to hear only the microphone, the microphone, the volume control on the auxiliary signal source must be turned down. If you want to hear only the auxiliary signal source, then the microphone's on-off switch (located on the microphone body) may need to be switched off.



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# G228 INSTRUCTIONS

## VI. OUTPUT CONNECTIONS

### OUTPUT CONNECTIONS

#### **600 Ohm Line:**

This is a 600 ohm IC output balanced to ground. Use this output for long distance line runs to a power amplifier. Do not ground either side of this line, but connect the shield of this line to the ground terminal on the G228 output terminal strip. For grounded unbalanced line, you have a choice of using either one of the “hot output screw terminals and the ground terminal or you can use the Main output jack.

#### **Main:**

This is an unbalanced-to-ground output. Its output impedance is about 300 ohms. Connect with an audio cable having a standard RCA type phono plug . The other end of this cable will go to the high impedance or unbalanced input of the power amplifier.

#### **Microphone Level Output:**

This is a 150 to 600 ohm microphone level output, balanced to ground. This output is for connecting to a microphone input of another system. Balanced shielded microphone cable must be used. Connect the shield to the G228 ground screw. Connect the other end of the shield to the ground of the other system. Connect the two “hot” wires to the “hot” microphone input of the other system (if any XLR input, this will be pins 2 and 3; the shield goes to pin 1.)

### OTHER CONNECTIONS

#### **Tape Output:**

This output is unaffected by the G228 Master volume control. Connect this output with standard RCA type audio patch cord to a high impedance input of your tape recorder.

#### **Mix Bus:**

This connection is for connecting to the mix bus of another preamplifier or amplifier in order to expand your system. This connection should not be used for any other purpose. The G228, as well as the rest of the system, should be turned **OFF** before connecting to, or disconnecting from, this jack.



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## VII. THE AUTO-MUTE

### MUTE PRECEDANCE SWITCH

In the UP position this switch causes the 1st channel to mute all other channels. In the DOWN position channels 1 through 6 will mute AUX inputs 7A and 7B.

## VIII. OPERATION OF CONTROLS

Two different ways to set the G228 individual channel level controls are as follows.

Note: Each step must be done in the order given:

Method 1:

- A. Turn the G228 Master level control all the way down (fully counterclockwise).
- B. For normal gain your power amplifier's level control is set from about 70% to 100%.
- C. Turn each G228 input level halfway up (12 o'clock).
- D. Turn the G228 Master level control up to desired system loudness.
- E. Re-adjust each input level on the G228 to desired loudness.

Method 2:

- A. Turn your power amplifier's level control all the way down (fully CCW).
- B. Turn each channel level control on the G228 all the way down (fully CCW).
- C. Turn the G228 Master level to 70% of its rotation (approximately 2 o'clock).
- D. Turn the 1st channel level control up until the G228's red LED flashes occasionally (about once every 2 to 4 seconds). Make a note of this position, then turn it back down (fully CCW).
- E. Do step D for each channel, making a note of each control setting.
- F. Now turn each level control to the setting you noted for each channel.
- G. Turn your power amplifier's level control up to desired system loudness.

### PEAK LEVEL LED

This switch helps reduce bass boominess when using wide response microphones. This switch should also be engaged (UP position) whenever **horn** or **trumpet speaker** are connected to the power amplifier.

### PEAK LEVEL LED

When this red LED flashes, it indicates that the G228 is at or very close to peak output level. The more it flashes, the more likely it may be that the G228 is clipping. A steady glow may indicate that signal levels are too high, or perhaps a ground connection somewhere in the system may have come loose, or oscillation. The internal trimpot adjust the sensitivity of the Peak LED.



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## IX. GROUNDING

The 3-wire AC power cord provides a ground to the AC power line conduit. If your AC outlet is wired correctly, grounding if the G228 is accomplished merely by plugging into the outlet. Otherwise, to ensure a good ground it may sometimes be necessary to attach a ground wire to the ground terminal of the G228 output strip and connect it to a cold water pipe (provided the entire pipe is metal and is well grounded).



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## X. TROUBLESHOOTING

<u>SYMPTOM</u>	<u>POSSIBLE CAUSE</u>	<u>POSSIBLE SOLUTION(S)</u>
<b>No Front Panel POWER ON Indication</b>	<ul style="list-style-type: none"> <li>No AC power present.</li> </ul>	Verify the unit is receiving AC power. Verify the AC outlet has proper AC voltage available.
<b>No Audio Output:</b>	<ul style="list-style-type: none"> <li>No input signal source.</li> </ul>	Verify that proper signal/level is being supplied.
	<ul style="list-style-type: none"> <li>Incorrect input signal connection</li> </ul>	Verify that the signal input connection is correctly connected.
	<ul style="list-style-type: none"> <li>Incorrect output connections</li> </ul>	Check that the proper load is correctly connected to the desired output terminals.
<b>No Automatic Muting of Input Signal</b>	<ul style="list-style-type: none"> <li>Mute Switch Rear Panel</li> </ul>	Check that the switch is in the correct position. (See page 6).
	<ul style="list-style-type: none"> <li>Insufficient MIC/600 ohm/Tel-Page gain</li> </ul>	Check MIC/TEL gain control setting. Check that MIC/TEL audio signal level is sufficient.
<b>Low, High, or Distorted Level:</b>	<ul style="list-style-type: none"> <li>Volume setting</li> </ul>	Check the corresponding gain control on the front panel.
	<ul style="list-style-type: none"> <li>Signal level</li> </ul>	Check that adequate input signal level is strong enough.
	<ul style="list-style-type: none"> <li>Input or output impedance not matched</li> </ul>	Check that the proper input/output line impedance matches the selected input/output connections used.
	<ul style="list-style-type: none"> <li>Possible low resistance or shorted wiring across the audio in and/or across the speaker out</li> </ul>	Check/correct system wiring.

### SERVICING

If the unit requires service: 1) Obtain a Return Authorization (RA) Number at 847-599-1799; 2) Include a detailed written explanation outlining the nature of the problem and your contact information; and 3) Ship pre-paid to Grommes~Precision, 1331 Estes Ave., Gurnee, IL 60031, USA. If the unit is under warranty, repairs or a replacement will be made in accordance with Grommes~Precision's warranty policy.



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