Grommes~Precision
Precision Electronics

MICRO 15, MICRO 30, MICRO 15X & MICRO 30X INSTRUCTION MANUAL

Grommes~Precision
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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.

MICRO 15, MICRO 30, MICRO 15X & MICRO 30X 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 a test speaker to the 4-8 ohm direct output terminals (see page 6) and a tuner, tape deck, or CD player to the auxiliary input and set the controls for operation. 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.

CONVECTION, FAN COOLING, AND VENTILATION

This unit is cooled via convection and therefore designed for continuous operation. Do not block the unit's heatsink fins or vent holes located in the cover. If the unit will be rack mounted, you must utilize a cooling fan that is capable of exhausting not less than 300CFM. The fan must be mounted to the inside top of the rack, above the amplifier.

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.

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III. DESCRIPTION & SPECIFICATIONS

DESCRIPTION

The Micro 15/15X/30/30X is a 3 channel high-fidelity mixer amplifier providing 15 / 30 watts of continuous RMS power. These units are perfect for any telephone interconnect and/or background music applications.

FEATURES

- 15 / 30 Watts of Continuous RMS Power
- Microphone, Transformer-Isolated (optional) Tel-Page, and Auxiliary Inputs
- Automatic Voice Activated Muting of Music, Aux Input (Defeatable)
- Separate Bass & Treble Controls
- No maintenance: Convection Cooling
- Rugged Power Supply Designed for Constant & Consistent Duty.

ACCESSORIES

- Optional Input Isolation Transformer (T)
- Rack Mountable with RP-MIC Kit
- Wall Mountable with WM-B Kit
- Speaker Line-Lightning Suppressor (SLS)
- Tel-Page Line Lightning Suppressor (TLS)

SPECIFICATIONS

Power output:	MICRO 15: 15 Watts RMS MICRO 30: 30 Watts RMS
Input Sensitivity/ Impedance:	Microphone: 1 mv/330 ohm Tel-Page/600 ohm: 75 mv/600 ohm Auxiliary: 250 mv/10K ohm
Distortion at Rated Output:	<0.1%THD Typically <0.3% THD
Outputs:	4-8 ohm direct, 25V or 70.7V speaker line, and booster amp output.
Frequency Response:	Direct Output: 20 Hz to 20 kHz ± 3 dB 25V or 70.7V Output: 50 Hz to 15kHz ± 3 dB
Hum/Noise:	Mic/Tel-Page/600 ohm: -65dB Auxiliary: -75dB
Tone:	Bass ± 10dB @ 100Hz & Treble ± 10dB @ 10kHz

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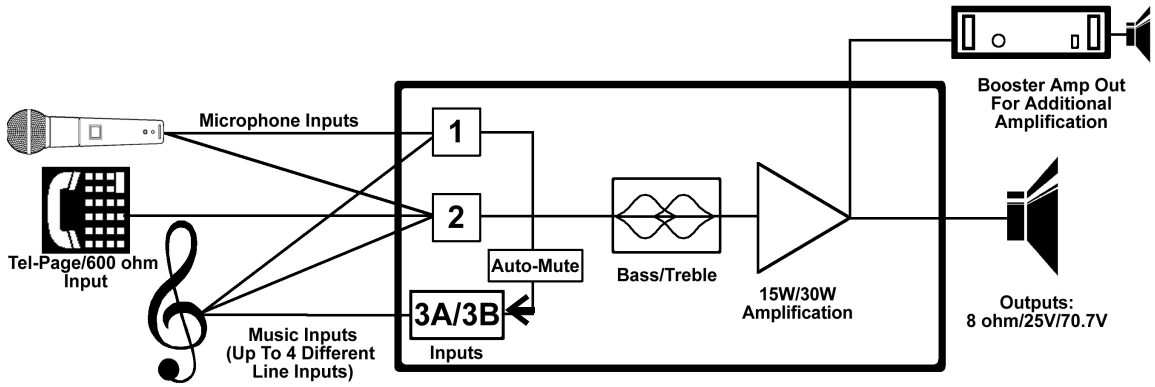
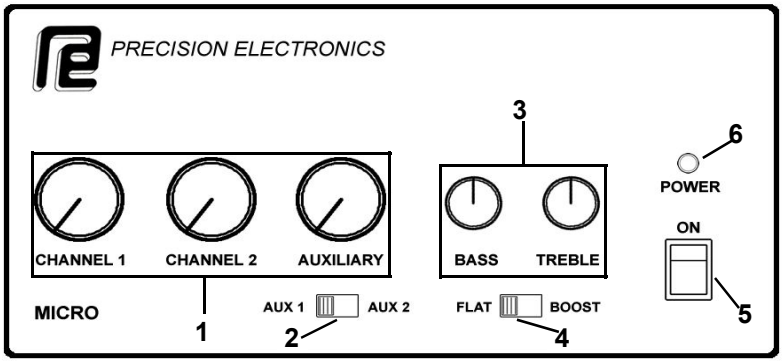
IV. PRODUCT OVERVIEW



MICRO Series Mixer Amplifier

V. THE FRONT PANEL



1 - LEVEL CONTROLS
Adjusts the volume levels of channels 1, 2, and auxiliaries. Channel 1- Microphone or AUX. Channel 2- Microphone, 600 ohm Tel-Page, or AUX. Auxiliary- switchable between AUX 1 and AUX 2.

2 - AUXILIARY SWITCH
Changes input between auxiliary 1 and 2. (A/B Switch)

3 - BASS AND TREBLE
These controls boost and cut 10dB at 100Hz for bass control and 10dB at 10kHz for treble control.

4 - BOOST SWITCH
This switch provides for a +7dB @ 100Hz and 10kHz, in the boost position.

5 - POWER SWITCH
The Power Switch turns the unit on or off.

6 - POWER INDICATOR
The green LED indicates AC power.

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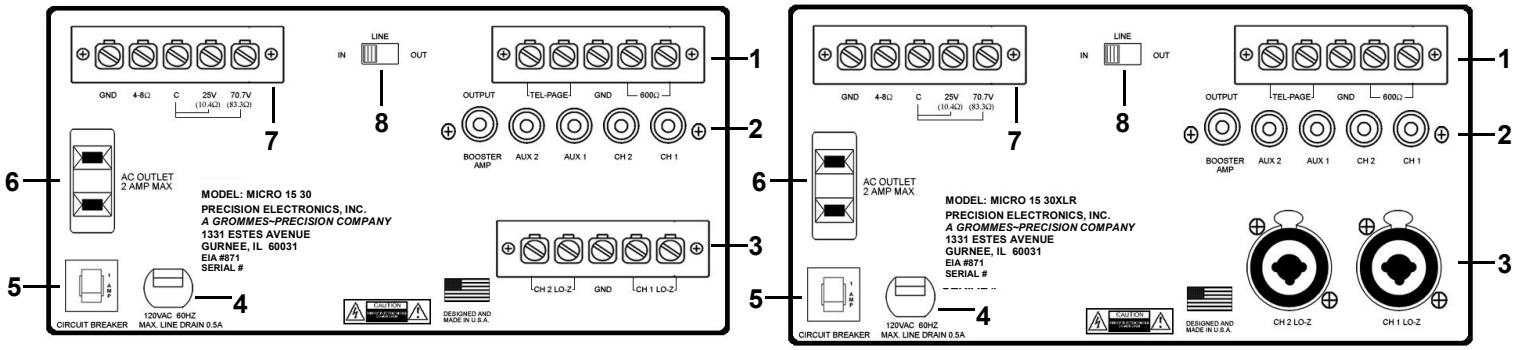
VI. THE REAR PANEL



MICRO STANDARD VERSION
(SCREW TERMINALS)

MICRO X VERSION
(COMBO XLR & 1/4" CONNECTORS)

1 - INPUT TERMINAL SCREW STRIP

Used for the TEL-PAGE/600Ω inputs (Channel 2). This strip accepts either a balanced 600 ohm Line input or a balanced 600 ohm telephone paging or other 600 ohm balanced input. The volume level of this input is adjustable using the front panel Channel 2 gain control.

2 - Hi-Z, PHONO (RCA) INPUTS

These are high impedance inputs, connect the input to the appropriate channel or auxiliary. (Remember that only the auxiliary channel is muted by either channel 1 or 2.)

3 - MICROPHONE LEVEL INPUTS

The standard model includes screw terminals for the input while the X model contains XLR-1/4" combo connectors. Accepting either a TRS 1/4" phone plug or XLR Connect Microphone where appropriate in either channel 1 or 2.

4 - A/C LINE CORD

Line cord for A/C supply voltage.

5 - CIRCUIT BREAKER

If the amplifier is continuously overloaded, this A/C line circuit breaker will trip. Another cause for tripping is that the internal temperature has surpassed it's safe operating range. Pushing the plunger will reset the breaker. However, it is important to first correct the problem causing the overload or over heating.

6 - A/C CONVENIENCE OUTLET

Outlet to run additional equipment (2 amp maximum).

7 - OUTPUT TERMINAL SCREW STRIP

Voice Coil (4-8Ω)- Connect Speakers of voice coil impedance to the first two terminals. The first terminal is ground and the second is signal.

25V/70.7V Line - For 25V output connect your speaker line to the third and fourth terminals. For 70.7V operation connect your line to the third and fifth terminals. In both of these hook-ups the third terminal is transformer line common.

8 - 25V and 70.7V LINE OUTPUT SWITCH

On the rear panel is an output switch. If the installation calls for either 25V or 70.7V operation the switch must be set to the LINE IN position. This position also enables the low cut filter.

Phantom Power is available on mic channels 1 & 2. +15V is factory set for channel 1 and available on channel 2. Both channels can be changed via an internal jumper. To defeat or engage disconnect A/C from the unit, remove the hood and locate the mic input PCB (rear left). On the front of the board is a 3 position header with shunt. Shown . Remove the shunt and replace on the middle and other pin. (Covering PH box with shunt engages the phantom supply.) Please call (800) SINCE-46 with any questions.

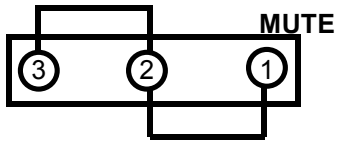
VII. THE AUTO-MUTE

THE AUTO-MUTE CIRCUIT

The MICRO series of mixer amplifiers include a built-in automatic mute circuit. Channels 1 and or 2 will can automatically mute the AUX channel. This unit comes factory set to auto-mute, however, the mute is defeatable by moving the internal mute jumper to its other position. To defeat the auto-mute circuit follow these steps. 1) Unplug A/C and all other connections from the unit. 2) Remove the hood and find the Mixer board located on the front panel. 3) On the board locate the mute jumper. Move the jumper to position 2-3 to defeat the auto-mute.

The Auto-Mute Circuit

Connect shunt here to **disable** the Auto-Mute

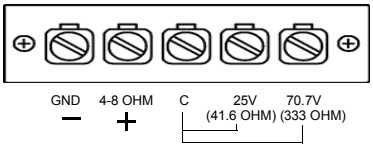


Connect shunt here to **enable** the Auto-Mute (Factory-Preset)

VIII. SPEAKER INSTALLATION

CONNECTING FOR DIRECT 4-8 OHM OPERATION

Connect 4 or 8 ohm speaker(s) to terminals 1 and 2. For proper signal phasing, observe +/- polarity.



CONNECTING FOR 25V/70.7V LINE OPERATION

For 25V output, connect the load to terminals 3 (-) and 4 (+). For 70.7V output, connect the load to terminals 3 (-) and 5 (+). **NOTE**: When using the amp's 25V or 70.7V line operation, the tap setting on the proper impedance matching transformer determines the individual speaker's power level. Using these transformers allows the speakers to be placed at longer distances from the amplifier without significant power loss. The number of speakers for a line-driven central amplifier system is limited to the power available from the amplifier. The sum of all connected speakers' power settings MUST not exceed the total power available from the amplifier.

USING THE PROPER WIRE SIZE AND LENGTH

Cable distance should be kept as short as possible to minimize power loss. The chart on page 7 can be used as a general guide showing various wire sizes and the maximum distance related to cable loading that speakers can be placed from the unit for an approximate –0.5dB loss (-12.5% power). To allow for future expansion and distributed cable line loss, it is recommended the total system wattage should not exceed 85% of the amplifier's rated output. To determine the total system wattage, sum the wattage taps of all speaker(s)/horn(s) used.

2 WIRE COPPER CABLE LENGTHS FOR SPEAKER LINES AT –0.5dB LOSS IN SPL (12.5% POWER LOSS IN WATTS)

AWG SIZE	LOW IMPEDANCE SPEAKER LINE			70.7V SPEAKER LINE (FOR 25V LINE DIVIDE ALL 70.7V LENGTHS BY 8) NOMINAL POWER IN LOAD								
	4 OHMS	8 OHMS	16 OHMS	7.5W	15W	30W	60W	100W	125W	250W	400W	500W
10	120	240	480	-	-	5,000	2,500	1,500	1,100	550	365	275
12	75	150	300	-	6,200	3,100	1,550	940	750	375	230	185
14	50	95	190	7,600	3,800	1,900	950	600	450	225	140	110
16	30	60	120	4,800	2,400	1,200	600	370	290	145	90	-
18	20	40	75	3,000	1,500	750	375	230	180	90	-	-
20	15	25	50	1,920	960	480	240	150	110	-	-	-
22	10	15	30	1,200	600	300	150	95	-	-	-	-
				WIRE LENGTHS IN FEET								

FURTHER INFORMATION

For further guidance regarding speaker installation (selection, placement, impedance matching with or without transformers, phasing), see www.grommesprecision.com/precisionelectronics.

IX. MAINTENANCE

The MICRO series is built to last and comes equipped with multiple built-in protections including short circuit, and AC circuit breaker. If the unit is overloaded (e.g. too many speakers, shorted speaker line, mismatched line impedance [e.g. 8 ohm speaker on 70.7V line]) or overheated (e.g. obstructed or poor ventilation of the unit, mismatched line impedance) the unit will fail to provide output. Overloading and overheating of the amp can lead to premature failure.

RESETTING THE AC CIRCUIT BREAKER

If the unit is overloaded or it overheats, the AC line circuit breaker on the front panel will open. Before resetting the circuit, determine and correct the problem causing the overload or overheating (see “Part X. Troubleshooting” on page 8 for a chart to help guide you in determining the cause of the problem). If after exhausting the possibilities, the circuit breaker will not reset, have the unit serviced by a qualified technician. **NOTE**: If the unit is rack mounted, you must utilize a cooling fan that is capable of exhausting not less than 300CFM.

X. TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	POSSIBLE SOLUTION(S)
No Front Panel POWER ON Indication	• No AC power present.	Verify the unit is receiving AC power. Verify the AC outlet has proper AC voltage available.
	• Unit's Circuit Breaker is tripped.	Verify the unit's circuit breaker has not tripped. If it has, push-in the plunger to reset.
No Audio Output:	• No input signal source.	Verify that proper signal/level is being supplied.
	• Incorrect input signal connection	Verify that the signal input connection is correctly connected.
	• Incorrect output connections	Check that the proper load is correctly connected to the desired output terminals.
No Automatic Muting of Input Signal	• Internal jumper setting	Check that the internal mute jumper is not disabled. (See page 6).
	• Insufficient MIC/600 ohm/Tel-Page gain	Check MIC/TEL gain control setting. Check that MIC/TEL audio signal level is sufficient.
Low, High, or Distorted Level:	• Volume setting	Check the corresponding gain control on the front panel.
	• Signal level	Check that adequate input signal level is strong enough.
	• Input or output impedance not matched	Check that the proper input/output line impedance matches the selected input/output connections used.
	• Possible low resistance or shorted wiring across the audio in and/or across the speaker out	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.