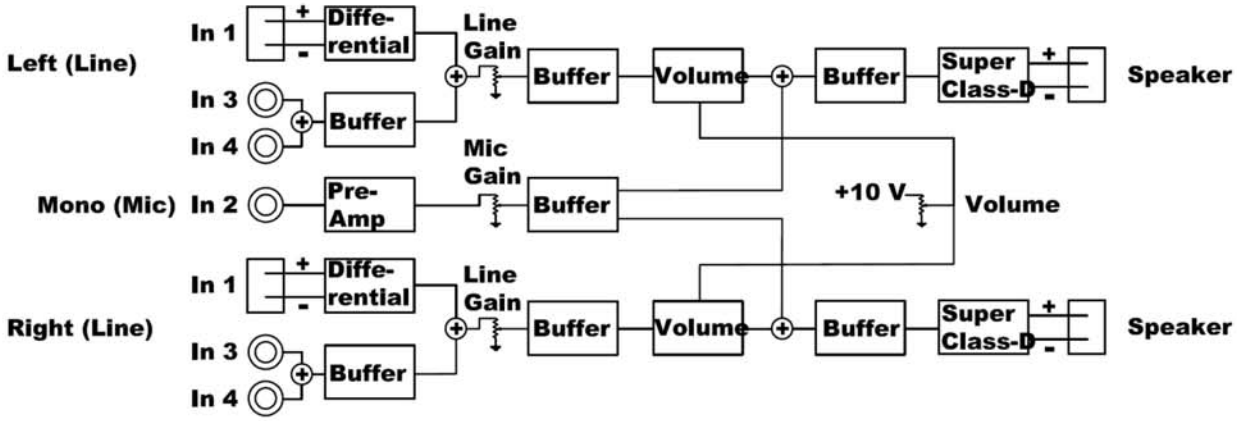
AMP-1002 Compact Power Amp Quick Start Guide

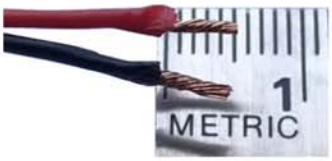
Thank you for purchasing the Luxi Electronics® AMP-1002 compact power amp. Please read through this manual before using the product.

How the product functions: This product has 4 audio inputs: No 1 is a stereo balanced/unbalanced line input at +4 dBu level, No 2 is a mono unbal mic input at -20 dBV level, No 3 and No 4 each is a stereo unbal line input at -10 dBV level. The No 1, 3 and 4 line inputs are equalized in level, then these 3 left signals are mixed together, and 3 right signals are mixed together, controlled by the Line Gain pot, then the volume control. The No. 2 mic input signal is equalized in level, controlled by the Mic Gain pot, not controlled by volume control (to prevent feedback from speakers to mic), split evenly to left and right channels, and mixed to the main left and right channels. Volume control is a standard 10 V reference voltage, external 10k ohm pot analog control for both left and right channels. See the block diagram below.



Power options: This product draws power from an external 24 V 3 A power supply sold separately (Luxi P/N 69-008-03). Do NOT plug the power supply connector into any other connectors; this could cause permanent damages to the product and void the warranty.

Captive screw plug termination: The captive screw plugs for power, audio, speakers and volume controls are supplied with the unit. Separate the wires about 1" (2.5 cm) long; strip off the wire insulation precisely 3/16" (5 mm) from the end. Identify the positive and negative leads for power; Luxi power supply uses red wire for the positive wire. If not sure, use a multi meter to verify. Reversing power polarity could cause permanent damages to the product and void the warranty.



Mounting options: Luxi has the under desk mount (Luxi P/N 78-002-01) or the MediaHub table tanks sold separately; the product also fits many other mounting hardware from Extron, Middle Atlantic, etc. Only use the type 4-40, 3/16" (5 mm) long screws supplied with the mounting hardware to screw onto

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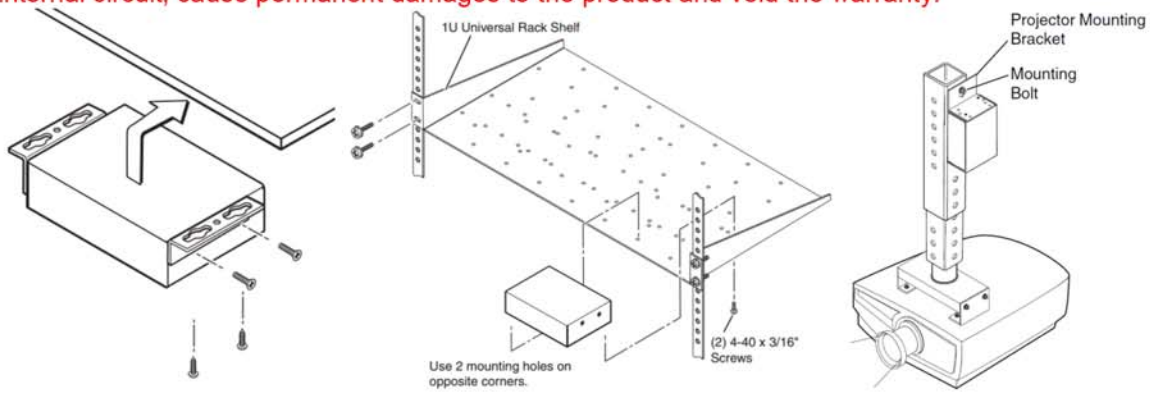
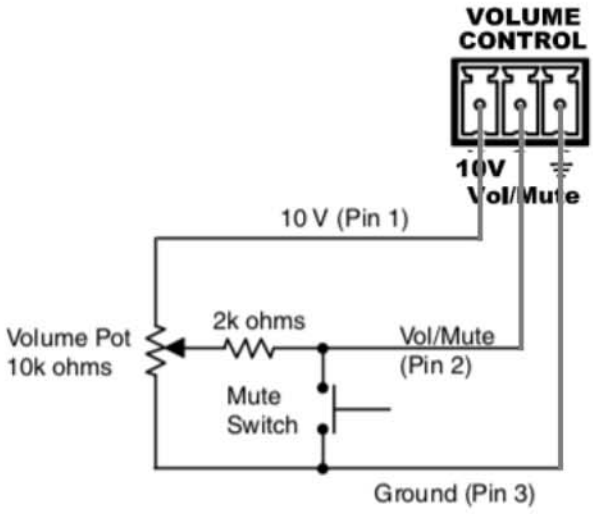
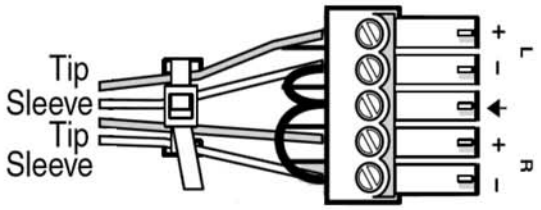
the product. Wrong type of screw could strip the threads; too long screw could touch and short the internal circuit, cause permanent damages to the product and void the warranty.



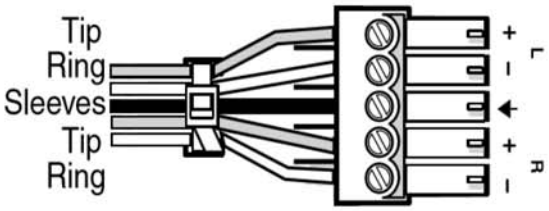
Control options: The product has two recessed gain pots on the front panel, one loudness control dip switch recessed on the bottom of the unit, and a remote volume control port on the rear panel. The Line Gain pot controls the mixed 3 line input levels. The Mic Gain pot controls the mic input levels. The volume control only controls the volume of the mixed 3 line input levels; it can also be used for PA emergency mute. See the external volume control and mute circuit diagram to the right of here.



Auto input connector wiring: You can use the standard 3.5 mm cable to connect to input No 2 thru 4. The captive screw connector for input No. 1 is provided with the product. Follow the instructions on page 1 to cut the audio cable to needed length, remove the overall cable jacket, separate the individual wires, strip off the wire insulation precisely 3/16" (5 mm) from the end, and follow the wiring diagram below based on unbalanced or balanced input. In unbalanced wiring, remember to use short jumper to connect pin 2 and 5 to pin 3 (ground the unused "-" inputs).



Unbalanced Stereo Input



Balanced Stereo Input

Speaker connector wiring: Follow the instructions on page 1 to cut the audio cable to needed length, separate the individual wires, strip off the wire insulation precisely 3/16" (5 mm) from the end. Important note: this is a bridged power amp, all 4 pins of this speaker connector are live and none of

them can be connected to ground or between each other. When connecting to a subwoofer with speaker level summer and filter, check the resistance between the subwoofer's "-" side of the left and right input with a multi-meter and make sure they are not connected (shorted) together as ground inside the subwoofer. Shorting any of the 4 speaker pins together or to ground could cause permanent damages to the product and void the warranty.

How to set Line Gain: Connect the most used audio source to one of this power amp's inputs. If there's a volume control on that source device (like a laptop, smartphone, projector or TV with headphone output jack), first set its volume to a proper level that's not too low to have noise or too high to have clipping. Refer to the its user manual or found the best setting by experiment. Normally laptop or smartphone volume should be around 80%, TV or projector's headphone output volume should be aground 50%. Then first set the Line Gain to min position, turn this power amp's volume control to max position, power up the system, then gradually increase the Line Gain until the distortion start to be heard, then back off a bit to remove the distortion. The Line Gain is properly set now. No matter how volume is set from here on, the power amp won't clip.

How to set Mic Gain: Mic signal level is not affected by Volume control. First turn the Mic Gain pot to the min position. Play the music, set the volume to normal operation level, and then gradually increase the Mic Gain until the speaker to mic feedback just occurs. Back off the Mic Gain a bit to eliminate the feedback, and walk with the mic around the normal area when the presenter could walk to, and make sure no feedback from anywhere in that area. The Mic Gain is properly set now. No matter how volume is set from here on, the feedback won't happen.

Protections and indications: This power amp has built in over or under voltage, reverse polarity, overheat, over power, DC in output and short protections. When the protection happens, the power amp will shut down immediately, and try to restart a few seconds later to see if the protection condition still exists. During this time, the front panel LED is either lit in red color or not lit at all depending on the type of protection condition. When protection happens, please turn off the main power immediately and troubleshoot and correct the conditions that caused the protection.

Heat dissipation: This power amp has the cutting edge highest efficiency Class D circuit with less heat generation than the traditional Class D power amps, and much less than the Class A, AB power amps. Also the heat is designed to be coupled directly to the metal enclosure instead of thru the air ventilation. For the heat to dissipate from the enclosure, it's recommended to either mount the power amp onto to a metal surface (like a rack shelf) or to an area with some air circulations.

***Max output powers, signal types and power adaptors:** This power amp will output the typical RMS power listed in the specs continuously with a sinewave signal and with a lab power supply. It will output the same RMS power with a sinewave signal and with a Luxi 69-008-03 power adaptor; but the adaptor will get hot over time. However all the real world signals, music or speech, have much lower average to peak ratios than a sinewave signal. As a result this power amp will output the same RMS power continuously with the real world signals and with a Luxi 69-008-03 power adaptor as with a lab power supply.

Support: Please contact your reseller directly for local support; or Luxi using the contact info in the header. See Luxi website for additional and more updated documents.

LUXI® Electronics

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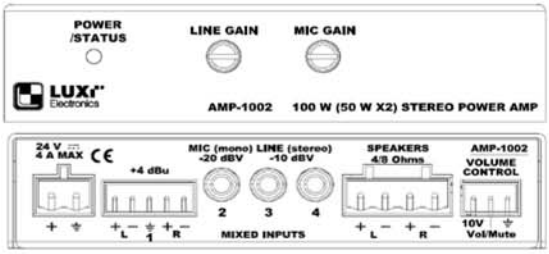
Product Specifications	Part Number: 76-005-01
100 W (50 W x2) power amp	Model: AMP-1002
Product Image	**Product Drawing**



Features and Benefits

> World's smallest 100 W (total) power amp; only 1 inch (2.5 cm) high, can fit in many tight spaces others can't
> One of the most efficient (up to 92%) class D power amps, no fans, no special ventilations needed; most reliable
> Full array of 4 inputs including 1 bal/unbal input, 1 wireless mic receiver input, 2 line inputs
> All 4 inputs mixed to eliminate switching needs and pops
> Separate line gain and mic gain (independent from volume)
> Remote 10k pot volume control for the instant changes and ultra fine volume adjustments with infinity number of steps
> Mute control for emergency PA duck
> EnergyStar qualified
> Ultra low 0.04% THD+N, ultra high 90 dB S/N at rated power
> Clip limiter
> Full over or under voltage, overheat, DC, short protections
> Multiple internal switching frequencies to prevent AM noises
> UL rated (on external power adaptor)
> Status indication LED
> Rack mountable, under-table mountable, above-projector, behind flat TV mountable metal enclosures

Package

One piece in one color cardboard box; with captive screw plugs and quick start guide
no power adaptor

Box size: 5.9" x 4.8" x 1.1" (15.0 x 12.2 x 2.8 cm)
Weight: package, 0.73 lb (0.33kg); product, 0.55 lb (0.25kg)
36-pc box size: 15" x 12.6" x 8" (38 x 32 x 20.5 cm)
36-pc box weight: 27.5 lb (12.5 kg)

Connections

Input connectors: 4 inputs on captive screws and mini jacks
Output connector: 4-pin 5 mm captive screw receptacle
Power connector: 2-pin 5 mm captive screw receptacle
Control connectors: 3-pin 3.5 mm captive screw receptacle

Other Related Products

Power adaptor, 100-240 V in on US plug, 24 V out, P/N 69-008-03

Under desk mount, P/N 78-002-01

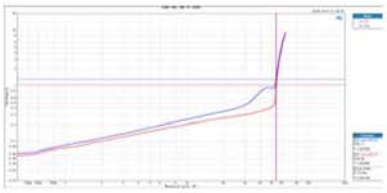
90 W 70/100 V power amp
P/N 76-006-01

Mechanical

Enclosure material: steel
Enclosure size: 4.29" x 1.00" x 3.00" (10.9 x 2.5 x 7.6 cm)

Electrical (all numbers are typical)

Gain (from input to speaker out at rated power)
Bal: 20 dB; Line: 32 dB; Mic: 42 dB
Stereo channel crosstalk: 77 dB at 1 kHz
CMRR (Bal input only): 66 dB at 1 kHz
Input connectors: Bal/unbal: 5-pin 3.5 mm captive screws
Line: two stereo TRS 3.5 mm mini jacks
Mic: mono TS 3.5 mm mini jack
Input impedance: Bal/unbal: 30k ohms; Line: 3.2k ohms
Mic: 3.2k ohms
Nominal input levels: Bal/unbal: +4 dBu (1.23 V) balanced
Line: -10 dBV (316 mV) unbal; Mic: -20 dBV (100 mV) unbal
Max input levels: Bal/unbal: +26 dBu (15.6 V) balanced
Line: +12 dBV (3.9 V); Mic: +1 dBV (1 V)
Input sensitivity: Bal/unbal: -8 dBu (0.31 V) balanced
Line: -22 dBV (79 mV); Mic: -32 dBV (25 mV)
Speaker impedance: 4 to 16 ohms
Typical output power: 54 Wrms x2, 4 ohm load, 1 kHz, 1% THD
32 Wrms x2, 8 ohm load, 1 kHz, 1% THD (*see manual)
Frequency response: 20 to 20k Hz +0/-0.7 dB at 8 ohm
THD+N: 0.037% at 1 W, 8 ohm
S/N: 89 dB, Line input, unweighted, at 1% THD
Damping factor: >100 at 8 ohm



Controls: Front panel Line Gain and Mic Gain recessed pots
Line signals are controlled by main volume; Mic is not.
Rear panel volume control: 0-10 V DC, external 10k pot
Emergency PA mute by shorting the center pin to ground
Power consumption: 24 V DC, up to 4 A
Optional power supply: Not included. Luxi 69-008-03
Auto switching 100-240 V AC input on US plug, 24 V DC
2.7 A max on bare wires, wall ward type, UL, PSE, CE, FCC
Mounting: Not included. Luxi under desk mount 78-002-01
compatible with several Extron and Middle Atlantic mounts
Regulatory compliance
Safety: CE, cUL, UL (power adaptor only)
EMI/EMC: CE, FCC Class A
MTBF: 30,000 hours
Warranty: 3 years parts and labor

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