

# *icon Audio*

## **Passive Pre-Amplifier**

Instructions for Standard and Remote-Control Versions

*designed by David Shaw*



**Extend  
Your Input  
Selection**

**As featured in  
Hi Fi World**

### **About the Passive**

The Passive Pre-amplifier is a simple way of connecting and using power amplifiers or Monoblock amplifiers without using an expensive pre-amplifier.

Any pre-amplifier must be of high quality and many preamplifiers cost more than their partner power amplifier. This is because they need to be low noise and low distortion. Low noise means an expensive power supply, low distortion means carefully designed high quality circuits.

Historically the source units like radio tuner, tape recorder had a low output and needed to be "boosted" by a so called "line preamplifier" adjusted with a volume control and sent on to the power amplifiers. Additional functions such as high and low frequency filters, balance control and the inclusion of a "phono pre-amplifier" for a turntable all conspired to make a pre-amplifier very complex. Because of this very often corners were cut by manufacturers to keep to a "price point" resulting in mediocre sound quality.

In more enlightened times things have changed somewhat:

Tone controls and filters which add distortion and reduce quality are considered undesirable by many. Also most people either buy a phono stage to suite their purpose or do not need it at all.

More importantly, virtually all modern source units e.g. CD player, Streamer, Bluetooth, TV/Video sound, Radio Tuner, Phono pre-amplifier etc have a high output (1-2V) which is strong enough to directly drive modern and vintage power amplifiers.

A common situation even today is where a CD player may have up to 2v maximum output, but averages say 1V on loud music.

If that is used with a power amplifier of 1v input sensitivity for full power (say 50 Watts) then only

0.325v (325mv) is required for 5 Watts output (quite a loud listening level with most speakers).

Now suppose a pre-amplifier with a gain of 4 is used, the required input ( $325/4$ ) is only 80 millivolts. The volume control THROWS AWAY 92% of the valuable signal. Clearly a nonsensical situation. The same situation with the "passive" pre-amplifier would result in 325 millivolts (or 32%) being used and only 68% being "thrown away" by the volume control.

These figures are conservative, in some situations the figures are even worse.

**Therefore, it follows that the more of the original signal that is retained, the purer and more faithful the resulting sound will be.**

All that is required is a high-quality volume control and switching. The Icon Audio "Passive" pre-amplifier is such a device. We use high-quality gold-plated sockets, silver plated PTFE insulated audio cable, and the highly regarded ALPS volume potentiometer for volume control. All this is inside a substantial high-quality Aluminium and steel case.

Also included is a "record loop" which is not only for tape recorders but is also useful for using Graphic Equalisers and functions such as "Surround Sound". It also gives a 5<sup>th</sup> input so that up to 5 sources may be connected ready for use.

The "Remote" version is identical in operation with the added advantage of remote control of volume from your arm chair. This requires the addition of a handset, receiver in the passive box, control circuitry, and a motorised "pot" plus a power supply and power indicator.

The absolute simplicity of the circuit means absolute purity is achieved.

## **Final Inspection**

*This amplifier has been carefully finished checked, tested by Icon Audio in Leicester.*

*It has passed our rigorous listening test and final inspection to assure you of optimum performance and reliability.*

Date ...../...../.....

Model .....

Amp Serial Number .....

Customer .....

Check amplifier finish .....

Remote control in box .....

Check all inputs & tape monitor .....

Serial No sticker and recorded .....

Remote Control Function .....

Mains voltage 110 / 230-240V

Signed off by .....

Notes:



# SET UP GUIDE

**Unpack unit carefully.** Make sure that it is in good condition. Please keep packaging for warranty/service return. **Make sure the mains voltage is suitable for your area. If not contact your dealer.**

**Connect to mains supply** (Remote control version only) using supplied power transformer. Some areas may require the use of an adaptor. Or a replacement power supply having the correct **2.1mm** power plug and 9-12v DC output 300-500 mA. The LED on the front panel will light up. You will then be able to use the supplied handset functions



## Connecting inputs & outputs

Connect up to four inputs. They are all the same the names are for reference only.

Connect the PASSIVE to your power amplifier from the "OUTPUT" sockets.

### Inputs

The pre-amplifier will work with any standard piece of hi fi e.g. CD, Tuner, Tape Deck, Mini Disc, TV, Video Recorder, DVD etc. The position of the volume control will generally be higher than an "active pre-amplifier", this has no effect upon performance.

If you wish to use a turntable you will need a suitable phono pre-amp. Your dealer or Icon can assist you.

### Connecting a tape deck

If using a tape recorder or other recording device use "RECORD OUT" and "TAPE" for the input.

If the tape input is not required it may be used a fifth input.

The PASSIVE will work with any tape deck having suitable output, and it is possible to record from any connected source using the terminals marked 'REC OUT'.

Some tape decks 'Present a load' to the amplifier terminals, even when not in use, which can affect sound quality. (You can do an audible check for this by removing the input and listening for a change in sound quality). If so remove when not required.

## General points

### Connecting Leads

Use good quality connecting leads, which are no longer than they need to be. It is important that they are the "screened" type otherwise hum pickup may be noticed.

### Cabinet Care

To remove dust from the cabinet and valves we suggest gentle brushing with a soft paintbrush and a duster. Finger marks can usually be removed with a

damp cloth. The Perspex valve cover (if fitted) may need a gentle wipe with soapy water and drying with a duster. On no account use anything wet on the amplifier, and always clean with the power disconnected.

### Remote Control (if fitted)

When power is connected the LED will light up and the circuit will re-set the volume control to "9 o'clock". The hand set may be used The normal range for the handset is 5m. Strong light may affect operation.

The 2x AAA batteries should be replaced every two years. Do not allow them to become discharged as leakage will damage the handset. Remove batteries before shipping or storage.

## Operation

Adjust volume control for desired volume. Don't worry about how far round the volume control goes, this just means you are using more of your original signal which is a good thing. However if you are unable to get enough volume this means you require a preamplifier with voltage gain.

### About Gain

"Passive pre-amp" is obviously a misnomer as there is no amplifier element. But as most CD/Tuners/Streamers etc have more voltage output than is needed the passive volume control will dispose of the surplus leaving with the correct voltage to drive your power amplifier for your desired listening level.

The table below may surprise you. This assumes an input to the passive of 1000mV. So for example if the volume control is set at 12 o'clock 87% of the signal is discarded and your power amplifier is using 125mV of signal.

| Volume Position | Output mV | Reduction dBs |
|-----------------|-----------|---------------|
| <b>O'Clock</b>  |           |               |
| 5:00 (Full)     | 1000      | 100% 0.0dB    |
| 4:00            | 870       | 13% -1.2dB    |
| 3:00            | 450       | 55% -15.4dB   |
| 2:00            | 210       | 79% -3.5dB    |
| 1:00            | 170       | 83% -15.4dB   |
| 12:00           | 125       | 87% -18.0dB   |
| 11:00           | 60        | 94% -24.4dB   |
| 10:00           | 30        | 97% -30.4dB   |
| 9:00            | 5.8       | 99.4% -45.7dB |
| 8:00            | 2.0       | 99.8% -54.0dB |
| 7:00 (Min)      | 0         | 100% Infinity |

These figures are approximate and rounded for clarity.

## Trouble Shooting

### Remote control not working

Check the LED is lit. If not check the power supply is on and working.

Check the remote-control batteries (cells) requires 2x AAA long life leak resistant type.

**Many problems with hi fi equipment involve connecting leads which are usually either 'Bad, or Wrong connection'. So it's worth making sure that you have good connections and that your leads are the right way round.**

### No sound

Have you selected the right input? Are the connections OK? Is everything switched on?

### Distorted sound and Hum Problems

The PASSIVE cannot cause hum or distortion. This is likely to be an interconnect problem, or one of the connected units. Check and re-make connections, try substituting cables.

If you experience hum, try disconnecting all inputs, if hum persists this is probably an amplifier fault.

If not, Identify which input is causing hum. Connect one input at a time. A common cause is a 'hum loop' caused by having too many earths, and may be identified by unplugging each input source from the mains. One remedy for this is to use an interconnect which only has the screen connected at one end. Other causes of low-level hum can be from adjacent equipment, so experiment with moving equipment around to see if this makes the hum better or worse.

**Service:** Should you suspect a problem, you could return the unit to your dealer or Icon Audio for service.

## Specification & Features

- "Hard wired" Without printed circuit board
  - Japanese ALPS volume pot.
  - 4 inputs
  - Record output
  - Black matt paint finish
  - Signal to noise level -100db
  - Infra red remote control, volume up/down, mute
  - Freq response: almost infinite
  - THD virtually unmeasurable
  - LED mains indicator
  - Wired with silver PTFE audiophile cable
  - Inputs, CD, Tape, Tuner, Aux, Phono (line level)
  - Gold plated Input & output terminals
  - Tape monitor circuit
  - Maximum gain= unity (1:1)
  - W20, D26, H7cm (8cm remote version), 350g
- (remember to allow space for connections)

(Specifications subject to change, errors & omissions excepted 21/01/22)

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