

# icon Audio

## HP8 MKII Manual Pure Triode Headphone Amplifier



*designed by David Shaw*

**IMPORTANT!**  
**THIS MANUAL CONTAINS**  
**ESSENTIAL HEALTH & SAFETY**  
**INFORMATION FOR YOU AND**  
**YOUR AMPLIFIER. PLEASE**  
**READ & KEEP SAFE AND**  
**REFER TO IF NECESSARY**

Shown with David Shaw CV181 ceramic base gold pin upgrade valves

### ***No Compromise High End Pure Valve SE Headphone Amplifier***

## About the HP8 MK II

Thank you for purchasing one of our amplifiers, a lot of care has gone into the design, selection of components and production of this amplifier. We are sure that you will hear the difference.

### **Designed in Leicester by David Shaw**

***The common way to provide a headphone output in an integrated amplifier is to drop the power through resistors. This has the problem that it provides a high source impedance (rather like a weak battery) giving very "Low FI" results. Ideally headphones should be driven from small high quality amplifiers. Many headphone amplifiers use small "microchip" amps which although are a better solution still do not provide ideal matching to the wide range of headphones available.***

Headphone impedance varies from 8 Ohms to 600 Ohms so a transformer with 3 different outputs is an ideal solution for precise matching. Our HP8 MK II is in fact a very small integrated hi fi amplifier. We use a custom wound multi-tap output transformer which provides perfect matching to virtually any headphone load. We start with a substantial mains transformer with matching power supply and two output transformers. The HP8 MK II tops the scales at 6.5kg, giving you an idea of how much copper iron you get for your money!

Like our other models the HP8 MK II does not use a printed circuit board and is all hard wired using top quality full size components. We use silver PTFE audio cable, gold plated terminals and the famous "ALPS" volume pot for the best sonic purity.

The first stage gain uses the excellent ECC83. This excellent audio valve is a perfect match for driving superb 6SN7 (AKA CV181), a general purpose 1940's valve that has exactly the right qualities for a high end headphone amplifier.. This combination will give you a simply stunning insight into inner detail of your favourite recordings whether Analogue or digital.

Like other Icon Audio amplifiers, close attention has been paid to the finish of the HP8 MK II. It uses the same "Bullet Proof"\* build (\*Hi Fi News/Hi Fi Choice) as our other amplifiers with a combination of anodised alloy plate, stainless and painted steel. We do not use "tin and plastic"!

For space saving we have used the same "lengthways" chassis as our phono pre-amp so it will fit nicely alongside your existing equipment, with the connections on the rear, and headphone socket at the front.

The HP8 MK II is very versatile. It may be connected to your hi fi in several ways:

- 1, In a normal hi fi system you would connect to the "record out" of your amplifier. This will then be directly connected to the "source" that you have selected.
- 2, If your amplifier does not have a suitable output, splitter leads may be used.
- 3, With "Pre and power" systems a connection may be made from the pre-amplifier.
- 4, As a stand alone unit you can directly connect to any CD/MP3 player.

## Final Inspection

*This amplifier has been carefully checked, tested and final adjustments made by Icon Audio in Leicester UK.*

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

Date                                    ....../....../....  
Model                                   .....  
Amp Serial Number               .....  
Customer                             .....

Bluetooth board fitted	.....	Serial No sticker and recorded	.....
Check cosmetic finish	.....	Mains voltage	117 / 240V
Run 24hr hour test	.....	IEC Mains Fuse	.....A
Check input	.....	Plug Fuse (UK)	2/3A....
Sound Quality	.....	Sales invoice	.....
Channel Balance	.....	Credit card receipt	.....
Valve Microphony	.....	Chassis linearity	.....
Valve Seating	.....	Output valve	.....
Hum & noise level	.....	Capacitors	.....
RF Test	.....		

Signed off by                       .....

Notes:

# QUICK SET UP GUIDE

**1 Unpack unit carefully.** Make sure that it is in good condition. It is important that you keep packaging for warranty/service return.

**2 Fit the valves if necessary.** The two bigger valves have a "keyway" on their spigot. It is essential that you observe this when fitting. If already fitted check that they are seated properly. (see also valve replacement)

**3 You may connect directly to your source unit** (e.g. CD player) or use the "Record Out" of your (pre) amplifier. Or connect by Bluetooth. See section. **"Loop Through" Facility** (Not fitted to Bluetooth).

This enables you to connect the HP8 between a pre-amplifier and power amplifier for example, or it may be used as a "record out". The "Loop out" does not require the HP8 to be switched on.

**4 Connect to mains** supply using the attached mains lead to 230/240v supply. Outside the UK you may need to change plug or cable, the welded plug must be removed and replaced with a suitable type. **Please then remove fuse and dispose of carefully away from children.** The replacement plug should be wired in the following way Brown to Live terminal, Blue to Neutral terminal and Green/Yellow to Earth terminal.

## 5 Connect your headphones and SWITCH ON!

The red mains indicator should light up and unit will take approximately 40 seconds to start working. All valves should have a visible orange glow from the cathode heaters. With the volume control set to minimum (fully anti-clockwise) there should be no sound coming from your headphones except a barely discernable hum.

### 5a, Headphone Impedance

The right hand knob marked **L M and H** refer to the matching impedance of your headphones and are banded as follows:

Low	8-40 Ohms	(nominally 16)
Med	30-300	(nominally 100)
High	250-1000	(nominally 600)

Where there is overlap choose whichever sound you prefer.

**6 Your unit should now be functioning.** If not check wiring again and/Use selector/tape monitor/volume to choose source program and suitable listening volume. The best sound quality will be when the unit has warmed up for at least 20 mins.

**7 Health and Safety.** The valves when operating have moderately high surface temperatures. Keep out of reach of children and pets.

**Under no circumstances operate with valves removed!**

## Connecting inputs & outputs

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.

### Inputs

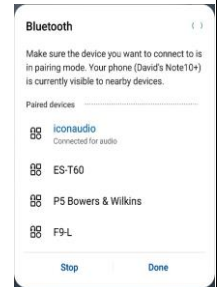
The amplifier will work with any standard piece of hi fi e.g. CD, Tuner, Tape Deck, Mini Disc, TV, Video Recorder, DVD etc.

## Bluetooth Operation

(Where fitted)

1. Attach antenna to rear of amplifier unit.
2. Switch on and connect headphones. To start Bluetooth pairing operation switch the rear selector to "Bluetooth".

3. Now open the Bluetooth menu of your phone (or other device) and search for "iconaudio" in the list, then "pair" with the HP8. If connection does not work you may have to switch off the HP8 and try gain. Follow the instructions for your Bluetooth source unit.



4. Select and play music as required.
5. Note the maximum range may be limited by walls, furniture and other interference sources.
6. In most cases once "Paired" re-connection will be automatic. Bluetooth is activated at switch-on. To reset the Bluetooth circuit switch off for a few seconds.

Low level Interference:

Under some circumstances Low level noise may be experienced due to interference from other sources and may even break through when Bluetooth is not in use. This not a fault. If you do not need to use the Bluetooth board it may be disconnected by unplugging the small two wire lead from the internal board. Remove power lead before opening.

## General points

- Mobile phone 'breakthrough' may happen if your phone is too close to the HP8.
- A switch-off 'click' through the headphones is normal.
- Valves get hot beware!
- Storage in damp conditions could damage transformers.

### Connecting Leads

Use good quality connecting leads, which are no longer than they need to be.

### Leaving the HP8 switched on

Whilst the amplifier will sound at its best when it is properly warmed up after about 10 minutes, there is no advantage leaving it switched on continuously when it is not in use. It is using electricity and using up valve life. Conversely the valves and other components are stressed more at switch on; therefore do not switch on and off unnecessarily. **Although the amplifier should sound good within a few minutes, like most hi fi units it will take a couple of months of regular use before it is fully 'run in'.**

### 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. Always clean with the power disconnected.

## CAUTION – HEALTH & SAFETY!

When making any adjustments remember to isolate from power supply.

**Like all valve amplifiers there are hazardous voltages inside which when switched off can take several minutes to discharge! Do not remove bottom panel unless you are a competent engineer. There are no user serviceable parts inside. Like other household electrical appliances do not leave unattended whilst switched on.**

**It is essential to install the HP8 on a stable non slippery surface when it cannot be easily be moved by accidental pulling of the headphone cable.**

## Trouble Shooting

### Amplifier Dead

Check the 1amp (2amp USA) mains fuse which is in the IEC mains socket on the rear (one fuse is a spare). Replacements should be 20mm 1 or 2 Amp 'anti-surge' or "T" type. These are available from Icon Audio should you have any difficulty.

The fuse in the UK mains plug should be a 3 or 5 amp fuse, although unlikely, this should be checked if the amplifier fuse is OK.

### No sound

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

### Distorted sound.

Try another source; if sound improves then it's probably something wrong with the first source. If no improvement try different headphones, if no improvement could be an amplifier problem.

### Background Noise

Rarely a valve may start to make intermittent "rustling" or "crackling" noise. Almost always on one channel. If this becomes a problem you can find out which valve by swapping the larger 6SN7/CV181 over. If the noise stays on the same channel it is probably the small 12AX7/ECC83. Also see "Valve replacement" and "Bluetooth" sections.

### Hum Problems

Excessive hum is generally caused problems external to the HP8 by a poor grounding in the signal lead, or a 'hum loop' caused by having too many earths. At a normal volume (10 o'clock) there should be almost no hum or noise when the rear input is disconnected.

### One channel missing.

Usually 'bad' connection on either the input or the headphones. Try swapping the connection over to establish if the cause is:

**(a) Input to the amp.** Sound will move to the other channel.

**(b) Amplifier or headphones.** Sound will not move.

Strange noises coming from headphones

Turn volume to minimum on unused input, if problem corrected either fault with source unit or with connection. If noise persists, problem with amplifier.

A valve that is lit up is not a guarantee that it is working properly; conversely a valve that is not lit up will not be working.

## Valve Replacement

This is very easy, Switch off, disconnect from mains. Carefully remove the bigger 6SN7/CV181 valves,

these should be held by the base using a "rocking motion" when removing to prevent damage. When replacing note the alignment of the central spigot. This is easily broken. (These valves also have an alignment "key" and will only fit in the valve base one way, do not use excessive force; accidental wrong insertion would cause damage). The ECC83/12AX7 may be removed by gently rocking and pulling. When replacing note the pin positions.

Do not operate without valves!

Valve life will depend upon such things as hours of use and number of on/off cycles, As a rough guide we would estimate maximum life of approx 4 to 10 years. But this can vary and early failures are not unknown.

### What can happen?

A valve is at the end of its life if one of the following happens:

- The valves wear out gradually reducing the sound quality.
- Any of the two glowing heaters could fail in any one of the 6SN7s or the ECC83 (12AX7)
- A valve could get "noisy" or excessively "microphonic" (all valves are a little microphonic).
- A valve can go noisy with rustling/crackling noise.
- The valve works intermittently.
- An air leak causes the valve to fail and the silver "getter" material to turn white.

**To maintain the sound quality we recommend the valves be changed every 2-5 years to maintain the full sound quality. A new set of valves will give you back a "NEW" HP8!**

**Icon Audio can supply a new set of valves which have been tested in the HP8 to assure you of the sound quality. These range from standard to "premium" types.**

**It is essential that only the correct valves are used as some similar looking valves have a different pin connection and insertion could result in damage to the amplifier and risk of electric shock.**

It is not good practice to remove the valves unnecessarily as this can strain the pins and cause micro air leaks. Icon Audio are happy to check valves and check to performance of your amplifier, and advise on the latest upgrades available FOC.

**Service:** Should you suspect a problem, you could return the unit to your dealer or Icon Audio for a periodic service or return the valves for testing free of charge. You should carefully remove the valves they should be well packed in cardboard & foam or similar, and returned to Icon Audio. (Valves are very rugged if packed properly).

We welcome any comments you may have regarding errors or omissions in this manual.

Should you need further advice or information regarding the use of this unit please contact us.

### NEW OWNER?

If you have bought this unit from someone else, please register with us by email or post stating your name, address, model, serial number and whom you purchased from in order that we can keep you up to date with upgrades and improvements

## Specifications and Features

- All hand wired point to point
- No printed circuit board to 'colour' sound
- Japanese Blue ALPS volume pot.
- Class A, all Triode circuit
- Output impedance matching from 16 to 600Ω
- 2 x 6SN7/CV181 output valves
- 1x ECC83/12AX7 first stage valve
- Or use ECC81/12AT7 compatible for lower gain.
- 2x 900mw output (depending upon load)
- Signal to noise level -90db
- Freq response better than 20hz-20kHz
- Total harmonic distortion less than 0.2% 1khz
- High quality 2W metal film, & wire-wound resistors
- LED mains indicator
- HQ Polypropylene audio caps or Mundorf upgrade
- Silver PTFE audio cable
- HQ Custom hand wound output transformers
- Gold plated Input terminals
- One line input with "loop out" facility
- 300mv input sensitivity for full output
- 235/117volts 30 watts.1.0 A (2A USA) anti-surge fuse.
- C E, ROHS and WEEE compliant where applicable.
- 16cm W, 28 cm D, 16.5 H, 6 kg (allow space for connections)

(Specifications subject to change, errors & omissions excepted. General 10/03/22)

### Bluetooth Features:

- Uses the CSR8675 chip, one of the best available.
- Bluetooth digital audio signal reception by I2S digital signal transmission with ES9018 chip decoding.
- The analogue audio output is buffered by a Burr Brown OPA2604AP dual op amp MOS FET chip.
- Uses LDAC protocol and supports a sampling rate of 24bit/96kHz, which exceeds the APTX-HD's 24-bit/48kHz sampling rate.
- Uses an advanced DC power supply with multi stage voltage regulator for low noise and high quality operation. The Bluetooth module, DAC chip, op amp chip are powered independently. The op amp uses dual (positive and negative) 13V power supply.

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