icon Audio

LA 4 MK III

Pure Valve Line Preamplifier Instructions

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

designed by David Shaw

Previous model shown with front power switch and gloss paint and upgraded CV181 (6SN7) valves

About the LA 4 MK III

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.

To get the best out of the LA4 MK III. Please read the enclosed notes. We have tried to give you all the information you need. **We would recommend that everyone follows the 'quick set up guide'.** Should you be uncertain about anything to do with your LA4 MK III please contact your dealer.

The LA4 MK III is a line amplifier designed to complement high quality valve or transistor power amplifiers requiring an input voltage of 1volt or greater. Also an attenuated lower level output can be provided on request for more sensitive amplifiers like Leak, or integrated amplifiers that require a lower signal level.

Our philosophy is to use traditional valve minimalist, circuitry. The beauty of valve amplifiers is that they are usually very simple; therefore with the use of traditional point-to point construction, modern high performance low tolerance components, it is possible to achieve very high sonic performance. This simplicity enables us to avoid the use of printed circuit boards, which are not ideal for valve amplifiers despite their common use.

Although technical performance is important, we never forget that sound quality takes overriding priority in our design and production. The LA4 MK III has a massive overload capability and even then would go into 'soft clipping', which is much more benign and easier on the ear than overloaded transistors.

The simplicity of the circuit means that there are much fewer components for the signal to pass through, fewer connections and switches, again adding to the purity of sound. This simplicity also means that we can use higher quality oversized components, such as 2w resistors.

The use of popular valves, which are still in production, means that obtaining replacements is easy and inexpensive when necessary.

In the process of building the LA4 MK III to its high standard no corners have been cut and we have also paid close attention to the appearance.

The remote control has its own separate power supply so the operation will not influence sonic qualities.

The final result is an amplifier with excellent characteristics, with an accurate yet smooth and transparent quality.
The circuit is almost identical to the LA4 MK1, the changes being variable gain and the excellent GZ34 or 274B rectifier.
Various upgrades are available at the time of ordering or may be retro fitted. These include "Mundorf" capacitors and various premium valves which will enhance the performance of the LA4 MK III.

Final Inspection

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

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

To get the best out of your unit and to save time please read this information & keep it to hand for reference

Date ….…./….

Model …….

Amp Serial Number …….

Customer ……

Check amplifier finish	…….
Run 6 hour test	…….
Check all inputs & tape monitor	…….
Sound Quality	…….
Channel Balance	…….
Valve Microphony	…….
Valve Seating	…….
Hum & noise level	…….
RF Test	…….
Remote Control Function	…….
Remote control in box	…….
Serial No sticker and recorded	…….
Mains voltage	110 / 230-240V

IEC socket Fuse	……A
UK Plug Fuse	2A…….
Sales invoice	…….
Credit card receipt	…….
Bias meter	N/A
Transformer Protection	N/A
Upgrades:	
Input valves	…….
Output valve	…….
Rectifier valve	…….
Capacitors	…….
Interconnects	…….

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. Make sure the mains voltage is suitable for your area. If not contact your dealer.

2 Fit the rectifier valve 274B/GZ34/5AR4.
BEWARE ONLY FIT IN REAR CENTRE (see pic P1)
Fit the three *6SN7/CV181, these are normally numbered so that they will be in the same position when first fitted. Otherwise they may be fitted in any order. **Try not pull the 6SN7s by the glass envelope!** This could cause the glass envelope to become detached from the base causing irreparable damage. **Be careful to align to "spigot" or keyway of the valve with the socket before pushing in to place.** *Also Russian 6H8.

3 Connect to source & Output units, e.g. CD, Tuner, Tape, Phono pre amp (if used) and power amp etc via appropriate phono sockets and leads. OUT 1 and OUT 2 are the same. (OUT 2 may be modified to be attenuated see below).
See also Bluetooth section.

4 Connect to mains supply using supplied IEC mains lead to 230/117v supply. If you need to change to a different type of mains plug, the replacement plug should be wired in the following way Brown to Live terminal, Blue to Neutral terminal and Green/Yellow to Earth terminal.

6 SWITCH ON! The LED power 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 the speakers except a barely discernible gentle hum.

7 Your unit should now be functioning. Select correct input and adjust volume. 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 about 20 mins.

8 Health and Safety. The valves when operating have high surface temperatures. Keep out of reach of children and pets. The use of the optional guard is recommend in these circumstances. Always unplug when making adjustments. **Like all amplifiers there are hazardous high voltages inside, which when switched off can take up to 15 mins 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.**

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 having an output of 200mv or more, to get full power. The position of the volume control will vary with the input voltage of different units, 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
The LA4 MK III will work with any tape deck having suitable output, and it is possible to record from any connected source using the terminals marked 'Pre-out'. The LA4 MK III has a 'Tape Monitor' facility, which enables you to use a 'three head deck' or an equalizer.
Some tape decks 'Present a load' to the amplifier terminals, even switched off, which can affect sound quality. If so disconnect when not required.

Remote Volume Control

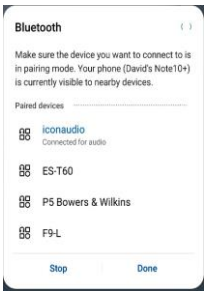
We use a motorised version of the excellent Japanese ALPS "Blue" volume pot with a sensor, control board and handset. Enabling both manual and remote operation. If new, activate by removing the tape from the AAA batteries. Point towards the amplifier and operate as required. The maximum range is about 5M. The volume control automatically re-sets to 9 o'clock at switch on. The batteries should be changed every two years with alkaline types to prevent damage through leakage and batteries should be removed when unit is not inuse.

Bluetooth Operation

(Where fitted)

1. Attach antenna to rear of amplifier unit.

2. To start Bluetooth pairing operation switch the front 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 LA4.

4. Select and play music as required. Set your phone to a high volume.

5. Note the maximum range of 10m 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 re-set the Bluetooth circuit switch power 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.
See also TROUBLE SHOOTING.

General points

- Switching the pre-amp on before the power amp will reduce any "switch on thump, of the speakers" (in some cases).
- Mobile phone 'breakthrough' is normal, move phone away if necessary.
- A switch-off 'click' through the speakers is normal.
- Storage in damp conditions could damage transformers.

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

Leaving the amp switched on
Do not leave the LA4 running continuously. The warm up time of the LA4 is 5-10 minutes. Whilst the amplifier will sound at its best when it is properly warmed up, there is no advantage leaving it switched on when it is not in use. It is using electricity and valves have a finite life. Conversely the valves and other components are stressed more at switch on; therefore do not switch on and off unnecessarily.
The LA4 needs about two months of regular use before it is '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. On no account use anything wet on the amplifier, and always clean with the power disconnected.

CAUTION – HEALTH & SAFETY!
When making adjustments remember to isolate from power supply. High voltages may be present inside for a while after switch off.

Operation

About Gain
This can be confusing but is normally expressed as: Max Gain= 13db (input voltage x4.5) at full volume for the LA4.
In other words at full volume a 222mv input music signal would become 1v (1000mv) at OUT 1&2. e.g. a 50w power amplifier with an input sensitivity of 1v would then deliver full power. (20vx20v=400 /8=50 watts).
But this is not a very realistic situation.
A more usual situation is tabulated below showing the gain

Volume Position	Output mv	Gain
O'Clock		
5:00 (Full)	900	x4.5 13db
3:30	700	x3.5 11db
3:00	500	x2.5 8db
2:00	300	x1.5 3.5db
1:00	**200**	**x1.0 0.0db**
11:00	**100**	**x0.5 -6db**
10:00	**50**	**x0.25 -12db**
9:00	**20**	**x0.1 -20db**
8:30	**10**	**x0.05 -26db**
8:00	**2.5**	**x0.012 -38db**
7.30	**1**	**x0.005 -46db**
7:00	**0**	**x0**

So it can be seen in the blue area that a signal at 1:00 0'clock or below is either unity gain or attenuated.
Only in the white section is the signal being amplified, although in all cases is the signal being "Buffered".

OUTPUT 2 Attenuation
Normally OUT 2 is supplied from new with no attenuation therefore the OUT 2 is identical to OUT 1. Both may be used at the same time without loss of quality.

Trouble Shooting

Amplifier Dead
Check the mains fuse at the back of the amplifier. To gain access, remove the mains lead. The fuse is in a small plastic drawer, which forms part of the socket assembly. To open insert a flat bade screwdriver or similar and prise open. **The fuse in use is the innermost** the outer is a spare. Should the replacement fuse also blow there is a fault. Replacements should be 1Amp (2Amp USA)'anti-surge'. If it is OK try a different IEC cable.
If that does not work refer to dealer or Icon Audio.
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 speakers connected?

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

Hum Problems
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.

One channel missing.
Usually 'bad' connection on either the input or the speakers. 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 speakers. Sound will not move.
Strange noises coming from speakers
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.
If none of the above see below for valve replacement.
If none of the above work see "Valve Replacement" section.

Valve Replacement

The three 6SN7/CV181s are generally very long lasting. With normal use (3h x 365 x 5 years = 5475hrs) We would suggest replacement after 5 years. But valves can suffer sudden failure or "go noisy" at any time in which case single or full replacement will be required depending upon age.

Noisy or intermittent valves May be identified by swapping valves around. The left hand 6SN7 amplifies the LH channel, the right hand 6SN7 amplifies the RH channel. The centre 6SN7 is the right and left output valve.

If you identify a noisy LH/RH 6SN7 it will usually be quiet in the centre position.

The right and left 6SN7s should be matched. The centre valve is not critical so this could be a different type.

We would recommend that Icon Audio supply replacement valves as they will be tested and checked in an LA4 to ensure continued high performance.

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.

Although the three original 6SN7 valves are normally identical it is important that if they are removed, that they are replaced in the same position. We normally number them. The LA4 may also be returned for upgrades including the superb Mundorf silver/gold in oil capacitors which take the performance to a higher level. Ask us for more information.

GZ34/5AR4 and 274B valves

The GZ34/5AR4 are generally very reliable and long lived. The 274B (also 5R4) as they age may suffer internal arcing at switch on as they get older and should be replaced.

The 5U4/GZ37 are not suitable for the LA4.

CAUTION!

Valves get hot and contain dangerous high voltages.
Do not touch during use.
Never operate with valves removed.

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 for testing. (Valves are very rugged if packed properly).

Specification & Features

- No printed circuit board
- Japanese ALPS volume pot.
- All Triode design
- Valve rectifier, 274B/5AR4/GZ34
- High current choke regulated power supply
- 3x 6SN7 Double triode (or CV181 6H8)
- Signal to noise level -90db
- Infra red remote control, volume up/down, mute
- Freq response 10hz-30khz +0 - 0.1db
- THD 0.01%, @ 1khz, 2v rms
- Hand wired point to point components
- High quality 2w metal film resistors, for audio
- LED mains indicator
- Audio grade Polypropylene audio capacitors
- Mundorf silver/gold in oil (option)
- Wired with silver PTFE audiophile cable
- Rubicon/Nichichron power capacitors
- Inputs, CD, Tape, Tuner, Aux, Phono (line level)
- Ceramic valve holders for minimum leakage
- DC heater power supply for minimum noise.
- Gold plated Input & output terminals
- Tape monitor circuit
- Max Gain= 12db (input voltage x4)
- Output impedance 38 ohms
- Maximum output 30 volts (OUT1 & 2)
- Optional safety guard
- Transformers & choke resin sealed to minimise noise & hum.
- 230/240 Volts, 35watts 1A anti-surge fuse
- 117 Volts 35 watts 2A anti-surge fuse
- IEC mains lead, (5amp plug fuse if fitted)
- FCC, C E certified. ROHS & WEEE compliant
- 250W, 370D, 230H with 274B (or 175 with GZ34) 12kg packed. Allow for rear connections & ventilation)

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

Bluetooth Receiver

To give you the best sound quality from your phone or other Bluetooth devices we have used a sophisticated Bluetooth receiver board.

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.

icon Audio (UK) Ltd

351 Aylestone Road Leicester LE2 8TA UK

Email: sales@iconaudio.com

www.iconaudio.com

Phone +44 (0) 116 244 0593

Mobile +44 (0) 7787 158 791