

icon Audio

Instruction Manual Covering:

Stereo 50 ***KT88 Amplifier***



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1 Introduction

Thank you for purchasing the ***Stereo 50***. A great deal of care has been taken in the design, selection of components and production of this amplifier. We are sure that you will hear the difference.

In order to get the best out of your amplifier, please read the enclosed notes. Even if you are experienced with hi fi **please read the 'quick set up guide'**. Should you be uncertain about anything to do with your amplifier please contact us for advice.

Hi fi reproduction is a long chain of events that includes the recording, editing, mixing etc, before being transferred to a medium such as LP, CD, or FM, before being played through your own source unit, the amplifier and finally loudspeakers.

Your room acoustics will also affect the sound before it finally reaches your ear. Whilst the amplifier is arguably the most important part of a system, it is important to remember that the weakest link will always affect the final results when making judgements. And not all recordings are 'equal'! Therefore an amplifier which faithfully reproduces the input signal will also reproduce

imperfections in the tonal balance and the recording itself. Therefore setting up and judgements should be made with a 'clean' well balanced recording.

The ***Stereo 50*** is a push-pull Ultralinear stereo power amp, capable of running in either Ultralinear (half pentode and half triode) or pure triode mode, using the excellent KT88 valves. These are in semi auto-bias mode which whilst rarely requiring attention gives maximum power, cool running and wear indication. The driver and phase splitting is all triode for best sound quality and low noise. The pre-amp is a high quality 'Passive' circuit using silver PTFE audio cable and an ALPS 'blue' volume control. It is sensitive enough to be used with all modern source equipment having an output of 300mv or greater. It may also be switched into power amplifier mode to be driven by a separate pre amplifier. Its simplicity coupled with point to point wiring hand wiring without the use of printed circuit boards results in an open euphoric sound that is wonderfully detailed and warm sounding.

Final Inspection - Your Guarantee of Quality

To assure you of optimum performance and reliability, this amplifier has passed our rigorous final inspection and listening test by the Icon Audio team in Leicester . During which the final set up and adjustments were made.

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

Model

Amp Serial Number

Customer

Check amplifier finish	Soft Start Fitted
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Internal wiring check	Sales invoice
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Check Triode mode	Bottom label
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Run min 6 hour test	Credit card receipt
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Check inputs & tape monitor	Customer survey form
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Output Valve Bias levelv	Bias meter
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Sound Quality	Transformer Protection
---------------------	------------------------------

Channel Balance	Upgrades:
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Valve Microphony	HT delay fitted? ...Y / N
------------------------	---------------------------

Valve Seating	Output valves
---------------------	---------------------

Hum level left/right/.....mv	1 st Stage valve
------------------------------------	-----------------------------------

RF Test	Phase splitter valves
---------------	-----------------------------

LED brightness	Capacitor grade (Audio)
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Serial No sticker and recorded	Capacitor grade (Power)
--------------------------------------	-------------------------------

Mains voltage	110 / 240V	Mains lead
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IEC Mains FuseA	Interconnects
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Signed off by

Notes:

Please note we do not test the standard mains lead.

IMPORTANT READ THESE NOTES THROUGH FIRST!

2 QUICK SET UP GUIDE

1 Unpack unit carefully. Make sure that it is in good condition. If not report to Icon Audio. It is important that you keep packaging for warranty/service return.

2 If Necessary fit the valves, or check that they are firmly in place. The KT88s should be fitted first observing the numbers 1,2,3,4 on the rear of the valve; this corresponds with the four **REAR** sockets from left to right viewed from the front. This is essential as each valve is 'set up' in this position. **Do not push or pull the KT's by the glass envelope**, this could cause the glass envelope to become detached from the base, damaging the valve. Be careful to note the correct orientation of the central "Spigot" between the pins otherwise damage could occur. (Damaged valves are not covered by our warranty)
The small valves are normally numbered 5, 6, 7 and should be gently pushed into place. The middle valve is 6SL7 (6188) and the outside pair are 6SN7.

NOTE: The KT88s and 6SL7/6SN7 are NOT interchangeable! This will cause damage and is dangerous!

3 Connect to source units, e.g. CD, Tuner, Phono pre amp, MP3, AV etc via appropriate phono sockets. A recording device (Tape, CD, MP3) or Equalizer should be connected via "Tape" (input) and "Record out".

4 Connect to speakers Make sure to get the correct polarity of speaker cables. (See speaker connections chapter). If 'bi-wiring' both 'common' should go to the black terminal, and both 'positive' (or red) should go to the red terminals.

5 Connect to mains supply using supplied IEC mains lead to 240v supply. **If for some reason the welded plug must be removed, please remove fuse and dispose of immediately.** (As they can be a danger to children if plugged in). 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 Before switching on make sure that the "standby switch" is in the "up" position.

SWITCH ON! The blue mains indicator should light up. Leave for at least 60 seconds for the valves to warm up, and then push the "standby" switch into the "down" position. The amplifier should now be 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 discernable gentle hum. If there are any unpleasant sounds coming from the speakers, switch off and refer to the 'Trouble Shooting' section or contact Icon Audio.

If your unit is fitted with the optional HT delay circuit, only use the "Standby" when switching from "Triode" to "Ultralinear" operation or when the amplifier will not be used for a while.

6a Integrated/Power Amplifier Switch

Located on the rear LH side this switch is normally "UP" for integrated operation (high sensitivity). If use with a pre-amplifier is required, the switch should be "DOWN" in the low sensitivity position. We would recommend use of the tape input with the volume on "FULL" or set as required and adjusted from the pre-amplifier.

7 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. Do not operate at a high volume for the first five minutes to allow the valves to warm up properly.

Please note all these things are normal for valve amplifiers:

- A, Valves can get very hot, BEWARE!
- B, The transformer cover will get quite warm
- C, The amplifier may smell for a few weeks.
- D, Mobile phone 'breakthrough' is normal.
- E, Valves may make a 'tinkling' sound when warming up and cooling down.
- F, One channel may come on before the other at switch on.
- G, There may be a 'click' when switching off.

8 Health and Safety. The valves when operating have high surface temperatures. Keep out of reach of children and pets. The use of the supplied guard is recommended in these circumstances. Always unplug when making adjustments. **Like all amplifiers there are potentially lethal high voltages inside (over 400v DC), which when switched off can take twenty 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.** Do not adjust the KT88 bias pre sets without reference to the manual. Incorrect adjustment could cause the valves to overheat, with resulting in damage to valves and amplifier.

To maintain the best performance of the amplifier you should check the bias of the output valves from time to time (say twice a year). Full details will be found in section 6.

In this manual we have attempted to give you all the information to enable to get the best out of this amplifier, without being overly long or to technical. However we are always keen for feedback on errors or omissions on the information within!

3 Connecting inputs & outputs

Many problems associated with electronic equipment involves connecting leads, which are usually either **'BAD CONNECTION'** or a **'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/audio e.g. CD, Phono pre-amp, Tuner, Tape Deck, Mini Disc, TV, Video Recorder, DVD etc having an output of 300mv or more.

If you wish to use a turntable you will need a suitable phono pre-amp. Your dealer or Icon Audio can advise you. Our new PS1 MM/MC all valve phono stage is an ideal partner.

To use as a power amplifier.

As the ST50 is essentially a power amplifier with a volume control, the volume control will be virtually invisible to the pre-amplifier if turned to the full clockwise position. If you have too much gain, "back off" the volume no more than necessary. If you still have too much gain Icon Audio can modify the sensitivity to your specification. The tape input will provide the most direct signal path. Good quality leads should be used, making sure that you have good connections both ends.

Connecting a tape deck. (Or CDRW/MP3 etc)

The STEREO 50 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'. The STEREO 50 has a 'Tape Monitor' facility, which enables you to use a 'three head deck' or an equalizer, or incorporate into a A/V system.

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 plugs and listening for a change). Therefore for best results do not leave anything connected to these terminals unnecessarily.

Connecting loudspeakers

It is important to use good quality loudspeaker cable. This should be relatively thick and multi-stranded. i.e. QED 'Original' or better. Take care to connect the correct polarity. The use of 'Banana plugs' or 'spade' connections will ensure

a good connection whilst minimising the risk of 'shorts'.

In our experience Icon valve amplifiers are more tolerant of cables, therefore the benefits of some very 'exotic' cables may be less apparent. But this is also personal taste.

As all cables have losses, keeping the speaker cables short is best. It may be better and be cheaper to re-arrange your room and use shorter cables than to spend a fortune on longer cables!

You can either 'hard wire' your cable to the amplifier by baring enough cable to fit in the connector and twist together to avoid any spare strands touching anywhere else (soldering the stands together helps). **Be warned this amplifier does not have an output protection device, which would degrade the sound. So a prolonged short due to strands of wire touching could cause damage.** Alternatively use good quality 'banana' plugs or spade connections, once fitted they are trouble free.

Speaker polarity. It is essential that you observe the polarity of the terminals; they must be the same for the left/right connections at the amplifier end and at the loudspeaker end. Otherwise the sound will be 'out of phase' with the sound stage 'inside out' with reduced bass. **If you are unable to check this or confirm the polarity** (e.g. if you have 'built in' wiring), try the following; Connect the system up and play some music with plenty of bass (e.g. dance music), preferably in mono (FM tuners are usually switchable to mono) and stand the speakers close together. If correct you should hear plenty of bass, if not **reverse the terminals for one channel only, either at the amp or speaker.** You will now hear more, or less bass. The higher bass output is the correct setting to use. Another alternative is to use a test disc. If you are 'bi-wiring' your speakers only two terminals, you must use only 4 or 8 ohms, not both, as this will not load the amplifier properly.

The STEREO 50 is designed to work with full range, low to medium efficiency speakers having impedance between 4 ohms to 8 ohms. Speakers having efficiency of lower than 84db will have greater difficulty in providing a high sound level. But this will also depend upon individual speakers, room size, type of music and positioning etc.

4 Getting the best performance from your amplifier

- Do not leave the amplifier switched on all the time. This is not necessary
- Do not switch off and on without a short rest of 60 seconds (to reset the 'soft start')
- Do not adjust the output valve grid bias without reading the manual
- Do not switch from Ultralinear to Triode without first switching to "Standby"
- Do not operate the amplifier without loudspeakers connected
- Do not use valves other than listed as there could be danger of shock or damage
- Make sure your speakers are in phase.
- Use the best possible source material.
- Use efficient, well-designed speakers.

What is safe maximum volume?

The Stereo 50i Classic will run happily all day long at maximum power; the valves are not stressed any more at full power than at zero volume. Running into gross distortion will however stress the whole amplifier. To find the maximum safe volume, play full range music and advance the volume until distortion occurs, (this is normally between 12 and 3 o'clock on the volume control) back off the volume control about 30 degrees, this is approximately full power. However this position will vary according to the level and type of music and the output of the source unit. For example CD players tend to be higher than say tuners. Be careful of high level transients which could damage the amplifier, speakers and blow fuses.

Triode Switch. This switch causes the KT88's to operate as Triode valves. **As switching will stress the output transformers and could cause damage, switching should only be done when the amplifier is in the "standby" mode or switched off.** The gain in "Triode" mode is almost the same. However the power output is reduced by 50% but you may not notice this unless high sound levels are required. Some people prefer the slightly more "warmer" sound that triode valves produce. Pure triodes are generally more linear in performance and are more tolerant of the speaker load. But results will vary according to your system.

Leaving the amp switched on

We have been asked if the amp should be left running 24/7 without switching off. 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 as valves have a finite life. Use the Standby switch when not continuously in use, to avoid switching on and off unnecessarily.

Standby switch

This switch leaves the valves heated but without power. This prevents "Cathode stripping" at switch on, allows the cathode chemistry to re-form, minimises energy usage, and makes the amplifier available for instant use. However it is not recommended that this mode should be continuously used for more than 24hrs

We would always advise that any item of home electronics is switched off when unattended.

'Burning in'

Although the amplifier should sound good within about 10 mins it can take up to an hour to sound at its best and will take several months of regular use before it is fully 'run in'.

Upgrading Valves!

Quality valves should sound better, have a better service life and maintain their performance longer. The upgrade valves supplied with selected models are the result of careful comparison with other makes. But beware of paying a premium for "New Old Stock" valves where you may be paying for rarity value and not performance.

Cabinet Care

To remove dust we suggest gentle brushing of the polished stainless steel cabinet with a soft paintbrush. Other marks can usually be removed with a damp cloth. The Perspex valve cover 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.

5 Trouble Shooting

Amplifier Dead

Check the 3.15 amp 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 you should disconnect from the mains and seek qualified help or Icon Audio. Replacements should be 1.6 Amp 'anti-surge'.

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

No sound

Have you selected the right input? Is the "Tape Monitor" switch up? Are all 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 it is likely to be an amplifier problem.

Distorted sound at higher volumes may be because one of the output KT88 valves is not working. This could be due a faulty KT88 or one of the KT88 internal fuses blowing. A symptom of this would be no 9v bias voltage at the test point. Refer to an engineer or Icon.

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.

If you have connected both a known good input and a known good speaker to a particular channel without success the fault is probably within the amplifier.

Strange noises coming from speakers

Turn volume to minimum on unused input, if the noise disappears, the fault is with the source or the connection. If noise persists, the problem is with amplifier.

If a whole output valve glows red (other than the heater), often accompanied by a hum through the speakers, switch off immediately, and refer to Icon Audio or a service engineer, as this could be valve failure.

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 (see also section 7)

Valve life will depend upon such things as hours of use and number of on/off cycles, the Standby/HT Delay Circuit if fitted will extend the life of the valve by not stressing the cathode when it is cold. It is not good practice to remove the valves unnecessarily as this can strain the pins and cause tiny air leaks.

Service: Should you suspect a problem, you could return the unit to Icon Audio for a periodic service or return the valves for testing free of charge. You should carefully remove the valves (the KT88s should be held by the base when removing, to prevent damage) numbering them with a marker from left to right as you do so in order that that may be replaced in the same position. They should be well packed in cardboard & foam or similar, and returned to Icon Audio for testing. (Valves are very rugged if packed properly).

Mains Supply

This amplifier is hard wired to work on 230/240v ac. The transformer may be re-configured for 110/120v ac by a qualified engineer. Contact for more information.

6 Bias Adjustment

Read these notes all the way through first.

If you are unsure about any aspect contact your retailer, Icon Audio or a competent service engineer.

The Stereo 50i Classic uses the Icon "semi fixed bias" mode of valve operation. This will only rarely need adjusting if at all as the amplifier can compensate for some valve deterioration. There is only one adjustment. This has the advantage of higher power, and cooler running. However occasionally (once a year) it is advisable to check the bias reading using the supplied meter to ensure best performance from the amplifier. This is a safe procedure which involves measuring 9v DC in the four sockets next to each KT88 and adjusting if necessary.

1, Tools you will need: The supplied meter or one set to measure approx approx 20v (DC), and a small flat blade screwdriver. Adjustment is done at zero volume with speakers connected. Run the amplifier for about 10 mins (if possible) first.

2, Connect: the black probe to the chassis 'earth' by unscrewing the '0' speaker terminal and tightening the probe in the exposed hole. And the other in the test socket adjacent to the valve on test. Set the 'Icon' meter to 20v or the 'black mark'. See pics.



Making the 'earth' connection.

3, Checking Bias: You should get a reading of ideally 9v if each valve is conducting correctly. But this will vary from about 7v to 10v. Bear in mind that your mains voltage fluctuations can affect your readings up to about 10%.



Showing a probe reading 1st output valve

4, Adjusting: If all the valves are high or low, set the 9v by using the single adjusting screw. If one valve is significantly higher or lower, then it may be faulty or life expired. The adjustment is very sensitive so adjust very carefully. If the reading appears a little unstable this is normally due to mains fluctuations. The Stereo 50 uses semi-fixed bias, where the KT88 is allowed to find its own individual fine bias level. Only occasional checking should be necessary. Bear in mind that valves with an output of up to 25% below the others are unlikely to have much of an audible effect of the sound at normal listening levels.

8 Valve Replacement

Important! Do not attempt to change the KT88 output valves without reading these notes. Failure to do so could be both dangerous and damaging to the amplifier. Keep these notes handy.

Take care that you orient the valve correctly before inserting. Line up the centre "Spigot" first.

Health & safety: High voltages are present inside the amplifier and on exposed valve sockets when valves are removed, so take suitable care. It is not necessary to remove the bottom cover. Beware valves get hot in operation!

5, Changing valves: If possible check the bias setting before you attempt to change the valve(s), in order to familiarise yourself with the procedure.

Use a good quality KT88 matched set. This will stop wide variations in bias voltage. Matched sets and odd valves may be obtained from Icon Audio.

If changing all the KT88s be ready to adjust the bias in order not to overload the power supply. Do not allow the reading to go above 12v temporarily whilst you are adjusting. Don't worry how low the reading goes this will not cause damage. Do final adjustment when the amplifier is fully warmed up.

If all is well there should be no more than a barely detectable hum from the speakers, and the amplifier should sound OK When tested.

6, If you cannot set up 7v, then the valve is probably faulty or is unsuitable. (if the reading is zero the individual fuse may be blown, spares inside).

If the valves are brand new, you will need to check again after approximately 10 & 100 hours, after that only occasionally or if you suspect a problem.

7, To avoid damage to the amplifier and electric shock hazard you must use only valves marked KT88 (or 6550), 6SL7, 6SN7. Use only valves which you know to be new or good condition and test the amplifier thoroughly before resuming normal use.

8, Replacing the small valves:

6SL7 (middle) and 6SN7 (outer pair). Neither of these requires any set up procedure. It's just 'plug and play' although care should be taken when removing and inserting not to bend the pins. If this happens gently bend the pins back into shape. (These valves are similar with the same pin connection; accidental wrong insertion would not cause damage).

Icon Audio are happy to check the valves/amp or your re-bias your amp free of charge.

6 Specification & Features

(Typical conditions @ 240v 50Hz)

- KT88/6550 output valves
 - 6SL7 double triodes for first stage
 - 6SN7 double triodes phase-splitter
 - Hand wired point to point components
 - No printed circuit board
 - No tag board
 - Ceramic valve bases for low noise/leakage
 - HT delay circuit to protect cathodes (optional)
 - 55w RMS per channel Ultralinear
 - 27w RMS per channel Triode mode
 - Signal to noise level -90db
 - Freq response 20-20khz +or- 0.1db
 - Power bandwidth 10hz-30khz
 - 0.1% THD
 - Custom hand wound transformers using Japanese long grain steel
 - Choke regulated power supply inc output
 - Supplied with attractive safety guard
 - Minimal feedback used
 - High quality oversized metal film & wire wound resistors
 - Audiophile High quality polypropylene audio caps
 - Japanese 'Blue' ALPS volume pot.
 - Internal wiring using silver gilt cable
 - Valves carefully matched for best performance
 - Gold plated Input & speaker terminals
 - Inputs for CD, Tape, Tuner, Aux
 - Tape monitor loop
 - 300 mv sensitivity for full output (integrated)
 - 1000mv sensitivity for full output (power-amp)
 - 230/240volts, 150watts (zero signal)
 - Standby consumption
 - 3.15 amp rear fuse (with spare)
 - 400W, 380D, 220H, 23kg
 - IEC mains lead, (5amp fused)
 - CE certified. ROHS & WEEE compliant
- Specification subject to change without notice.

9 Guarantee & Shipping

Thank you for purchasing one of our amplifiers. We hope you will be pleased with it.

This amplifier is guaranteed by the dealer you purchased from for 12 months from the date of purchase for parts and labour, excluding shipping. Valves are consumables and therefore on a 12 months pro-rata wear basis. Please keep your receipt as proof of purchase, this will be needed.

All units are individually tested for performance for at least six hours before despatch to you. In the unlikely event that you believe the unit is not functioning correctly, it may be helpful to contact us first as we may be able to assist you. Then we would request that you return the item to us for further action.

You are advised to inform us of any change of address in order that we may keep you up to date of any upgrades or improvements. Check our website.

Exclusions

Claims for any damage to either amplifiers or valves must be reported within three days of receipt.

This amplifier is designed for normal domestic hi fi use. It is not guaranteed for commercial, Public

Address use, or use in other situations. The guarantee becomes void if the unit has been modified in any way not approved by Icon Audio.

10 Packing Instructions

It is essential that the original box and packing be kept in good condition, as this provides vital protection during transit. Please do not write on box, but use removable labels. Should the original box and packaging be lost or become unusable a repacking charge of one hundred pounds will be made.

- Re-use the supplied plastic bag to keep the amp clean and free from damp.
- The mains lead fits in a foam cut-out underneath the amplifier.
- **Insert the piece of cardboard between the transformer cover and the valve guard; this will prevent transformer damage to paintwork during shipping.**
- Valves should be removed, numbered and packed in "Bubblewrap" or similar for protection inside the valve cover.
- If the amplifier is stored in the box, keep upright.

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