

English

Each KLIMAX AKTIV crossover is unique in its manufacture. The casing of the product is precision machined from two solid sections of aluminium alloy. Due to the highest quality of machined finishes, it is often possible to see the grain of the casing. This grain is part of the aluminium alloy's structure and is indicative of an exceptional and individual product, finished to the highest standard.

Important Safety Instructions

Explanation of symbols used in this manual and on the product:



This symbol is intended to alert the user to the presence of uninsulated dangerous voltages within the enclosure of sufficient magnitude to cause electric shock.

This symbol is intended to alert the user to the presence of important operation, maintenance and servicing information in the instruction and service manuals.

For apparatus connected to the mains electricity supply

CAUTION

TO REDUCE THE RISK OF ELECTRIC SHOCK DO NOT REMOVE THE COVER. NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL. REPLACE THE MAINS FUSE IN THE PLUG WITH ONE OF THE SAME TYPE AND RATING. DISCONNECT SUPPLY CORD BEFORE CHANGING FUSE.

WARNING

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE. SHOCK HAZARD - DO NOT OPEN.

MAINS PLUGS

This apparatus is supplied with a non-rewireable mains plug for the intended country. Replacement mains leads can be obtained from your Linn retailer. Should you need to change the plug please dispose of it carefully. A plug with bared conductors is dangerous if engaged in a live socket.

The Brown wire must be connected to the Live (Line) supply pin. The Blue wire must be connected to the Neutral supply pin.

The Green/Yellow wire must be connected to the Earth (Ground) supply pin.

Please contact your retailer or a competent electrician if you are in any doubt.



Important Safety Instructions

General Safety Instructions

- 1. Read these instructions.
- 2. Keep these instructions.
- 3. Heed all warnings.
- 4. Follow all instructions.
- 5. Do not use the apparatus near water, for example near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, near a swimming pool etc.
- 6. Clean only with dry cloth.
- 7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions. Site the apparatus so that its location or position does not interfere with its proper ventilation. For example, the apparatus should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings, or placed in a built-in installation such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
- 8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9. Do not defeat the safety purpose of the polarised or grounding type plug. A polarised plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and at the point where they exit from the apparatus.
- 11. Only use attachments/accessories specified by the manufacturer.
- 12. Use only with the stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus.
- 13. Unplug this apparatus during lightning storms or when unused for long periods of time.
- 14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug has been damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
- 15. Wall or ceiling mounting. Mount the apparatus to a wall or ceiling only as recommended by the manufacturer.
- **16.** Power sources. Connect the apparatus to a power supply only of the type described in the operating instructions or marked on the apparatus.
- **17. Mains plug.** Use the mains plug to disconnect the apparatus from the mains supply. The mains plug must be accessible at all times. Use the mains switch (if applicable) when the apparatus is not in use.
- 18. Power lines. An outdoor antenna should be located away from power lines.
- **19. Outdoor antenna grounding.** If an outdoor antenna is connected to the apparatus, ensure that the antenna system is grounded to provide some protection against voltage surges and static build up. In the USA see article 810 of the National Electrical Code ANSI/NFPA 70 concerning installation requirements.
- 20. Telephone line. Do not connect the apparatus to a telephone line except where specifically instructed to do so.
- **21. Objects and liquid entry.** Do not let objects or liquids fall into the apparatus. Do not expose the apparatus to dripping or splashing. Do not place a vessel containing liquid on top of the apparatus.
- 22. No naked flame sources, such as lighted candles, should be placed on the apparatus.
- 23. The apparatus has been designed for use in moderate and tropical climates.

Important Safety Instructions

UK users please read this important safety information

Fuse replacement

This appliance is fitted with a non-rewireable 13 amp mains plug. The plug contains a 5 amp fuse. If the fuse has blown it can be replaced as follows:

- a) Pull out the red fuse cover/carrier.
- b) Remove and dispose of the blown fuse.
- c) Fit a new 5 amp BS1362 approved fuse into the carrier and push the carrier back into the plug.

Always ensure the fuse cover is fitted. If the fuse cover is missing do not use the plug. Contact your Linn retailer to obtain a replacement fuse cover. Fuses are for fire protection and do not protect against electric shock.

Mains plug replacement

Should your mains plug need replacing and you are competent to do this proceed as follows. If you are in doubt contact your Linn retailer or a competent electrician.

- a) Disconnect the plug from the mains supply.
- b) Cut off the plug and dispose of it safely. A plug with bared conductors is dangerous if engaged in a live socket.
- c) Only fit a 13 amp BS1363A approved plug with a 5 amp fuse.
- d) The cable wire colours or a letter will be marked at the connection points of most quality plugs.

Attach the wires securely to their respective points. The Brown wire must go to the Live pin, the Blue wire must go to the Neutral pin, and the Green/Yellow wire must go to the Earth pin.

e) Before replacing the plug top ensure that the cable restraint is holding the outer sheath of the cable firmly and that the wires are correctly connected.

WARNING

THIS APPLIANCE MUST BE EARTHED.

Waste Electrical and Electronic Equipment (WEEE) Directive

Directive 2002/96/EC of the European Parliament and of the Council

The symbol (right) is shown on this product. It indicates that the product should not be disposed of with regular household waste, but should be disposed of separately.

Electrical and electronic equipment can contain materials that are hazardous to the environment and human health and therefore should be disposed of at a designated waste facility or returned to your retailer for the appropriate recycling to take place (see www.linn.co.uk for further information).

If you wish to dispose of this product and the product still functions, please consider recycling/reusing it by donating it to a charity shop, selling it or part-exchanging it with your retailer.



CE Declaration of Conformity & FCC Notice

CE Declaration of Conformity

Linn Products Ltd declare that this product is in conformance with the Low Voltage Directive 73/23/EEC and Electromagnetic Compatibility 89/336/EEC as amended by 92/31/EEC and 93/68/EEC.

The conformity of the designated product with the provisions of Directive number 73/23/EEC (LVD) is proved by full compliance with the following standards:

Standard number EN60065 Date of issue 2002

Test type General requirements Marking Hazardous radiation Heating under normal conditions Shock hazards under normal operating conditions Insulation requirements Fault conditions Mechanical strength Parts connected to the mains supply Components Terminal devices External flexible cords Electrical connections and mechanical fixings Protection against electric shock Stability and mechanical hazards Resistance to fire

The conformity of the designated product with the provisions of Directive number 89/336/EEC (EMC) is proved by full compliance with the following standards:

Standard number	Date of issue	Test type
EN55013	2001	Conducted emissions
EN55013	2001	Absorbed emissions

FCC Notice

NOTE:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- · Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

· Consult the dealer or an experienced radio/TV technician for help.

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PACK 1230/EFGI

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Introduction

Introduction

As good as it gets.

The installation of the KLIMAX AKTIV* crossover in your hi-fi or AV system will reward you with the ultimate performance. It is difficult to speak too highly of the merits of the KLIMAX AKTIV as it will take you a significant step closer to the real sound of the music or soundtrack, unveiling the true potential of your system. Combined with the KLIMAX range of amplifiers, this product represents the benchmark in audio playback.



* The term 'AKTIV' refers to proprietary Linn active crossovers and loudspeaker configuration.

Loudspeaker crossovers

A crossover is an electrical circuit that splits the audio signal into frequency bands that are suitable for each drive unit (so that only bass frequencies are routed to the bass unit, treble frequencies to the treble unit and so on). If a loudspeaker had only one drive unit, then no crossover would be required, but since no single drive unit is capable of handling the entire frequency range with any degree of accuracy, most loudspeakers require crossover circuits.

There are two categories of crossover – passive and active (AKTIV).

Passive crossovers

If implemented well, a passive crossover can help to provide a good sound from a capable loudspeaker. However the design of any passive crossover is, by its very nature, fundamentally limited and it can only act as a rather basic filter. Large capacitors, inductors and resistors combine to remove unwanted frequencies from each frequency band of the large loudspeaker-level signal in order to ensure the signal is suitable for the drive unit. Passive crossovers can therefore only ever give out a lesser signal than is put in, since each crossover absorbs – or worse, sometimes reflects back into the power amplifier – the parts of the signal that it filters out. Most of the energy that is prevented, by the passive crossover, from reaching the loudspeaker drive units is expended by the amplifier as heat. This inherent inefficiency can mean that, for some loudspeakers, a third or more of the power produced by the amplifier is wasted by the crossover. With the amplifier working much harder than is necessary, this greatly reduces the level of control that it has over the drive unit, adversely affecting the system performance.

There is also the problem of the passive filter being connected between the amplifier and the drive unit. This means that the signal is impeded – an effect that is particularly prevalent with the bass signal. Another difficulty arises with the layout of the crossover: physical proximity of components to each other and to other metallic parts can lead to crosstalk (signal leakage from one part of the circuitry to another) and other unwanted effects, again compromising the performance.

Since higher volume levels tend to exacerbate all the above problems, when a passive crossover is used, accuracy and power are limited and signal integrity is likely to be compromised.

AKTIV crossovers

In comparision, an AKTIV crossover has none of the disadvantages found in its passive counterpart.

The signal that is processed by AKTIV crossovers is un-amplified 'line-level', so is very much smaller than the amplified loudspeaker-level signal that is processed by passive units. This allows the electronic components that carry out the filtering to be very small, highly efficient and extremely accurate. AKTIV filters are built around amplifiers, so gain – or signal increase – is easily available to make adjustments to the signal wherever that may be required (gain is something that is simply not available to passive crossovers). Therefore each adjustment of the signal response in an AKTIV crossover, over and above the basic filtering process, is a fairly simple job, allowing AKTIV crossovers to be designed to precisely match the acoustic properties of each drive unit.

The sophisticated and precise response correction found within an AKTIV crossover is thereafter uninhibited by any further filtering as the amplifiers are direct-coupled to the drive units, allowing the entire amplified signal to be delivered to the drive units. Avoiding the wastage that is inherent in passive designs makes the job of the power amplifiers very much easier and, rather than having to overcome loss and the other problems associated with passive crossovers, they can focus their energy on producing a much better quality of audio.

The benefits do not end there however: AKTIV systems use one amplifier channel per drive unit so each channel has a much less challenging job to do than one which is required to drive a number of units. This provides yet another advantage: if the system is being played very loudly and one amplifier channel clips (i.e. plays a signal which is beyond its power capability, causing flattening of the top of the waveform), this only affects the specific frequency band handled by that amplifier and the others will play on as normal. As a result, any distortion caused by clipping is much less likely to be noticed. An AKTIV system will therefore play very much cleaner than a single-amplifier passive system, especially at higher volumes.

As a result of the advanced design of the Linn AKTIV system, the overall sound is much more natural, accurate and effortless. The apparent ease with which it handles even the most demanding of soundtracks belies a product that is seething with the very latest technological advances. Once your Linn retailer has installed and adjusted your KLIMAX AKTIV crossover, all you have to do is sit back and listen.

Introduction (continued)

The KLIMAX AKTIV crossover

Casework

Each of the two parts making up the KLIMAX AKTIV casework is machined from a solid ingot of aluminium and then hard anodised. As undeniably beautiful as this is, the aesthetic charm of the casework is considered by Linn designers to be very much secondary to its main function, which is to isolate its circuitry from the outside world. The air is awash with electromagnetic and electronic noise from devices such as radio transmitters, mobile phones, satellites, mains and mains-powered devices. Electronic components can be adversely affected by this noise but the considerable mass of the metal that forms the product's casework provides the components with almost total isolation from the outside world, allowing them to easily and consistently function to their very best.



Introduction (continued)

Power supply

The KLIMAX AKTIV crossover incorporates the proprietary Linn Switch Mode Power Supply (SMPS).

The SMPS takes the place of the noisy, bulky and inefficient power supply normally found in conventional audio products (consisting mainly of a transformer, voltage rectifiers and reservoir capacitors). SMPS provides excellent tolerance to lesser quality mains supplies, allowing it to perform at close to its best, even with mains supplies that are quite badly corrupted.

Further benefits of switch mode technology are compactness, high efficiency, fast response, good mains input tolerance, good load tolerance, low acoustic noise and, with its low material use, environmental friendliness.

The SMPS is housed in its own distinct machined-from-solid chamber within the product casing. This arrangement very effectively shields the audio circuitry from the power supply circuitry and the electrical noise that unavoidably emanates from it.

Audio circuitry

The KLIMAX AKTIV crossover is a no-compromise Linn product so you can be certain that only the very best components and technologies available, as well as renowned Linn design innovations, are used throughout.

The audio filters utilise the very latest technology, including 'surface-mount' printed circuit manufacture. Surface-mount components are, as the name suggests, mounted and soldered on the surface of the circuit board. The other type of component – thru-hole – has pins which are passed through holes on the circuit board and soldered on the reverse side. This may seem like a minor distinction, but surface-mount manufacture allows the components to be dramatically reduced in size. Very small integrated circuits and tiny discrete components are combined in a configuration that makes the audio path as compact as possible. This provides the audio signals with the shortest and easiest route and also minimises the possibility of extraneous noise or distortion being introduced.

The use of surface-mount technology also allows the process to be automated, which improves the quality and consistency of the manufacturing process.

Installation

Installation

It is strongly recommended that your KLIMAX AKTIV crossover is installed and adjusted by an authorised Linn retailer.

Unpacking

The KLIMAX AKTIV crossover is heavy (10 kg / 22 lb) so be careful when handling.

The unit is supplied with the following accessories:

- Mains lead
- This manual
- A reference card detailing the back panel connections and controls, specific to your model of KLIMAX AKTIV.

Positioning

Due to its highly advanced circuitry and the shielding provided by the casework, your KLIMAX AKTIV crossover can be placed almost anywhere you find convenient; however, please take note of the following:

- Ensure the mains socket to which the product is connected is accessible to allow the unit to be powered down when not in use.
- The unit should not be placed in a situation where it will be subjected to excessive heat.

Wall-mounting is an option, using the specially designed wall-mounting bracket (Linn part no: LINN V-CLIP). The same bracket is used to wall-mount KLIMAX amplifiers, so the KLIMAX AKTIV crossover can be mounted alongside the amplifiers to provide a highly attractive array.

Installation (continued)

Connecting

Important notes

Before making any connections, ensure that all products in your system, including the KLIMAX AKTIV, are disconnected from the mains supply.

When using Linn interconnect cables, please note that the cables are directional. For best performance, the direction arrow on all cables should point (electrically, rather than physically) towards the loudspeaker.

Mains

The KLIMAX AKTIV crossover must always be earthed when connected to mains power. Use the earthed, moulded mains lead supplied. Never use an unearthed mains plug, socket or adapter with this unit. The mains lead supplied may be fitted with a fused plug, depending on local regulations. If this is the case, always replace this fuse with another of the same type and rating.

The unit can be connected to any worldwide mains voltage with no adjustment. It incorporates Automatic Voltage Selection (AVS) and the power supply automatically adjusts for the incoming mains supply.

Back panel (example)

Since back panels vary from model to model, please refer to the reference card (supplied with your KLIMAX AKTIV) for connection and adjustment details specific to your model. If this card has been misplaced, it can be downloaded from the Linn website at www.linn.co.uk.

The illustration below provides an overview of a typical back panel, however please note that features vary. Not all features shown are available on all models and certain features may be positioned on the back panel differently to what is shown in the illustration.



Installation (continued)

Inputs

The KLIMAX AKTIV crossover is fitted with 'balanced' (3-pin XLR) and 'unbalanced' (RCA phono) inputs. Use **either** the balanced or the unbalanced input, and use the switch to select.

If you are using the unbalanced input, ensure that the adjustment switch is set to the 'in' position. Use a cable terminated with an RCA Phono plug to connect.

If you are using the balanced input, ensure that the adjustment switch is set to the 'out' position. Use a Linn balanced interconnect cable (e.g. Linn part no: CONN 889) or an interconnect lead with its connections configured to match with the KLIMAX AKTIV input connections – as shown, right.



Balanced or unbalanced?

If the cable connecting the control amplifier to the KLIMAX AKTIV crossover is less than about 3 m (9') an unbalanced connection will generally provide better performance. If the cable requires to be longer than this, we recommend the use of either an unbalanced phono cable that provides heavy outer screening or a balanced cable (the design of balanced connections means that they are less susceptible to picking up electrical noise).

If you wish to use a balanced cable, but your control amplifier does not have a balanced output connector, a phono-to-balanced cable can be made up as illustrated below.



Installation (continued)

Outputs

See the reference card supplied for connection instructions for your model of KLIMAX AKTIV.

Important notes

Wrong connection could result in damage to loudspeaker drive units.

The KLIMAX AKTIV crossover should only be used with a loudspeaker that has been manufactured or upgraded to AKTIV specification. Using an AKTIV crossover with a passive loudspeaker will result in poor performance and could also damage the amplifiers and loudspeakers.

Tip

When first playing your system after connection of the KLIMAX AKTIV crossover, adjust the volume down to 0 before playing (do not use 'Mute' as, with some controllers, raising the volume may suddenly restore it to its original setting). Play a track, then turn the volume up a few steps until the sound becomes only just audible and carefully check that the correct sound is coming from each drive unit (treble from the treble units, bass from the bass etc). By doing this, if any connections turn out to have been made incorrectly, damage to drive units is unlikely to occur.

Fine-tuning

Once your KLIMAX AKTIV crossover is installed, some tuning of the sound may benefit the performance. Firstly, ensure that your loudspeakers are correctly installed, positioned, levelled and connected. Correct loudspeaker positioning is important for obtaining optimum system performance – your Linn retailer will be happy to advise. Fine tuning of the AKTIV crossover thereafter can focus the sound to its very best but cannot, by itself, overcome the problems associated with poor loudspeaker installation or positioning.

The performance of the system may also be affected by the room acoustics, which are dependent on many factors, including room size, shape, contents and textures. The information below will assist in helping you to achieve optimum sound from your system.

Adjustment switches

The KLIMAX AKTIV crossover is provided with rotary adjustment switches on the back panel. See the reference card supplied for details on adjustments available on your model of KLIMAX AKTIV. The factory settings will provide the best performance in the majority of room settings; however, if a room's acoustics are found to be a little bright or perhaps a bit bass-heavy, these switches allow the parameters to be fine-tuned, in order to more closely match the system's performance to the room acoustics.

When making adjustments, the loudspeakers must first be correctly positioned and connected (consult your retailer or your loudspeaker owner's manual). Then play a passage of music and listen, using the TUNE DEM method, i.e. how easy is it to follow the tune? Make a single adjustment and listen to the same passage of music again. Is it easier or more difficult to follow the tune?

Continue to do this (adjust / listen / adjust etc), one parameter at a time, until you focus the sound to its optimum, in terms of tuneful performance.

Tip

If you are adjusting the switches and cannot see or read the back panel, it should be noted that each switch has two Mute settings that can be used as a reference. So if you are adjusting the switch clockwise as you face the back panel (= anti-clockwise if you are facing the front panel), find the two muted settings and the next position round is the lowest setting.

Room acoustics

For certain rooms it may also be beneficial to alter the room layout in order to achieve the very best sound.

If the sound seems overly bright, even after the adjustment switches have been set, adding more in the way of soft materials will usually help – e.g. carpets, rugs, wall-hangings, heavy curtains, large cushions, sofas etc. If the sound seems dull, reducing the amount of soft materials in the room can help. Also, breaking up flat, unbroken surfaces such as large areas of wall, ceiling, floor and large windows with furniture, fittings and other irregularly shaped items can prevent echoes and 'standing waves' (when sound waves bounce back and forth across a room instead of being dispersed).

If you alter the acoustics of the room, it may then be necessary to re-adjust the loudspeaker settings to match the new characteristics of the layout.

If you have any difficulties in achieving the best from your KLIMAX AKTIV system, your Linn retailer will be able to examine your room and system setup and advise you on appropriate measures.

Technical Specifications

Dimensions	W 300 mm, D 355 mm, H 60 mm W 13.8", D 13.9", H 2.3"
Weight	10 kg 22 lb
Input connectors	
Balanced	RCA phono
Unbalanced	XLR
Input impedance	7.8 k Ω
Output connectors	
Balanced	RCA phono (all models)
Unbalanced	XLR (KOMRI and ARTIKULAT models only)
Output impedance	100 Ω
Mains input range	90 Vac – 126 Vac
	200 Vac – 253 Vac
Mains frequency range	50 – 60 Hz
Protection – fuse rating	T800 mA
Power consumption	10 W maximum

Guarantee and Service

This product is guaranteed under the conditions that apply in the country of purchase and your statutory rights are not limited. In addition to any statutory rights you may have, Linn undertake to replace any parts that have failed due to faulty manufacture. To help us, please ask your Linn retailer about the Linn warranty scheme in operation in your country.

In parts of Europe, the United States of America and some other markets, extended warranty may be available to customers who register their purchase with Linn.

A warranty registration card is included with the product. It should be completed and returned to Linn or its appointed representative (see warranty card for full details).

Alternatively, register online at www.linn.co.uk.

Warning

Unauthorised servicing or dismantling of the product invalidates the manufacturer's warranty. There are no user serviceable parts inside the product and all enquiries relating to product servicing should be referred to authorised retailers only.

Technical support and information

For technical support, product queries and information, please contact either your local retailer or one of the Linn offices overleaf.

Full details of your local retailer/distributor can be found on the Linn website: www.linn.co.uk.

Important

- Please keep a copy of the sales receipt to verify the purchase date of the product.
- Please ensure that your equipment is insured by you during any transit or shipment for repair.

Guarantee and Service

Linn Products Limited

Glasgow Road Waterfoot Eaglesham Glasgow G76 0EQ Scotland, UK

Phone: +44 (0)141 307 7777 Fax: +44 (0)141 644 4262 Helpline: 0500 888909 E-mail: helpline@linn.co.uk Website: www.linn.co.uk

Linn Deutschland GmbH

Hühnerposten 1d D-20097 Hamburg Germany

Phone: +49-(0) 40-890 660-0 Fax: +49-(0) 40-890 660-29 E-mail: info@linngmbh.de Website: www.linn.co.uk

Linn Incorporated

8787 Perimeter Park Boulevard Jacksonville FL 32216 USA

Phone: +1 (904) 645 5242 Fax: +1 (904) 645 7275 Helpline: 888-671-LINN E-mail: helpline@linninc.com Website: www.linninc.com