



naim audio

MANUFACTURERS OF AUDIO EQUIPMENT

NAIM AUDIO LIMITED, SOUTHAMPTON ROAD, SALISBURY, ENGLAND SP1 2LN.
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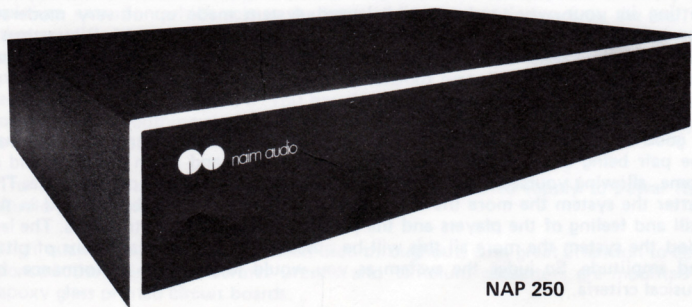
The System

PRECEDENCE

The choice of components for a hi-fi system is governed by the basic rule that no component can improve the quality of its incoming signal. The very best that any individual component can do is deal faithfully with its input without loss of musical information. The hierarchy thus established is simple and logical, and can be heard in any good demonstration room.

In a system for playing records the turntable comes first, then the arm, then the cartridge. The best turntable with a cheap arm and cartridge will always outperform a moderate turntable with the best possible arm and cartridge. Everything follows from the turntable, which is the most influential individual component in a system for playing records. The arm, in its turn, is more important than the cartridge, so that a good arm with a cheap cartridge will outperform a moderate arm with a better cartridge. The cartridge ranks third.

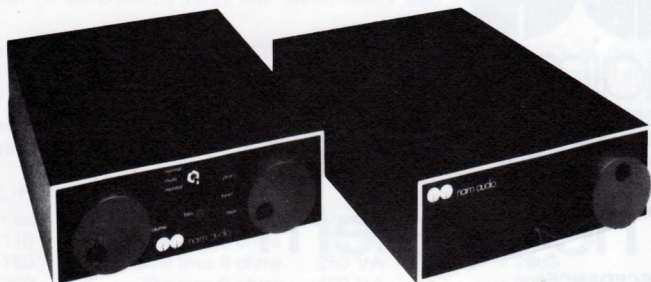
The preamplifier and amplifier come next, in that order. If the preamp is inadequate it will make nonsense of the demands of a good cartridge, but neither amp nor preamp can improve the quality of their incoming signal, and the better they do their task the more clearly they will expose, instead of masking, any faults in that signal. They are not the most important part of the system.



NAP 250

NAC 42

NAP 110



Loudspeakers come last of all. The loudspeaker is the slave of the amplifier, and moderate speakers, properly driven by a very good amplifier, will outperform speakers that are potentially the best possible, but are less well driven. The loudspeaker ranks lowest in the hierarchy of the system. And it cannot improve the quality of its incoming signal.

BALANCE IN THE SYSTEM

When the loudspeakers are the weakest link in the system then, and only then, improving them will enhance the system. Improving the amplification will enhance the system but only if it is inferior to the potential and demands of the turntable, arm and cartridge. Improving the cartridge will enhance the system, but only if it is inferior to the potential of the arm and turntable, and if the preamplifier can handle the greater demands made by high-quality cartridges.

The aim of the system is to allow you to respond to music without the system getting in your way, and a well-balanced system made up of very moderate components that mask each other's faults may allow you to do this better than a badly balanced system containing the best amplifier or the best loudspeakers that can be obtained. You will want to listen to music, not to our amplifiers.

A good demonstration takes place in a room with no loudspeakers in it other than the pair being demonstrated, in which you can relax and listen as you would at home, allowing yourself to respond naturally to all aspects of the performance. The better the system the more the intentions of the composer will be revealed in the skill and feeling of the players and the precise quality of the instruments. The less good the system the more all this will be obscured by minute alterations of pitch and amplitude. So judge the system as you would judge a live performance, by musical criteria.

Control Units

DESIGN CRITERIA

We consider the most important circuit in a preamplifier to be the phono input stage, which must accept the output from a phono cartridge without loss of information. The total output of the cartridge must be considered, equally the effect of its impedance on the circuit.

We have employed a new concept in our preamplifiers. The initial stage is linear with a small gain, and the RIAA equalisation is divided into two parts. Complete theoretical and practical stability is attained in this way, with a much wider open loop bandwidth than is normally possible. The resultant overload capability is maintained over the whole audio bandwidth.

Our experience has shown that tone controls and filters do not improve the musical performance with a system of this calibre, even when playing old and dirty records, due partly to the excellent stability and overload margin of the preamplifier and partly to its outstanding transient handling capability.

NAC 42

This is a simple preamplifier designed to meet the basic requirements of the serious audiophile. Facilities are limited to a phono input, tuner, tape, and a monitor/mute switch. The preamplifier is available with phono input boards to suit either low output moving coil cartridges (type 42S) or high output magnetic cartridges (type 42N).

Internally the NAC 42 comprises a mother board having on it the high level audio circuitry, and two daughter boards containing the phono input stages. The boards are interconnected with gold-plated precision connectors.

NAC 32

The basic electronic circuitry of the NAC 32 is similar to that of the NAC 42, but more facilities are available. These consist of volume and balance controls, and selector for two phono, one tuner and two tape inputs. The tape sockets have input/output connections, and the tape monitor switch has a mute facility. Tape inputs are buffered and the outputs are fed from a 600 ohm source. The tape monitor facility is automatically switched between tape 1 and tape 2, with tape 1 having precedence.

No. 1 phono input is suitable for moving coil cartridges, and no. 2 phono input is suitable for high output magnetic cartridges.

There are two main output sockets. The NAC 32 also has a mono/stereo switch which operates on all outputs.

Internally the NAC 32 consists of a mother board with eleven daughter boards interconnected with gold-plated precision connectors. Both the NAC 42 and the NAC 32 have phono sockets for interconnection with pick-up cartridges, and locking DIN sockets for all other connections. Delayed switch-on circuitry provides thump-free turn-on. Power is supplied from a regulated supply in the NAP 110 & 160, or a separate power supply is available. This ensures hum-free operation and enables correct earthing to be used.



NAC 32

PREAMPLIFIER SPECIFICATIONS

Input sensitivities	Phono 1 and NA 323, 100 μ V, 470 ohms. Phono 2, and NA 322, 2mV, 47k ohms. Tuner, Tape 1 and 2, 75mV, 100k ohms.
Output levels and impedances	Tape 75mV, 600 ohms, Main outputs 1V, 47 ohms.
Overload margins	40dB on all inputs at all audio frequencies.
Size	76mm x 205mm x 300mm.

PREAMPLIFIER POWER SUPPLY

The SNAPS has two 24V outputs, one of which supplies the preamplifier, while the other may supply the NAXO crossover. Both outputs are required for the NAC 42XO.

NAIM AUDIO NAXO ELECTRONIC CROSSOVER

This crossover is a 2-way or 3-way 18dB per octave fixed frequency unit. The crossover frequencies are defined by a series of active filters which have been designed with particular regard to their transient handling abilities. The filter frequencies have to be matched to the loudspeaker system with which the unit is going to be used and therefore the NAXO is not available as a separate item.

The Linn Isobarik type PMS is the first speaker system to be equipped with a NAXO crossover unit. Filter frequencies to suit other loudspeaker systems may be computed at extra charge.

The output level is internally adjustable both for frequency and channel balance using enclosed cermet pre-sets. The crossover has delayed switch-on circuitry to ensure thump-free turn-on.

Internally the NAXO 3 consists of a mother board with eight daughter boards, type NAF, interconnected with gold-plated precision connectors. The NAXO 2 uses the same mother board with four NAF boards, and may be converted into a NAXO 3 by changing these as required. Power is supplied from a separate power supply, type SNAPS.

Impedances: input, 20k ohms; output, 47 ohms. Size: 76mm x 205mm x 300mm.

NAC 42XO

The NAC 42 is also available with a built-in 2-way electronic crossover, which is of a similar design to the Naim Audio NAXO electronic crossover. The Linn SARA is the first speaker system to be equipped with the NAC 42XO. The crossover is available as a retro-fit kit.

Power Amplifiers

DESIGN CRITERIA

The purpose of an audio amplifier is to drive loudspeakers without loss of musical information. In our view many commonly accepted parameters have little to do with loss of information and in some instances, such as the pursuit of large bandwidths or low distortion, unqualified acceptance of them can actually lead to the creation of mechanisms that cause loss of information. Dynamic output impedance, open loop bandwidth, slew rate, propagation delay and stability margins are only some of the many other factors to which we attach importance, and which must all be brought into positive balance.

To this end our amplifiers not only achieve low harmonic distortion, low noise and wide power bandwidth, but also have a constant dynamic output impedance over the whole audio bandwidth. They are able to drive reactive loads without any appreciable change in distortion and are not sensitive to the absolute impedance of the load.

FREQUENCY RESPONSE

The frequency response of our amplifiers at the bass end is dependent on the gain decoupling capacitor, and the half power bandwidth extends to below 5Hz. At the top end the response is controlled by a passive single pole filter and is 3dB down at 40kHz. The amplifiers do not slew rate limit within this frequency bandwidth.

PROTECTION

The amplifiers will tolerate any load from 0 ohms to infinity without damage or instability, the output stages being protected by circuitry that measures the power dissipated. Prolonged running conditions of high dissipation will cause the amplifier to become quite warm and should the case temperature exceed 70° C the mains supply will be interrupted until the amplifier has cooled down.

CONSTRUCTION

The cases of the power amplifiers are similar and are constructed of heavy aluminium extrusion which acts as the heatsink. All connections are on the rear. All the amplifiers have large toroidal mains transformers, these and all the other components are secured firmly to an inner chassis. The NAP 250 has four regulated power supplies, each of which is rated at 40 volts and able to deliver more than 10 amps continuously. The NAP 160 has dual rectification, and each channel has its own pair of smoothing capacitors. The NAP 110 uses one diode bridge and one pair of smoothing capacitors.

The NAP 160 and NAP 110 have a built-in 24v regulated supply to power Naim Audio preamplifiers.

High quality components have been used throughout, with great attention to detail construction. Enclosed cermet presets and tantalum capacitors are mounted on epoxy glass printed circuit boards.

NAIM AUDIO BROADCAST & PROFESSIONAL AMPLIFIER

The NAB 300 is intended for use in situations requiring continuous high S.P.L.s. The power output is similar to that of the NAP 250 but in addition it is fan cooled and can be continuously rated into loudspeakers with impedances as low as 2.5 ohms.

The construction of the NAB 300 is designed for the convenience of the professional, and is 3 U. 19 inch rack size. The cannon connectors are recessed on the rear of the amplifier to avoid damage.

The two amplifier channels are completely separate, each one having its own 500 VA transformer, rectifiers, smoothing capacitors and mains fuse.

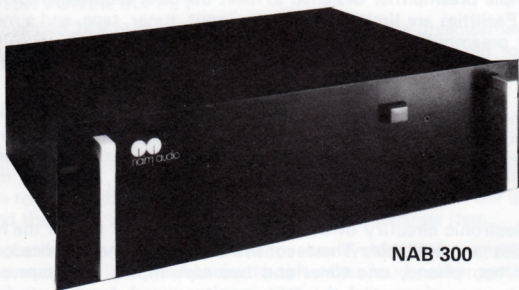
AMPLIFIER SPECIFICATIONS

Power output	Continuous	Transient	Voltage gain
NAP 110	40w into 8 ohms	150 VA	+ 29dB
NAP 160	50w into 8 ohms	250 VA	+ 29dB
NAP 250	70w into 8 ohms	400 VA	+ 29dB

Impedance: 22k ohms, Operating temperature: 0 to 50°C.

Mains supply: 240V or 120V, 50 or 60Hz.

Size: NAP 110, 76mm x 205mm x 300mm. NAP 160 & 250, 76mm x 430mm x 300mm.



NAB 300

LOUDSPEAKER CABLE

Naim Audio's loudspeaker cable type NACA 4 is a multistrand cable consisting of two 4mm sq conductors held parallel to each other by a small web. This cable is suitable for connecting loudspeakers to our amplifiers.

All Naim Audio preamplifiers and amplifiers have a frequency response to within 1 dB between 20Hz and 20 kHz. All distortions of whatever type including noise, at any audio frequency and at rated levels, will remain below one thousandth part of the required signal.

The manufacturer reserves the right to alter specifications without prior notice in accordance with continuing developments.



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NAIM AUDIO LTD - SOUTHAMPTON ROAD - SALISBURY - WILTSHIRE - ENGLAND - SP1 2LN - TEL. (0722) 3746

Recommended Retail Price List

April 1981

V.A.T. at 15% must be added to all prices

NAP 110	Power amplifier	£235.00
NAP 160	Power amplifier	£395.00
NAP 250	Power amplifier	£645.00
NAB 300	Power amplifier	£645.00
NAC 32	Pre-amplifier	£280.00
NAC 42 S or N	Pre-amplifier	£175.00
NAC 42XO	Pre-amplifier with 2-way crossover	£235.00
SNAPS	Pre-amplifier power supply	£140.00
SNAPS update kit (for SNAPS with serial nos. earlier than 0375)		£ 20.00
NAXO	Electronic crossover chassis only	£150.00
NAF (Boards for NAXO, 4 for 2-way, 8 for 3-way)		£ 12.50 each
NAXO 2 KIT (to change NAC 42 to NAC 42XO)		£ 60.00
NA 323	Additional pre-amp boards for moving coil cartridges	£ 30.00 pair
NA 322	Additional pre-amp boards for magnetic cartridges	£ 30.00 pair
NACA 4	Loudspeaker cable (Black or White)	£ 1.00 per metre

The SNAPS update kit consists of a pre-tested I.C. regulator and a printed circuit board. These may be fitted for a small charge either by a qualified dealer or by us at the factory.

The NAXO is now housed in a new case similar to the NAC 42, and has connections for both bi-amp and tri-amp systems. The NAF boards are made to suit particular speakers and must be placed in the right position in the crossover, and the levels must be correctly adjusted.

It should be noted that a passive system using a better amplifier will sound superior to an active one using less good amplifiers. For example, other things being equal, a passive system using an NAP 160 will perform better than an active one with NAP 110s.

When visiting dealers to choose a system it should be born in mind that there will be a serious adverse effect on the sound quality if there are more than one pair of speakers in the room, and this will make the evaluation of Hi-Fi components very difficult.

We would like to draw your attention to the fact that the choice of loudspeaker cable is very important and the best results will be obtained when using the type of cable described on the sheet packed with each amplifier.

We are still intending to make a tuner, and if you have any questions concerning its progress, please do not hesitate to contact us for information.

Naim Audio Dealer List

January 1982

- Audio Centre Sheffield, 284, Glossop Road, Sheffield, Yorkshire. 0742 737893
- Audio Excellence 13 Kings Road, Cardiff. 0222 28565
- Audio Projects, 45, Headingley Lane, Leeds. 0532 789115
- Basically Sound, The Old School, School Road, Bracon Ash, nr Norwich. 0449 721398
- Billy Vee Sound Systems, 248 & 68, Lee High Rd. Lewisham, London S.E.13. 01 318 5755
- W. A. Brady & Son, 401, Smithdown Road, Liverpool 15. 051 733 6859
- Chichester Hi-Fidelity, 40 Little London, Chichester, Sussex. 0243 776402
- Chris Brooks Audio Consultants, Fourways, 16 Brookfield Road, Iymn, Cheshire. 092 575 4480
- Grahams Hi-Fi Centre, 86-88 Pentonville Road, London N.1. 01 837 4412
- Gulliford House Ltd. Gulliford House, Kenton, nr Exeter. 0626 863604
- Jeffries Hi-Fi Ltd. 69, London Road, Brighton. 0273 609431
- Jeffries Hi-Fi Ltd. 4, Albert Parade, Green Street, Eastbourne. 0323 31336
- K.J.Leisuresound, 48, Wigmore Street, London W.1. 01 486 0552
- Lintone Audio Ltd. 7-11, Park Lane, Gateshead 8, Tyne & Wear. 0632 774167
- Lyric Hi-Fi, 150, Stranmillan Road, Belfast. 0232 681296
- Maeto Musik, 14, The Toll, Clarkston, Glasgow. 041 638 8252
- Moore's Hi-Fi, 15, Court St, Newtownards, Co. Down, Northern Ireland 0247 812417
- Nairn Music Shop, 1, Greig Street, Inverness. 0463 220440
- Perfect Electronics Ltd., 508-516, Alum Rock Road, Alum Rock, Birmingham. 021 327 1497
- Photocraft (Kent) Ltd. 40, High Street, Ashford, Kent. 0233 24441
- Radford Hi-Fi Ltd., 52/54, Gloucester Road, Bristol. 0272 422709
- Radford Hi-Fi Ltd., 43, King Edward Court, Windsor, Berkshire. 07535 56931
- Rayleigh Hi Fi, 105, High Street, Needham Market, Essex. 0449 721398
- Rayleigh Hi Fi, 44A, High Street, Rayleigh, Essex. 0268 779762
- Robert Ritchie, 104-106, Murray Street, Montrose, Tayside. 0674 3765
- Russ Andrews High Fidelity Ltd., 34, Northumberland Street, Edinburgh. 031 557 1672
- Studio 99 Ltd, 79-81, Fairfax Road, London N.W.6. 01 624 8855
- Simply Hi-Fi, 9, Flemingate, Beverley, N. Humberside. 0482 882696
- Sound Advice, The Sound Factory, Duke Street, Loughborough. 0509 218254
- Spaldings, 352-354, Lower Addiscombe Road, Croydon, Surrey. 01 654 1231
- Tonbridge Hi-Fi Consultants, Salford House, 19-21, Quarry Hill Road, Tonbridge. 0732 366767
- Unilet Hi-Fi, 14, Bute Street, London S.W.7. 01 589 2586
- Unilet Products Ltd. 35, High Street, New Malden, Surrey. 01 942 9567
- Westwood & Mason (Oxford) Ltd. 46, George Street, Oxford. 0865 47783