

NAGRA 300i and 300p
300B tube driven integrated and power amplifiers





300B

300B

BIAS
1+
2+

WASA 300B

LOAD MATCH

LEVEL M-R
1-2 3-4

VOLUME

Homage to the King of tubes

A myth taken to new limits

A pioneer of high-fidelity

The 300B tube has a long and rich history. Invented in the laboratories of the Bell telephone company in 1938 for telephony applications, it enabled the development of more powerful relay transmitters to support the rapidly developing network.

The characteristics of this tube are proven without doubt and drew the attention of engineers in the cinema industry who, with the coming of sound to motion pictures, were looking to equip theatres with high quality sound installations. The innovation did not escape pioneering Hi-Fi engineers either who, in turn, adopt it to create amplifiers until now unseen.

An attraction still current

The 300B triode was such a good development that it remains, even today, an unbeatable component for building exceptional amplifiers. Its linearity, low distortion and natural harmonic response close to ideal leaves modern transistors in its wake.

Other excellent triodes, such as the imposing 845 placed in honour on the Nagra VPA amplifiers, appeared later. However they never managed to dethrone the mythical 300B. It has traversed generations while maintaining its attraction. Integrated into high tech electronics, such as those developed by the Nagra engineers, it offers more than ever the pinnacle of musicality and audio performance.

Time defying creations

The integrated Nagra 300i and 300p power amplifiers pay tribute to one of the most mythical components in audio history. On Nagra's sixtieth birthday, they also demonstrate the commitment of the company to timeless creativity and innovation.

Like the "King of tubes", Nagra equipment benefits from a range of time defying qualities. Employing the most advanced everlasting solutions, they stand out through their ability to deliver music in such a sovereign manner with no artefacts and with complete transparency.



Integrated version or Power amplifier

Two roads to the same user comforts

Two versions around a single development

The development of the 300 series is built around two versions sharing a common technology yet implementing a different installation configuration.

The 300i integrated model aims for optimal compactness by uniting both a preamplifier and a stereo power amplifier in the same chassis. Remote-controllable, it is equipped with 4 inputs and having all the different audio controls grouped on the front face.

The 300p stereo power amplifier is designed for those who prefer the preamplifier to be a separate unit. Connected to one of the Nagra models, they form a tandem of perfect harmony, cut for extraordinary performances.

Comfort and security

Although they were built around a historical component, the 300B triodes, the Nagra 300i and 300p amplifiers are by no means nostalgic or historical electronically. The engineer's approach, on the contrary, was to surround the tubes with the most evolutionary technology possible so as

to draw the maximum musical quintessence to offer a more global and comfortable use.

The 20 watts RMS power per channel achieved is generous, bearing in mind the type of tube being used. It drives all medium to high sensitivity loudspeakers, which are numerous in today's market.

The units are also equipped with systems ensuring the security of the circuits themselves, preserving both the correct operation and life time of the tubes. The biasing of the latter is easily done by the user, who benefits from the indications on the modulometer located on the front face of the amplifier. This instrument is also able to display the output power of the amplifier and the correct impedance matching between the amplifier and the loudspeakers, making connection to the connectors on the rear of the unit easier.

A microprocessor controlled surveillance circuit manages the gentle power-up "soft start" of the units and monitors the internal electronics permanently. It indicates any anomalies by means of a LED on the front face of the units.



Electronics at the pinnacle of technology

To go further in every respect

Precision, silence, stability

It is at the conception stage that the potential of the electronics is determined. It appears to be an aspect where Nagra differs from mass-production for over 60 years, with innovative and original solutions.

The integrated 300i and the 300p power amplifiers do not deviate from this approach. They benefit from hybrid circuit topology allowing the 300B tubes to be perfectly exploited in a Class A push-pull mode.

Equally for the preamplifier stage of the 300i and amplifier and driver stages for both versions, everything has been done to handle the signals with integrity. End-to-end coherence, the circuits achieve such precision that no feedback correction is needed on the output: thus the stability is perfect and all load types can be driven without any risk of oscillation.

The care with which the power supply circuits were dimensioned, regulated and filtered also contributes to the exemplary performance while maintaining operation free from parasitic noise, or mains interference.

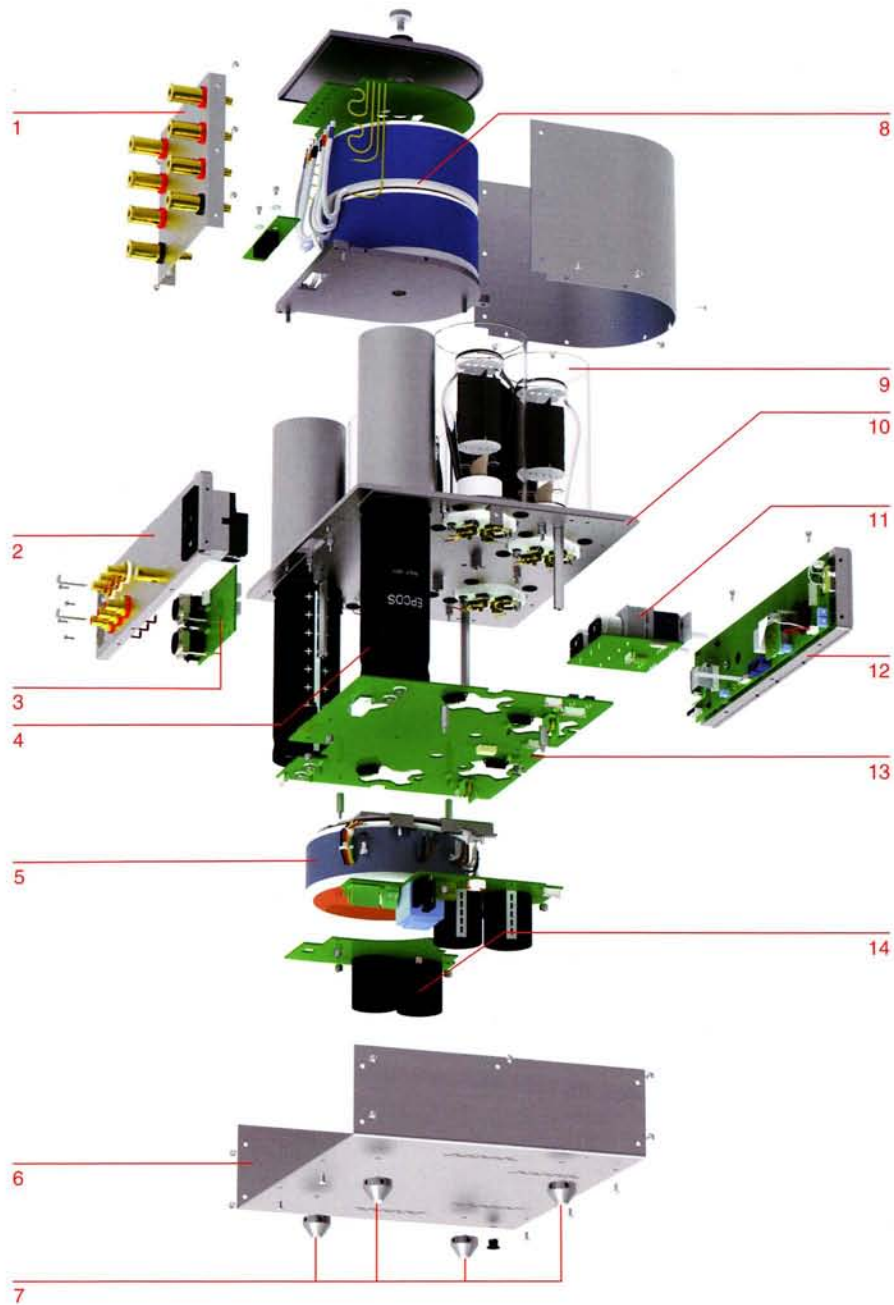
An extraordinary listening

With a bandwidth ranging from 14 Hz to 56 kHz and a signal-to-noise ratio exceeding 105 dB, the Nagra 300i and 300p have nothing to envy from the best transistor electronics available today. However figures are just one aspect: it is while listening that these units reveal the rest.

The transparency and the neutrality are the first imposing qualities. The legendary musicality of the 300B triode takes a new dimension, with exquisite treble and mid-range. The soundstage offers a three dimensional and vibrant realism. The bass management at very low frequencies is also remarkable, out of the ordinary for a 300B tube stage.

Quality maintained with all types of 300B

Today, the 300B triodes are manufactured by several different companies of differing origins and are available at very affordable prices. Some users take pleasure in making comparative tests between the different types available, which could provoke undesired audio artefacts. The Nagra 300i and 300p lend themselves well to such tube changes as their circuits always ensure a high performance in all configurations.



- 1. Outputs, 4, 8 and 16 ohms on pairs of corresponding posts
- 2. Rear panel with input connectors, earth post and power module
- 3. Input circuit
- 4. Powerful anode filtering capacitors
- 5. Power transformer
- 6. Lower case in folded aluminium
- 7. Conical feet in Arcap® with Delrin® resin tips
- 8. Output transformer module
- 9. Tube protections in Pyrex®
- 10. Upper deck plate in solid aluminium
- 11. Control circuit (volume and balance)
- 12. Front panel with the security monitoring circuit mounted on the rear
- 13. Mother-board amplification circuits
- 14. Power circuits (2x) with the four filament filtering capacitors

Exemplary manufacturing in every detail

Nagra quality proven over time

Manufacturing to match the engineering

The more the electronics result from high quality engineering, more their implementation needs to be faultless to the finest detail so as to avoid compromising their potential. Built in Switzerland in laboratories fit for watch-makers, Nagra equipment benefits from a manufacturing quality of the highest possible standards.

The strict production procedures, choice of components and their definition, the assembly precision and the measurements and tests made unit-by-unit, all come together to give a homogenous characteristic and an emblematic lifetime synonymous with the Nagra name.

Transformers wound by hand

Typical to this uncompromising approach, the transformers used in the 300i and 300p are hand-wound by Nagra, on specially built machines, according to an in-house procedure. This delicate operation, that few manufacturers in the world are able to perform, is critical as to the high performance of tube electronics, as the quality of the output transformers determines the overall global performance that can be achieved.

Tubes scrutinised

The same severity applies to the selection of the 300B tubes, that undergo stringent long duration trials on a specially designed test-bed, so as to eliminate any potential influence on the performance or reliability at the outset. A high percentage of tubes are rejected outright. Each set of tubes is then matched according to their specific measured characteristics which assures an optimised performance.

Protection of the mechanical integrity

The Nagra 300i and Nagra 300p are delivered with a double set of shock-absorbing plates Nagra VFS which contribute to the overall integrity of their operation. These solid aluminium plates are fitted with special Alpha-gel[®] feet, efficiently isolating the electronics from any mechanical disturbances or vibrations. They are specially recommended for tube electronics, particularly susceptible to such disturbances.

The shock-absorbing characteristics are completed by four conical feet on the amplifiers themselves. These feet are made from Arcap[®] with Delrin[®] resin tips, that sit precisely in the cups machined in the upper plate of the Nagra VFS.

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Technical specifications

Electronic

Amplification class	A
Power	2 x 20 watts RMS stereo into 4, 8 and 16 Ω
Bandwidth	14 Hz at 56 kHz, +0/-3 dB
Channel separation	> 70 dB
Signal-to-noise ratio:	Typically 105 dB (ASA-A weighted)
THD	0.8% @ 20 W
Input impedance	> 48 k Ω
Start-up protection	«Soft start» circuit
Security circuit	Incorrect mains voltage (115V or 230V) Output transformer removed Error in tube anode current <15mA or >180mA
Consumption	120 W continuous, <1 W stand-by
Mains power	100, 115, 230 V \pm 10%, 50-60 Hz

Mechanical

Input Connectors	Nagra 300p, on XLR or Cinch connectors Nagra 300i, four sources, one on XLR and three on gold-plated Cinch connectors
Speaker connection	Screw-lock posts (cables up to 4,2 mm; banana connectors; 6,35 mm spades)
Outer dimensions	277 x 275 x 232 mm (L x D x H); (10,9 x 10,8 x 9,1 inches)
Weight	14 kg (31 lbs), Nagra VFS plates 2,5 kg (5,5 lbs)

The Nagra 300i and 300p are delivered with a final test protocol certifying their performance. The specifications mentioned above are a minimum performance guarantee. Due to the constant improvement policy of Nagra, these specifications may change without notice.

Nagra VPS tube phono preamplifier



Nagra BPS transistor phono preamplifier



Nagra PL-P tube phono/line preamplifier



Nagra PL-L tube line preamplifier



Nagra CDC, CDP and CDT CD players



Nagra MSA MOSFET transistor stereo amplifier



Nagra VPA monoblock tube amplifiers



Nagra 300p (power) and 300i (integrated) triode tube amplifiers



Nagra PMA (mono) and PSA (stereo) MOSFET transistor amplifiers