

OWNER'S MANUAL



HP 300

OCTAVE



INTRODUCTION

Congratulations and thank you for choosing the OCTAVE

HP 300

You are about to enjoy the benefits of one of the world's most innovative and reliable amplifiers. Take care of it, and your amplifier will provide you with many years of listening pleasure.

You often hear people claim that there has been no real progress in tube amplifier design for years. The operating principles of tubes have been documented extensively and are well known to amplifier designers. The same can, of course, be said for transistor amplifiers.

Nevertheless, there is still room for further development with both of these technologies. This is both necessary and desirable. With tube amplifiers in particular, a general reluctance to depart from the classic circuit designs has not done the technology any favours. Today's loudspeakers and source equipment provide better performance than ever before, but also make greater demands on amplifiers. Modern sound reproduction equipment delivers a level of performance at a price that simply would not have been possible 20 or even 10 years ago.

These advances have been achieved through the application of cutting edge technology as it becomes available and affordable.

Integrating these technologies into amplifier design demands a detailed knowledge of the inner workings of amplifiers and an appreciation of the sonic ramifications of each modification.

We have specialized in tube amplification for the past 20 years, during which time we have developed a number of innovative technologies that have earned us a reputation as one of the leaders in the field.

We hope you will enjoy many hours of wonderful music with your OCTAVE amplifier.

A handwritten signature in black ink, appearing to be "A. Hofmann", written in a cursive style.

Andreas Hofmann

OCTAVE



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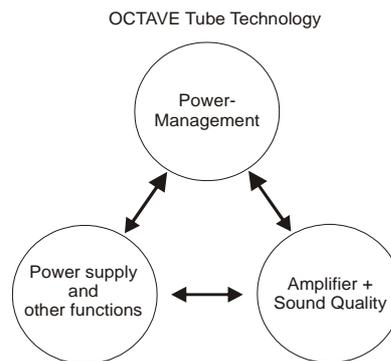
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OCTAVE

1. OCTAVE TECHNOLOGY

1.1. Differences to other tube amplifiers

- | | |
|-----------------------------|---|
| Sound | 1. The design goal of OCTAVE amplifiers is honest, natural sound reproduction. The sound characteristics of an amplifier are derived from the sum of all its parts. Tubes do not themselves guarantee high quality sound. |
| Amplifier Design | 2. The limitations of classic tube designs are evident as soon as you connect the amplifiers. These designs often only perform to their full potential when they are used with special cables and amps. OCTAVE amplification and power supply technology has largely overcome these well-known problems. Thanks to their unique output stage design, they will maintain their optimum sound quality with virtually any amplifier, irrespective of the cables. |
| Control + Monitoring | 3. OCTAVE employs the latest electronic circuit designs to create the best possible operating conditions for the tubes, and thus for the amplifier itself. |



OCTAVE amplifiers are equipped with a proprietary control and monitoring system we call Power Management. This is an "electronic brain" within the amp that regulates and controls all of the amplifier's functions. It includes the **Soft Start Electronics** that gently ramp up the heating and supply voltages to save wear and tear on the components. In the event of a problem, the Power Management's **protection system** will disconnect the unit from the power supply. Power Management helps us to achieve a completely consistent sound while at the same time ensuring the total reliability of our products.

- | | |
|------------------------|---|
| Hand built | 4. OCTAVE amplifiers are hand built and individually tested. They are designed and developed by Andreas Hofmann. The company has its own winding department, in which all transformers are specially custom wound for each amplifier. |
| made in Germany | 5. OCTAVE amplifiers are 100% built in Germany. Our employees are highly qualified and committed. We collaborate closely with local specialist subcontracting companies. The hardware components are all manufactured on modern CNC machines. |

1. OCTAVE TECHNOLOGY

1.2. Description HP 300

- The HP 300 is a member of a new generation of tube preamplifiers built by OCTAVE. The first model of this line was the reference preamplifier Jubilee. Heart of this line is a newly developed circuit design, which still has the tube as the central amplifying component, but the necessary output power is generated by a new type of super-gain semiconductor circuit.
As OCTAVE decouples the output load from the tubes, the HP 300 convinces with excellent measuring results. Free from the output load the tubes can develop their tonal and dynamic sound characteristics unrestrained. It sounds vivid, relaxed, totally free or with one single word – simply light.
Because of that, the HP 300 preamplifier can be used extremely universal.
- Furthermore, the HP 300 is manufactured perfectly, which also finds expression in the stable, low resonance solid-metal chassis. Resonances are thereby ruled out. The solid connecting sockets allow the connection of high-quality NF-wires with large plugs. Every product of OCTAVE is built in Germany in single-piece production and is subject to a 100% check. A 48-hour endurance run completes the final inspection.
- Over and above that the HP 300 uses a lavish special power supply, which was developed especially for the HP 300.
The power supply of the HP 300 carries out complex functions: On the one hand it ensures a constant acoustic quality by preventing mains disturbances and by creating constant working conditions with electronic voltage stabilizations. On the other hand the built-in control logic guarantees highest reliability and achieves with soft-start-techniques the theoretically maximal possible lifetime of the tubes (up to approximately 10 Years or more).
An additional function of the power supply is the protection circuit, which releases the output of the HP 300 by a relay with a time delay or disconnects it immediately in case of a malfunction. Click-interferences etc. caused by the power supply are therefore absolutely ruled out.
Transformers are individually designed and produced in our own house.

2. SAFETY INSTRUCTIONS

2.1. Before you begin

Before using your HP 300, please check your local line voltage and pay attention to this manual

In case of emergency: disconnect the plug from the mains supply

Never use an amplifier that is damaged or faulty. Make sure that it cannot be used until it has been repaired by a qualified service engineer.

Make sure that there is easy access to the IEC socket and power cord.

Do not open the case

There are dangerously high voltages and hot tubes inside this equipment. To avoid a burn or the risk of electric shock, never allow anyone except qualified personnel to open the case or remove the grille.

Servicing and maintenance

For reasons of safety, please ensure that servicing, repairs and other modifications to OCTAVE equipment are carried out only by a qualified technician. Fuses should also only be changed by a qualified technician. Always replace fuses with ones of the same type and rating. If your amplifier requires servicing, please ship or take your equipment directly to OCTAVE or to one of our authorized service centres.

Explanation of the warning symbols:



The exclamation point within an equilateral triangle is intended to alert the user to important operating and maintenance instructions.



The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated 'dangerous voltages' within the product's enclosure that may be sufficient to constitute a risk of electric shock to persons.

Before connecting

Make sure that the voltage of your amplifier matches your electricity supply voltage.

Grounding

This amplifier is a protection class 2 device (without an earth conductor).

2. SAFETY INSTRUCTIONS

2.2. Placement

1. Location

OCTAVE equipment is designed strictly for use in a dry domestic environment. Do not use it in the open air or in damp environments!

Never place plants or liquid filled containers on your OCTAVE equipment. Take care that objects do not fall or liquids are not spilled into the enclosure. Should this happen, remove the mains plug immediately and have your amplifier checked by a qualified service technician.

Condensation may form if the amplifier is taken from a cold environment into a warm one. If you do this, wait until the amplifier has reached room temperature and is dry before switching it on.

Avoid installing the unit close to sources of heat such as radiators or anywhere that it may be in direct sunlight.

Do not operate the unit near flammable materials, gases or vapours. Avoid areas where there may be heavy accumulations of dust or where the unit may be subject to mechanical vibration.

Place your OCTAVE amplifier on a stable, even surface.

2. Cover

Never operate the amplifier without the cover.

3. Ventilation

Make sure that your amplifier has a good flow of air around it. If you intend to install your equipment in a cupboard or a shelf unit, ensure that there is at least a ten centimetre gap between the ventilation slots and the walls all around the amplifier. Do not rest the equipment on a soft surface such as carpet or foam sheeting.

2.3. Warranty

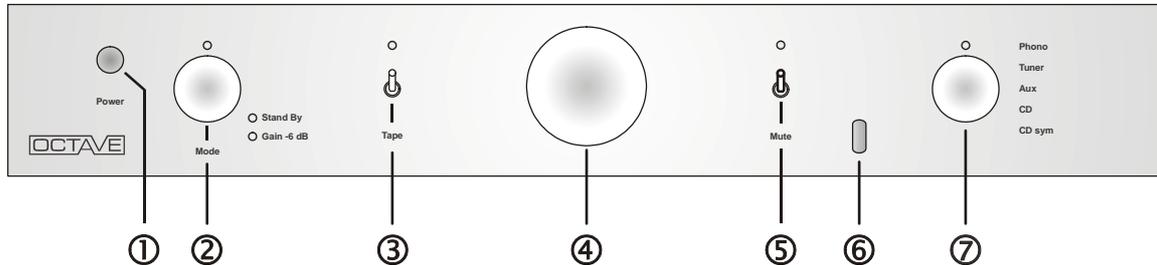
OCTAVE can only guarantee the safety, reliability and performance of this unit if modifications and repairs are carried out by specialized personnel and if the amplifier is operated in accordance with the instructions contained in this manual.

3. SETTING UP

1. In your own interest, please observe the safety precautions and positioning advice (Chapter 2)
2. Before connecting your OCTAVE amplifier up, switch off all the other equipment that you intend to connect to it. This will avoid a source of possible problems when you plug these components in.
3. Connect the inputs from your amplifier to the appropriate outputs on the HP 300 amplifier.
4. Connect your loudspeakers to your power amplifier, making sure that you observe the correct polarity (positive on the amplifier to positive on the speakers).
5. Check that the amplifier is switched off before connecting the power cable to the wall socket.
6. The stand by/power switch for the HP 300 is located on the front panel (see Chapter 4, Operation)
7. Check that the volume control is not set at maximum before playing music through the amplifier.
8. Switch on the mains power, the push-button-switch is located on the front panel of the preamplifier.

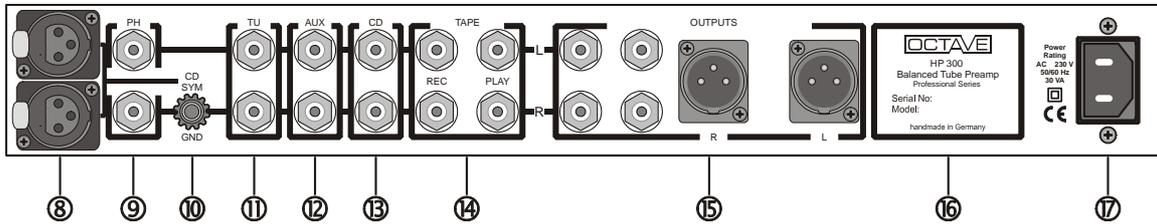
The preamplifier needs approx. 2 - 4 minutes warm up time. In the warm up time the output is shorted to ground to avoid disturbances. When switching the mode switch from normal to - 6 dB gain operation, the output is muted for approx 2 minutes. If you switch from high to low or vice versa the muting time will start again
9. Switch on the other components.

4. OPERATION - Front panel



- ① **Power (mains button)**
The LED above the mode-switch burns if the unit is turned on
- ② **Mode rotary switch**
Here you can switch, the Stand By function as well as the gain factor of the line stage.
Position Stand By: The LED next to Stand By burns
If Stand By is selected, the output will be short-circuited (muting). The semiconductors remain current carrying; the tubes operate with reduced power and heating. This position is recommended in case of longer intermissions (up to 10 hours, if you do not want to turn off the unit) and to burn-in new tubes. After ending the Stand-By function, it takes 4 minutes until the output will be cleared.
Position Gain normal: (central position) none of the two LEDs burns. At this position the gain factor of the line stage is +7. This position is recommended for amplifier-/ loudspeaker combinations with low efficiency.
Position Gain -6 dB: The -6 dB-LED burns. At this position the gain factor of the line stage is +3. This position is recommended for amplifier-/ loudspeaker combinations with a normal efficiency.
- ③ **Tape-Monitor-switch**
Because of the Monitor-function, playback Tape can only be turned on here. It does not influence the simultaneous recording of a source selected at the input-selector.
Switch down: The LED above the Tape-switch burns. Tape or tape record signal is monitored..
Switch up: The LED above the input-selector burns. The source chosen at the input-selector is monitored
- ④ **Volume Control**
- ⑤ **Muting- switch**
With this function, the out-/inputs are turned mute. The unit is not power reduced as in Stand By mode, but remains operative. This function is recommended, when new units are to be connected to or disconnected from the inputs. This way, you avoid disturbances at the output of the preamplifier.
- ⑥ **IR-Sensor**
For perfect operation of the remote control, the infrared receiver should not be covered.
- ⑦ **Input-selector (rotary switch)**
If the LED above the input-selector burns (tape-switch up), the here chosen source can be recorded simultaneously throughout the REC-output (located at the rear panel of the HP 300) by tape etc.

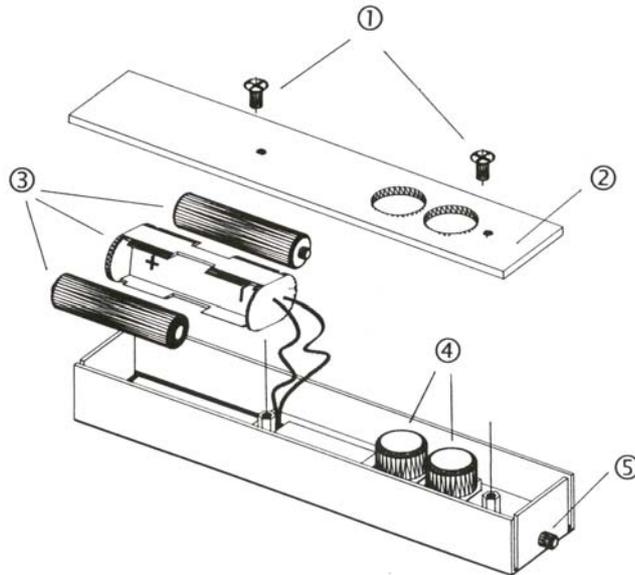
5. CONNECTIONS: Rear panel



- ⑧ **CD SYM**
XLR-input for balanced sources like CD-player etc.
- ⑨ **PH-input**
Model HP 300 line: This is a normal line-input for high level-units
Model HP 300 phono: This is the phono MC-input (see "Setting the MC-input")
- ⑩ **GND (Ground)-connector**
Suggested connection to the corresponding ground wire from your turntable. (See "Connection reference phono MC")
- ⑪ **Tuner**
Single ended input
- ⑫ **AUX**
Single ended input. Additional high-level input for Video or TV
- ⑬ **CD**
Single ended input
- ⑭ **Tape rec.**
Recording output for tape, cassette- or dat-recorders
Tape play
Connect these Inputs to the play-Outputs of your recorder.
- ⑮ **Outputs**
One balanced and two single ended outputs.
- ⑯ **Model identification plate**
Model and serial number.
- ⑰ **AC-mains receptacle**
IEC-Standard AC-mains receptacle

Comment: In the connection area, the lower socket line (red) is for the right channel, the upper socket line (white) is for the left channel.
Pin configuration XLR-sockets: : 1 = ground, 2 = plus, 3 = minus

6. IR REMOTE CONTROL FOR VOLUME



- ① Front panel screws (Two M3 Philips countersunk screws)
- ② Keypad
- ③ Battery compartment for two AA 1.5 V batteries
- ④ Volume button: → + button: louder; - button: quieter
- ⑤ Infrared transmitter

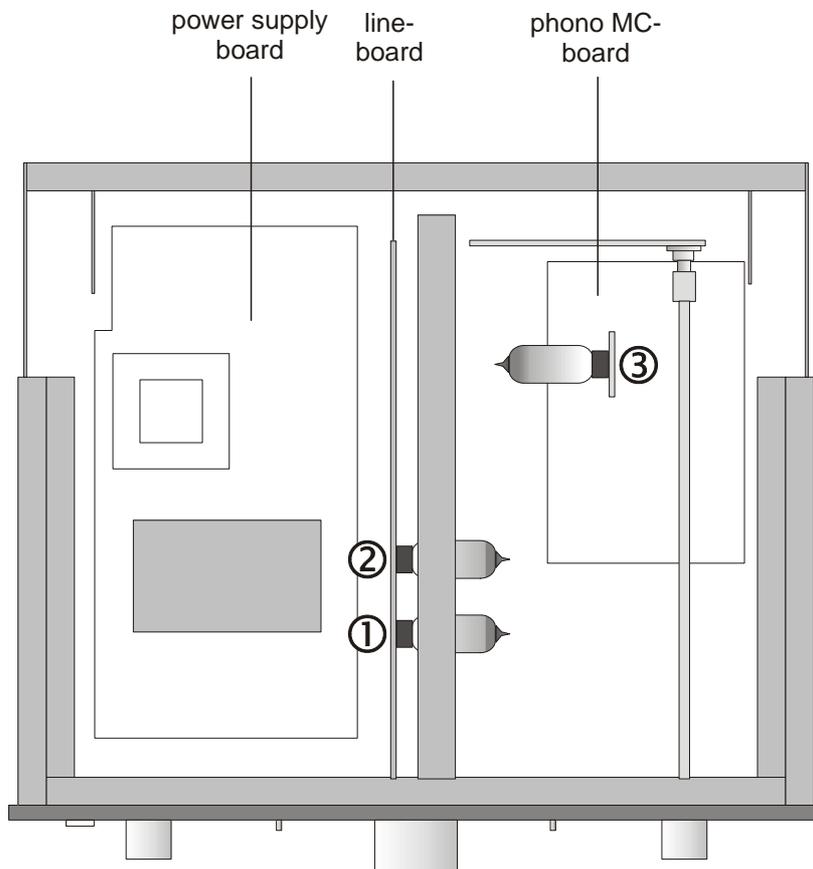
Point the transmitter at the amplifier. The remote will operate up to a distance of about 8 metres. Please remember that infrared cannot penetrate solid objects. Make sure there is a clear line of sight between the transmitter and the receiver.

Changing the batteries

1. Undo both of the M3 countersunk screws on the remote control keypad using a no. 1 Philips screwdriver.
2. Insert a small screwdriver in the slot at the side of the remote and ease the keypad up.
3. Take the battery compartment out of the unit and replace the batteries. Observe the battery polarity markings.
4. Check the operation of the remote by pressing one of the buttons. Reassemble the unit.

7. TUBES

7.1. Tube layout



Before opening the cover it is mandatory to remove the power cord from the mains power inlet.

	tubes used	also available under this discription
<i>Line board</i>		
①	ECC 82	(E 82 CC / ECC 802 S / 12 AU 7 / 5814 A)
②	ECC 88	(6 DJ 8 / E 88 CC / 6922)
<i>Phono MC board</i>		
③	ECC 81	(E 81 CC / ECC 801 S / 12 AT 7 / 12 AT 7 WA)

7. Tubes

7.2. Replacing tubes

Please use only original OCTAVE replacement tubes. These have been selected and tested for use in our amplifiers. **Important! Changing tubes is a job for a qualified technician!**

1. Switch off the preamplifier, unplug the power cord from the wall socket, and allow the unit 10 minutes to cool down.
2. Take off the cover by removing the M 3 screws, (12 pc.)
3. Take out the old tubes.
Carefully remove the tubes from their sockets, taking care not to exert sideward pressure on the sockets.
4. Fit new tubes
Please ensure that the tube pins are all perfectly straight before inserting your new tubes. Straighten any bent pins very carefully by hand if necessary.
5. Cleaning tips
Cleaning agents and contact cleaners are not recommended for tube sockets. Clean dirty sockets with compressed air and carefully clean tarnished tube pins using a wire brush.
6. Please note:
No adjustments are necessary to your amplifier after fitting new tubes.
It may take new tubes some time (up to 300 hours) to achieve their optimum sound quality.
Manufacturing faults in tubes may only become evident after about 100 hours of use. You should therefore be wary of installing untested tubes. However, faulty tubes or tubes of the incorrect type will normally not damage the amplifier.

7.3. Tube service life

- Thanks to the protection circuits and soft start electronics, the tubes used in your amplifier should achieve an average service life of 10 years.
- Because the tubes have different service lives, it should never be necessary to renew the entire tube complement at the same time.

8. PHONO MC OPTION

8.1. The role of the phono preamplifier

A record player is an electro-mechanical device. Music signals are "pressed" into the grooves in the record, and these are physically tracked and read by the pickup cartridge. In order to get the entire 20 Hz - 20 KHz frequency range into the grooves, the frequency response has to be shaped by lowering the level of the low frequency information and raising the level of the high frequency information. This predefined equalization curve is known as RIAA equalization.

A phono amplifier must exactly equalize for RIAA recording characteristic if it is to avoid colouring the sound. Equalization accuracy must be within 0.5 dB over the entire frequency range, with channel matching of at least 0.1 dB.

8.2. The phono section of the HP 300

The phono section of the HP 300 is an enhanced version of our hybrid phono technology. The phono section now offers a greater level of compatibility with low output and low impedance moving coil cartridges. Most preamps have problems with such cartridges, since both gain and input impedance issues have to be addressed simultaneously.

We have developed an MC head amp that successfully eliminates the problem areas. At the heart of the equalizer is a tube circuit containing 1 tube and two integrated circuits. It incorporates a switchable subsonic filter, which prevents very low frequencies generated by warped records or tonearm resonances from overloading the loudspeakers. **(A)**

8.3. Guidelines for connecting to the phono section

- 1 Plug the RCA phono cable from your turntable into the appropriate (phono MC ⑨) input on your HP 300. Turn the input selector to phono.
2. Connect the earth cable supplied with your turntable to the GND connection on the HP 300 ⑩, following the instructions provided by the turntable/arm manufacturer. Some tonearms do not have a separate earth cable, as the pickup system is earthed via the RCA phono plugs.

Explanation:

The earth is generally connected to the tonearm or the headshell. This is necessary to prevent hum or radio interference. It is usually advisable to connect the earth cable to reduce this kind of interference.

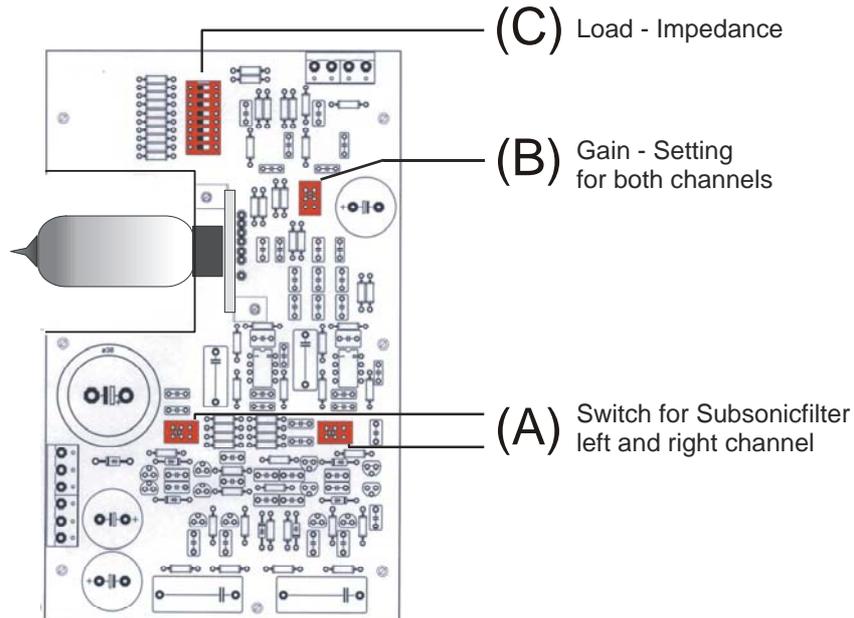
8. PHONO MC OPTION

8.4. Adjusting the MC input



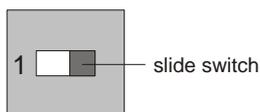
Before you can adjust the MC input, you need to take off the cover by removing the M 3 screws, (12 pc.)

Before opening the cover it is mandatory to remove the power cord from the mains power inlet.



(A) Subsonicfilter

on ←→ off



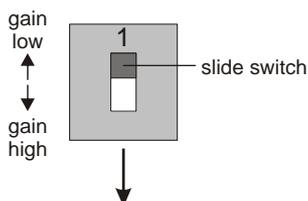
direction
front panel

Rippled records can create subsonic disturbances. The subsonicfilter eliminates this disturbances. Cutoff frequency is 15 Hz.

Attenuation is 12 dB/oct.

State of delivery: Subsonicfilter on

(B) Gain- Setting



The gain switch allows you to match the gain factor of the phono-amp for your cartridge.

gain high: for normal MC-cartridges < 0,5 mV

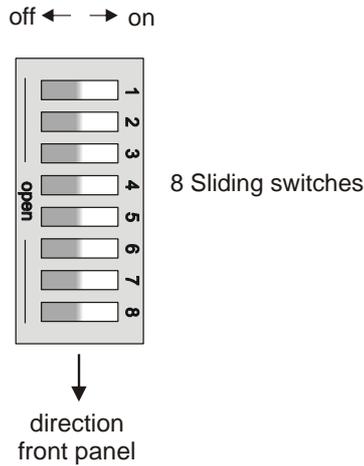
gain low: for high Output-MC-Systems > 0,5 mV

State of delivery: gain high

8. PHONO MC OPTION

8.4. Adjusting the MC input

(C) Setting the MC-Load-Impedance



Adjustment range

Switch option	Left channel Switch 1 – 4			Right channel Switch 5 - 8		
	Switch no.	Switch position	Resistance (ohms)	Switch no.	Switch position	Resistance (ohms)
1	all	off	1000	All	off	1000
2	1	on	500	5	on	500
3	2	on	250	6	on	250
4	1 + 2	on	200	5 + 6	on	200
5	3	on	100	7	on	100
6	1 + 3	on	90	5 + 7	on	90
7	2 + 3	on	76	6 + 7	on	76
8	4	on	75	8	on	75
9	1 + 2 + 3	on	71	5 + 6 + 7	on	71
10	1 + 4	on	69	5 + 8	on	69
11	2 + 4	on	61	6 + 8	on	61
12	1 + 2 + 4	on	57	5 + 6 + 8	on	57
13	3 + 4	on	44	7 + 8	on	44
14	1 + 3 + 4	on	42	5 + 7 + 8	on	42
15	2 + 3 + 4	on	39	6 + 7 + 8	on	39
16	all	on	37	all	on	37

The input impedance setting is important in achieving a balanced sound from your pickup.

You will find the recommended impedance in the specifications supplied with your pickup.

Default factory setting: 100 ohms - optimum for the most low output MC systems

9. TROUBLESHOOTING

■ Hum and crackling

Hum in an audio system is often caused by several system components being earthed individually. It is particularly common with tuners, VCRs or satellite receivers, where the earthed aerial cables cause a hum loop via the aerial input. Power amplifiers are normally also earthed. Removing the earth wire on your mains plugs is not a solution. You can isolate the aerial earth connection with a special signal isolator. This device has no adverse affect on the sound or picture quality of tuners or TVs.

The HP 300 is not earthed and cannot therefore cause ground loops.

■ Clicks and pops

Older fridges and 12 V halogen lamps can cause cracking through the loudspeakers when they switch on and off.

Solution: the only solution is to use a single power socket board for your entire system and to use a different power outlet in your listening room.

■ Channels are not balanced

Check that the cinch plugs are a tight fit. Bend the outer earth contact inwards slightly if necessary. Sometimes the internal pin in a cinch plug may not be a tight enough fit, in which case you should change either the interconnect or the socket.

1. Damaged cables and poorly fitting cinch plugs can create resistance in the signal path, enough to reduce the output level of one channel.

Solution: Try new cables or clean plugs and sockets with isopropyl alcohol. You could also try cleaning or contact fluid.

2. A faulty tube can cause a drop in output in one channel and generate distortion. Although a rare occurrence, the heater inside the particular tube may be the cause of the problem.

Solution: Replace the tube.

■ Increased hiss on one channel

Hiss that varies in level is a sign of a faulty or worn driver tube.

Solution: Replace the worn tube.

10. TECHNICAL DATA AND DIMENSIONS

Line stage

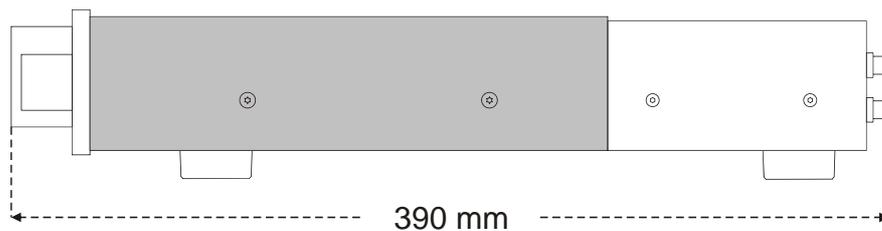
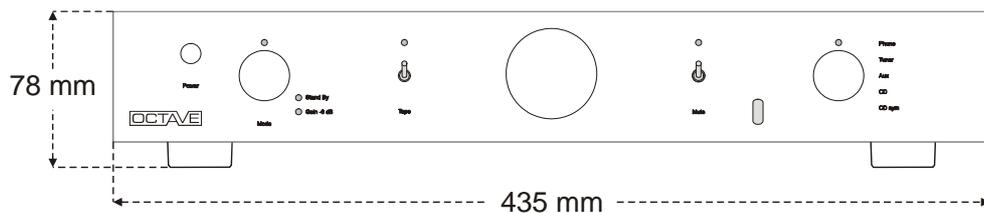
Gain high	17,5 dB = 7,4
Gain low	12,5 dB = 4,2
Frequency response	3 Hz - 300 kHz 1.5 dB
Total harmonic distortion	0.001% at 3V / 7.5 kOhm
Signal-to-noise ratio: high gain	- 92 dB
Signal-to-noise ratio: low gain	- 100 dB
Channel separation	65 dB 1 kHz
Crosstalk rejection between inputs	- 86 dB 10 kHz
Input impedance	100 kOhm
Output impedance	100 Ohms cinch; 2 x 100 Ohms XLR
Channel tracking of volume control	0.5 dB - 70 dB
Pin allocation, XLR output	Pin 1: ground, Pin 2: + (hot), Pin 3: - (cold)

Phono MC

RIAA equalization accuracy	0,3 dB 15 Hz - 20 kHz
Subsonic filter corner frequency	20 Hz / - 3 dB
Input impedance	30 - 1000 Ohms
Sensitivity	0.1 mV
Gain low	71 dB
Gain high	80 dB
Signal-to-noise ratio (weighted)	- 75 dB

General:

Power consumption	25 VA
Weight	9 kg
Standard accessories	mains power cord, remote control
overall dimensions	width x height x depth = 435 x 65 x 390 mm

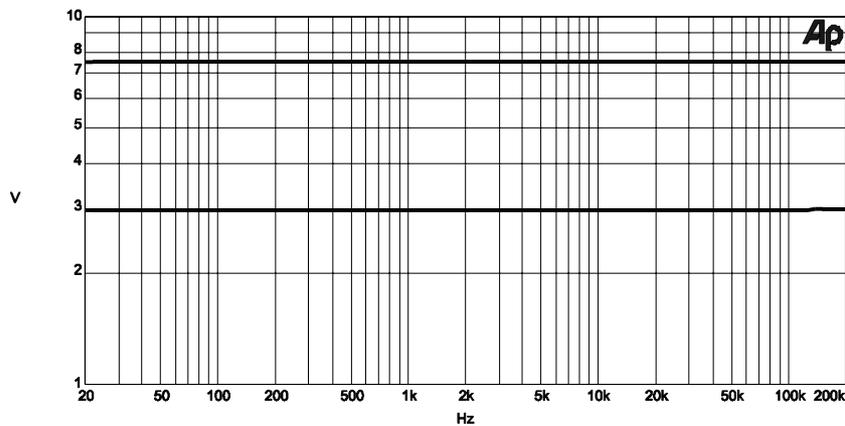


11. SPECIFICATION

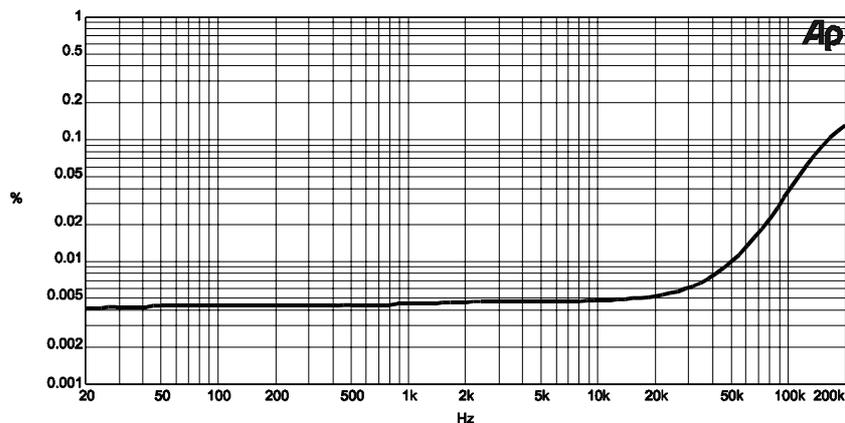
Features

- The HP 300 is fitted as standard with two cinch outputs, one XLR output and one XLR input.
- Gain of the line amplifier and the phono board also is switchable to adjust the overall gain of the preamplifier - amplifier combination
- An optional phono MC module may be added any time.
- MC input impedance is adjustable over a wide range.
- Soft-start for heaters, operating voltage and signal output. This results in maximum service life of the tubes and noise-free switch-on/off. The output is enabled after 4 minutes.

Diagrams



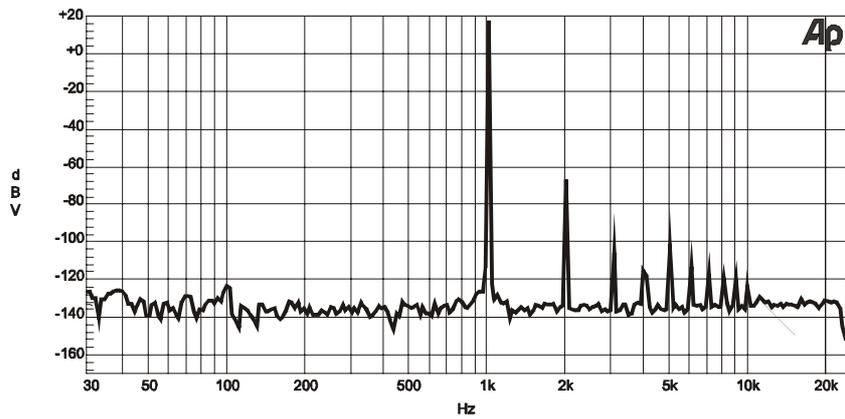
Frequency response accuracy of line stages in 'low gain' setting. 20 Hz - 200 kHz: 0.1 dB



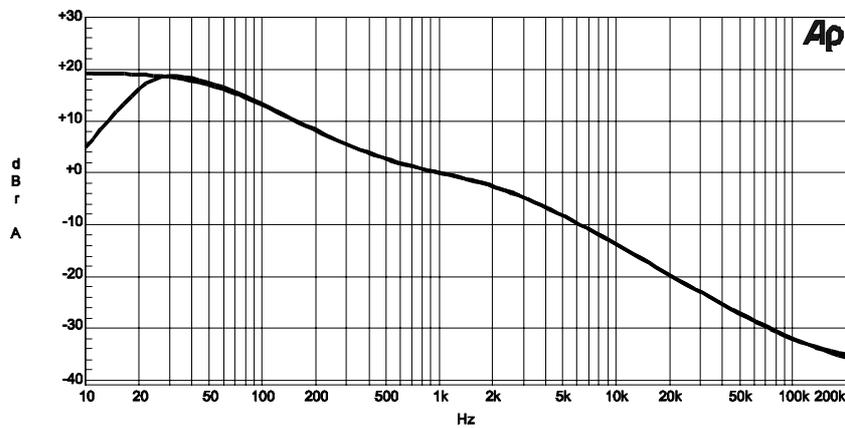
Overall distortion (THD + noise) of line stage from 20 Hz - 200 kHz. Distortion remains low up to 20 kHz

11. SPECIFICATION

Diagrams



Noise spectrum of line stage, 4 V output at 1 kHz. The low level of harmonic distortion and low noise level are clearly visible. There are no hum components at 50 Hz and 100 Hz.



Frequency response of the phono stage with and without subsonic filter

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