

# **Audionet**

## **PAM V2**

Phono-Pre-Amplifier for MC / MM

### **User's Manual**

## Owner's manual

The Audionet-Team would like to congratulate you for purchasing this excellent phono pre-amplifier.

Please read this manual before first use to be aware of all features of your new Audionet PAM V2.

In case of questions to occur please do not hesitate to contact your local Audionet dealer or our factory directly.

**Included** Included you will find the following:

- your phono pre-amplifier Audionet 'PAM V2'
- the owner's manual (you are reading right now)
- one standard power cord

**Transport** Please transport your 'PAM V2' only inside the provided package. Use the plastic bag to prevent scratches on the housing.

## Overview

The Audionet 'PAM V2' is designed in reference to the principles of the Audionet amplifier technology to use their advantages. In the following you will find listed the design features of the 'PAM V2'.

The base of the unit is the 2mm steel chassis to protect the circuitry and electronic components from high frequency electromagnetic fields.

The deemphasis of the music signal pressed into vinyl is done by a dual-stage RIAA deemphasis circuit using discrete built Audionet operational amplifier modules in SMD technique (surface mounted device).

By using the same techniques of Audionet's reference line it is possible to keep the signal paths clear of quality reducing components like capacitors, switches or integrated operational amplifiers.

The 'PAM V2' offers user definable features for adjusting to any pick-up (MC,MM) without opening the unit.

Furthermore 'PAM V2' is equipped with bias current free FET inputs that do not influence the connected pick-up. The driver stage of the 'PAM V2' is built in CLASS-A technique and thanks to the servo circuits has DC voltage free outputs.

The complete design makes use of highest quality components (mica capacitors in the feedback loop, miniature relays with gold plated contacts, metal layer resistors with low temperature coefficient and 1% precision etc.).

The built in protection circuit will quickly cut off the output signal in any case of mains failure to prevent any noise getting to the loudspeakers.

## Set up

**Placing** Your new phono pre amplifier 'PAM V2' should find its adequate place onto a high quality rack or stable furniture. Please do not put the 'PAM V2' directly side by side to a loudspeaker or into the corner of the room as there is to be found the highest acoustical energy. Also avoid proximity of power amplifiers and mains filters.

**Mains** Please plug the power cord into the mains socket at the back of the unit. Connect the other end of the power cord to your wall outlet. The "hot" pin of the power cord should be connected to the right pin (rear view) of 'PAM V2's' mains socket.

**Power supply** The power supply of your 'PAM V2' is equipped with a potted and shielded 100 VA toroidal transformer and 40.000  $\mu$ F electrolyte capacitors.

Two fast MOS voltage regulators clean up the secondary voltages. After that the main voltages are controlled by eight fast and discrete MOS voltage regulators with accumulator-like characteristics. This provides a separate power supply of highest precision for each section.

**External power supply 'EPS'** You have the opportunity to purchase an external power supply for your 'PAM V2'. This power supply unit, called 'EPS' (**E**nhanced **P**ower **S**upply), is to be connected to the 'ext. Power' socket at the back of your 'PAM V2' with the special cord provided with the 'EPS'. You will then have to unplug the power cord from your 'PAM V2'.

Spatial separation between power supply and 'PAM V2' circuits less influence on all components by the power supply will be gained. The 'EPS' should be placed at maximum distance to the 'PAM V2' to obtain more musical substance.

## Connections

**Inputs** At the rear there is a pair of WBT cinch sockets (stereo) for connecting the turn table as well as the inputs labeled C/Rext for additional resistors or capacitors to adjust to the electrical characteristics of the pick-up. Base capacity of the 'PAM V2' is 150pF. The gold plated screw (GND) is for connecting the turn table ground.

**Outputs** At the rear you will also find the outputs. You can use either balanced out (XLR, Neutrik sockets) or line out (WBT, cinch sockets) to connect your 'PAM V2' to your pre- or main-amplifier.

## Operating

At the front plate there is the power button to switch on and off the 'PAM V2'. Using the knob at the right of the front plate labeled 'GAIN' you select the gain to 38dB, 48dB, 58dB or 68dB (deziBel).

The selected gain is indicated by the LEDs in the middle of the front.

Most MM pick-ups (moving magnet) need a gain of 38dB, while MC systems (moving coil) usually require gains of 58dB or 68dB. Also available 'high output MC' systems mostly will work properly with 48dB gain. Please try out individual setting for your pick-up.

A knob labeled 'input imp.' is to be found at the back of the 'PAM V2' for selecting the terminating resistance to your pick-up. Please select carefully. It will effect high frequency response. Using MM systems select  $imp.=47k\Omega$ . MC systems may need resistance ranging from  $imp.=100\Omega$  to  $1k\Omega$ .

In case of any other resistance or capacitance needed by your pick-up please refer to **page 8** for further instructions how to set up the appropriate values using the sockets labeled C/REXT.

### Subsonic filter

The active structure of your 'PAM V2' is equipped with two DC voltage servos that build up an internal second order subsonic filter with a cut off frequency of 10Hz. This will protect the woofer from unnecessary stress or damage due to subsonic frequencies caused by wavy vinyls or outer noise.

### Tuning

Nowadays interested listeners experienced tonal differences in using different power cords. In order to increase the value of your 'ART' you have the opportunity to use high performance power cords.

It is advisable to protect and decouple your 'PAM V2' form outer noise as the unit will amplify a frequency of 20 Hz by a factor of e.g. 20,000 with gain selected to 68dB!

## Further adjustments

**Adjusting capacity** In case of insufficient base capacity of  $C_0 = 150\text{pF}$  (pico farads) an additional high quality miniature capacitor  $C_{\text{ext}}$  can be connected to the input labeled C/REXT using a cinch plug to increase input capacity. Both capacities will be added simply.

**Example** Base capacity  $C_0 = 150\text{pF}$  ; needed capacity e.g.  $C = 350\text{pF}$ , therefore  $C_{\text{ext}} = 200\text{pF}$  has to be attached.

**Reduce resistance** In case of the needed resistance lower than  $100\Omega$  (positions 6 o'clock at the 'input imp.' switch) an additional high quality miniature resistor  $R_{\text{ext}}$  can be connected to the input C/REXT using a cinch plug to *reduce* the input resistance. Attention! The reciprocal values of the resistors are added, so the input resistance is reduced!

**Example 1** Needed is an input resistance  $R = 33\Omega$  ; the base resistance  $R_0$ =input imp. is selected to  $R_0 = 100\Omega$ , therefore the external resistor  $R_{\text{ext}} = 50\Omega$  has to be attached, because of:

$$R = \frac{R_0 * R_{\text{ext}}}{R_0 + R_{\text{ext}}} \Rightarrow R_{\text{ext}} = \frac{1}{\frac{1}{R} - \frac{1}{R_0}}$$

**Example 2** Needed is an input resistance  $R = 200\Omega$  ; the base resistance  $R_0$ =input imp. is selected to  $R_0 = 330\Omega$ , therefore the external resistor  $R_{\text{ext}} = 510\Omega$  has to be attached.

## Technical Data

|                    |  |
|--------------------|--|
| Type               | User adjustable phono deemphasis pre amplifier   |
| Frequency response | 15 - 30.000 Hz (+ / - 0,1 dB)  |
| Subsonic filter    | 2. order high pass; $f_{\text{cut off}} = 10 \text{ Hz}$   |
| Gain               | 38 dB, 48 dB, 58 dB, 68 dB (for 1 kHz) selectable at the front   |
| Input impedance    | 47 kOhm, 1 kOhm, 500 Ohm, 330 Ohm, 150 Ohm, 130 Ohm, 115 Ohm, 100 Ohm selectable at the rear   |
| Noise              | >76 dB (58 dB gain)  |
| Output impedance   | 22 Ohm real  |
| Inputs             | Cinch sockets (gold plated WBT)<br>Cinch sockets (gold plated WBT) for external adjustment with cinch plug   |
| Outputs            | Cinch sockets (gold plated WBT)<br>XLR balanced (gold plated Neutrik)  |
| Mains              | 230 V, 50 Hz   |
| Power consumption  | 30 W   |
| Dimensions         | 430 mm * 70 mm * 310 mm (w * h * d)  |
| Weight             | 9 kg   |
| Finish             | Front: brushed Aluminum, black elox, print: white<br>Top: steel, black<br>Chassis: steel, black  |
| Features           | <ul style="list-style-type: none"> <li>- individual adjustment to any pick-up without opening</li> <li>- active dual stage RIAA deemphasis</li> <li>- no integrated operational amplifiers or capacities in signal path</li> <li>- 10 fast, purely discrete realized MOS voltage regulators providing accumulator-like characteristics of power supply</li> <li>- 100 VA toroidal transformer, shielded, 40.000<math>\mu</math>F capacity</li> <li>- Class A output stage</li> <li>- DC-free outputs</li> <li>- FET inputs, no bias current</li> </ul> |

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Engineered and produced by:  
Idektron GmbH & Co. KG, Herner Str. 299, Gebäude 6, 44809 Bochum, Germany  
[www.audionet.de](http://www.audionet.de)  
[contact@audionet.de](mailto:contact@audionet.de)