Operating instructions **Technical description**

pearl

Phono preamplifier with external power supply

Scope of delivery

1 x Phono preamplifier pearl
1 x Power supply for phono preamplifier pearl
1 x Connecting cable phono preamplifier pearl > power supply
1 x Mains cable for power supply

Putting into operation

Please first establish the connections between pearl and turntable and amplifier respectively as well as the connection to the external power supply and the local power grid* - see the following chapter "Connecting". Only then switch on the power supply and the phono preamplifier. Please do not remove any connection cables during ongoing operation - but switch off the phono preamplifier as well as the power supply beforehand.

When connecting the device for the first time as well as after switching on the external power supply, the output of the phono preamplifier is blocked for approx. 30 seconds. During this time, internal servo circuits adjust themselves so that there is no DC voltage at the output. After accomplishing that, the phono preamplifier switches on immediately.

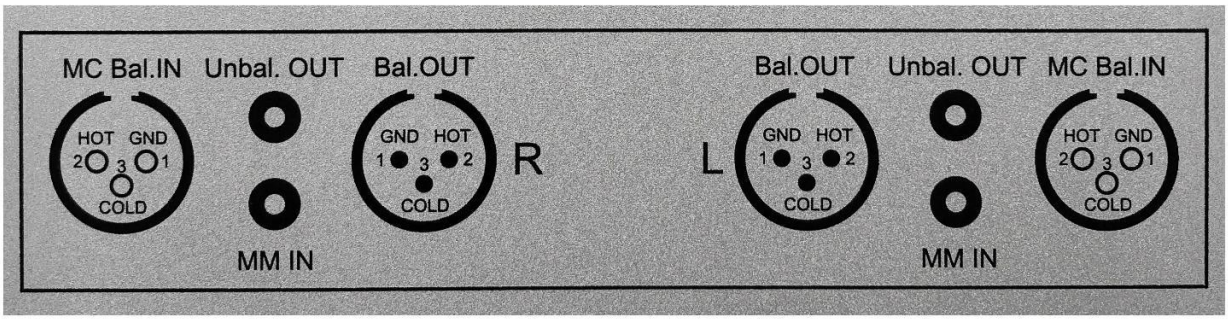
Since the device has a long warm-up phase until it reaches its full sonic potential, it should be operated with the power supply permanently switched on. The power consumption is less than 11 watts. All internal amplification sections work in Class A mode.

* *Note: Before connecting this unit to the mains power using the power supply cable, you must ensure that the unit's mains voltage setting matches the local mains voltage. If you are unsure and have any questions about the local power supply, please contact your local electricity supplier. The device operates with 230 V.*

Connecting

The pearl can be connected to any unbalanced RCA line input or balanced XLR input of a standard stereo preamplifier or integrated amplifier.

Please refer to the schematic illustration on the bottom of the device for the assignment of the rear inputs and outputs.



Cables with a length of up to 4 meters can be connected to the output sockets of the pearl, since significant interaction between cable capacitance and output resistance are negligible due to the low output resistance of less than 50 Ohms. Nevertheless, the cable capacitance should be less than 150 pF/m.

The same applies to the balanced outputs. These feature an output resistance of 2x < 50 Ohms and allow common mode rejections of more than 80 dB with a correctly designed balanced input amplifier section. The output level is 6 dB higher than with the unbalanced output.

The clipping limits for MM and MC referred to 1 kHz are >= 20 dB above reference level, measured at 40 dB gain for MM and 60 dB gain for MC. The reference level is 0.5 mV for MC and 5 mV for MM.

Cartridge operation

The pearl phono preamplifier basically allows the use of Moving Magnet (MM), Moving Iron (MI) and Moving Coil (MC) cartridge systems, the latter also in the "high output" variant.

The pearl phono preamplifier provides simultaneous operation of two cartridges. One cartridge must always be an MC system, while the other can be an MM or MI system.

Both cartridges can be connected simultaneously and remain connected. The corresponding adjustments made with the switches on the bottom plate of the phono preamplifier only affect the selected input.

The phono preamplifier pearl always operates in balanced amplification mode when using MC systems, and in unbalanced amplification mode when using MM systems.*

Switching is done via the MM/MC button on the front panel.

CAUTION !

Do not press the MM/MC switch during operation as long as the volume control of the subsequent component is not set to zero (= no signal at the output of the connected preamplifier stage)!
The resulting impulse-like, vociferous crackles might destroy connected loudspeakers or power amplifiers!

After switching from MM to MC or MC to MM please always wait for approx. 30 seconds, as during this time span the internal servo amplifiers regulate the DC output voltage down to 0 volts. Only then open the volume control again.

Grounding

With correct balanced operation (of a MC cartridge) an additional ground wire between turntable and phono preamplifier is not required, whereas for MM systems this is indispensable - use the centrally placed ground terminal GND on the back plate of the pearl.

* *Note: It is generally not recommended to use an adapter at the balanced input to connect unbalanced cabling. Even though the device will work, it will perform only far below its maximum achievable sonic potential. At the same time, the effect of suppressing interferences by means of the balanced input is no longer provided.*

Overload indication

Two red LEDs on the front panel signal a massive overload of the device - accompanied by a very high output level.

Possible causes: the unintentional connection of an MM cartridge to the MC input, incorrect wiring or the erroneous connection to the output of a high-output level device.

In normal phono operation, these LEDs will only light up in exceptional cases - i.e. when a cartridge with about 20 dB more output level than usual is used. The threshold is reached at 9V peak and even then the distortion limit of 0.1% THD & Noise is not yet reached.

Subsonic filter

The Subsonic switch located next to the MM/MC button activates the subsonic filter with a slope of 18 dB/octave and a cutoff frequency of 16 Hz.

The function is signaled by a yellow LED.

Settings

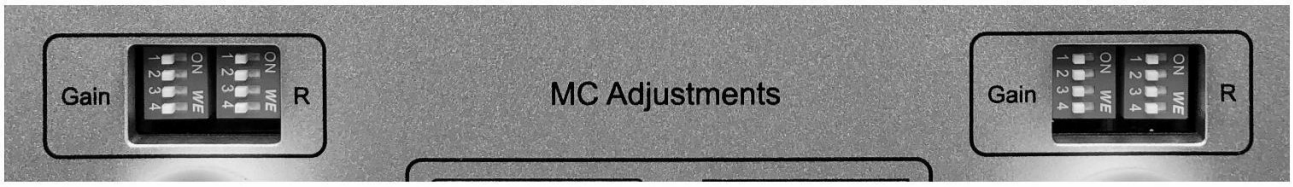
Extensive adjustments can be made via the slide switches located on the bottom plate of the pearl. By changing the input resistance, gain and capacitance (MM only) per channel individually, it is possible to perfectly adapt the pearl to the cartridge systems used and the listener's personal preferences.

You can adjust all switches during operation - with one important exception: the MM/MC switch on the front panel! (see page 3).

On/Off function

Basically, the following applies: When the switches are not actuated, the idle position is always down (= at the digit). The active position is up (= ON).

MC cartridges



MC input impedance

With the slide switches R you can set the input impedance of the MC input stage from 2000 Ohms down to 125 Ohms.

When the switches are not operated, the input impedance is 2000 Ohms.

Switch 1 activated	1000 Ohms
Switches 1 + 2 activated	500 Ohms
Switches 1 + 2 + 3 activated	250 Ohms
Switches 1 + 2 + 3 + 4 activated	125 Ohms

MC gain

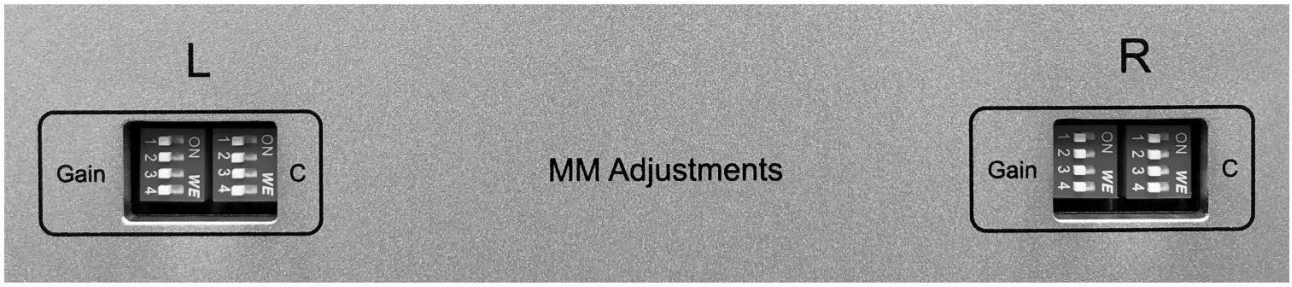
The Gain slide switches change the gain of the MC stage. The overall gain of the pearl phono preamplifier is always the sum of both MC and MM gains.

When the switches are not operated, the MC gain is 20 dB.

Switch 1 sets gain to	22 dB
Switches 1 + 2 set gain to	24 dB
Switches 1 + 2 + 3 set gain to	26 dB
Switches 1 + 2 + 3 + 4 set gain to	28 dB

If a high input impedance and a low gain are selected, MC high-output cartridges may also be operated in the MC position.

MM cartridges



MM capacitance

The slide switches C enable the capacitive adjustment of MM cartridges by means of adding capacitances.

When using the tonearm genuin audio point, for example, the inherent capacitance from the tonearm outset (cartridge connectors) to the Lemo plug is approx. 50 pF. This value adds up to the input capacitance of the subsequent MM amplifier.

Attention: When operating MC cartridges, the position of these switches is without effect.

The fixed input capacitance of the phono preamplifier pearl is 47 pF.
The DIP switches increase the capacitance stepwise by +47 pF at a time.

Switch 1 increases by	+47 pF
Switch 2 increases by further	+47 pF
Switch 3 increases by further	+47 pF
Switch 4 increases by further	+47 pF

Thus, the maximum load capacitance when using the above mentioned exemplary tonearm genuin audio point is 285 pF (= 5 x 47 pF pearl + 50 pF inherent capacitance tonearm).

MM gain

The Gain slide switches allow gain adjustment of the MM amplifier section.
When the switches are not operated, the MM gain is 37 dB.

Switch 1 sets gain to	40 dB
Switches 1 + 2 set gain to	42 dB
Switches 1 + 2 + 3 set gain to	44 dB
Switches 1 + 2 + 3 + 4 set gain to	46 dB

By selecting the appropriate gain factors of MC or MM, a suitable gain setting for each existing electrodynamic cartridge system should be found.

The maximum overall gain is thus 74 dB (MC switches 1 - 4 + MM switches 1 - 4). Typical values for MC are 60 dB and for MM 40 dB. Upon request all input values can also be provided with individual impedance or capacitance values.

In case of mismatch and possibly resulting overload, the two LEDs "Overload" on the front panel flash red.

The overload limits for MM and MC referred to 1 kHz are + 20 dB above nominal level. The nominal levels for MC and MM are 0.5 mV and 5 mV respectively.

Specifications

Input impedance MM……47 kOhms
Input impedance MC……variable from 125 Ohms to 2 kOhms
Input capacity MM…….... variable from 47 pF to 285 pF
Input capacity MC……2 x 470 pF
Input impedance unbalanced……47 Ohms
Input impedance balanced……2 x 47 Ohms
Frequency response deviation 10Hz to 100 kHz……+/- 0,3 dB
Frequency response deviation channel-to-channel……+/- 0,3 dB
Level difference channel-to-channel ……+/- 0,3 dB
(maximum values, typical values are < 0,1 dB for all adjustable gain and resistance values)
Subsonic filter with 18 dB/Octave in Bessel characteristic……15,9 Hz (at -3 dB)
Equivalent signal-to-noise ratio referred to reference level
Signal-to-noise ratio MM unvalued……> 80 dB
Signal-to-noise ratio MM valued ……> 90 dB
Signal-to-noise ratio MC unvalued ……> 60 dB
Signal-to-noise ratio MC valued ……> 65 dB
(Valuation carried out with an A filter, unvalued measuring uses a Brickwall filter from 22,4 Hz to 22,4 kHz as per Bruel&Kjaer standard, MM gain = 40 dB and MC gain = 60 dB)
THD & Noise ……< 0,01 %
Intermodulation……< 0,01 %
Common mode rejection MC……> 90 dB
Maximum output voltage unbalanced……> 9 V effective
Maximum output voltage balanced……> 18 V effective

Mains power supply:
Filtered toroidal transformer with DC suppression and 250 Watts rated output
Voltage stabilization with additional suppression of power frequency components down to approx. 25 µV
Sieving capacity of power supply > 40 000 µF, added by 80 000 µF inside the phono preamplifier

For further technical information please visit our website www.genuin-audio.de

General information

Safety instructions

Do not operate the device in places where it is exposed to extreme heat or moisture. This will prevent the risk of electric shock or fire.
Check the local mains voltage before operation.
Never remove the cover.

Service

There are no parts inside the device that can be repaired by the user. Always leave the service to trained personnel. A warranty becomes invalid if the product has been serviced by non-authorized personnel. In case of service, please contact genuin audio or your authorized dealer.

Important notes

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