

uPhono⁺

 User Manual



www.unisonresearch.com

Contents

Introduction	19
Unpacking and installation	20
Controls, connections and settings	22
Set-up and operation	24
Technical Specifications	29
Troubleshooting, Servicing and Warranty	30

Introduction

Thank you and congratulations for purchasing the Unison Research *uPhono*⁺ phono preamplifier – a product from A.R.I.A. Advanced Research In Audio S.r.l.

Every Unison Research product is the accomplishment of our long experience in audio electronic design. Each of our products is the fruit of our passion for building unique and valuable pieces of audio equipment in which traditional craftsmanship and advanced electronics join together in harmony.

Unison Research uses only the finest components and materials. Each product is carefully inspected and tested at various stages of the production process to satisfy our own high reliability and quality standards.

Please read and follow all warnings and instructions in this user manual and all those indicated on the unit to get the best performance from your *uPhono*⁺ for many years to come.

Unpacking and installation

Unpacking

Please make sure that the packaging is undamaged and the product has not suffered rough handling during transportation. If this is the case, we strongly recommend you to contact your authorised Unison Research dealer for advice before installing the unit. Keep all packing materials: every time you will need to transport your uPhono⁺, its original purpose-designed carton will provide the safest protection and you will also help to protect the environment. Carefully remove your amplifier and all the accessories from the carton.

Inside the package you will find:

- 1 Unison Research uPhono⁺ phono preamplifier
- 1 Power supply cable
- 1 User manual
- 2 RCA shorting plugs for unused phono input

Important notice:

After unpacking, please allow the uPhono⁺ to adapt to the room temperature for some hours before operating. This time is needed to prevent any possible damage due to condensation which can eventually form during transportation. Please note that condensation can form every time the amplifier is moved between cold and warm places.

Installation

Your uPhono⁺ should be placed on a flat surface in a safe place, out of the reach of children.

Adequate clearance (at least 5cm) must be left above and around the device to guarantee good ventilation.

We also suggest to leave enough free space behind your uPhono⁺ to allow the connecting cables sufficient room to bend without forcing or straining them, and we strongly recommend not to place the device directly on the top of a power amplifier or, in general, close to any source of heat. We also recommend that the uPhono⁺ should not be positioned too close to other mains-powered products as the sensitive high-gain circuitry may pick up leakage flux from the mains transformer, causing audible noise.

Power Sources

The uPhono⁺ is set at the Unison Research factory to the correct mains voltage of the country it is shipped to. Before switching on the preamplifier, please check that the mains voltage indicated on the rear panel corresponds to the mains voltage in your area.

Never connect the uPhono⁺ to AC mains if the local voltage doesn't match the value indicated on the uPhono⁺!

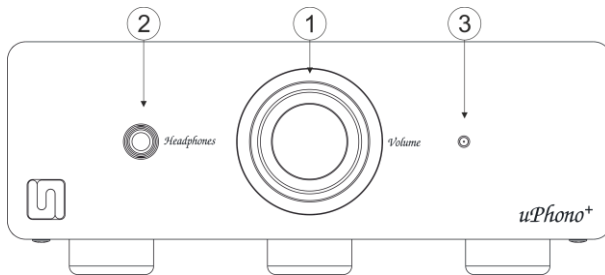
The mains fuses are located in the built-in fuse-holder in the IEC mains socket on the rear panel.

IMPORTANT SAFETY NOTES

1. The mains voltage setting may not be changed by the user.
2. Always replace fuses only with new ones of the same type and value.
3. The uPhono⁺ must be connected to a mains socket outlet with an efficient earth connection.
4. Unplug the uPhono⁺ during lightning storms or when unused for long periods of time.
5. Refer all servicing to authorised service personnel. Servicing is required when the uPhono⁺ has been damaged in any way (e.g. the power-supply cord or plug is damaged), any liquid has been spilled or objects have fallen into it, it has been exposed to rain or moisture, it does not operate correctly, any smoke or unusual smell is coming from it or it has been dropped.

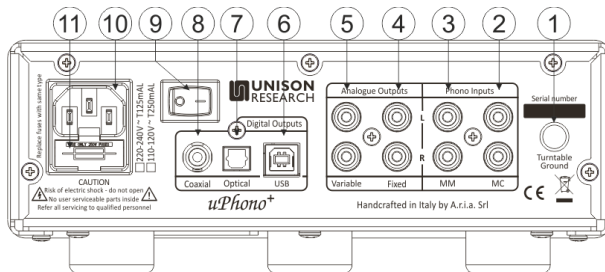
Controls, connections and settings

Front panel controls



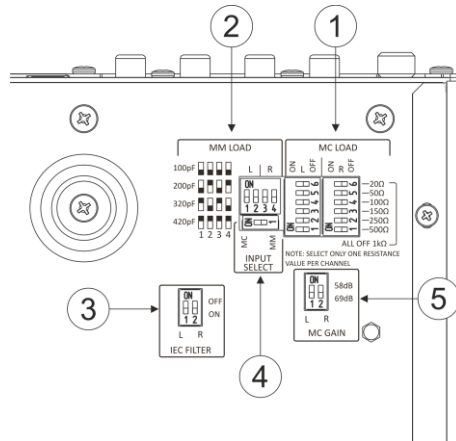
- ① Volume control. Varies levels of headphone and variable line outputs.
- ② ¼ inch headphone socket. Connect stereo headphones with an impedance between 16 and 600 ohms.
- ③ Power LED

Rear panel connections



- ① Turntable ground connection
- ② MC phono input
- ③ MM phono input
- ④ Fixed analogue line output
- ⑤ Variable analogue line output
- ⑥ USB output
- ⑦ Optical digital output
- ⑧ S/PDIF coaxial digital output
- ⑨ Mains power switch
- ⑩ IEC Mains power socket
- ⑪ Mains fuse holder (contains a spare fuse)

Underside panel controls



- ① MC cartridge loading resistance selectors
- ② MM cartridge loading capacitance selectors
- ③ IEC anti-rumble filter selector
- ④ MM/MC phono input selector
- ⑤ MC gain selector

Set-up and operation

Warnings:

5. Make all connections and setting changes with the uPhono⁺ powered off.
6. Make sure that the left and right channels are connected correctly: on many products and cables, the right channel is usually red and the left channel is usually white.
7. **Do not** connect the line outputs of the uPhono⁺ to a phono input on your amplifier: a phono input has a special equalisation which is already carried out in the uPhono⁺. Connecting the uPhono⁺ to a phono input will cause the sound quality to be poor and distorted. **Only** connect the line outputs of the uPhono⁺ to a standard line input on your amplifier.
8. **Do not** connect the coaxial digital output of the uPhono⁺ to an analogue line or phono input. This output must only be connected to an S/PDIF compatible digital input.

Supplying power to the uPhono⁺

Once again, please check that the mains voltage in your area corresponds to the mains voltage indicated on the rear panel of your uPhono⁺. Make sure the power switch is set to the off position ("O"). Insert the IEC socket of the supplied mains cable in the IEC mains socket on the rear of the uPhono⁺, and insert the mains plug into the mains wall socket.

Setting-up your uPhono⁺

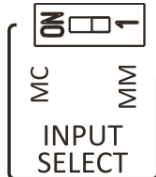
The uPhono⁺ may be used with either MM (moving magnet) or MC (moving coil) cartridges. The appropriate type, loading and gain level (only for MC) for your cartridge can be set using the miniature switches (dip-switches) on the underside of the uPhono⁺. Before switching between MM and MC, the unit must be switched off to avoid loud noises from your speakers with possible consequent damage to them. To find out which type of cartridge you are using and the correct load settings, please consult the manual accompanying your cartridge or turntable. If you are unsure, please contact your dealer.

Supplied with the uPhono⁺ are two shorting RCA plugs, to be inserted into the RCA sockets of the unused input. These reduce the risk of noise and interference entering the unused input and possibly "contaminating" the sound quality of the input currently in use. Fit one plug per channel on the unused input. Important: do not connect these shorting plugs to any analogue outputs or the coaxial digital output: this could cause damage to the internal electronic circuitry.

Adjusting the settings

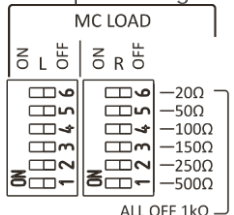
On the underside of the uPhono⁺ are a number of dip-switches to select the type of cartridge, the appropriate loading resistance and capacitance, the MC stage gain and the IEC rumble filter. These can be adjusted with a small screwdriver or matchstick.

Cartridge type



The uPhono⁺ features separate inputs for either a Moving Coil (MC) or a Moving Magnet (MM) cartridge, but only one can be used at a time. Depending on the type of cartridge fitted to the tonearm of your turntable, connect the turntable's output to either the MC or MM input of the uPhono⁺ and make sure that the correct input is selected using the MM/MC switch. Unless specified otherwise, connect the separate ground wire of your turntable to the knurled ground screw terminal on the rear panel of the uPhono⁺, as shown in the **Rear panel connections** paragraph.

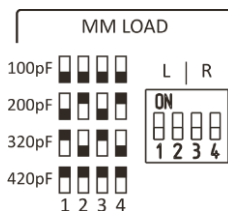
MC input loading resistance



NOTE: SELECT ONLY ONE RESISTANCE VALUE PER CHANNEL

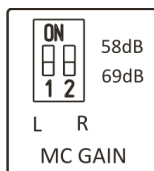
The MC input loading resistance values can be selected between 7 values: 20, 50, 100, 150, 200, 400Ω and 1kΩ according to the specifications supplied by the manufacturer of the cartridge fitted to your turntable's tonearm. Only one value should be set to "ON". With all switches set to off, the value will be 1kΩ. Please ensure that the left and right channels are set to the same value. The MC load capacitance is fixed at 1nF.

MM input loading capacitance



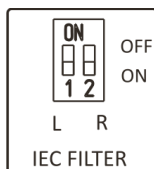
The MM input loading capacitance values can be selected between 4 values: 100, 200, 320 and 420pF according to the specifications supplied by the manufacturer of the cartridge fitted to the tonearm of your turntable. Please ensure that the left and right channels are set to the same value. The MM load resistance is fixed at 47kΩ.

MC stage gain



The gain of the MC stage can be set to 58 or 69dB. 58dB is usually suitable for low-output moving coil cartridges, whereas 69dB is suitable for ultra-low output MC cartridges. Please ensure that the left and right channels are set to the same value. Please note: setting the gain to an excessively high value may cause the audio output to be distorted.

IEC "Rumble" subsonic filter



The IEC "Rumble" subsonic filter reduces the very low frequency oscillations in the speakers caused by warped or imperfectly pressed vinyl records.

Analogue inputs

The uPhono+ can accept Moving Magnet (MM) and Moving Coil (MC) cartridges. Please identify the type of cartridge fitted to your turntable and connect the cable from the turntable to the correct input, either MM or MC, as follows:

3. MM. This input can accept a signal from a moving magnet (MM) cartridge or a high output moving coil (MC) cartridge. In order to be able to connect a high output MC cartridge to the MM input, this should require 47k Ω loading and have an output of at least 3mV at 1kHz.
4. MC. This input can accept a signal from a moving coil (MC) cartridge. It has two gain settings, 58dB and 69dB. In case of use with normal low output MC cartridges, 58dB should be sufficient, whereas ultra-low output MC cartridges will probably require the uPhono+ to be set to 69dB gain. Please take care with the gain settings: if the signal level from the cartridge is too high from the chosen gain level, the audio output will probably be distorted.

In both cases, care should be taken to select the correct loading resistance or capacitance in order to obtain the best sound quality. The cartridge manufacturer and/or turntable manufacturer will usually supply these details.

Analogue outputs

The uPhono⁺ is equipped with two analogue line-level outputs and a headphone output for extra convenience.

4. Fixed level RCA outputs. The full signal level is available on these outputs and should be connected to the line input of a preamplifier or integrated amplifier that has its own volume control.
5. Variable level RCA outputs. The signal level on these outputs vary with the position of the volume knob on the front panel. For this reason, these outputs can be connected directly to the line inputs of a power amplifier.
6. Headphone output. The uPhono⁺ is equipped with a high performance headphone output that can easily drive headphones from 16 to 600Ω. The volume level is controlled by the volume knob on the front panel.

Digital outputs

To cater for the convenience of modern-day connectivity requirements, we have equipped the uPhono⁺ with three digital outputs:

4. Coaxial digital output. Connect this to the S/PDIF digital input of your preamplifier, amplifier, digital processor, soundbar or other unit equipped with a corresponding digital input. Do not connect this output to any analogue input.
5. Optical output. Connect this to the optical digital input of your preamplifier, amplifier, digital processor, soundbar or other unit equipped with a corresponding optical input.
6. USB. This output allows you to digitally convert and store your vinyl recordings on your digital media. Connect this to your PC or MAC. Please see the separate paragraph for instructions.

Connecting the uPhono⁺ to a computer



No additional drivers are required to be installed by the user both with Mac OS[®] operating systems.

With Microsoft[®] Windows 7[®]/ Windows 10[®] operating systems, before connecting the USB output to a computer, a driver must be installed on the computer. The driver can be downloaded from the uPhono⁺ page on our website www.unisonresearch.com in the “download” section, then install it, following its instructions. We remind you that you must complete the driver installation before connecting the uPhono⁺ to the computer.

Connect the uPhono⁺ directly to your computer using the USB output socket on rear panel using a USB-B to USB-A cable. Do not connect through USB hubs or switches as they may disturb the correct data flow.

Connect the uPhono⁺ to your computer after both products are powered on and the computer is fully booted up. Your computer will automatically detect the uPhono⁺ and install any necessary drivers.

To select the uPhono⁺ as a recording device on a Windows[®] 7/8/10 PC:

1. Select "Start" → "Settings" → "Sound" → "Recording" or  →  → "Sound" → "Recording".
2. Select "Unison Research uPhono⁺", then "Properties" → "Listen", and set as predefined recording device.
3. Select the "Advanced" tab and select the preferred bit rate and sampling frequency.

To select the uPhono⁺ as a recording device on an Apple Mac OS[®] computer, select "

System Preferences → Sound → Input".

Unison Research does not supply software for recording your vinyl to your computer with the uPhono⁺. There are many valid freeware, shareware and purchasable software applications available, according to your preference. We can recommend the "Audacity" freeware application, available at <http://www.audacityteam.org>.

Technical Specifications

Analogue Inputs	Moving Magnet cartridge (MM) / Moving Coil high output cartridge (MC)	
	Moving Coil low output cartridge (MC)	
Analogue Outputs	Analogue fixed level line	
	Analogue variable level line Headphone (16-600Ω)	
Digital Outputs	USB for connection to a PC (up to 24bit/96kHz)	
	Optical digital Coaxial digital	
Cartridge loading	MM	47kΩ + 100/200/320/420pF
	MC	20/50/100/150/250/500/1kΩ + 1nF
System gain at 1kHz	MM	38dB
	MC	58dB / 69dB selectable
Nominal output level	316mV _{RMS} (-10dBV)	
Sensitivity for nominal output	MM	3.36mV _{RMS}
	MC (58dB)	0.336mV _{RMS}
	MC (69dB)	0.1mV _{RMS}
Signal-to-noise ratio (unweighted)	MM	-80dB
	MC (58dB)	-64dB
	MC (69dB)	-60dB
RIAA curve accuracy	+/- 0.3dB from 20Hz to 30kHz	
IEC subsonic filter	-3dB at 20Hz and 6dB/octave	
Overload margin (headroom)	30dB	
THD+N at 1kHz	MM	0.018% (10mV _{RMS} in)
	MC (58dB)	0.12% (1mV _{RMS} in)
	MC (69dB)	0.12% (1mV _{RMS} in)
Line-level output impedance	Fixed	824Ω
	Variable	824Ω
Headphone stage	Output level	2.18V _{RMS} Max
	THD+N	0.07% (@1kHz / 32Ω)
USB digital output	Resolution	16/24 bit
	Sample rates	8, 16, 32, 44.1, 48, 88.2, 96kHz
Digital coaxial output	0.5Vp-p at 75Ω / 96kHz maximum sample rate	
Mains inlet voltage	220-240V AC or 100-120V AC according to the region	
Maximum power consumption	6.8W	
Dimensions (H x W x D)	82.5 x 216 x 246 mm (3.25" x 8.5" x 9.69") including connectors and knob	
Weight	2.6Kg (5.73lbs)	

Troubleshooting, Servicing and Warranty

All Unison Research products are built to the highest possible standards and subject to numerous strict quality checks before we are satisfied. If your uPhono+ does not seem to be working properly, please check this list of possible causes before submitting the product for repair.

The uPhono+ does not power up	<ul style="list-style-type: none"> Ensure the uPhono+ is connected to the mains power supply correctly. Ensure that there is mains power at the socket. Check the fuse in the IEC socket on the uPhono+
There is no sound from the system	<ul style="list-style-type: none"> Check the connection between the uPhono+ and your amplifier. Check that your amplifier is switched on. Check that the correct input has been selected on your amplifier. Ensure that your amplifier is not muted. Ensure that the loudspeakers are connected correctly and are not defective. Check that the turntable has been properly connected to the uPhono+ Ensure the input used has been selected on the uPhono+ Check that the cartridge is wired into the head shell.
There is no sound on one channel	<ul style="list-style-type: none"> Check that the uPhono+ has been correctly connected to your amplifier Check that the speakers are connected correctly Check that the turntable is correctly connected to the uPhono+
There is a loud buzz or hum using the uPhono+	<ul style="list-style-type: none"> Check the ground connection and signal cables from the cartridge, tonearm or audio cable to the uPhono+ Try to move your turntable away from your amplifier Try to move the uPhono+ away from the amplifier
Distorted sound on one or both channels	<ul style="list-style-type: none"> If using MC, check that the gain switch setting is not too high Check for dust on the vinyl record and/or the needle Check whether the cantilever or needle are damaged
Volume is too loud or too quiet	<ul style="list-style-type: none"> If the variable line output is being used, check that the volume knob is too far anti-clockwise or clockwise Check that an MC cartridge has not been connected to the MM input or vice-versa.

Servicing

Should you encounter a problem that you are unable to solve, please contact your local Unison Research dealer. If the dealer is also unable to solve the problem, the unit will be returned to the Unison Research distributor in your country.

Warranty

Repairs will only be made under warranty if the unit is returned to your local dealer or distributor for your country correctly packed in its original packaging. Unison Research takes no responsibility for defects or damage arising from accident, misuse, abuse, wear and tear, neglect or unauthorized repair, adjustment and/or modification.

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