Discovery 1 User Manual

Introduction

Thank you for purchasing the Discovery 1 phono stage. We trust that this high-end audio component will give you many years of listening enjoyment.

Before connecting the phono stage to your system we highly recommend that you read the whole manual in order to become familiar with the unit's controls and most importantly, specific warnings and cautions that should be observed. Throughout these manual handy tips have been included that should help to ensure the phono stage is set up optimally and gives you the most transparent and engaging sound possible.

Run in time

The phono stage takes a while to run in. It needs a minimum of 40 hours playing music (not just powered up) before it really frees up and loses any restrictionsin its sound. For low output moving coil cartridges the run in time is more like 100 hours.

Leave powered on

The phono stage takes a few hours to warm up properly from switch on.

Because it consumes very little power we suggest leaving it permanently powered up (unless you are going on Holiday).

Please read this first

WARNINGS :-

Do not open casework

Never disassemble the phono stage box. There are no user serviceable parts inside but there is potentially dangerous mains voltage in the power supply that can cause serious injury or death.

Mains Lead

The Discovery 1 automatically adapts to regions with mains supply of 240V, 230V and 100 – 120V.

The Protective Earth connection to the mains supply is required for safety reasons because mains voltage is present in the module. The Earth wire in the mains lead must never therefore be disconnected or 'lifted'.

Do not connect directly to a Power Amplifier

Never connect the Discovery 1 phono stage directly to a power amplifier. The unit has no direct control over the output volume and the high gain is extremely likely to cause an acoustic feedback loop that can easily destroy the drive units in speakers. Always connect the unit to a device with a volume control and always power the system on with the volume reduced to a low level.

Lower volume before turning on

Always mute the amplifier, completely turn down the master volume control or better still turn off the main power amplifier when performing any operations that involve changes to the Discovery 1 phono stage cabling. Make sure that the tonearm ground wire is in good contact with the ground post and that it is mated squarely and cleanly.

Getting Started

Unpacking

The Discovery 1 phono stage is supplied with the following items: -

1. MM/MC phono stage module
2. AC mains power cable with C5 input plug (230V/115V suitable for regional use)
3. This owner manual

If any of these items is missing or if the mains cable is not suitable for the intended country of use then please contact the distributor or supplier from where it was purchased for a suitable replacement.

Setting Up

It is recommended that other Hi-Fi system components are powered off during setup as this will avoid all kinds of potential mistakes causing unwanted noise, hum or damage whilst cables are being plugged in.

Physical Placement

Firstly, find a good stable location to place the phono stage box. Try and avoid close proximity with units which emit a magnetic field (such as ampliers etc) as these can induce hum. A high-quality Hi-Fi stand or shelf as part of a dedicated Hi-Fi installation is preferable.

Connect the earth

Connect the tonearm earth wire (if it has an earth wire) to the binding post on the rear panel. It can be difficult to turn the Earth nut with larger phono cables already plugged in therefore this should be done first.

If a bare earth wire is used, make sure it is wrapped around the binding post thread in a clockwise direction looking from the rear and that no exposed wire is left hanging out that could make a short to other connectors.

Only hand tighten the earth nut making sure the wire is securely gripped. Do not use spanners or other tools.

Avoid earth loops

Ideally there should be only one connection to Earth from a common point. If multiple Earth connections exist then earth loops can occur if current flows around such loops. This sometimes results is audible mains hum at 50/60Hz or even harmonics of these frequencies. If mains hum is heard when playing vinyl the best approach is to try and identify the source of the ground loop and break it at a sensible point that does not compromise the safe operation of the entire system. If in doubt, seek professional assistance.

Connect your Tonearm to the Discovery 1

Plug the tonearm phono cables into the 2 phono sockets marked "IN".

Next plug in a pair of interconnect cables running from the Discovery 1 outputs marked "OUT".

Plug the other end of the interconnects into your pre-amplifier / amplifier input RCA sockets.

Connect the power cable

Finally, connect the mains cable The blue LED on the front panel will light up to indicate the unit is powered up.

Front Panel Adjustments

The Discovery 1 phono stage has 2 front panel controls which make adjustments to suit a wide variety of MM and MC cartridges. These adjustments have a significant influence on sound quality so take time to explore them and not just settle on the first combination, even if it sounds great.

The best approach for making adjustments is to first set the impedance to roughly the right value. So for Moving magnet (MM) cartridges use the MM setting and for Moving Coil (MC) cartridges set the value at 400 ohms as a start point.

Once you have done this start experimenting with the gain setting to achieve the best sound. Start with the gain knob turned fully anti-clockwise which is its lowest then increase gain it by turning the knob clockwise. Compare for any sign of 'shouting' from voices or bass crescendos, for example and stop increasing the gain once these tell tale signs manifest themselves.

Next adjust the impedance. Listen to tonal balance and bass tightness. If the impedance is too low then the bass tends to become soft and loose, lacking in punch and definition. If the impedance gets too high then the mid-band becomes a little hard / harsh and bass warmth disappears along with it's expansive, relaxed feel, (wherever is should sound relaxed and warm with proper slow decay).

Impedance Loading

The knob on the left has 5 positions to control the electrical 'load' placed on the cartridge coils. For moving magnet cartridges, the switch is usually set at the MM location. This provides the normal 47Kohms loading used on most MM cartridges and

high output moving coil cartridges (2 – 5mV). For low output moving coil cartridges (0.1 – 0.9mV, the load impedance is usually much lower with 400 ohms being quite typical.

Notes on cartridge variables

The manufacturers of moving coil cartridges may specify a range of possible loading values that can be quite wide, for example, from 100 ohms to 1000 ohms for a specific cartridge.

It is therefore recommended that the best value should be determined by experimentation over a number of hours once the phono stage has fully warmed up (usually more than 1 hour). When a manufacturer recommends a particular impedance value which does not match any of those available on the Discovery 1 it's recommended to start with the closest setting to the recommended value and then experiment away from that value; increasing the impedance initially.

The audible effects of different impedance values can often be system dependent and subtle but can also result in surprising discoveries. The key is to take time when making the final selection, playing a number of tracks to compare against each change of input impedance. Then possibly repeat the same test over a number of days.

Switch Positions

1. MM (47K ohms) - most moving magnet cartridges
2. 100 (ohms) - very low impedance moving coil cartridges
3. 240 (ohms) - low impedance moving coil cartridges
4. 400 (ohms) - typical impedance moving coil cartridges
5. 820 (ohms) - higher impedance moving coil cartridges

Further guidance on impedance setting

Generally, the input impedance loading value should be at least 10 times the output impedance of the cartridge's coil. This is not a hard and fast rule as the effects of changing impedance may be subtle and subjective suiting one system combination more than another. It is however a good starting point if there are no specific recommendations from the manufacturer or their recommended range is very wide.

Setup is complete

Congratulations, now that the Discovery 1 has been connected and setup, all that is left to do is to sit back, relax and enjoy your favourite music whilst exploring new insights and depths previously hidden.

Troubleshooting

No Sound is produced

If the blue LED on the left of the front panel is not lit then check the cable has been fitted correctly and the connectors have been pushed in fully.

Action to take in the event of a fault

In the unlikely event of a fault developing with the phono stage contact your dealer or distributor where you will receive expert advice.