THE VALVE ISIS

The valve Isis shares the same digital and USB sections as found in the solid state version however the analogue stage is valve based with passive filtering. This stage uses two military specification triple mica 5814A (ECC82/12AU7) triodes being driven by the revolutionary Wolfson WM8741 ultra high performance digital to analogue converter. The output buffer and transformer driver stage uses two ECC88 (6DJ8/6922) triodes. This, like its solid-state stable mate, is of an un-orthodox design. The design goal with this player was to keep away from the normal design approach of "lets run it through a valve to make it sound warm", but take advantage of industrial valve circuits to make an articulate and competent valve based CD player. Careful choice has been made for every component in the digital and the analogue signal path to ensure the integrity of the signal. Careful design of the PCB's ensures isolation of not just the digital and analogue sections, but also the motor, display and user interface processor. All sonically critical electrolytic capacitors have been by-passed with polypropylene or polyester film capacitors. In addition to this, large value electrolytic capacitors have also been by-passed with audio grade electrolytic capacitors. Power supply impedances in the digital to analogue converter are kept very low by the use of solid polymer capacitors. All power supplies utilise custom Rega K-Power smoothing capacitors, and fast diodes have been used throughout in power supply rectification. The Isis uses enhanced and optimised control code for the control of the CD processor and user display; this will speed up the initialisation process by means of a tighter control interface between the user micro and CD processor.

TECHNOLOGY

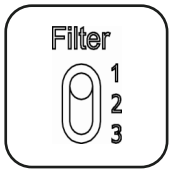
The differential output of the digital to analogue converter drives a valve differential (operational) amplifier, with a very modest amount of feedback to stabilise the operating conditions. The 5814A based differential amplifier, with a solid-state current generator in its tail, takes full advantage of the differential output from the digital to analogue converter. This is followed by a passive Butterworth second order LC filter. Finally, this signal is buffered using a low anode resistance ECC88 to drive the output and balancing transformer. In design it was felt that unnecessarily high levels of THD would unduly overwhelm the qualities of the digital stage of the Isis. The overall THD is typically 0.06% being prominently even order, where the 2nd harmonic predominates. This will give the sonic dynamics of the valves without dominating the sonic qualities of the digital section. After many hours of tube rolling we found the 5814A differential amplifier position was best on the grounds of micro-phonics, reliable operation and sonic qualities. Both the HT & LT power supplies are fully regulated and use the same power supply parts as used in the solid state Isis. Like the solid-state analogue stage valve Isis has it's own dedicated 50VA mains transformer, ensuring galvanic isolation between the digital and analogue sections of the player. The Isis has an isolated balanced output, and in keeping with the spirit of the valve circuit topology we have opted to use a transformer in this position. This balancing transformer is made to the same exacting standards to that found in the IOS MC amplifier.

IMPORTANT INFORMATION : POWER UP DELAY

After turning on the CD player it will take approximately 30 seconds for the Mute relay to activate, this allows time for the valves to warm up and the signal capacitors to stabilise. The player will play CD's immediately after the relay has closed. Please note it will take approximately five minutes for the valves to reach their operating temperature. Whilst the CD is in the mute state it is possible to place a disk in the player to initialise, but no audio output will be available until the mute relay is activated.

DIGITAL FILTER SWITCH (located on back panel)

The digital filter switch selects the three digital filter options within the WM8741 DAC. Start with Filter 1 and try Filter 2 & 3. This setting will be a matter of personal taste and dependant on the material being listened to.



Filter 1 (off position) standard half band digital filter.

Filter 2 (mid position) minimum phase digital filter.

Filter 3 (on position) minimum phase with tailored response.

ANALOGUE XLR BALANCED OUTPUT – connection options.

Option 1: The Valve Isis is best used in a fully balanced system using balanced XLR connectors and leads. (Rega balanced XLR leads available from your Rega dealer). The connections are as follows (please note - pin 2 & 3 are floating).

Pin 1 = Earth
Pin 2 = Positive
Pin 3 = Negative

Option 2: If using the valve Isis in an un-balanced system we recommend using the Balanced XLR output on the Isis connected via a un-balanced lead into the amplifier. (This lead is shown on the Rega website www.rega.co.uk)

The basic configuration for XLR to PHONO lead is as follows: (Option 2 should only be used with the valve ISIS).

Connect the earth screen (ground - Pin 1 XLR) to the earth on the amplifier input connector (PHONO), along with the negative in the XLR (negative-Pin 3).The signal (positive-Pin 2 XLR) is connected to the signal input on the amplifier via phono connector.

Option 3: A high quality Rega 'couple' (unbalanced) interconnect is supplied. However this output is not fully isolated, and therefore does not take advantage of the transformer isolation afforded by the balanced XLR output.

WARNING

RISK OF DEATH—DO NOT ATTEMPT TO OPEN THE CASE

EXTREMELY HIGH VOLTAGES ARE PRESENT WITHIN THE VALVE ISIS ONLY TO BE OPENED BY A QUALIFIED ENGINEER.