

# PRODUCT INFORMATION SHEET

## QBD76

Building on the huge success of the award winning DAC64 the QBD76 is now able to take digital to analogue conversion to a new level with improvements in performance and sound reproduction not seen anywhere else. Added to this a unique Bluetooth digital audio receiver has been designed to enhance connectivity so that you can stream high quality music wirelessly from a Bluetooth enable phone, PDA or personal computer.



The digital design of the QBD76 from digital input, to the DAC outputs, is designed using the latest generation of field programmable gate array devices (FPGA), now with 1.25 million gates. The FPGA handles the switching of SPDIF inputs, all digital SPDIF decoding, digital PLL, RAM buffer controller, WTA filtering, and the 5<sup>th</sup> generation Pulse Array DAC. All of these functional blocks are designed at the gate level, for maximum performance. The QBD76 features state of the art improvements to the Pulse Array DAC, in particular the noise shaper architecture. Considerable work has been done to improve this aspect of Pulse Array, and new noise shaper has been developed, with the specific aim of reducing noise. Amongst other improvements the 5<sup>th</sup> generation Pulse Array now has 8<sup>th</sup> order noise shaping (the highest order of noise shaping of any known DAC), and 2608 times oversampling and digital filtering. A new digital PLL has been developed using a highly accurate 115MHz clock. Data related jitter is completely removed from the source, and you are left with just random master clock jitter of less than 3pS cycle to cycle. The subjective result is that the sound quality is now improved to a level similar to when the RAM buffer is used.

Usability has been improved with the addition of a display and control via a microcontroller circuit. Input selection, phase and RAM buffer settings can all be changed using three buttons on the top panel. Configuration is clearly visible via the magnified display. The number of digital inputs has been increased to include two coax, two AES and two optical inputs as standard, but now the addition of a USB input enables connection to a personal computer so music can be streamed directly.

However the most important and major technical advance is the Bluetooth audio input. Modern phones, personal digital assistants and personal computers now have the ability to transmit high quality audio using the Bluetooth Advanced Audio Distribution Profile or A2DP for short. Using a custom designed Bluetooth receiver we have been able to extract the digital audio information and input this directly into our DAC technology. Unlike the analogue audio outputs seen from other Bluetooth devices this gives us much better performance and enables CD like transfer of music from the Bluetooth device.

With its ground breaking sound performance and features the QBD76 defines the future of digital music playback.

## Product Specification

HARMONIC DISTORTION	< -103 dB (1kHz, 24-Bit @ 44.1KHz Sample Frequency) < -110dB (100Hz, 24-Bit @ 44.1KHz Sample Frequency)
SIGNAL TO NOISE RATIO	> 120dB
CHANNEL SEPARATION	> 125dB @ 1KHz
DYNAMIC RANGE	122dB
SWITCHABLE DIGITAL INPUTS	2 x 75Ω SP/DIF BNC Coax 2 x AES Balanced XLR Input 2 x Plastic fibre optic ( TOSlink ) 1 x USB ( B type ) 1 x Bluetooth supporting A2DP Stereo Audio
ANALOGUE OUTPUTS	2 X RCA Phono 2 X BALANCED XLR
RAM BUFFER	3 Settings – off, minimum & maximum
PHASE SWITCH	2 Settings – Positive or Negative output phase
SAMPLE FREQUENCIES	32KHz – 96KHz Single Cable, 176KHz & 192KHz Dual Cable ( Dual data mode )
OUTPUT MAX	6V rms. Balanced. 3V rms. unbalanced
OUTPUT IMPEDANCE	75Ω (short circuit protected)
DIMENSIONS IN MM	338 x 60 x 145mm (Width x Height x Depth)
WEIGHT	7 Kg



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