

DAC-S2

HIGH DEFINITION
AUDIO D/A CONVERTER



The DAC-S2 is the result of advanced audio engineering meeting the highest production standards. A state-of-the-art DAC chip, exclusive analogue circuitry including a discrete off-board power supply and exacting care in circuit board layout result in a device at the pinnacle of sound reproduction, with class leading figures for dynamic range, distortion and noise.

The front panel offers full control of the S2, with three-way input switching between AES, Optical and S/PDIF.

The DAC-S2 has line and headphone outputs and you can select either or both from a front panel three way output switch.

With digital inputs, including AES, capable of 96kHz/24bit operation and balanced outputs the DAC-S2 will match any professional installation.

The analogue output levels are controlled by a masterpiece of Penny & Giles engineering a further demonstration of our commitment to the highest quality sound.



- Ultra-wide dynamic range
- Noiseless, no digital circuitry (other than the DAC chip)
- Design optimized for low THD + noise
- 16/24 bits @ 24/44,1/48/88,2/96 kHz
- S/PDIF input
- AES/EBU input
- Toslink optical input
- XLR outputs
- RCA outputs
- 1/4" headphone output
- Professional P&G gain control
- Separate power supply
- All anodized aluminium cases

Design, test & production
made in Sweden by

MARENIVS
ELEKTRONIKUTVECKLING AB
www.marenivus.se



The back side of DAC-S2 holds all input/output sockets. From left to right, they are:

- L and R XLR sockets for balanced analogue audio outputs
- L and R RCA/phono sockets for unbalanced analogue audio outputs
- Combo XLR/1/4" AES/EBU digital audio input
- Optical TOSLINK digital audio input
- BNC S/PDIF digital audio input (BNC - RCA adapter is included)
- Power supply connector with screw locking fitting

DAC-S2 is housed in an EMC-shielding metal case. Side panels are 13 mm extruded aluminium, while front and back panels are 3mm precision milled aluminium plates.

All parts are anodized dark-red in one batch for maximum colour fidelity.

DAC-S2 is designed and manufactured using high-quality components throughout for reliable long term use in professional environments.

External Power Supply Unit

One of the major contributors to reduced dynamic range in a DAC is 50 Hz hum from mains supply and HF noise from switched-mode supplies.

For a mains transformer, the only straight solution for noise reduction is to move it away from sensitive circuitry.

In DAC-S2 we have gone further and put it in a separate and shielded case.

For additional noise reduction there is also a powerful mains filter block that will

reduce mains-carried HF noise from other domestic equipment.

The DAC-S2 Power Supply should be connected to a wall outlet with protective ground.

Internally there is a jumper for breaking the mains protective ground from the DAC-S2 Audio Unit. This is particularly useful for preventing ground loops through externally connected equipment.



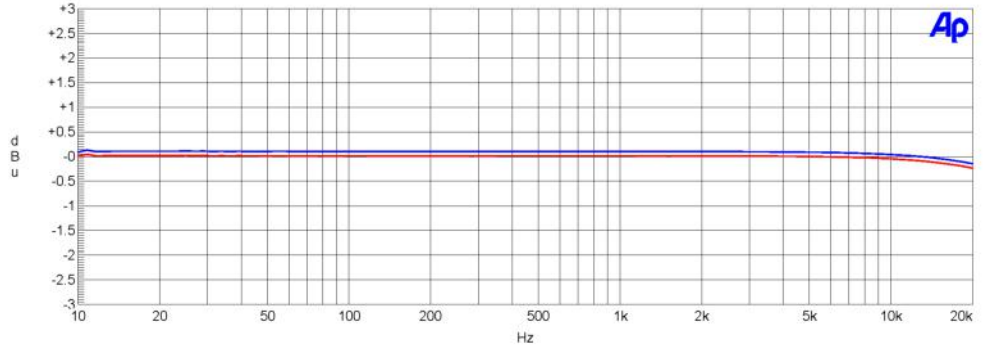
DAC-S2 Performance Graphs

Measured with AudioPrecision S2-2322-DD. 0 dBFS = +16 dBu audio output.
(FS = sample rate, FFT = Fast Fourier Transform)

FREQUENCY RESPONSE

-12 dBFS optical input
0 dBu balanced output level
48 kHz FS @ 24 bits

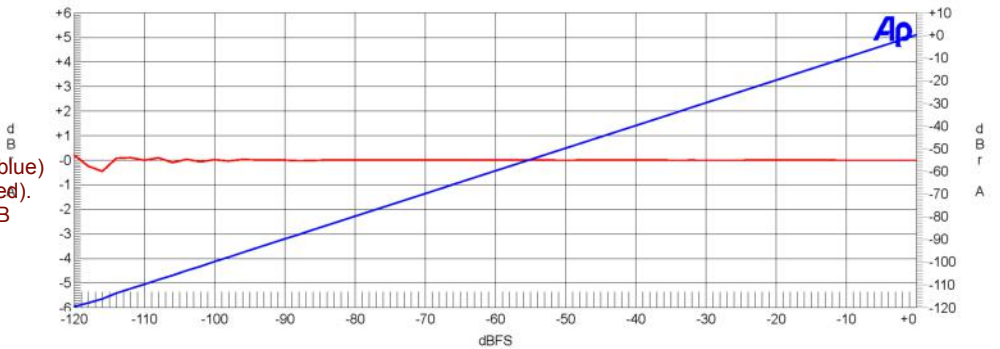
The graph shows that frequency response is from <10 Hz to 20 kHz within +/- 0.15 dB.



LINEARITY

optical input to balanced output
48 kHz FS @ 24 bits

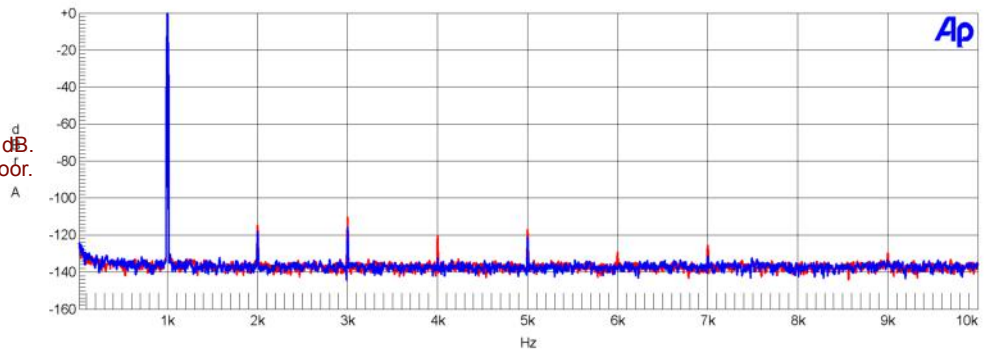
The graph shows output signal as a function of digital input signal (blue) and difference from a perfect line (red). The small fluctuations below -110 dB are related to the limits of the test system.



FFT @ FULL LEVEL

0 dBFS optical input
48 kHz FS @ 24 bits

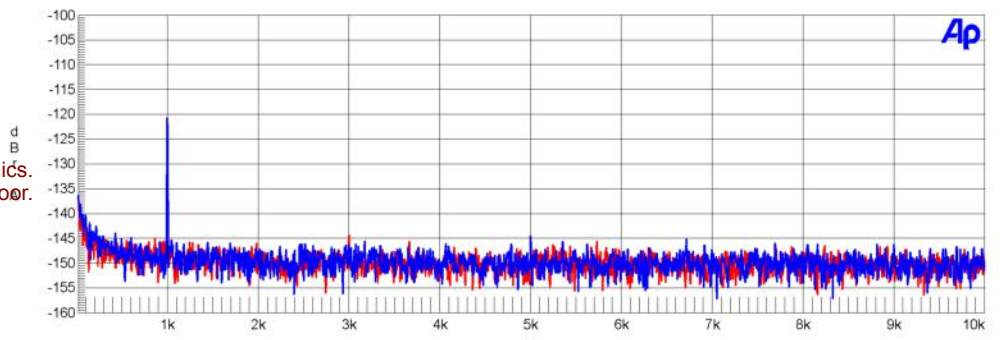
As seen, harmonics are below -110 dB. Also note the extremely low noise floor.



FFT @ -120 dB

-120 dBFS optical input
48 kHz FS @ 24 bits

This is a test of low-signal handling. -120 dB input signal and no harmonics. Also note the extremely low noise floor.



DAC-S2 SPECIFICATIONS:

(1 dBu = 775 mV_{rms})

DIGITAL INPUTS

Digital Inputs:	XLR, Coaxial, TOSLINK
Audio Channels:	2
Input Sample Frequency Range:	24 to 96 kHz
Word Length:	16 / 24 bits
Digital Input Impedance on XLR input:	110 Ω
Digital Input Impedance on Coaxial input:	75 Ω
Transformer Coupled Digital Inputs:	Yes
DC Blocking Capacitors on Digital Inputs:	Yes
Minimum Digital Input Level:	100 mVpp on XLR 50 mVpp on Coaxial

BALANCED ANALOG OUTPUTS:

Connector:	Gold-Pin male XLR
Impedance:	60 Ω
Audio Fader:	Penny & Giles RF15
Level Range (at 0 dBFS):	+16 dBu to - 90 dBu

UNBALANCED ANALOG OUTPUTS:

Connector:	RCA
Impedance:	500 Ω
Audio Fader :	Penny & Giles RF15
Level Range (at 0 dBFS):	+ 4 dBu to - 102 dBu

HEADPHONE OUTPUTS:

Connector:	¼" TRS
Impedance:	100 Ω
Audio Fader:	Penny & Giles RF15
Level Range (at 0 dBFS) into 60 Ω Load:	+ 9 dBu to - 90 dBu
Level Range (at 0 dBFS) into 300 Ω Load:	+ 16 dBu to - 90 dBu

AUDIO PERFORMANCE:

F_s = 48 kHz, 20 to 22 kHz BW, 1 kHz test tone,
0 dBFS = +16 dBu (unless noted).

SNR – Unweighted:	117 dB
THD+N,	-107 dB, 0.00045%
Frequency Response:	+/- 0.15 dB (10 Hz to 20 kHz)
Crosstalk:	-125 dB at 20 Hz -130 dB at 1 kHz -107 dB at 20 kHz
Noise floor	-140 dB (typical)



AC POWER REQUIREMENTS:

Mains voltage	230 VAC, 50-60 Hz
Power	5 Watts Idle 10 Watts Typical Program 20 Watts Maximum
Fuse	5 x 20 mm, 250 mA s.b.

DIMENSIONS:

DAC unit	
W x H x D (mm)	225 x 44 x 136 excl. sockets and knob
Weight	1200 grams
PSU unit	
W x H x D (mm)	100 x 44 x 136 excl. sockets
Weight	950 grams
Shipping weight	3 kgs

EXTERIOR DESIGN:

Anodized aluminium profiles and milled plates.
Dark-red colour.
Laser-engraved panels.

PACKAGE CONTENT:

DAC unit
PSU unit
Mains power cord
PSU/DAC power cord
User's Manual
Individual test plots (frequency response and FFT)