METRUM ACOUSTICS

NOS single ended DAC "AMETHYST"

User manual

Introduction

Two DAC TWO Modules which provide plenty of processing power and substantial energy reservoirs … to provide smooth and efficient delivery of power.

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Conventional analogue volume control … directly coupled to D/A output board ensures – **detailed quality sound**.

However, the icing on the cake … is that the AMETHYST by Metrum Acoustics also has the **" looks "** to partner what's inside.

The AMETHYST is our new entry model using our praised "**forward correction technology**". Due to this technology a real 24 bits performance is realized and probably the most advanced way to give R2R technology new dimensions. As a result music will be more exiting as details on very low levels will be audible. The AMETHYST can meet the best systems today in terms of sound quality as it borrows all the good things from our top models Pavane and Adagio.

Like her predecessor the AMETHYST is designed for the same basic frame but electronics have been redesigned for future tasks. In addition we have implemented a new and powerful headphone amplifier having its own volume control.

The AMETHYST is using two Transient R2R ladder DAC TWO modules. These modules can handle extreme high sampling rates but are limited to current industry standards which has its maximum (384kHz) on the USB input. The result of this process is an extremely fast and accurate behavior and brings listening experience on a much higher level.

Despite the fact that both DAC modules are build on the same board an extremely high channel separation of 110 dB is realized. This contributes to flawless positioning of instruments. The headphone amplifier will drive impedance down to 16 Ohms and gets his power from a powerful 30VA power supply. When the the AMETHYST is used as a DAC this power will be available for the DAC only.

Trickle down technology from Adagio and Pavane Level III, is now available at a most affordable price. A volume controlled Headphone output almost comes free.

The DAC TWO modules each incorporate Forward correction technology to both channels. This approach is ideally suited to R2R design and maximizes performance, providing true 24 Bit performance. As with the Reference models, this allows for retrieval of very low level information/detail.

Even though AMETHYST is a small 'mini' integrated design, incorporating both Digital and Analogue processing, channel separation is specified at 110dB. This together with an extremely low level noise floor of -145dB @ 2V RMS, indicates how this fine detail retrieval is made possible.

AMETHYST By Metrum Acoustics can be used as a stand-alone DAC. Fixed level standard Redbook 2V output is available – direct from the new DAC TWO modules – no output stage is necessary to hinder/cloud signal information. The connection goes straight to the Analogue outputs – to feed Amplification.

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Be wary of any device that outputs more than the Industry Standard 2V output. This will falsify comparison … so begs the question – why do some manufacturers do this ?

Only one answer!

Headphone volume control is designed to power lower impedance models down to 16 Ohms. 4 Volts is available on loads between 16 and infinity … so power is constant regardless of the load.

When Phones are connected, volume control becomes active and when disconnected, the Analogue outputs become active with volume control muted.

With the Analogue output circuits in play, all power is diverted to DAC performance.

note:

The AMETHYST will reach its maximum performance after a three to four weeks usage.

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IMPORTANT SAFETY INSTRUCTIONS

1. Read Instructions.
2. Keep these Instructions.
3. Heed all Warnings.
4. Follow all Instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
8. Unplug this apparatus during lightning storms or when unused for long periods of time.
9. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as a power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
10. The AMETHYST DAC must be placed on a firm, level surface where it is not exposed to dripping or splashing.
11. Before making connections to the DAC, ensure that the power is off and other components are in mute or stand-by mode. Make sure all cable terminations are of the highest quality, free from frayed ends, short circuits, or cold solder joints.
12. THERE ARE NO USER SERVICEABLE PARTS INSIDE THE "AMETHYST" DAC.
Please contact All Engineering if you have any questions not addressed in this guide.
13. All Engineering cannot be held accountable and/or responsible for any form of damage or health issues inflicted to you, other people, pets, companies and non-living objects, that are caused by any form of usage of the product which is not described in this manual.
14. By actually using this product and turning it on for the first time, you agree to these terms

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What is in the Box

- The AMETHYST DAC
- Power cord (only Euro or USA based power cords)
- USB cable
- USB stick (user manual and Windows USB drivers)

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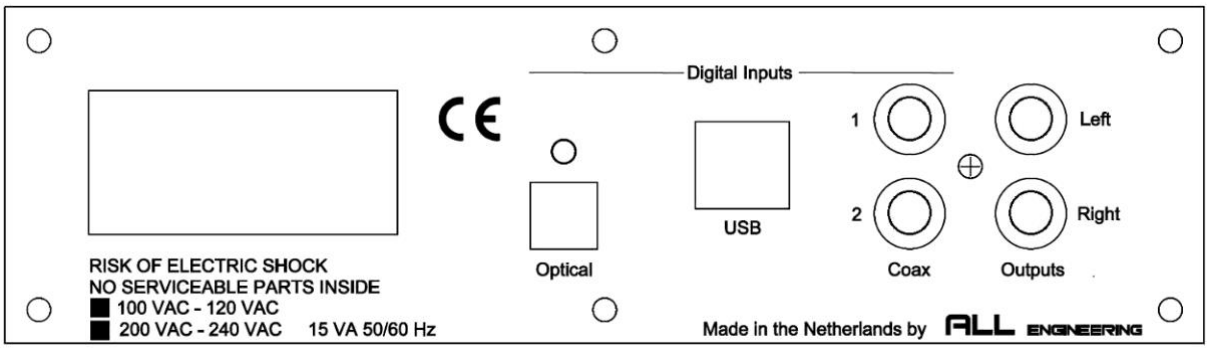
Inputs & Connections



- **Cautionary note: Please connect your interconnects first before connecting the mains power cable.**
- **Optical input:** Use an optical Toslink cable to use the optical input. The optical input can be used for sampling rates up to 96 kHz.
- **Coaxial inputs:** A 75 Ohm coaxial cable should be used to connect the DAC to other digital equipment. To avoid ground loops both inputs have a galvanic isolation. The coaxial input can handle a maximum sample rate of 192 kHz.
- **USB input:** Use an USB cable to connect the DAC to your computer. Only when using a Windows operating system, you should install special drivers. In case of Linux or MAC no additional drivers are required. The USB input can handle sampling rates up to 384 kHz.
- **RCA outputs:** Standard interlinks can be used to connect the DAC to your amplifier. The "AMETHYST" is designed conform the "Red book standard", the maximum output will be 2 Volts RMS or 5.7 Volts peak to peak. Your (pre)amplifier should handle this output level. The outputs are switched off in case a headphone is connected at the front panel.

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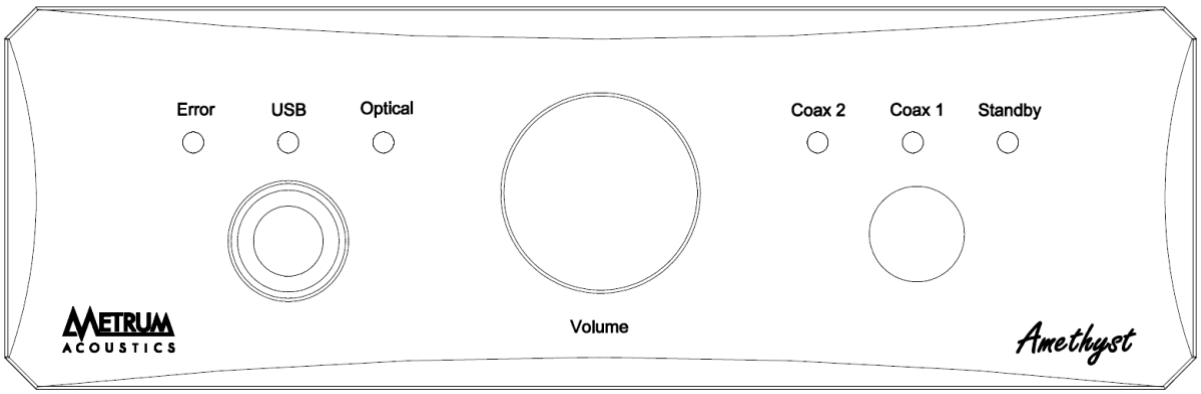
- **Mains supply:** First check or the marks on the backside of the "AMETHYST" if it matches the power requirements for the specific country.
- **Mains inlet:** Use the supplied power cable to a grounded power outlet.

Operation



- **On/Standby:** If the main switch (on the back of the DAC) is on, the DAC comes into a “stand by” state. There is just one button to toggle through the five possible states of the DAC.
- **Mute function:** By powering the DAC the mute function will be active for two seconds. When switching the DAC to standby muting will be active again.
- **Source selection:** The digital inputs can be selected by using the only available button on the front which toggles from right to left and back to standby.
- **Error indication:** The orange led on the left side of the DAC will lit when no digital data is available. When feeding the selected input with the right digital data, the led will go off .

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Headphone connection

- **Headphone connection:** As long the headphone connection is not used, the AMETHYST will work as a normal DAC. Signals coming from the DAC modules will be routed to the output connections on the back side of the unit. As soon a headphone connector is plugged into the front connector the outputs on the back side of the DAC will be disabled.

- **Headphone volume control:** The volume control works only for the connected headphone and has no effect on the outputs on the back side of the unit.

- **Impedance of used headphones:** All types of headphones can be used with impedances started at 16 Ohms to 1000 Ohms

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Technical specs :

Working principle:	Non-oversampling 24 bit DAC.
Power supply:	30 VA single toroid transformer. Average power consumption 8 Watts. On standby < 1 Watt
Power requirement:	110/115V AC or 220/230 V AC 60/50Hz
Inputs:	1x optical Toslink, 2x RCA coaxial. 1x USB module optional
Outputs:	2x RCA connectors. One headphone connector
Output voltage:	RCA: 2 Volts RMS. Headpone:2 Volts RMS
Frequency response:	1Hz -0.8dB, 20 kHz -1.5 dB 44.1kHz sampling. 1Hz -0.8dB, 65 kHz -3dB 192kHz sampling.
Distortion:	0,007 % THD
Noise floor:	-145 dB related to 2 Volt RMS
Output impedance:	100 Ohms RCA. 3 Ohms for headphone connection.
Sampling frequency:	Optical: 44 - 96 kHz sampling ,16 or 24 bits. Coaxial: 44 - 192 kHz sampling, 16 or 24 bits. USB: 44 -384 kHz sampling.
Dimensions WxHxD:	190 x 60 x 245 mm.
Weight:	2.5 kg.

Subject to change without notice.

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