![NAGRA]

CLASSIC DAC – D/A converter

Instruction manual

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Safety warning

- Read this manual carefully before operating the CLASSIC DAC;
- Should you have any questions on how to setup or use your CLASSIC DAC, please contact your Nagra dealer;
- Audio Technology Switzerland SA declines any responsibility in the event of an accident caused by the non-observance of these instructions or any other form of user negligence;
- There are no user adjustments inside the CLASSIC DAC or the power supply, do not attempt to open them.

Warranty

Audio Technology Switzerland SA certifies that this device has been inspected and tested before leaving the factory.

Every Nagra unit goes through our test laboratory. The result of the measurements is recorded in the "Protocol" documentation that comes with your device.

We guarantee our products against all manufacturing defects, for a period of three years for the CLASSIC DAC and six months for the tube, running from the date of delivery to the customer (validated by the serial number on the device casing and the invoice from an official Nagra dealer). This warranty is only valid for the original purchaser of new equipment.

This limited warranty covers the repair and replacement of defective parts, excluding any other remedy.

The absence of a serial number invalidates the warranty.

We decline any responsibility for damages resulting directly or indirectly from the use of our products.

As we constantly strive to improve our products, we reserve the right to modify them or change their specifications without notice.

Disposal of old electrical & electronic equipment (Applicable in the European Union and other European countries with separate collection systems).
This symbol on the product or on its packaging indicates that this product shall not be treated as household waste. Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health. The recycling of materials will help to conserve natural resources. For more detailed information about recycling of this product, please contact your local authority, your household waste disposal service or the shop where you purchased the product.

Applicable to the following devices:
Nagra CLASSIC DAC and all the package contents.

Nagra – CLASSIC DAC

Congratulations

Congratulations! You have just acquired one of the best digital-to-analog converters ever built.

The CLASSIC DAC was created by an engineering team with more than 60 years' experience designing world-class products for the professional audio, national security and military businesses. The professional and Hi-Fi product ranges are designed by the same Research and Development department.

Nagra launched its Hi-Fi range to allow the wider public to benefit from technical advances that are often the privilege reserved for professionals. In so doing, the ultimate sonic excellence has been shared throughout the Hi-Fi range.

Ever since its creation in 1951, Nagra has been building devices that offer unparalleled performance, and the company has received many awards for its technical innovations and the excellence of its products over the years. Among the most prestigious, Nagra has been awarded three Oscars® and an Emmy®.

Our experience, precision and dedication to detail has been implemented to do service to music, your music. This is why we wish you many hours of listening pleasure and memorable moments enjoying your CLASSIC DAC.

Thank you for your trust.

Package contents

In addition to this Instruction manual and the CLASSIC DAC itself, the box contains:

- Mains power cord*;

- A printed record of the exact measurements, response curve characteristics of your device, measured in the Nagra laboratory;

- DAC Remote control (2 x AAA cells inside);

- A pair of "Haute Horlogerie" grade microfiber gloves;

Please contact your Nagra dealer if anything is missing.

* Depending on the country of purchase, the cable supplied by Nagra will feature a European, Swiss or US mains power plug.

Installation

Positioning

In order to avoid risks of fire and electric shock, the CLASSIC DAC should be used exclusively indoors.

If possible, it is preferable not to place other HiFi elements on top of your CLASSIC DAC and free access to the ventilation holes, located under the device and on the top surface, must be maintained at all times to allow sufficient natural cooling during operation.

The Nagra CLASSIC DAC must be placed on a stable horizontal surface. We strongly recommend the use of the special anti-vibration support plates, HD VFSL, Vibration Free Supports, developed by Nagra. These consist of two solid aluminum isolated plates that use the same silicon base damping material as the Nagra CD mechanics. These plates will eliminate any mechanical vibrations that may interfere with the sonic excellence of your CLASSIC DAC.

Connection block

1. Analog outputs, use either RCA or XLR, but not simultaneously. The XLR connectors are unbalanced.
2. Ground connector
3. Digital inputs (from left to right):

    a. USB for PC or MAC computer connection
    b. Optical via TOSLINK
    c. AES / EBU, 2 inputs
    d. S/PDIF: 1 on BNC, 1 on RCA

4. DC power input
5. Mains IEC input, fuse holder and switch

Note about the Ground connector
This feature is seldom used but often handy to solve specific setup issues. Your Nagra dealer will assist you on when and how to use this connector.

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Powering the CLASSIC DAC

The CLASSIC DAC can be powered either by its own internal power supply or by an external 12 V DC power supply the Nagra MPS.
In the first case, simply use the provided mains AC cable.

Connecting the mains

Place the front panel selector in the OFF position, noted **O**. Insert the IEC cable into the connector of the Nagra CLASSIC DAC.

You may then push the mains switch into the **I** position.

Fuse replacement
The fuse holder includes a replacement fuse.
The fuse type is **FST 5x20mm 250V / T 500mA L**.
.
Should you need to replace it, only use the same fuse type.

Connecting the Nagra MPS

Start by removing the IEC cable from its plug. The mains switch position is no longer relevant when an external power supply is connected.

Please note that the LEMO plug features a red dot that must be facing upwards for correct insertion into the power input connector.
Place the front panel selector in the **OFF** position. Insert the LEMO plug from the external power supply into the DC connector as shown above.

You will hear a click, indicating that the plug is securely locked in.

You should connect the BLACK tail cable on the MPS side.

To disconnect the LEMO plug. Hold the fluted section of the plug as shown in the picture and pull backwards.

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Front panel

1.   2.   3.   4.   5.   6.

1. LED and Modulometer intensity switch, pushed up will increase the intensity, down will reduce it, there are 6 levels of intensity
2. Nagra Modulometer indicates the digital level in dB FS (Full Scale) 0 dB being the maximum level
3. LCD display
4. Controller knob, it has several features, described below
5. Main selector, **OFF** is standby* position
6. IR sensor and remote LED

*In standby mode the power consumption is less than 1W.

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Basic operations

The typical Nagra rotary selector offers 4 positions.

The OFF is equivalent of STANDBY. The unit is still powered but with very little power consumption.
R is for Remote control.
MUTE, the unit is on but the signal is muted.
ON the unit is playing.

Rear switch	Front selector	Action
0	Any	The unit is totally off
I	OFF	The unit is in standby
I	R	The unit can be triggered on and off by the remote
I	MUTE	The unit is on and muted (for warming-up for instance)
I	ON	The unit is playing

Setting your CLASSIC DAC

Thanks to its LCD display and the controller, you will be able to personalize your CLASSIC DAC to fully integrate it in your system. Please take some time to know more about the settings that you can change to enjoy more music.

How to access menus

It is simple, there is only one knob that does everything!
The CONTROLLER has different functions. You can rotate it or press it.

If you push the controller and hold it for 3 seconds, you will access the menus.

You can navigate inside the menu tree by rotating the Controller. Whenever you want to exit the menu, press and hold the Controller.

How to operate the Controller knob

Controller	Normal operation	Inside menu
Rotate	Change input	Scroll up or down
Press and hold (3 S)	Access menus	Go backward
Press once	None	Validate, go forward
Don't touch anything	Enjoy the music	

We suggest you to navigate a bit inside the menus to get familiar with the navigation controller, then you can start the set-up.

Menu tree or map

Here is the menu tree or map, that will help you in finding the function you are looking for. It may look complex, but actually once you have set-up your CLASSIC DAC, you won't need to change it often or at all!

Language	English	
	Français	
	DEUTSCH	
	ESPANOL	
	ITALIANO	
In. Names	Edit	AES
	Restore	S/PDIF 1
		S/PDIF 2
		OPTICAL
		USB
Audio	Ph. Rev	NORMAL
		Reverse
	USBPower	AlwaysON
		InActive
Remote	RC-5	
	DEVICE 1	
	DEVICE 2	
	DEVICE 3	
	DEVICE 4	
	DEVICE 5	
	DEVICE 6	
About	Soft V.	
	Op. Time	
	S.Number	
	DAC Rev	
	DAC Temp	

Setting the language

You might want to start by setting the language!

First, press and hold the Controller button for 3 seconds.

Language	Press the Controller once, then you can select the language
Français	Rotate the controller to the desired language, then press it once to select it.
Langue	The menu will come back to the previous screen

Naming inputs

You have 8 characters available to name your inputs. Name can include letters, numbers and special signs.
The letters are available in the following order:
A…Z_a…z_-*#/,.:;0123456789

Once Iinside the Menu, INPUT NAMES is the first possibility:

In. Names	Press the Controller button to go inside this setting
Edit	Press the Controller button once. You can now Edit.
AES	AES is the first input, this is its technical name, now you can choose the name to be displayed on the CLASSIC DAC when you select the AES 1 input.
S/PDIF 1	Keep turning the Controller if you wish to edit another input. Let's change S/PDIF 1 name.

The underscore appears below the letter you can change.
By rotating the Controller, you can scroll the alphabet in the following order:
A…Z_a…z_-*#/,.:;0123456789

C/PDIF 1	Let's select C and push the Controller to go to the next letter.
CDP	Once you are done, simply press and hold Controller button for a few seconds. This will take you back to the input names.

Reseting input names

If you are unhappy with the name you have chosen, you can reset all the input names to "Factory Settings". Go in the In. Names Menu, select Restore:

In. Names	Push once
Edit	Rotate to display Restore
Restore	Push once
Confirm	Push again, the factory names have been restored.

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Audio settings

Absolute phase

You may change the absolute phase in the Ph. Rev

Audio

Ph. Rev

Normal

Reverse

USB power

When using the USB input, a significant amount of power is dedicated to specific USB circuits. If you don't use the USB input, you can de-activate the USB circuit.

USB power	AlwaysON	IfActive

This way you can save power consumption and avoid powering unnecessary components to be active.

Remote

The CLASSIC DAC comes with the RCU III remote control unit.
This remote control unit uses standard RC-5 codes from Philips. It is called **RC5** in the menu.
However, you may also control it with the classic Nagra RCU or RCU II remote control unit (equipping the Nagra CD range).
In this case, you should change the device number (1-6) here:

RC5	Remote	DEVICE 1

Select the desire DEVICE number you want to control the CLASSIC DAC with.

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About

This part of the menu will provide you with useful information about your CLASSIC DAC.

About

Software version

Soft V.

You can check the CLASSIC DAC internal software version. Should we release a new version, we will advise your dealer and also notify it on our website.

Operation time

Op. Time

This counter will let you know how many hours the CLASSIC DAC has been powered on. This counter cannot be reset.

Serial number

S. Number

The serial number cannot be changed or erased. In the very unlikely event that your CLASSIC DAC is stolen, please send us your serial number we will track this unit if it goes to a Nagra dealer.

DAC Rev

Rev 032

This information is for Nagra servicing, it displays the D/A board internal software version.

T for Temperature

T=51°C

This is the internal temperature inside the D/A board. The computing power of this device is quite high so the components are heating. A temperature of 51°C is typical and should not worry you.

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USB set-up with computers

Due to the rapidly changing nature of the computer world, all computer related set-up information is to be found on the supplied USB key.

MAC
The Nagra HD DAC is recognized as a playback device, no further software is required. Simply select the Nagra CLASSIC DAC device in the audio settings menu.

PC
You will need to install a driver and update your ASIO drivers as well; the drivers are to be found on the USB key supplied with your CLASSIC DAC.

More information on inputs and formats

The HD DAC comes with 7 different digital inputs. Please find the format compatibility in the following table:

Input	For	Format
AES	Professional sources	Up to 192 kHz 24 bits
S/P Dif 1 and 2	Consumer sources	Up to 192 kHz 24 bits
Optical (TOSLINK)	Consumer sources	Up to 192 kHz 24 bits (with high quality optical fiber)
USB	UAC2*	Up to 384 kHz 32 bits (or DXD) DSD 2x

* UAC2 stands for "USB Audio Class 2" works to connect computers PC or Mac as well as other computer type devices.

Connecting the CLASSIC DAC to your system

You may use either RCA or XLR connector to connect your CLASSIC DAC to your preamplifier or amplifier. Do not use both outputs in parallel.
Please note that XLR outputs are unbalanced.

Operating your CLASSIC DAC

Nagra Modulometer

Nagra Modulometer is inherited from the second recorder developed by Nagra back in 1952, the Nagra II. The Modulometer is a typical Nagra precision instrument that displays the necessary information to perform the best possible recording.
In the case of the CLASSIC DAC, the Modulometer displays the digital input level. The 0 dB corresponds to full scale signal, that means the maximum digital level.

Right channel - red needle
Left channel - black needle

LED and Modulometer intensity adjustment

This two-way toggle switch allows you to adjust the LED and Modulometer backlight intensity. Pushing the toggle UP will increase the intensity, pushing it down will lower the intensity all the way to complete extinction. In total there are 7 different levels.
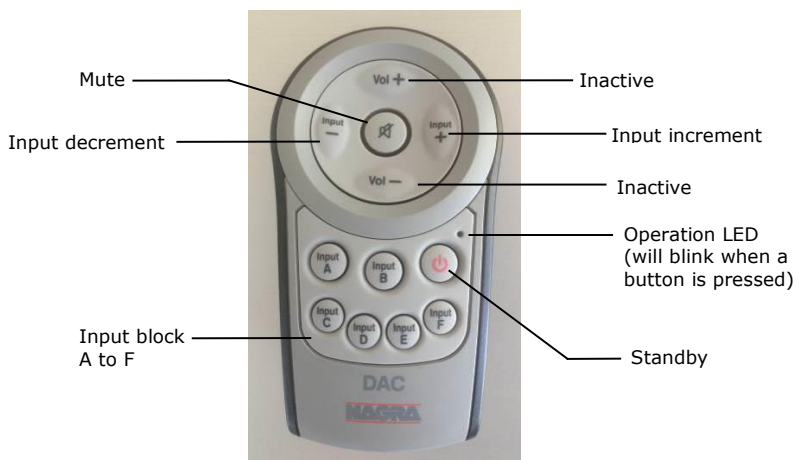
Removing the battery protection

Two AAA dry cells are already installed in your remote at the factory.

Simply tear the plastic strip

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Remote control

The CLASSIC DAC comes with a RCU III remote control unit (RC-5). However, you may also control it with the classic Nagra RCU or RCU II (RECS-80). Please, see page 11 how to select RC-5 protocol or device channel.

Using a "universal remote" with the CLASSIC DAC

The CLASSIC DAC responds to IR (Infra Red) signals coded in Philips RC-5 format. The CLASSIC DAC is allocated a system number 19 for digital-to-analog converter.

Should you wish to program your universal remote control, please use the following table:

Code	Function
1 to 6	Input **A** to **F**
32 & 33	Input change step-up or step-down
13	Mute
12	Standby

Burn-in period

In order to obtain optimal performance from the Nagra CLASSIC DAC, it is preferable to leave the device switched on for about 15 minutes before use, so that the internal components can reach their optimum operating temperature.

The Nagra CLASSIC DAC needs a running-in period. It will reach peak performance after a few hundred hours operation (at least 400 hours).

Case cleaning

Clean the CLASSIC DAC casing using a soft, non-fluffy, slightly damp cloth. Do not use any cleaning products which could have a corrosive effect.

Technical specifications

You will find in this table, typical specifications for the Nagra CLASSIC DAC. Your own CLASSIC DAC's specifications are to be found on the "protocol" delivered with your unit.

Inputs	2 x S/P DIF, 1x AES/EBU, 1x Optical, 1x Audio USB (mode 2)	
Internal processing:	5,6 MHz / 6,2 MHz	72 bits
Compatible digital formats	PCM 24 bits up to 384 kHz, DXD, DSD x 2.	
Analog outputs	1 stereo RCA 1 stereo XLR	Unbalanced
Output level	1.5 V rms +/- 0.1 V	for 0 dB FS
Noise level:	-128 dBr @ 1 kHz 1.3V	Linear
Distortion	< 0.02%	@ -20 dB FS
THD + N	< 0.03 %	@ 192 kHz
Frequency Response	10 Hz - 110 kHz	+ 0.1 / -3 dB
Crosstalk	> 100 dB	
Interchannel phase	< 0.5°	@ 20 kHz
Power consumption	On 15 W	Standby < 1 W
Dimensions	280 x 350 x 76mm	12 x 13,7 x 3 inches
Weight	3.8 Kg / 6.6 lbs	

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Declaration of conformity

FABRICANT: AUDIO TECHNOLOGY SWITZERLAND SA, 1032 Romanel, SUISSE
MANUFACTURER: AUDIO TECHNOLOGY SWITZERLAND SA, 1032 Romanel, SWITZERLAND

APPAREIL: Nagra CLASSIC DAC
MODEL: Nagra CLASSIC DAC

NORMES APPLICABLES:
APPLICABLE NORMS:

Champ électromagnétique rayonné	EN 55022 Cl. B
Radiated electromagnetic field	*EN 55022 Cl. B*
Perturbations conduites sur secteur	EN 55022 Cl. B
Disturbance voltage on mains terminal	*EN 55022 Cl. B*
Immunité aux champs électromagnétiques	EN 61000-4-3
Immunity to electromagnetic fields	*EN 61000-4-3*
Immunité aux décharges électrostatiques	EN 61000-4-2
Immunity to electrostatic discharges	*EN 61000-4-2*
Immunité aux transitoires électriques rapides en salves sur câble d'alimentation	EN 61000-4-4 level 2 (1000V)
Immunity to burst on mains line	*EN 61000-4-4 level 2 (1000V)*
Immunité aux transitoires électriques rapides en salves sur câbles d'entrées/sorties	EN 61000-4-4 level 1 (500V)
Immunity to burst on input/output signal line	*EN 61000-4-4 level 1 (500V)*
Immunité aux ondes de choc	EN 61000-4-5 level 2 (1000V)
Immunity to surge	*EN 61000-4-5 level 2 (1000V)*

Cheseaux 2ème trimestre 2016
Cheseaux 2nd quarter 2016

Nagra R&D team