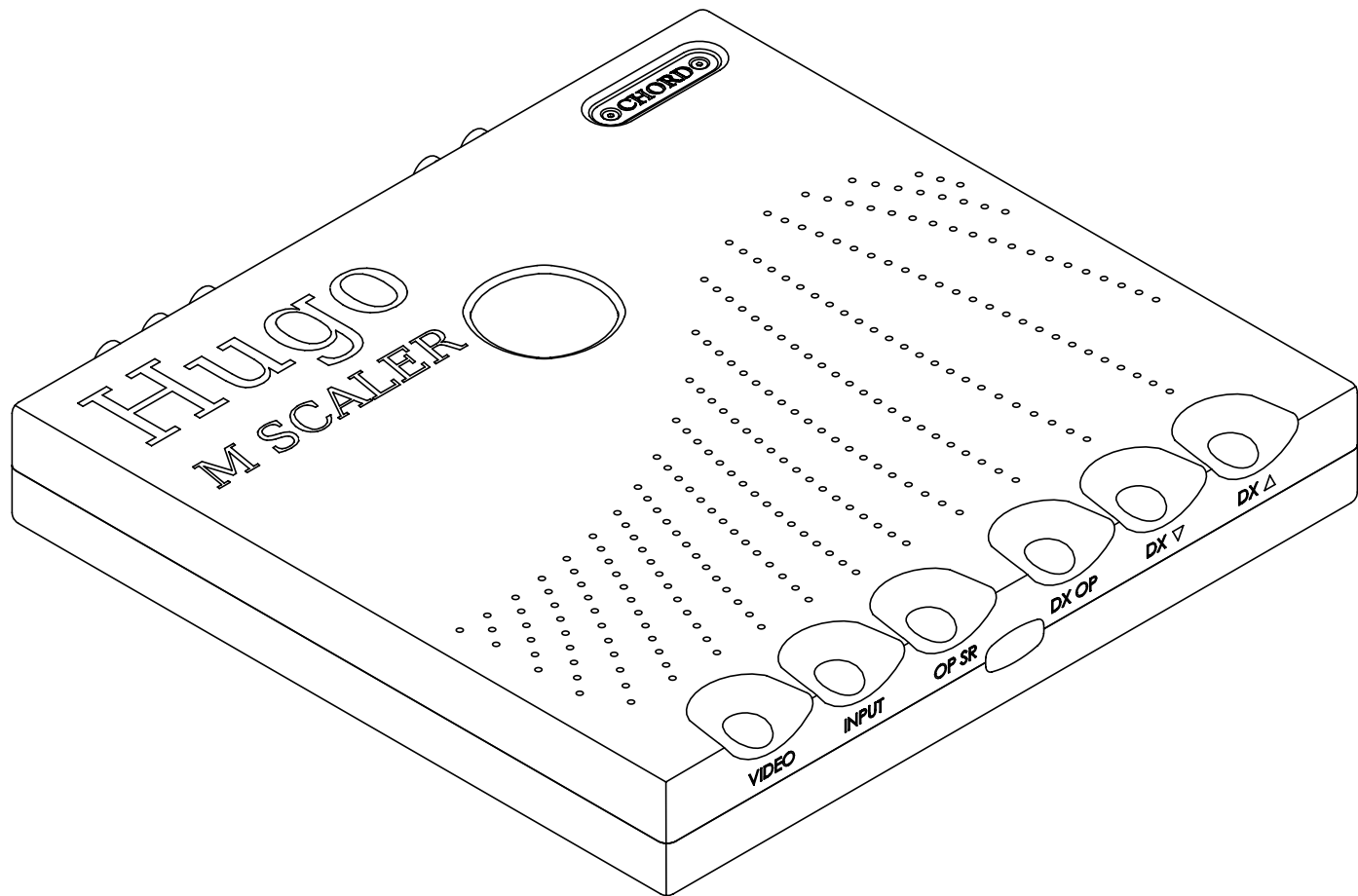


Hugo M Scaler

Manual

V.1.0





Chord Electronics Ltd.

THIS IS PURE AUDIO

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0.0 Contents

Safety instructions

1.0

- 1.1 Introduction
- 1.2 Protection against liquids & heat
- 1.3 Dismantling & radio frequency interference
- 1.4 Connecting your equipment

1.0

Safety instructions

Introduction

1.1




Hugo M Scaler is a device that converts your sources to 705.6 or 768kHz 24-bit PCM and achieves reconstruction of the original analogue signal in the ADC to a better than 16-bit accuracy under all conditions.

Before operation, we strongly advise you read this user manual thoroughly.

We also recommend that you store this user manual, along with your original receipt of purchase, in a safe place should you require assistance in the future.



 *Made in* **BRITAIN**

Protection against liquids & heat

1.2



The Hugo M Scaler is not protected against liquids of any kind. Never place containers of liquid on Hugo M Scaler. Never allow Hugo M Scaler to come into contact with moisture or liquids; doing so could result in electrocution or damage to the Hugo M Scaler's internal circuitry.

Be aware that liquids, including water that has dried, can leave minerals that can affect the PCB and other components, which could eventually lead to oxidisation and short-circuiting.

If the Hugo M Scaler comes into contact with moisture or liquids, immediately disconnect from the mains power supply, and connected equipment and contact Chord Electronics for further advice.



The Hugo M Scaler has internal thermal protection which will shut down the unit in the event of excessive temperatures being reached. Never operate the Hugo M Scaler near sources of heat or naked flames as this will decrease the lifespan of the internal components. It is advised that you do not operate the Hugo M Scaler in an area of direct sunlight or on top of significant heat-producing devices.

Please be aware that it is entirely normal for the Hugo M Scaler to become warm during use, particularly within a stacked configuration. If you are concerned about the temperatures, please switch the device off or consider a different placement.

Dismantling & radio frequency interference

1.3



There are no user-serviceable components within the Hugo M Scaler or its power supply. Dangerous voltages/currents exist within the Hugo M Scaler and its power supply, posing a severe risk of electrocution and/or fire.



Never attempt to open, dismantle or apply internal third-party devices to it or insert anything other than the listed interconnects or headphone adapters within this user manual.

If the Hugo M Scaler develops a fault or the casework becomes damaged, immediately disconnect from the mains power supply and connected equipment, and contact Chord Electronics for further advice.

With a thick, solid aluminium chassis, the Hugo M Scaler's casework largely protects the sensitive internal circuitry from radio frequency interference. However, for optimal performance, it is recommended that the following points are observed:



1. Consider placing the Hugo M Scaler away from wireless routers.



2. Separate the Hugo M Scaler from amplifiers using toroidal transformers.



3. Operate mobile phones at a distance to avoid interference.



Although the Hugo M Scaler is largely shielded, it can generate radio frequency interference that may have an effect on radio and television reception. If this occurs, please reconsider your placement.

Connecting your equipment

1.4

Before connecting the Hugo M Scaler to any equipment, consult the manufacturer's user guide to confirm compatibility.

When connecting the Hugo M Scaler to any equipment, make sure that all devices are off, including the Hugo M Scaler.

Once connected, switch all equipment on starting with the source and ending with the amplification.

Initially, operate the any connected equipment on its lowest gain setting and lowest volume setting, gently increasing to a comfortable listening level.

Never operate connected equipment to the Hugo M Scaler at excessive sound levels; permanent hearing damage and loss can occur.

The included 15V 4000mA power supply simply plugs into the Hugo M Scaler.

If the power supply is prematurely disconnected Hugo M Scaler may still remain active for up to 15 seconds, however, this may cause damage to connected equipment.



Never disconnect the power cable during operation. Only disconnect when Hugo M Scaler is off. If the power cable is disconnected during operation there is a risk of damage to connected equipment.



Warranty

2.0

- 2.1 Warranty period & registering your purchase
- 2.2 Making a claim & warranty exclusions

2.0 *Warranty*

Warranty period & registering your purchase

2.1

At point of sale, Chord Electronics Ltd. provides the Hugo M Scaler with a comprehensive three-year warranty* which covers defects in materials and workmanship through fair wear and tear. The warranty will be void if any other PSU other than that supplied is used.

*The warranty is transferable with proof of purchase, however is not available on ex-demonstration products.



Please use the form below to record the details of your purchase in the event that these are required at a later date, we further advise that all purchases are registered with Chord Electronics at: chordelectronics.co.uk/register-product/

RETAILER:	
UNIT COLOUR:	
DATE OF PURCHASE:	
TRANSACTION ID:	

Making a claim & warranty exclusions

2.2

In the unlikely event of a claim, you must provide Chord Electronics with the details of the claim, including your original proof of purchase and serial number in order to validate the nature of the repair.

Upon receipt, Chord Electronics will make an assessment within 30 days and provide a reasonable solution.

All warranty repairs must be carried out by Chord Electronics or an approved service centre to guarantee the quality and safety of the repair.

WARRANTY EXCLUSIONS: The warranty does not cover connected equipment, personal injury or development natural patina of the metalwork and will be null and void if the following is applied: wilful neglect; modification or tampering of the product; improper use of the product; acts of God; damage caused by a connected device; mechanical shock; fire or application of excessive heat or repair/modification by a non-authorized third-party vendor.

Getting to know Hugo M Scaler

3.0

- 3.1 Getting to know Hugo M Scaler & drivers
- 3.2 The front panel
- 3.3 The top panel
- 3.4 The rear panel
- 3.5 The remote control

3.0

Getting to know Hugo M Scaler

Getting to know Hugo M Scaler & drivers 3.1

The Hugo M Scaler is a highly advanced standalone upscaler capable of redefining sound quality from digital audio.

The Hugo M Scaler uses the world's most advanced filter technology to upscale standard 44.1kHz digital audio up to 705kHz (16x CD's 44.1kHz native resolution), ready to be passed to a suitable DAC; Hugo M Scaler extends its upscaling performance to 768kHz (from 96kHz input data) for dual-BNC-input Chord Electronics DACs: (at the time of writing) DAVE, Qutest, Hugo 2 and the new Hugo TT 2.

To get the very most from the device we recommend that you familiarise yourself with the user manual.



DRIVERS: The Hugo M Scaler is driverless with Mac OS X and Linux operating systems and only requires drivers for Windows.



These can be found on the product page at: chordelectronics.co.uk

Getting to know Hugo M Scaler & drivers 3.1



The front panel

3.2

Whilst an IR remote control is supplied, the front panel of the Hugo M Scaler is the main user interface and can entirely control all user-configurable options and inputs.

The middle of the front panel contains a black acrylic infrared signal window. If you intend to use the remote control with the Hugo M Scaler it is recommended that clear line of sight is available between the remote control device and the signal window.



The top panel

3.3

The top panel of the Hugo M Scaler does not provide any visual feedback, with the exception of the buttons labelled within the previously annotated front panel.

You may view the internal plate via the porthole looking glass which protects the sensitive internal circuitry from radio frequency (RF) interference.

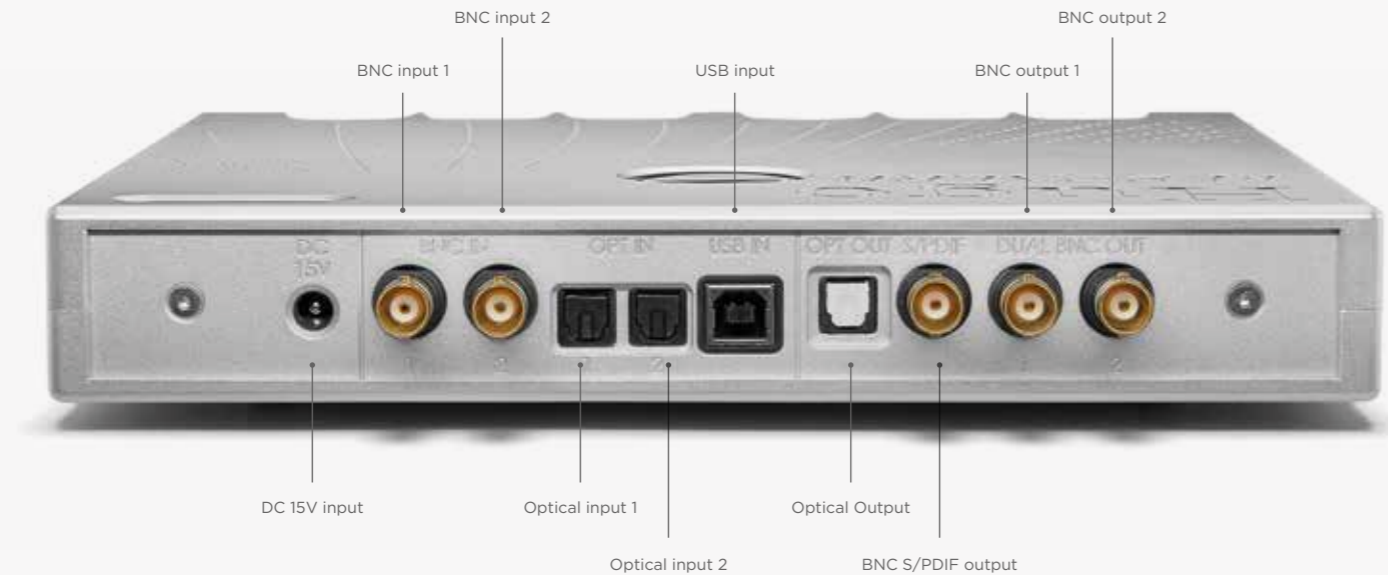


The rear panel

3.4

The rear panel houses the device's wide-ranging connectivity, inputs and outputs. The Hugo M Scaler also features a dual-data output, for optimum use with selected Chord Electronics' DACs.

When installing any cable, you must make sure that they securely click into place, especially optical.



WARNING: Do not use any other power supply other than that supplied. Doing so will invalidate your warranty.

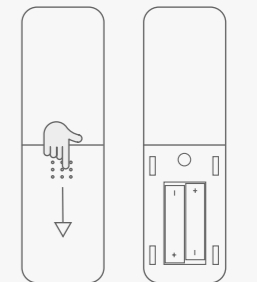
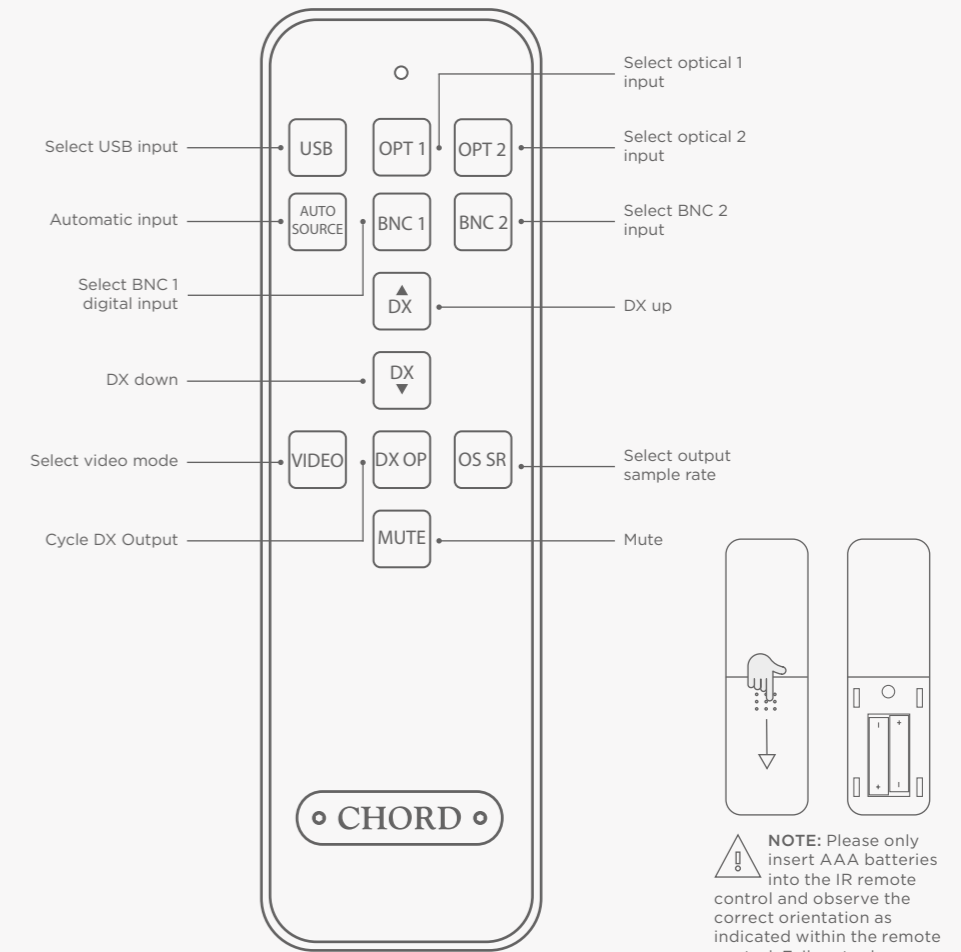
The remote control

3.5

For convenience, a branded infra-red remote control is included with the device.

The IR remote control will operate up to a distance of 10 metres with clear line of sight to the infra-red receiver, which is located on the front of the unit.

For best operation, do not operate the Hugo M Scaler within a cabinet or place other materials/devices on top of the device.



NOTE: Please only insert AAA batteries into the IR remote control and observe the correct orientation as indicated within the remote control. Failure to do so could result in non-operation or battery leakage.

Setting up Hugo M Scaler

4.0

- 4.1 Placement
- 4.2 Connecting an input to Hugo M Scaler & input selection
- 4.3 Connecting Hugo M Scaler to Hugo TT 2
- 4.4 Connecting Hugo M Scaler to another DAC
- 4.5 Output sample rate settings


4.0

Setting up Hugo M Scaler

Placement

4.1

Whilst the Hugo M Scaler operates normally within a stack of Chord Electronics Table Top (TT) components, such as the Hugo TT 2, it is recommended that you allow the device to breathe. Allocating 10cm of space around it to convection-cool during operation is advised. If possible, do not place the unit(s) inside a cabinet.

 As the infra-red remote control requires a direct line of sight to the viewing portal, please avoid placing objects in front of either device.

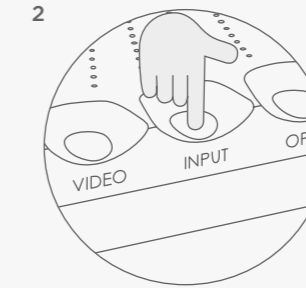


Connecting an input to Hugo M Scaler & input selection

4.2

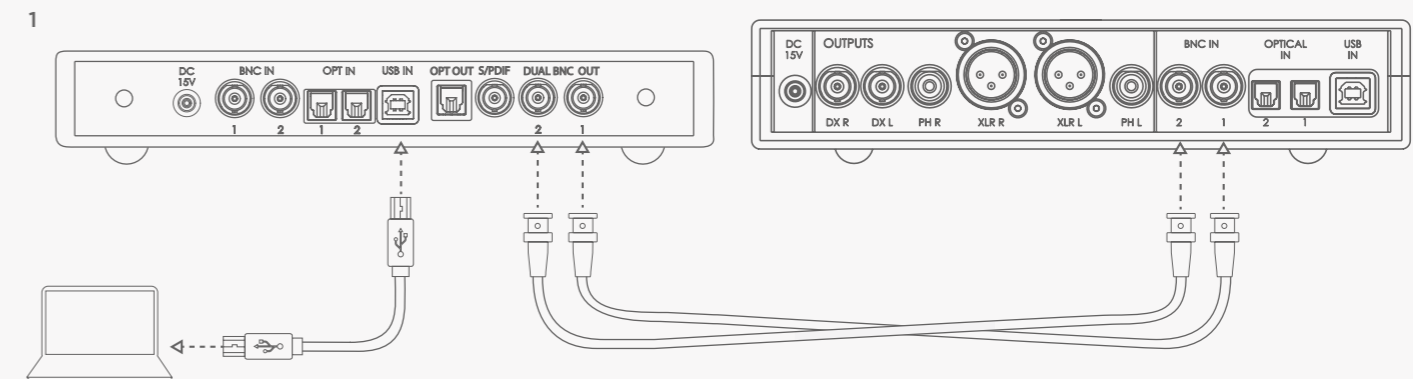
In order for the Hugo M Scaler to upscale, you must connect the digital output of your audio playback device, for example, computer via USB or CD transport via BNC, to the Hugo M Scaler directly instead of to your existing DAC. M Scaler's output can then be connected to a DAC.

You can select your input via the input selection switch on the front panel of Hugo M Scaler. Please make sure to select the appropriate output on your playback device.



Input selection colours

COLOUR	INPUT
	USB
	BNC 1
	BNC 2
	Optical 1
	Optical 2
	Automatic
	Dual BNC



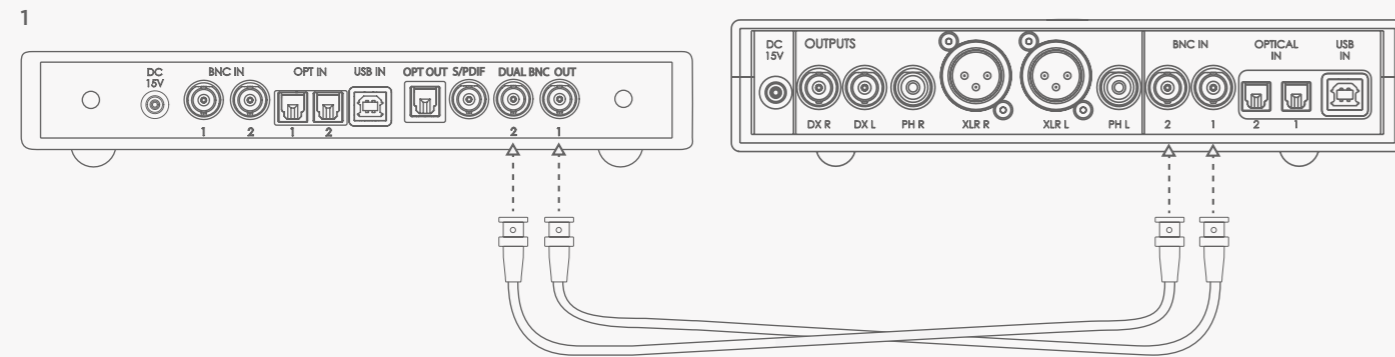
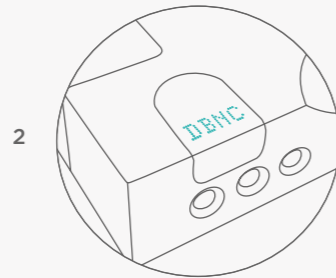
Connecting Hugo M Scaler to Hugo TT 2

4.3

Using the supplied BNC cables, it is simple to connect the Hugo M Scaler to the Hugo TT 2:

- 1) Turn off the Hugo M Scaler, Hugo TT 2 and any other connected equipment
- 2) Locate BNC Output 1 on the Hugo M Scaler and connect to BNC Input 1 on Hugo TT 2
- 3) Locate BNC Output 2 on the Hugo M Scaler and connect to BNC Input 2 on Hugo TT 2
- 4) Turn on all equipment, including the Hugo M Scaler and Hugo TT 2

- 5) Cycle through the inputs on Hugo TT 2 until 'DBNC' is displayed
- 6) Connect the output of the device you wish to play music from to the digital inputs of the Hugo M Scaler
- 7) Initiate playback



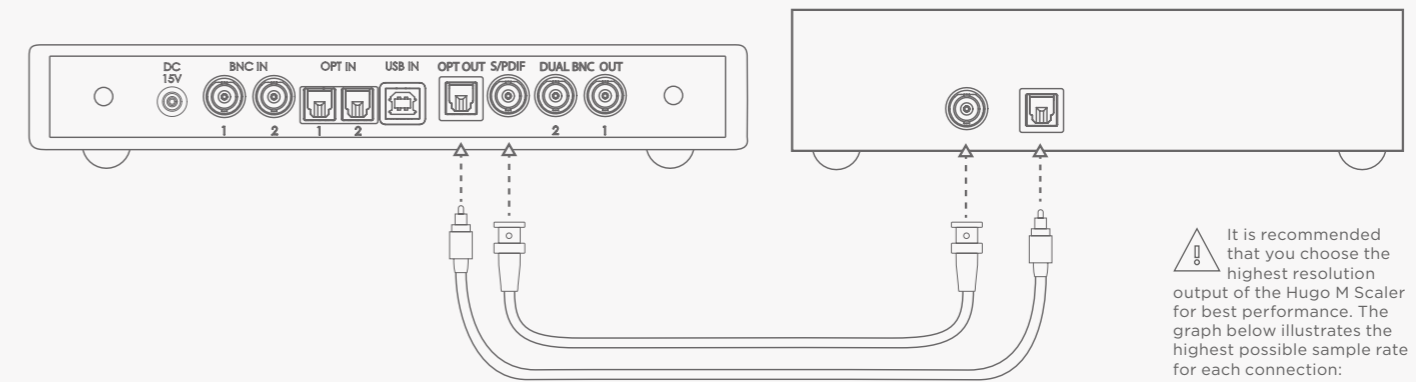
Connecting Hugo M Scaler to another DAC

4.4

Although the Hugo M Scaler is optimised for use with Chord Electronics' DACs, especially for the full 768kHz upscaling/decoding performance, the Hugo M Scaler can be connected to a third-party DAC to increase performance.

Connection to a third-party DAC can be made either via the available BNC output, or the optical output. The dual-data BNC outputs must not be used with non-Chord Electronics DACs.

- 1) Turn off both the Hugo M Scaler and any connected equipment
- 2) Locate the S/PDIF output connector or the Optical output and successfully connect to the corresponding input on the chosen DAC
- 3) Turn on all equipment including the Hugo M Scaler
- 4) Select the appropriate input on the DAC
- 5) Connect the output of the device you wish to play music from to the digital inputs of the Hugo M Scaler
- 6) Initiate music playback via the Hugo M Scaler



It is recommended that you choose the highest resolution output of the Hugo M Scaler for best performance. The graph below illustrates the highest possible sample rate for each connection:

Output sample rate settings

4.5

Please use the graph shown on the right hand page to determine your optimum sample rate settings.

The maximum achieved upsampling will depend entirely on your source input sample rate.

Key

- Improvement
- No improvement
- Not supported

Output sample rate settings

4.5

M Scaler / upsampling chart

SAMPLE FREQUENCY	OP SR COLOUR	DUAL BNC/USB INPUT	SINGLE BNC	OPTICAL	DUAL BNC/USB INPUT	SINGLE BNC	OPTICAL
44.1 - 48 kHz	● RED (BYPASS)	44.1 kHz	44.1 kHz	44.1 kHz	48 kHz	48 kHz	48 kHz
	● GREEN	176.4 kHz	88.2 kHz	88.2 kHz	192 kHz	96 kHz	96 kHz
	● BLUE	352.8 kHz	176.4 kHz	176.4 kHz	384 kHz	192 kHz	192 kHz
	○ WHITE	705.6 kHz	352.8 kHz	176.4 kHz	768 kHz	384 kHz	192 kHz
88.2 - 96 kHz	● RED (BYPASS)	88.2 kHz	88.2 kHz	88.2 kHz	96 kHz	96 kHz	96 kHz
	● GREEN	176.4 kHz	88.2 kHz	88.2 kHz	192 kHz	96 kHz	96 kHz
	● BLUE	352.8 kHz	176.4 kHz	176.4 kHz	384 kHz	192 kHz	192 kHz
	○ WHITE	705.6 kHz	352.8 kHz	176.4 kHz	768 kHz	384 kHz	192 kHz
176.4 - 192 kHz	● RED (BYPASS)	176.4 kHz	176.4 kHz	176.4 kHz	192 kHz	192 kHz	192 kHz
	● GREEN	176.4 kHz	176.4 kHz	N/A	192 kHz	192 kHz	192 kHz
	● BLUE	352.8 kHz	176.4 kHz	N/A	384 kHz	192 kHz	192 kHz
	○ WHITE	705.6 kHz	352.8 kHz	N/A	768 kHz	384 kHz	192 kHz
352.8 - 384 kHz	● RED (BYPASS)	352.8 kHz	352.8 kHz	352.8 kHz	384 kHz	384 kHz	384 kHz
	● GREEN	352.8 kHz	352.8 kHz	N/A	384 kHz	384 kHz	N/A
	● BLUE	352.8 kHz	352.8 kHz	N/A	384 kHz	384 kHz	N/A
	○ WHITE	705.6 kHz	352.8 kHz	N/A	768 kHz	384 kHz	N/A
705.6 - 768 kHz	● RED (BYPASS)	705.6 kHz	705.6 kHz	705.6 kHz	768 kHz	768 kHz	768 kHz
	● GREEN	705.6 kHz	N/A	N/A	768 kHz	N/A	N/A
	● BLUE	705.6 kHz	N/A	N/A	768 kHz	N/A	N/A
	○ WHITE	705.6 kHz	N/A	N/A	768 kHz	N/A	N/A

How to navigate the menus

5.0

5.1 Basic navigation

5.2 Video mode

5.0

How to navigate the menus

Basic navigation

5.1

With each press of the Hugo M Scaler's available buttons, you will cycle through the available options; no further interaction is required to make the section active: it automatically engages.



Video mode

5.2

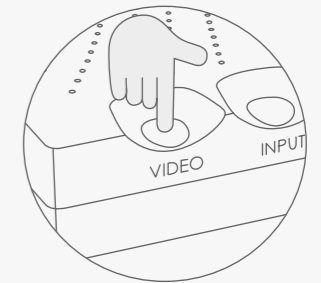
The Hugo M Scaler is a highly flexible standalone upscaler that is not only designed to be used with music, but with video, too. You can playback video via a computer/laptop/server or a Blu-ray player etc. to get the best audio quality from video soundtracks.

However, if playing back video content with the video filter off the enormous processing capabilities of Hugo M Scaler may introduce an undesired latency. This can appear as if the sound is not synchronising with the on-screen content. To counteract this, the Hugo M Scaler can be put into 'Video mode'. This mode will not change the upscaled sample rate, however, it will decrease the number of operating 'taps' (how hard the device is working to reproduce the original waveform), in order to decrease any latency.

Video filter off: The full 1-million tap upsampling performance is available for all music and audio playback. This mode is not recommended for video playback.

Video filter on: The tap-length is moderately reduced to allow for a latency reduction. This mode is recommended for video but not music playback.

Automatic: This mode will detect when video is being played by looking for a 48kHz digital audio signal. If a 48kHz signal is detected, the Hugo M Scaler will automatically switch the video filter on and display a cyan colour light, otherwise, a yellow light will be displayed to indicate that music playback is in progress.



Video mode selection

COLOUR	INPUT
Black	Video filter off
White	Video filter on
Yellow	Automatic mode: Music playback detected
Cyan	Automatic mode: Video playback detected

Special features

6.0

6.1 Dimming the brightness

6.2 Galvanic isolation

6.0

Special features

Dimming the brightness

6.1

To cycle between low and high brightness levels, simply press 'DX V' and 'DX /\' simultaneously.



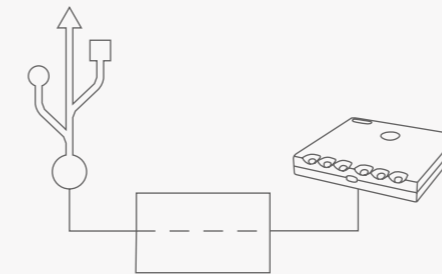
Galvanic isolation

6.2

Galvanic isolation involves isolating the power rails of the data USB input, allowing for greater sonic performance.

The Hugo M Scaler features a Class 2 Type-B USB input with this protection. Galvanic isolation also features on the dual-BNC outputs.

No special attention or cables are required to allow the Hugo M Scaler to function in this mode. However, the usual USB +5V rail will need to be present.





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