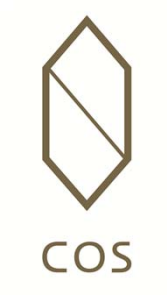


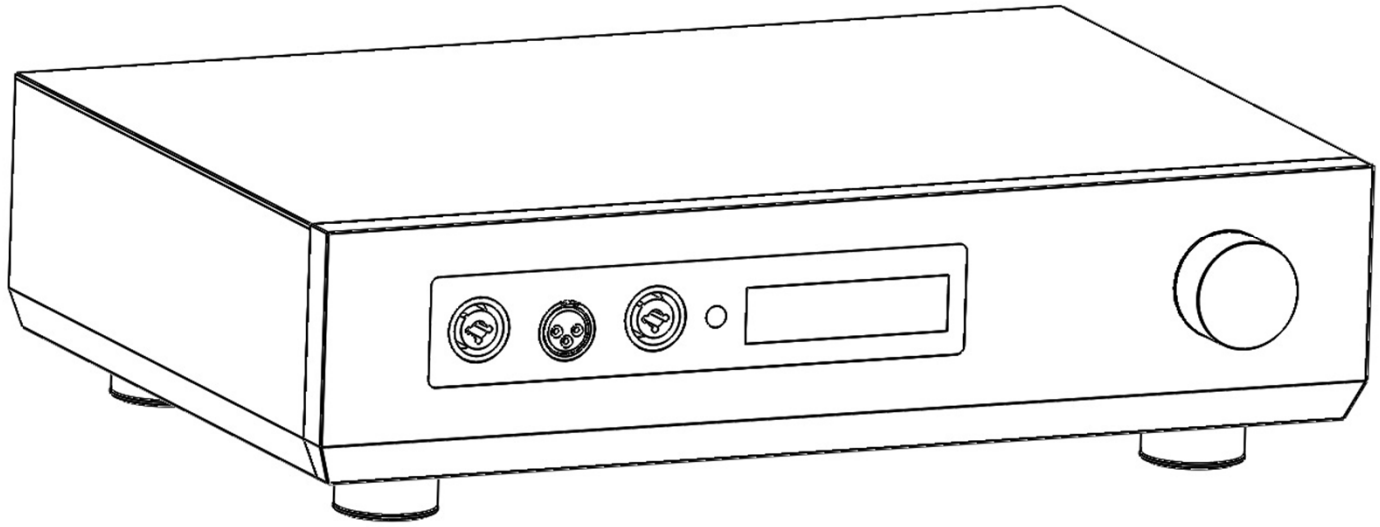
COS D10
User's Manual

V1.03
June 25, 2022

WELCOME

Thank you for choosing D10.

Please have a few minutes for this manual before powering D10 on.



CONTENTS

UNPACKING

You will find in the D10 box the following:

- A COS D10
- a remote control
- this manual

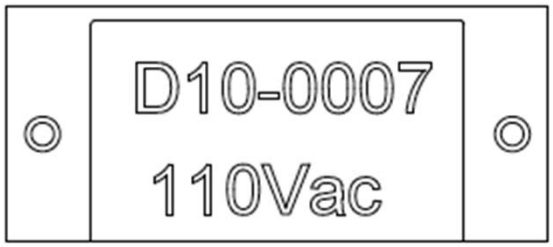
Please keep the D10 box. In an unlikely event that maintenance is needed, the box shall be used for protection of D10 in transit.

PLACEMENT

D10 needs a solid and stable surface to stand firmly, and four boots should help keep it level. D10 does not need much air to stay operational, but suffocating it is certainly a bad idea. Where D10 is placed is not critical, but please keep it away from known magnetic fields.

MAINS CONNECTION

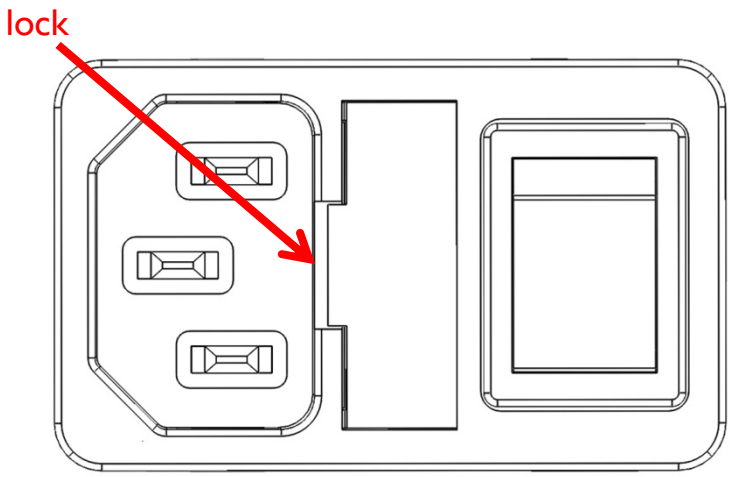
Before powering on, please make sure that the voltage is the same as the AC outlet voltage of your area. The AC voltage and the serial number is engraved on a plate below the AC plug.

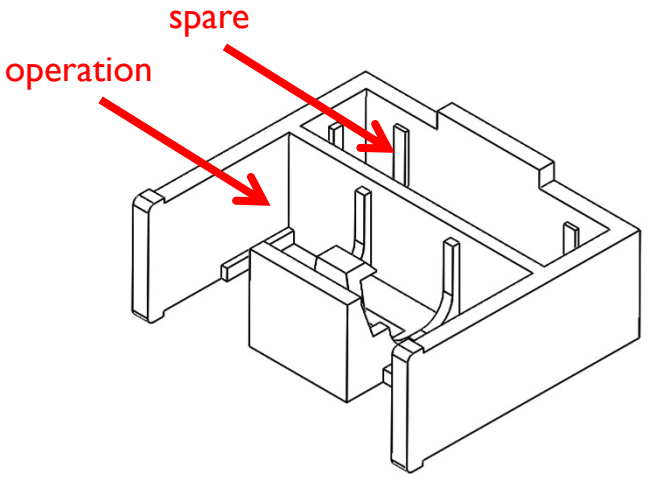


FUSES

Two fuses are mounted in a holder, located in between the AC inlet and the power switch. Use a pair of tweezers or the likes to press down and release the lock. The holder will slide out. The inner one is in operation whereas the outer one is a spare.

These fuses are 5 X 20 mm in size and rated for 1A, 250V AC, slow blow. If replacement is needed, please use fuses with the right specification.



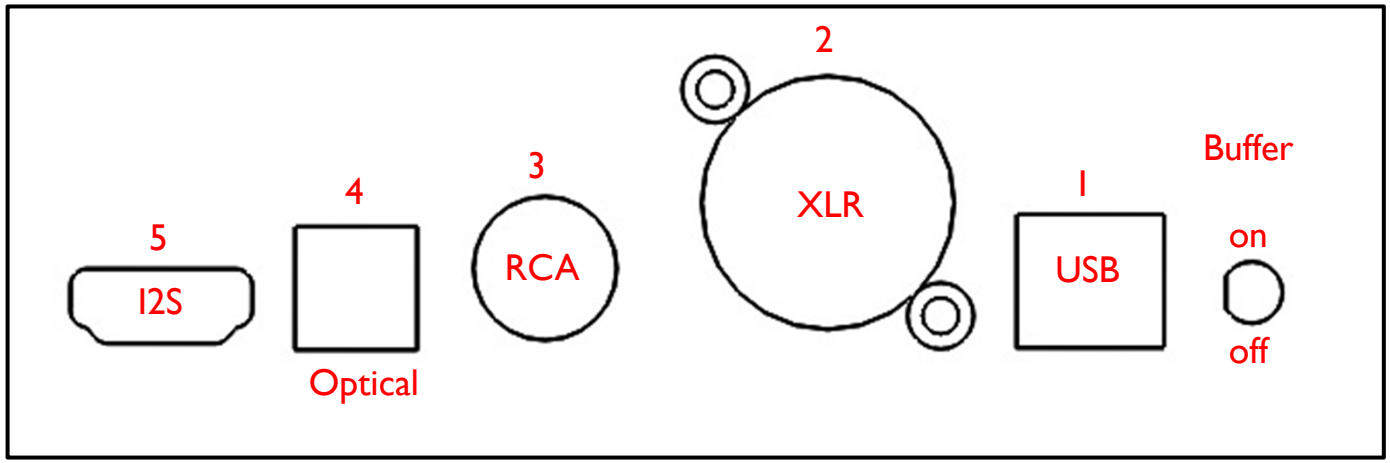


DIGITAL INPUT

There are 5 or 6 digital input as follows.

1. USB Audio (USB Type B connector)
2. AES digital input (XLR connector, 110ohm)
3. S/PDIF Input (RCA connector, 75ohm)
4. Optical Input (Toslink)
5. I2S Input (differential, HDMI connector)

- Streaming with streaming module (optional)



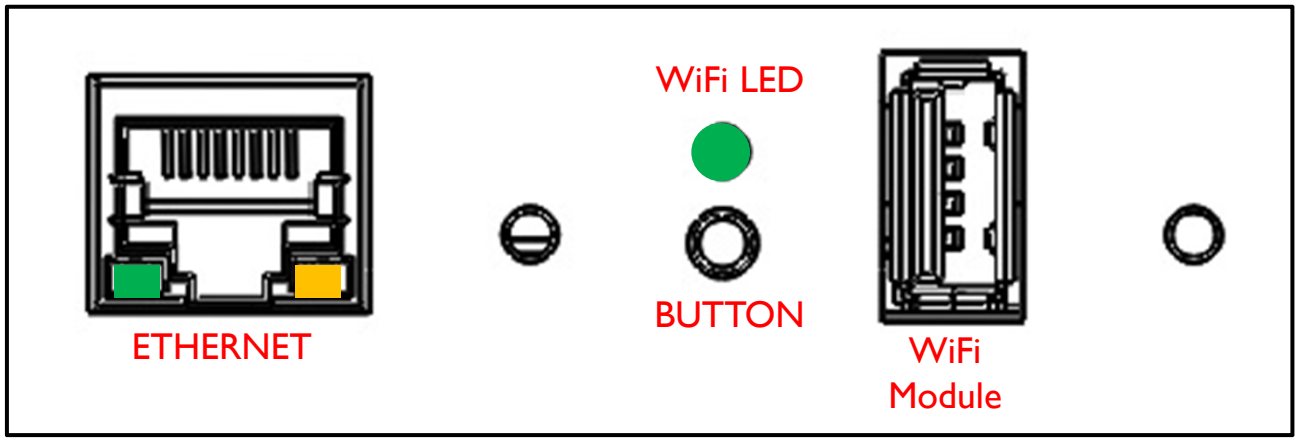
I2S

These I2S signals are differential (LVDS compliant) and the pin assignments are as follows,

1. Data+
3. Data-
4. BCLK+
6. BCLK-
7. LRCLK+
9. LRCLK-
10. MCLK+
12. MCLK-
13~16. no connection
2, 5, 8, 11,17, 19. Ground
18. +5V

STREAMING

- It takes ~30 seconds to boot up the streaming module, the “STREAM” sign on the display keeps flashing in the process and beams steadily when done.
- Ethernet connector
  - LED on the left (Green) : blinks when data flow through or are trying to.
  - LED on the right : Amber for 100 Mbps, off for 10Mbps.
- WiFi LED
  - On, WiFi module connected
  - Flashing (1 sec off – 1 sec on), AP mode
- USB connector for WiFi module



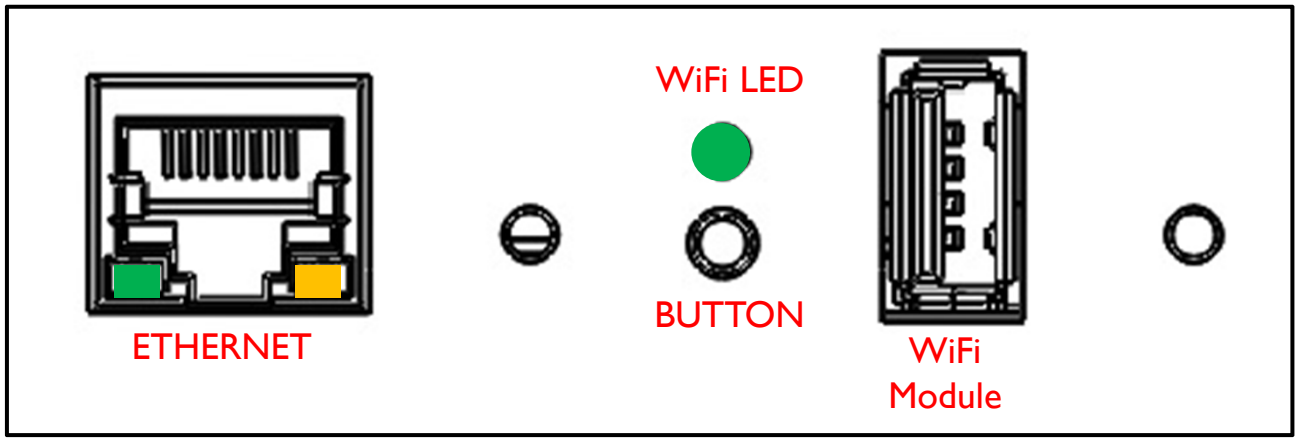
STREAMING

mconnect control is a free control app, available for iOS and Android, to

- Set up streaming module
- Access internet music (TIDAL, Qobuz and others)

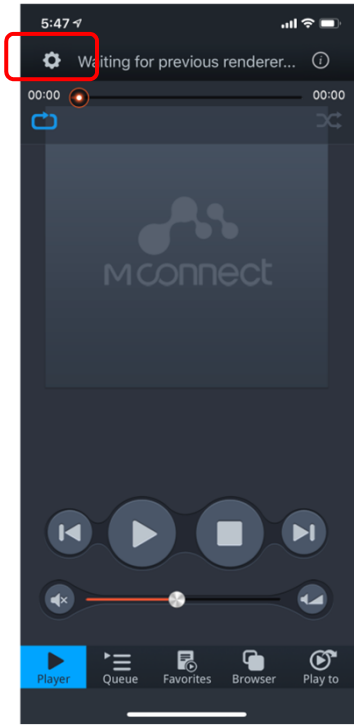
STREAMING - Ethernet

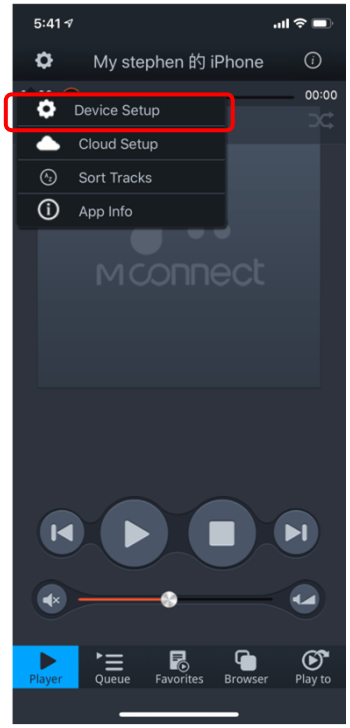
- Connect the D10 with the access point by an Ethernet cable
- Connect your smart phone to the same network
- Run “mconnect control” to configure the streaming module

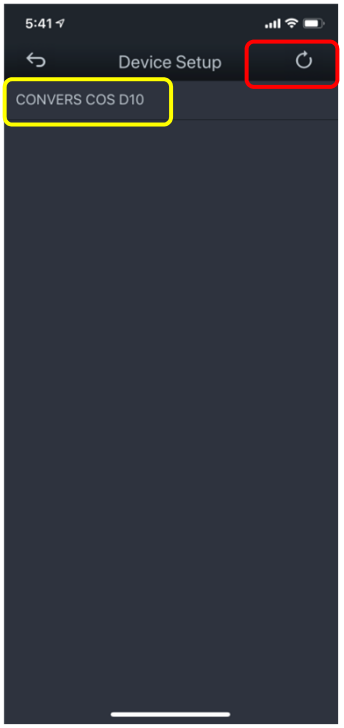


STREAMING - Ethernet

- Please follow the steps shown below. “Converse COS D10” is the third and the last step. If D10 fails to be on the list, please press the refresh icon. If it is of no avail, please check cable connections and try again.

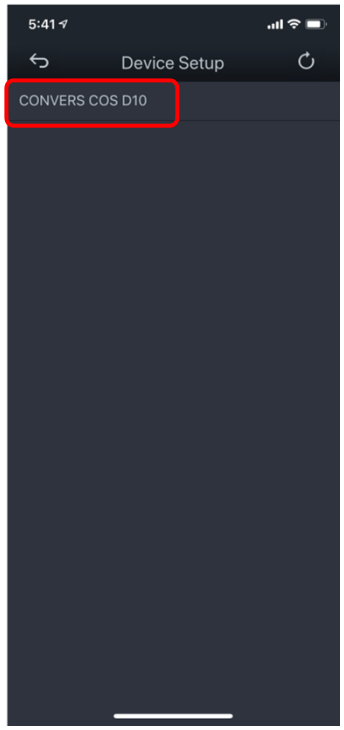






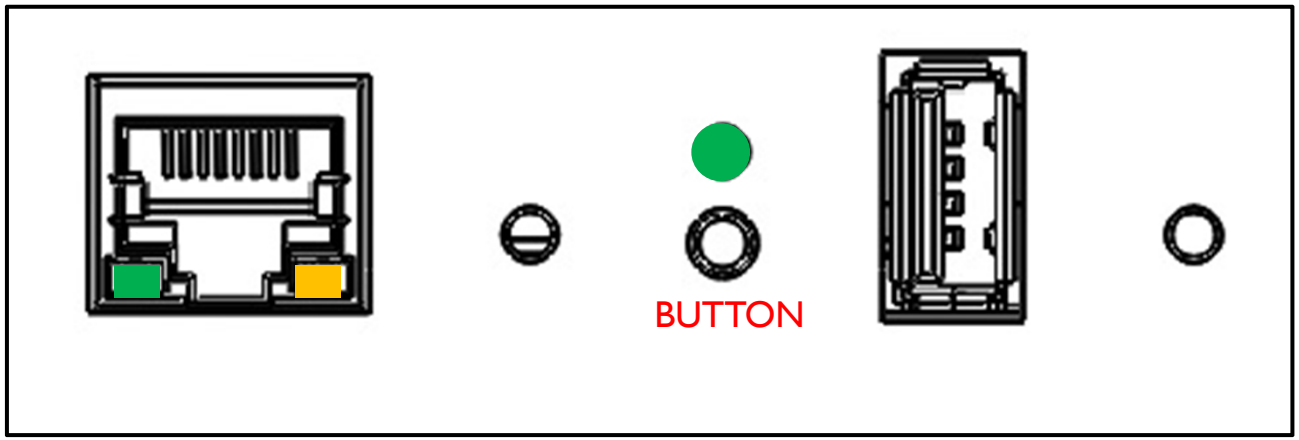
STREAMING - Ethernet

- Select D10 -> change LAN IP



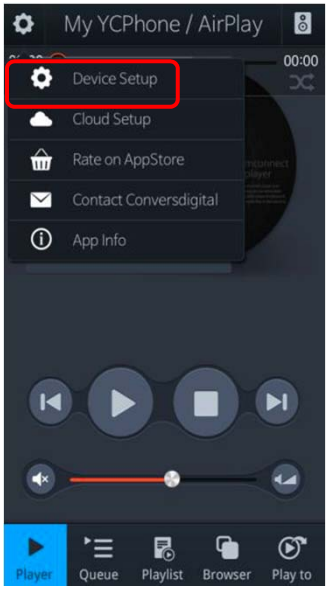
STREAMING – WiFi setup

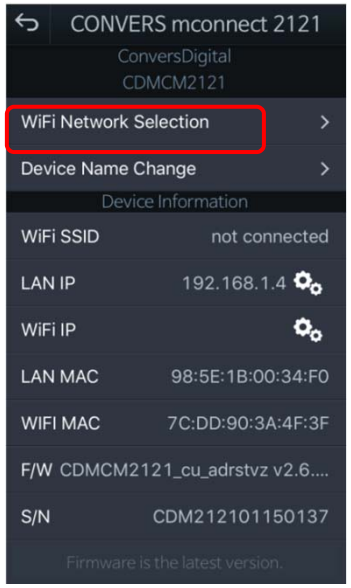
1. Please “press and hold” the button for 2~5 seconds, then “release” the button
   - If press and hold the button for over 10 seconds, D10 would go into a special mode that is not used for now.
2. In a few (~3) seconds, the WiFi LED would start flashing (1 second ON followed by 1 second OFF and then repeat).
3. If the LED stays on all the time then please re-do step #1, If still can’t make it work then please turn off D10, then turn on D10 and try again
4. Now the streaming module functions as an access point, with a network name “D10_xxnn”, nn is the LAN MAC, for example, “D10_6A40”
5. Now turn to your smart phone,
   - Go to the “WiFi” settings, find and select “D10_xxnn”
   - Key in password “password”

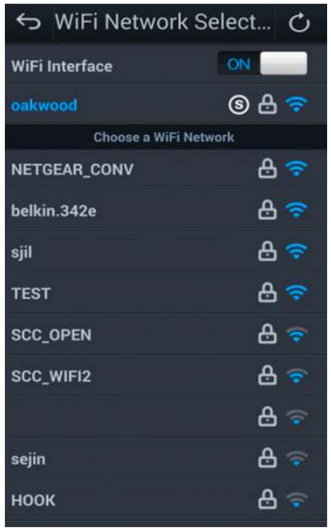


STREAMING – WiFi setup

- Run “Mconnect control”
  - Select “Device setup” -> “WiFi Network Selection”
  - Choose your own network (the WiFi network/router D10 should connect to)
  - Type in that WiFi network/router password
- The module now reboots and connects to your network.
  - This would take some time, for example, 30 seconds
  - When successfully connected to the WiFi router, the WiFi LED should be ON all the time.
- Go to “WiFi” settings on your smart phone and select your own network/router







STREAMING – ROON & MQA

- D10 is ROON Ready and ROON Tested, no setup is needed.
- MQA decoding relies on the streaming module.

Roon Ready device

Roon Ready network devices have Roon's streaming technology built in, and are certified by Roon Labs to provide the highest level of quality and performance in network streaming.

Roon Tested device

Roon Tested devices work over USB, HDMI, AirPlay, Google Cast, and other protocols. They have been profiled by the Roon team to ensure simple setup and effortless daily use.

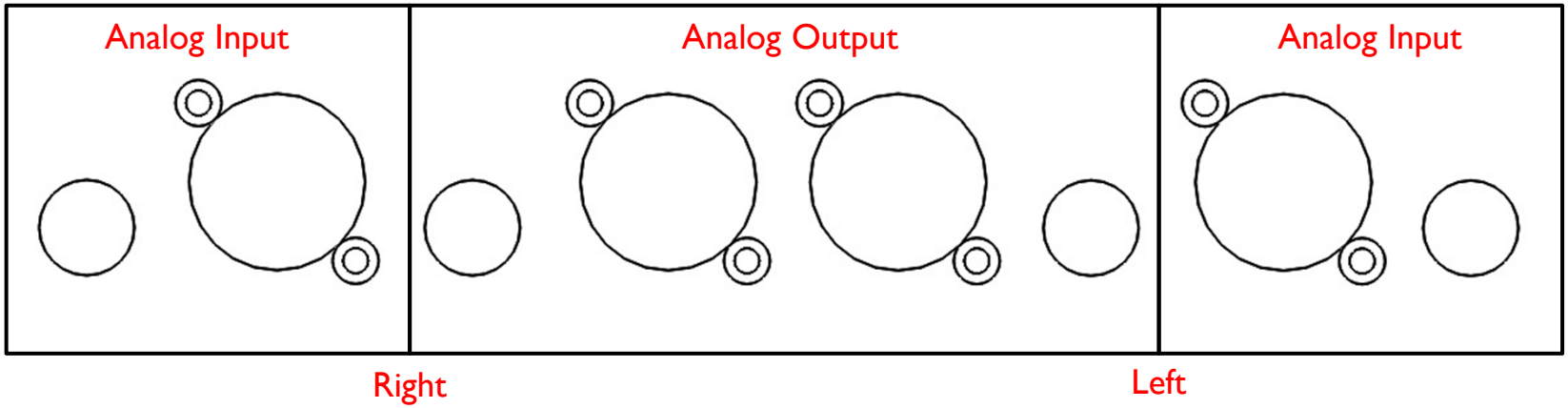
MQA (Master Quality Authenticated)

- D10 includes MQA technology, which enables you to play back MQA audio files and streams, delivering the sound of the original master recording. ‘MQA’ or ‘MQA.’ indicates that the product is decoding and playing an MQA stream or file, and denotes provenance to ensure that the sound is identical to that of the source material. ‘MQA.’ indicates it is playing an MQA Studio file, which has either been approved in the studio by the artist/producer or has been verified by the copyright owner.
-

ANALOG INPUT

There are two analog inputs, plus one optional.

- Balanced Analog Input (XRL female connector pair)
  - Pin 1: Signal ground
  - Pin 2: Signal + (non-inverting)
  - Pin 3: Signal – (inverting)
  - Connector ground lug: chassis ground
- Unbalanced Analog Input (RCA connector pair)
- Phono-cartridge input with Phono-amplifier module (optional)

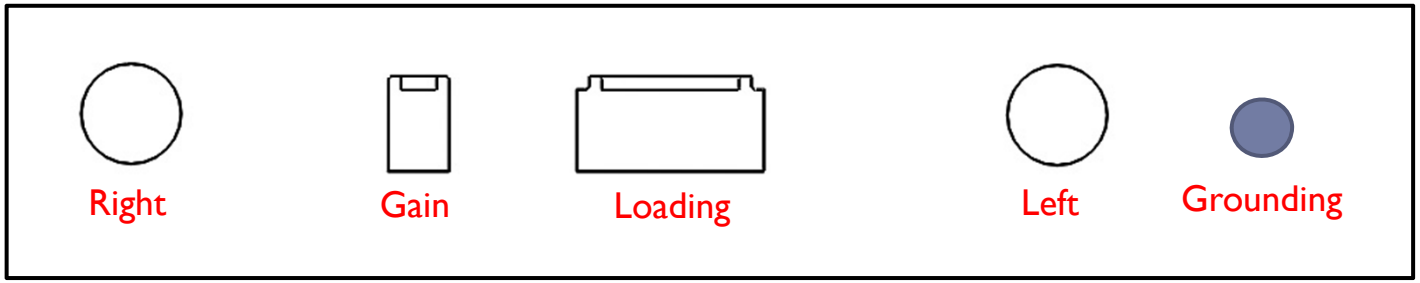


PHONO AMPLIFIER

There are three things to be taken care of,

- Gain : 40, 50 or 60 dB (by setting of two switches)
- Loading resistance
  - The default resistance is 47Kohm (switches 1 to 5 are positioned downward).
  - 5 resistors ranging from 470 to 22 ohm can be enabled.
  - These resistors are in parallel. For example, if 470 and 350 ohm are enabled, the overall resistance will be 470 * 350/(470 + 350) = 200 ohm
- Loading capacitance
  - The default capacitance is 0 (switches 6 to 8 are positioned downward).
  - 3 capacitors ranging from 390 to 100 pF can be enabled.
  - These capacitors are in parallel. For example, if 390 and 100 pF are enabled, the overall resistance will be 390 + 100 = 490pF

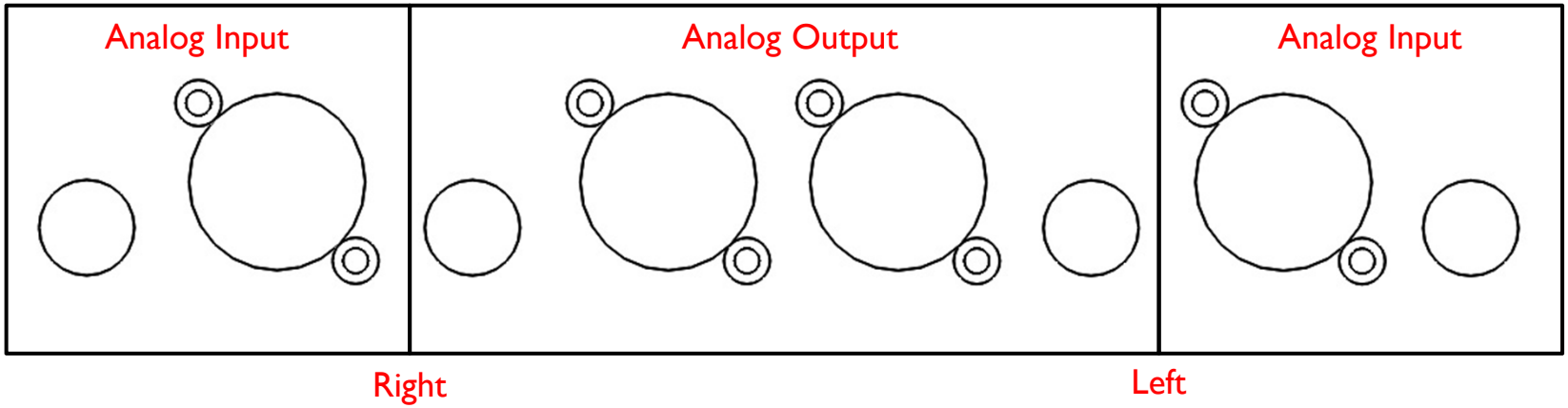
There is also a grounding post for turntable grounding.



ANALOG OUTPUT

D10 provides both balanced and unbalanced analog outputs, with an XLR male connector pair and an RCA connector pair, respectively. The pin assignments of XLR-type female input connectors are:

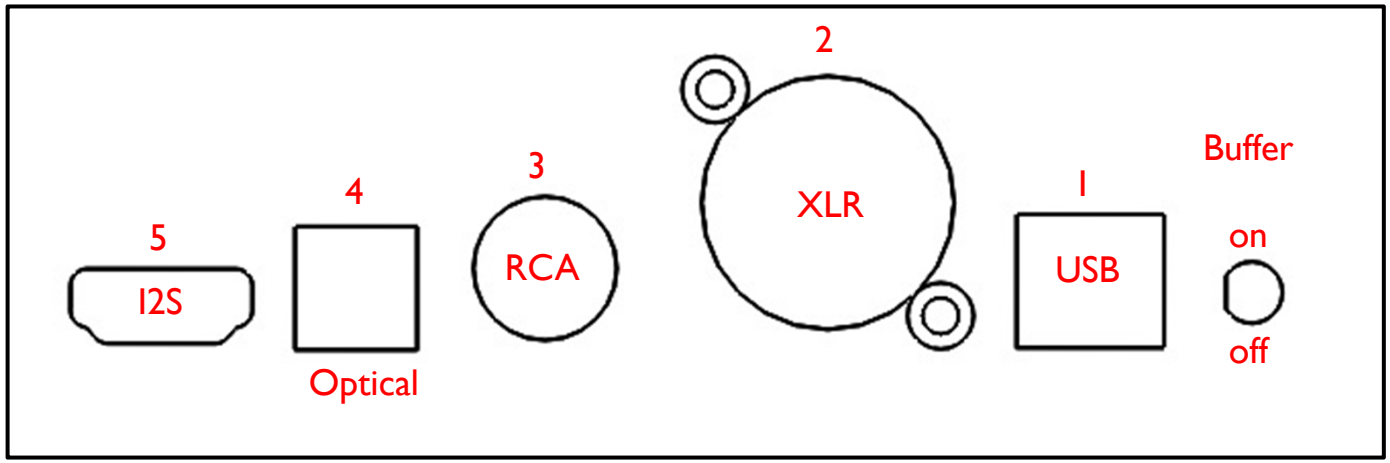
- Pin 1: Signal ground
- Pin 2: Signal + (non-inverting)
- Pin 3: Signal – (inverting)
- Connector ground lug: chassis ground



BUFFER SELECTION

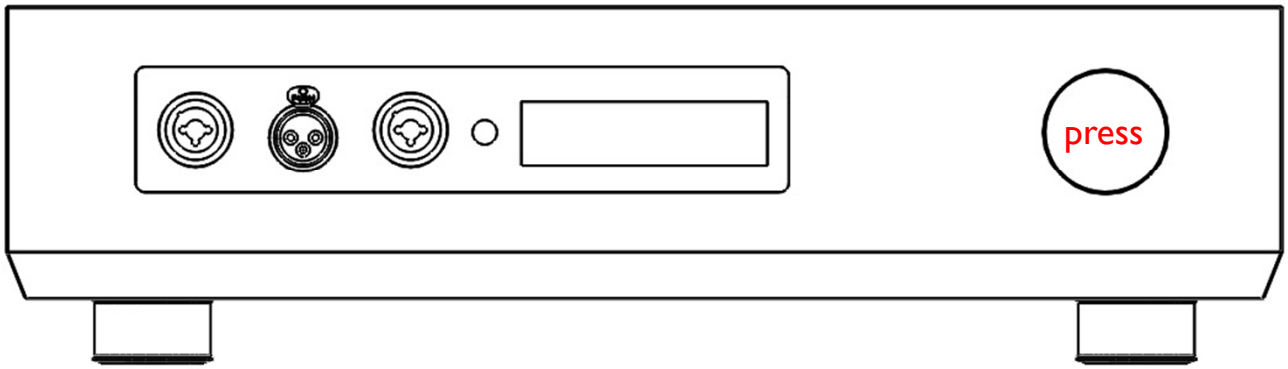
There is a buffer switch on the back panel of D10, and it should be turned on for optimum performance. Sometimes digital music data do not move along and get converted in perfect tandem, which causes jitters, and even a few micros-second timing error is enough to perturb the ears and frustrate the mind. Therefore, D10 uses one-second depth buffer, along with an independent and accurate clock, to receive data, align them and send them out in precise time frames for conversion.

For videos, the buffer should be switched off. It reduces the depth of the buffer a little to ensure video-audio synchronization. Switching the buffer on or off takes effect immediately.



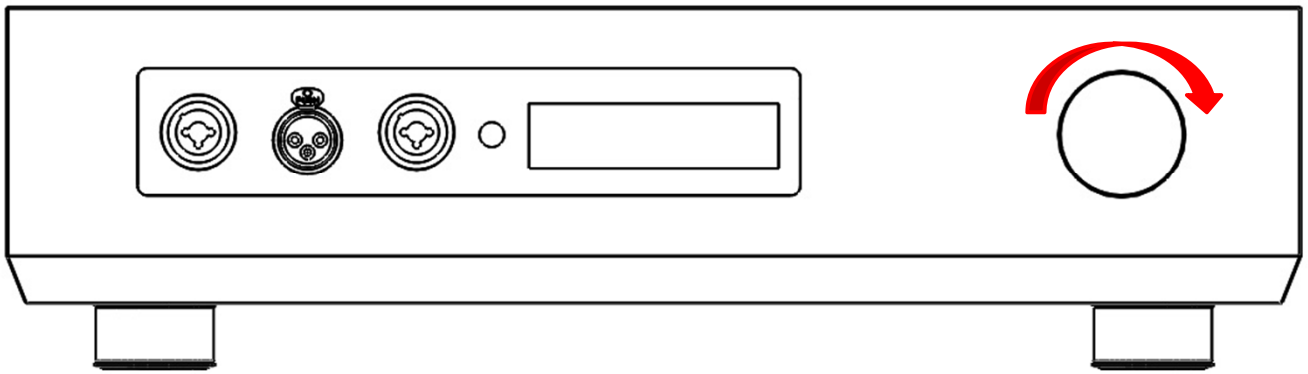
SELECTING INPUT SOURCE

The default input source is USB 2.0, and the next input source can be selected by shortly pressing the knob. The order of the selection is USB , Streaming, AES and so on.



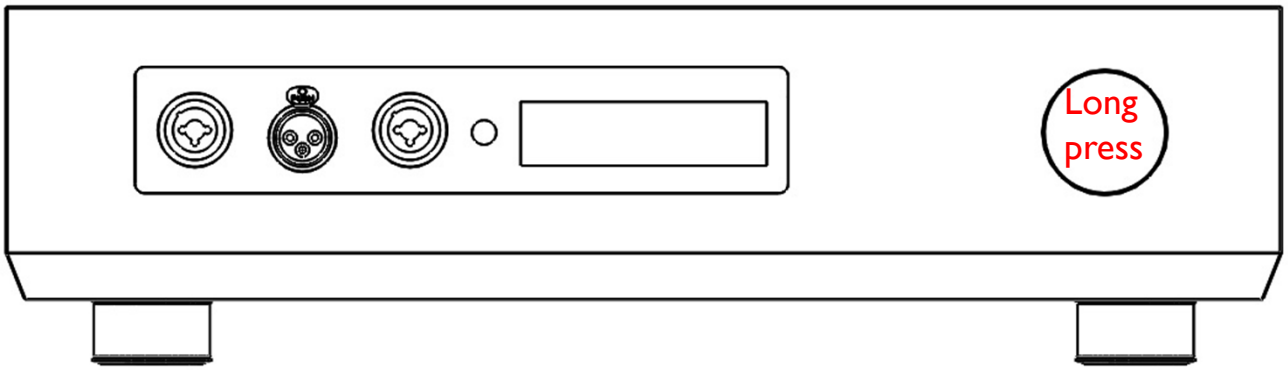
ADJUSTING VOLUME LEVEL

Volume is changed by rotating the knob. Rotating the knob counterclockwise brings the volume up; clockwise, down. And it is shown on the display from -63.5dB to +6dB (loudest) with a 0.5dB interval.



STANDBY MODE

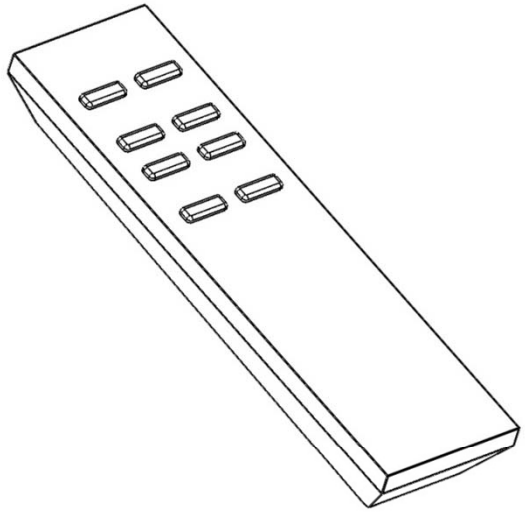
A long press (about one second) on the knob or a press on the STANDBY key on the remote control puts D10 into standby mode. In this mode, the volume and output relays are turned off, and D10 goes into a state of low power consumption. Another long press on the knob or a press on the STANDBY key on the remote control makes D10 leave standby mode; music resumes and volume hops back to the previous level.

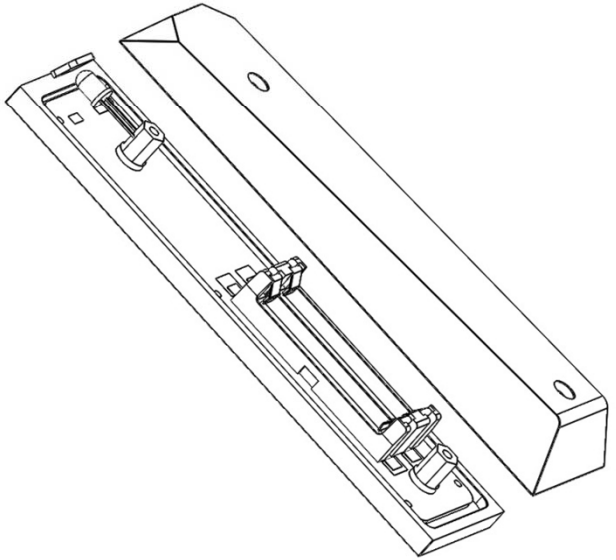


REMOTE CONTROL

The D10 remote control is easy to use. Just aim the remote control at D10 and press buttons. When power is running low, please use a screwdriver to open the cover at the back of remote control to replace batteries,

- STANDBY, standby and wakeup key
- MUTE
- SOURCE, previous and next input source selection
- VOLUME, volume up and down
- INFO, further info of the system
  - Whether streaming module is installed or not? And if yes, IP settings
  - Whether phono-amplifier module is installed or not?
- DIM, to tune brightness of the display





DISPLAY

A 256 by 64 pixels white OLED display is used to show the current status.

- Buffer Selection
- Input source
- MQA
- Digital input data rate and number of bits
- Receiving music data
- Volume

There are 4 brightness levels and can be tuned via the “dim” button on the remote. If idle for over 10 minutes, the brightness will be set to a darker level and back to original brightness upon operations such as digital music play, input channel changes and volume changes.

HEADPHONE

D10 uses a particular set of headphone connectors – a 3-pin female XLR + ¼" stereo jack combo. The center is for ¼" stereo jack. There are two of them; therefore D10 provides connections up to 2 unbalanced headphones. The female XLRs are for one balanced headphone: the one on the left is for the left channel and the other for the right channel.

XLR-3 pin assignments,

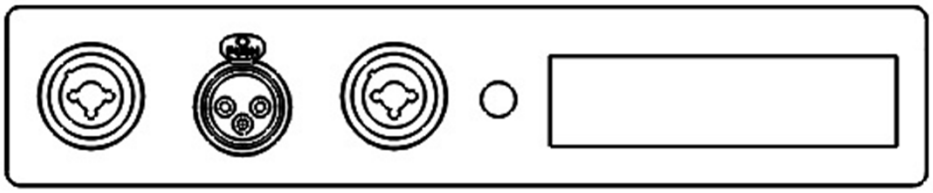
1 : Ground
2 : Signal + (non-inverting)
3 : Signal – (inverting)

There is also an XLR 4 pin connector for balanced headphone connections.

XLR-4 pin assignments,

1 : Left Channel Signal + (non-inverting)
2 : Left Channel Signal – (inverting)
3 : Right Channel Signal + (non-inverting)
4 : Right Channel Signal – (inverting)

Since the loudness depends on several factors such as the headphone impedance and efficiency, it is advised to turn the volume down to minimum (-63.5dB) for s start. Play the music and then gradually turn up the volume till the proper loudness is reached.



SPECIFICATIONS - PRE-AMPLIFIER

Analog Input	Balanced X 1, Unbalanced X 1
Analog Output	Balanced X 1, Unbalanced X 1
Residual Noise	< 2uV(-114dBV) (20Hz~20KHz, non-weighted, input terminated)
Input Overload	16V (balanced), 8V (unbalanced)
Input Impedance	100Kohm
Output Impedance	200 ohm(balanced), 100ohm (unbalanced)
Maximum Output	16V (balanced), 8V (unbalanced)
Frequency Response	+-0.1dB/20Hz~20KHz
THD+N	< 0.001% (-100dB) (20Hz~20KHz non-weighted)
Signal To Noise Ratio	> 110dB/20Hz~20KHz non-weighted
Crosstalk	< -120dB
Volume	precision resistor array, 140 steps by 0.5dB/step, -64db to +6dB
Headphone Amplifier	audio jack X 2 (unbalanced X 2)
	XLR-3 X 2 (balanced X 1)
	XLR-4 X 1 (balanced X 1)

SPECIFICATIONS - PHONO AMPLIFIER

Gain	40, 50 or 60dB
Input Resistance	47Kohm to 10ohm
Input Capacitance	0 to 750pF
RIAA response	<+-0.2dB/20Hz~20KHz
Residual Noise	<30uV (input shorted, 40dB gain, 20Hz~20KHz)
	<300uV (input shorted, 60dB gain, 20Hz~20KHz)
THD+N	< -90dB (40dB gain,470ohm load, 1KHz, 2Vrms output)
	< -70dB (60dB gain,470ohm load, 1KHz, 2Vrms output)

SPECIFICATIONS - DAC

Digital Inputs	USB X 1, Asynchronous Audio Class 2.0
	SPDIF RCA X 1
	AES XLR X 1
	TosLink X 1
	I2S X 1 (HDMI, differential)
Sampling Rate	PCM, up to 192Ksps, 24 bits
	DSD, up to DSD256 (USB), DSD64 (all other inputs)
Frequency Response	+0dB, -0.5dB/20Hz ~ 20KHz
Full Scale Output	2V (unbalanced), 4V (balanced)
THD+N	< 0.001% (-100dB) (192Ksps, 24-bit, 20Hz~20KHz, A-weighted)
Signal To Noise ratio	> 110dB, 24-bit, 20Hz~20KHz, A-weighted
DAC	24-bit DAC X 2, up to 192Ksps, 24-bit
Digital Filter	COS proprietary, Linear phase delay
Audio clock jitter	< 1ps

SPECIFICATIONS - STREAMING

DLNA 1.5 & UPnP AV1.0
Ethernet 10/100 Base-T
WiFi, 802.11 ac/abgn
ROON ready
TiDAL, Deezer, Qobuz, Spotify
MQA full decoding

SPECIFICATIONS - GENERAL

Display	256 * 64 White OLED
Weight	10kg
Dimension	415mm (W) X 280mm (D) X 100mm (H)
Power	100~120VAC (110V version) or 200~240VAC (220V version)
	Normal Operation < 50W, standby < 0.5W