



USER MANUAL

RaspDacMini LCD

Raspberry Pi 4 streamer
with ES9038Q2M DAC

Introduction

The RaspDacMini LCD is a network player based on Raspberry Pi 4. It embeds a digital to analog decoding circuit ESS SABRE ES9038Q2M. The system needs a software distribution (Volumio / moOde Audio) to run.

Key points

- Audio streamer with high-fidelity capabilities
- Can run Volumio and moOde Audio ([more about distributions here](#)).
- 2.4" LCD display (non-tactile).
- Independant S/PDIF (coaxial) digital input.
- Infra-red receiver with controller to drive the playback functions (variable according to the chosen distribution).
- Hardware variable output volume.

Specifications

- DAC chip : ES9038Q2M
- Architecture : Single-ended
- Digital inputs :
 - S/PDIF Coaxial (DAC module)
 - 2x USB-2 (Raspberry Pi)
 - 2x USB-3 (Raspberry Pi)

- Analog output :
 - RCA stereo single-ended

- Sampling rate :
 - RPI I2S 384kHz / DOP128
 - SPDIF : 192kHz / DOP64

- Power supply : DC 5V 3A on USB-C connector

- Dimensions : 60 x 90 x 120mm

- Weight : 185g

Getting started

Kit assembly :

Follow the assembly instruction which are available under the « DOWNLOAD » section of the device dedicated web page on our website.

Insert the SD card :

Before you power the system, install the SD card into the SD card socket located on the rear panel. If you did not order a pre-configured SD card, you can do it yourself by following those instructions. You should use a SD card with at least 8gb of space.

Connect a network cable :

We highly recommend using a wired network connection (Ethernet network cable).

Power up the device :

The RaspDac Mini LCD is powered via the USB-C connector on the rear panel.

A 5V 3A power supply is required to ensure proper operation of the device.

Never attempt to connect a power supply to the Pi's native power connector (located inside the case).

Wait while the device is powering on for the first time :

Depending on the distribution in your SD card, it may take several minutes for the device to start up for the first time. When the screen turns on, the RaspDacMini LCD is ready for use.

Connect to the RaspDacMini LCD web interface:



Once the device is on and connected to the network, the LCD will display the IP address of the RaspDac on your network.

The latter follows a 192.168.XX.XX syntax (where the X's are numbers that vary depending on your network).

Open a web browser (Chrome, Firefox, Safari, Edge...) and type in your navigation bar (without the quotes) "http: //" followed by the IP address displayed by your RaspDac.

If the display prints 192.168.11.12 type :
« <http://192.168.11.12> »
Into your web browser.

Powering ON / OFF the device

Do not shut down abruptly the device to power it down.

Suddenly cutting off the power supply can sometimes corrupt the SD card and cause boot / disk write issues. If this happens you will need to [reinstall your SD card](#).

When you no longer want to use your RaspDac Mini LCD, the safe way is to first shut down the system. Use either the ON / OFF button on the remote control or the shutdown function available through your distribution's web interface. Wait a minute to make sure the system has completely stopped before you cut the power.

The device enters a passive state: it still listens to the remote control power-on instructions and displays a red diode to indicate that it is powered.

In this passive state, the RaspDac Mini can be safely powered off.

If the device has been switched off

It will turn on automatically the next time power is available.

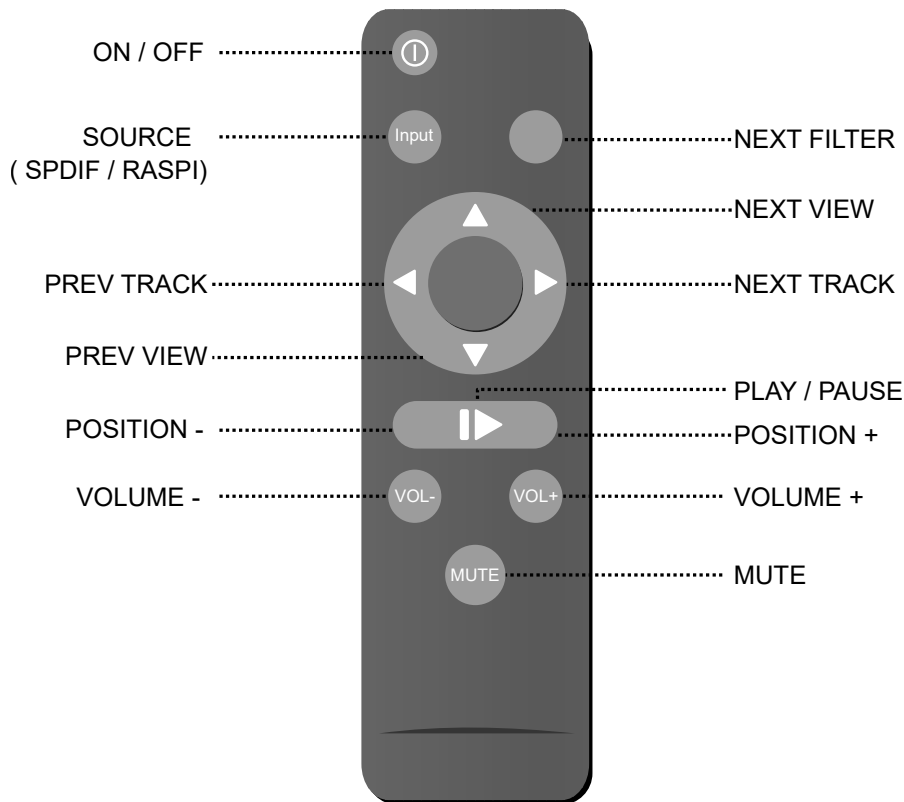
Display options

The LCD screen is based on the standard display settings configuration available in your distribution. You can change settings such as sleep time by viewing the appropriate section:

- Under moOde Audio : */sys-config.php* → *Local Display*
- Under Volumio : */plugin-manager* → Installed Plugins → *Touch Display*

IR remote control

The functions assigned to the infrared remote control are as follows :

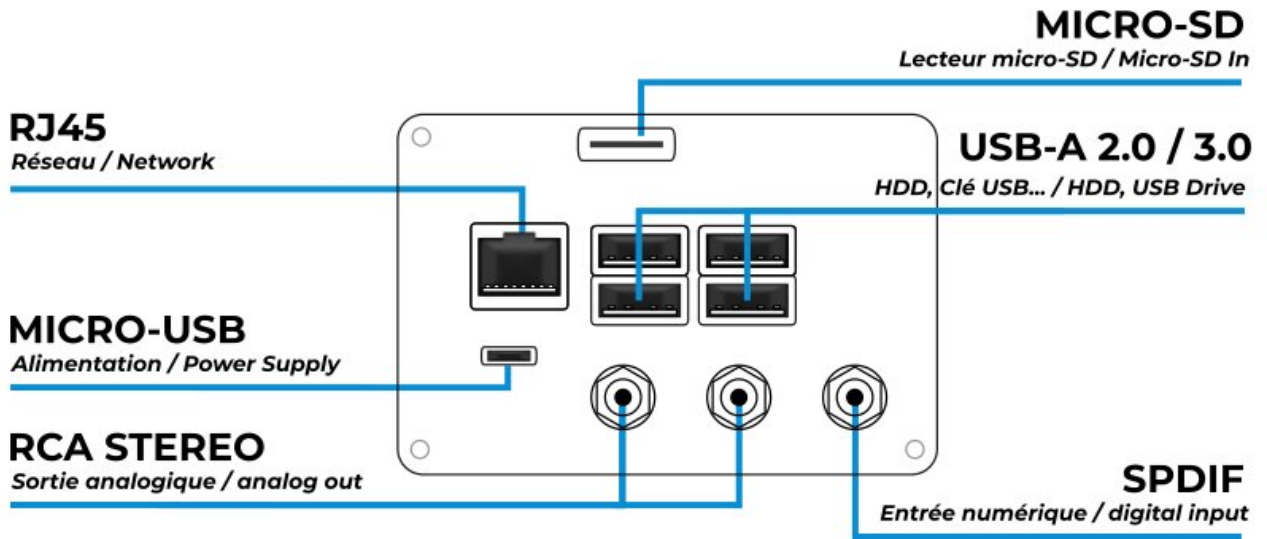


Depending on your distribution (moOde, Volumio), the functions of the remote control may vary slightly. Buttons that are not defined here invoke functions specific to each system or that are still being implemented. The fast forward (position + and position -) is continuous in moOde (hold the button to progressively advance) but discrete in Volumio (press once to advance by an amount specified in the UI).

The Prev View & Next View buttons change what the screen displays between playback data (title, album cover) and advanced metadata (frequency / bitrate ...).

The Next Filter function alternates the reconstruction filters of the DAC. The active filter is indicated on the advanced metadata page.

Base connections



The SPDIF input and the Raspberry Pi 4 cannot play music at the same time. If enabled, the SPDIF input will have highest priority.

The RaspDac Mini LCD was not designed for use with a secondary display. No video port is available for this purpose.

Dev

Audio driver:

The Audiophonics ES9028 / 9038 DAC driver is natively present in all versions of the Raspberry Pi kernel from version 4.19.34. (Raspberry Pi). This setting is already configured in the provided system images, so you do not have to do anything to activate it.

If you are working on your own integration, it is possible to manually load the driver when starting the pi using the following line (/boot/config.txt).

```
dtoverlay=i-sabre-q2m
```

LCD Driver:

The LCD screen is driven via [fbcp-ili9341](#) (which, in essence, copies the HDMI output to the SPI port).

If you do not want to invoke a graphics server in your environment, other lighter implementations are possible via Python with the LUMA & LUMA.LCD libraries

Development options:

If you need to modify the system, we usually leave some of our developer options accessible in a web browser on port 4150 (192.168.XX.XX: 4150)

For example, you will find an option to rebuild the LCD driver and restore the graphics environment settings.