



# Delorean RF Player

## USER MANUAL

VERSION 1

### TABLE OF CONTENT

<b>Introduction</b>	<b>2</b>
<b>Board Description</b>	<b>2</b>
<b>Characteristics</b>	<b>3</b>
<b>Wiring</b>	<b>4</b>
<b>Remote functions</b>	<b>5</b>
<b>Remote Learning mode</b>	<b>6</b>
<b>Sequencer</b>	<b>6</b>
<b>SD-Card format</b>	<b>7</b>
<b>Source code</b>	<b>7</b>

# Introduction

The Delorean RF Player is an electronic board which has been designed in order to extend the functionalities of the Delorean 1:8 model from Eaglemoss.

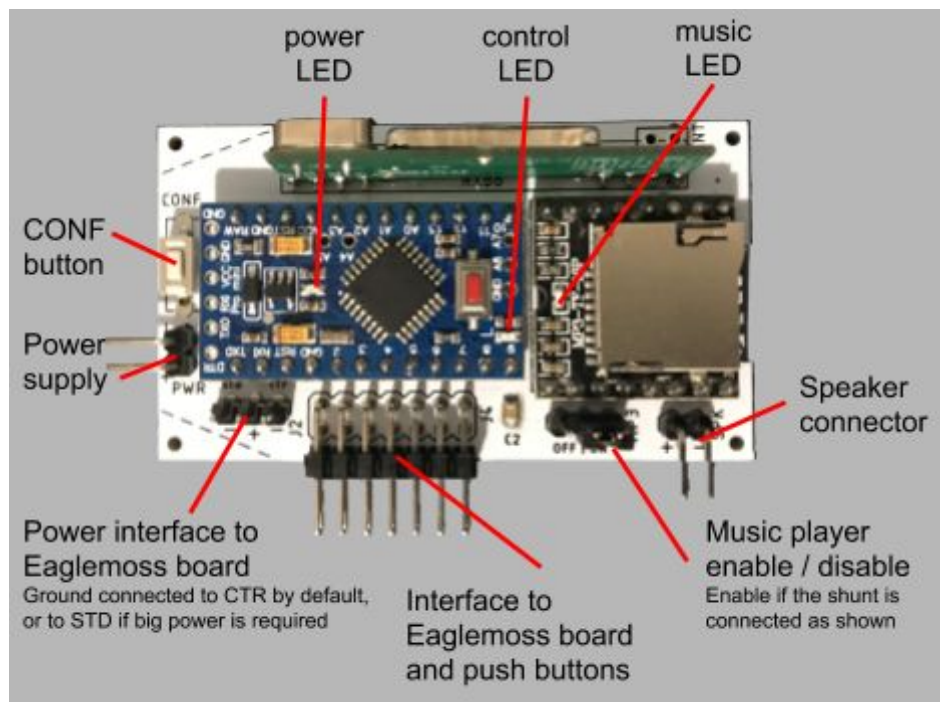
The objectives of this device are to:

- Enable **remote control** of the Delorean electronic devices,
- Add a remotely controlled **mp3 player**, that can play your musics and sentences
- Add a **sequencer**, to enable recording and playing of commands timely with your favorite song

Delorean RF Player has been developed to be plug and play. All functionalities are accessible using the remote control and the on-board configuration push button (for advance configuration only) so that it is useable by everyone without a single line of code.

This document presents the device characteristics and then gives all the instructions you need to connect and use the Delorean RF Player.

## Board Description



# Characteristics

## Electrical characteristics

<i>input power voltage:</i>	5V <sup>1</sup>
<i>Maximum current:</i>	1A <sup>2</sup>
<i>Maximum interface current:</i>	2A <sup>3</sup>
<i>Maximum bypass current:</i>	10A (indicative)

## RF characteristics

<i>Frequency:</i>	433MHz
<i>Remote power supply:</i>	2x AAA batteries (not included)
<i>Compatibility:</i>	most commercial remote (PT2262 / EV1527 / etc)

## MP3 player characteristics

<i>On-board amplifier:</i>	3W
<i>Speaker impedance:</i>	4-8 ohms
<i>SD-card support:</i>	FAT16 / FAT32
<i>SD-card size:</i>	32GB maximum
<i>Number of files:</i>	up to 3000 songs + 3000 advertisements

## Sequencer characteristics

<i>Recording duration:</i>	10min
<i>Recordable actions:</i>	300

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<sup>1</sup> Well regulated Input voltage is required.

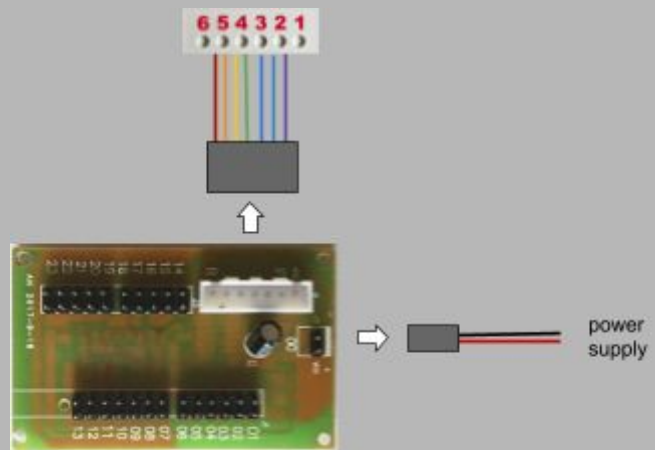
<sup>2</sup> Maximum current is given for the board alone. It does not include the current required for the devices plugged on the Eaglemoss board. Power supply up to 50W may be needed depending on your mods.

<sup>3</sup> Maximum current that can be delivered to Eaglemoss board in controlled mode. If more current is needed for your set-up, simply use the **J2-std** pin instead of J2-ctr; button 6 long-press function might be impacted.

# Wiring

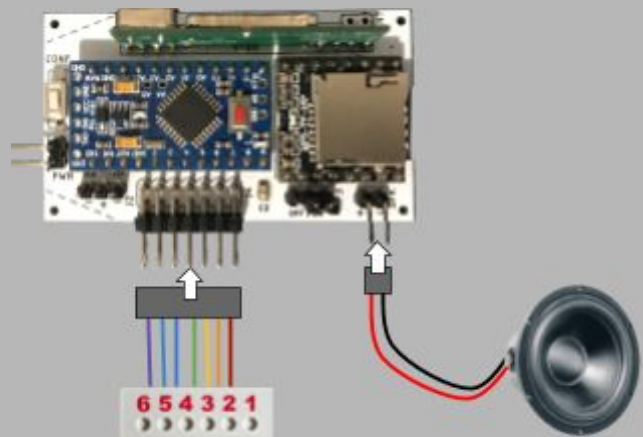
## Step 1:

- Unplug power supply J2 from Eaglemoss board
- Unplug Eaglemoss buttons J4 from Eaglemoss board



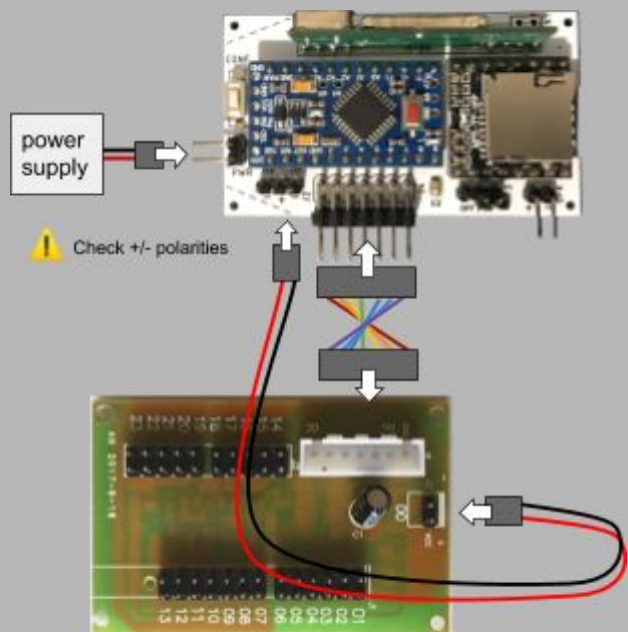
## Step 2:

- Connect Eaglemoss buttons to Delorean RF Player **J4**  
⚠ Respect wires order (GND F to R)
- Connect the speaker to Delorean RF Player **spk**

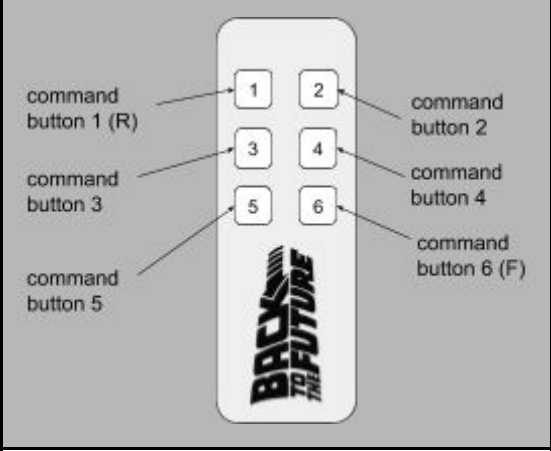
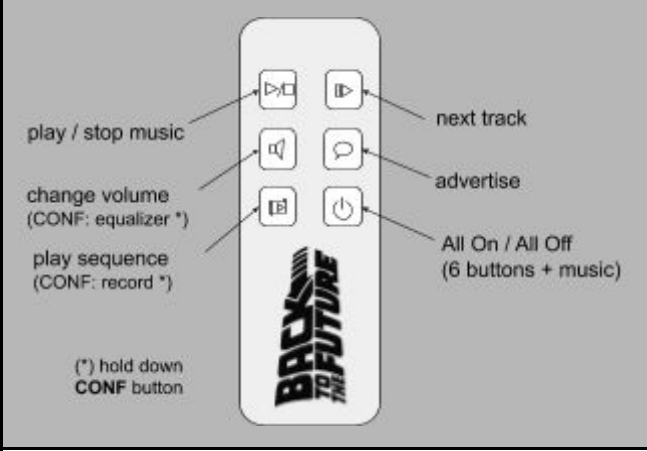


## Step 3:

- Connect the 7 wires ribbon cable between Delorean RF Player **J4** and Eaglemoss board **J4**  
⚠ Respect wires order (GND F to R)
- Connect Eaglemoss board **J2** to Delorean RF Player **J2 (- ctr)**  
⚠ Be sure to respect polarities
- **After double check that all connections are correct,** Connect the power supply  
⚠ Be sure to respect polarities



## Remote Functions

	
Short press (~0.5 sec)	Long press (~1 sec)

If long presses are hesitant, please try with fully charged remote battery.

The long-press functions are :

1. **play / stop music:**  
Enables to start the playlist or stop the music  
*info: The playlist is played one time and then music and all devices are shutdown*
2. **next track:**  
Goes to next track of the playlist
3. **change volume:**  
Navigate between the 3 volume levels  
*info: The control LED will blink a number of times corresponding to selected level*  
**change equalizer (holding CONF):**  
Navigate between the 6 equalizer presets  
*info: The control LED will blink a number of times corresponding to selected preset*
4. **advertise:**  
Plays a random track from your ADVERT folder where you can put your favorites sentences and short tracks from the movies ! Random is used so that you always have the element of surprise
5. **play sequence:**  
**record sequence (holding CONF):**  
please refer to [section Sequencer](#)
6. **all on / all off:**  
enable to power or shutdown all devices and music  
*info: Eaglemoss board J2- must be connected to J2-ctr to ensure all is shutdown, see note 3 in [section Characteristics](#) for more info*

## Remote Learning Mode

RF controller and its remote control are pre-programmed so that all is plug & play.

However, if you want to use your own remote or in case of part replacement, the remote might be paired again to the RF player. A learning mode has been implemented in the RF controller software so that you can do it easily.

In order to pair a new remote to the RF player, please follow these steps:

1. Hold down **CONF** button
2. Reboot the system (unplugged the power supply, wait for 5 sec then plug it back)
3. When the control LED starts blinking, release **CONF** button
4. After LED stops blinking, push remote button 1 for 0.5 sec  
NB: LED blinks 5 times if pairing is successful, else it blinks 10 times
5. After LED stops blinking, push remote button 2 for 0.5 sec
6. And so on until button 6

## Sequencer

The Delorean RF Player comes with a very simple native sequence. But it will be much more fun to make your own sequence adapted to the onboard devices, mods and music you have!

To record a sequence, here is how to proceed:

1. Play the target music for your sequence using long push on remote button 1 and 2 (just stop player if you don't want any music)
2. Hold down the **CONF** button
3. Long-press remote button 5
4. When the control LED starts blinking, release **CONF** button  
You are now in sequence recorder mode
5. The music will restart from beginning and you just need to play with the Eaglemoss TFC switch buttons to enabled/disabled your devices timely with the music
6. Press the **CONF** button to stop recording

Now, to play your sequence, just long-press remote button 5 !

The sequencer can record up to 300 actions on a duration of 10 minutes.  
A minimum delay of 0.1 sec is needed between two consecutive actions.

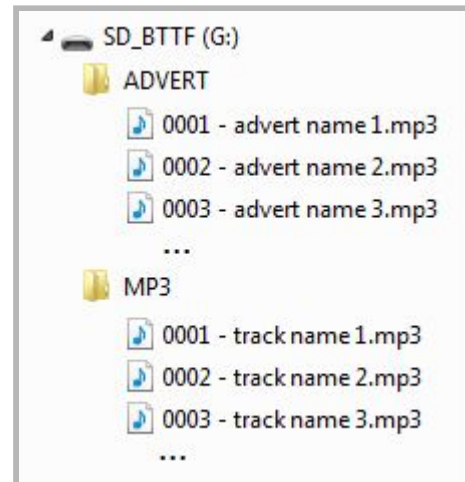
Note that while sequence is played, other RF commands are not available.  
End of sequence will be indicated by LED blinking.

## SD-Card Format

SD-Card must be formatted in FAT16 or FAT32.

SD card file system must be as follows:

- SD card:
  - Folder: **ADVERT**
    - Up to 3000 files
    - mp3 or wav format
    - named as shown opposite
  - Folder: **MP3**
    - Up to 3000 files
    - mp3 or wav format
    - named as shown opposite



The files put in MP3 folder are the default playlist of the player.

The files put in ADVERT folder are for advertising (might be your favorite sentences or short track from the movie).

**For OSX users**, as mac disk management causes problem in SD-Card format, the advices from the following webpage will help you <https://reprage.com/post/dfplayer-mini-cheat-sheet>.

## Source Code

While this product has been developed in order to be plug and play, people who knows about programming and wants to customize more deeply their RF Player can easily do it.

Delorean RF Player is based on the ATMEGA328P microcontroller and is fully Arduino compatible.

The software is under GNU v3 License and can be found at the following address:  
<https://henrio-net.github.io/dkmod-delorean/>.

One must pay attention to the mode of the pins in contact with eagemoss buttons, as changing them could cause short-circuit and damage the board.