

Fallguy *ULTRA 2* MP3 player



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1. Overview

The Fallguy ULTRA 2 MP3 player (LOETRONIC article no. 0210) is an universal audio player for MP3 files and is based upon the Fallguy ULTRA 2 MP3 module by LOETRONIC ®.

Controlling the player can be done by five inputs, which can be connected to buttons, relais or sensors. Time controlled playback (Announcements) using a RTC module (Real Time Clock) or RF controlled playback is also optionally possible.

The MP3 player can also optionally equipped with a LC display for displaying playback infos.

In the standard condition of the ULTRA 2 MP3 player the standard firmware is programmed and it is internally configured as described in this datasheet.

The ULTRA 2 MP3 player can be controlled using the USB-interface and a Windows software by LOETRONIC (*ULTRA Serial Control*, s. www.loetronic.com). The MP3 files themselves can be uploaded and deleted to and from the SD card.

If the ULTRA 2 MP3 player is equipped with a RTC module (Real Time Clock), the Windows software *ULTRA RTC Control* by LOETRONIC can be used to assign specific times to the MP3 files (for example for time controlled announcements).

The ULTRA 2 MP3 player consists of the following individual components (LOETRONIC article numbers):

ULTRA 2 MP3 module	-	0186
ULTRA Carrier Board SP + Casing	-	0184
RTC module (Optional)	-	0161
RF receiver (Optional)	-	0211
RF remote control with 10 buttons (Optional)	-	0199
RF remote control with 1 button (Optional)	-	0208
LC display 12x2 Blue/White (Optional)	-	0141

2. Technical data

Control- and visual elements:

- 3 status LEDs
- 1 LC display 2x12 characters (Optional)

Interfaces:

- 5 inputs with clamping bushes
- 1 power supply for external sensors (5V DC) with clamping bush
- 1 USB-interface – Control via *ULTRA Serial Control*
- 2 audio cinch connectors (Left/Right)
- 1 headphone jack plug (Stereo)
- RF receiver (Optional) 868 MHz for remote control 10T or 1T (Easywave protocol)

Operating temperature:

- -20 °C to +85 °C

Operating voltage:

- 5 Volt (DC) unstabilized

Current consumption:

- 100mA (with LC-display)

Dimensions:

- 123x84x32mm (WxDxH)

3. Connection possibilities



Status LEDs Power, Bootloader, Flashcard

- The status LEDs display important status information.

Assignment:

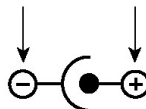
Light emitting diode	Name	When does the LED light up?
Red	Power-LED	By powering the player
Yellow	Bootloader-LED	By using the bootloader or pressing a button on the RF remote control
Green	Flashcard-LED	At SD card activity (Playback of MP3 files or MP3 upload)

USB socket

- Via the USB interface the ULTRA 2 MP3 player can be connected to a PC. Appropriate USB driver can be downloaded from the website (*ULTRA Serial Control* software, www.loetronic.com).
- For controlling the player an ASCII protocol is used, which is identical to the ASCII protocol of the serial interface (RS232). The ASCII based protocol is defined in the standard firmware and is described inside the datasheet for this firmware.

DC socket

- The ULTRA 2 MP3 player is supplied with 5 Volt (DC) through this socket.
- A wrong polarity can damage the player!**



Cinch sockets L and R

- By using the cinch sockets L and R the ULTRA 2 MP3 player can be connected to an external amplifier. Both audio outputs have line level.



Clamping bushes IN1 – IN5

- The clamping bushes IN1 – IN5 are for connecting up to five buttons, relays or sensors.
- To activate an input it must be bridged with ground.

Assignment:

Pin-No.	Name	Description
IN1 – 1	BUTTON_4	Input 1 (Start of 1. MP3 file)
IN1 – 2	GND	GND
IN2 – 1	BUTTON_5	Input 2 (Start of 2. MP3 file)
IN2 – 2	GND	GND
IN3 – 1	BUTTON_6	Input 3 (Start of 3. MP3 file)
IN3 – 2	GND	GND
IN4 – 1	BUTTON_7	Input 4 (Start of 4. MP3 file)
IN4 – 2	GND	GND
IN5 – 1	BUTTON_8	Input 5 (Start of 5. MP3 file)
IN5 – 2	GND	GND

Clamping bushes 5V DC

- The clamping bushes 5V DC is for powering external sensors.
- The current consumption should not exceed 250mA.

Assignment:

Pin-No.	Name	Description
1	5V	5V DC
2	GND	GND

3,5mm headphone jack plug

- By using the stereo jack plug a stereo headphone can be connected to the ULTRA 2 MP3 player.

4. Getting started

The Fallguy ULTRA 2 MP3 player must be connected to a voltage source of 5 Volt (DC). An external amplifier can be connected to the cinch sockets L and R, a headphone to the jack plug.

Any SD flashcard – type SD or SDHC - can be used. The SD card must be formatted in **FAT32** with standard settings and there must only be one partition on it.

5. Firmware updates with the integrated bootloader

To program a new firmware file into the internal flash memory of the ULTRA 2 MP3 player, the firmware file (*.LOE) must be in the main directory of the SD card. There must be only one firmware file in the main directory!

Deleting and programming the internal flash memory is done by the internal bootloader of the ULTRA 2 MP3 player. The player has to be turned off, the top cover has to be opened and a jumper has to be stucked on the 2 pin header JUMPER_BOOTLOADER. The player has then to be turned on. The ULTRA 2 MP3 player will now boot up the bootloader and the Bootloader-LED will light up. The programming sequence is automatically initiated, this means the player reads the firmware file in the main directory (*.LOE), erases the memory and programs it with the new firmware. The jumper has to be removed meanwhile. As it is ready, the player will boot up the new firmware and the Bootloader-LED will go off.

To display errors and to diagnose them, the Bootloader-LED is used. It will blink every 0,5 s up, if there was a problem initialising the SD card or programming the flash memory. The counts of blinking up represent the error and will repeated every 3 s.

Error messages ULTRA 2 BOOTLOADER V1.03:

- 1 – Sector cannot be erased -> Player is broken
- 3 – Sector cannot be programmed -> Player is broken
- 5 – Firmware file (*.LOE) on the SD card is corrupted
- 6 – Partition signature (FAT32) not found -> SD card has to be reformatted
- 8 – Partition table (FAT32) not ok -> SD card has to be reformatted
- 9 – Firmware file (*.LOE) not found in main directory of the SD card
- 11 – SD card is not available