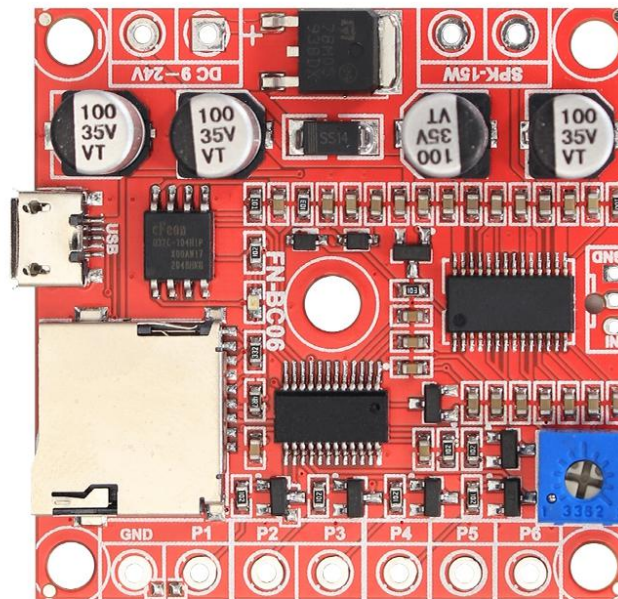# FN-BC06 Multifunctional MP3 Player Sound Board

User's Manual

Version: V1.0

1. Features

✧   6 trigger input ports available and triggered by negative pulse or GND.

✧   The function/trigger mode of each input port can be set individually through a config file.

✧   Support 7 main trigger modes and 5 assistant trigger modes.

✧   Equipped with a high quality audio decoder that is able to decode MP3 and WAV audio formats.

✧   Built-in a 4MB flash memory by default, and supports max. 32GB micro SD card.

✧   Able to update audio files through the micro USB port based on PC like using a USB flash drive.

✧   Built-in a mono 15 watts class D amplifier and possible to solder a 3.5mm audio output jack on the back of the module.

✧   9-24V DC wide power input and stable performance.

✧   Possible to drive a max. 15 watts (8ohms) speaker.

✧   Adjustable sound volume through the potentiometer.

✧   Industrial grade design and strong anti-jamming capability.

✧   PCB size: 45 x 45 (mm)

2. Technical Parameters

✧   Working voltage: 9-24V DC

✧   Working current: ≤2000mA

✧   Standby current: ≤10mA

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✧ Power Consumption: ≤15W

✧ Audio format: MP3 / WAV

3. Operation Guide

3.1. Set Trigger Modes

There are 7 main trigger modes(from "0" to "6") and 5 assistant trigger modes (from "7" to "B") available for users to set in a config file according to the actual needs.

Each of the parameters from "0" to "B" represents a corresponding trigger mode, which can be set individually for each of the 6 trigger input ports. See the details below.

| Parameter	Corresponding Trigger Mode
0	Pulse Interruptible
1	Hold and Play in Loop
2	Pulse Non-interruptible
3	Hold and Play Once
4	All in Loop
5	Play Next in Associated Folder
6	Single in Loop
7	Play/Pause
8	Previous
9	Next
A	Vol+
B	Vol-

Detailed Explanations on the Main Trigger Modes 0-6

- Pulse Interruptible: In this mode, a single negative pulse will start playback. It is possible to interrupt the playback by pressing the same button used to activate. Once playback is interrupted, it will automatically restart the audio file immediately. It's also possible to interrupt the play back by pressing any of the other 3 buttons. Once playback is interrupted, it will automatically start the sound that is associated with the button pressed.

- Hold and Play in Loop: In this mode, the negative pulse must be held/maintained to the sound module trigger for audio file to complete. The audio file will only playback while button, or negative pulse, is held/maintained during playback. Once the button being held, or negative pulse, is removed, the playback will be stopped/cancelled. Once the button is kept holding, when the playback of the audio file is finished, it will start to play it repeatedly(loop playback).

• Pulse Non-interruptible: In this mode, a single negative pulse will start playback. It's not possible to interrupt the playback by pressing the same button or the other buttons. Once an audio file is triggered, the audio file will not be able to be interrupted/cancelled during playback. The playback will only end when the audio file has played its entirety.

• Hold and Play Once: In this mode, the negative pulse must be held/maintained to the sound module trigger for audio file to complete. The audio file will only playback while button, or negative pulse, is held/maintained during playback. Once the button being held, or negative pulse, is removed, the playback will be stopped/canceled. Once the button is kept holding, when the playback of the audio file is finished, it will not start to play it again.

• All in Loop: In this mode, a single negative pulse will start playback. Press the button and it's able to play all the audio files in the storage device one by one in loop. During playback, if the the same button is pressed again, the playback will be stopped. In addition, if the associated trigger input is shortened with GND first, the player will automatically play the audio files one by one in loop once it is powered on.

• Play Next in Associated Folder: In this mode, a single negative pulse will start playback. Every time press the button and it's able to play next audio file and stops when the audio file is finished in the associated folder. During playback, if the the same button is pressed again, the playback will be interrupted and it will activate the next audio file at the same time. In this mode, as many as 100 audio files can be loaded into the folder.

• Single in Loop: In this mode, a single negative pulse will start playback. Press the button and it's able to play the associated audio file in loop. During playback, if the the same button is pressed again, the playback will be stopped.

Any of these 12 trigger modes can be set for any of the 6 trigger input ports through a config file named "read.txt", which comes from a text file(.txt) originally. In the config file, each digit that represents a specific trigger mode is associated with one trigger input port, so there are total of 6 digits that associate 6 trigger input ports respectively. Please refer to the two steps below on how to build a config file successfully.

1). Build a new text file on computer and enter the corresponding number like "001133" that represents the input port P1 and input port P2 will be set with the trigger mode "Pulse Interruptible", input port P3 and input port P4 will be set with the trigger mode "Hold and Play in Loop" , input port P5 and input port P6 will be set with the trigger mode "Hold and Play Once". Refer to the image below.
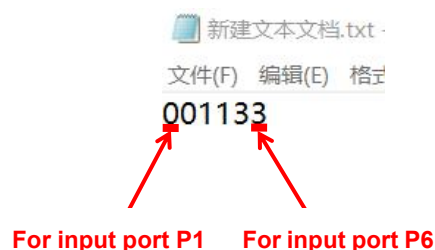
2). Save it and change the file name "xxx.txt" to "read.txt". Then the config file is done easily.

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3.2. Audio Files Loading

There is a micro USB socket on the board, and users can connect it to computer through an Android phone purposed USB cable to load audio files and config file. If there is a micro SD card inserted onto the board, the micro SD card will be detected and displayed on PC working as a USB flash drive. If there is no micro SD card, the built-in flash memory will be detected and displayed on PC working as a USB flash drive.

3.2.1. Files Loading Method for Trigger Mode 0-4, 6

Except for the trigger mode 5 (Play Next in Associated Folder) that supports multiple audio files, all of the other 6 main trigger modes(0-4, and 6) work based on one-on-one control. 6 audio files need to be directly stored in the root directory of the flash memory / micro SD card. No folders can be in the 'root directory'. The arrangements of the audio files are managed by a physical indexing sequence. In other words, the file that is to be loaded first in the storage device will be associated with input port P1. The last file to be loaded in the storage device will be associated with input port P6. In order to guarantee a correct 'one-on-one' order, please refer to the following steps.

   1). Build a new folder on the computer and put the 6 audio files into this new folder.

   2). Rename the audio files from 001.mp3/wav to "006.mp3/wav", and make sure they are ranked from "001.mp3/wav" to "006.mp3/wav" in order.

   3). Connect the board with computer through the USB data cable, and you will see a removable disk.

   4). Delete the sample audio files pre-loaded at factory for testing purpose.

   5). Back to the folder and select all of the 6 audio files in the folder.

   6). Right click on the first file (001.mp3/wav) and choose "Send to removable disk".

   7). This should send the 6 audio files to the memory in a correct sequence.

   8). Put the prepared config file into the root directory together with audio files and then refresh. Refer to the image below.
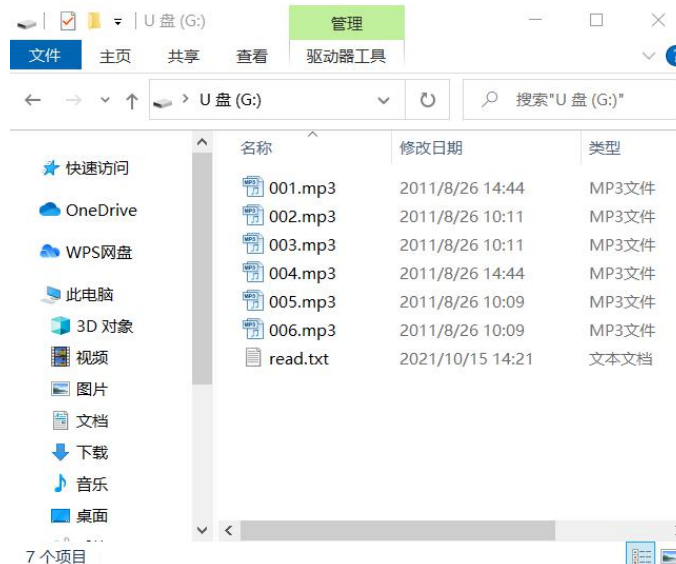
   9). Safely remove the USB data cable from computer.

   10). Apply power to the equipment and push any of 6 buttons to play back a corresponding sound.

Notes: 1). If the total of 6 audio files is less than 4Mbytes, it's fine to directly use the built-in flash memory. If they are larger than 4Mbytes, please use a micro card instead. When using a micro SD card, the config file also needs to be put on the micro SD card.

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2). Any of the 5 assistant trigger modes (from "7" to "B") can be set for any of the 6 trigger input ports as well. It's also fine all of these 5 assistant trigger modes are set at the same time for 5 of 6 trigger input ports.

3.2.2. Files Loading Method for Triggering Mode 5

The trigger mode 5 (Play Next in Folder) is a special feature of this player that is able to meet some special applications. In this mode we suggest users directly use a micro SD card to store the audio files. When building the config file, please fill in the number "555555". In this way all of the 6 trigger input ports will be worked in mode 5 (Play Next in Folder). It's also fine if you just want the first 3 trigger inputs to be worked in mode 5, and the latter 3 trigger input ports to be worked in the other modes like filling in the number"555012". Let's take all of the 6 trigger input ports to be worked in mode 5 as example. Please refer to the steps below on how to load the audio files.

1). Firstly insert the micro SD card and connect the board to computer using an Android phone purposed USB data cable. Then the micro SD card will be detected on computer. Make sure it's empty. If not, please get it emptied.

2). Build 6 new folders on the micro SD card and rename them 01, 02, 03, 04, 05, and 06. The first trigger input port P1 will be associated with the folder 01, the second trigger input port P2 will be associated with the folder 02,...and the sixth trigger input port P6 will be associated with folder 06.

3). Respectively copy audio files from computer to the related folders. The audio files in the folders can be renamed as 001.mp3/001.wav, 002.mp3/002.wav, 003.mp3/003.wav.....It also works if you don't change the names.

4). Copy the ready config file "read.txt" onto the micro SD card. See as below.
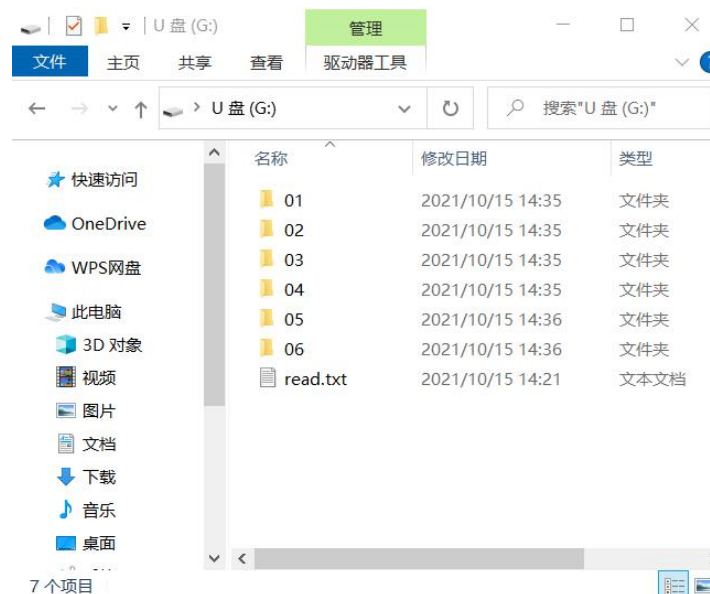
5). Safely remove the device from computer.

6). Apply power to the equipment and push any of 6 buttons to play back a sound from the associated folder.

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3.2. Example of Wiring Connection

Max. 15W Speaker

(8 ohms)

9-24V DC input

K1   K2   K3   K4   K5   K6