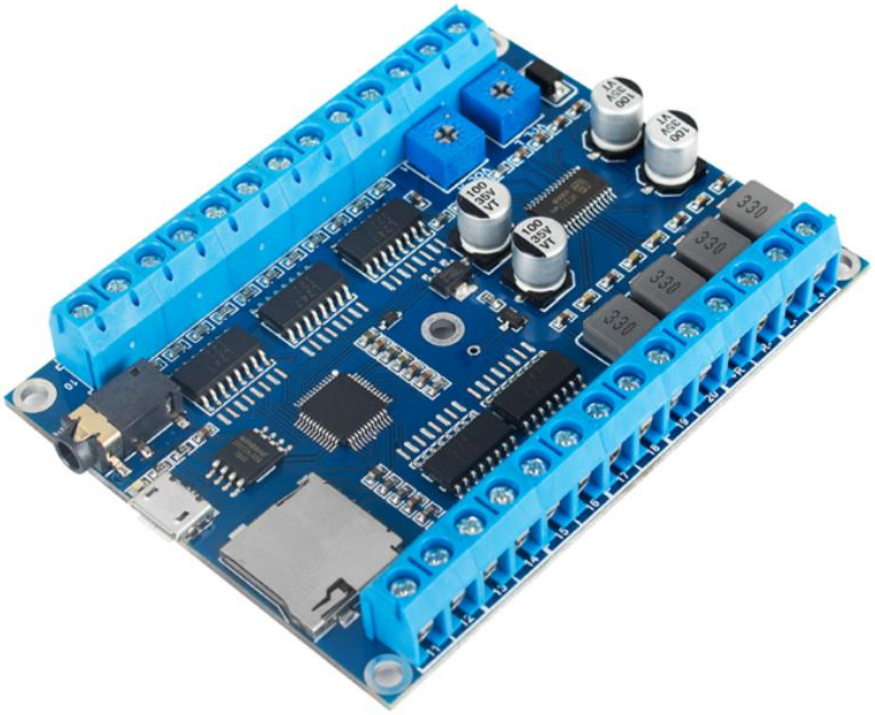
20 Trigger Inputs MP3 Sound Playback Board with 2 x 25 Watts Amplifier

Model: FN-BC20 Mini

Version: V1.0



1. Overviews

1.1. Brief Introduction

FN-YX20 is a high quality MP3 sound board developed by Flyron Technology Co., Ltd. Equipped with an on-board 2 x 25 Watts class D amplifier, the sound board can directly drive 2 pieces of 10-25W loudspeakers. And it can be controlled by 20 separate buttons hooked up to the 'one-on-one' inputs terminals, Great audio output, industry-grade design and strong anti-jamming capability make it possible to be used for many different applications.

1.2. Features

1). Built-in a high quality 24bit of audio decoder with stereo audio output.
2). Supports to play audio files of MP3 and WAV formats.
3). On-board a high quality 2 x 25 Watts class D amplifier to directly connect with two 8 ohm speakers of 10-25 Watts, for left channel and right channel.
4). Built-in a 16Mbytes flash memory that can store about 16 minutes of MP3 files of 128Kbps.
5). Supports maximum 32GB micro SD card and micro SD card is detected and applied in priority.
6). When a micro SD card is inserted and the module is connected with computer through the USB, computer will read the micro SD card directly.

7). When a micro SD is inserted, the module always plays the audio files from the micro SD card.

8). Playback of the ‘one-on-one' associated audio files are triggered by GND or negative pulse to any of the 20 input terminals.

9). Possible playback of 255 MP3 / WAV audio files per 20 ‘one-on-one’ associated folders through negative trigger.

10). Four select-able triggering modes are provided through a configuration file.

11). Supports audio output to an external amplifier through the 3.5mm audio jack.

12). Separate volume control for each sound channel (only for on-board amplifier).

13). Wide range for power input DC (9V-24V).

14). Industry-grade design and strong anti-jamming capability.

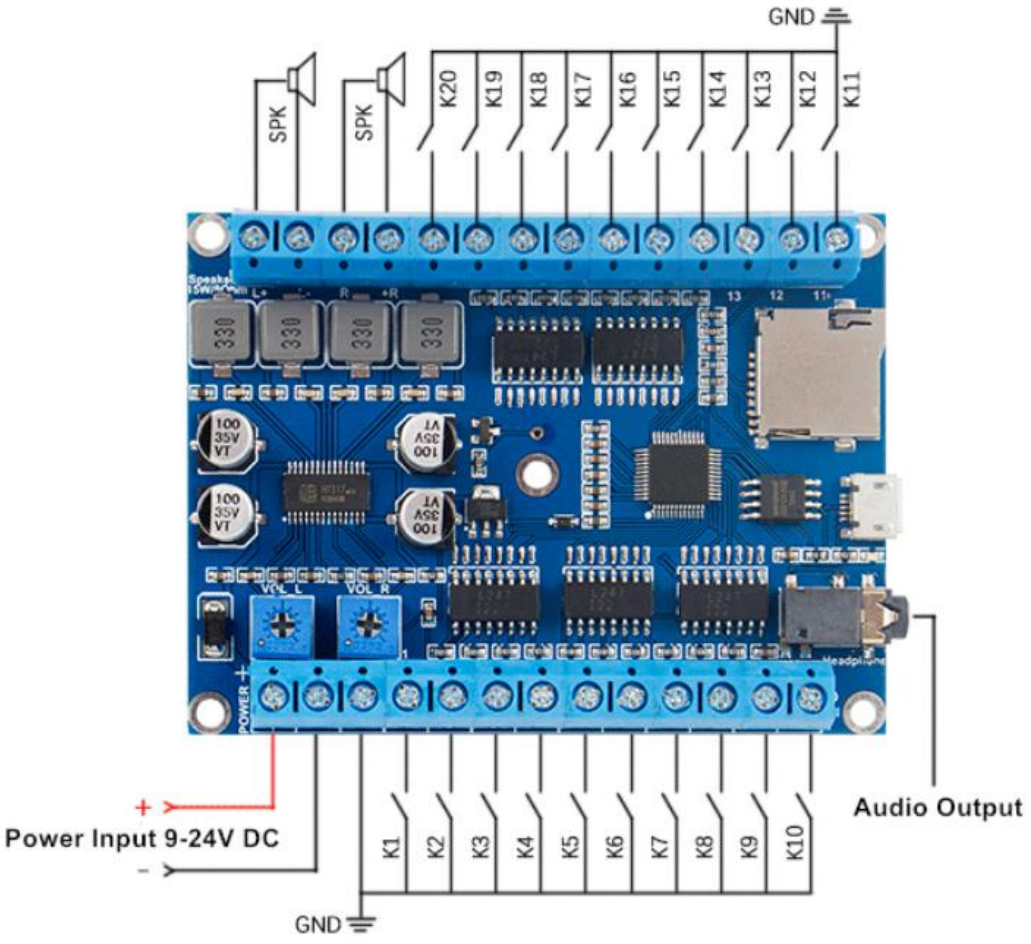
15). PCB size: 80mm x 60 mm x 12mm

1.3. Technical Parameters

- Working voltage: DC 9V-24V
- Rated output: 25W×2 (RL= 8 Ω d =1%)
- Noise Voltage: ≤50m V
- Frequency response: 200-18KHz
- SNR: ≥ 90dB

2. Connections

K1 through K20 are representing Normally Open (N.O.) manual buttons. Please refer to the connection example below.



3. Operation Guide

3.1. Trigger Mode Selection

There are 4 trigger modes available for users to choose according to the actual needs. Any of these 4 trigger modes can be set/acquired through a configuration file named “read.cfg”, which comes from a text file(.txt) originally. Users just need to fill in a digit/parameter that is corresponding to a trigger mode in a new built text file. Save it and rename it “read.cfg”, then put it together with the audio files/folders in the root directory of the on-board flash memory or the micro SD card. Please refer to the sheet below about the digits and the associated trigger modes.

Digit in file “read.cfg”	Corresponding Trigger Mode
0	Pulse interruptible one-on-one playback
1	Level hold loop playback
2	Pulse non-interruptible one-on-one playback
3	Standard MP3 key mode playback

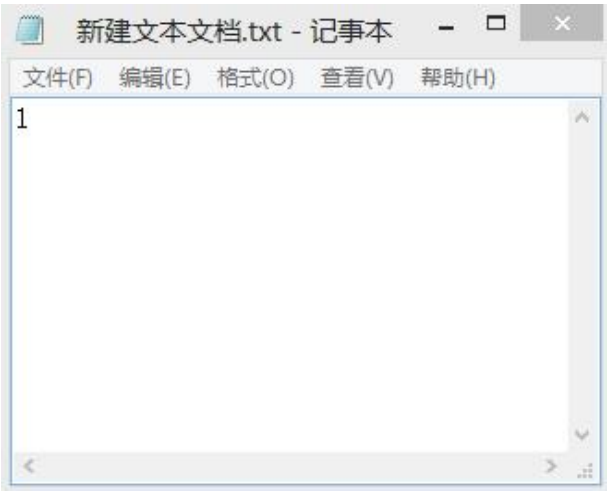
- Pulse interruptible one-on-one playback: In this mode, a single negative pulse will start playback. It is possible to interrupt the playback by pressing the same button used to activate. Once playback is interrupted, it will automatically restart the audio file immediately. It’s also possible to interrupt the play back by pressing any of the other 9 buttons. Once playback is interrupted, it will automatically start the sound that is associated with the button pressed.

- Level hold loop playback: 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 play back while button, or negative pulse, is held/maintained. 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 start to play it repeatedly(loop playback).

- Pulse non-interruptible one-on-one playback: 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/canceled during playback. The playback will only end when the audio file has played its entirety.

- Standard MP3 key mode playback: In this mode, only the buttons between K1 and K4 are valid. These 4 buttons will be functioned as Previous, Next, Play/pause, and Stop respectively. In this case not like the other 3 trigger modes above, more than 20 audio files can be placed.

For example, if the trigger mode of level hold loop playback is needed, firstly build a new text file on the computer, and simply enter the digit “1” as below, and save the file.



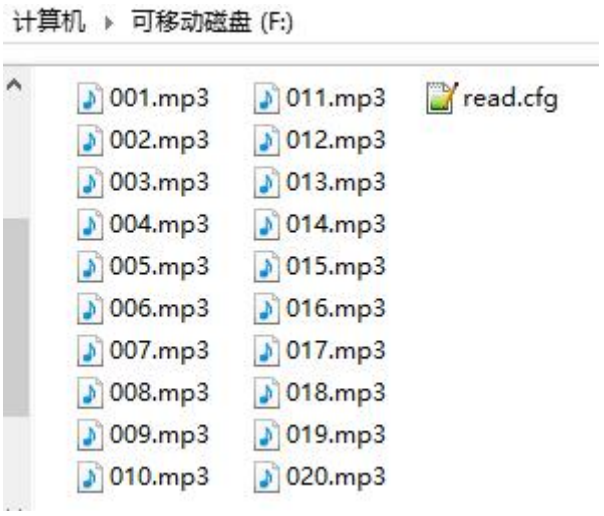
And change the file name “xxx.txt” to “read.cfg” as below, then the configuration file with level hold loop playback mode is made successfully. Please be noted the extension name”.txt” of the text file must be changed to “.cfg”, otherwise the configuration will not work.

Note: The factory default triggering mode is “pulse interruptible", so* it’s also workable even though you don’t put the configuration file for *“pulse interruptible".

3.2. ‘One-on-one’ sound file triggering control (for direct playback of the associated sound file)

The 20 sound files need to be directly stored in the root directory of the on-board flash memory or the micro SD card. No other folders can be in the ‘root directory’. The arrangements of the sound 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 “K1”. The last file to be loaded in the storage device will be associated with input “K20”. 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 20 sound files in this new folder.
2). Rename the audio files from 001.mp3/wav to “020.mp3/wav”, and make sure they are ranked from “001.mp3/wav” to “020.mp3/wav” in order.
3). Connect the module with computer through a USB data cable and you will see a simulated USB flash drive on computer.
4). Delete the pre-loaded files for testing purpose at factory. If using a micro SD card, please format it to FAT32 at this step.
5). Go back to the folder on computer and select all the sound 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 20 sound files to the on-board flash memory or the micro SD card in a correct order.
8). Once the files transfer is complete, put the configuration file in the on-board flash memory or the micro SD card together with the sound files as below.



9). Safely disconnect the module with computer.

10). Apply power to the module and push any of 20 buttons to play a corresponding sound.

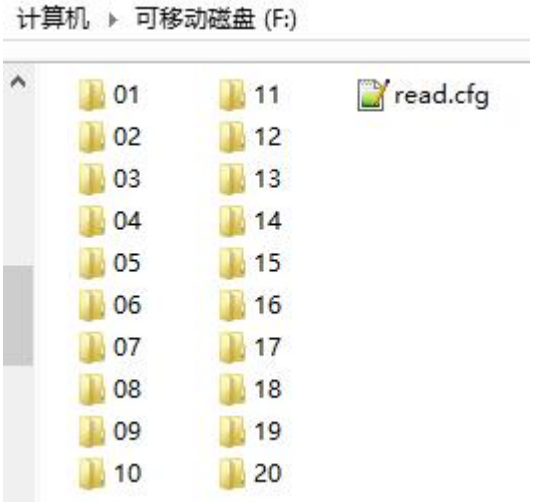
11). For example, push button “K1”, it will play the sound file “001.m p3/wav” and stop; push button “K7”, it will play the sound file “007.mp3 /wav” and stop, etc.

3.3. ‘One-on-one’ folder triggering control (for random playback of the sound files in the associated folder)

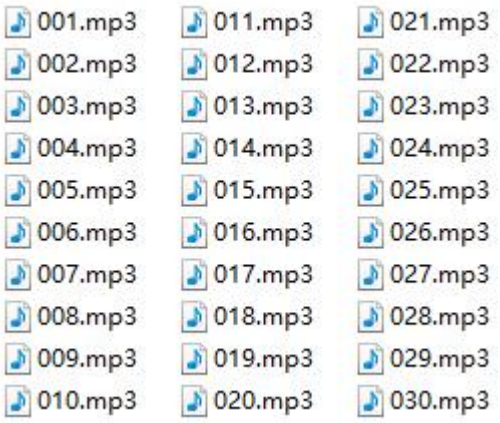
In order to meet different needs, we added ‘one-on-one’ folder triggering control except for the traditional ‘One-on-one’ triggering of sound files. ‘One-on-one’ folder triggering control is used for random playback of the sound files in the associated folder. In other words, each of 20 input triggers can play multiple sound files in the corresponding folders in random order. The traditional ‘one-on-one’ triggering control mode is that each of the 20 input triggers can only activate a single corresponding sound file. Both of these two triggering control modes can’t co-exist. Users can only choose one type to use. Please refer to the following steps on how to loading files when choosing ‘one-on-one’ folder triggering control.

1). The micro SD card that will contain the audio files must be formatted to FAT32 before loading files and folders. If the on-board flash memory is large enough and chosen to use, reformatting is not required and the original file system FAT needs to be kept.

2). Build 20 folders and rename them from “01” to “20” in the root directory of the on-board flash memory or the micro SD card. The input “K1” associates with folder “01”, the input “K2” associates with folder “02”..... the input “K20” associates with folder “20”. Put the prepared configuration file together with the folders in the root directory of the on-board flash memory or the micro SD card as below.



3). Put the sound files in each folder, which can contain maximum 255 sound files. Each folder must contain all Mp3 **OR** Wav audio files. Mp3 and Wav cannot co-exist within each folder. Rename them “001.mp3/wav” to “255.mp3/wav” as shown below. For the quickest timely response once triggered; we suggest that no more than 100 sound files in each folder.



4). After everything is done as above, safely disconnect the module with computer. Power it on and push any of the 20 buttons to play a sound randomly in the associated folder. For example, by pushing the button associated with input “K7”. It will randomly play a sound file from the associated folder “07” and stop; push it again, it will randomly play another sound file from the associated folder “07” and stop, etc.

4. Notes

1). If the size of the total files is smaller than 16MB, please directly use the on-board flash memory. If they are larger than 16MB, please use an external micro SD card.
2). When using a micro SD card, please also put the configuration file in the micro SD card, otherwise the trigger mode will be subject to the mode configured in the on-board flash memory.
3). About the speaker output, there is no difference between positive and negative.
4). The output current from a power supply must be more than 1000mA.

5. Dimension Details