DM3028A/EM3028A Trouble Shooting Guide

1. How to change the filename extension of a .wav file.

In order to change the .wav filename extension, you must first force Windows to show it. Refer to your Windows manual for instruction on how to do it. The following procedure is specific to Windows 2000:

a. Select *Start* > *Settings* > *Control Panel* and double click "Folder Options". In Windows 98, the "Folder Options" is under *Start* > *Settings*.
b. Click the "File Types" tab, scroll down the list to find the "WAV" extension, highlight it and click "Advanced" (click "Edit" if in Windows 98).
c. Check the box for "Always show extension" and click "OK".
d. Click "Close" to complete the procedure.

Now you can right-click the file icon and select "Rename" to rename it. If you get a warning message saying "If you change a filename extension, the file may become unusable. Are you sure you want to change it?", click "Yes".

2. How to create the CFG (configuration) file.

The easiest way is to use NotePad (a Windows accessory). Type in the configuration letters and use "Save As" to save the file. In the "Save As" window, select the proper folder for "Save in", select "All Files" for "Save as type", and enter "???.CFG" for "File name" (where ??? can be any name with up to 8 letters). Certain versions of NotePad also have an "Encoding" section for which you should select "ANSI". The CFG file should then be copied onto the CF card. If the CFG file is missing or incorrect, the board will operate in the DN mode.

3. There are popping noises throughout the playback.

This will happen if the speed of the CF card is too slow. Try to use a faster CF card or re-digitize the sound files at a lower sampling rate.

4. Possible causes for "no sound" and "wrong sound".

a. The sound file doesn't have the correct filename extension.
b. The board is in the wrong operation mode due to missing/incorrect CFG file.
c. If the CF card is inserted when the power is on, the board will not work. To solve this problem, turn the power off for a few seconds. If this action does not fix the problem, make sure the sound files are still on the CF card.
d. Some CF cards, especially if they have been used in digital cameras, have a non-standard format which can not be read by the board. In this case, reformat the CF card to the standard DOS FAT format and copy the .wav files again.

5. Possible causes for "trashy sound" and "sound too fast/slow".

a. Unsupported file formats such as 8-bit resolution and ADPCM compression will produce trashy sound. Re-digitize or convert the sound file.
b. Unsupported sampling rates will produce sound too fast or too slow. Re-digitize or convert the sound file.
c. Trashy sound will occur if the sound is stereo instead of mono.

DM3028A/EM3028A User's Manual

EM3028A = DM3028A (Circuit Board) + Metal Enclosure

Specifications

Operation: playback only
File Format: Windows .wav, PCM, mono, 16-bit, 22.05 or 44.1 KHz
Maximum Number of Sound Segments
  Direct Mode: 8
  Binary Mode: 128
  Sequential Mode: 128
Memory Type: CompactFlash card (type 1, 5V), 8 ~ 128 MB
Supply Voltage: 10 ~ 32 VDC
Audio Output: 40W (8 Ohm load), bridged output
DM3028A Dimensions: 5.6'' x 4.2''
EM3028A Dimensions: 6.0'' x 4.8'' x 1.7''

- **Direct Mode (default)**

  Plays up to 8 different sounds. Sound #1 (first priority) is activated by triggering T1, sound #2 (second priority) by triggering T2, and so on. If multiple triggers are applied at the same time, only the sound with the highest priority will be played.

  Binary Mode

  Plays up to 128 different sounds. To activate a certain sound, apply its file ID number on T1 (LSB) to T7 (MSB), with "1" = +5V and "0" = 0V. Then pulse T8 low to start the playback. The file ID number can be removed after the triggering pulse returns to high (+5V). The file ID number for sound #128 is "0000000".

  Sequential Mode

  Plays up to 128 different sounds. Sounds are activated sequentially by triggering T1. Sound #1 is played the first time, sound #2 the second time, and so on. The sequence starts from #1 again when the next sound is absent.

- **Normal Mode (default)**

  In this mode, the sound starts as soon as the trigger goes low. No sound can interrupt the playback. A new sound can start only after the current sound is finished. Looping is possible by holding the trigger low constantly.

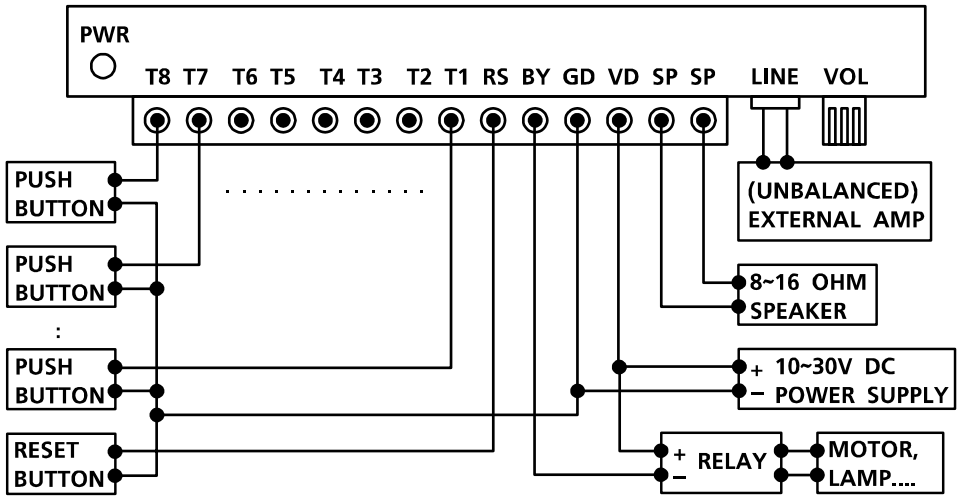
  Interrupt Mode

  In this mode, the sound does not start until the trigger goes high. Any sound, including the sound itself, can interrupt the playback. The playback will be stopped as soon as the interrupting trigger goes low, but the new sound will not start until the trigger goes high. Looping is not possible in this mode.

  Hold Mode

  In this mode, the sound plays only for as long as the trigger is held low. The playback is not interruptable. Looping is possible in this mode.

Typical Wiring Diagram



Terminal Block Descriptions

Power Input: VD & GD
VD is voltage and GD is ground. Use a well regulated power supply to obtain the best sound quality. A higher input voltage will generally produce more output.

Speaker Output: SP & SP
The speaker output is a bridged (balanced) output. One or more speakers may be connected to the output, but the equivalent impedance should be 8 ~ 16 Ohm. Additional heat ventilation may be required to obtain maximum output. The built-in power amp has internal current limiting and thermal protection.

Busy Output: BY
This output is internally pulled up to +5V through a 10K resistor (R12). It drops to 0V (100 mA current sink) when the board is playing. Remove R12 for open collector.

Reset Input: RS
Connect this input to the ground to reset the board. Minimum reset duration is 100 ms. The current playback (if any) will be stopped immediately.

Trigger Inputs: T1 - T8
Either a negative pulse (+5V to ground) or a momentary contact closure to the ground can be used for triggering. Minimum trigger duration is 100 millisecond.

Power Light (PWR)
The power light should be on when power is applied.

Volume Pot (VOL)
Turn VOL clockwise to increase the output volume. It affects both the speaker output and the line output.

Line Output (LINE)
This RCA jack provides unbalanced output for external amplification. Output level can be adjusted by turning the volume pot.

CompactFlash Card Programming
A CompactFlash (CF) card reader must be used to read and write CF cards. The reader connects to the USB or the parallel port of the host computer and operates like a floppy drive. Simply copy the .wav sound files onto the CF card. However, you must change the ".wav" filename extension to a 3-digit file ID number.

For example, "lion.001" indicates that it's sound #1 and "frog.128" means it's sound #128. The order in which these files are written to the card is not important. Files with invalid filename extension are ignored. When using the sequential mode, make sure there is no break in the file ID number because the playback sequence will reset to sound #1 when a break of file ID number is detected.

Operation Mode & Sample Rate Configuration
To select the desired operation modes, you must copy to the CF card an ASCII text file named "?.CFG" (? can be any name with up to 8 letters) which contains one and only one of the following two letter word:

DN (Direct, Normal)	DI (Direct, Interrupt)	DH (Direct, Hold)
BN (Binary, Normal)	BI (Binary, Interrupt)	BH (Binary, Hold)
SN (Sequential, Normal)	SI (Sequential, Interrupt)	SH (Sequential, Hold)

If the CFG file is missing or incorrect, the board will operate in the (default) DN mode. The CFG file is read by the board upon power up and reset.

The sound file's sample rate is automatically detected by the board. Sound files on the same CF card may have different sample rates. For example, some sound files may be 22 KHz and some sound files may be 44 KHz.