

GOLDING AUDIO LTD

DMS3000-Lite V2.20 19/01/06
MP3 Digital Audio Playback Card.

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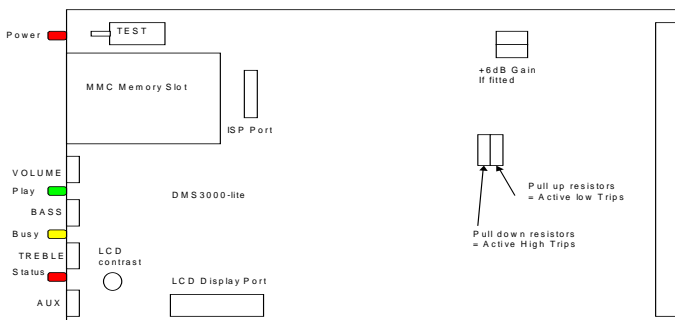
General

The DMS3000-Lite MP3 sound store provides a cost effective solution for audio reproduction in many applications. Twin line level (DMS 3000-Lite) or 8 watt amplified outputs are available (DMS 3000 8W-Lite). Volume, Bass, Treble and Balance controls are via onboard preset controls. Up to eight messages can be stored on a standard Multimedia Memory Card (MMC) and replayed via a simple contact closure. Message recording can be carried out on any PC equipped with an MMC card reader and MP3 conversion software such as "Adobe Audition".

Specification

Board Size	100x160x25mm
Supply	12-18v D.C.
Audio Compression	MP3 (Mpeg1 Layer3)
Memory	MMC (Multimedia Memory Card)
Capacity	32MB to 1GB (FAT16 only)
Trip Input Lines	5v active HI or LOW selectable
Stop Input	5v active LOW
Run Output	Open Collector (Max 25v 200mA)
DMS 3000-Lite	
Audio Outputs Line	0db Nominal (600 ohms)
DMS 3000 8W-Lite	
Audio Outputs Amp	8w into 4 ohms X2
Treble Control	+/- 10dB
Bass Control	+/- 10dB

General PCB layout. (FIG 1)



ISP Port

In Circuit Programming port used to update the DMS3000 operating system. NO USER FUNCTION.

Display Port

2 x 16 character display port used on some cased unit models. VR4 offers display contrast adjustment.

Test Push Button

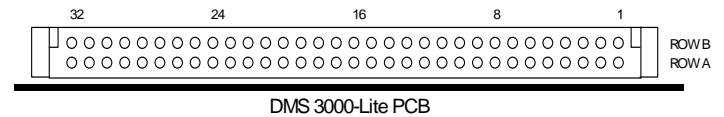
Plays message number stated In control configuration file CTL?name.txt (detailed later).

Gain Set Links

Links open give Line output level of 0dB nominal. With both links fitted line level is boosted by +6dB.

I/O Connections

Power, Audio and Control pins of the DMS3000-Lite Playback Card all appear on the 64way DIN41612 edge connector (CON1) on the rear edge of the PCB. (If fitted)



Trip Inputs - Pins A10-13 B10-13

Trip inputs initiate playback of a stored message. The eight trip inputs can be configured as ACTIVE HI or LOW via the setting of JP3 shown in FIG 1. Trip inputs can be individually configured as N/O or N/C inputs in the CTL.txt file stored on the MMC card. (detailed later)

Stop Input - Pin A14

A LOW pulse on this line will stop and reset playback of any running message. If the stop input is held low it will prevent playback of any recorded message. (Stop input line 5v active low standard TTL levels)

RUN Output - Pin B18

The RUN Output will provide a negative going signal for the duration of any sound track that is playing.

Pin	ROW B	ROW A
1	Audio Line OUT Ch1 LEFT	Audio Line OUT Ch1 LEFT
2	Gnd Analogue	Gnd Analogue
3	Audio 8watt OUT Ch1 LEFT	Audio 8watt OUT Ch1 LEFT
4	Audio Line OUT Ch2 RIGHT	Audio Line OUT Ch2 RIGHT
5	Gnd Analogue	Gnd Analogue
6	Audio 8watt OUT Ch2 RIGHT	Audio 8watt OUT Ch2 RIGHT
7	N/C	N/C
8	N/C	N/C
9	N/C	N/C
10	TRIP 2 - INPUT	TRIP 1 - INPUT
11	TRIP 4 - INPUT	TRIP 3 - INPUT
12	TRIP 6 - INPUT	TRIP 5 - INPUT
13	TRIP 8 - INPUT	TRIP 7 - INPUT
14	START Line N/A	STOP Line
15	N/C	N/C
16	N/C	N/C
17	N/C	N/C
18	Run Line OUT	N/C
19	N/C	N/C
20	Logic supply 12-18v	N/C
21	0v IN Logic	Logic supply 12-18v
22	0v IN Logic	N/C
23	N/C	N/C
24	N/C	N/C
25	N/C	N/C
26	Gnd Analogue	Gnd Analogue
27	N/C	N/C
28	0v Logic	0v Logic
29	5v OUT	5v OUT
30	0v Logic	0v Logic
31	0v IN Logic	0v IN Logic
32	Logic supply 12-18v	Logic supply 12-18v

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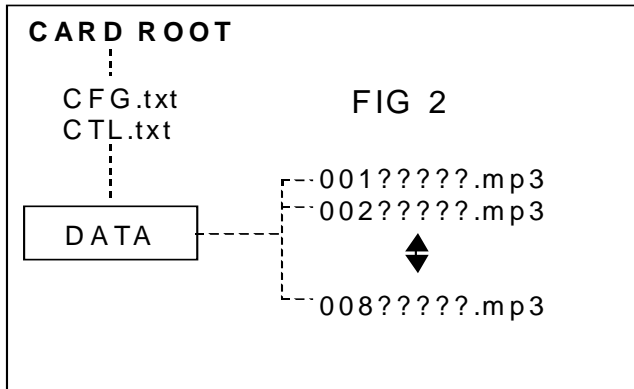
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Memory Card (MMC)

Standard Multimedia cards used with the DMS3000-Lite sound store must contain certain files and directories to operate. These files are detailed below.



ROOT files and Directories.

Files named CFG.txt (configuration data) and CTL?name.txt (control data) must be present in the ROOT DIRECTORY. A subdirectory named DATA must also be present to hold your .mp3 sound files.

CFG.txt contains Configuration data for the DMS3000-Lite chip set. This file is set as READ ONLY and **MUST NOT BE MODIFIED.**

CTL?name.txt contains user settable parameters such as One Shot and Normally Closed (N/C) trip input options and Test Push Button configuration. (detailed later)

DATA SUB DIRECTORY

The DATA directory must contain your .mp3 sound files, max 8 files 001 to 008.

FILE NAMING Once generated, your .mp3 files must be named in the following manner to enable the sound store to identify message numbers.

The first 3 digits in the file name assign the message to it's trip input number. For the DMS 3000-Lite 001 to 008 are messages 1 to 8.

The next string of characters are used for message naming if required, the first 16 of these characters are displayed on the 2x16 LCD display if fitted.

File Extension the last 4 characters MUST ALWAYS BE .mp3 for a valid sound file name.

Example 1, 001TEST_MESSAGE.mp3

Example 2, 002This is a test.mp3

Both the above are valid file names for messages 1 and 2.

DMS3000-Lite control file commands.

Command	Range	
tstb	1-255	Test push button trip number
mint	0-1	0= Interruption not allowed, 1=interruption allowed
osbe	00000000	One shot bit enable 0= loopable, 1=one shot
ncbe	00000000	Normally closed bit enable. 0=normally open, 1=normally closed

Example control file for a DMS3000-Lite.

/ncbe=00000010; Trip 2 connected to normally closed contact.

/osbe=00001000; Trip 4 is one shot enabled.

/mint=1; Any message can interrupt any other

/tstb=5; Test button activates message 5

); End marker

Control file syntax information.

All commands must start with "/"

All commands must end with ";"

The last command must be followed by) on the next line.

There must be an "=" sign after the command and before the data.

There must not be any spaces within the command string.

All commands are lower case.

You may type remarks after the semicolon ";" but the remarks must not contain any control characters such as / or) or ; or =.

Explanation of each control command.

tstb Test pushbutton code

The front mounted push button has a default select number of "1" but it can be assigned with any number from 1 to 255. This button will then access an mp3 file with the same access number.

If the value "0" is assigned or the command is not used, the button will default to code "1".

eg. **/tstb=1;**

mint Interrupt enable

This command if "1" will allow any other valid trip to cancel a currently playing file and run the new file.

If the command = "0" any new trip will be ignored until a currently playing file has finished.

/mint=0; No interrupt allowed

/mint=1; Interrupts allowed

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osbe One shot bit enable

This command allows each of the eight individual trip inputs to be set up with one shot functions. This means that if a trip is one shot enabled, and that trip line is held active beyond the end of a file the selected file will not run again. The trip line must be released before it can operate again. If the trip line is not one shot enabled, the selected file will loop if the trip is held on at the end of the file.

To select one shot mode, enter a "1" corresponding to the trip number otherwise enter a "0".

Trips are presented in the following order.

TRIP **87654321**
00000000

One shot bit enable. 0 = loopable,
 1 = one shot

For example, if trips **1,3,7,8** are one shot enabled the command would be:

/osbe=11000101;

ncbe Normally closed bit enable

This command allows each of the eight individual trip inputs to be set up to operate with normally closed contacts such as a PIR.

To enable a normally closed contact trip, enter a "1" corresponding to the trip number otherwise enter a "0".

Trips are presented in the following order.

TRIP **87654321**
00000000

Normally closed bit enable 0=Normally Open
 1=Normally Closed

For example, if trip **1 & 2** are to be on normally closed contacts the command would be:

/ncbe=00000011;

Creating MP3 files.

STEP 1

The usual way to create a .mp3 file is to record the soundtrack into the computer as a wav file using software such as Cool edit 2000.

STEP 2

Next edit the wav file so that any unnecessary silence is removed from the start and end of the soundtrack. All editing must be carried out while the file is still in a .wav format as it is not practical to edit an .mp3 file.

STEP 3

The third step is to encode the wav file to an mp3 file using "Cool edit 2000" or "Xing mp3 Encoder". It is this point that determines the quality of the finished mp3 file by selecting the most appropriate bit rate for the file. The lower the bit rate, the lower the quality and bandwidth of the output file but a lower bit rate would use less memory per second.

The usual bit rate for encoding mp3 files is 128Kbits per second which will provide a bandwidth of 20Hz to 15KHz.

Example running times using a 32 Mbyte memory card.

Sample Rate	Bit rate.	Bandwidth.	Running time.
44.1KHz	112Kbps	= 20Hz to 13KHz	= 38 Minutes
44.1KHz	128Kbps	= 20Hz to 15KHz	= 33 Minutes
44.1KHz	160Kbps	= 20Hz to 18KHz	= 26 Minutes
44.1KHz	192Kbps	= 20Hz to 20KHz	= 22 Minutes-

NOTES:

19/01/06

Version V2.20 onwards will only work with MMC V3 cards of 32MB to 1GB and these must be formatted WITH fat16.