MP3-DSP Serial Control Mode Specification
(Revised April 10, 2003 to include full spec)

The MP3-DSP can be operated as a serial interface controlled player. This is ideal for applications that require direct access to any song and/or audio message. Coin-op products, such as jukeboxes, horoscope or fortune telling machines as well as public announcements, promotional messaging and personal entertainment systems can benefit from the high quality audio using a low cost hard disk drive. The MP3-DSP allows access of up to 10,000 MP3 audio files.

To invoke the serial port mode, a text file (or several text files) is placed in any of the folders. The first two letters of the filename must begin with "WS". When encountered, the full 8-character filename is transmitted through the serial interface which can further be used by the controlling device. The MP3-DSP will only look for text files that begin with "WS" in the filename. Transmitted filenames are space padded to 8 characters.

The serial interface setting is 9600 bps, no parity, 8-data bits, 1 stop bit. When the MP3-DSP is idle (waiting for a command), exclamation marks (!) are continuously transmitted. During song or message play, the period (.) is transmitted. If the file selection was not found, the question mark (?) is transmitted followed by continuous exclamation marks.

MP3-DSP COMMANDS

The MP3-DSP uses a character based command structure for control. (The ↵ character is a carriage-return)

Paa,bb↵   ***Play a single file using name search***.
Searches for the folder starting with "aa" and the file with "bb". If the folder or file number is not found, then the question mark (?) is returned and the player is stopped. This command is used when direct access to a single play song or message is needed.

In this mode, the MP3-DSP is organized as a CD changer having up to 100 discs, each with up to 100 tracks. Using the Windows file structure, each folder represents a disc number which contains files for each track number. Each folder and file position is identified by the first two digits of their name. Numeric values are 01 to 99 with 00 representing 100.

Paa↵   ***Play all files using name search***.
Searches for the folder starting with "aa". Search values are 00 to 99. If the number is not found as the folder name, then this number becomes the logical folder position. This command is used when a "goto disc" is needed, such as disc select buttons on auto radios. If the Show Details "%" command was issued, then the last file playing (at the time of being stopped) will be memorized to allow play continuation at the next **P↵**command.

P↵   ***Play all files starting with the last memorized play***.
This command is used to "resume play", such as when the ignition is turned on in an automobile. If the Show Details "%" command was issued, then the last file playing (at the time of being stopped) will be memorized to allow play continuation at the next **P↵**command.

S   ***Stop play***.
Songs or messages can be stopped at any time using this command. If the Show Details "%" command was issued, then the hard disk drive is immediately placed into standby with the spindle motor stopped.

%   *Show details.*
            Shows play details when the Play, Track up/down & Disc up/down commands are issued.
            See MP3-DSP transmitted data for explanations.

[*Track down (file down).*
            Causes the previous track to be played. Loops down to the last track if at the first track.

]   *Track up (file up).*
            Causes the next track to be played. Loops back to the first track if at the last track.

<   *Disc down (folder or directory down).*
            Causes the previous disc to be played. Loops down to the last disc if at the first disc.

>   *Disc up (folder or directory up).*
            Causes the next disc to be played. Loops back to the first disc if at the last disc.

R   *Repeat track (repeat file).*
            Repeats play of current track. Canceled by Play, Track up/down or Disc up/down.

MP3-DSP TRANSMITTED DATA

!   *Player is stopped.* (exclamation mark) - Transmitted approximately every 40 mS.

.   *Playing an MP3 file.* (period) - Transmitted approximately every 1 to 2 seconds.

?   *MP3 file was not found.* (question mark) - Player is stopped. (exclamation marks follow)

When the MP3-DSP player is powered up, each filename in each folder is examined. The serial mode is invoked when a text file is found that begins with "WS". The filename is then transmitted through the serial interface which can further be used by the controlling device. Here are some transmitted examples:

↵`WS`   ↵   (Transmitted after finding file named "WS.TXT")
↵`WS123456`↵   (Transmitted after finding file named "WS123456.TXT")

If the "Show Details" command was issued, then the MP3-DSP will transmit a two line frame after each Play, Disc up/down, Track up/down command. This frame shows the disc number, track number and complete filename to be played. You can also view this information in the player stopped mode using the disc up/down and track up/down commands. This is useful for obtaining TOC information without actually playing the files. An example frame is shown below:

↵`{17,08,0A,02}`↵
`02 Bee Gees – Stayin Alive.mp3`↵

The first line contains the current file information as {Total Directories, Current Directory, Total Files, Current File}. The values are in hex format and read as (17 hex = total of 23 directories found on this HDD), (08 hex = this MP3 file is in logical directory # 8), (0A hex = total of 10 MP3 files in this directory) and (02 hex = this MP3 file is logically # 2).

The second line is the full filename of the current files. Notice the "space-dash-space" between the artist name and song title. This is the common method used to separate each field of data for long filename MP3 files on hard disk drives.