MP3SA Industrial MP3 Player

User's Manual

TECHNOVISION INTERACTIVE INC
1845 Sandstone Manor, Unit 2
Pickering, Ontario, L1W 3X9
Phone: (905) 420-5153
Fax: (905) 420-0753
www.technovision.com

For additional technical information contact:
Technovision Interactive Technical Support
(905) 420-5153
support@technovision.com

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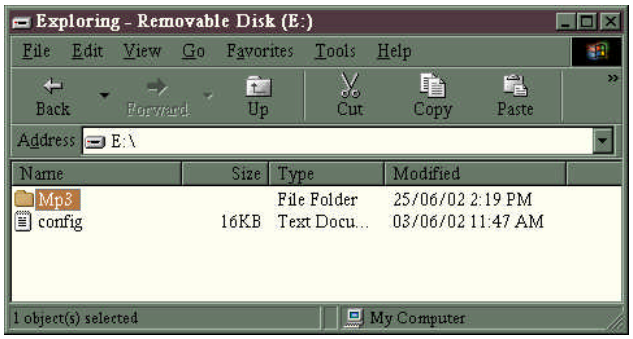
TecCD Industrial CD player with RS232 control.
PC2 multimedia controller.
V74BC button controller for Pioneer Industrial DVD players
and many more…

Revision B

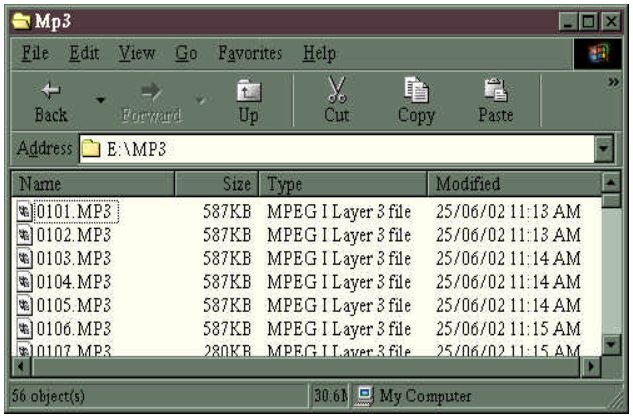
Operation of the MP3SA

The Technovision MP3SA is an industrial MP3 playback device, capable of either continuous audio or interactive playback through user-selectable tracks.

MP3 ID3 tags MUST use Version 1.0



When using a SmartMedia reader/writer, the card will look like a Removable Disk that contains two items – an MP3 folder and the CONFIG.TXT file.



The MP3 files within the MP3 folder are designated by 4-character filenames – the first two are the "disc" and the second 2 characters are the "track".

For example - File 0103.MP3 represents disc 1, track 3.

The MP3SA was primarily designed for use as a music sampling device, allowing for direct access to individual "discs" or "songs" as well as the sampling of "tracks" within a "disc".

Users can access a "disc" directly by pressing a key that has been designated as a disc function in CONFIG.TXT. For example, if KEY34 is mapped as disc 4 (KEY 34 DISC4), then pressing KEY34 will start playing the first "track" available on the 4th disc – file 0401.MP3 (if discs 1 to 3 are available). Subsequent presses of KEY34 will sequence through the available "tracks" on that "disc".

Contents of the SmartMedia card

The MP3SA works with only **32M** and **64M** SmartMedia cards since they are pre-formatted to FAT12. The SmartMedia cards provided by Technovision have been pre-loaded with a sample CONFIG.TXT file and a MP3 folder containing sample MP3 files. The lines in the CONFIG.TXT file define the operating parameters of the MP3SA. To change the values, you simply read in the file, make the changes and then write the new file to the SmartMedia card.

*****DO NOT RE-FORMAT THE CARD*****
THE CARD HAS BEEN FORMATTED AS FAT12 MEDIA

CONFIG.TXT file

Default system parameters are shown below with seconds represented by (s) and milliseconds as (ms).

Parameters	Description
volume = 50	initial volume level (%).
minvol = 0	minimum system volume (%) set by pressing vol- key.
maxvol = 100	maximum system volume (%) set by pressing vol+ key.
fadetime = 500	audio fade up time from mute (ms) or after a search.
repeat = 2	0=off, 1=repeat all tracks once, 2=all, 3=song, 4=disc , 5=play track once & pause at the end.
autostart = 1	0=no start up, 1=on power-up, start playing the first track on the disc.
idle = 0	idle time (0-1000 seconds) before system stops without receiving a button press (0=disable).
disclock = 0	1=stay within disc when pressing the NEXT key.
attract = 0000	filename for attract audio (0000=none).
mode = 0	0=normal LCD mode, 1=browse mode (see pages 6 and 7).
lineX = " "	defines the content of the LCD display (see pages 6 and 7).
keyhold = 500	hold down time before a key starts repeating (ms).
keyrepeat = 100	repeat speed of key (ms).
seeksize = 5	amount of seconds to seek on a FF or REW key.
volhold = 500	key hold down time (ms) before the volume command is repeated.
volrepeat = 100	repeat speed (ms) of volume command.

cont..

cont…

Parameters	Description
defaultkey = next	defines what function is applied to unmapped keys.
lockout = 0	locks out song XX and discXX buttons until current song is finished if lockout=1.

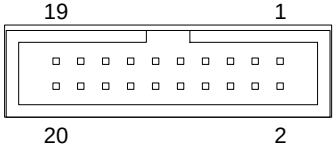
key *XY function* The key functions of the MP3sa are determined by the KEY XY definition, where X is the keypad column (COL) and Y is the row (ROW).

"KEY 34 play" will map out the play function to COL 3 (pin 3), ROW 4 (pin 14) on the keypad port of the MP3sa. The list of available functions are:

pause	stop	play
next (track)*	prev (song)	disc+
disc-	song**XX**	disc**XX**
replay (song)	track1	last (song)
ff	rew	vol+
vol-	max (vol)	min (vol)
mute	mute2 (toggle)	brup
brdn	brsel	brtoggle
repeat (cycle)	reset	

*text within brackets are for descriptive purpose only.

Keypad connector on the back of the MP3SA



Pin#	Label	Pin#	Label
1	COL1	2	COL0
3	COL3	4	COL2
5	COL5	6	COL4
7	COL7	8	COL6
9	ROW1	10	ROW0
11	ROW3	12	ROW2
13	ROW5	14	ROW4
15	ROW7	16	ROW6
17	GROUND	18	GROUND
19	GROUND	20	GROUND

Mating connector is an AMP 102387 using AMP 86016-5 insertion pins.

Normal LCD Screen Layout for optional LCD screen (Mode=0)

The MP3SA-DIS (4 line by 20 character) LCD allows you to view the current status of the MP3SA. The layout of this screen is determined by the definition of each line description in the CONFIG.TXT file. The $ character signifies that a special function code is to be displayed. Immediately after the $ a number can be used to specify the number of characters that the right-justified data will occupy. A negative number signifies that the data is left justified. Strings that are longer than 20 characters will be cut off.

List of special function codes:

Code	Description	Width	Sample display
T	ID3 title	0-??	Rumours
A	ID3 artist	0-??	Fleetwood Mac
C	ID3 comment	0-??	From the 80s
G	ID3 Genre	0-??	Pop
S	song #	1-2	23
F	filename	8	0101.MP3
H	sample rate	7	44100Hz
B	bit rate	9-10	160kbits/s
K	key pressed	2	34
d	disc#	1-2	2
t	track#	1-2	12
s	song#	1-2	4
r	repeat mode	3	R-0,R->,R-*,R-S,R-D,R-P
R	repeat (text)	2	R4
p	transport	1	▶, ■, ⏸
P	transport (text)	5	PLAY, STOP, PAUSE
x	current time	5	01:15
v	volume "bar"	6	[▌▌▌▌]
V	volume (text)	3-4	45%

Example	**Description**
line1 = "$T $p $x"	print title, transport and current time
line2 = "$-**12**T $p $x"	left justify ID3 title (12 characters)
line3 = "$**11**T $p $x"	right justify ID3 title (11 characters)
line4 = "D$2d T$t $x $P"	print disc, track, time and transport as text

With the above lines in CONFIG.TXT, with a MP3 file named 0104.MP3 and an ID3 title tag as "Samples", the 4x20 LCD display would show:

```
Samples > 00:12
Samples      > 00:12
    Samples > 00:12
D01 T04 00:12 PLAY
```

Browse Mode Display (Mode=1)

If the **mode** variable is set to 1 in CONFIG.TXT, then the LCD display will be transformed into browse mode, allowing you to select the audio to be played from a menu. This menu will display the previous, current and next song to be played. You can have multiple files on the SmartMedia card, but only three will be displayed at a time. The display also "loops around" – if you are currently playing the first song, the file displayed on the line above will be the last song on the card.

Example	Description
line1 = "D$2d T$t $x $P"	display the disc, track, time, and transport.
line2 = $T	display the song's MP3 ID3 title tag.

The layout for lines 3 and 4 will display in the same format as line 2.

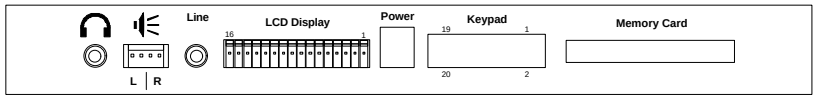
The MP3 files MUST use Version 1.0 ID3 tags and have the tag to be display filled in, or a blank line will be displayed for that file.

If, on the Smart Media card, there are three files 0101.MP3, 0102.MP3 and 0103.MP3, with the ID3 titles of "Dreams" , "Don't Stop" and "Songbird", the LCD Display would show:

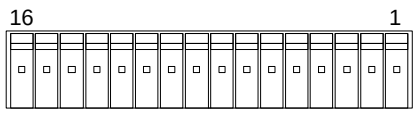
```
D01 T02 00:12 PLAY
  Dreams
->Don't Stop
  Songbird
```

You would then use the keys defined as browse up (brup), browse down (brdn) and select (brsel) to make your selection.

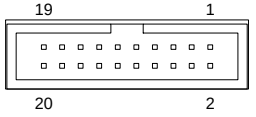
MP3SA Back Panel



Headphone Connector	Speaker Output	Line Level Output
1/8" (3.5mm) jack	L+ L- | R+ R-	1/8" (3.5mm) jack
Tip is stereo LEFT		Tip is audio LEFT
Ring is stereo RIGHT		Ring is audio RIGHT
		Shield is audio GROUND



LCD Display



Keypad

Pin#	Label
1	K
2	A
3	DB7
4	DB6
5	DB5
6	DB4
7…10	NO CONNECT
11	E
12	LR/W
13	RS
14	VR OUT (LCD contrast)
15	VCC (5 Vdc OUT)
16	GROUND

Pin#	Label	Pin#	Label
1	COL1	2	COL0
3	COL3	4	COL2
5	COL5	6	COL4
7	COL7	8	COL6
9	ROW1	10	ROW0
11	ROW3	12	ROW2
13	ROW5	14	ROW4
15	ROW7	16	ROW6
17	GROUND	18	GROUND
19	GROUND	20	GROUND

For more information contact:
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support@technovision.com
www.technovision.com

MP3SA FAQs

Q: The MP3SA is not playing – what do I do?

A: It is recommended that every developer should have an MP3SA-DIS display to indicate the MP3SA status. If you do not have one, the first thing you should do is to set the attract parameter to "0000" and the autostart parameter in the CONFIG.TXT file to "1". This will force the first track to play on the MP3SA. **If the MP3SA still does not play, you should confirm that the ID3 tags within the MP3 files you have created conform to Version 1.0**. This version forces certain fields to be filled in, and without these ID3 fields, certain features such as BROWSE mode will not work on the MP3SA.

Q: How do I simply repeat an audio track on the MP3SA?

A: The easiest way to continuously repeat a track on the MP3SA is to set the file name for the "attract" parameter to the file wish to repeat. For example, "attract=0102" will continuously repeat file 0102.MP3.

Q: How do I insert the SmartMedia card into the MP3SA?

A: The SmartMedia card is inserted with the gold contacts facing down.

Q: What files do I need on the SmartMedia card for the system to work?

A: The MP3SA requires that a CONFIG.TXT file and an Mp3 folder be present in the root directory. All the MP3 files are then stored in the Mp3 folder.

Q: How do I attach buttons to the MP3SA?

A: The KEYPAD port on the MP3SA allows you to attach up to 8 columns (0..7) and 8 rows (0..7) of buttons. The function you want that button to perform is determined by defining the KEY within the CONFIG.TXT file. For example, if you connect a button to KEY 00 (pins 2 and 10 on the KEYPAD port), you can have it play the first track in disc 1 (file 0101.MP3) by defining it as "KEY 00 disc1". If you want it to be the volume up, you define it as "KEY 00 vol+".

Q: I have a single file "TEST1.MP3" in the MP3 folder, with autostart=1, and the file does not play?

A: The MP3SA requires that the MP3SA filenames consist of only four characters – the first two are the "disc number" and the second two are the "track number". This feature allows certain functions such as direct disc (or track) access, skipping to the next track within the same disc, repeating a disc or playing to the end of a single track.

MP3SA FAQ Page cont…

Q: I accidentally re-formatted the SmartMedia. Why does it not work now?

A: 

The default file structure for SmartMedia (64M and under) is FAT12. Formatting the card on your computer will probably set the structure to FAT16 or another format that is not compatible with the MP3SA.

Q: How do I attach a motion sensor to play a song (track) on the MP3SA?

A: If you have the motion sensor (normally open) simulate the pressing of KEY 00 (attach to pins 2 and 10 on the keypad port), you can define what song (track) to play by defining KEY 00 = song**XX** (**XX** = the song number). You will also have to set the **LOCKOUT** parameter to "1" so that the song does not keep repeating with every contact closure coming from the motion sensor. Example: "KEY 00 = song04" will play the fourth song on the SmartMedia card when the motion sensor is activated.

Q: How do I attach a button to play a track, and then, with the same button, play the entire next track when the current one is finished?

A: If you have the button attached to KEY 00 (pins 2 and 10 on the keypad port), you define KEY 00 to be a "disc" key, set the **REPEAT** parameter to "5", and set the **LOCKOUT** parameter to "1". Example: "KEY 00 = disc01" will play the first track in disc 1when the button is first pressed, and when the track has completed playing the track and has paused, will play the next track on subsequent button presses. The **IDLE** parameter set the time that the system will default back to track 1.

Q: When I set the audio levels, using the vol- and vol+ keys, the volume returns to the initial volume after a while. Why?

A: Since the MP3SA was primarily designed to be used as a music sampling system, the default audio level for the environment is set using the **VOLUME** parameter setting. This allows for individuals to listen at a comfortable level that they can set themselves, but after the system is idle for a while, the audio level will revert back to the default **VOLUME** parameter setting. This will allow the attract audio to play at a constant, pre-determined level.

Q: I have five audio files on the system – 0101, 0201, 0301, 0501and 0601 but "KEY00 disc5" plays file 0601. Why?

A: In your key description, KEY00 will access the 5th disc on the system not file 0501. The fifth disc is 0601.

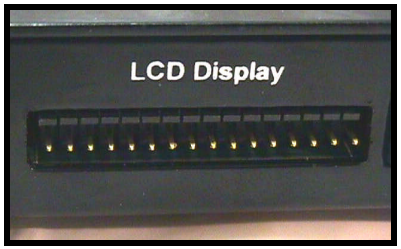
Power Requirements:
AC 120V, 60 Hz
(9V DC, 500mA power adapter included)

Net Weight:
3 lbs. (1.5 kg.)

Dimensions (HxWxD)
1.5" x 9.25" x 5.5"

MP3SA CONNECTORS

AUDIO



LCD

KEYPAD

SmartMedia

Please see the following page for the MP3SA options.

MP3SA Options

MP3SA-32 and MP3SA-64


32M and 64M SmartMedia cards capable of holding 30 and 60 minutes worth of audio (128K sampling rate)
U$ CALL

MP3SA-DIS

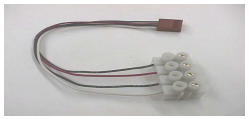

Four line by 20 character LCD.
U$ 35

MP3SA-LCD
Four foot cable to attach the MPSSA-DIS to the MP3SA.
U$ 14

MP3SA-SPC
Four foot speaker cable to attach speakers to the MP3SA.
U$ 11

MP3SA-KP5
Six foot cable to attach up to 5 pushbuttons to the MP3SA.
U$ 21

MP3SA-SPT


Converts the 4-pin speaker port to screw terminals for attaching standard speaker wires.
U$ 8

MP3SA-CA


RS232/TTL control adapter for the MP3SA. Allows for RS232 control of the MP3SA.
U$ 42

MP3SA-ZIO

USB SmartMedia Writer/Reader for the MP3SA
U$ 37

Prices and specifications subject to change.