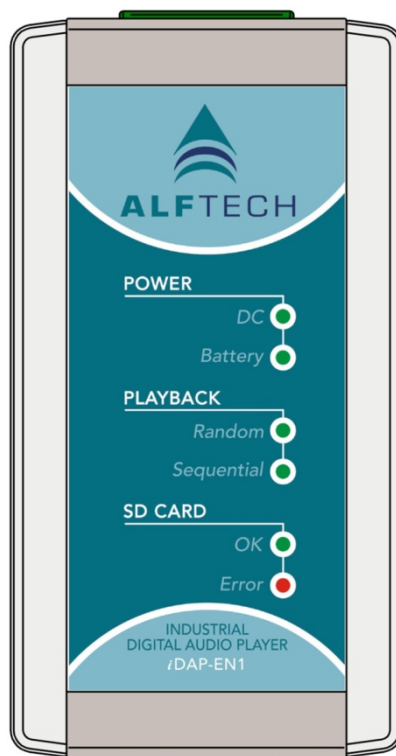




# ALFTECH

## INDUSTRIAL DIGITAL AUDIO PLAYER

### *Users Guide*



## **Important Safety Instructions**

**Please follow these precautions when using this product:**

Read these instructions. Keep these instructions. Heed all warnings. Follow all instructions.

**WATER AND MOISTURE:** Designed for indoor use only. The product is not protected against liquids. It should not be exposed to dripping or splashing and no objects filled with liquids, shall be placed on the product.

**INSTALLATION:** The Audio Player must always be installed by qualified service personnel. Install in accordance with the manufacturer's instructions. Always disconnect the supply power before installing the unit. Do not install near any heat sources such as radiators, heaters, or other apparatus that produce heat.

**POWER SOURCES:** The unit should be connected to a power supply only of the type described in the operating instructions or as marked on the unit.

**SERVICING:** Contains no user serviceable parts. Do not attempt to repair the product, as this will void the warranty. The iDAP-EN1 and external circuitry must only be serviced and maintained by qualified service personnel.

**BATTERY:** This product contains Nickel Metal Hydride batteries. There is danger of explosion if the battery is incorrectly replaced. Replace only with an equivalent battery as found in the operating instructions. Make sure the battery is installed with the correct polarity. Discard used batteries according to manufacturer's instructions or local environmental protection guidelines.

## Product User's Notice

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## Limited Warranty

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**No warranty registration is necessary to obtain warranty on ALFTECH products. Please save your proof of purchase receipt. If you do not provide proof of the initial purchase date at the time warranty service is requested, the manufacturing date of the product will be used to determine the warranty period.**

1. ALFTECH will repair or replace free of charge, any part or parts of the Product that are defective, but subject to the following conditions:
  - 1.1 Transportation charges on equipment and/or parts submitted for repair or replacement under this warranty must be borne by the Purchaser, Distributor, Re-seller and/or End user;
  - 1.2 The warranty period begins on the date of purchase by the first retail consumer or commercial end user and continues for the period of two (2) years from that date;
  - 1.3 ALFTECH shall have the sole discretion whether to replace or repair the Product, and the replacement Product shall be of equivalent or better specifications, relative to the defective product but need not be identical.
2. The warranty does not extend to repairs required because of:
  - 2.1 Problems caused by parts or systems that do not form an integral part of the Products;
  - 2.2 Equipment control, use, maintenance or installations that are not in accordance with instructions and manuals provided by ALFTECH for the product;
  - 2.3 the product is repaired, modified or altered, unless such repair, modification is authorized in writing by ALFTECH; or
  - 2.4 the product serial number is defaced or missing;
  - 2.5 Normal use which has exhausted the life of the product.
3. ALFTECH does not warrant, guarantee, or make any representations as to the correctness, accuracy, or reliability of the software. ALFTECH does not

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4. This warranty does not extend to any Batteries if installed in the Product;
5. This warranty does not extend to any equipment, installation, assembly or system for which the supplier or installer thereof provides a separate warranty, in which event the End user have to exercise his right and claim against such a supplier or installer in accordance with such a warranty;
6. This warranty does not extent to the installation, setup and configuration of the Product, for which the supplier and/or installer are liable in their respective capacities.

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|                      |                 |                              |
|----------------------|-----------------|------------------------------|
| <b>Product Name:</b> | <b>iDAP-EN1</b> | the iDAP Hardware            |
| <b>Printed:</b>      | July, 2008      | <b>Product User's Manual</b> |

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*Users Guide*

# INDUSTRIAL DIGITAL AUDIO PLAYER



**ALFTECH**

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## Introduction

### Product Overview:

### Industrial Digital Audio Player

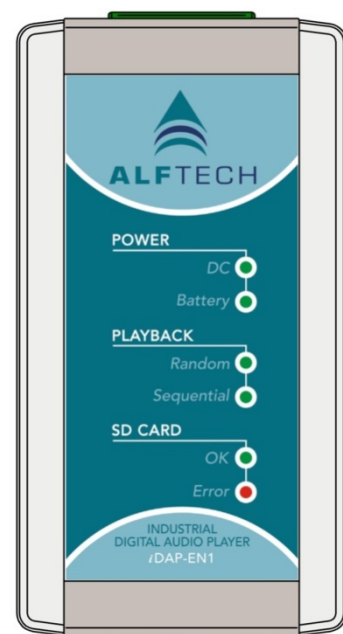
#### *iDAP-EN1 Industrial Digital Audio Player*      *the iDAP Hardware*

The ALFTECH iDAP-EN1 is an Industrial Digital Audio Player, providing continuous playback of compressed MP3 Audio files such as music, advertisements or announcements. The MP3 Audio Files are stored on a standard microSD Card, inserted into the microSD Card slot on the iDAP-EN1.

When the microSD Card is inserted and valid MP3 files are detected, playback will start automatically. There is no playback or stop buttons as the iDAP-EN1 plays continuously whenever valid MP3 files are available.

A configuration file, copied to the microSD Card offers the option of selecting random or sequential playback. There are 2 preset volume option settings in the configuration file; -10dBu for consumer audio equipment, and 0dBu for professional audio equipment. If no configuration file is detected the iDAP-EN1 will create one, with the default settings (Sequential Playback, -10dBu).

The iDAP-EN1 is DC powered (from external AC Adapter), but will run on the internal batteries for approx 4 hours when the DC is removed.

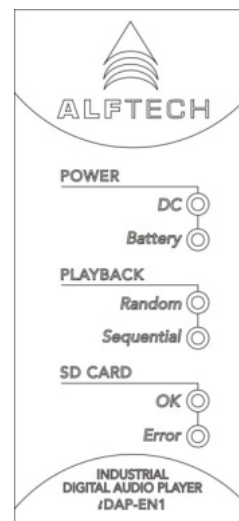


## Hardware Indicator LED's

- POWER: DC vs. Battery
- PLAY: Random vs. Sequential
- SD Card: Read OK vs. File Error

## Hardware Features

- AC powered, with 4 hours of battery operation when external power fails.
- Supports most MP3 file formats, sample rates and bit rates.
- Stereo Audio Line-Out.
- 2 Volume settings.
- microSD Card Storage. Support most microSD Cards. File access for 100 folders and 60 MP3 files/folder.
- Random or Sequential file playback option.
- Support setup file configuration, stored on the microSD Card.



## Hardware Connections

- 5 v. DC supply input, 100 – 240 v. AC (50 or 60 Hz). External Power Supply included.
- Stereo Audio Line-Out.
- microSD (Secure Digital) Card slot.

## iDAP-EN1 Operation

If the iDAP is properly installed, connected and powered, playback will commence as soon as a microSD Card with stored MP3 audio files is inserted into the microSD Card slot on top of the iDAP-EN1.

| POWER                | LED Status       | Description   |
|----------------------|------------------|---|
| DC                   | ON               | The iDAP is externally powered.   |
|                      | OFF              | The iDAP <b>is not powered externally</b> , and rely on its back-up batteries for power. <b>The iDAP will automatically switch to DC power when the external power supply has been restored.</b>                                |
| Battery              | OFF              | The iDAP is externally powered.   |
|                      | ON               | The iDAP is now powered by its back-up batteries. External power has failed, or has been removed. <b>Battery back-up power is available for approximately 4 hours.</b>  |
| DC and Battery       | OFF              | External power has failed (or has being removed), and the back-up batteries have been exhausted (or have failed).   |
| DC, and Battery      | ON, and FLASHING | Battery fault. The on-board batteries have failed and needs to be replaced. The iDAP-EN1 will still play using external power.  |
| PLAYBACK             | LED Status       | Description   |
| Random<br>Sequential | ON               | The iDAP is running audio file playback randomly.   |
|                      | ON               | The iDAP is running audio file playback sequentially, sorted alphabetically by folder name, and then by MP3 file name.  |
| Random AND Seq.      | OFF              | No valid MP3 Audio files detected.  |
| SD Card              | LED Status       | Description   |
| OK                   | ON               | The iDAP is accessing and reading the microSD Card successfully.  |
| Error                | ON               | Access to, or accessing, or reading the microSD Card has failed. <b>Ensure that the microSD card is properly inserted into the microSD Card slot, and that at least one MP3 file is stored on the memory card for playback.</b> |

## microSD Card MP3 File Structure

MP3 files can be stored on the SD Card root, or in 1<sup>st</sup> level folders on the microSD Card root. No sub-folders within these folder(s) on root folder are supported.

*Don't use subfolders, the iDAP cannot read into 2<sup>nd</sup> level folders!*

Other "non-MP3" files and folders may be stored on the microSD Card, but will be ignored for the operation of the iDAP. The iDAP will only read .MP3 files and the "setting.txt" file.

Storing other files and multiple folders (as well as sub-folders) which are not used for audio will cause "detectable audio delays" between file playback, as all the folders must first be read to find all the .MP3 files.

### microSD Card

**1.** Because of the limited Embedded Memory available on the iDAP-EN1, **the iDAP cannot support more than 60 MP3 Audio files per folder, and no more than 100 folders on the microSD Card root.**

**2. The iDAP does NOT support microSDHC cards.**

Any "standard off-the-shelf" microSD Card with a capacity up to 8 Gigabytes of storage can be used. It is preferable to format the new microSD Card disk before use using the FAT32 file system (a quick format can be performed).

## Configuration File Setup

The iDAP has two options that can be "preset" by using a setup file stored on the root of the microSD card. The file must be called "settings.txt".

Example of the contents of the settings.txt file:

```
// Audio Playback Settings;
// mode and volume must be the first character of a new line;

// R for random, S for sequential. These are the only options;
MODE S

// volume setting;
// L for -10dBu, H for 0dBu. These are the only options;
VOLUME L
```

**Option 1: MODE** Mode has 2 options, "S" for sequential playback or "R" for random playback.

### Random Playback

Folders will be chosen randomly, and then a MP3 audio file inside the folder will be chosen randomly for playback. This MP3 audio file selection process will be repeated for every new audio file to be played.



### Sequential Playback

The folders and files will be sorted alphabetically. **If "long file" names are used, they might not be sorted correctly.** If there are MP3 audio files on the root and in other folders, the MP3 audio files on the root will be played first, and then the MP3 audio files within folders on the root - alphabetically.

*Use 8-character format file names to ensure proper sorting for sequential playback.*

**Option 2: VOLUME** Volume has 2 options, "L" for low volume and "H" for high volume audio file playback.

#### **VOLUME L**

The output volume for MP3 audio file playback is set to -10dBu for consumer audio equipment.

#### **VOLUME H**

The output volume for MP3 audio file playback is set to 0dBu for professional audio equipment.

The words "mode" and "volume" must be the first word of a line, *followed by a space*, and then the selected option. The case of the words and letters does not matter. As an example, the file can consist of the following:

**Mode s**

**volume H**

### Setup File

If no "settings.txt" file exists on the microSD card, one will be created by the iDAP; the default settings for the created file will be sequential and low volume. This "settings.txt" file can then be changed (using a text file editor such as Microsoft Windows Notepad).

## Audio Compression Quality

The table provided below displays Audio Compression Settings suggested for MP3 audio files. For telephone background music you can compress the MP3 files into mono, and double the playback duration compared to stereo files maintaining the same audio quality.

The ALFTECH iDAP-EN1 can play almost any MPEG 1, layer 2 or 3 (MP3), and MPEG 2, layer 2 or 3 compatible audio files.

Example of MP3 Audio Compression Ratios:

| <b>microSD Card</b> | Low Quality, i.e. Telephones (40 kbits/s) | High Quality, i.e. Background Music (128 kbits/s) |
|---------------------|---|---|
| <b>1 GByte</b>      | 58 hours                                  | 18 hours  |
| <b>2 GByte</b>      | 116 hours                                 | 36 hours  |
| <b>4 GByte</b>      | 233 hours                                 | 72 hours  |
| <b>8 GByte</b>      | 466 hours                                 | 144 hours   |

## Commonly Used Compression Settings

| <b>AUDIO Quality</b> | Sample Rate (Hz) | Bit Rate (kbit/s) | Approx. time (for 1 GByte) |
|----------------------|------------------|-------------------|----------------------------|
| Near CD              | 44100 (stereo)   | 160               | 15 hours                   |
| Near CD              | 44100 (stereo)   | 128               | 18 hours                   |
| Telephone: music     | 44100 (mono)     | 64                | 36 hours                   |
| Telephone: voice     | 22050 (mono)     | 32                | 72 hours                   |

The sample rate will mostly determine the quality of the playback audio.

## Supported Sample Rates (Hz)

|   | <b>Sample Rate</b> | <b>Supported</b> |
|---|--------------------|------------------|
| 1 | 48000              | <b>Yes</b>       |
| 2 | 44100              | <b>Yes</b>       |
| 3 | 32000              | <b>Yes</b>       |
| 4 | 24000              | <b>Yes</b>       |
| 5 | 22050              | <b>Yes</b>       |
| 6 | 16000              | <b>Yes</b>       |

The bit rate is the amount of bits per second used to record the audio signal. The standard for near CD quality audio is 160 kbit/s at a 44100 Hz sample rate. The available options are listed below.

## Bit Rates Supported (kbit/s)

32,40,48,56,64,80,96,112,128,160,192,224,246,320

## ***Working with MP3 Files***

ALFTECH does not make any recommendations or endorsements of the following products, but have found it useful in preparing and converting audio files to MP3 format.

**GoldWave Shareware Version** is an affordable and fully functional Shareware MP3 player can be used for MP3 Audio File editing and encoding. GoldWave is a sound editor, player, recorder, and converter. It can create sound MP3 audio files for CDs, websites, answering machines, or Windows sounds. A full set of effects and editing features are included for professional sound production. High quality MP3 audio files can be created by using GoldWave in conjunction with CD Recorder software.

For more information about downloading, using and optionally buying GoldWave please visit the GoldWave website:

<http://www.goldwave.com>

Before using GoldWave, make sure sound drivers have been installed and configured with the Windows Device Manager. Be sure to download the "LAME" MP3 encoder from Goldwave's website as well, as this "plug-in" provides the MP3 encoding facility.

**GoldWave is a shareware program. It is not free software.** However, after trying GoldWave, the modest registration fee should seem very reasonable considering all of the great features on offer. To register and encourage further development, please see the website detailed above.

GoldWave Registration License ± (CAD\$45)

**Audacity is a free** Cross-Platform Sound Editor. More details can be obtained from: <http://audacity.sourceforge.net>.

Audacity is open source software for recording and editing sounds. Audacity is developed by a group of volunteers and distributed under the GNU General Public License (GPL). It is available for Mac OS X, Microsoft Windows, GNU/Linux, and other operating systems. You can use Audacity to:

- Record live audio.
- Convert tapes and records into digital recordings or CDs.
- Edit Ogg Vorbis, MP3, WAV or AIFF sound files.
- Cut, copy, splice or mix sounds together.
- Change the speed or pitch of a recording.

Audacity can be downloaded for your platform of choice from:

<http://audacity.sourceforge.net/download/>

## Hardware Installation

### *iDAP-EN1 Electrical Specifications*

#### Electrical Specifications

| PARAMETER                 | TEST CONDITIONS           | MIN | TYP     | MAX  | UNIT     | NOTES |
|---------------------------|---------------------------|-----|---------|------|----------|-------|
| Supply Current            | 5 v. DC, normal operation |     | 120     |      | mA       |       |
| Power Consumption         | 5 v. DC, normal operation |     | 0.6     |      | W        |       |
| Battery Backup time       |                           |     | 4       |      | hours    |       |
| Audio Output Level – low  | 0 dBFS digital            |     | -10     |      | dBu      | 1     |
| Audio Output Level – high | 0 dBFS digital            |     | 0       |      | dBu      | 1     |
| Audio Output Impedance    |                           |     | 22      |      | $\Omega$ |       |
| Frequency Response        | 20 Hz to 18 kHz           |     | $\pm 1$ |      | dB       | 2     |
| Signal-to-Noise Ratio     | -3 dBFS digital           |     |         | 84   | dB       | 2     |
| Total Harmonic Distortion | -3 dBFS digital           |     |         | 0.01 | %        | 2     |

#### Notes

1. The output level is between the hot and ground terminals, unbalanced.
2. Tested with 44100 Hz sample rate, 16 bits and 192 kbps data rate.

#### **DC Input Warning:**

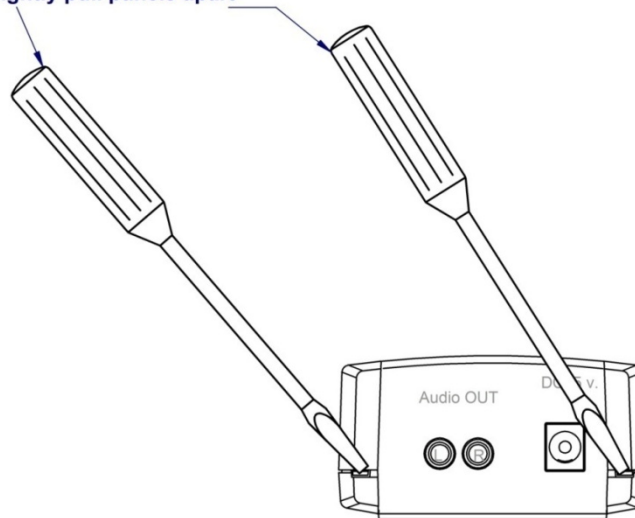
Use the supplied AC to DC adapter, or an appropriate alternative. The voltage must be 5 v. DC regulated, and must be able to supply at least 300 mA continuously. Any other voltage can damage the device, and or the battery might overcharge and explode.

### *Replacing the Batteries*

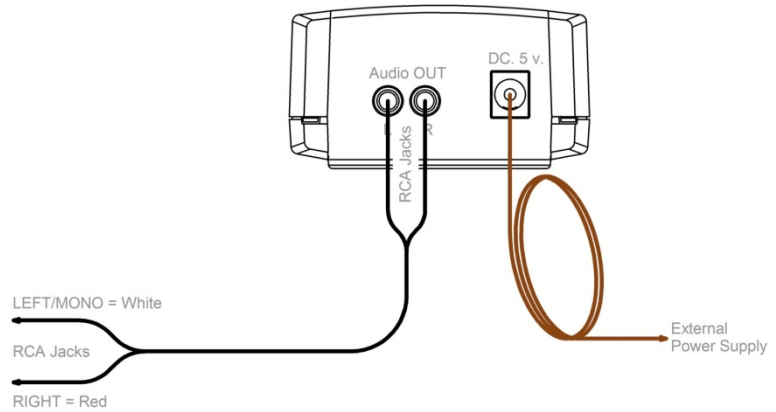
Always refer to the SAFETY INSTRUCTIONS found in this manual.

**BATTERIES:** Only qualified service personnel are allowed to replace the batteries. If the batteries have failed, it has to be removed from the Printed Circuit Board and replaced. When new (uncharged), the batteries needs at least 2 days to fully charge. Only replace the batteries with 3 x AAA cells, NiMH, Nickel Metal Hydride, 700 mAh or higher, 1.2 V.

To OPEN Enclosure:  
Insert Screwdriver Tip, and  
lightly pull panels apart



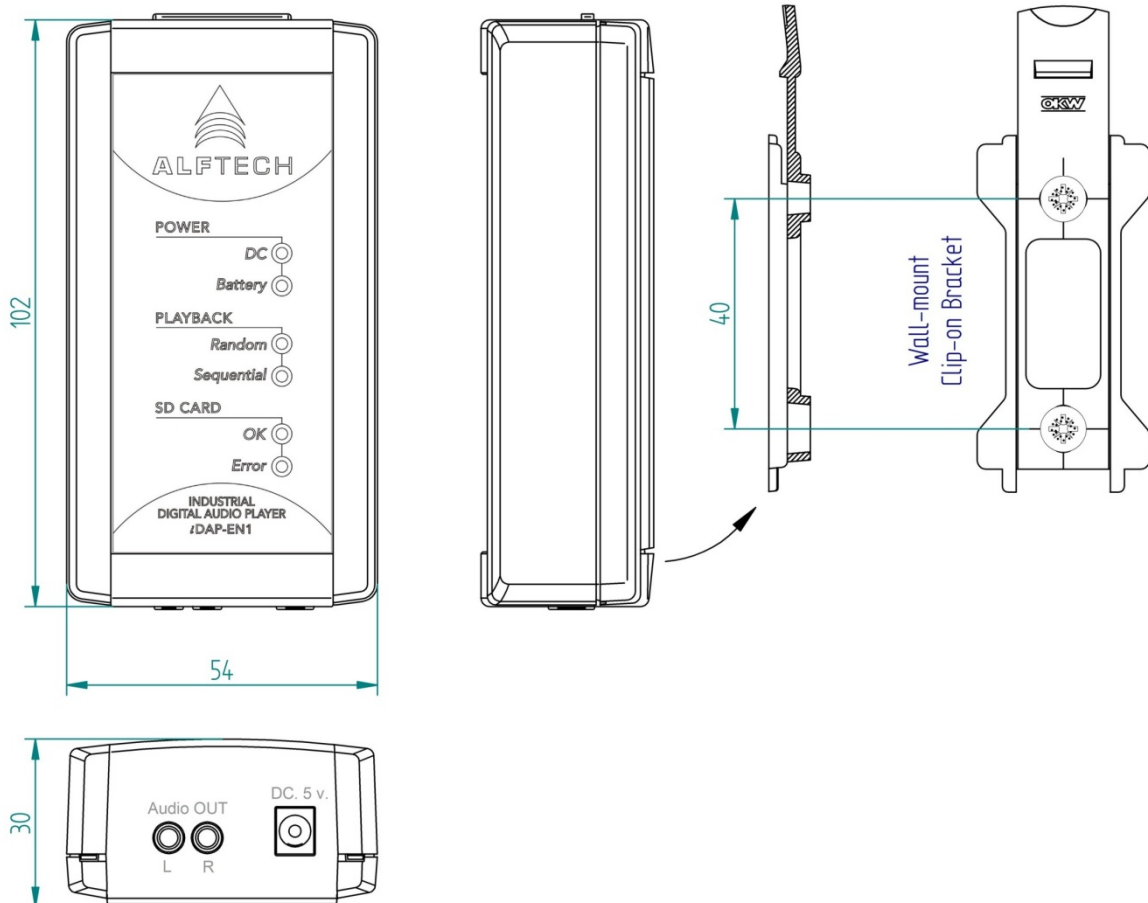
## iDAP-EN1 Connections



## Physical Layout and Dimensions

### iDAP-EN1

all Dimensions in mm



### Wall mounted Clip-on Bracket

A Wall mounted Clip-on bracket is provided with your iDAP-EN1. This bracket can be securely attached to the wall by drilling two 6 mm holes spaced 40 mm vertically into the wall. Insert the two wall-mount plugs (included as standard with the iDAP-EN1) into the 6 mm holes and screw the bracket securely onto the wall.

## NOTES

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A series of horizontal dashed lines for taking notes.