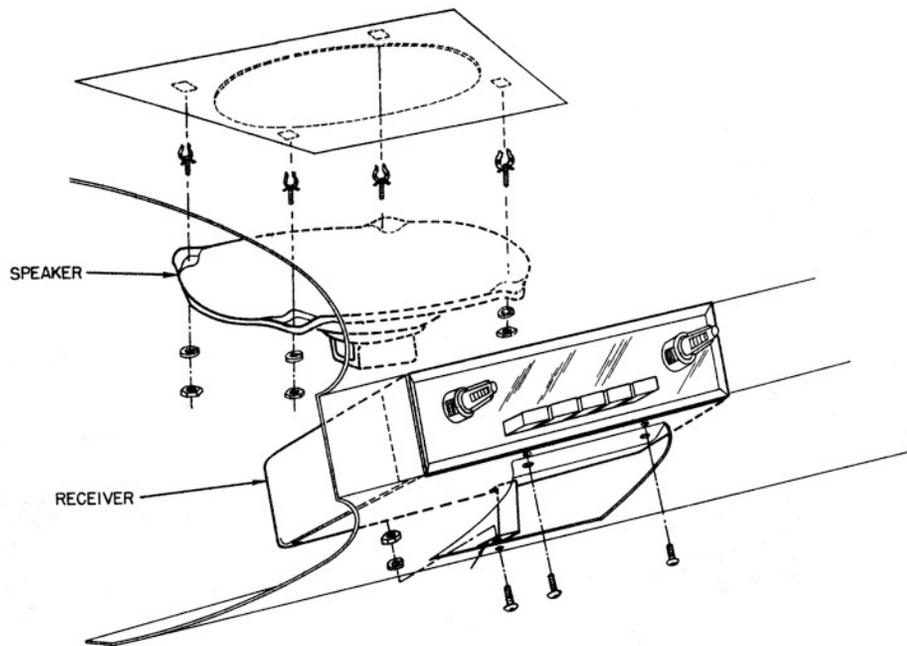# Aurora Design
USB-2
USB/AAC/MP3 Adapter

User Operation
Manual

Congratulations on your new Aurora Design USB-2 USB/MP3 adapter. Combined with an FMR-2 converted radio, you can enjoy 21st century technology in your classic vehicle!

Setup: Before installing your radio back into your vehicle, you may wish to plug a USB extension cable into the USB plug on your radio. A standard USB A female to A male extension cable may be purchased at most electronics retailers. The length should be chosen for the desired mounting location of the USB connector for easy access. This can be under the dash, in a console, in the glovebox, etc. It should be of good quality capable of supporting up to 2A charging.

If your USB-2 came with the optional pushbutton assembly, a suitable location should be found for easy access. The pushbutton is not required when using an FMR-2 converted radio as the existing radio controls can be used to fully control the USB-2.

The pushbutton requires a 1/2" (12.7mm) hole and should be mounted somewhere convenient such as the bottom edge of the dashboard. The pushbutton is illuminated with a red status LED that should be made visible for easiest operation. The attached cable is 3.3' (1M) long and can be routed as required. Excess cable can be coiled and tied off.

Operation: Operation of the USB-2 is extremely simple yet powerful. The USB-2, when combined with an FMR-2 AM/FM receiver form a fully integrated AM/FM/USB/AAC/MP3 solution. Communication over a proprietary com-link keeps the two modules in perfect sync. No external cables, plugs or switches are required. Full operation is provided by the existing controls on the radio. When streaming music or handling a phone call, the FMR-2 status LED will change color to indicate USB operation. (see FMR-2 manual for more information on status LED) When you stop playing music the USB-2 will put the FMR-2 back into normal operation. Everything is handled automatically.

The USB-2 supports AAC, MP3 and Ogg Vorbis formats. AAC files offer higher quality than MP3 and is the native format used by iTunes® and many other popular music services. ACC files will play natively off compatible Bluetooth devices and can be copied directly onto USB drives for playback.

The USB-2 will always return to the last mode it was in when the radio was turned off assuming the USB drive is still present. For example, if the USB-2 was playing back music when the radio was powered off, it will return to playing back from where it left off when the radio is turned back on. Additionally, if a USB drive is inserted after the the radio is turned on, the USB-2 will immediately start playback of the USB drive.

The USB-2 supports *Voice Assist* which will speak messages to you in English, Spanish or French to assist in the operation of the radio.

Playing files: To start playing music insert a USB drive containing valid audio files into the USB connector or if a drive is already inserted, twist the volume control back and forth twice towards the direction of lower volume or push and hold the optional push button for about 1 second. To toggle between pause and play, repeat the procedure above. When the audio is paused, the FMR-2 status LED will blink slowly. If the audio is paused for more than about 10 seconds, the USB-2 will release the FMR-2 and it will switch back to normal radio operation. If playback is started again, it will continue from where it left off.

If the USB-2 remains in pause for more than 10 minutes, when playback is resumed, the USB will start playing the last song from the beginning rather than from where it left off. Additionally to change the operating mode of the USB interface between random and sequential playback, start by placing the USB interface in pause as described above. To select random playback, twist the tuning control towards the high frequency end of the dial or quickly press the optional pushbutton once. A *Voice Assist* message will confirm the setting. To select sequential playback, twist the tuning control towards the low frequency end of the dial or quickly press the optional pushbutton twice. A *Voice Assist* message will be heard to confirm the setting. When playback is resumed, the current song will start playing over from the beginning.

To skip to the next song, twist the tuning control towards the high frequency end of the dial or quickly press the optional pushbutton once. Additionally on a signal seeking radio such as the Delco Wonderbar®, Ford Town & Country® or Chrysler ElectroTouch®, you can press the seek button. To skip to the previous song, twist the tuning control towards the low frequency end of the dial or quickly press the optional pushbutton twice. (Hint: when twisting the tuning control, twist it in the desired direction and then back to the starting point. This way the tuner always remains in the same position)

In sequential mode, to skip to the next folder, double twist the tuning control on the radio towards the high frequency end of the dial, or double press the seek bar on a signal seeking radio. To skip to the previous folder, double twist the tuning control towards the low frequency end of the dial. To reset to the first song, triple twist the tuning control towards the low frequency end of the dial.

Voice Assist **Language**: The USB-2 can speak to you in English, Spanish, French and simple beep tones. To select the desired language twist the volume control back and forth twice towards the direction of higher volume or push and hold the optional push button for about 5 seconds. After you hear the *Voice Assist* message, twist the volume control again. The next language set will be heard. Continue this until the desired language is selected. All *Voice Assist* messages will now be in the selected language.

USB File Structure: The USB drive must be formatted in FAT12, FAT16 or FAT32 format using a MBR Primary partition. The name of the
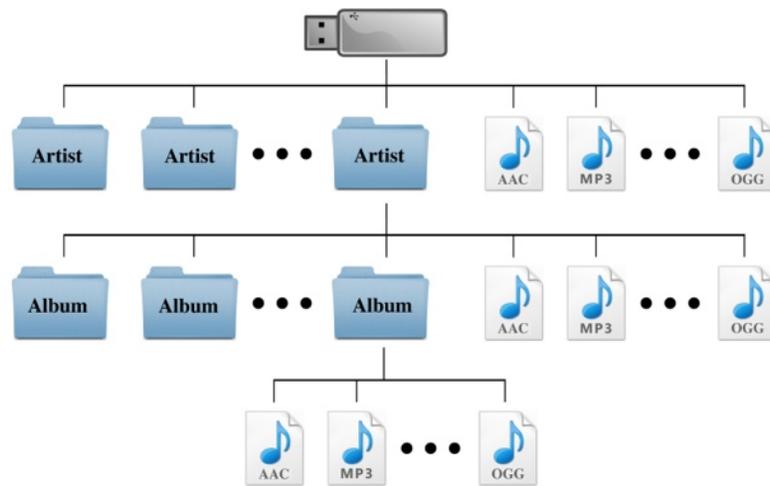
drive can be anything, so you may want to name them after the type of audio on them, i.e. Rock and Roll, Easy listening, Audio Books, etc.

Audio files must be in standard AAC, MP3 or Ogg Vorbis format and file names must use the .aac .m4a .mp3 .ogg extensions. Files not conforming to this specification will be ignored. (DRM protected .m4p files are not supported)

Each folder, including the root, can contain up to 250 files and an unlimited number of folders. (1700 folders and 65534 files maximum) In this manner the root folders could use the artist names with the subfolders named for each album, or the root folders could be name for music genres, etc.

Since indexing the drive takes a bit of time, the USB-2 will start playing a song while indexing. Non-audio files will slow the indexing process down and should be avoided. If the drive must be used for non-audio files, the audio files can go into a folder named ~Music~. The USB-2 will then only look in this folder, speeding up the indexing process.

The USB-2 will place two files named ~AD_USB0.TXT and ~AD_USB1.TXT at the root level. These files are used by the USB-2 for housekeeping and should not be modified. (these files do contain the version level of the USB-2)

Suggested File Layout

USB Charging: The USB-2 USB port supports SDP, CDP and DCP charging modes up to 2A. It is compatible with proprietary modes like Apple® 1A/2A and BlackBerry®. The USB-2 will continue charging even when the radio is off as long as the vehicle power is on.

Troubleshooting:

No Audio: Verify that the USB drive is formatted correctly and contains valid aac/m4a/mp3/ogg audio files using the correct file extension.

Long Delays: Do not place many non-audio files on the USB drive. This will slow down indexing the drive.
   If the USB -2 is set to sequential playback and you skip songs/folders while the first song is playing, it may take a while for the next song to start playing if the indexing process has not yet completed.
   The drive may have a corrupted file table. Reformat the drive as FAT16 or FAT32 and recopy your files onto the drive.

Specifications:

USB Interface:

SDP/CDP/DCP:	USB 2.0 (1.0 and 1.1 compatible)
	2A maximum charging

USB File System:

Supported Formats:	FAT12, FAT16, FAT32
	MBR Primary partition only
Maximum Root Folders:	250
Maximum Total Folders:	1700
Maximum Files/Folder:	250
Maximum Total Files:	65534
Supported File Formats:	.acc .m4a .mp3 .ogg

USB Decoder:

Maximum Rate:	48kHz AAC / 320kb/s
	48kHz Ogg Vorbis / 320kb/s
	48kHz MPEG1.0-L3 / 320kb/s
	24kHz MPEG2.0-L3 / 160kb/s
Minimum Rate:	8kHz AAC / 8kb/s
	8kHz Ogg Vorbis / 8kb/s
	32kHz MPEG1.0-L3 / 32kb/s
	16kHz MPEG2.0-L3 / 8kb/s

Environmental:

Temperature:	-30C to 65C (-22F to 150F) Operating
	-40C to 125C (-40F to 257F) Storage
Humidity:	10% to 90% non-condensing

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