empeg car

user guide

This manual is for the empeg car digital audio player.

Contents

i. Package Contents

Upon unpacking your empeg car player, please check that each of the following items are enclosed:

- empeg car player
- Car mounting cage
- Infra red remote control
- Home power supply
- Power supply mains cable for your locality
- emplode software CD
- USB connection cable
- Serial connection cable
- Power line suppressor
- Amplifier grounding cables (pair)
- Car bumper and window stickers

If any of the items are missing, please contact your supplier.

ii. Official Certifications

FCC Certification

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Shielded interface cables must be used to comply with emission limits.

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device shall not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

CE Certification

This equipment has been tested and found to comply with European EMC Emissions and Immunity regulations.

iii. Software Licence Agreement

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YOUR ACCEPTANCE OF THE FOREGOING AGREEMENT WAS OR WILL BE INDICATED DURING INSTALLATION OF THE EMPLODE SOFTWARE.

1. Car Installation

The empeg-car unit is no harder to install than any other head unit: however, if you are not experienced with head unit installation we recommend you leave the job to a professional. As with other two-part (i.e. head unit & separate amplifier) combination systems, the sound quality – and in particular audio interference – is greatly affected by the way the units are wired.

A good car audio specialist will be able to supply and install a suitable amplifier unit as well as fitting the empeg-car.

Amplifier requirements

The unit has high-level line outputs, and requires an amplifier that can handle 3.2v RMS line outputs: ideally, you need to test the empeg unit with the amplifier you intend to use before purchasing it. Ensure you get an amplifier with an adjustable gain control so that it can be matched to the empeg's output levels.

The unit provides four channels (two left/right pairs, one for front and one for rear), so for a four-speaker system you will require either a four-channel amp or 2x two-channel amps. The empeg does not provide a separate subwoofer out - an external active crossover is recommended for this.

When setting up the amplifier the gain should be turned to minimum (least sensitive) and then, with the empeg unit set to maximum output (0dB attenuation), turned up until your maximum listening level is reached. Too high a sensitivity setting will cause both distortion at high volumes and interference at low levels.

NOTE: The empeg provides floating ground outputs in order that the audio not be affected by digital interference from the high-speed digital circuitry in the unit. Most amplifiers also have floating ground inputs in order to prevent ground loops between the head unit and the amp, which result in large amounts of audio interference. In order for the empeg's outputs to function correctly, the inputs to the amplifier should be grounded to the amplifier's GND terminal with the supplied adaptor leads. Failure to do this will result in interference problems.

The empeg has been tested with a variety of amplifiers; quality 4-channel amplifiers are made by many companies – here at empeg we've used JVC digifine, Longmill, Caliber, etc without problems.

Mounting Orientation

The unit is designed to mount horizontally: ideally, the unit should be leaning back at an angle of 8 degrees (this is fairly common practice in car dashboards) but angles from 0 degrees to 16 degrees tilt (the rear of the unit being lower than the front) are acceptable.

The unit is not designed to be mounted vertically (front faces upwards) or on its side, as this compromises the effectiveness of the shock mountings inside the unit.

Physical

The empeg car dock is a DIN-E sized unit: the aperture it fits into is the standard size of 7.2" (183mm) wide and 2" (50mm) high. The unit is 6.8" (173mm) deep, including cables.

As with other DIN units, the unit is secured with push-out tabs that hold onto the dashboard. After completing the wiring of the dock, it should be pushed into place and the appropriate tabs pushed out (i.e. so they protrude on the outside of the dock) in order to hold the dock securely in place.

Electrical – Summary of Connections

Power

Black   Ground
Red   In-line 3A fused power input (+12 to +16v)
Orange   Amplifier remote power on

Antenna

Coax antenna socket

Audio

Line out (front pair/rear pair)   4 volt output: floating ground
Line in (pair)   1 volt input

Digital

Serial port (9-way female D type)

Electrical – Connection Details

Power input (RED)

The power input takes a maximum of 1A at 12v to power the unit: any current taken by the amplifier remote line will increase this value. The line is fused at 3A, and the empeg unit is internally fused at 3A. If the fuse blows, investigate and rectify the problem (check the empeg unit powers up with the home power adapter) and always replace with a fuse of the same type and rating.

An in-line power filter is supplied with the empeg, which filters out most ignition noise from the car supply: this should be mounted where convenient. Due to the tightly packed circuitry inside the unit, there was unfortunately no room to fit an internal filter.

The unit has a solid-state internal fuse. If this is tripped, disconnect the unit from the power supply and leave for a few minutes to allow the fuse to reset, and check the unit works with the mains adapter before trying it again in the car.

The power input should be connected to the accessory line of the car wiring. The low current drain means that a separate battery feed should not be necessary – if one is desired, then a SPNO relay can be used to allow the accessory line to control a direct battery feed to the empeg unit.

Ground (BLACK)

The empeg unit works with negative earth cars only. The case is connected to ground, as is this connection.

Amplifier power on (ORANGE)

This line is used to turn the external amplifiers on. It should NOT be used to power the amplifier, as it is a low current line, which can supply a maximum of 1 amp at 12v – this should be connected to the amplifier's 'Remote' line, with the amplifier drawing its power from a direct battery feed.

This line can also be used to control an automatic antenna, with the same proviso on current sourcing as above. Note that the antenna will extend whenever the empeg is switched on, regardless of whether the tuner, digital audio or auxiliary source is selected.

Antenna

This input is for the FM radio antenna. Note that the tuner is always powered in the empeg unit – even when the unit is in standby mode (i.e. amplifier/display off).

Audio

There are two pairs of audio outputs, with an output level of approximately 3.2v RMS. These are driven in a quasi-differential fashion, and so the ground of the audio output is NOT the car earth: it is a ground sense from the amplifier ground to provide better audio quality. You should take care to ensure that the ground of the audio outputs (i.e. the phono/RCA jack exterior) does not touch the car bodywork: if they do, this will not damage anything, but it will result in reduced audio quality. In practice, this usually means wrapping insulation tape around the audio connections after they have been connected to the in-car wiring.

You should ensure that the supplied audio grounding leads are used at the amplifier end to tie audio ground to amplifier ground, allowing the floating ground outputs of the empeg to function correctly.

The line inputs have their own ground, which gives good quality audio input from both head units and portable CD/DAT/Minidisk players.

Digital

The empeg serial port docks with the car-fitting cage, allowing connection to permanently fitted in-car computer equipment. The connector provides transmit, receive, ground and +12v outputs.

IF THIS CONNECTOR IS NOT USED, CARE MUST BE TAKEN TO ENSURE THAT IT IS INSULATED DUE TO THE 12v OUTPUT PRESENT ON PIN 4.

2. Windows Software Installation

It is important to ensure that you do NOT connect the empeg player to your PC via USB before commencing the Windows software installation. If you do so Windows will prompt you to supply a driver location – do not do so, but rather cancel the dialog box, disconnect your player, and continue with the instructions that follow.

Insert the empeg car 'emplode' disk into your CD drive. The installation wizard will automatically start, unless you have disabled auto-run in which case open the CD and double click the Setup icon in the emplode folder.

The emplode Licence Agreement will be displayed please read this and click Yes to indicate acceptance of the terms if agreeable to you. Release notes will then be displayed, which should be read before clicking Next.

You will be prompted to enter your name, company (if applicable) and serial number. The serial number can be located on the silver label attached to your player. Please type the number exactly as it appears, including leading zeros, then click Next.

If you wish to change the default installation folder you can now do so by clicking Browse, otherwise click Next to continue. You can now specify the Start Menu location for the emplode icons, and click Next once more.

The software will now install onto your computer. Once complete, click Finish.

At this stage, it is recommended that you restart your computer.

Uninstalling the Windows Software

If you should wish to remove the empeg emplode software from your computer, open the Add/Remove Programs dialog from the Control Panel. Scroll down the list of installed programs, select 'empeg-car Management Software' and click Add/Remove. The software will now be totally removed from your computer.

3. Home Installation

To download and organise music on your player you will need to connect it to your mains power outlet and PC. The power adapter and cables that are required for this are supplied with the player. You may also wish to connect your player to your home stereo to listen to your MP3 music out of the car – an additional cable is required for this purpose.
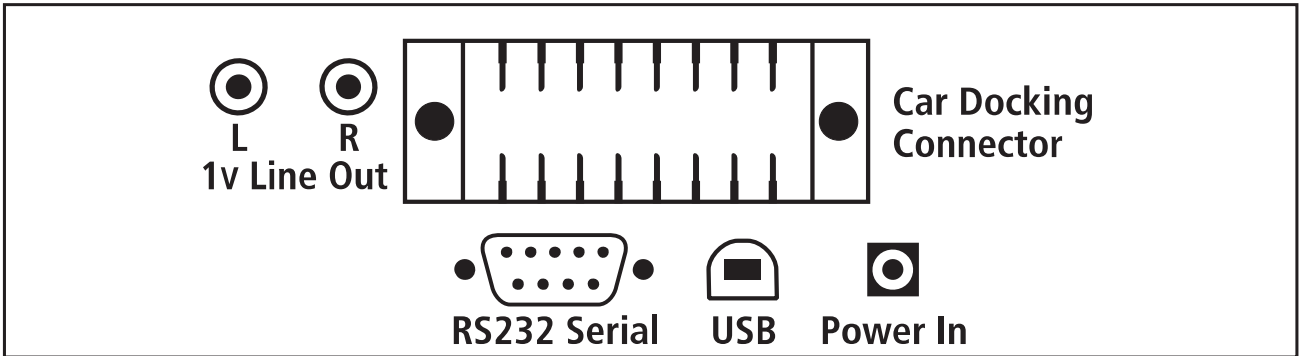

Figure 3.1 empeg car rear panel connections

Connecting to Mains Power

Connect the mains power cable to the power adapter, and then connect the power adapter to the empeg car player power socket on the rear panel. As soon as the mains cable is plugged into a live socket the player will power up ready for use.

Note that the supplied power adapter is auto-ranging, suitable for use with voltages from 100v to 240v.

Connecting to your Home Computer

You can connect your empeg car player to your home computer with USB or RS232 Serial. USB is the recommended option for downloading tracks, as it is much faster than RS232 Serial. You will need to use the Serial connection if your computer does not have (or support) USB, and when upgrading the player software.

Cables for both USB and Serial are supplied. The Serial cable requires a 9-pin port – an adapter (not supplied) will be necessary for connection to a 25-pin port.

To connect your player, simply insert the appropriate cable into the port on the rear panel of the player and into your computer. You should avoid connecting the USB cable until you have installed the supplied software (refer to Section 2).

Connecting to your Home Stereo

The RCA (phono) jacks on the rear of the player provide one volt line outputs suitable for direct connection to a home amplifier. A cable for this purpose can be obtained from any electronics or hi-fi outlet (be sure to check the connections required by your amplifier).

Note that the line outputs cannot drive any load directly – do NOT connect them to speakers or headphones.

For home use it is strongly recommended that you set the output gain (volume) on the player to 0dB and adjust the volume from your amplifier. This will ensure optimum signal to noise ratio.

4. The emplode Music Management Software

Before proceeding with this section, install the emplode software as described in Section 2.

Introduction

The emplode program is responsible for managing the music database on your empeg car player, including loading tracks, setting and changing track details and organising your music. The program runs on your home computer and communicates with your player via a USB or Serial connection – refer to Section 3 for details of making this connection.

Encoding Your Music

Before music can be played by the empeg car it must be encoded in MP3 (MPEG 1 Layer 3) format. This popular music format is highly compressed yet maintains excellent audio characteristics, which is why you can store so much music on your empeg car. The empeg emplode software does not perform the encoding – this may have been performed by your music vendor (if you are purchasing tracks in MP3 format) or, if you wish to encode your own CD collection, a third party product is required. There are many such products – some free, some commercial – available from the Internet and computer stores. We recommend Audio Catalyst by Xing Technology (www.xingtech.com) as it is fast, of high quality and easy to use.

It is particularly convenient for your MP3 encoded tracks to have ID3 tags. This feature of many encoding programs incorporates track titles, artist names and other details into the encoded track – often automatically via Internet music databases. If these details are included at the time of encoding it will save you time later.

Starting the emplode Program

The empeg music database is stored on the car player itself, never on your PC, so before you can use emplode you must connect your player to the computer (refer to Section 3) and switch it on.

Load the emplode program from the Start Menu (by default it will have been placed in a sub menu called 'empeg car'). If the player is connected and switched on a short interrogation sequence will take place during which the music database is retrieved.

If this does not happen check that the player is powered up and connected correctly. It may be necessary to tell emplode how the player is connected – click Options to open the configuration window. If the player is connected via USB select 'Universal Serial Bus'. If it is connected by RS232 Serial select 'Serial port' and choose the port number from the drop down list. Click 'OK' when you have selected the appropriate connection. emplode will now attempt once again to connect to the car player.

When the connection has been successfully made, and the music database retrieved, the emplode main window will open.
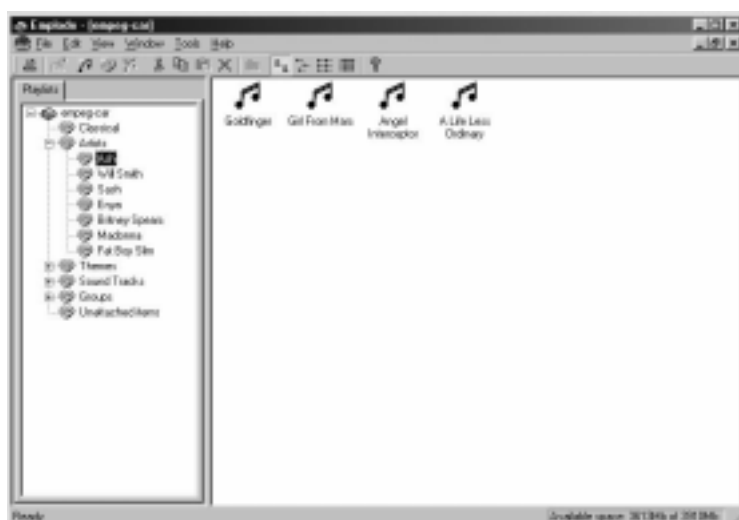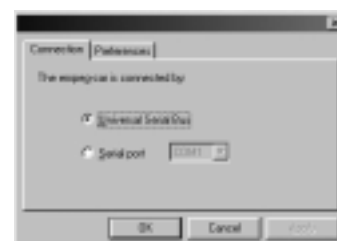
This emplode window shows a player loaded with music, but the first time you run the program your player will be almost empty.

Note the format of the window – the menu and toolbar at the top, the playlist tree to the left and the music list to the right.
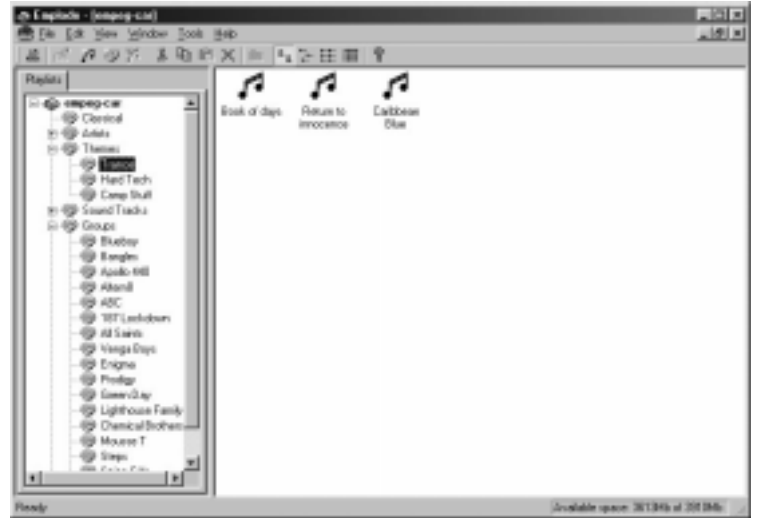
Playlist Tree

Tracks on the empeg car player are organised into playlists. A playlist is simply a collection of tracks that are grouped together, perhaps because they have a common theme; they may be from a certain album, by a certain artist, or of a certain genre. A playlist can contain further playlists (known as nested lists), and it is this hierarchy that provides for fast selection of music on the player.

The top-level playlist, which is always present, is called 'empeg-car' by default and cannot be deleted. From thereon the structure of your music database is entirely up to you. The way in which you choose to organise your music will reflect your personal preferences.

In this example window you can see that tracks have been grouped into Artist, Group and Theme playlists. In fact, the tracks in each of the Theme playlists are copied from an Artist or Group playlist. You can refer to a track in as many playlists as you want, but it will only be stored once in the player so no capacity is wasted.

When a playlist is selected on the car player, the tracks in any nested lists will also play, and so on until the entire branch of the tree has played. For example, the top level empeg-car playlist contains all of the tracks on the player, whereas the Artist playlist shown opposite contains all of the tracks for each of the Artists.

You may choose to organise your music in an entirely different way to this – it's up to you!

It's easy to navigate the Playlist Tree: open a branch by clicking the + symbol, and close it again by clicking the − symbol. Alternatively you can double click on a list to open or close it's branch. To select a playlist, simply highlight it by clicking.

Track List

The track list displays each of the tracks and nested lists that are contained in the highlighted playlist. Four views are available: Large Icons view, Small Icons view, List view and Details view. The view can be changed from the View menu, or from the toolbar controls. In the List view (which is the recommended setting) click the headings to change the sort criteria.

Tracks are represented by this icon:

Playlists are represented by this icon:

To change the play order of a track within the list, click and drag it over the track that it is to precede. To delete a track highlight it and press the Delete key, or select Delete from the Edit menu. Tracks and playlists can also be Cut, Copied and Pasted in the usual way, and a convenient pop-up menu is provided by right clicking over a track or playlist.

As well as dragging tracks and playlists within the current view, they can also be dragged onto other lists in the Playlist Tree. If you drag and drop the item will be moved to the appropriate list – if you hold down the Ctrl key before dropping the item will be copied instead.

Creating a New Playlist

Select the playlist in which you wish to create the new list, by clicking on it in the Playlist Tree – if you are starting with a blank player this will be the top level 'empeg-car' playlist. From the Edit menu select New Playlist, or click on the New Playlist control on the toolbar.

The Tune Properties window will open, in which you can specify the Title of the list. The other fields are entirely optional and may be used in future versions of the player software for track retrieval. Type in the title of the playlist and click OK.

The new playlist will have been created, and can be navigated as described above.

Adding a Track to a Playlist

Open the playlist to which you wish to add a track and click anywhere in the Track List section of the window. From the Edit menu select New Tune or click on the New Tune control on the toolbar. The Open File window will appear, from which you can navigate your computer in the usual way. Locate and select the track that you wish to add to your player and click Open.

The Tune Properties window will open, and if ID3 tags are present in the track some of the fields will be automatically filled in for you. You should ensure that at least the Title and Artist fields are completed – the other fields will be useful for advanced track retrieval in future versions of the player software.

The track will have been inserted into the playlist. You can change it's position or move it between lists as described previously.

Another way to add tracks is with Windows Explorer drag & drop or cut & paste.

Synchronising the Player

Whenever you add playlists and tracks, or change the music database in any other way, the changes are stored within emplode but not yet reflected by your empeg car player. This allows you to work quickly; adding tracks, organising your music and so forth; without lots of delays every time some data needs to be transferred to the player.

When you are finished updating, you must synchronise the player music database with the changes. From the File menu select Synchronise or click the Synchronise control in the toolbar. The synchronisation process can take anything from several seconds to several hours, depending upon how much new music you have added to the database and whether you are using USB or Serial. The Synchronise window will keep you up to date with the progress of the operation.

DO NOT SWITCH OFF OR DISCONNECT THE PLAYER DURING SYNCHRONISATION

When synchronisation is complete the player will be ready for use with the updated music database.

emplode Menu Functions

File Menu	Revert Changes	Discard any changes made and revert to the car player version of the database
	Synchronise	Update the car player with the changes made
	Exit	Exit emplode – changes will be lost if you haven't synchronised
Edit Menu	Cut	Cut the selected track or playlist onto the clipboard
	Copy	Copy the selected track or playlist onto the clipboard
	Paste	Paste the track or playlist from the clipboard to the current playlist
	Delete	Delete the selected track or playlist
	Select All	Select all tracks and lists within the current playlist
	New Tune	Add a tune to the current playlist
	New Virtual Tune	Reserved for future use
	New Playlist	Add a nested list to the current playlist
	Properties	Edit the properties of the selected track or playlist
View Menu	Toolbar	Switches the toolbar on and off
	Status Bar	Switches the status bar on and off
	Split	Changes the split between the Playlist Tree and the Track List
	Large Icons	Switch to Large Icons view
	Small Icons	Switch to Small Icons view
	List	Switch to List view
	Details	Switch to Details view
	Arrange Icons	Reserved for future use
	Line Up Icons	Reserved for future use
	Refresh	Refresh the emplode window

Window Menu	New Window	Open a new view onto the music database
	Cascade	Cascade all open views
	Tile	Tile all open views
	Arrange	Arrange minimised views neatly
Tools	Upgrade empeg-car Software	Refer to section 5
	Options	Set the emplode preference

emplode Toolbar Functions

The emplode toolbar implements tool tips – if you're not sure of the function of a control, hold the mouse pointer over it for a couple of seconds.

From left to right, the toolbar functions are:

Synchronise, Properties, New Tune, New Playlist, New Virtual Tune, Cut, Copy, Paste, Delete, Up Level, Large Icons, Small Icons, List, Details, and About.

5. Operating the empeg car Player

The empeg car player is fast and intuitive to operate, using either the front panel controls or the infra red remote.
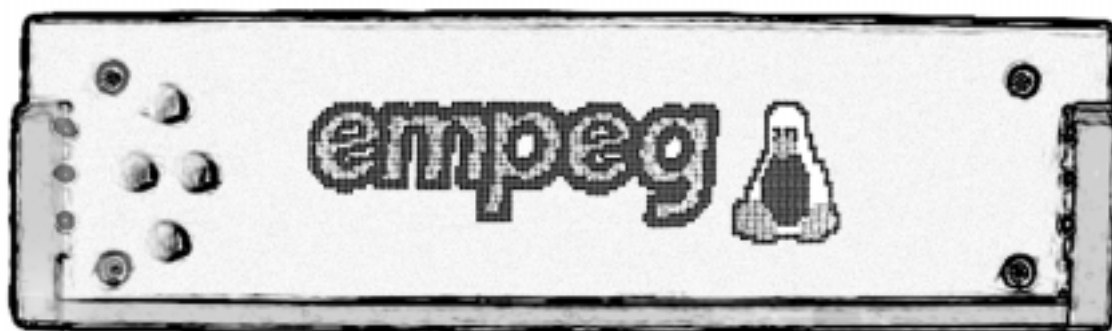
Front Panel Controls

Figure 6.1 empeg car player front panel

The front panel has four function control buttons. Each button provides different functions depending upon what the player is currently doing, and whether you press and release or press and hold.

The following table summarises the functionality of each button:

Player Mode	Top (short)	Top (hold)	Bottom (short)	Bottom (hold)	Left (short)	Left (hold)	Right (short)	Right (hold)
MP3	Play / Pause	Standby Mode	Menu		Previous Track	Volume Down	Next Track	Volume Up
Tuner	Mute / Unmute	Standby Mode	Menu		Previous Preset	Volume Down	Next Preset	Volume Up
Aux	Mute / Unmute	Standby Mode	Menu			Volume Down		Volume Up
Menu	Back	Back (repeating)	Select	Select (repeating)	Previous Item	Previous (repeating)	Next Item	Next (repeating)

When the player is in standby mode, pressing a button will restore it to its previous mode of operation.

Remote Control

The infra red remote control provides fast access to many of the player's popular functions. As for the front panel controls, the function of many of the buttons depends upon the mode of the player at the time.

Figure 6.2 Remote Control

Menu Button

This button reveals or hides the menu.

Skip Left & Skip Right Buttons

In MP3 mode these buttons skip to the previous or next track respectively. In tuner mode they skip to the previous or next preset, and in menu mode they move to the previous or next item.

Rew & FF Buttons

In MP3 mode these buttons skip backward or forward within the current track. In tuner mode they adjust the frequency.

Play/Pause Button

In MP3 mode this button switches between play and pause. In tuner and aux mode it operates the mute function.

Volume Up & Down Buttons

In MP3, tuner and aux modes these buttons adjust the volume level.

DNPP Button

In MP3 mode this button changes to the next visualisation. In menu mode it selects the highlighted item.

Input Select Buttons

These buttons select tuner, aux and MP3 modes respectively.

CD-MD Button

This button switches between track information displays.

Menu Functions

All empeg car player functions can be accessed from the menu system. Open the main menu by pressing the bottom panel button or the 'star' button on the remote control. Change the currently highlight menu function with the left and right buttons, or by using the 'track skip' buttons on the remote; when the required function (or sub-menu) is highlighted, select it by pressing the bottom button or the DNPP button on the remote.
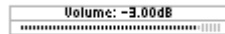
|	
al Shuffle **Power Off** Playlists U	Switches the player into standby mode
: Power Off **Playlists** Volume Lou	Selects a playlist of tracks
Off Playlists **Volume** Loudness Ba	Changes the volume setting

Volume: -3.00dB

Use the left & right buttons (or volume buttons) to raise or lower the volume.
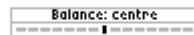0dB is full volume, overdrive should be avoided unless the track was recorded below peak levels.
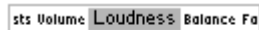
sts Volume **Loudness** Balance Fa	Changes the loudness setting

Loudness: 0.0dB (off)
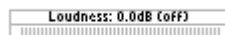
Use the left & right buttons to raise or lower the bass boost (0dB is flat)
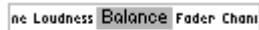
ne Loudness **Balance** Fader Chan	Changes the balance setting

Balance: centre

Use the left & right buttons to centre the audio between the left & right speakers
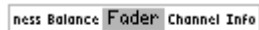
ness Balance **Fader** Channel Info	Changes the fader setting

Fader: centre
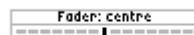
Use the left & right buttons to centre the audio between the front & rear speakers

lance Fader **Channel** Information	Changes the input channel

dio auxillary **empeg** radio auxilla

Select between empeg, radio and auxiliary
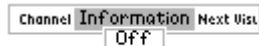
Channel **Information** Next Visu / Off	Switches the track/station information on or off
ormation **Next Visual** Previous	Selects the next visualisation
t Visual **Previous Visual** Shuffle	Selects the previous visualisation
:vious Visual **Shuffle** Power Off F / Off	Switches shuffle (random play) mode on or off
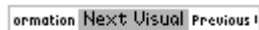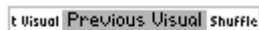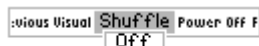
6. Upgrading the Player Software

The software in the empeg car player is fully upgradeable, via your PC connection. Upgrades will be posted regularly to our web site at the following URL:

http://www2.empeg.com/upgrades/

To install a car player upgrade, first download it from the web site. Be sure to read the release notes! You will be able to choose between the consumer and the developer image – unless you are developing software for the player you should choose the consumer image, as this has performance benefits.
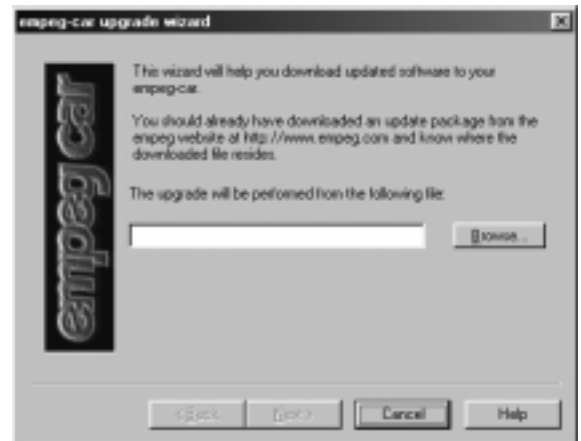
To upgrade the software the car player MUST be connected by RS232 Serial – the USB connection will be ignored. Ensure that the appropriate COM port is specified in the emplode options (although you can switch back to USB after doing so if you wish).

Switch off your car player and run the empeg Upgrade Tool from the Start Menu or from the emplode Tools menu.

Click Browse and select the upgrade file that you have downloaded, then click Next. Read the release notes and click next again. When the software says "Finding Unit" switch on your car player and the upgrade procedure will begin.

Upgrading takes a few minutes, during which you will be informed of the progress. Your music database, radio presets and other user settings will not be affected.

Once the upgrade process is complete, the player will reset and is ready for immediate use.